FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

Sony Group Corporation

Digital Media Player

YY1301B1

S/N: 0400346; 0400347

FCC ID: AK8YY1301B1

SONY

Prepared for : Sony Group Corporation
1-7-1 Konan Minato-ku Tokyo, 108-0075 Japan

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

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Report Number	:	ACS-F22147
Date of Test	:	Aug.08~15, 2022
Date of Report	:	Sep.19, 2022

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TEST REPORT

Applicant	:	Sony Group Corporation
Manufacturer	:	Sony Group Corporation
Product	:	Digital Media Player
FCC ID	:	AK8YY1301B1
S/N	:	0400346; 0400347
(A) Model No.	:	YY1301B1
(B) Brand	:	SONY
(C) Test Voltage	:	(1)DC 5V From PC input AC 120V/60Hz (2)DC 3.7V From battery

Tested for comply with:
FCC CFR47 Part 15 Subpart C

Test procedure used:
ANSI C63.10: 2020

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 federal government.

Date of Test : Aug.08~15, 2022 Report of date: Sep.19, 2022

Prepared by : Crush Liu
Crush Liu / Assistant

Reviewed by : Sunny Lu
Sunny Lu / Manager

AUDIX 信華科技（深圳）有限公司
Audix Technology (Shenzhen) Co., Ltd.
EMC 部門報告專用章
Stamp only for EMC Dept. Report

Approved & Authorized Signer : Signature: David Jin
David Jin / Deputy General 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	PASS
20dB & 99% Bandwidth Test	FCC Part 15: 15.215 ANSI C63.10: 2020	PASS
Number Of Hopping Frequency Test	FCC Part 15: 15.247(a)(1)(iii) ANSI C63.10: 2020	PASS
Dwell Time Test	FCC Part 15: 15.247(a)(1)(iii) 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
Antenna requirement	FCC Part 15: 15.203	PASS
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	Digital Media Player
Model No.	YY1301B1
FCC ID	AK8YY1301B1
Brand	SONY
Sample Type	Prototype production
Date of Receipt	Jul.04, 2022
Date of Test	Aug.08~15, 2022
Remark: This report only for BDR+EDR.	

2.2. Feature of Equipment Under Test

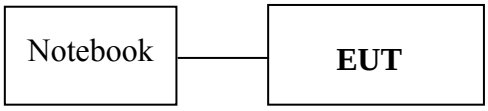
Product Feature & Specification		
Product	Digital Media Player	
Model No.	YY1301B1	
Power Source	☐ Commercial Power	AC V
	☒ External Power Source	DC 5V
	☒ Lithium battery	DC 3.7V, 1500mAh
	☐ UM battery	DC V
Bluetooth		
Radio	BDR +EDR; BLE	
Frequency Range	2402-2480MHz	
Type of Modulation	GFSK, π/4DQPSK, 8DPSK	
Data Rate	1Mbps, 2Mbps, 3Mbps	
Quantity of Channels	79/40	
Channel Separation	1MHz/2MHz	
2.4GHz Wi-Fi		
Support Modes	802.11b/g/n20/n40	
Frequency Range	2412-2462MHz	
Type of Modulation	802.11b(DSSS): CCK, QPSK, BPSK; 802.11g/n(OFDM): 64QAM,16QAM, QPSK, BPSK	
Data Rate	802.11b: 1/2/5.5/11 Mbps; 802.11g: 6/9/12/18/24/36/48/54 Mbps; 802.11n: up to 150Mbps	
Channel Separation	5MHz	
5GHz Wi-Fi		
Support Modes	802.11a/n20/n40/ac20/ac40/ac80	
Frequency Range	5180-5240MHz, 5260-5320MHz, 5500-5600MHz, 5650-5720MHz, 5745-5825MHz	
Type of Modulation	802.11a/n (OFDM): QPSK, BPSK, 16QAM, 64QAM 802.11ac (OFDM): QPSK, BPSK, 16QAM, 64QAM,256QAM	
Data Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps; 802.11n: up to 150Mbps; 802.11ac: up to 433Mbps	
Channel Separation	5MHz	

Antenna System	
Type of Antenna	Internal PIFA Antenna
Antenna Number	1
Antenna Peak Gain	Bluetooth Peak Gain: -0.3dBi DTS/DSS Band (2400-2483.5MHz) Peak Gain: -0.3dBi. U-NII-1 Band(5150-5250MHz) Peak Gain: 0.3dBi. U-NII-2A Band(5250-5350MHz) Peak Gain: -0.7dBi. U-NII-2C Band(5500-5720MHz) Peak Gain: 0.9dBi. U-NII-3 Band (5725-5850MHz) Peak Gain: 2.1dBi.

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, Detachabled, 1.8m Power Adapter: Manufacturer: Lite-On, M/N: PA-1900-32 Data Cable: Shielded, Undetectable, 4.0m(Bond one ferrite core)			

2.4. Block Diagram of connection between EUT and simulators



(EUT: Digital Media Player)

2.5. Test information

A special software (Qualcomm® Radio Control Toolkit v4.0 Version 4.0.00185.0) was used to control EUT work in continuous TX mode

Tested mode, Packet Type, peak output power information			
Mode	Packet Type	Output power(dBm) P max	Output Power(dBm) P low
GFSK	DH1	13.300	12.379
	DH3		
	DH5		
π/4DQPSK	2-DH1	13.125	12.205
	2-DH3		
	2-DH5		
8DPSK	3-DH1	13.047	12.101
	3-DH3		
	3-DH5		

π/4DQPSK mode has been verified to have the lowest power, so the final test were performed with GFSK and 8DPSK mode, the worse-case packet type were:
GFSK Mode: DH5
8DPSK Mode: 3DH5

Item		Modulation	Data Rate	Test Channel
Radiated Test Case	Radiated Band Edge	GFSK	1Mbps	00/78
		8-DPSK	3Mbps	00/78
	Radiated Spurious Emission	GFSK	1Mbps	00/39/78
		8-DPSK	3Mbps	00/39/78
Conducted Test Case	20dB Bandwidth	GFSK	1Mbps	00/39/78
		8-DPSK	3Mbps	00/39/78
	Carrier Frequency Separation	GFSK	1Mbps	39
		8-DPSK	3Mbps	39
	Time of Occupancy	GFSK	1Mbps	39
		8-DPSK	3Mbps	39
	Number of Hopping Channels	GFSK	1Mbps	39
		8-DPSK	3Mbps	39
	Maximum Peak Output Power	GFSK	1Mbps	00/39/78
		8-DPSK	3Mbps	00/39/78
	Band Edges	GFSK	1Mbps	00/78
		8-DPSK	3Mbps	00/78
	Spurious Emission	GFSK	1Mbps	00/39/78
		8-DPSK	3Mbps	00/39/78

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, 2023

: Certificated by FCC, USA
Designation No.: CN5022
Valid Date: Mar.31, 2023

: Accredited by NVLAP, USA
NVLAP Code: 200372-0
Valid Date: Mar.31, 2023

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

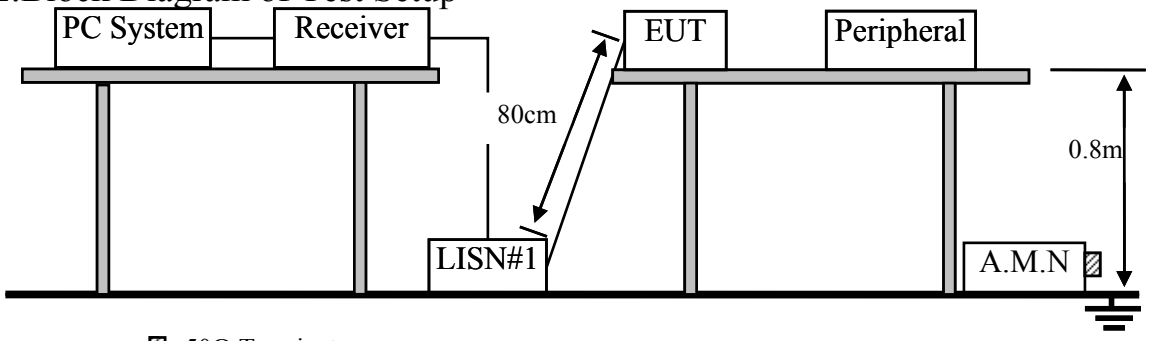
Test Item	Uncertainty
Uncertainty for Conduction emission test in No. 1 Conduction	2.6dB(150KHz to 30MHz)
Uncertainty for Radiation Emission test in 3m chamber	3.4dB(30~200MHz, Polarization: H)
	3.6dB(30~200MHz, Polarization: V)
	3.0dB(200M~1GHz, Polarization: H)
	3.2dB(200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber(1GHz-25GHz)	4.6dB(1~6GHz, Distance: 3m)
	4.8dB(6~25GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test in RF chamber	3.7dB(30MHz~1000MHz)
	3.3dB(1~26.5GHz)
Uncertainty for Conduction Spurious emission test	2.0dB
Uncertainty for Output power test	0.8dB
Uncertainty for Bandwidth test	83kHz
Uncertainty for DC power test	1%
Uncertainty for test site temperature and humidity	0.6℃
	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	May.17,18	5 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.07,22	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ENV216	102160	Oct.09,21	1 Year
4.	A.M.N	Kyoritsu	KNW-403D	8-1750-2	Apr.06,22	1 Year
5.	RF Cable	Eastsheep	RG223	190424	Oct.11,21	1 Year
6.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
Note: N/A means Not applicable.						

3.2.Block Diagram of Test Setup



▨ :50Ω Terminator

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. Digital Media Player (EUT)

Model No. : YY1301B1
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

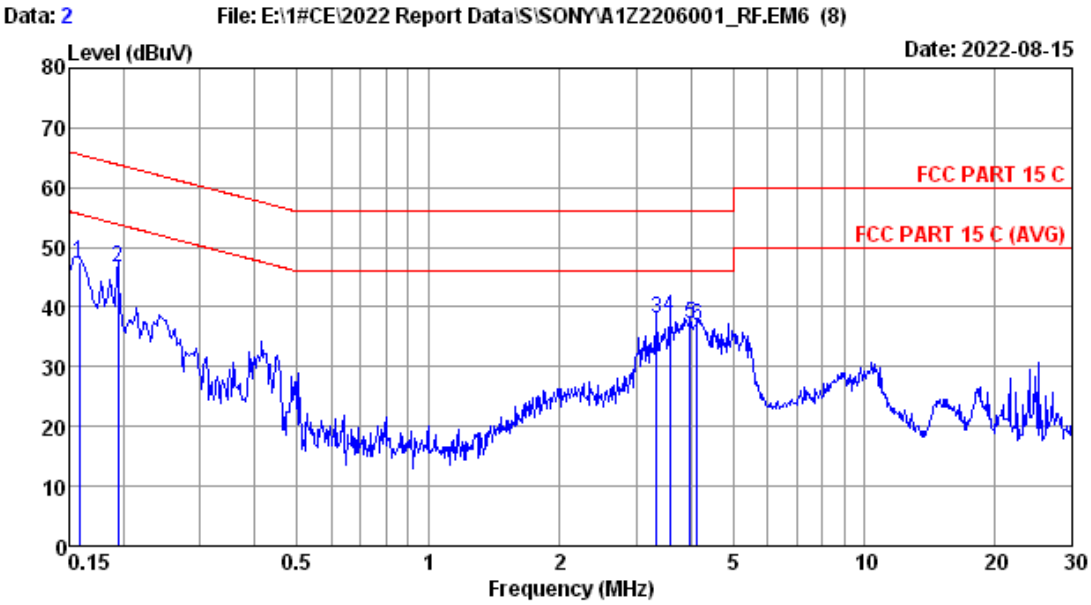
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via AC unit connected to the power mains through a line impedance stabilization network (L.I.S.N. #1). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). 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.)

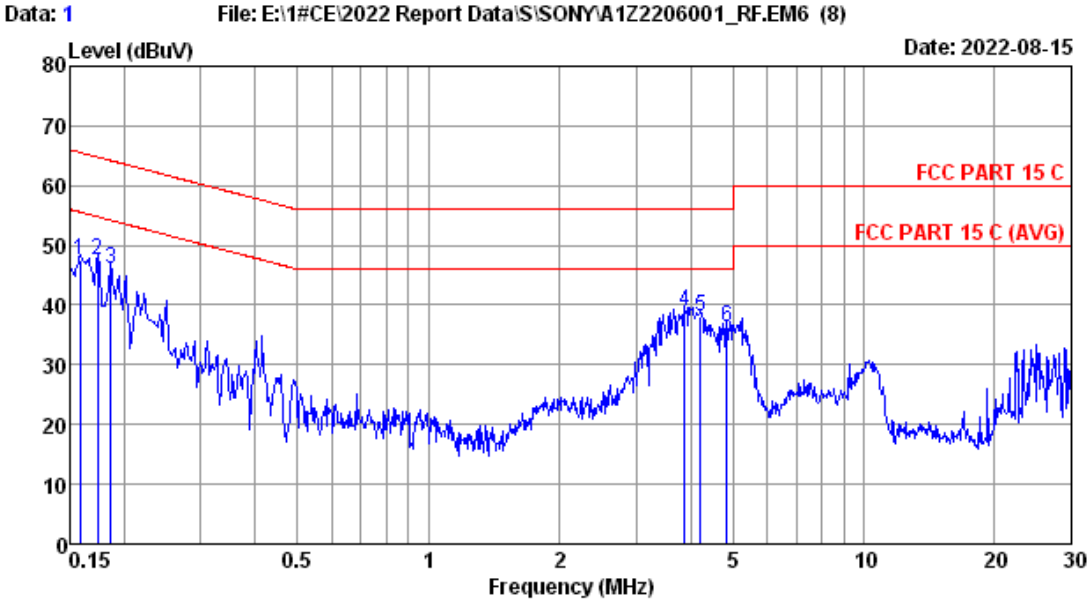


Site no :1# Conduction
Dis./Lisn :2021 ENV216-L
Limit :FCC PART 15 C
Env./Ins. :26.1*C/57%
Power Rating :AC 120V/60Hz
Test Mode :BT 3.0 TX

Data No :2
LISN phase:
Engineer :Evan

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.158	9.50	0.01	38.04	47.55	65.56	18.01	QP
2	0.194	9.50	0.01	37.09	46.60	63.84	17.24	QP
3	3.346	9.57	0.03	28.40	38.00	56.00	18.00	QP
4	3.584	9.58	0.03	28.82	38.43	56.00	17.57	QP
5	3.985	9.60	0.03	27.57	37.20	56.00	18.80	QP
6	4.136	9.60	0.03	27.27	36.90	56.00	19.10	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# Conduction
Dis./Lisn :2021 ENV216-N
Limit :FCC PART 15 C
Env./Ins. :26.1*C/57%
Power Rating :AC 120V/60Hz
Test Mode :BT 3.0 TX

Data No :1
LISN phase:
Engineer :Evan

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.158	10.00	0.01	37.46	47.47	65.56	18.09	QP
2	0.174	10.00	0.01	37.53	47.54	64.77	17.23	QP
3	0.186	10.00	0.01	35.95	45.96	64.20	18.24	QP
4	3.881	10.20	0.03	28.76	38.99	56.00	17.01	QP
5	4.224	10.20	0.03	27.80	38.03	56.00	17.97	QP
6	4.848	10.20	0.04	26.10	36.34	56.00	19.66	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 TEST

4.1.Test Equipments

Frequency range: 30~1000MHz

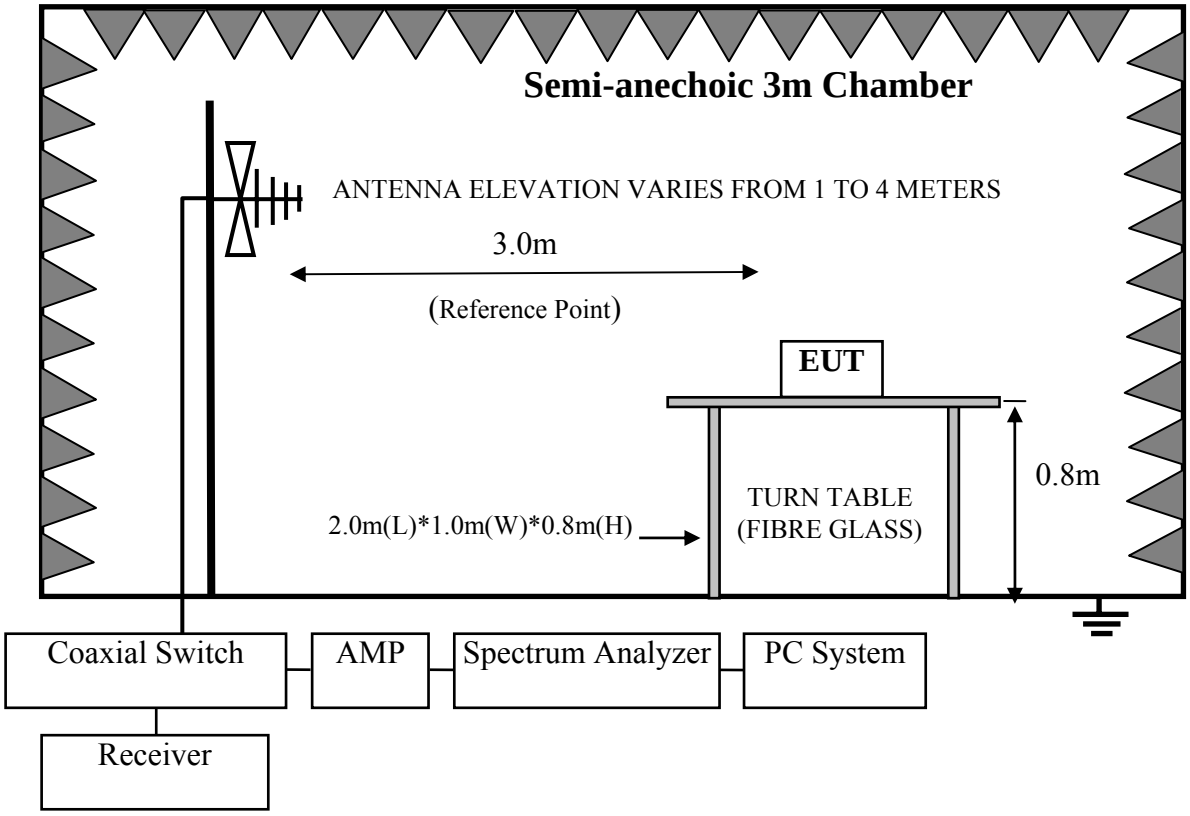
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber(NSA)	AUDIX	N/A	N/A	May.02,22	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	May.17,18	5 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	103670	Oct.09,21	1 Year
4.	Tri-log-Broadband Antenna	SCHWARZBECK	VULB 9168	710	Dec.13,21	1 Year
5.	NSA Cable	HUBER+SUHNER	CFD400NL-LW	No.3	Oct.09,21	1 Year
6.	Coaxial Switch	Anritsu	MP59B	6201397223	Apr.06,22	1 Year
7.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.06,22	1 Year
8.	Amplifier	HP	8447D	2944A11159	Apr.06,22	1 Year
9.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
Note: N/A means Not applicable.						

