FCC TESTREPORT

Report No: STS00625150102FE08

Issued for

Hamee Corp.

5F, 2-9-39, Sakae-cho, Odawara, Kanagawa, 250-0011, Japan

Product Name:	Bluetooth Stereo Headset V4.0-ANTS
Brand Name:	Hamee
Model No.:	SH09
FCC ID:	2AD2XSH09
Test Standard:	FCC Part 15.247

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TEST RESULT CERTIFICATION

Applicant's name ..... Hamee Corp.

Address ..... 5F, 2-9-39, Sakae-cho, Odawara, Kanagawa, 250-0011, Japan

Manufacture's Name..... Shenzhen mees technology co., Ltd.

Address ..... Rm.511, Block C, Huafeng Headquarters Bldg, Xixing Avenue No.288, Baoan, Shenzhen

Product description

Product name ..... Bluetooth Stereo Headset V4.0-ANTS

Band name..... Hamee

Model and/or type reference SH09

Ratings ..... DC 3.7V by Battery

Standards..... FCC Part15.247

Test procedure..... ANSI C63.4-2009

This device described above has been tested by STS, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.

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Date of Test.....

Date (s) of performance of tests .. Jan.12,2015 to Jan.13,2015

Date of Issue..... Jan.14,2015

Test Result..... **Pass**

Testing Engineer **:** _____ (Tony Liu)

Technical Manager **:** _____ (Vita Li)

Authorized Signatory **:** _____ (Bovey Yang)

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1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
§15.203	Antenna Requirement	Compliant	
§15.209 §15.247(d)	Radiated Emission	Compliant	
§15.247(d)	Band Edges	Compliant	
§15.247	Bandwidth	Compliant	
§15.247(b)	Conducted Power	Compliant	
§15.247(e)	Maximum Conducted Output Power SPECTRAL Density	Compliant	
§15.207	Line Conduction Emission	Compliant	
§15.247(d)	Conducted Spurious Emissions	Compliant	

1.1 TEST FACILITY

Shenzhen STS Test Services Co., Ltd.

Add. : 1/F, Building 2, Zhuoke Science Park, Chongqing Road, Fuyong, Baoan District, Shenzhen, China.

FCC Registration No.: 842334; IC Registration No.: 12108A-1

1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement **y ±U**，where expended 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	±3.18dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.71dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth Stereo Headset V4.0-ANTS
Trade Name	Hamee
Model Name	SH09
Channel List	Please refer to the Note 2.
Bluetooth	Frequency:2402 – 2480 MHz Modulation: GFSK
Battery	Rated Voltage: 3.7V Charge Limit: 4.2V
Hardware version number	ZXCJSH09HWV1.0
Software versioningnumber	ZXCJSH09SFV1.0
Connecting I/O Port(s)	Please refer to the User's Manual

Note:

1. For a more detailed features description, please refer to the manufacturer’s specifications or the User's Manual.

2.

Channel List					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
0	2.402 MHZ	14	2.430MHZ	28	2.458 MHZ
1	2.404MHZ	15	2.432 MHZ	29	2.460 MHZ
2	2.406 MHZ	16	2.434 MHZ	30	2.462 MHZ
3	2.408 MHZ	17	2.436 MHZ	31	2.464 MHZ
4	2.410 MHZ	18	2.438 MHZ	32	2.466 MHZ
5	2.412 MHZ	19	2.440 MHZ	33	2.468 MHZ
6	2.414 MHZ	20	2.442MHZ	34	2.470 MHZ
7	2.416 MHZ	21	2.444 MHZ	35	2.472 MHZ
8	2.418 MHZ	22	2.446 MHZ	36	2.474 MHZ
9	2.420 MHZ	23	2.448 MHZ	37	2.476 MHZ
10	2.422 MHZ	24	2.450 MHZ	38	2.478 MHZ
11	2.424 MHZ	25	2.452 MHZ	39	2.480 MHZ
12	2.426 MHZ	26	2.454 MHZ		
13	2.428 MHZ	27	2.456 MHZ		

3. Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
1	N/A	N/A	Ceramic Antenna	NA	0	BT Antenna

The EUT antenna is Ceramic Antenna. no antenna other than that furnished by the responsible party shall be used with the device.

2.1 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

Pretest Mode	Description
Mode 1	Low channel TX
Mode 2	Middle channel TX
Mode 3	High channel TX

For Conducted Emission	
Final Test Mode	Description
Mode 4	keeping TX

For Radiated Emission	
Final Test Mode	Description
Mode 1	Low channel TX
Mode 2	Middle channel TX
Mode 3	High channel TX

Note:

(1)The measurements are performed at the highest, middle, lowest available channels.

2.2 TABLE OF PARAMETERS OF TEXT SOFTWARE SETTING

During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of DSSS

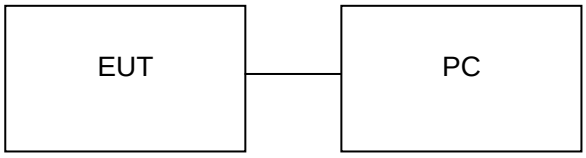
Test software Version	Test program: N/A		
Frequency	2402 MHz	2440 MHz	2480 MHz
Parameters(GFSK)	DEF	DEF	DEF

2.3BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

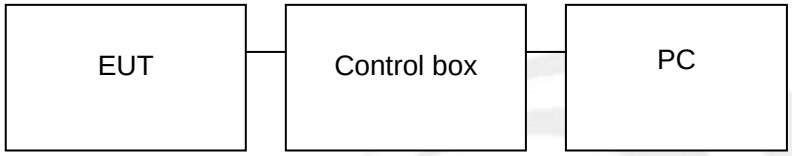
During testing channel & power controlling software provided by the customer was used to control the operating channel as well as the output power level. The RF output power selection is for the setting of RF output power expected by the customer and is going to be fixed on the firmware of the final end product power parameters of DSSS

Radiated Spurious EmissionTest

Configure 1: (Normal hopping)



Configure 2: (Control continuous TX)



Conducted Emission Test

2.4 DESCRIPTION OF SUPPORT UNITS

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1	Bluetooth Stereo Headset V4.0-ANTS	N/A	SH09	N/A	EUT
2	Battery	N/A	N/A	N/A	Accessory
3	PC	Apple	A1456	N/A	FCC DOC approval
4	Control box	N/A	N/A	N/A	A.E

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.
(2) For detachable type I/O cable should be specified the length in cm in『Length』column.
(3) “YES” is means “shielded” “with core”; “NO” is means “unshielded” “without core”.
(4) N/A means not applicable.

2.5EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Spectrum Analyzer	Agilent	E4407B	MY50140340	2014.10.25	2015.10.24
Test Receiver	R&S	ESCI	101427	2014.10.25	2015.10.24
Bilog Antenna	TESEQ	CBL6111D	34678	2014.10.27	2015.10.26
50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2014.06.06	2015.06.06
Horn Antenna	R&S	9120D	152265	2014.10.27	2015.10.26
Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2014.07.06	2015.07.05
Amplifier	EM	EM-30180	060538	2014.12.22	2015.12.21
Loop Antenna	ARA	PLA-1030/B	1029	2014.06.08	2015.06.07
Power Meter	Anritsu	ML2495A	1204003	2014.10.25	2015.10.24
Power Sensor	Anritsu	MA2411B	100309	2014.10.25	2015.10.24

Conduction Test equipment

Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
Test Receiver	R&S	102086	102086	2014.10.25	2015.10.24
LISN	R&S	ENV216	101242	2014.10.25	2015.10.24
LISN	EMCO	3810/2NM	000-23625	2014.10.25	2015.10.24
50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2014.06.06	2015.06.06
Passive Voltage Probe	R&S	ESH2-Z3	100196	2014.06.06	2015.06.06
Absorbing clamp	R&S	MDS-21	100668	2014.10.27	2015.10.26

3.EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION LIMITS

Operating frequency band. In case the emission fall within the restricted band specified on Part 15.247&207(a) limit in the table below has to be followed.

FREQUENCY (MHz)	Class B (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	56.00	46.00	CISPR
5.0 -30.0	60.00	50.00	CISPR

0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:

(1) The tighter limit applies at the band edges.

(2) The limit of " * " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

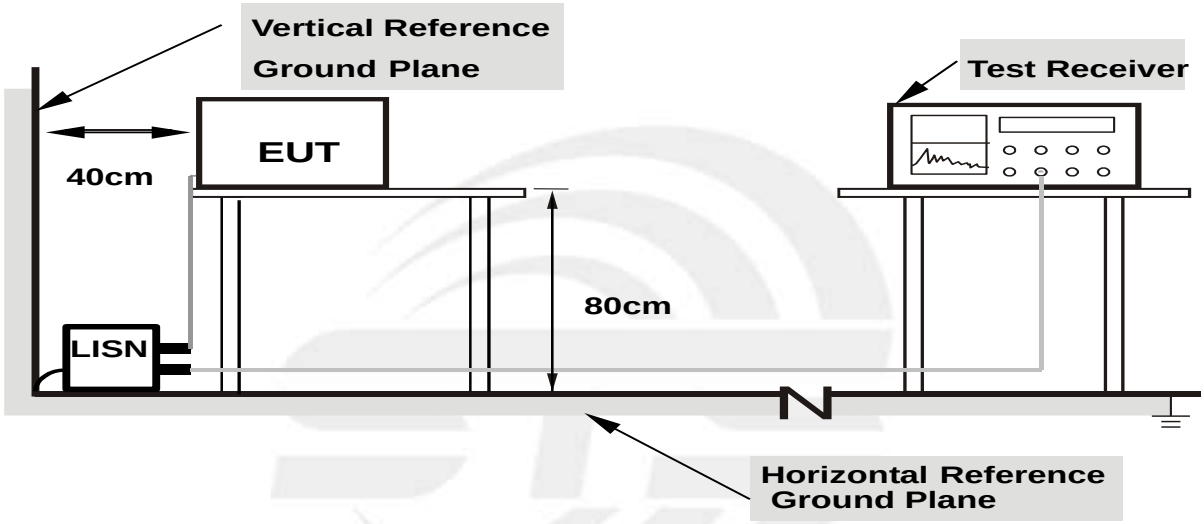
The following table is the setting of the receiver

Receiver Parameters	Setting
Attenuation	10 dB
Start Frequency	0.15 MHz
Stop Frequency	30 MHz
IF Bandwidth	9 kHz

3.1.2 TEST PROCEDURE

a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
d. LISN at least 80 cm from nearest part of EUT chassis.
e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

3.1.3 TEST SETUP



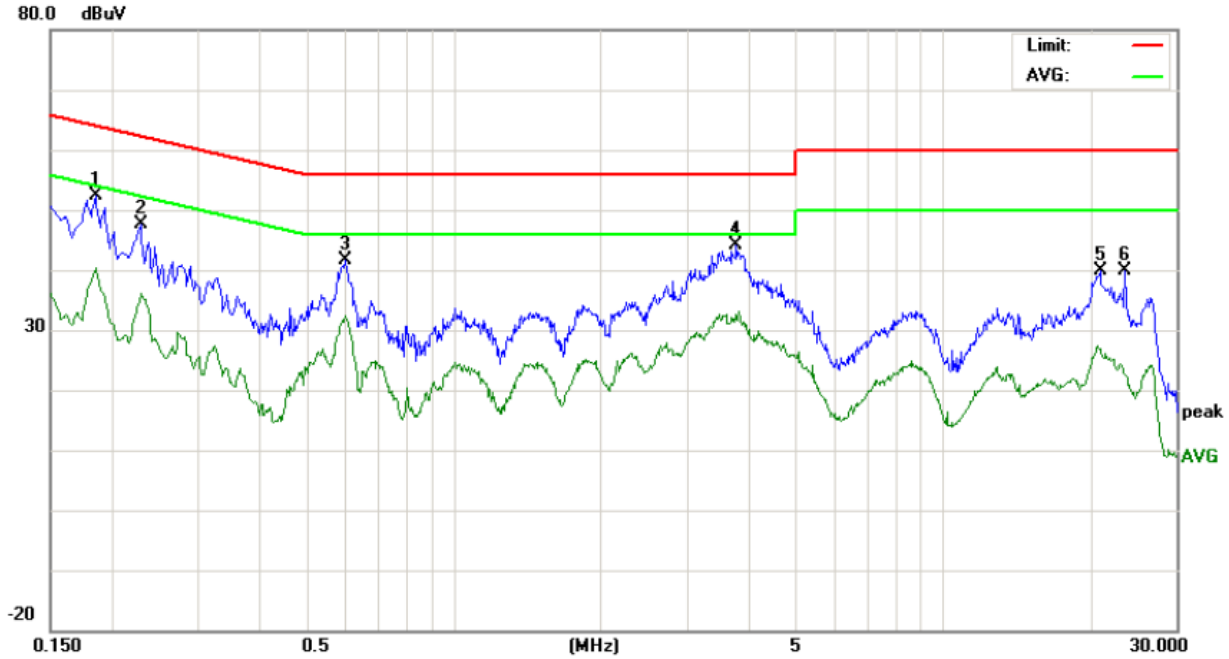
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

3.1.4EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

3.1.5TEST RESULTS

EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name. ：	SH09
Temperature：	23℃	Relative Humidity：	50%
Pressure：	1010hPa	Phase：	L
Test Voltage：	DC3.7V	Test Mode：	keeping TX



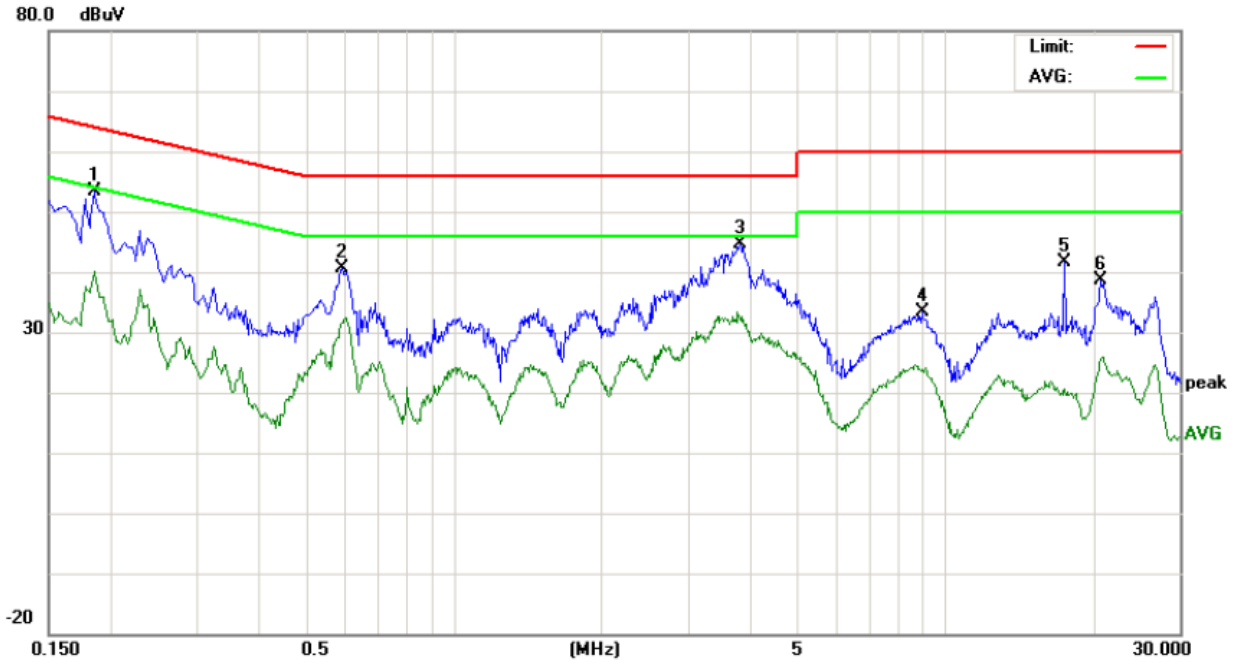
Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Keeping TX
Note:

