



FCC RADIO TEST REPORT-BLE

FCC ID:2AFII-BT09

Product : Bluetooth headset

Trade Name : ENJOYOU

Model Name : BT-09

Serial Model : BT-09A, BT-09B

Report No. : NTEK-2015NT1012870F3

Prepared for

PuHua(HongKong)Technology Co., Limited

Unit 3A-5,12/F,Kaiser Centre,No.18 Centre Street, Sai Ying Pun,Hong Kong

Prepared by

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TEST RESULT CERTIFICATION**Applicant's name** PuHua(HongKong)Technology Co., Limited

Address..... Unit 3A-5,12/F,Kaiser Centre,No.18 Centre Street, Sai Ying Pun,Hong Kong

Manufacture's Name.. Shenzhen Puhua Technology Co.,Ltd.Address..... 4/F BLDG-B,Forzen Technology Park,Fuyuan 2nd Road,Fuyong
Town,Baoan District,Shenzhen,China**Product description**

Product name..... Bluetooth headset

Model and/or type BT-09
reference

Serial Model BT-09A, BT-09B

Standards FCC Part15.247: 01 Oct. 2015

Test procedure ANSI C63.10-2013 and KDB 558074: June 5, 2014

This device described above has been tested by NTEK, 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.....: 12 Oct. 2015 ~29 Oct. 2015

Date of Issue: 29 Oct. 2015

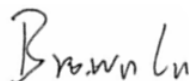
Test Result: **Pass**

Testing Engineer :



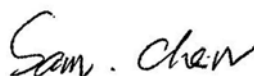
(Susan Su)

Technical Manager :



(Brown Lu)

Authorized Signatory :



(Sam Chen)

Table of Contents

	Page
1 . SUMMARY OF TEST RESULTS	5
1.1 TEST FACILITY	6
1.2 MEASUREMENT UNCERTAINTY	6
2 . GENERAL INFORMATION	7
2.1 GENERAL DESCRIPTION OF EUT	7
2.2 DESCRIPTION OF TEST MODES	9
2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED	10
2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)	11
2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS	12
3 . EMC EMISSION TEST	13
3.1 CONDUCTED EMISSION MEASUREMENT	13
3.1.1 POWER LINE CONDUCTED EMISSION LIMITS	13
3.1.2 TEST PROCEDURE	14
3.1.3 DEVIATION FROM TEST STANDARD	14
3.1.4 TEST SETUP	14
3.1.5 EUT OPERATING CONDITIONS	14
3.1.6 TEST RESULTS	15
3.2 RADIATED EMISSION MEASUREMENT	23
3.2.1 RADIATED EMISSION LIMITS	23
3.2.2 TEST PROCEDURE	24
3.2.3 DEVIATION FROM TEST STANDARD	24
3.2.4 TEST SETUP	25
3.2.5 EUT OPERATING CONDITIONS	26
3.2.6 TEST RESULTS (BETWEEN 9KHZ – 30 MHZ)	27
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)	28
3.2.8 TEST RESULTS (ABOVE 1000 MHZ)	30
4 . POWER SPECTRAL DENSITY TEST	31
4.1 APPLIED PROCEDURES / LIMIT	31
4.1.1 TEST PROCEDURE	31
4.1.2 DEVIATION FROM STANDARD	31
4.1.3 TEST SETUP	31
4.1.4 EUT OPERATION CONDITIONS	31
4.1.5 TEST RESULTS	32
5 . BANDWIDTH TEST	34
5.1 APPLIED PROCEDURES / LIMIT	34
5.1.1 TEST PROCEDURE	34

Table of Contents

	Page
TEST SETUP	34
5.1.2 EUT OPERATION CONDITIONS	34
5.1.3 TEST RESULTS	35
6 . PEAK OUTPUT POWER TEST	37
6.1 APPLIED PROCEDURES / LIMIT	37
6.1.1 TEST PROCEDURE	37
6.1.2 DEVIATION FROM STANDARD	37
6.1.3 TEST SETUP	37
6.1.4 EUT OPERATION CONDITIONS	37
6.1.5 TEST RESULTS	38
7 . 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE	39
7.1 DEVIATION FROM STANDARD	39
7.2 TEST SETUP	39
7.3 EUT OPERATION CONDITIONS	39
7.4 TEST RESULTS	40
8 . ANTENNA REQUIREMENT	42
8.1 STANDARD REQUIREMENT	42
8.2 EUT ANTENNA	42
9 . EUT TEST PHOTO	43
APPENDIX-PHOTOGRAPHS OF EUT CONSTRUCTIONAL DETAILS	

1. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Judgment	Remark
15.207	Conducted Emission	PASS	
15.247 (a)(2)	6dB Bandwidth	PASS	
15.247 (b)	Peak Output Power	PASS	
15.247 (c)	Radiated Spurious Emission	PASS	
15.247 (d)	Power Spectral Density	PASS	
15.205	Band Edge Emission	PASS	
15.203	Antenna Requirement	PASS	

NOTE:

(1) "N/A" denotes test is not applicable in this Test Report

1.1 TEST FACILITY

NTEK Testing Technology Co., Ltd

Add.:1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516

1.2 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	$\pm 1.38\text{dB}$
2	RF power,conducted	$\pm 0.16\text{dB}$
3	Spurious emissions,conducted	$\pm 0.21\text{dB}$
4	All emissions,radiated(<1G)	$\pm 4.68\text{dB}$
5	All emissions,radiated(>1G)	$\pm 4.89\text{dB}$
6	Temperature	$\pm 0.5^{\circ}\text{C}$
7	Humidity	$\pm 2\%$

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth headset	
Trade Name	ENJOYOU	
Model Name	BT-09	
Serial Model	BT-09A, BT-09B	
Model Difference	All the model are the same circuit and RF module, except the model name.	
Product Description	The EUT is a Bluetooth headset	
	Operation Frequency:	2402~2480MHz
	Modulation Type:	GFSK
	Number Of Channel	40CH
	Antenna Designation:	Please see Note 3.
	Antenna Gain (dBi)	0.54dBi
Channel List	Please refer to the Note 2.	
Ratings	DC 3.7V	
Adapter	N/A	
Battery	DC 3.7V, 18mAh	
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	Frequency (MHz)
00	2402
01	2404
.....
.....
...	...
.....
38	2478
39	2480

3.

Table for Filed Antenna

Ant	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	N/A	N/A	FPCB Antenna	N/A	0.54	BT Antenna

2.2 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	CH00
Mode 2	CH19
Mode 3	CH39
Mode 4	Link Mode

For Conducted Emission	
Final Test Mode	Description
Mode 4	Link Mode

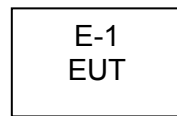
For Radiated Emission	
Final Test Mode	Description
Mode 1	CH00
Mode 2	CH19
Mode 3	CH39
Mode 4	Link Mode

Note:

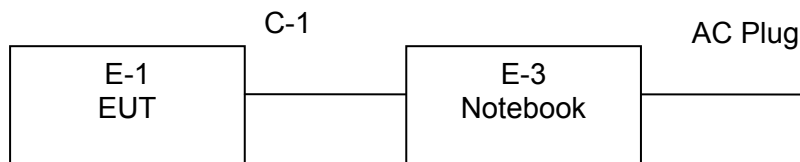
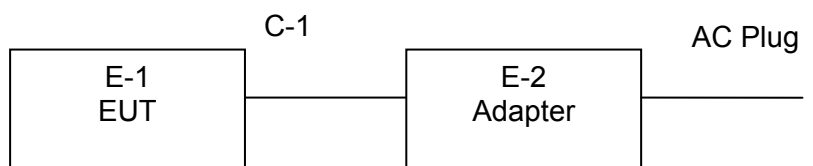
- (1) The measurements are performed at the highest, middle, lowest available channels.
- (2) The measurements are performed at all Bit Rate of Transmitter, the worst data was reported

2.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Radiated Spurious Emission Test



Conducted Emission Test



2.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

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	Brand	Model/Type No.	Series No.	Note
E-1	Bluetooth headset	ENJOYOU	BT-09	N/A	EUT
E-2	Adapter	N/A	AD1	N/A	
E-3	Notebook	Lenove	Thinkpad Edge E430	N/A	

Item	Shielded Type	Ferrite Core	Length	Note
C-1	NO	NO	1.0m	

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.

2.5 EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Spectrum Analyzer	Agilent	E4407B	MY45108040	2015.07.06	2016.07.05	1 year
2	Test Receiver	R&S	ESPI	101318	2015.07.06	2016.07.05	1 year
3	Bilog Antenna	TESEQ	CBL6111D	31216	2015.07.06	2016.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264416	2015.07.06	2016.07.05	1 year
5	Spectrum Analyzer	ADVANTEST	R3132	150900201	2015.07.06	2016.07.05	1 year
6	Horn Antenna	EM	EM-AH-10180	2011071402	2015.07.06	2016.07.05	1 year
7	Horn Ant	Schwarzbeck	BBHA 9170	9170-181	2015.07.06	2016.07.05	1 year
8	Amplifier	EM	EM-30180	060538	2015.07.06	2016.07.05	1 year
9	Loop Antenna	ARA	PLA-1030/B	1029	2015.07.06	2016.07.05	1 year
10	Power Meter	R&S	NRVS	100696	2015.07.06	2016.07.05	1 year
11	Power Sensor	R&S	URV5-Z4	0395.1619.05	2015.07.06	2016.07.05	1 year

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until	Calibration period
1	Test Receiver	R&S	ESCI	101160	2015.07.06	2016.07.05	1 year
2	LISN	R&S	ENV216	101313	2015.07.06	2016.07.05	1 year
3	LISN	EMCO	3816/2	00042990	2015.07.06	2016.07.05	1 year
4	50Ω Coaxial Switch	Anritsu	MP59B	6200264417	2015.07.06	2016.07.05	1 year
5	Passive Voltage Probe	R&S	ESH2-Z3	100196	2015.07.06	2016.07.05	1 year
6	Absorbing clamp	R&S	MOS-21	100423	2015.07.06	2016.07.05	1 year

1	Attenuation	MCE	24-10-34	BN9258	2015.07.06	2016.07.05	1 year
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3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

3.1.1 POWER LINE CONDUCTED EMISSION Limits (Frequency Range 150KHz-30MHz)

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)		Standard
	Quasi-peak	Average	Quasi-peak	Average	
0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	CISPR
0.50 -5.0	73.00	60.00	56.00	46.00	CISPR
5.0 -30.0	73.00	60.00	60.00	50.00	CISPR

0.15 -0.5	79.00	66.00	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	73.00	60.00	56.00	46.00	FCC
5.0 -30.0	73.00	60.00	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

