
FCC Test Report

Report No.: AGC00053160401FE03

FCC ID : UHBSX-991
APPLICATION PURPOSE : Original Equipment
PRODUCT DESIGNATION : Bluetooth headset
BRAND NAME : Suicen
MODEL NAME : SX-991
CLIENT : Shenzhen Shuaixian Electronic Equipment Co., Ltd.
DATE OF ISSUE : Apr.27,2016
STANDARD(S)
TEST PROCEDURE(S) : FCC Part 15 Rules
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	/	Apr.27, 2016	Valid	Original Report

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1. VERIFICATION OF CONFORMITY

Applicant	Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address	No.10 Lane 3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Manufacturer	Shenzhen Shuaixian Electronic Equipment Co., Ltd.
Address	No.10 Lane 3, Longxing Rd., Dakang Long Village, Henggang Town, Longgang Dist., Shenzhen, China
Product Designation	Bluetooth headset
Brand Name	Suicen
Test Model	SX-991
Date of test	Apr.21,2016 to Apr.25,2016
Deviation	None
Condition of Test Sample	Normal
Report Template	AGCRT-US-BR/RF

We hereby certify that:

The above equipment was tested by Dongguan Precise Testing Service Co., Ltd. The test data, the energy emitted by the sample tested as described in this report is in compliance with the requirements of FCC Rules Part 15.249.

Tested By Time Huang
Time Huang(Huang Nanhui) Apr.27, 2016

Reviewed By Forrest Lei
Forrest Lei(Lei Yonggang) Apr.27, 2016

Approved By Solger Zhang
Solger Zhang(Zhang Hongyi)
Authorized Officer Apr.27, 2016

2. GENERAL INFORMATION

2.1. PRODUCT DESCRIPTION

A major technical description of EUT is described as following

Operation Frequency	2.402 GHz to 2.480GHz
RF Output Power	1.08dBm(Max)
Bluetooth Version	V4.1
Modulation	GFSK ,π /4-DQPSK, 8DPSK
Number of channels	79 for BR/EDR, 40 for BLE
Hardware Version	SX-991-V2
Software Version	V1.0
Antenna Designation	PCB Antenna (Met 15.203 Antenna requirement)
Antenna Gain	0dBi
Power Supply	DC 3.7V
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
11	BT Link

Note:

1. All the test modes can be supply by battery, 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

The screenshot displays the BlueTest 3 software window. The 'Test Mode' list on the left includes PAUSE, RADIO STATUS, RADIO STATUS FULL, TXSTART, TXDATA1 (selected), TXDATA2, TXDATA3, TXDATA4, RXSTART1, RXSTART2, and RXDATA1. The 'Test Arguments' section shows 'LO Freq. (MHz)' set to 2480 and 'Power (Ext, Int)' set to 255 and 15. On the right, there are buttons for 'Close', 'Execute', 'Cold Reset', and 'Warm Reset'. The 'Test Results' section has a 'Save to file' checkbox, a 'Browse for file' button, and a 'Display' section with 'Standard' selected. Below this is a text field containing '\logfile.txt'. The bottom pane shows a log of test results, including 'Chip warm reset : success', 'BLE radio test TX successful', 'BLE radio test TX failed', 'Sent Command Varid 5004, parameters: 0004 0980 FF0F 0000 0000 0000', and 'Radio Test TXDATA1 successful'.

BlueTest 3

Test Mode

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

Test Arguments

LO Freq. (MHz) 2480

Power (Ext, Int) 255 15

Close

Execute

Cold Reset

Warm Reset

Test Results

☐ Save to file Display : ☒ Standard ☐ Bit Error

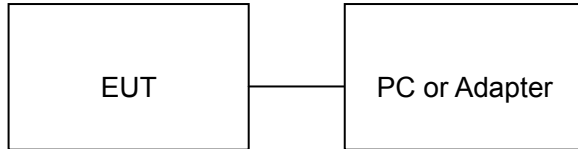
\logfile.txt

Chip warm reset : success
BLE radio test TX successful
BLE radio test TX successful
BLE radio test TX failed
BLE radio test TX failed
Chip warm reset : failed
BLE radio test TX failed
Chip warm reset : success
BLE radio test TX successful
BLE radio test TX successful
BLE radio test TX failed
Chip warm reset : failed
Chip warm reset : success
BLE radio test TX successful
BLE radio test TX successful
BLE radio test TX successful
Sent Command Varid 5004, parameters: 0004 0980 FF0F 0000 0000 0000
Radio Test TXDATA1 failed
Chip warm reset : failed
Chip warm reset : success
Sent Command Varid 5004, parameters: 0004 0980 FF0F 0000 0000 0000
Radio Test TXDATA1 successful

5. SYSTEM TEST CONFIGURATION

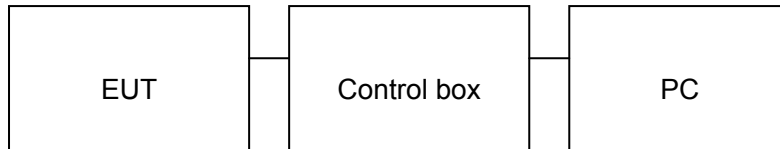
5.1. CONFIGURATION OF EUT SYSTEM

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 Speaker	SX-991	FCC ID:UHBSX-991	EUT
2	PC	E1412AYCW	Sony	A.E
3	Control box	N/A	N/A	A.E
4	Adapter	ETPCA-050100U3W	N/A	A.E
5	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
§15.215	BANDWIDTH	Compliant

6. TEST FACILITY

Site	Dongguan Precise Testing Service Co., Ltd.
Location	Building D,Baoding Technology Park,Guangming Road2,Dongcheng District, Dongguan, Guangdong, China,
FCC Registration No.	371540
Description	The test site is constructed and calibrated to meet the FCC requirements in documents ANSI C63.10:2013.

TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.10-2013

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	
		μ V/m	dB(μ 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(μ V)/m (Peak) 54.0 dB(μ V)/m (Average)	

Remark: (1) Emission level dB μ V = 20 log Emission level μ 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. The measuring distance of 3m shall be used for measurements. The EUT was placed on the top of a rotating table 0.8 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(below 1GHz)
2. The measuring distance of 3m shall used for measurements. The EUT was placed on the top of a rotating table 1.5 meter above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation(above 1GHz)

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.

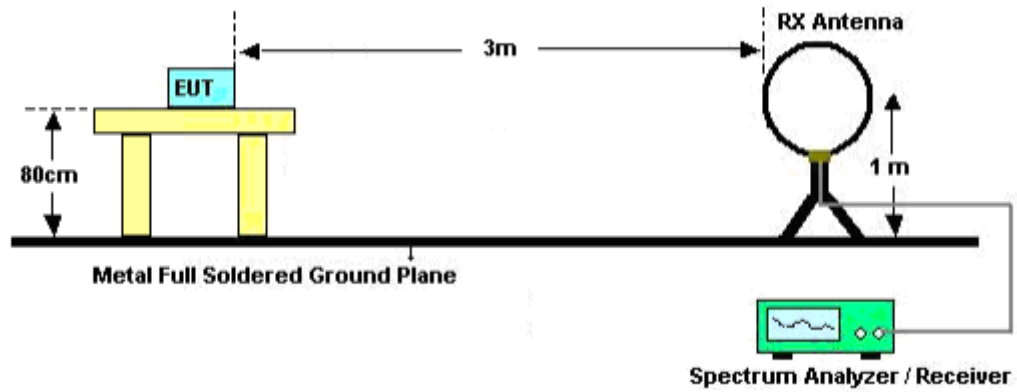
3. The height of the test antenna shall vary between 1m to 4m.Both horizontal and vertical polarization Of the antenna are set to make the measurement.
4. The initial step in collecting radiated emission data is a receive peak detector mode. Pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured.
5. All readings are peak unless otherwise stated QP in column of Note. Peak denoted that the Peak reading compliance with the QP limits and then QP Mode measurement didn't perform(Below 1GHz)
6. All readings are Peak mode value unless otherwise stated AVG in column of Note. If the Peak mode measured value compliance with the Peak limits and lower than AVG Limits, the EUT shall be deemed to meet Peak&AVG limits and then only Peak mode was measured, but AVG mode didn't perform.(above 1GHz)

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

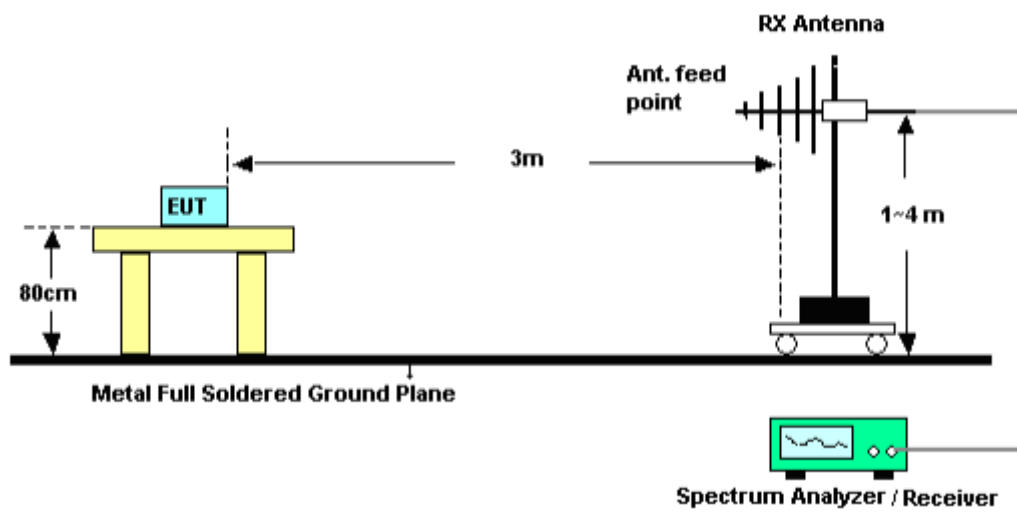
Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz 1MHz/3MHz for Peak, 1MHz/10Hz for Average
Receiver Parameter	Setting
Start ~Stop Frequency	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

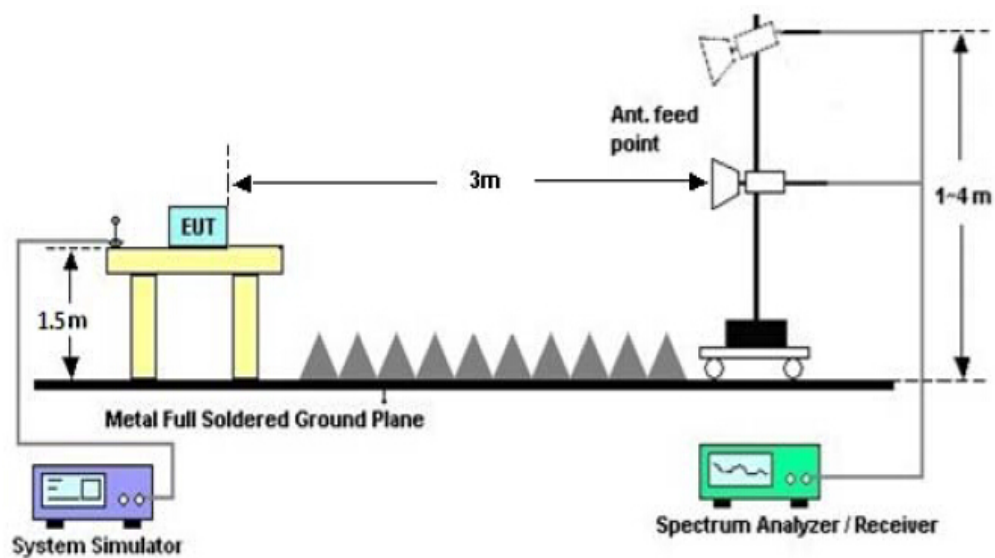
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz



RADIATED EMISSION TEST SETUP ABOVE 1000MHz



8.4. TEST RESULT

(Worst modulation:GFSK)

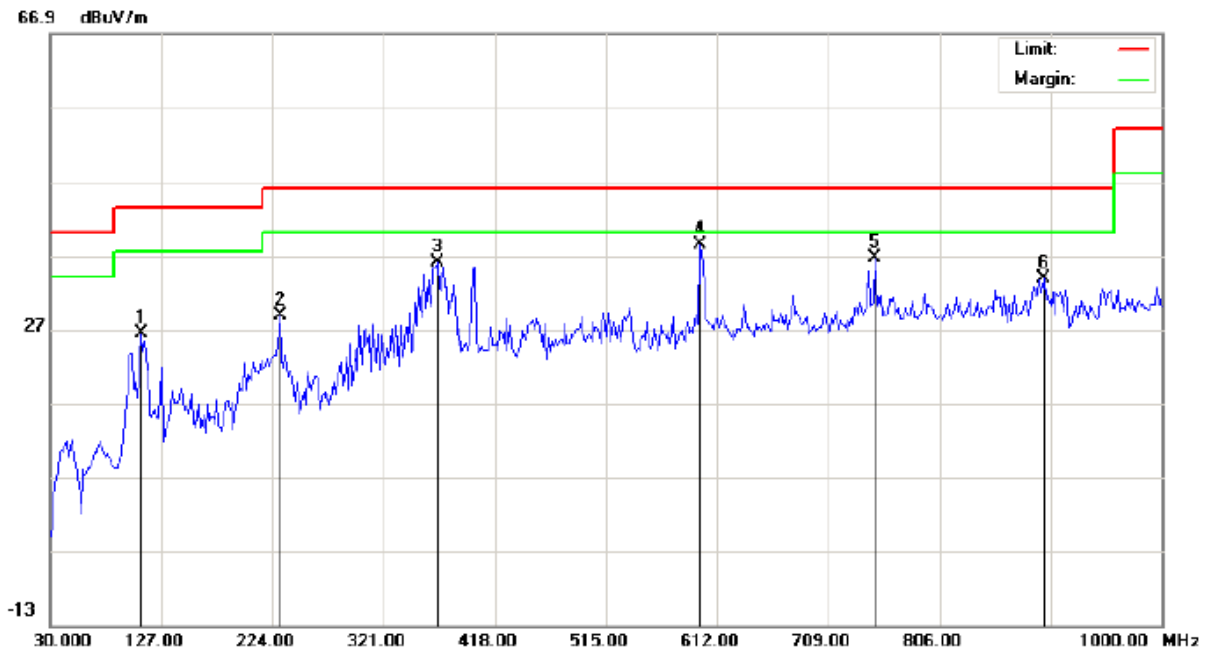
FOR BR/EDR

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 Headset

M/N: SX-991

Mode: Low Channel TX

Note:

Polarization: **Horizontal**

Power:

Distance:

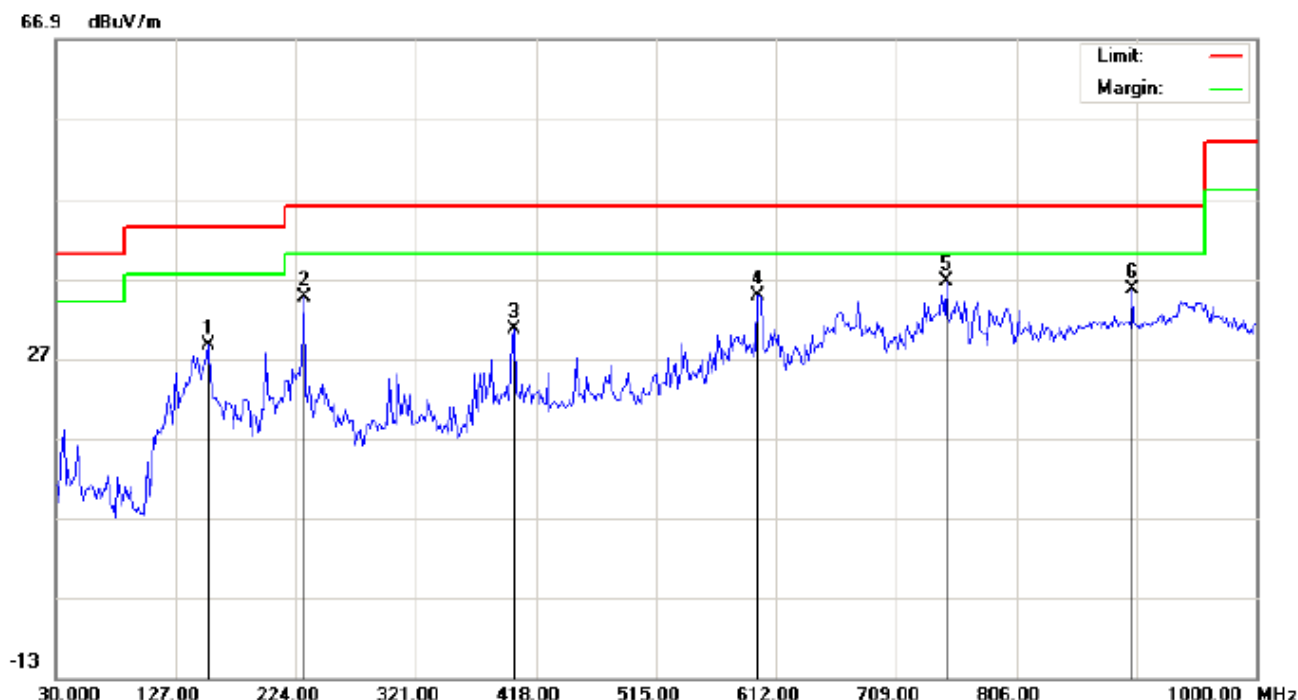
Temperature: 23.4

Humidity: 56.4 %

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		109.2167	18.14	8.35	26.49	43.50	-17.01	peak			
2		230.4667	19.95	8.89	28.84	46.00	-17.16	peak			
3		367.8833	17.23	18.86	36.09	46.00	-9.91	peak			
4	*	597.4500	14.82	23.67	38.49	46.00	-7.51	peak			
5		749.4167	9.92	26.61	36.53	46.00	-9.47	peak			
6		896.5333	5.26	28.52	33.78	46.00	-12.22	peak			

RESULT: PASS

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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT:Bluetooth Headset
M/N: SX-991
Mode: Low Channel TX
Note:

Polarization: **Vertical**
Power:
Distance:

Temperature: 23.4
Humidity: 56.4 %

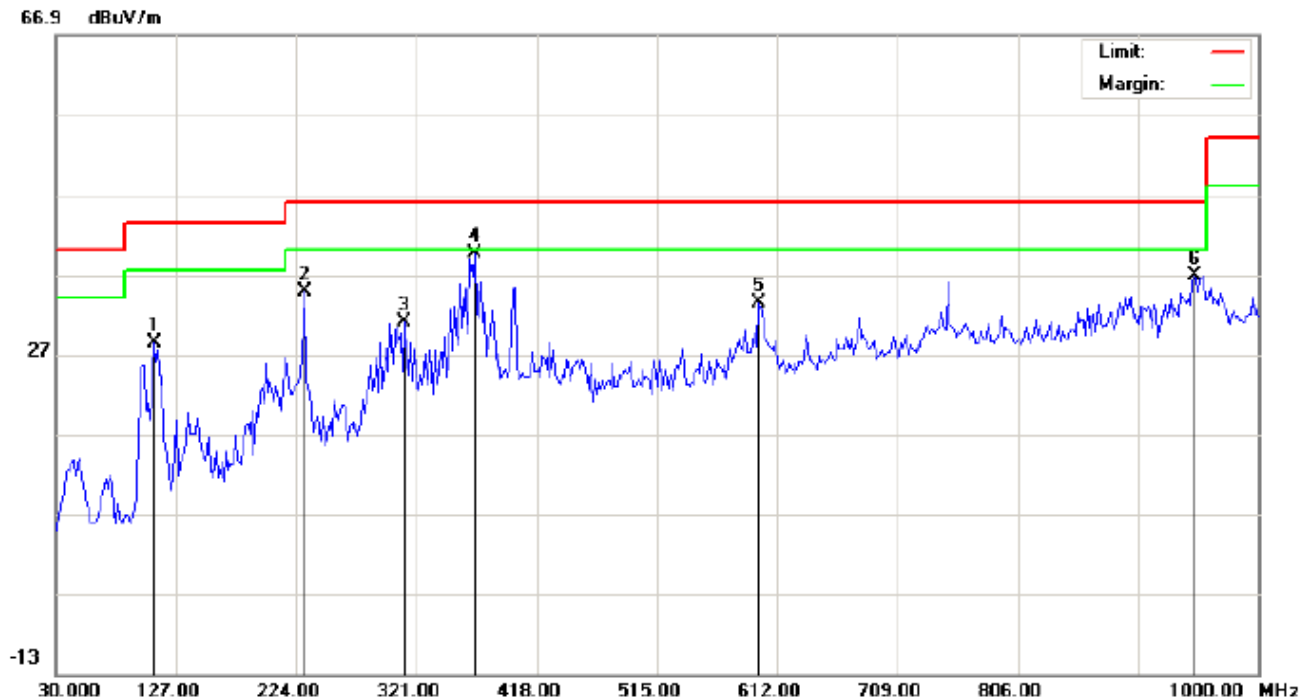
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		152.8667	13.39	15.28	28.67	43.50	-14.83	peak			
2		230.4667	22.52	11.99	34.51	46.00	-11.49	peak			
3		400.2167	11.54	19.08	30.62	46.00	-15.38	peak			
4		597.4500	12.06	22.72	34.78	46.00	-11.22	peak			
5	*	749.4167	9.92	26.61	36.53	46.00	-9.47	peak			
6		899.7667	7.03	28.60	35.63	46.00	-10.37	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

Polarization: *Horizontal*

Temperature: 23.4

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.4 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

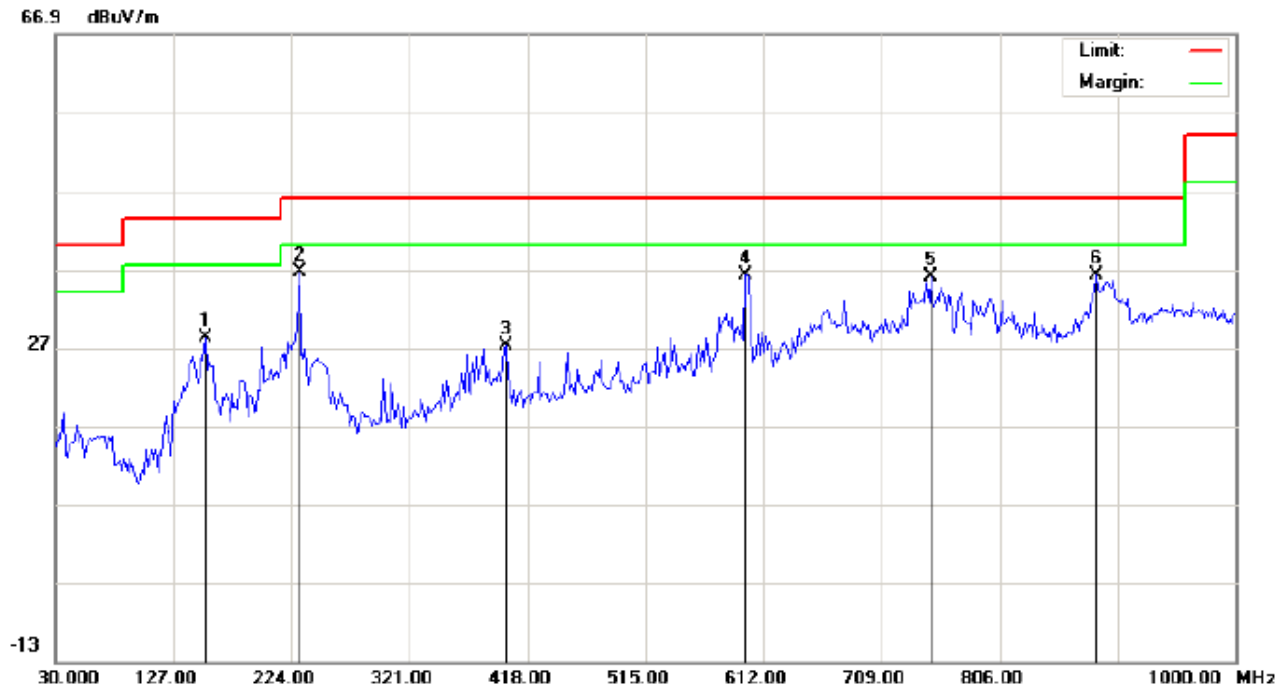
Mode: Middle Channel TX

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		109.2167	20.14	8.35	28.49	43.50	-15.01	peak			
2		230.4667	25.95	8.89	34.84	46.00	-11.16	peak			
3		311.3000	14.85	16.16	31.01	46.00	-14.99	peak			
4	*	367.8833	20.73	18.86	39.59	46.00	-6.41	peak			
5		597.4500	9.82	23.67	33.49	46.00	-12.51	peak			
6		948.2667	6.93	29.95	36.88	46.00	-9.12	peak			

