



# FCC TEST REPORT

Prepared for :

**Kmetech Electronics Limited**

**5F, Buliding NO.3, NO.118, Xinan 3rd Rd., Baoan 28 District, Shenzhen, China**

**FCC ID: 2AQ65-PSE802G**

**Product: PoE Injector**

**Trade Name: KMETech**

**Model Name: PSE802G;  
Serial model(s) see Page 2**

**Date of Test: Sep. 01, 2018 - Sep. 04, 2018**

**Date of Report: Sep. 04, 2018**

**Report Number: HUAK180901951-1ER**

Prepared By :

**Shenzhen HUAK Testing Technology Co., Ltd.**

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## TEST REPORT VERIFICATION

Applicant : Kmetech Electronics Limited  
Address : 5F, Buliding NO.3, NO.118, Xinan 3rd Rd., Baoan 28 District, Shenzhen, China  
Manufacturer : Kmetech Electronics Limited  
Address : 5F, Buliding NO.3, NO.118, Xinan 3rd Rd., Baoan 28 District, Shenzhen, China  
EUT Description : PoE Injector  
(A) Model No. : PSE802G  
(B) Serial No. : PSE801, PSE801FM, PSE801G, PSE803, PSE803G, PSE802G, PSE802, PI160G, PSE256, PSE256G, PSE801-48W, PSE156G, PI156G, PSEXXXXXX(X=A~Z,0~9), PIXXXX (X=A~Z,0~9)  
(C) Power Supply : Input : 100~240V AC, 50-60 Hz, 0.7A  
Output : 54V DC, 0.56A

**Standards** ..... FCC Part 15 Subpart B  
ANSI C63.4:2014

This device described above has been tested by HUAK, and the test results show that the equipment under test (EUT) is in compliance with Part 15 of FCC Rules. And it is applicable only to the tested sample identified in the report.

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**Date of Test** .....

Date (s) of performance of tests ..... Sep. 01, 2018 - Sep. 04, 2018

Date of Issue ..... Sep. 04, 2018

Test Result ..... **Pass**

Testing Engineer : 

(Gary Qian)

Technical Manager : 

(Eden Hu)

Authorized Signatory : 

(Jason Zhou)



|  |    |
|--|----|
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## 1. TEST SUMMARY

Test procedures according to the technical standards:

| EMC Emission                             |                    |         |          |        |
|--|--------------------|---------|----------|--------|
| Standard                                 | Test Item          | Limit   | Judgment | Remark |
| FCC Part 15 Subpart B<br>ANSI C63.4:2014 | Conducted Emission | Class B | PASS     |        |
|  | Radiated Emission  | Class B | PASS     |        |

NOTE:

- (1) 'N/A' denotes test is not applicable in this Test Report
- (2) For client's request and manual description, the test will not be executed.



## 1.1 TEST FACILITY

Test Firm : Shenzhen HUAK Testing Technology Co., Ltd.

Address : 1F, B2 Building, Junfeng Zhongcheng Zhizao Innovation Park, Fuhai Street, Bao'an District, Shenzhen City, China

Designation Number : CN1229

Test Firm Registration Number:616276

IC Registration No.: 21210

The 3m alternate test site of Shenzhen HUAK Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 21210 on May 24, 2016.

## 1.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement  $y \pm U$  · where expended uncertainty  $U$  is based on a standard uncertainty multiplied by a coverage factor of **k=2** · providing a level of confidence of approximately **95 %**.

## Measurement Uncertainty

Conducted Emission Expanded Uncertainty = 2.23dB, k=2

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

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

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



## 2. GENERAL INFORMATION

### 2.1 GENERAL DESCRIPTION OF EUT

|                      |   |  |                      |     |                      |     |
|----------------------|---|--|----------------------|-----|----------------------|-----|
| Equipment            | PoE Injector  |  |                      |     |                      |     |
| Model Name           | PSE802G   |  |                      |     |                      |     |
| Serial No            | PSE801FM, PSE801, PSE801G, PSE803, PSE803G, PSE802G, PSE802, PI160G, PSE256, PSE256G, PSE801-48W, PSE156G, PI156G, PSEXXXXXX(X=A~Z,0~9), PIXXX (X=A~Z,0~9)  |  |                      |     |                      |     |
| Model Difference     | All model's the function, software and electric circuit are the same, only with a product color and model named different. Test sample model: PSE802G.  |  |                      |     |                      |     |
| Product Description  | <p>The EUT is a PoE Injector</p> <table border="1"><tr><td>Operating frequency:</td><td>N/A</td></tr><tr><td>Connecting I/O port:</td><td>N/A</td></tr></table> <p>Based on the application, features, or specification exhibited in User's Manual, the EUT is considered as an ITE/Computing Device. More details of EUT technical specification, please refer to the User's Manual.</p> |  | Operating frequency: | N/A | Connecting I/O port: | N/A |
| Operating frequency: | N/A   |  |                      |     |                      |     |
| Connecting I/O port: | N/A   |  |                      |     |                      |     |
| Power Source         | AC Voltage  |  |                      |     |                      |     |
| Power Rating         | Input : 100~240V AC, 50-60 Hz, 0.7A<br>Output : 54V DC, 0.56A   |  |                      |     |                      |     |



## 2.2 DESCRIPTION OF TEST MODES

To investigate the maximum EMI emission characteristics generates from EUT, the test system was pre-scanning tested base on the consideration of following EUT operation mode or test configuration mode which possible have effect on EMI emission level. Each of these EUT operation mode(s) or test configuration mode(s) mentioned above was evaluated respectively.

