

ISED Test Report

Product Name	Bluetooth Headset
Model No.	OTE120L (left earbud), OTE120R (right earbud), CPB120 (charging case)
IC ID	2386C-OTE120

Applicant	GN Audio A/S
Address	Lautrupbjerg 7, 2750 Ballerup, Denmark

Date of Receipt	Sep. 09, 2019
Issued Date	Sep. 25, 2019
Report No.	1990125R-RFCAP70V00-A
Report Version	V1.0



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 report of the equipment and evaluated measurement uncertainty herein.

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Test Report

Issued Date: Sep. 25, 2019

Report No.: 1990125R-RFCAP70V00-A



Product Name	Bluetooth Headset
Applicant	GN Audio A/S
Address	Lautrupbjerg 7, 2750 Ballerup, Denmark
Manufacturer	GN Audio A/S
Model No.	OTE120L (left earbud), OTE120R (right earbud), CPB120 (charging case)
EUT Rated Voltage	DC 3.7V by Battery
EUT Test Voltage	DC 3.7V by Battery
Trade Name	Jabra
Applicable Standard	RSS-247 Issue 2 (Feb, 2017) ANSI C63.4: 2014, ANSI C63.10: 2013 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Result	Complied

Documented By

:



(Adm. Specialist / Elephant Chen)

Tested By

:



(Engineer / Yunche Chen)

Approved By

:



(Director / Vincent Lin)

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1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Bluetooth Headset
Trade Name	Jabra
Model No.	OTE120L (left earbud), OTE120R (right earbud), CPB120 (charging case)
IC ID	2386C-OTE120
Frequency Range	2402 – 2480MHz
Channel Number	V5.0: 40CH
Type of Modulation	V5.0: $\pi/4$ DQPSK (2Mbps)
Antenna Type	PCB Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
USB Cable	Non-Shielded, 0.3m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Jabra	OTE120L/OTE120R	PCB Antenna	-5.83dBi for 2.4GHz

Firmware/Software Version

1	HW Version Identification Number (HVIN)	OTE120L (left earbud), OTE120R (right earbud), CPB120 (charging case)
2	Firmware Version Identification Number (FVIN)	N/A
3	Test SW Version	Blue test 3 V3.2.0
4	RF power setting in TEST SW	☒ RF power setting was not able to alter during testing. ☐ RF power setting was able to alter during testing. (See the following table)

Parameters of test software setting

Frequency	2402MHz	2440MHz	2480MHz
BLE5.0 (1Mbps)	default	default	default
BLE5.0 (2Mbps)	default	default	default

Center Frequency of Each Channel: (For V5.0)

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 00:	2402 MHz	Channel 01:	2404 MHz	Channel 02:	2406 MHz	Channel 03:	2408 MHz
Channel 04:	2410 MHz	Channel 05:	2412 MHz	Channel 06:	2414 MHz	Channel 07:	2416 MHz
Channel 08:	2418 MHz	Channel 09:	2420 MHz	Channel 10:	2422 MHz	Channel 11:	2424 MHz
Channel 12:	2426 MHz	Channel 13:	2428 MHz	Channel 14:	2430 MHz	Channel 15:	2432 MHz
Channel 16:	2434 MHz	Channel 17:	2436 MHz	Channel 18:	2438 MHz	Channel 19:	2440 MHz
Channel 20:	2442 MHz	Channel 21:	2444 MHz	Channel 22:	2446 MHz	Channel 23:	2448 MHz
Channel 24:	2450 MHz	Channel 25:	2452 MHz	Channel 26:	2454 MHz	Channel 27:	2456 MHz
Channel 28:	2458 MHz	Channel 29:	2460 MHz	Channel 30:	2462 MHz	Channel 31:	2464 MHz
Channel 32:	2466 MHz	Channel 33:	2468 MHz	Channel 34:	2470 MHz	Channel 35:	2472 MHz
Channel 36:	2474 MHz	Channel 37:	2476 MHz	Channel 38:	2478 MHz	Channel 39:	2480 MHz

Note:

1. The EUT is a Bluetooth Headset with a built-in Bluetooth V5.0,V2.1+EDR transceiver, this report for Bluetooth V5.0.
2. These tests are conducted on a sample for the purpose of demonstrating compliance of Bluetooth V4.0 transmitter with RSS-247 Issue 2 (Feb, 2017) for spread spectrum devices.
3. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
5. These tests are conducted on a sample for the purpose of demonstrating compliance of transmitter with RSS-247 Issue 2 for spread spectrum devices.
6. The circuit schematics and components of Right earbud (OTE120R) and Left earbud (OTE120L) are the same. So is the antenna, output power and software. The PCB layout of Right earbud and Left earbud are mirrored, but there are small variations in layout due to non-symmetries of certain component footprints (e.g. IC's).
7. Right ear and Left ear mode of the EUT,only the worst case(Right ear) is shown in the report.
(Addition test of Radiated Emission below 1GHz for Left ear.)

Test Mode	Mode 1: Transmit - BLE (GFSK)
	Mode 2: Charge

1.3. Tested System Details

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

Product		Manufacturer	Model No.	Serial No.	Power Cord
1	Notebook PC	DELL	Latitude E5440	FS9TK32	Non-Shielded, 0.8m

BT mode

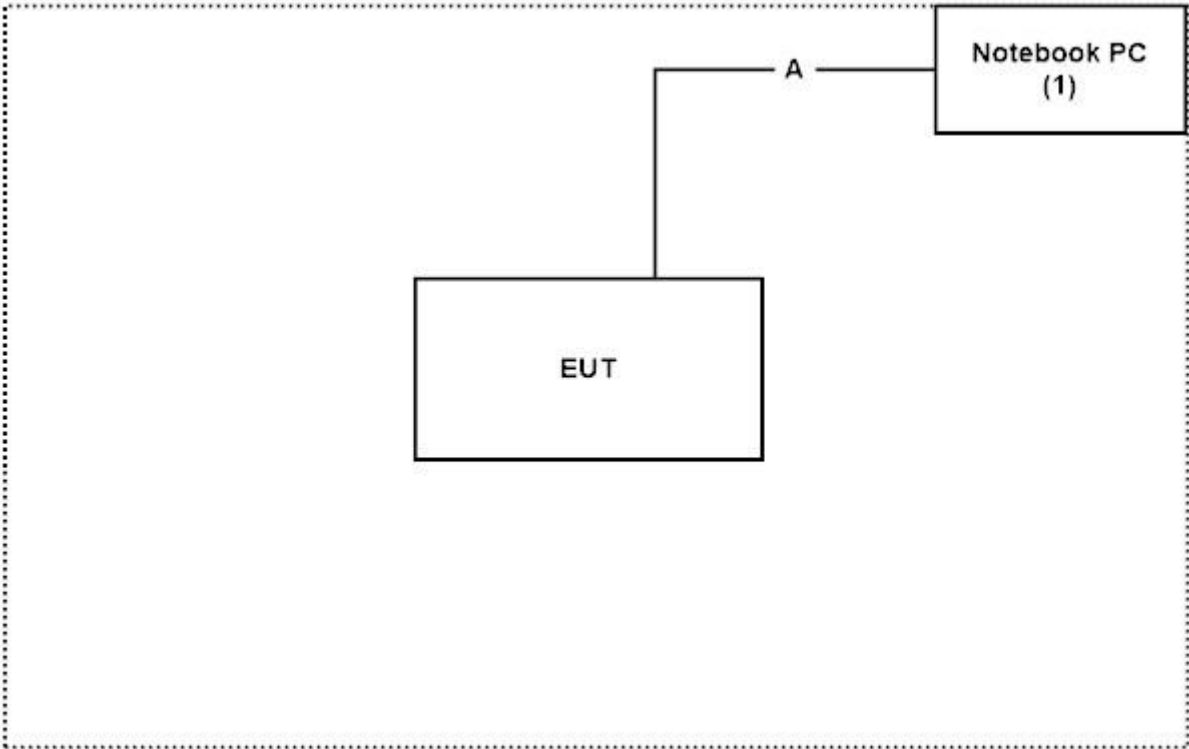
Signal Cable Type		Signal cable Description
A	USB Cable	Non-Shielded, 1.7m

Charge mode

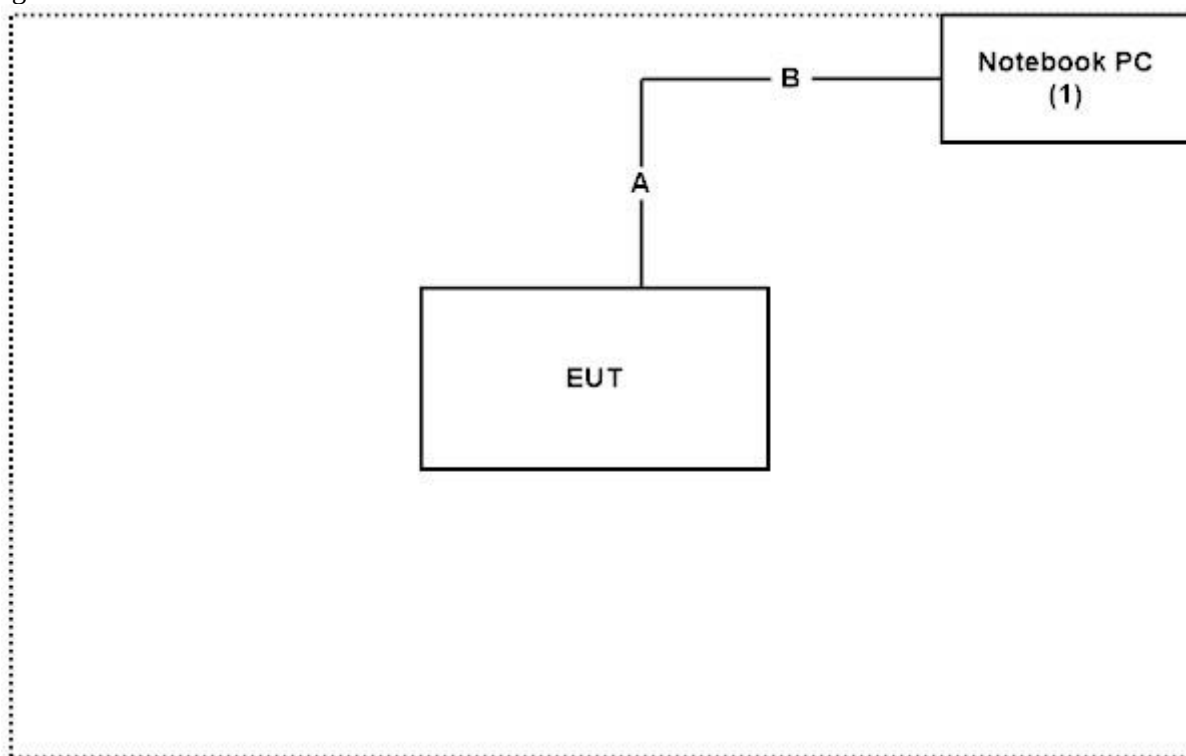
Signal Cable Type		Signal cable Description
A	USB Cable	Non-Shielded, 0.3m
B	USB Cable	Non-Shielded, 1.7m

1.4. Configuration of tested System

BT mode



Charge mode



1.5. EUT Exercise Software

1. Setup the EUT as shown in Section 1.4.
2. Execute software “Blue test3, Ver.3.2” on the EUT.
3. Configure the test mode, the test channel, and the data rate.
4. Press “OK” to start the continuous Transmit.
5. Verify that the EUT works properly.

1.6. Test Facility

Ambient conditions in the laboratory:

Items	Required (IEC 68-1)	Actual
Temperature (°C)	15-35	20-35
Humidity (%RH)	25-75	50-65
Barometric pressure (mbar)	860-1060	950-1000

USA : FCC Registration Number: TW3023

Canada : IC Registration Number: 4075A

Site Description: Accredited by TAF
Accredited Number: 3023

Test Laboratory: DEKRA Testing and Certification Co., Ltd
Address: No.5-22, Ruishukeng, Linkou Dist., New Taipei City 24451,
Taiwan, R.O.C.
Phone number: 886-2-8601-3788
Fax number: 886-2-8601-3789
Email address: info.tw@dekra.com
Website: <http://www.dekra.com.tw>

1.7. List of Test Equipment

For Conducted measurements /CB3/SR8

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
	Temperature Chamber	WIT GROUP	TH-1S-B	EQ-201-00146	2019/02/26	2020/02/25
X	Spectrum Analyzer	Agilent	N9010A	MY53470892	2018/09/27	2019/09/26
X	Peak Power Analyzer	Keysight	8990B	MY51000410	2019/08/01	2020/07/31
X	Wideband Power Sensor	Keysight	N1923A	MY56080003	2019/07/25	2020/07/24
X	Wideband Power Sensor	Keysight	N1923A	MY56080004	2019/07/25	2020/07/24
X	EMI Test Receiver	R&S	ESCS 30	100369	2018/11/19	2019/11/18
X	LISN	R&S	ENV216	101105	2019/03/30	2020/03/29
X	LISN	R&S	ESH3-Z5	836679/014	2019/04/02	2020/04/01
X	Coaxial Cable	DEKRA	RG 400	LC018-RG	2019/06/21	2020/06/20

For Radiated measurements /Site3/CB8

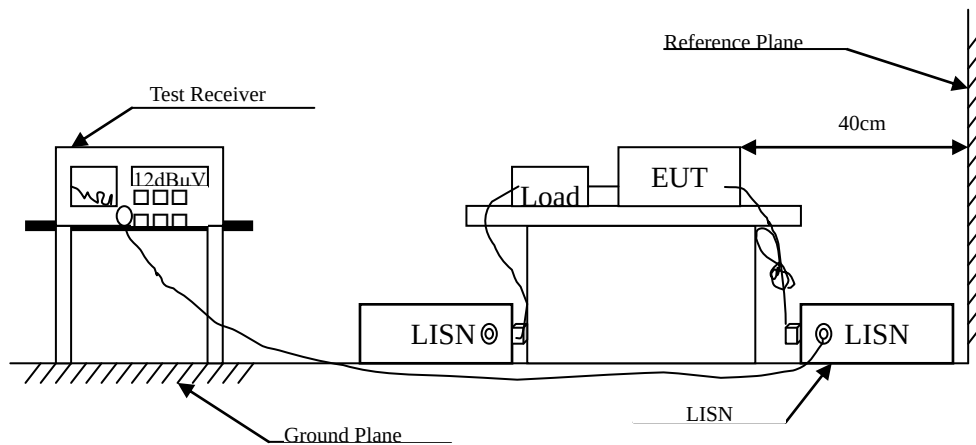
	Equipment	Manufacturer	Model No.	Serial No.	Cali. Date	Due. Date
X	Spectrum Analyzer	R&S	FSP40	100170	2019/03/11	2020/03/10
X	Loop Antenna	Teseq	HLA6121	37133	2018/10/13	2019/10/12
X	Bilog Antenna	Schaffner Chase	CBL6112B	2707	2019/06/24	2020/06/23
X	Coaxial Cable	DEKRA	RG 214	LC003-RG	2019/06/14	2020/06/13
X	Pre-Amplifier	Jet-Power	JPA-10M1G33	170101000330010	2019/06/14	2020/06/13
X	Horn Antenna	ETS-Lindgren	3117	00135205	2019/05/03	2020/05/02
X	Horn Antenna	SCHWARZBECK	9120D	576	2018/12/18	2019/12/17
X	Pre-Amplifier	EMCI	EMC012630SE	980210	2019/04/10	2020/04/09
	Horn Antenna	Com-Power	AH-840	101043	2019/01/09	2020/01/08
	Amplifier + Cable	EMCI	EMC184045SE	980370	2019/03/21	2020/03/20
X	Filter	MICRO-TRONICS	BRM50702	G270	2019/08/06	2020/08/05
	Filter	MICRO-TRONICS	BRM50716	G196	2019/08/06	2020/08/05

Note:

1. All equipments are calibrated every one year.
2. The test instruments marked with "X" are used to measure the final test results.
3. Test Software version :QuiTek EMI 2.0 V2.1.113.

2. Conducted Emission

2.1. Test Setup



2.2. Limits

RSS-Gen Issue 5 Section 8.8		
Frequency MHz	Limits (dB μ V)	
	QP	AVG
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

2.3. Test Procedure

The EUT and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50 ohm /50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm /50uH coupling impedance with 50ohm termination. (Please refers to the block diagram of the test setup and photographs.)

Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10: 2013 on conducted measurement.

Conducted emissions were investigated over the frequency range from 0.15MHz to 30MHz using a receiver bandwidth of 9kHz.

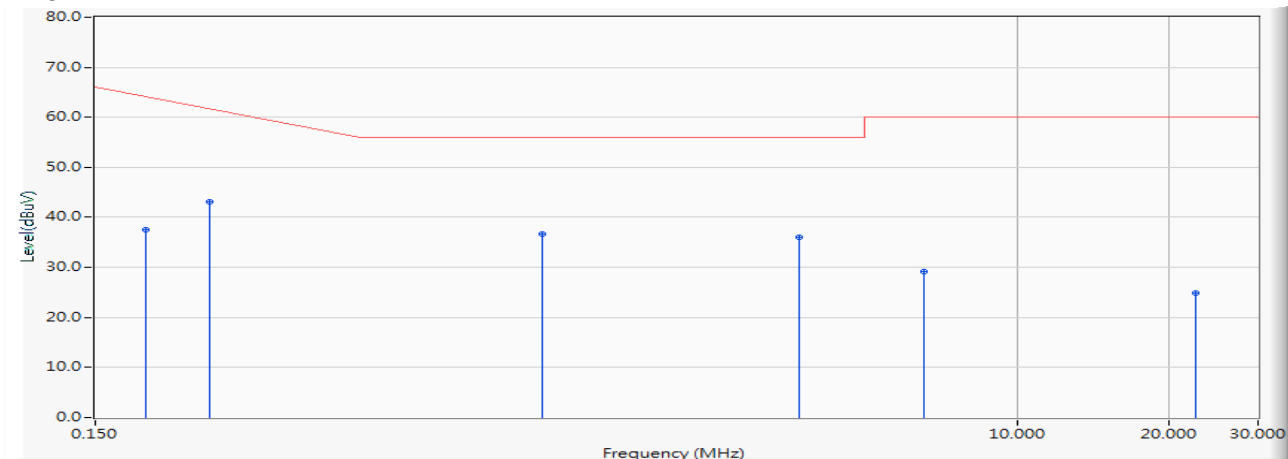
2.4. Uncertainty

± 2.26 dB

2.5. Test Result of Conducted Emission

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK)_ 2Mbps (2440MHz)

Line1



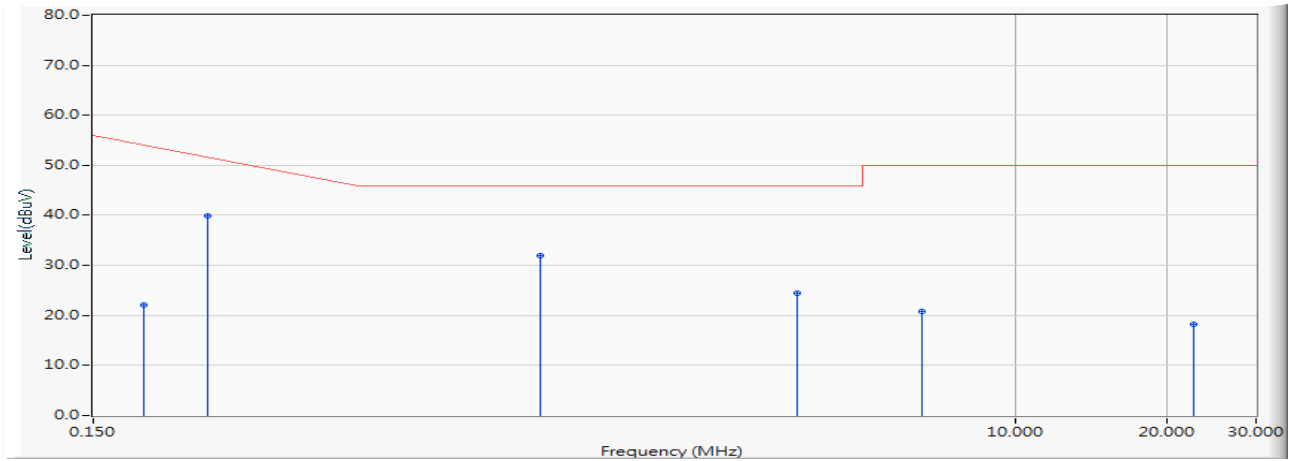
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.189	9.670	27.900	37.570	-27.316	64.886	QUASIPeAK
2		0.252	9.673	33.380	43.053	-20.033	63.086	QUASIPeAK
3	*	1.146	9.722	27.060	36.782	-19.218	56.000	QUASIPeAK
4		3.705	9.834	26.200	36.034	-19.966	56.000	QUASIPeAK
5		6.556	9.919	19.220	29.139	-30.861	60.000	QUASIPeAK
6		22.564	10.195	14.640	24.835	-35.165	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK)_ 2Mbps (2440MHz)

Line1



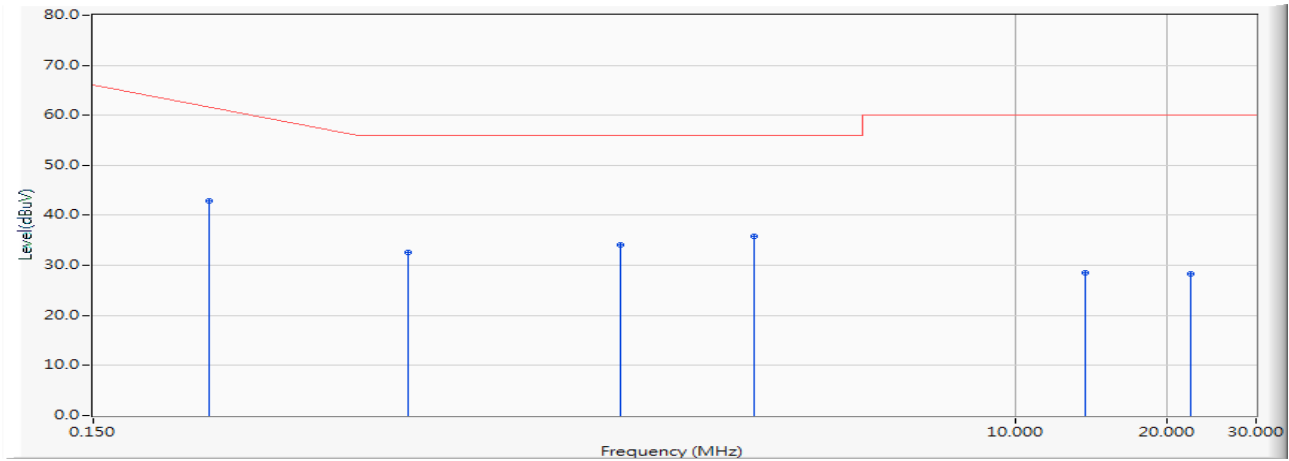
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.189	9.670	12.330	22.000	-32.886	54.886	AVERAGE
2	*	0.252	9.673	30.210	39.883	-13.203	53.086	AVERAGE
3		1.146	9.722	22.230	31.952	-14.048	46.000	AVERAGE
4		3.705	9.834	14.520	24.354	-21.646	46.000	AVERAGE
5		6.556	9.919	10.830	20.749	-29.251	50.000	AVERAGE
6		22.564	10.195	8.020	18.215	-31.785	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK)_ 2Mbps (2440MHz)

Line2



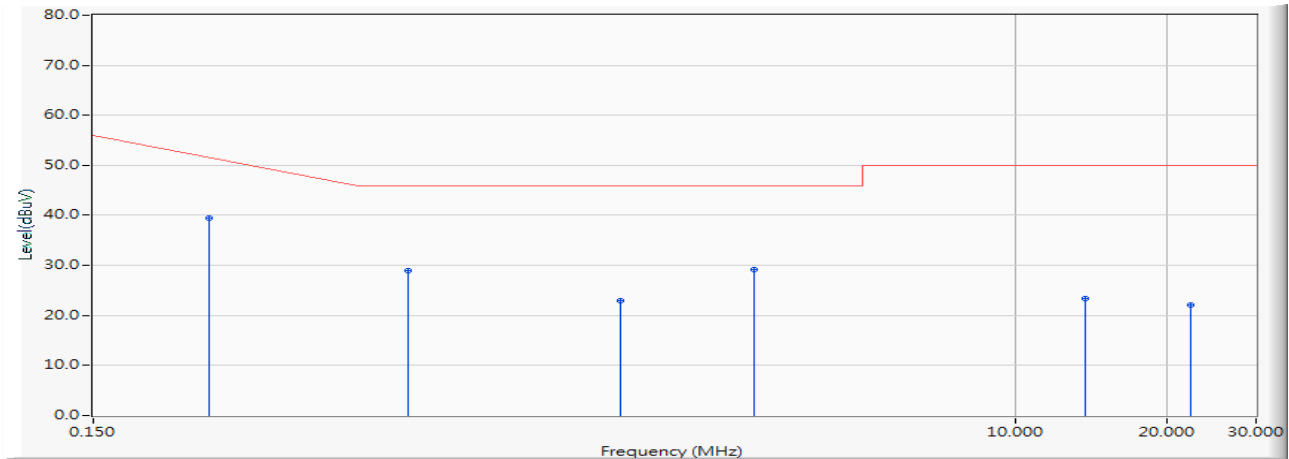
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.255	9.703	33.140	42.843	-20.157	63.000	QUASIPeAK
2		0.630	9.724	22.960	32.684	-23.316	56.000	QUASIPeAK
3		1.658	9.800	24.260	34.060	-21.940	56.000	QUASIPeAK
4		3.045	9.859	25.860	35.719	-20.281	56.000	QUASIPeAK
5		13.763	10.190	18.240	28.430	-31.570	60.000	QUASIPeAK
6		22.314	10.393	17.960	28.353	-31.647	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK)_ 2Mbps (2440MHz)

