

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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Report No. : ATE20161490  
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  
(A) MODEL NO.: X8  
(B) Trade Mark. : N/A  
(C) POWER SUPPLY: AC 100-240V~50/60Hz

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
Frequency Range	:	802.11b/g/n(20MHz): 2412-2462MHz 802.11n(40MHz): 2422-2452MHz
Number of Channels	:	802.11b/g/n (20MHz):11 802.11n (40MHz): 7
Antenna Gain	:	2dBi
Type of Antenna	:	External Antenna
Power Supply	:	AC 100-240V~50/60Hz
Adapter information	:	Model:KA1433-1202400JP Input: 100-240V~50/60Hz 1.0A Max Out: 12V/2400mA
Data Rate	:	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: up to 150Mbps
Modulation Type	:	CCK, OFDM, QPSK, BPSK, 16QAM, 64QAM
Applicant Address	:	PIPO TECHNOLOGY CO., LIMITED Area C, 3F, Bao Yun Da Logistics Centre, Warehouse Building, Xi Xiang Avenue, Bao An District, Shenzhen, China.
Manufacturer Address	:	PIPO TECHNOLOGY CO., LIMITED Area C, 3F, Bao Yun Da Logistics Centre, Warehouse Building, Xi Xiang Avenue, Bao An District, Shenzhen, China.
Date of sample received	:	Jun 13, 2016
Date of Test	:	June 13-July 20, 2016

## 1.2.Carrier Frequency of Channels

802.11b, 802.11g, 802.11n (20MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	---	---

802.11n (40MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
---	---	07	2442
---	---	08	2447
03	2422	09	2452
04	2427	---	---
05	2432	---	---
06	2437	---	---

## 1.3.Accessory and Auxiliary Equipment

N/A

#### 1.4.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 ATE20161167.

### 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 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 Instruments	WHKX3.6/18 G-10SS	N/A	Jan. 9, 2016	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2 485-2375/2510 -60/11SS	N/A	Jan. 9, 2016	1 Year



### 3. OPERATION OF EUT DURING TESTING

#### 3.1. Operating Mode

The mode is used: **1.802.11b Transmitting mode**

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

#### **2.802.11g Transmitting mode**

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

#### **3.802.11n (20MHz) Transmitting mode**

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

#### **4.802.11n (40MHz) Transmitting mode**

Low Channel: 2422MHz

Middle Channel: 2437MHz

High Channel: 2452MHz

#### 3.2. Configuration and peripherals



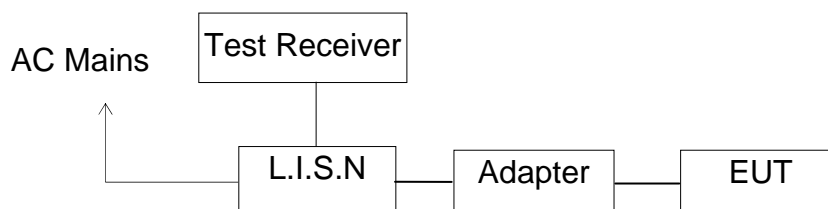
Figure 1 Setup: Transmitting mode

#### 4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Power Line Conducted Emission	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious 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 (MHz)	Limit dB(μV)	
	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 0.8m 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 : WIFI Communicating(120V/60Hz) Model: X8								
<b>MEASUREMENT RESULT: "PIPO617008_fin"</b>								
6/17/2016 9:49AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.555000	43.10	10.7	56	12.9	QP	L1	GND	
0.935000	27.90	10.8	56	28.1	QP	L1	GND	
26.275000	38.80	11.5	60	21.2	QP	L1	GND	
<b>MEASUREMENT RESULT: "PIPO617008_fin2"</b>								
6/17/2016 9:49AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.555000	36.30	10.7	46	9.7	AV	L1	GND	
0.930000	20.70	10.8	46	25.3	AV	L1	GND	
26.020000	34.10	11.5	50	15.9	AV	L1	GND	
<b>MEASUREMENT RESULT: "PIPO617007_fin"</b>								
6/17/2016 9:45AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.560000	42.20	10.7	56	13.8	QP	N	GND	
0.905000	28.40	10.8	56	27.6	QP	N	GND	
26.365000	36.30	11.5	60	23.7	QP	N	GND	
<b>MEASUREMENT RESULT: "PIPO617007_fin2"</b>								
6/17/2016 9:45AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.560000	35.60	10.7	46	10.4	AV	N	GND	
0.910000	21.10	10.8	46	24.9	AV	N	GND	
26.260000	31.40	11.5	50	18.6	AV	N	GND	

Test mode : WIFI Communicating(240V/60Hz)								
Model: X8								
<b>MEASUREMENT RESULT: "PIPO617001_fin"</b>								
6/17/2016 9:22AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.595000	39.10	10.7	56	16.9	QP	L1	GND	
0.975000	28.30	10.8	56	27.7	QP	L1	GND	
26.365000	40.90	11.5	60	19.1	QP	L1	GND	
<b>MEASUREMENT RESULT: "PIPO617001_fin2"</b>								
6/17/2016 9:22AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.585000	32.80	10.7	46	13.2	AV	L1	GND	
1.110000	23.00	10.9	46	23.0	AV	L1	GND	
26.290000	36.90	11.5	50	13.1	AV	L1	GND	
<b>MEASUREMENT RESULT: "PIPO617002_fin"</b>								
6/17/2016 9:26AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.575000	38.30	10.7	56	17.7	QP	N	GND	
1.145000	30.40	10.9	56	25.6	QP	N	GND	
26.635000	38.50	11.5	60	21.5	QP	N	GND	
<b>MEASUREMENT RESULT: "PIPO617002_fin2"</b>								
6/17/2016 9:26AM								
Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE	
0.600000	31.30	10.7	46	14.7	AV	N	GND	
4.220000	22.80	11.1	46	23.2	AV	N	GND	
26.530000	34.50	11.5	50	15.5	AV	N	GND	

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

The spectral diagrams are attached as below.

