FCC PART 15.249
TEST REPORT

On Behalf of

Feit Electric company Inc.

4901 Gregg Road Pico Rivera,Ca 90660

FCC ID: SYW-S13CWPKMM

Model: S13CWPK/MM/BZ,
TWL213/12000DM/83065LEDC/P180MW/5WY-DTZ

April 11, 2024

This Report Concerns:	**Equipment Type:**
☒ Original Report	Wall light

Test Engineer:	LBi Li /
Report Number:	**QCT24DR-1441E-01**
Test Date:	April 7~9, 2024
Reviewed By:	Gordon Tan/
Approved By:	Kendy Wang /
Prepared By:	**Shenzhen QC Testing Laboratory Co., Ltd.** East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China **Tel: 0755-23008269** **Fax: 0755-23726780**

Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
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Table of Contents

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Revision History of This Test Report

Report Number	Description	Issued Date
QCT24DR-1441E-01	Initial Issue	2024-4-11

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1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Description	Wall light
Model No.	S13CWPK/MM/BZ, TWL213/12000DM/83065LEDC/P180MW/5WY-DTZ
Tested Model	S13CWPK/MM/BZ
Sample(s) Status	Engineer sample
Operation Frequency:	5761MHz
Channel numbers:	1
Modulation type:	FSK
Antenna Type:	Microwave antenna
Antenna gain*1:	5.22dBi
Power supply:	AC 120/277V, 50/60Hz
Trade Mark:	Commercial Electric, FEIT, Naspil
Applicant	Feit Electric company Inc.
Address	4901 Gregg Road Pico Rivera,Ca 90660
Manufacturer	Feit Electric company Inc.
Address	4901 Gregg Road Pico Rivera,Ca 90660
Sample No.	Y24D1441E01WC

Note: *1This information provided by Manufacturer, SZ QC Lab is not responsible for the accuracy of this information.

1.2 System Test Configuration

1.2.1 Support Equipment

N/A

1.2.2 Test mode and voltage

Transmitting mode: Keep the EUT in continuously transmitting.
Test voltage: AC 120V/60Hz

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1.3 Test Facility

Test Firm : Shenzhen QC Testing Laboratory Co., Ltd.

The testing quality ability of our laboratory meet with "Quality Law of People's Republic of China" Clause 19. The testing quality system of our laboratory meets with ISO/IEC-17025 requirements. This approval result is accepted by MRA of APLAC.

Our test facility is recognized, certified, or accredited by the following organizations:

CNAS – Registration No.: L8464

The EMC Laboratory has been accredited by CNAS, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

A2LA Certificate Number: 6759.01

The EMC Laboratory has been accredited by A2LA, and in compliance with ISO/IEC 17025:2017 General Requirements for testing Laboratories.

FCC Registration Number: 561109

The EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications commission.

IC Registration Number: 29628

CAB identifier: CN0141

The EMC Laboratory has been registered and fully described in a report filed with the (IC) Industry Canada.

1.4 Measurement Uncertainty

Parameter	Uncertainty
Occupied Channel Bandwidth	±1.42 x10^{-4}%
RF output power, conducted	±1.06dB
Power Spectral Density, conducted	±1.06dB
Unwanted Emissions, conducted	±2.51dB
AC Power Line Conducted Emission	±1.80dB
Radiated Spurious Emission test (9kHz-30MHz)	±2.66dB
Radiated Spurious Emission test (30MHz-1000MHz)	±4.04dB
Radiated Spurious Emission test (1000MHz-18000MHz)	±4.70 dB
Radiated Spurious Emission test (18GHz-40GHz)	±4.80dB
Temperature	±0.8℃
Humidity	±3.2%
DC and low frequency voltages	±0.1%
Time	±5%
Duty cycle	±5%

Note: This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2

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2. Summary of Test Results

Test Item	Section	Result
Antenna Requirement	15.203	Pass
Conduction Emission	15.207	Pass
Radiated Emissions	15.205, 15.209, 15.249	Pass
20dB Bandwidth	15.215 (c)	Pass

Note: 1. Pass: The EUT complies with the essential requirements in the standard.

