

APPLICATION CERTIFICATION FCC Part 15C  
On Behalf of  
PIPO TECHNOLOGY CO., LIMITED

Media box  
Model No.: X8

FCC ID: PT7-X9

Prepared for : PIPO TECHNOLOGY CO., LIMITED  
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Prepared by : ACCURATE TECHNOLOGY CO., LTD  
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Report No. : ATE20161492  
Date of Original : June 13-27, 2016  
Test  
Date of new : June 13-July 20, 2016  
Test  
Date of Report : June 28, 2016  
REV.1  
Date of Report : July 21, 2016  
REV.2

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## Test Report Certification

Applicant : PIPO TECHNOLOGY CO., LIMITED  
Manufacturer : PIPO TECHNOLOGY CO., LIMITED  
EUT Description : Media box  
Model No. : X8  
Trade Mark : N/A

Measurement Procedure Used:

### **FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2015 ANSI C63.10: 2013**

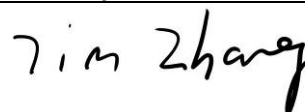
The EUT was tested according to DTS test procedure of Apr 08, 2016 KDB558074 D01 DTS Meas Guidance v03r05 for compliance to FCC 47CFR 15.247 requirements

The device described above is tested by ACCURATE TECHNOLOGY CO. LTD to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C Section 15.247 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY CO. LTD is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of ACCURATE TECHNOLOGY CO. LTD.

|                         |                       |
|-------------------------|-----------------------|
| Date of Original Test : | June 13-27, 2016      |
| Date of NEW Test :      | June 13-July 20, 2016 |
| Date of Report REV.1 :  | June 28, 2016         |
| Date of Report REV.2 :  | July 21, 2016         |

Prepared by :



(Tim.zhang, Engineer)

Approved & Authorized Signer :



( Sean Liu, Manager)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

|                         |   |                                                                                                                       |
|-------------------------|---|-----------------------------------------------------------------------------------------------------------------------|
| EUT                     | : | Media box                                                                                                             |
| Model Number            | : | X8                                                                                                                    |
| Bluetooth version       | : | BT V4.0 Dual Mode<br>This report is for BT V4.0 LE mode                                                               |
| Frequency Range         | : | 2402MHz-2480MHz                                                                                                       |
| Number of Channels      | : | 40 for BT V4.0 LE<br>79 for BT classic mode                                                                           |
| Antenna Gain            | : | 2dBi                                                                                                                  |
| Antenna type            | : | External Antenna                                                                                                      |
| Power Supply            | : | AC 100-240V~50/60Hz                                                                                                   |
| Adapter information     | : | Model:KA1433-1202400JP<br>Input: 100-240V~50/60Hz 1.0A Max<br>Out: 12V/2400mA                                         |
| Modulation mode         | : | GFSK for BT V4.0 LE<br>GFSK, $\pi/4$ DQPSK, 8DPSK for BT classic mode                                                 |
| Applicant               | : | PIPO TECHNOLOGY CO., LIMITED                                                                                          |
| Address                 | : | Area C, 3F, Bao Yun Da Logistics Centre, Warehouse<br>Building, Xi Xiang Avenue, Bao An District, Shenzhen,<br>China. |
| Manufacturer            | : | PIPO TECHNOLOGY CO., LIMITED                                                                                          |
| Address                 | : | Area C, 3F, Bao Yun Da Logistics Centre, Warehouse<br>Building, Xi Xiang Avenue, Bao An District, Shenzhen,<br>China. |
| Date of sample received | : | Jun 13, 2016                                                                                                          |
| Date of Test            | : | June 13-July 20, 2016                                                                                                 |

## 1.2.Carrier Frequency of Channels

| Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) | Channel | Frequency (MHz) |
|---------|-----------------|---------|-----------------|---------|-----------------|---------|-----------------|
| 0       | 2402            | 10      | 2422            | 20      | 2442            | 30      | 2462            |
| 1       | 2404            | 11      | 2424            | 21      | 2444            | 31      | 2464            |
| 2       | 2406            | 12      | 2426            | 22      | 2446            | 32      | 2466            |
| 3       | 2408            | 13      | 2428            | 23      | 2448            | 33      | 2468            |
| 4       | 2410            | 14      | 2430            | 24      | 2450            | 34      | 2470            |
| 5       | 2412            | 15      | 2432            | 25      | 2452            | 35      | 2472            |
| 6       | 2414            | 16      | 2434            | 26      | 2454            | 36      | 2474            |
| 7       | 2416            | 17      | 2436            | 27      | 2456            | 37      | 2476            |
| 8       | 2418            | 18      | 2438            | 28      | 2458            | 38      | 2478            |
| 9       | 2420            | 19      | 2440            | 29      | 2460            | 39      | 2480            |

### 1.3.Product differentiation Description



Note: Please refer to the above two pictures, in addition to the screen size of the product is not the same, the other circuit is exactly the same. After evaluation, We will test the the Conducted Emission and Radiated spurious emission(below 1GHz) for X8, Other projects refer to X9 test data, The original report number is ATE20161169.

#### 1.4.Special Accessory and Auxiliary Equipment

N/A

#### 1.5.Description of Test Facility

EMC Lab : Accredited by TUV Rheinland Shenzhen

Listed by FCC

The Registration Number is 752051

Listed by Industry Canada

The Registration Number is 5077A-2

Accredited by China National Accreditation Committee  
for Laboratories

The Certificate Registration Number is L3193

Name of Firm : ACCURATE TECHNOLOGY CO. LTD

Site Location : F1, Bldg. A, Changyuan New Material Port, Keyuan Rd.  
Science & Industry Park, Nanshan, Shenzhen, Guangdong  
P.R. China

#### 1.6.Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

Radiated emission expanded uncertainty = 3.08dB, k=2  
(9kHz-30MHz)

Radiated emission expanded uncertainty = 4.42dB, k=2  
(30MHz-1000MHz)

Radiated emission expanded uncertainty = 4.06dB, k=2  
(Above 1GHz)

## 2. MEASURING DEVICE AND TEST EQUIPMENT

**Table 1: List of Test and Measurement Equipment**

| Kind of equipment  | Manufacturer              | Type                                    | S/N        | Calibrated dates | Calibrated until |
|--------------------|---------------------------|-----------------------------------------|------------|------------------|------------------|
| EMI Test Receiver  | Rohde&Schwarz             | ESCS30                                  | 100307     | Jan. 9, 2016     | 1 Year           |
| EMI Test Receiver  | Rohde&Schwarz             | ESPI3                                   | 101526/003 | Jan. 9, 2016     | 1 Year           |
| Spectrum Analyzer  | Agilent                   | E7405A                                  | MY45115511 | Jan. 9, 2016     | 1 Year           |
| Pre-Amplifier      | Rohde&Schwarz             | CBLU118354<br>0-01                      | 3791       | Jan. 9, 2016     | 1 Year           |
| Loop Antenna       | Schwarzbeck               | FMZB1516                                | 1516131    | Jan. 14, 2016    | 1 Year           |
| Bilog Antenna      | Schwarzbeck               | VULB9163                                | 9163-323   | Jan. 14, 2016    | 1 Year           |
| Horn Antenna       | Schwarzbeck               | BBHA9120D                               | 9120D-655  | Jan. 14, 2016    | 1 Year           |
| Horn Antenna       | Schwarzbeck               | BBHA9170                                | 9170-359   | Jan. 14, 2016    | 1 Year           |
| LISN               | Rohde&Schwarz             | ESH3-Z5                                 | 100305     | Jan. 9, 2016     | 1 Year           |
| LISN               | Schwarzbeck               | NSLK8126                                | 8126431    | Jan. 9, 2016     | 1 Year           |
| Highpass Filter    | Wainwright<br>Instruments | WHKX3.6/18<br>G-10SS                    | N/A        | Jan. 9, 2016     | 1 Year           |
| Band Reject Filter | Wainwright<br>Instruments | WRCG2400/2<br>485-2375/2510<br>-60/11SS | N/A        | Jan. 9, 2016     | 1 Year           |

