



## TEST REPORT

Prepared For:	DongGuan Lionpower Electronic Co., Ltd. No.2, Hongsheng Park, East 3rd Street, Shatou, Chang'an Town, Dongguan, Guangdong, China
Product Name:	TV box
Trade Name:	
FCC ID:	2ADSCPA-09
Model:	PA-09
Series Model:	PA-01, PA-03, PA-07, PA-09 A, PA-09 MX, H1, M8, MXQ, CS918, 4K
Series Production Difference	The appearance and size are different, the color of the appearance is same. The location and content of the silk-screen are different
Prepared By:	DongGuan Precise Testing Service Co., Ltd.
	Building D, Baoding Technology Park, Guangming Road 2, Guangming Community, Dongcheng District, Dongguan, Guangdong, China Tel: 86-769-23368601 Fax: 86-769-23368602 <a href="http://www.pts-testing.com">http://www.pts-testing.com</a>
Test Date:	Dec. 11, 2014 -Dec. 16, 2014
Date of Report:	Dec. 16, 2014
Report No.:	PT1411278116FB



## TABLE OF CONTENTS

<b>1 TEST RESULT CERTIFICATION.....</b>	<b>3</b>
<b>2 EUT DESCRIPTION .....</b>	<b>4</b>
<b>3. TEST METHODOLOGY.....</b>	<b>4</b>
3.1. DECISION OF FINAL TEST MODE .....	4
3.2. EUT SYSTEM OPERATION .....	5
<b>4 SETUP OF EQUIPMENT UNDER TEST.....</b>	<b>5</b>
4.1. DESCRIPTION OF SUPPORT UNITS .....	5
4.2. CONFIGURATION OF SYSTEM UNDER TEST .....	5
<b>5 FACILITIES AND ACCREDITATIONS.....</b>	<b>6</b>
5.1. FACILITIES .....	6
5.2. ACCREDITATIONS.....	6
5.3. MEASUREMENT UNCERTAINTY.....	6
<b>6 CONDUCTED EMISSION MEASUREMENT.....</b>	<b>7</b>
6.1. LIMITS OF CONDUCTED EMISSION MEASUREMENT .....	7
6.2. TEST INSTRUMENTS .....	7
6.3. TEST PROCEDURES .....	8
6.4. TEST SETUP .....	9
6.5. TEST RESULTS.....	10
<b>7 RADIATED EMISSION MEASUREMENT.....</b>	<b>12</b>
7.1. LIMITS OF RADIATED EMISSION MEASUREMENT .....	12
7.2. TEST INSTRUMENTS .....	12
7.3. TEST PROCEDURES .....	13
7.4. TEST SETUP .....	15
7.5. TEST RESULTS.....	16



# 1 TEST RESULT CERTIFICATION

**Product:** TV box

**Model:** PA-09

**Trade Mark:**



**Applicant:** DongGuan Lionpower Electronic Co., Ltd.  
No.2, Hongsheng Park, East 3rd Street, Shatou, Chang'an Town, Dongguan, Guangdong, China

**Factory:** DongGuan Lionpower Electronic Co., Ltd.  
No.2, Hongsheng Park, East 3rd Street, Shatou, Chang'an Town, Dongguan, Guangdong, China

**Test Date:** Dec. 11, 2014 -Dec. 16, 2014

**Test Voltage:** AC 120V, 60Hz

## EMISSION

Standard	Item	Result	Remarks
FCC 47 CFR Part 15 Subpart B	Radiated	PASS	Meet Class B Requirement
ANSI C63.4-2009	Conducted	PASS	Meet Class B Requirement

**Note:** 1. The test result judgment is decided by the limit of measurement standard.  
2. The information of measurement uncertainty is available upon the customer's request.

The above equipment has been tested by DongGuan Precise Testing Service Co., Ltd. and found compliance with the requirements set forth in the technical standards mentioned above. The results of testing in this report apply only to the product/system, which was tested. Other similar equipment will not necessarily produce the same results due to production tolerance and measurement uncertainties.

