

FCC PART 15C

TEST REPORT

For

Shenzhen Xintuo Supply Chain LTD

F1 Building 2 Snow Industrial Park SnowElephant Community, Bantian Street Longgang,
Shenzhen, Guangdong China

FCC ID: 2APMD-PA202A

Report Type: Original Report	Product Name: 3-IN-1 WIRELESS CHARGER PAD
Report Number: RDG200731005-00	
Report Date: 2020-09-22	
Reviewed By:	Ivan Cao Assistant Manager 
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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

EUT Name:	3-IN-1 WIRELESS CHARGER PAD
EUT Model:	PA202A
Operation Frequency:	110-215kHz
Charger Output:	10W
Rated Input Voltage:	DC 5V from adapter
Serial Number:	RDG200731005-RF -S1
EUT Received Date:	2020.07.31
EUT Received Status:	Good

Objective

This Type approval report is prepared on behalf of *Shenzhen Xintuo Supply Chain LTD* in accordance with Part 2, Subpart J, and Part 15, Subparts A and C of the Federal Communications Commission's rules.

The objective is to determine the compliance of the EUT with FCC rules, 15.203, 15.205, 15.207, 15.209.

Related Submittal(s)/Grant(s)

No related submittal(s)/grant(s).

Test Methodology

All measurements detailed in this Test Report were performed in accordance with ANSI C63.10-2013 "American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices".

All emissions measurement was performed and Bay Area Compliance Laboratories Corp. (Dongguan). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Measurement Uncertainty

Parameter	Measurement Uncertainty
Occupied Channel Bandwidth	±5 %
radiated Emissions	9kHz~30MHz: 4.12dB 30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical
Temperature	±1 °C
Humidity	±5%
DC and low frequency voltages	±0.4%
Duty Cycle	1%
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

Note: Otherwise required by the applicant or Product Regulations, Decision Rule in this report did not consider the uncertainty. The extended uncertainty given in this report is obtained by combining the standard uncertainty times the coverage factor K with the 95% confidence interval.

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China.

The lab has been recognized as the FCC accredited lab under the KDB 974614 D01 and is listed in the FCC Public Access Link (PAL) database, FCC Registration No. : 897218, the FCC Designation No. : CN1220.

The lab has been recognized by Innovation, Science and Economic Development Canada to test to Canadian radio equipment requirements, the CAB identifier : CN0022.

Declarations

BACL is not responsible for the authenticity of any test data provided by the applicant. Data included from the applicant that may affect test results are marked with a triangle symbol “Δ”. Customer model name, addresses, names, trademarks etc. are not considered data.

Unless otherwise stated the results shown in this test report refer only to the sample(s) tested.

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SYSTEM TEST CONFIGURATION

Justification

The system was configured for testing in a test mode

The device is a wireless charger operation on frequency 110 kHz - 215 kHz.

EUT Exercise Software

No software used in test.