Line2



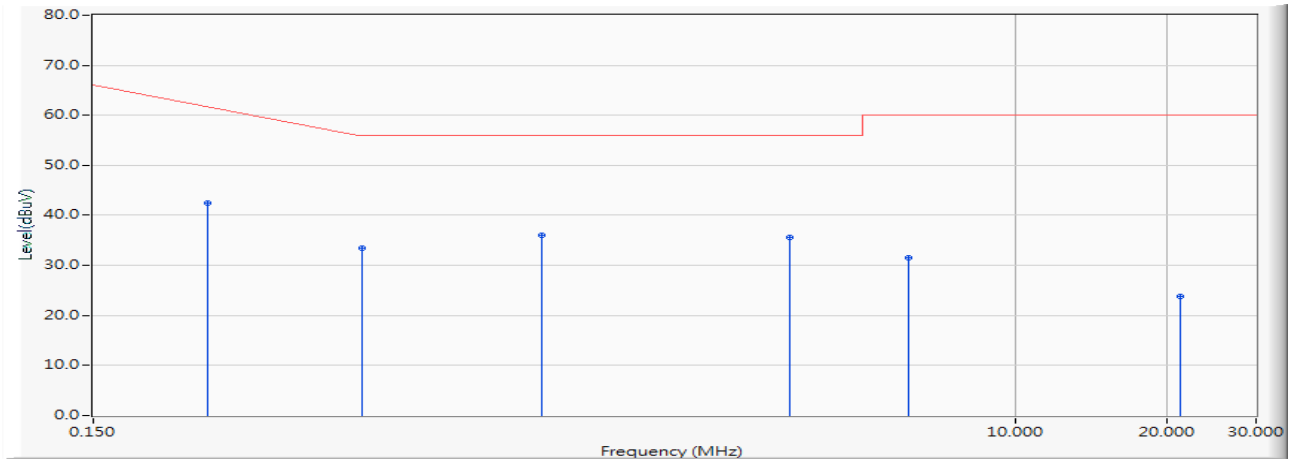
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.255	9.703	29.860	39.563	-13.437	53.000	AVERAGE
2		0.630	9.724	19.240	28.964	-17.036	46.000	AVERAGE
3		1.658	9.800	13.220	23.020	-22.980	46.000	AVERAGE
4		3.045	9.859	19.240	29.099	-16.901	46.000	AVERAGE
5		13.763	10.190	13.150	23.340	-26.660	50.000	AVERAGE
6		22.314	10.393	11.800	22.193	-27.807	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 2: Charge

Line1



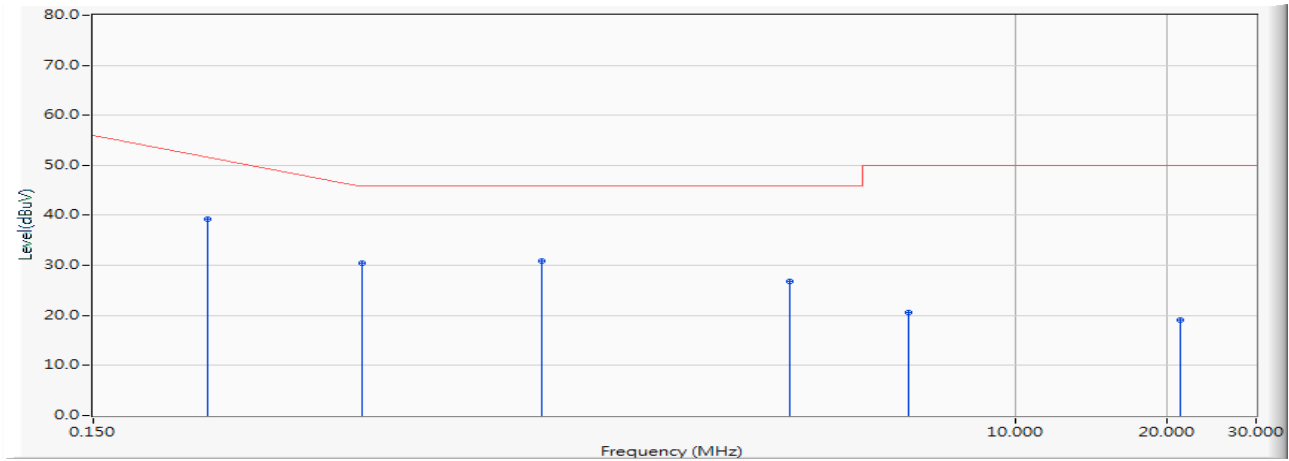
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.252	9.673	32.900	42.573	-20.513	63.086	QUASIPeAK
2		0.509	9.687	23.780	33.467	-22.533	56.000	QUASIPeAK
3	*	1.158	9.723	26.400	36.123	-19.877	56.000	QUASIPeAK
4		3.595	9.832	25.720	35.552	-20.448	56.000	QUASIPeAK
5		6.162	9.910	21.680	31.590	-28.410	60.000	QUASIPeAK
6		21.224	10.193	13.520	23.713	-36.287	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 2: Charge

Line1



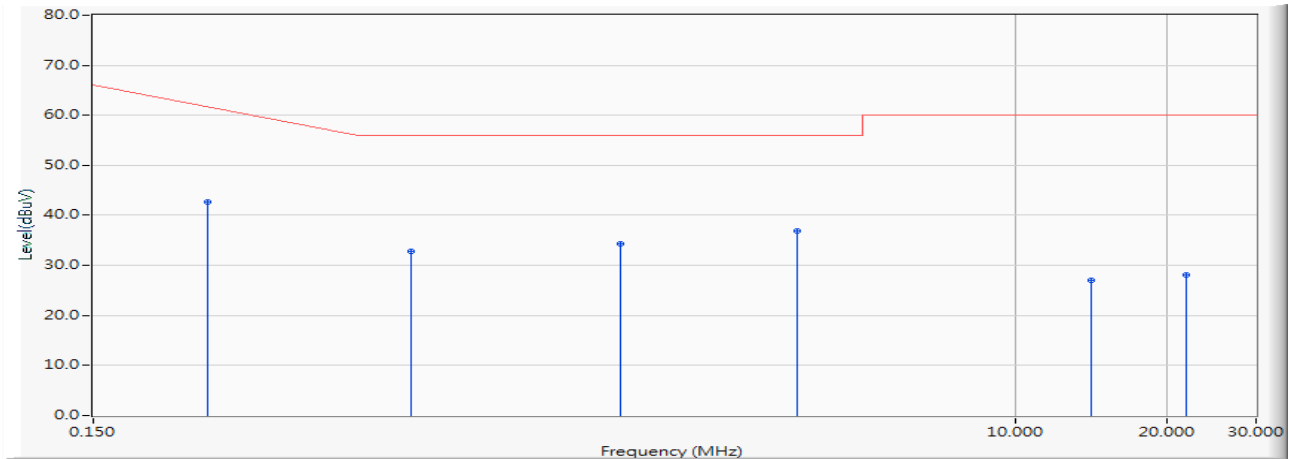
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1	*	0.252	9.673	29.480	39.153	-13.933	53.086	AVERAGE
2		0.509	9.687	20.870	30.557	-15.443	46.000	AVERAGE
3		1.158	9.723	21.240	30.963	-15.037	46.000	AVERAGE
4		3.595	9.832	16.950	26.782	-19.218	46.000	AVERAGE
5		6.162	9.910	10.620	20.530	-29.470	50.000	AVERAGE
6		21.224	10.193	8.830	19.023	-30.977	50.000	AVERAGE

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 2: Charge

Line2



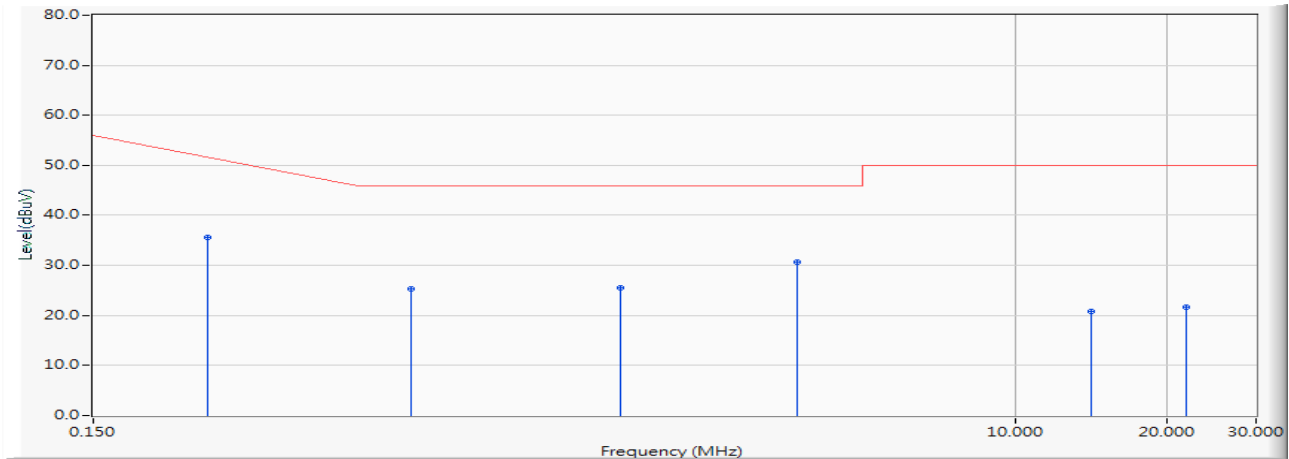
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.252	9.703	32.960	42.663	-20.423	63.086	QUASIPeAK
2		0.638	9.724	23.000	32.724	-23.276	56.000	QUASIPeAK
3		1.654	9.800	24.620	34.420	-21.580	56.000	QUASIPeAK
4	*	3.709	9.874	27.000	36.874	-19.126	56.000	QUASIPeAK
5		14.130	10.197	16.920	27.117	-32.883	60.000	QUASIPeAK
6		21.795	10.388	17.660	28.048	-31.952	60.000	QUASIPeAK

Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

Product : Bluetooth Headset
 Test Item : Conducted Emission Test
 Test date : 2019/09/17
 Test Mode : Mode 2: Charge

Line2



		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV)	Margin (dB)	Limit (dBuV)	Detector Type
1		0.252	9.703	25.860	35.563	-17.523	53.086	AVERAGE
2		0.638	9.724	15.650	25.374	-20.626	46.000	AVERAGE
3		1.654	9.800	15.650	25.450	-20.550	46.000	AVERAGE
4	*	3.709	9.874	20.870	30.744	-15.256	46.000	AVERAGE
5		14.130	10.197	10.620	20.817	-29.183	50.000	AVERAGE
6		21.795	10.388	11.230	21.618	-28.382	50.000	AVERAGE

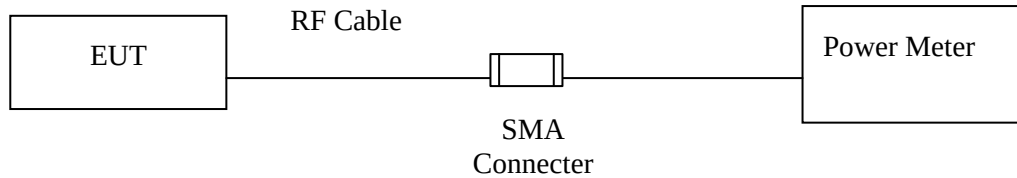
Note:

1. All Reading Levels are Quasi-Peak and average value.
2. " * ", means this data is the worst emission level.
3. Measurement Level = Reading Level + Correct Factor

3. Peak Power Output

3.1. Test Setup

Conduction Power Measurement



3.2. Limits

According to RSS-247 Issue 2, 5.4(b) (Feb, 2017), the maximum peak power shall be less 1 Watt and the e.i.r.p. shall not exceed 4 Watt.

3.3. Test Procedure

The EUT was tested according to DTS test procedure of KDB 558074 for compliance to RSS-247 requirements. The maximum peak conducted output power using KDB 558074 D01 DTS Meas Guidance v04 section 9.1.3 PKPM1 Peak power meter method.

3.4. Uncertainty

± 1.19 dB

3.5. Test Result of Peak Power Output

Product : Bluetooth Headset
 Test Item : Peak Power Output
 Test Site : No.3 OATS
 Test date : 2019/09/20
 Test Mode : Mode 1: Transmit - BLE (GFSK)_ 1Mbps

Channel No.	Frequency (MHz)	Peak Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	8.34	1 Watt= 30 dBm	Pass
Channel 19	2440.00	8.44	1 Watt= 30 dBm	Pass
Channel 39	2480.00	8.55	1 Watt= 30 dBm	Pass

Channel No	Frequency Range	Output Power	Antenna gain	EIRP	EIRP Limit	Result
	(MHz)	(dBm)	(dBi)	(dBm)	(dBm)	
Channel 00	2402	8.34	-5.83	2.51	36	Pass
Channel 19	2440	8.44	-5.83	2.61	36	Pass
Channel 39	2480	8.55	-5.83	2.72	36	Pass

Product : Bluetooth Headset
Test Item : Peak Power Output
Test Site : No.3 OATS
Test date : 2019/09/20
Test Mode : Mode 1: Transmit - BLE (GFSK)_ 2Mbps

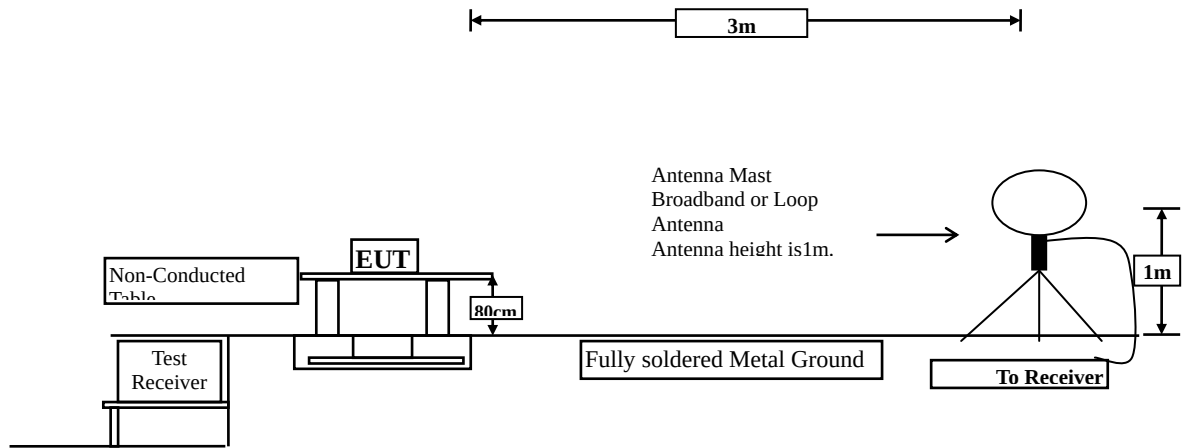
Channel No.	Frequency (MHz)	Peak Measurement (dBm)	Required Limit	Result
Channel 00	2402.00	8.39	1 Watt= 30 dBm	Pass
Channel 19	2440.00	8.47	1 Watt= 30 dBm	Pass
Channel 39	2480.00	8.57	1 Watt= 30 dBm	Pass

Channel No	Frequency Range	Output Power	Antenna gain	EIRP	EIRP Limit	Result
	(MHz)	(dBm)	(dBi)	(dBm)	(dBm)	
Channel 00	2402	8.39	-5.83	2.56	36	Pass
Channel 19	2440	8.47	-5.83	2.64	36	Pass
Channel 39	2480	8.57	-5.83	2.74	36	Pass

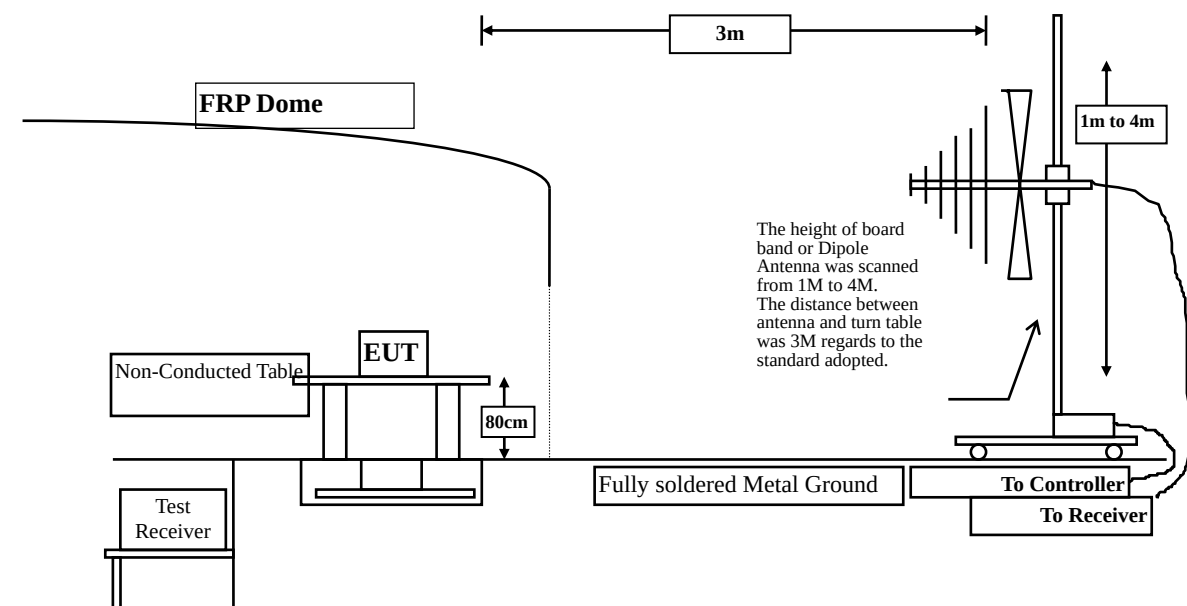
4. Radiated Emission

4.1. Test Setup

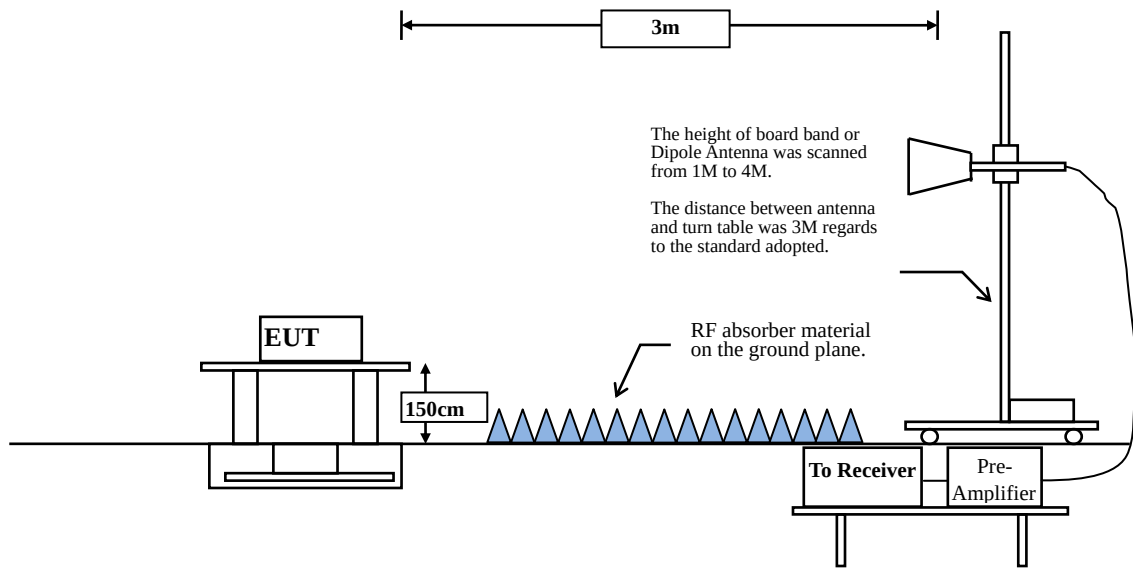
Under 30MHz



Below 1GHz



Above 1GHz



4.2. Limits

➤ General Radiated Emission Limits

Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 20dB below the level of the fundamental or to the general radiated emission limits in RSS-Gen Issue 5 Section 8.9, whichever is the lesser attenuation.

RSS-Gen Issue 5 Section 8.9		
Frequency MHz	Field strength (microvolts/meter)	Measurement distance (meter)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

- Remarks :
1. RF Voltage (dBμV) = 20 log RF Voltage (uV)
 2. In the Above Table, the tighter limit applies at the band edges.
 3. Distance refers to the distance in meters between the measuring instrument antenna and the closed point of any part of the device or system.

4.3. Test Procedure

Measuring the frequency range below 1GHz, the EUT is placed on a turn table which is 0.8 meter above ground, when measuring the frequency range above 1GHz, the EUT is placed on a turn table which is 1.5 meter above ground.

The turn table is rotated 360 degrees to determine the position of the maximum emission level.

The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The resolution bandwidth below 30MHz setting on the field strength meter is 9kHz and 30MHz~1GHz is 120kHz and above 1GHz is 1MHz.

Radiated emission measurements below 30MHz are made using Loop Antenna and 30MHz~1GHz are made using broadband Bilog antenna and above 1GHz are made using Horn Antennas.

The measurement is divided into the Preliminary Measurement and the Final Measurement.

The suspected frequencies are searched for in Preliminary Measurement with the measurement antenna kept pointed at the source of the emission both in azimuth and elevation, with the polarization of the antenna oriented for maximum response. The antenna is pointed at an angle towards the source of the emission, and the EUT is rotated in both height and polarization to maximize the measured emission. The emission is kept within the illumination area of the 3 dB bandwidth of the antenna. The measurement frequency range from 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

$VBW \geq 3 \times RBW$.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle $\geq 98\%$

$VBW \geq 1/T$, when duty cycle $< 98\%$

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
BLE 1M	84.13	2.1200	472	500
BLE 2M	57.45	1.0800	926	1000

Note: Duty Cycle Refer to Section 10

4.4. Uncertainty

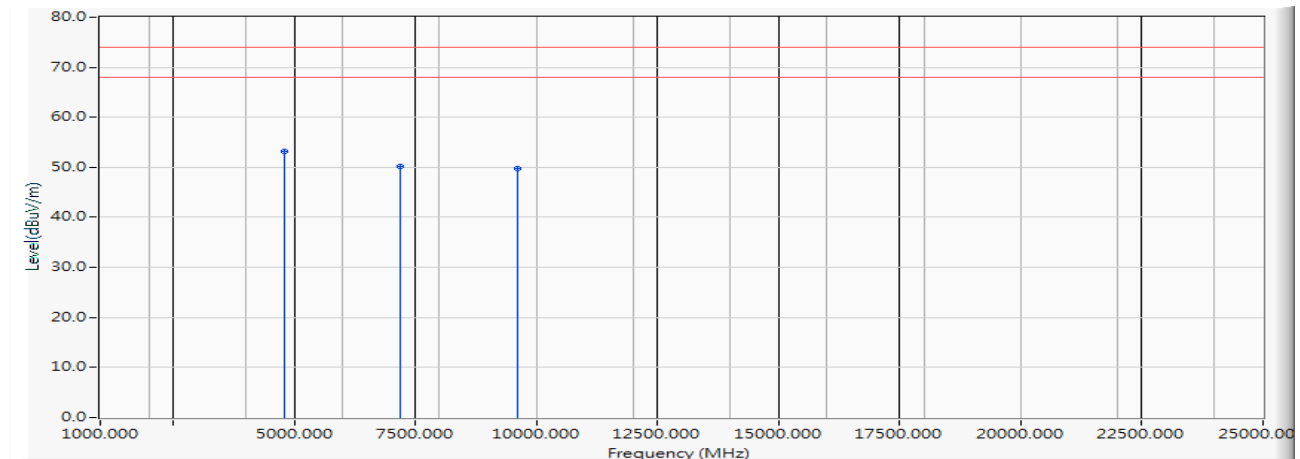
± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

4.5. Test Result of Radiated Emission

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK)(2402MHz) _ 1Mbps

Horizontal



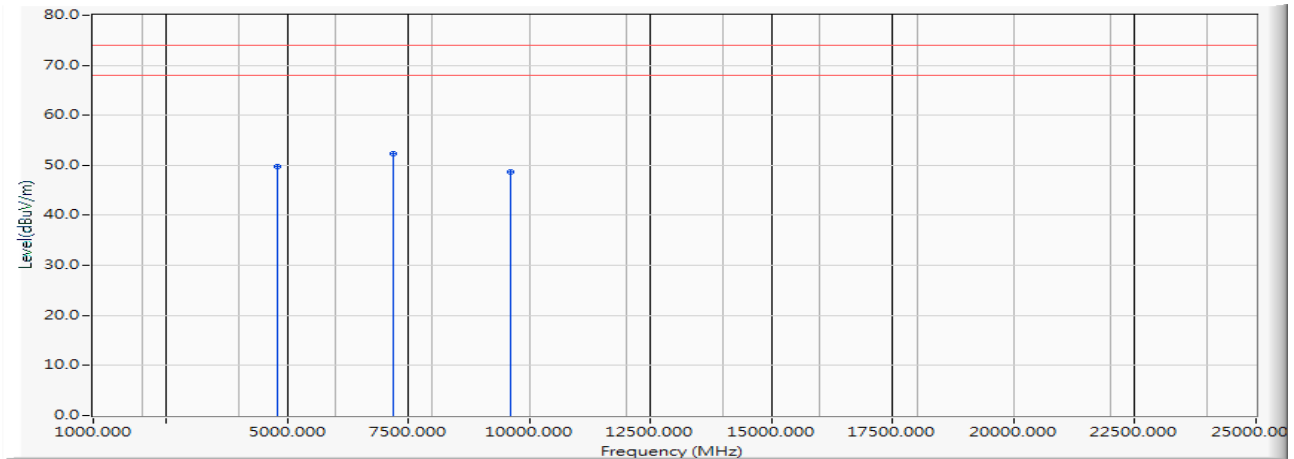
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4804.000	4.604	48.540	53.144	-20.856	74.000	PEAK
2		7206.000	11.659	38.510	50.169	-23.831	74.000	PEAK
3		9608.000	11.907	37.800	49.707	-24.293	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report..

