

FCC TEST REPORT

FCC ID: 2ALCFXO-9277

Product : Colorful Bluetooth Earbuds

Model Name : XO-9277

Brand : N/A

Report No. : PTCDQ01170611701E-FC01

Prepared for

Dongguan Xing Yue Electronic co., Ltd
#98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China

Prepared by

DongGuan Precise Testing Service Co.,Ltd.
Building D, Baoding Technology Park, Guangming Road 2, Guangming Community
Dongcheng District, Dongguan, Guangdong, China



TEST RESULT CERTIFICATION

Applicant's name : Dongguan Xing Yue Electronic co., Ltd
Address : #98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China
Manufacture's name : Dongguan Xing Yue Electronic co., Ltd
Address : #98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China
Product name : Colorful Bluetooth Earbuds
Model name : XO-9277
Standards : FCC Part 15 Subpart C Section 15.249
Test procedure : ANSI C63.10:2013
Test Date : Jun.18, 2017 - Jun.26, 2017
Date of Issue : Jun.30, 2017
Test Result : Pass

This device described above has been tested by PTC, 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.

This report shall not be reproduced except in full, without the written approval of PTC, this document may be altered or revised by PTC, personal only, and shall be noted in the revision of the document.

Testing Engineer

August Qiu

Authorized Signatory

Chris Du



TABLE OF CONTENTS

1. VERIFICATION OF CONFORMITY	5
2. GENERAL INFORMATION	6
2.1. PRODUCT DESCRIPTION	6
2.2. TABLE OF CARRIER FREQUENCIES.....	6
3. MEASUREMENT UNCERTAINTY	7
4. DESCRIPTION OF TEST MODES.....	8
5. SYSTEM TEST CONFIGURATION	10
5.1 GENERAL DESCRIPTION OF EUT.....	10
5.2. EQUIPMENT USED IN EUT SYSTEM.....	10
5.3. SUMMARY OF TEST RESULTS	10
6. TEST FACILITY.....	11
7.TEST METHOD	12
8.TEST EQUIPMENT LIST	13
9.RADIATED EMISSION.....	15
9.1TEST LIMIT	15
9.2. MEASUREMENT PROCEDURE.....	16
9.3 TEST SETUP.....	18
9.4. TEST RESULT	20
10. BAND EDGE EMISSION	34
10.1. MEASUREMENT PROCEDURE.....	34
10.2 TEST SETUP.....	34
10.3 RADIATED TEST RESULT	35
11. 20DB BANDWIDTH.....	39
11.1. MEASUREMENT PROCEDURE.....	39
11.2. TEST SET-UP	39
11.3. LIMITS AND MEASUREMENT RESULTS.....	39
12. FCC LINE CONDUCTED EMISSION TEST	44
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST	44
12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST	44
12.3. PRELIMINARY PROCEDURE OF LINE CONDUCTED EMISSION TEST	45



12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST	45
12.5. TEST RESULT OF LINE CONDUCTED EMISSION TEST	46
APPENDIX A: PHOTOGRAPHS OF TEST SETUP	48
APPENDIX B: PHOTOGRAPHS OF EUT.....	52



1. VERIFICATION OF CONFORMITY

Applicant	Dongguan Xing Yue Electronic co., Ltd
Address	#98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China
Manufacturer	Dongguan Xing Yue Electronic co., Ltd
Address	#98 LiWu Swan Industrial District, Qiao Tou Town, Dong Guan, Guang Dong, China
Product Designation	Colorful Bluetooth Earbuds
Brand Name	N/A
Test Model	XO-9277
Date of test	Jun.18, 2017 to Jun.26, 2017
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.



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	2.18dBm(Max EIRP Power=Max radiation field-95.2)
Bluetooth Version	V4.2
Modulation	GFSK , π /4-DQPSK
Number of channels	79 for BR/EDR
Hardware Version	V1.0
Software Version	V1.0
Antenna Designation	PCB Antenna
Antenna Gain	0dBi
Power Supply	DC 3.7V by battery

Note:

1. The USB port only be used for charging and can't be used to transfer data with PC.
2. The EUT didn't support 8DPSK and BLE.
3. The tested model has two kinds of color samples, and both have been recorded in the report.

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



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

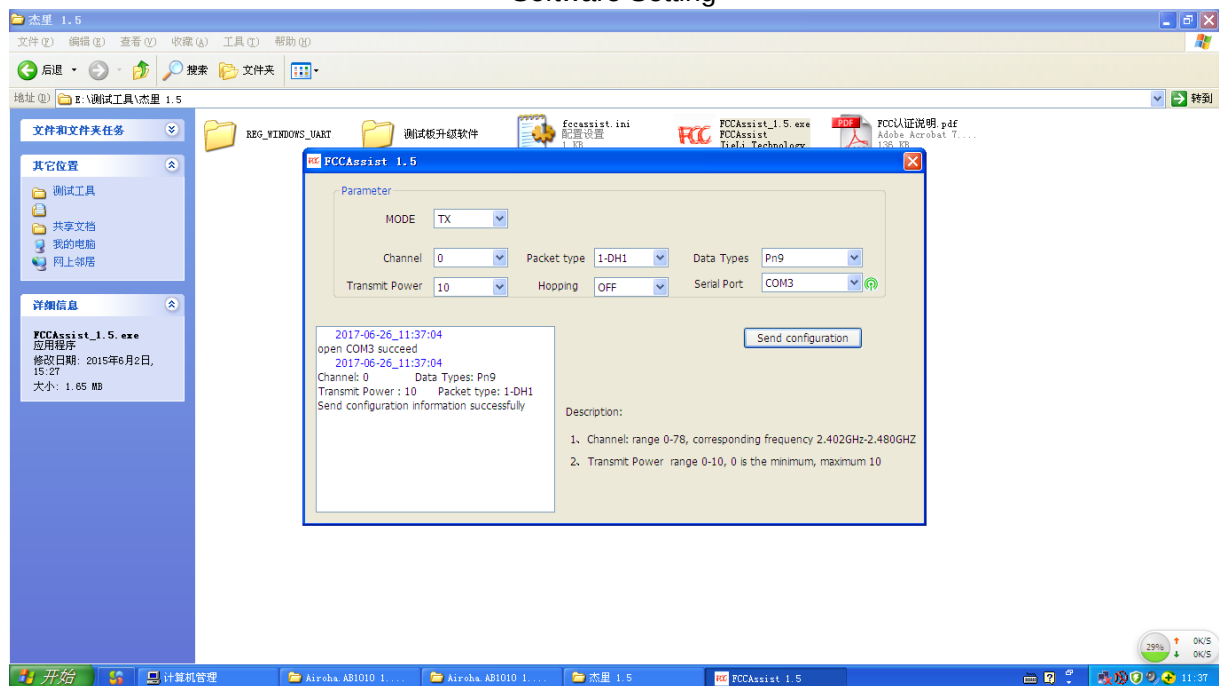
NO.	TEST MODE DESCRIPTION
1	Low channel GFSK
2	Middle channel GFSK
3	High channel GFSK
4	Low channel $\pi/4$ -DQPSK
5	Middle channel $\pi/4$ -DQPSK
6	High channel $\pi/4$ -DQPSK
7	BT Link with charging
8	BT Link

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

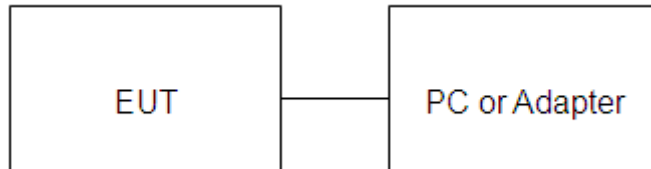




5. SYSTEM TEST CONFIGURATION

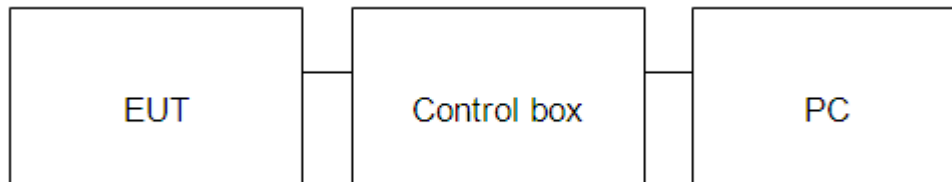
5.1 GENERAL DESCRIPTION OF EUT

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	Mfr/Brand	Model/Type No.	Remark
1	Colorful Bluetooth Earbuds	Xing Yue	XO-9277	EUT
2	Battery	AUN	350926	Accessory
3	PC	Sony	E1412AYCW	A.E
4	PC Adapter	Sony	VGP-AC19V36	A.E
5	Control box	CSR	USB_SPI_TOOLS	A.E
6	Adapter	IPRO	NTR-S01	A.E
7	USB Cable	N/A	1m unshielded	A.E

5.3. SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.249(a) §15.209	Radiated Emission	Compliant
§15.249(d)	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 C63.4:2014.



PRECISE TESTING

7.TEST METHOD

Report No.: PTCDQ01170611701E-FC01

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



8.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, 2016	July 3, 2017
Trilog Broadband Antenna (25M-1GHz)	SCHWARZBECK	VULB9160	9160-3355	July 4, 2016	July 3, 2017
Signal Amplifier	SCHWARZBECK	BBV 9475	9745-0013	July 4, 2016	July 3, 2017
RF Cable	SCHWARZBECK	AK9515E	96221	July 4, 2016	July 3, 2017
MULTI-DEVICE Positioning Controller	MAX-FULL	MF-7802	MF780208339	N/A	N/A
Active loop antenna (9K-30MHz)	SCHWARZBECK	FMZB1519	1519-038	June 6, 2017	June 5, 2018
Spectrum analyzer	AGILENT	E4407B	MY46185649	June 6, 2017	June 5, 2018
Radiation Cable 1	MXT	RS1	R005	June 6, 2017	June 5, 2018
Radiation Cable 2	MXT	RS1	R006	June 6, 2017	June 5, 2018

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, 2016	July 3, 2017
Horn Antenna (1G-18GHz)	SCHWARZBECK	BBHA9120D	9120D-1246	July 11, 2016	July 10, 2017
Spectrum Analyzer	AGILENT	E4411B	MY4511453	July 4, 2016	July 3, 2017
Signal Amplifier	SCHWARZBECK	BBV 9718	9718-269	July 7, 2016	July 6, 2017
RF Cable	SCHWARZBECK	AK9515H	96220	July 8, 2016	July 7, 2017
MULTI-DEVICE Positioning Controller	MAX-FULL	MF-7802	MF780208339	N/A	N/A
Horn Ant (18G-40GHz)	SCHWARZBECK	BBHA 9170	9170-181	June 6, 2017	June 5, 2018
Radiation Cable 1	MXT	RS1	R005	June 6, 2017	June 5, 2018
Radiation Cable 2	MXT	RS1	R006	June 6, 2017	June 5, 2018



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, 2016	July 3, 2017
Artificial Mains Network	NARDA	L2-16B	000WX31025	July 8, 2016	July 7, 2017
Artificial Mains Network (AUX)	NARDA	L2-16B	000WX31026	July 8, 2016	July 7, 2017
RF Cable	SCHWARZBECK	AK9515E	96222	July 4, 2016	July 3, 2017
Shielded Room	CHENGYU	843	PTS-002	June 6, 2017	June 5, 2018
Conduction Cable	MXT	SE1	S003	June 6, 2017	June 5, 2018



9.RADIATED EMISSION

9.1TEST 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.



9.2. 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)
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)

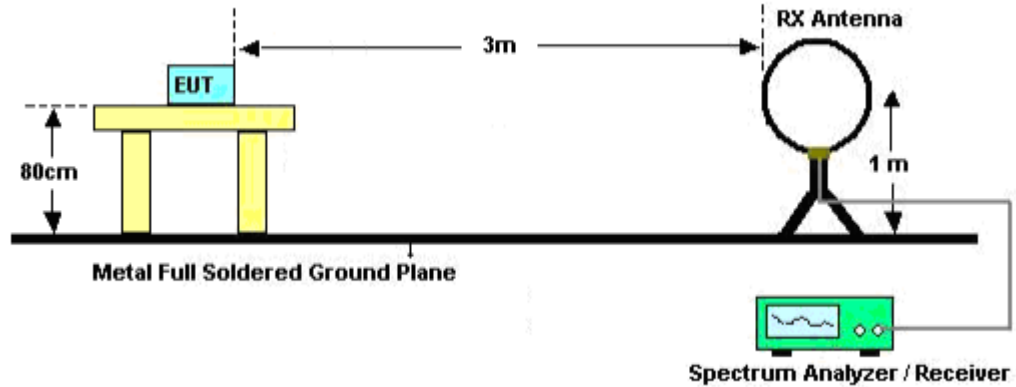


The following table is the setting of spectrum analyzer and receiver.

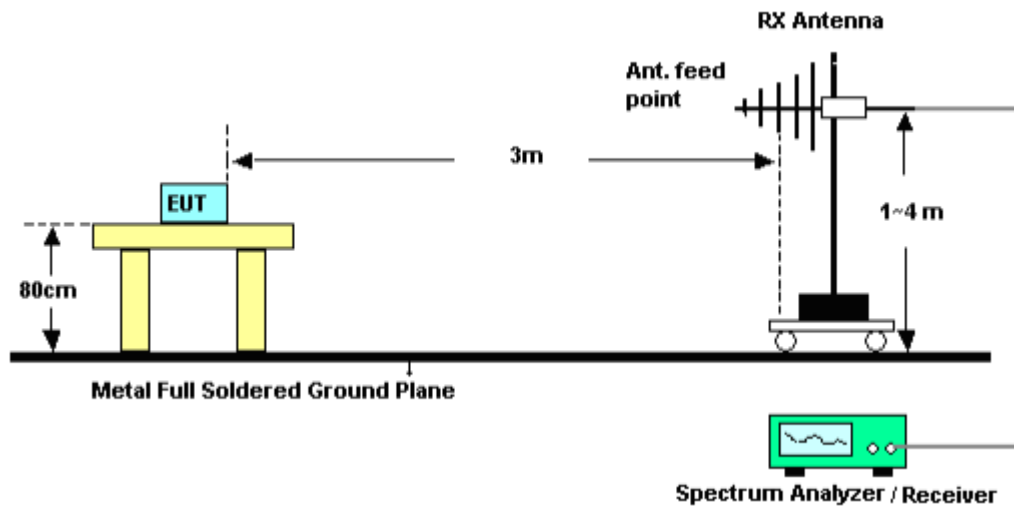
Spectrum Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP
Start ~Stop Frequency	1GHz~26.5GHz RBW 2MHz/ VBW 6MHz for Peak, RBW 1.5MHz/10Hz for Average
Receiver Parameter	Setting
Start ~Stop Frequency	9KHz~150KHz/RB 200Hz for QP
Start ~Stop Frequency	150KHz~30MHz/RB 9KHz for QP
Start ~Stop Frequency	30MHz~1000MHz/RB 120KHz for QP