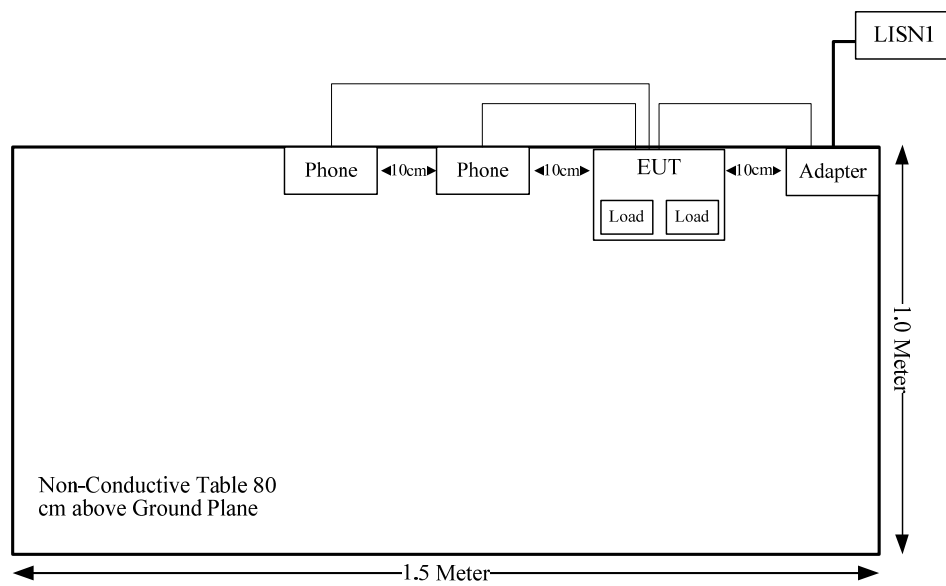
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DJI	Adapter	QC18	QC18-22
Un-known	Wireless load	Un-known	Load1
Un-known	Wireless load	Un-known	Load2
Huawei	Phone	COL-AL10	VQBDU18806000166
Huawei	Phone	COL-AL10	VQBDU18803234211

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From	To
USB Cable	No	No	1.0	Adapter	EUT
USB Cable	No	No	0.8	EUT	Phone
USB Cable	No	No	0.8	EUT	Phone

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
FCC§15.203	Antenna Requirement	Compliance
FCC§15.207	AC Line Conducted Emission	Compliance
§15.209 §15.205	Radiated Emission Test	Compliance

FCC§15.203 - ANTENNA REQUIREMENT

Applicable Standard

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.

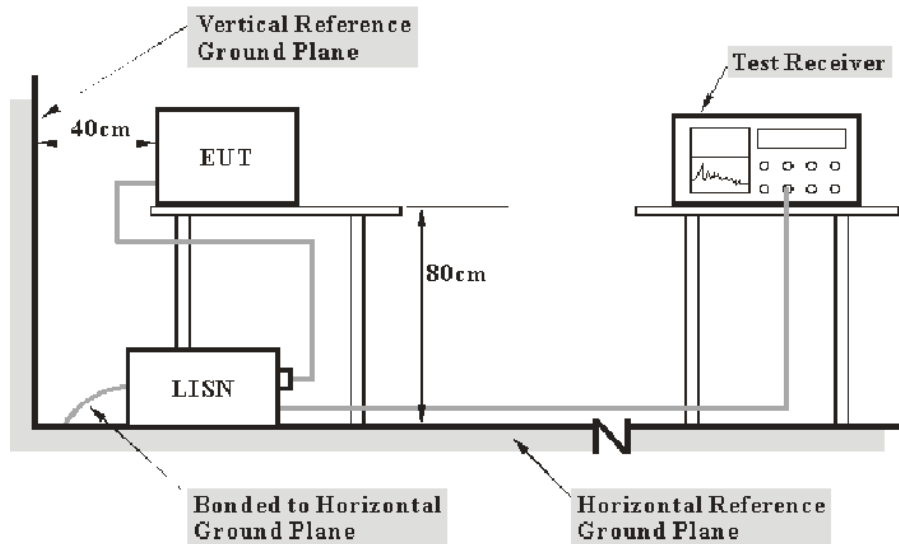
Antenna Connected Construction

The EUT has two integral antenna arrangement, which was permanently attached and fulfill the requirement of this section. Please refer to the EUT photos.

Result: Compliance.

FCC §15.207 – AC LINE CONDUCTED EMISSION

EUT Setup



Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.10-2013 measurement procedure. The specification used was with the FCC Part 15.207 limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The spacing between the peripherals was 10 cm.

