

## FCC TEST REPORT

**Product** : Thermal Receipt Printer  
**Trade mark** : RONGTA  
**Model/Type reference** : See Clause 1  
**Serial Number** : N/A  
**Ratings** : DC 24V  
**FCC ID** : 2AD6G-RP400-US  
**Report Number** : EED32I003021  
**Date** : Dec. 12, 2016  
**Regulations** : See below

| Test Standards  | Results |
|---|---------|
| <input checked="" type="checkbox"/> 47 CFR FCC Part 15 Subpart B:2015 | PASS    |

Prepared for:

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**3F-1/E Building No. 195 Gaoqishe, Gaodian Village, Dianqian Street**  
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Date:

Dec. 12, 2016

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Check No.: 2392180562



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*(Note: N/A means not applicable)*

## 1. GENERAL INFORMATION

**Applicant:** XIAMEN RONGTA TECHNOLOGY CO., LTD.  
3F-1/E Building No. 195 Gaoqishe, Gaodian Village,  
Dianqian Street Office, Huli District, Xianmen City

**Manufacturer:** XIAMEN RONGTA TECHNOLOGY CO., LTD.  
3F-1/E Building No. 195 Gaoqishe, Gaodian Village,  
Dianqian Street Office, Huli District, Xianmen City

**Equipment Authorization:** Certification

**FCC ID:** 2AD6G-RP400-US

**Product:** Thermal Receipt Printer

**Trade mark:** RONGTA

**Model/Type reference:** RP400H-US, RP400A-US, RP500-US

**Model difference:** All models are identical except appearance and model . The test model RP400H-US and the test results are applicable to the others.

**Serial Number:** Not Applicable

**Report Number:** EED32I003021

**Sample Received Date:** Nov. 22, 2016

**Sample tested Date:** Nov. 22, 2016 to Dec. 01, 2016

The tested sample(s) and the sample information are provided by the client.

## 2. TEST SUMMARY

The Product has been tested according to the following specifications:

| Standard   | Test Item          | Test |
|------------|--------------------|------|
| FCC 15.107 | Conducted Emission | Yes  |
| FCC 15.109 | Radiated Emission  | Yes  |

## 3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the Product as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Test item                            | Value (dB) |
|--------------------------------------|------------|
| Conducted disturbance                | 3.4        |
| Radiated disturbance (30MHz to 1GHz) | 5.3        |

## 4. PRODUCT INFORMATION AND TEST SETUP

### 4.1. PRODUCT INFORMATION

**Ratings:** DC 24V

**Adapter information:** Manufacture: GUANGZHOU DAJING SCIENCE AND TECHNOLOGY CO.,LTD  
Model No. : DJ-240250-SA  
Input : 100-240V~, 50/60Hz 1.5 MAX  
Output: +24V--- 2.5 MAX

### 4.2. TEST SETUP CONFIGURATION

See test photographs attached in Appendix 1 for the actual connections between Product and support equipment.

### 4.3. SUPPORT EQUIPMENT

| No. | Device Type | Brand       | Model  | Series No.      | Data Cable       | Power Cord |
|-----|-------------|-------------|--------|-----------------|------------------|------------|
| 1.  | Notebook    | LENOVO      | E42L   | R36037B10223    | ---              | Detachable |
| 2   | Mouse       | L.selection | OP-200 | B1005023926IYNB | Shielded<br>1.5m | ---        |

Notes:

1. All the equipment/cables were placed in the worst-case configuration to maximize the emission during the test.
2. Grounding was established in accordance with the manufacturer's requirements and conditions for the intended use.

## 5. FACILITIES AND ACCREDITATIONS

### 5.1 TEST FACILITY

All test facilities used to collect the test data are located at Hongwei Industrial Zone, Bao'an 70 District, Shenzhen, Guangdong, China. The site and apparatus are constructed in conformance with the requirements of ANSI C63.4, CISPR 16-1-1 and other equivalent standards.

### 5.2 TEST EQUIPMENT LIST

**Instrumentation:** The following list contains equipments used at CTI for testing.

The calibrations of the measuring instruments, including any accessories that may effect such calibration, are checked frequently to assure their accuracy. Adjustments are made and correction factors applied in accordance with instructions contained in the manual for the measuring instrument.

**Equipment used during the tests:**

| Shielding Room No. 1 - Conducted Emission Test |              |        |            |            |               |
|--|--------------|--------|------------|------------|---------------|
| Equipment                                      | Manufacturer | Model  | Serial No. | Cal. Date  | Cal. Due Date |
| Receiver                                       | R&S          | ESCI   | 100435     | 06/15/2016 | 06/15/2017    |
| LISN   | R&S          | ENV216 | 100098     | 06/15/2016 | 06/15/2017    |

| 10M Semi-anechoic Chamber - Radiated Emission Test |              |           |            |            |               |
|--|--------------|-----------|------------|------------|---------------|
| Equipment  | Manufacturer | Model     | Serial No. | Cal. Date  | Cal. Due Date |
| 10M Chamber & Accessory Equipment                  | Rainford     | --        | --         | 06/16/2015 | 06/16/2018    |
| Spectrum Analyzer                                  | R&S          | FSP40     | 100416     | 06/15/2016 | 06/15/2017    |
| EMI test receiver                                  | R&S          | ESIB40    | 2023282915 | 06/15/2016 | 06/15/2017    |
| TRILOG Broadband Antenna                           | schwarzbeck  | VULB 9163 | 617        | 05/15/2016 | 05/15/2017    |
| Microwave Preamplifier                             | HP           | HP 8447F  | 2805A03379 | 06/15/2016 | 06/15/2017    |

## 6. SYSTEM TEST CONFIGURATION

### 6.1. JUSTIFICATION

The system was configured for testing in a typical fashion (as a customer would normally use it), The Product was placed on a turn table, which enabled the engineer to maximize emissions through its placement as outlined in ANSI C63.4 (2009).

The Product was powered by 120VAC/ 60Hz & 240VAC/ 50Hz during conducted emission test.

