

RF TEST REPORT

For

Shenzhen Blue Times Technology Co.,Ltd

Product Name: 5000mAh Ultra-thin Magnetic Wireless Power Bank

Test Model(s): LWP-05103A01

Report Reference No. : DACE240819002RF001

FCC ID : 2AW54-LWP05103

Applicant's Name : Shenzhen Blue Times Technology Co.,Ltd

Address : B Block,Taixinglong Tech. Zone,Hezhou, Xixiang Town, Baoan District,
Shenzhen, Guangdong Province 518126, China

Testing Laboratory : Shenzhen DACE Testing Technology Co., Ltd.

Address : 101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology
Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China

Test Specification Standard : 47 CFR Part 15.209

Date of Receipt : August 16, 2024

Date of Test : August 16, 2024 to September 9, 2024

Data of Issue : September 9, 2024

Result : Pass

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Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE240819002RF001	September 9, 2024

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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CONTENTS

1 TEST SUMMARY	4
1.1 TEST STANDARDS	4
1.2 SUMMARY OF TEST RESULT	4
2 GENERAL INFORMATION	5
2.1 CLIENT INFORMATION	5
2.2 DESCRIPTION OF DEVICE (EUT)*	5
2.3 DESCRIPTION OF TEST MODES	5
2.4 DESCRIPTION OF SUPPORT UNITS	5
2.5 EQUIPMENTS USED DURING THE TEST	6
2.6 STATEMENT OF THE MEASUREMENT UNCERTAINTY	7
2.7 AUTHORIZATIONS	7
2.8 ANNOUNCEMENT	7
3 EVALUATION RESULTS (EVALUATION)	8
3.1 ANTENNA REQUIREMENT	8
3.1.1 Conclusion:	8
4 RADIO SPECTRUM MATTER TEST RESULTS (RF)	9
4.1 CONDUCTED EMISSION AT AC POWER LINE	9
4.1.1 E.U.T. Operation:	9
4.1.2 Test Setup Diagram:	9
4.1.3 Test Data:	10
4.2 20dB OCCUPIED BANDWIDTH	12
4.2.1 E.U.T. Operation:	12
4.2.2 Test Setup Diagram:	13
4.2.3 Test Data:	13
4.3 EMISSIONS IN FREQUENCY BANDS (BELOW 30MHz)	15
4.3.1 E.U.T. Operation:	15
4.3.2 Test Setup Diagram:	16
4.3.3 Test Data:	16
4.4 EMISSIONS IN FREQUENCY BANDS (30MHz - 1GHz)	17
4.4.1 E.U.T. Operation:	17
4.4.2 Test Setup Diagram:	18
4.4.3 Test Data:	18
5 TEST SETUP PHOTOS	20
6 PHOTOS OF THE EUT	20

1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.209: Radiated emission limits; general requirements

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Antenna requirement	47 CFR Part 15.209	/	47 CFR Part 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.209	ANSI C63.10-2013 section 6.2	47 CFR Part 15.207(a)	Pass
20dB Occupied Bandwidth	47 CFR Part 15.209	ANSI C63.10-2013, section 6.9.2	47 CFR Part 15.215(c)	Pass
Emissions in frequency bands (below 30MHz)	47 CFR Part 15.209	ANSI C63.10-2013 section 6.4	47 CFR Part 15.209	Pass
Emissions in frequency bands (30MHz - 1GHz)	47 CFR Part 15.209	ANSI C63.10-2013 section 6.5	47 CFR Part 15.209	Pass

Note: 1.N/A -this device(EUT) is not applicable to this testing item

2. RF-conducted test results including cable loss.

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : Shenzhen Blue Times Technology Co.,Ltd
Address : B Block,Taixinglong Tech. Zone,Hezhou, Xixiang Town, Baoan District, Shenzhen, Guangdong Province 518126, China

Manufacturer : Shenzhen Blue Times Technology Co.,Ltd
Address : B Block,Taixinglong Tech. Zone,Hezhou, Xixiang Town, Baoan District, Shenzhen, Guangdong Province 518126, China

2.2 Description of Device (EUT)*

Product Name:	5000mAh Ultra-thin Magnetic Wireless Power Bank
Model/Type reference:	LWP-05103A01
Trade Mark:	BlueTimes
Product Description:	5000mAh Ultra-thin Magnetic Wireless Power Bank
Power Supply:	Battery(5000mAh/19.35Wh), charging by USB-C PD 5V-2.4A
Operation range:	125KHz --205KHz
Number of Channels:	N/A
Modulation Type:	FSK
Antenna Type:	Inductive loop coil Antenna
Antenna Gain:	0dBi
Hardware Version:	V1.0
Software Version:	/

2.3 Description of Test Modes

No	Description
TM1	AC/DC Adapter (5V/2.4A)+EUT +Mobile Phone(Battery Status:<1%)
TM2	AC/DC Adapter (5V/2.4A)+EUT +Mobile Phone(Battery Status:<50%)
TM3	AC/DC Adapter (5V/2.4A)+EUT +Mobile Phone(Battery Status:<100%)
TM4	EUT + Load Wireless (Battery Status:<1%)
TM5	EUT + Load Wireless (Battery Status:<50%)
TM6	EUT + Load Wireless (Battery Status:<100%)
Remark: All test modes(TM1 toTM6) were pre-tested, but we only recorded the worst case(TM1&TM4) in this report. In TM1 – TM3 mode, the maximum wireless charging output power is 5W. TM4/TM5/TM6 the maximum wireless charging output power is 10W.	