RESULT: PASS

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



Site: site #1

Polarization: *Vertical*

Temperature: 23.4

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.4 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

Mode: Middle Channel TX

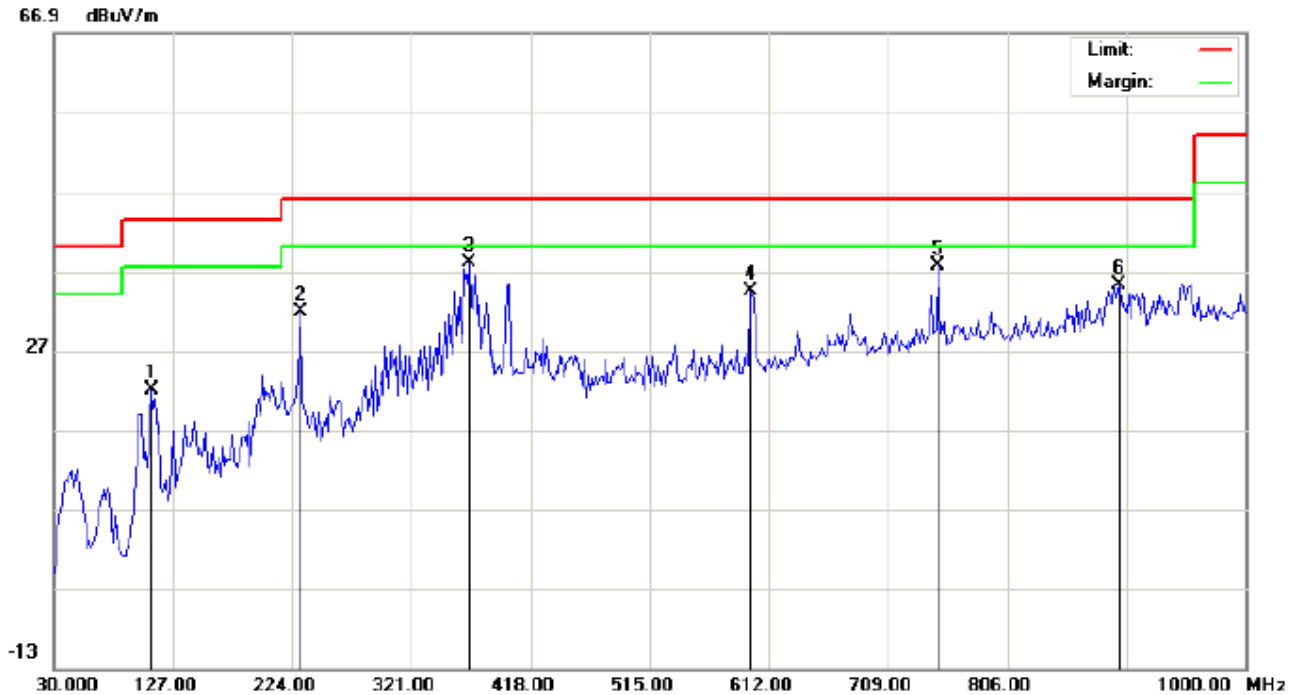
Note:

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		152.8667	12.89	15.28	28.17	43.50	-15.33	peak			
2	*	230.4667	24.52	11.99	36.51	46.00	-9.49	peak			
3		400.2167	8.04	19.08	27.12	46.00	-18.88	peak			
4		597.4500	13.56	22.72	36.28	46.00	-9.72	peak			
5		749.4167	9.42	26.61	36.03	46.00	-9.97	peak			
6		885.2167	8.03	28.23	36.26	46.00	-9.74	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: 23.4

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.4 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

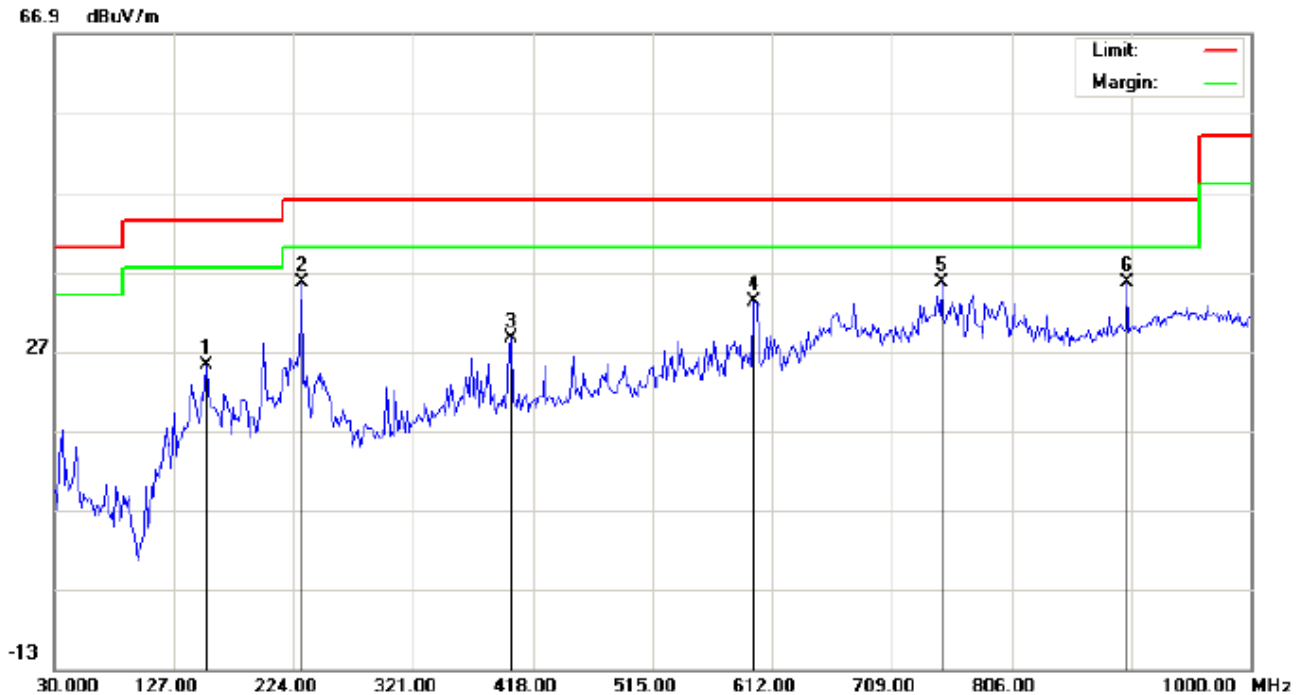
Mode: High Channel TX

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		109.2167	13.64	8.35	21.99	43.50	-21.51	peak			
2		230.4667	22.95	8.89	31.84	46.00	-14.16	peak			
3	*	367.8833	19.23	18.86	38.09	46.00	-7.91	peak			
4		597.4500	10.82	23.67	34.49	46.00	-11.51	peak			
5		749.4167	10.92	26.61	37.53	46.00	-8.47	peak			
6		896.5333	6.76	28.52	35.28	46.00	-10.72	peak			

RESULT: PASS

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



Site: site #1

Polarization: *Vertical*

Temperature: 23.4

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.4 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

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		152.8667	9.89	15.28	25.17	43.50	-18.33	peak			
2		230.4667	23.52	11.99	35.51	46.00	-10.49	peak			
3		400.2167	9.54	19.08	28.62	46.00	-17.38	peak			
4		597.4500	10.56	22.72	33.28	46.00	-12.72	peak			
5		749.4167	8.92	26.61	35.53	46.00	-10.47	peak			
6	*	899.7667	7.03	28.60	35.63	46.00	-10.37	peak			

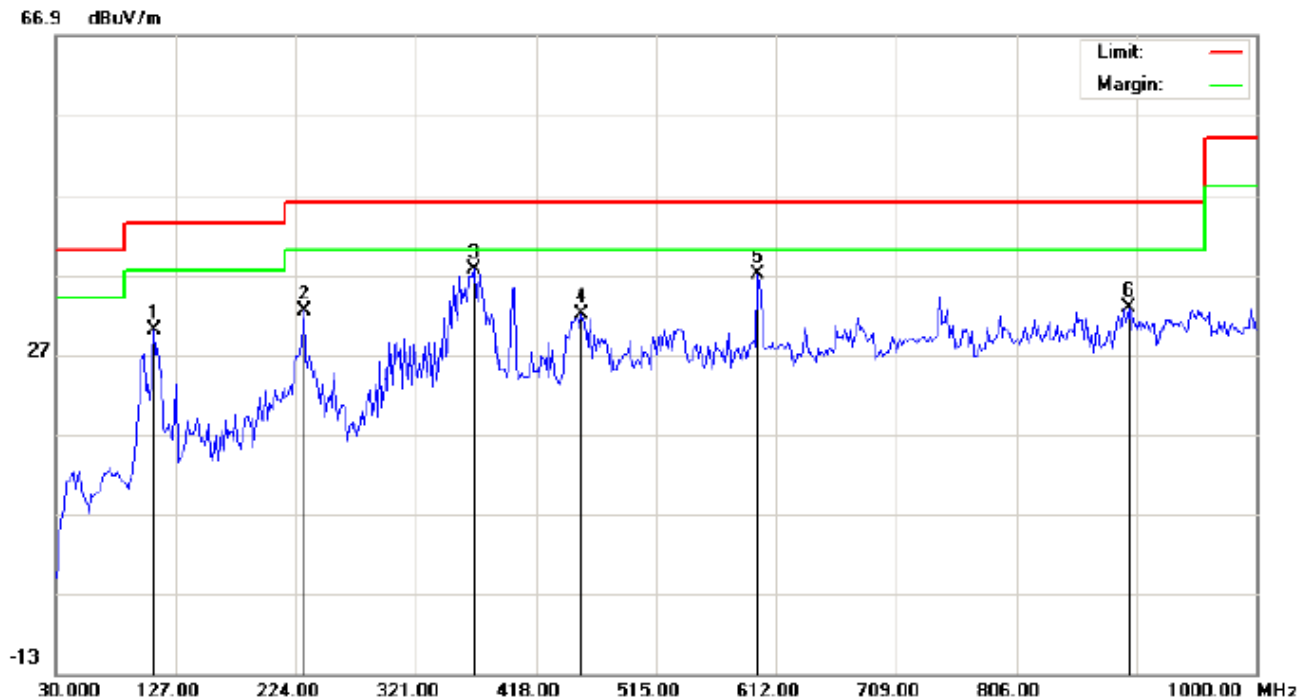
RESULT: PASS**Note:** 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

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 Headset
 M/N: SX-991
 Mode: Low Channel TX
 Note:

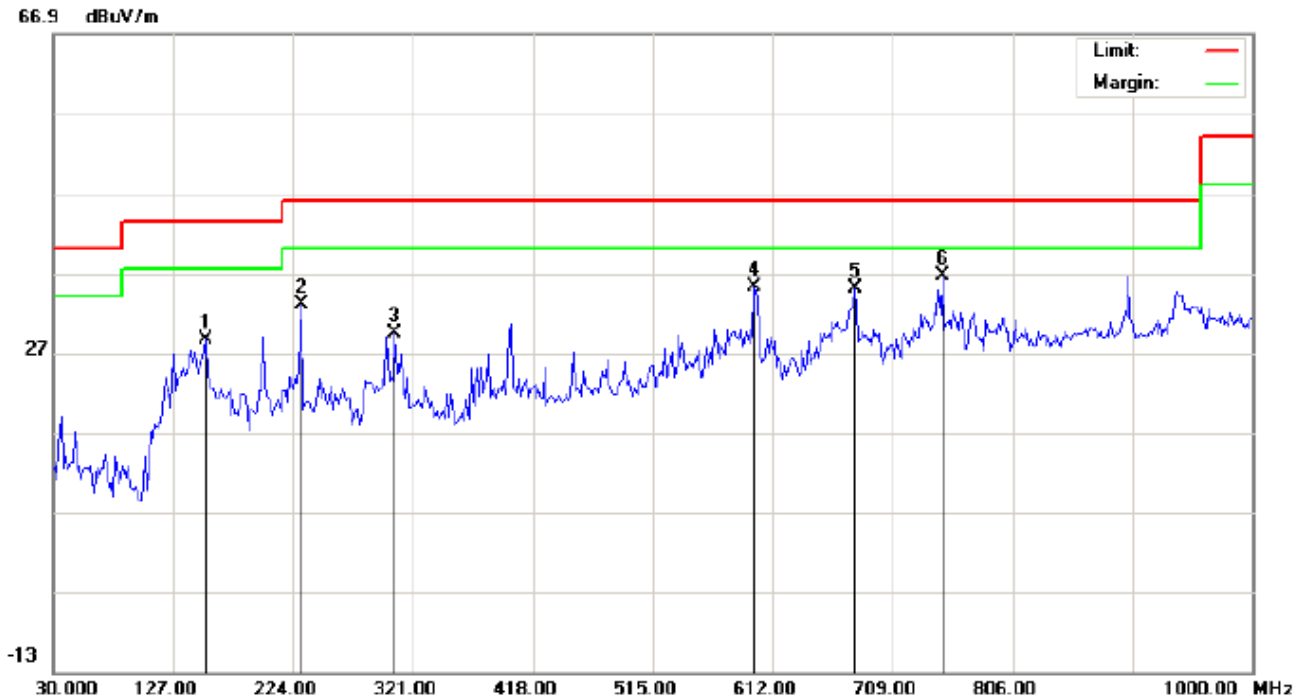
Polarization: *Horizontal*
 Power:
 Distance:

Temperature: 23.4
 Humidity: 56.4 %

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		109.2167	21.64	8.35	29.99	43.50	-13.51	peak			
2		230.4667	23.45	8.89	32.34	46.00	-13.66	peak			
3	*	367.8833	18.73	18.86	37.59	46.00	-8.41	peak			
4		455.1833	11.27	20.65	31.92	46.00	-14.08	peak			
5		597.4500	13.32	23.67	36.99	46.00	-9.01	peak			
6		896.5333	4.26	28.52	32.78	46.00	-13.22	peak			

RESULT: PASS

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



Site: site #1

Polarization: **Vertical**

Temperature: 23.4

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.4 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

Mode: Low Channel TX

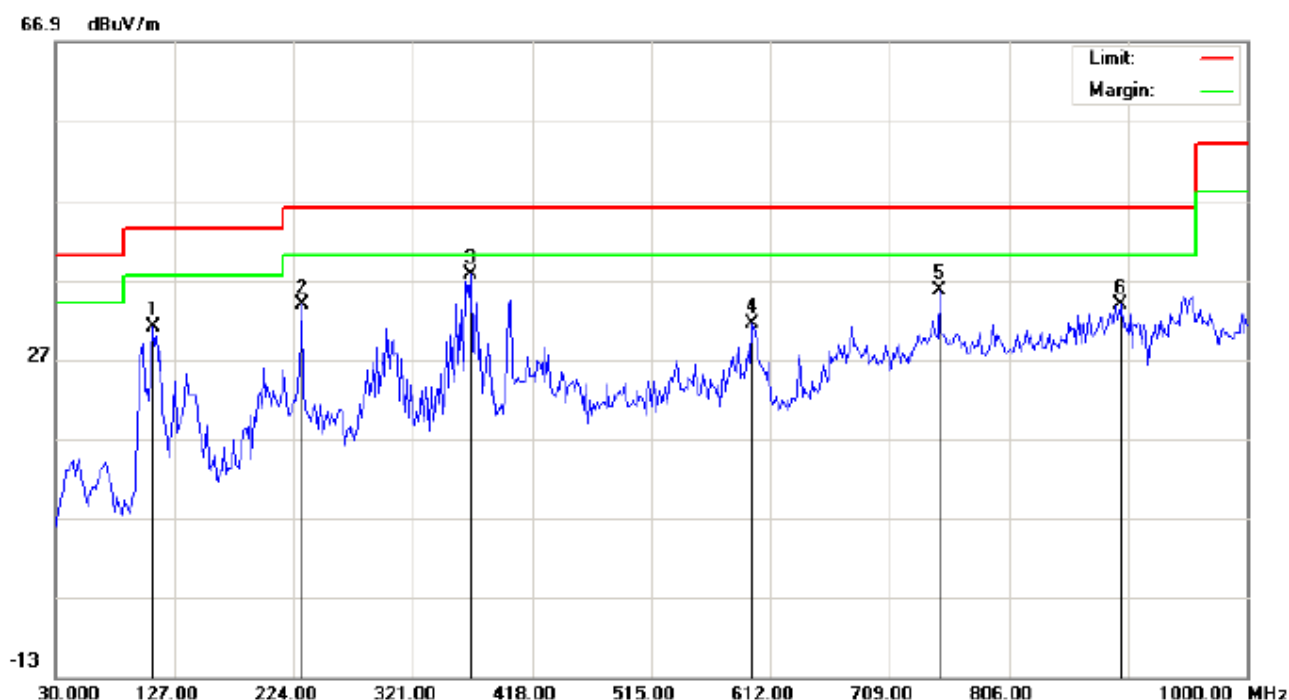
Note:

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		152.8667	13.39	15.28	28.67	43.50	-14.83	peak			
2		230.4667	21.02	11.99	33.01	46.00	-12.99	peak			
3		306.4500	13.61	15.84	29.45	46.00	-16.55	peak			
4		597.4500	12.56	22.72	35.28	46.00	-10.72	peak			
5		678.2833	10.39	24.61	35.00	46.00	-11.00	peak			
6	*	749.4167	9.92	26.61	36.53	46.00	-9.47	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 Headset
M/N: SX-991
Mode: Middle Channel TX
Note:

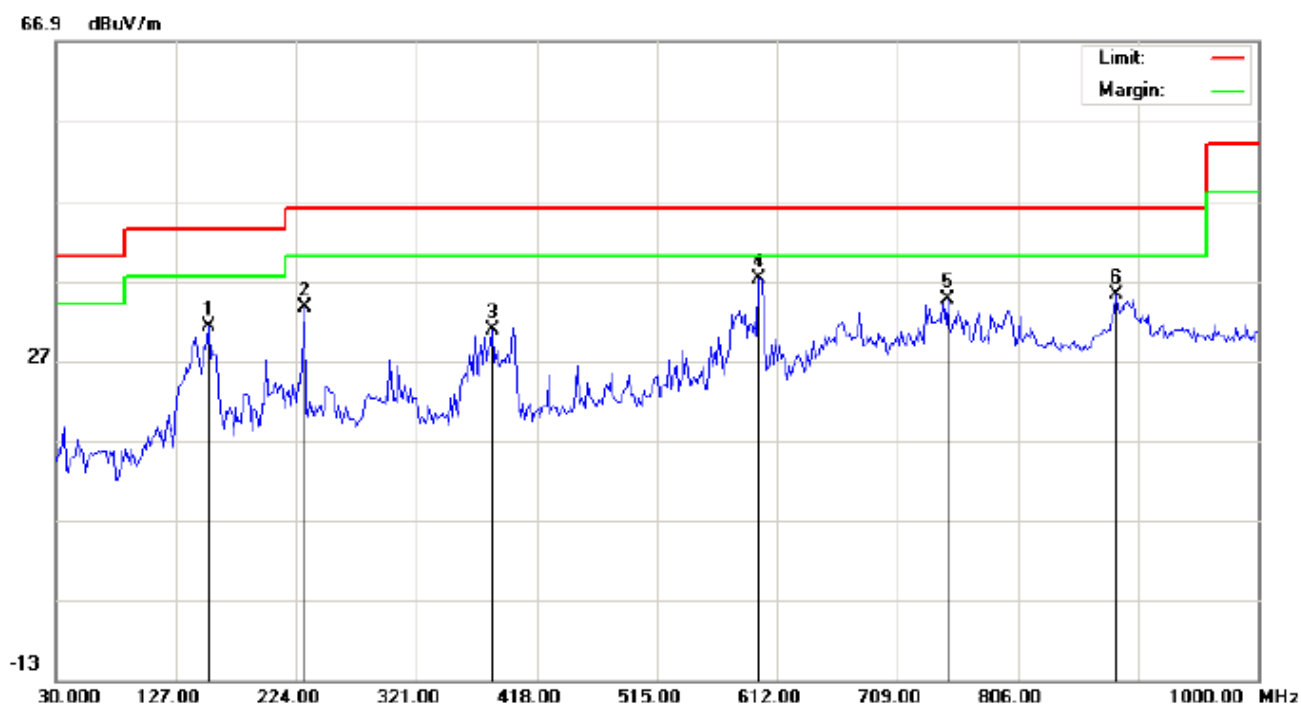
Polarization: *Horizontal*
Power:
Distance:

Temperature: 23.4
Humidity: 56.4 %

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		109.2167	22.64	8.35	30.99	43.50	-12.51	peak			
2		230.4667	24.95	8.89	33.84	46.00	-12.16	peak			
3	*	367.8833	18.73	18.86	37.59	46.00	-8.41	peak			
4		597.4500	7.82	23.67	31.49	46.00	-14.51	peak			
5		749.4167	8.92	26.61	35.53	46.00	-10.47	peak			
6		896.5333	5.26	28.52	33.78	46.00	-12.22	peak			

RESULT: PASS

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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT:Bluetooth Headset
M/N: SX-991
Mode: Middle Channel TX
Note:

Polarization: **Vertical**
Power:
Distance:

Temperature: 23.4
Humidity: 56.4 %

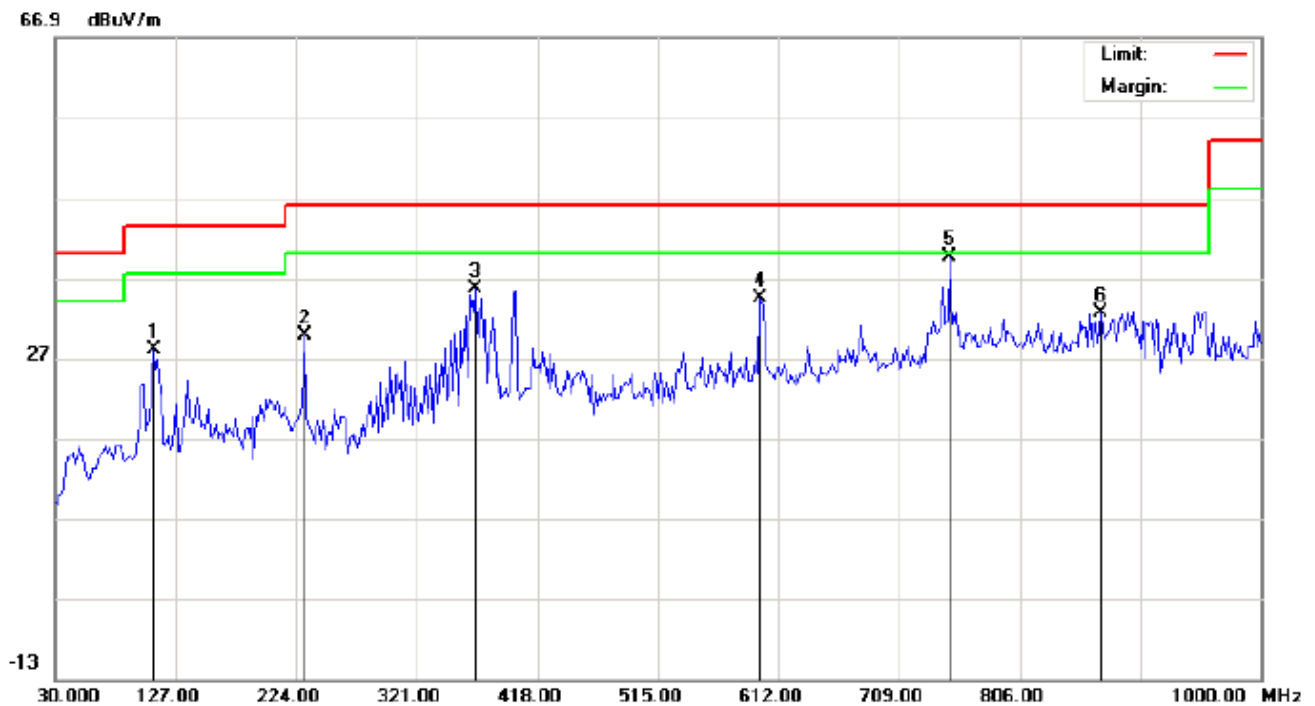
No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		152.8667	15.89	15.28	31.17	43.50	-12.33	peak			
2		230.4667	21.52	11.99	33.51	46.00	-12.49	peak			
3		382.4332	11.87	18.95	30.82	46.00	-15.18	peak			
4	*	597.4500	14.56	22.72	37.28	46.00	-8.72	peak			
5		749.4167	7.92	26.61	34.53	46.00	-11.47	peak			
6		885.2167	7.03	28.23	35.26	46.00	-10.74	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: 23.4

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.4 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

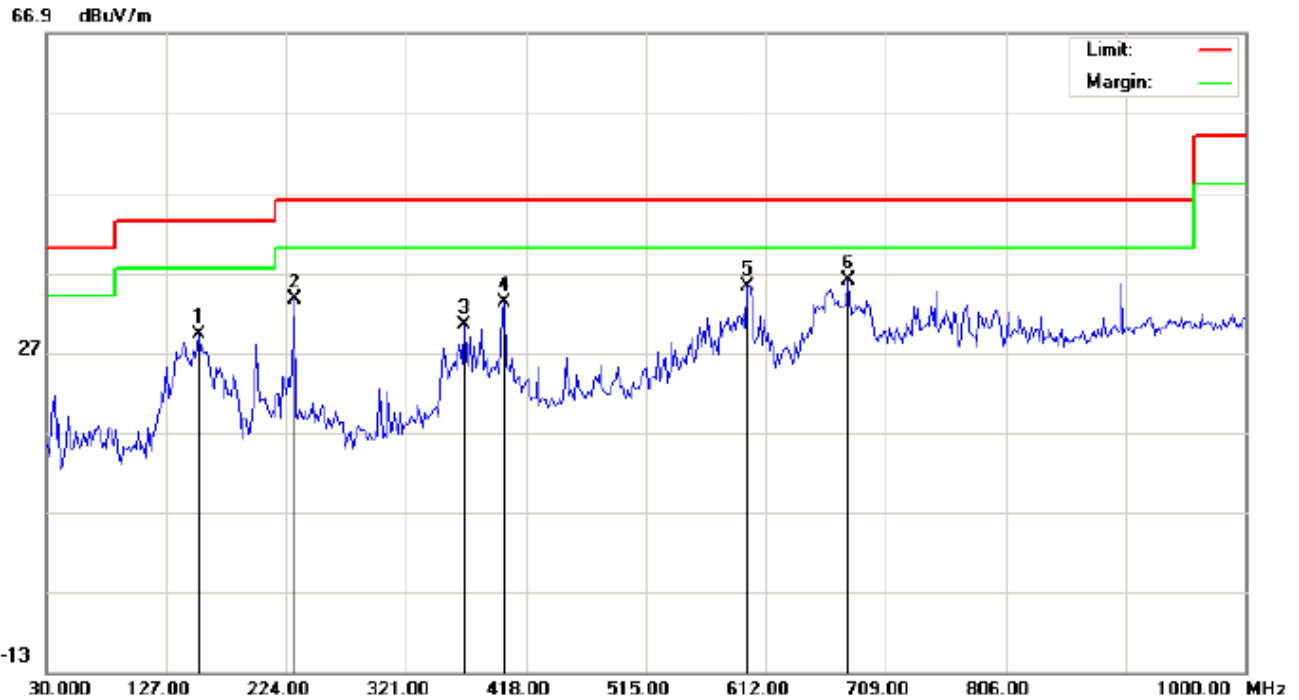
Mode: High Channel TX

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		109.2167	19.64	8.35	27.99	43.50	-15.51	peak			
2		230.4667	20.95	8.89	29.84	46.00	-16.16	peak			
3		367.8833	16.73	18.86	35.59	46.00	-10.41	peak			
4		597.4500	10.82	23.67	34.49	46.00	-11.51	peak			
5	*	749.4167	12.92	26.61	39.53	46.00	-6.47	peak			
6		870.6667	4.81	27.85	32.66	46.00	-13.34	peak			

RESULT: PASS

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



Site: site #1

Polarization: *Vertical*

Temperature: 23.4

Limit: FCC Class B 3M Radiation

Power:

Humidity: 56.4 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

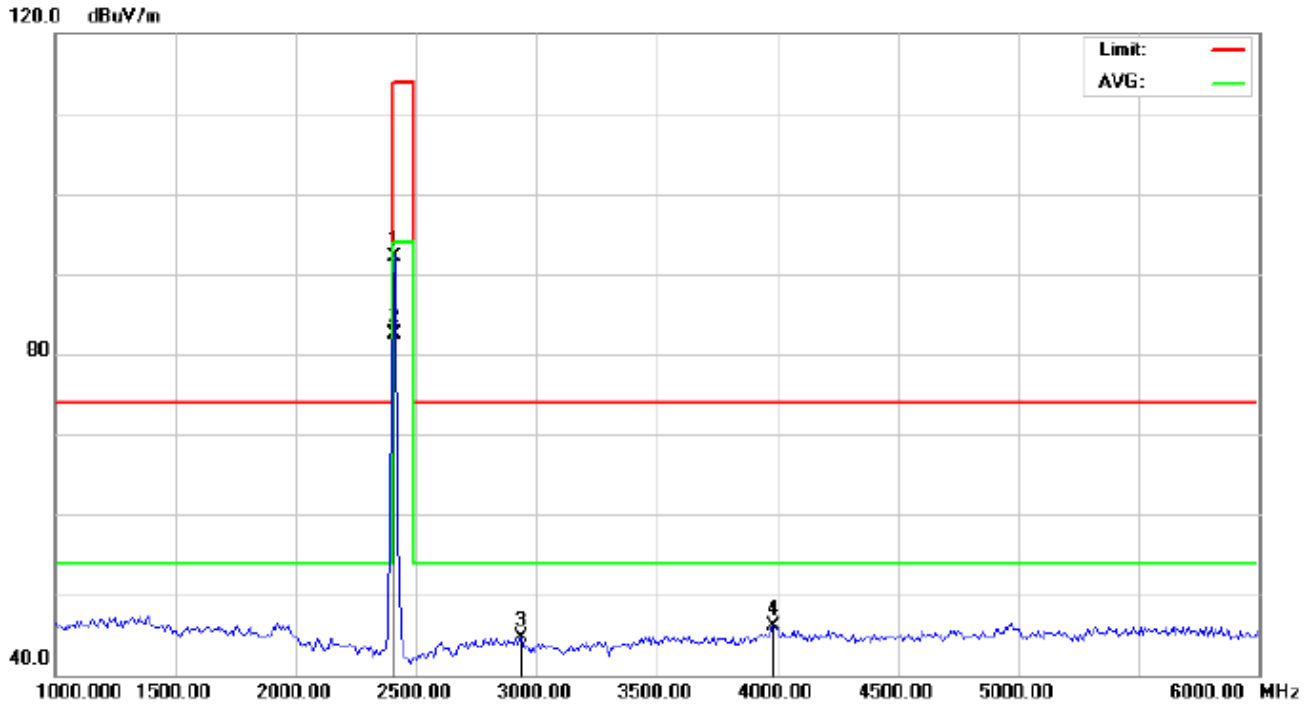
Mode: High Channel TX

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		152.8667	13.89	15.28	29.17	43.50	-14.33	peak			
2		230.4667	21.52	11.99	33.51	46.00	-12.49	peak			
3		367.8833	11.63	18.86	30.49	46.00	-15.51	peak			
4		400.2167	14.04	19.08	33.12	46.00	-12.88	peak			
5		597.4500	12.56	22.72	35.28	46.00	-10.72	peak			
6	*	678.2833	11.39	24.61	36.00	46.00	-10.00	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**(Worst modulation: GFSK)****FOR BR/EDR****RADIATED EMISSION TEST- (ABOVE 1GHZ)-LOW CHANNEL-HORIZONTAL**

Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance: 3m

M/N: SX-991

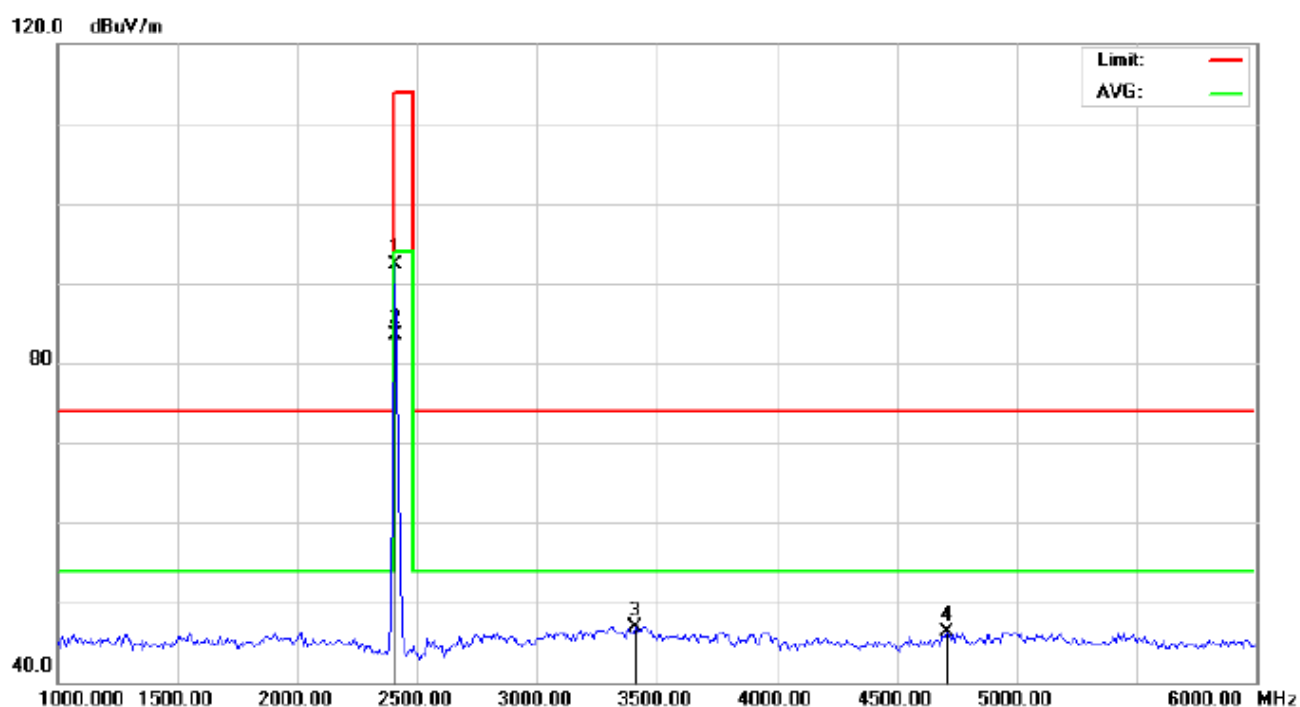
Mode: Low Channel TX

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	101.73	-9.68	92.05	114.00	-21.95	peak			
2	*	2402.000	92.22	-9.68	82.54	94.00	-11.46	AVG	100	231	
3		2933.333	53.16	-8.52	44.64	74.00	-29.36	peak			
4		3983.333	50.99	-4.91	46.08	74.00	-27.92	peak			

RESULT: PASS

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



Site: Conduction

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT: Bluetooth Headset

Distance: 3m

M/N: SX-991

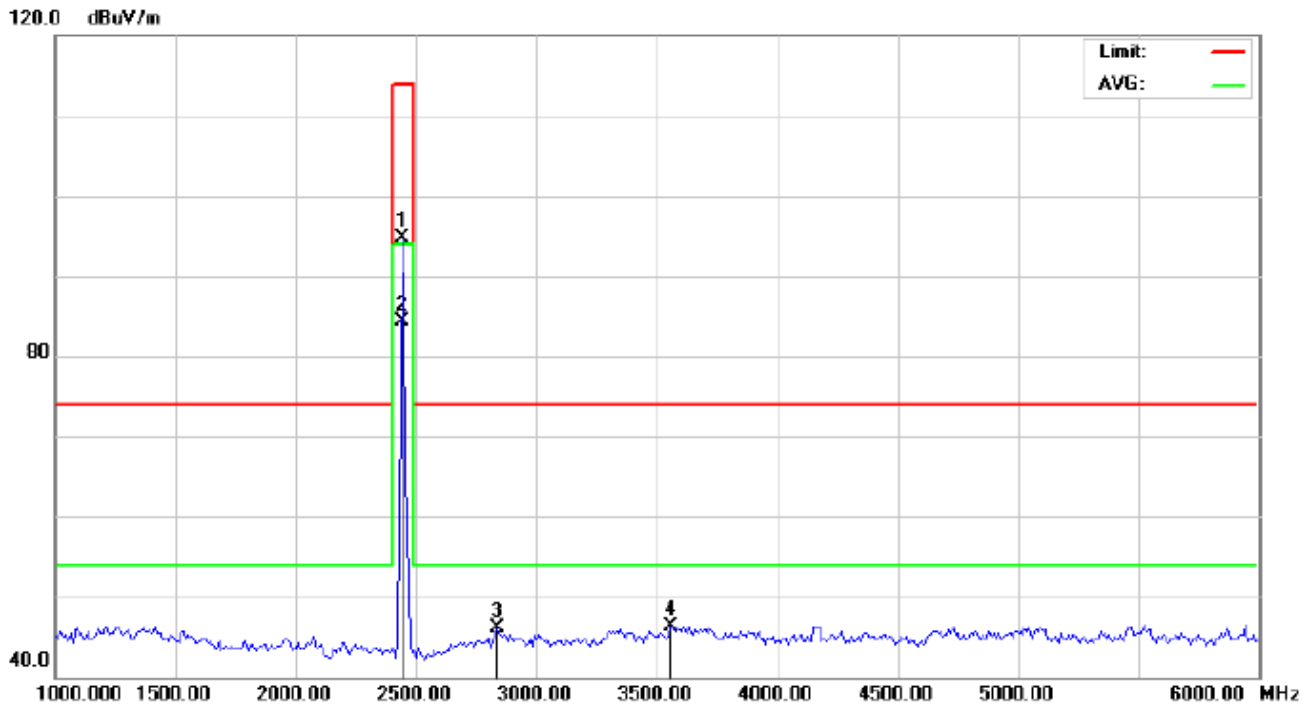
Mode: Low Channel TX

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	101.92	-9.68	92.24	114.00	-21.76	peak			
2	*	2402.000	93.27	-9.68	83.59	94.00	-10.41	AVG	150	232	
3		3408.333	54.88	-7.98	46.90	74.00	-27.10	peak			
4		4708.333	48.82	-2.56	46.26	74.00	-27.74	peak			

RESULT: PASS

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



Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT: Bluetooth Headset

Distance: 3m

M/N: SX-991

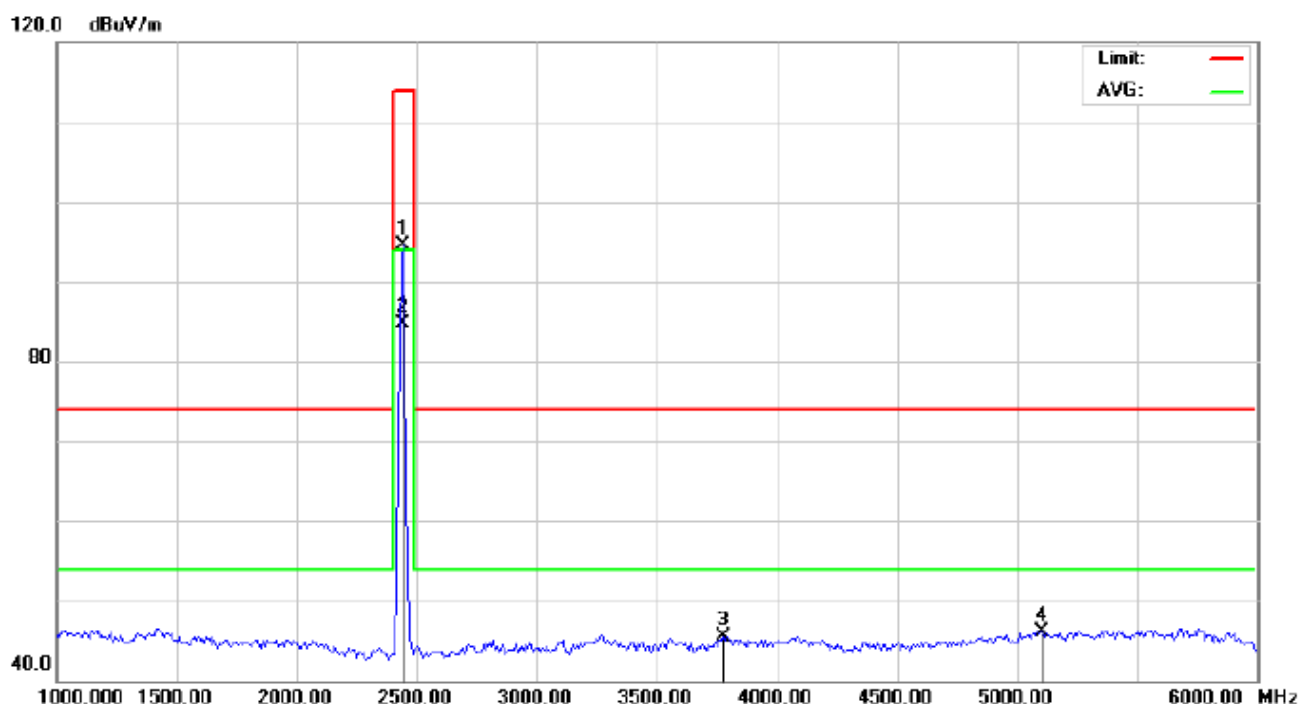
Mode: Middle Channel TX

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	104.29	-9.63	94.66	114.00	-19.34	peak			
2	*	2441.000	93.84	-9.63	84.21	94.00	-9.79	AVG	100	92	
3		2833.333	54.84	-8.76	46.08	74.00	-27.92	peak			
4		3558.333	53.89	-7.53	46.36	74.00	-27.64	peak			

RESULT: PASS

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



Site: Conduction

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT: Bluetooth Headset

Distance: 3m

M/N: SX-991

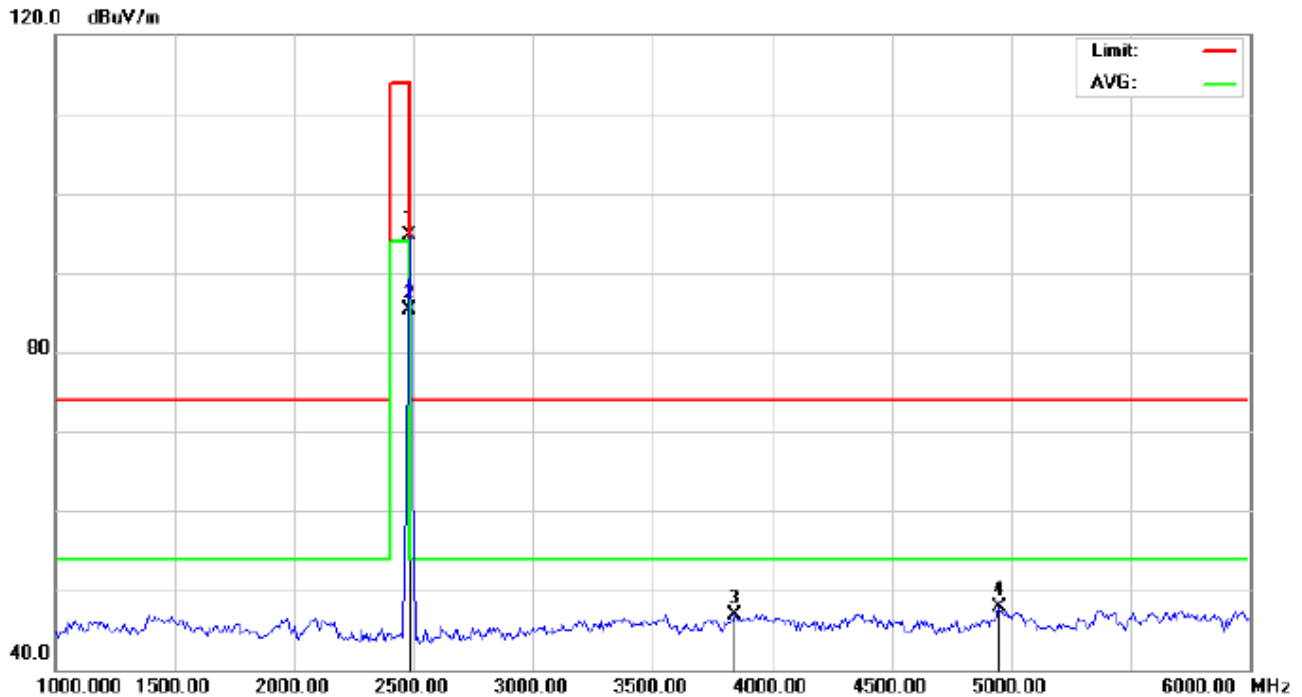
Mode: Middle Channel TX

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	104.23	-9.63	94.60	114.00	-19.40	peak			
2	*	2441.000	94.29	-9.63	84.66	94.00	-9.34	AVG	100	132	
3		3775.000	51.72	-6.20	45.52	74.00	-28.48	peak			
4		5100.000	47.88	-1.80	46.08	74.00	-27.92	peak			