Frequency range: above 1000MHz

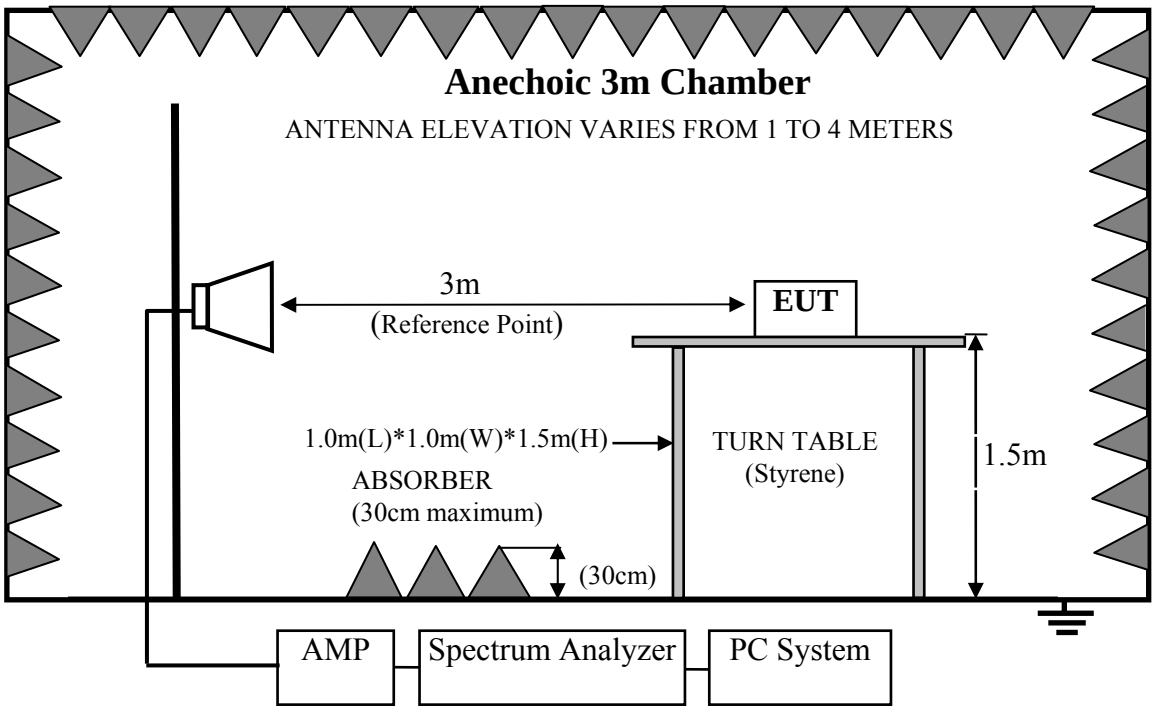
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber(Svswr)	AUDIX	N/A	N/A	Apr.14,22	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	May.17,18	5 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	103670	Oct.09,21	1 Year
4.	Amplifier	Agilent	83017A	MY53270084	Oct.09,21	1 Year
5.	RF Cable	EMCI	EMC104-SM-SM-15000	190407	Jul.01,22	1 Year
6.	Test Software	AUDIX	e3	6.100913a	N/A	N/A
7.	Horn Antenna	ETS	3115	9607-4877	Jan.08,22	3 Year
Note: N/A means Not applicable.						

4.2.Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range above 1GHz



4.3.Radiated Emission Limits Standard:

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		μV/m	dB(μV)/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 dB(μV)/m (Peak) 54.0 dB(μV)/m (Average)	

Remark： (1) Emission Level (dBμV/m) = Reading (Receiver) (dBμV) + Antenna Factor (dB/m) + Cable Loss (dB)
Emission Level (dBμV/m) = Reading (Spectrum) (dBμV) + Antenna Factor (dB/m) – Amp Factor (dB) + Cable Loss (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 1000 MHz. 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. Digital Media Player (EUT)

Model Number : YY1301B1
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 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: 2020 regulation.

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 Horm 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 and reported in report.

The bandwidth of the EMI test receiver (ESR7) 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.

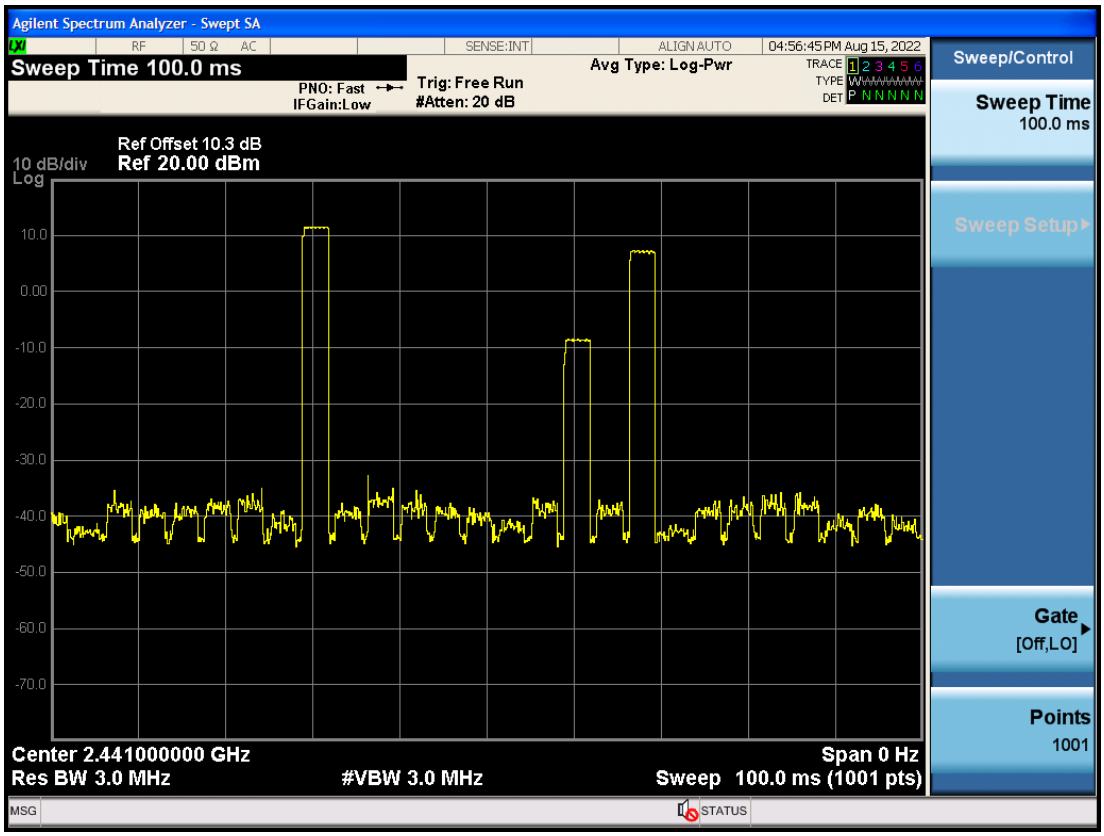
The frequency range from 30MHz to 10th harmonic (25GHz) are checked. and no any emissions were found from 18GHz to 25 GHz, So the radiated emissions from 18GHz to 25GHz were not record.

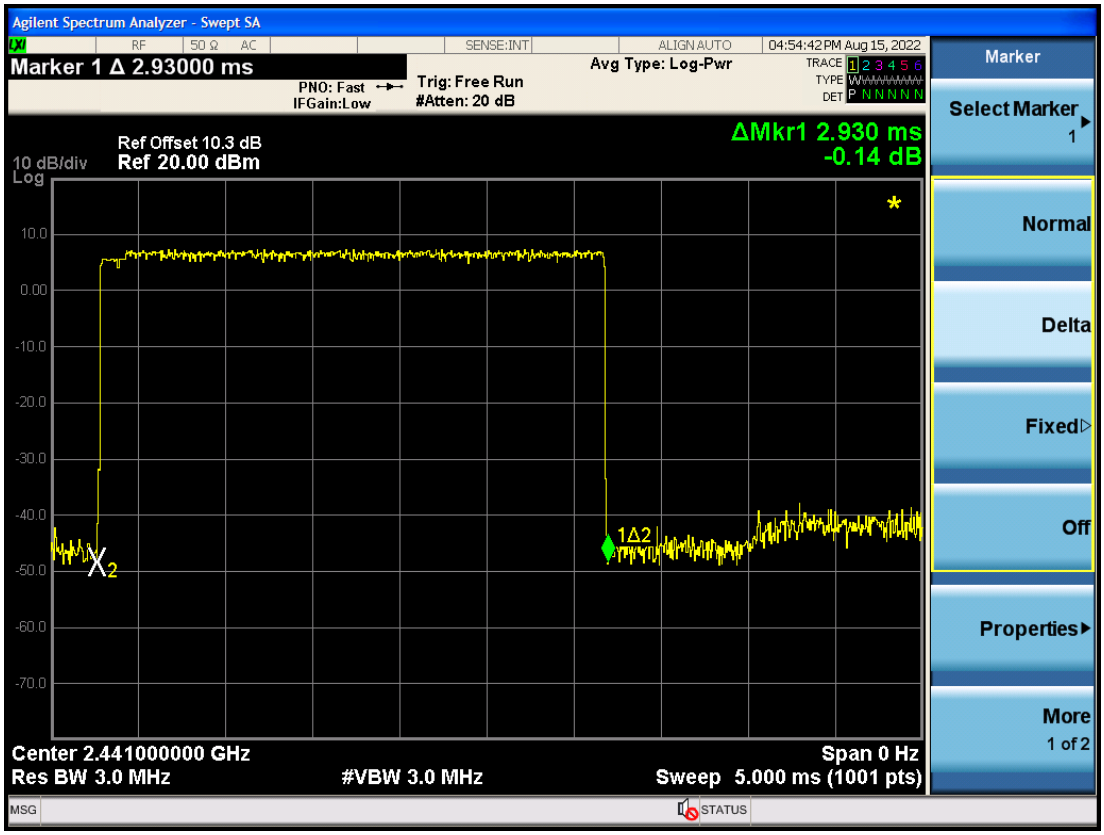
4.7. Radiated Emission Test Results

PASS.

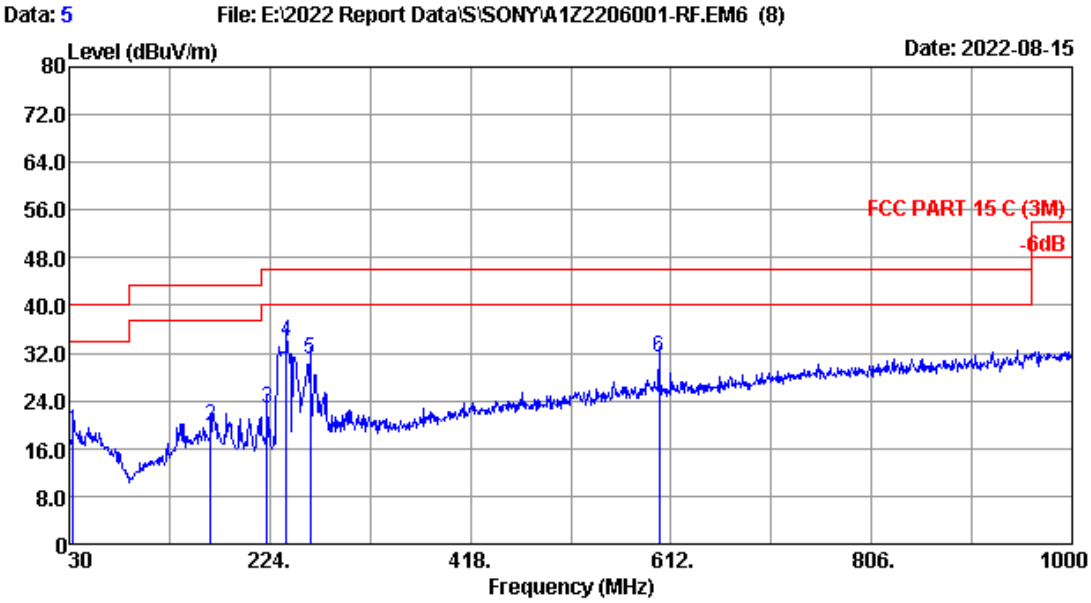
All the emissions from 30MHz to 25GHz were comply with the 15.209 Limit.
Note 1: The duty cycle factor for calculate average level is -24.64dB, and average limit is 20dB below peak limit, so if peak measured level comply with average limit, the average level was deemed to comply with average limit.
Note 2: The emissions (9kHz~30MHz) not reported for there is no emission be found.

Duty cycle factor = 20log(Dwell time/100ms)= -24.64dB
Dwell Time = 2.930*2ms





Frequency: 30MHz~1GHz

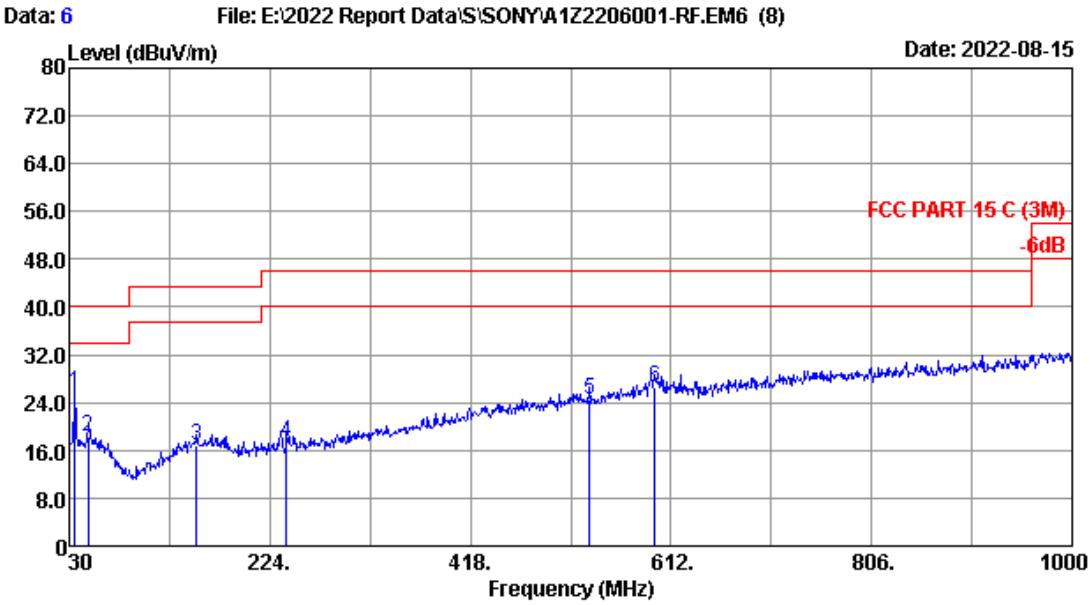


Site no. : 3m Chamber
Dis. / Ant. : 3m 2021 VULB9168-710
Limit : FCC PART 15 C (3M)
Env. / Ins. : 23.3*C/53%
Test Mode : BT 3.0 TX

Data no. : 5
Ant. pol. : HORIZONTAL
Engineer : Abel

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	33.880	19.40	0.67	-1.14	18.93	40.00	21.07	QP
2	166.770	19.39	1.30	-0.84	19.85	43.50	23.65	QP
3	221.090	17.61	1.49	3.58	22.68	46.00	23.32	QP
4	240.490	18.07	1.54	14.40	34.01	46.00	11.99	QP
5	262.800	18.68	1.62	10.64	30.94	46.00	15.06	QP
6	600.360	26.00	2.59	2.57	31.16	46.00	14.84	QP

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

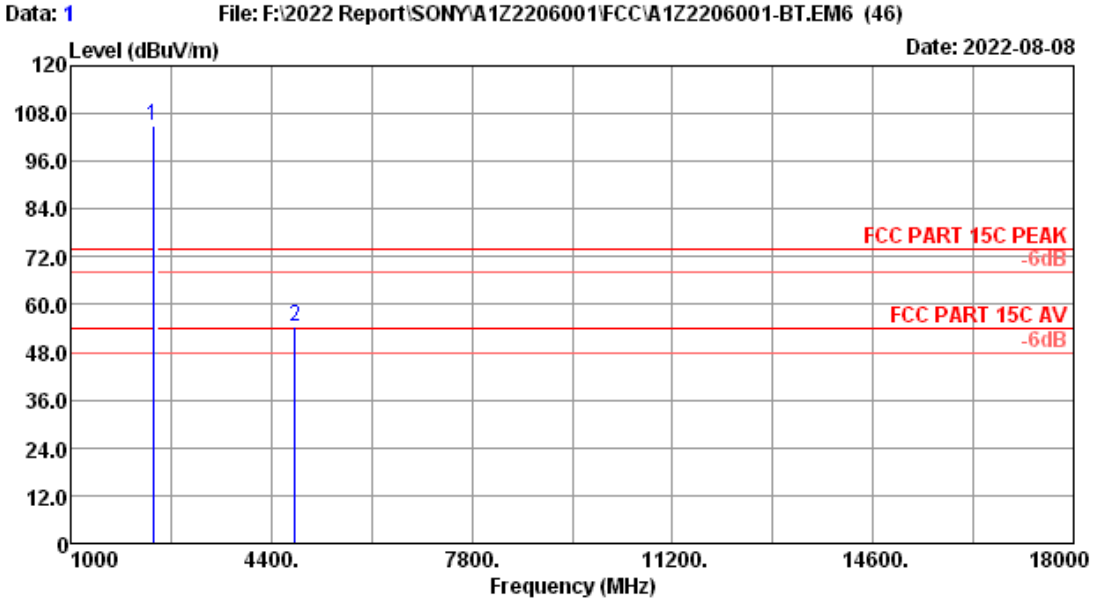


Site no. : 3m Chamber
Data no. : 6
Dis. / Ant. : 3m 2021 VULB9168-710
Ant. pol. : VERTICAL
Limit : FCC PART 15 C (3M)
Env. / Ins. : 23.3*C/53%
Engineer : Abel
Test Mode : BT 3.0 TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	35.820	19.70	0.68	5.22	25.60	40.00	14.40	QP
2	48.430	20.30	0.75	-2.89	18.16	40.00	21.84	QP
3	153.190	19.67	1.23	-4.22	16.68	43.50	26.82	QP
4	240.490	18.07	1.54	-2.30	17.31	46.00	28.69	QP
5	533.430	24.57	2.42	-2.45	24.54	46.00	21.46	QP
6	596.480	25.92	2.58	-1.88	26.62	46.00	19.38	QP

