

**FCC - TEST REPORT**

Report Number : **68.760.15.678.01** Date of Issue: November 26, 2015

Model : **JioPay 2800**

Product Type : POS

Applicant : KanhaTech Solutions Pvt Ltd

Address : No 74, Prestige Feroze Building, 4th Floor, Cunningham road,  
Bangalore

Production Facility : KanhaTech Solutions Pvt Ltd

Address : No 74, Prestige Feroze Building, 4th Floor, Cunningham road,  
Bangalore

Test Result : ☒ **Positive** ☐ **Negative**

Total pages including Appendices : 23

*TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch is a subcontractor to TÜV SÜD Product Service GmbH according to the principles outlined in ISO 17025.*

*TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch reports apply only to the specific samples tested under stated test conditions. Construction of the actual test samples has been documented. It is the manufacturer's responsibility to assure that additional production units of this model are manufactured with identical electrical and mechanical components. The manufacturer/importer is responsible to the Competent Authorities in Europe for any modifications made to the production units which result in non-compliance to the relevant regulations. TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch shall have no liability for any deductions, inferences or generalizations drawn by the client or others from TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch issued reports.*

*This report is the confidential property of the client. As a mutual protection to our clients, the public and ourselves, extracts from the test report shall not be reproduced except in full without our written approval.*

# 1 Table of Contents

|  |    |
|--|----|
| 1 Table of Contents.....                           | 2  |
| 2 Details about the Test Laboratory .....          | 3  |
| 3 Description of the Equipment Under Test.....     | 4  |
| 4 Summary of Test Standards.....                   | 5  |
| 5 Summary of Test Results .....                    | 6  |
| 6 General Remarks .....                            | 7  |
| 7 Systems test configuration .....                 | 8  |
| 8 Technical Requirement .....                      | 9  |
| 8.1 Conducted Emission Test .....                  | 9  |
| 8.2 Radiated Emission Test .....                   | 15 |
| 8.2.1 Radiated Emission Test 30MHz – 1000MHz ..... | 16 |
| 8.2.2 Radiated Emission Test 1GHz – 6GHz .....     | 20 |
| 9 System Measurement Uncertainty .....             | 23 |

## 2 Details about the Test Laboratory

### Details about the Test Laboratory

Test Site 1:

Company name: TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch  
Building 12&13, Zhiheng Wisdomland Business Park,  
Nantou Checkpoint Road 2, Nanshan District,  
Shenzhen City, 518052,  
P. R. China

FCC Registration No.: 502708

IC Registration No: 10320A-1

Telephone: 86 755 8828 6998  
Fax: 86 755 8828 5299

### 3 Description of the Equipment Under Test

Product: POS

Model no.: JioPay 2800

Brand Name: JioPay

FCC ID: 2AFXJ-JIOPAY2800

Rating: DC 3.7V by Li-ion Battery or  
5VDC,2.0A (Charged by an external power adapter  
Adapter input:100-240VAC, 50/60Hz, 0.5A  
Adapter output:5.0V, 2.0A)

Description of the EUT: Class B Equipment

## 4 Summary of Test Standards

| Test Standards                             |                         |
|--|-------------------------|
| FCC Part 15 Subpart B<br>10-1-2014 Edition | Unintentional Radiators |

## 5 Summary of Test Results

| Emission Tests                              |       |                                     |                          |                          |
|---|-------|-------------------------------------|--------------------------|--------------------------|
| FCC Part 15 Subpart B 10-1-2014 Edition     |       |                                     |                          |                          |
| Test Condition                              | Pages | Test Result                         |                          |                          |
|   |       | Pass                                | Fail                     | N/A                      |
| Conducted Emission on AC<br>150kHz to 30MHz | 9     | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Radiated Emission<br>30MHz to 1000MHz       | 14    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Radiated Emission<br>1GHz to 6GHz           | 17    | <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

## 6 General Remarks

### Remarks

NIL

### SUMMARY:

All tests according to the regulations cited on page 5 were

■ - Performed

□ - **Not** Performed

The Equipment under Test

■ - **Fulfills** the general approval requirements.

□ - **Does not** fulfill the general approval requirements.

Sample Received Date: August 11, 2015

Testing Start Date: August 12, 2015

Testing End Date: August 25, 2015

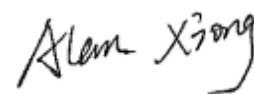
- TÜV SÜD Certification and Testing (China) Co., Ltd. Shenzhen Branch -

Reviewed by:

Prepared by:



John Zhi  
EMC Project Manager



Alan Xiong  
EMC Project Engineer

## 7 Systems test configuration

The equipment under test (EUT) was configured to measure its highest possible emission level. The test modes were adapted according to the operation manual for use, more detailed description as follows:

Test Configuration List:

| TEST MODE | DESCRIPTION      | REMARK        |
|-----------|------------------|---------------|
| TM1       | Charging Mode    | N/A           |
| TM2       | Data transmitter | Connect to PC |

Auxiliary Equipment Used during Test:

| Name | Model No | S/N | Manufacturer |
|------|----------|-----|--------------|
| PC   | X240     | --- | LENOVO       |

The EUT has been tested under two frequencies of input voltage (50Hz, 60Hz), the worst test result are listed in the report.



