

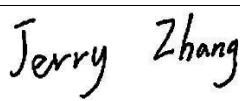
FCC PART 15 B TEST REPORT

For

SZ DJI TECHNOLOGY CO., LTD

14th floor, West Wing, Skyworth Semiconductor Design Building NO.18 Gaoxin South 4th Ave,
Nanshan, Shenzhen, Guangdong, China

FCC ID: SS3-OAS11709

Report Type: Original Report	Product Type: DJI OcuSync Air System
Report Number:	RDG170929010-00C
Report Date:	2017-10-19
Reviewed By:	Jerry Zhang EMC Manager 
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Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp.(Dongguan).

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *SZ DJI TECHNOLOGY CO., LTD*'s product, model number: *OAS1(FCC ID: SS3-OAS11709)* (the "EUT") in this report was a *DJI OcuSync Air System*, which was measured approximately: 7.2cm (L) x 3.3 cm (W) x 1.4cm (H), rated input voltage: DC 12V from battery. The highest Operation frequency is 5839.5 MHz.

The devices have 3 types of antennas:

Antenna	Manufacturer	Antenna Type	Maximum Antenna Gain (dBi)
1	DJI	Pagoda Antenna	2.4GHz:-1.81dBi 5.8GHz: 3.06 dBi
2	DJI	Cylindrical Antenna	2.4GHz:2.67 dBi 5.8GHz: 1.29 dBi
3	DJI	Dipole Antenna	2.4GHz:2.63 dBi 5.8GHz: 1.20 dBi

All measurement and test data in this report was gathered from production sample serial number: 170929010 (Assigned by BACL, Dongguan). The EUT was received on 2017-09-29.

Objective

This test report is prepared on behalf of *SZ DJI TECHNOLOGY CO., LTD* in accordance with Part 2, Subpart J, and Part 15-Subparts A and B of the Federal Communications Commission's rules.

The objective of the manufacturer is to determine the compliance of EUT with FCC Part 15 B Class B.

Related Submittal(s)/Grant(s)

FCC Part 15C DTS submissions with FCC ID: SS3-OAS11709.

FCC Part 15E NII submissions with FCC ID: SS3-OAS11709.

Part of system submissions with FCC ID: SS3- G1P1709.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2014, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Laboratories Corp. (Dongguan).

Measurement Uncertainty

Parameter	Measurement Uncertainty
Unwanted Emissions, radiated	30M~200MHz: 4.58 dB for Horizontal, 4.59 dB for Vertical 200M~1GHz: 4.83 dB for Horizontal, 5.85 dB for Vertical 1G~6GHz: 4.45 dB, 6G~26.5GHz: 5.23 dB
Temperature	$\pm 1^{\circ}\text{C}$
Humidity	$\pm 5\%$
AC Power Lines Conducted Emission	3.12 dB (150 kHz to 30 MHz)

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

Bay Area Compliance Laboratories Corp. (Dongguan) has been accredited to ISO 17025 by CNAS(Lab code: L5662). And accredited to ISO 17025 by NVLAP(Test Laboratory Accreditation Certificate Number 500069-0), the FCC Designation No. CN5002 under the KDB 974614 D01.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Bay Area Compliance Laboratories Corp. (Dongguan) was registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

The software “Withrax” was used during test.

Equipment Modifications

No modification was made to the EUT tested.

