

# Technical Compliance Statement

## EMC Test Report

**For the following information****Ref. File No.: C1M1803154**

Product : UPS (Uninterruptible Power Supply)  
Model Number : (1)SMT750RMI2UC (2)SMT750IC  
Series Model : (1)SMT750RMI2UCXXXXXXXXXX  
(2)SMT750ICXXXXXXXXXX  
(X=A-Z, a-z, 0-9, +, \*, #, \_, - or blank)  
Brand Name : APC by Schneider-Electric  
Applicant : American Power Conversion Holding Inc.,  
Taiwan Branch  
Manufacturer : American Power Conversion Holding Inc.,  
Taiwan Branch  
Standards :

EN 62040-2:2006+ AC:2006 (IEC 62040-2:2005), Category C2  
AS 62040.2:2008  
(CISPR 22: 2008, EN 61000-3-2:2014 Class A,  
IEC 61000-4-2:2008, IEC 61000-4-3:2010,  
IEC 61000-4-4:2012, IEC 61000-4-5:2014 +A1:2017,  
IEC 61000-4-6:2013, IEC 61000-4-8:2009,  
IEC 61000-2-2:2002)

We hereby certify that the above product has been tested by us with the listed standards and found in compliance with the council EMC directive 2014/30/EU.  
The test data and results are issued on the EMC test report no. **EM-E180111**.

**Signature**

  
\_\_\_\_\_  
Alex Deng/Deputy Manager  
Date: 2018. 03. 23

Test Laboratory:  
Audix Technology Corporation, EMC Department  
TAF Accreditation No.: 1724  
Web Site: [www.audixtech.com](http://www.audixtech.com)

The statement is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo.

# TEST REPORT

UPS (Uninterruptible Power Supply)

Model Number: (1)SMT750RMI2UC (2)SMT750IC

Series Model: (1)SMT750RMI2UCXXXXXXXXXX  
(2)SMT750ICXXXXXXXXXX

(X=A-Z, a-z, 0-9, +, \*, #, \_, - or blank)

Brand: APC by Schneider-Electric

### Applicant for:

American Power Conversion Holding Inc., Taiwan Branch  
3F., No.205, Sec. 3, Beixin Rd.  
Xindian District, New Taipei City 23143, Taiwan

### Prepared by:

Audix Technology Corporation, EMC Department  
No. 53-11, Dingfu, Linkou Dist.,  
New Taipei City 244, Taiwan



File No. : C1M1803154  
Report No. : EM-E180111  
Date of Report : 2018. 03. 23

The test report is based on a single evaluation of one sample of the above-mentioned products. It does not imply an assessment of the whole production and does not permit the use of the test lab logo. The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, TAF or any government agencies.

# Test Report

Applicant : American Power Conversion Holding Inc.,  
Taiwan Branch

Manufacturer : American Power Conversion Holding Inc.,  
Taiwan Branch

EUT Description

(1) Product : UPS (Uninterruptible Power Supply)

(2) Model Number : (1)SMT750RMI2UC (2)SMT750IC

(3) Series Model : (1)SMT750RMI2UCXXXXXXXXXX  
(2)SMT750ICXXXXXXXXXX  
(X=A-Z, a-z, 0-9, +, \*, #, \_, - or blank)

(3) Brand : APC by Schneider-Electric

(4) Power Rating : Input: 220-240VAC, 50/60Hz  
Output: 220-240VAC, 50/60Hz

Applicable Standards:

EN 62040-2:2006+ AC:2006 (IEC 62040-2:2005), Category C2  
AS 62040.2:2008  
(CISPR 22: 2008, EN 61000-3-2:2014 Class A,  
IEC 61000-4-2:2008, IEC 61000-4-3:2010,  
IEC 61000-4-4:2012, IEC 61000-4-5:2014 +A1:2017,  
IEC 61000-4-6:2013, IEC 61000-4-8:2009,  
IEC 61000-2-2:2002)

The device described above was tested by Audix Technology Corporation to determine the maximum emission levels emanating from the device, its ensured severity levels, and performance criterion. All of the tests were requested by the applicant and the results thereof based upon the information that the applicant provided to us. We, Audix Technology Corporation assumes full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT is technically compliance with the requirements of **EN 62040-2 standards**.

This report applies to above tested sample only and shall not be reproduced in part without written approval of Audix Technology Corporation.

Date of Report: 2018. 03. 23

Reviewed by: Ariel Chen (Ariel Chen/Administrator)

Approved by: Alex Deng (Alex Deng/Deputy Manager)

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APPENDIX I (Photos of EUT)

APPENDIX II (Data Pretest)

## 1. Revision of Test Report

| Issued Date  | Revision Summary | Report Number |
|--------------|------------------|---------------|
| 2018. 03. 23 | Original Report. | EM-E180111    |

## 2. Summary of Test Result

### 2.1. Test Result

| Emission  |   |                 |                               |
|---|---|-----------------|-------------------------------|
| Test Item   | Referred Standard                         | Limit           | Result                        |
| Conducted emissions at AC mains power port  | EN 62040-2:2006 + AC:2006 (CISPR 22:2008) | Category C2 UPS | <b>Pass</b>                   |
|   |   |                 | Margin 19.13 dB at 0.150 MHz  |
| Conducted emissions at DC mains power port  | EN 62040-2:2006 + AC:2006 (CISPR 22:2008) | Category C2 UPS | <b>N/A (Note 5)</b>           |
| Conducted emissions at signal and telecommunication ports   | EN 62040-2:2006 + AC:2006 (CISPR 22:2008) | Category C2 UPS | <b>N/A (Note 6)</b>           |
| Radiated emissions (30 – 1000MHz)   | EN 62040-2:2006 + AC:2006 (CISPR 22:2008) | Category C2 UPS | <b>Pass</b>                   |
|   |   |                 | Margin 6.07 dB at 224.998 MHz |
| Low-frequency emission Input current harmonic   | EN 61000-3-2:2014                         | Class A         | <b>Pass</b>                   |
| <p>Note :</p> <ol style="list-style-type: none"> <li>1. N/A is an abbreviation for Not Applicable</li> <li>2. Special measures: None</li> <li>3. Decision and justification not to measure: None</li> <li>4. The EN 62040-2 emission measurement results are deemed satisfactory evidence of compliance with AS 62040.2 regulations.</li> <li>5. According to the manufacturer's specification may not use the AC output Cable exceed 10m, it's unnecessary to test for AC output Cable.</li> <li>6. According to the manufacturer's specification may not use the Signal Cable exceed 10m, it's unnecessary to test for signal and telecommunication ports.</li> </ol> |   |                 |                               |



| Immunity  |  |                   |              |        |
|---|--|-------------------|--------------|--------|
| Test Item   | Basic Standard   | Standard Criteria | EUT Criteria | Result |
| Electrostatic discharge   | EN 62040-2:2006<br>+ AC:2006<br>(IEC 61000-4-2:2008)             | B                 | A            | Pass   |
| Radiated, Radio-frequency, electromagnetic field  | EN 62040-2:2006<br>+ AC:2006<br>(IEC 61000-4-3:2010)             | A                 | A            | Pass   |
| Electrical fast transient/burst   | EN 62040-2:2006<br>+ AC:2006<br>(IEC 61000-4-4:2012)             | B                 | A            | Pass   |
| Surge at AC power port  | EN 62040-2:2006<br>+ AC:2006<br>(IEC 61000-4-5:2014<br>+A1:2017) | B                 | A            | Pass   |
| Surge at signal and control ports   | EN 62040-2:2006<br>(IEC 61000-4-5:2014<br>+A1:2017)              | B                 | A            | Pass   |
| Immunity to conducted disturbances, induced by radio-frequency fields   | EN 62040-2:2006<br>+ AC:2006<br>(IEC 61000-4-6:2013)             | A                 | A            | Pass   |
| Power frequency magnetic field  | EN 62040-2:2006<br>+ AC:2006<br>(IEC 61000-4-8:2009)             | B                 | A            | Pass   |
| Low frequency signals test  | EN 62040-2:2006<br>+ AC:2006<br>(IEC 61000-2-2:2002)             | A                 | A            | Pass   |
| <p>Note :</p> <ol style="list-style-type: none"> <li>1. N/A is an abbreviation for Not Applicable</li> <li>2. Special measures: None</li> <li>3. Decision and justification not to measure: None</li> </ol> |  |                   |              |        |

## 2.2. Description of Performance Criteria

The Equipment shall, as a minimum, comply with the immunity limits of 3.2 to 3.6. The performance criteria adequate for U.P.S. is given in the following table.

|  | <b>Criterion A</b>               | <b>Criterion B</b>                        |
|--|----------------------------------|---|
| Output characteristics                         | Static tolerances of IEC 62040-3 | Dynamic tolerances of IEC 62040-3         |
| External and internal indications and metering | Change only during test          | Change only during test                   |
| Control signals to external devices            | No Change                        | Change according to the mode of operation |
| Mode of operation                              | No Change                        | Change only temporarily                   |

The test shall be made with the U.P.S. in the following conditions:

- rated input voltage;
- normal mode of operation;
- linear load at rated active output power.

The UPS shall be specified with the proper level in case of different levels of performance criteria.

### 2.3. Description of Test Firm

|                   |   |
|-------------------|---|
| Name of Test Firm | Audix Technology Corporation / EMC Department<br>No. 53-11, Dingfu, Linkou Dist., New Taipei City 244, Taiwan<br>Tel: +886-2-26092133<br>Fax: +886-2-26099303<br>Website : www.audixtech.com<br>Contact e-mail: attemc_report@audixtech.com |
| Accreditations    | The laboratory is accredited by following organizations under ISO/IEC 17025:2005<br><br>(1) NVLAP (USA)<br>NVLAP Lab Code 200077-0<br><br>(2) TAF (Taiwan)<br>No. 1724  |
| Test Facilities   | (1) No. 3 Shielded Room<br>(2) No. 6 Open Test Site<br>(3) No. 2 EMS Test Room<br>(4) No. 3 EMS Test Room   |

### 3. General Information

#### 3.1. Description of Application

|              |  |
|--------------|--|
| Applicant    | American Power Conversion Holding Inc., Taiwan Branch<br>3F., No.205, Sec. 3, Beixin Rd. Xindian District, New Taipei City<br>23143 Taiwan |
| Manufacturer | American Power Conversion Holding Inc., Taiwan Branch<br>3F., No.205, Sec. 3, Beixin Rd. Xindian District, New Taipei City<br>23143 Taiwan |
| Product      | UPS (Uninterruptible Power Supply)   |
| Brand        | APC by Schneider-Electric  |
| Model Number | (1)SMT750RMI2UC (2)SMT750IC<br>The difference between above models please refer to the following table.                                    |
| Series Model | (1)SMT750RMI2UCXXXXXXXXXX<br>(2)SMT750ICXXXXXXXXXX<br>(X=A-Z, a-z, 0-9, +, *, #, _, - or blank)  |

Table: Model different list

| Difference<br>Model No. | Appearance | PCBA        | Power transformer | MOSFET | Input rating<br>AC 220-240V,<br>50/60Hz | Output rating |
|-------------------------|------------|-------------|-------------------|--------|---|---------------|
| SMT750RMI2UC            | Rack mount | 640-3705C-Z | 430-1030          | -      | 4A                                      | 750VA/500W    |
| SMT750IC                | Tower      | 640-3100C-Z | 430-9112A         |        | 4A                                      | 750VA/500W    |

### 3.2. Description of the EUT

|                      |   |
|----------------------|---|
| Test Model           | (1)SMT750RMI2UC (2)SMT750IC   |
| Serial Number        | N/A   |
| Power Rating         | Input: 220-240VAC, 50/60Hz<br>Output: 220-240VAC, 50/60Hz   |
| Firmware Version     | N/A   |
| Sample Status        | Production  |
| Date of Receipt      | 2018. 02. 02  |
| Date of Test         | 2018. 02. 02 ~ 03. 22   |
| I/O Ports List       | <p><b>Model: SMT750RMI2UC</b></p> <ul style="list-style-type: none"> <li>• AC In x1</li> <li>• AC Out x4</li> <li>• Console x1</li> <li>• Console USB 1 x1</li> <li>• Console USB 2 x1</li> <li>• Universal I/O 1 x1</li> <li>• Universal I/O 2 x1</li> <li>• LAN In x2</li> <li>• USB In x1</li> <li>• Serial x1</li> </ul> <p><b>Model: SMT750IC</b></p> <ul style="list-style-type: none"> <li>• AC In x1</li> <li>• AC Out x6</li> <li>• Console x1</li> <li>• Console USB 1 x1</li> <li>• Console USB 2 x1</li> <li>• Universal I/O 1 x1</li> <li>• Universal I/O 2 x1</li> <li>• LAN In x2</li> <li>• USB In x1</li> <li>• Serial x1</li> </ul> |
| Accessories Supplied | <ul style="list-style-type: none"> <li>• USB Cable</li> <li>• LAN Cable</li> </ul>  |

### 3.3. Highest Frequency within EUT

The highest frequency is above 108MHz of EUT.

### 3.4. List of Key Components of EUT

| Component                                     | Supplier                                     | Model/Type  | Description       |
|---|--|-------------|-------------------|
| Battery Module<br>(2S1P, DC 24V, 7Ah / 7.2Ah) | Hitachi Chemical                             | GP1272F2    | 7.2AH (Test Used) |
|   | Panasonic Industrial Co.                     | LC-R127R2P1 | 7.2AH             |
|   | BB Group Company                             | BP7-12      | 7AH               |
|   | Exide Industries                             | EP1229W(N)  | 7AH               |
|   | Kung Long                                    | WP7,2-12    | 7.2AH             |
|   | Powerson Baotou ROC Storage battery Co., Ltd | MF12-7H     | 7AH               |
|   | Japan Storage Battery Co., Ltd               | PE12V7.2    | 7.2AH             |
|   | Shenzhen Center Power Tech.                  | CP1270      | 7AH               |
|   | CSB Battery                                  | GP1272F2    | 7.2AH             |

### 3.5. Determination of Worse Case Operating Modes

According to the specification, the EUT was estimated to determine the highest emissions by following configurations:

| Test Item  | Test Model   | Input power   | Operating Mode                 |
|--|--------------|---------------|--------------------------------|
| Conducted emissions at AC mains power port                                 | SMT750RM12UC | AC 230V, 50Hz | Online Mode                    |
|  |              |               | Green Mode                     |
|  |              | DC 24V        | Battery Mode                   |
|  | SMT750IC     | AC 230V, 50Hz | Online Mode                    |
|  |              |               | Green Mode                     |
|  |              | DC 24V        | Battery Mode                   |
| Conducted emissions at signal and telecommunication ports                  | SMT750RM12UC | AC 230V, 50Hz | Online Mode, NMC LAN (10Mbps)  |
|  |              |               | Online Mode, NMC LAN (100Mbps) |
|  |              |               | Online Mode, LCE LAN (100Mbps) |
|  | SMT750IC     | AC 230V, 50Hz | Online Mode, NMC LAN (10Mbps)  |
|  |              |               | Online Mode, NMC LAN (100Mbps) |
|  |              |               | Online Mode, LCE LAN (100Mbps) |
| Radiated emission (30 – 1000MHz)   | SMT750RM12UC | AC 230V, 50Hz | Online Mode                    |
|  |              |               | Green Mode                     |
|  |              | DC 24V        | Battery Mode                   |
|  | SMT750IC     | AC 230V, 50Hz | Online Mode                    |
|  |              |               | Green Mode                     |
|  |              | DC 24V        | Battery Mode                   |
| Low-frequency emission Input current harmonic                              | SMT750RM12UC | AC 230V/50Hz  | Online Mode                    |
| Electrostatic discharge & Radiated, Radio-frequency, electromagnetic field | SMT750RM12UC | AC 230V/50Hz  | Online Mode                    |
|  |              |               | Battery Mode                   |
| Other Immunity tests   | SMT750RM12UC | AC 230V/50Hz  | Online Mode                    |

### 3.6. Final Test Configuration Mode

The worst showed as following configuration was tested and recorded in the report.

| Test Item  | Test Model   | Input power   | Operating Mode                 |
|--|--------------|---------------|--------------------------------|
| Conducted emissions at AC mains power port                                 | SMT750RMI2UC | AC 230V, 50Hz | Online Mode                    |
|  |              |               | Green Mode                     |
|  |              | DC 24V        | Battery Mode                   |
| Conducted emissions at signal and telecommunication ports                  | SMT750RMI2UC | AC 230V, 50Hz | Online Mode, NMC LAN (10Mbps)  |
|  |              |               | Online Mode, NMC LAN (100Mbps) |
|  |              |               | Online Mode, LCE LAN (100Mbps) |
| Radiated emission (30 – 1000MHz)   | SMT750RMI2UC | AC 230V, 50Hz | Online Mode                    |
|  |              |               | Green Mode                     |
|  |              | DC 24V        | Battery Mode                   |
| Low-frequency emission Input current harmonic                              | SMT750RMI2UC | AC 230V/50Hz  | Online Mode                    |
| Electrostatic discharge & Radiated, Radio-frequency, electromagnetic field | SMT750RMI2UC | AC 230V/50Hz  | Online Mode                    |
| Other Immunity tests   | SMT750RMI2UC | AC 230V/50Hz  | Online Mode                    |

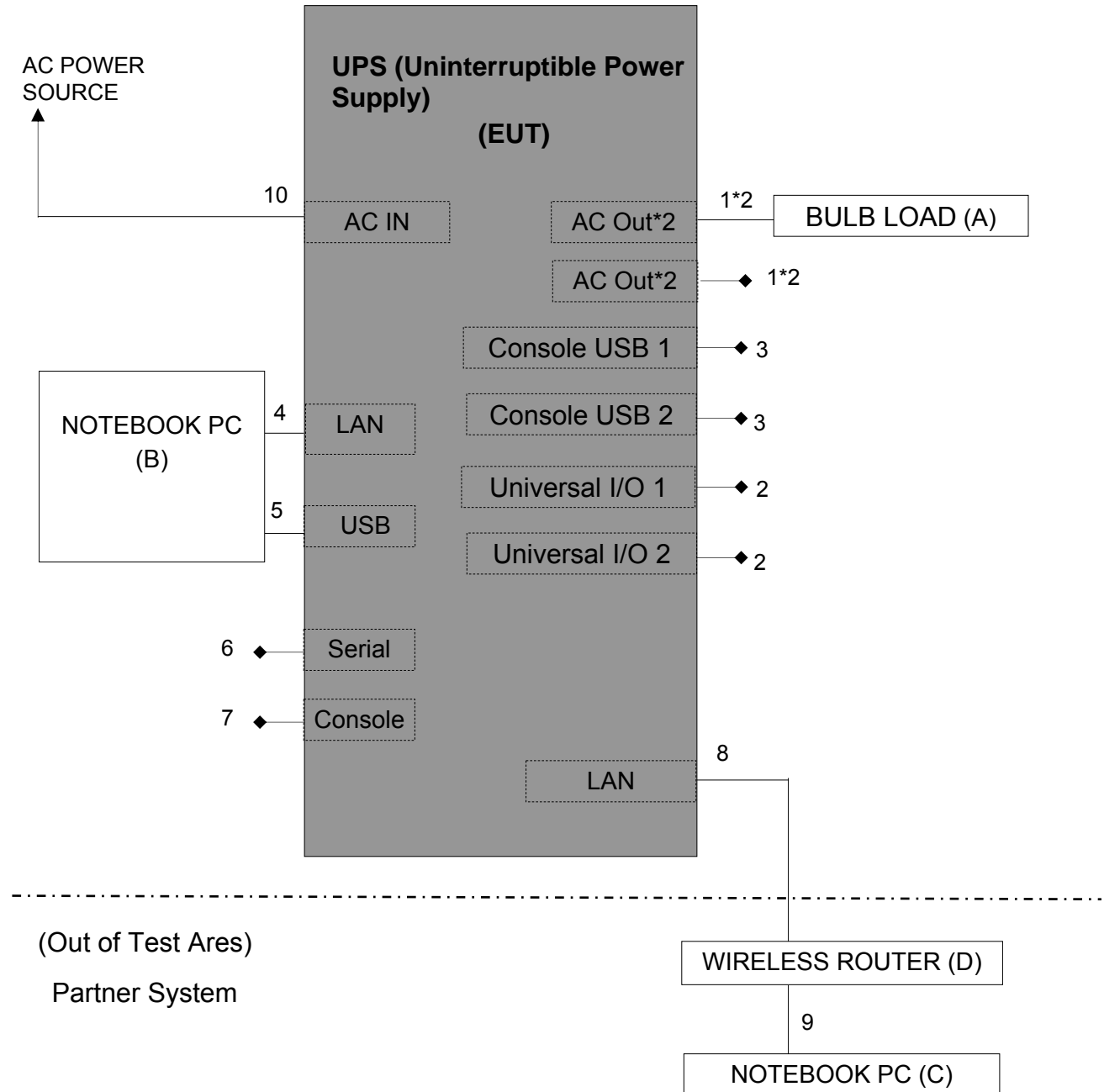


## 4. Measurement Arrangement

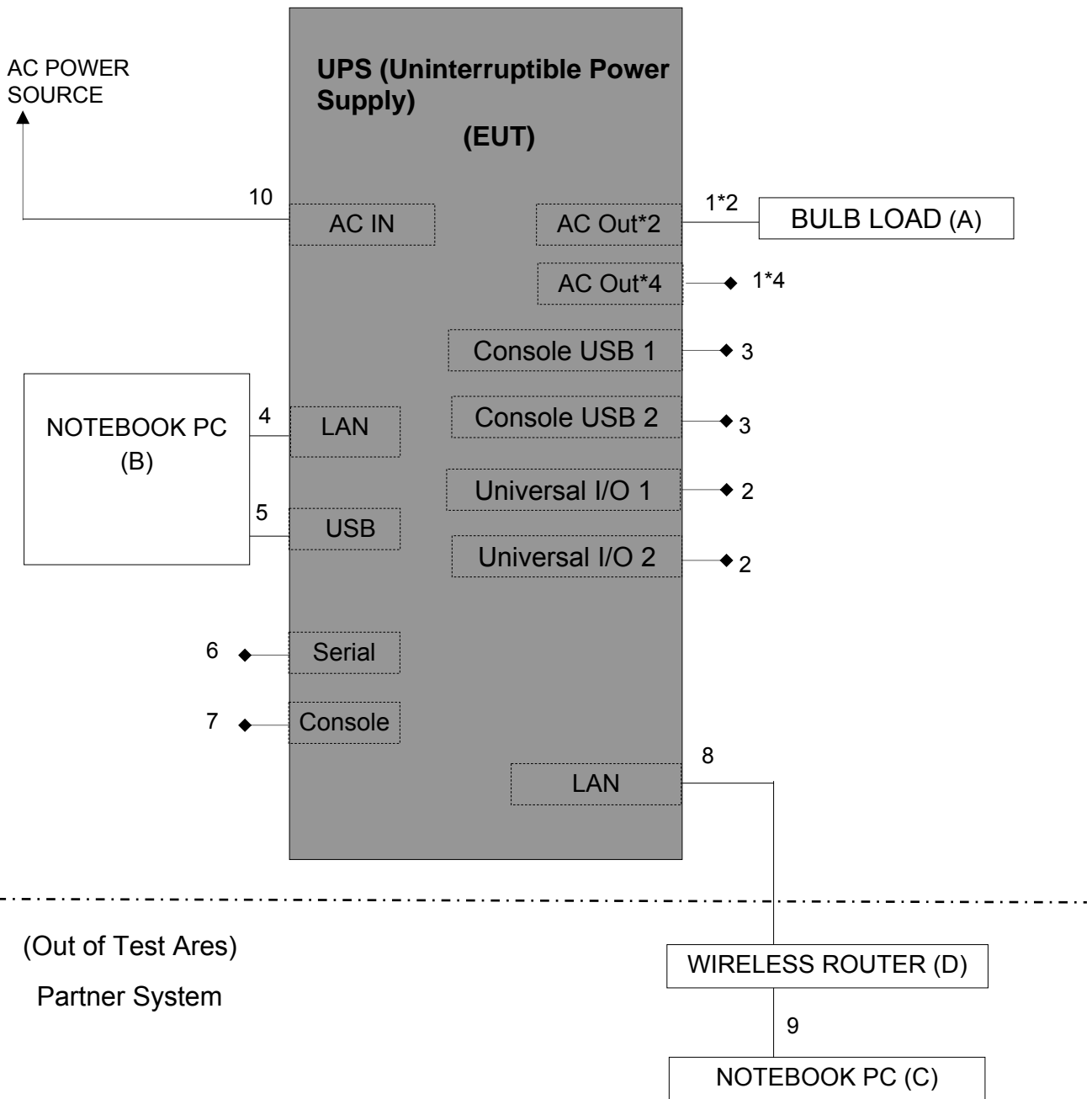
### 4.1. Equipment and cables arrangement

- Connection Diagram of EUT and Peripheral Devices  
For conducted and radiated tests

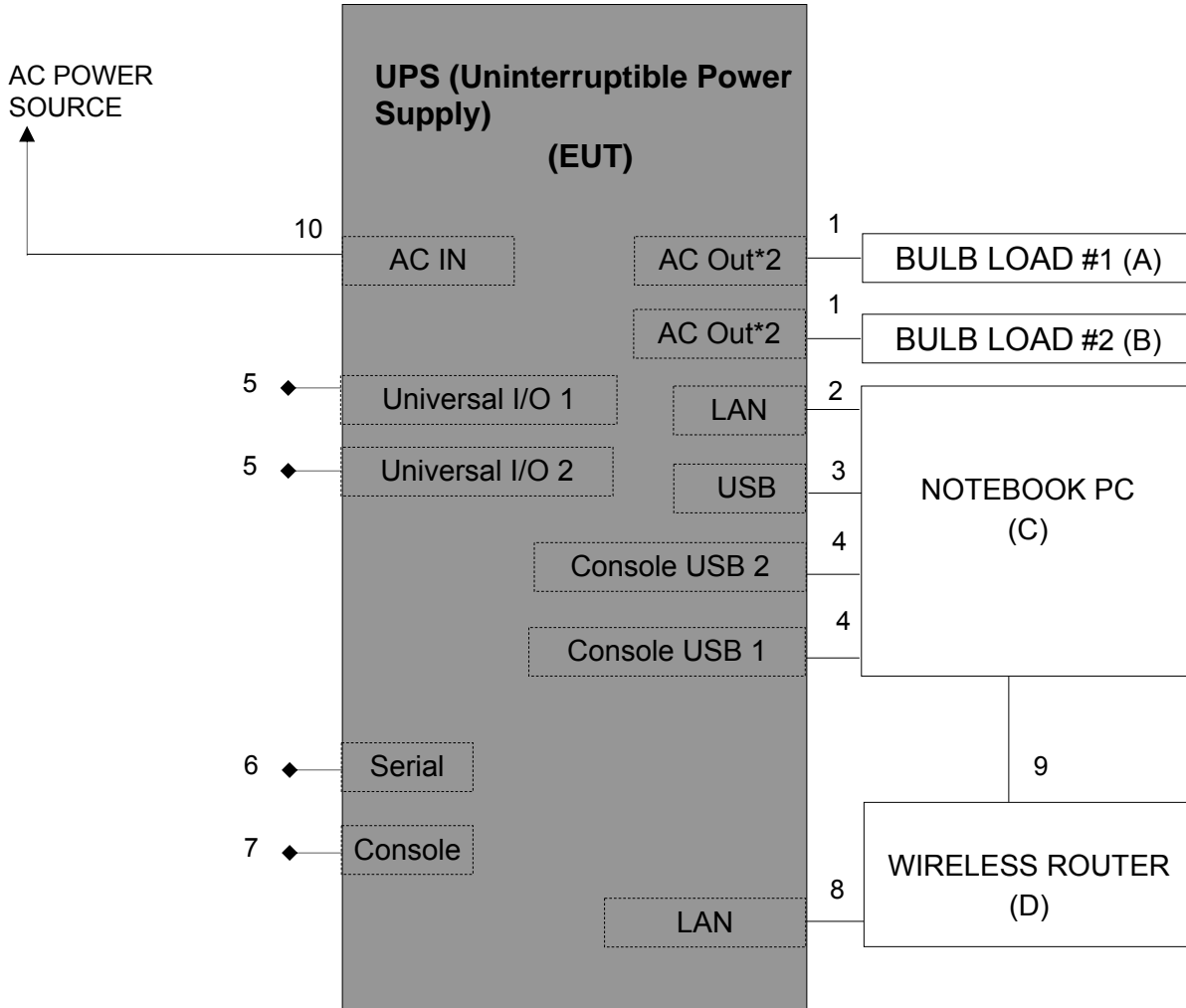
**For Model: SMT750RMI2UC**



**For Model: SMT750IC**



- Connection Diagram of EUT and Peripheral Devices  
For harmonics, flicker and immunity tests



## 4.2. Method of Exercising EUT

- The methods for exercising the EUT during the emission tests.

|  |
|--|
| 1. Turn on the power of all equipments.  |
| 2. Setup the notebook pc to drive the EUT through the UPS's software driver.   |
| 3. Data was communicated between the notebook pc and EUT through the USB and LAN interface cable. The notebook pc displayed the test software and rating of the EUT by windows XP. |
| 4. Set EUT under line or battery or green mode.  |
| 5. The AC outputs of EUT was linked to bulb loads with full load (500W).   |
| 6. EUT sent and received messages to/from partner notebook pc with wireless router through the LAN interface cable.  |
| 7. The other peripheral devices were driven and operated in turn during all testing.   |

- The methods for exercising the EUT during the Harmonics, Flicker and Immunity tests.

|  |
|--|
| 1. Turn on the power of all equipments.  |
| 2. Setup the notebook pc to drive the EUT through the UPS's software driver.   |
| 3. Data was communicated between the notebook pc and EUT through the USB and LAN-RS232 interface cable. The notebook pc displayed the test software and rating of the EUT by windows XP. |
| 4. Set EUT under line or battery mode.   |
| 5. The AC outputs of EUT was linked to bulb loads with full load (500W).   |
| 6. EUT sent and received messages to/from with wireless router through the LAN interface cable.  |
| 7. The other peripheral devices were driven and operated in turn during all testing.   |