### 3. OPERATION OF EUT DURING TESTING

#### 3.1.Operating Mode

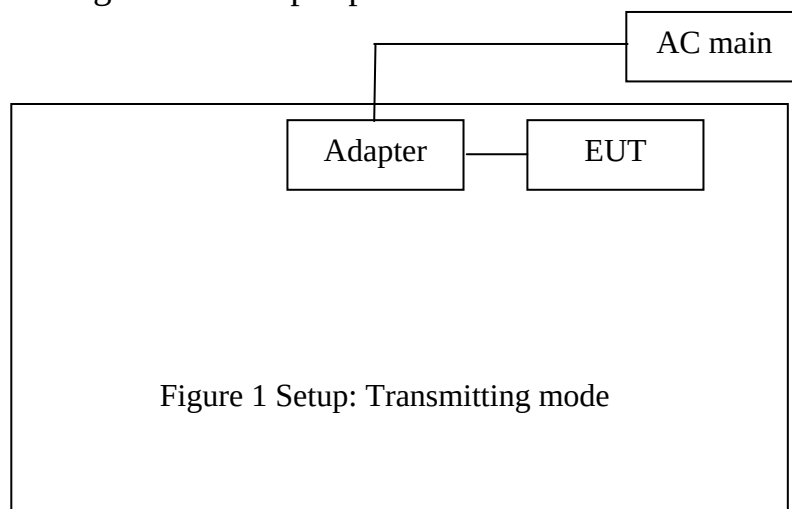
The mode is used: **BLE Transmitting mode**

Low Channel: 2402MHz

Middle Channel: 2440MHz

High Channel: 2480MHz

#### 3.2.Configuration and peripherals

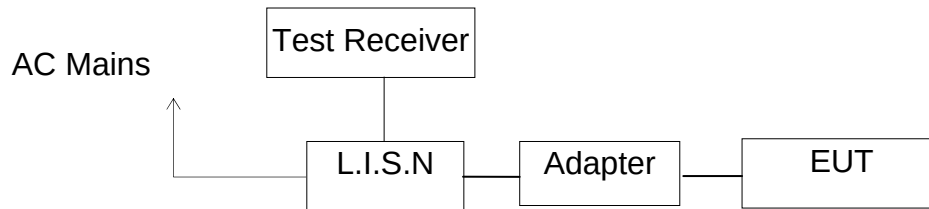


#### 4. TEST PROCEDURES AND RESULTS

| FCC Rules                           | Description of Test                   | Result    |
|-------------------------------------|---------------------------------------|-----------|
| Section 15.247(d)<br>Section 15.209 | Radiated Spurious Emission Test       | Compliant |
| Section 15.207                      | AC Power Line Conducted Emission Test | Compliant |
| Section 15.203                      | Antenna Requirement                   | Compliant |

## 5. POWER LINE CONDUCTED MEASUREMENT

### 5.1. Block Diagram of Test Setup



(EUT: Media box)

### 5.2. Power Line Conducted Emission Measurement Limits

| Frequency<br>(MHz)                                                                                       | Limit dB( $\mu$ V) |               |
|----------------------------------------------------------------------------------------------------------|--------------------|---------------|
|                                                                                                          | Quasi-peak Level   | Average Level |
| 0.15 - 0.50                                                                                              | 66.0 – 56.0 *      | 56.0 – 46.0 * |
| 0.50 - 5.00                                                                                              | 56.0               | 46.0          |
| 5.00 - 30.00                                                                                             | 60.0               | 50.0          |
| NOTE1: The lower limit shall apply at the transition frequencies.                                        |                    |               |
| NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz. |                    |               |

### 5.3. Configuration of EUT on Measurement

The following equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

### 5.4. Operating Condition of EUT

5.4.1. Setup the EUT and simulator as shown as Section 5.1.

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in test mode and measure it.

### 5.5.Test Procedure

The EUT is put on the plane 0.8 m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.10: 2013 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

### 5.6.Power Line Conducted Emission Measurement Results

**PASS.**

The frequency range from 150kHz to 30MHz is checked.

Test mode : BT communicating(AC 120V/60Hz)

EUT mode : X8

**MEASUREMENT RESULT: "PIPO617005\_fin"**

6/17/2016 9:38AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.560000         | 43.00         | 10.7         | 56            | 13.0         | QP       | L1   | GND |
| 0.890000         | 26.90         | 10.8         | 56            | 29.1         | QP       | L1   | GND |
| 26.320000        | 38.50         | 11.5         | 60            | 21.5         | QP       | L1   | GND |

**MEASUREMENT RESULT: "PIPO617005\_fin2"**

6/17/2016 9:38AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.555000         | 36.20         | 10.7         | 46            | 9.8          | AV       | L1   | GND |
| 1.275000         | 15.60         | 10.9         | 46            | 30.4         | AV       | L1   | GND |
| 26.050000        | 34.10         | 11.5         | 50            | 15.9         | AV       | L1   | GND |

**MEASUREMENT RESULT: "PIPO617006\_fin"**

6/17/2016 9:42AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.555000         | 42.10         | 10.7         | 56            | 13.9         | QP       | N    | GND |
| 0.965000         | 27.90         | 10.8         | 56            | 28.1         | QP       | N    | GND |
| 26.110000        | 36.10         | 11.5         | 60            | 23.9         | QP       | N    | GND |

**MEASUREMENT RESULT: "PIPO617006\_fin2"**

6/17/2016 9:42AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.560000         | 35.60         | 10.7         | 46            | 10.4         | AV       | N    | GND |
| 0.900000         | 21.20         | 10.8         | 46            | 24.8         | AV       | N    | GND |
| 26.200000        | 31.40         | 11.5         | 50            | 18.6         | AV       | N    | GND |

Test mode : BT communicating(AC 240V/60Hz)

EUT mode : X8

**MEASUREMENT RESULT: "PIPO617004\_fin"**

6/17/2016 9:34AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.585000         | 39.70         | 10.7         | 56            | 16.3         | QP       | L1   | GND |
| 1.065000         | 30.20         | 10.9         | 56            | 25.8         | QP       | L1   | GND |
| 26.785000        | 40.90         | 11.5         | 60            | 19.1         | QP       | L1   | GND |

**MEASUREMENT RESULT: "PIPO617004\_fin2"**

6/17/2016 9:34AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.585000         | 32.90         | 10.7         | 46            | 13.1         | AV       | L1   | GND |
| 1.075000         | 22.90         | 10.9         | 46            | 23.1         | AV       | L1   | GND |
| 26.650000        | 37.10         | 11.5         | 50            | 12.9         | AV       | L1   | GND |

**MEASUREMENT RESULT: "PIPO617003\_fin"**

6/17/2016 9:30AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.580000         | 38.30         | 10.7         | 56            | 17.7         | QP       | N    | GND |
| 4.510000         | 27.20         | 11.1         | 56            | 28.8         | QP       | N    | GND |
| 26.830000        | 38.60         | 11.5         | 60            | 21.4         | QP       | N    | GND |

**MEASUREMENT RESULT: "PIPO617003\_fin2"**

6/17/2016 9:30AM

| Frequency<br>MHz | Level<br>dBμV | Transd<br>dB | Limit<br>dBμV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.570000         | 32.20         | 10.7         | 46            | 13.8         | AV       | N    | GND |
| 4.260000         | 24.50         | 11.1         | 46            | 21.5         | AV       | N    | GND |
| 26.440000        | 34.40         | 11.5         | 50            | 15.6         | AV       | N    | GND |

Emissions attenuated more than 20 dB below the permissible value are not reported.