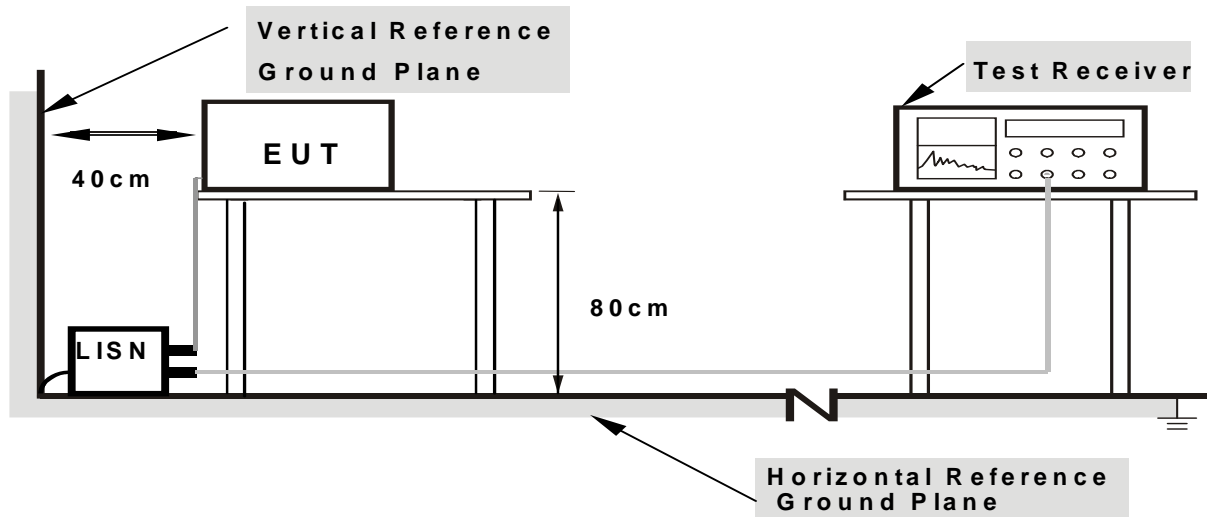
3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.8 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 DEVIATION FROM TEST STANDARD

No deviation

3.1.4 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 cm from other units and other metal planes

3.1.5 EUT 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.

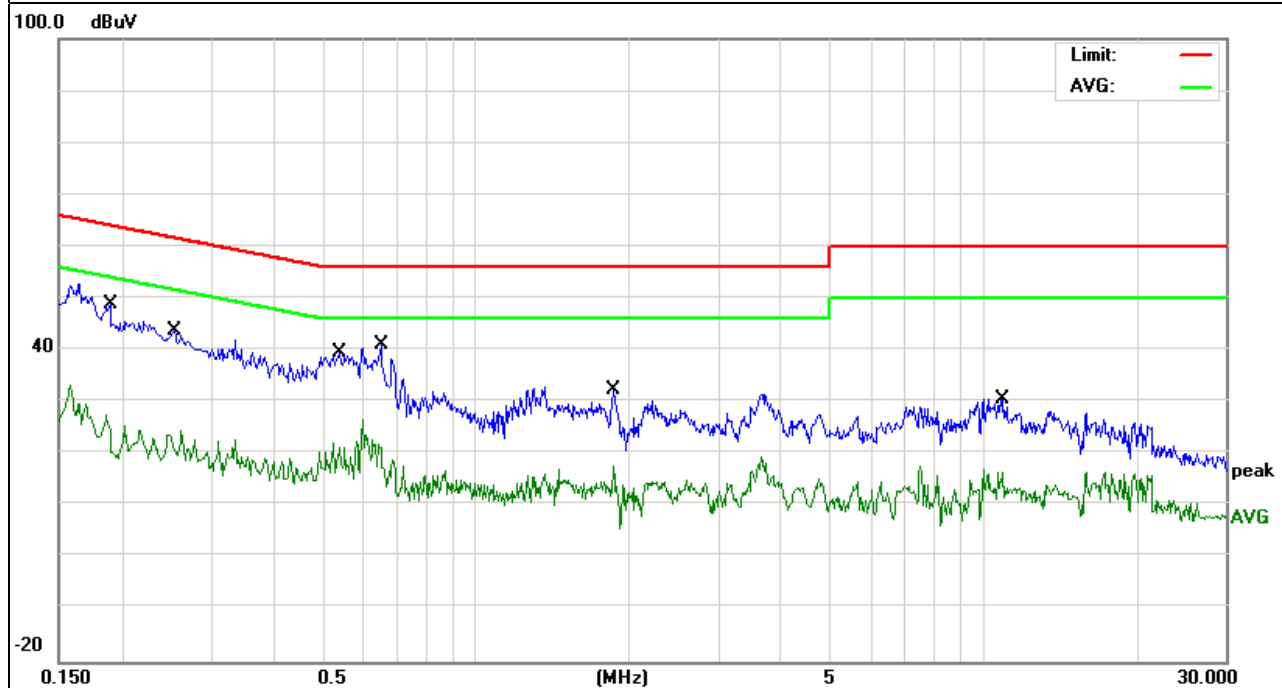
3.1.6 TEST RESULTS

EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1900	39.44	9.46	48.90	64.03	-15.13	QP
0.1900	18.01	9.46	27.47	54.03	-26.56	AVG
0.2540	34.17	9.45	43.62	61.62	-18.00	QP
0.2540	15.21	9.45	24.66	51.62	-26.96	AVG
0.5380	30.05	9.45	39.50	56.00	-16.50	QP
0.5380	12.65	9.45	22.10	46.00	-23.90	AVG
0.6500	31.66	9.44	41.10	56.00	-14.90	QP
0.6500	11.95	9.44	21.39	46.00	-24.61	AVG
1.8660	22.84	9.46	32.30	56.00	-23.70	QP
1.8660	8.18	9.46	17.64	46.00	-28.36	AVG
10.9259	21.01	9.69	30.70	60.00	-29.30	QP
10.9259	6.86	9.69	16.55	50.00	-33.45	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

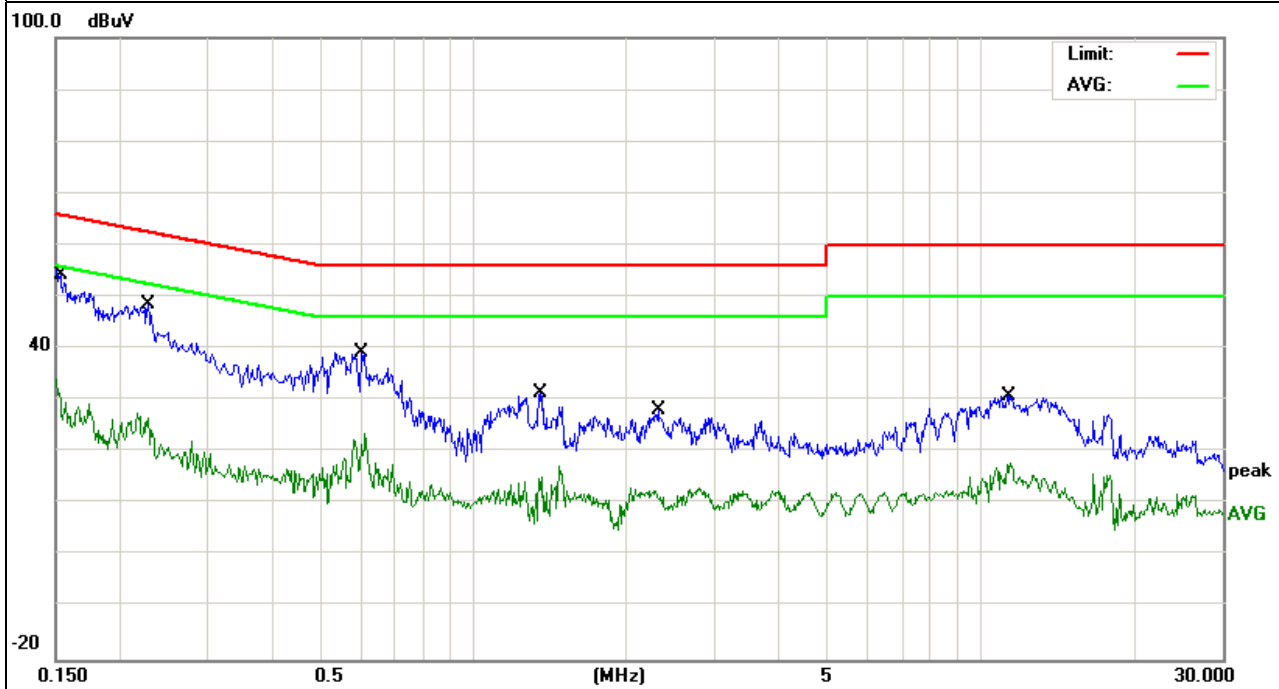


EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 120V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1539	44.94	9.46	54.40	65.78	-11.38	QP
0.1539	21.97	9.46	31.43	55.78	-24.35	AVG
0.2278	39.15	9.45	48.60	62.53	-13.93	QP
0.2278	18.10	9.45	27.55	52.53	-24.98	AVG
0.6018	29.86	9.44	39.30	56.00	-16.70	QP
0.6018	14.13	9.44	23.57	46.00	-22.43	AVG
1.3580	22.15	9.45	31.60	56.00	-24.40	QP
1.3580	5.77	9.45	15.22	46.00	-30.78	AVG
2.3140	18.74	9.46	28.20	56.00	-27.80	QP
2.3140	3.04	9.46	12.50	46.00	-33.50	AVG
11.3338	21.29	9.71	31.00	60.00	-29.00	QP
11.3338	8.18	9.71	17.89	50.00	-32.11	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

