

## FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

Sony Group Corporation

Wireless Speaker

YY7862E

FCC ID: AK8YY7862E

SONY

Prepared for : Sony Group Corporation

1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

Prepared By : Audix Technology (Shenzhen) Co., Ltd.

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Report Number : ACS-F23185

Date of Test : Sep.25~Oct.17, 2023

Date of Report : Oct.23, 2023

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## TEST REPORT

Applicant : Sony Group Corporation  
 Manufacturer : Sony Group Corporation  
 Product : Wireless Speaker  
 FCC ID : AK8YY7862E  
 (A) Model No. : YY7862E  
 (B) Brand : SONY  
 (C) Test Voltage : (1)DC 5V From Adaptor input AC 120V/60Hz  
 (2)DC 7.6V From battery  
 (3)DC 7.34V From battery

Tested for comply with:

FCC CFR47 Part 15 Subpart C  
 Test procedure used: ANSI C63.10: 2020;  
 KDB 558074 D01v05r02

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to confirm comply with all the FCC Part 15 Subpart C requirements. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of these tests. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements. This report contains data that are not covered by the NVLAP accreditation.

This Report is made under FCC Part 2.1074. No modifications were required during testing to bring this product into compliance.

This report applies to single evaluation of one sample of above mentioned product and shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd..

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S. Government.

Date of Test : Sep.25~Oct.17, 2023 Report of date: Oct.23, 2023

Prepared by : Mia Zhao Reviewed by : Thomas Chen  
 Mia Zhao / Assistant Thomas Chen / Assistant Manager



Approved & Authorized Signer : Signature: Sunny Lu  
 Sunny Lu / Manager

## 1. SUMMARY OF STANDARDS AND RESULTS

### 1.1. Description of Standards and Results

The EUT has been tested according to the applicable standards as referenced below.

EMISSION		
Description of Test Item	Standard	Results
Power Line Conducted Emission Test	FCC Part 15: 15.207 ANSI C63.10 :2020	PASS
Radiated Emission Test	FCC Part 15: 15.209 FCC Part 15: 15.205 FCC Part 15: 15.247(d) ANSI C63.10 : 2020	PASS
Conducted Spurious Emissions	FCC Part 15: 15.247(d) ANSI C63.10 : 2020	PASS
Carrier Frequency Separation Test	FCC Part 15: 15.247(a)(1) ANSI C63.10 : 2020	N/A
6dB Bandwidth Test	FCC Part 15: 15.247(a)(2) ANSI C63.10 : 2020	PASS
Maximum Peak Output Power Test	FCC Part 15: 15.247(b)(1) ANSI C63.10 : 2020	PASS
Band Edge Compliance Test	FCC Part 15: 15.247(d) ANSI C63.10 : 2020	PASS
Power Spectral Density Test	FCC Part 15: 15.247(e) ANSI C63.10 :2020	PASS
Antenna requirement	FCC Part 15: 15.203	PASS

N/A is an abbreviation for Not Applicable.

Note: Measurement uncertainty affection to the result is considered, the EUT is technically compliant with standard requirements.

## 2. GENERAL INFORMATION

### 2.1. Description of Equipment Under Test

Applicant	Sony Group Corporation
Applicant Address	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Manufacturer	Sony Group Corporation
Manufacturer Address	1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan
Product	Wireless Speaker
Model No.	YY7862E
FCC ID	AK8YY7862E
Brand	SONY
USB A-C Cable	Unshielded, Detachable, 30cm
Sample Type	Prototype production
Date of Receipt	Sep.19, 2023
Date of Test	Sep.25~Oct.17, 2023
Remark: This report only for BLE.	

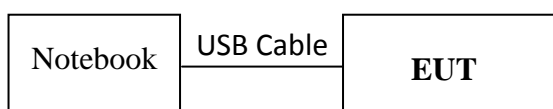
## 2.2.Feature of Equipment Under Test

<b>Product Feature &amp; Specification</b>		
Product	Wireless Speaker	
Model No.	YY7862E	
Radio	BDR +EDR; BLE	
Power Source	<input type="checkbox"/> Commercial Power	AC V
	<input checked="" type="checkbox"/> External Power Source	DC 5V
	<input checked="" type="checkbox"/> Lithium battery	DC 7.6V, 2900mAh; DC 7.34V, 2700mAh
	<input type="checkbox"/> UM battery	DC V
<b>Bluetooth</b>		
Radio	BDR +EDR; BLE	
Frequency Range	2402-2480MHz	
Type of Modulation	GFSK, $\pi/4$ DQPSK, 8DPSK	
Data Rate	1Mbps, 2Mbps, 3Mbps	
Quantity of Channels	79/40(BLE-1Mbps)/37(BLE-2Mbps)	
Channel Separation	1MHz/2MHz	
<b>Antenna System</b>		
Type of Antenna	PCB Antenna	
Antenna Peak Gain	1.77dBi	

### 2.3. Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number
1.	Notebook	N/A	ACER	ZOW	N/A
		Power Cord(3C): Unshielded, Detachable, 1.8m Power Adaptor: Manufacturer: Lite-On, M/N: PA-1900-32 Cable: Unshielded, Undetectable, 4.0m(Bond one ferrite core)			
2.	Adaptor	Manufacturer: Sony, M/N:AC-UUD12 INPUT: 100V-240V-50Hz/60Hz OUTPUT:5V 1.5A			

### 2.4. Block Diagram of connection between EUT and simulators



**(EUT: Wireless Speaker)**

### 2.5. Test information

A special software (Airoha. Tool. Kit) was used to control EUT work in TX mode (GFSK modulation), and select test channel.

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)	Channel	Frequency (MHz)
Tx Mode GFSK modulation	1	Low :CH0	2402
	1	Middle: CH19	2440
	1	High: CH39	2480
	2	Low :CH1	2404
	2	Middle: CH19	2440
	2	High: CH38	2478



2.6. Test Facility

Site Description

Name of Firm

: Audix Technology (Shenzhen) Co., Ltd.  
 No. 6, Kefeng Road, Science & Technology Park,  
 Nanshan District , Shenzhen, Guangdong, China

EMC Lab.

: Certificated by ISED, Canada  
 Company Number: 5183A  
 CAB identifier: CN0034  
 Valid Date: Mar.31, 2024

Certificated by FCC, USA  
 Designation No.: CN5022  
 Valid Date: Mar.31, 2024

Accredited by NVLAP, USA  
 NVLAP Code: 200372-0  
 Valid Date: Mar.31, 2024

2.7. Measurement Uncertainty (95% confidence levels, k=2)

Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	$\pm 2.6\text{dB}(150\text{KHz to } 30\text{MHz})$
Uncertainty for Radiation Emission test in 3m chamber	$\pm 3.8\text{dB}(30\sim 200\text{MHz, Polarization: H})$
	$\pm 3.8\text{dB}(30\sim 200\text{MHz, Polarization: V})$
	$\pm 4.0\text{dB}(200\text{M}\sim 1\text{GHz, Polarization: H})$
	$\pm 4.0\text{dB}(200\text{M}\sim 1\text{GHz, Polarization: V})$
Uncertainty for Radiation Emission test in 3m chamber(1GHz-18GHz)	$\pm 4.0\text{dB}(1\sim 6\text{GHz, Distance: } 3\text{m})$
	$\pm 4.0\text{dB}(6\sim 18\text{GHz, Distance: } 3\text{m})$
Uncertainty for Radiated Spurious Emission test in RF chamber	$\pm 3.7\text{dB}(30\text{MHz}\sim 1000\text{MHz})$
	$\pm 3.3\text{dB}(1\sim 26.5\text{GHz})$
Uncertainty for Conduction Spurious emission test	$\pm 2.0\text{dB}$
Uncertainty for Output power test	$\pm 0.8\text{dB}$
Uncertainty for Bandwidth test	$\pm 4.6\%$
Uncertainty for DC power test	$\pm 0.1\%$
Uncertainty for test site temperature and humidity	$\pm 0.6^\circ\text{C}$
	$\pm 3\%$

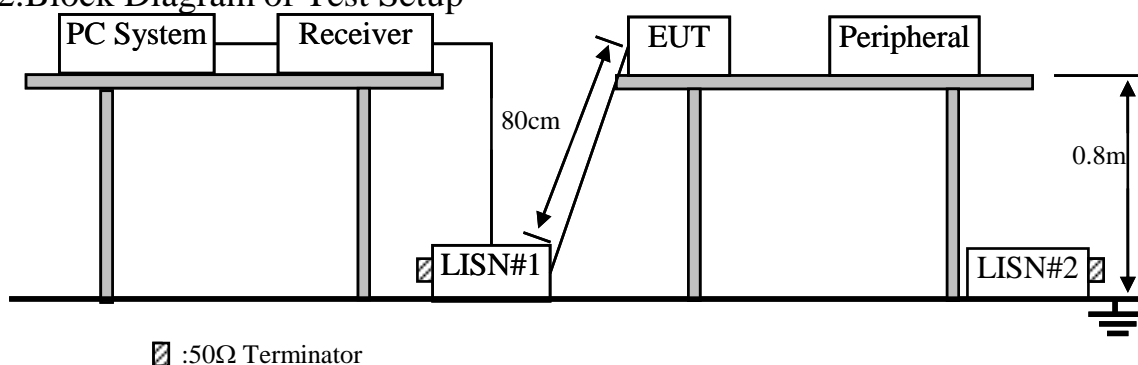
### 3. POWER LINE CONDUCTED EMISSION TEST

#### 3.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room	AUDIX	N/A	N/A	Nov.09,22	3 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.01,23	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ENV216	102160	Jun.25,23	1 Year
4.	RF Cable	Eastsheep	RG223	190424	Sep.15,23	1Year
5.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

Note: N/A means Not applicable.

#### 3.2. Block Diagram of Test Setup



#### 3.3. Power Line Conducted Emission Test Limits

Frequency	Maximum RF Line Voltage	
	Quasi-Peak Level dB(μV)	Average Level dB(μV)
150kHz ~ 500kHz	66 ~ 56*	56 ~ 46*
500kHz ~ 5MHz	56	46
5MHz ~ 30MHz	60	50

Notes: 1. \* Decreasing linearly with logarithm of frequency.

2. The lower limits shall apply at the transition frequencies.

3. Emission Level (dBμV) = Factor (L.I.S.N.) (dB) + Cable Loss (dB)+Reading (Receiver) (dBμV)

#### 3.4. Configuration of EUT on Test

The following equipment are installed on Power Line Conducted Emission Test to meet the commission requirement and operating regulations in a manner which tends to maximize its emission characteristics in a normal application.

##### 3.4.1. Wireless Speaker (EUT)

Model No. : YY7862E

Serial No. : N/A

##### 3.4.2. Support Equipment: As Tested Supporting System Details, in Section 2.3.

### 3.5. Operating Condition of EUT

- 3.5.1. Setup the EUT as shown as Section 3.2.
- 3.5.2. Turn on the power of EUT.
- 3.5.3. PC run test software to control EUT work in Tx mode.

### 3.6. Test Procedure

The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via Adaptor connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). The AC line are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10 on Conducted Emission Test.

The bandwidth of test receiver (R & S ESCI) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

### 3.7. Power Line Conducted Emission Test Results

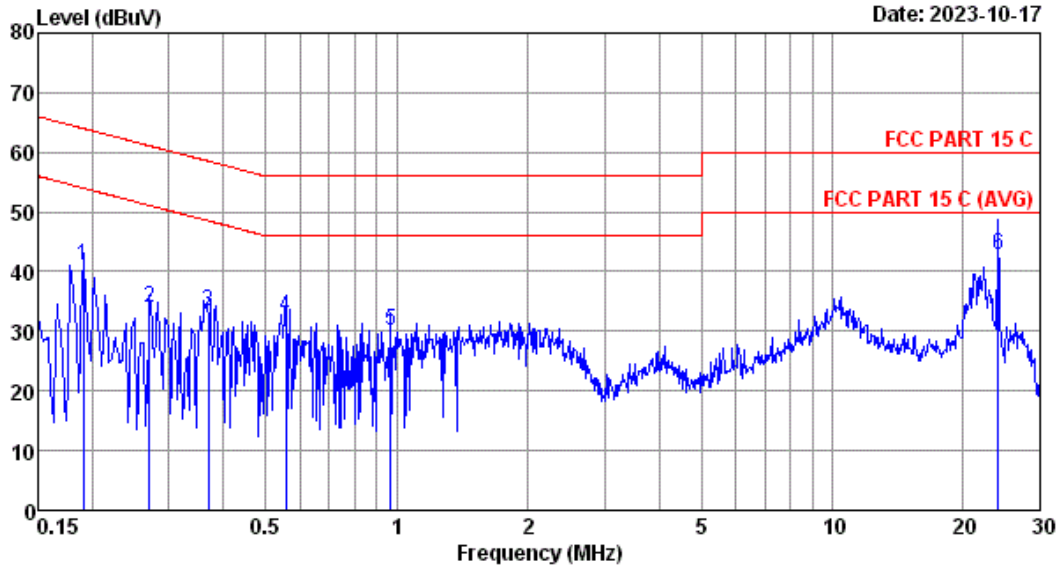
**PASS.** (All emissions not reported below are too low against the prescribed limits.)

BLE-1Mbps:

Data: 2

File: E:\1#CE\2023 Report Data\TPVA1Z2309069-RF.EM6 (6)

Date: 2023-10-17

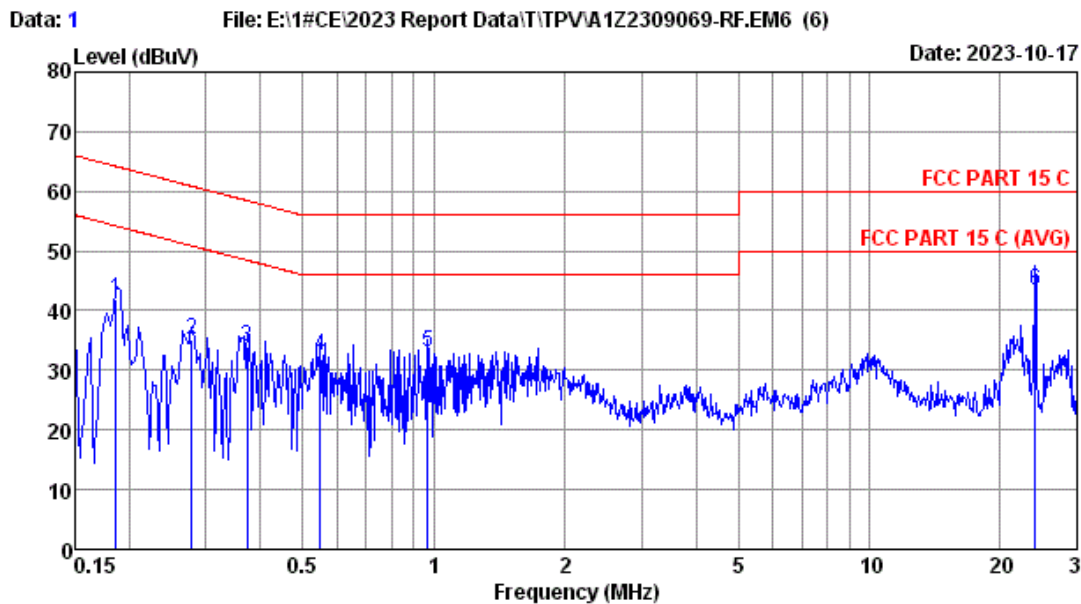


```

Site no       :1# CE                               Data No      :2
Dis./Lisn    :2023 ENV216-L
Limit        :FCC PART 15 C
Env./Ins.    :24.3*C/52%                           Engineer     :Sucy
EUT          :
Power Rating  :AC 120V/60Hz
Test Mode    :BLE 1M TX
    
```

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.190	9.62	0.01	31.33	40.96	64.02	23.06	QP
2	0.270	9.61	0.01	24.45	34.07	61.12	27.05	QP
3	0.369	9.60	0.01	23.67	33.28	58.52	25.24	QP
4	0.555	9.58	0.01	23.03	32.62	56.00	23.38	QP
5	0.968	9.56	0.01	20.40	29.97	56.00	26.03	QP
6	24.015	9.96	0.11	32.70	42.77	60.00	17.23	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



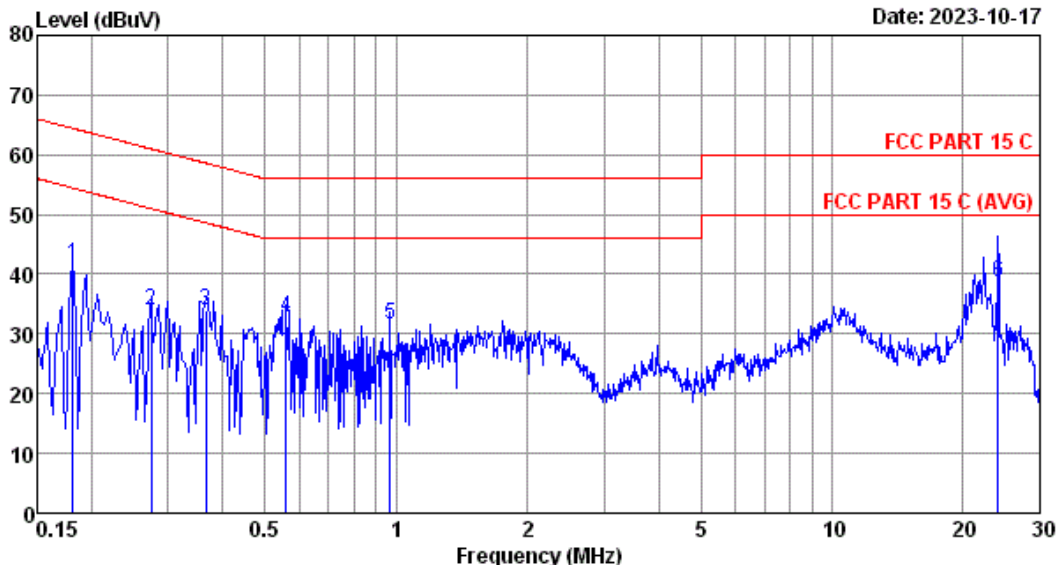
Site no :1# CE Data No :1  
 Dis./Lisn :2023 ENV216-N  
 Limit :FCC PART 15 C  
 Env./Ins. :24.3°C/52% Engineer :Sucy  
 EUT :  
 Power Rating :AC 120V/60Hz  
 Test Mode :BLE 1M TX