The spectral diagrams are attached as below.

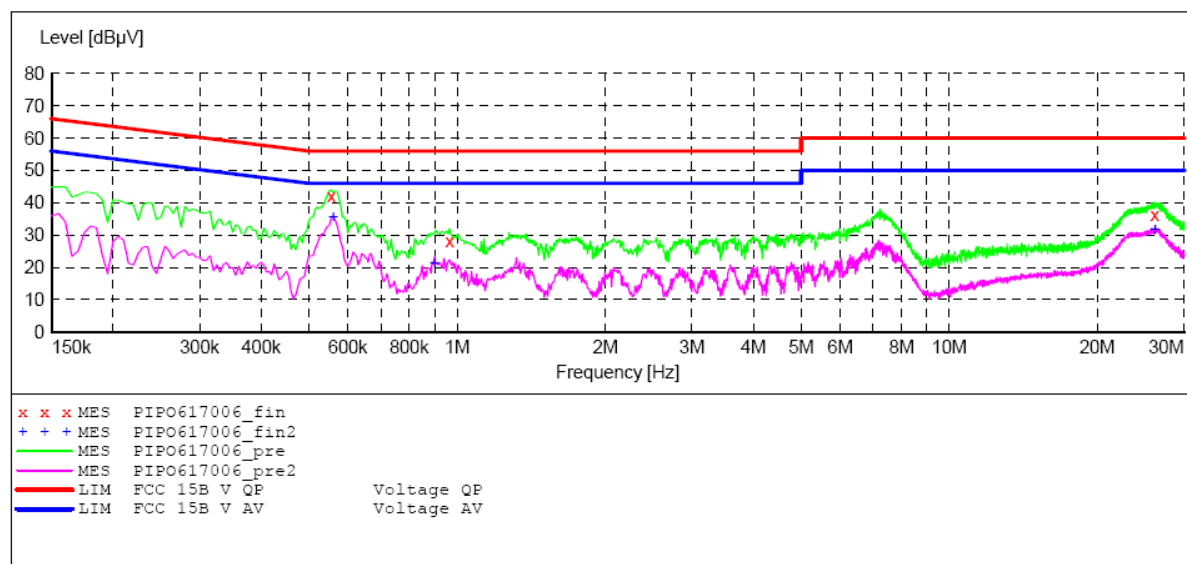
## ACCURATE TECHNOLOGY CO.,LTD

### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Media box M/N:X8  
 Manufacturer: Pipo  
 Operating Condition: BT OPERATION  
 Test Site: 1#Shielding Room  
 Operator: STAR  
 Test Specification: N 120V/60Hz  
 Comment: Report No.:ATE20161492  
 Start of Test: 6/17/2016 / 9:39:01AM

### SCAN TABLE: "V 9K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008  
 Average  
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



### MEASUREMENT RESULT: "PIPO617006\_fin"

6/17/2016 9:42AM

| Frequency MHz | Level dBuV | Transd dB | Limit dBuV | Margin dB | Detector | Line | PE  |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.555000      | 42.10      | 10.7      | 56         | 13.9      | QP       | N    | GND |
| 0.965000      | 27.90      | 10.8      | 56         | 28.1      | QP       | N    | GND |
| 26.110000     | 36.10      | 11.5      | 60         | 23.9      | QP       | N    | GND |

### MEASUREMENT RESULT: "PIPO617006\_fin2"

6/17/2016 9:42AM

| Frequency MHz | Level dBuV | Transd dB | Limit dBuV | Margin dB | Detector | Line | PE  |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.560000      | 35.60      | 10.7      | 46         | 10.4      | AV       | N    | GND |
| 0.900000      | 21.20      | 10.8      | 46         | 24.8      | AV       | N    | GND |
| 26.200000     | 31.40      | 11.5      | 50         | 18.6      | AV       | N    | GND |

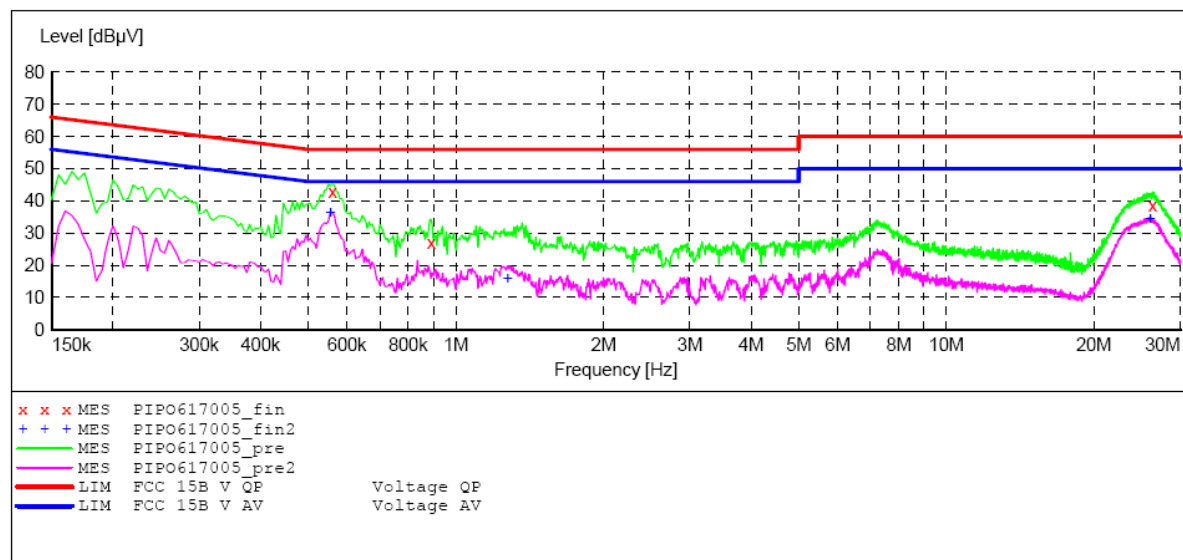
## ACCURATE TECHNOLOGY CO.,LTD

### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Media box M/N:X8  
 Manufacturer: Pipo  
 Operating Condition: BT OPERATION  
 Test Site: 1#Shielding Room  
 Operator: STAR  
 Test Specification: L 120V/60Hz  
 Comment: Report No.:ATE20161492  
 Start of Test: 6/17/2016 / 9:35:27AM

### SCAN TABLE: "V 9K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008  
 Average  
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



### MEASUREMENT RESULT: "PIPO617005\_fin"

6/17/2016 9:38AM

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.560000         | 43.00         | 10.7         | 56            | 13.0         | QP       | L1   | GND |
| 0.890000         | 26.90         | 10.8         | 56            | 29.1         | QP       | L1   | GND |
| 26.320000        | 38.50         | 11.5         | 60            | 21.5         | QP       | L1   | GND |