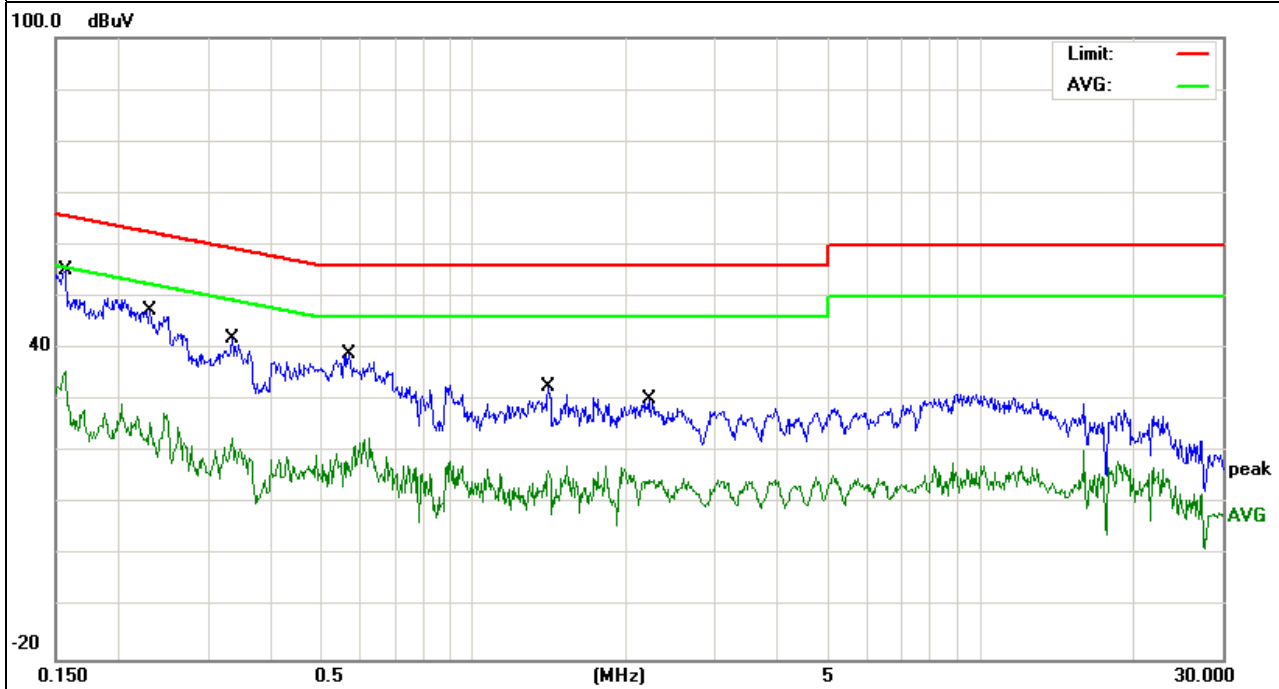


EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form Adapter AC 240V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1564	45.74	9.46	55.20	65.65	-10.45	QP
0.1564	26.25	9.46	35.71	55.65	-19.94	AVG
0.2300	38.05	9.45	47.50	62.45	-14.95	QP
0.2300	18.12	9.45	27.57	52.45	-24.88	AVG
0.3339	32.46	9.44	41.90	59.35	-17.45	QP
0.3339	13.32	9.44	22.76	49.35	-26.59	AVG
0.5695	29.55	9.45	39.00	56.00	-17.00	QP
0.5695	13.27	9.45	22.72	46.00	-23.28	AVG
1.4053	23.23	9.45	32.68	56.00	-23.32	QP
1.4053	6.88	9.45	16.33	46.00	-29.67	AVG
2.2179	20.68	9.47	30.15	56.00	-25.85	QP
2.2179	5.09	9.47	14.56	46.00	-31.44	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

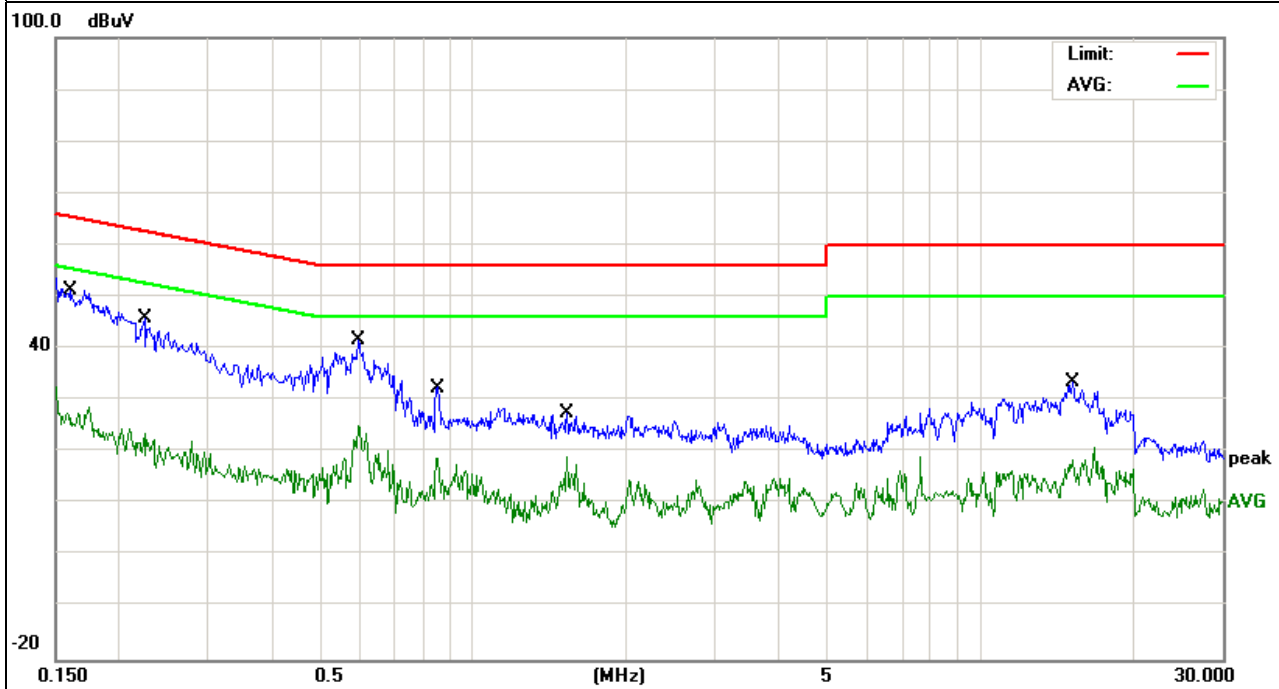


EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form Adapter AC 240V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1607	41.74	9.46	51.20	65.42	-14.22	QP
0.1607	18.17	9.46	27.63	55.42	-27.79	AVG
0.2242	36.44	9.46	45.90	62.66	-16.76	QP
0.2242	14.11	9.46	23.57	52.66	-29.09	AVG
0.5936	32.35	9.45	41.80	56.00	-14.20	QP
0.5936	15.69	9.45	25.14	46.00	-20.86	AVG
0.8497	23.07	9.43	32.50	56.00	-23.50	QP
0.8497	9.43	9.43	18.86	46.00	-27.14	AVG
1.5339	18.15	9.45	27.60	56.00	-28.40	QP
1.5339	9.72	9.45	19.17	46.00	-26.83	AVG
15.1897	23.92	9.78	33.70	60.00	-26.30	QP
15.1897	8.88	9.78	18.66	50.00	-31.34	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

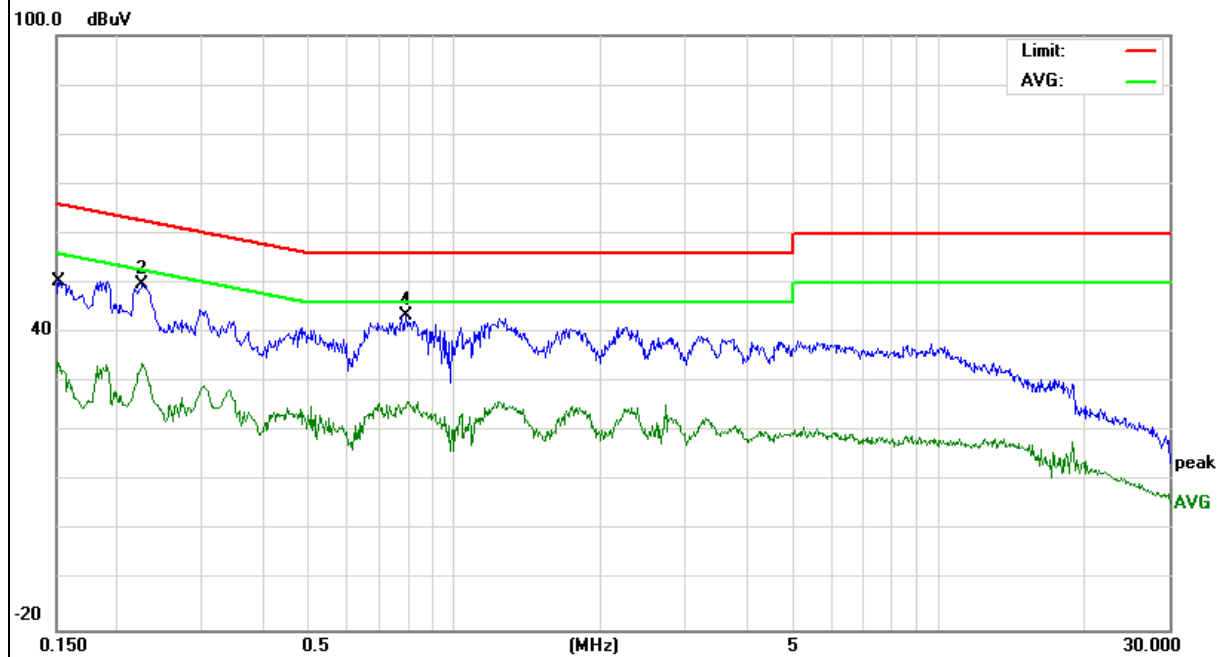


EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form PC AC 120V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1499	34.09	0.00	34.09	56.00	-21.91	AVG
0.2260	49.75	0.00	49.75	62.59	-12.84	QP
0.2260	33.80	0.00	33.80	52.59	-18.79	AVG
0.7940	43.56	0.00	43.56	56.00	-12.44	QP
0.7980	26.20	0.00	26.20	46.00	-19.80	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

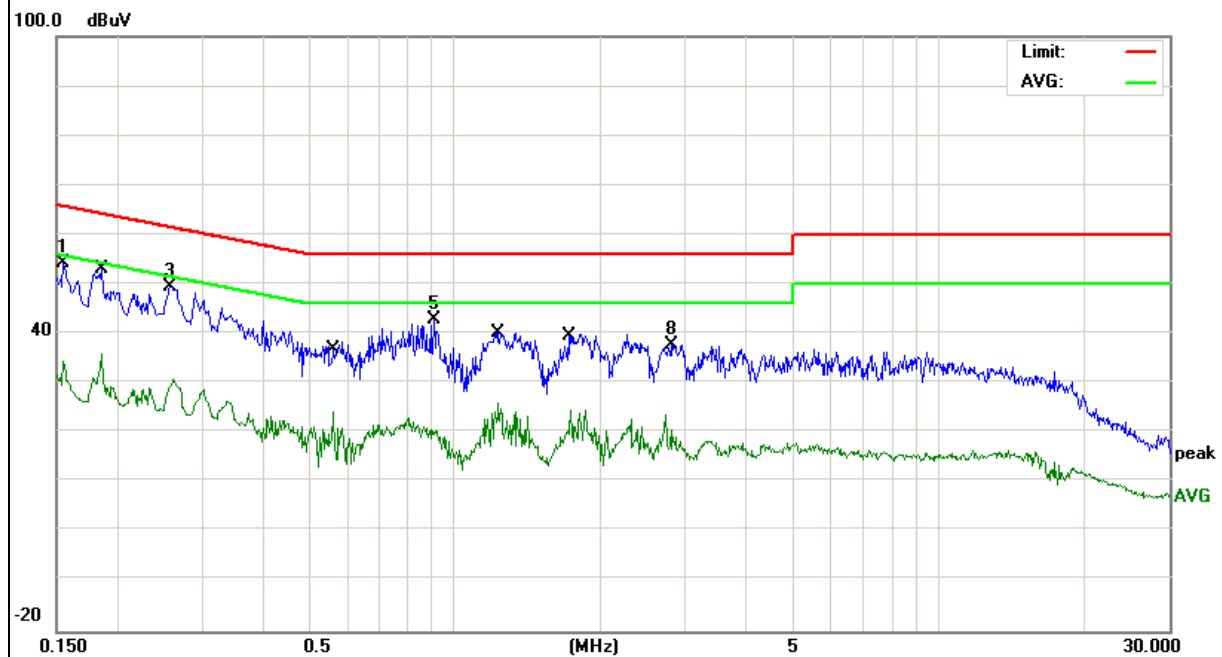


EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form PC AC 120V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1547	54.23	0.00	54.23	65.74	-11.51	QP
0.1859	35.93	0.00	35.93	54.21	-18.28	AVG
0.2580	49.54	0.00	49.54	61.49	-11.95	QP
0.5581	24.23	0.00	24.23	46.00	-21.77	AVG
0.9060	42.72	0.00	42.72	56.00	-13.28	QP
1.2298	26.18	0.00	26.18	46.00	-19.82	AVG
1.7419	24.56	0.00	24.56	46.00	-21.44	AVG
2.8020	37.80	0.00	37.80	56.00	-18.20	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