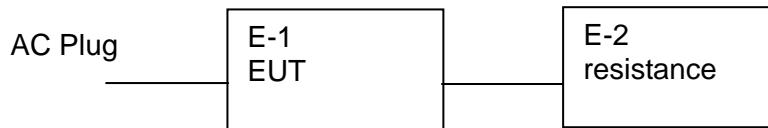
| Pretest Mode | Description |
|--------------|-------------|
| Mode 1       | Running     |

| <b>For Conducted Test</b> |             |
|---------------------------|-------------|
| Final Test Mode           | Description |
| Mode 1                    | Running     |

| <b>For Radiated Test</b> |             |
|--------------------------|-------------|
| Final Test Mode          | Description |
| Mode 1                   | Running     |



## 2.3 DESCRIPTION OF TEST SETUP



## 2.4 DESCRIPTION TEST PERIPHERAL AND EUT PERIPHERAL

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.

| Item | Equipment    | Mfr/Brand | Model/Type No. | Series No. | Note |
|------|--------------|-----------|----------------|------------|------|
| E-1  | PoE Injector | KMETech   | PSE802G        | N/A        | EUT  |
| E-2  | resistance   | N/A       | N/A            | N/A        |      |
|      |              |           |                |            |      |
|      |              |           |                |            |      |



## 2.5 MEASUREMENT INSTRUMENTS LIST

| Item | Equipment                               | Manufacturer    | Model No.           | Serial No. | Last Cal.     | Cal. Interval |
|------|---|-----------------|---------------------|------------|---------------|---------------|
| 1.   | L.I.S.N.<br>Artificial Mains<br>Network | R&S             | ENV216              | HKE-002    | Dec. 28, 2017 | 1 Year        |
| 2.   | Receiver                                | R&S             | ESCI 7              | HKE-010    | Dec. 28, 2017 | 1 Year        |
| 3.   | RF automatic<br>control unit            | Tonscend        | JS0806-2            | HKE-060    | Dec. 28, 2017 | 1 Year        |
| 4.   | Spectrum analyzer                       | R&S             | FSP40               | HKE-025    | Dec. 28, 2017 | 1 Year        |
| 5.   | Spectrum analyzer                       | Agilent         | N9020A              | HKE-048    | Dec. 28, 2017 | 1 Year        |
| 6.   | Preamplifier                            | Schwarzbeck     | BBV 9743            | HKE-006    | Dec. 28, 2017 | 1 Year        |
| 7.   | EMI Test Receiver                       | Rohde & Schwarz | ESCI 7              | HKE-010    | Dec. 28, 2017 | 1 Year        |
| 8.   | Bilog Broadband<br>Antenna              | Schwarzbeck     | VULB9163            | HKE-012    | Dec. 28, 2017 | 1 Year        |
| 9.   | Loop Antenna                            | Schwarzbeck     | FMZB 1519<br>B      | HKE-014    | Dec. 28, 2017 | 1 Year        |
| 10.  | Horn Antenna                            | Schwarzbeck     | 9120D               | HKE-013    | Dec. 28, 2017 | 1 Year        |
| 11.  | Pre-amplifier                           | EMCI            | EMC05184<br>5SE     | HKE-015    | Dec. 28, 2017 | 1 Year        |
| 12.  | Pre-amplifier                           | Agilent         | 83051A              | HKE-016    | Dec. 28, 2017 | 1 Year        |
| 13.  | EMI Test Software<br>EZ-EMC             | Tonscend        | JS1120-B<br>Version | HKE-083    | Dec. 28, 2017 | N/A           |
| 14.  | Power Sensor                            | Agilent         | E9300A              | HKE-086    | Dec. 28, 2017 | 1 Year        |
| 15.  | Spectrum analyzer                       | Agilent         | N9020A              | HKE-048    | Dec. 28, 2017 | 1 Year        |
| 16.  | Signal generator                        | Agilent         | N5182A              | HKE-029    | Dec. 28, 2017 | 1 Year        |
| 17.  | Signal Generator                        | Agilent         | 83630A              | HKE-028    | Dec. 28, 2017 | 1 Year        |
| 18.  | Shielded room                           | Shiel Hong      | 4*3*3               | HKE-039    | Dec. 28, 2017 | 3 Year        |



### 3. EMC EMISSION TEST

#### 3.1 CONDUCTED EMISSION MEASUREMENT

##### 3.1.1 POWER LINE CONDUCTED EMISSION (Frequency Range 150KHz-30MHz)

| FREQUENCY (MHz) | Class A (dBuV) |         | Class B (dBuV) |           |
|-----------------|----------------|---------|----------------|-----------|
|                 | Quasi-peak     | Average | Quasi-peak     | Average   |
| 0.15 -0.5       | 79.00          | 66.00   | 66 - 56 *      | 56 - 46 * |
| 0.50 -5.0       | 73.00          | 60.00   | 56.00          | 46.00     |
| 5.0 -30.0       | 73.00          | 60.00   | 60.00          | 50.00     |

Note:

- (1) The tighter limit applies at the band edges.
- (2) The limit of " \* " marked band means the limitation decreases linearly with the logarithm of the frequency in the range.

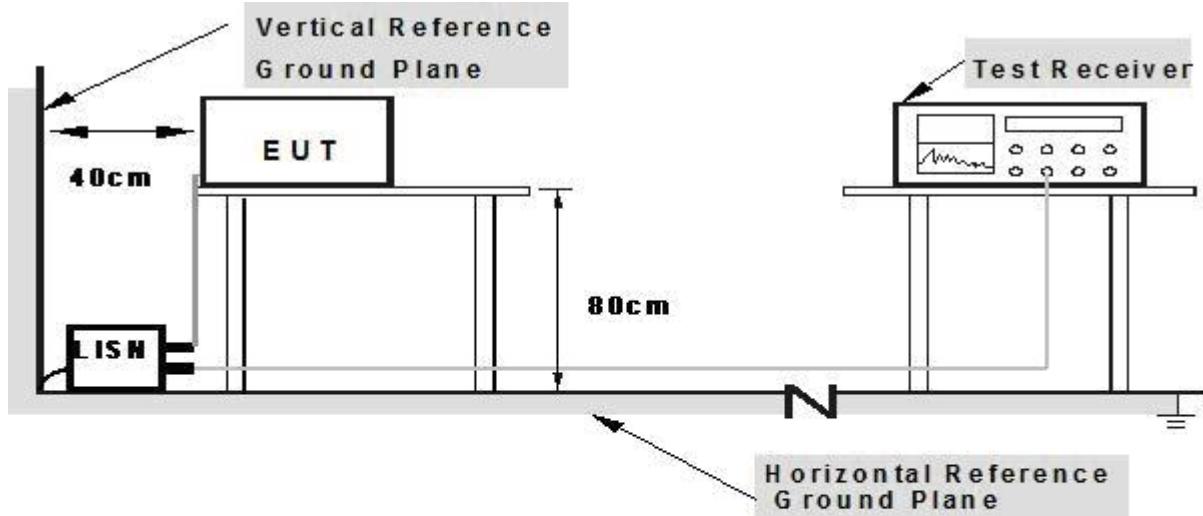
The following table is the setting of the receiver

| Receiver Parameters | Setting  |
|---------------------|----------|
| Attenuation         | 10 dB    |
| Start Frequency     | 0.15 MHz |
| Stop Frequency      | 30 MHz   |
| IF Bandwidth        | 9 kHz    |

