



TEST REPORT

On Behalf of

Guangdong BiQio Electronics Co., Ltd.

105,1101,1102,1103,1104, No.10-2,7th Street, Sanlian,Gulao Town, Heshan, Guangdong,
China

FCC ID: 2BD7E-T02

Model: T02, T01

December 20, 2023

This Report Concerns:

☒ Original Report

Equipment Type:

wireless charger

Test Engineer: Charlie He / *Charlie He*

Report Number: QCT23LR-2246E-01

Test Date: December 8~14, 2023

Reviewed By: Gordon Tan / *Gordon Tan*

Approved By: Kendy Wang / *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





Table of Contents

1. GENERAL INFORMATION.....	4
1.1 Product Description for Equipment under Test (EUT)	4
1.2 System Test Configuration	5
1.3 Test Facility.....	6
1.4 Measurement Uncertainty.....	6
2. SUMMARY OF TEST RESULTS	7
3. LIST OF TEST AND MEASUREMENT INSTRUMENTS	8
3.1 Conducted Emission Test.....	8
3.2 Radiated Emission Test.....	8
3.3 RF Conducted test.....	9
4. ANTENNA REQUIREMENT	10
5. CONDUCTED EMISSIONS.....	11
5.1 Applicable Standard.....	11
5.2 Limit	11
5.3 Test setup.....	11
5.4 EMI Test Receiver Setup.....	11
5.5 Test procedure.....	11
5.6 Test Data	11
6. SPURIOUS EMISSION	14
6.1 Applicable Standard.....	14
6.2 Limit	14
6.3 Test setup.....	14
6.4 EMI Test Receiver Setup.....	15
6.5 Test procedure.....	15
6.1 Test Data	16
7. 20DB OCCUPY BANDWIDTH	21
7.1 Applicable Standard.....	21
7.2 Limit	21
7.3 Test setup.....	21
7.4 Test Method.....	21
7.5 Test Data	21



Report Number

Description

Issued Date

QCT23LR-2246E-01

Initial Issue

2023-12-20



1. GENERAL INFORMATION

1.1 Product Description for Equipment under Test (EUT)

EUT Description	wireless charger
Model No.	T02, T01
Tested Model	T02
Sample(s) Status	Engineer sample
Operation Frequency:	110.5kHz~205kHz
Modulation type:	ASK
Antenna Type:	Inductive loop coil Antenna
Antenna gain*1:	0dBi (Max)
Power supply:	5V/2A,9V/1.66A,12V/1.25A (Powered by USB Port)
WPT Output Power:	5W,7.5W,10W,15W
Trade Mark:	N/A
Applicant	Guangdong BiQiO Electronics Co., Ltd.
Address	105,1101,1102,1103,1104, No.10-2,7th Street, Sanlian,Gulao Town, Heshan, Guangdong, China
Manufacturer	Guangdong BiQiO Electronics Co., Ltd.
Address	105,1101,1102,1103,1104, No.10-2,7th Street, Sanlian,Gulao Town, Heshan, Guangdong, China
Sample No.	Y23L2245E01LY

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

Manufacturer	Description	Model	Serial Number
EESON	Wireless charger load	2S	/
MDY	Adapter	Input: 100-240V~ 50/60Hz, 1.7A Output: 5V --- 3A, 9V --- 3A, 11V --- 6A, 20V --- 3.25A	/

1.2.2 Test mode

Test Mode	Description
Mode 1	Charging with 15 W wireless charging load (Full Load)
Mode 2	Charging with 15 W wireless charging load (Half Load)
Mode 3	Charging with 15 W wireless charging load (No Load)
Mode 4	Charging with 10 W wireless charging load (Full Load)
Mode 5	Charging with 10 W wireless charging load (Half Load)
Mode 6	Charging with 10 W wireless charging load (No Load)
Mode 7	Charging with 7.5 W wireless charging load (Full Load)
Mode 8	Charging with 7.5 W wireless charging load (Half Load)
Mode 9	Charging with 7.5 W wireless charging load (No Load)
Mode 10	Charging with 5 W wireless charging load (Full Load)
Mode 11	Charging with 5 W wireless charging load (Half Load)
Mode 12	Charging with 5 W wireless charging load (No Load)

Note: All the modes had been tested, but only the worst data was recorded in the report (Mode 1).



