

FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

GT Technology Chongqing Limited

Projector

Model No.: MP250

FCC ID: 2AZ3IMP250

Prepared for : GT Technology Chongqing Limited

Room 3-1, No.20 Qixin Road Yanjia Street Changshou District,
Chongqing, China

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Date of Test : May.08~24, 2021

Date of Report : Jun.25, 2021

TABLE OF CONTENTS

Description	Page
1. SUMMARY OF STANDARDS AND RESULTS.....	5
1.1. Description of Standards and Results	5
2. GENERAL INFORMATION.....	6
2.1. Description of Equipment Under Test	6
2.2. Tested Supporting System Details	8
2.3. Block Diagram of connection between EUT and simulators.....	8
2.4. Test information.....	8
2.5. Test Facility	8
2.6. Measurement Uncertainty (95% confidence levels, k=2).....	9
3. POWER LINE CONDUCTED EMISSION TEST	10
3.1. Test Equipments.....	10
3.2. Block Diagram of Test Setup	10
3.3. Power Line Conducted Emission Test Limits.....	10
3.4. Configuration of EUT on Test	11
3.5. Operating Condition of EUT.....	11
3.6. Test Procedure	11
3.7. Power Line Conducted Emission Test Results	11
4. RADIATED EMISSION MEASUREMENT.....	14
4.1. Test Equipment	14
4.2. Block Diagram of Test Setup.....	15
4.3. Radiated Emission Limit Standard:	16
4.4. EUT Configuration on Test	16
4.5. Operating Condition of EUT.....	16
4.6. Test Procedure	16
4.7. Radiated Emission Test Results.....	17
5. CONDUCTED SPURIOUS EMISSIONS.....	45
5.1. Test Equipment	45
5.2. Block Diagram of Test Setup.....	45
5.3. Limit.....	45
5.4. Test Procedure	45
5.5. Test result.....	45
6. 6dB BANDWIDTH TEST	52
6.1. Test Equipment	52
6.2. Limit.....	52
6.3. Test Procedure	52
6.4. Test Results.....	52
7. MAXIMUM PEAK OUTPUT POWER TEST.....	54
7.1. Test Equipment	54
7.2. Limit.....	54
7.3. Test Procedure	54
7.4. Test Results.....	54
8. BAND EDGE COMPLIANCE TEST	55
8.1. Test Equipment	55
8.2. Limit.....	55
8.3. Test Produce	55
8.4. Test Results	55
9. POWER SPECTRAL DENSITY TEST.....	64

9.1. Test Equipment 64

9.2. Limit..... 64

9.3. Test Procedure 64

9.4. Test Results..... 64

10. ANTENNA REQUIREMENT..... 66

10.1. STANDARD APPLICABLE 66

10.2. ANTENNA CONNECTED CONSTRUCTION..... 66

11. DEVIATION TO TEST SPECIFICATIONS..... 67

Appendix A. Photograph of Test

Appendix B. Photo of the EUT

TEST REPORT

Applicant : GT Technology Chongqing Limited
Manufacturer : GT Technology Chongqing Limited
Product : Projector
FCC ID : 2AZ3IMP250
(A) Model No. : MP250
(B) Test Voltage : AC 120V/60Hz

Tested for comply with:

FCC CFR47 Part 15 Subpart C
Test procedure used: ANSI C63.10: 2013;
KDB 558074 D01v05r01

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. This report 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 : May.08~24, 2021 Report of date: Jun.25, 2021

Prepared by : Monica Liu Reviewed by : Sunny Lu
Monica Liu / Assistant Sunny Lu / Deputy Manager



Approved & Authorized Signer :

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 :2013	PASS
Radiated Emission Test	FCC Part 15: 15.209 FCC Part 15: 15.205 FCC Part 15: 15.247(d) ANSI C63.10 : 2013	PASS
Conducted Spurious Emissions	FCC Part 15: 15.247(d) ANSI C63.10 : 2013	PASS
6dB & 99% Bandwidth Test	FCC Part 15: 15.247(b)(3) ANSI C63.10 : 2013	PASS
Maximum Peak Output Power Test	FCC Part 15: 15.247(d) ANSI C63.10 : 2013	PASS
Band Edge Compliance Test	FCC Part 15: 15.247(e) ANSI C63.10 : 2013	PASS
Power Spectral Density Test	FCC Part 15: 15.207 ANSI C63.10 :2013	PASS

2. GENERAL INFORMATION

2.1. Description of Equipment Under Test

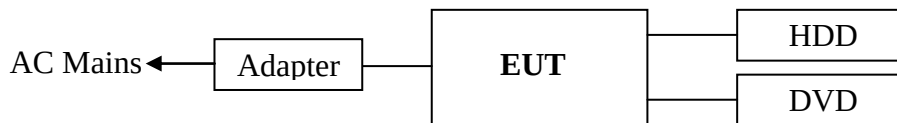
Applicant	GT Technology Chongqing Limited
Applicant Address	Room 3-1, No.20 Qixin Road Yanjia Street Changshou District, Chongqing, China
Manufacturer	GT Technology Chongqing Limited
Manufacturer Address	Room 3-1, No.20 Qixin Road Yanjia Street Changshou District, Chongqing, China
Product	Projector
Model No.	MP250
FCC ID	2AZ3IMP250
Power Adapter	Brand: hp; Model No.:TPN-LA15 Input: AC 100-240V, 1.1A, 50-60Hz DC Output: DC 19.5V, 2.31A, 45W DC Cable: Shielded, Undetachable, 1.75m
Remoter	Model No.: N/A
Sample Type	Prototype production
Date of Receipt	Mar.30, 2021
Date of Test	May.08~24, 2021
Remark: This report only for BLE.	

Product Feature & Specification			
Product	Projector		
Model No.	MP250		
Power Source	☒ Commercial Power	AC 100~240 V	
	☒ External Power Source	DC 19.5V	
	☐ Li-ion Battery	DC V	
	☐ UM battery	DC V	
Bluetooth			
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		
Channel Separation	1MHz/2MHz		
2.4GHz Wi-Fi			
Support Modes	802.11b/g/n20		
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, 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/ac: up to 433Mbps		
Channel Separation	5MHz		
Antenna System			
Type of Antenna	FPC Antenna		
Antenna Peak Gain	Bluetooth Peak Gain: -2.31dBi DTS Band (2400-2483.5MHz) Peak Gain: -2.31dBi. U-NII-1 Band (5150-5250MHz) Peak Gain: 1.81dBi. U-NII-3 Band (5725-5850MHz) Peak Gain: 1.8dBi.		

2.2. Tested Supporting System Details

No.	Description	ACS No.	Manufacturer	Model	Serial Number
1.	HDD	ACS-EMC-HDD02	Terasys	F12-UF	A0100215-5390018
		Data Cable: Shielded, Detachable, 1.8m			
2.	DVD	ACS-EMC-DVD01	DENON	DVD-3910	4098400342E
		Data Cable: Shielded, Detachable, 1.8m			
		Power Cable: Unshielded, Detachable , 1.8m			

2.3. Block Diagram of connection between EUT and simulators



(EUT: Projector)

2.4. Test information

A Special Test Software (V1.25.100-A00) was used to control EUT work in Continuous TX mode (GFSK modulation), and select test channel.

Tested mode, data rate, channel, and Power setting information				
Mode	data rate (Mbps)	Channel	Power setting	Frequency (MHz)
Tx Mode GFSK modulation	1	Low :CH 0	Default	2402
	1	Middle: CH19	Default	2440
	1	High: CH39	Default	2480

2.5. 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. : Accredited by Industry Canada
Registration Number: IC 5183A-1
Valid Date: Mar.31, 2022

: Certificated by FCC, USA
Designation No.: CN5022
Valid Date: Mar.31, 2022

: Accredited by NVLAP, USA
NVLAP Code: 200372-0
Valid Date: Mar.31, 2022

2.6. 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	3.2dB(30~200MHz, Polarization: H)
	3.6dB(30~200MHz, Polarization: V)
	3.4dB(200M~1GHz, Polarization: H)
	3.4dB(200M~1GHz, Polarization: V)
Uncertainty for Radiation Emission test in 3m chamber(1GHz-25GHz)	5.0dB(1~6GHz, Distance: 3m)
	5.2dB(6~25GHz, Distance: 3m)
Uncertainty for Radiated Spurious Emission test	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%

Note: EMI uncertainty is evaluated by CISPR16-4-2.

The value of measurement uncertainty of EMI is less than U_{CISPR} .

The value is not calculated in the test results.

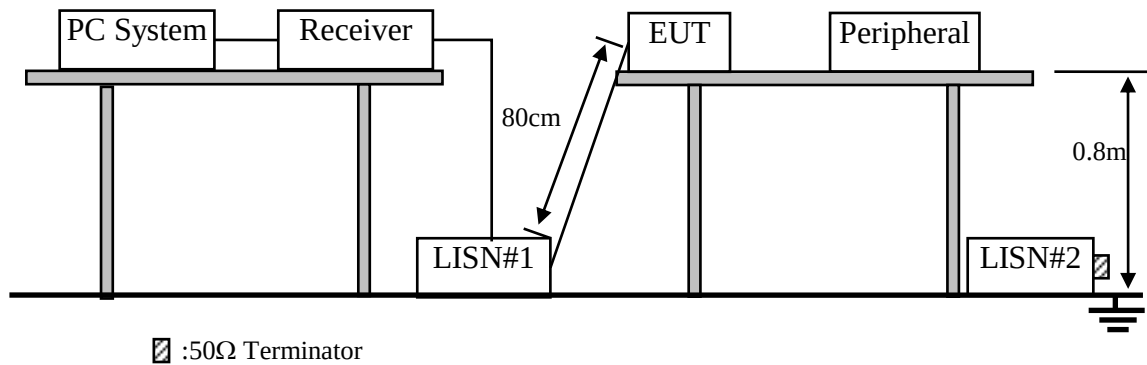
3. POWER LINE CONDUCTED EMISSION TEST

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	3 Year
2.	EMI Test Receiver	Rohde & Schwarz	ESCI	100842	Apr.07,21	1 Year
3.	L.I.S.N.#1	Rohde & Schwarz	ENV216	102160	Oct.11,20	1 Year
4.	L.I.S.N.#2	Kyoritsu	KNW-407	8-1636-1	Apr.06,21	1 Year
5.	Terminator	Hubersuhner	50Ω	No.1	Apr.06,21	1 Year
6.	Terminator	Hubersuhner	50Ω	No.2	Apr.06,21	1 Year
7.	RF Cable	EMCI	EMCCFD300-B M-NM-2000	190422	Apr.08,21	1 Year
8.	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 limit 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.Projector (EUT)

Model Number : MP250

Serial Number : N/A

3.4.2.Support Equipment: As Tested Supporting System Details, in Section 2.2.

3.5.Operating Condition of EUT

3.5.1.Setup the EUT and simulator as shown as Section 3.2.

3.5.2.Turn on the power of all equipments.

3.5.3.PC run test software to control EUT work in Tx mode.

3.6.Test Procedure

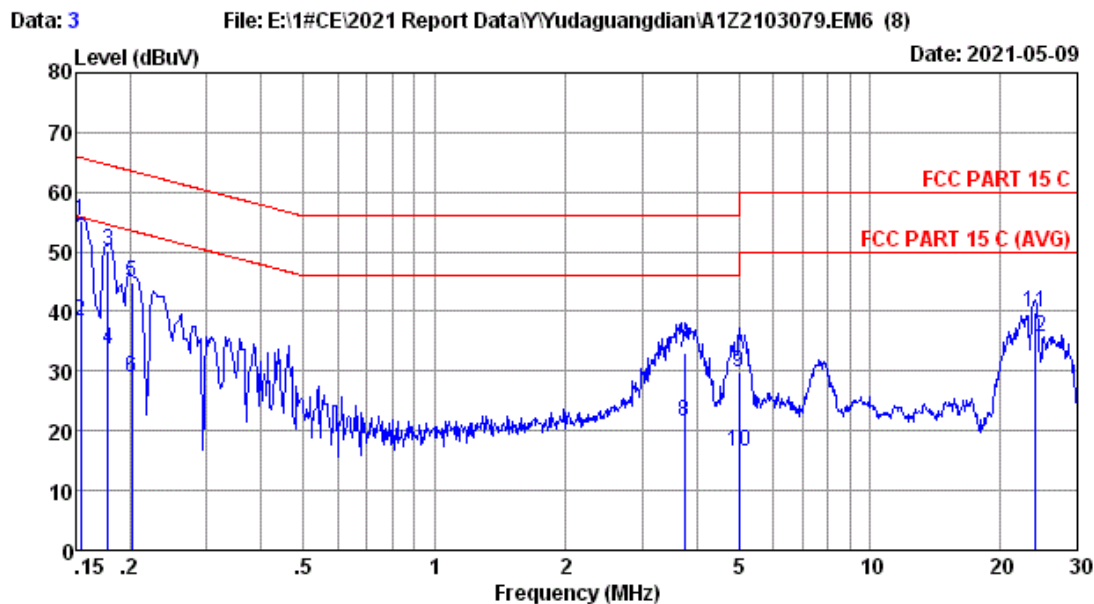
The EUT was placed on a non-metallic table, 80cm above the ground plane. The EUT Power Via AC unit connected to the power mains through a line impedance stabilization network (L.I.S.N. 1#). This provides a 50 ohm coupling impedance for the EUT (Please refer the block diagram of the test setup and photographs). 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: 2013 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

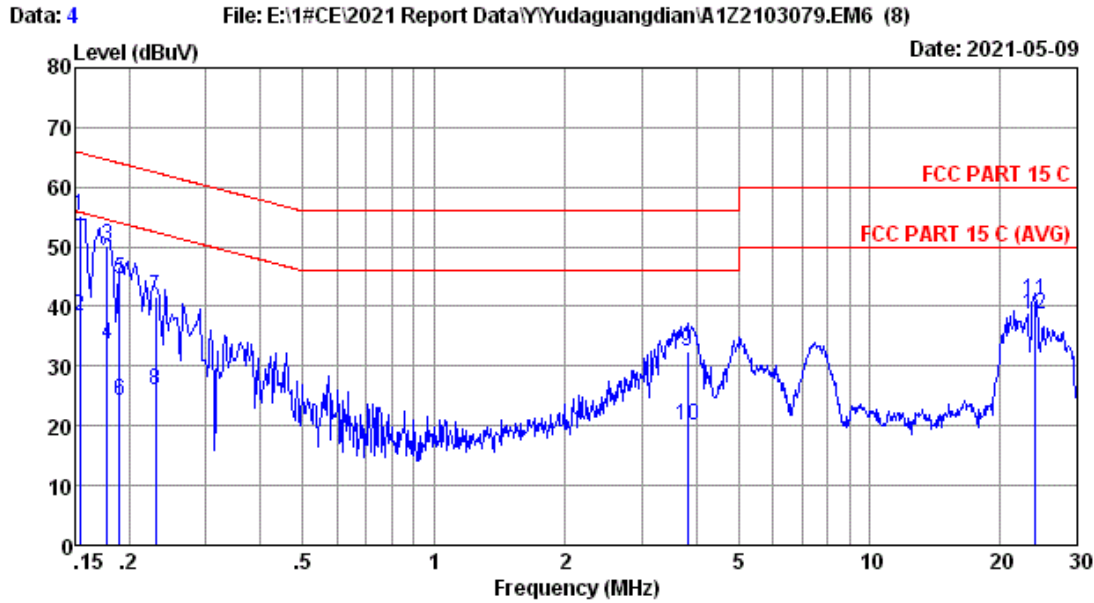
PASS. (All emissions not reported below are too low against the prescribed limits.)



Site no :1# Conduction Data No :3
 Dis./Lisn :2020 ENV216-L LISN phase:
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23.7°C Humi:52% Engineer :Evan
 Test Mode :BLE TX

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.154	9.70	0.01	45.50	55.21	65.78	10.57	QP
2	0.154	9.70	0.01	28.80	38.51	55.78	17.27	Average
3	0.178	9.70	0.01	40.60	50.31	64.58	14.27	QP
4	0.178	9.70	0.01	24.00	33.71	54.58	20.87	Average
5	0.202	9.70	0.01	35.30	45.01	63.53	18.52	QP
6	0.202	9.70	0.01	19.30	29.01	53.53	24.52	Average
7	3.754	9.70	0.04	23.30	33.04	56.00	22.96	QP
8	3.754	9.70	0.04	11.80	21.54	46.00	24.46	Average
9	5.010	9.70	0.04	20.10	29.84	60.00	30.16	QP
10	5.010	9.70	0.04	6.80	16.54	50.00	33.46	Average
11	24.038	9.90	0.11	29.90	39.91	60.00	20.09	QP
12	24.038	9.90	0.11	25.70	35.71	50.00	14.29	Average

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 Data No :4
 Dis./Lisn :2020 ENV216-N LISN phase:
 Limit :FCC PART 15 C
 Env./Ins. :Temp:23.7°C Humi:52% Engineer :Evan
 Test Mode :BLE TX

No	Freq (MHz)	LISN Factor (dB)	Cable loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.154	9.70	0.01	45.40	55.11	65.78	10.67	QP
2	0.154	9.70	0.01	28.60	38.31	55.78	17.47	Average
3	0.178	9.70	0.01	40.40	50.11	64.58	14.47	QP
4	0.178	9.70	0.01	23.80	33.51	54.58	21.07	Average
5	0.190	9.70	0.01	35.00	44.71	64.04	19.33	QP
6	0.190	9.70	0.01	14.50	24.21	54.04	29.83	Average
7	0.230	9.70	0.01	31.90	41.61	62.45	20.84	QP
8	0.230	9.70	0.01	16.20	25.91	52.45	26.54	Average
9	3.818	9.70	0.04	22.60	32.34	56.00	23.66	QP
10	3.818	9.70	0.04	10.30	20.04	46.00	25.96	Average
11	23.886	9.90	0.11	31.00	41.01	60.00	18.99	QP
12	23.886	9.90	0.11	28.60	38.61	50.00	11.39	Average

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 Equipment

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.03,20	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	May.17,18	3 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	104050	Apr.07,21	1 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESR7	101547	Apr.07,21	1 Year
5.	Amplifier	HP	8447D	2648A04738	Apr.08,21	1 Year
6.	Tri-log-Broadband Antenna	SCHWARZBECK	VULB 9168	710	Oct.19,20	1 Year
7.	Loop Antenna	Chase	HLA6120	1062	Apr.11,21	1 Year
8.	NSA Cable	HUBER+SUHNER	CFD400NL-LW	No.3	Oct.11,20	1 Year
9.	Coaxial Switch	Anritsu	MP59B	6201397223	Apr.07,21	1 Year
10.	Test Software	AUDIX	e3	6.2009-5-21a(n)	N/A	N/A

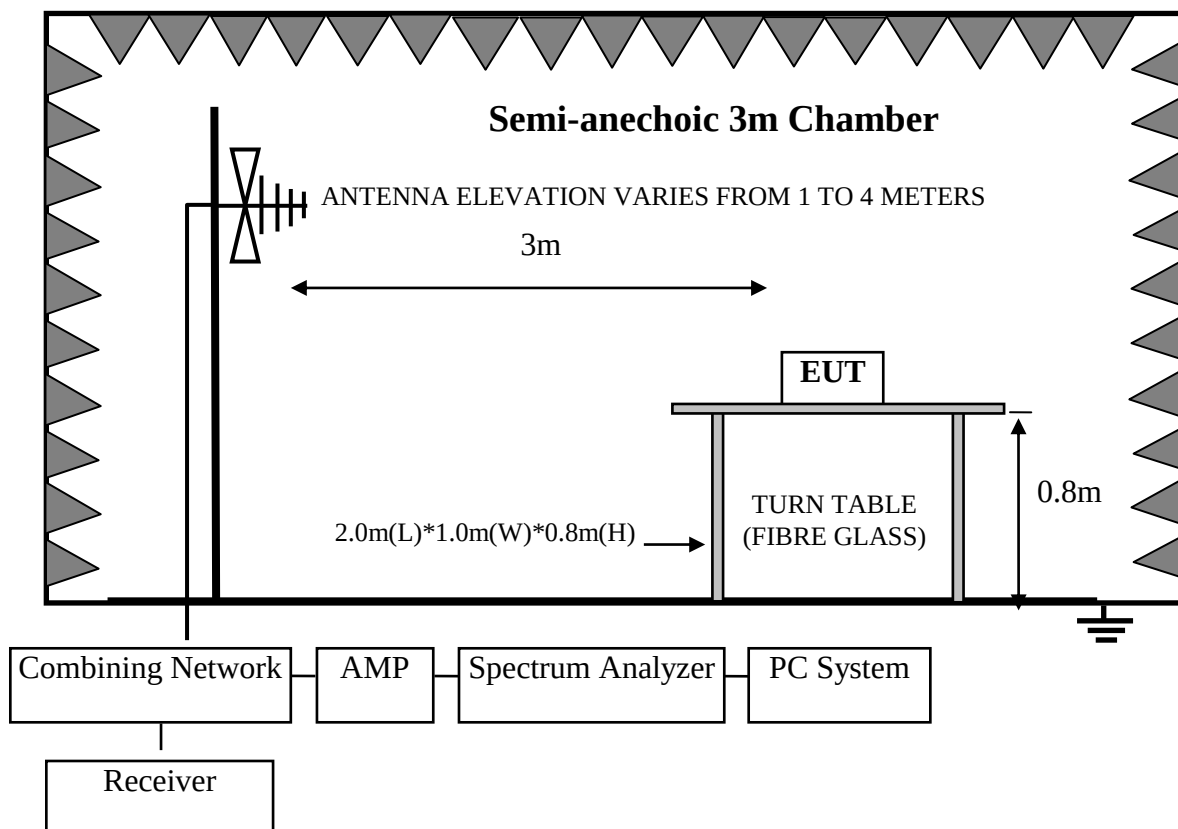
Note: N/A means Not applicable.