The adapter was connected to the main LISN with an AC 120V/60Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	LISN	ENV 216	101614	2019-09-12	2020-09-12
R&S	EMI Test Receiver	ESCI	101121	2020-07-07	2021-07-07
MICRO-COAX	Coaxial Cable	C-NJNJ-50	C-0200-01	2019-09-05	2020-09-05
R&S	Test Software	EMC32	Version 9.10.00	N/A	N/A

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Procedure

During the conducted emission test, the adapter was connected to the outlet of the LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

According FCC publication number 174176, for a device with a permanent antenna operating at or below 30 MHz, the measurements done with a suitable dummy load, in lieu of the permanent antenna under the following conditions: (1) perform the AC line conducted tests with the permanent antenna to determine compliance with the Section 15.207 limits outside the transmitter's fundamental emission band; (2) retest with a dummy load in lieu of the permanent antenna to determine compliance with the Section 15.207 limits within the transmitter's fundamental emission band.

The report shall list the six emissions with the smallest margin relative to the limit, unless the margin is greater than 20 dB.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

Herein,

V_C : corrected voltage amplitude

V_R : reading voltage amplitude

A_C : attenuation caused by cable loss

VDF: voltage division factor of AMN or ISN

The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Results Summary

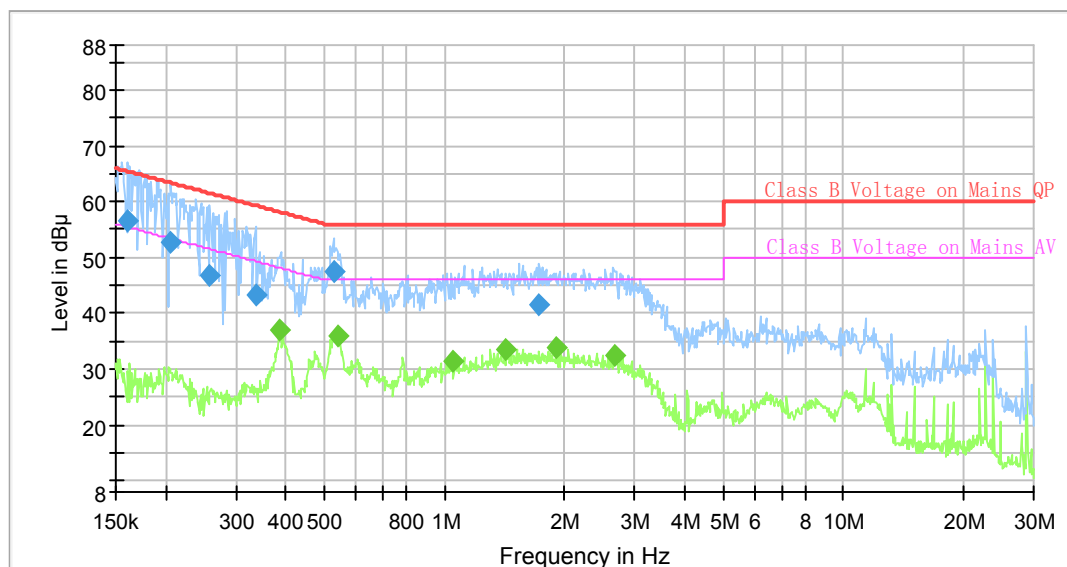
According to the recorded data in following table, the EUT complied with the FCC Part 15.207.