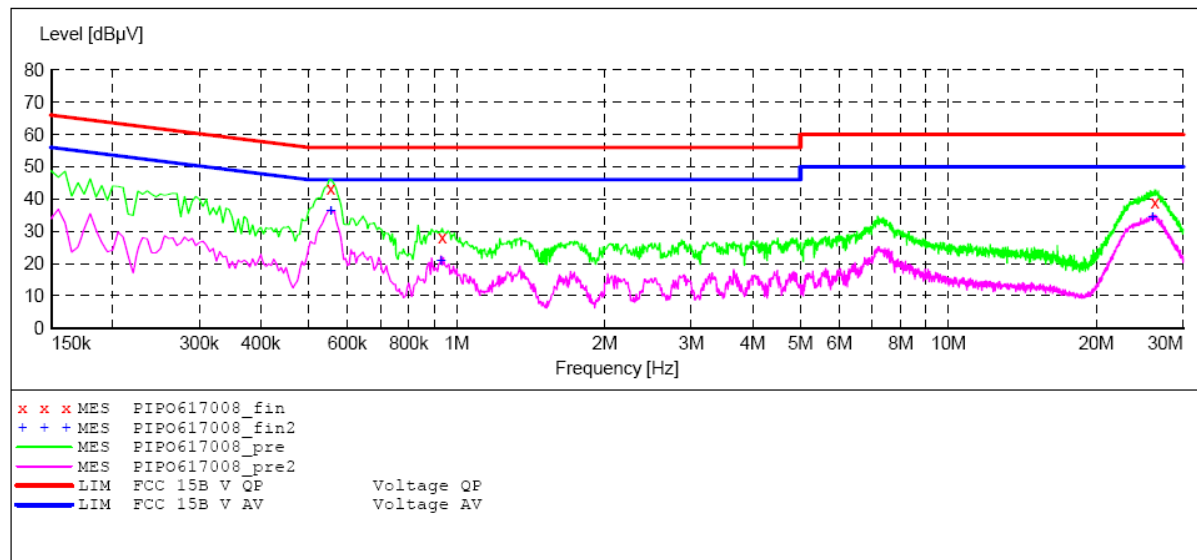
## ACCURATE TECHNOLOGY CO., LTD

### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Mini PC/Media box M/N:X8  
Manufacturer: Pipo  
Operating Condition: WiFi OPERATION  
Test Site: 1#Shielding Room  
Operator: STAR  
Test Specification: L 120V/60Hz  
Comment: Report No.: ATE20161490  
Start of Test: 6/17/2016 / 9:46:24AM

### 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: "PIPO617008\_fin"

6/17/2016 9:49AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.555000	43.10	10.7	56	12.9	QP	L1	GND
0.935000	27.90	10.8	56	28.1	QP	L1	GND
26.275000	38.80	11.5	60	21.2	QP	L1	GND

### MEASUREMENT RESULT: "PIPO617008\_fin2"

6/17/2016 9:49AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.555000	36.30	10.7	46	9.7	AV	L1	GND
0.930000	20.70	10.8	46	25.3	AV	L1	GND
26.020000	34.10	11.5	50	15.9	AV	L1	GND

