Test Report

FCC ID: 2AOGD-H1

Date of issue: Nov. 29, 2017

Report Number:	CF17111306
Sample Description:	Bluetooth Earphone
Model(s):	h1
Applicant:	Shenzhen Duoketing E-Commerce Co., Ltd.
Address:	243, 2F, Fengtian Hi-Tech Ind. Park, No. 308 Xuegang North Road, Longhua Dist Shenzhen
Date of Test:	Nov. 23, 2017 to Nov. 29, 2017

TEST RESULT CERTIFICATION	
Applicant's name ..... :	**Shenzhen Duoketing E-Commerce Co., Ltd.**
Address ..... :	243, 2F, Fengtian Hi-Tech Ind. Park, No. 308 Xuegang North Road, Longhua Dist Shenzhen
Manufacture's Name ..... :	**Shenzhen Duoketing E-Commerce Co., Ltd.**
Address ..... :	243, 2F, Fengtian Hi-Tech Ind. Park, No. 308 Xuegang North Road, Longhua Dist Shenzhen
Product name ..... :	Bluetooth Earphone
Model and/or type reference :	h1
Serial Model ..... :	N/A
Standards ..... :	FCC Part15.247
Test procedure	ANSI C63.10:2013

This device described above has been tested by WH Technology Corp. 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.

Tested by:

Bell Wei Nov. 17, 2017

Approved by:

Mike Lee Nov. 17, 2017

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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
15.203/15.247(c)	Antenna Requirement	PASS	
15.207	Conducted Emission	PASS	
15.247(b)(1)	Conducted Peak Output Power	PASS	
15.247(a)(1)	20dB Occupied Bandwidth	PASS	
15.247(a)(1)	Carrier Frequencies Separation	PASS	
15.247(a)(1)	Hopping Channel Number	PASS	
15.247(a)(1)	Dwell Time	PASS	
15.205/15.209	Spurious Emission	PASS	
15.247(d)	Band Edge	PASS	

NOTE:

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

1.1 TEST FN/AITY

WH Technology Corp.
Add.: 7F., No.262, Sec. 3, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)
FCC Registration No.: TW1083

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	±1.38dB
2	RF power,conducted	±0.16dB
3	Spurious emissions,conducted	±0.21dB
4	All emissions,radiated(<1G)	±4.68dB
5	All emissions,radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

2. GENERAL INFORMATION

2.1 GENERAL DESCRIPTION OF EUT

Equipment	Bluetooth Earphone
Trade Name	N/A
Model Name	h1
Serial Model	N/A
Model Difference	N/A
Product Description	The EUT is a Bluetooth Earphone Operation Frequency: 2402-2480MHz Modulation Type: GFSK Bit Rate of Transmitter 1 Mbps Number Of Channel 79 CH Antenna Designation: Please see Note 3. Output Power(Conducted): -0.369 dBm Antenna Type: PCB antenna Antenna Gain (dBi) 1 dBi Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.
Channel List	Please refer to the Note 2.
Battery	DC 3.7V
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)
00	2402	27	2429	54	2456
01	2403	28	2430	55	2457
02	2404	29	2431	56	2458
03	2405	30	2432	57	2459
04	2406	31	2433	58	2460
05	2407	32	2434	59	2461
06	2408	33	2435	60	2462
07	2409	34	2436	61	2463
08	2410	35	2437	62	2464

09	2411	36	2438	63	2465
10	2412	37	2439	64	2466
11	2413	38	2440	65	2467
12	2414	39	2441	66	2468
13	2415	40	2442	67	2469
14	2416	41	2443	68	2470
15	2417	42	2444	69	2471
16	2418	43	2445	70	2472
17	2419	44	2446	71	2473
18	2420	45	2447	72	2474
19	2421	46	2448	73	2475
20	2422	47	2449	74	2476
21	2423	48	2450	75	2477
22	2424	49	2451	76	2478
23	2425	50	2452	77	2479
24	2426	51	2453	78	2480
25	2427	52	2454		
26	2428	53	2455		
Remark: Channel 0, 39 &78 selected for GFSK, π/4-DQPSK and 8DPSK.					

3. Table for Filed Antenna

Ant.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)	NOTE
A	N/A	h1	PCB antenna	/	1	PCB 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	GFSK Ch1/CH40/CH79

For Conducted Emission	
Final Test Mode	Description
Mode 1	GFSK Ch1/CH40/CH79

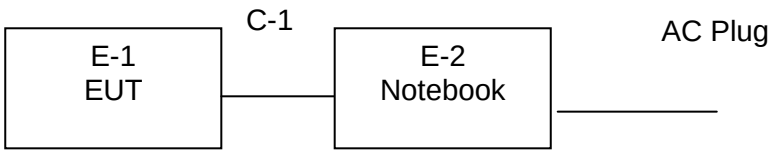
For Radiated Emission	
Final Test Mode	Description
Mode 1	GFSK Ch1/CH40/CH79

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



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 Earphone	N/A	h1	N/A	EUT
E-2	Notebook	N/A	HSTNN-Q95C	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

For RF conducted test:

Equipment	Manufacturer	Model	Serial No.	Calibration Due
Universal Radio Communication Tester	Rohde&schwarz	CMU200	114587	2018/11/4
Spectrum analyzer	Agilent	E4407B	MY41441082	2018/11/4
Dc Power Supply	GW	GPR-6030D	/	2018/11/4
Temperature & Humitidy Chamber	GIANT FORCE	GTH-056P	GF-94454-1	2018/11/14
Broadband TRILOG Antenna	Schwarabeck	VULB9163	9163-872	2018/11/14
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-1145	2018/11/14
Amplifier	HP	8447D	3113A06150	2018/11/4
Amplifier	Agilent	8449B	3008A02400	2018/7/4
Test Receiver	Schwarabeck	ESPI7	100314	2018/11/4
Spectrum analyzer	Agilent	E4407B	MY41441082	2018/11/4
Signal Generator	R&S	SMT 06	832080/007	2018/11/4
Broadband TRILOG Antenna	Schwarabeck	VULB9163	9163-872	2018/11/14
Horn Antenna	Schwarzbeck	BBHA 9120 D	9120D-1145	2018/11/14
Amplifier	HP	8447D	3113A06150	2018/11/4
Amplifier	Agilent	8449B	3008A02400	2018/7/4
Test Receiver	Schwarabeck	ESPI	100314	2018/11/4
Spectrum analyzer	Agilent	E4407B	MY41441082	2018/11/4
LISN	R&S	ENV216	1001131	2018/9/25
Test Cable	United Microwave	57793	1m	2018/12/05
Test Cable	United Microwave	A30A30-5006	10m	2018/12/05

Note: the calibration interval of the above test instruments is 12 months and the calibrations are traceable to international system unit (SI).

3. EMC EMISSION TEST

3.1 CONDUCTED EMISSION MEASUREMENT

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

Frequency (MHz)	Limit	
	Quasi-peak	Average
0.15-0.5	66 to 56	56 to 46
0.5-5	56	46
5-30	60	50

Note:

(1) Decreases with the logarithm of the frequency from 0.15MHz to 0.5MHz.

1.1.1 Test method

1. 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 equipment powered from additional LISN(s). The LISN provide 50 Ohm/50uH of coupling impedance for the measuring instrument.

2. 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.

3. 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.

4. LISN is at least 80 cm from nearest part of EUT chassis.

5. The resolution bandwidth of EMI test receiver is set at 9kHz.

1.1.2 Test Result

Not application because of the EUT is power by battery.