## 8 Technical Requirement

### 8.1 Conducted Emission Test

#### Test Method

1. The EUT was placed on a table, which is 0.8m above ground plane
2. The power line of the EUT is connected to the AC mains through a Artificial Mains Network (A.M.N.).
3. Maximum procedure was performed to ensure EUT compliance
4. A EMI test receiver is used to test the emissions from both sides of AC line

#### Limit

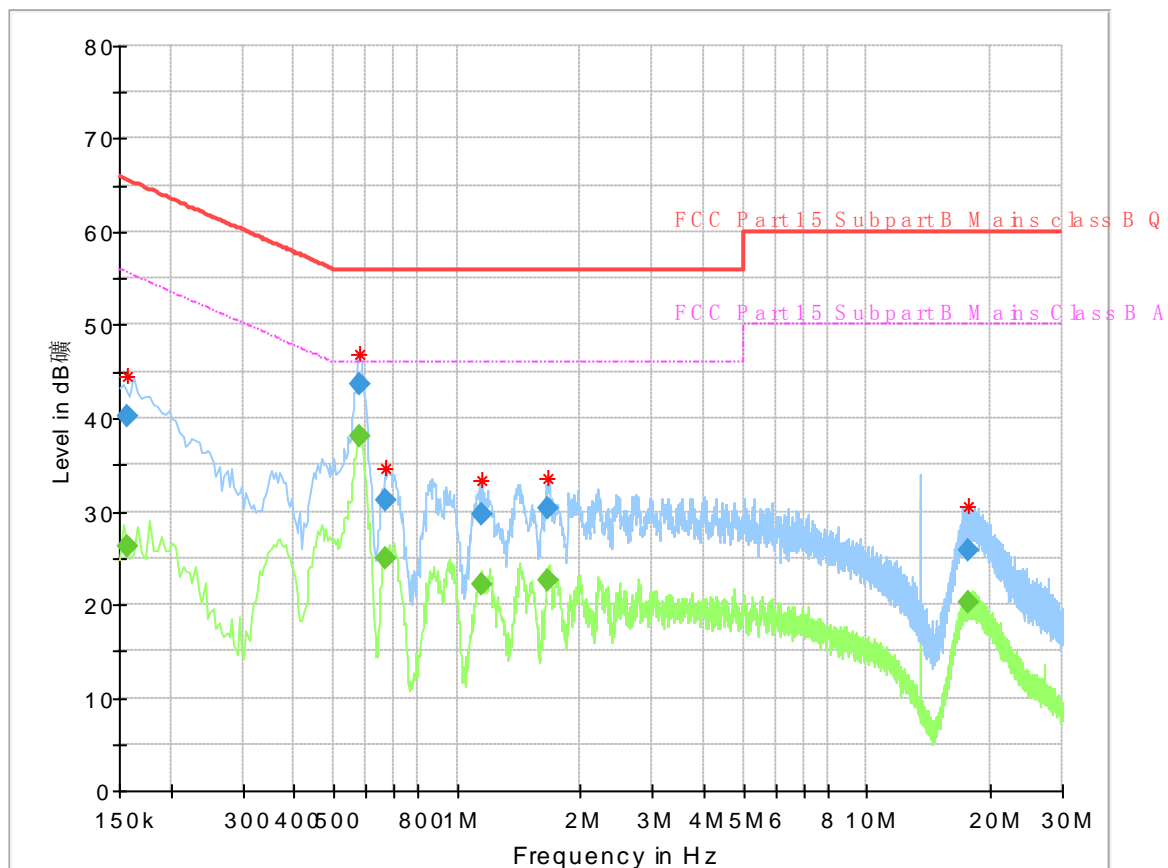
According to §15.107, conducted emissions limit as below:

| Frequency<br>MHz | QP Limit<br>dB $\mu$ V | AV Limit<br>dB $\mu$ V |
|------------------|------------------------|------------------------|
| 0.150-0.500      | 66-56*                 | 56-46*                 |
| 0.500-5          | 56                     | 46                     |
| 5-30             | 60                     | 50                     |

Decreasing linearly with logarithm of the frequency

## Conducted Emission

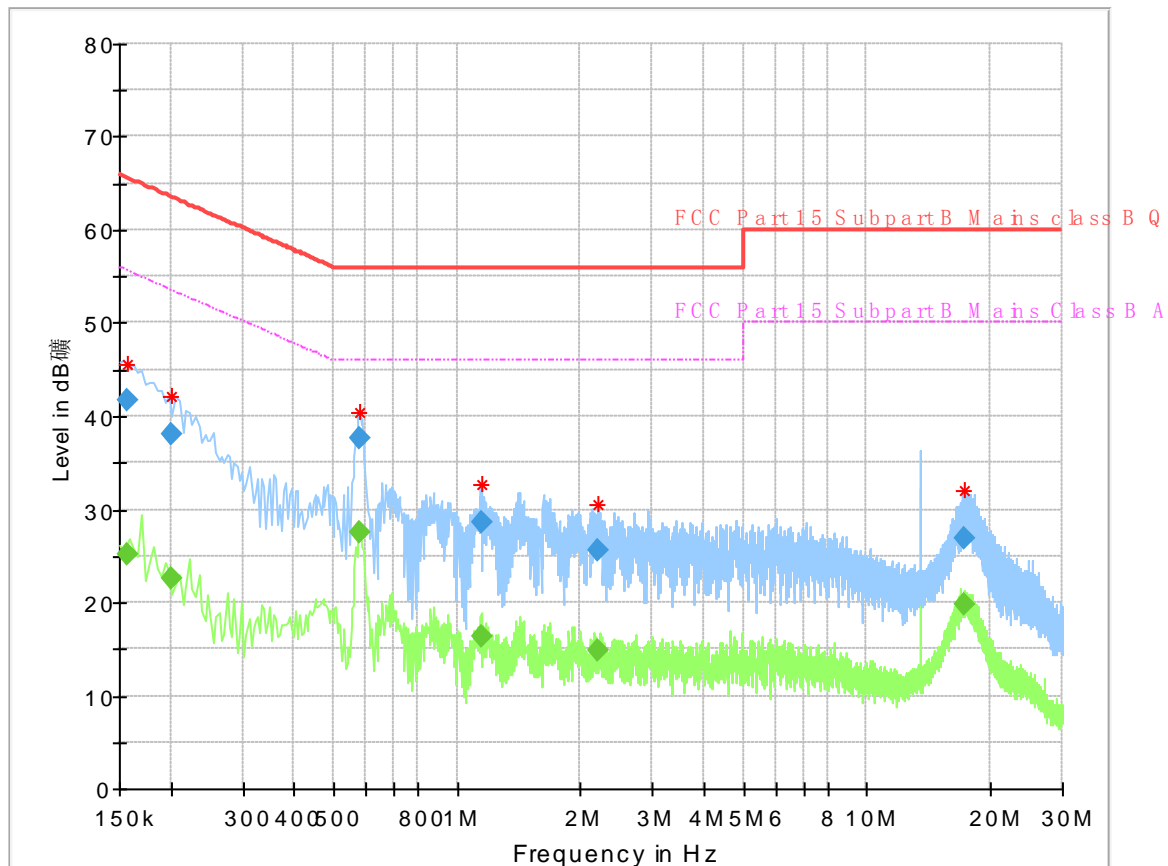
Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM1, Charging Mode  
 Test Specification : Line  
 Comment : AC 120V/60Hz



| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|------|------------|
| 0.157500        | ---              | 26.20          | 55.59        | 29.39       | L1   | 9.6        |
| 0.157500        | 40.30            | ---            | 65.59        | 25.29       | L1   | 9.6        |
| 0.578500        | ---              | 38.10          | 46.00        | 7.90        | L1   | 10.0       |
| 0.578500        | 43.74            | ---            | 56.00        | 12.26       | L1   | 10.0       |
| 0.669500        | ---              | 25.01          | 46.00        | 20.99       | L1   | 10.0       |
| 0.669500        | 31.22            | ---            | 56.00        | 24.78       | L1   | 10.0       |
| 1.145500        | ---              | 22.22          | 46.00        | 23.78       | L1   | 9.8        |
| 1.145500        | 29.69            | ---            | 56.00        | 26.31       | L1   | 9.8        |
| 1.657500        | ---              | 22.61          | 46.00        | 23.39       | L1   | 9.8        |
| 1.657500        | 30.28            | ---            | 56.00        | 25.72       | L1   | 9.8        |
| 17.713500       | ---              | 20.18          | 50.00        | 29.82       | L1   | 10.1       |
| 17.713500       | 25.75            | ---            | 60.00        | 34.25       | L1   | 10.1       |

## Conducted Emission

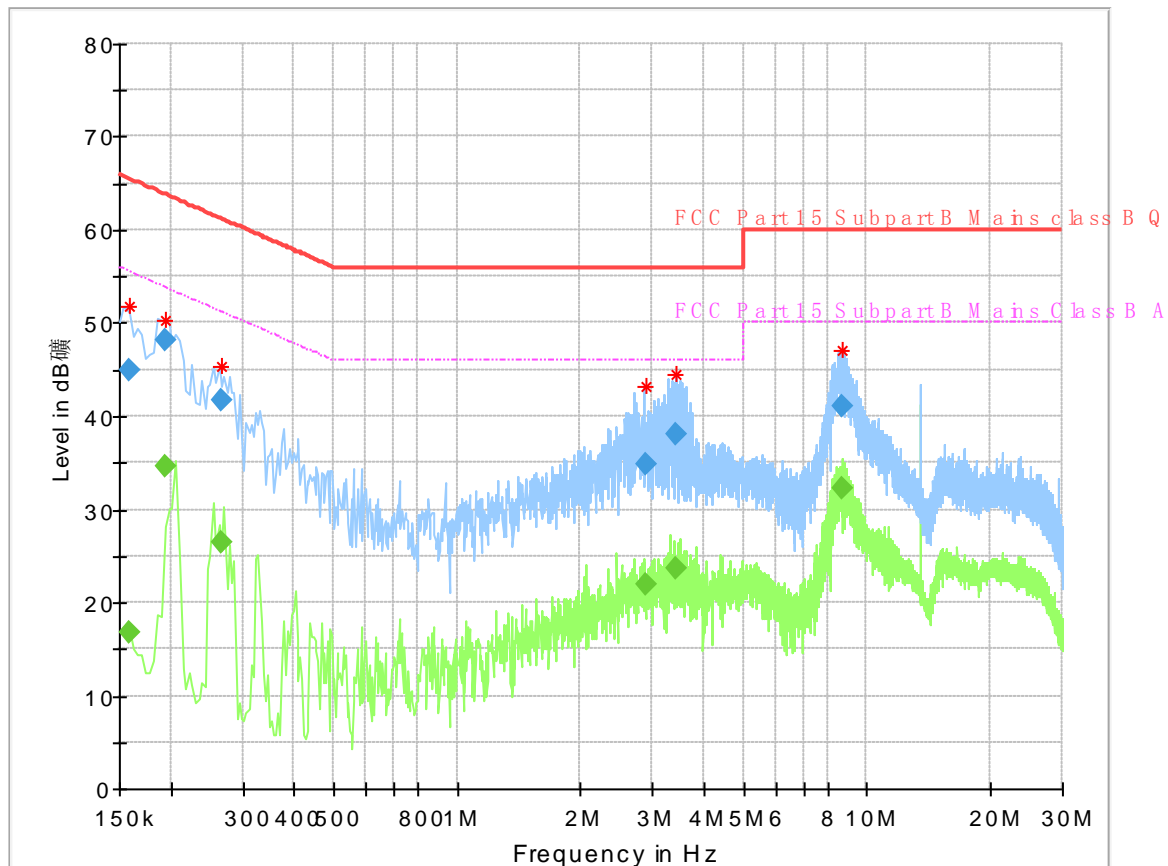
Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM1, Charging Mode  
 Test Specification : Neutral  
 Comment : AC 120V/60Hz



| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|------|------------|
| 0.157500        | ---              | 25.13          | 55.59        | 30.46       | N    | 9.6        |
| 0.157500        | 41.82            | ---            | 65.59        | 23.77       | N    | 9.6        |
| 0.201500        | ---              | 22.62          | 53.55        | 30.93       | N    | 9.8        |
| 0.201500        | 38.07            | ---            | 63.55        | 25.48       | N    | 9.8        |
| 0.577500        | ---              | 27.59          | 46.00        | 18.41       | N    | 10.0       |
| 0.577500        | 37.73            | ---            | 56.00        | 18.27       | N    | 10.0       |
| 1.145500        | ---              | 16.25          | 46.00        | 29.75       | N    | 9.8        |
| 1.145500        | 28.67            | ---            | 56.00        | 27.33       | N    | 9.8        |
| 2.201500        | ---              | 14.85          | 46.00        | 31.15       | N    | 9.8        |
| 2.201500        | 25.62            | ---            | 56.00        | 30.38       | N    | 9.8        |
| 17.370500       | ---              | 19.80          | 50.00        | 30.20       | N    | 10.1       |
| 17.370500       | 26.82            | ---            | 60.00        | 33.18       | N    | 10.1       |

## Conducted Emission

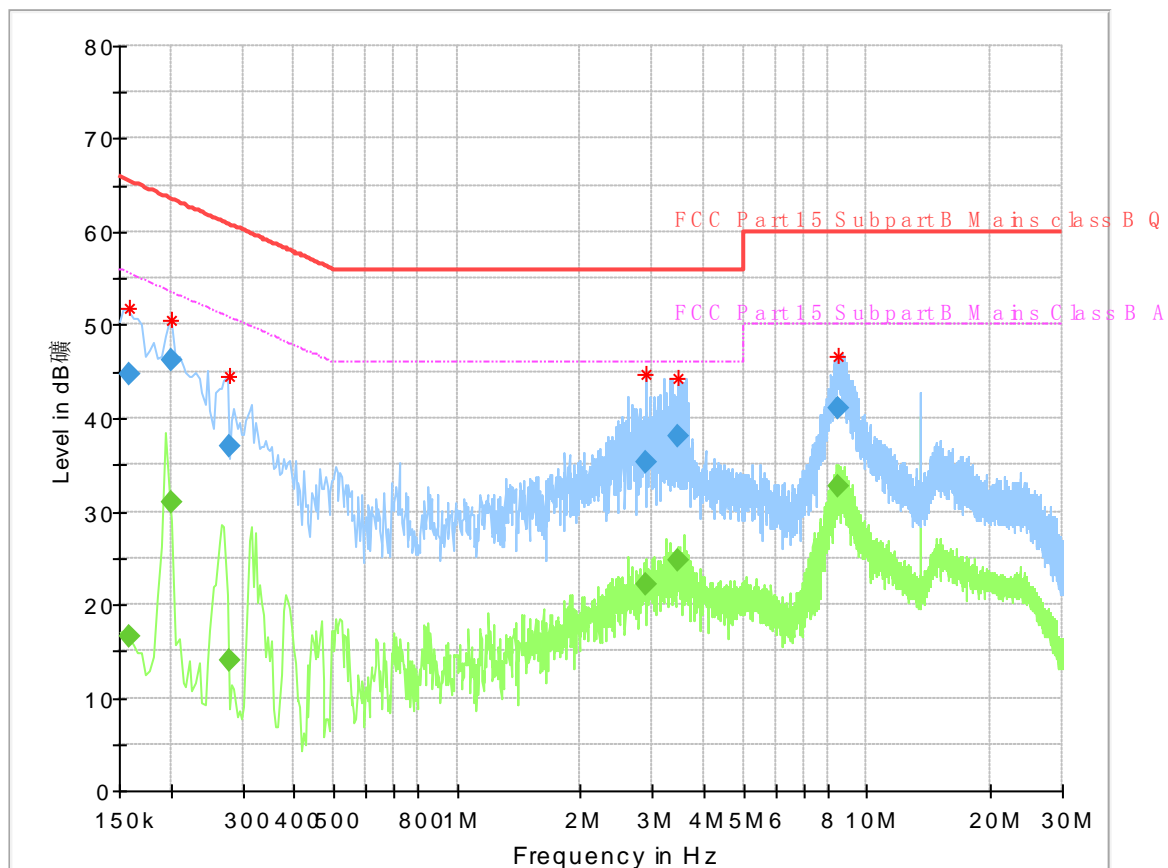
Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM2, Data Transmitter  
 Test Specification : Line  
 Comment : AC 120V/60Hz



| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|------|------------|
| 0.158000        | ---              | 16.70          | 55.57        | 38.87       | L1   | 9.6        |
| 0.158000        | 44.96            | ---            | 65.57        | 20.61       | L1   | 9.6        |
| 0.193500        | ---              | 34.59          | 53.88        | 19.29       | L1   | 9.7        |
| 0.193500        | 48.23            | ---            | 63.88        | 15.65       | L1   | 9.7        |
| 0.266500        | ---              | 26.45          | 51.23        | 24.78       | L1   | 10.1       |
| 0.266500        | 41.74            | ---            | 61.23        | 19.49       | L1   | 10.1       |
| 2.874500        | ---              | 21.99          | 46.00        | 24.01       | L1   | 9.8        |
| 2.874500        | 34.76            | ---            | 56.00        | 21.24       | L1   | 9.8        |
| 3.413500        | ---              | 23.73          | 46.00        | 22.27       | L1   | 9.8        |
| 3.413500        | 37.97            | ---            | 56.00        | 18.03       | L1   | 9.8        |
| 8.709500        | ---              | 32.36          | 50.00        | 17.64       | L1   | 10.0       |
| 8.709500        | 40.99            | ---            | 60.00        | 19.01       | L1   | 10.0       |