Phase: L1
Power:

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1860	42.05		30.25	10.20	52.25		40.45	64.21	54.21	-11.96	-13.76	P	
2	0.2300	37.29		25.87	10.25	47.54		36.12	62.45	52.45	-14.91	-16.33	P	
3	0.6020	31.31		22.13	10.31	41.62		32.44	56.00	46.00	-14.38	-13.56	P	
4	3.7940	33.63		21.52	10.46	44.09		31.98	56.00	46.00	-11.91	-14.02	P	
5	20.9340	29.87		16.65	10.13	40.00		26.78	60.00	50.00	-20.00	-23.22	P	
6	23.5220	29.73		12.50	10.11	39.84		22.61	60.00	50.00	-20.16	-27.39	P	

EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name. ：	SH09
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Phase：	N
Test Voltage：	DC3.7V	Test Mode：	keeping TX



Site: Conduction
Limit: FCC Class B Conduction(QP)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Keeping TX
Note:

Phase: *N*
Power:

Temperature: 26
Humidity: 60 %

No.	Freq. (MHz)	Reading_Level (dBuV)			Correct Factor	Measurement (dBuV)			Limit (dBuV)		Margin (dB)		P/F	Comment
		Peak	QP	AVG	dB	Peak	QP	AVG	QP	AVG	QP	AVG		
1	0.1860	43.29		30.01	10.20	53.49		40.21	64.21	54.21	-10.72	-14.00	P	
2	0.5940	30.40		21.24	10.32	40.72		31.56	56.00	46.00	-15.28	-14.44	P	
3	3.8300	34.07		21.69	10.46	44.53		32.15	56.00	46.00	-11.47	-13.85	P	
4	8.9979	23.17		13.76	10.21	33.38		23.97	60.00	50.00	-26.62	-26.03	P	
5	17.5099	31.51		10.46	10.12	41.63		20.58	60.00	50.00	-18.37	-29.42	P	
6	20.7939	28.42		15.23	10.13	38.55		25.36	60.00	50.00	-21.45	-24.64	P	

3.2 RADIATED EMISSION MEASUREMENT

3.2.1RADIATED EMISSION LIMITS

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on Part 15247&205(a), then the Part 15 247&209(a) limit in the table below has to be followed.

LIMITS OF RADIATED EMISSION MEASUREMENT (30MHz - 1000MHz)

Frequencies (MHz)	Field Strength (micorvolts/meter)	Measurement Distance (meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

FREQUENCY RANGE OF RADIATED MEASUREMENT (For unintentional radiators)

Highest frequency generated or Upper frequency of measurement used in the device or on which the device operates or tunes (MHz)	Range (MHz)
Below 1.705	30
1.705 – 108	1000
108 – 500	2000
500 – 1000	5000
Above 1000	5th harmonic of the highest frequency or 40 GHz, whichever is lower

Spectrum Parameter	Setting
Attenuation	Auto
Detector	Peak
Start Frequency	1000 MHz(Peak/AV)
Stop Frequency	10th carrier harmonic(Peak/AV)
RB / VB (emission in restricted band)	RBW 1MHz / VBW 1MHz Peak detector for Pk value RMS detector for AV value

Receiver Parameter	**Setting**
Attenuation	Auto
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

3.2.2 TEST PROCEDURE

a. The measuring distance of at 3 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then QuasiPeak detector mode re-measured.
e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP Limits and then no additional QP Mode measurement performed.
f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

Note:

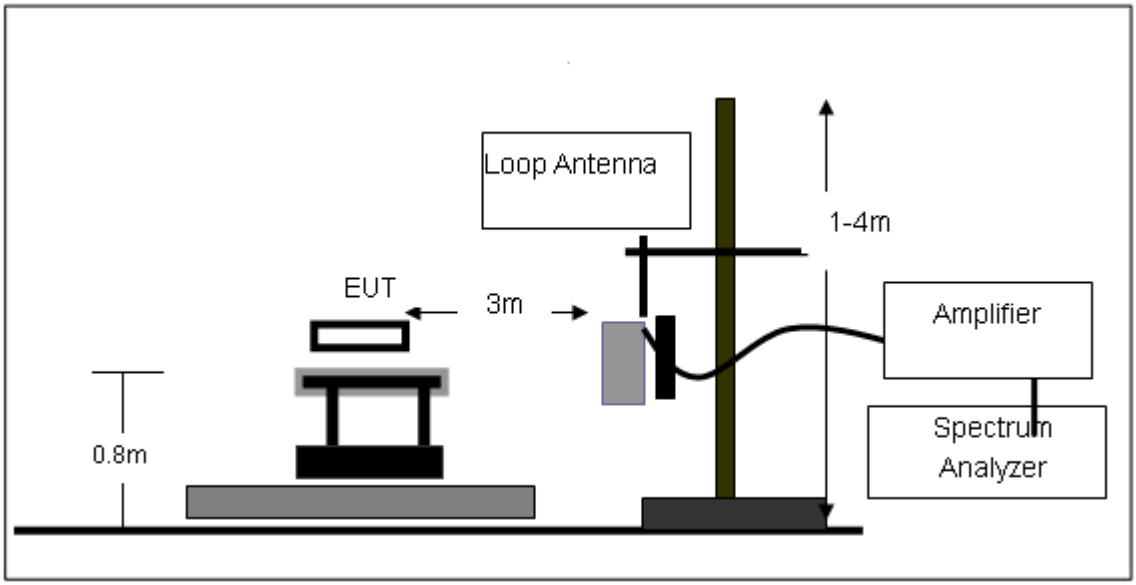
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

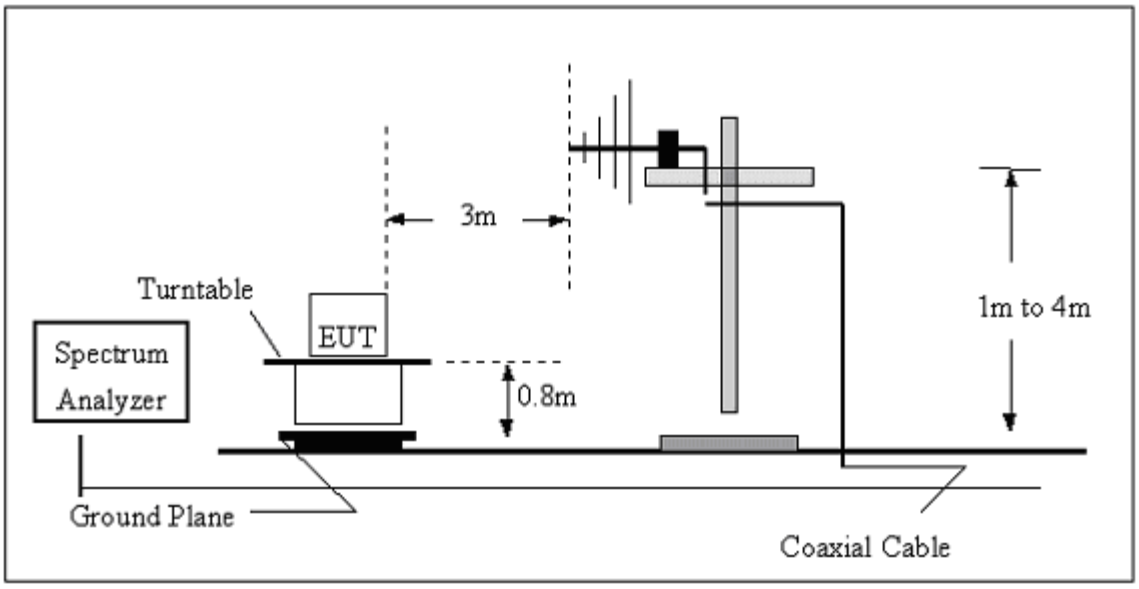
No deviation

3.2.4 TESTSETUP

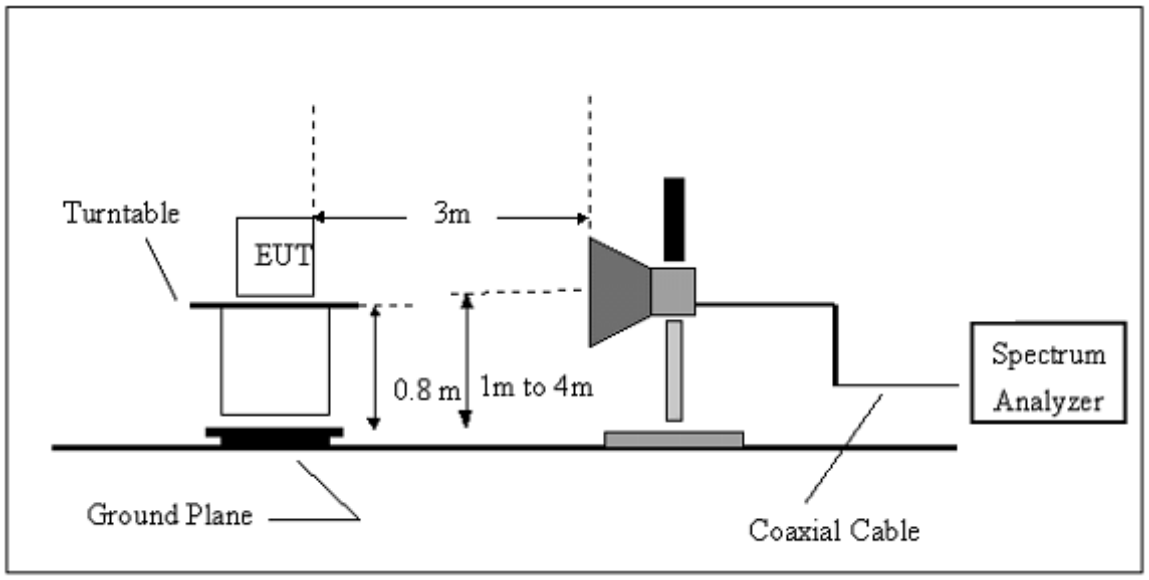
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



3.2.5EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

3.2.6 TEST RESULTS

Below 30 MHz

EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name.：	SH09
Temperature：	23 ℃	Relative Humidity：	50%
Pressure：	1010hPa	Polarization：	---
Test Voltage：	DC 3.7V		
Test Mode ：	TX Mode		

Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

NOTE:

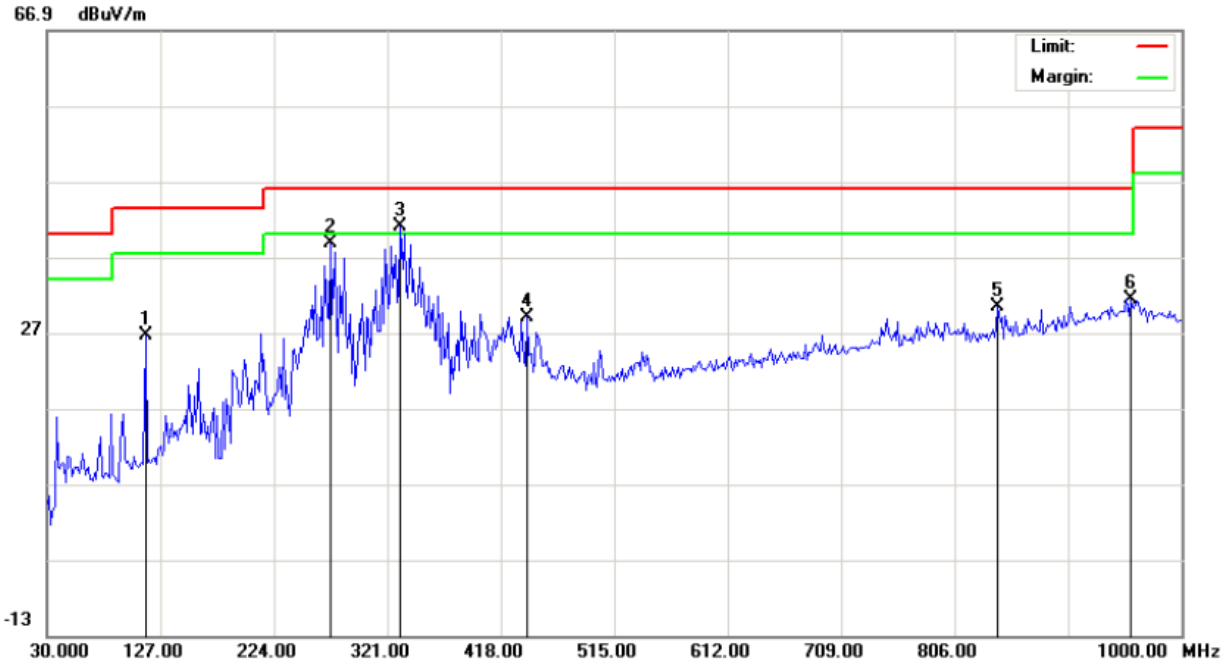
The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

Distance extrapolation factor =40 log (specific distance/test distance)(dB);

Limit line = specific limits(dBuv) + distance extrapolation factor.

