

FCC PART 15B

TEST REPORT

For

XIAMEN RONGTA TECHNOLOGY CO., LTD.

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FCC ID: 2AD6G-RPP322

Report Type: Original Report	Product Type: Mobile Label Printer
Report Number:	RXM190228051-00A
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Reviewed By:	Dean Lau RF Supervisor 
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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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

EUT Name:		Mobile Label Printer
EUT Model:		RPP322
Multiple Model		RPP322-BU, RPP322-A, RPP322-B, RPP322-C, RPP322-D, RPP322-E, RPP322-F, RPP322-G, RPP322-H, RPP322-I
FCC ID:		2AD6G-RPP322
Rated Input Voltage:		DC 7.4V from battery or DC 5 V from adapter
Highest operating frequency:		2480MHz
Adapter Information	Model:	PS10S050K2000UU
	Input:	100-240V~.50/60Hz,0.35AMAX
	Output:	DC 5.0V, 2000mA
External Dimension:		10.9cm*10.8cm*5.2cm
Serial Number:		190228051
EUT Received Date:		2019.3.1

Notes: Model RPP322 was selected for fully testing, the detailed information about the difference among RPP322-BU, RPP322-A, RPP322-B, RPP322-C, RPP322-D, RPP322-E, RPP322-F, RPP322-G, RPP322-H, RPP322-I and model RPP322 can be referred to the declaration letter which was stated and guaranteed by the manufacturer.

Objective

This report is prepared on behalf of **XIAMEN RONGTA TECHNOLOGY CO., LTD.** in accordance with FCC Part 15B Part 2, subpart J, and Part 15, Subpart 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-RPP322.

FCC Part 15C DTS submissions with FCC ID: 2AD6G-RPP322.

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	$\pm 1^{\circ}\text{C}$
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.

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.

SYSTEM TEST CONFIGURATION

Description of Test Configuration

The system was configured for testing in charging and printing mode.

Equipment Modifications

No modification was made to the EUT.

EUT Exercise Software

No software was used during test.

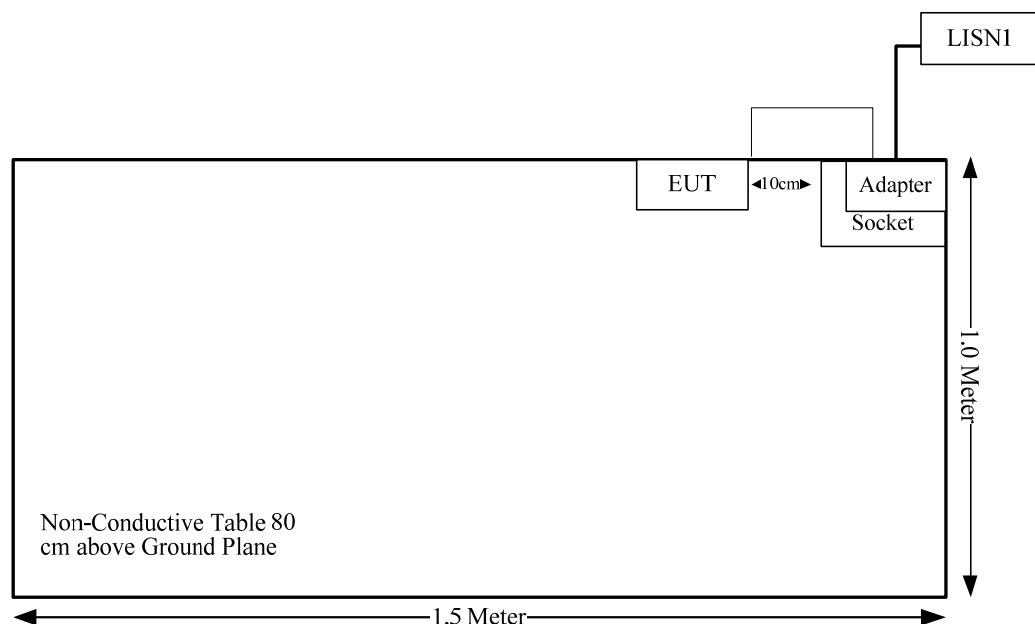
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
/	/	/	/

