FCC Test Report

Product Name	Victrix Gambit headset for Xbox
Model No.	049-003R
FCC ID.	X5B-049003R

Applicant	Performance Designed Products, LLC
Address	14144 Ventura Blvd., Suite 200 Sherman Oaks, CA91423 USA

Date of Receipt	Oct. 14, 2020
Issued Date	Dec. 23, 2020
Report No.	20A0255R-E3032110111
Report Version	V1.0

Testing Laboratory
3023

Test Report

Issued Date: Dec. 23, 2020
Report No.: 20A0255R-E3032110111

Product Name	Victrix Gambit headset for Xbox
Applicant	Performance Designed Products, LLC
Address	14144 Ventura Blvd., Suite 200 Sherman Oaks, CA91423 USA
Manufacturer	Performance Designed Products, LLC
Model No.	049-003R
FCC ID.	X5B-049003R
EUT Rated Voltage	DC 5V (Power by USB) or DC 3.7V (Power by battery)
EUT Test Voltage	DC 5V (Power by USB)
Trade Name	Victrix
Applicable Standard	FCC CFR Title 47 Part 15 Subpart C ANSI C63.4: 2014, ANSI C63.10: 2013
Test Result	Complied

Documented By : Peggy Tu

(Adm. Assistant / Peggy Tu)

Tested By : Bill Lin

(Engineer / Bill Lin)

Approved By :

(Director / Vincent Lin)

TABLE OF CONTENTS

Revision History

Report No.	Version	Description	Issued Date
20A0255R-E3032110111	V1.0	Initial issue of report.	2020-12-23

1. GENERAL INFORMATION

1.1. EUT Description

Product Name	Victrix Gambit headset for Xbox
Trade Name	Victrix
Model No.	049-003R
FCC ID.	X5B-049003R
Frequency Range	2405.35 – 2477.35MHz
Channel Separation	2MHz
Channel Number	37
Type of Modulation	Pi/4 DQPSK
Antenna Type	PCB Antenna
Channel Control	Auto
Antenna Gain	Refer to the table “Antenna List”
USB Cable	Non-Shielded, 2.0m
Audio Cable	Non-Shielded, 1.6m

Antenna List

No.	Manufacturer	Part No.	Antenna Type	Peak Gain
1	Tatung	051-044R,048-056R(Ant 1) 051-044R,048-056R(Ant 2)	PCB Antenna	5.48dBi for 2.4 GHz

Note: The antenna of EUT is conforming to FCC 15.203.

Center Frequency of Each Channel:

Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
Channel 1:	2405.35 MHz	Channel 11:	2425.35 MHz	Channel 21:	2445.35 MHz	Channel 31:	2465.35 MHz
Channel 2:	2407.35 MHz	Channel 12:	2427.35 MHz	Channel 22:	2447.35 MHz	Channel 32:	2467.35 MHz
Channel 3:	2409.35 MHz	Channel 13:	2429.35 MHz	Channel 23:	2449.35 MHz	Channel 33:	2469.35 MHz
Channel 4:	2411.35 MHz	Channel 14:	2431.35 MHz	Channel 24:	2451.35 MHz	Channel 34:	2471.35 MHz
Channel 5:	2413.35 MHz	Channel 15:	2433.35 MHz	Channel 25:	2453.35 MHz	Channel 35:	2473.35 MHz
Channel 6:	2415.35 MHz	Channel 16:	2435.35 MHz	Channel 26:	2455.35 MHz	Channel 36:	2475.35 MHz
Channel 7:	2417.35 MHz	Channel 17:	2437.35 MHz	Channel 27:	2457.35 MHz	Channel 37:	2477.35 MHz
Channel 8:	2419.35 MHz	Channel 18:	2439.35 MHz	Channel 28:	2459.35 MHz		
Channel 9:	2421.35 MHz	Channel 19:	2441.35 MHz	Channel 29:	2461.35 MHz		
Channel 10:	2423.35 MHz	Channel 20:	2443.35 MHz	Channel 30:	2463.35 MHz		

Note:

1. The EUT is an Victrix Gambit headset for Xbox with built-in2.4GHz transceiver.
2. Device contains a diversity function, only worst case is shown in the report.
3. The EUT is using two the same SISO antennas(Ant1&Ant2) and only the worst case(Ant1) is shown in the report.
4. The radiation measurements are performed in X, Y, Z axis positioning. Only the worst case is shown in the report.
5. Regarding to the operation frequency, the lowest, middle and highest frequency are selected to perform the test.
6. These tests were conducted on a sample for the purpose of demonstrating compliance of transmitter with Part 15 Subpart C Paragraph 15.247 for spread spectrum devices.

Test Mode	Mode 1: Transmit

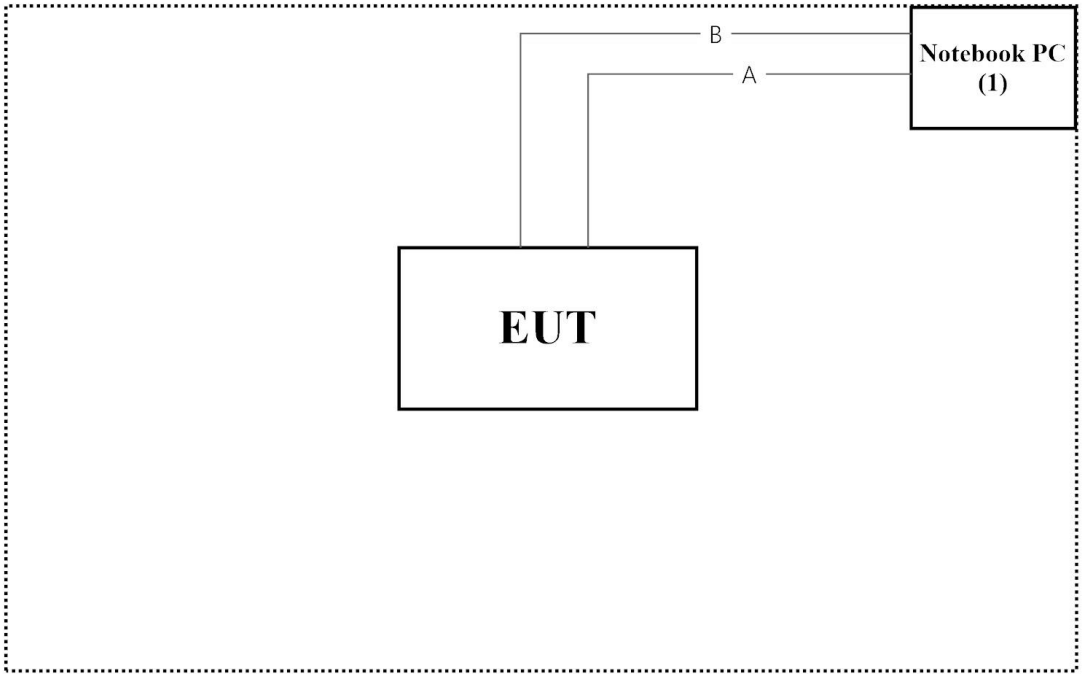
1.2. Tested System Details

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	P62G	416FJC2	Non-Shielded, 1.8m

Signal Cable Type		Signal cable Description
A	USB Cable	Non-Shielded, 1.8m
B	3.5mm Audio Cable	Non-Shielded, 1.8m

1.3. Configuration of Tested System



1.4. EUT Exercise Software

(1) Setup the EUT as shown in Section 1.3.

(2) Execute software “Avnera_Continue_Power_v2018.5.18.1” on the Notebook PC

(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.

1.5. Test Facility

Ambient conditions in the laboratory:

Performed Item	Items	Required	Actual
Conducted Emission	Temperature (℃)	10~40 ℃	21.8℃
	Humidity (%RH)	10~90 %	59.8%
Radiated Emission	Temperature (℃)	10~40 ℃	22.9℃
	Humidity (%RH)	10~90 %	63%
Conductive	Temperature (℃)	10~40 ℃	23.1℃
	Humidity (%RH)	10~90 %	55.7%

USA : FCC Registration Number: TW0031

Canada : IC Registration Number: 26443

Site Description : Accredited by TAF
Accredited Number: 3023

Test Laboratory : DEKRA Testing and Certification Co., Ltd
Address : No. 6, Lane 75, Wenlin St., Linkou Dist.,
New Taipei City 24457, Taiwan, R.O.C.
Phone number : 886-2-2602-7968
Fax number : 866-2-2602-3286
Email address : info.tw@dekra.com
Website : http://www.dekra.com.tw

1.6. List of Test Equipment

For Conduction measurements /ASR1

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	EMI Test Receiver	R&S	ESR7	101601	2020.05.28	2021.05.27
X	Two-Line V-Network	R&S	ENV216	101306	2020.03.25	2021.03.24
X	Two-Line V-Network	R&S	ENV216	101307	2020.04.17	2021.04.16
X	Coaxial Cable	DEKRA	RG400_BNC	RF001	2020.05.24	2021.05.23

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 : DEKRA Testing System V2.0

For Conducted measurements /ASR2

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Spectrum Analyzer	R&S	FSV30	103466	2019.12.16	2020.12.15
X	Peak Power Analyzer	KEYSIGHT	8900B	MY51000539	2020.05.13	2021.05.12
X	Power Sensor	KEYSIGHT	N1923A	MY59240002	2020.05.22	2021.05.21
X	Power Sensor	KEYSIGHT	N1923A	MY59240003	2020.05.22	2021.05.21

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 : DEKRA Conduction Test System V9.0.5.

For Radiated measurements /AC3

	Equipment	Manufacturer	Model No.	Serial No.	Cali. Data	Due. Data
X	Loop Antenna	AMETEK	HLA6121	49611	2020.03.16	2021.03.15
X	Bi-Log Antenna	SCHWARZBECK	VULB9168	01125	2020.07.20	2021.07.19
X	Horn Antenna	ETS-Lindgren	3117	00227700	2020.09.21	2021.09.20
	Horn Antenna	Com-Power	AH-840	101087	2020.06.08	2021.06.07
X	Pre-Amplifier	EMCI	EMC330	060736	2020.06.04	2021.06.03
X	Pre-Amplifier	EMCI	PRAMP118	20200701	2020.06.10	2021.06.09
X	Pre-Amplifier	EMCI	PRAMP0510	20200703	2020.09.18	2021.09.17
	Pre-Amplifier	EMCI	EMC184045SE	980314	2020.06.10	2021.06.09
X	Filter	MICRO TRONICS	BRM50702	G251	2020.09.17	2021.09.16
	Filter	MICRO TRONICS	BRM50716	G188	2020.09.17	2021.09.16
X	EMI Test Receiver	R&S	ESR7	101602	2019.12.16	2020.12.15
X	Spectrum Analyzer	R&S	FSV40	101148	2020.03.16	2021.03.15
X	Coaxial Cable	SUHNER	SUCOFLEX 106	RF002	2020.07.03	2021.07.02
X	Mircoflex Cable	HUBER SUHNER	SUCOFLEX 102	MY3381/2	2020.06.10	2021.06.09

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 : DEKRA Testing System V2.0.

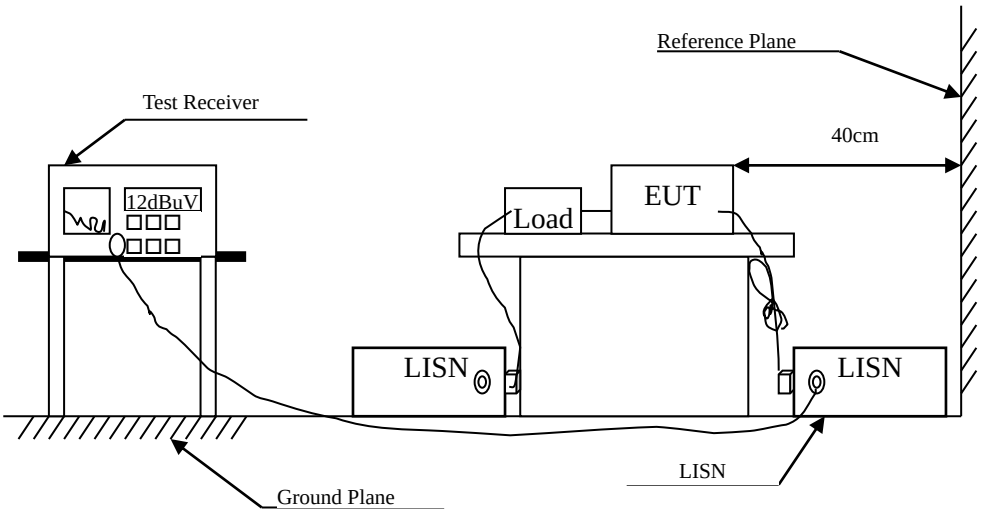
1.7. Uncertainty

Uncertainties have been calculated according to the DEKRA internal document, and is described in each test chapter of this report.
The reported expanded uncertainties are based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95%.
Measurement uncertainties evaluated for each testing system and associated connections are given here to provide the system information for reference. Compliance determinations do not take into account measurement uncertainties for each testing system, but are based on the results of the compliance measurement.