Between 30MHz – 1000 MHz

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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Low Channel TX
Note:

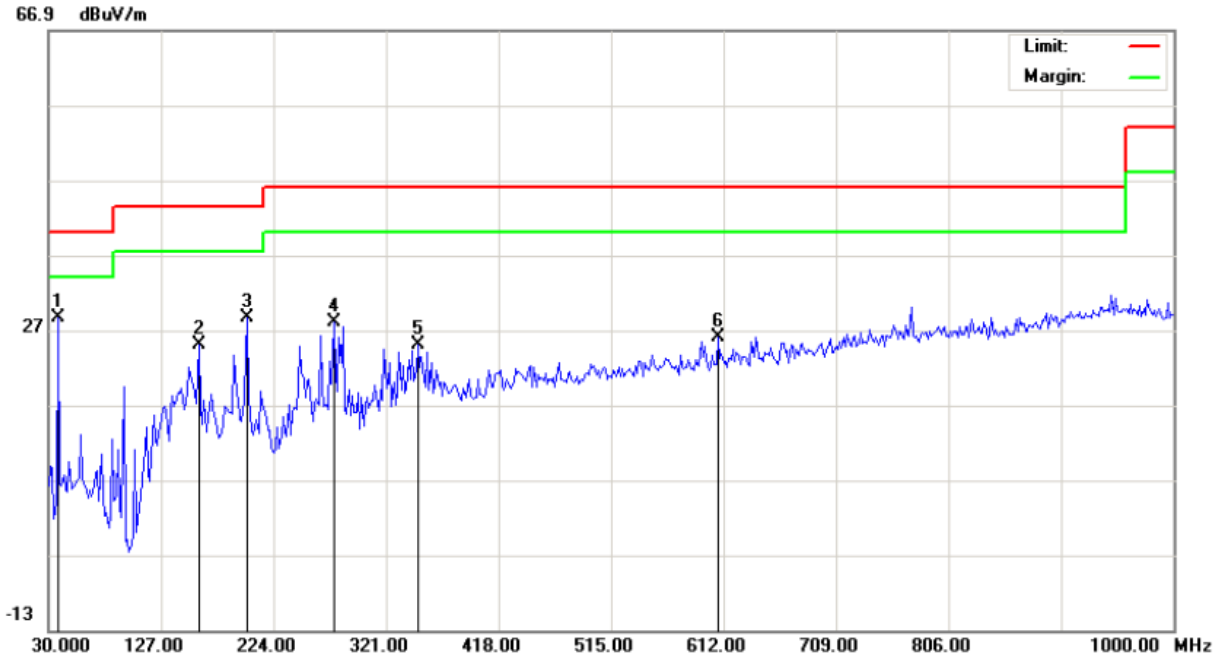
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

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		114.0667	15.21	11.45	26.66	43.50	-16.84	peak			
2		272.5000	24.20	14.58	38.78	46.00	-7.22	peak			
3	*	332.3167	23.47	17.56	41.03	46.00	-4.97	peak			
4		440.6333	8.76	20.31	29.07	46.00	-16.93	peak			
5		843.1833	3.10	27.31	30.41	46.00	-15.59	peak			
6		956.3500	1.54	29.94	31.48	46.00	-14.52	peak			

RESULT: PASS

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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Low Channel TX
Note:

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

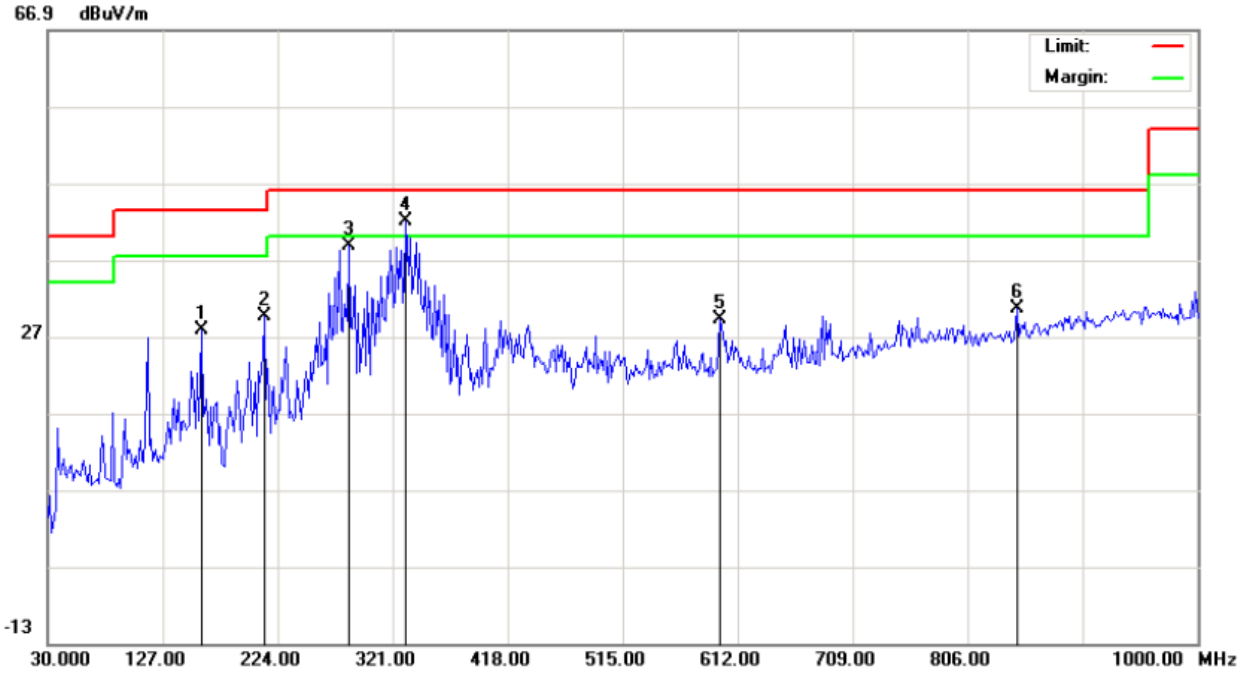
No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	38.0833	22.16	6.39	28.55	40.00	-11.45	peak			
2		159.3333	9.62	15.33	24.95	43.50	-18.55	peak			
3		201.3667	19.51	9.13	28.64	43.50	-14.86	peak			
4		275.7333	13.33	14.68	28.01	46.00	-17.99	peak			
5		348.4833	6.30	18.64	24.94	46.00	-21.06	peak			
6		607.1500	3.16	22.89	26.05	46.00	-19.95	peak			

RESULT: PASS

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

2. The “Factor” valuecan 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 Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Middle Channel TX
Note:

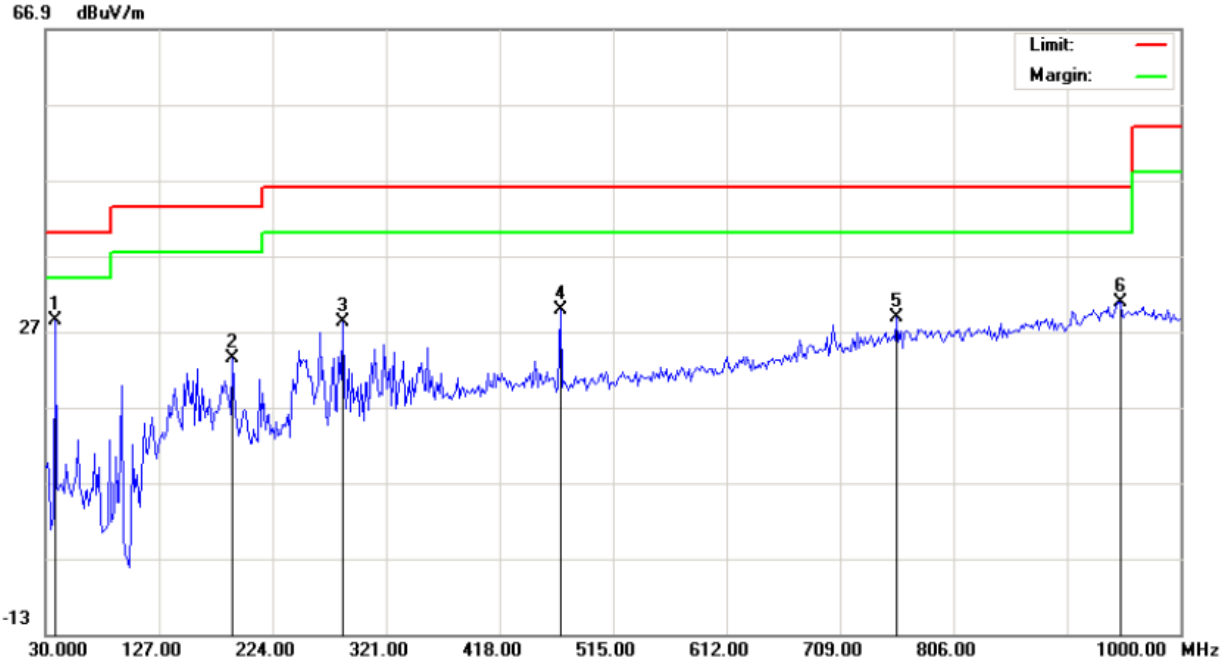
Polarization: ***Horizontal***
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

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		159.3333	12.44	15.33	27.77	43.50	-15.73	peak			
2		212.6833	17.11	12.48	29.59	43.50	-13.91	peak			
3		283.8167	23.80	14.92	38.72	46.00	-7.28	peak			
4	*	332.3167	24.49	17.56	42.05	46.00	-3.95	peak			
5		597.4500	5.62	23.67	29.29	46.00	-16.71	peak			
6		848.0333	3.24	27.31	30.55	46.00	-15.45	peak			

RESULT: PASS

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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Middle Channel TX
Note:

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

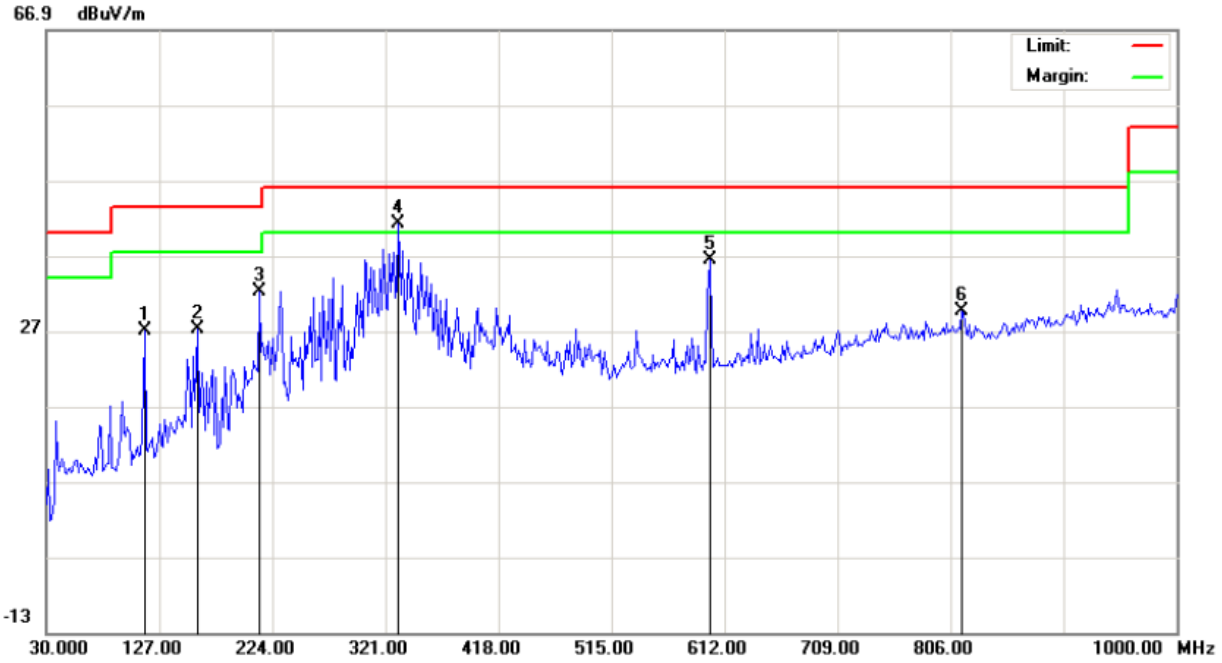
No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	38.0833	22.03	6.39	28.42	40.00	-11.58	peak			
2		190.0500	11.97	11.52	23.49	43.50	-20.01	peak			
3		283.8167	13.24	14.92	28.16	46.00	-17.84	peak			
4		469.7333	8.92	20.80	29.72	46.00	-16.28	peak			
5		757.5000	2.10	26.73	28.83	46.00	-17.17	peak			
6		948.2667	0.87	29.95	30.82	46.00	-15.18	peak			

RESULT: PASS

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

2. The “Factor” valuecan be calculated automatically by software of measurement system.

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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: High Channel TX
Note:

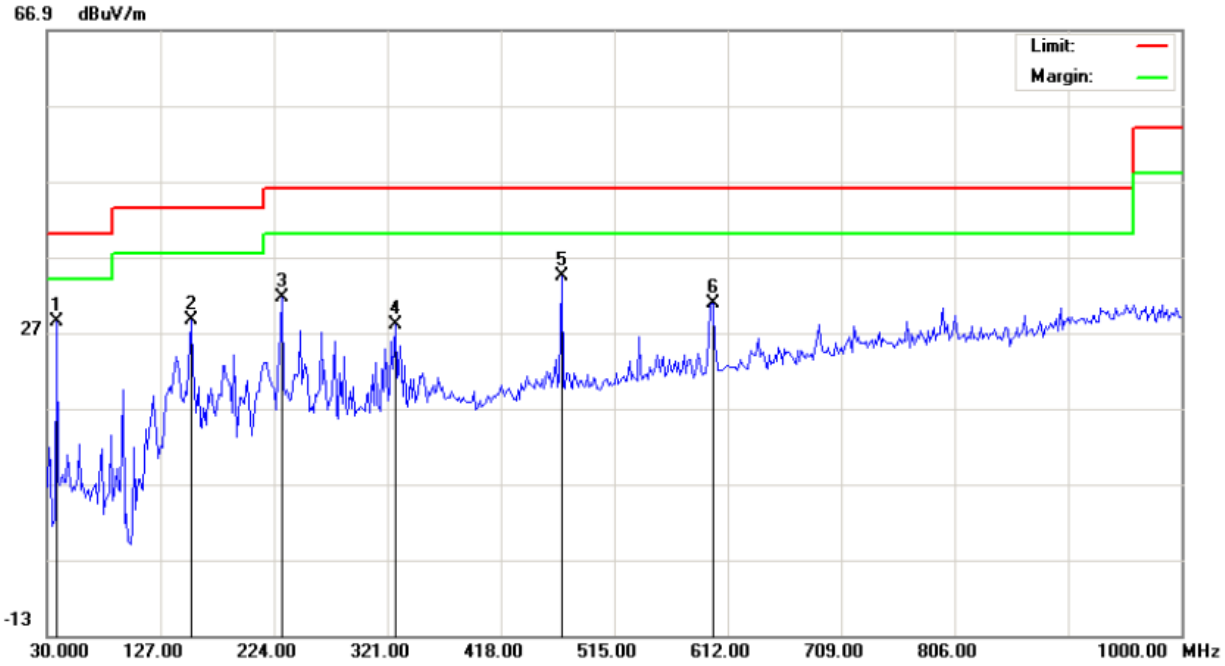
Polarization: *Horizontal*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

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		114.0667	15.46	11.45	26.91	43.50	-16.59	peak			
2		159.3333	11.82	15.33	27.15	43.50	-16.35	peak			
3		212.6833	19.76	12.48	32.24	43.50	-11.26	peak			
4	*	332.3167	23.64	17.56	41.20	46.00	-4.80	peak			
5		599.0667	12.71	23.71	36.42	46.00	-9.58	peak			
6		815.7000	2.37	27.32	29.69	46.00	-16.31	peak			

RESULT: PASS

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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: High Channel TX
Note:

Polarization: *Vertical*
Power:
Distance: 3m

Temperature: 26
Humidity: 60 %

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	*	38.0833	21.97	6.39	28.36	40.00	-11.64	peak			
2		152.8667	13.34	15.28	28.62	43.50	-14.88	peak			
3		230.4667	19.53	11.99	31.52	46.00	-14.48	peak			
4		327.4667	10.85	17.24	28.09	46.00	-17.91	peak			
5		469.7333	13.56	20.80	34.36	46.00	-11.64	peak			
6		599.0667	7.99	22.73	30.72	46.00	-15.28	peak			