## Conducted Emission

Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM2, Data Transmitter  
 Test Specification : Neutral  
 Comment : AC 120V/60Hz



| Frequency (MHz) | QuasiPeak (dBμV) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) |
|-----------------|------------------|----------------|--------------|-------------|------|------------|
| 0.158500        | ---              | 16.57          | 55.54        | 38.97       | N    | 9.6        |
| 0.158500        | 44.67            | ---            | 65.54        | 20.87       | N    | 9.6        |
| 0.201500        | ---              | 30.97          | 53.55        | 22.58       | N    | 9.8        |
| 0.201500        | 46.18            | ---            | 63.55        | 17.37       | N    | 9.8        |
| 0.278500        | ---              | 14.04          | 50.86        | 36.82       | N    | 10.0       |
| 0.278500        | 37.04            | ---            | 60.86        | 23.82       | N    | 10.0       |
| 2.893500        | ---              | 22.14          | 46.00        | 23.86       | N    | 9.8        |
| 2.893500        | 35.25            | ---            | 56.00        | 20.75       | N    | 9.8        |
| 3.477500        | ---              | 24.74          | 46.00        | 21.26       | N    | 9.8        |
| 3.477500        | 38.02            | ---            | 56.00        | 17.98       | N    | 9.8        |
| 8.517500        | ---              | 32.72          | 50.00        | 17.28       | N    | 9.9        |
| 8.517500        | 40.98            | ---            | 60.00        | 19.02       | N    | 9.9        |

**Test Equipment List****Conducted emission test**

| DESCRIPTION        | MANUFACTURER    | MODEL NO.      | SERIAL NO. | CAL. DUE DATE |
|--------------------|-----------------|----------------|------------|---------------|
| EMI Test Receiver  | Rohde & Schwarz | ESR 3          | 101782     | 2016-7-24     |
| LISN               | Rohde & Schwarz | ENV4200        | 100249     | 2016-7-24     |
| LISN               | Rohde & Schwarz | ENV216         | 100326     | 2016-7-24     |
| ISN                | Rohde & Schwarz | ENY81          | 100177     | 2016-7-24     |
| ISN                | Rohde & Schwarz | ENY81-CA6      | 101664     | 2016-7-24     |
| High Voltage Probe | Rohde & Schwarz | TK9420(VT9420) | 9420-58    | 2016-7-24     |
| RF Current Probe   | Rohde & Schwarz | EZ-17          | 100816     | 2016-7-24     |

## 8.2 Radiated Emission Test

### Test Method

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
3. Use the following spectrum analyzer settings:  
Span = wide enough to fully capture the emission being measured, RBW = 1 MHz for  $f \geq 1\text{GHz}$ , 100 kHz for  $f < 1\text{GHz}$ , VBW  $\geq$  RBW, Sweep = auto, Detector function = peak, Trace = max hold
4. Follow the guidelines in ANSI C63.4-1992 with respect to maximizing the emission by rotating the EUT, adjusting the measurement antenna height and polarization, etc.  
The peak reading of the emission, after being corrected by the antenna factor, cable loss, pre-amp gain, etc., is the peak field strength, submit this data. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

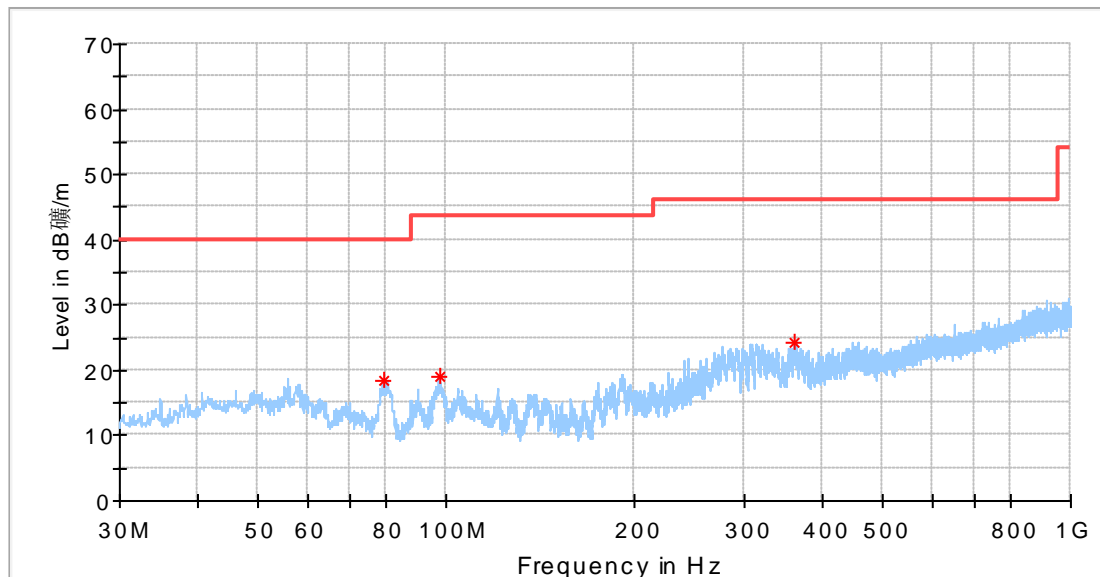
### Limit

According to §15.109, conducted emissions limit as below:

| Frequency<br>MHz | Field Strength<br>uV/m | Field Strength<br>dB $\mu$ V/m | Detector |
|------------------|------------------------|--------------------------------|----------|
| 30-88            | 100                    | 40                             | QP       |
| 88-216           | 150                    | 43.5                           | QP       |
| 216-960          | 200                    | 46                             | QP       |
| 960-1000         | 500                    | 54                             | QP       |
| Above 1000       | 500                    | 54                             | AV       |
| Above 1000       | 5000                   | 74                             | PK       |