### MEASUREMENT RESULT: "PIPO617005\_fin2"

6/17/2016 9:38AM

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.555000         | 36.20         | 10.7         | 46            | 9.8          | AV       | L1   | GND |
| 1.275000         | 15.60         | 10.9         | 46            | 30.4         | AV       | L1   | GND |
| 26.050000        | 34.10         | 11.5         | 50            | 15.9         | AV       | L1   | GND |

## ACCURATE TECHNOLOGY CO., LTD

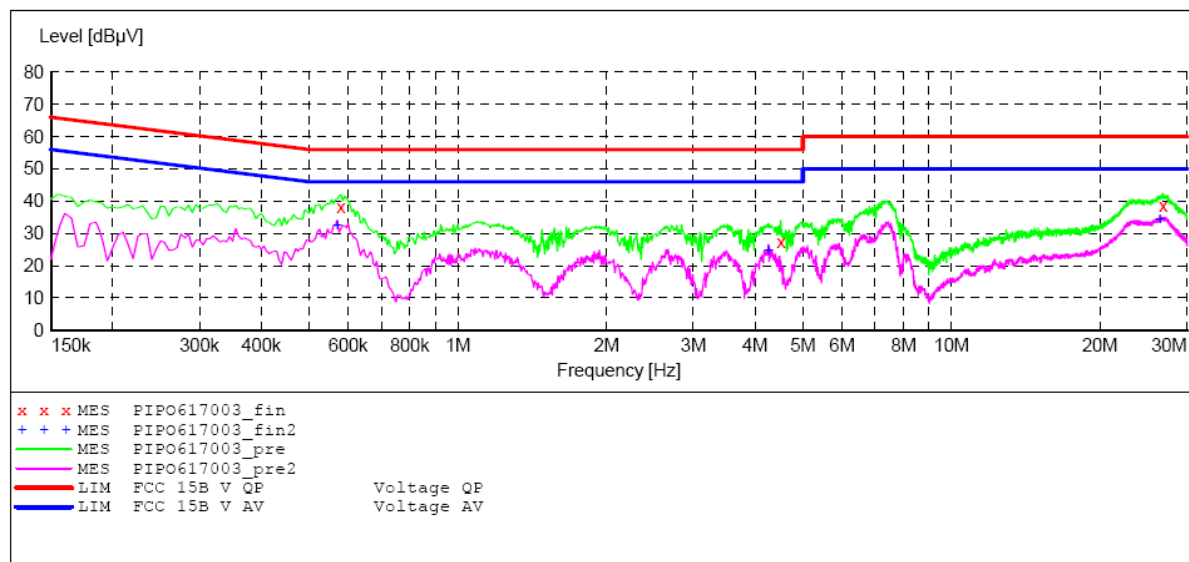
### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Media box M/N:X8  
 Manufacturer: Pipo  
 Operating Condition: BT operation  
 Test Site: 1#Shielding Room  
 Operator: STAR  
 Test Specification: N 240V/60Hz  
 Comment: Report No.:ATE20161492  
 Start of Test: 6/17/2016 / 9:26:58AM

### SCAN TABLE: "V 9K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70

| Start             | Stop                | Step           | Detector  | Meas. Time | IF Bandw. | Transducer    |
|-------------------|---------------------|----------------|-----------|------------|-----------|---------------|
| Frequency 9.0 kHz | Frequency 150.0 kHz | Width 100.0 Hz | QuasiPeak | 1.0 s      | 200 Hz    | NSLK8126 2008 |
| 150.0 kHz         | 30.0 MHz            | 5.0 kHz        | QuasiPeak | 1.0 s      | 9 kHz     | NSLK8126 2008 |
| Average           |                     |                |           |            |           |               |



### MEASUREMENT RESULT: "PIPO617003\_fin"

6/17/2016 9:30AM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE  |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.580000      | 38.30      | 10.7      | 56         | 17.7      | QP       | N    | GND |
| 4.510000      | 27.20      | 11.1      | 56         | 28.8      | QP       | N    | GND |
| 26.830000     | 38.60      | 11.5      | 60         | 21.4      | QP       | N    | GND |

### MEASUREMENT RESULT: "PIPO617003\_fin2"

6/17/2016 9:30AM

| Frequency MHz | Level dBμV | Transd dB | Limit dBμV | Margin dB | Detector | Line | PE  |
|---------------|------------|-----------|------------|-----------|----------|------|-----|
| 0.570000      | 32.20      | 10.7      | 46         | 13.8      | AV       | N    | GND |
| 4.260000      | 24.50      | 11.1      | 46         | 21.5      | AV       | N    | GND |
| 26.440000     | 34.40      | 11.5      | 50         | 15.6      | AV       | N    | GND |

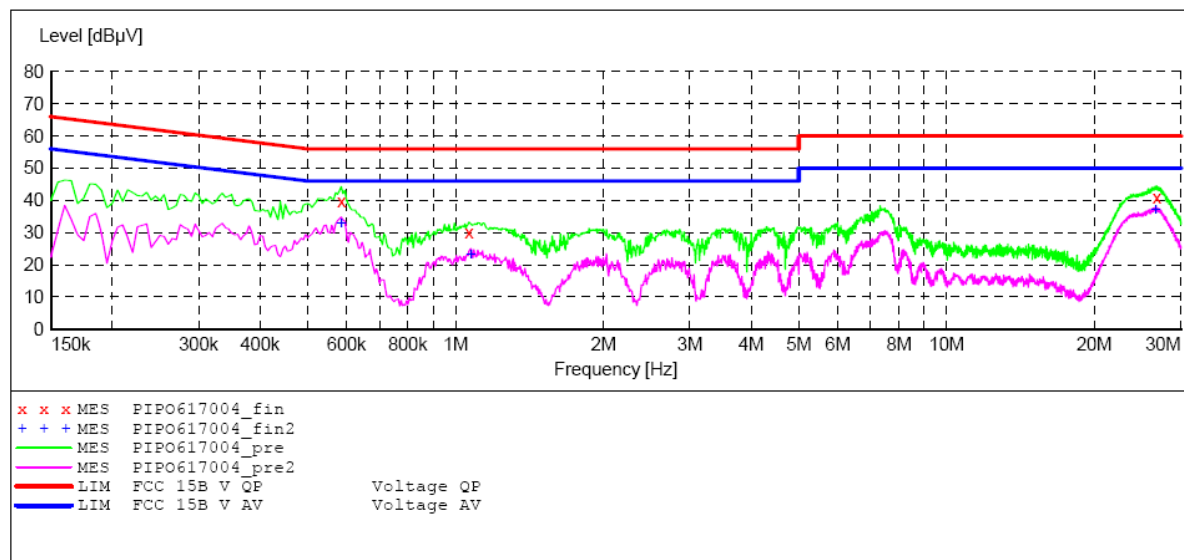
## ACCURATE TECHNOLOGY CO.,LTD

### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Media box M/N:X8  
 Manufacturer: Pipo  
 Operating Condition: BT OPERATION  
 Test Site: 1#Shielding Room  
 Operator: STAR  
 Test Specification: L 240V/60Hz  
 Comment: Report No.:ATE20161492  
 Start of Test: 6/17/2016 / 9:30:39AM

### SCAN TABLE: "V 9K-30MHz fin"

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008  
 Average  
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



### MEASUREMENT RESULT: "PIPO617004\_fin"

6/17/2016 9:34AM

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.585000         | 39.70         | 10.7         | 56            | 16.3         | QP       | L1   | GND |
| 1.065000         | 30.20         | 10.9         | 56            | 25.8         | QP       | L1   | GND |
| 26.785000        | 40.90         | 11.5         | 60            | 19.1         | QP       | L1   | GND |