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	$\pm 1.42 \times 10^{-40}\%$
RF output power, conducted	$\pm 1.06\text{dB}$
Power Spectral Density, conducted	$\pm 1.06\text{dB}$
Unwanted Emissions, conducted	$\pm 2.51\text{dB}$
AC Power Line Conducted Emission	$\pm 1.80\text{dB}$
Radiated Spurious Emission test (9kHz-30MHz)	$\pm 2.66\text{dB}$
Radiated Spurious Emission test (30MHz-1000MHz)	$\pm 4.04\text{dB}$
Radiated Spurious Emission test (1000MHz-18000MHz)	$\pm 4.70\text{ dB}$
Radiated Spurious Emission test (18GHz-40GHz)	$\pm 4.80\text{dB}$
Temperature	$\pm 0.8^{\circ}\text{C}$
Humidity	$\pm 3.2\%$
DC and low frequency voltages	$\pm 0.1\%$
Time	$\pm 5\%$
Duty cycle	$\pm 5\%$

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



2. Summary of Test Results

Test Item	Section	Result
Antenna requirement	15.203	Pass
AC Power Line Conducted Emission	15.207	Pass
Spurious Emission	15.209(a)(f)	Pass
20dB Bandwidth	15.215	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.



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	2023.03.21	2024.03.20
2	Artificial Mains Network	SCHWARZBECK	NSLK8126	8126200	2023.03.21	2024.03.20
3	PULSE LIMITER	R&S	ESH3-Z2	100058	2023.03.21	2024.03.20
4	EMITEST RECEIVER	ROHDE & SCHWARZ	ESCS30	834115/014	2023.03.21	2024.03.20
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	2023.04.12	2024.04.11
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	2023.03.21	2024.03.20
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	2023.03.21	2024.03.20
9.	Amplifier	HPX	BP-01G-18G	210902	2023.03.21	2024.03.20
10.	Pre-amplifier	COM-MW	DLAN-18000-40000-02	10229104	2023.01.11	2024.01.10
11.	966 Chamber	ZhongYu Electron	9*6*6	/	2022.07.25	2025.07.24
Radiated Emission Measurement Software: EZ_EMC						



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	2023.03.21	2024.03.20
2.	Spectrum Analyzer	ROHDE & SCHWARZ	FSV 40	101458	2023.04.12	2024.04.11
3.	Signal Generator	Agilent	N5182A	MY50141563	2023.03.21	2024.03.20
4.	RF Automatic Test System	MW	MW100-RFCB/ MW100-PSB	MW2007004	2023.03.21	2024.03.20
RF Conducted Measurement Software: MTS 8310						



4. Antenna requirement

Standard requirement: FCC Part15 C Section 15.203 /247(c)

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 Ant is Inductive loop coil Antenna, the best case gain of the antenna is 0dBi, reference to the Internal photo for details.

5. Conducted Emissions

5.1 Applicable Standard

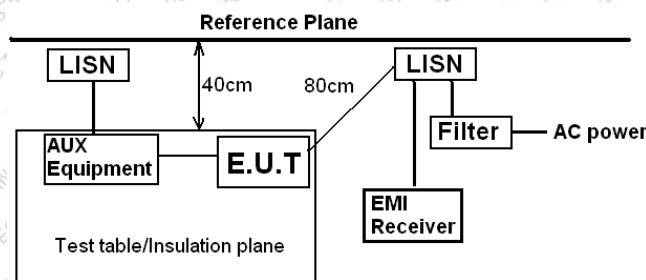
FCC Part15 C Section 15.207

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 Impedance 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	26.3 °C	Humidity	64%
ATM Pressure	101.1kPa	Antenna Gain	0dBi
Test by	Charlie He	Test result	PASS

Test voltage: AC 120V/60Hz

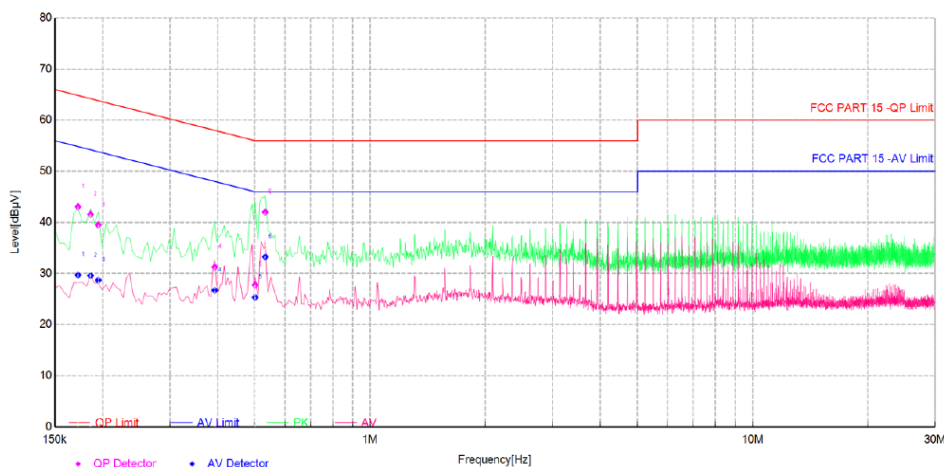


Measurement data:

Mode 1 Charging with 15 W wireless charging load (Full Load)

Note: All the modes had been tested, but only the worst data was recorded in the report (Mode 1).

