



# TEST REPORT

## No.I23N01645-EMC

for

**unitech electronics co., ltd.**

**Rugged Tablet**

**Model Name: RT112**

**With**

**Hardware Version: V1.2**

**Software Version: IRIS\_V03.29b01\_20230920**

**FCC ID: HLERT112BWN**

**Issued Date: 2023-12-19**

**Designation Number: CN1210**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

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No.I23N01645-EMC

## **REPORT HISTORY**

| <b>Report Number</b> | <b>Revision</b> | <b>Description</b> | <b>Issue Date</b> |
|----------------------|-----------------|--------------------|-------------------|
| I23N01645-EMC        | Rev.0           | 1st edition        | 2023-12-19        |

Note: the latest revision of the test report supersedes all previous version.

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## **1. SUMMARY OF TEST REPORT**

### **1.1. Test Items**

|                     |                               |
|---------------------|-------------------------------|
| Description         | Rugged Tablet                 |
| Model Name          | RT112                         |
| Applicant's name    | unitech electronics co., ltd. |
| Manufacturer's Name | unitech electronics co., ltd. |

### **1.2. Test Standards**

FCC Part 15, Subpart B (10-1-2021 Edition); ANSI C63.4-2014.

### **1.3. Test Result**

Total test 2 items, pass 2 items. Please refer to "6.2 Test Results".

### **1.4. Testing Location**

Address: EMC Lab,Building G, Shenzhen International Innovation Center,  
No.1006 Shennan Road, Futian District, Shenzhen, Guangdong,  
China

### **1.5. Project data**

Testing Start Date: 2023-10-10

Testing End Date: 2023-12-12

### **1.6. Signature**

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Huang Kaiyang  
(Prepared this test report)

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Huang Yuqing  
(Reviewed this test report)

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Cao Junfei  
(Approved this test report)



## **2. CLIENT INFORMATION**

### **2.1. Applicant Information**

Company Name: unitech electronics co., ltd.  
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231028 , Taiwan  
Contact Ben Chiang  
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Tel. 886-2-8912-1122  
Fax 886-2-89121391

### **2.2. Manufacturer Information**

Company Name: unitech electronics co., ltd.  
Address: 5F., No. 136, Ln. 235, Baoqiao Rd., Xindian Dist., New Taipei City  
231028 , Taiwan  
Contact Ben Chiang  
Email BenC@tw.ute.com  
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Fax 886-2-89121391

### 3. EQUIPMENT UNDER TEST (EUT) AND ANCILLARY EQUIPMENT

#### (AE)

#### 3.1. About EUT

|                              |                                 |
|------------------------------|---------------------------------|
| Description                  | Rugged Tablet                   |
| Model Name                   | RT112                           |
| FCC ID                       | HLERT112BWN                     |
| Condition of EUT as received | No obvious damage in appearance |

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Shenzhen Academy of Information and Communications Technology.

#### 3.2. Internal Identification of EUT

| EUT ID* | SN or IMEI   | HW Version | SW Version              | Receive Date |
|---------|--------------|------------|-------------------------|--------------|
| UT04aa  | A20235230127 | V1.2       | IRIS_V03.29b01_20230920 | 2023-10-10   |
| UT05aa  | A20235230035 | V1.2       | IRIS_V03.29b01_20230920 | 2023-10-10   |

\*EUT ID: is used to identify the test sample in the lab internally.

#### 3.3. Internal Identification of AE

| AE ID* | Description |
|--------|-------------|
| AE1    | Battery     |
| AE2    | Charger     |
| AE3    | Data Cable  |

Aa01a, Aa02a

##### AE1-1

|                 |                                        |
|-----------------|----------------------------------------|
| Model           | 1400-900077G                           |
| Manufacturer    | Jiade Energy Technology(Zhuhai)Co.,Ltd |
| Capacity        | 8800mAh                                |
| Nominal Voltage | 3.85 V                                 |

##### AE2-1

|              |                        |
|--------------|------------------------|
| Model        | ADP-45HG B             |
| Manufacturer | DELTA ELECTRONICS,INC. |

##### AE3-1

|              |   |
|--------------|---|
| Model        | / |
| Manufacturer | / |

\*AE ID and AE Label: is used to identify the test sample in the lab internally.

\*AE Label: To distinguish the type and number of AE

AE: ancillary equipment



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### 3.4. EUT Set-ups

| EUT set-up No. | Combination of EUT and AE | Remarks |
|----------------|---------------------------|---------|
| Set.1          | EUT+AE1-1+AE2-1+AE3-1     |         |
| Set.2          | EUT+AE1-1+AE3-1+PC        |         |



### **3.5. General Description**

The Equipment Under Test (EUT) is a model of Rugged Tablet with internal antenna.

It has NFC, Camera, USB memory, Bluetooth, Wi-Fi functions.

It consists of normal options: Battery, Charge.

Manual and specifications of the EUT were provided to fulfill the test.

Samples (EUT+AE) undergoing test were selected by the Client. Relevant information is provided by the client.

## 4. REFERENCE DOCUMENTS

### 4.1. Reference Documents for Testing

The following documents listed in this section are referred for testing.

| Reference                 | Title                                                                                                                                      | Version                |
|---------------------------|--------------------------------------------------------------------------------------------------------------------------------------------|------------------------|
| FCC Part 15,<br>Subpart B | Radio frequency devices                                                                                                                    | (10-1-2021<br>Edition) |
| ANSI C63.4                | Methods of Measurement of Radio-Noise Emissions from<br>Low-Voltage Electrical and Electronic Equipment in the<br>Range of 9 kHz to 40 GHz | 2014                   |

## 5. LABORATORY ENVIRONMENT

**Anechoic chamber (FACT3-2.0)** did not exceed following limits along the EMC testing:

9.10m×6.10m×5.60m (L×W×H)

|                                    |                                             |
|------------------------------------|---------------------------------------------|
| Temperature                        | Min. = 15 °C, Max. = 35 °C                  |
| Relative humidity                  | Min. = 20 %, Max. = 75 %                    |
| Shielding effectiveness            | 0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB   |
| Electrical insulation              | > 2MΩ                                       |
| Ground system resistance           | < 4Ω                                        |
| Normalised site attenuation (NSA)  | < ± 4 dB, 3 m distance, from 30 to 1000 MHz |
| Voltage Standing Wave Ratio (VSWR) | ≤ 6 dB, from 1 to 18 GHz, 3 m distance      |
| Uniformity of field strength       | Between 0 and 6 dB, from 80 to 6000 MHz     |

**Shielded room** did not exceed following limits along the EMC testing:

|                          |                                           |
|--------------------------|-------------------------------------------|
| Temperature              | Min. = 15 °C, Max. = 35 °C                |
| Relative humidity        | Min. =20 %, Max. = 75 %                   |
| Shielding effectiveness  | 0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB |
| Electrical insulation    | > 2MΩ                                     |
| Ground system resistance | < 4Ω                                      |

## 6. SUMMARY OF TEST RESULTS

### 6.1. Testing Environment

Normal Temperature: 15~35℃  
Relative Humidity: 20~75%  
Atmospheric pressure 86~106kPa

### 6.2. Summary of Measurement Results

| Abbreviations used in this clause: |                |
|------------------------------------|----------------|
| P                                  | Pass           |
| NA                                 | Not applicable |
| F                                  | Fail           |

| Items | Test Name          | Clause in FCC/IC rules    | Section in this report | Verdict |
|-------|--------------------|---------------------------|------------------------|---------|
| 1     | Radiated Emission  | 15.109(a)/<br>Section 6.2 | A.1                    | P       |
| 2     | Conducted Emission | 15.107(a)/<br>Section 6.1 | A.2                    | P       |

### 6.3. Statement

#### 6.3.1 Statements of conformity

This report takes measured values as criterion of test conclusion. The test conclusion meets the limit requirements.