Frequency range: above 1000MHz

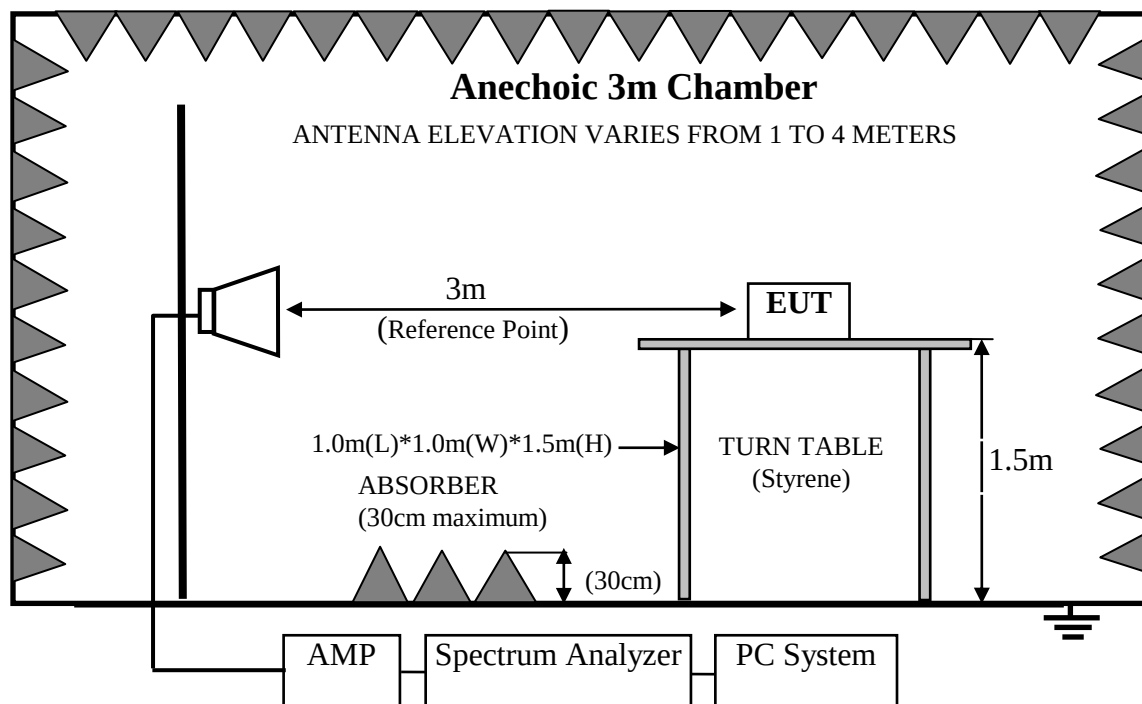
Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	3#Chamber(Svswr)	AUDIX	N/A	N/A	Apr.15,21	1 Year
2.	3#Chamber(SE)	AUDIX	N/A	N/A	Apr.16,19	3 Year
3.	Signal Analyzer	Rohde & Schwarz	FSV30	104051	Apr.06,21	1 Year
4.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
5.	Horn Antenna	ETC	MCTD 1209	DRH15F03006	Jul.30,20	1 Year
6.	Horn Antenna	ETS	3116	00060089	Dec.09,20	1 Year
7.	Amplifier	HP	8449B	3008A02495	Apr.07,21	1 Year
8.	Amplifier	EMCI	EMC184040SE	980507	Apr.08,21	1 Year
9.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year
10.	Test Software	AUDIX	e3	6.100913a	N/A	N/A

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 Limit Standard:

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
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 $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V/m}$

(2) The smaller limit 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. Projector (EUT)

Model Number : MP250

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 C63.10-2013 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 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 C63.10-2013 on radiated emission Test.

This test was performed with EUT in X, Y, Z position, and the worse case was found when EUT in X position as the test photo indicated.

The bandwidth of the EMI test receiver (R&S 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

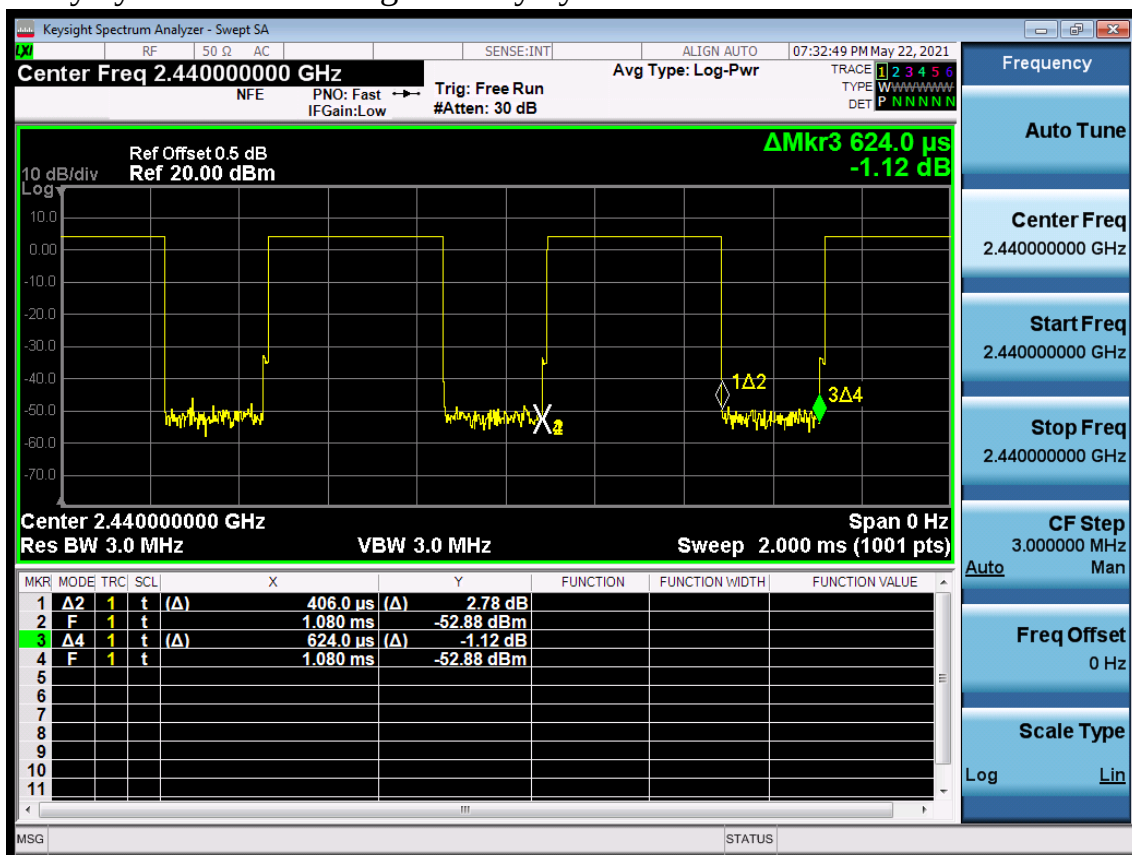
PASS.

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

Note: The duty cycle factor for calculate average level is 3.73dB for BLE(1Mbps) and 9.24dB for BLE(2Mbps), 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.

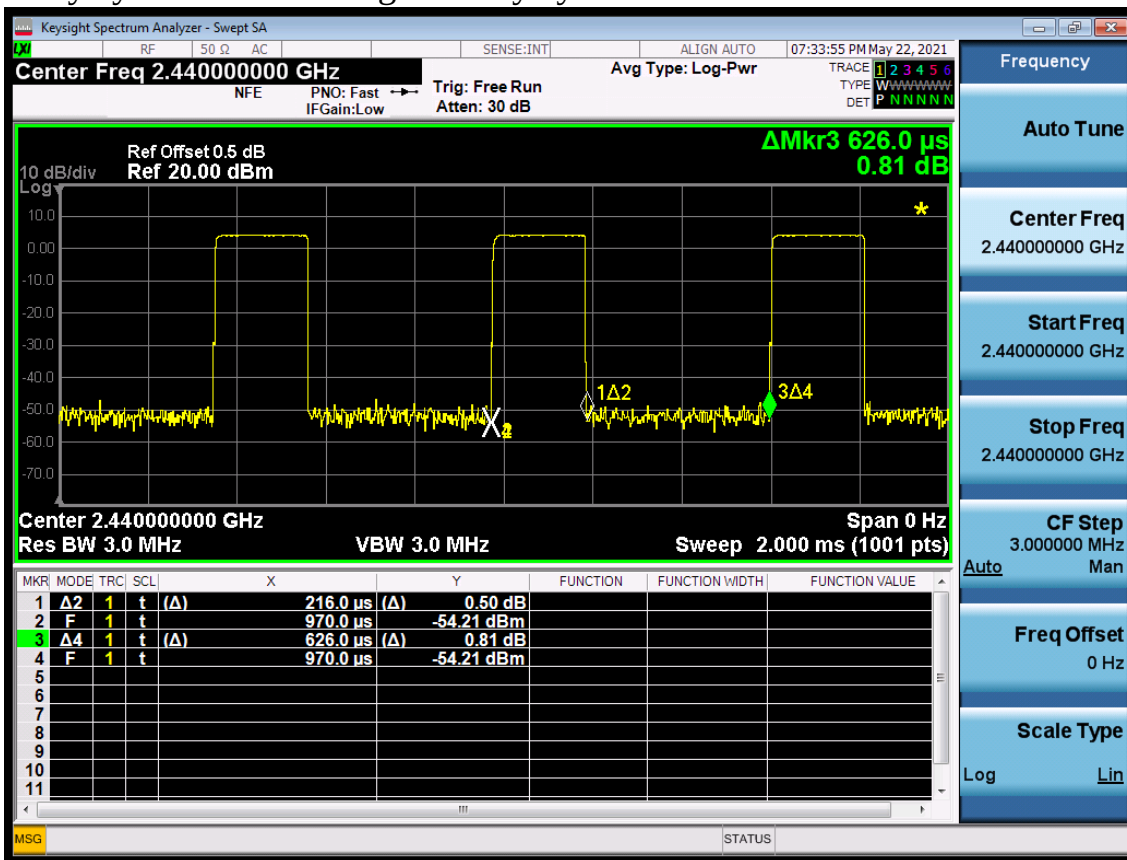
BLE(1Mbps)

Duty cycle factor = $20\log(1/\text{duty cycle}) = 3.73\text{dB}$

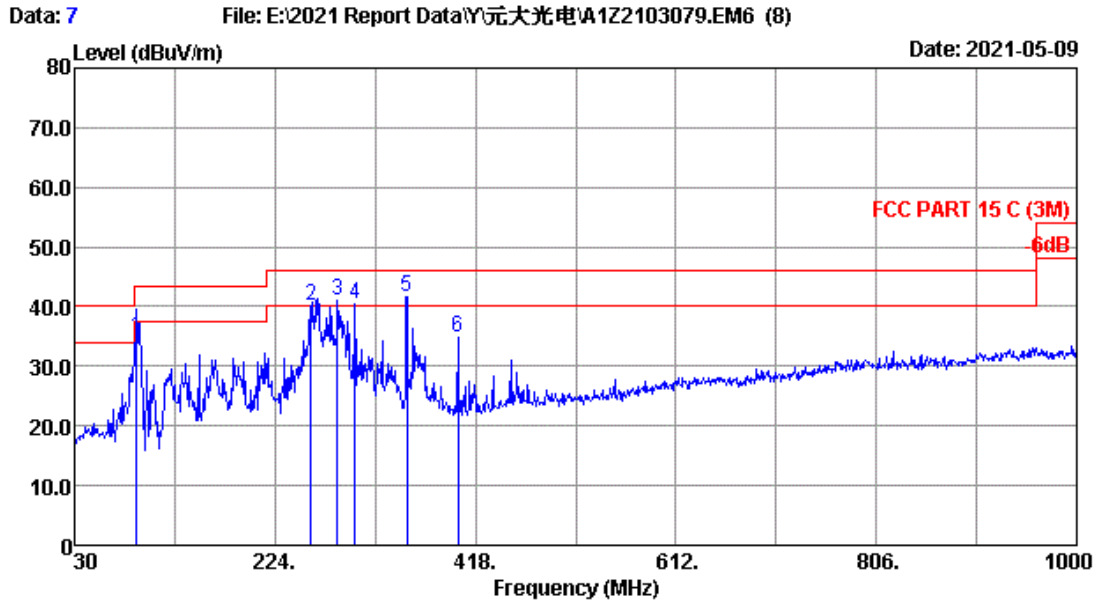


BLE(2Mbps)

Duty cycle factor = $20\log (1/\text{duty cycle}) = 9.24\text{dB}$



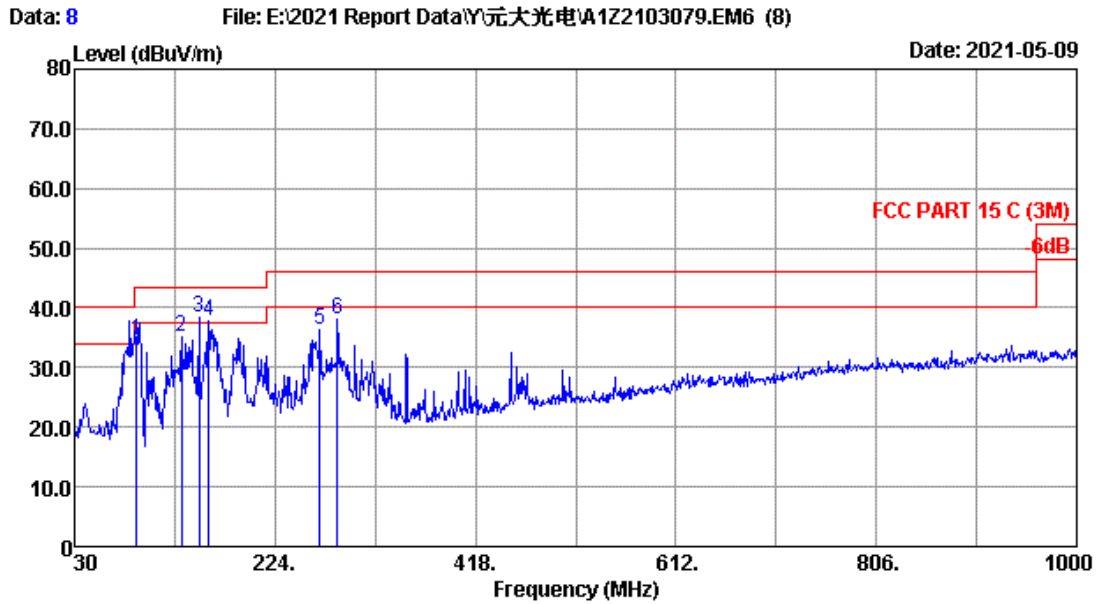
Frequency: 30MHz~1GHz



Site no. : 3m Chamber Data no. : 7
 Dis. / Ant. : 3m 2020 VULB9168-710 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 23.6°C/54% Engineer : Hogrn
 Test Mode : BLE TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	90.460	13.30	0.93	20.70	34.93	43.50	8.57	QP
2	258.920	17.60	1.61	20.99	40.20	46.00	5.80	QP
3	284.140	18.68	1.69	20.72	41.09	46.00	4.91	QP
4	301.600	19.10	1.75	19.67	40.52	46.00	5.48	QP
5	352.040	20.02	1.89	19.72	41.63	46.00	4.37	QP
6	401.510	21.13	2.04	11.57	34.74	46.00	11.26	QP