Support Cable List and Details

Cable Description	Shielding Type	Ferrite Core	Length (m)	From	To
USB Cable	Yes	No	1	Adapter	EUT

Block Diagram of Test Setup



Test Equipment List

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Conducted emissions					
R&S	EMI Test Receiver	ESCS 30	830245/006	2018-12-10	2019-12-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0200-01	2018-09-05	2019-09-05
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A
R&S	Two-line V-network	ENV 216	101614	2018-12-10	2019-12-10
R&S	L.I.S.N	ESH2-Z5	892107/021	2018-09-19	2019-09-19
Radiated emissions Below 1GHz					
R&S	EMI Test Receiver	ESCI	100224	2018-12-10	2019-12-10
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
Sunol Sciences	Antenna	JB3	A060611-1	2017-11-10	2020-11-10
Unknown	Coaxial Cable	C-NJNJ-50	C-0400-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-0075-01	2018-09-05	2019-09-05
Unknown	Coaxial Cable	C-NJNJ-50	C-1400-01	2018-05-06	2019-05-06
HP	Amplifier	8447D	2727A05902	2018-09-05	2019-09-05
Radiated emissions Above 1GHz					
Agilent	Spectrum Analyzer	E4440A	SG43360054	2019-01-04	2020-01-04
Farad	Test Software	EZ-EMC	V1.1.4.2	N/A	N/A
ETS-Lindgren	Horn Antenna	3115	000 527 35	2018-10-12	2021-10-12
Unknown	Coaxial Cable	C-SJSJ-50	C-0800-01	2018-09-05	2019-09-05
MITEQ	Amplifier	AFS42-00101800-25-S-42	2001271	2018-09-05	2019-09-05
E-Microwave	Band-stop Filters	OBSF-2400-2483.5-S	OE01601525	2018-06-16	2019-06-16

* 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).

Environmental Conditions

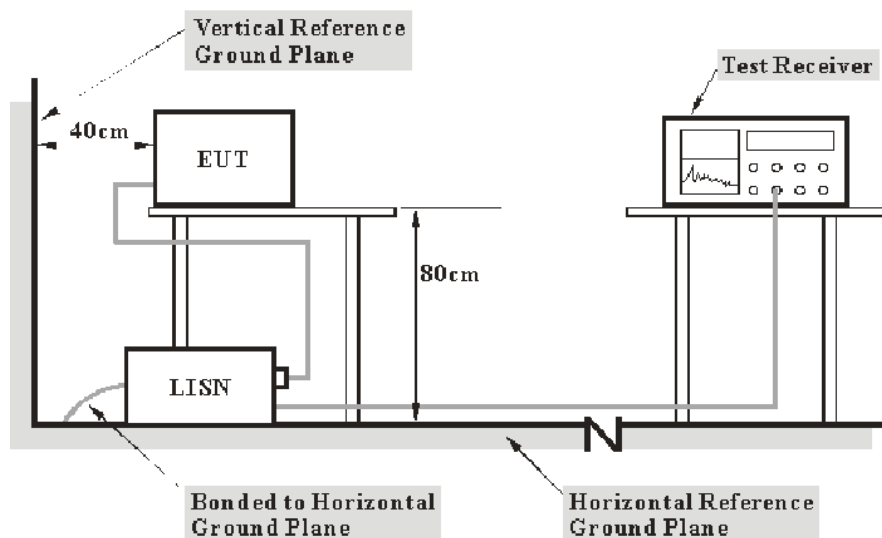
Test Item:	Conducted emissions	Radiated emissions Below 1GHz	Radiated emissions Above 1GHz
Test Date:	2019-04-16	2019-04-08	2019-03-12
Tester:	Lily Xie	Neil Liao	Tyler Pan
Temperature:	24.6 °C	23.8°C	25.2 °C
Relative Humidity:	46%	57%	54%
ATM Pressure:	100.4 kPa	100.6 kPa	100.4kPa