Line:

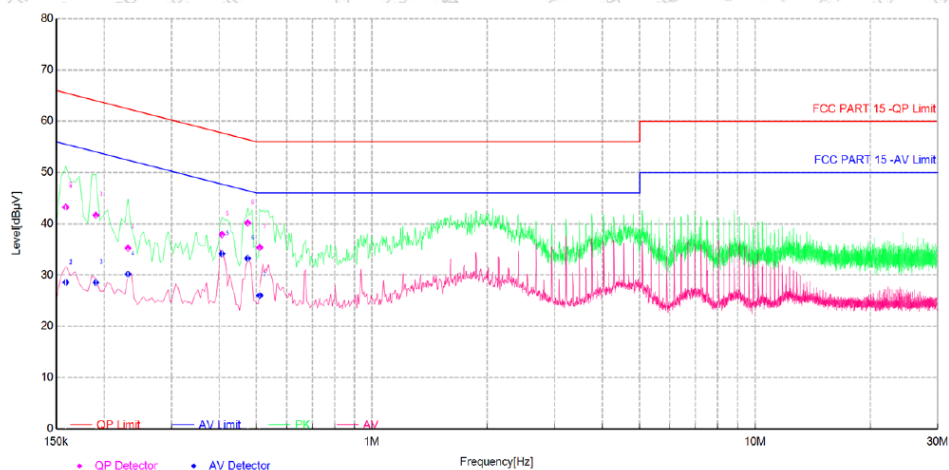


Final Data List

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	0.1725	10.13	43.07	64.84	21.77	29.70	54.84	25.14	L	PASS
2	0.1860	10.19	41.57	64.21	22.64	29.58	54.21	24.63	L	PASS
3	0.1950	10.24	39.49	63.82	24.33	28.70	53.82	25.12	L	PASS
4	0.3930	10.06	31.26	58.00	26.74	26.70	48.00	21.30	L	PASS
5	0.5010	10.28	27.76	56.00	28.24	25.33	46.00	20.67	L	PASS
6	0.5325	10.27	42.02	56.00	13.98	33.25	46.00	12.75	L	PASS



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	0.1590	10.04	43.21	65.52	22.31	28.58	55.52	26.94	N	PASS
2	0.1590	10.04	43.53	65.52	21.99	28.48	55.52	27.04	N	PASS
3	0.1905	10.25	41.67	64.01	22.34	28.55	54.01	25.46	N	PASS
4	0.2310	10.37	35.24	62.41	27.17	30.16	52.41	22.25	N	PASS
5	0.4065	10.40	37.90	57.72	19.82	34.15	47.72	13.57	N	PASS
6	0.4740	10.33	40.17	56.44	16.27	33.26	46.44	13.18	N	PASS
7	0.5100	10.29	35.37	56.00	20.63	26.01	46.00	19.99	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.

6. Spurious Emission

6.1 Applicable Standard

FCC Part15 C Section 15.209

6.2 Limit

Limits for frequency below 30MHz

Frequency	Limit (uV/m)	Measurement Distance(m)	Remark
0.009-0.490	2400/F(kHz)	300	Quasi-peak Value
0.490-1.705	24000/F(kHz)	30	Quasi-peak Value
1.705-30	30	30	Quasi-peak Value

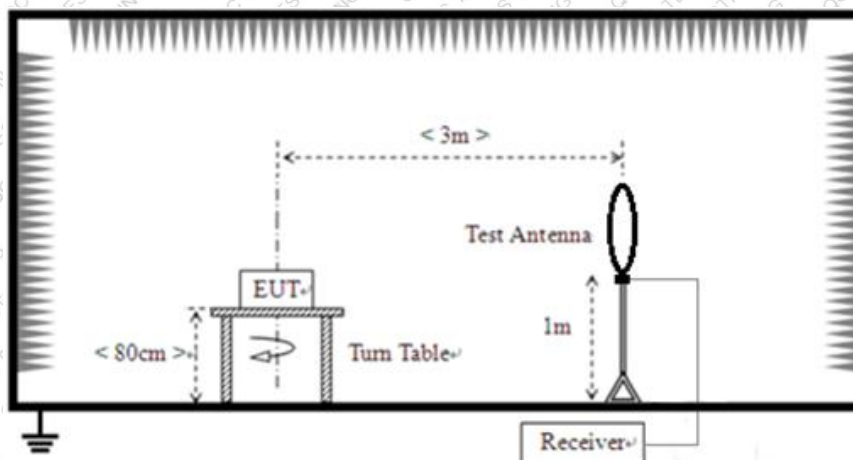
Limits for frequency Above 30MHz

Frequency	Limit (dBuV/m @3m)	Remark
30MHz-88MHz	40.00	Quasi-peak Value
88MHz-216MHz	43.50	Quasi-peak Value
216MHz-960MHz	46.00	Quasi-peak Value
960MHz-1GHz	54.00	Quasi-peak Value
Above 1GHz	54.00	Average Value
	74.00	Peak Value