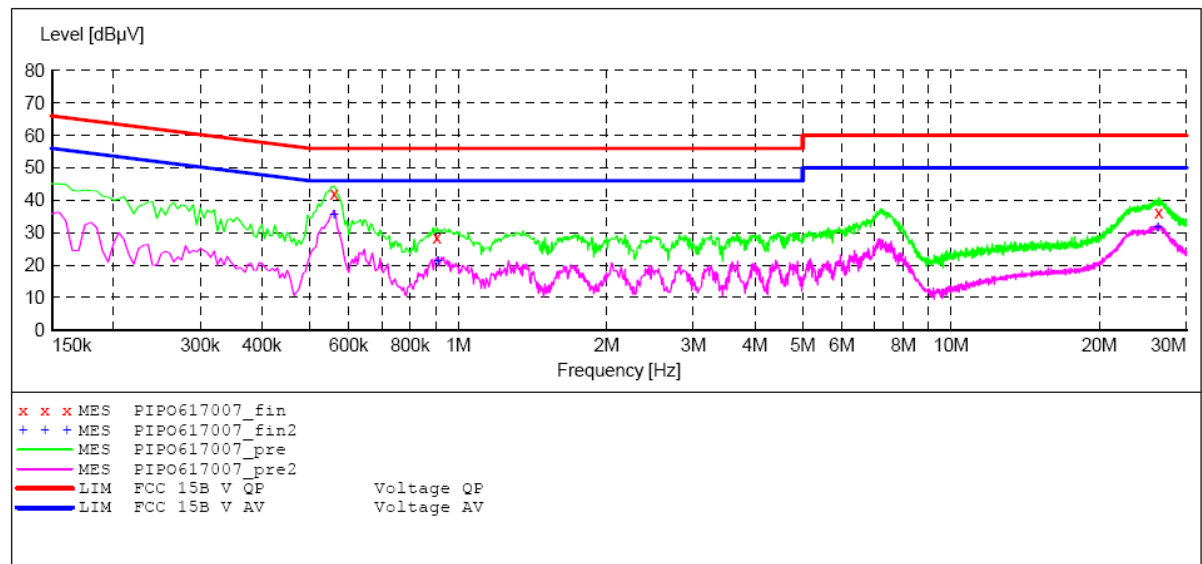
## ACCURATE TECHNOLOGY CO., LTD

### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Mini PC/Media box M/N:X8  
 Manufacturer: Pipo  
 Operating Condition: WiFi OPEARTION  
 Test Site: 1#Shielding Room  
 Operator: STAR  
 Test Specification: N 120V/60Hz  
 Comment: Report No.:ATE20161490  
 Start of Test: 6/17/2016 / 9:42:53AM

### 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: "PIPO617007\_fin"

6/17/2016 9:45AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.560000	42.20	10.7	56	13.8	QP	N	GND
0.905000	28.40	10.8	56	27.6	QP	N	GND
26.365000	36.30	11.5	60	23.7	QP	N	GND

### MEASUREMENT RESULT: "PIPO617007\_fin2"

6/17/2016 9:45AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.560000	35.60	10.7	46	10.4	AV	N	GND
0.910000	21.10	10.8	46	24.9	AV	N	GND
26.260000	31.40	11.5	50	18.6	AV	N	GND



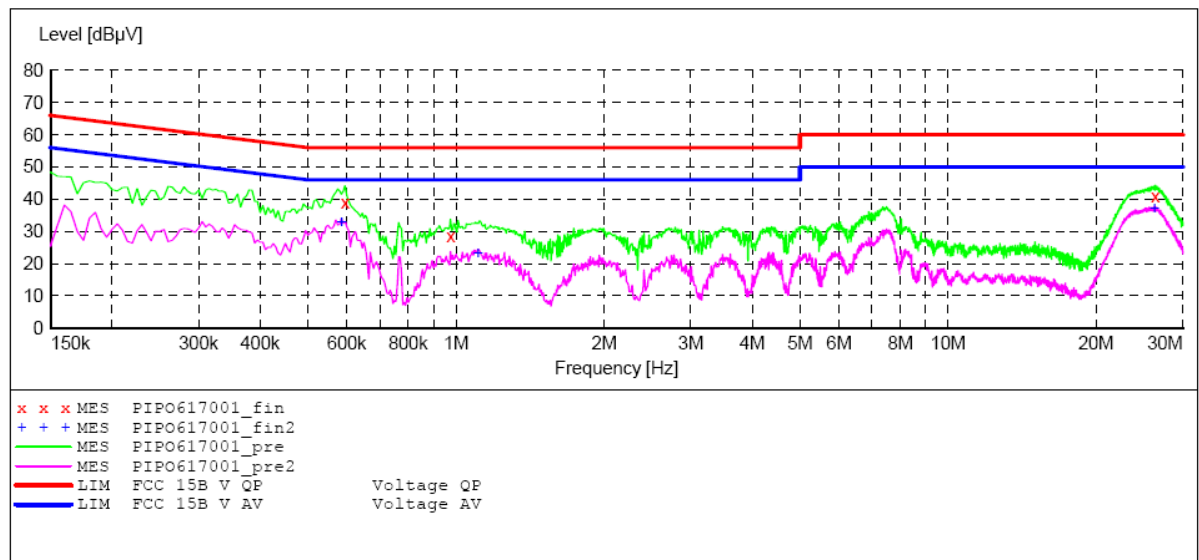
## ACCURATE TECHNOLOGY CO., LTD

### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Media box M/N:X8  
Manufacturer: Pipo  
Operating Condition: WiFi OPERATION  
Test Site: 1#Shielding Room  
Operator: STAR  
Test Specification: L 240V/60Hz  
Comment: Report No.:ATE20161490  
Start of Test: 6/17/2016 / 9:19:31AM

### 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: "PIPO617001\_fin"

6/17/2016 9:22AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.595000	39.10	10.7	56	16.9	QP	L1	GND
0.975000	28.30	10.8	56	27.7	QP	L1	GND
26.365000	40.90	11.5	60	19.1	QP	L1	GND

### MEASUREMENT RESULT: "PIPO617001\_fin2"

6/17/2016 9:22AM

Frequency MHz	Level dBμV	Transd dB	Limit dBμV	Margin dB	Detector	Line	PE
0.585000	32.80	10.7	46	13.2	AV	L1	GND
1.110000	23.00	10.9	46	23.0	AV	L1	GND
26.290000	36.90	11.5	50	13.1	AV	L1	GND