Prepared by :

Assistant

Reviewer :

Supervisor

Approved & Authorized Signer :

Jacky Ou / Manager



## 2 EUT DESCRIPTION

<b>Product</b>	TV box
<b>Trade Mark</b>	
<b>Model</b>	PA-09
<b>Applicant</b>	DongGuan Lionpower Electronic Co., Ltd.
<b>EUT Type</b>	<input checked="" type="checkbox"/> Engineering Sample. <input type="checkbox"/> Product Sample. <input type="checkbox"/> Mass Product Sample.
<b>Series Model</b>	PA-01, PA-03, PA-07, PA-09 A, PA-09 MX, H1, M8, MXQ, CS918, 4K
<b>EUT Power Rating</b>	DC 5V, 2000mA

## 3. TEST METHODOLOGY

### 3.1. DECISION OF FINAL TEST MODE

The EUT was tested together with the thereafter additional components, and a configuration, which produced the worst emission levels, was selected and recorded in this report.

The following test mode(s) were scanned during the preliminary test:

Pre-Test Mode		
Emission	Radiated Emission	Mode 1: Exchange Data with PC Through USB Port x4 Mode 2: Exchange Data with PC Through RJ45 Mode3: Exchange Data with PC Through HDMI Port
	Conducted Emission	Mode 1: Exchange Data with PC Through USB Port x4 Mode 2: Exchange Data with PC Through RJ45 Mode3: Exchange Data with PC Through HDMI Port

After the preliminary scan, the following test mode was found to produce the highest emission level.

The Worst Test Mode		
Emission	Radiated Emission	Mode: Exchange Data with PC HDMI Port
	Conducted Emission	Mode: Exchange Data with PC HDMI Port

Then, the EUT configuration and cable configuration of the above highest emission mode was chosen for all final test items.

## 3.2. EUT SYSTEM OPERATION

1. Set up EUT with the relative support equipments.
2. Make sure the EUT worked normally during the test.

# 4 SETUP OF EQUIPMENT UNDER TEST

## 4.1. DESCRIPTION OF SUPPORT UNITS

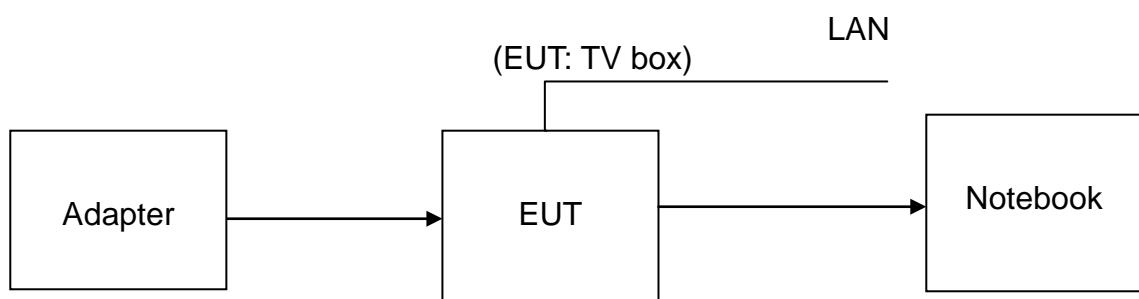
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

No.	Equipment	Manufacturer	Model No.	Serial No.
1.	Notebook	SONY	PCG-51111T	27532998

**Note:**

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

## 4.2. CONFIGURATION OF SYSTEM UNDER TEST



## 5 FACILITIES AND ACCREDITATIONS

### 5.1. FACILITIES

The test facility has a test site registered with the following organizations:

NTEK Testing Technology Co., Ltd

Add.:1/F, Building E, Fenda Science Park, Sanwei Community, Xixiang Street, Bao'an District, Shenzhen P.R. China.

FCC Registration No.:238937; IC Registration No.:9270A-1

CNAS Registration No.:L5516

The sites are constructed in conformance with the requirements of ANSI C63.4 and CISPR Publication 22. All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

### 5.2. ACCREDITATIONS

Our laboratories are accredited and approved by the following approval agencies according to ISO/IEC 17025.

Copies of granted accreditation certificates are available for downloading from our web site, <http://www.pts-testing.com>

### 5.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement	Frequency		Uncertainty
Conducted emissions	9kHz~30MHz		+/- 3.59dB
Radiated emissions	Horizontal	30MHz ~ 200MHz	+/- 4.77dB
		200MHz ~1000MHz	+/- 4.93dB
	Vertical	30MHz ~ 200MHz	+/- 5.04dB
		200MHz ~1000MHz	+/- 4.93dB

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



## 6 CONDUCTED EMISSION MEASUREMENT

### 6.1. LIMITS OF CONDUCTED EMISSION MEASUREMENT

FREQUENCY (MHz)	Class A (dBuV)		Class B (dBuV)	
	Quasi-peak	Average	Quasi-peak	Average
0.15 - 0.5	79	66	66 - 56	56 - 46
0.50 - 5.0	73	60	56	46
5.0 - 30.0	73	60	60	50

**NOTE:**

- (1) The lower limit shall apply at the transition frequencies.
- (2) The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50 MHz.
- (3) All emanations from a class A/B digital device or system, including any network of conductors and apparatus connected thereto, shall not exceed the level of field strengths specified above.