The Product was powered by 120VAC/ 60Hz during radiated emission test.

For maximizing emissions, the Product was rotated through 360°, the antenna height was varied from 1 meter to 4 meters above the ground plane, and the antenna polarization was changed. The rear of unit shall be flushed with the rear of the table.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. Analyzer resolution is 100 kHz or greater for frequencies below 1000 MHz. The spurious emissions more than 20 dB below the permissible value are not reported.

## 7. CONDUCTED EMISSION TEST

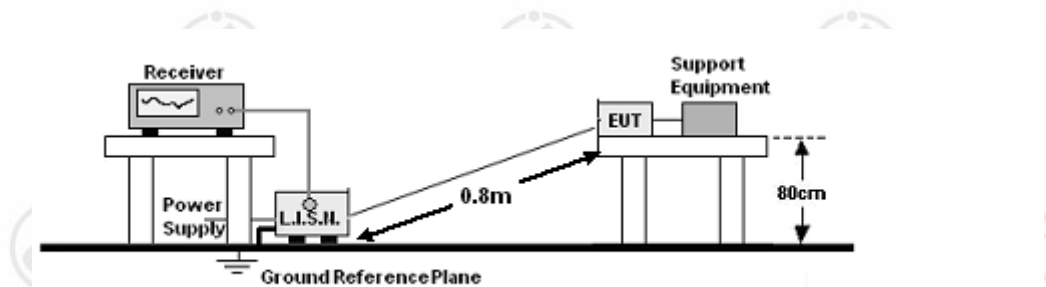
### 7.1. LIMITS

Limits for Class B digital devices

| Frequency range (MHz) | Limits dB(μV) |          |
|-----------------------|---------------|----------|
|                       | Quasi-peak    | Average  |
| 0,15 to 0,50          | 66 to 56      | 56 to 46 |
| 0,50 to 5             | 56            | 46       |
| 5 to 30               | 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 0.15 to 0.50 MHz.

### 7.2. BLOCK DIAGRAM OF TEST SETUP

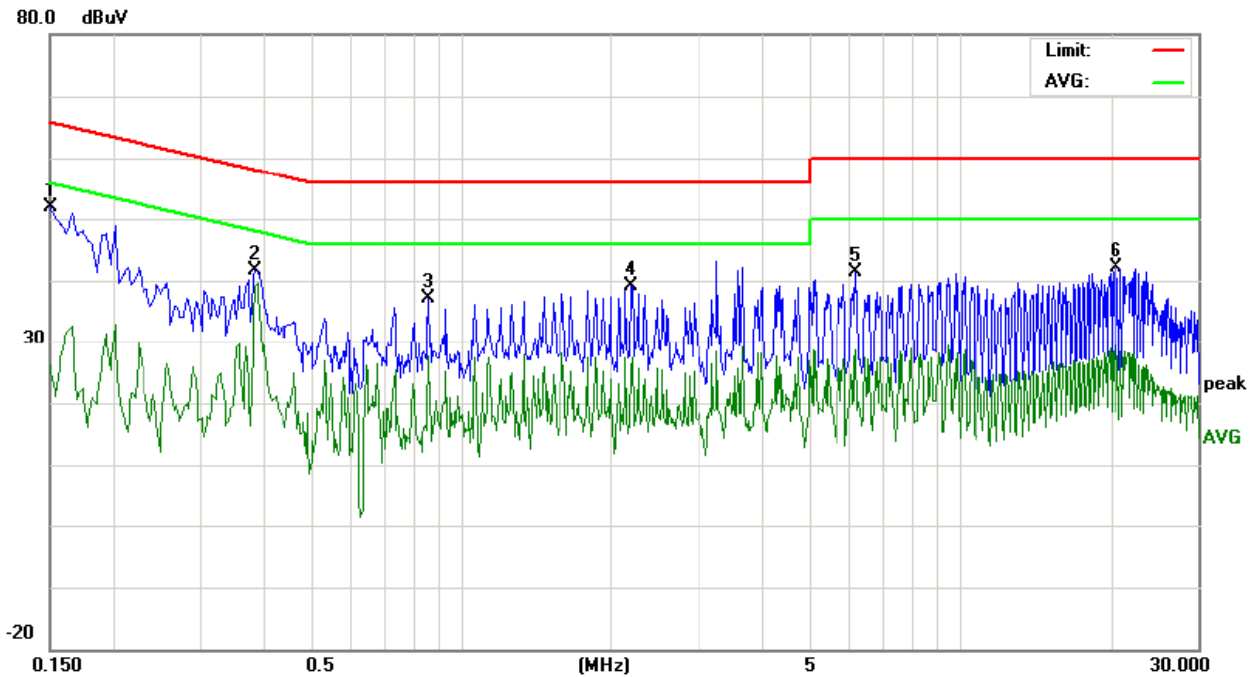


### 7.3. PROCEDURE OF CONDUCTED EMISSION TEST

- The Product was placed on a nonconductive table above the horizontal ground reference plane, and 0.4 m from the vertical ground reference plane, and connected to the main through Line Impedance Stability Network (L.I.S.N).
- The RBW of the receiver was set at 9 kHz in 150 kHz ~ 30MHz with Peak and AVG detector in Max Hold mode. Run the receiver's pre-scan to record the maximum disturbance generated from Product in all power lines in the full band.
- For each frequency whose maximum record was higher or close to limit, measure its QP and AVG values and record.