### MEASUREMENT RESULT: "PIPO617004\_fin2"

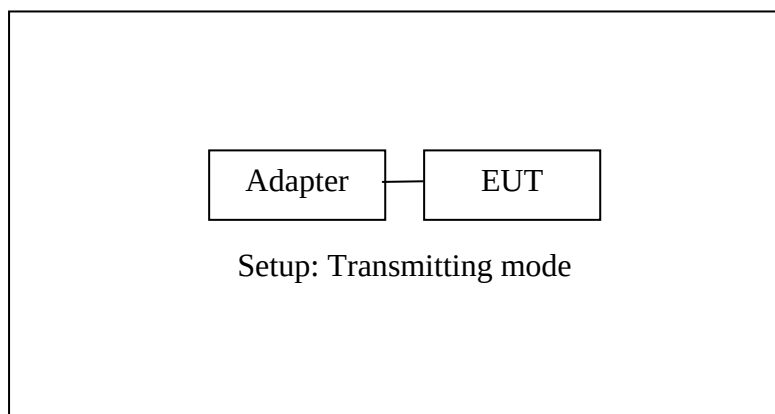
6/17/2016 9:34AM

| Frequency<br>MHz | Level<br>dBuV | Transd<br>dB | Limit<br>dBuV | Margin<br>dB | Detector | Line | PE  |
|------------------|---------------|--------------|---------------|--------------|----------|------|-----|
| 0.585000         | 32.90         | 10.7         | 46            | 13.1         | AV       | L1   | GND |
| 1.075000         | 22.90         | 10.9         | 46            | 23.1         | AV       | L1   | GND |
| 26.650000        | 37.10         | 11.5         | 50            | 12.9         | AV       | L1   | GND |

## 6. RADIATED SPURIOUS EMISSION TEST

### 6.1. Block Diagram of Test Setup

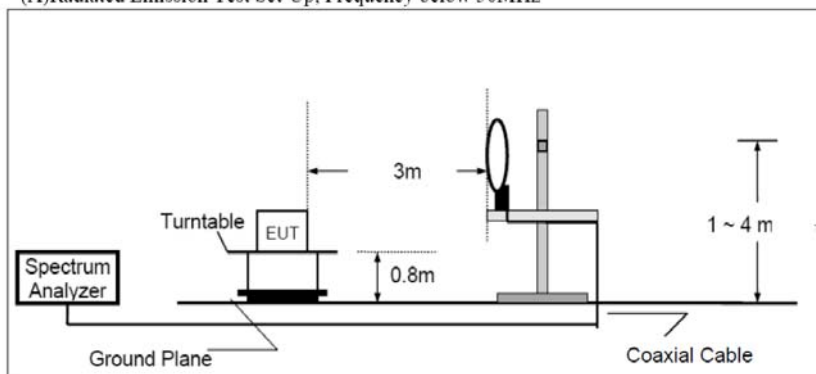
#### 6.1.1. Block diagram of connection between the EUT and peripherals



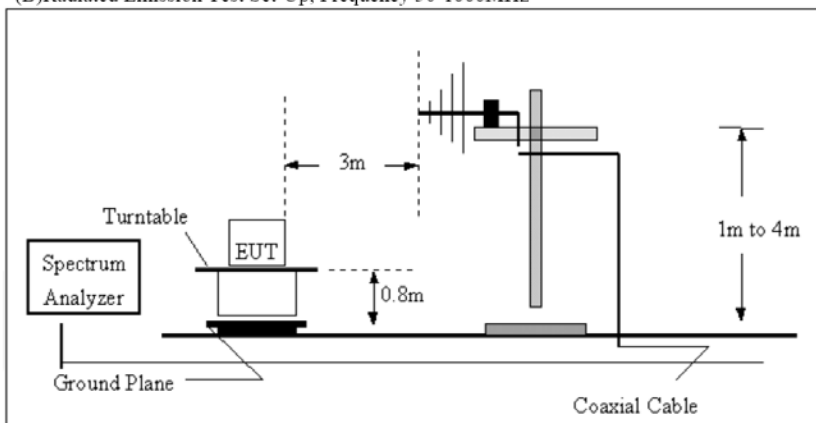
(EUT: Media box)

#### 6.1.2. Semi-Anechoic Chamber Test Setup Diagram

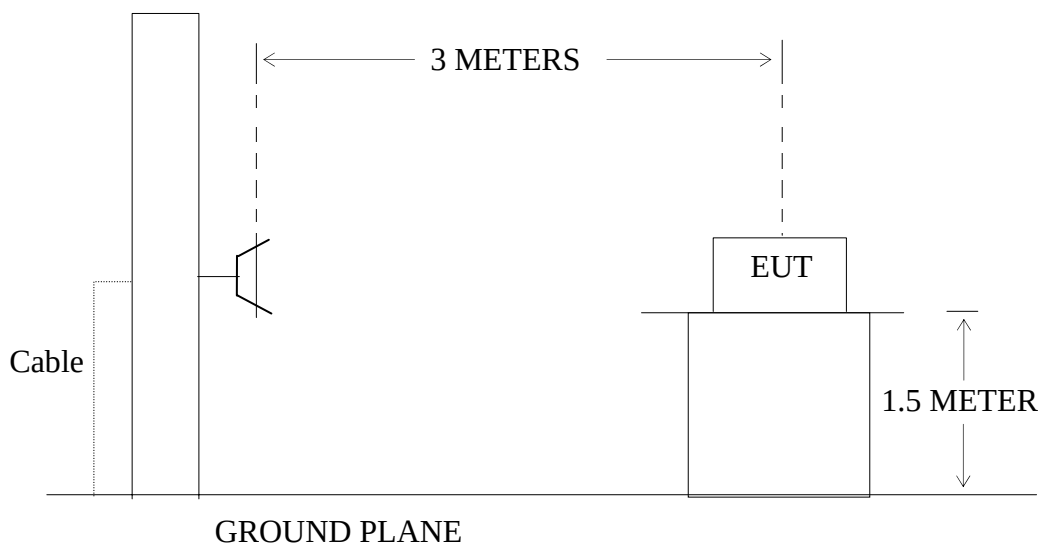
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(B) Radiated Emission Test Set-Up, Frequency 30-1000MHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



## 6.2.The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 6.3.Restricted bands of operation

#### 6.3.1.FCC Part 15.205 Restricted bands of operation

(a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

| MHz                      | MHz                 | MHz           | GHz              |
|--------------------------|---------------------|---------------|------------------|
| 0.090-0.110              | 16.42-16.423        | 399.9-410     | 4.5-5.15         |
| <sup>1</sup> 0.495-0.505 | 16.69475-16.69525   | 608-614       | 5.35-5.46        |
| 2.1735-2.1905            | 16.80425-16.80475   | 960-1240      | 7.25-7.75        |
| 4.125-4.128              | 25.5-25.67          | 1300-1427     | 8.025-8.5        |
| 4.17725-4.17775          | 37.5-38.25          | 1435-1626.5   | 9.0-9.2          |
| 4.20725-4.20775          | 73-74.6             | 1645.5-1646.5 | 9.3-9.5          |
| 6.215-6.218              | 74.8-75.2           | 1660-1710     | 10.6-12.7        |
| 6.26775-6.26825          | 108-121.94          | 1718.8-1722.2 | 13.25-13.4       |
| 6.31175-6.31225          | 123-138             | 2200-2300     | 14.47-14.5       |
| 8.291-8.294              | 149.9-150.05        | 2310-2390     | 15.35-16.2       |
| 8.362-8.366              | 156.52475-156.52525 | 2483.5-2500   | 17.7-21.4        |
| 8.37625-8.38675          | 156.7-156.9         | 2690-2900     | 22.01-23.12      |
| 8.41425-8.41475          | 162.0125-167.17     | 3260-3267     | 23.6-24.0        |
| 12.29-12.293             | 167.72-173.2        | 3332-3339     | 31.2-31.8        |
| 12.51975-12.52025        | 240-285             | 3345.8-3358   | 36.43-36.5       |
| 12.57675-12.57725        | 322-335.4           | 3600-4400     | ( <sup>2</sup> ) |
| 13.36-13.41              |                     |               |                  |

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510

<sup>2</sup>Above 38.6

(b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

### 6.4.Configuration of EUT on Measurement

The equipment are installed on Radiated Emission Measurement to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

## 6.5. Operating Condition of EUT

6.5.1. Setup the EUT and simulator as shown as Section 10.1.

6.5.2. Turn on the power of all equipment.

6.5.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402-2480MHz. We select 2402MHz, 2440MHz, and 2480MHz TX frequency to transmit.