9.3 TEST SETUP

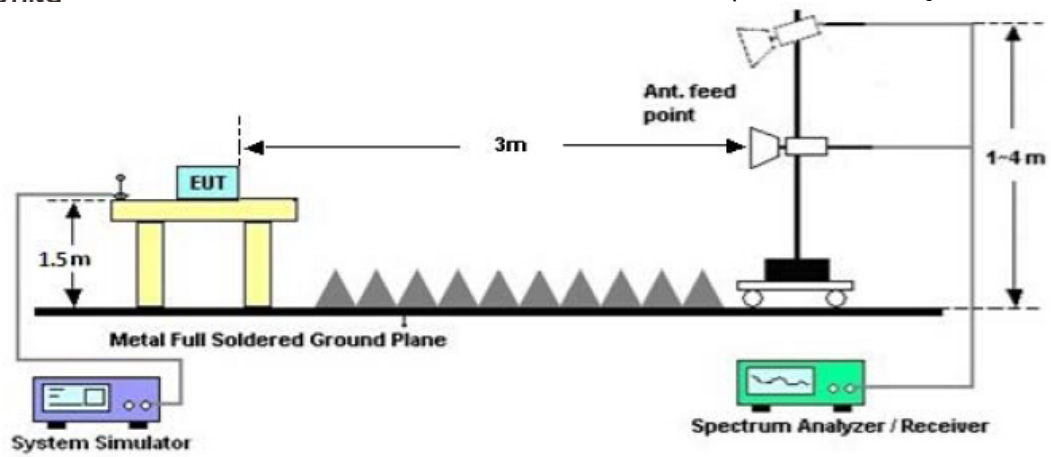
Radiated Emission Test-Setup Frequency Below 30MHz



RADIATED EMISSION TEST SETUP 30MHz-1000MHz

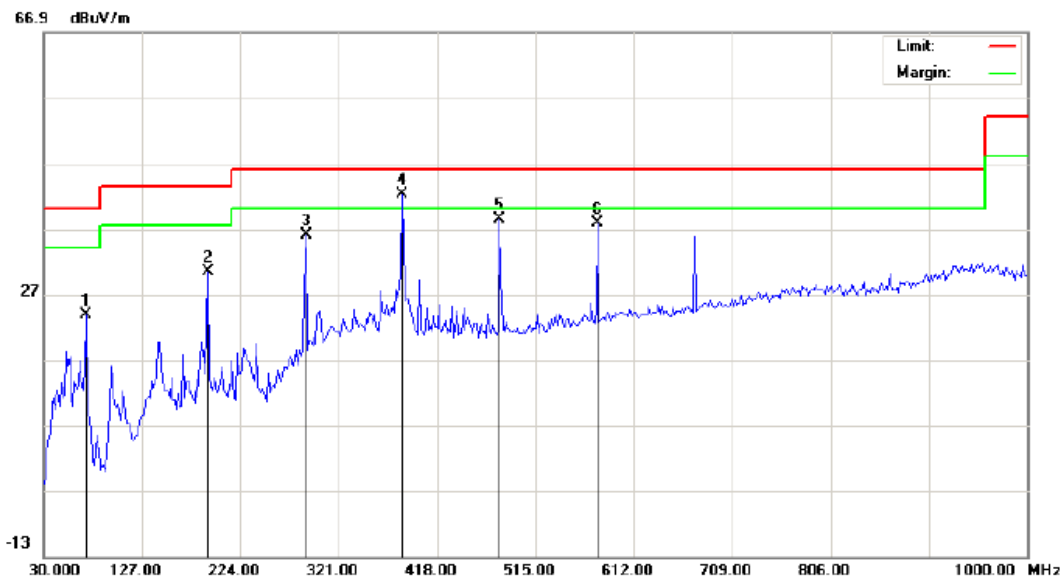


RADIATED EMISSION TEST SETUP ABOVE 1000MHz



**9.4. 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:Colorful Bluetooth Earbuds

M/N: XO-9277

Mode:Low Channel TX

Note:

Polarization: *Horizontal*

Power:

Distance:

Temperature: 22.4

Humidity: 52.5 %

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		72.0333	15.51	8.28	23.79	40.00	-16.21	peak			
2		191.6667	18.81	11.61	30.42	43.50	-13.08	peak			
3		288.6667	22.45	13.48	35.93	46.00	-10.07	peak			
4	*	384.0500	23.32	18.96	42.28	46.00	-3.72	peak			
5		479.4333	17.44	20.91	38.35	46.00	-7.65	peak			
6		576.4333	14.57	23.14	37.71	46.00	-8.29	peak			

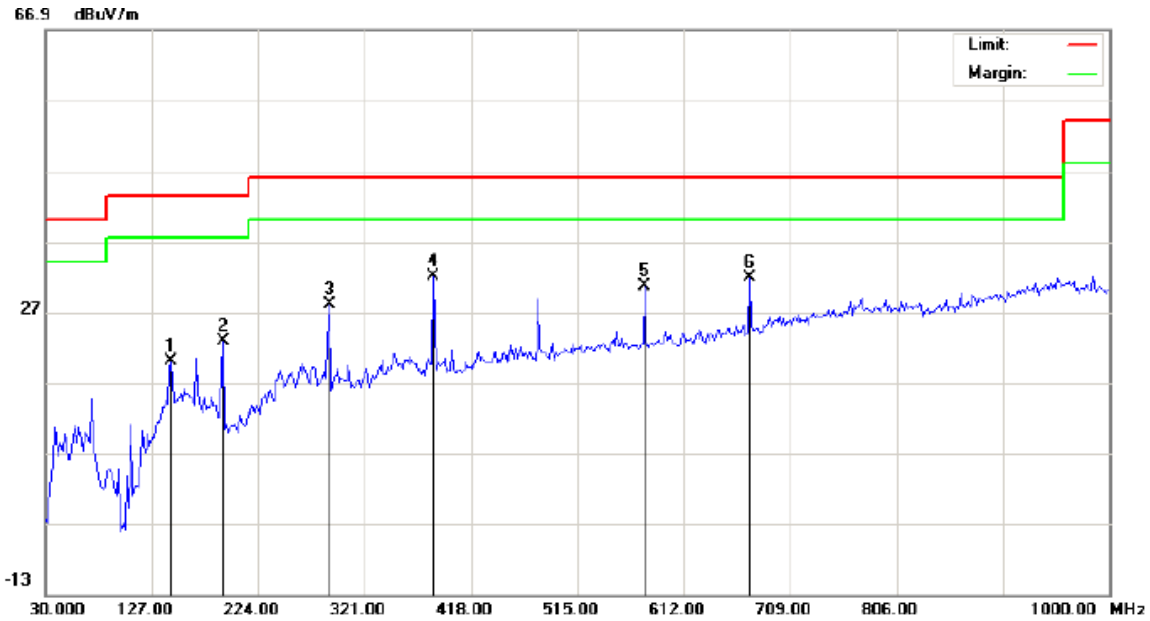
RESULT: PASS



PRECISE TESTING

Report No.: PTCDQ01170611701E-FC01

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



Site: site #1
 Limit: FCC Class B 3M Radiation
 EUT: Colorful Bluetooth Earbuds
 M/N: XO-9277
 Mode: Low Channel TX
 Note:

Polarization: **Vertical**
 Power:
 Distance:

Temperature: 22.4
 Humidity: 52.5 %

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		144.7833	4.69	15.23	19.92	43.50	-23.58	peak			
2		191.6667	11.62	11.11	22.73	43.50	-20.77	peak			
3		288.6667	12.90	15.07	27.97	46.00	-18.03	peak			
4	*	384.0500	13.11	18.96	32.07	46.00	-13.93	peak			
5		576.4333	8.03	22.61	30.64	46.00	-15.36	peak			
6		671.8167	7.30	24.43	31.73	46.00	-14.27	peak			

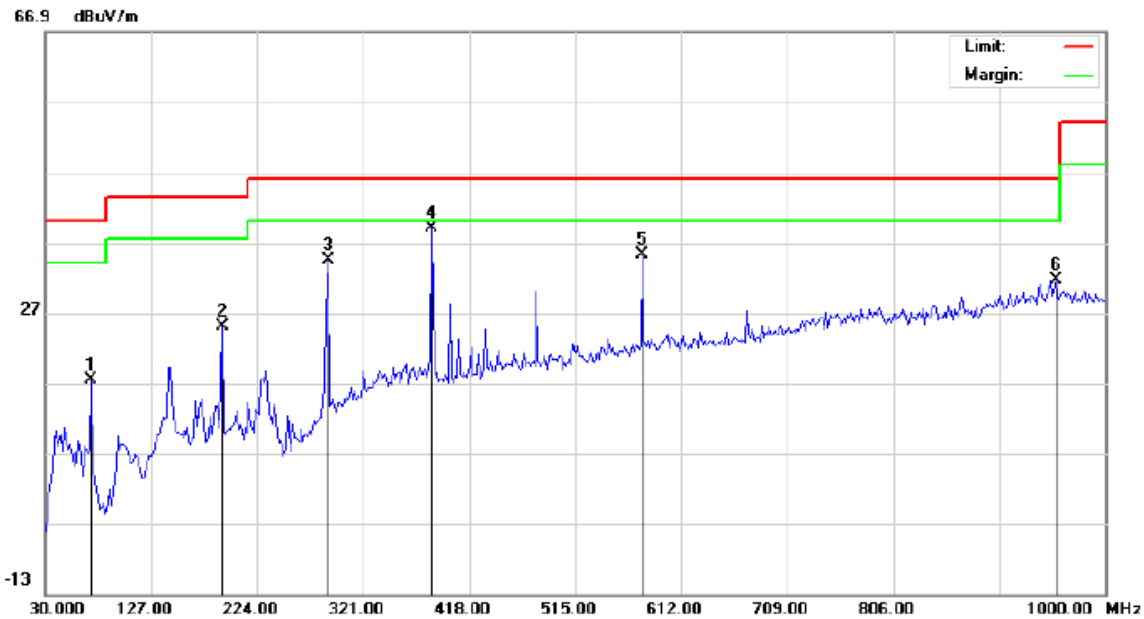
RESULT: PASS

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: Colorful Bluetooth Earbuds
M/N: XO-9277
Mode: Middle Channel TX
Note:

Polarization: *Horizontal*
Power:
Distance:

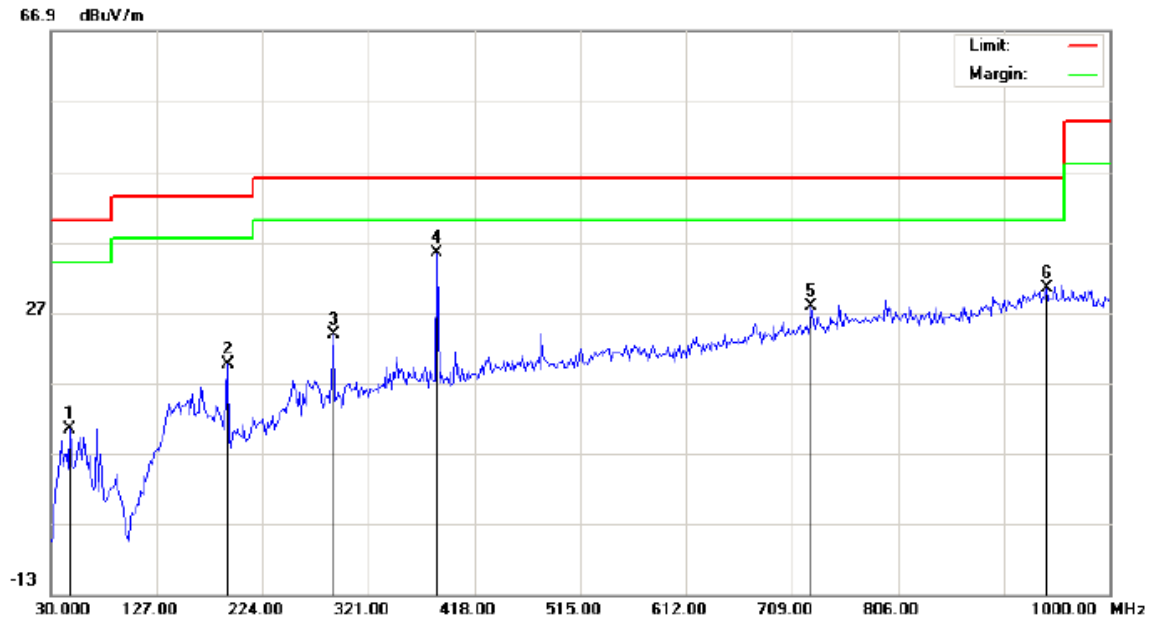
Temperature: 22.4
Humidity: 52.5 %

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		72.0333	9.11	8.28	17.39	40.00	-22.61	peak			
2		191.6667	13.37	11.61	24.98	43.50	-18.52	peak			
3		288.6667	20.88	13.48	34.36	46.00	-11.64	peak			
4	*	384.0500	20.03	18.96	38.99	46.00	-7.01	peak			
5		576.4333	12.03	23.14	35.17	46.00	-10.83	peak			
6		954.7333	1.68	29.95	31.63	46.00	-14.37	peak			

RESULT: PASS



RADIATED EMISSION TEST- (30MHz-1GHz)- MIDDLE CHANNEL –VERTICAL



Site: site #1 Polarization: **Vertical** Temperature: 22.4
 Limit: FCC Class B 3M Radiation Power: Humidity: 52.5 %
 EUT:Colorful Bluetooth Earbuds Distance:
 M/N: XO-9277
 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		47.7833	1.95	8.39	10.34	40.00	-29.66	peak			
2		191.6667	8.55	11.11	19.66	43.50	-23.84	peak			
3		288.6667	8.77	15.07	23.84	46.00	-22.16	peak			
4	*	384.0500	16.51	18.96	35.47	46.00	-10.53	peak			
5		726.7833	1.89	25.96	27.85	46.00	-18.15	peak			
6		941.8000	0.64	29.77	30.41	46.00	-15.59	peak			

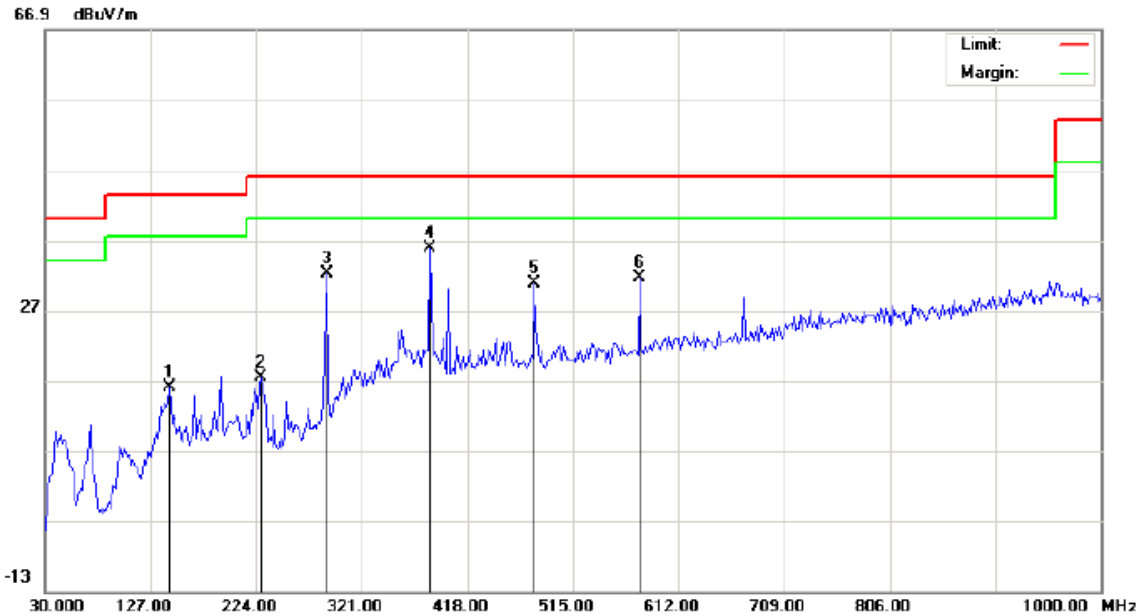
RESULT: PASS

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

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



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



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Colorful Bluetooth Earbuds
M/N: XO-9277
Mode: High Channel TX
Note:

Polarization: Horizontal
Power:
Distance:

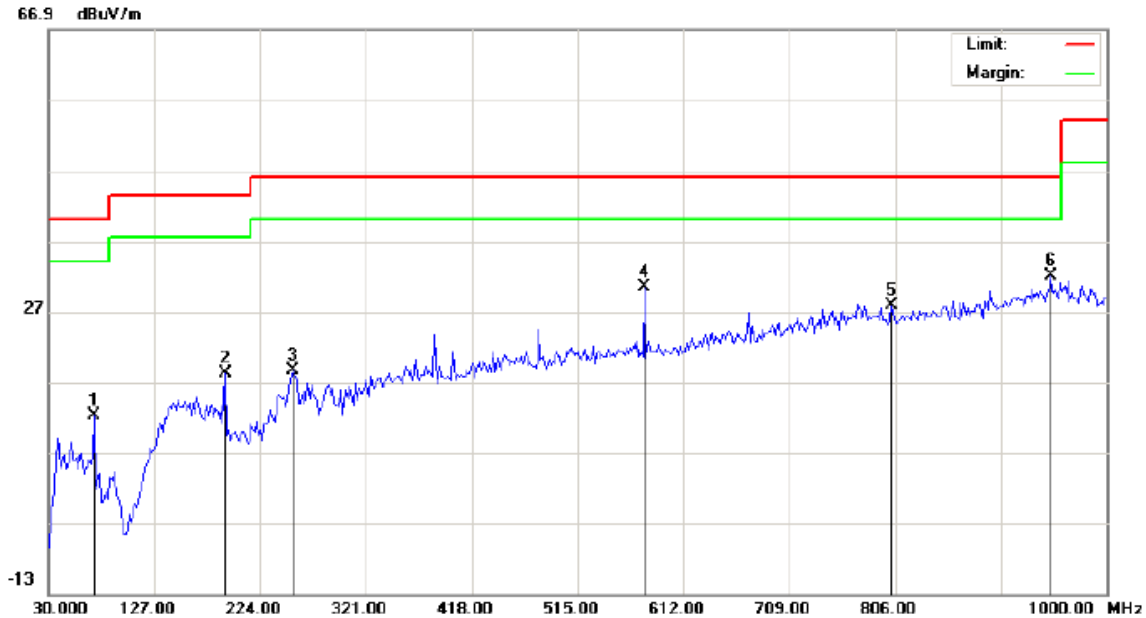
Temperature: 22.4
Humidity: 52.5 %

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		144.7833	2.00	14.04	16.04	43.50	-27.46	peak			
2		228.8500	8.38	9.06	17.44	46.00	-28.56	peak			
3		288.6667	18.68	13.48	32.16	46.00	-13.84	peak			
4	*	384.0500	16.84	18.96	35.80	46.00	-10.20	peak			
5		479.4333	9.90	20.91	30.81	46.00	-15.19	peak			
6		576.4333	8.44	23.14	31.58	46.00	-14.42	peak			

RESULT: PASS



RADIATED EMISSION TEST- (30MHz-1GHz)-HIGH CHANNEL –VERTICAL



Site: site #1
Limit: FCC Class B 3M Radiation
EUT: Colorful Bluetooth Earbuds
M/N: XO-9277
Mode: High Channel TX
Note:

Polarization: **Vertical**
Power:
Distance:

Temperature: 22.4
Humidity: 52.5 %

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		72.0333	8.43	3.76	12.19	40.00	-27.81	peak			
2		191.6667	7.02	11.11	18.13	43.50	-25.37	peak			
3		254.7167	4.50	14.04	18.54	46.00	-27.46	peak			
4		576.4333	7.78	22.61	30.39	46.00	-15.61	peak			
5		802.7667	0.46	27.32	27.78	46.00	-18.22	peak			
6	*	948.2667	2.02	29.95	31.97	46.00	-14.03	peak			

RESULT: PASS

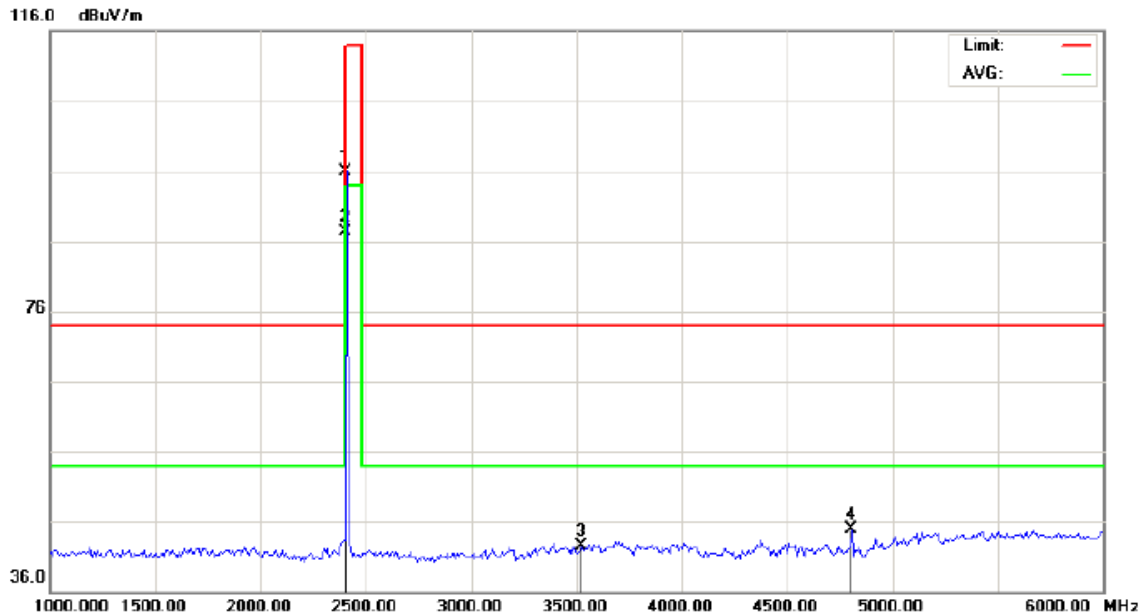
Note: 1. Factor=Antenna Factor + Cable loss, Margin=Measurement-Limit.

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: site #1

Polarization: **Horizontal**

Temperature: 22.7

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

Power:

Humidity: 53.6 %

EUT: Colorful Bluetooth Earbuds

Distance:

M/N: XO-9277

Mode: Low Channel TX

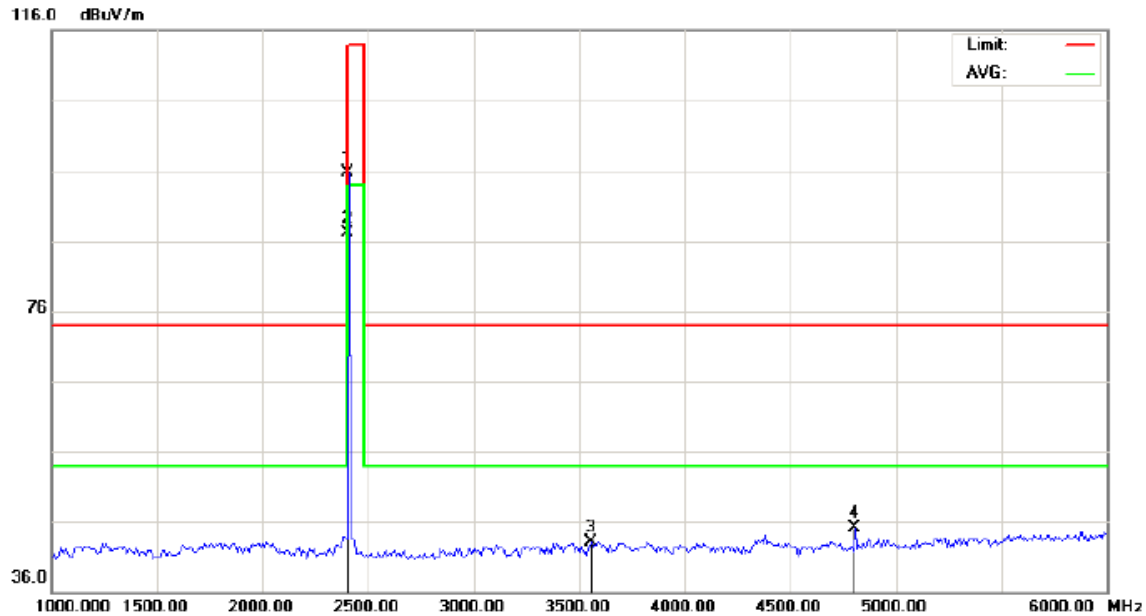
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	85.55	10.32	95.87	114.00	-18.13	peak			
2	*	2402.000	77.00	10.32	87.32	94.00	-6.68	AVG	100	64	
3		3525.000	30.32	12.26	42.58	74.00	-31.42	peak			
4		4804.000	37.24	7.69	44.93	74.00	-29.07	peak			

RESULT: PASS



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



Site: site #1

Polarization: *Vertical*

Temperature: 22.7

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

Power:

Humidity: 53.6 %

EUT: Colorful Bluetooth Earbuds

Distance:

M/N: XO-9277

Mode: Low Channel TX

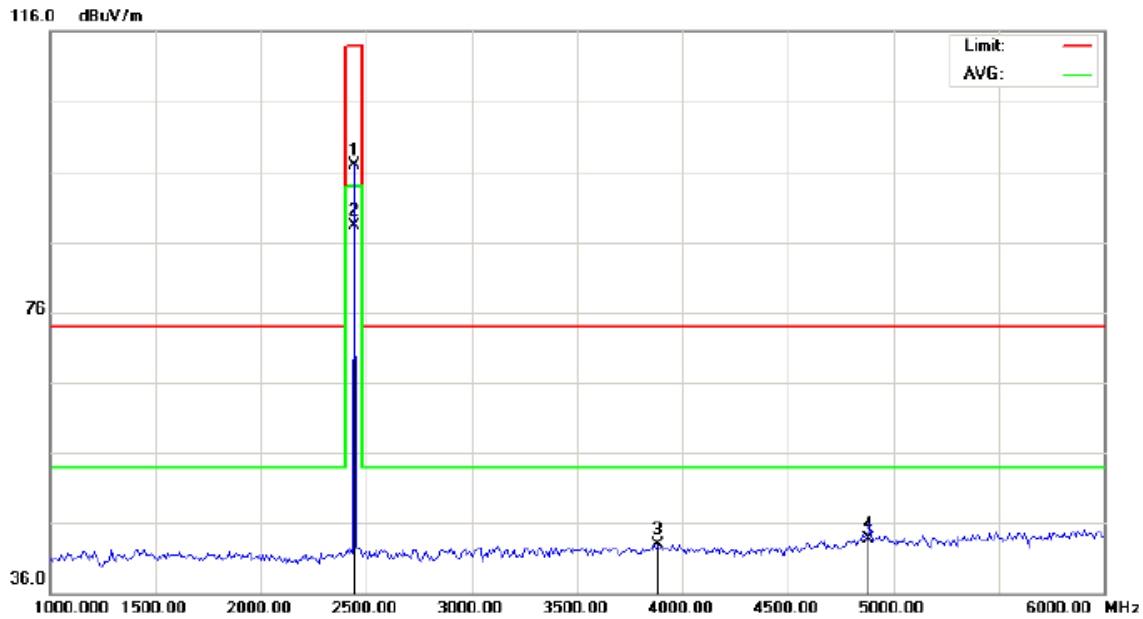
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2402.000	85.32	10.32	95.64	114.00	-18.36	peak			
2	*	2402.000	76.82	10.32	87.14	94.00	-6.86	AVG	100	75	
3		3558.333	30.68	12.47	43.15	74.00	-30.85	peak			
4		4804.000	37.38	7.69	45.07	74.00	-28.93	peak			

RESULT: PASS



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



Site: site #1

Polarization: *Horizontal*

Temperature: 22.7

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

Power:

Humidity: 53.6 %

EUT: Colorful Bluetooth Earbuds

Distance:

M/N: XO-9277

Mode: Middle Channel TX

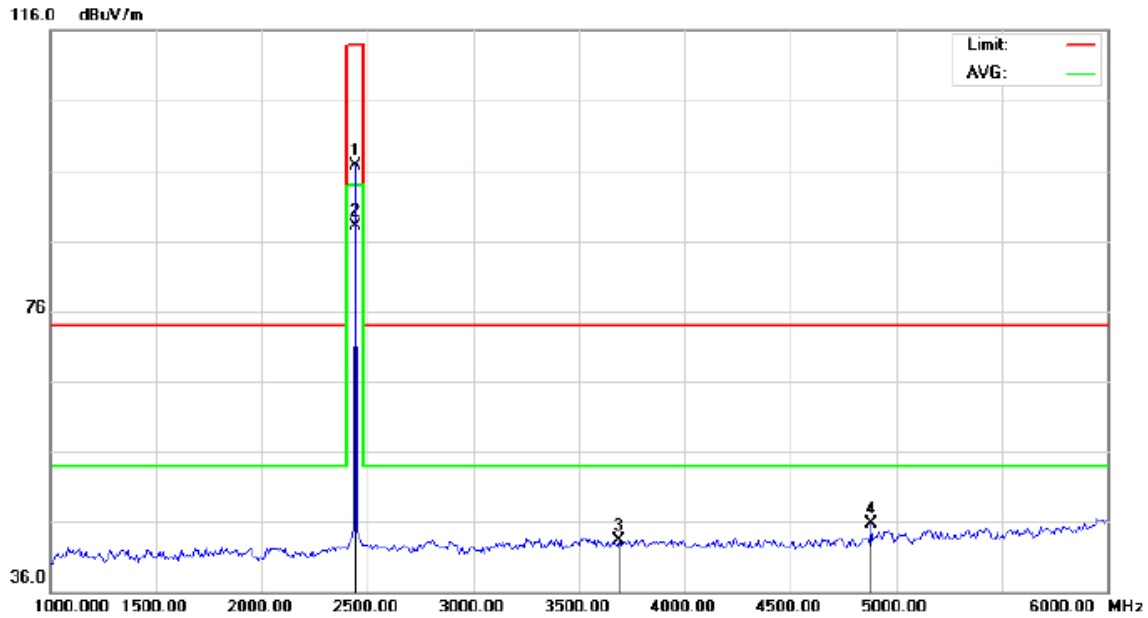
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2441.000	86.48	10.36	96.84	114.00	-17.16	peak			
2	*	2441.000	77.99	10.36	88.35	94.00	-5.65	AVG	100	70	
3		3883.333	28.44	14.47	42.91	74.00	-31.09	peak			
4		4882.000	35.88	7.89	43.77	74.00	-30.23	peak			