2.4 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
AC-DC adapter	PHOTON	ATXC-069AC65B	/
USB Cable	POCE	USB01	/

Wireless Charging Load Module	Hanwei	/	Wireless Input Power:5W/7.5W/10W/15W
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2.5 Equipments Used During The Test

Conducted Emission at AC power line

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Cable	SCHWARZ BECK	/	/	2024-03-20	2025-03-19
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB	561-G071	2023-12-12	2024-12-11
50ΩCoaxial Switch	Anritsu	MP59B	M20531	/	/
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	1164.6607K03-102109-MH	2024-06-12	2025-06-11
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2024-06-14	2025-06-13
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2023-12-12	2024-12-11
EMI test software	EZ -EMC	EZ	V1.1.42	/	/

20dB Occupied Bandwidth

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	Tachoy Information	RTS-01	V2.0.0.0	/	/
RF Sensor Unit	Tachoy Information	TR1029-2	000001	/	/
Vector signal generator	Keysight	N5181A	MY48180415	2023-11-09	2024-11-08
Signal generator	Keysight	N5182A	MY50143455	2023-11-09	2024-11-08
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11

Emissions in frequency bands (below 30MHz)

Emissions in frequency bands (30MHz - 1GHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	/
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2024-06-14	2026-06-13
Cable(LF)#2	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-03-20	2025-03-19
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-03-20	2025-03-19
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2024-06-12	2025-06-11
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2024-06-12	2025-06-11
Spectrum Analyzer	R&S	FSP30	1321.3008K40-101729-jR	2024-06-12	2025-06-11
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20
Test Receiver	R&S	ESCI	102109	2024-06-12	2025-06-11

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	±2.72dB
Occupied Bandwidth	±3.63%
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

2.7 Authorizations

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen DACE Testing Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342
Test Firm Registration No.:	778666
A2LA Certificate Number:	6270.01

2.8 Announcement

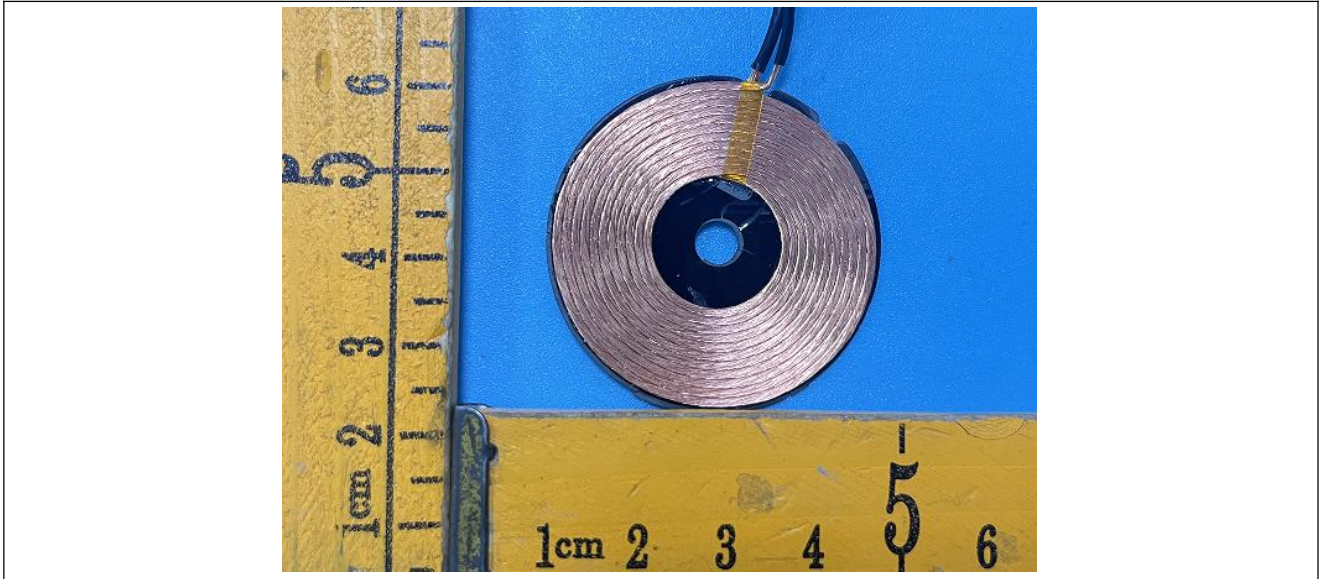
- (1) The test report reference to the report template version v0.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) This document may not be altered or revised in any way unless done so by DACE and all revisions are duly noted in the revisions section.
- (5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (6) We hereby declare that the laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant(information with "*" provided by applicant). the laboratory is not responsible for the accuracy of the information provided by the client. When the information provided by the customer may affect the effectiveness of the results, the responsibility lies with the customer, and the laboratory does not assume any responsibility.

3 Evaluation Results (Evaluation)

3.1 Antenna requirement

Test Requirement:	Refer to 47 CFR Part 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. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.
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3.1.1 Conclusion:



4 Radio Spectrum Matter Test Results (RF)

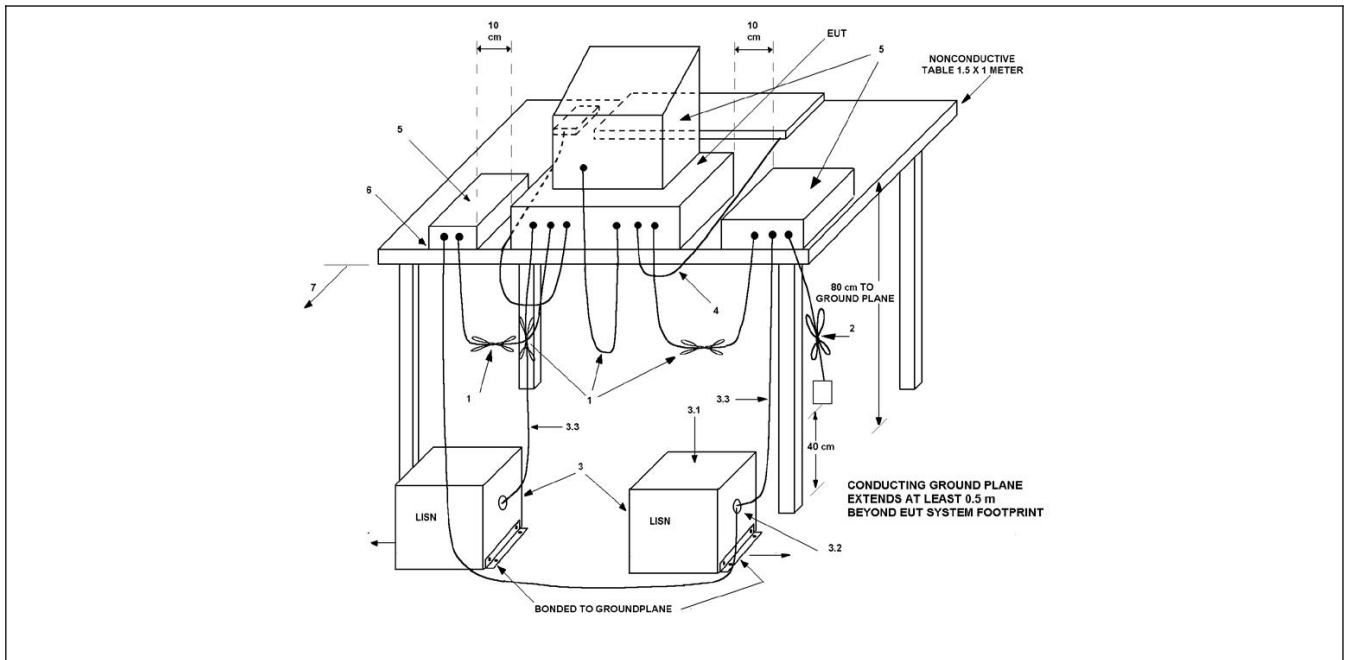
4.1 Conducted Emission at AC power line

Test Requirement:	Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
*Decreases with the logarithm of the frequency.			
Test Method:	ANSI C63.10-2013 section 6.2		
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

4.1.1 E.U.T. Operation:

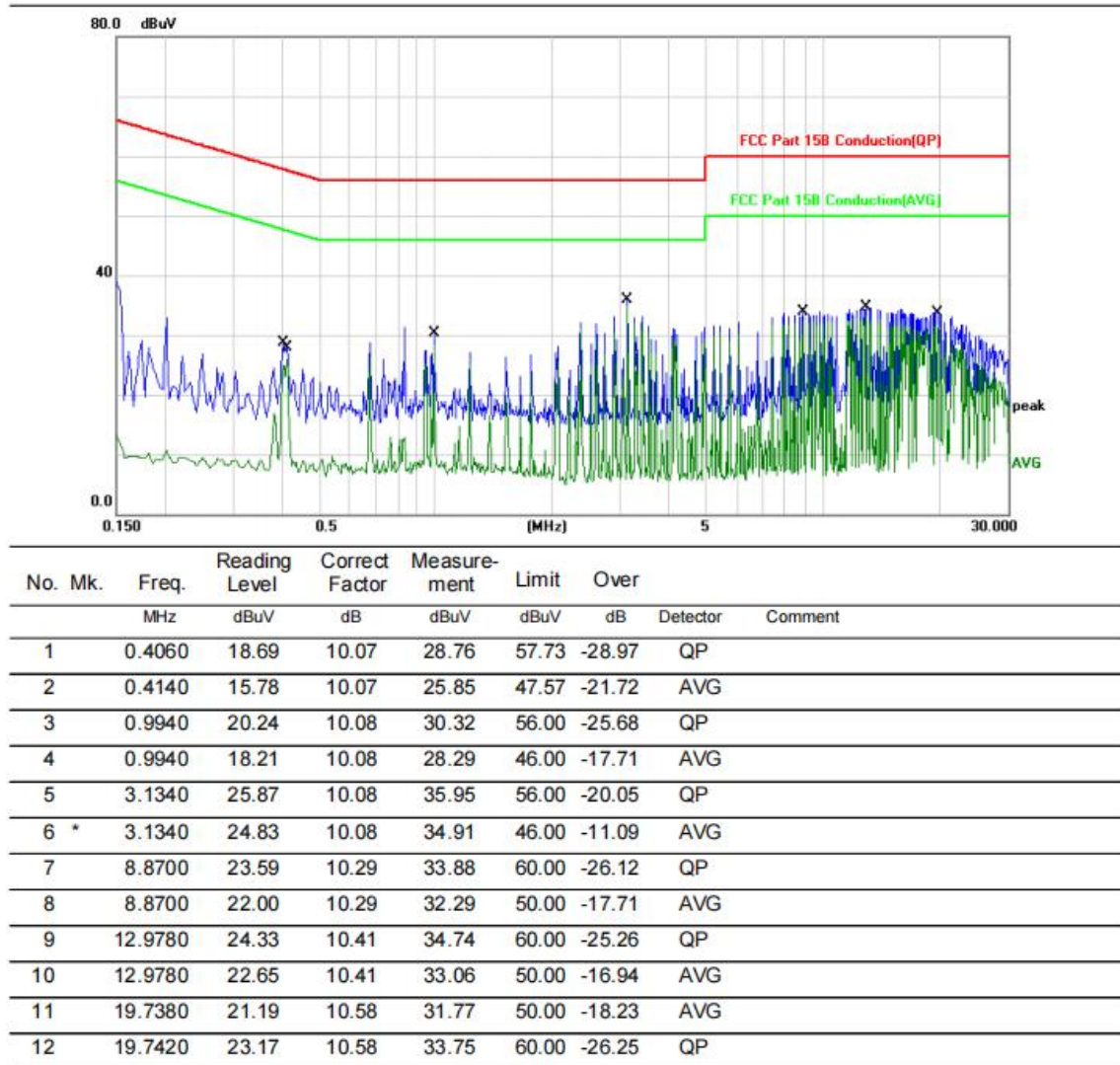
Operating Environment:			
Temperature:	22.6 °C	Humidity:	49 %
		Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6		
Final test mode:	TM1		