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



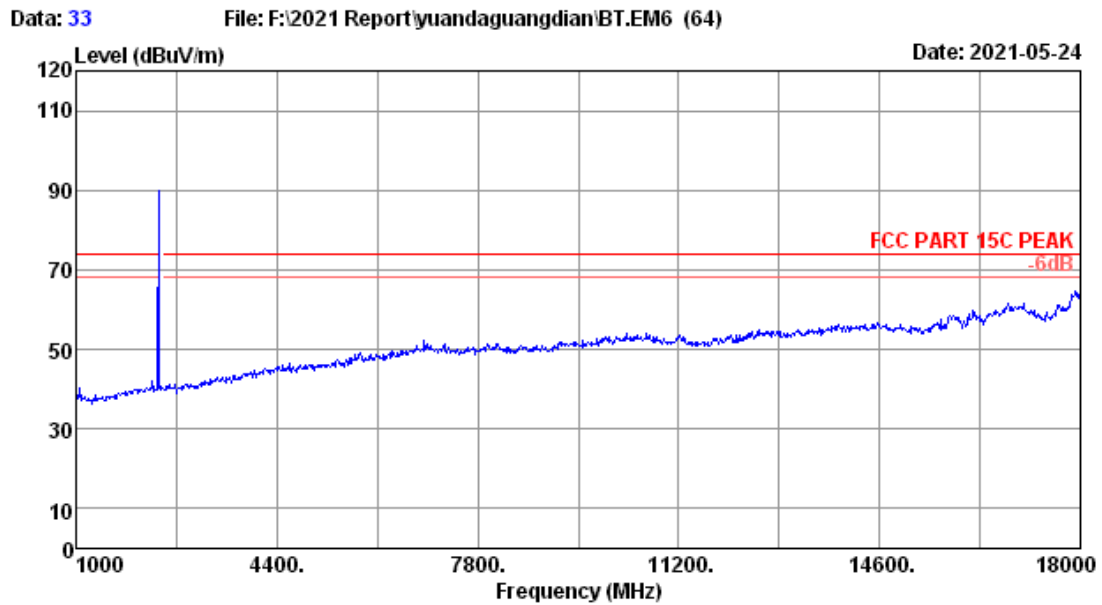
Site no. : 3m Chamber Data no. : 8
 Dis. / Ant. : 3m 2020 VULB9168-710 Ant. pol. : VERTICAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 23.6°C/54% Engineer : Hognrn
 Test Mode : BLE TX

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	90.453	13.30	0.93	20.30	34.53	43.50	8.97	QP
2	133.790	18.10	1.16	15.76	35.02	43.50	8.48	QP
3	150.280	19.20	1.23	17.88	38.31	43.50	5.19	QP
4	159.980	19.20	1.28	17.19	37.67	43.50	5.83	QP
5	267.650	18.06	1.63	16.48	36.17	46.00	9.83	QP
6	284.140	18.68	1.69	17.62	37.99	46.00	8.01	QP

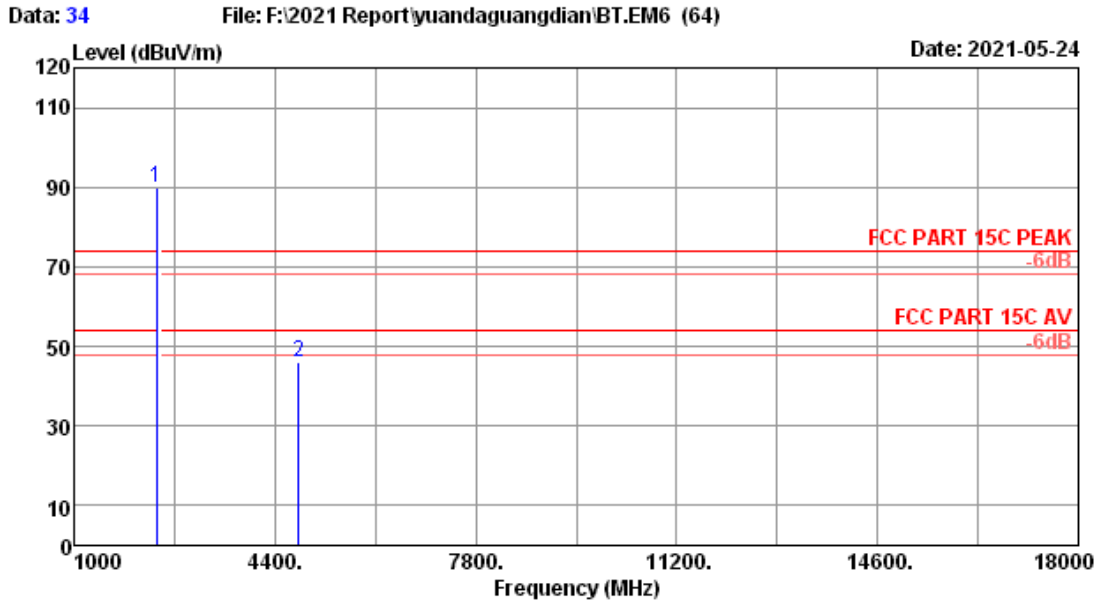
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.
 2. The emission levels that are 20dB below the official limit are not reported.

Frequency: 1GHz~18GHz

BLE(1Mbps)



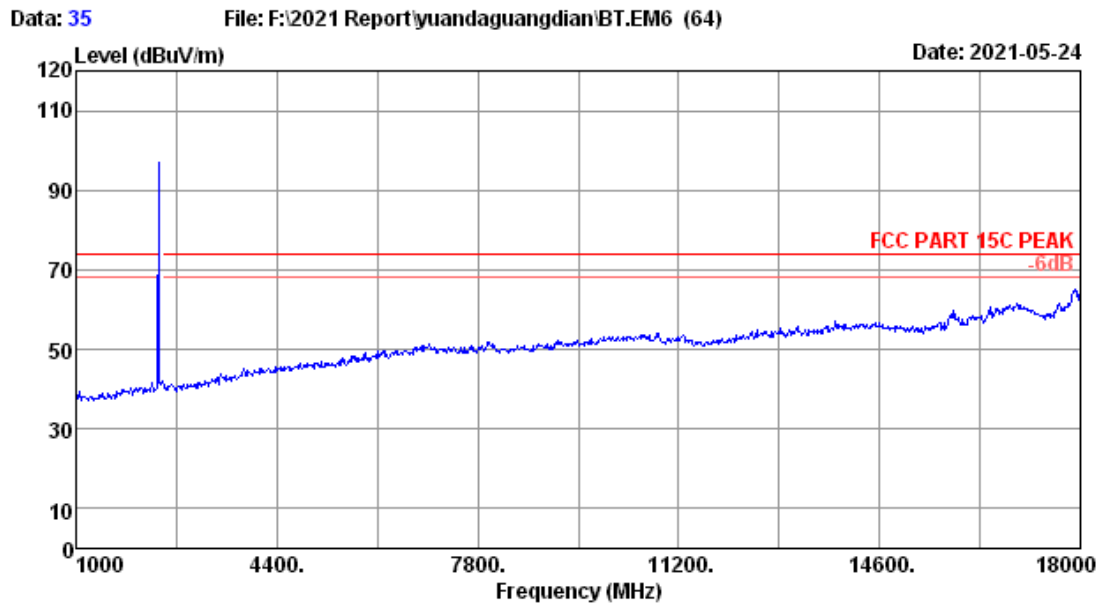
Site no.	: 3m Chamber	Data no.	: 33
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT4.0 2402MHz Tx		



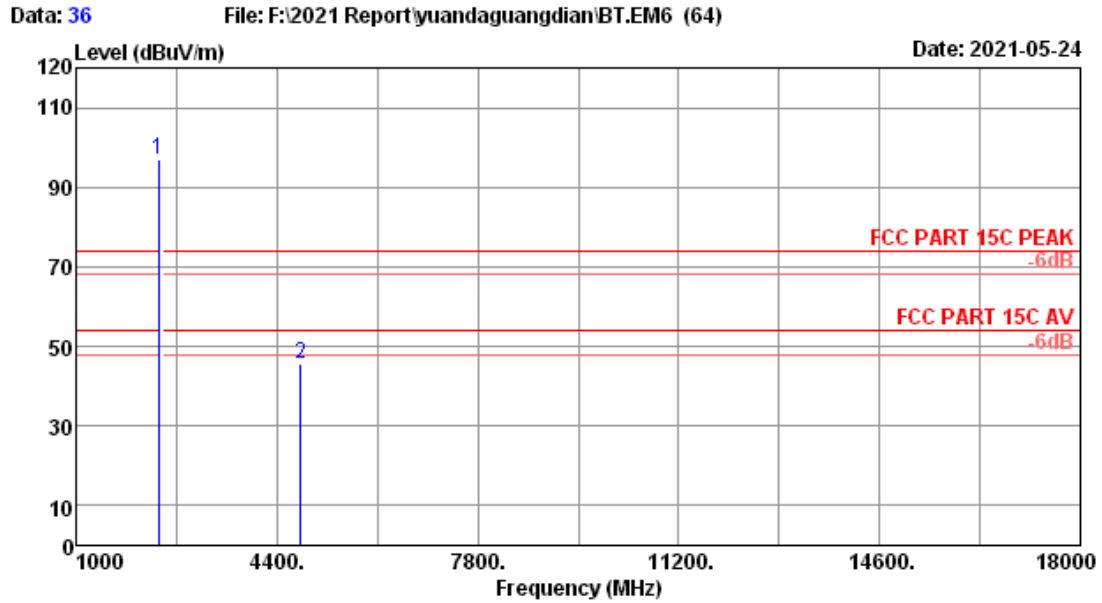
Site no. : 3m Chamber Data no. : 34
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 2402MHz Tx

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	28.01	0.92	96.30	35.24	89.99	74.00	15.99	Peak
2	4804.00	32.61	1.38	46.31	34.46	45.84	50.00	28.16	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.



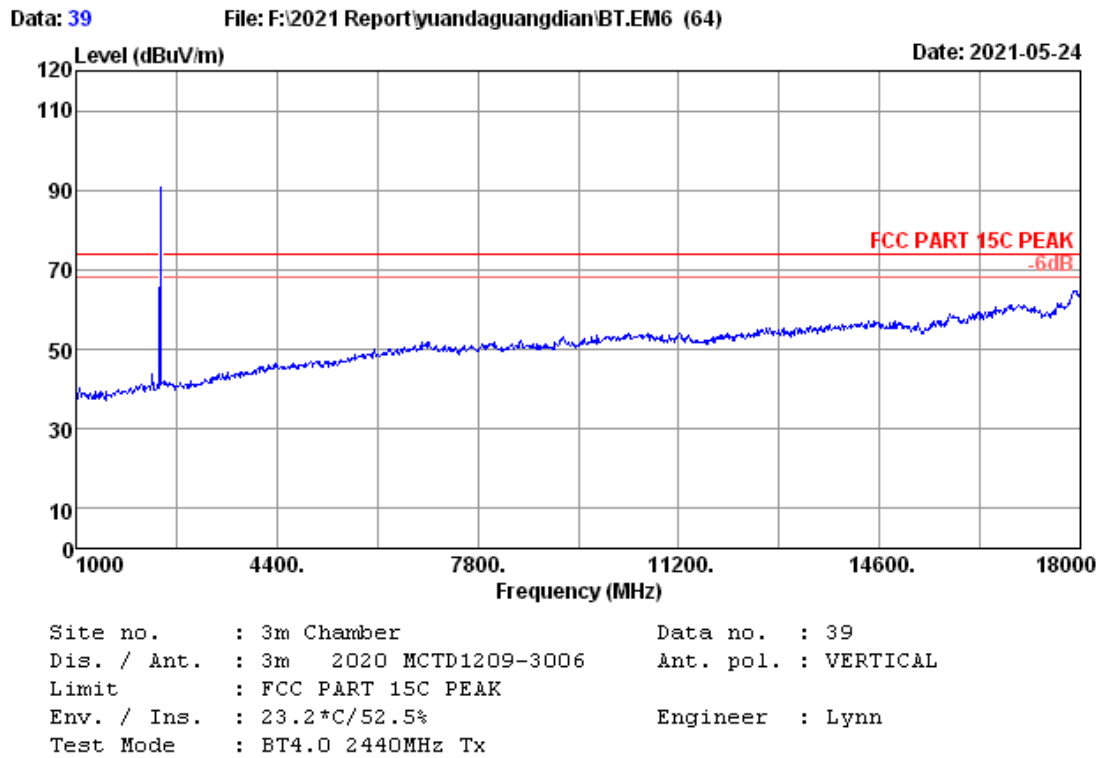
Site no.	: 3m Chamber	Data no.	: 35
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT4.0 2402MHz Tx		

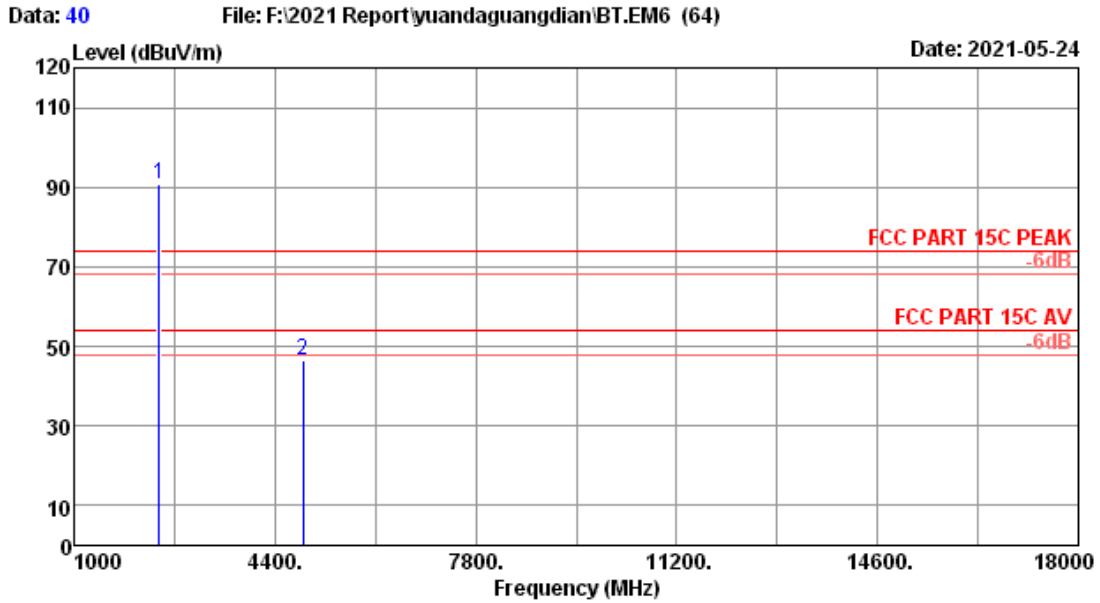


Site no. : 3m Chamber Data no. : 36
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 2402MHz Tx

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	28.01	0.92	103.24	35.24	96.93	74.00	22.93	Peak
2	4804.00	32.61	1.38	45.96	34.46	45.49	50.00	28.51	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.

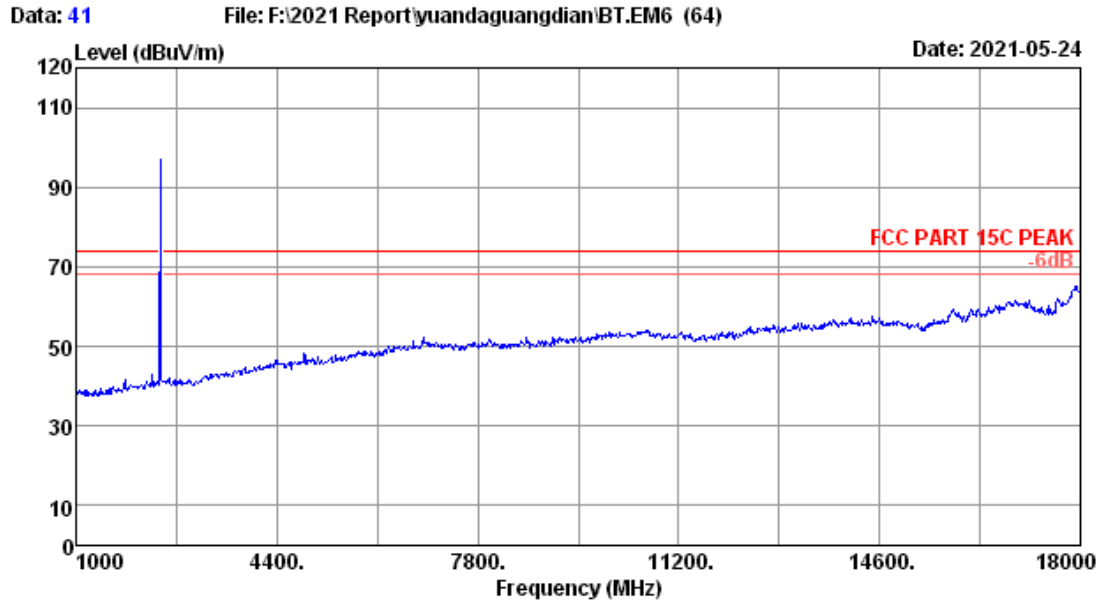




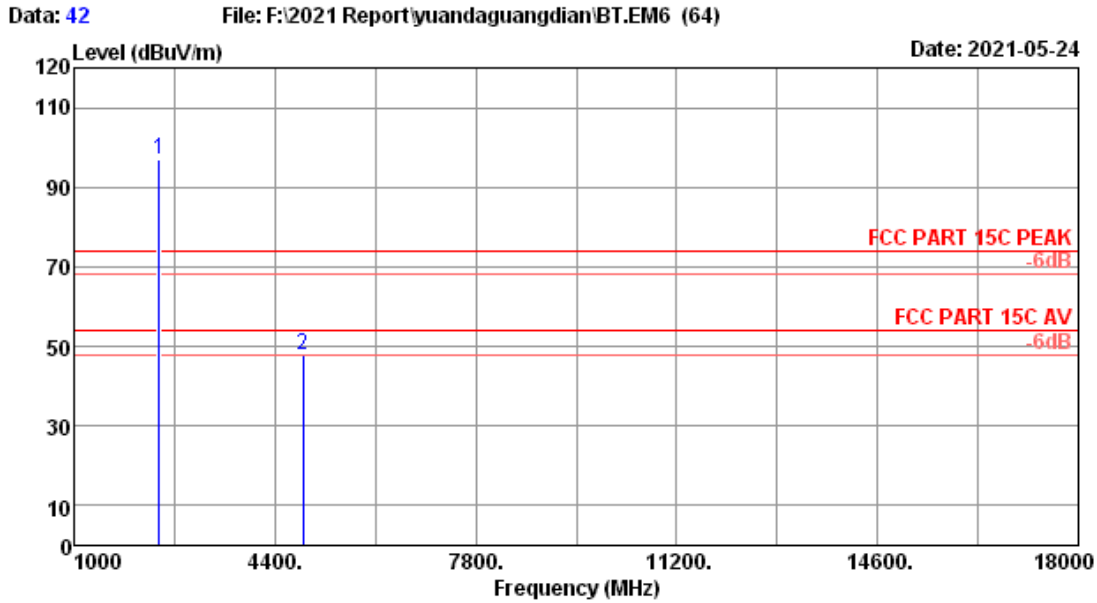
Site no. : 3m Chamber Data no. : 40
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 2440MHz Tx

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	2440.00	28.11	0.93	97.16	35.24	90.96	74.00	16.96	Peak
2	4880.00	32.68	1.39	46.79	34.47	46.39	50.00	27.61	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.