### 4.3. List of Supported Units under Test

| Item   | Product          | Brand  | Model No.   | Serial No.    | Approval            |
|--|------------------|--------|-------------|---------------|---------------------|
| <b>For Conducted and Radiated test</b>           |                  |        |             |               |                     |
| A  | Bulb Load (500W) | Audix  | N/A         | N/A           | N/A                 |
| B  | Notebook PC      | DELL   | TDC20090005 | N/A           | By DoC              |
| <b>Partner System</b>                            |                  |        |             |               |                     |
| C  | Notebook PC      | Lenovo | TP00034A    | 895097        | By DoC              |
| D  | Wireless Router  | D-Link | DIR-868L    | R3WE1D7002319 | FCC ID: KA2IR868LA1 |
| <b>For Harmonic · Flicker and Immunity Tests</b> |                  |        |             |               |                     |
| A  | Bulb Load (500W) | Audix  | N/A         | N/A           | N/A                 |
| B  | Notebook PC      | DELL   | TDC20090005 | N/A           | By DoC              |
| C  | Wireless Router  | D-Link | DIR-868L    | R3WE1D7002319 | FCC ID: KA2IR868LA1 |

#### 4.4. List of Used Cables under Test

| Item   | Type               | Qty. | Length (m) | Shielding (Yes/No) | Cores (Qty.) | Remark                                    |
|--|--------------------|------|------------|--------------------|--------------|---|
| <b>For Conducted and Radiated test</b>           |                    |      |            |                    |              |   |
| 1  | Power Cord         | 4/6  | 1.8        | No                 | 0            | Provided by LAB                           |
| 2  | LAN Cable          | 2    | 2.0        | No                 | 0            | Accessory of EUT                          |
| 3  | USB Cable          | 2    | 1.8        | Yes                | 0            | Accessory of EUT                          |
| 4  | LAN to RS232 Cable | 1    | 2.0        | Yes                | 0            | Provided by LAB                           |
| 5  | USB Cable          | 1    | 1.8        | Yes                | 0            | Accessory of EUT                          |
| 6  | USB Cable          | 1    | 1.8        | Yes                | 0            | Provided by LAB                           |
| 7  | USB Cable          | 1    | 1.8        | Yes                | 0            | Provided by LAB                           |
| 8  | LAN Cable          | 1    | 10.0       | No                 | 0            | Provided by LAB                           |
| 9  | LAN Cable          | 1    | 1.8        | No                 | 0            | Provided by LAB                           |
| 10   | AC Power Cord (3C) | 1    | 1.8        | No                 | 0            | Provided by LAB                           |
| 11   | AC Power Cord      | 2    | 1.8        | No                 | 0            | Provided by LAB for above supported units |
| <b>For Harmonic · Flicker and Immunity Tests</b> |                    |      |            |                    |              |   |
| 1  | Power Cord         | 4    | 1.8        | No                 | 0            | Provided by LAB                           |
| 2  | LAN to RS232 Cable | 1    | 2.0        | No                 | 0            | Accessory of EUT                          |
| 3  | USB Cable          | 1    | 1.8        | Yes                | 0            | Accessory of EUT                          |
| 4  | USB Cable          | 2    | 1.8        | Yes                | 0            | Accessory of EUT                          |
| 5  | LAN Cable          | 2    | 4.0        | No                 | 0            | Accessory of EUT                          |
| 6  | Data Cable         | 1    | 1.8        | No                 | 0            | Provided by LAB                           |
| 7  | Data Cable         | 1    | 1.8        | No                 | 0            | Provided by LAB                           |
| 8  | LAN Cable          | 1    | 1.5        | No                 | 0            | Provided by LAB                           |
| 9  | LAN Cable          | 1    | 1.8        | No                 | 0            | Provided by LAB                           |
| 10   | AC Power Cord (3C) | 1    | 1.8        | No                 | 0            | Provided by LAB                           |
| 11   | AC Power Cord      | 2    | 1.8        | No                 | 0            | Provided by LAB for above supported units |

## 5. Measurement of Conducted Emissions

### 5.1. List of Test Instruments

- For AC mains power port use

| Item | Equipment                  | Manufacturer          | Model No. | Serial No. | Cal. Date    | Cal. Interval |
|------|----------------------------|-----------------------|-----------|------------|--------------|---------------|
| 1    | Test Receiver              | R & S                 | ESR3      | 101772     | 2018. 01. 17 | 1 Year        |
| 2    | A.M.N.                     | R&S                   | KNW-244C  | 8-1373-5   | 2017. 04. 13 | 1 Year        |
| 3    | L.I.S.N.                   | Kyoritsu              | KNW-407   | 8-1370-9   | 2018. 01. 30 | 1 Year        |
| 4    | Pulse Limiter              | R & S                 | ESH3-Z2   | 100041     | 2018. 01. 15 | 1 Year        |
| 5    | Signal Cable               | CDM Electronics, Inc. | RG-142    | CE-02      | 2017. 02. 08 | 1 Year        |
| 6    | Digital Thermo-Hygro Meter | YICHUN                | TFC-9606  | No.3 S/R   | 2017. 04. 20 | 1 Year        |
| 7    | Test Software              | Audix                 | e3        | V.120703a  | N.C.R.       | N.C.R.        |

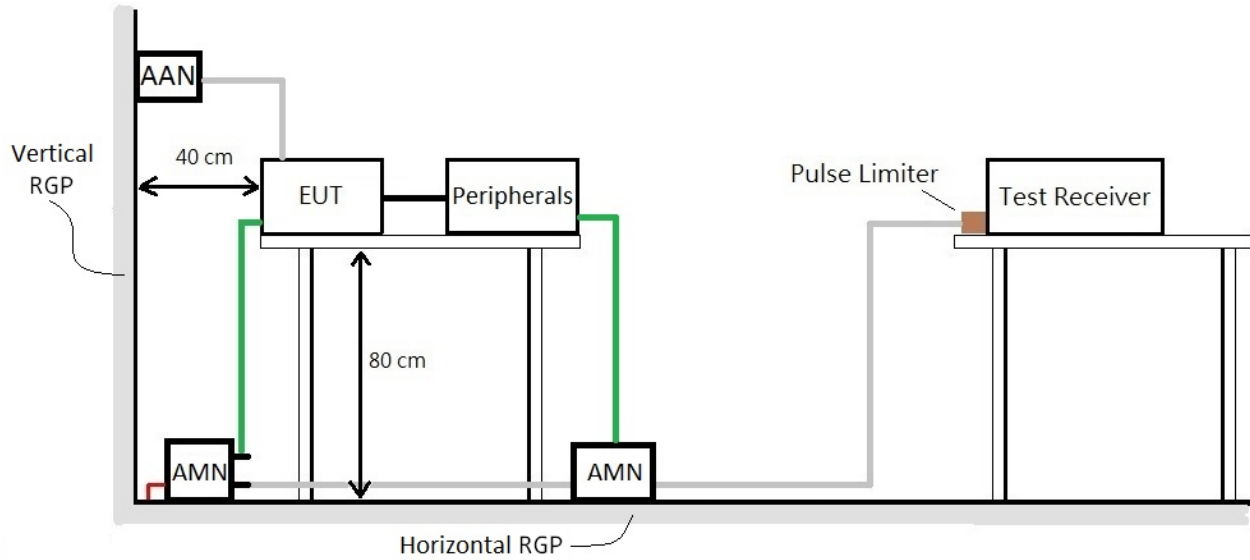
- For signal and telecommunication ports use

| Item | Equipment                       | Manufacture           | Model No. | Serial No. | Cal. Date    | Cal. Interval |
|------|---------------------------------|-----------------------|-----------|------------|--------------|---------------|
| 1    | Test Receiver                   | R & S                 | ESR3      | 101772     | 2018. 01. 17 | 1 Year        |
| 2    | A.M.N.                          | R&S                   | KNW-244C  | 8-1373-5   | 2017. 04. 13 | 1 Year        |
| 3    | L.I.S.N.                        | Kyoritsu              | KNW-407   | 8-1370-9   | 2018. 01. 30 | 1 Year        |
| 4    | Signal Cable                    | CDM Electronics, Inc. | RG-142    | CE-02      | 2017. 02. 08 | 1 Year        |
| 5    | Impedance Stabilization Network | TESEQ                 | ISN T800  | 30331      | 2017. 09. 05 | 1 Year        |
| 6    | Digital Thermo-Hygro Meter      | YICHUN                | TFC-9606  | No.3 S/R   | 2017. 04. 20 | 1 Year        |
| 7    | Test Software                   | Audix                 | e3        | V.120703a  | N.C.R.       | N.C.R.        |

## 5.2. Test Setup

The EUTs and test equipment were configured in accordance with the requirement of EN 62040-2 Annex A.6.4.

- For AC mains power port
- For signal and telecommunication ports



EUT, local AE and associated cabling; and metal surfaces other than the RGP  $\geq 80\text{cm}$



### 5.3. Applicable Limits

- Limits of mains terminal interference voltage frequency range 0,15 MHz to 30 MHz for category C1 UPS and category C2 UPS equipment

| Frequency Range (MHz) | Limits dB(μV)         |                       |                 |         |
|-----------------------|-----------------------|-----------------------|-----------------|---------|
|                       | Category C1 UPS       |                       | Category C2 UPS |         |
|                       | Quasi-peak            | Average               | Quasi-peak      | Average |
| 0.15 – 0.50           | 66 to 56 <sup>a</sup> | 56 to 46 <sup>a</sup> | 79              | 66      |
| 0.50 – 5 <sup>b</sup> | 56                    | 46                    | 73              | 60      |
| 5 – 30                | 60                    | 50                    | 73              | 60      |

a. The limit decreases linearly with the logarithm of the frequency.  
b. The lower limit shall apply at the transition frequency.

- Limits of mains terminal interference voltage frequency range 0,15 MHz to 30 MHz for Category C3 UPS equipment

| UPS rated output current A | Frequency range (MHz)    | Limits dB(μV)         |                       |
|----------------------------|--------------------------|-----------------------|-----------------------|
|                            |                          | Category C3 UPS       |                       |
|                            |                          | Quasi-peak            | Average               |
| >16 – 100                  | 0.15 – 0.50 <sup>b</sup> | 100                   | 90                    |
|                            | 0.50 – 5.0 <sup>b</sup>  | 86                    | 76                    |
|                            | 5.0 – 30.0               | 90 to 70 <sup>a</sup> | 80 to 60 <sup>a</sup> |
| >100                       | 0.15 – 0.50 <sup>b</sup> | 130                   | 120                   |
|                            | 0.50 – 5.0 <sup>b</sup>  | 125                   | 115                   |
|                            | 5.0 – 30.0               | 115                   | 105                   |

c. The limits decrease linearly with the logarithm of the frequency.  
d. The lower limit shall apply at the transition frequency.

- Limits of a.c. output interference voltage

The limits in Tables 1 and 2 apply. An allowance of +14 dB is permitted for conducted disturbances at the output of the UPS as specified in Tables 1 and 2, except for C3 greater than 100 A where no increase is allowed. These limits only apply to UPS where the output cable, as declared by the manufacturer, in his users' instructions, can exceed 10 m in length.

- Limits of signal and telecommunication ports

For ports intended for connection to the public switched telecommunication network (PSTN), the test methods and limits of CISPR 22 apply.

| Port            | Frequency range                                       | Limits  | Basic standard      |
|-----------------|---|---|---------------------|
| Signal, control | 0,15 MHz to 0,5 MHz                                   | 40-30 dB( $\mu$ A)<br>quasi-peak                            | CISPR 22<br>Class B |
|                 | Limit decreasing linearly<br>with logarithm frequency | 30-20 dB( $\mu$ A)<br>average                               |                     |
|                 | 0,5 MHz to 30 MHz                                     | 30 dB( $\mu$ A)<br>quasi-peak<br>20 dB( $\mu$ A)<br>average |                     |

## 5.4. Measurement Procedure

### For AC mains power port

The method of EN 62040-2 Annex A.6 was used.

- Setup the EUTs and associated equipment described as clause 4.1, and they were located 40cm from the vertical conducting plane.
- Connect the EUT power cord to the main A.M.N and associated equipment to the second A.M.N. All ports of the A.M.N not connecting to the measuring equipment was terminated into 50 ohm resistive load.
- Connect receiver tuner port to an AAN that is bonded to the RGP.
- Setup the resolution bandwidth of the test receiver as section 5.3 defined.
- Operate the EUT system as described in clause 4.2.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of the EUT power cord with the peak detector by each of the EUT operation over the specified frequency range and record it, and then
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it. All of the current-carrying conductors of each of the EUT power cords, except the ground conductor, must be measured over the specified frequency range.
- The measurement result was calculated by following formula :  
Emission Level = Reading (Receiver) + Factor (A.M.N) + Insertion Loss (Pulse Limiter) + Cable Loss
- If the average limit is met when using a Quasi-Peak detector receiver, the EUT is deemed to meet both limits and measurement with the average detector is unnecessary.

**For signal and telecommunication ports**

The method of EN 62040-2 Annex C and CISPR 22 clause 9 were used.

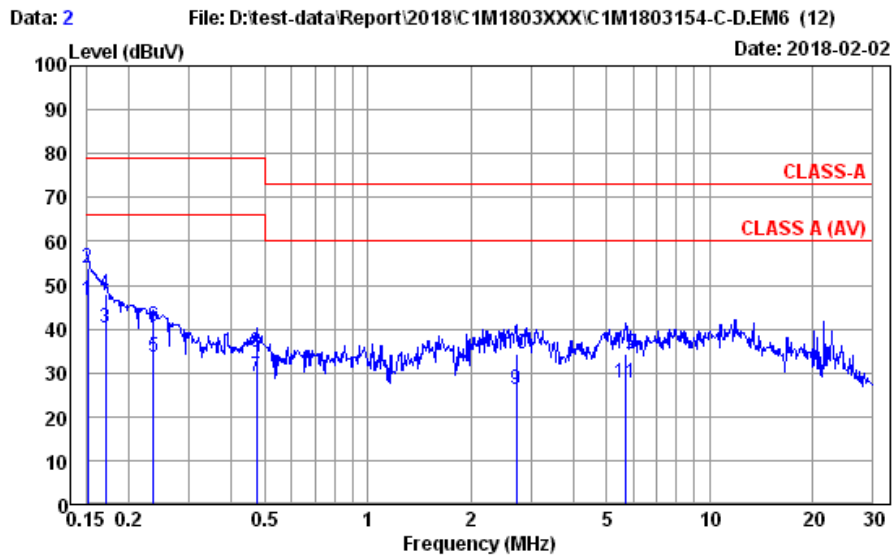
- Setup the EUTs and associated equipment described as clause 4.1, and they were located 40cm from the vertical conducting plane.
- Connect wired network port between EUT and AE through the AAN.
- Setup the resolution bandwidth of the test receiver as section 5.3 defined.
- Operate the EUT system as described in clause 4.2.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of the EUT LAN port with the peak detector by each of the transmission rate over the specified frequency range and record it, and then
- For final measurement, select the worst network port that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it. All of the transmission rates must be measured over the specified frequency range.
- The measurement result was calculated by following formula :  
Emission Level = Reading (Receiver) + Factor (AAN) + Insertion Loss (Pulse Limiter) + Cable Loss
- If the average limit is met when using a Quasi-Peak detector receiver, the EUT is deemed to meet both limits and measurement with the average detector is unnecessary.

### 5.5. Measurement Result

The following data are the worst emissions based on the prescan measurement result.

- Result for AC Mains Power Port

|             |               |             |              |
|-------------|---------------|-------------|--------------|
| Test Date   | 2018. 02. 02  | Environment | 24°C, 61%    |
| Input Power | AC 230V, 50Hz | Test Phase  | Neutral      |
| Tested By   | Ghost         | Test Result | Pass         |
| Test Mode   | Online Mode   | Test Model  | SMT750RMI2UC |



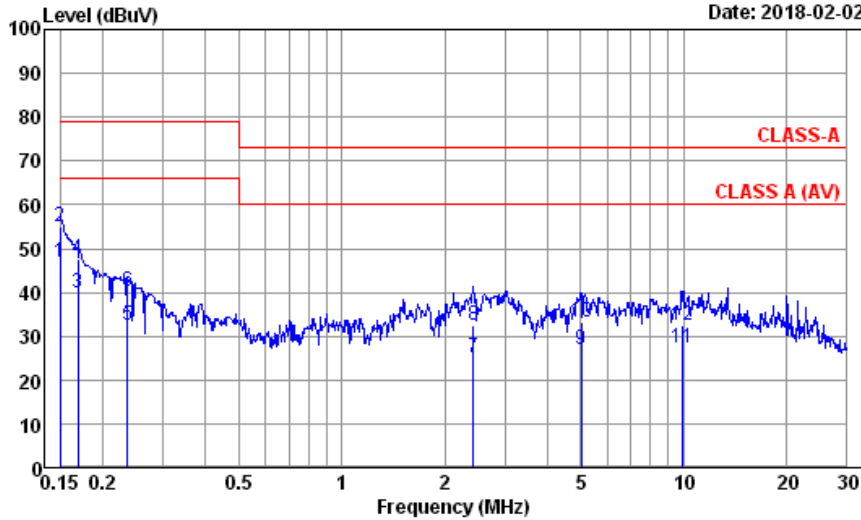
Site no. : No.3 Shielded Room Data no. : 2  
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : 230Vac/50Hz  
 Test Mode : On Line Mode

|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.152          | 0.15                  | 0.03                  | 9.86                  | 36.41             | 46.45                       | 66.00            | 19.55          | Average |
| 2  | 0.152          | 0.15                  | 0.03                  | 9.86                  | 43.94             | 53.98                       | 79.00            | 25.02          | QP      |
| 3  | 0.171          | 0.15                  | 0.03                  | 9.86                  | 30.19             | 40.23                       | 66.00            | 25.77          | Average |
| 4  | 0.171          | 0.15                  | 0.03                  | 9.86                  | 38.01             | 48.05                       | 79.00            | 30.95          | QP      |
| 5  | 0.237          | 0.14                  | 0.03                  | 9.86                  | 23.51             | 33.54                       | 66.00            | 32.46          | Average |
| 6  | 0.237          | 0.14                  | 0.03                  | 9.86                  | 30.48             | 40.51                       | 79.00            | 38.49          | QP      |
| 7  | 0.474          | 0.13                  | 0.04                  | 9.86                  | 19.19             | 29.22                       | 66.00            | 36.78          | Average |
| 8  | 0.474          | 0.13                  | 0.04                  | 9.86                  | 24.60             | 34.63                       | 79.00            | 44.37          | QP      |
| 9  | 2.721          | 0.21                  | 0.08                  | 9.87                  | 16.22             | 26.38                       | 60.00            | 33.62          | Average |
| 10 | 2.721          | 0.21                  | 0.08                  | 9.87                  | 24.01             | 34.17                       | 73.00            | 38.83          | QP      |
| 11 | 5.683          | 0.29                  | 0.12                  | 9.88                  | 17.45             | 27.74                       | 60.00            | 32.26          | Average |
| 12 | 5.683          | 0.29                  | 0.12                  | 9.88                  | 24.02             | 34.31                       | 73.00            | 38.69          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

|             |               |             |              |
|-------------|---------------|-------------|--------------|
| Test Date   | 2018. 02. 02  | Environment | 24°C, 61%    |
| Input Power | AC 230V, 50Hz | Test Phase  | Line         |
| Tested By   | Ghost         | Test Result | Pass         |
| Test Mode   | Online Mode   | Test Model  | SMT750RMI2UC |

Data: 1 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-C-D.EM6 (12) Date: 2018-02-02

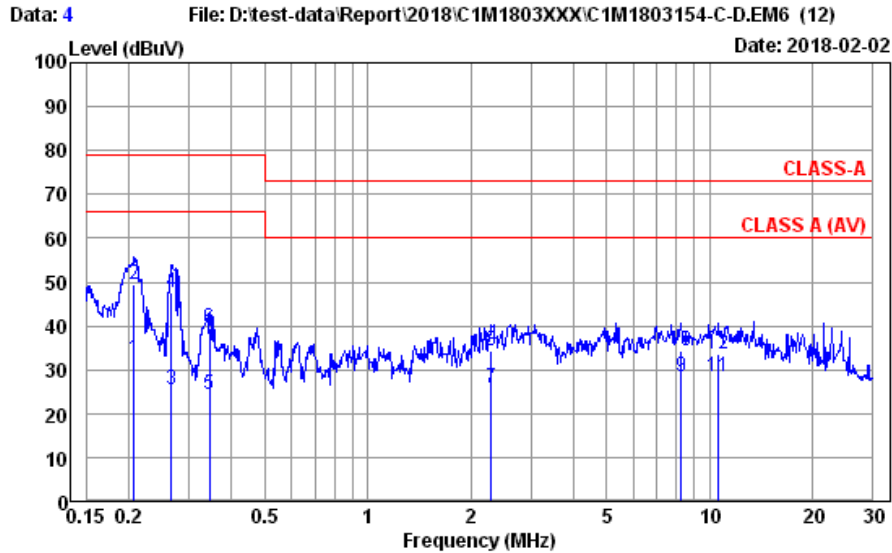


Site no. : No.3 Shielded Room Data no. : 1  
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : 230Vac/50Hz  
 Test Mode : On Line Mode

|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.150          | 0.04                  | 0.03                  | 9.86                  | 36.94             | 46.87                       | 66.00            | 19.13          | Average |
| 2  | 0.150          | 0.04                  | 0.03                  | 9.86                  | 44.88             | 54.81                       | 79.00            | 24.19          | QP      |
| 3  | 0.169          | 0.03                  | 0.03                  | 9.86                  | 30.09             | 40.01                       | 66.00            | 25.99          | Average |
| 4  | 0.169          | 0.03                  | 0.03                  | 9.86                  | 37.58             | 47.50                       | 79.00            | 31.50          | QP      |
| 5  | 0.237          | 0.02                  | 0.03                  | 9.86                  | 22.66             | 32.57                       | 66.00            | 33.43          | Average |
| 6  | 0.237          | 0.02                  | 0.03                  | 9.86                  | 30.48             | 40.39                       | 79.00            | 38.61          | QP      |
| 7  | 2.422          | 0.10                  | 0.08                  | 9.86                  | 14.87             | 24.91                       | 60.00            | 35.09          | Average |
| 8  | 2.422          | 0.10                  | 0.08                  | 9.86                  | 22.33             | 32.37                       | 73.00            | 40.63          | QP      |
| 9  | 5.005          | 0.20                  | 0.11                  | 9.87                  | 16.78             | 26.96                       | 60.00            | 33.04          | Average |
| 10 | 5.005          | 0.20                  | 0.11                  | 9.87                  | 23.01             | 33.19                       | 73.00            | 39.81          | QP      |
| 11 | 9.861          | 0.38                  | 0.15                  | 9.90                  | 16.89             | 27.32                       | 60.00            | 32.68          | Average |
| 12 | 9.861          | 0.38                  | 0.15                  | 9.90                  | 22.08             | 32.51                       | 73.00            | 40.49          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

|             |               |             |              |
|-------------|---------------|-------------|--------------|
| Test Date   | 2018. 02. 02  | Environment | 24°C, 61%    |
| Input Power | AC 230V, 50Hz | Test Phase  | Neutral      |
| Tested By   | Ghost         | Test Result | Pass         |
| Test Mode   | Green Mode    | Test Model  | SMT750RMI2UC |

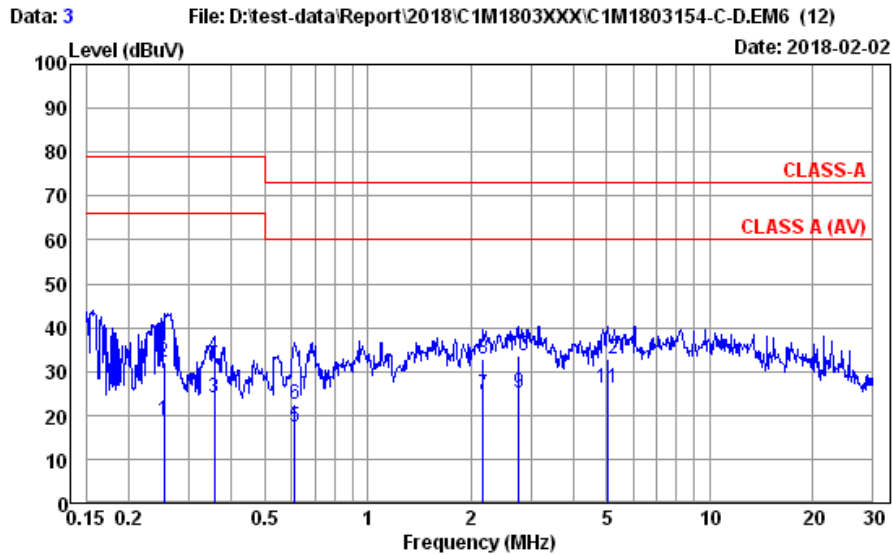


Site no. : No.3 Shielded Room Data no. : 4  
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : 230Vac/50Hz  
 Test Mode : GREEN Mode

|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBµV) | Emission<br>Level<br>(dBµV) | Limits<br>(dBµV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.207          | 0.14                  | 0.03                  | 9.86                  | 22.58             | 32.61                       | 66.00            | 33.39          | Average |
| 2  | 0.207          | 0.14                  | 0.03                  | 9.86                  | 39.53             | 49.56                       | 79.00            | 29.44          | QP      |
| 3  | 0.266          | 0.14                  | 0.03                  | 9.86                  | 15.30             | 25.33                       | 66.00            | 40.67          | Average |
| 4  | 0.266          | 0.14                  | 0.03                  | 9.86                  | 37.69             | 47.72                       | 79.00            | 31.28          | QP      |
| 5  | 0.345          | 0.13                  | 0.04                  | 9.86                  | 14.18             | 24.21                       | 66.00            | 41.79          | Average |
| 6  | 0.345          | 0.13                  | 0.04                  | 9.86                  | 29.41             | 39.44                       | 79.00            | 39.56          | QP      |
| 7  | 2.297          | 0.19                  | 0.08                  | 9.86                  | 15.63             | 25.76                       | 60.00            | 34.24          | Average |
| 8  | 2.297          | 0.19                  | 0.08                  | 9.86                  | 24.18             | 34.31                       | 73.00            | 38.69          | QP      |
| 9  | 8.235          | 0.33                  | 0.14                  | 9.89                  | 18.00             | 28.36                       | 60.00            | 31.64          | Average |
| 10 | 8.235          | 0.33                  | 0.14                  | 9.89                  | 23.85             | 34.21                       | 73.00            | 38.79          | QP      |
| 11 | 10.620         | 0.38                  | 0.16                  | 9.90                  | 18.15             | 28.59                       | 60.00            | 31.41          | Average |
| 12 | 10.620         | 0.38                  | 0.16                  | 9.90                  | 23.25             | 33.69                       | 73.00            | 39.31          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

|             |               |             |              |
|-------------|---------------|-------------|--------------|
| Test Date   | 2018. 02. 02  | Environment | 24°C, 61%    |
| Input Power | AC 230V, 50Hz | Test Phase  | Line         |
| Tested By   | Ghost         | Test Result | Pass         |
| Test Mode   | Green Mode    | Test Model  | SMT750RMI2UC |



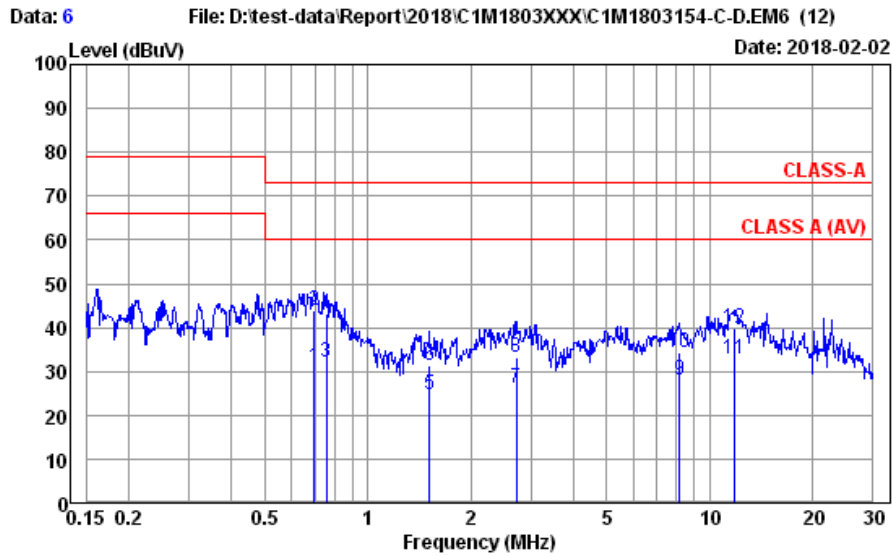
Site no. : No.3 Shielded Room Data no. : 3  
 Condition : KNN-244C 8-1373-5 LISN Phase : LINE  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : 230Vac/50Hz  
 Test Mode : GREEN Mode

|    | Freq. (MHz) | AMN Factor (dB) | Cable Loss (dB) | Pulse Att. (dB) | Reading (dBµV) | Emission Level (dBµV) | Limits (dBµV) | Margin (dB) | Remark  |
|----|-------------|-----------------|-----------------|-----------------|----------------|-----------------------|---------------|-------------|---------|
| 1  | 0.253       | 0.02            | 0.03            | 9.86            | 9.02           | 18.93                 | 66.00         | 47.07       | Average |
| 2  | 0.253       | 0.02            | 0.03            | 9.86            | 22.25          | 32.16                 | 79.00         | 46.84       | QP      |
| 3  | 0.356       | 0.02            | 0.04            | 9.86            | 13.93          | 23.85                 | 66.00         | 42.15       | Average |
| 4  | 0.356       | 0.02            | 0.04            | 9.86            | 23.55          | 33.47                 | 79.00         | 45.53       | QP      |
| 5  | 0.611       | 0.03            | 0.04            | 9.86            | 7.30           | 17.23                 | 60.00         | 42.77       | Average |
| 6  | 0.611       | 0.03            | 0.04            | 9.86            | 12.65          | 22.58                 | 73.00         | 50.42       | QP      |
| 7  | 2.178       | 0.09            | 0.07            | 9.86            | 14.59          | 24.61                 | 60.00         | 35.39       | Average |
| 8  | 2.178       | 0.09            | 0.07            | 9.86            | 23.00          | 33.02                 | 73.00         | 39.98       | QP      |
| 9  | 2.765       | 0.11            | 0.08            | 9.87            | 15.13          | 25.19                 | 60.00         | 34.81       | Average |
| 10 | 2.765       | 0.11            | 0.08            | 9.87            | 23.55          | 33.61                 | 73.00         | 39.39       | QP      |
| 11 | 5.031       | 0.21            | 0.11            | 9.87            | 16.13          | 26.32                 | 60.00         | 33.68       | Average |
| 12 | 5.031       | 0.21            | 0.11            | 9.87            | 22.81          | 33.00                 | 73.00         | 40.00       | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



|             |              |             |              |
|-------------|--------------|-------------|--------------|
| Test Date   | 2018. 02. 02 | Environment | 24°C, 61%    |
| Input Power | DC 24V       | Test Phase  | Neutral      |
| Tested By   | Ghost        | Test Result | Pass         |
| Test Mode   | Battery Mode | Test Model  | SMT750RMI2UC |