Test item	**Uncertainty**	
Conducted Emission	±3.42 dB	
Peak Power Output	±0.91 dB	
Radiated Emission	Under 1GHz ±4.06 dB	Above 1GHz ±3.73 dB
RF Antenna Conducted Test	±2.53 dB	
Band Edge	Under 1GHz ±4.06 dB	Above 1GHz ±3.73 dB
6dB Bandwidth	±682.83 Hz	
Power Density	±2.53 dB	
Duty Cycle	±2.31 ms	

2. Conducted Emission

2.1. Test Setup



2.2. Limits

FCC Part 15 Subpart C Paragraph 15.207 (dBuV) Limit		
Frequency MHz	Limits	
	QP	AV
0.15 - 0.50	66-56	56-46
0.50-5.0	56	46
5.0 - 30	60	50

Remarks: In the above table, the tighter limit applies at the band edges.

2.3. Test Procedure

The EUT and Peripherals 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 refer to the block diagram of the test setup and photographs.)

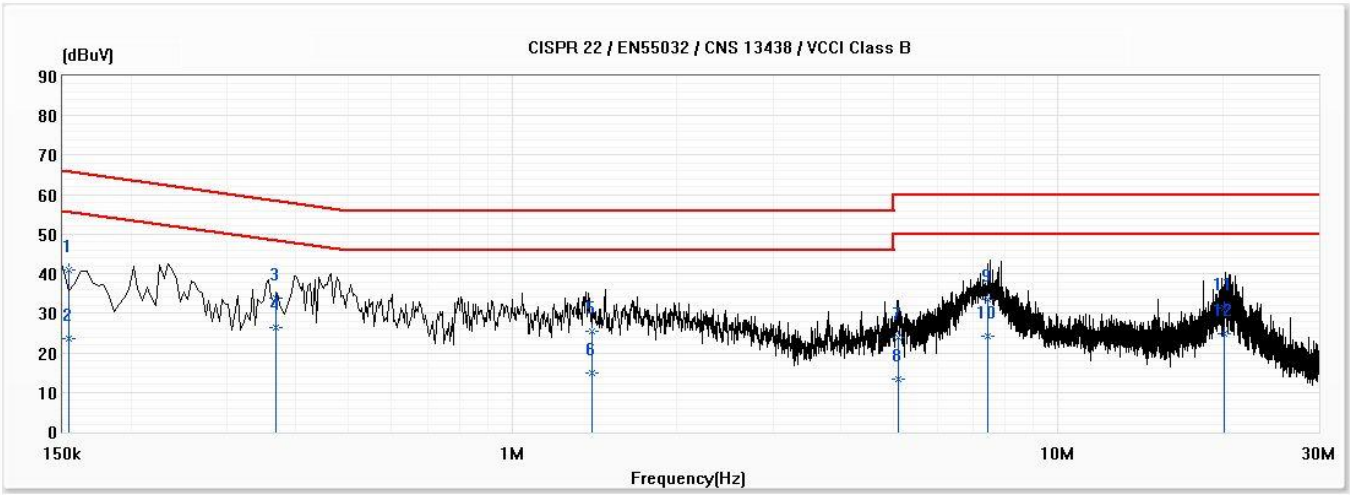
Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all the interface cables must be changed according to ANSI C63.4: 2014 on conducted measurement.

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

The EUT was setup to ANSI C63.4, 2014; tested to DTS test procedure of FCC KDB-558074 for compliance to FCC 47CFR Subpart C requirements.

2.4. Test Result of Conducted Emission

Product : Victrix Gambit headset for Xbox
Test Item : Conducted Emission Test
Power Line : L 1
Test Mode : Mode 1: Transmit (2441.35MHz)
Test Date : 2020/11/11

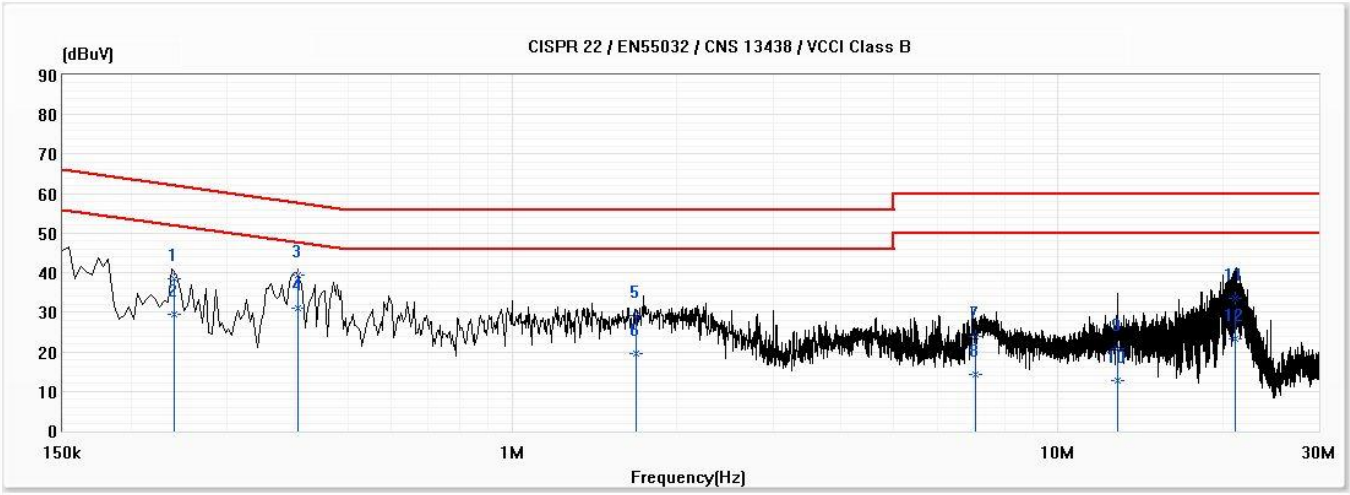


No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.154	40.96	65.80	-24.84	31.30	9.66	QP
2	0.154	23.63	55.80	-32.17	13.97	9.66	AV
3	0.368	33.77	58.54	-24.77	24.11	9.66	QP
*4	0.368	26.47	48.54	-22.07	16.82	9.66	AV
5	1.397	25.34	56.00	-30.66	15.63	9.70	QP
6	1.397	14.87	46.00	-31.13	5.17	9.70	AV
7	5.101	24.00	60.00	-36.00	14.20	9.80	QP
8	5.101	13.32	50.00	-36.68	3.52	9.80	AV
9	7.439	33.53	60.00	-26.47	23.69	9.84	QP
10	7.439	24.36	50.00	-25.64	14.52	9.84	AV
11	20.188	31.43	60.00	-28.57	21.46	9.97	QP
12	20.188	24.81	50.00	-25.19	14.84	9.97	AV

Note:

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

Product : Victrix Gambit headset for Xbox
Test Item : Conducted Emission Test
Power Line : N
Test Mode : Mode 1: Transmit (2441.35MHz)
Test Date : 2020/11/11



No	Frequency (MHz)	Emission Level (dBuV)	Limit (dBuV)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	0.240	38.52	62.10	-23.58	28.85	9.67	QP
2	0.240	29.54	52.10	-22.56	19.87	9.67	AV
3	0.404	39.35	57.77	-18.42	29.68	9.67	QP
*4	0.404	30.99	47.77	-16.78	21.32	9.67	AV
5	1.685	29.27	56.00	-26.73	19.55	9.72	QP
6	1.685	19.68	46.00	-26.32	9.97	9.72	AV
7	7.052	23.88	60.00	-36.12	14.03	9.85	QP
8	7.052	14.28	50.00	-35.72	4.42	9.85	AV
9	12.871	20.70	60.00	-39.30	10.74	9.95	QP
10	12.871	12.80	50.00	-37.20	2.84	9.95	AV
11	21.142	33.41	60.00	-26.59	23.36	10.06	QP
12	21.142	23.28	50.00	-26.72	13.22	10.06	AV

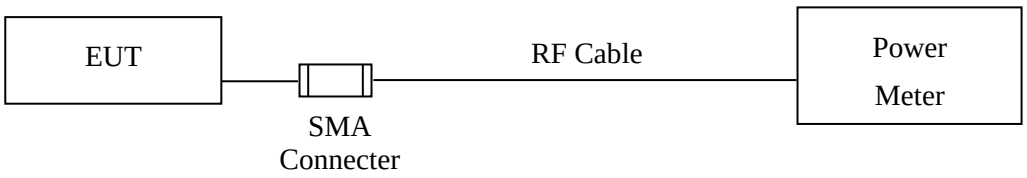
Note:

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

Test Result of Conducted Emission	**PASS**

3. Peak Power Output

3.1. Test Setup



3.2. Limit

The maximum peak power shall be less 1Watt.

3.3. Test Procedure

The EUT was tested according to C63.10:2013 for compliance to FCC 47CFR 15.247 requirements. The maximum peak conducted output power using C63.10:2013 Section 11.9.1.3 PKPM1 Peak power meter method.

3.4. Test Result of Peak Power Output

Product : Victrix Gambit headset for Xbox
Test Item : Peak Power Output
Test Mode : Mode 1: Transmit
Test Date : 2020/11/26

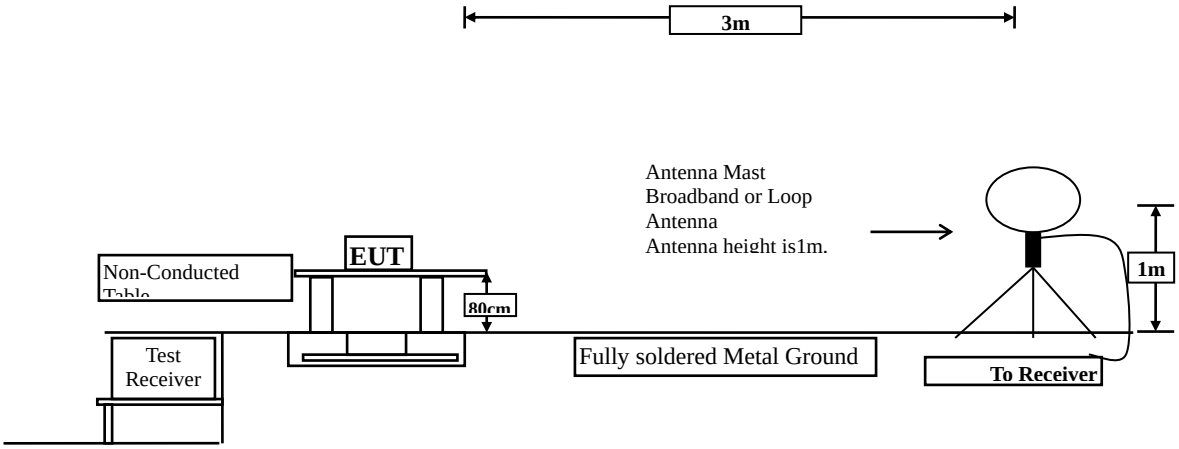
Channel No.	Frequency (MHz)	Measurement (dBm)	Required Limit	Result
Channel 01	2405.35	4.41	1 Watt= 30 dBm	Pass
Channel 19	2441.35	4.39	1 Watt= 30 dBm	Pass
Channel 37	2477.35	3.71	1 Watt= 30 dBm	Pass

Test Result of Peak Power Output	**PASS**

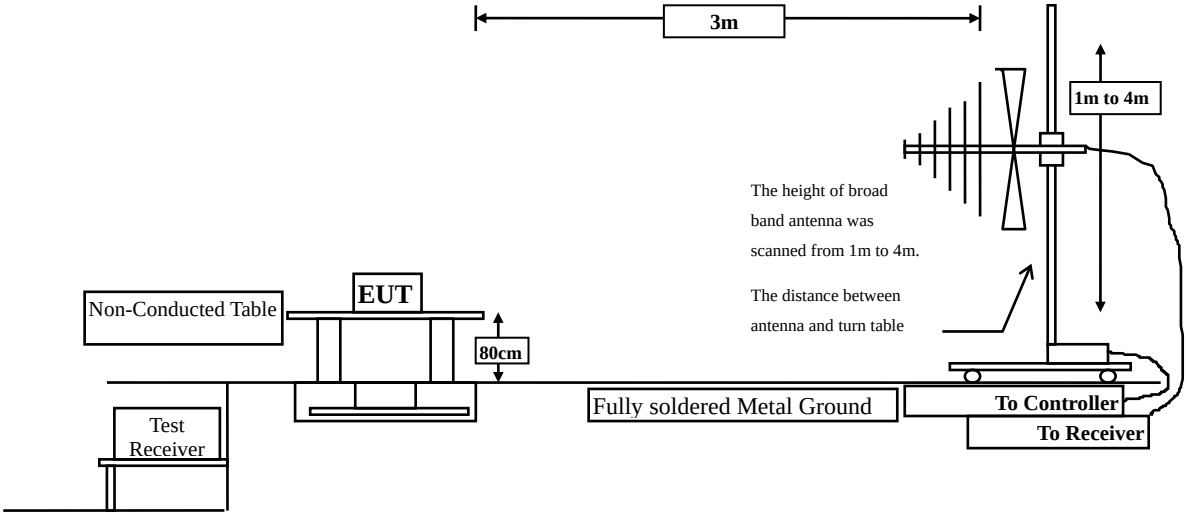
4. Radiated Emission

4.1. Test Setup

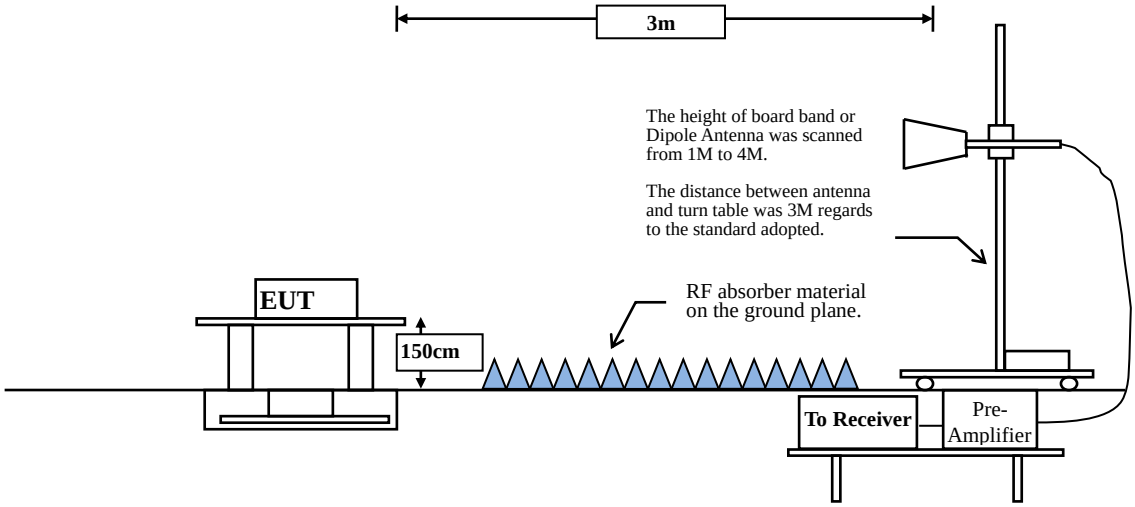
Radiated Emission Under 30MHz



Radiated Emission Below 1GHz



Radiated Emission 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 paragraph 15.209, whichever is the lesser attenuation.