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK)(2402MHz) _ 1Mbps

Vertical



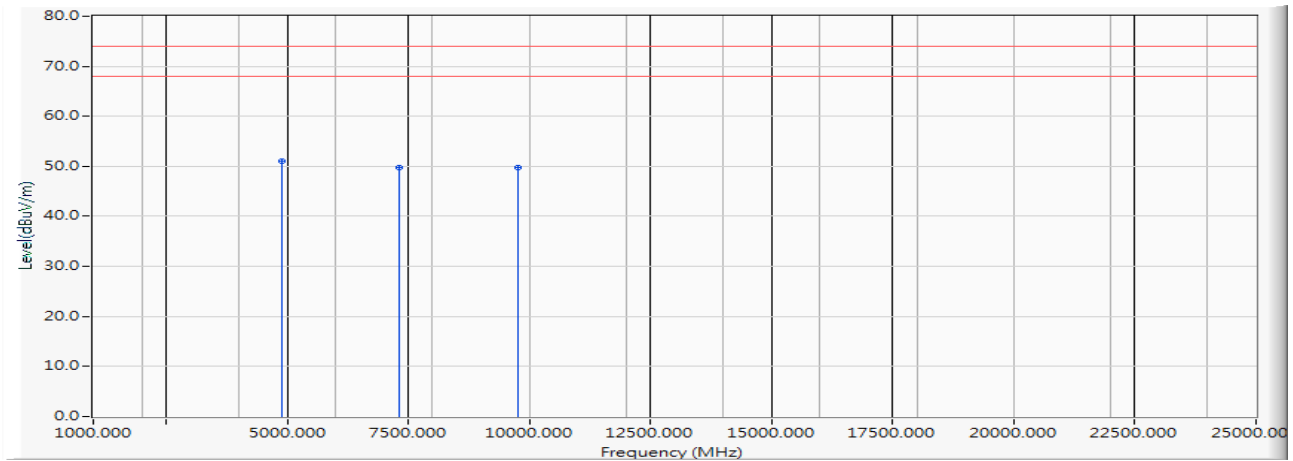
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.000	4.604	45.230	49.834	-24.166	74.000	PEAK
2	*	7206.000	11.659	40.630	52.289	-21.711	74.000	PEAK
3		9608.000	11.907	36.730	48.637	-25.363	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report..

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps

Horizontal



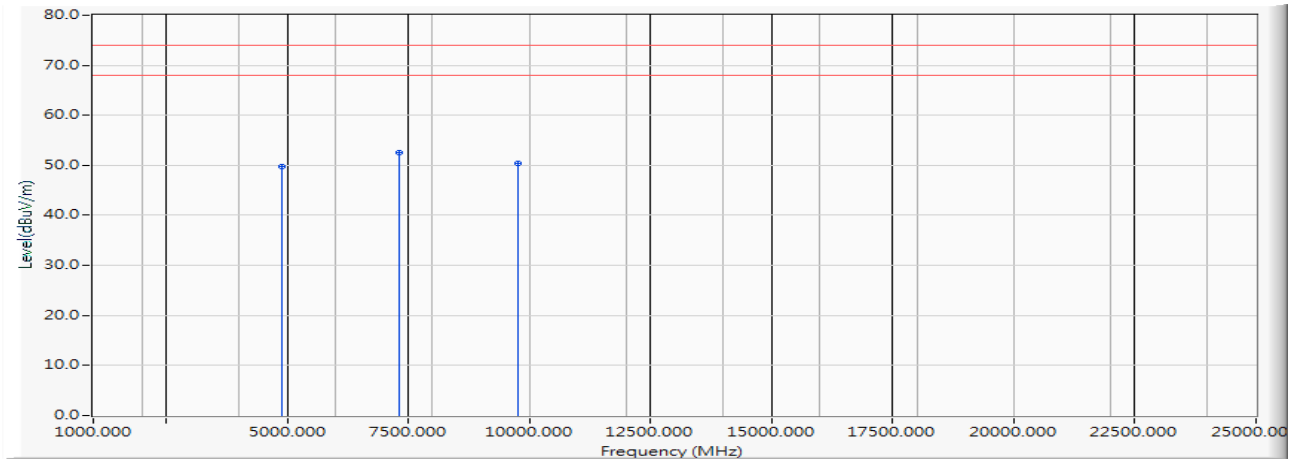
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4880.000	5.302	45.840	51.142	-22.858	74.000	PEAK
2		7320.000	11.795	38.030	49.825	-24.175	74.000	PEAK
3		9760.000	11.929	37.790	49.720	-24.280	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps

Vertical



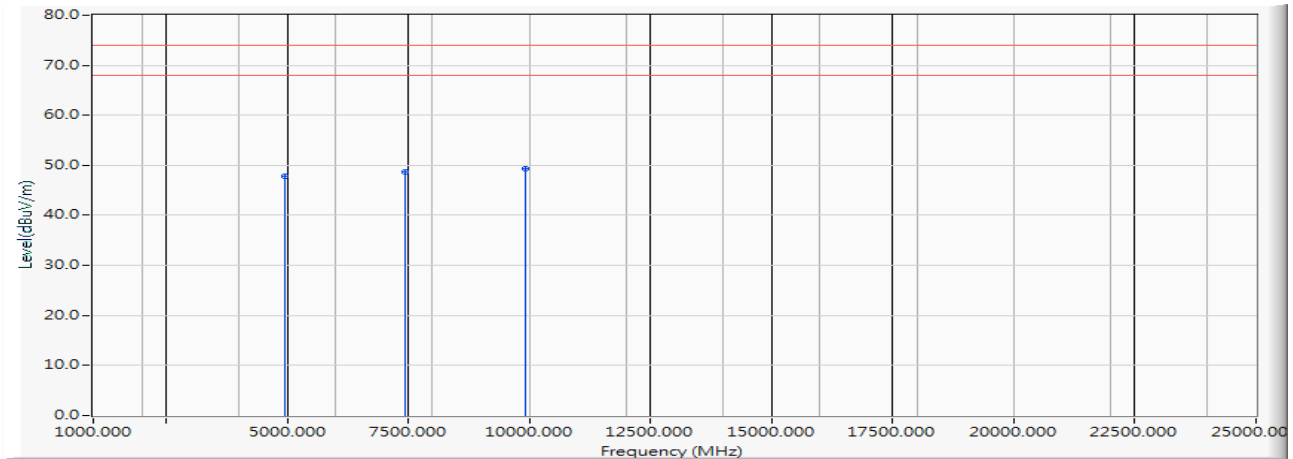
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4880.000	5.302	44.360	49.662	-24.338	74.000	PEAK
2	*	7320.000	11.795	40.760	52.555	-21.445	74.000	PEAK
3		9760.000	11.929	38.420	50.350	-23.650	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Horizontal



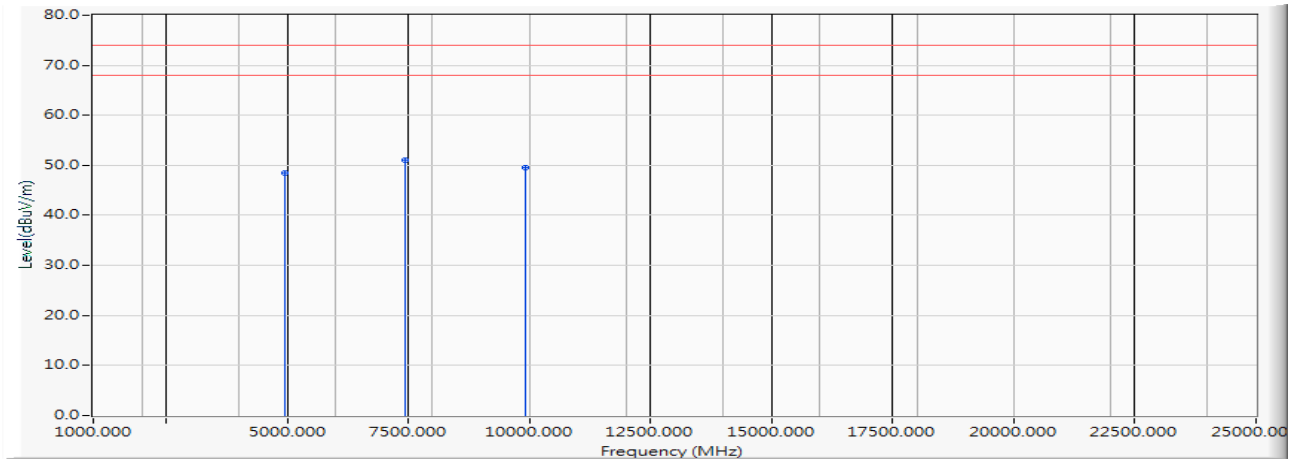
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	6.035	41.870	47.905	-26.095	74.000	PEAK
2		7440.000	10.977	37.780	48.757	-25.243	74.000	PEAK
3	*	9920.000	12.758	36.470	49.227	-24.773	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Vertical



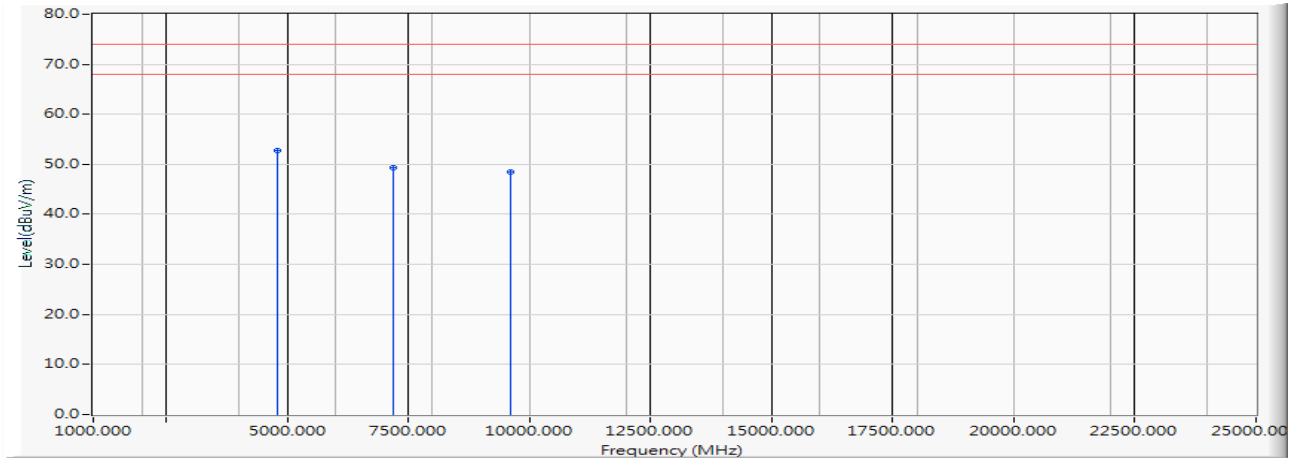
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	6.035	42.480	48.515	-25.485	74.000	PEAK
2	*	7440.000	10.977	40.020	50.997	-23.003	74.000	PEAK
3		9920.000	12.758	36.850	49.607	-24.393	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK)(2402MHz) _ 2Mbps

Horizontal



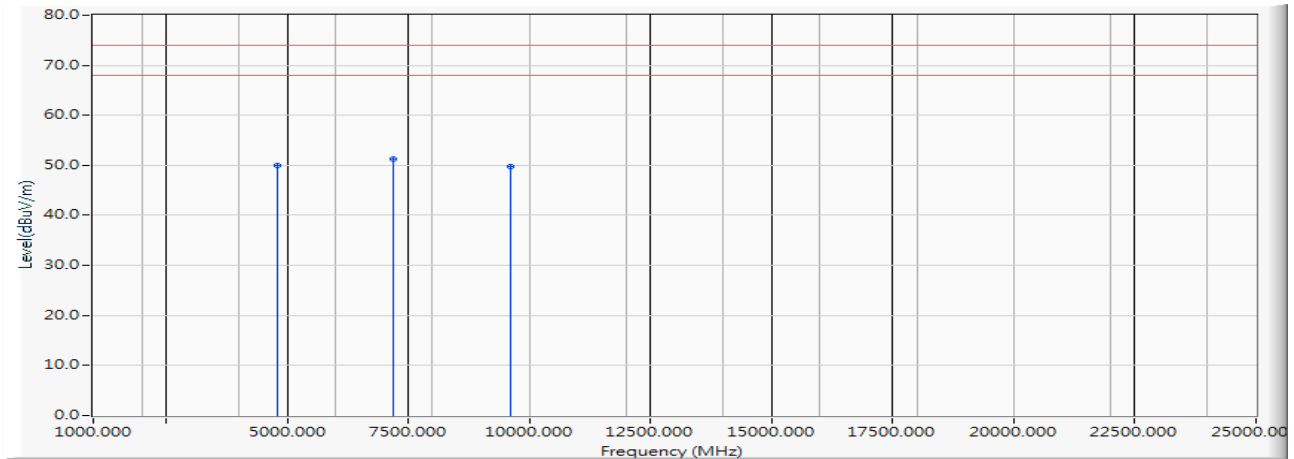
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4804.000	4.604	48.150	52.754	-21.246	74.000	PEAK
2		7206.000	11.659	37.760	49.419	-24.581	74.000	PEAK
3		9608.000	11.907	36.640	48.547	-25.453	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report..

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK)(2402MHz) _ 2Mbps

Vertical



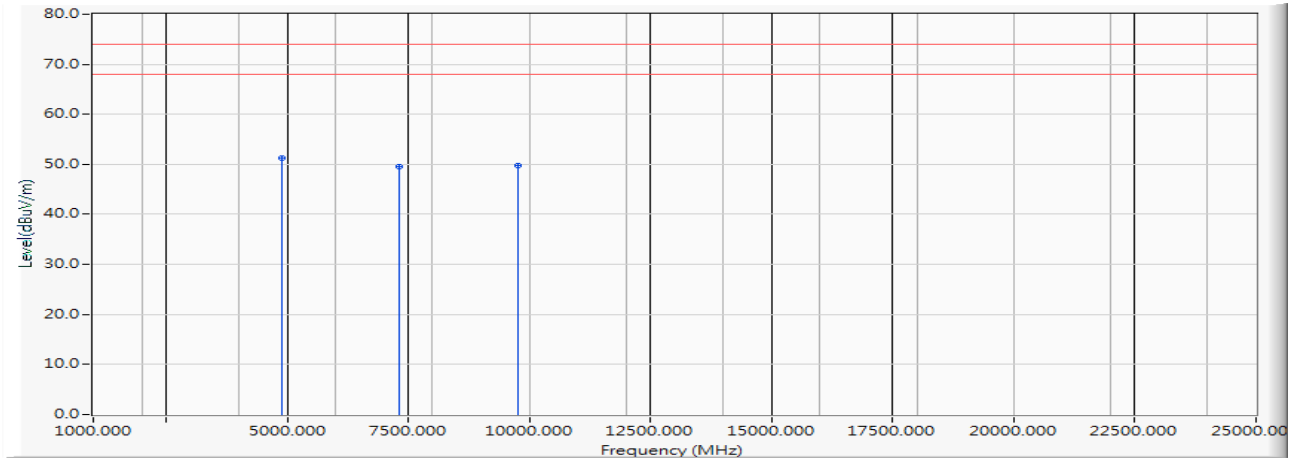
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4804.000	4.604	45.450	50.054	-23.946	74.000	PEAK
2	*	7206.000	11.659	39.580	51.239	-22.761	74.000	PEAK
3		9608.000	11.907	37.790	49.697	-24.303	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report..

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps

Horizontal



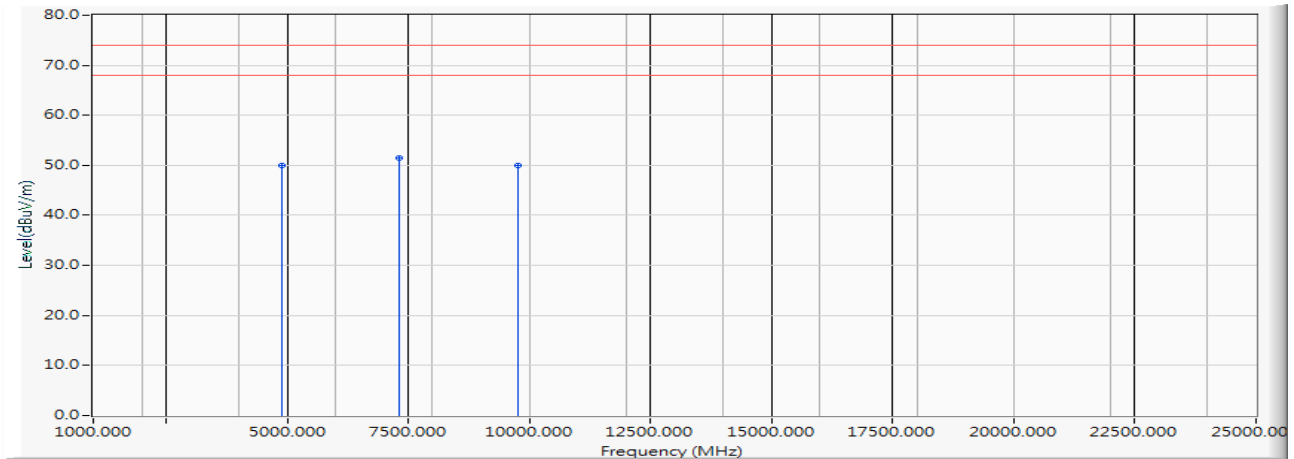
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	4880.000	5.302	45.940	51.242	-22.758	74.000	PEAK
2		7320.000	11.795	37.710	49.505	-24.495	74.000	PEAK
3		9760.000	11.929	37.790	49.720	-24.280	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps

Vertical



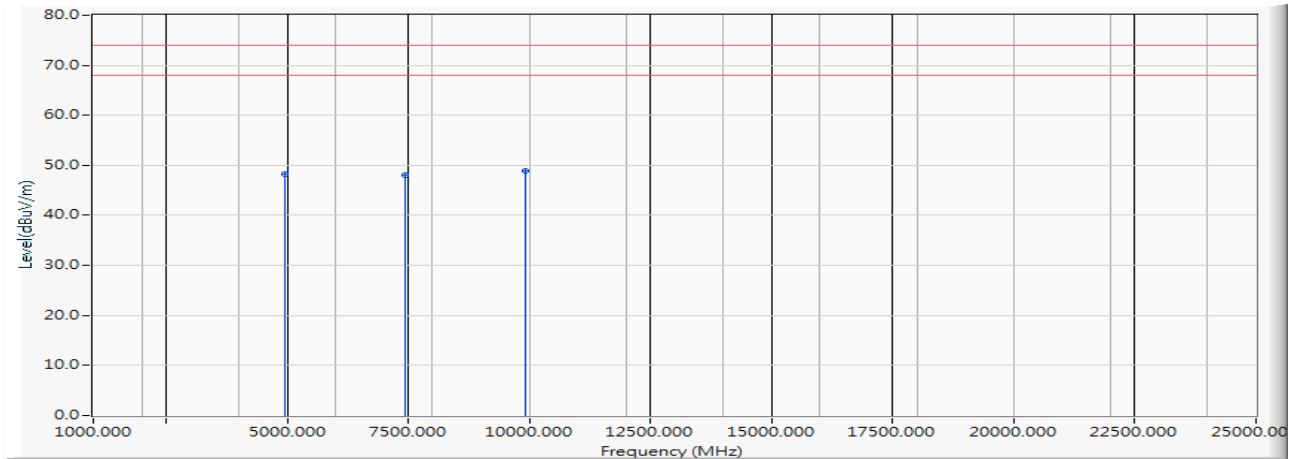
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4880.000	5.302	44.580	49.882	-24.118	74.000	PEAK
2	*	7320.000	11.795	39.730	51.525	-22.475	74.000	PEAK
3		9760.000	11.929	38.010	49.940	-24.060	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

Horizontal



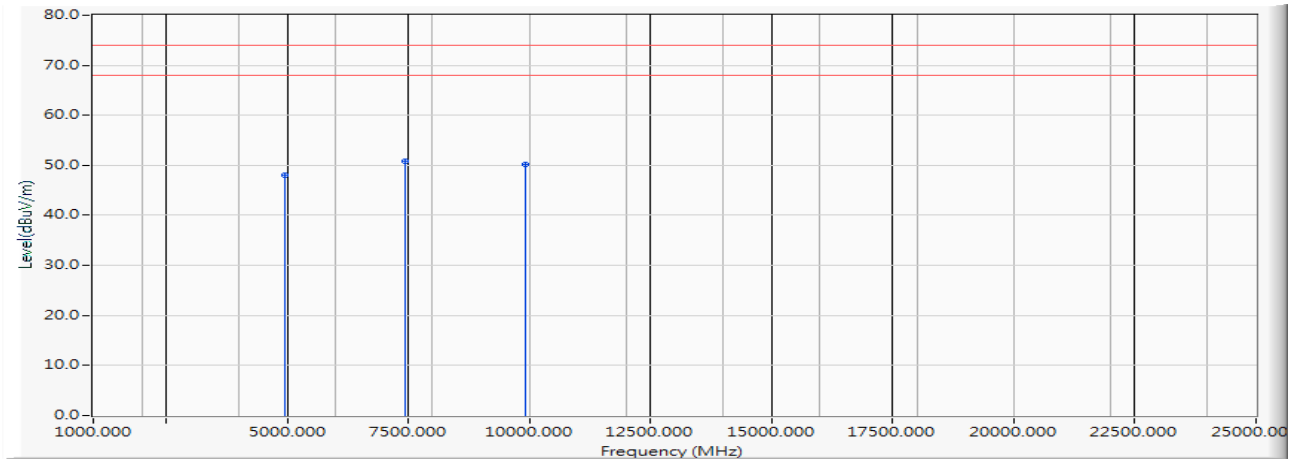
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	6.035	42.290	48.325	-25.675	74.000	PEAK
2		7440.000	10.977	37.110	48.087	-25.913	74.000	PEAK
3	*	9920.000	12.758	36.240	48.997	-25.003	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : Harmonic Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

Vertical



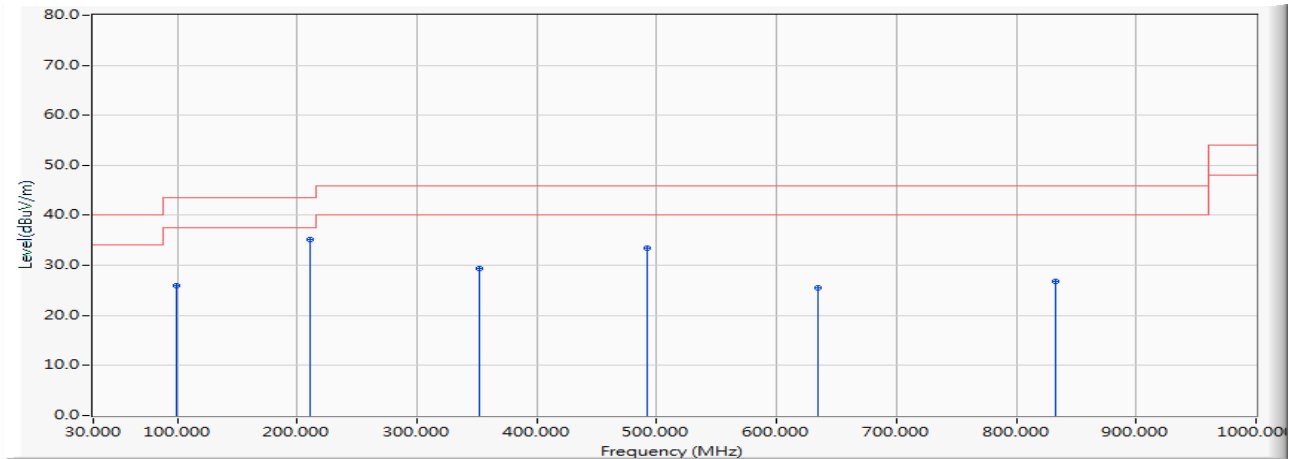
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		4960.000	6.035	41.940	47.975	-26.025	74.000	PEAK
2	*	7440.000	10.977	39.920	50.897	-23.103	74.000	PEAK
3		9920.000	12.758	37.440	50.197	-23.803	74.000	PEAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The average measurement was not performed when the peak measured data under the limit of average detection.
5. The emission levels of other frequencies are very lower than the limit and not show in test report.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps(Right ear)