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.186	9.70	0.01	32.30	42.01	64.20	22.19	QP
2	0.277	9.71	0.01	25.47	35.19	60.90	25.71	QP
3	0.373	9.72	0.01	24.34	34.07	58.43	24.36	QP
4	0.549	9.73	0.01	22.83	32.57	56.00	23.43	QP
5	0.968	9.75	0.01	23.45	33.21	56.00	22.79	QP
6	24.015	8.68	0.11	34.50	43.29	60.00	16.71	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

BLE-2Mbps:

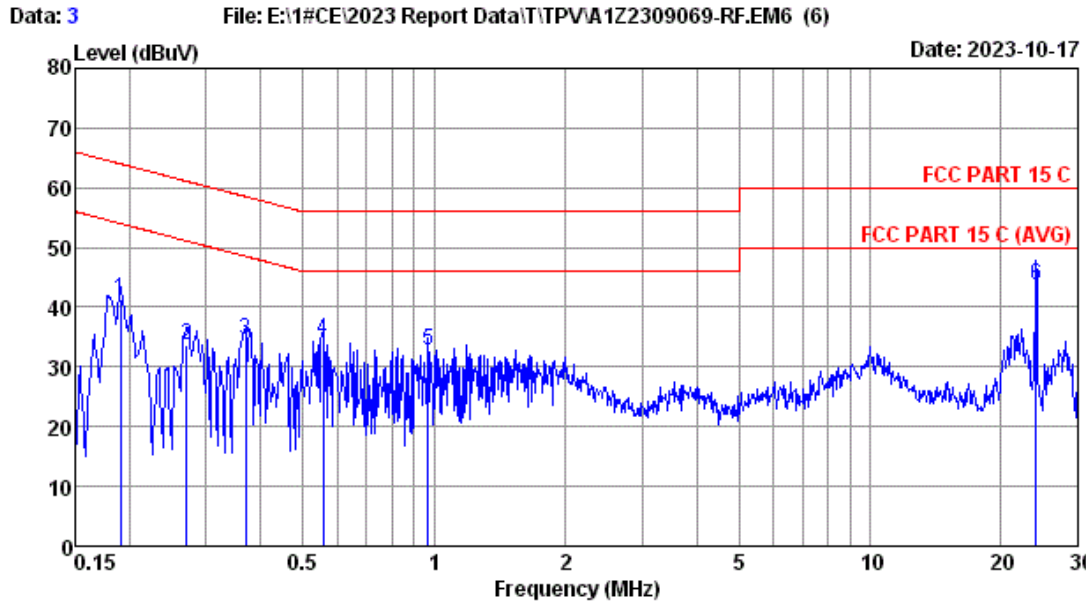
Data: 4 File: E:\1#CE\2023 Report Data\TPVA1Z2309069-RF.EM6 (6) Date: 2023-10-17



Site no :1# CE Data No :4  
 Dis./Lisn :2023 ENV216-L  
 Limit :FCC PART 15 C  
 Env./Ins. :24.3+C/52% Engineer :Sucy  
 EUT :  
 Power Rating :AC 120V/60Hz  
 Test Mode :BLE 2M TX

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.182	9.62	0.01	31.96	41.59	64.42	22.83	QP
2	0.274	9.61	0.01	24.21	33.83	60.98	27.15	QP
3	0.365	9.60	0.01	24.46	34.07	58.61	24.54	QP
4	0.558	9.58	0.01	23.18	32.77	56.00	23.23	QP
5	0.968	9.56	0.01	21.99	31.56	56.00	24.44	QP
6	24.015	9.96	0.11	28.50	38.57	60.00	21.43	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



Site no :1# CE Data No :3  
 Dis./Lisn :2023 ENV216-N  
 Limit :FCC PART 15 C  
 Env./Ins. :24.3°C/52% Engineer :Sucy  
 EUT :  
 Power Rating :AC 120V/60Hz  
 Test Mode :BLE 2M TX

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.190	9.70	0.01	31.54	41.25	64.02	22.77	QP
2	0.270	9.71	0.01	23.87	33.59	61.12	27.53	QP
3	0.369	9.72	0.01	24.92	34.65	58.52	23.87	QP
4	0.555	9.73	0.01	24.65	34.39	56.00	21.61	QP
5	0.968	9.75	0.01	22.96	32.72	56.00	23.28	QP
6	24.015	8.68	0.11	34.95	43.74	60.00	16.26	QP

Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.  
 2.If the average limit is met when using a quasi-peak detector.  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

## 4. RADIATED EMISSION MEASUREMENT

### 4.1. Test Equipments

Frequency range: 30~1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3m Chamber(NSA)	AUDIX	N/A	N/A	Aug.11,22	3Year
2.	3m Chamber(SE)	AUDIX	N/A	N/A	Sep.16,22	3 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	103670	Jun.25,23	1 Year
4.	Tri-log-Broadband Antenna	SCHWARZBECK	VULB 9168	01317	Oct.28,22	1 Year
5.	NSA Cable	HUBER+SUHNER	CFD400NL-LW	No.3+190411	Sep.20,23	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6201397223	Apr.02,23	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESR3	101931	Apr.01,23	1 Year
8.	Broadband Amplifier	SCHWARZBECK	BBV9744	00259	Jun.25,23	1 Year
9.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

Note: N/A means Not applicable.

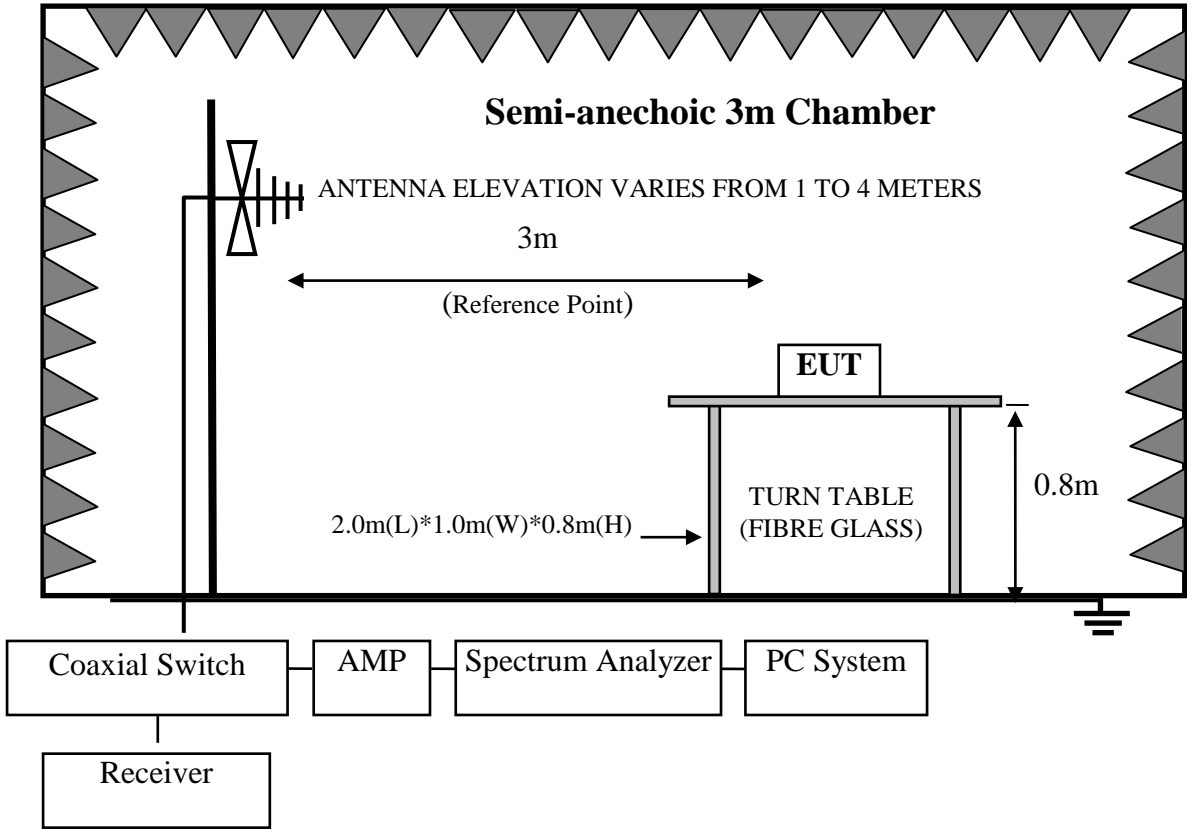
Frequency range: above 1000MHz

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3mChamber(Svswr)	AUDIX	N/A	N/A	Aug.09,22	3Year
2.	3mChamber(SE)	AUDIX	N/A	N/A	Sep.16,22	3Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	104050	Apr.01,23	1 Year
4.	Amplifier	Agilent	83017A	MY53270084	Sep.20,23	1 Year
5.	RF Cable	EMCI	EMC104-SM-S M-15000	190407	Jun.25,23	1 Year
6.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
7.	Horn Antenna	ETC	MCTD 1209	DRH15F03006	Aug.23,23	1 Year

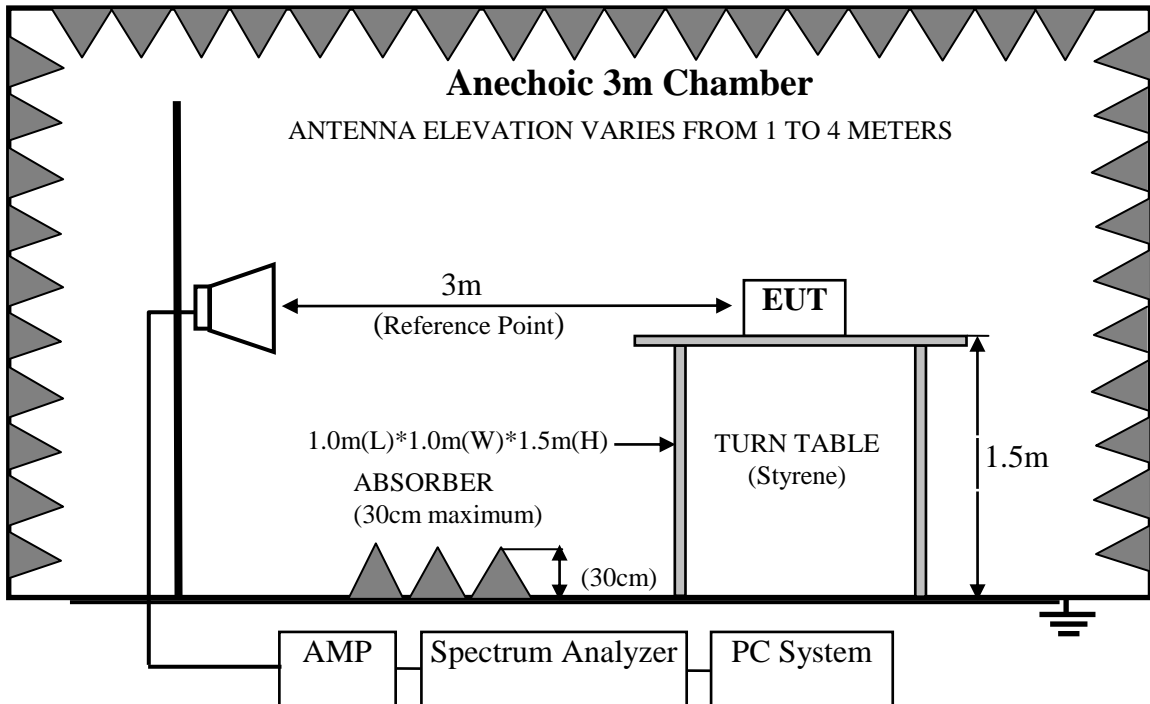
Note: N/A means Not applicable.



4.2. Block Diagram of Test Setup  
For frequency range 30MHz-1000MHz



For frequency range 1GHz-25GHz



4.3. Radiated Emission Limits Standard:

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
960 ~ 1000	3	500	54.0
Above 1000MHz	3	74.0 $\text{dB}(\mu\text{V})/\text{m}$ (Peak) 54.0 $\text{dB}(\mu\text{V})/\text{m}$ (Average)	

- Remark :
- (1) Emission Level ( $\text{dB}\mu\text{V}/\text{m}$ ) = Reading (Receiver) ( $\text{dB}\mu\text{V}$ ) + Antenna Factor ( $\text{dB}/\text{m}$ ) + Cable Loss ( $\text{dB}$ )  
 Emission Level ( $\text{dB}\mu\text{V}/\text{m}$ ) = Reading (Spectrum) ( $\text{dB}\mu\text{V}$ ) + Antenna Factor ( $\text{dB}/\text{m}$ ) – Amp Factor ( $\text{dB}$ ) + Cable Loss ( $\text{dB}$ )(above 1000MHz)
  - (2) The smaller limits shall apply at the cross point between two frequency bands.
  - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.
  - (4) The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

4.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

4.4.1. Wireless Speaker (EUT)

Model Number : YY7862E  
 Serial Number : N/A

4.5. Operating Condition of EUT

- 4.5.1. Setup the EUT and simulator as shown as Section 4.2.
- 4.5.2. Turn on the power of all equipments.
- 4.5.3. Let EUT work in BLE Tx mode.

#### 4.6. Test Procedure

##### **Frequency below 30MHz:**

The EUT setup on the turn table which has 0.8 m height to the ground. The turn table rotated 360 degrees and antenna fixed to 1 m to find the maximum emission level. In order to find the maximum emission, all of the interface cables were manipulated according to ANSI C63.10 regulation.

##### **Frequency Above 30MHz:**

EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground for frequency 30MHz~1000MHz, 1.5 meter high above ground for frequency above 1GHz and put the absorbing with 2.4m(L)\*2.4m(W)\*0.3m(H) on the ground . The turn table can rotate 360 degrees to determine the position of the maximum emission level. Power on the EUT and let it working in test mode, then test it.EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna for frequency 30MHz~1000MHz, and the Horn antenna is used as receiving antenna for frequency above 1GHz. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.10 on radiated emission Test.

This test was performed with EUT in X, Y, Z position, and the worse case was found reported in report.

The bandwidth of the EMI test receiver (R&S ESR3) is set at 120kHz for frequency range from 30MHz to 1000 MHz.

The bandwidth of the Spectrum's RBW is set at 1MHz and VBW is set at 3MHz for peak emissions measurement above 1GHz.

This device is pulse Modulated, a duty cycle factor was used to calculated average level based measured peak level.

The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

#### 4.7. Radiated Emission Test Results

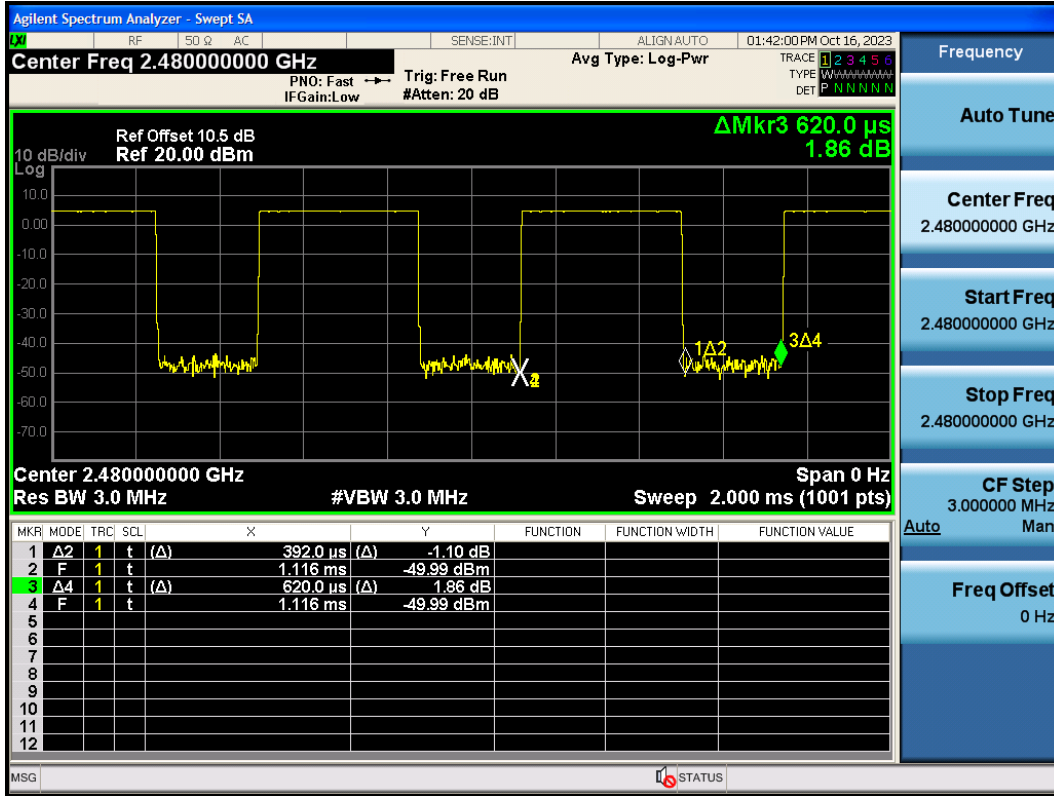
##### **PASS.**

All the emissions from 30MHz to 25GHz were comply with the 15.209 Limit.

Note: The duty cycle factor for calculate average level is BLE-1Mbps: -3.982dB; BLE-2Mbps: -12.104dB for BLE, and average limit is 20dB below peak limit, so if peak measured level comply with average limit, the average level was deemed to comply with average limit.