### 3.1.2 TEST PROCEDURE

- a. The EUT was placed 0.4 meters from the horizontal ground plane with EUT being connected to the power mains through a line impedance stabilization network (LISN). All other support equipments powered from additional LISN(s). The LISN provide 50 Ohm/ 50uH of coupling impedance for the measuring instrument.
- b. Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth in the center forming a bundle 30 to 40 cm long.
- c. I/O cables that are not connected to a peripheral shall be bundled in the center. The end of the cable may be terminated, if required, using the correct terminating impedance. The overall length shall not exceed 1 m.
- d. LISN at least 80 cm from nearest part of EUT chassis.
- e. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.1.3 TEST SETUP



**Note: 1. Support units were connected to second LISN.**

**2. Both of LISNs (AMN) are 80 cm from EUT and at least 80 cm from other units and other metal planes**

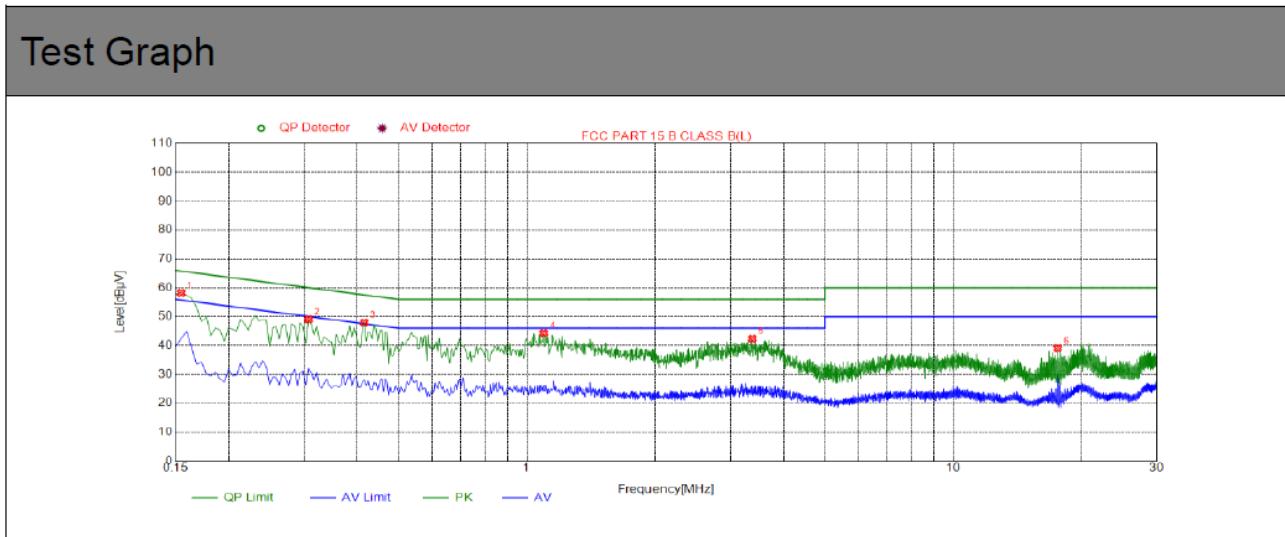
### 3.1.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of **2.3** Unless otherwise a special operating condition is specified in the follows during the testing.

Remark: We tested AC 120V/60Hz and AC 240V/60Hz, the worst case was recorded.

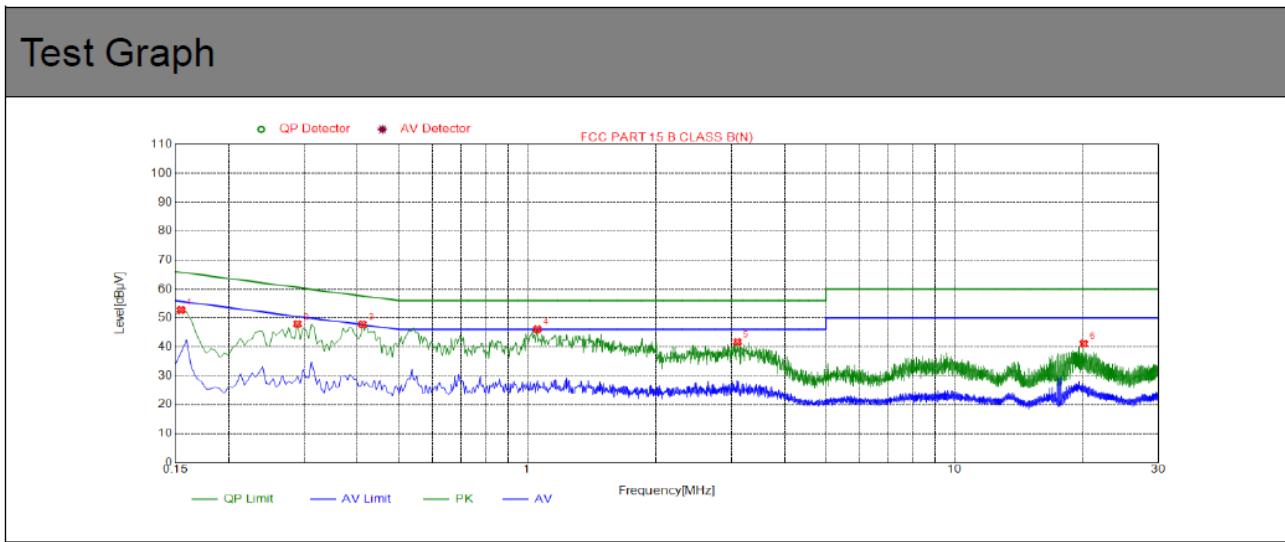
## 3.1.5 TEST RESULTS

|                |              |                     |            |
|----------------|--------------|---------------------|------------|
| EUT :          | PoE Injector | Model Name. :       | PSE802G    |
| Temperature :  | 26 °C        | Relative Humidity : | 54%        |
| Pressure :     | 1010hPa      | Test Date :         | 2018-09-03 |
| Test Mode :    | Running      | Phase :             | L          |
| Test Voltage : | AC120V/60Hz  |                     |            |