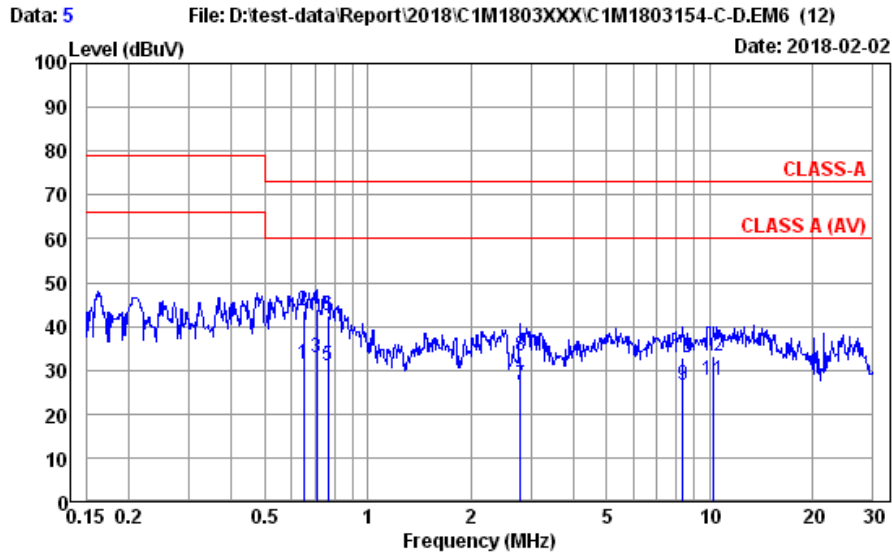


Site no. : No.3 Shielded Room Data no. : 6  
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : DC 24V  
 Test Mode : ON BATTERY Mode

|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.697          | 0.14                  | 0.05                  | 9.86                  | 20.82             | 30.87                       | 60.00            | 29.13          | Average |
| 2  | 0.697          | 0.14                  | 0.05                  | 9.86                  | 33.77             | 43.82                       | 73.00            | 29.18          | QP      |
| 3  | 0.759          | 0.14                  | 0.05                  | 9.86                  | 21.93             | 31.98                       | 60.00            | 28.02          | Average |
| 4  | 0.759          | 0.14                  | 0.05                  | 9.86                  | 33.20             | 43.25                       | 73.00            | 29.75          | QP      |
| 5  | 1.519          | 0.17                  | 0.06                  | 9.86                  | 14.64             | 24.73                       | 60.00            | 35.27          | Average |
| 6  | 1.519          | 0.17                  | 0.06                  | 9.86                  | 21.44             | 31.53                       | 73.00            | 41.47          | QP      |
| 7  | 2.721          | 0.21                  | 0.08                  | 9.87                  | 16.00             | 26.16                       | 60.00            | 33.84          | Average |
| 8  | 2.721          | 0.21                  | 0.08                  | 9.87                  | 23.08             | 33.24                       | 73.00            | 39.76          | QP      |
| 9  | 8.148          | 0.33                  | 0.14                  | 9.89                  | 17.51             | 27.87                       | 60.00            | 32.13          | Average |
| 10 | 8.148          | 0.33                  | 0.14                  | 9.89                  | 23.85             | 34.21                       | 73.00            | 38.79          | QP      |
| 11 | 11.870         | 0.42                  | 0.17                  | 9.91                  | 22.27             | 32.77                       | 60.00            | 27.23          | Average |
| 12 | 11.870         | 0.42                  | 0.17                  | 9.91                  | 29.22             | 39.72                       | 73.00            | 33.28          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

|             |              |             |              |
|-------------|--------------|-------------|--------------|
| Test Date   | 2018. 02. 02 | Environment | 24°C, 61%    |
| Input Power | DC 24V       | Test Phase  | Line         |
| Tested By   | Ghost        | Test Result | Pass         |
| Test Mode   | Battery Mode | Test Model  | SMT750RMI2UC |



Site no. : No.3 Shielded Room Data no. : 5  
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : DC 24V  
 Test Mode : ON BATTERY Mode

|             | AMN         | Cable     | Pulse     | Emission       |              | Limits | Margin | Remark |         |
|-------------|-------------|-----------|-----------|----------------|--------------|--------|--------|--------|---------|
| Freq. (MHz) | Factor (dB) | Loss (dB) | Att. (dB) | Reading (dBμV) | Level (dBμV) | (dBμV) | (dB)   |        |         |
| 1           | 0.651       | 0.03      | 0.05      | 9.86           | 21.46        | 31.40  | 60.00  | 28.60  | Average |
| 2           | 0.651       | 0.03      | 0.05      | 9.86           | 33.73        | 43.67  | 73.00  | 29.33  | QP      |
| 3           | 0.708       | 0.03      | 0.05      | 9.86           | 22.72        | 32.66  | 60.00  | 27.34  | Average |
| 4           | 0.708       | 0.03      | 0.05      | 9.86           | 33.96        | 43.90  | 73.00  | 29.10  | QP      |
| 5           | 0.767       | 0.03      | 0.05      | 9.86           | 21.20        | 31.14  | 60.00  | 28.86  | Average |
| 6           | 0.767       | 0.03      | 0.05      | 9.86           | 32.48        | 42.42  | 73.00  | 30.58  | QP      |
| 7           | 2.794       | 0.11      | 0.08      | 9.87           | 16.39        | 26.45  | 60.00  | 33.55  | Average |
| 8           | 2.794       | 0.11      | 0.08      | 9.87           | 23.29        | 33.35  | 73.00  | 39.65  | QP      |
| 9           | 8.323       | 0.33      | 0.14      | 9.89           | 16.31        | 26.67  | 60.00  | 33.33  | Average |
| 10          | 8.323       | 0.33      | 0.14      | 9.89           | 22.52        | 32.88  | 73.00  | 40.12  | QP      |
| 11          | 10.288      | 0.38      | 0.15      | 9.90           | 17.18        | 27.61  | 60.00  | 32.39  | Average |
| 12          | 10.288      | 0.38      | 0.15      | 9.90           | 22.70        | 33.13  | 73.00  | 39.87  | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.

## 6. Measurement of Radiated Emissions

### 6.1. List of Test Instruments

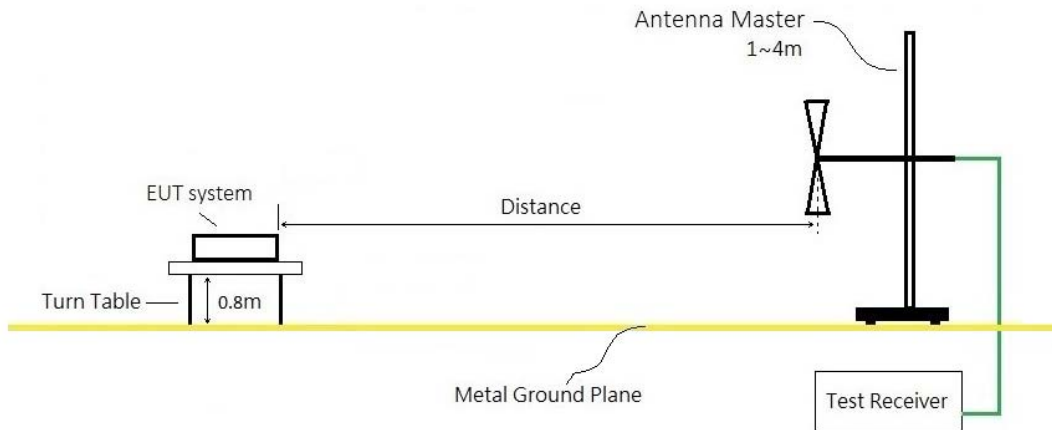
- For measurement of 30 to 1000MHz frequency range

| Item | Equipment                  | Manufacture  | Model No.  | Serial No. | Cal. Date    | Cal. Interval |
|------|----------------------------|--------------|------------|------------|--------------|---------------|
| 1    | Spectrum Analyzer          | Agilent      | N9010A-507 | MY49061167 | 2017. 05. 18 | 1 Year        |
| 2    | Test Receiver              | R&S          | ESCS30     | 100339     | 2017. 05. 02 | 1 Year        |
| 3    | Amplifier                  | HP           | 8447D      | 2727A05737 | 2017. 03. 27 | 1 Year        |
| 4    | Bilog Antenna              | Schaffner    | CBL6112B   | 2818       | 2018. 01. 21 | 1 Year        |
| 5    | Signal Cable               | HUBER+SUHNER | RG217U     | RE-07      | 2017. 02. 08 | 1 Year        |
| 6    | Digital Thermo-Hygro Meter | iMax         | HTC-1      | No.6 O/S   | 2017. 04. 21 | 1 Year        |
| 7    | Test Software              | Audix        | e3         | V.5.04507  | N.C.R.       | N.C.R.        |

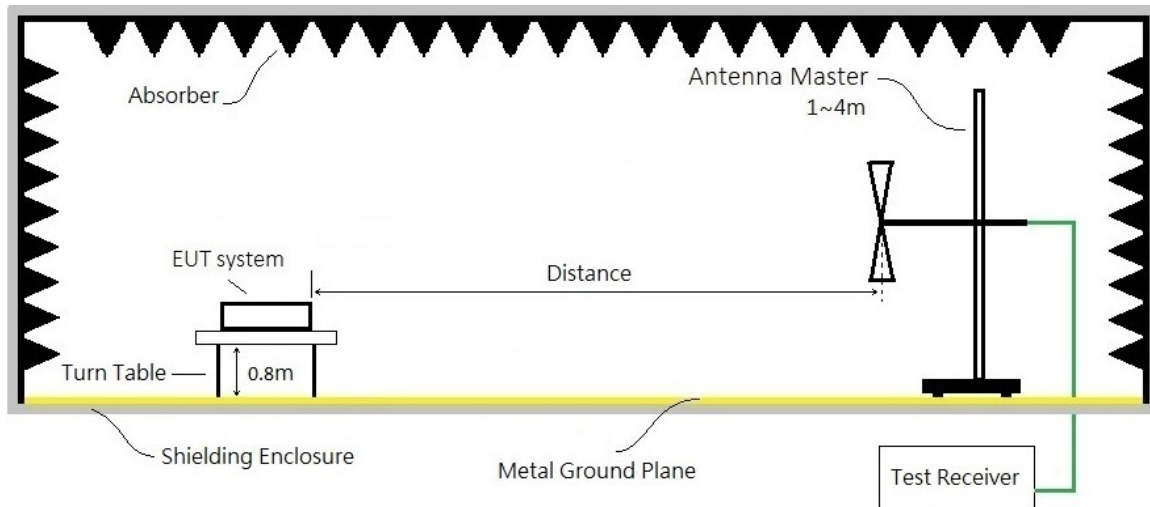
## 6.2. Test Setup

The EUTs and test equipment were configured in accordance with the requirement of EN 62040-2 Annex A.10.

- For frequency range 30 to 1000MHz (at Open Area Test Site)



- For frequency range 30 to 1000MHz (at Semi-Anechoic Chamber)



### 6.3. Applicable Limits

- Limits of radiated emission in the frequency range 30 MHz to 1000 MHz

| Frequency Range (MHz) | Quasi-peak limits dB(μV/m) |                 |                 |
|-----------------------|----------------------------|-----------------|-----------------|
|                       | Category C1 UPS            | Category C2 UPS | Category C3 UPS |
| 30 – 230              | 30                         | 40              | 50              |
| 230 – 1000            | 37                         | 47              | 60              |

The lower limit shall apply at the transition frequency.

NOTE 1 The test distance is 10 m. If the emission measurement at 10 m cannot be made because of high ambient noise levels or for other reasons, measurement may be made at a closer distance, for example, 3 m.

NOTE 2 Additional provisions may be required for cases where interference occurs.

### 6.4. Measurement Procedure

The measurement procedure specified in EN 62040-2 Annex A.10 was performed.

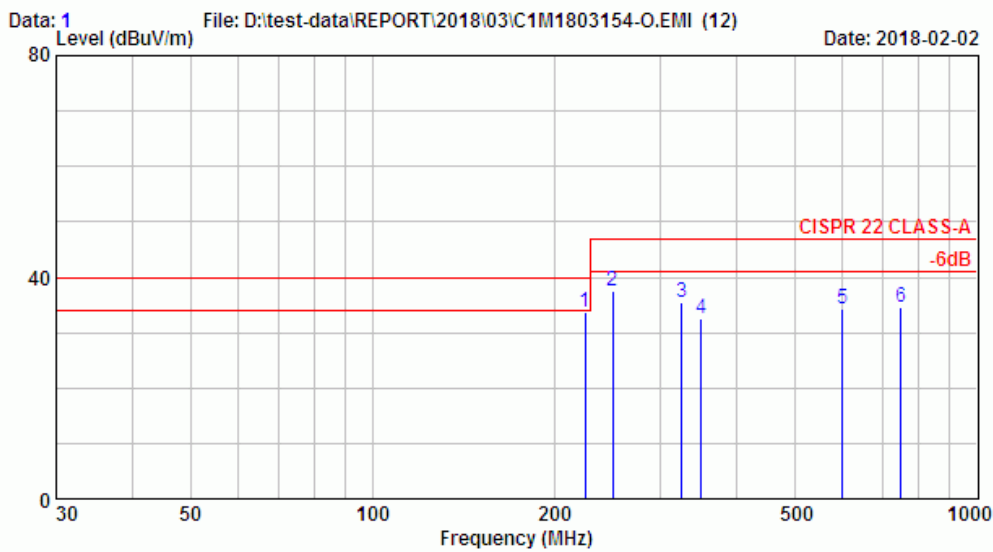
- The EUT and peripherals were placed on the rotatable non-conduction table, which is 0.8meters above the ground reference plane at the semi-anechoic chamber or OATS as described in section 4.1 and 6.2.
- The measurement distance is set as specified in section 6.3. The specified distance is between the horizontal projection onto the ground plane of the closest periphery of the EUT and the projection onto the ground plane of the center of the axis of the elements of the receiving antenna.
- The resolution bandwidth of the test receiver was set as section 6.3 defined.
- For the exploratory measurement, determine the highest emission amplitude relative to the limit on each of antenna polarization with the peak detector by each of the EUT operations over the specified frequency range and record it, and then
- For final measurement, select the EUT operation mode that produced the highest amplitude in the exploratory measurement to determine the highest emissions with each specified detector and record it.
- In order to determine the maximum emission level, must rotate the table in 360 degree and move the receiving antenna between 1~4m height above the ground reference plane.
- Both polarizations of receiving antenna were determined.
- The measurement result was calculated by following formulas:  
(30 – 1000MHz)  
Emission Level = Reading (Receiver) + Cable Loss + Antenna Factor

### 6.5. Measurement Result

The following data are the worst emissions based on the prescan measurement result.

- For frequency range 30 – 1000MHz

|             |               |               |              |
|-------------|---------------|---------------|--------------|
| Test Date   | 2018. 02. 02  | Environment   | 19°C, 63%    |
| Input Power | AC 230V, 50Hz | Ant. Polarity | Horizontal   |
| Tested By   | Joey Tsai     | Test Result   | Pass         |
| Test Mode   | Online Mode   | Test Model    | SMT750RMI2UC |



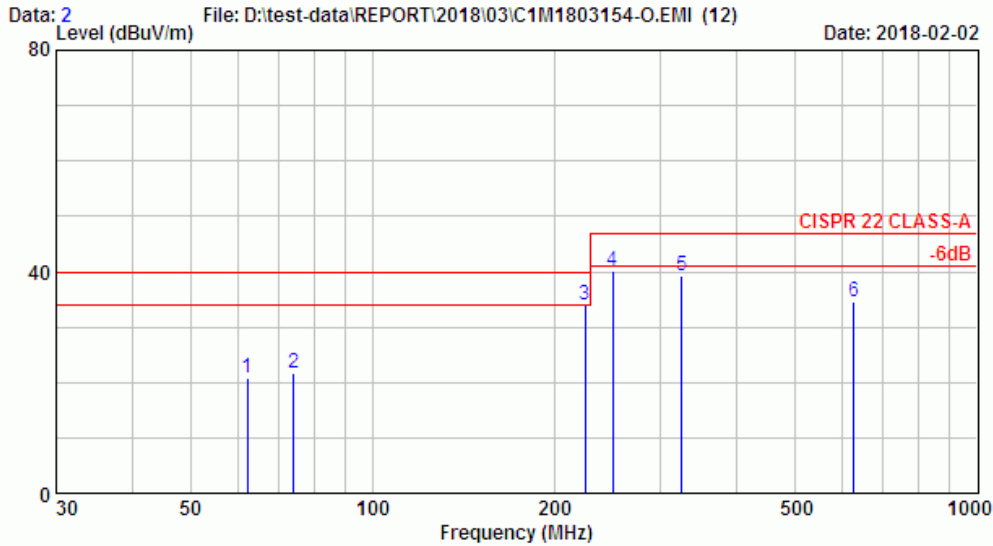
```

Site no.       : OATS No. 6           Data no.      : 1
Dis. / Ant.   : 10m CBL6112B 2818(PAD) Ant. pol.    : HORIZONTAL
Limit        : CISPR 22 CLASS-A
Env. / Ins.   : 19°C / 63% ESCS 30 (339) Engineer   : Joey
EUT M/N      : SMT750RMI2UC
Power Rating  : 230Vac / 50Hz
Test Mode    : Online Mode
    
```

|   | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|--------|
| 1 | 16.77              | 2.26            | 14.60          | 33.63                   | 40.00           | 6.37        | QP     |
| 2 | 18.40              | 2.38            | 16.80          | 37.58                   | 47.00           | 9.42        | QP     |
| 3 | 19.74              | 2.77            | 12.90          | 35.41                   | 47.00           | 11.59       | QP     |
| 4 | 20.46              | 2.89            | 9.30           | 32.66                   | 47.00           | 14.34       | QP     |
| 5 | 24.37              | 3.92            | 6.00           | 34.29                   | 47.00           | 12.71       | QP     |
| 6 | 25.64              | 4.49            | 4.50           | 34.62                   | 47.00           | 12.38       | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.

|             |               |               |              |
|-------------|---------------|---------------|--------------|
| Test Date   | 2018. 02. 02  | Environment   | 19°C, 63%    |
| Input Power | AC 230V, 50Hz | Ant. Polarity | Vertical     |
| Tested By   | Joey Tsai     | Test Result   | Pass         |
| Test Mode   | Online Mode   | Test Model    | SMT750RMI2UC |



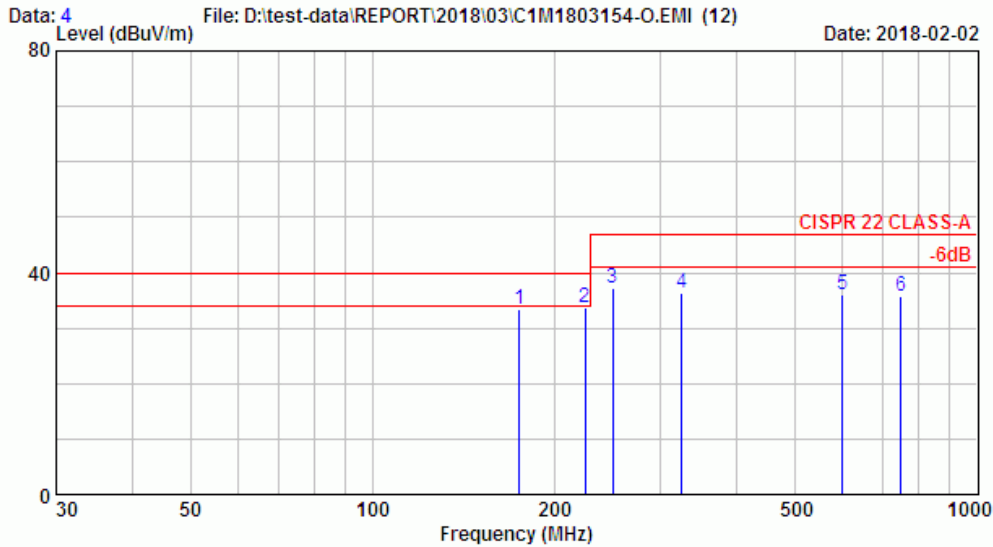
```

Site no.       : OATS No. 6           Data no.   : 2
Dis. / Ant.    : 10m CBL6112B 2818 (PAD) Ant. pol.  : VERTICAL
Limit         : CISPR 22 CLASS-A
Env. / Ins.    : 19°C / 63% ESCS 30 (339) Engineer : Joey
EUT M/N       : SMT750RMI2UC
Power Rating   : 230Vac / 50Hz
Test Mode      : Online Mode
  
```

|   | Freq.<br>(MHz) | Ant. Factor<br>(dB/m) | Cable Loss<br>(dB) | Reading<br>(dB $\mu$ V) | Emission Level<br>(dB $\mu$ V/m) | Limits<br>(dB $\mu$ V/m) | Margin<br>(dB) | Remark |
|---|----------------|-----------------------|--------------------|-------------------------|----------------------------------|--------------------------|----------------|--------|
| 1 | 62.220         | 11.71                 | 1.08               | 8.00                    | 20.79                            | 40.00                    | 19.21          | QP     |
| 2 | 74.010         | 12.90                 | 1.19               | 7.50                    | 21.60                            | 40.00                    | 18.40          | QP     |
| 3 | 224.998        | 16.77                 | 2.26               | 14.90                   | 33.93                            | 40.00                    | 6.07           | QP     |
| 4 | 250.000        | 18.40                 | 2.38               | 19.40                   | 40.18                            | 47.00                    | 6.82           | QP     |
| 5 | 325.012        | 19.74                 | 2.77               | 16.70                   | 39.21                            | 47.00                    | 7.79           | QP     |
| 6 | 624.998        | 24.60                 | 4.02               | 6.10                    | 34.72                            | 47.00                    | 12.28          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.

|             |               |               |              |
|-------------|---------------|---------------|--------------|
| Test Date   | 2018. 02. 02  | Environment   | 19°C, 63%    |
| Input Power | AC 230V, 50Hz | Ant. Polarity | Horizontal   |
| Tested By   | Joey Tsai     | Test Result   | Pass         |
| Test Mode   | Green Mode    | Test Model    | SMT750RMI2UC |



```

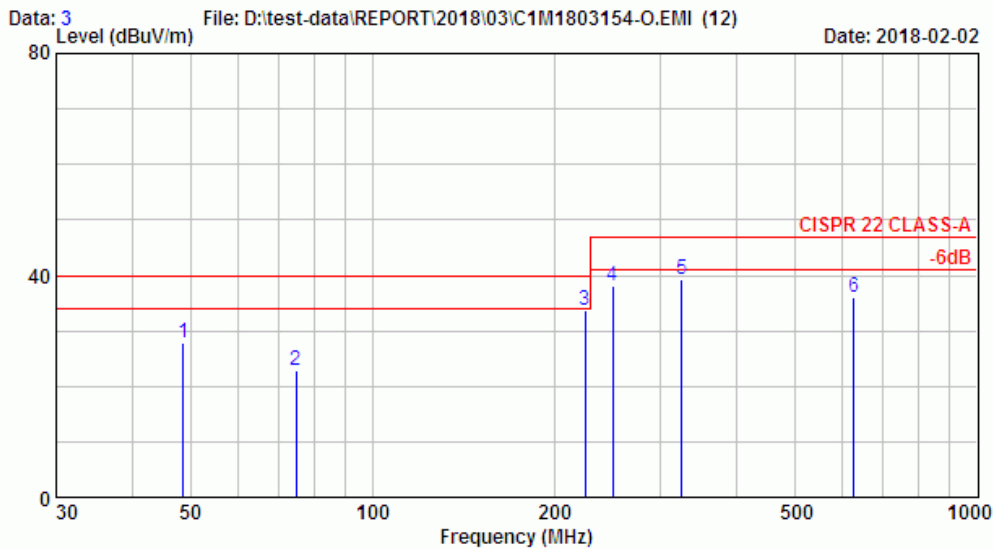
Site no.      : OATS No. 6              Data no.   : 4
Dis. / Ant.  : 10m CBL6112B 2818 (PAD) Ant. pol.  : HORIZONTAL
Limit        : CISPR 22 CLASS-A
Env. / Ins.  : 19°C / 63% ESCS 30 (339) Engineer  : Joey
EUT M/N      : SMT750RMI2UC
Power Rating : 230Vac / 50Hz
Test Mode    : Green Mode
    
```

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBuV) | Emission<br>Level<br>(dBuV/m) | Limits<br>(dBuV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 175.000        | 15.05                    | 1.95                  | 16.50             | 33.49                         | 40.00              | 6.51           | QP     |
| 2 | 225.000        | 16.77                    | 2.26                  | 14.80             | 33.83                         | 40.00              | 6.17           | QP     |
| 3 | 250.010        | 18.40                    | 2.38                  | 16.40             | 37.18                         | 47.00              | 9.82           | QP     |
| 4 | 325.014        | 19.74                    | 2.77                  | 13.80             | 36.31                         | 47.00              | 10.69          | QP     |
| 5 | 600.004        | 24.37                    | 3.92                  | 7.80              | 36.09                         | 47.00              | 10.91          | QP     |
| 6 | 750.000        | 25.64                    | 4.49                  | 5.70              | 35.82                         | 47.00              | 11.18          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.



|             |               |               |              |
|-------------|---------------|---------------|--------------|
| Test Date   | 2018. 02. 02  | Environment   | 19°C, 63%    |
| Input Power | AC 230V, 50Hz | Ant. Polarity | Vertical     |
| Tested By   | Joey Tsai     | Test Result   | Pass         |
| Test Mode   | Green Mode    | Test Model    | SMT750RMI2UC |



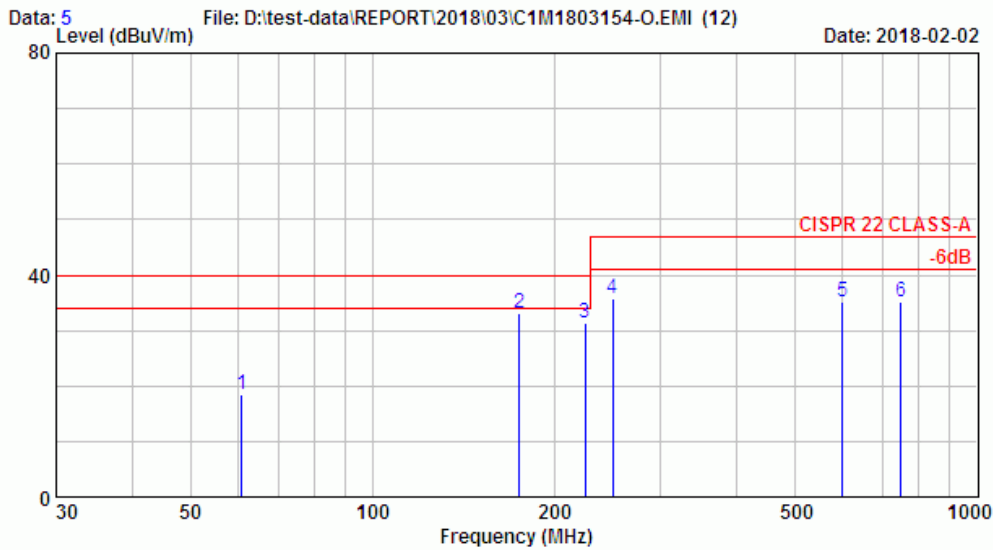
```

Site no.      : OATS No. 6           Data no.   : 3
Dis. / Ant.  : 10m CBL6112B 2818(PAD) Ant. pol.  : VERTICAL
Limit        : CISPR 22 CLASS-A
Env. / Ins.  : 19°C / 63% ESCS 30 (339) Engineer  : Joey
EUT M/N     : SMT750RMI2UC
Power Rating : 230Vac / 50Hz
Test Mode    : Green Mode
    
```

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBµV) | Emission<br>Level<br>(dBµV/m) | Limits<br>(dBµV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 48.630         | 16.08                    | 0.95                  | 10.80             | 27.82                         | 40.00              | 12.18          | QP     |
| 2 | 74.820         | 12.97                    | 1.20                  | 8.60              | 22.77                         | 40.00              | 17.24          | QP     |
| 3 | 224.990        | 16.77                    | 2.26                  | 14.70             | 33.73                         | 40.00              | 6.27           | QP     |
| 4 | 250.006        | 18.40                    | 2.38                  | 17.20             | 37.98                         | 47.00              | 9.02           | QP     |
| 5 | 325.017        | 19.74                    | 2.77                  | 16.70             | 39.21                         | 47.00              | 7.79           | QP     |
| 6 | 625.000        | 24.60                    | 4.02                  | 7.30              | 35.92                         | 47.00              | 11.08          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.

|             |              |               |              |
|-------------|--------------|---------------|--------------|
| Test Date   | 2018. 02. 02 | Environment   | 19°C, 63%    |
| Input Power | DC 24V       | Ant. Polarity | Horizontal   |
| Tested By   | Joey Tsai    | Test Result   | Pass         |
| Test Mode   | Battery Mode | Test Model    | SMT750RMI2UC |



Site no. : OATS No. 6 Data no. : 5  
 Dis. / Ant. : 10m CBL6112B 2818 (PAD) Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-A  
 Env. / Ins. : 19°C / 63% ESCS 30 (339) Engineer : Joey  
 EUT M/N : SMT750RMI2UC  
 Power Rating : DC 24V  
 Test Mode : Battery Mode

|   | Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBμV) | Emission Level (dBμV/m) | Limits (dBμV/m) | Margin (dB) | Remark |
|---|-------------|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|--------|
| 1 | 60.780      | 11.53              | 1.07            | 5.80           | 18.39                   | 40.00           | 21.61       | QP     |
| 2 | 175.005     | 15.05              | 1.95            | 16.00          | 32.99                   | 40.00           | 7.01        | QP     |
| 3 | 225.008     | 16.77              | 2.26            | 12.40          | 31.43                   | 40.00           | 8.57        | QP     |
| 4 | 250.009     | 18.40              | 2.38            | 15.00          | 35.78                   | 47.00           | 11.22       | QP     |
| 5 | 600.007     | 24.37              | 3.92            | 6.90           | 35.19                   | 47.00           | 11.81       | QP     |
| 6 | 750.001     | 25.64              | 4.49            | 5.00           | 35.12                   | 47.00           | 11.88       | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.