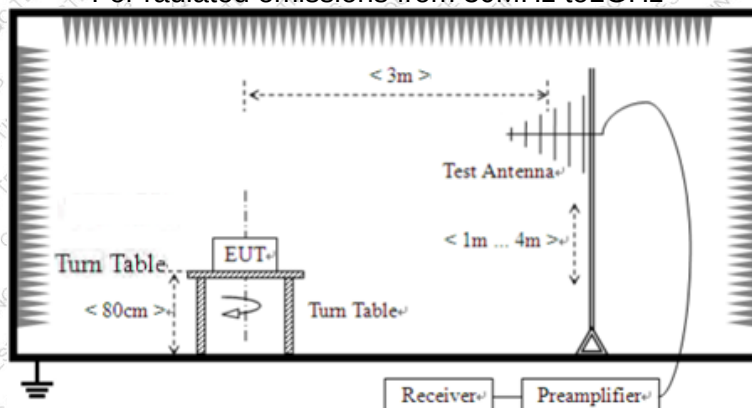
Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

6.3 Test setup

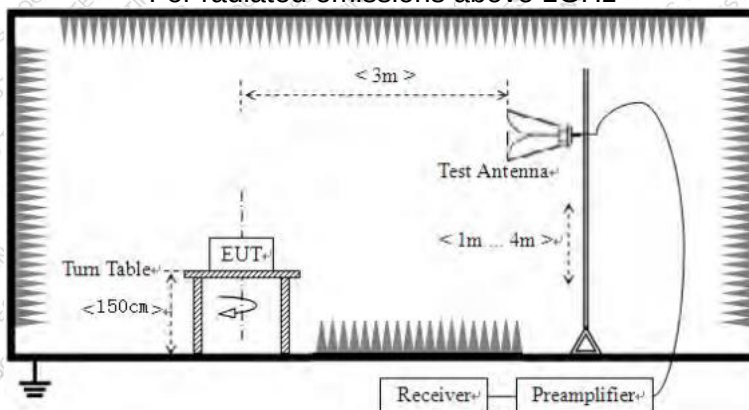
For radiated emissions from Below 30MHz



For radiated emissions from 30MHz to 1GHz



For radiated emissions above 1GHz



6.4 EMI Test Receiver Setup

Frequency	Detector	RBW	VBW	Remark
9kHz- 30MHz	Quasi-peak	10kHz	30kHz	Quasi-peak Value
30MHz-1GHz	Quasi-peak	120kHz	300kHz	Quasi-peak Value
Above 1GHz	Peak	1MHz	3MHz	Peak Value
	AV	1MHz	10Hz	Average Value

Remark: For the frequency bands 9-90 kHz, 110-490 kHz and above 1000 MHz. Radiated emission test in these three bands are based on measurements employing an average detector.

6.5 Test procedure

- The EUT was placed on the top of a rotating table (0.8m for below 1G and 1.5m for above 1G) above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- 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.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.



- 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.

6.1 Test Data

Temperature	24.3-25 °C	Humidity	55.2-60%
ATM Pressure	101.1kPa	Antenna Gain	0dBi
Test by	Charlie He	Test result	PASS

Test voltage: AC 120V/60Hz

Mode 1 Charging with 15 W wireless charging load (Full Load)