Test Data**Environmental Conditions**

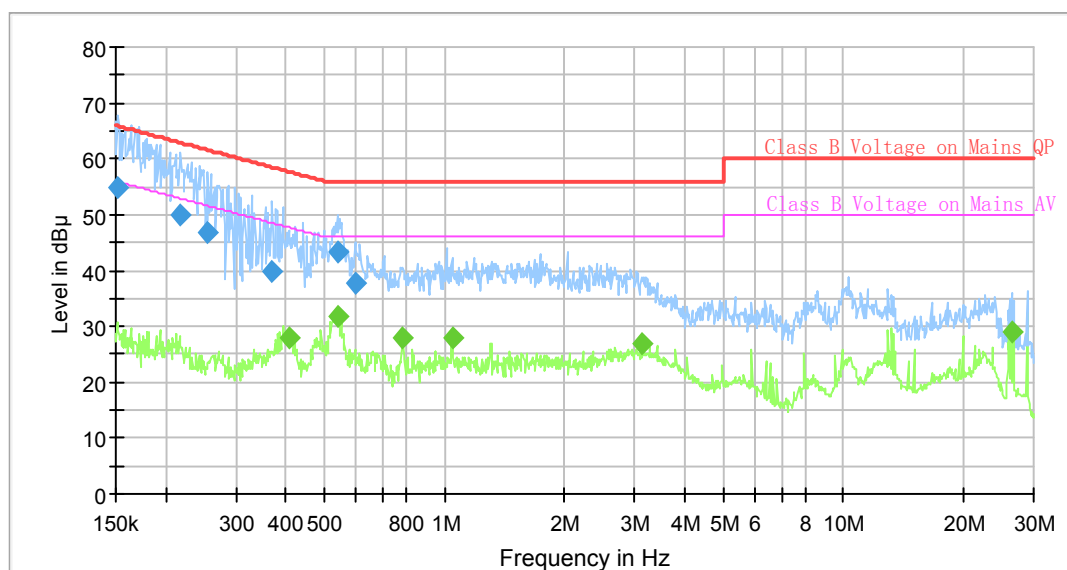
Temperature:	27.6°C
Relative Humidity:	36 %
ATM Pressure:	100.7 kPa
Test Engineer:	Leo Long
Test Date	2020-09-02

Test Mode: Charging

Test Result: Compliance, please refer to the below plots and table.

AC 120V, 60 Hz, Line:**Final Result**

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.160848	56.53	---	65.42	8.89	9.000	L1	9.6
0.206405	52.58	---	63.35	10.77	9.000	L1	9.6
0.258340	46.63	---	61.48	14.85	9.000	L1	9.6
0.336506	43.41	---	59.29	15.88	9.000	L1	9.6
0.385014	---	37.10	48.17	11.07	9.000	L1	9.6
0.527156	47.48	---	56.00	8.52	9.000	L1	9.6
0.537778	---	35.93	46.00	10.07	9.000	L1	9.6
1.049193	---	31.45	46.00	14.55	9.000	L1	9.7
1.415204	---	33.40	46.00	12.60	9.000	L1	9.7
1.727673	41.71	---	56.00	14.29	9.000	L1	9.7
1.908898	---	33.87	46.00	12.13	9.000	L1	9.7
2.666299	---	32.54	46.00	13.46	9.000	L1	9.7

AC120 V, 60 Hz, Neutral:**Final Result**

Frequency (MHz)	QuasiPeak (dB μ V)	Average (dB μ V)	Limit (dB μ V)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.152261	55.02	---	65.88	10.86	9.000	N	9.6
0.218045	50.11	---	62.89	12.78	9.000	N	9.6
0.255776	46.82	---	61.57	14.75	9.000	N	9.6
0.369955	39.99	---	58.50	18.51	9.000	N	9.6
0.408761	---	27.84	47.67	19.83	9.000	N	9.6
0.537778	43.30	---	56.00	12.70	9.000	N	9.6
0.540467	---	31.87	46.00	14.13	9.000	N	9.6
0.597160	37.74	---	56.00	18.26	9.000	N	9.6
0.785640	---	27.94	46.00	18.06	9.000	N	9.6
1.049193	---	27.93	46.00	18.07	9.000	N	9.6
3.143322	---	27.07	46.00	18.93	9.000	N	9.6
26.442183	---	29.04	50.00	20.96	9.000	N	9.9