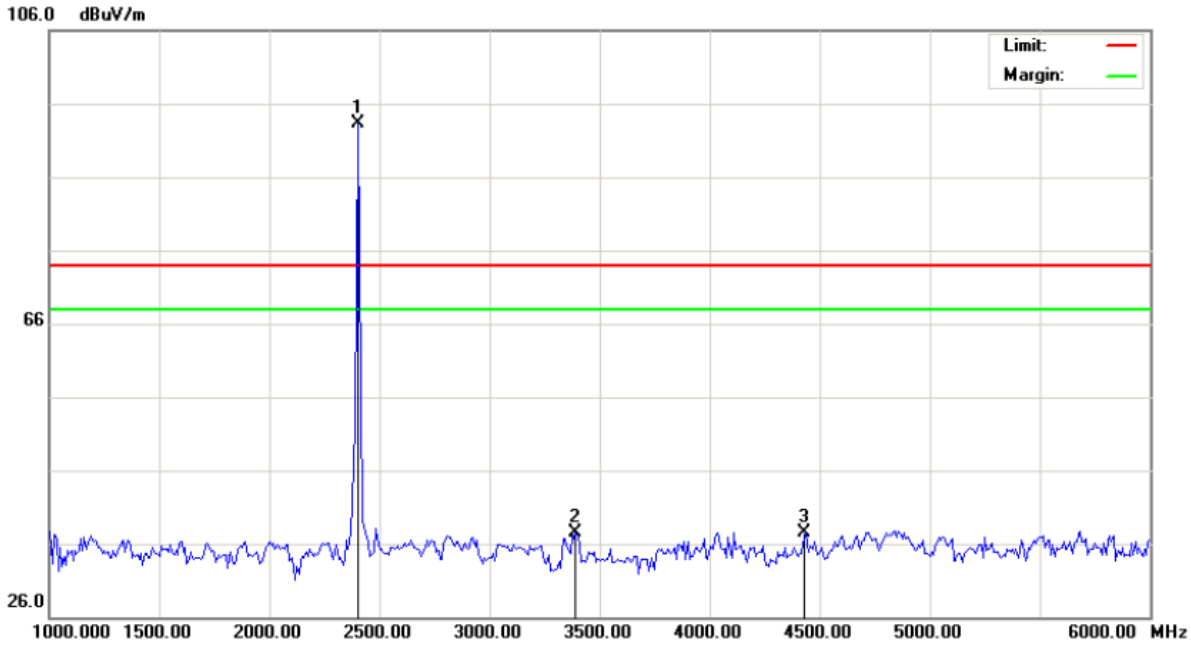
RESULT: PASS

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

2. The “Factor” valuecan be calculated automatically by software of measurement system.

Above 1000 MHz

RADIATED EMISSION ABOVE 1GHZ (1-10th Harmonics)-LOW CHANNEL-HORIZONTAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Low Channel TX
Note:

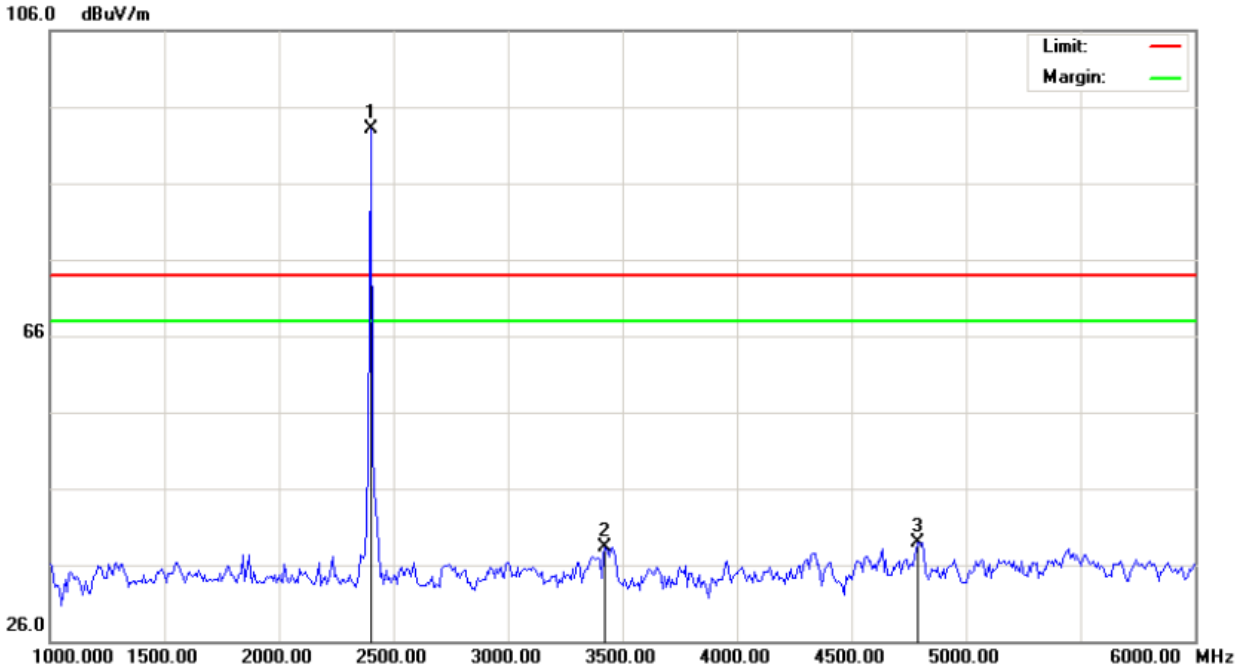
Polarization: *Horizontal*
Power:
Distance:

Temperature: 26
Humidity: 60 %

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	83.07	10.32	93.39	74.00	19.39	peak			
2		3391.667	25.58	12.01	37.59	74.00	-36.41	peak			
3		4433.333	29.55	8.00	37.55	74.00	-36.45	peak			

RESULT: PASS

RADIATED EMISSION ABOVE 1GHZ (1-10th Harmonics)-LOW CHANNEL –VERTICAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Low Channel TX
Note:

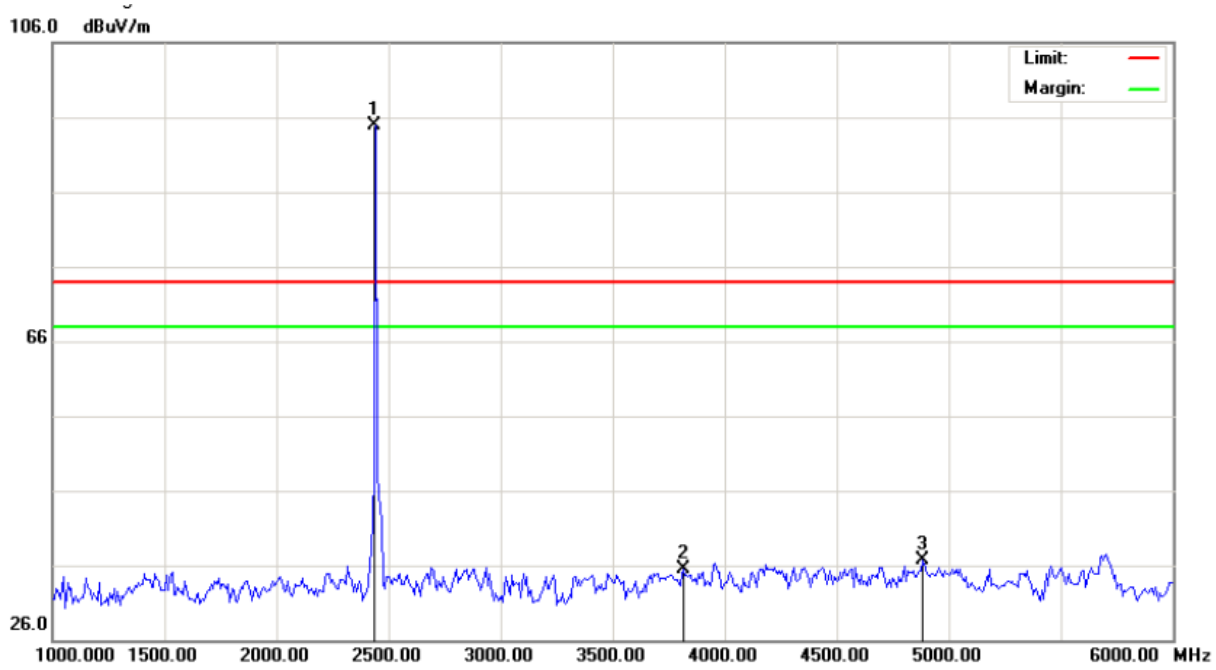
Polarization: *Vertical*
Power:
Distance:

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2402.000	82.70	10.32	93.02	74.00	19.02	peak			
2		3425.000	26.21	12.04	38.25	74.00	-35.75	peak			
3		4791.667	31.31	7.65	38.96	74.00	-35.04	peak			

RESULT: PASS

RADIATED EMISSION ABOVE 1GHZ (1-10th Harmonics)-MIDDLE CHANNEL-HORIZONTAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT:Bluetooth Stereo Headset V4.0-ANTS
M/N:SH09
Mode: Middle Channel TX
Note:

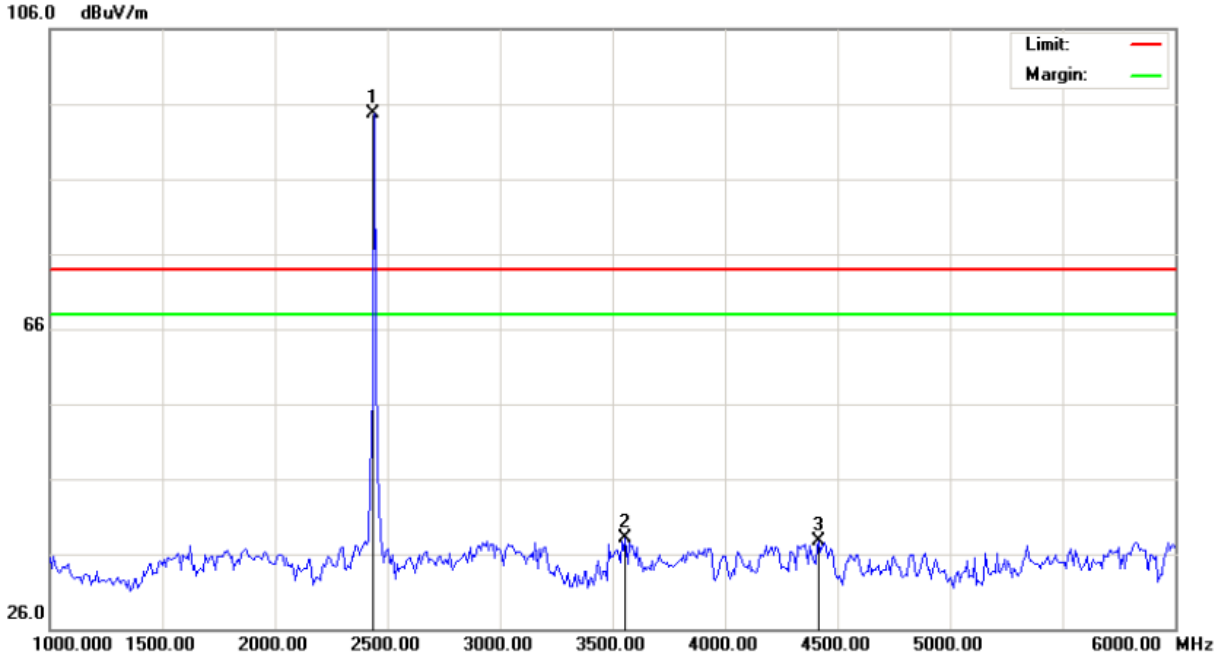
Polarization: ***Horizontal***
Power:
Distance:

Temperature: 26
Humidity: 60 %

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	84.61	10.36	94.97	74.00	20.97	peak			
2		3816.667	21.42	14.06	35.48	74.00	-38.52	peak			
3		4883.333	28.86	7.89	36.75	74.00	-37.25	peak			

RESULT: PASS

RADIATED EMISSION ABOVE 1GHZ (1-10th Harmonics)- MIDDLE CHANNEL –VERTICAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Middle Channel TX
Note:

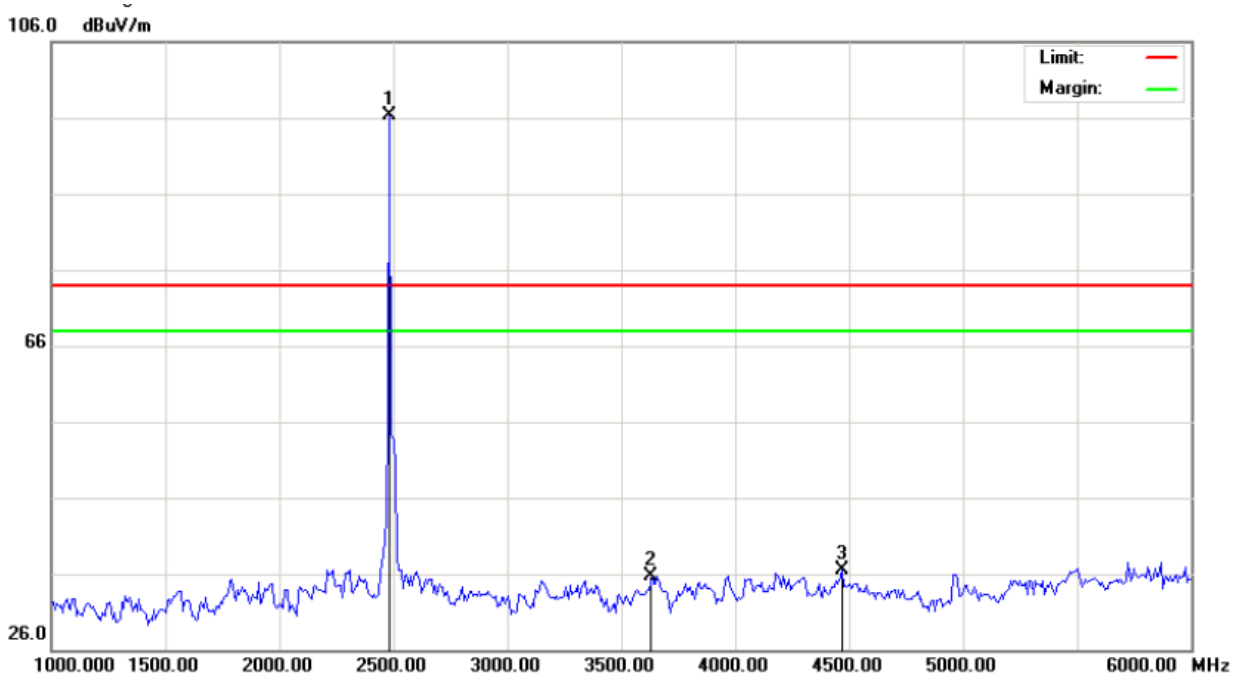
Polarization: *Vertical*
Power:
Distance:

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2440.000	84.41	10.36	94.77	74.00	20.77	peak			
2		3558.333	25.70	12.47	38.17	74.00	-35.83	peak			
3		4416.667	29.38	8.27	37.65	74.00	-36.35	peak			

RESULT: PASS

RADIATED EMISSION ABOVE 1GHZ (1-10th Harmonics)-HIGH CHANNEL-HORIZONTAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT:Bluetooth Stereo Headset V4.0-ANTS
M/N:SH09
Mode: High Channel TX
Note:

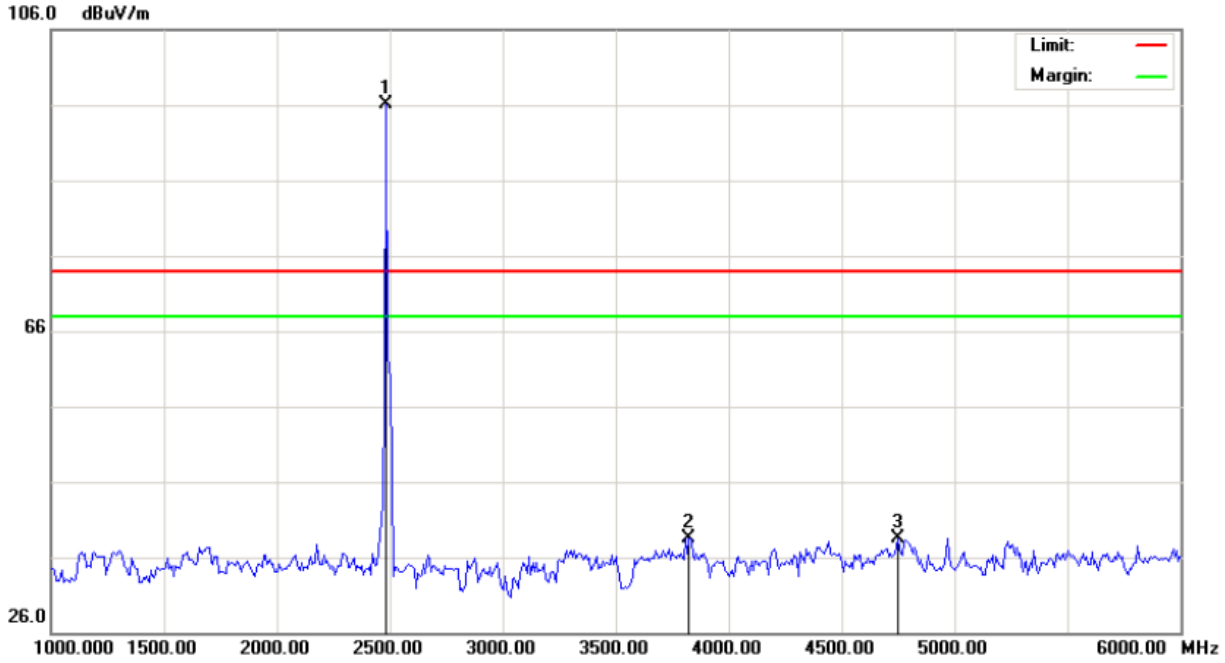
Polarization: ***Horizontal***
Power:
Distance:

Temperature: 26
Humidity: 60 %

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	85.89	10.41	96.30	74.00	22.30	peak			
2		3633.333	22.75	12.93	35.68	74.00	-38.32	peak			
3		4466.667	29.07	7.44	36.51	74.00	-37.49	peak			

RESULT: PASS

RADIATED EMISSION ABOVE 1GHZ (1-10th Harmonics)-HIGH CHANNEL –VERTICAL



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: High Channel TX
Note:

Polarization: *Vertical*
Power:
Distance:

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	85.76	10.41	96.17	74.00	22.17	peak			
2		3825.000	24.39	14.11	38.50	74.00	-35.50	peak			
3		4750.000	30.95	7.54	38.49	74.00	-35.51	peak			

RESULT: PASS

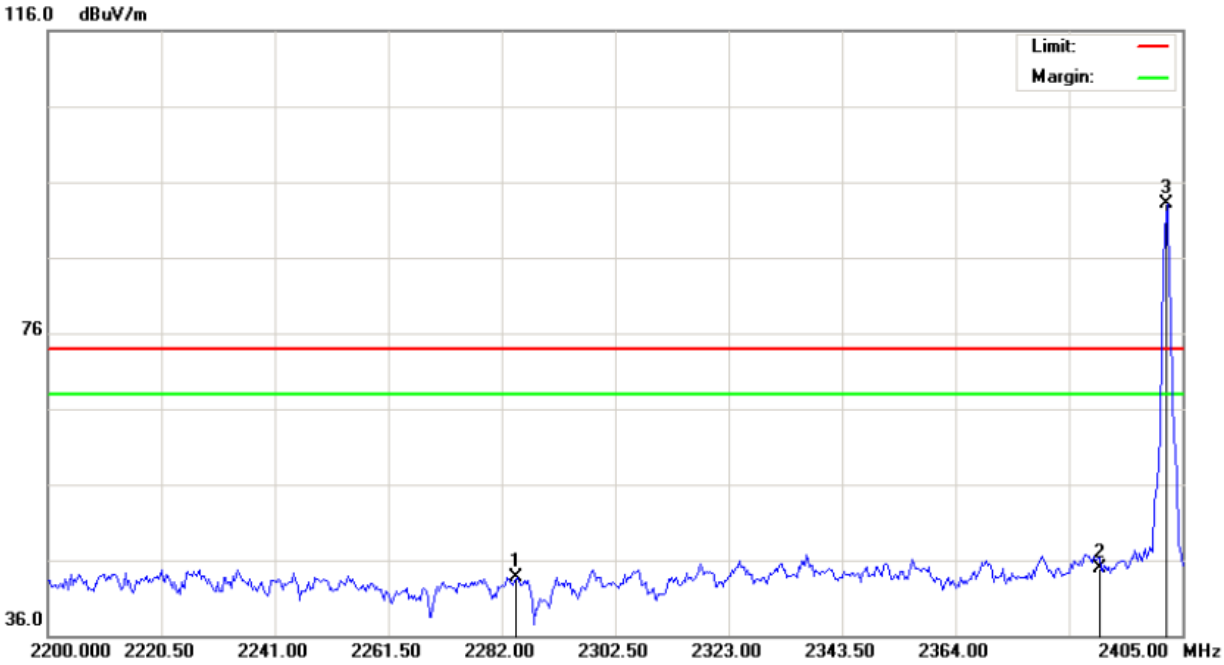
Note: 6~25GHz at least have 20dB margin. No recording in the test report.

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

The “Factor” valuecan be calculated automatically by software of measurement system.

BAND EDGE TEST

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Horizontal



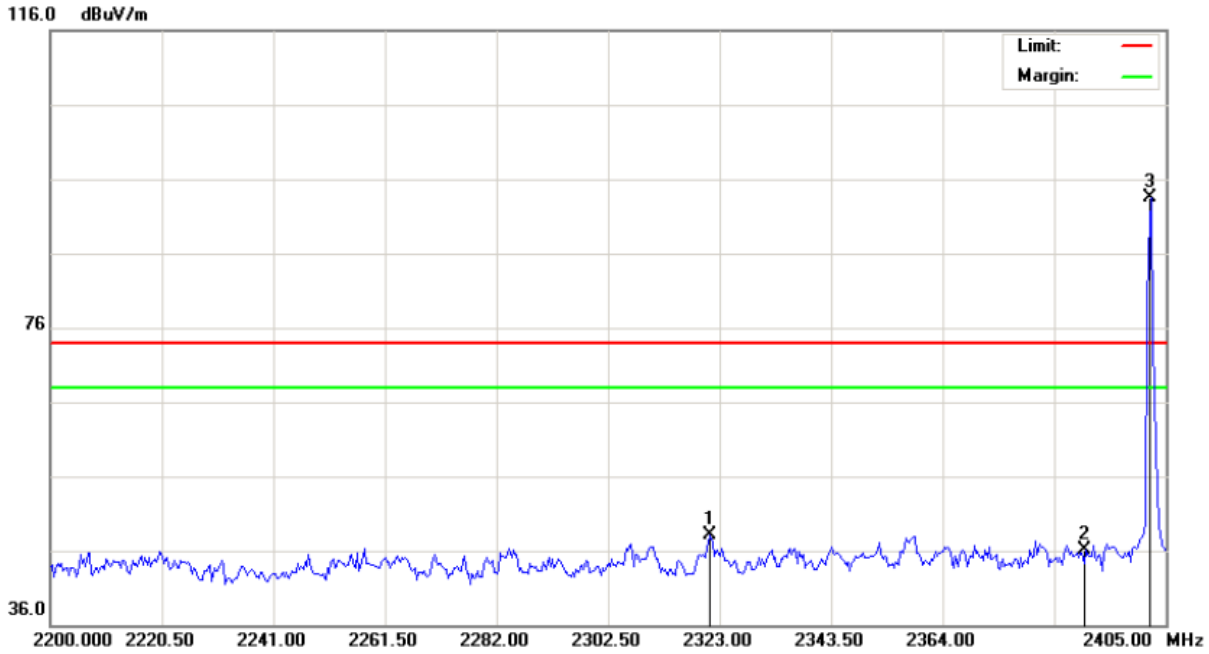
Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Low Channel TX
Note:

Polarization: *Horizontal*
Power:
Distance:

Temperature: 26
Humidity: 60 %

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		2284.733	33.61	10.19	43.80	74.00	-30.20	peak			
2		2390.000	34.50	10.31	44.81	74.00	-29.19	peak			
3	*	2402.000	82.72	10.32	93.04	74.00	19.04	peak			

TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical



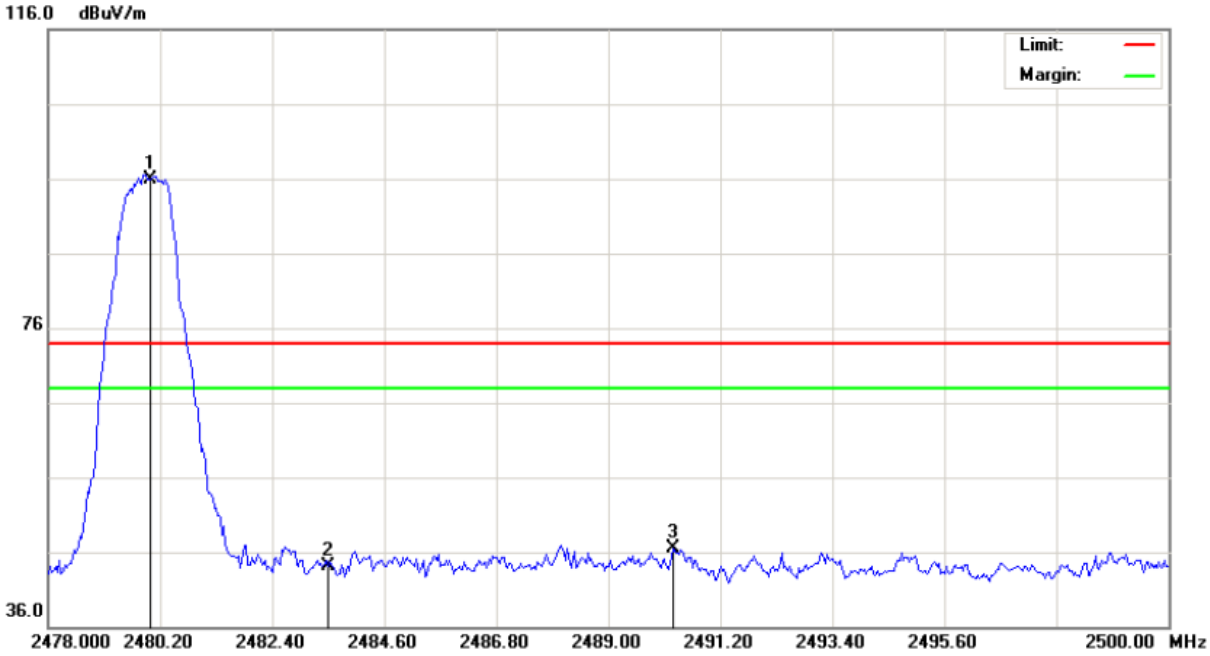
Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: Low Channel TX
Note:

Polarization: *Vertical*
Power:
Distance:

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2321.292	37.88	10.23	48.11	74.00	-25.89	peak			
2		2390.000	35.71	10.31	46.02	74.00	-27.98	peak			
3	*	2402.000	83.09	10.32	93.41	74.00	19.41	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Horizontal



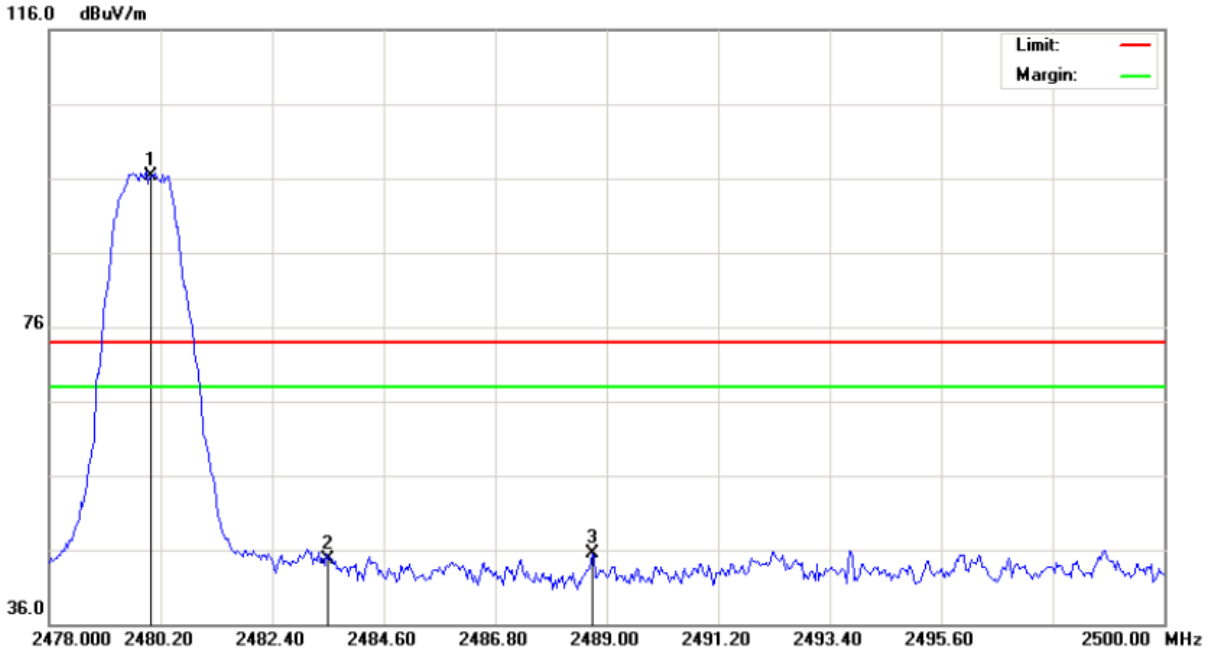
Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: High Channel TX
Note:

Polarization: *Horizontal*
Power:
Distance:

Temperature: 26
Humidity: 60 %

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	85.55	10.41	95.96	74.00	21.96	peak			
2		2483.500	33.69	10.41	44.10	74.00	-29.90	peak			
3		2490.283	35.99	10.42	46.41	74.00	-27.59	peak			

TEST PLOT OF BAND EDGE FOR HIGH CHANNEL -Vertical



Site: site #1
Limit: FCC Class B 3M Radiation above 1GHZ(PK)
EUT: Bluetooth Stereo Headset V4.0-ANTS
M/N: SH09
Mode: High Channel TX
Note:

Polarization: *Vertical*
Power:
Distance:

Temperature: 26
Humidity: 60 %

No.	Mk.	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	85.82	10.41	96.23	74.00	22.23	peak			
2		2483.500	34.26	10.41	44.67	74.00	-29.33	peak			
3		2488.707	34.99	10.42	45.41	74.00	-28.59	peak			

RESULT: PASS

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

2. The “Factor” valuecan be calculated automatically by software of measurement system.

4. MAXIMUM CONDUCTED OUTPUT POWER SPECTRAL DENSITY

4.1 MEASUREMENT PROCEDURE

(1). Connect EUT RF output port to the Spectrum Analyzer through an RF attenuator

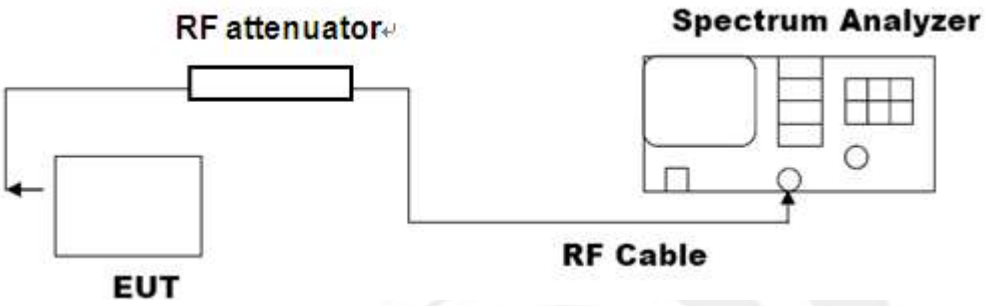
(2). Set the EUT Work on the top, the middle and the bottom operation frequency individually.

