

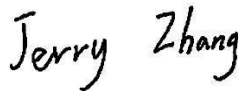
FCC PART 15 B TEST REPORT

For

XIAMEN RONGTA TECHNOLOGY CO.,LTD.

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Huli District, Xiamen City, China

FCC ID: 2AD6G-ACE-G1YB

Report Type: Original Report	Product Type: Thermal Receipt Printer
Report Number:	RXM180314051-00A
Report Date:	2018-05-23
Reviewed By:	Jerry Zhang EMC Manager 
Test Laboratory:	Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industry Area, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 www.baclcorp.com.cn

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TABLE OF CONTENTS

GENERAL INFORMATION.....	3
PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)	3
OBJECTIVE	3
RELATED SUBMITTAL(S)/GRANT(S).....	3
TEST METHODOLOGY	3
MEASUREMENT UNCERTAINTY.....	4
TEST FACILITY	4
SYSTEM TEST CONFIGURATION.....	5
DESCRIPTION OF TEST CONFIGURATION	5
EUT EXERCISE SOFTWARE	5
EQUIPMENT MODIFICATIONS	5
LOCAL SUPPORT EQUIPMENT LIST AND DETAILS	5
SUPPORT CABLE LIST AND DETAILS	5
CONFIGURATION OF TEST SETUP	6
SUMMARY OF TEST RESULTS	7
FCC§15.107 - CONDUCTED EMISSIONS.....	8
EUT SETUP.....	8
EMI TEST RECEIVER SETUP.....	8
TEST EQUIPMENT LIST AND DETAILS.....	9
TEST PROCEDURE	9
CORRECTED AMPLITUDE & MARGIN CALCULATION	9
TEST RESULTS SUMMARY	9
TEST DATA	10
FCC §15.109 - RADIATED SPURIOUS EMISSIONS	12
EUT SETUP.....	12
EMI TEST RECEIVER SETUP.....	13
TEST PROCEDURE	13
TEST EQUIPMENT LIST AND DETAILS.....	13
CORRECTED AMPLITUDE & MARGIN CALCULATION	14
TEST DATA	14

GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

EUT Name:		Thermal Receipt Printer
EUT Model:		ACE G1Y
Multiple Model:		ACE G1A, ACE G1B, ACE G1C, ACE G1D, ACE G1E, ACE G1F, ACE G1H, ACE G1I, ACE G1J
FCC ID:		2AD6G-ACE-G1YB
Rated Input Voltage:		DC 9V from adapter
Adapter Information	Model:	DJ-U30S-9
	Input:	AC 100-240V~ 50/60Hz 0.8A MAX
	Output:	DC 9V , 3A MAX
External Dimension:		Length (163 mm)*Width (115 mm)*High (105 mm)
Serial Number:		180314051
EUT Received Date:		2018.03.16
The highest operation frequency:		2480MHz

Note: The series product, models ACE G1Y, ACE G1A, ACE G1B, ACE G1C, ACE G1D, ACE G1E, ACE G1F, ACE G1H, ACE G1I, ACE G1J are electrically identical, we selected ACE G1Y for full test , and please refer to the declaration letter for details.

Objective

This test report is prepared on behalf of **XIAMEN RONGTA 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 DSS submissions with FCC ID: 2AD6G-ACE-G1YB.

FCC Part 15C DTS submissions with FCC ID: 2AD6G-ACE-G1YB.

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: 4.55 dB, 200M~1GHz: 5.92 dB, 1G~6GHz: 4.98 dB, 6G~18GHz: 5.89 dB, 18G~26.5G: 5.47 dB, 26.5G~40G: 5.63 dB
Temperature	±1 °C
Humidity	±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.

The test site has been approved by the FCC 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 test site has been registered with ISED Canada under ISED Canada Registration Number 3062D.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in typical operation mode.

In this mode, the Router was transmitting data to EUT, and transmitting data from Laptop to EUT printing the paper.

EUT Exercise Software

No software was used to testing.

Equipment Modifications

No modification was made to the EUT tested.

