

FCC PART 15C TEST REPORT FOR CERTIFICATION

On Behalf of

TCL Communication Ltd.

Tablet PC

8188X

FCC ID: 2ACCJB225

Prepared for : TCL Communication Ltd.

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Report Number : ACS-F24115

Date of Test : May.31~Jul.01, 2024

Date of Report : Jul.17, 2024

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Appendix B. Photographs of the EUT

TEST REPORT

Applicant : TCL Communication Ltd.
Manufacturer : TCL Communication Ltd.
Product : Tablet PC
FCC ID : 2ACCJB225
(A) Model No. : 8188X
(B) Test Voltage : DC 3.85V
DC 5V From Adapter Input AC 120V/60Hz

Tested for comply with:

FCC CFR47 Part 15 Subpart C
Test procedure used: ANSI C63.10:2020+Cor1:2023;
KDB 558074 D01v05r02

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

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

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

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

Date of Test : May.31~Jul.01, 2024 Date of Report: Jul.17, 2024

Prepared by : Crush Liu Reviewed by : Thomas Chen
Crush Liu / Assistant Thomas Chen / Assistant Manager



1. SUMMARY OF STANDARDS AND RESULTS

1.1. Description of Standards and Results

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

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

N/A is an abbreviation for Not Applicable.

Note 1: N/A is an abbreviation for Not Applicable.

Note 2: Measurement uncertainty affection to the result is not considered, the EUT is technically compliant with standard requirements.

2. GENERAL INFORMATION

2.1. Description of Equipment Under Test

Applicant	TCL Communication Ltd.
Applicant Address	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Manufacturer	TCL Communication Ltd.
Manufacturer Address	5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong
Factory	Huizhou TCL Mobile Communication Co., Ltd.
Factory Address	No.86, Hechang 7th West Road, Zhong Kai Hi-tech Development District, Hui Zhou, Guang Dong
Product	Tablet PC
Model No.	8188X
FCC ID	2ACCJB225
Sample Type	Prototype production
Date of Receipt	May.21, 2024
Date of Test	May.31~Jul.01, 2024

2.2.Feature of Equipment Under Test

Product Feature & Specification		
Product	Tablet PC	
Model No.	8188X	
Power Source	☒ Commercial Power	AC 100-240V~50/60Hz
	☒ External Power Source	DC 5.0V, 2.0A
	☒ Li-ion Battery	DC 3.85V
	☐ UM battery	DC V
Bluetooth		
Radio	BLE	
Frequency Range	2402-2480MHz	
Type of Modulation	GFSK	
Quantity of Channels	40	
Channel Separation	1MHz/2MHz	
Antenna System		
Type of Antenna & Antenna Peak Gain	Antenna Type : PIFA Antenna Antenna Gain: 1.92dBi	
Remark: This report is for BLE radio specification only. EUT also supports other radio specification as below listed: BDR+EDR (Test report No. ACS-F24114) Wi-Fi 2.4GHz (Test report No. ACS-F24116) Wi-Fi 5GHz (Test report No. ACS-F24117) DFS (Test report No. ACS-F24123)		

2.3.Tested Supporting System Details

None

2.4. Block Diagram of connection between EUT and simulators



(EUT: Tablet PC)

2.5.Test Equipments

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	1# Shielding Room(SE)	AUDIX	N/A	N/A	Nov.09,22	3 Year
2.	3m Chamber(NSA)	AUDIX	N/A	N/A	Aug.11,22	3Year
3.	3m Chamber(SE)	AUDIX	N/A	N/A	Sep.16,22	3 Year
4.	EMI Test Receiver	Rohde & Schwarz	ESCI	100842	Mar.16,24	1 Year
5.	Signal Analyzer	Rohde & Schwarz	FSV40	101608	Nov.07,23	1 Year
6.	L.I.S.N.#1	Rohde & Schwarz	ENV216	102160	Jun.19,24	1 Year
7.	RF Cable	Eastsheep	RG223	190424	Sep.15,23	1Year
8.	Tri-log-Broadband Antenna	SCHWARZBECK	VULB 9168	429	Oct.10,23	1 Year
9.	NSA Cable	HUBER+SUHNER	CFD400NL-LW	No.3+190411	Sep.20,23	1 Year
10.	Coaxial Switch	Anritsu	MP59B	6201397223	Mar.17,24	1 Year
11.	RF Cable	TIMES MICROWAVE	SFT205-NMSM-10.00M	689241	Aug.25,23	1 Year
12.	EMI Test Receiver	Rohde & Schwarz	ESR3	101931	Mar.17,24	1 Year
13.	Amplifier	EMCI	EMC0518A45SE	980965	Aug.25,23	1 Year
14.	Amplifier	HP	8447D	2944A11159	Mar.17,24	1 Year
15.	PXA Signal Analyzer	Agilent	N9030A	MY51380221	Mar.16,24	1 Year
16.	RF Cable	HUBER+SUHNER	SUCOFLEX-106	190423	Mar.16,24	1 Year
17.	Attenuator(10dB)	eastsheep	2W-SMA-JK-6G-10dB	No. 4	Sep.19,23	1 Year
18.	Power meter	HP	436A	3103U06658	Mar.16,24	1Year
19.	Power sensor	Agilent	8482B	MY41090514	Mar.16,24	1Year
20.	Signal Analyzer	Rohde & Schwarz	FSV30	104050	Mar.17,24	1 Year
21.	RF Cable	Shanghaichaoyu	SFT205-NMSM-10.00M	689241	Aug.25,23	1 Year
22.	Horn Antenna	ETC	MCTD 1209	DRH15F03006	Aug.23,23	1 Year

Note: N/A means Not applicable.

2.6. Test information

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

Tested mode, channel, and data rate information			
Mode	data rate (Mbps)	Channel	Frequency (MHz)
Tx Mode GFSK modulation	1	Low :CH 0	2402
	1	Middle: CH19	2440
	1	High: CH39	2480
	2	Low :CH 1	2404
	2	Middle: CH19	2440
	2	High: CH38	2478
Note: use the data rate which has the maximum power for the test.			

2.7. 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, 2025

Certificated by FCC, USA
Designation No.: CN5022
Valid Date: Mar.31, 2025

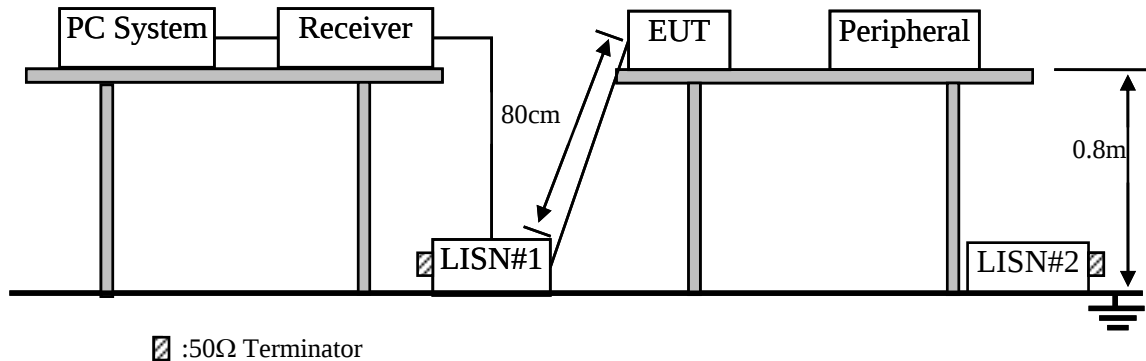
Accredited by NVLAP, USA
NVLAP Code: 200372-0
Valid Date: Mar.31, 2025

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

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

3. POWER LINE CONDUCTED EMISSION TEST

3.1. Block Diagram of Test Setup



3.2. 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)

3.3. 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.

3.3.1. Tablet PC (EUT)

Model No. : 8188X

Serial No. : N/A

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

3.4. Operating Condition of EUT

- 3.4.1. Setup the EUT as shown as Section 3.1.
- 3.4.2. Turn on the power of EUT.
- 3.4.3. PC run test software to control EUT work in Tx mode.