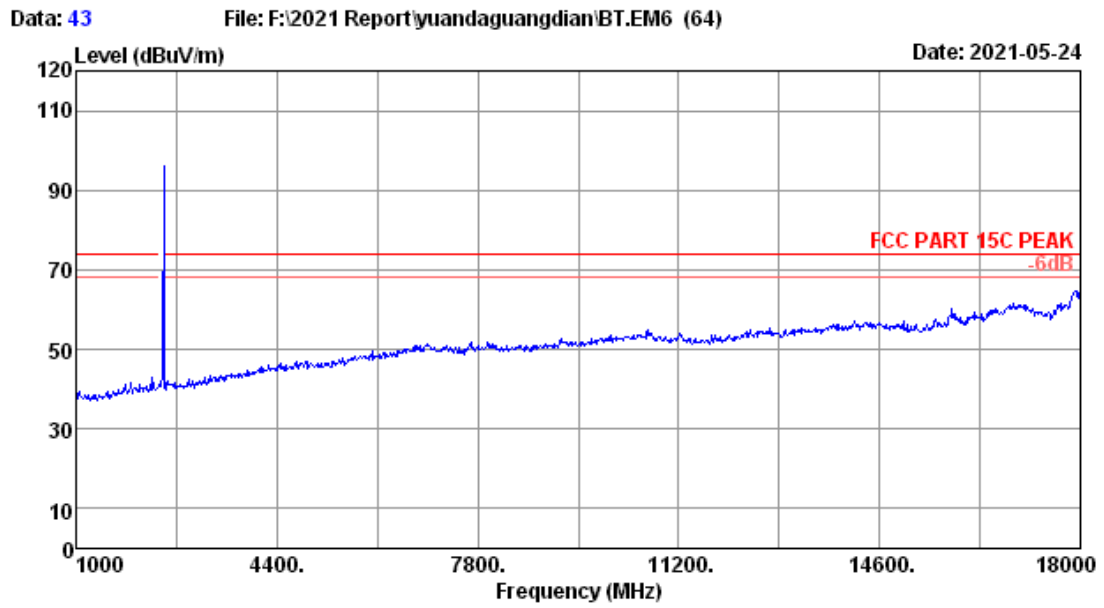
Site no.	: 3m Chamber	Data no.	: 41
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT4.0 2440MHz Tx		



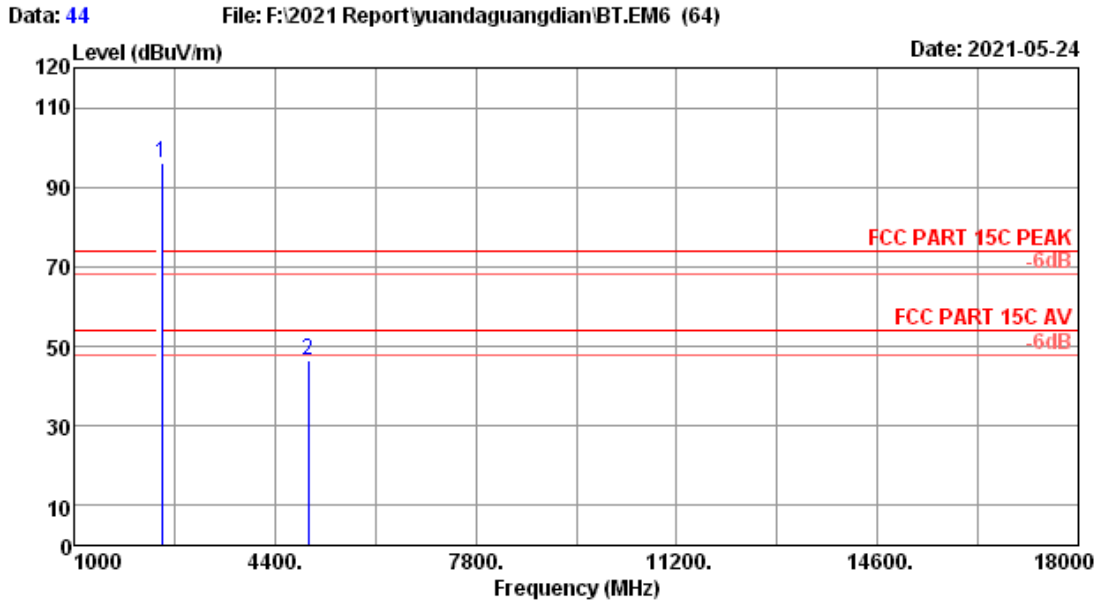
Site no. : 3m Chamber Data no. : 42
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 2440MHz Tx

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	2440.00	28.11	0.93	103.16	35.24	96.96	-----	-----	Peak
2	4880.00	32.68	1.39	48.32	34.47	47.92	74.00	26.08	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.



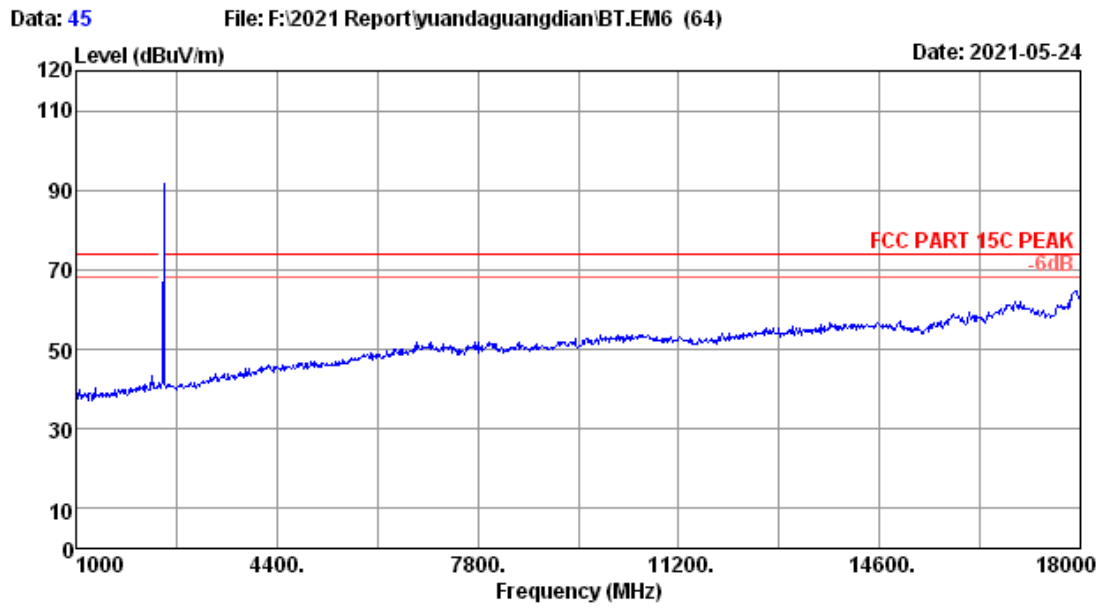
Site no.	: 3m Chamber	Data no.	: 43
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT4.0 2480MHz Tx		



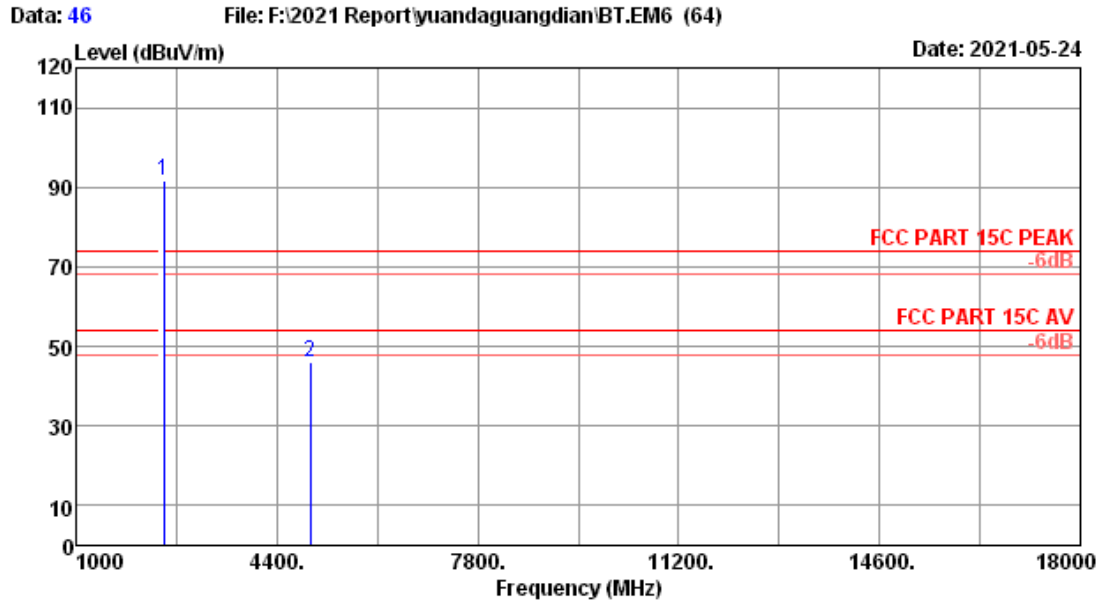
Site no. : 3m Chamber Data no. : 44
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 2480MHz Tx

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	28.17	0.94	102.11	35.25	95.97	74.00	21.97	Peak
2	4960.00	32.77	1.39	46.75	34.49	46.42	50.00	27.58	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.



Site no.	: 3m Chamber	Data no.	: 45
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT4.0 2480MHz Tx		

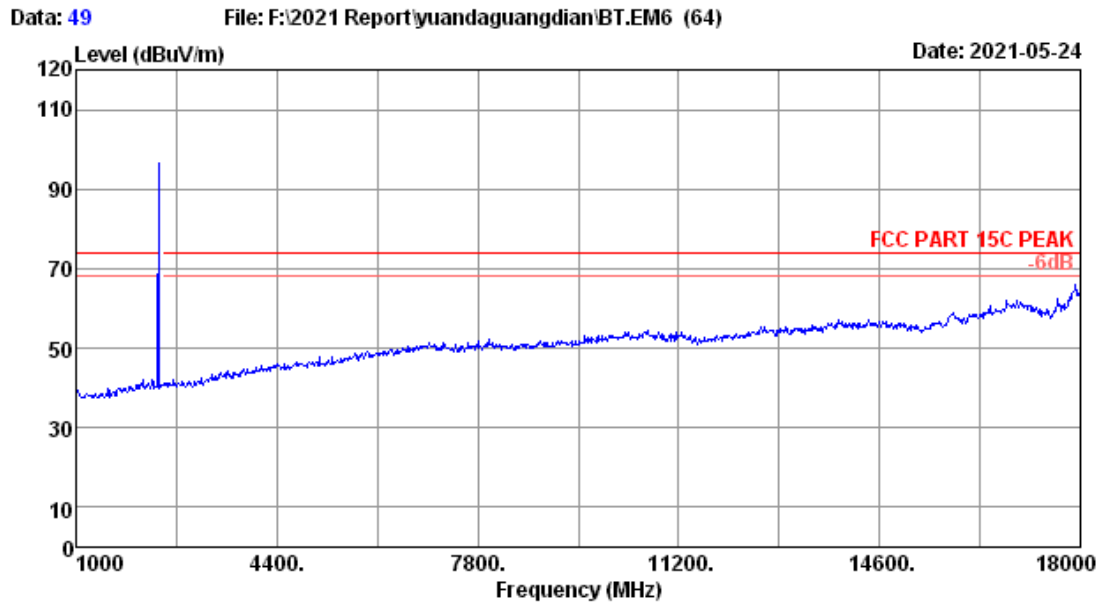


Site no. : 3m Chamber Data no. : 46
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 2480MHz Tx

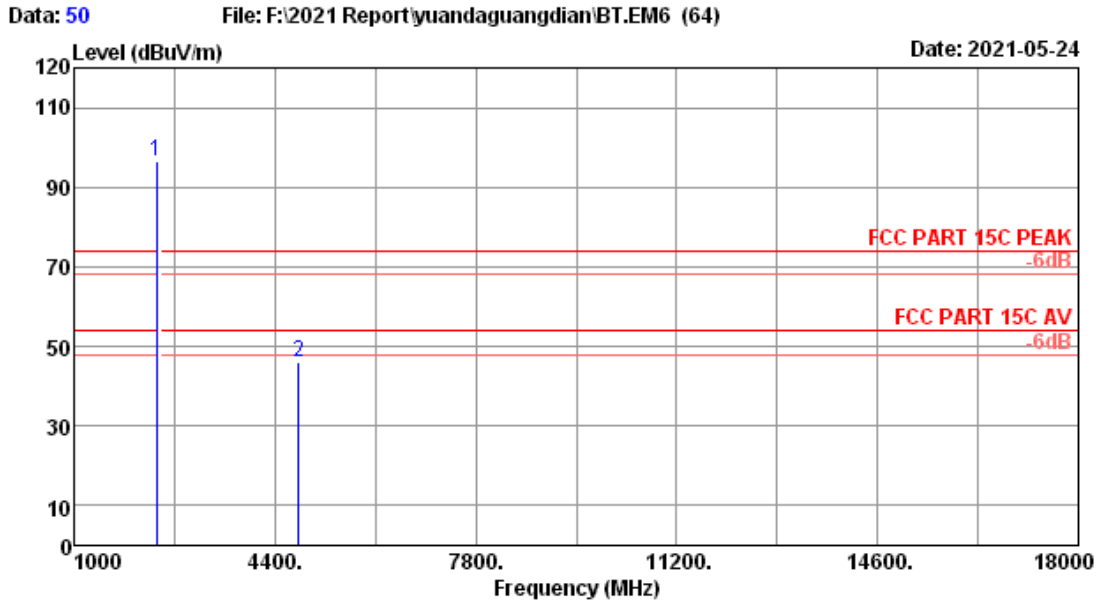
No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Amp factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	2480.00	28.17	0.94	97.94	35.25	91.80	74.00	17.80	Peak
2	4960.00	32.77	1.39	46.47	34.49	46.14	50.00	27.86	Peak

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)



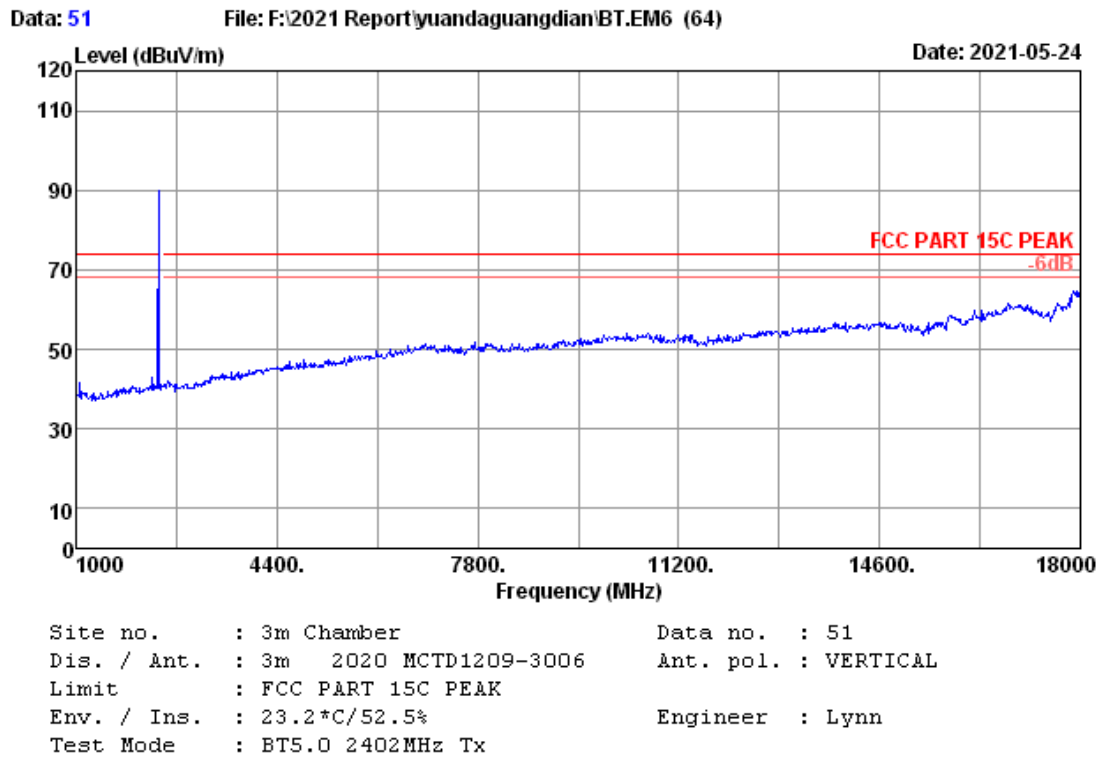
Site no.	: 3m Chamber	Data no.	: 49
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT5.0 2402MHz Tx		

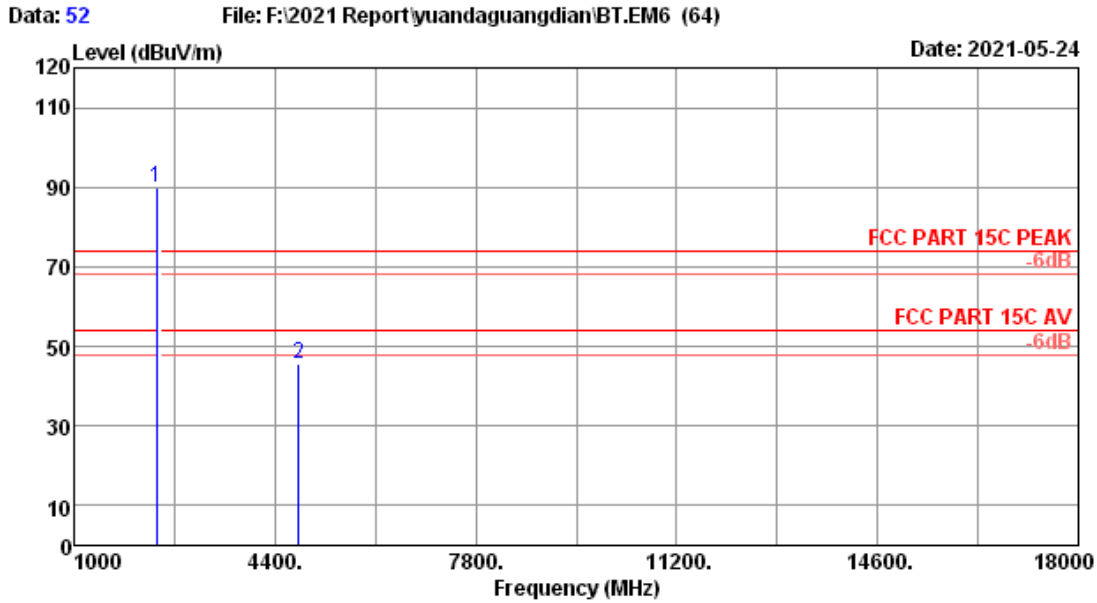


Site no. : 3m Chamber Data no. : 50
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 2402MHz Tx

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	28.01	0.92	102.98	35.24	96.67	74.00	22.67	Peak
2	4804.00	32.61	1.38	46.34	34.46	45.87	50.00	-4.13	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.