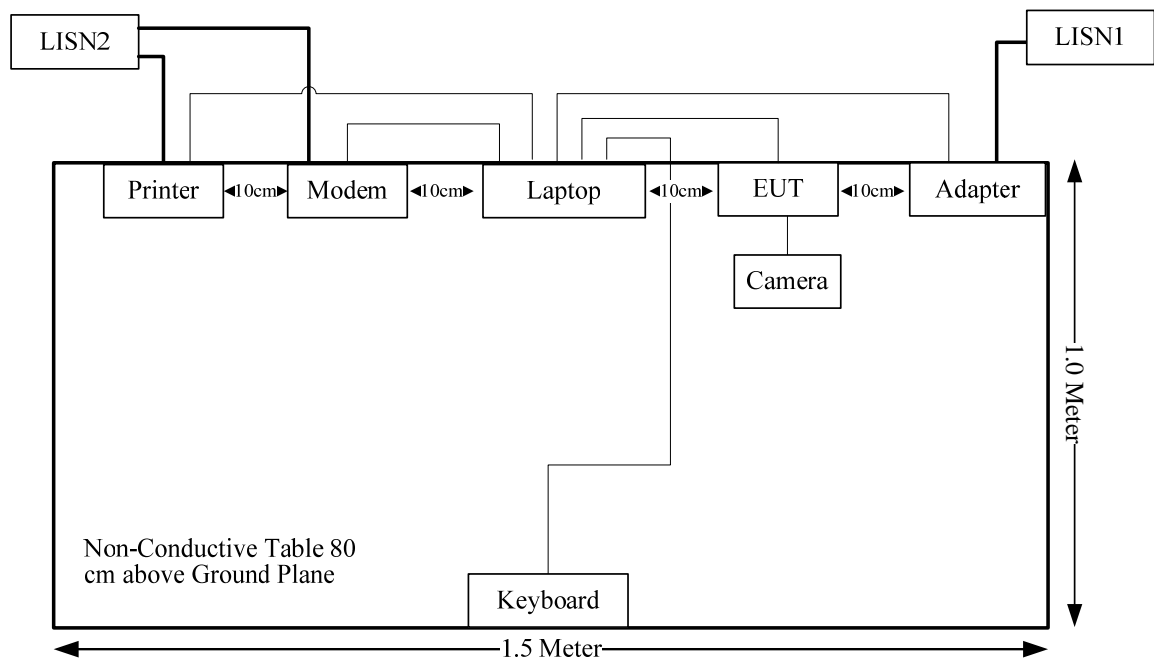
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
HP	Printer	C3941A	JPTVOB2337
SAST	Modem	AEM-2100	0293
DELL	Keyboard	L100	CNORH656658907BL05DC
DELL	Laptop	PP11L	QDS-BRCM1017
DJI	Camera	N/A	N/A

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Serial Cable	yes	No	1.2	Serial Port of Laptop	Modem
Parallel Cable	yes	No	1.2	Parallel Port of Laptop	Printer
Keyboard Cable	yes	No	1.2	USB Port of Laptop	Keyboard
Camera Cable	Yes	No	0.1	Camera	EUT
USB Cable	Yes	No	1.1	USB Port of Laptop	EUT

Configuration of Test Setup

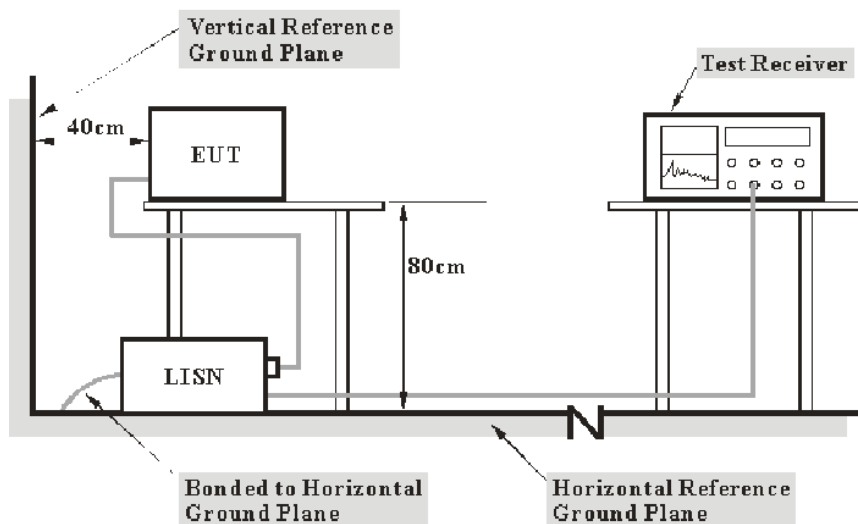


SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Results
§15.107	Conducted Emissions	Compliant
§15.109	Radiated Emissions	Compliant