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

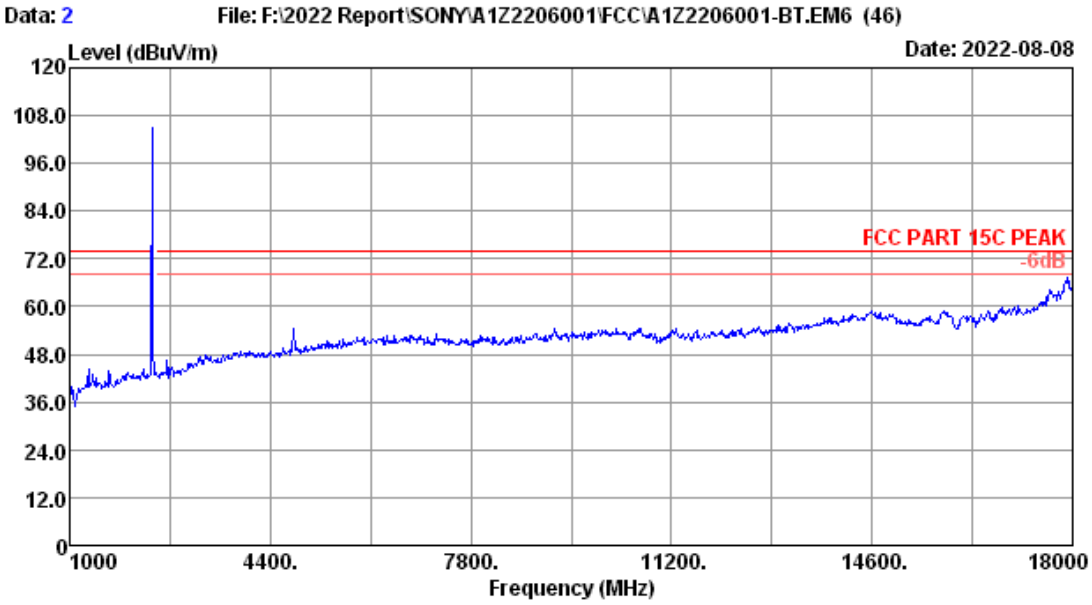
Frequency: 1GHz~18GHz



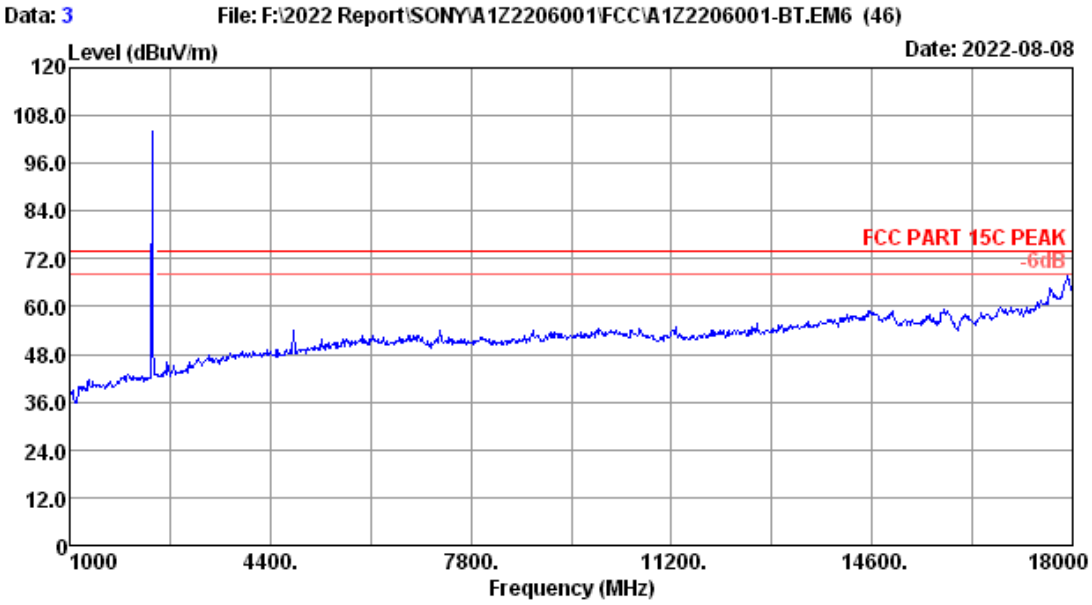
Site no. : 3m Chamber
Data no. : 1
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.00	28.30	3.66	108.24	35.24	104.96	------	------	Peak
2	4804.00	33.10	4.98	50.74	34.46	54.36	74.00	19.64	Peak

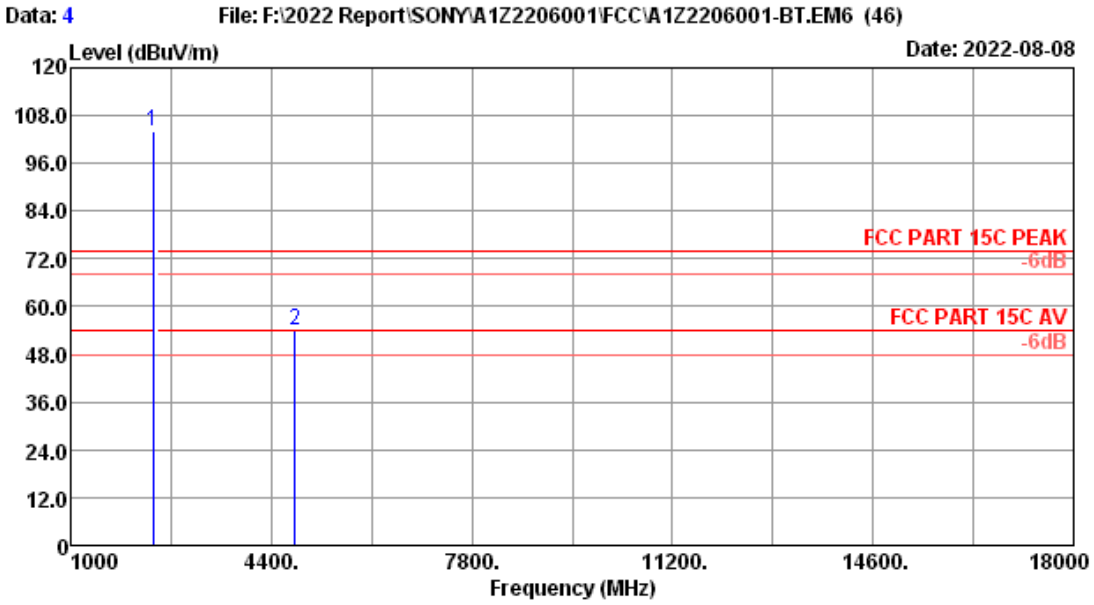
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 2
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 GFSK 2402MHz Tx		



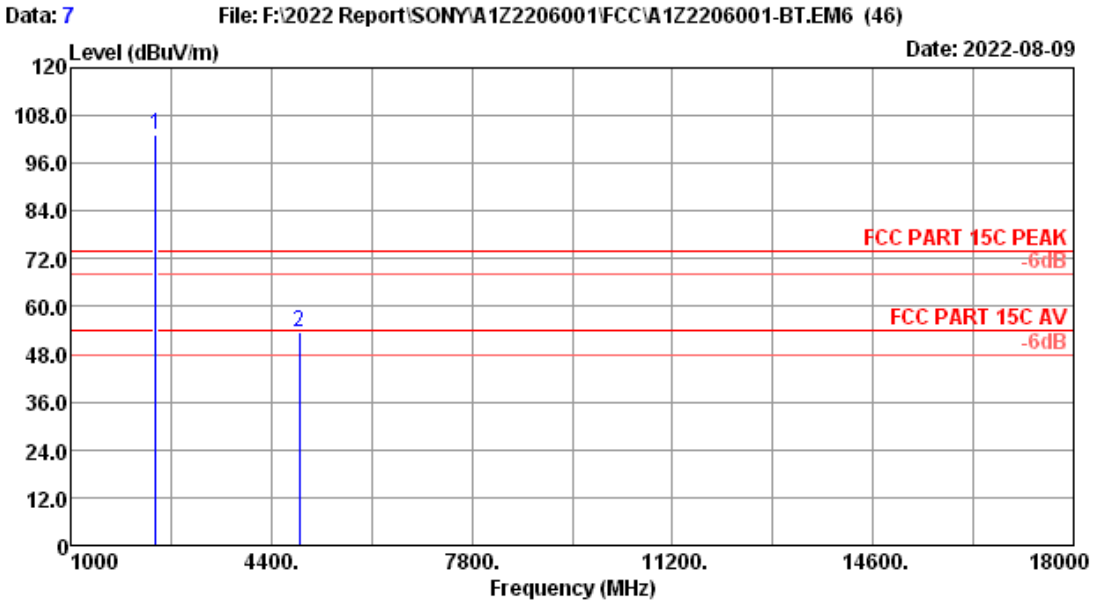
Site no.	: 3m Chamber	Data no.	: 3
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 GFSK 2402MHz Tx		



Site no. : 3m Chamber
Data no. : 4
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.00	28.30	3.66	107.42	35.24	104.14	------	------	Peak
2	4804.00	33.10	4.98	50.35	34.46	53.97	74.00	20.03	Peak

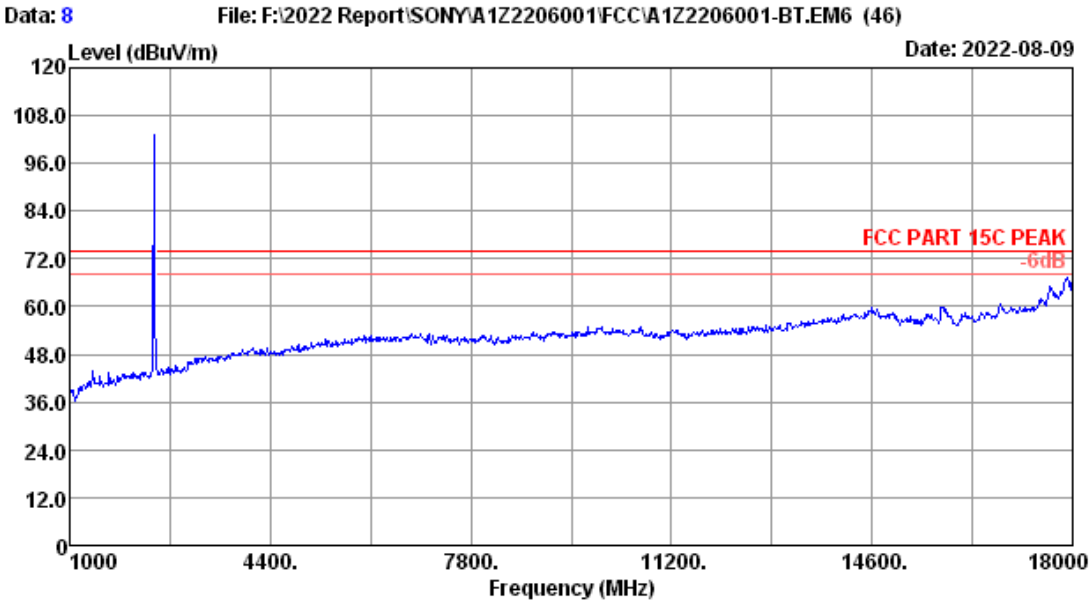
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



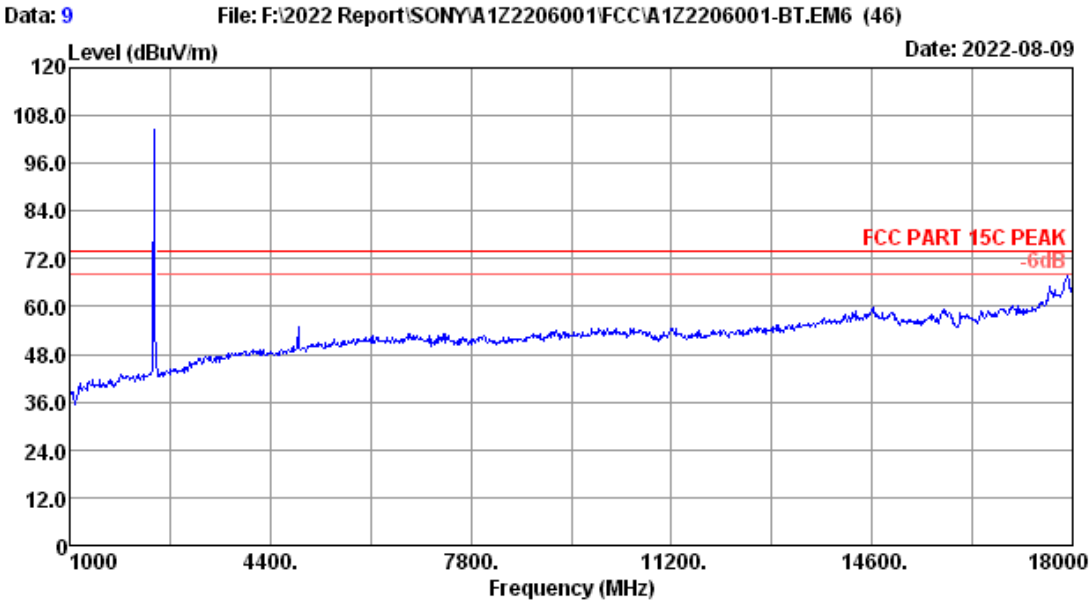
Site no. : 3m Chamber
Data no. : 7
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2441MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.00	28.30	3.68	106.38	35.25	103.11	------	------	Peak
2	4882.00	33.10	5.01	49.82	34.47	53.46	74.00	20.54	Peak

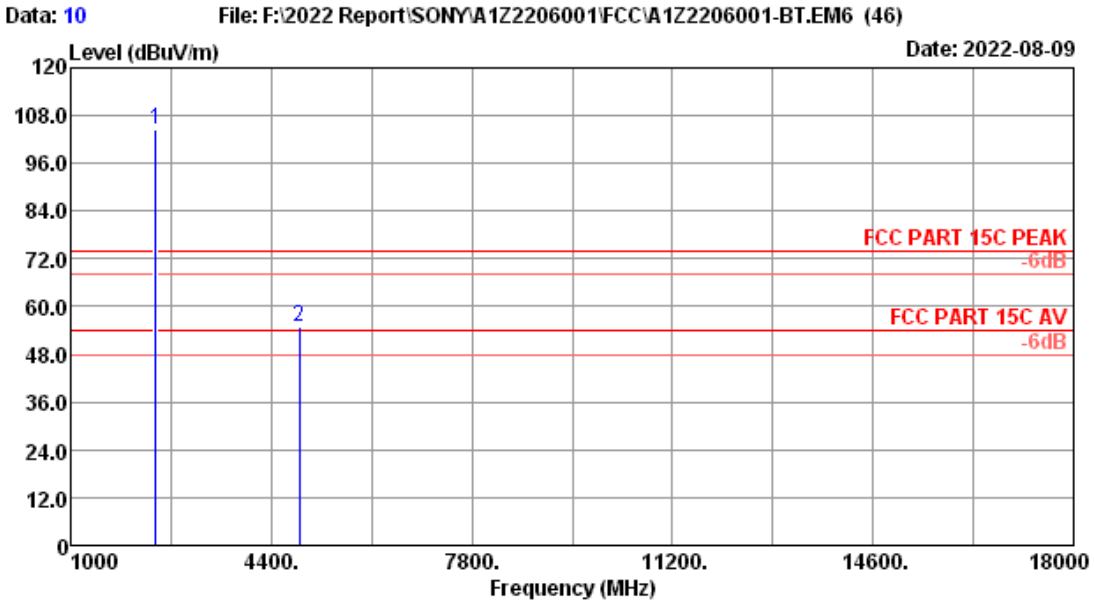
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 8
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 GFSK 2441MHz Tx		



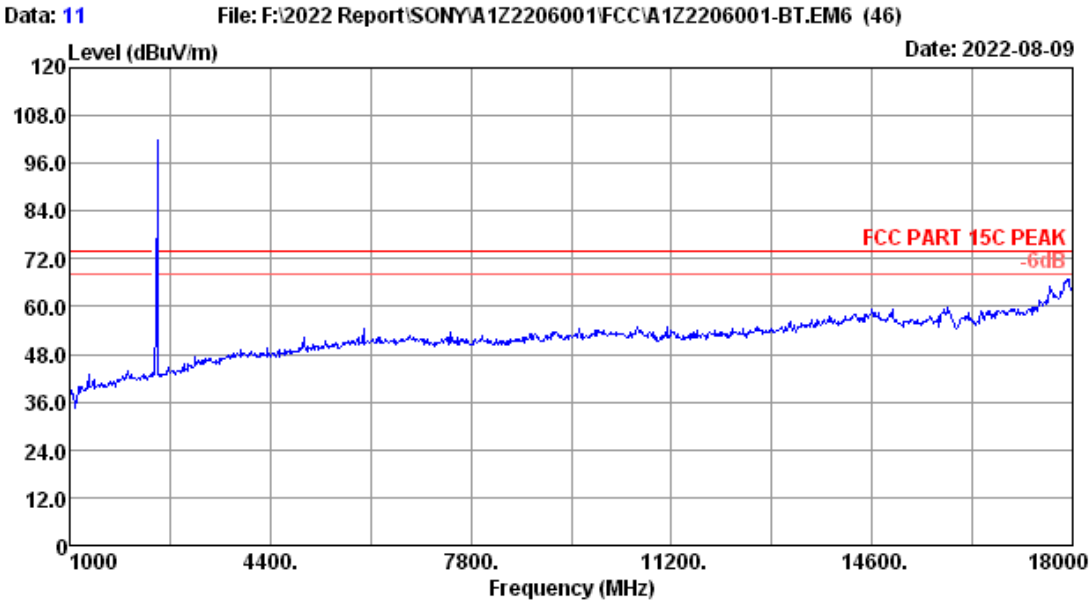
Site no.	: 3m Chamber	Data no.	: 9
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 GFSK 2441MHz Tx		



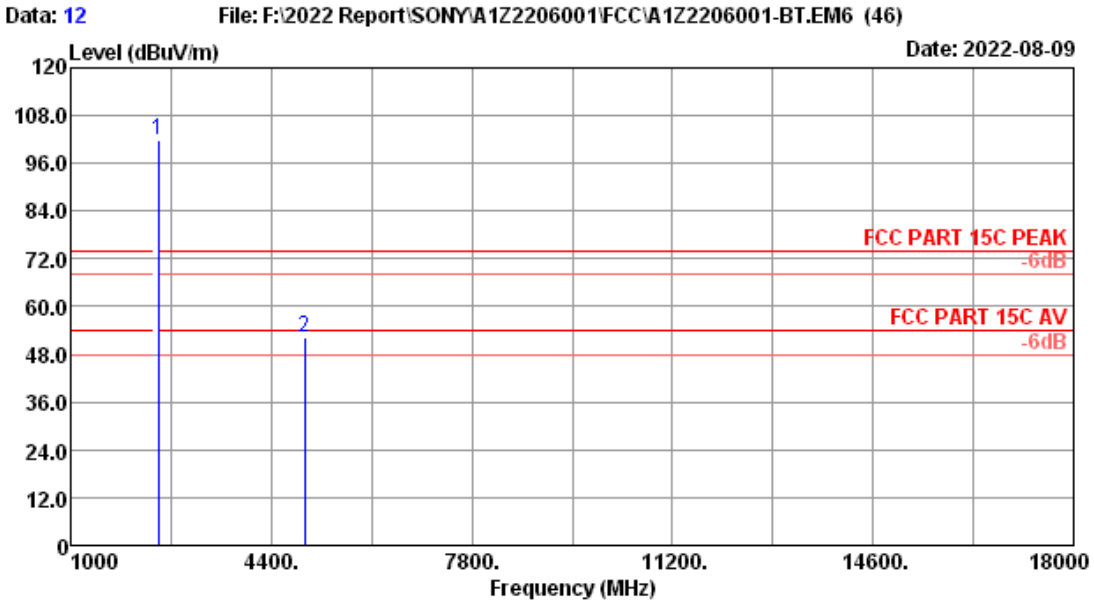
Site no. : 3m Chamber
Data no. : 10
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2441MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.00	28.30	3.68	107.73	35.25	104.46	------	------	Peak
2	4882.00	33.10	5.01	51.43	34.47	55.07	74.00	18.93	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.



