



Test Report

FCC Part15 Subpart C& RSS-247 Issue 2

Product Name : Bluetooth headset

Model No. : S3XX17

FCC ID : AL8-S3XX17

IC : 457A-S3XX17

Applicant : Plantronics, Inc.

Address : 345 Encinal Street, Santa Cruz, CA95060 USA

Date of Receipt : Apr. 14th, 2017

Test Date : Apr. 14th, 2017~ May. 31st, 2017

Issued Date : Jun. 02nd, 2017

Report No. : 1742016R-RF-US-P06V02

Report Version : V 1.0

The test results relate only to the samples tested.

The test results shown in the test report are traceable to the national/international standard through the calibration of the equipment and evaluated measurement uncertainty herein.

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Test Report Certification

Issued Date : Jun. 02nd, 2017

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Product Name : Bluetooth headset
Applicant : Plantronics, Inc.
Address : 345 Encinal Street, Santa Cruz, CA95060 USA
Manufacturer : Plantronics, Inc.
Address : 345 Encinal Street, Santa Cruz, CA95060 USA
Model No. : S3XX17
FCC ID : AL8-S3XX17
IC : 457A-S3XX17
EUT Voltage : DC 3.3V~4.2V
Test Voltage : AC120V/60Hz
Brand Name : Plantronics
Applicable Standard : FCC CFR Title 47 Part 15 Subpart C: 2015
KDB DA 00-705 Released March 30, 2000
ANSI C63.4: 2014; ANSI C63.10: 2013
RSS-Gen Issue 4/RSS-247 Issue 2
Test Result : Complied
Performed Location : DEKRA Testing & Certification (Suzhou) Co., Ltd.
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TEL: +86-512-6251-5088 / FAX: +86-512-6251-5098
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History of This Test Report

REPORT NO.	VERSION	DESCRIPTION	ISSUED DATE
1742016R-RF-US-P06V02	V1.0	Initial Issued Report	Jun. 02nd, 2017

1. General Information

1.1. EUT Description

Product Name	Bluetooth headset
Model No.	S3XX17
Working Voltage	DC 3.3V~4.2V
Test Voltage	AC120V/60Hz
Bluetooth Specification	V2.1+EDR
Frequency Range	2402- 2480 MHz
Channel Number	V2.1+EDR: 79
Channel Separation	V2.1+EDR: 1MHz
Type of Modulation	V2.1+EDR: GFSK, Pi/4 DQPSK, 8DPSK
Data Rate	V2.1+EDR: 1Mbps(GFSK), 2Mbps(Pi/4 DQPSK), 3Mbps(8DPSK)
Antenna Type	Reference to Antenna List
Peak Antenna Gain	Reference to Antenna List

Bluetooth Working Frequency of Each Channel: (For V2.1+EDR)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
00	2402 MHz	01	2403 MHz	02	2404 MHz	03	2405 MHz
04	2406 MHz	05	2407 MHz	06	2408 MHz	07	2409 MHz
08	2410 MHz	09	2411 MHz	10	2412 MHz	11	2413 MHz
12	2414 MHz	13	2415 MHz	14	2416 MHz	15	2417 MHz
16	2418 MHz	17	2419 MHz	18	2420 MHz	19	2421 MHz
20	2422 MHz	21	2423 MHz	22	2424 MHz	23	2425 MHz
24	2426 MHz	25	2427 MHz	26	2428 MHz	27	2429 MHz
28	2430 MHz	29	2431 MHz	30	2432 MHz	31	2433 MHz
32	2434 MHz	33	2435 MHz	34	2436 MHz	35	2437 MHz
36	2438 MHz	37	2439 MHz	38	2440 MHz	39	2441 MHz
40	2442 MHz	41	2443 MHz	42	2444 MHz	43	2445 MHz
44	2446 MHz	45	2447 MHz	46	2448 MHz	47	2449 MHz
48	2450 MHz	49	2451 MHz	50	2452 MHz	51	2453 MHz
52	2454 MHz	53	2455 MHz	54	2456 MHz	55	2457 MHz
56	2458 MHz	57	2459 MHz	58	2460 MHz	59	2461 MHz
60	2462 MHz	61	2463 MHz	62	2464 MHz	63	2465 MHz
64	2466 MHz	65	2467 MHz	66	2468 MHz	67	2469 MHz
68	2470 MHz	69	2471 MHz	70	2472 MHz	71	2473 MHz
72	2474 MHz	73	2475 MHz	74	2476 MHz	75	2477 MHz
76	2478 MHz	77	2479 MHz	78	2480 MHz	N/A	N/A

1.2. Antenna information

Antenna manufacturer	N/A					
Antenna Delivery	☒	1*TX+1*RX	☐	2*TX+2*RX	☐	3*TX+3*RX
Antenna technology	☒	SISO				
	☐	MIMO	☐	Basic		
			☐	CDD		
			☐	Beam-forming		
Antenna Type	☐	External	☐	Dipole		
	☒	Internal	☐	PIFA		
			☐	PCB		
			☐	Ceramic Chip Antenna		
			☒	Stamped Antenna		
Antenna Gain	1.81dBi					

1.3. Mode of Operation

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in normal operation, which was shown in this test report and defined as:

Test Mode
Mode 1: Transmitter-1Mbps(GFSK_DH5)
Mode 2: Transmitter-2Mbps(Pi/4 DQPSK_DH5)
Mode 3: Transmitter-3Mbps(8DPSK_DH5)
Mode 4: Transmitter-Hopping

Note:

1. For portable device, radiated spurious emission was verified over X, Y, Z Axis, and shown the worst case on this report.
2. Regards to the frequency band operation for systems using FHSS modulation: normal operation (hopping) was selected to test for conducted spurious test.
3. The extreme test condition for voltage and temperature were declared by the manufacturer.
4. The reading values of all the test items contain cable loss.

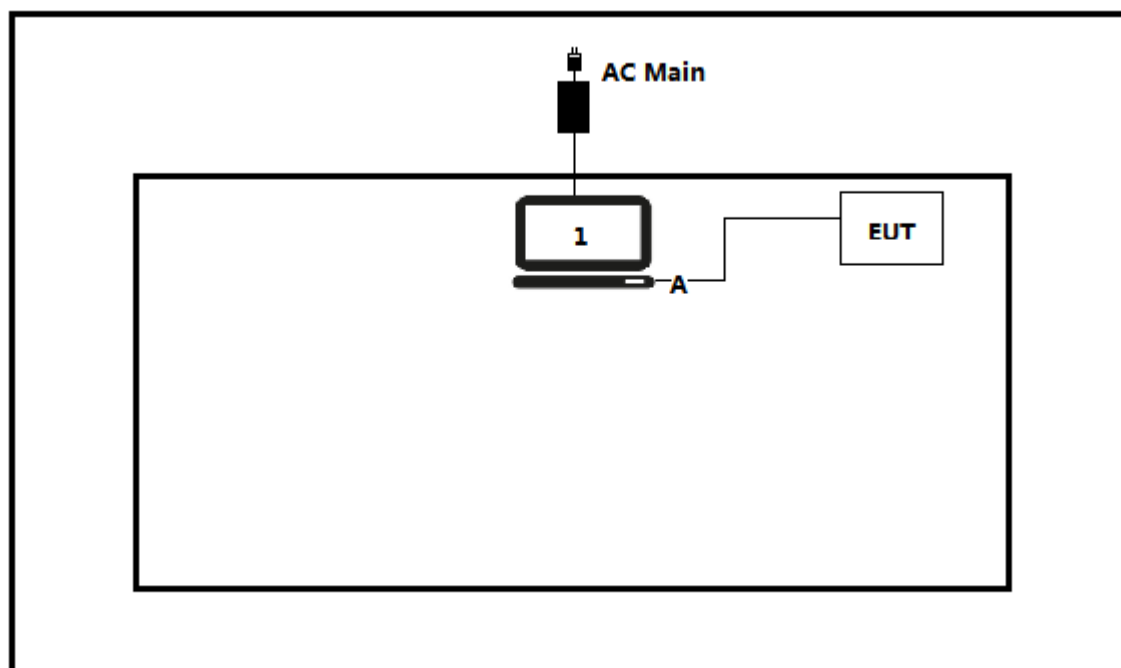
1.4. Tested System Details

The types for all equipments, plus descriptions of all cables used in the tested system (including inserted cards) are:

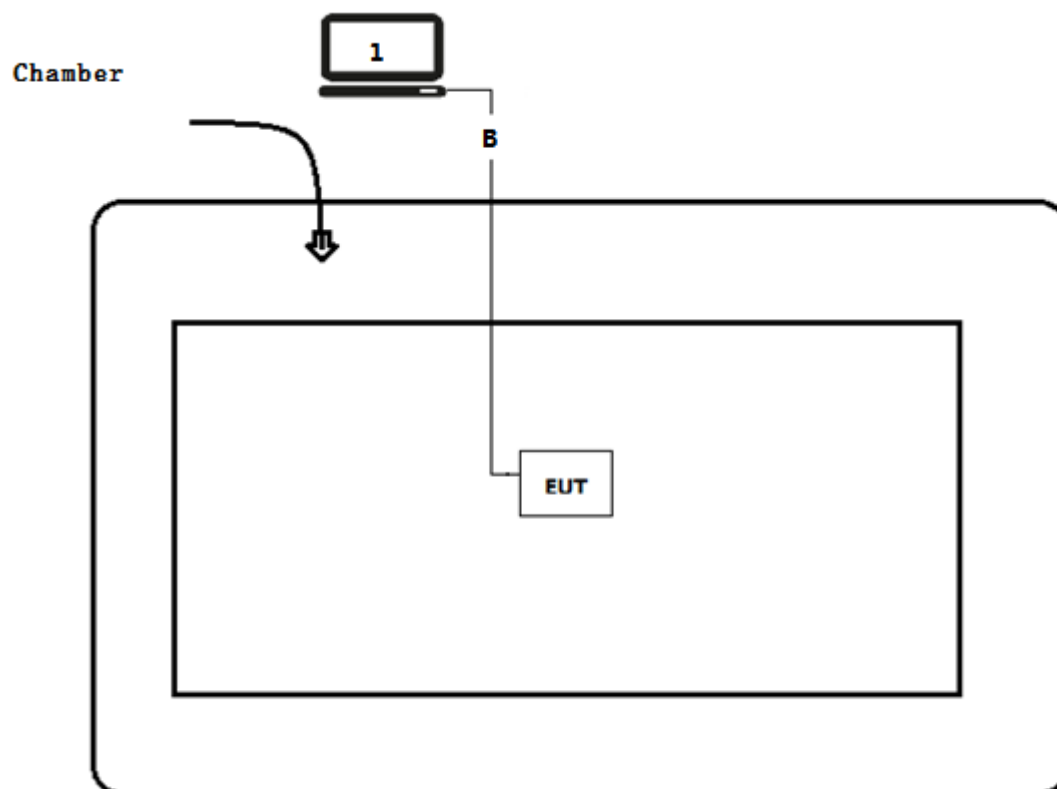
Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook	Think Pad	2526	LV-A3285	Power by adapter
A	USB Cable	N/A	N/A	N/A	Shield, 0.75m
B	USB Cable	N/A	N/A	N/A	Shield, 10m

1.5. Configuration of Tested System

Test setup Diagram- AC Line Conducted Emission Test



Test setup Diagram- Radiated Emission



1.6. EUT Exercise Software

1	Setup the EUT and simulators as shown on above.
2	Turn on the power of all equipment.
3	Run the Bluetest3 software, and set the test mode and channel, then press OK to start continue Transmit.

2. Technical Test

2.1. Summary of Test Result

☒ No deviations from the test standards

☐ Deviations from the test standards as below description:

For FCC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.207	Yes	No
Emissions in restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.209	Yes	No
20dB Bandwidth	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Carrier Frequency Separation	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)	Yes	No
Number of Hopping Frequencies	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Time of Occupancy (Dwell Time)	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(a)(1)(iii)	Yes	No
Peak Output Power	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.247(b)(1)	Yes	No
Emissions in non-restricted frequency bands	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.215(c), 15.247(d)	Yes	No
Radiated Emission Band Edge	FCC CFR Title 47 Part 15 Subpart C: 2015 15.247(d)	Yes	No
Antenna Requirement	FCC CFR Title 47 Part 15 Subpart C: 2015 Section 15.203	Yes	No

For IC

Performed Test Item	Normative References	Test Performed	Deviation
Conducted Emission	RSS-Gen Issue 4 Section 8.8	Yes	No
Radiated Emission	RSS-Gen Issue 4 Section 8.9	Yes	No
20dB Bandwidth	RSS-247 Issue 2 Section 5.1	Yes	No
Carrier Frequency Separation	RSS-247 Issue 2 Section 5.1	Yes	No
Number of Hopping Frequencies	RSS-247 Issue 2 Section 5.1	Yes	No
Time of Occupancy (Dwell Time)	RSS-247 Issue 2 Section 5.1	Yes	No
Peak Output Power	RSS-247 Issue 2 Section 5.4	Yes	No
Emissions in non-restricted frequency bands	RSS-247 Issue 2 Section 5.5	Yes	No
Radiated Emission Band Edge	RSS-Gen Issue 4 Section 8.10	Yes	No
Antenna Requirement	RSS-Gen Issue 4 Section 8.3	Yes	No

2.2. Test Environment

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	21
Humidity (%RH)	25-75	50
Barometric pressure (mbar)	860-1060	950-1000

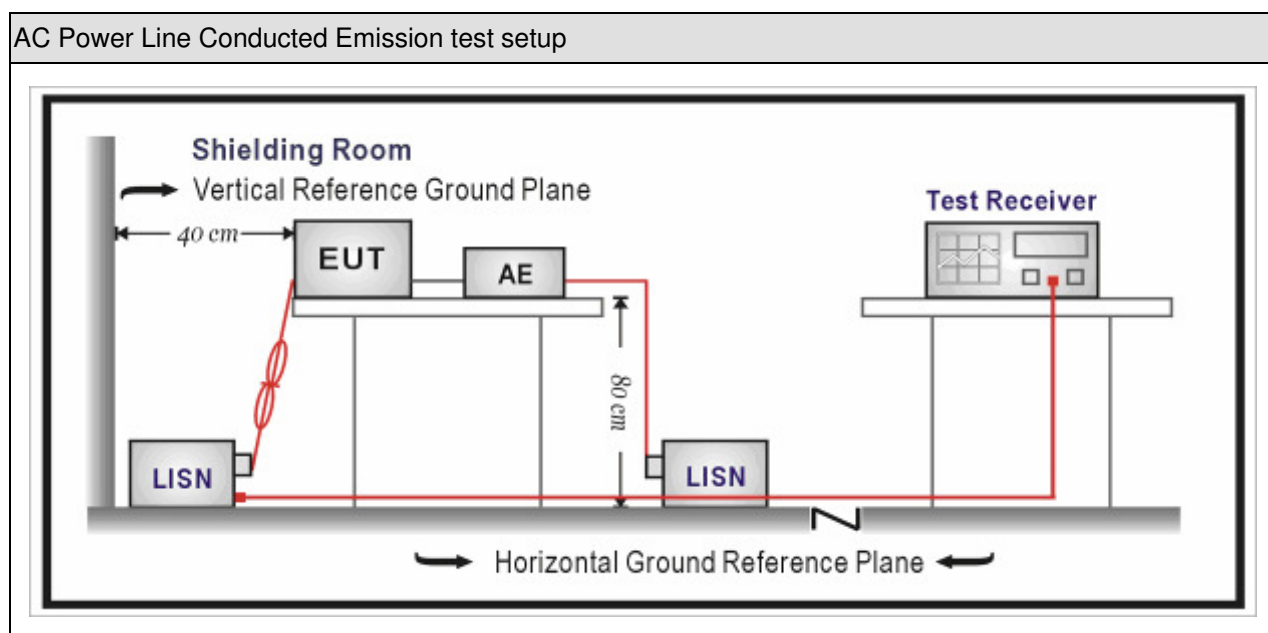
3. Conducted Emission

3.1. Test Equipment

AC Power Line Conducted Emission / TR-1					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100906	2017.03.05	2018.03.04
Two-Line V-Network	R&S	ENV 216	101189	2016.07.16	2017.07.15
Two-Line V-Network	R&S	ENV 216	101044	2016.09.15	2017.09.15
50ohm Coaxial Switch	Anritsu	MP59B	6200464462	N/A	N/A
50ohm Termination	SHX	TF2	07081402	2016.09.15	2017.09.15
Temperature/Humidity Meter	Zhichen	ZC1-2	TR1-TH	2017.01.05	2018.01.04

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

3.2. Test Setup

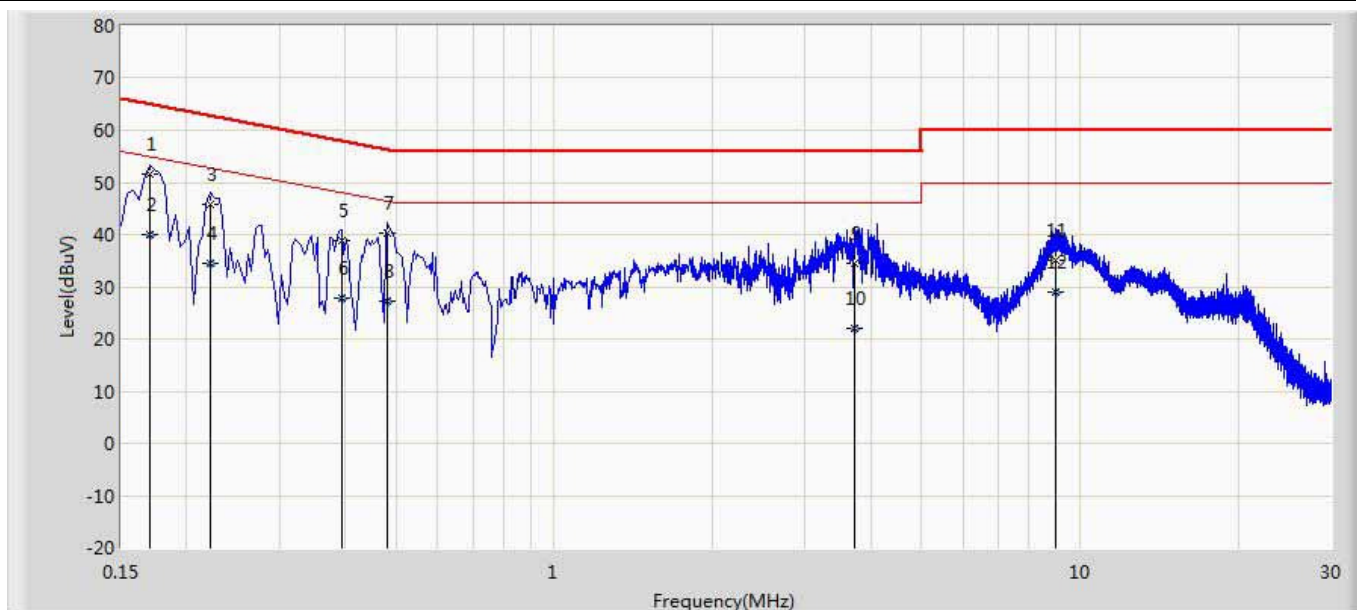


3.3. Limit

Frequency of Emission (MHz)	Conducted Limit
	Quasi-peak (dB)

3.6. Test Result

Site: TR1	Time: 2017/05/31
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216-L1	Polarity: Line
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	