**7.4. WORST CASE TEST GRAPHS AND TEST DATA**

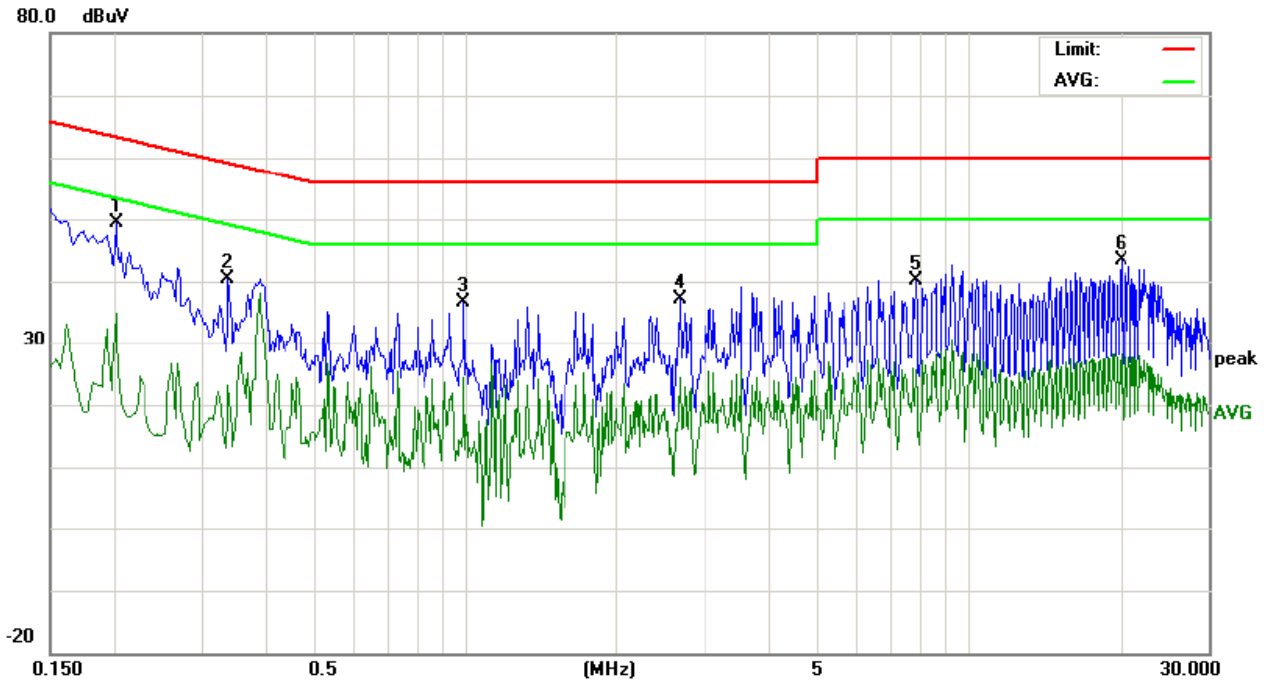
**Product** : Thermal Receipt Printer      **Model/Type reference** : RP400H-US  
**Power** : AC 120V/60Hz                      **Temperature** : 22°C  
**Mode** : Print H character                      **Humidity** : 53%  
**Phase** : L



| No. | Freq.<br>MHz | Reading_Level<br>(dBuV) |    |       | Correct<br>Factor<br>dB | Measurement<br>(dBuV) |    |       | Limit<br>(dBuV) |       | Margin<br>(dB) |        | P/F | Comment |
|-----|--------------|-------------------------|----|-------|-------------------------|-----------------------|----|-------|-----------------|-------|----------------|--------|-----|---------|
|     |              | Peak                    | QP | AVG   |                         | peak                  | QP | AVG   | QP              | AVG   | QP             | AVG    |     |         |
| 1   | 0.1499       | 42.17                   |    | 16.25 | 9.80                    | 51.97                 |    | 26.05 | 66.00           | 56.00 | -14.03         | -29.95 | P   |         |
| 2   | 0.3850       | 31.62                   |    | 29.02 | 9.89                    | 41.51                 |    | 38.91 | 58.17           | 48.17 | -16.66         | -9.26  | P   |         |
| 3   | 0.8615       | 27.33                   |    | 17.83 | 9.78                    | 37.11                 |    | 27.61 | 56.00           | 46.00 | -18.89         | -18.39 | P   |         |
| 4   | 2.1890       | 29.04                   |    | 15.33 | 10.00                   | 39.04                 |    | 25.33 | 56.00           | 46.00 | -16.96         | -20.67 | P   |         |
| 5   | 6.1848       | 31.28                   |    | 18.69 | 10.00                   | 41.28                 |    | 28.69 | 60.00           | 50.00 | -18.72         | -21.31 | P   |         |
| 6   | 20.4845      | 32.36                   |    | 19.55 | 9.80                    | 42.16                 |    | 29.35 | 60.00           | 50.00 | -17.84         | -20.65 | P   |         |