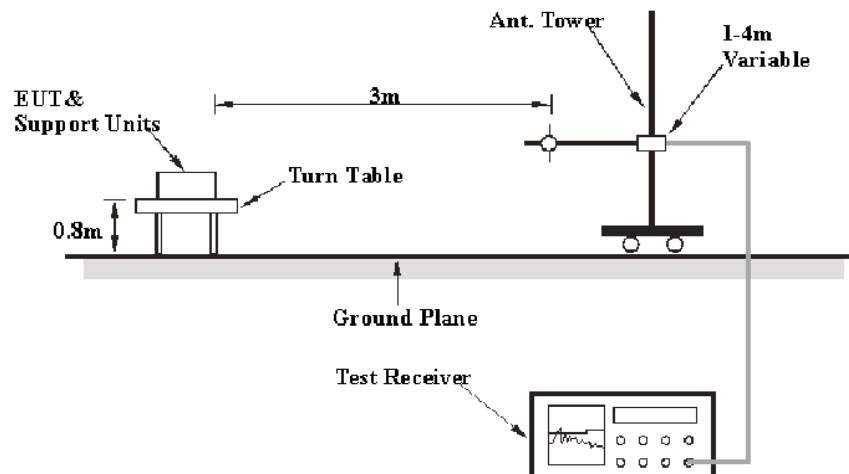
FCC §15.205 & §15.209 - RADIATED EMISSIONS TEST**Applicable Standard**

As per FCC Part 15.209

(a) Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:

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.

EUT Setup

The radiated emission tests were performed in the 3-meter chamber test site, using the setup accordance with the ANSI C63.10-2013. The specification used was the FCC Part Subpart C limits.

The spacing between the peripherals was 10 cm.

EMI Test Receiver Setup

The system was investigated from 9 kHz to 1 GHz.

During the radiated emission test, the EMI test Receiver was set with the following configurations:

Frequency Range	RBW	Video B/W	Measurement
9 kHz – 150 kHz	200 Hz	1 kHz	QP/Average
150 kHz – 30 MHz	9 kHz	30 kHz	QP/Average
30 MHz – 1000 MHz	120 kHz	300 kHz	QP

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.

If the maximized peak measured value complies with the limit, then it is unnecessary to perform an QP/Average measurement

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Factor and Cable Loss, and subtracting the Amplifier Gain from the Amplitude reading. The basic equation is as follows:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corr. Ampl.}$$

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
EMCO	Passive Loop	6512	9706-1206	2020-03-05	2023-03-04
R&S	EMI Test Receiver	ESR3	102453	2019-09-12	2020-09-12
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2019-09-05	2020-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2020-05-06	2021-05-06
HP	Amplifier	8447D	2727A05902	2019-09-05	2020-09-05
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

Test Results Summary

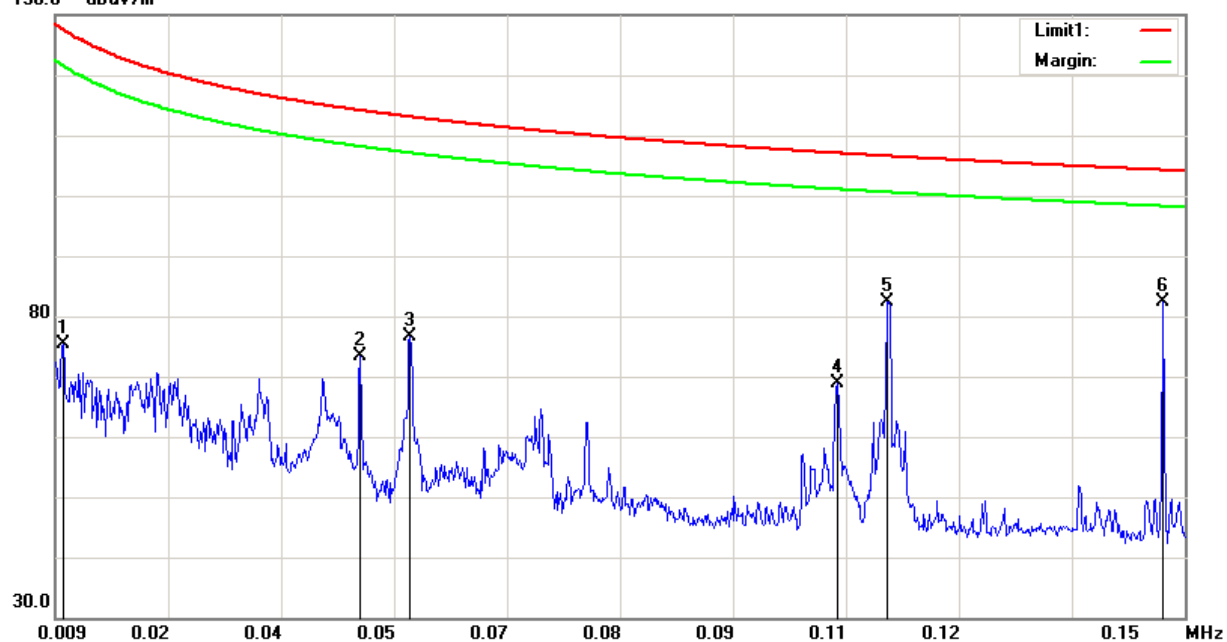
According to the data in the following table, the EUT complied with the FCC Part 15.209&15.205.