## 6.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.1 meter high above ground (Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground (Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9 kHz in below 30MHz. and set at 120 kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9 kHz to 25GHz is checked.

The final measurement in band 9-90 kHz, 110-490 kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

## 6.7. The Field Strength of Radiation Emission Measurement Results

PASS.

**Note: 1. Emissions attenuated more than 20 dB below the permissible value are not reported.**

**2. \*: Denotes restricted band of operation.**

**3. The radiation emissions from 18-25GHz are not reported, because the test values lower than the limits of 20dB.**

**Below 1GHz(X8)**



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Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: STAR2016 #1186

Standard: FCC PART 15 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Media box

Mode: TX 2402MHz

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

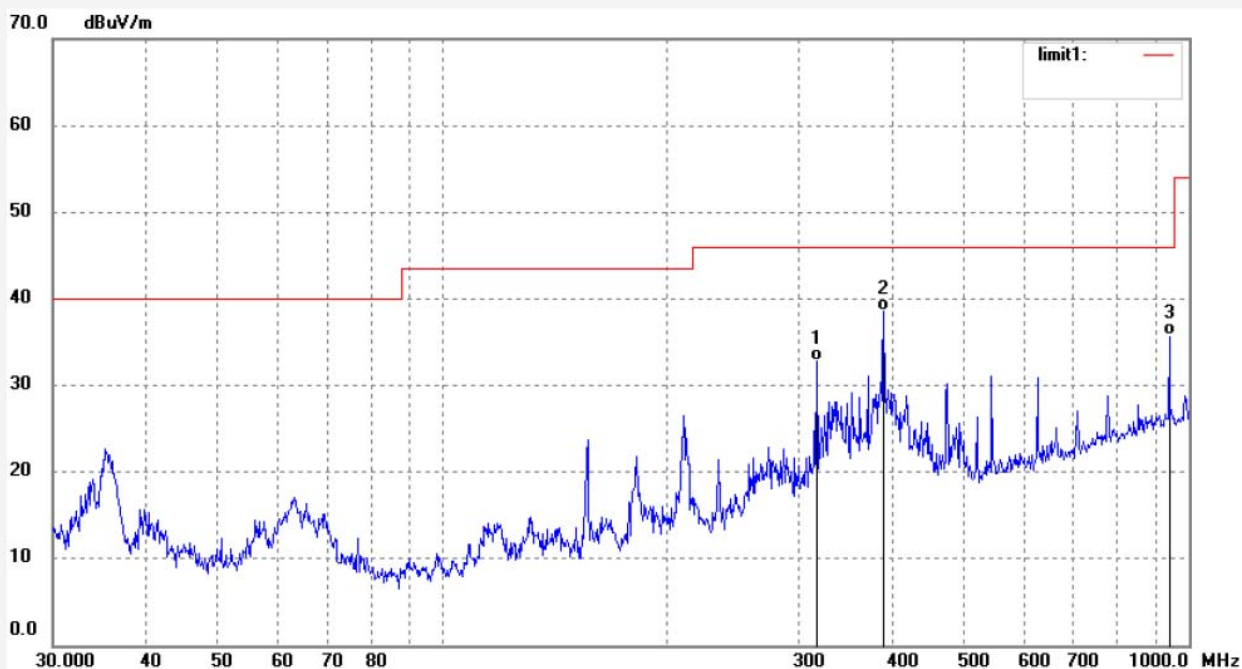
Date: 16/06/15/

Time: 10/39/26

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161492



| No. | Freq.<br>(MHz) | Reading<br>(dBuV/m) | Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|----------------|---------------------|----------------|--------------------|-------------------|----------------|----------|----------------|------------------|--------|
| 1   | 316.9717       | 48.76               | -15.88         | 32.88              | 46.00             | -13.12         | QP       |                |                  |        |
| 2   | 389.9873       | 52.61               | -14.09         | 38.52              | 46.00             | -7.48          | QP       |                |                  |        |
| 3   | 942.0180       | 39.24               | -3.54          | 35.70              | 46.00             | -10.30         | QP       |                |                  |        |

Job No.: STAR2016 #1187

Standard: FCC PART 15 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Media box

Mode: TX 2402MHz

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

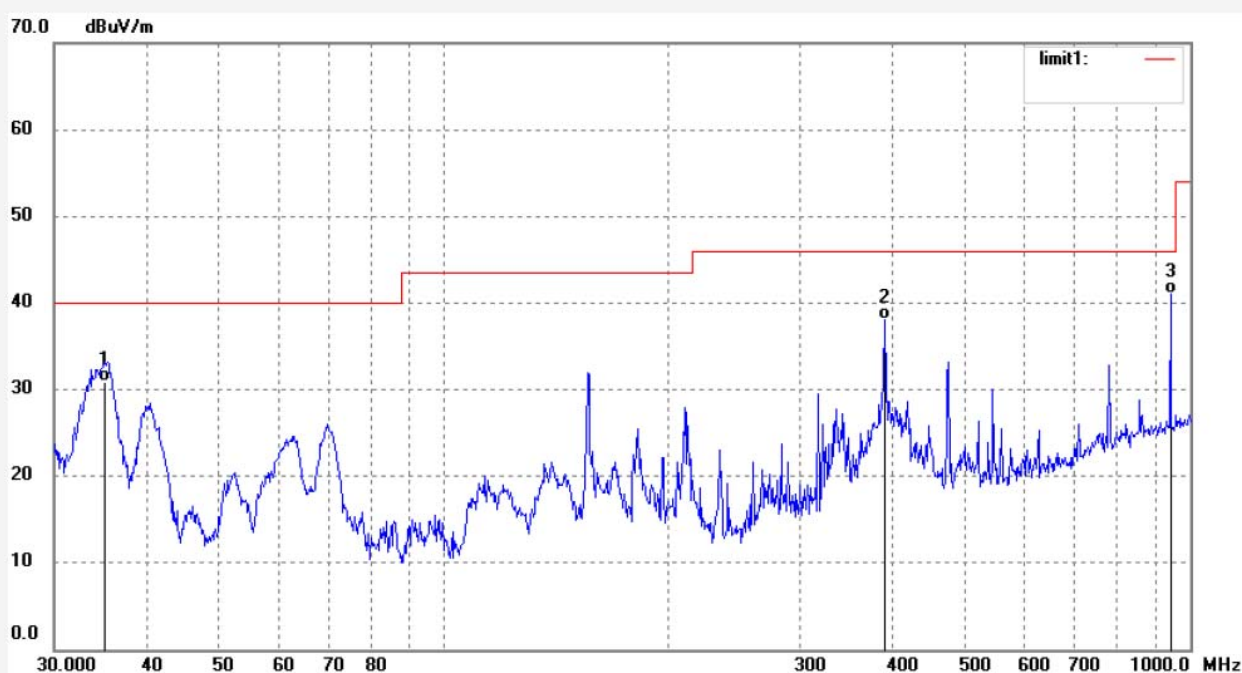
Date: 16/06/15/

Time: 10/40/34

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161492



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1   | 35.0157     | 48.41            | -17.51      | 30.90           | 40.00          | -9.10       | QP       |             |               |        |
| 2   | 389.9874    | 52.20            | -14.09      | 38.11           | 46.00          | -7.89       | QP       |             |               |        |
| 3   | 942.0180    | 44.56            | -3.55       | 41.01           | 46.00          | -4.99       | QP       |             |               |        |