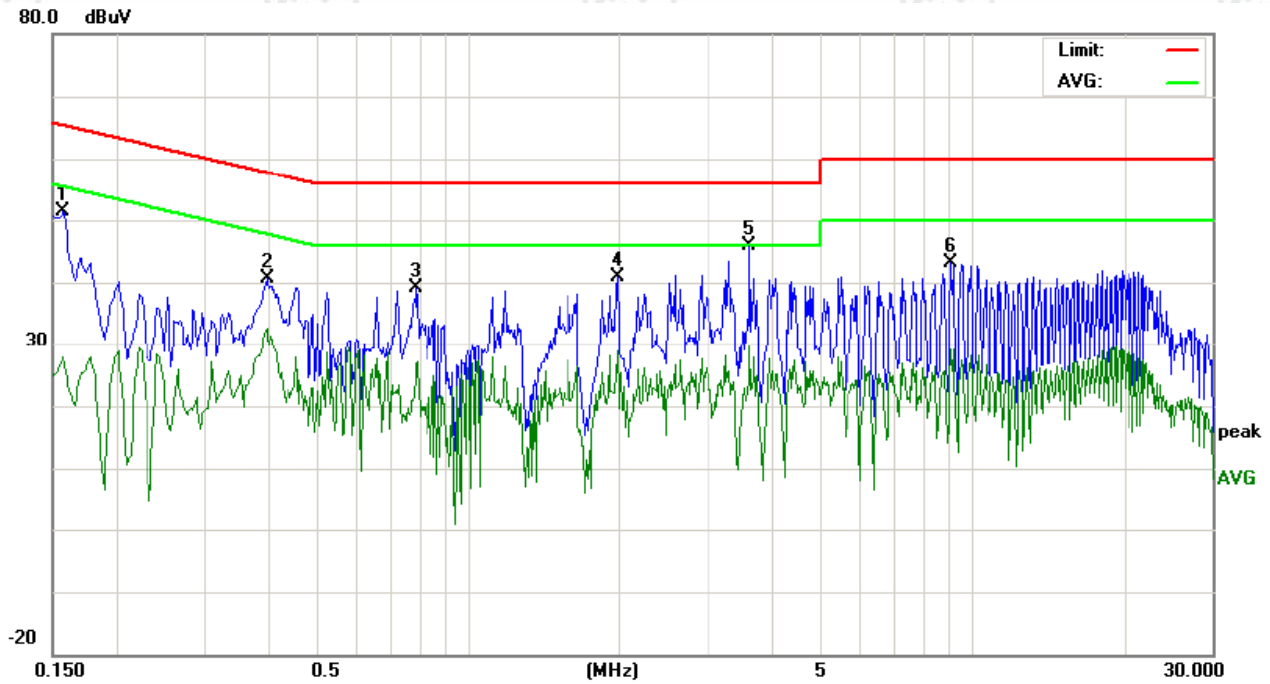


**Product** : Thermal Receipt Printer      **Model/Type reference** : RP400H-US  
**Power** : AC 120V/60Hz                      **Temperature** : 22°C  
**Mode** : Print H character                      **Humidity** : 53%  
**Phase** : N



| No. | Freq.<br>MHz | Reading_Level<br>(dBuV) |    |       | Correct<br>Factor<br>dB | Measurement<br>(dBuV) |       |       | Limit<br>(dBuV) |        | Margin<br>(dB) |     | P/F | Comment |
|-----|--------------|-------------------------|----|-------|-------------------------|-----------------------|-------|-------|-----------------|--------|----------------|-----|-----|---------|
|     |              | Peak                    | QP | AVG   |                         | peak                  | QP    | AVG   | QP              | AVG    | QP             | AVG |     |         |
| 1   | 0.2016       | 39.51                   |    | 24.96 | 9.80                    | 49.31                 | 34.76 | 63.54 | 53.54           | -14.23 | -18.78         | P   |     |         |
| 2   | 0.3371       | 30.59                   |    | 13.22 | 9.84                    | 40.43                 | 23.06 | 59.27 | 49.27           | -18.84 | -26.21         | P   |     |         |
| 3   | 0.9939       | 26.98                   |    | 14.77 | 9.70                    | 36.68                 | 24.47 | 56.00 | 46.00           | -19.32 | -21.53         | P   |     |         |
| 4   | 2.6633       | 27.02                   |    | 14.48 | 10.00                   | 37.02                 | 24.48 | 56.00 | 46.00           | -18.98 | -21.52         | P   |     |         |
| 5   | 7.8502       | 30.23                   |    | 15.61 | 10.00                   | 40.23                 | 25.61 | 60.00 | 50.00           | -19.77 | -24.39         | P   |     |         |
| 6   | 20.0548      | 33.59                   |    | 18.29 | 9.80                    | 43.39                 | 28.09 | 60.00 | 50.00           | -16.61 | -21.91         | P   |     |         |

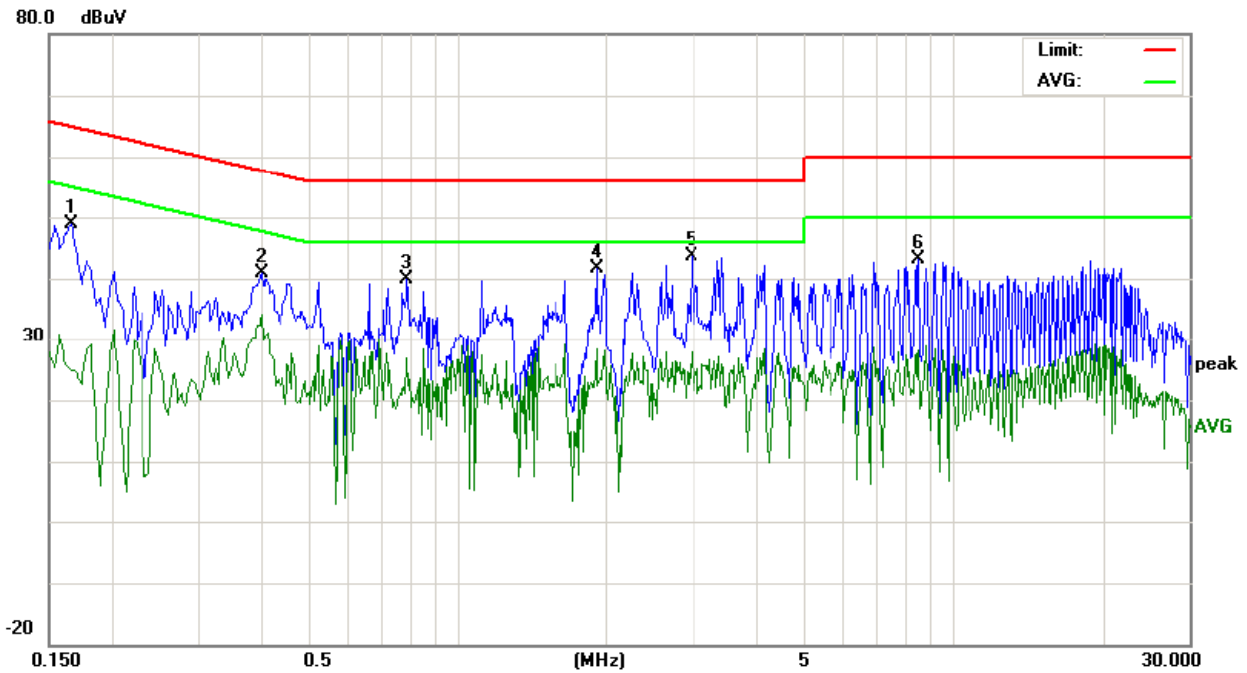
**Product** : Thermal Receipt Printer      **Model/Type reference** : RP400H-US  
**Power** : AC 240V/50Hz                      **Temperature** : 22°C  
**Mode** : Print H character                      **Humidity** : 53%  
**Phase** : L



