



## TEST REPORT

### 47 CFR FCC Part 15 Subpart B (Class B)

### Radio Frequency Devices – Unintentional Radiators – Limits and methods of measurement

### ANSI C63.4: 2009

### 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

Report Reference No.....	TRE13010008	R/C:23790
FCC ID.....	BBP-PRSP201N1	
Compiled by ( position+printed name+signature)...	File administrators Tim Zhang	<i>Tim Zhang</i>
Supervised by ( position+printed name+signature)...	Test Engineer Eric Zhang	<i>Eric Zhang</i>
Approved by ( position+printed name+signature)...	Manager Wenliang Li	<i>Wenliang Li</i>
Date of issue.....	Jan 24, 2013	
Testing Laboratory Name .....	Shenzhen Huatongwei International Inspection Co., Ltd	
Address.....	Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China	
Testing location/ procedure .....	Full application of Harmonised standards	<input checked="" type="checkbox"/>
	Partial application of Harmonised standards	<input type="checkbox"/>
	Other standard testing methods	<input type="checkbox"/>
Applicant's name .....	Ricoh Company Ltd	
Address.....	810, Shimoimaizum, Ebina-Shi, Kanagawa-ken, 243-0460 Japan	
<b>Test specification:</b>		
Standard .....	47 CFR FCC Part 15 Subpart B (Class B)	ANSI C63.4: 2009
Non-standard test method.....	/	
Test Report Form No.....	HTWEMCFCC_1A	
TRF Originator .....	Shenzhen Huatongwei International Inspection Co., Ltd	
Master TRF .....	Dated 2006-06	
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Test item description .....	Printer	
Trade Mark .....	/	
Model/Type reference.....	SP 201N/SP 200N	
Listed Model.....	/	
Ratings.....	120V 60Hz 8A 900W	
Result.....	Positive	

# EMC -- TEST REPORT

<b>Test Report No. :</b> TRE13010008	Jan 24, 2013 <hr style="border: 0; border-top: 1px solid black; margin: 0;"/> Date of issue
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Equipment under Test : Printer

Model / Type : SP 201N/SP 200N

Listed Model : /

**Applicant** : Ricoh Company Ltd

Address : 810, Shimoimaizum, Ebina-Shi, Kanagawa-ken, 243-0460  
Japan

**Manufacturer** : Ricoh Asia Industry (Shenzhen) Ltd.

Address : Color TV Industrial Zone, North Huang Gang Road  
Shenzhen, P. R. China

<b>Test Result</b> according to the standards on page 4:	<b>Positive</b>
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The test report merely corresponds to the test sample.  
It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

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# 1. TEST STANDARDS

The tests were performed according to following standards:

[47 CFR FCC Part 15 Subpart B \(Class B\)](#) Radio Frequency Devices – Unintentional Radiators – Limits and methods of measurement.  
[ANSI C63.4: 2009](#) 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.

# 2. SUMMARY

## 2.1. General Remarks:

Date of receipt of test sample : Jan 10, 2013  
 Testing commenced on : Jan 10, 2013  
 Testing concluded on : Jan 24, 2013

## 2.2. Equipment under Test

### Power supply system utilised

Power supply voltage	:	<input type="radio"/> 230V / 50 Hz	<input type="radio"/> 115V / 60Hz
		<input type="radio"/> 12 V DC	<input type="radio"/> 24 V DC
		<input checked="" type="checkbox"/> Other (specified in blank below)	

AC 120V/60Hz

## 2.3. Short description of the Equipment under Test (EUT)

The EUT is a Printer. There are two models. The SP 201N and SP 200N were differences for sales country. Please refer to the table about the detail differences.

Mode name	Sales country
SP 200N	South American
SP 201N	North American

## 2.4. EUT operation mode

The equipment under test was operated during the measurement under the following conditions:

Test program (customer specific)

Emissions tests.....: 47 CFR FCC Part 15 Subpart B (Class B) and ANSI C63.4 2009, searching for the highest disturbance.

## 2.5. EUT configuration

### 1) Equipment under test

Kind of equipment	Manufacturer	Model name	Serial number	Remarks
(1)EUT	RICOH	SP 201N	LM145170012	

### 2) Highest Frequency Generated or Used in The Device or on Which the Device Operates (MHz)

Kind of equipment	Mode name	Operates Frequency	Remark
EUT	SP 201N	480MHz	USB

### 3) Supporting equipment

Kind of equipment	Manufacturer	Model name	Serial number	Remarks
Notebook 1	LENOVO	ThinkPad X201i	R8-7DYTX 10/11	For EMI

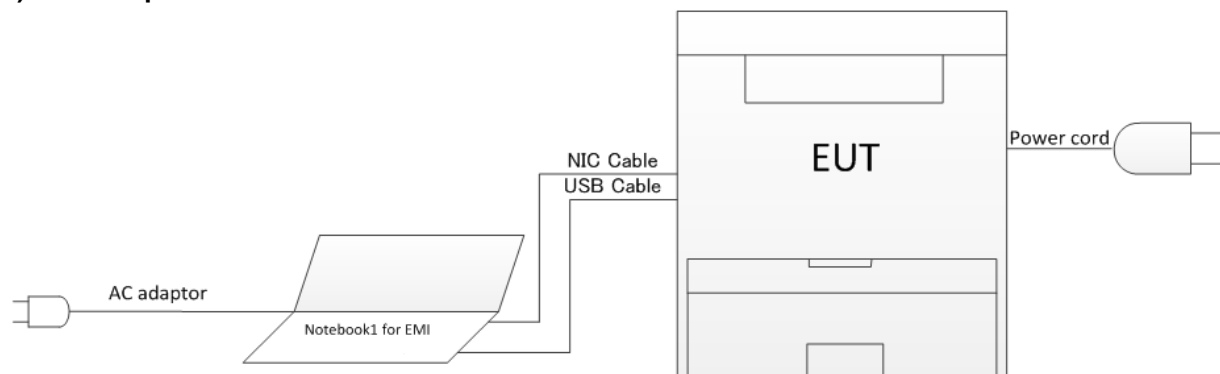
### 4) Cables Used

No.	Cable Name	Length	Shielded	Maker	Remarks
1	USB Cable	2m	YES	LONGWELL	
2	NIC Cable	3m	No	Black Box	
3	Power Cable	1.5m	No	LONGWELL	

### 5)Operating modes:

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

### 6)EUT Setup:



### **3. TEST ENVIRONMENT**

#### **3.1. Address of the test laboratory**

Shenzhen Huatongwei International Inspection Co., Ltd  
Keji Nan No.12 Road, Hi-tech Park, Shenzhen, China  
Phone: 86-755-26715686 Fax: 86-755-26748089

#### **3.2. Test Facility**

The test facility is recognized, certified, or accredited by the following organizations:

##### **CNAS-Lab Code: L1225**

Shenzhen Huatongwei International Inspection Co., Ltd. has been assessed and proved to be in compliance with CNAS-CL01 Accreditation Criteria for Testing and Calibration Laboratories (identical to ISO/IEC 17025: 2005 General Requirements) for the Competence of Testing and Calibration Laboratories, Date of Registration: Mar. 01, 2012. Valid time is until Feb. 28, 2015.

##### **A2LA-Lab Cert. No. 2243.01**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been accredited by A2LA for technical competence in the field of electrical testing, and proved to be in compliance with ISO/IEC 17025: 2005 General Requirements for the Competence of Testing and Calibration Laboratories and any additional program requirements in the identified field of testing. Valid time is until Sept. 30, 2013.

##### **FCC-Registration No.: 662850**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the FCC (Federal Communications Commission). The acceptance letter from the FCC is maintained in our files. Registration 662850, Renewal date June. 01, 2012, valid time is until Jun. 01, 2015.

##### **IC-Registration No.: 5377A**

The 3m Alternate Test Site of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for the performance of radiated measurements with Registration No. 5377A on Jan. 25, 2011, valid time is until Jan. 24, 2014.

##### **ACA**

Shenzhen Huatongwei International Inspection Co., Ltd. EMC Laboratory can also perform testing for the Australian C-Tick mark as a result of our A2LA accreditation.

##### **NEMKO-Aut. No.: ELA125**

Shenzhen Huatongwei International Inspection Co., Ltd has been assessed the quality assurance system, the testing facilities, qualifications and testing practices of the relevant parts of the organization. The quality assurance system of the Laboratory has been validated against ISO/IEC 17025 or equivalent. The laboratory also fulfils the conditions described in Nemko Document NLA-10, the authorization is valid through July 07, 2013

##### **VCCI**

The 3m Semi-anechoic chamber (12.2m×7.95m×6.7m) and Shielded Room (8m×4m×3m) of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-292. Date of Registration: Dec. 24, 2012. Valid time is until Dec. 23, 2015.

Main Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: C-2726. Date of Registration: Dec. 20, 2012. Valid time is until Dec. 19, 2015.

Telecommunication Ports Conducted Interference Measurement of Shenzhen Huatongwei International Inspection Co., Ltd. has been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: T-1837. Date of Registration: May 07, 2010. Valid time is until May 06, 2013.

### DNV

Shenzhen Huatongwei International Inspection Co., Ltd. has been found to comply with the requirements of DNV towards subcontractor of EMC and safety testing services in conjunction with the EMC and Low voltage Directives and in the voluntary field. The acceptance is based on a formal quality Audit and follow-ups according to relevant parts of ISO/IEC Guide 17025 (2005), in accordance with the requirements of the DNV Laboratory Quality Manual towards subcontractors. Valid time is until Aug. 24, 2013.

### 3.3. Environmental conditions

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

Temperature:	<u>15-35 ° C</u>
Humidity:	<u>30-60 %</u>
Atmospheric pressure:	<u>950-1050mbar</u>

### 3.4. Test Description

Emission Measurement		
Radiated Emission	47 CFR FCC Part 15 Subpart B Class B ANSI C63.4 2009	PASS
Conducted Disturbance	47 CFR FCC Part 15 Subpart B Class B ANSI C63.4 2009	PASS

Remark: The measurement uncertainty is not included in the test result.

### 3.5. Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 „Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen Huatongwei International Inspection Co., Ltd quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for Shenzhen Huatongwei laboratory is reported:

Test	Range	Measurement Uncertainty	Notes
Radiated Emission	30~1000MHz	4.24dB	(1)
Radiated Emission	1G~2G	5.16dB	(1)
Conducted Disturbance	0.15~30 MHz	3.39dB	(1)

(1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

**3.6. Equipments Used during the Test**

Radiated Emission					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	ULTRA-BROADBAND ANTENNA	Rohde & Schwarz	HL562	100015	2012/10/27
2	EMI TEST RECEIVER	Rohde & Schwarz	ESI 26	100009	2012/10/27
3	RF TEST PANEL	Rohde & Schwarz	TS / RSP	335015/ 0017	2012/10/27
4	TURNTABLE	ETS	2088	2149	2012/10/27
5	ANTENNA MAST	ETS	2075	2346	2012/10/27
6	EMI TEST SOFTWARE	Rohde & Schwarz	ESK1	N/A	2012/10/27
7	Double-Ridged-Waveguide Horn Antenna	Rohde & Schwarz	HF906	100039	2012/10/27
8	Semi-anechoic chamber	ETS-LINDGREN	AJ 593 HTW	N/A	2012/10/27

Conducted Disturbance					
Item	Test Equipment	Manufacturer	Model No.	Serial No.	Last Cal.
1	EMI Test Receiver	Rohde & Schwarz	ESCS30	100038	2012/10/27
2	Artificial Mains	Rohde & Schwarz	ESH2-Z5	100028	2012/10/27
3	Artificial Mains	Rohde & Schwarz	ESH3-Z5	100040	2012/10/27
4	Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100044	2012/10/27
5	EMI Test Software	Rohde & Schwarz	ESK1	N/A	2012/10/27
6	3# shielded room	ETS-LINDGREN	RFD-100	2406	N/A

The Cal.Interval was one year.



## **4. TEST CONDITIONS AND RESULTS**

### **4.1. Radiated Emission**

For test instruments and accessories used see section 3.6.

#### **4.1.1. Description of the test location**

Test location: Shielded room No. 4

#### **4.1.2. Limits of disturbance**

<b>Frequency (MHz)</b>	<b>Distance (Meters)</b>	<b>Field Strengths Limits (dB<math>\mu</math>V/m)</b>	
30 ~ 88	3	40	
88~216	3	43.5	
216 ~ 960	3	46	
960-1000	3	54	
1000-2000	3	74(PK)	54(AV)

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

(2) Distance refers to the distance in meters between the test instrument antenna and the closest point of any part of the E.U.T.

(3)The highest frequency of the internal sources of the EUT is 480MHz, so the measurement was made up to 2 GHz.