**7. MEASUREMENT UNCERTAINTY**

| Test item          | Frequency ranges | Measurement uncertainty |
|--------------------|------------------|-------------------------|
| Radiated Emission  | 30MHz-1GHz       | 4.80dB(k=2)             |
|                    | 1GHz-18GHz       | 4.62dB(k=2)             |
| Conducted Emission | 150kHz-30MHz     | 2.68dB(k=2)             |

**8. MEASURING APPARATUS UTILIZED**

| No. | Name              | Model     | Serial Number | Manufacturer | Calibration Due date | Calibration Period |
|-----|-------------------|-----------|---------------|--------------|----------------------|--------------------|
| 1.  | Test Receiver     | ESR7      | 101676        | R&S          | 2024.11.22           | 1 year             |
| 2.  | Test Receiver     | ESCI      | 100702        | R&S          | 2024.01.11           | 1 year             |
| 3.  | Spectrum Analyzer | FSV40     | 101192        | R&S          | 2024.01.11           | 1 year             |
| 4.  | BiLog Antenna     | 3142E     | 0224831       | ETS-Lindgren | 2024.05.27           | 3 years            |
| 5.  | Horn Antenna      | 3117      | 00066577      | ETS-Lindgren | 2025.04.17           | 3 years            |
| 6.  | LISN              | ENV216    | 102067        | R&S          | 2024.09.05           | 1 year             |
| 7.  | Anechoic Chamber  | FACT3-2.0 | 1285          | ETS-Lindgren | 2025.05.28           | 2 years            |
| 8.  | Software          | EMC32     | V10.50.40     | R&S          | /                    | /                  |



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## 9. TEST ACCESSORY UTILIZED

| No. | Name    | Model         | Serial Number | Manufacturer | Calibration Due date | Calibration Period |
|-----|---------|---------------|---------------|--------------|----------------------|--------------------|
| 1.  | PC      | ThinkPad T480 | PF-13LW0C     | Lenovo       | /                    | /                  |
| 2.  | Printer | P1008         | VNF6C12491    | HP           | /                    | /                  |
| 3.  | Mouse   | MOEUUOA       | 44NY517       | Lenovo       | /                    | /                  |

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1 Radiated Emission (§15.109(a))**

#### **Reference**

FCC: Part 15.109(a)

#### **A.1.1 Method of measurement**

The field strength of radiated emissions from the unintentional radiator at a distance of 3 meters or 1 meter is tested. Tested in accordance with the procedures of ANSI C63.4 -2014, section 8.3. The EUT was placed on a non-conductive table. Below 18GHz the measurement antenna was placed at a distance of 3 meters from the EUT. Above 18GHz the measurement antenna was placed at a distance of 1 meters from the EUT. (According to Part 15.31(f)(1), 1m limit is calculated by extrapolation factor of 20 dB/decade) During the tests, the antenna height and the EUT azimuth were varied in order to identify the maximum level of emissions from the EUT. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

#### **A.1.2 EUT Operating Mode:**

**Camera:** At the beginning of measurement, the battery is completely discharged. The battery and charger are installed so that the EUT works well and keeping on taking photos.

**Data Transfer:** The model of the PC is Lenovo ThinkPad T480, and the serial number of the PC is PF-13LW0C. The EUT is connected to a PC for transmitting data. The software is used to let the PC keep on copying data to EUT or USB flash disk reading and erasing the data after copy action was finished.

All equipment is placed on the test table top and arranged in a typical configuration in accordance with ANSI C63.4-2014 and manipulated to obtain worst case emissions. For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases (Y plane) were recorded in this report.

### A.1.3 Measurement Limit

Limit from Part 15.109(a)

| Frequency range<br>(MHz) | Field strength limit ( $\mu\text{V/m}$ ) |         |      |
|--------------------------|------------------------------------------|---------|------|
|                          | Quasi-peak                               | Average | Peak |
| 30-88                    | 100                                      |         |      |
| 88-216                   | 150                                      |         |      |
| 216-960                  | 200                                      |         |      |
| 960-1000                 | 500                                      |         |      |
| >1000                    |                                          | 500     | 5000 |

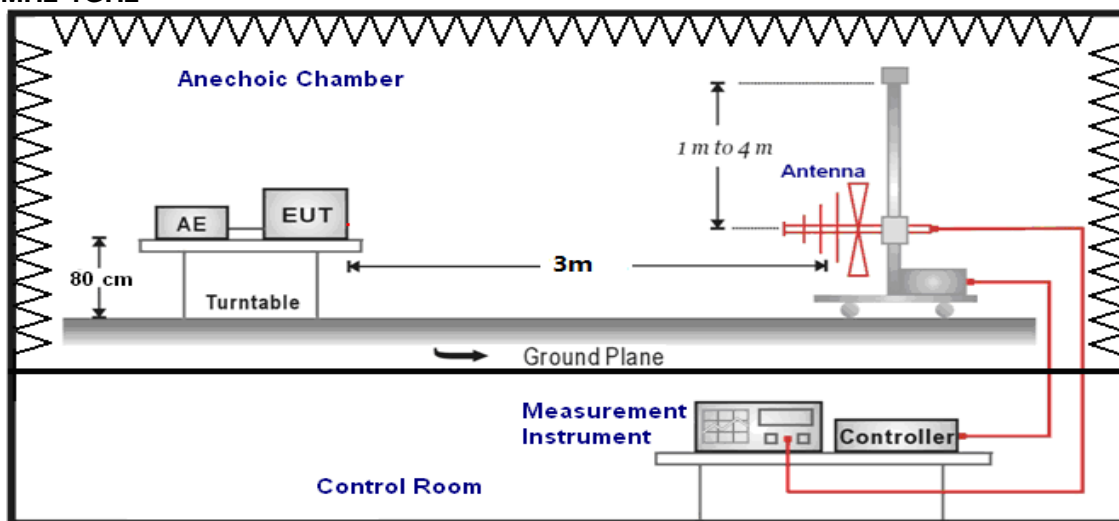
\*Note: The original limit is defined at 10m test distance. This limit is calculated according to CISPR requirements.

### A.1.4 Test Condition

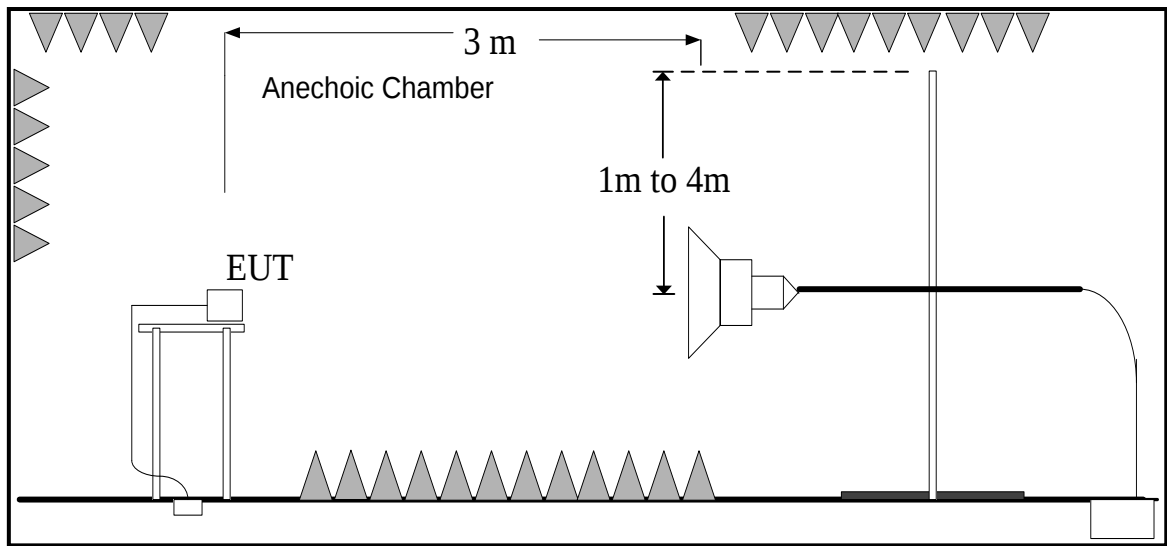
| Frequency of emission (MHz) | RBW/VBW               | Sweep Time(s) |
|-----------------------------|-----------------------|---------------|
| 30-1000                     | 120kHz (IF bandwidth) | 5             |
| Above 1000                  | 1MHz/3MHz             | 15            |

### A.1.5 Test set-up:

30MHz-1GHz



### 1GHz-40GHz



### A.1.6 Measurement Results

A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss". It includes the antenna factor of receive antenna and the path loss.