Job No.: STAR2016 #1189

Standard: FCC PART 15 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Media box

Mode: TX 2440MHz

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

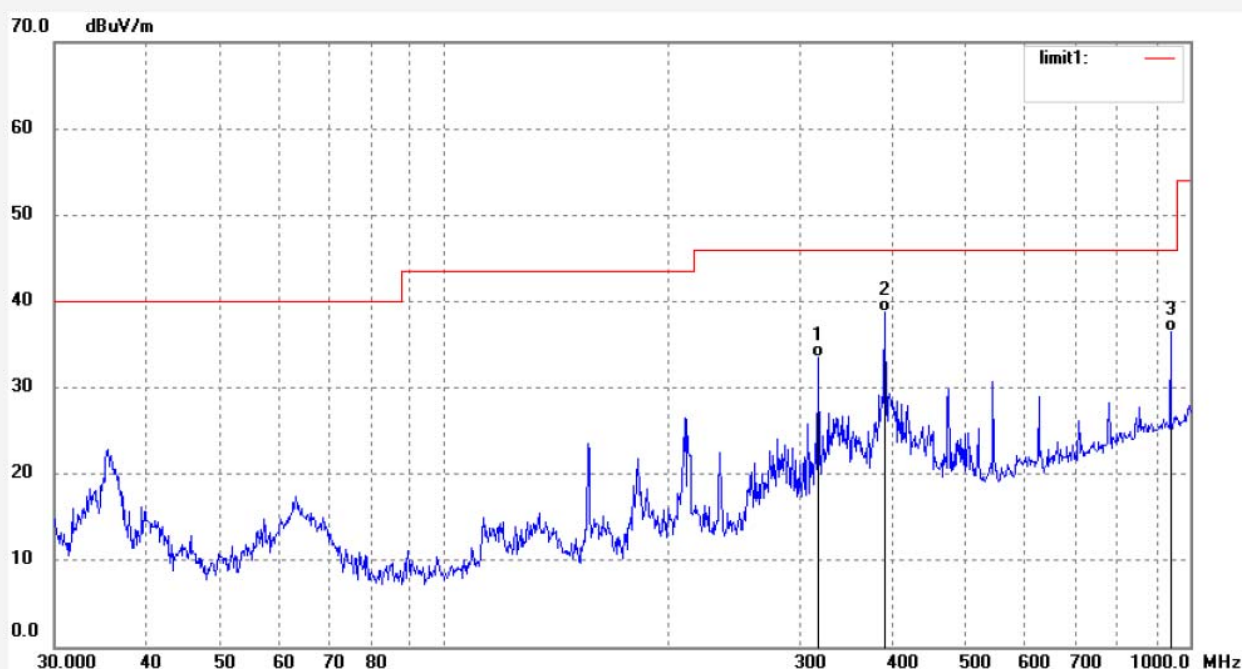
Date: 16/06/15/

Time: 10/42/30

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161492



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1   | 316.9718    | 49.36            | -15.88      | 33.48           | 46.00          | -12.52      | QP       |             |               |        |
| 2   | 389.9874    | 52.83            | -14.09      | 38.74           | 46.00          | -7.26       | QP       |             |               |        |
| 3   | 942.0180    | 39.99            | -3.55       | 36.44           | 46.00          | -9.56       | QP       |             |               |        |

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Fax:+86-0755-26503396

Job No.: STAR2016 #1188

Standard: FCC PART 15 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Media box

Mode: TX 2440MHz

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

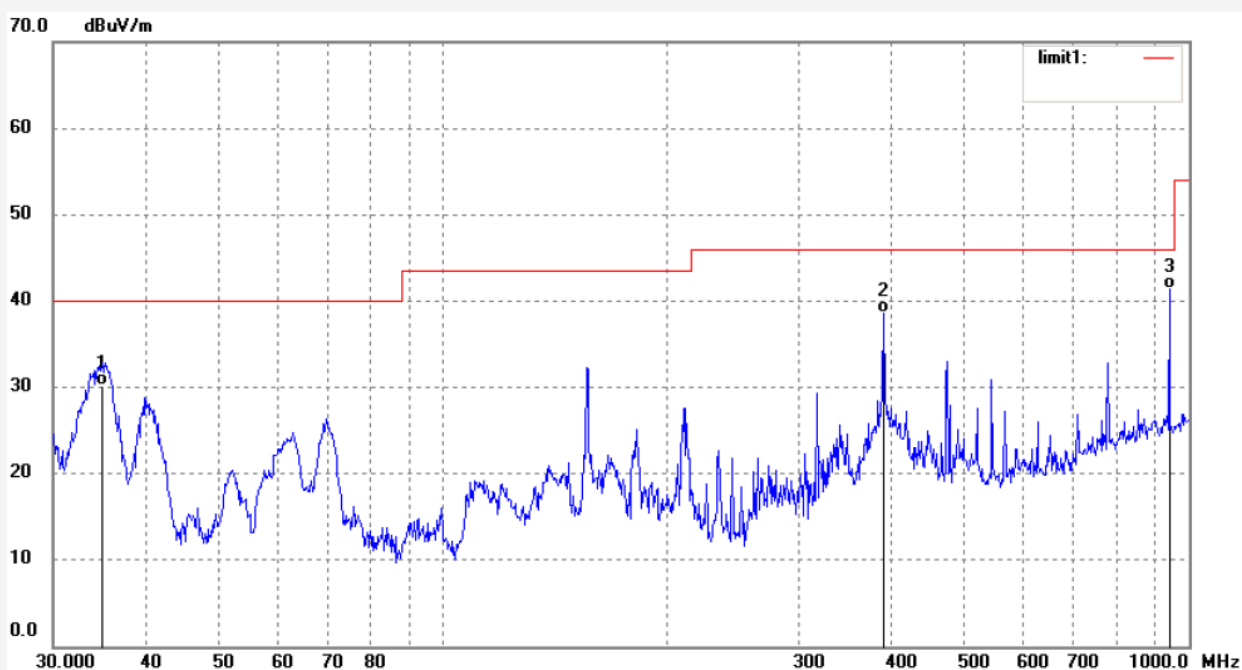
Date: 16/06/15/

Time: 10/41/08

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161492



| No. | Freq.<br>(MHz) | Reading<br>(dBuV/m) | Factor<br>(dB) | Result<br>(dBuV/m) | Limit<br>(dBuV/m) | Margin<br>(dB) | Detector | Height<br>(cm) | Degree<br>(deg.) | Remark |
|-----|----------------|---------------------|----------------|--------------------|-------------------|----------------|----------|----------------|------------------|--------|
| 1   | 34.8928        | 47.76               | -17.49         | 30.27              | 40.00             | -9.73          | QP       |                |                  |        |
| 2   | 389.9874       | 52.61               | -14.09         | 38.52              | 46.00             | -7.48          | QP       |                |                  |        |
| 3   | 942.0180       | 44.96               | -3.55          | 41.41              | 46.00             | -4.59          | QP       |                |                  |        |

