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检测
TESTING
CNAS L1659

EMC TEST REPORT

Report No.:	SET2015-17887
Product:	Printer
Model No. :	SP 150w
FCC ID:	BBP-PRSP150W1
Applicant	RICOH Co., LTD.
Issued by:	CCIC Southern Electronic Product Testing (Shenzhen) Co., Ltd.
Lab Location:	Electronic Testing Building, No. 43 Shahe Road, Xili Jiedao, Nanshan District, 518055 Shenzhen, Guangdong, China
	Tel: 86 755 26627338 **Fax:** 86 755 26627238

Query No. :TW6CPaCP

Test Report

Product ..... Printer

Model No. ..... SP 150w

Applicant ..... Ricoh Company Ltd

Applicant Address ..... 810 Shimoimaizumi, Ebina City, Kanagawa-Pref., 243-0460 Japan

Manufacturer ..... RICOH Co., LTD.

Manufacturer Address .... 3-6, Naka-magome 1-Chome Ohta-ku, Tokyo 143-8555 Japan

Test Standards ..... FCC PART 15 Subpart B
ANSI C63.4: 2009

Test Result ..... PASS

Tested by .....

Xu Weiwei Nov. 25. 2015

Signature, Date

Reviewed by .....

Zhu Qi Nov. 25. 2015

Signature, Date

Approved by .....

Wu Lian Nov. 25. 2015

Signature, Date

Table of Contents

1 General Information

1.1 Description of EUT

Product: Printer
Model No.: SP 150w
Brand Name: RICOH
Serial No.: L0002750023
I/O Ports: USB
Accessories: Power cable ,USB cable

Note:

The EUT is class B information technology equipment according to FCC PART 15. For more detailed features description about the EUT, please refer to User's Manual.
Perform ElectroMagnetic Interference measurement in accordance with FCC 47CFR [Codes of Federal Regulations] Part 15 and ANSI C63.4: 2009 for FCC ID.
The EUT have WiFi module, which have finished the FCCID（FCCID code ：PPQ-WN4615L）.

Short description of the equipment under test (EUT)

The certification machine is a printer which has print function.

1.2 EUT Information

Kind of equipment	Manufacturer	Model name	Serial number	Remark
Printer	RICOH	SP 150w	L0002750023	-

1.3 Highest Frequency Generated or Used in The Device or on Which the Device Operates

Kind of equipment	Model name	Operates Frequency	Remark
Printer	SP 150w	480MHz	USB

2 Test Facilities and Configuration

2.1 Environmental Conditions

During the measurement the environmental conditions were within the listed ranges:

- Temperature: 15-35ºC
- Humidity: 30-60 %
- Atmospheric pressure: 86-106 kPa

2.2 Measurement Uncertainty

The uncertainty is calculated using the methods suggested in the “Guide to the Expression of Uncertainty in Measurement” (GUM) published by ISO.

- Uncertainty of Conducted Emission, Uc = ±1.8dB
- Uncertainty of Radiated Emission, Uc = ±5.0dB

2.3 Associated Equipments

Kind of equipment	Manufacturer	Model name	Serial number	Remark
Notebook	LENOVO	ThinkPad L440	R9-0346Y3 14/07	DoC
Wireless Router	Buffalo	WCR-HP-GN	44061000300952	
Keyboard	DELL	L100	CNORH6566589079K0277	DoC
Mouse	DELL	MOC5UO	H0F02OCQ	DoC

2.4 Cables Used

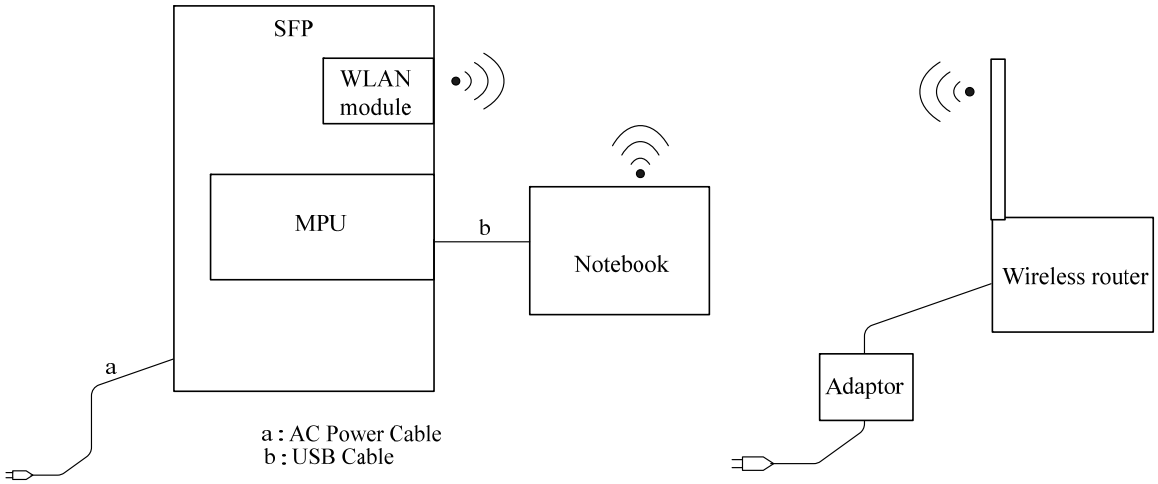
Item	Cable Name	Length	Shielding	Maker
1	USB Cable	2.0m	YES	New Nam Lee
2	Power Cable	1.5m	No	Longwell

2.5 Test Configure

Operating modes：

No.	Operating modes	Remarks
1	Standby	
2	USB Print	
3	WiFi Print	

EUT Setup



2.6 Measurement Equipments Used

Description	Manufacturer	Model No.	Serial No.	Cal. Date	Cal. Due Date
Test Receiver	ROHDE&SCHWARZ	ESCS30	A0304260	Jun.10, 2015	Jun.10, 2016
LISN	Schwarzbeck	ESH2-Z5	A0304221	Jun.10, 2015	Jun.10, 2016
Shield Room	Nanbo Tech	Site 3	A9901141	Jun.10, 2015	Jun.10, 2016
Horn Ant.	ROHDE&SCHWARZ	HF906	A0304225	Jun.10, 2015	Jun.10, 2016
Anechoic Chamber	Albatross	SAC-10MAC 19.6*11.8*8.55m	A0802520	Sep.17, 2015	Sep.17, 2016
Test Receiver	ROHDE&SCHWARZ	ESU8	A0805559	Jun.10, 2015	Jun.10, 2016
Ultra-Broadband Ant.	SCHWARZBECK	VULB 09160	A0805560	Jun.10, 2015	Jun.10, 2016

NOTE: Equipments above have been calibrated and are in the period of validation.

3 Summary of Test Results

The EUT has been tested according to the following specifications:

EMISSION			
Test Condition	Test Requirement	Test Method	**Result**
Radiated Emissions	FCC 47CFR Part15 SubpartB	ANSI C63.4:2009	PASS
Conducted Emissions on AC, 0.15MHz to 30MHz	FCC 47CFR Part15 SubpartB	ANSI C63.4:2009	PASS

4 Emission Test

4.1 EUT Setup and Operation

The EUT was powered by 120V AC Mains.

The EUT continuously operated during the test modes as section 2.5.

The EUT and cables, and operation modes were configured to produce the maximum level of emissions.

4.2 Conducted Disturbance at Mains Terminals

4.2.1 Limits of Conducted Disturbance at Mains Terminals

Frequency range (MHz)	Limits (dBμV), Class B ITE	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5.0	56	46
5.0-30.0	60	50

NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

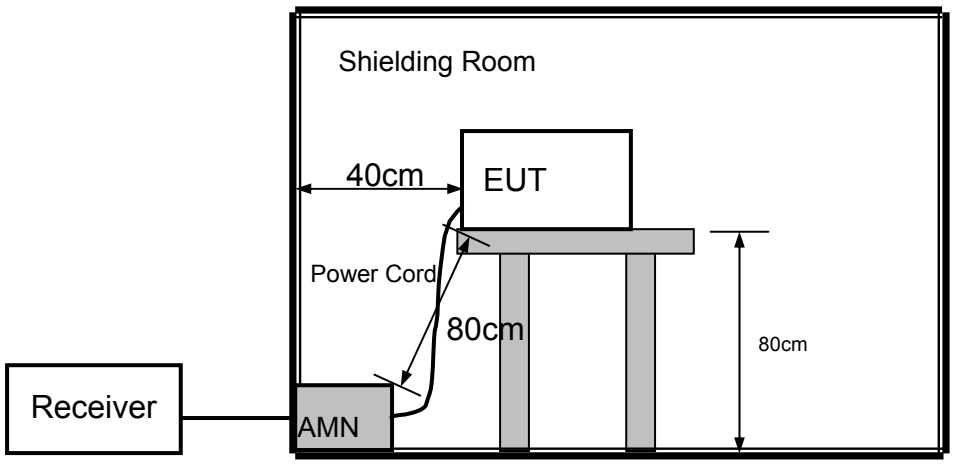
4.2.2 Test Procedure

a. The EUT was placed 0.4 meters from the conducting wall of shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). The LISN provide 50Ω/50μH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

c. The frequency range from 150 kHz to 30 MHz was searched. Emission levels over 10dB under the prescribed limits are not reported.

4.2.3 Test Setup



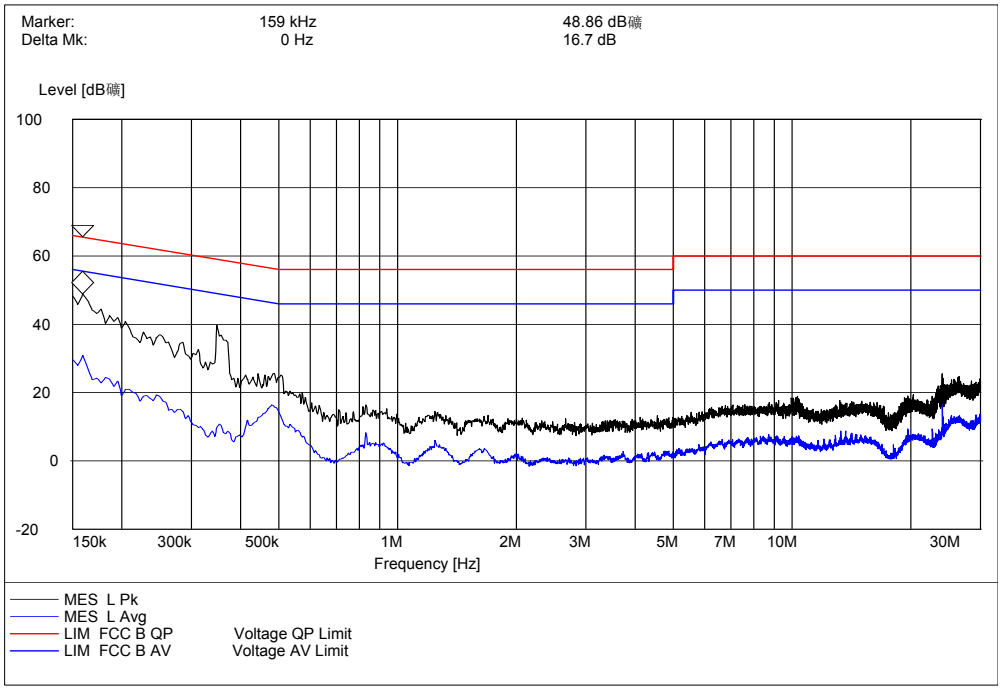
For the actual test configuration, please refer to the related item - Photographs of the Test Configuration.

4.2.4 Test Result

Environment Condition:
Temperature: 23°C; Relative Humidity: 52%; Pressure:101kPa
Test Date: 2015-10-20
Test Engineer: Cheng Weichang
Test Site: Shield Room Site 1
Test Mode: Mode 1-3

1. Conducted Disturbance at Mains Terminals (Standby Mode)

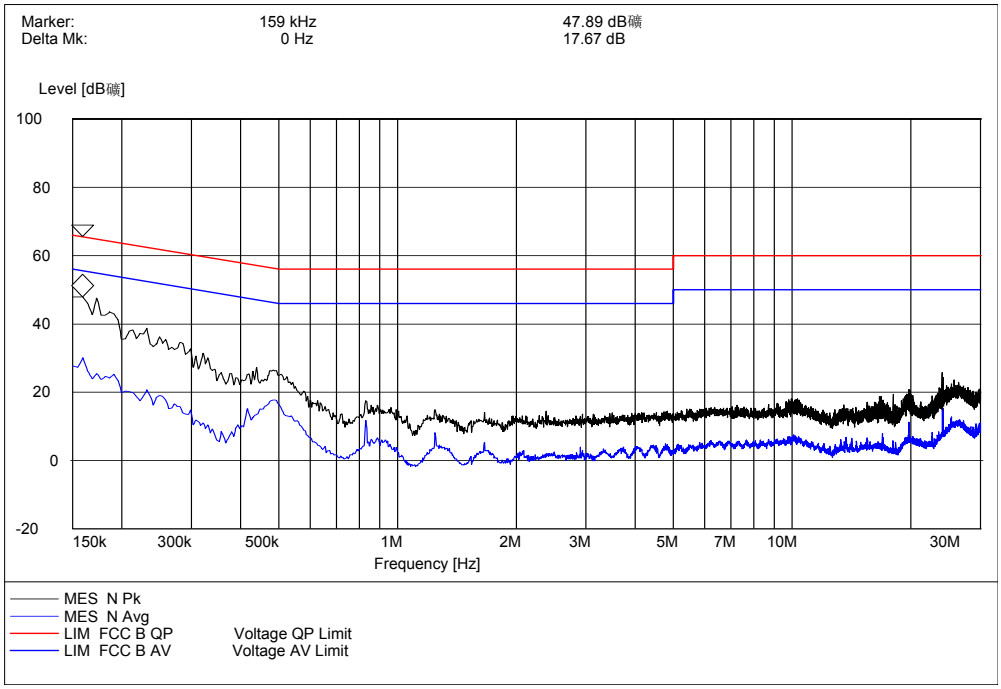
Conducted Disturbance at Mains Terminals (Standby Mode)							
L Test Data							
QP				**AV**			
Frequency (MHz)	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**	**Frequency (MHz)**	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**
0.1500	66.0	52.9	13.1	0.1500	56.0	31.5	24.5
0.1590	65.5	42.6	22.9	0.1590	55.5	27.7	27.8
0.1950	63.8	38.8	25.0	0.1950	53.8	22.6	31.2
0.2490	61.8	38.7	23.1	0.2490	51.8	20.0	31.8
0.2850	60.7	31.4	29.3	0.2850	50.7	15.1	35.6
0.3480	59.0	26.7	32.3	0.3480	49.0	7.3	41.7
L Test Curve							



NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.
3. The minimum margin value of quasi-peak and average level is over 3dB.