| NO. | Freq. [MHz] | Level [dB $\mu$ V] | Factor [dB] | Limit [dB $\mu$ V] | Margin [dB] | Detector |
|-----|-------------|--------------------|-------------|--------------------|-------------|----------|
| 1   | 0.1545      | 58.22              | 10.03       | 65.76              | 7.54        | PK       |
| 2   | 0.3075      | 49.04              | 10.05       | 60.04              | 11.00       | PK       |
| 3   | 0.4155      | 47.96              | 10.03       | 57.54              | 9.58        | PK       |
| 4   | 1.0950      | 44.30              | 10.07       | 56.00              | 11.70       | PK       |
| 5   | 3.3765      | 42.34              | 10.24       | 56.00              | 13.66       | PK       |
| 6   | 17.5740     | 39.00              | 10.02       | 60.00              | 21.00       | PK       |

|                |              |                     |            |
|----------------|--------------|---------------------|------------|
| EUT :          | PoE Injector | Model Name. :       | PSE802G    |
| Temperature :  | 26 °C        | Relative Humidity : | 54%        |
| Pressure :     | 1010hPa      | Test Date :         | 2018-09-03 |
| Test Mode :    | Running      | Phase :             | N          |
| Test Voltage : | AC120V/60Hz  |                     |            |



| NO. | Freq. [MHz] | Level [dB $\mu$ V] | Factor [dB] | Limit [dB $\mu$ V] | Margin [dB] | Detector |
|-----|-------------|--------------------|-------------|--------------------|-------------|----------|
| 1   | 0.1545      | 52.78              | 10.03       | 65.76              | 12.98       | PK       |
| 2   | 0.2895      | 47.94              | 10.03       | 60.54              | 12.60       | PK       |
| 3   | 0.4110      | 47.76              | 10.03       | 57.63              | 9.87        | PK       |
| 4   | 1.0545      | 46.16              | 10.07       | 56.00              | 9.84        | PK       |
| 5   | 3.1020      | 41.77              | 10.22       | 56.00              | 14.23       | PK       |
| 6   | 20.0625     | 41.09              | 10.11       | 60.00              | 18.91       | PK       |



### 3.2 RADIATED EMISSION MEASUREMENT

#### 3.2.1 LIMITS OF RADIATED EMISSION MEASUREMENT

| FREQUENCY (MHz) | Class A (at 10m) | Class B (at 3m) |
|-----------------|------------------|-----------------|
|                 | dBuV/m           | dBuV/m          |
| 30 ~ 88         | 39.0             | 40.0            |
| 88 ~ 216        | 43.5             | 43.5            |
| 216 ~ 960       | 46.5             | 46.0            |
| Above 960       | 49.5             | 54.0            |

Notes:

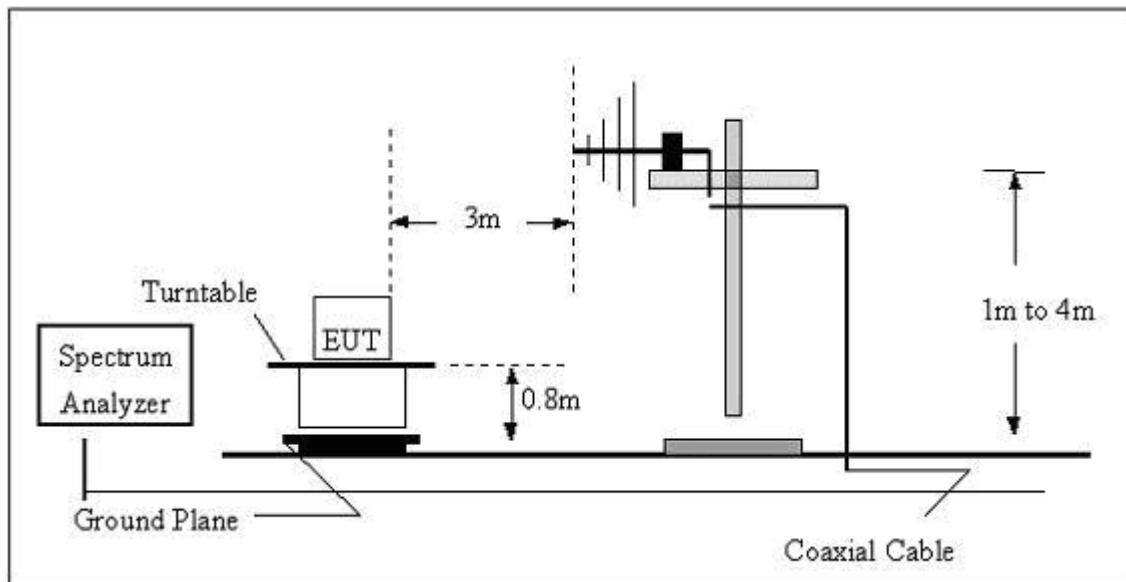
- (1) The limit for radiated test was performed according to as following:  
FCC PART 15B /ICES-003.
- (2) The tighter limit applies at the band edges.
- (3) Emission level (dBuV/m)=20log Emission level (uV/m).

#### 3.2.2 TEST PROCEDURE

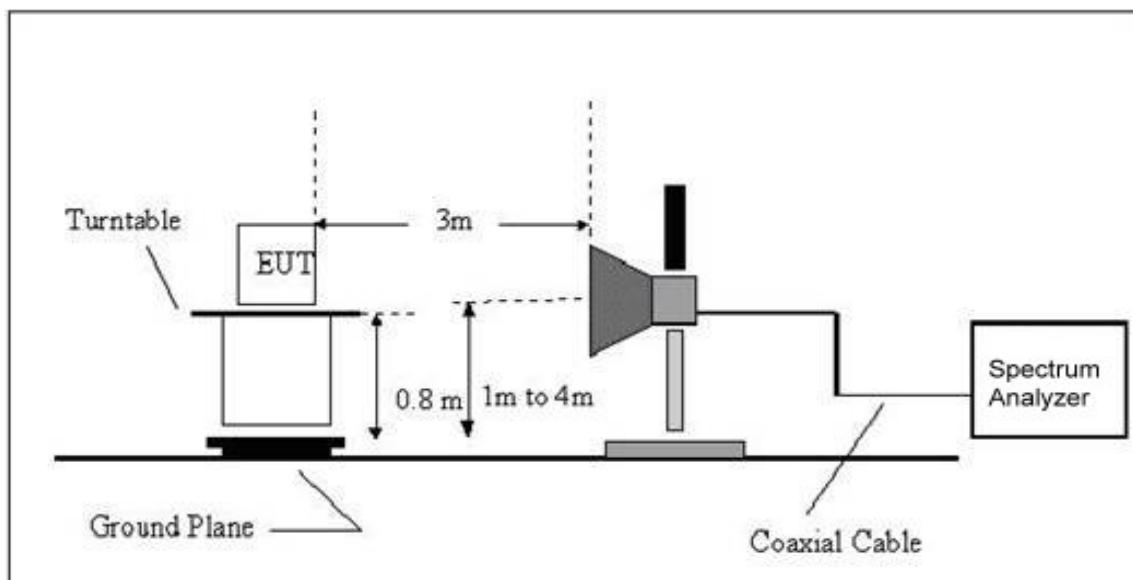
- a. The measuring distance of at 10 m shall be used for measurements at frequency up to 1GHz. For frequencies above 1GHz, any suitable measuring distance may be used.
- b. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 10 meter open area test site. The table was rotated 360 degrees to determine the position of the highest radiation.
- c. The height of the equipment or of the substitution antenna shall be 0.8 m; the height of the test antenna shall vary between 1 m to 4 m. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. The initial step in collecting conducted emission data is a spectrum analyzer peak detector mode pre-scanning the measurement frequency range. Significant peaks are then marked and then Quasi Peak detector mode re-measured, above 1G Average detector mode will be instead.
- e. If the Peak Mode measured value compliance with and lower than Quasi Peak Mode Limit, the EUT shall be deemed to meet QP(AV) Limits and then no additional QP Mode measurement performed.
- f. For the actual test configuration, please refer to the related Item –EUT Test Photos.