#### **4.1.3. Description of the test set-up**

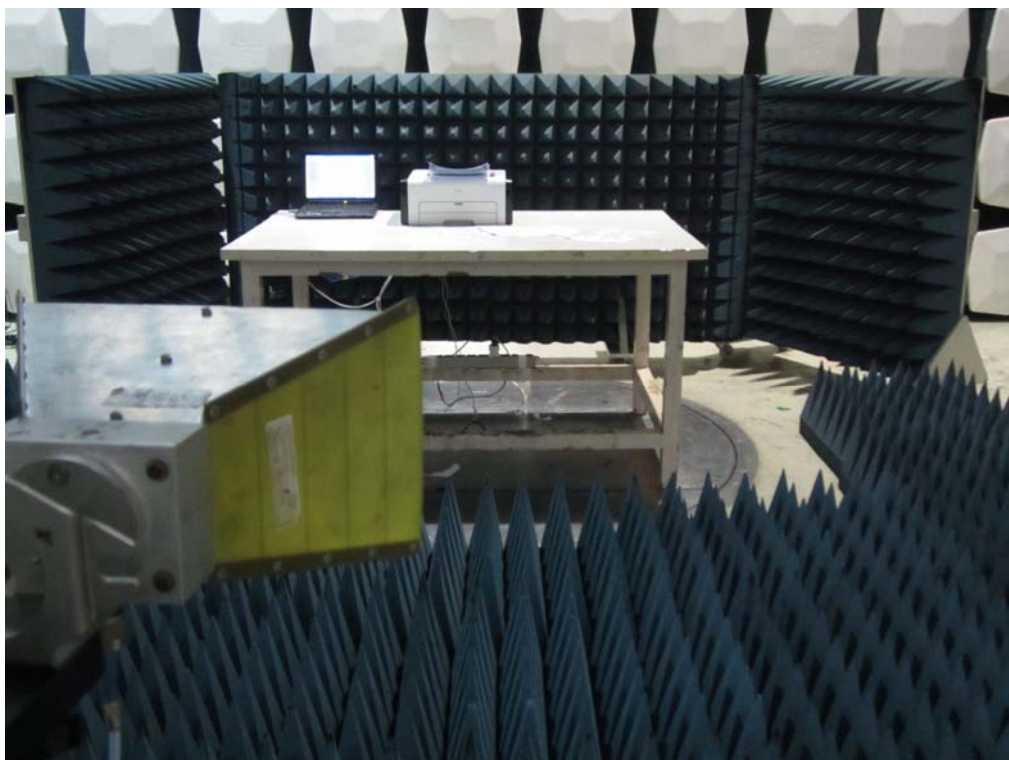
##### **4.1.3.1. Operating Condition**

The EUT is set to work that shall be carried out respectively Standby, USB Print, NIC Print modes during the test and the results of the maximum emanation are recorded.

##### **4.1.3.2. Test Configuration and Procedure**

Test is carried out in Semi-Anechoic Chamber. EUT is placed on a nonmetal table which is 0.8 meter above a grounded turntable. EUT is set 3 meters away from the center of receiving antenna. The turntable can rotate 360 degrees to determine the azimuth of the maximum emission level and then the antenna can move up and down from 1 to 4 meter to find out the maximum emission level. Both horizontal and vertical polarizations of the antenna are set on the test.

4.1.3.3. Photos of the test set-up



**4.1.4. Test result**

The requirements are **Fulfilled**

Band Width: 120 KHz

Frequency Range: 30MHz to 1000MHz

Band Width: 1MHz

Frequency Range: 1G-2G

The average measurement was not performed when the peak measured data under the limit of average detection.

**Remarks:** The limits are kept. For detailed results, please see the following page(s).

Margin=limit-level

Level=read value+transducer

Transducer=antenna factor+pre-amplifier factor+cable loss (with 6db attenuator)

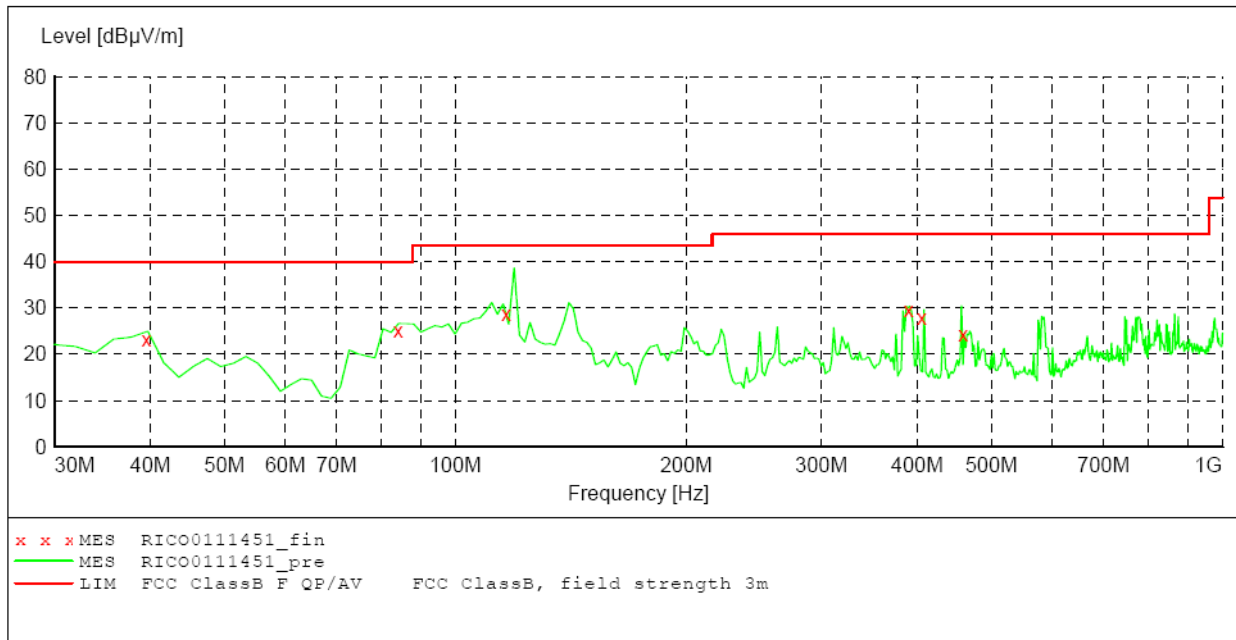
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO., LTD**

**RADIATED EMISSION TEST FCC PART15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: STANDBY  
 Test Site: 3M CHAMBER  
 Operator: MINGHUA.FAN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/11/2013 / 9:35:27PM

**SCAN TABLE: "test Field(30M-1G)QP"**

Short Description:		Field Strength(30M-1G)				
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
Frequency	Frequency	Width				
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 201106



**MEASUREMENT RESULT: "RICO0111451\_fin"**

1/11/2013 9:42PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
39.540000	23.30	-16.2	40.0	16.7	QP	100.0	54.00	VERTICAL
84.180000	26.40	-21.3	40.0	13.6	QP	150.0	286.00	VERTICAL
116.460000	27.60	-19.4	43.5	15.9	QP	99.0	188.00	VERTICAL
389.880000	29.50	-16.0	46.0	16.5	QP	99.0	110.00	VERTICAL
405.540000	27.50	-15.3	46.0	18.5	QP	151.0	217.00	VERTICAL
459.420000	23.10	-14.3	46.0	22.9	QP	99.0	329.00	VERTICAL

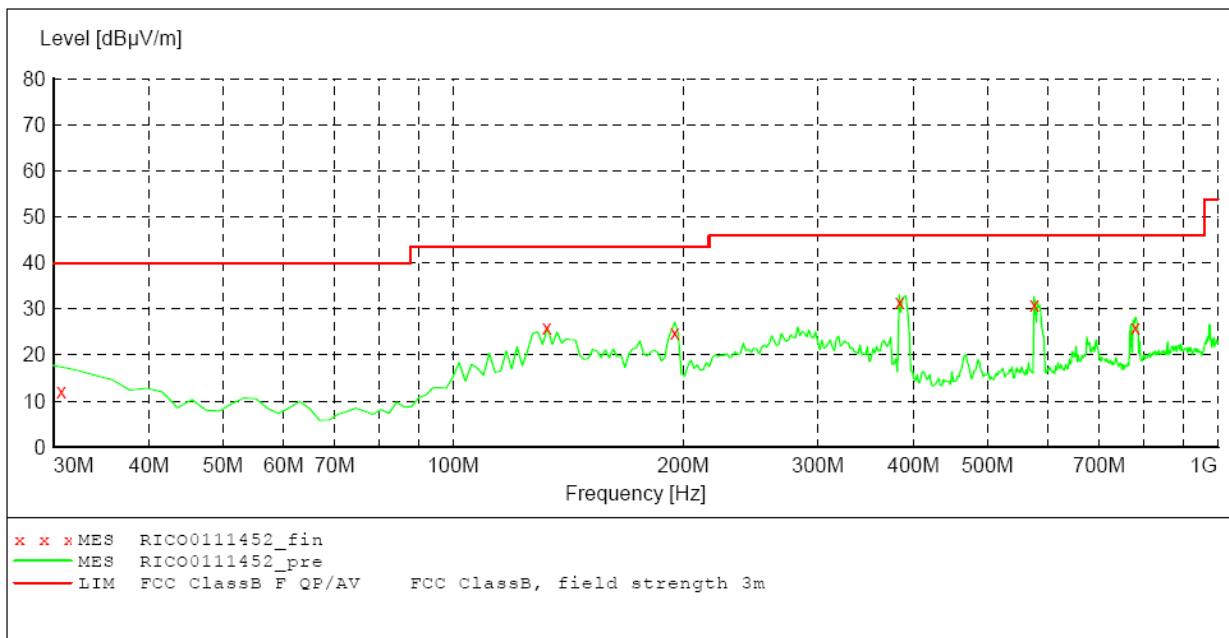
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: STANDBY  
 Test Site: 3M CHAMBER  
 Operator: MINGHUA.FAN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/11/2013 / 9:43:29PM

**SCAN TABLE: "test Field(30M-1G)QP"**

Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 201106



**MEASUREMENT RESULT: "RICO0111452\_fin"**

1/11/2013 9:55PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
30.720000	12.20	-11.5	40.0	27.8	QP	274.0	324.00	HORIZONTAL
132.660000	25.90	-20.7	43.5	17.6	QP	250.0	356.00	HORIZONTAL
194.880000	24.80	-21.9	43.5	18.7	QP	101.0	104.00	HORIZONTAL
383.880000	31.40	-16.5	46.0	14.6	QP	100.0	78.00	HORIZONTAL
575.700000	30.80	-13.9	46.0	15.2	QP	99.0	153.00	HORIZONTAL
780.300000	26.10	-9.3	46.0	19.9	QP	100.0	132.00	HORIZONTAL

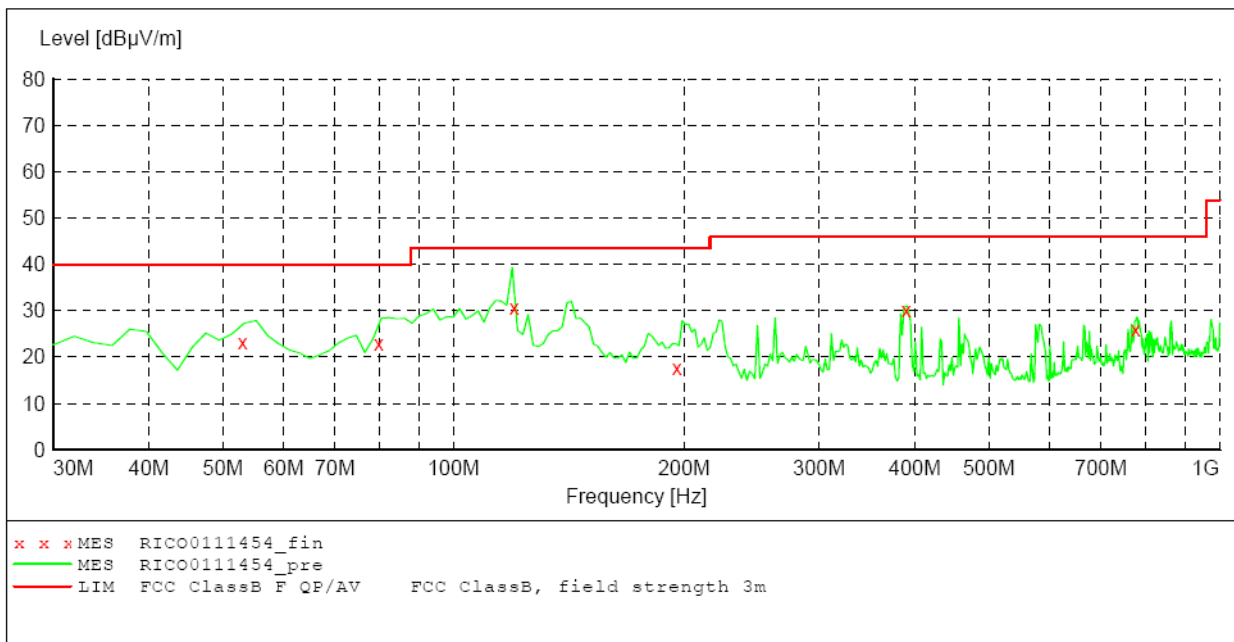
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: USB PRINT  
 Test Site: 3M CHAMBER  
 Operator: MINGHUA.FAN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/11/2013 / 10:05:40PM

**SCAN TABLE: "test Field(30M-1G)QP"**

Short Description:		Field Strength(30M-1G)				
Start	Stop	Step	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 201106



**MEASUREMENT RESULT: "RICO0111454\_fin"**

1/11/2013 10:15PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.040000	23.80	-23.2	40.0	16.2	QP	100.0	297.00	VERTICAL
79.860000	23.60	-22.3	40.0	16.4	QP	150.0	278.00	VERTICAL
120.000000	30.20	-19.2	43.5	13.3	QP	100.0	178.00	VERTICAL
195.780000	17.80	-21.8	43.5	25.7	QP	101.0	258.00	VERTICAL
389.820000	30.10	-16.0	46.0	15.9	QP	100.0	109.00	VERTICAL
776.760000	25.90	-9.5	46.0	20.1	QP	99.0	208.00	VERTICAL