RESULT: PASS

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



Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance: 3m

M/N: SX-991

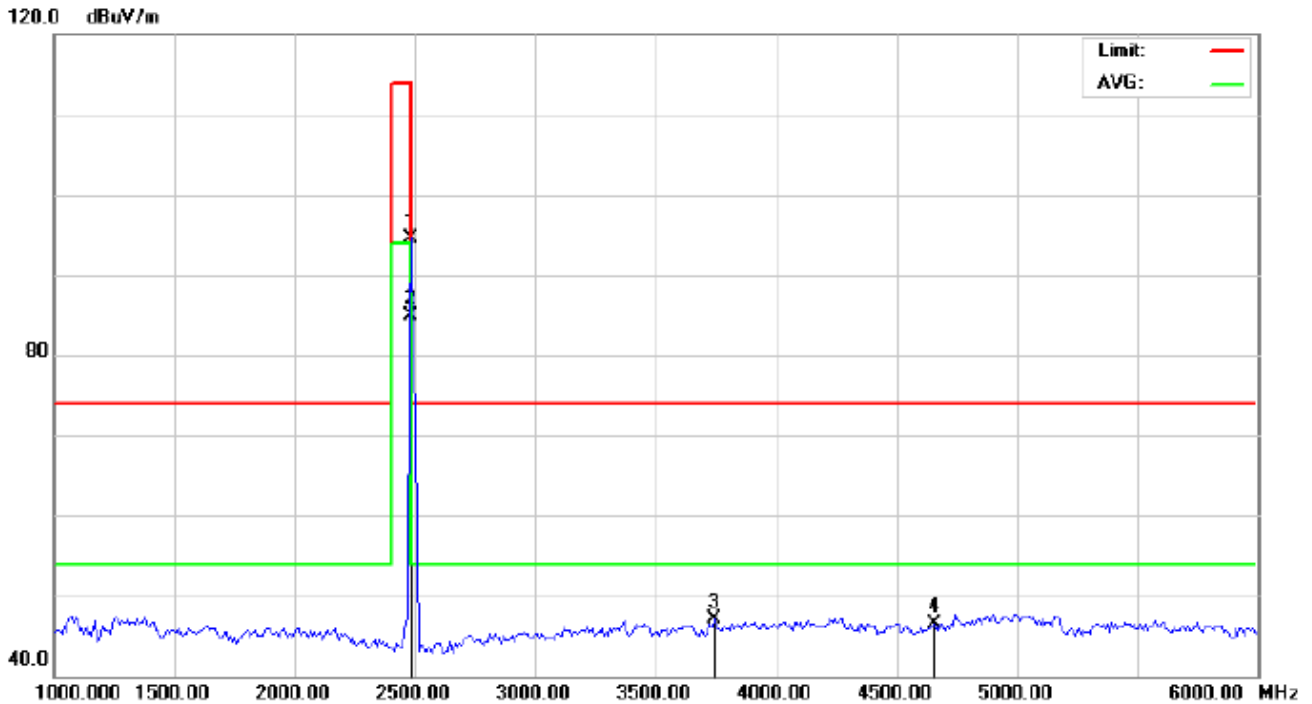
Mode: High Channel TX

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	104.37	-9.59	94.78	114.00	-19.22	peak			
2	*	2480.000	94.91	-9.59	85.32	94.00	-8.68	AVG	150	211	
3		3841.667	52.74	-5.79	46.95	74.00	-27.05	peak			
4		4950.000	49.88	-1.93	47.95	74.00	-26.05	peak			

RESULT: PASS

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



Site: Conduction

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance: 3m

M/N: SX-991

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	104.16	-9.59	94.57	114.00	-19.43	peak			
2	*	2480.000	94.46	-9.59	84.87	94.00	-9.13	AVG	100	314	
3		3741.667	53.48	-6.40	47.08	74.00	-26.92	peak			
4		4658.333	49.29	-2.70	46.59	74.00	-27.41	peak			

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

1Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	101.73	-9.68	92.05	114	-21.95	Horizontal
2402	101.92	-9.68	92.24	114	-21.76	Vertical
2441	104.29	-9.63	94.66	114	-19.34	Horizontal
2441	104.23	-9.63	94.60	114	-19.40	Vertical
2480	104.37	-9.59	94.78	114	-19.22	Horizontal
2480	104.16	-9.59	94.57	114	-19.43	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	92.22	-9.68	82.54	94	-11.46	Horizontal
2402	93.27	-9.68	83.59	94	-10.41	Vertical
2441	93.84	-9.63	84.21	94	-9.79	Horizontal
2441	94.29	-9.63	84.66	94	-9.34	Vertical
2480	94.91	-9.59	85.32	94	-8.68	Horizontal
2480	94.46	-9.59	84.87	94	-9.13	Vertical

2Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	101.24	-9.68	91.56	114	-22.44	Horizontal
2402	101.15	-9.68	91.47	114	-22.53	Vertical
2441	103.57	-9.63	93.94	114	-20.06	Horizontal
2441	103.52	-9.63	93.89	114	-20.11	Vertical
2480	103.46	-9.59	93.87	114	-20.13	Horizontal
2480	103.36	-9.59	93.77	114	-20.23	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	94.20	-9.68	84.52	94	-9.48	Horizontal
2402	92.83	-9.68	83.15	94	-10.85	Vertical
2441	94.83	-9.63	85.20	94	-8.80	Horizontal
2441	93.75	-9.63	84.12	94	-9.88	Vertical
2480	93.64	-9.59	84.05	94	-9.95	Horizontal
2480	93.94	-9.59	84.35	94	-9.65	Vertical

3Mbps Result:

Peak value

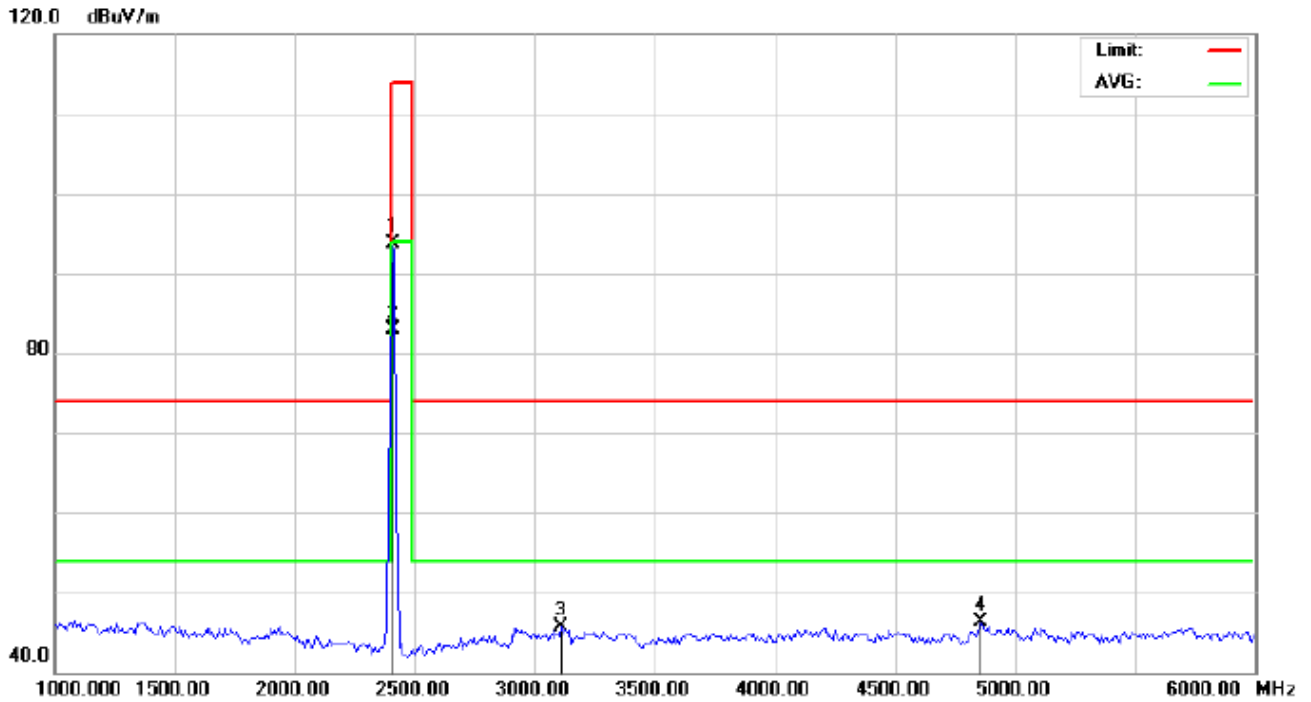
Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	100.73	-9.68	91.05	114	-22.95	Horizontal
2402	100.89	-9.68	91.21	114	-22.79	Vertical
2441	102.85	-9.63	93.22	114	-20.78	Horizontal
2441	102.82	-9.63	93.19	114	-20.81	Vertical
2480	102.69	-9.59	93.10	114	-20.90	Horizontal
2480	102.83	-9.59	93.24	114	-20.76	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	93.94	-9.68	84.26	94	-9.74	Horizontal
2402	92.64	-9.68	82.96	94	-11.04	Vertical
2441	93.23	-9.63	83.60	94	-10.40	Horizontal
2441	93.86	-9.63	84.23	94	-9.77	Vertical
2480	92.48	-9.59	82.89	94	-11.11	Horizontal
2480	93.70	-9.59	84.11	94	-9.89	Vertical

FOR BLE

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

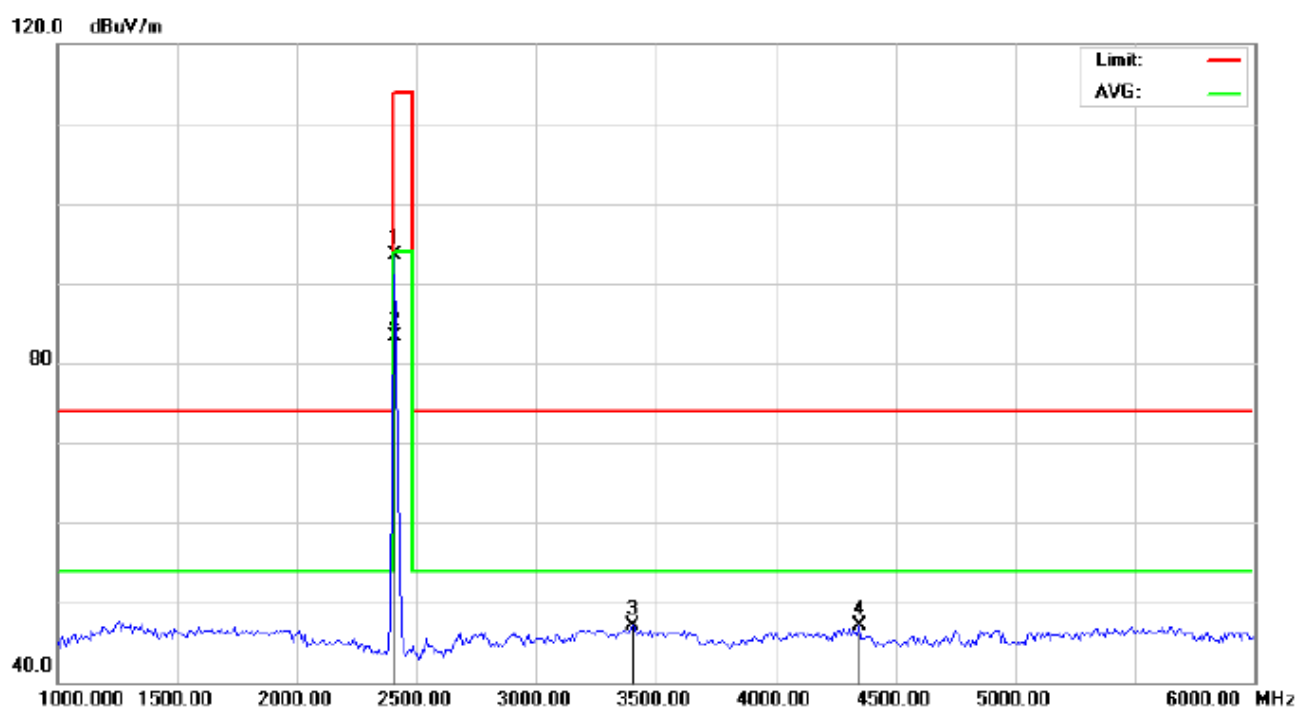


Site: Conduction Polarization: *Horizontal* Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %
EUT:Bluetooth Headset Distance: 3m
M/N: SX-991
Mode: Low Channel TX
Note:

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	103.30	-9.68	93.62	114.00	-20.38	peak			
2	*	2402.000	92.66	-9.68	82.98	94.00	-11.02	AVG	100	310	
3		3108.333	53.87	-8.26	45.61	74.00	-28.39	peak			
4		4858.333	48.40	-2.17	46.23	74.00	-27.77	peak			

RESULT: PASS

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



Site: Conduction

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT: Bluetooth Headset

Distance: 3m

M/N: SX-991

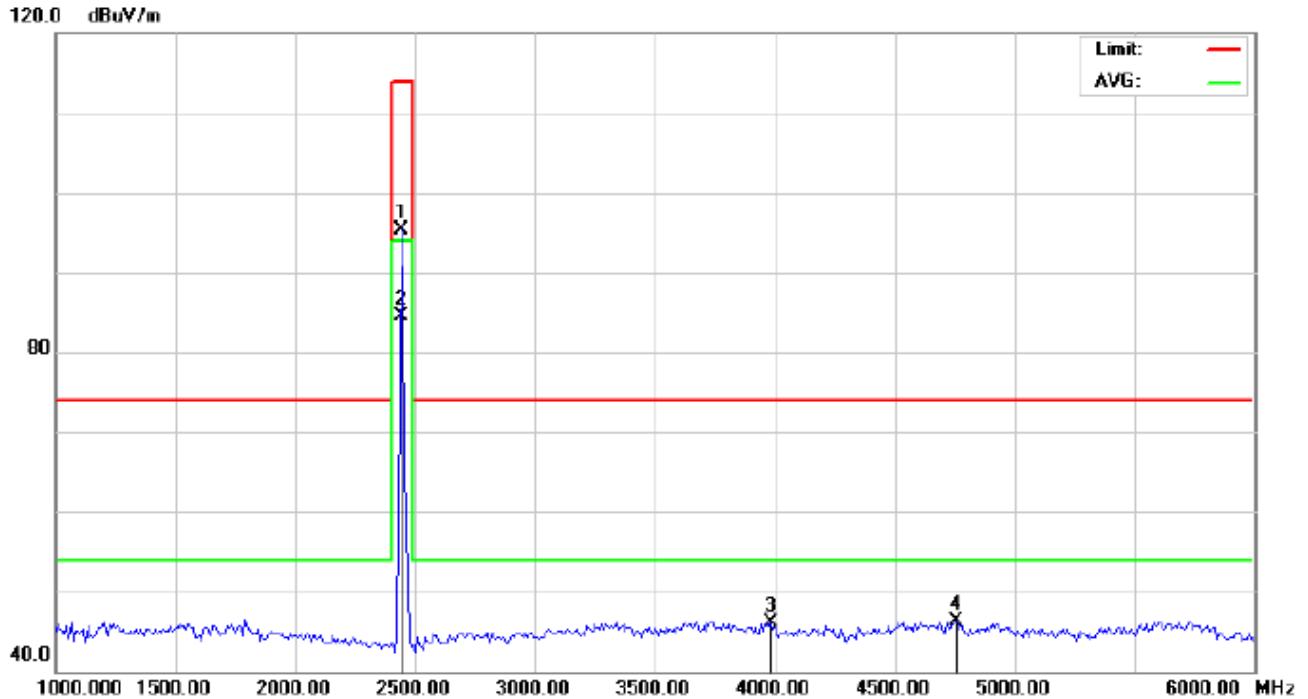
Mode: Low Channel TX

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	103.22	-9.68	93.54	114.00	-20.46	peak			
2	*	2402.000	92.91	-9.68	83.23	94.00	-10.77	AVG	100	302	
3		3400.000	55.17	-7.98	47.19	74.00	-26.81	peak			
4		4350.000	50.66	-3.62	47.04	74.00	-26.96	peak			

RESULT: PASS

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



Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance: 3m

M/N: SX-991

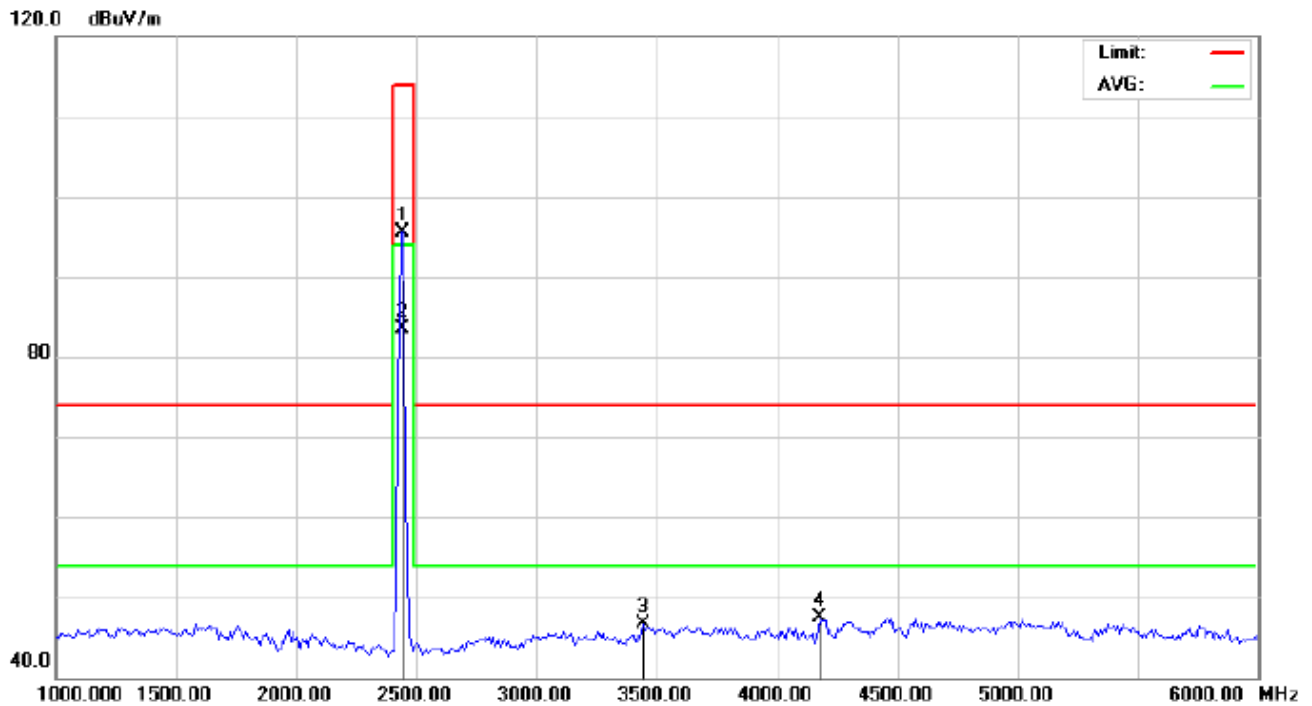
Mode: Middle Channel TX

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	104.89	-9.63	95.26	114.00	-18.74	peak			
2	*	2440.000	94.07	-9.63	84.44	94.00	-9.56	AVG	100	256	
3		3983.333	51.00	-4.91	46.09	74.00	-27.91	peak			
4		4758.333	48.65	-2.43	46.22	74.00	-27.78	peak			

RESULT: PASS

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



Site: Conduction

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance: 3m

M/N: SX-991

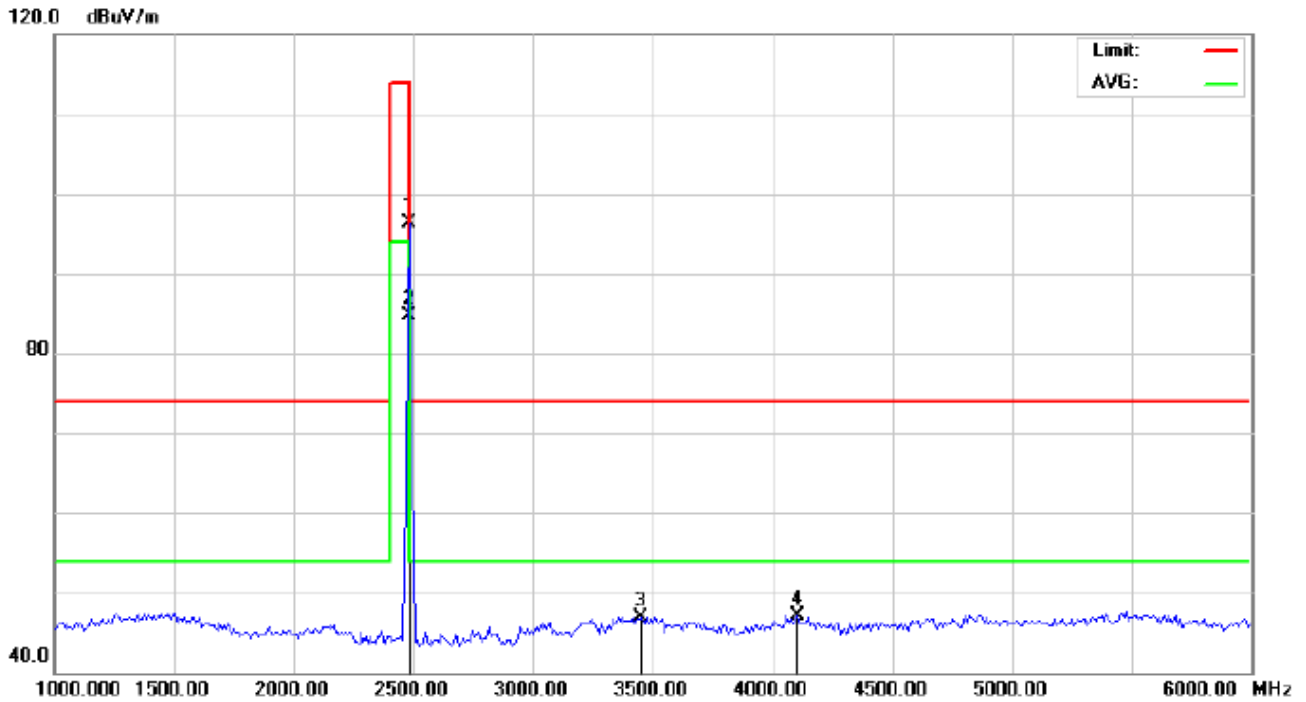
Mode: Middle Channel TX

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	105.23	-9.63	95.60	114.00	-18.40	peak			
2	*	2440.000	93.18	-9.63	83.55	94.00	-10.45	AVG	100	211	
3		3441.667	54.59	-7.94	46.65	74.00	-27.35	peak			
4		4175.000	51.64	-4.21	47.43	74.00	-26.57	peak			