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

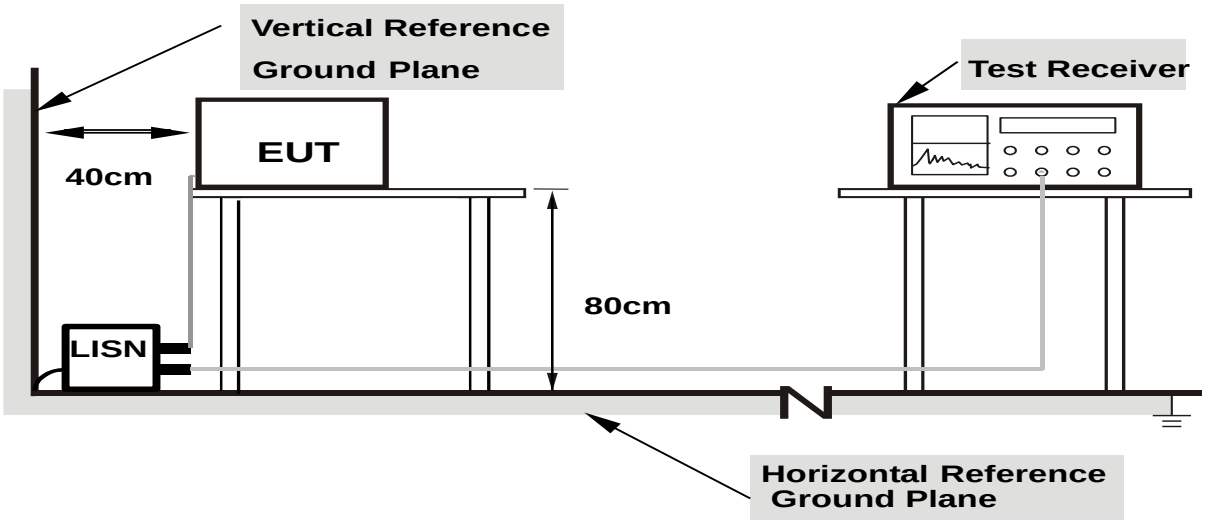
3.1.2 TEST PROCEDURE

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



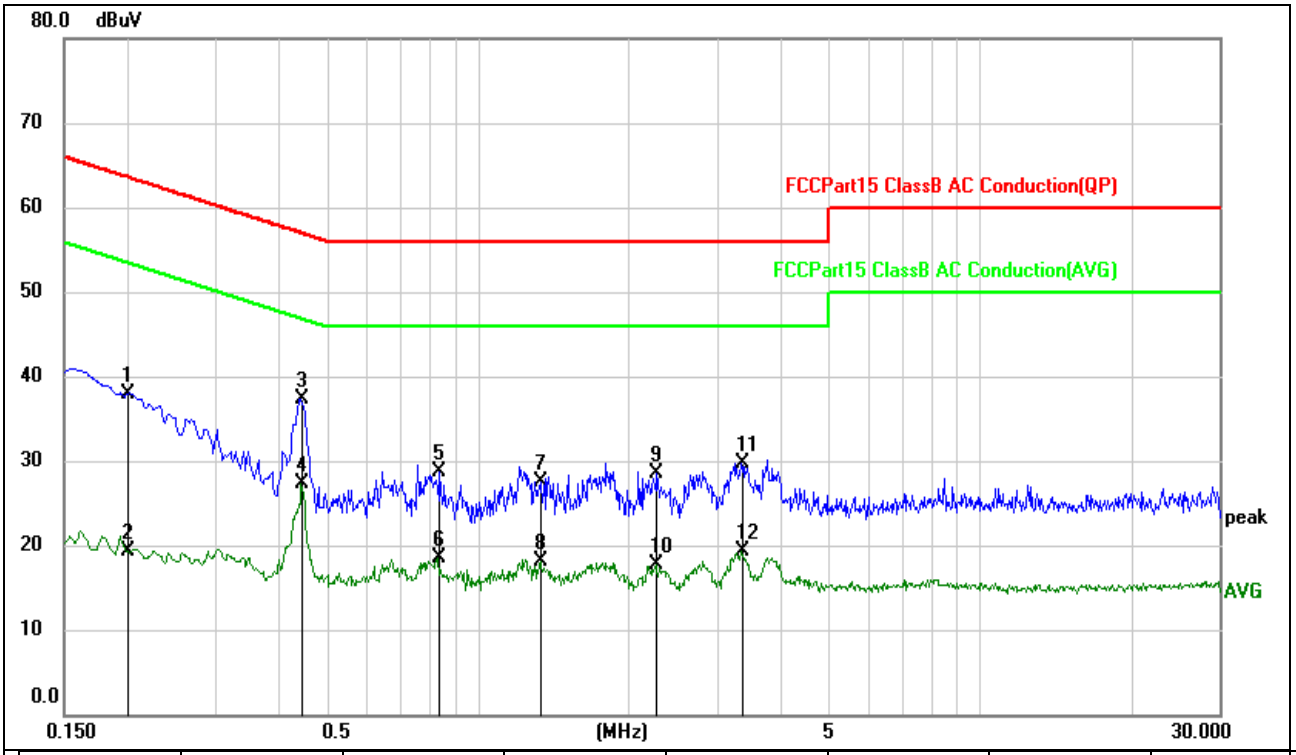
Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

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

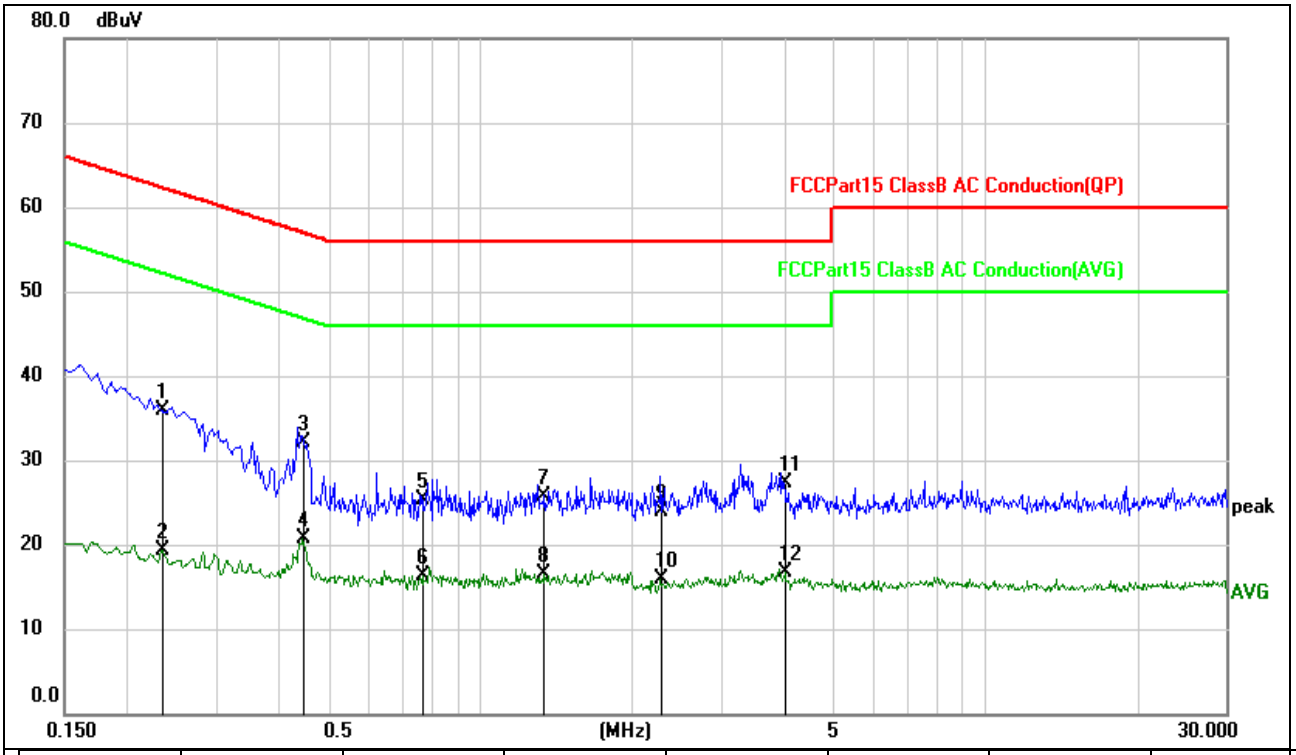
EUT :	Bluetooth Earphone	Model Name. :	h1
Temperature :	26 ℃	Relative Humidity :	54%
Pressure :	1010hPa	Phase :	L
Test Voltage :	DC 5V from USB Port	Test Mode :	Mode 1



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.2007	37.85	-0.03	37.82	63.58	-25.76	QP
2	0.2007	19.27	-0.03	19.24	53.58	-34.34	AVG
3	0.4460	37.41	-0.03	37.38	56.95	-19.57	QP
4	0.4460	27.30	-0.03	27.27	46.95	-19.68	AVG
5	0.8340	28.80	-0.03	28.77	56.00	-27.23	QP
6	0.8340	18.46	-0.03	18.43	46.00	-27.57	AVG
7	1.3340	27.54	-0.04	27.50	56.00	-28.50	QP
8	1.3340	18.05	-0.04	18.01	46.00	-27.99	AVG
9	2.2659	28.48	-0.05	28.43	56.00	-27.57	QP
10	2.2659	17.70	-0.05	17.65	46.00	-28.35	AVG

11	3.3620	29.70	-0.04	29.66	56.00	-26.34	QP	
12	3.3620	19.27	-0.04	19.23	46.00	-26.77	AVG	

EUT：	Bluetooth Earphone	Model Name. ：	h1
Temperature：	26 ℃	Relative Humidity：	54%
Pressure：	1010hPa	Phase：	N
Test Voltage ：	DC 5V from USB Port	Test Mode：	Mode



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB	(dBuV)	(dBuV)	(dB)	
1	0.2340	35.89	-0.03	35.86	62.31	-26.45	QP
2	0.2340	19.39	-0.03	19.36	52.31	-32.95	AVG
3	0.4460	32.23	-0.03	32.20	56.95	-24.75	QP
4	0.4460	20.66	-0.03	20.63	46.95	-26.32	AVG
5	0.7700	25.33	-0.03	25.30	56.00	-30.70	QP
6	0.7700	16.40	-0.03	16.37	46.00	-29.63	AVG
7	1.3380	25.84	-0.04	25.80	56.00	-30.20	QP
8	1.3380	16.52	-0.04	16.48	46.00	-29.52	AVG
9	2.2820	23.91	-0.05	23.86	56.00	-32.14	QP
10	2.2820	15.89	-0.05	15.84	46.00	-30.16	AVG
11	4.0260	27.26	-0.05	27.21	56.00	-28.79	QP

12	4.0260	16.78	-0.05	16.73	46.00	-29.27	AVG

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 (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

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 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 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:

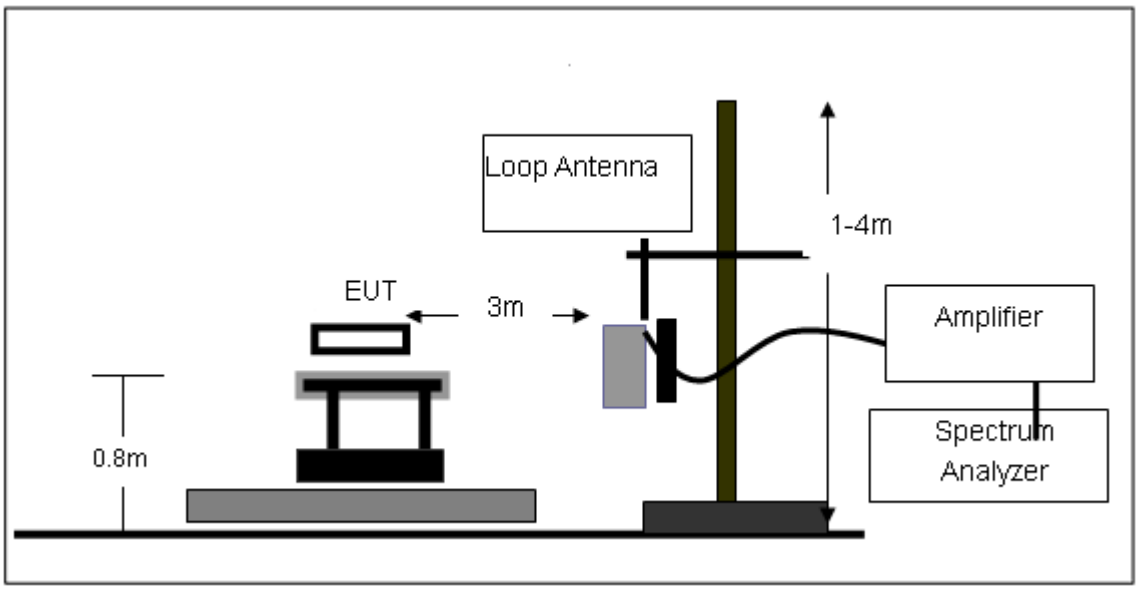
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