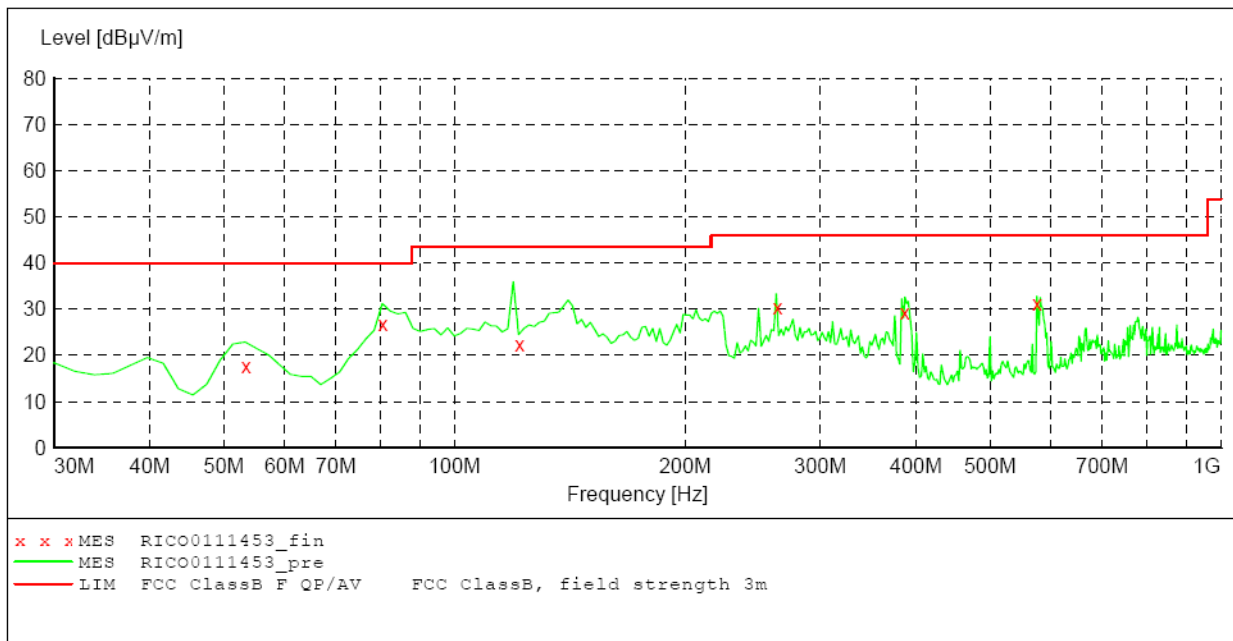
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: USB PRINT  
 Test Site: 3M CHAMBER  
 Operator: MINGHUA.FAN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/11/2013 / 9:56:19PM

**SCAN TABLE: "test Field(30M-1G)QP"**

Short Description:		Field Strength(30M-1G)				
Start Frequency	Stop Frequency	Step Width	Detector	Meas. Time	IF Bandw.	Transducer
30.0 MHz	1.0 GHz	60.0 kHz	QuasiPeak	1.0 s	120 kHz	HL562 201106



**MEASUREMENT RESULT: "RICO0111453\_fin"**

1/11/2013 10:14PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
53.460000	18.20	-23.3	40.0	21.8	QP	342.0	156.00	HORIZONTAL
80.640000	26.70	-22.2	40.0	13.3	QP	294.0	159.00	HORIZONTAL
121.680000	22.40	-19.3	43.5	21.1	QP	150.0	277.00	HORIZONTAL
264.060000	30.90	-18.2	46.0	15.1	QP	101.0	230.00	HORIZONTAL
387.180000	29.40	-16.2	46.0	16.6	QP	100.0	83.00	HORIZONTAL
575.760000	31.30	-13.9	46.0	14.7	QP	101.0	149.00	HORIZONTAL

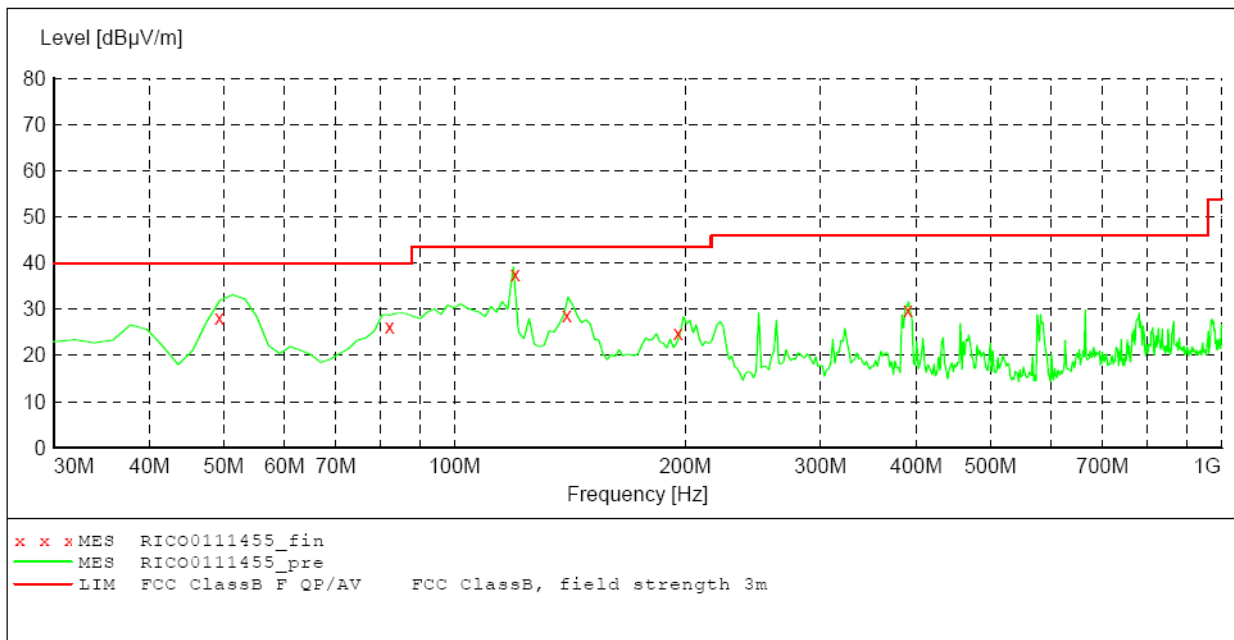
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: NIC PRINT  
 Test Site: 3M CHAMBER  
 Operator: MINGHUA.FAN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/11/2013 / 10:23:14PM

**SCAN TABLE: "test Field(30M-1G)OP"**

Short Description: Field Strength(30M-1G)  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 30.0 MHz 1.0 GHz 60.0 kHz QuasiPeak 1.0 s 120 kHz HL562 201106



**MEASUREMENT RESULT: "RICO0111455\_fin"**

1/11/2013 10:32PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
49.320000	27.00	-21.9	40.0	13.0	QP	150.0	296.00	VERTICAL
82.260000	25.80	-21.8	40.0	14.2	QP	100.0	325.00	VERTICAL
120.000000	37.70	-19.2	43.5	5.8	QP	101.0	200.00	VERTICAL
140.100000	29.20	-21.5	43.5	14.3	QP	150.0	251.00	VERTICAL
195.780000	25.70	-21.8	43.5	17.8	QP	99.0	257.00	VERTICAL
390.180000	29.80	-15.9	46.0	16.2	QP	99.0	101.00	VERTICAL



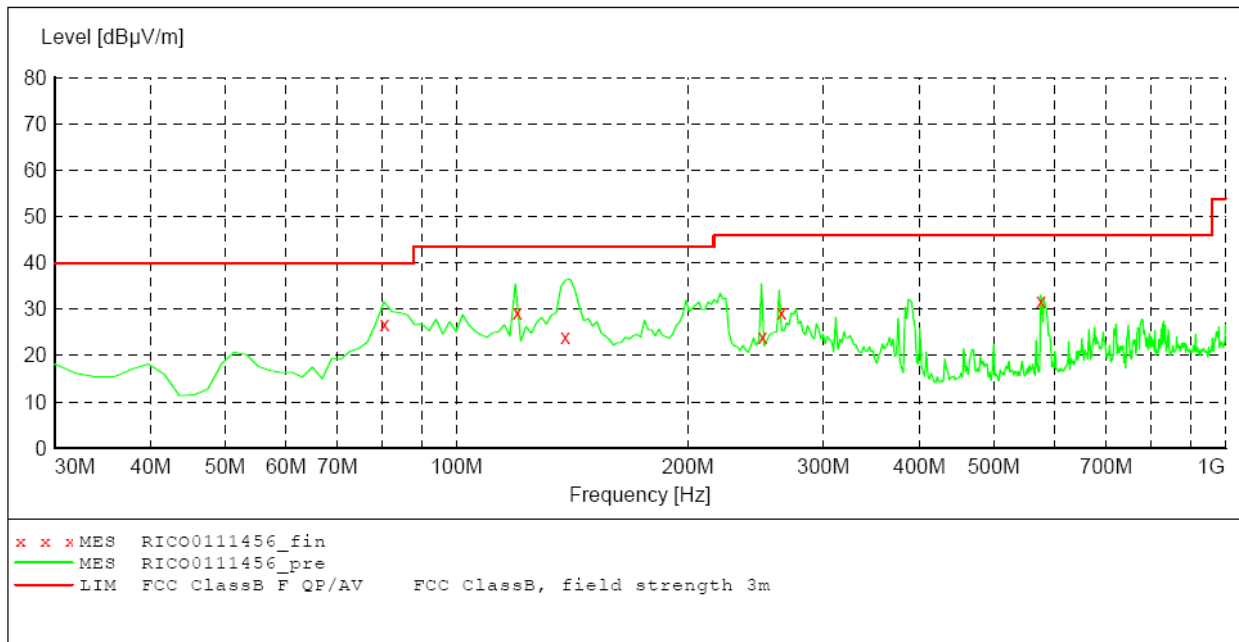
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: NIC PRINT  
 Test Site: 3M CHAMBER  
 Operator: MINGHUA.FAN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/11/2013 / 10:32:29PM

**SCAN TABLE: "test Field(30M-1G)OP"**

Short Description: Field Strength(30M-1G)  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 30.0 MHz 1.0 GHz 60.0 kHz QuasiPeak 1.0 s 120 kHz HL562 201106



**MEASUREMENT RESULT: "RICO0111456\_fin"**

1/11/2013 10:42PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
80.640000	26.80	-22.2	40.0	13.2	QP	295.0	172.00	HORIZONTAL
120.060000	29.20	-19.2	43.5	14.3	QP	139.0	255.00	HORIZONTAL
138.540000	24.10	-21.4	43.5	19.4	QP	250.0	355.00	HORIZONTAL
250.020000	24.00	-18.6	46.0	22.0	QP	100.0	185.00	HORIZONTAL
264.900000	29.20	-18.2	46.0	16.8	QP	100.0	247.00	HORIZONTAL
575.760000	31.80	-13.9	46.0	14.2	QP	100.0	143.00	HORIZONTAL

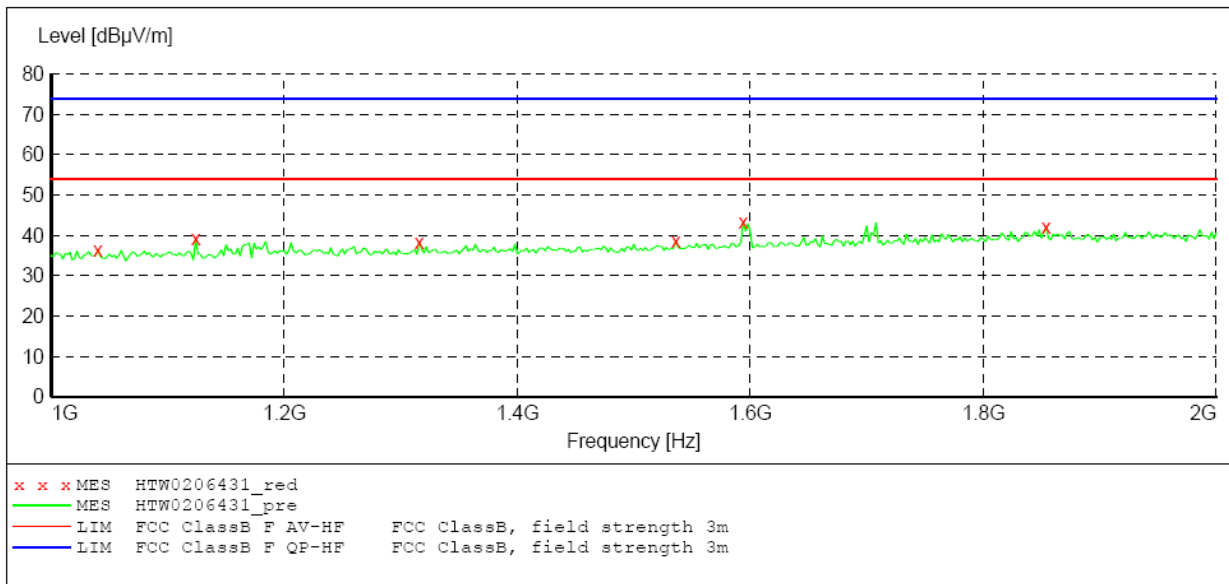
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART 15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: STANDBY  
 Test Site: 3M CHAMBER  
 Operator: CHEN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 2/6/2013 / 12:22:52PM

**SWEEP TABLE: "test (1G-18G) P"**

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	HF906 2011



**MEASUREMENT RESULT: "HTW0206431\_red"**

2/6/2013 12:24PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1040.000000	36.50	-12.1	54.0	17.5	PK	100.0	247.00	VERTICAL
1124.000000	39.30	-11.6	54.0	14.7	PK	100.0	356.00	VERTICAL
1316.000000	38.30	-10.8	54.0	15.7	PK	100.0	247.00	VERTICAL
1536.000000	38.60	-9.8	54.0	15.4	PK	100.0	117.00	VERTICAL
1594.000000	43.30	-9.3	54.0	10.7	PK	100.0	253.00	VERTICAL
1854.000000	42.10	-7.5	54.0	11.9	PK	100.0	124.00	VERTICAL