Conducted Disturbance at Mains Terminals (Standby Mode)							
N Test Data							
QP				**AV**			
Frequency (MHz)	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**	**Frequency (MHz)**	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**
0.1500	66.0	53.4	12.6	0.1500	56.0	28.3	27.7
0.1815	64.4	39.0	25.4	0.1815	54.4	27.3	27.1
0.1905	62.4	37.7	24.7	0.1905	52.4	24.2	28.2
0.2310	62.4	39.6	22.8	0.2310	52.4	22.7	29.7
0.2805	60.8	32.1	28.7	0.2805	50.8	17.0	33.8
0.4830	56.3	23.2	33.1	0.4830	46.3	17.5	28.8
N Test Curve							



NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.
3. The minimum margin value of quasi-peak and average level is over 3dB.

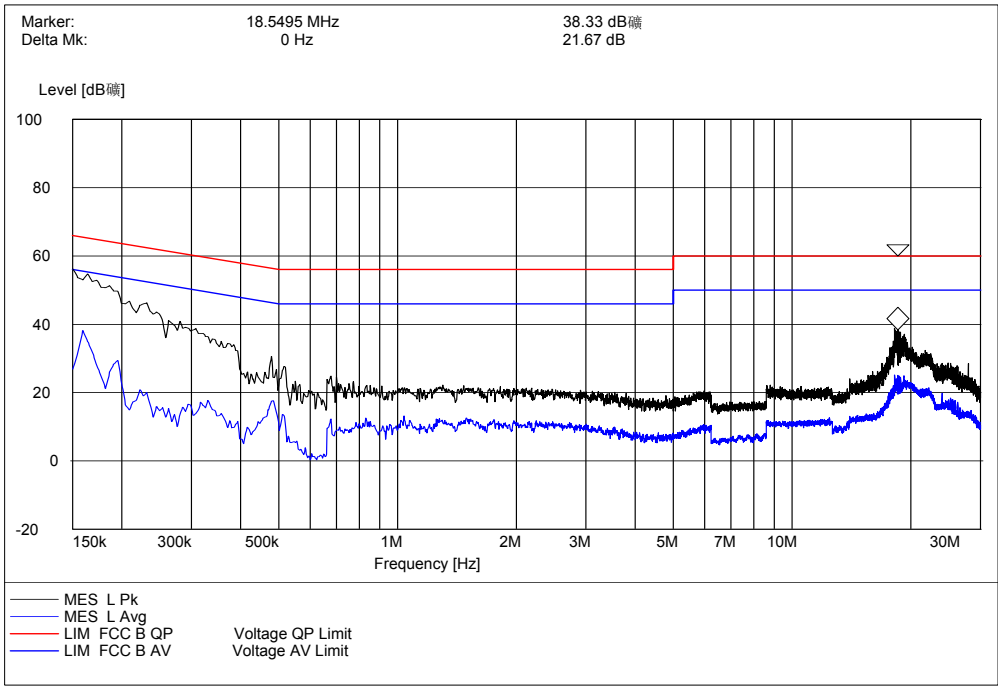
2. Conducted Disturbance at Mains Terminals (USB Print Mode)

Conducted Disturbance at Mains Terminals (USB Print Mode)

L Test Data

QP				AV			
Frequency (MHz)	Limits (dBμV)	Measurement Value(dBμV)	Margin (dBμV)	Frequency (MHz)	Limits (dBμV)	Measurement Value(dBμV)	Margin (dBμV)
0.1500	66.0	53.9	12.1	0.1500	56.0	38.6	17.4
0.1635	65.3	49.8	15.5	0.1635	55.3	39.2	16.1
0.1950	63.8	44.1	19.7	0.1950	53.8	28.5	25.3
0.2310	62.4	41.1	21.3	0.2310	52.4	20.1	32.3
0.3300	59.5	30.9	28.6	0.3300	49.5	18.6	30.9
18.5495	60.0	33.4	26.6	18.5495	50.0	22.6	27.4

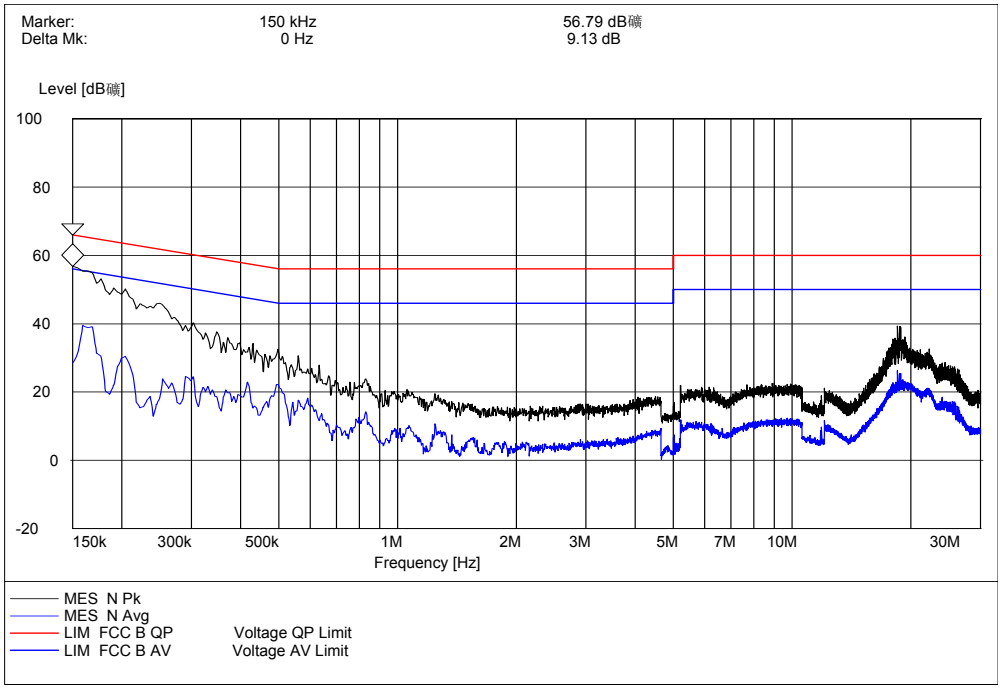
L Test Curve



NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.
3. The minimum margin value of quasi-peak and average level is over 3dB.

Conducted Disturbance at Mains Terminals (USB Print Mode)							
N Test Data							
QP				**AV**			
Frequency (MHz)	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**	**Frequency (MHz)**	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**
0.1500	66.0	54.2	11.8	0.1500	56.0	36.8	19.2
0.1635	65.3	46.2	19.1	0.1635	55.3	39.2	16.1
0.2040	63.4	44.2	19.2	0.2040	53.4	30.1	23.3
0.2535	61.6	37.3	24.3	0.2535	51.6	23.7	27.9
0.3030	60.2	33.0	27.2	0.3030	50.2	22.6	27.6
0.4965	56.1	29.4	26.7	0.4965	46.1	22.4	23.7
N Test Curve							

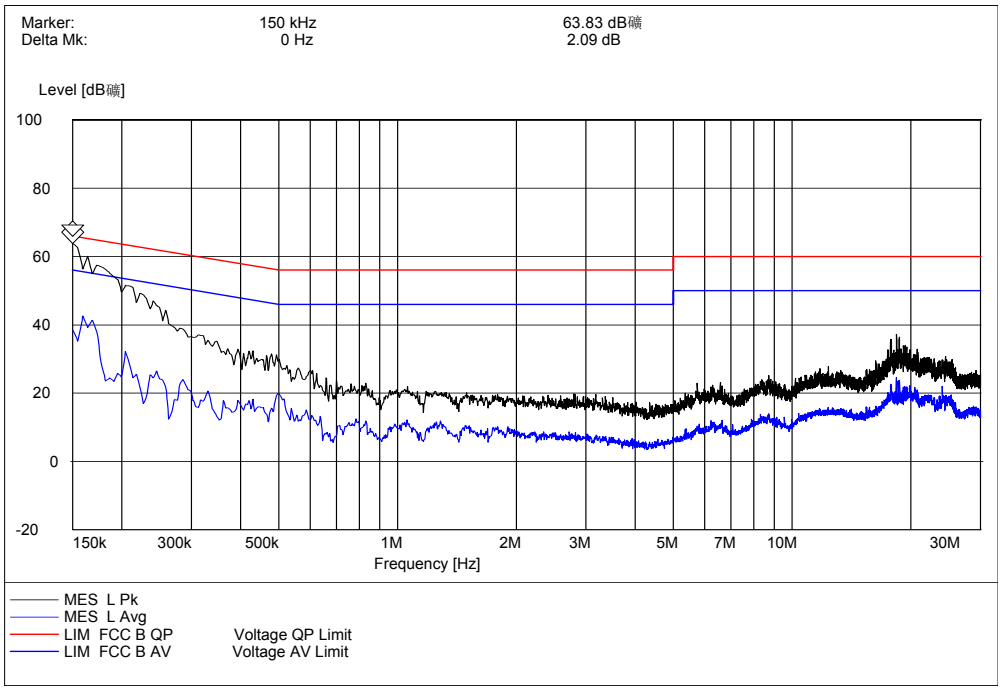


NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.
3. The minimum margin value of quasi-peak and average level is over 3dB.

3. Conducted Disturbance at Mains Terminals (WiFi Print Mode)

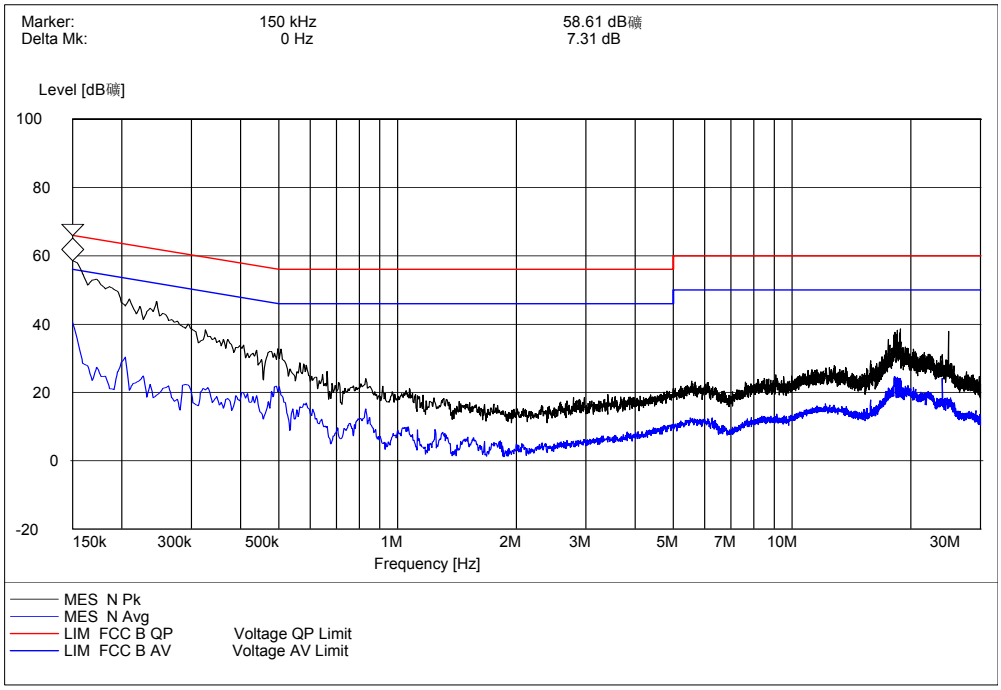
Conducted Disturbance at Mains Terminals (WiFi Print Mode)							
L Test Data							
QP				**AV**			
Frequency (MHz)	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**	**Frequency (MHz)**	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**
0.1500	66.0	53.3	12.7	0.1500	56.0	37.8	18.2
0.1635	65.3	51.0	14.3	0.1635	55.3	38.0	17.3
0.2040	63.4	44.2	19.2	0.2040	53.4	29.5	23.9
0.2400	62.1	39.1	23.0	0.2400	52.1	21.9	30.2
0.2850	60.7	34.3	26.4	0.2850	50.7	23.5	27.2
18.3740	60.0	34.7	25.3	18.3740	50.0	22.8	27.2
L Test Curve							



NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.
3. The minimum margin value of quasi-peak and average level is over 3dB.