2. Test according to ANSI C63.10:2013

3.. All indications of Pass/Fail in this report are opinions expressed by Shenzhen QC Testing Laboratory Co., Ltd. based on interpretations and/or observations of test results. Measurement Uncertainties were not taken into account and are published for informational purposes only.

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3. List of Test and Measurement Instruments

3.1 Conducted Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1	EMI Test Receiver	R&S	ESIB 7	2277573376	2024.03.14	2025.03.13
2	EMI Test Receiver	ROHDE & SCHWARZ	ESCI	101820	2023.08.21	2024.08.20
3	Artificial Mains Network	SCHWARZBECK	NSLK8126	8126200	2024.03.14	2025.03.13
4	PULSE LIMITER	R&S	ESH3-Z2	100058	2024.03.14	2025.03.13
Conducted Emission Measurement Software: TS						

3.2 Radiated Emission Test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1.	Spectrum Analyzer	ROHDE&SCHWARZ	FSV 40	101458	2024.03.14	2025.03.13
2.	Loop Antenna	EMCO	6502	2133	2022.07.23	2024.07.22
3.	Logarithmic compound broadband Antenna	SCKWARZBECK	VULB9168	VULB9168-1-588	2023.04.01	2025.03.31
4.	EMI TEST RECEIVER	ROHDE & SCHWARZ	ESIB 7	2277573376	2023.04.12	2024.04.11
5.	EMI Test Receiver	R&S	ESPI	101131	2024.03.14	2025.03.13
6.	Horn Antenna	SCHWARZBECK	BBHA9120D	02069	2023.04.01	2025.03.31
7.	Horn Antenna	COM-MW	ZLB7-18-40G -950	12221225	2023.01.12	2025.01.09
8.	Amplifier	R&S	BBV9721	9721-031	2024.03.14	2025.03.13
9.	Amplifier	MITEQ	TTA1800-30-H G	2063644	2024.03.30	2025.03.29
10.	Pre-amplifier	COM-MW	DLAN-18000 -40000-02	10229104	2024.03.14	2025.03.13
11.	966 Chamber	ZhongYu Electron	9*6*6	/	2022.07.25	2025.07.24
Radiated Emission Measurement Software: EZ_EMC						

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3.3 RF Conducted test

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal.Due
1.	Wideband Radio Communication Tester	Rohde & Schwarz	CW500	151583	2024.03.14	2025.03.13
2.	Spectrum Analyzer	ROHDE& SCHWARZ	FSV 40	101458	2024.03.14	2025.03.13
3.	Signal Generator	Agilent	N5182A	MY50141563	2024.03.14	2025.03.13
4.	RF Automatic Test System	MW	MW100-RFCB/ MW100-PSB	MW2007004	2024.03.14	2025.03.13
RF Conducted Measurement Software: MTS 8310						

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4. Antenna requirement

Standard requirement: FCC Part15 C Section 15.203

15.203 requirement:

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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna: The antenna is Microwave antenna, reference to the Internal Photos for details.

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5. Conducted Emissions

5.1 Applicable Standard

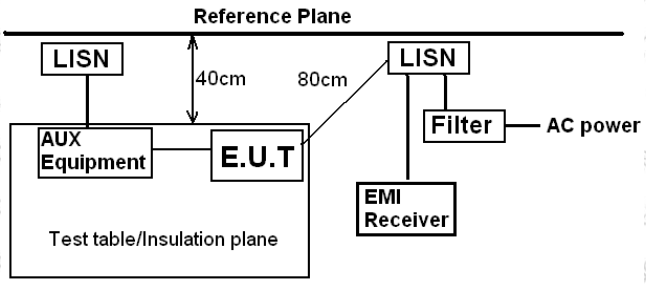
FCC Part15 C Section 15.207

5.2 Limit

Frequency range (MHz)	Limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

Note *: The level decreases linearly with the logarithm of the frequency.