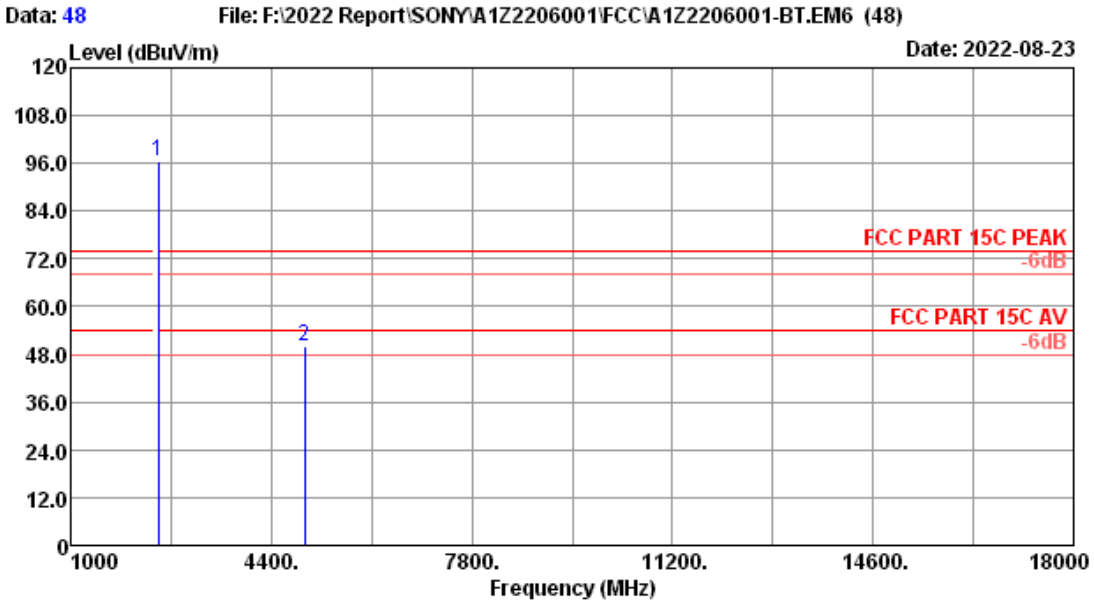
Site no.	: 3m Chamber	Data no.	: 11
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 GFSK 2480MHz Tx		



Site no. : 3m Chamber
Data no. : 12
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	28.30	3.71	104.90	35.25	101.66	------	------	Peak
2	4960.00	33.13	5.03	48.41	34.49	52.08	74.00	21.92	Peak

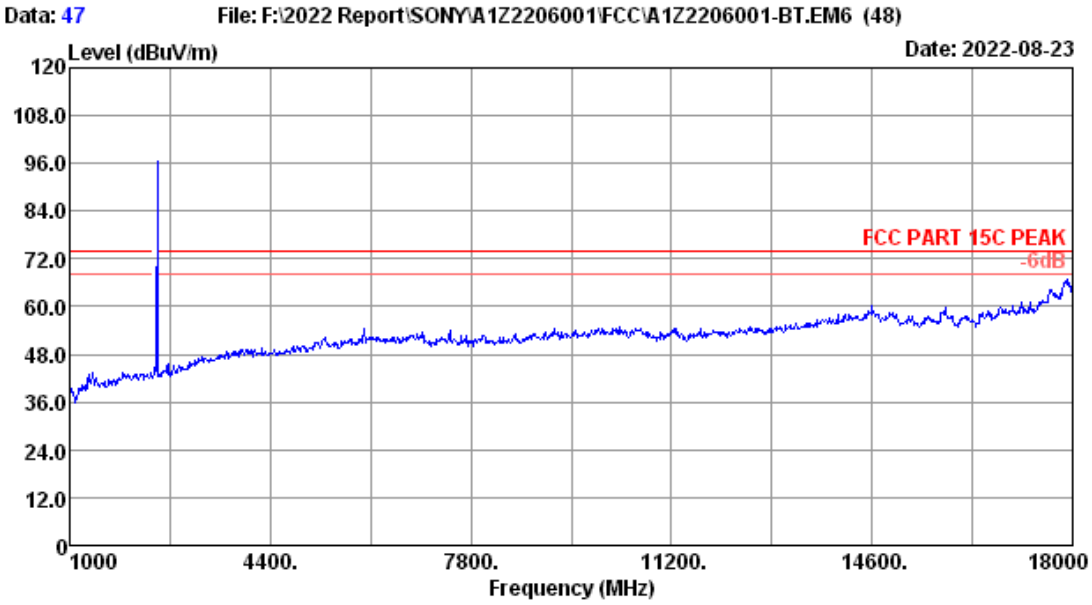
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



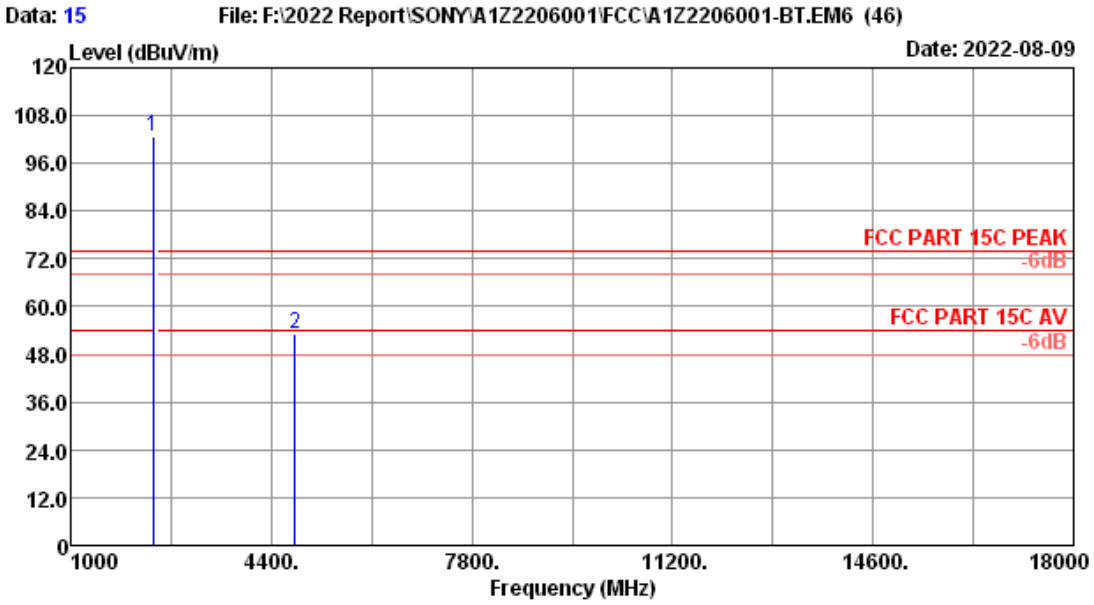
Site no. : 10m Chamber Data no. : 48
Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5% Engineer : Nier
Test Mode : BT3.0 GFSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	28.30	3.71	99.56	35.25	96.32	------	------	Peak
2	4960.00	33.13	5.03	46.26	34.49	49.93	74.00	24.07	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.



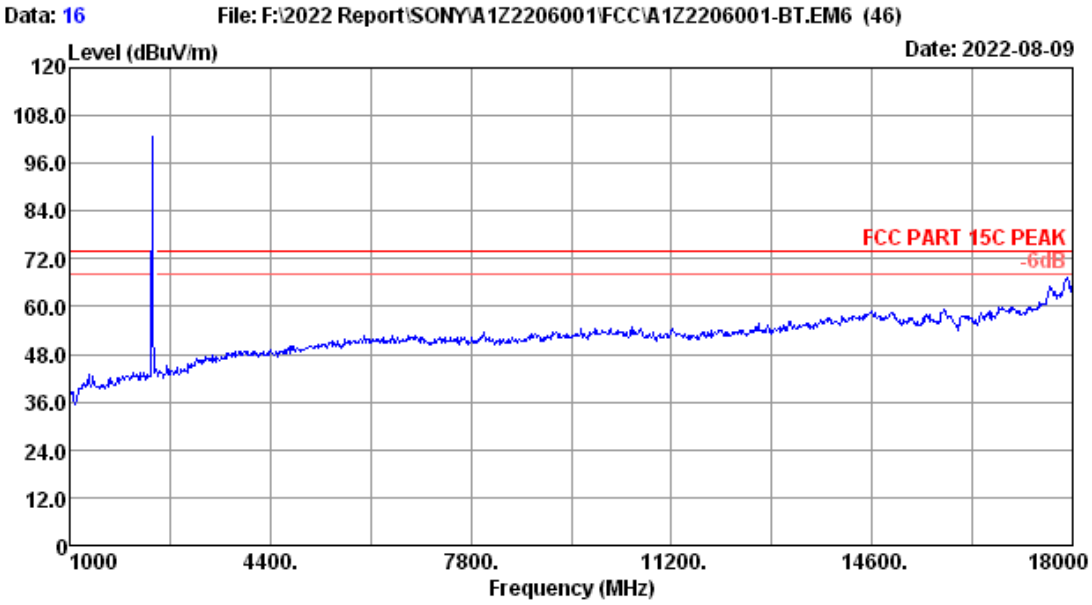
Site no. : 10m Chamber Data no. : 47
Dis. / Ant. : 3m 2022 3115-4877 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5% Engineer : Nier
Test Mode : BT3.0 GFSK 2480MHz Tx



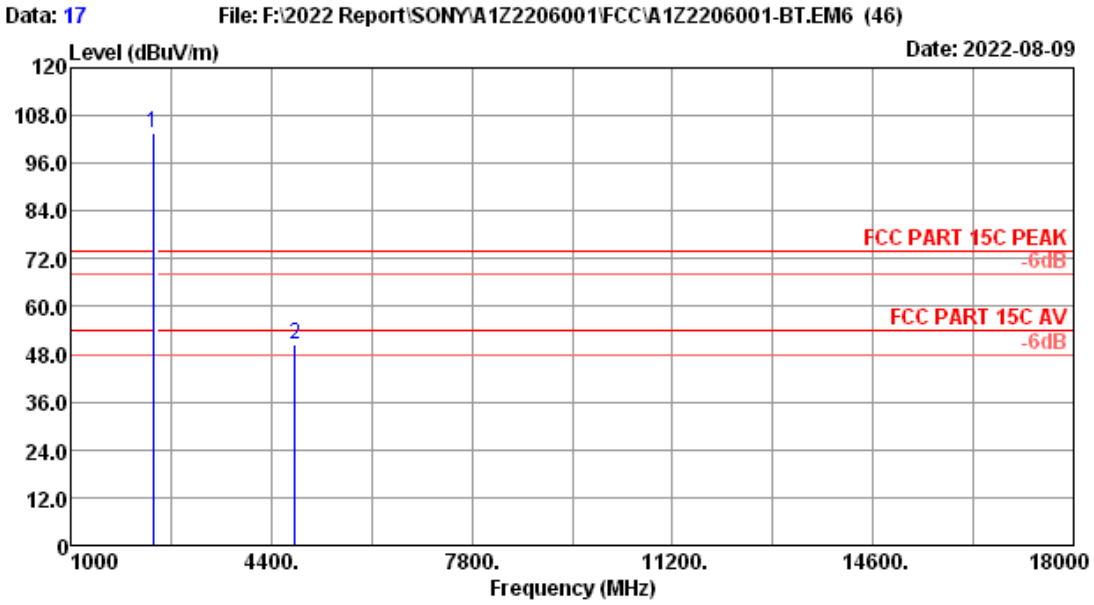
Site no. : 3m Chamber
Data no. : 15
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.00	28.30	3.66	106.14	35.24	102.86	------	------	Peak
2	4804.00	33.10	4.98	49.57	34.46	53.19	74.00	20.81	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.



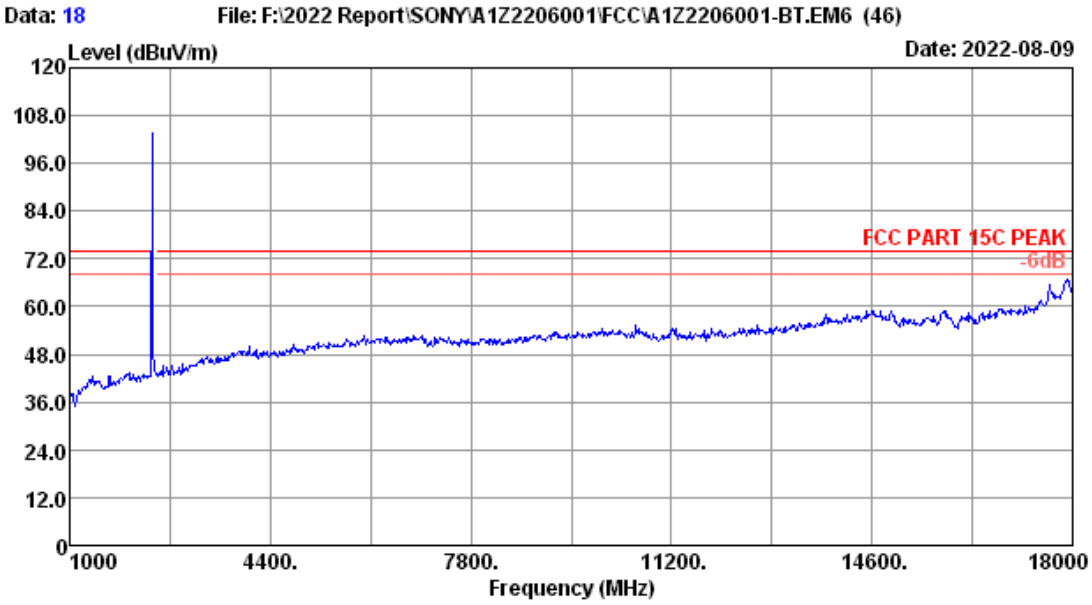
Site no.	: 3m Chamber	Data no.	: 16
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 8DPSK 2402MHz Tx		



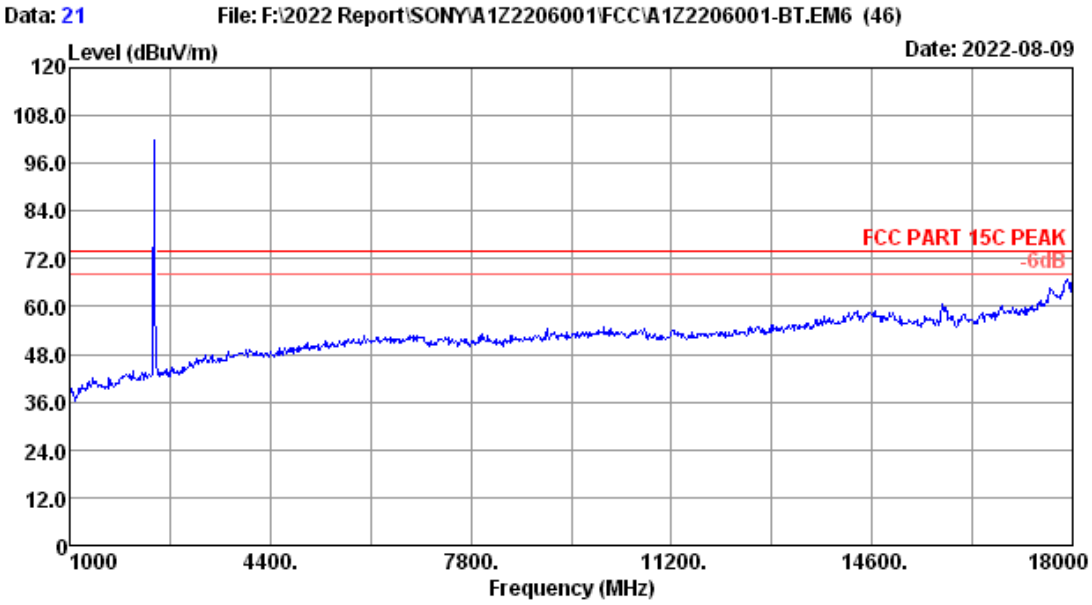
Site no. : 3m Chamber
Data no. : 17
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2402.00	28.30	3.66	106.81	35.24	103.53	------	------	Peak
2	4804.00	33.10	4.98	46.87	34.46	50.49	74.00	23.51	Peak

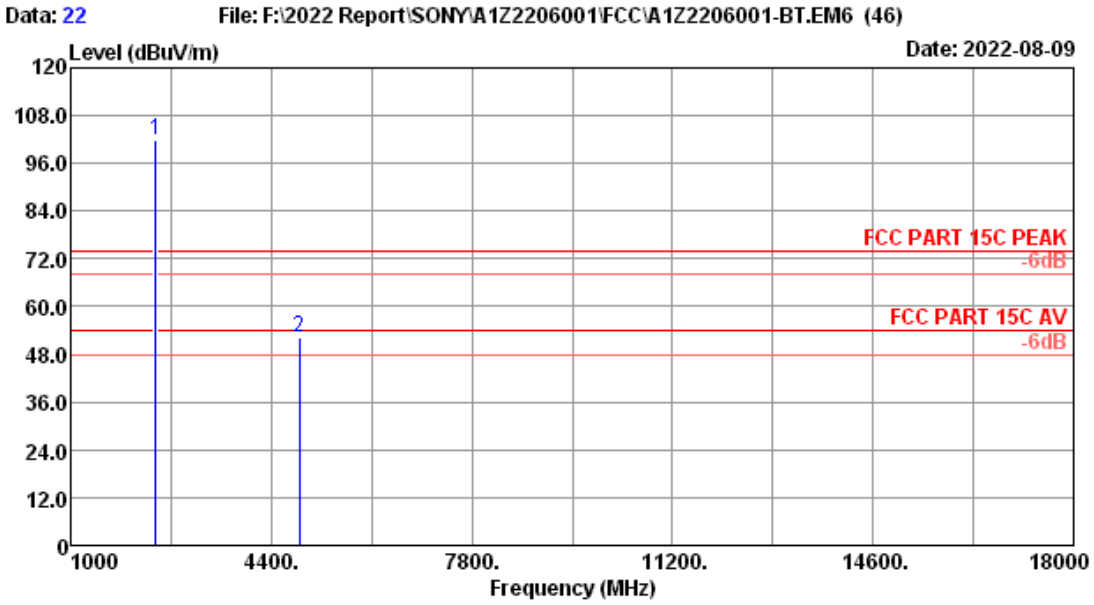
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no.	: 3m Chamber	Data no.	: 18
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 8DPSK 2402MHz Tx		



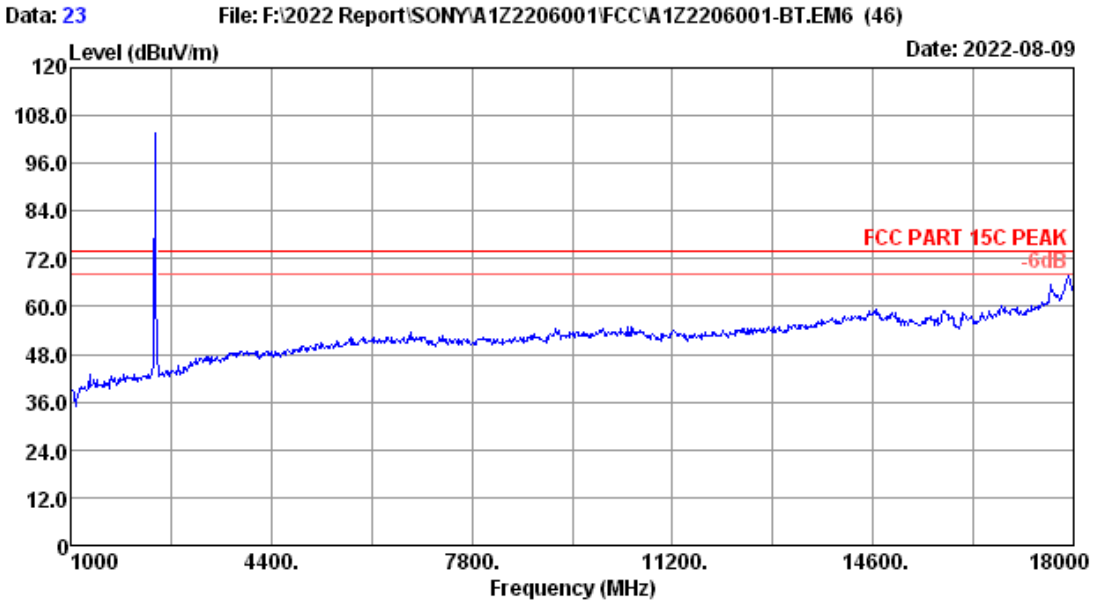
Site no.	: 3m Chamber	Data no.	: 21
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 8DPSK 2441MHz Tx		



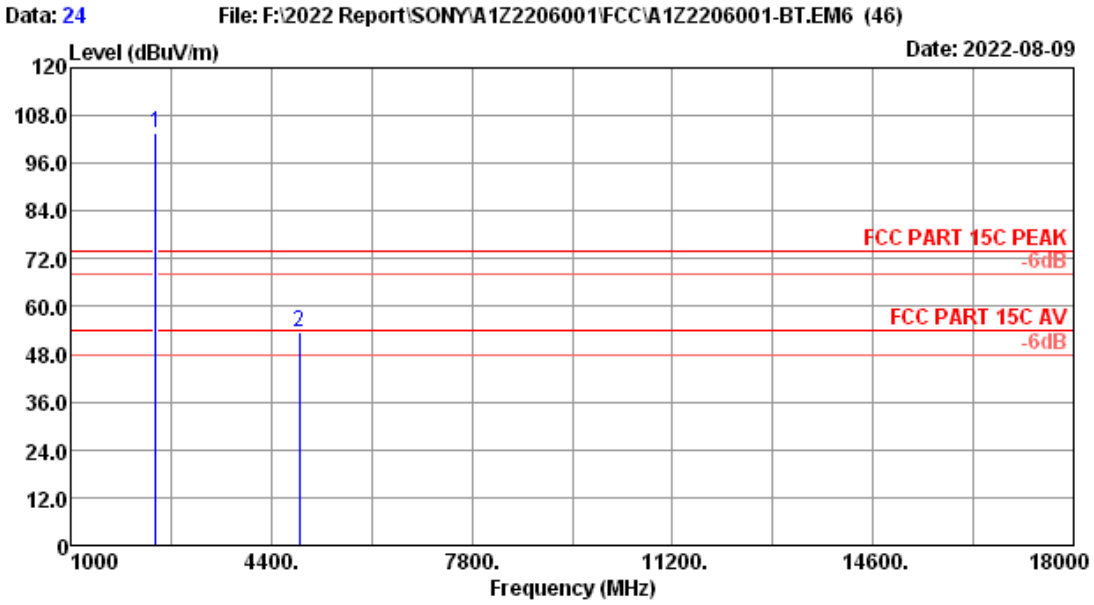
Site no. : 3m Chamber
Data no. : 22
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2441MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.00	28.30	3.68	105.15	35.25	101.88	------	------	Peak
2	4882.00	33.10	5.01	48.55	34.47	52.19	74.00	21.81	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.