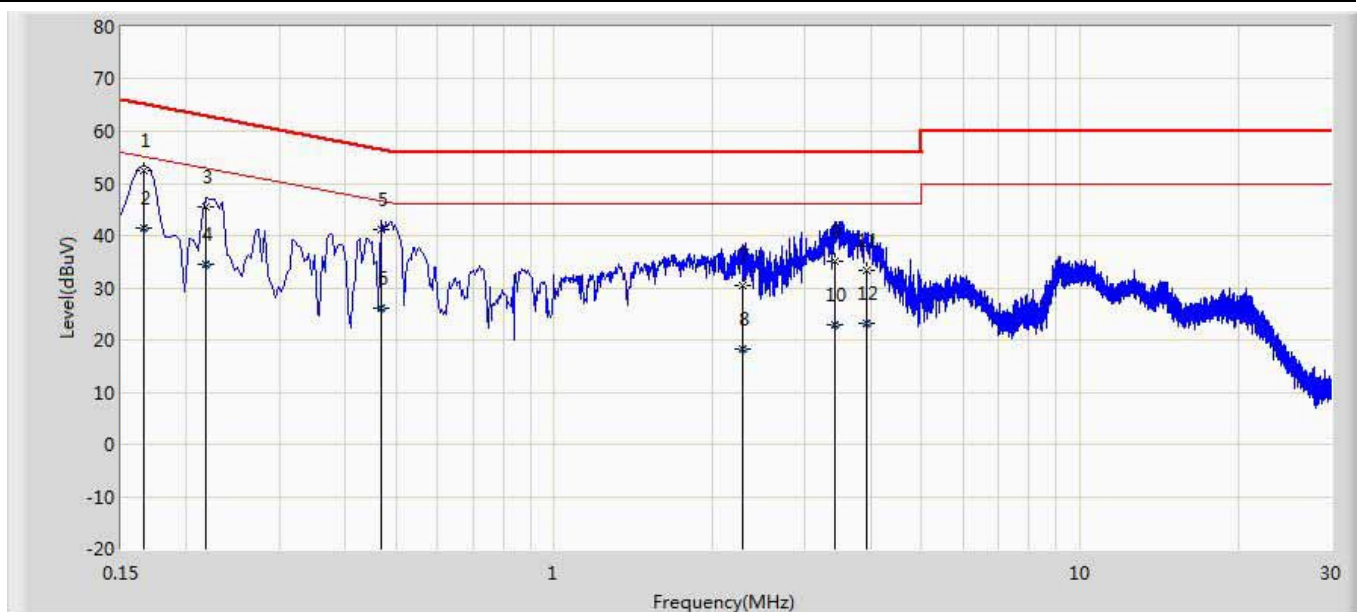


No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.170	51.703	42.084	-13.257	64.960	9.620	QP
2		0.170	39.867	30.247	-15.094	54.960	9.620	AV
3		0.222	45.714	36.093	-17.030	62.744	9.621	QP
4		0.222	34.578	24.957	-18.165	52.744	9.621	AV
5		0.394	38.859	29.229	-19.120	57.979	9.630	QP
6		0.394	27.808	18.178	-20.171	47.979	9.630	AV
7		0.482	40.396	30.763	-15.909	56.305	9.632	QP
8		0.482	27.317	17.685	-18.988	46.305	9.632	AV
9		3.714	34.476	24.737	-21.524	56.000	9.739	QP
10		3.714	22.145	12.406	-23.855	46.000	9.739	AV
11		8.998	35.101	25.265	-24.899	60.000	9.836	QP
12		8.998	29.115	19.279	-20.885	50.000	9.836	AV

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: TR1	Time: 2017/05/31
Limit: FCC_Part15.207_CE_AC Power	Margin: 0
Probe: ENV216-N	Polarity: Neutral
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV)	Factor (dB)	Type
1	*	0.166	52.595	42.995	-12.563	65.158	9.600	QP
2		0.166	41.379	31.779	-13.779	55.158	9.600	AV
3		0.218	45.486	35.883	-17.409	62.895	9.603	QP
4		0.218	34.609	25.006	-18.286	52.895	9.603	AV
5		0.470	41.251	31.629	-15.263	56.514	9.622	QP
6		0.470	26.059	16.437	-20.455	46.514	9.622	AV
7		2.282	30.320	20.636	-25.680	56.000	9.684	QP
8		2.282	18.357	8.673	-27.643	46.000	9.684	AV
9		3.418	35.167	25.448	-20.833	56.000	9.719	QP
10		3.418	22.764	13.045	-23.236	46.000	9.719	AV
11		3.934	33.382	23.650	-22.618	56.000	9.732	QP
12		3.934	23.205	13.472	-22.795	46.000	9.732	AV

Note:

1. " * ", means this data is the worst emission level.

2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

4. Emissions in restricted frequency bands

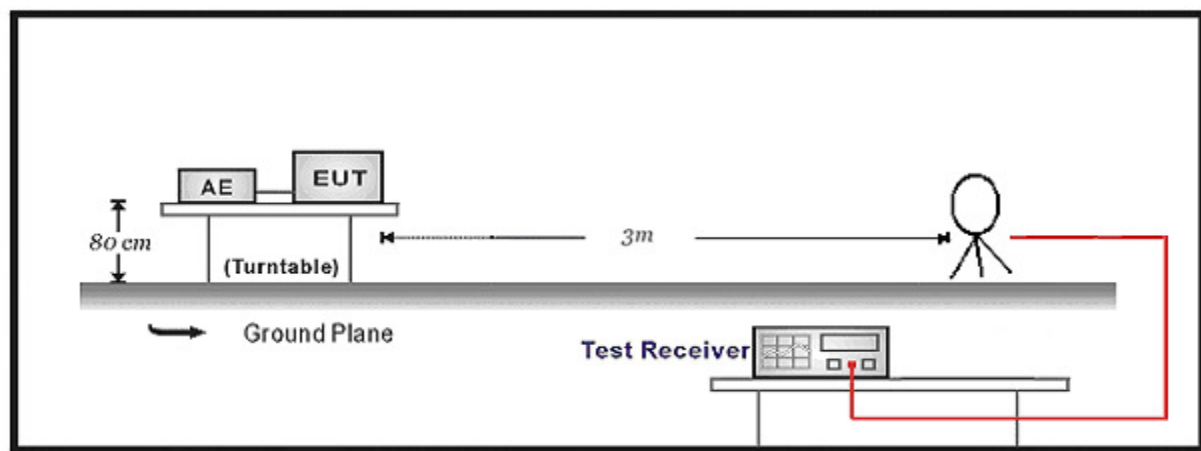
4.1. Test Equipment

Radiated Emission(Below 1GHz) / AC-2					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Test Receiver	R&S	ESCI	100573	2017.03.29	2018.03.28
Loop Antenna	R&S	HFH2-Z2	833799/003	2016.11.16	2017.11.15
Bilog Antenna	Teseq GmbH	CBL6112D	27611	2016.10.16	2017.10.15
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC2-C	2017.03.02	2018.03.01
Temperature/Humidity Meter	Zhichen	ZC1-2	AC2-TH	2017.01.04	2018.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

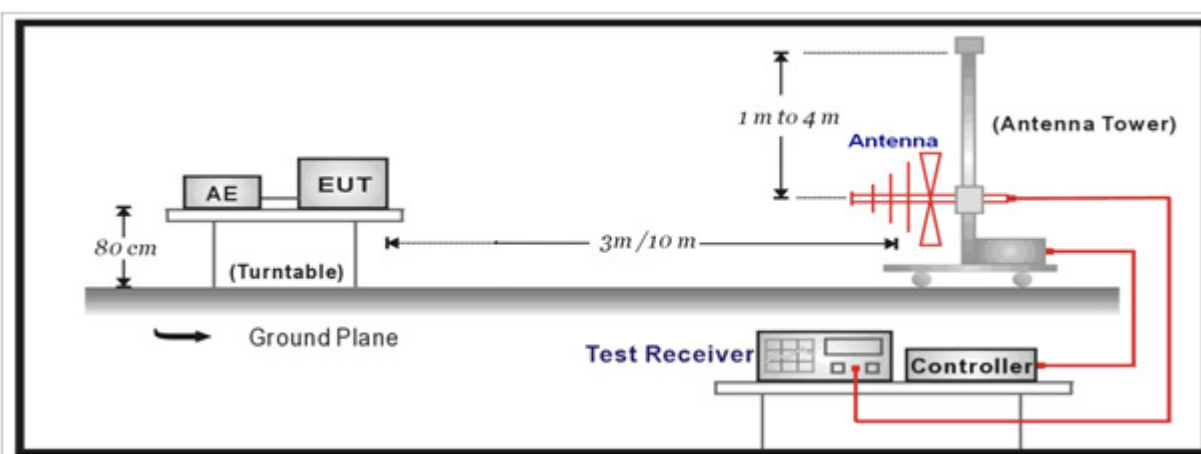
Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	E4446A	MY45300103	2017.01.04	2018.01.03
Preamplifier	Miteq	NSP1800-25	1364185	2016.05.06	2017.05.05
Preamplifier	QuieTek	AP-040G	CHM-0906001	2016.05.06	2017.05.05
DRG Horn	ETS-Lindgren	3117	00123988	2017.01.22	2018.01.21
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2016.11.25	2017.11.24
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.03.02	2018.03.01
Coaxial Cable	Huber+Suhner	SUCOFLEX 102	AC5-C3	2017.03.02	2018.03.01
EMI Receiver	Agilent	N9038A	MY51210196	2016.06.10	2017.06.09
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2017.01.04	2018.01.03
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

4.2. Test Setup

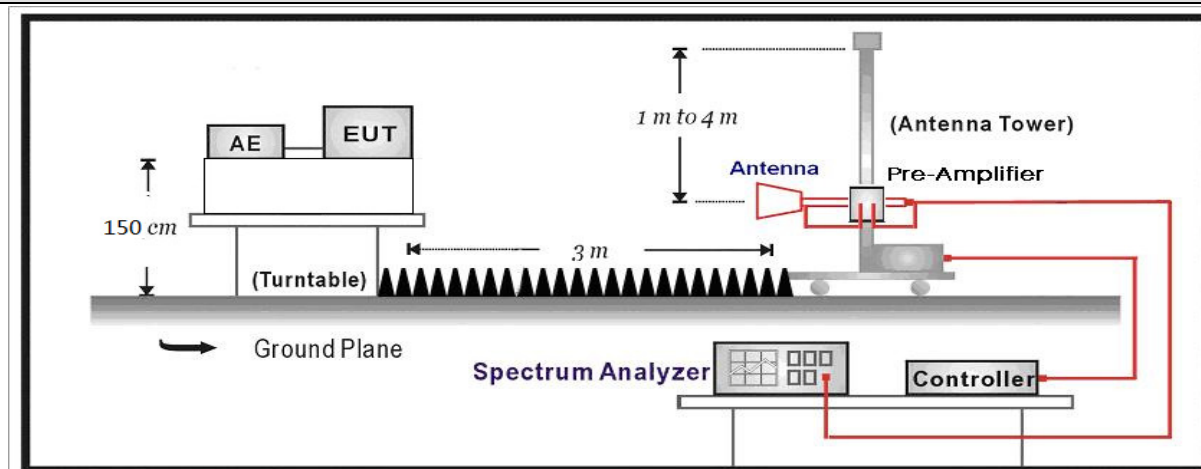
Below 30MHz Test Setup:



30MHz-1GHz Test Setup:



Above 1GHz Test Setup:



4.3. Limit

For FCC:

Restricted Bands of operation			
Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090 – 0.110	16.42 – 16.423	399.9 – 410	4.5 – 5.15
0.495 – 0.505	16.69475 – 16.69525	608 – 614	5.35 – 5.46
2.1735 – 2.1905	16.80425 – 16.80475	960 – 1240	7.25 – 7.75
4.125 – 4.128	25.5 – 25.67	1300 – 1427	8.025 – 8.5
4.17725 – 4.17775	37.5 – 38.25	1435 – 1626.5	9.0 – 9.2
4.20725 – 4.20775	73 – 74.6	1645.5 – 1646.5	9.3 – 9.5
6.215 – 6.218	74.8 – 75.2	1660 – 1710	10.6 – 12.7
6.26775 – 6.26825	108 – 121.94	1718.8 – 1722.2	13.25 – 13.4
6.31175 – 6.31225	123 – 138	2200 – 2300	14.47 – 14.5
8.291 – 8.294	149.9 – 150.05	2310 – 2390	15.35 – 16.2
8.362 – 8.366	156.52475 – 156.52525	2483.5 – 2500	17.7 – 21.4
8.37625 – 8.38675	156.7 – 156.9	2690 – 2900	22.01 – 23.12
8.81425 – 8.81475	162.0125 – 167.17	3260 – 3267	23.6 – 24.0
12.29 – 12.293	167.72 – 173.2	3332 – 3339	31.2 – 31.8
12.51975 – 12.52025	240 – 285	3345.8 – 3358	36.43 – 36.5
12.57675 – 12.57725	322 – 335.4	3600 – 4400	
13.36 – 13.41			

For IC:

Restricted Bands of operation

Frequency (MHz)	Frequency (MHz)	Frequency (MHz)	Frequency (GHz)
0.090-0.110	13.36-13.41	1645.5-1646.5	9.0-9.2
2.1735-2.1905	16.42-16.423	1660-1710	9.3-9.5
3.020-3.026	16.69475-16.69525	1718.8-1722.2	10.6-12.7
4.125-4.128	16.80425-16.80475	2200-2300	13.25-13.4
4.17725-4.17775	25.5-25.67	2310-2390	14.47-14.5
4.20725-4.20775	37.5-38.25	2655-2900	15.35-16.2
5.677-5.683	73-74.6	3260-3267	17.7-21.4
6.215-6.218	74.8-75.2	3332-3339	22.01-23.12
6.26775-6.26825	108-138	3345.8-3358	23.6-24.0
6.31175-6.31225	156.52475-156.52525	3500-4400	31.2-31.8
8.291-8.294	156.7-156.9	4500-5150	36.43-36.5
8.362-8.366	240-285	5350-5460	Above 38.6
8.37625-8.38675	322-335.4	7250-7750	
8.41425-8.41475	399.9-410	8025-8500	
12.29-12.293	608-614		
12.51975-12.52025	960-1427		
12.57675-12.57725	1435-1626.5		

Restricted Band Emissions Limit

Frequency
(MHz)

Field strength
(

4.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	6.4	Radiated emissions from unlicensed wireless devices below 30 MHz
☒	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

4.5. Uncertainty

The measurement uncertainty above 1G is defined as

4.6. Test Result

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	AC-5
Test Date	:	2017.05.12			

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
00	H	4808.000	46.013	5.520	51.533	54(Note3)	-2.467	PK
	V	4808.000	43.885	5.520	49.405	54(Note3)	-4.595	PK
	H	7206.000	37.153	8.827	45.980	54(Note3)	-8.020	PK
	V	7206.000	35.980	8.827	44.807	54(Note3)	-9.193	PK
	H	9608.000	35.886	10.425	46.311	54(Note3)	-7.689	PK
	V	9608.000	36.507	10.425	46.932	54(Note3)	-7.068	PK
39	H	4884.500	46.986	5.704	52.691	54(Note3)	-1.309	PK
	V	4884.500	44.918	5.704	50.623	54(Note3)	-3.377	PK
	H	7323.000	37.715	8.881	46.596	54(Note3)	-7.404	PK
	V	7323.000	37.037	8.881	45.918	54(Note3)	-8.082	PK
	H	9764.000	34.995	11.027	46.022	54(Note3)	-7.978	PK
	V	9764.000	35.982	11.027	47.009	54(Note3)	-6.991	PK
78	H	4961.000	43.546	5.849	49.395	54(Note3)	-4.605	PK
	V	4961.000	44.877	5.849	50.726	54(Note3)	-3.274	PK
	H	7443.000	38.265	8.857	47.122	54(Note3)	-6.878	PK
	V	7443.000	39.185	8.857	48.042	54(Note3)	-5.958	PK
	H	9920.000	34.402	11.183	45.585	54(Note3)	-8.415	PK
	V	9920.000	36.641	11.183	47.797	54(Note3)	-6.203	PK

Note 1: The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.

2: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

3: Measure Level = Reading Level + Factor.

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	AC-5
Test Date	:	2017.05.15			

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
00	H	4808.000	41.437	5.520	46.957	54(Note3)	-7.043	PK
	V	4808.000	41.097	5.520	46.617	54(Note3)	-7.608	PK
	H	7206.000	36.845	8.827	45.672	54(Note3)	-8.328	PK
	V	7206.000	37.565	8.827	46.392	54(Note3)	-7.608	PK
	H	9608.000	35.914	10.425	46.339	54(Note3)	-7.661	PK
	V	9608.000	35.831	10.425	46.256	54(Note3)	-7.744	PK
39	H	4876.000	41.643	5.820	47.463	54(Note3)	-6.537	PK
	V	4876.000	42.703	5.820	45.834	54(Note3)	-8.166	PK
	H	7323.000	36.995	8.881	45.876	54(Note3)	-8.124	PK
	V	7323.000	36.953	8.881	45.834	54(Note3)	-8.166	PK
	H	9764.000	35.561	11.027	46.588	54(Note3)	-7.412	PK
	V	9764.000	35.780	11.027	46.807	54(Note3)	-7.193	PK
78	H	4961.000	42.582	5.849	48.431	54(Note3)	-5.569	PK
	V	4961.000	40.623	5.849	46.472	54(Note3)	-7.528	PK
	H	7440.000	36.809	8.830	45.640	54(Note3)	-8.360	PK
	V	7440.000	36.868	8.830	45.699	54(Note3)	-8.301	PK
	H	9920.000	36.639	11.183	46.822	54(Note3)	-7.178	PK
	V	9920.000	35.007	11.183	46.190	54(Note3)	-7.810	PK

Note 1: The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.

2: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

3: Measure Level = Reading Level + Factor.

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	AC-5
Test Date	:	2017.05.15			

CH	Antenna	Frequency (MHz)	Reading Level (dBuV/m)	Factor (dB)	Measure Level (dBuV/m)	Limit (dBuV/m)	Over Limit (dB)	Detector
00	H	4808.000	44.013	5.520	49.533	54(Note3)	-4.467	PK
	V	4808.000	40.138	5.520	45.841	54(Note3)	-8.159	PK
	H	7206.000	36.612	8.827	45.439	54(Note3)	-8.561	PK
	V	7206.000	37.014	8.827	45.841	54(Note3)	-8.159	PK
	H	9608.000	36.261	10.425	46.686	54(Note3)	-7.314	PK
	V	9608.000	35.457	10.425	45.882	54(Note3)	-8.118	PK
39	H	4876.000	44.781	5.820	50.601	54(Note3)	-3.399	PK
	V	4876.000	44.718	5.820	50.538	54(Note3)	-6.981	PK
	H	7323.000	36.350	8.881	45.231	54(Note3)	-8.769	PK
	V	7323.000	38.138	8.881	47.019	54(Note3)	-6.981	PK
	H	9764.000	35.214	11.027	46.241	54(Note3)	-7.759	PK
	V	9764.000	35.716	11.207	46.743	54(Note3)	-7.257	PK
78	H	4961.000	40.193	5.849	46.042	54(Note3)	-8.401	PK
	V	4960.000	36.486	5.855	42.340	54(Note3)	-1.660	PK
	H	7440.000	36.768	8.830	45.599	54(Note3)	-8.401	PK
	V	7440.000	36.874	8.830	45.705	54(Note3)	-8.295	PK
	H	9920.000	35.587	11.183	46.770	54(Note3)	-7.230	PK
	V	9920.000	35.232	11.183	46.415	54(Note3)	-7.585	PK

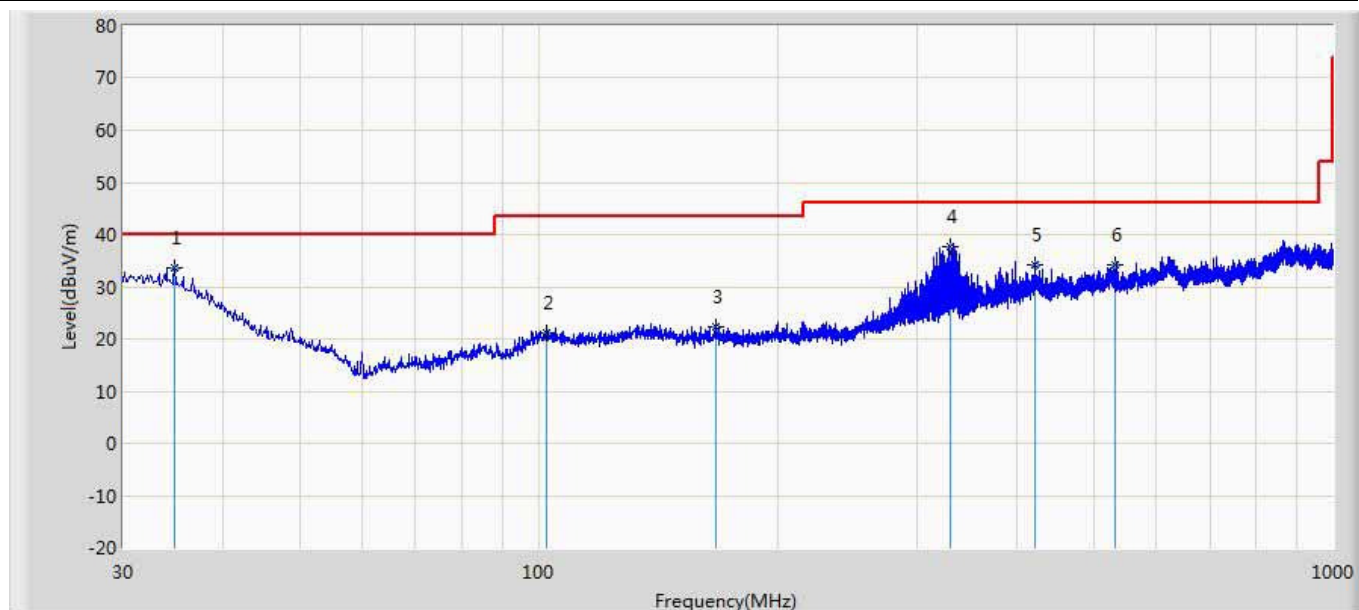
Note 1: The test frequency range, 9kHz~30MHz, 18GHz~25GHz, both of the worst case are at least 20dB below the limits, therefore no data appear in the report.