FCC§15.107 - CONDUCTED EMISSIONS

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 C63.4-2014 measurement procedure. The specification used was with the FCC Part 15 B Class B 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 adapter was connected to the Main LISN with 120V/60Hz AC 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	L.I.S.N	ESH2-Z5	892107/021	2017-09-25	2018-09-25
R&S	Two-line V-network	ENV 216	3560.6550.12	2016-12-08	2017-12-08
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
Unknown	Coaxial Cable	2m	Con-1	2017-09-05	2018-09-05
R&S	EMI Test Receiver	ESCS 30	830245/006	2016-12-08	2017-12-08

* **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 of laptop was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second 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.

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 B Class B.

Test Data

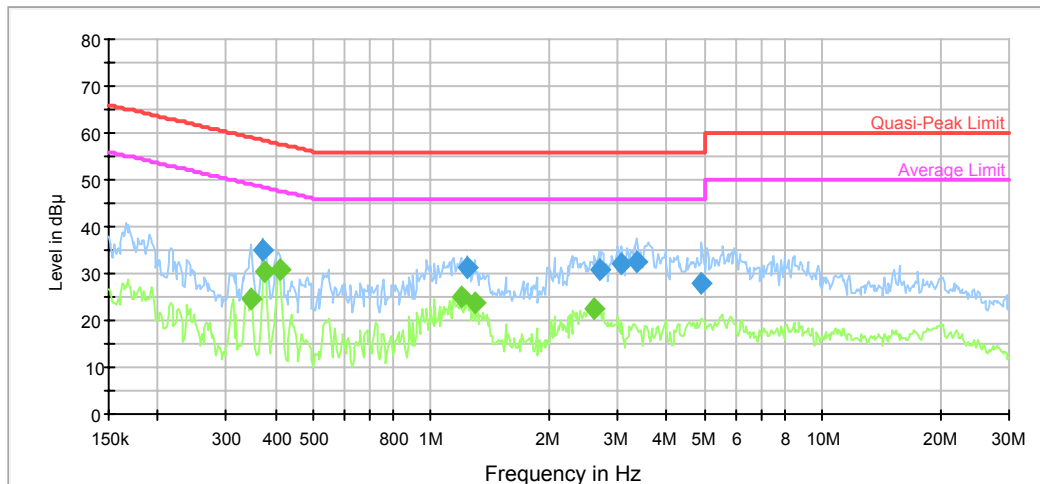
Environmental Conditions

Temperature:	27.1°C
Relative Humidity:	43 %
ATM Pressure:	100.6 kPa

The testing was performed by Gaochao Gong on 2017-10-13.