FCC Part 15 Subpart C Paragraph 15.209 Limits		
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 (dBuV) = 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

The EUT was setup according to ANSI C63.10: 2013 and tested according to C63.10:2013 Section 11.12.1 for compliance to FCC 47CFR 15.247 requirements.

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 is scanned between 1 meter and 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were 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 form 9kHz - 10th Harmonic of fundamental was investigated.

RBW and VBW Parameter setting:

According to C63.10 Section 11.12.2.4 Peak measurement procedure.

RBW = as specified in Table 1.

VBW ≥ 3 x 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 C63.10 Section 11.12.2.5 Average measurement procedure.

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 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.)

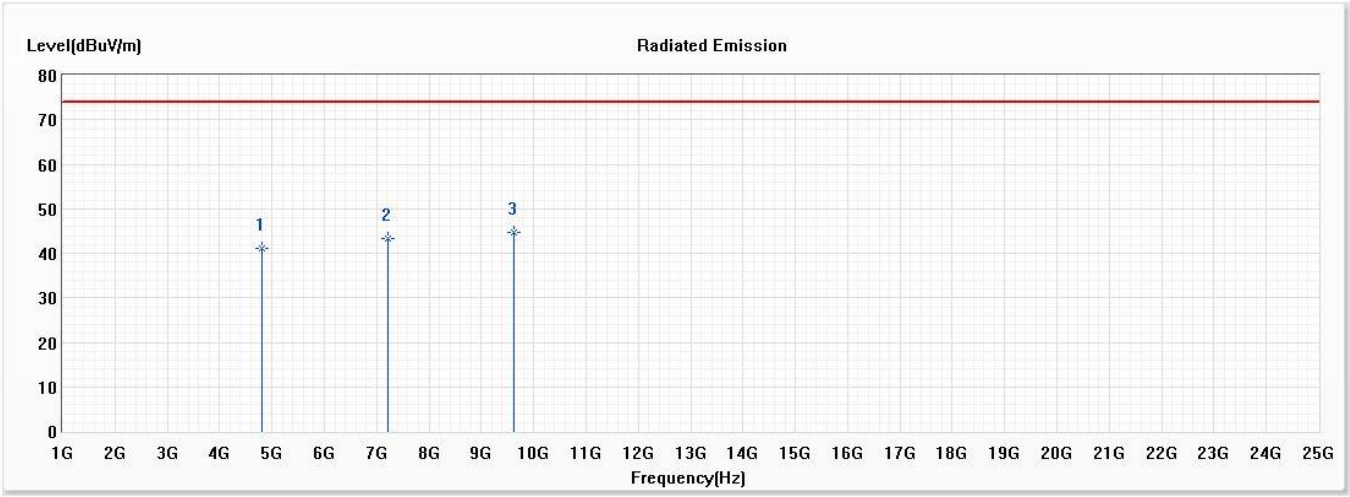
2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
2.4GHz	100.00	--	--	10

Note: Duty Cycle Refer to Section 9.

4.4. Test Result of Radiated Emission

Product : Victrix Gambit headset for Xbox
Test Item : Harmonic Radiated Emission
Test Mode : Mode 1: Transmit (2405.35MHz)
Test Date : 2020/12/11

Horizontal



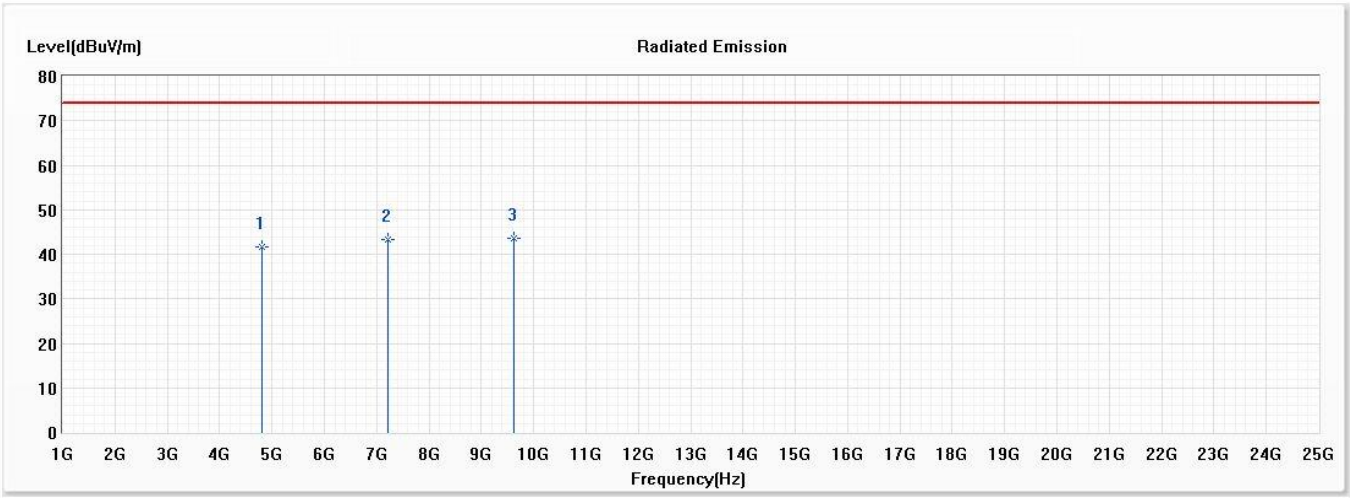
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4810.700	41.14	74.00	-32.86	52.07	-10.93	PK
2	7216.050	43.37	74.00	-30.63	49.05	-5.68	PK
* 3	9621.400	44.69	74.00	-29.31	48.21	-3.52	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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 : Victrix Gambit headset for Xbox
Test Item : Harmonic Radiated Emission
Test Mode : Mode 1: Transmit (2405.35MHz)
Test Date : 2020/12/11

Vertical



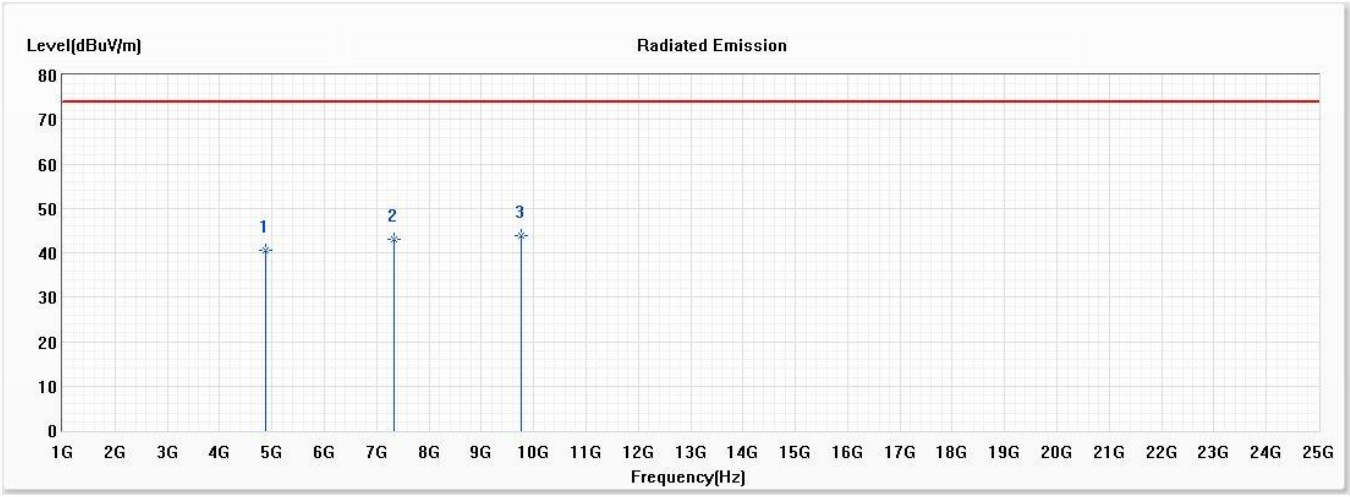
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4810.700	41.75	74.00	-32.25	52.68	-10.93	PK
2	7216.050	43.38	74.00	-30.62	49.06	-5.68	PK
* 3	9621.400	43.60	74.00	-30.40	47.12	-3.52	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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 : Victrix Gambit headset for Xbox
Test Item : Harmonic Radiated Emission
Test Mode : Mode 1: Transmit (2441.35MHz)
Test Date : 2020/12/11

Horizontal



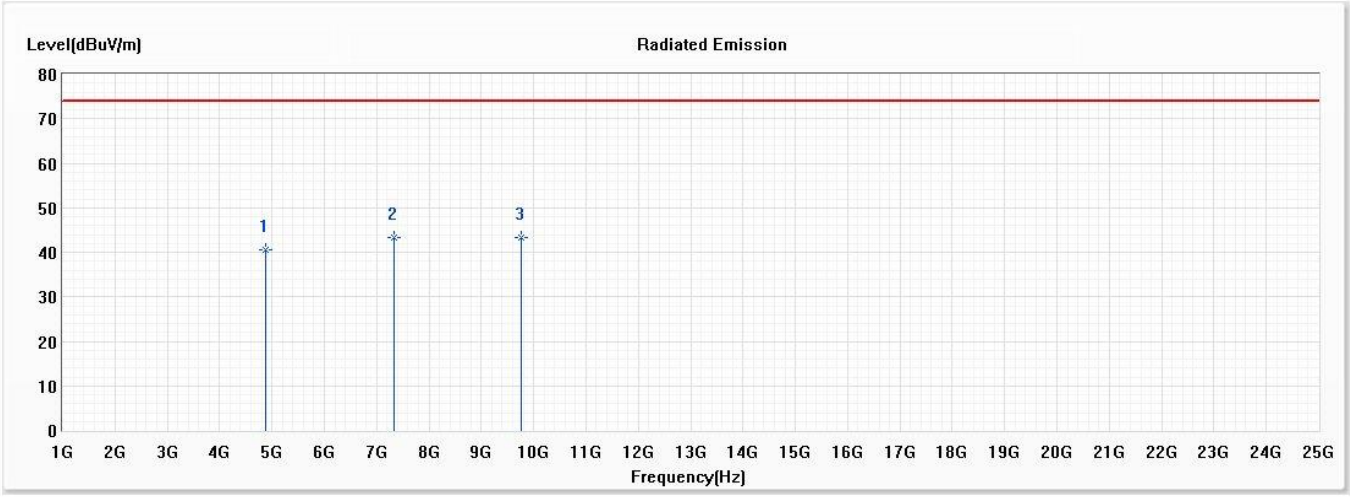
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4882.700	40.57	74.00	-33.43	51.14	-10.57	PK
2	7324.050	43.00	74.00	-31.00	48.70	-5.70	PK
* 3	9765.400	43.80	74.00	-30.20	46.84	-3.04	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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 : Victrix Gambit headset for Xbox
Test Item : Harmonic Radiated Emission
Test Mode : Mode 1: Transmit (2441.35MHz)
Test Date : 2020/12/11