3.2.3 DEVIATION FROM TEST STANDARD

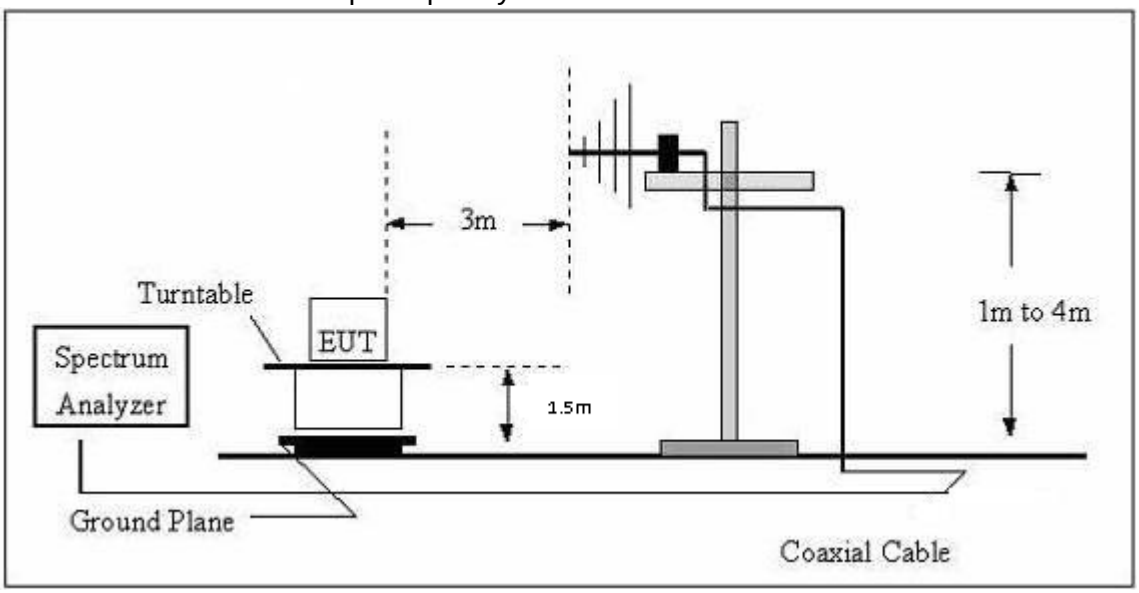
No deviation

3.2.4 TEST SETUP

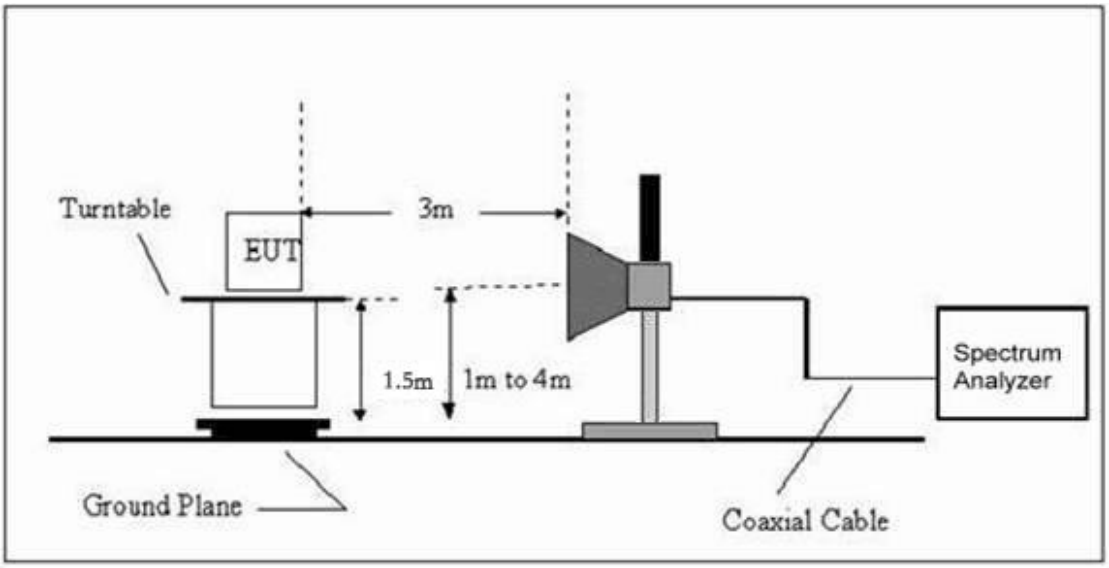
（A）Radiated Emission Test-Up Frequency Below 30MHz



（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 Earphone	Model Name. ：	h1
Temperature：	20 ℃	Relative Humidtity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V from USB Port
Test Mode ：	TX	Polarization :	--

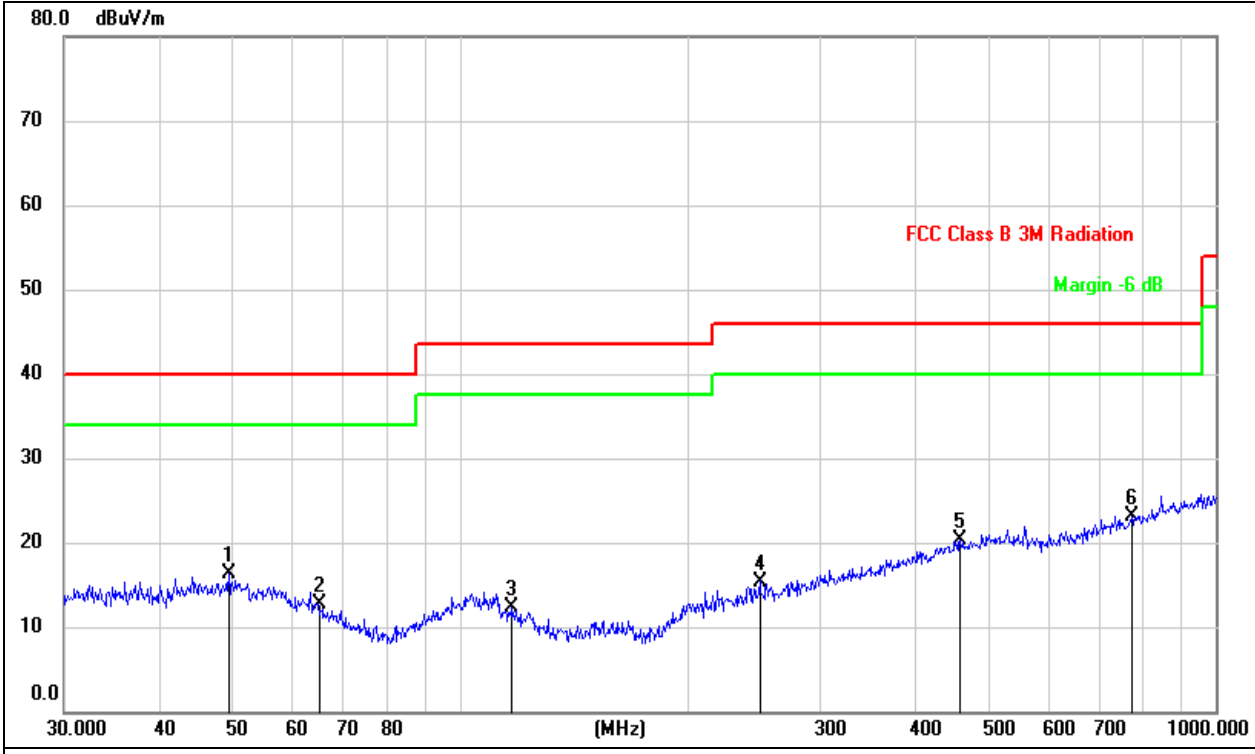
Freq.	Reading	Limit	Margin	State
(MHz)	(dBuV/m)	(dBuV/m)	(dB)	P/F
--	--	--	--	PASS
--	--	--	--	PASS

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.