### 6.2. TEST INSTRUMENTS

Conducted Emission Shielding Room Test Site 743				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	08/23/2014
LISN	AFJ	LS16	16010222119	09/02/2014
LISN	Meestec	AN3016	04/10040	09/02/2014
Test Cable	Times	C01	N/A	07/04/2014
Coaxial Switch	Dimond	CX 210	EMC-001	07/04/2014
Pulse Limiter	SCHWARZBECK	PLA-10N	110525-010-0034	07/08/2014

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).  
 2. N.C.R = No Calibration Request.



## 6.3. TEST PROCEDURES

### Procedure of Preliminary Test

The EUT and Support equipment, if needed, was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4 (see Test Facility for the dimensions of the ground plane used). When the EUT is a floor standing equipment, it is placed on the ground plane, which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4.

All support equipment power received from a second LISN.

The EUT test program was started. Emissions were measured on each current carrying line of the EUT using an EMI Test Receiver connected to the LISN powering the EUT.

The Receiver scanned from 150 kHz to 30MHz for emissions in each of the test modes.

During the above scans, the emissions were maximized by cable manipulation.

The test mode(s) described in Item 3.1 were scanned during the preliminary test.

After the preliminary scan, we found the test mode described in Item 3.1 producing the highest emission level.

The EUT configuration and worse cable configuration of the above highest emission levels were recorded for reference of the final test.

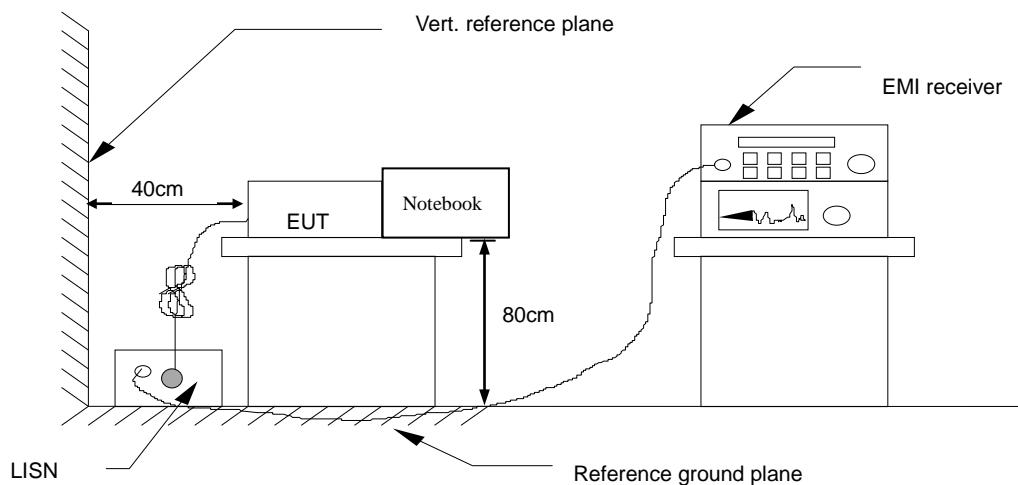
### Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test.

A scan was taken on both power lines, Line 1 and Line 2, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit.

The test data of the worst-case condition(s) was recorded.

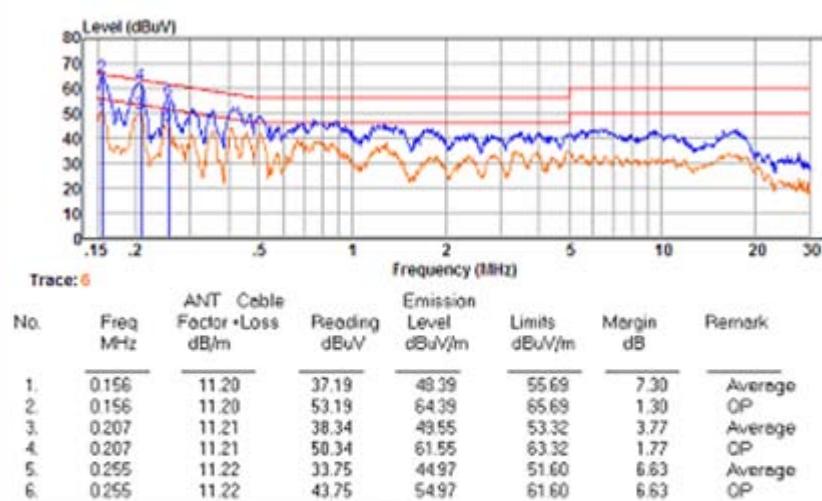
## 6.4. TEST SETUP



For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.