Vertical



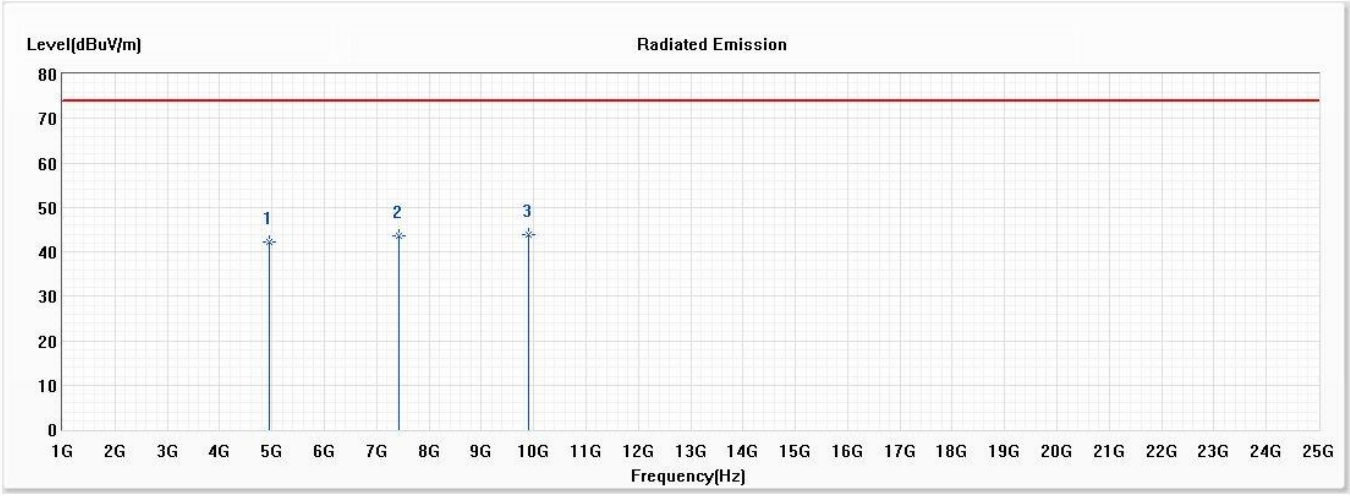
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4882.700	40.49	74.00	-33.51	51.06	-10.57	PK
2	7324.050	43.33	74.00	-30.67	49.03	-5.70	PK
* 3	9765.400	43.35	74.00	-30.65	46.39	-3.04	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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 : Victrix Gambit headset for Xbox
Test Item : Harmonic Radiated Emission
Test Mode : Mode 1: Transmit (2477.35MHz)
Test Date : 2020/12/11

Horizontal



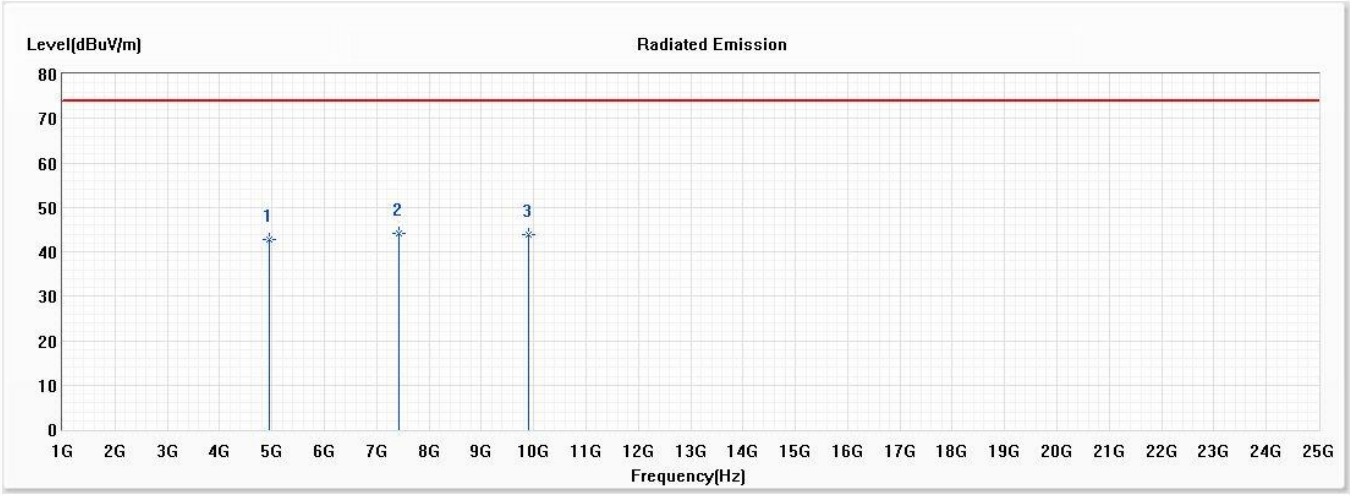
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4954.700	42.08	74.00	-31.92	52.54	-10.46	PK
2	7432.050	43.56	74.00	-30.44	49.16	-5.60	PK
* 3	9909.400	43.87	74.00	-30.13	46.60	-2.73	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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 : Victrix Gambit headset for Xbox
Test Item : Harmonic Radiated Emission
Test Mode : Mode 1: Transmit (2477.35MHz)
Test Date : 2020/12/11

Vertical



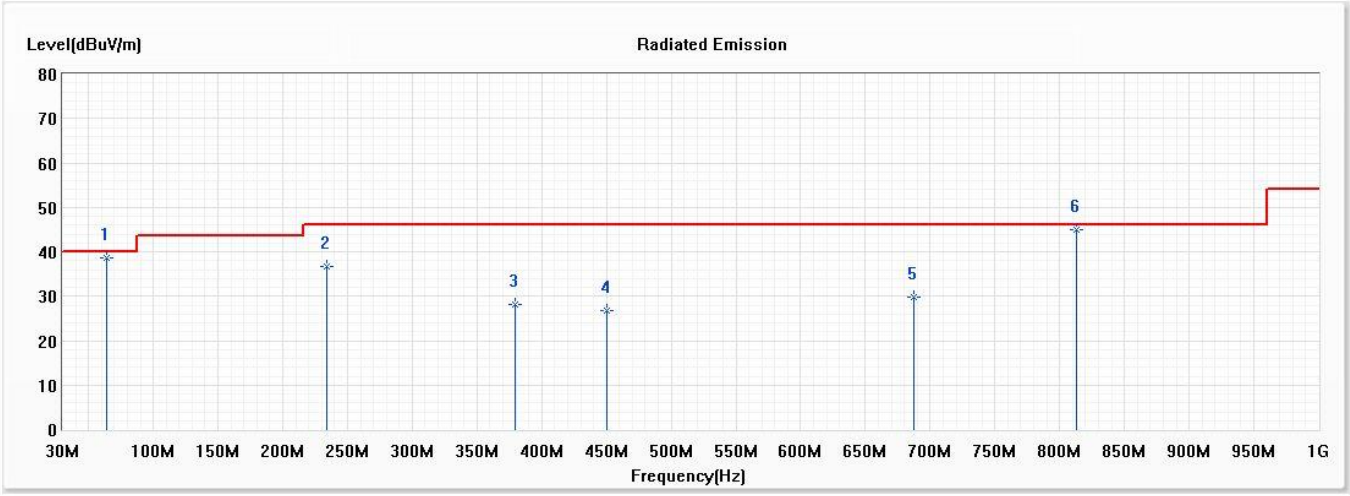
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	4954.700	42.65	74.00	-31.35	53.11	-10.46	PK
* 2	7432.050	44.16	74.00	-29.84	49.76	-5.60	PK
3	9909.400	43.85	74.00	-30.15	46.58	-2.73	PK

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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	:	Victrix Gambit headset for Xbox
Test Item	:	General Radiated Emission
Test Mode	:	Mode 1: Transmit (2441.35MHz)
Test Date	:	2020/11/30

Horizontal



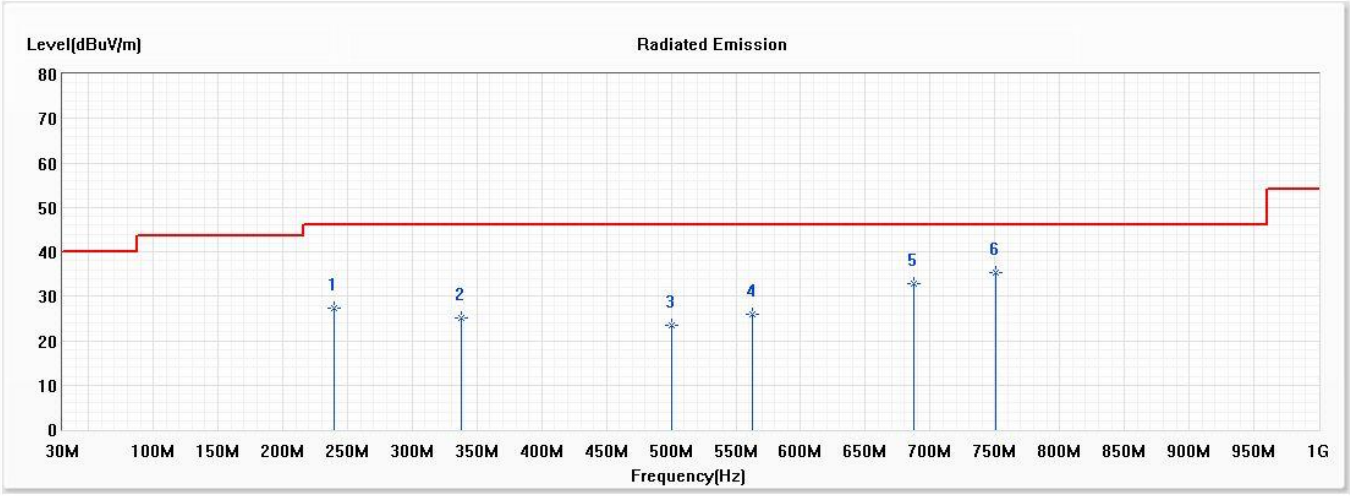
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	64.000	38.54	40.00	-1.46	59.16	-20.62	QP
2	233.700	36.80	46.00	-9.20	57.13	-20.33	QP
3	379.200	28.08	46.00	-17.92	44.00	-15.92	QP
4	450.010	26.78	46.00	-19.22	40.98	-14.20	QP
5	687.660	29.90	46.00	-16.10	39.65	-9.75	QP
* 6	812.790	45.06	46.00	-0.94	44.40	0.66	QP

Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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	:	Victrix Gambit headset for Xbox
Test Item	:	General Radiated Emission
Test Mode	:	Mode 1: Transmit (2441.35MHz)
Test Date	:	2020/11/30

Vertical



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	239.520	27.33	46.00	-18.67	47.35	-20.02	QP
2	337.490	24.99	46.00	-21.01	41.88	-16.89	QP
3	500.450	23.39	46.00	-22.61	36.71	-13.32	QP
4	562.530	25.89	46.00	-20.11	37.87	-11.98	QP
5	687.660	32.75	46.00	-13.25	42.50	-9.75	QP
* 6	750.710	35.24	46.00	-10.76	38.83	-3.59	QP

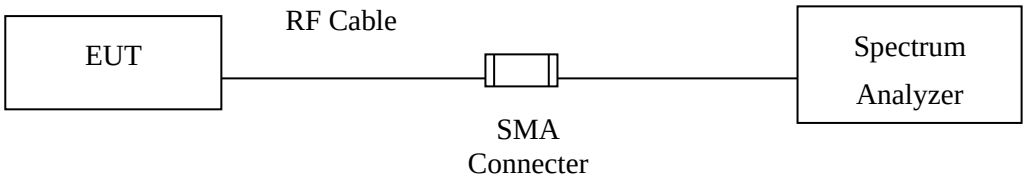
Note:

1. All Readings below 1GHz are Quasi-Peak, above 1GHz are performed with peak and/or average measurements as necessary.
2. Emission 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.

Test Result of Radiated Emission	**PASS**

5. RF Antenna Conducted Test

5.1. Test Setup



5.2. Limits

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB.

5.3. Test Procedure

The EUT was tested according to C63.10:2013 Section 11.11 for compliance to FCC 47CFR 15.247 requirements.

Set RBW = 100 kHz, Set VBW> RBW, scan up through 10th harmonic.

5.4. Test Result of RF Antenna Conducted Test

Product : Victrix Gambit headset for Xbox
Test Item : RF Antenna Conducted Test
Test Mode : Mode 1: Transmit
Test Date : 2020/11/26

Figure Channel 01:

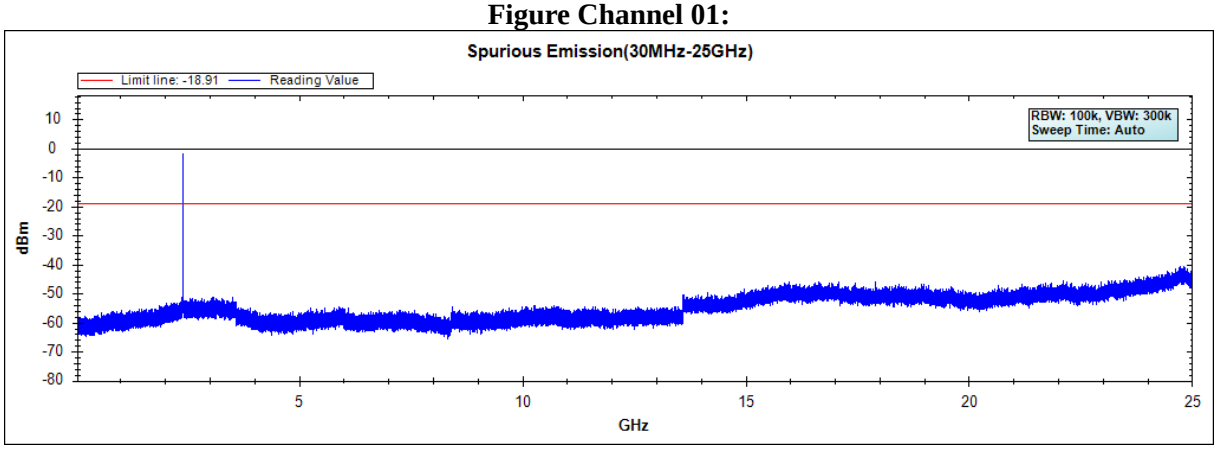


Figure Channel 19:

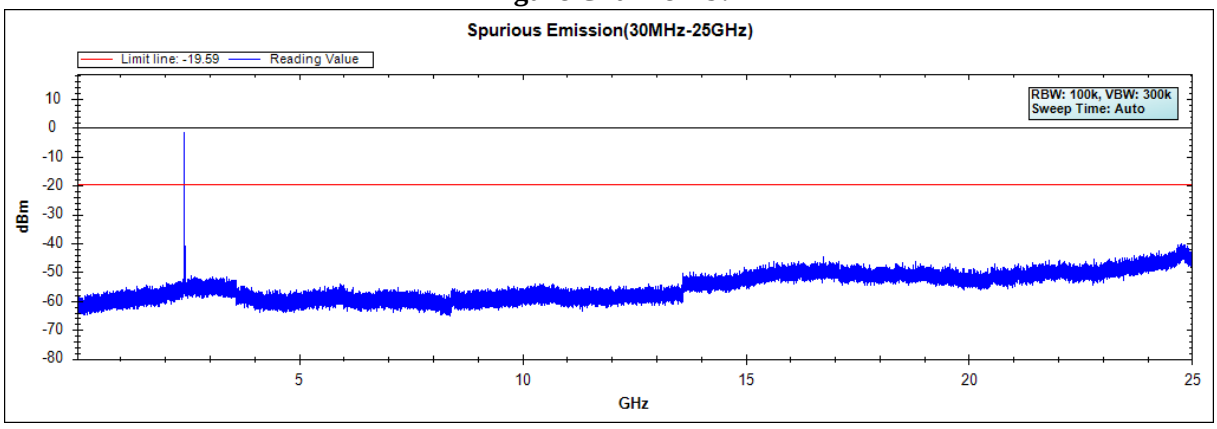
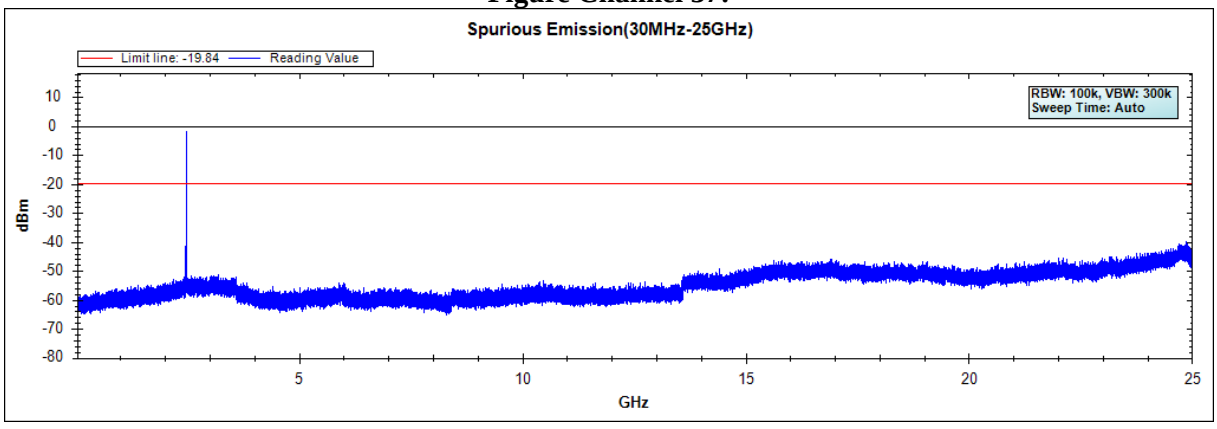


Figure Channel 37:



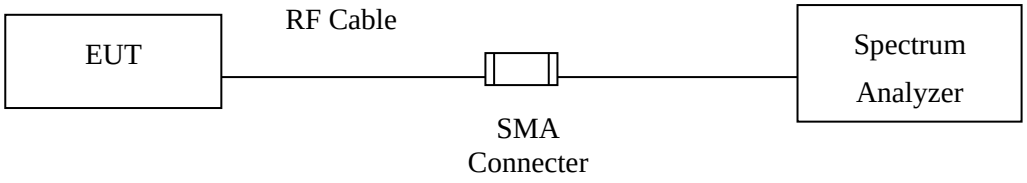
Note: The above test pattern is synthesized by multiple of the frequency range.

Test Result of RF Antenna Conducted Test	**PASS**

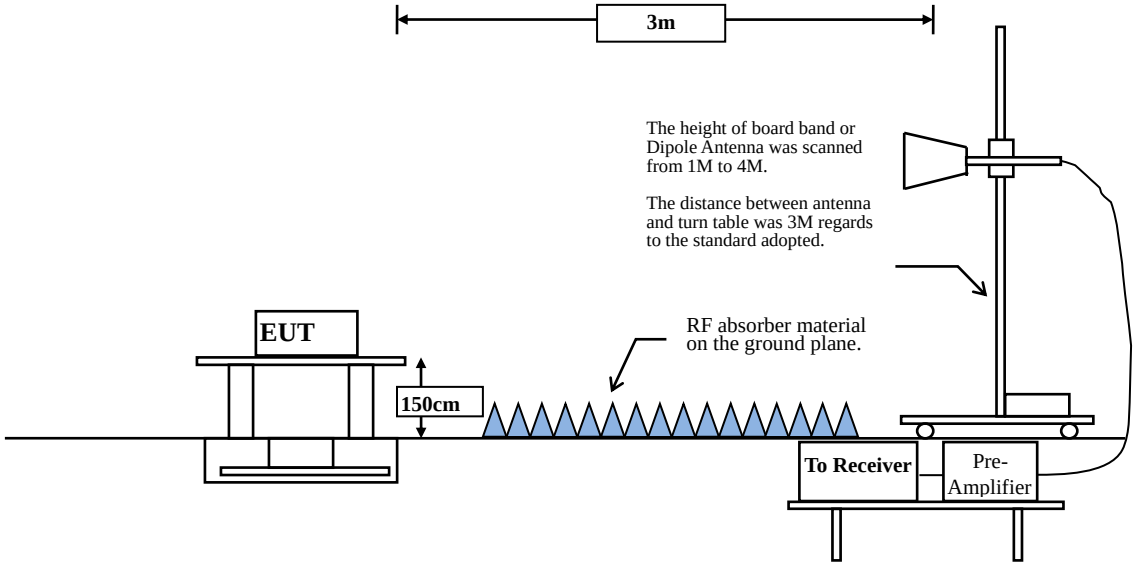
6. Band Edge

6.1. Test Setup

RF Conducted Measurement



RF Radiated Measurement:



6.2. Limit

According to FCC Section 15.247(d). In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).

6.3. Test Procedure

The EUT was setup according to ANSI C63.10, 2013 and tested according to C63.10:2013 Section 11.12.1 for compliance to FCC 47CFR 15.247 requirements.

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 is scanned from 1 meter to 4 meters to find out the maximum emission level. This is repeated for both horizontal and vertical polarization of the antenna. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10:2013 on radiated measurement.

RBW and VBW Parameter setting:

According to C63.10 Section 11.12.2.4 Peak measurement procedure.

RBW = as specified in Table 1.

VBW ≥ 3 x 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 C63.10 Section 11.12.2.5 Average measurement procedure.

RBW = 1MHz.

VBW = 10Hz, when duty cycle ≥ 98 %

VBW ≥ 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.)

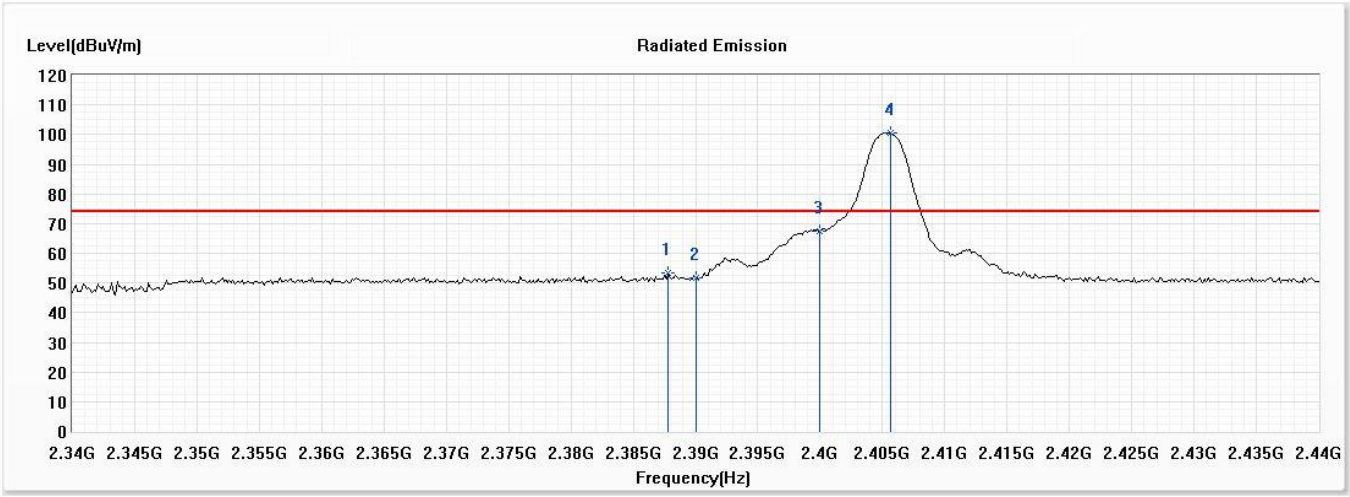
2.4GHz band	Duty Cycle (%)	T (ms)	1/T (Hz)	VBW (Hz)
2.4GHz	100.00	--	--	10

Note: Duty Cycle Refer to Section 9.

6.4. Test Result of Band Edge

Product : Victrix Gambit headset for Xbox
Test Item : Band Edge
Test Mode : Mode 1: Transmit (2405.35MHz)
Test Date : 2020/12/11

Horizontal



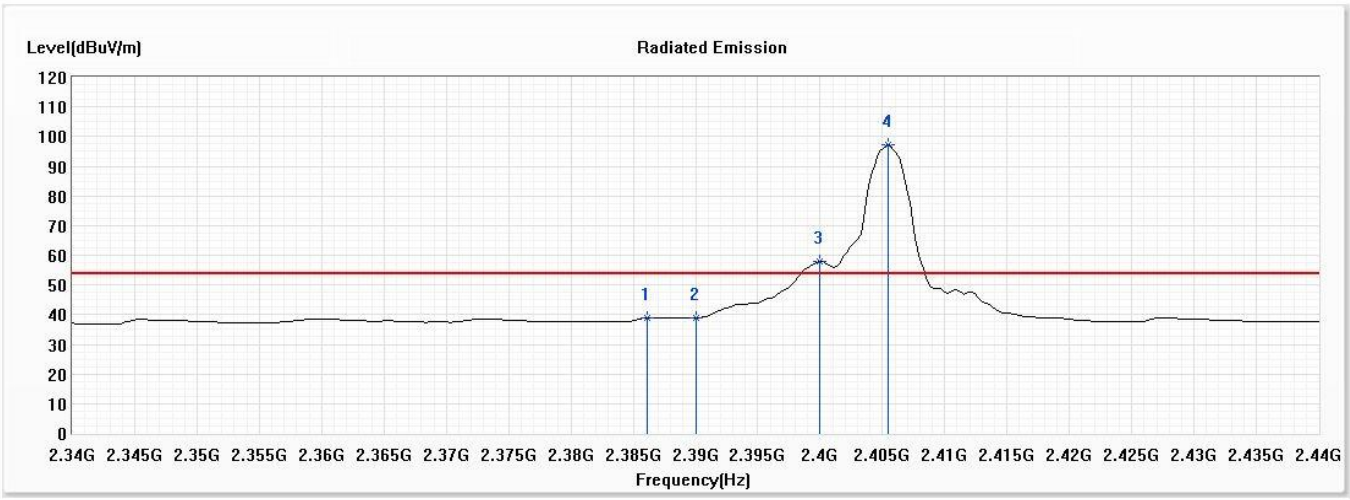
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2387.826	53.28	74.00	-20.72	40.20	13.08	PK
2	2390.000	51.65	74.00	-22.35	38.59	13.06	PK
3	2400.000	67.61	--	--	54.57	13.04	PK
! 4	2405.652	100.42	--	--	87.33	13.09	PK

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 : Victrix Gambit headset for Xbox
Test Item : Band Edge
Test Mode : Mode 1: Transmit (2405.35MHz)
Test Date : 2020/12/11