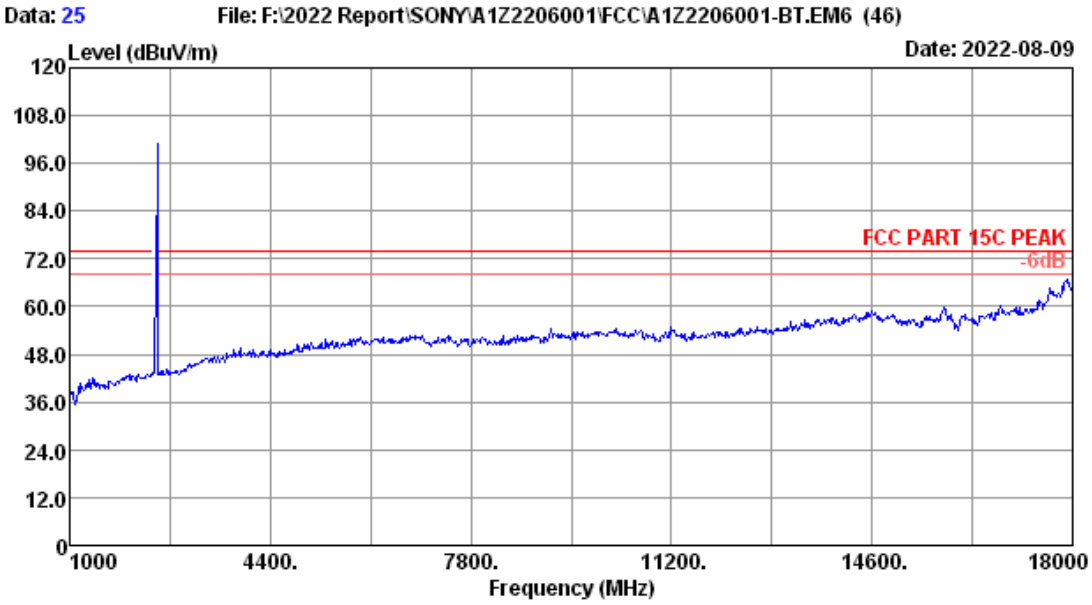
Site no.	: 3m Chamber	Data no.	: 23
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 8DPSK 2441MHz Tx		



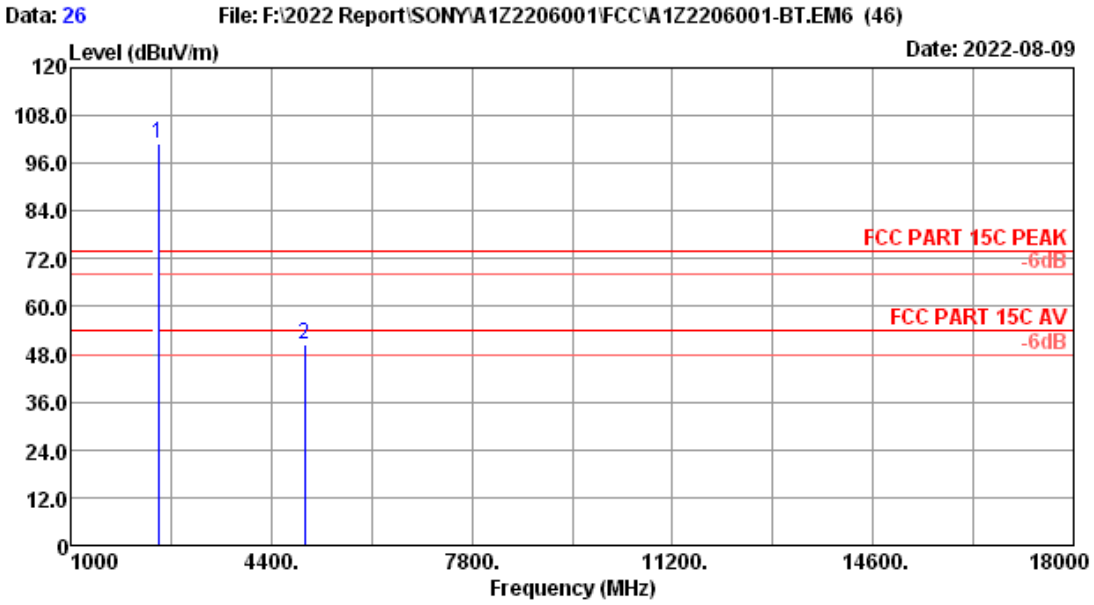
Site no. : 3m Chamber
Data no. : 24
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2441MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2441.00	28.30	3.68	107.08	35.25	103.81	------	------	Peak
2	4882.00	33.10	5.01	49.87	34.47	53.51	74.00	20.49	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.



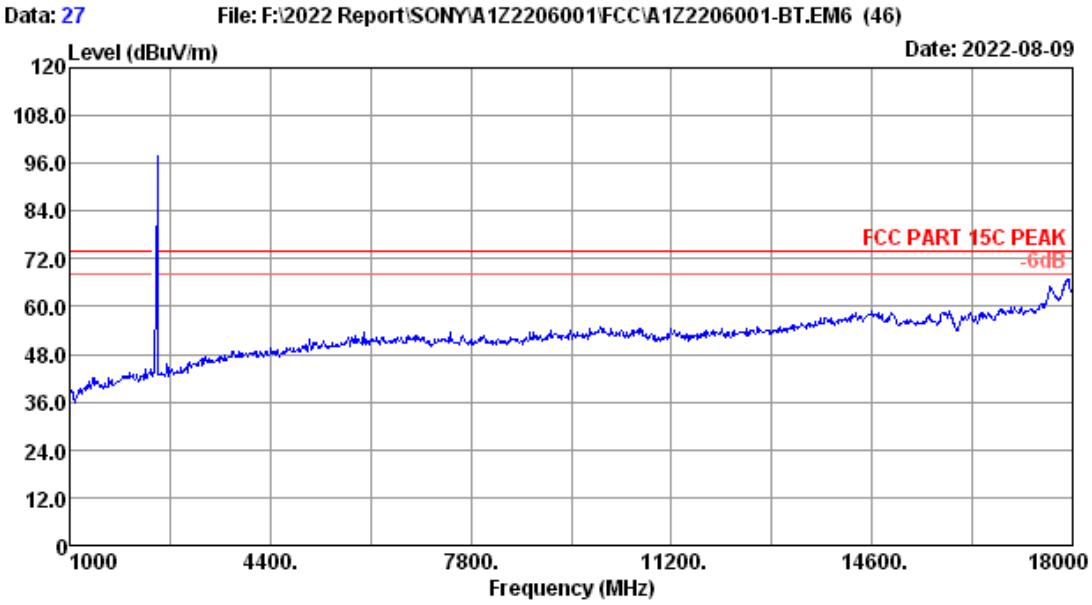
Site no.	: 3m Chamber	Data no.	: 25
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 8DPSK 2480MHz Tx		



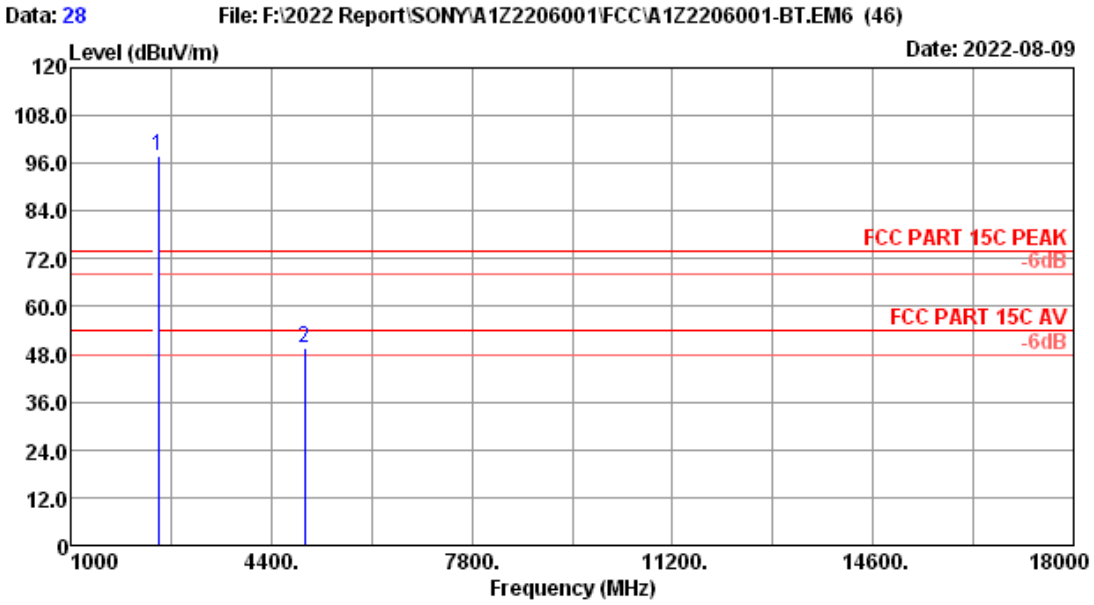
Site no. : 3m Chamber
Data no. : 26
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	28.30	3.71	104.28	35.25	101.04	------	------	Peak
2	4960.00	33.13	5.03	46.64	34.49	50.31	74.00	23.69	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.	: 27
Dis. / Ant.	: 3m 2022 3115-4877	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.8*C/53.5%	Engineer	: Nier
Test Mode	: BT3.0 8DPSK 2480MHz Tx		



Site no. : 3m Chamber
Data no. : 28
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.00	28.30	3.71	101.00	35.25	97.76	------	------	Peak
2	4960.00	33.13	5.03	45.75	34.49	49.42	74.00	24.58	Peak

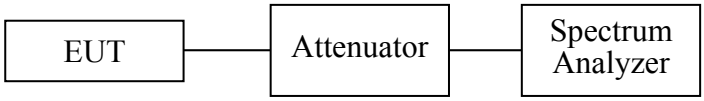
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.

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.07,22	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,22	1 Year

5.2. Block Diagram of Test Setup



5.3. Limit

In any 100kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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

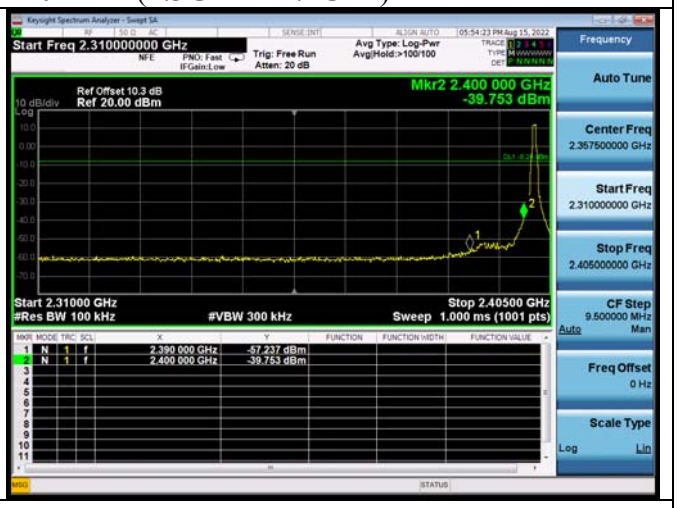
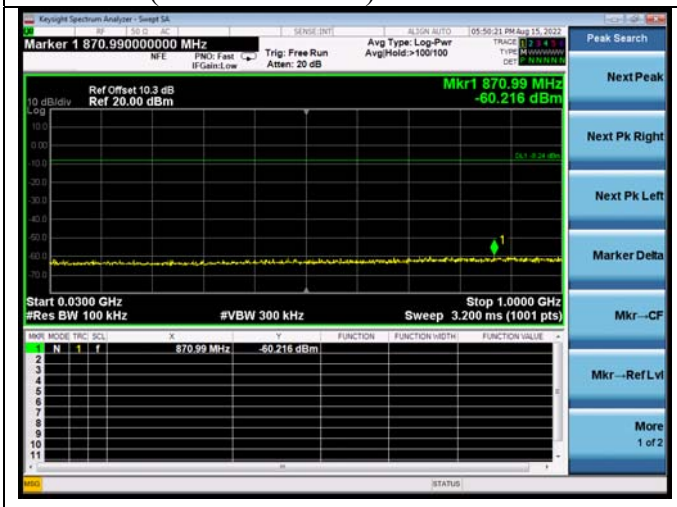
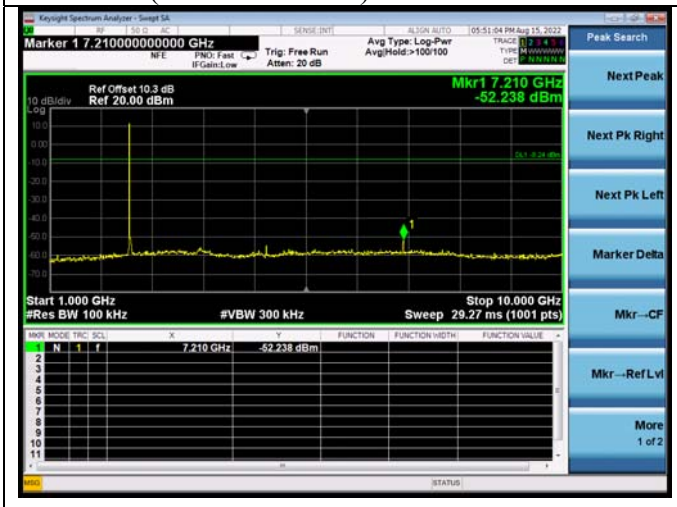
Use the test method descried in ANSI C63.10 clause 7.8.8:
The transmitter output was connected to a spectrum analyzer, The resolution bandwidth is set to 100 kHz, The video bandwidth is set to 300 kHz and measure all the emissions With peak detector.

Note: The cable loss and attenuator loss were offset into spectrum analyzer as an amplitude offset.

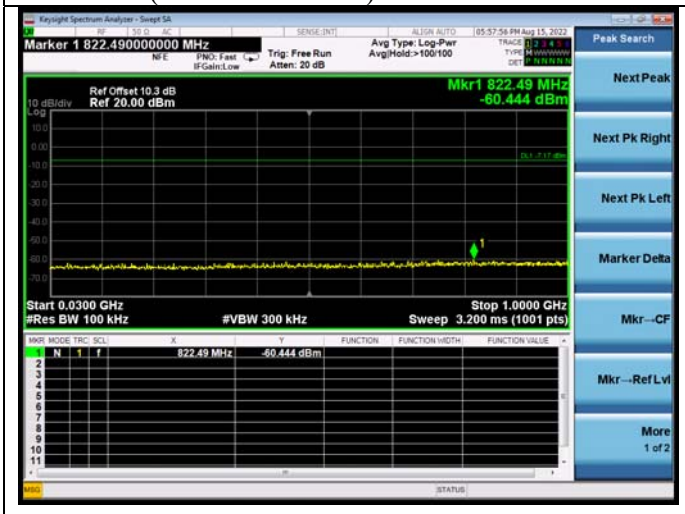
5.5. Test result

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

EUT: Digital Media Player		
M/N: YY1301B1		
Test date: 2022-08-15	Pressure: 102.5±1.0 kpa	Humidity: 52.2±3.0%
Tested by: Winter	Test site: RF site	Temperature:23.3±0.6 ℃

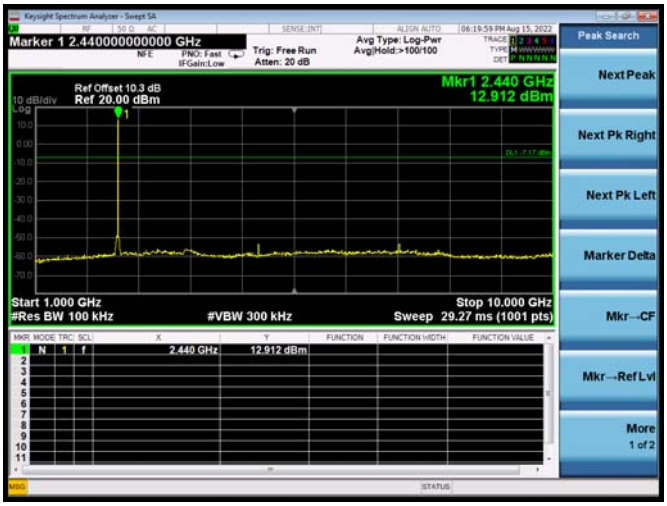
Hopping off	
GFSK	
2402MHz	2402MHz(2.3GHz – 2.4GHz)
	
2402MHz(30MHz – 1GHz)	2402MHz(10GHz – 26GHz)
	
2402MHz(1GHz – 10GHz)	2441MHz
	

2441MHz(30MHz – 1GHz)