5.3 Test setup



Remark:
E.U.T: Equipment Under Test
LISN: Line Impedence Stabilization Network
Test table height=0.8m

5.4 EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.
RBW=9 kHz, VBW=30 kHz, Sweep time=auto

5.5 Test procedure

1. The E.U.T and simulators are connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.
2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).
3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

5.6 Test Data

Temperature	23℃	Humidity	55%
ATM Pressure	101.1kPa	Antenna Gain	5.22dBi
Test by	LBi Li	Test result	PASS

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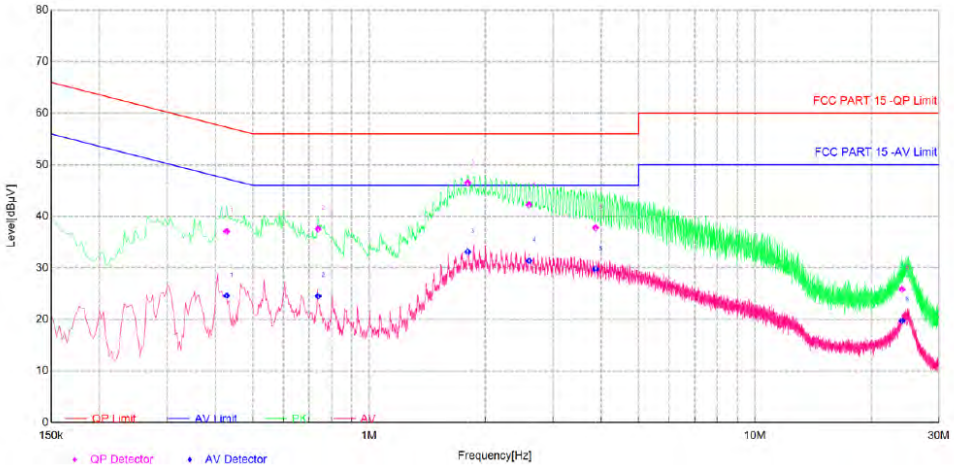
Measurement data:

Line:



Final Data List										
NO.	Freq. [MHz]	Factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Phase	Verdict
1	0.4275	10.10	37.10	57.30	20.20	24.63	47.30	22.67	L	PASS
2	0.7375	10.20	37.56	56.00	18.44	24.55	46.00	21.45	L	PASS
3	1.8025	10.13	46.52	56.00	9.48	33.09	46.00	12.91	L	PASS
4	2.5985	10.26	42.26	56.00	13.74	31.40	46.00	14.60	L	PASS
5	3.8630	10.34	37.80	56.00	18.20	29.73	46.00	16.27	L	PASS
6	24.0725	10.45	25.87	60.00	34.13	19.80	50.00	30.20	L	PASS

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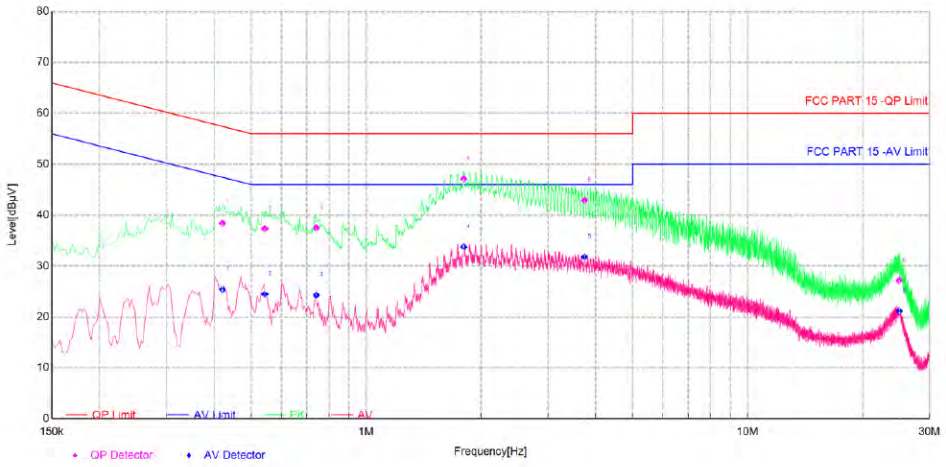
Neutral:



Final Data List										
NO.	Freq. [MHz]	Factor[dB]	QP Value [dBµV]	QP Limit [dBµV]	QP Margin [dB]	AV Value [dBµV]	AV Limit [dBµV]	AV Margin [dB]	Phase	Verdict
1	0.4200	10.38	38.42	57.45	19.03	25.43	47.45	22.02	N	PASS
2	0.5425	10.27	37.36	56.00	18.64	24.50	46.00	21.50	N	PASS
3	0.7400	10.16	37.53	56.00	18.47	24.28	46.00	21.72	N	PASS
4	1.8025	10.14	47.14	56.00	8.86	33.77	46.00	12.23	N	PASS
5	3.7370	10.34	42.91	56.00	13.09	31.78	46.00	14.22	N	PASS
6	24.9500	10.47	27.17	60.00	32.83	21.19	50.00	28.81	N	PASS

Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.