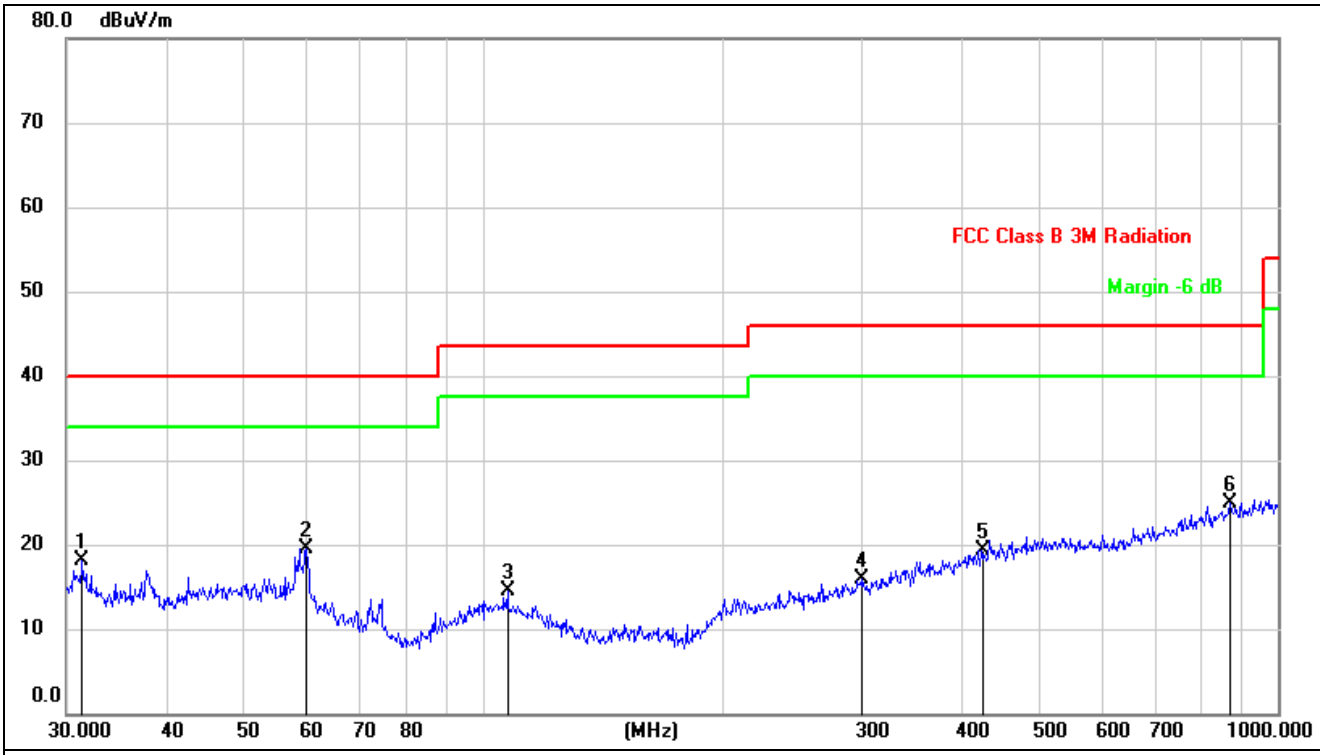
3.2.7 TEST RESULTS (BETWEEN 30MHZ – 1GHZ)

EUT：	Bluetooth Earphone	Model Name ：	h1
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V from USB Port
Test Mode ：	TX		



No.	Frequency (MHz)	Reading (dBuV)	Correct dB	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	49.5328	26.06	-9.66	16.40	40.00	-23.60	QP
2	65.1145	25.16	-12.46	12.70	40.00	-27.30	QP
3	117.3602	24.94	-12.64	12.30	43.50	-31.20	QP
4	249.4250	25.44	-10.04	15.40	46.00	-30.60	QP
5	459.1143	25.98	-5.68	20.30	46.00	-25.70	QP
6	774.1584	26.36	-3.16	23.20	46.00	-22.80	QP

EUT：	Bluetooth Earphone	Model Name ：	h1
Temperature：	20 ℃	Relative Humidity：	48%
Pressure：	1010 hPa	Test Voltage ：	DC 5V from USB Port
Test Mode ：	RX		



No.	Frequency	Reading	Correct	Result	Limit	Margin	Remark
	(MHz)	(dBuV)	dB	(dBuV)	(dBuV)	(dB)	
1	31.3992	29.47	-11.46	18.01	40.00	-21.99	peak
2	60.0691	30.76	-11.19	19.57	40.00	-20.43	peak
3	107.5101	26.00	-11.45	14.55	43.50	-28.95	peak
4	300.3672	23.62	-7.65	15.97	46.00	-30.03	peak
5	423.5403	25.60	-6.20	19.40	46.00	-26.60	peak
6	869.1302	26.65	-1.75	24.90	46.00	-21.10	peak

3.2.8 TEST RESULTS (1G-25GHZ)

GFSK,

Normal Voltage

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
H	1750.000	57.41	-14.95	42.46	74.00	-31.54	Pk
H	2825.000	51.82	-7.73	44.09	74.00	-29.91	Pk
H	3410.000	51.48	-6.14	45.34	74.00	-28.66	Pk
H	4215.000	50.25	-5.52	44.73	74.00	-29.27	Pk
H	4850.000	58.27	-9.16	49.11	74.00	-24.89	Pk
H	5395.000	49.06	-9.28	39.78	74.00	-34.22	Pk
V	2845.000	52.28	-7.62	44.66	74.00	-29.34	Pk
V	3490.000	51.77	-6.02	45.75	74.00	-28.25	Pk
V	4055.000	46.86	-4.55	42.31	74.00	-31.69	Pk
V	4470.000	48.83	-7.06	41.77	74.00	-32.23	Pk
V	4915.000	56.02	-9.52	46.50	74.00	-27.50	Pk
V	5850.000	46.30	-8.03	38.27	74.00	-35.73	Pk

Note:The PK value is less than the AV value, AV value is not required
Factor added by measurement software automatically.

3.3 BAND EDGE(RADIATED)

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	Comment
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
GFSK							
2342.384	53.65	-10.72	42.93	74.00	-31.07	peak	Vertical
2354.988	53.76	-10.62	43.14	74.00	-30.86	peak	Horizontal
2400.160	55.93	-10.31	45.62	74.00	-28.38	peak	Vertical
2400.344	56.25	-10.31	45.94	74.00	-28.06	peak	Horizontal
2483.500	55.96	-9.73	46.59	74.00	-27.41	peak	Vertical
2483.560	55.69	-9.73	45.96	74.00	-28.04	peak	Horizontal
2490.140	54.93	-9.70	45.23	74.00	-28.77	peak	Vertical
2490.300	54.69	-9.67	45.02	74.00	-28.98	peak	Horizontal

NOTE:The PK value is less than the AV value, AV value is not required.

BAND EDGE(RADIATED)(HOPPING MODE)

Frequency	Meter Reading	Factor	Emission Level	Limits	Margin	Detector Type	Comment
(MHz)	(dBμV)	(dB)	(dBμV/m)	(dBμV/m)	(dB)		
GFSK							
2390	54.06	-12.78	41.28	74	-32.72	peak	Vertical
2390	51.73	-12.78	38.95	74	-35.05	peak	Horizontal
2483.5	51.93	-15.78	39.15	74	-34.85	peak	Vertical
2483.5	51.43	-15.78	38.65	74	-35.35	peak	Horizontal

NOTE:The PK value is less than the AV value, AV value is not required.

4. 20DB OCCUPY BANDWIDTH

4.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247a(1)	20dB bandwidth	/	2400-2483.5	PASS

4.1.1 TEST PROCEDURE

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting:
Bandwidth: RBW=100 kHz, VBW=300 kHz, detector= Peak

4.1.2 DEVIATION FROM STANDARD

No deviation.

4.1.3 TEST SETUP

4.1.4 EUT OPERATION CONDITIONS

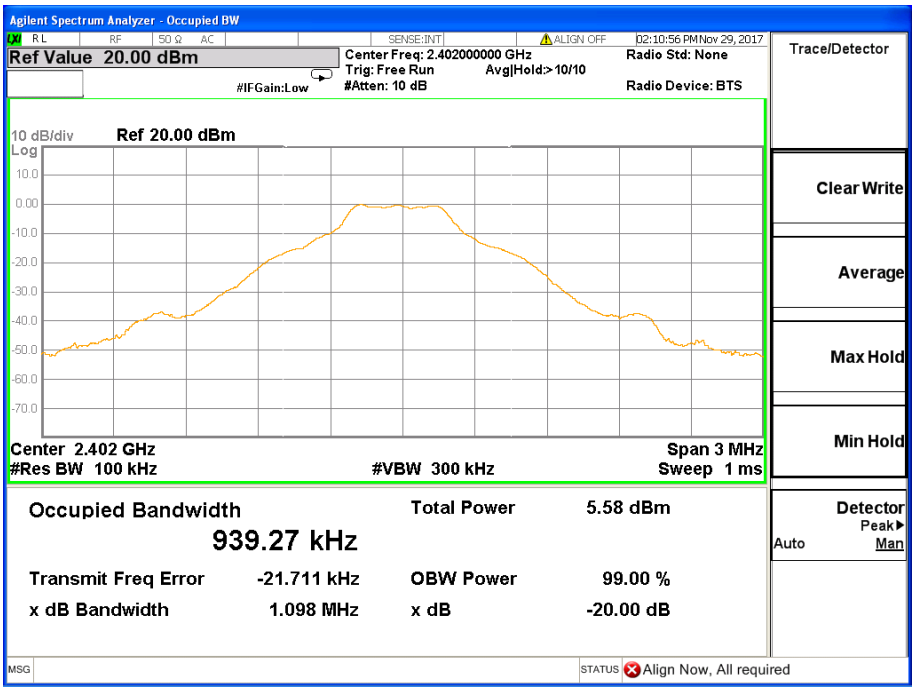
The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