RESULT: PASS

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



Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance: 3m

M/N: SX-991

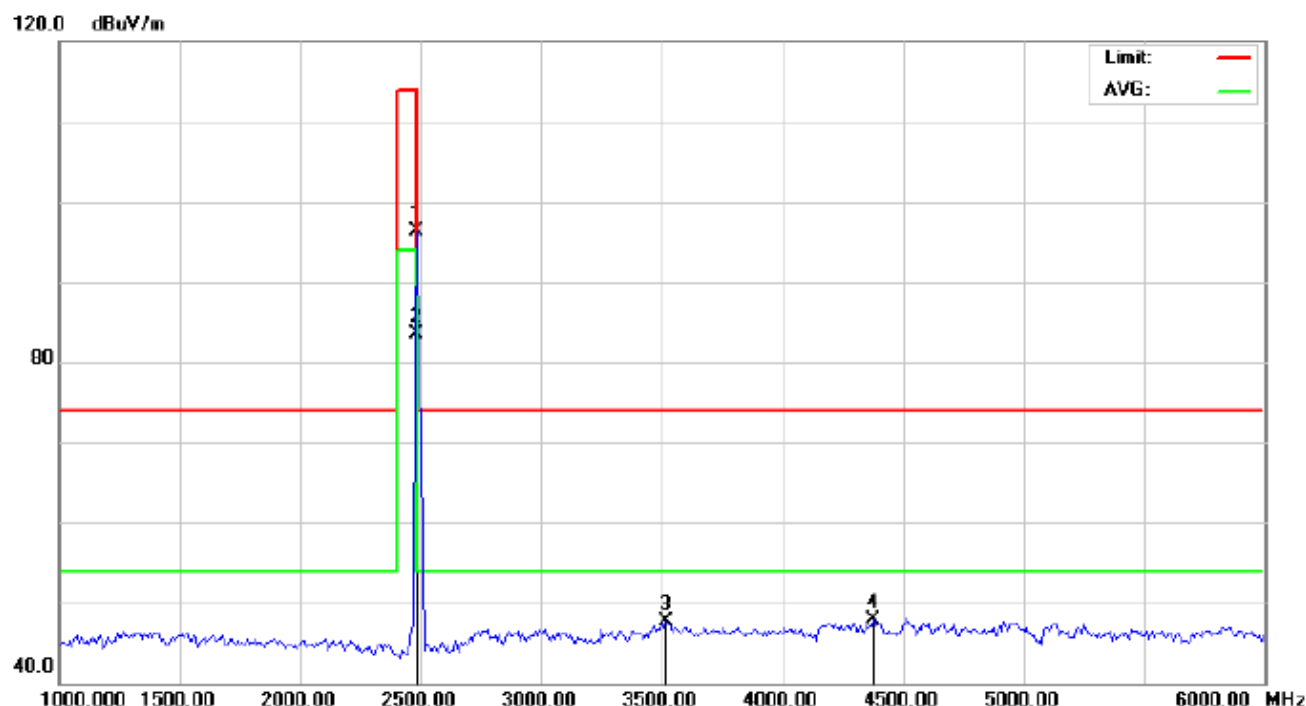
Mode: High Channel TX

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	105.87	-9.59	96.28	114.00	-17.72	peak			
2	*	2480.000	94.23	-9.59	84.64	94.00	-9.36	AVG	100	43	
3		3450.000	54.94	-7.94	47.00	74.00	-27.00	peak			
4		4100.000	51.66	-4.47	47.19	74.00	-26.81	peak			

RESULT: PASS

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



Site: Conduction Polarization: **Vertical** Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHZ(PK)- Power: Humidity: 60 %
EUT:Bluetooth Headset Distance: 3m
M/N: SX-991
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	105.80	-9.59	96.21	114.00	-17.79	peak			
2	*	2480.000	93.03	-9.59	83.44	94.00	-10.56	AVG	100	223	
3		3516.667	55.39	-7.79	47.60	74.00	-26.40	peak			
4		4375.000	51.50	-3.53	47.97	74.00	-26.03	peak			

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	103.30	-9.68	93.62	114	-20.38	Horizontal
2402	103.22	-9.68	93.54	114	-20.46	Vertical
2440	104.89	-9.63	95.26	114	-18.74	Horizontal
2440	105.23	-9.63	95.60	114	-18.40	Vertical
2480	105.87	-9.59	96.28	114	-17.72	Horizontal
2480	105.80	-9.59	96.21	114	-17.79	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	92.66	-9.68	82.98	94	-11.02	Horizontal
2402	92.91	-9.68	83.23	94	-10.77	Vertical
2440	94.07	-9.63	84.44	94	-9.56	Horizontal
2440	93.18	-9.63	83.55	94	-10.45	Vertical
2480	94.23	-9.59	84.64	94	-9.36	Horizontal
2480	93.03	-9.59	83.44	94	-10.56	Vertical

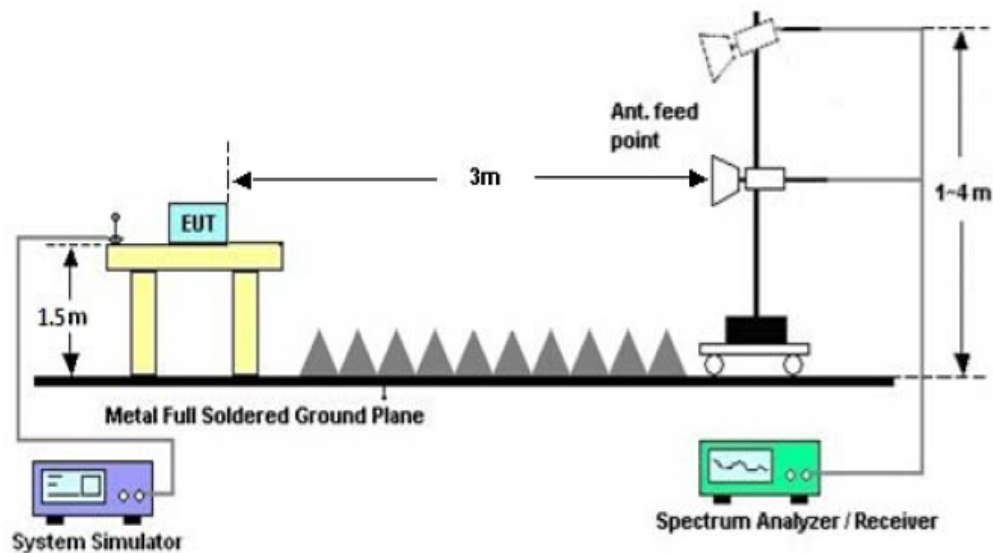
9. BAND EDGE EMISSION

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

9.2 TEST SETUP

RADIATED EMISSION TEST SETUP

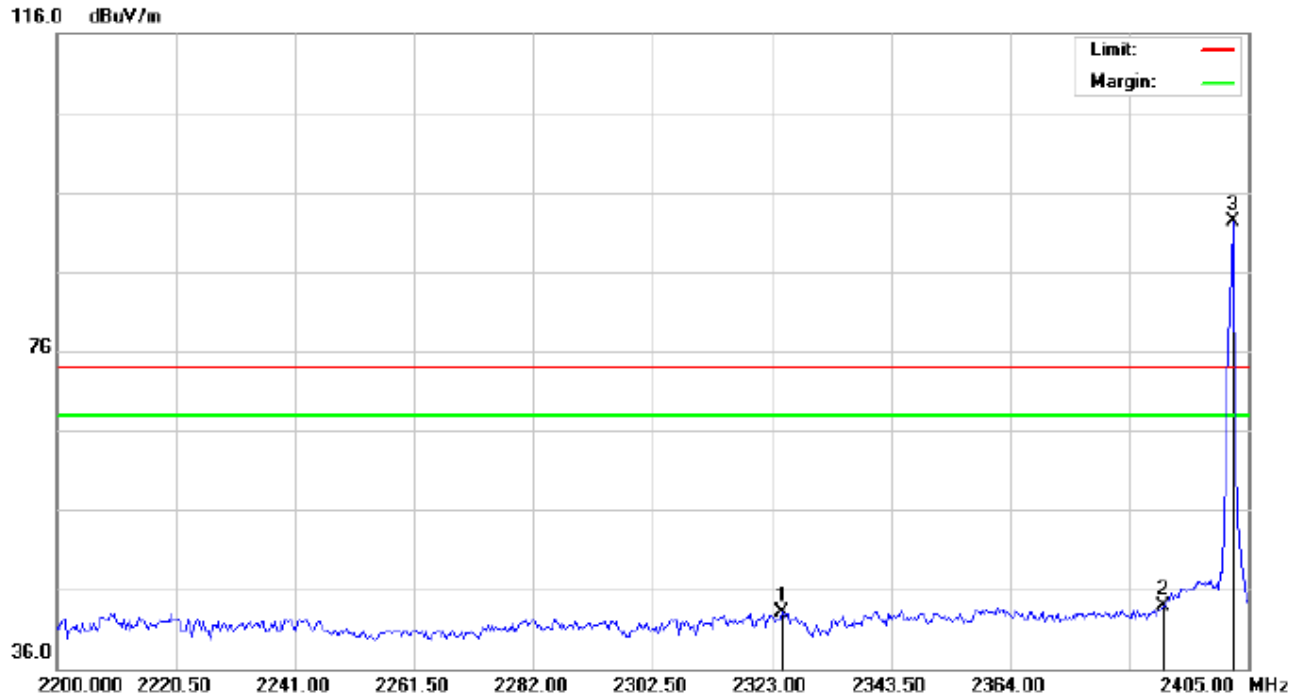


9.3 RADIATED TEST RESULT

(Worst modulation: GFSK)

FOR BR/EDR

TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal



Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

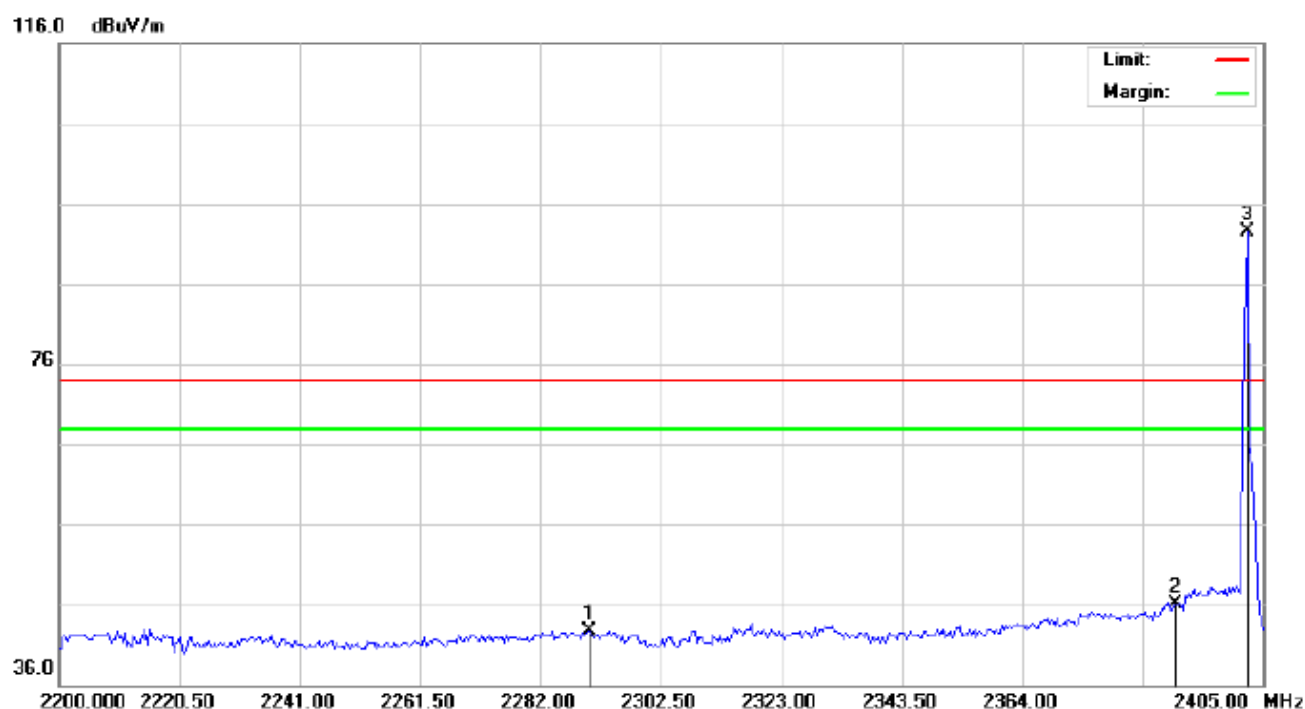
M/N: SX-991

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		2324.708	32.86	10.24	43.10	74.00	-30.90	peak			
2		2390.000	33.62	10.31	43.93	74.00	-30.07	peak			
3	*	2402.000	81.91	10.32	92.23	74.00	18.23	peak			

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



Site: Conduction

Polarization: *Vertical*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

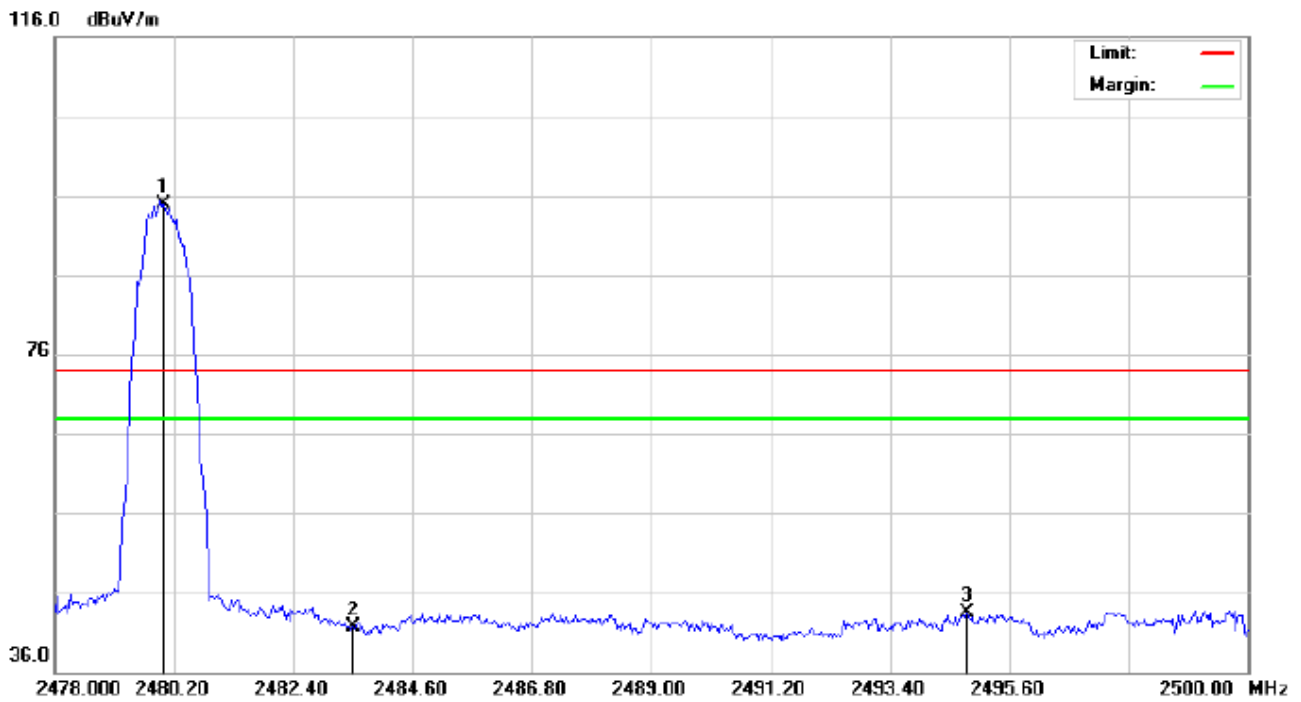
M/N: SX-991

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		2290.200	32.47	10.20	42.67	74.00	-31.33	peak			
2		2390.000	35.85	10.31	46.16	74.00	-27.84	peak			
3	*	2402.000	82.26	10.32	92.58	74.00	18.58	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

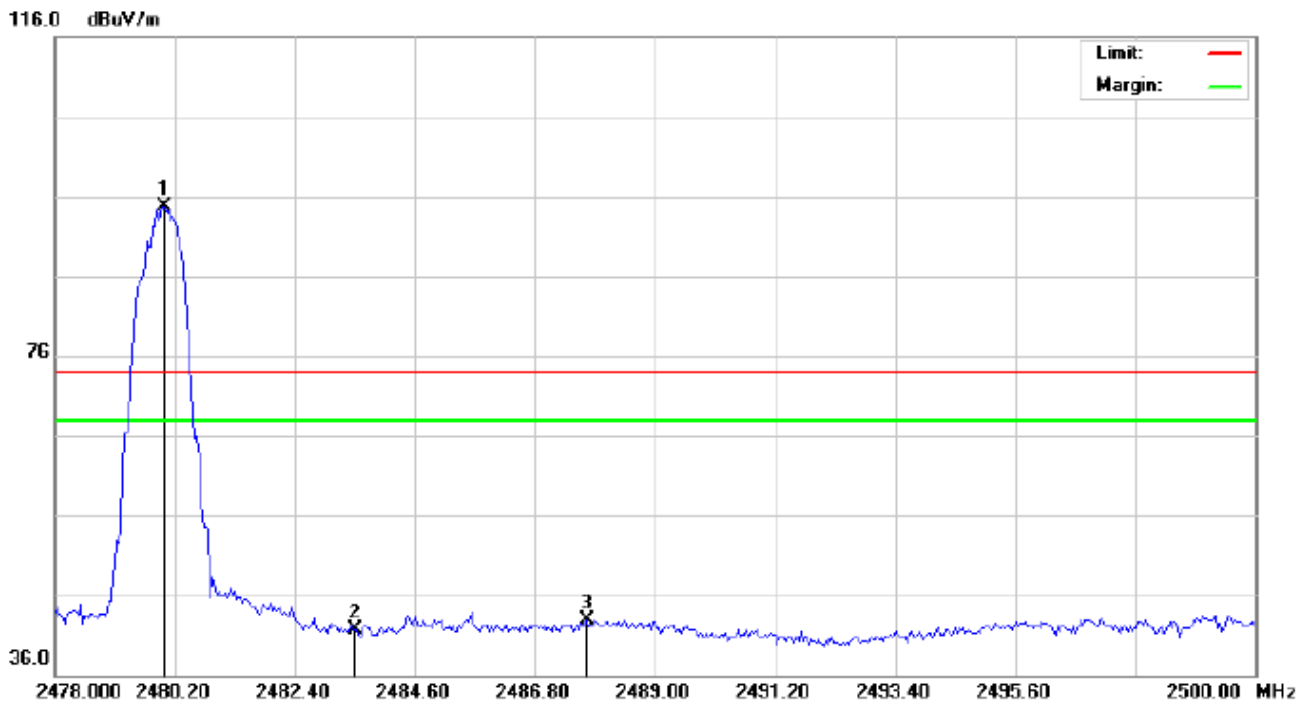
M/N: SX-991

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	84.46	10.41	94.87	74.00	20.87	peak			
2		2483.500	31.25	10.41	41.66	74.00	-32.34	peak			
3		2494.830	33.00	10.42	43.42	74.00	-30.58	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: Conduction

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

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	84.35	10.41	94.76	74.00	20.76	peak			
2		2483.500	31.37	10.41	41.78	74.00	-32.22	peak			
3		2487.753	32.41	10.42	42.83	74.00	-31.17	peak			

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

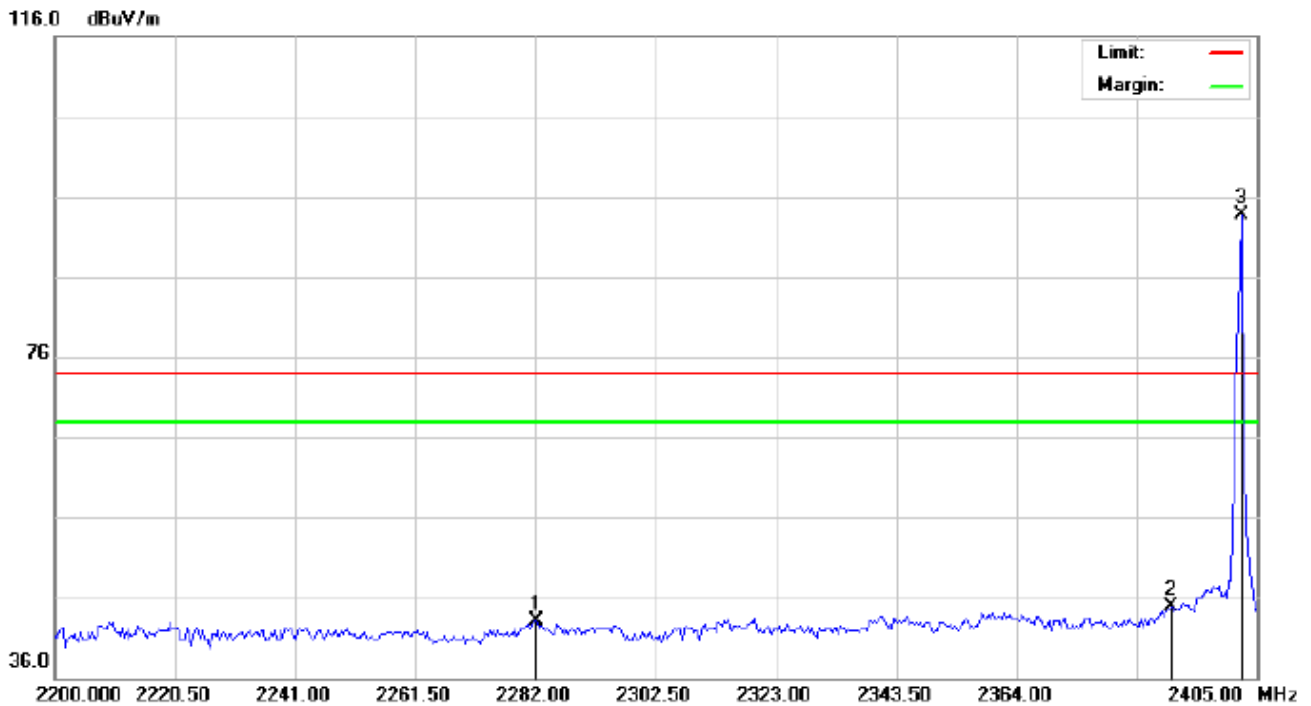
Factor=Antenna Factor + Cable loss - Amplifier gain, Over=Measure-Limit.