RESULT: PASS



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



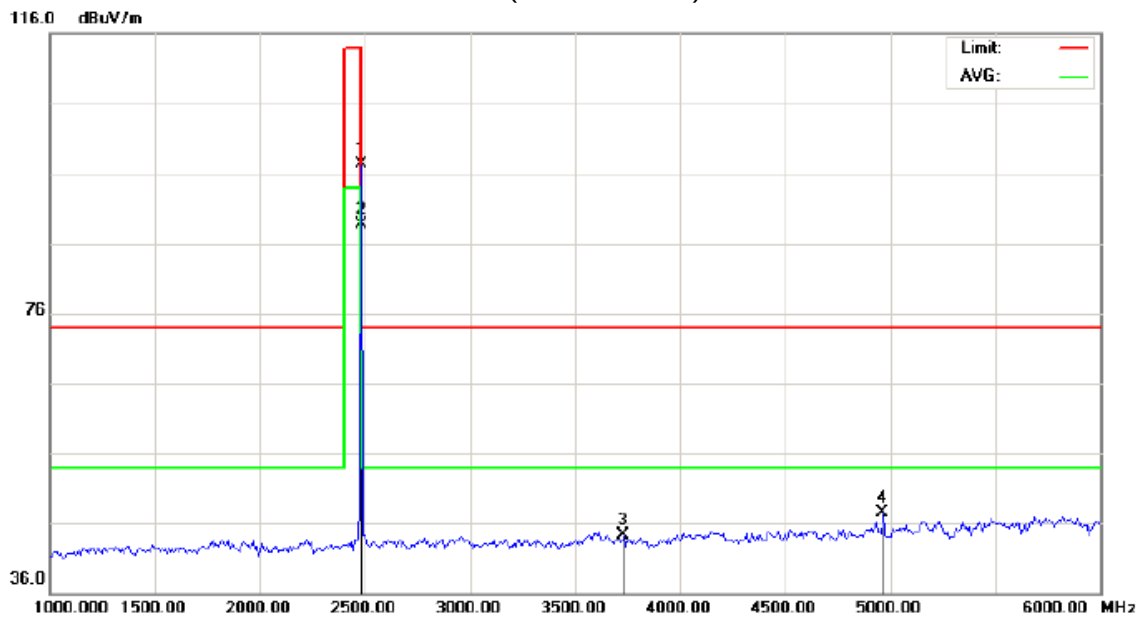
Site: site #1 Polarization: *Vertical* Temperature: 22.7
Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %
EUT: Colorful Bluetooth Earbuds Distance:
M/N: XO-9277
Mode: Middle Channel TX
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2441.000	86.32	10.36	96.68	114.00	-17.32	peak			
2	*	2441.000	77.83	10.36	88.19	94.00	-5.81	AVG	100	79	
3		3691.667	30.10	13.29	43.39	74.00	-30.61	peak			
4		4882.000	37.81	7.89	45.70	74.00	-28.30	peak			

RESULT: PASS



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



Site: site #1

Polarization: *Horizontal*

Temperature: 22.7

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

Power:

Humidity: 53.6 %

EUT: Colorful Bluetooth Earbuds

Distance:

M/N: XO-9277

Mode: High Channel TX

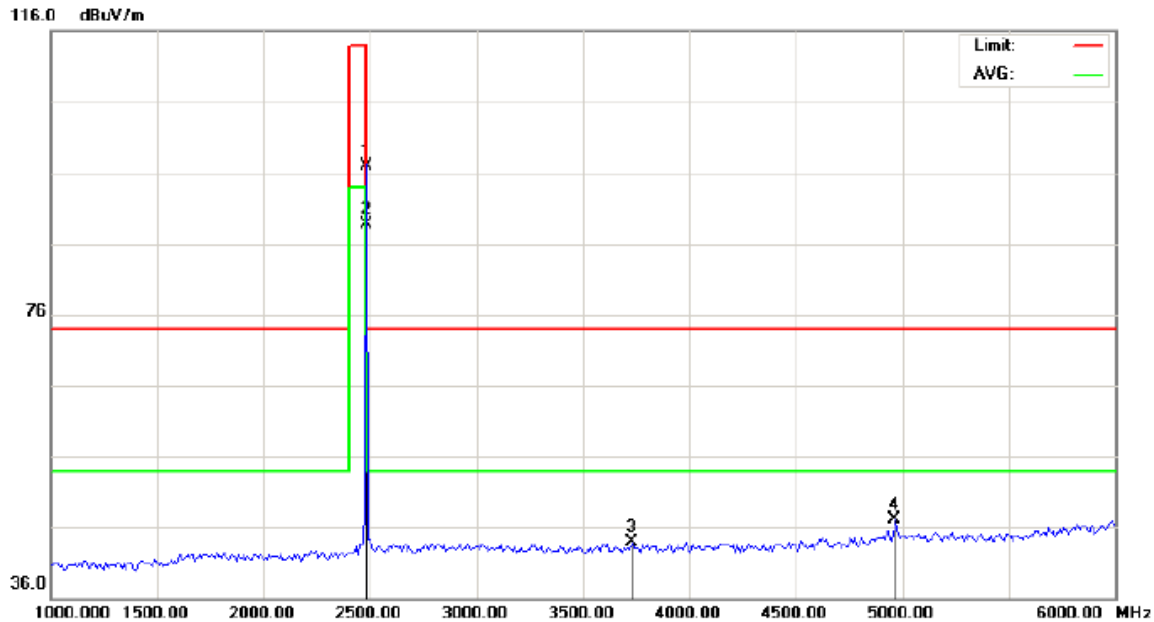
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	86.97	10.41	97.38	114.00	-16.62	peak			
2	*	2480.000	78.35	10.41	88.76	94.00	-5.24	AVG	100	64	
3		3733.333	30.83	13.55	44.38	74.00	-29.62	peak			
4		4960.000	39.51	8.09	47.60	74.00	-26.40	peak			

RESULT: PASS



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



Site: site #1 Polarization: **Vertical** Temperature: 22.7
Limit: FCC Class B 3M Radiation above 1GHz(PK)- Power: Humidity: 53.6 %
EUT: Colorful Bluetooth Earbuds Distance:
M/N: XO-9277
Mode: High Channel TX
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1		2480.000	86.57	10.41	96.98	114.00	-17.02	peak			
2	*	2480.000	78.20	10.41	88.61	94.00	-5.39	AVG	100	70	
3		3733.333	30.33	13.55	43.88	74.00	-30.12	peak			
4		4960.000	39.01	8.09	47.10	74.00	-26.90	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	85.55	10.32	95.87	114	-18.13	Horizontal
2402	85.32	10.32	95.64	114	-18.36	Vertical
2441	86.48	10.36	96.84	114	-17.16	Horizontal
2441	86.32	10.36	96.68	114	-17.32	Vertical
2480	86.97	10.41	97.38	114	-16.62	Horizontal
2480	86.57	10.41	96.98	114	-17.02	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	77.00	10.32	87.32	94	-6.68	Horizontal
2402	76.82	10.32	87.14	94	-6.86	Vertical
2441	77.99	10.36	88.35	94	-5.65	Horizontal
2441	77.83	10.36	88.19	94	-5.81	Vertical
2480	78.35	10.41	88.76	94	-5.24	Horizontal
2480	78.20	10.41	88.61	94	-5.39	Vertical

2Mbps Result:

Peak value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	85.44	10.32	95.76	114	-18.24	Horizontal
2402	85.21	10.32	95.53	114	-18.47	Vertical
2441	86.37	10.36	96.73	114	-17.27	Horizontal
2441	86.25	10.36	96.61	114	-17.39	Vertical
2480	86.90	10.41	97.31	114	-16.69	Horizontal
2480	86.50	10.41	96.91	114	-17.09	Vertical

Average value

Frequency	Reading Level	Factor	Measurement	Limit	Over	Antenna
(MHz)	(dBuv)	(dB/m)	(dBuv/m)	(dBuv/m)	(dB)	Polarization
2402	76.92	10.32	87.24	94	-6.76	Horizontal
2402	76.71	10.32	87.03	94	-6.97	Vertical
2441	77.89	10.36	88.25	94	-5.75	Horizontal
2441	77.72	10.36	88.08	94	-5.92	Vertical
2480	78.28	10.41	88.69	94	-5.31	Horizontal
2480	78.12	10.41	88.53	94	-5.47	Vertical

10. BAND EDGE EMISSION

10.1. 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.

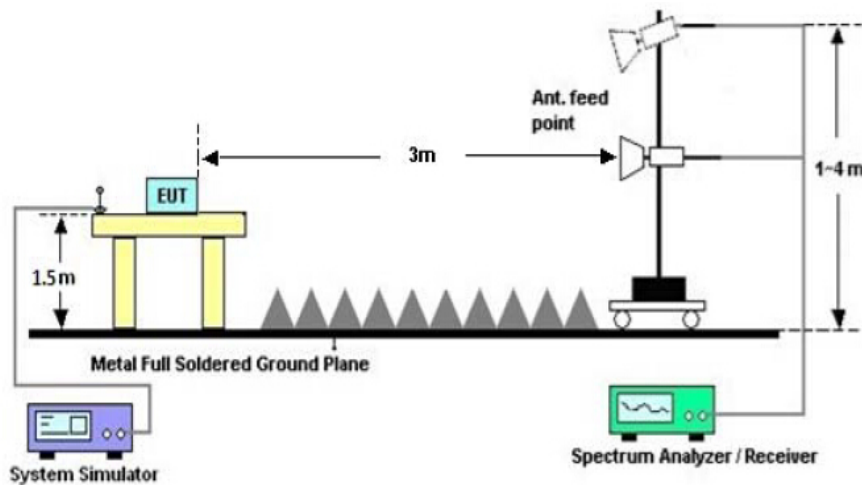
2Max hold the trace of the setup 1, and the EUT operates at hopping-on test mode to verify the largest spurious emissions power.

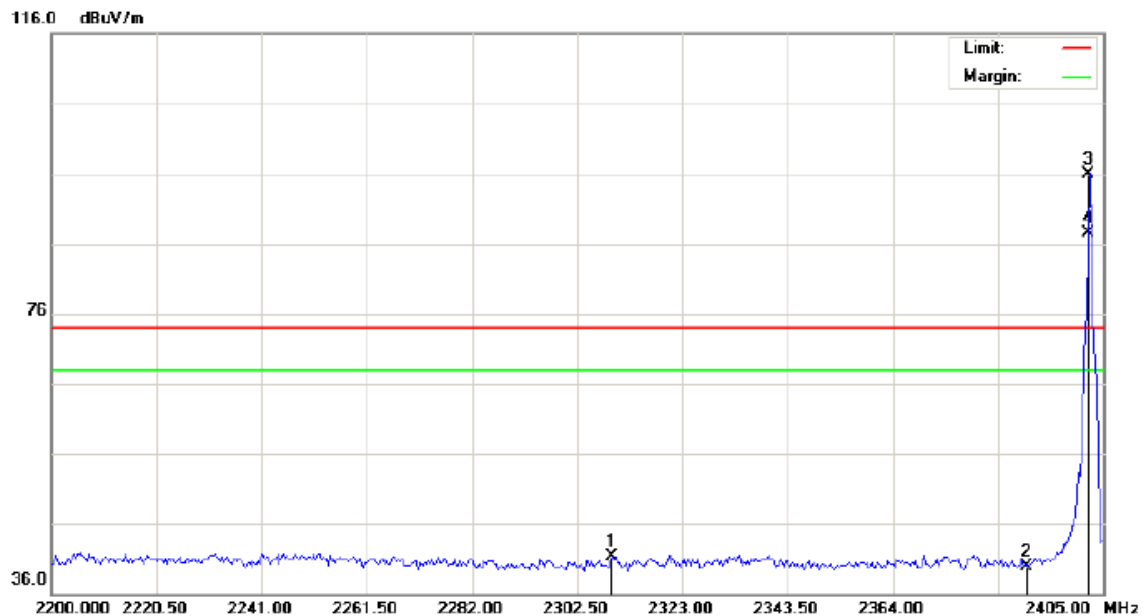
3Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission.

Start frequency(MHz)	Stop frequency(MHz)
2200	2405
2478	2500

10.2 TEST SETUP

RADIATED EMISSION TEST SETUP



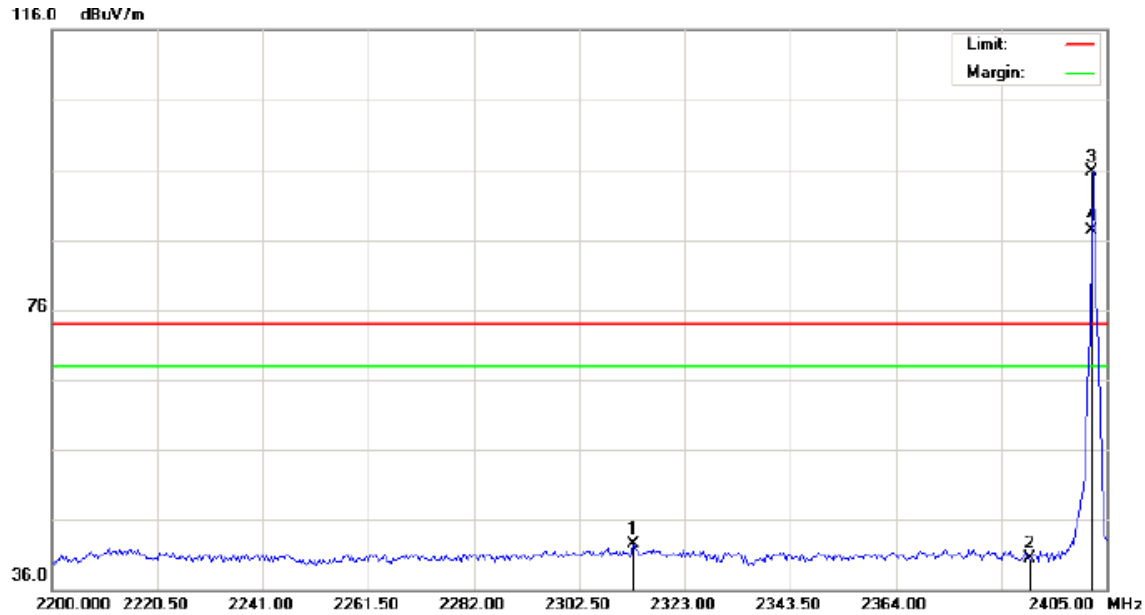
**10.3 RADIATED TEST RESULT****(Worst modulation: GFSK)****FOR BR/EDR****TEST PLOT OF BAND EDGE FOR LOW CHANNEL-Horizontal**

Site: site #1 Polarization: **Horizontal** Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHz(PK) Power: Humidity: 60 %
EUT: Colorful Bluetooth Earbuds Distance:
M/N: XO-9277
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		2309.333	31.06	10.22	41.28	74.00	-32.72	peak			
2		2390.000	29.50	10.31	39.81	74.00	-34.19	peak			
3	*	2402.000	85.58	10.32	95.90	74.00	21.90	peak			
4	X	2402.000	77.09	10.32	87.41	74.00	13.41	AVG	100	65	



TEST PLOT OF BAND EDGE FOR LOW CHANNEL -Vertical

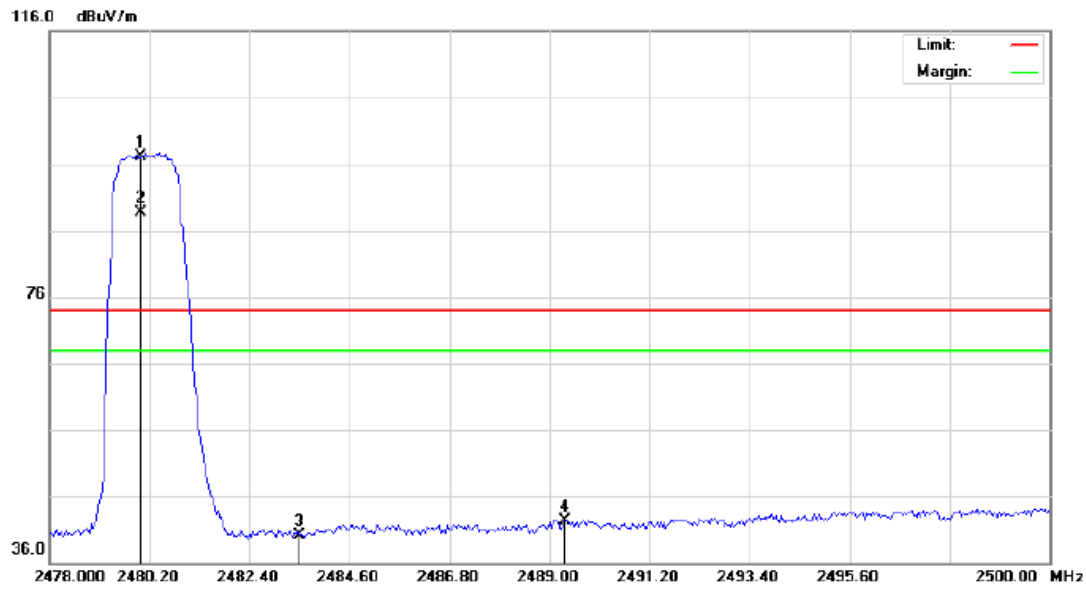


Site: site #1 Polarization: **Vertical** Temperature: 26
 Limit: FCC Class B 3M Radiation above 1GHz(PK) Power: Humidity: 60 %
 EUT: Colorful Bluetooth Earbuds Distance:
 M/N: XO-9277
 Mode: Low Channel TX
 Note:

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		2313.091	32.22	10.22	42.44	74.00	-31.56	peak			
2		2390.000	30.21	10.31	40.52	74.00	-33.48	peak			
3	*	2402.000	85.40	10.32	95.72	74.00	21.72	peak			
4	X	2402.000	76.92	10.32	87.24	74.00	13.24	AVG	100	79	



TEST PLOT OF BAND EDGE FOR HIGH CHANNEL –Horizontal

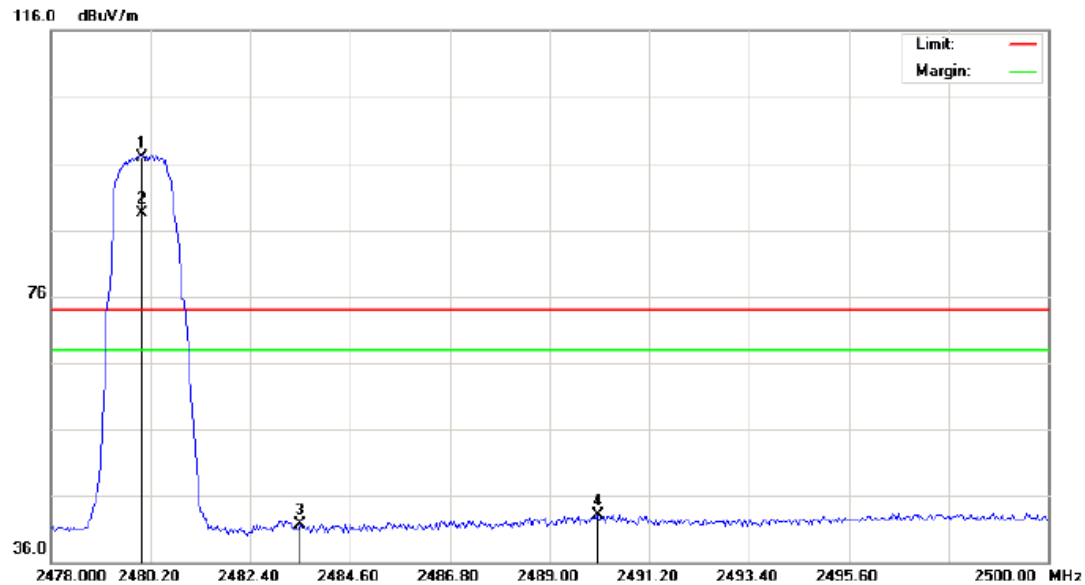


Site: site #1 Polarization: **Horizontal** Temperature: 26
Limit: FCC Class B 3M Radiation above 1GHz(PK) Power: Humidity: 60 %
EUT: Colorful Bluetooth Earbuds Distance:
M/N: XO-9277
Mode: High Channel TX
Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna	Table	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		Height	Degree	
1	*	2480.000	86.67	10.41	97.08	74.00	23.08	peak			
2	X	2480.000	78.37	10.41	88.78	74.00	14.78	AVG	100	67	
3		2483.500	29.69	10.41	40.10	74.00	-33.90	peak			
4		2489.330	31.96	10.42	42.38	74.00	-31.62	peak			



TEST PLOT OF BAND EDGE FOR HIGH CHANNEL-Vertical



Site: site #1

Polarization: **Vertical**

Temperature: 26

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

Power:

Humidity: 60 %

EUT: Colorful Bluetooth Earbuds

Distance:

M/N: XO-9277

Mode: High Channel TX

Note:

No.	Mk	Freq.	Reading	Factor	Measurement	Limit	Over	Detector	Antenna Height	Table Degree	Comment
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB		cm	degree	
1	*	2480.000	86.57	10.41	96.98	74.00	22.98	peak			
2	X	2480.000	78.04	10.41	88.45	74.00	14.45	AVG	100	77	
3		2483.500	31.26	10.41	41.67	74.00	-32.33	peak			
4		2490.063	32.71	10.42	43.13	74.00	-30.87	peak			

RESULT: PASS**Note:** 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.

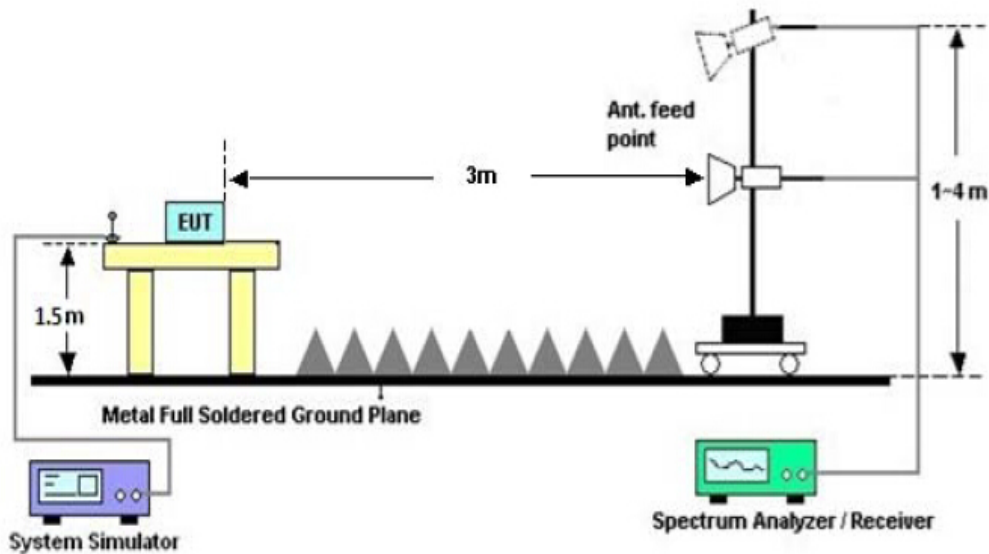
11. 20DB BANDWIDTH

11.1. MEASUREMENT PROCEDURE

1. Set the EUT Work on the top, the middle and the bottom operation frequency individually.
2. 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
3. Set SPA Trace 1 Max hold, then View.

11.2. TEST SET-UP

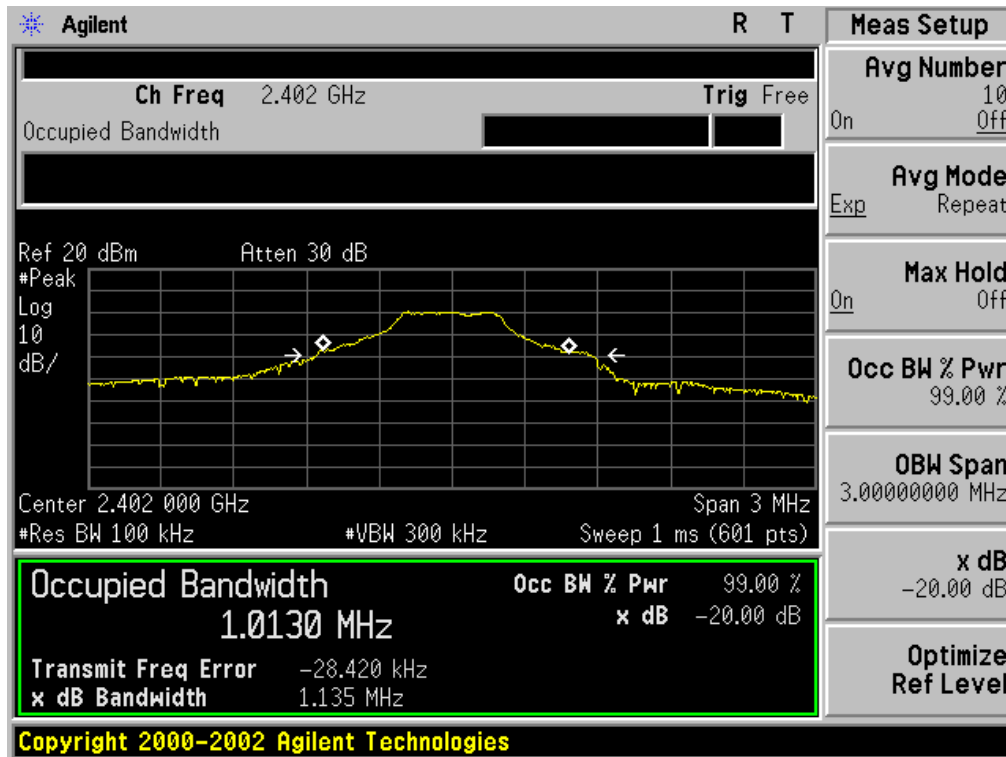


11.3. LIMITS AND MEASUREMENT RESULTS FOR BR/EDR

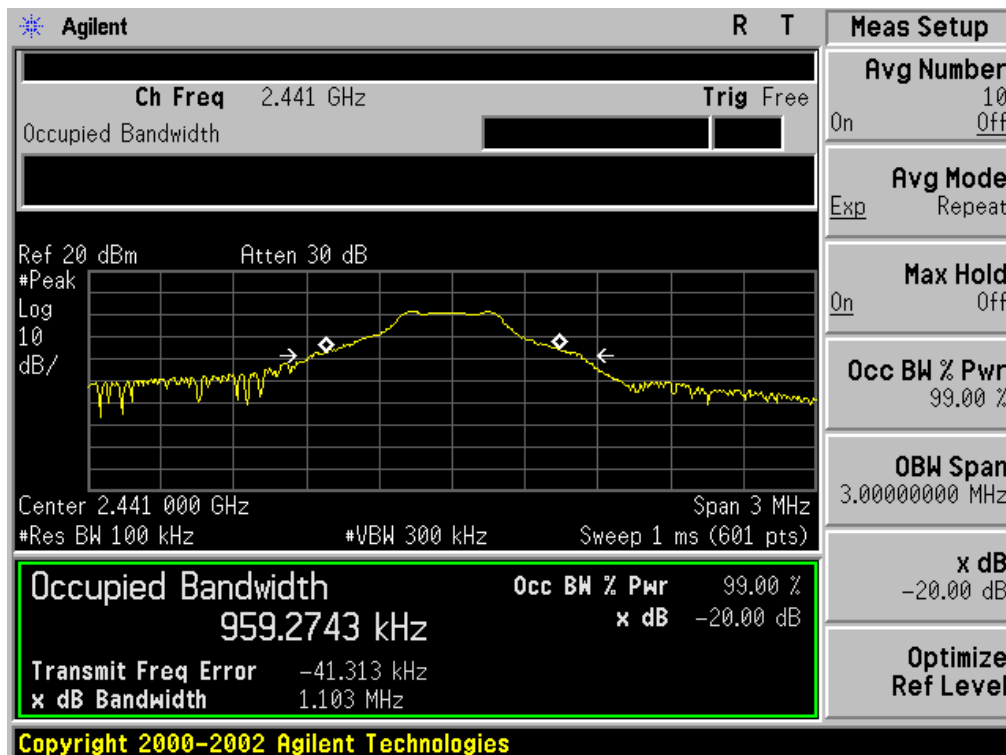
BLUETOOTH 1MBPS LIMITS AND MEASUREMENT RESULT				
Applicable Limits	Measurement Result			
	Test Data (MHz)			Result
		99%OBW (MHz)	-20dB BW(MHz)	
N/A	Low Channel	1.013	1.135	PASS
	Middle Channel	0.959	1.103	PASS
	High Channel	1.012	1.138	PASS



TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

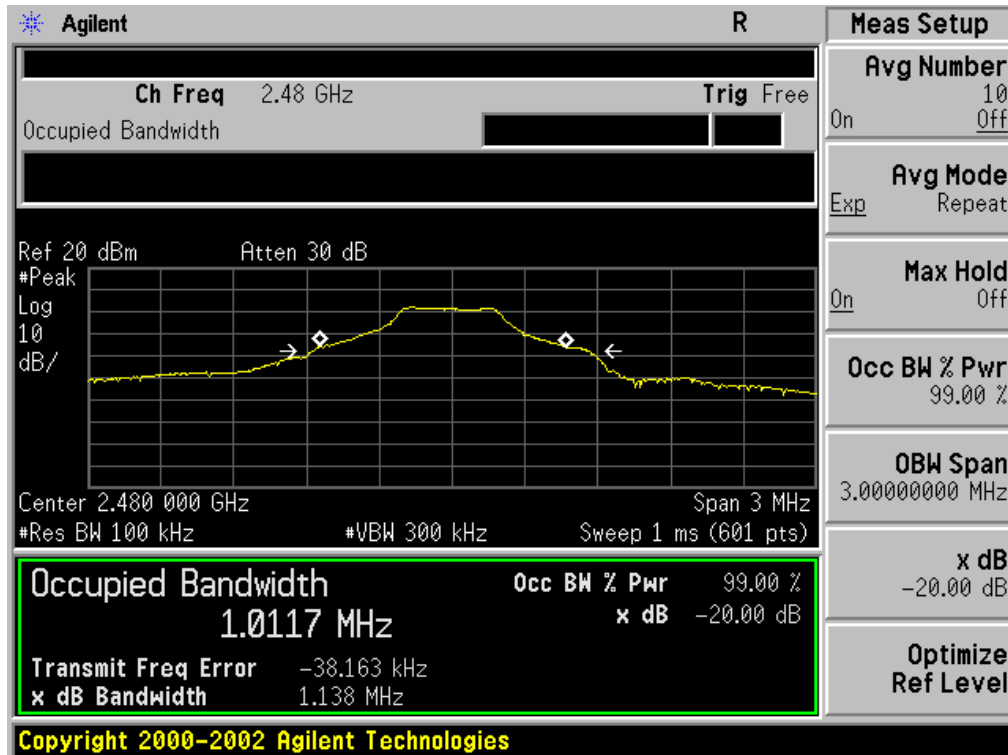


TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL





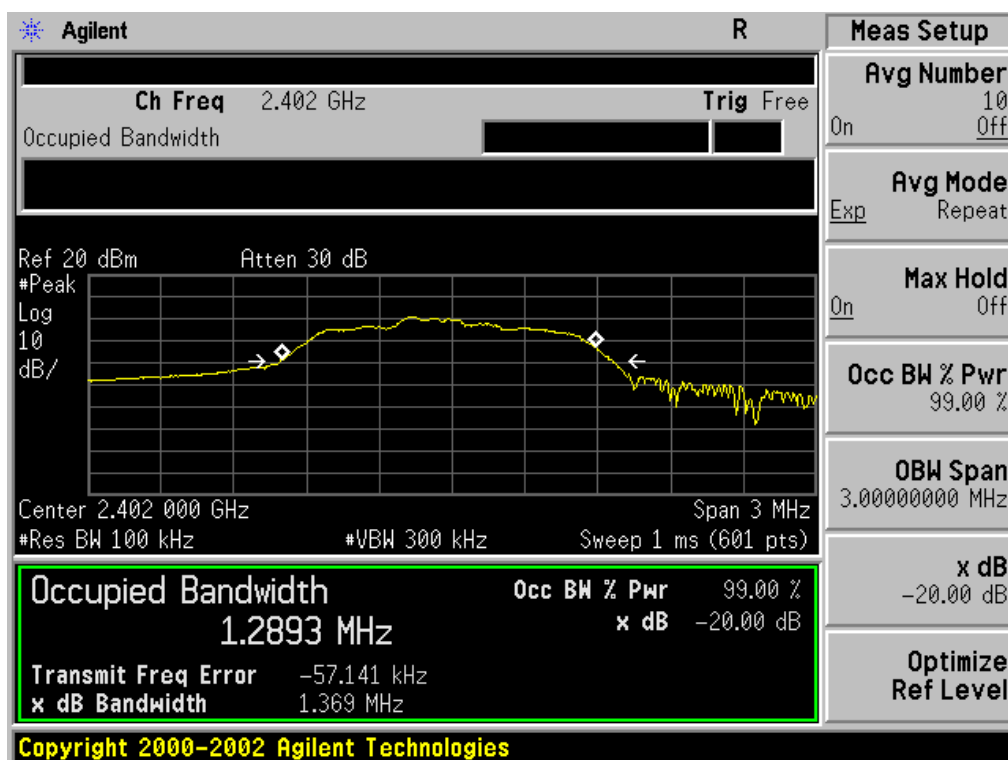
TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL





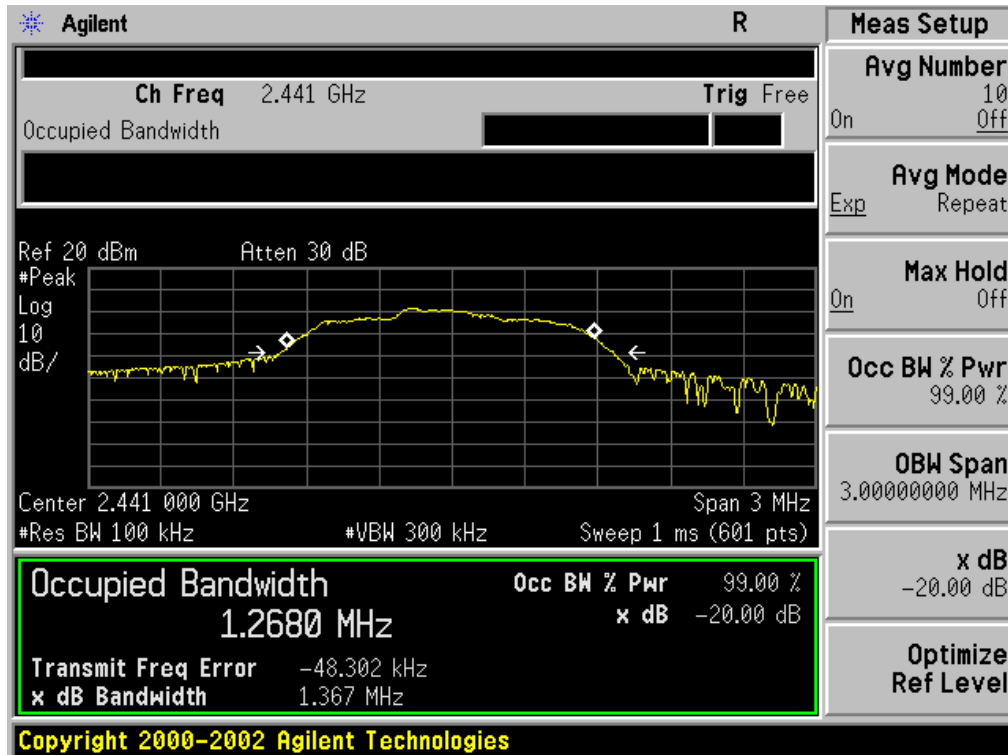
BLUETOOTH 2MBPS LIMITS AND MEASUREMENT RESULT				
Applicable Limits	Measurement Result			
	Test Data (MHz)			Result
		99%OBW (MHz)	-20dB BW(MHz)	
N/A	Low Channel	1.289	1.369	PASS
	Middle Channel	1.268	1.367	PASS
	High Channel	1.244	1.366	PASS

TEST PLOT OF BANDWIDTH FOR LOW CHANNEL

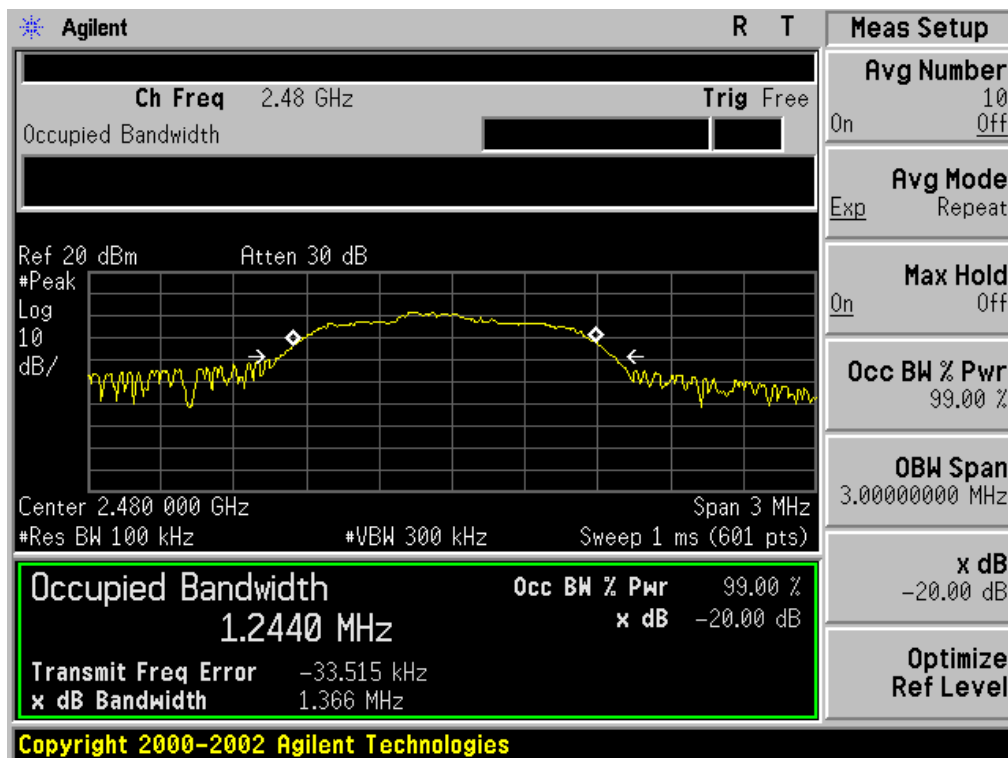




TEST PLOT OF BANDWIDTH FOR MIDDLE CHANNEL



TEST PLOT OF BANDWIDTH FOR HIGH CHANNEL



12. FCC LINE CONDUCTED EMISSION TEST

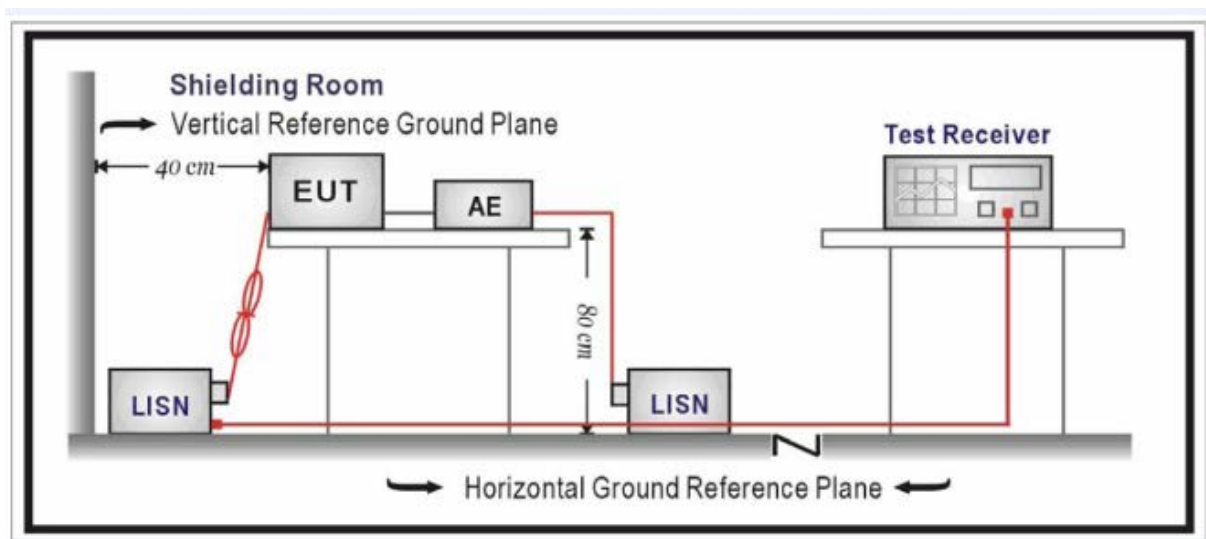
12.1. LIMITS OF LINE CONDUCTED EMISSION TEST

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.

12.2. BLOCK DIAGRAM OF LINE CONDUCTED EMISSION TEST





12.3. 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.

12.4. FINAL PROCEDURE OF LINE CONDUCTED EMISSION TEST

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



PRECISE TESTING

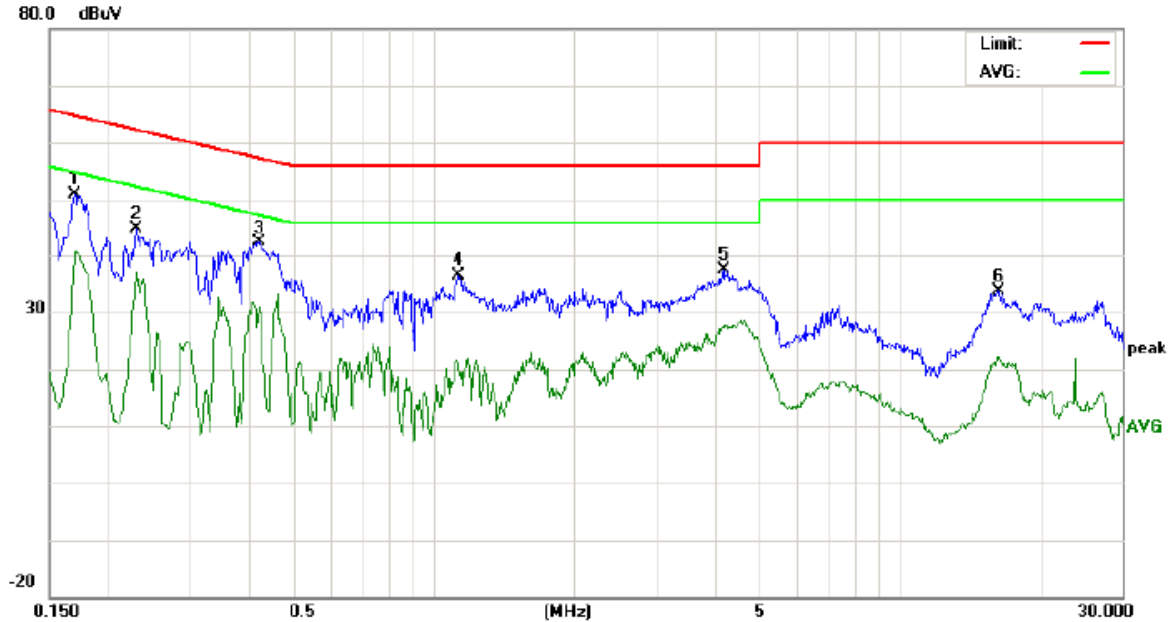
Report No.: PTCDDQ01170611701E-FC01

12.5. 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: 26

Limit: FCC Class B Conduction(QP)

Power:

Humidity: 60 %

EUT: Colorful Bluetooth Earbuds

M/N: XO-9277

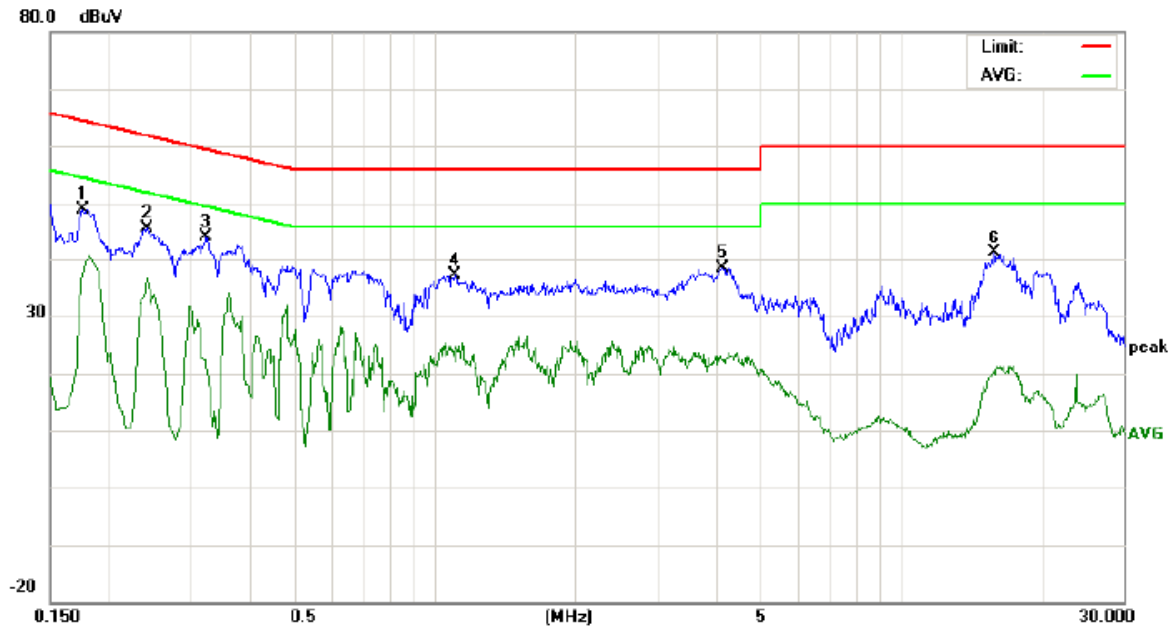
Mode: BT Link with charging

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	0.1700	40.58		30.53	10.18	50.76		40.71	64.96	54.96	-14.20	-14.25	P	
2	0.2300	34.63		26.72	10.25	44.88		36.97	62.45	52.45	-17.57	-15.48	P	
3	0.4218	31.94		20.58	10.35	42.29		30.93	57.41	47.41	-15.12	-16.48	P	
4	1.1252	26.00		10.78	10.37	36.37		21.15	56.00	46.00	-19.63	-24.85	P	
5	4.1897	27.09		17.03	10.35	37.44		27.38	56.00	46.00	-18.56	-18.62	P	
6	16.3899	23.48		11.76	10.12	33.60		21.88	60.00	50.00	-26.40	-28.12	P	



Line Conducted Emission Test Line 2-N



Site: Conduction

Phase: **N**

Temperature: 26

Limit: FCC Class B Conduction(QP)

Power:

Humidity: 60 %

EUT: Colorful Bluetooth Earbuds

M/N: XO-9277

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	0.1758	38.81		27.05	10.19	49.00		37.24	64.68	54.68	-15.68	-17.44	P	
2	0.2419	35.36		26.45	10.26	45.62		36.71	62.03	52.03	-16.41	-15.32	P	
3	0.3234	33.78		11.21	10.30	44.08		21.51	59.62	49.62	-15.54	-28.11	P	
4	1.1019	26.79		11.72	10.37	37.16		22.09	56.00	46.00	-18.84	-23.91	P	
5	4.1497	28.12		12.03	10.36	38.48		22.39	56.00	46.00	-17.52	-23.61	P	
6	15.8018	31.08		10.25	10.11	41.19		20.36	60.00	50.00	-18.81	-29.64	P	