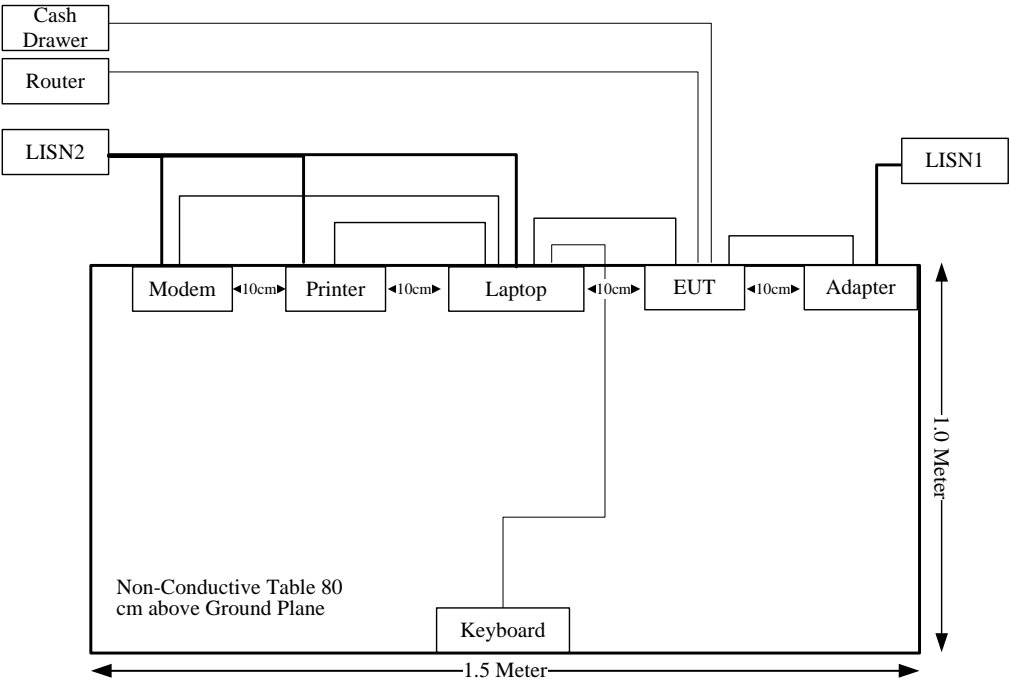
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
MAKEN	Cash Drawer	MT-350T	/
DELL	Laptop	PP11L	HLKYGB1
DELL	Keyboard	SK-8115	CN-0J4628-71616-52H-0RT6
HP	Printer	C3990A	JPZW030603
SAST	Modem	AEM-2100	90200213
Tenda	Router	D311R	/

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From	To
RJ45 Cable	No	No	10.0	RJ45 port of Router	EUT
RJ11 Cable	No	No	2.00	RJ11 port of EUT	Cash Drawer
Parallel Cable	Yes	No	1.2	Parallel port of Laptop	Printer
USB Cable	No	Yes	1.51	USB port of Laptop	EUT
Serial Cable	Yes	No	1.2	Serial port of Laptop	Modem

Configuration of Test Setup

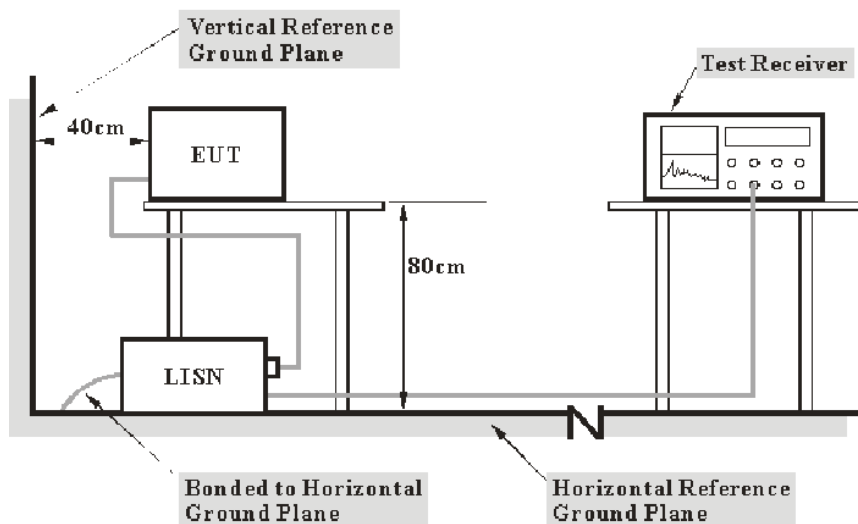


SUMMARY OF TEST RESULTS

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

FCC§15.107 - CONDUCTED EMISSIONS

EUT Setup



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	EMI Test Receiver	ESCS 30	830245/006	2017-12-11	2018-12-11
R&S	Two-line V-network	ENV 216	101614	2017-12-08	2018-12-08
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2017-09-05	2018-09-05
R&S	L.I.S.N	ESH2-Z5	892107/021	2017-09-25	2018-09-25
R&S	Test Software	EMC32	Version8.53.0	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 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**