SUMMARY OF TEST RESULTS

Rule and Clause	Description of Test	Test Result
FCC §15.107	Conducted emissions	Compliance
FCC §15.109	Radiated emissions	Compliance

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 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

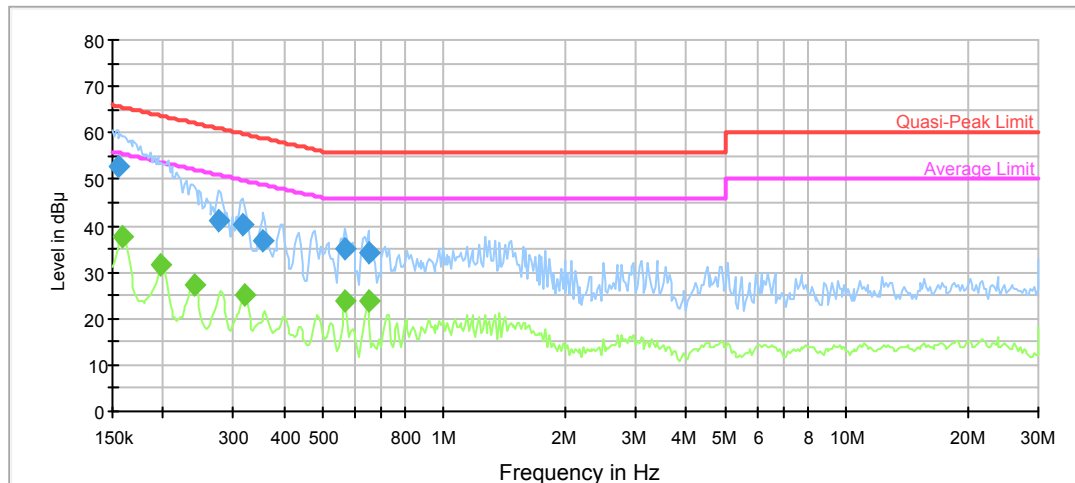
The “**Margin**” column of the following data tables indicates the degree of compliance within the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

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

Test Data

Please refer to following table and plots:

Port: L
 Test Mode: Charging and Printing
 Power Source: AC120V/60Hz



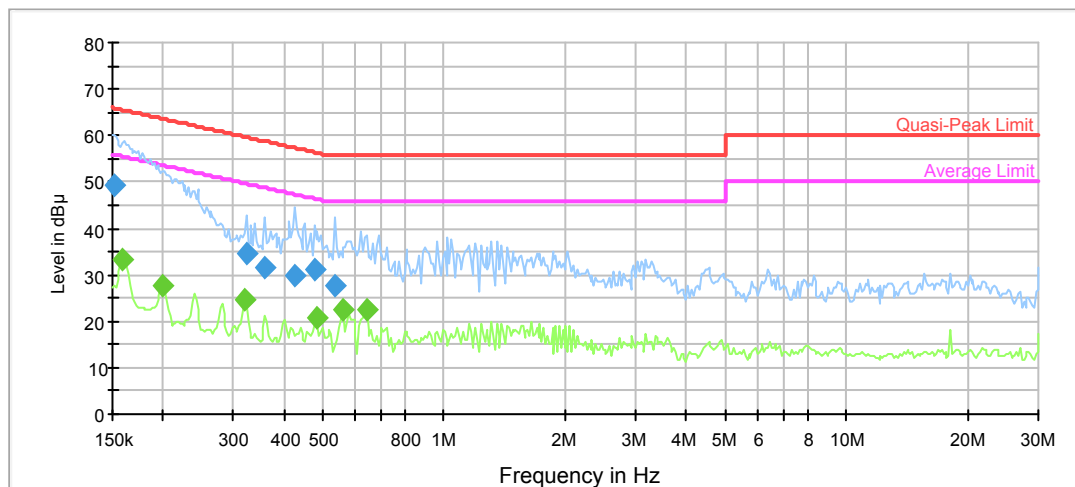
Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.154545	52.6	9.000	L1	11.1	13.2	65.8
0.275230	40.9	9.000	L1	10.2	20.1	61.0
0.316369	40.2	9.000	L1	10.1	19.6	59.8
0.356493	36.9	9.000	L1	10.0	21.9	58.8
0.569057	35.0	9.000	L1	9.8	21.0	56.0
0.647640	34.3	9.000	L1	9.8	21.7	56.0