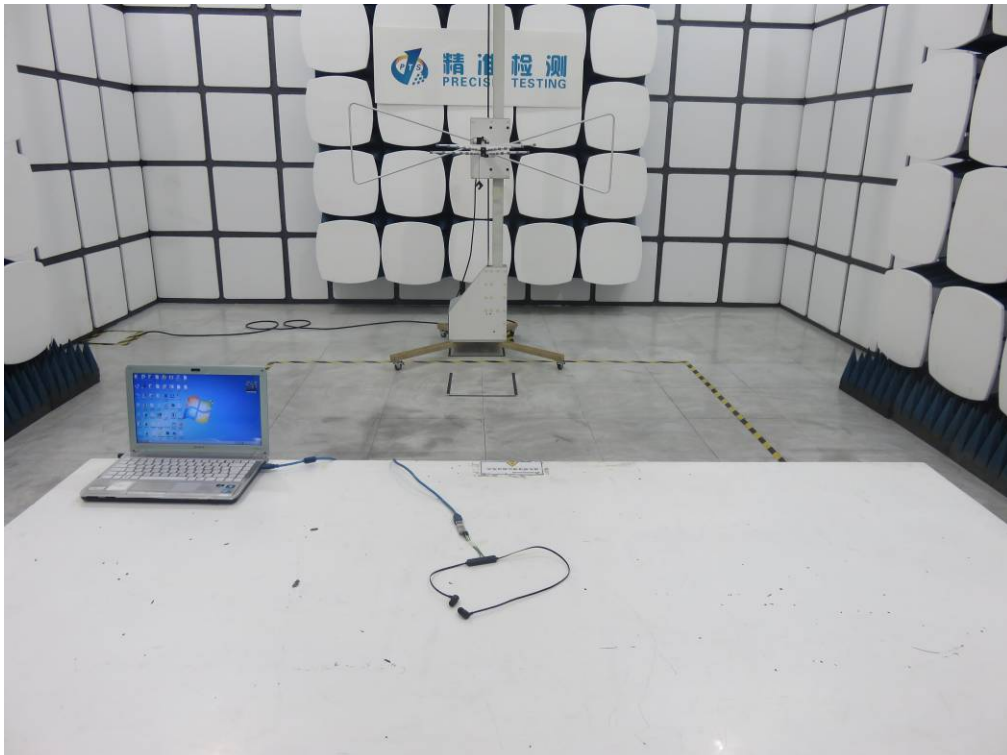
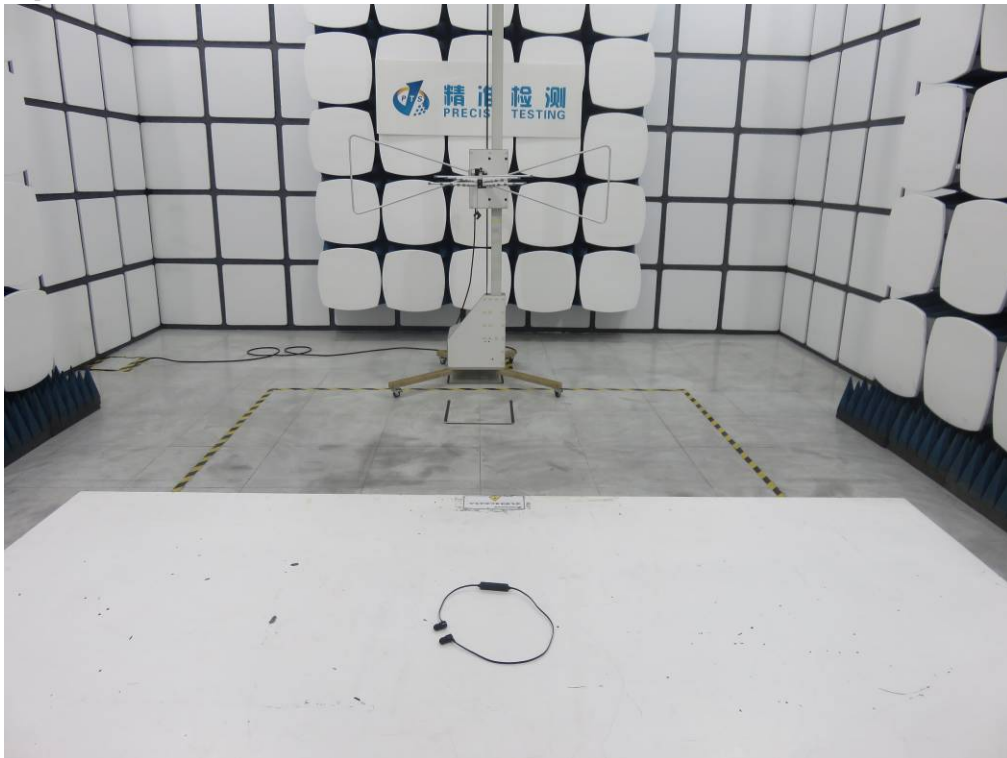