Horizontal



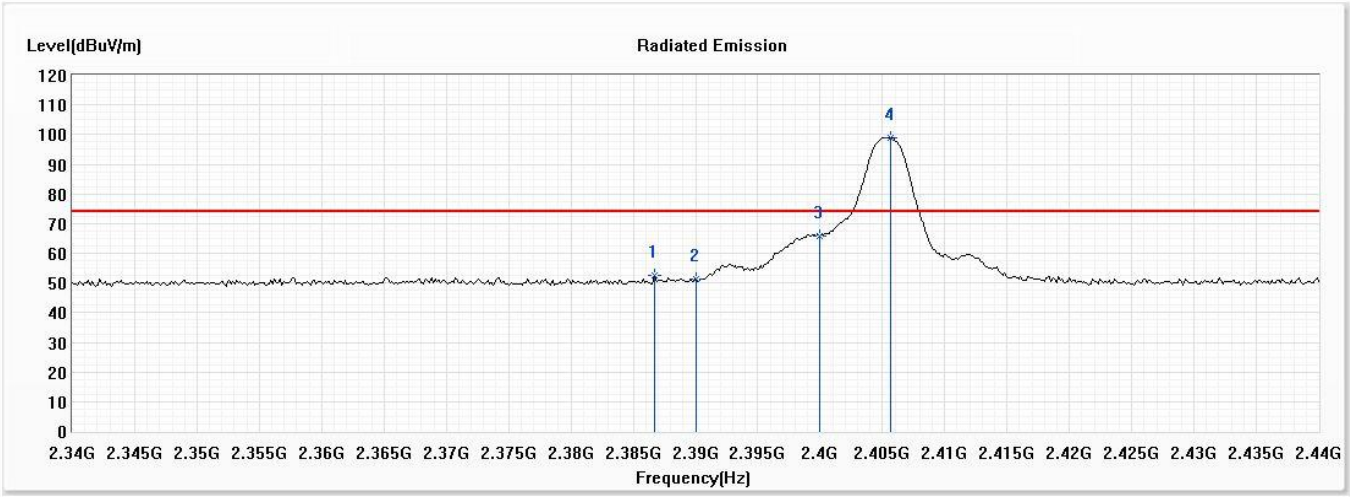
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2386.087	38.93	54.00	-15.07	25.84	13.09	AV
2	2390.000	38.78	54.00	-15.22	25.72	13.06	AV
! 3	2400.000	57.88	--	--	44.84	13.04	AV
! 4	2405.435	97.05	--	--	83.97	13.08	AV

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	:	Victrix Gambit headset for Xbox
Test Item	:	Band Edge
Test Mode	:	Mode 1: Transmit (2405.35MHz)
Test Date	:	2020/12/11

Vertical



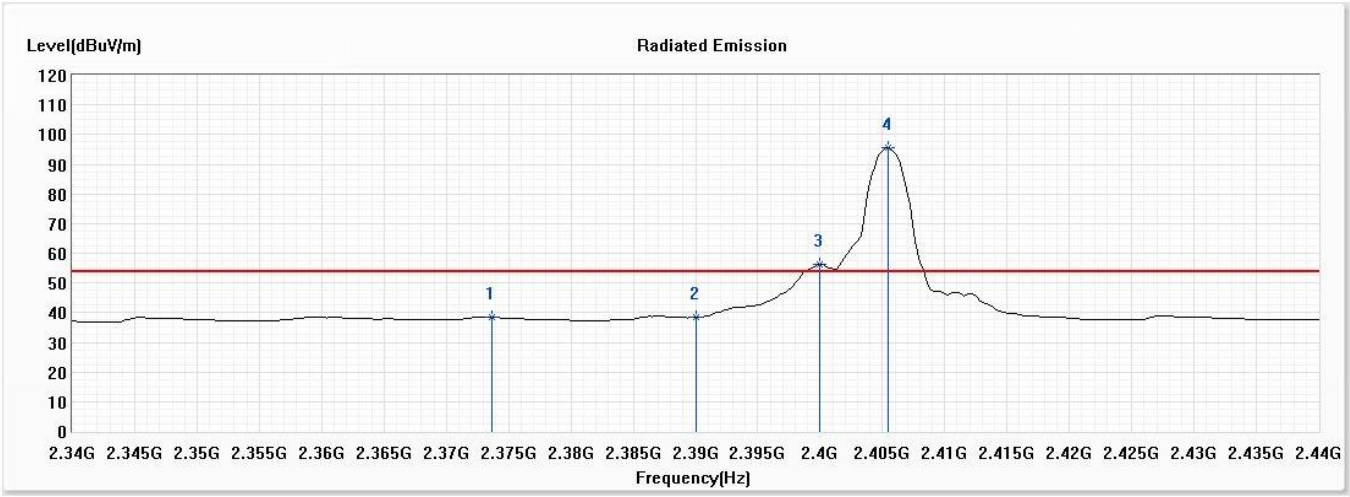
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2386.667	52.37	74.00	-21.63	39.29	13.08	PK
2	2390.000	51.12	74.00	-22.88	38.06	13.06	PK
3	2400.000	65.81	--	--	52.77	13.04	PK
! 4	2405.652	98.99	--	--	85.90	13.09	PK

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 : Victrix Gambit headset for Xbox
Test Item : Band Edge
Test Mode : Mode 1: Transmit (2405.35MHz)
Test Date : 2020/12/11

Vertical



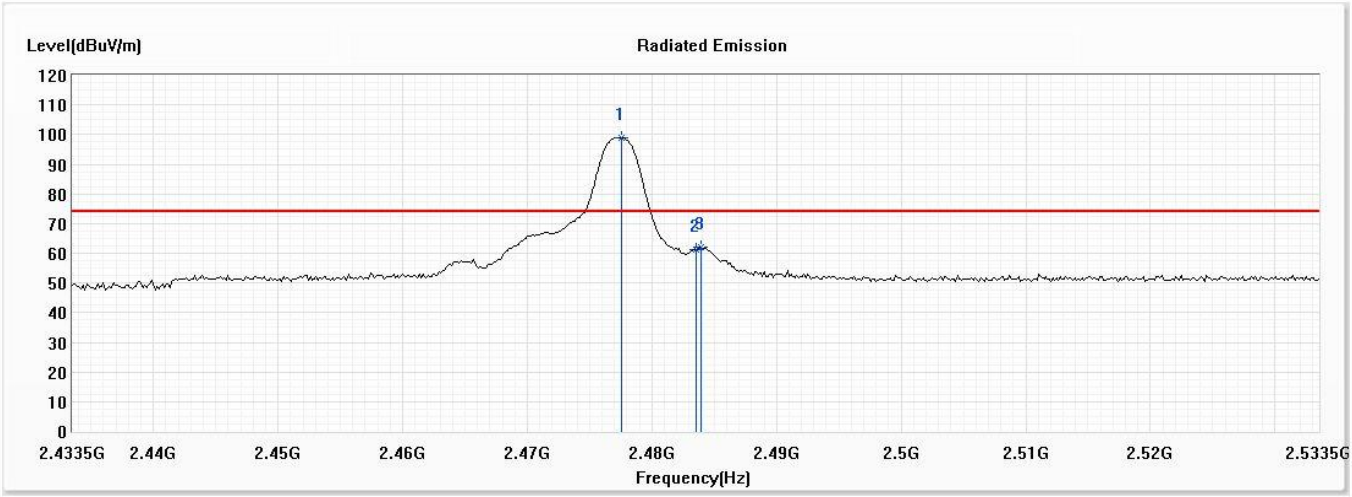
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
1	2373.696	38.55	54.00	-15.45	25.43	13.12	AV
2	2390.000	38.29	54.00	-15.71	25.23	13.06	AV
! 3	2400.000	56.34	--	--	43.30	13.04	AV
! 4	2405.435	95.66	--	--	82.58	13.08	AV

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 : Victrix Gambit headset for Xbox
Test Item : Band Edge
Test Mode : Mode 1: Transmit (2477.35MHz)
Test Date : 2020/12/11

Horizontal



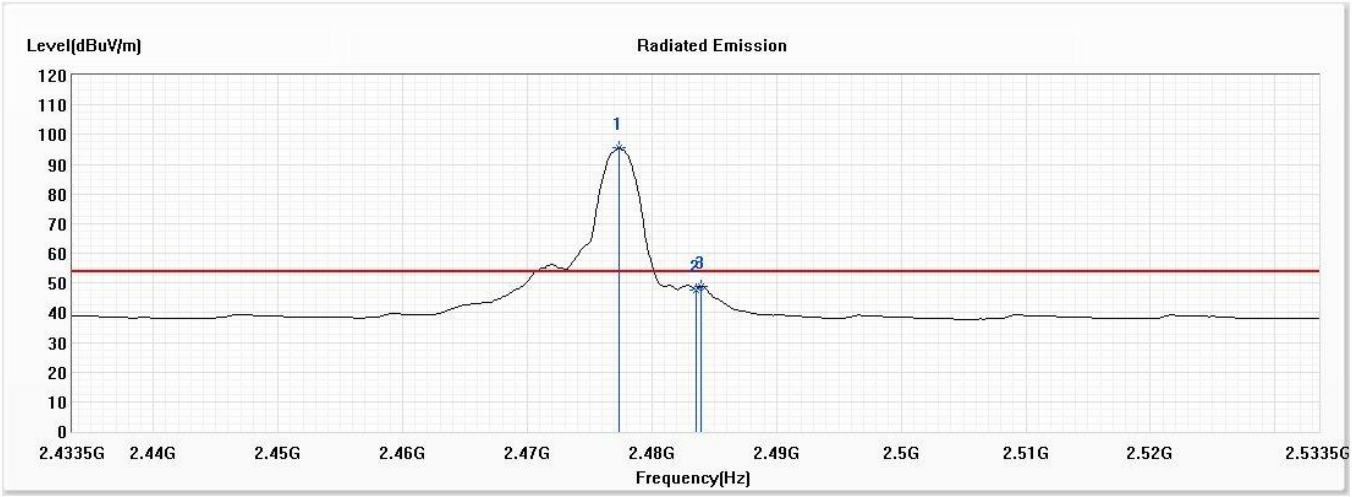
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2477.558	99.08	--	--	85.73	13.35	PK
2	2483.500	61.32	74.00	-12.68	47.99	13.33	PK
3	2483.935	62.16	74.00	-11.84	48.83	13.33	PK

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 : Victrix Gambit headset for Xbox
Test Item : Band Edge
Test Mode : Mode 1: Transmit (2477.35MHz)
Test Date : 2020/12/11

Horizontal



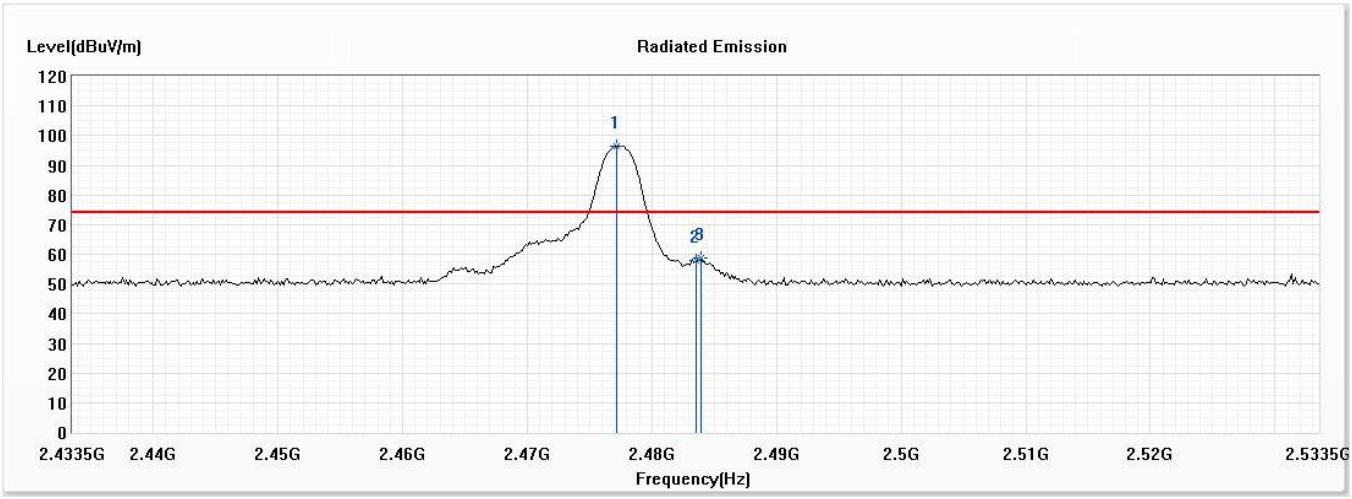
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2477.413	95.69	--	--	82.33	13.36	AV
2	2483.500	47.76	54.00	-6.24	34.43	13.33	AV
3	2483.935	48.82	54.00	-5.18	35.49	13.33	AV

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 : Victrix Gambit headset for Xbox
Test Item : Band Edge
Test Mode : Mode 1: Transmit (2477.35MHz)
Test Date : 2020/12/11

Vertical



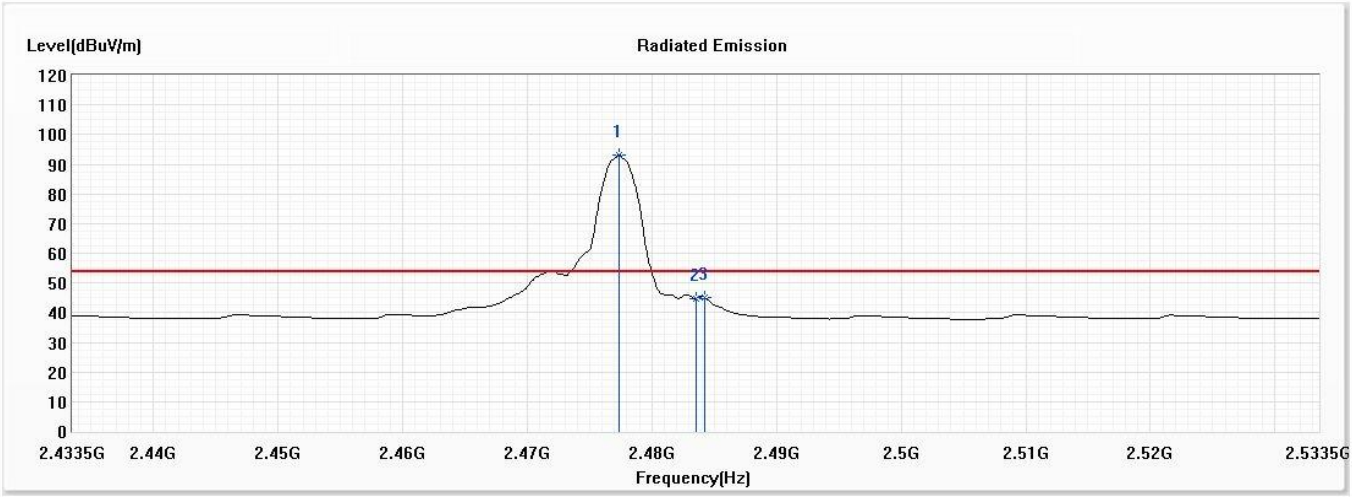
No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2477.123	96.46	--	--	83.11	13.35	PK
2	2483.500	57.92	74.00	-16.08	44.59	13.33	PK
3	2483.935	58.57	74.00	-15.43	45.24	13.33	PK