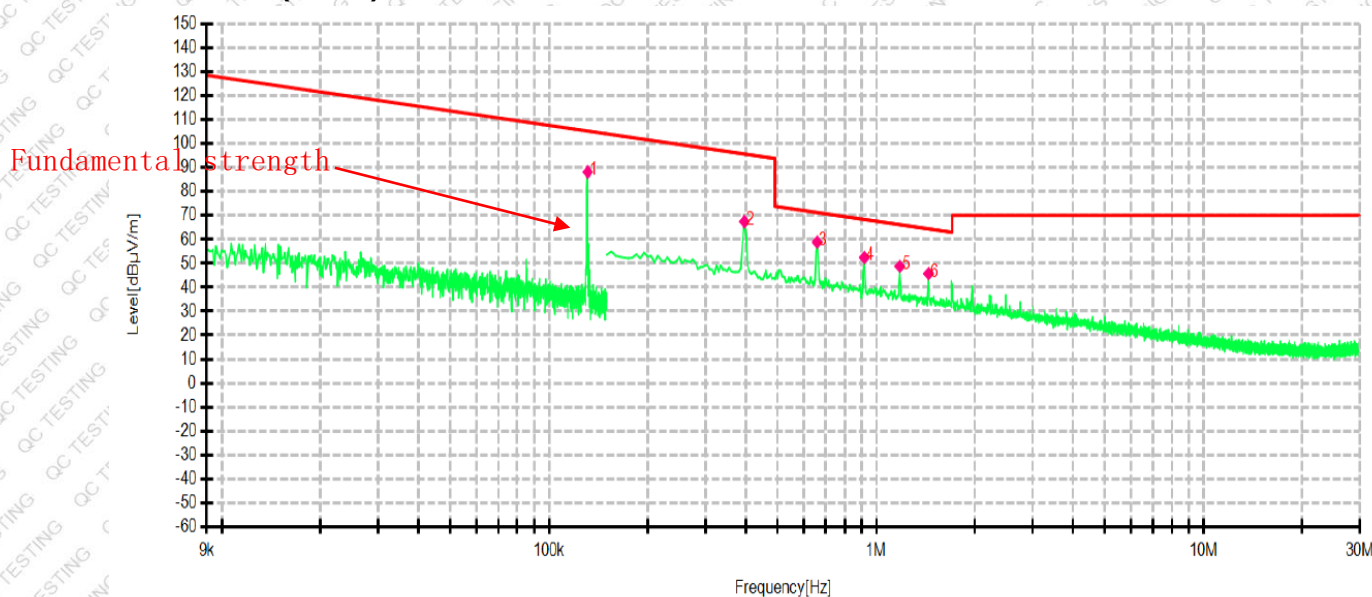
Note: All the modes had been tested, but only the worst data was recorded in the report (Mode 1).

Measurement data:

Note: Limit dBuV/m @3m = Limit dBuV/m @300m+ 80

Limit dBuV/m @3m = Limit dBuV/m @30m + 40

9 kHz~30 MHz (X Axis)

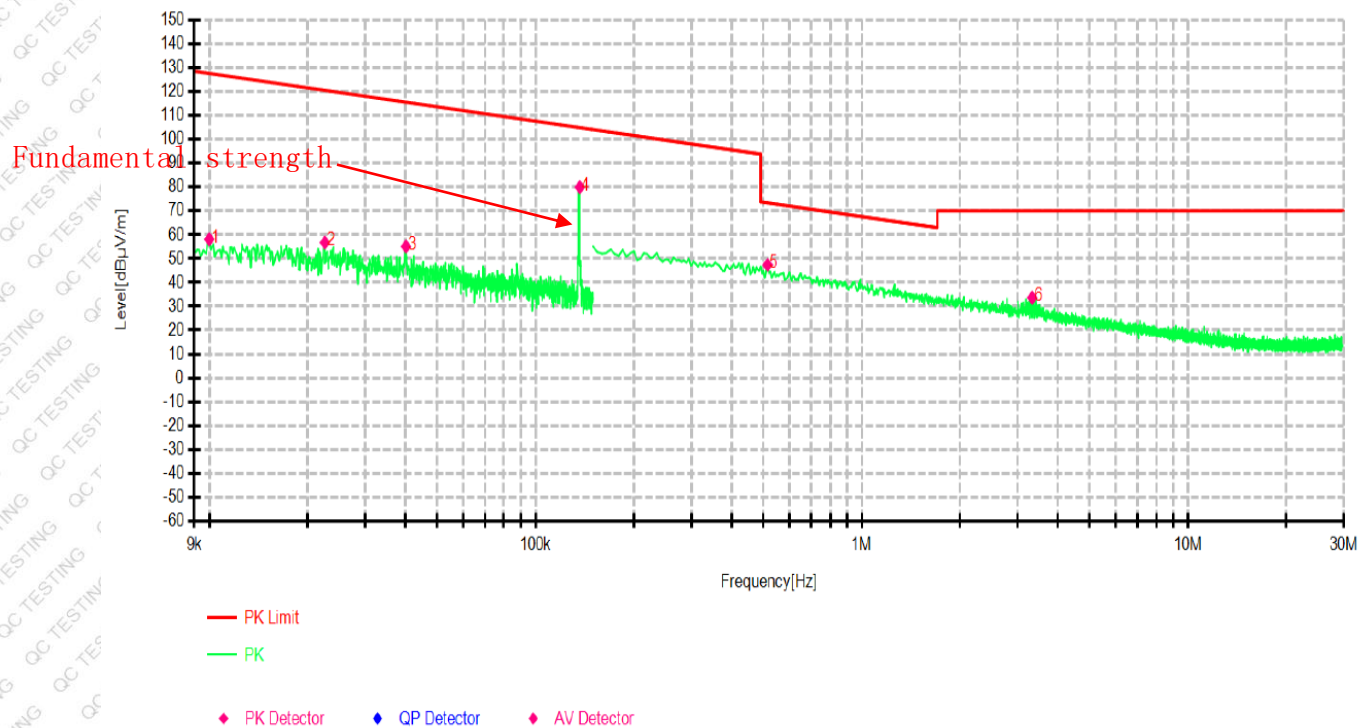


Data List

NO.	Frequency [Hz]	Factor [dB]	Level (dBuV/m)	Limit (dBuV/m)	Margin [dB]	Detector	Instrument
1	131.54k	10.45	88.13	105.24	17.11	AVG	X
2	395k	10.58	67.44	95.67	28.23	AVG	X
3	660k	10.63	58.86	71.21	12.35	QP	X
4	920k	10.59	52.47	68.33	15.86	QP	X
5	1.18M	10.62	48.75	66.17	17.42	QP	X
6	1.445M	10.69	45.72	64.41	18.69	QP	X