The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{Rpl} = P_{\text{Mea}} + G_A + G_{PL}$$

Where

$G_A$ : Antenna factor of receive antenna

$G_{PL}$ : Path Loss

$P_{\text{Mea}}$ : Measurement result on receiver.

Result: Quasi-Peak(dB $\mu$ V/m) / Average(dB $\mu$ V/m)/Peak(dB $\mu$ V/m)

Note: the result contains vertical part and Horizontal part

### Camera

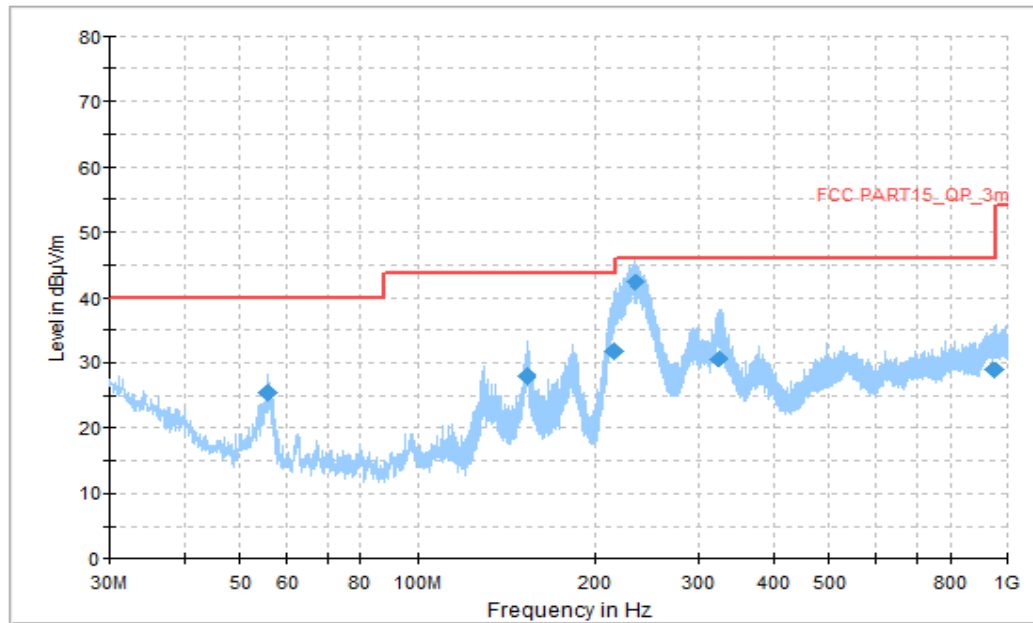
| Frequency range<br>(MHz) | Quasi-Peak<br>Limit (dB $\mu$ V/m) | Result (dB $\mu$ V/m) | Conclusion |
|--------------------------|------------------------------------|-----------------------|------------|
|                          |                                    | UT04aa/Set.1          |            |
| 30-88                    | 40.00                              | See Figure A.1.1.     | P          |
| 88-216                   | 43.52                              |                       |            |
| 216-960                  | 46.02                              |                       |            |
| 960-1000                 | 54.00                              |                       |            |

| Frequency range<br>(MHz) | Average<br>Limit (dB $\mu$ V/m) | Peak<br>Limit (dB $\mu$ V/m) | Result (dB $\mu$ V/m) | Conclusion |
|--------------------------|---------------------------------|------------------------------|-----------------------|------------|
|                          |                                 |                              | UT04aa/Set.1          |            |
| 1000 to 18000            | 54.00                           | 74.00                        | See Figure A.1.2.     | P          |
| 18000 to 26500           | 63.54                           | 83.54                        | See Figure A.1.3.     |            |
| 26500 to 40000           | 63.54                           | 83.54                        | See Figure A.1.4.     |            |

## Data Transfer

| Frequency range<br>(MHz) | Quasi-Peak<br>Limit (dB $\mu$ V/m) | Result (dB $\mu$ V/m) | Conclusion |
|--------------------------|------------------------------------|-----------------------|------------|
|                          |                                    | UT04aa/Set.2          |            |
| 30-88                    | 40.00                              | See Figure A.1.5.     | P          |
| 88-216                   | 43.52                              |                       |            |
| 216-960                  | 46.02                              |                       |            |
| 960-1000                 | 54.00                              |                       |            |

| Frequency range<br>(MHz) | Average<br>Limit (dB $\mu$ V/m) | Peak<br>Limit (dB $\mu$ V/m) | Result (dB $\mu$ V/m) | Conclusion |
|--------------------------|---------------------------------|------------------------------|-----------------------|------------|
|                          |                                 |                              | UT04aa/Set.2          |            |
| 1000 to 18000            | 54.00                           | 74.00                        | See Figure A.1.6.     | P          |
| 18000 to 26500           | 63.54                           | 83.54                        | See Figure A.1.7.     |            |
| 26500 to 40000           | 63.54                           | 83.54                        | See Figure A.1.8.     |            |



**Figure A.1.1. Radiated Emission (Camera, 30MHz to 1GHz)**

#### Final\_Results

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Pol | ARpl (dB/m) | PMea (dBμV) |
|-----------------|--------------------|----------------|-------------|-----|-------------|-------------|
| 55.705000       | 25.47              | 40.00          | 14.53       | V   | -21         | 46.47       |
| 152.705000      | 27.95              | 43.52          | 15.57       | V   | -16         | 43.95       |
| 214.677222      | 34.86              | 43.52          | 8.66        | V   | -16         | 50.86       |
| 234.346667      | 42.23              | 46.02          | 3.79        | H   | -14         | 56.23       |
| 324.664444      | 30.46              | 46.02          | 15.56       | H   | -11         | 41.46       |
| 951.176667      | 28.80              | 46.02          | 17.22       | H   | 3           | 25.80       |