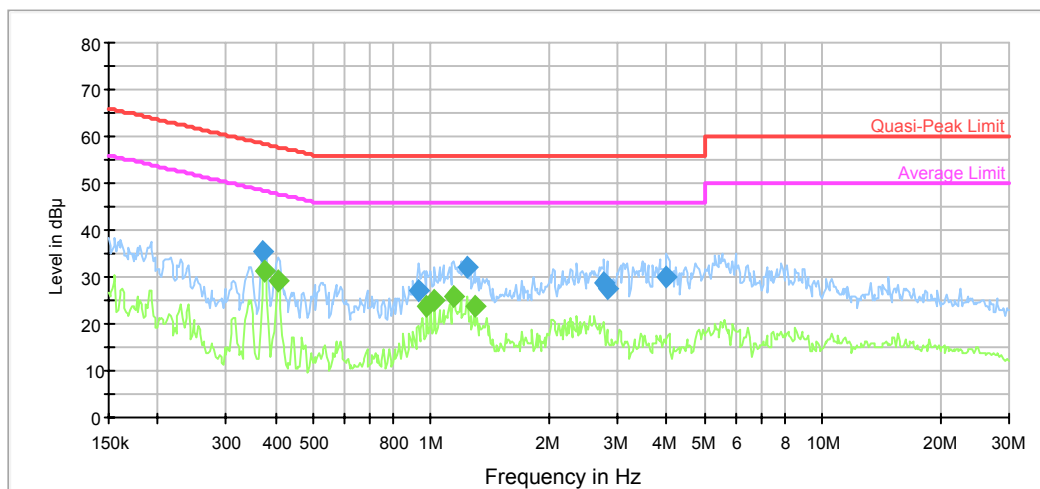
Test Mode: Downloading

AC120V, 60Hz, Line:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.372042	34.8	9.000	L1	10.0	23.7	58.5	Compliance
1.239175	31.1	9.000	L1	9.8	24.9	56.0	Compliance
2.684134	30.8	9.000	L1	9.8	25.2	56.0	Compliance
3.073500	32.1	9.000	L1	9.8	23.9	56.0	Compliance
3.355051	32.3	9.000	L1	9.8	23.7	56.0	Compliance
4.918182	27.8	9.000	L1	9.8	28.2	56.0	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.346296	24.4	9.000	L1	10.0	24.7	49.1	Compliance
0.375019	30.5	9.000	L1	10.0	17.9	48.4	Compliance
0.409372	30.7	9.000	L1	10.0	17.0	47.7	Compliance
1.190776	25.2	9.000	L1	9.8	20.8	46.0	Compliance
1.289541	23.6	9.000	L1	9.8	22.4	46.0	Compliance
2.620732	22.3	9.000	L1	9.8	23.7	46.0	Compliance

AC120V, 60Hz, Neutral:

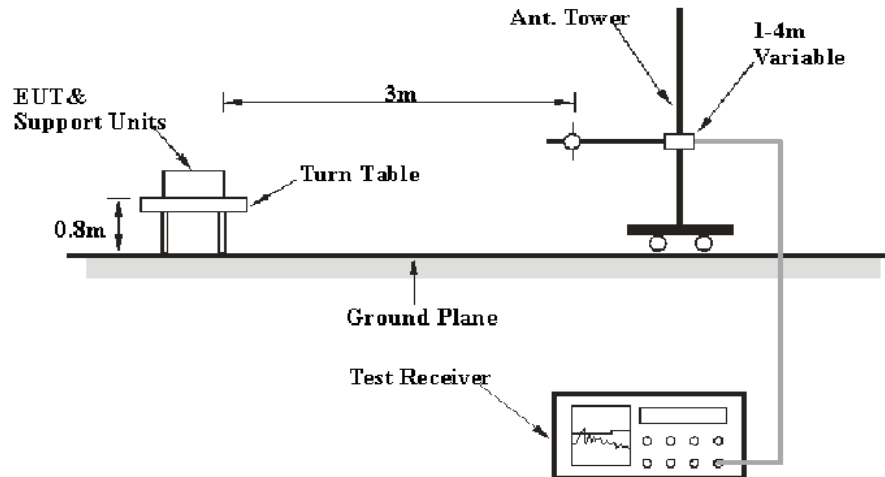
Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.372042	35.4	9.000	N	10.0	23.1	58.5	Compliance
0.930151	27.0	9.000	N	9.8	29.0	56.0	Compliance
1.239175	32.3	9.000	N	9.8	23.7	56.0	Compliance
2.771062	28.6	9.000	N	9.8	27.4	56.0	Compliance
2.815577	27.6	9.000	N	9.8	28.4	56.0	Compliance
3.997889	29.9	9.000	N	9.8	26.1	56.0	Compliance