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: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

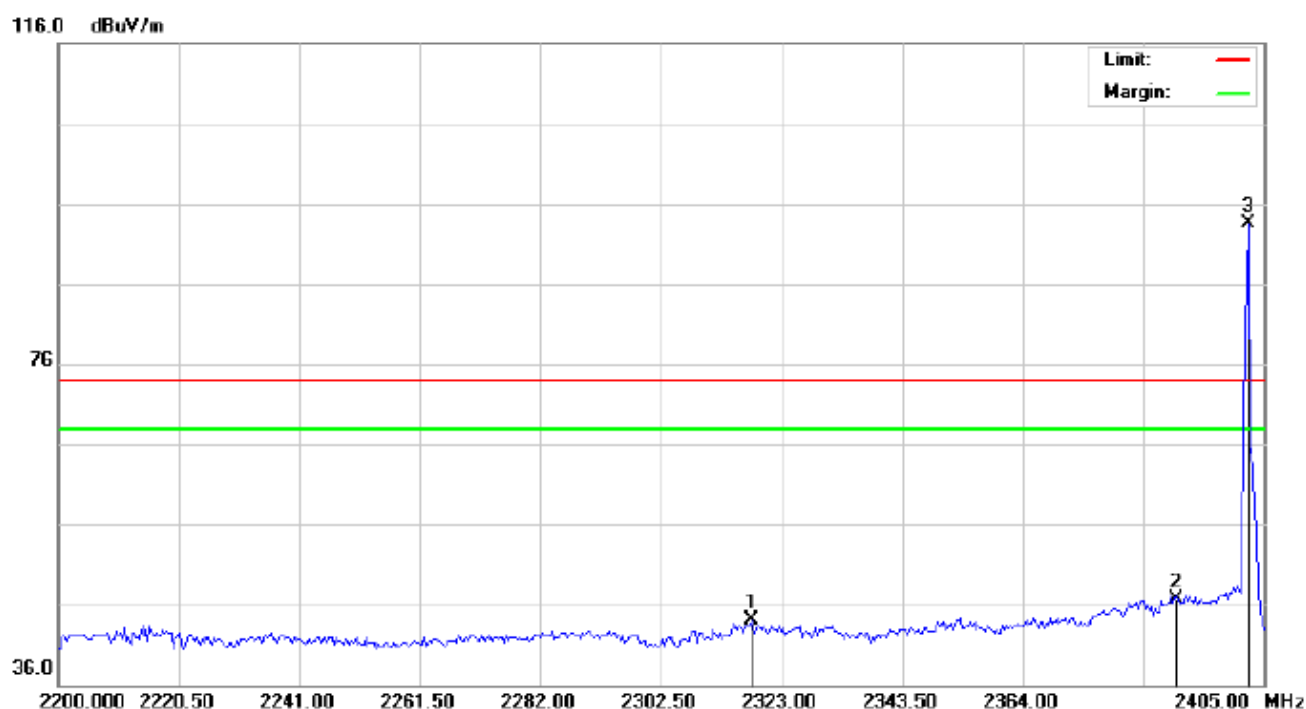
M/N: SX-991

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	32.98	10.19	43.17	74.00	-30.83	peak			
2		2390.000	34.62	10.31	44.93	74.00	-29.07	peak			
3	*	2402.000	83.41	10.32	93.73	74.00	19.73	peak			

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



Site: Conduction

Polarization: *Vertical*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

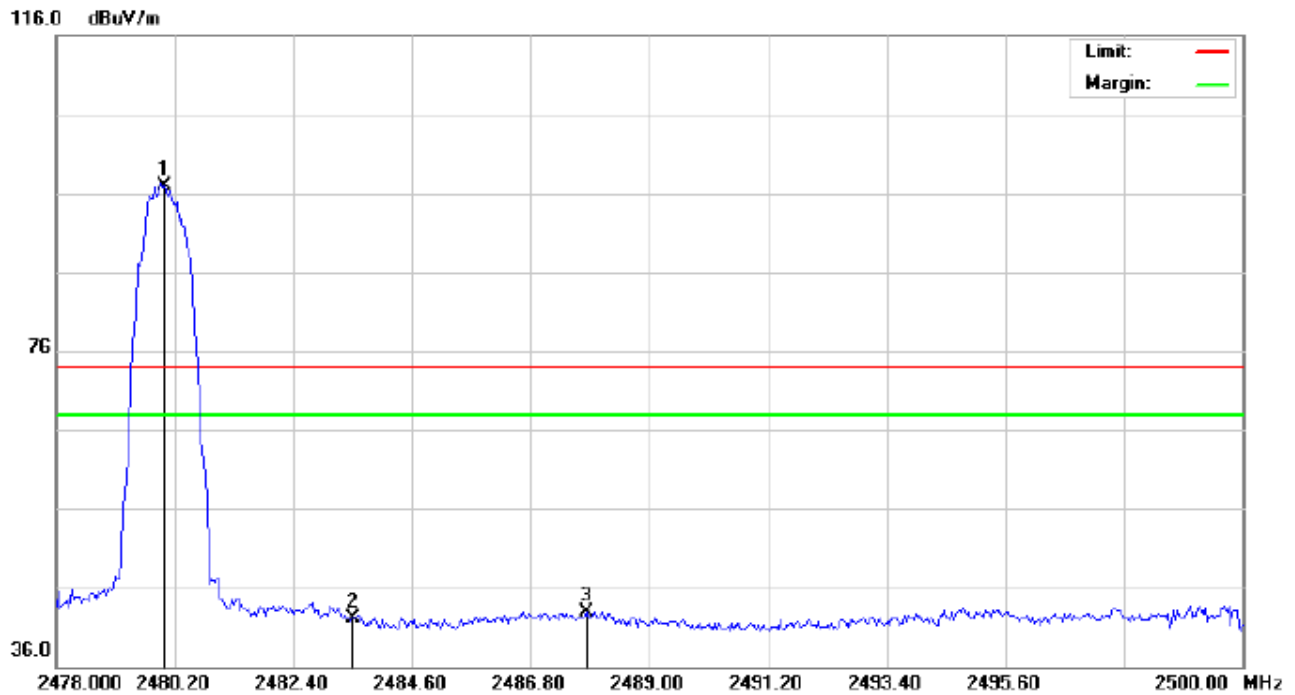
M/N: SX-991

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		2317.875	33.91	10.23	44.14	74.00	-29.86	peak			
2		2390.000	36.35	10.31	46.66	74.00	-27.34	peak			
3	*	2402.000	83.26	10.32	93.58	74.00	19.58	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



Site: Conduction

Polarization: *Horizontal*

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

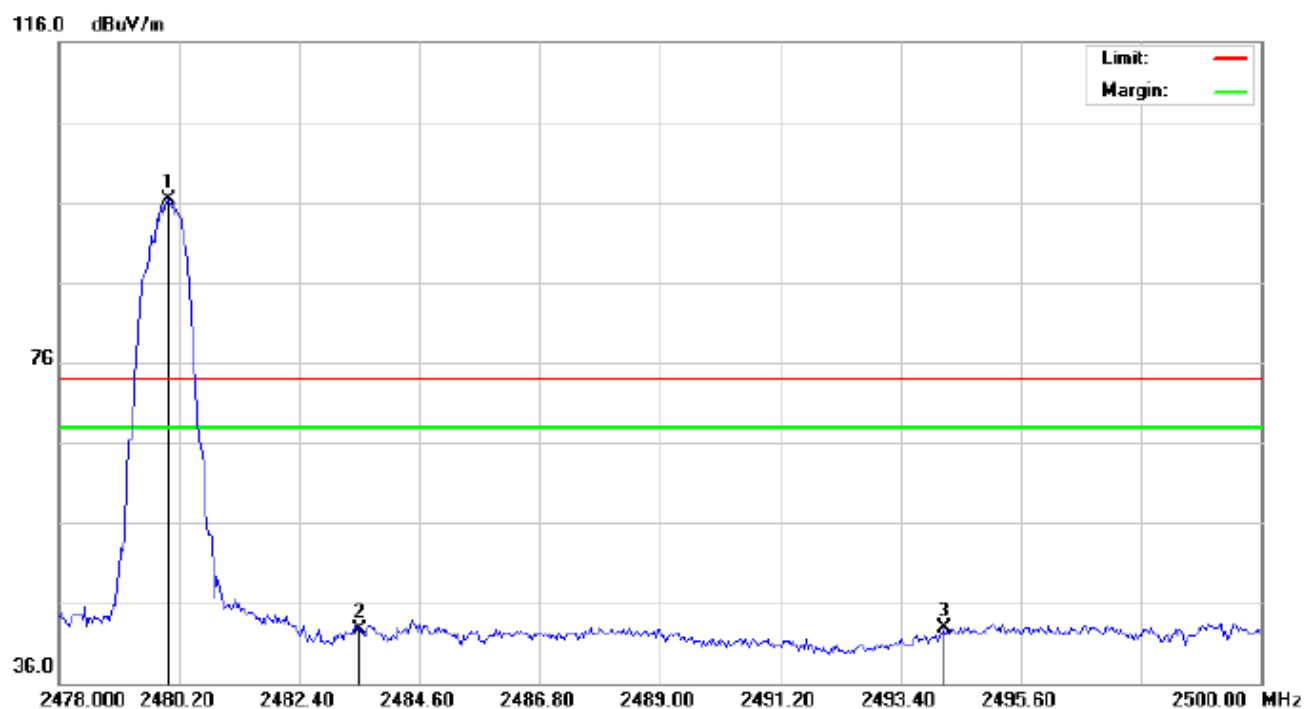
M/N: SX-991

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	86.46	10.41	96.87	74.00	22.87	peak			
2		2483.500	31.75	10.41	42.16	74.00	-31.84	peak			
3		2487.827	32.48	10.42	42.90	74.00	-31.10	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: Conduction

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT:Bluetooth Headset

Distance:

M/N: SX-991

Mode: High Channel TX

Note:

No.	Mk	Freq. MHz	Reading dBuV	Factor dBuV/m	Measurement dBuV/m	Limit dBuV/m	Over dB	Detector	Antenna Height cm	Table Degree degree	Comment
1	*	2480.000	85.85	10.41	96.26	74.00	22.26	peak			
2		2483.500	32.37	10.41	42.78	74.00	-31.22	peak			
3		2494.207	32.55	10.42	42.97	74.00	-31.03	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.

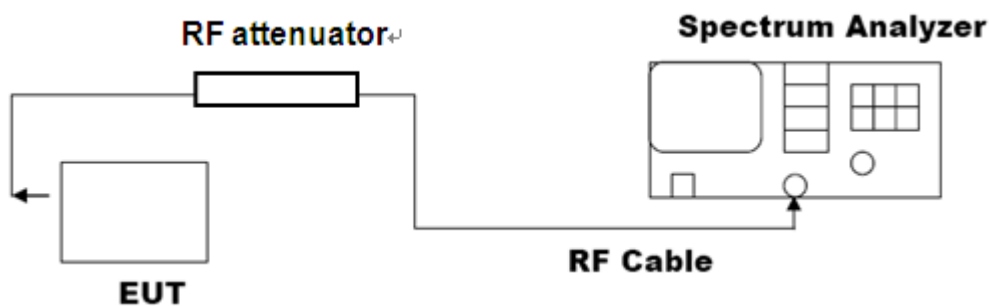
10. 20DB BANDWIDTH

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 \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)



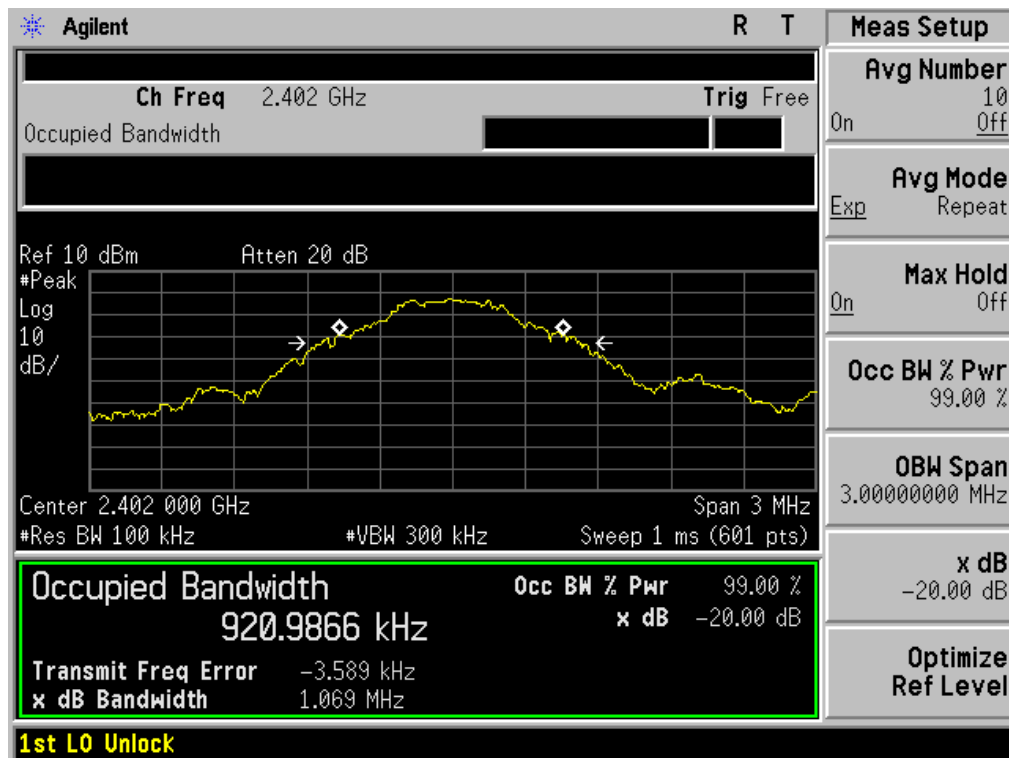
Note: The EUT has been used temporary antenna connector for testing.

10.3. LIMITS AND MEASUREMENT RESULTS

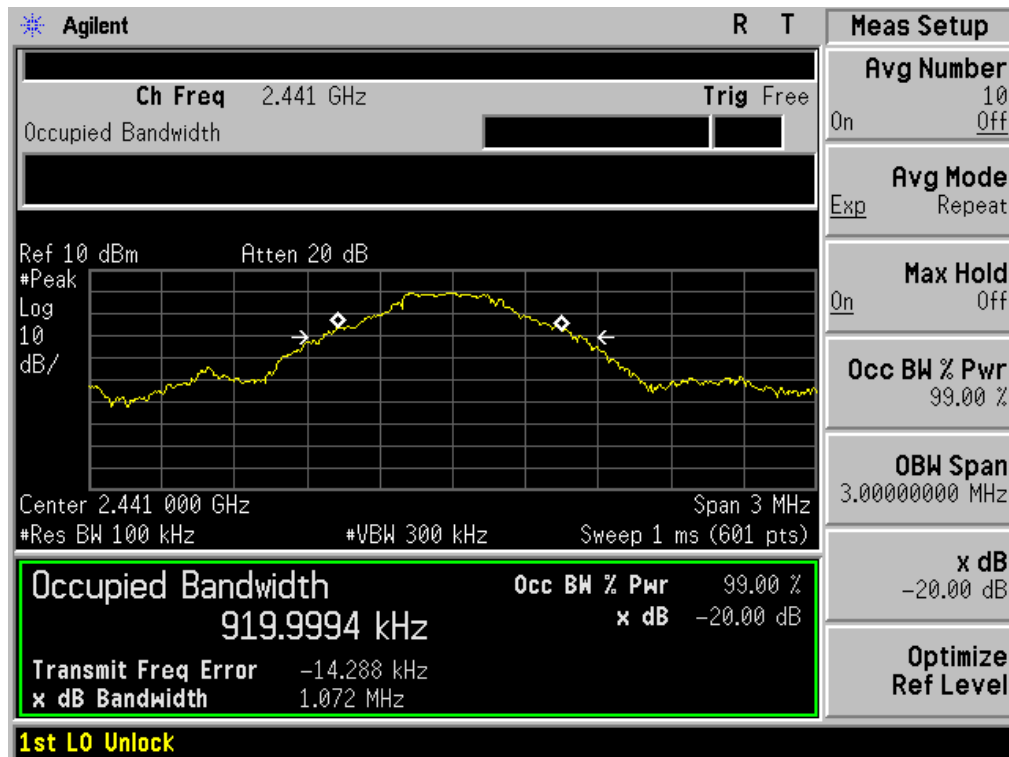
FOR BR/EDR

BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.069	PASS
	Middle Channel	1.072	PASS
	High Channel	1.114	PASS

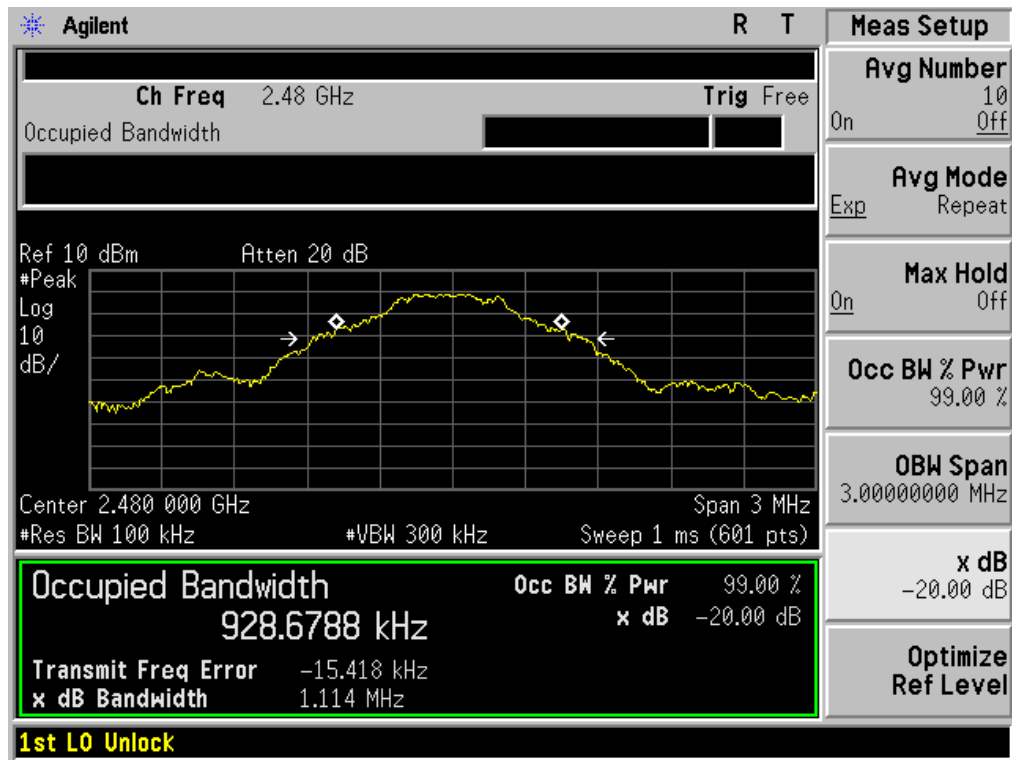
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

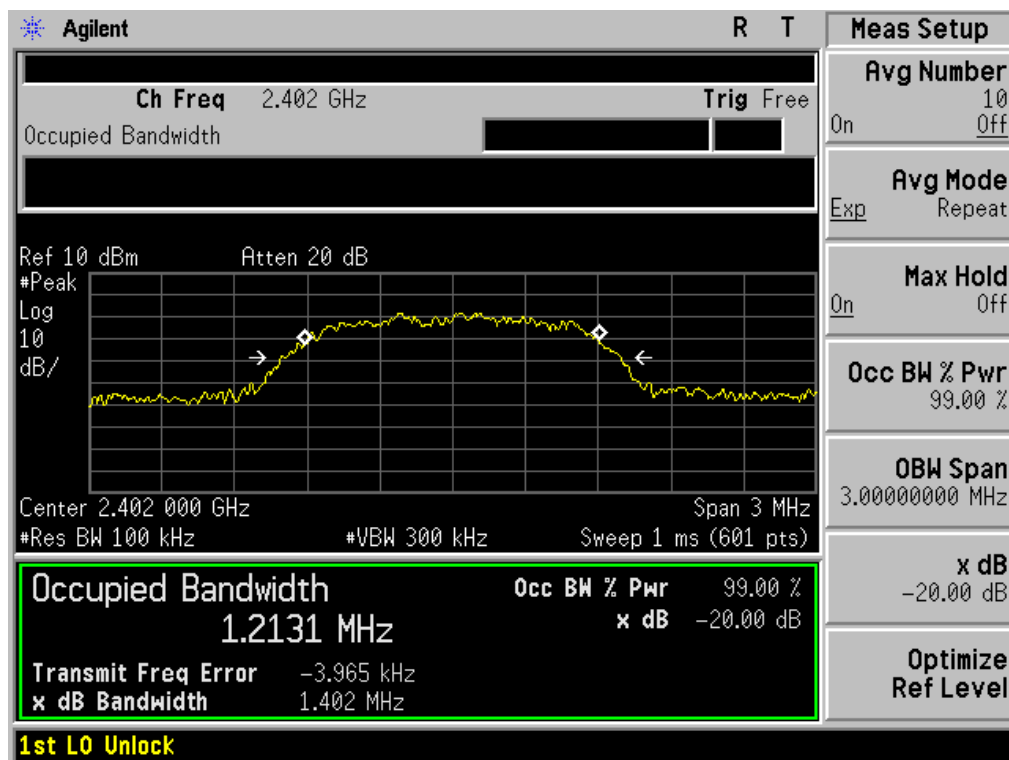


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

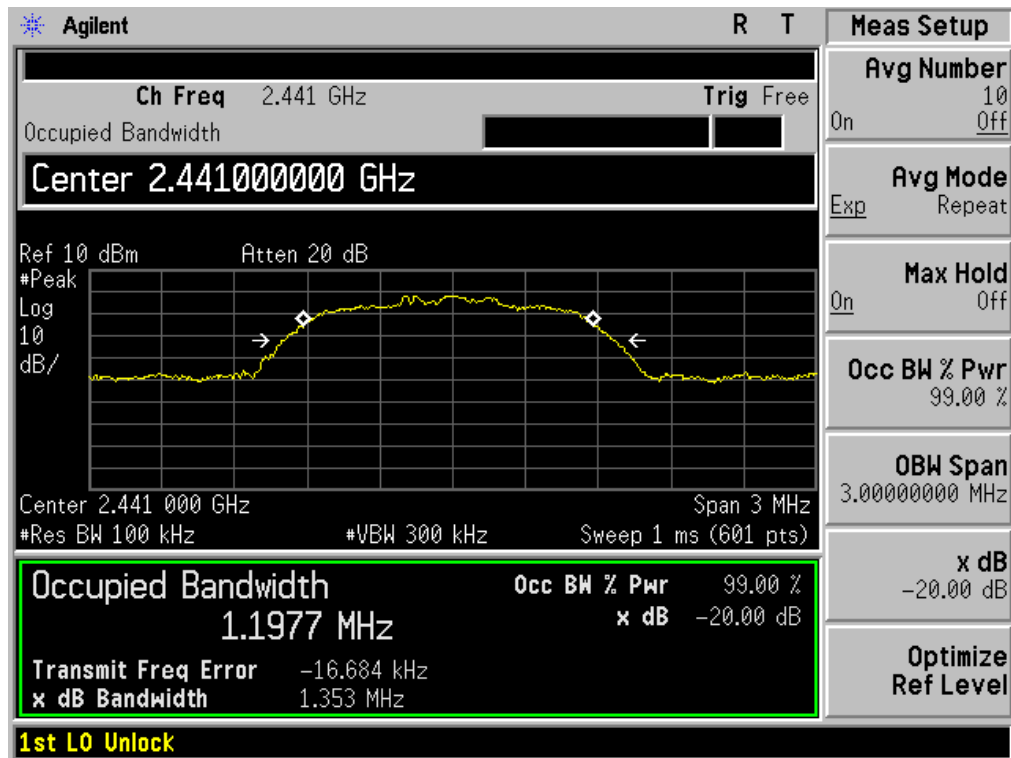


BLUETOOTH 2Mbps LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.402	PASS
	Middle Channel	1.353	PASS
	High Channel	1.360	PASS

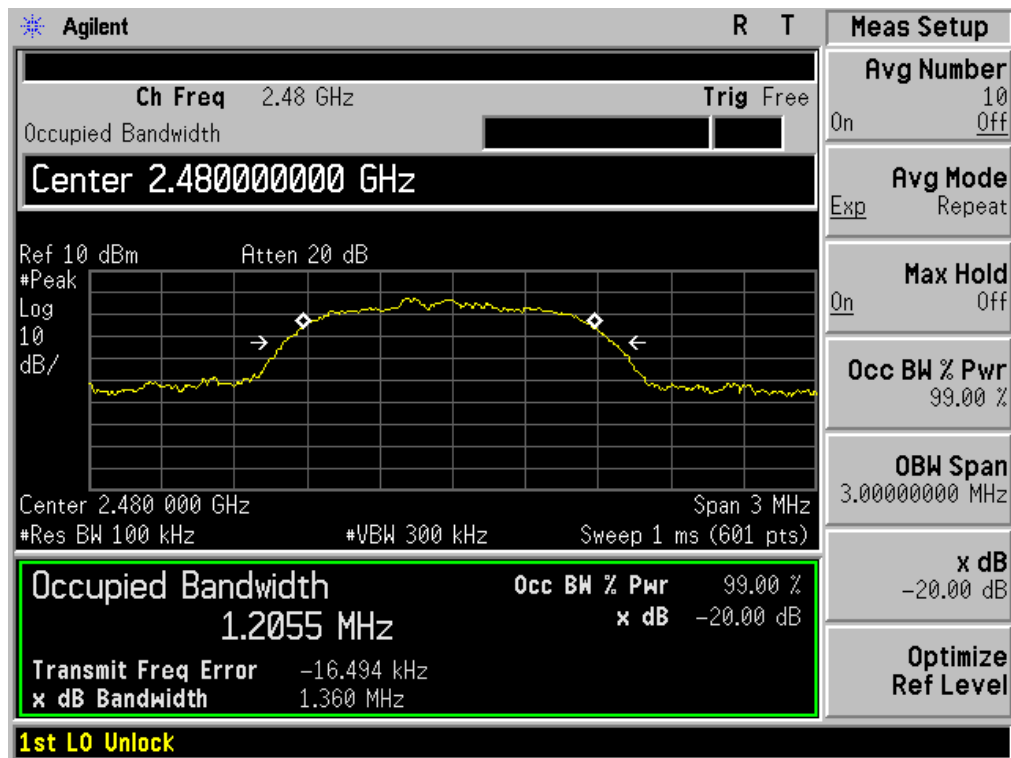
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL

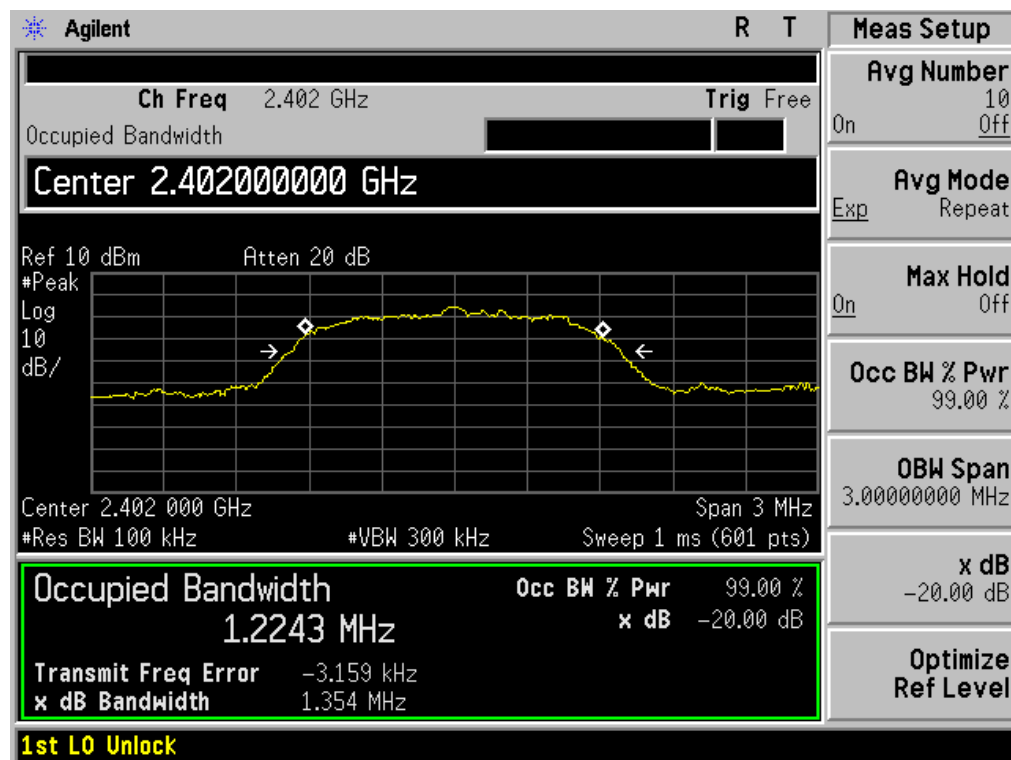


TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL

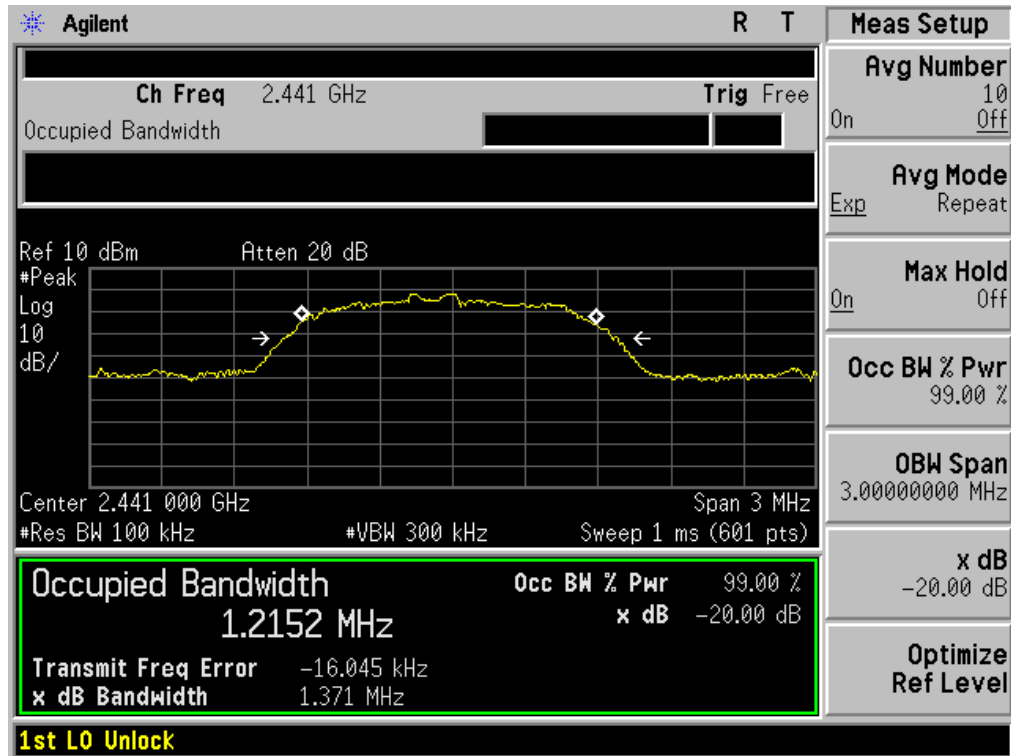


BLUETOOTH 3MBPS LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.354	PASS
	Middle Channel	1.371	PASS
	High Channel	1.364	PASS

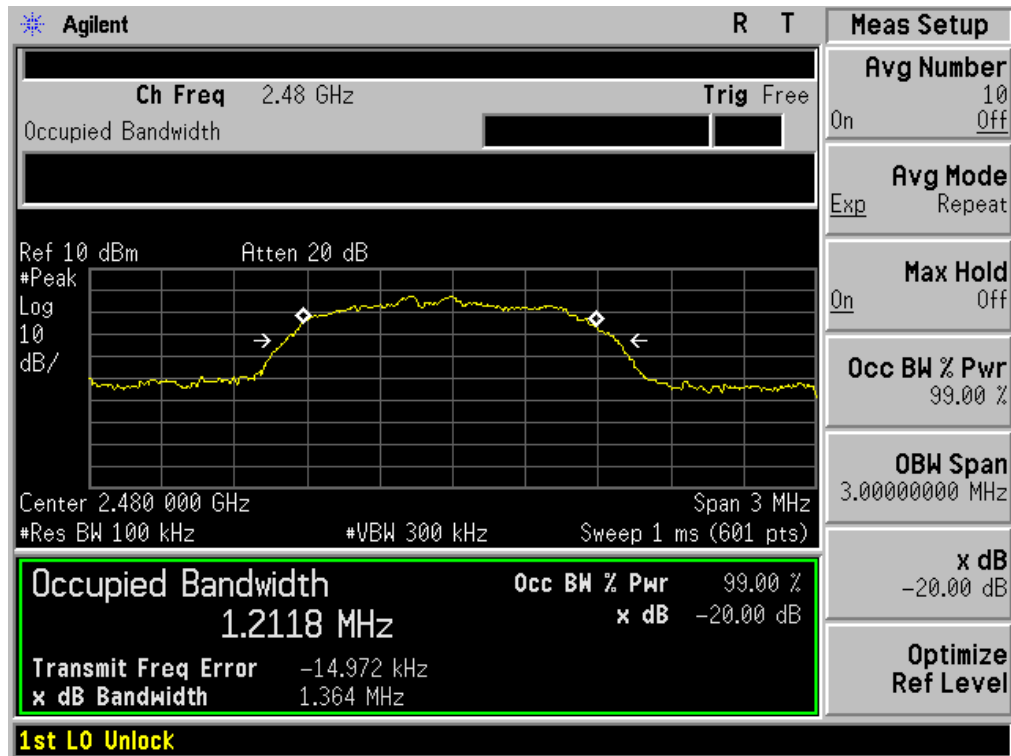
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



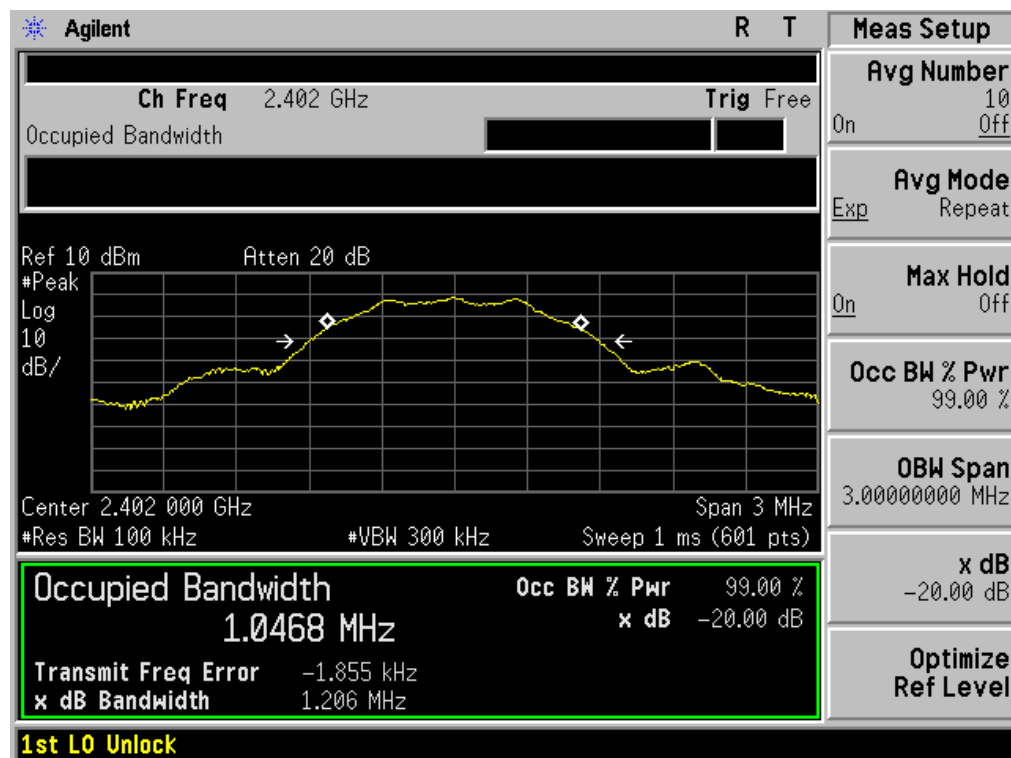
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



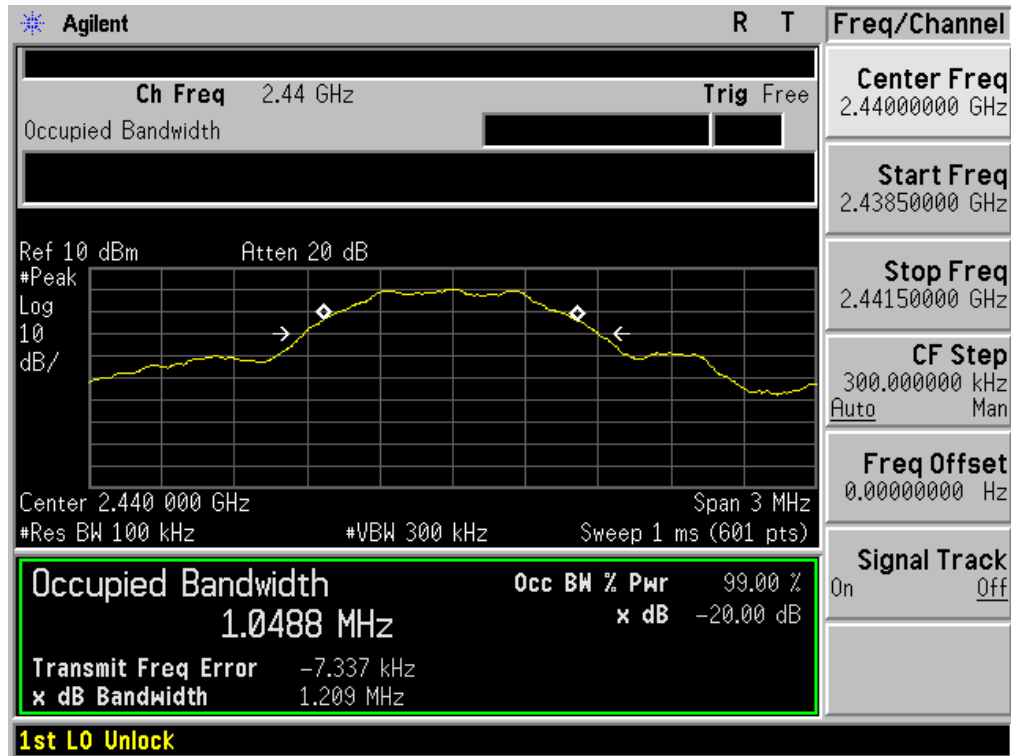
FOR BLE

BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT			
Applicable Limits	Measurement Result		
	Test Data (MHz)		Criteria
N/A	Low Channel	1.206	PASS
	Middle Channel	1.209	PASS
	High Channel	1.206	PASS

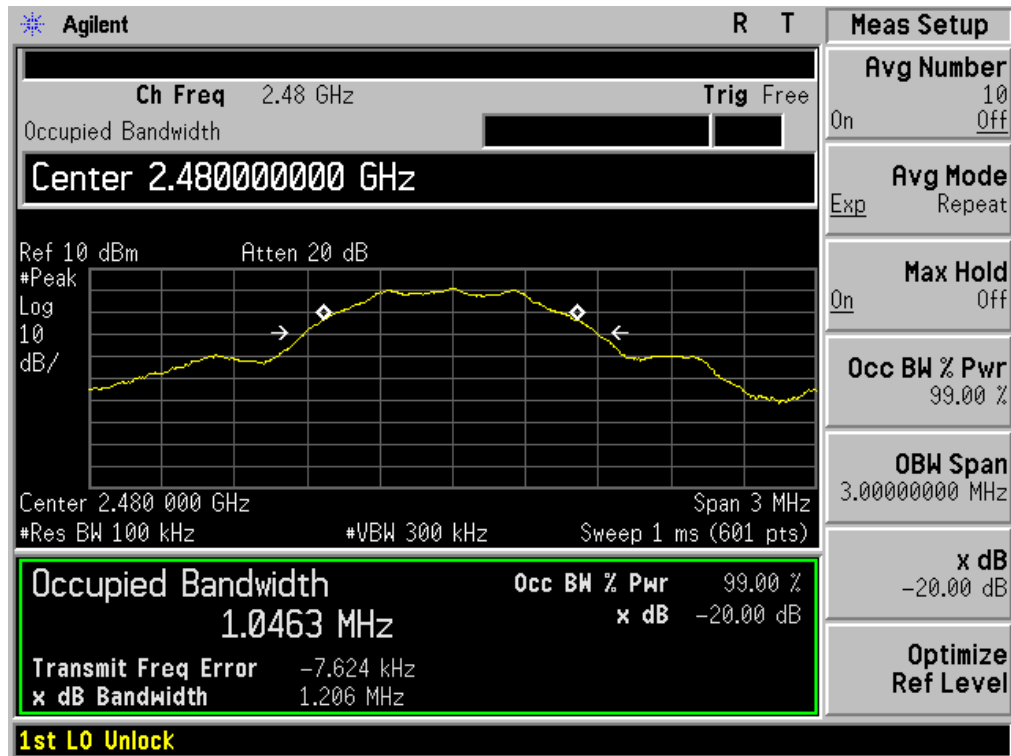
TEST PLOT OF BANDWIDTH FOR LOW CHANNEL



TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



11. FCC LINE CONDUCTED EMISSION TEST

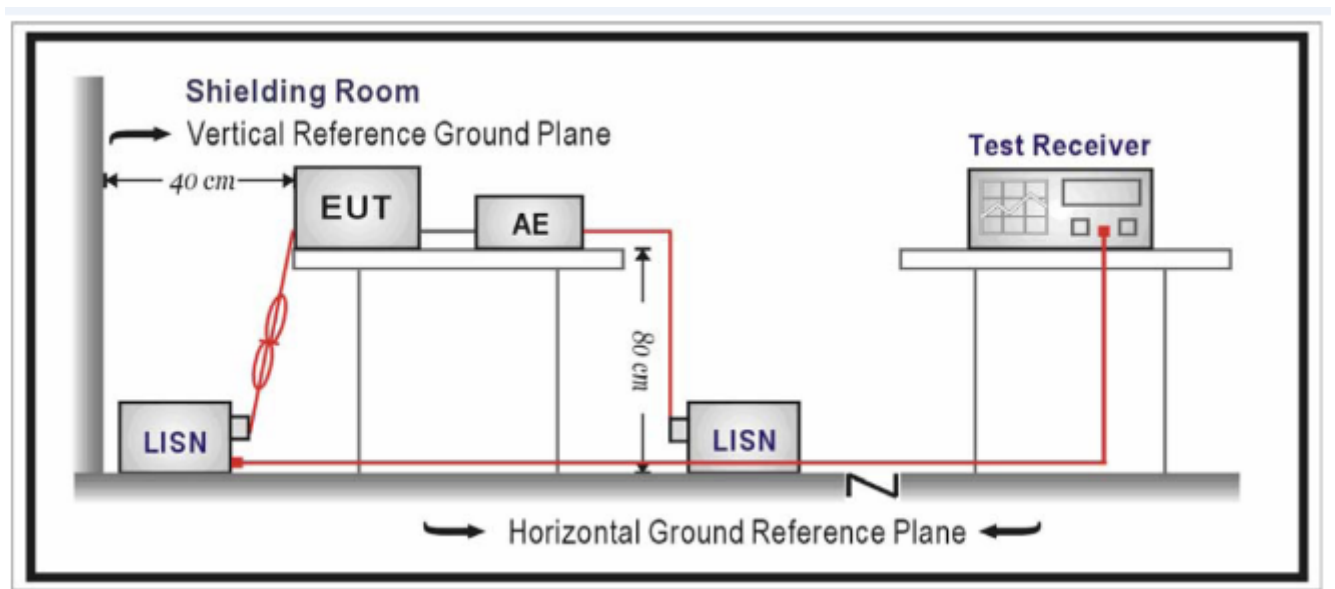
11.1. LIMITS OF LINE CONDUCTED EMISSION TEST

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 C63.10 (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 C63.10.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10.
4. All support equipments received AC120V/60Hz power from a LISN, if any.
5. The EUT received DC charging voltage by adapter or 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

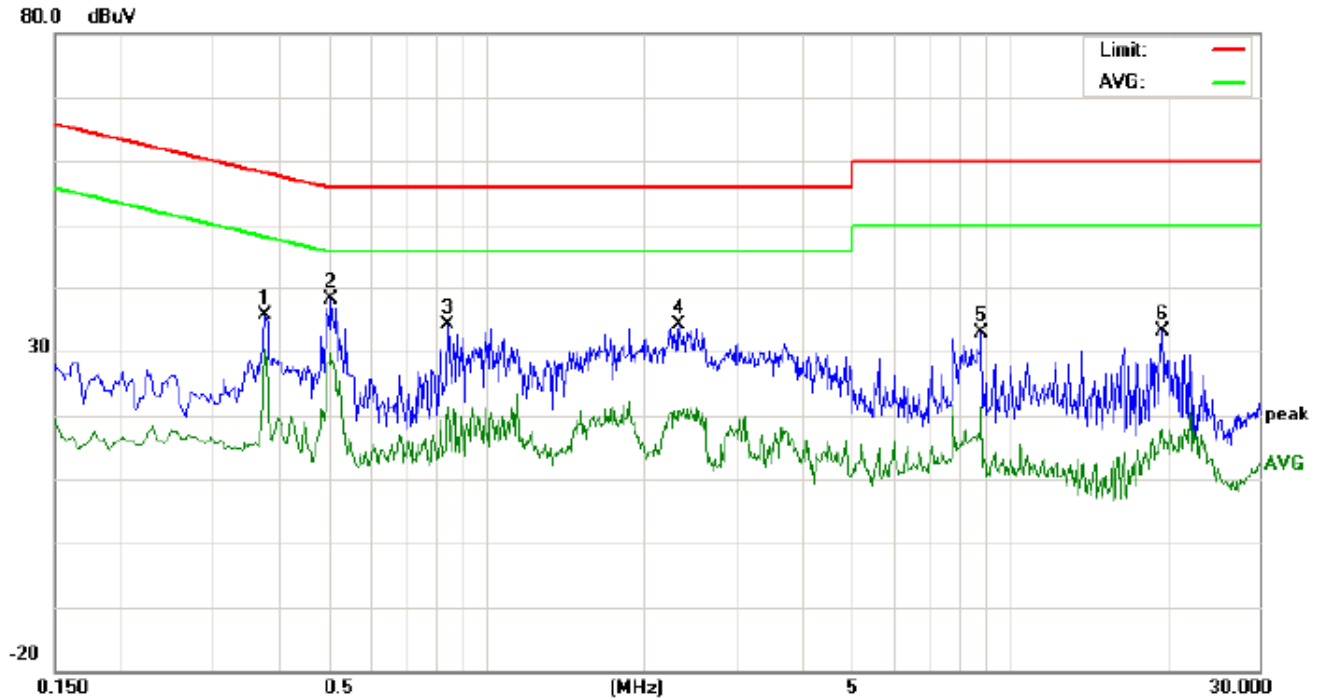
- EUT and support equipment was set up on the test bench as per step 2 of the preliminary test.
2. A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used 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.