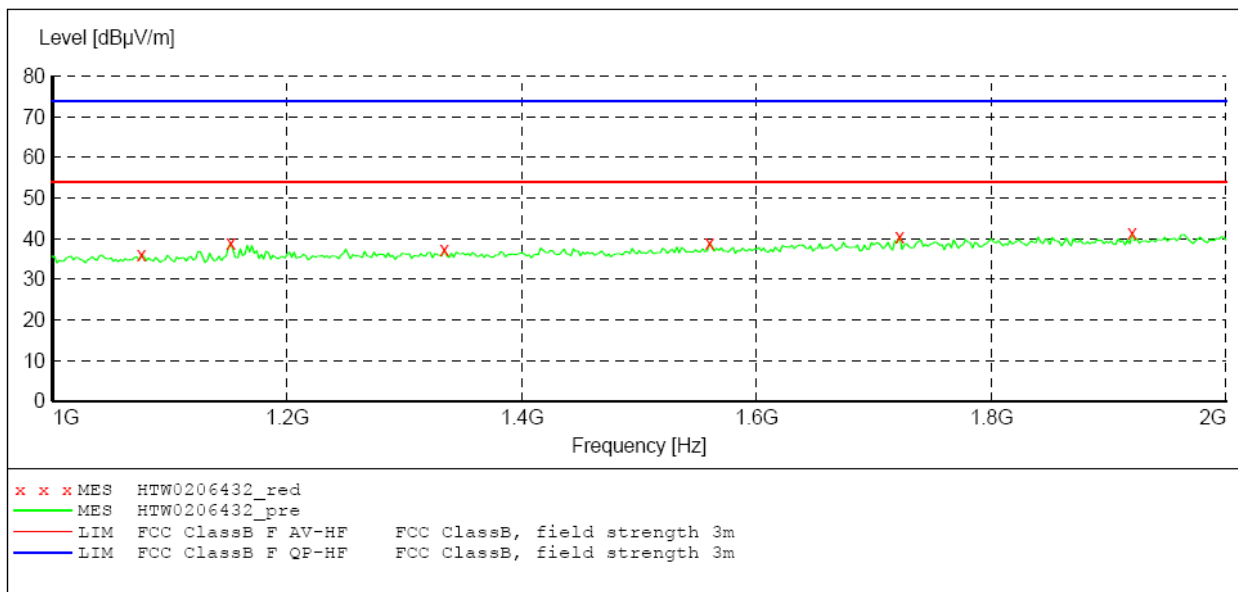
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART 15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: STANDBY  
 Test Site: 3M CHAMBER  
 Operator: CHEN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 2/6/2013 / 12:24:29PM

**SWEEP TABLE: "test (1G-18G) P"**

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	HF906 2011



**MEASUREMENT RESULT: "HTW0206432\_red"**

2/6/2013 12:25PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1076.000000	36.00	-11.9	54.0	18.0	PK	100.0	104.00	HORIZONTAL
1152.000000	38.90	-11.5	54.0	15.1	PK	100.0	125.00	HORIZONTAL
1334.000000	37.40	-10.7	54.0	16.6	PK	100.0	76.00	HORIZONTAL
1560.000000	39.00	-9.6	54.0	15.0	PK	100.0	213.00	HORIZONTAL
1722.000000	40.60	-8.4	54.0	13.4	PK	100.0	355.00	HORIZONTAL
1920.000000	41.40	-7.1	54.0	12.6	PK	100.0	10.00	HORIZONTAL

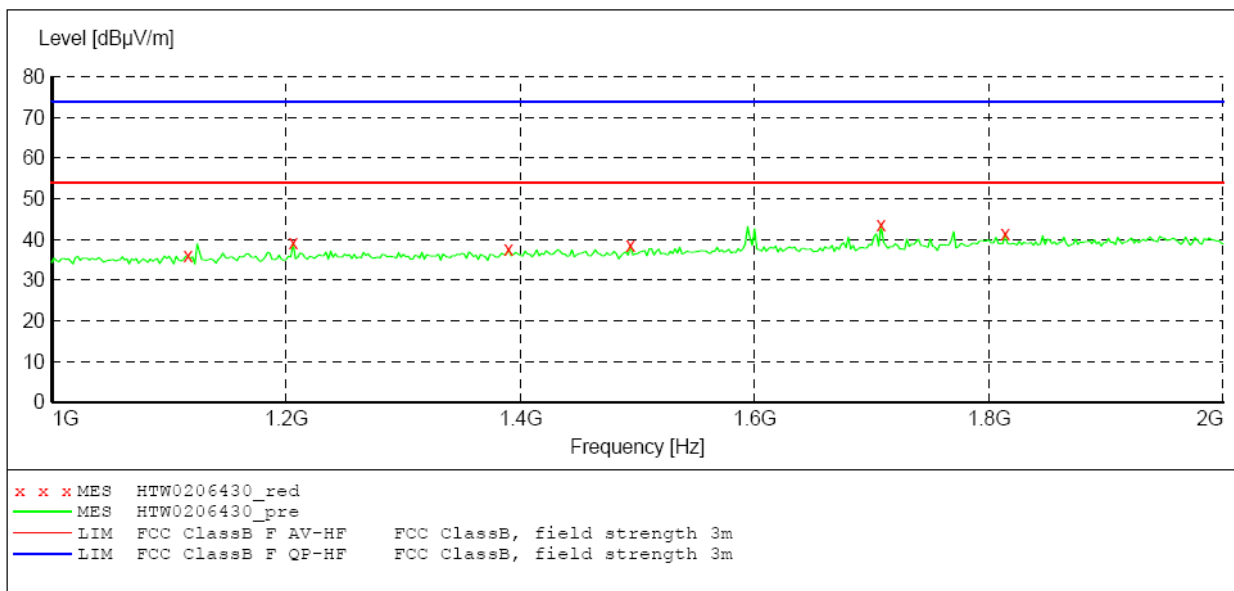
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD**

**RADIATED EMISSION TEST FCC PART 15 CLASSB**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: USB PRINT  
 Test Site: 3M CHAMBER  
 Operator: CHEN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 2/6/2013 / 12:21:07PM

**SWEEP TABLE: "test (1G-18G) P"**

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	HF906 2011



**MEASUREMENT RESULT: "HTW0206430\_red"**

2/6/2013 12:22PM

Frequency MHz	Level dBuV/m	Transd dB	Limit dBuV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1116.000000	36.10	-11.7	54.0	17.9	PK	100.0	287.00	VERTICAL
1206.000000	39.20	-11.3	54.0	14.8	PK	100.0	302.00	VERTICAL
1390.000000	37.60	-10.5	54.0	16.4	PK	100.0	22.00	VERTICAL
1494.000000	38.50	-10.1	54.0	15.5	PK	100.0	247.00	VERTICAL
1708.000000	43.80	-8.5	54.0	10.2	PK	100.0	9.00	VERTICAL
1814.000000	41.60	-7.8	54.0	12.4	PK	100.0	193.00	VERTICAL

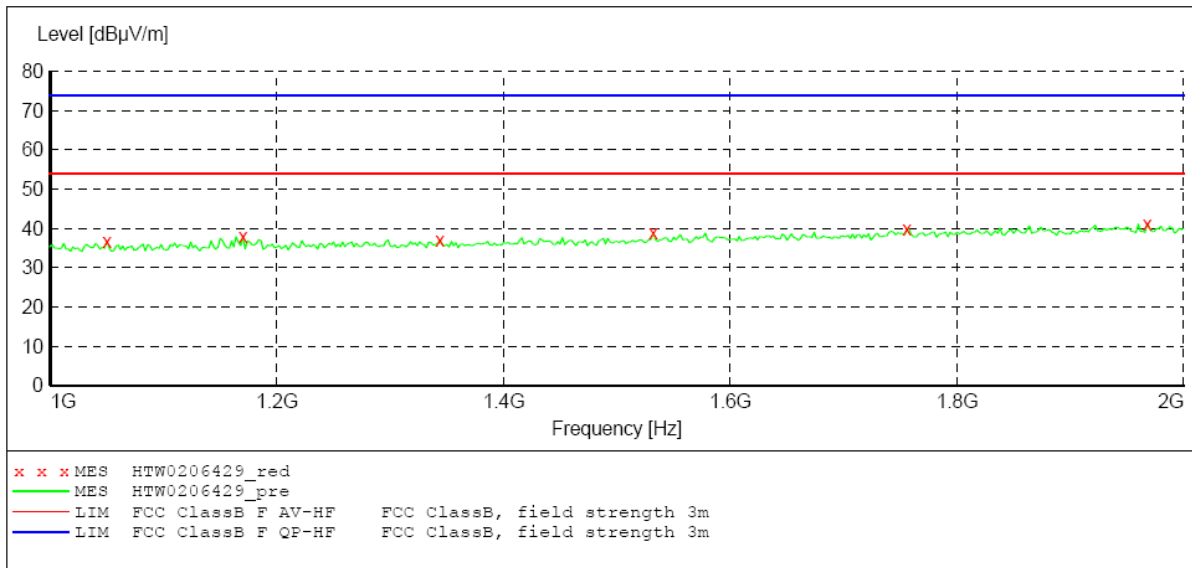
SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD

RADIATED EMISSION TEST FCC PART 15 CLASSB

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: USB PRINT  
 Test Site: 3M CHAMBER  
 Operator: CHEN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 2/6/2013 / 12:18:55PM

SWEEP TABLE: "test (1G-18G) P"

Short Description:		Field Strength			
Start	Stop	Detector	Meas. Time	IF Bandw.	Transducer
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	HF906 2011



MEASUREMENT RESULT: "HTW0206429\_red"

2/6/2013 12:20PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1050.000000	36.80	-12.0	54.0	17.2	PK	100.0	111.00	HORIZONTAL
1170.000000	37.90	-11.4	54.0	16.1	PK	100.0	97.00	HORIZONTAL
1344.000000	37.10	-10.7	54.0	16.9	PK	100.0	10.00	HORIZONTAL
1532.000000	38.90	-9.8	54.0	15.1	PK	100.0	335.00	HORIZONTAL
1756.000000	40.00	-8.2	54.0	14.0	PK	100.0	0.00	HORIZONTAL
1968.000000	41.30	-6.8	54.0	12.7	PK	100.0	302.00	HORIZONTAL

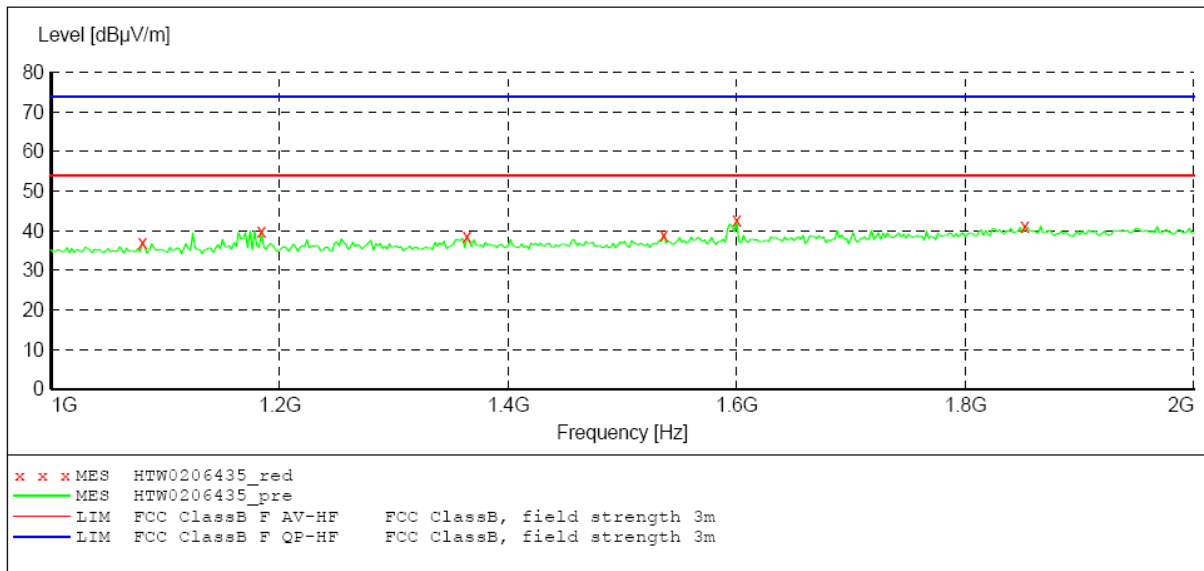
SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO.,LTD

RADIATED EMISSION TEST FCC PART 15 CLASSB

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: NIC PRINT  
 Test Site: 3M CHAMBER  
 Operator: CHEN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 2/6/2013 / 12:34:53PM

SWEEP TABLE: "test (1G-18G) P"

Short Description: Field Strength  
 Start Stop Detector Meas. IF Transducer  
 Frequency Frequency Time Bandw.  
 1.0 GHz 3.0 GHz MaxPeak Coupled 1 MHz HF906 2011



MEASUREMENT RESULT: "HTW0206435\_red"

2/6/2013 12:36PM

Frequency MHz	Level dBµV/m	Transd dB	Limit dBµV/m	Margin dB	Det.	Height cm	Azimuth deg	Polarization
1080.000000	37.10	-11.9	54.0	16.9	PK	100.0	349.00	VERTICAL
1184.000000	40.00	-11.4	54.0	14.0	PK	100.0	302.00	VERTICAL
1364.000000	38.50	-10.6	54.0	15.5	PK	100.0	282.00	VERTICAL
1536.000000	38.90	-9.8	54.0	15.1	PK	100.0	302.00	VERTICAL
1600.000000	42.60	-9.3	54.0	11.4	PK	100.0	261.00	VERTICAL
1852.000000	41.30	-7.5	54.0	12.7	PK	100.0	138.00	VERTICAL