2: This limit applies for using average detector, if the test result on peak is lower than average limit, then average measurement needn't be performed.

3: Measure Level = Reading Level + Factor.

The worst case of Radiated Emission below 1GHz:

Site: AC2	Time: 2017/05/31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_(30-1G)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	

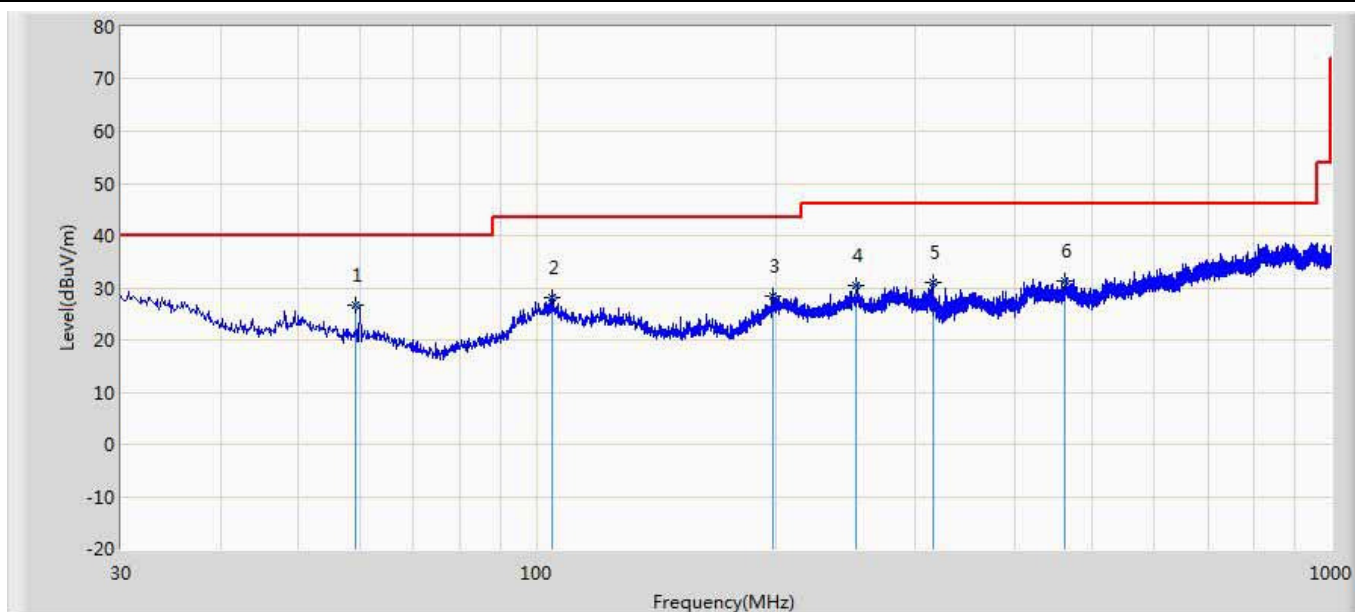


No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	34.812	33.545	6.200	-6.455	40.000	27.345	QP
2		102.481	21.286	4.200	-22.214	43.500	17.086	QP
3		167.121	22.415	4.900	-21.085	43.500	17.515	QP
4		329.540	37.722	14.900	-8.278	46.000	22.822	QP
5		420.841	34.266	7.100	-11.734	46.000	27.166	QP
6		532.250	34.306	6.300	-11.694	46.000	28.006	QP

Note:

1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

Site: AC2	Time: 2017/05/31
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: AC2_(30-1G)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1: Transmit at 2402MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	59.100	26.662	10.100	-13.338	40.000	16.562	QP
2		104.600	28.195	5.800	-15.305	43.500	22.394	QP
3		198.112	28.418	5.300	-15.082	43.500	23.118	QP
4		252.890	30.303	5.700	-15.697	46.000	24.603	QP
5		315.456	30.924	7.400	-15.076	46.000	23.524	QP
6		463.250	31.374	4.800	-14.626	46.000	26.574	QP

Note:

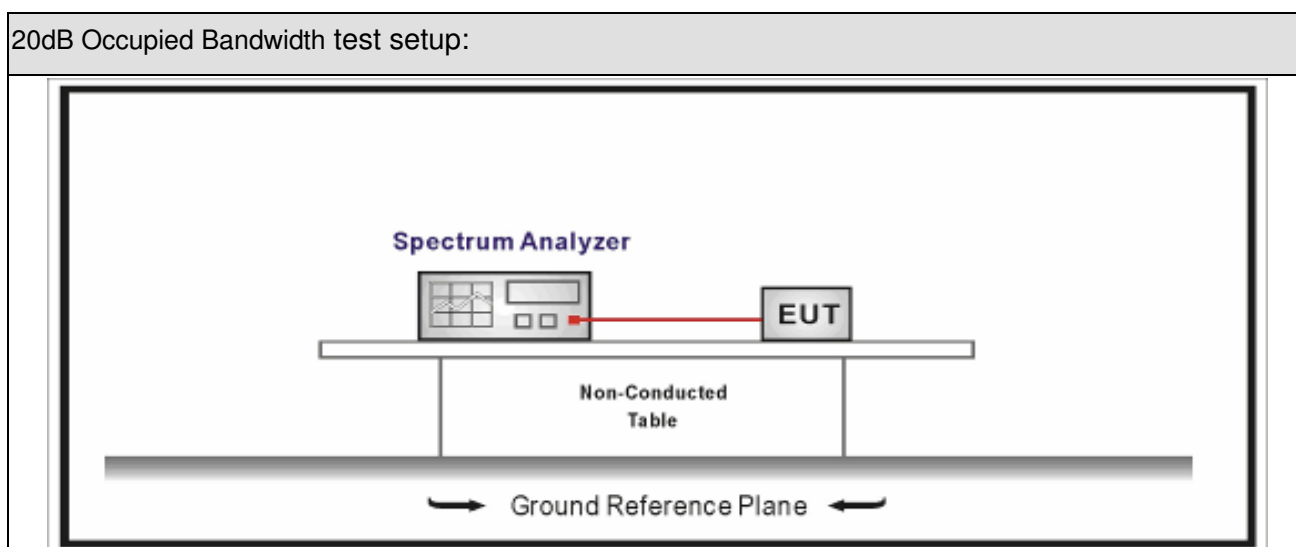
1. " * ", means this data is the worst emission level.
2. Measurement Level = Reading Level + Factor(Probe+Cable-Amp).

5. 20dB Bandwidth

5.1 Test Equipment

20dB Occupied Bandwidth / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

5.2 Test Setup



5.3 Limit

Carrier Frequency Separation	
☒	For frequency hopping systems operating in 2400-2483.5 MHz band, within frequency range.
☐	For frequency hopping systems operating in 902-928 MHz band, the maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	For frequency hopping systems operating in 5725-5850 MHz band, the maximum 20 dB bandwidth of the hopping channel is 1 MHz.

5.4 Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	DA 00-705	N/A	20 dB Bandwidth

5.5 Uncertainty

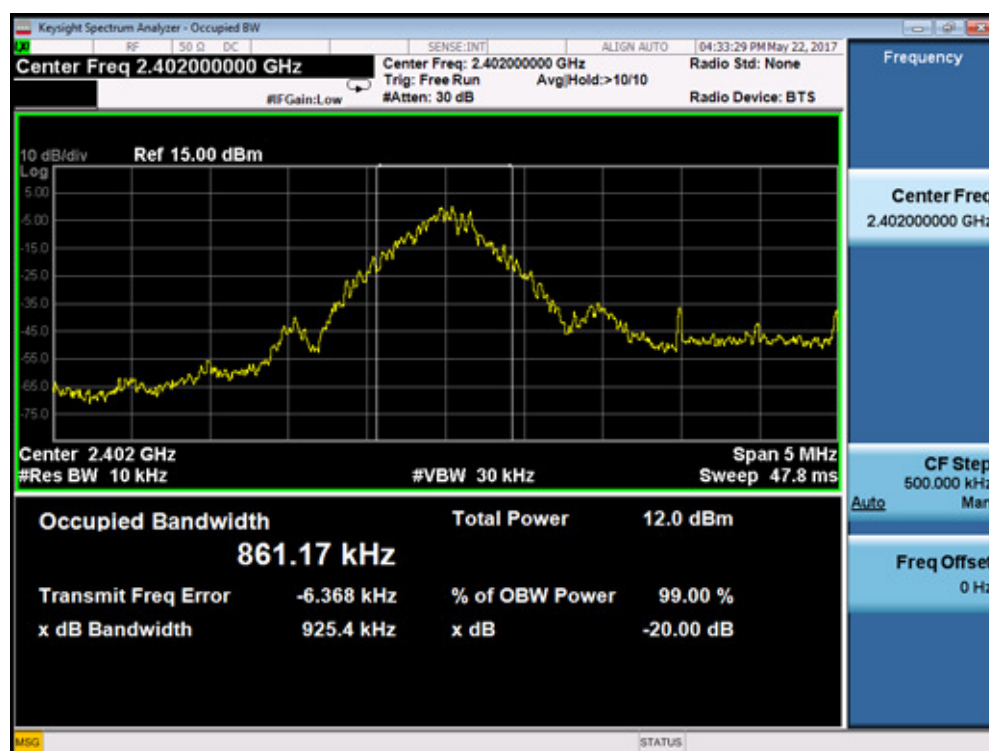
The measurement uncertainty is defined as

5.6 Test Result

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2017.04.25			

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	925.40	861.17
39	2441	861.08	926.30
78	2480	863.77	925.50

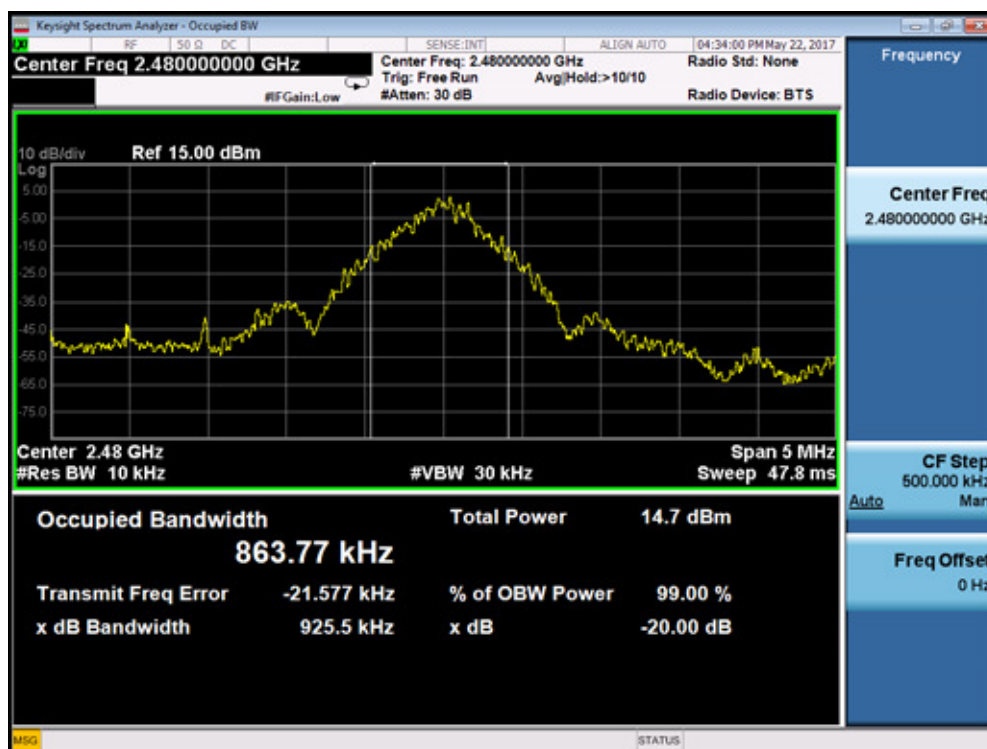
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



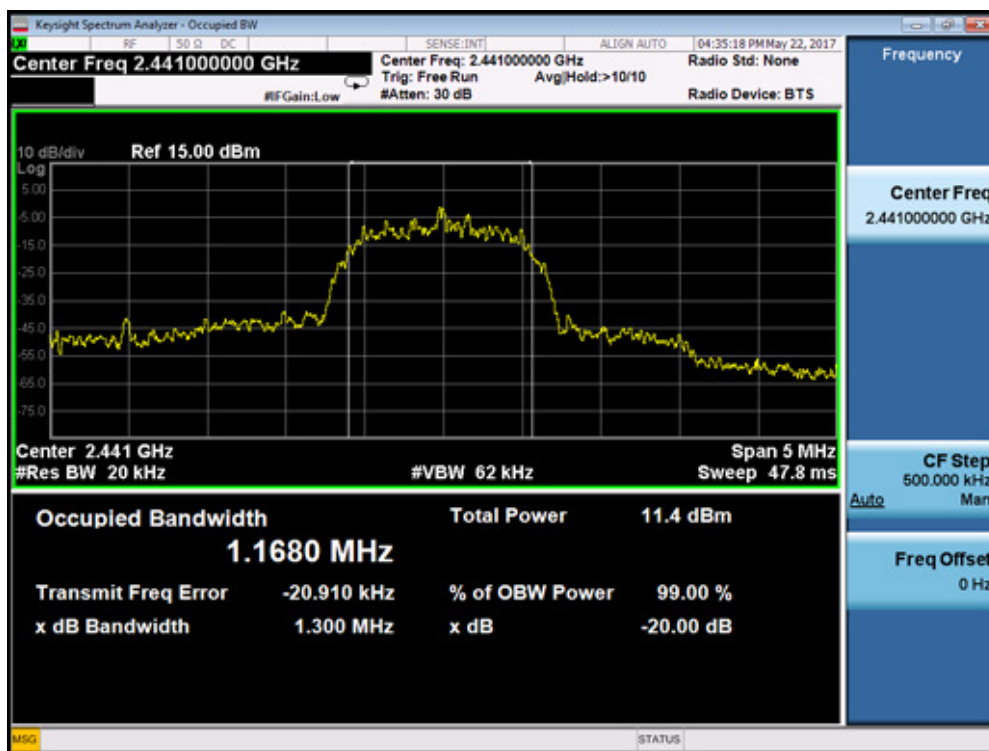
Product Name	: Bluetooth headset	Power	: AC 120V/60Hz
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2017.04.25		

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1177	1265
39	2441	1300	1168
78	2480	1299	1170.2

Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



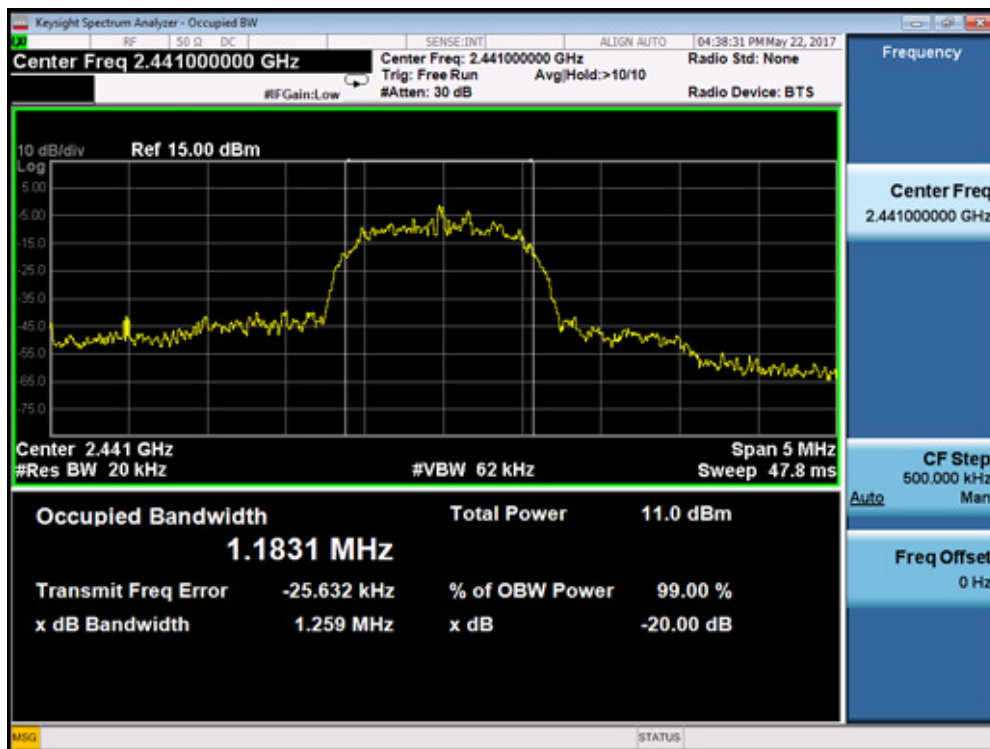
Product Name	: Bluetooth headset	Power	: AC 120V/60Hz
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2017.04.25		

Channel No.	Frequency (MHz)	20dB Bandwidth (kHz)	99% Bandwidth (kHz)
00	2402	1280	1188.7
39	2441	1259	1183.1
78	2480	1267	1178.7

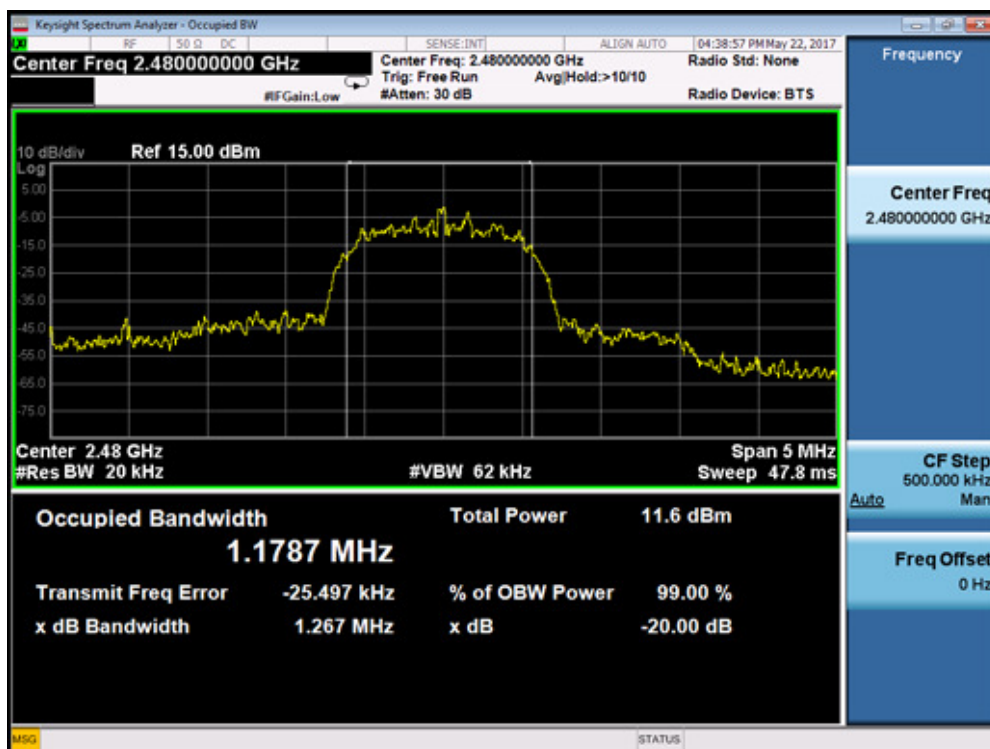
Channel 00 (2402MHz)