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.375019	31.1	9.000	N	10.0	17.3	48.4	Compliance
0.406123	29.1	9.000	N	10.0	18.6	47.7	Compliance
0.975701	23.7	9.000	N	9.8	22.3	46.0	Compliance
1.023481	25.1	9.000	N	9.8	20.9	46.0	Compliance
1.144267	25.7	9.000	N	9.8	20.3	46.0	Compliance
1.289541	23.8	9.000	N	9.8	22.2	46.0	Compliance

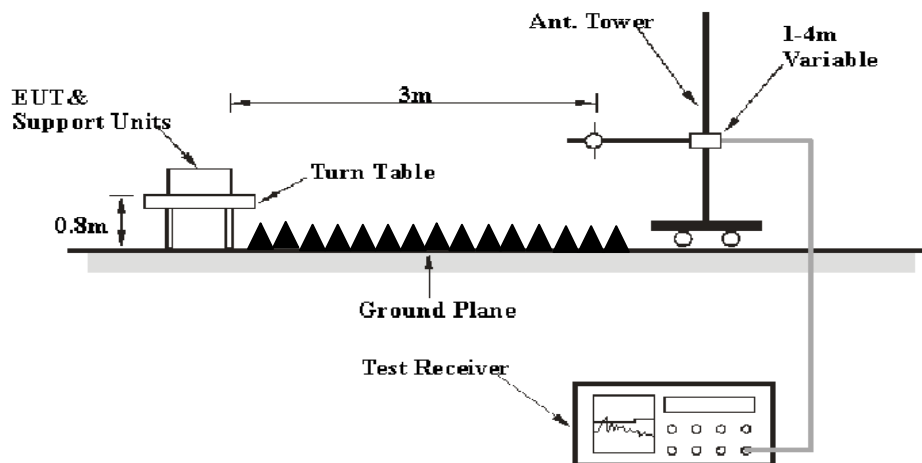
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site, above 1GHz tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2014. The specification used was the FCC Part 15.109 Class B limits.

EMI Test Receiver Setup

The system was investigated from 30 MHz to 13 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1 MHz	3 MHz	/	Peak
	1 MHz	10 Hz	/	AVG

Test Procedure

During the radiated emissions, the adapter of laptop was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

The data was recorded in the Quasi-peak detection mode for below 1 GHz, peak and average detection mode above 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCI	100224	2016-09-01	2017-08-31
Sunol Sciences	Antenna	JB3	A060611-1	2014-11-06	2017-11-05
HP	Amplifier	8447E	2434A02181	2017-09-05	2018-09-05
R&S	Spectrum Analyzer	FSU 26	200256	2016-12-08	2017-12-08
ETS-Lindgren	Horn Antenna	3115	000 527 35	2016-01-05	2019-01-04
MITEQ	Amplifier	AFS42-00101800-2 5-S-42	2001271	2017-09-05	2018-09-05
Ducommun Technologies	Horn Antenna	ARH-4223-02	1007726-02 1304	2017-06-16	2020-06-15
Ducommun Technologies	Horn Antenna	ARH-2823-02	1007726-01 1302	2016-11-18	2019-11-18
MITEQ	Amplifier	AFS42-00101800-2 5-S-42	2001271	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber A-1	4m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber B-1	0.75m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber A-2	10m	2017-09-05	2018-09-05
Unknown	Coaxial Cable	Chamber B-2	8m	2017-09-05	2018-09-05
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).