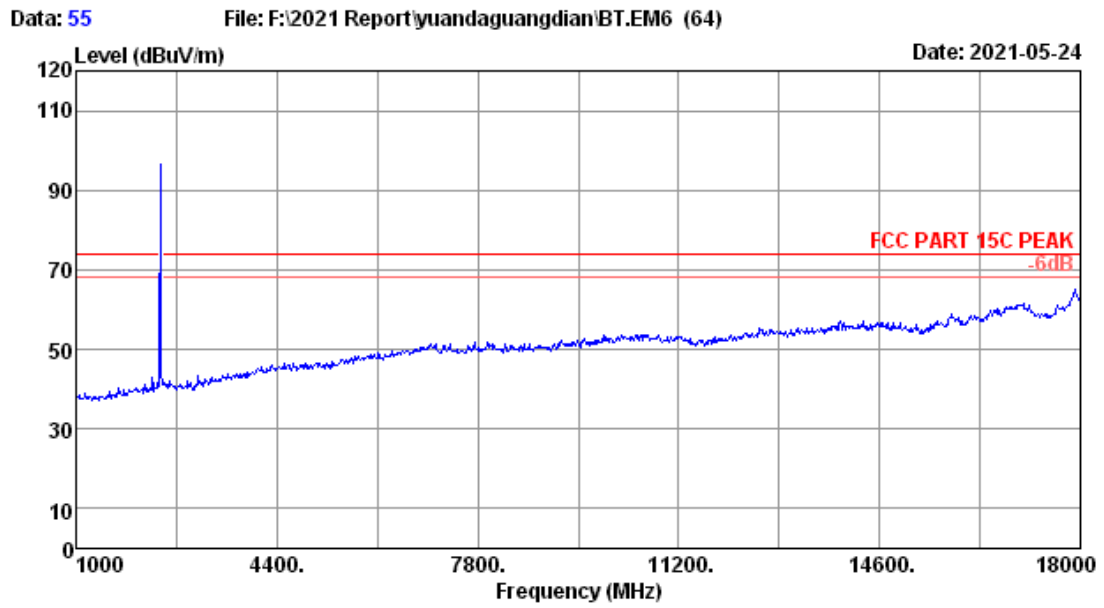




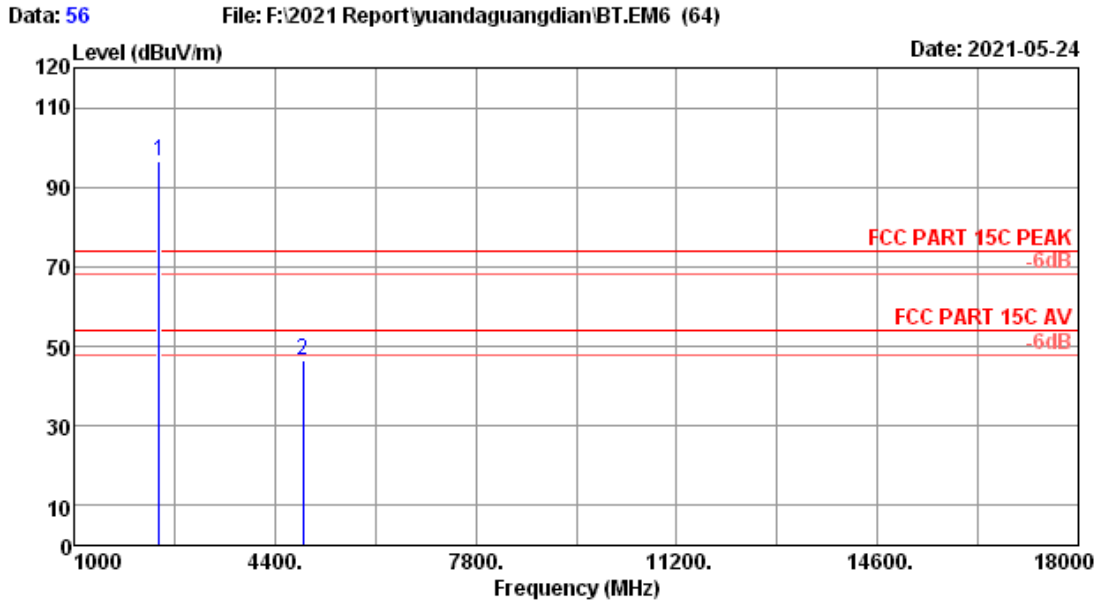
Site no. : 3m Chamber Data no. : 52
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 2402MHz Tx

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	28.01	0.92	96.08	35.24	89.77	74.00	15.77	Peak
2	4804.00	32.61	1.38	46.18	34.46	45.71	50.00	-4.29	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.



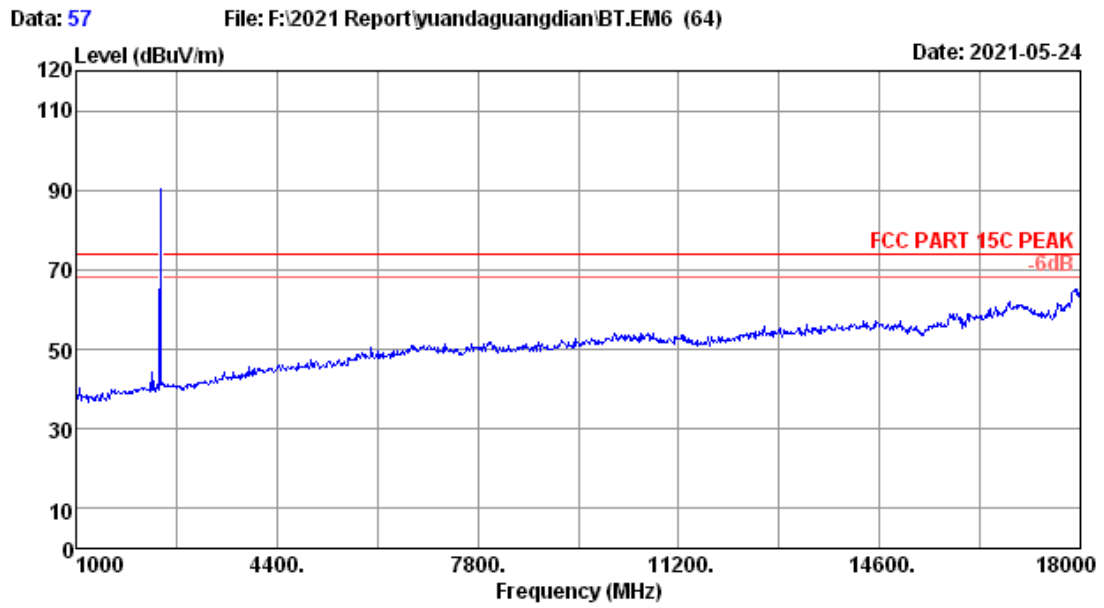
Site no.	: 3m Chamber	Data no.	: 55
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT5.0 2440MHz Tx		



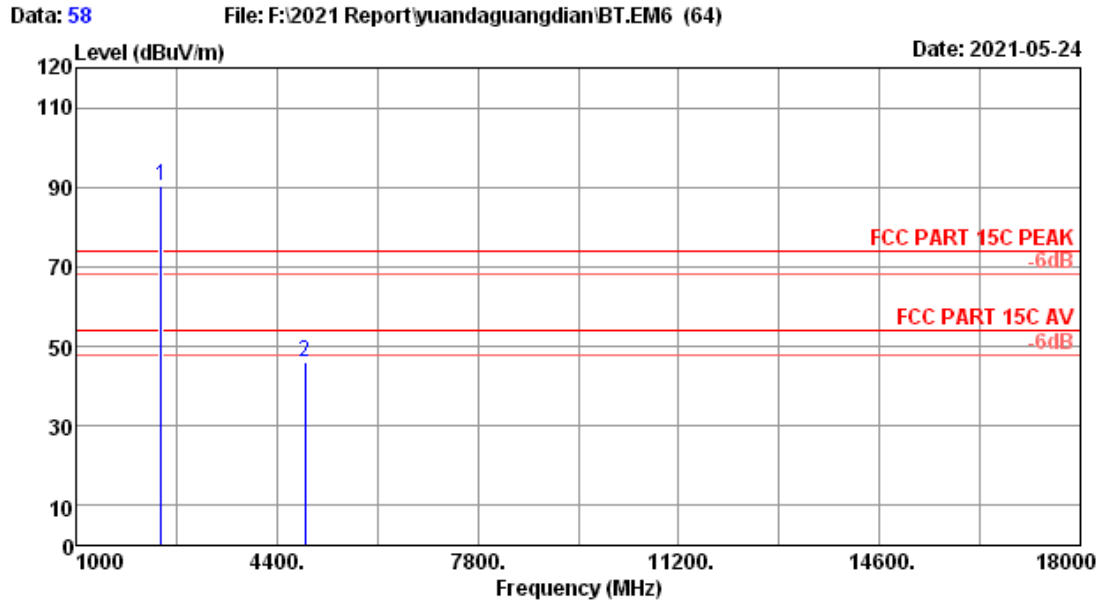
Site no. : 3m Chamber Data no. : 56
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 2440MHz Tx

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	2440.00	28.11	0.93	102.56	35.24	96.36	74.00	22.36	Peak
2	4880.00	32.68	1.39	46.97	34.47	46.57	50.00	27.43	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.



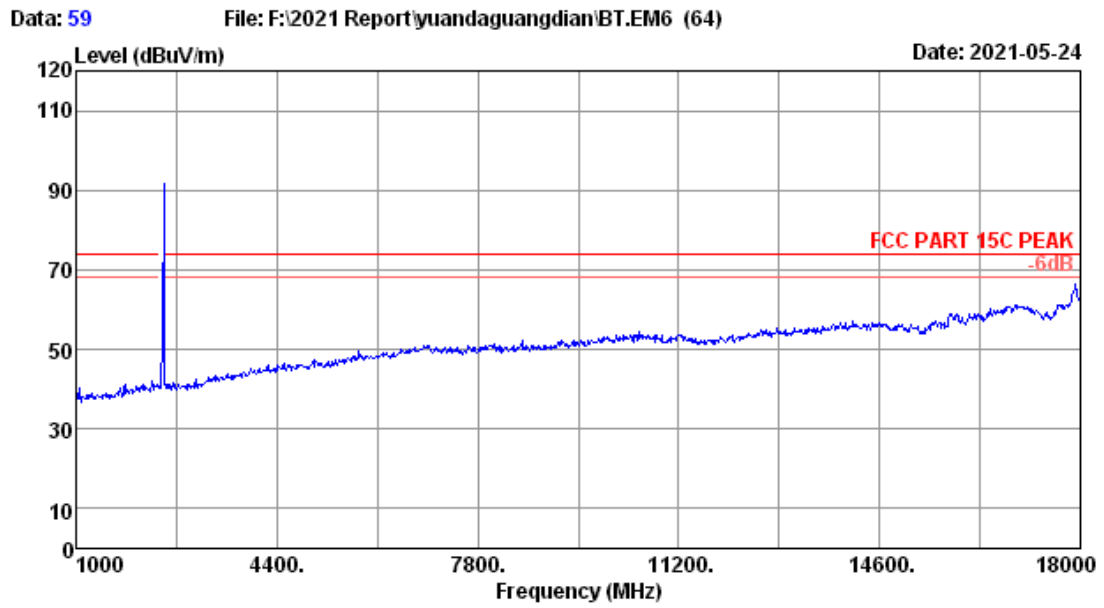
Site no.	: 3m Chamber	Data no.	: 57
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT5.0 2440MHz Tx		



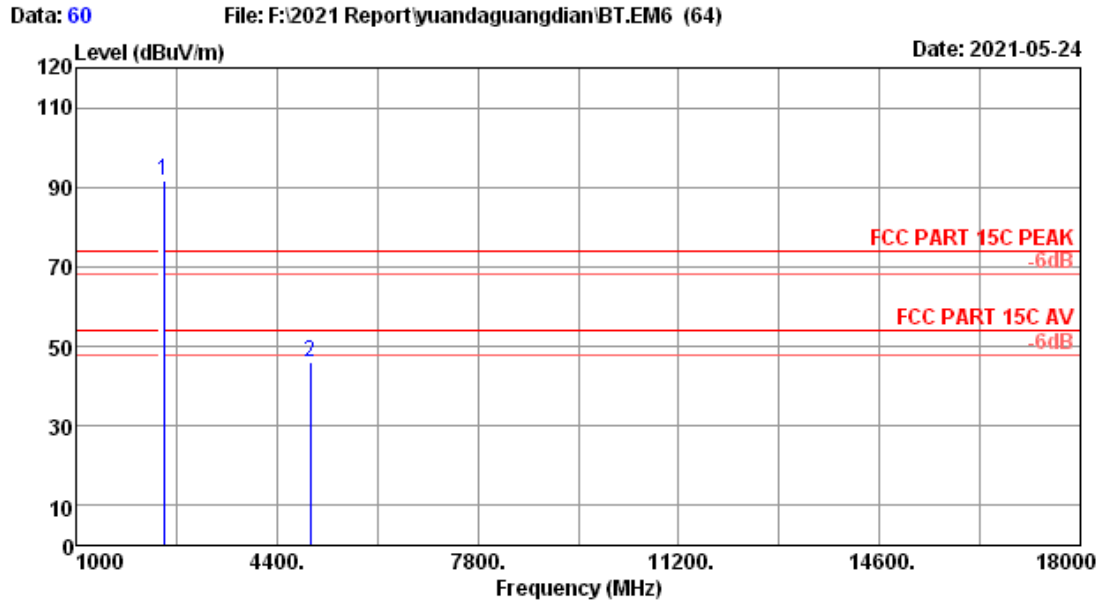
Site no. : 3m Chamber Data no. : 58
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 2440MHz Tx

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	2440.00	28.11	0.93	96.67	35.24	90.47	74.00	16.47	Peak
2	4880.00	32.68	1.39	46.66	34.47	46.26	50.00	27.74	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.



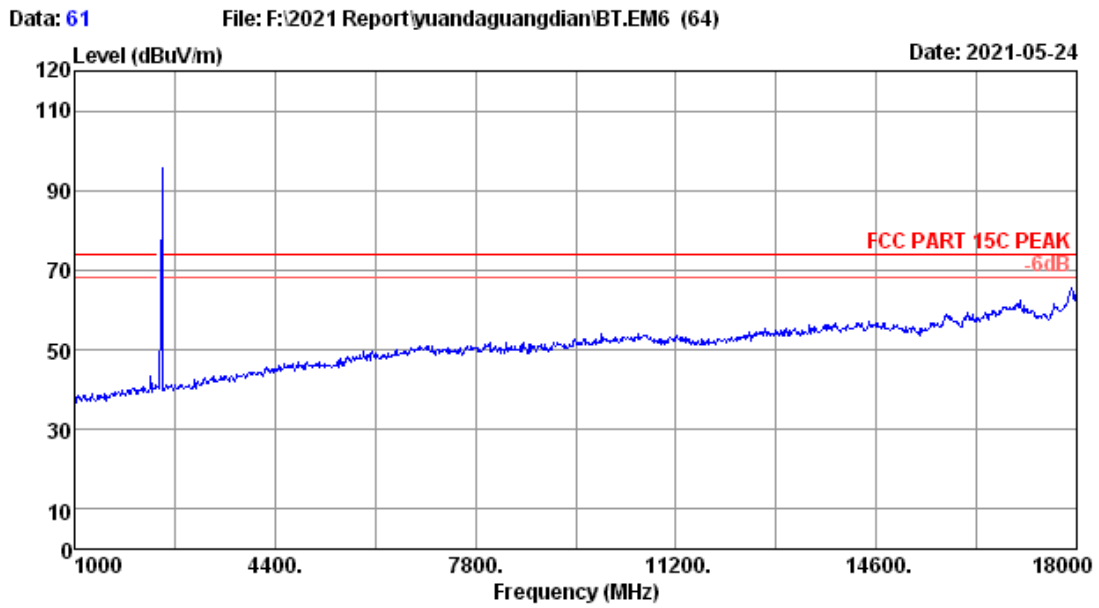
Site no.	: 3m Chamber	Data no.	: 59
Dis. / Ant.	: 3m 2020 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT5.0 2480MHz Tx		



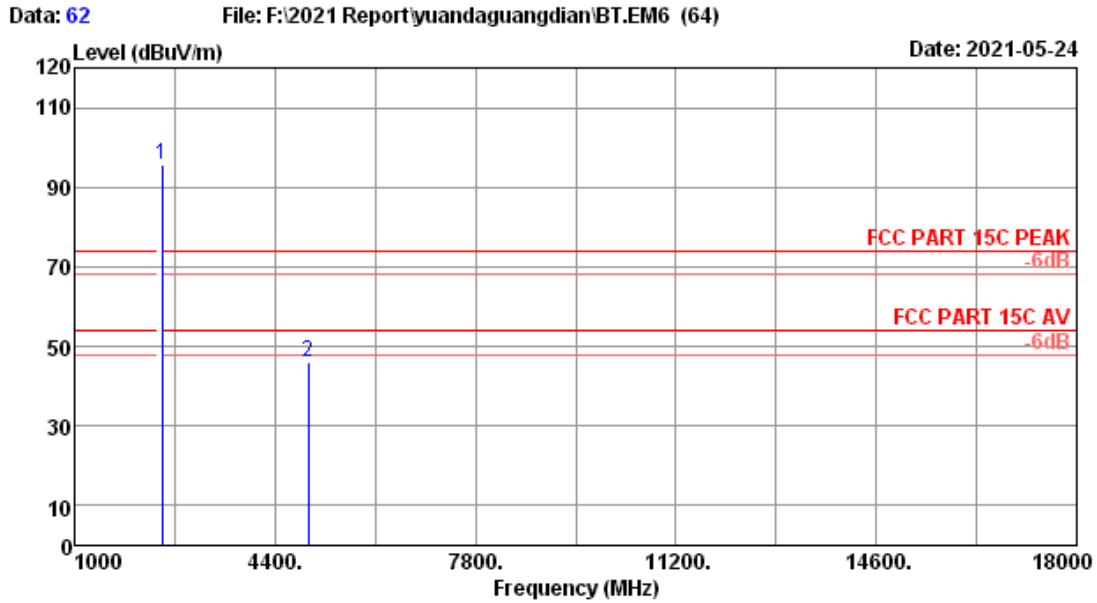
Site no. : 3m Chamber Data no. : 60
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 2480MHz Tx

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	28.17	0.94	97.60	35.25	91.46	74.00	17.46	Peak
2	4960.00	32.77	1.39	46.60	34.49	46.27	50.00	27.73	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 2020 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: Lynn
Test Mode	: BT5.0 2480MHz Tx		



Site no. : 3m Chamber Data no. : 62
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 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	28.17	0.94	102.01	35.25	95.87	-----	-----	Peak
2	4960.00	32.77	1.39	46.52	34.49	46.19	74.00	27.81	Peak

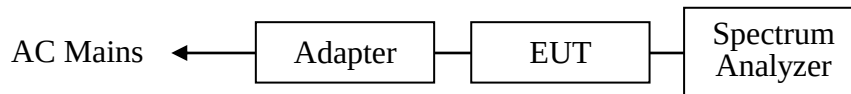
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp factor.
 2. The emission levels that are 20dB below the official
 limit are not reported.

5. CONDUCTED SPURIOUS EMISSIONS

5.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	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 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.

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.