## 8.2.1 Radiated Emission Test 30MHz – 1000MHz

Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM1; Charging Mode  
 Ant. Polarity : Horizontal  
 Comment : 30-1000MHz

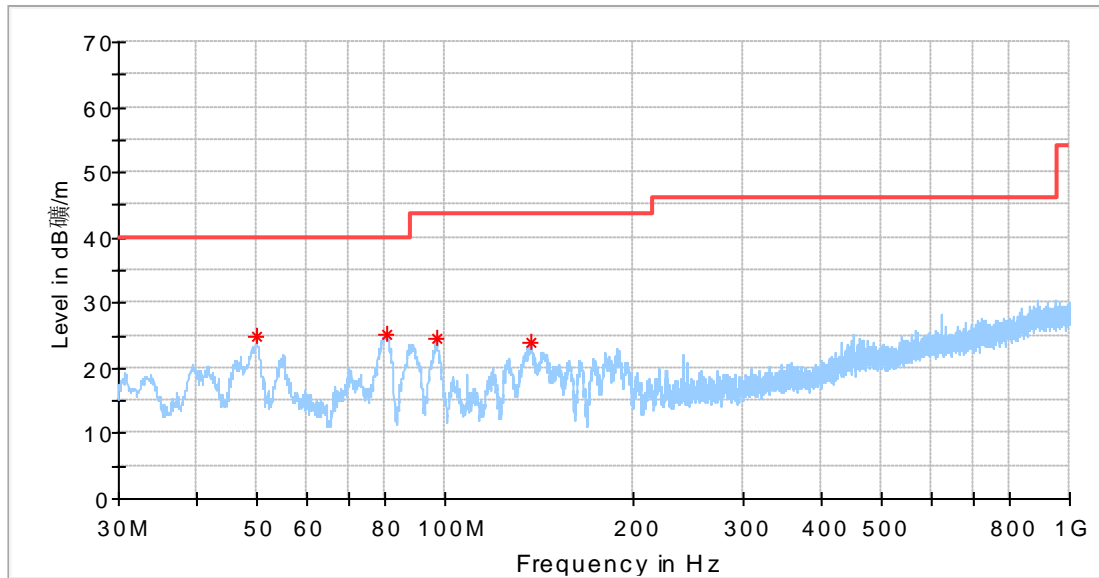


| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|
| 79.712500       | 18.32            | 40.00          | 21.68       | 200.0       | H   | 0.0           |
| 97.415000       | 18.99            | 43.50          | 24.51       | 200.0       | H   | 0.0           |
| 362.164375      | 24.38            | 46.00          | 21.62       | 100.0       | H   | 0.0           |



## Radiated Emission Test 30MHz – 1000MHz

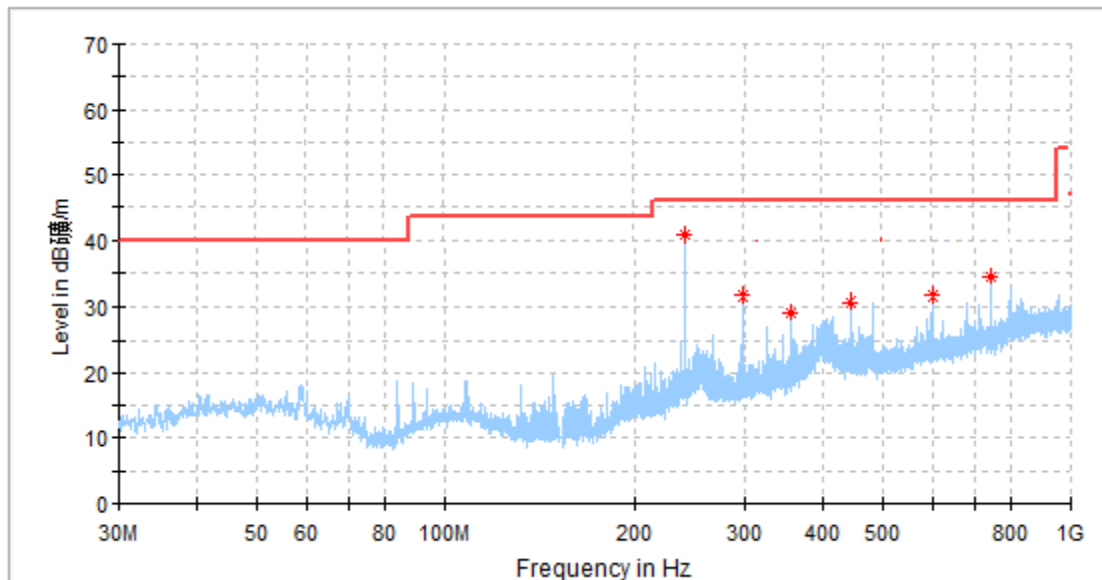
Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM1; Charging Mode  
 Ant. Polarity : Vertical  
 Comment : 30-1000MHz



| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|
| 49.885000       | 24.97            | 40.00          | 15.03       | 100.0       | V   | 0.0           |
| 80.440000       | 25.19            | 40.00          | 14.81       | 200.0       | V   | 0.0           |
| 96.930000       | 24.46            | 43.50          | 19.04       | 100.0       | V   | 0.0           |
| 137.488125      | 24.05            | 43.50          | 19.45       | 100.0       | V   | 265.0         |