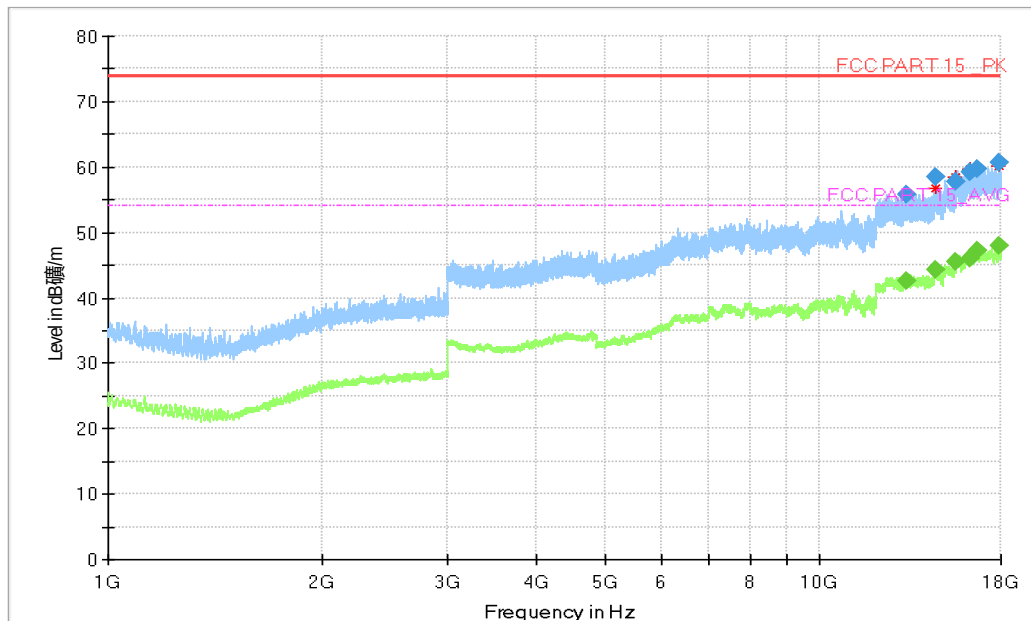


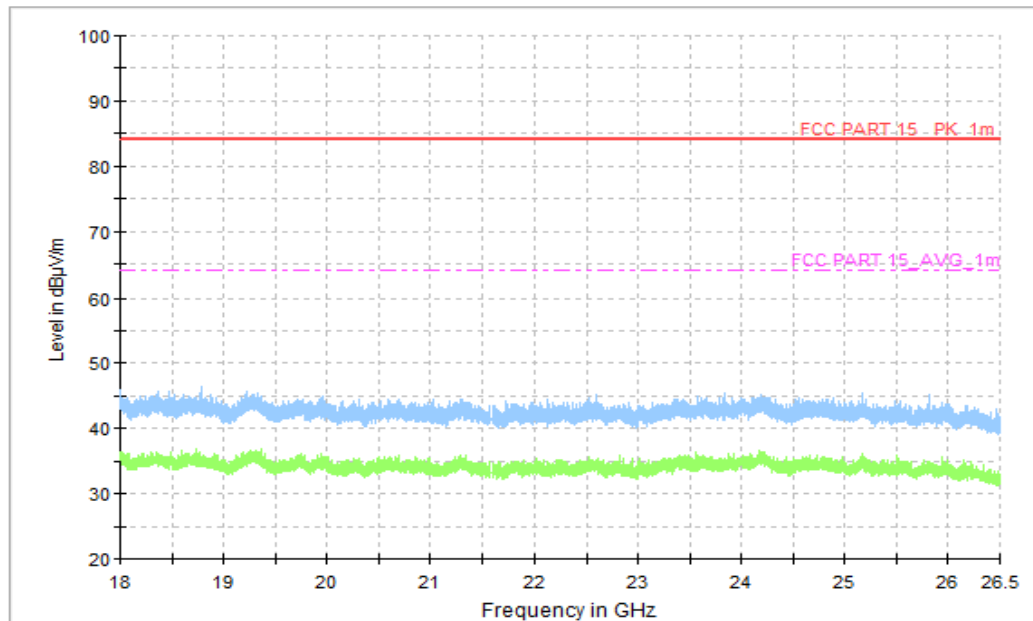
Figure A.1.2. Radiated Emission (Camera, 1GHz to 18GHz)

#### Final\_Results\_PK

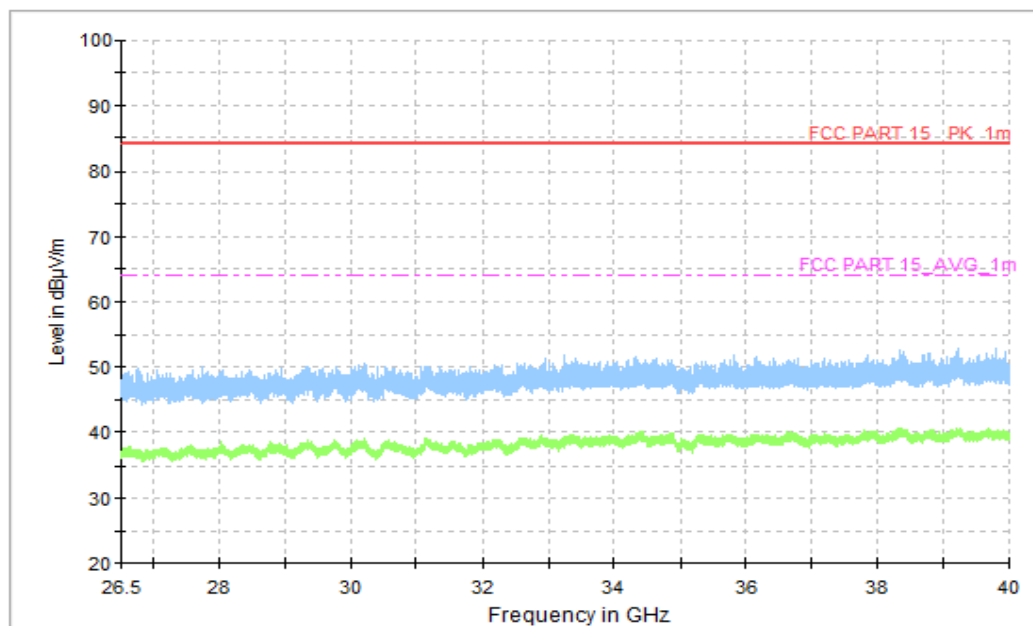
| Frequency(MHz) | Peak<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin(dB) | Polarity | ARpl<br>(dB/m) | PMea<br>(dBμV) |
|----------------|------------------|-------------------|------------|----------|----------------|----------------|
| 13225.250000   | 55.73            | 74.00             | 18.27      | H        | 18             | 37.73          |
| 14538.750000   | 58.44            | 74.00             | 15.56      | V        | 19             | 39.44          |
| 15577.750000   | 57.84            | 74.00             | 16.16      | H        | 20             | 37.84          |
| 16243.000000   | 59.09            | 74.00             | 14.91      | V        | 22             | 37.09          |
| 16651.250000   | 59.75            | 74.00             | 14.25      | V        | 22             | 37.75          |
| 17888.500000   | 60.58            | 74.00             | 13.42      | H        | 25             | 35.58          |

#### Final\_Results\_AVG

| Frequency(MHz) | Average<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin(dB) | Polarity | ARpl<br>(dB/m) | PMea<br>(dBμV) |
|----------------|---------------------|-------------------|------------|----------|----------------|----------------|
| 13225.250000   | 42.69               | 54.00             | 11.31      | H        | 18             | 24.69          |
| 14538.750000   | 44.19               | 54.00             | 9.81       | V        | 19             | 25.19          |
| 15577.750000   | 45.42               | 54.00             | 8.58       | V        | 20             | 25.42          |
| 16243.000000   | 46.11               | 54.00             | 7.89       | H        | 22             | 24.11          |
| 16651.250000   | 47.24               | 54.00             | 6.76       | V        | 22             | 25.24          |
| 17888.500000   | 47.93               | 54.00             | 6.07       | H        | 25             | 22.93          |