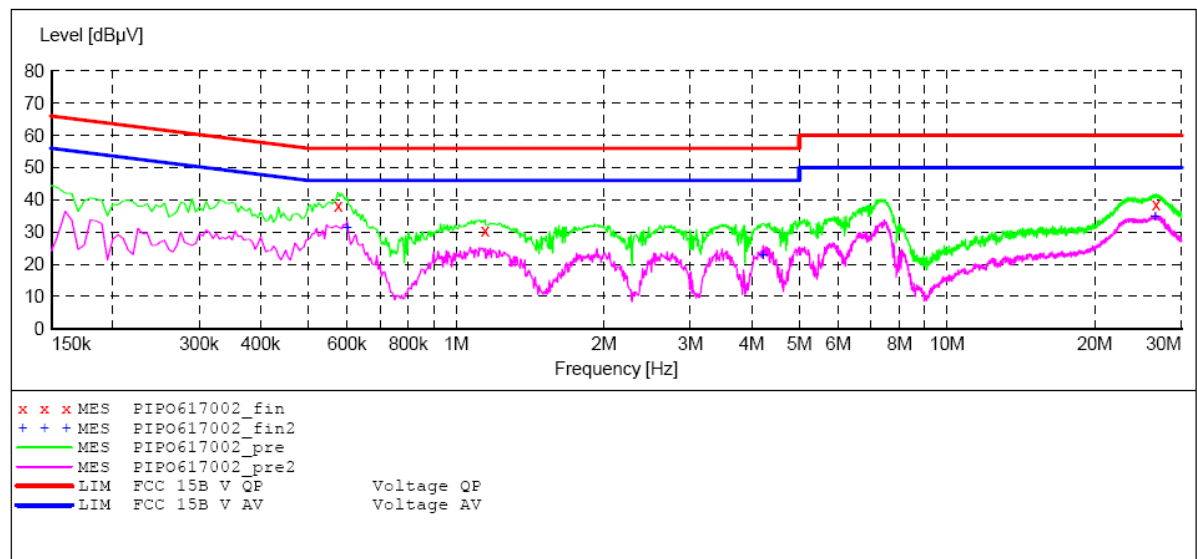
## ACCURATE TECHNOLOGY CO., LTD

### CONDUCTED EMISSION STANDARD FCC PART 15B

EUT: Media box M/N:X8  
Manufacturer: Pipo  
Operating Condition: WiFi OPERATION  
Test Site: 1#Shielding Room  
Operator: STAR  
Test Specification: N 240V/60Hz  
Comment: Report No.:ATE20161490  
Start of Test: 6/17/2016 / 9:23:20AM

### 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: "PIPO617002\_fin"

6/17/2016 9:26AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.575000	38.30	10.7	56	17.7	QP	N	GND
1.145000	30.40	10.9	56	25.6	QP	N	GND
26.635000	38.50	11.5	60	21.5	QP	N	GND

### MEASUREMENT RESULT: "PIPO617002\_fin2"

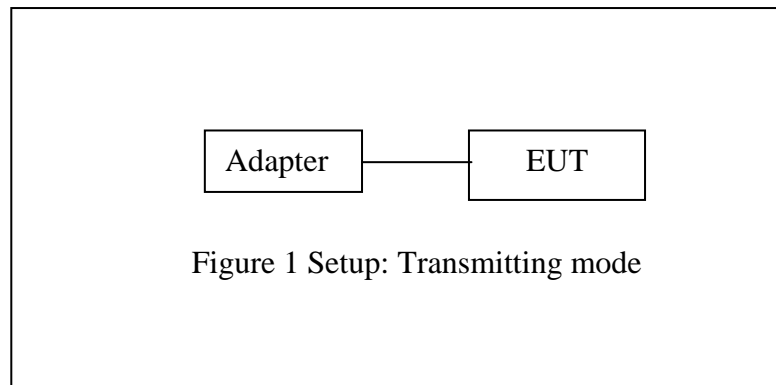
6/17/2016 9:26AM

Frequency MHz	Level dBuV	Transd dB	Limit dBuV	Margin dB	Detector	Line	PE
0.600000	31.30	10.7	46	14.7	AV	N	GND
4.220000	22.80	11.1	46	23.2	AV	N	GND
26.530000	34.50	11.5	50	15.5	AV	N	GND