Final Result 2

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159228	37.6	9.000	L1	11.1	17.9	55.5
0.198194	31.4	9.000	L1	10.6	22.3	53.7
0.239440	27.3	9.000	L1	10.4	24.8	52.1
0.319533	24.9	9.000	L1	10.1	24.8	49.7
0.569057	23.6	9.000	L1	9.8	22.4	46.0
0.647640	23.8	9.000	L1	9.8	22.2	46.0

Port: N
Test Mode: Charging and Printing
Power Source: AC120V/60Hz



Final Result 1

Frequency (MHz)	QuasiPeak (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.151500	49.3	9.000	N	11.1	16.6	65.9
0.322729	34.4	9.000	N	10.1	25.2	59.6
0.360058	31.5	9.000	N	10.0	27.2	58.7
0.426418	29.9	9.000	N	9.9	27.4	57.3
0.475741	31.3	9.000	N	9.9	25.1	56.4
0.536077	27.5	9.000	N	9.9	28.5	56.0

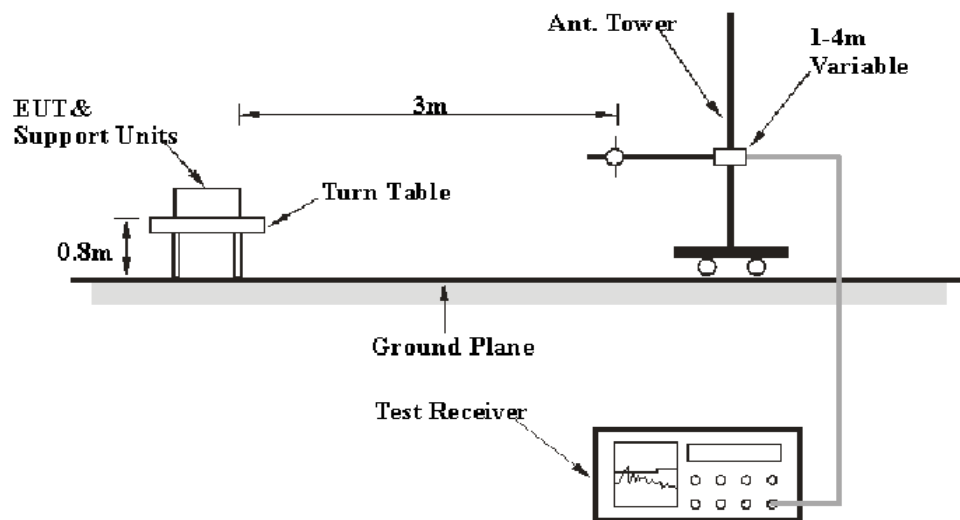
Final Result 2

Frequency (MHz)	Average (dBμV)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)
0.159228	33.2	9.000	N	11.0	22.3	55.5
0.200176	27.6	9.000	N	10.6	26.0	53.6
0.319533	24.7	9.000	N	10.1	25.0	49.7
0.480499	20.9	9.000	N	9.9	25.5	46.3
0.563423	22.5	9.000	N	9.8	23.5	46.0
0.641227	22.5	9.000	N	9.8	23.5	46.0