4.1.2 Test Setup Diagram:

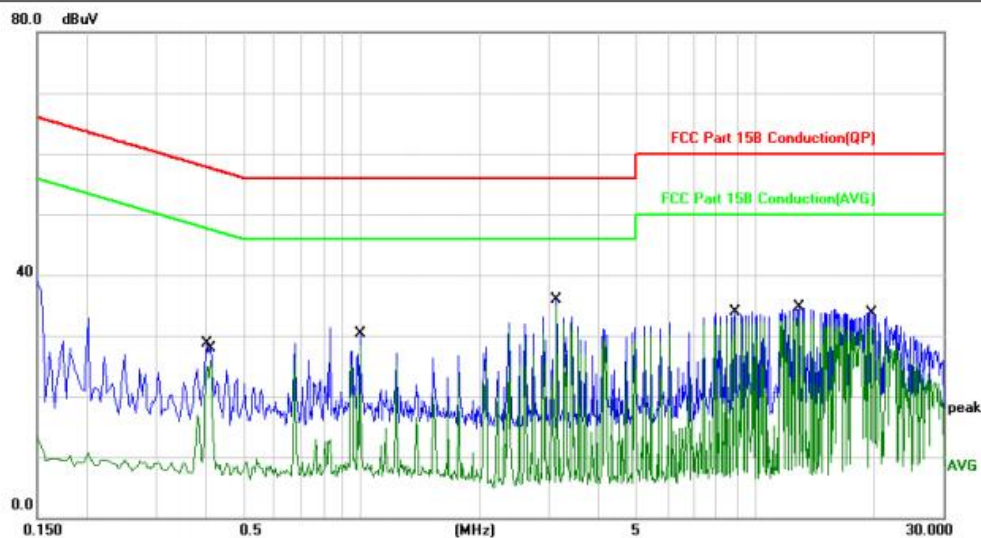


4.1.3 Test Data:

TM1 / Line: Line



TM1 / Line: Neutral



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.4060	18.69	10.07	28.76	57.73	-28.97	QP	
2		0.4140	15.78	10.07	25.85	47.57	-21.72	AVG	
3		0.9940	20.24	10.08	30.32	56.00	-25.68	QP	
4		0.9940	18.21	10.08	28.29	46.00	-17.71	AVG	
5		3.1340	25.87	10.08	35.95	56.00	-20.05	QP	
6	*	3.1340	24.83	10.08	34.91	46.00	-11.09	AVG	
7		8.8700	23.59	10.29	33.88	60.00	-26.12	QP	
8		8.8700	22.00	10.29	32.29	50.00	-17.71	AVG	
9		12.9780	24.33	10.41	34.74	60.00	-25.26	QP	
10		12.9780	22.65	10.41	33.06	50.00	-16.94	AVG	
11		19.7380	21.19	10.58	31.77	50.00	-18.23	AVG	
12		19.7420	23.17	10.58	33.75	60.00	-26.25	QP	

4.2 20dB Occupied Bandwidth

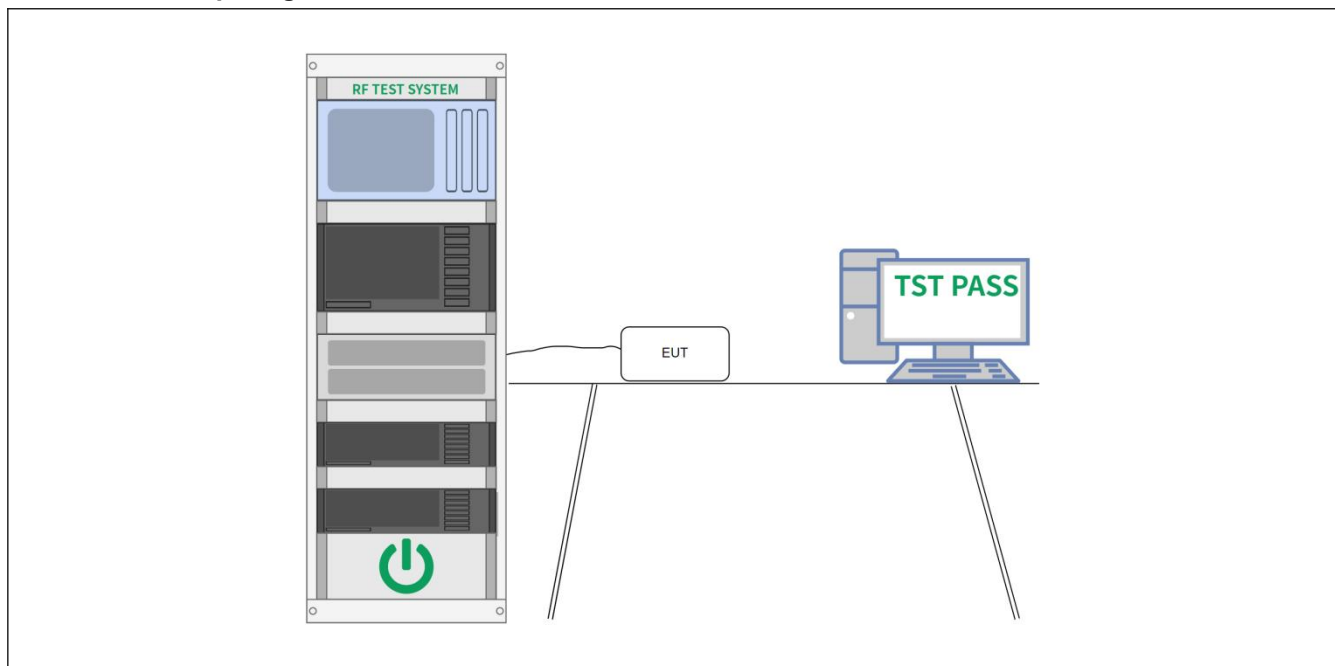
Test Requirement:	47 CFR Part 15.215(c)
Test Limit:	Refer to 47 CFR 15.215(c), intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§ 15.217 through 15.257 and in subpart E of this part, must be designed to ensure that the 20 dB bandwidth of 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.
Test Method:	ANSI C63.10-2013, section 6.9.2
Procedure:	a) The spectrum analyzer center frequency is set to the nominal EUT channel center frequency. The span range for the EMI receiver or spectrum analyzer shall be between two times and five times the OBW. b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW and video bandwidth (VBW) shall be approximately three times RBW, unless otherwise specified by the applicable requirement. c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2. d) Steps a) through c) might require iteration to adjust within the specified tolerances. e) The dynamic range of the instrument at the selected RBW shall be more than 10 dB below the target “-xx dB down” requirement; that is, if the requirement calls for measuring the -20 dB OBW, the instrument noise floor at the selected RBW shall be at least 30 dB below the reference value. f) Set detection mode to peak and trace mode to max hold. g) Determine the reference value: Set the EUT to transmit an unmodulated carrier or modulated signal, as applicable. Allow the trace to stabilize. Set the spectrum analyzer marker to the highest level of the displayed trace (this is the reference value). h) Determine the “-xx dB down amplitude” using $[(\text{reference value}) - xx]$. Alternatively, this calculation may be made by using the marker-delta function of the instrument. i) If the reference value is determined by an unmodulated carrier, then turn the EUT modulation ON, and either clear the existing trace or start a new trace on the spectrum analyzer and allow the new trace to stabilize. Otherwise, the trace from step g) shall be used for step j). j) Place two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-xx dB down amplitude” determined in step h). If a marker is below this “-xx dB down amplitude” value, then it shall be as close as possible to this value. The occupied bandwidth is the frequency difference between the two markers. Alternatively, set a marker at the lowest frequency of the envelope of the spectral display, such that the marker is at or slightly below the “-xx dB down amplitude” determined in step h). Reset the marker-delta function and move the marker to the other side of the emission until the delta marker amplitude is at the same level as the reference marker amplitude. The marker-delta frequency reading at this point is the specified emission bandwidth. k) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.6 °C	Humidity:	49 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM4				