## 6. RADIATED SPURIOUS EMISSION TEST

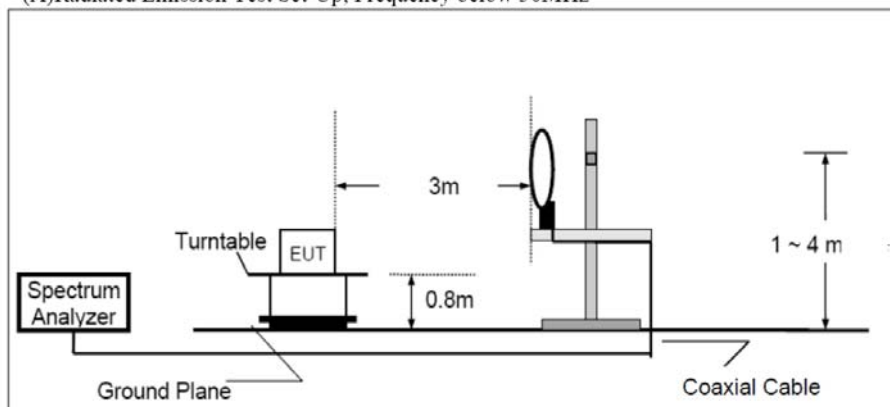
### 6.1. Block Diagram of Test Setup

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

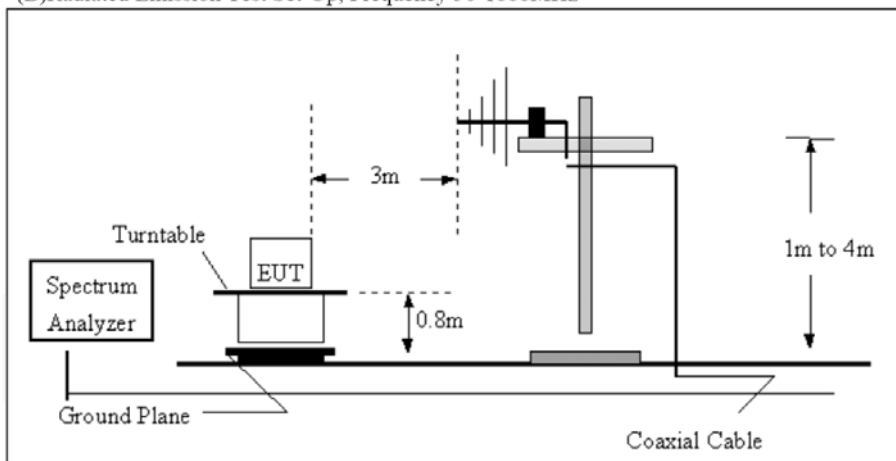


#### 6.1.2. Semi-Anechoic Chamber Test Setup Diagram

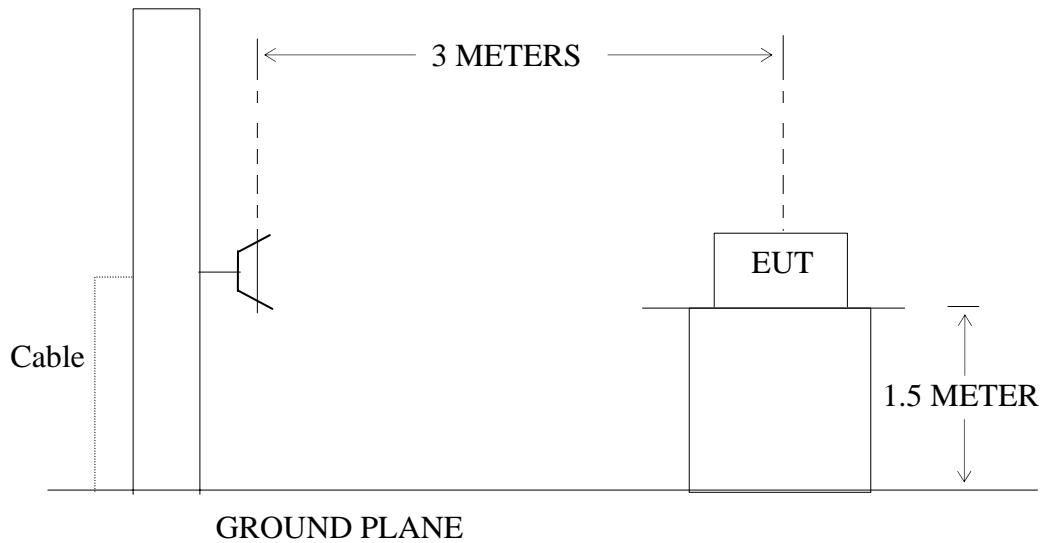
(A) Radiated Emission Test Set-Up, Frequency below 30MHz



(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 6.1.

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 2412-2462 and 2422-2452MHz. We select 2412MHz, 2437MHz, 2462MHz and 2422MHz, 2437MHz, 2452MHz TX frequency to transmit.

## 6.6. Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 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 worst-case data rate for this channel to be 1Mbps for 802.11b mode and 6Mbps for 802.11g mode and 150Mbps for 802.11n mode, based on previous with 802.11 WLAN product design architectures.

The frequency range from 30MHz to 25000MHz is checked.

Result = Reading + Corrected Factor

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

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

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

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

2. \*: Denotes restricted band of operation.

3. The fundamental radiated emissions were reduced by Band Reject Filter in the attached plots.

4. The EUT is tested radiation emission at each test mode (802.11 b/g/n) in three axes. The worst emissions are reported in all test mode and channels.

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

## Below 1G(X8)



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Job No.: STAR2016 #1174	Polarization: Horizontal
Standard: FCC CLASS B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 16/06/15/
Temp.( C)/Hum.(%) 25 C / 55 %	Time: 10/24/08
EUT: Media box	Engineer Signature: star
Mode: TX Channel 1(802.11b)	Distance: 3m
Model: X8	
Manufacturer: PIPO TECHNOLOGY CO., LIMITED	

Note: Report No.:ATE20161490



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	346.0740	49.61	-14.76	34.85	46.00	-11.15	QP			
2	389.9874	52.49	-14.09	38.40	46.00	-7.60	QP			
3	942.0180	41.23	-3.55	37.68	46.00	-8.32	QP			



Job No.: STAR2016 #1175

Standard: FCC CLASS B 3M Radiated

Test item: Radiation Test

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

EUT: Media box

Mode: TX Channel 1(802.11b)