| No. | Freq.<br>MHz | Reading_Level<br>(dBuV) |    |       | Correct<br>Factor<br>dB | Measurement<br>(dBuV) |       |       | Limit<br>(dBuV) |        | Margin<br>(dB) |     | P/F | Comment |
|-----|--------------|-------------------------|----|-------|-------------------------|-----------------------|-------|-------|-----------------|--------|----------------|-----|-----|---------|
|     |              | Peak                    | QP | AVG   |                         | peak                  | QP    | AVG   | QP              | AVG    | QP             | AVG |     |         |
| 1   | 0.1580       | 41.59                   |    | 18.11 | 9.80                    | 51.39                 | 27.91 | 65.56 | 55.56           | -14.17 | -27.65         | P   |     |         |
| 2   | 0.3980       | 30.65                   |    | 22.61 | 9.90                    | 40.55                 | 32.51 | 57.89 | 47.89           | -17.34 | -15.38         | P   |     |         |
| 3   | 0.7900       | 29.10                   |    | 16.79 | 9.90                    | 39.00                 | 26.69 | 56.00 | 46.00           | -17.00 | -19.31         | P   |     |         |
| 4   | 1.9820       | 30.83                   |    | 18.86 | 9.99                    | 40.82                 | 28.85 | 56.00 | 46.00           | -15.18 | -17.15         | P   |     |         |
| 5   | 3.6380       | 35.98                   |    | 19.57 | 10.00                   | 45.98                 | 29.57 | 56.00 | 46.00           | -10.02 | -16.43         | P   |     |         |
| 6   | 9.0620       | 33.03                   |    | 19.14 | 10.00                   | 43.03                 | 29.14 | 60.00 | 50.00           | -16.97 | -20.86         | P   |     |         |

**Product** : Thermal Receipt Printer  
**Power** : AC 240V/50Hz  
**Mode** : Print H character  
**Phase** : N

**Model/Type reference** : RP400H-US  
**Temperature** : 22°C  
**Humidity** : 53%



| No. | Freq.<br>MHz | Reading_Level<br>(dBuV) |    |       | Correct<br>Factor<br>dB | Measurement<br>(dBuV) |       |       | Limit<br>(dBuV) |        | Margin<br>(dB) |     | P/F | Comment |
|-----|--------------|-------------------------|----|-------|-------------------------|-----------------------|-------|-------|-----------------|--------|----------------|-----|-----|---------|
|     |              | Peak                    | QP | AVG   |                         | peak                  | QP    | AVG   | QP              | AVG    | QP             | AVG |     |         |
| 1   | 0.1660       | 39.15                   |    | 15.17 | 9.80                    | 48.95                 | 24.97 | 65.15 | 55.15           | -16.20 | -30.18         | P   |     |         |
| 2   | 0.4020       | 30.98                   |    | 24.32 | 9.90                    | 40.88                 | 34.22 | 57.81 | 47.81           | -16.93 | -13.59         | P   |     |         |
| 3   | 0.7900       | 29.88                   |    | 17.09 | 9.90                    | 39.78                 | 26.99 | 56.00 | 46.00           | -16.22 | -19.01         | P   |     |         |
| 4   | 1.9180       | 31.57                   |    | 18.35 | 9.98                    | 41.55                 | 28.33 | 56.00 | 46.00           | -14.45 | -17.67         | P   |     |         |
| 5   | 2.9739       | 33.65                   |    | 17.84 | 10.00                   | 43.65                 | 27.84 | 56.00 | 46.00           | -12.35 | -18.16         | P   |     |         |
| 6   | 8.5260       | 33.09                   |    | 18.20 | 10.00                   | 43.09                 | 28.20 | 60.00 | 50.00           | -16.91 | -21.80         | P   |     |         |

## 8. RADIATED EMISSION TEST

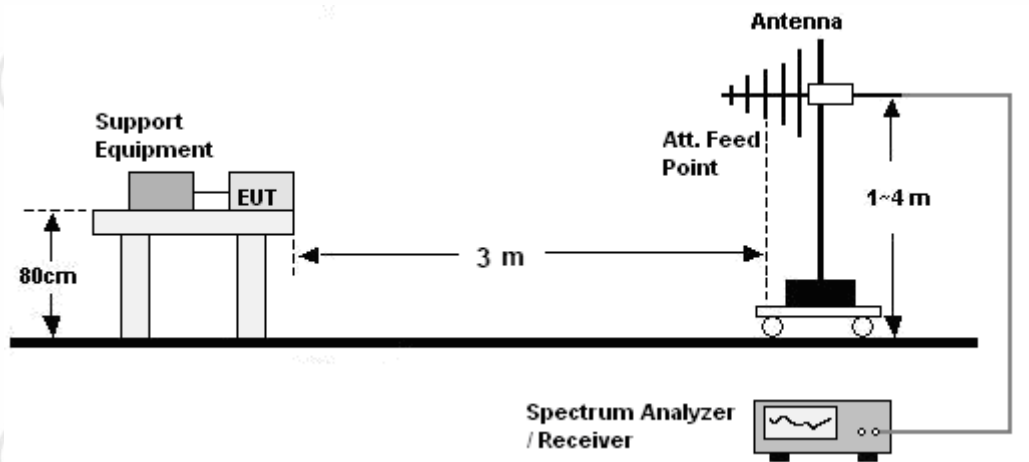
### 8.1.LIMITS

Limits for Class B digital devices

| Frequency (MHz) | limits at 3m<br>dB(μV/m) |
|-----------------|--------------------------|
| 30-88           | 40.0                     |
| 88-216          | 43.5                     |
| 216-960         | 46.0                     |
| Above 960       | 54.0                     |

- NOTE:**
1. The lower limit shall apply at the transition frequency.
  2. The limits shown above are based on measuring equipment employing a CISPR quasi-peak detector function for frequencies below or equal to 1000MHz.
  3. The limits shown above are based on measuring equipment employing an average detector function for frequencies above 1000MHz.