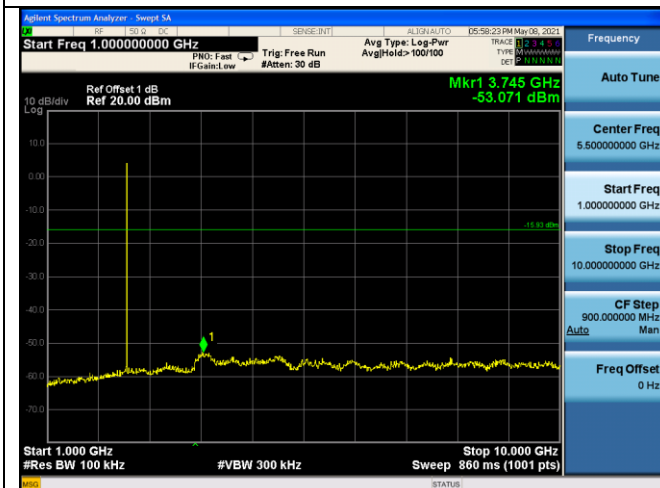
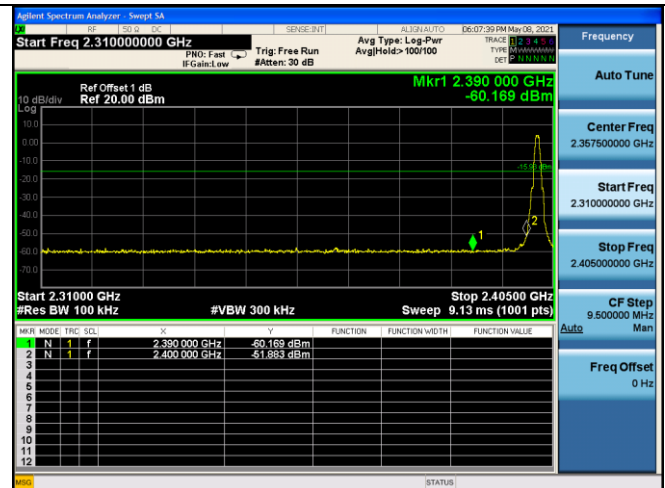
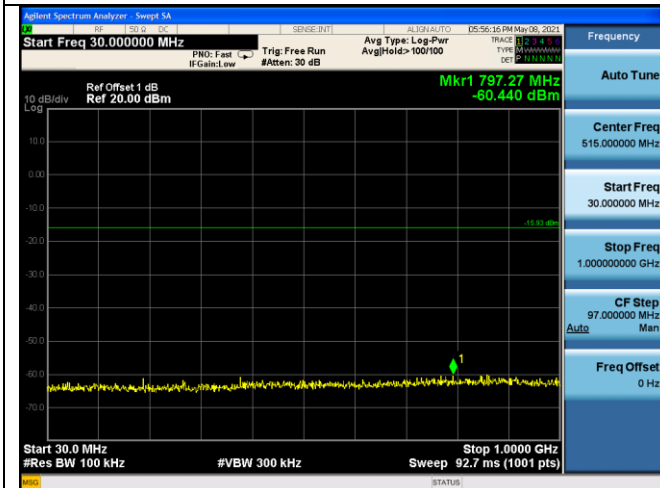
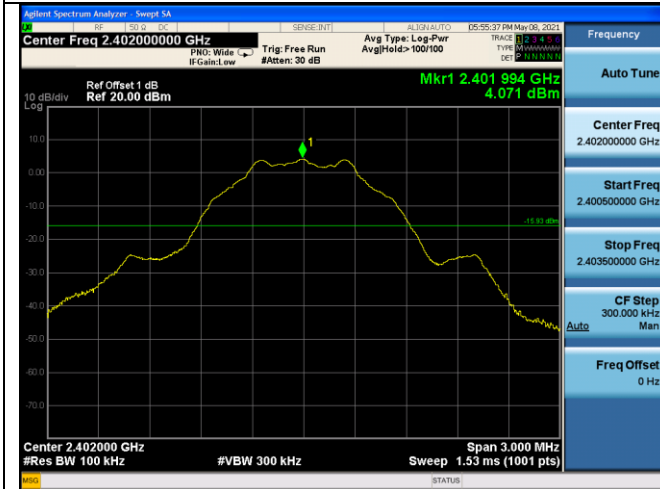
5.5. Test result

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

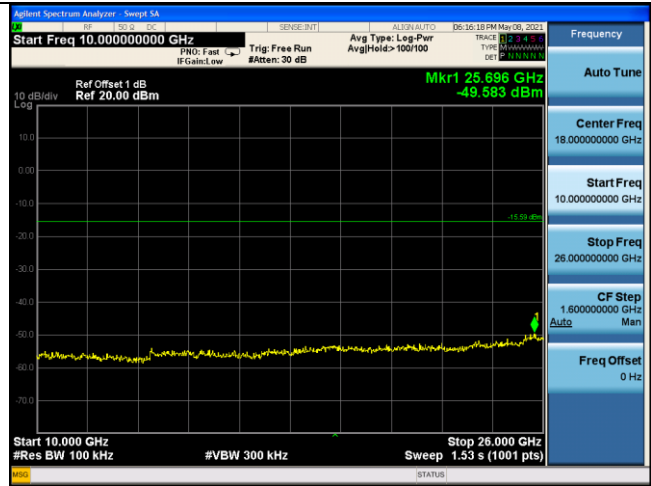
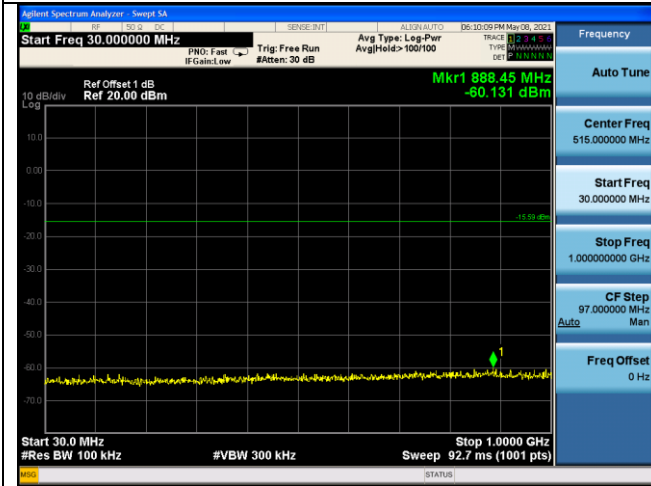
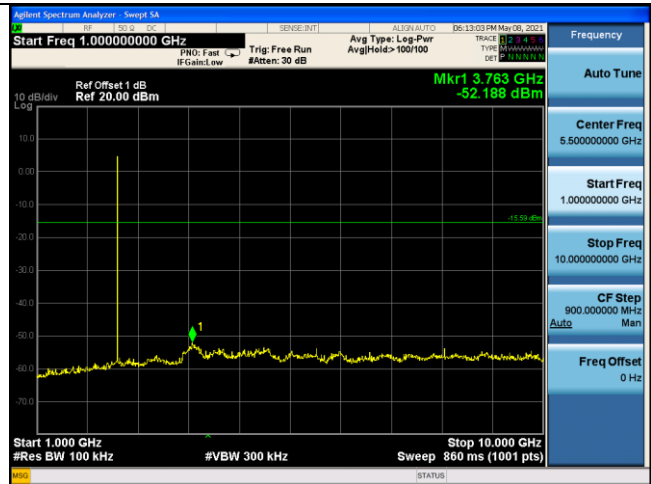
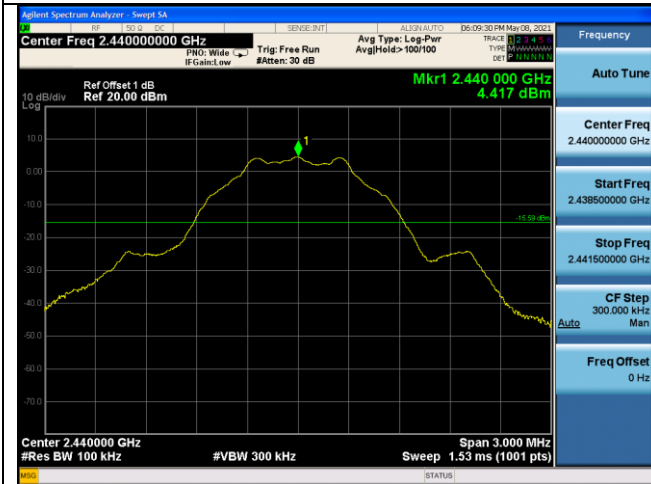
EUT: Projector		
M/N: MP250		
Test date: 2021-05-08	Pressure: 102.1±1.0 kpa	Humidity: 51.1±3.0%
Tested by: THOMAX	Test site: RF site	Temperature: 22.8±0.6 °C

BLE(1Mbps):

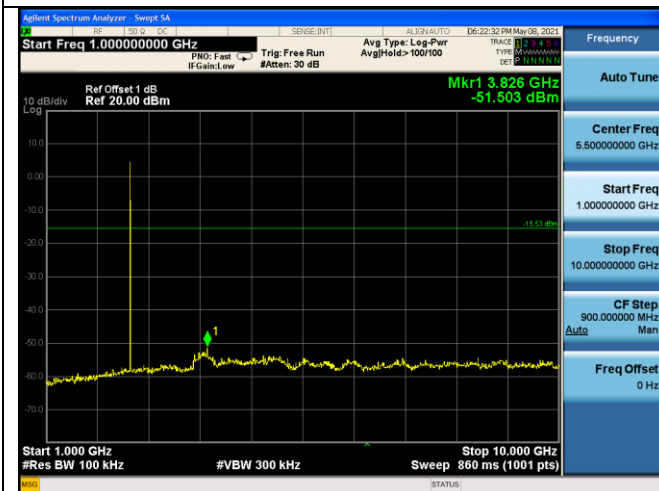
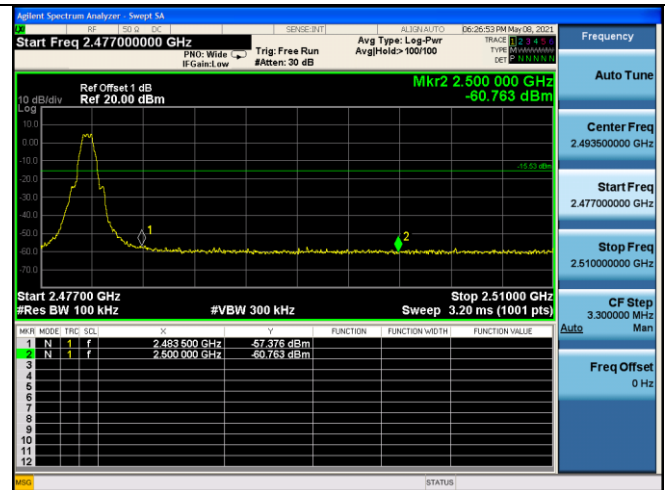
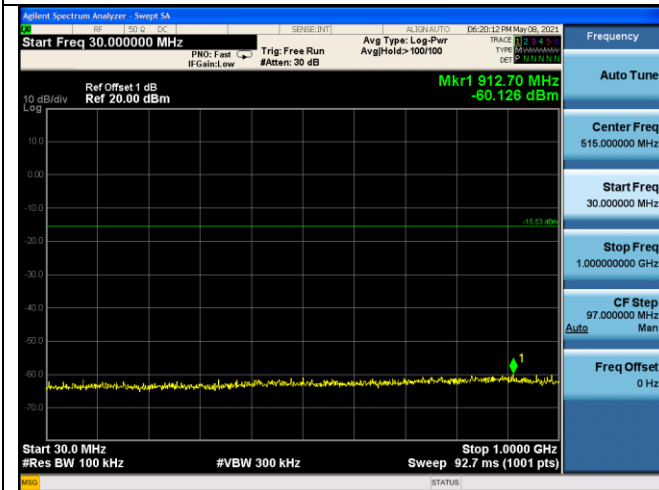
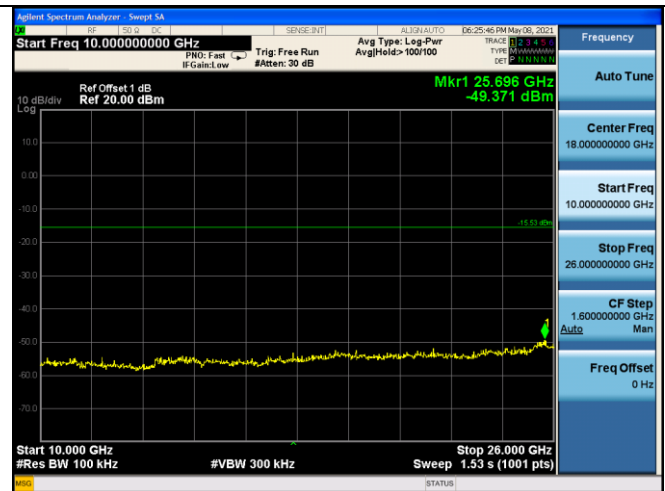
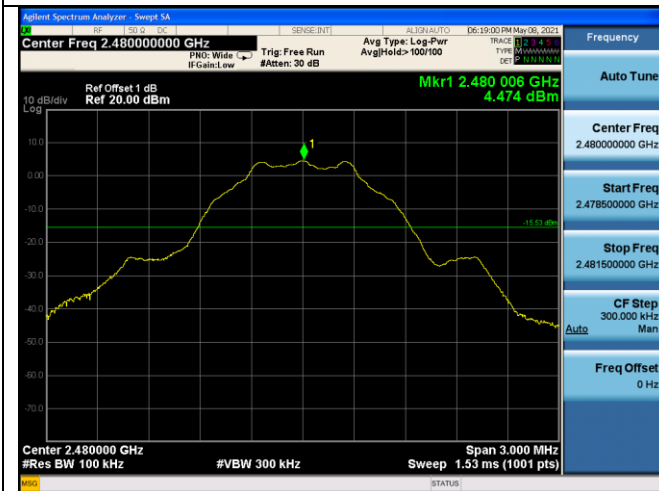
2402MHz



2440MHz

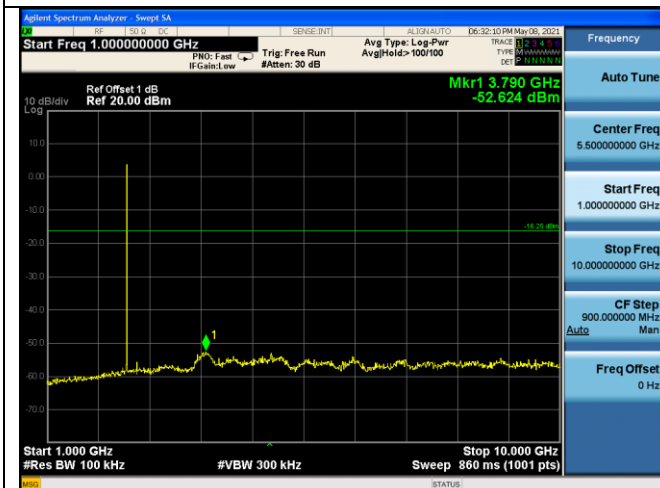
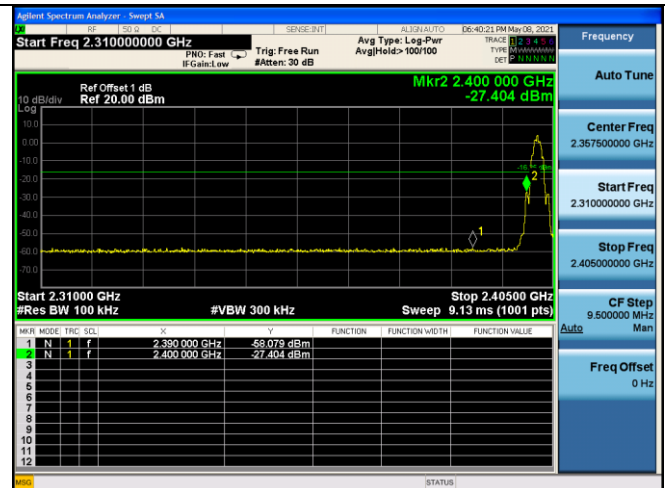
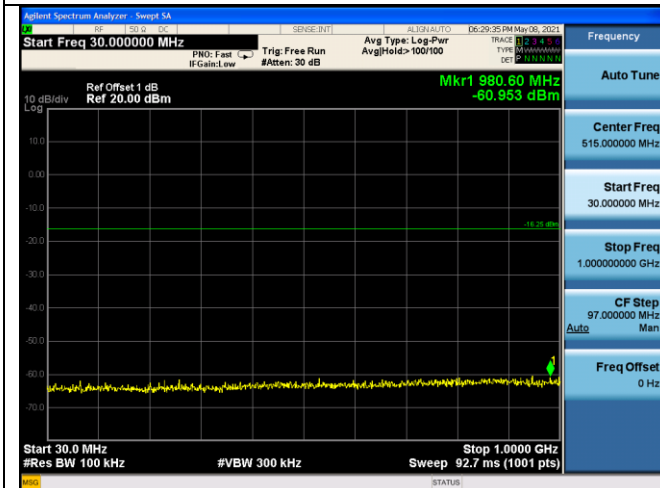
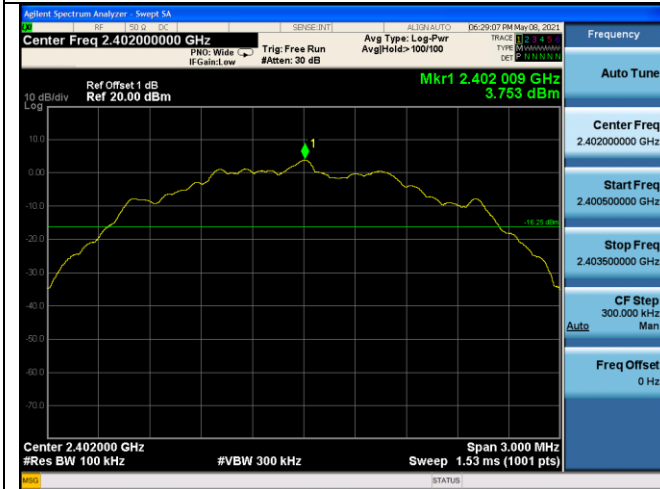