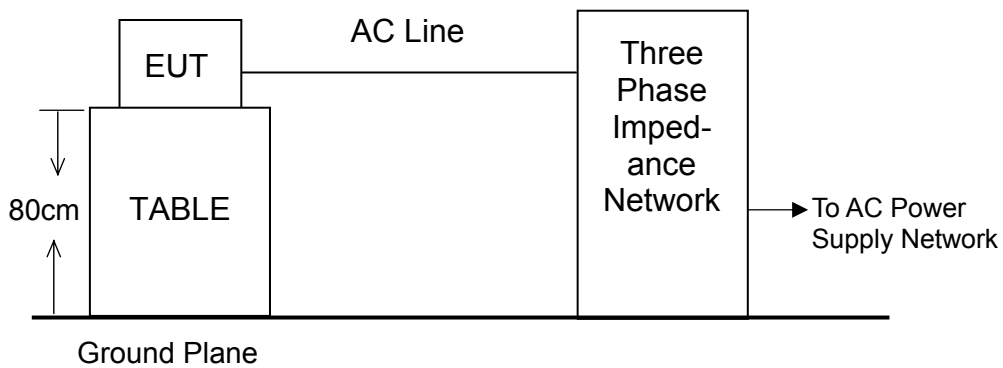
## 7. Measurement of Input Current Harmonics

### 7.1. List of Test Instruments

| Item | Equipment                     | Manufacture | Model No.   | Serial No.          | Cal. Date    | Cal. Interval |
|------|-------------------------------|-------------|-------------|---------------------|--------------|---------------|
| 1    | AC Power Source               | TESEQ       | NSG 1007-45 | 1248A04038          | 2017. 11. 27 | 2 Years       |
| 2    | Signal Conditioning Unit      | TESEQ       | CCN 1000-3  | 1234A03680          | 2017. 11. 27 | 2 Years       |
| 3    | Three Phase Impedance Network | TESEQ       | INA 2197    | 1234A03681          | 2017. 11. 27 | 2 Years       |
| 4    | Proflin AC Switching Unit     | TESEQ       | NSG 2200-3  | EK 22713            | 2017. 11. 28 | 2 Years       |
| 5    | Digital Thermo-Hygro Meter    | iMax        | HTC-1       | No.2 Harmonics Room | 2017. 11. 28 | 1 Years       |

### 7.2. Test Setup

The EUT and test equipment were configured in accordance with the requirement of EN 61000-3-2.



### 7.3. Applicable Standard and Limits

#### Limits for Class A Equipment

Class A is classified according to section 5 of EN 61000-3-2

| Harmonic order<br>n | Maximum permissible<br>harmonic current A |
|---------------------|---|
| Odd Harmonics Only  |   |
| 3                   | 2.30                                      |
| 5                   | 1.14                                      |
| 7                   | 0.77                                      |
| 9                   | 0.40                                      |
| 11                  | 0.33                                      |
| 13                  | 0.21                                      |
| $15 \leq n \leq 39$ | $0.15 \times 15/n$                        |
| Even Harmonics      |   |
| 2                   | 1.08                                      |
| 4                   | 0.43                                      |
| 6                   | 0.30                                      |
| $8 \leq n \leq 40$  | $0.23 \times 8/n$                         |

### 7.4. Measurement Procedure

The measurement procedure specified in EN 61000-3-2 clause 6.2 was used.

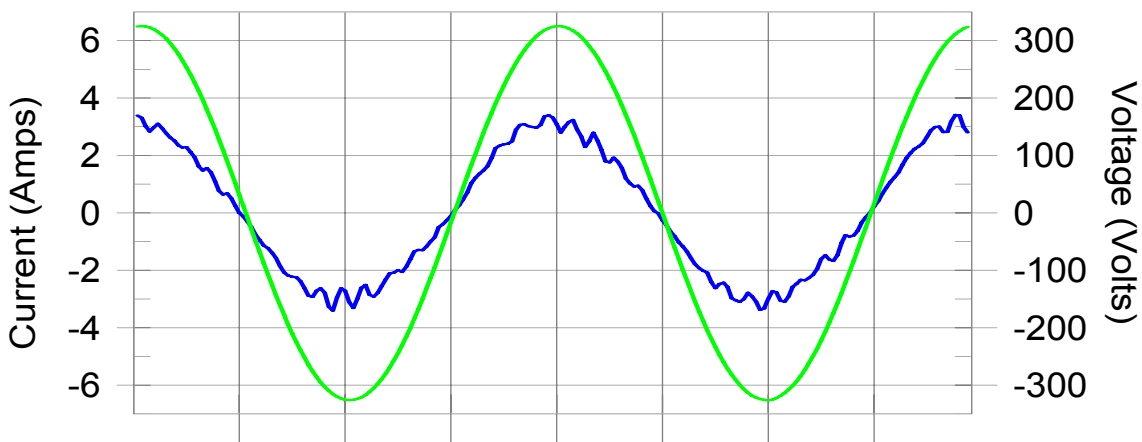
- Setup the EUTs and associated equipment described as clause 4.1.
- The EUT was placed on the top of a wooden table 0.8 meters above the ground and operated to produce the maximum harmonic components under normal operating conditions for each successive harmonic component in turn.
- Apply a 230V/50Hz rated test voltage which shall be maintained within  $\pm 2.0\%$  and the frequency within  $\pm 0.5\%$  of the nominal value to EUT.
- Let EUT work as stated and through three phase impedance network to measure the EUT to get the harmonic current for Odd & Even harmonics up to 40th.

### 7.5. Measurement Result

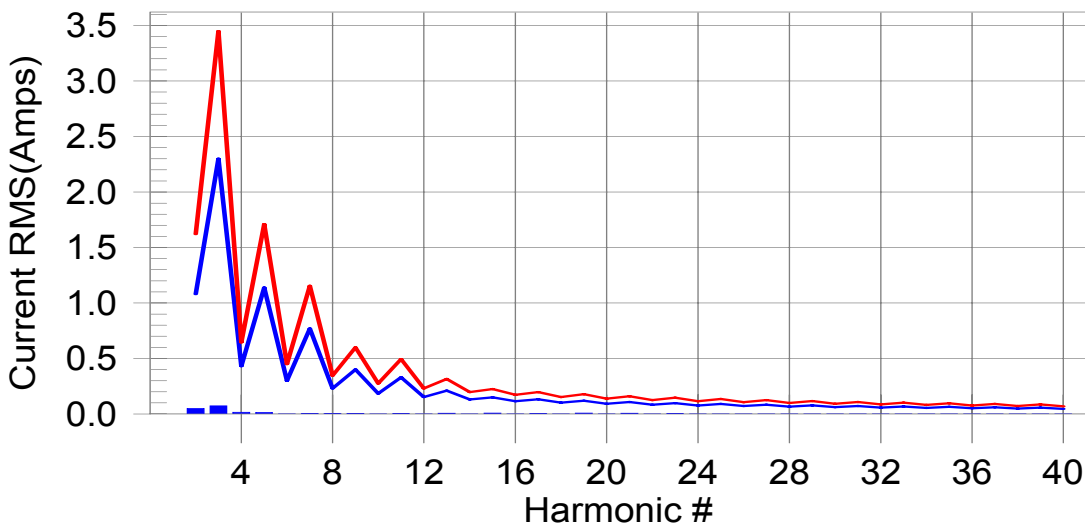
|             |                         |             |                |
|-------------|-------------------------|-------------|----------------|
| Test Date   | 2018. 03. 22            | Environment | 25°C, 55%      |
| Input Power | AC 230V, 50Hz           | Test Result | Pass (Class A) |
| Tested By   | Jacky Chen              | Test Model  | SMT750RMI2UC   |
| Test Mode   | Online Mode (Load 500W) |             |                |

Test Result: Pass      Source qualification: Normal

Current & voltage waveforms



Harmonics and Class A limit line      European Limits



Test result: Pass      Worst harmonic was #15 with 5.0% of the limit.

Test Result: Pass                      Source qualification: Normal  
 THC(A): 0.093                      I-THD(%): 4.4                      POHC(A): 0.007                      POHC Limit(A): 0.251

Highest parameter values during test:

|                |         |                |       |
|----------------|---------|----------------|-------|
| V_RMS (Volts): | 230.264 | Frequency(Hz): | 50.00 |
| I_Peak (Amps): | 3.598   | I_RMS (Amps):  | 2.198 |
| I_Fund (Amps): | 2.175   | Crest Factor:  | 1.675 |
| Power (Watts): | 502.6   | Power Factor:  | 0.994 |

| Harm# | Harms(avg) | 100%Limit | %of Limit | Harms(max) | 150%Limit | %of Limit | Status |
|-------|------------|-----------|-----------|------------|-----------|-----------|--------|
| 2     | 0.050      | 1.080     | 4.7       | 0.053      | 1.620     | 3.3       | Pass   |
| 3     | 0.073      | 2.300     | 3.2       | 0.075      | 3.450     | 2.2       | Pass   |
| 4     | 0.016      | 0.430     | 3.7       | 0.017      | 0.645     | 2.7       | Pass   |
| 5     | 0.014      | 1.140     | 1.3       | 0.015      | 1.710     | 0.9       | Pass   |
| 6     | 0.002      | 0.300     | N/A       | 0.003      | 0.450     | N/A       | Pass   |
| 7     | 0.004      | 0.770     | N/A       | 0.005      | 1.155     | N/A       | Pass   |
| 8     | 0.003      | 0.230     | N/A       | 0.004      | 0.345     | N/A       | Pass   |
| 9     | 0.003      | 0.400     | N/A       | 0.007      | 0.600     | N/A       | Pass   |
| 10    | 0.001      | 0.184     | N/A       | 0.003      | 0.276     | N/A       | Pass   |
| 11    | 0.002      | 0.330     | N/A       | 0.004      | 0.495     | N/A       | Pass   |
| 12    | 0.001      | 0.153     | N/A       | 0.002      | 0.230     | N/A       | Pass   |
| 13    | 0.007      | 0.210     | 3.3       | 0.009      | 0.315     | 2.9       | Pass   |
| 14    | 0.001      | 0.131     | N/A       | 0.002      | 0.197     | N/A       | Pass   |
| 15    | 0.008      | 0.150     | 5.1       | 0.011      | 0.225     | 5.0       | Pass   |
| 16    | 0.001      | 0.115     | N/A       | 0.002      | 0.173     | N/A       | Pass   |
| 17    | 0.003      | 0.132     | N/A       | 0.005      | 0.198     | N/A       | Pass   |
| 18    | 0.001      | 0.102     | N/A       | 0.002      | 0.153     | N/A       | Pass   |
| 19    | 0.007      | 0.118     | 6.2       | 0.008      | 0.178     | 4.7       | Pass   |
| 20    | 0.002      | 0.092     | N/A       | 0.003      | 0.138     | N/A       | Pass   |
| 21    | 0.007      | 0.107     | 6.3       | 0.008      | 0.161     | 5.0       | Pass   |
| 22    | 0.002      | 0.084     | N/A       | 0.003      | 0.125     | N/A       | Pass   |
| 23    | 0.002      | 0.098     | N/A       | 0.003      | 0.147     | N/A       | Pass   |
| 24    | 0.001      | 0.077     | N/A       | 0.001      | 0.115     | N/A       | Pass   |
| 25    | 0.002      | 0.090     | N/A       | 0.002      | 0.135     | N/A       | Pass   |
| 26    | 0.001      | 0.071     | N/A       | 0.001      | 0.107     | N/A       | Pass   |
| 27    | 0.001      | 0.083     | N/A       | 0.002      | 0.125     | N/A       | Pass   |
| 28    | 0.001      | 0.066     | N/A       | 0.001      | 0.099     | N/A       | Pass   |
| 29    | 0.001      | 0.078     | N/A       | 0.002      | 0.116     | N/A       | Pass   |
| 30    | 0.001      | 0.061     | N/A       | 0.001      | 0.092     | N/A       | Pass   |
| 31    | 0.001      | 0.073     | N/A       | 0.001      | 0.109     | N/A       | Pass   |
| 32    | 0.001      | 0.058     | N/A       | 0.001      | 0.086     | N/A       | Pass   |
| 33    | 0.001      | 0.068     | N/A       | 0.002      | 0.102     | N/A       | Pass   |
| 34    | 0.001      | 0.054     | N/A       | 0.001      | 0.081     | N/A       | Pass   |
| 35    | 0.001      | 0.064     | N/A       | 0.001      | 0.096     | N/A       | Pass   |
| 36    | 0.002      | 0.051     | N/A       | 0.002      | 0.077     | N/A       | Pass   |
| 37    | 0.001      | 0.061     | N/A       | 0.002      | 0.091     | N/A       | Pass   |
| 38    | 0.002      | 0.048     | N/A       | 0.002      | 0.073     | N/A       | Pass   |
| 39    | 0.001      | 0.058     | N/A       | 0.001      | 0.087     | N/A       | Pass   |
| 40    | 0.001      | 0.046     | N/A       | 0.001      | 0.069     | N/A       | Pass   |

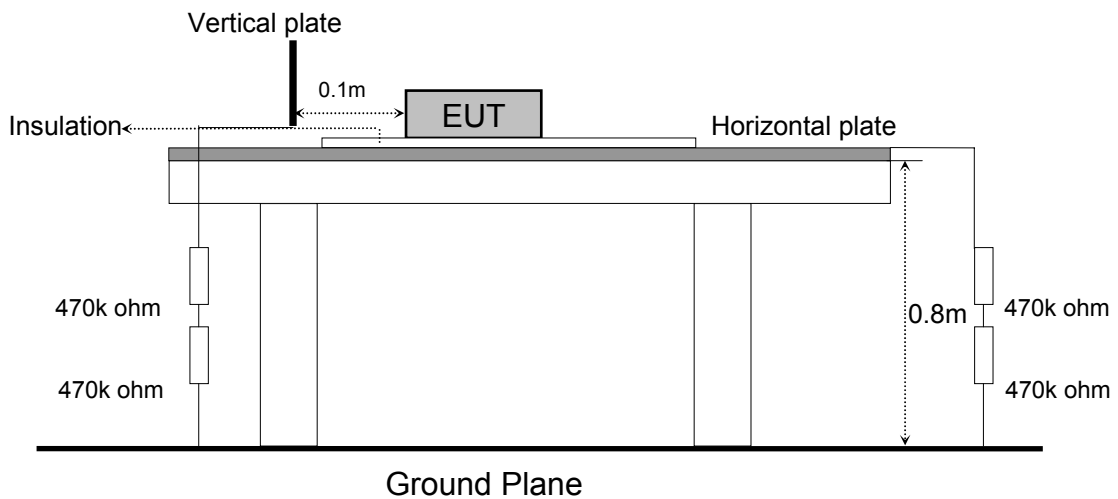
## 8. Electrostatic Discharge Immunity Test

### 8.1. List of Test Instruments

| Item | Equipment                          | Manufacture | Model No. | Serial No.  | Cal. Date    | Cal. Interval |
|------|------------------------------------|-------------|-----------|-------------|--------------|---------------|
| 1    | ESD Simulator                      | EM TEST     | dito      | V0503100055 | 2017. 04. 26 | 1 Year        |
| 2    | Digital Thermo-Hygrometer/Pressure | CUSTOM      | WF-301    | 01780       | 2017. 10. 20 | 1 Year        |

### 8.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-2.



### 8.3. Applicable Standard and Test Specification

- Immunity requirement is in accordance with EN 62040-2 clause 7.3.3  
 Test specification is in accordance with EN 62040-2 Table 6, Category C2 and C3  
 Basic standard is in accordance with IEC 61000-4-2

| Test Specification        |                     | Performance Criterion |
|---------------------------|---------------------|-----------------------|
| Contact Discharge Voltage | ±2kV and ±4kV       | B                     |
| Air Discharge Voltage     | ±2kV, ±4kV and ±8kV |                       |

- Deviation from applicable standard  
 No deviation



## 8.4. Measurement Procedure

The measurement procedure specified in IEC 61000-4-2 clause 8.3.1 and A.5 was used.

- Setup the EUTs and associated equipment described as clause 4.1.
- Air Discharge

This test is done on a non-conductive surfaces. The round discharge tip of the discharge electrode shall be approached as fast as possible to touch the EUT. After each discharge, the ESD generator discharge electrode shall be removed from the EUT. The generator is then retriggered for a new single discharge and repeated 10 discharges each at positive and negative polarity for each preselected test point. This procedure shall be repeated until all the air discharge completed.
- Contact Discharge

All the procedure is same as foregoing subclause. except that the tip of the discharge electrode shall touch the EUT conductive surfaces & repeated 25 discharges each discharges each at positive and negative polarity for each test point before the discharge switch is operated.
- Indirect discharge for horizontal coupling plane

At least 25 discharges each at positive and negative polarity shall be applied to the horizontal coupling plane, at points on each side of the EUT. The ESD generator positions vertically at a distance of 0.1m from the EUT and with the discharge electrode touching the coupling plane.
- Indirect discharge for vertical coupling plane

At least 25 discharges each at positive and negative polarity shall be applied to the center of one vertical edge of the coupling plane. The coupling plane, of dimensions 0.5m x 0.5m, is placed parallel to, and positioned at a distance of 0.1m from the EUT. Discharges shall be applied to the coupling plane, with this plane in sufficient different positions that the four faces of the EUT are completely illuminated.
- For above tests, the voltage was increased from the minimum to the selected test level.

### 8.5. Test Result

|             |                         |             |                     |
|-------------|-------------------------|-------------|---------------------|
| Test Date   | 2018. 03. 22            | Environment | 22°C, 53%,<br>99KPa |
| Input Power | AC 230V, 50Hz           | Test Result | Pass                |
| Tested By   | Minxiang Yang           | Test Model  | SMT750RMI2UC        |
| Test Mode   | Online Mode (Load 500W) |             |                     |

| <b>Air Discharge</b>          | <b>Voltage kV Level / Discharge per polarity 10 / Result</b> |    |    |    |    |    |  |  |  |  |          |
|-------------------------------|--|----|----|----|----|----|--|--|--|--|----------|
| Test Location                 | +2   | -2 | +4 | -4 | +8 | -8 |  |  |  |  | Comments |
| Button*5(1~5)                 | ND   | ND | ND | ND | ND | ND |  |  |  |  |          |
| LED*4(6~9)                    | ND   | ND | ND | ND | ND | ND |  |  |  |  |          |
| USB*2(10~11)                  | ND   | ND | ND | ND | A  | A  |  |  |  |  |          |
| Universal I/O*2<br>(12~13)    | ND   | ND | ND | ND | A  | A  |  |  |  |  |          |
| AC IN(14)                     | ND   | ND | ND | ND | ND | ND |  |  |  |  |          |
| AC Output*4(15~18)            | ND   | ND | ND | ND | ND | ND |  |  |  |  |          |
| <b>Contact Discharge</b>      | <b>Voltage kV Level / Discharge per polarity 25 / Result</b> |    |    |    |    |    |  |  |  |  |          |
| Test Location                 | +2   | -2 | +4 | -4 |    |    |  |  |  |  | Comments |
| Screws*8(19~26)               | A  | A  | A  | A  |    |    |  |  |  |  |          |
| LAN(27)                       | A  | A  | A  | A  |    |    |  |  |  |  |          |
| SERIAL(28)                    | A  | A  | A  | A  |    |    |  |  |  |  |          |
| USB(29)                       | A  | A  | A  | A  |    |    |  |  |  |  |          |
| Metal*6(30~35)                | A  | A  | A  | A  |    |    |  |  |  |  |          |
| Over load Protector<br>(36)   | A  | A  | A  | A  |    |    |  |  |  |  |          |
| LAN(37)                       | A  | A  | A  | A  |    |    |  |  |  |  |          |
| <b>Indirect Contact</b>       | <b>Voltage kV Level / Discharge per polarity 25 / Result</b> |    |    |    |    |    |  |  |  |  |          |
| Test Location                 | +2   | -2 | +4 | -4 |    |    |  |  |  |  | Comments |
| VCP Front                     | A  | A  | A  | A  |    |    |  |  |  |  |          |
| VCP Right                     | A  | A  | A  | A  |    |    |  |  |  |  |          |
| VCP Left                      | A  | A  | A  | A  |    |    |  |  |  |  |          |
| VCP Back                      | A  | A  | A  | A  |    |    |  |  |  |  |          |
| HCP Bottom                    | A  | A  | A  | A  |    |    |  |  |  |  |          |
| <b>Additional Notes</b>       |  |    |    |    |    |    |  |  |  |  |          |
| <b>Measurement Points</b>     | <b>Please refer to the Photos of ESD Test Points</b>         |    |    |    |    |    |  |  |  |  |          |
| ND = No discharge after test. |  |    |    |    |    |    |  |  |  |  |          |

## 9. Radiated, Radio-frequency, Electromagnetic Field Immunity Test

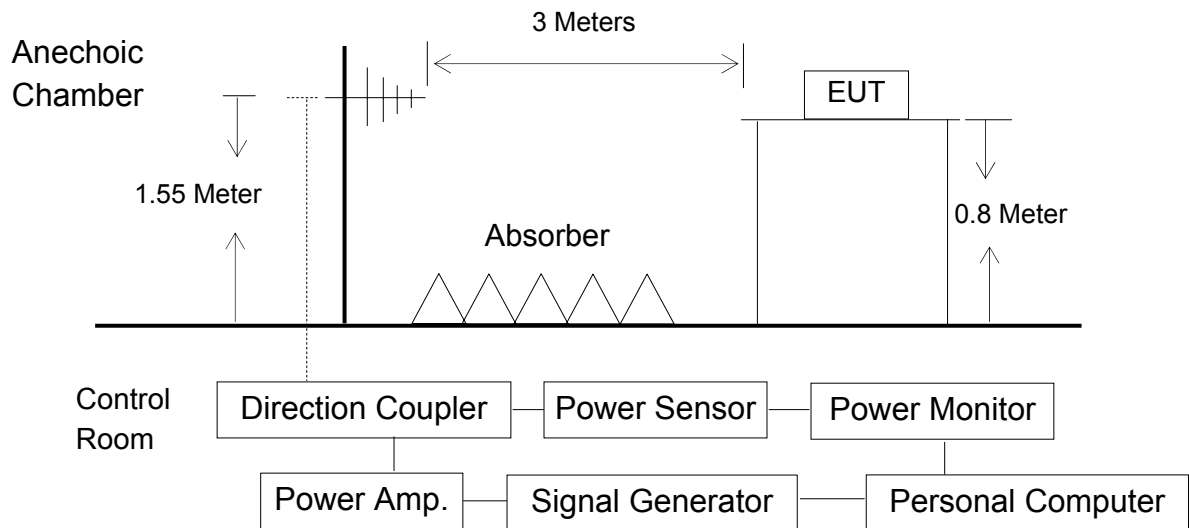
### 9.1. List of Test Instruments

- For 80MHz - 1000MHz frequency range

| Item | Equipment                             | Manufacture | Model No. | Serial No. | Cal. Date    | Cal. Interval |
|------|---------------------------------------|-------------|-----------|------------|--------------|---------------|
| 1    | Signal Generator                      | R&S         | SML03     | 103251     | 2017. 12. 16 | 1 Year        |
| 2    | Power Amplifier                       | A/R         | 250W1000A | 0329092    | NCR          | NCR           |
| 3    | Dual channel EPM-P series power meter | Agilent     | E4417A    | GB41291797 | 2018. 01. 10 | 1 Year        |
| 4    | Power Antenna                         | A/R         | AT1080    | 13002      | NCR          | NCR           |
| 5    | Peak and Average Power Sensor         | Keysight    | E9327A    | MY56140003 | 2017. 10. 25 | 1 Year        |
| 6    | Digital Thermo-Hygro Meter            | YICHUN      | TFC-9606  | RS Room    | 2017. 04. 21 | 1 Years       |

### 9.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-3.



### 9.3. Applicable Standard and Test Specification

- Immunity requirement is in accordance with EN 62040-2 clause 7.3.3  
 Test specification is in accordance with EN 62040-2 Table 6, Category C2 and C3  
 Basic standard is in accordance with IEC 61000-4-3

| Test Specification (Test Level) |              | Performance Criteria |
|---------------------------------|--------------|----------------------|
| Frequency Range                 | 80-1000MHz   | A                    |
| Field Strength                  | 10V/m        |                      |
| Modulation & Signal             | 80%, 1kHz AM |                      |

- Deviation from applicable standard  
 No deviation

### 9.4. Measurement Procedure

The measurement procedure specified in IEC 61000-4-3 clause 8 was used.

- Setup the EUTs and associated equipment described as clause 4.1.
- The EUT was placed on a non-conductive table 0.8 meter above the ground, the EUT and its simulators on the turn table and keep them 3 meters away from the transmitting antenna which is mounted on an antenna tower and fixes at 1.55 meter height.
- The test was performed with the EUT exposed to both horizontally and vertically polarized fields on each of the four sides.
- All the scanning conditions are as follows:
  - Field Strength: 10 V/m (r.m.s, Unmodulated)
  - Scanning Frequency: 80-1000MHz
  - Amplitude Modulated: AM 1kHz, 80%
  - Step Size: 1% increments
  - The Rate of Sweep: 0.0015 decade/s
  - Dwell Time: 3 sec.
  - Test Position Angle: 0°, 90°, 180° and 270°
  - Polarity of Antenna: H: Horizontal, V: Vertical

### 9.5. Test Result

|             |                         |             |              |
|-------------|-------------------------|-------------|--------------|
| Test Date   | 2018. 03. 21            | Environment | 20°C, 38%    |
| Input Power | AC 230V, 50Hz           | Test Result | Pass         |
| Tested By   | Jason Chou              | Test Model  | SMT750RMI2UC |
| Test Mode   | Online Mode (Load 500W) |             |              |

| Frequency Range (MHz) | Position Angle (°) | Polarity (H or V) | Field Strength (V/m) | Observation Criterion |
|-----------------------|--------------------|-------------------|----------------------|-----------------------|
| 80 - 1000             | 0                  | H                 | 10V/m +Modulated     | A                     |
| 80 - 1000             | 90                 | H                 | 10V/m +Modulated     | A                     |
| 80 - 1000             | 180                | H                 | 10V/m +Modulated     | A                     |
| 80 - 1000             | 270                | H                 | 10V/m +Modulated     | A                     |
| 80 - 1000             | 0                  | V                 | 10V/m +Modulated     | A                     |
| 80 - 1000             | 90                 | V                 | 10V/m +Modulated     | A                     |
| 80 - 1000             | 180                | V                 | 10V/m +Modulated     | A                     |
| 80 - 1000             | 270                | V                 | 10V/m +Modulated     | A                     |

Remark 1: Modulation Signal: 1kHz 80% AM.  
 Remark 2: No error occurred.

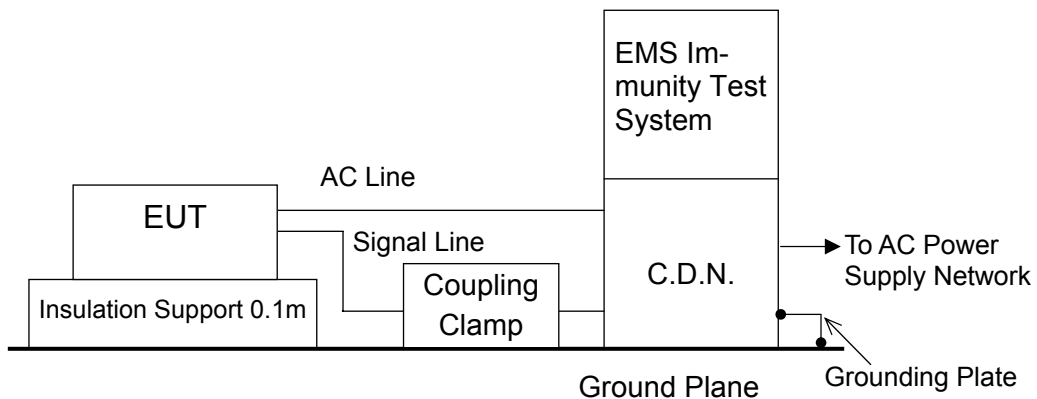
## 10. Electrical fast transient/burst Immunity Test

### 10.1. List of Test Instruments

| Item | Equipment                          | Manufacture | Model No. | Serial No.     | Cal. Date    | Cal. Interval |
|------|------------------------------------|-------------|-----------|----------------|--------------|---------------|
| 1    | EMS Immunity Test System           | TESEQ       | NSG 3060  | 1519           | 2017. 07. 21 | 1 Year        |
| 2    | C.D.N.                             | TESEQ       | CDN 3063  | 2074           | 2017. 07. 21 | 1 Year        |
| 3    | Burst/EFT Data-line Coupling Clamp | TESEQ       | CDN 3425  | 1717           | 2017. 07. 21 | 1 Year        |
| 4    | Digital Thermo-Hygro Meter         | iMax        | HTC-1     | No.2 EFT/SURGE | 2017. 04. 21 | 1 Years       |

### 10.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-4.



### 10.3.Applicable Standard and Test Specification

- Immunity requirement is in accordance with EN 62040-2 clause 7.3.3  
 Test specification is in accordance with EN 62040-2 Table 6, Category C2 and C3  
 Basic standard is in accordance with IEC 61000-4-4

| Test Specification (Test Level)   | Performance Criteria |
|---|----------------------|
| Signal and control ports : ±2kV<br>AC input and output power ports : ±2kV | B                    |
| Tr/Th : 5/50ns  |                      |
| Repetition frequency : 5kHz   |                      |

- Deviation from applicable standard  
 No deviation

### 10.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-4 clause 8 was used.

- Setup the EUTs and associated equipment described as clause 4.1.
- The EUT and its simulators was placed 0.1m high above the ground reference plane which was a min. 1m\*1m metallic sheet with 0.65mm minimum thickness.
- This reference ground plane is project beyond the EUT by at least 0.1m on all sides and the minimum distance between EUT and all other conductive structure, except the ground plane beneath the EUT, shall be more than 0.5m.
- For input and output AC power ports  
 The EUT was connected to the power mains by using a coupling device which couples the EFT interference signal to AC power lines, and the length of the power line between the coupling device and the EUT shall be 0.5m or less. Both polarities of the test voltage should be applied during compliance test and the duration of the test can't less than 1min.
- For signal lines and control lines ports  
 The I/O interface cable of the EUT is connected to its simulator through a capacitive coupling clamp that is 1 meter long. The capacitive coupling clamp is impressed with burst noise for 1min and indirectly couples burst to I/O interface cable.  
 [Remark: Applicable only to cables which according to the manufacturer's specification supports communication on cable lengths greater than 3 m.]
- For DC input and DC output power ports  
 The DC power cable of the EUT is connected to the DC power source by using a coupling device which couples the EFT interference signal to DC power lines. Both polarities of the test voltage should be applied during compliance test and the duration of the test can't less than 2min  
 [Remark: Applicable only to DC power ports when the EUT supports this ports.]