Conducted Disturbance at Mains Terminals (WiFi Print Mode)							
N Test Data							
QP				**AV**			
Frequency (MHz)	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**	**Frequency (MHz)**	**Limits (dBμV)**	**Measurement Value(dBμV)**	**Margin (dBμV)**
0.1500	66.0	52.9	13.1	0.1500	56.0	37.4	18.6
0.1725	64.8	48.2	16.6	0.1725	54.8	35.6	19.2
0.2355	62.3	39.3	23.0	0.2355	52.3	22.7	29.6
0.2940	60.4	33.3	27.1	0.2940	50.4	23.9	26.5
0.4965	56.1	28.6	27.5	0.4965	46.1	22.3	23.8
18.4595	60.0	34.4	25.6	18.4595	50.0	22.5	27.5
N Test Curve							



NOTE:

1. The lower limit shall apply at the transition frequencies.
2. The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.
3. The minimum margin value of quasi-peak and average level is over 3dB.

4.3 Radiated Emission Test

4.3.1 Limits of Radiated Emission

The field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

Frequency of Emission (MHz)	Field Strength (dBμV/m) at 3m
30 - 88	40(QP)
88 -216	43.5(QP)
216 - 960	46.4(QP)
960-1000	54(QP)
Above 1000	54(AV)/74(PK)

NOTE:

1. Field Strength (dBμV/m)=20log Field Strength (μV/m).
2. In the emission tables above, the tighter limit applies at the band edges.

4.3.2 Test Procedure

a. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

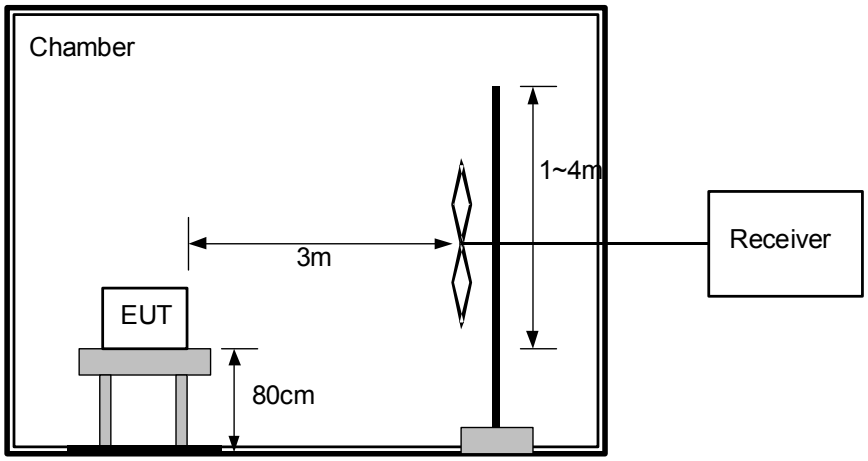
b. The antenna is a broadband antenna, and its height is varied from one meter to four meter above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

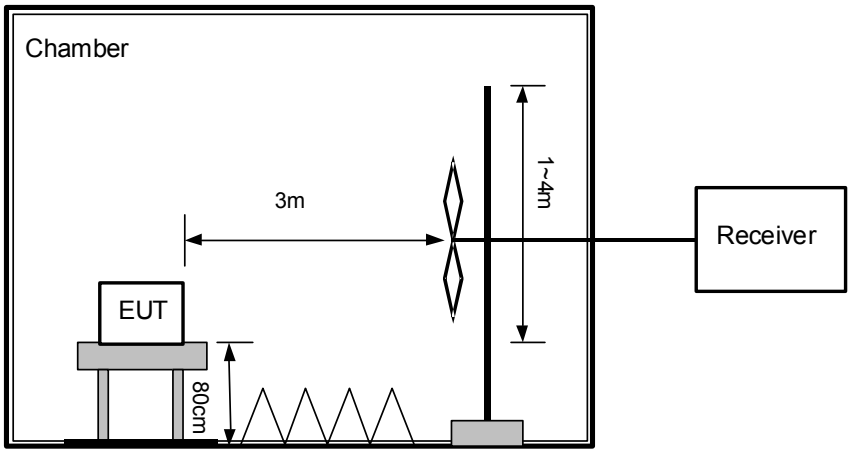
c. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to the heights from 1 to 4 meters and the ratable table was turned from 0 degrees to 360 degrees to find the maximum reading.

d. The test-receiver system was set to Peak Detector Function and Specified Bandwidth with Maximum Hold Mode.

e. If the emission level of the EUT in peak mode was 10 dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emission that did not have 10 dB margins would be retested one by one using the quasi-peak method.

4.3.3 Test Setup





Note: The highest frequency of the internal sources of the EUT is 480 MHz, the measurement was made up to 2 GHz.

4.3.4 Test Results

Environment Condition:
Temperature: 23°C; Relative Humidity: 52%; Pressure:101kPa
Test Date: 2015-10-17, 2015-10-24
Test Engineer: Chen Weixiong
Test Site: 10m Anechoic Chamber
Test Mode: Mode 1-3

1. Radiated Emission Test data (Standby Mode)

-Horizontal

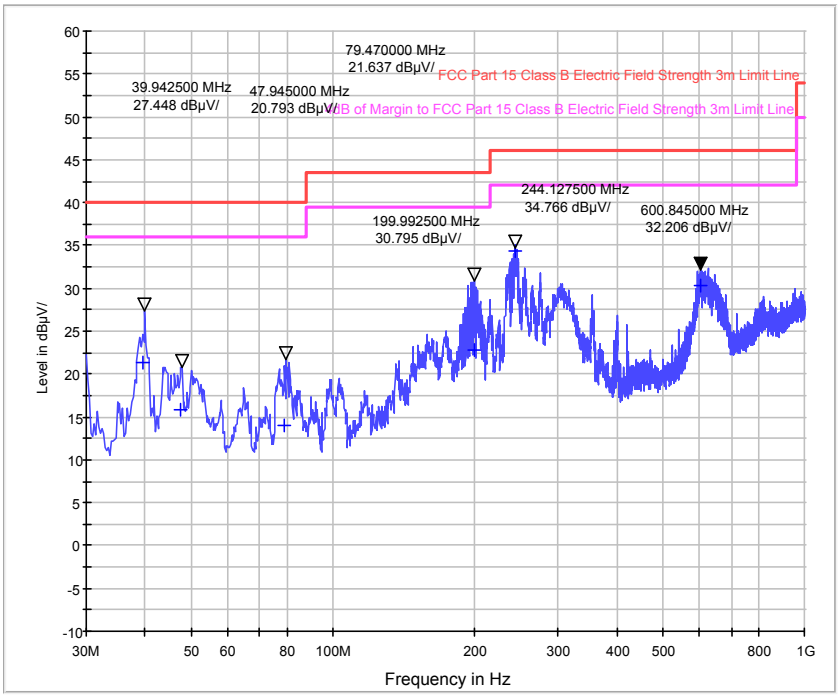
Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
39.640000	21.3	120.000	300.0	H	0.0	-15.5	18.7	40.0
47.720000	15.9	120.000	300.0	H	2.0	-15.5	24.1	40.0
79.080000	14.0	120.000	300.0	H	334.0	-18.8	26.0	40.0
199.480000	22.8	120.000	100.0	H	0.0	-16.0	20.7	43.5
244.520000	34.3	120.000	100.0	H	287.0	-13.7	11.7	46.0
600.440000	30.3	120.000	100.0	H	256.0	-6.1	15.7	46.0

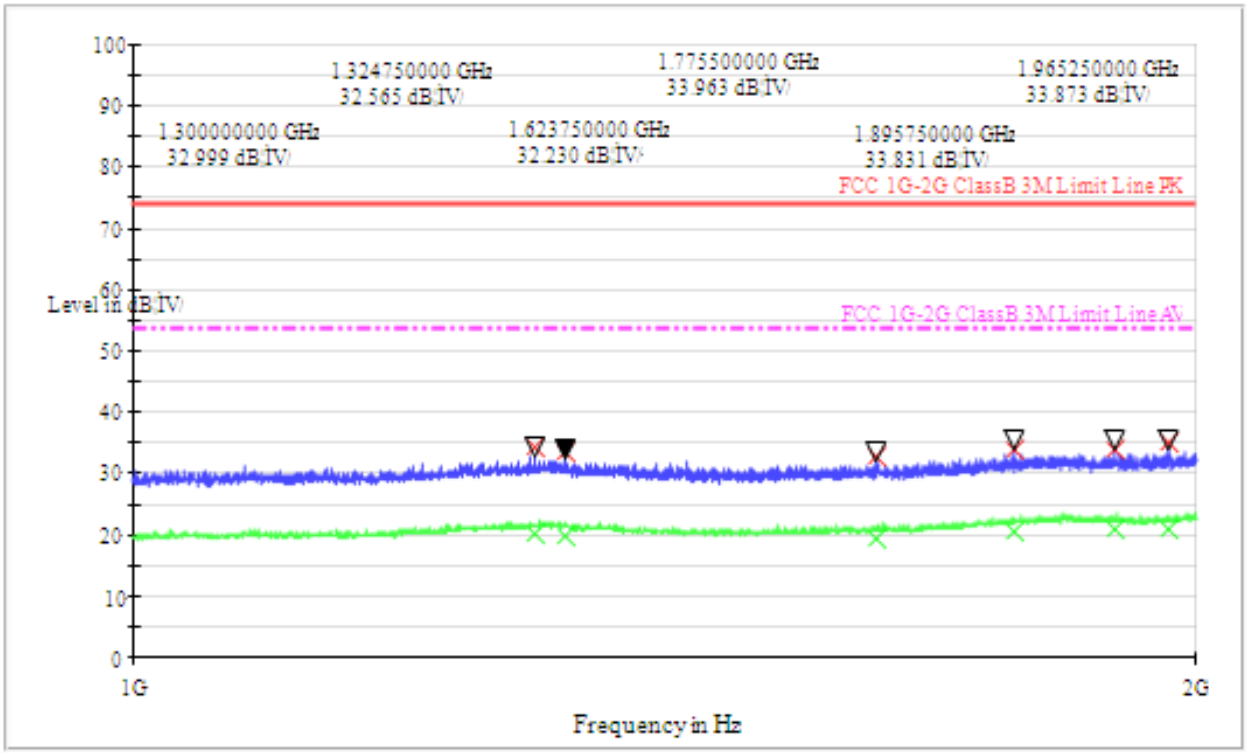
Frequency (MHz)	Peak (dB μ V/m)	Peak limit (dB μ V/m)	Peak Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1300.000000	34.3	74.0	39.7	0.0	100.0	H
1324.800000	33.5	74.0	40.5	0.0	100.0	H
1623.600000	32.6	74.0	41.4	0.0	100.0	H
1775.600000	34.0	74.0	40.0	0.0	100.0	H
1895.600000	34.1	74.0	39.9	0.0	100.0	H
1965.200000	35.2	74.0	38.8	0.0	100.0	H

Frequency (MHz)	Average dB μ V/m	Average limit (dB μ V/m)	Average Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1300.000000	20.1	54.0	33.9	0.0	100.0	H
1324.800000	19.9	54.0	34.1	0.0	100.0	H
1623.600000	19.4	54.0	34.6	0.0	100.0	H
1775.600000	20.7	54.0	33.3	0.0	100.0	H
1895.600000	20.8	54.0	33.2	0.0	100.0	H
1965.200000	21.1	54.0	32.9	0.0	100.0	H

NOTE:

The minimum margin value is over 4dB.