Channel 39 (2441MHz)



Channel 78 (2480MHz)



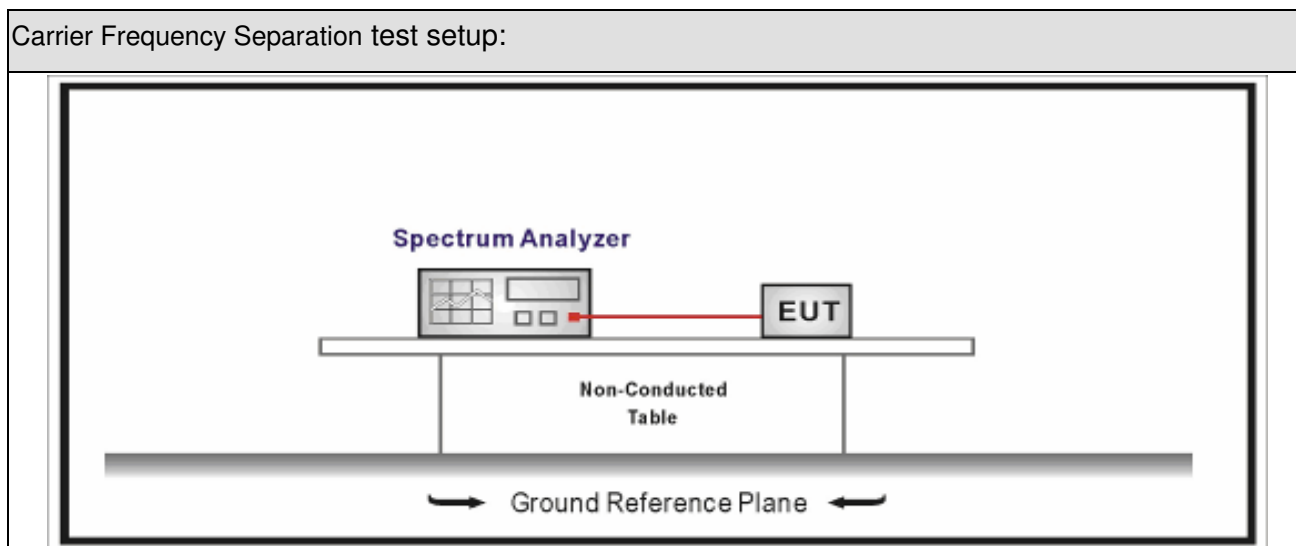
6. Carrier Frequency Separation

6.1. Test Equipment

Carrier Frequency Separation / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

6.2. Test Setup



6.3. Limit

Carrier Frequency Separation	
☐	Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel.
☐	The 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period;
☐	The 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period. The maximum allowed 20 dB bandwidth of the hopping channel is 500 kHz.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz.

6.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.2	Carrier frequency separation

6.5. Uncertainty

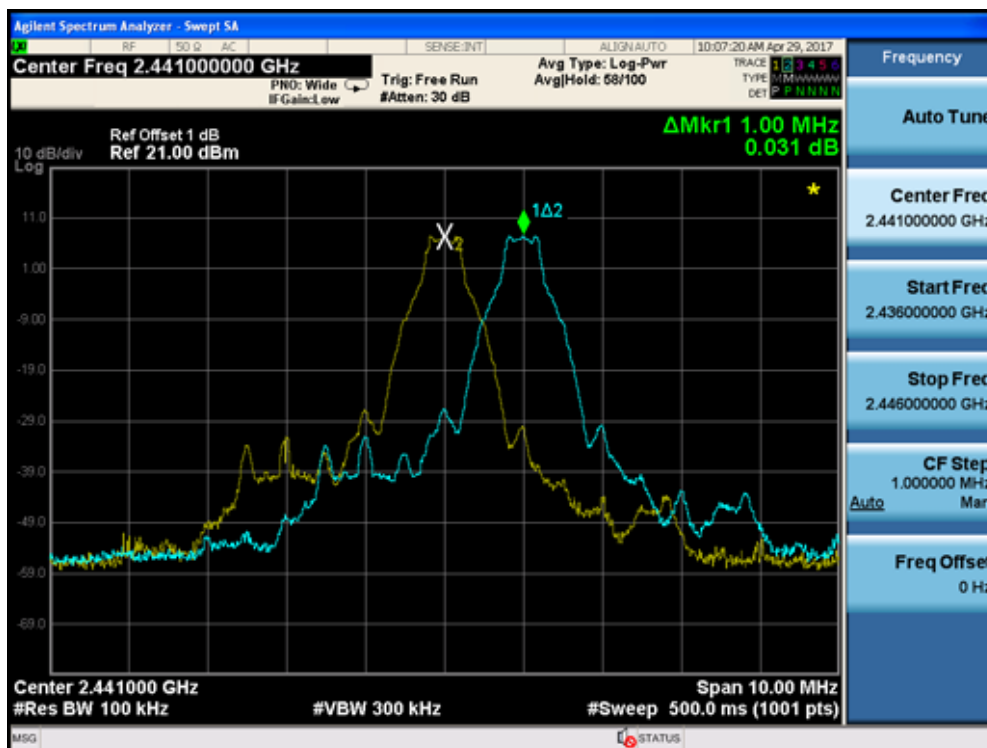
The measurement uncertainty is defined as

6.6. Test Result

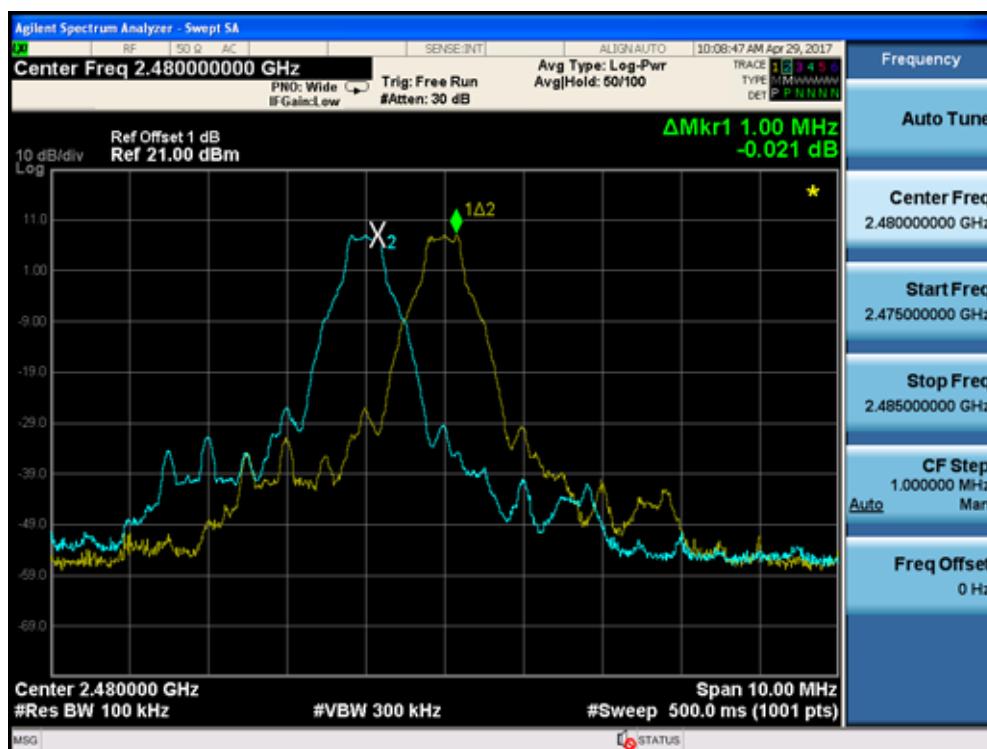
Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2017.04.29			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	574	

Channel 39 (2441MHz)



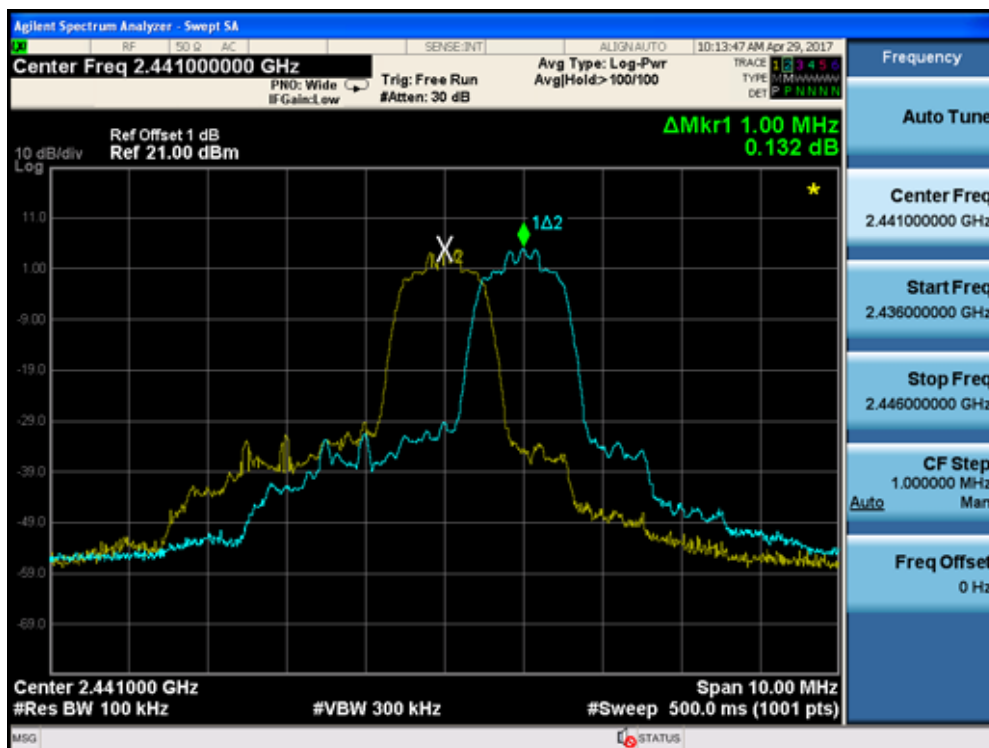
Channel 78 (2480MHz)



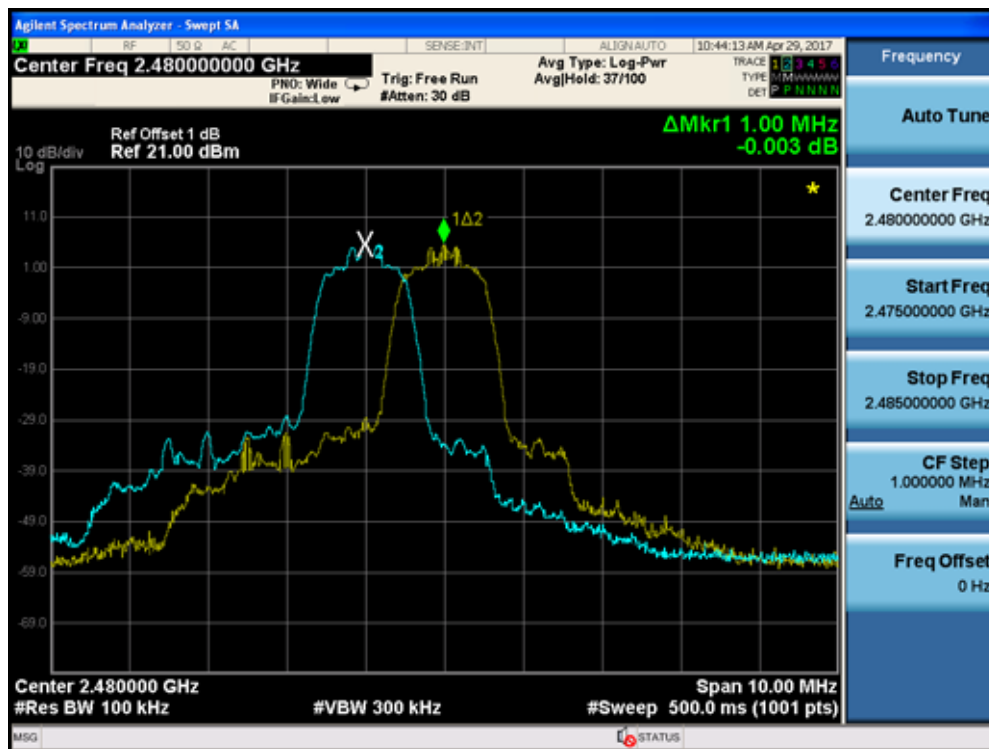
Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2017.04.29			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	843	

Channel 39 (2441MHz)



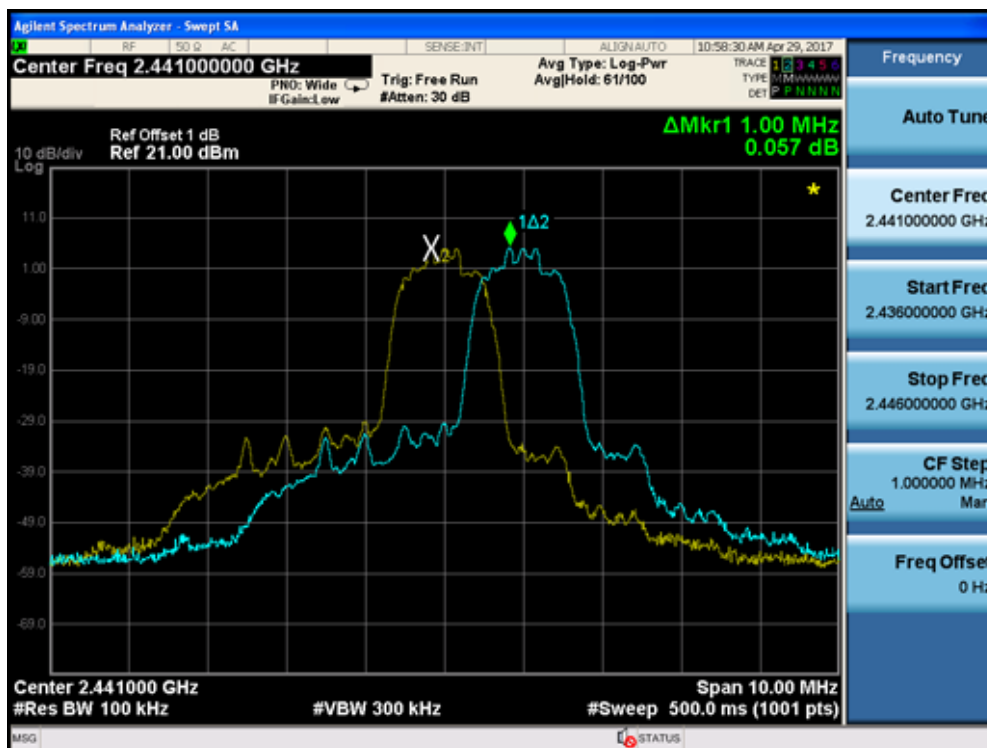
Channel 78 (2480MHz)



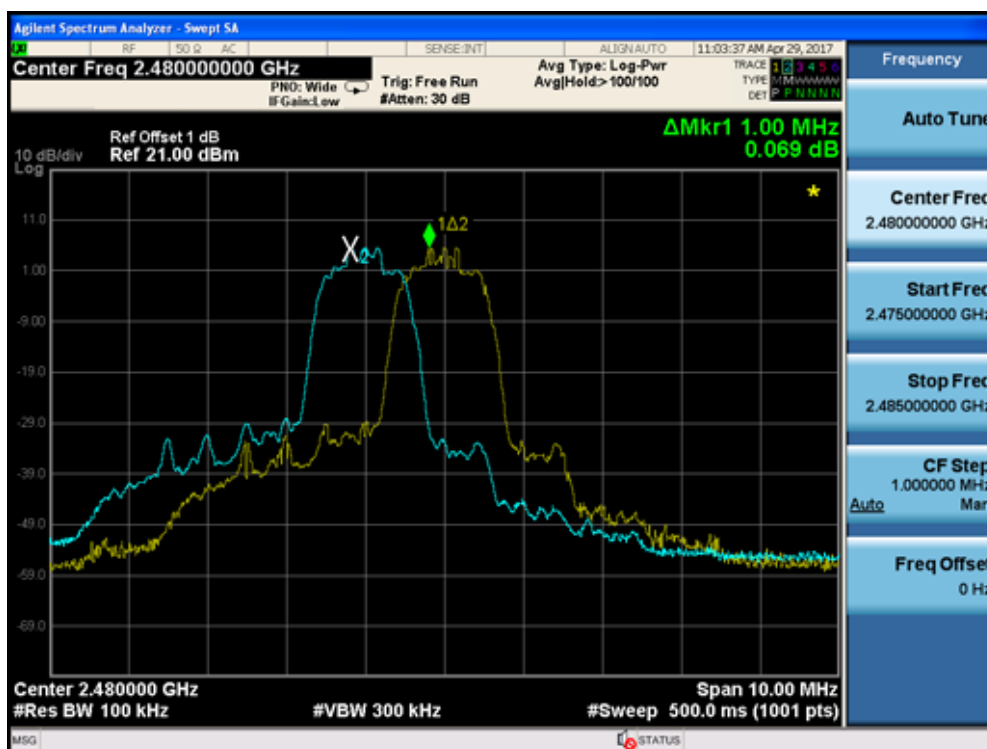
Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2017.04.29			

Channel No.	Frequency (MHz)	Carrier Frequency Separation (kHz)	Limit (kHz)	Result
00	2402	1000	792	

Channel 39 (2441MHz)



Channel 78 (2480MHz)

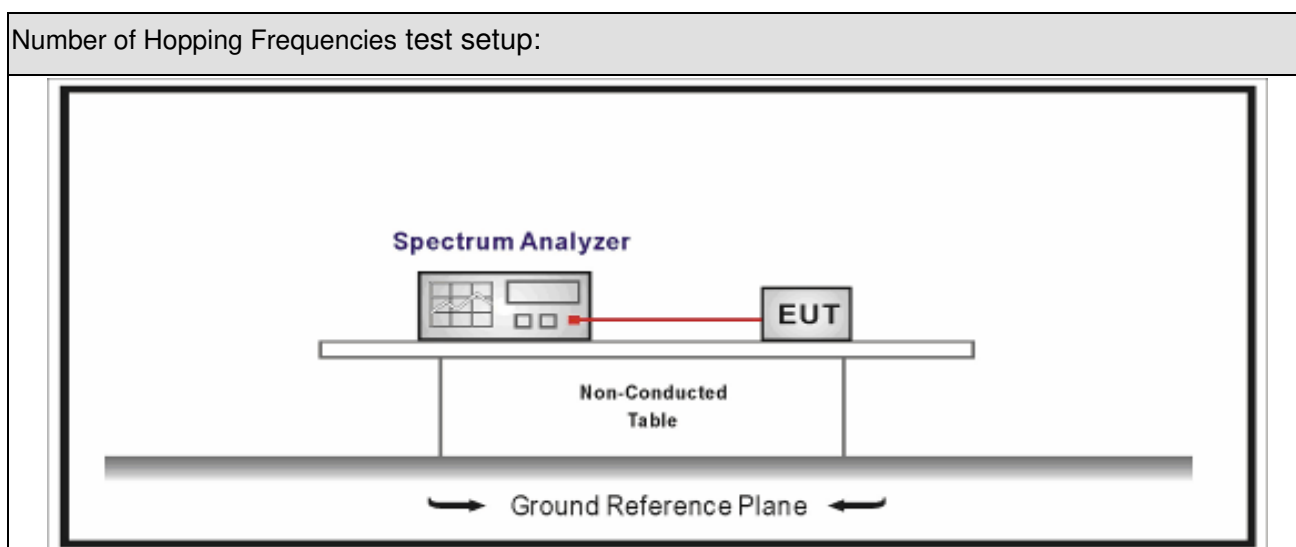


7. Number of Hopping Frequencies

7.1. Test Equipment

Number of Hopping Frequencies / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

7.2. Test Setup



7.3. Limit

Carrier Frequency Separation	
☒	For frequency hopping systems operating in the 2400-2483.5 MHz band shall use at least 15 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is less than 250 kHz, shall use at least 50 hopping frequencies.
☐	For frequency hopping systems operating in 902-928 MHz band, if the 20 dB bandwidth of the hopping channel is higher than 250 kHz, shall use at least 25 hopping frequencies.
☐	For frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies.