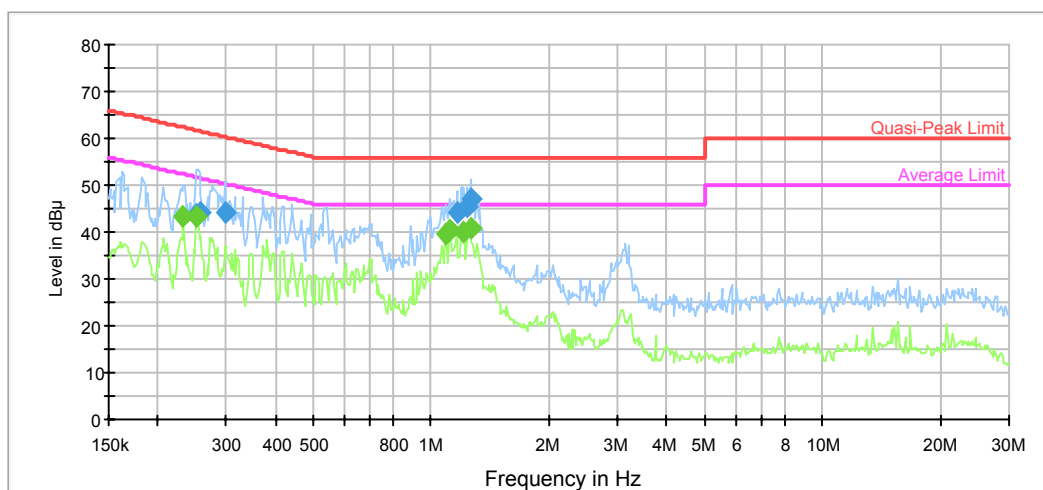
Temperature:	26.8 °C
Relative Humidity:	61 %
ATM Pressure:	100.5kPa

The testing was performed by Tyler Pan on 2018-05-14.

Test Result: Compliance

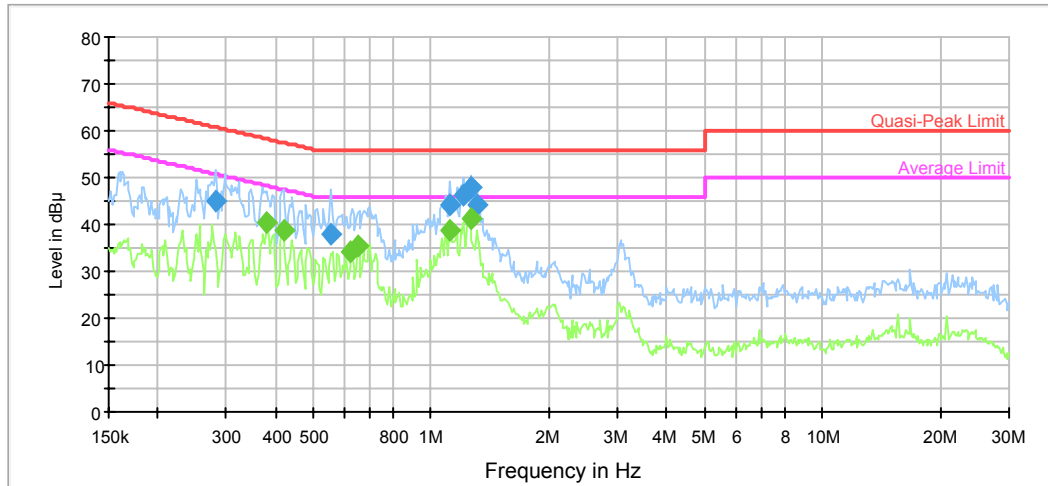
Test Mode: Operation

AC120V, 60Hz, Line:



Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.251783	43.9	9.000	L1	10.3	17.8	61.7	Compliance
0.255827	44.2	9.000	L1	10.3	17.4	61.6	Compliance
0.297644	44.1	9.000	L1	10.2	16.2	60.3	Compliance
1.162648	44.3	9.000	L1	9.8	11.7	56.0	Compliance
1.239175	45.4	9.000	L1	9.8	10.6	56.0	Compliance
1.259081	47.0	9.000	L1	9.8	9.0	56.0	Compliance