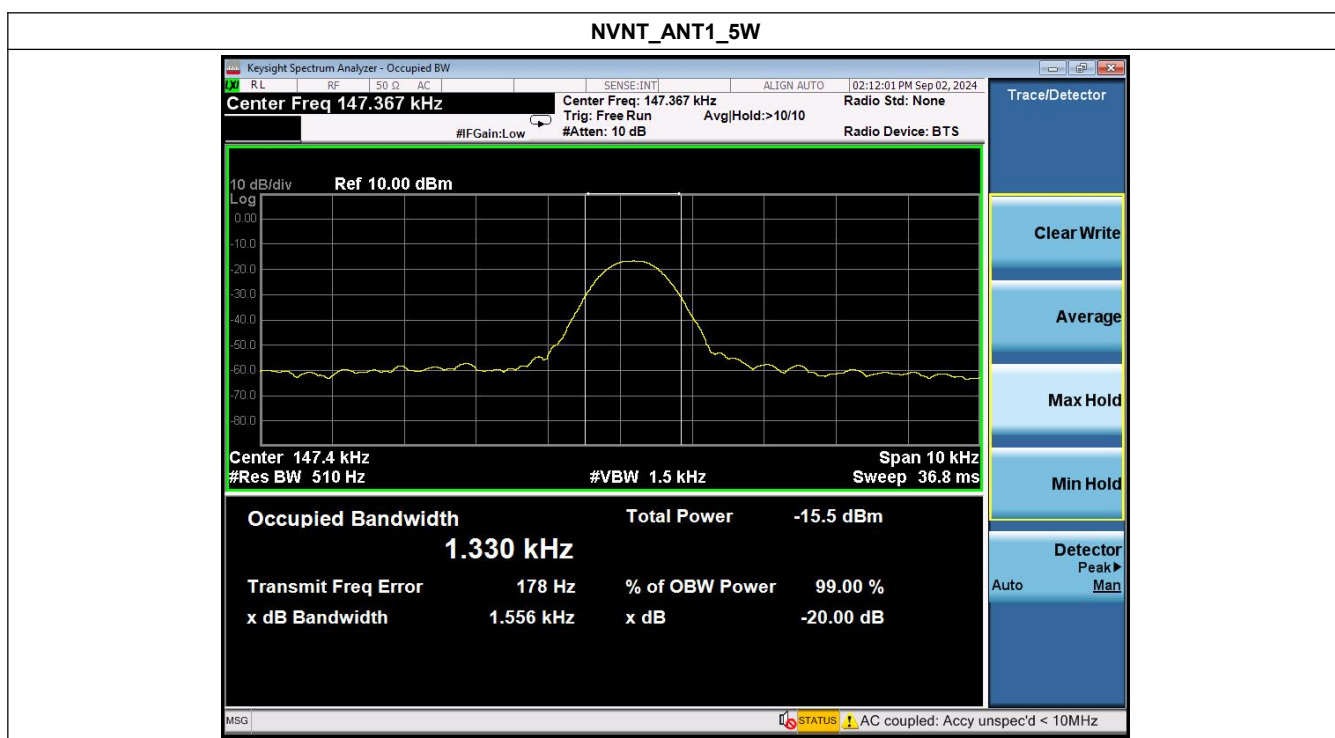
Final test mode: TM4

4.2.2 Test Setup Diagram:

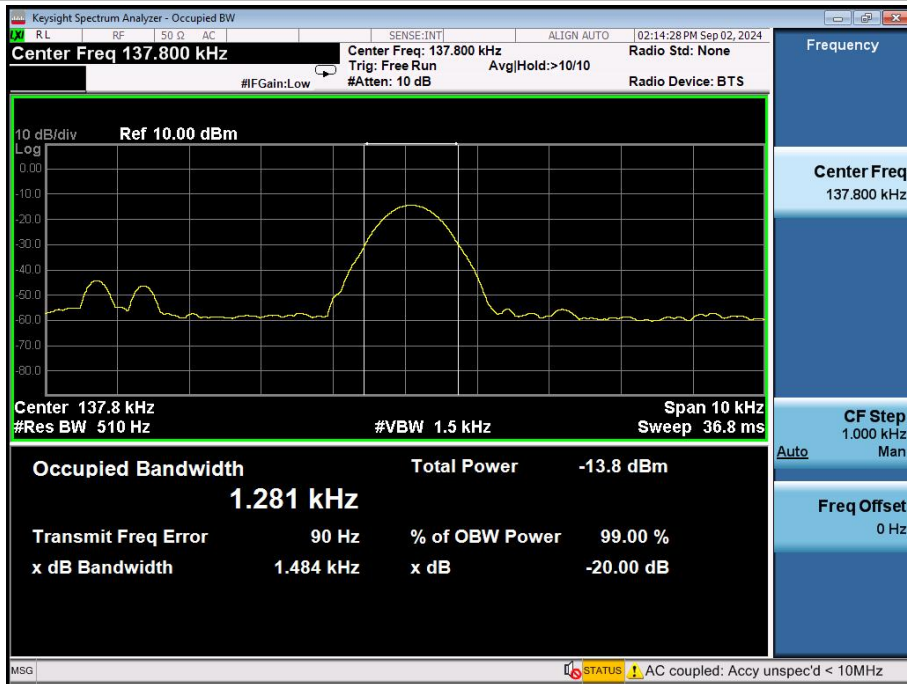


4.2.3 Test Data:

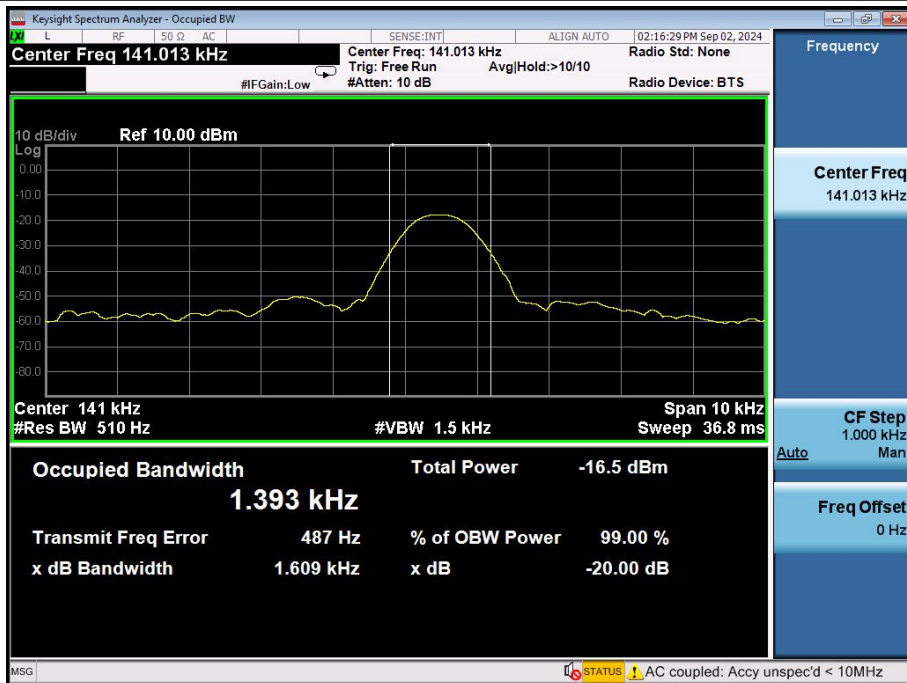
Condition	Antenna	Modulation	Frequency (KHz)	-20dB BW(kHz)
NVNT	ANT1	FSK	147.4(5W)	1.556
NVNT	ANT1	FSK	137.8(7.5W)	1.484
NVNT	ANT1	FSK	141.0(10W)	1.609



NVNT_ANT1_7.5W



NVNT_ANT1_10W