## 10.5. Test Result

|             |                         |             |              |
|-------------|-------------------------|-------------|--------------|
| Test Date   | 2018. 03. 22            | Environment | 23°C, 49%    |
| Input Power | AC 230V, 50Hz           | Test Result | Pass         |
| Tested By   | Rex Wang                | Test Model  | SMT750RMI2UC |
| Test Mode   | Online Mode (Load 500W) |             |              |

| Input AC Power Port        |                |                        |                 |               |                       |
|----------------------------|----------------|------------------------|-----------------|---------------|-----------------------|
| Inject Line                | Polarity (+/-) | Test Voltage Peak (kV) | Inject Time (s) | Inject Method | Observation Criterion |
| L                          | +              | 0.5, 1, 2              | 60              | Direct        | A                     |
| L                          | -              | 0.5, 1, 2              | 60              | Direct        | A                     |
| N                          | +              | 0.5, 1, 2              | 60              | Direct        | A                     |
| N                          | -              | 0.5, 1, 2              | 60              | Direct        | A                     |
| PE                         | +              | 0.5, 1, 2              | 60              | Direct        | A                     |
| PE                         | -              | 0.5, 1, 2              | 60              | Direct        | A                     |
| L, N, PE                   | +              | 0.5, 1, 2              | 60              | Direct        | A                     |
| L, N, PE                   | -              | 0.5, 1, 2              | 60              | Direct        | A                     |
| I/O Interface Cable        |                |                        |                 |               |                       |
| LAN                        | +              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| LAN                        | -              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| USB                        | +              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| USB                        | -              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| Universal I/O              | +              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| Universal I/O              | -              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| AC Out                     | +              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| AC Out                     | -              | 0.5, 1, 2              | 60              | Clamp         | A                     |
| Remark: No error occurred. |                |                        |                 |               |                       |



# 11. Surge Immunity Test

## 11.1. List of Test Instruments

- For AC Input and Output Power Port

| Item | Equipment                   | Manufacture | Model No. | Serial No.     | Cal. Date    | Cal. Interval |
|------|-----------------------------|-------------|-----------|----------------|--------------|---------------|
| 1    | EMS Immunity Test System    | TESEQ       | NSG 3060  | 1519           | 2017. 07. 21 | 1 Year        |
| 2    | CDN                         | TESEQ       | CDN 3063  | 2074           | 2017. 07. 21 | 1 Year        |
| 3    | Digital Ther-mo-Hygro Meter | iMax        | HTC-1     | No.2 EFT/SURGE | 2017. 04. 21 | 1 Years       |

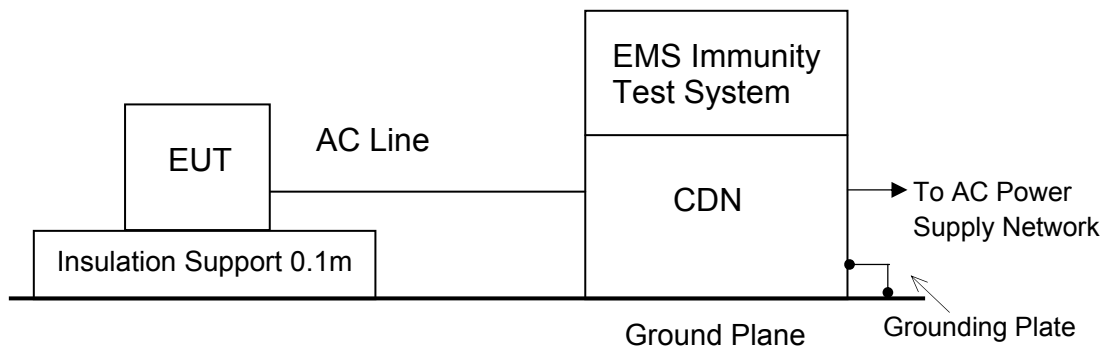
- For Signal and Control Ports

| Item | Equipment                | Manufacture | Model No. | Serial No. | Cal. Date    | Cal. Interval |
|------|--------------------------|-------------|-----------|------------|--------------|---------------|
| 1    | EMS Immunity Test System | TESEQ       | NSG 3060  | 1535       | 2017. 07. 21 | 1 Year        |
| 2    | C.D.N.                   | TESEQ       | INA 180   | 32516      | NCR          | NCR           |
| 3    | C.D.N.                   | TESEQ       | INA 180   | 32519      | NCR          | NCR           |
| 4    | C.D.N.                   | TESEQ       | CDN 118   | 33884      | NCR          | NCR           |
| 5    | C.D.N.                   | TESEQ       | CDN 118   | 34745      | NCR          | NCR           |

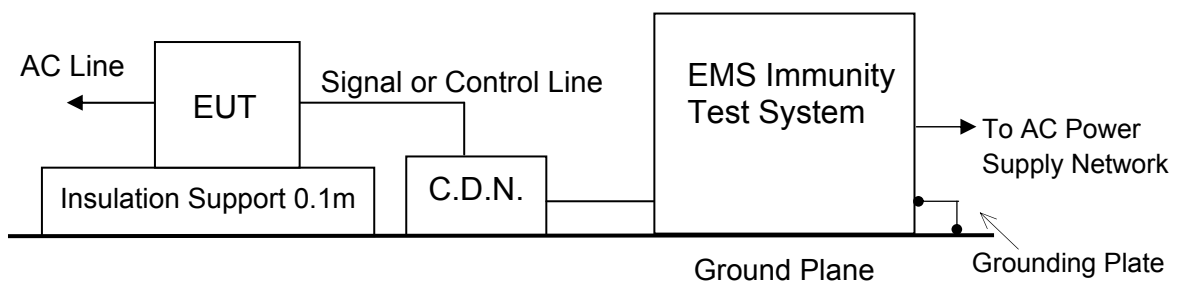
## 11.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-5.

- For AC Input and Output Power Port



- For Signal and Control Ports



### 11.3.Applicable Standard and Test Specification

- Immunity requirement is in accordance with EN 62040-2 clause 7.3.3  
 Test specification is in accordance with EN 62040-2 Table 6, Category C2 and C3  
 Basic standard is in accordance with IEC 61000-4-5

| Test Specification (Test Level)  | Performance Criteria |
|--|----------------------|
| Signal and control ports : ±1kV  | B                    |
| AC input and output power ports<br>--line to line : ±1kV<br>--line to earth: ±2kV      | B                    |
| Power port: 1.2/50 (8/20) Tr/Th µs<br>Signal and control ports: 1.2/50 (8/20) Tr/Th µs |                      |

- Deviation from applicable standard  
 No deviation

### 11.4.Measurement Procedure

#### For Input and Output AC Power Port

The measurement procedure specified in IEC 61000-4-5 clause 8 was used.

- Setup the EUTs and associated equipment described as clause 4.1.
- For line to line coupling mode, provided a 0.5/1kV 1.2/50 µs current surge (at open-circuit condition) and 8/20 µs current surge to EUT selected points.
- At least 5 positive and 5 negative (polarity) tests with a maximum 1/min repetition rate.
- Different phase angles (at 0°, 90°, 180° and 270°) were done individually.
- Repeat above procedure except the open-circuit test voltages 0.5kV/1kV/2kV for line to earth coupling mode test.

#### For Telecommunication Port

- Setup the EUTs and associated equipment described as clause 4.1.
- For On Line mode: The waveform is an open-circuit voltage front time of 1.2 µs, and an open-circuit voltage time to half value of 50 µs.
- In the case of shielded line, the surge is applied to direct application.

## 11.5. Test Result

|             |                         |             |              |
|-------------|-------------------------|-------------|--------------|
| Test Date   | 2018. 03. 22            | Environment | 23°C, 49%    |
| Input Power | AC 230V, 50Hz           | Test Result | Pass         |
| Tested By   | Rex Wang                | Test Model  | SMT750RMI2UC |
| Test Mode   | Online Mode (Load 500W) |             |              |

| Input AC Power Port, Open Circuit Voltage |                |                 |                        |             |                       |
|---|----------------|-----------------|------------------------|-------------|-----------------------|
| Location                                  | Polarity (+/-) | Phase Angle (°) | Test Voltage Peak (kV) | No of Pulse | Observation Criterion |
| L-N                                       | +              | 0               | 0.5, 1                 | 5           | A                     |
|   | +              | 90              | 0.5, 1                 | 5           | A                     |
|   | +              | 180             | 0.5, 1                 | 5           | A                     |
|   | +              | 270             | 0.5, 1                 | 5           | A                     |
|   | -              | 0               | 0.5, 1                 | 5           | A                     |
|   | -              | 90              | 0.5, 1                 | 5           | A                     |
|   | -              | 180             | 0.5, 1                 | 5           | A                     |
|   | -              | 270             | 0.5, 1                 | 5           | A                     |
| L-PE                                      | +              | 0               | 0.5, 1, 2              | 5           | A                     |
|   | +              | 90              | 0.5, 1, 2              | 5           | A                     |
|   | +              | 180             | 0.5, 1, 2              | 5           | A                     |
|   | +              | 270             | 0.5, 1, 2              | 5           | A                     |
|   | -              | 0               | 0.5, 1, 2              | 5           | A                     |
|   | -              | 90              | 0.5, 1, 2              | 5           | A                     |
|   | -              | 180             | 0.5, 1, 2              | 5           | A                     |
|   | -              | 270             | 0.5, 1, 2              | 5           | A                     |
| N-PE                                      | +              | 0               | 0.5, 1, 2              | 5           | A                     |
|   | +              | 90              | 0.5, 1, 2              | 5           | A                     |
|   | +              | 180             | 0.5, 1, 2              | 5           | A                     |
|   | +              | 270             | 0.5, 1, 2              | 5           | A                     |
|   | -              | 0               | 0.5, 1, 2              | 5           | A                     |
|   | -              | 90              | 0.5, 1, 2              | 5           | A                     |
|   | -              | 180             | 0.5, 1, 2              | 5           | A                     |
|   | -              | 270             | 0.5, 1, 2              | 5           | A                     |
| Remark: No error occurred.                |                |                 |                        |             |                       |

|             |                         |             |              |
|-------------|-------------------------|-------------|--------------|
| Test Date   | 2018. 03. 22            | Environment | 23°C, 49%    |
| Input Power | AC 230V, 50Hz           | Test Result | Pass         |
| Tested By   | Rex Wang                | Test Model  | SMT750RMI2UC |
| Test Mode   | Online Mode (Load 500W) |             |              |

| Telecommunication Port   |                |                    |                        |             |                       |
|--|----------------|--------------------|------------------------|-------------|-----------------------|
| Location   | Polarity (+/-) | Line               | Test Voltage Peak (kV) | No of Pulse | Observation Criterion |
| RJ45-LAN   | +              | Line to Line Mode  | 0.5, 1                 | 5           | A                     |
|  | -              |                    | 0.5, 1                 | 5           | A                     |
|  | +              | Line to Earth Mode | 0.5, 1                 | 5           | A                     |
|  | -              |                    | 0.5, 1                 | 5           | A                     |
| Remark: No error occurred.<br>waveform: 1.2/50 (8/20) Tr/Th μs. (On Line Test) |                |                    |                        |             |                       |

## 12. Immunity to Conducted Disturbances, Induced by Radio-Frequency Field Immunity Test

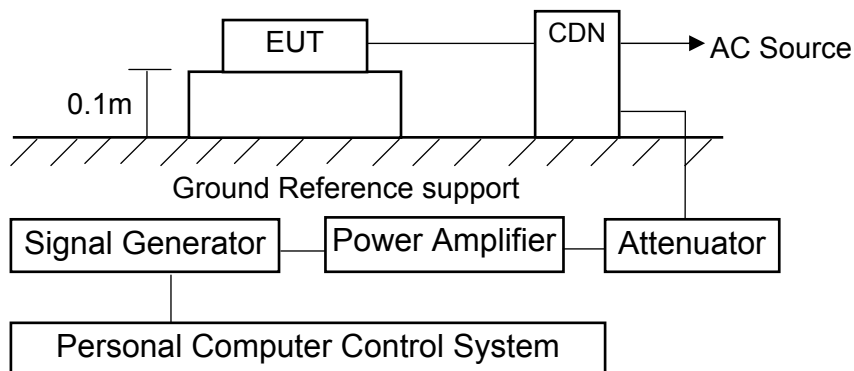
### 12.1. List of Test Instruments

| Item | Equipment                 | Manufacture | Model No.      | Serial No. | Cal. Date    | Cal. Interval |
|------|---------------------------|-------------|----------------|------------|--------------|---------------|
| 1    | Signal Generator          | R&S         | SMC100A        | 101402     | 2017. 05. 06 | 1 Year        |
| 2    | Power Amplifier           | A/R         | 100A250A       | 0330351    | N.C.R.       | N.C.R.        |
| 3    | Attenuator                | Weinschel   | 40-6-34        | NB538      | 2017. 04. 24 | 1 Year        |
| 4    | CDN                       | Fischer     | FCC-801-M3-25A | 9961       | 2018. 03. 07 | 1 Year        |
| 5    | Digital Thermo-Hygrometer | TEST        | 608-H1         | 30128573   | 2017. 03. 31 | 1 Year        |

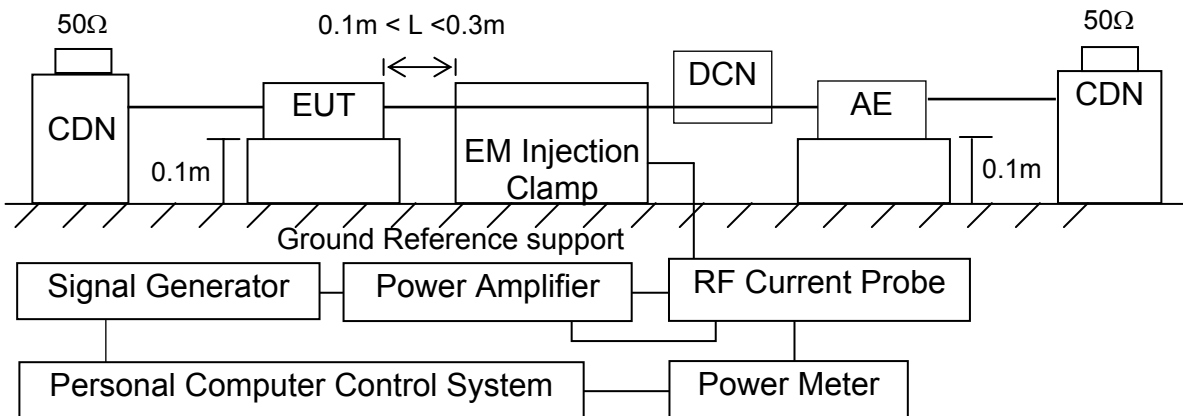
### 12.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-6.

- Common Mode Test Setup



- EM Clamp Mode Test Setup



### 12.3.Applicable Standard and Test Specification

- Immunity requirement is in accordance with EN 62040-2 clause 7.3.3  
 Test specification is in accordance with EN 62040-2 Table 6, Category C2 and C3  
 Basic standard is in accordance with IEC 61000-4-6

| Test Specification (Test Level)                           |                          | Performance Criteria |
|---|--------------------------|----------------------|
| Signal and control ports, AC input and output power ports |                          |                      |
| Frequency Range   | 0.15-80MHz               | A                    |
| Field Strength  | 10V (unmodulated, r.m.s) |                      |
| Modulation  | 80% AM (1kHz)            |                      |

- Deviation from applicable standard  
 No deviation

## 12.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-6 clause 8 was used.

### **\*\* For AC Input and Output Power Line \*\***

- Setup the EUTs and associated equipment described as clause 4.1.
- The EUT and supporting equipment were placed on an insulating support 0.1m high above a ground reference plane. CDN (coupling and decoupling device) was placed on the ground plane making contact with it at about 0.1-0.3m from EUT. Cables between CDN and EUT were as short as possible.
- The disturbance signal described below was injected to EUT through CDN.
- The EUT operates within its operational mode(s) under intended climatic conditions after power on.
- The frequency range was swept from 0.15 to 80MHz using 10V signal level, and with the disturbance signal 80% amplitude modulated with a 1kHz sine wave.
- The rate of sweep shall not exceed  $1.5 \cdot 10^3$  decades/s. Where the frequency was swept incrementally, the step size shall not exceed 1% of the start and thereafter 1% of the preceding frequency value.
- Recording the EUT operating situation during compliance testing and decide the EUT immunity criterion.

### **\*\* For Signal and Control Ports \*\***

- The EUT and supporting equipment were placed on an insulating support 0.1m high above a ground reference plane. EM Injection Clamp (coupling and decoupling device) was placed on the ground plane making contact with it at about 0.1-0.3m from EUT. Cables between EM Injection Clamp and EUT were as short as possible.
- The CDN was placed on between AE and EUT. The EUT and AE of power through CDN, CDN terminated with  $50\Omega$  at the RF disturbance input port.
- The disturbance signal described below was injected to EUT through EM Injection Clamp.

### 12.5. Test Result

|             |                         |             |              |
|-------------|-------------------------|-------------|--------------|
| Test Date   | 2018. 03. 22            | Environment | 22°C, 52%    |
| Input Power | AC 230V, 50Hz           | Test Result | Pass         |
| Tested By   | Sam Yan                 | Test Model  | SMT750RMI2UC |
| Test Mode   | Online Mode (Load 500W) |             |              |

| Frequency Range (MHz)   | Injected Position  | Voltage Level        | Observation Criterion |
|---|--|----------------------|-----------------------|
| 0.15 - 80MHz  | Main<br>(Input AC Power Line)  | 10V(rms) + Modulated | A                     |
| 0.15 - 80MHz  | I/O<br>(LAN Cable, USB Cable,<br>Universal I/O Cable,<br>AC Out Cable) | 10V(rms) + Modulated | A                     |
| Remark 1: Modulation Signal: 1kHz 80% AM.<br>Remark 2: No error occurred. |  |                      |                       |



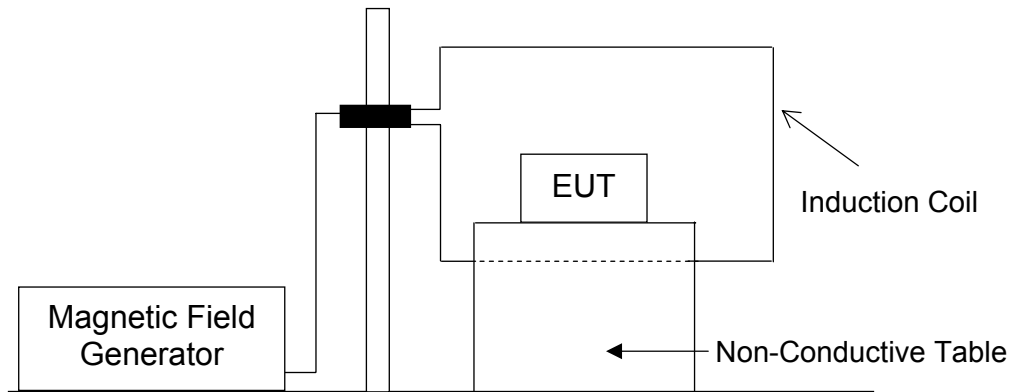
### 13. Power Frequency Magnetic Field Immunity Test

#### 13.1. List of Test Instruments

| Item | Equipment                  | Manufacture        | Model No. | Serial No.         | Cal. Date    | Cal. Interval |
|------|----------------------------|--------------------|-----------|--------------------|--------------|---------------|
| 1    | Magnetic Field Generator   | Narda S.T.S. / PMM | PMM1008   | 0100X30101         | 2017. 11. 18 | 1 Year        |
| 2    | Digital Thermo-Hygro Meter | iMax               | HTC-1     | No.2 Magnetic Room | 2017. 04. 21 | 1 Years       |

#### 13.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-4-8.



#### 13.3. Applicable Standard and Test Specification

- Immunity requirement is in accordance with EN 62040-2 clause 7.5  
 Test specification is in accordance with EN 62040-2 clause 7.5, Category C2 and C3  
 Basic standard is in accordance with IEC 61000-4-8

| Test Specification (Test Level) |              | Performance Criteria |
|---------------------------------|--------------|----------------------|
| Power Frequency                 | 50Hz or 60Hz | B                    |
| Magnetic Field Strength         | 30A/m (rms)  |                      |

- Deviation from applicable standard  
 No deviation

### 13.4.Measurement Procedure

The measurement procedure specified in IEC 61000-4-8 clause 8 was used.

- Setup the EUTs and associated equipment described as clause 4.1.
- The equipment cabinets which can be earthed shall be connected to the safety earth directly on the GRP or via the earth terminal to PE.
- The EUT was placed on 0.8m high table, and subjected to the test magnetic field by using the induction coil of standard dimensions (1m x 2.6m).
- The induction coil rotated by 90 degrees in order to expose the EUT to the test field with different orientations (at X-axis, Y-axis and X-axis).
- The power supply, input and output circuits shall be connected to the sources of power supply, control and signal.
- All cables of EUT exposed to magnetic field for 1m of their length.
- The preferential range of test levels, respectively for continuous of the magnetic field, applicable to distribution networks at 50 Hz or 60 Hz.

### 13.5. Test Result

|             |                         |             |              |
|-------------|-------------------------|-------------|--------------|
| Test Date   | 2018. 03. 22            | Environment | 22°C, 48%    |
| Input Power | AC 230V, 50Hz           | Test Result | Pass         |
| Tested By   | Jacky Chen              | Test Model  | SMT750RMI2UC |
| Test Mode   | Online Mode (Load 500W) |             |              |

| Power Frequency            | Magnetic Field Strength | Coil Orientation | Testing Duration | Observation Criterion |
|----------------------------|-------------------------|------------------|------------------|-----------------------|
| 50Hz                       | 30A/m                   | X-axis           | 1 Min            | A                     |
| 50Hz                       | 30A/m                   | Y-axis           | 1 Min            | A                     |
| 50Hz                       | 30A/m                   | Z-axis           | 1 Min            | A                     |
| Remark: No error occurred. |                         |                  |                  |                       |

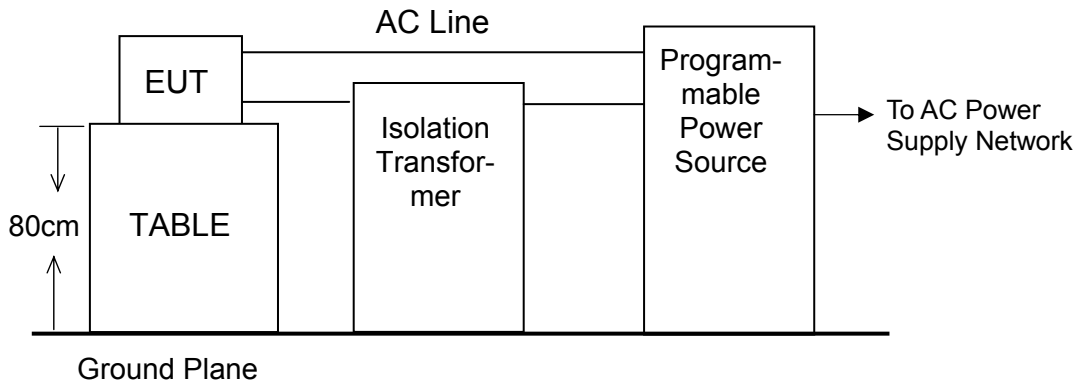
## 14. Low Frequency Signals Immunity Test

### 14.1. List of Test Instruments

| Item | Equipment                  | Manufacture | Model No.  | Serial No.          | Cal. Date    | Cal. Interval |
|------|----------------------------|-------------|------------|---------------------|--------------|---------------|
| 1    | Programmable Power Source  | TESEQ       | NSG1007-45 | 1248A04038          | 2017. 11. 28 | 2 Years       |
| 2    | Isolation Transformer      | N/A         | N/A        | N/A                 | N/A          | N/A           |
| 3    | Digital Thermo-Hygro Meter | iMax        | HTC-1      | No.2 Harmonics Room | 2017. 04. 21 | 1 Years       |

### 14.2. Test Setup

The EUT and test equipment were configured in accordance with the basic standard requirement of IEC 61000-2-2.



### 14.3.Applicable Standard and Test Specification

- Immunity requirement is in accordance with EN 62040-2 clause 7.4  
 Test specification is in accordance with EN 62040-2 Annex D.6.1.1 and D.6.1.2  
 Basic standard is in accordance with IEC 61000-2-2

| Test Specification (Test Level) |  | Performance Criteria |
|---------------------------------|--|----------------------|
| Single-phase equipment          | The test as a minimum shall be performed with a single sinusoidal disturbing voltage of 10 V, at a frequency which is slowly varied from 140 Hz to 360 Hz. Use can be made of a series injection circuit where the mains supplies 50/60Hz power and the amplifier delivers only the harmonics. | A                    |
| Three-phase equipment           | The test set-up and voltage level for each phase is identical to the set-up for single-phase equipment; however, a three-phase variable frequency generator is used (static or rotating). The frequency is slowly varied from 140 Hz to 360 Hz.  |                      |

### 14.4.Measurement Procedure

The measurement procedure specified in IEC 61000-2-2 was used.

- Setup the EUTs and associated equipment described as clause 4.1 and 14.2.
- Let U.P.S. to be under charging and line status.
- Adjust programmable AC source to output a 10Vrms (sine wave from 140 to 360Hz) that can be induced 10Vrms to link between AC source and U.P.S. (through the isolation transformer).
- The induced signals shall mixed in normal AC source and U.P.S. shall withstand it and no performances shall be reduced.

### 14.5. Test Result

|             |                         |             |              |
|-------------|-------------------------|-------------|--------------|
| Test Date   | 2018. 03. 22            | Environment | 22°C, 49%    |
| Input Power | AC 230V, 50Hz           | Test Result | Pass         |
| Tested By   | Jacky chen              | Test Model  | SMT750RMI2UC |
| Test Mode   | Online Mode (Load 500W) |             |              |

| Frequency Range (MHz) | Strength             | Performance Criterion |
|-----------------------|----------------------|-----------------------|
| 140                   | 10V (rms) Sinusoidal | A                     |
| 160                   |                      | A                     |
| 200                   |                      | A                     |
| 240                   |                      | A                     |
| 280                   |                      | A                     |
| 320                   |                      | A                     |
| 360                   |                      | A                     |

Isolation transformer Primary : Secondary = 1:1

Remark: No error occurred.

## 15. Measurement Uncertainty List

The measurement uncertainty was estimated for test on the EUT according to CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage of K=2.