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.232499	43.3	9.000	L1	10.4	9.1	52.4	Compliance
0.251783	43.5	9.000	L1	10.3	8.2	51.7	Compliance
1.090848	39.4	9.000	L1	9.8	6.6	46.0	Compliance
1.117238	40.6	9.000	L1	9.8	5.4	46.0	Compliance
1.209904	40.0	9.000	L1	9.8	6.0	46.0	Compliance
1.259081	40.9	9.000	L1	9.8	5.1	46.0	Compliance

AC120V, 60Hz, Neutral:

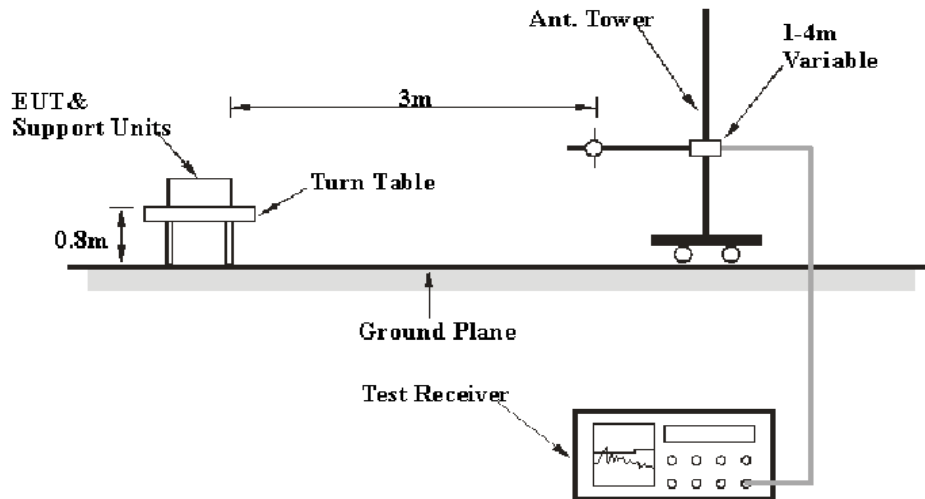
Frequency (MHz)	QuasiPeak (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.281497	44.8	9.000	N	10.2	16.0	60.8	Compliance
0.554139	37.9	9.000	N	9.9	18.1	56.0	Compliance
1.117238	44.3	9.000	N	9.8	11.7	56.0	Compliance
1.209904	46.3	9.000	N	9.8	9.7	56.0	Compliance
1.259081	48.0	9.000	N	9.8	8.0	56.0	Compliance
1.310256	44.2	9.000	N	9.8	11.8	56.0	Compliance

Frequency (MHz)	Average (dB μ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB μ V)	Comment
0.381043	40.5	9.000	N	10.0	7.8	48.3	Compliance
0.419276	38.6	9.000	N	10.0	8.9	47.5	Compliance
0.624492	34.2	9.000	N	9.8	11.8	46.0	Compliance
0.649874	35.5	9.000	N	9.8	10.5	46.0	Compliance
1.117238	38.9	9.000	N	9.8	7.1	46.0	Compliance
1.259081	41.4	9.000	N	9.8	4.6	46.0	Compliance

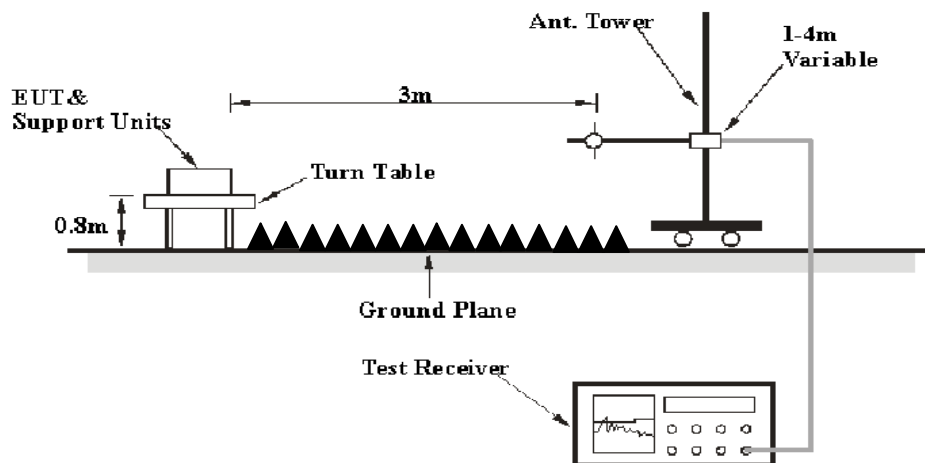
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