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

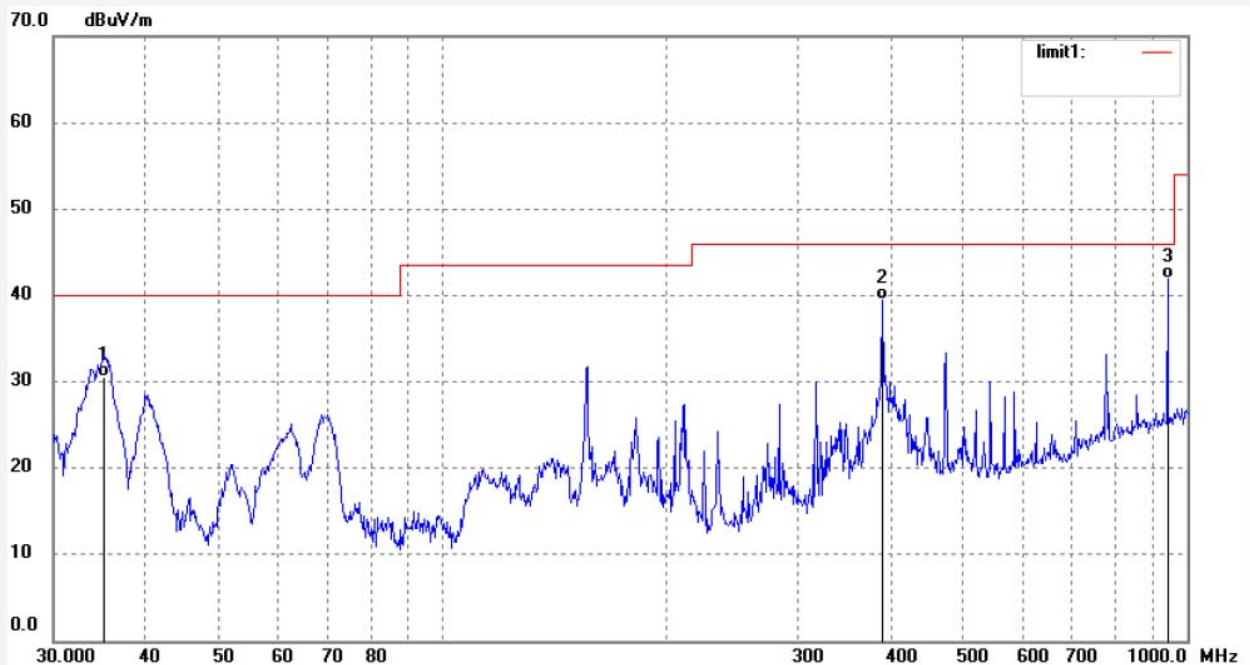
Date: 16/06/15/

Time: 10/24/51

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161490

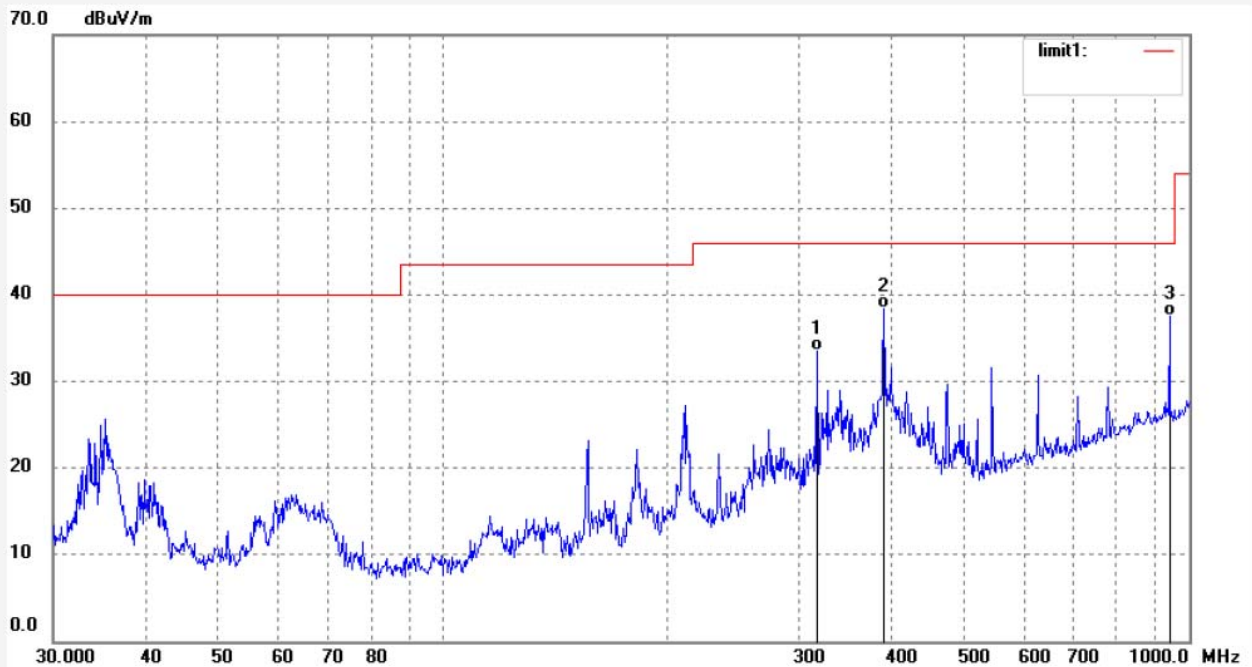


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.1388	48.00	-17.54	30.46	40.00	-9.54	QP			
2	389.9873	53.60	-14.09	39.51	46.00	-6.49	QP			
3	942.0180	45.52	-3.54	41.98	46.00	-4.02	QP			