2480MHz

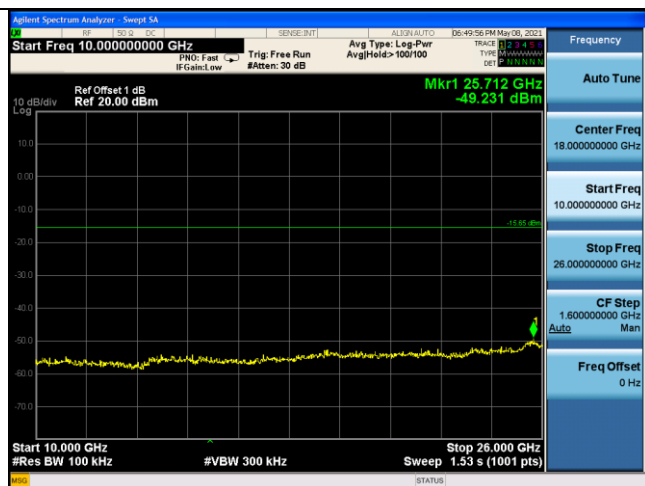
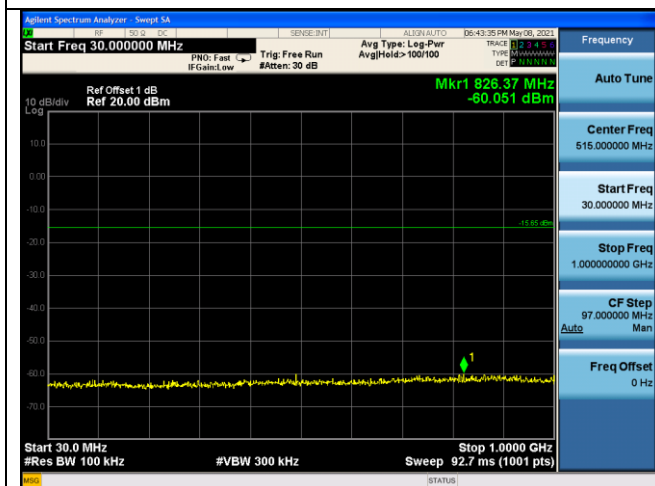
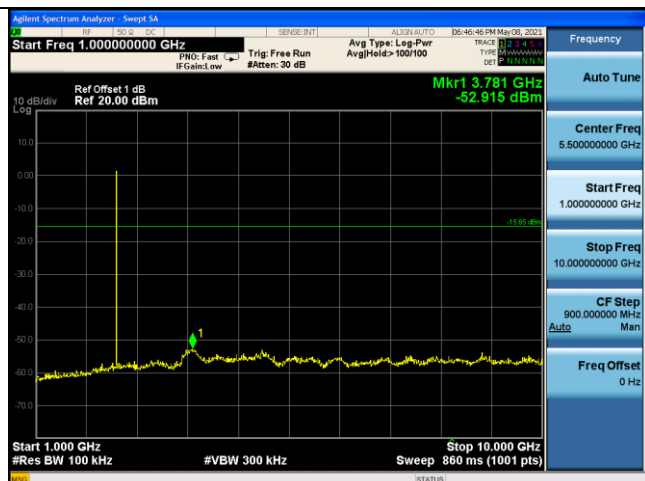
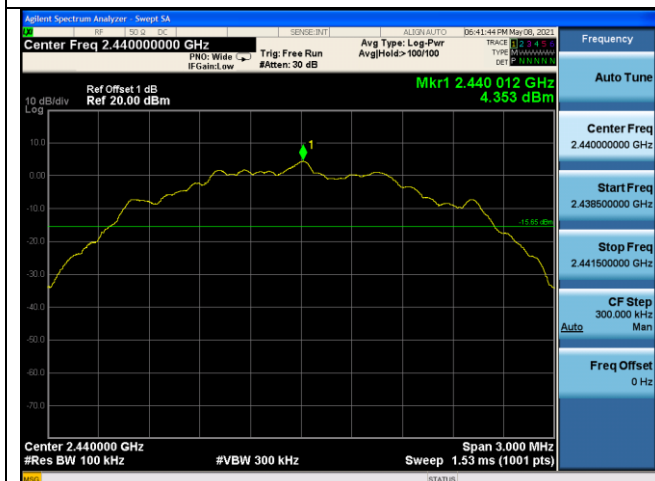


BLE(2Mbps):

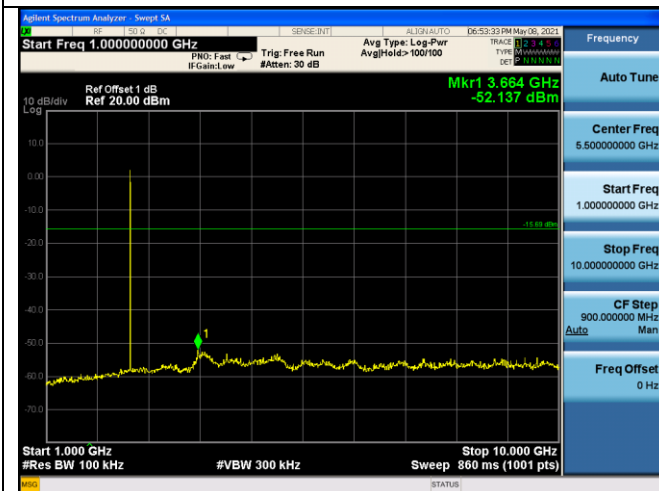
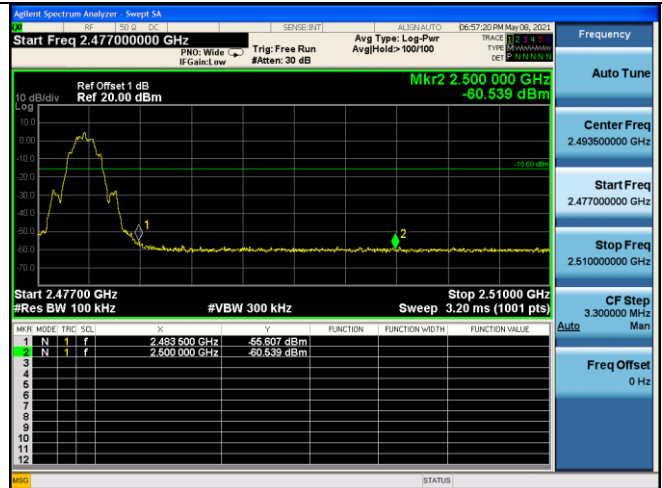
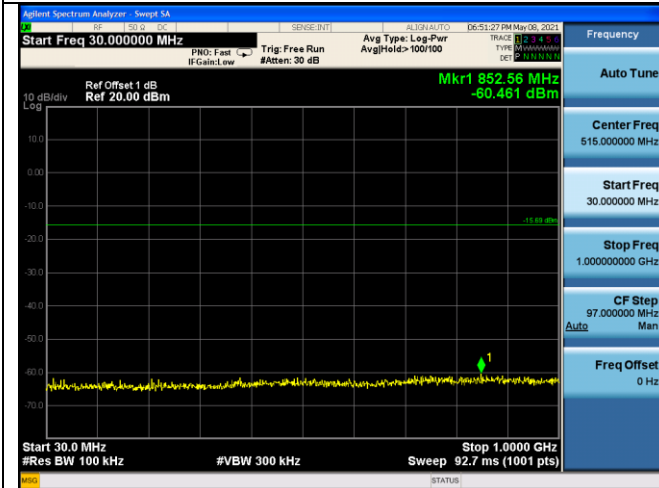
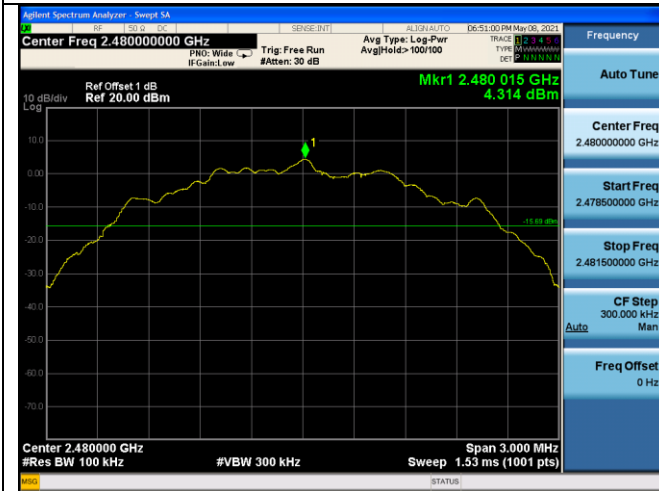
2402MHz



2440MHz



2480MHz



6. 6dB BANDWIDTH TEST

6.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

6.2. Limit

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

6.3. Test Procedure

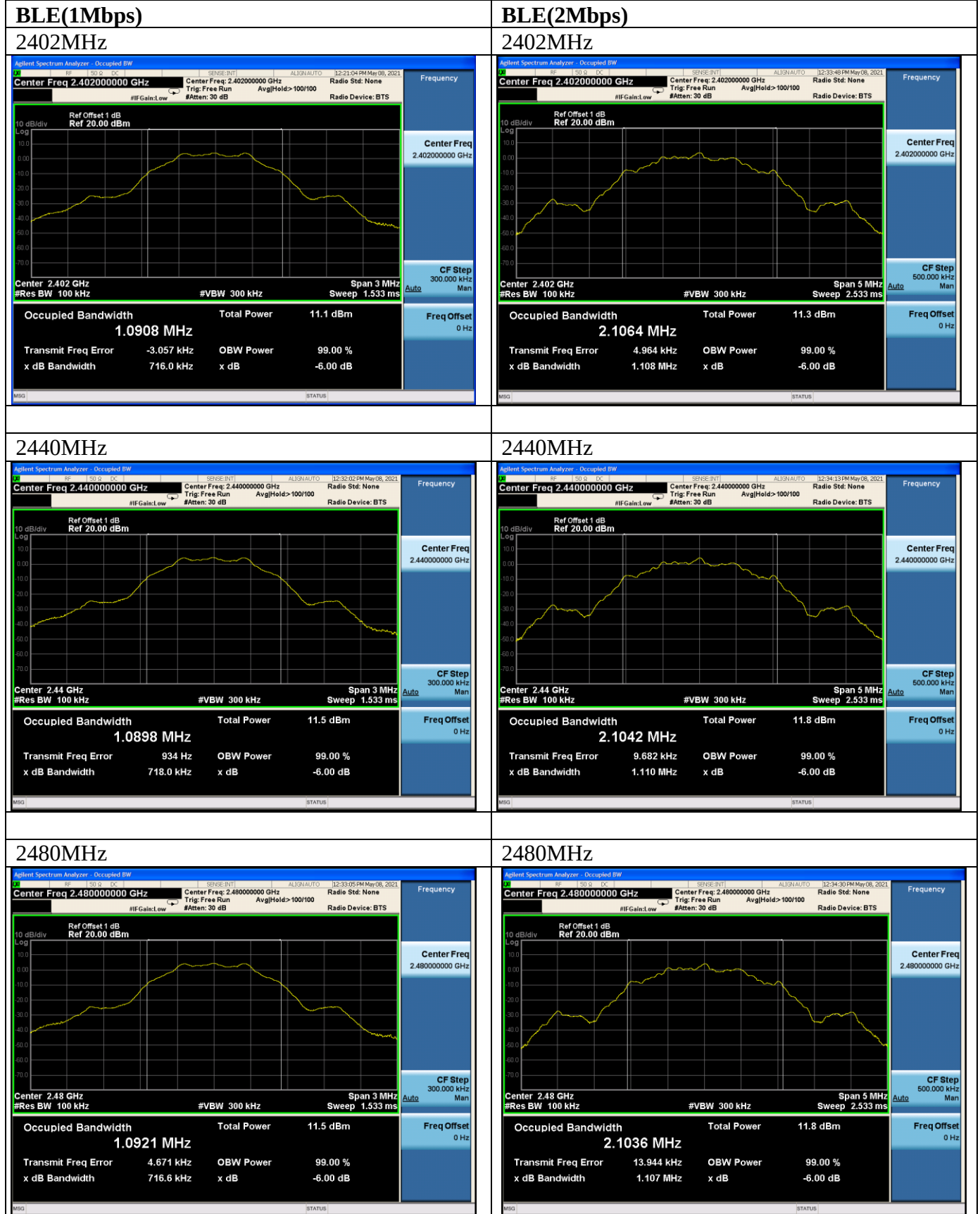
Use the test method described in ANSI C63.10 clause 11.8.2:

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 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 ≥ 6 dB.

6.4. Test Results

EUT: Projector		
M/N: MP250		
Test date: 2021-05-08	Pressure: 102.3 $\pm$ 1.0 kpa	Humidity: 53.5 $\pm$ 3.0%
Tested by: THOMAX	Test site: RF site	Temperature: 25.4 $\pm$ 0.6°C

Test Mode	Frequency (MHz)	6 dB bandwidth (kHz)	Limit (KHz)
BLE(1Mbps)	2402	716.0	≥ 500
	2440	718.0	≥ 500
	2480	716.6	≥ 500
BLE(2Mbps)	2402	1108	≥ 500
	2440	1110	≥ 500
	2480	1107	≥ 500
Conclusion : PASS			



7. MAXIMUM PEAK OUTPUT POWER TEST

7.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Power meter	Anritsu	ML2487A	6K00002472	Apr.07,21	1Year
3.	Power Sensor	Anritsu	MA2491A	033005	Apr.06,21	1Year
4.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
5.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

7.2. Limit

For systems using digital modulation in the 2400—2483.5MHz, The Peak out put Power shall not exceed 1W(30dBm).

7.3. Test Procedure

Use the test method descried in ANSI C63.10 clause 11.9.1.3:

Connected the EUT's antenna port to Power Sensor, and use power meter to test peak output power.

7.4. Test Results

EUT: Projector		
M/N: MP250		
Test date: 2021-05-08	Pressure: 102.3±1.0 kpa	Humidity: 53.5±3.0%
Tested by: THOMAX	Test site: RF site	Temperature: 25.4±0.6℃

Test Mode	Frequency (MHz)	Peak output Power (dBm)	Limit (dBm)
BLE(1Mbps)	2402	4.487	30
	2440	4.950	30
	2480	4.954	30
BLE(2Mbps)	2402	4.495	30
	2440	4.964	30
	2480	4.948	30
Conclusion: PASS			

8. BAND EDGE COMPLIANCE TEST

8.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Horn Antenna	ETC	MCTD 1209	DRH15F03006	Jul.30,20	1 Year
3.	Amplifier	HP	8449B	3008A02495	Apr.07,21	1 Year
4.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

8.2. 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.

8.3. Test Produce

Use the test method described in ANSI C63.10 clause 6.10:

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:

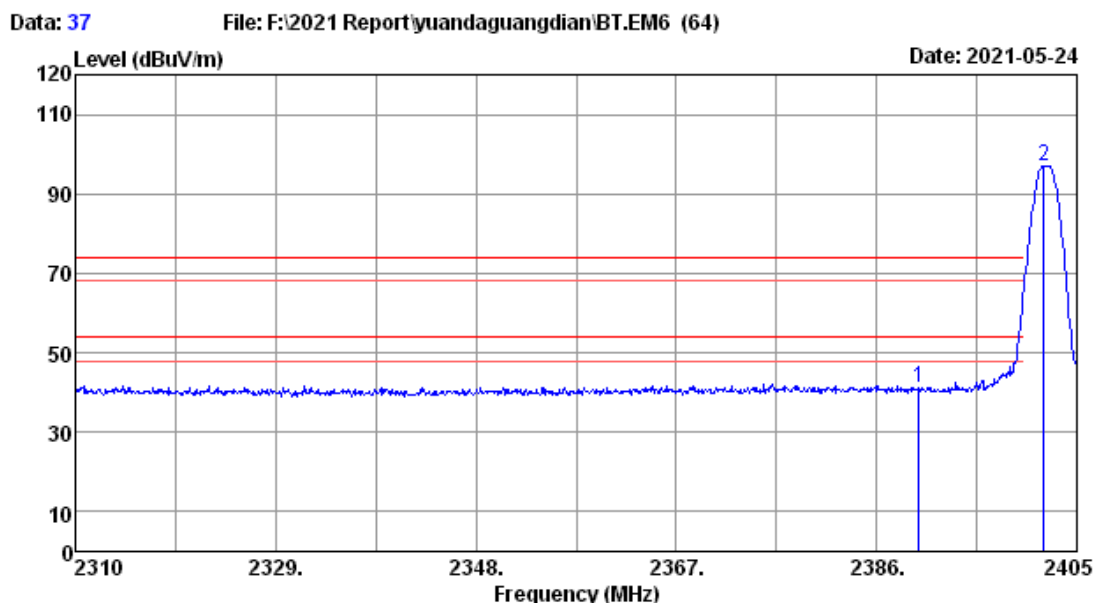
1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out 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.

8.4. 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.

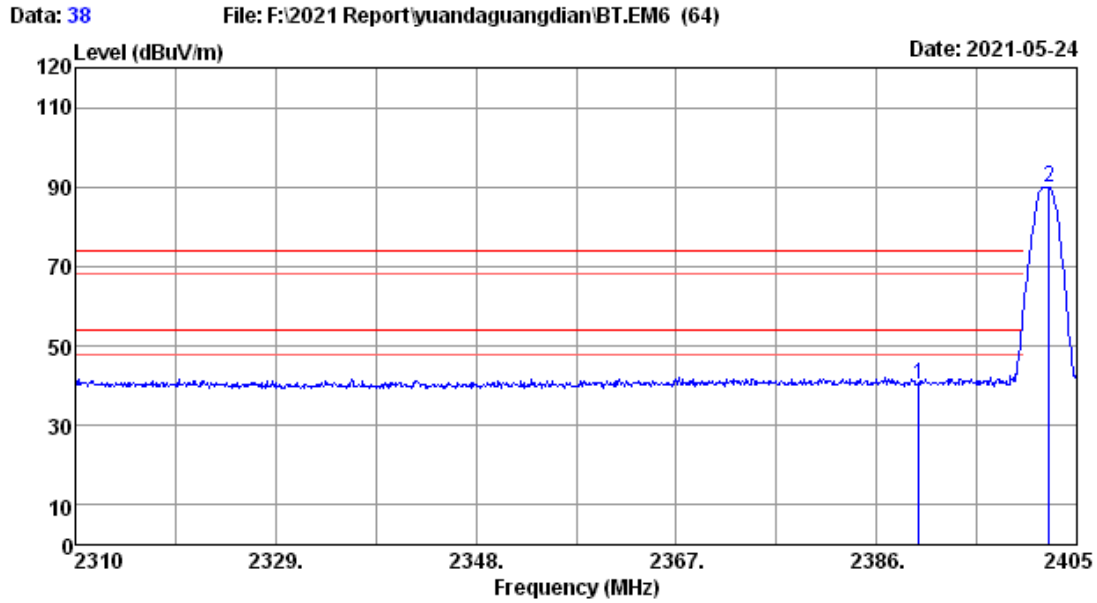
BLE(1Mbps):



Site no. : 3m Chamber Data no. : 37
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 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	28.01	0.92	47.45	35.24	41.14	74.00	32.86	Peak
2	2401.87	28.01	0.92	103.35	35.24	97.04	-----	-----	Peak

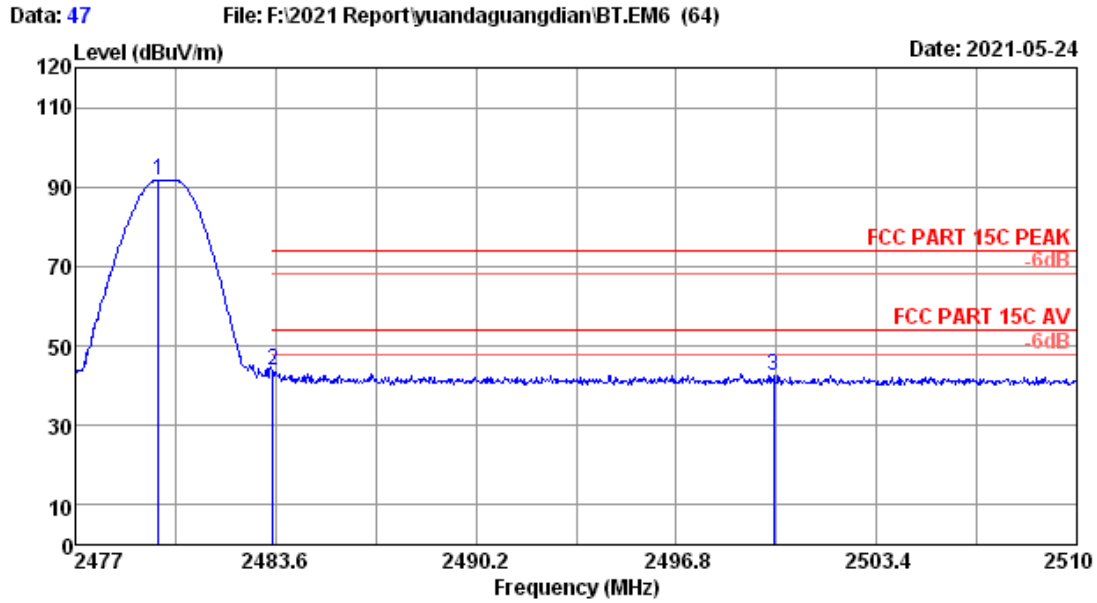
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp factor.
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 38
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 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	28.01	0.92	46.72	35.24	40.41	74.00	33.59	Peak
2	2402.34	28.01	0.92	96.32	35.24	90.01	-----	-----	Peak