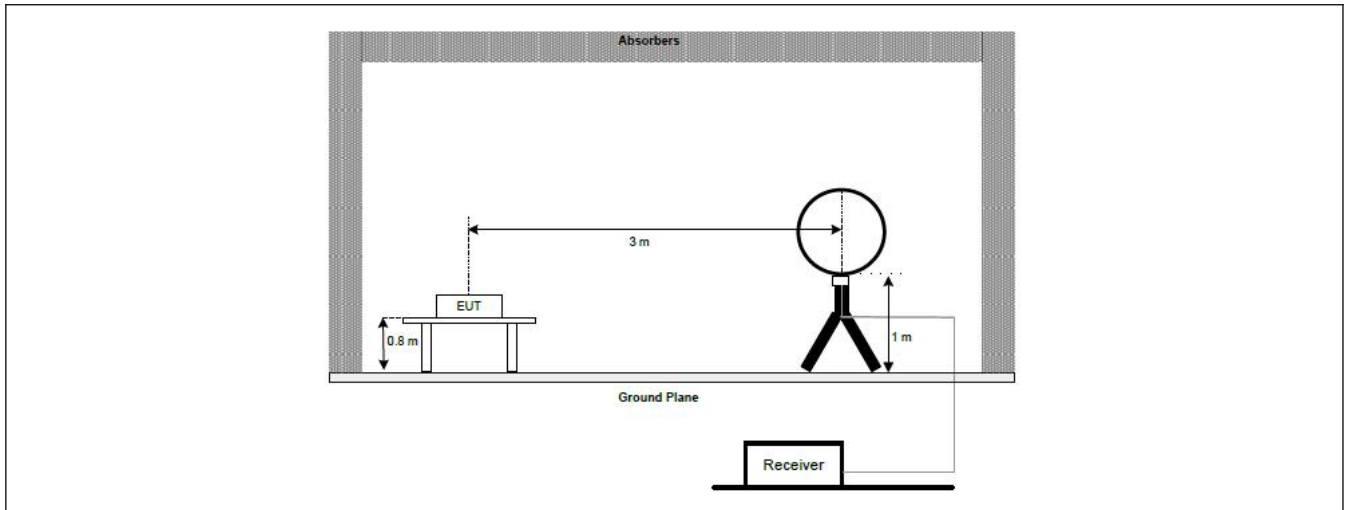
4.3 Emissions in frequency bands (below 30MHz)

Test Requirement:	47 CFR Part 15.209		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. 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. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.			
Test Method:	ANSI C63.10-2013 section 6.4		
Procedure:	ANSI C63.10-2013 section 6.4		