3.5. Test Procedure

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

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

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

3.6. Power Line Conducted Emission Test Results

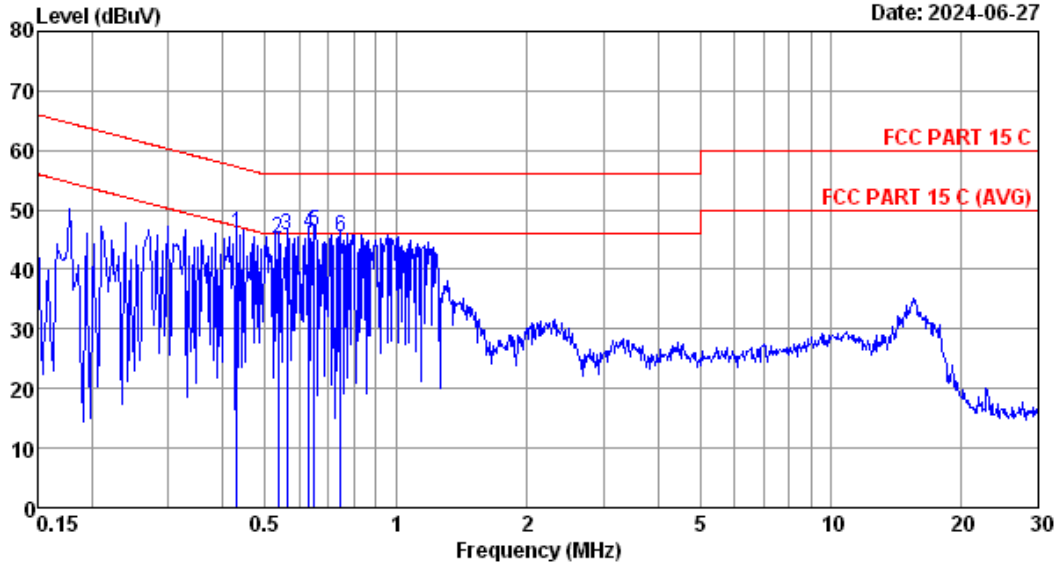
PASS. (All emissions not reported below are too low against the prescribed limits.)

BLE-1Mbps:

Data: 7

File: E:\1#CE\2024 Report Data\T\TCL\A1Z2405015-8188X.em6 (10)

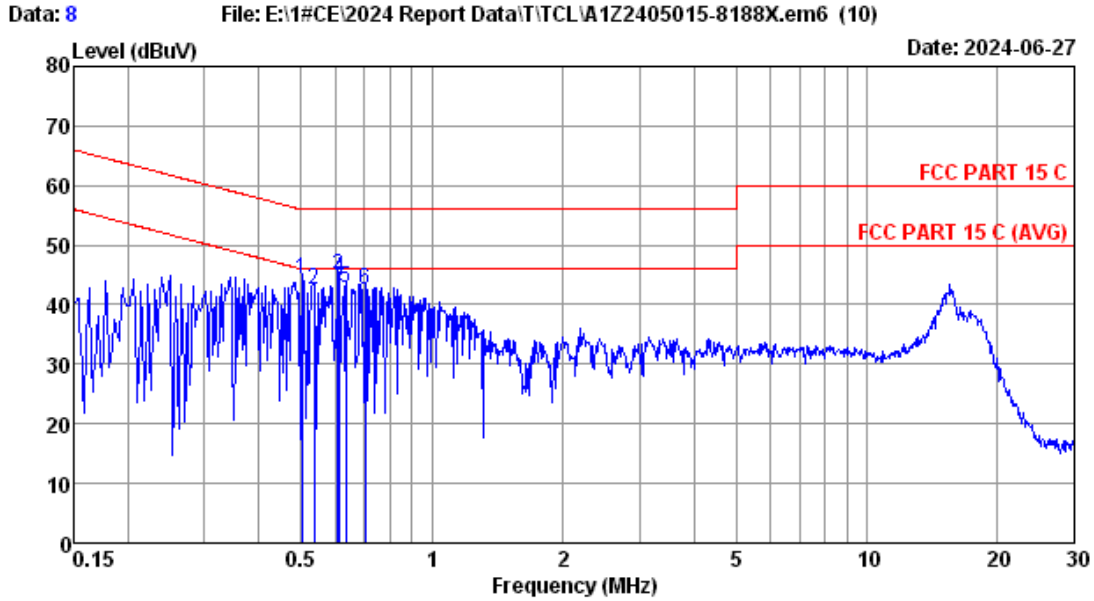
Date: 2024-06-27



Site no :1# CE Data No :7
 Dis./Lisn :2023 ENV216-L
 Limit :FCC PART 15 C
 Env./Ins. :22.9°C/52% Engineer :Hongjie
 Power Rating :AC 120V/60Hz
 Test Mode :BLE1M TX Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.431	9.59	0.02	36.37	45.98	57.24	11.26	QP
2	0.535	9.58	0.02	35.69	45.29	56.00	10.71	QP
3	0.561	9.58	0.02	36.18	45.78	56.00	10.22	QP
4	0.630	9.57	0.02	36.59	46.18	56.00	9.82	QP
5	0.647	9.57	0.02	36.69	46.28	56.00	9.72	QP
6	0.747	9.57	0.02	35.77	45.36	56.00	10.64	QP

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



Site no :1# CE Data No :8
 Dis./Lisn :2023 ENV216-N
 Limit :FCC PART 15 C
 Env./Ins. :22.9°C/52% Engineer :Hongjie
 Power Rating :AC 120V/60Hz
 Test Mode :BLE1M TX Mode

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.502	9.73	0.02	34.46	44.21	56.00	11.79	QP
2	0.535	9.73	0.02	32.73	42.48	56.00	13.52	QP
3	0.608	9.74	0.02	35.15	44.91	56.00	11.09	QP
4	0.614	9.74	0.02	34.77	44.53	56.00	11.47	QP
5	0.634	9.74	0.02	33.05	42.81	56.00	13.19	QP
6	0.701	9.74	0.02	32.81	42.57	56.00	13.43	QP

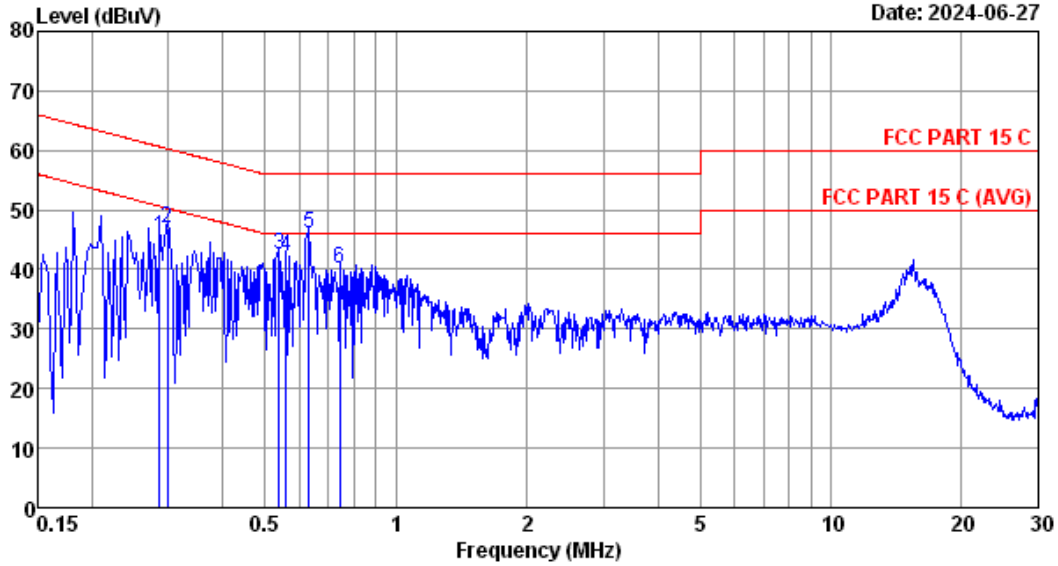
Remarks: 1.Emission Level=LISN Factor+Cable Loss+Reading.
 2.If the average limit is met when using a quasi-peak detector.
 the EUT shall be deemed to meet both limits and measurement
 with average detector is unnecessary.