### 3.2.3 TEST SETUP

#### (A) Radiated Emission Test Set-Up Frequency Below 1 GHz



#### (B) Radiated Emission Test Set-Up Frequency Above 1GHz

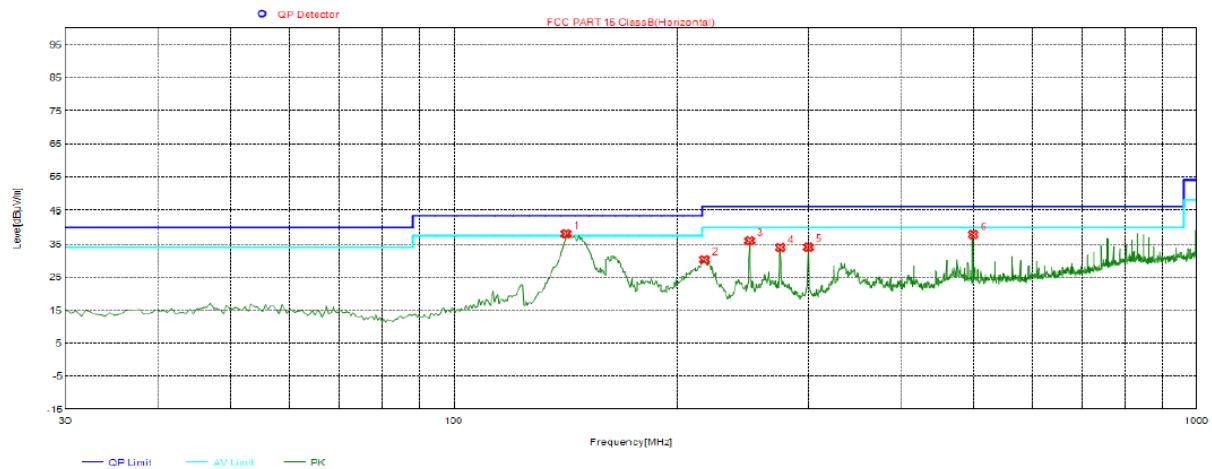


### 3.2.4 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

## 3.2.5 TEST RESULTS

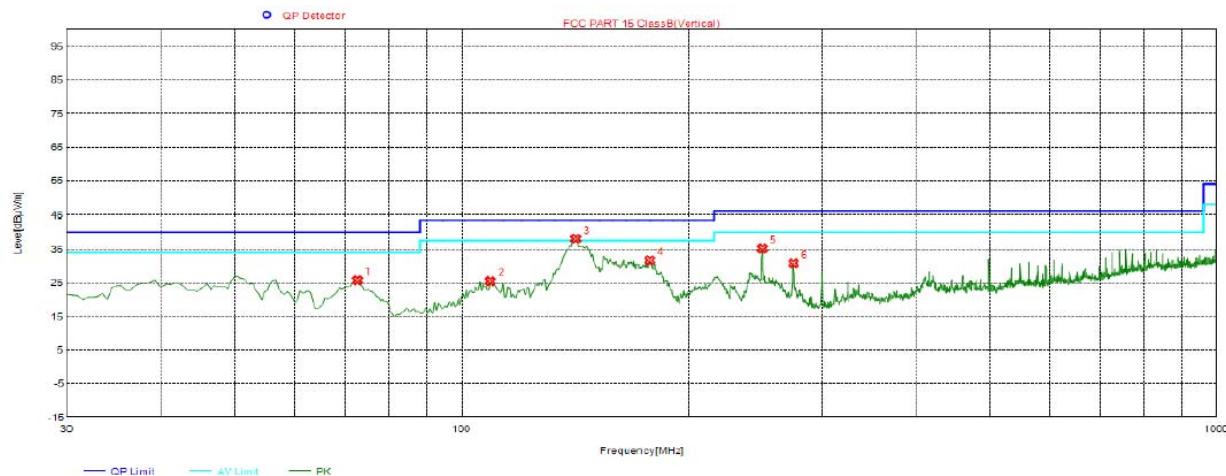
|               |              |                     |            |
|---------------|--------------|---------------------|------------|
| EUT :         | PoE Injector | Model Name :        | PSE802G    |
| Temperature : | 24 °C        | Relative Humidity : | 54%        |
| Pressure :    | 1010 hPa     | Test Date :         | 2018-09-03 |
| Test Mode :   | Running      | Polarization :      | Horizontal |
| Test Power :  | AC120V/60Hz  |                     |            |



| NO. | Freq. [MHz] | Level [dB $\mu$ V/m] | Factor [dB] | Limit [dB $\mu$ V/m] | Margin [dB] | Trace | Height [cm] | Angle [°] | Polarity   |
|-----|-------------|----------------------|-------------|----------------------|-------------|-------|-------------|-----------|------------|
| 1   | 141.5500    | 38.09                | -12.26      | 43.50                | 5.41        | PK    | 100         | 312       | Horizontal |
| 2   | 217.2100    | 30.27                | -15.30      | 46.00                | 15.73       | PK    | 100         | 307       | Horizontal |
| 3   | 250.1900    | 35.99                | -14.39      | 46.00                | 10.01       | PK    | 100         | 213       | Horizontal |
| 4   | 274.9250    | 33.92                | -14.16      | 46.00                | 12.08       | PK    | 100         | 287       | Horizontal |
| 5   | 300.1450    | 34.02                | -13.13      | 46.00                | 11.98       | PK    | 100         | 278       | Horizontal |
| 6   | 499.9650    | 37.87                | -8.20       | 46.00                | 8.13        | PK    | 100         | 100       | Horizontal |