Horizontal



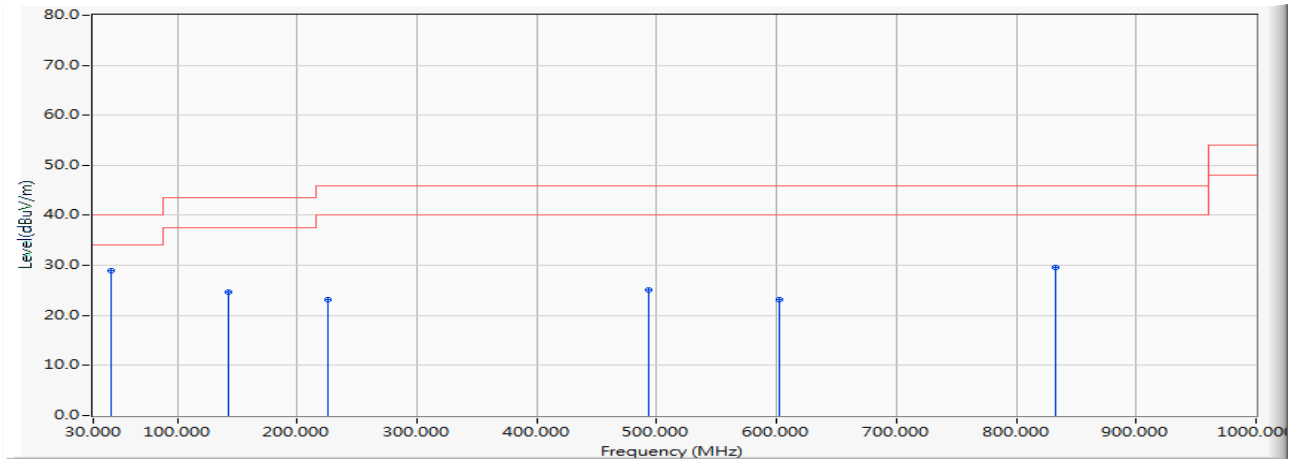
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		98.884	-16.266	42.178	25.912	-17.588	43.500	QUASIPeAK
2	*	211.348	-18.197	53.268	35.070	-8.430	43.500	QUASIPeAK
3		351.928	-13.196	42.517	29.321	-16.679	46.000	QUASIPeAK
4		492.507	-11.335	44.741	33.406	-12.594	46.000	QUASIPeAK
5		634.493	-8.631	34.084	25.453	-20.547	46.000	QUASIPeAK
6		832.710	-8.624	35.467	26.843	-19.157	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps(Right ear)

Vertical



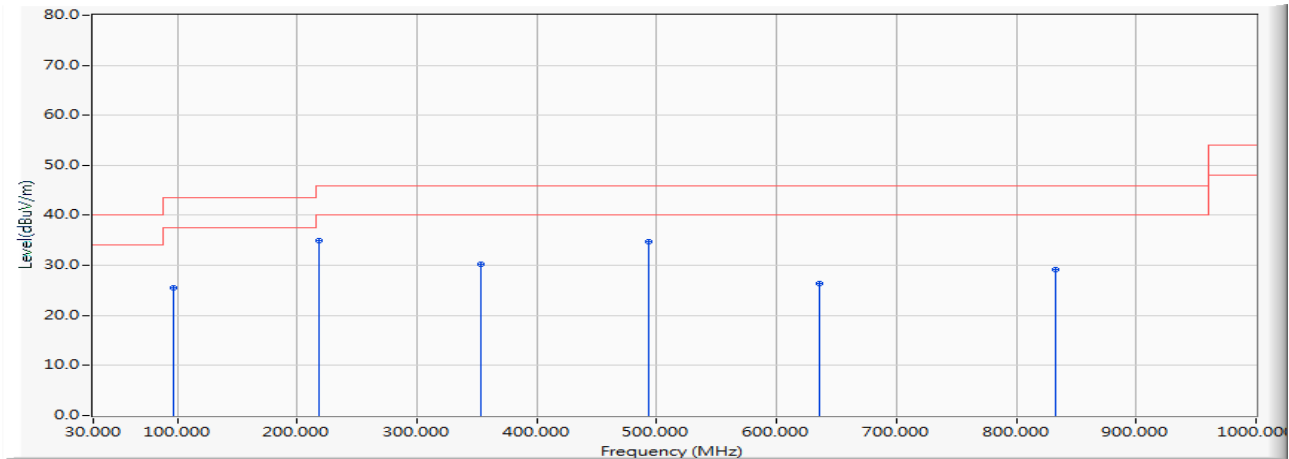
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	45.464	-18.197	47.110	28.913	-11.087	40.000	QUASIPeAK
2		142.464	-18.164	42.737	24.572	-18.928	43.500	QUASIPeAK
3		225.406	-17.797	41.038	23.241	-22.759	46.000	QUASIPeAK
4		493.913	-11.247	36.265	25.019	-20.981	46.000	QUASIPeAK
5		602.159	-6.758	29.825	23.066	-22.934	46.000	QUASIPeAK
6		832.710	-8.624	38.314	29.690	-16.310	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps(Right ear)

Horizontal



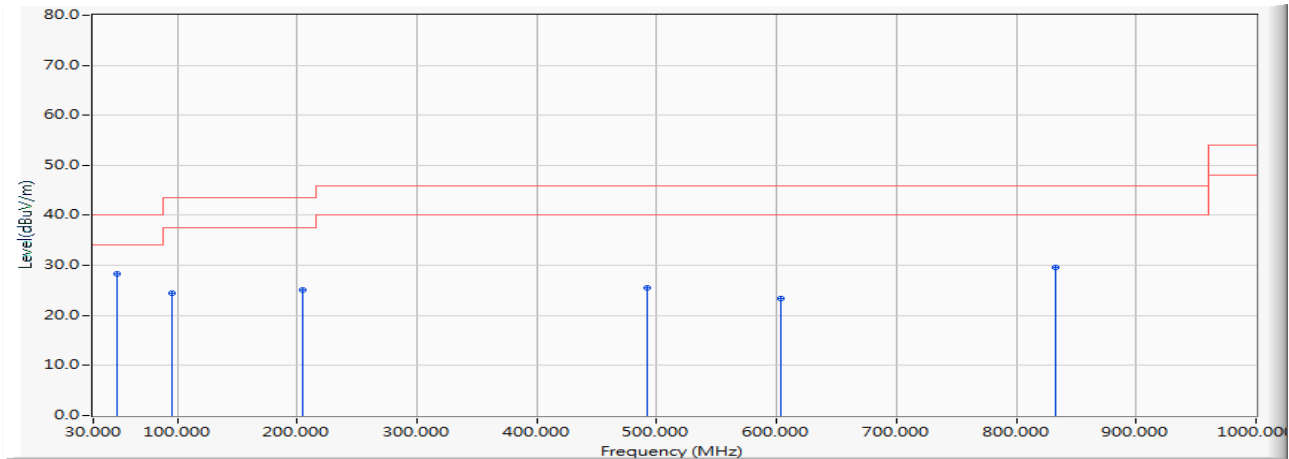
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		97.478	-16.559	42.033	25.474	-18.026	43.500	QUASIPeAK
2	*	218.377	-18.105	53.029	34.924	-11.076	46.000	QUASIPeAK
3		353.333	-13.111	43.292	30.181	-15.819	46.000	QUASIPeAK
4		493.913	-11.247	46.020	34.774	-11.226	46.000	QUASIPeAK
5		635.899	-8.679	35.091	26.412	-19.588	46.000	QUASIPeAK
6		832.710	-8.624	37.753	29.129	-16.871	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps(Right ear)

Vertical



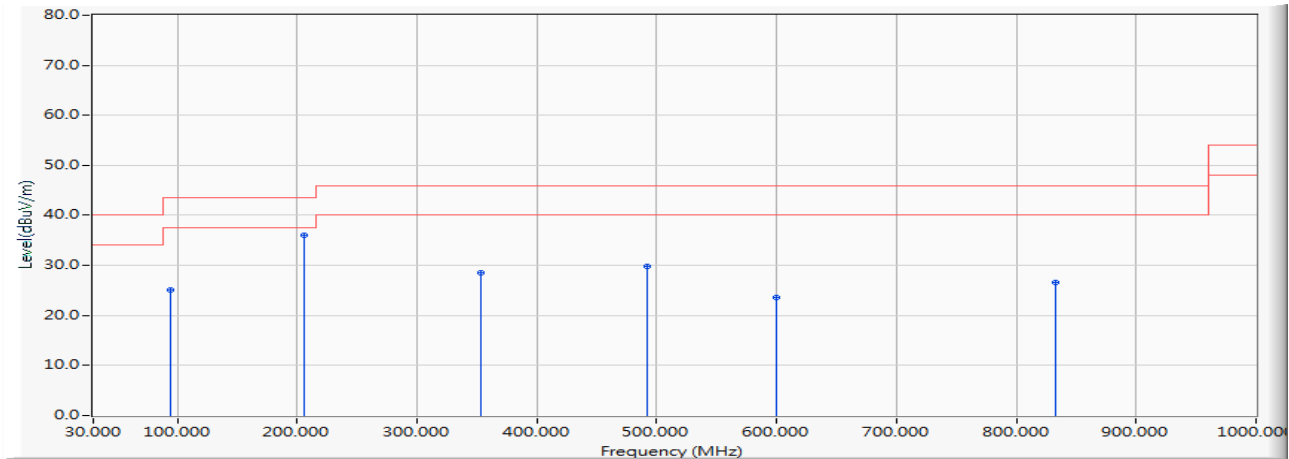
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	49.681	-17.989	46.243	28.254	-11.746	40.000	QUASIPeAK
2		96.072	-16.854	41.214	24.360	-19.140	43.500	QUASIPeAK
3		204.319	-18.166	43.264	25.098	-18.402	43.500	QUASIPeAK
4		492.507	-11.335	36.823	25.488	-20.512	46.000	QUASIPeAK
5		603.565	-6.860	30.240	23.380	-22.620	46.000	QUASIPeAK
6		832.710	-8.624	38.319	29.695	-16.305	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps(Left ear)

Horizontal



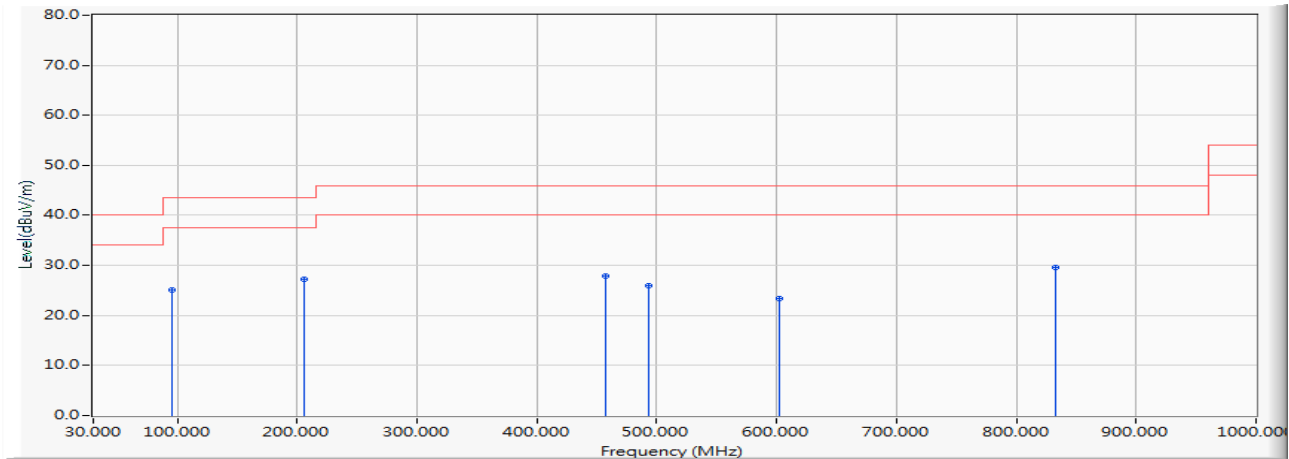
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		94.667	-17.077	42.076	24.999	-18.501	43.500	QUASIPeAK
2	*	205.725	-18.177	54.233	36.056	-7.444	43.500	QUASIPeAK
3		353.333	-13.111	41.593	28.482	-17.518	46.000	QUASIPeAK
4		492.507	-11.335	41.092	29.757	-16.243	46.000	QUASIPeAK
5		599.348	-6.631	30.180	23.549	-22.451	46.000	QUASIPeAK
6		832.710	-8.624	35.212	26.588	-19.412	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps(Left ear)

Vertical



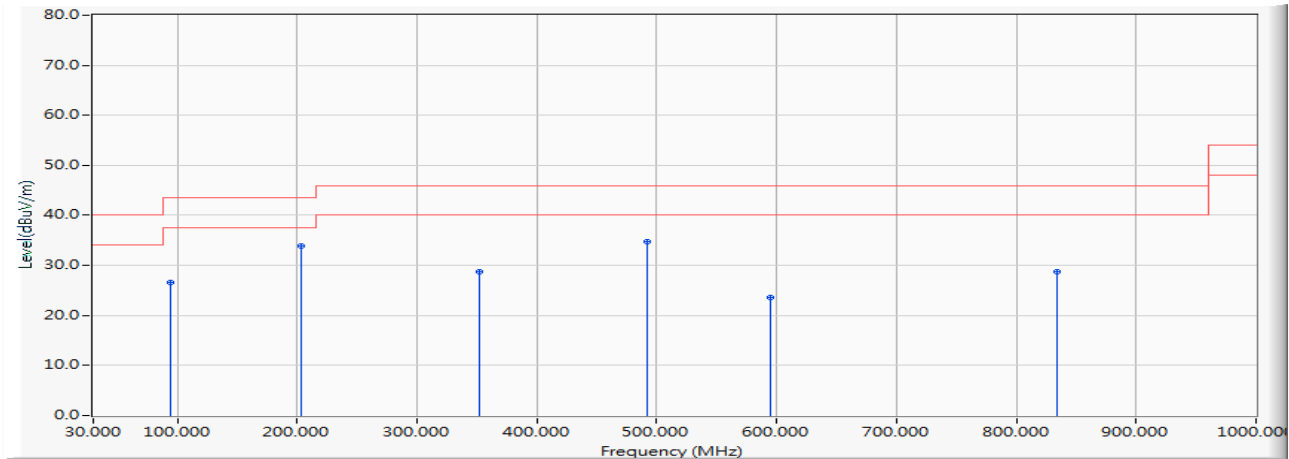
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		96.072	-16.854	41.950	25.096	-18.404	43.500	QUASIPeAK
2	*	205.725	-18.177	45.506	27.329	-16.171	43.500	QUASIPeAK
3		457.362	-10.408	38.186	27.778	-18.222	46.000	QUASIPeAK
4		493.913	-11.247	37.134	25.888	-20.112	46.000	QUASIPeAK
5		602.159	-6.758	30.036	23.277	-22.723	46.000	QUASIPeAK
6		832.710	-8.624	38.265	29.641	-16.359	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps(Left ear)

Horizontal



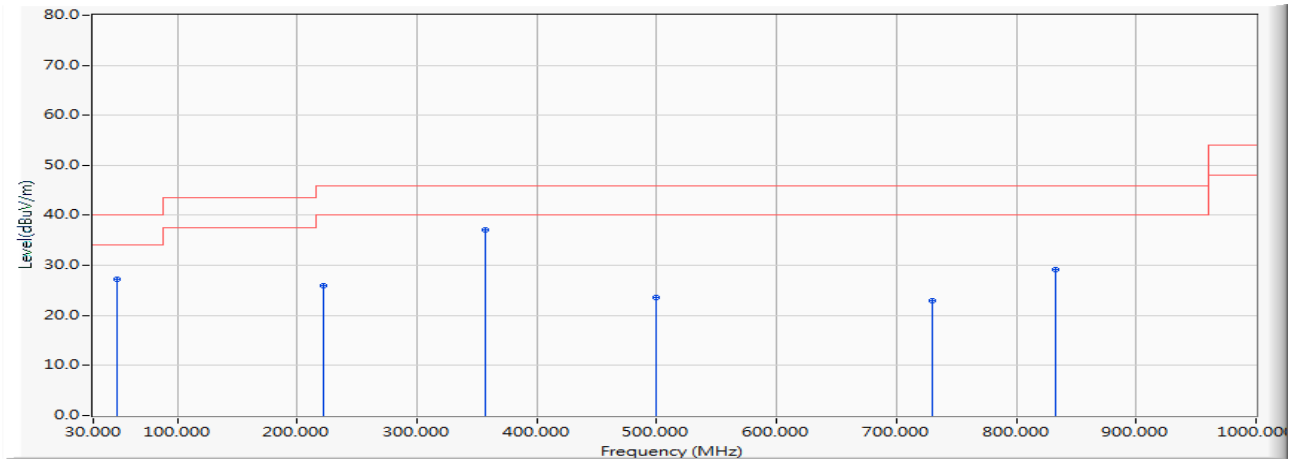
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		94.667	-17.077	43.567	26.490	-17.010	43.500	QUASIPeAK
2	*	202.913	-18.158	52.049	33.891	-9.609	43.500	QUASIPeAK
3		351.928	-13.196	41.831	28.635	-17.365	46.000	QUASIPeAK
4		492.507	-11.335	45.974	34.639	-11.361	46.000	QUASIPeAK
5		595.130	-6.823	30.328	23.505	-22.495	46.000	QUASIPeAK
6		834.116	-8.589	37.350	28.761	-17.239	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/17
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps(Left ear)

Vertical



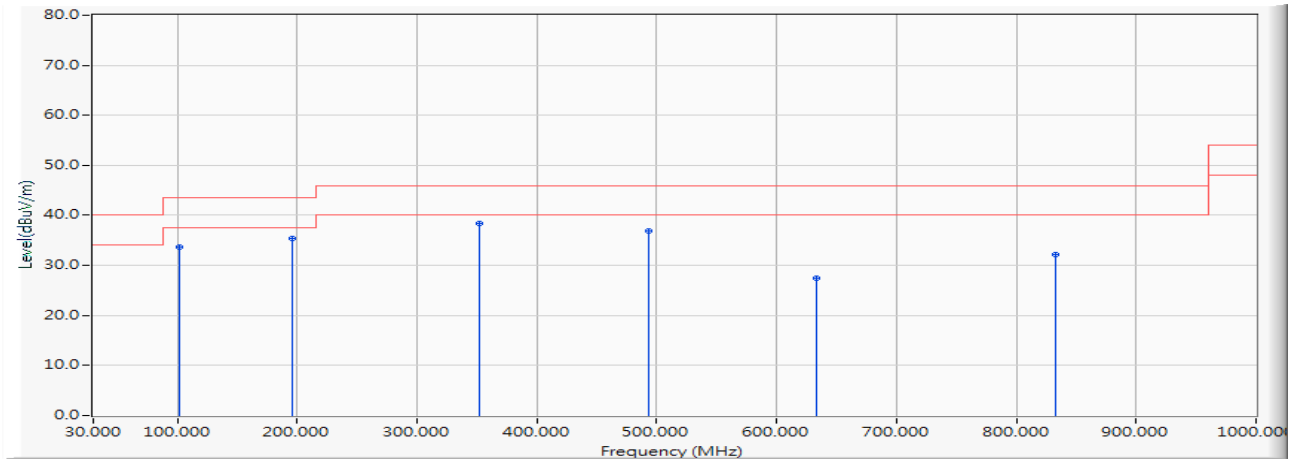
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		49.681	-17.989	45.227	27.238	-12.762	40.000	QUASIPeAK
2		222.594	-17.945	43.933	25.987	-20.013	46.000	QUASIPeAK
3	*	357.551	-12.856	50.018	37.162	-8.838	46.000	QUASIPeAK
4		499.536	-10.867	34.424	23.558	-22.442	46.000	QUASIPeAK
5		730.087	-7.221	30.112	22.892	-23.108	46.000	QUASIPeAK
6		832.710	-8.624	37.845	29.221	-16.779	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/19
 Test Mode : Mode 2: Charge

Horizontal



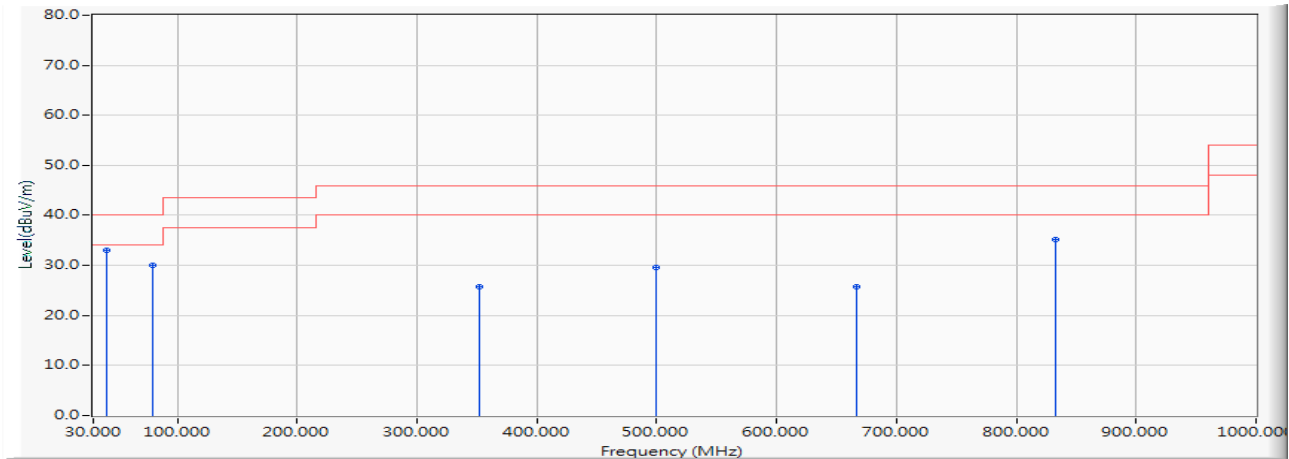
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		101.696	-15.816	49.510	33.694	-9.806	43.500	QUASIPeAK
2		195.884	-17.289	52.755	35.466	-8.034	43.500	QUASIPeAK
3	*	351.928	-10.645	49.027	38.383	-7.617	46.000	QUASIPeAK
4		493.913	-9.618	46.563	36.945	-9.055	46.000	QUASIPeAK
5		633.087	-7.188	34.743	27.556	-18.444	46.000	QUASIPeAK
6		832.710	-7.386	39.498	32.113	-13.887	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

Product : Bluetooth Headset
 Test Item : General Radiated Emission
 Test Site : No.3 OATS
 Test date : 2019/09/19
 Test Mode : Mode 2: Charge

Vertical



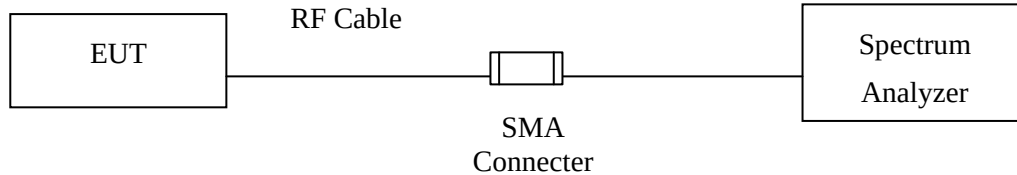
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	41.246	-16.998	49.980	32.982	-7.018	40.000	QUASIPeAK
2		79.203	-18.214	48.336	30.122	-9.878	40.000	QUASIPeAK
3		351.928	-10.645	36.409	25.765	-20.235	46.000	QUASIPeAK
4		499.536	-9.360	38.956	29.596	-16.404	46.000	QUASIPeAK
5		666.826	-7.624	33.435	25.811	-20.189	46.000	QUASIPeAK
6		832.710	-7.386	42.526	35.141	-10.859	46.000	QUASIPeAK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. Correct Factor = Antenna factor + Cable loss – Amplifier gain.
4. The emission levels of other frequencies are very lower than the limit and not show in test report.
5. No emission found between lowest internal used/generated frequency to 30MHz.