4.1.5 TEST RESULTS

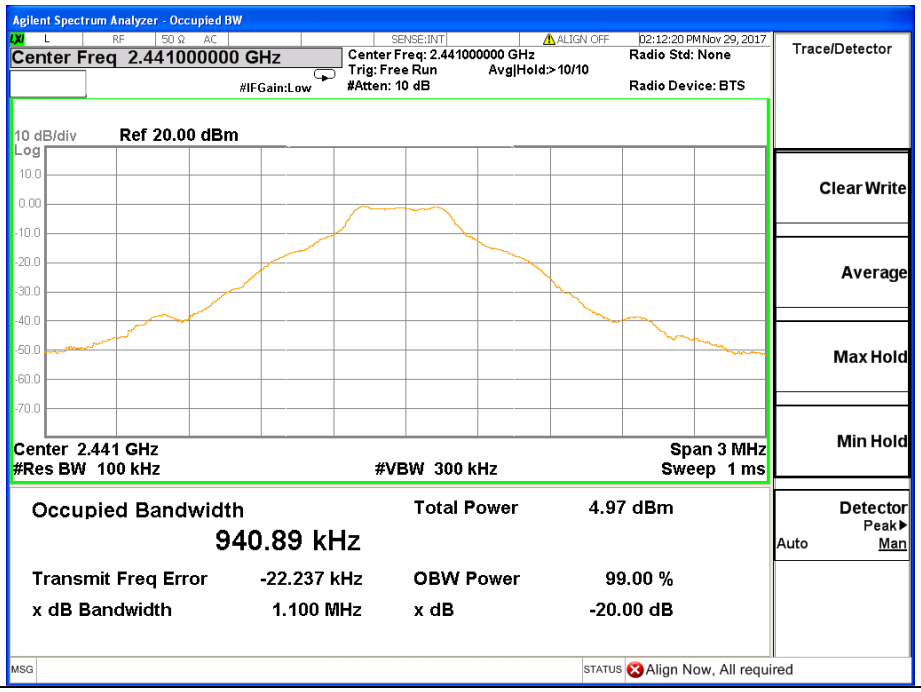
EUT :	Bluetooth Earphone	Model Name :	h1
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1015 hPa	Test Voltage :	DC 5V from USB Port
Test Mode :	GFSK Mode		

Frequency	20dB Bandwidth (MHz)	Limit	Result
2402 MHz	1.098	/	PASS
2441 MHz	1.100	/	PASS
2480 MHz	1.096	/	PASS

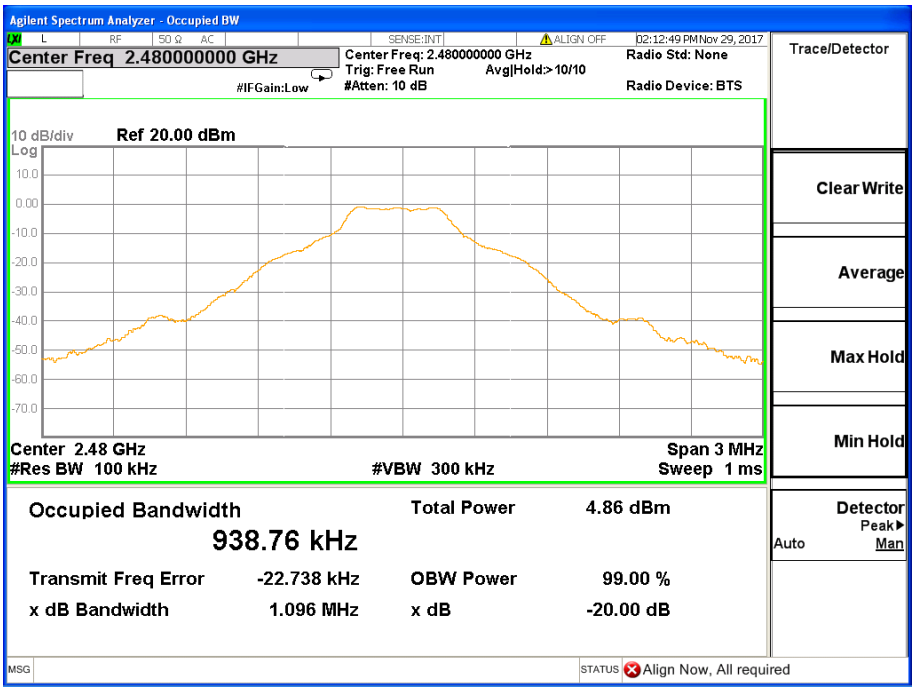
TX CH01



TX CH40



TX CH79



5. CARRIER FREQUENCY SEPARATION TEST

5.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(1)	Channel Separation	>25KHz or >two-thirds of the 20 dB bandwidth (Which is greater)	2400-2483.5	PASS

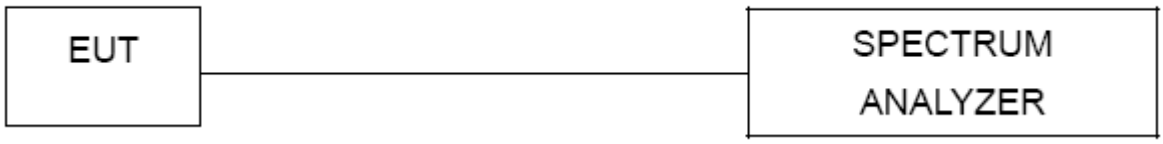
5.1.1 TEST PROCEDURE

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting:
RBW=30 kHz, VBW=100 kHz, detector= Peak, Sweep Time =auto.
(3) The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Test.

5.1.2 DEVIATION FROM STANDARD

No deviation.

5.1.3 TEST SETUP



5.1.4 EUT OPERATION CONDITIONS

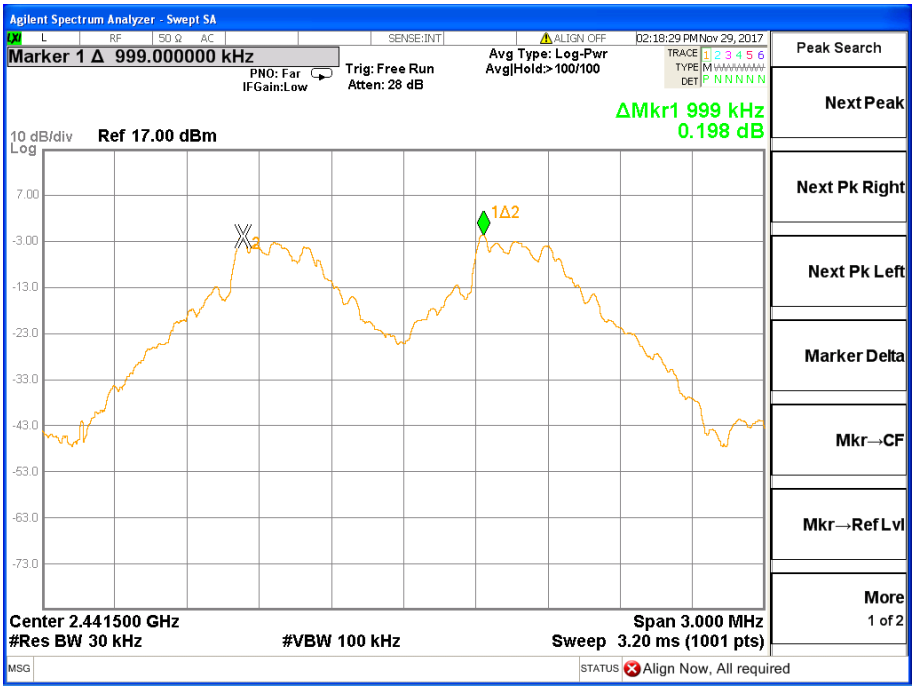
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

5.1.5 TEST RESULTS

EUT :	Bluetooth Earphone	Model Name :	h1
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V from USB Port
Test Mode :	GFSK Mode		

Mode	Channel	Frequency (MHz)	Test Result (KHz)	Limit (kHz)	Result
GFSK	Middle	2441	999	733	Pass

GFSK mode



6. NUMBER OF HOPPING CHANNEL

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(a)	Number of Hopping Channel	>15 channels	2400-2483.5	PASS

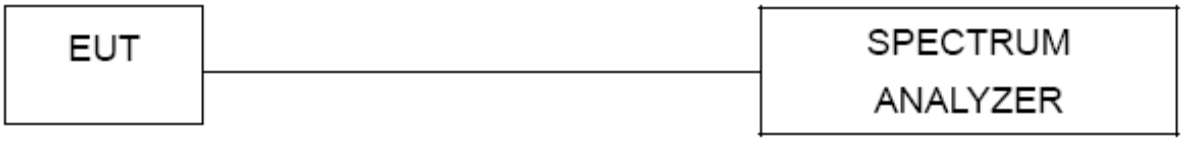
6.1.1 TEST PROCEDURE

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting: RBW=100 kHz, VBW=300 kHz, Detector=Peak, Sweep time= Auto.
(3) The EUT was set to the Hopping Mode for Channel Separation Test and continuously transmitting for the Test.

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.