The uncertainties value is not used in determining the PASS/FAIL results.

| Test Items/Facilities                                | Frequency/Equipment/Unit        | Uncertainty |
|--|---------------------------------|-------------|
| Conducted emissions at AC mains power port           | 9kHz-150kHz                     | ±3.7dB      |
|  | 150kHz-30MHz                    | ±3.5dB      |
| Conducted emissions at wired network port            | 150kHz-30MHz                    | ±3.5dB      |
| Conducted emissions at broadcast receiver tuner port | 150kHz-30MHz                    | ±3.5dB      |
| Conducted emissions Power Clamp                      | 30MHz-300MHz                    | ±4.4dB      |
| Radiated electromagnetic                             | 9kHz-30MHz                      | ±0.5dB      |
| Radiated emissions (10m Chamber)                     | 30MHz-200MHz, 3m, Horizontal    | ±4.3dB      |
|  | 200MHz-1000MHz, 3m, Horizontal  | ±4.3dB      |
|  | 30MHz-200MHz, 3m, Vertical      | ±4.4dB      |
|  | 200MHz-1000MHz, 3m, Vertical    | ±3.9dB      |
|  | 30MHz-200MHz, 10m, Horizontal   | ±4.3dB      |
|  | 200MHz-1000MHz, 10m, Horizontal | ±4.1dB      |
|  | 30MHz-200MHz, 10m, Vertical     | ±4.3dB      |
|  | 200MHz-1000MHz, 10m, Vertical   | ±3.8dB      |
|  | 1GHz-6GHz, 3m                   | ±5.5dB      |
|  | 6GHz-18GHz, 3m                  | ±4.8dB      |
| Radiated emissions (No.1 3m Chamber)                 | 30MHz-200MHz, 3m, Horizontal    | ±3.9dB      |
|  | 200MHz-1000MHz, 3m, Horizontal  | ±4.3dB      |
|  | 30MHz-200MHz, 3m, Vertical      | ±4.5dB      |
|  | 200MHz-1000MHz, 3m, Vertical    | ±4.1dB      |
|  | 1GHz-6GHz, 3m                   | ±5.1dB      |
|  | 6GHz-18GHz, 3m                  | ±5.5dB      |
| Radiated emissions (No.2 3m Chamber)                 | 30MHz-200MHz, 3m, Horizontal    | ±4.3dB      |
|  | 200MHz-1000MHz, 3m, Horizontal  | ±4.3dB      |
|  | 30MHz-200MHz, 3m, Vertical      | ±4.4dB      |
|  | 200MHz-1000MHz, 3m, Vertical    | ±3.9dB      |
|  | 1GHz-6GHz, 3m                   | ±5.2dB      |
|  | 6GHz-18GHz, 3m                  | ±5.2dB      |
| Radiated emissions (No.3 3m Chamber)                 | 30MHz-200MHz, 3m, Horizontal    | ±4.7dB      |
|  | 200MHz-1000MHz, 3m, Horizontal  | ±4.5dB      |
|  | 30MHz-200MHz, 3m, Vertical      | ±4.3dB      |
|  | 200MHz-1000MHz, 3m, Vertical    | ±4.1dB      |
| Radiated emissions (No.4 3m Chamber)                 | 30MHz-200MHz, 3m, Horizontal    | ±4.1dB      |
|  | 200MHz-1000MHz, 3m, Horizontal  | ±4.4dB      |
|  | 30MHz-200MHz, 3m, Vertical      | ±4.2dB      |
|  | 200MHz-1000MHz, 3m, Vertical    | ±5.0dB      |
|  | 1GHz-6GHz, 3m                   | ±4.4dB      |
|  | 6GHz-18GHz, 3m                  | ±4.1dB      |

| Test Items/Facilities             | Frequency/Equipment/Unit        | Uncertainty |
|-----------------------------------|---------------------------------|-------------|
| Radiated emissions<br>(No.3 OATS) | 30MHz-200MHz, 3m, Horizontal    | ±4.5dB      |
|                                   | 200MHz-1000MHz, 3m, Horizontal  | ±4.4dB      |
|                                   | 30MHz-200MHz, 3m, Vertical      | ±4.4dB      |
|                                   | 200MHz-1000MHz, 3m, Vertical    | ±4.0dB      |
|                                   | 30MHz-200MHz, 10m, Horizontal   | ±4.5dB      |
|                                   | 200MHz-1000MHz, 10m, Horizontal | ±4.2dB      |
|                                   | 30MHz-200MHz, 10m, Vertical     | ±4.3dB      |
|                                   | 200MHz-1000MHz, 10m, Vertical   | ±4.0dB      |
| Radiated emissions<br>(No.5 OATS) | 30MHz-200MHz, 3m, Horizontal    | ±4.2dB      |
|                                   | 200MHz-1000MHz, 3m, Horizontal  | ±4.7dB      |
|                                   | 30MHz-200MHz, 3m, Vertical      | ±4.4dB      |
|                                   | 200MHz-1000MHz, 3m, Vertical    | ±4.4dB      |
|                                   | 30MHz-200MHz, 10m, Horizontal   | ±4.2dB      |
|                                   | 200MHz-1000MHz, 10m, Horizontal | ±4.6dB      |
|                                   | 30MHz-200MHz, 10m, Vertical     | ±4.4dB      |
|                                   | 200MHz-1000MHz, 10m, Vertical   | ±4.4dB      |
| Radiated emissions<br>(No.6 OATS) | 30MHz-200MHz, 3m, Horizontal    | ±4.3dB      |
|                                   | 200MHz-1000MHz, 3m, Horizontal  | ±4.4dB      |
|                                   | 30MHz-200MHz, 3m, Vertical      | ±4.5dB      |
|                                   | 200MHz-1000MHz, 3m, Vertical    | ±4.1dB      |
|                                   | 30MHz-200MHz, 10m, Horizontal   | ±4.3dB      |
|                                   | 200MHz-1000MHz, 10m, Horizontal | ±4.2dB      |
|                                   | 30MHz-200MHz, 10m, Vertical     | ±4.4dB      |
|                                   | 200MHz-1000MHz, 10m, Vertical   | ±4.1dB      |
| Radiated emissions<br>(No.7 OATS) | 30MHz-200MHz, 3m, Horizontal    | ±3.9dB      |
|                                   | 200MHz-1000MHz, 3m, Horizontal  | ±4.5dB      |
|                                   | 30MHz-200MHz, 3m, Vertical      | ±4.6dB      |
|                                   | 200MHz-1000MHz, 3m, Vertical    | ±4.5dB      |
|                                   | 30MHz-200MHz, 10m, Horizontal   | ±3.9dB      |
|                                   | 200MHz-1000MHz, 10m, Horizontal | ±4.3dB      |
|                                   | 30MHz-200MHz, 10m, Vertical     | ±4.6dB      |
|                                   | 200MHz-1000MHz, 10m, Vertical   | ±4.5dB      |
| Radiated emissions<br>(No.8 OATS) | 30MHz-200MHz, 3m, Horizontal    | ±4.5dB      |
|                                   | 200MHz-1000MHz, 3m, Horizontal  | ±4.3dB      |
|                                   | 30MHz-200MHz, 3m, Vertical      | ±4.6dB      |
|                                   | 200MHz-1000MHz, 3m, Vertical    | ±4.1dB      |
|                                   | 30MHz-200MHz, 10m, Horizontal   | ±4.7dB      |
|                                   | 200MHz-1000MHz, 10m, Horizontal | ±4.2dB      |
|                                   | 30MHz-200MHz, 10m, Vertical     | ±4.6dB      |
|                                   | 200MHz-1000MHz, 10m, Vertical   | ±4.0dB      |



| Test Items/Facilities  | Frequency/Equipment/Unit                             | Uncertainty  |
|--|--|--|
| Harmonic current   | NSG 1007-45  | ±0.7%  |
| Voltage fluctuations & flicker   | NSG 1007-45  | ±0.2%  |
| Electrostatic discharge (ESD)  | NSG 437  | Ucurrent= 7.3%<br>Uvoltage= 1.0%<br>Utime = 9.0%     |
|  | Ditto  | Ucurrent = 4.0%<br>Uvoltage = 2.0%<br>Utime = 3.0%   |
|  | MZ-15/EC   | Ucurrent = 10.0%<br>Uvoltage = 1.8%<br>Utime = 20.0% |
| Radio-frequency electromagnetic field, Continuous radiated disturbances (RS) | 80MHz-200MHz   | ±1.7dB   |
|  | 200MHz-1000MHz                                       | ±1.8dB   |
|  | 1GHz-6GHz  | ±1.7dB   |
| Electrical fast transient/burst (EFT)  | AC power port  | Uvoltage = 1.0%<br>Utime = 4.0%                      |
|  | Signal port  | Uvoltage = 4.0%<br>Utime = 3.0%                      |
| Surge  | Open-circuit output voltage 0.5kV-6kV (1.2us/50us)   | Uvoltage = 4.0%                                      |
|  | Open-circuit output voltage 0.5kV-6kV (10us/700us)   | Uvoltage = 4.0%                                      |
|  | Rise time (30%-90%) x 1.67: 0.5kV-6kV (1.2us/50us)   | Utime = 3.0%   |
|  | Rise time (30%-90%) x 1.67: 0.5kV-6kV (10us/700us)   | Utime = 3.0%   |
|  | Duration time: 0.5kV-6kV (1.2us/50us)                | Utime = 3.0%   |
|  | Duration time: 0.5kV-6kV (10us/700us)                | Utime = 3.0%   |
|  | Short-circuit output current 0.25KA-3KA (8us / 20us) | Ucurrent = 3.0%                                      |
|  | Rise time (10%-90%) x 1.25: (8us/20us)               | Utime = 3.0%   |
| Duration time: (8us/20us)  | Utime = 3.0%   |  |
| Radio-frequency, continuous conducted disturbances (CS)                      | CDN (AC power port)                                  | 1.5 dB   |
|  | EM-Clamp (Signal port)                               | 3.3 dB   |
| Power-frequency magnetic field (PFMF)  | MAG100.1   | 4%   |
|  | PMM1008  | 2%   |
| Voltage dips   | TESEQ  | Uvoltage = 0.1%<br>Ucurrent = 0.2%                   |

## 16. Photographs

### 16.1. Conducted Emissions Measurement

- For AC Mains Power Port



Front View of Conducted Measurement



Back View of Conducted Measurement

## 16.2. Radiated Emissions Measurement

- For Frequency Range 30 – 1000MHz

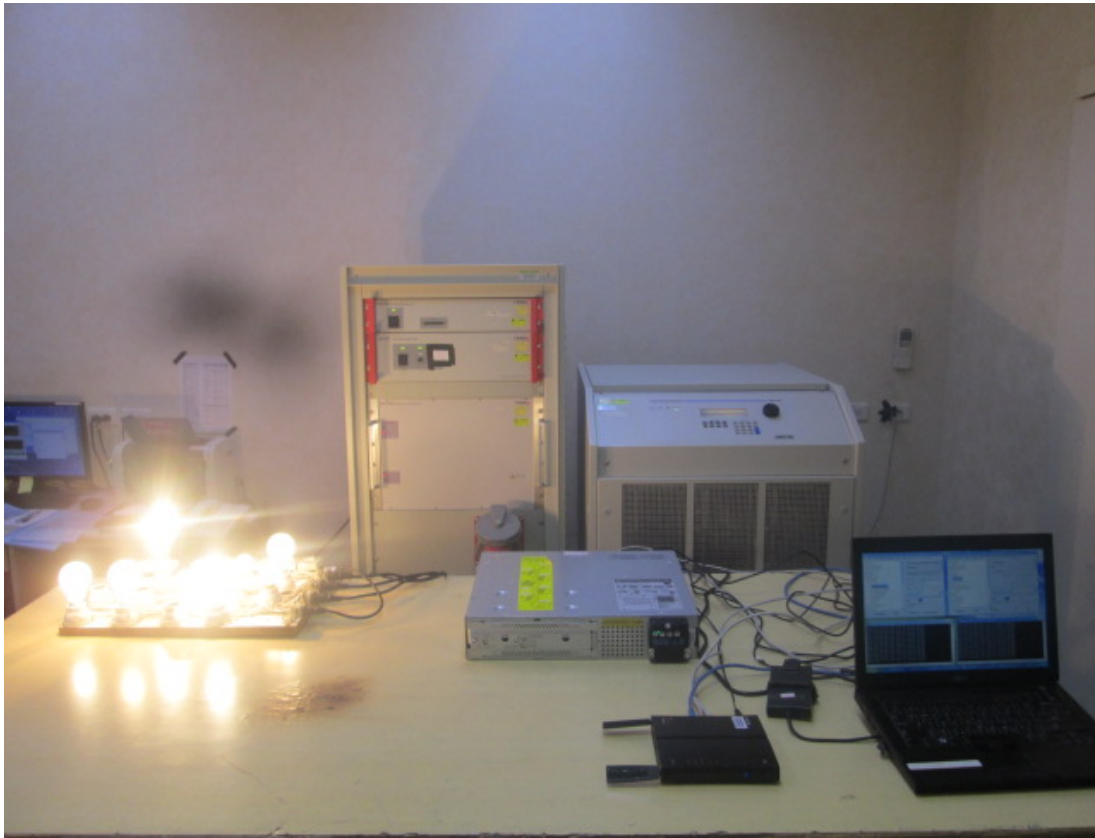


Front View of Radiated Measurement



Back View of Radiated Measurement

### 16.3. Input Current Harmonics Measurement



### 16.4. Electrostatic Discharge Immunity Test

- Air & Contact Discharge



- HCP & VCP



- ESD Test Points



- ESD Test Points

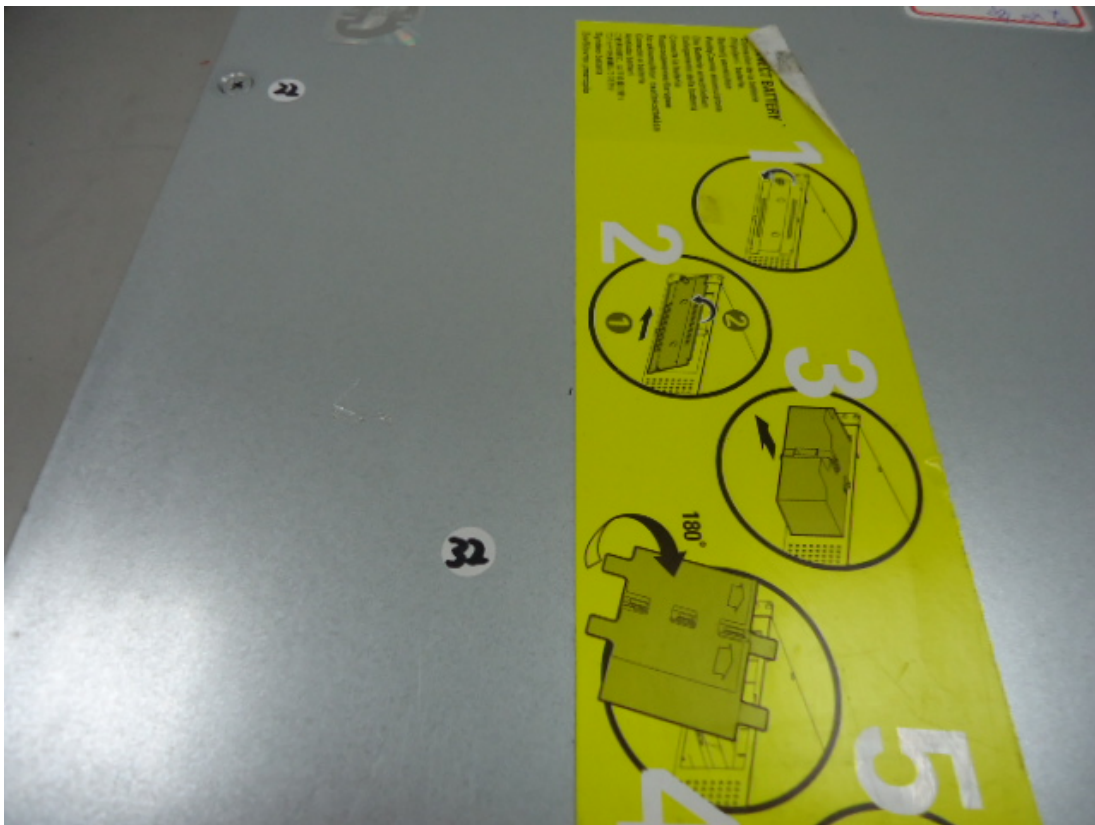


● ESD Test Points





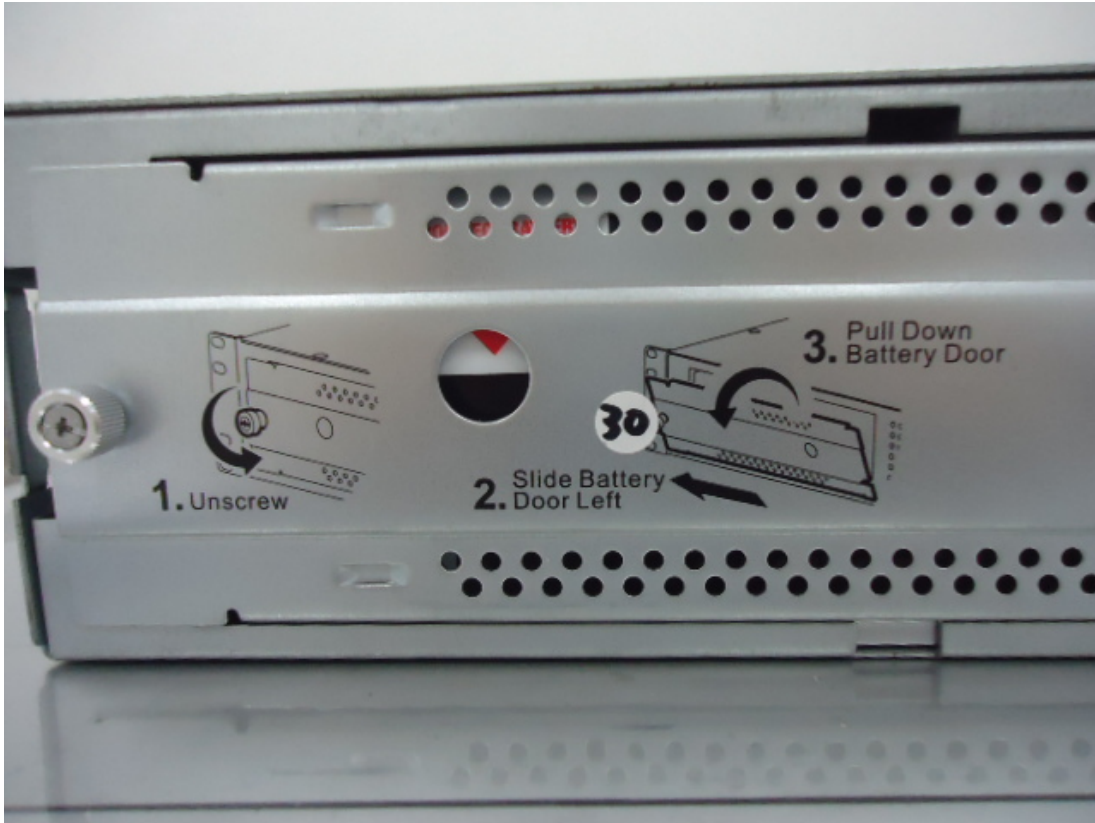
- ESD Test Points



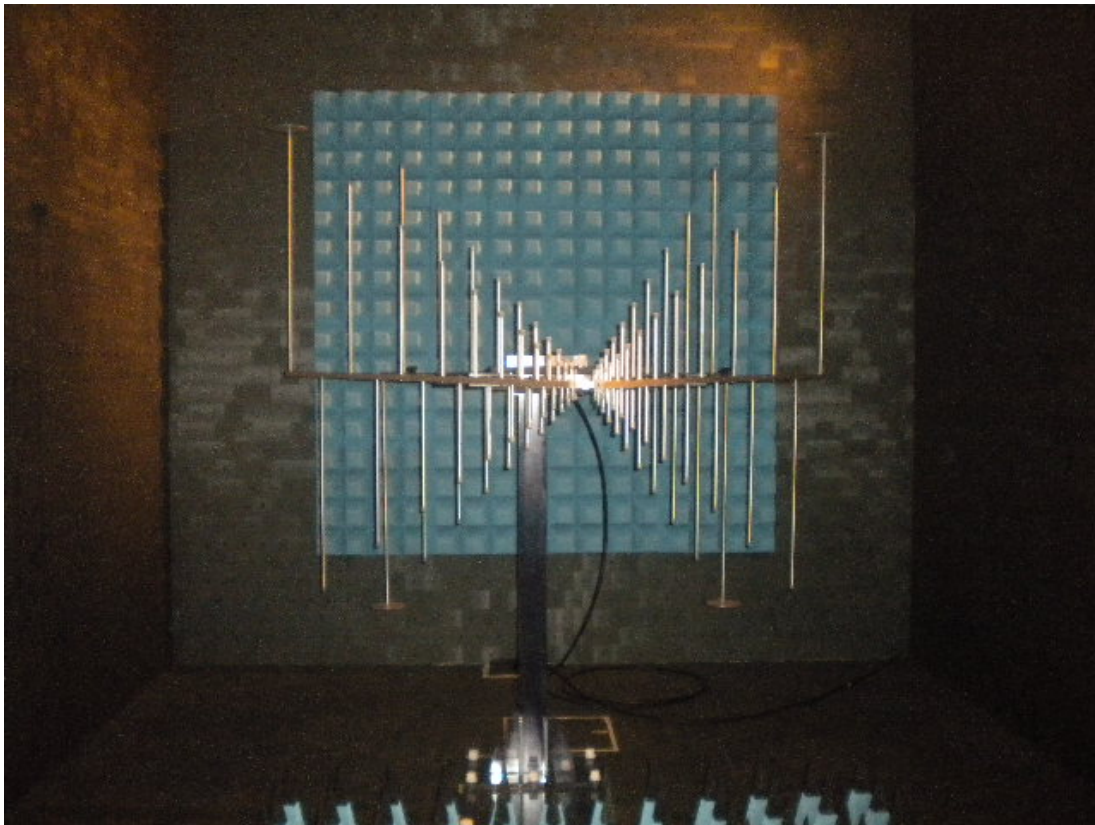
- ESD Test Points



- ESD Test Points



16.5. Radiated, Radio-Frequency, Electromagnetic Field Immunity Test



## 16.6. Electrical Fast Transient/Burst Immunity Test

- Injection Position: AC Power Line



- Injection Position: I/O Cable



## 16.7. Surge Immunity Test

- For AC Input and Output Power Ports



- For Signal and Control Ports



## 16.8. Immunity to Conducted Disturbances Induced by RF Fields

- Injection Position: AC Power Line



- Injection Position: I/O Cable



16.9. Power Frequency Magnetic Field Immunity Test



16.10. Low Frequency Signals Immunity Test





16.11.Partner System



# APPENDIX I

## (Photos of EUT)

For model: SMT750RM12UC, Figure 1 ~ 6  
Figure 1  
General Appearance (Front & Side View)



Figure 2  
General Appearance (Back & Side View)



Figure 3  
Appearance (I/O View)



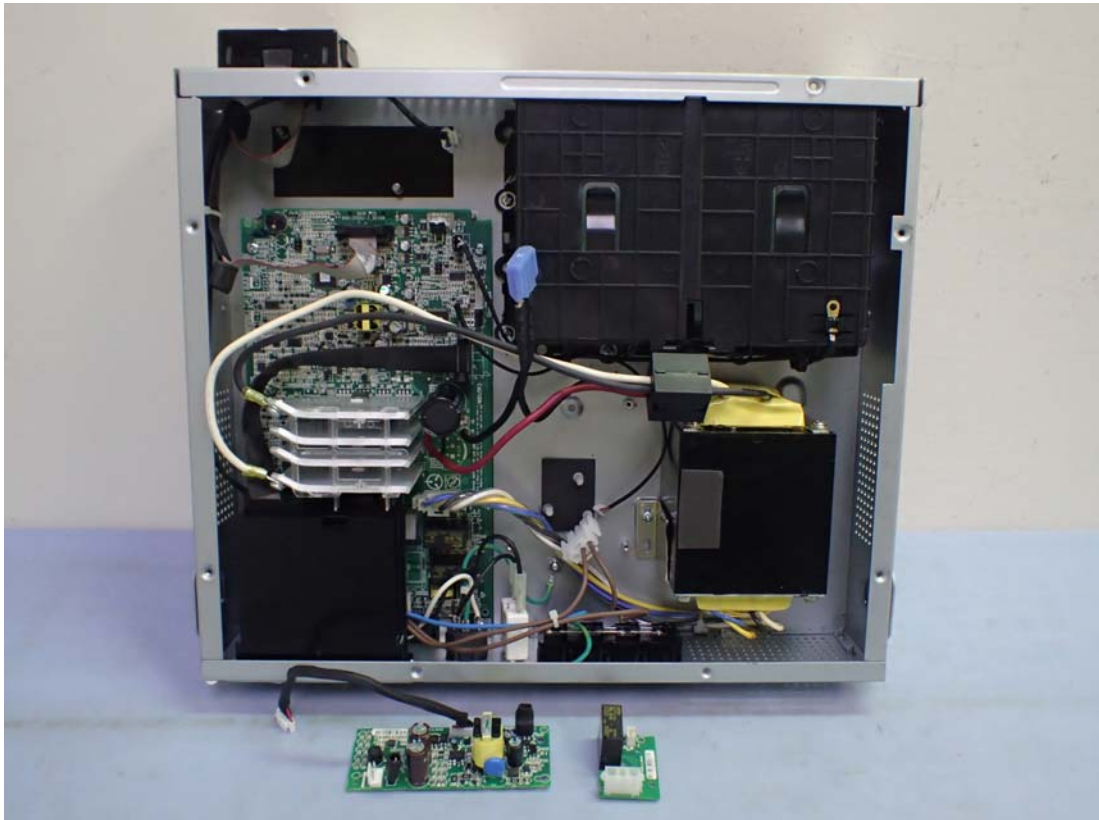
Figure 4  
Appearance (I/O View)



Figure 5  
Internal View (Remove Cover)



Figure 6  
Internal View



**For model: SMT750IC, Figure 7 ~ 10**  
Figure 7  
General Appearance (Front & Side View)



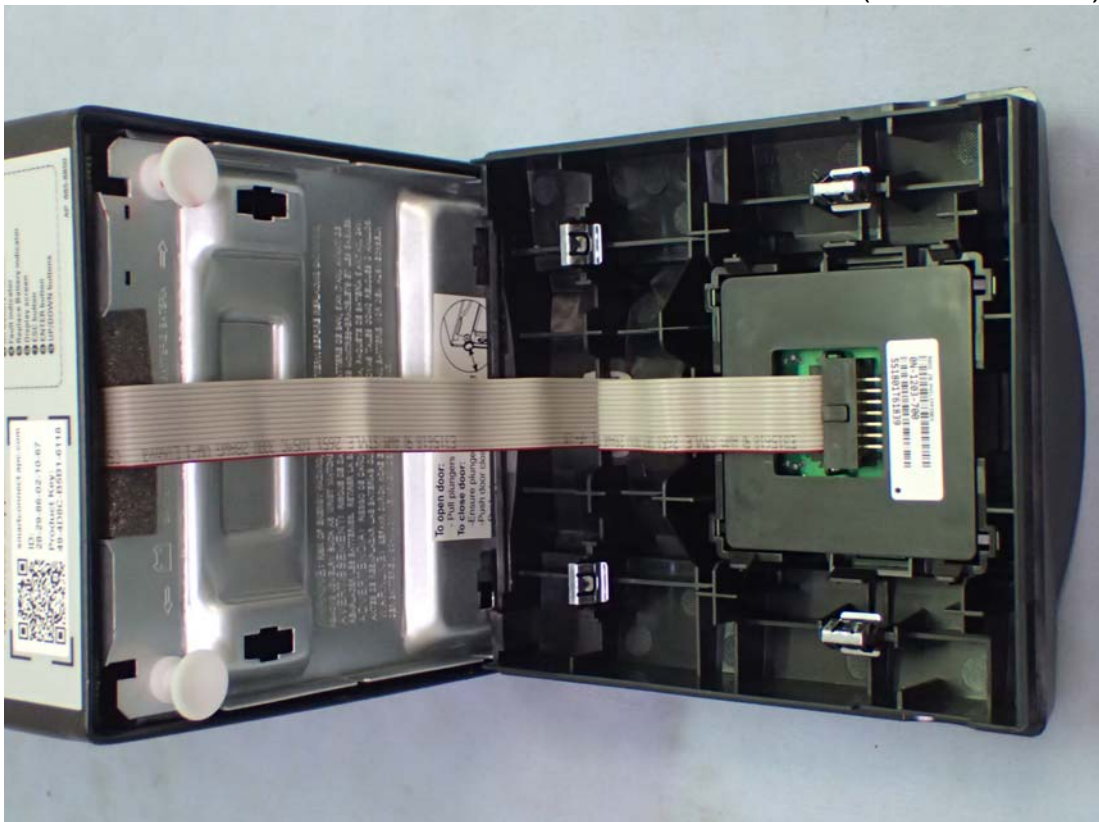
Figure 8  
General Appearance (Back & Side View)



Figure 9  
Appearance (I/O View)



Figure 10  
Internal View (Remove Cover)



# APPENDIX II

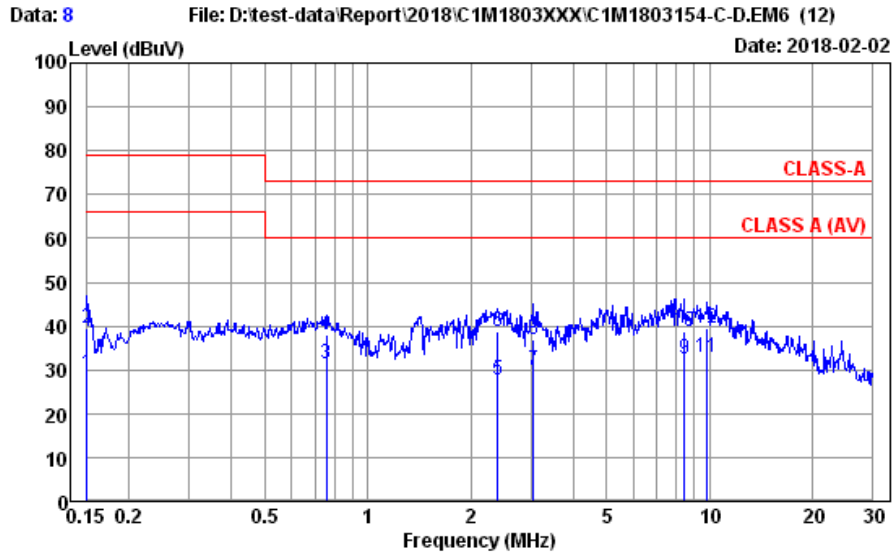
## (Data Pretest)



● Conducted emissions at AC mains power port



AUDIX Technology Corp. EMC Department  
 No.53-11, Dingfu, Linkou Dist., New Taipei City,  
 244, Taiwan, R.O.C.  
 Tel: +886-2-26092133 Fax: +886-2-26099303  
 E-mail: emc@audixtech.com



Site no. : No.4 Shielded Room Data no. : 8  
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : 230Vac/50Hz  
 Test Mode : On Line Mode

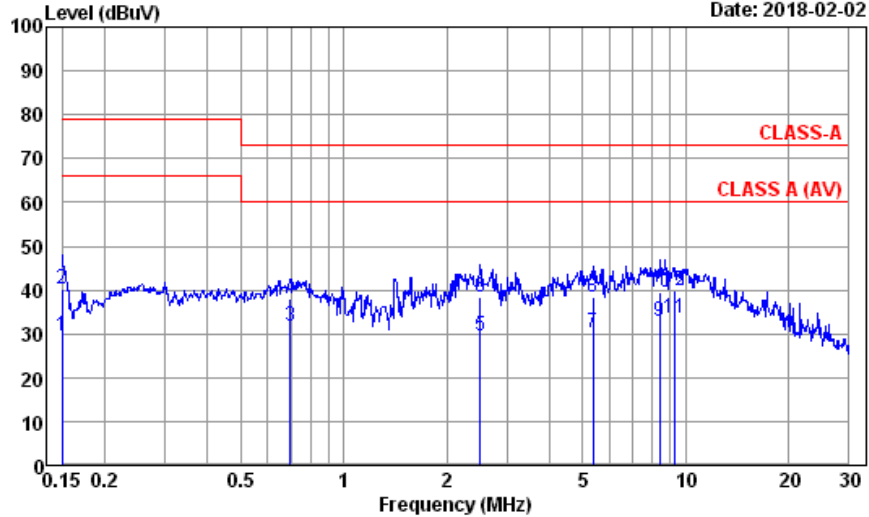
|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.151          | 0.15                  | 0.03                  | 9.86                  | 19.17             | 29.21                       | 66.00            | 36.79          | Average |
| 2  | 0.151          | 0.15                  | 0.03                  | 9.86                  | 29.31             | 39.35                       | 79.00            | 39.65          | QP      |
| 3  | 0.759          | 0.14                  | 0.05                  | 9.86                  | 21.43             | 31.48                       | 60.00            | 28.52          | Average |
| 4  | 0.759          | 0.14                  | 0.05                  | 9.86                  | 27.89             | 37.94                       | 73.00            | 35.06          | QP      |
| 5  | 2.396          | 0.20                  | 0.08                  | 9.86                  | 17.58             | 27.72                       | 60.00            | 32.28          | Average |
| 6  | 2.396          | 0.20                  | 0.08                  | 9.86                  | 28.43             | 38.57                       | 73.00            | 34.43          | QP      |
| 7  | 3.058          | 0.22                  | 0.09                  | 9.87                  | 19.65             | 29.83                       | 60.00            | 30.17          | Average |
| 8  | 3.058          | 0.22                  | 0.09                  | 9.87                  | 26.88             | 37.06                       | 73.00            | 35.94          | QP      |
| 9  | 8.412          | 0.34                  | 0.14                  | 9.89                  | 22.26             | 32.63                       | 60.00            | 27.37          | Average |
| 10 | 8.412          | 0.34                  | 0.14                  | 9.89                  | 28.37             | 38.74                       | 73.00            | 34.26          | QP      |
| 11 | 9.809          | 0.36                  | 0.15                  | 9.90                  | 22.48             | 32.89                       | 60.00            | 27.11          | Average |
| 12 | 9.809          | 0.36                  | 0.15                  | 9.90                  | 29.04             | 39.45                       | 73.00            | 33.55          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 7 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-C-D.EM6 (12) Date: 2018-02-02