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 : Victrix Gambit headset for Xbox
Test Item : Band Edge
Test Mode : Mode 1: Transmit (2477.35MHz)
Test Date : 2020/12/11

Vertical



No	Frequency (MHz)	Emission Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Reading Level (dBuV)	Correct Factor (dB)	Detector Type
! 1	2477.413	93.08	--	--	79.72	13.36	AV
2	2483.500	44.62	54.00	-9.38	31.29	13.33	AV
3	2484.225	45.26	54.00	-8.74	31.94	13.32	AV

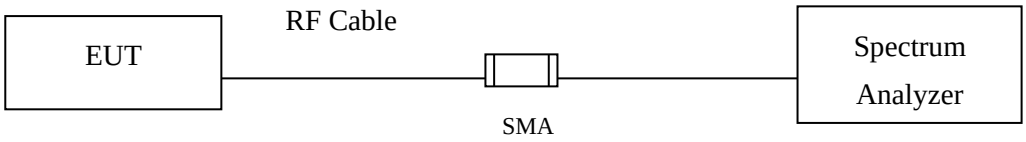
Note:

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.

Test Result of Band Edge	**PASS**

7. 6dB Bandwidth

7.1. Test Setup



7.2. Limits

The minimum bandwidth shall be at least 500 kHz.

7.3. Test Procedure

The EUT was setup according to ANSI C63.4, 2014; tested according to ANSI C63.10 Section 11.8 for compliance to FCC 47CFR 15.247 requirements.

7.4. Test Result of 6dB Bandwidth

Product : Victrix Gambit headset for Xbox
Test Item : 6dB Bandwidth Data
Test Mode : Mode 1: Transmit
Test Date : 2020/11/26

Channel No.	Frequency (MHz)	Measurement Level (kHz)	Required Limit (kHz)	Result
01	2405.35	1585	>500	Pass
19	2441.35	1585	>500	Pass
37	2477.35	1640	>500	Pass

Figure Channel 01:

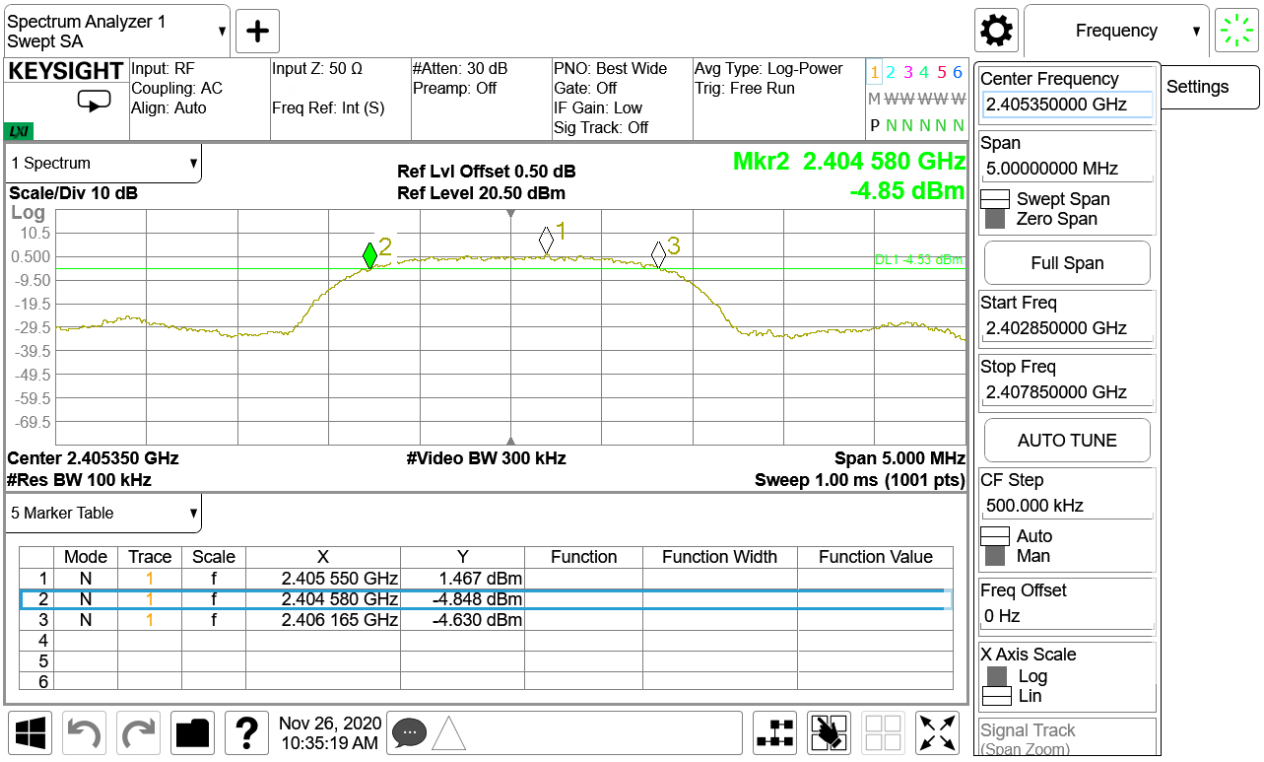


Figure Channel 19:

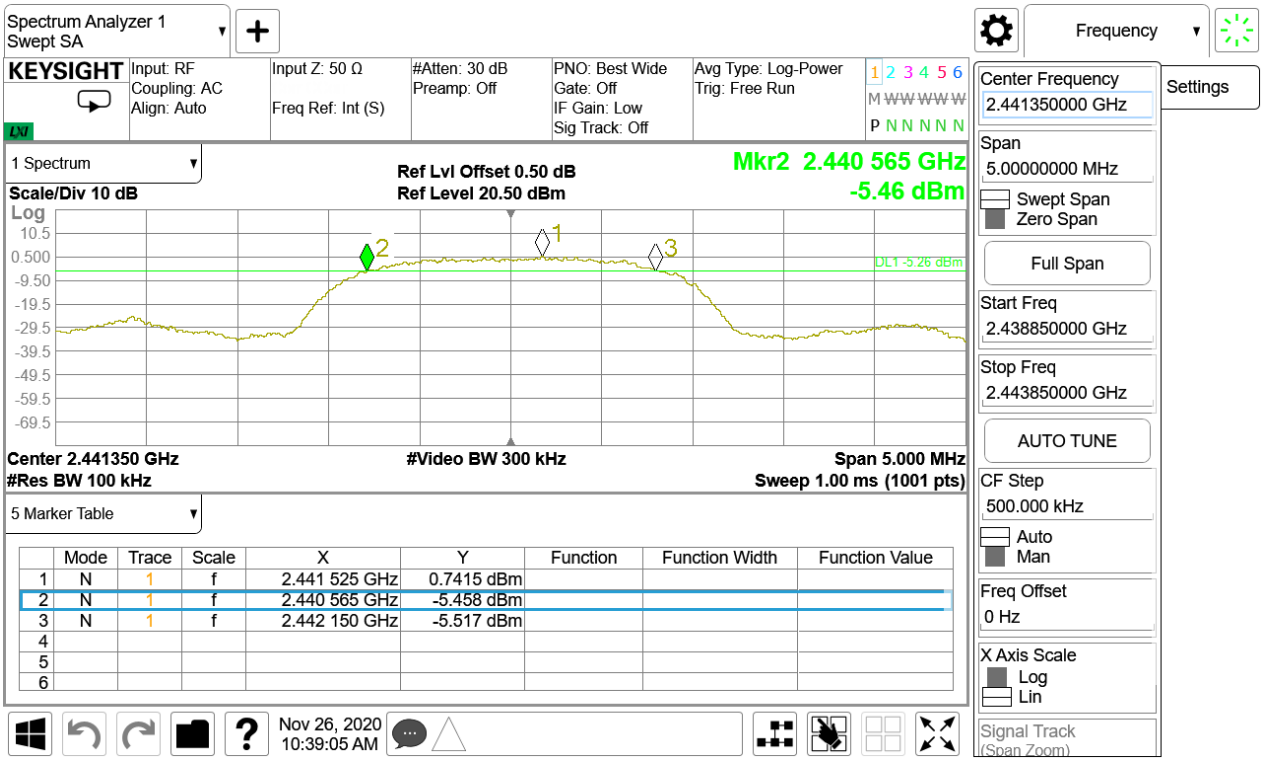
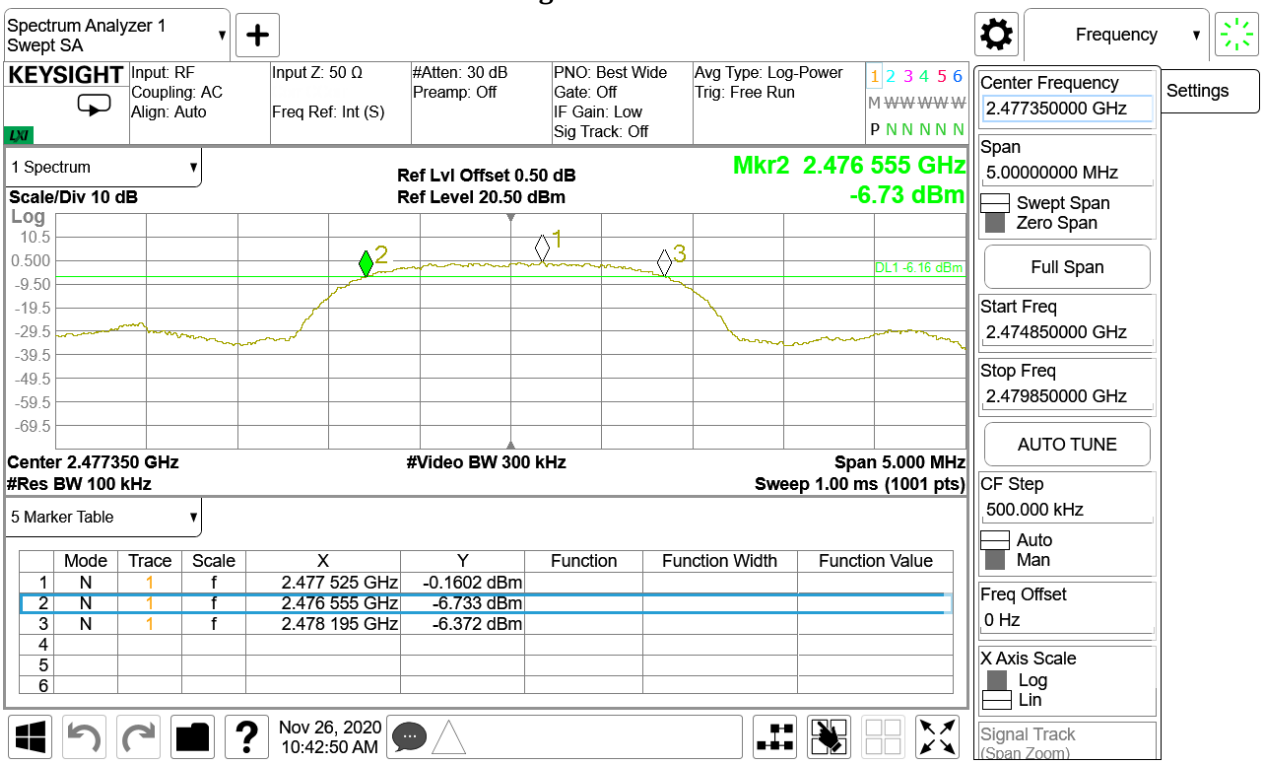


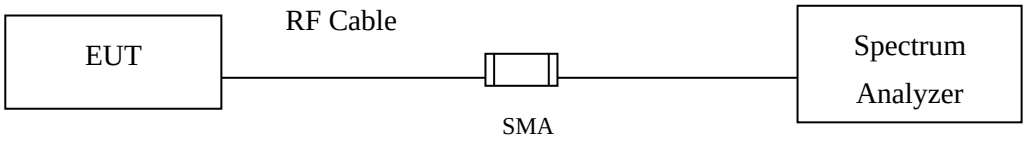
Figure Channel 37:



Test Result of 6dB Bandwidth	**PASS**

8. Power Density

8.1. Test Setup



8.2. Limits

The transmitted power density averaged over any 1 second interval shall not be greater +8dBm in any 3kHz bandwidth.

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 FCC 47CFR 15.247 requirements.