Job No.: STAR2016 #1190

Standard: FCC PART 15 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Media box

Mode: TX 2480MHz

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Horizontal

Power Source: AC 120V/60Hz

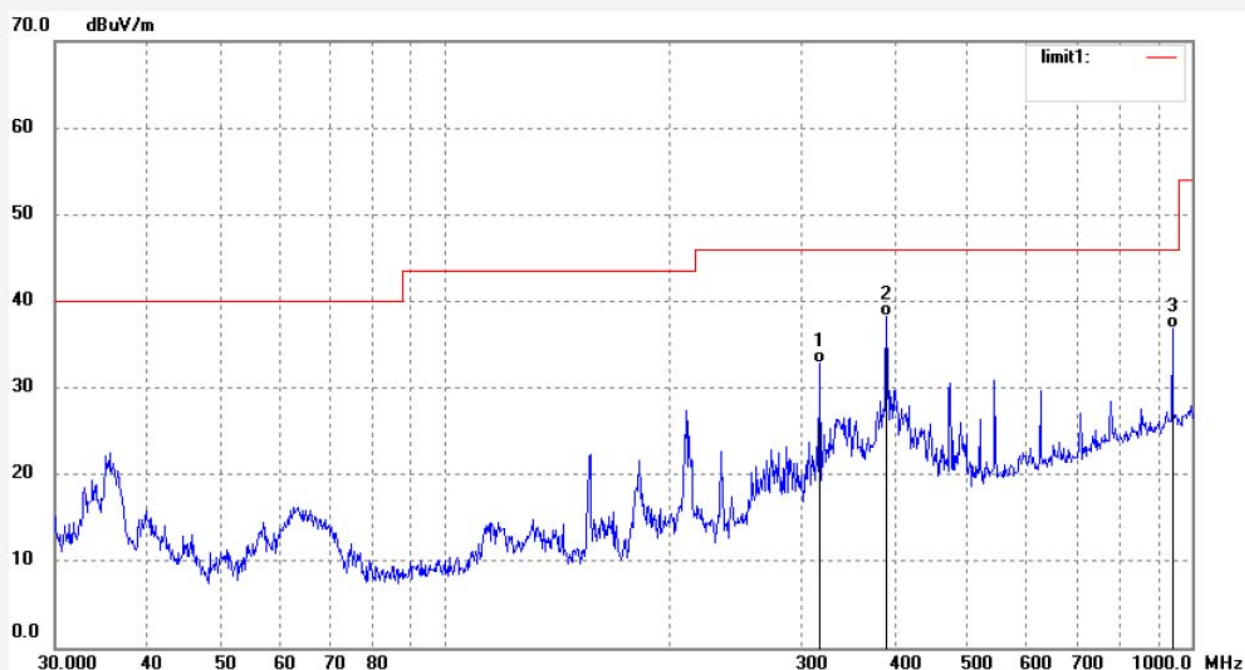
Date: 16/06/15/

Time: 10/44/01

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161492



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1   | 316.9717    | 48.74            | -15.88      | 32.86           | 46.00          | -13.14      | QP       |             |               |        |
| 2   | 389.9873    | 52.26            | -14.09      | 38.17           | 46.00          | -7.83       | QP       |             |               |        |
| 3   | 942.0180    | 40.31            | -3.54       | 36.77           | 46.00          | -9.23       | QP       |             |               |        |

Job No.: STAR2016 #1191

Standard: FCC PART 15 3M Radiated

Test item: Radiation Test

Temp.( C)/Hum.(%) 25 C / 55 %

EUT: Media box

Mode: TX 2480MHz

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

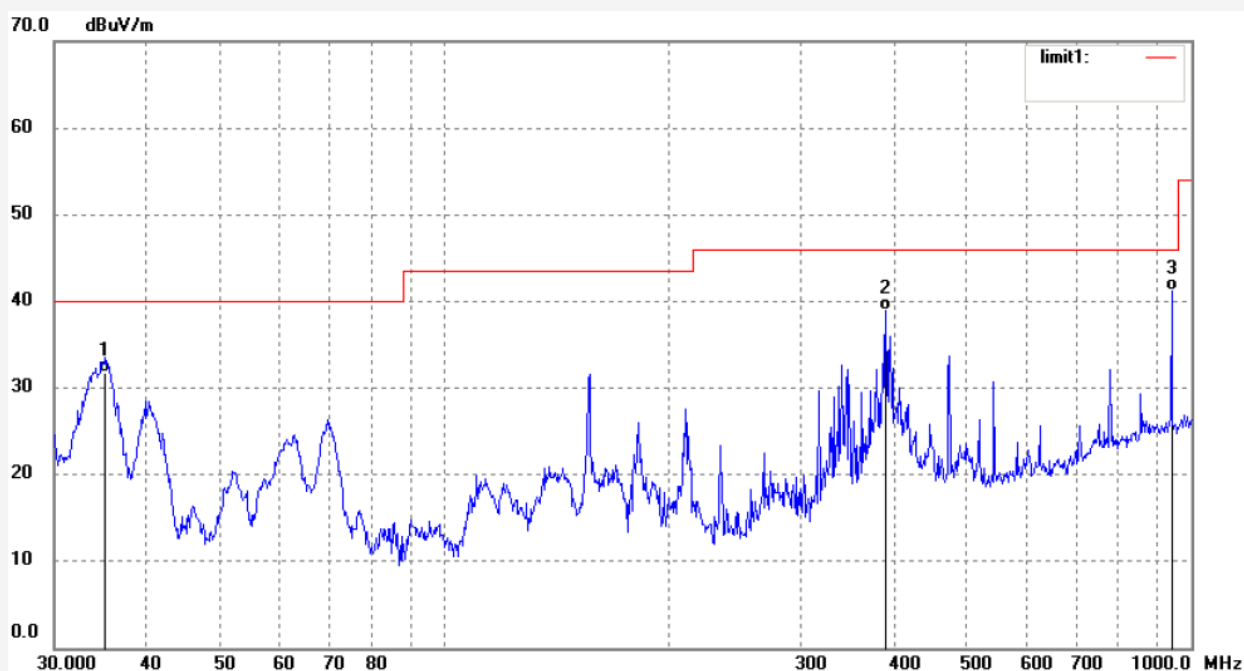
Date: 16/06/15/

Time: 10/44/50

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161492



| No. | Freq. (MHz) | Reading (dBuV/m) | Factor (dB) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) | Detector | Height (cm) | Degree (deg.) | Remark |
|-----|-------------|------------------|-------------|-----------------|----------------|-------------|----------|-------------|---------------|--------|
| 1   | 35.1389     | 49.34            | -17.54      | 31.80           | 40.00          | -8.20       | QP       |             |               |        |
| 2   | 389.9874    | 52.98            | -14.09      | 38.89           | 46.00          | -7.11       | QP       |             |               |        |
| 3   | 942.0180    | 44.78            | -3.55       | 41.23           | 46.00          | -4.77       | QP       |             |               |        |

## 7. ANTENNA REQUIREMENT

### 7.1.The Requirement

According to Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

### 7.2.Antenna Construction

Device is equipped with external Antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 2dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



**Antenna**