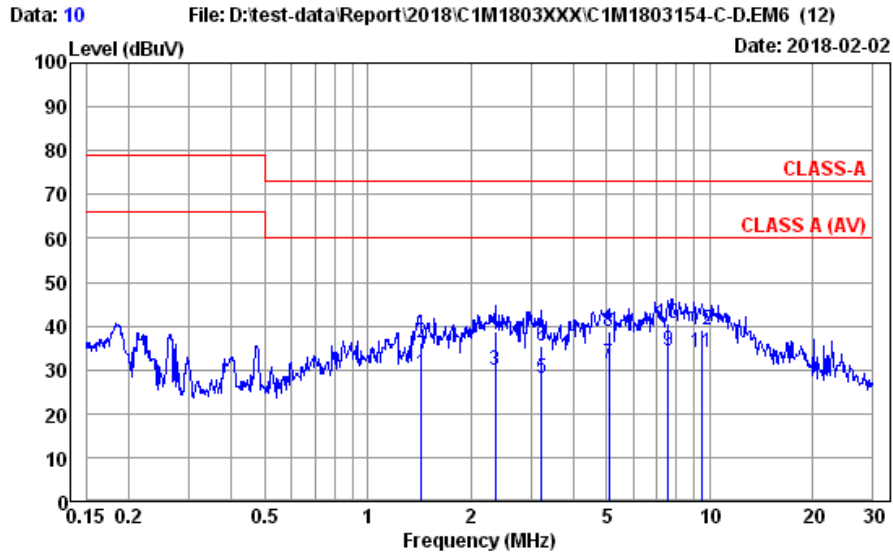
Site no. : No.4 Shielded Room Data no. : 7  
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : 230Vac/50Hz  
 Test Mode : On Line Mode

|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.150          | 0.04                  | 0.03                  | 9.86                  | 19.57             | 29.50                       | 66.00            | 36.50          | Average |
| 2  | 0.150          | 0.04                  | 0.03                  | 9.86                  | 30.42             | 40.35                       | 79.00            | 38.65          | QP      |
| 3  | 0.697          | 0.03                  | 0.05                  | 9.86                  | 21.86             | 31.80                       | 60.00            | 28.20          | Average |
| 4  | 0.697          | 0.03                  | 0.05                  | 9.86                  | 28.10             | 38.04                       | 73.00            | 34.96          | QP      |
| 5  | 2.500          | 0.10                  | 0.08                  | 9.87                  | 19.54             | 29.59                       | 60.00            | 30.41          | Average |
| 6  | 2.500          | 0.10                  | 0.08                  | 9.87                  | 28.41             | 38.46                       | 73.00            | 34.54          | QP      |
| 7  | 5.362          | 0.22                  | 0.11                  | 9.87                  | 20.20             | 30.40                       | 60.00            | 29.60          | Average |
| 8  | 5.362          | 0.22                  | 0.11                  | 9.87                  | 28.07             | 38.27                       | 73.00            | 34.73          | QP      |
| 9  | 8.367          | 0.34                  | 0.14                  | 9.89                  | 22.64             | 33.01                       | 60.00            | 26.99          | Average |
| 10 | 8.367          | 0.34                  | 0.14                  | 9.89                  | 29.24             | 39.61                       | 73.00            | 33.39          | QP      |
| 11 | 9.253          | 0.36                  | 0.15                  | 9.89                  | 23.21             | 33.61                       | 60.00            | 26.39          | Average |
| 12 | 9.253          | 0.36                  | 0.15                  | 9.89                  | 29.31             | 39.71                       | 73.00            | 33.29          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Site no. : No.4 Shielded Room Data no. : 10  
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : 230Vac/50Hz  
 Test Mode : On Line GREEN Mode

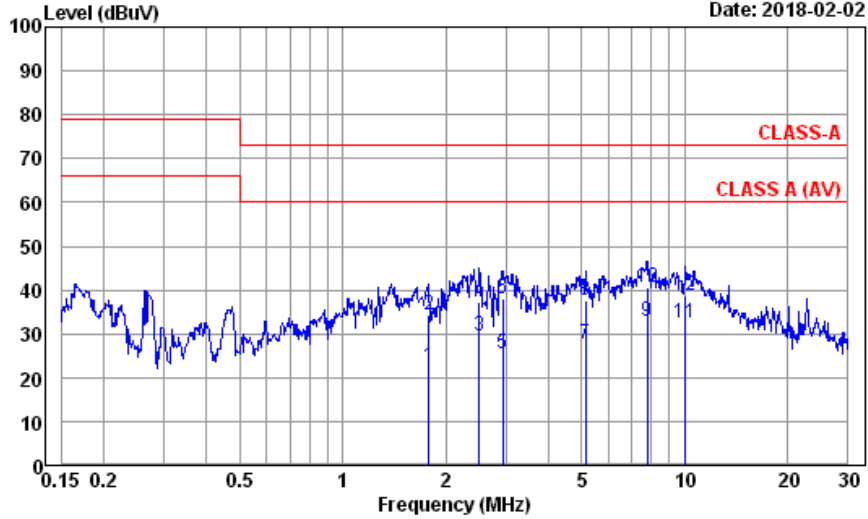
|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 1.433          | 0.06                  | 0.06                  | 9.86                  | 19.07             | 29.05                       | 60.00            | 30.95          | Average |
| 2  | 1.433          | 0.06                  | 0.06                  | 9.86                  | 26.05             | 36.03                       | 73.00            | 36.97          | QP      |
| 3  | 2.358          | 0.10                  | 0.08                  | 9.86                  | 20.01             | 30.05                       | 60.00            | 29.95          | Average |
| 4  | 2.358          | 0.10                  | 0.08                  | 9.86                  | 28.69             | 38.73                       | 73.00            | 34.27          | QP      |
| 5  | 3.224          | 0.13                  | 0.09                  | 9.87                  | 18.04             | 28.13                       | 60.00            | 31.87          | Average |
| 6  | 3.224          | 0.13                  | 0.09                  | 9.87                  | 25.18             | 35.27                       | 73.00            | 37.73          | QP      |
| 7  | 5.085          | 0.21                  | 0.11                  | 9.87                  | 21.27             | 31.46                       | 60.00            | 28.54          | Average |
| 8  | 5.085          | 0.21                  | 0.11                  | 9.87                  | 28.47             | 38.66                       | 73.00            | 34.34          | QP      |
| 9  | 7.566          | 0.31                  | 0.14                  | 9.89                  | 24.01             | 34.35                       | 60.00            | 25.65          | Average |
| 10 | 7.566          | 0.31                  | 0.14                  | 9.89                  | 30.22             | 40.56                       | 73.00            | 32.44          | QP      |
| 11 | 9.502          | 0.37                  | 0.15                  | 9.89                  | 23.39             | 33.80                       | 60.00            | 26.20          | Average |
| 12 | 9.502          | 0.37                  | 0.15                  | 9.89                  | 28.79             | 39.20                       | 73.00            | 33.80          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 9 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-C-D.EM6 (12) Date: 2018-02-02



Site no. : No.4 Shielded Room Data no. : 9  
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : 230Vac/50Hz  
 Test Mode : On Line GREEN Mode

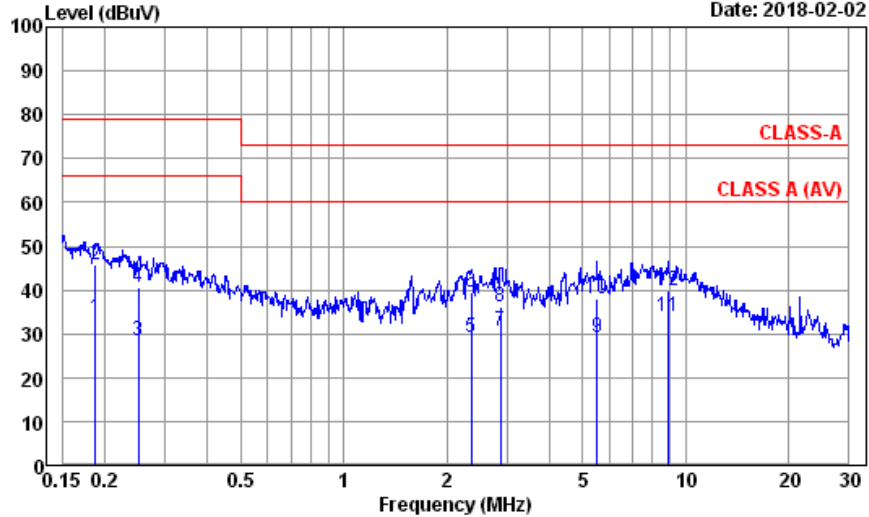
|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 1.790          | 0.18                  | 0.07                  | 9.86                  | 12.52             | 22.63                       | 60.00            | 37.37          | Average |
| 2  | 1.790          | 0.18                  | 0.07                  | 9.86                  | 24.35             | 34.46                       | 73.00            | 38.54          | QP      |
| 3  | 2.500          | 0.20                  | 0.08                  | 9.87                  | 19.48             | 29.63                       | 60.00            | 30.37          | Average |
| 4  | 2.500          | 0.20                  | 0.08                  | 9.87                  | 27.05             | 37.20                       | 73.00            | 35.80          | QP      |
| 5  | 2.931          | 0.21                  | 0.09                  | 9.87                  | 15.13             | 25.30                       | 60.00            | 34.70          | Average |
| 6  | 2.931          | 0.21                  | 0.09                  | 9.87                  | 27.91             | 38.08                       | 73.00            | 34.92          | QP      |
| 7  | 5.139          | 0.27                  | 0.11                  | 9.87                  | 17.60             | 27.85                       | 60.00            | 32.15          | Average |
| 8  | 5.139          | 0.27                  | 0.11                  | 9.87                  | 27.28             | 37.53                       | 73.00            | 35.47          | QP      |
| 9  | 7.769          | 0.33                  | 0.14                  | 9.89                  | 22.65             | 33.01                       | 60.00            | 26.99          | Average |
| 10 | 7.769          | 0.33                  | 0.14                  | 9.89                  | 30.23             | 40.59                       | 73.00            | 32.41          | QP      |
| 11 | 10.072         | 0.36                  | 0.15                  | 9.90                  | 22.12             | 32.53                       | 60.00            | 27.47          | Average |
| 12 | 10.072         | 0.36                  | 0.15                  | 9.90                  | 28.18             | 38.59                       | 73.00            | 34.41          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 12 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-C-D.EM6 (12) Date: 2018-02-02



Site no. : No.4 Shielded Room Data no. : 12  
 Condition : KNW-244C 8-1373-5 LISN Phase : NEUTRAL  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : DC 24V  
 Test Mode : On battery Mode

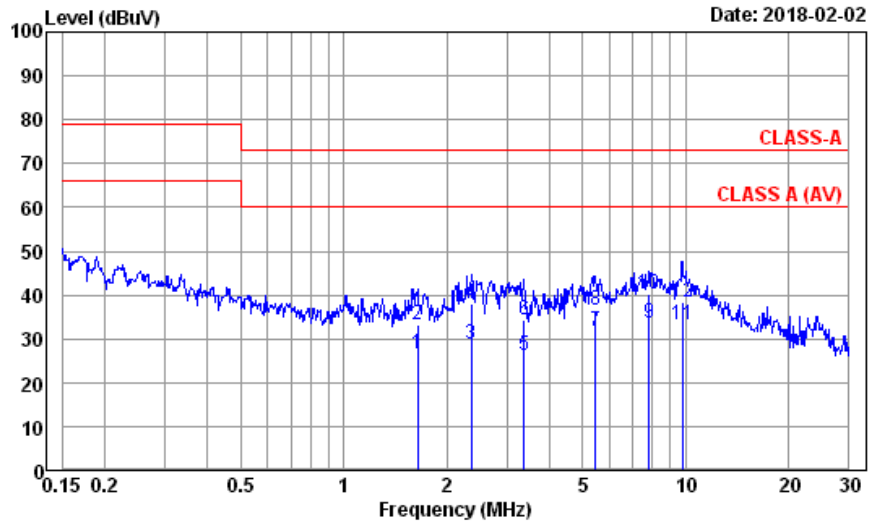
|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.187          | 0.14                  | 0.03                  | 9.86                  | 23.65             | 33.68                       | 66.00            | 32.32          | Average |
| 2  | 0.187          | 0.14                  | 0.03                  | 9.86                  | 35.90             | 45.93                       | 79.00            | 33.07          | QP      |
| 3  | 0.251          | 0.14                  | 0.03                  | 9.86                  | 18.28             | 28.31                       | 66.00            | 37.69          | Average |
| 4  | 0.251          | 0.14                  | 0.03                  | 9.86                  | 30.53             | 40.56                       | 79.00            | 38.44          | QP      |
| 5  | 2.358          | 0.19                  | 0.08                  | 9.86                  | 18.98             | 29.11                       | 60.00            | 30.89          | Average |
| 6  | 2.358          | 0.19                  | 0.08                  | 9.86                  | 29.30             | 39.43                       | 73.00            | 33.57          | QP      |
| 7  | 2.869          | 0.21                  | 0.09                  | 9.87                  | 20.64             | 30.81                       | 60.00            | 29.19          | Average |
| 8  | 2.869          | 0.21                  | 0.09                  | 9.87                  | 26.18             | 36.35                       | 73.00            | 36.65          | QP      |
| 9  | 5.505          | 0.28                  | 0.12                  | 9.88                  | 18.69             | 28.97                       | 60.00            | 31.03          | Average |
| 10 | 5.505          | 0.28                  | 0.12                  | 9.88                  | 27.71             | 37.99                       | 73.00            | 35.01          | QP      |
| 11 | 8.869          | 0.34                  | 0.14                  | 9.89                  | 23.58             | 33.95                       | 60.00            | 26.05          | Average |
| 12 | 8.869          | 0.34                  | 0.14                  | 9.89                  | 29.39             | 39.76                       | 73.00            | 33.24          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 11 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-C-D.EM6 (12) Date: 2018-02-02



Site no. : No.4 Shielded Room Data no. : 11  
 Condition : KNW-244C 8-1373-5 LISN Phase : LINE  
 Limit : CLASS-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : DC 24V  
 Test Mode : On battery Mode

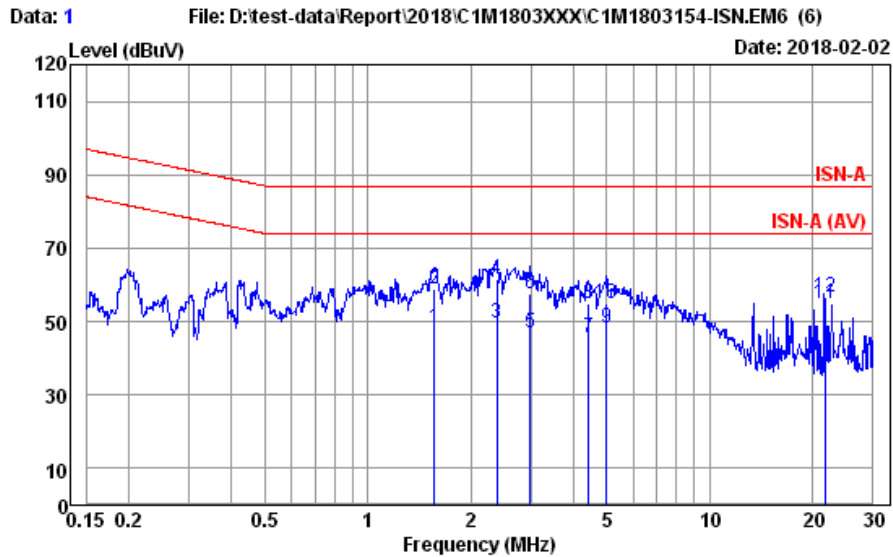
|    | Freq.<br>(MHz) | AMN<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|-----------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 1.645          | 0.07                  | 0.06                  | 9.86                  | 16.59             | 26.58                       | 60.00            | 33.42          | Average |
| 2  | 1.645          | 0.07                  | 0.06                  | 9.86                  | 23.24             | 33.23                       | 73.00            | 39.77          | QP      |
| 3  | 2.358          | 0.10                  | 0.08                  | 9.86                  | 18.84             | 28.88                       | 60.00            | 31.12          | Average |
| 4  | 2.358          | 0.10                  | 0.08                  | 9.86                  | 27.86             | 37.90                       | 73.00            | 35.10          | QP      |
| 5  | 3.364          | 0.13                  | 0.09                  | 9.87                  | 16.18             | 26.27                       | 60.00            | 33.73          | Average |
| 6  | 3.364          | 0.13                  | 0.09                  | 9.87                  | 24.12             | 34.21                       | 73.00            | 38.79          | QP      |
| 7  | 5.447          | 0.23                  | 0.12                  | 9.87                  | 21.57             | 31.79                       | 60.00            | 28.21          | Average |
| 8  | 5.447          | 0.23                  | 0.12                  | 9.87                  | 26.24             | 36.46                       | 73.00            | 36.54          | QP      |
| 9  | 7.810          | 0.32                  | 0.14                  | 9.89                  | 23.16             | 33.51                       | 60.00            | 26.49          | Average |
| 10 | 7.810          | 0.32                  | 0.14                  | 9.89                  | 29.85             | 40.20                       | 73.00            | 32.80          | QP      |
| 11 | 9.757          | 0.37                  | 0.15                  | 9.90                  | 22.72             | 33.14                       | 60.00            | 26.86          | Average |
| 12 | 9.757          | 0.37                  | 0.15                  | 9.90                  | 28.01             | 38.43                       | 73.00            | 34.57          | QP      |

Remarks: 1. Emission Level= AMN Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

● Conducted emissions at signal and telecommunication ports



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Site no. : No.3 Shielded Room Data no. : 1  
 Condition : T800 CAT.5 LISN Phase :  
 Limit : ISN-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : LAN 100M  
 PORT1 NMC

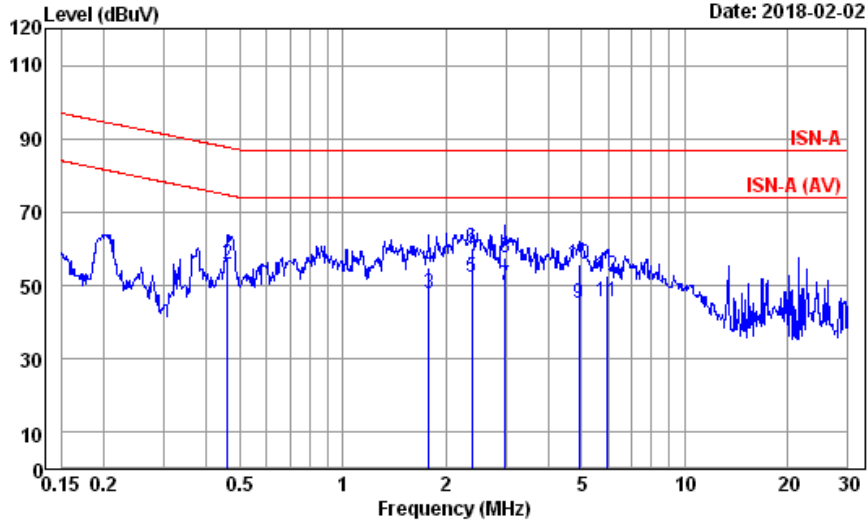
|    | ISN.   | Cable  | Pulse | Emission |         |        | Limits | Margin | Remark  |
|----|--------|--------|-------|----------|---------|--------|--------|--------|---------|
|    | Freq.  | Factor | Loss  | Att.     | Reading | Level  | (dBµV) | (dB)   |         |
|    | (MHz)  | (dB)   | (dB)  | (dB)     | (dBµV)  | (dBµV) |        |        |         |
| 1  | 1.568  | 9.72   | 0.02  | 9.86     | 28.88   | 48.48  | 74.00  | 25.52  | Average |
| 2  | 1.568  | 9.72   | 0.02  | 9.86     | 39.47   | 59.07  | 87.00  | 27.93  | QP      |
| 3  | 2.384  | 9.69   | 0.04  | 9.86     | 29.82   | 49.41  | 74.00  | 24.59  | Average |
| 4  | 2.384  | 9.69   | 0.04  | 9.86     | 41.81   | 61.40  | 87.00  | 25.60  | QP      |
| 5  | 2.978  | 9.67   | 0.04  | 9.87     | 27.47   | 47.05  | 74.00  | 26.95  | Average |
| 6  | 2.978  | 9.67   | 0.04  | 9.87     | 37.94   | 57.52  | 87.00  | 29.48  | QP      |
| 7  | 4.430  | 9.66   | 0.05  | 9.87     | 26.06   | 45.64  | 74.00  | 28.36  | Average |
| 8  | 4.430  | 9.66   | 0.05  | 9.87     | 35.54   | 55.12  | 87.00  | 31.88  | QP      |
| 9  | 4.978  | 9.65   | 0.06  | 9.87     | 28.82   | 48.40  | 74.00  | 25.60  | Average |
| 10 | 4.978  | 9.65   | 0.06  | 9.87     | 35.54   | 55.12  | 87.00  | 31.88  | QP      |
| 11 | 21.660 | 9.80   | 0.13  | 9.95     | 35.05   | 54.93  | 74.00  | 19.07  | Average |
| 12 | 21.660 | 9.80   | 0.13  | 9.95     | 36.65   | 56.53  | 87.00  | 30.47  | QP      |

Remarks: 1. Emission Level= ISN. Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector, the EUT shall be deemed to meet both limits and measurement with average detector is unnecessary.



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Data: 2 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-ISM.EM6 (6) Date: 2018-02-02



Site no. : No.3 Shielded Room Data no. : 2  
 Condition : T800 CAT.5 LISN Phase :  
 Limit : ISN-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : LAN 10M  
 PORT1 NMC

|    | Freq.<br>(MHz) | ISN.<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.461          | 9.89                   | 0.01                  | 9.86                  | 32.23             | 51.99                       | 74.67            | 22.68          | Average |
| 2  | 0.461          | 9.89                   | 0.01                  | 9.86                  | 36.00             | 55.76                       | 87.67            | 31.91          | QP      |
| 3  | 1.790          | 9.71                   | 0.03                  | 9.86                  | 28.10             | 47.70                       | 74.00            | 26.30          | Average |
| 4  | 1.790          | 9.71                   | 0.03                  | 9.86                  | 35.41             | 55.01                       | 87.00            | 31.99          | QP      |
| 5  | 2.384          | 9.69                   | 0.04                  | 9.86                  | 32.55             | 52.14                       | 74.00            | 21.86          | Average |
| 6  | 2.384          | 9.69                   | 0.04                  | 9.86                  | 40.55             | 60.14                       | 87.00            | 26.86          | QP      |
| 7  | 2.993          | 9.67                   | 0.04                  | 9.87                  | 30.28             | 49.86                       | 74.00            | 24.14          | Average |
| 8  | 2.993          | 9.67                   | 0.04                  | 9.87                  | 37.77             | 57.35                       | 87.00            | 29.65          | QP      |
| 9  | 4.900          | 9.65                   | 0.05                  | 9.87                  | 25.74             | 45.31                       | 74.00            | 28.69          | Average |
| 10 | 4.900          | 9.65                   | 0.05                  | 9.87                  | 36.09             | 55.66                       | 87.00            | 31.34          | QP      |
| 11 | 5.898          | 9.64                   | 0.06                  | 9.88                  | 25.95             | 45.53                       | 74.00            | 28.47          | Average |
| 12 | 5.898          | 9.64                   | 0.06                  | 9.88                  | 33.14             | 52.72                       | 87.00            | 34.28          | QP      |

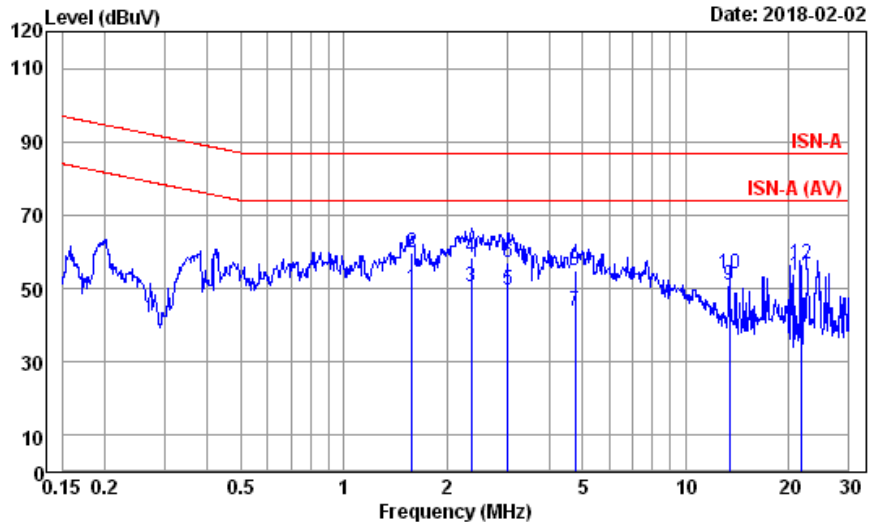
Remarks: 1. Emission Level= ISN. Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.





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Data: 3 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-ISM.EM6 (6) Date: 2018-02-02



Site no. : No.3 Shielded Room Data no. : 3  
 Condition : T800 CAT.5 LISN Phase :  
 Limit : ISN-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750RMI2UC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : LAN 100M  
 PORT2 LCE

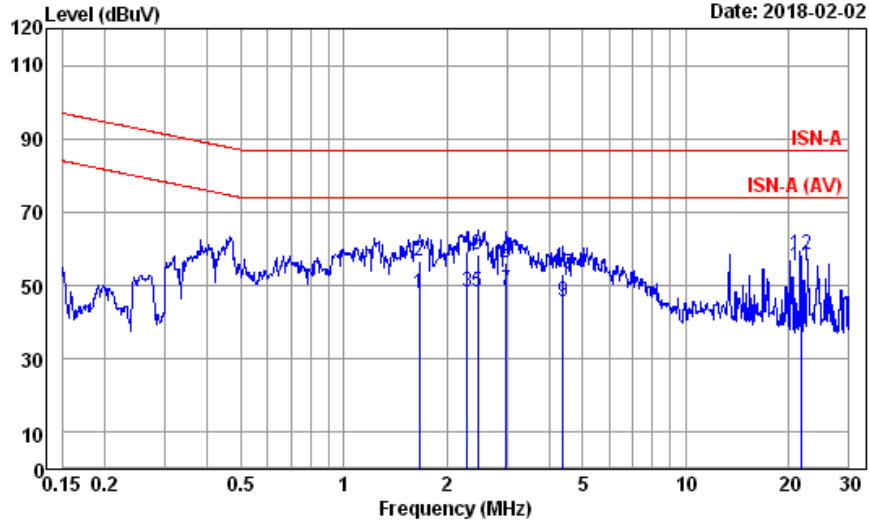
|    | Freq.<br>(MHz) | ISN.<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 1.585          | 9.72                   | 0.02                  | 9.86                  | 30.59             | 50.19                       | 74.00            | 23.81          | Average |
| 2  | 1.585          | 9.72                   | 0.02                  | 9.86                  | 40.18             | 59.78                       | 87.00            | 27.22          | QP      |
| 3  | 2.358          | 9.69                   | 0.03                  | 9.86                  | 30.82             | 50.40                       | 74.00            | 23.60          | Average |
| 4  | 2.358          | 9.69                   | 0.03                  | 9.86                  | 39.09             | 58.67                       | 87.00            | 28.33          | QP      |
| 5  | 3.025          | 9.67                   | 0.04                  | 9.87                  | 30.18             | 49.76                       | 74.00            | 24.24          | Average |
| 6  | 3.025          | 9.67                   | 0.04                  | 9.87                  | 37.59             | 57.17                       | 87.00            | 29.83          | QP      |
| 7  | 4.746          | 9.65                   | 0.05                  | 9.87                  | 24.49             | 44.06                       | 74.00            | 29.94          | Average |
| 8  | 4.746          | 9.65                   | 0.05                  | 9.87                  | 35.36             | 54.93                       | 87.00            | 32.07          | QP      |
| 9  | 13.420         | 9.69                   | 0.09                  | 9.91                  | 31.44             | 51.13                       | 74.00            | 22.87          | Average |
| 10 | 13.420         | 9.69                   | 0.09                  | 9.91                  | 34.23             | 53.92                       | 87.00            | 33.08          | QP      |
| 11 | 21.660         | 9.80                   | 0.13                  | 9.95                  | 33.86             | 53.74                       | 74.00            | 20.26          | Average |
| 12 | 21.660         | 9.80                   | 0.13                  | 9.95                  | 36.65             | 56.53                       | 87.00            | 30.47          | QP      |

Remarks: 1. Emission Level= ISN. Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 4 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-ISM.EM6 (6) Date: 2018-02-02



Site no. : No.3 Shielded Room Data no. : 4  
 Condition : T800 CAT.5 LISN Phase :  
 Limit : ISN-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : LAN 100M  
 PORT1 NMC

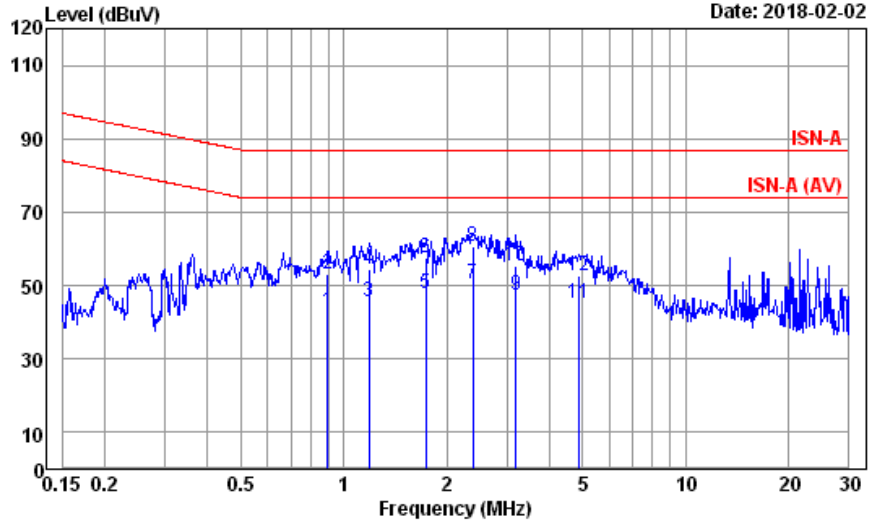
|    | Freq.<br>(MHz) | ISN.<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 1.662          | 9.72                   | 0.02                  | 9.86                  | 28.11             | 47.71                       | 74.00            | 26.29          | Average |
| 2  | 1.662          | 9.72                   | 0.02                  | 9.86                  | 37.29             | 56.89                       | 87.00            | 30.11          | QP      |
| 3  | 2.297          | 9.69                   | 0.03                  | 9.86                  | 28.72             | 48.30                       | 74.00            | 25.70          | Average |
| 4  | 2.297          | 9.69                   | 0.03                  | 9.86                  | 39.72             | 59.30                       | 87.00            | 27.70          | QP      |
| 5  | 2.461          | 9.68                   | 0.04                  | 9.87                  | 28.77             | 48.36                       | 74.00            | 25.64          | Average |
| 6  | 2.461          | 9.68                   | 0.04                  | 9.87                  | 39.01             | 58.60                       | 87.00            | 28.40          | QP      |
| 7  | 2.993          | 9.67                   | 0.04                  | 9.87                  | 29.25             | 48.83                       | 74.00            | 25.17          | Average |
| 8  | 2.993          | 9.67                   | 0.04                  | 9.87                  | 36.50             | 56.08                       | 87.00            | 30.92          | QP      |
| 9  | 4.384          | 9.66                   | 0.05                  | 9.87                  | 25.95             | 45.53                       | 74.00            | 28.47          | Average |
| 10 | 4.384          | 9.66                   | 0.05                  | 9.87                  | 33.54             | 53.12                       | 87.00            | 33.88          | QP      |
| 11 | 21.660         | 9.80                   | 0.13                  | 9.95                  | 35.57             | 55.45                       | 74.00            | 18.55          | Average |
| 12 | 21.660         | 9.80                   | 0.13                  | 9.95                  | 38.78             | 58.66                       | 87.00            | 28.34          | QP      |