11.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST

By adapter(worst case)

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: 53.6 %

EUT:Bluetooth Headset

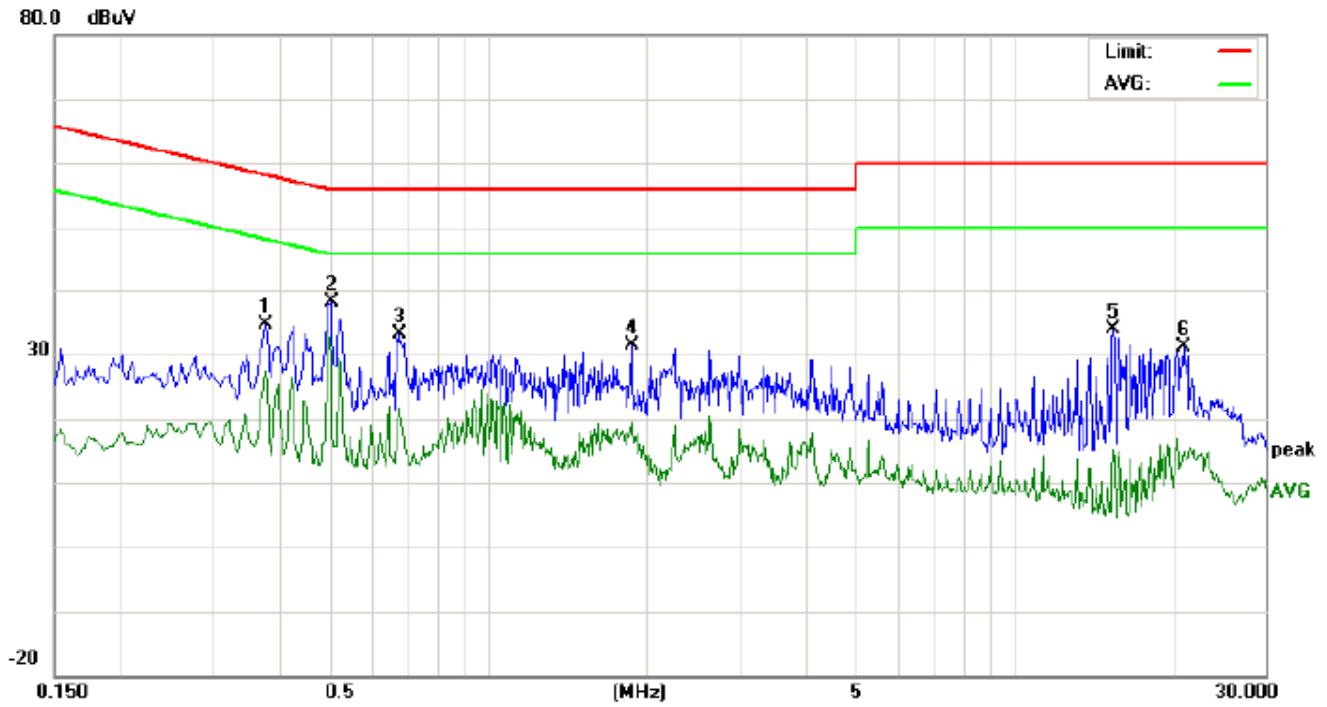
M/N: SX-991

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	0.3780	25.28		19.99	10.32	35.60		30.31	58.32	48.32	-22.72	-18.01	P	
2	0.5060	27.62		19.15	10.39	38.01		29.54	56.00	46.00	-17.99	-16.46	P	
3	0.8459	23.76		10.97	10.34	34.10		21.31	56.00	46.00	-21.90	-24.69	P	
4	2.3380	23.77		10.34	10.36	34.13		20.70	56.00	46.00	-21.87	-25.30	P	
5	8.8299	22.70		11.08	10.25	32.95		21.33	60.00	50.00	-27.05	-28.67	P	
6	19.6018	22.96		7.89	10.11	33.07		18.00	60.00	50.00	-26.93	-32.00	P	

Line Conducted Emission Test Line 2-N



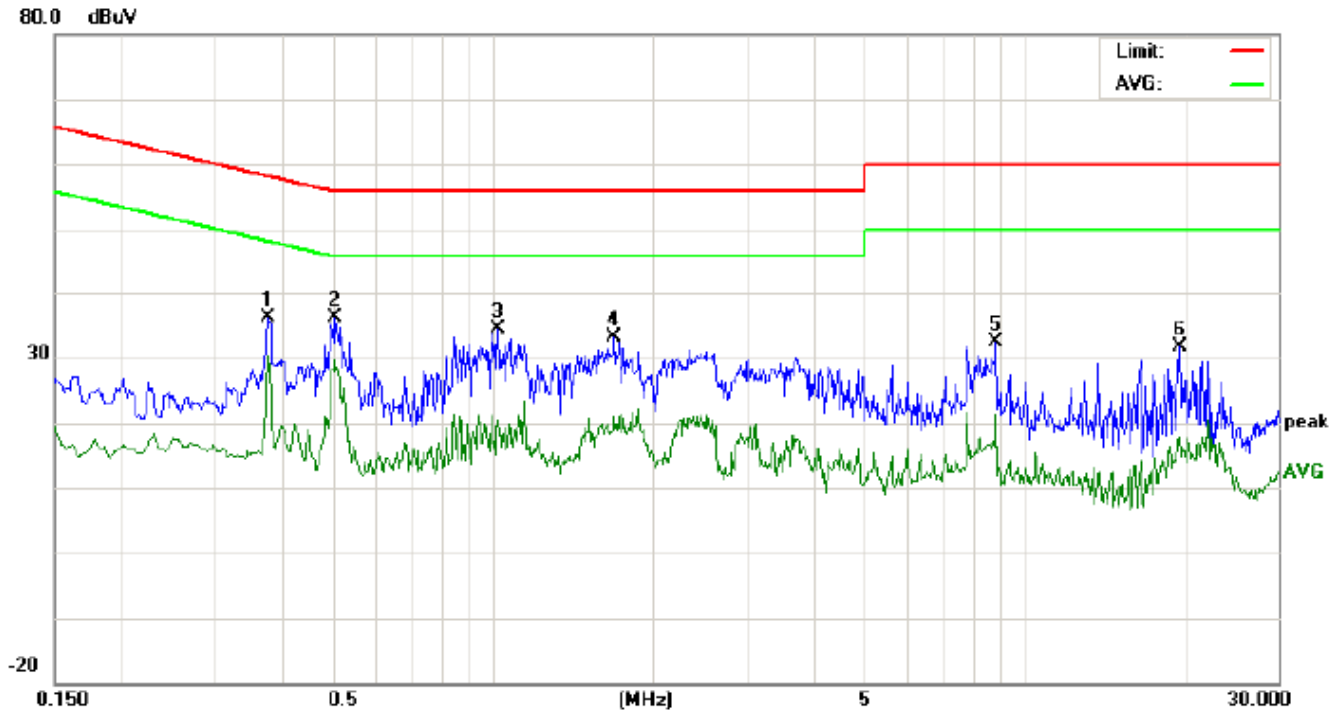
Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT:Bluetooth Headset
M/N: SX-991
Mode: BT Link with charging
Note:

Phase: **N**
Power:
Temperature: 22.5
Humidity: 53.6 %

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	0.3780	24.21		17.02	10.32	34.53		27.34	58.32	48.32	-23.79	-20.98	P	
2	0.5020	27.70		19.14	10.40	38.10		29.54	56.00	46.00	-17.90	-16.46	P	
3	0.6780	22.81		11.06	10.34	33.15		21.40	56.00	46.00	-22.85	-24.60	P	
4	1.8740	21.04		9.05	10.26	31.30		19.31	56.00	46.00	-24.70	-26.69	P	
5	15.4379	23.74		4.95	10.12	33.86		15.07	60.00	50.00	-26.14	-34.93	P	
6	20.9619	20.88		4.69	10.13	31.01		14.82	60.00	50.00	-28.99	-35.18	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: 53.6 %

EUT:Bluetooth Headset

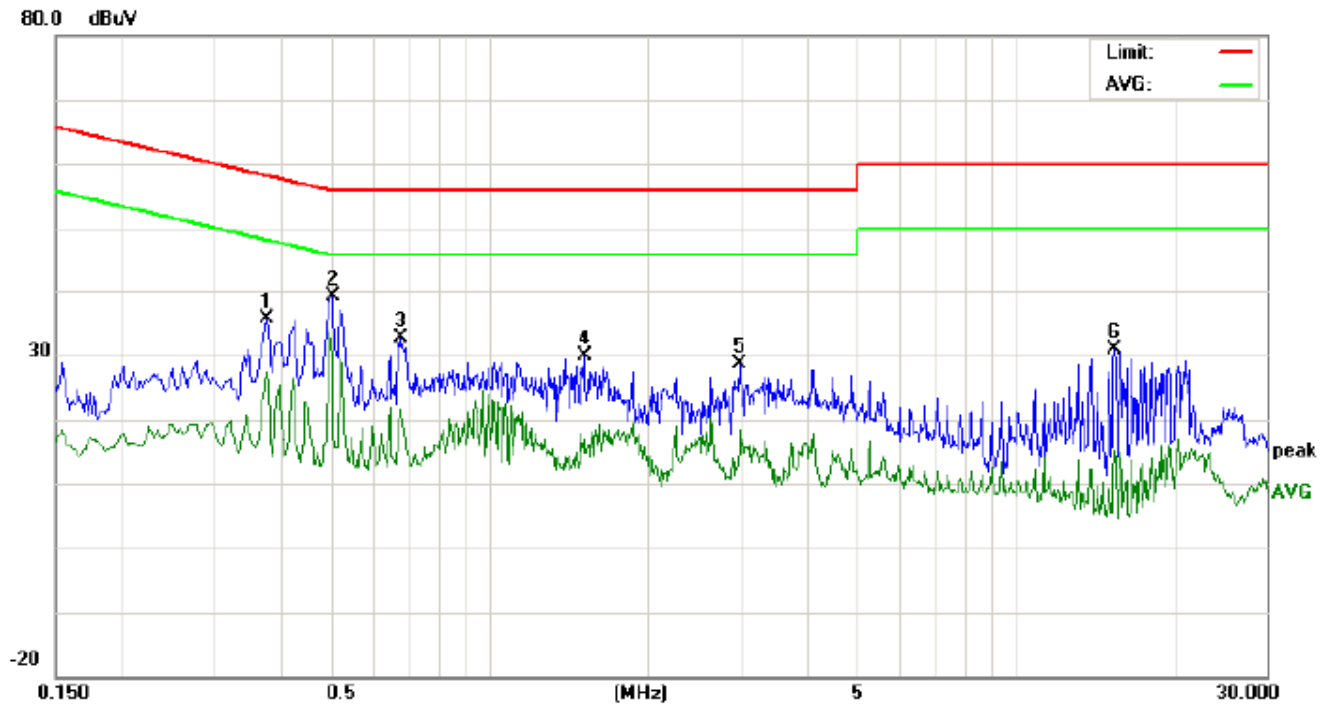
M/N: SX-991

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	0.3780	25.78		19.99	10.32	36.10		30.31	58.32	48.32	-22.22	-18.01	P	
2	0.5060	25.62		19.15	10.39	36.01		29.54	56.00	46.00	-19.99	-16.46	P	
3	1.0220	23.98		9.97	10.37	34.35		20.34	56.00	46.00	-21.65	-25.66	P	
4	1.6898	22.75		10.49	10.32	33.07		20.81	56.00	46.00	-22.93	-25.19	P	
5	8.8299	22.20		11.08	10.25	32.45		21.33	60.00	50.00	-27.55	-28.67	P	
6	19.6018	21.46		7.89	10.11	31.57		18.00	60.00	50.00	-28.43	-32.00	P	

Line Conducted Emission Test Line 2-N



Site: Conduction	Phase: N	Temperature: 22.5
Limit: FCC Class B Conduction(QP)	Power:	Humidity: 53.6 %
EUT:Bluetooth Headset		
M/N: SX-991		
Mode: BT Link with charging		
Note:		

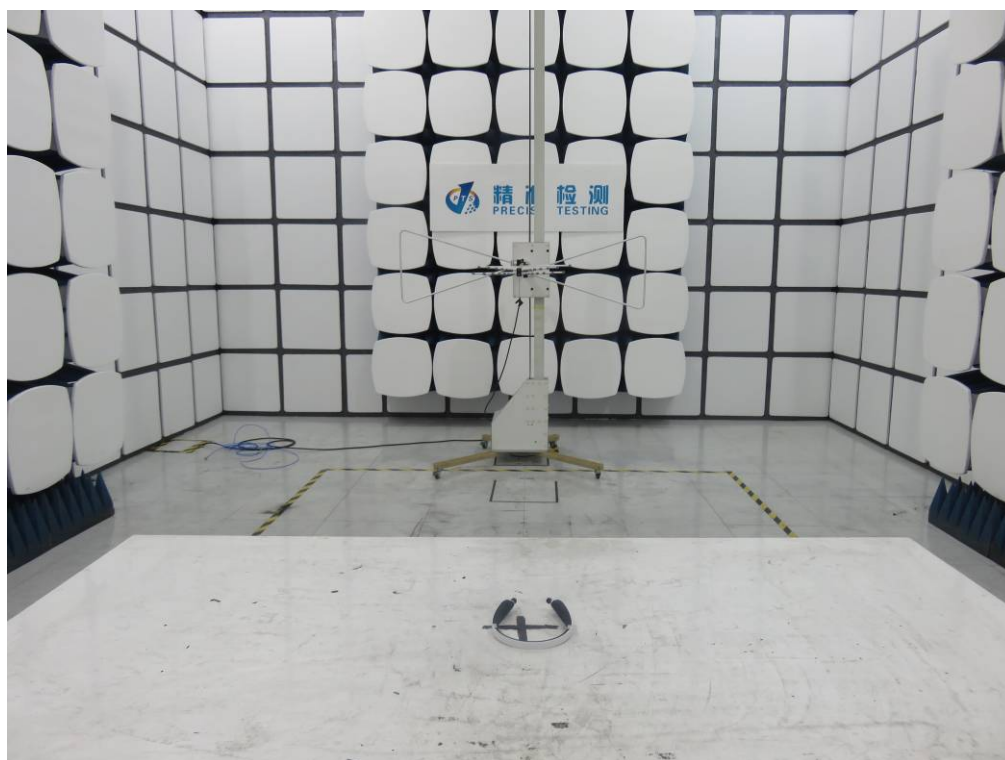
No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor dB	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG		Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.3780	25.21		17.02	10.32	35.53		27.34	58.32	48.32	-22.79	-20.98	P	
2	0.5020	28.70		19.14	10.40	39.10		29.54	56.00	46.00	-16.90	-16.46	P	
3	0.6780	22.31		11.06	10.34	32.65		21.40	56.00	46.00	-23.35	-24.60	P	
4	1.5140	19.49		6.44	10.38	29.87		16.82	56.00	46.00	-26.13	-29.18	P	
5	2.9820	18.13		5.22	10.55	28.68		15.77	56.00	46.00	-27.32	-30.23	P	
6	15.4379	20.74		4.95	10.12	30.86		15.07	60.00	50.00	-29.14	-34.93	P	

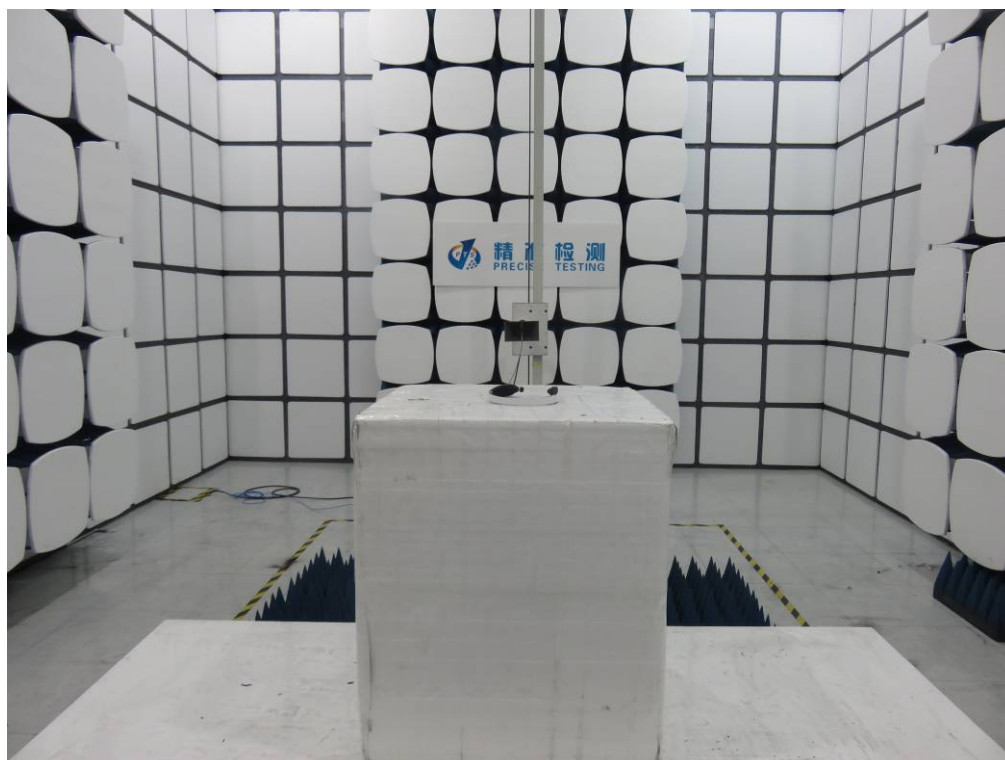
APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC LINE CONDUCTED EMISSION TEST SETUP



FCC RADIATED EMISSION TEST SETUP





VIEW OF ADAPTER(AE)



The EUT was supplied by AGC Lab and used for testing only.

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 (PORT)



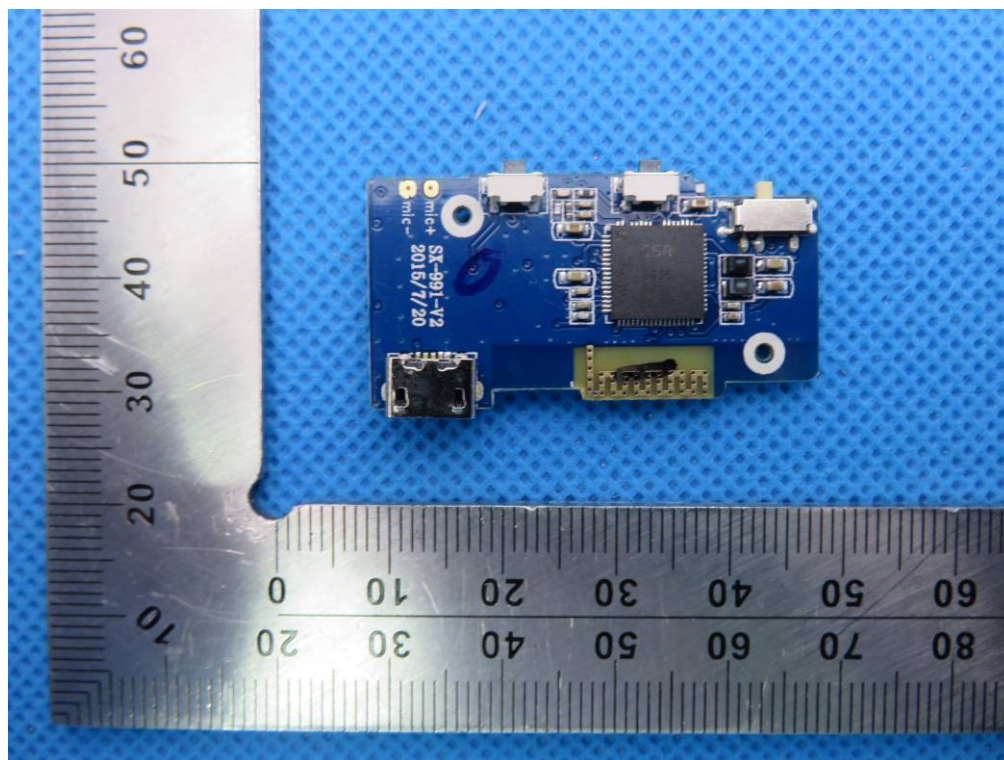
OPEN VIEW OF EUT-1



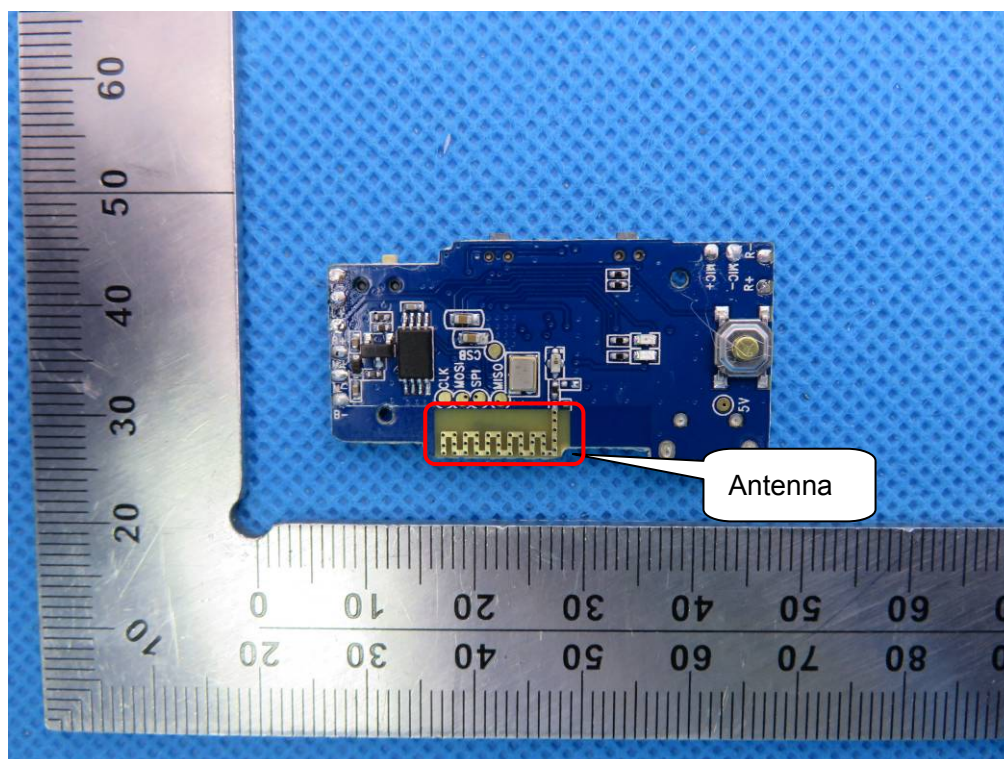
OPEN VIEW OF EUT-2



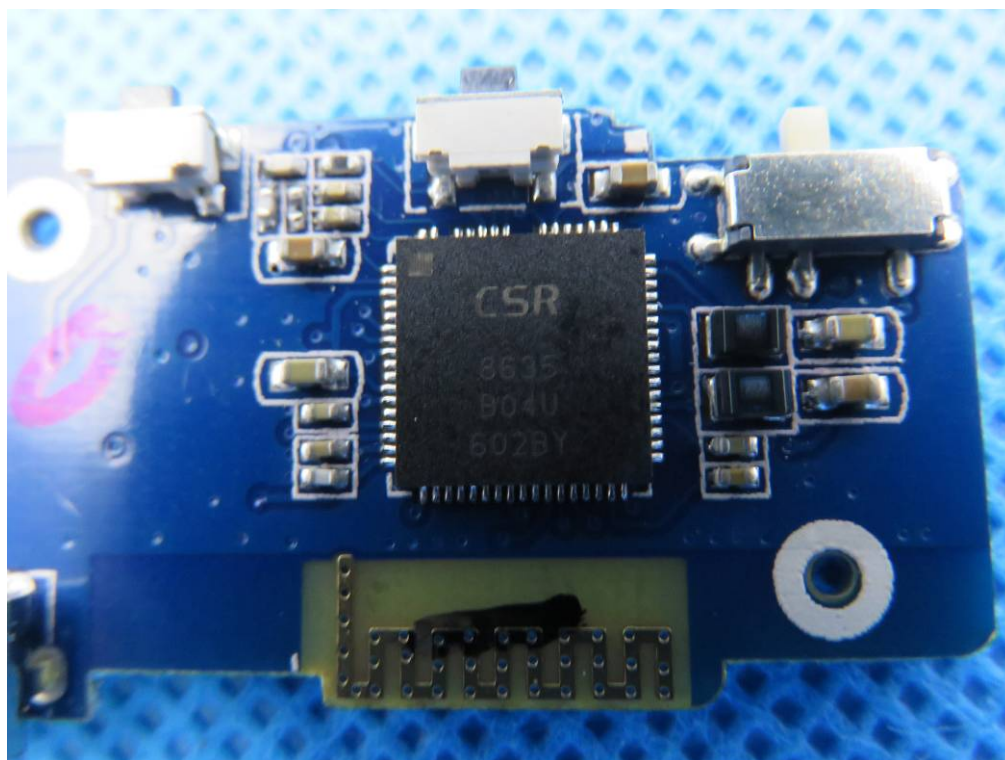
INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2



INTERNAL VIEW OF EUT-3



----END OF REPORT----