5. RF Antenna Conducted Test

5.1. Test Setup



5.2. Limits

According to RSS-247 Issue 2, 5.5 (Feb, 2017). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

5.3. Test Procedure

The EUT was setup to ANSI C63.10, 2013; According to RSS-247 Issue 2, 5.5 (Feb, 2017)

5.4. Uncertainty

$\pm 1.20\text{dB}$

5.5. Test Result of RF Antenna Conducted Test

Product : Bluetooth Headset
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test date : 2019/08/28
Test Mode : Mode 1: Transmit - BLE (GFSK)

Figure Channel 00:

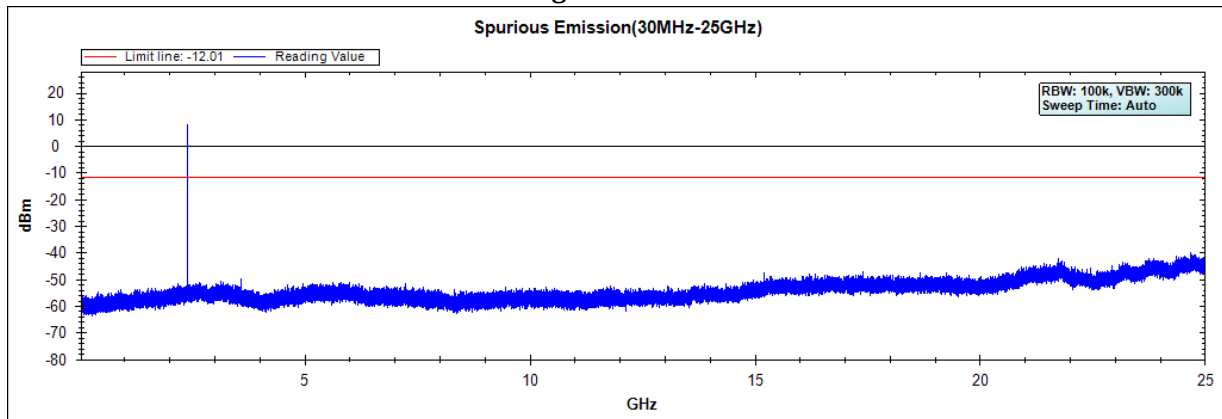


Figure Channel 19:

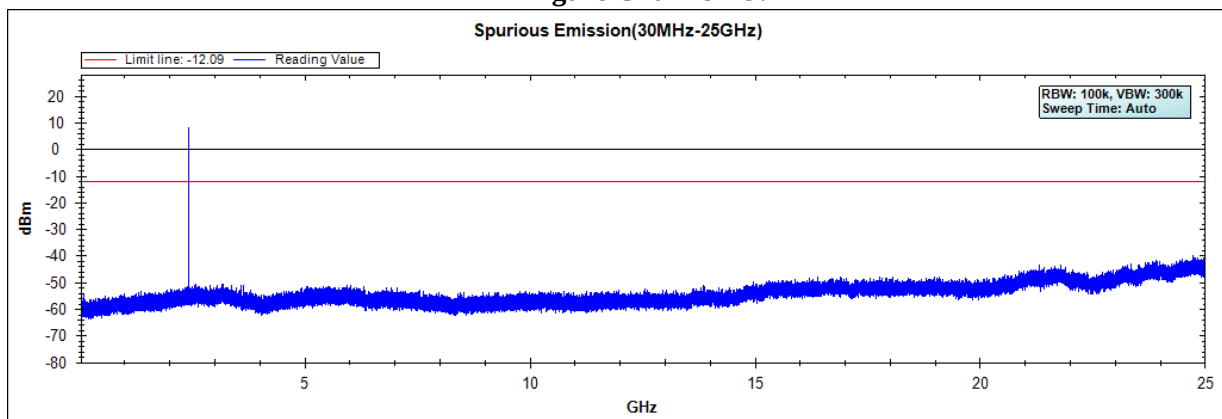
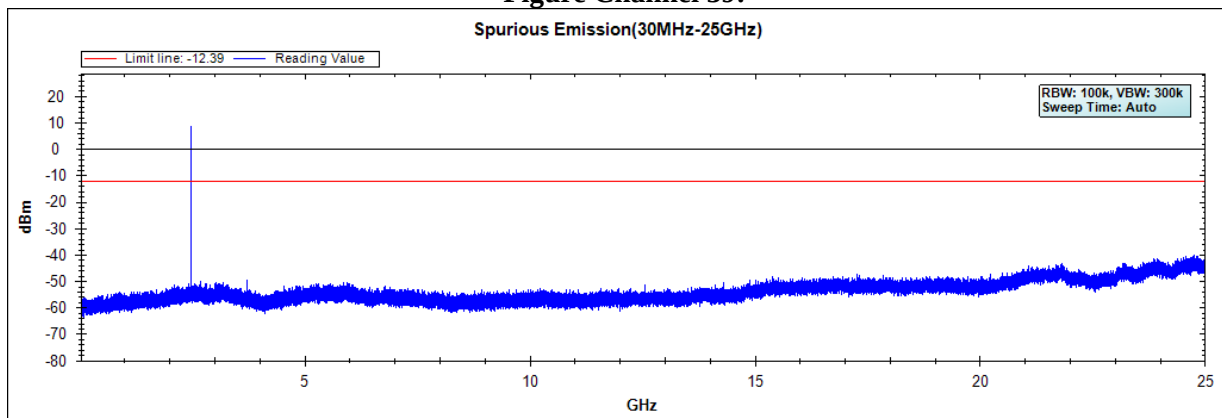
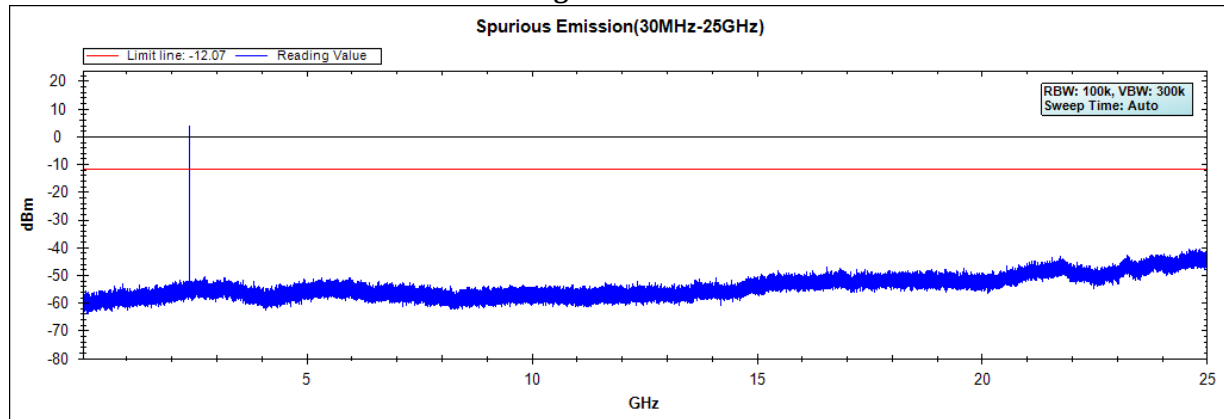
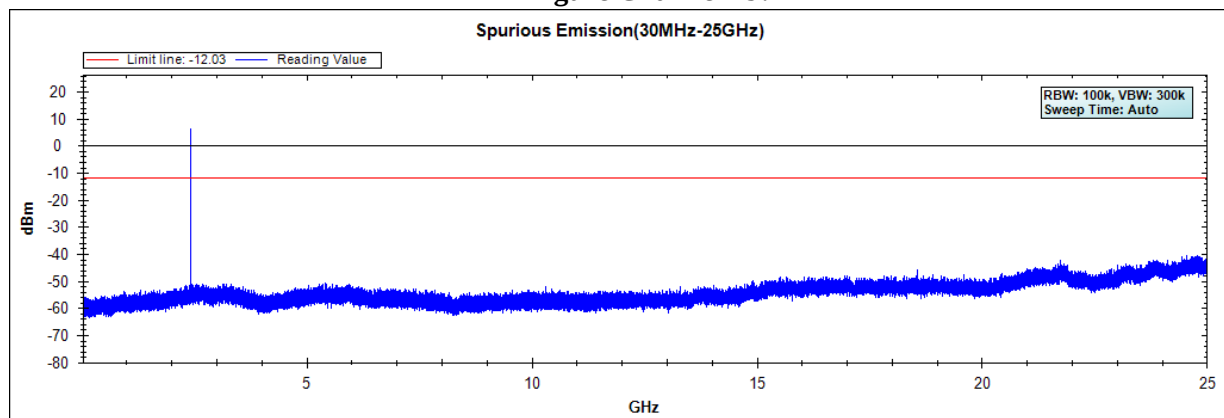
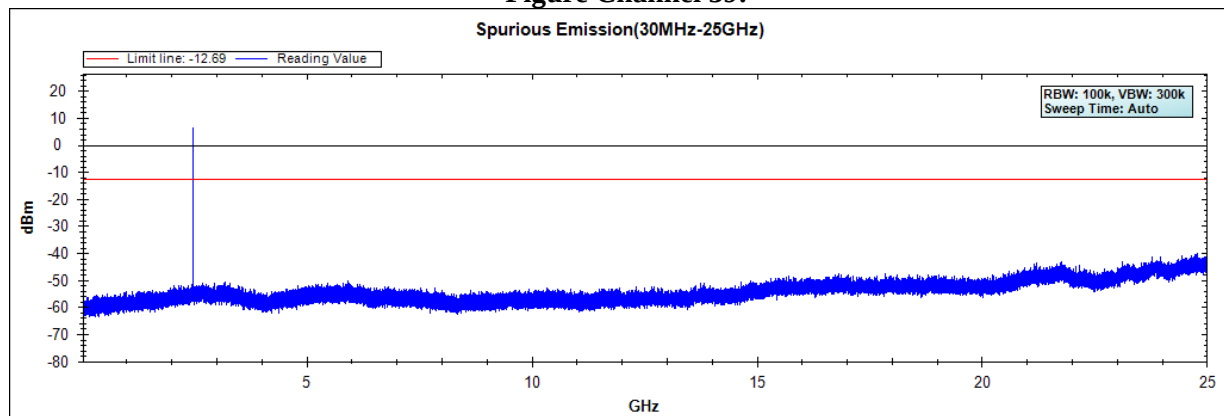


Figure Channel 39:



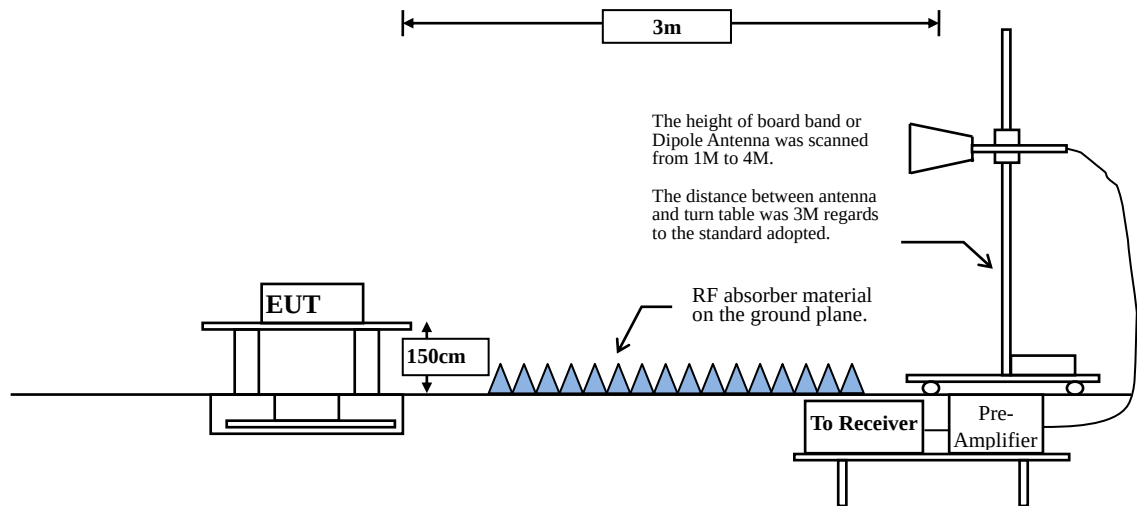
Product : Bluetooth Headset
Test Item : RF Antenna Conducted Test
Test Site : No.3 OATS
Test date : 2019/09/10
Test Mode : Mode 1: Transmit - BLE (GFSK) _ 2Mbps

Figure Channel 00:**Figure Channel 19:****Figure Channel 39:**

6. Band Edge

6.1. Test Setup

RF Radiated Measurement:



6.2. Limits

According to RSS-247 Issue 2, 5.5 (Feb, 2017). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated device is operating, the RF power that is produced 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 that the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of root-mean-square averaging over a time interval, as permitted under section 5.4(d), the attenuation required shall be 30 dB instead of 20 dB. Attenuation below the general field strength limits specified in RSS-Gen is not required.

6.3. Test Procedure

The EUT and its simulators are placed on a turn table which is 1.5 meter above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT was positioned such that the distance from antenna to the EUT was 3 meters.

The antenna can move up and down between 1 meter and 4 meters to find out the maximum emission level.

Both horizontal and vertical polarization of the antenna are set on measurement. In order to find the maximum emission, all of the interface cables must be manipulated according to ANSI C63.10: 2013 on radiated measurement.

The bandwidth below 1GHz setting on the field strength meter is 120 kHz, above 1GHz are 1 MHz.

RBW and VBW Parameter setting:

According to KDB 558074 Peak power measurement procedure

RBW = as specified in Table 1.

$VBW \geq 3 \times RBW$.

Table 1 —RBW as a function of frequency

Frequency	RBW
9-150 kHz	200-300 Hz
0.15-30 MHz	9-10 kHz
30-1000 MHz	100-120 kHz
> 1000 MHz	1 MHz

According to KDB 558074 Average power measurement procedure

RBW = 1MHz.

VBW = 10Hz, when duty cycle $\geq 98\%$

$VBW \geq 1/T$, when duty cycle $< 98\%$

(T refers to the minimum transmission duration over which the transmitter is on and is transmitting at its maximum power control level for the tested mode of operation.)

2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
BLE 1M	84.13	2.1200	472	500
BLE 2M	57.45	1.0800	926	1000

Note: Duty Cycle Refer to Section 10

6.4. Uncertainty

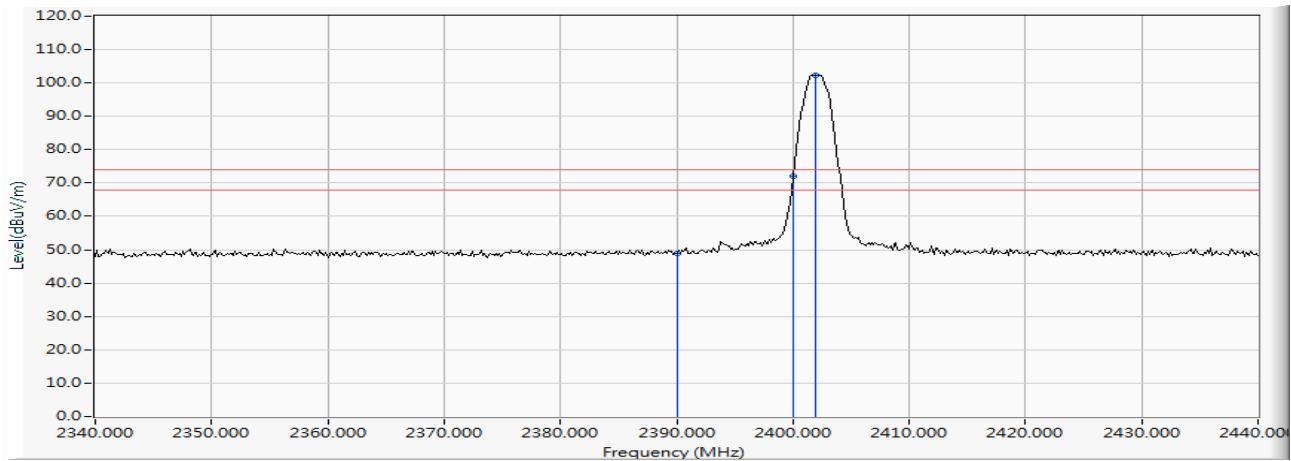
± 4.08 dB above 1GHz

± 4.22 dB below 1GHz

6.5. Test Result of Band Edge

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 1Mbps

Horizontal



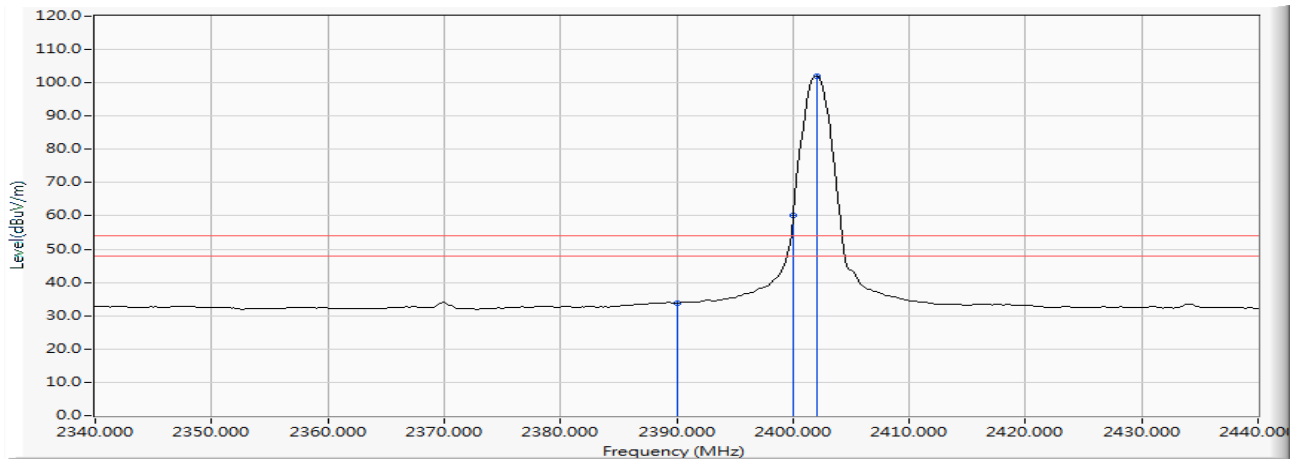
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	8.763	40.122	48.885	-25.115	74.000	PEAK
2		2400.000	8.799	63.111	71.910	--	--	PEAK
3	*	2401.884	8.806	93.614	102.420	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 1Mbps

Horizontal



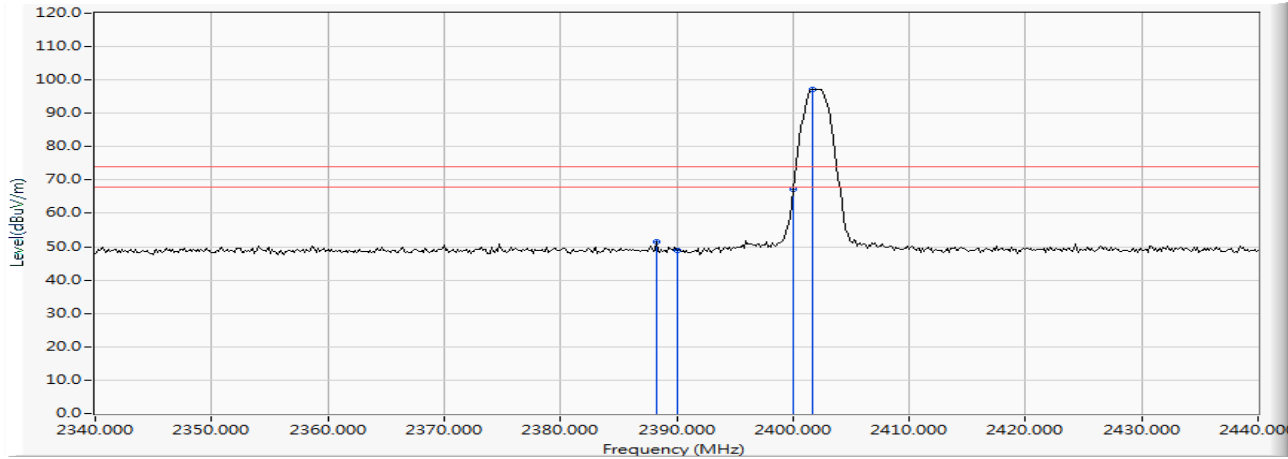
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	8.763	25.015	33.778	-20.222	54.000	AVERAGE
2		2400.000	8.799	51.207	60.006	--	--	AVERAGE
3	*	2402.029	8.807	93.331	102.137	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 1Mbps

Vertical



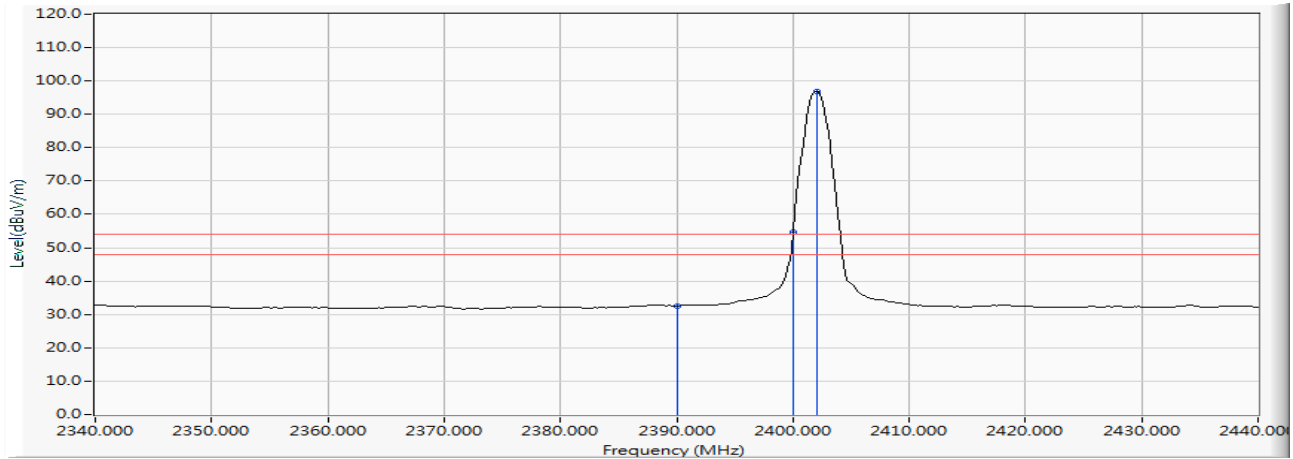
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2388.261	8.757	42.757	51.514	-22.486	74.000	PEAK
2		2390.000	8.763	40.112	48.875	-25.125	74.000	PEAK
3		2400.000	8.799	58.286	67.085	--	--	PEAK
4	*	2401.739	8.806	88.392	97.197	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 1Mbps

Vertical



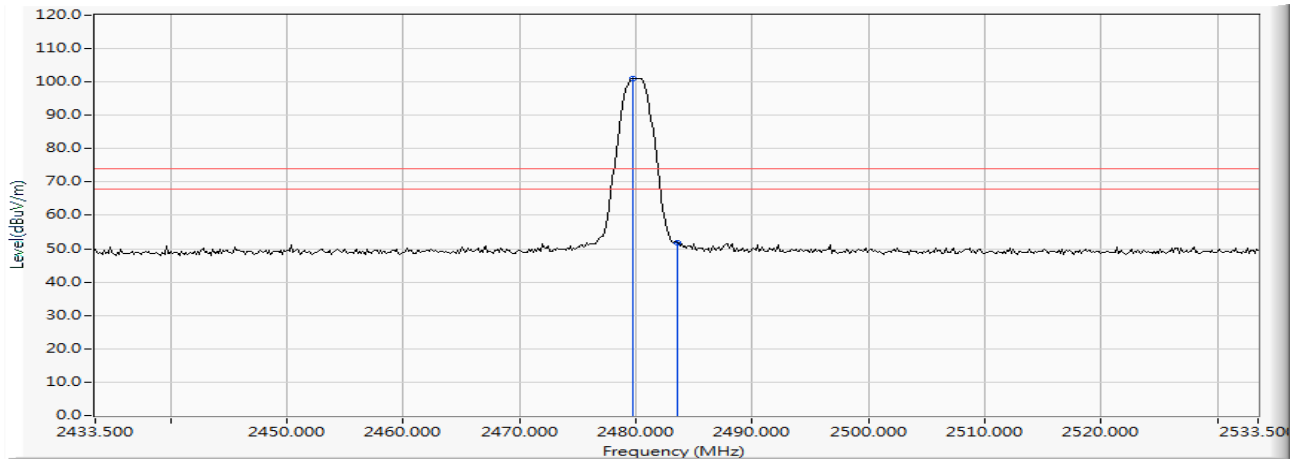
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	8.763	23.720	32.483	-21.517	54.000	AVERAGE
2		2400.000	8.799	45.999	54.798	--	--	AVERAGE
3	*	2402.029	8.807	88.104	96.910	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Horizontal



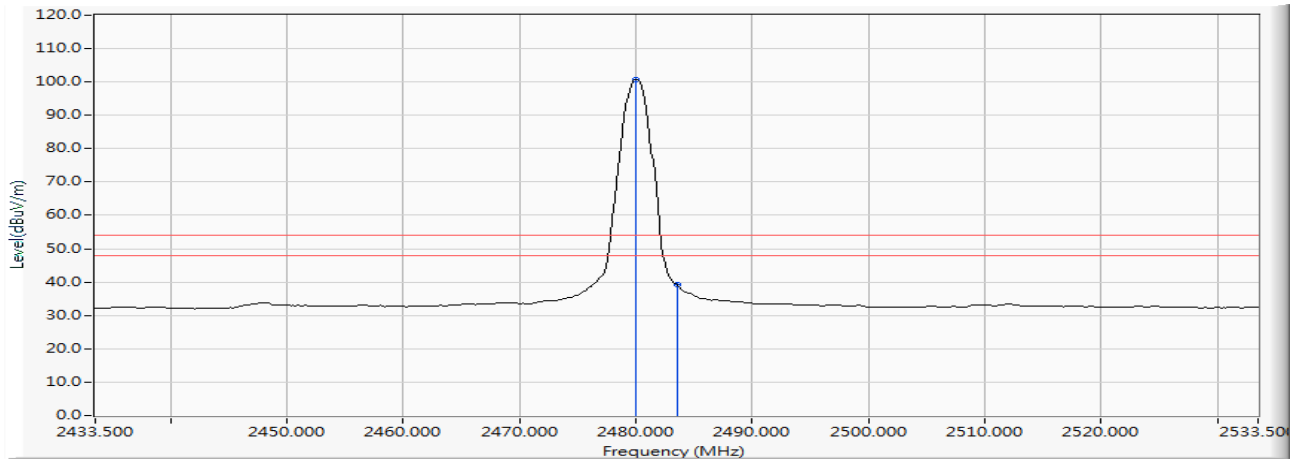
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2479.732	9.086	92.070	101.156	--	--	PEAK
2		2483.500	9.100	42.693	51.792	-22.208	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Horizontal