BLE-2Mbps:

Data: 5

File: E:\1#CE\2024 Report Data\TCL\A1Z2405015-8188X.em6 (10)

Date: 2024-06-27

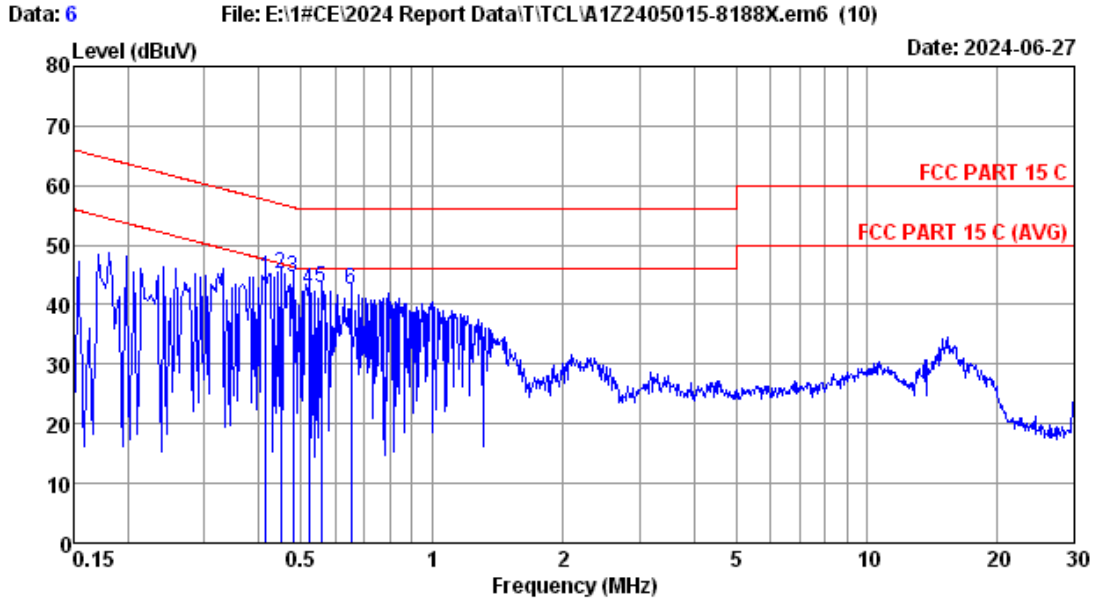


Site no :1# CE
Dis./Lisn :2023 ENV216-N
Limit :FCC PART 15 C
Env./Ins. :22.9°C/52%
Power Rating :AC 120V/60Hz
Test Mode :BLE2M TX Mode

Data No :5
Engineer :Hongjie

No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.286	9.71	0.01	35.79	45.51	60.63	15.12	QP
2	0.299	9.71	0.01	37.26	46.98	60.28	13.30	QP
3	0.538	9.73	0.02	32.63	42.38	56.00	13.62	QP
4	0.558	9.73	0.02	32.49	42.24	56.00	13.76	QP
5	0.630	9.74	0.02	36.27	46.03	56.00	9.97	QP
6	0.743	9.74	0.02	30.34	40.10	56.00	15.90	QP

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



Site no :1# CE Data No :6
 Dis./Lisn :2023 ENV216-L
 Limit :FCC PART 15 C
 Env./Ins. :22.9°C/52% Engineer :Hongjie
 Power Rating :AC 120V/60Hz
 Test Mode :BLE2M TX Mode

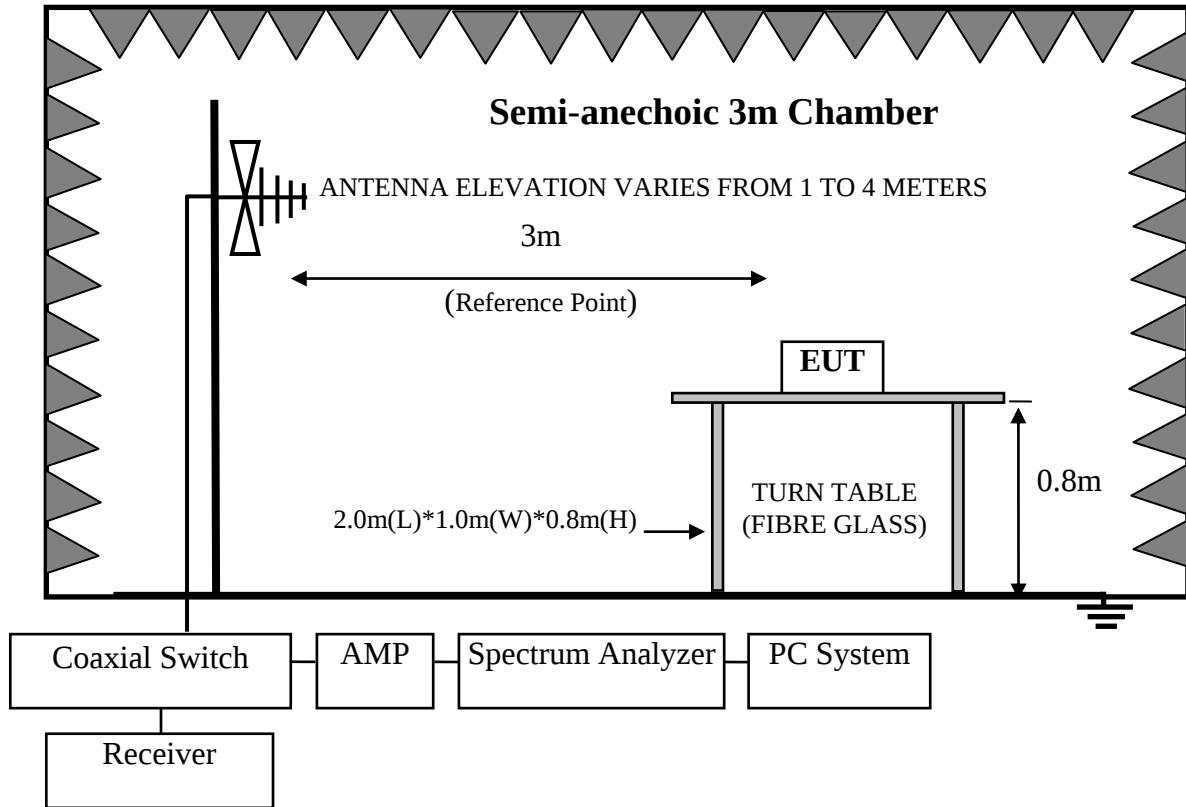
No	Freq (MHz)	LISN Factor (dB)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV)	Limits (dBuV)	Margin (dB)	Remark
1	0.415	9.59	0.02	34.92	44.53	57.55	13.02	QP
2	0.449	9.59	0.02	35.48	45.09	56.89	11.80	QP
3	0.479	9.58	0.02	34.95	44.55	56.36	11.81	QP
4	0.521	9.58	0.02	32.97	42.57	56.00	13.43	QP
5	0.555	9.58	0.02	33.06	42.66	56.00	13.34	QP
6	0.651	9.57	0.02	32.99	42.58	56.00	13.42	QP