**Figure A.1.3. Radiated Emission (Camera , 18GHz to 26.5GHz)**



**Figure A.1.4. Radiated Emission (Camera , 26.5GHz to 40GHz)**

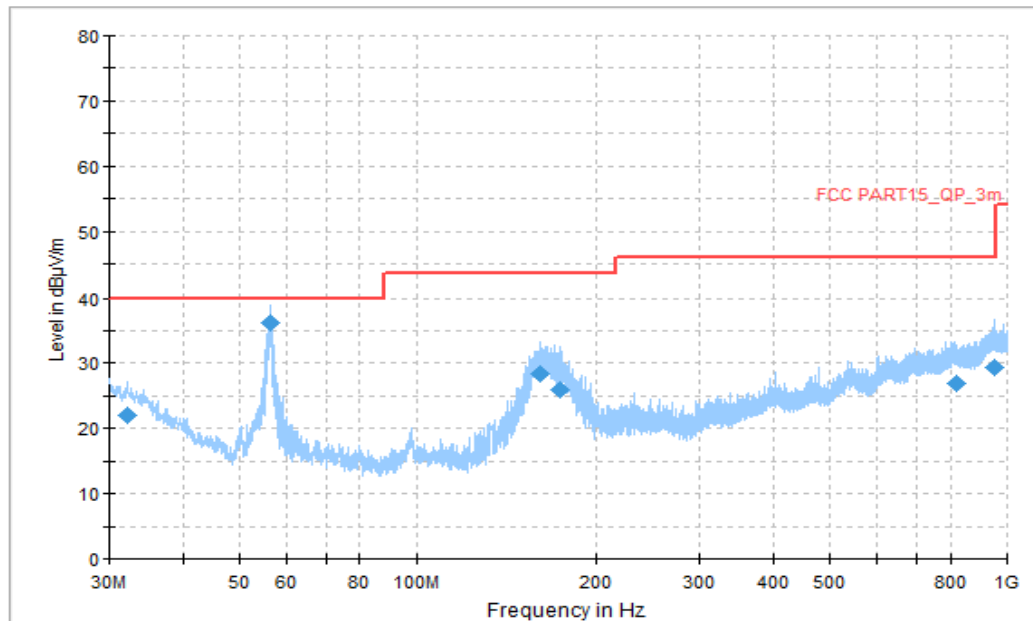
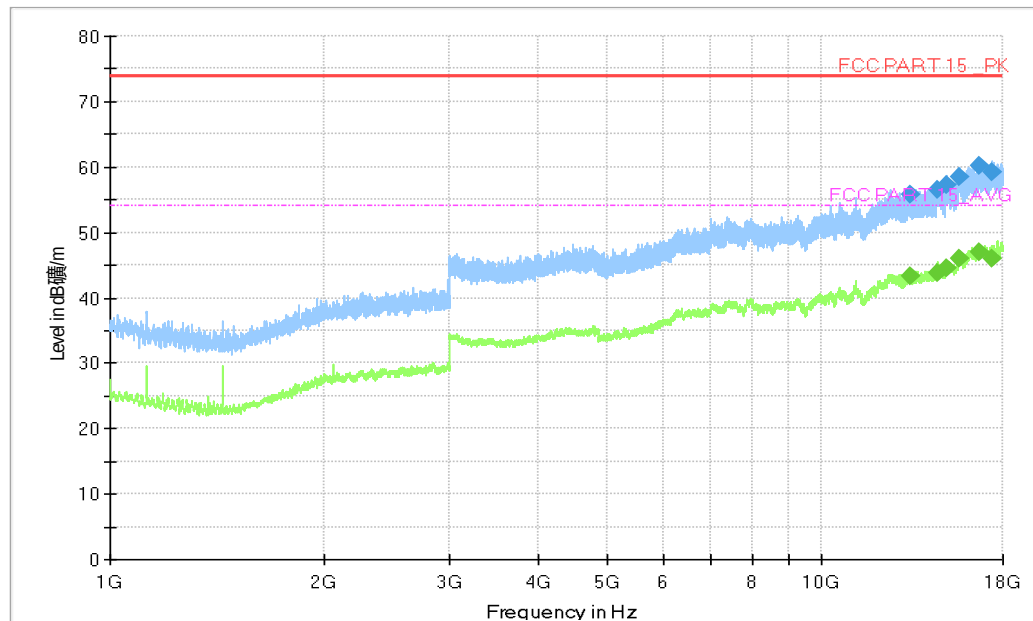


Figure A.1.5. Radiated Emission (Data Transfer, 30MHz to 1GHz)

#### Final\_Results

| Frequency (MHz) | QuasiPeak (dBμV/m) | Limit (dBμV/m) | Margin (dB) | Pol | ARpl (dB/m) | PMea (dBμV) |
|-----------------|--------------------|----------------|-------------|-----|-------------|-------------|
| 32.101667       | 22.13              | 40.00          | 17.87       | V   | -12         | 34.13       |
| 56.405556       | 36.14              | 40.00          | 3.86        | V   | -21         | 57.14       |
| 161.057778      | 28.26              | 43.52          | 15.26       | V   | -16         | 44.26       |
| 174.045000      | 25.99              | 43.52          | 17.53       | H   | -17         | 42.99       |
| 818.825556      | 26.88              | 46.02          | 19.14       | V   | 1           | 25.88       |
| 953.493889      | 29.28              | 46.02          | 16.74       | H   | 3           | 26.28       |



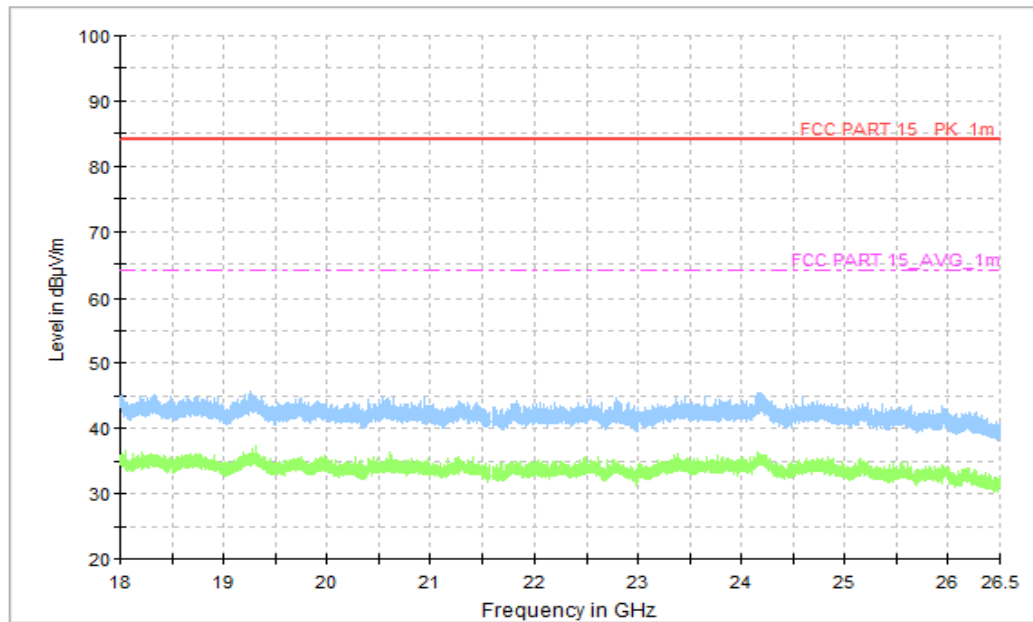
**Figure A.1.6. Radiated Emission (Data Transfer, 1GHz to 18GHz)**

#### Final\_Results\_PK

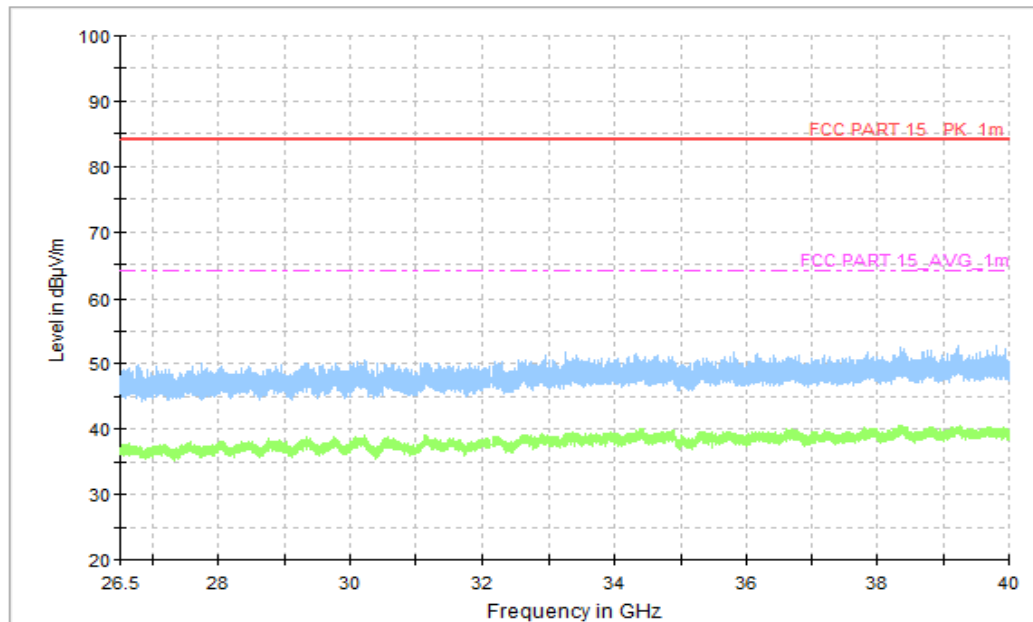
| Frequency(MHz) | Peak<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin(dB) | Polarity | ARpl<br>(dB/m) | PMea<br>(dBμV) |
|----------------|------------------|-------------------|------------|----------|----------------|----------------|
| 13378.000000   | 55.70            | 74.00             | 18.30      | V        | 18             | 37.70          |
| 14602.000000   | 56.40            | 74.00             | 17.60      | H        | 19             | 37.4           |
| 15036.250000   | 57.28            | 74.00             | 16.72      | V        | 19             | 38.28          |
| 15643.750000   | 58.59            | 74.00             | 15.41      | H        | 21             | 37.59          |
| 16681.250000   | 60.17            | 74.00             | 13.83      | V        | 22             | 38.17          |
| 17360.500000   | 59.14            | 74.00             | 14.86      | V        | 23             | 36.14          |