(3). Set the span to 1.5times the DTS bandwidth, RBW: 3kHz<=RBW<=100KHz, VBW>=3*RBW

4). Set SPA Trace 1 Max hold, then View.

Note: The EUT was tested according to KDB 558074 for compliance to FCC 47CFR 15.247 requirements.

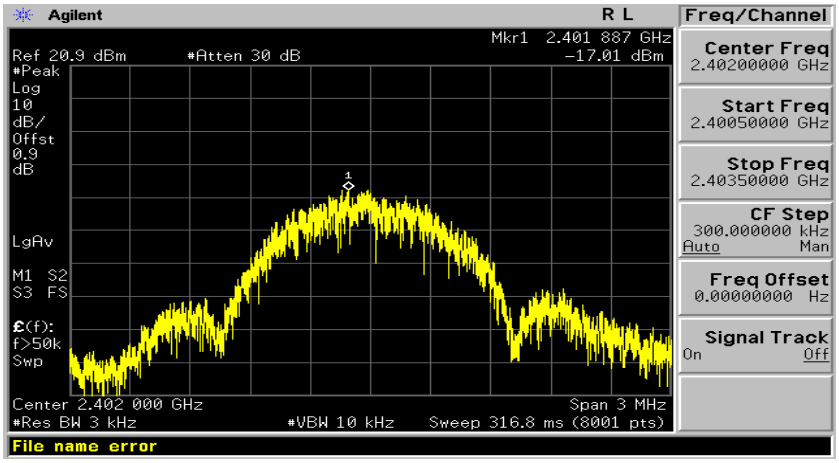
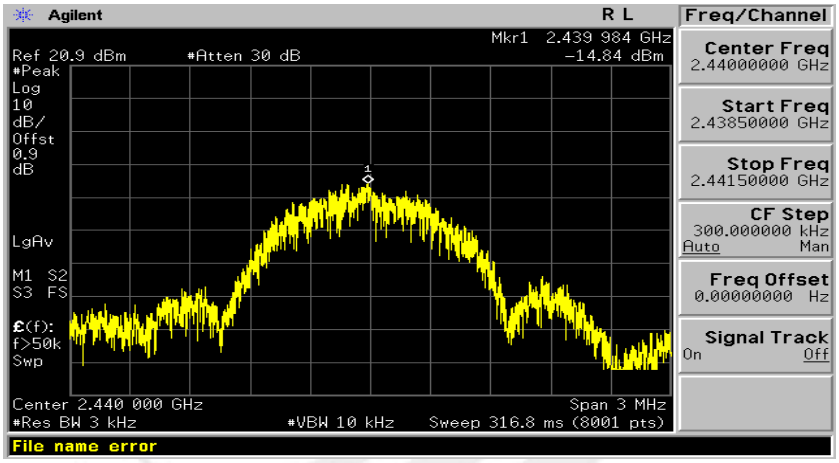
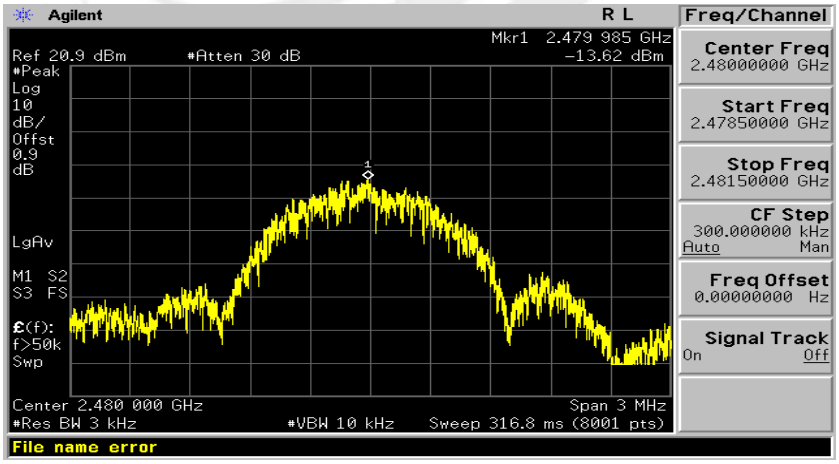
4.2 TEST SET-UP (BLOCK DIAGRAM OF CONFIGURATION)



4.3 LIMITS AND MEASUREMENT RESULT

Mode	Channel	PSD [dBm/3khz]	Limit(dBm/3khz)	Verdict
BLE	LCH	-17.01	8	PASS
BLE	MCH	-14.84	8	PASS
BLE	HCH	-13.62	8	PASS

Test Graph

Graphs	
LCH	
MCH	
HCH	

5. BANDWIDTH TEST

5.1APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C

Section	Test Item	Limit	FrequencyRange (MHz)	Result
15.247 (a)(2)	Bandwidth	>=500khz	2400-2483.5	PASS

Spectrum Parameter	Setting
Attenuation	Auto
Span Frequency	> Measurement Bandwidth or Channel Separation
RB	100 kHz
VB	300 kHz
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting : RBW= 100KHz, VBW ≥ 3*RBW, Sweep time = Auto.

5.3 TEST SETUP

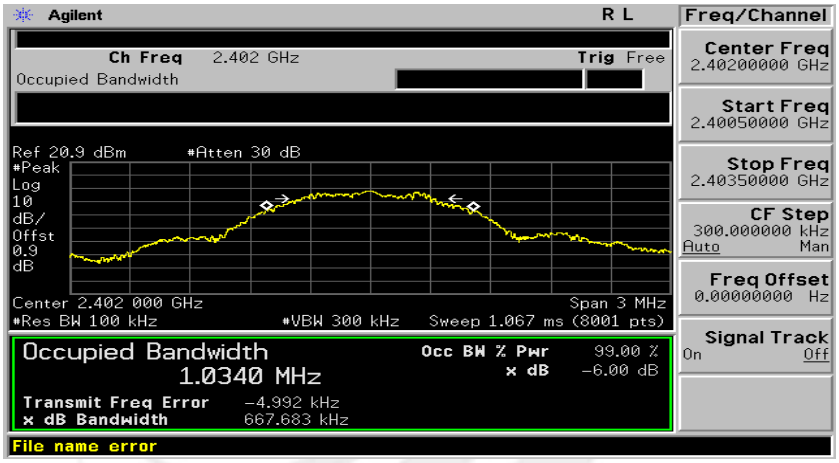
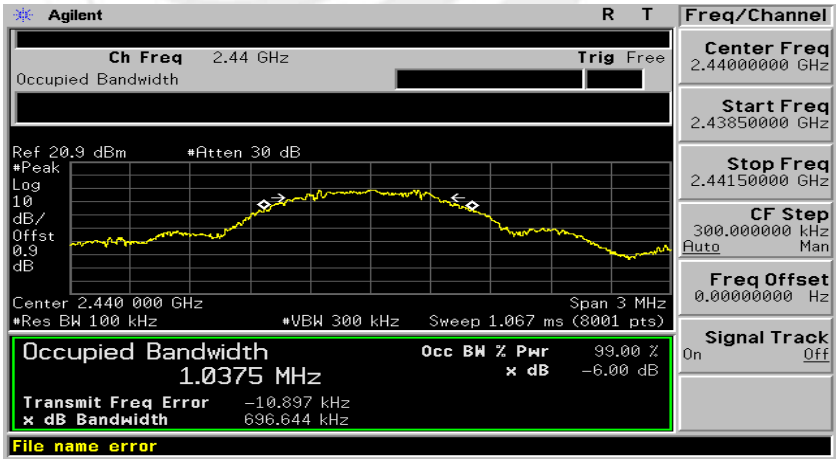
5.4 EUT OPERATION CONDITIONS

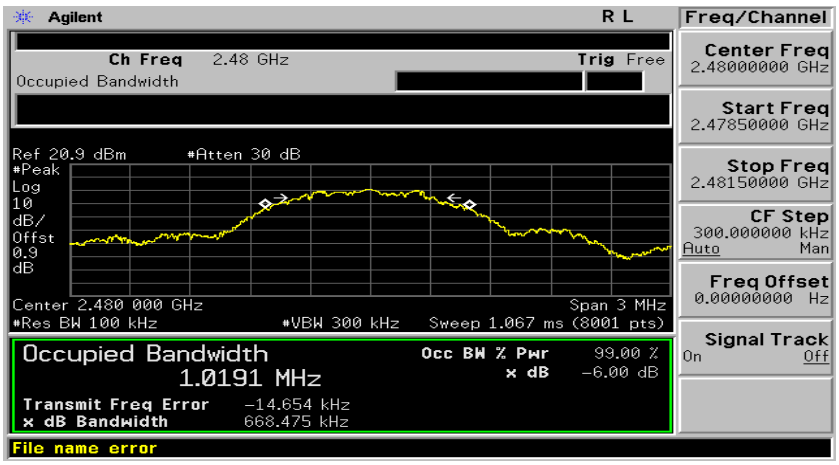
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.5TEST RESULTS

EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name ：	SH09
Temperature：	25℃	Relative Humidity：	50%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	GFSK(CH00 / CH19 /C39)		

Mode	Channel	6dB Bandwidth [MHz]	99% BW[MHz]	Verdict
BLE	LCH	0.6677	1.0340	PASS
BLE	MCH	0.6966	1.0375	PASS
BLE	HCH	0.6685	1.0191	PASS

Graphs	
LCH	
MCH	

HCH	

Agilent
R L
Freq/Channel
Ch Freq 2.48 GHz
Trig Free
Occupied Bandwidth
Ref 20.9 dBm
#Atten 30 dB
#Peak
Log
10
dB/
Offst
0.9
dB
Center 2.480 000 GHz
Span 3 MHz
#Res BW 100 kHz
#VBW 300 kHz
Sweep 1.067 ms (8001 pts)
Occupied Bandwidth
1.0191 MHz
Occ BW % Pwr 99.00 %
x dB -6.00 dB
Transmit Freq Error -14.654 kHz
x dB Bandwidth 668.475 kHz
File name error
Center Freq
2.48000000 GHz
Start Freq
2.47850000 GHz
Stop Freq
2.48150000 GHz
CF Step
300.000000 kHz
Auto Man
Freq Offset
0.00000000 Hz
Signal Track
On Off

6. OUTPUT POWER TEST

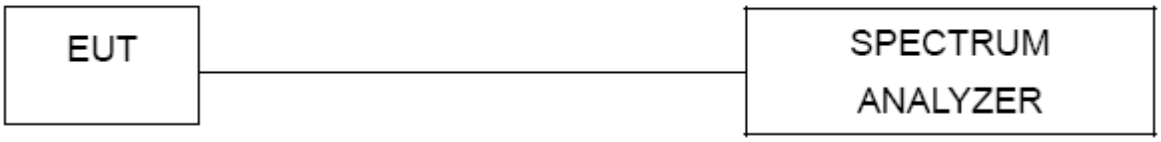
6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	FrequencyRange (MHz)	Result
15.247 (b)(i)	Peak Output Power	1 W or 0.125W Or if channel separation > 2/3 bandwidthprovided thesystems operatewith an output power no greater than125 mW(20.96dBm)	2400-2483.5	PASS

6.2 TEST PROCEDURE

a. The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram below,
b. Spectrum Setting :GFSK:RBW= 2MHz, VBW= 6MHz, Sweep time = Auto.

6.3 TEST SETUP



6.4 EUT OPERATION CONDITIONS

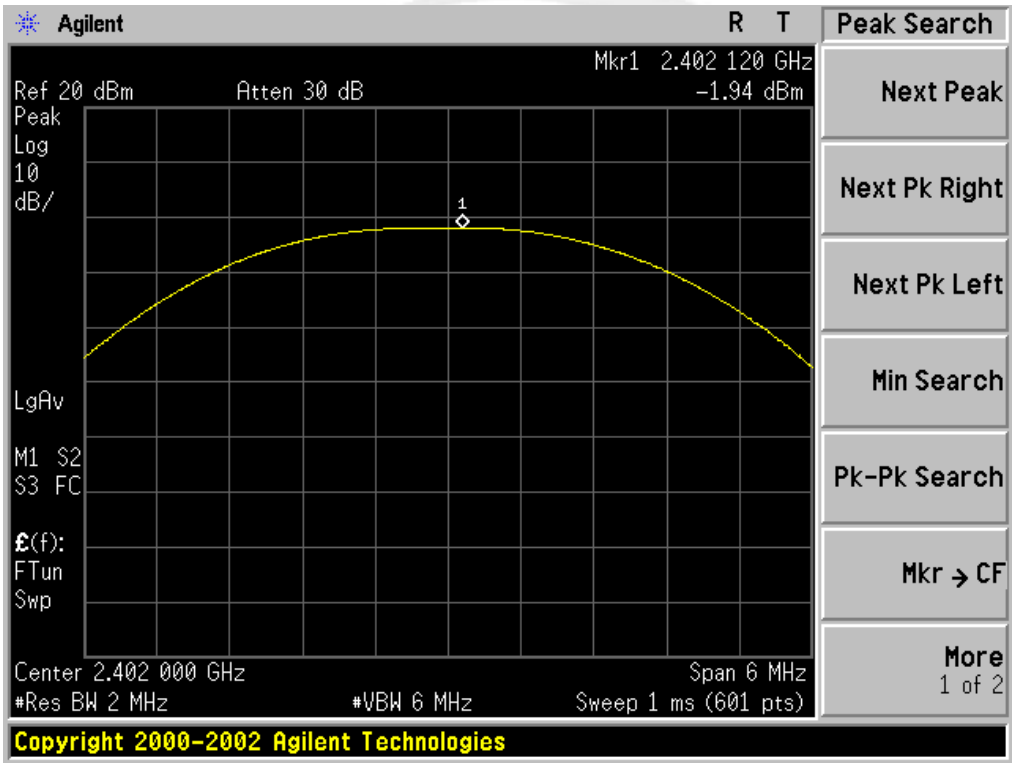
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