EUT Setup

Below 1GHz:



Above 1GHz:



The radiated emission Below 1GHz tests were performed in the 3 meters chamber test site A, above 1GHz tests were performed in the 3 meters chamber test site B, 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	Measurement
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	2017-12-11	2018-12-11
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
HP	Amplifier	8447D	2727A05902	2017-09-05	2018-09-05
Agilent	Spectrum Analyzer	E4440A	SG43360054	2017-12-08	2018-12-08
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
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1000-01	2017-09-05	2018-09-05
Unknown	Coaxial Cable	C-2.4J2.4J-50	C-0700-01	2017-06-27	2018-06-27
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:	24.8~24.9 °C
Relative Humidity:	43~46 %
ATM Pressure:	101~101.5 kPa

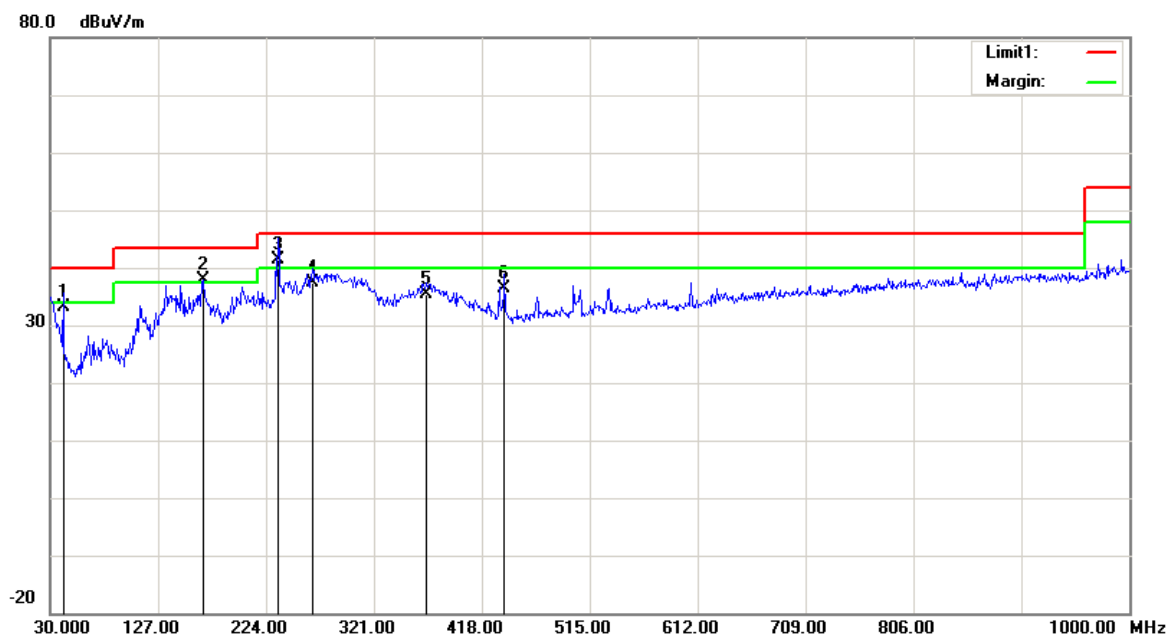
** The testing was performed by Blake Yang & Sunny Cen on 2018-05-11 and 2018-05-14.*