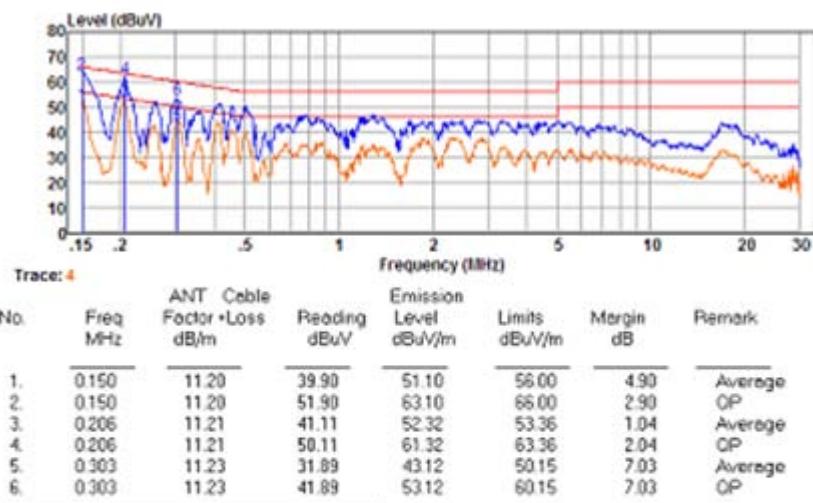
## 6.5. TEST RESULTS

EUT :	TV box	Model Name :	PA-09
Temperature :	25 °C	Relative Humidity :	58%
Pressure :	1010 hPa	Polarization :	Line
Test Power :	DC 5V	Test Mode :	Exchange Data with PC Through HDMI Port





EUT :	TV box	Model Name :	PA-09
Temperature :	25 °C	Relative Humidity :	58%
Pressure :	1010 hPa	Polarization :	Neutral
Test Power :	DC 5V	Test Mode :	Exchange Data with PC Through HDMI Port



Note: 1. The emission levels that are 20dB below the official limit are not reported.

2. Emission Level= Antenna Factor + Cable Loss + Meter Reading



## 7 RADIATED EMISSION MEASUREMENT

### 7.1. LIMITS OF RADIATED EMISSION MEASUREMENT

#### Maximum permissible level of Radiated Emission measured at 3 meter

FREQUENCY (MHz)	dBuV/m (At 3m)
	Class B
30~88	40.00
88~216	43.50
216~960	46.00
960~1000	54.00

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) Emission level (dBuV/m) = 20 log Emission level (uV/m).

### 7.2. TEST INSTRUMENTS

Radiated Emission Test Site 966				
Name of Equipment	Manufacturer	Model	Serial Number	Calibration Date
EMI Test Receiver	ROHDE&SCHWARZ	ESCI	100005	08/23/2014
Pre Amplifier	H.P.	HP8447E	2945A02715	09/05/2014
Amplifier	Schwarzbeck	BBV 9718	9718-269	07/07/2014
Cable	TIME MICROWAVE	LMR-400	N-TYPE04	08/09/2014
Cable	N/A	R-03	N/A	07/04/2014
System-Controller	CCS	N/A	N/A	N.C.R
Turn Table	CCS	N/A	N/A	N.C.R
Antenna Tower	CCS	N/A	N/A	N.C.R
Bilog Antenna	Schwarzbeck	VULB 9160	VULB 9160-3355	07/04/2014
Horn Antenna	Schwarzbeck	BBHA 9120D	9120D-1246	07/11/2014
Loop antenna	TESEQ	HLA6120	22025	07/28/2014

NOTE: 1. The calibration interval of the above test instruments is 12 months and the calibrations are traceable to International system of unit (SI).  
 2. N.C.R = No Calibration Request.