6.5TEST RESULTS

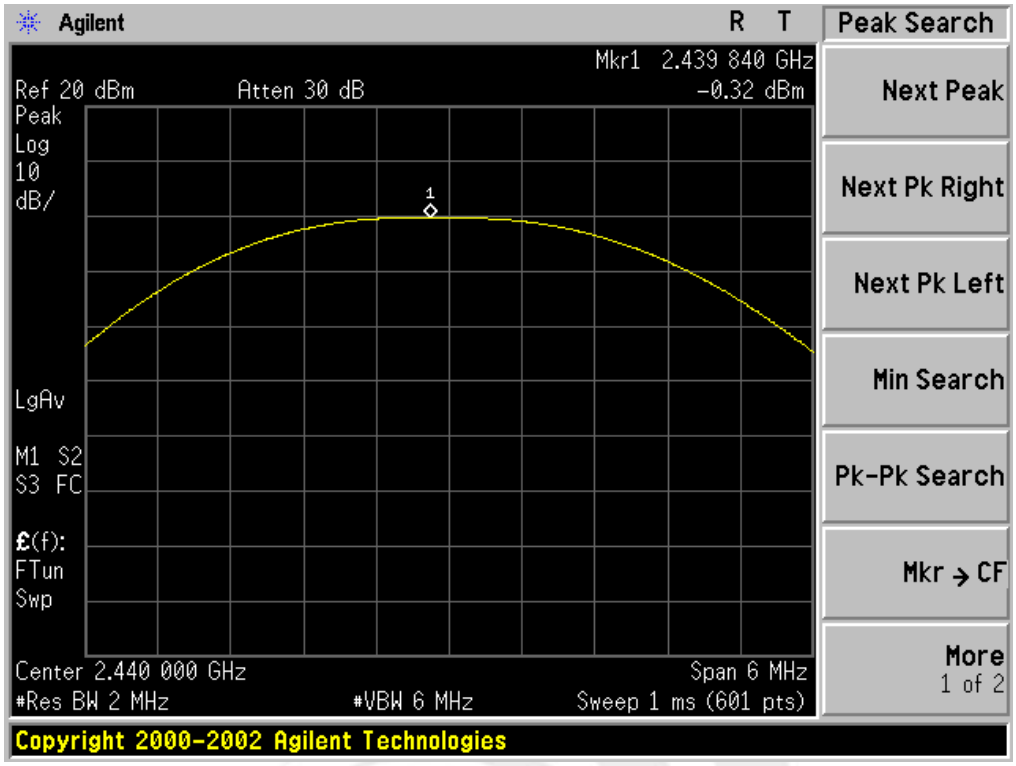
EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name ：	SH09
Temperature：	25℃	Relative Humidity：	50%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	GFSK(CH00/ CH19 /CH39)		

Channel	Peak Power (dBm)	Applicable Limits (dBm)	Pass/Fail
Low Channel	-1.94	20	Pass
Middle Channel	-0.32	20	Pass
High Channel	0.98	20	Pass

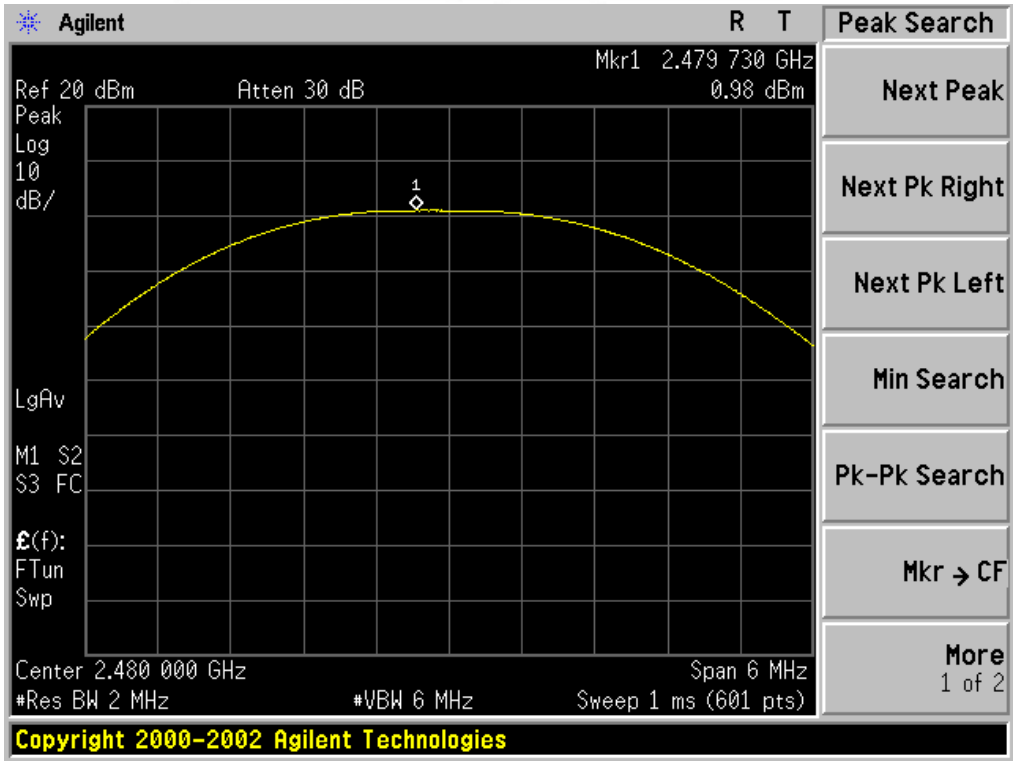
The Low Channel Result



The Middle Channel Result



The High Channel Result



7. CONDUCTED SPURIOUS EMISSIONS

7.1 REQUIREMENT

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

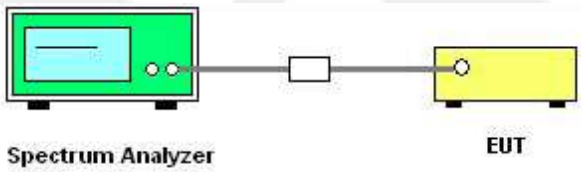
7.2TEST PROCEDURE

According to FCC section 15.247(d), in any 100kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement.

Spectrum Parameter	Setting
Detector	Peak
Start/Stop Frequency	30 MHz to 10th carrier harmonic
RB / VB (emission in restricted band)	100 KHz/100 KHz
Trace-Mode:	Max hold

.

7.3 TEST SETUP



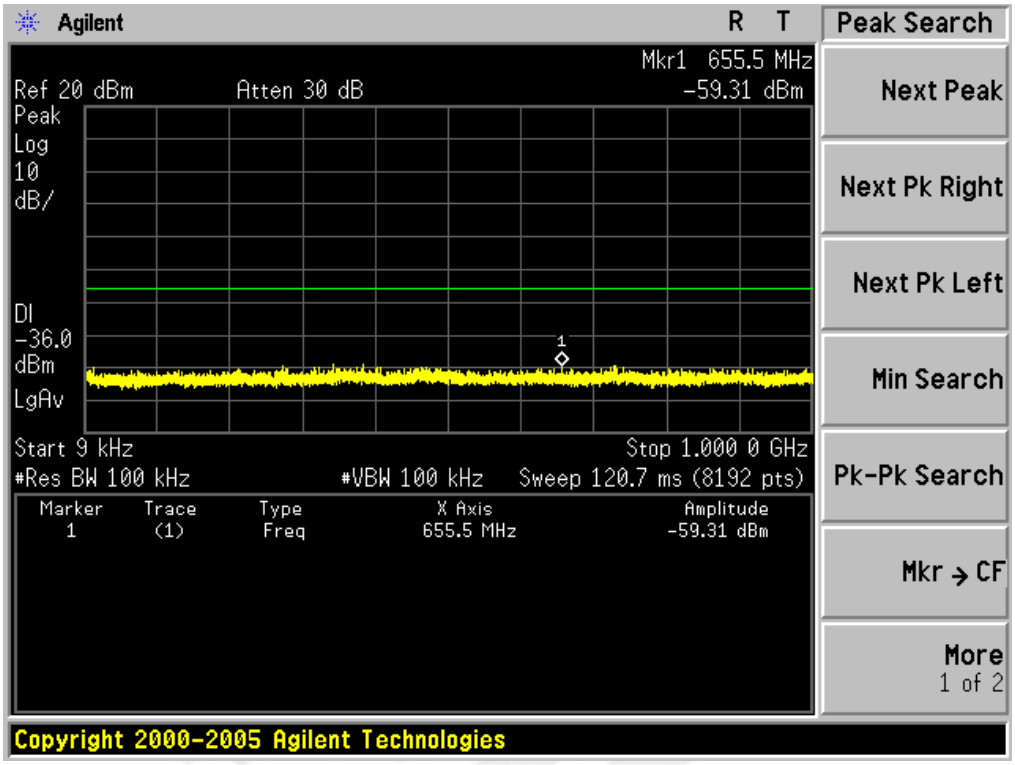
The EUT which is powered by the Battery, is coupled to the Spectrum Analyzer; the RF load attached to the EUT antenna terminal is 50Ohm; the path loss as the factor is calibrated to correct the reading. Make the measurement with the spectrum analyzer's resolution bandwidth(RBW) = 100 kHz. In order to make an accurate measurement, set the span greater than RBW.

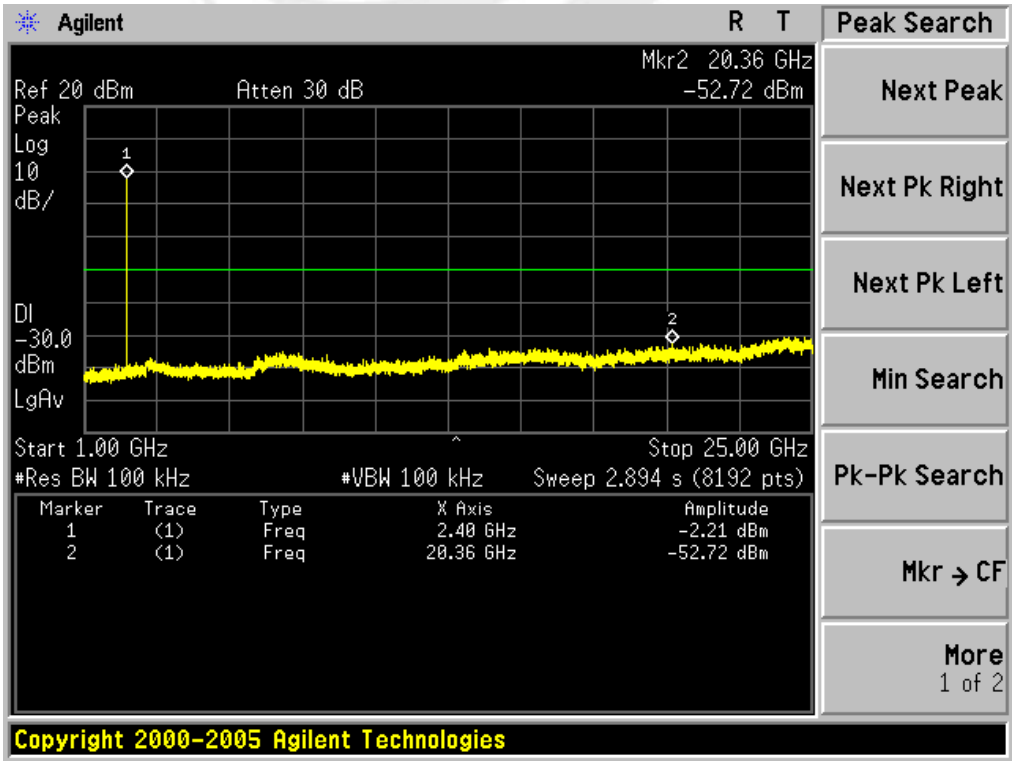
7.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

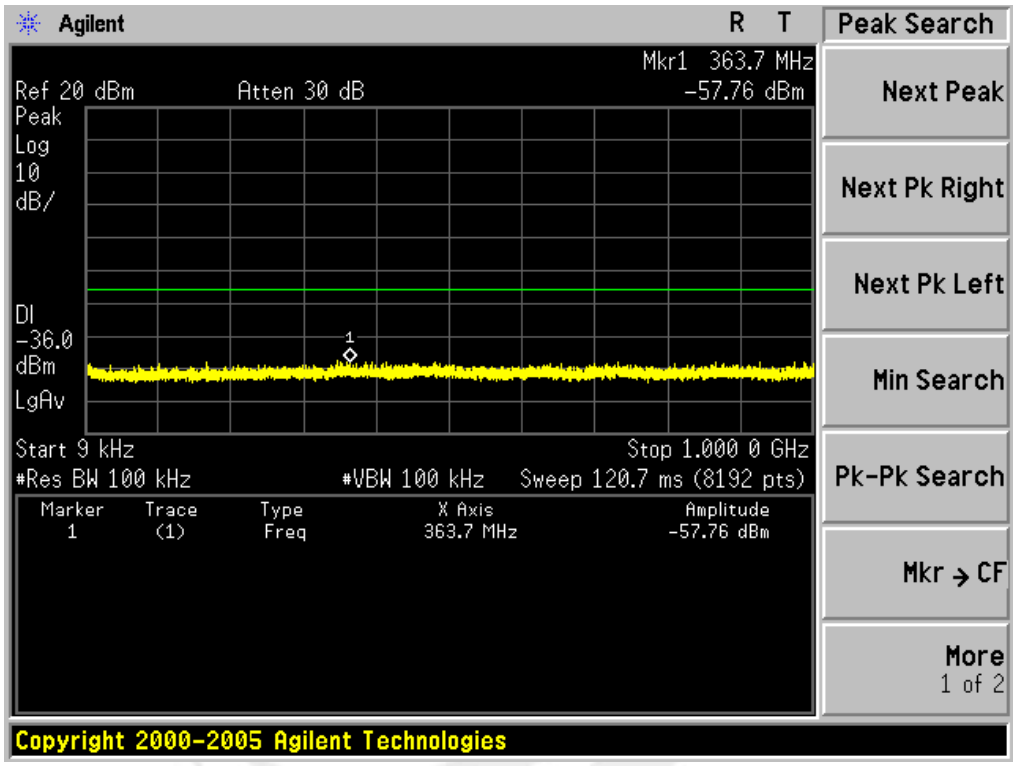
7.5 TEST RESULTS

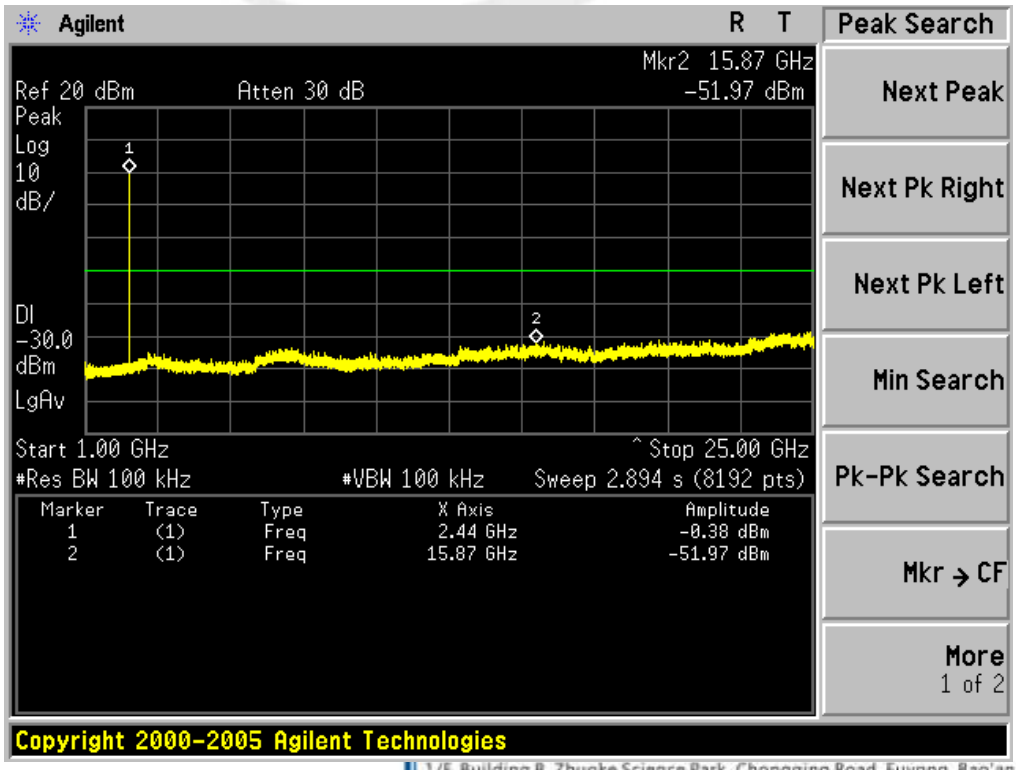
EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name ：	SH09
Temperature：	25℃	Relative Humidity：	50%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	Low Channel		