Corrected Amplitude & Margin Calculation

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

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Factor} + \text{Cable Loss} - \text{Amplifier Gain}$$

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

calculation is as follows:

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

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	29 %
ATM Pressure:	100.6 kPa

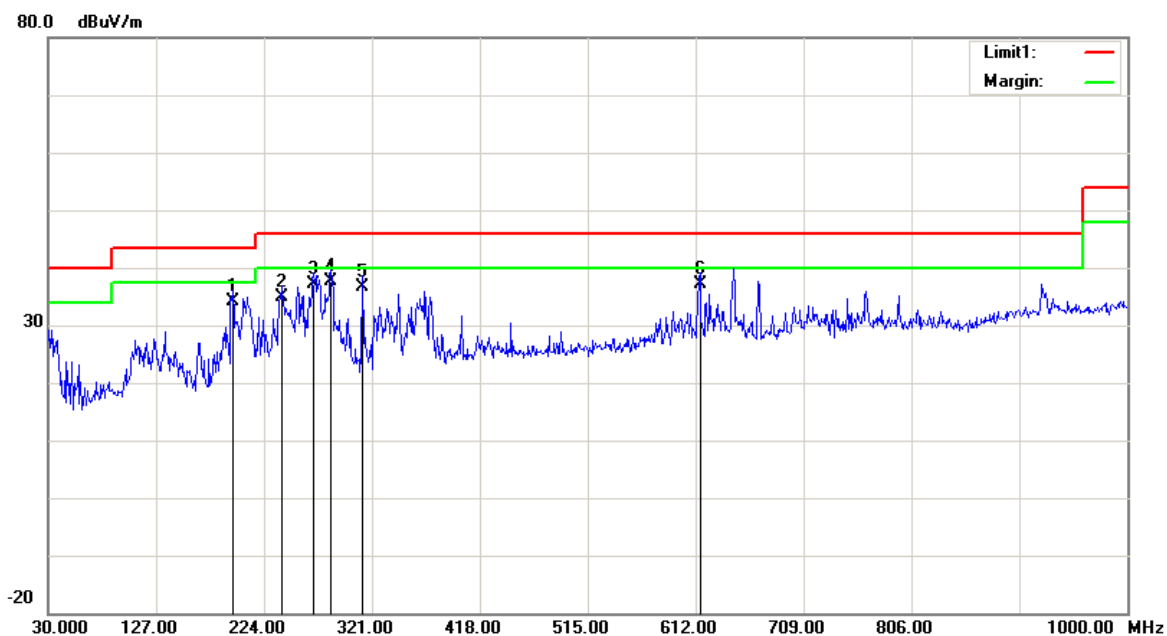
** The testing was performed by Sunny Cen on 2017-10-13.*