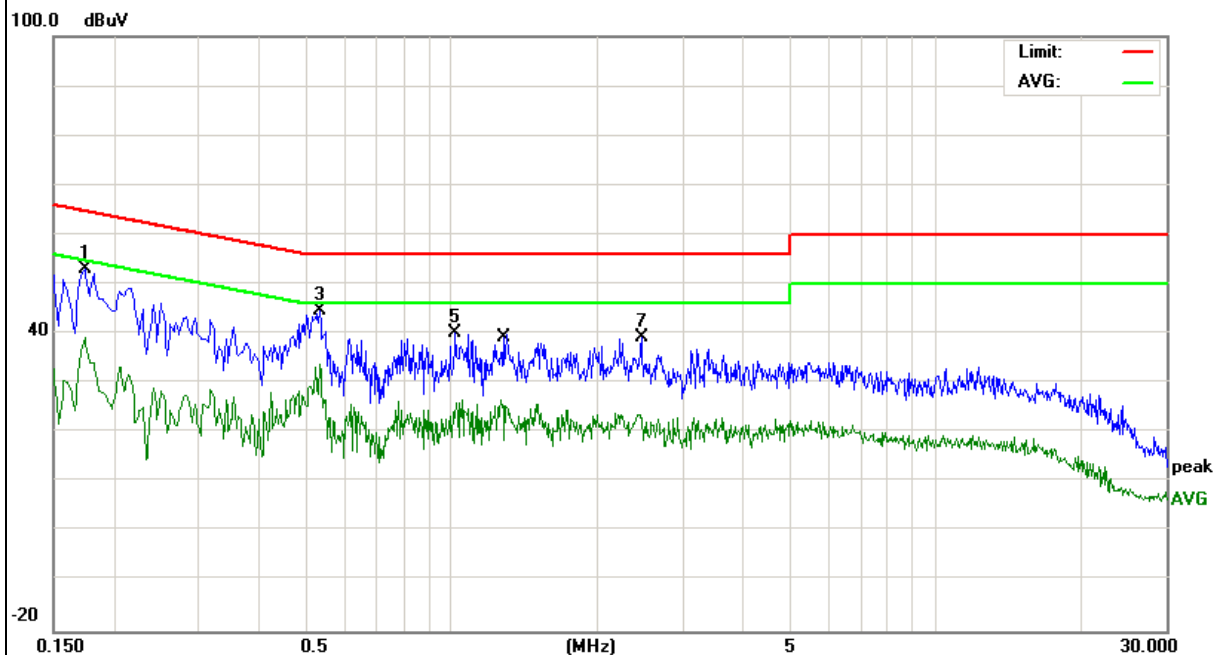


EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5.0V form PC AC 240V/60Hz	Test Mode :	Mode 4

Frequency	Reading Level	Correct Factor	Measure-ment	Limits	Margin	Remark
(MHz)	(dBμV)	(dB)	(dBμV)	(dBμV)	(dB)	
0.1740	43.49	9.62	53.11	64.76	-11.65	QP
0.1740	29.73	9.62	39.35	54.76	-15.41	AVG
0.5340	34.99	9.77	44.76	56.00	-11.24	QP
0.5340	24.05	9.77	33.82	46.00	-12.18	AVG
1.0180	30.53	9.73	40.26	56.00	-15.74	QP
1.2660	16.92	9.71	26.63	46.00	-19.37	AVG
2.4700	29.45	9.66	39.11	56.00	-16.89	QP

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.

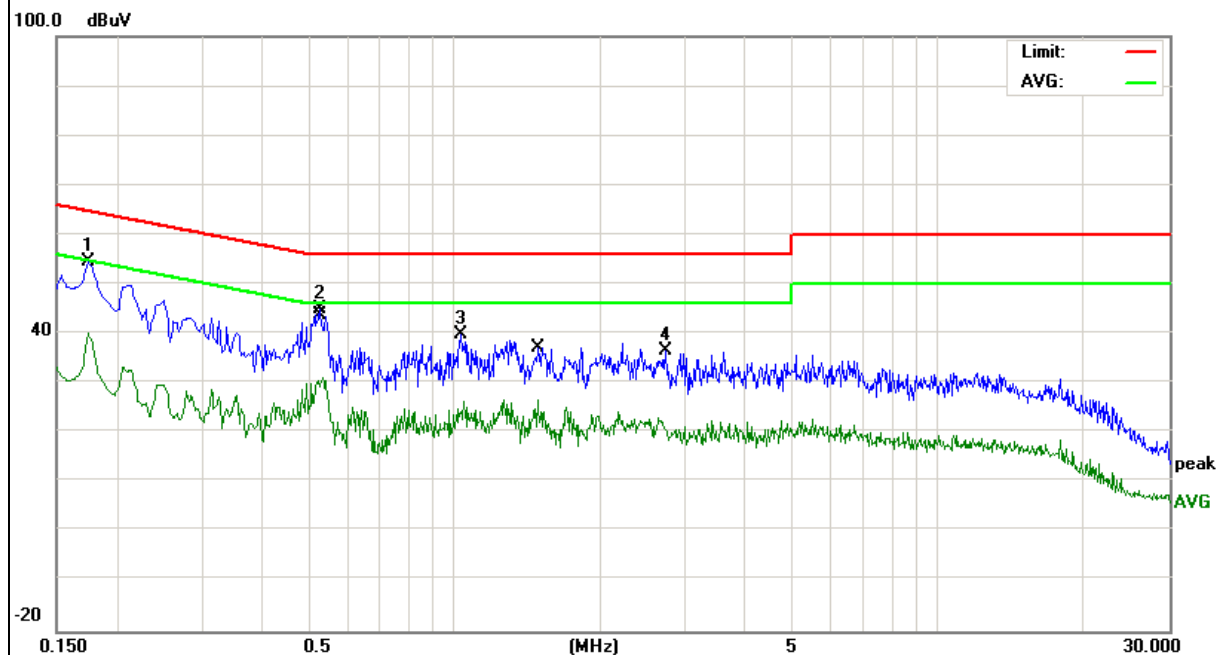


EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	26 °C	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	N
Test Voltage :	DC 5.0V form PC AC 240V/60Hz	Test Mode :	Mode 4

Frequency (MHz)	Reading Level (dBμV)	Correct Factor (dB)	Measure-ment (dBμV)	Limits (dBμV)	Margin (dB)	Remark
0.1740	44.87	9.61	54.48	64.76	-10.28	QP
0.5260	35.26	9.68	44.94	56.00	-11.06	QP
1.0300	30.23	9.61	39.84	56.00	-16.16	QP
2.7220	27.02	9.53	36.55	56.00	-19.45	QP
0.1740	30.61	9.61	40.22	54.76	-14.54	AVG
0.5340	21.40	9.67	31.07	46.00	-14.93	AVG
1.4820	17.02	9.58	26.60	46.00	-19.40	AVG

Remark:

1. All readings are Quasi-Peak and Average values.
2. Factor = Insertion Loss + Cable Loss.



3.2 RADIATED EMISSION MEASUREMENT

3.2.1 RADIATED EMISSION LIMITS (Frequency Range 9kHz-1000MHz)

20dBc in any 100 kHz bandwidth outside the operating frequency band. In case the emission fall within the restricted band specified on 15.205(a), then the 15.209(a) limit in the table below has to be followed.

Frequencies (MHz)	Field Strength (microvolt/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).

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (emission in restricted band)	1 MHz / 1 MHz for Peak, 1 MHz / 10Hz for Average

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 m for below 1GHz and 1.5m for above 1GHz 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 for below 1GHz and 1.5m for above 1GHz; 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 Quasi Peak 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

During the radiated emission test, the Spectrum Analyzer was set with the following configurations:

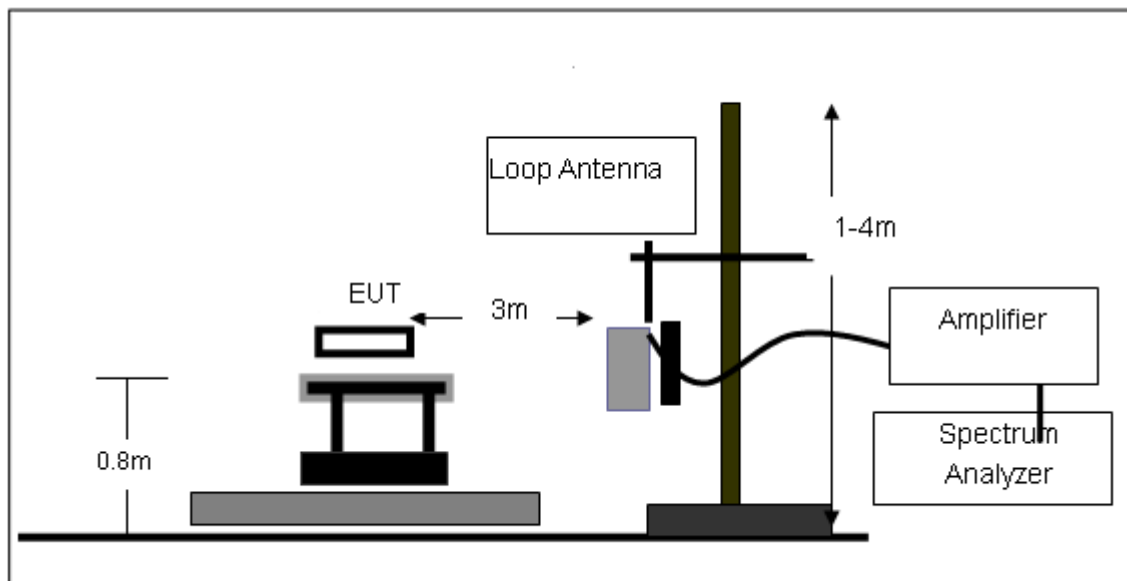
Frequency Band (MHz)	Function	Resolution bandwidth	Video Bandwidth
30 to 1000	QP	120 kHz	300 kHz
Above 1000	Peak	1 MHz	1 MHz
	Peak	1 MHz	10 Hz