Test Data**Environmental Conditions**

Temperature:	29.0°C
Relative Humidity:	41 %
ATM Pressure:	100.7 kPa
Test Engineer:	Jalon Liu
Test date:	2020-09-01

Test mode: Charging

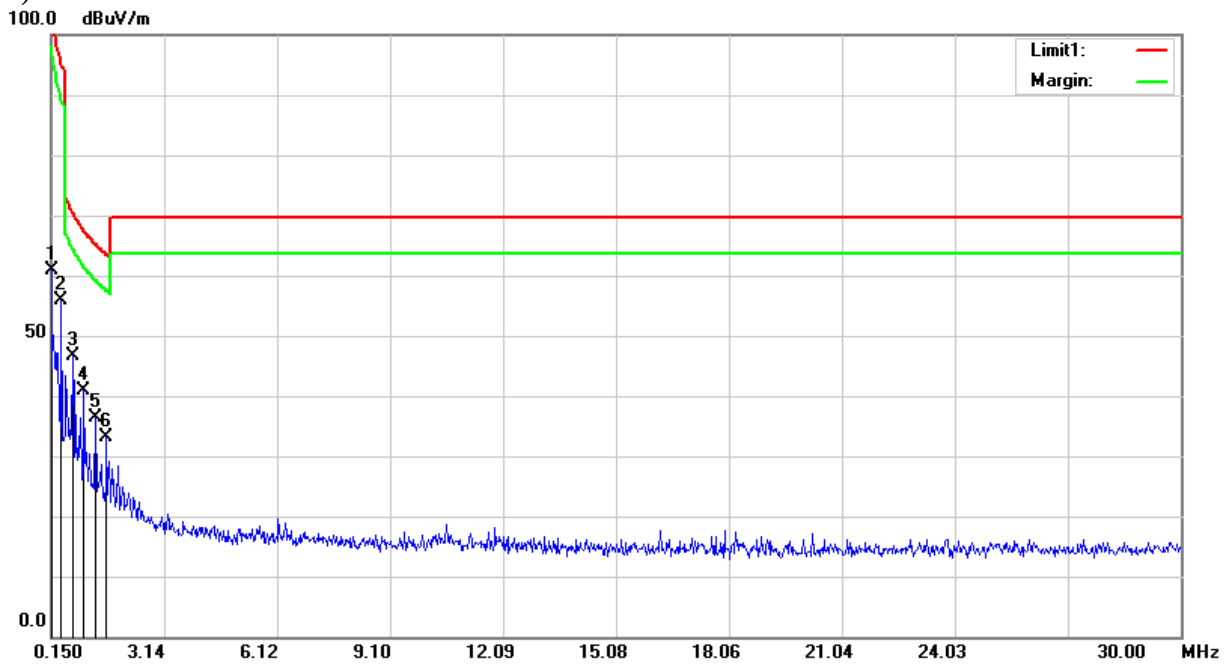
1) 9 kHz~150kHz:

130.0 dB μ V/m

Frequency (MHz)	Receiver Reading (dB μ V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
0.0100	-13.31	peak	88.61	75.30	127.60	52.30
0.0471	-0.71	peak	74.09	73.38	114.14	40.76
0.0533	3.58	peak	72.98	76.56	113.07	36.51
0.1066	2.58	peak	66.34	68.92	107.05	38.13
0.1128	16.01	peak	65.99	82.00	106.56	24.56
0.1473*	18.43	peak	64.02	82.45	104.24	21.79

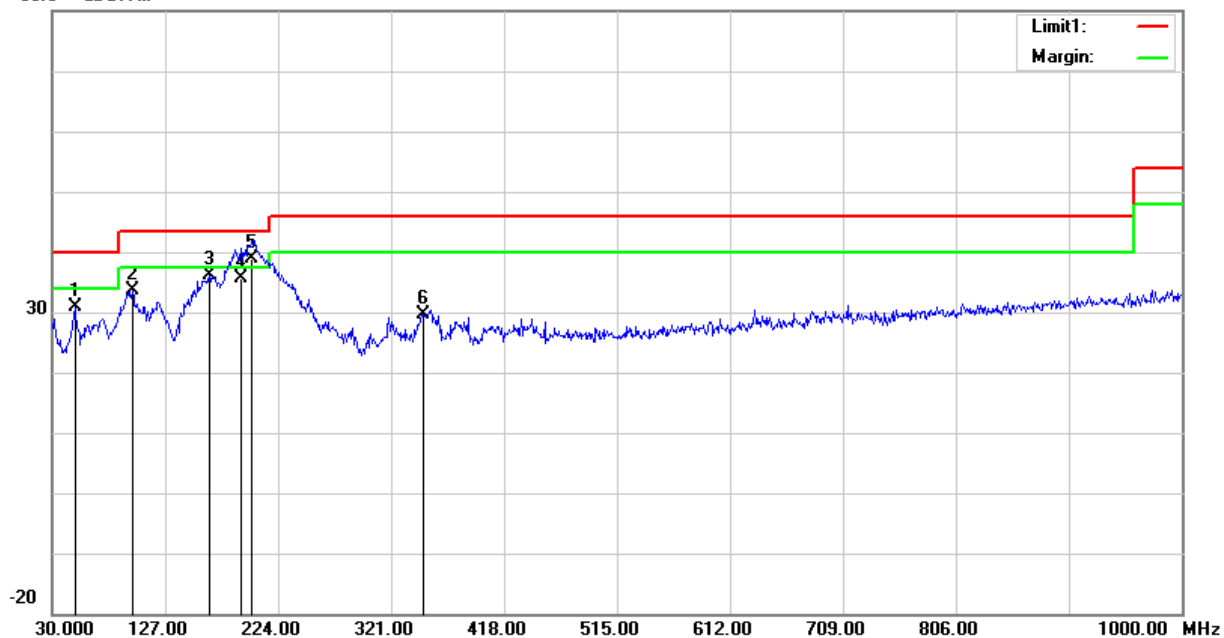
*Fundamental.