## 7.3. TEST PROCEDURES

### Procedure of Preliminary Test

The equipment was set up as per the test configuration to simulate typical usage per the user's manual. When the EUT is a tabletop system, a wooden turntable with a height of 0.8 meters is used which is placed on the ground plane. When the EUT is a floor standing equipment, it is placed on the ground plane which has a 3-12 mm non-conductive covering to insulate the EUT from the ground plane.

Support equipment, if needed, was placed as per ANSI C63.4.

All I/O cables were positioned to simulate typical usage as per ANSI C63.4.

Mains cables, telephone lines or other connections to auxiliary equipment located outside the test are shall drape to the floor, be fitted with ferrite clamps or ferrite tubes placed on the floor at the point where the cable reaches the floor and then routed to the place where they leave the turntable. No extension cords shall be used to mains receptacle.

The antenna was placed at 3 meter away from the EUT as stated in ANSI C63.4. The antenna connected to the Spectrum Analyzer via a cable and at times a pre-amplifier would be used.

The Analyzer / Receiver quickly scanned from 30MHz to 1000MHz. The EUT test program was started. Emissions were scanned and measured rotating the EUT to 360 degrees and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

The test mode(s) described in Item 3.1 were scanned during the preliminary test:

After the preliminary scan, we found the test mode described in Item 3.1 producing the highest emission level.

The EUT and worse cable configuration, antenna position, polarization and turntable position of the above highest emission level were recorded for the final test.

When measuring emissions above 1GHz, the frequencies of maximum emission shall be determined by manually positioning the antenna close to the EUT and by moving the antenna over all sides of the EUT while observing a spectral display. It will be advantageous to have prior knowledge of the frequencies of emissions above 1GHz. If the EUT is a device with dimensions approximately equal to that of the measurement antenna beam width, the measurement antenna shall be aligned with the EUT.



## **Procedure of Final Test**

EUT and support equipment were set up on the turntable as per the configuration with highest emission level in the preliminary test.

The Analyzer / Receiver scanned from 30MHz to 1000MHz. Emissions were scanned and measured rotating the EUT to 360 degrees, varying cable placement and positioning the antenna 1 to 4 meters above the ground plane, in both the vertical and the horizontal polarization, to maximize the emission reading level.

Recorded at least the six highest emissions. Emission frequency, amplitude, antenna position, polarization and turntable position were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit and only Q.P. reading is presented.

For the measurement above 1GHz, use the cable, EUT arrangement, and mode of operation determined in the exploratory testing to produce the emission that has the highest amplitude relative to the limit.

Place the measurement antenna away from each area of the EUT determined to be a source of emissions at the specified measurement distance, while keeping the antenna in the “cone of radiation” from that area and pointed at the area both in azimuth and elevation, with polarization oriented for maximum response.

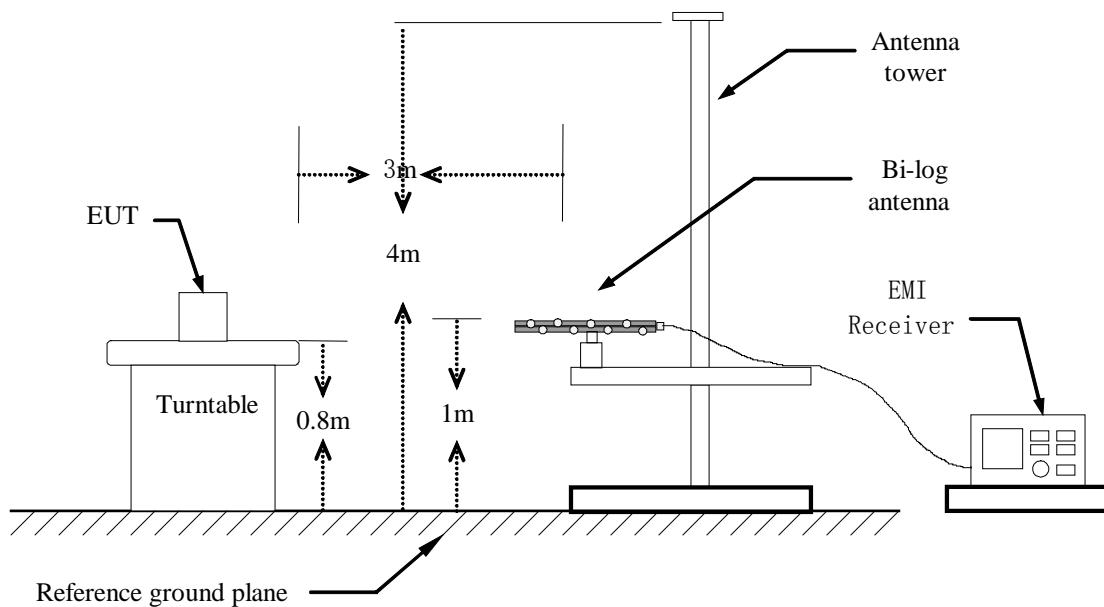
The antenna may have to be higher or lower than the EUT, depending on the EUT's size and mounting height, but the antenna should be restricted to a range of height of from 1m to 4m above the ground or reference ground plane.