#### Final\_Results\_AVG

| Frequency(MHz) | Average<br>(dBμV/m) | Limit<br>(dBμV/m) | Margin(dB) | Polarity | ARpl<br>(dB/m) | PMea<br>(dBμV) |
|----------------|---------------------|-------------------|------------|----------|----------------|----------------|
| 13378.000000   | 43.42               | 54.00             | 10.58      | V        | 18             | 25.42          |
| 14602.000000   | 43.71               | 54.00             | 10.29      | H        | 19             | 24.71          |
| 15036.250000   | 44.64               | 54.00             | 9.36       | V        | 19             | 25.64          |
| 15643.750000   | 46.04               | 54.00             | 7.96       | V        | 21             | 25.04          |
| 16681.250000   | 47.04               | 54.00             | 6.96       | V        | 22             | 25.04          |
| 17360.500000   | 46.06               | 54.00             | 7.94       | H        | 23             | 23.06          |



**Figure A.1.7. Radiated Emission (Data Transfer, 18GHz to 26.5GHz)**



**Figure A.1.8. Radiated Emission (Data Transfer, 26.5GHz to 40GHz)**

**A.2 Conducted Emission (§15.107(a))****Reference**

FCC: Part 15.107(a)

**A.2.1 Method of measurement**

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150kHz to 30MHz shall not exceed the limits. Tested in accordance with the procedures of ANSI C63.4 -2014, section 7.3.

**A.2.2 EUT Operating Mode:**

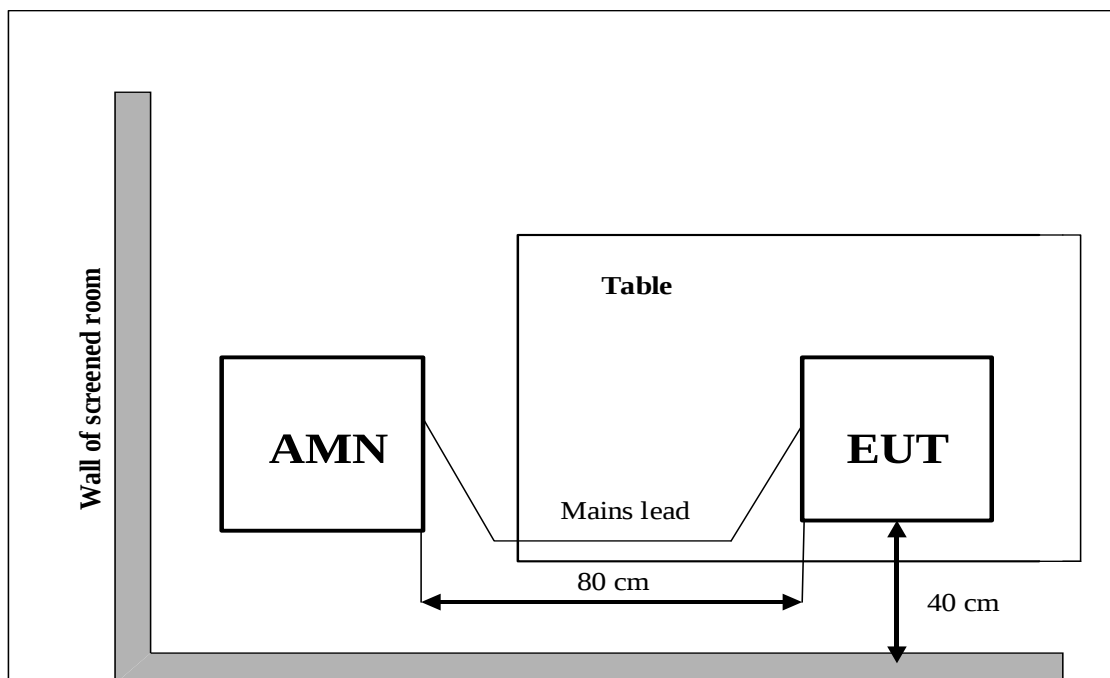
**Camera:** At the beginning of measurement, the battery is completely discharged. The battery and charger are installed so that the EUT works well and keeping on taking photos.

**Data Transfer:** The model of the PC is Lenovo ThinkPad T480, and the serial number of the PC is PF-13LW0C. The EUT is connected to a PC for transmitting data. The software is used to let the PC keep on copying data to EUT or USB flash disk reading and erasing the data after copy action was finished.

**A.2.3 Measurement Limit**

| Frequency of emission (MHz)                    | Conducted limit (dBμV) |           |
|------------------------------------------------|------------------------|-----------|
|                                                | Quasi-peak             | Average   |
| 0.15-0.5                                       | 66 to 56*              | 56 to 46* |
| 0.5-5                                          | 56                     | 46        |
| 5-30                                           | 60                     | 50        |
| *Decreases with the logarithm of the frequency |                        |           |

#### A.2.4 Test set-up:



#### A.2.5 Test Condition in charging mode

| Voltage (V) | Frequency (Hz) |
|-------------|----------------|
| 120         | 60             |
| 240         | 60             |

| RBW  | Sweep Time(s) |
|------|---------------|
| 9kHz | 1             |

#### A.2.6 Measurement Results

QuasiPeak(dBμV) /Average(dBμV) =PMea+Corr

Where

Corr: PathLoss + Voltage Division Factor

PMea: Measurement result on receiver.

Camera

AC Input Port/ Voltage: 120V/60Hz

| Frequency range<br>(MHz)                                                                                 | Quasi-peak<br>Limit (dBμV) | Average Limit<br>(dBμV) | Result (dBμV)     | Conclusion |
|----------------------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------------------|------------|
|                                                                                                          |                            |                         | UT05aa/Set.1      |            |
| 0.15 to 0.5                                                                                              | 66 to 56                   | 56 to 46                | See Figure A.2.1. | P          |
| 0.5 to 5                                                                                                 | 56                         | 46                      |                   |            |
| 5 to 30                                                                                                  | 60                         | 50                      |                   |            |
| NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz. |                            |                         |                   |            |

#### Camera

AC Input Port/ Voltage: 240V/60Hz

| Frequency range<br>(MHz)                                                                                 | Quasi-peak<br>Limit (dBμV) | Average Limit<br>(dBμV) | Result (dBμV)     | Conclusion |
|----------------------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------------------|------------|
|                                                                                                          |                            |                         | UT05aa/Set.1      |            |
| 0.15 to 0.5                                                                                              | 66 to 56                   | 56 to 46                | See Figure A.2.2. | P          |
| 0.5 to 5                                                                                                 | 56                         | 46                      |                   |            |
| 5 to 30                                                                                                  | 60                         | 50                      |                   |            |
| NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz. |                            |                         |                   |            |

#### Data Transfer

AC Input Port/ Voltage: 120V/60Hz

| Frequency range<br>(MHz)                                                                                 | Quasi-peak<br>Limit (dBμV) | Average Limit<br>(dBμV) | Result (dBμV)     | Conclusion |
|----------------------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------------------|------------|
|                                                                                                          |                            |                         | UT05aa/Set.2      |            |
| 0.15 to 0.5                                                                                              | 66 to 56                   | 56 to 46                | See Figure A.2.3. | P          |
| 0.5 to 5                                                                                                 | 56                         | 46                      |                   |            |
| 5 to 30                                                                                                  | 60                         | 50                      |                   |            |
| NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz. |                            |                         |                   |            |