Job No.: STAR2016 #1177  
Standard: FCC CLASS B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 55 %  
EUT: Media box  
Mode: TX Channel 6(802.11b)  
Model: X8  
Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Horizontal  
Power Source: AC 120V/60Hz  
Date: 16/06/15/  
Time: 10/27/26  
Engineer Signature: star  
Distance: 3m

Note: Report No.:ATE20161490



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	49.31	-15.88	33.43	46.00	-12.57	QP			
2	389.9874	52.45	-14.09	38.36	46.00	-7.64	QP			
3	942.0180	41.14	-3.55	37.59	46.00	-8.41	QP			

Job No.: STAR2016 #1176

Standard: FCC CLASS B 3M Radiated

Test item: Radiation Test

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

EUT: Media box

Mode: TX Channel 6(802.11b)

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

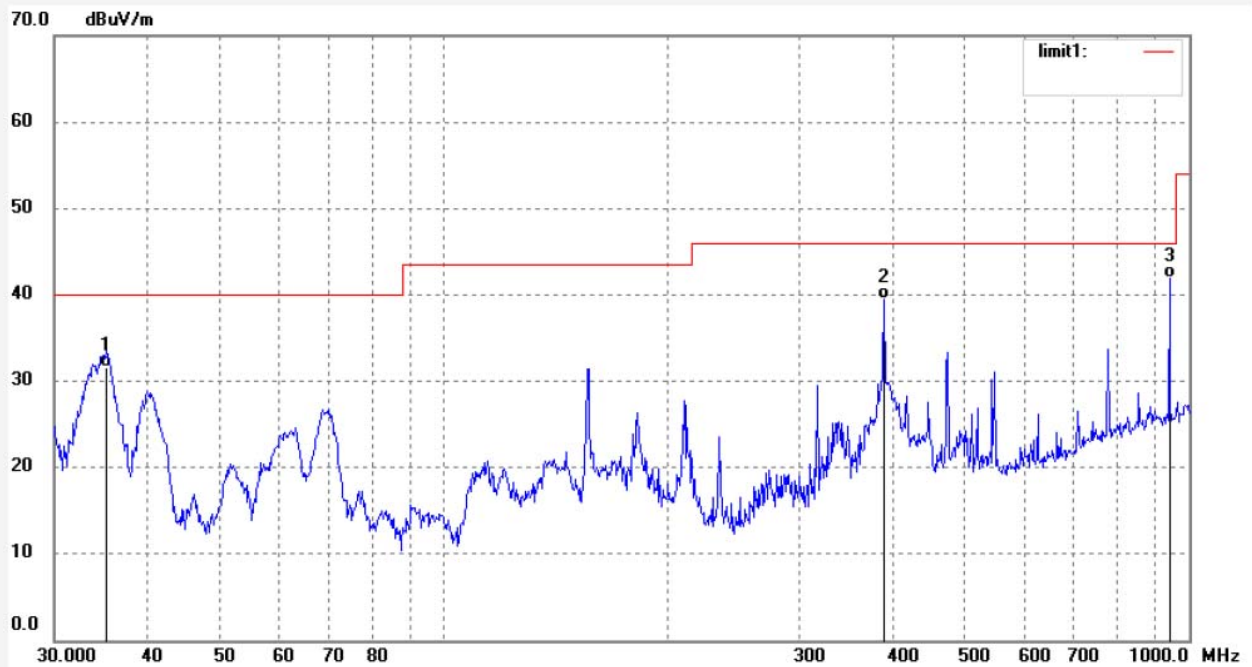
Date: 16/06/15/

Time: 10/25/55

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161490



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.2625	49.17	-17.58	31.59	40.00	-8.41	QP			
2	389.9873	53.55	-14.09	39.46	46.00	-6.54	QP			
3	942.0180	45.53	-3.54	41.99	46.00	-4.01	QP			



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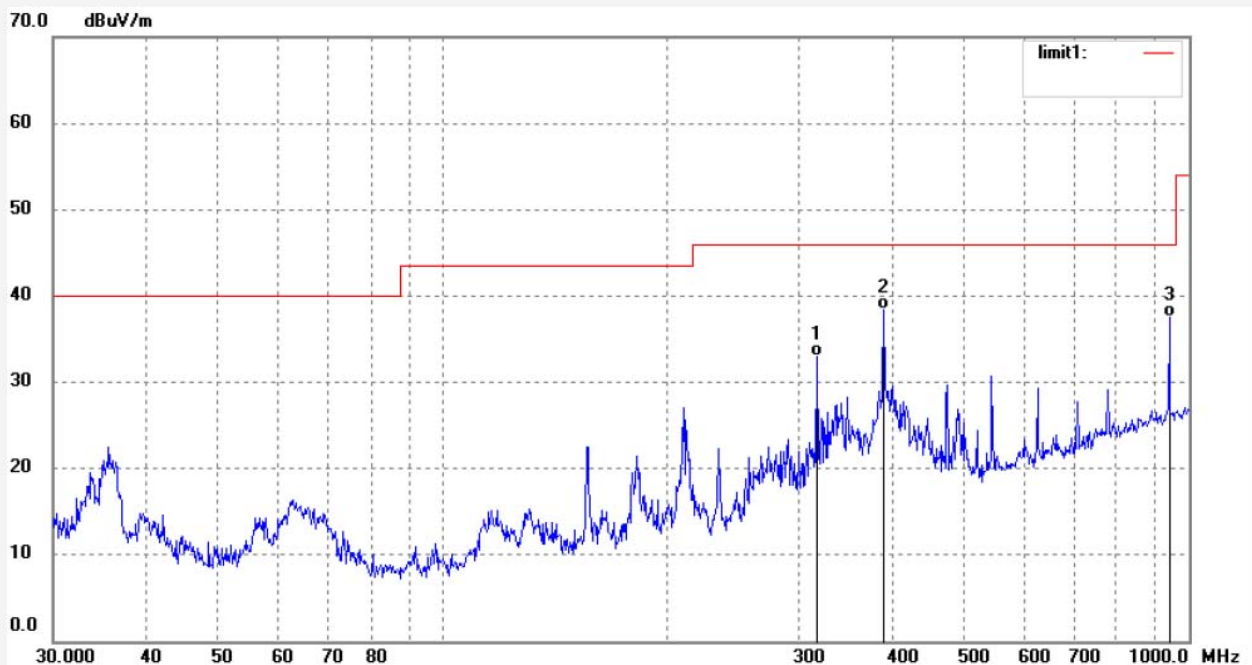
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Fax:+86-0755-26503396