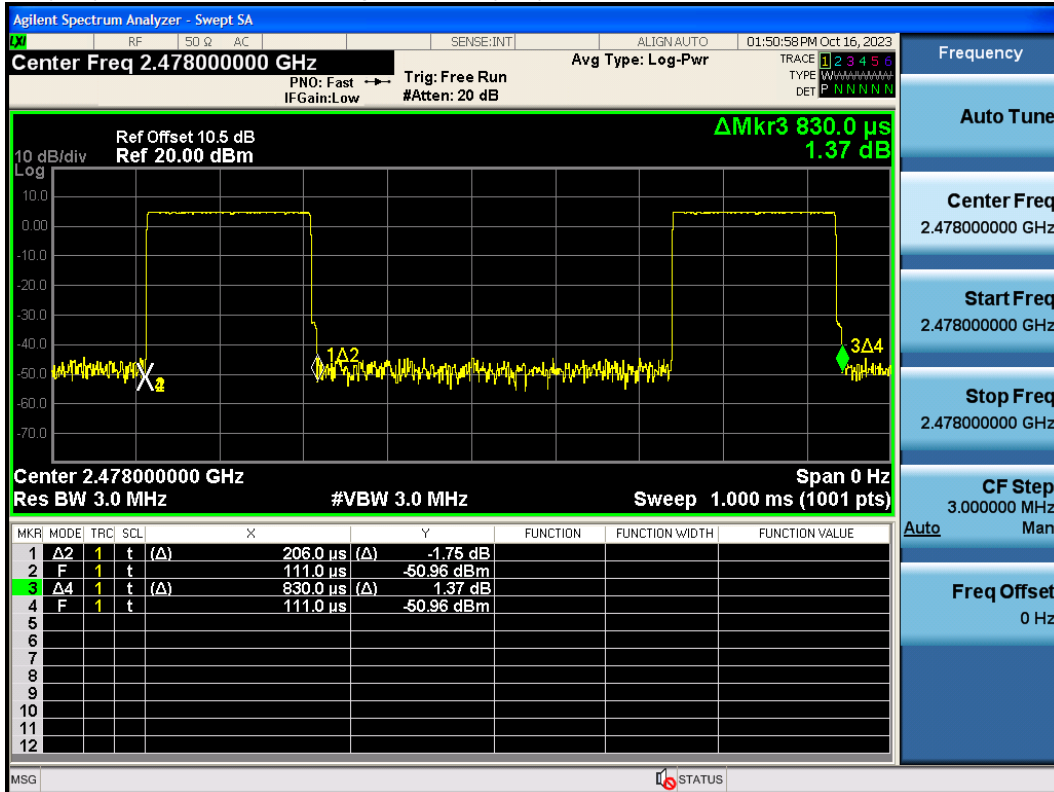
### BLE-1Mbps:

Duty cycle factor =  $20\log(1/\text{duty cycle}) = -3.982\text{dB}$

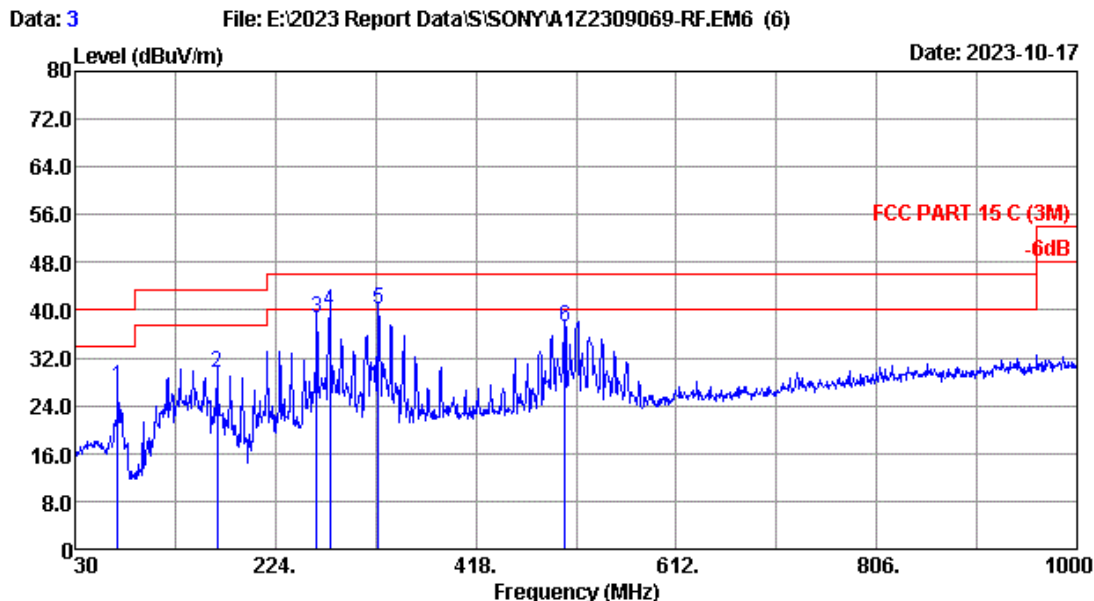


### BLE-2Mbps:

Duty cycle factor =  $20\log(1/\text{duty cycle}) = -12.104\text{dB}$



**Frequency: 30MHz~1GHz**  
**BLE-1Mbps:**

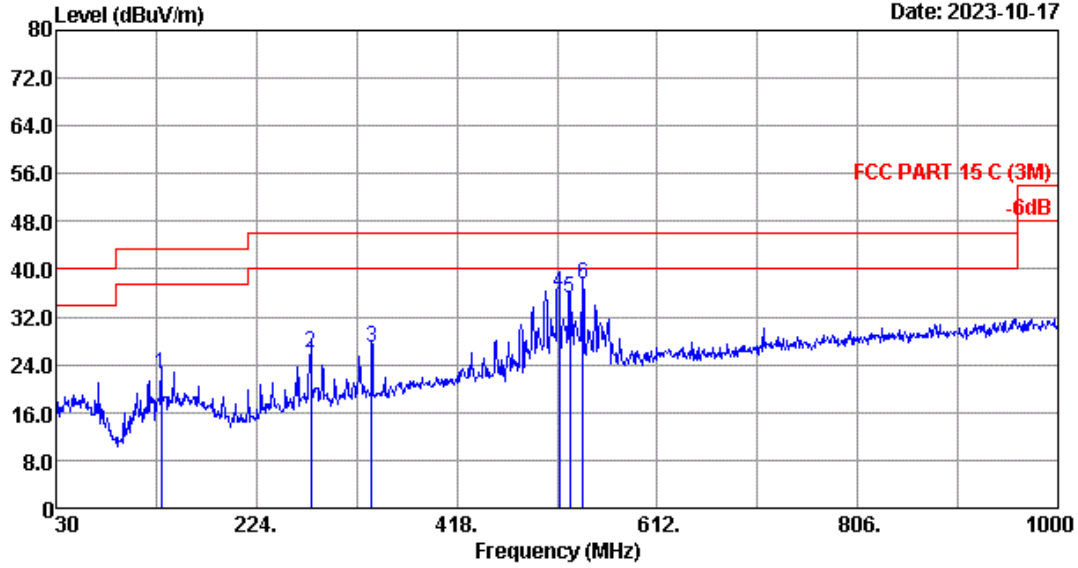


Site no. : 3m Chamber Data no. : 3  
 Dis. / Ant. : 3m 2022 VULB 9168-01317 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 24.2\*C/54% Engineer : Abel  
 Test Mode : BT 4.0 TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	71.710	17.00	0.75	9.33	27.08	40.00	12.92	QP
2	167.740	18.90	1.07	9.64	29.61	43.50	13.89	QP
3	263.770	18.20	1.35	19.16	38.71	46.00	7.29	QP
4	276.380	18.84	1.38	19.68	39.90	46.00	6.10	QP
5	323.910	20.18	1.47	18.40	40.05	46.00	5.95	QP
6	504.330	23.70	1.84	11.55	37.09	46.00	8.91	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 4 File: E:\2023 Report Data\SI\SONY\A1Z2309069-RF.EM6 (6) Date: 2023-10-17

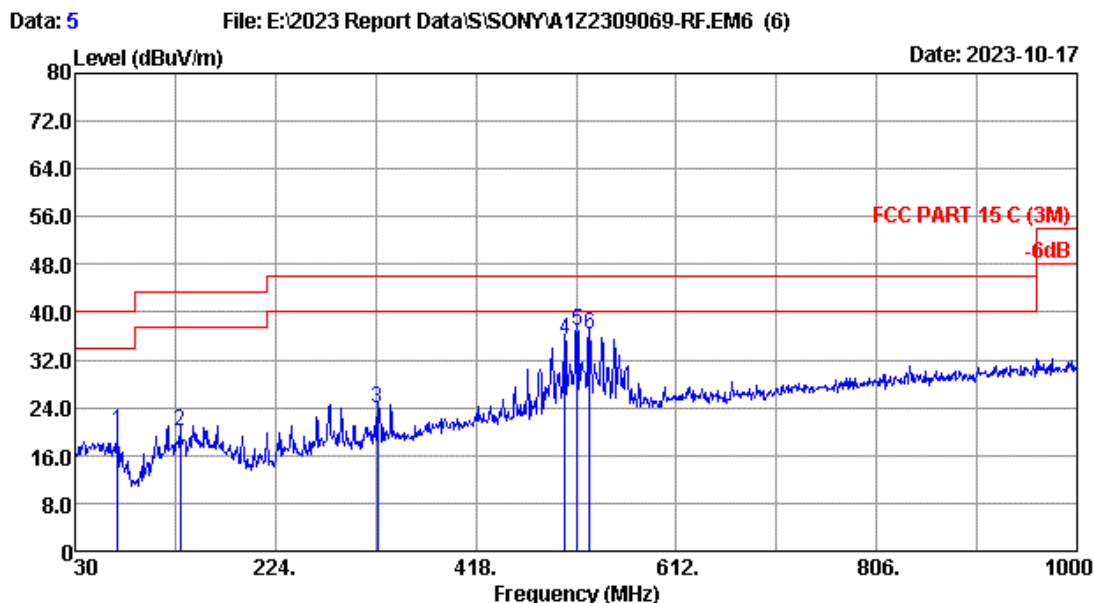


Site no. : 3m Chamber Data no. : 4  
 Dis. / Ant. : 3m 2022 VULB 9168-01317 Ant. pol. : VERTICAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 24.2\*C/54% Engineer : Abel  
 Test Mode : BT 4.0 TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	131.850	18.10	0.96	3.47	22.53	43.50	20.97	QP
2	276.380	18.84	1.38	5.71	25.93	46.00	20.07	QP
3	335.550	20.20	1.49	5.28	26.97	46.00	19.03	QP
4	516.940	23.90	1.87	10.25	36.02	46.00	9.98	QP
5	527.610	23.96	1.89	9.34	35.19	46.00	10.81	QP
6	540.220	24.20	1.92	11.26	37.38	46.00	8.62	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

**BLE-2Mbps:**

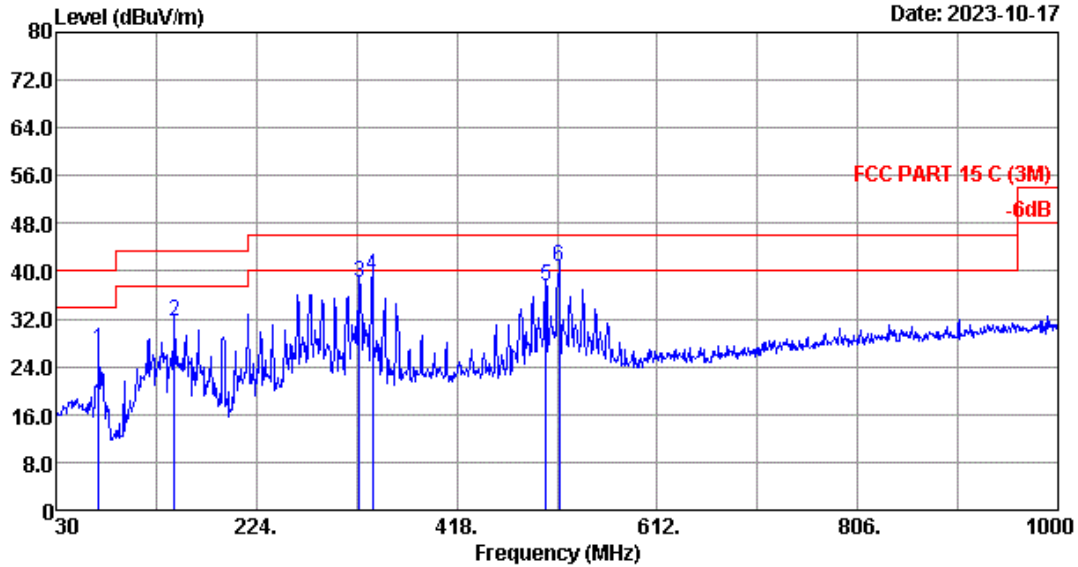


Site no. : 3m Chamber Data no. : 5  
 Dis. / Ant. : 3m 2022 VULB 9168-01317 Ant. pol. : VERTICAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 24.2°C/54% Engineer : Abel  
 Test Mode : BT 5.0 TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	71.710	17.00	0.75	2.39	20.14	40.00	19.86	QP
2	131.850	18.10	0.96	1.14	20.20	43.50	23.30	QP
3	322.940	20.16	1.47	2.17	23.80	46.00	22.20	QP
4	504.330	23.70	1.84	9.84	35.38	46.00	10.62	QP
5	515.970	23.90	1.87	11.04	36.81	46.00	9.19	QP
6	528.580	23.98	1.89	10.49	36.36	46.00	9.64	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 6 File: E:\2023 Report Data\SI\SONYA\122309069-RF.EM6 (6) Date: 2023-10-17



Site no. : 3m Chamber Data no. : 6  
 Dis. / Ant. : 3m 2022 VULB 9168-01317 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15 C (3M)  
 Env. / Ins. : 24.2\*C/54% Engineer : Abel  
 Test Mode : BT 5.0 TX

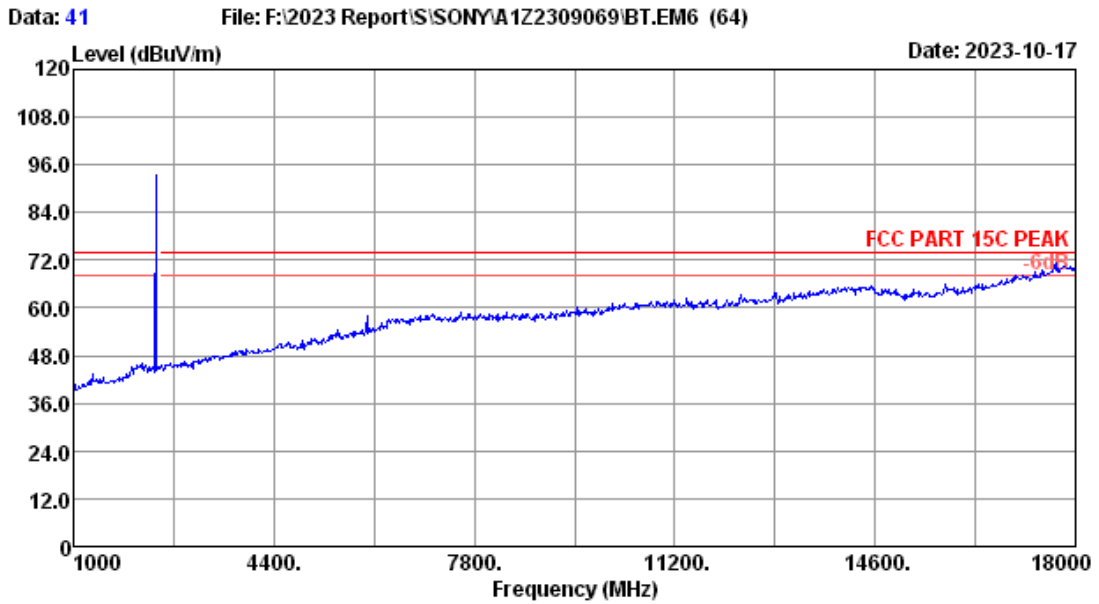
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	71.710	17.00	0.75	9.11	26.86	40.00	13.14	QP
2	144.460	19.20	1.00	11.45	31.65	43.50	11.85	QP
3	323.910	20.18	1.47	16.53	38.18	46.00	7.82	QP
4	336.520	20.20	1.50	17.56	39.26	46.00	6.74	QP
5	504.330	23.70	1.84	12.06	37.60	46.00	8.40	QP
6	516.940	23.90	1.87	14.84	40.61	46.00	5.39	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.