If the transmission line for the measurement antenna restricts its range of height and polarization, the steps needed to ensure the correct measurement of the maximum emissions, shall be described in detail in the report of the measurements.

- 1) using the procedures above to measure with peak detector function, if the result comply with the average limit specified by the appropriate regulation, record the EUT arrangement, mode of operation, and cable positions used for final radiated emission measurement , this can be done with either diagrams or photographs.
- 2) Set the detector function of the measuring instrument to average mode, using the procedures above and remeasure only those emissions that complied with the peak limits but exceeded the average limits.
- 3) The emissions below 30 MHz were background, so no data show it.

Recorded at least the six highest emissions.

## 7.4. TEST SETUP

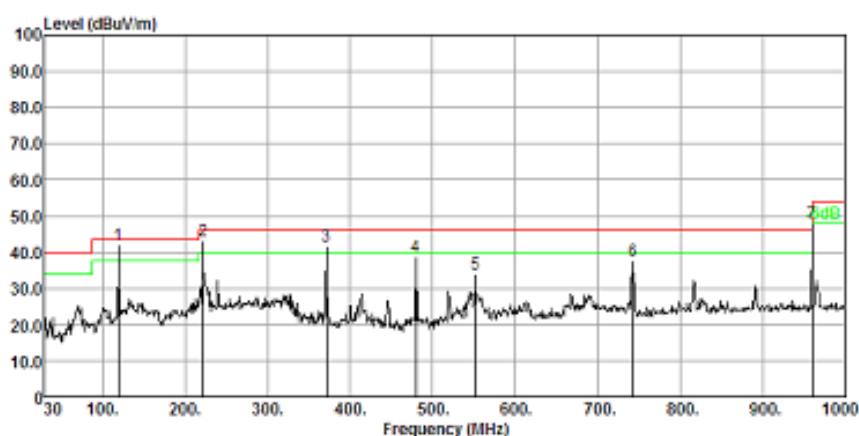


For the actual test configuration, please refer to the related item – Photographs of the Test Configuration.



## 7.5. TEST RESULTS

EUT :	TV box	Model Name :	PA-09
Temperature :	25 °C	Relative Humidity :	58%
Pressure :	1010 hPa	Polarization :	Horizontal
Test Power :	DC 5V	Test Mode :	Exchange Data with PC Through HDMI Port

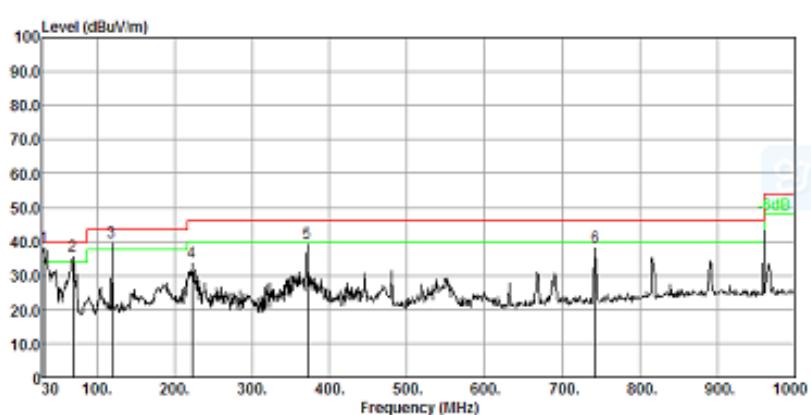


No.	Freq MHz	ANT Factor +Loss dB/m	Cable Reading dBuV	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1.	119.240	-19.51	61.45	41.94	43.50	1.56	QP
2.	222.060	-20.27	63.39	43.12	46.00	2.88	QP
3.	371.440	-15.99	57.56	41.57	46.00	4.43	QP
4.	480.080	-13.80	52.48	38.68	46.00	7.32	QP
5.	551.860	-12.29	46.28	33.99	46.00	12.01	QP
6.	742.950	-9.53	47.09	37.56	46.00	8.44	QP
7.	960.230	-7.23	55.15	47.92	54.00	6.08	QP