Remarks: 1. Emission Level= ISN. Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 5 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-ISM.EM6 (6) Date: 2018-02-02



Site no. : No.3 Shielded Room Data no. : 5  
 Condition : T800 CAT.5 LISN Phase :  
 Limit : ISN-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : LAN 10M  
 PORT1 NMC

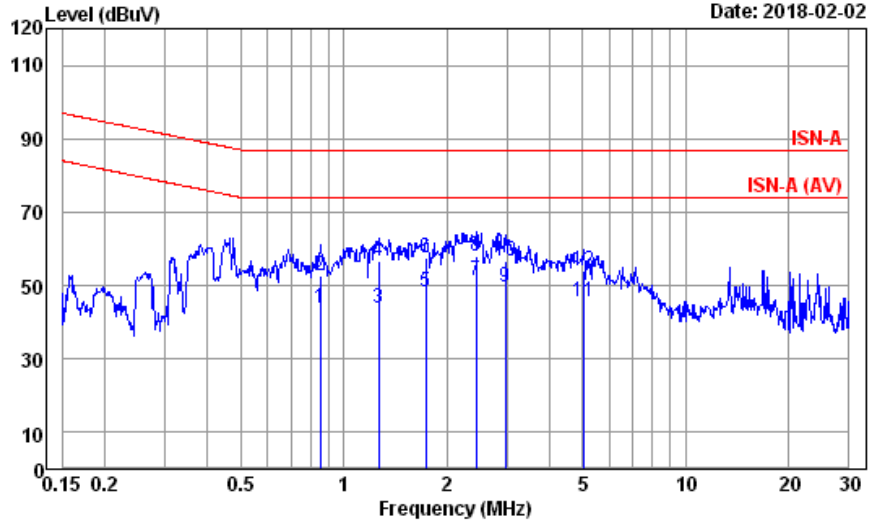
|    | Freq.<br>(MHz) | ISN.<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV) | Limits<br>(dBμV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.899          | 9.79                   | 0.01                  | 9.86                  | 23.36             | 43.02                       | 74.00            | 30.98          | Average |
| 2  | 0.899          | 9.79                   | 0.01                  | 9.86                  | 33.51             | 53.17                       | 87.00            | 33.83          | QP      |
| 3  | 1.184          | 9.75                   | 0.01                  | 9.86                  | 25.85             | 45.47                       | 74.00            | 28.53          | Average |
| 4  | 1.184          | 9.75                   | 0.01                  | 9.86                  | 34.98             | 54.60                       | 87.00            | 32.40          | QP      |
| 5  | 1.734          | 9.71                   | 0.03                  | 9.86                  | 28.41             | 48.01                       | 74.00            | 25.99          | Average |
| 6  | 1.734          | 9.71                   | 0.03                  | 9.86                  | 37.93             | 57.53                       | 87.00            | 29.47          | QP      |
| 7  | 2.384          | 9.69                   | 0.04                  | 9.86                  | 30.74             | 50.33                       | 74.00            | 23.67          | Average |
| 8  | 2.384          | 9.69                   | 0.04                  | 9.86                  | 41.23             | 60.82                       | 87.00            | 26.18          | QP      |
| 9  | 3.190          | 9.67                   | 0.04                  | 9.87                  | 27.82             | 47.40                       | 74.00            | 26.60          | Average |
| 10 | 3.190          | 9.67                   | 0.04                  | 9.87                  | 35.92             | 55.50                       | 87.00            | 31.50          | QP      |
| 11 | 4.848          | 9.65                   | 0.05                  | 9.87                  | 25.81             | 45.38                       | 74.00            | 28.62          | Average |
| 12 | 4.848          | 9.65                   | 0.05                  | 9.87                  | 33.05             | 52.62                       | 87.00            | 34.38          | QP      |

Remarks: 1. Emission Level= ISN. Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.



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Data: 6 File: D:\test-data\Report\2018\C1M1803XXX\C1M1803154-ISM.EM6 (6) Date: 2018-02-02



Site no. : No.3 Shielded Room Data no. : 6  
 Condition : T800 CAT.5 LISN Phase :  
 Limit : ISN-A  
 Env. / Ins. : 24°C / 61% ESR3 (101772) Engineer : Ghost  
 EUT : SMT750IC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : LAN 100M  
 PORT2 LCE

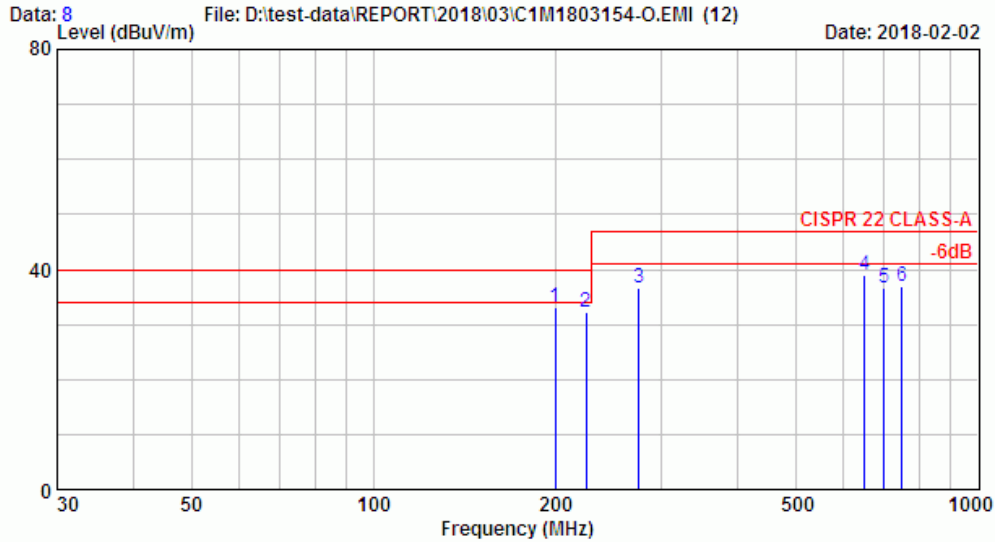
|    | Freq.<br>(MHz) | ISN.<br>Factor<br>(dB) | Cable<br>Loss<br>(dB) | Pulse<br>Att.<br>(dB) | Reading<br>(dBµV) | Emission<br>Level<br>(dBµV) | Limits<br>(dBµV) | Margin<br>(dB) | Remark  |
|----|----------------|------------------------|-----------------------|-----------------------|-------------------|-----------------------------|------------------|----------------|---------|
| 1  | 0.853          | 9.79                   | 0.01                  | 9.86                  | 24.25             | 43.91                       | 74.00            | 30.09          | Average |
| 2  | 0.853          | 9.79                   | 0.01                  | 9.86                  | 32.97             | 52.63                       | 87.00            | 34.37          | QP      |
| 3  | 1.262          | 9.75                   | 0.02                  | 9.86                  | 24.40             | 44.03                       | 74.00            | 29.97          | Average |
| 4  | 1.262          | 9.75                   | 0.02                  | 9.86                  | 37.18             | 56.81                       | 87.00            | 30.19          | QP      |
| 5  | 1.734          | 9.71                   | 0.03                  | 9.86                  | 28.75             | 48.35                       | 74.00            | 25.65          | Average |
| 6  | 1.734          | 9.71                   | 0.03                  | 9.86                  | 38.16             | 57.76                       | 87.00            | 29.24          | QP      |
| 7  | 2.435          | 9.69                   | 0.04                  | 9.86                  | 31.91             | 51.50                       | 74.00            | 22.50          | Average |
| 8  | 2.435          | 9.69                   | 0.04                  | 9.86                  | 38.24             | 57.83                       | 87.00            | 29.17          | QP      |
| 9  | 2.962          | 9.67                   | 0.04                  | 9.87                  | 29.89             | 49.47                       | 74.00            | 24.53          | Average |
| 10 | 2.962          | 9.67                   | 0.04                  | 9.87                  | 36.96             | 56.54                       | 87.00            | 30.46          | QP      |
| 11 | 5.031          | 9.65                   | 0.06                  | 9.87                  | 26.23             | 45.81                       | 74.00            | 28.19          | Average |
| 12 | 5.031          | 9.65                   | 0.06                  | 9.87                  | 34.33             | 53.91                       | 87.00            | 33.09          | QP      |

Remarks: 1. Emission Level= ISN. Factor + Cable Loss + Pulse Att. + Reading.  
 2. If the average limit is met when using a quasi-peak detector,  
 the EUT shall be deemed to meet both limits and measurement  
 with average detector is unnecessary.

● Radiated emissions (30 – 1000MHz)



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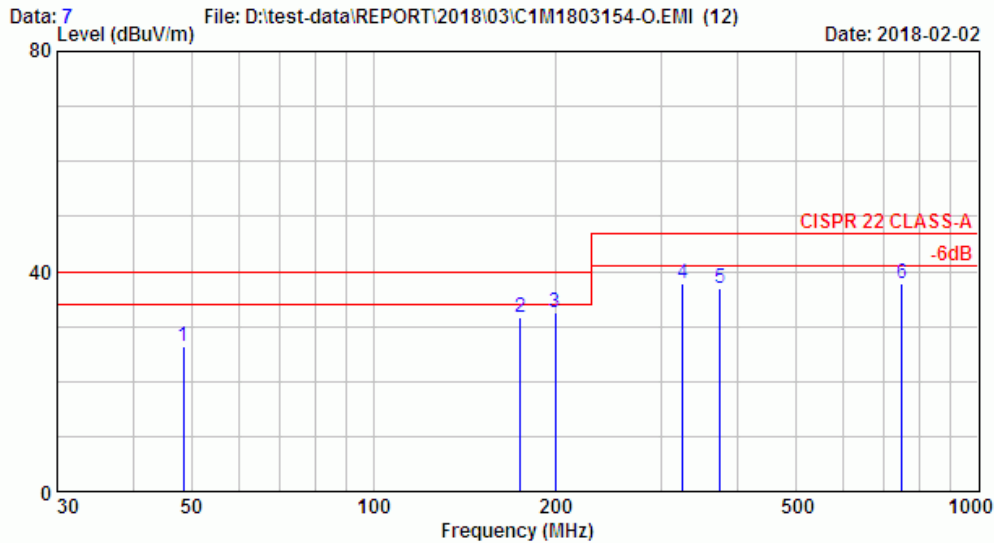
Site no. : OATS No. 6 Data no. : 8  
 Dis. / Ant. : 10m CBL6112B 2818 (PAD) Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-A  
 Env. / Ins. : 19°C / 63% ESCS 30 (339) Engineer : Joey  
 EUT M/N : SMT750IC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : Online Mode

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBμV) | Emission<br>Level<br>(dBμV/m) | Limits<br>(dBμV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 200.003        | 14.93                    | 2.12                  | 16.00             | 33.05                         | 40.00              | 6.95           | QP     |
| 2 | 224.998        | 16.77                    | 2.26                  | 13.20             | 32.23                         | 40.00              | 7.77           | QP     |
| 3 | 275.009        | 18.72                    | 2.52                  | 15.50             | 36.74                         | 47.00              | 10.26          | QP     |
| 4 | 650.035        | 24.81                    | 4.11                  | 10.10             | 39.02                         | 47.00              | 7.98           | QP     |
| 5 | 700.030        | 25.21                    | 4.28                  | 7.00              | 36.49                         | 47.00              | 10.51          | QP     |
| 6 | 750.004        | 25.64                    | 4.49                  | 6.90              | 37.02                         | 47.00              | 9.98           | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.



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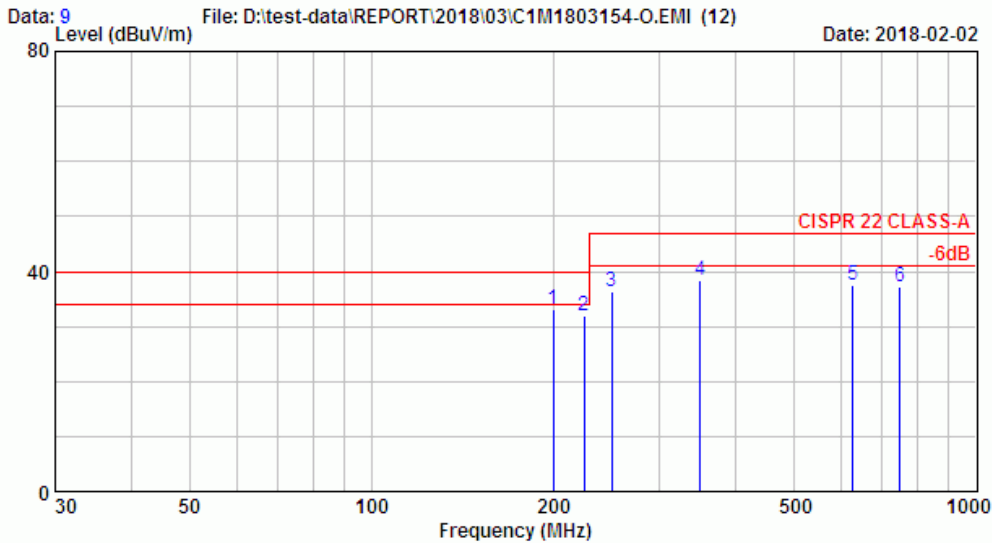
Site no. : OATS No. 6 Data no. : 7  
 Dis. / Ant. : 10m CBL6112B 2818 (PAD) Ant. pol. : VERTICAL  
 Limit : CISPR 22 CLASS-A  
 Env. / Ins. : 19°C / 63% ESCS 30 (339) Engineer : Joey  
 EUT M/N : SMT750IC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : Online Mode

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark |
|-------------|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|--------|
| 1           | 16.08              | 0.95            | 9.40           | 26.43                   | 40.00           | 13.57       | QP     |
| 2           | 15.05              | 1.95            | 14.70          | 31.69                   | 40.00           | 8.31        | QP     |
| 3           | 14.93              | 2.12            | 15.40          | 32.45                   | 40.00           | 7.55        | QP     |
| 4           | 19.74              | 2.77            | 15.20          | 37.71                   | 47.00           | 9.29        | QP     |
| 5           | 21.09              | 3.00            | 12.80          | 36.89                   | 47.00           | 10.11       | QP     |
| 6           | 25.64              | 4.49            | 7.80           | 37.92                   | 47.00           | 9.08        | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.



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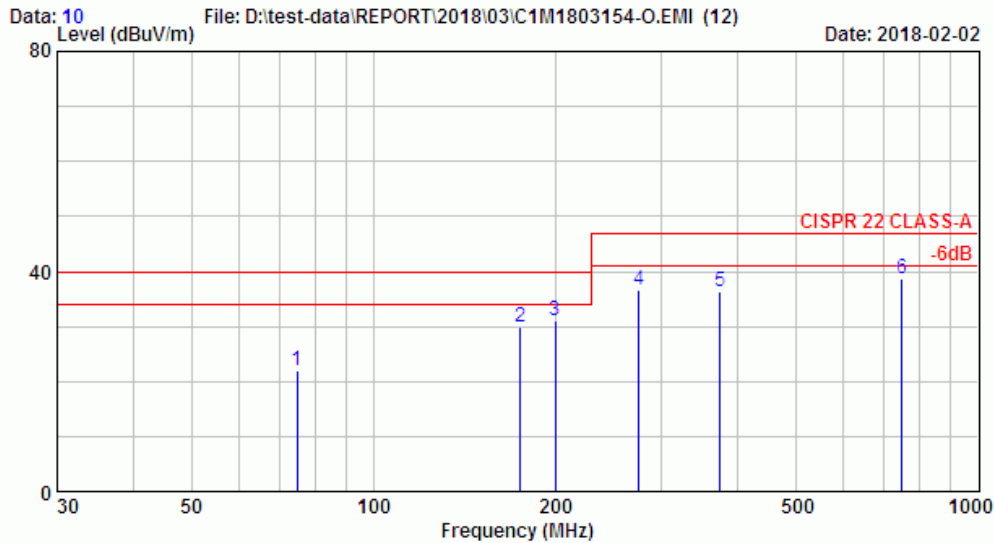
Site no. : OATS No. 6 Data no. : 9  
 Dis. / Ant. : 10m CBL6112B 2818 (PAD) Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-A  
 Env. / Ins. : 19°C / 63% ESCS 30 (339) Engineer : Joey  
 EUT M/N : SMT750IC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : Green Mode

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBµV) | Emission<br>Level<br>(dBµV/m) | Limits<br>(dBµV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 200.000        | 14.93                    | 2.12                  | 16.20             | 33.25                         | 40.00              | 6.75           | QP     |
| 2 | 225.010        | 16.77                    | 2.26                  | 12.90             | 31.93                         | 40.00              | 8.07           | QP     |
| 3 | 250.002        | 18.40                    | 2.38                  | 15.60             | 36.38                         | 47.00              | 10.62          | QP     |
| 4 | 350.011        | 20.46                    | 2.89                  | 14.90             | 38.26                         | 47.00              | 8.74           | QP     |
| 5 | 624.998        | 24.60                    | 4.02                  | 9.00              | 37.62                         | 47.00              | 9.38           | QP     |
| 6 | 750.009        | 25.64                    | 4.49                  | 7.20              | 37.32                         | 47.00              | 9.68           | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.



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Site no. : OATS No. 6 Data no. : 10  
 Dis. / Ant. : 10m CBL6112B 2818 (PAD) Ant. pol. : VERTICAL  
 Limit : CISPR 22 CLASS-A  
 Env. / Ins. : 19°C / 63% ESCS 30 (339) Engineer : Joey  
 EUT M/N : SMT750IC  
 Power Rating : 230Vac / 50Hz  
 Test Mode : Green Mode

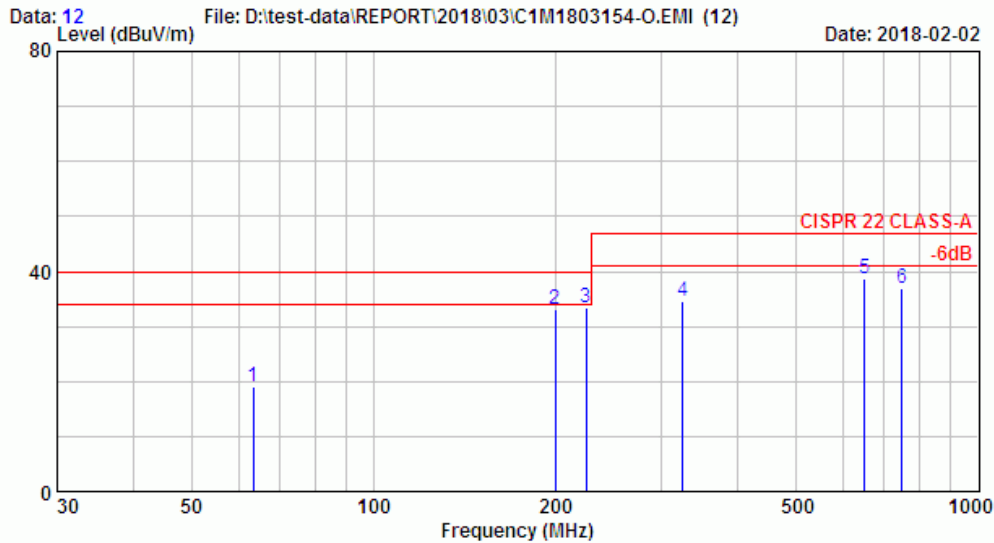
|                | Ant.             | Cable        | Emission          |                   | Limits   | Margin | Remark   |
|----------------|------------------|--------------|-------------------|-------------------|----------|--------|----------|
| Freq.<br>(MHz) | Factor<br>(dB/m) | Loss<br>(dB) | Reading<br>(dBµV) | Level<br>(dBµV/m) | (dBµV/m) | (dB)   |          |
| 1              | 74.820           | 12.97        | 1.20              | 7.90              | 22.07    | 40.00  | 17.94 QP |
| 2              | 175.004          | 15.05        | 1.95              | 12.90             | 29.89    | 40.00  | 10.11 QP |
| 3              | 200.010          | 14.93        | 2.12              | 14.10             | 31.15    | 40.00  | 8.85 QP  |
| 4              | 275.013          | 18.72        | 2.52              | 15.40             | 36.64    | 47.00  | 10.36 QP |
| 5              | 375.007          | 21.09        | 3.00              | 12.30             | 36.39    | 47.00  | 10.61 QP |
| 6              | 750.002          | 25.64        | 4.49              | 8.60              | 38.72    | 47.00  | 8.28 QP  |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.





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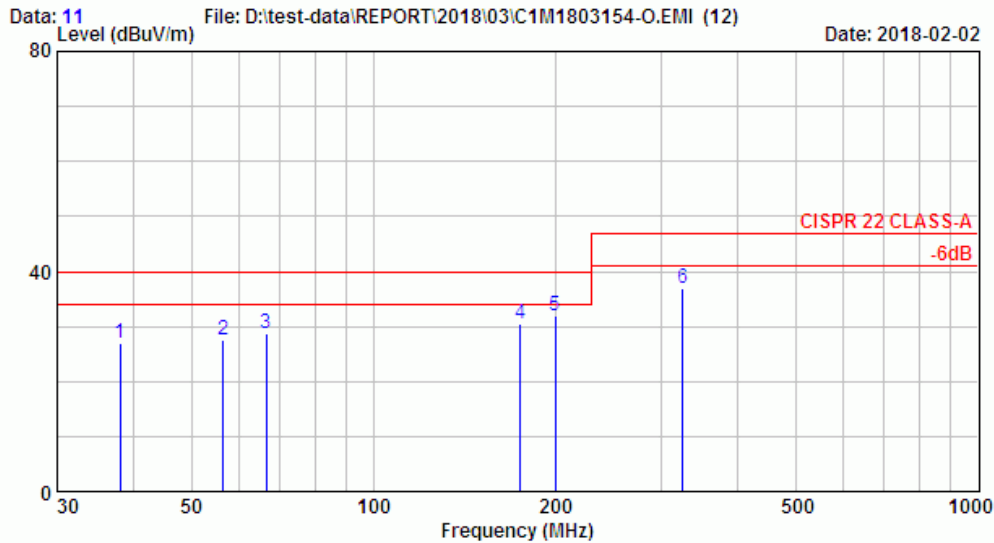
Site no. : OATS No. 6 Data no. : 12  
 Dis. / Ant. : 10m CBL6112B 2818 (PAD) Ant. pol. : HORIZONTAL  
 Limit : CISPR 22 CLASS-A  
 Env. / Ins. : 19°C / 63% ESCS 30 (339) Engineer : Joey  
 EUT M/N : SMT750IC  
 Power Rating : DC 24V  
 Test Mode : Battery Mode

| Freq. (MHz) | Ant. Factor (dB/m) | Cable Loss (dB) | Reading (dBµV) | Emission Level (dBµV/m) | Limits (dBµV/m) | Margin (dB) | Remark   |
|-------------|--------------------|-----------------|----------------|-------------------------|-----------------|-------------|----------|
| 1           | 63.210             | 11.84           | 1.09           | 6.20                    | 19.13           | 40.00       | 20.87 QP |
| 2           | 200.005            | 14.93           | 2.12           | 16.10                   | 33.15           | 40.00       | 6.85 QP  |
| 3           | 225.000            | 16.77           | 2.26           | 14.30                   | 33.33           | 40.00       | 6.67 QP  |
| 4           | 325.009            | 19.74           | 2.77           | 12.00                   | 34.51           | 47.00       | 12.49 QP |
| 5           | 650.001            | 24.81           | 4.11           | 9.80                    | 38.72           | 47.00       | 8.28 QP  |
| 6           | 750.007            | 25.64           | 4.49           | 6.80                    | 36.92           | 47.00       | 10.08 QP |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.



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Site no. : OATS No. 6 Data no. : 11  
 Dis. / Ant. : 10m CBL6112B 2818 (PAD) Ant. pol. : VERTICAL  
 Limit : CISPR 22 CLASS-A  
 Env. / Ins. : 19°C / 63% ESCS 30 (339) Engineer : Joey  
 EUT M/N : SMT750IC  
 Power Rating : DC 24V  
 Test Mode : Battery Mode

|   | Freq.<br>(MHz) | Ant.<br>Factor<br>(dB/m) | Cable<br>Loss<br>(dB) | Reading<br>(dBµV) | Emission<br>Level<br>(dBµV/m) | Limits<br>(dBµV/m) | Margin<br>(dB) | Remark |
|---|----------------|--------------------------|-----------------------|-------------------|-------------------------------|--------------------|----------------|--------|
| 1 | 38.100         | 18.11                    | 0.83                  | 8.00              | 26.94                         | 40.00              | 13.06          | QP     |
| 2 | 56.460         | 13.04                    | 1.03                  | 13.50             | 27.56                         | 40.00              | 12.44          | QP     |
| 3 | 66.450         | 12.19                    | 1.13                  | 15.40             | 28.72                         | 40.00              | 11.28          | QP     |
| 4 | 175.001        | 15.05                    | 1.95                  | 13.40             | 30.39                         | 40.00              | 9.61           | QP     |
| 5 | 200.001        | 14.93                    | 2.12                  | 15.00             | 32.05                         | 40.00              | 7.95           | QP     |
| 6 | 325.015        | 19.74                    | 2.77                  | 14.40             | 36.91                         | 47.00              | 10.09          | QP     |

Remarks: 1. Emission Level= Antenna Factor + Cable Loss + Reading.  
 2. The emissions not reported are 20 dB lower than the specified limit.

Appendix A-Generated Magnetic Fields

| Model  | SMT750RMI2UC |         |         |         | Model  | SMT750IC |         |         |         |
|--------|--------------|---------|---------|---------|--------|----------|---------|---------|---------|
|        | AC           |         | Battery |         |        | AC       |         | Battery |         |
|        | 1M(mG)       | 0.5G(m) | 1M(mG)  | 0.5G(m) |        | 1M(mG)   | 0.5G(m) | 1M(mG)  | 0.5G(m) |
| Front  | 0.2          | N/A     | 0.1     | N/A     | Front  | 0.1      | N/A     | 0.1     | N/A     |
| Right  | 0.1          | N/A     | 0.1     | N/A     | Right  | 0.1      | N/A     | 0.1     | N/A     |
| Left   | 0.2          | N/A     | 0.2     | N/A     | Left   | 0.2      | N/A     | 0.1     | N/A     |
| Rear   | 0.1          | N/A     | 0.1     | N/A     | Rear   | 0.1      | N/A     | 0.2     | N/A     |
| Top    | 0.1          | N/A     | 0.1     | N/A     | Top    | 0.1      | N/A     | 0.1     | N/A     |
| Bottom | 0.1          | N/A     | 0.2     | N/A     | Bottom | 0.2      | N/A     | 0.1     | N/A     |

### TMC410-7 RF Field Strength Susceptibility Measurement Results

Audix Technology Corp. EMC Dept. No.3 RS Room

| Applicant: <u>艾比希</u>   |                         |                              | Date of Measurement: <u>2018/03/21</u>   |                       |        |
|---|-------------------------|------------------------------|--|-----------------------|--------|
| M/N: <u>SMT750RMI2UC,SMT750IC</u>   |                         |                              | Temperature: <u>20 °C</u> ; Humidity : <u>38%</u>  |                       |        |
| Input Voltage: AC <u>230V</u> <u>50 Hz</u> ;DC <u>V</u>   |                         |                              | Working Condition: <u>Operating</u>  |                       |        |
| Test Mode : <u>Online Mode</u><br><u>Green Mode</u><br><u>Battery Mode</u>  |                         |                              | Results <u>PASS</u>  |                       |        |
| Frequency Range (MHz)   | E.U.T. Position (Angle) | Ant. Polarity (Hor. or Ver.) | Field Strength (V/m)   | Performance Criterion | Remark |
| 26~80   | 0                       | H                            | 10V (Modulated)  | A                     |        |
|   | 90                      |                              |  | A                     |        |
|   | 180                     |                              |  | A                     |        |
|   | 270                     |                              |  | A                     |        |
|   | 0                       | V                            |  | A                     |        |
|   | 90                      |                              |  | A                     |        |
|   | 180                     |                              |  | A                     |        |
|   | 270                     |                              |  | A                     |        |
| Modulated:<br><input checked="" type="checkbox"/> AMS0%,1KHz<br><input type="checkbox"/> Pulse 1Hz(0.5s ON,0.5s OFF)<br><input type="checkbox"/> Duty cycle 50% 200Hz<br>Note : |                         |                              | According To Basic Standard: <u>EN 61000-4-3</u><br><br>Measurement Equipment:<br>Signal Generator: R & S<br><input checked="" type="checkbox"/> SML03 S/N:103251<br><input type="checkbox"/> SMC100A S/N:101402<br><br>Power Amplifier: A & R<br><input checked="" type="checkbox"/> 100A250A S/N:0330351<br><br>Power Antenna: EMCO<br><input checked="" type="checkbox"/> 3108 S/N:9305-2482<br><br>Forward Power Sensor: KEYSIGHT<br><input type="checkbox"/> E9327A S/N:MY56140003<br><br>Forward Power Monitor: Agilent<br><input type="checkbox"/> E4417A S/N: GB41291797 |                       |        |
|   |                         |                              | Engineer : <u>JASON CHOU</u>   |                       |        |