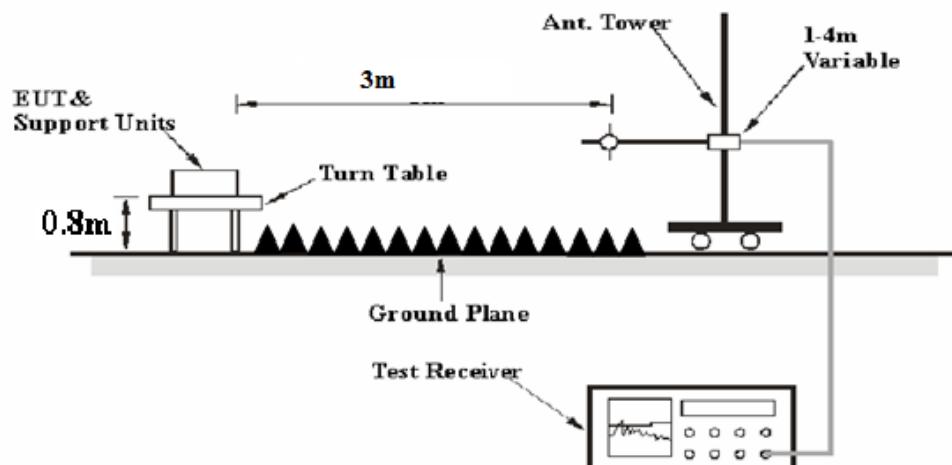
RADIATED EMISSIONS

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 with the FCC Part 15 B 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	Reduced video bandwidth	/	AVG

If the maximized peak measured value complies with under the QP/Average limit more than 6dB, then it is unnecessary to perform an QP/Average measurement.

Test Procedure

During the radiated emissions, the adapter of EUT 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.

Corrected Amplitude & Margin Calculation

The basic equation is as follows:

Result = Meter Reading+ Corrected

Note:

Corrected = Antenna Factor + Cable Loss - 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:

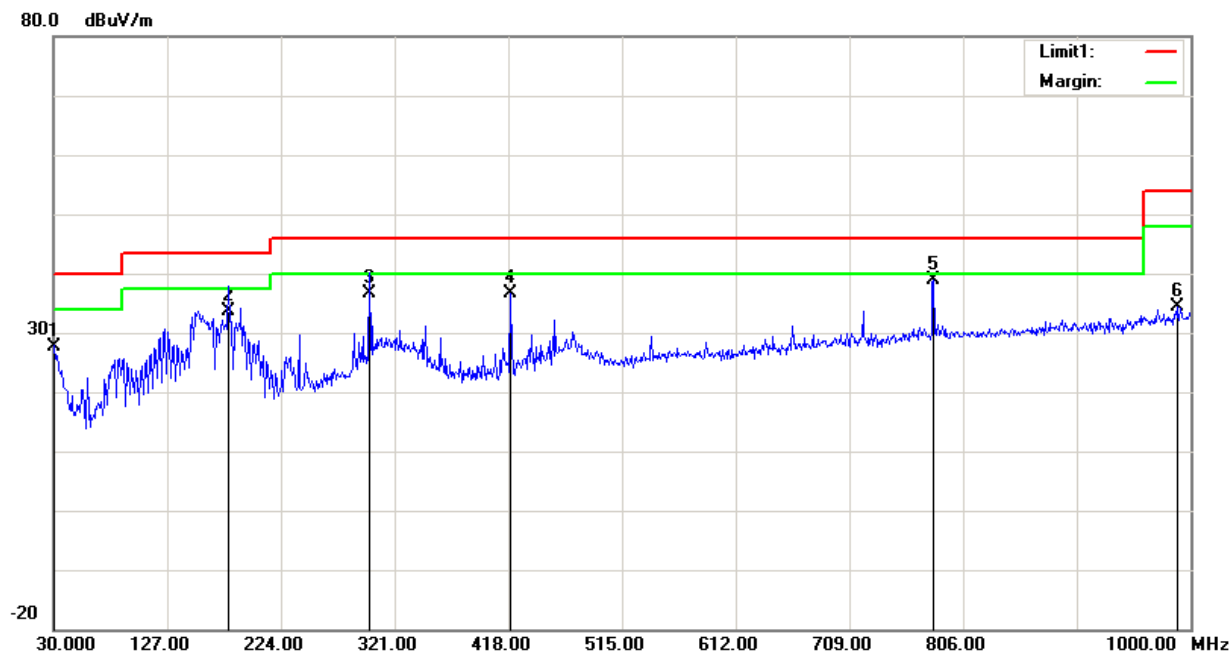
$$\text{Margin} = \text{Limit} - \text{Result}$$