Test Result: Compliance

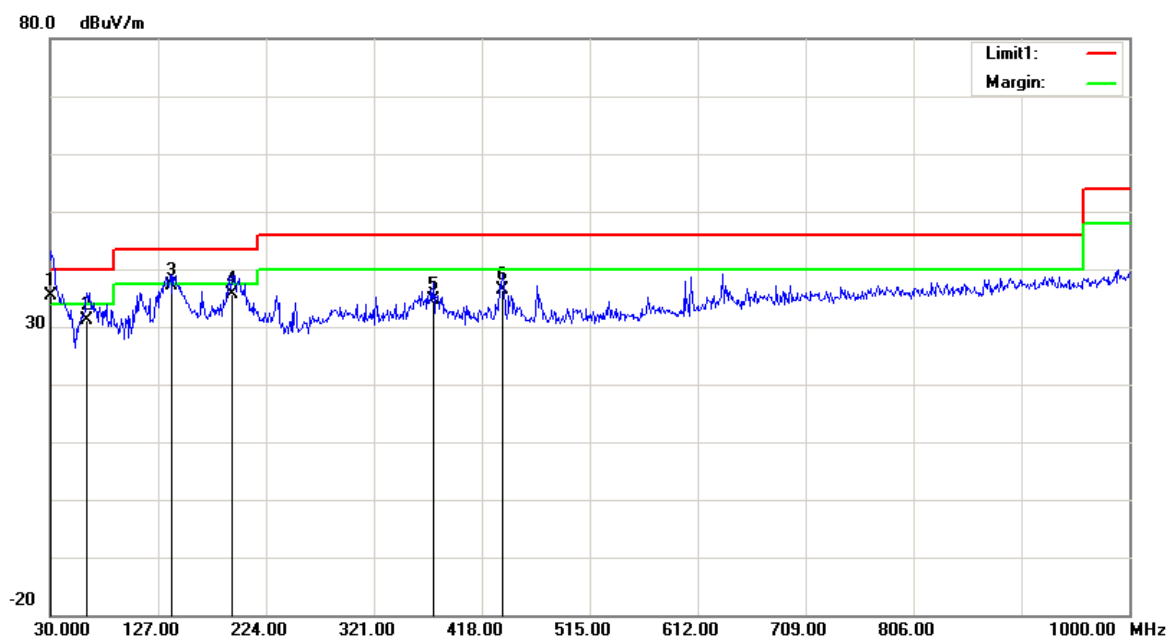
Test Mode: Operation

1) Below 1GHz:

Horizontal



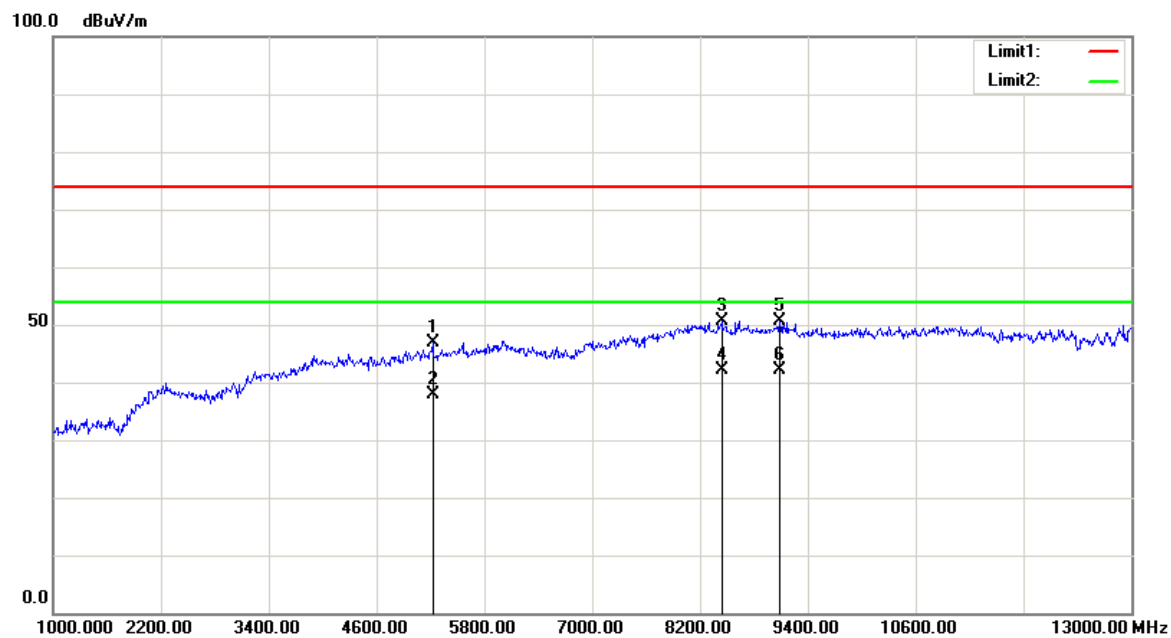
Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
41.6400	40.20	QP	-7.00	33.20	40.00	6.80
167.7400	44.42	QP	-6.56	37.86	43.50	5.64
234.6700	47.94	QP	-6.44	41.50	46.00	4.50
265.7100	42.01	QP	-4.51	37.50	46.00	8.50
368.5300	38.18	QP	-2.78	35.40	46.00	10.60
438.3700	37.79	QP	-1.29	36.50	46.00	9.50