## Radiated Emission Test 30MHz – 1000MHz

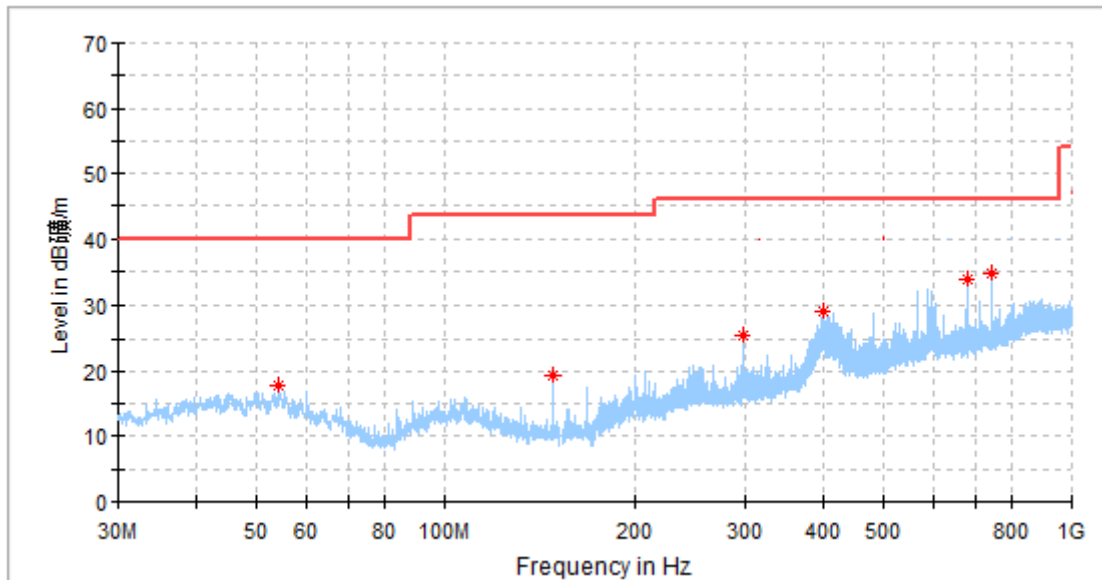
Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM2; Data Transmitter Mode  
 Ant. Polarity : Horizontal  
 Comment : 30-1000MHz



| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|------------|
| 240.00500       | 40.58            | 46.00          | 5.42        | 100.0       | H   | 0.0           | 14.2       |
| 296.99250       | 31.52            | 46.00          | 14.48       | 100.0       | H   | 0.0           | 15.5       |
| 356.40500       | 29.24            | 46.00          | 16.76       | 100.0       | H   | 355.0         | 17.0       |
| 445.52375       | 30.56            | 46.00          | 15.44       | 100.0       | H   | 108.0         | 18.6       |
| 598.96562       | 31.57            | 46.00          | 14.43       | 100.0       | H   | 0.0           | 21.7       |
| 742.52562       | 34.39            | 46.00          | 11.61       | 100.0       | H   | 44.0          | 23.2       |

## Radiated Emission Test 30MHz – 1000MHz

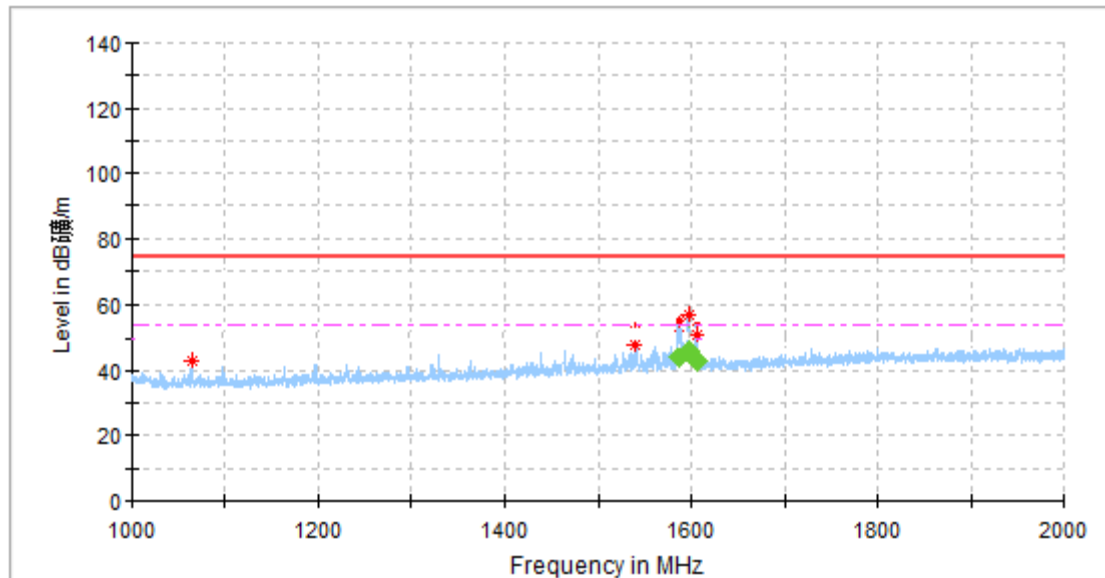
Product Type : POS  
 M/N : JioPay 2800  
 Operating Condition : TM2; Data Transmitter Mode  
 Ant. Polarity : Vertical  
 Comment : 30-1000MHz



| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) | Corr. (dB) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|------------|
| 54.128750       | 17.72            | 40.00          | 22.28       | 100.0       | V   | 272.0         | 14.9       |
| 148.46125       | 19.25            | 43.50          | 24.05       | 100.0       | V   | 263.0         | 10.2       |
| 296.99250       | 25.36            | 46.00          | 20.64       | 200.0       | V   | 0.0           | 15.5       |
| 401.57062       | 29.04            | 46.00          | 16.96       | 100.0       | V   | 0.0           | 18.0       |
| 683.11312       | 33.85            | 46.00          | 12.15       | 100.0       | V   | 71.0          | 22.3       |
| 742.52562       | 34.78            | 46.00          | 11.22       | 100.0       | V   | 89.0          | 23.2       |

## 8.2.2 Radiated Emission Test 1GHz – 2GHz

Product Type : POS  
 M/N : JioPay 3850  
 Operating Condition : TM1; Charging Mode  
 Ant. Polarity : Horizontal  
 Comment : Above 1GHz