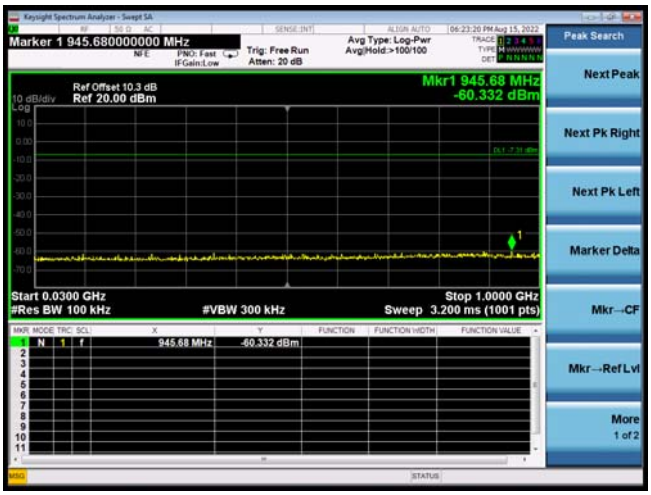


2480MHz

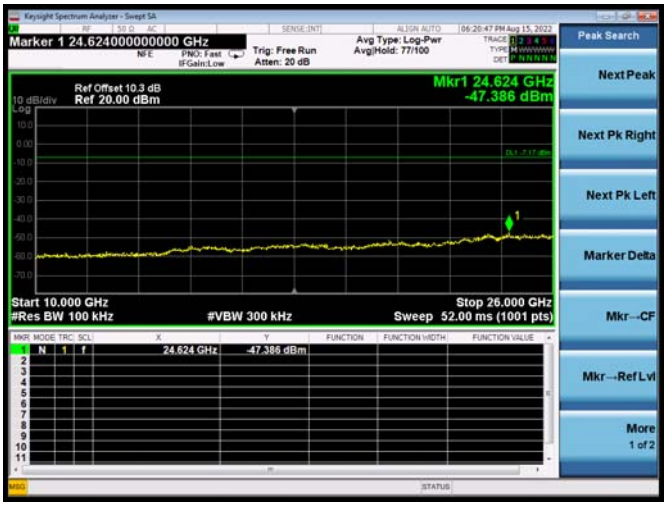
2441MHz(1GHz – 10GHz)



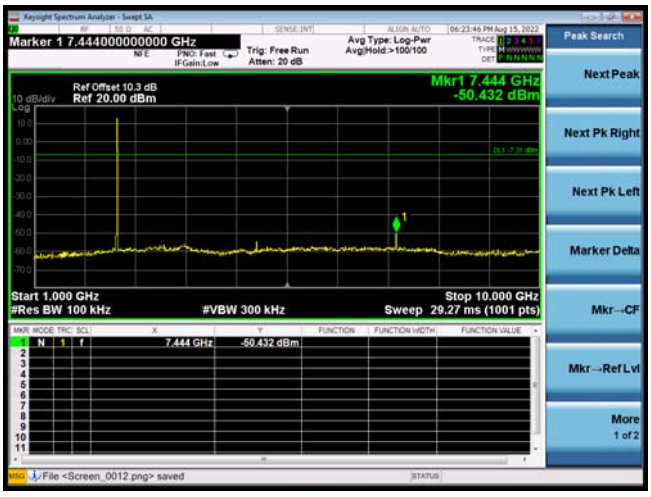
2480MHz(30MHz – 1GHz)

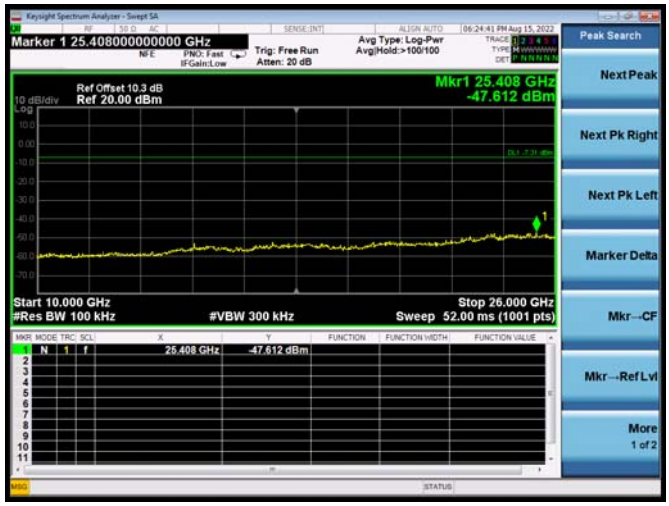
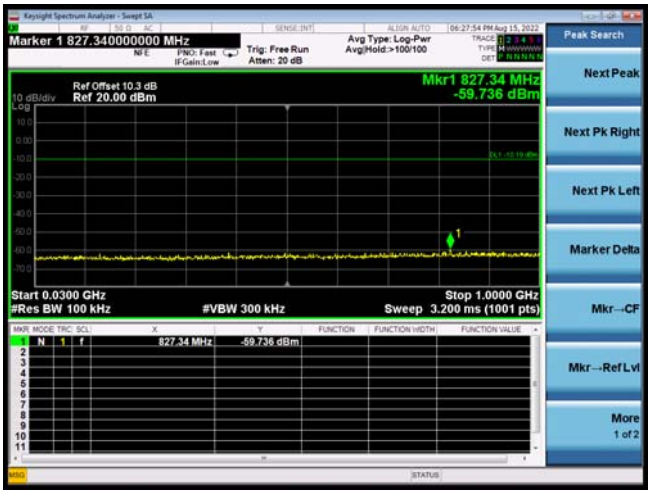
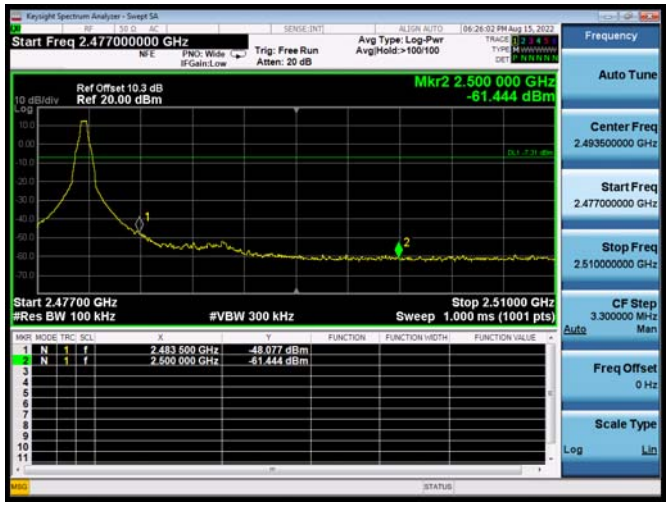
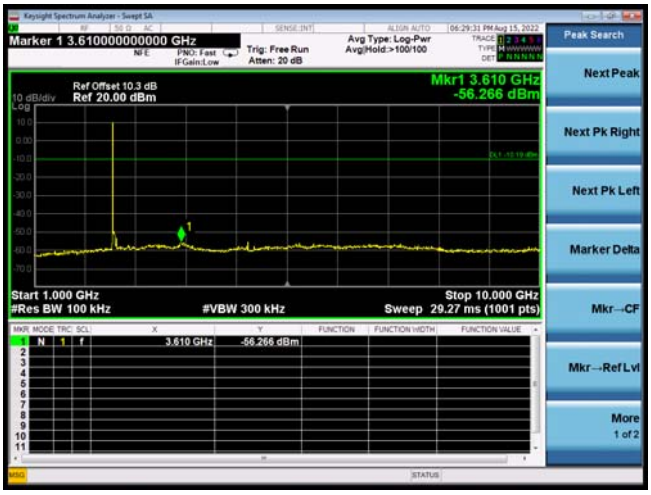
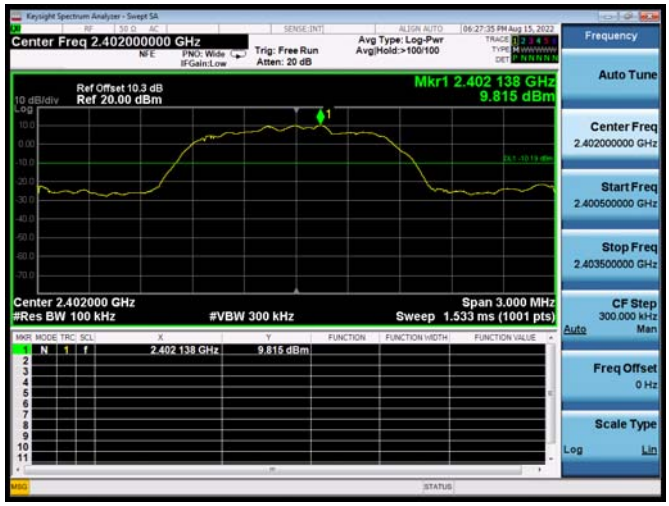
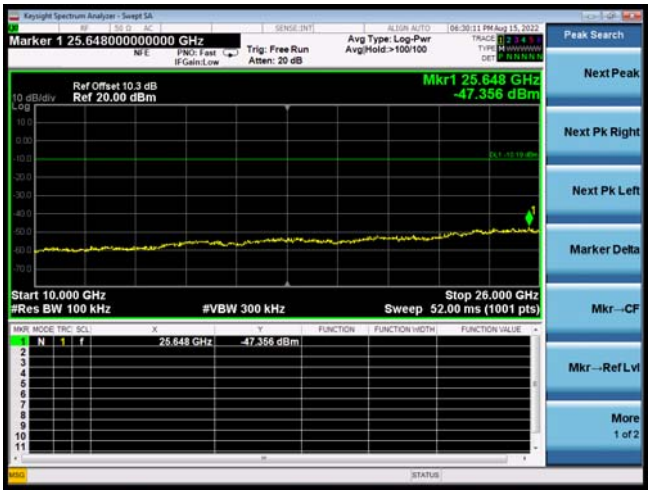


2441MHz(10GHz – 26GHz)

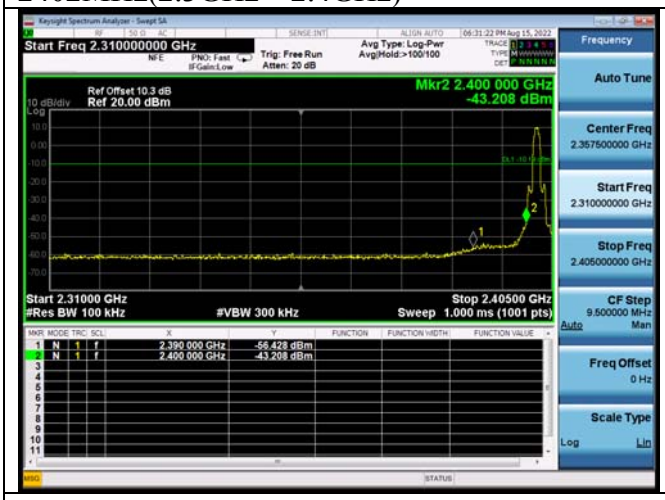


2480MHz(1GHz – 10GHz)

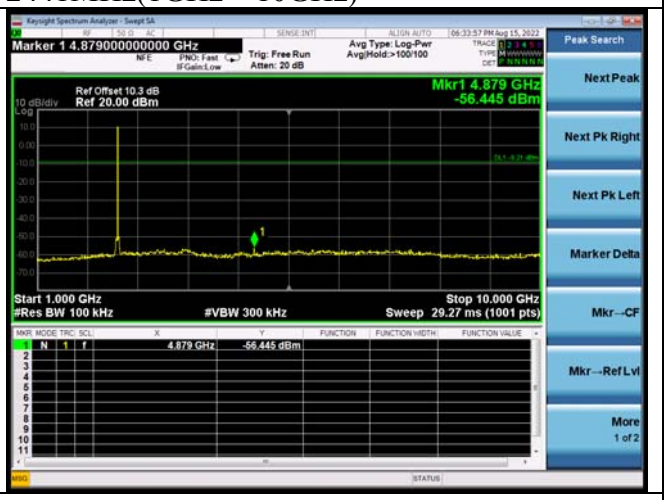


2480MHz(10GHz – 26GHz)	2402MHz(30MHz – 1GHz)
	
2480MHz(2.4GHz – 2.5GHz)	2402MHz(1GHz – 10GHz)
	
8-DPSK	
2402MHz	2402MHz(10GHz – 26GHz)
	

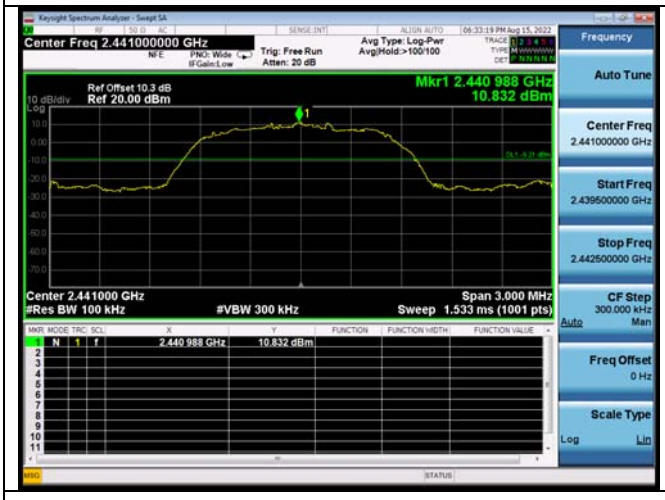
2402MHz(2.3GHz – 2.4GHz)



2441MHz(1GHz – 10GHz)

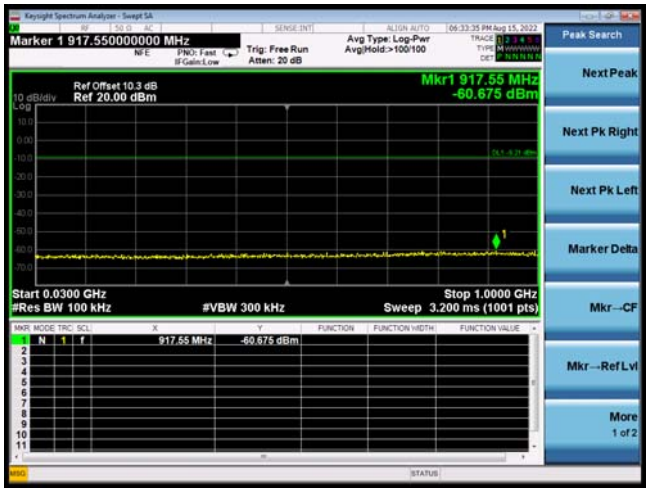


2441MHz

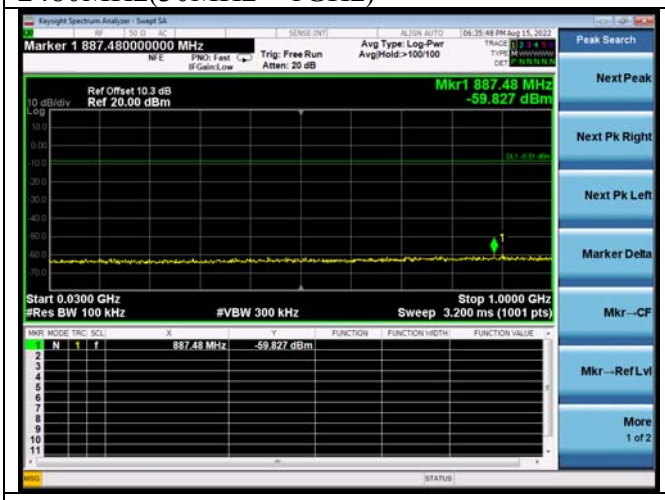
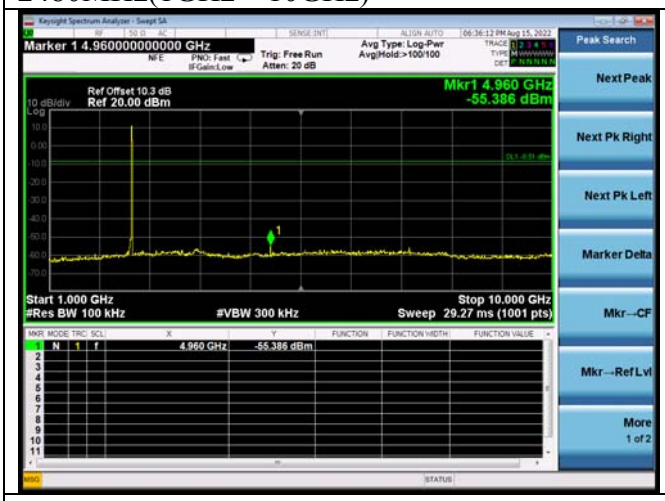
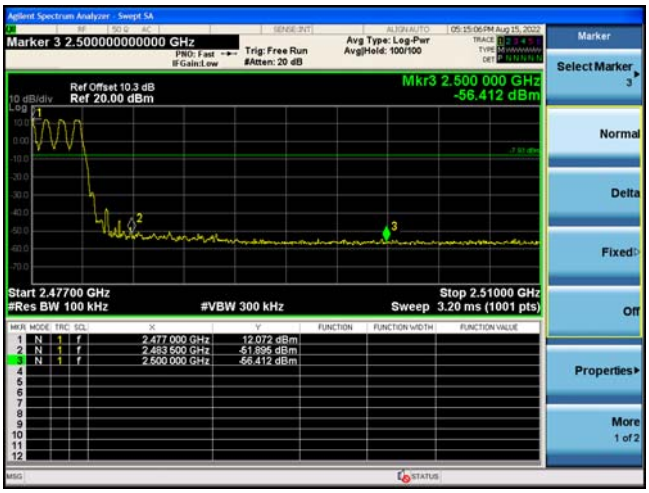


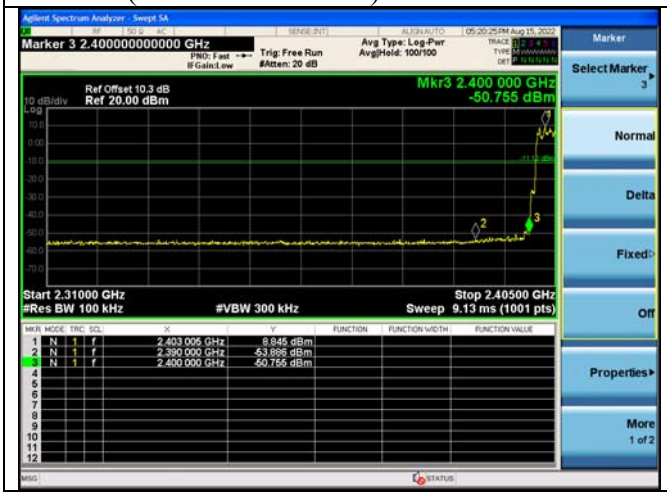
2441MHz(10GHz – 26GHz)

2441MHz (30MHz – 1GHz)



2480MHz

2480MHz(30MHz – 1GHz)	2480MHz(2.4GHz – 2.5GHz)
	
	Hopping on
2480MHz(1GHz – 10GHz)	GFSK(2.3GHz – 2.4GHz)
	
2480MHz(10GHz – 26GHz)	GFSK(2.4GHz – 2.5GHz)
	

8-DPSK(2.3GHz – 2.4GHz)	8-DPSK(2.4GHz – 2.5GHz)
	

6. 20 DB & 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.07,22	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,22	1 Year

6.2. Limit

Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the 20 dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated.

6.3. Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.7:

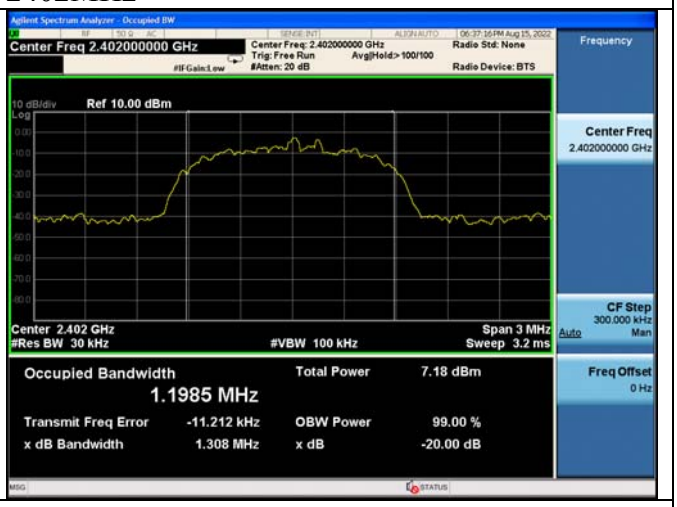
1. Connect the antenna port of the EUT to the spectrum analyzer.
2. Let the EUT transmit at Low/ Mid/ High channel with test software.
3. Setting of SA is following as: RBW: 30kHz / VBW: 100kHz
   Sweep Mode: Continuous sweep
   Detect mode: Positive peak
   Trace mode: Max hold.
4. Use the occupied bandwidth function of the SA measure the 20dB bandwidth directly.