7.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.3	Number of Hopping Frequencies

7.5. Uncertainty

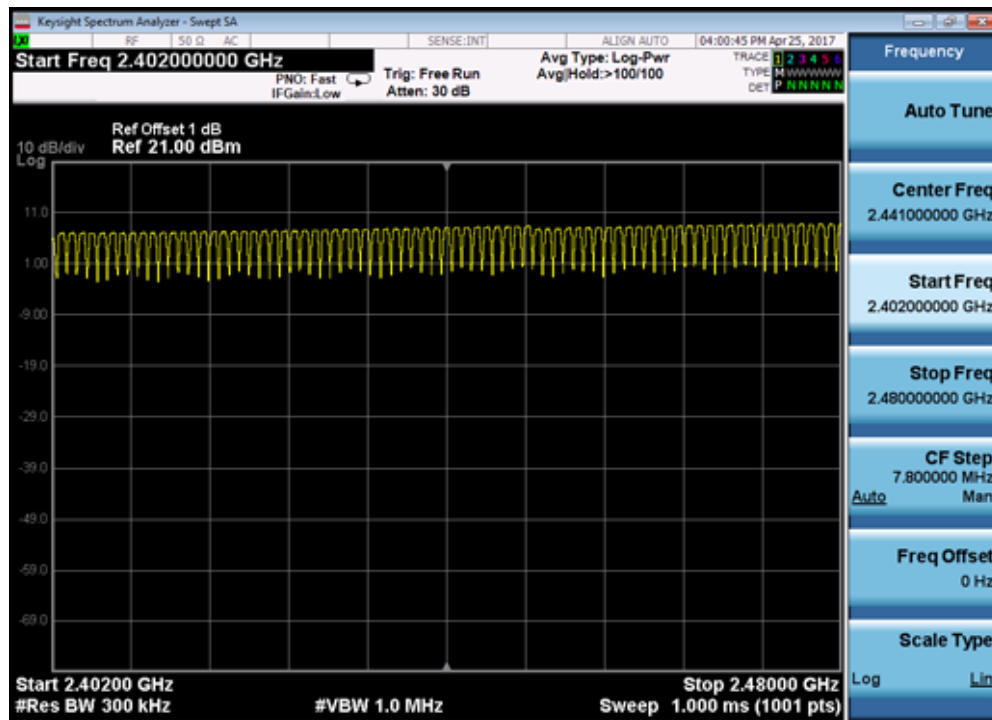
The measurement uncertainty is defined as

7.6. Test Result

Product Name	: Bluetooth headset	Power	: AC 120V/60Hz
Test Mode	: Mode 1	Test Site	: TR-8
Test Date	: 2017.04.25		

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

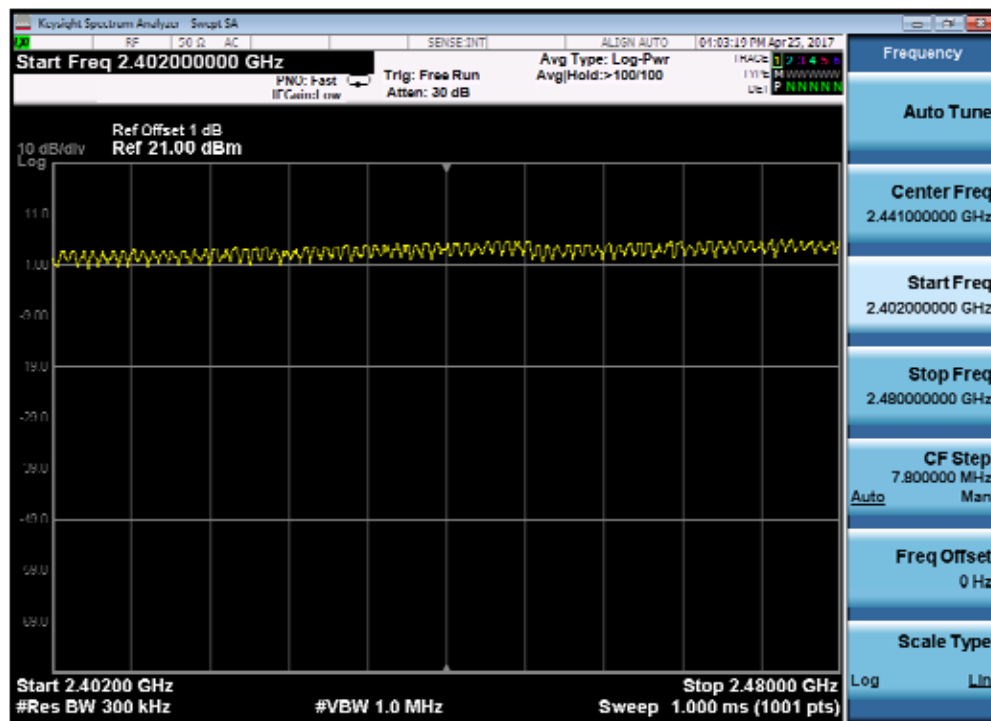
2402 - 2480MHz



Product Name	: Bluetooth headset	Power	: AC 120V/60Hz
Test Mode	: Mode 2	Test Site	: TR-8
Test Date	: 2017.04.29		

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

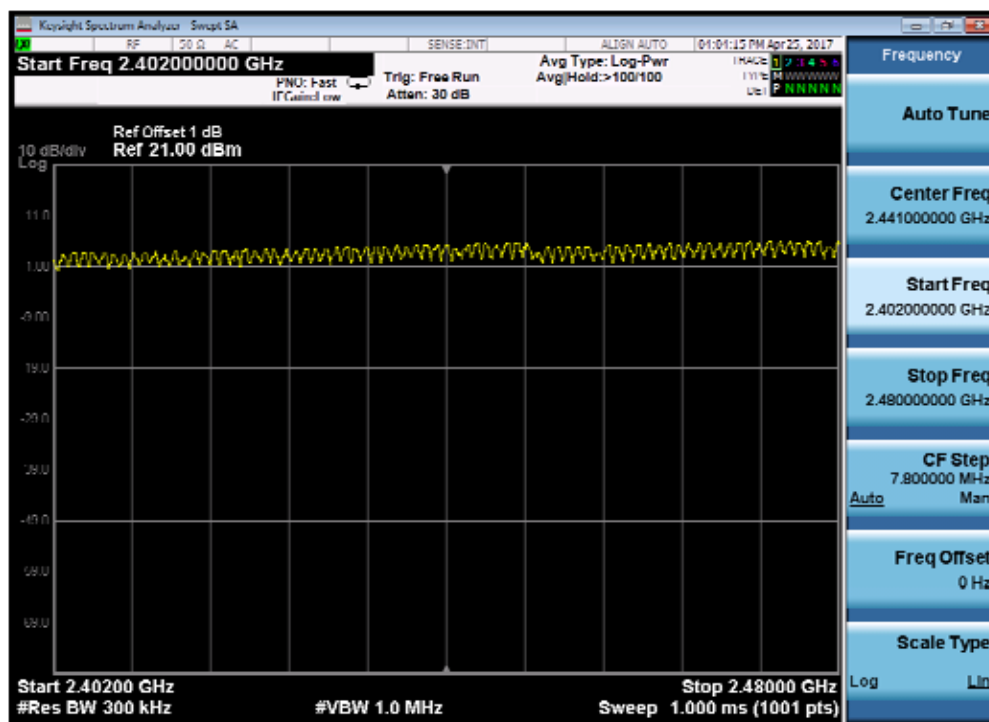
2402 - 2480 MHz



Product Name	: Bluetooth headset	Power	: AC 120V/60Hz
Test Mode	: Mode 3	Test Site	: TR-8
Test Date	: 2017.04.29		

Frequency Band (MHz)	Number of Hopping Frequencies	Limit	Result
2400 - 2483.5	79	>15	Pass

2402 - 2480 MHz

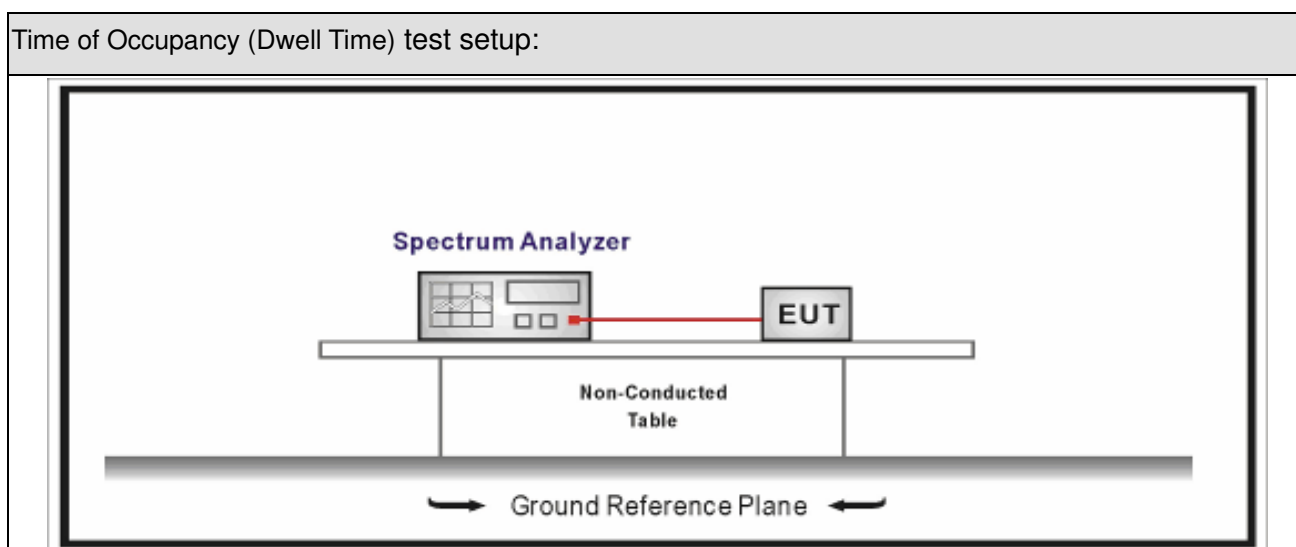


8. Time of Occupancy (Dwell Time)

8.1. Test Equipment

Time of Occupancy (Dwell Time) / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

8.2. Test Setup



8.3. Limit

Carrier Frequency Separation	
☒	Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is less than 250 kHz, the system shall use at least 50 hopping frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 20 second period
☐	For frequency hopping systems operating in the 902-928 MHz band: if the 20 dB bandwidth of the hopping channel is 250 kHz or greater, the system shall use at least 25 hopping

	frequencies and the average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 10 second period.
☐	Frequency hopping systems operating in the 5725-5850 MHz band shall use at least 75 hopping frequencies. The maximum 20 dB bandwidth of the hopping channel is 1 MHz. The average time of occupancy on any frequency shall not be greater than 0.4 seconds within a 30 second period.

8.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.4	Time of Occupancy (Dwell Time)

8.5. Uncertainty

The measurement uncertainty is defined as

8.6. Test Result

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2017.04.29			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	307.2	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy= pulse

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2017.04.29			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	307.2	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{sec}$

Note2: Time of Occupancy= pulse

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2017.04.29			

Channel No.	Frequency (MHz)	Time of Occupancy (ms)	Limit (ms)	Result
39	2441	307.2	< 400	Pass

Note1: Test Time Period: $0.4 \times 79 = 31.6 \text{ sec}$

Note2: Time of Occupancy= pulse

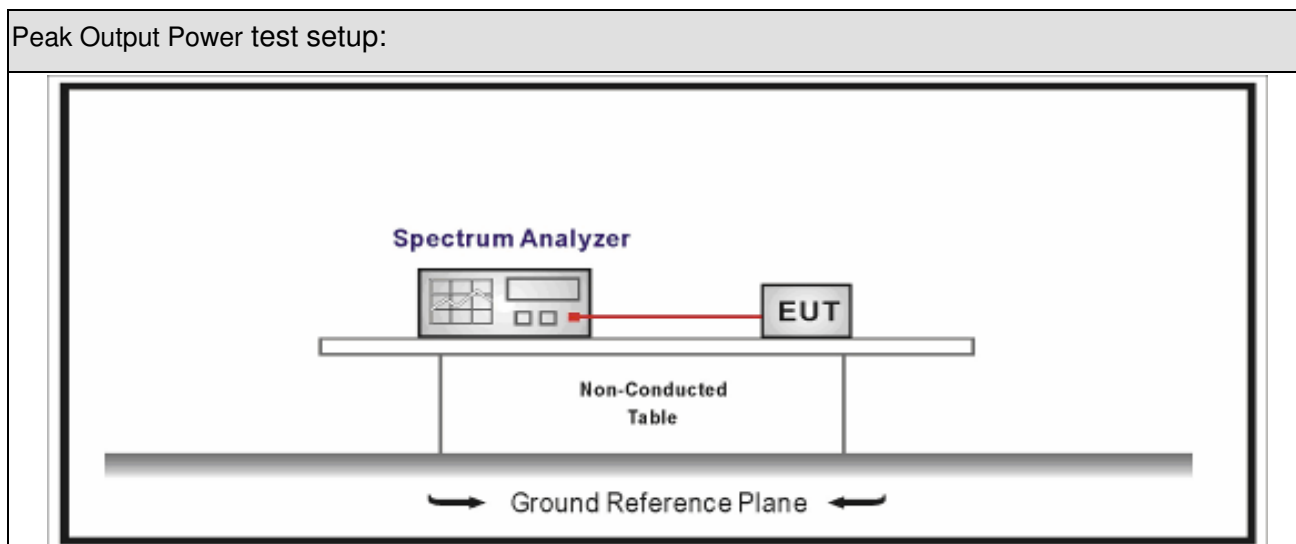
9. Peak Output Power

9.1. Test Equipment

Peak Output Power / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09

Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.

9.2. Test Setup



9.3. Limit

Peak Output Power	
☐	Frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.
☒	Frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.
☐	For frequency hopping systems operating in the 902-928 MHz band: 1 watt for systems employing at least 50 hopping channels; and, 0.25 watts for systems employing less than 50 hopping channels, but at least 25 hopping channels

9.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.5	Output power test procedure for frequency-hopping spread-spectrum (FHSS) devices

9.5. Uncertainty

The measurement uncertainty is defined as

9.6. Test Result

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1	Test Site	:	TR-8
Test Date	:	2017.04.25			

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	6.08	21.00	Pass
39	2441	7.68	21.00	Pass
78	2480	8.39	21.00	Pass

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 2	Test Site	:	TR-8
Test Date	:	2017.04.25			

Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	3.91	21.00	Pass
39	2441	6.26	21.00	Pass
78	2480	6.97	21.00	Pass

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 3	Test Site	:	TR-8
Test Date	:	2017.04.25			

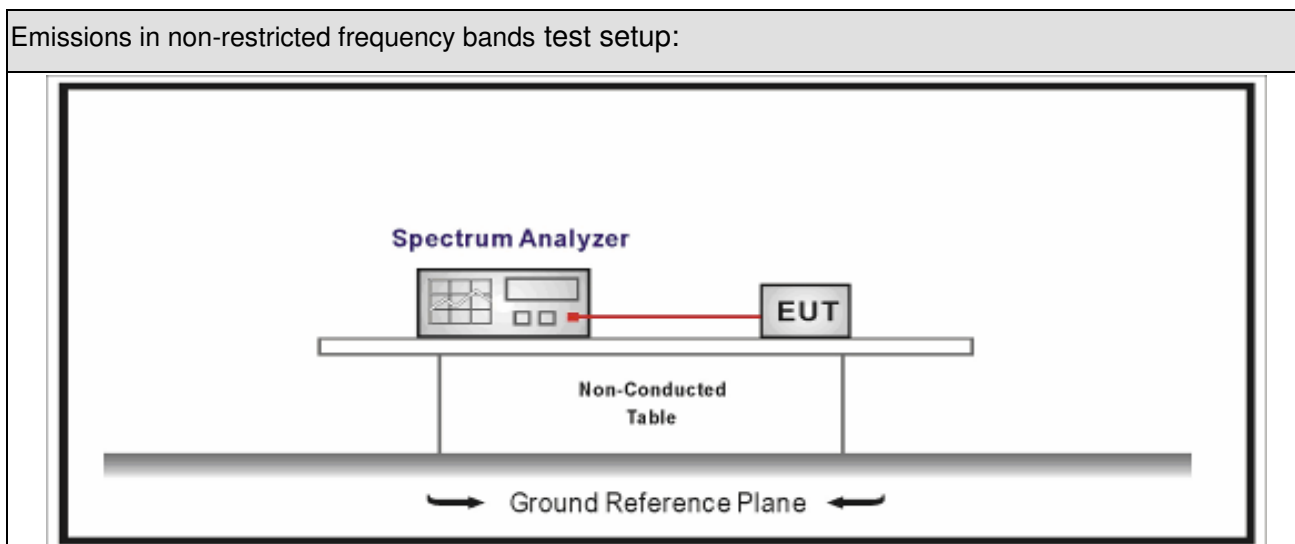
Channel No.	Frequency (MHz)	Measurement Power Output (dBm)	Limit (dBm)	Result
00	2402	4.11	21.00	Pass
39	2441	6.52	21.00	Pass
78	2480	7.23	21.00	Pass

10. Emissions in non-restricted frequency bands

10.1. Test Equipment

Emissions in non-restricted frequency bands / TR-8					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
Spectrum Analyzer	Agilent	N9010A	MY48030494	2017.02.04	2018.02.03
EXA Spectrum Analyzer	Keysight	N9010A	MY55370495	2017.04.09	2018.04.08
MXA Signal Analyzer	Keysight	N9020A	MY56060147	2017.04.09	2018.04.08
Temperature/Humidity Meter	zhichen	ZC1-2	TR8-TH	2017.04.10	2018.04.09
Note: All equipments are calibrated with traceable calibrations. Each calibration is traceable to the national or international standards.					

10.2. Test Setup



10.3. Limit

Un-Restricted Band Emissions Limit	
RF Output power (Detection methods)	Limit(dB)
RF Output power(Average detector)	30c(Note1)
RF Output power(PK detector)	20c(Note2)
Note 1: If maximum conducted (average) output power was used to demonstrate compliance as described in 9.2, then the peak power in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 30 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 30 dBc). Note 2: If the maximum peak conducted output power procedure was used, then the peak output power measured in any 100 kHz bandwidth outside of the authorized frequency band shall be attenuated by at least 20 dB relative to the maximum in-band peak PSD level in 100 kHz (i.e., 20 dBc).	