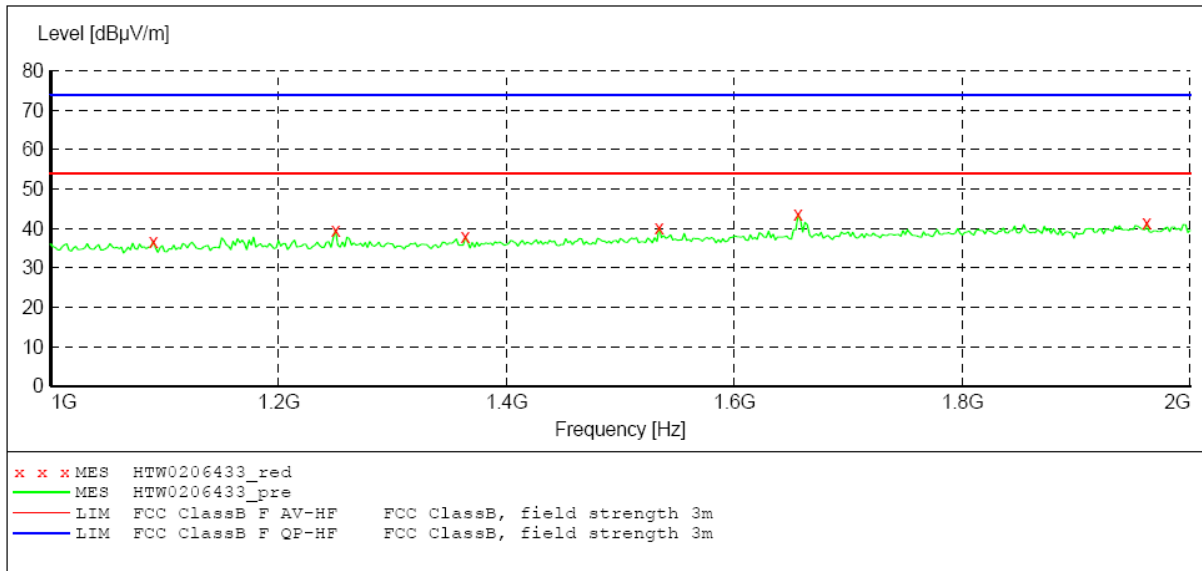
**SHENZHEN HUATONGWEI INTERNATIONAL INSPECTION CO., LTD**

**RADIATED EMISSION TEST FCC PART 15 CLASS B**

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: NIC PRINT  
 Test Site: 3M CHAMBER  
 Operator: CHEN  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 2/6/2013 / 12:26:47PM

**SWEEP TABLE: "test (1G-18G) P"**

Short Description:		Field Strength			
Start	Stop	Detector	Meas.	IF	Transducer
Frequency	Frequency		Time	Bandw.	
1.0 GHz	3.0 GHz	MaxPeak	Coupled	1 MHz	HF906 2011



**MEASUREMENT RESULT: "HTW0206433\_red"**

2/6/2013 12:28PM

Frequency	Level	Transd	Limit	Margin	Det.	Height	Azimuth	Polarization
MHz	dBµV/m	dB	dBµV/m	dB		cm	deg	
1090.000000	36.80	-11.8	54.0	17.2	PK	100.0	219.00	HORIZONTAL
1250.000000	39.70	-11.1	54.0	14.3	PK	100.0	178.00	HORIZONTAL
1364.000000	37.90	-10.6	54.0	16.1	PK	100.0	274.00	HORIZONTAL
1534.000000	40.30	-9.8	54.0	13.7	PK	100.0	158.00	HORIZONTAL
1656.000000	43.70	-8.9	54.0	10.3	PK	100.0	131.00	HORIZONTAL
1962.000000	41.40	-6.8	54.0	12.6	PK	100.0	29.00	HORIZONTAL

## 4.2. Conducted Disturbance

For test instruments and accessories used see section 3.6.

### 4.2.1. Description of the test location

Test location: Shielded room No. 3

### 4.2.2. Limits of disturbance

Limit of Conducted Disturbance at Mains Ports (Class B)

Frequency Range (MHz)	Limits (dBuV)	
	Quasi-Peak	Average
0.150~0.500	66~56	56~46
0.500~5.000	56	46
5.000~30.000	60	50

Note: (1) The tighter limit shall apply at the edge between two frequency bands.

### 4.2.3. Description of the test set-up

#### 4.2.3.1. Operating Condition

The EUT is set to work that shall be carried out respectively Standby, USB Print, NIC Print modes during the test and the results of the maximum emanation are recorded.

#### 4.2.3.2. Test Procedure

EUT is placed on a nonmetal table 0.8 meter above the grounded reference plane. The power line of the EUT is connected to the LISN which is connected to receiver by coaxial line, and then disturbance signals of the neutral line and live line can be detected by the receiver.

#### 4.2.3.3. Photos of the test set-up





#### 4.2.4. Test result

The requirements are **Fulfilled**

Band Width: 9 KHz

Frequency Range: 150 KHz to 30MHz

**Remarks:** The limits are kept. For detailed results, please see the following page(s).

---

Margin=limit-level

Level=read valus+transducer

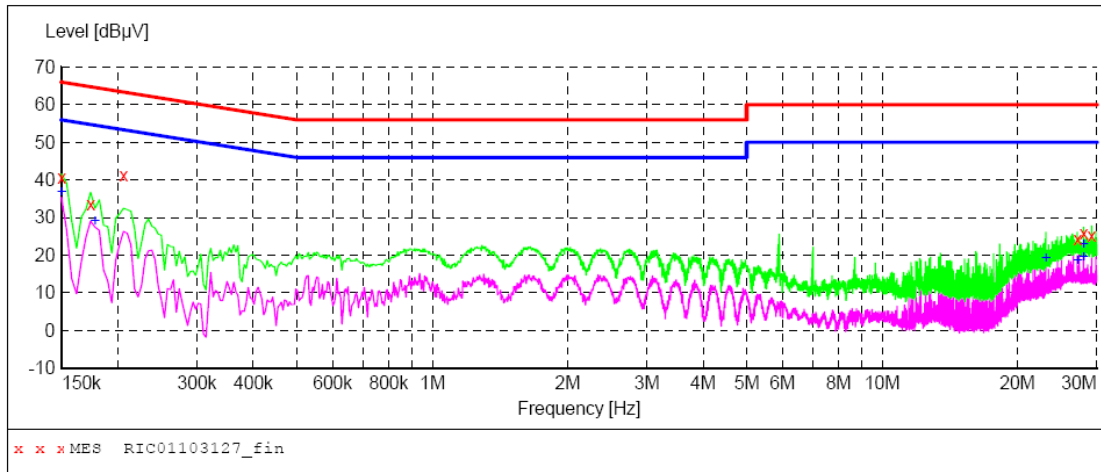
Transducer=insertion loss of LISN+cable loss+insertion loss of pulse limiter

Shenzhen Huatongwei International Inspection CO.,Ltd

Voltage Mains Test FCC PART 15 CLASS B

EUT: SP 201N
Manufacturer: RICOH
Operating Condition: STANDBY
Test Site: 3# SHIELDED ROOM
Operator: tim
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 1/14/2013 / 3:39:10PM

SCAN TABLE: "Voltage (150K-30M) FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "RIC01103127\_fin"

2/1/2013 3:34PM

Table with 8 columns: Frequency MHz, Level dBuV, Transd dB, Limit dBuV, Margin dB, Detector, Line, PE. It lists measurement data points for frequencies from 0.150000 to 29.234000 MHz.

MEASUREMENT RESULT: "RIC01103127\_fin2"

2/1/2013 3:34PM

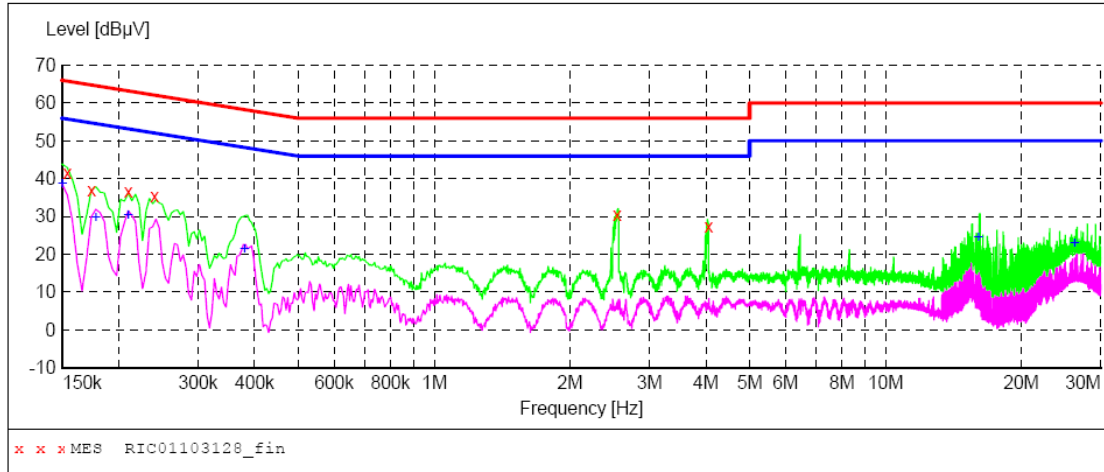
Table with 8 columns: Frequency MHz, Level dBuV, Transd dB, Limit dBuV, Margin dB, Detector, Line, PE. It lists measurement data points for frequencies from 0.150000 to 28.024000 MHz.

Shenzhen Huatongwei International Inspection CO.,Ltd

Voltage Mains Test FCC PART 15 CLASS B

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: STANDBY  
 Test Site: 3# SHIELDED ROOM  
 Operator: tim  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/14/2013 / 3:42:46PM

SCAN TABLE: "Voltage (150K-30M) FIN"  
 Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "RIC01103128\_fin"

1/14/2013 4:08PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	41.50	10.2	66	24.5	QP	N	GND
0.174000	36.80	10.2	65	28.2	QP	N	GND
0.210000	36.50	10.2	63	26.5	QP	N	GND
0.240000	35.50	10.2	63	27.5	QP	N	GND
2.542000	30.50	10.4	56	25.5	QP	N	GND
4.054000	27.50	10.4	56	28.5	QP	N	GND

MEASUREMENT RESULT: "RIC01103128\_fin2"

1/14/2013 4:10PM

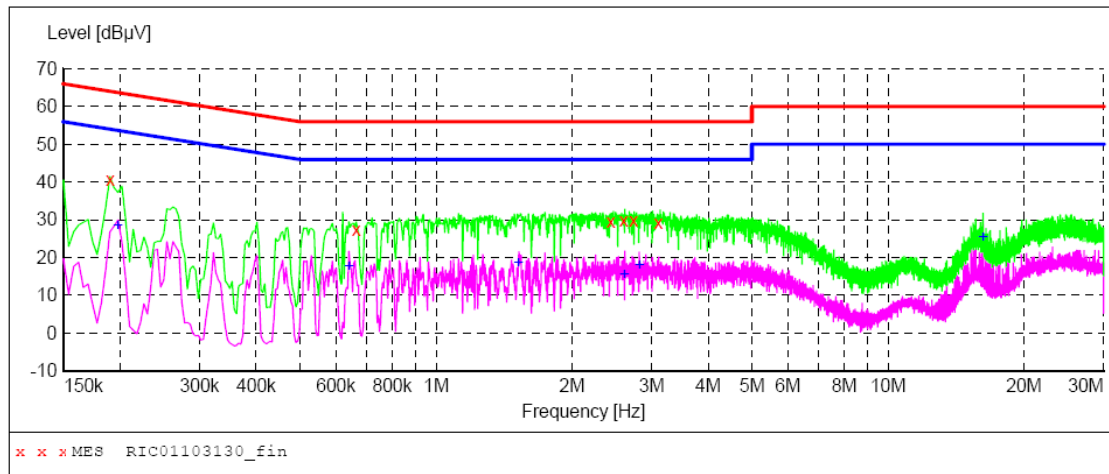
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	38.70	10.2	56	17.3	AV	N	GND
0.178000	29.70	10.2	56	26.3	AV	N	GND
0.210000	30.40	10.2	53	22.6	AV	N	GND
0.380000	21.40	10.2	53	31.6	AV	N	GND
16.066000	24.60	10.7	50	25.4	AV	N	GND
26.230000	23.00	10.7	50	27.0	AV	N	GND

Shenzhen Huatongwei International Inspection CO.,Ltd

Voltage Mains Test FCC PART 15 CLASS B

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: USB PRINT  
 Test Site: 3# SHIELDED ROOM  
 Operator: tim  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/14/2013 / 3:54:39PM

SCAN TABLE: "Voltage (150K-30M) FIN"  
 Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "RIC01103130\_fin"

1/14/2013 3:57PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.190000	40.60	10.2	64	23.4	QP	L1	GND
0.666000	27.40	10.2	56	28.6	QP	L1	GND
2.434000	29.50	10.4	56	26.5	QP	L1	GND
2.598000	29.70	10.4	56	26.3	QP	L1	GND
2.734000	29.70	10.4	56	26.3	QP	L1	GND
3.102000	29.30	10.4	56	26.7	QP	L1	GND

MEASUREMENT RESULT: "RIC01103130\_fin2"