|               |              |                     |            |
|---------------|--------------|---------------------|------------|
| EUT :         | PoE Injector | Model Name :        | PSE802G    |
| Temperature : | 24 °C        | Relative Humidity : | 54%        |
| Pressure :    | 1010 hPa     | Test Date :         | 2018-09-03 |
| Test Mode :   | Running      | Polarization :      | Vertical   |
| Test Power :  | AC120V/60Hz  |                     |            |



| NO. | Freq. [MHz] | Level [dB $\mu$ V/m] | Factor [dB] | Limit [dB $\mu$ V/m] | Margin [dB] | Trace | Height [cm] | Angle [°] | Polarity |
|-----|-------------|----------------------|-------------|----------------------|-------------|-------|-------------|-----------|----------|
| 1   | 72.6800     | 25.71                | -18.17      | 40.00                | 14.29       | PK    | 100         | 53        | Vertical |
| 2   | 109.0550    | 25.47                | -15.77      | 43.50                | 18.03       | PK    | 100         | 340       | Vertical |
| 3   | 141.5500    | 38.09                | -12.26      | 43.50                | 5.41        | PK    | 100         | 252       | Vertical |
| 4   | 177.4400    | 31.68                | -12.58      | 43.50                | 11.82       | PK    | 100         | 113       | Vertical |
| 5   | 250.1900    | 35.19                | -14.39      | 46.00                | 10.81       | PK    | 100         | 151       | Vertical |
| 6   | 274.9250    | 30.80                | -14.16      | 46.00                | 15.20       | PK    | 100         | 149       | Vertical |



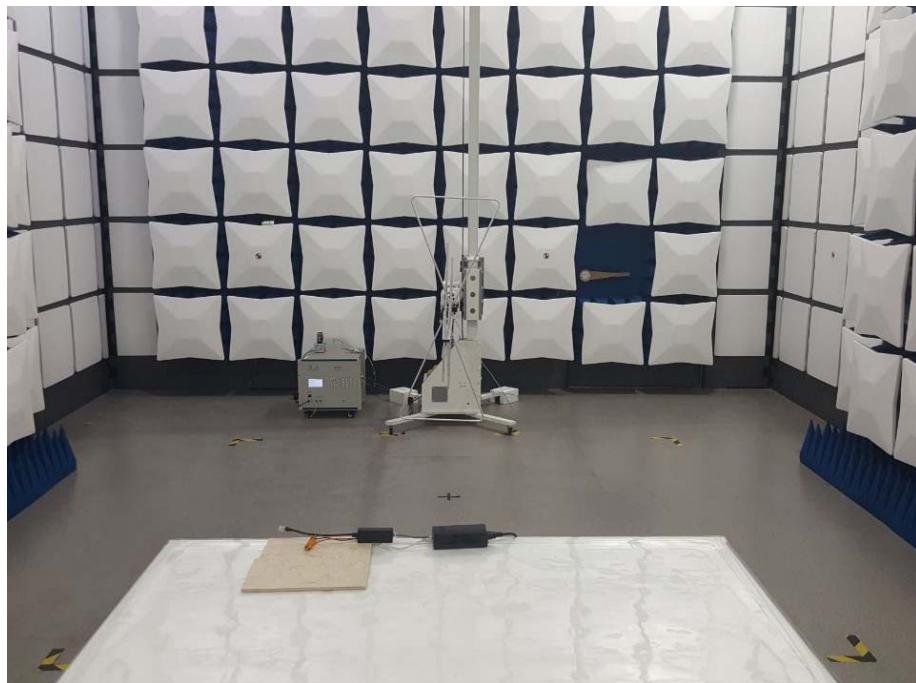
## 3.2.6 TEST RESULTS(Above 1GHz)

|               |              |                     |         |
|---------------|--------------|---------------------|---------|
| EUT :         | PoE Injector | Model Name :        | PSE802G |
| Temperature : | 24 °C        | Relative Humidity : | 54%     |
| Pressure :    | 1010 hPa     | Test Date :         | N/A     |
| Test Mode :   | N/A          |                     |         |
| Test Power :  | N/A          |                     |         |

## Note:

- 1) N/A - denotes test is not applicable in this test report
- 2) There was not any unintentional transmission in standby mode