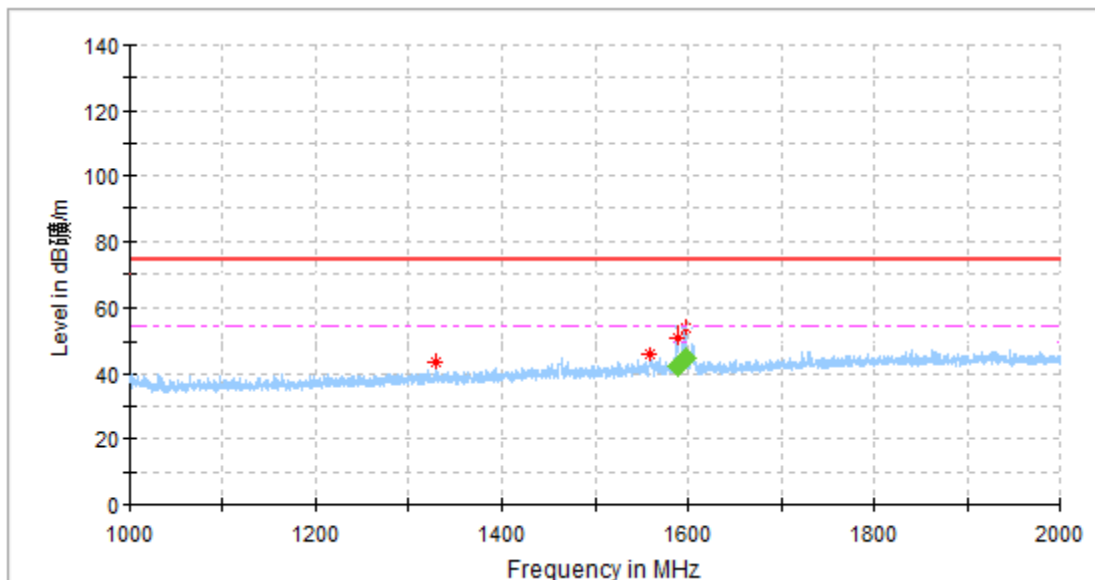


| Frequency (MHz) | MaxPeak (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|
| 1064.000000     | 42.81            | 74.00          | 31.19       | 100.0       | H   | 95.0          |
| 1538.750000     | 47.92            | 74.00          | 26.08       | 200.0       | H   | 94.0          |
| 1586.500000     | 53.28            | 74.00          | 20.72       | 100.0       | H   | 95.0          |
| 1596.000000     | 57.22            | 74.00          | 16.78       | 200.0       | H   | 245.0         |
| 1604.750000     | 51.15            | 74.00          | 22.85       | 100.0       | H   | 95.0          |

| Frequency (MHz) | Ave (dBµV/m) | Limit (dBµV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|--------------|----------------|-------------|-------------|-----|---------------|
| 1586.500000     | 44.50        | 54.00          | 9.50        | 16.7        | H   | 95.0          |
| 1596.000000     | 46.00        | 54.00          | 8.00        | 12.8        | H   | 245.0         |
| 1604.750000     | 43.20        | 54.00          | 10.80       | 18.9        | H   | 95.0          |

## Radiated Emission Test 1GHz – 6GHz

Product Type : POS  
 M/N : JioPay 3850  
 Operating Condition : TM1; Charging Mode  
 Ant. Polarity : Vertical  
 Comment : Above 1GHz



| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|
| 1330.000000     | 43.68            | 74.00          | 30.32       | 100.0       | V   | 260.0         |
| 1558.250000     | 45.86            | 74.00          | 28.14       | 100.0       | V   | 355.0         |
| 1588.000000     | 51.08            | 74.00          | 22.92       | 100.0       | V   | 134.0         |
| 1596.500000     | 53.82            | 74.00          | 20.18       | 100.0       | V   | 0.0           |

| Frequency (MHz) | MaxPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Height (cm) | Pol | Azimuth (deg) |
|-----------------|------------------|----------------|-------------|-------------|-----|---------------|
| 1588.000000     | 42.70            | 54.00          | 11.30       | 100.0       | V   | 134.0         |
| 1596.000000     | 44.80            | 54.00          | 9.20        | 100.0       | V   | 0.0           |

**Test Equipment List****Radiated Emission Test**

| DESCRIPTION                         | MANUFACTURER    | MODEL NO. | SERIAL NO. | CAL. DUE DATE |
|-------------------------------------|-----------------|-----------|------------|---------------|
| EMI Test Receiver                   | Rohde & Schwarz | ESR 26    | 101269     | 2016-7-24     |
| Trilog Super Broadband Test Antenna | Schwarzbeck     | VULB 9163 | 707        | 2016-8-14     |
| Horn Antenna                        | Rohde & Schwarz | HF907     | 102294     | 2016-7-24     |
| Pre-amplifier                       | Rohde & Schwarz | SCU 18    | 102230     | 2016-7-24     |
| 3m Semi-anechoic chamber            | TDK             | 9X6X6     | ----       | 2019-5-29     |

## 9 System Measurement Uncertainty

For a 95% confidence level, the measurement expanded uncertainties for defined systems, in accordance with the recommendations of ISO 17025 were:

| System Measurement Uncertainty   |  |
|--|--|
| Test Items   | Extended Uncertainty                     |
| Uncertainty for Conducted Emission 150kHz-30MHz (for test using AMN ENV216 or ENV4200) | 3.50dB                                   |
| Uncertainty for Radiated Spurious Emission 25MHz-3000MHz                               | Horizontal: 4.95dB;<br>Vertical: 5.02dB; |
| Uncertainty for Radiated Spurious Emission 3000MHz-18000MHz                            | Horizontal: 4.89dB;<br>Vertical: 4.88dB; |