3.2.3 DEVIATION FROM TEST STANDARD

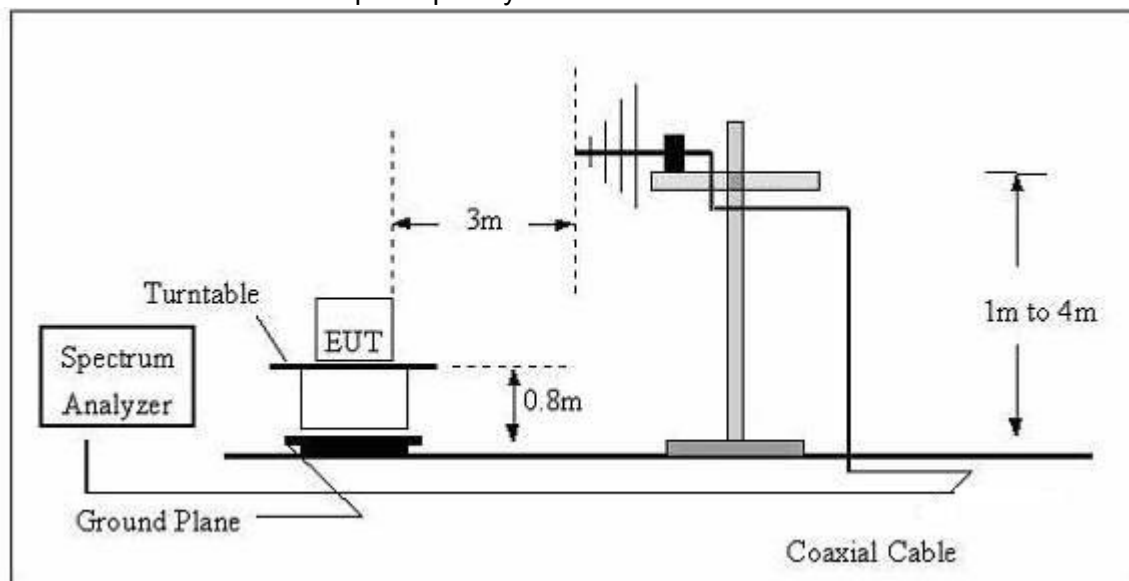
No deviation

3.2.4 TEST SETUP

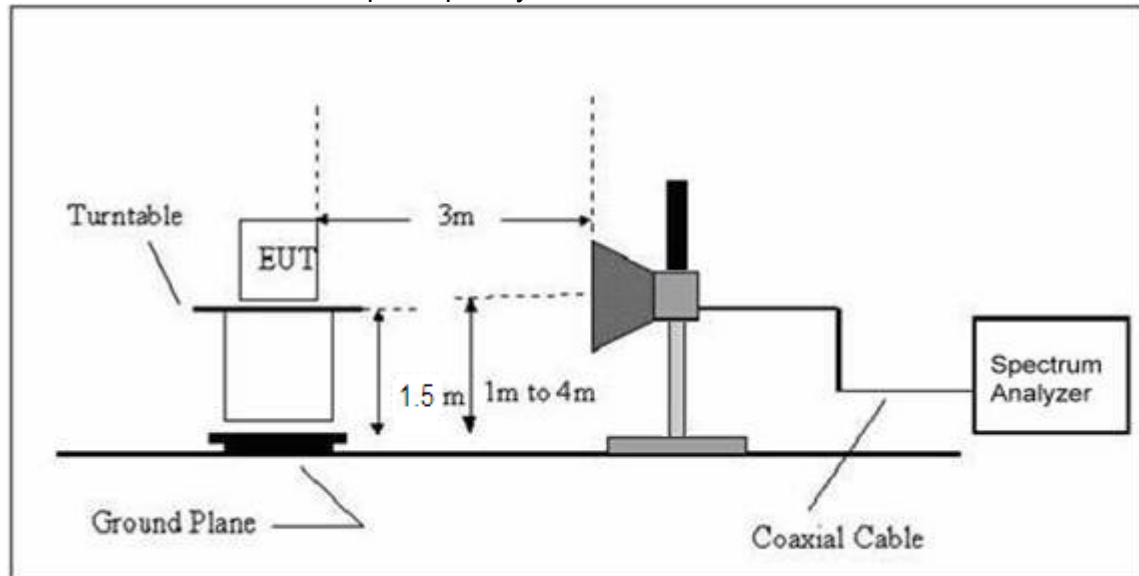
(A) Radiated Emission Test-Up Frequency Below 30MHz



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



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

**3.2.5 EUT 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 (BETWEEN 9KHZ – 30 MHZ)

EUT:	Bluetooth headset	Model Name. :	BT-09
Temperature:	20 °C	Relative Humidity:	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX	Polarization :	--

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

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 = $40 \log (\text{specific distance/test distance})$ (dB);

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

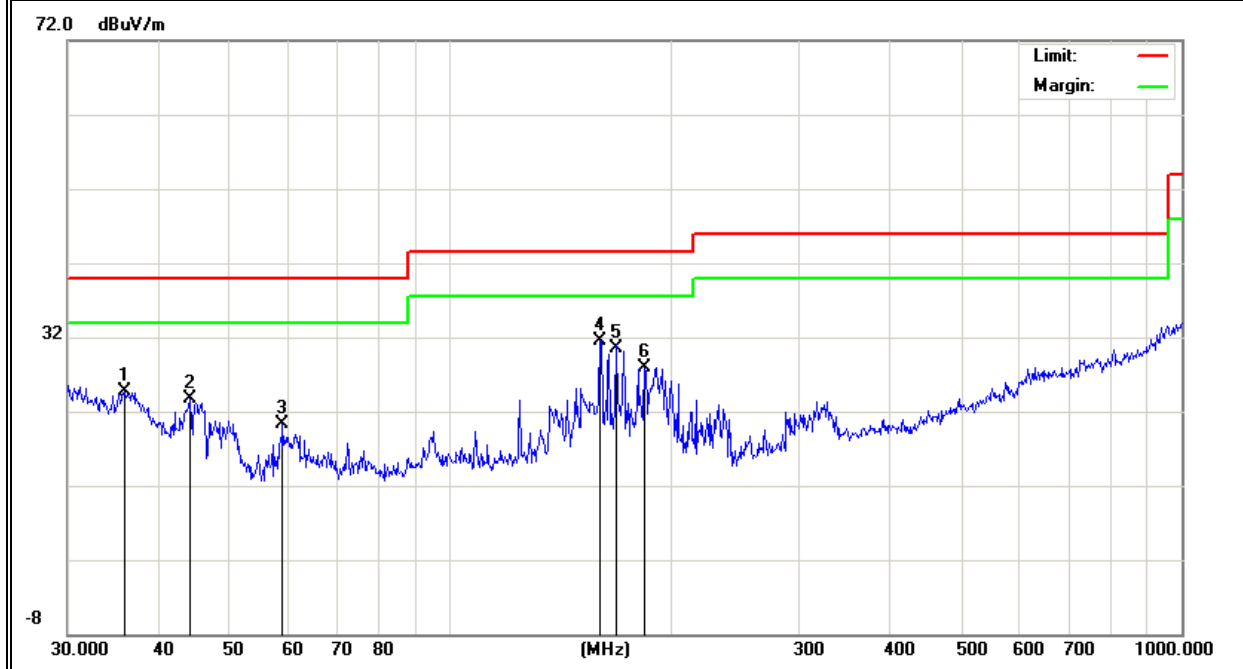
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	20 °C	Relative Humidity :	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX		

Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
V	35.8746	7.67	17.00	24.67	40.00	-15.33	QP
V	44.1200	11.24	12.54	23.78	40.00	-16.22	QP
V	59.0251	14.19	6.16	20.35	40.00	-19.65	QP
V	160.3454	20.12	11.45	31.57	43.50	-11.93	QP
V	169.0054	18.12	12.39	30.51	43.50	-12.99	QP
V	184.4898	16.09	11.82	27.91	43.50	-15.59	QP

Remark:

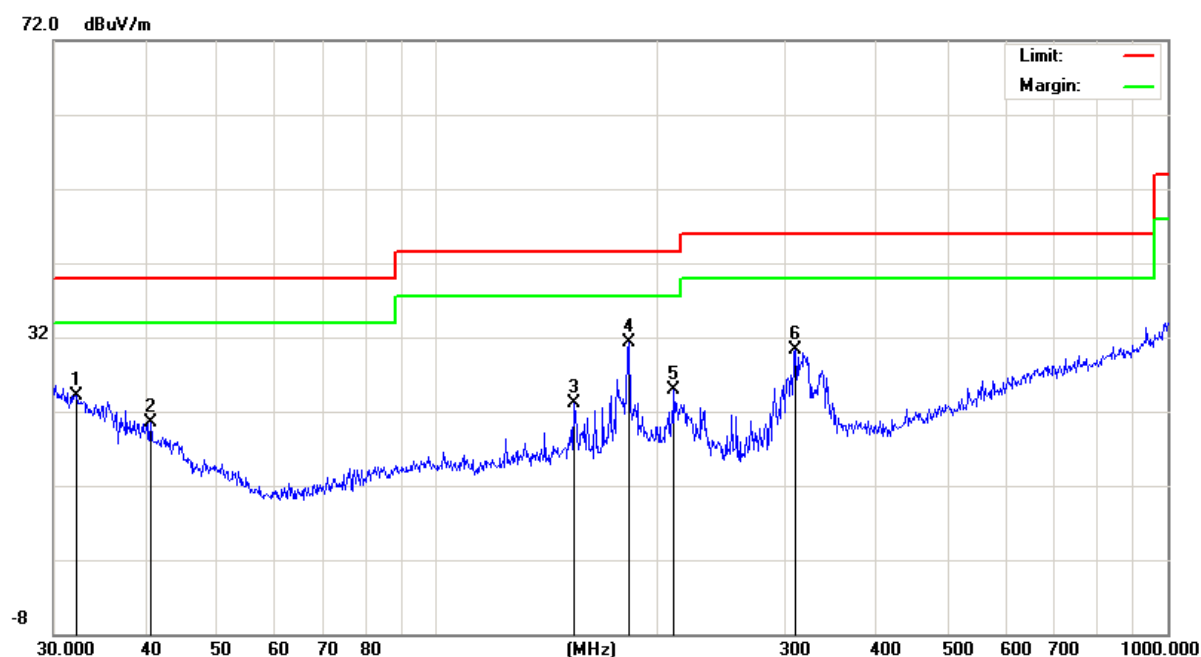
Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



Polar (H/V)	Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Remark
	(MHz)	(dBuV)	(dB)	(dBuV/m)	(dBuV/m)	(dB)	
H	32.2924	5.47	18.66	24.13	40.00	-15.87	QP
H	40.7014	6.29	14.17	20.46	40.00	-19.54	QP
H	154.2786	11.25	11.85	23.10	43.50	-20.40	QP
H	183.8437	19.56	11.84	31.40	43.50	-12.10	QP
H	211.5261	13.87	11.03	24.90	43.50	-18.60	QP
H	309.9977	17.24	13.01	30.25	46.00	-15.75	QP