Test Data

Please refer to following table and plots:

Condition: FCC Part 15B Class B
EUT: Mobile Label Printer
Model: RPP322
Test Mode: Charging and Printing

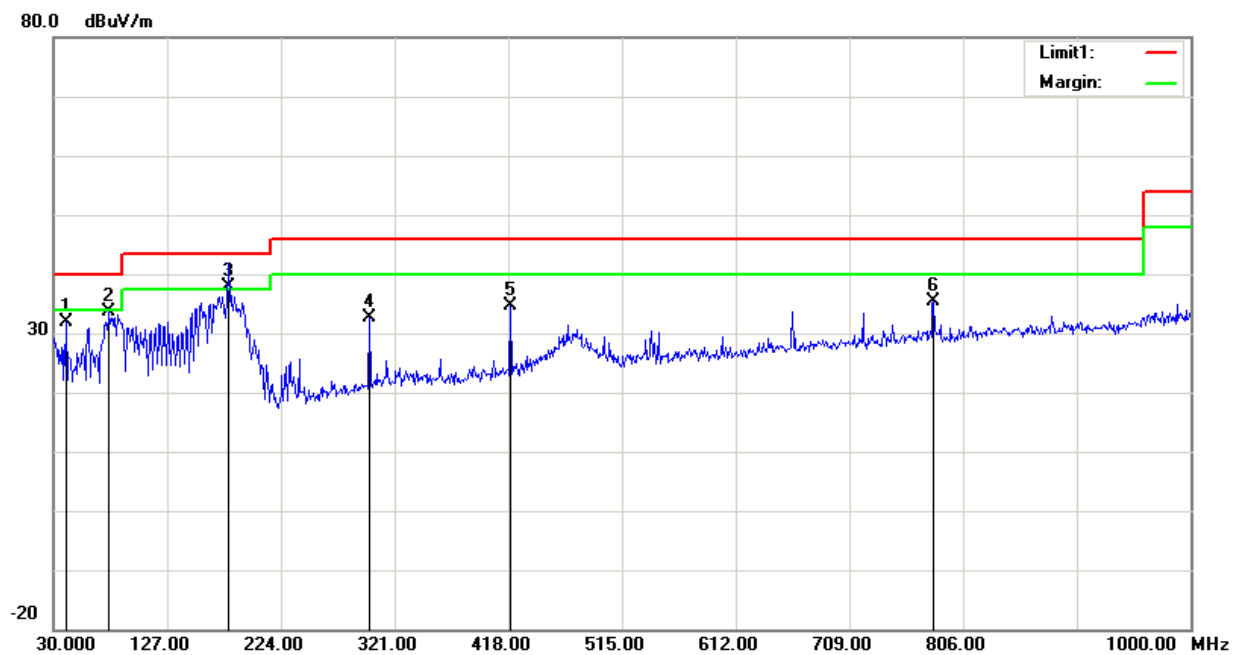
Polarization: Horizontal
Power: AC 120V/60Hz
Distance: 3m



Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
30.0000	26.03	peak	1.72	27.75	40.00	12.25
179.3800	40.81	QP	-7.12	33.69	43.50	9.81
299.6600	40.56	QP	-3.83	36.73	46.00	9.27
419.9400	38.24	peak	-1.56	36.68	46.00	9.32
780.7800	34.48	peak	4.38	38.86	46.00	7.14
988.3600	11.22	peak	23.13	34.35	54.00	19.65

Condition: FCC Part 15B Class B
EUT: Mobile Label Printer
Model: RPP322
Test Mode: Charging and Printing

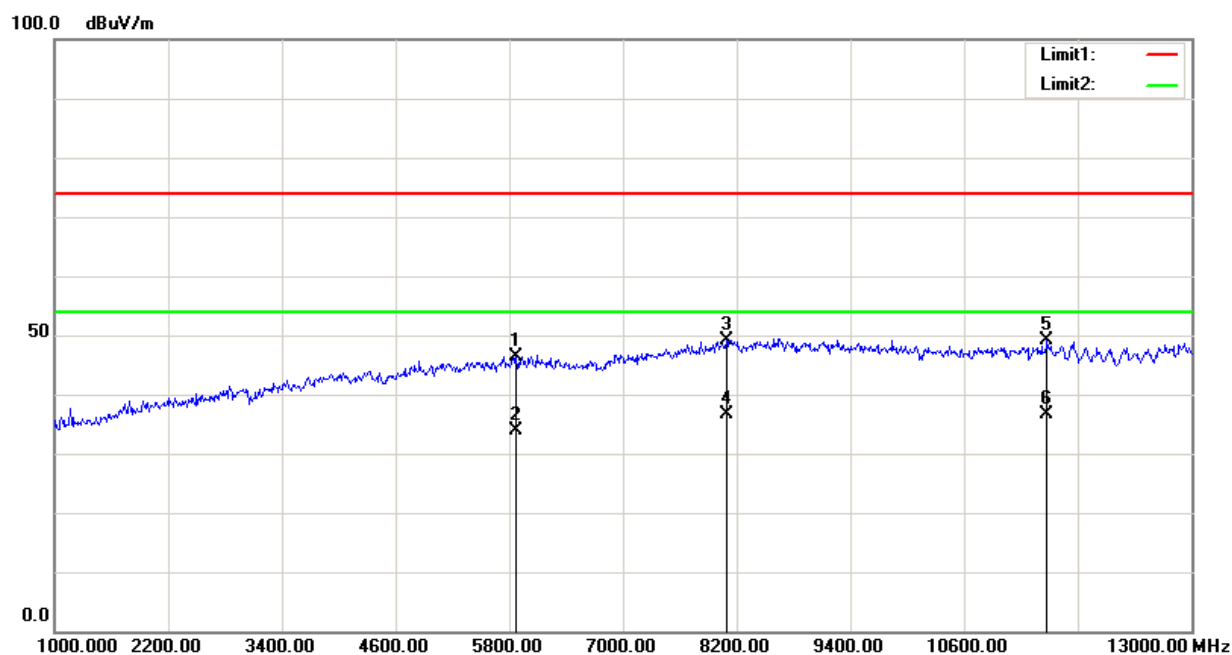
Polarization: Vertical
Power: AC 120V/60Hz
Distance: 3m



Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
40.6700	38.09	peak	-6.32	31.77	40.00	8.23
77.5300	44.66	peak	-11.10	33.56	40.00	6.44
179.3800	45.08	QP	-7.12	37.96	43.50	5.54
299.6600	36.57	peak	-3.83	32.74	46.00	13.26
419.9400	36.13	peak	-1.56	34.57	46.00	11.43
780.7800	31.04	peak	4.38	35.42	46.00	10.58

Condition: FCC Part 15 Class B
EUT: Mobile Label Printer
Model: RPP322
Test Mode: Charging and Printing