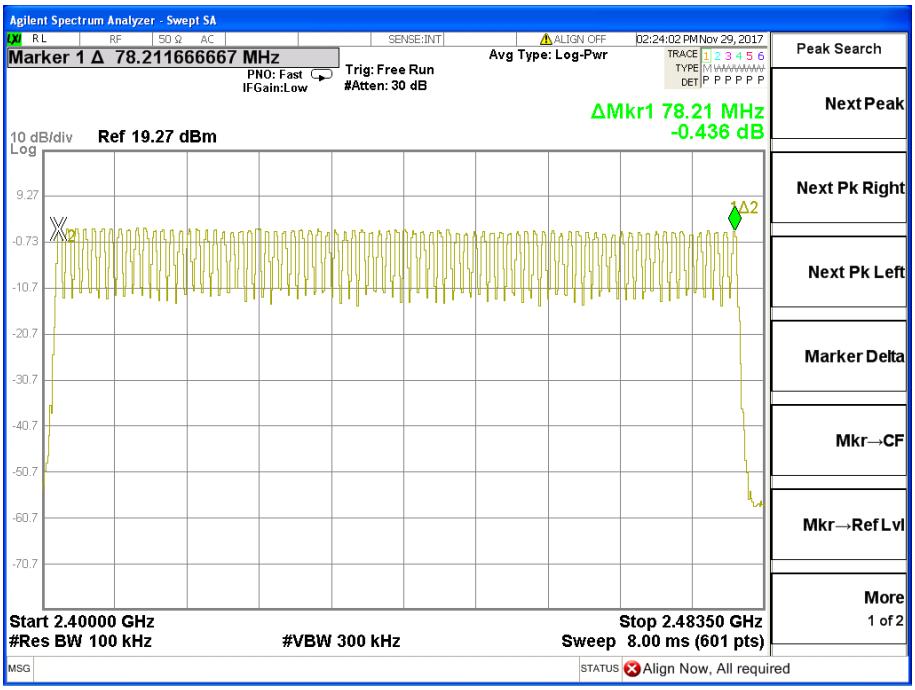
6.1.5 TEST RESULTS

EUT :	Bluetooth Earphone	Model Name :	h1
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V from USB Port
Test Mode :	GFSK Mode		

\\\

Mode	Quantity of Hopping Channel	Limit	Judgment
GFSK	79	>15	PASS

GFSK mode



7. DWELL TIME

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(a)	Dwell time	0.4 sec	2400-2483.5	PASS

7.1.1 TEST PROCEDURE

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting: RBW=1MHz, VBW=1MHz, Span=0Hz, Detector=Peak
(3) Use video trigger with the trigger level set to enable triggering only on full pulses.
(4) Sweep Time is more than once pulse time.
(5) Set the center frequency on any frequency would be measure and set the frequency span to zero span.
(6) Measure the maximum time duration of one single pulse.
(7) Set the EUT for packet transmitting.
(8) Measure the maximum time duration of one single pulse.
(9) The EUT was set to the Hopping Mode for Dwell Time Test

7.1.2 DEVIATION FROM STANDARD

No deviation.

7.1.3 TEST SETUP

7.1.4 EUT OPERATION CONDITIONS

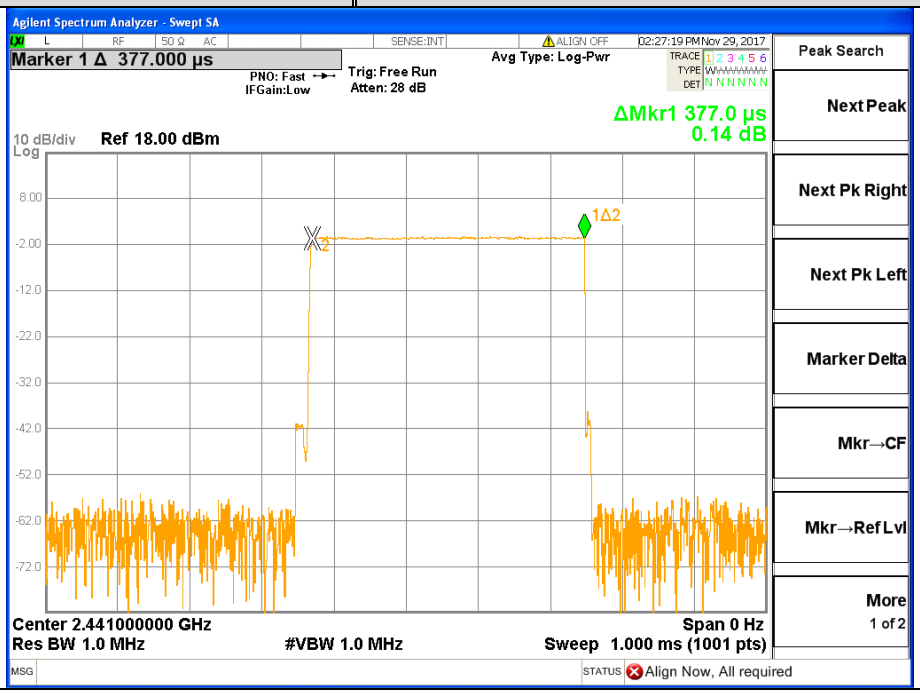
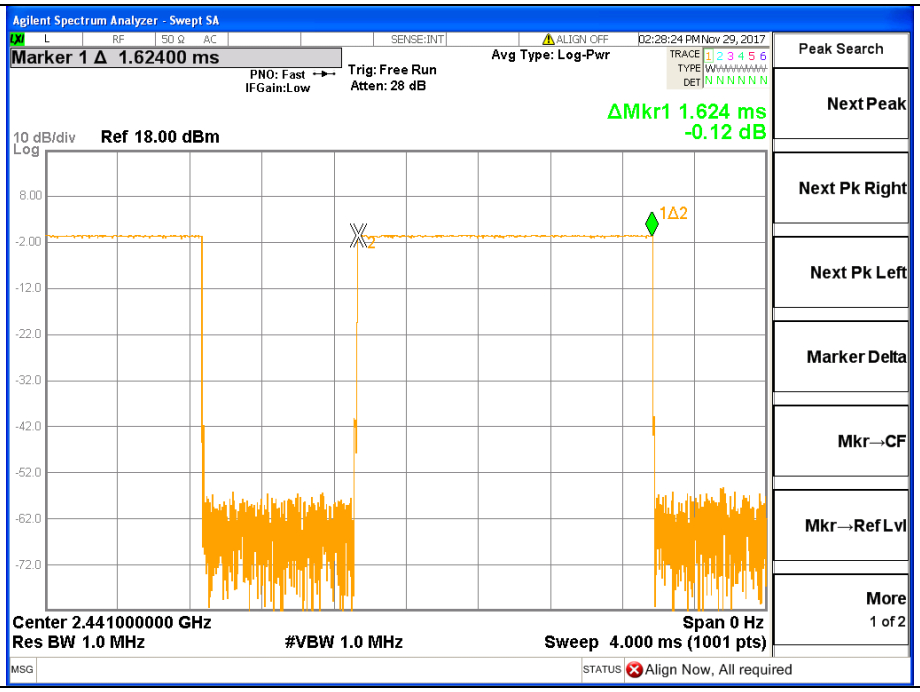
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

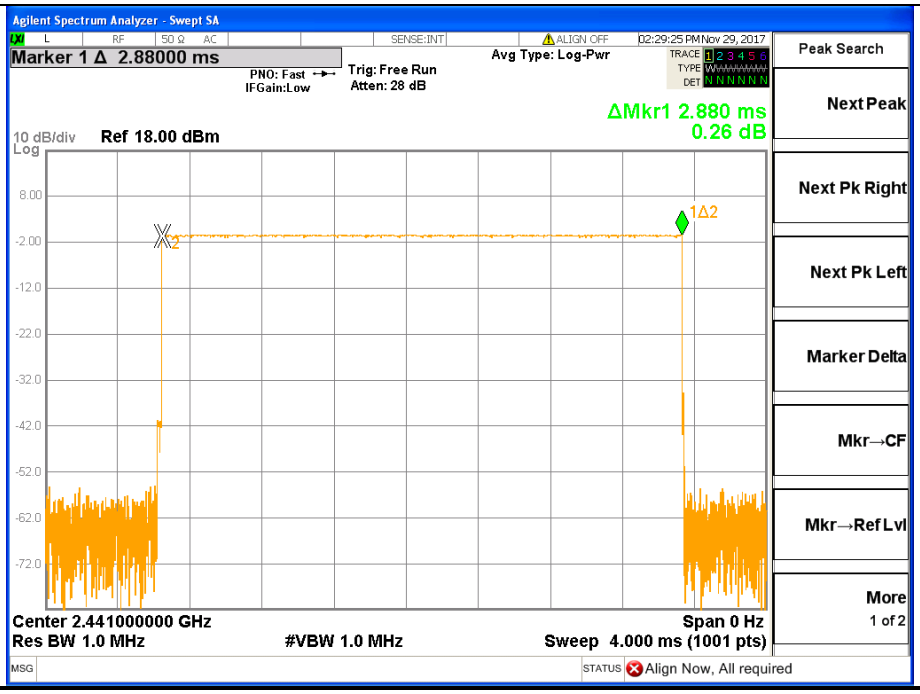
7.1.5 TEST RESULTS

EUT：	Bluetooth Earphone	Model Name ：	h1
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 5V from USB Port
Test Mode ：	GFSK Mode		

For GFSK:
The test period: T= 0.4 Second/Channel x 79 Channel = 31.6 s

Mode	Data Packet	Frequency (MHz)	Pulse Duration (ms)	Dwell Time (ms)	Limit (s)	Conclusion
GFSK	Dh1	2441	0.377	120.64	<0.4	PASS
	DH3	2441	1.624	259.84	<0.4	PASS
	DH5	2441	2.880	307.20	<0.4	PASS
Note: 1 A period time = 0.4 (s) * 79 = 31.6(s) 2 Dh1 time slot = Pulse Duration * (1600/(2*79)) * A period time DH3 time slot = Pulse Duration * (1600/(4*79)) * A period time DH5 time slot = Pulse Duration * (1600/(6*79)) * A period time						

Modulation mode		GFSK mode
DH1		
DH3		

DH5		

Agilent Spectrum Analyzer - Swept SA
Marker 1 Δ 2.88000 ms
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 28 dB
Avg Type: Log-Pwr
02:29:25 PM Nov 29, 2017
ΔMkr1 2.880 ms
0.26 dB
10 dB/div
Log
Ref 18.00 dBm
8.00
-2.00
-12.0
-22.0
-32.0
-42.0
-52.0
-62.0
-72.0
1Δ2
Center 2.441000000 GHz
Res BW 1.0 MHz
#VBW 1.0 MHz
Span 0 Hz
Sweep 4.000 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Align Now, All required

8. PEAK OUTPUT POWER TEST

8.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	Hopping Channels>75 Power<1W(30dBm) Other <125 mW(21dBm)	2400-2483.5	PASS

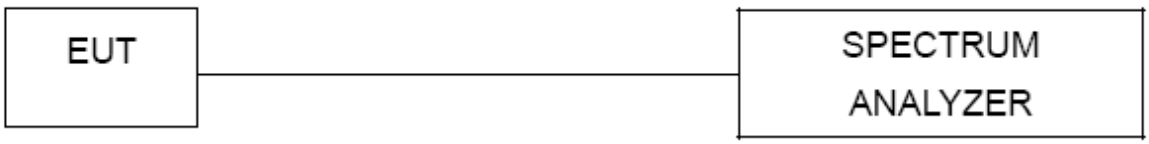
8.1.1 TEST PROCEDURE

(1) The EUT was directly connected to the spectrum analyzer and antenna output port as show in the block diagram above.
(2) Spectrum Setting:
RBW=1MHz, VBW=3MHz, Detector=Peak (If 20dB BW ≤1 MHz)
RBW=3MHz, VBW=10MHz, Detector=Peak (If 20dB BW > 1 MHz)
(3) The EUT was set to continuously transmitting in the max power during the test.