6.4.Test Results

EUT: Digital Media Player		
M/N: YY1301B1		
Test date: 2022-08-15	Pressure: 102.1±1.0 kpa	Humidity: 53.2±3.0%
Tested by: winter	Test site: RF site	Temperature: 22.3±0.6℃

Test Mode	Frequency (MHz)	20dB bandwidth (KHz)	Limit (KHz)
GFSK	2402	944.3	N/A
	2441	943.5	N/A
	2480	944.6	N/A
8-DPSK	2402	1308	N/A
	2441	1310	N/A
	2480	1302	N/A
Conclusion：PASS			

Test Mode	Frequency (MHz)	99% Bandwidth (KHz)	Limit (KHz)
GFSK	2402	859.79	N/A
	2441	857.53	N/A
	2480	857.46	N/A
8-DPSK	2402	1198.5	N/A
	2441	1202.2	N/A
	2480	1227.2	N/A
Conclusion：PASS			

GFSK	8-DPSK
2402MHz	2402MHz
	
2441MHz	2441MHz
	
2480MHz	2480MHz
	

7. CARRIER FREQUENCY SEPARATION TEST

7.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,22	1 Year

7.2.Limit

Frequency hopping systems shall have hopping channel carrier frequency separated by a minimum of 25kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW.

7.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.2:
1. Connect the antenna port of the EUT to the Spectrum analyzer.
2. Let the EUT transmit at Low/ Mid/ High channel.
3. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz.Span: 5MHz
4. Use the mark Delta function of the SA measure out the channel separation.

7.4.Test Results.

EUT: Digital Media Player		
M/N: YY1301B1		
Test date: 2022-08-15	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Winter	Test site: RF site	Temperature:22.3±0.6 ℃

Test Mode	Channel separation	Limit(KHz)	Conclusion
GFSK	1.0MHz	629.733	PASS
8-DPSK	1.0MHz	873.333	PASS

GFSK	8-DPSK
	

8. NUMBER OF HOPPING FREQUENCY TEST

8.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,22	1 Year

8.2.Limit

Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels

8.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.3:

1. Connect the antenna of the EUT to Spectrum analyzer and let the EUT working at hopping mode.
2. Setting of SA is following as: RBW: 100kHz / VBW: 300kHz ,
   Start frequency: 2400MHz
   Stop frequency: 2483.5MHz

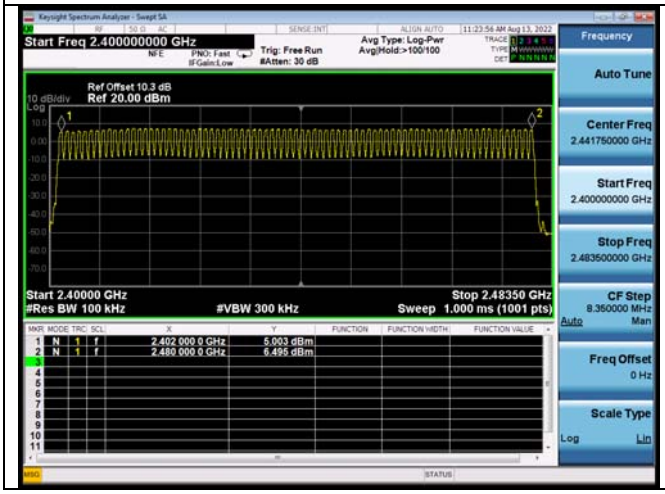
And waiting for the hopping trace until stability, count out the number of the hopping.

8.4.Test Results

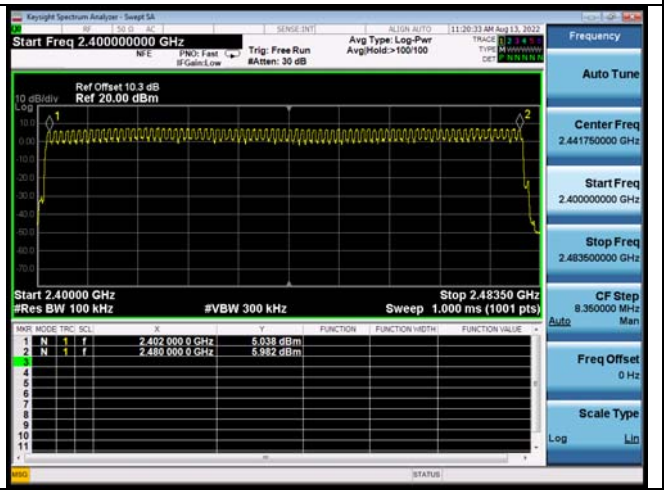
EUT: Digital Media Player		
M/N: YY1301B1		
Test date: 2022-08-13	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Winter	Test site: RF site	Temperature:22.3±0.6 ℃

Test Mode	Number of channel	Limit	Conclusion
GFSK	79	≥15	PASS
8-DPSK	79	≥15	PASS

GFSK



8-DPSK



9. DWELL TIME

9.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
2.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,22	1 Year

9.2.Limit

The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed.

9.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.4:

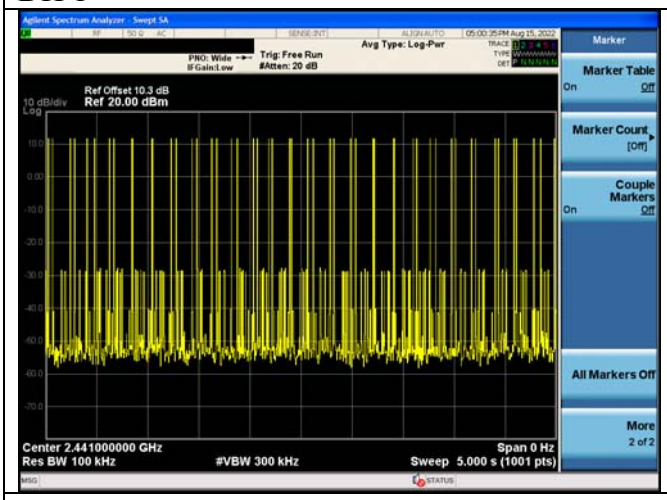
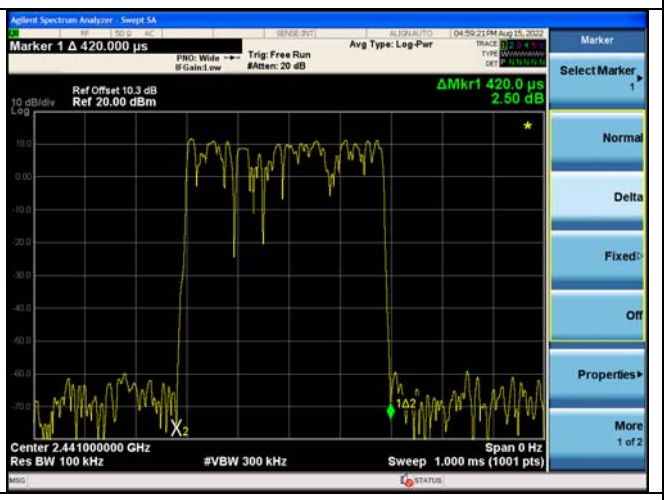
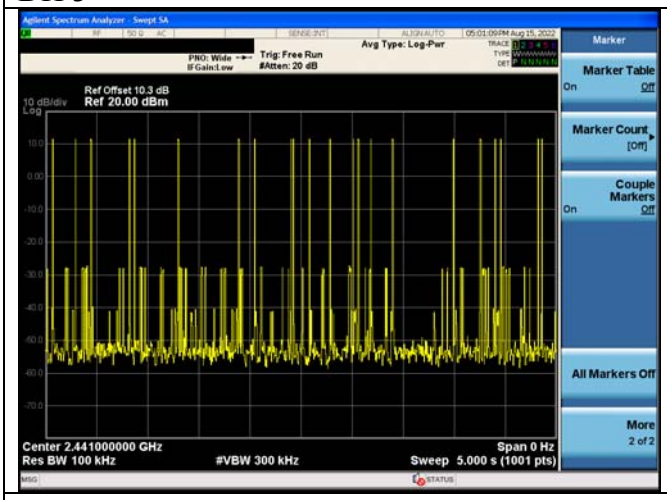
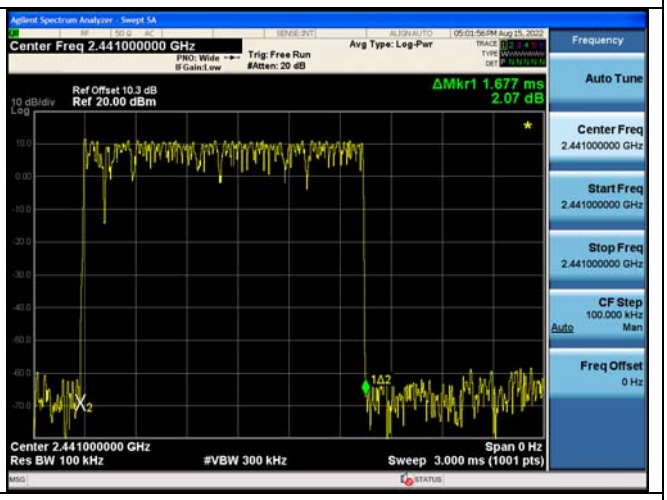
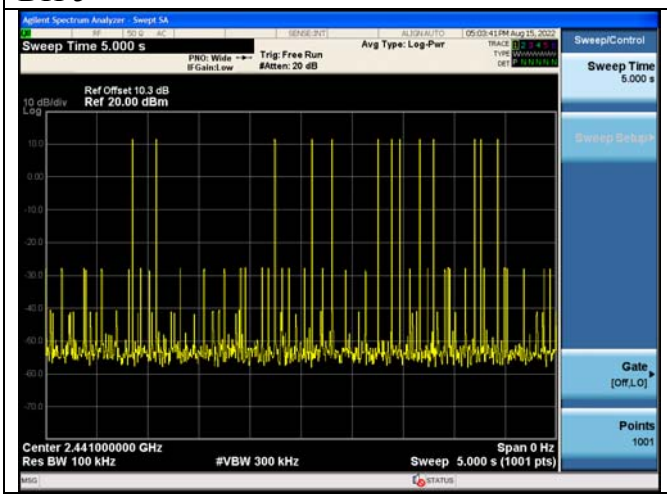
1. Connect the antenna of the EUT to Spectrum analyzer and let the EUT working at hopping mode.
2. Setting of SA is following as:
   RBW: 100kHz / VBW: 300kHz
   Sweep Mode: Single
   Detect mode: Positive peak
   Trace mode: Auto
   Span: 0Hz
   Sweep time: 5s and big enough to measure one hopping signal
3. Use below formula calculate the Dwell time
   Dwell time=Hopping number per second*0.4*channel number*Pulse bandwidth per hopping.

9.4.Test Results

EUT: Digital Media Player		
M/N: YY1301B1		
Test date: 2022-08-15	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Winter	Test site: RF site	Temperature:22.4±0.6 ℃

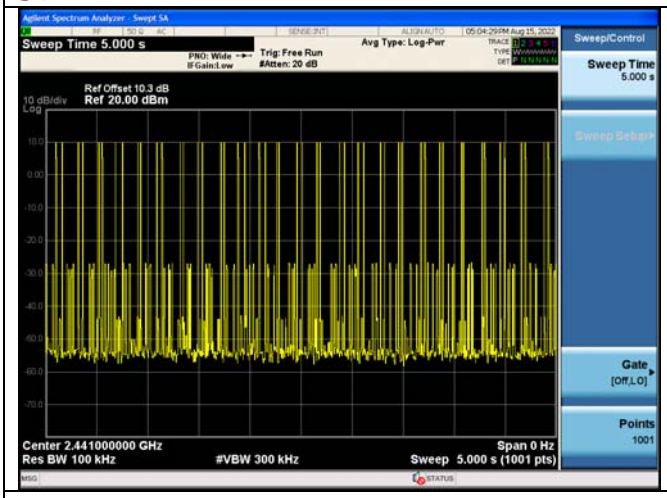
Mode		dwell time	Limit	Conclusion
GFSK	DH1	47 hops/5s*0.4s*79chanels* 0.420 ms =124.757ms	≦400ms	PASS
	DH3	22 hops/5s*0.4s*79chanels* 1.677 ms =233.170ms	≦400ms	PASS
	DH5	13 hops/5s*0.4s*79chanels* 2.930 ms =240.729ms	≦400ms	PASS
8-DPSK	3-DH1	50 hops/5s*0.4s*79chanels* 0.430 ms =135.880ms	≦400ms	PASS
	3-DH3	30 hops/5s*0.4s*79chanels* 1.680 ms =318.528ms	≦400ms	PASS
	3-DH5	21 hops/5s*0.4s*79chanels* 2.950 ms =391.524ms	≦400ms	PASS

Note: All the lower levels were signaled from receiver and should not be considered in here.

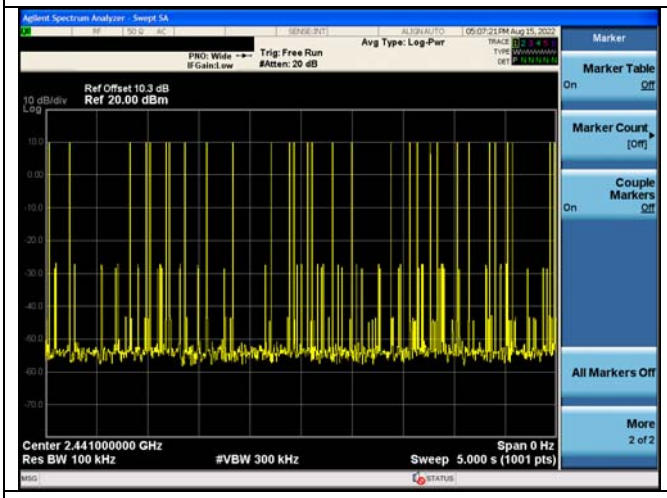
GFSK	
DH 1	
	
DH 3	
	
DH 5	
	

8-DPSK

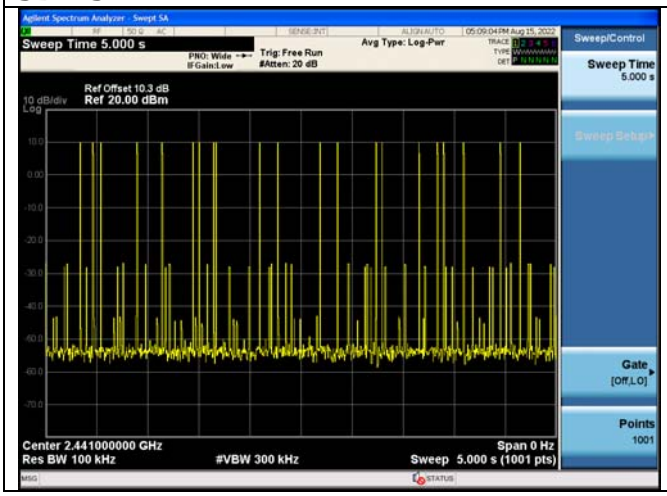
3DH 1

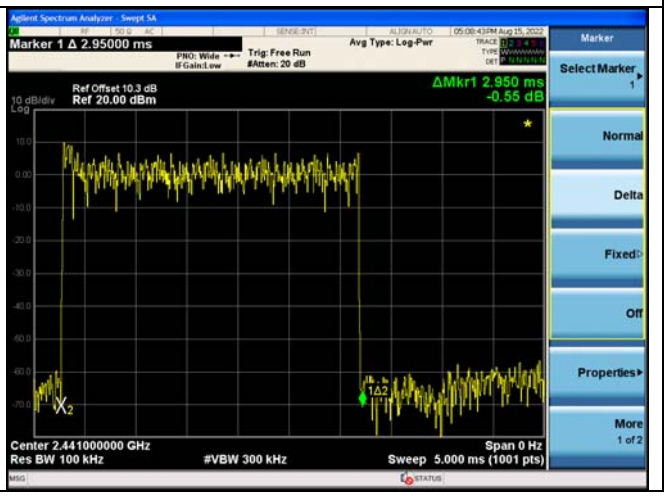


3DH 3



3DH 5





10.MAXIMUM PEAK OUTPUT POWER TEST

10.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
2.	Power meter	Anritsu	ML2487A	6K00002472	Apr.07,22	1 Year
3.	Power sensor	Anritsu	MA2491A	033005	Apr.06,22	1 Year
4.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,22	1 Year

10.2.Limit

For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

10.3.Test Procedure

Use the test method descried in ANSI C63.10 clause 7.8.5:
Connected the EUT's antenna port to Power Sensor, and use power meter to test peak output power directly.

10.4.Test Results

EUT: Digital Media Player		
M/N: YY1301B1		
Test date: 2022-08-12	Pressure: 102.5±1.0 kpa	Humidity: 53.6±3.0%
Tested by: Winter	Test site: RF site	Temperature:22.4±0.6 ℃

Test Mode	Frequency	Power Setting	Peak output Power（dBm）	Limit (dBm)
GFSK	2402	Default	12.379	21
	2441		13.300	
	2480		12.956	
8-DPSK	2402		12.101	21
	2441		13.047	
	2480		12.836	
Conclusion: PASS				

11.BAND EDGE COMPLIANCE TEST

11.1.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,22	1 Year
2.	Amplifier	Agilent	8449B	3008A02495	Apr.07,22	1 Year
3.	Horn Antenna	ETS	3115	9607-4877	Jan.08,22	3 Year
4.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,22	1 Year

11.2.Limit

All the lower and upper band-edges emissions appearing within 2310MHz to 2390MHz and 2483.5MHz to 2500MHz restricted frequency bands shall not exceed the limits shown in 15.209, all the other emissions outside operation frequency band 2400MHz to 2483.5MHz shall be at least 20dB below the fundamental emissions, or comply with 15.209 limits.