1/14/2013 3:57PM

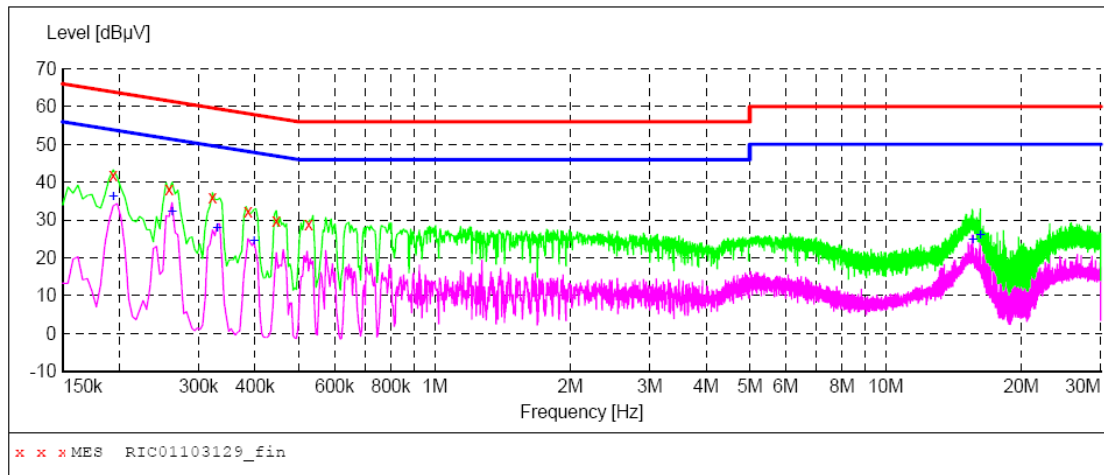
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.198000	28.70	10.2	54	25.0	AV	L1	GND
0.642000	17.90	10.2	46	28.1	AV	L1	GND
1.522000	18.70	10.3	46	27.3	AV	L1	GND
2.610000	15.70	10.4	46	30.3	AV	L1	GND
2.818000	18.10	10.4	46	27.9	AV	L1	GND
16.226000	25.50	10.7	50	24.5	AV	L1	GND

Shenzhen Huatongwei International Inspection CO.,Ltd

Voltage Mains Test FCC PART 15 CLASS B

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: USB PRINT  
 Test Site: 3# SHIELDED ROOM  
 Operator: tim  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/14/2013 / 3:50:49PM

SCAN TABLE: "Voltage (150K-30M) FIN"  
 Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "RIC01103129\_fin"

1/14/2013 3:53PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.194000	41.70	10.2	64	22.3	QP	N	GND
0.258000	38.30	10.2	62	23.7	QP	N	GND
0.322000	36.10	10.2	60	23.9	QP	N	GND
0.386000	32.20	10.2	58	25.8	QP	N	GND
0.446000	29.70	10.2	57	27.3	QP	N	GND
0.526000	29.00	10.2	56	27.0	QP	N	GND

MEASUREMENT RESULT: "RIC01103129\_fin2"

1/14/2013 3:53PM

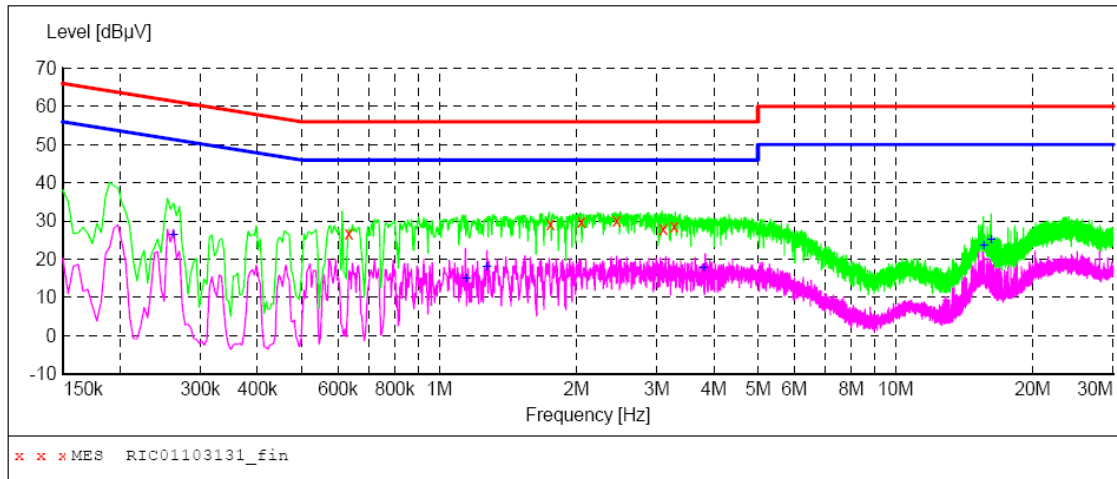
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.194000	36.20	10.2	54	17.8	AV	N	GND
0.262000	32.20	10.2	51	19.8	AV	N	GND
0.330000	28.10	10.2	50	21.9	AV	N	GND
0.398000	24.50	10.2	48	23.5	AV	N	GND
15.618000	25.00	10.7	50	25.0	AV	N	GND
16.226000	26.00	10.7	50	24.0	AV	N	GND

Shenzhen Huatongwei International Inspection CO.,Ltd

Voltage Mains Test FCC PART 15 CLASS B

EUT: SP 201N
Manufacturer: RICOH
Operating Condition: NIC PRINT
Test Site: 3# SHIELDED ROOM
Operator: tim
Test Specification: AC 120V/60Hz
Comment:
Start of Test: 1/14/2013 / 3:59:33PM

SCAN TABLE: "Voltage (150K-30M) FIN"
Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "RIC01103131\_fin"

1/14/2013 4:02PM

Table with 9 columns: Frequency MHz, Level dBµV, Transd dB, Limit dBµV, Margin dB, Detector, Line, PE. Contains 7 rows of measurement data.

MEASUREMENT RESULT: "RIC01103131\_fin2"

1/14/2013 4:02PM

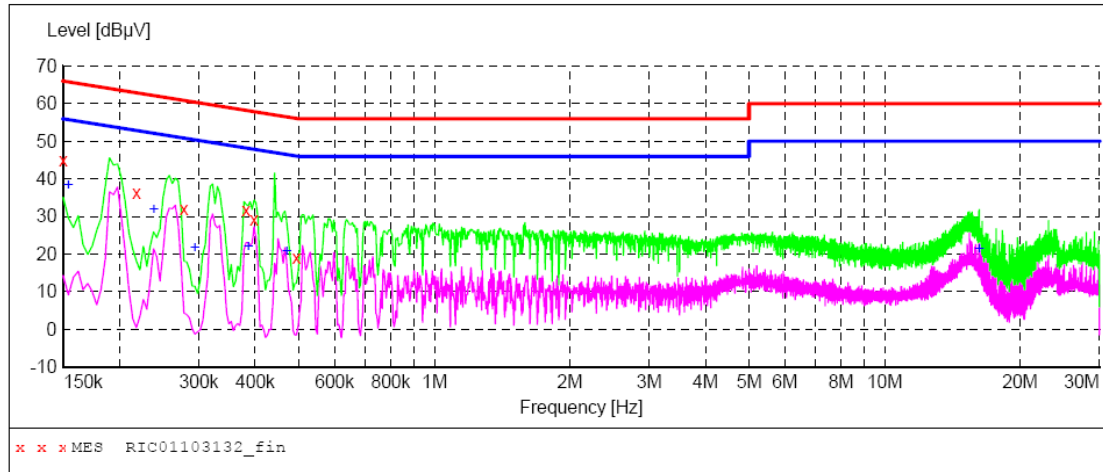
Table with 9 columns: Frequency MHz, Level dBµV, Transd dB, Limit dBµV, Margin dB, Detector, Line, PE. Contains 7 rows of measurement data.

Shenzhen Huatongwei International Inspection CO.,Ltd

Voltage Mains Test FCC PART 15 CLASS B

EUT: SP 201N  
 Manufacturer: RICOH  
 Operating Condition: NIC PRINT  
 Test Site: 3# SHIELDED ROOM  
 Operator: tim  
 Test Specification: AC 120V/60Hz  
 Comment:  
 Start of Test: 1/14/2013 / 4:02:53PM

SCAN TABLE: "Voltage (150K-30M) FIN"  
 Short Description: 150K-30M Voltage



MEASUREMENT RESULT: "RIC01103132\_fin"

1/14/2013 4:05PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.150000	44.90	10.2	66	21.1	QP	N	GND
0.218000	36.30	10.2	63	26.7	QP	N	GND
0.278000	32.00	10.2	61	29.0	QP	N	GND
0.382000	31.60	10.2	58	26.4	QP	N	GND
0.398000	29.30	10.2	58	28.7	QP	N	GND
0.494000	19.10	10.2	56	36.9	QP	N	GND

MEASUREMENT RESULT: "RIC01103132\_fin2"

1/14/2013 4:05PM

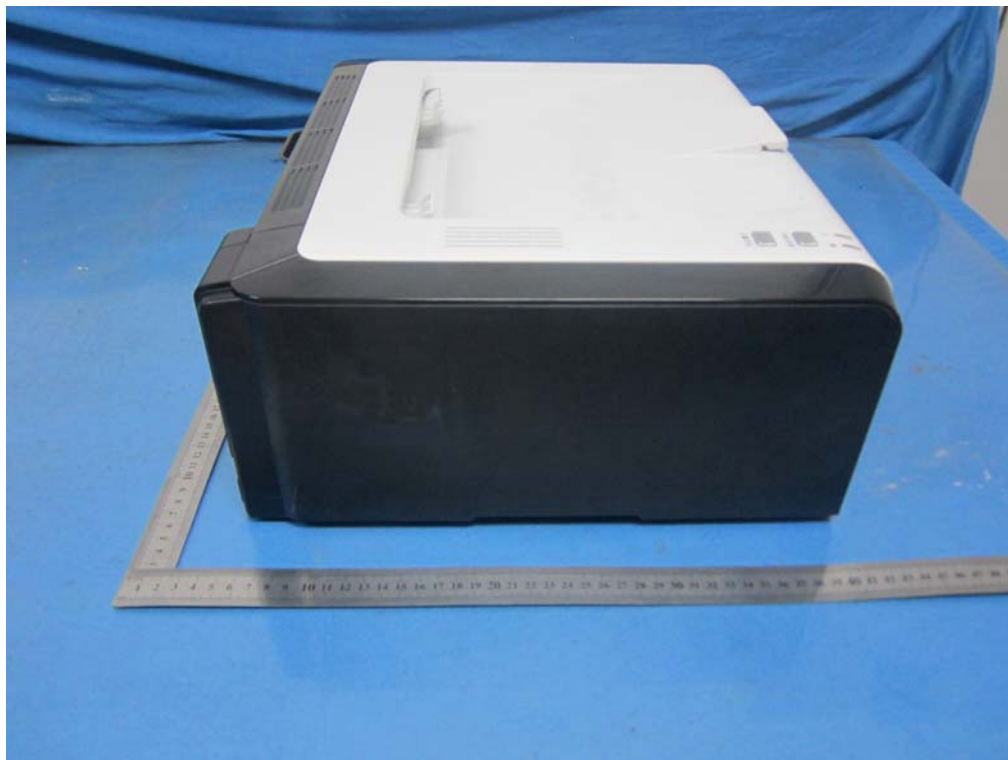
Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.154000	38.60	10.2	56	17.4	AV	N	GND
0.238000	32.10	10.2	52	19.9	AV	N	GND
0.294000	21.90	10.2	50	28.1	AV	N	GND
0.386000	22.10	10.2	48	25.9	AV	N	GND
0.470000	21.80	10.2	47	25.2	AV	N	GND
16.226000	21.40	10.7	50	28.6	AV	N	GND

## 5. External and Internal Photos of the EUT

### 5.1. External photos of the EUT



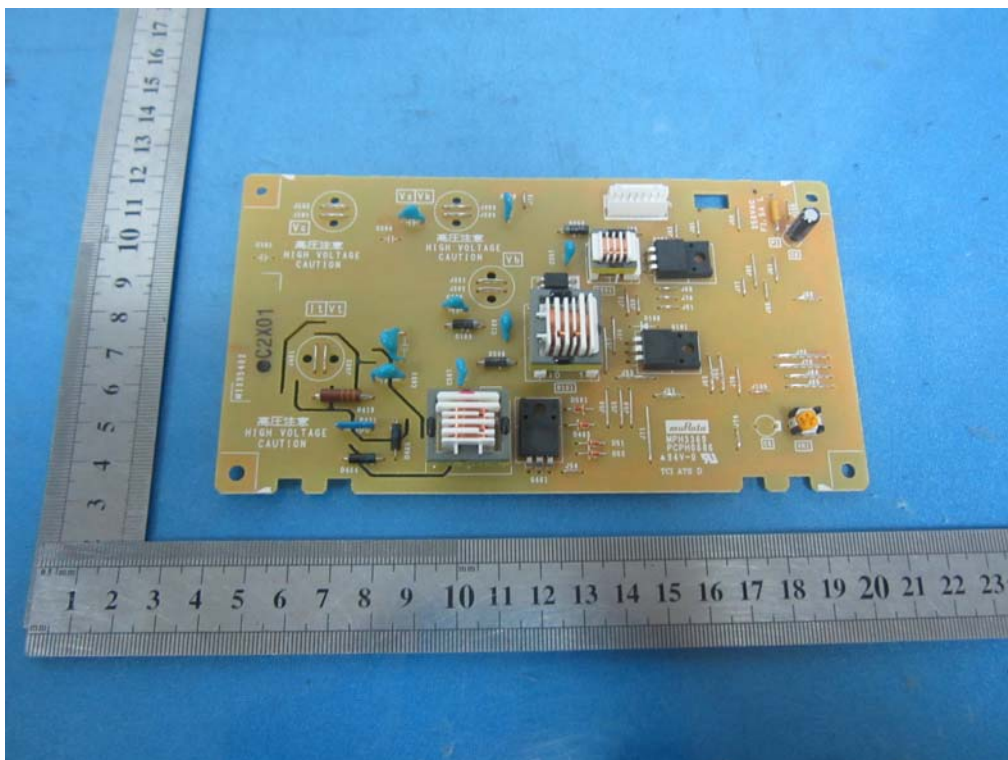
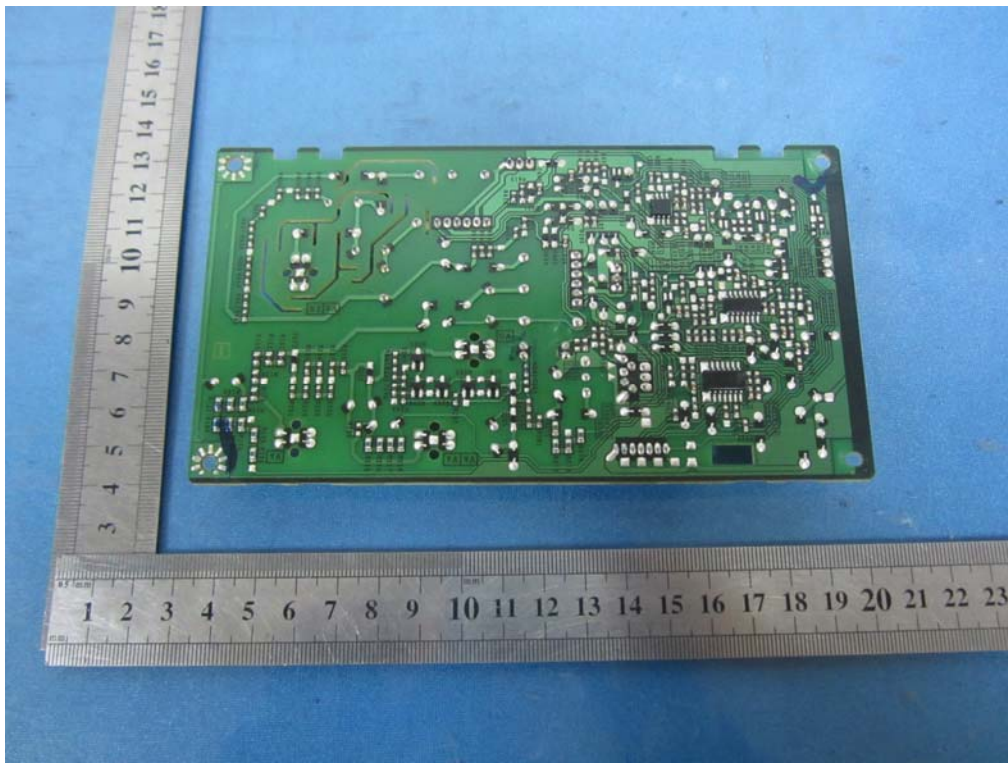