The maximum power spectral density using C63.10 Section 11.10.2 Method PKPSD (peak PSD)

8.4. Test Result of Power Density

Product : Victrix Gambit headset for Xbox
Test Item : Power Density Data
Test Mode : Mode 1: Transmit
Test Date : 2020/11/26

Channel No.	Frequency (MHz)	Measure Level (dBm)	Limit (dBm)	Result
01	2405.35	1.090	≦8dBm	Pass
19	2441.35	0.410	≦8dBm	Pass
37	2477.35	0.160	≦8dBm	Pass

Figure Channel 01:

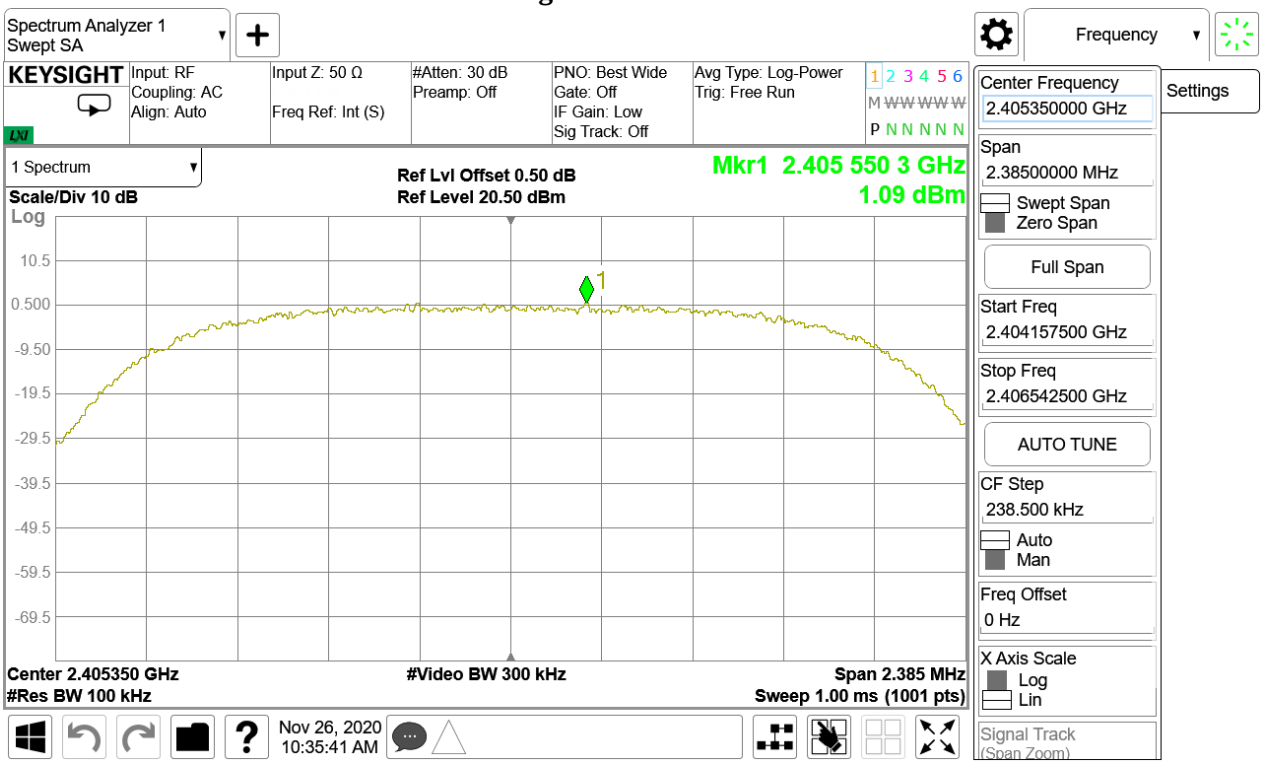


Figure Channel 19:

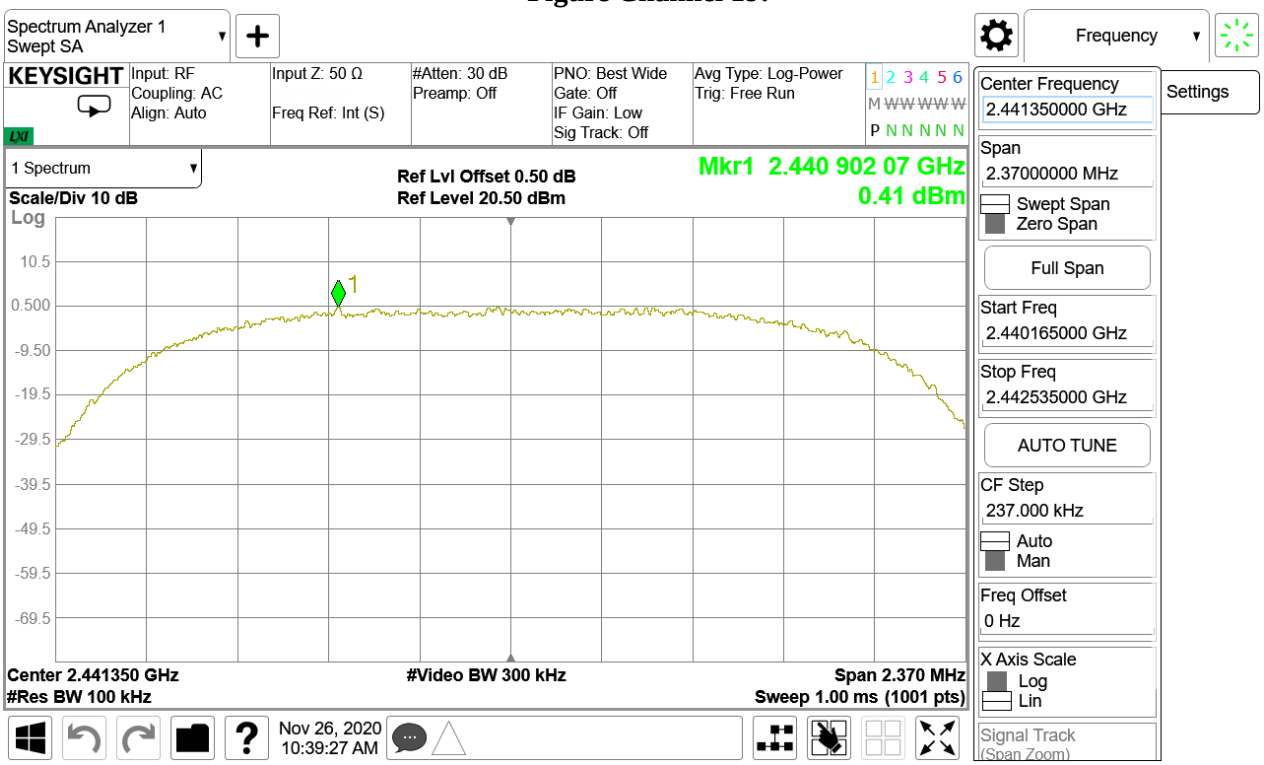
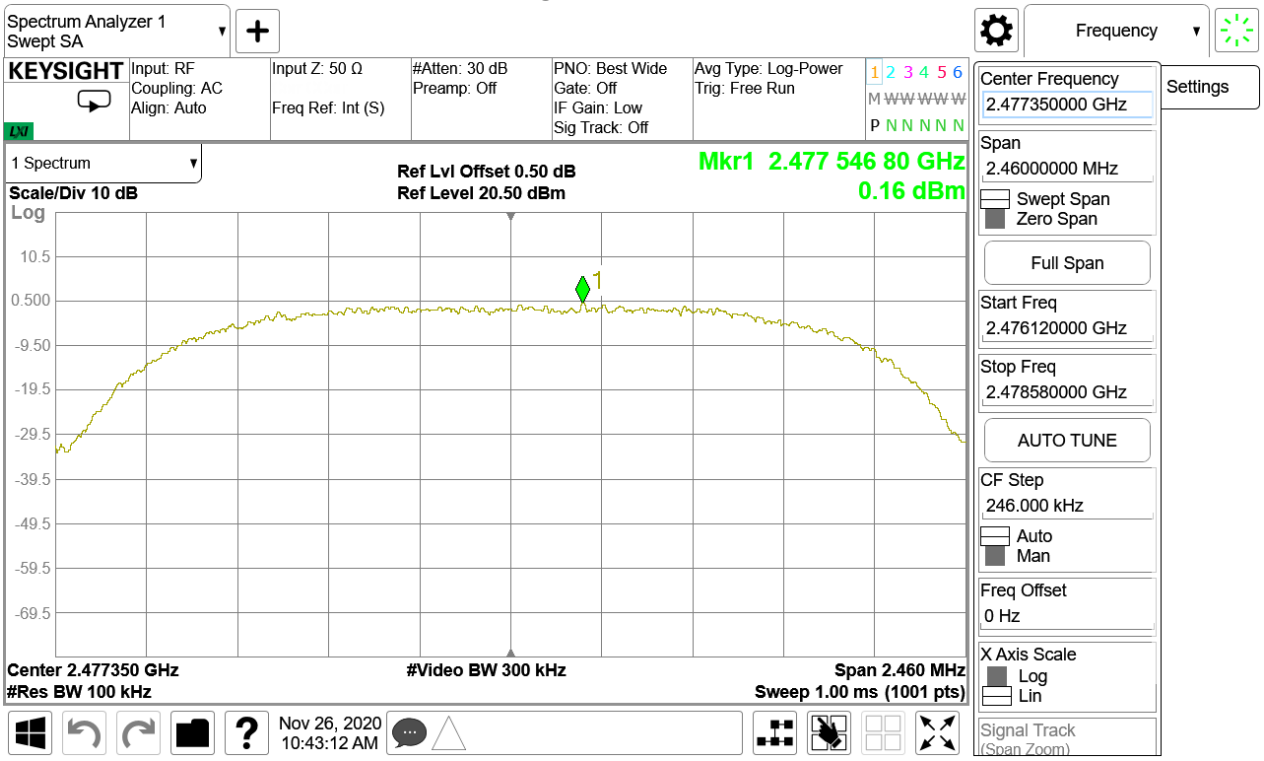


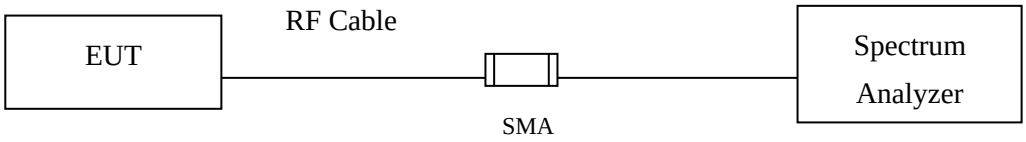
Figure Channel 37:



Test Result of Power Density	**PASS**

9. Duty Cycle

9.1. Test Setup



9.2. Test Procedure

The EUT was setup according to ANSI C63.10 2013; tested according to ANSI C63.10 2013 for compliance to FCC 47CFR 15.247 requirements.

9.3. Test Result of Duty Cycle

Product : Victrix Gambit headset for Xbox
Test Item : Duty Cycle
Test Mode : Mode 1: Transmit
Test Date : 2020/12/11

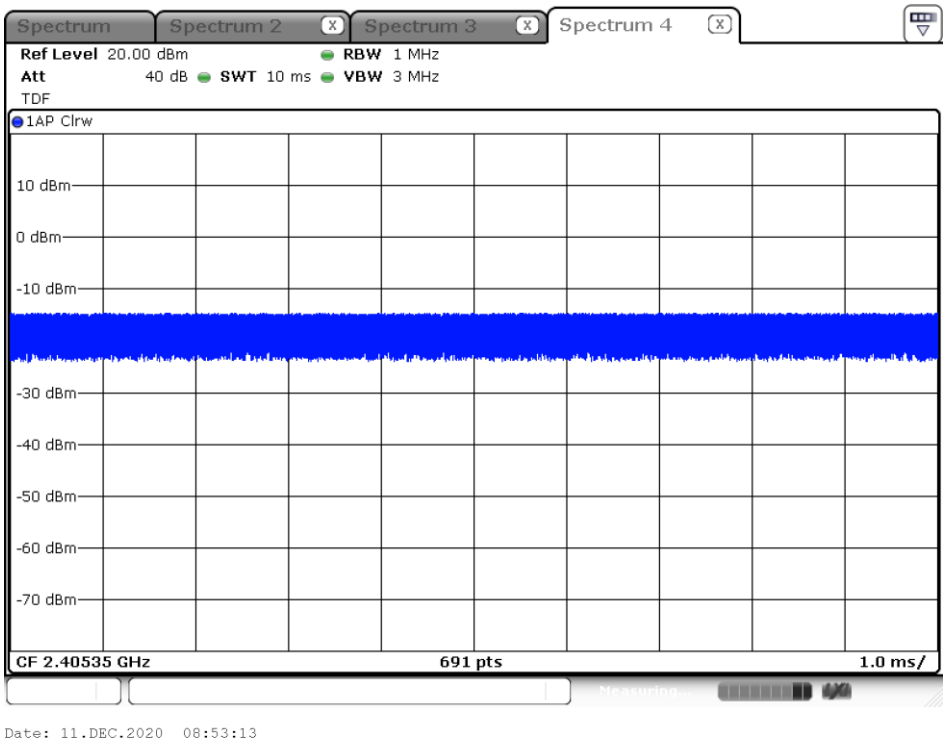
Duty Cycle Formula:

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)
2.4GHz	--	--	100.00	0.00



10. EMI Reduction Method During Compliance Testing

No modification was made during testing.