10.4. Test Procedure

Test Method			
	References Rule	Chapter	Description
☒	ANSI C63.10	7.8.6	Band-edge Compliance of RF Conducted Emissions

10.5. Uncertainty

The measurement uncertainty is defined as

10.6. Test Result

Product Name	:	Bluetooth headset	Power	:	AC 120V/60Hz
Test Mode	:	Mode 1~4	Test Site	:	TR-8
Test Date	:	2017.05.31			

Mode	Channel	Test Frequency (MHz)	In-Band PSD[a] (dBm/100kHz)	Frequency (MHz)	Out-Band PSD[b] (dBm/100kHz)	[a]-[b] (dB)	Limit (dB)	Result
1	00	2402	5.755	2400.00	-48.028	53.783		

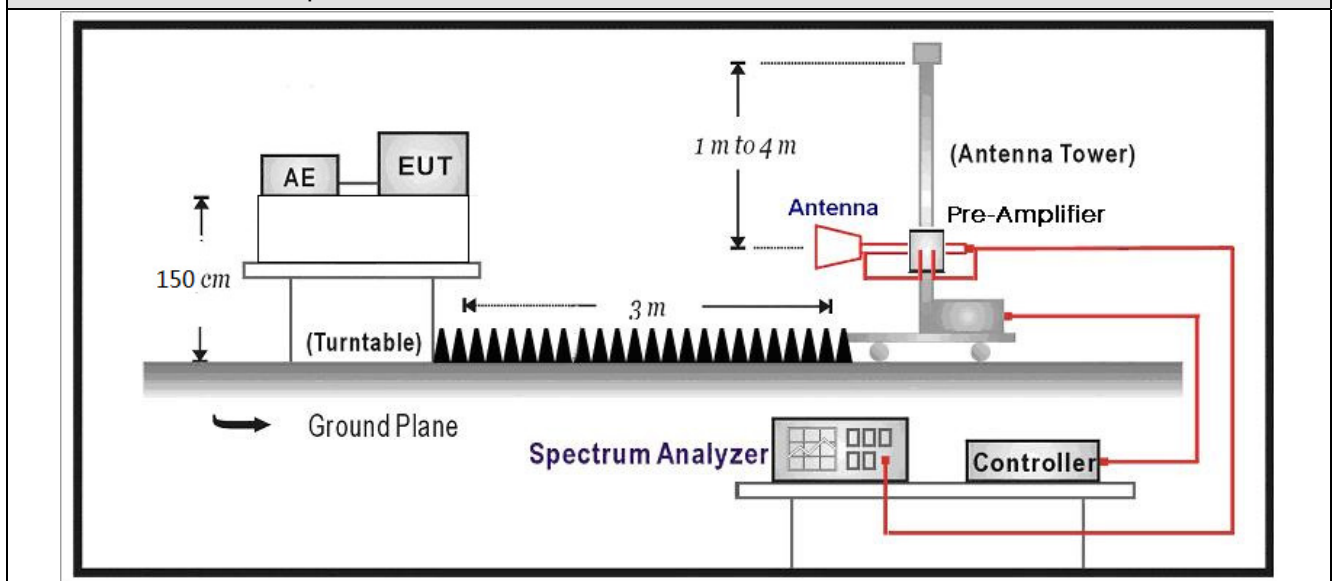
11. Radiated Emission Band Edge

11.1. Test Equipment

Radiated Emission(Above 1GHz) / AC-5					
Instrument	Manufacturer	Type No.	Serial No.	Cal. Date	Cal. Due Date
EMI Receiver	Agilent	N9038A	MY51210196	2016.07.16	2017.07.15
Pre-Amplifier	Miteq	NSP1800-25	1364185	2017.05.03	2018.05.02
DRG Horn Antenna	ETS-Lindgren	3117	00167055	2016.07.12	2017.07.11
Broad-Band Horn Antenna	Schwarzbeck	BBHA9170	294	2016.09.18	2017.09.17
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C1	2017.02.28	2018.02.27
Coaxial Cable	Huber+Suhner	SUCOFLEX 106	AC5-C2	2017.02.28	2018.02.27
Temperature/Humidity Meter	Zhichen	ZC1-2	AC5-TH	2017.01.05	2018.01.04

11.2. Test Setup

Above 1GHz Test Setup:



11.3. Limit

Band edge Limit

Frequency bands (MHz)	Detector	Limit (dB)
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☐	ANSI C63.10	6.5	Radiated emissions from unlicensed wireless devices in the frequency range of 30 MHz to 1000 MHz
☒	ANSI C63.10	6.6	Radiated emissions from unlicensed wireless devices above 1 GHz

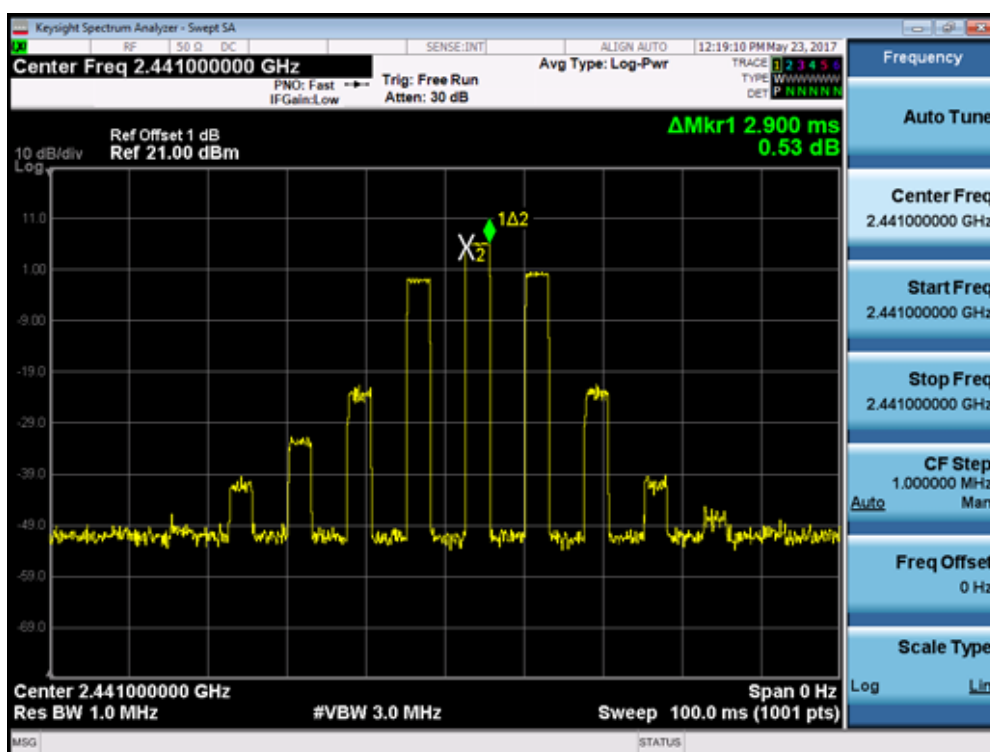
11.5. Uncertainty

The measurement uncertainty above 1G is defined as

11.6. Duty Factor

Test Mode	Pluse Time (ms)	Pluse Number	Accumulated Transmit Time (ms)	Duty Factor (dB)
Mode 4	2.9	1	2.9	-30.75

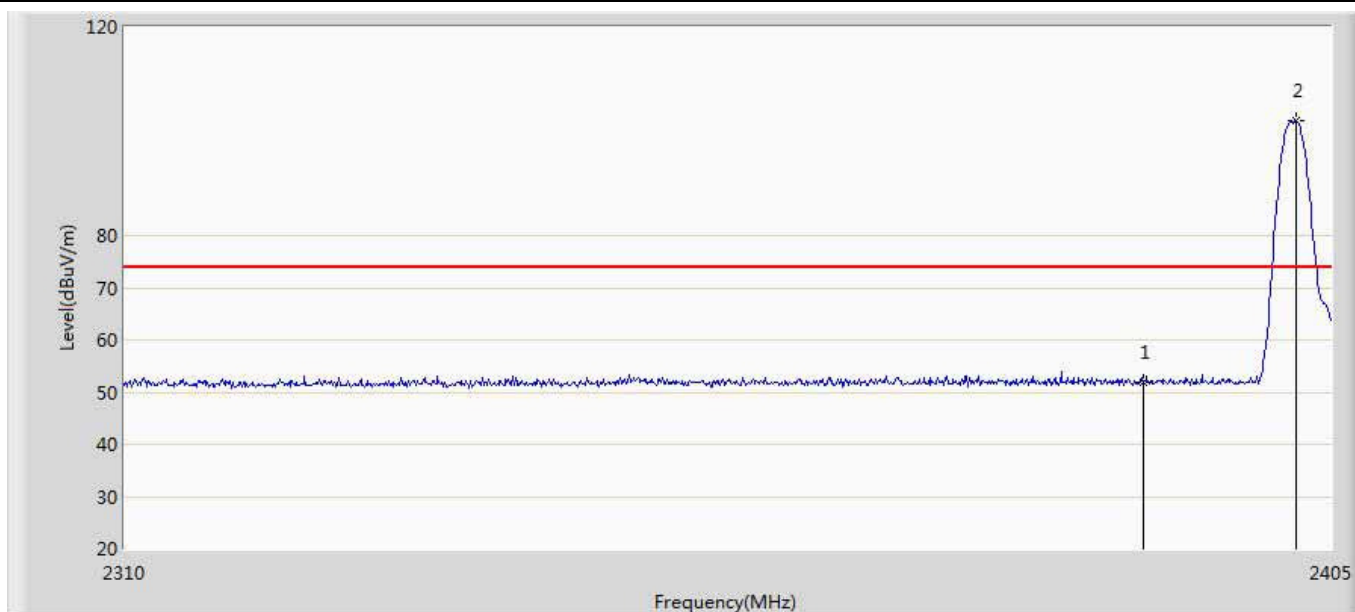
Pulse Number



Note: Duty Factor = $20\log(\text{Accumulated Transmit Time} / 100\text{ms})$

11.7. Test Result

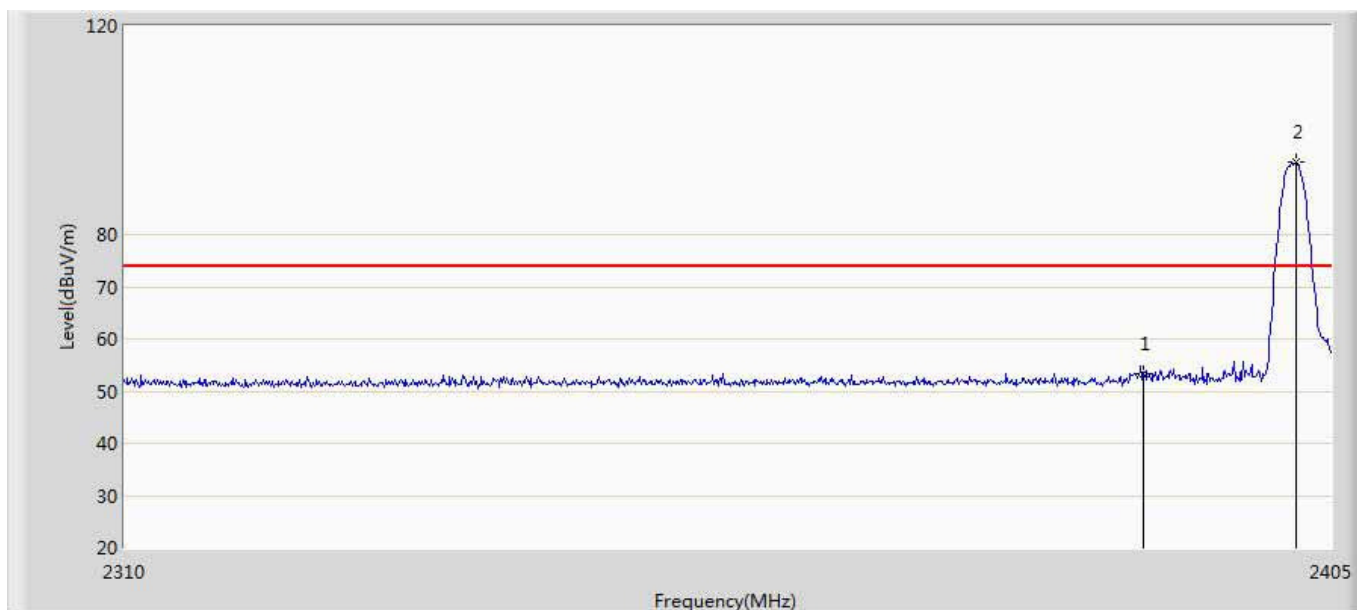
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 18:37
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.944	15.614	-22.056	74.000	36.329	PK
2	*	2402.245	101.921	65.592	27.921	74.000	36.329	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	21.192	51.944	-32.808	54	-30.752	AV
2	*	2402.245	71.169	101.921	17.169	54	-30.752	AV

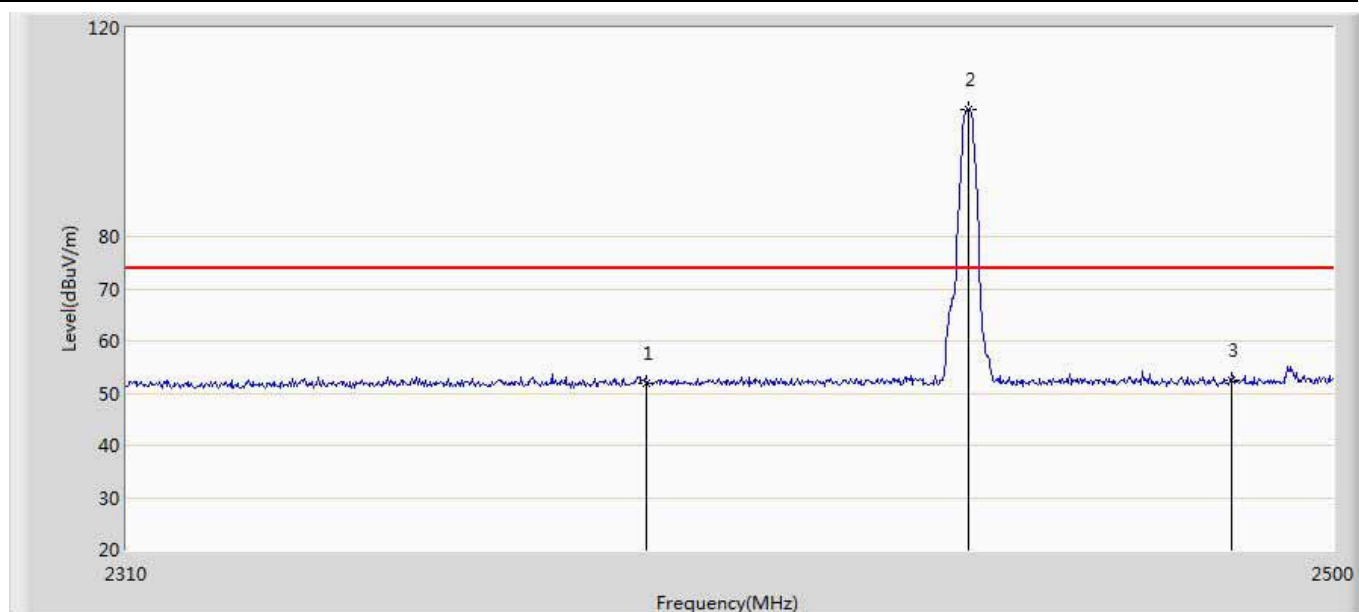
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 18:40
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2402MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.414	17.084	-20.586	74.000	36.329	PK
2	*	2402.150	93.791	57.462	19.791	74.000	36.329	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	22.662	53.414	-31.338	54	-30.752	AV
2	*	2402.150	63.039	93.791	9.039	54	-30.752	AV

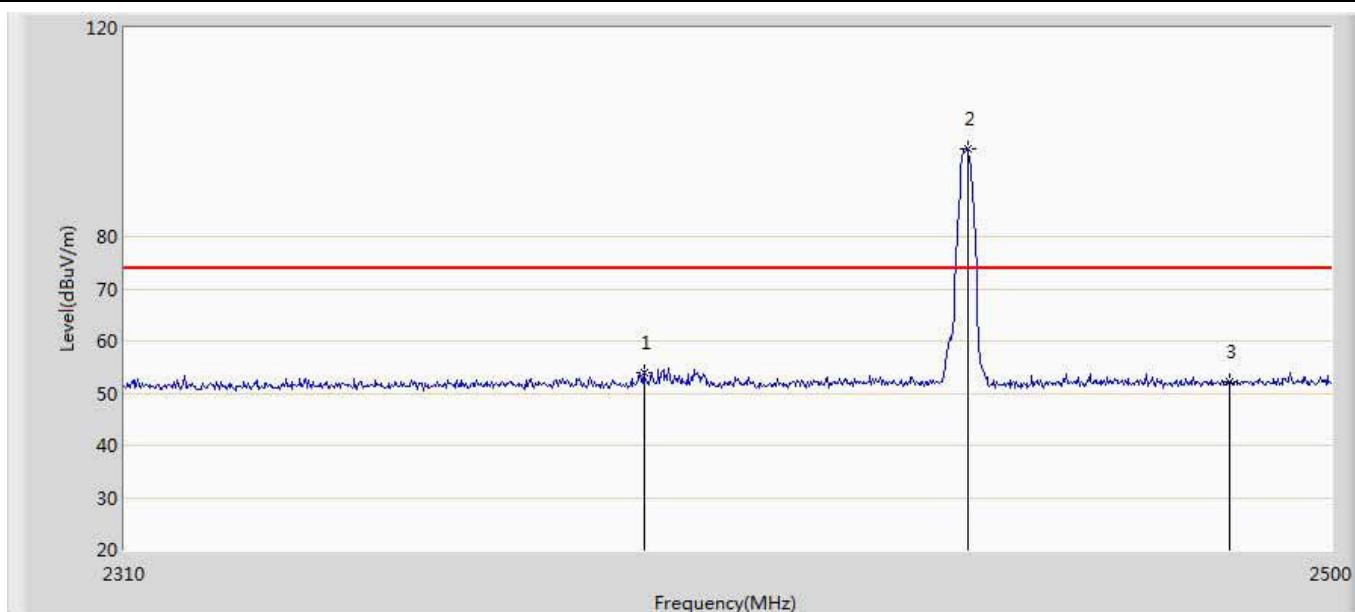
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 18:45
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.987	15.657	-22.013	74.000	36.329	PK
2	*	2440.910	104.394	68.028	30.394	74.000	36.366	PK
3		2483.500	52.522	16.055	-21.478	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	21.235	51.987	-32.765	54	-30.752	AV
2	*	2440.910	73.642	104.394	19.642	54	-30.752	AV
3	*	2483.500	21.77	52.522	-32.23	54	-30.752	AV

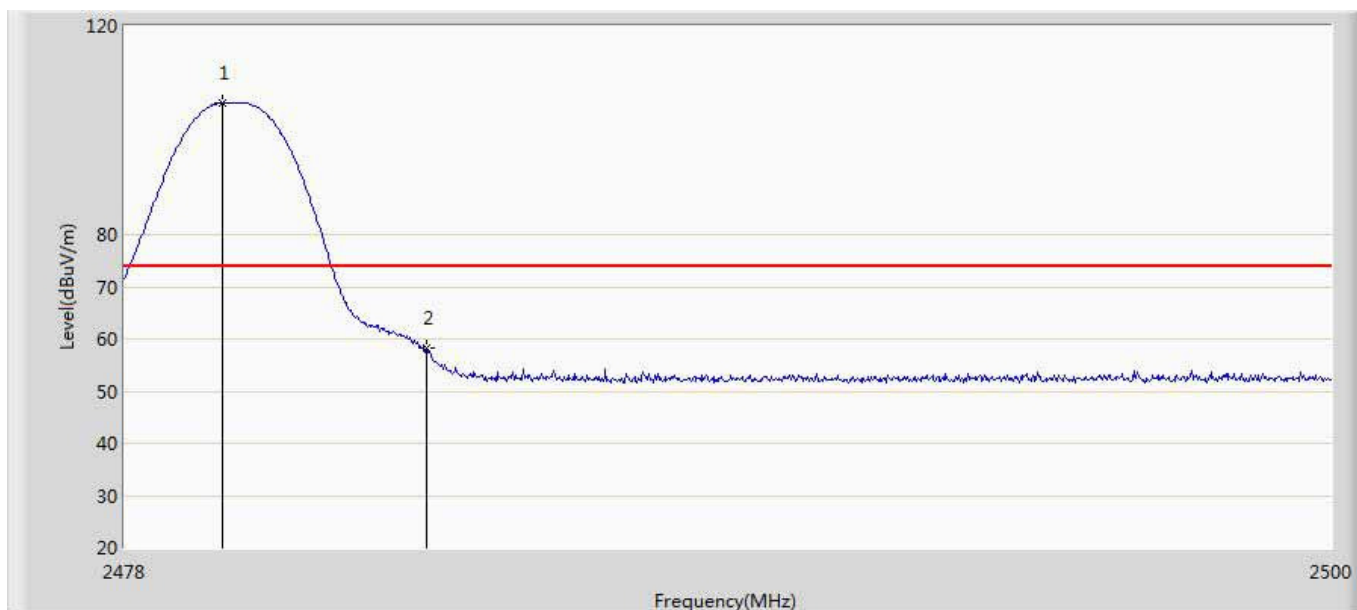
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 18:48
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2441MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.930	17.600	-20.070	74.000	36.329	PK
2	*	2441.290	96.679	60.320	22.679	74.000	36.360	PK
3		2483.500	52.146	15.679	-21.854	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	23.178	53.930	-30.822	54	-30.752	AV
2	*	2441.290	65.927	96.679	11.927	54	-30.752	AV
3	*	2483.500	21.394	52.146	-32.606	54	-30.752	AV