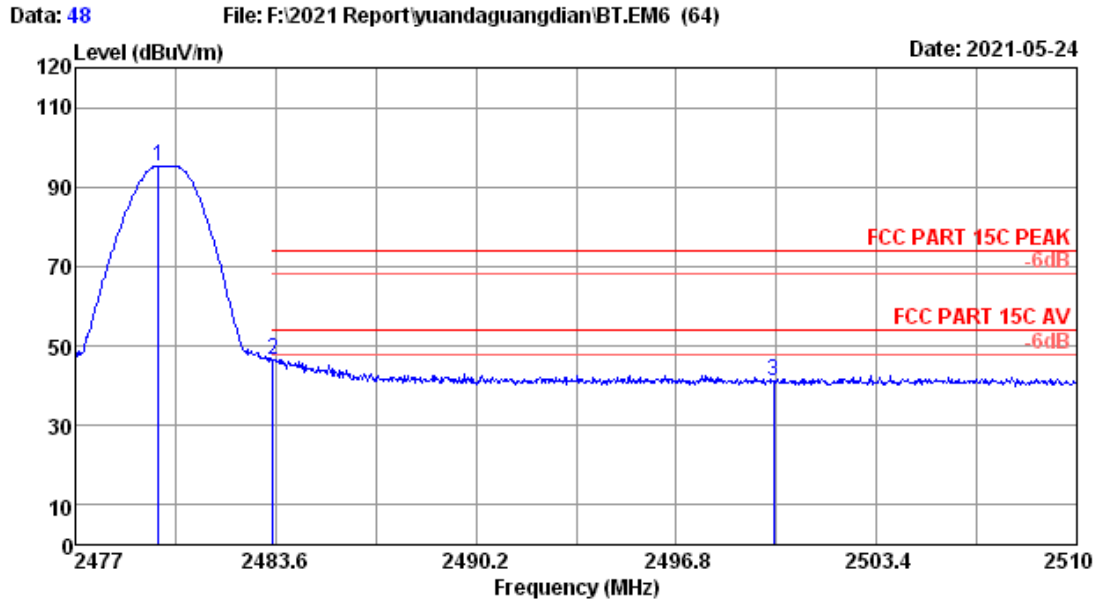
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp factor.
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 47
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 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	2479.74	28.17	0.94	97.92	35.25	91.78	-----	-----	Peak
2	2483.50	28.17	0.94	49.78	35.25	43.64	74.00	30.36	Peak
3	2500.00	28.20	0.95	48.54	35.25	42.44	74.00	31.56	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.

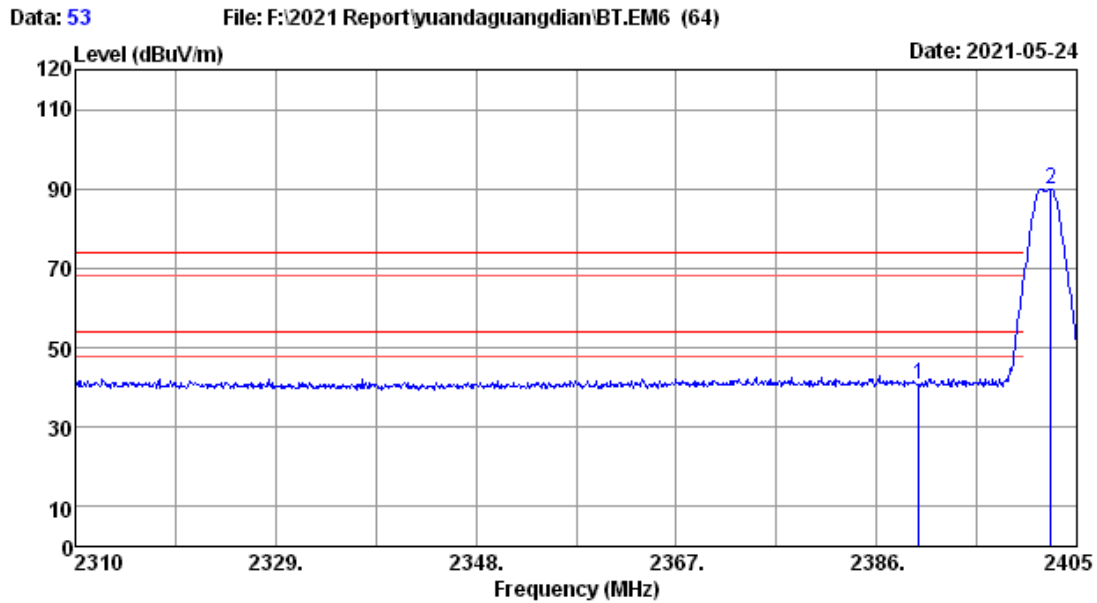


Site no. : 3m Chamber Data no. : 48
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT4.0 2480MHz Tx

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	2479.74	28.17	0.94	101.49	35.25	95.35	-----	-----	Peak
2	2483.50	28.17	0.94	52.71	35.25	46.57	74.00	27.43	Peak
3	2500.00	28.20	0.95	47.19	35.25	41.09	74.00	32.91	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.

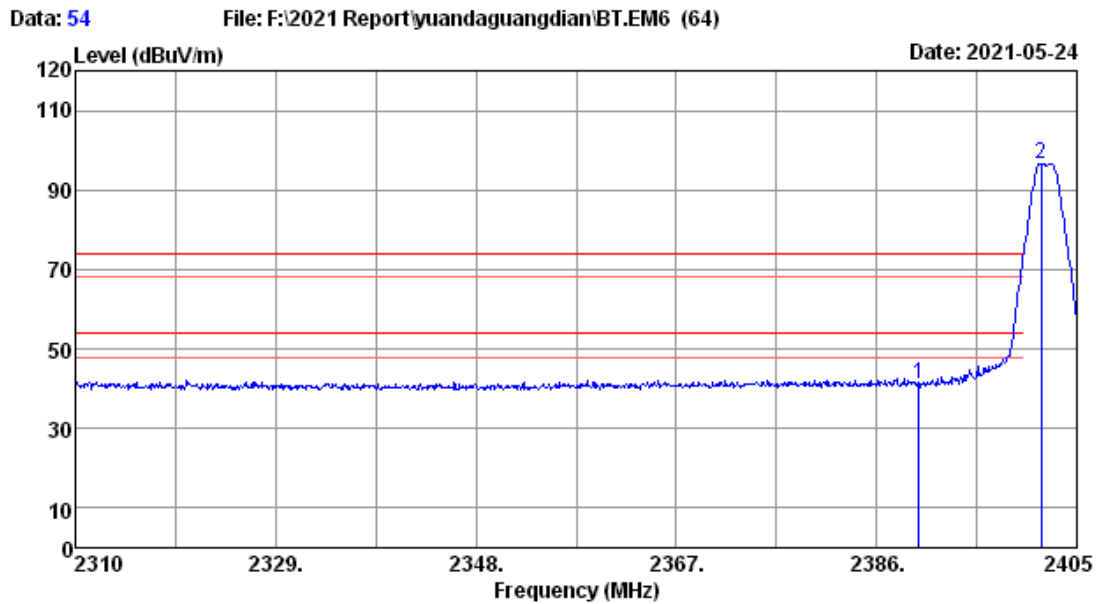
BLE(2Mbps):



Site no. : 3m Chamber Data no. : 53
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 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	28.01	0.92	47.20	35.24	40.89	74.00	33.11	Peak
2	2402.53	28.04	0.92	96.23	35.24	89.95	-----	-----	Peak

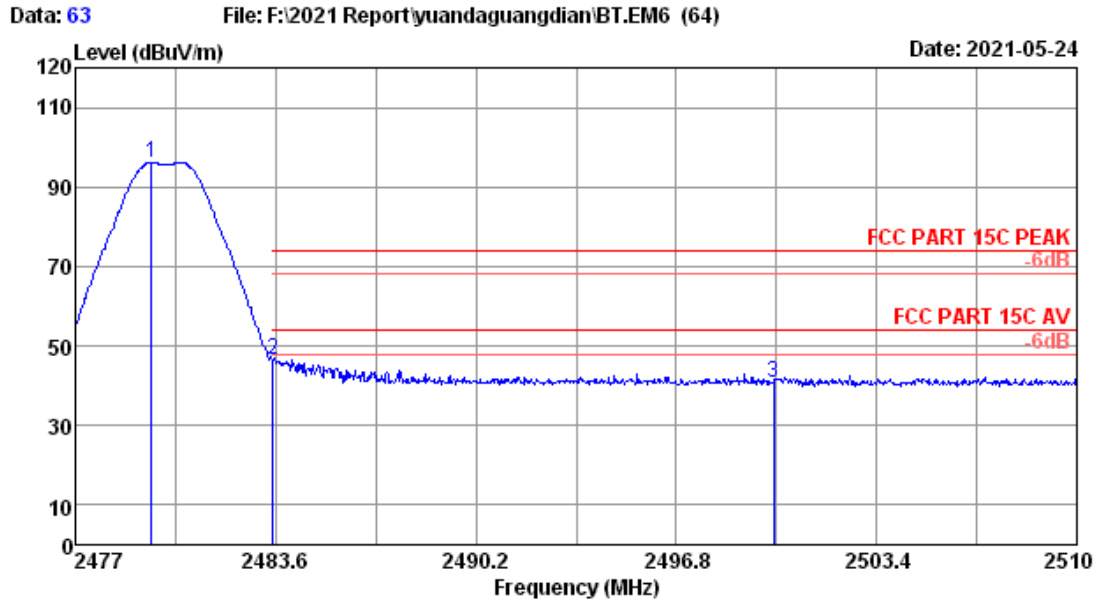
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp factor.
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 54
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 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	28.01	0.92	47.39	35.24	41.08	74.00	32.92	Peak
2	2401.58	28.01	0.92	103.04	35.24	96.73	-----	-----	Peak

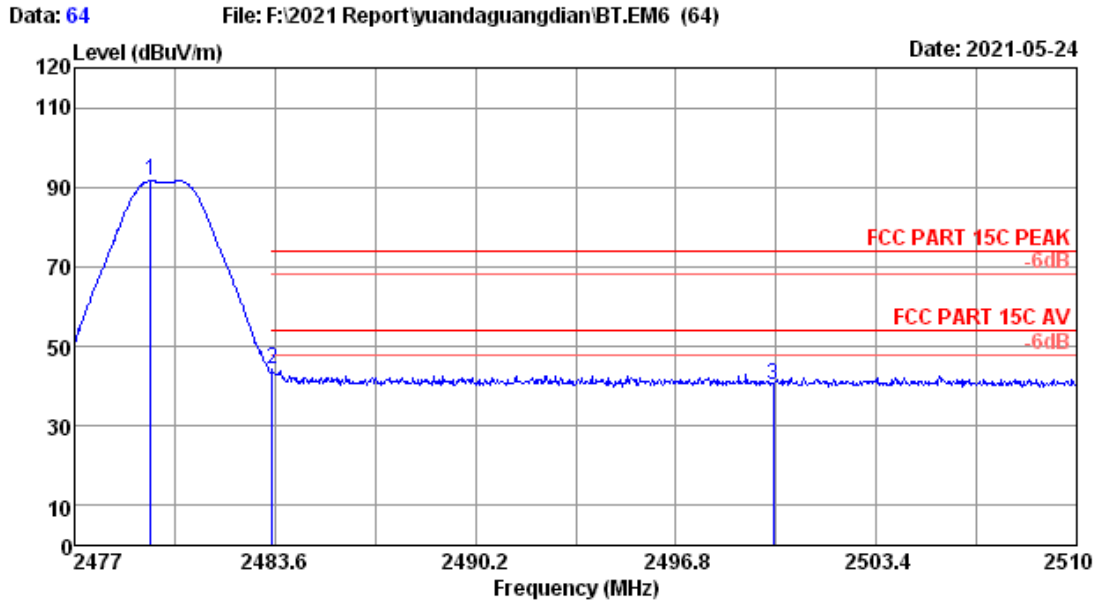
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp factor.
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 63
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 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	2479.51	28.17	0.94	102.34	35.25	96.20	-----	-----	Peak
2	2483.50	28.17	0.94	52.59	35.25	46.45	74.00	27.55	Peak
3	2500.00	28.20	0.95	47.03	35.25	40.93	74.00	33.07	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. : 64
 Dis. / Ant. : 3m 2020 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : Lynn
 Test Mode : BT5.0 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	2479.51	28.17	0.94	97.75	35.25	91.61	-----	-----	Peak
2	2483.50	28.17	0.94	50.25	35.25	44.11	74.00	29.89	Peak
3	2500.00	28.20	0.95	46.43	35.25	40.33	74.00	33.67	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.

9. POWER SPECTRAL DENSITY TEST

9.1. Test Equipment

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Apr.07,21	1 Year
2.	Attenuator	Agilent	8491B	MY39269201	Oct.12,20	1 Year
3.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	505238/6	Apr.07,21	1 Year

9.2. Limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3kHz band during any time interval of continuous transmission.

9.3. Test Procedure

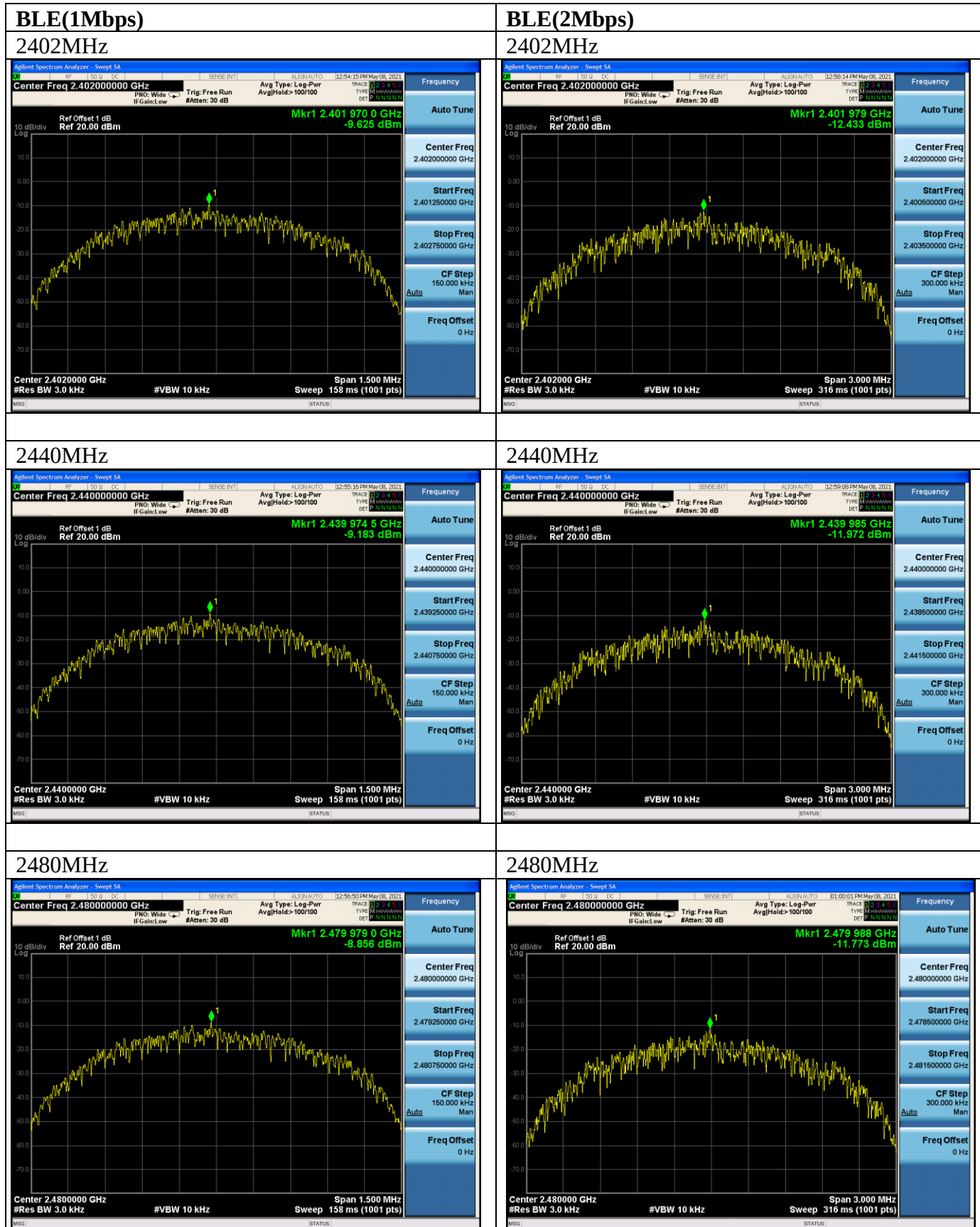
Use the test method described in ANSI C63.10 clause 11.10.2:

- Set analyzer center frequency to DTS channel center frequency.
- Set the span to 1.5 times the DTS bandwidth.
- Set the RBW to $3\text{ kHz} \leq \text{RBW} \leq 100\text{ kHz}$.
- Set the VBW $\geq [3 \times \text{RBW}]$.
- Detector = peak.
- Sweep time = auto couple.
- Trace mode = max hold.
- Allow trace to fully stabilize.
- Use the peak marker function to determine the maximum amplitude level within the RBW.
- If measured value exceeds requirement, then reduce RBW (but no less than 3 kHz) and repeat.

9.4. Test Results

EUT: Projector		
M/N: MP250		
Test date: 2021-05-08	Pressure: 102.3±1.0 kpa	Humidity: 53.5±3.0%
Tested by: THOMAX	Test site: RF site	Temperature: 25.4±0.6°C

Test Mode	Frequency (MHz)	Power density (dBm/3KHz)	Limit (dBm/3KHz)
BLE(1Mbps)	2402	-9.625	8
	2440	-9.183	8
	2480	-8.856	8
BLE(2Mbps)	2402	-12.433	8
	2440	-11.972	8
	2480	-11.773	8
Conclusion : PASS			



10. ANTENNA REQUIREMENT

10.1. 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.

10.2. ANTENNA CONNECTED CONSTRUCTION

The antennas used for this product are FPC 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 -2.31dBi.

11. DEVIATION TO TEST SPECIFICATIONS

[NONE]

THE END