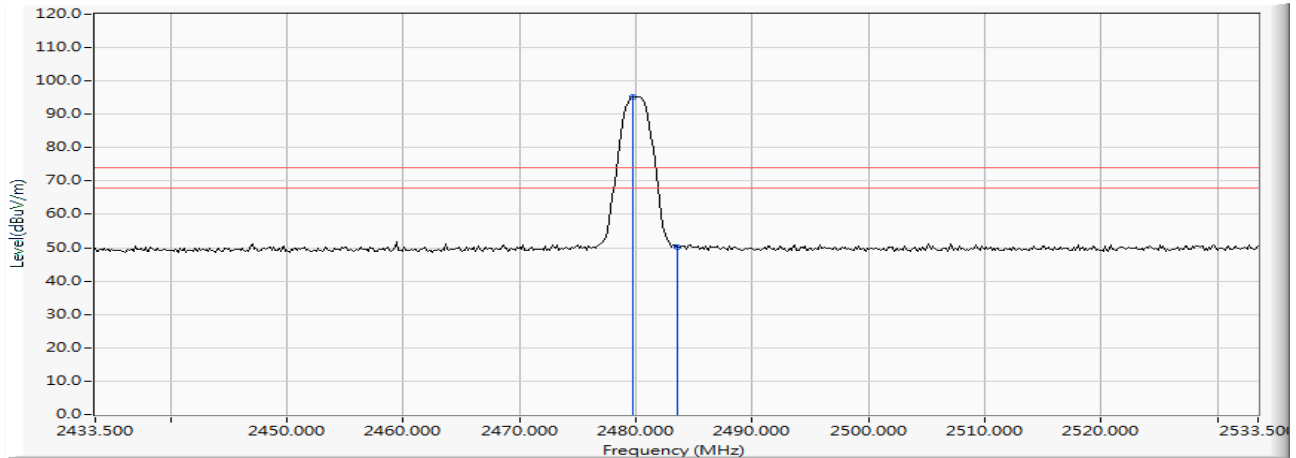
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2480.022	9.086	91.726	100.813	--	--	AVERAGE
2		2483.500	9.100	30.023	39.122	-14.878	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Vertical



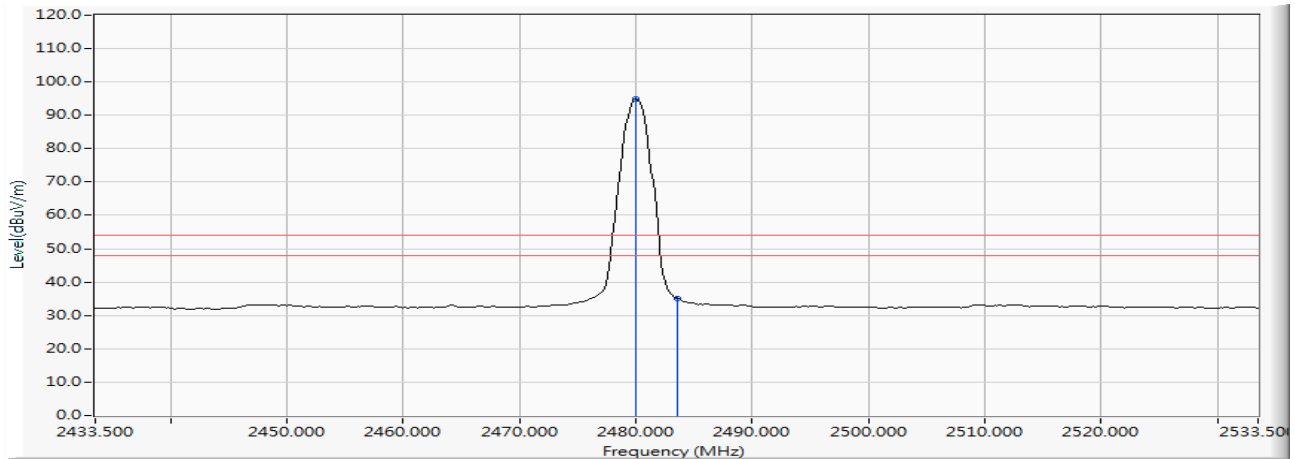
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2479.732	9.086	86.146	95.232	--	--	PEAK
2		2483.500	9.100	40.950	50.049	-23.951	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Vertical



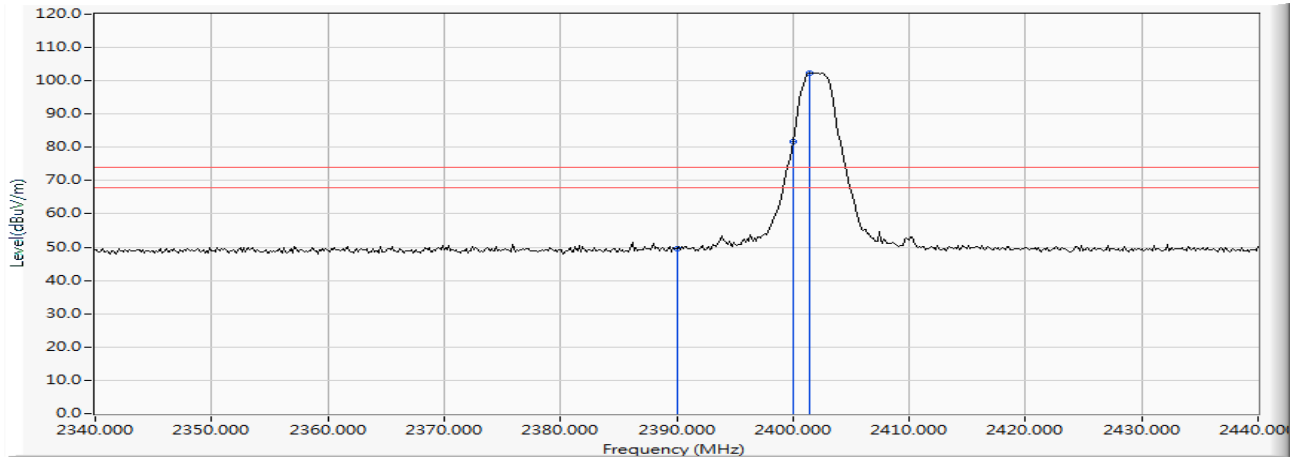
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2480.022	9.086	85.760	94.847	--	--	AVERAGE
2		2483.500	9.100	26.060	35.159	-18.841	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 2Mbps

Horizontal



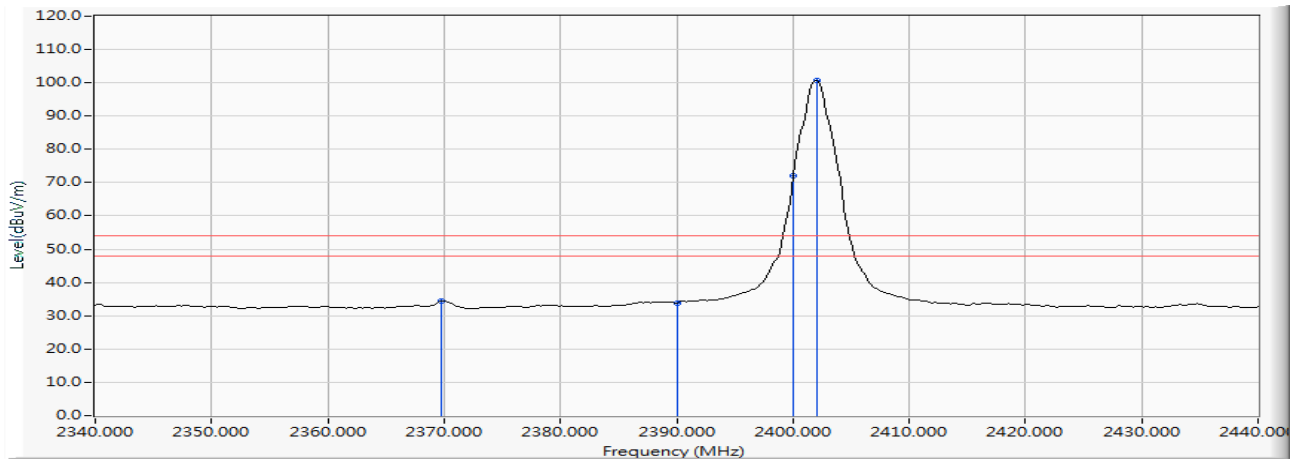
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	8.763	40.927	49.690	-24.310	74.000	PEAK
2		2400.000	8.799	73.043	81.842	--	--	PEAK
3	*	2401.449	8.805	93.622	102.426	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 2Mbps

Horizontal



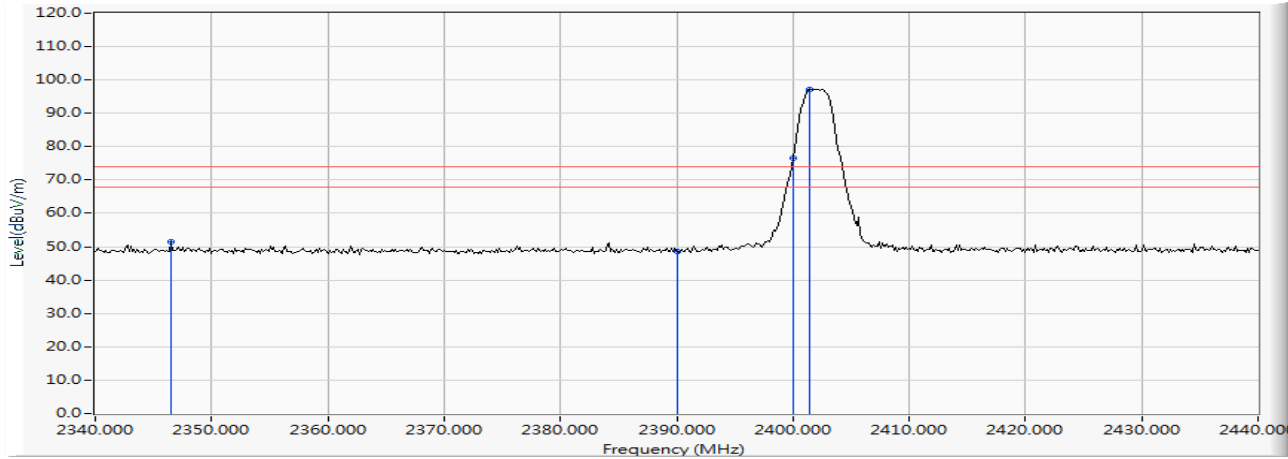
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2369.710	8.690	25.646	34.336	-19.664	54.000	AVERAGE
2		2390.000	8.763	25.137	33.900	-20.100	54.000	AVERAGE
3		2400.000	8.799	63.325	72.124	--	--	AVERAGE
4	*	2402.029	8.807	91.854	100.660	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 2Mbps

Vertical



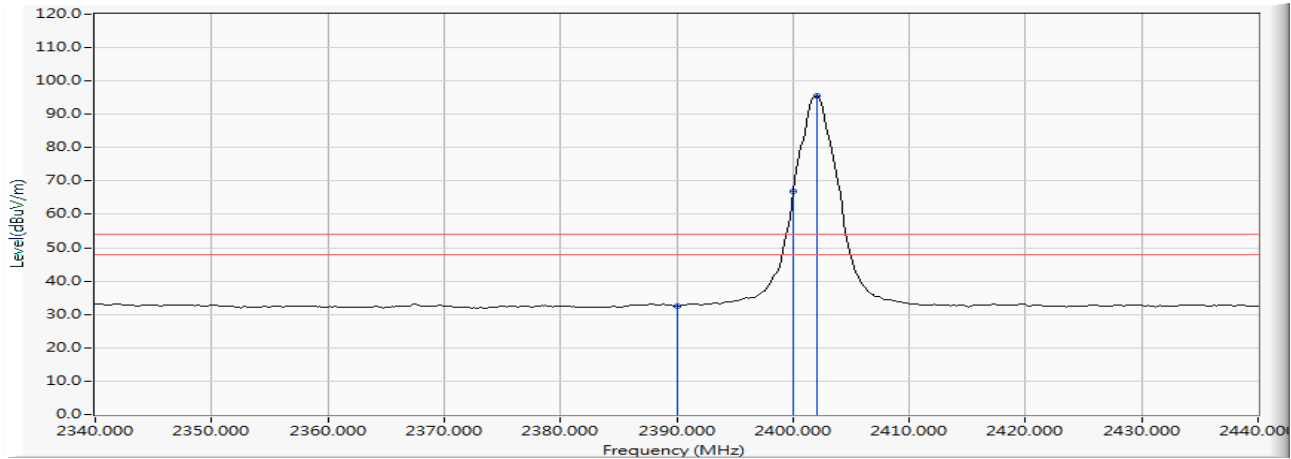
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2346.522	8.606	42.782	51.388	-22.612	74.000	PEAK
2		2390.000	8.763	39.861	48.624	-25.376	74.000	PEAK
3		2400.000	8.799	67.835	76.634	--	--	PEAK
4	*	2401.449	8.805	88.439	97.243	--	--	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 2Mbps

Vertical



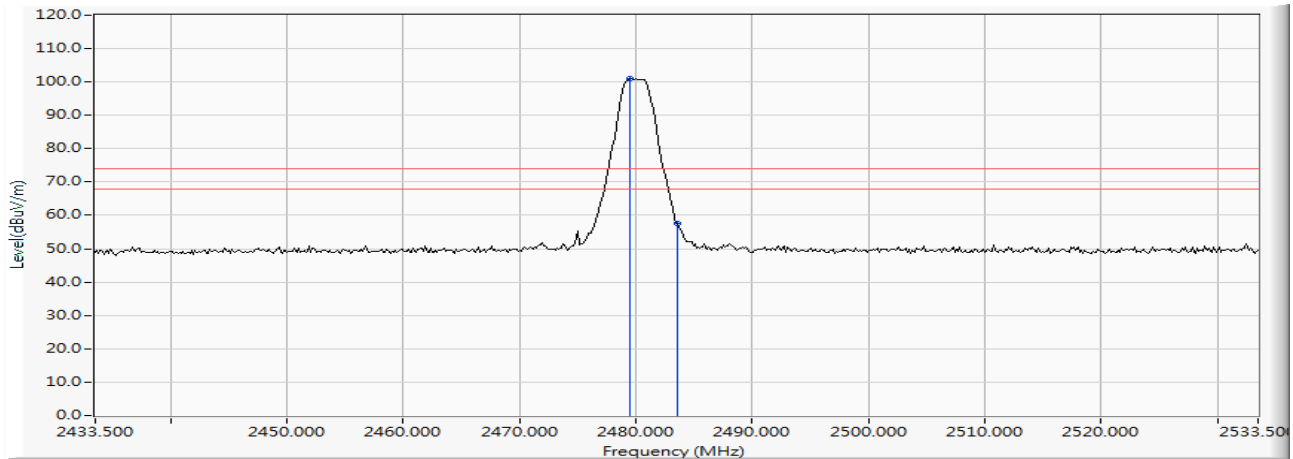
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1		2390.000	8.763	23.799	32.562	-21.438	54.000	AVERAGE
2		2400.000	8.799	58.147	66.946	--	--	AVERAGE
3	*	2402.029	8.807	86.602	95.408	--	--	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

Horizontal



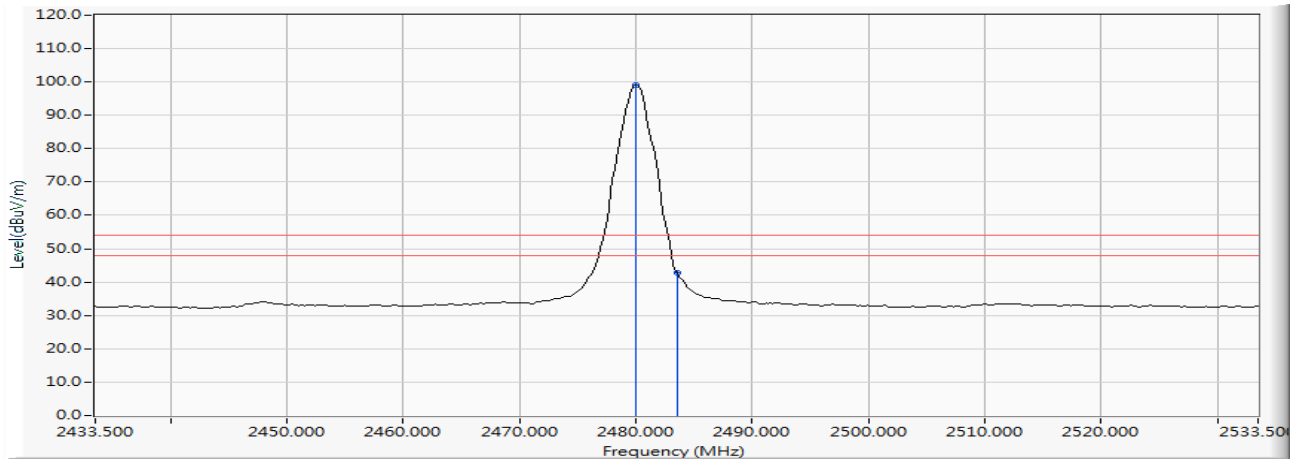
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2479.442	9.084	91.920	101.004	--	--	PEAK
2		2483.500	9.100	48.460	57.559	-16.441	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

Horizontal



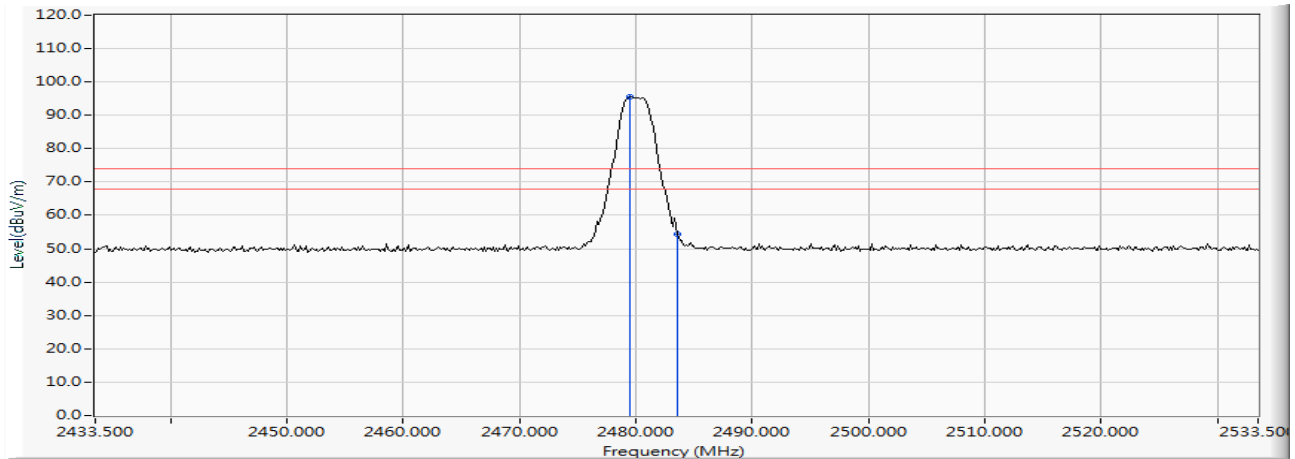
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2480.022	9.086	90.072	99.159	--	--	AVERAGE
2		2483.500	9.100	33.821	42.920	-11.080	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

Vertical



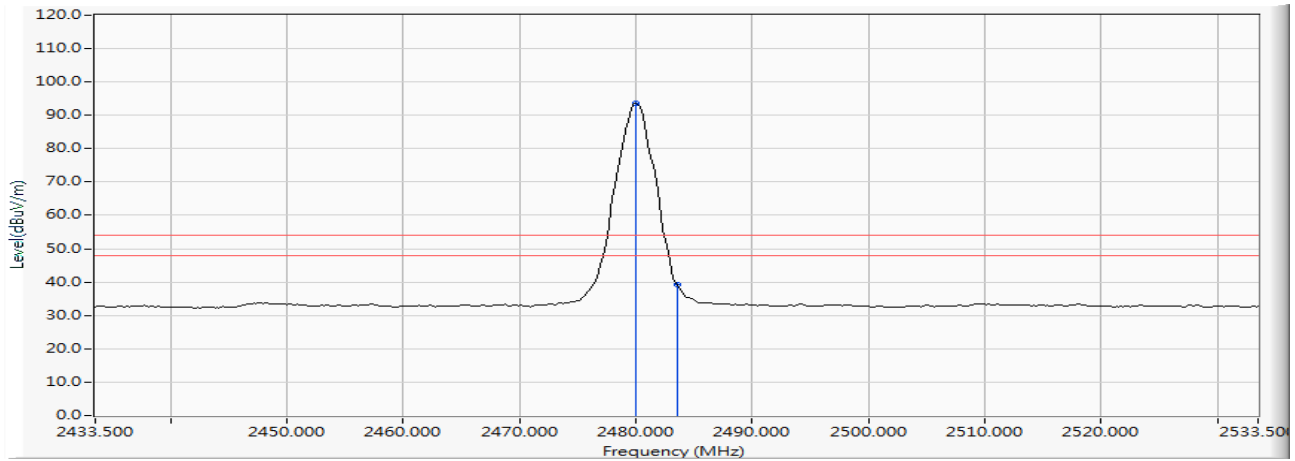
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2479.442	9.084	86.323	95.407	--	--	PEAK
2		2483.500	9.100	45.241	54.340	-19.660	74.000	PEAK

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

Product : Bluetooth Headset
 Test Item : Band Edge
 Test Site : No.3 OATS
 Test date : 2019/09/18
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

Vertical



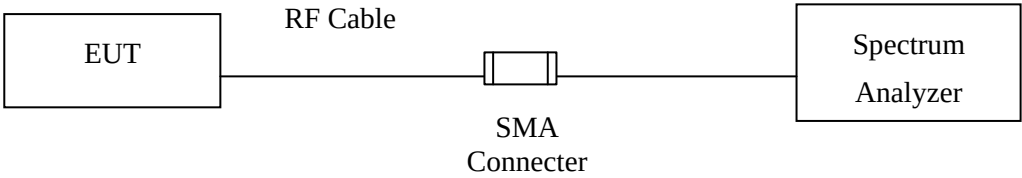
		Frequency (MHz)	Correct Factor (dB)	Reading Level (dBuV)	Measure Level (dBuV/m)	Margin (dB)	Limit (dBuV/m)	Detector Type
1	*	2480.022	9.086	84.444	93.531	--	--	AVERAGE
2		2483.500	9.100	30.281	39.380	-14.620	54.000	AVERAGE

Note:

1. All readings above 1GHz are performed with peak and/or average measurements as necessary.
2. Measurement Level = Reading Level + Correct Factor.
3. The average measurement was not performed when the peak measured data under the limit of average detection.