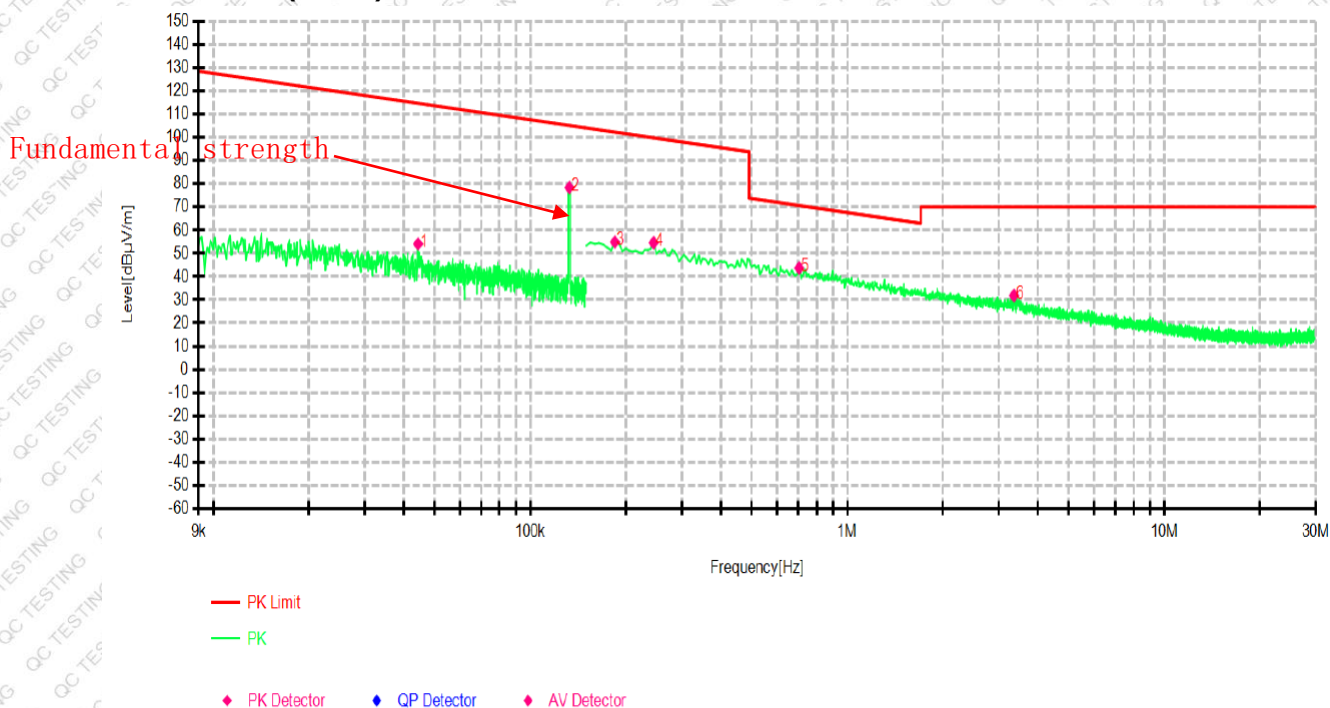
9 kHz~30 MHz (Y Axis)



Data List							
NO.	Frequency [Hz]	Factor [dB]	Level (dBμV/m)	Limit (dBμV/m)	Margin [dB]	Detector	Instrument
1	10k	16.31	58.11	127.60	69.49	AVG	Y
2	22.6k	13.74	56.74	120.52	63.78	AVG	Y
3	40.1k	11.74	55.10	115.54	60.44	AVG	Y
4	131.54k	10.43	79.95	104.89	24.94	AVG	Y
5	515k	10.66	47.37	73.37	26	QP	Y
6	3.33M	11.06	33.62	70.00	36.38	QP	Y



9 kHz~30 MHz (Z Axis)