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6. Radiated Emission Method

6.1 Applicable Standard

FCC Part15 C Section 15.249

6.2 Limit

Fundamental frequency	Field strength of fundamental (millivolts/meter)	Field strength of harmonics (microvolts/meter)
902–928 MHz	50	500
2400–2483.5 MHz	50	500
5725–5875 MHz	50	500
24.0–24.25 GHz	250	2500

As per FCC Section 15.249

(c) Field strength limits are specified at a distance of 3 meters.

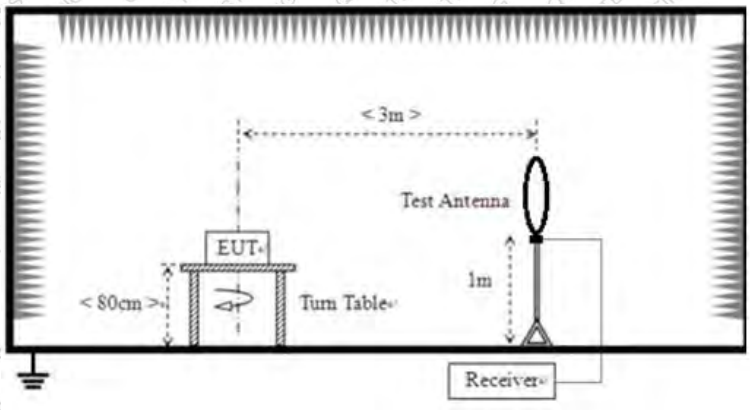
(d) Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in §15.209, whichever is the lesser attenuation.

6.3 Receiver setup

Frequency	Detector	RBW	VBW	Value
9KHz-150KHz	Quasi-peak	200Hz	600Hz	Quasi-peak
150KHz-30MHz	Quasi-peak	9KHz	30KHz	Quasi-peak
30MHz-1GHz	Quasi-peak	100KHz	300KHz	Quasi-peak
Above 1GHz	Peak	1MHz	3MHz	Peak
	Peak	1MHz	10Hz	Average

6.4 Test setup

For radiated emissions from 9kHz to 30MHz



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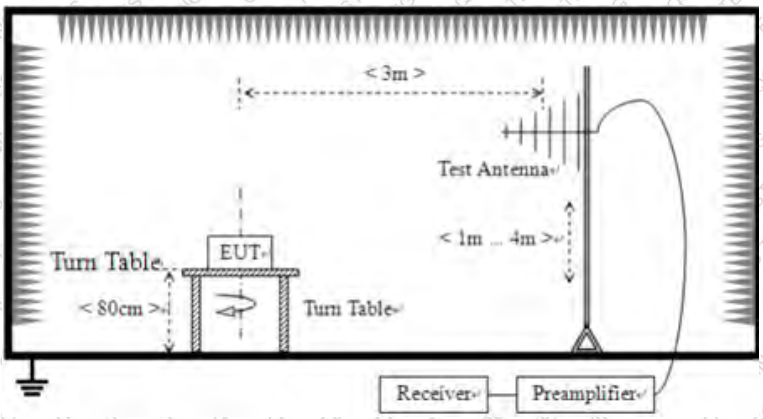
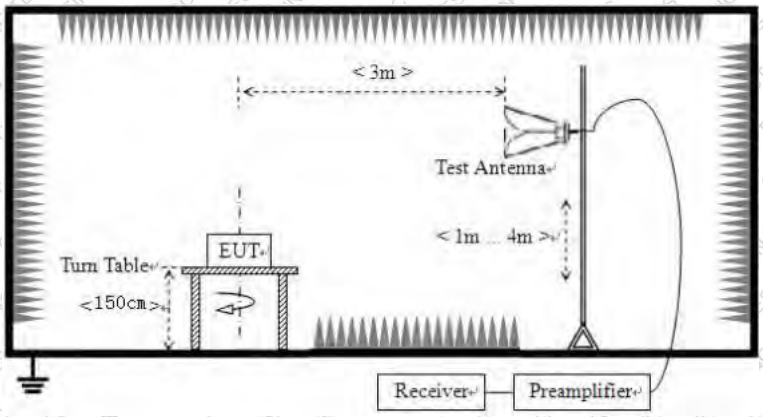
For radiated emissions from 30MHz to1GHz