7. 99% Occupied Bandwidth

7.1. Test Setup



7.2. Limits

No Required

7.3. Uncertainty

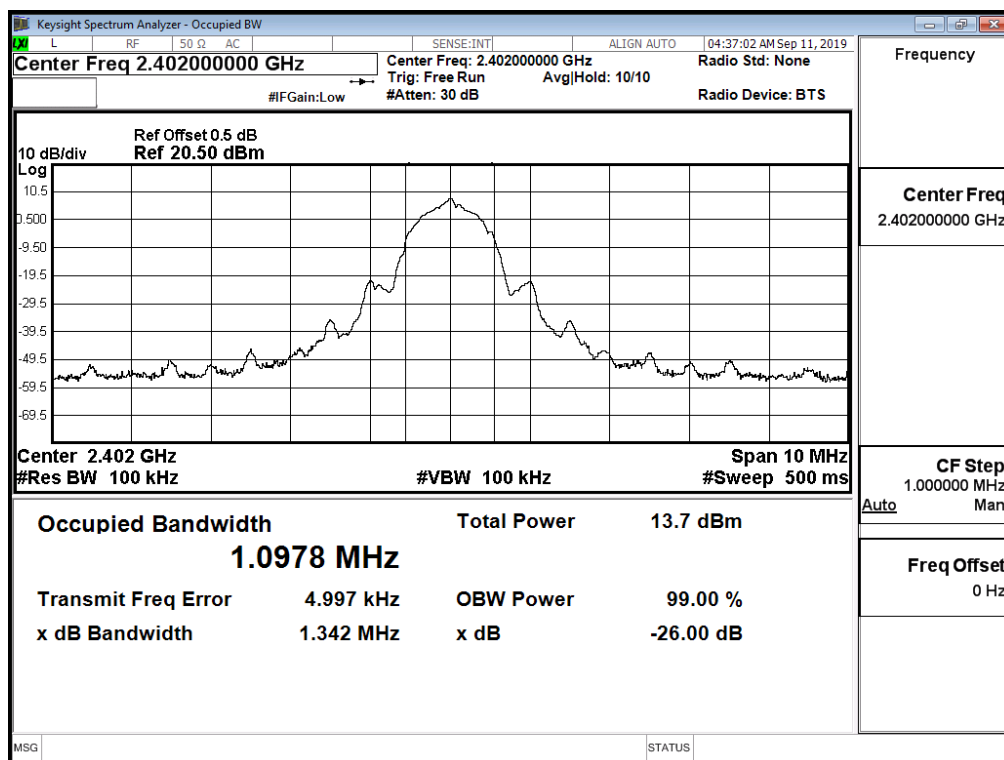
$\pm 283\text{Hz}$

7.4. Test Result of 99% Occupied Bandwidth

Product : Bluetooth Headset
 Test Item : 99% Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz)_ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1097.8	--	NA

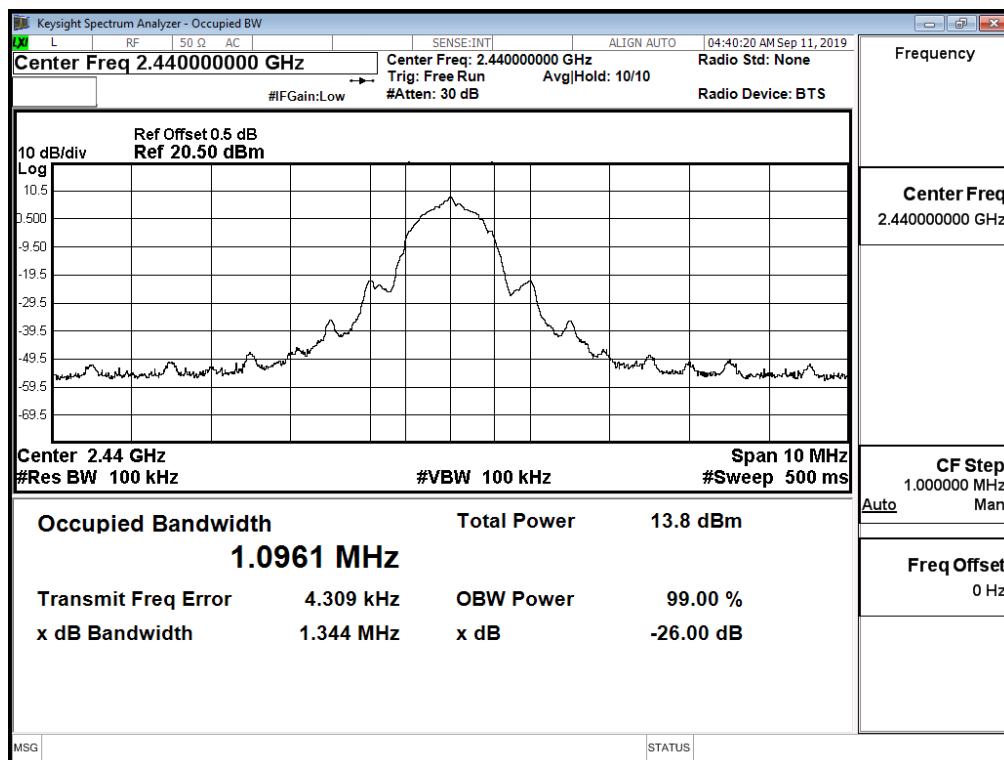
Figure Channel 00:



Product : Bluetooth Headset
 Test Item : 99% Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz)_ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
19	2440	1096.1	--	NA

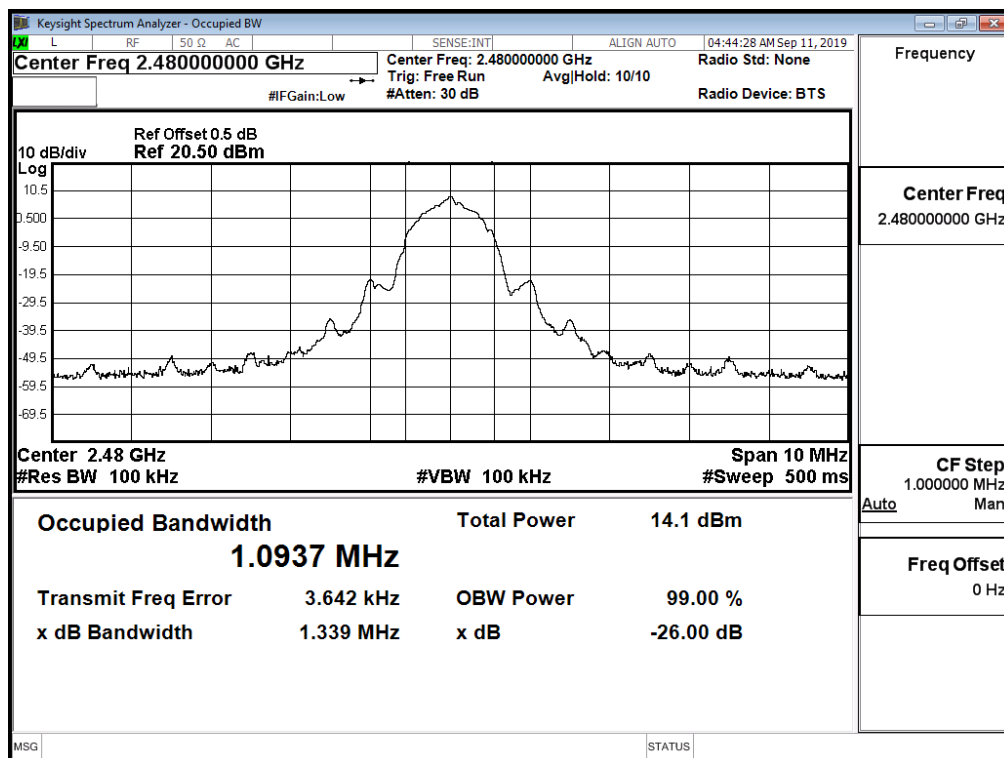
Figure Channel 19:



Product : Bluetooth Headset
 Test Item : 99% Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz)_ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2480	1093.7	--	NA

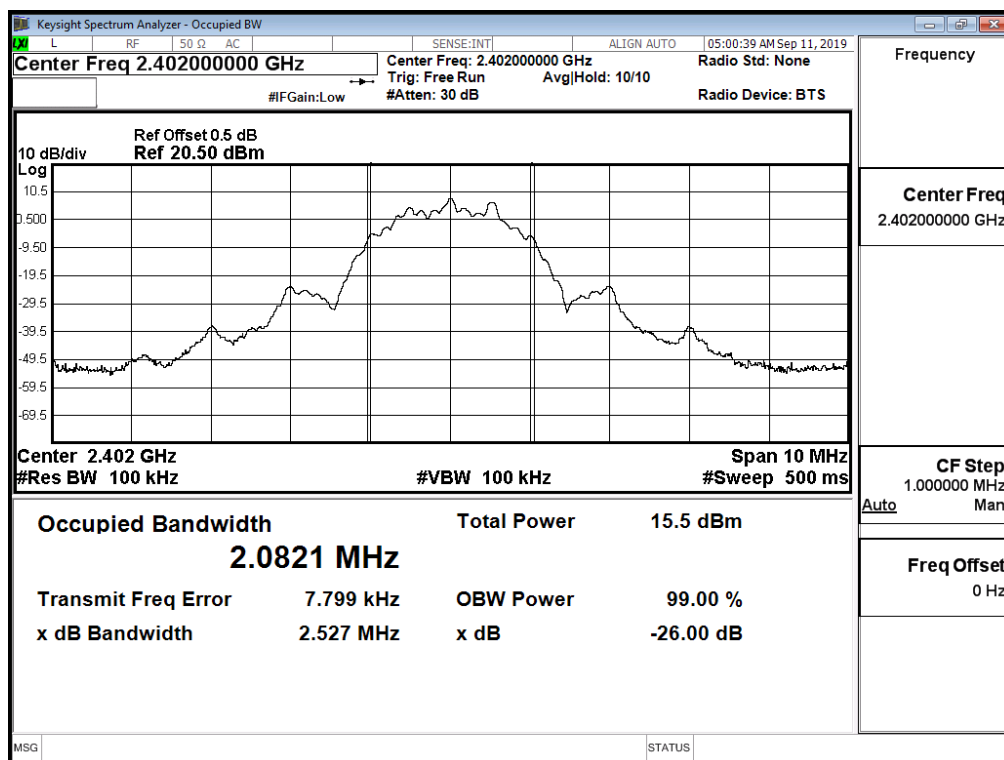
Figure Channel 39:



Product : Bluetooth Headset
 Test Item : 99% Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz)_ 2Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	2082.1	--	NA

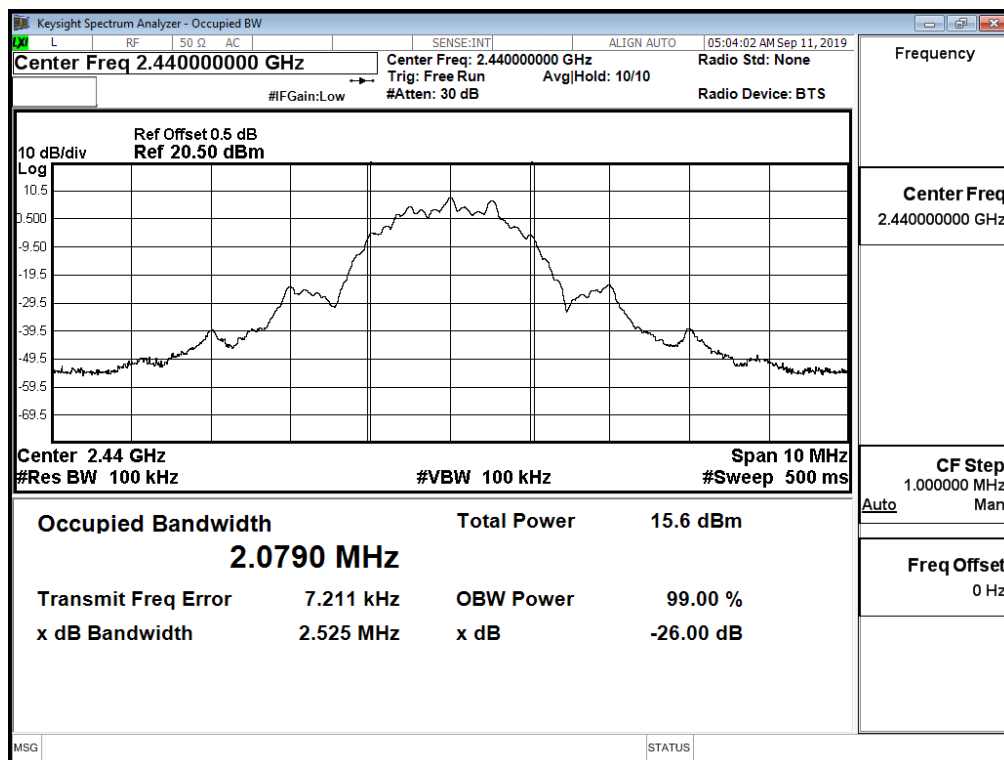
Figure Channel 00:



Product : Bluetooth Headset
 Test Item : 99% Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz)_ Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
19	2440	2079	--	NA

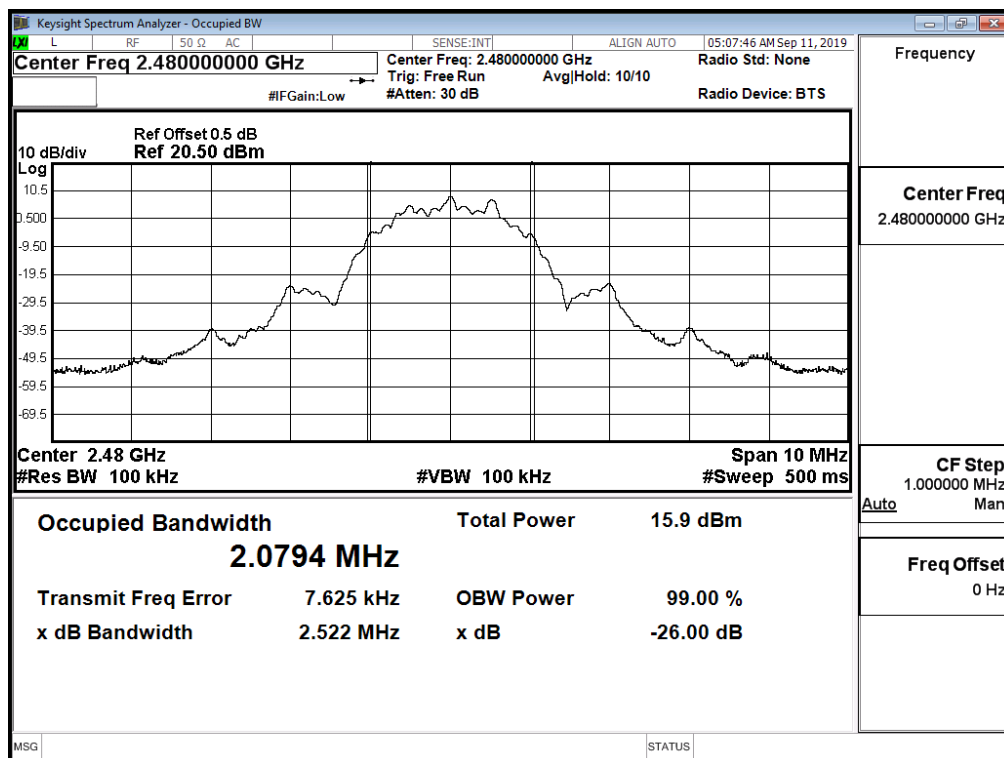
Figure Channel 19:



Product : Bluetooth Headset
 Test Item : 99% Occupied Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz)_ 2Mbps

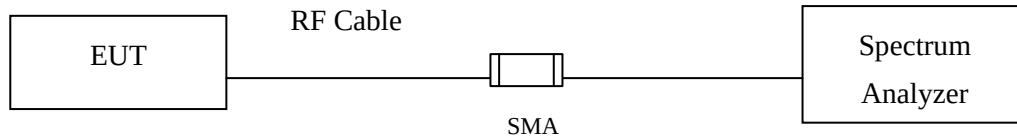
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2480	2079.4	--	NA

Figure Channel 39:



8. 6dB Bandwidth

8.1. Test Setup



8.2. Limits

According to RSS-247 Issue 2, 5.2 (a)(Feb, 2017).The minimum bandwidth shall be at least 500kHz.

8.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to RSS-247 Issue 2 (Feb, 2017) requirements.

8.4. Uncertainty

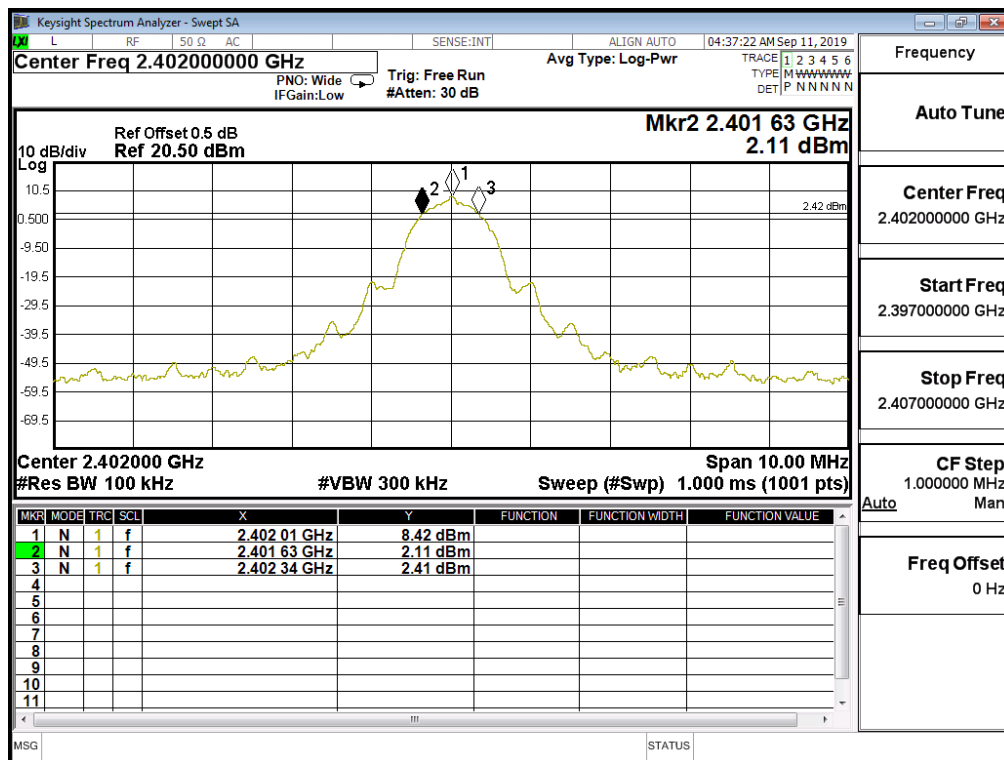
$\pm 283\text{Hz}$

8.5. Test Result of 6dB Bandwidth

Product : Bluetooth Headset
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	710	>500	Pass

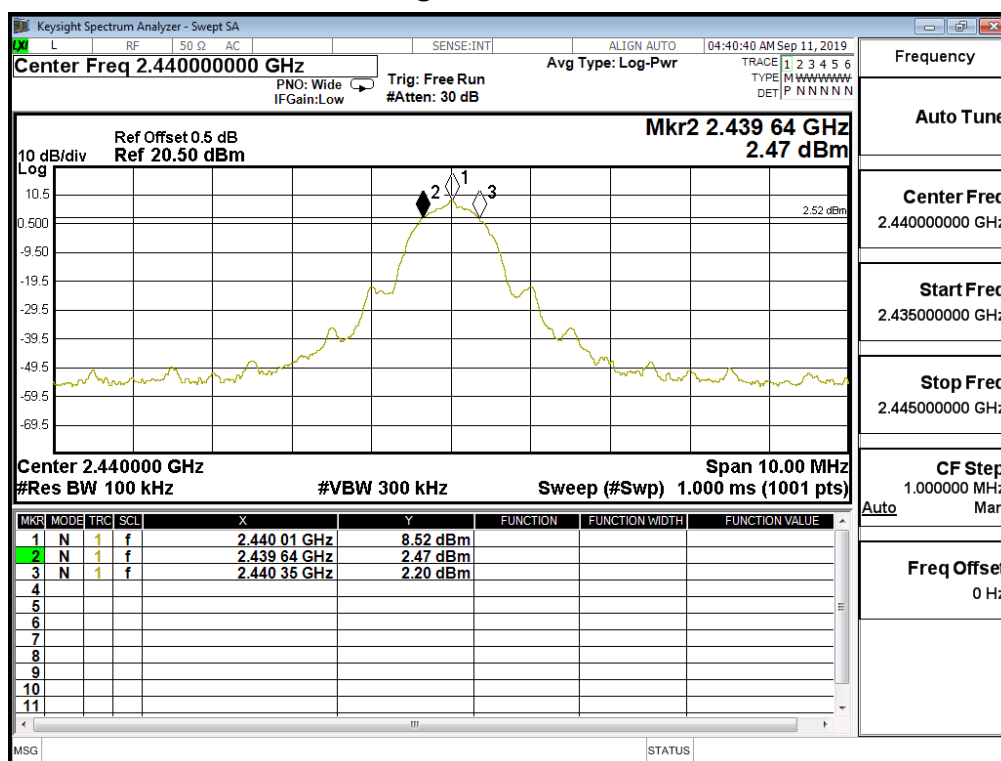
Figure Channel 00:



Product : Bluetooth Headset
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
19	2440	710	>500	Pass

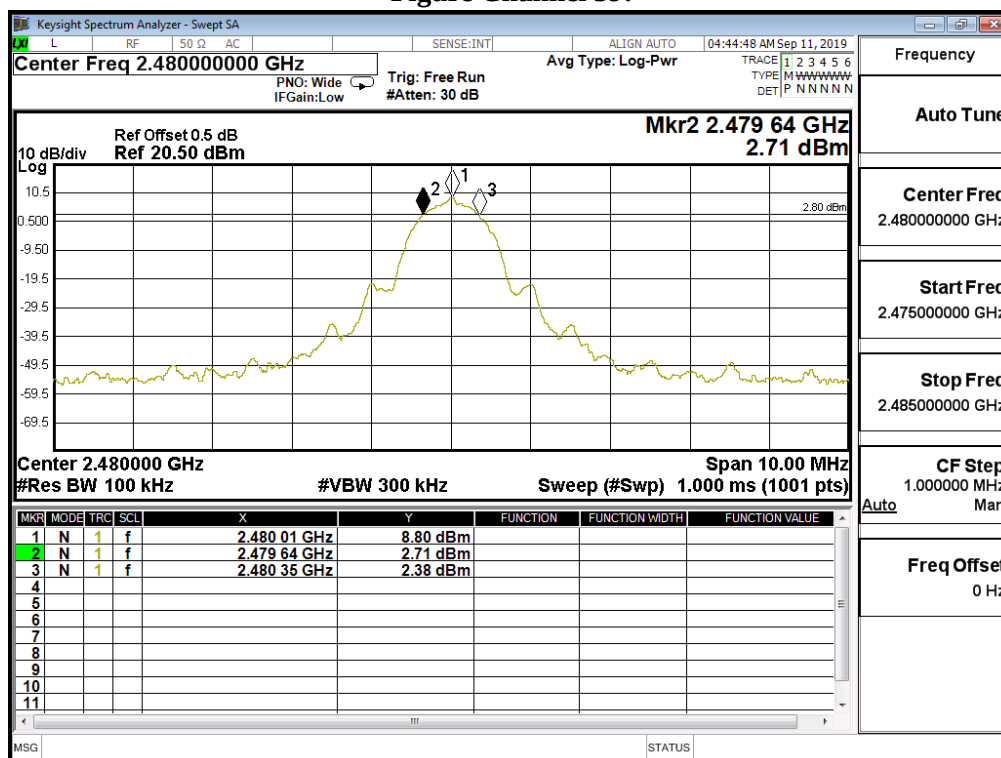
Figure Channel 19:



Product : Bluetooth Headset
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2480	710	>500	Pass

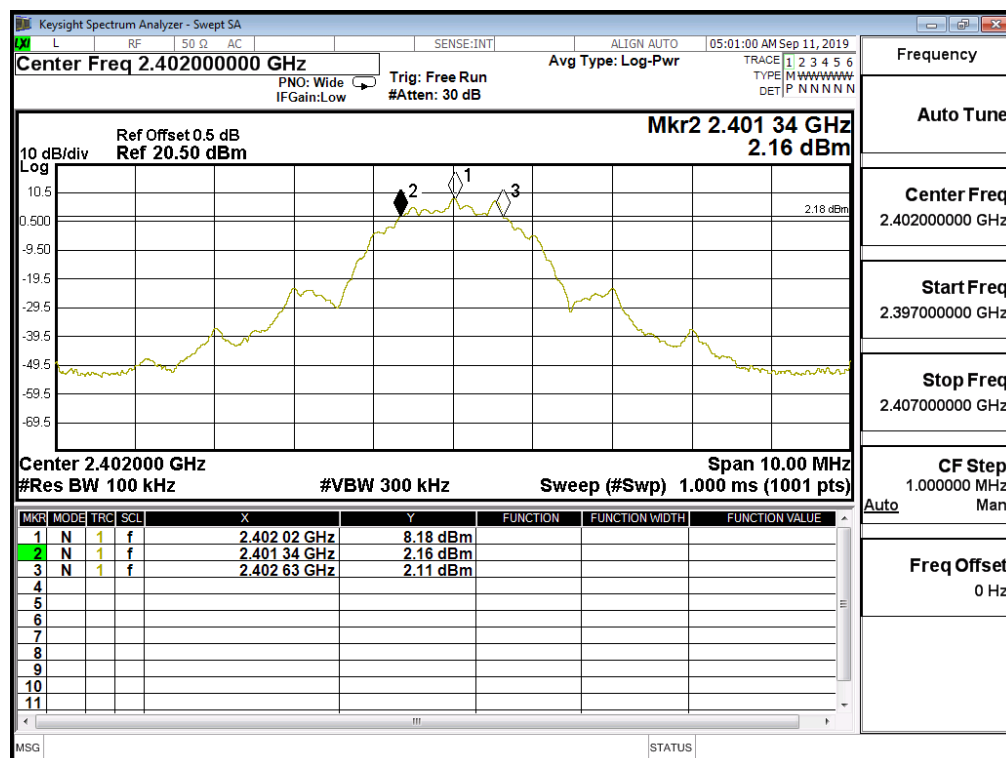
Figure Channel 39:



Product : Bluetooth Headset
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 2Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
00	2402	1290	>500	Pass

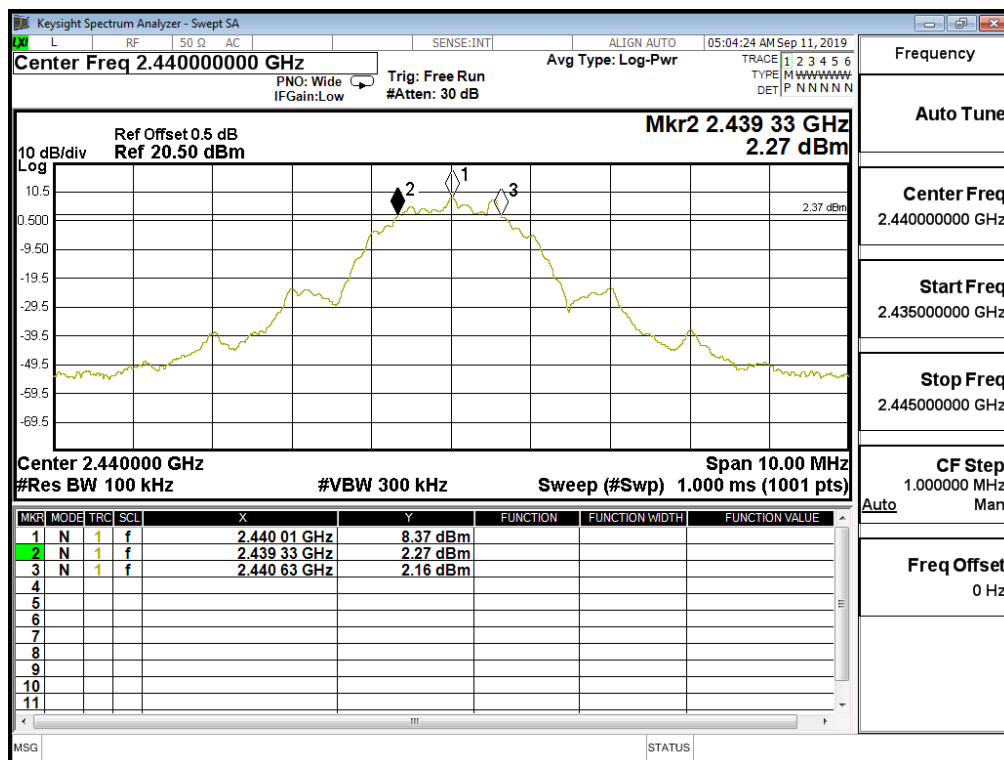
Figure Channel 00:



Product : Bluetooth Headset
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
19	2440	1300	>500	Pass

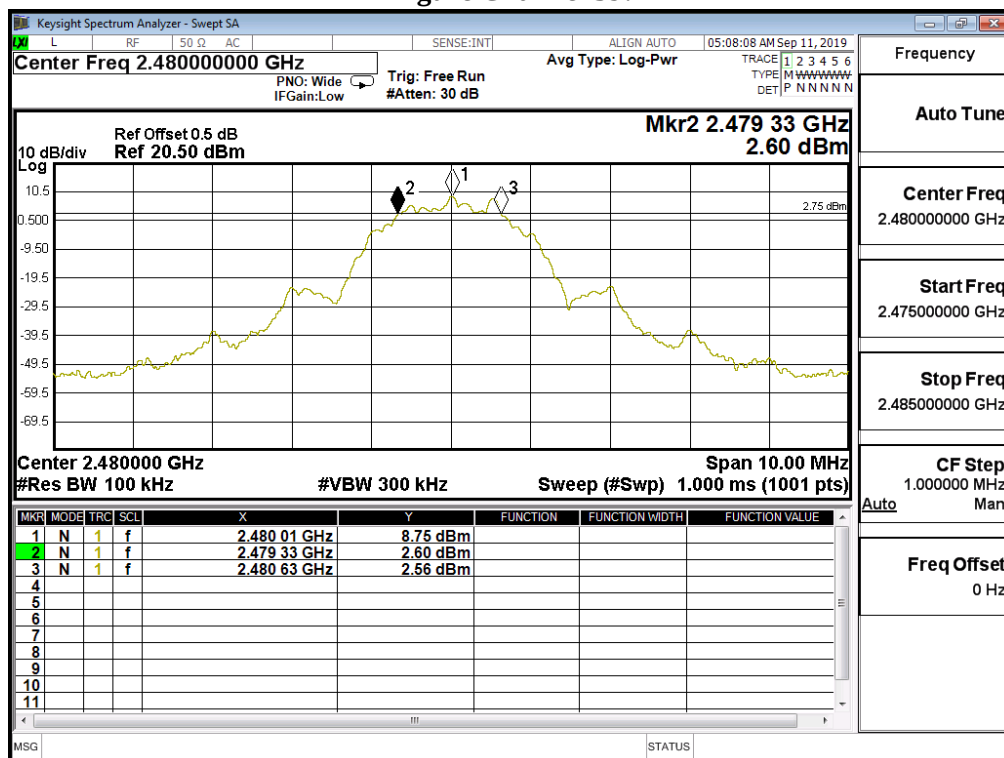
Figure Channel 19:



Product : Bluetooth Headset
 Test Item : 6dB Bandwidth Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

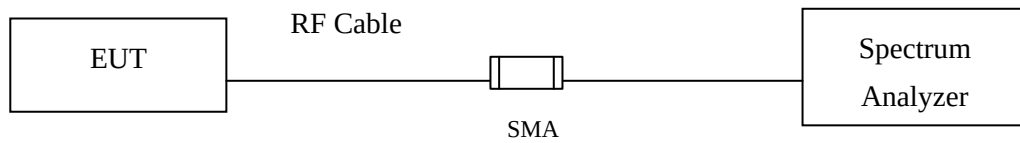
Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
39	2480	1300	>500	Pass

Figure Channel 39:



9. Power Density

9.1. Test Setup



9.2. Limits

According to RSS-247 Issue 2, 5.2 (b) (Feb, 2017) The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

9.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013; tested according to DTS test procedure of KDB 558074 for compliance to RSS-247 Issue 2 (Feb, 2017) requirements.