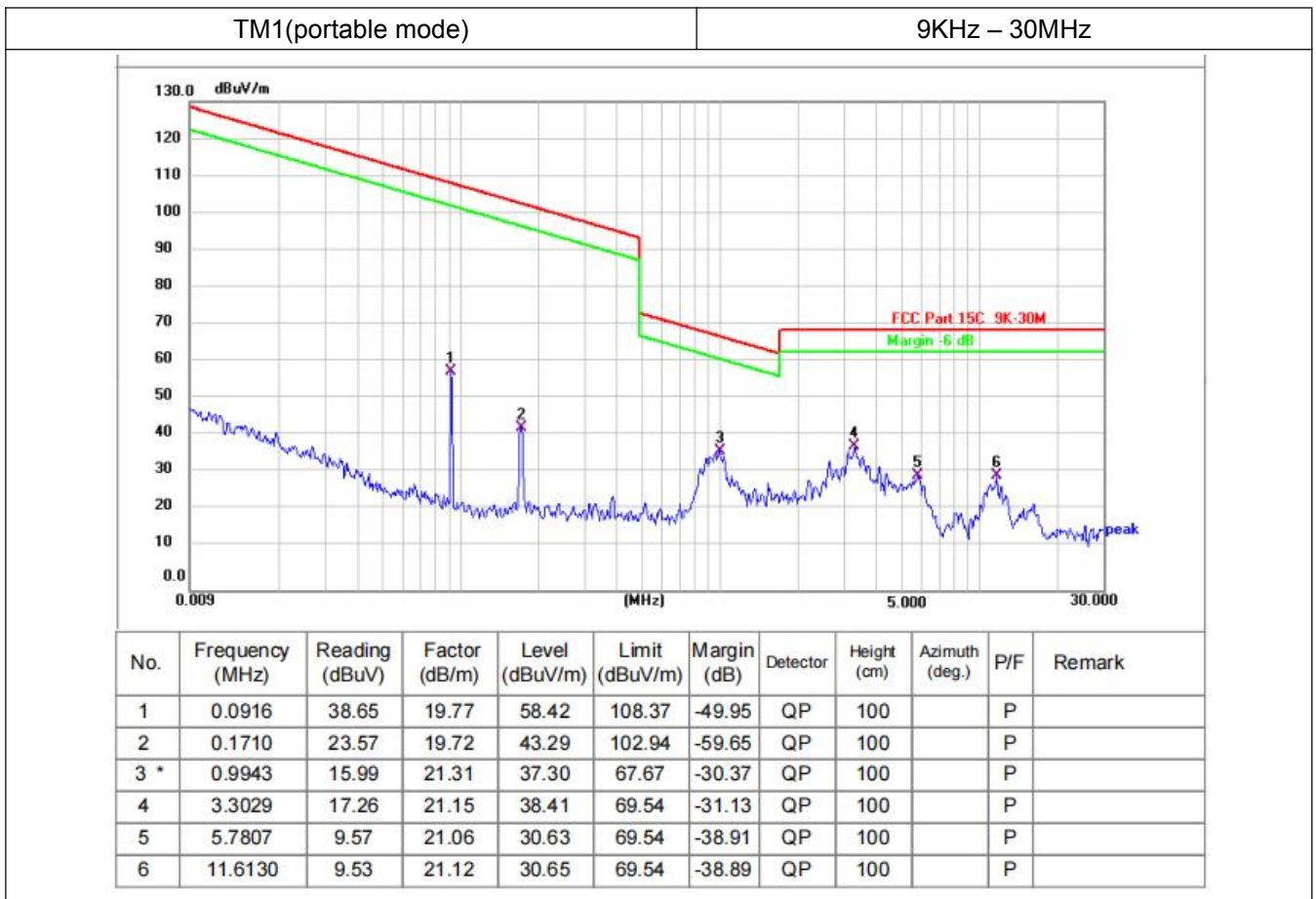
4.3.1 E.U.T. Operation:

Operating Environment:			
Temperature:	22.6 °C	Humidity:	49 %
		Atmospheric Pressure:	102 kPa
Pretest mode:	TM1		
Final test mode:	TM1		

4.3.2 Test Setup Diagram:



4.3.3 Test Data:



Remark: Margin=Level - Limit;Level=Test receiver reading + correction factor

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

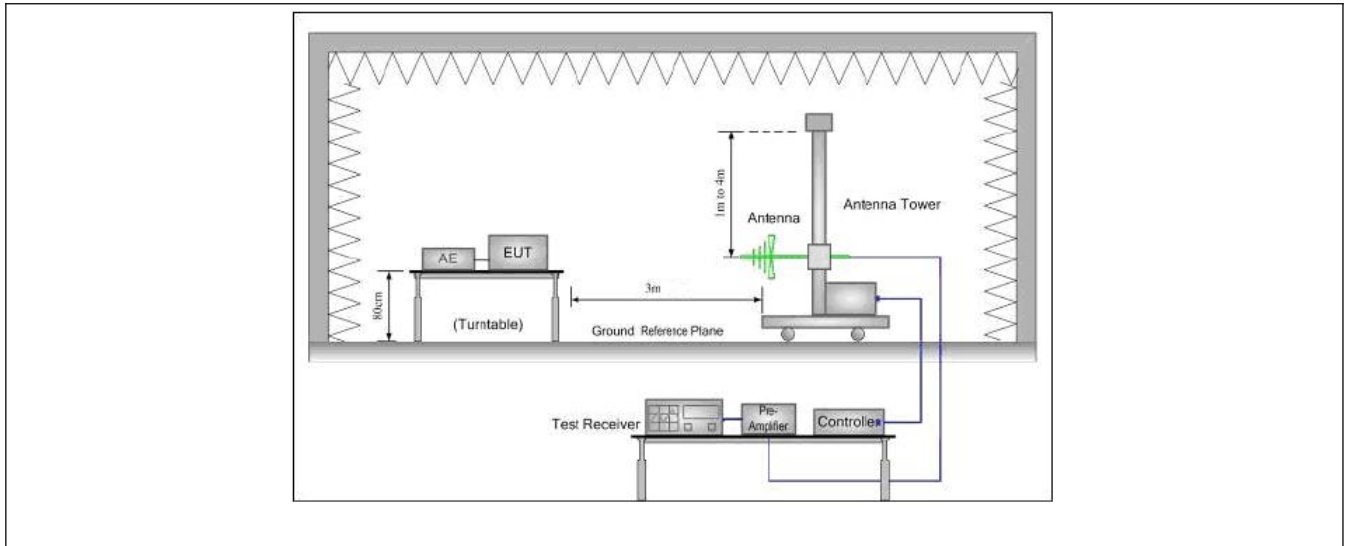
4.4 Emissions in frequency bands (30MHz - 1GHz)

Test Requirement:	47 CFR Part 15.209		
Test Limit:	Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
	0.009-0.490	2400/F(kHz)	300
	0.490-1.705	24000/F(kHz)	30
	1.705-30.0	30	30
	30-88	100 **	3
	88-216	150 **	3
	216-960	200 **	3
	Above 960	500	3
** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. 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. As shown in § 15.35(b), for frequencies above 1000 MHz, the field strength limits in paragraphs (a) and (b) of this section are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For point-to-point operation under paragraph (b) of this section, the peak field strength shall not exceed 2500 millivolts/meter at 3 meters along the antenna azimuth.			
Test Method:	ANSI C63.10-2013 section 6.5		
Procedure:	ANSI C63.10-2013 section 6.5		