#### Data Transfer

AC Input Port/ Voltage: 240V/60Hz

| Frequency range<br>(MHz)                                                                                 | Quasi-peak<br>Limit (dBμV) | Average Limit<br>(dBμV) | Result (dBμV)     | Conclusion |
|----------------------------------------------------------------------------------------------------------|----------------------------|-------------------------|-------------------|------------|
|                                                                                                          |                            |                         | UT05aa/Set.2      |            |
| 0.15 to 0.5                                                                                              | 66 to 56                   | 56 to 46                | See Figure A.2.4. | P          |
| 0.5 to 5                                                                                                 | 56                         | 46                      |                   |            |
| 5 to 30                                                                                                  | 60                         | 50                      |                   |            |
| NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz. |                            |                         |                   |            |

AC Input Port/ Voltage: 120V/60Hz

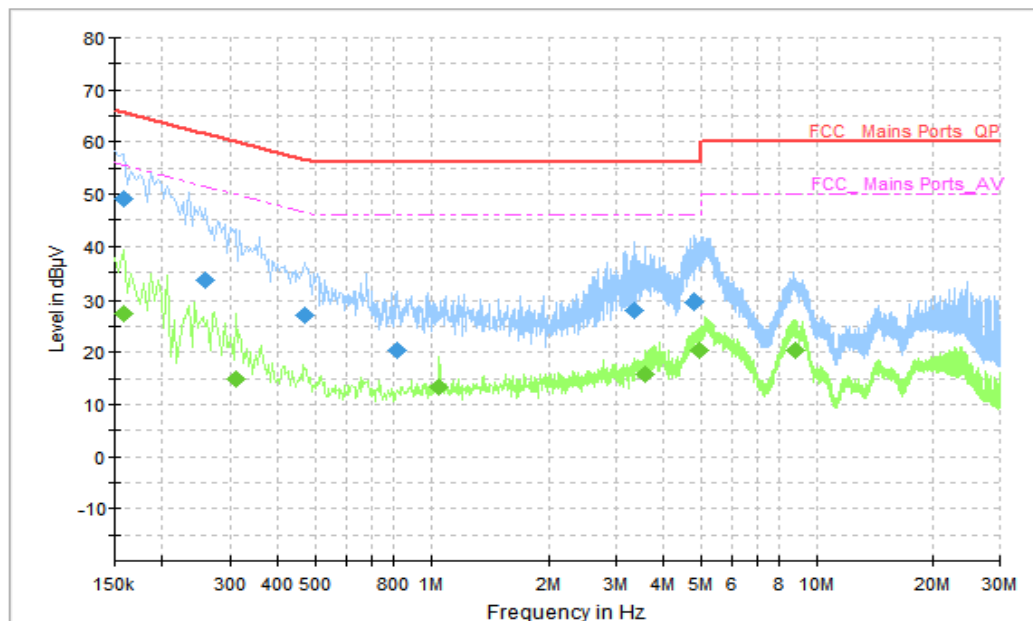


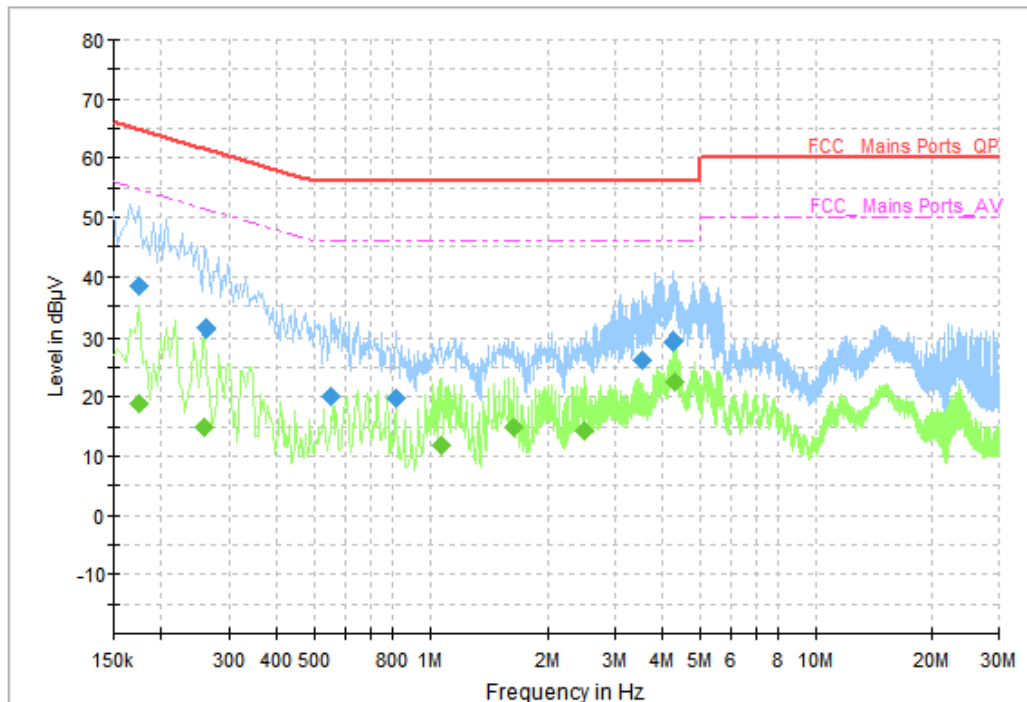
Figure A.2.1. Conducted Emission 120V/60Hz(Camera)

#### Final\_Result\_QPK

| Frequency (MHz) | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|------------------|--------------|-------------|------|------------|-------------|
| 0.158000        | 48.97            | 65.57        | 16.60       | N    | 7          | 41.97       |
| 0.258000        | 33.42            | 61.50        | 28.08       | N    | 10         | 23.42       |
| 0.470000        | 27.06            | 56.51        | 29.46       | N    | 10         | 17.06       |
| 0.818000        | 20.42            | 56.00        | 35.58       | N    | 10         | 10.42       |
| 3.346000        | 27.95            | 56.00        | 28.05       | N    | 10         | 17.95       |
| 4.806000        | 29.65            | 56.00        | 26.35       | N    | 10         | 19.65       |

#### Final\_Result\_AVG

| Frequency (MHz) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|----------------|--------------|-------------|------|------------|-------------|
| 0.158000        | 27.37          | 55.57        | 28.20       | N    | 7          | 20.37       |
| 0.310000        | 14.74          | 49.97        | 35.23       | L1   | 10         | 4.74        |
| 1.050000        | 13.30          | 46.00        | 32.70       | N    | 10         | 3.30        |
| 3.562000        | 15.64          | 46.00        | 30.36       | N    | 10         | 5.64        |
| 4.974000        | 20.51          | 46.00        | 25.49       | N    | 10         | 10.51       |
| 8.794000        | 20.24          | 50.00        | 29.76       | N    | 10         | 10.24       |



**Figure A.2.2. Conducted Emission 240V/60Hz(Camera)**

#### Final\_Result\_QPK

| Frequency (MHz) | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|------------------|--------------|-------------|------|------------|-------------|
| 0.174000        | 38.54            | 64.77        | 26.23       | L1   | 10         | 28.54       |
| 0.262000        | 31.29            | 61.37        | 30.07       | N    | 10         | 21.29       |
| 0.554000        | 20.13            | 56.00        | 35.87       | N    | 10         | 10.13       |
| 0.814000        | 19.78            | 56.00        | 36.22       | N    | 10         | 9.78        |
| 3.534000        | 26.08            | 56.00        | 29.92       | N    | 10         | 16.08       |
| 4.246000        | 29.39            | 56.00        | 26.61       | N    | 10         | 19.39       |

#### Final\_Result\_AVG

| Frequency (MHz) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|----------------|--------------|-------------|------|------------|-------------|
| 0.174000        | 18.83          | 54.77        | 35.94       | L1   | 10         | 8.83        |
| 0.258000        | 14.86          | 51.50        | 36.63       | L1   | 10         | 4.86        |
| 1.070000        | 11.86          | 46.00        | 34.14       | L1   | 10         | 1.86        |
| 1.630000        | 14.97          | 46.00        | 31.03       | L1   | 10         | 4.97        |
| 2.486000        | 14.36          | 46.00        | 31.64       | L1   | 10         | 4.36        |
| 4.290000        | 22.55          | 46.00        | 23.45       | N    | 10         | 12.55       |