79.470000 MHz
21.637 dBµV/
39.942500 MHz
27.448 dBµV/
47.945000 MHz
20.793 dBµV/
FCC Part 15 Class B Electric Field Strength 3m Limit Line
dB of Margin to FCC Part 15 Class B Electric Field Strength 3m Limit Line
244.127500 MHz
34.766 dBµV/
199.992500 MHz
30.795 dBµV/
600.845000 MHz
32.206 dBµV/
Level in dBµV/
Frequency in Hz


1.324750000 GHz
32.565 dBµV/
1.775500000 GHz
33.963 dBµV/
1.965250000 GHz
33.873 dBµV/
1.300000000 GHz
32.999 dBµV/
1.623750000 GHz
32.230 dBµV/
1.895750000 GHz
33.831 dBµV/
FCC 1G-2G ClassB 3M Limit Line PK
FCC 1G-2G ClassB 3M Limit Line AV
Level in dBµV/
Frequency in Hz

-Vertical

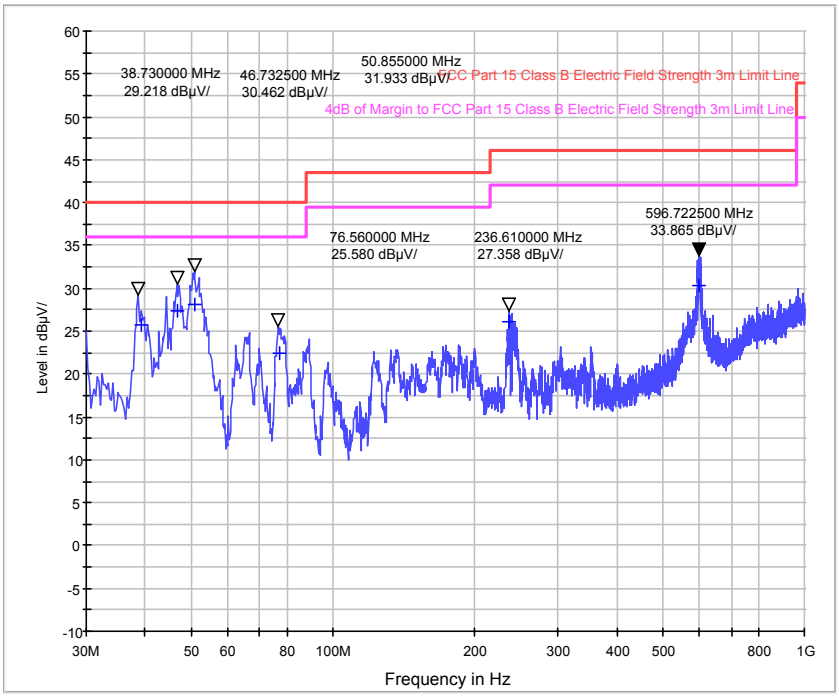
Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
39.160000	25.7	120.000	100.0	V	0.0	-15.6	14.3	40.0
46.960000	27.4	120.000	100.0	V	0.0	-15.5	12.6	40.0
50.840000	28.2	120.000	100.0	V	0.0	-15.6	11.8	40.0
77.040000	22.4	120.000	100.0	V	310.0	-18.4	17.6	40.0
236.600000	26.1	120.000	200.0	V	0.0	-14.1	19.9	46.0
596.520000	30.4	120.000	100.0	V	0.0	-6.2	15.6	46.0

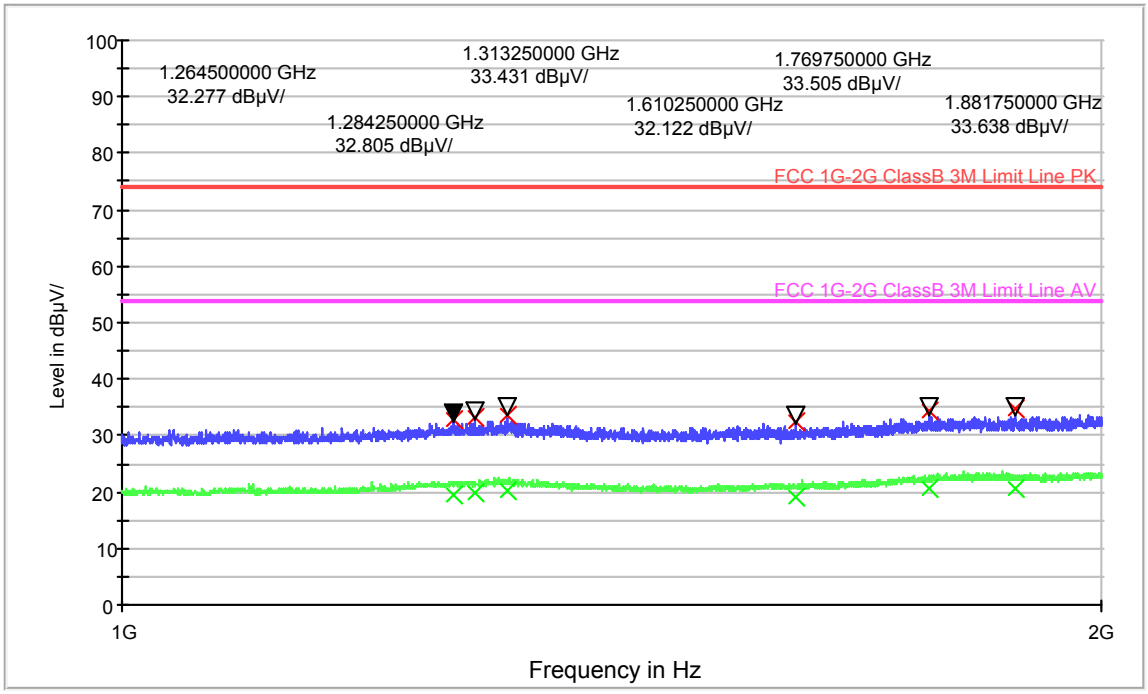
Frequency (MHz)	Peak (dB μ V/m)	Peak limit (dB μ V/m)	Peak Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1264.400000	32.7	74.0	41.3	0.0	100.0	V
1284.400000	33.1	74.0	40.9	0.0	100.0	V
1313.200000	33.6	74.0	40.4	0.0	100.0	V
1610.400000	32.4	74.0	41.6	0.0	100.0	V
1769.600000	34.2	74.0	39.8	0.0	100.0	V
1881.600000	34.7	74.0	39.3	0.0	100.0	V

Frequency (MHz)	Average dB μ V/m	Average limit (dB μ V/m)	Average Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1264.400000	19.6	54.0	34.4	0.0	100.0	V
1284.400000	19.8	54.0	34.2	0.0	100.0	V
1313.200000	20.1	54.0	33.9	0.0	100.0	V
1610.400000	19.2	54.0	34.8	0.0	100.0	V
1769.600000	20.6	54.0	33.4	0.0	100.0	V
1881.600000	20.8	54.0	33.2	0.0	100.0	V

NOTE:

The minimum margin value is over 4dB.


38.730000 MHz
29.218 dBµV/
46.732500 MHz
30.462 dBµV/
50.855000 MHz
31.933 dBµV/
FCC Part 15 Class B Electric Field Strength 3m Limit Line
4dB of Margin to FCC Part 15 Class B Electric Field Strength 3m Limit Line
76.560000 MHz
25.580 dBµV/
236.610000 MHz
27.358 dBµV/
596.722500 MHz
33.865 dBµV/
Level in dBµV/
Frequency in Hz
30M
50
60
80
100M
200
300
400
500
800
1G


1.264500000 GHz
32.277 dBµV/
1.313250000 GHz
33.431 dBµV/
1.769750000 GHz
33.505 dBµV/
1.284250000 GHz
32.805 dBµV/
1.610250000 GHz
32.122 dBµV/
1.881750000 GHz
33.638 dBµV/
FCC 1G-2G ClassB 3M Limit Line PK
FCC 1G-2G ClassB 3M Limit Line AV
Level in dBµV/
Frequency in Hz
1G
2G

2. Radiated Emission Test data (USB Print Mode)

-Horizontal

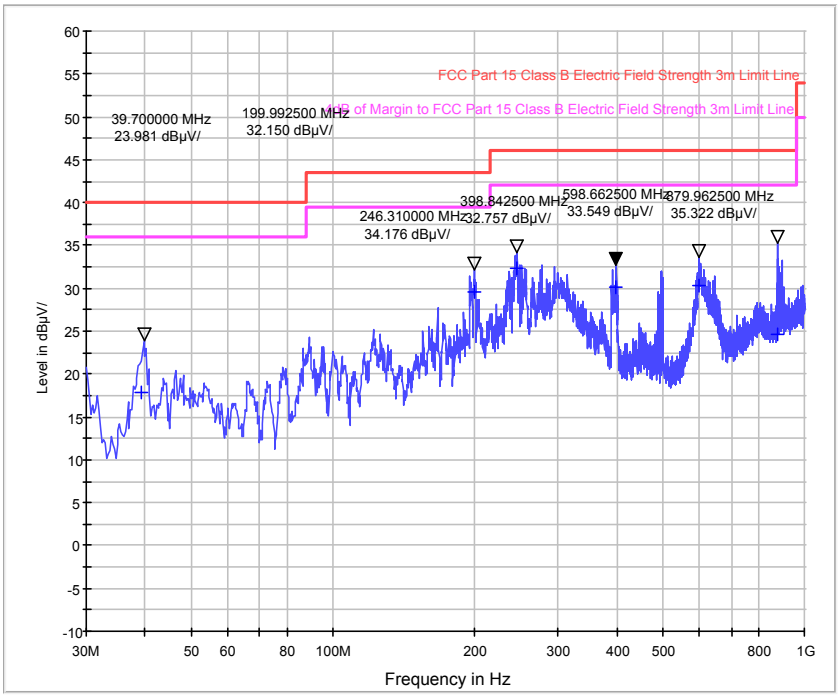
Frequency (MHz)	QuasiPeak (dB μV/m)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μV/m)
39.280000	17.9	120.000	100.0	H	341.0	-15.6	22.1	40.0
200.360000	29.5	120.000	100.0	H	135.0	-16.0	14.0	43.5
246.480000	32.4	120.000	100.0	H	284.0	-13.7	13.6	46.0
399.120000	30.2	120.000	100.0	H	169.0	-9.7	15.8	46.0
599.280000	30.3	120.000	100.0	H	359.0	-6.2	15.7	46.0
880.240000	24.7	120.000	100.0	H	2.0	-1.6	21.3	46.0

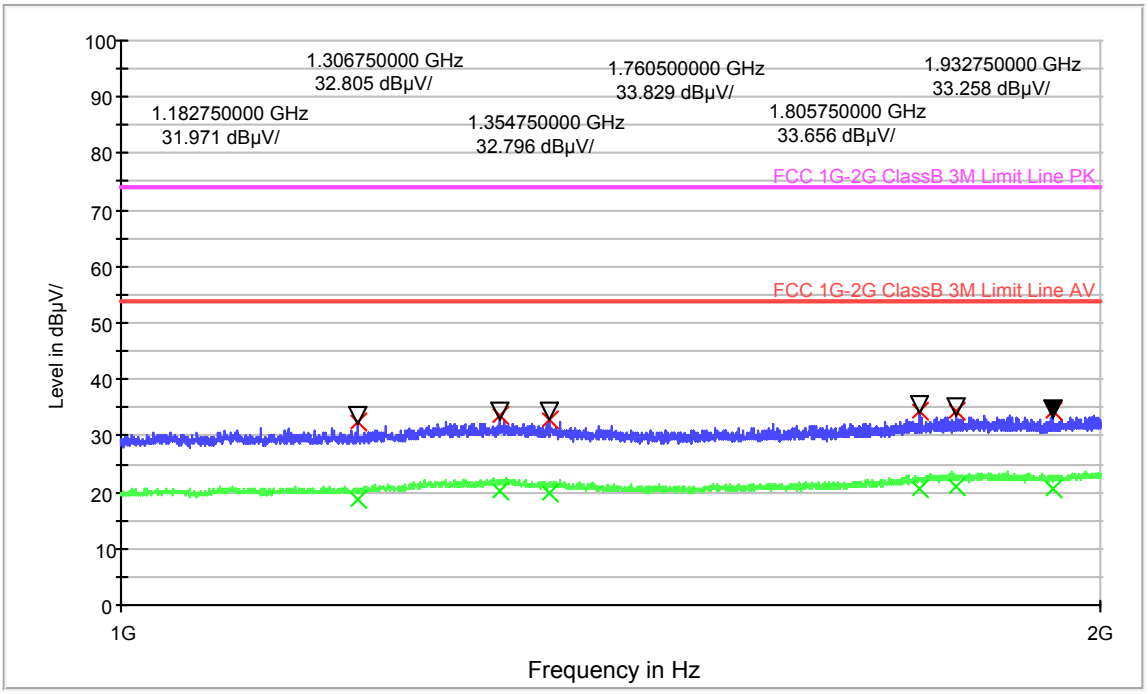
Frequency (MHz)	Peak (dB μV/m)	Peak limit (dB μV/m)	Peak Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1182.800000	32.4	74.0	41.6	0.0	100.0	H
1306.800000	33.7	74.0	40.3	0.0	100.0	H
1354.800000	32.9	74.0	41.1	0.0	100.0	H
1760.400000	34.5	74.0	39.5	0.0	100.0	H
1805.600000	34.5	74.0	39.5	0.0	100.0	H
1932.800000	34.4	74.0	39.6	0.0	100.0	H

Frequency (MHz)	Average dB μV/m	Average limit (dB μV/m)	Average Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1182.800000	18.7	54.0	35.3	0.0	100.0	H
1306.800000	20.2	54.0	33.8	0.0	100.0	H
1354.800000	19.7	54.0	34.3	0.0	100.0	H
1760.400000	20.6	54.0	33.4	0.0	100.0	H
1805.600000	20.9	54.0	33.1	0.0	100.0	H
1932.800000	20.7	54.0	33.3	0.0	100.0	H

NOTE:

The minimum margin value is over 4dB.