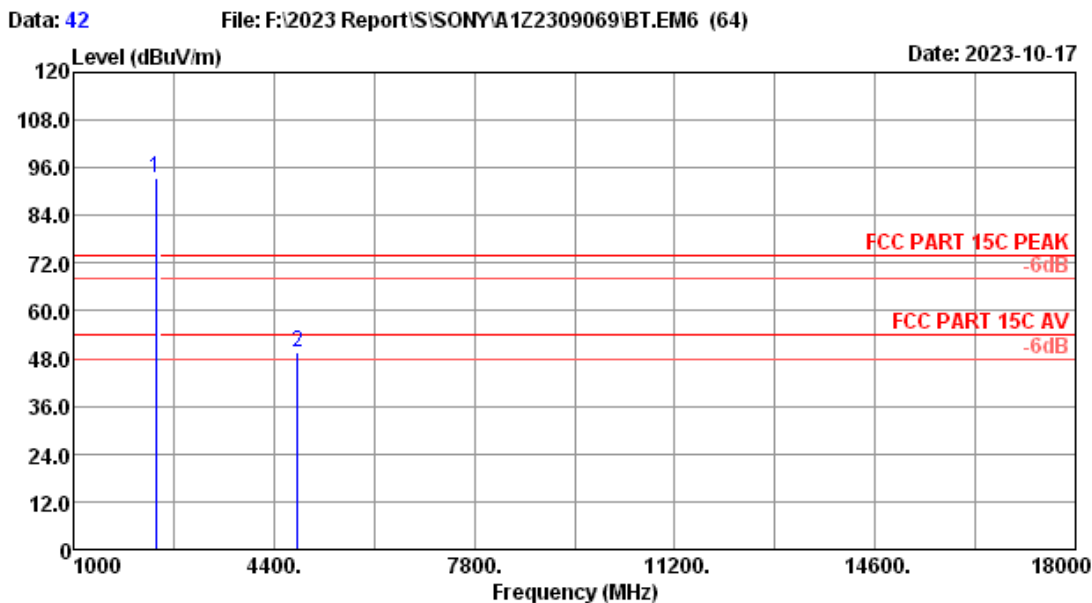


Frequency: 1GHz~18GHz

BLE-1Mbps:



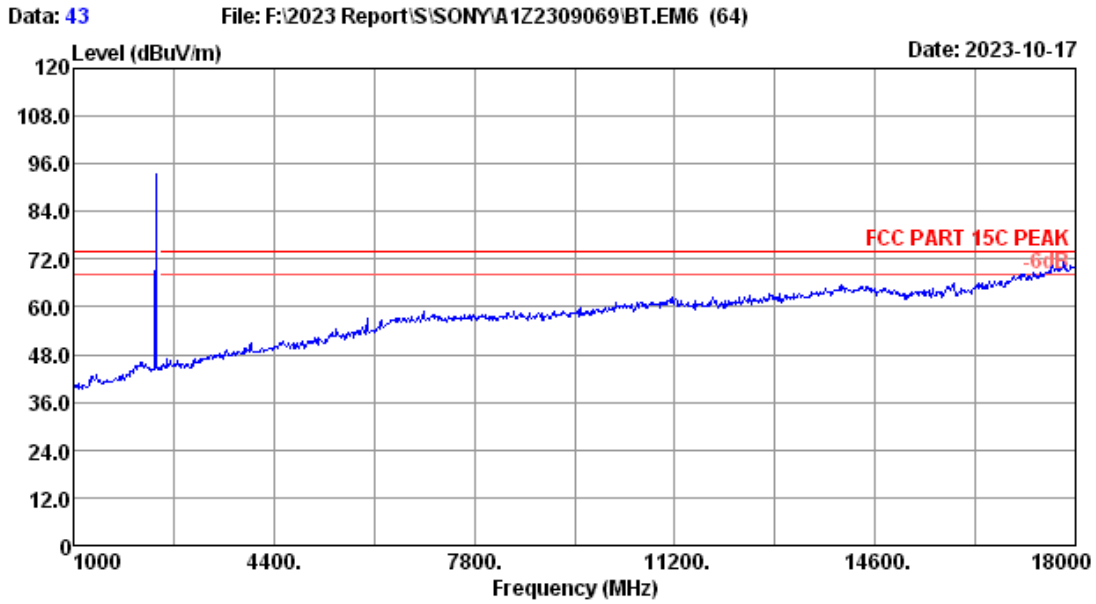
Site no.	: 3m Chamber	Data no.	: 41
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE1M 2402 MHz TX		
	:		
	:		



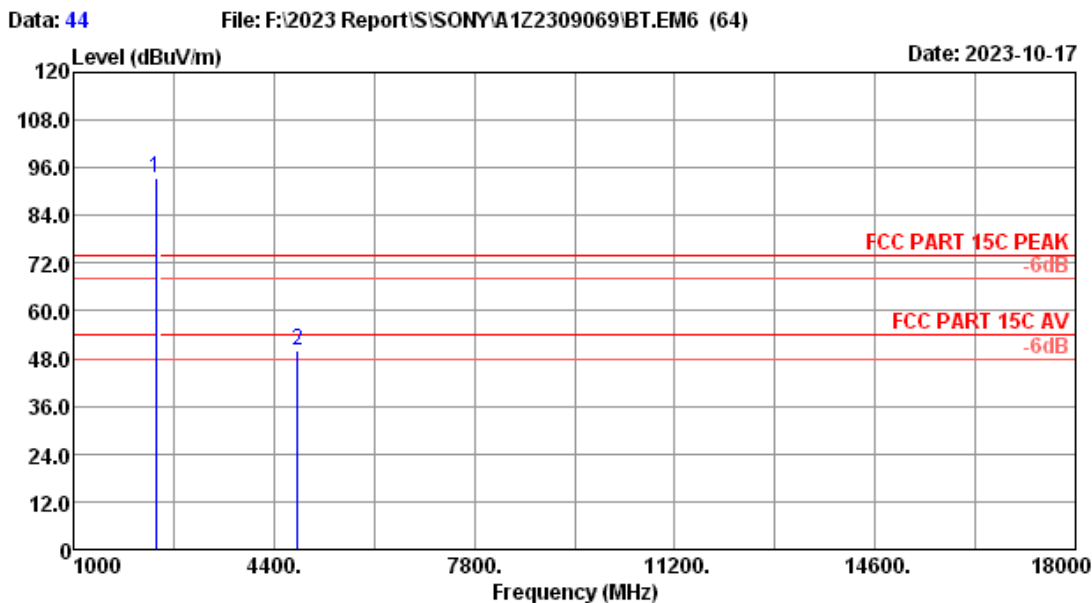
Site no. : 3m Chamber Data no. : 42  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE1M 2402 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.00	27.61	4.86	34.36	95.44	93.55	-----	-----	Peak
2	4804.00	31.20	6.50	33.68	45.79	49.81	74.00	24.19	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



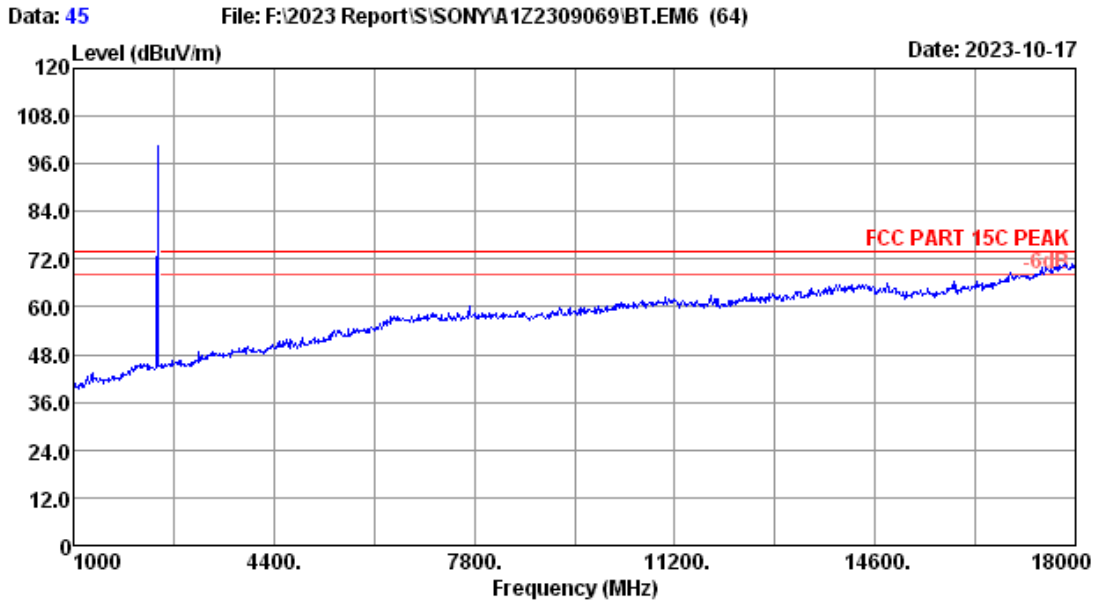
Site no.	: 3m Chamber	Data no.	: 43
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE1M 2402 MHz TX		
	:		
	:		



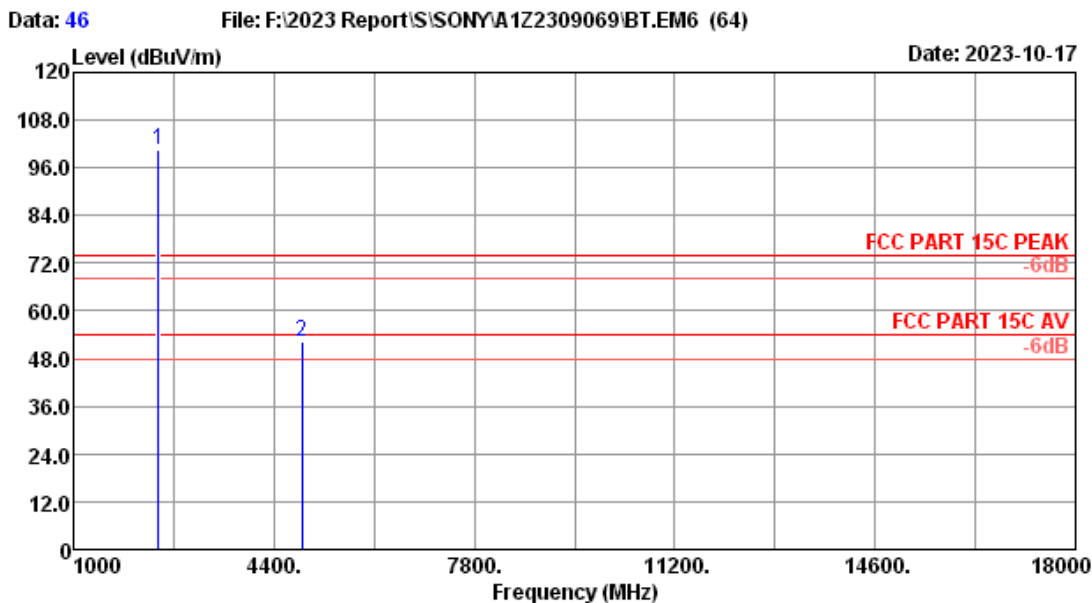
Site no. : 3m Chamber Data no. : 44  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT LE1M 2402 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.00	27.61	4.86	34.36	95.45	93.56	-----	-----	Peak
2	4804.00	31.20	6.50	33.68	45.88	49.90	74.00	24.10	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



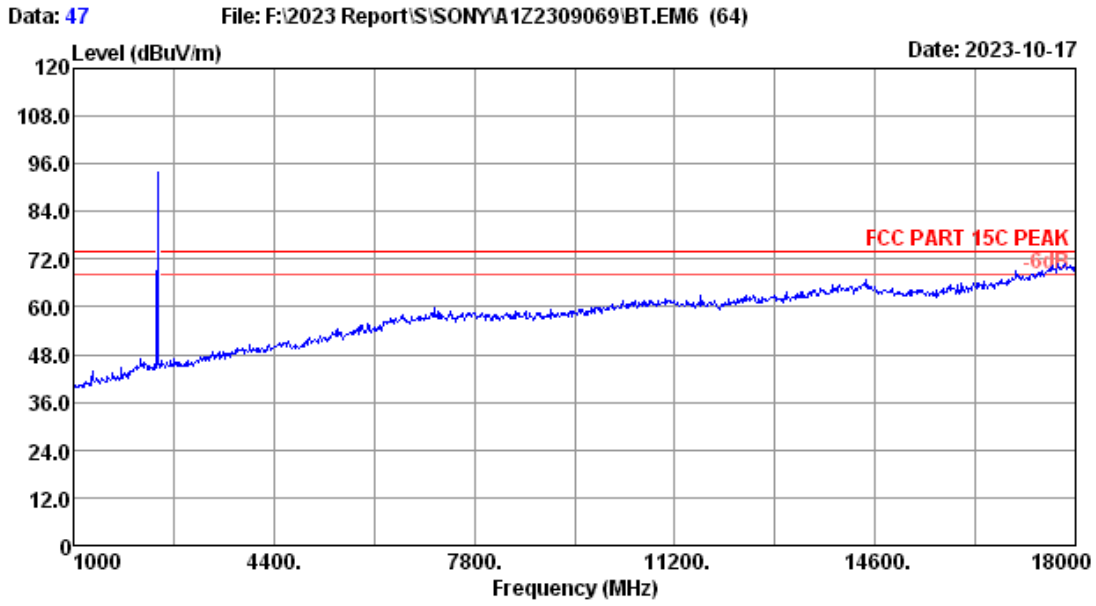
Site no.	: 3m Chamber	Data no.	: 45
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE1M 2440 MHz TX		
	:		
	:		



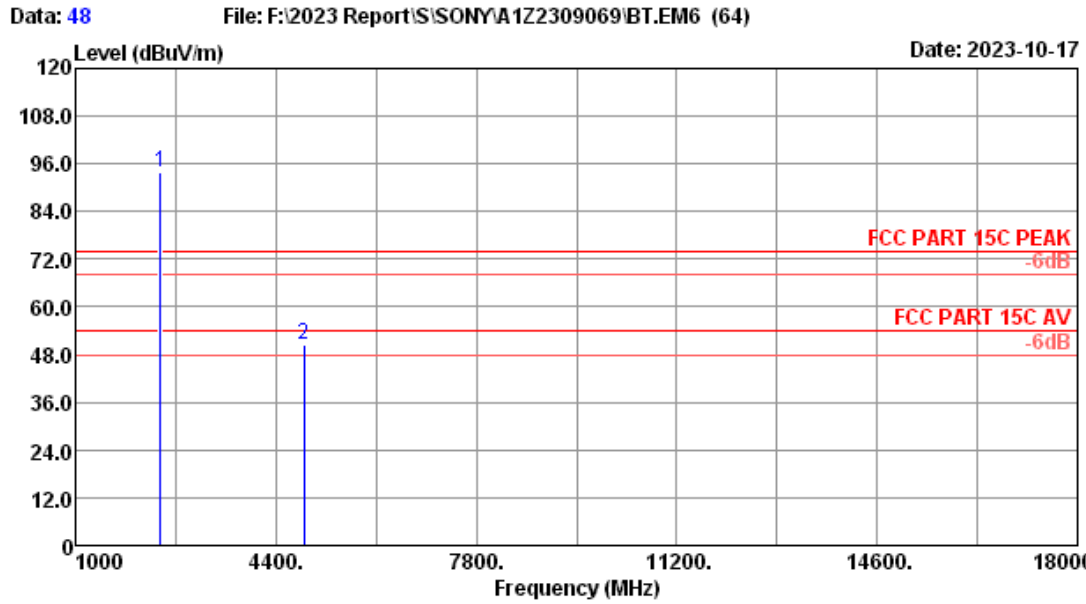
Site no. : 3m Chamber Data no. : 46  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE1M 2440 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.76	4.90	34.36	102.13	100.43	-----	-----	Peak
2	4880.00	31.44	6.54	33.69	47.92	52.21	74.00	21.79	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 47
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE1M 2440 MHz TX		
	:		
	:		

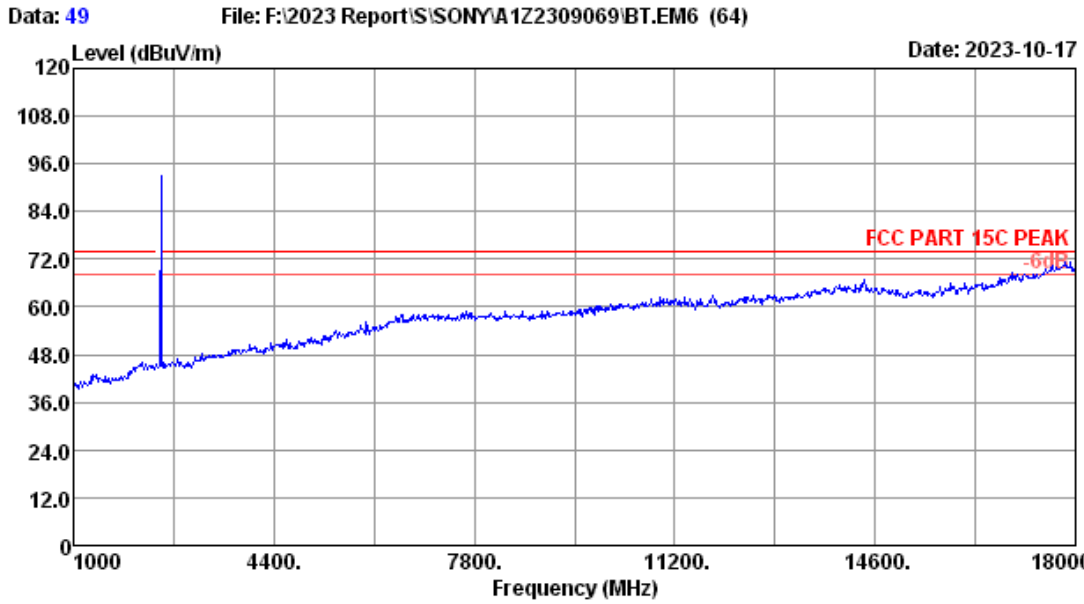


Site no. : 3m Chamber Data no. : 48  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE1M 2440 MHz TX  
 :  
 :

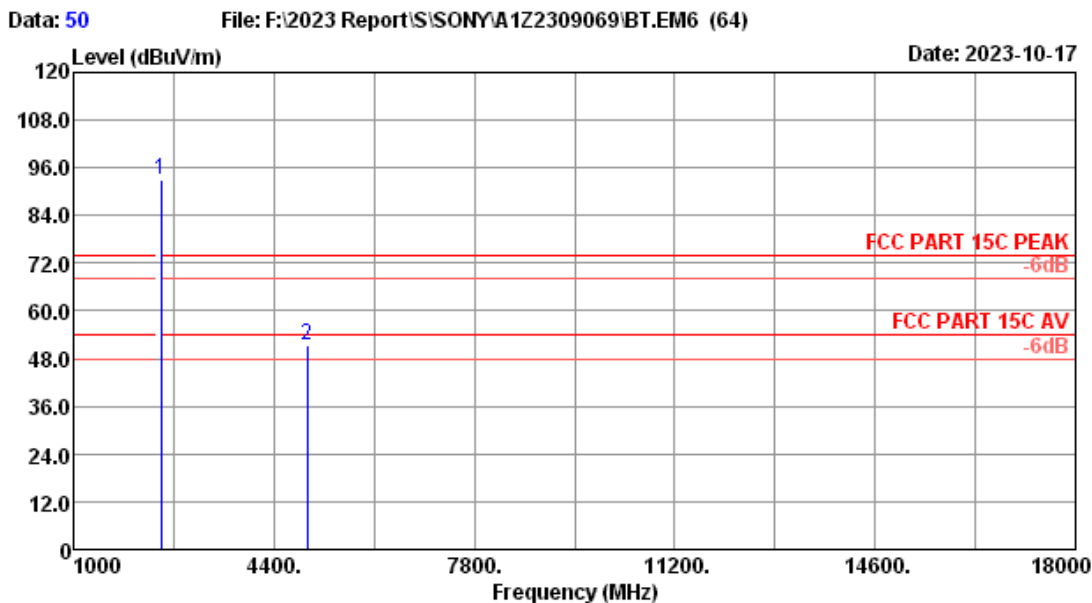
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.76	4.90	34.36	95.71	94.01	-----	-----	Peak
2	4880.00	31.44	6.54	33.69	46.37	50.66	74.00	23.34	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.