Test Result: Compliance

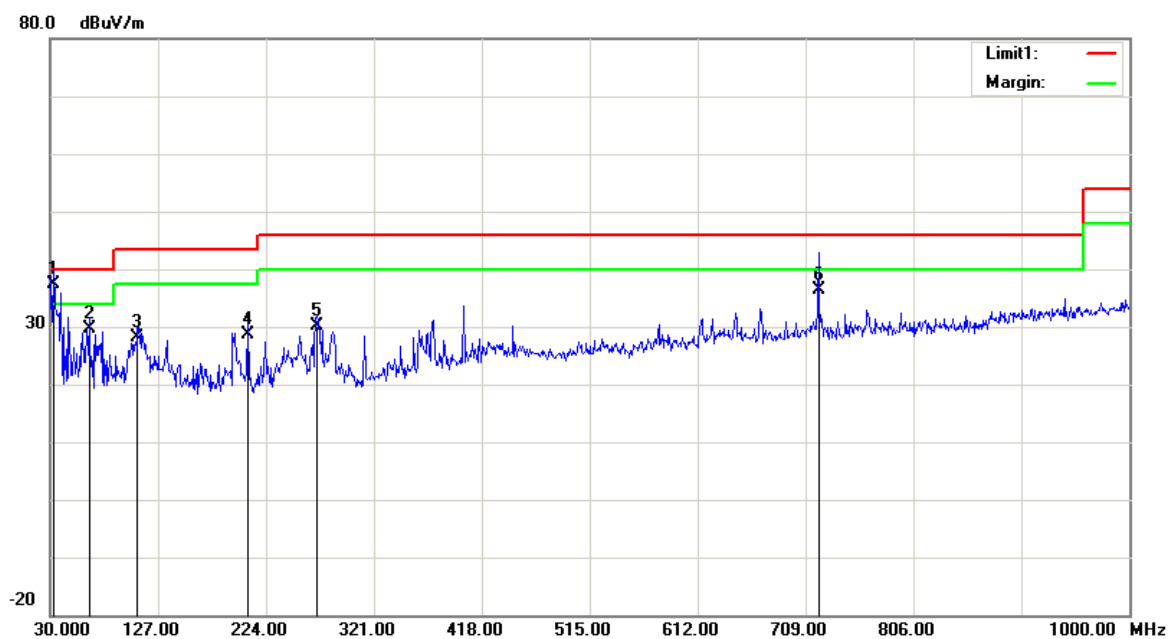
Test Mode: Downloading

1) Below 1GHz:

Horizontal



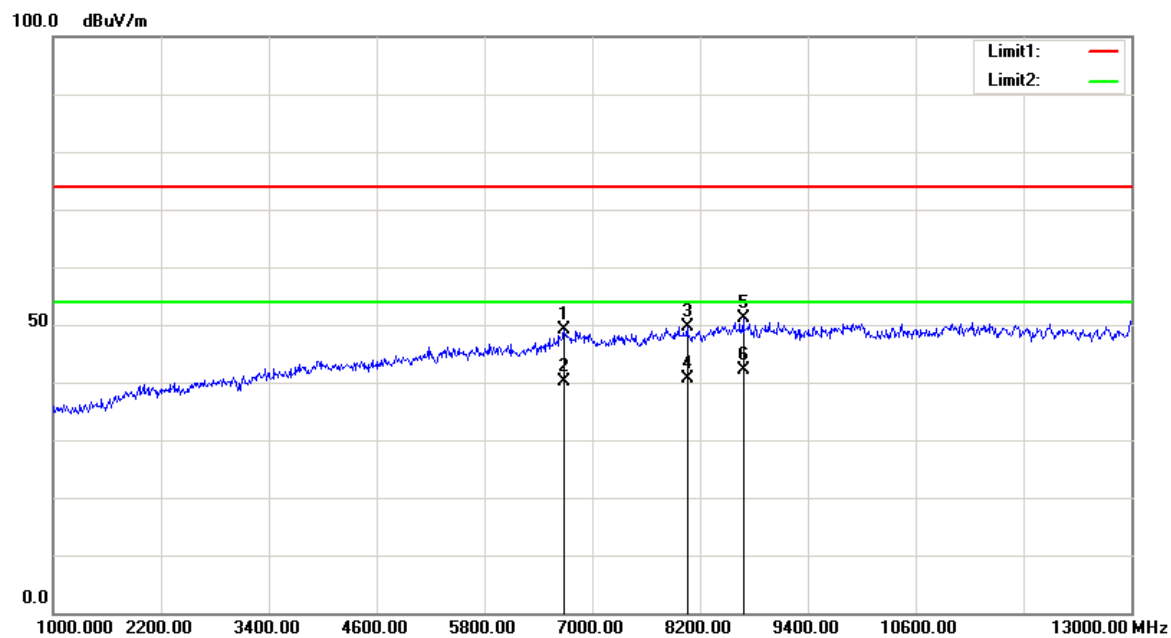
Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
195.8700	41.14	QP	-6.94	34.20	43.50	9.30
239.5200	41.12	QP	-6.22	34.90	46.00	11.10
268.6200	41.35	QP	-4.15	37.20	46.00	8.80
284.1400	41.44	QP	-3.74	37.70	46.00	8.30
312.2700	41.05	QP	-4.45	36.60	46.00	9.40
615.8800	36.78	QP	0.42	37.20	46.00	8.80