#### 4. EUT TEST PHOTO





## ATTACHMENT PHOTOGRAPHS OF EUT

Photo 1

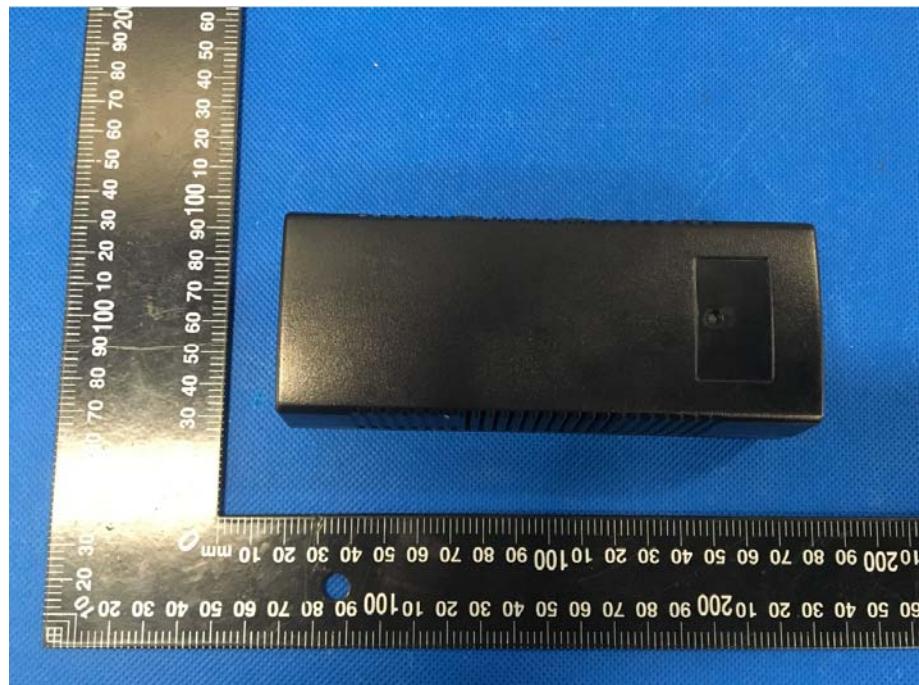


Photo 2

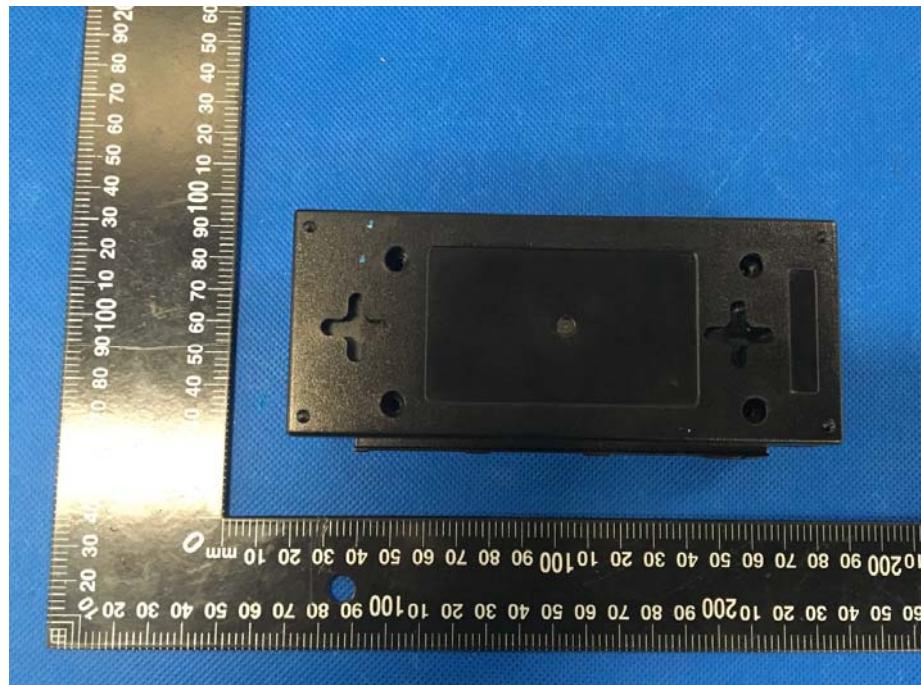




Photo 3

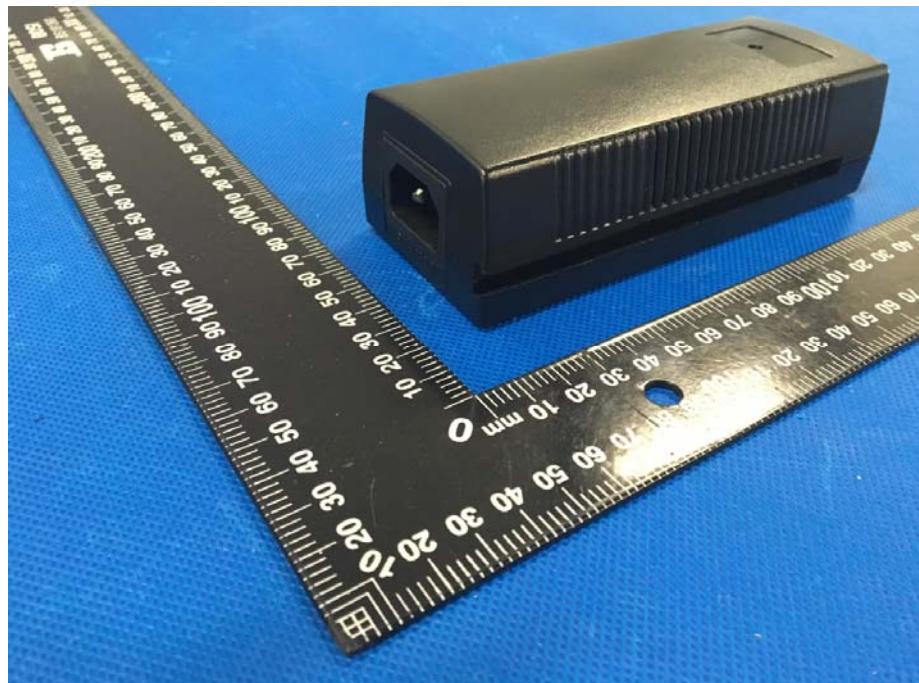


Photo 4