AC Input Port/ Voltage: 120V/60Hz

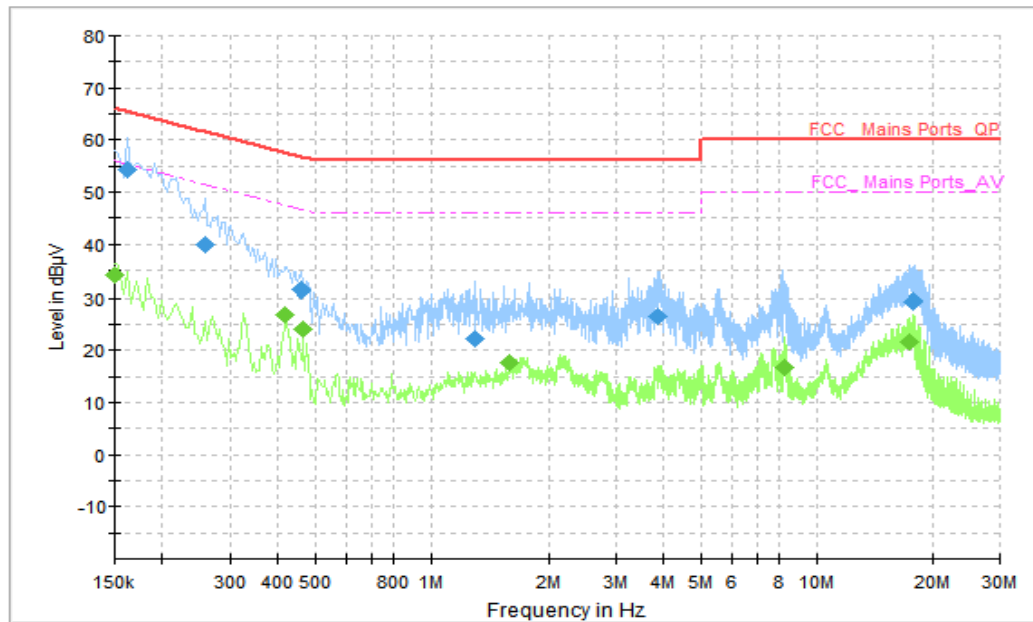


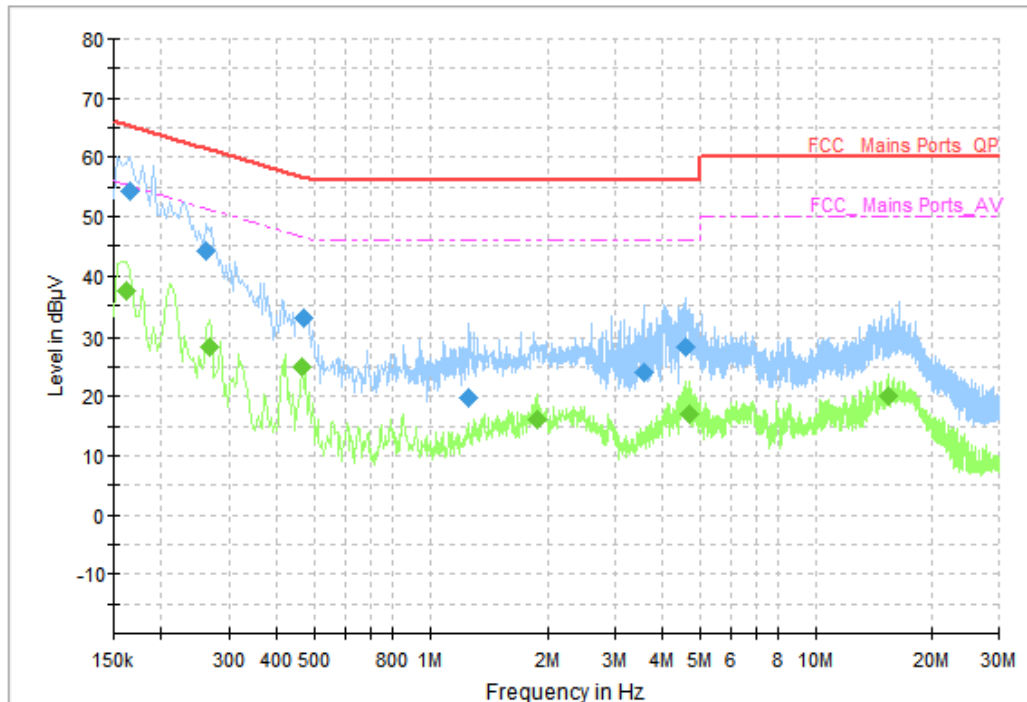
Figure A.2.3. Conducted Emission 120V/60Hz(Data Transfer)

Final\_Result\_QPK

| Frequency (MHz) | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|------------------|--------------|-------------|------|------------|-------------|
| 0.162000        | 54.27            | 65.36        | 11.09       | L1   | 10         | 44.27       |
| 0.258000        | 39.92            | 61.50        | 21.58       | N    | 10         | 29.92       |
| 0.458000        | 31.28            | 56.73        | 25.45       | L1   | 10         | 21.28       |
| 1.298000        | 22.18            | 56.00        | 33.82       | L1   | 10         | 12.18       |
| 3.874000        | 26.37            | 56.00        | 29.63       | L1   | 10         | 16.37       |
| 17.878000       | 29.26            | 60.00        | 30.74       | L1   | 10         | 19.26       |

Final\_Result\_AVG

| Frequency (MHz) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|----------------|--------------|-------------|------|------------|-------------|
| 0.150000        | 34.28          | 56.00        | 21.72       | L1   | 10         | 24.28       |
| 0.418000        | 26.75          | 47.49        | 20.74       | L1   | 10         | 16.75       |
| 0.466000        | 24.06          | 46.59        | 22.53       | L1   | 10         | 14.06       |
| 1.578000        | 17.53          | 46.00        | 28.47       | N    | 10         | 7.53        |
| 8.238000        | 16.74          | 50.00        | 33.26       | L1   | 10         | 6.74        |
| 17.454000       | 21.71          | 50.00        | 28.29       | N    | 10         | 11.71       |



**Figure A.2.4. Conducted Emission 240V/60Hz(Data Transfer)**

**Final\_Result\_QPK**

| Frequency (MHz) | QuasiPeak (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|------------------|--------------|-------------|------|------------|-------------|
| 0.166000        | 54.16            | 65.16        | 11.00       | N    | 8          | 46.16       |
| 0.262000        | 44.16            | 61.37        | 17.21       | L1   | 10         | 34.16       |
| 0.470000        | 32.79            | 56.51        | 23.72       | L1   | 10         | 22.79       |
| 1.266000        | 19.74            | 56.00        | 36.26       | L1   | 10         | 9.74        |
| 3.586000        | 24.13            | 56.00        | 31.87       | L1   | 10         | 14.13       |
| 4.598000        | 28.47            | 56.00        | 27.53       | N    | 10         | 18.47       |

**Final\_Result\_AVG**

| Frequency (MHz) | Average (dBμV) | Limit (dBμV) | Margin (dB) | Line | Corr. (dB) | PMea (dBμV) |
|-----------------|----------------|--------------|-------------|------|------------|-------------|
| 0.162000        | 37.51          | 55.36        | 17.85       | L1   | 10         | 27.51       |
| 0.266000        | 28.33          | 51.24        | 22.91       | L1   | 10         | 18.33       |
| 0.466000        | 24.90          | 46.59        | 21.69       | L1   | 10         | 14.90       |
| 1.874000        | 16.21          | 46.00        | 29.79       | N    | 10         | 6.21        |
| 4.666000        | 16.90          | 46.00        | 29.10       | N    | 10         | 6.9         |
| 15.418000       | 20.03          | 50.00        | 29.97       | L1   | 10         | 10.03       |

**\*\*END OF REPORT\*\***