FCC Part 15 Class B Electric Field Strength 3m Limit Line
4dB of Margin to FCC Part 15 Class B Electric Field Strength 3m Limit Line
39.700000 MHz
23.981 dBµV/
199.992500 MHz
32.150 dBµV/
246.310000 MHz
34.176 dBµV/
398.842500 MHz
32.757 dBµV/
598.662500 MHz
33.549 dBµV/
879.962500 MHz
35.322 dBµV/
Level in dBµV/
Frequency in Hz
30M
50
60
80
100M
200
300
400
500
800
1G


1.306750000 GHz
32.805 dBµV/
1.760500000 GHz
33.829 dBµV/
1.932750000 GHz
33.258 dBµV/
1.182750000 GHz
31.971 dBµV/
1.354750000 GHz
32.796 dBµV/
1.805750000 GHz
33.656 dBµV/
FCC 1G-2G ClassB 3M Limit Line PK
FCC 1G-2G ClassB 3M Limit Line AV
Level in dBµV/
Frequency in Hz
1G
2G

-**Vertical**

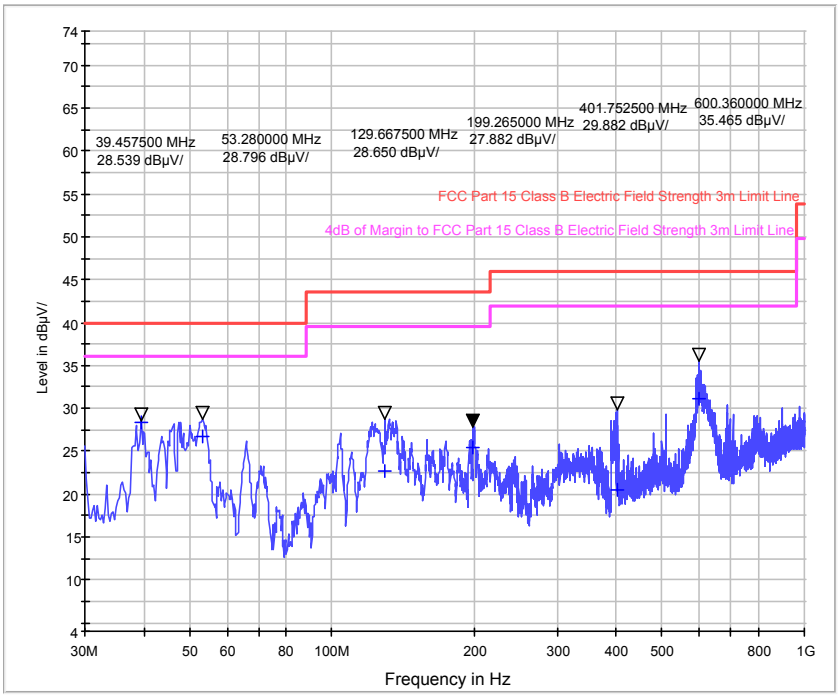
Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
39.640000	28.3	120.000	100.0	V	12.0	-15.5	11.7	40.0
53.240000	26.7	120.000	100.0	V	0.0	-15.6	13.3	40.0
129.800000	22.7	120.000	100.0	V	0.0	-14.6	20.8	43.5
199.280000	25.5	120.000	100.0	V	0.0	-16.0	18.0	43.5
401.960000	20.6	120.000	100.0	V	0.0	-9.7	25.4	46.0
600.440000	31.1	120.000	100.0	V	0.0	-6.1	14.9	46.0

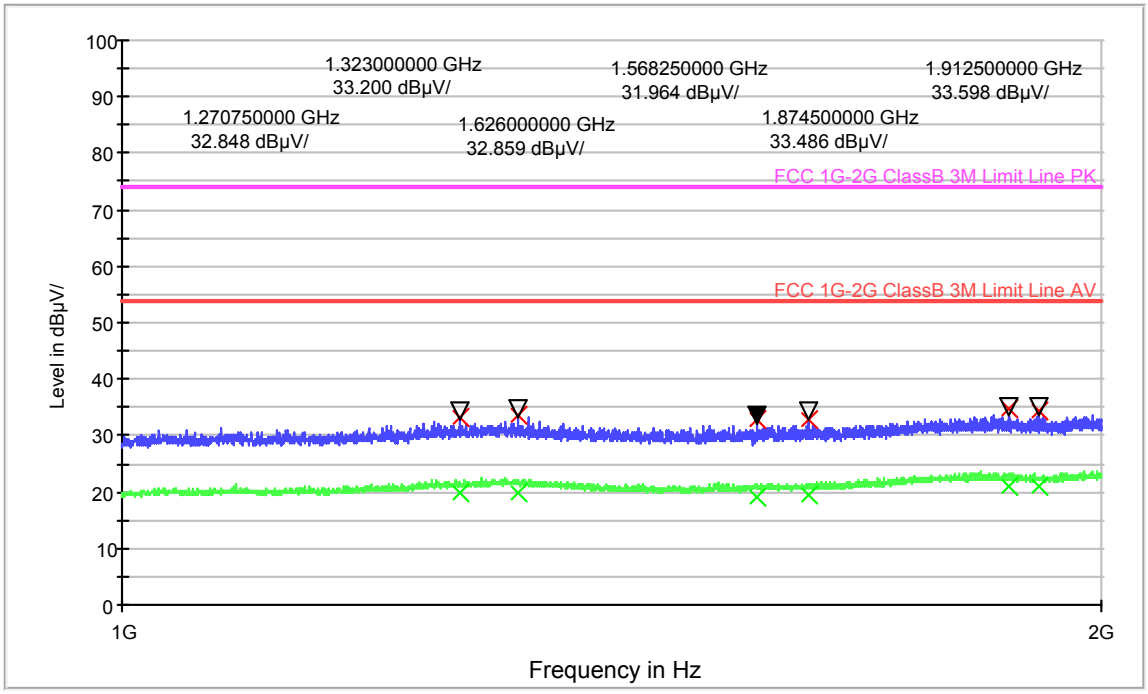
Frequency (MHz)	Peak (dB μ V/m)	Peak limit (dB μ V/m)	Peak Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1270.800000	33.3	74.0	40.7	0.0	100.0	V
1323.200000	33.5	74.0	40.5	0.0	100.0	V
1626.000000	32.7	74.0	41.3	0.0	100.0	V
1568.400000	32.9	74.0	41.1	0.0	100.0	V
1874.400000	34.6	74.0	39.4	0.0	100.0	V
1912.400000	34.2	74.0	39.8	0.0	100.0	V

Frequency (MHz)	Average dB μ V/m	Average limit (dB μ V/m)	Average Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1270.800000	19.8	54.0	34.2	0.0	100.0	V
1323.200000	20.0	54.0	34.0	0.0	100.0	V
1626.000000	19.5	54.0	34.5	0.0	100.0	V
1568.400000	19.2	54.0	34.8	0.0	100.0	V
1874.400000	20.9	54.0	33.1	0.0	100.0	V
1912.400000	20.8	54.0	33.2	0.0	100.0	V

NOTE:

The minimum margin value is over 4dB.


39.457500 MHz
28.539 dBµV/
53.280000 MHz
28.796 dBµV/
129.667500 MHz
28.650 dBµV/
199.265000 MHz
27.882 dBµV/
401.752500 MHz
29.882 dBµV/
600.360000 MHz
35.465 dBµV/
FCC Part 15 Class B Electric Field Strength 3m Limit Line
4dB of Margin to FCC Part 15 Class B Electric Field Strength 3m Limit Line
Level in dBµV/
Frequency in Hz
30M
50
60
80
100M
200
300
400
500
800
1G


1.323000000 GHz
33.200 dBµV/
1.568250000 GHz
31.964 dBµV/
1.912500000 GHz
33.598 dBµV/
1.270750000 GHz
32.848 dBµV/
1.626000000 GHz
32.859 dBµV/
1.874500000 GHz
33.486 dBµV/
FCC 1G-2G ClassB 3M Limit Line PK
FCC 1G-2G ClassB 3M Limit Line AV
Level in dBµV/
Frequency in Hz
1G
2G

3. Radiated Emission Test data (WiFi Print Mode)

-Horizontal

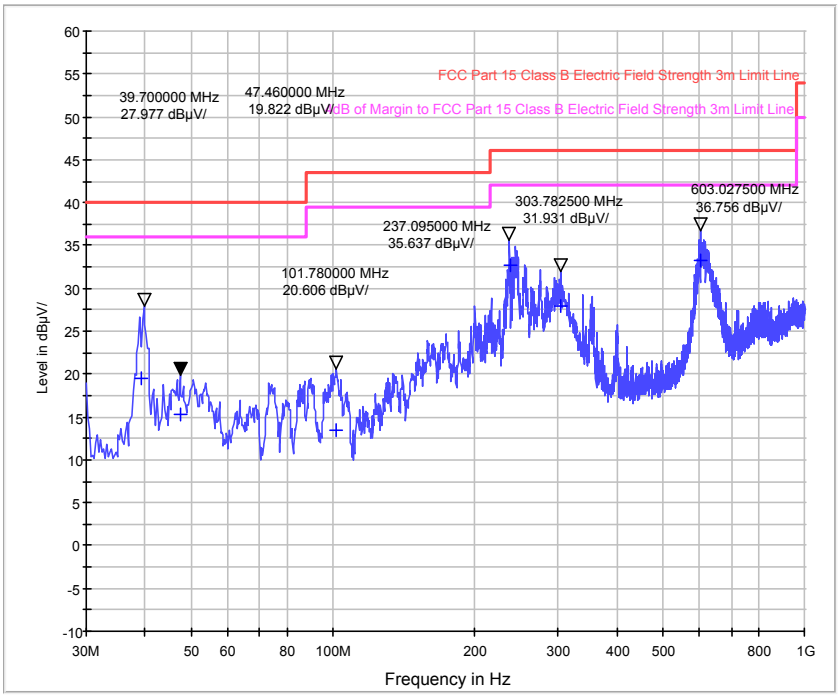
Frequency (MHz)	QuasiPeak (dB μV/m)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μV/m)
39.200000	19.5	120.000	300.0	H	357.0	-15.6	20.5	40.0
47.720000	15.4	120.000	300.0	H	162.0	-15.5	24.6	40.0
101.360000	13.4	120.000	100.0	H	339.0	-17.3	30.1	43.5
237.360000	32.7	120.000	100.0	H	203.0	-14.0	13.3	46.0
304.000000	28.0	120.000	100.0	H	0.0	-11.5	18.0	46.0
603.040000	33.3	120.000	100.0	H	193.0	-6.1	12.7	46.0

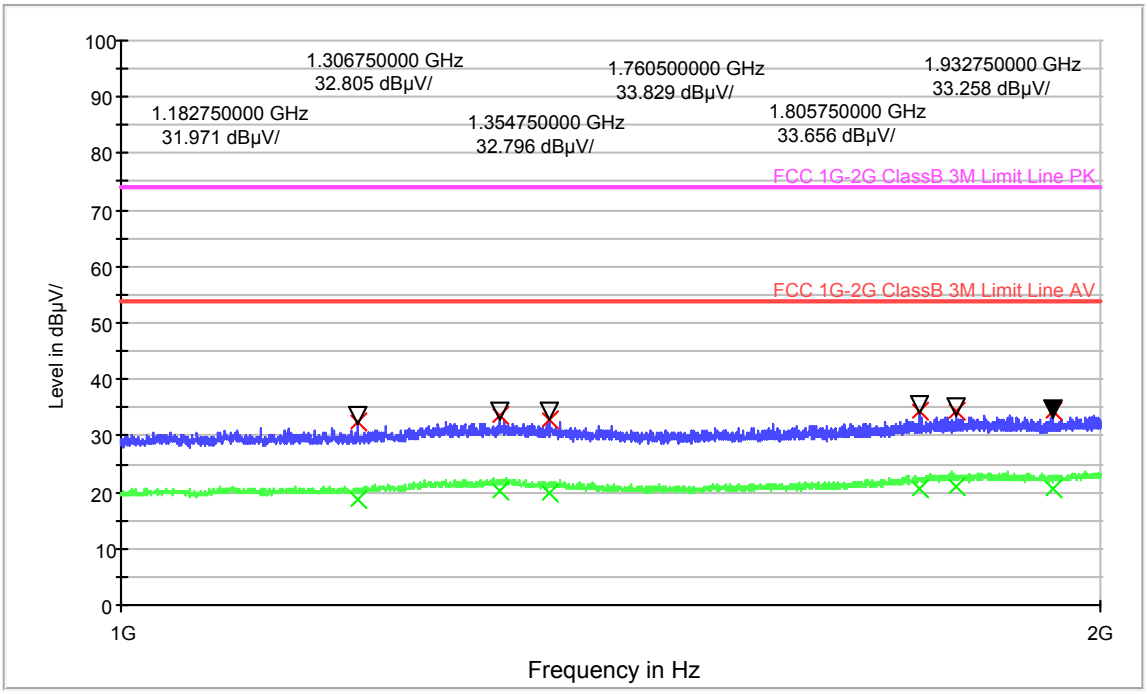
Frequency (MHz)	Peak (dB μV/m)	Peak limit (dB μV/m)	Peak Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1243.200000	33.1	74.0	40.9	0.0	100.0	H
1314.400000	33.7	74.0	40.3	0.0	100.0	H
1558.400000	32.5	74.0	41.5	0.0	100.0	H
1741.200000	33.6	74.0	40.4	0.0	100.0	H
1772.800000	33.9	74.0	40.1	0.0	100.0	H
1982.400000	34.4	74.0	39.6	0.0	100.0	H

Frequency (MHz)	Average dB μV/m	Average limit (dB μV/m)	Average Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1243.200000	19.6	54.0	34.4	0.0	100.0	H
1314.400000	20.1	54.0	33.9	0.0	100.0	H
1558.400000	19.1	54.0	34.9	0.0	100.0	H
1741.200000	20.4	54.0	33.6	0.0	100.0	H
1772.800000	20.7	54.0	33.3	0.0	100.0	H
1982.400000	21.2	54.0	32.8	0.0	100.0	H

NOTE:

The minimum margin value is over 4dB.