Vertical

Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
30.9700	34.59	QP	0.81	35.40	40.00	4.60
62.9800	43.24	QP	-12.04	31.20	40.00	8.80
138.6400	42.84	QP	-5.64	37.20	43.50	6.30
193.9300	42.56	QP	-6.96	35.60	43.50	7.90
374.3500	37.37	QP	-2.67	34.70	46.00	11.30
436.4300	37.83	QP	-1.33	36.50	46.00	9.50

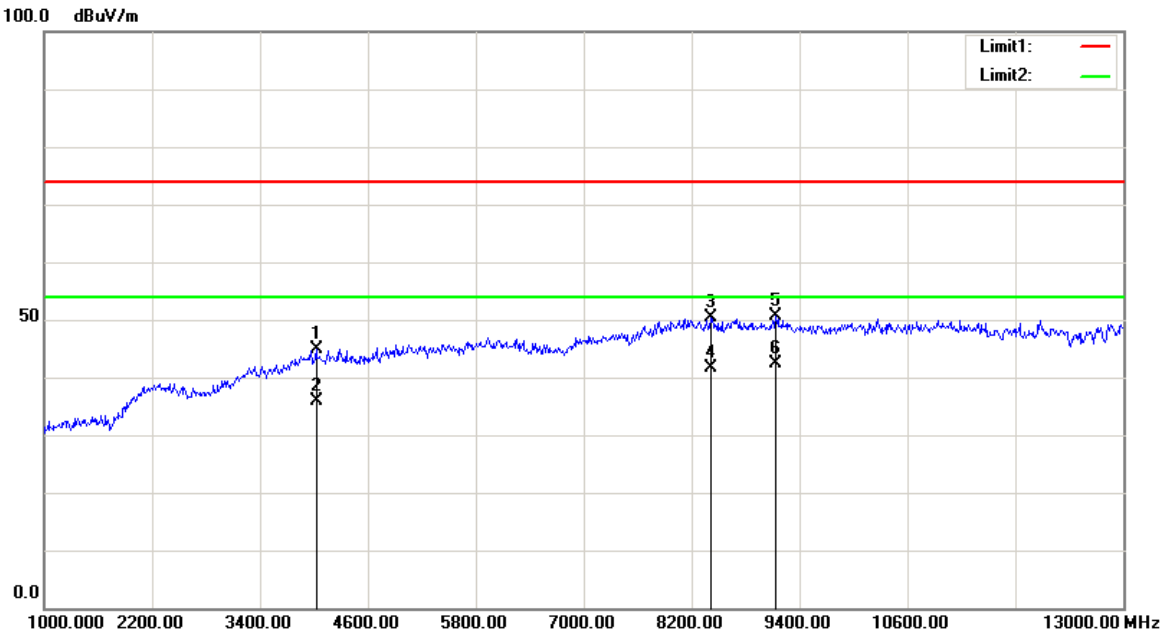
2) Above 1GHz:

Horizontal



Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5224.000	46.96	peak	-0.18	46.78	74.00	27.22
5224.000	38.12	AVG	-0.18	37.94	54.00	16.06
8440.000	45.21	peak	5.38	50.59	74.00	23.41
8440.000	36.75	AVG	5.38	42.13	54.00	11.87
9094.000	44.13	peak	6.41	50.54	74.00	23.46
9094.000	35.64	AVG	6.41	42.05	54.00	11.95

Vertical



Frequency (MHz)	Receiver Reading (dBμV)	Detector	Correction Factor (dB/m)	Cord. Amp. (dBμV/m)	Limit (dBμV/m)	Margin (dB)
4030.000	46.89	peak	-1.95	44.94	74.00	29.06
4030.000	37.84	AVG	-1.95	35.89	54.00	18.11
8416.000	45.03	peak	5.35	50.38	74.00	23.62
8416.000	36.28	AVG	5.35	41.63	54.00	12.37
9136.000	44.10	peak	6.47	50.57	74.00	23.43
9136.000	35.97	AVG	6.47	42.44	54.00	11.56

END OF REPORT