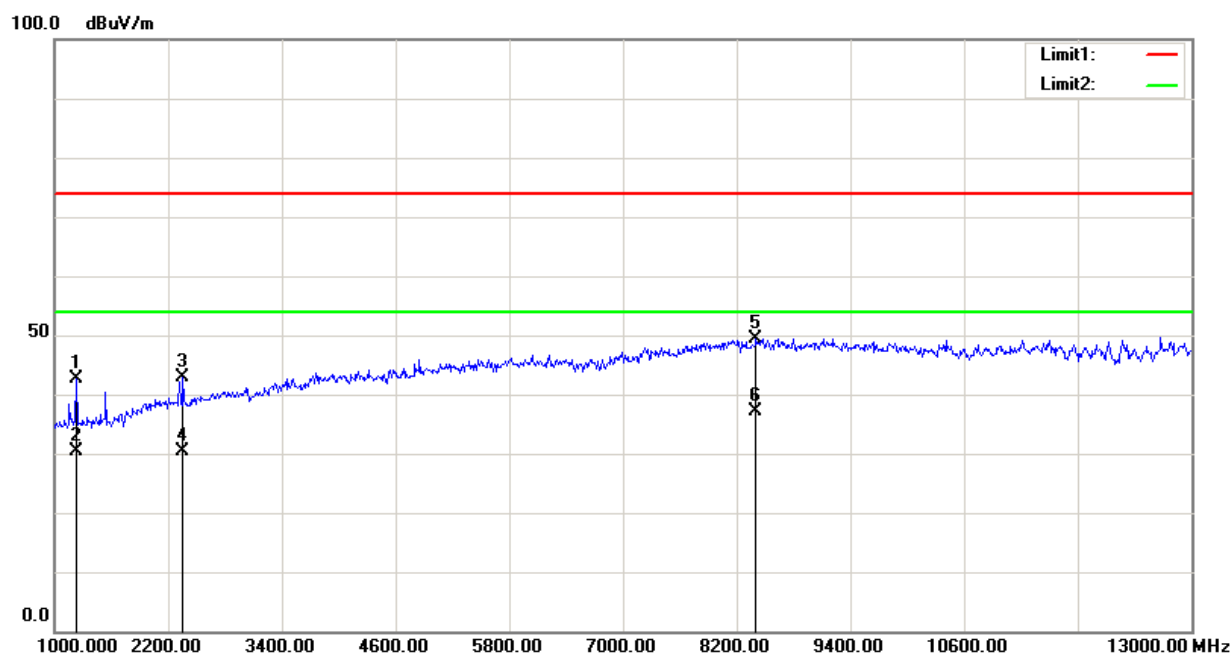
Polarization: Horizontal
Power: AC 120V/60Hz
Distance: 3m



Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
5872.000	45.56	peak	0.78	46.34	74.00	27.66
5872.000	33.10	AVG	0.78	33.88	54.00	20.12
8098.000	44.19	peak	4.96	49.15	74.00	24.85
8098.000	31.71	AVG	4.96	36.67	54.00	17.33
11482.000	40.85	peak	8.22	49.07	74.00	24.93
11482.000	28.34	AVG	8.22	36.56	54.00	17.44

Condition: FCC Part 15 Class B
EUT: Mobile Label Printer
Model: RPP322
Test Mode: Charging and Printing

Polarization: Vertical
Power: AC 120V/60Hz
Distance: 3m



Frequency (MHz)	Reading (dB μ V)	Detector	Corrected (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)
1228.000	52.62	peak	-9.93	42.69	74.00	31.31
1228.000	40.20	AVG	-9.93	30.27	54.00	23.73
2362.000	49.46	peak	-6.62	42.84	74.00	31.16
2362.000	37.04	AVG	-6.62	30.42	54.00	23.58
8404.000	44.16	peak	5.33	49.49	74.00	24.51
8404.000	31.69	AVG	5.33	37.02	54.00	16.98

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