Site no.	: 3m Chamber	Data no.	: 49
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE1M 2480 MHz TX		
	:		
	:		

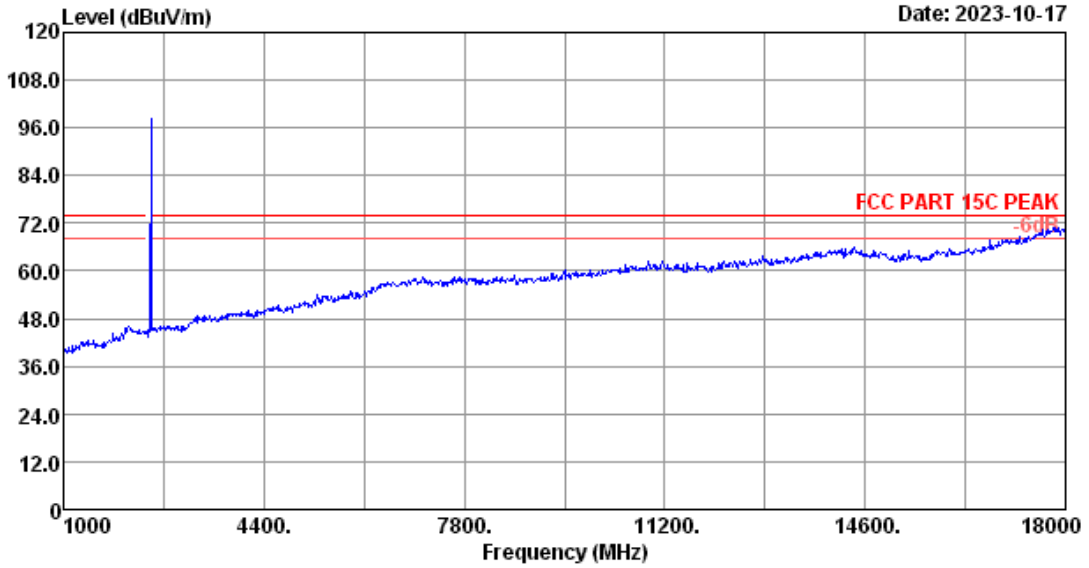


Site no. : 3m Chamber Data no. : 50  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE1M 2480 MHz TX  
 :  
 :

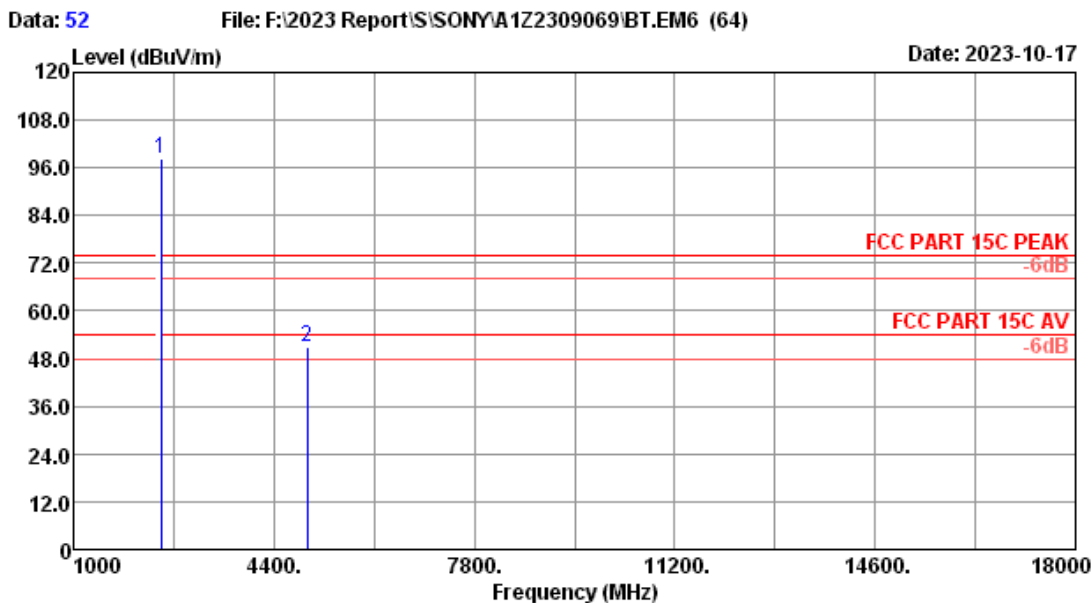
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	27.80	4.93	34.35	94.80	93.18	-----	-----	Peak
2	4960.00	31.98	6.58	33.69	46.46	51.33	74.00	22.67	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 51 File: F:\2023 Report\SI\SONY\A1Z2309069\BT.EM6 (64) Date: 2023-10-17



Site no. : 3m Chamber Data no. : 51  
Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
Limit : FCC PART 15C PEAK  
Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
Test Mode : BT LE1M 2480 MHz TX  
:  
:



Site no. : 3m Chamber Data no. : 52  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE1M 2480 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	27.80	4.93	34.35	99.85	98.23	-----	-----	Peak
2	4960.00	31.98	6.58	33.69	45.95	50.82	74.00	23.18	Peak

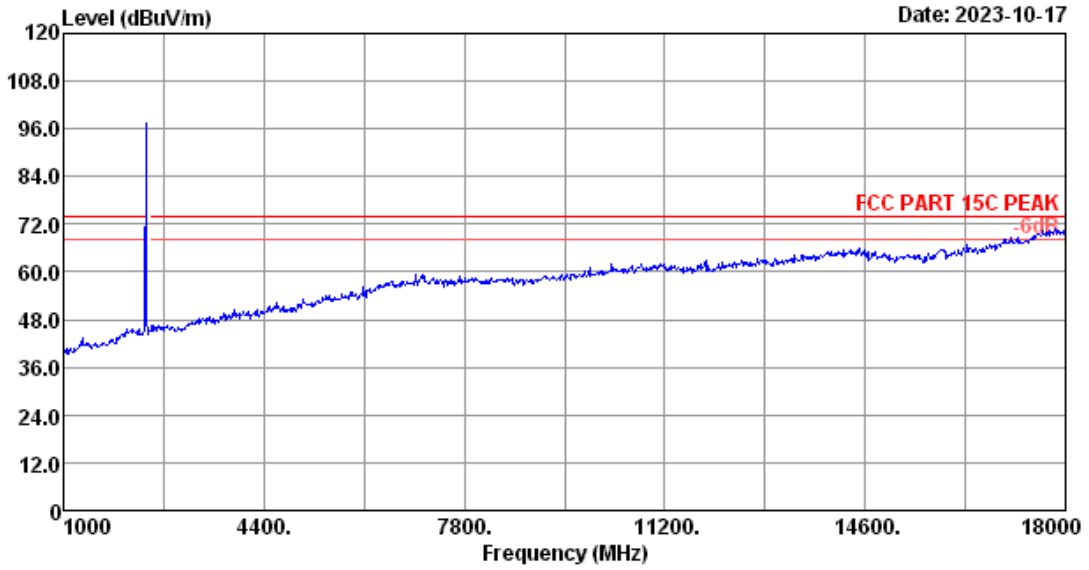
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.

**BLE-2Mbps:**

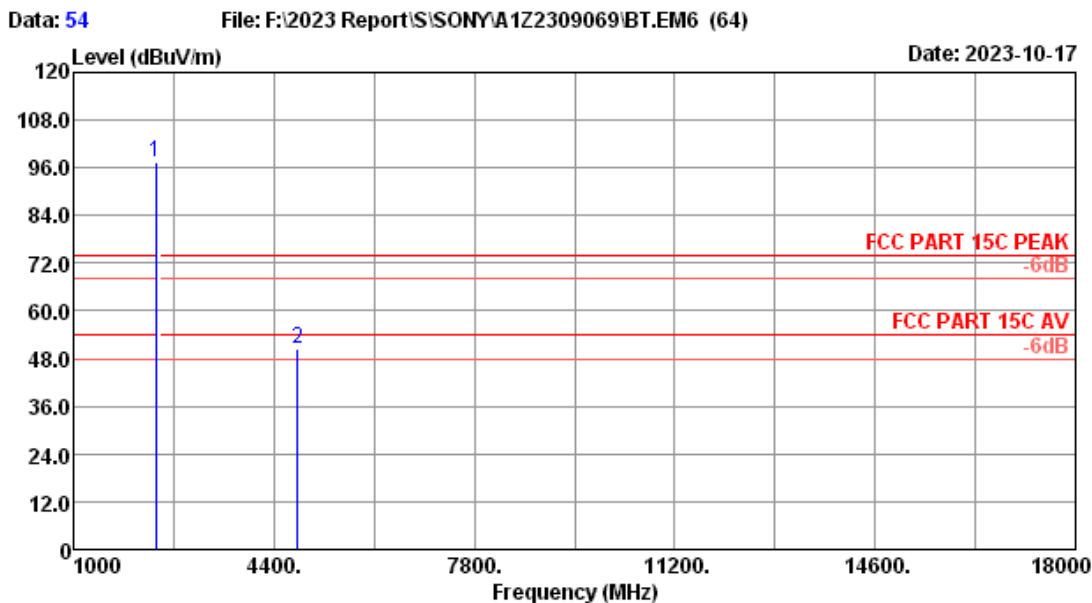
Data: 53

File: F:\2023 Report\SI\SONYA1Z2309069\BT.EM6 (64)

Date: 2023-10-17



Site no.	: 3m Chamber	Data no.	: 53
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE2M 2404 MHz TX		
	:		
	:		

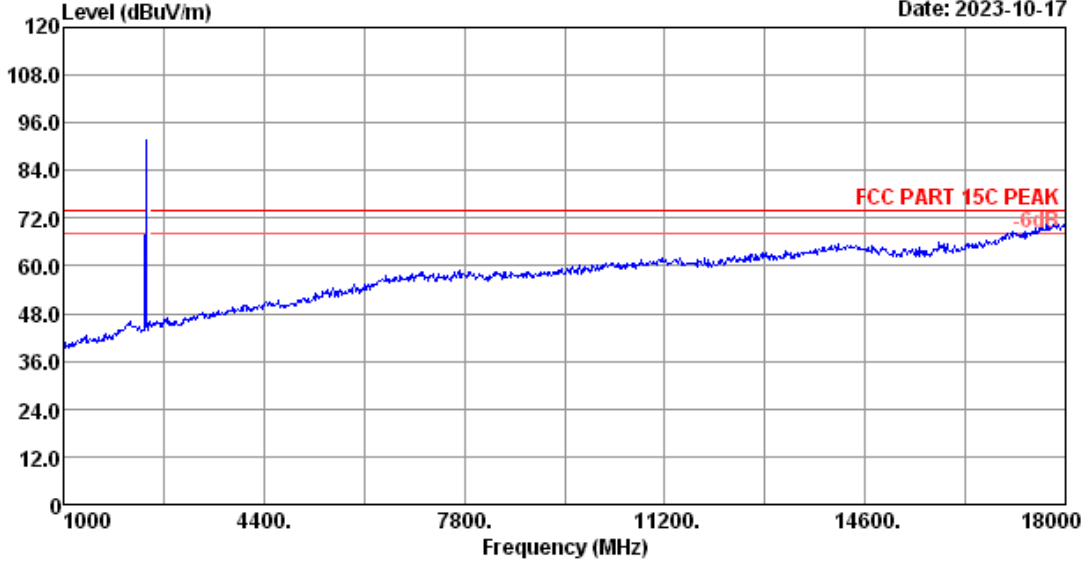


Site no. : 3m Chamber Data no. : 54  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE2M 2404 MHz TX  
 :  
 :

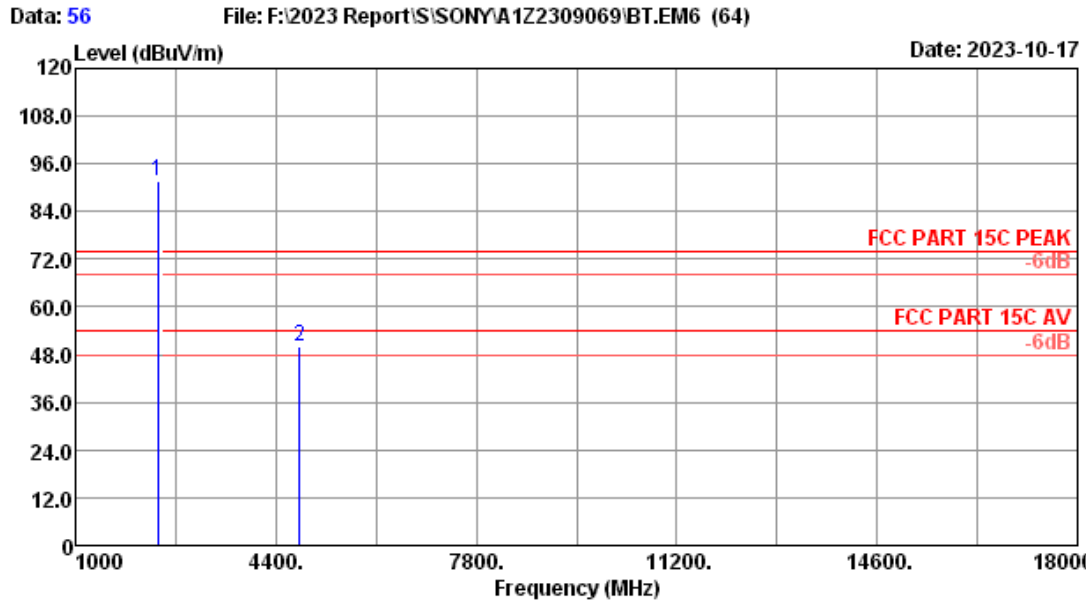
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2404.00	27.62	4.86	34.36	99.28	97.40	-----	-----	Peak
2	4808.00	31.20	6.50	33.68	46.48	50.50	74.00	23.50	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.

Data: 55 File: F:\2023 Report\SI\SONY\A1Z2309069\BT.EM6 (64) Date: 2023-10-17



Site no.	: 3m Chamber	Data no.	: 55
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE2M 2404 MHz TX		
	:		
	:		

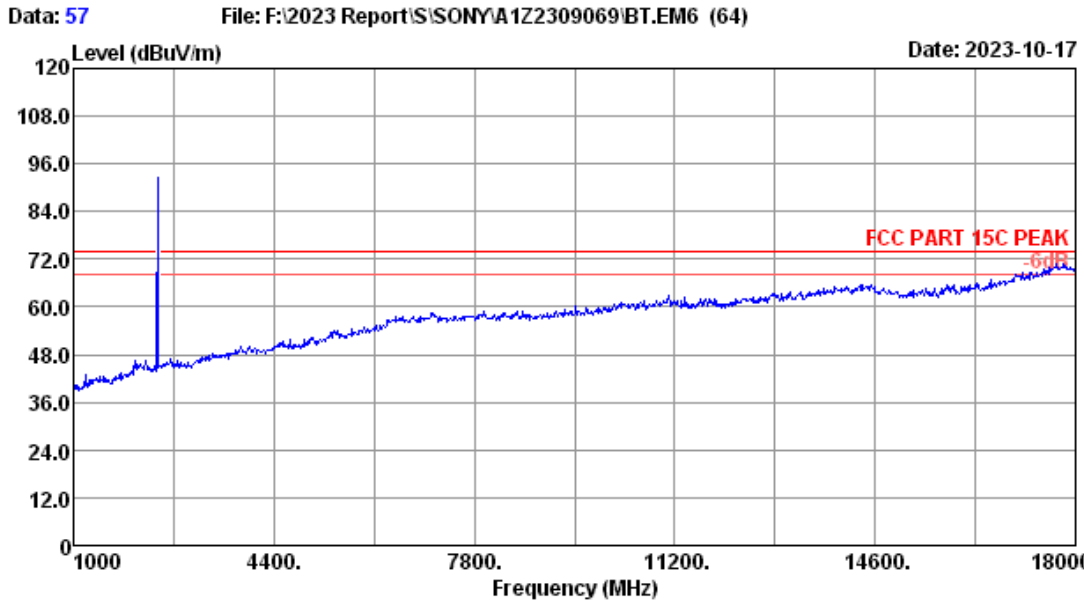


Site no. : 3m Chamber Data no. : 56  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE2M 2404 MHz TX  
 :  
 :

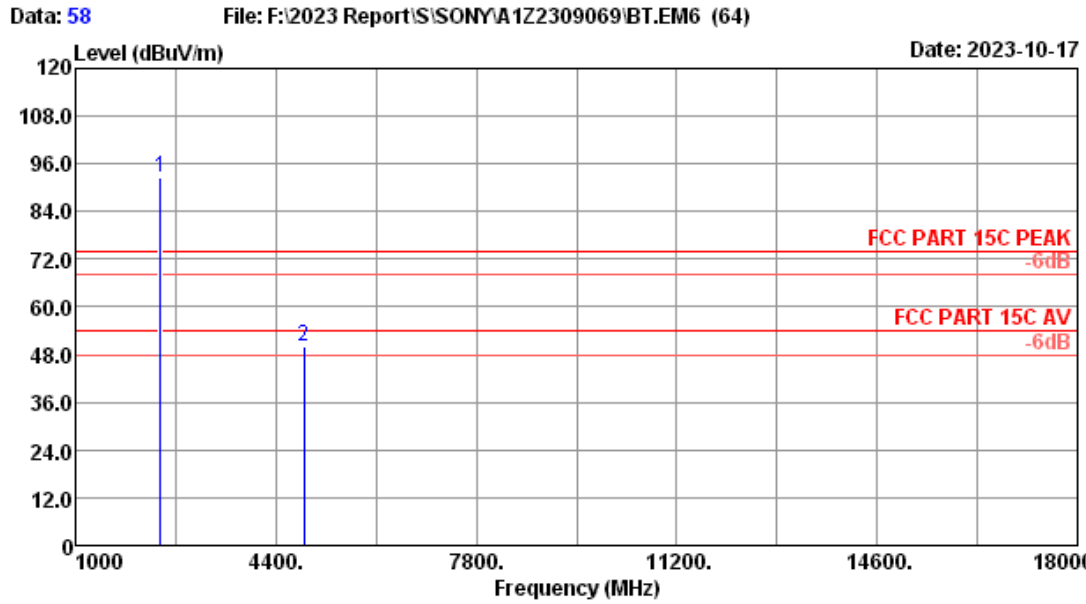
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2404.00	27.62	4.86	34.36	93.53	91.65	74.00	17.65	Peak
2	4808.00	31.20	6.50	33.68	46.06	50.08	48.00	2.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.