2)150k Hz-30 MHz

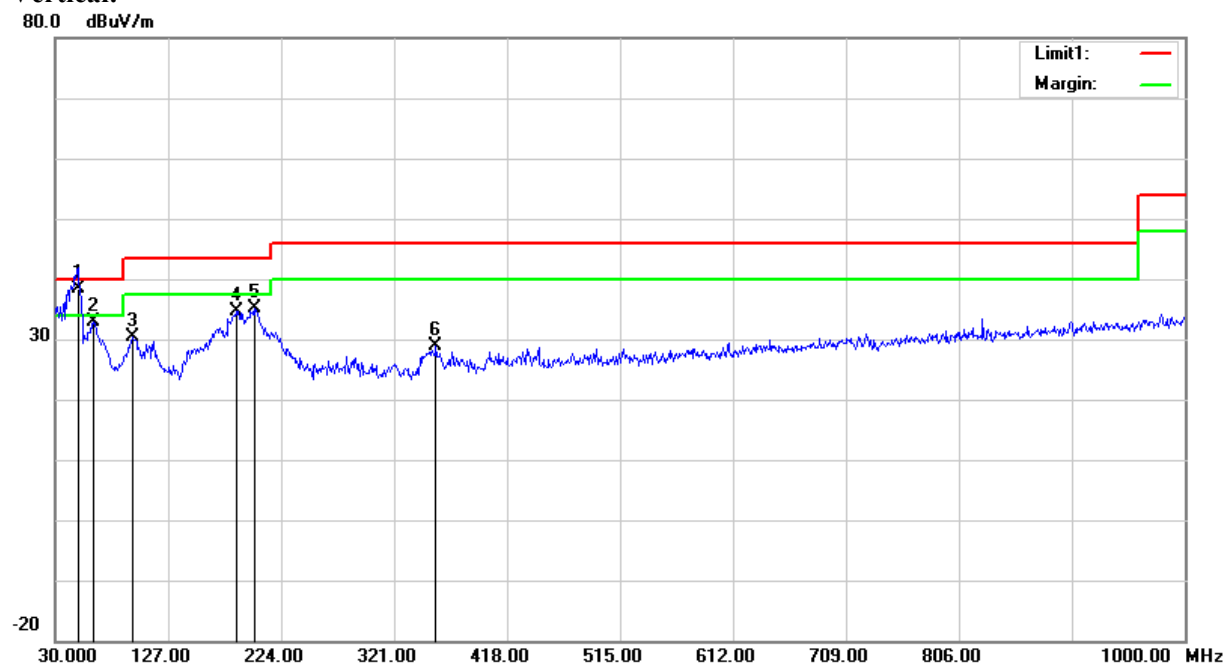


Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
0.1500	-2.92	peak	63.87	60.95	104.08	43.13
0.4187	0.82	peak	55.10	55.92	95.17	39.25
0.7172	-4.29	peak	50.83	46.54	70.49	23.95
1.0157	-7.26	peak	48.18	40.92	67.46	26.54
1.3142	-10.01	peak	46.49	36.48	65.22	28.74
1.6127	-11.57	peak	44.80	33.23	63.44	30.21

3) 30 MHz-1GHz

Horizontal:80.0 dB μ V/m

Frequency (MHz)	Receiver Reading (dB μ V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
49.4000	42.07	peak	-11.19	30.88	40.00	9.12
98.8700	43.02	peak	-9.39	33.63	43.50	9.87
164.8300	42.40	peak	-6.39	36.01	43.50	7.49
191.9900	42.46	QP	-6.89	35.57	43.50	7.93
201.6900	44.68	QP	-5.81	38.87	43.50	4.63
349.1300	32.70	peak	-3.05	29.65	46.00	16.35

Vertical:

Frequency (MHz)	Receiver Reading (dB μ V)	Detector	Correction Factor (dB/m)	Cord. Amp. (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
49.4000	49.60	QP	-11.19	38.41	40.00	1.59
62.9800	44.87	peak	-12.05	32.82	40.00	7.18
95.9600	40.56	peak	-10.19	30.37	43.50	13.13
185.2000	41.91	peak	-7.17	34.74	43.50	8.76
200.7200	40.90	peak	-5.80	35.10	43.50	8.40
356.8900	31.70	peak	-2.86	28.84	46.00	17.16

***** END OF REPORT *****