Remark:

Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit



3.2.8 TEST RESULTS (ABOVE 1000 MHZ)

EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	20 °C	Relative Humidity :	48%
Pressure:	1010 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX		

Frequency (MHz)	Reading (dBμV)	Factor (dB)	Corrected Amplitude (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Remark	Polar (H/V)
Low Channel (2402 MHz)-Above 1G							
4804.121	63.15	-3.64	59.51	74.00	-14.49	Pk	Vertical
4804.121	43.55	-3.64	39.91	54.00	-14.09	AV	Vertical
7206.189	60.88	-0.95	59.93	74.00	-14.07	Pk	Vertical
7206.189	40.14	-0.95	39.19	54.00	-14.81	AV	Vertical
4804.186	64.71	-3.64	61.07	74.00	-12.93	Pk	Horizontal
4804.186	43.26	-3.64	39.62	54.00	-14.38	AV	Horizontal
7206.315	61.59	-0.95	60.64	74.00	-13.36	Pk	Horizontal
7206.315	40.32	-0.95	39.37	54.00	-14.63	AV	Horizontal
Mid Channel (2440 MHz)-Above 1G							
4880.303	62.37	-3.68	58.69	74.00	-15.31	Pk	Vertical
4880.303	42.61	-3.68	38.93	54.00	-15.07	AV	Vertical
7320.195	60.15	-0.82	59.33	74.00	-14.67	Pk	Vertical
7320.195	42.16	-0.82	41.34	54.00	-12.66	AV	Vertical
4880.267	59.68	-3.68	56.00	74.00	-18.00	Pk	Horizontal
4880.267	38.11	-3.68	34.43	54.00	-19.57	AV	Horizontal
7320.214	61.29	-0.82	60.47	74.00	-13.53	Pk	Horizontal
7320.214	42.35	-0.82	41.53	54.00	-12.47	AV	Horizontal
High Channel (2480MHz)- Above 1G							
4960.158	61.41	-3.59	57.82	74.00	-16.18	Pk	Vertical
4960.158	40.52	-3.59	36.93	54.00	-17.07	AV	Vertical
7440.131	59.79	-0.68	59.11	74.00	-14.89	Pk	Vertical
7440.131	43.94	-0.68	43.26	54.00	-10.74	AV	Vertical
4960.255	61.57	-3.59	57.98	74.00	-16.02	Pk	Horizontal
4960.255	41.52	-3.59	37.93	54.00	-16.07	AV	Horizontal
7440.284	60.55	-0.68	59.87	74.00	-14.13	Pk	Horizontal
7440.284	39.33	-0.68	38.65	54.00	-15.35	AV	Horizontal

Remark: Absolute Level= ReadingLevel+ Factor, Margin= Absolute Level - Limit

4. POWER SPECTRAL DENSITY TEST

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8 dBm (in any 3KHz)	2400-2483.5	PASS

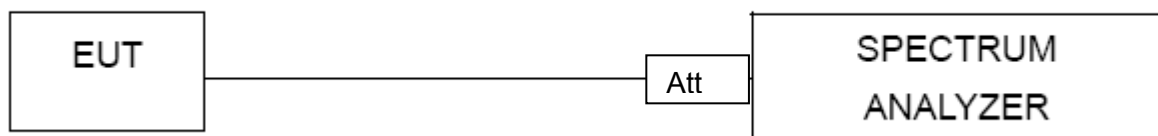
4.1.1 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS channel bandwidth.
3. 3 kHz ≤ Set the RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP



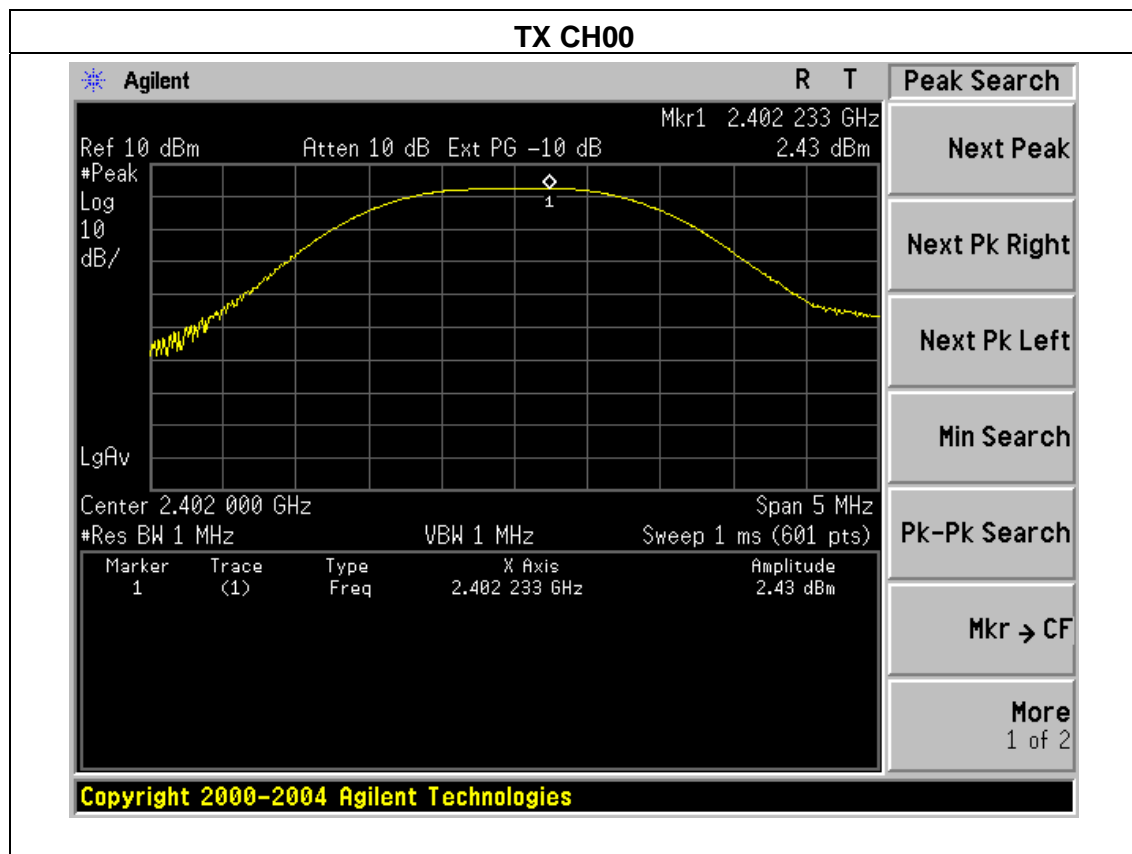
4.1.4 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

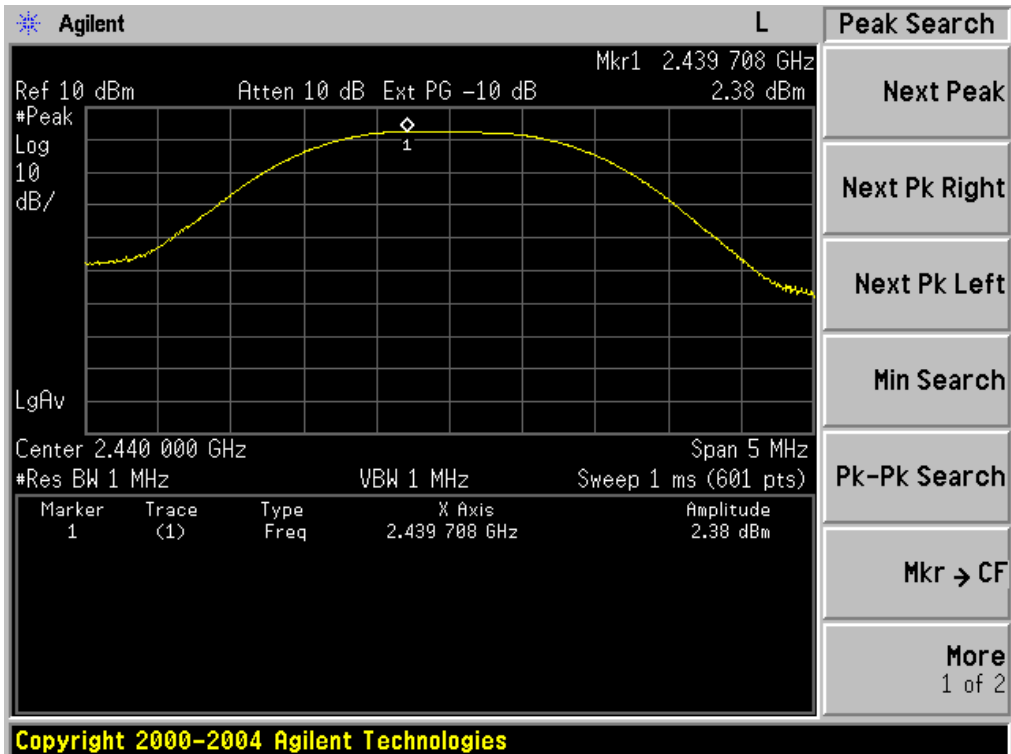
4.1.5 TEST RESULTS

EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1015 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Mode /CH00, CH19, CH39		

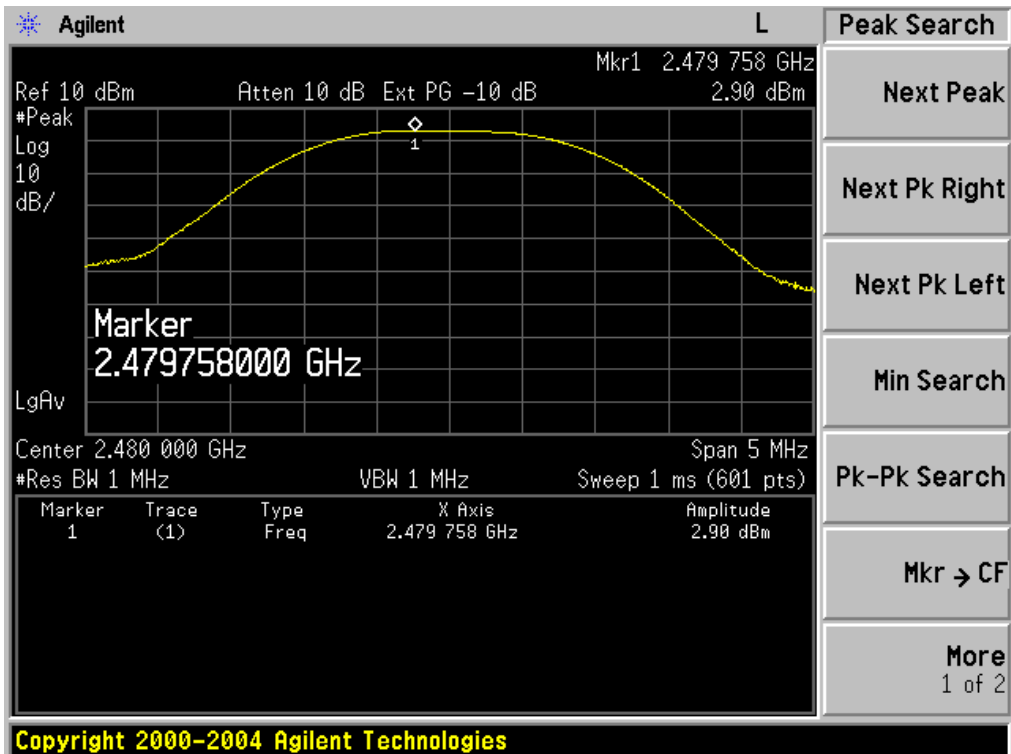
Frequency	Power Density (dBm)	Limit (dBm)	Result
2402 MHz	2.43	8	PASS
2440 MHz	2.38	8	PASS
2480 MHz	2.90	8	PASS