11.3.Test Produce

Use the test method descried in ANSI C63.10 clause 7.8.6:

For upper band emissions that are up to two bandwidths(2MHz) away (2483.5MHz to 2485.5MHz） from the band-edge use below produce:

1. Choose a spectrum analyzer span that encompasses both the peak of the fundamental emission and the band-edge emission under investigation. Set the analyzer RBW to 100KHz and with a video bandwidth 300KHz. Record the peak levels of the fundamental emission and the relevant band-edge emission, Observe the stored trace and measure the amplitude delta between the peak of the fundamental and the peak of the band-edge emission. This is not a field strength measurement, it is only a relative measurement to determine the amount by which the emission drops at the band edge relative to the highest fundamental emission level.
2. Subtract the delta measured in step (1) from the maximum field strengths measured in clause 4 .The resultant field strengths are then used to determine band-edge compliance as required by Section 15.205

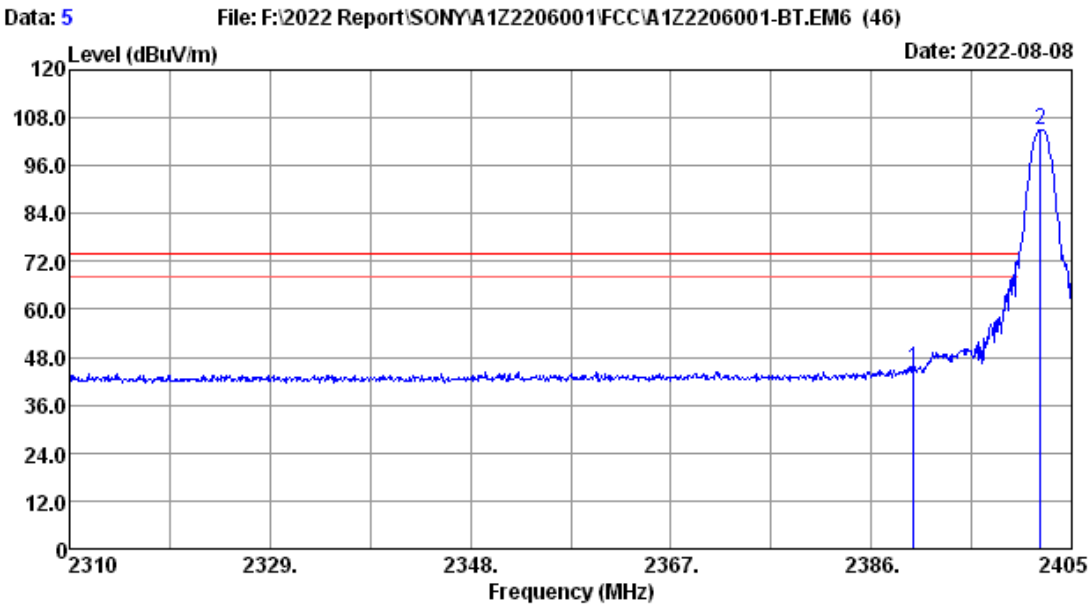
For emissions above two bandwidths away from the band-edge use below produce:

1. The EUT is placed on a insulating material (up to 12mm thick) worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upperband-edges of the emission:
   (a) PEAK: RBW=1MHz ;VBW=3MHz, PK detector, Sweep=AUTO
   (b) This is pulse Modulation device a duty cycle factor was used to calculate average level based measured peak level.

11.4.Test Results

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

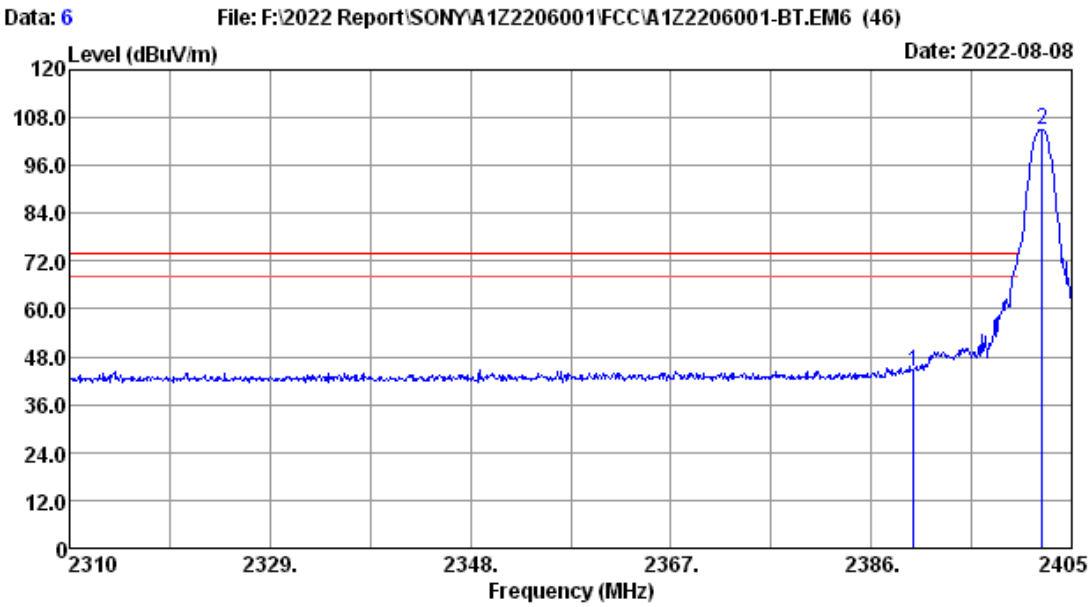
Note: If the PK measured levels comply with average limit, then the average level were deemed to comply with average limit.



Site no. : 3m Chamber
Data no. : 5
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	48.30	35.24	45.01	74.00	28.99	Peak
2	2402.06	28.30	3.66	108.18	35.24	104.90	------	------	Peak

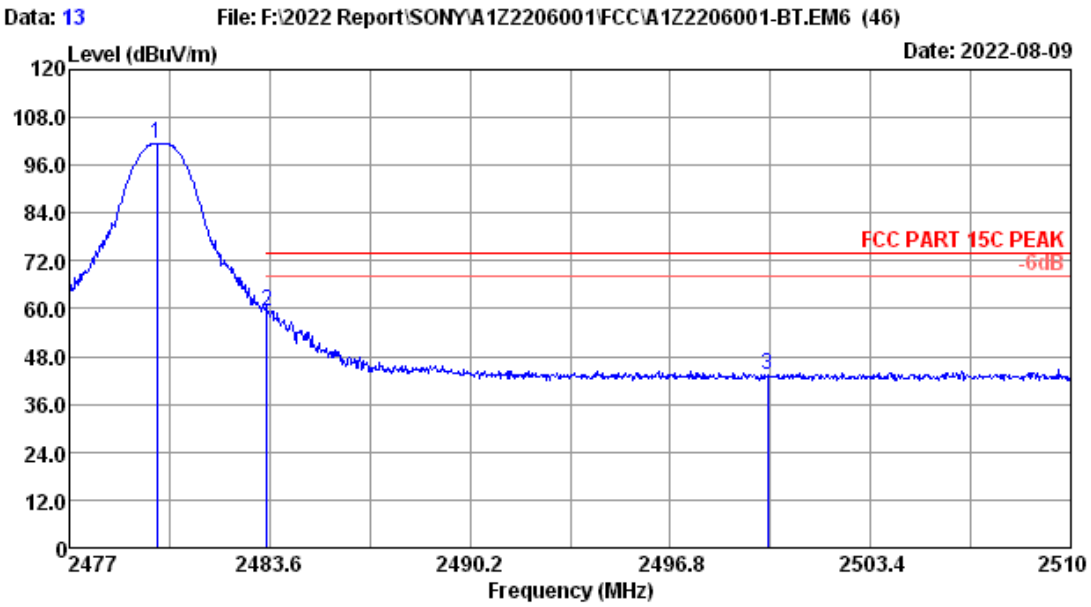
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Data no. : 6
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	47.42	35.24	44.13	74.00	29.87	Peak
2	2402.25	28.30	3.66	108.20	35.24	104.92	------	------	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.

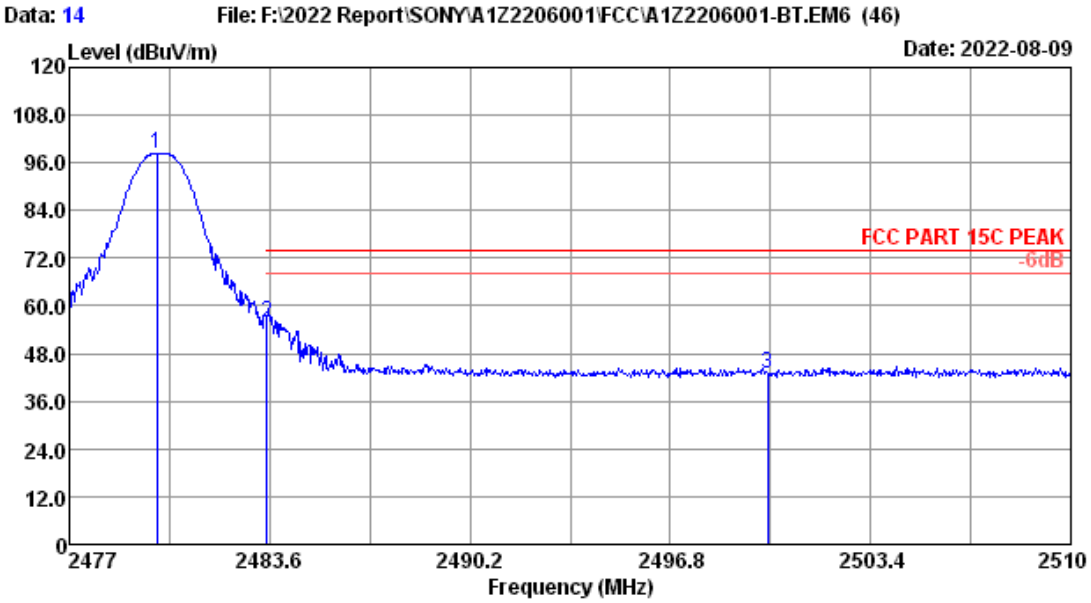


Site no. : 3m Chamber
Data no. : 13
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.87	28.30	3.71	104.82	35.25	101.58	------	------	Peak
2	2483.50	28.30	3.71	62.45	35.25	59.21	74.00	14.79	Peak
3	2500.00	28.30	3.72	46.54	35.25	43.31	74.00	30.69	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.

Frequency（MHz）	Peak level（dBuV/m）	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2483.50	59.21	-24.64	34.570	54	Pass

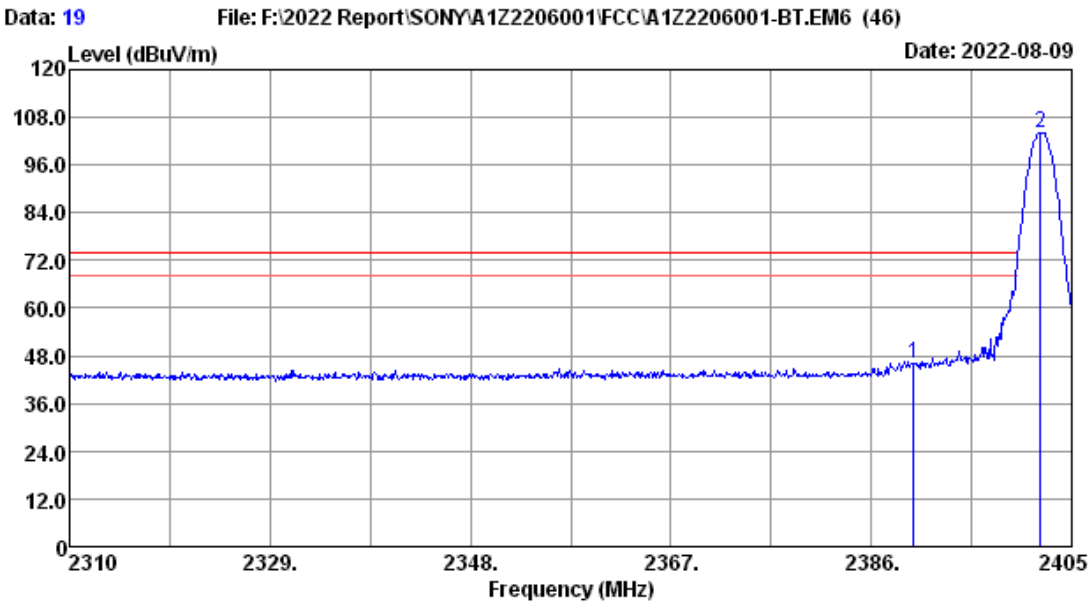


Site no. : 3m Chamber
Data no. : 14
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 GFSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.87	28.30	3.71	101.73	35.25	98.49	------	------	Peak
2	2483.50	28.30	3.71	59.12	35.25	55.88	74.00	18.12	Peak
3	2500.00	28.30	3.72	46.31	35.25	43.08	74.00	30.92	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.

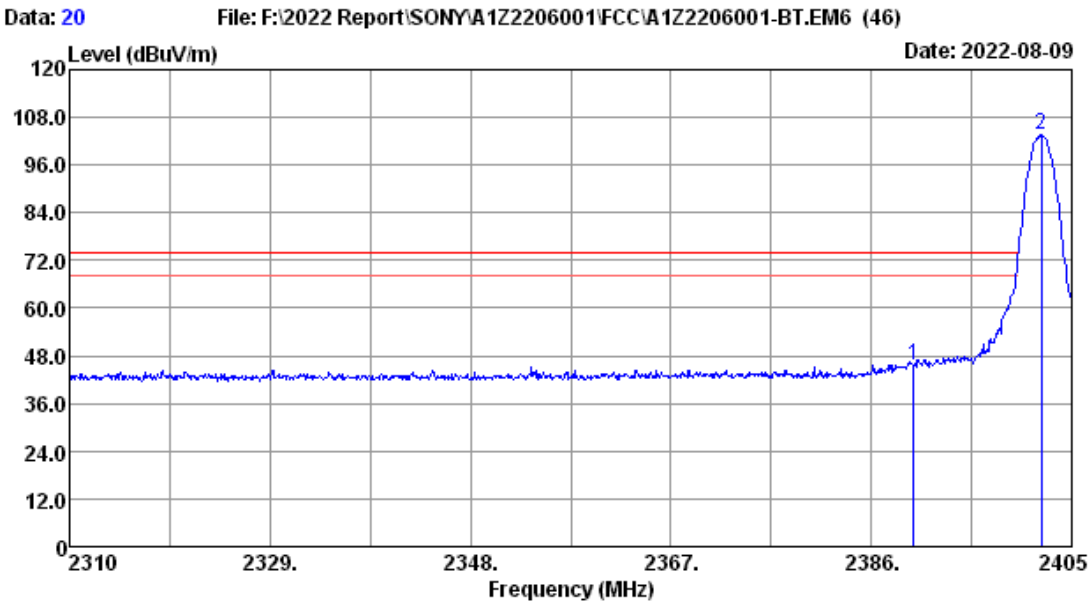
Frequency（MHz）	Peak level（dBuV/m）	Duty cycle factor (dB)	AV level (dBuV/m)	Limit(dBuV/m)	Conclusion
2483.50	55.88	-24.64	31.240	54	Pass



Site no. : 3m Chamber
Data no. : 19
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	49.30	35.24	46.01	74.00	27.99	Peak
2	2402.06	28.30	3.66	107.55	35.24	104.27	------	------	Peak

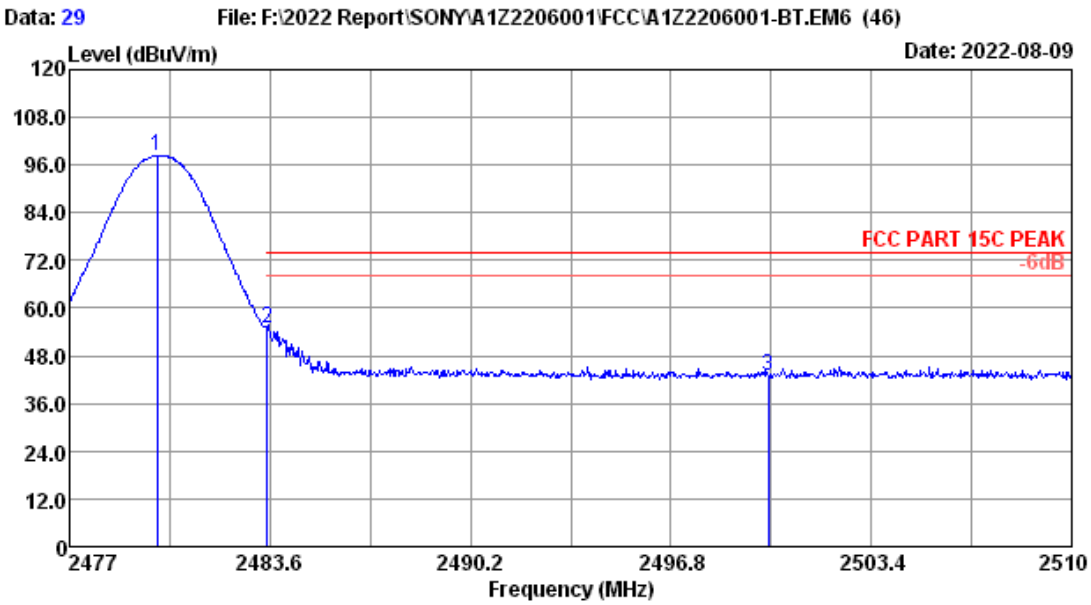
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Data no. : 20
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2402MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2390.00	28.30	3.65	48.96	35.24	45.67	74.00	28.33	Peak
2	2402.15	28.30	3.66	106.74	35.24	103.46	------	------	Peak

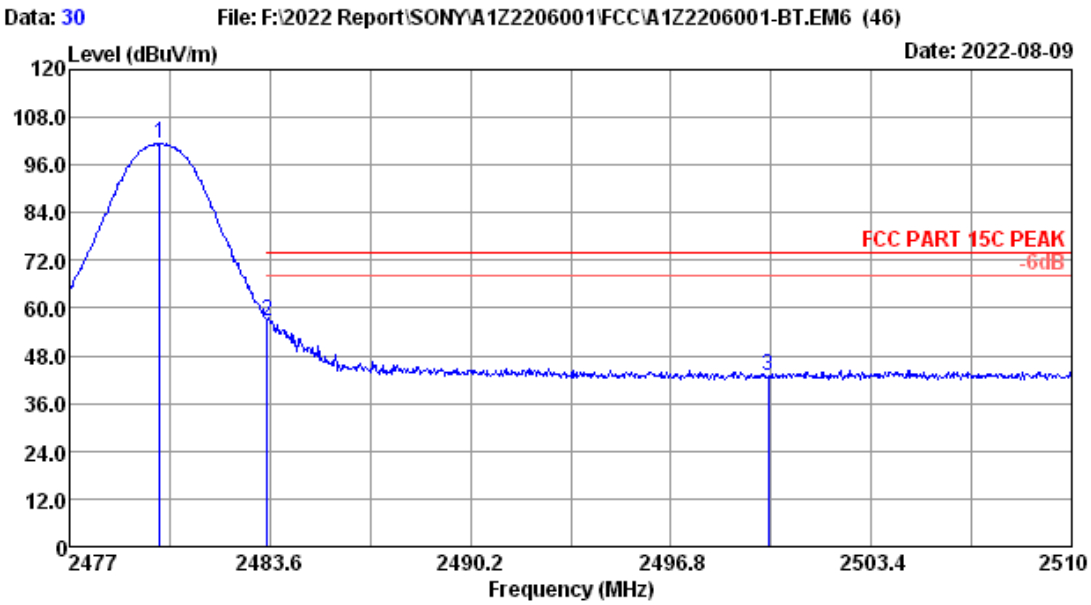
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading -Amp factor.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : 3m Chamber
Data no. : 29
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.87	28.30	3.71	101.59	35.25	98.35	------	------	Peak
2	2483.50	28.30	3.71	58.37	35.25	55.13	74.00	18.87	Peak
3	2500.00	28.30	3.72	46.15	35.25	42.92	74.00	31.08	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. : 30
Dis. / Ant. : 3m 2022 3115-4877
Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23.8*C/53.5%
Engineer : Nier
Test Mode : BT3.0 8DPSK 2480MHz Tx

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2479.97	28.30	3.71	104.58	35.25	101.34	------	------	Peak
2	2483.50	28.30	3.71	59.96	35.25	56.72	74.00	17.28	Peak
3	2500.00	28.30	3.72	46.24	35.25	43.01	74.00	30.99	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.

12. ANTENNA REQUIREMENT

12.1. Standard Applicable

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. And according to FCC 47 CFR Section 15.247 (b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.

12.2. Antenna Connected Construction

The antennas used for this product are External PIFA Antenna that no antenna other than that furnished by the responsible party shall be used with the device, the maximum peak gain of the transmit antenna is -0.3dBi.

13. DEVIATION TO TEST SPECIFICATIONS

[NONE]

THE END