The maximum power spectral density using KDB 558074 section 8.4 method.

9.4. Uncertainty

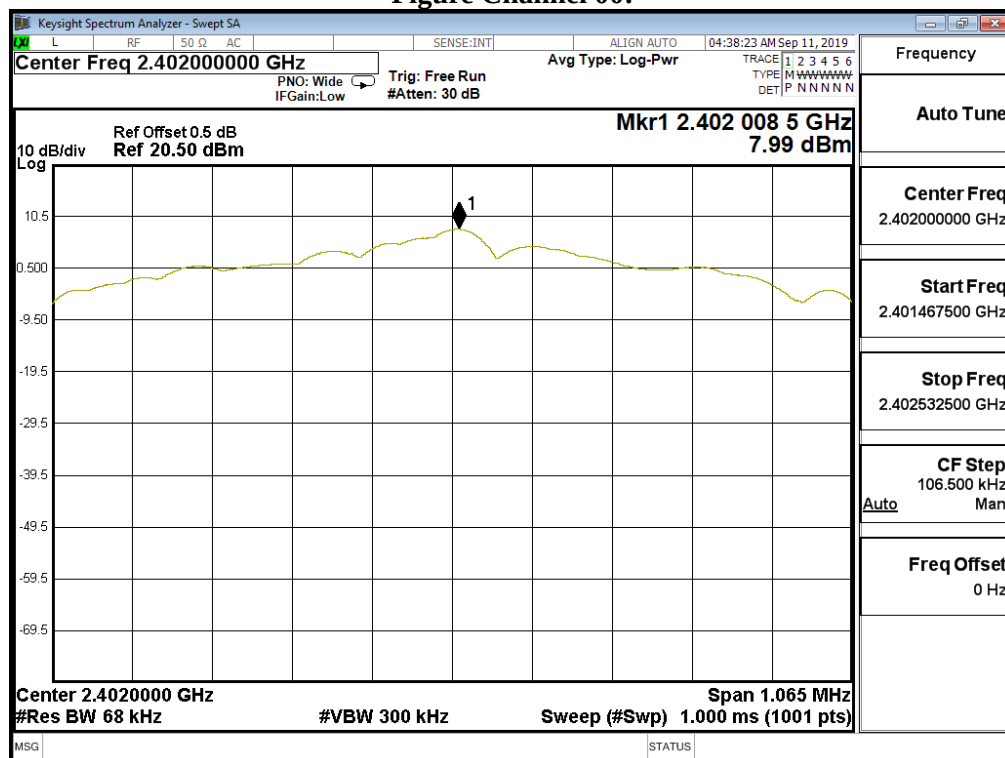
± 1.20 dB

9.5. Test Result of Power Density

Product : Bluetooth Headset
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 1Mbps

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	7.99	$\leq 8\text{dBm}$	Pass

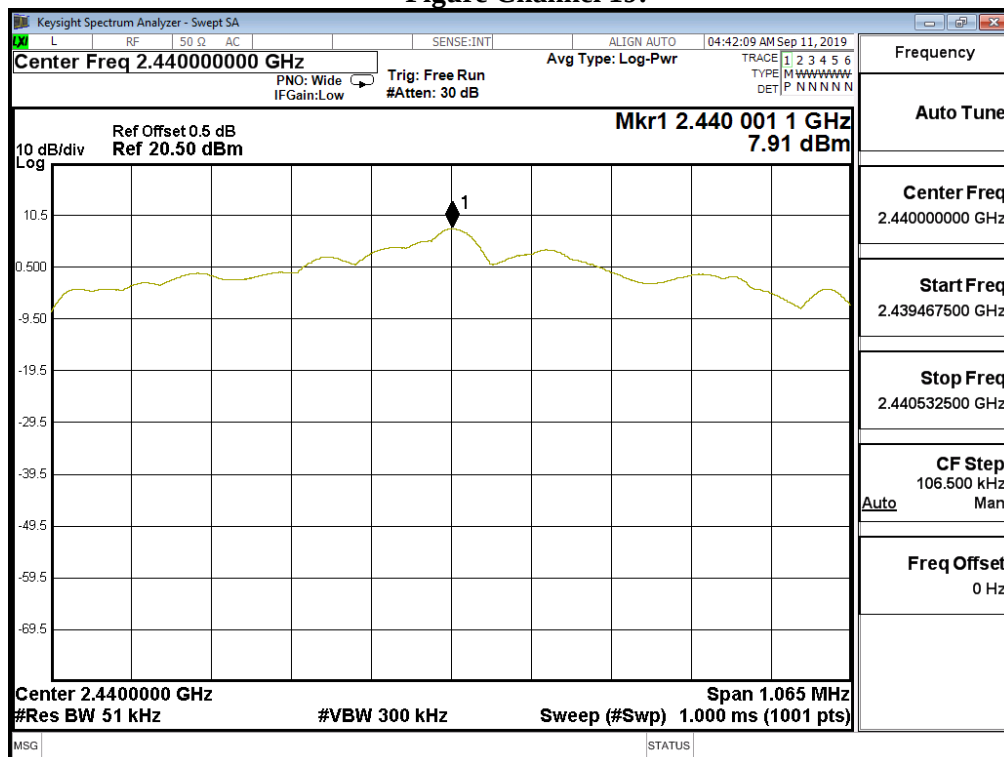
Figure Channel 00:



Product : Bluetooth Headset
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
19	2440	7.91	$\leq 8\text{dBm}$	Pass

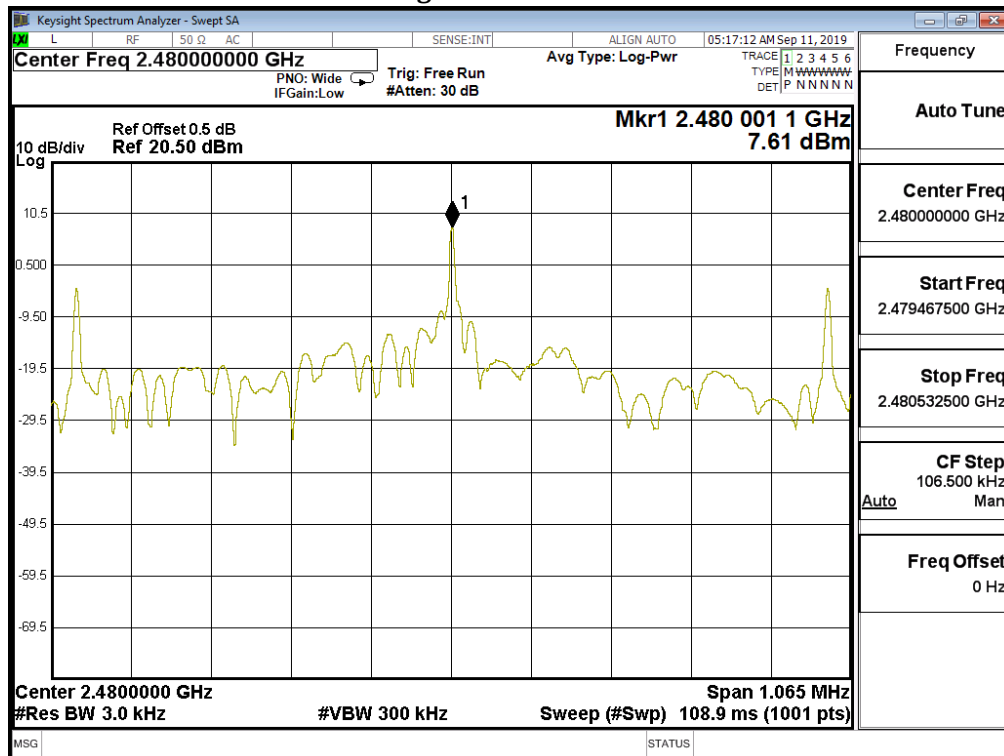
Figure Channel 19:



Product : Bluetooth Headset
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 1Mbps

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
39	2480	7.61	$\leq 8\text{dBm}$	Pass

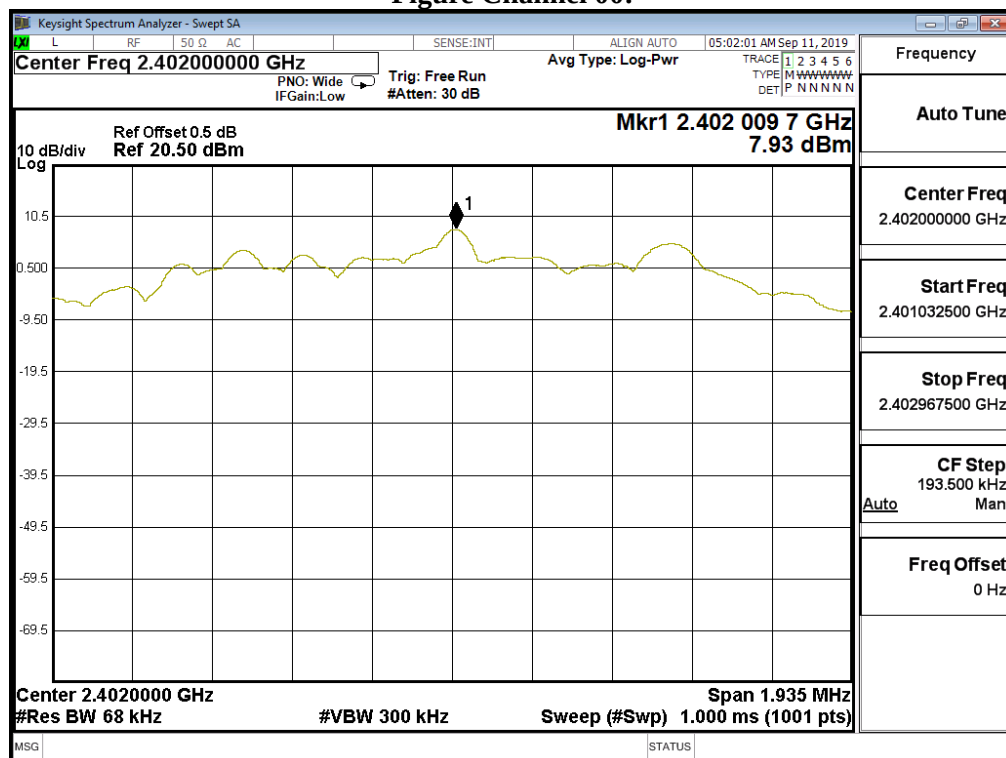
Figure Channel 39:



Product : Bluetooth Headset
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2402MHz) _ 2Mbps

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
00	2402	7.93	$\leq 8\text{dBm}$	Pass

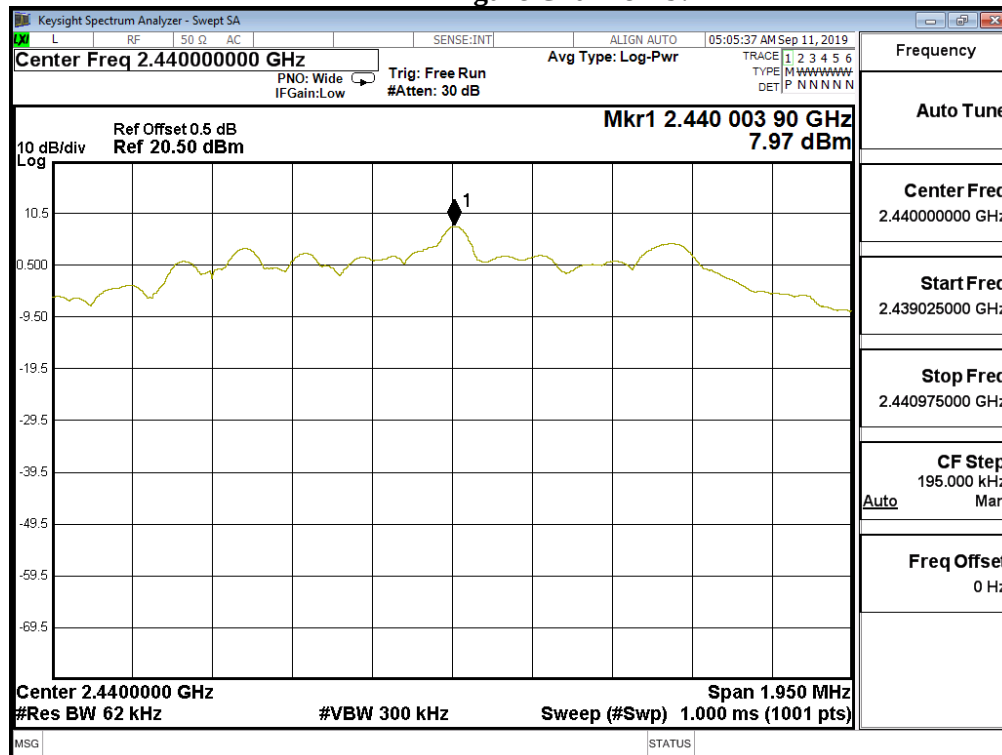
Figure Channel 00:



Product : Bluetooth Headset
 Test Item : Power Density Data
 Test Site : No.3OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2440MHz) _ 2Mbps

Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
19	2440	7.97	$\leq 8\text{dBm}$	Pass

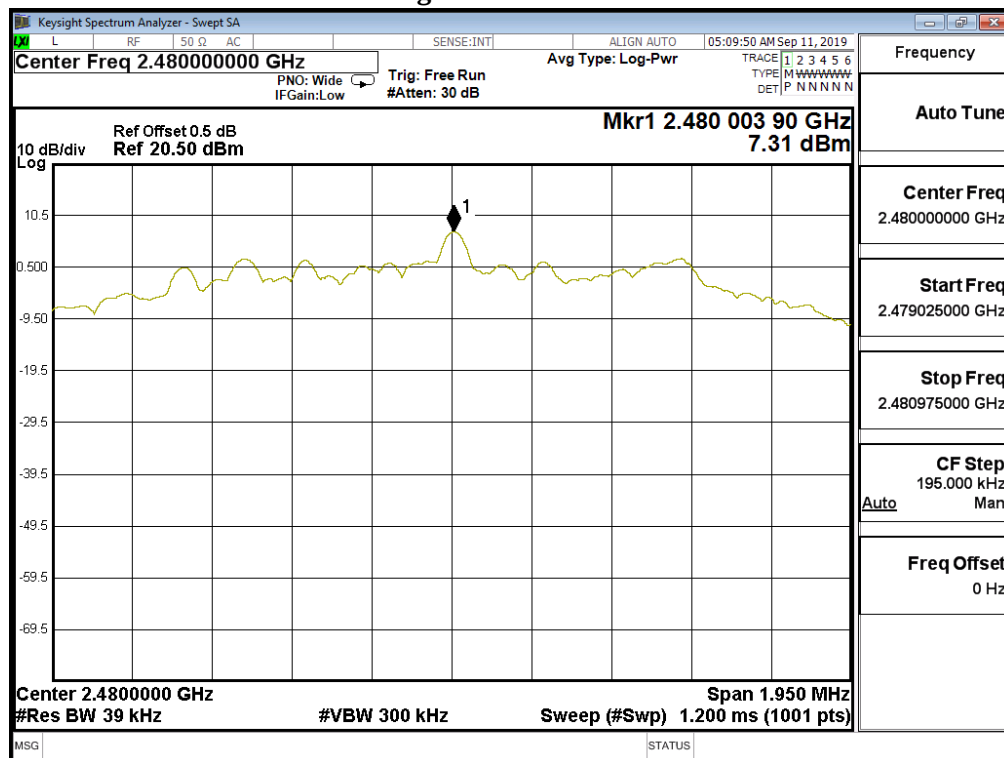
Figure Channel 19:



Product : Bluetooth Headset
 Test Item : Power Density Data
 Test Site : No.3 OATS
 Test Mode : Mode 1: Transmit - BLE (GFSK) (2480MHz) _ 2Mbps

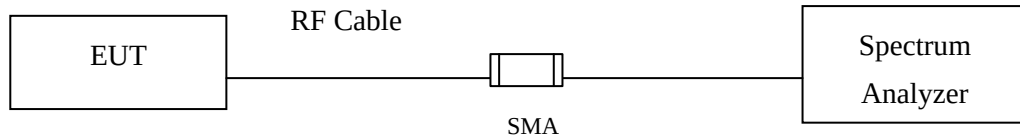
Channel No.	Frequency (MHz)	Measurement Level (dBm)	Required Limit (dBm)	Result
39	2480	7.31	$\leq 8\text{dBm}$	Pass

Figure Channel 39:



10. Duty Cycle

10.1. Test Setup



10.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to DTS test procedure of KDB558074 for compliance to RSS-247 requirements.

10.3. Uncertainty

$\pm 2.31\text{msec}$

10.4. Test Result of Duty Cycle

Product : Bluetooth Headset
 Test Item : Duty Cycle
 Test Mode : Mode 1: Transmit - BLE (GFSK) _ 1Mbps

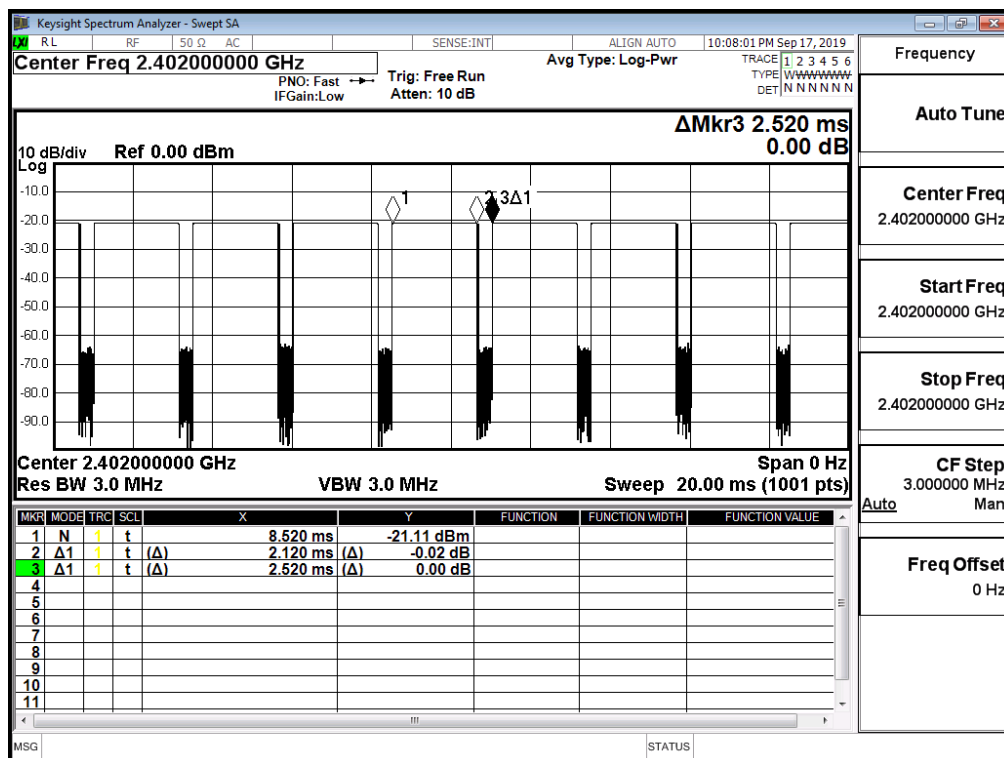
Duty Cycle Formula:

Duty Cycle = $Ton / (Ton + Toff)$

Duty Factor = $10 \text{ Log } (1/\text{Duty Cycle})$

Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
BLE	2.1200	2.5200	84.13	0.75



Product : Bluetooth Headset
 Test Item : Duty Cycle
 Test Mode : Mode 1: Transmit - BLE (GFSK) _ 2Mbps

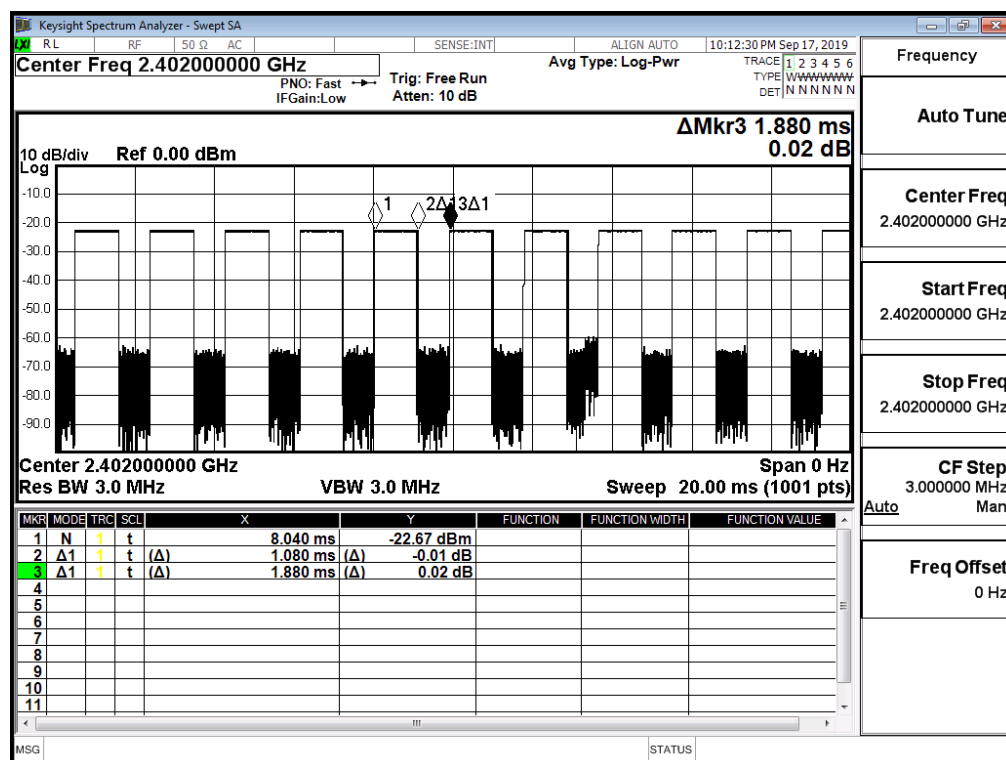
Duty Cycle Formula:

Duty Cycle = Ton / (Ton + Toff)

Duty Factor = 10 Log (1/Duty Cycle)

Results:

2.4GHz band	Ton (ms)	Ton + Toff (ms)	Duty Cycle (%)	Duty Factor (dB)
BLE	1.0800	1.8800	57.45	2.41



11. EMI Reduction Method During Compliance Testing

No modification was made during testing.