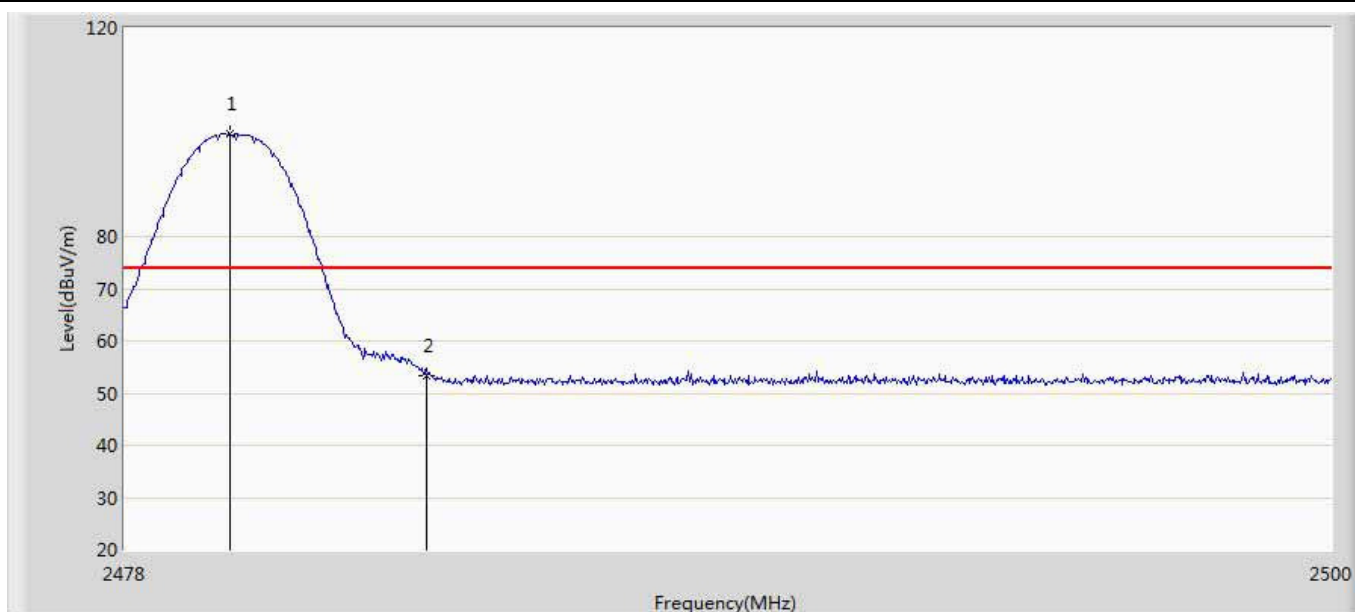
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 18:50
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.782	105.312	68.900	31.312	74.000	36.412	PK
2		2483.500	58.328	21.861	-15.672	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.782	74.56	105.312	20.56	54	-30.752	AV
2	*	2483.500	27.576	58.328	-26.424	54	-30.752	AV

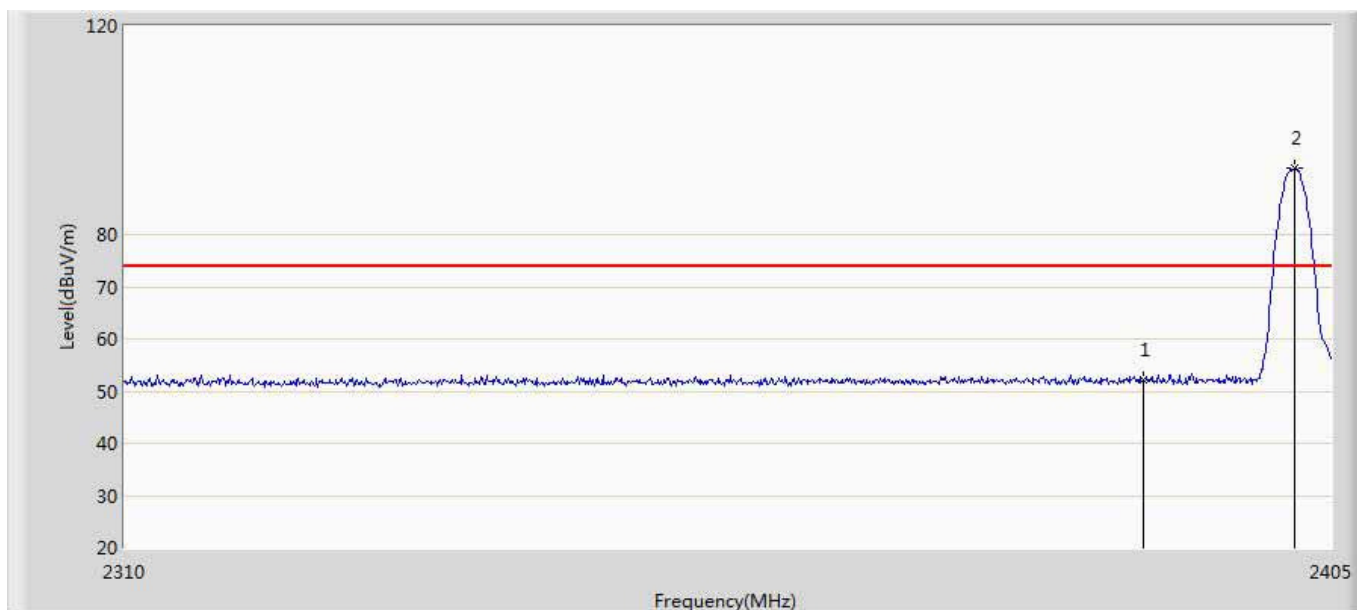
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 18:53
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 1:Transmit at 2480MHz by DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.914	99.580	63.166	25.580	74.000	36.414	PK
2		2483.500	53.458	16.991	-20.542	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.914	68.828	99.580	14.828	54	-30.752	AV
2	*	2483.500	22.706	53.458	-31.294	54	-30.752	AV

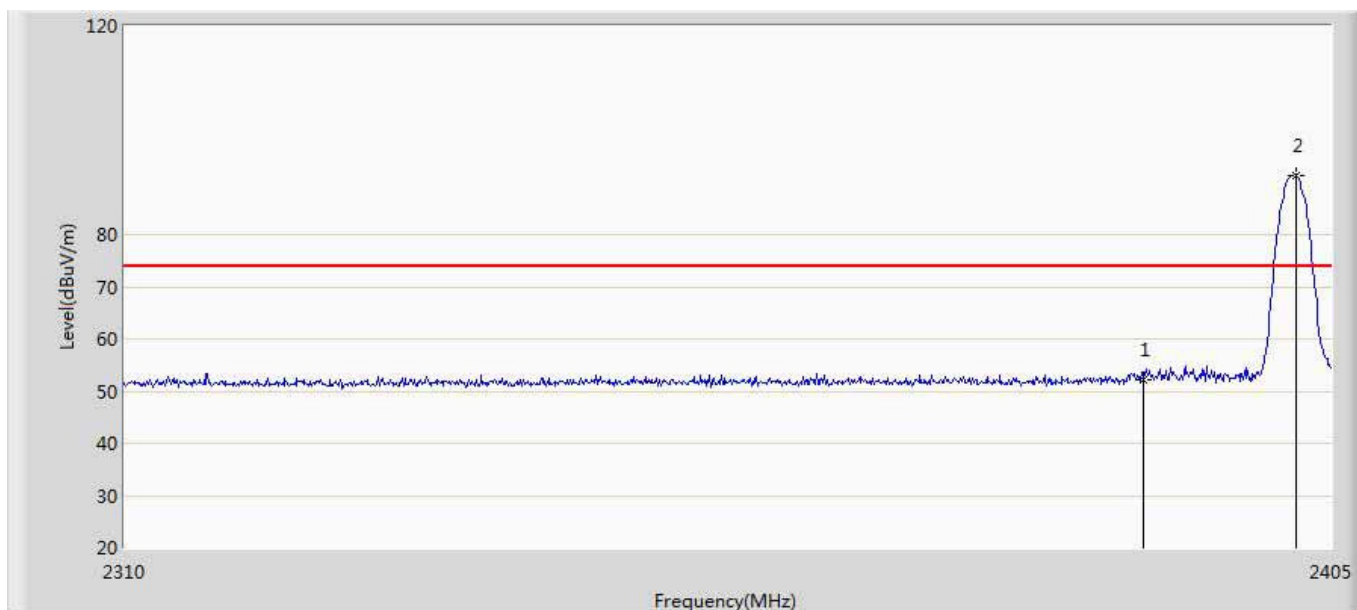
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 18:57
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.268	15.938	-21.732	74.000	36.329	PK
2	*	2402.055	92.689	56.360	18.689	74.000	36.328	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	21.516	52.268	-32.484	54	-30.752	AV
2	*	2402.055	61.937	92.689	7.937	54	-30.752	AV

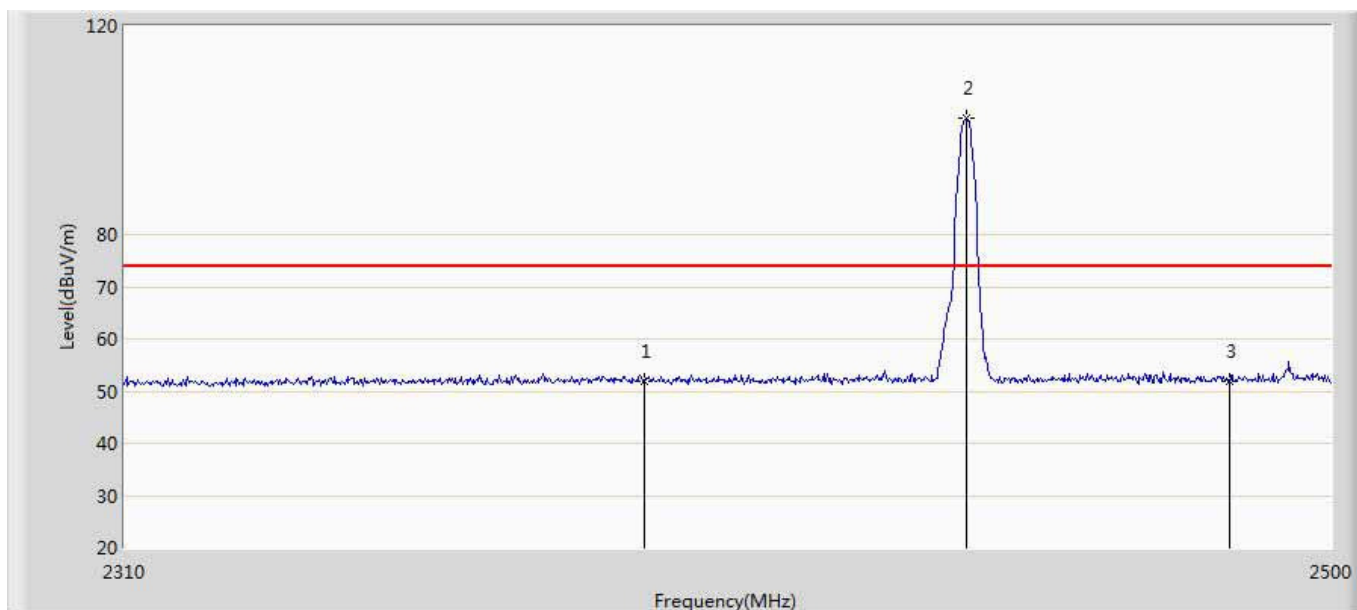
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:00
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2402MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.299	15.969	-21.701	74.000	36.329	PK
2	*	2402.245	91.418	55.089	17.418	74.000	36.329	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	21.547	52.299	-32.453	54	-30.752	AV
2	*	2402.245	60.666	91.418	6.666	54	-30.752	AV

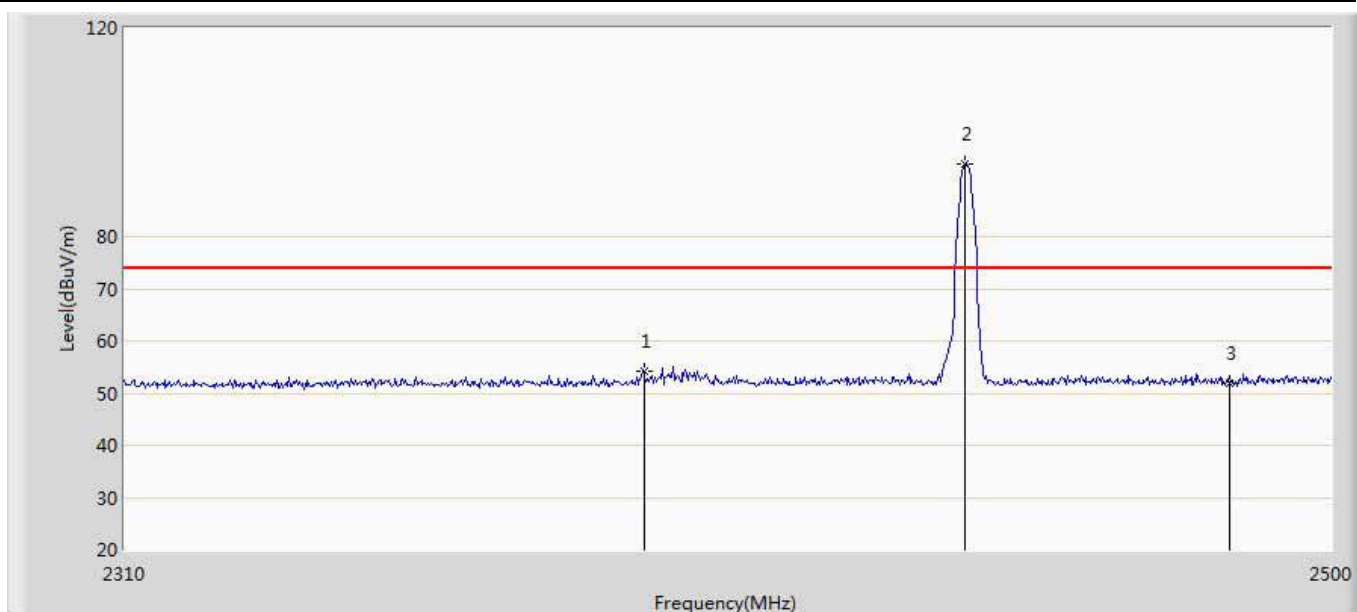
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:06
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2441MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.879	15.549	-22.121	74.000	36.329	PK
2	*	2440.910	102.192	65.826	28.192	74.000	36.366	PK
3		2483.500	51.857	15.390	-22.143	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	21.127	51.879	-32.873	54	-30.752	AV
2	*	2440.910	71.44	102.192	17.44	54	-30.752	AV

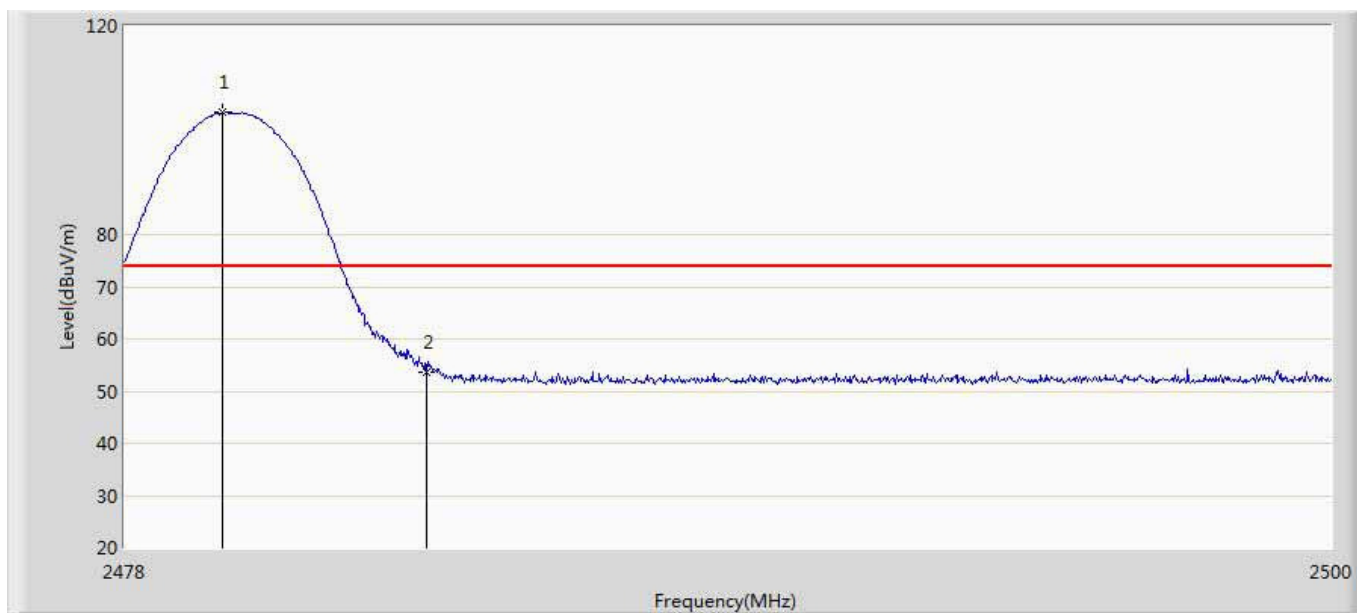
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:10
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2441MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	54.232	17.902	-19.768	74.000	36.329	PK
2	*	2440.720	93.972	57.602	19.972	74.000	36.370	PK
3		2483.500	51.957	15.490	-22.043	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	23.48	54.232	-30.52	54	-30.752	AV
2	*	2440.720	63.22	93.972	9.22	54	-30.752	AV

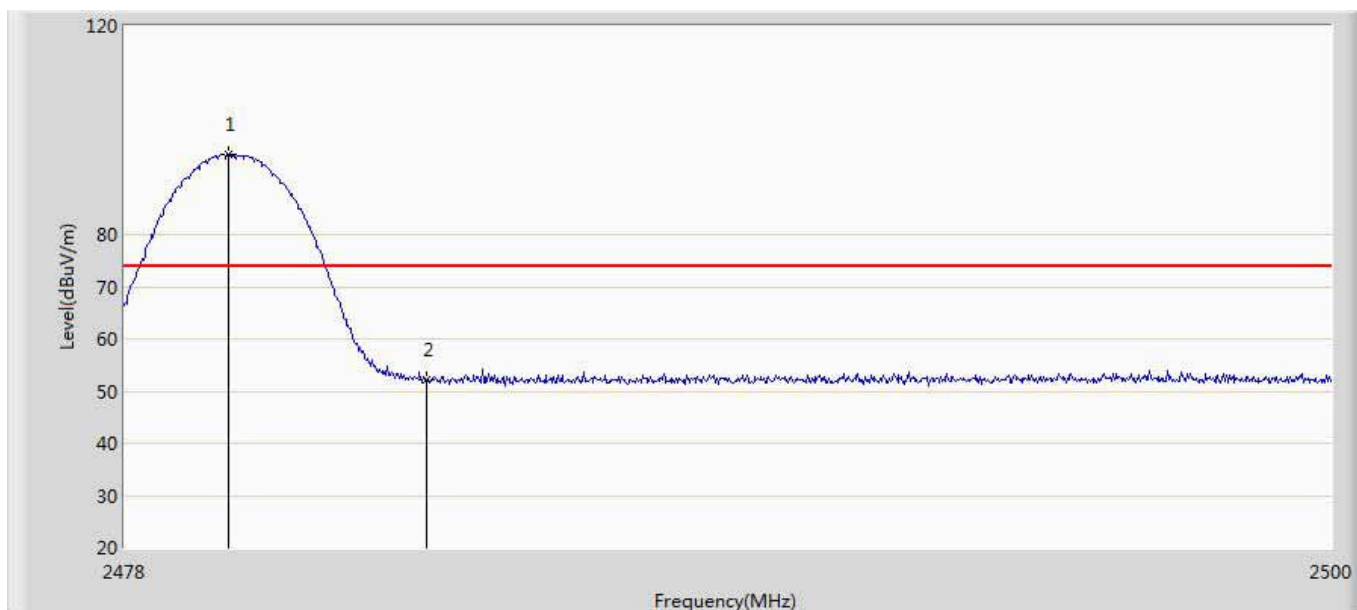
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:15
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.782	103.398	66.986	29.398	74.000	36.412	PK
2		2483.500	53.766	17.299	-20.234	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.782	72.646	103.398	18.646	54	-30.752	AV
2	*	2483.500	23.014	53.766	-30.986	54	-30.752	AV