FCC Part 15 Class B Electric Field Strength 3m Limit Line
dB of Margin to FCC Part 15 Class B Electric Field Strength 3m Limit Line
39.700000 MHz
27.977 dBµV/
47.460000 MHz
19.822 dBµV/
101.780000 MHz
20.606 dBµV/
237.095000 MHz
35.637 dBµV/
303.782500 MHz
31.931 dBµV/
603.027500 MHz
36.756 dBµV/
Level in dBµV/
Frequency in Hz
30M
50
60
80
100M
200
300
400
500
800
1G


1.306750000 GHz
32.805 dBµV/
1.760500000 GHz
33.829 dBµV/
1.932750000 GHz
33.258 dBµV/
1.182750000 GHz
31.971 dBµV/
1.354750000 GHz
32.796 dBµV/
1.805750000 GHz
33.656 dBµV/
FCC 1G-2G ClassB 3M Limit Line PK
FCC 1G-2G ClassB 3M Limit Line AV
Level in dBµV/
Frequency in Hz
1G
2G

-**Vertical**

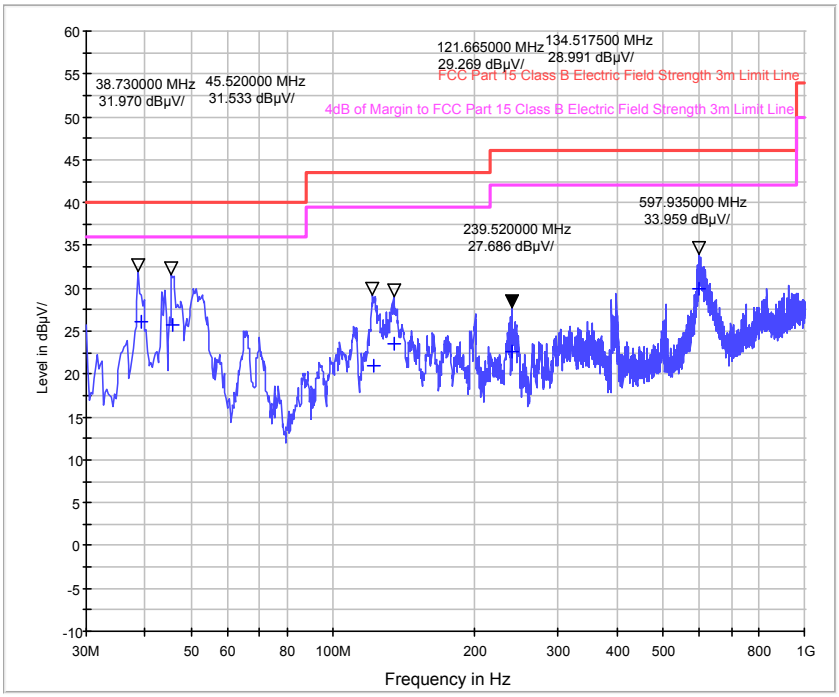
Frequency (MHz)	QuasiPeak (dB μ V/m)	Bandwidth (kHz)	Antenna height (cm)	Polarity	Turntable position (deg)	Corr. (dB)	Margin (dB)	Limit (dB μ V/m)
39.240000	26.2	120.000	100.0	V	0.0	-15.6	13.8	40.0
45.920000	25.8	120.000	100.0	V	2.0	-15.5	14.2	40.0
121.800000	20.9	120.000	100.0	V	52.0	-15.3	22.6	43.5
134.920000	23.5	120.000	100.0	V	0.0	-14.1	20.0	43.5
239.320000	22.6	120.000	200.0	V	0.0	-13.9	23.4	46.0
598.040000	29.9	120.000	100.0	V	0.0	-6.2	16.1	46.0

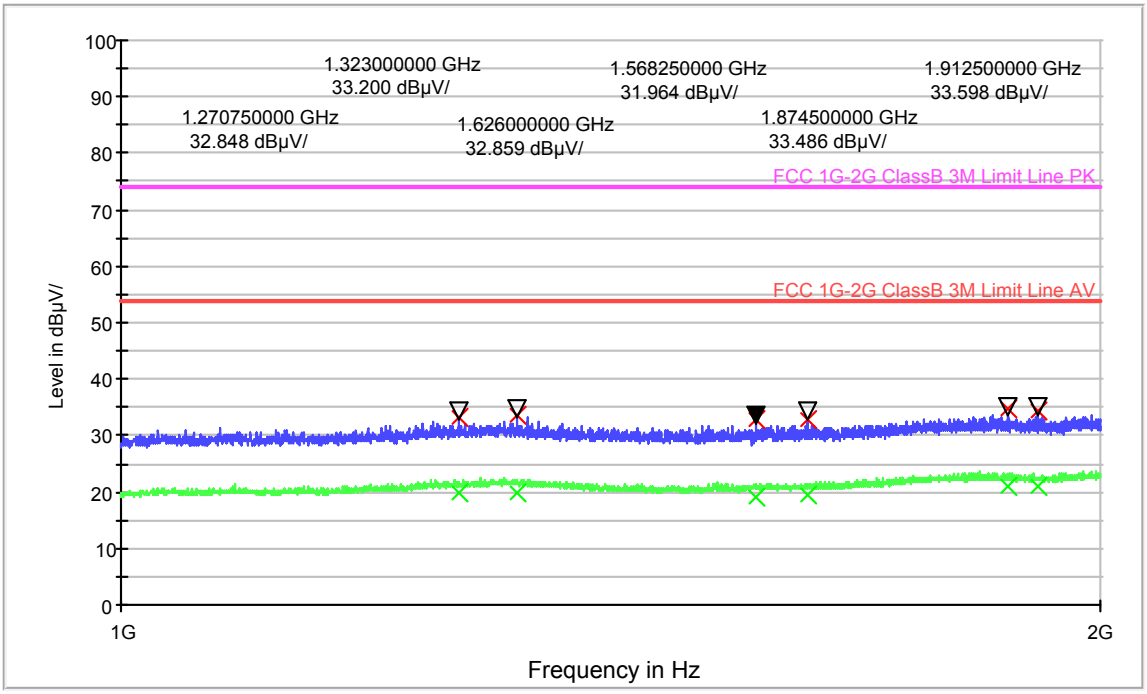
Frequency (MHz)	Peak (dB μ V/m)	Peak limit (dB μ V/m)	Peak Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1218.400000	32.4	74.0	41.6	0.0	100.0	V
1285.200000	33.3	74.0	40.7	0.0	100.0	V
1579.600000	33.7	74.0	40.3	0.0	100.0	V
1654.400000	32.6	74.0	41.4	0.0	100.0	V
1780.400000	34.7	74.0	39.3	0.0	100.0	V
1933.200000	34.4	74.0	39.6	0.0	100.0	V

Frequency (MHz)	Average dB μ V/m	Average limit (dB μ V/m)	Average Margin (dB)	Turntable position (deg)	Ant. height (cm)	Polarity
1218.400000	19.1	54.0	34.9	0.0	100.0	V
1285.200000	19.8	54.0	34.2	0.0	100.0	V
1579.600000	19.3	54.0	34.7	0.0	100.0	V
1654.400000	19.3	54.0	34.7	0.0	100.0	V
1780.400000	20.8	54.0	33.2	0.0	100.0	V
1933.200000	20.7	54.0	33.3	0.0	100.0	V

NOTE:

The minimum margin value is over 4dB.

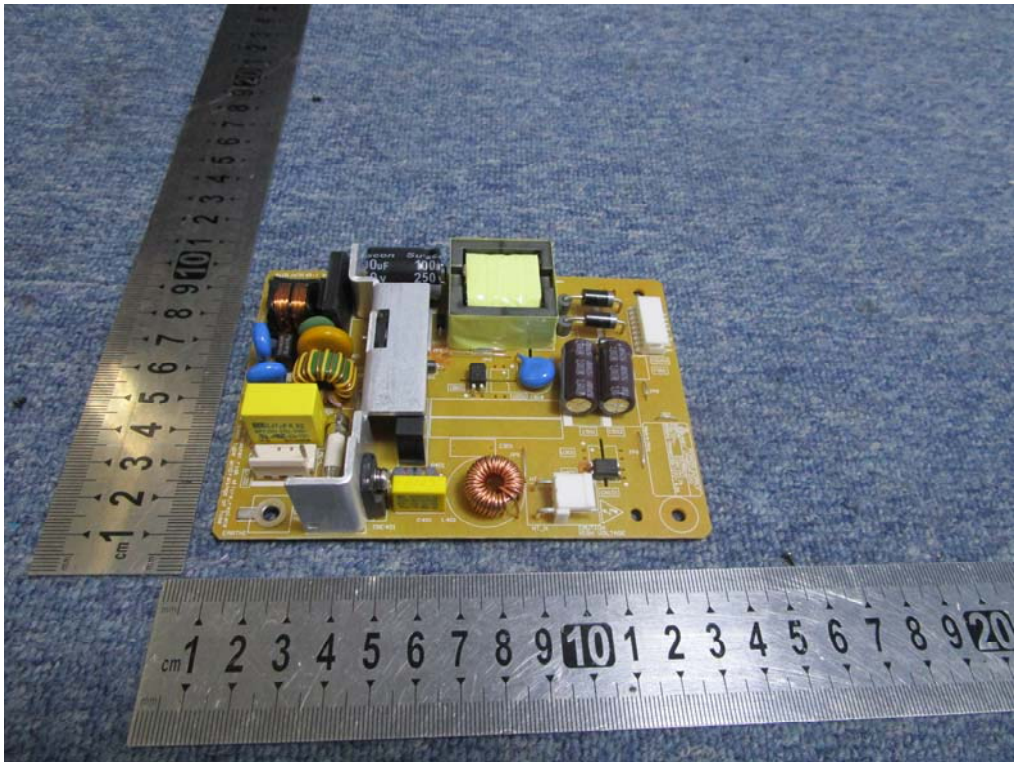

121.665000 MHz
29.269 dBµV/
134.517500 MHz
28.991 dBµV/
38.730000 MHz
31.970 dBµV/
45.520000 MHz
31.533 dBµV/
FCC Part 15 Class B Electric Field Strength 3m Limit Line
4dB of Margin to FCC Part 15 Class B Electric Field Strength 3m Limit Line
597.935000 MHz
33.959 dBµV/
239.520000 MHz
27.686 dBµV/
Level in dBµV/
Frequency in Hz
30M
50
60
80
100M
200
300
400
500
800
1G

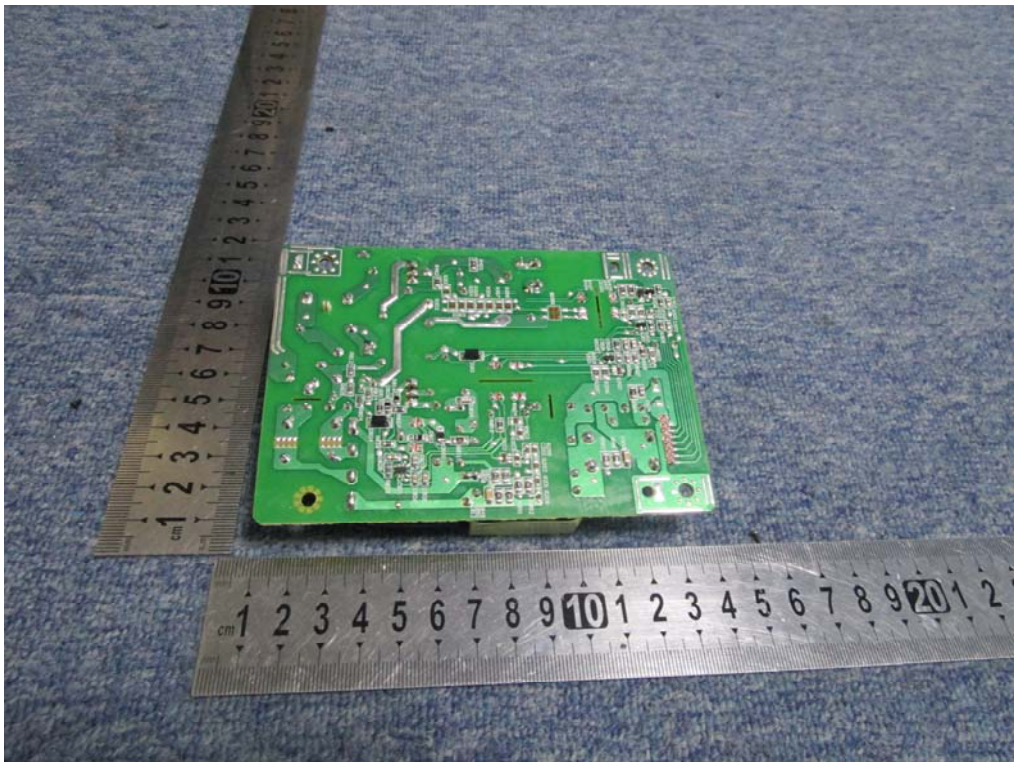

1.323000000 GHz
33.200 dBµV/
1.568250000 GHz
31.964 dBµV/
1.912500000 GHz
33.598 dBµV/
1.270750000 GHz
32.848 dBµV/
1.626000000 GHz
32.859 dBµV/
1.874500000 GHz
33.486 dBµV/
FCC 1G-2G ClassB 3M Limit Line PK
FCC 1G-2G ClassB 3M Limit Line AV
Level in dBµV/
Frequency in Hz
1G
2G