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

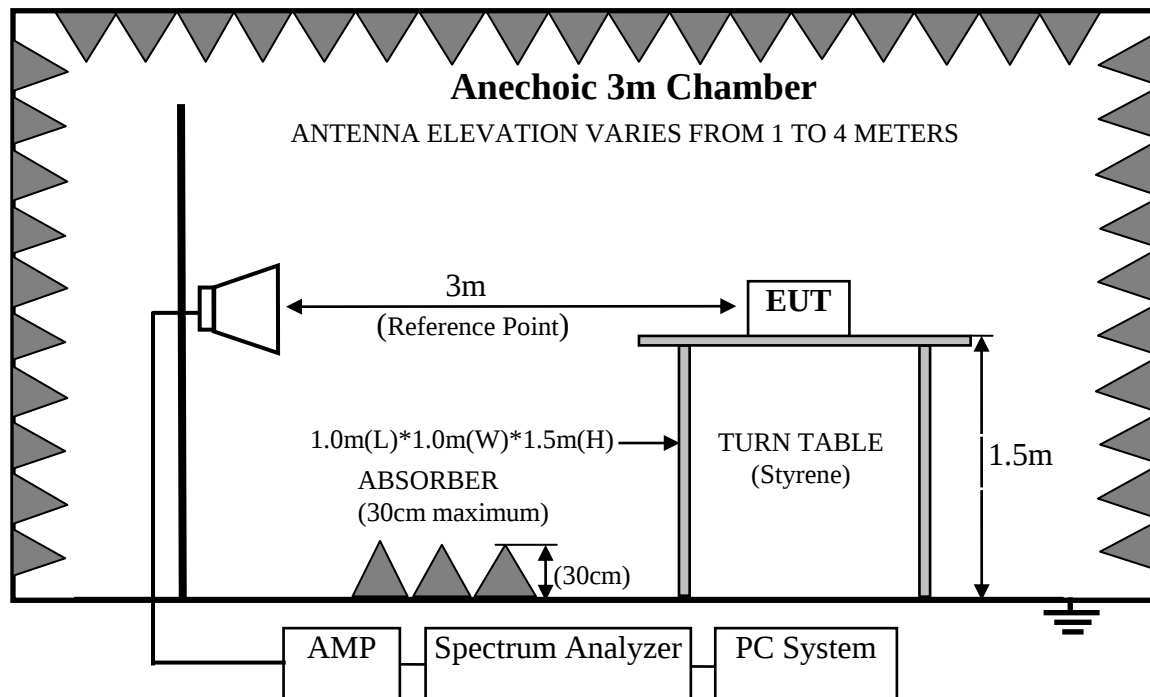
4. RADIATED EMISSION MEASUREMENT

4.1. Block Diagram of Test Setup

For frequency range 30MHz-1000MHz



For frequency range 1GHz-25GHz



4.2. Radiated Emission Limits 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 ($\text{dB}\mu\text{V}/\text{m}$) = Reading (Receiver) ($\text{dB}\mu\text{V}$) + Antenna Factor (dB/m) + Cable Loss (dB)
 Emission Level ($\text{dB}\mu\text{V}/\text{m}$) = Reading (Spectrum) ($\text{dB}\mu\text{V}$) + 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 1000MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

4.3. 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.

4.3.1. Tablet PC (EUT)

Model Number : 8188X
 Serial Number : N/A

4.4. Operating Condition of EUT

- 4.4.1. Setup the EUT and simulator as shown as Section 4.1.
- 4.4.2. Turn on the power of all equipments.
- 4.4.3. Let EUT work in BLE Tx mode.

4.5. Test Procedure

Frequency below 30MHz:

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

Frequency Above 30MHz:

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

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

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

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

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

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

4.6. Radiated Emission Test Results

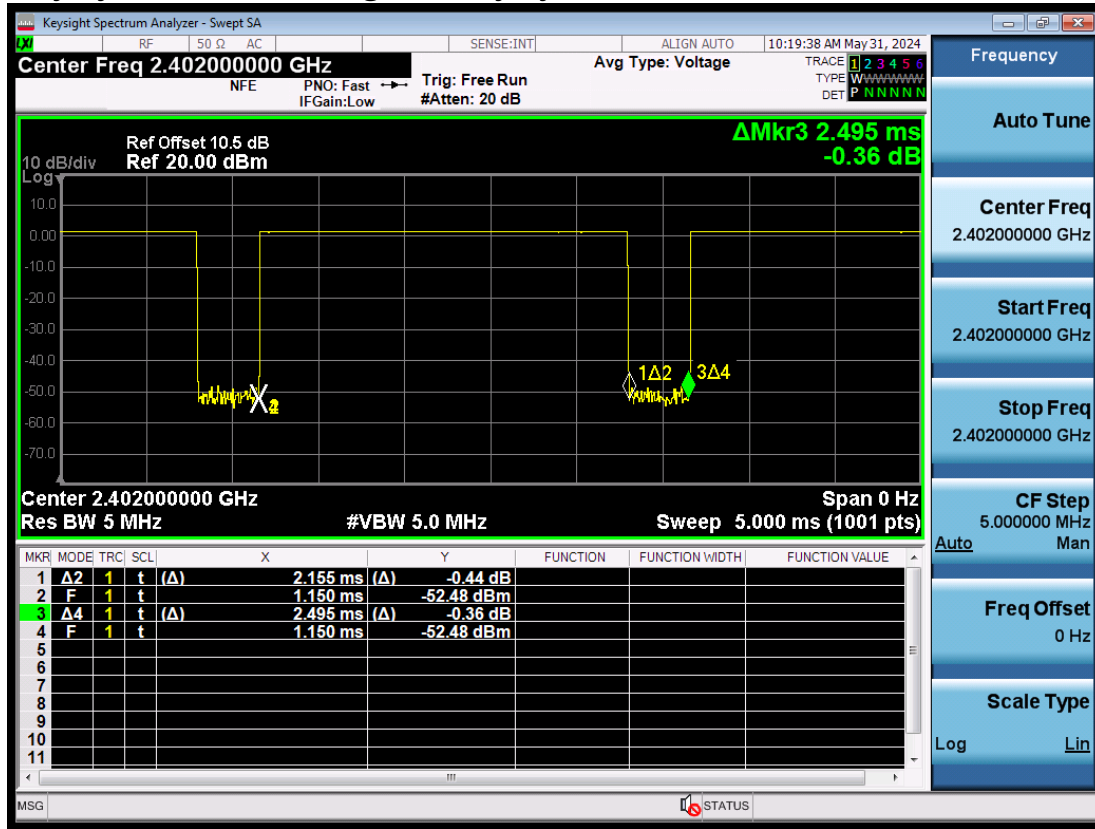
PASS.

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

Note: The duty cycle factor for calculate average level is BLE-1Mbps: -7.941dB; BLE-2Mbps: -5.506dB for BLE, and average limit is 20dB below peak limit, so if peak measured level comply with average limit, the average level was deemed to comply with average limit.

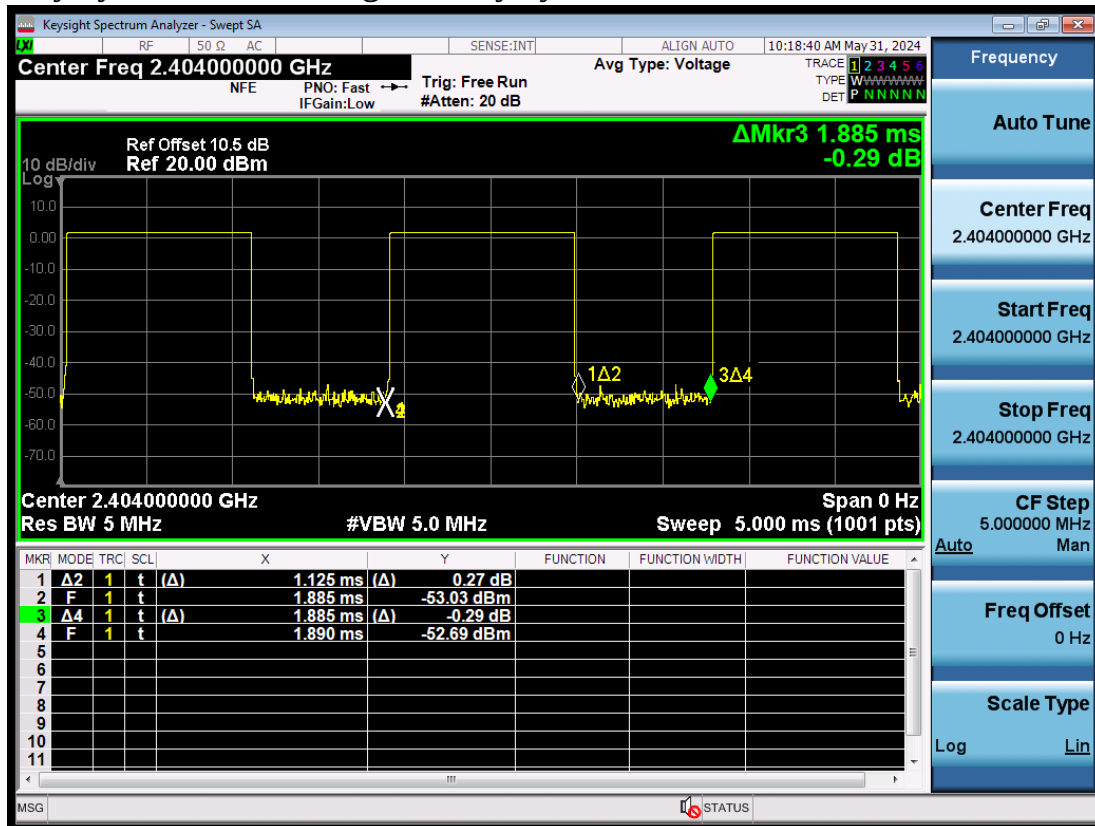
BLE-1Mbps:

Duty cycle factor = $20\log (1/\text{duty cycle}) = -7.941\text{dB}$



BLE-2Mbps:

Duty cycle factor = $20\log (1/\text{duty cycle}) = -5.506\text{dB}$



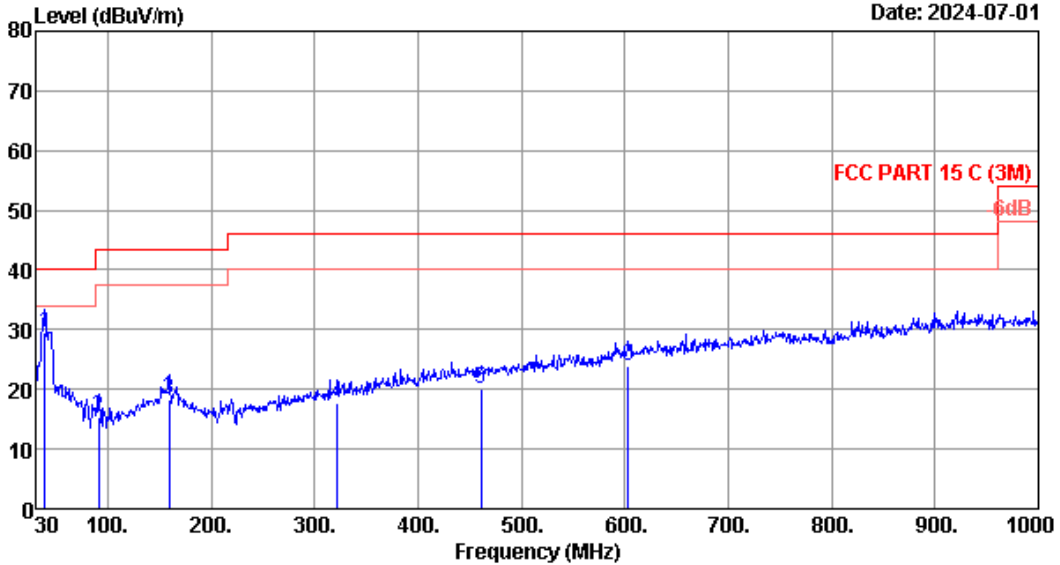
Frequency: 30MHz~1GHz

BLE-1Mbps:

Data: 7

File: E:\2024 Report Data\T\TCL\A1Z2405015-8188X.EM6 (10)

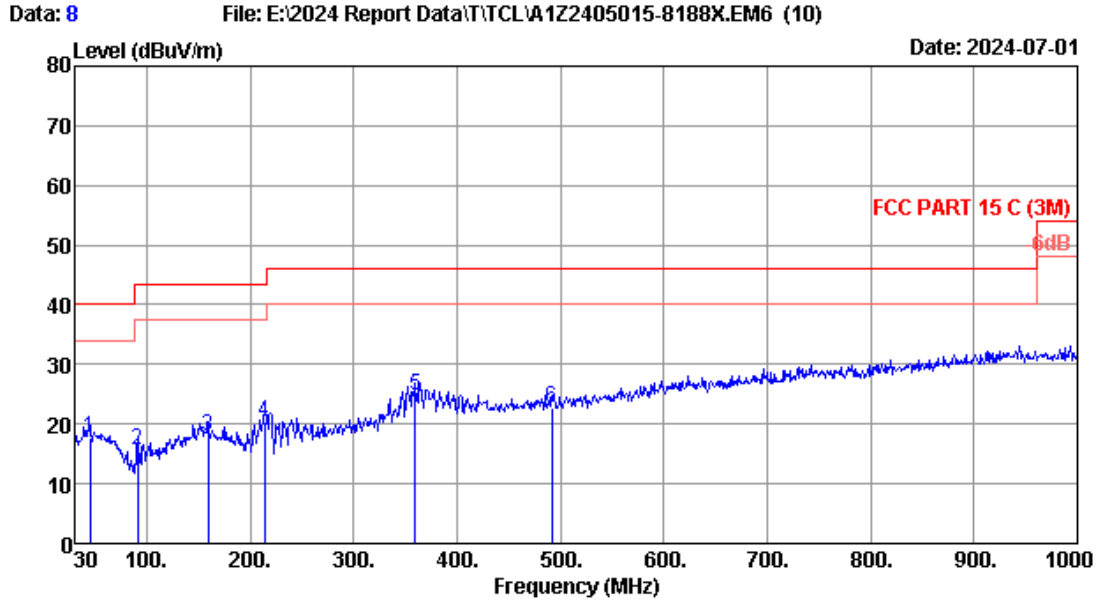
Date: 2024-07-01



Site no. : 3m Chamber Data no. : 7
 Dis. / Ant. : 3m 2023 VULB 9168-429 Ant. pol. : VERTICAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24.0°C/57% Engineer : Abel
 EUT :
 Power rating : AC 120V/60Hz
 Test Mode : BLE1M TX Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	38.730	19.20	0.56	40.03	29.39	40.00	10.61	QP
2	91.110	14.01	0.83	30.46	15.23	43.50	28.27	QP
3	159.010	19.30	1.04	27.58	18.36	43.50	25.14	QP
4	321.970	20.08	1.47	25.07	17.65	46.00	28.35	QP
5	460.680	23.19	1.75	24.77	20.02	46.00	25.98	QP
6	603.270	25.87	2.06	25.74	23.99	46.00	22.01	QP

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

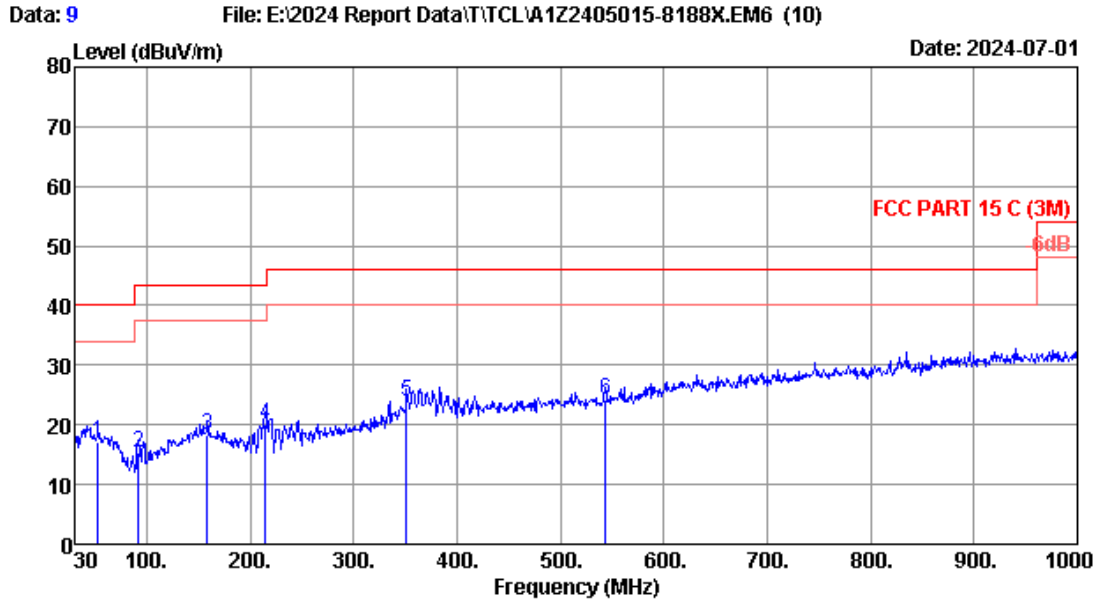


Site no. : 3m Chamber Data no. : 8
 Dis. / Ant. : 3m 2023 VULB 9168-429 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24.0°C/57% Engineer : Abel
 EUT :
 Power rating : AC 120V/60Hz
 Test Mode : BLE1M TX Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	44.550	19.56	0.61	27.96	17.80	40.00	22.20	QP
2	91.110	14.01	0.83	30.92	15.69	43.50	27.81	QP
3	159.010	19.30	1.04	27.31	18.09	43.50	25.41	QP
4	213.330	15.60	1.22	32.74	20.44	43.50	23.06	QP
5	359.800	20.69	1.55	31.64	24.80	46.00	21.20	QP
6	491.720	23.53	1.81	27.45	22.86	46.00	23.14	QP