Job No.: STAR2016 #1178  
Standard: FCC CLASS B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 25 C / 55 %  
EUT: Media box  
Mode: TX Channel 11(802.11b)  
Model: X8  
Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Horizontal  
Power Source: AC 120V/60Hz  
Date: 16/06/15/  
Time: 10/28/57  
Engineer Signature: star  
Distance: 3m

Note: Report No.:ATE20161490



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	48.94	-15.88	33.06	46.00	-12.94	QP			
2	389.9873	52.52	-14.09	38.43	46.00	-7.57	QP			
3	942.0180	41.02	-3.54	37.48	46.00	-8.52	QP			



Job No.: STAR2016 #1179

Standard: FCC CLASS B 3M Radiated

Test item: Radiation Test

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

EUT: Media box

Mode: TX Channel 11(802.11b)

Model: X8

Manufacturer: PIPO TECHNOLOGY CO., LIMITED

Polarization: Vertical

Power Source: AC 120V/60Hz

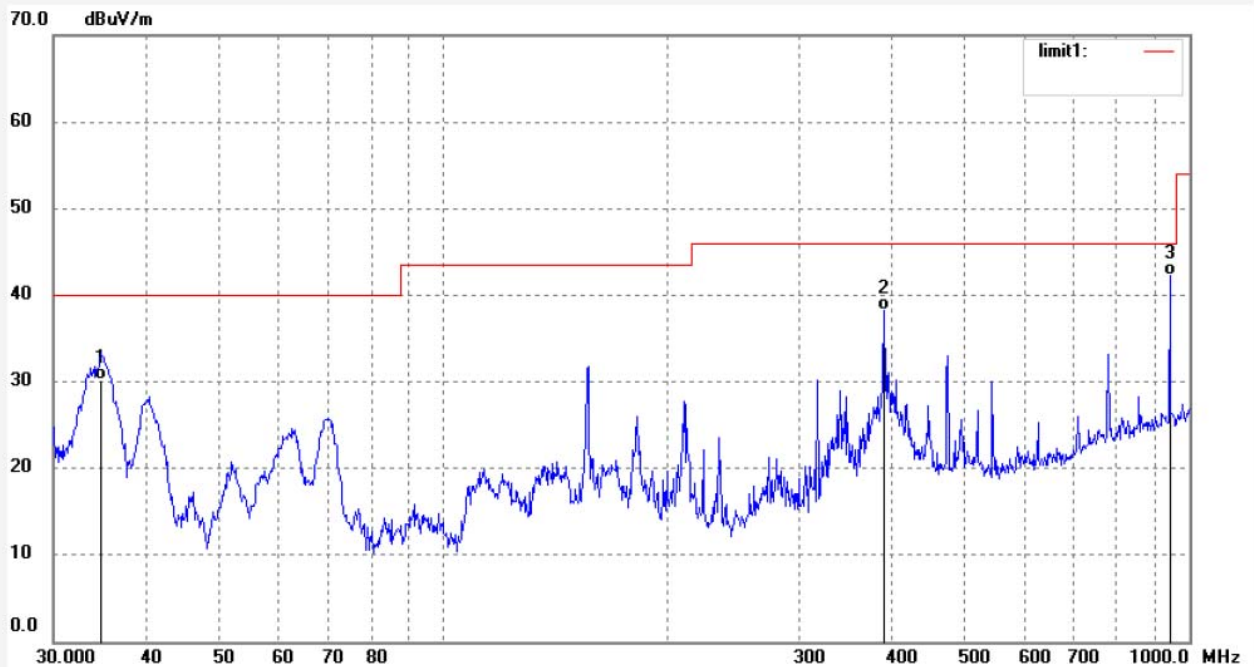
Date: 16/06/15/

Time: 10/29/48

Engineer Signature: star

Distance: 3m

Note: Report No.:ATE20161490



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.7705	47.68	-17.47	30.21	40.00	-9.79	QP			
2	389.9874	52.25	-14.09	38.16	46.00	-7.84	QP			
3	942.0180	45.83	-3.55	42.28	46.00	-3.72	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