For radiated emissions above 1GHz



6.5 Test Procedure

1. The EUT was placed on the top of a rotating table (0.8 meters for below 1GHz and 1.5 meters for above 1GHz) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

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6.6 Test Data

Temperature	25-26℃	Humidity	50-54%
ATM Pressure	101.1kPa	Antenna Gain	5.22dBi
Test by	LBi Li	Test result	PASS

Remarks:

Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

Measurement data:

9 kHz ~ 30 MHz

The low frequency, which started from 9 kHz to 30 MHz, was pre-scanned and the result which was 20 dB lower than the limit line per 15.31(o) was not reported.

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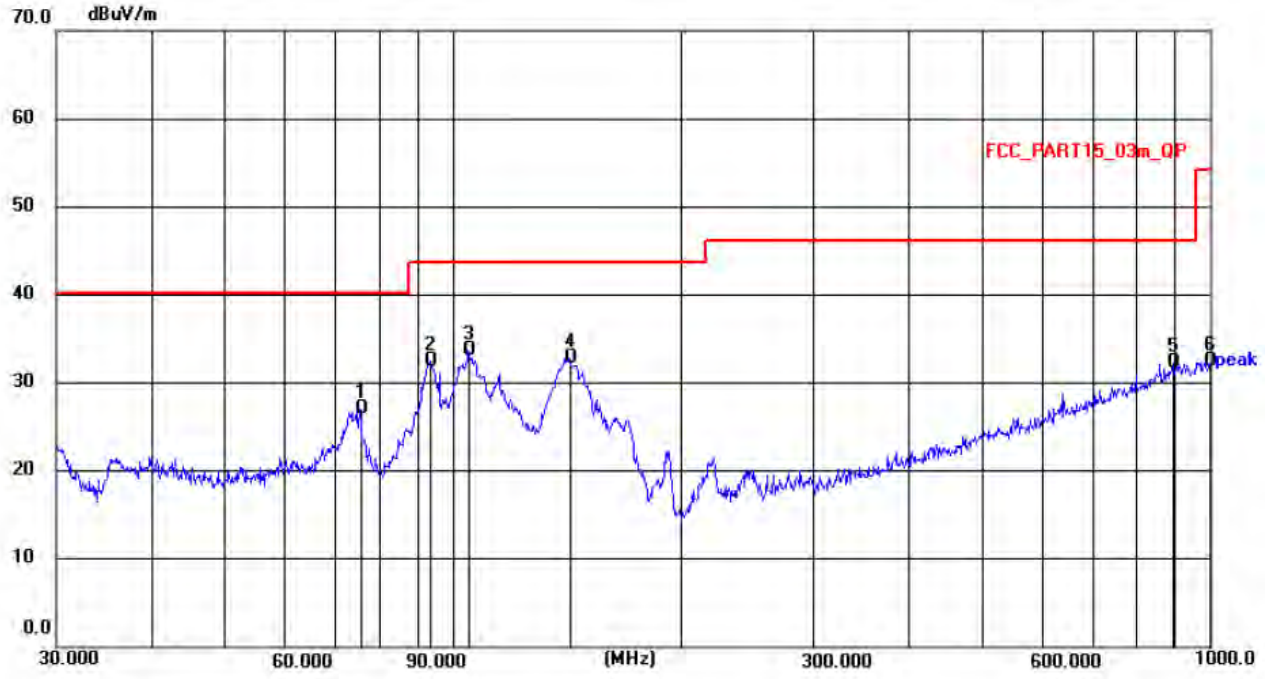
Below 1GHz:
Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	75.4464	15.74	11.29	27.03	40.00	12.97	QP
2	93.4402	22.03	10.44	32.47	43.50	11.03	QP
3 *	104.9033	22.03	11.61	33.64	43.50	9.86	QP
4	142.8243	18.30	14.45	32.75	43.50	10.75	QP
5	893.8567	5.84	26.40	32.24	46.00	13.76	QP
6	1000.0000	5.41	27.00	32.41	54.00	21.59	QP