### 8.2.BLOCK DIAGRAM OF TEST SETUP



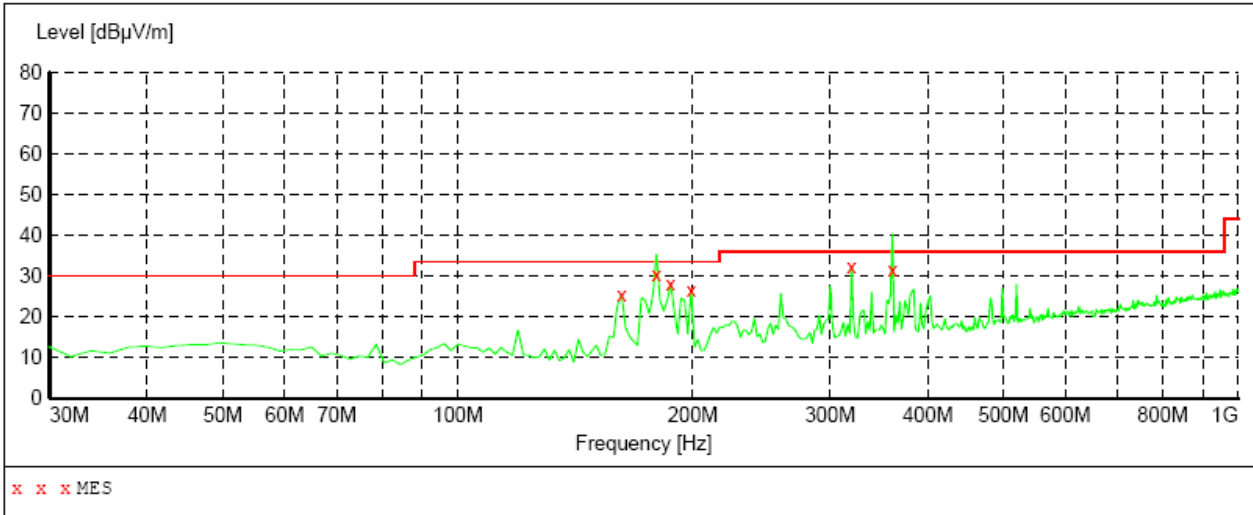
### 8.3.PROCEDURE OF RADIATED EMISSION TEST

#### 30MHz ~ 1GHz:

- a. The Product was placed on the non-conductive turntable 0.8m above the ground at a chamber.
- b. Set the spectrum analyzer/receiver in Peak detector, Max Hold mode, and 120 kHz RBW. Record the maximum field strength of all the pre-scan process in the full band when the antenna is varied between 1~4 m in both horizontal and vertical, and the turntable is rotated from 0 to 360 degrees.
- c. For each frequency whose maximum record was higher or close to limit, measure its QP value: vary the antenna's height and rotate the turntable from 0 to 360 degrees to find the height and degree where Product radiated the maximum emission, then set the test frequency analyzer/receiver to QP Detector and specified bandwidth with Maximum Hold Mode, and record the maximum value.

**8.4. WORST CASE TEST GRAPHS AND TEST DATA**

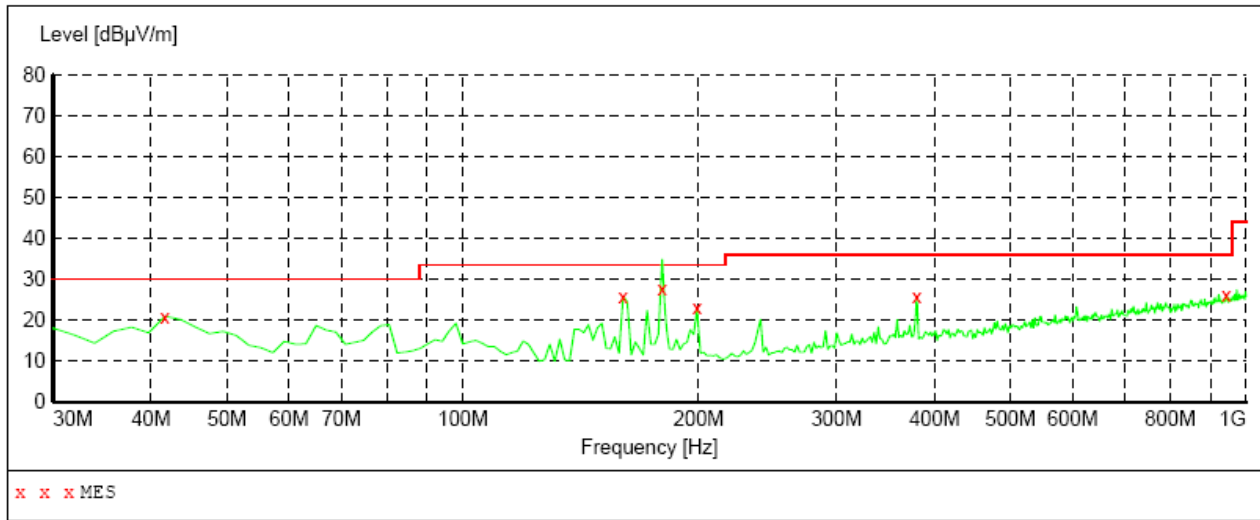
**Product** : Thermal Receipt Printer      **Model/Type reference** : RP400H-US  
**Power** : AC 120V/60Hz                      **Temperature** : 22°C  
**Mode** : Print H character                      **Humidity** : 53%  
**Polarization** : Horizontal