TX CH19



TX CH39



5. BANDWIDTH TEST

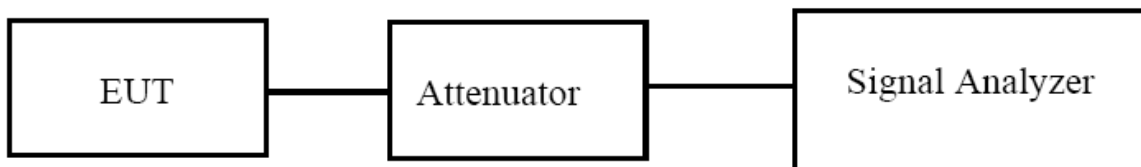
5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	$\geq 500\text{KHz}$ (6dB bandwidth)	2400-2483.5	PASS

5.1.1 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

TEST SETUP



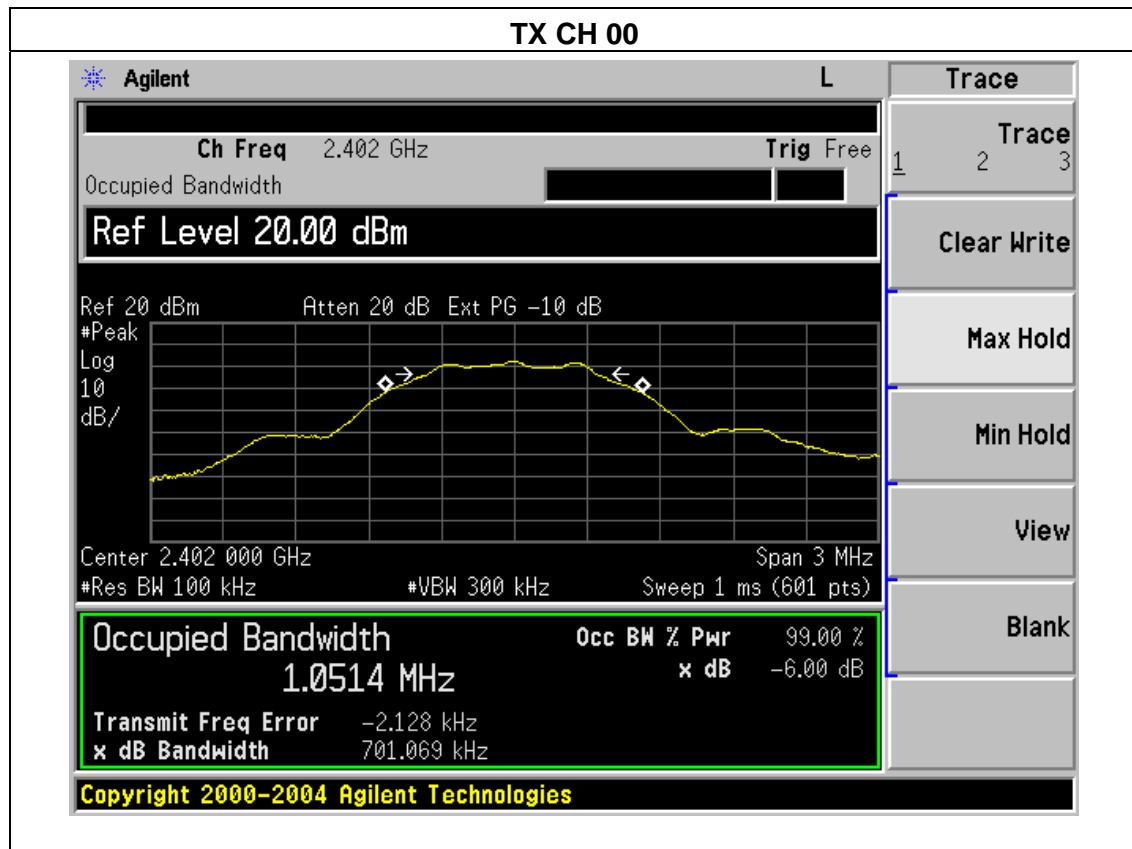
5.1.2 EUT OPERATION CONDITIONS

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.

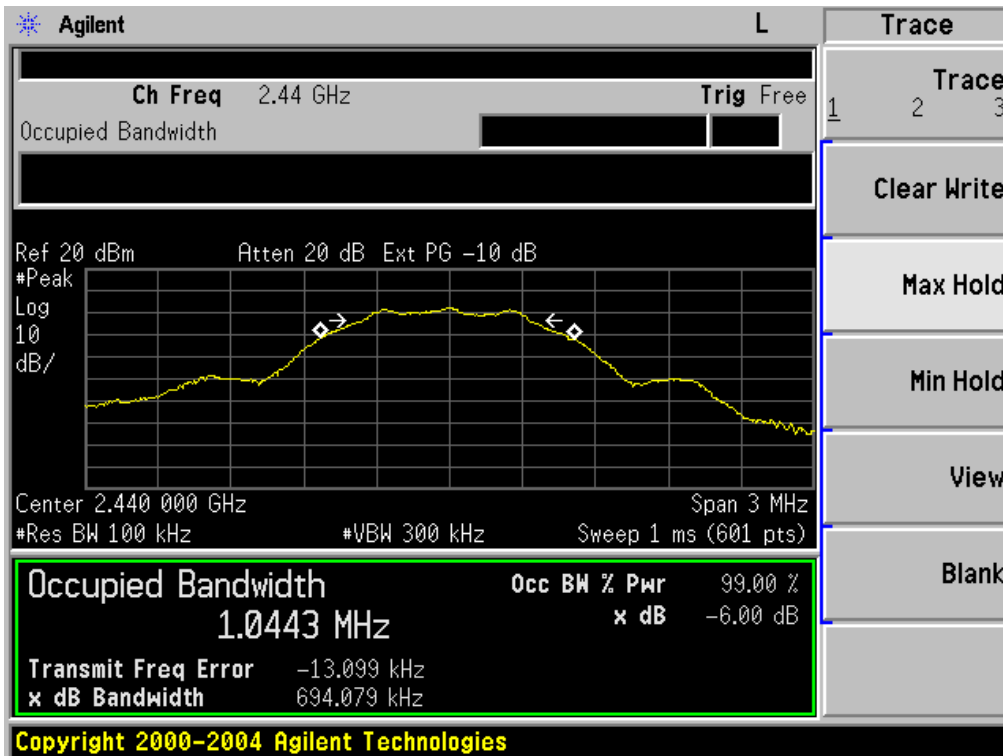
5.1.3 TEST RESULTS

EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Mode /CH00, CH19, CH39		

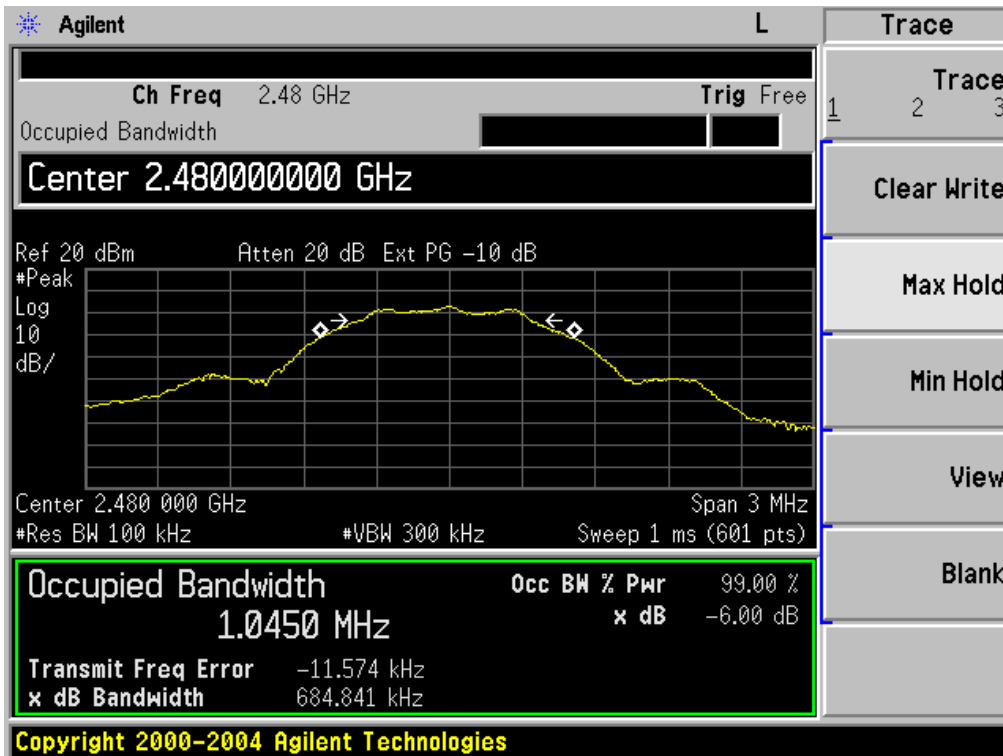
Channel	Frequency (MHz)	6dB bandwidth (kHz)	Limit (kHz)	Result
Low	2402	701.069	500	Pass
Middle	2440	694.079	500	Pass
High	2480	684.841	500	Pass



TX CH 19



TX CH 39



6. PEAK OUTPUT POWER TEST

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

6.1.1 TEST PROCEDURE

- a. The EUT was directly connected to the Power meter

6.1.2 DEVIATION FROM STANDARD

No deviation.

6.1.3 TEST SETUP



6.1.4 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.