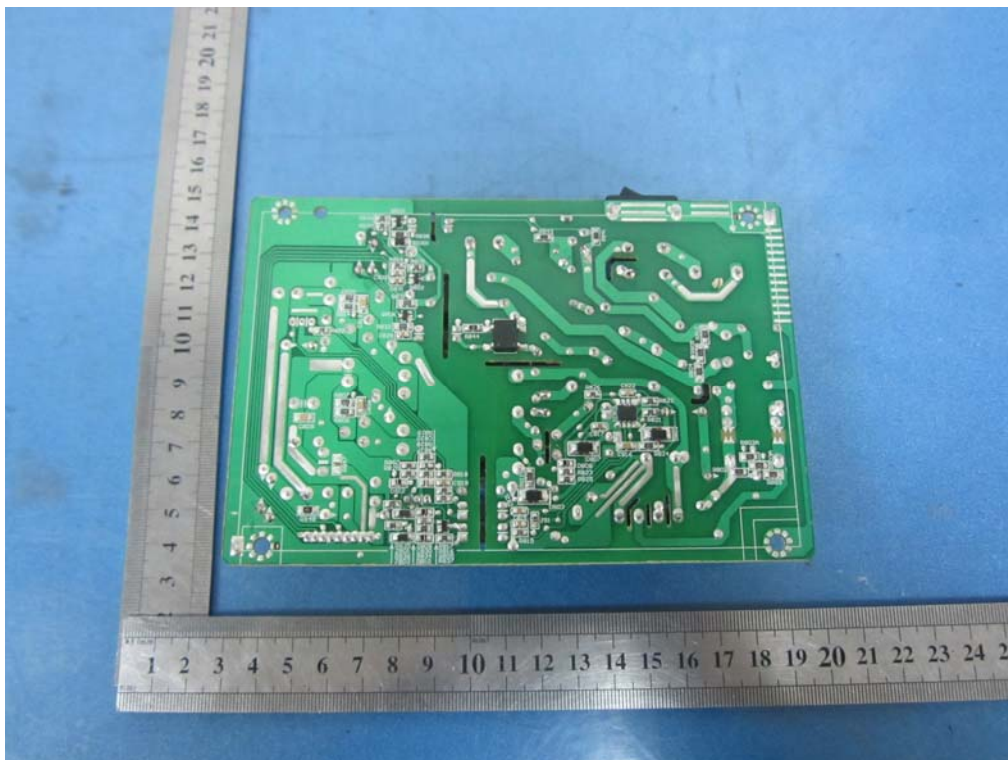


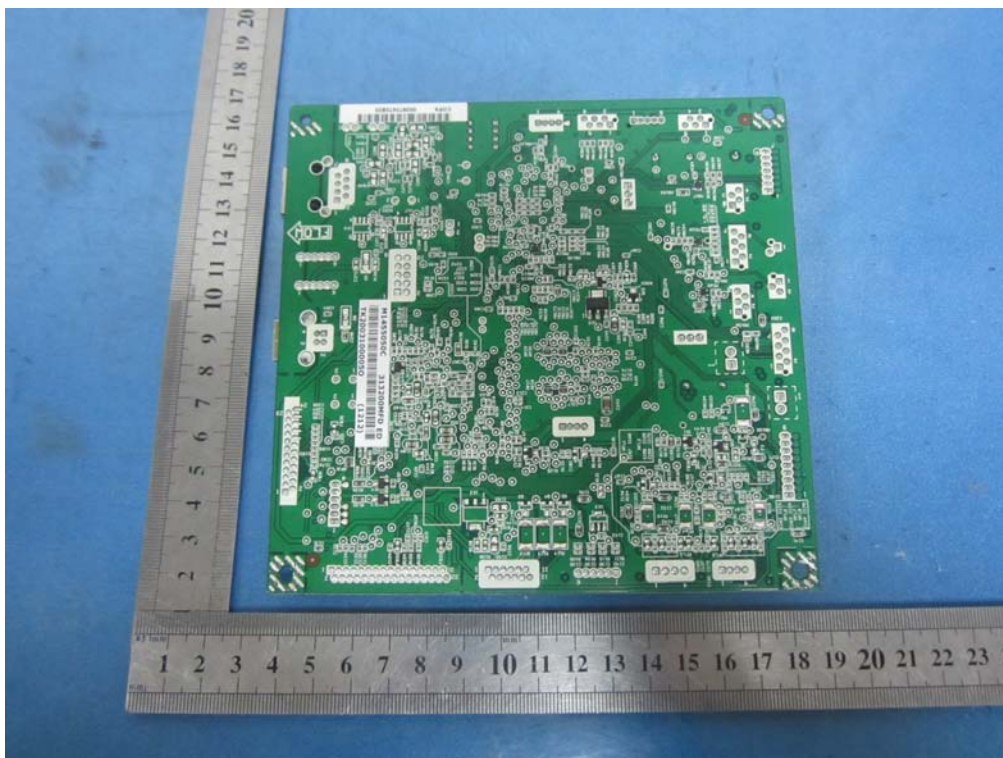


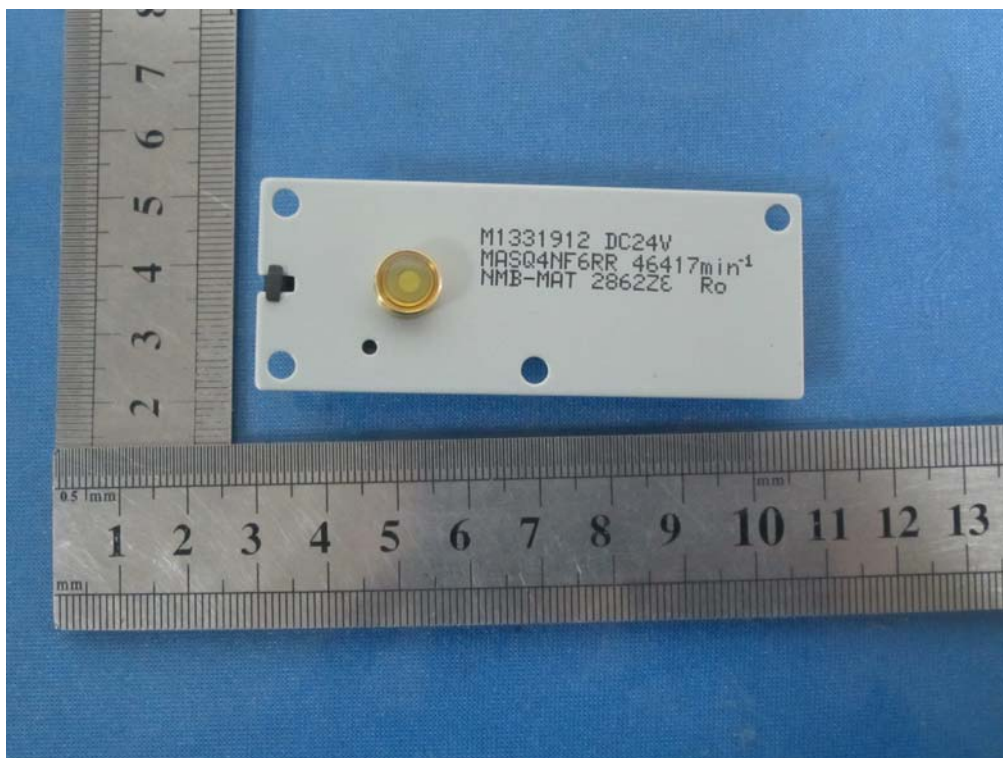
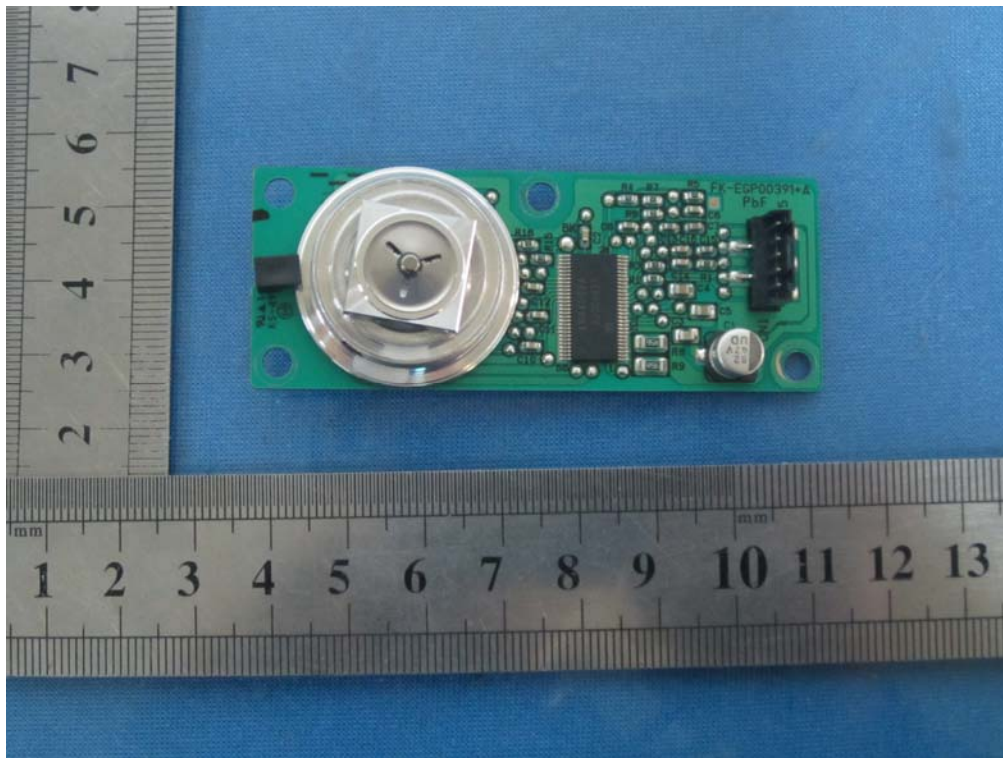
## 5.2. Internal photos of the EUT