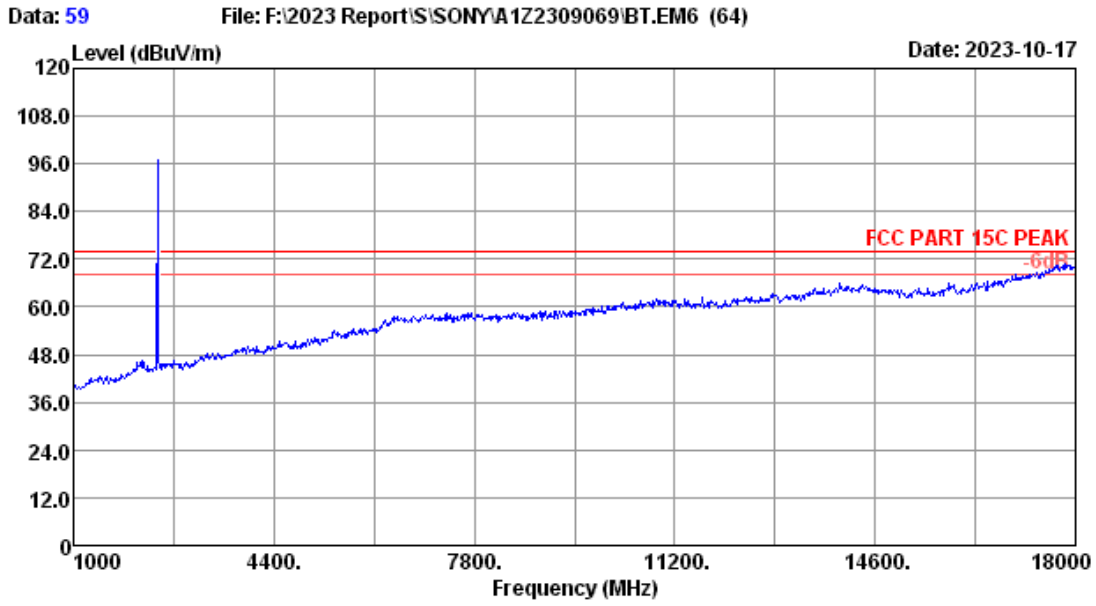
Site no.	: 3m Chamber	Data no.	: 57
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE2M 2440 MHz TX		
	:		
	:		



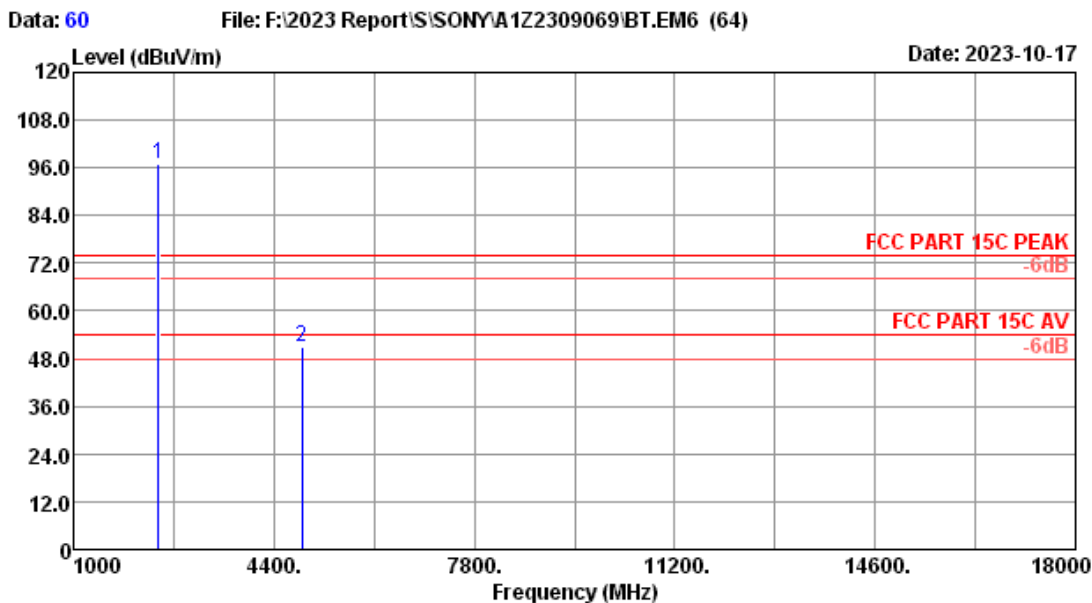
Site no. : 3m Chamber Data no. : 58  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE2M 2440 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.76	4.90	34.36	94.14	92.44	-----	-----	Peak
2	4880.00	31.44	6.54	33.69	45.68	49.97	74.00	24.03	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



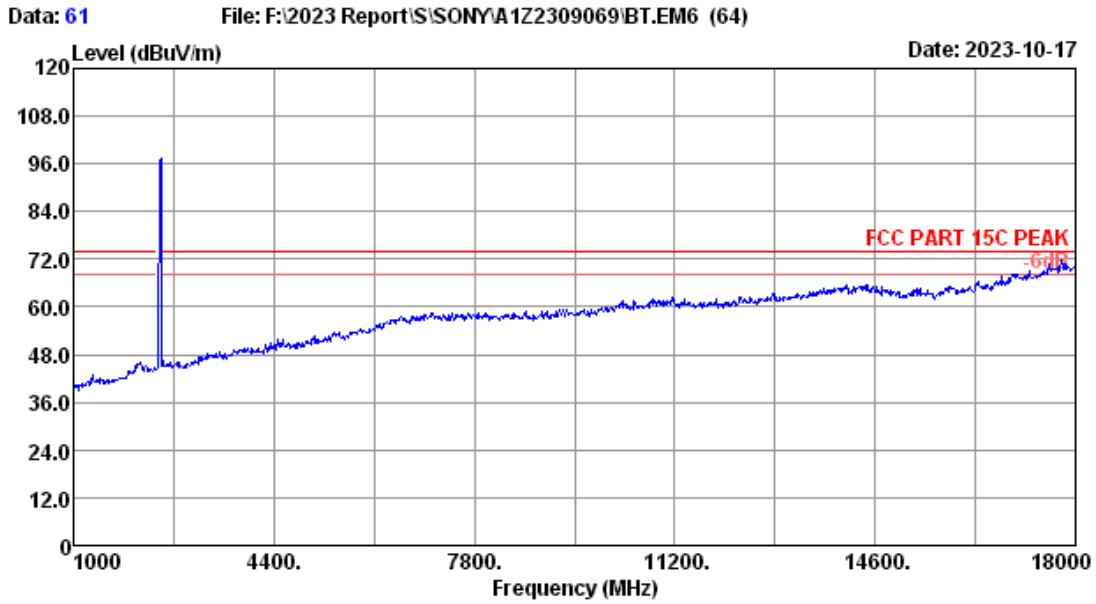
Site no.	: 3m Chamber	Data no.	: 59
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE2M 2440 MHz TX		
	:		
	:		



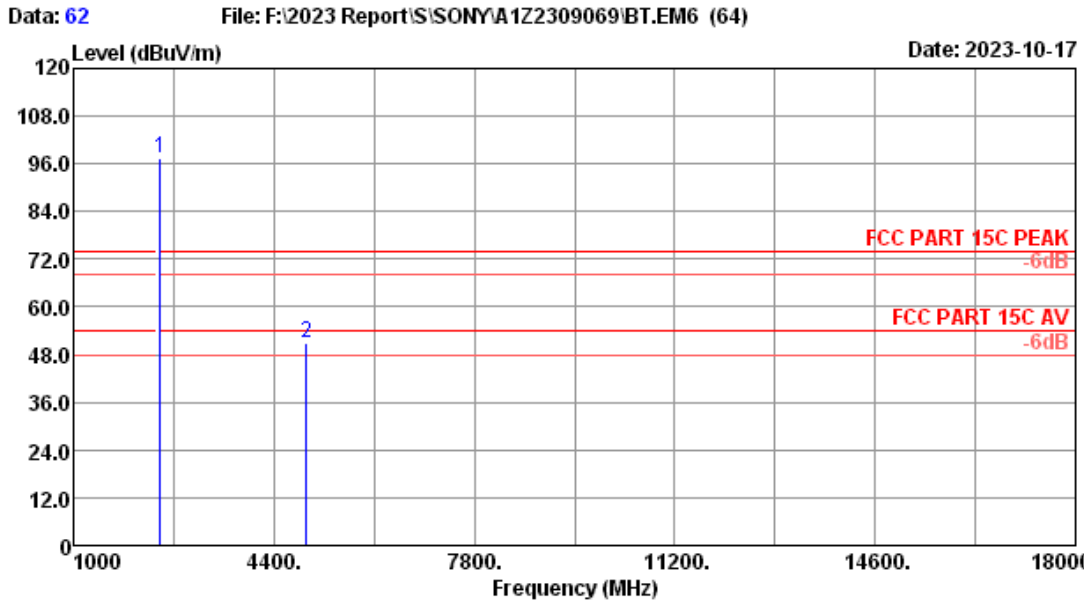
Site no. : 3m Chamber Data no. : 60  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE2M 2440 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2440.00	27.76	4.90	34.36	98.62	96.92	-----	-----	Peak
2	4880.00	31.44	6.54	33.69	46.63	50.92	74.00	23.08	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



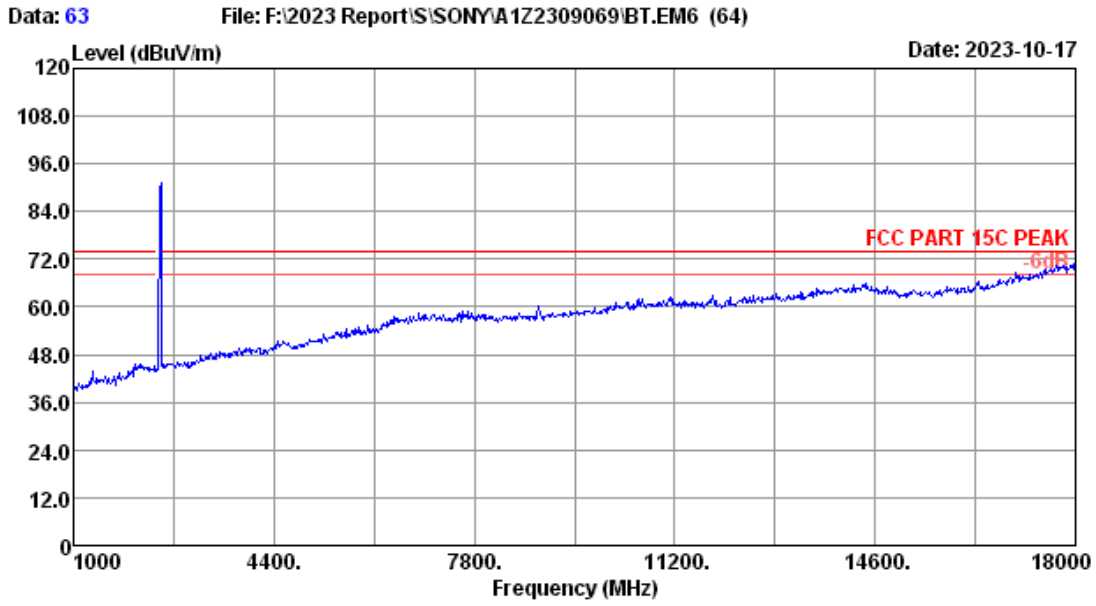
Site no.	: 3m Chamber	Data no.	: 61
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE2M 2478 MHz TX		
	:		
	:		



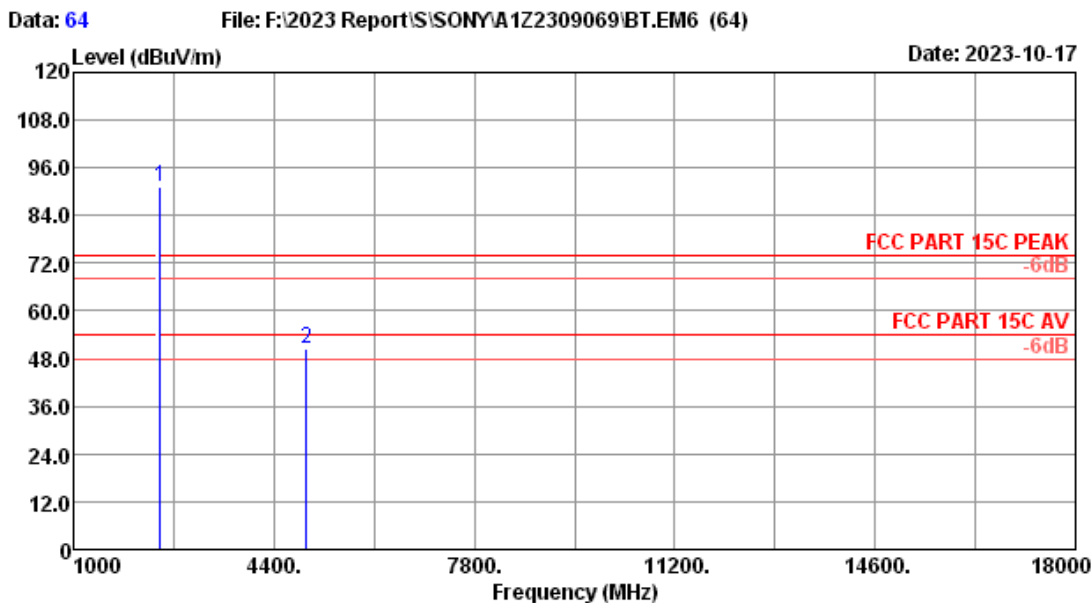
Site no. : 3m Chamber Data no. : 62  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2\*C/52.5% Engineer : nier  
 Test Mode : BT LE2M 2478 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2478.00	27.80	4.93	34.35	99.06	97.44	-----	-----	Peak
2	4956.00	31.95	6.58	33.69	46.09	50.93	74.00	23.07	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 63
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2*C/52.5%	Engineer	: nier
Test Mode	: BT LE2M 2478 MHz TX		
	:		
	:		



Site no. : 3m Chamber Data no. : 64  
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL  
 Limit : FCC PART 15C PEAK  
 Env. / Ins. : 23.2°C/52.5% Engineer : nier  
 Test Mode : BT LE2M 2478 MHz TX  
 :  
 :

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Amp factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2478.00	27.80	4.93	34.35	92.97	91.35	-----	-----	Peak
2	4956.00	31.95	6.58	33.69	45.68	50.52	74.00	23.48	Peak

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.  
 2. The emission levels that are 20dB below the official limit are not reported.



## 5. CONDUCTED SPURIOUS EMISSIONS

### 5.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.01,23	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.02,23	1 Year

### 5.2. Block Diagram of Test Setup

Please reference to section 2.4.

### 5.3. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power. 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 30dB instead of 20dB.

### 5.4. Test Procedure

Use the test method described in ANSI C63.10:

The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions With peak detector.

### 5.5. Test result

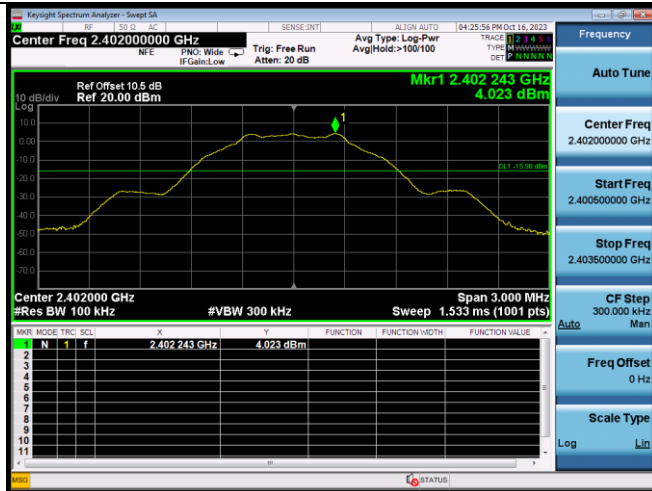
**PASS** (The testing data was attached in the next pages.)