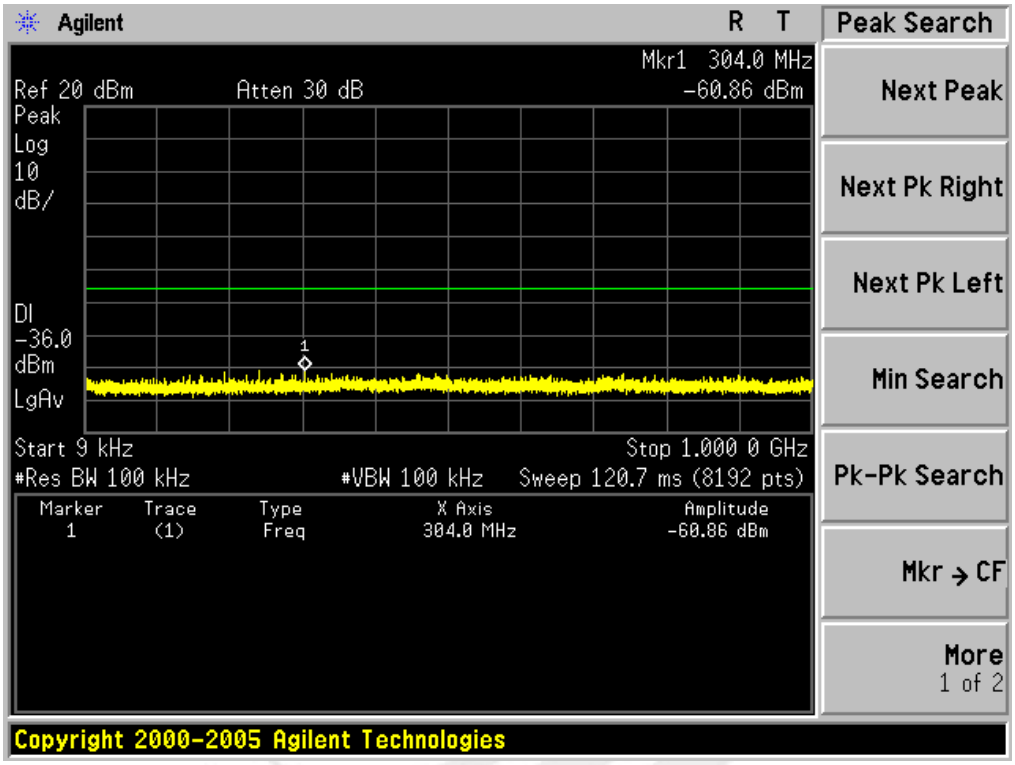


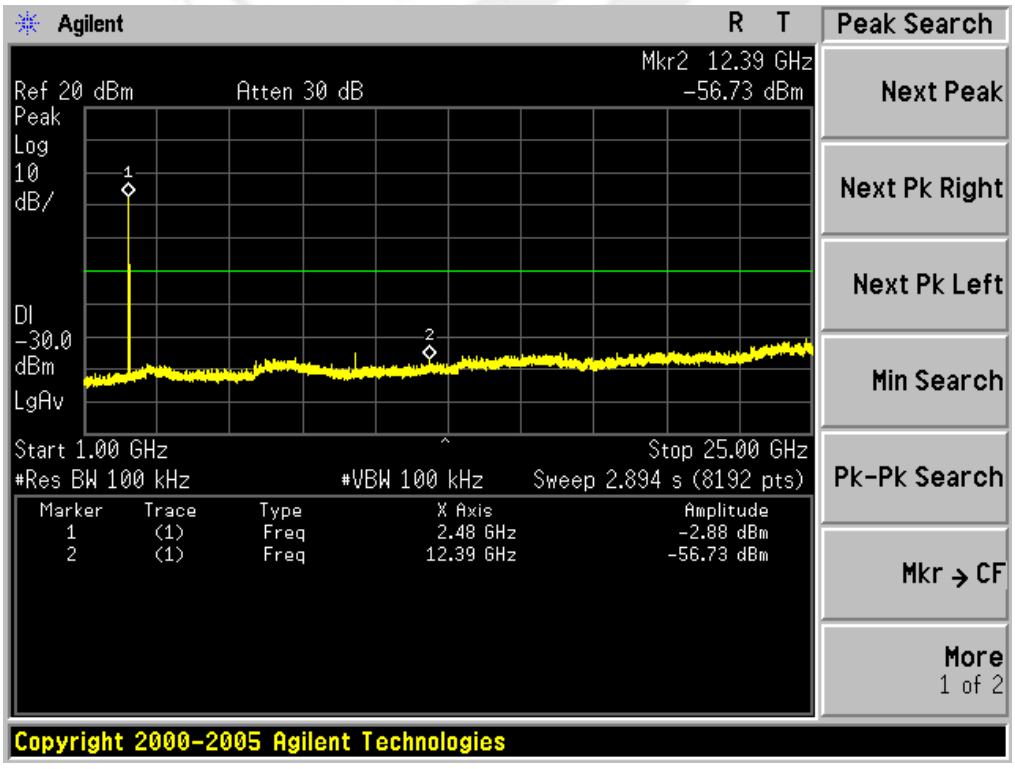
EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name ：	SH09
Temperature：	25℃	Relative Humidity：	50%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	Middle		





EUT：	Bluetooth Stereo Headset V4.0-ANTS	Model Name ：	SH09
Temperature：	25℃	Relative Humidity：	50%
Pressure：	1012 hPa	Test Voltage ：	DC 3.7V
Test Mode ：	High		

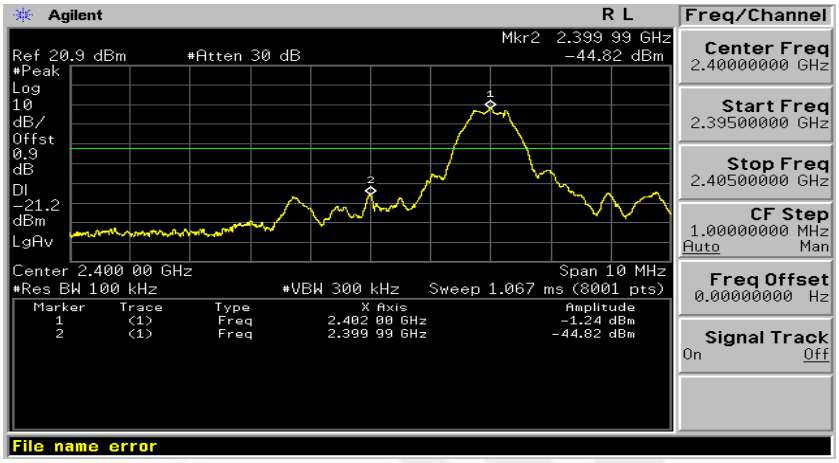
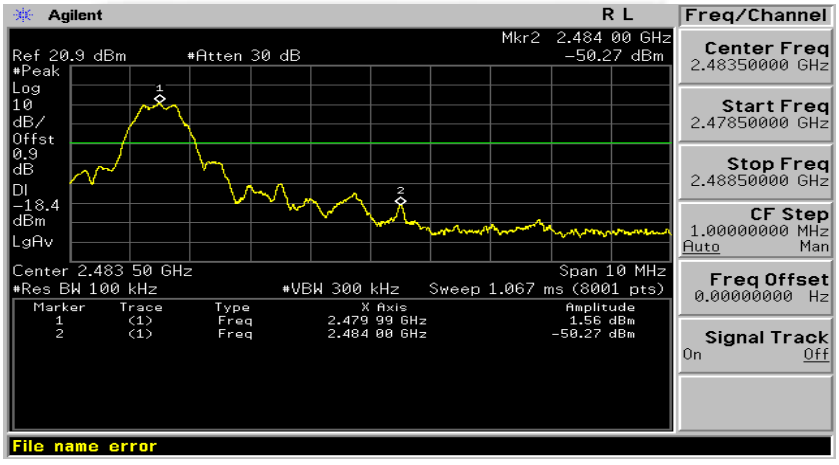




CONDUCTED TEST RESULT FOR BANDEDGE

Mode	Channel	Carrier Power[dBm]	Max.Spurious Level [dBm]	Limit [dBm]	Verdict
BLE	LCH	-1.24	-44.82	-21.24	PASS
BLE	HCH	1.56	-50.27	-18.44	PASS

Test Graph

Graphs	
LCH	
HCH	

8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

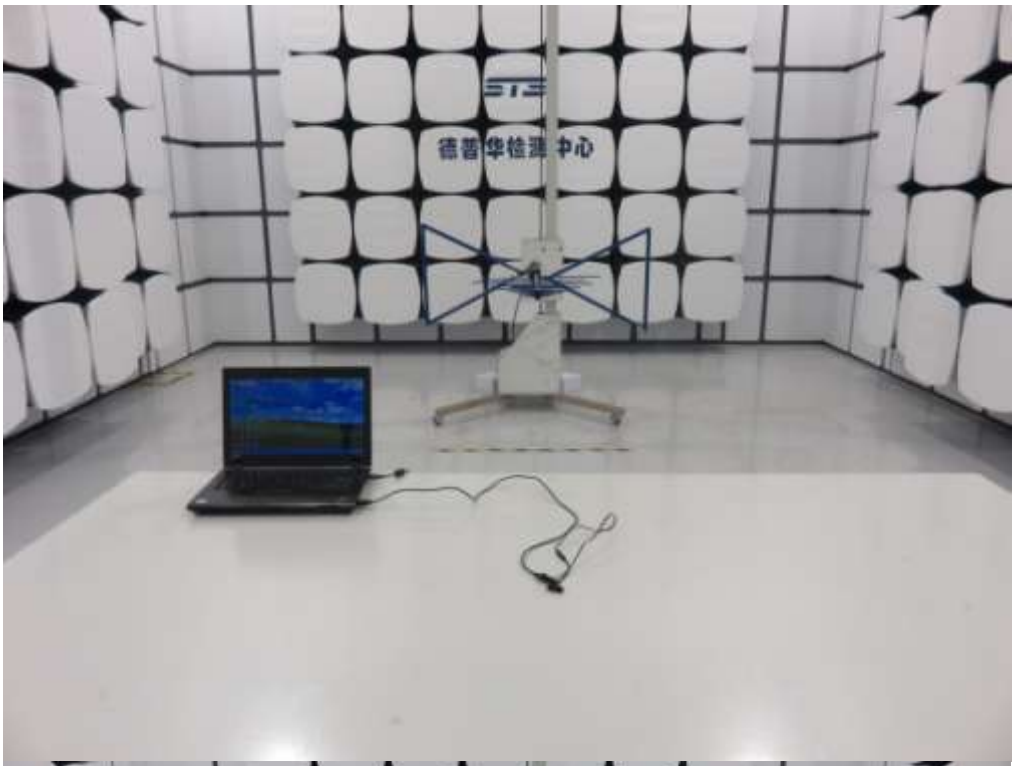
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

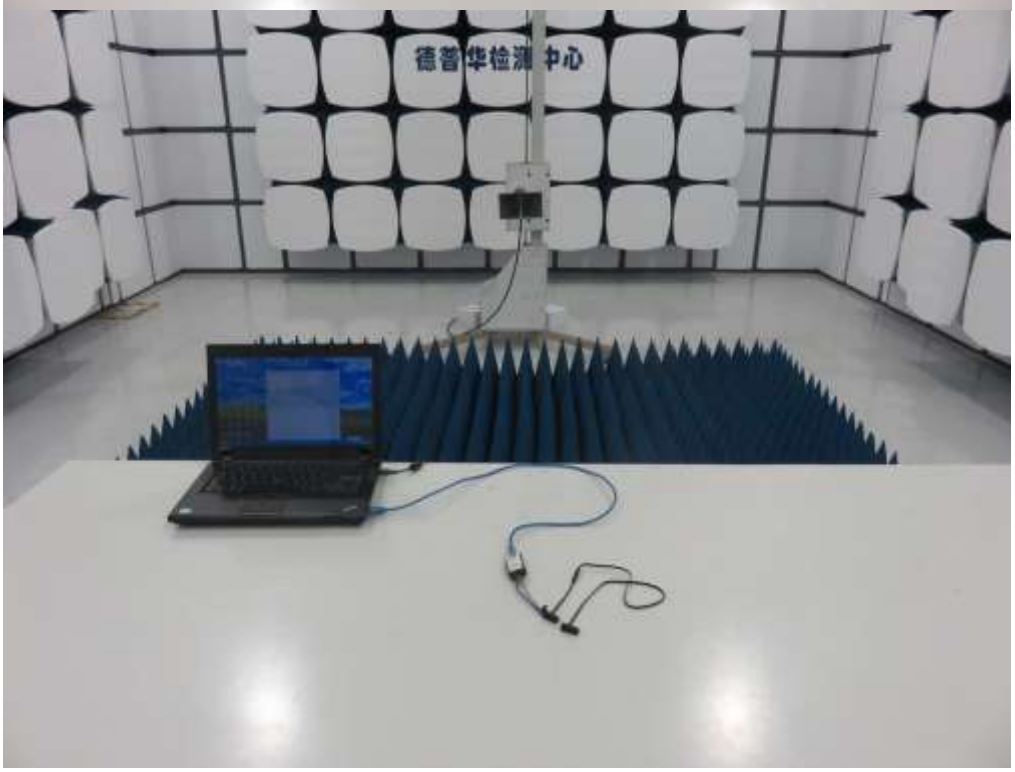
8.2 EUT ANTENNA

The EUT antenna is Ceramic Antenna. It comply with the standard requirement.

APPENDIX-PHOTOS OF TEST SETUP

Radiated Measurement Photos





Conducted Measurement Photos