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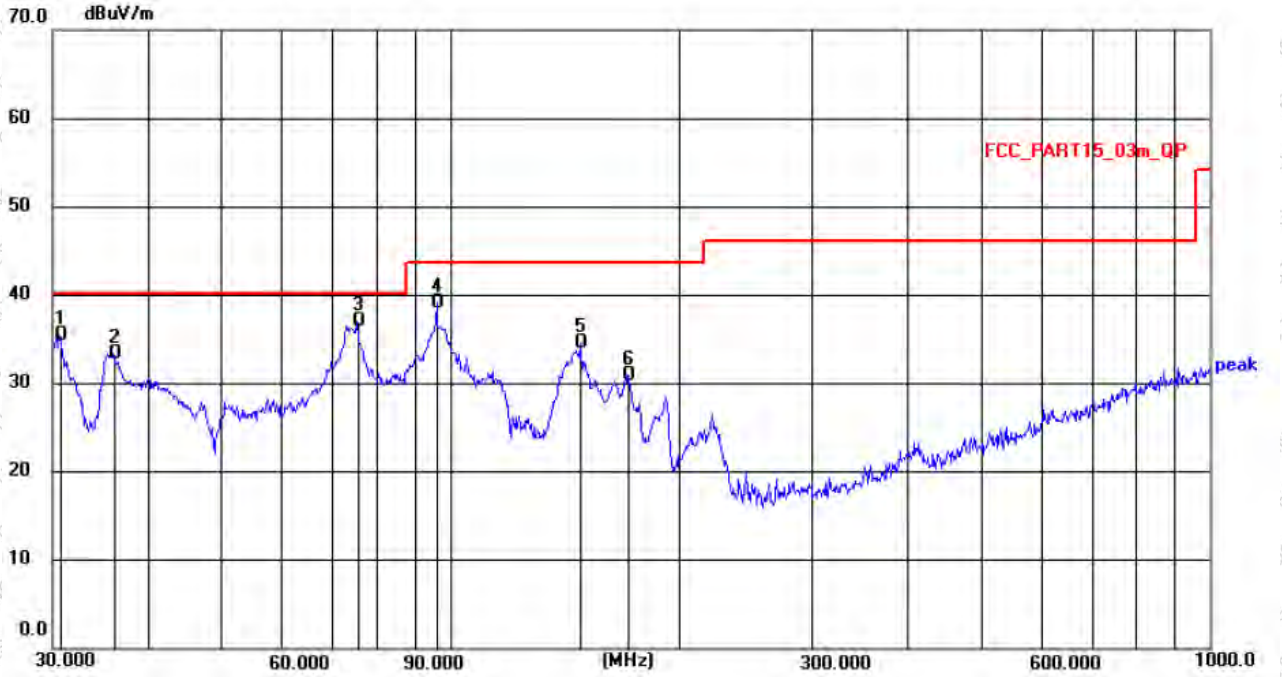
Vertical



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	30.6379	22.92	12.56	35.48	40.00	4.52	QP
2	36.1272	19.64	13.68	33.32	40.00	6.68	QP
3 *	75.4464	26.17	10.79	36.96	40.00	3.04	QP
4	96.0986	28.35	10.81	39.16	43.50	4.34	QP
5	148.4410	20.24	14.35	34.59	43.50	8.91	QP
6	171.3926	17.76	13.11	30.87	43.50	12.63	QP

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Above 1G:

Frequency (MHz)	Read Level (dBμV)	polarization	Factor (dB/m)	Level (dBμV/m)	Limit Line (dBμV/m)	Margin (dB)	Detector
5725	49.75	H	-3.87	45.88	74	28.12	peak
5725	49.92	V	-3.82	46.1	74	27.9	peak
5761	96.37	H	-3.85	92.52	113.98	21.46	peak
5761	96.06	H	-3.85	92.21	93.98	1.77	AVG
5761	96.56	V	-3.8	92.76	113.98	21.22	peak
5761	96.14	V	-3.8	92.34	93.98	1.64	AVG
5875	49.79	H	-3.76	46.03	74	27.97	peak
5875	50.3	V	-3.74	46.56	74	27.44	peak
11522	42.06	H	7.62	49.68	74	24.32	peak
11522	38.45	V	7.42	45.87	74	28.13	peak

Remarks:

1. Level =Reading + Factor
2. The emission levels of other frequencies are very lower than the limit and not show in test report.

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7. 20dB Occupy Bandwidth

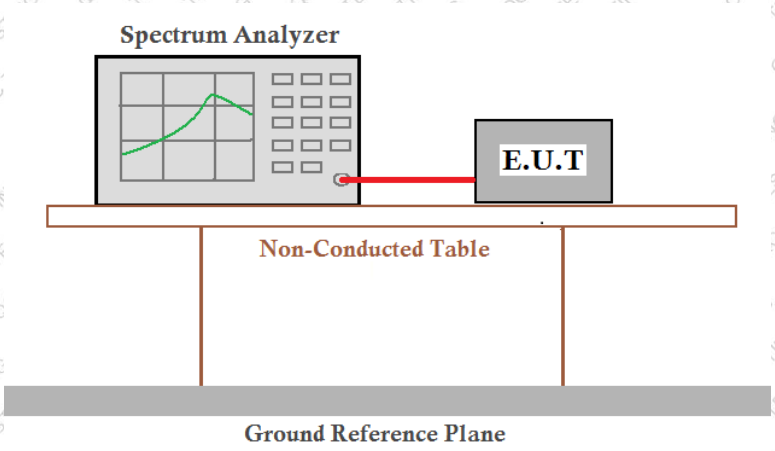
7.1 Applicable Standard

FCC Part15 C Section 15.215

7.2 Limit

N/A

7.3 Test setup



7.4 Test Data

Temperature	24.8 ℃	Humidity	45%
ATM Pressure	101.1kPa	Antenna Gain	5.22dBi
Test by	LBi Li	Test result	PASS

Please refer to following table and plots.

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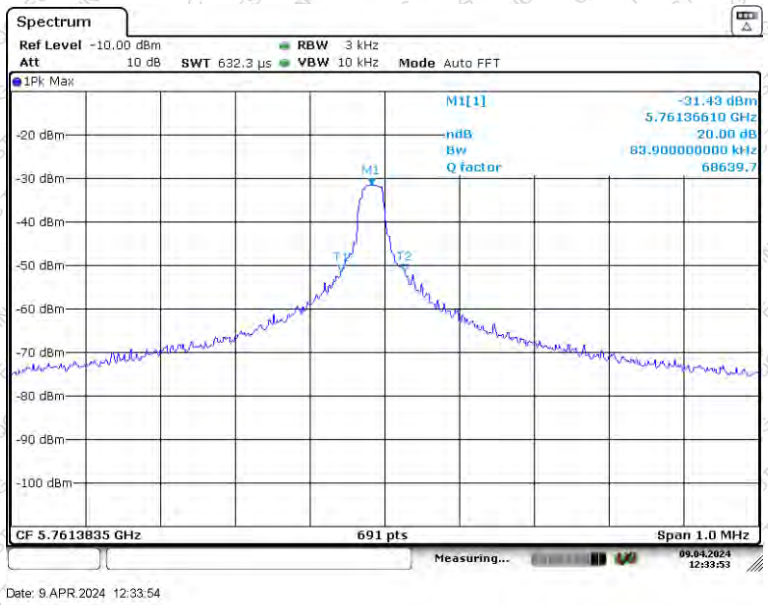
Test Frequency (MHz)	20dB bandwidth (MHz)
5761	0.084

Test plot as follows:



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Address: East of 1/F., Building E, Xinghong Science Park, No.111, Shuiku Road, Fenghuanggang, Xixiang Street, Bao'an District, Shenzhen, Guangdong, China
Tel: 0755-23008269 Fax: 0755-23726780 www.qctest.com.cn