APPENDIX A: PHOTOGRAPHS OF TEST SETUP

FCC LINE CONDUCTED EMISSION TEST SETUP



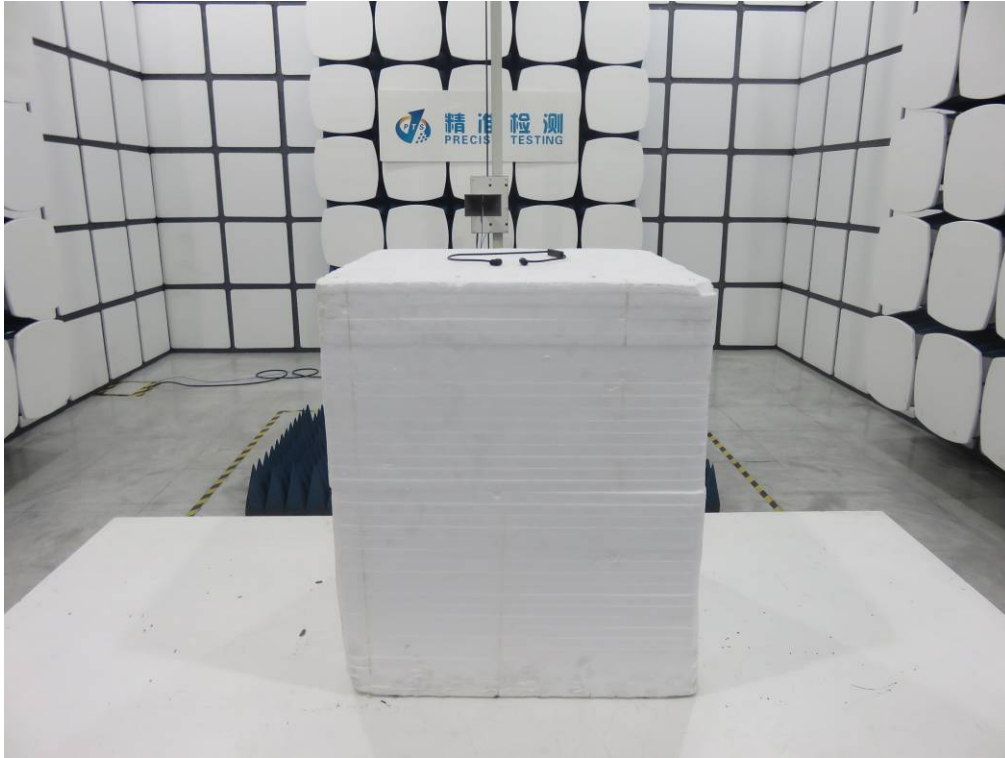
FCC RADIATED EMISSION TEST SETUP





PRECISE TESTING

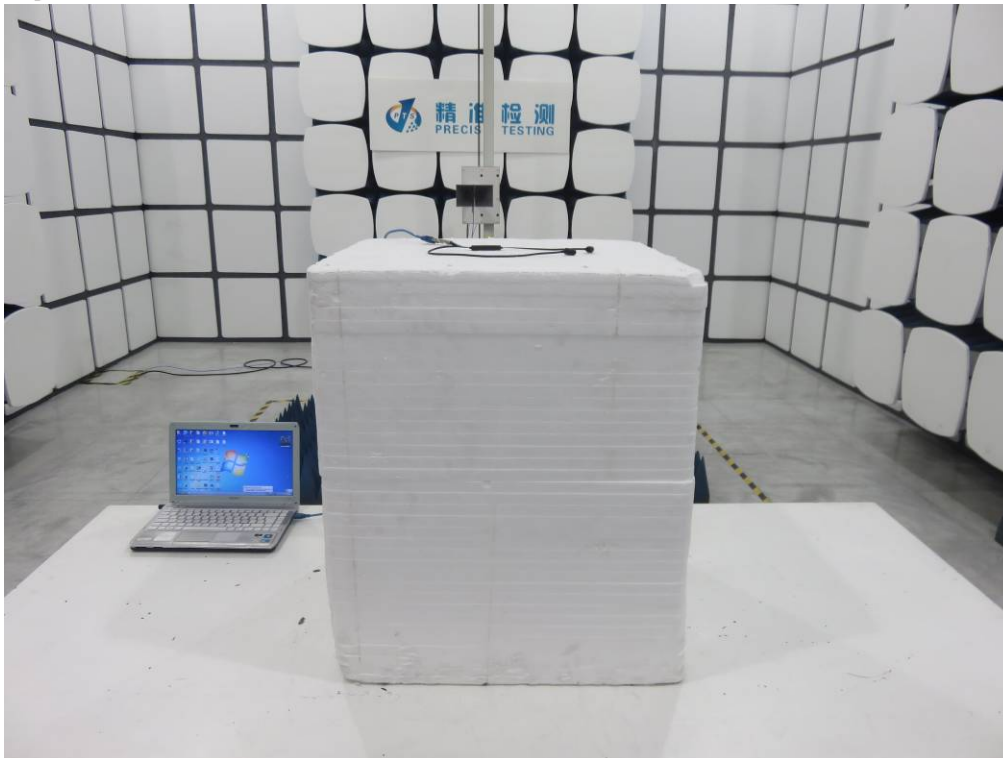
Report No.: PTCDQ01170611701E-FC01





PRECISE TESTING

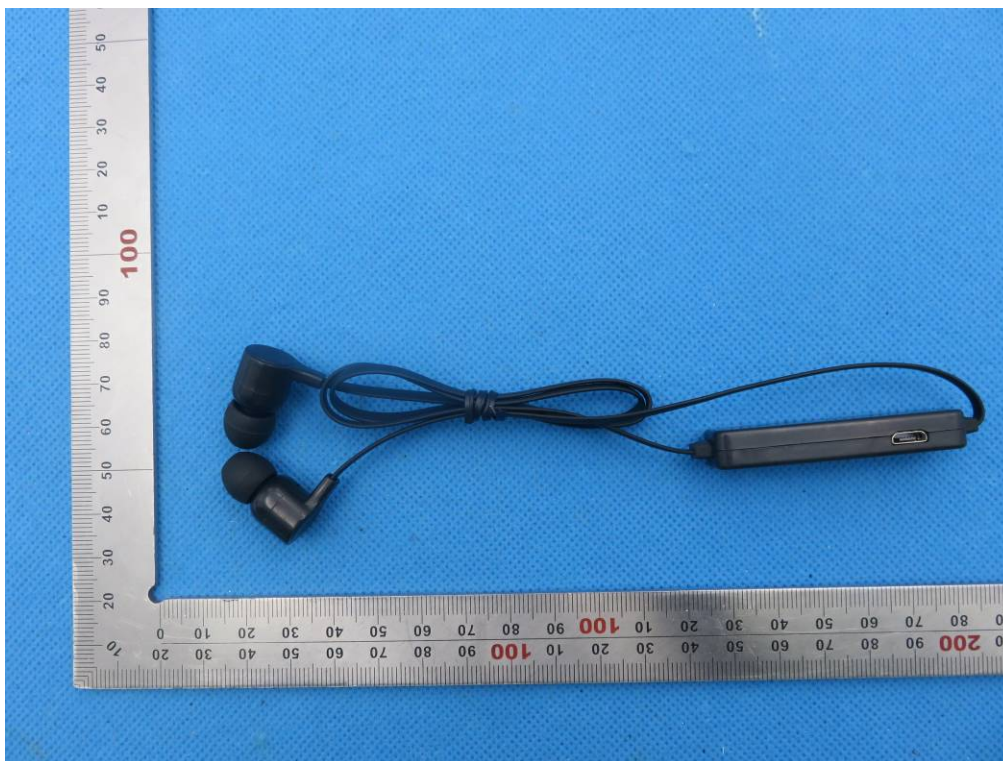
Report No.: PTCDQ01170611701E-FC01





APPENDIX B: PHOTOGRAPHS OF EUT

TOP VIEW OF EUT



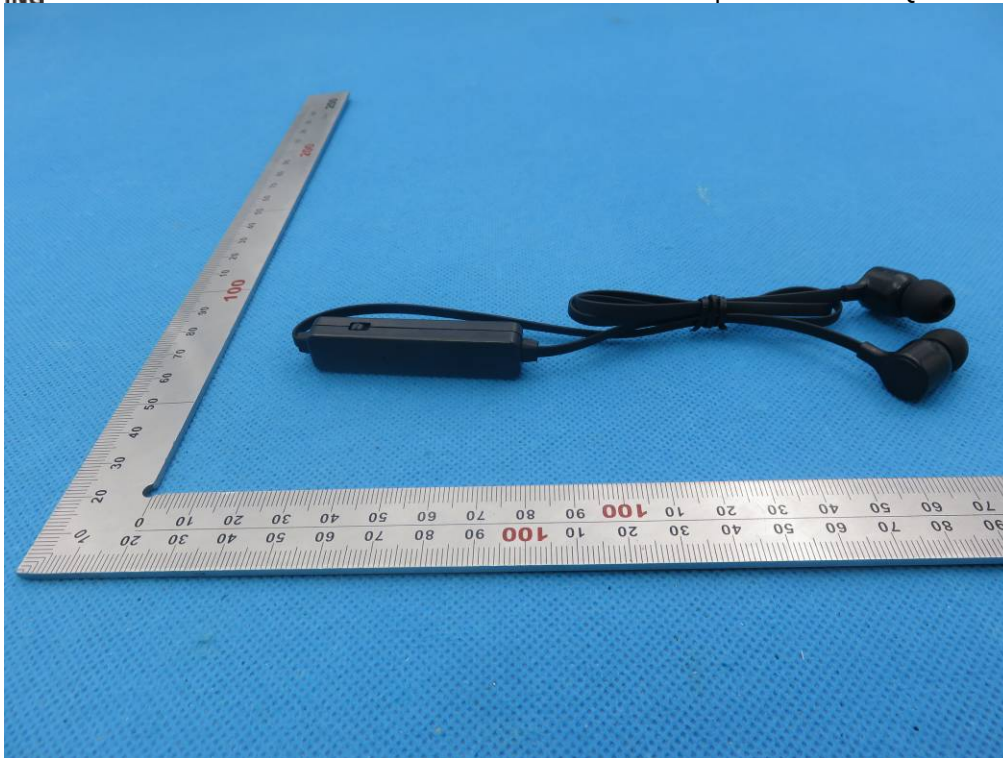
BOTTOM VIEW OF EUT



FRONT VIEW OF EUT



BACK VIEW OF EUT





PRECISE TESTING

Report No.: PTCDQ01170611701E-FC01

LEFT VIEW OF EUT



RIGHT VIEW OF EUT

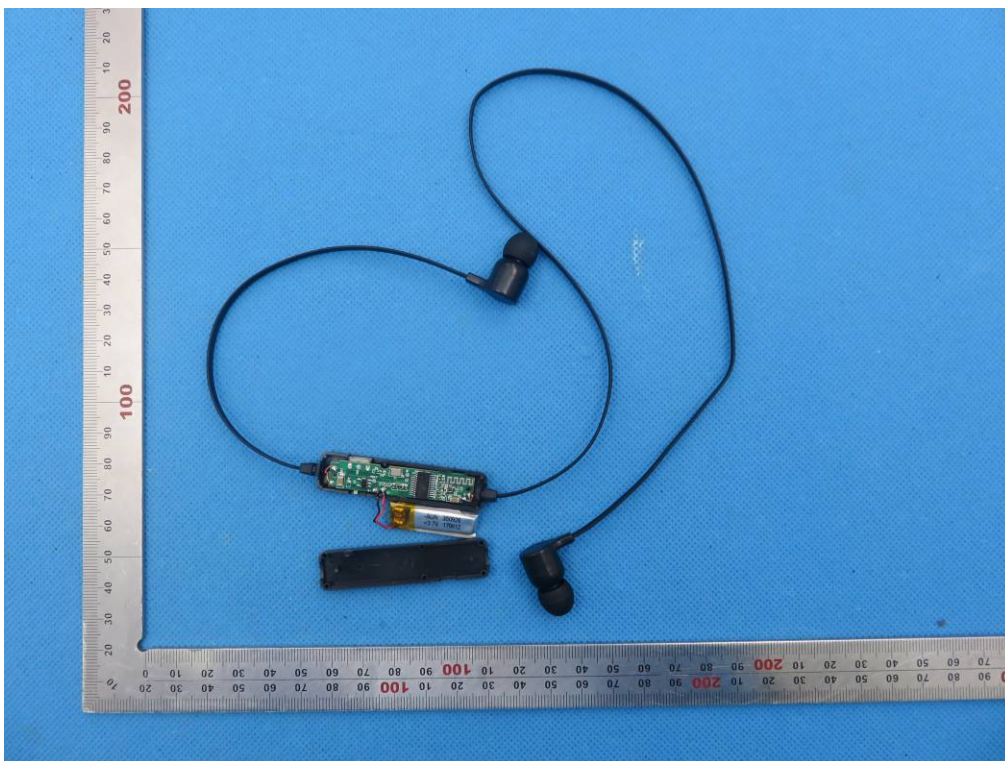




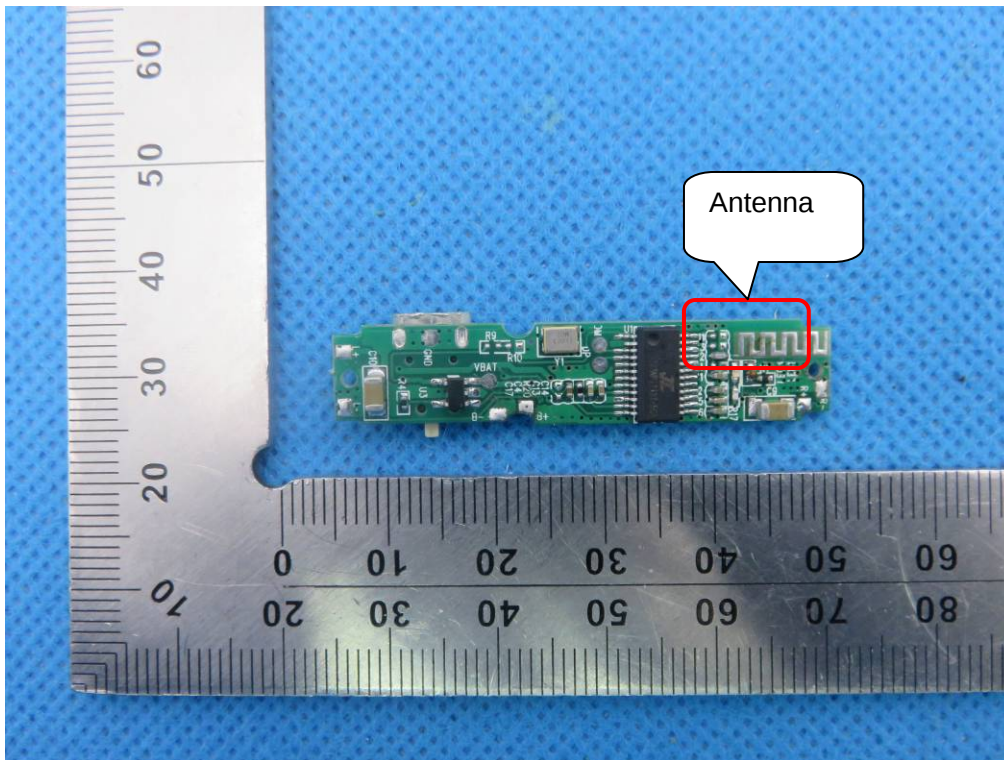
VIEW OF EUT (PORT)



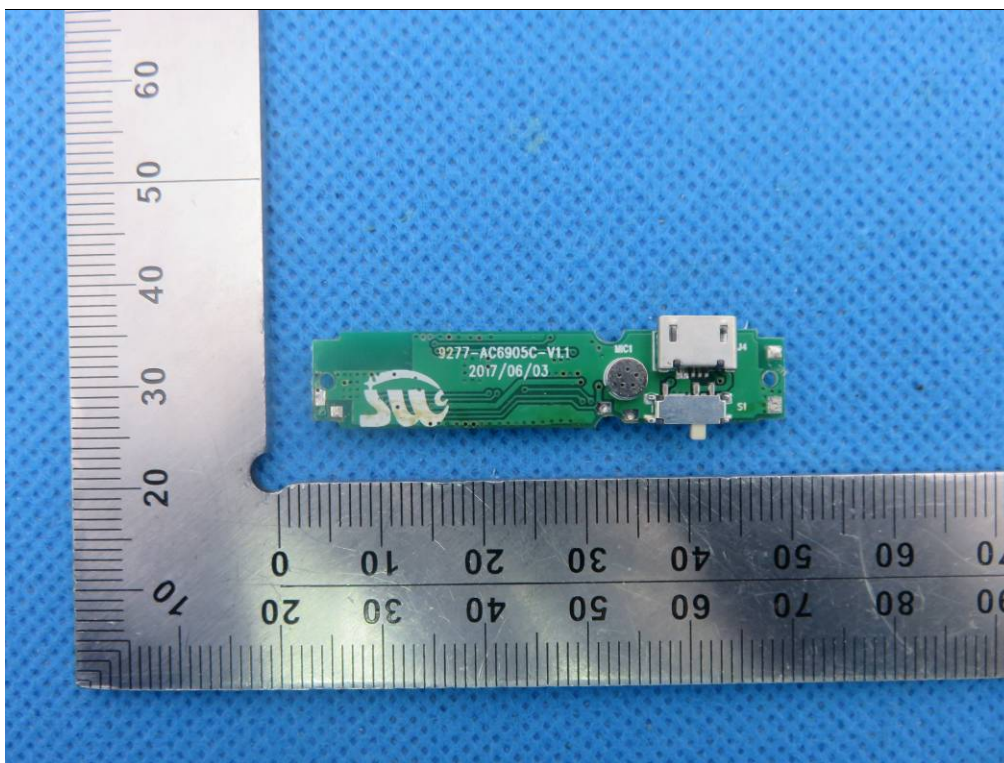
OPEN VIEW OF EUT



INTERNAL VIEW OF EUT-1



INTERNAL VIEW OF EUT-2





PRECISE TESTING

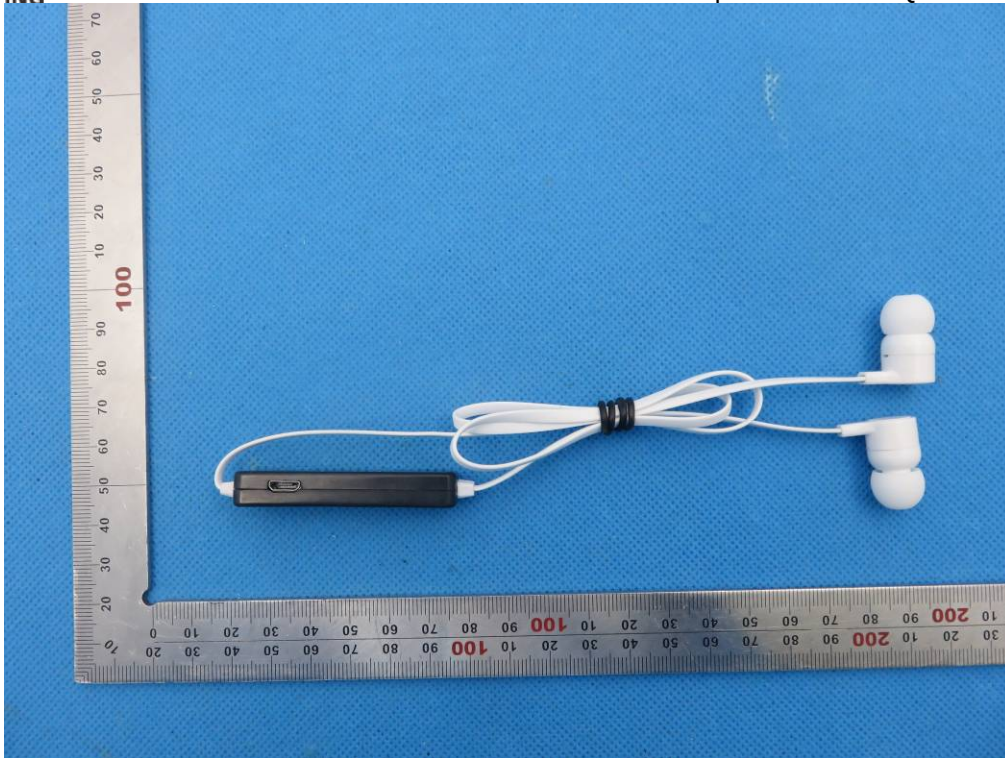
Report No.: PTCDQ01170611701E-FC01

INTERNAL VIEW OF EUT-3



Other color sample

TOP VIEW OF EUT

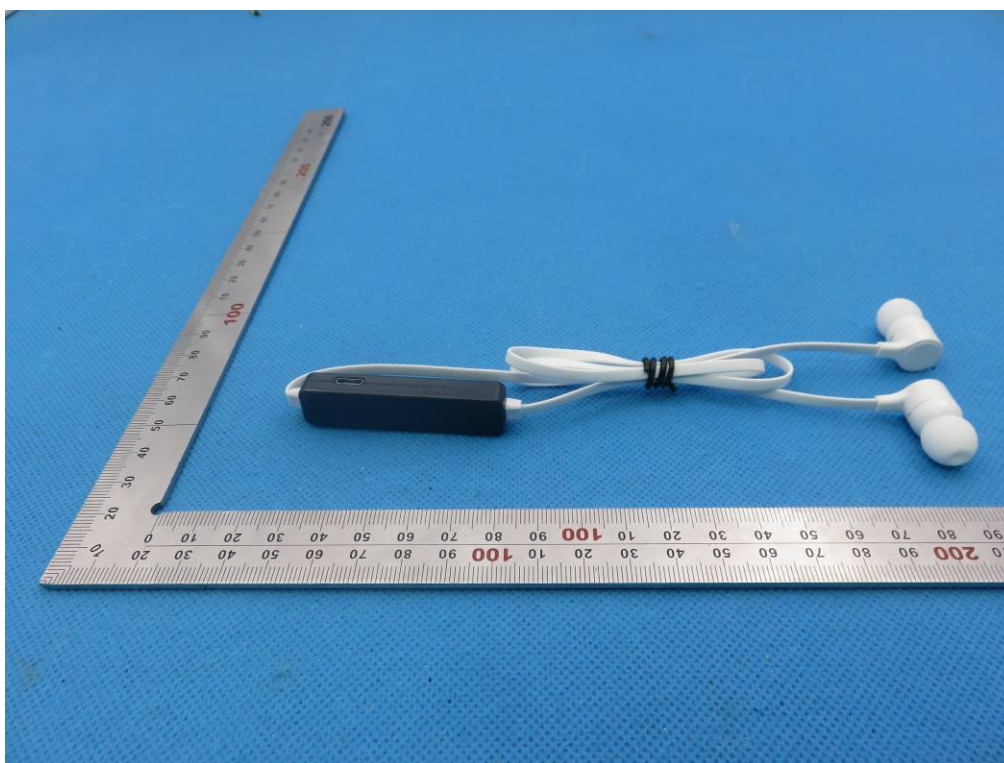




BOTTOM VIEW OF EUT



FRONT VIEW OF EUT

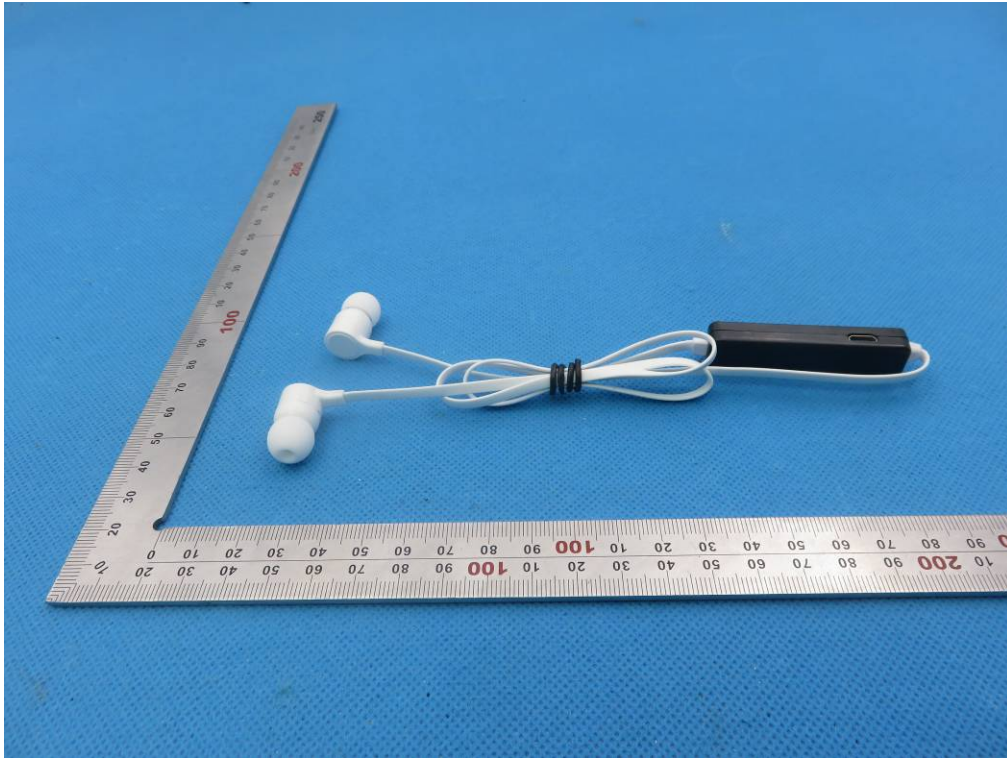




PRECISE TESTING

Report No.: PTCDQ01170611701E-FC01

BACK VIEW OF EUT



LEFT VIEW OF EUT





PRECISE TESTING

Report No.: PTCDQ01170611701E-FC01

RIGHT VIEW OF EUT



VIEW OF EUT (PORT)





PRECISE TESTING

Report No.: PTCDQ01170611701E-FC01

VIEW OF ADAPTER (AE)



The adapter was supplied by PTC

*****THE END REPORT*****