EUT: Wireless Speaker		
M/N: YY7862E		
Test date: 2023-10-16	Pressure: 102.4±1.0 kpa	Humidity: 54.7±3.0%
Tested by: Carl	Test site: RF site	Temperature:23.6±0.6 °C

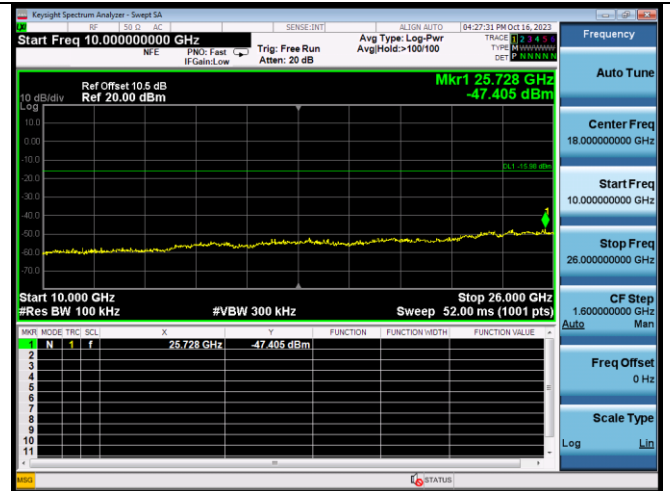
**BLE-1Mbps:**

**GFSK**

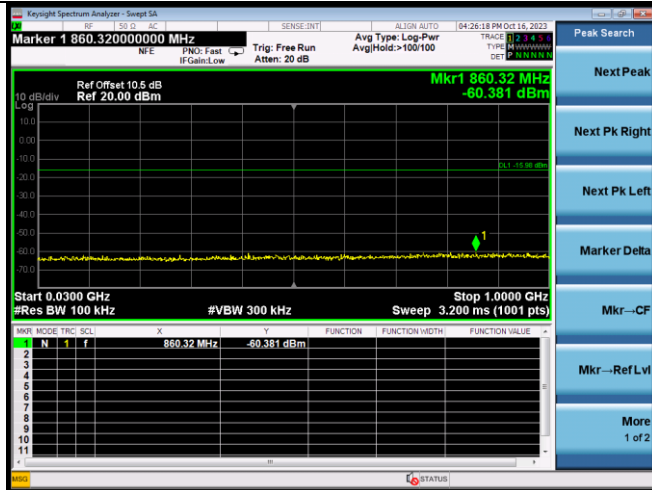
**2402MHz**



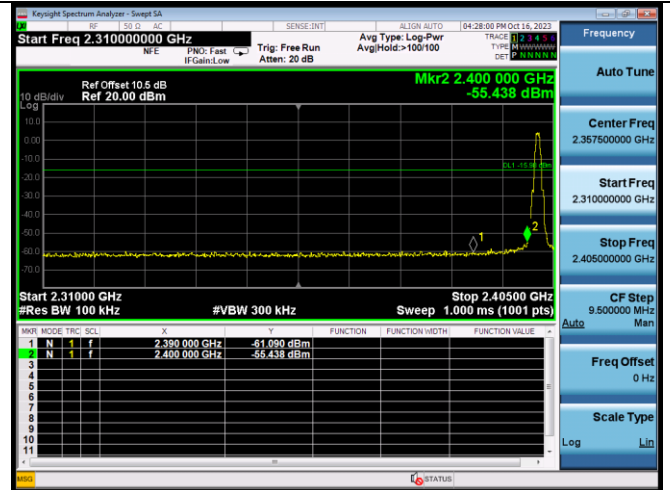
**2402MHz(10GHz – 26GHz)**



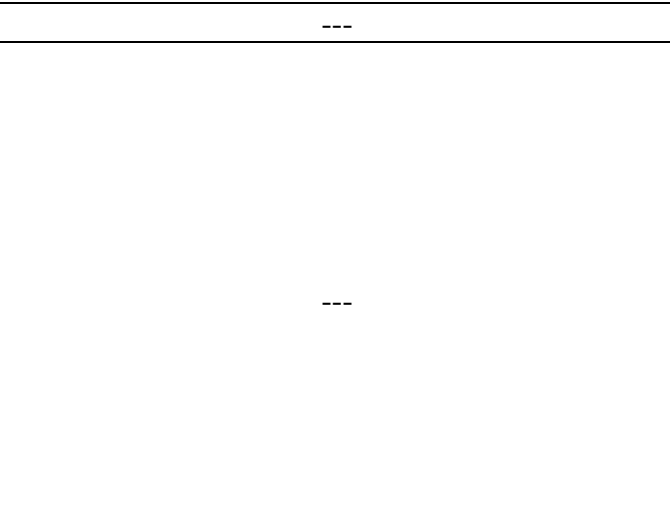
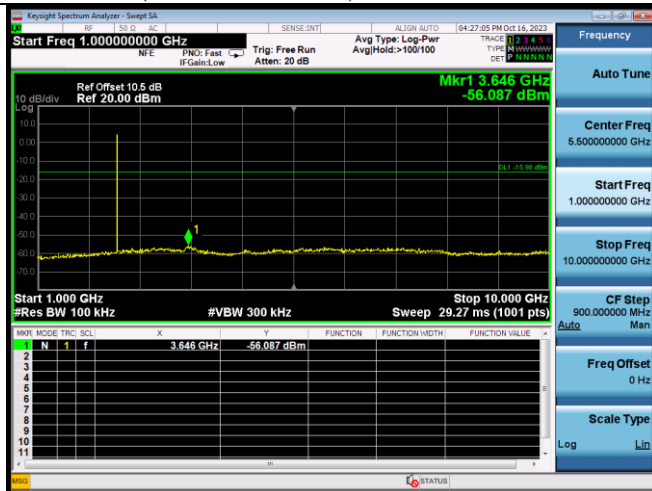
**2402MHz(30MHz – 1GHz)**



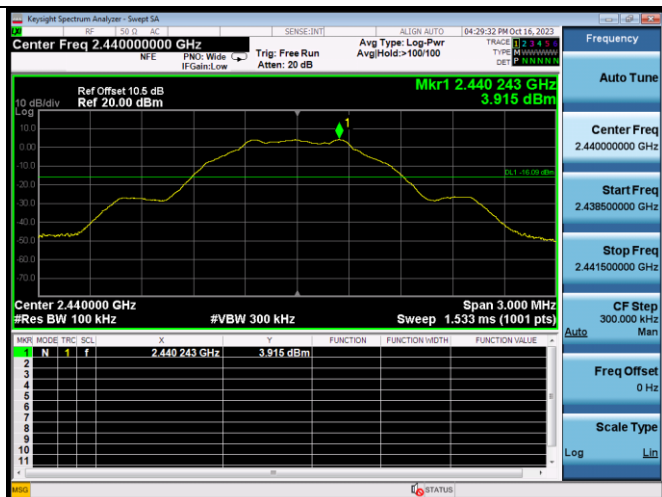
**2402MHz(2.3GHz – 2.4GHz)**



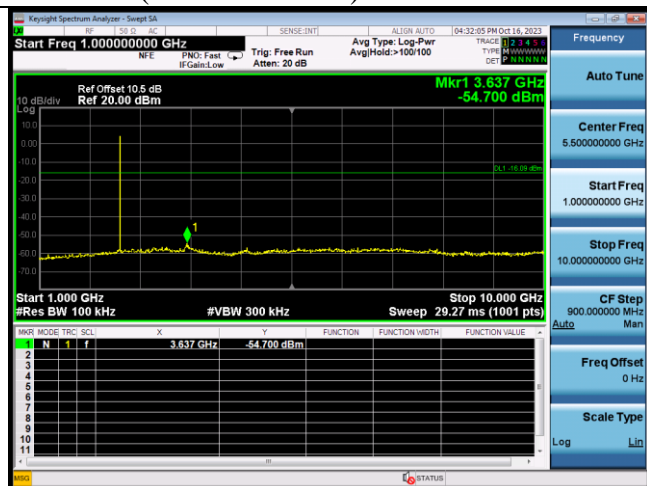
**2402MHz(1GHz – 10GHz)**



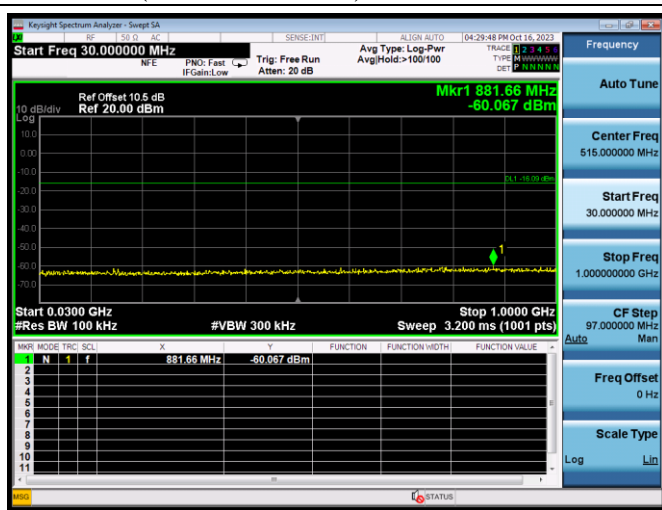
2440MHz



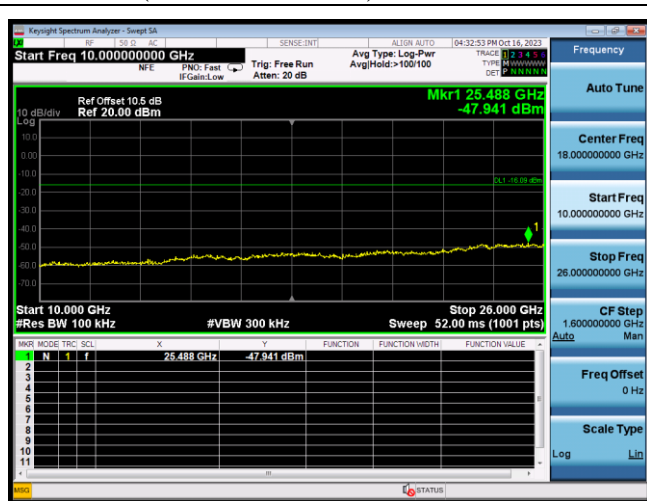
2440MHz(1GHz – 10GHz)



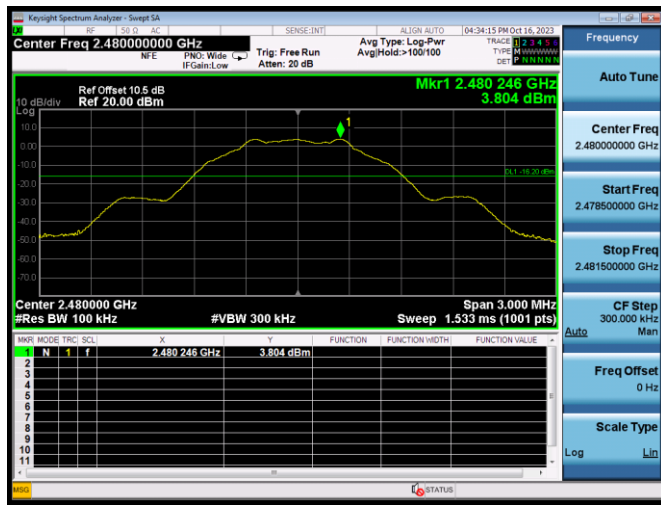
2440MHz(30MHz – 1GHz)



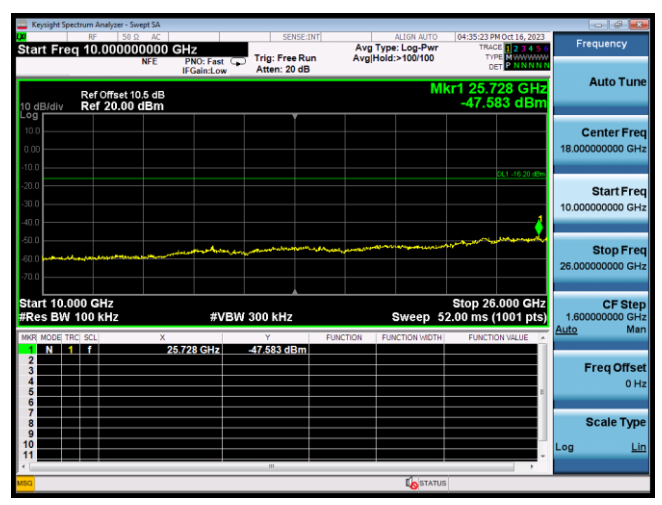
2440MHz(10GHz – 26GHz)



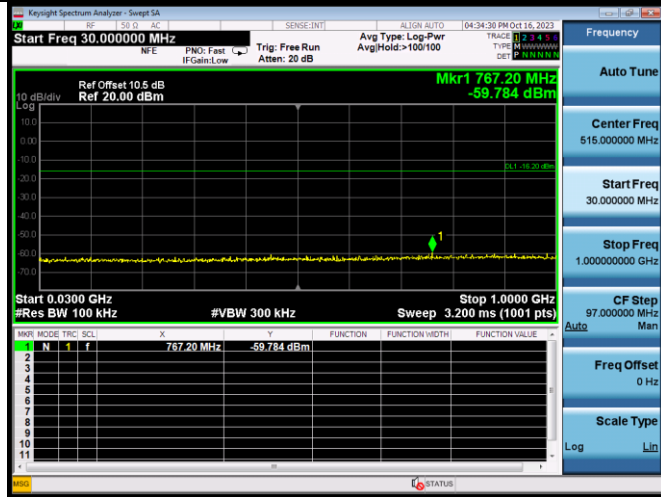
2480MHz



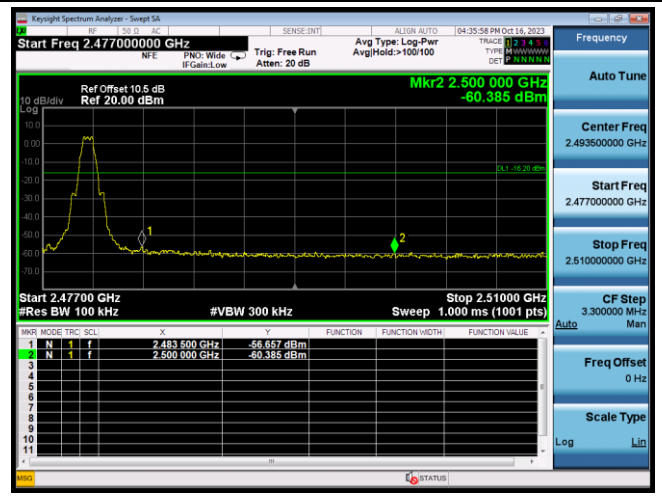
2480MHz(10GHz – 26GHz)



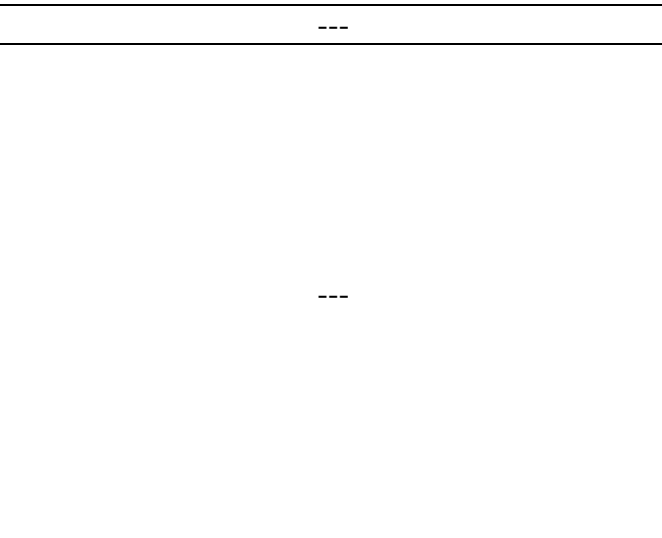
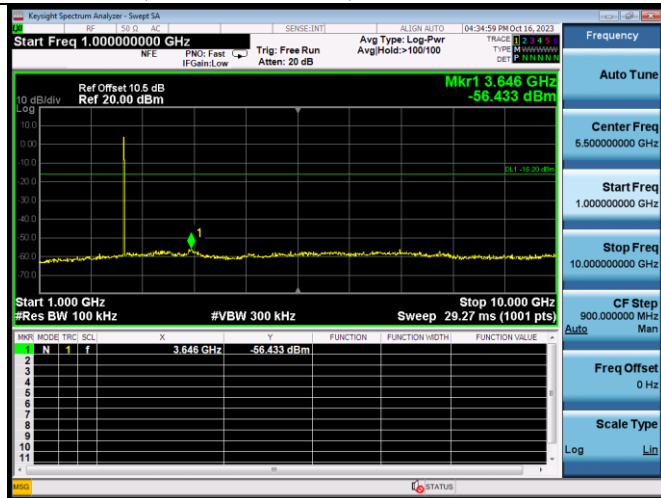
2480MHz(30MHz – 1GHz)



2480MHz(2.4GHz – 2.5GHz)



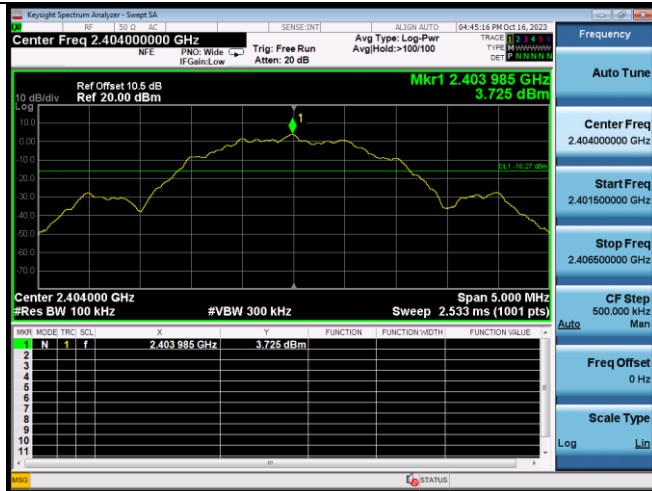
2480MHz(1GHz – 10GHz)