8.1.2 DEVIATION FROM STANDARD

No deviation.

8.1.3 TEST SETUP



8.1.4 EUT OPERATION CONDITIONS

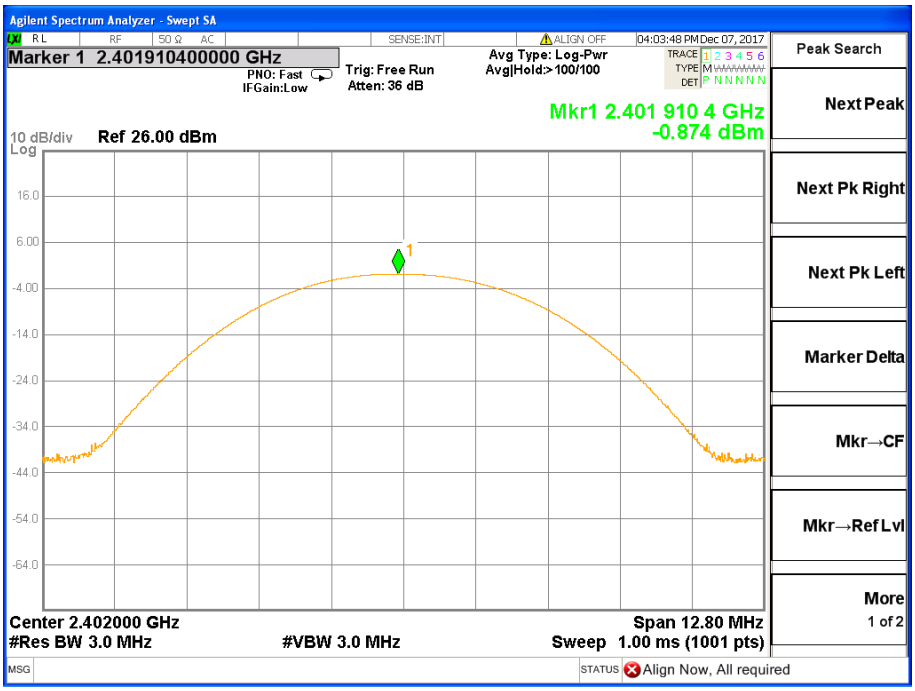
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.5 TEST RESULTS

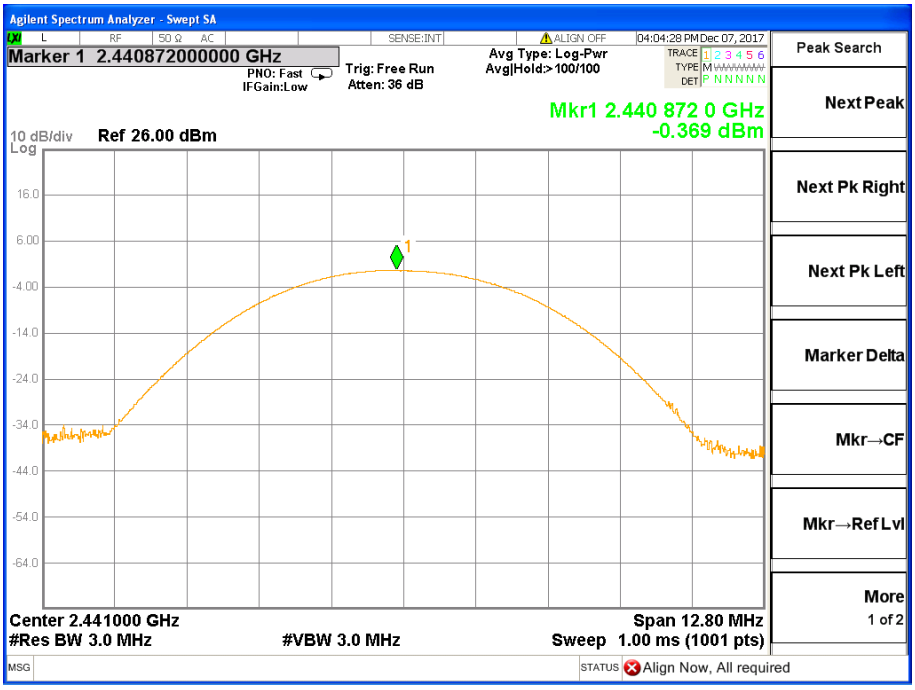
EUT :	Bluetooth Earphone	Model Name :	h1
Temperature :	25 ℃	Relative Humidity :	60%
Pressure :	1012 hPa	Test Voltage :	DC 5V from USB Port
Test Mode :	GFSK Mode		

TX GFSK Mode			
Test Channe	Frequency	Maximum Conducted Output Power(PK)	LIMIT
	(MHz)	(dBm)	dBm
CH01	2402	-0.874	30
CH40	2441	-0.369	30
CH79	2480	-0.486	30

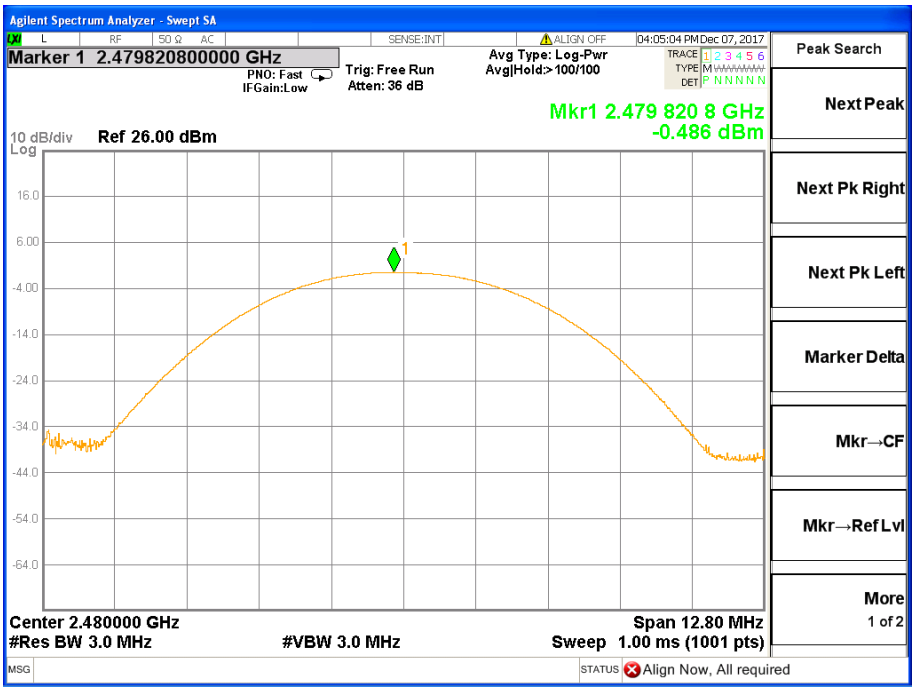
CH01



CH40


Agilent Spectrum Analyzer - Swept SA
Marker 1 2.440872000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:04:28 PM Dec 07, 2017
Mkr1 2.440 872 0 GHz
-0.369 dBm
10 dB/div
Log
Ref 26.00 dBm
16.0
6.00
-4.00
-14.0
-24.0
-34.0
-44.0
-54.0
-64.0
Center 2.441000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Span 12.80 MHz
Sweep 1.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
Align Now, All required

CH79


Agilent Spectrum Analyzer - Swept SA
Marker 1 2.479820800000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 36 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
04:05:04 PM Dec 07, 2017
Mkr1 2.479 820 8 GHz
-0.486 dBm
10 dB/div
Log
Ref 26.00 dBm
16.0
6.00
-4.00
-14.0
-24.0
-34.0
-44.0
-54.0
-64.0
Center 2.480000 GHz
#Res BW 3.0 MHz
#VBW 3.0 MHz
Span 12.80 MHz
Sweep 1.00 ms (1001 pts)
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
MSG
Align Now, All required

8.1.6. 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)).

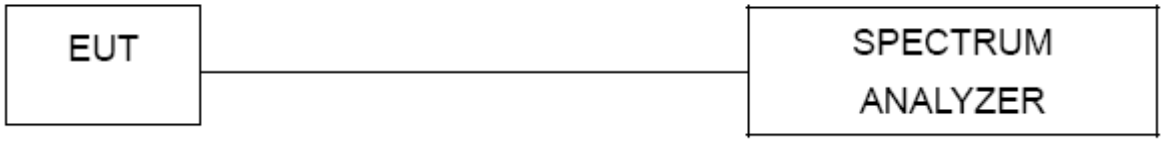
TEST PROCEDURE

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.

8.1.7 DEVIATION FROM STANDARD

No deviation.