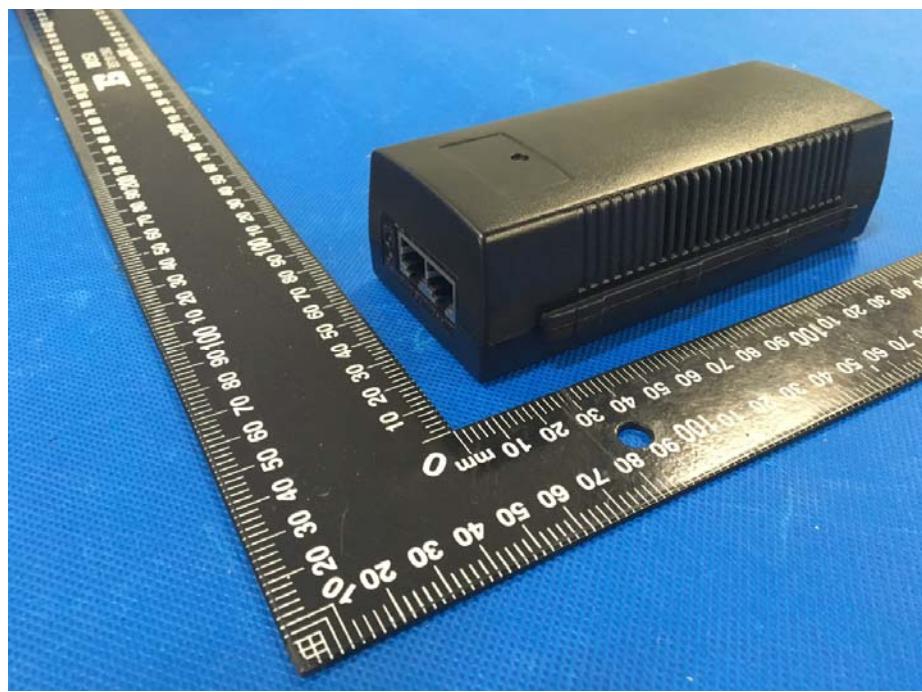




Photo 5



Photo 6





Photo 7

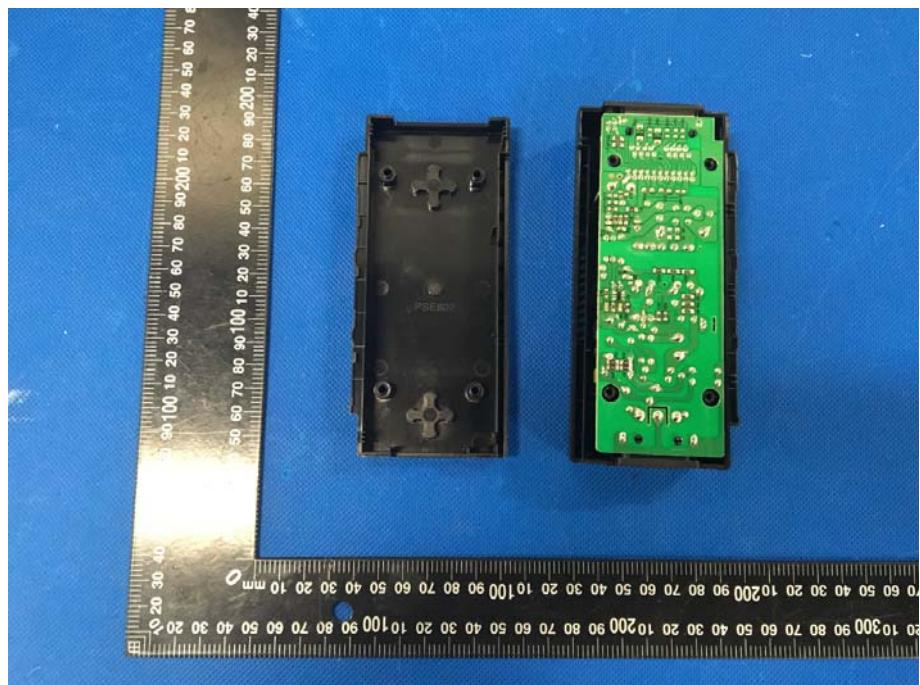


Photo 8

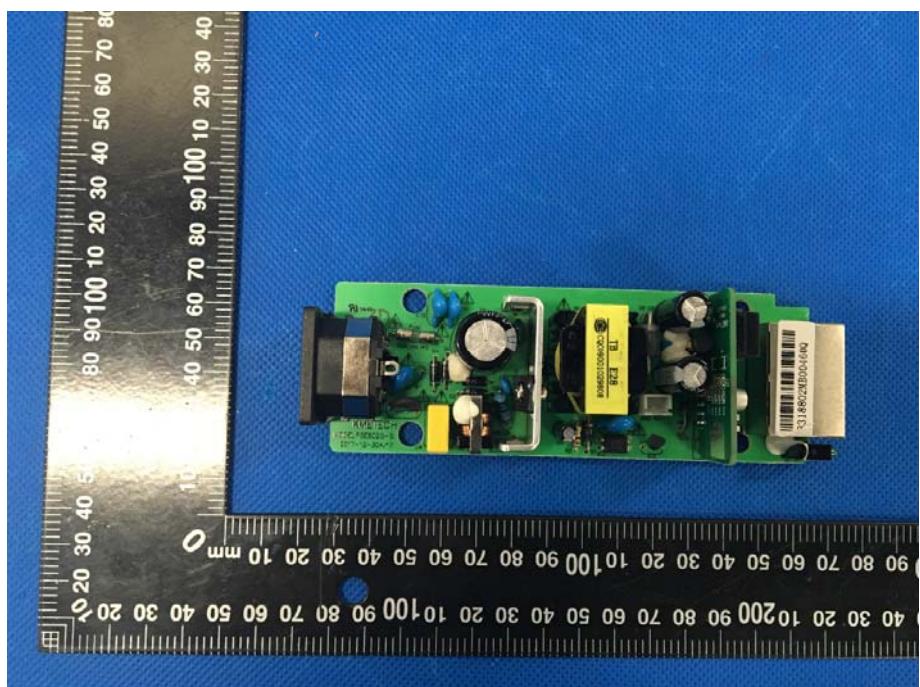
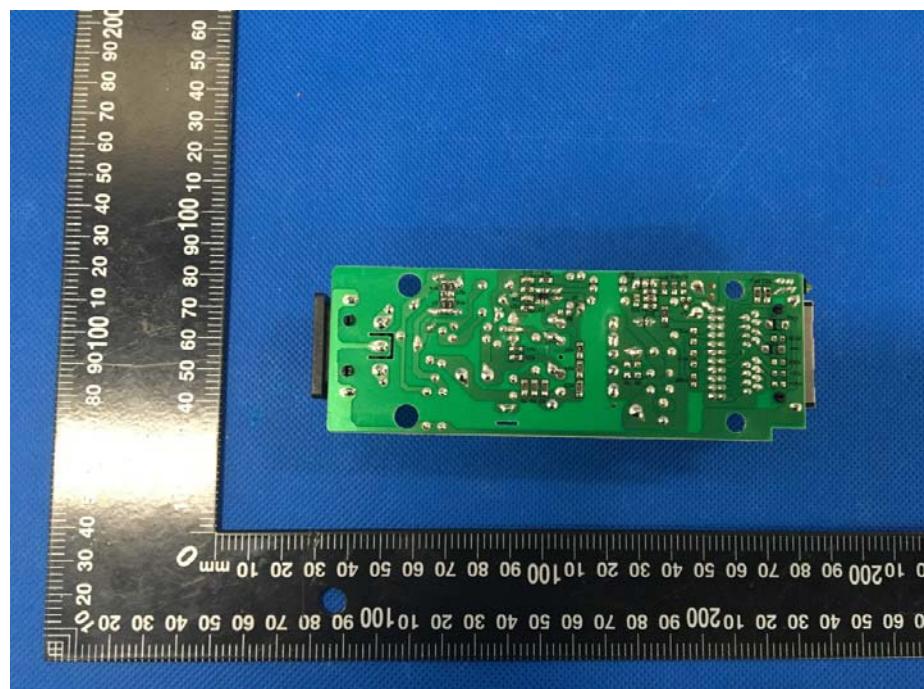




Photo 9



-----End of report-----