Vertical

Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
32.9100	38.50	QP	-1.10	37.40	40.00	2.60
64.9200	41.47	QP	-11.87	29.60	40.00	10.40
108.5700	34.48	QP	-6.38	28.10	43.50	15.40
207.5100	35.97	QP	-7.37	28.60	43.50	14.90
269.5900	34.18	QP	-4.08	30.10	46.00	15.90
720.6400	33.40	QP	2.90	36.30	46.00	9.70

2) Above 1GHz:

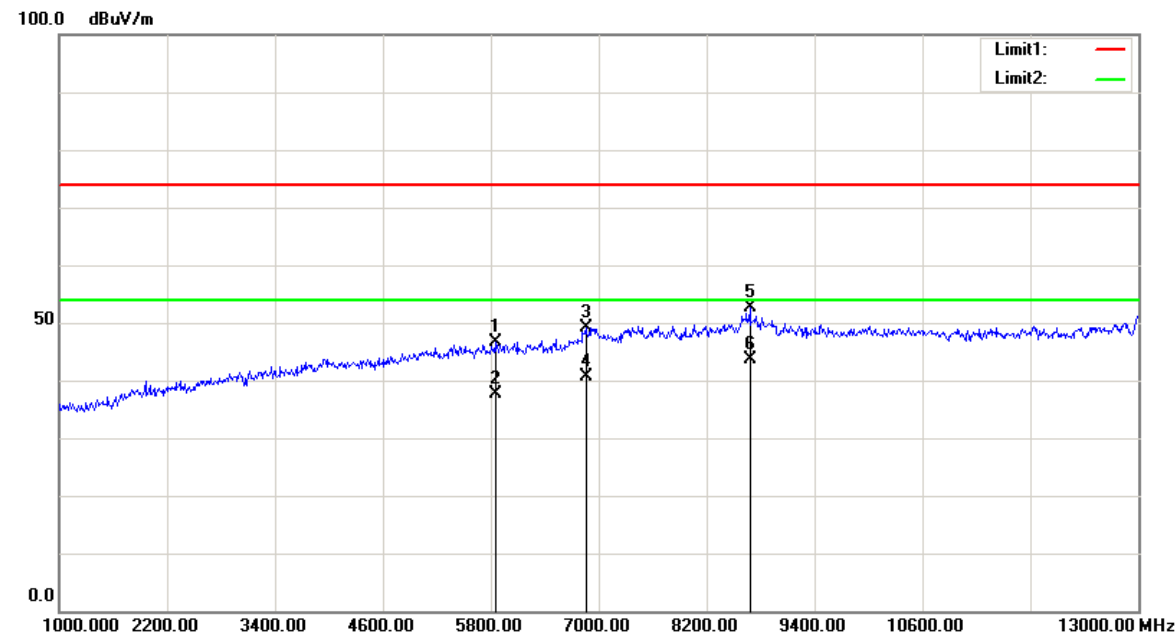
Horizontal



Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
6688.000	46.77	peak	2.46	49.23	74.00	24.77
6688.000	37.59	AVG	2.46	40.05	54.00	13.95
8056.000	44.75	peak	4.92	49.67	74.00	24.33
8056.000	35.62	AVG	4.92	40.54	54.00	13.46
8680.000	45.33	peak	5.75	51.08	74.00	22.92
8680.000	36.45	AVG	5.75	42.20	54.00	11.80

Note: No emission was detected in the range 13-30GHz

Vertical



Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5854.000	45.78	peak	0.74	46.52	74.00	27.48
5854.000	36.95	AVG	0.74	37.69	54.00	16.31
6856.000	46.13	peak	2.97	49.10	74.00	24.90
6856.000	37.58	AVG	2.97	40.55	54.00	13.45
8680.000	46.83	peak	5.75	52.58	74.00	21.42
8680.000	37.92	AVG	5.75	43.67	54.00	10.33

Note: No emission was detected in the range 13-30GHz

****END OF REPORT****