8.1.8 TEST SETUP



8.1.9 EUT OPERATION CONDITIONS

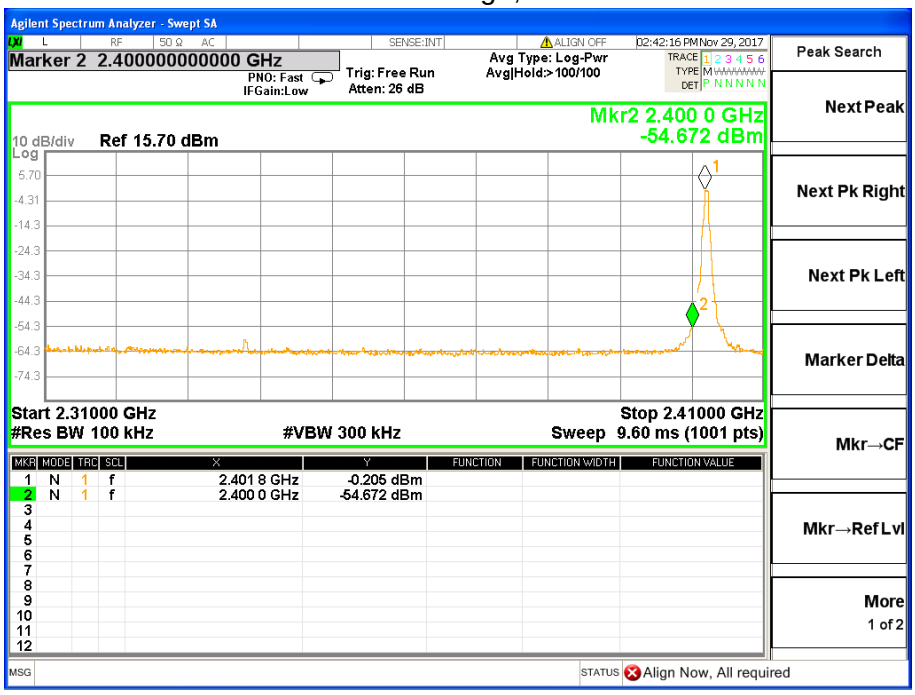
The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.1.10 TEST RESULTS

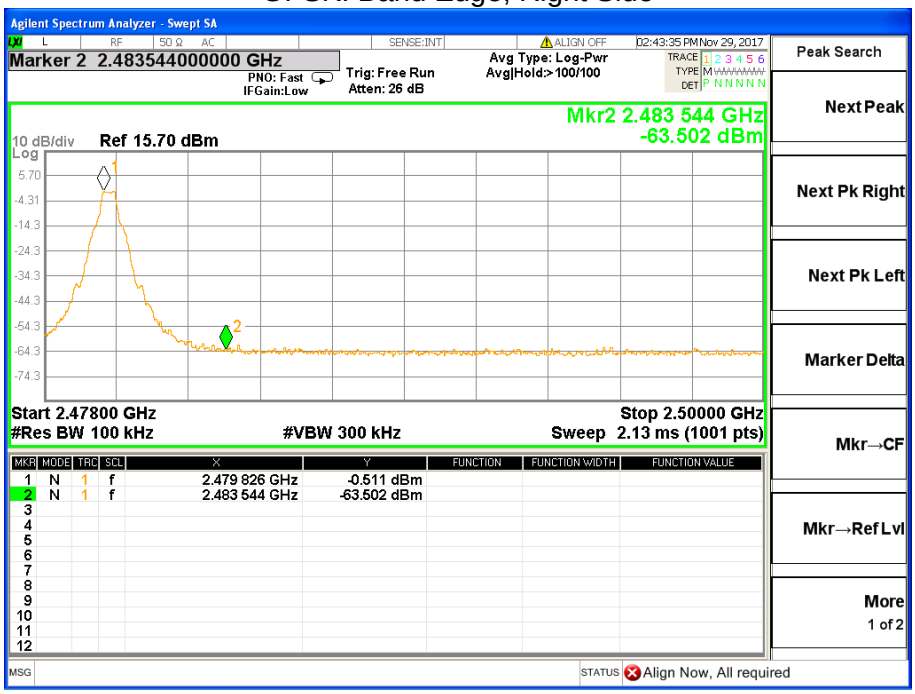
EUT：	Bluetooth Earphone	Model Name ：	h1
Temperature：	25 ℃	Relative Humidity：	60%
Pressure：	1012 hPa	Test Voltage ：	DC 5V from USB Port

Frequency Band	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
GFSK mode			
Left-band	54.877	20	Pass
Right-band	64.013	20	Pass

GFSK: Band Edge, Left Side



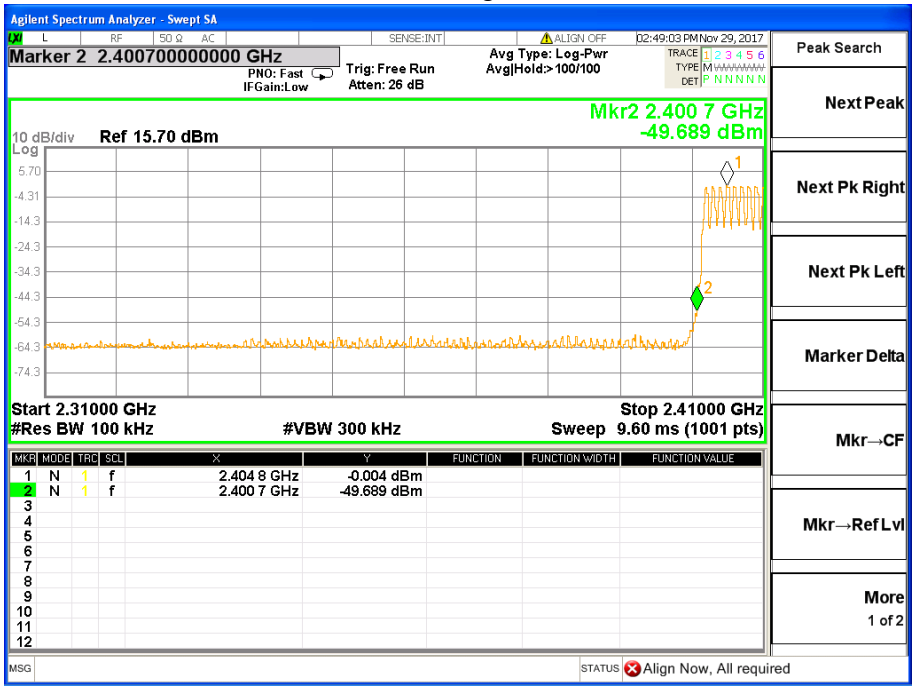
GFSK: Band Edge, Right Side



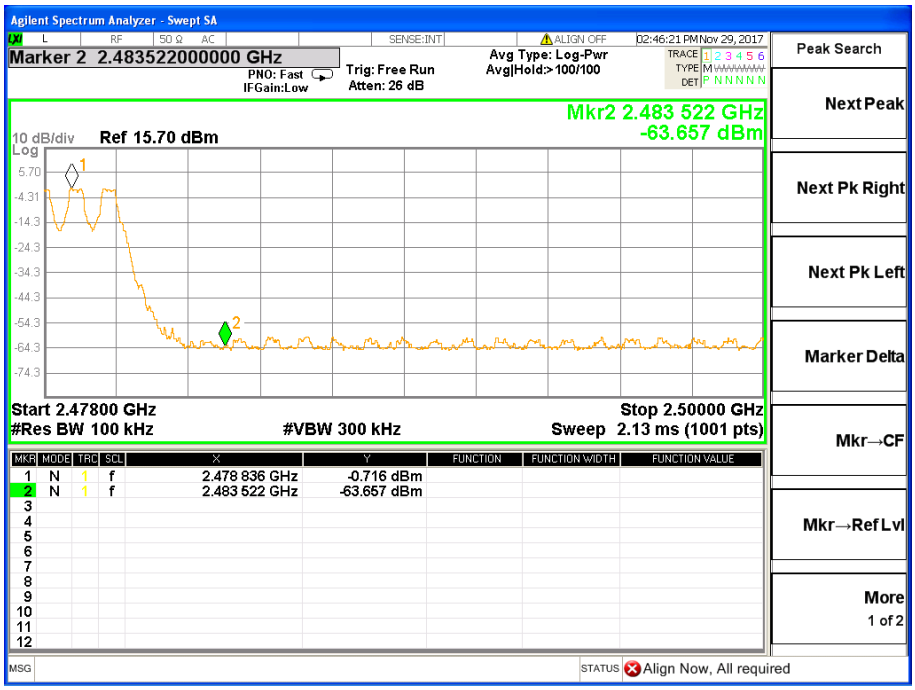
Hopping Mode

Frequency Band	Delta Peak to band emission (dBc)	> Limit (dBc)	Result
GFSK mode			
Left-band	49.693	20	Pass
Right-band	64.373	20	Pass

GFSK: Band Edge, Left Side



GFSK: Band Edge, Right Side


Agilent Spectrum Analyzer - Swept SA
Marker 2 2.483522000000 GHz
PNO: Fast
IFGain:Low
Trig: Free Run
Atten: 26 dB
Avg Type: Log-Pwr
Avg|Hold:>100/100
02:46:21 PM Nov 29, 2017
Mkr2 2.483 522 GHz
-63.657 dBm
10 dB/div
Log
Ref 15.70 dBm
Start 2.47800 GHz
#Res BW 100 kHz
#VBW 300 kHz
Stop 2.50000 GHz
Sweep 2.13 ms (1001 pts)
1 N 1 f 2.478 836 GHz -0.716 dBm
2 N 1 f 2.483 522 GHz -63.657 dBm
Peak Search
Next Peak
Next Pk Right
Next Pk Left
Marker Delta
Mkr→CF
Mkr→Ref Lvl
More
1 of 2
Align Now, All required

9. ANTENNA REQUIREMENT

9.1 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.

9.2 EUT ANTENNA

The EUT antenna is PCB antenna. It comply with the standard requirement. In case of replacement of broken antenna the same antenna type must be used.

----END OF REPORT----