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

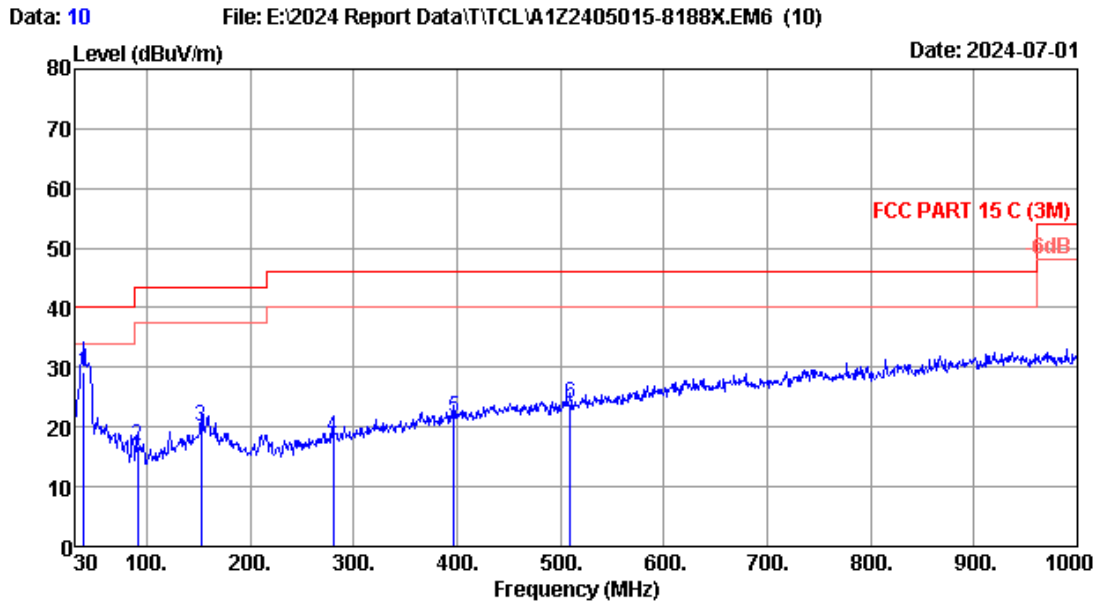
BLE-2Mbps:



Site no. : 3m Chamber Data no. : 9
 Dis. / Ant. : 3m 2023 VULB 9168-429 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24.0°C/57% Engineer : Abel
 EUT :
 Power rating : AC 120V/60Hz
 Test Mode : BLE2M TX Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	52.310	19.74	0.66	26.88	17.05	40.00	22.95	QP
2	92.080	14.11	0.84	30.44	15.31	43.50	28.19	QP
3	158.040	19.30	1.04	27.54	18.31	43.50	25.19	QP
4	214.300	15.60	1.22	32.40	20.08	43.50	23.42	QP
5	351.070	20.32	1.53	31.09	23.89	46.00	22.11	QP
6	543.130	24.33	1.92	27.79	24.17	46.00	21.83	QP

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



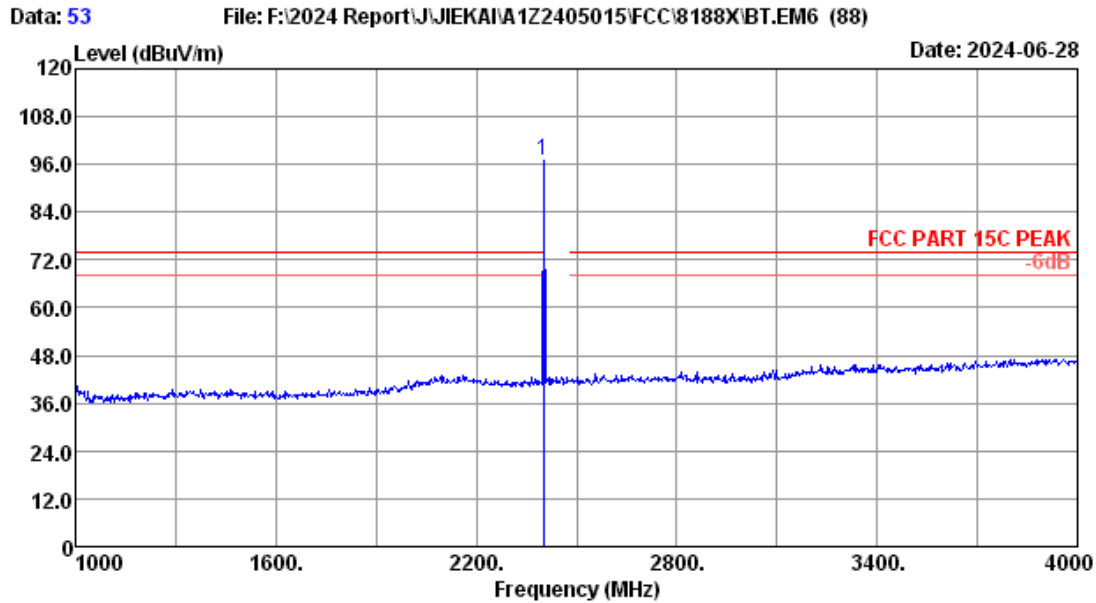
Site no. : 3m Chamber Data no. : 10
 Dis. / Ant. : 3m 2023 VULB 9168-429 Ant. pol. : VERTICAL
 Limit : FCC PART 15 C (3M)
 Env. / Ins. : 24.0°C/57% Engineer : Abel
 EUT :
 Power rating : AC 120V/60Hz
 Test Mode : BLE2M TX Mode

No.	Freq. (MHz)	Ant. Factor (dB/m)	Cable Loss (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Remark
1	38.730	19.20	0.56	39.78	29.14	40.00	10.86	QP
2	91.110	14.01	0.83	32.05	16.82	43.50	26.68	QP
3	152.220	19.40	1.02	29.39	20.15	43.50	23.35	QP
4	280.260	19.01	1.38	27.07	18.42	46.00	27.58	QP
5	396.660	21.43	1.62	27.63	21.49	46.00	24.51	QP
6	509.180	23.88	1.85	28.02	23.78	46.00	22.22	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

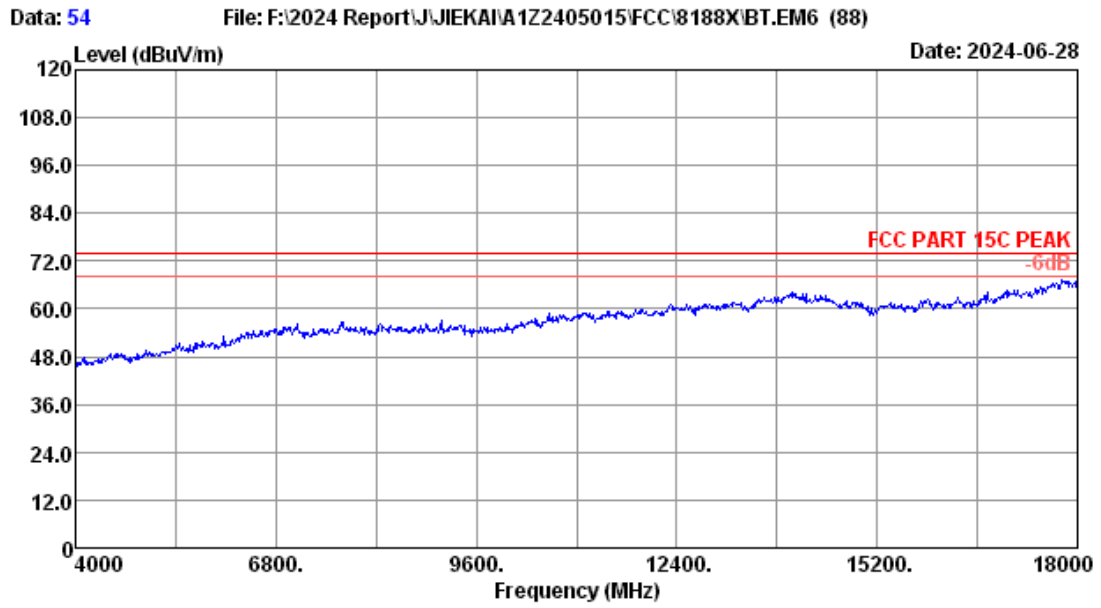
BLE-1Mbps:



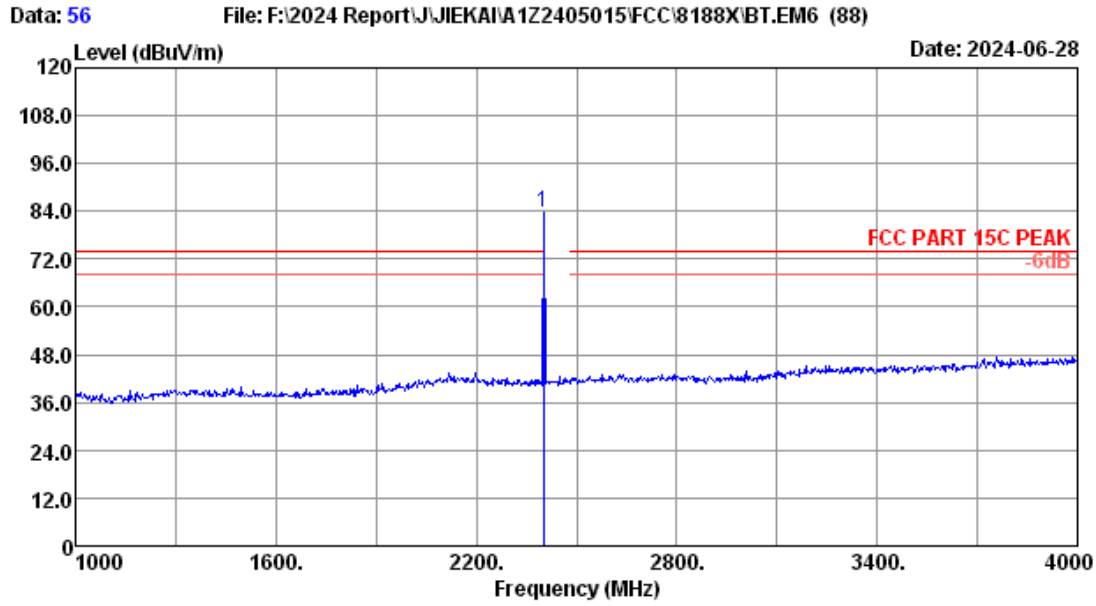
Site no. : 3m Chamber Data no. : 53
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : winter
 Test Mode : BLE1M 2402MHz TX Mode

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	27.61	2.84	98.21	31.70	96.96	-----	-----	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.



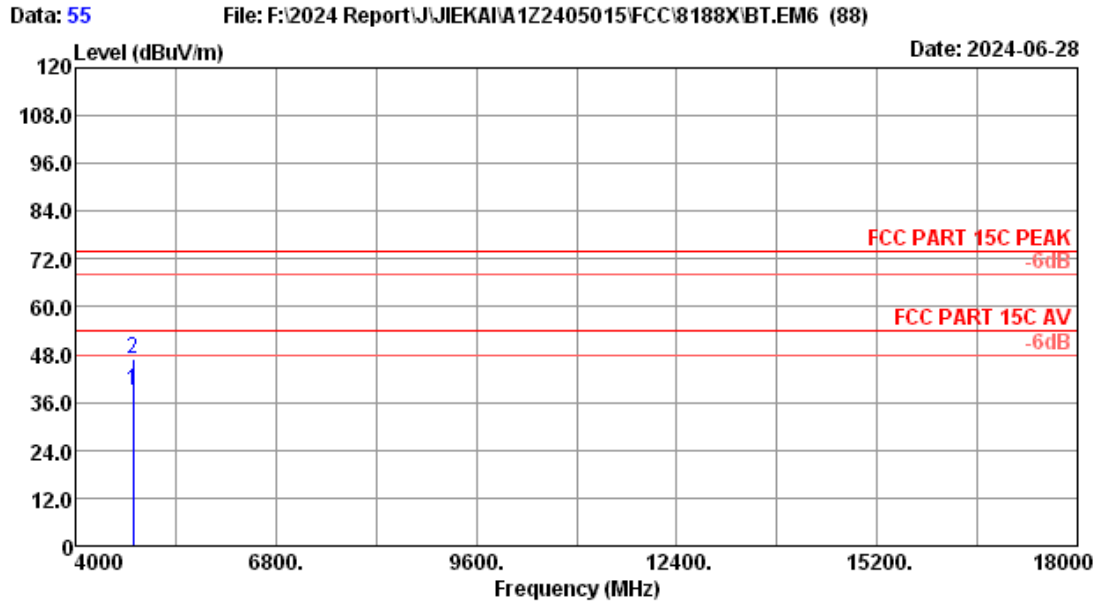
Site no.	: 3m Chamber	Data no.	: 54
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: HORIZONTAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: winter
Test Mode	: BLE1M 2402MHz TX Mode		



Site no. : 3m Chamber Data no. : 56
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : winter
 Test Mode : BLE1M 2402MHz TX Mode

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	27.61	2.84	85.06	31.70	83.81	-----	-----	Peak

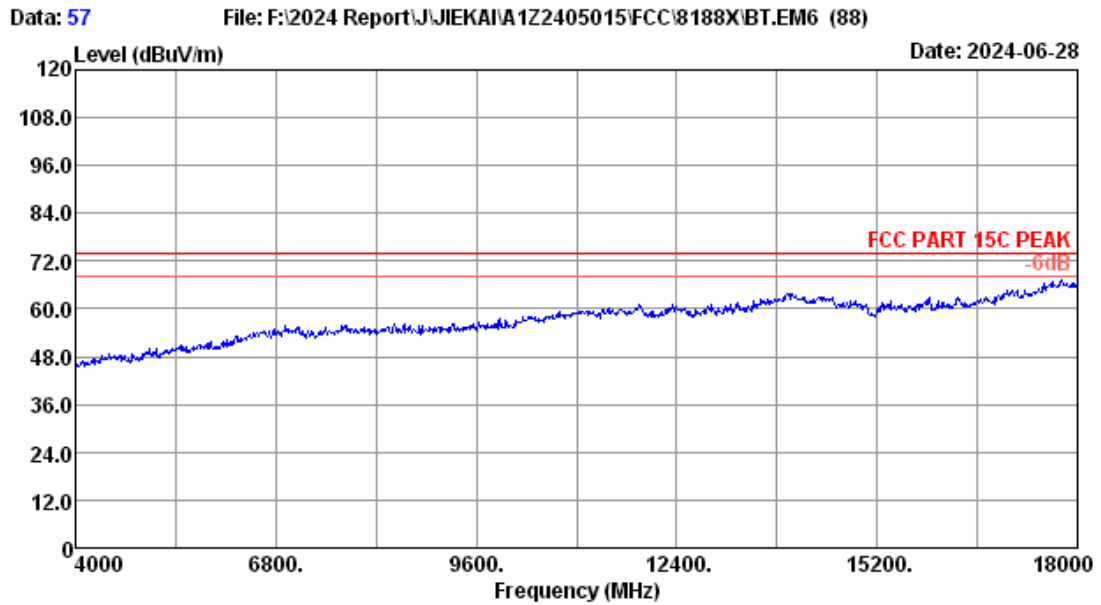
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp factor.
 2. The emission levels that are 20dB below the official
 limit are not reported.