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



EUT :	TV box	Model Name :	PA-09
Temperature :	25 °C	Relative Humidity :	58%
Pressure :	1010 hPa	Polarization :	Vertical
Test Power :	DC 5V	Test Mode :	Exchange Data with PC Through HDMI Port

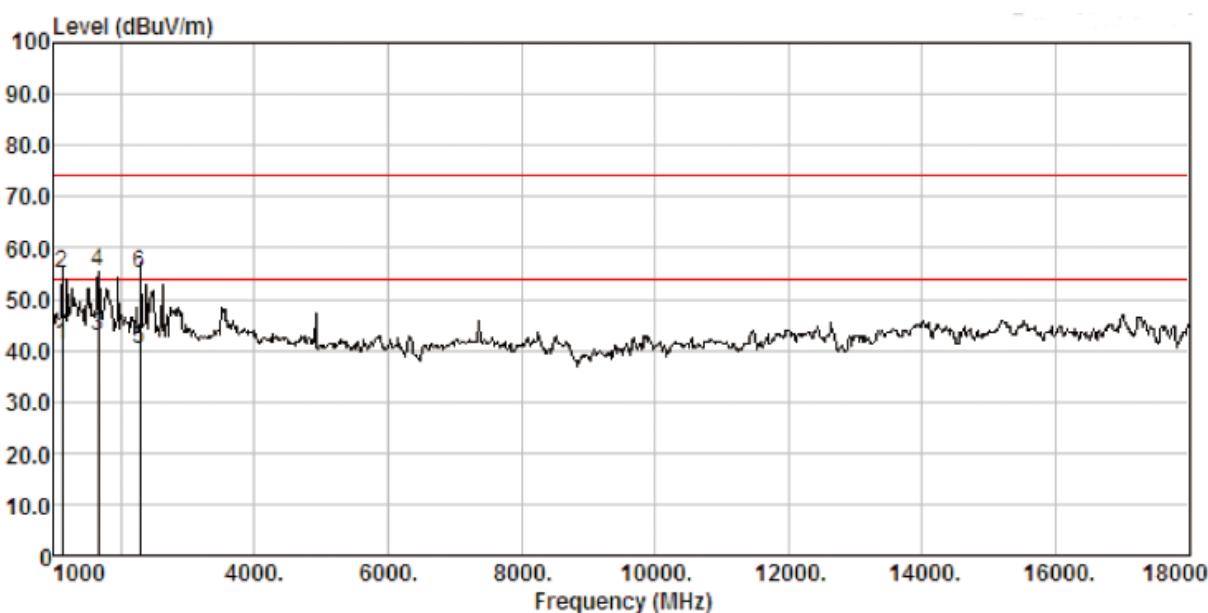


No.	Freq MHz	ANT Factor +Loss dB/m	Cable Reading dBuV	Emission Level dBuV/m	Limits dBuV/m	Margin dB	Remark
1.	31.940	-18.71	57.19	38.48	40.00	1.52	OP
2.	68.800	-20.17	55.86	35.89	40.00	4.31	OP
3.	119.240	-19.51	59.35	39.84	43.50	3.66	OP
4.	223.030	-20.23	54.25	34.02	46.00	11.98	OP
5.	371.440	-15.99	55.56	39.57	46.00	6.43	OP
6.	742.950	-9.53	47.92	38.39	46.00	7.61	OP

Remarks: 1. Emission Level = Antenna Factor + Cable Loss + Reading.  
 2. The emission levels that are 20dB below the official limit are not reported.