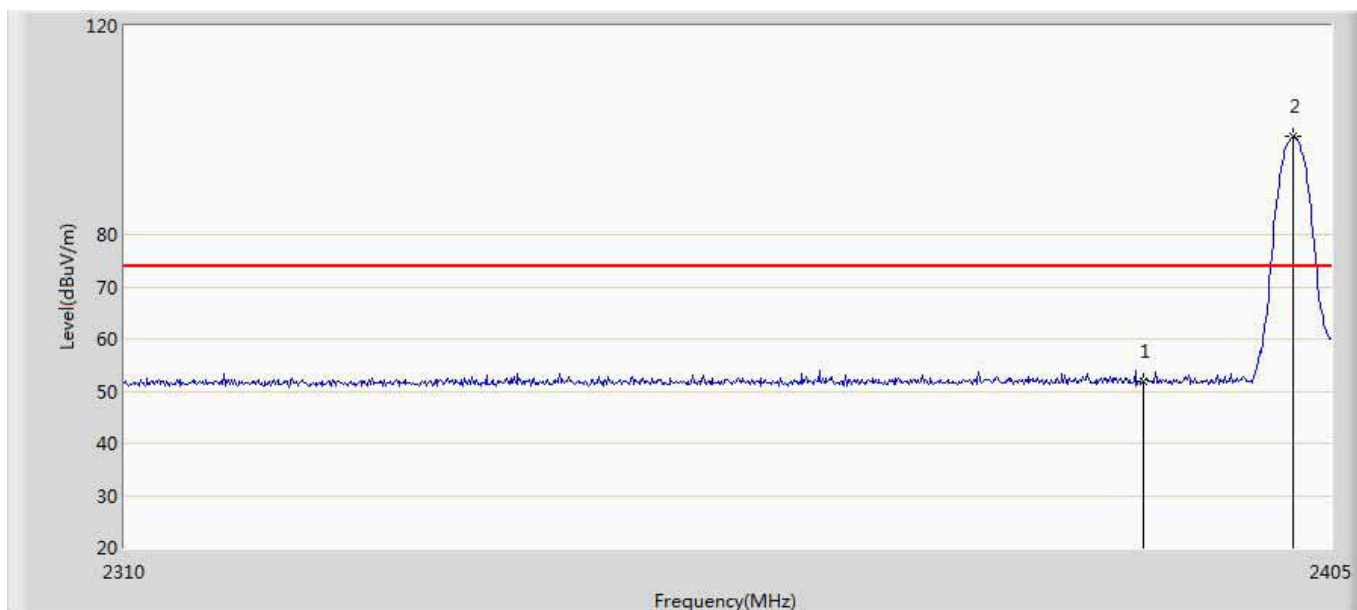
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:17
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 2:Transmit at 2480MHz by 2DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.892	95.341	58.928	21.341	74.000	36.413	PK
2		2483.500	52.250	15.783	-21.750	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.892	64.589	95.341	10.589	54	-30.752	AV
2	*	2483.500	21.498	52.250	-32.502	54	-30.752	AV

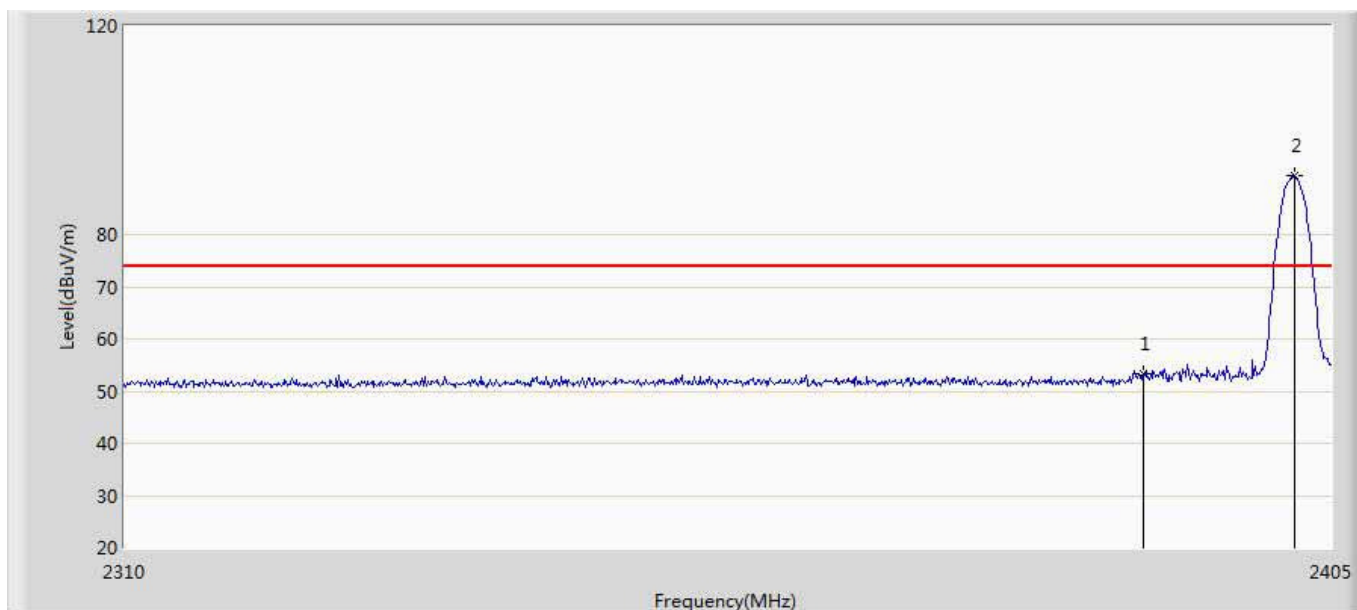
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:22
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.971	15.641	-22.029	74.000	36.329	PK
2	*	2401.960	98.757	62.428	24.757	74.000	36.328	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	21.219	51.971	-32.781	54	-30.752	AV
2	*	2401.960	68.005	98.757	14.005	54	-30.752	AV

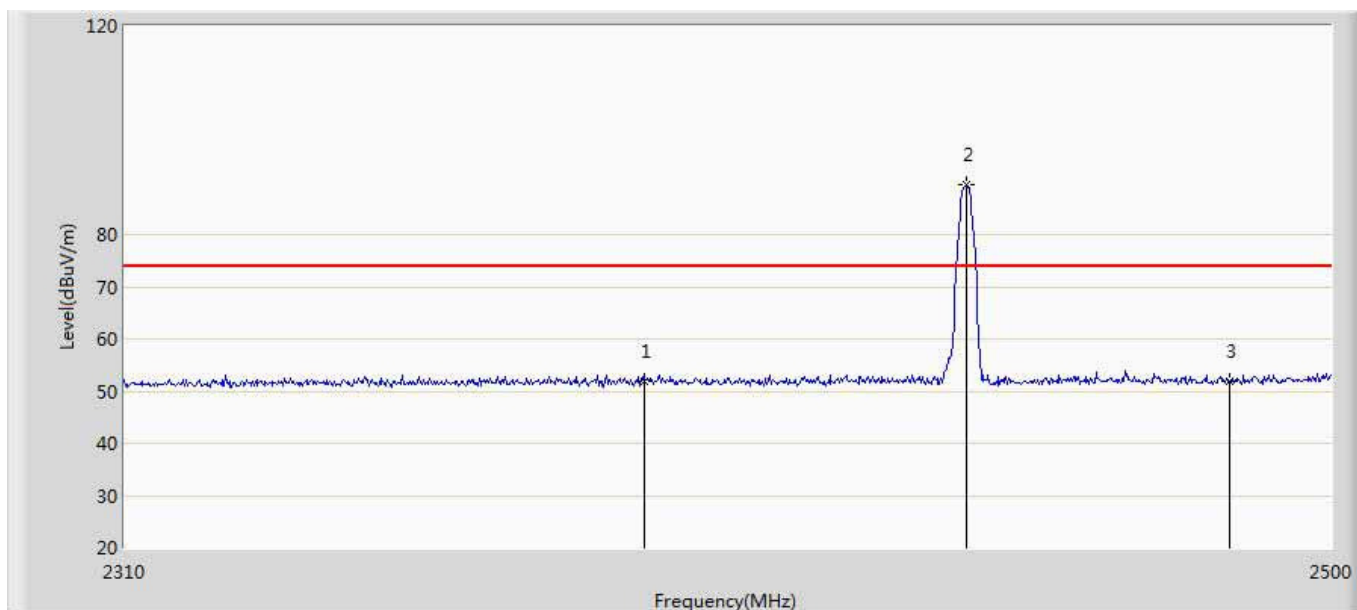
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:24
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2402MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	53.347	17.017	-20.653	74.000	36.329	PK
2	*	2402.055	91.367	55.038	17.367	74.000	36.328	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	22.595	53.347	-31.405	54	-30.752	AV
2	*	2402.055	60.615	91.367	6.615	54	-30.752	AV

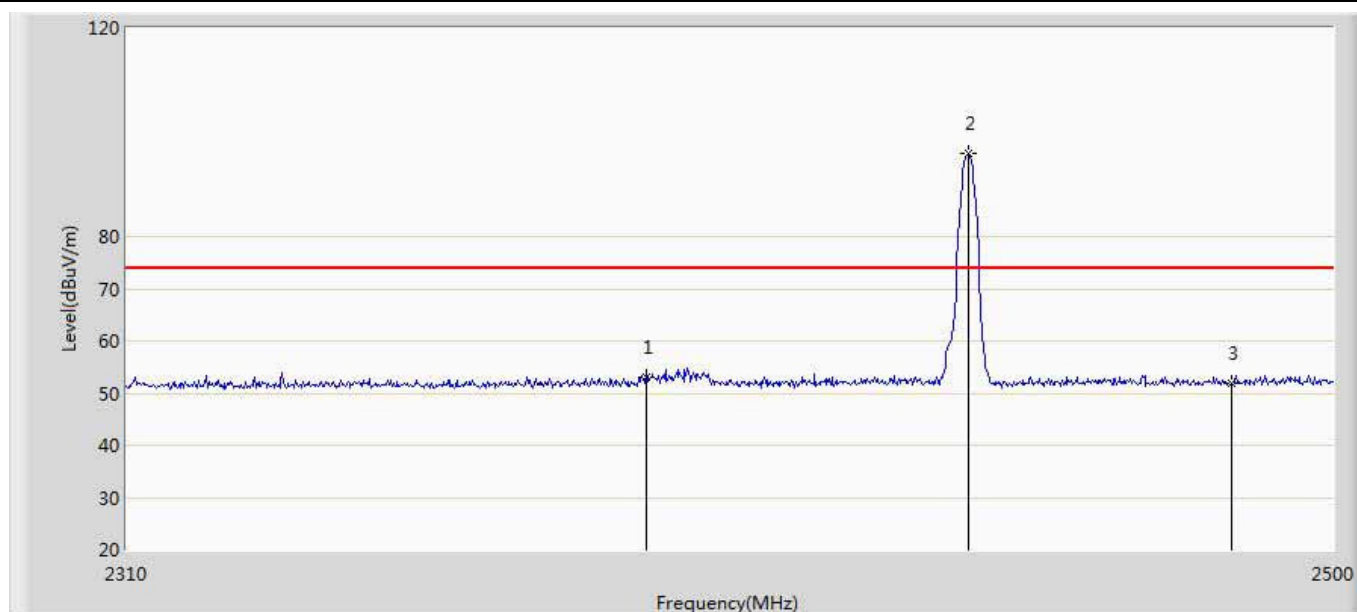
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:27
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	51.961	15.631	-22.039	74.000	36.329	PK
2	*	2440.910	89.682	53.316	15.682	74.000	36.366	PK
3		2483.500	51.920	15.453	-22.080	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	21.209	51.961	-32.791	54	-30.752	AV
2	*	2440.910	58.93	89.682	4.93	54	-30.752	AV
3	*	2483.500	21.168	51.920	-32.832	54	-30.752	AV

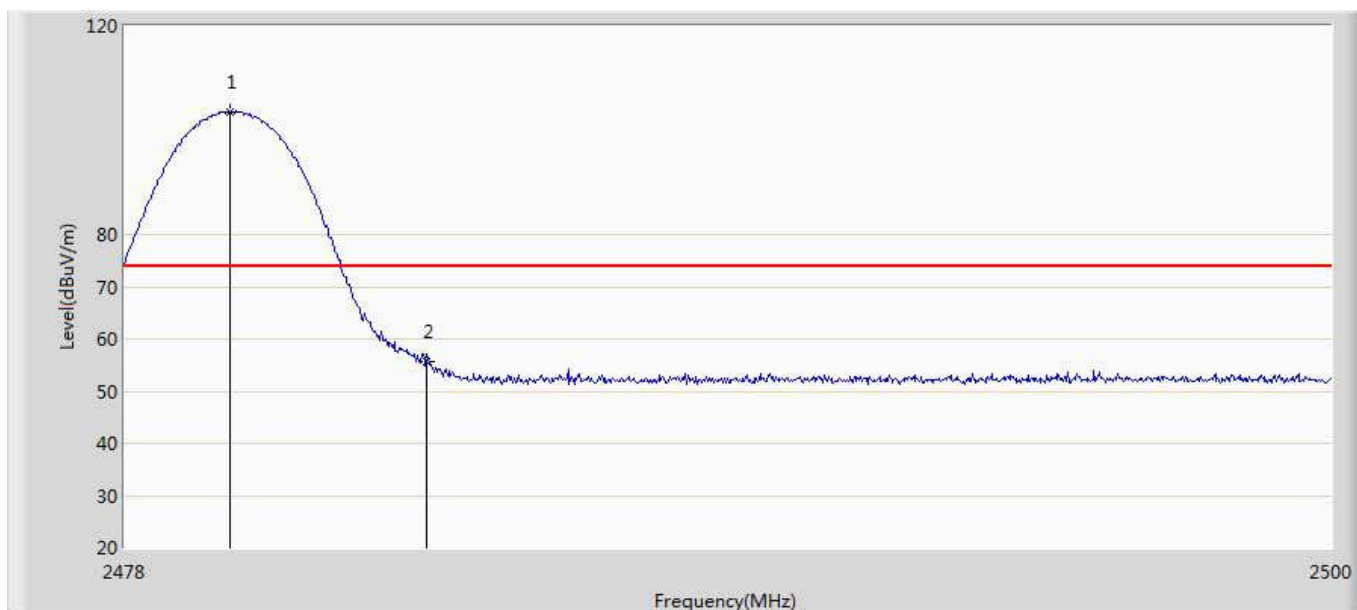
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:29
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2441MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	52.996	16.666	-21.004	74.000	36.329	PK
2	*	2440.910	95.808	59.442	21.808	74.000	36.366	PK
3		2483.500	51.873	15.406	-22.127	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2390.000	22.244	52.996	-31.756	54	-30.752	AV
2	*	2440.910	65.056	95.808	11.056	54	-30.752	AV
3	*	2483.500	21.121	51.873	-32.879	54	-30.752	AV

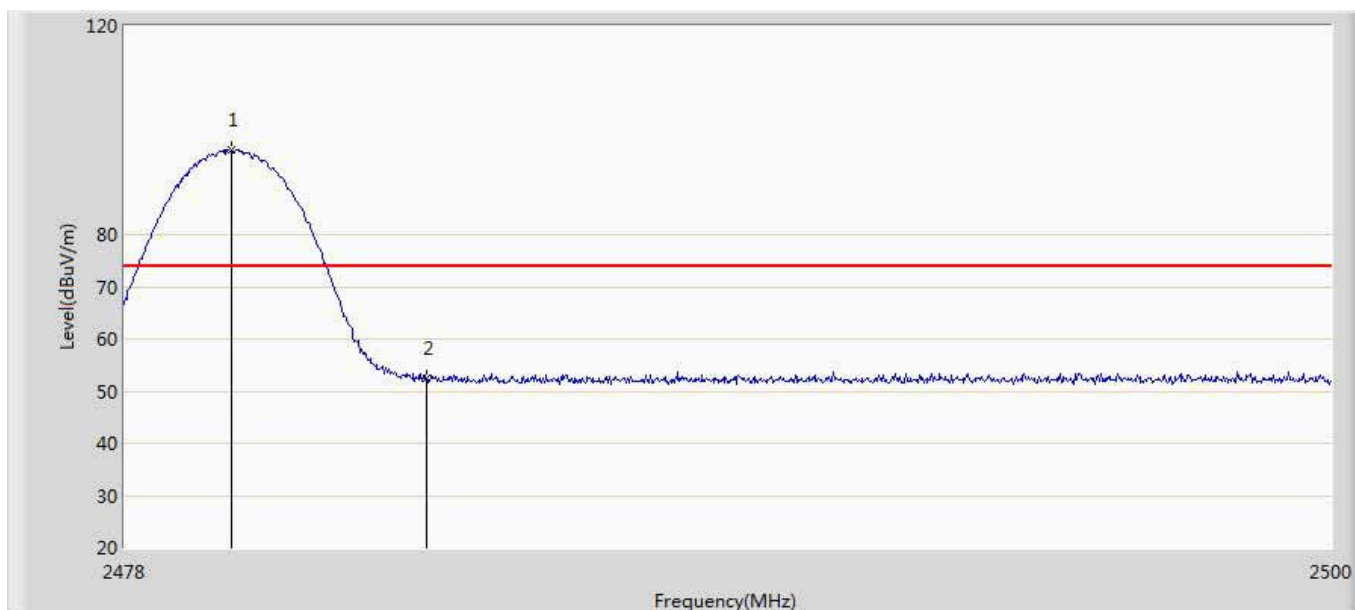
Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:34
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Horizontal
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.914	103.562	67.148	29.562	74.000	36.414	PK
2		2483.500	55.744	19.277	-18.256	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.914	72.81	103.562	18.81	54	-30.752	AV
2	*	2483.500	24.992	55.744	-29.008	54	-30.752	AV

Engineer: Simon	
Site: AC5	Time: 2017/05/13 - 19:36
Limit: FCC_Part15.209_RE(3m)	Margin: 0
Probe: Horn_3117_00167055(1-18GHz)	Polarity: Vertical
EUT: Bluetooth headset	Power: AC 120V/60Hz
Note: Mode 3:Transmit at 2480MHz by 3DH5	



No	Mark	Frequency (MHz)	Measure Level (dBuV/m)	Reading Level (dBuV)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1	*	2479.958	96.104	59.690	22.104	74.000	36.414	PK
2		2483.500	52.357	15.890	-21.643	74.000	36.467	PK

No	Mark	Frequency (MHz)	AV Level (dBuV/m)	PK Level (dBuV/m)	Over Limit (dB)	Limit (dBuV/m)	Factor (dB)	Type
1		2479.958	65.352	96.104	11.352	54	-30.752	AV
2	*	2483.500	21.605	52.357	-32.395	54	-30.752	AV

12. Antenna Requirement

12.1. Limit

Antenna Requirement Limit	
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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of §15.211, §15.213, §15.217, §15.219, or §15.221. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with §15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.	

12.2. Antenna Connector Construction

Antenna Connector Construction	
☒	The use of a permanently attached antenna
☐	The antenna use of a unique coupling to the intentional radiator
☐	The use of a nonstandard antenna jack or electrical connector
Please refer to the attached document "Internal Photograph" to show the antenna connector.	

_____ The End _____