6.1.5 TEST RESULTS

EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	25 °C	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V
Test Mode :	TX Mode		

Test Channel	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	(dBm)
CH01	2402	2.43	30
CH20	2440	2.38	30
CH39	2480	2.90	30

7. 100 KHZ BANDWIDTH OF FREQUENCY BAND EDGE

APPLICABLE STANDARD

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

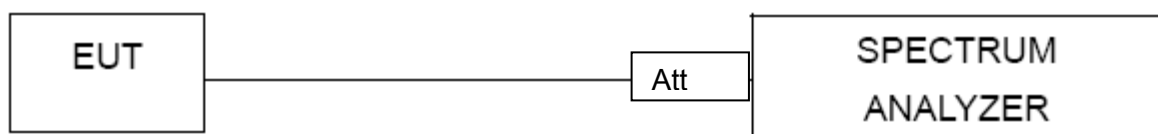
TEST PROCEDURE

- a) Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
- b) Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- c) Set RBW to 100 kHz and VBW of spectrum analyzer to 300 kHz with a convenient frequency span including 100 kHz bandwidth from band edge.
- d) Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
- e) Repeat above procedures until all measured frequencies were complete.

7.1 DEVIATION FROM STANDARD

No deviation.

7.2 TEST SETUP



7.3 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.

7.4 TEST RESULTS

EUT :	Bluetooth headset	Model Name :	BT-09
Temperature :	25 °C	Relative Humidity :	56%
Pressure :	1012 hPa	Test Voltage :	DC 3.7V

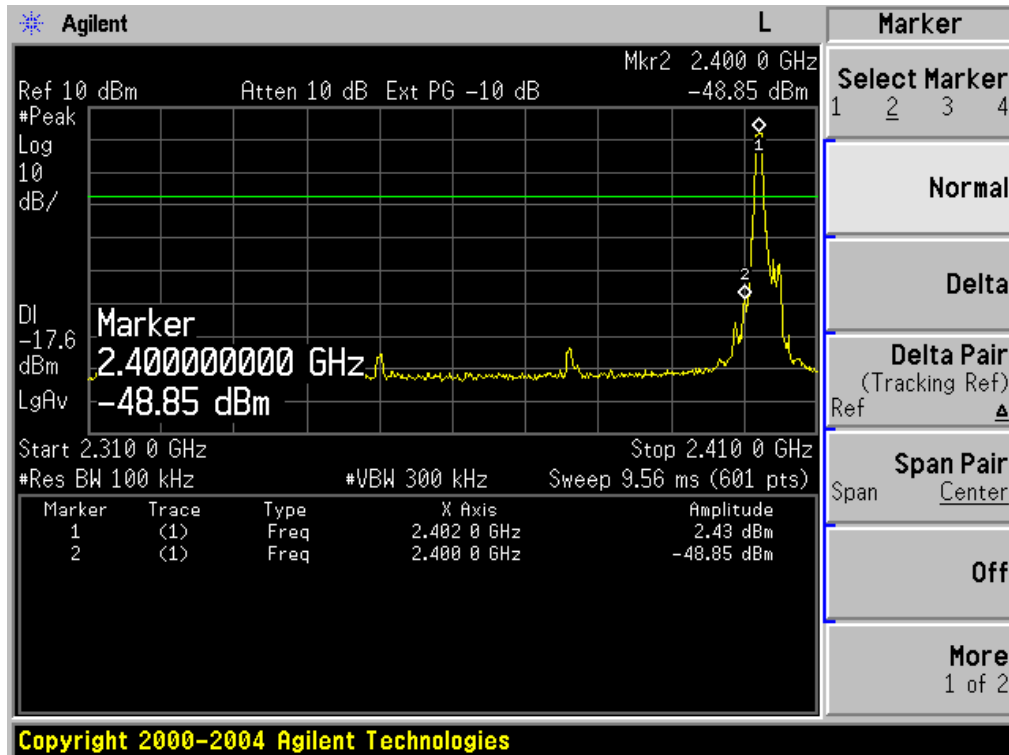
Frequency Band	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
2400	51.28	20	Pass
2483.5	63.21	20	Pass

Radiated band edge:

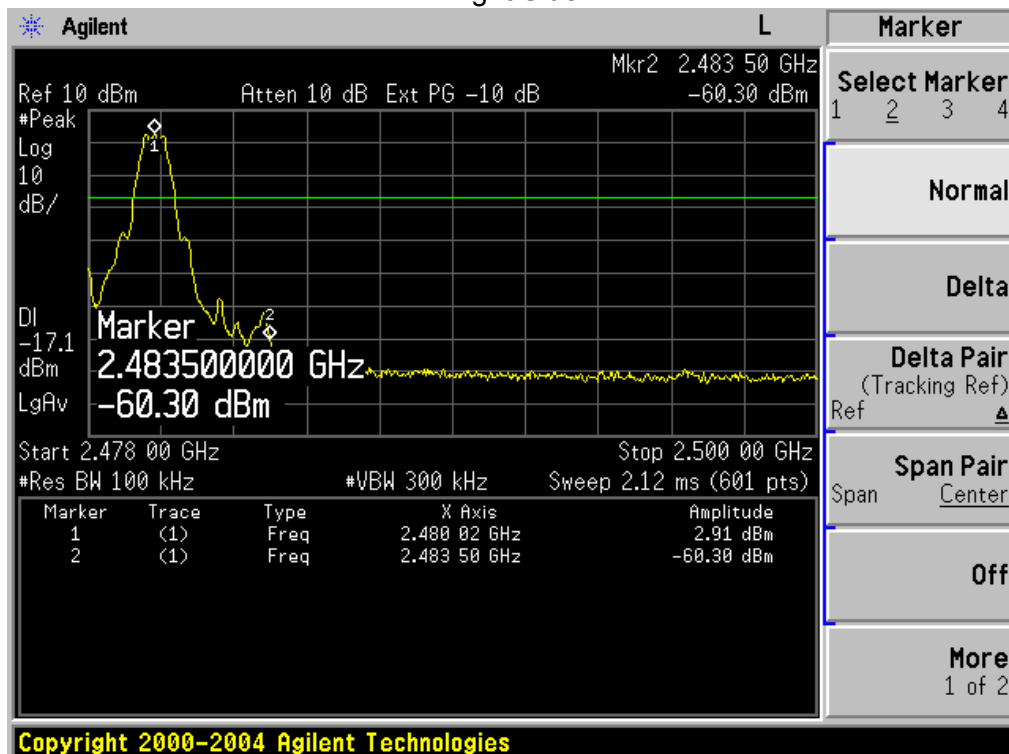
Frequency (MHz)	Meter Reading (dBμV)	Factor (dB)	Emission Level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector Type	Comment
2390	57.12	-13.06	44.06	74	-29.94	peak	Vertical
2390	58.93	-13.06	45.87	74	-28.13	peak	Horizontal
2483.5	59.34	-12.78	46.56	74	-27.44	peak	Vertical
2483.5	59.76	-12.78	46.98	74	-27.02	peak	Horizontal

Note: Test method to see chapter 3.2 . When PK value is lower than the Average value limit, average not record.

Left Side



Right Side



8. ANTENNA REQUIREMENT

8.1 STANDARD REQUIREMENT

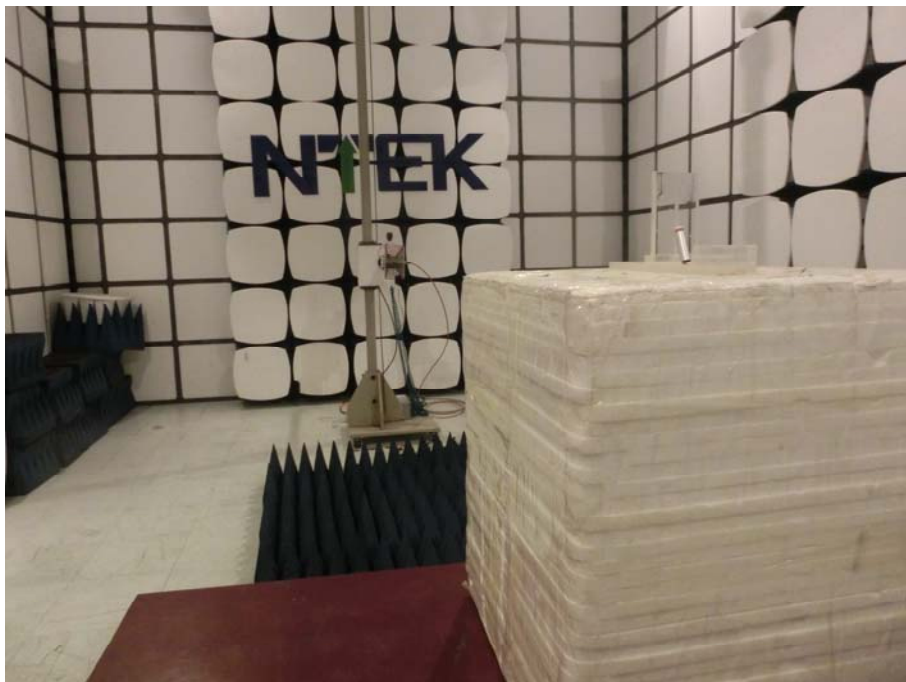
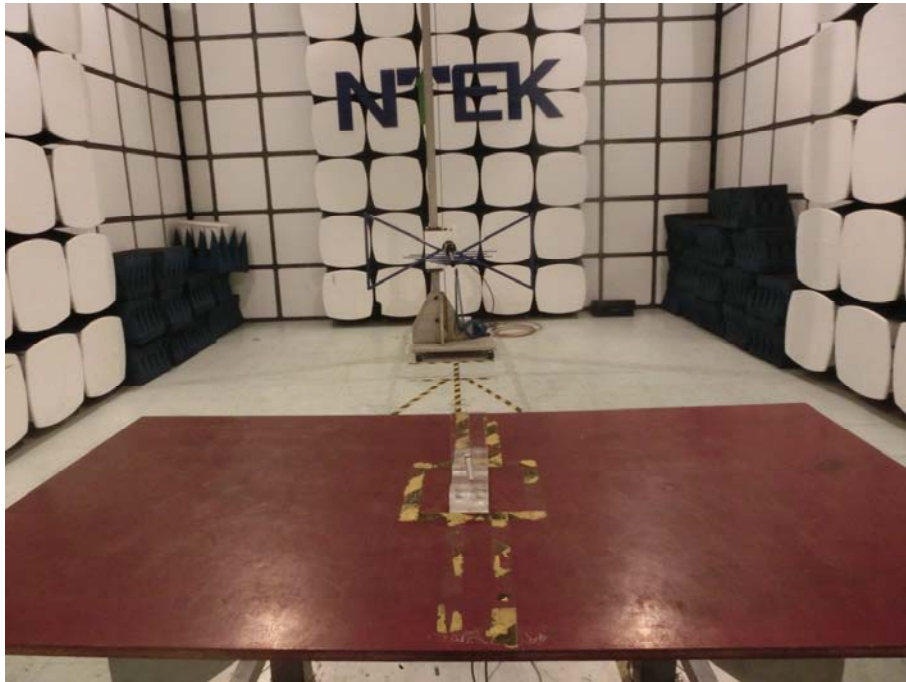
15.203 requirement: For intentional device, according to 15.203: an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

8.2 EUT ANTENNA

The EUT antenna is permanent attached antenna. It comply with the standard requirement.

9. EUT TEST PHOTO

Radiated Measurement Photos



CONDUCTED EMISSION Photos