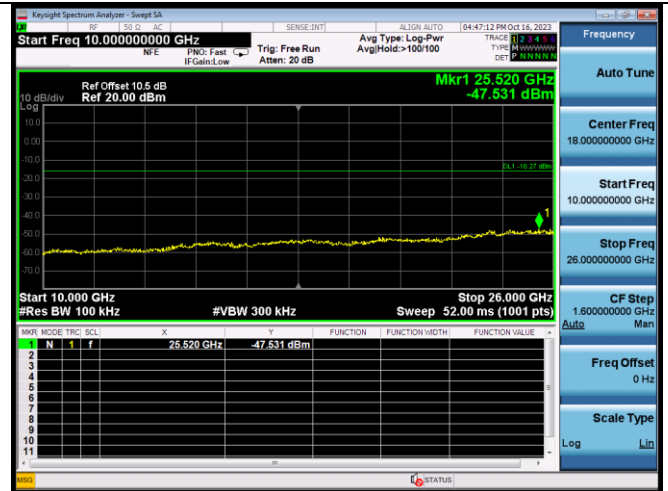
**BLE-2Mbps:**

**GFSK**

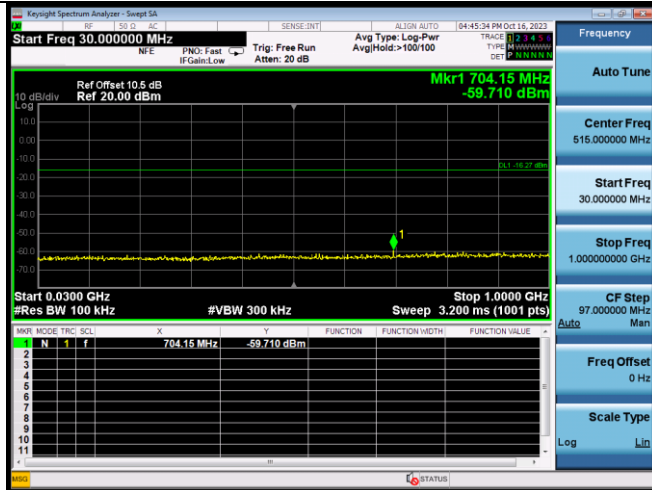
**2404MHz**



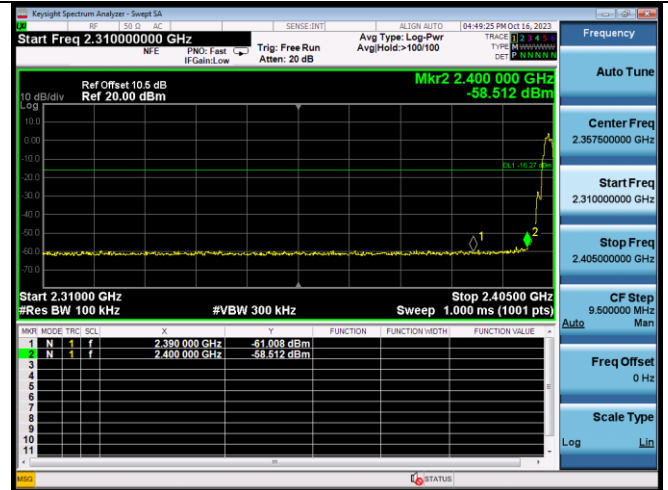
**2404MHz(10GHz – 26GHz)**



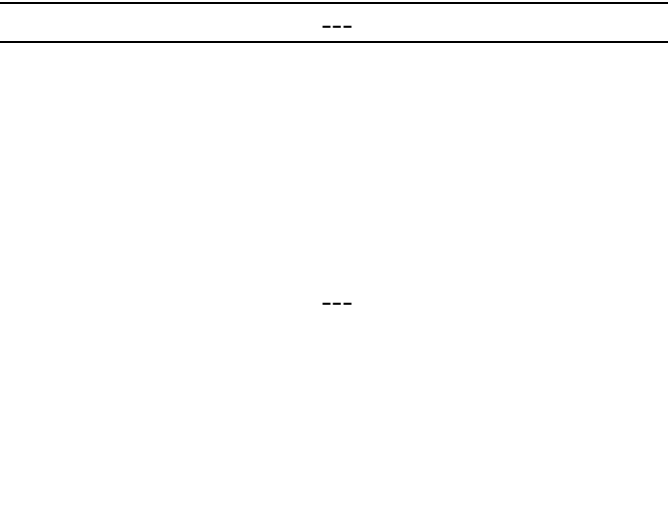
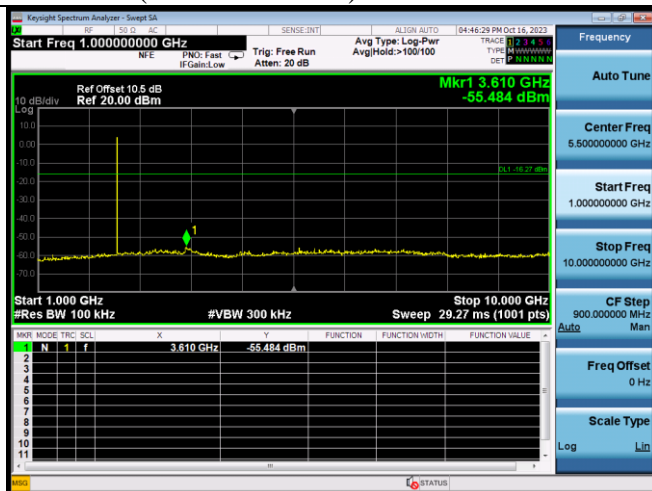
**2404MHz(30MHz – 1GHz)**



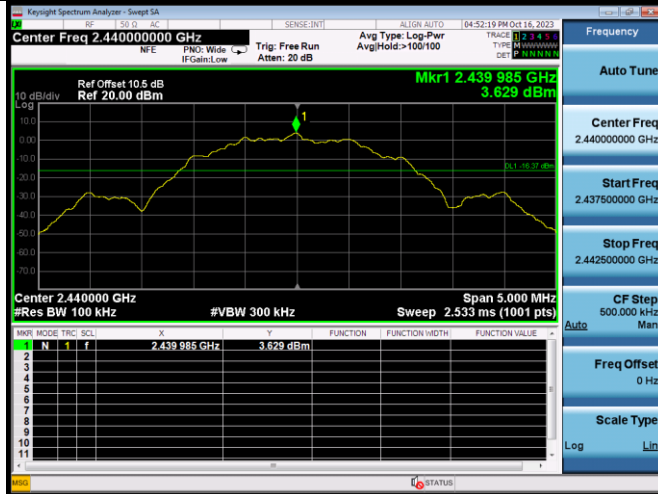
**2404MHz(2.3GHz – 2.4GHz)**



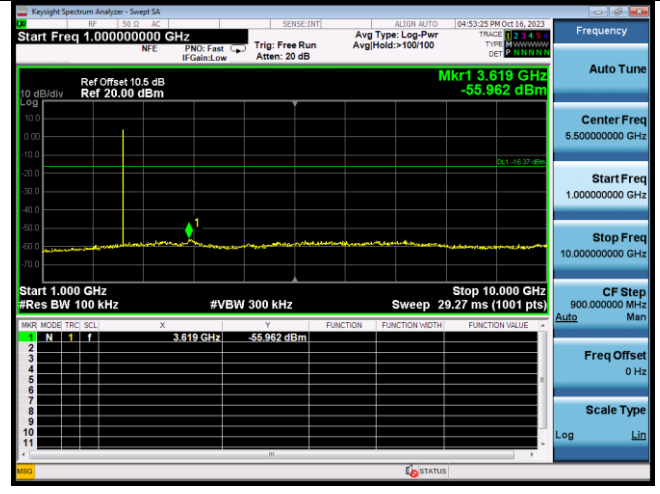
**2404MHz(1GHz – 10GHz)**



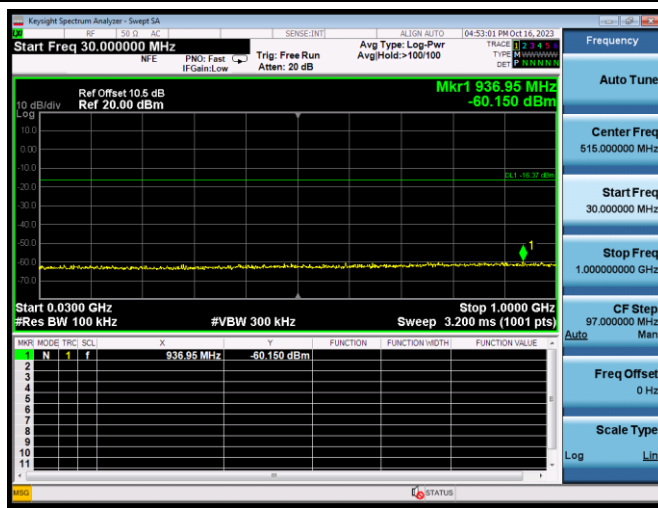
2440MHz



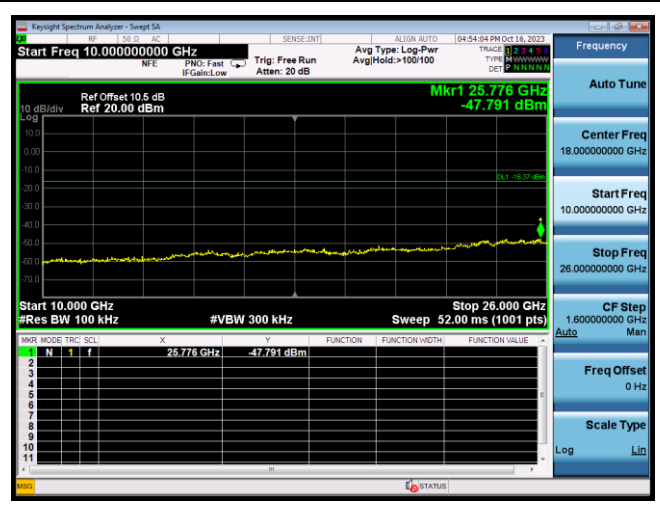
2440MHz(1GHz – 10GHz)



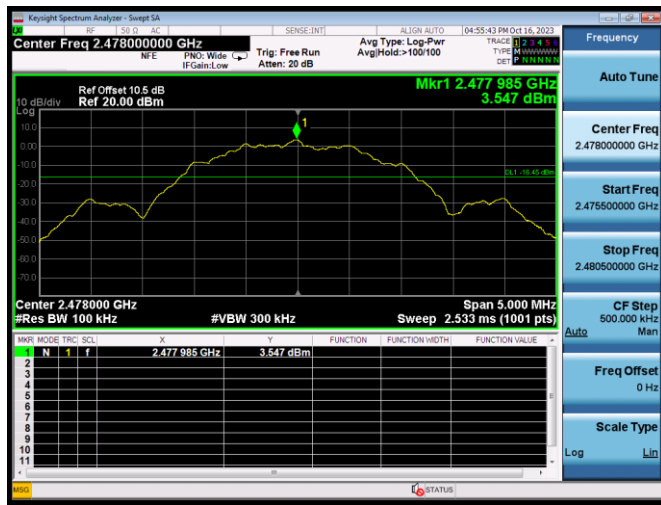
2440MHz(30MHz – 1GHz)



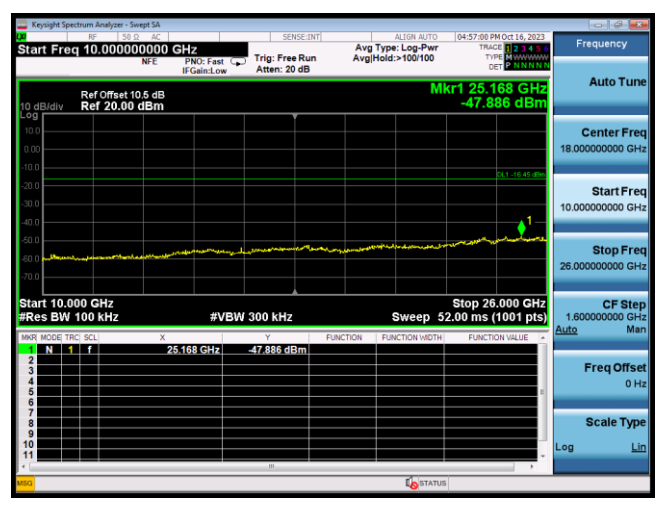
2440MHz(10GHz – 26GHz)



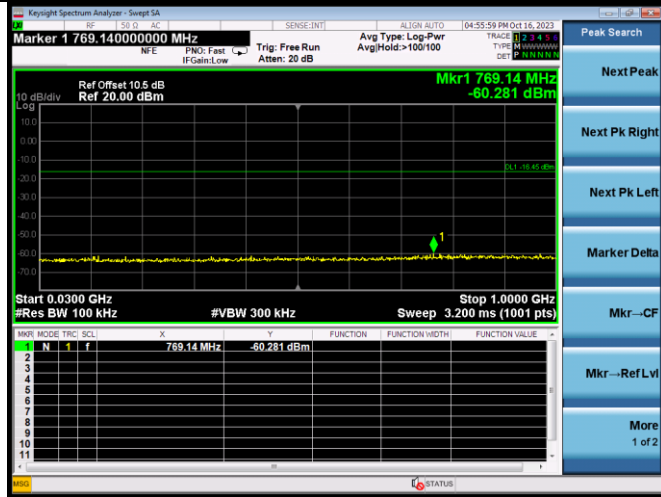
2478MHz



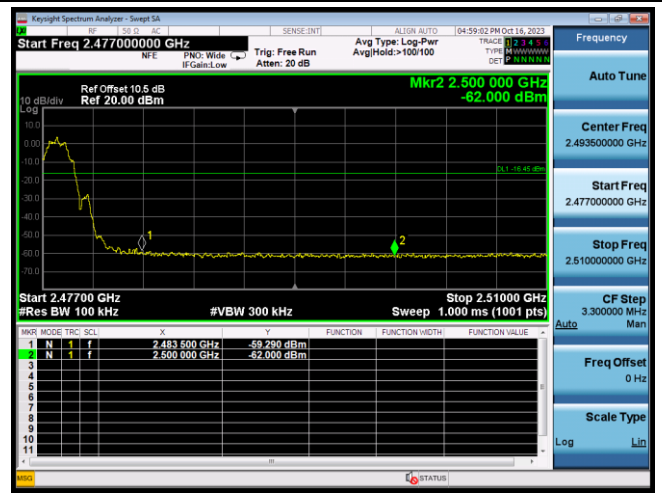
2478MHz(10GHz – 26GHz)



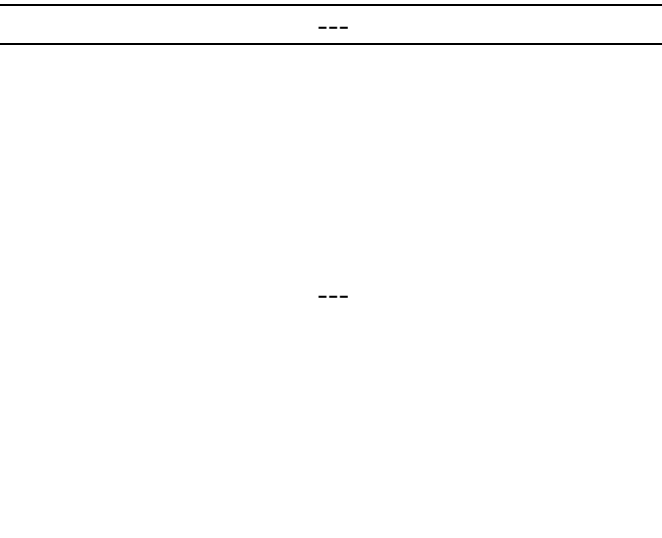
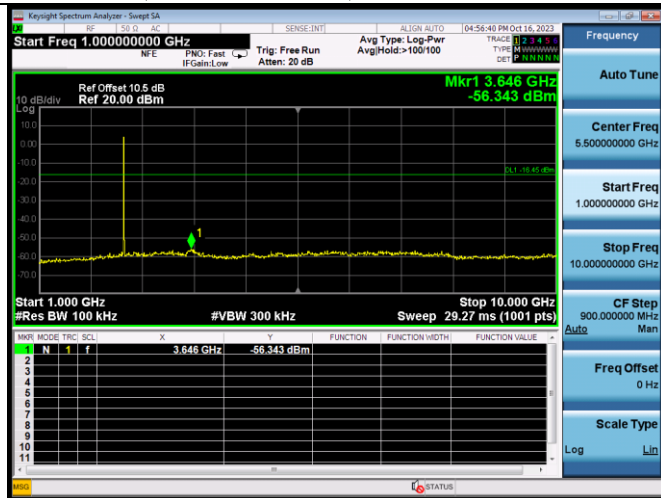
2478MHz(30MHz – 1GHz)



2478MHz(2.4GHz – 2.5GHz)



2478MHz(1GHz – 10GHz)



## 6. 6DB & 99% BANDWIDTH TEST

### 6.1. Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.01,23	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLE X-106	505238/6	Apr.02,23	1 Year

### 6.2. Block Diagram of Test Setup

Please reference to section 2.4.

### 6.3. Limit

For direct sequence systems, the minimum 6dB bandwidth shall be at least 500kHz.

### 6.4. Test Procedure

Use the test method described in ANSI C63.10 clause 11.8.2:

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e.,  $RBW = 100 \text{ kHz}$ ,  $VBW \geq 3 \times RBW$ , and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be  $\geq 6 \text{ dB}$ .

Use the test method described in ANSI C63.10 clause 6.9.2:

The occupied bandwidth is the frequency bandwidth such that, below its lower and above its upper frequency limits, the mean powers are each equal to 0.5% of the total mean power of the given emission. The following procedure shall be used for measuring 99% power bandwidth:

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than  $[10 \log (OBW/RBW)]$  below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.



- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

## 6.5. Test Results

**BLE-1Mbps:**

EUT: Wireless Speaker		
M/N: YY7862E		
Test date: 2023-10-13	Pressure: 101.3±1.0 kpa	Humidity: 52.4±3.0%
Tested by: Carl	Test site: RF site	Temperature: 23.1±0.6°C

Test Mode	Frequency (MHz)	-6dB Bandwidth (KHz)	Limit (KHz)
GFSK	2402	724.7	≥500
	2440	721.6	≥500
	2480	724.8	≥500

Conclusion : PASS

GFSK	
2402MHz	2440MHz
	---

**BLE-1Mbps:**

EUT: Wireless Speaker		
M/N: YY7862E		
Test date: 2023-10-13	Pressure: 101.3±1.0 kpa	Humidity: 52.4±3.0%
Tested by: Carl	Test site: RF site	Temperature: 23.1±0.6°C

Test Mode	CH	99% Bandwidth (MHz)	Limit (MHz)
GFSK	2402	1.0467	N/A
	2440	1.0469	
	2480	1.0462	

Conclusion: Pass

GFSK	
<p><b>2402MHz</b></p> <p>Center Freq 2.40200000 GHz</p> <p>Occupied Bandwidth: 1.0467 MHz</p> <p>Total Power: 11.3 dBm</p> <p>Transmit Freq Error: 3.868 kHz</p> <p>x dB Bandwidth: 1.279 MHz</p>	<p><b>2440MHz</b></p> <p>Center Freq 2.44000000 GHz</p> <p>Occupied Bandwidth: 1.0469 MHz</p> <p>Total Power: 11.1 dBm</p> <p>Transmit Freq Error: 3.940 kHz</p> <p>x dB Bandwidth: 1.280 MHz</p>
<p><b>2480MHz</b></p> <p>Center Freq 2.48000000 GHz</p> <p>Occupied Bandwidth: 1.0462 MHz</p> <p>Total Power: 11.1 dBm</p> <p>Transmit Freq Error: 3.859 kHz</p> <p>x dB Bandwidth: 1.278 MHz</p>	<p>---</p>

**BLE-2Mbps:**

EUT: Wireless Speaker		
M/N: YY7862E		
Test date: 2023-10-13	Pressure: 101.3±1.0 kpa	Humidity: 52.4±3.0%
Tested by: Carl	Test site: RF site	Temperature: 23.1±0.6°C

Test Mode	Frequency (MHz)	-6dB Bandwidth (MHz)	Limit (KHz)
GFSK	2404	1.269	≥500
	2440	1.272	≥500
	2478	1.272	≥500

Conclusion : PASS

Test Mode	CH	99% Bandwidth (MHz)	Limit (MHz)
GFSK	2404	2.0887	N/A
	2440	2.0898	
	2478	2.0893	

Conclusion: Pass