EUT :	TV box	Model Name :	PA-09
Temperature :	25 °C	Relative Humidity :	58%
Pressure :	1010 hPa	Polarization :	Horizontal
Test Power :	DC 5V	Test Mode :	Exchange Data with PC Through HDMI Port

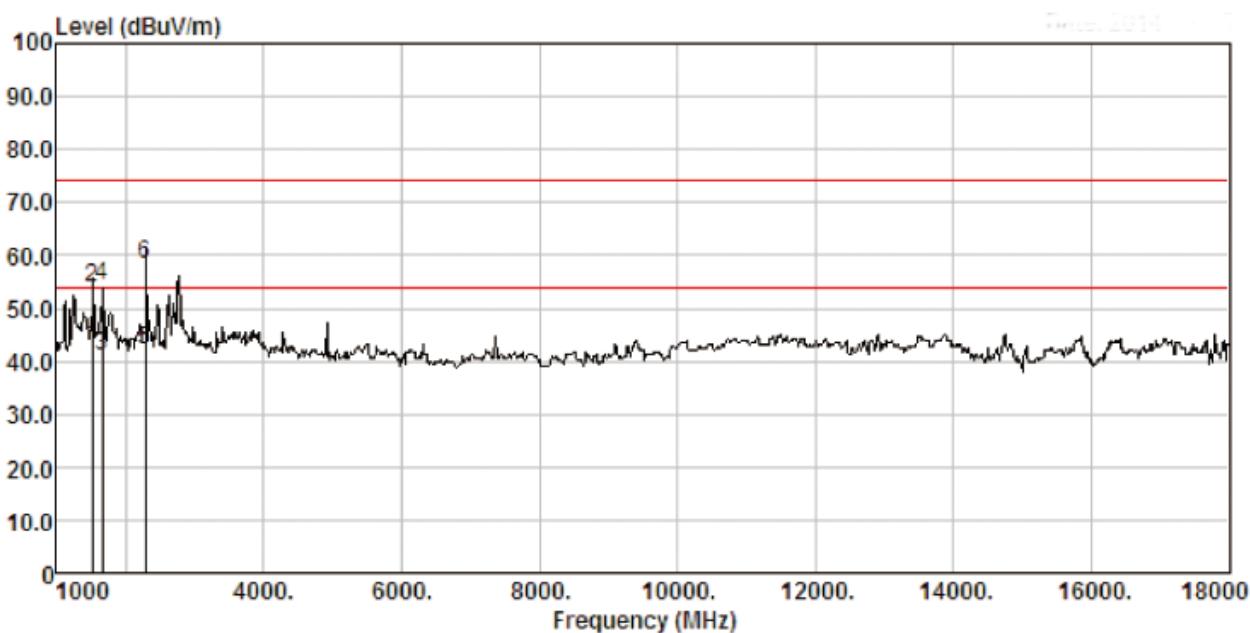


No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Limit dBuV/m	Over Limit dB	Remark
1.	1115.480	1.33	24.81	50.99	36.00	41.13	54.00	-12.87	Average
2.	1115.480	1.33	24.81	65.00	36.00	55.14	74.00	-18.86	Peak
3.	1655.700	2.08	25.51	51.31	36.00	42.90	54.00	-11.10	Average
4.	1655.700	2.08	25.51	63.72	36.00	55.31	74.00	-18.69	Peak
5.	2286.200	2.69	27.32	46.25	36.00	40.26	54.00	-13.74	Average
6.	2286.200	2.69	27.32	60.99	36.00	55.00	74.00	-19.00	Peak

Note: The highest operating frequency of the applied device is 2462MHz(11b/g/n20), so the investigated frequency is from 30MHz to at least 5th harmonics of highest operating frequency.



EUT :	TV box	Model Name :	PA-09
Temperature :	25 °C	Relative Humidity :	58%
Pressure :	1010 hPa	Polarization :	Vertical
Test Power :	DC 5V	Test Mode :	Exchange Data with PC Through HDMI Port



No.	Freq MHz	Cable Loss dB	ANT Factor dB/m	Receiver Reading dBuV	Preamp Factor dB	Emission Level dBuV/m	Over Limit dBuV/m	Over Limit dB	Remark
1.	1515.000	1.91	25.14	51.94	36.00	42.99	54.00	-11.01	Average
2.	1515.000	1.91	25.14	62.94	36.00	53.99	74.00	-20.01	Peak
3.	1649.300	2.07	25.50	49.57	36.00	41.14	54.00	-12.86	Average
4.	1649.300	2.07	25.50	62.57	36.00	54.14	74.00	-19.86	Peak
5.	2285.330	2.69	27.32	48.23	36.00	42.24	54.00	-11.76	Average
6.	2285.330	2.69	27.32	64.24	36.00	58.25	74.00	-15.75	Peak

Note: The highest operating frequency of the applied device is 2462MHz(11b/g/n20), so the investigated frequency is from 30MHz to at least 5th harmonics of highest operating frequency.

\*\*\*\*\*THE END REPORT\*\*\*\*\*