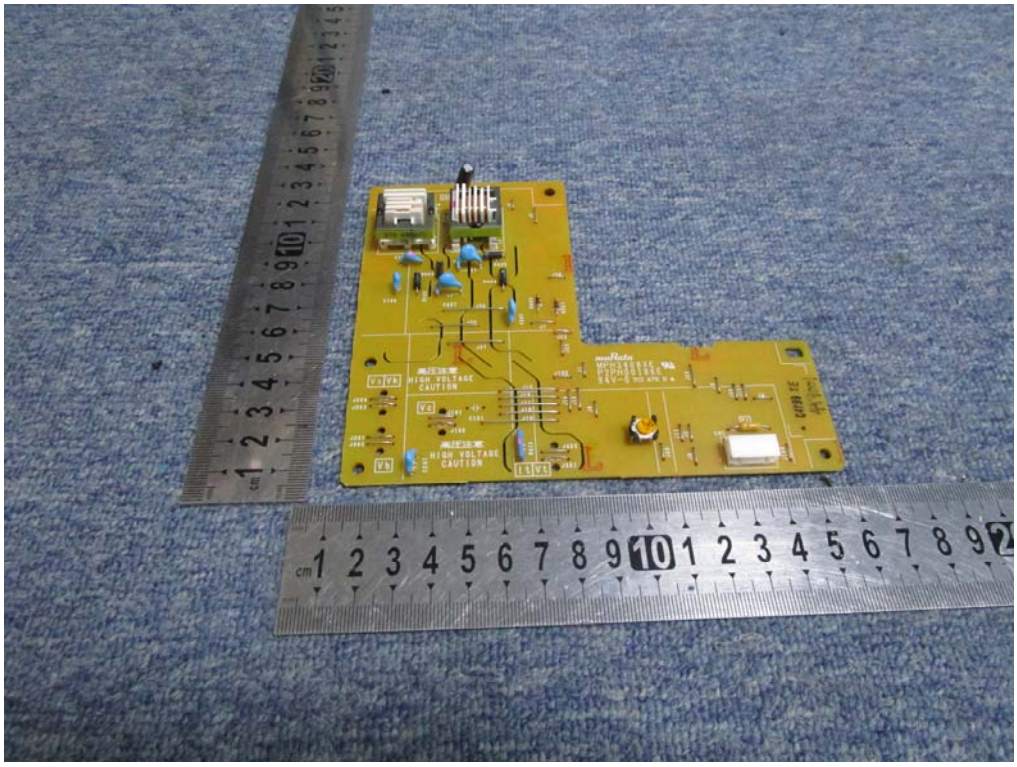
Appendix I：Photographs of the EUT

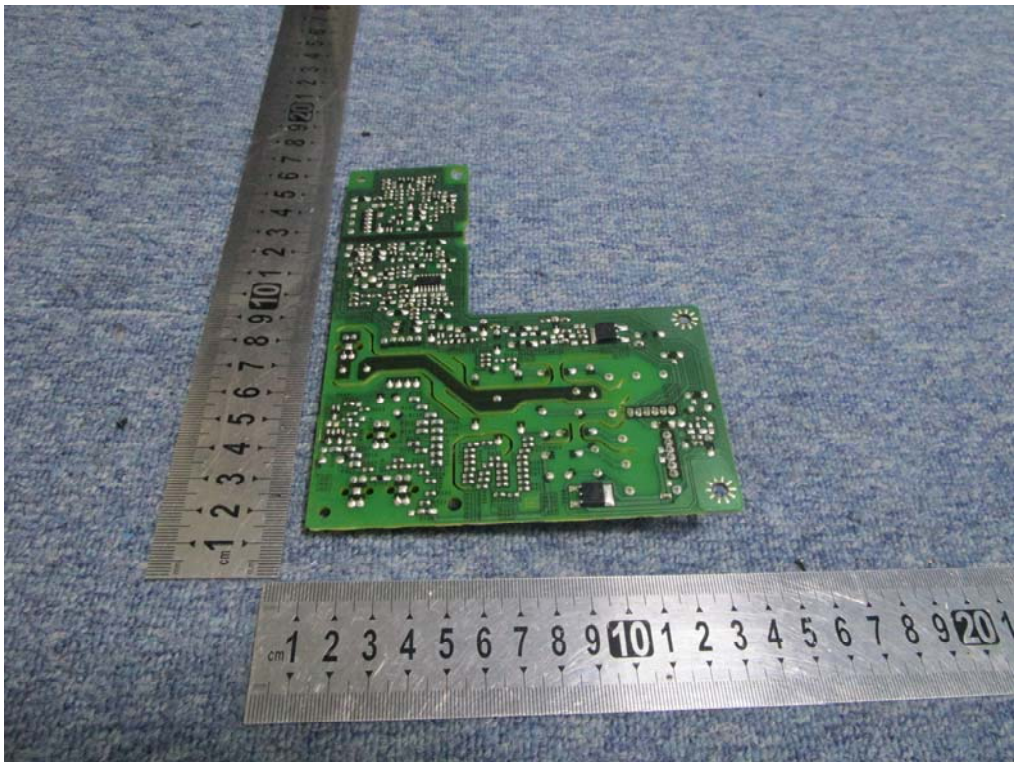
1. Appearance

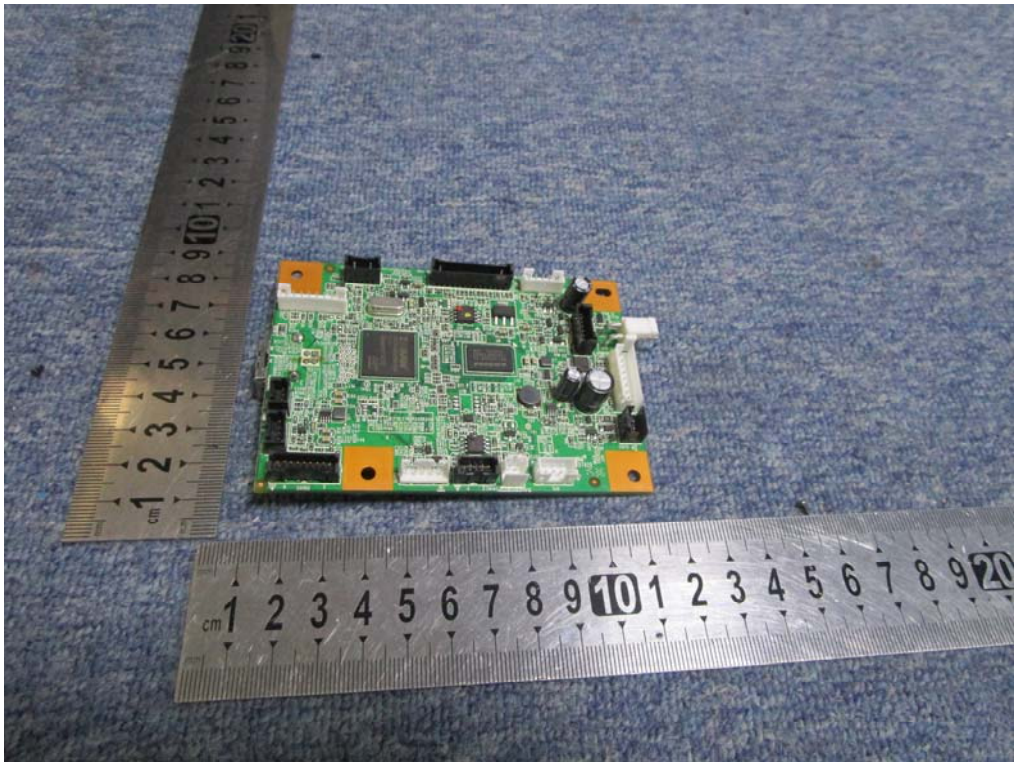
2.Inside

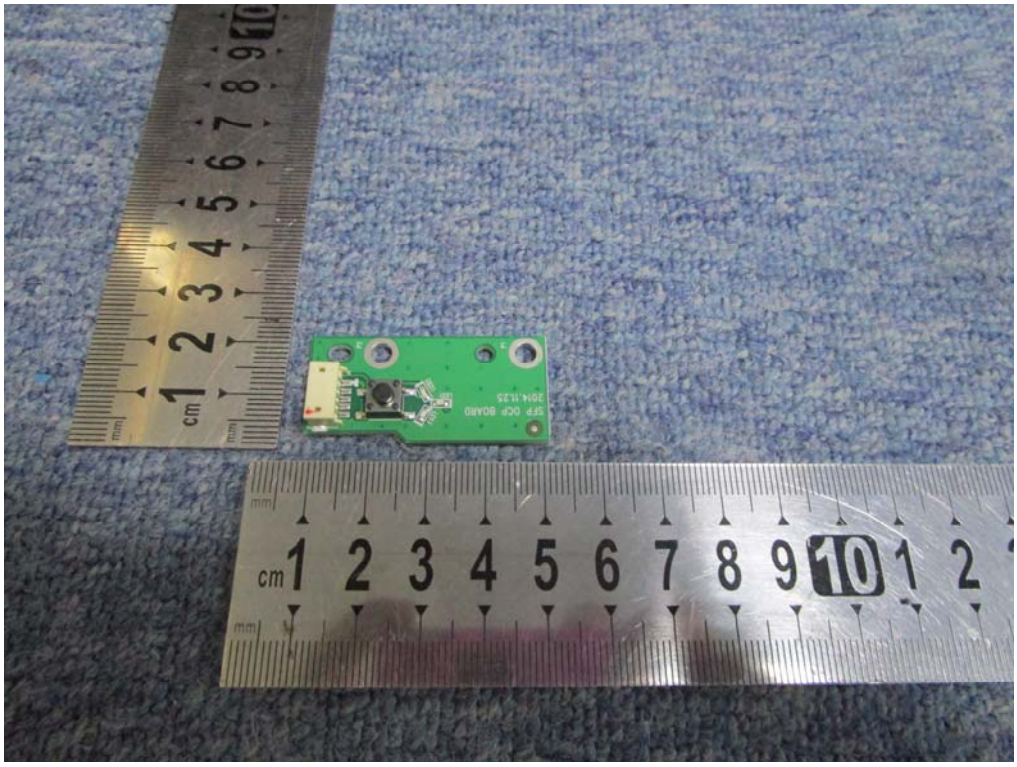


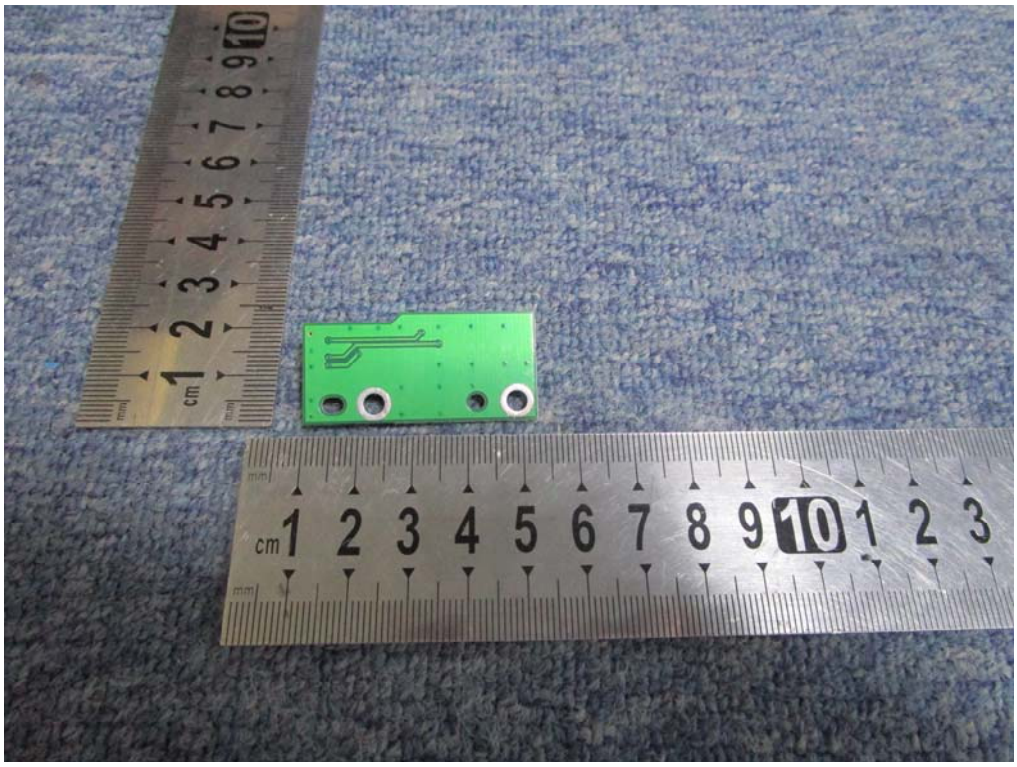


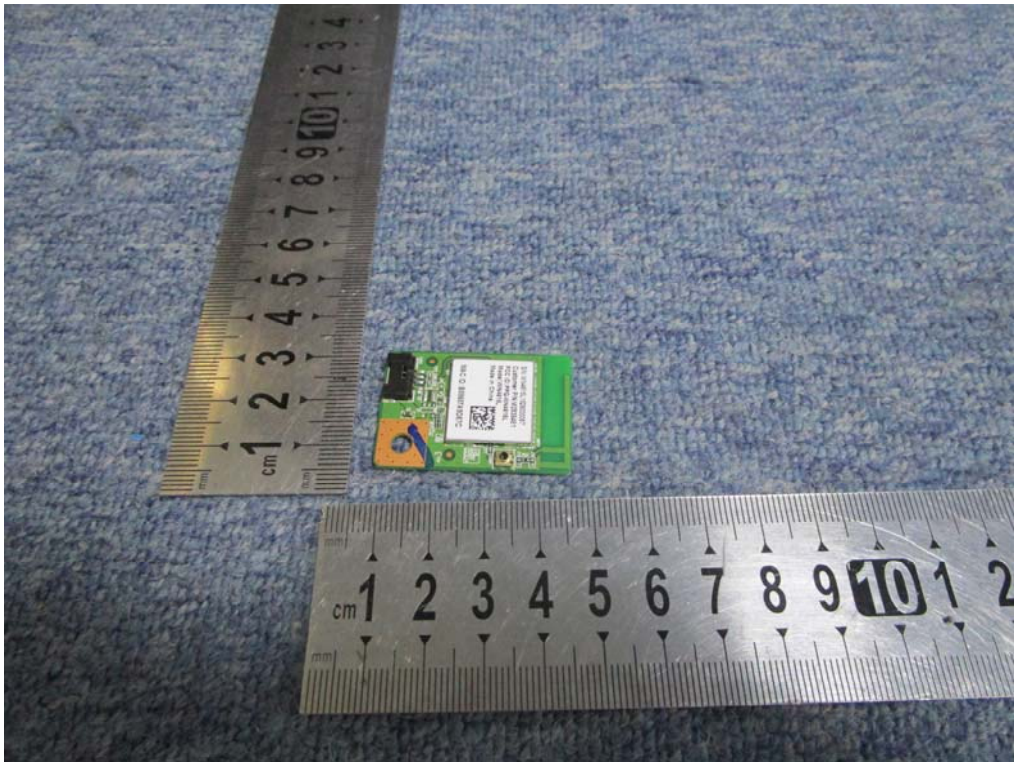