Data List

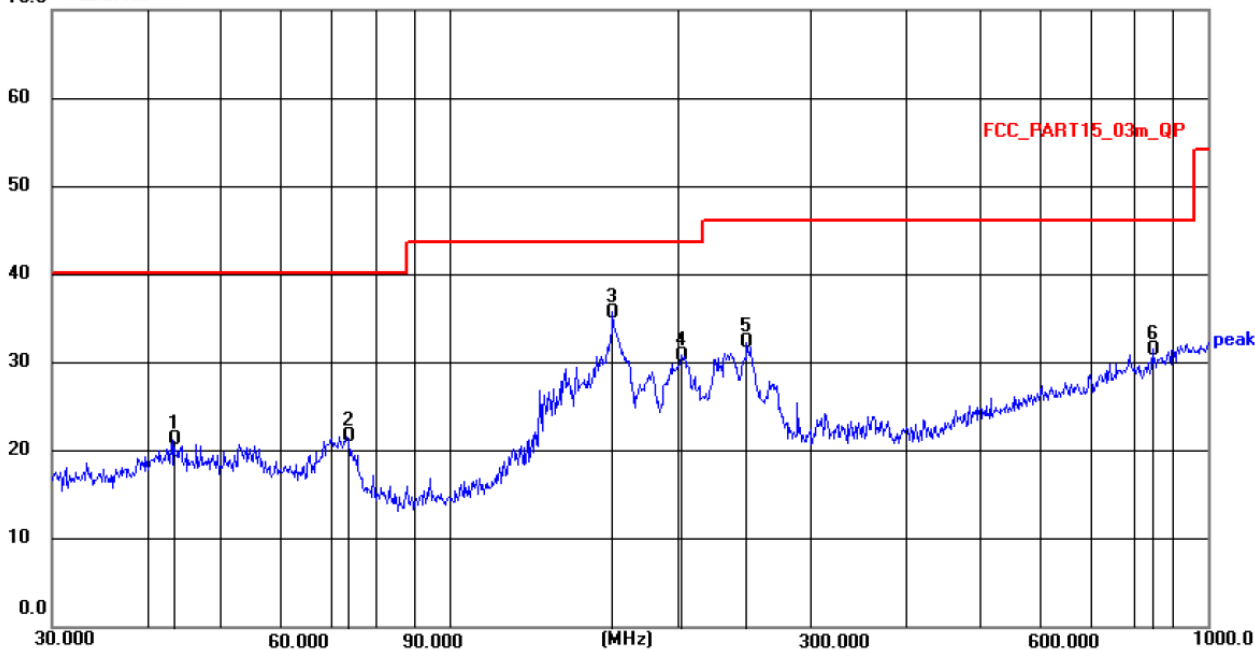
NO.	Frequency [Hz]	Factor [dB]	Level (dBuV/m)	Limit (dBuV/m)	Margin [dB]	Detector	Instrument
1	44.3k	11.54	54.10	114.68	60.58	AVG	Z
2	131.54k	10.44	78.39	105.13	26.74	AVG	Z
3	185k	10.41	54.93	102.26	47.33	AVG	Z
4	245k	10.46	54.58	99.82	45.24	AVG	Z
5	705k	10.63	43.71	70.64	26.93	QP	Z
6	3.355M	11.06	31.85	70.00	38.15	QP	Z