**MEASUREMENT RESULT:**

| Frequency<br>MHz | Level<br>dBµV/m | Transd<br>dB | Limit<br>dBµV/m | Margin<br>dB | Det. | Height<br>cm | Azimuth<br>deg | Polarization |
|------------------|-----------------|--------------|-----------------|--------------|------|--------------|----------------|--------------|
| 162.184369       | 25.50           | -15.3        | 33.5            | 8.0          | QP   | 300.0        | 360.00         | HORIZONTAL   |
| 179.679359       | 29.70           | -14.3        | 33.5            | 3.8          | QP   | 400.0        | 136.00         | HORIZONTAL   |
| 187.454910       | 28.10           | -13.5        | 33.5            | 5.4          | QP   | 400.0        | 45.00          | HORIZONTAL   |
| 199.118236       | 26.70           | -12.4        | 33.5            | 6.8          | QP   | 300.0        | 214.00         | HORIZONTAL   |
| 319.639279       | 32.30           | -8.6         | 36.0            | 3.7          | QP   | 200.0        | 251.00         | HORIZONTAL   |
| 360.460922       | 30.30           | -7.5         | 36.0            | 5.7          | QP   | 300.0        | 93.00          | HORIZONTAL   |

**Product** : Thermal Receipt Printer      **Model/Type reference** : RP400H-US  
**Power** : AC 120V/60Hz                      **Temperature** : 22°C  
**Mode** : Print H character                      **Humidity** : 53%  
**Polarization** : Vertical



**MEASUREMENT RESULT:**

| Frequency MHz | Level dBµV/m | Transd dB | Limit dBµV/m | Margin dB | Det. | Height cm | Azimuth deg | Polarization |
|---------------|--------------|-----------|--------------|-----------|------|-----------|-------------|--------------|
| 41.663327     | 20.90        | -12.0     | 30.0         | 9.1       | QP   | 400.0     | 149.00      | VERTICAL     |
| 160.240481    | 25.90        | -15.4     | 33.5         | 7.6       | QP   | 400.0     | 29.00       | VERTICAL     |
| 179.679359    | 28.20        | -14.3     | 33.5         | 5.3       | QP   | 300.0     | 133.00      | VERTICAL     |
| 199.118236    | 22.90        | -12.4     | 33.5         | 10.6      | QP   | 200.0     | 42.00       | VERTICAL     |
| 379.899800    | 25.80        | -7.4      | 36.0         | 10.2      | QP   | 300.0     | 194.00      | VERTICAL     |
| 943.627255    | 26.20        | 0.4       | 36.0         | 9.8       | QP   | 100.0     | 179.00      | VERTICAL     |

**Remark:**

The highest frequency of the internal sources of the EUT is 100 MHz, so the measurement shall only be made up to 1 GHz.