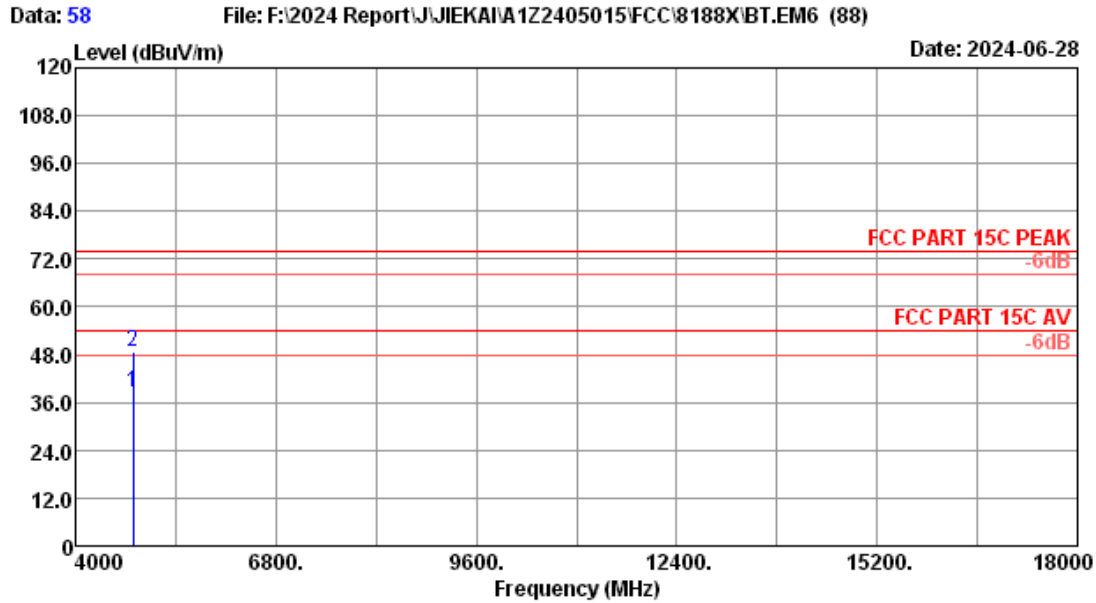
Site no. : 3m Chamber Data no. : 55
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : HORIZONTAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : winter
 Test Mode : BLE1M 2402MHz TX Mode

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	4804.00	31.20	3.95	34.11	30.42	38.84	54.00	15.16	Average
2	4804.00	31.20	3.95	42.30	30.42	47.03	74.00	26.97	Peak

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



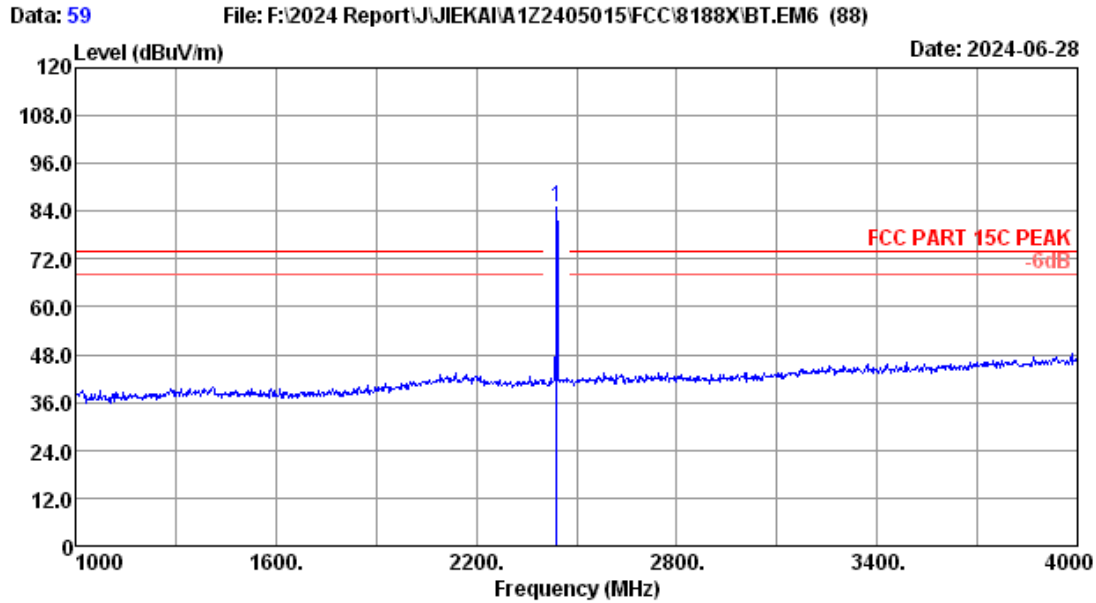
Site no.	: 3m Chamber	Data no.	: 57
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: winter
Test Mode	: BLE1M 2402MHz TX Mode		



Site no. : 3m Chamber Data no. : 58
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : winter
 Test Mode : BLE1M 2402MHz TX Mode

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	4804.00	31.20	3.95	33.69	30.42	38.42	54.00	15.58	Average
2	4804.00	31.20	3.95	43.91	30.42	48.64	74.00	25.36	Peak

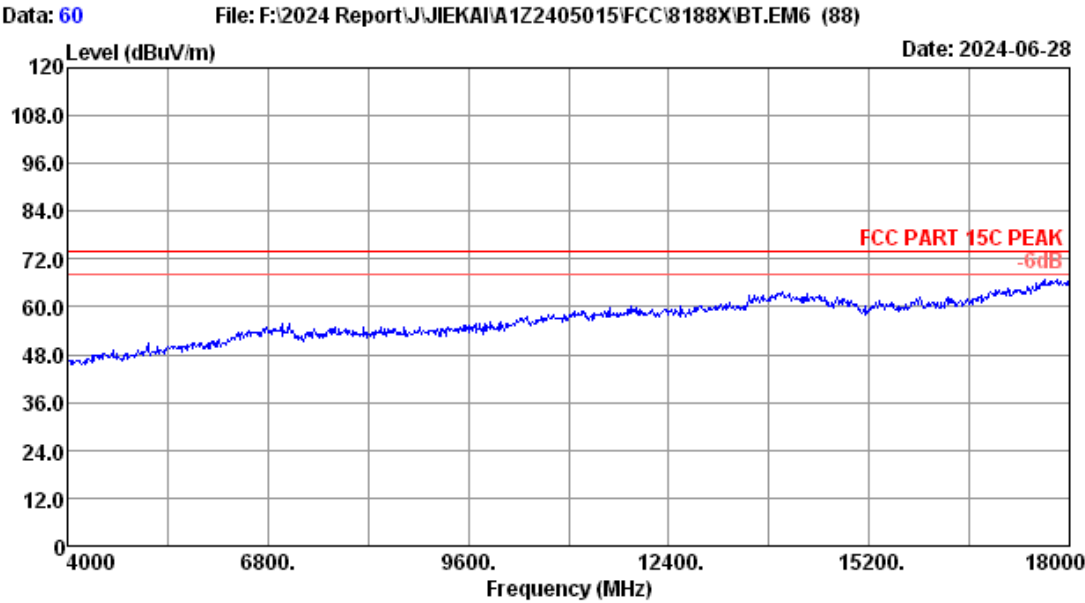
Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading
 -Amp factor.
 2. The emission levels that are 20dB below the official
 limit are not reported.



Site no. : 3m Chamber Data no. : 59
 Dis. / Ant. : 3m 2023 MCTD1209-3006 Ant. pol. : VERTICAL
 Limit : FCC PART 15C PEAK
 Env. / Ins. : 23.2°C/52.5% Engineer : winter
 Test Mode : BLE1M 2440MHz TX Mode

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	27.76	2.86	86.28	31.68	85.22	-----	-----	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.	: 60
Dis. / Ant.	: 3m 2023 MCTD1209-3006	Ant. pol.	: VERTICAL
Limit	: FCC PART 15C PEAK		
Env. / Ins.	: 23.2°C/52.5%	Engineer	: winter
Test Mode	: BLE1M 2440MHz TX Mode		