30MHz~1GHz

Horizontal

70.0 dBuV/m

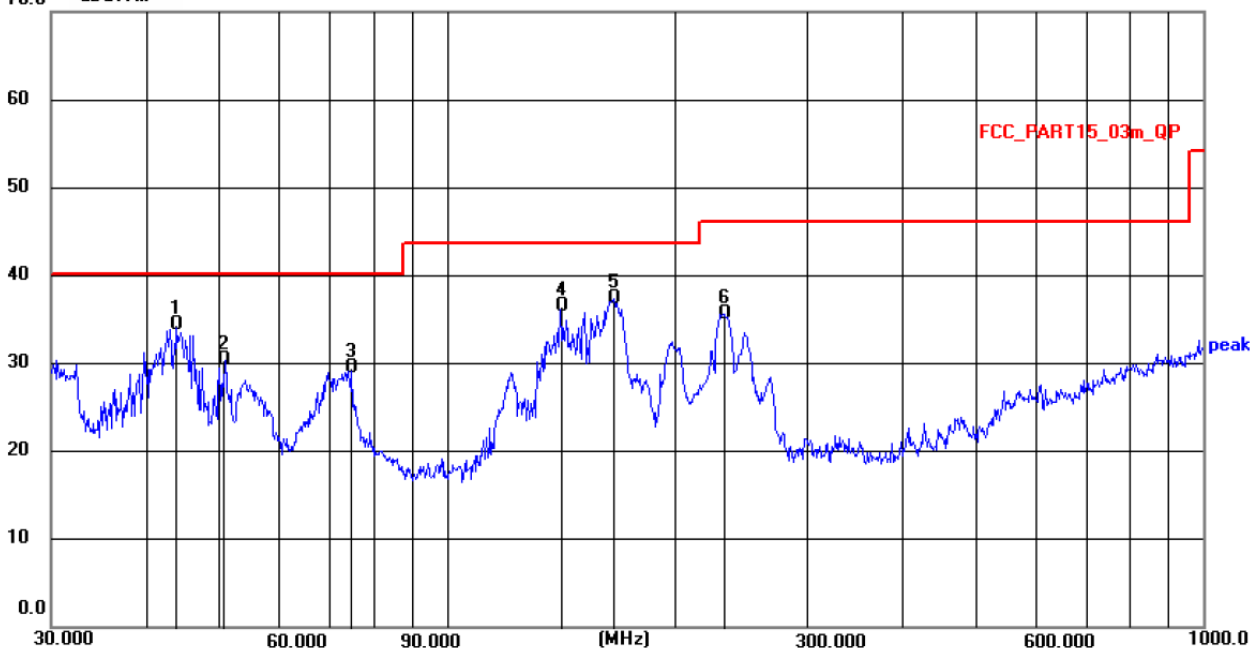


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1	43.3544	6.48	14.74	21.22	40.00	18.78	QP
2	73.6724	9.90	11.63	21.53	40.00	18.47	QP
3 *	164.2579	21.31	14.23	35.54	43.50	7.96	QP
4	202.6721	19.21	11.46	30.67	43.50	12.83	QP
5	246.7521	19.01	13.34	32.35	46.00	13.65	QP
6	845.1572	6.01	25.40	31.41	46.00	14.59	QP



Vertical

70.0 dBuV/m



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector
1 *	43.8754	19.90	14.53	34.43	40.00	5.57	QP
2	50.6441	16.04	14.39	30.43	40.00	9.57	QP
3	74.8724	18.63	10.90	29.53	40.00	10.47	QP
4	141.3541	22.25	14.32	36.57	43.50	6.93	QP
5	166.5341	23.68	13.67	37.35	43.50	6.15	QP
6	232.3587	22.61	12.94	35.55	46.00	10.45	QP

Remarks:

1. Level = Reading + Factor

7. 20dB Occupy Bandwidth

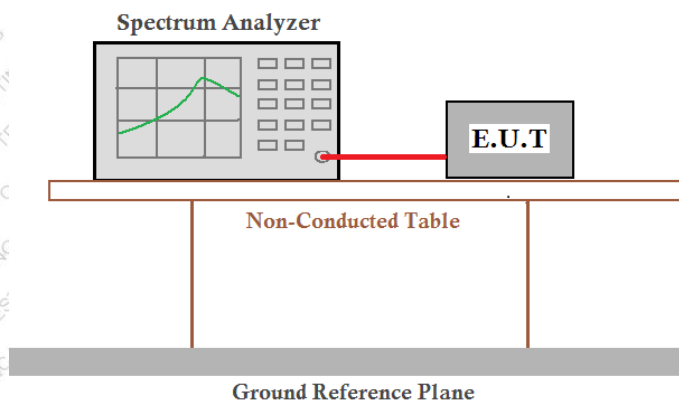
7.1 Applicable Standard

FCC Part15 C Section 15.215

7.2 Limit

N/A

7.3 Test setup

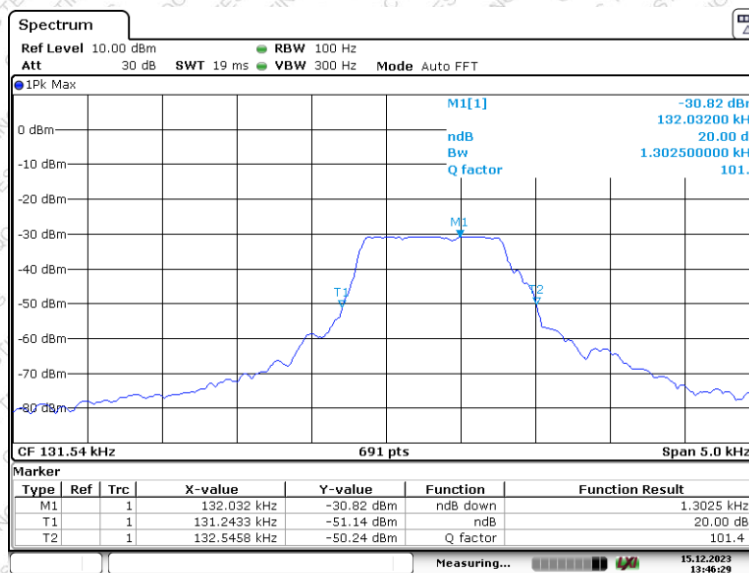


7.4 Test Method

ANSI C63.10:2013

7.5 Test Data

Temperature	23.5 °C	Humidity	48%
ATM Pressure	101.1kPa	Antenna Gain	0dBi
Test by	Charlie He	Test result	PASS



131.54kHz: 20dB BW=1.30kHz

----- THE END OF TEST REPORT -----