4.4.1 E.U.T. Operation:

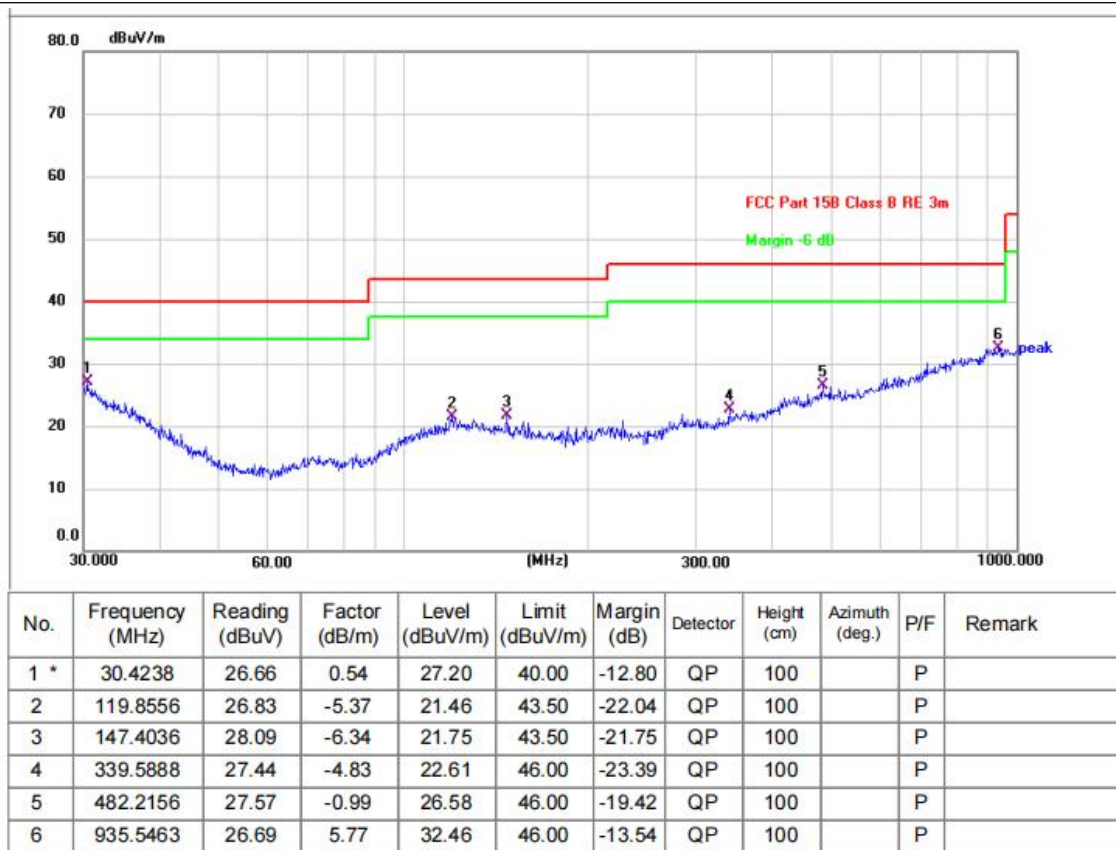
Operating Environment:			
Temperature:	22.6 °C	Humidity:	49 %
		Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2, TM3, TM4, TM5, TM6		
Final test mode:	TM1		

4.4.2 Test Setup Diagram:

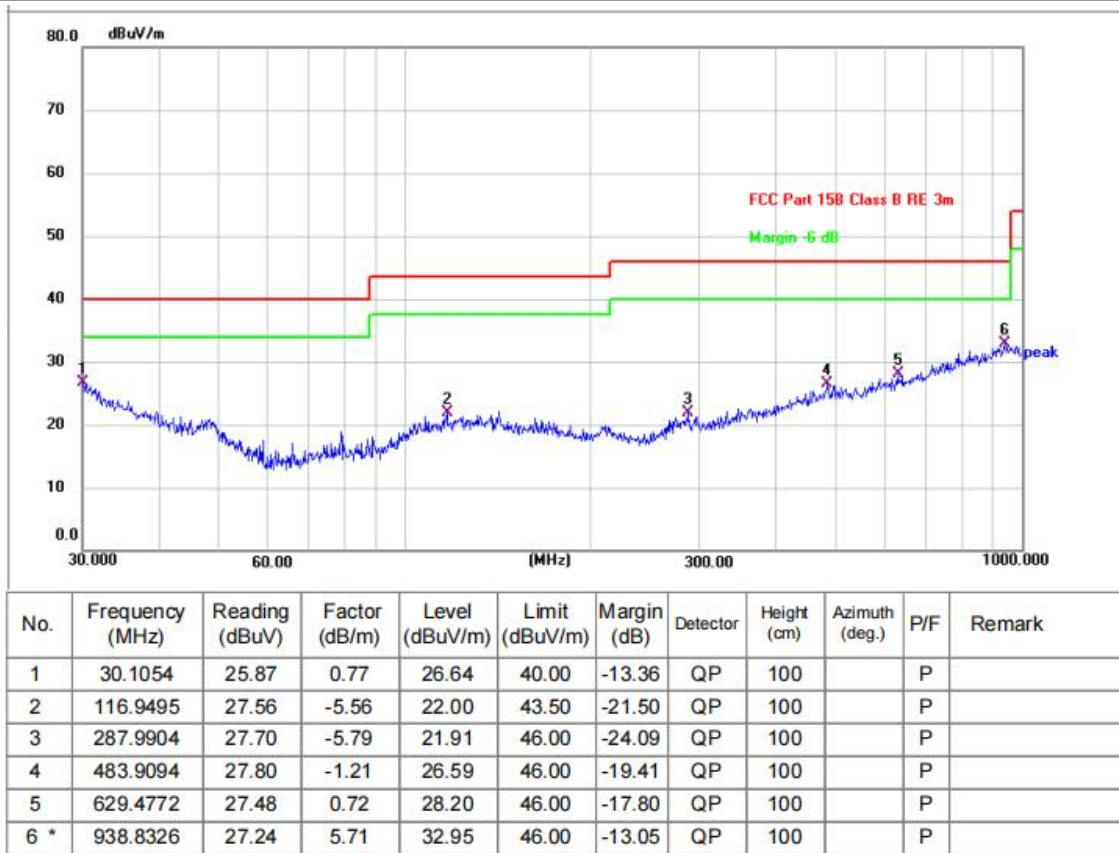


4.4.3 Test Data:

TM1/ Polarization: Horizontal



TM1/ Polarization: Vertical



Remark: Margin=Level - Limit

Level=Test receiver reading + correction factor

Correction Factor= Antenna Factor + Cable loss – Pre-amplifier

5 TEST SETUP PHOTOS

Please refer to test setup file for details.

6 PHOTOS OF THE EUT

Please refer to external photos file and internal photos file for details.

***** End of Report *****