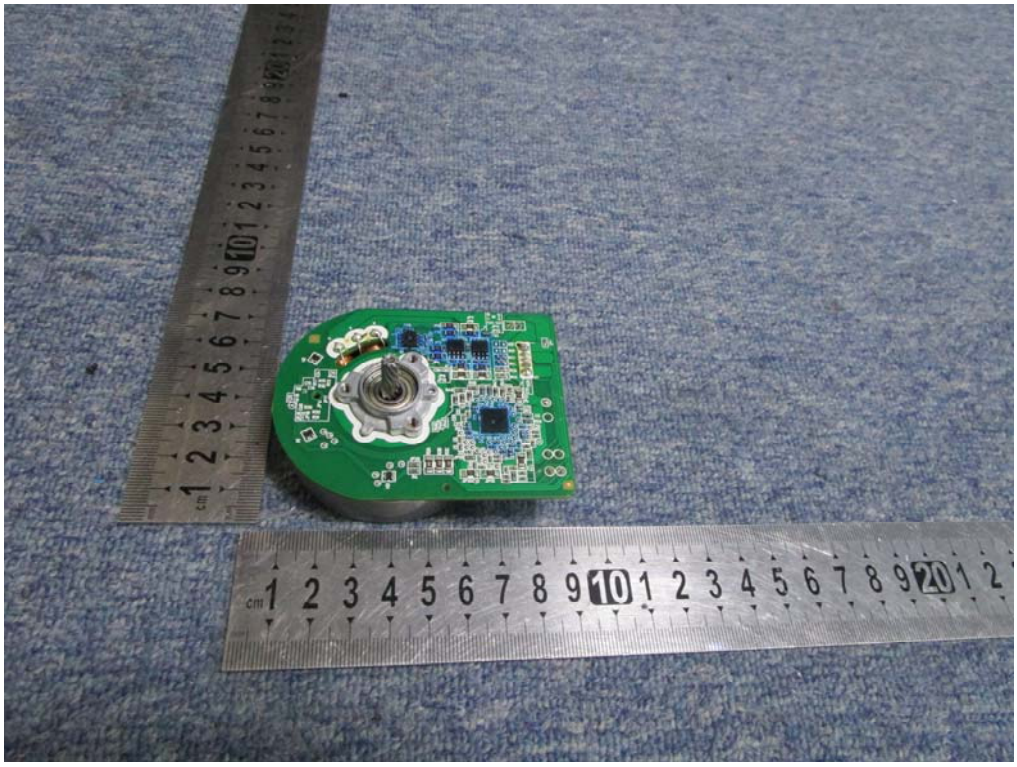


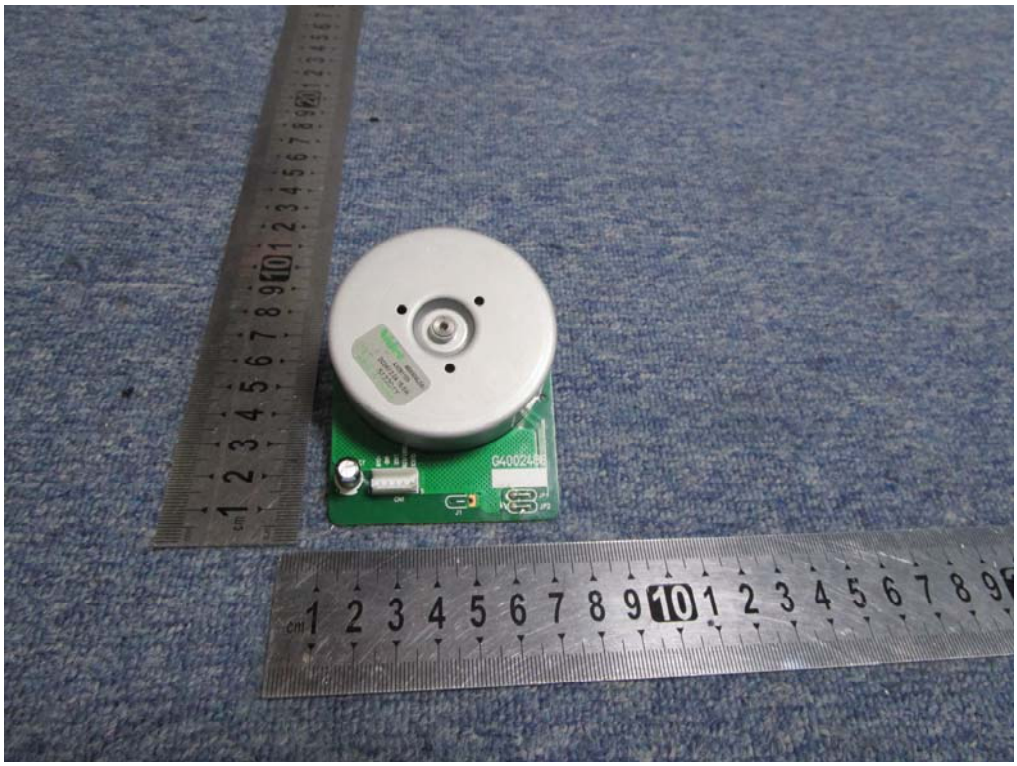


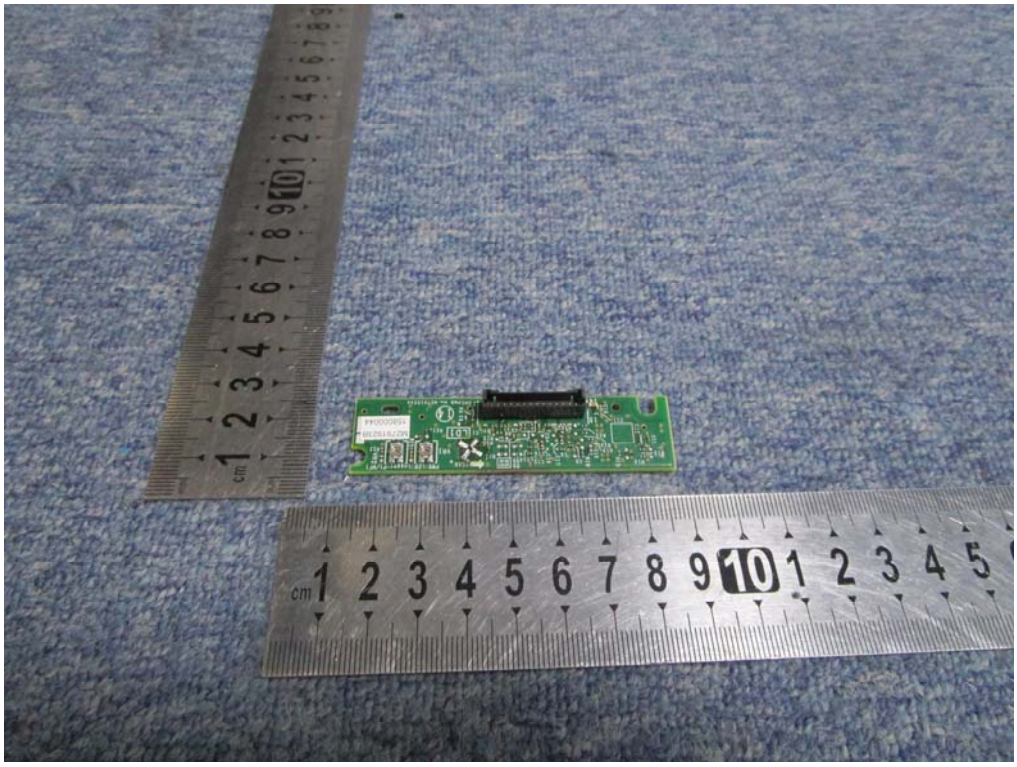


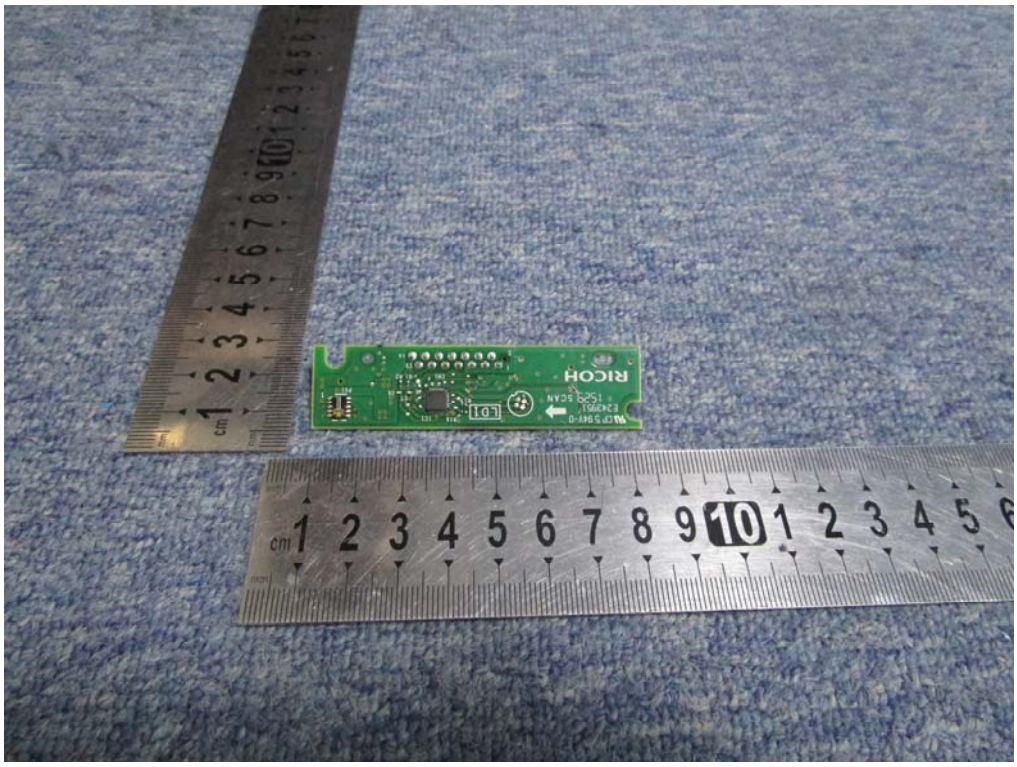











RICOH

Appendix II：Photographs of EMC Test Configuration

1. Conducted Disturbance at Mains Terminals

2. Radiated Field Strength Measurement

End of Report