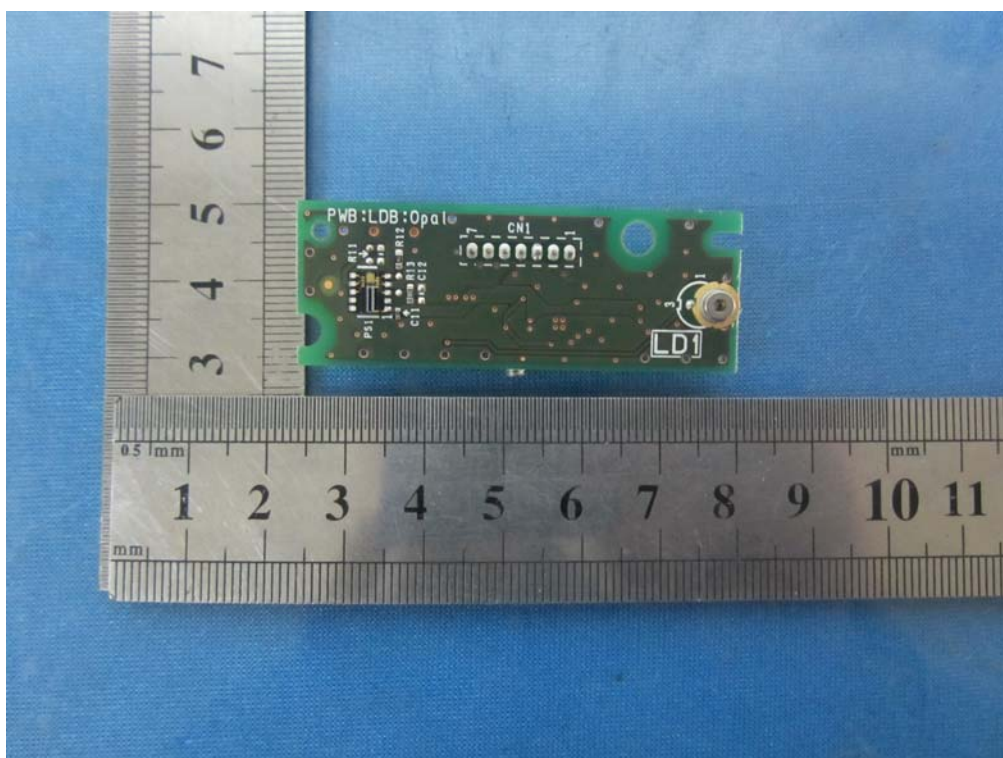
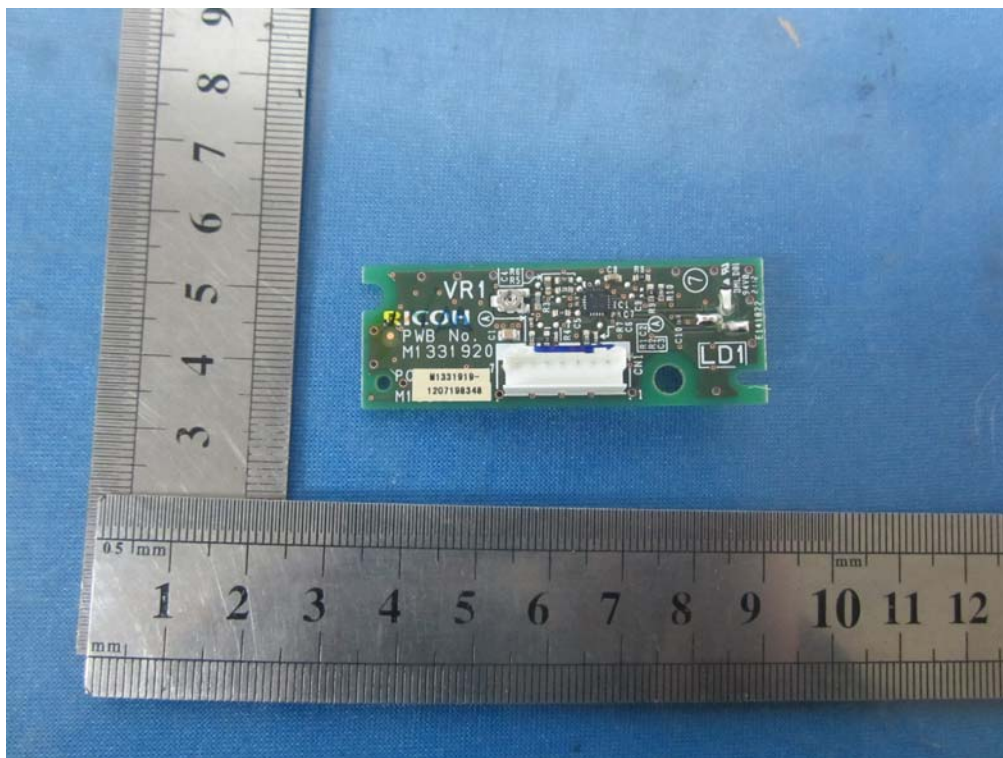




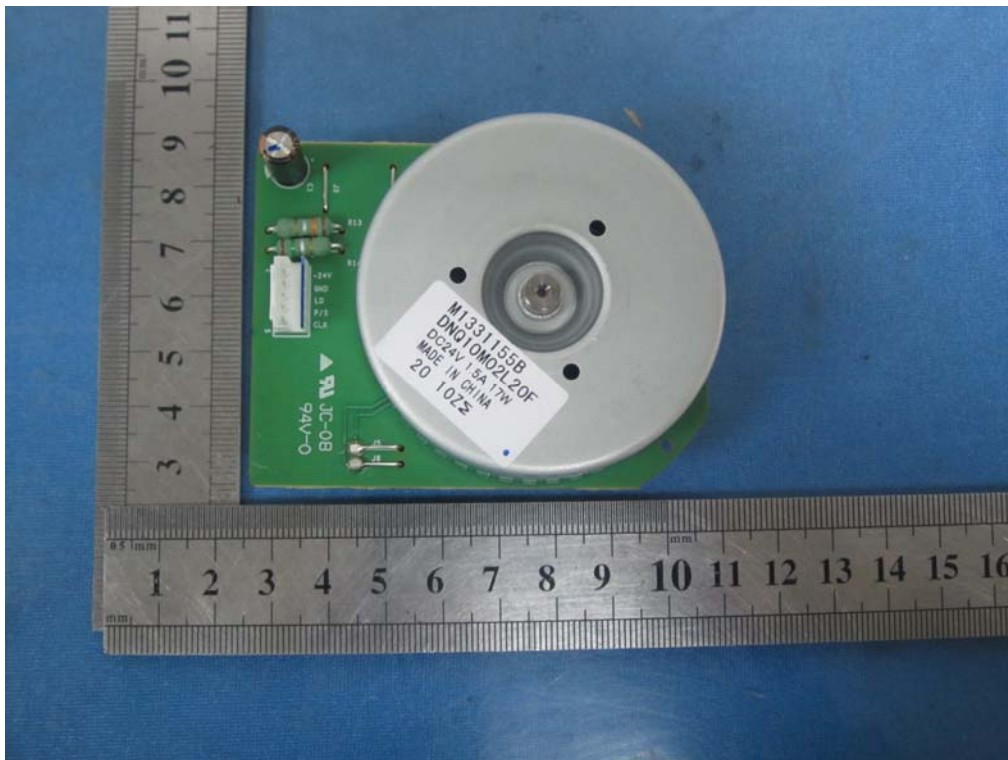
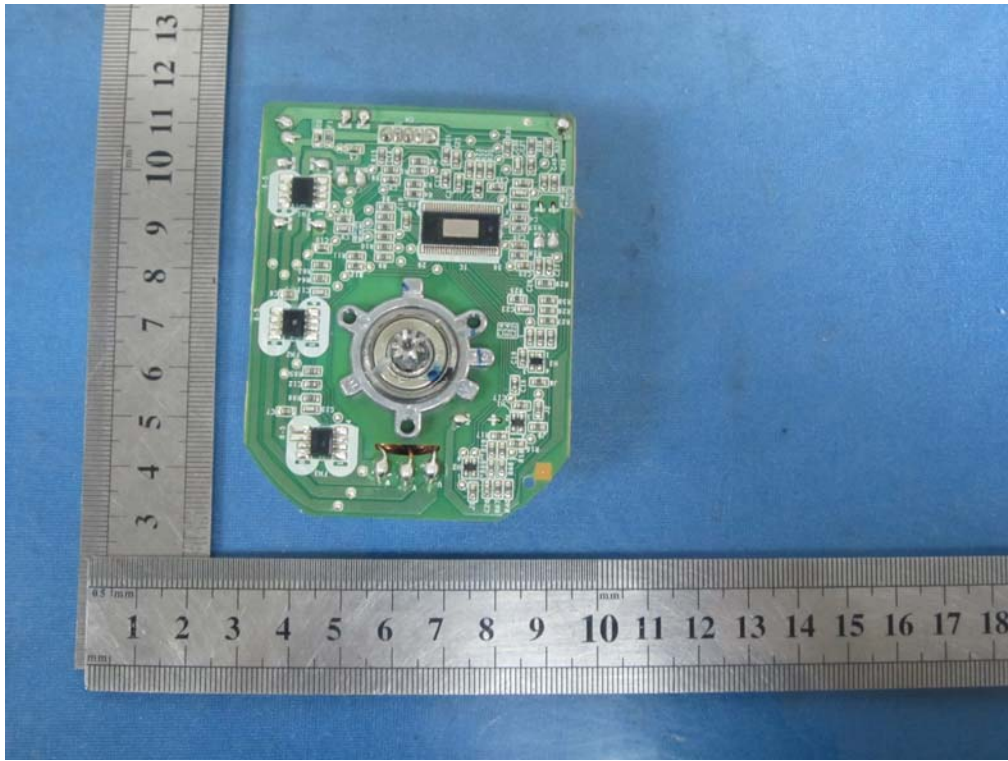


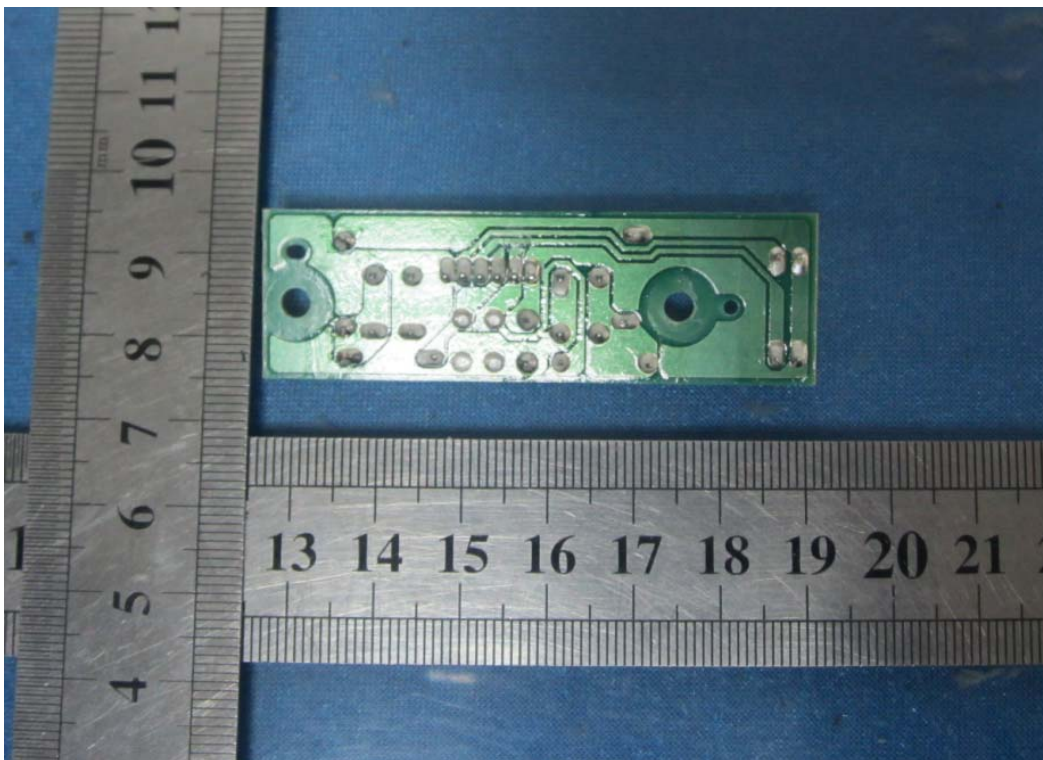
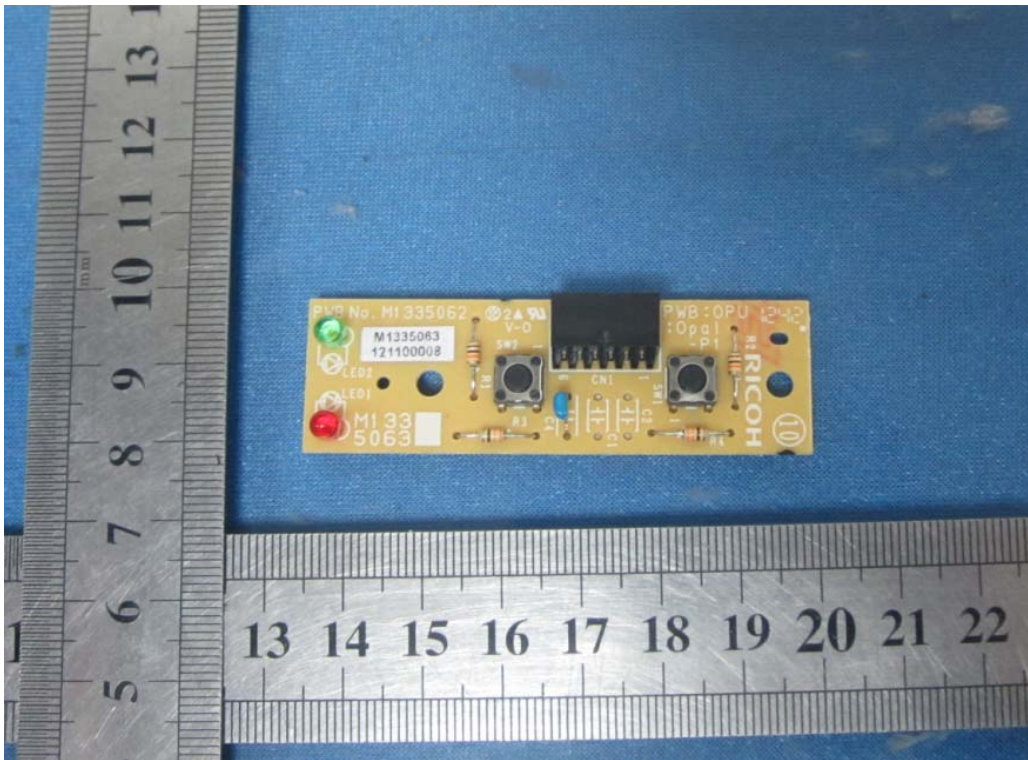












.....End of Report.....