## APPENDIX 1 PHOTOGRAPHS OF TEST SETUP



**CONDUCTED EMISSION TEST SETUP**



**RADIATED EMISSION TEST SETUP**

## APPENDIX 2 EXTERNAL PHOTOGRAPHS OF PRODUCT



External View of Product-1



External View of Product-2





External View of Product-3



External View of Product-4



External View of Product-5



External View of Product-6



External View of Product-7

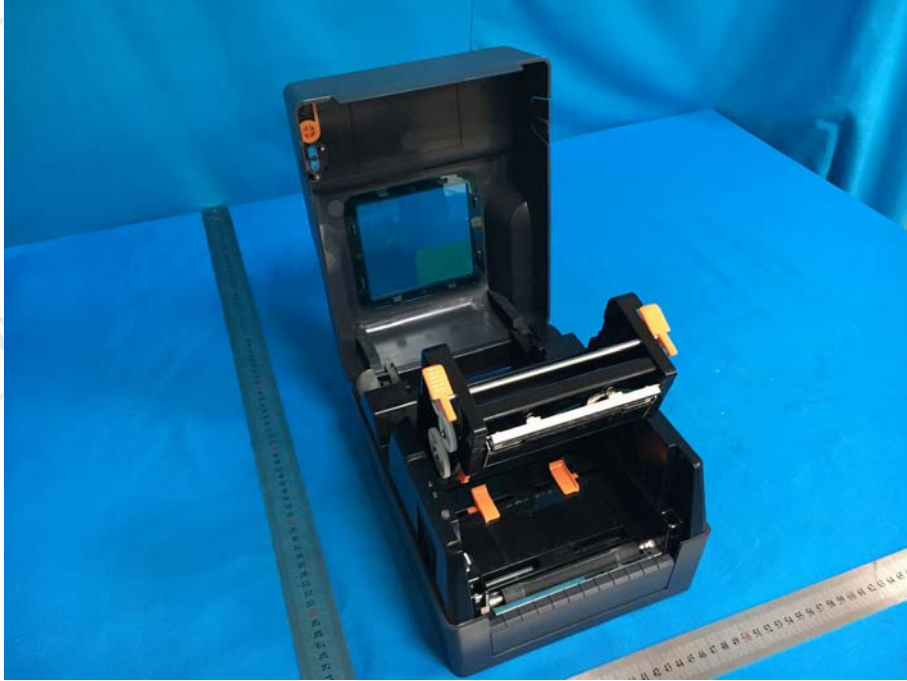


External View of Product-8

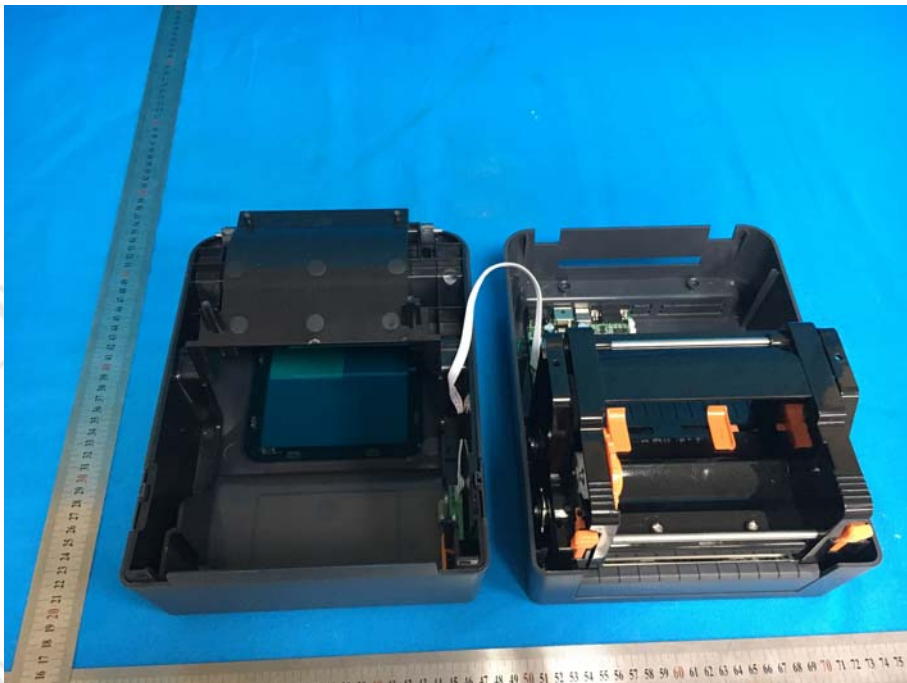


External View of Product-9

### APPENDIX 3 INTERNAL PHOTOGRAPHS OF PRODUCT



Internal View of Product-1



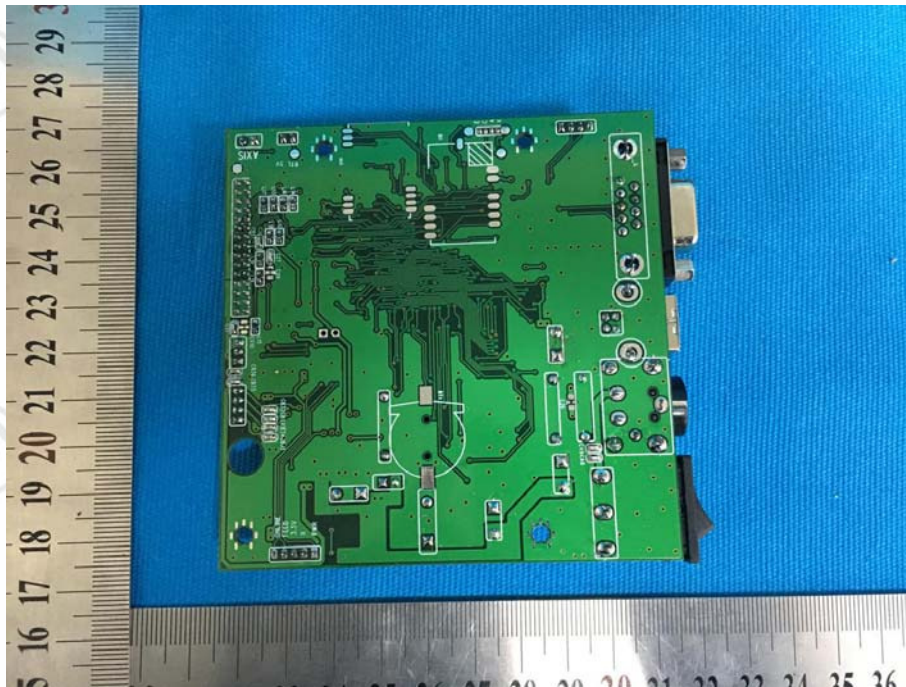
Internal View of Product-2



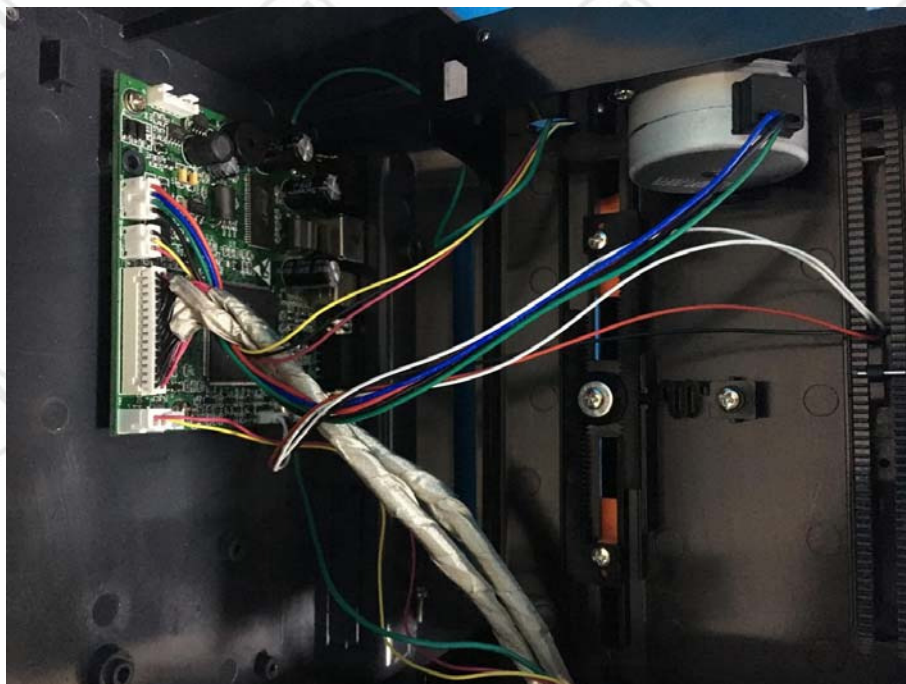
Internal View of Product-3



Internal View of Product-4



Internal View of Product-5



Internal View of Product-6

\*\*\* End of Report \*\*\*

The test report is effective only with both signature and specialized stamp. The result(s) shown in this report refer only to the sample(s) tested. Without written approval of CTI, this report can't be reproduced except in full.