

# EMC

# TEST REPORT

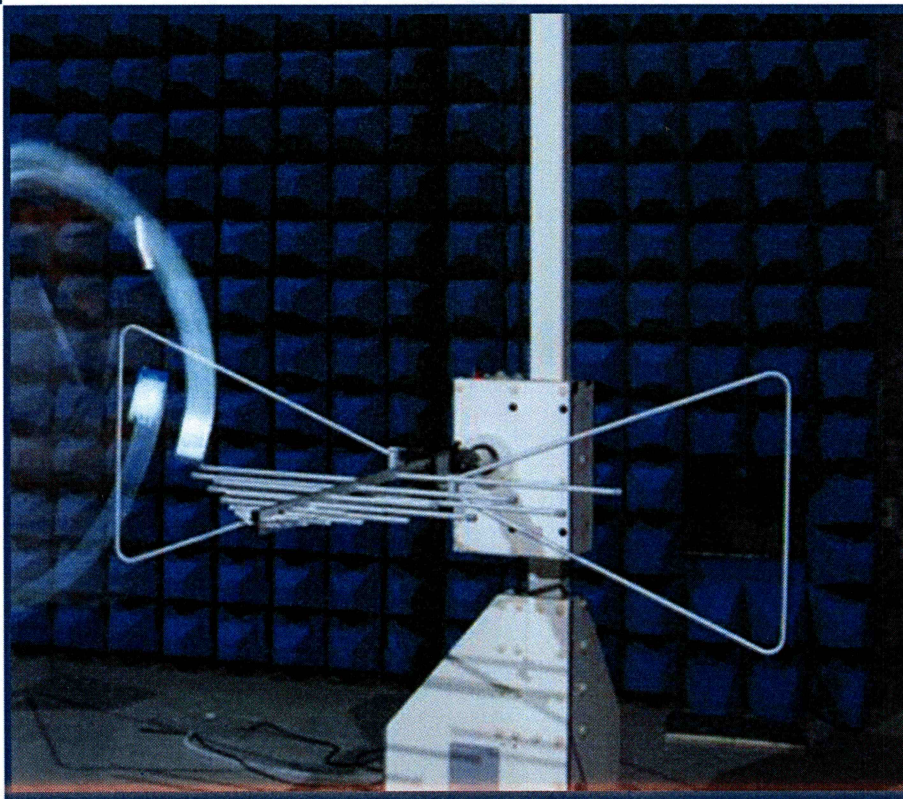
ISSUED BY  
Shenzhen BALUN Technology Co., Ltd.



FOR  
**Rugged Mobile Computer**

ISSUED TO  
iWaylink INC

6F., No. 288, Sec. 6, Civic Blvd., Xinyi Dist., Taipei city 110, Taiwan



Tested by: Huang Guoqiang

Huang Guoqiang

Date Aug. 31, 2021

Approved by: [Signature]

Wei Yanquan  
(Chief Engineer)

Date Aug. 31, 2021

Report No.: BL-SZ2170164-401

EUT Name: Rugged Mobile Computer

Model Name: TC601

Brand Name: iMotion

Test Standard: 47 CFR Part 15 Subpart B

FCC ID: SPYTC601

Test Conclusion: Pass

Test Date: Jul. 06, 2021 ~ Jul. 24, 2021

Date of Issue: Aug. 31, 2021

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**Revision History**

| Version        | Issue Date           | Revisions Content    |
|----------------|----------------------|----------------------|
| <u>Rev. 01</u> | <u>Aug. 31, 2021</u> | <u>Initial Issue</u> |

**TABLE OF CONTENTS**

|         |                                                          |    |
|---------|----------------------------------------------------------|----|
| 1       | GENERAL INFORMATION .....                                | 4  |
| 1.1     | Identification of the Testing Laboratory .....           | 4  |
| 1.2     | Identification of the Responsible Testing Location ..... | 4  |
| 1.3     | Laboratory Condition .....                               | 4  |
| 1.4     | Announce .....                                           | 4  |
| 2       | PRODUCT INFORMATION .....                                | 5  |
| 2.1     | Applicant Information .....                              | 5  |
| 2.2     | Manufacturer Information .....                           | 5  |
| 2.3     | Factory Information .....                                | 5  |
| 2.4     | General Description for Equipment under Test (EUT) ..... | 5  |
| 2.5     | Ancillary Equipment .....                                | 6  |
| 2.6     | Technical Information .....                              | 6  |
| 3       | SUMMARY OF TEST RESULTS .....                            | 7  |
| 3.1     | Test Standards .....                                     | 7  |
| 3.2     | Verdict .....                                            | 7  |
| 3.3     | Test Uncertainty .....                                   | 7  |
| 4       | GENERAL TEST CONFIGURATIONS .....                        | 8  |
| 4.1     | Test Environments .....                                  | 8  |
| 4.2     | Test Equipment List .....                                | 8  |
| 4.3     | Test Enclosure list .....                                | 10 |
| 4.4     | Test Configurations .....                                | 11 |
| 4.5     | Test Setups .....                                        | 13 |
| 4.6     | Test Conditions .....                                    | 15 |
| 5       | TEST ITEMS .....                                         | 16 |
| 5.1     | Emission Tests .....                                     | 16 |
| ANNEX A | TEST RESULTS .....                                       | 18 |

|         |                           |    |
|---------|---------------------------|----|
| A.1     | Radiated Emission .....   | 18 |
| A.2     | Conducted Emission .....  | 22 |
| ANNEX B | TEST SETUP PHOTOS .....   | 23 |
| ANNEX C | EUT EXTERNAL PHOTOS ..... | 23 |
| ANNEX D | EUT INTERNAL PHOTOS ..... | 23 |

## 1 GENERAL INFORMATION

### 1.1 Identification of the Testing Laboratory

|              |                                                                                                                                 |
|--------------|---------------------------------------------------------------------------------------------------------------------------------|
| Company Name | Shenzhen BALUN Technology Co.,Ltd.                                                                                              |
| Address      | Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China |
| Phone Number | +86 755 6685 0100                                                                                                               |
| Fax Number   | +86 755 6182 4271                                                                                                               |

### 1.2 Identification of the Responsible Testing Location

|               |                                                                                                                                                                                                                     |
|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Test Location | Shenzhen BALUN Technology Co.,Ltd.                                                                                                                                                                                  |
| Address       | Block B, 1st FL, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China                                                                                     |
| Description   | All measurement facilities used to collect the measurement data are located at Block B, FL 1, Baisha Science and Technology Park, Shahe Xi Road, Nanshan District, Shenzhen, Guangdong Province, P. R. China 518055 |

### 1.3 Laboratory Condition

|                           |                    |
|---------------------------|--------------------|
| Ambient Temperature       | 20°C to 25°C       |
| Ambient Relative Humidity | 30% to 60%         |
| Ambient Pressure          | 100 kPa to 102 kPa |

### 1.4 Announce

- (1) The test report refer to the BALUN report mode v6.9.
- (2) The test report is invalid if not marked with the signatures of the persons responsible for preparing and approving the test report.
- (3) The test report is invalid if there is any evidence and/or falsification.
- (4) The results documented in this report apply only to the tested sample, under the conditions and modes of operation as described herein.
- (5) This document may not be altered or revised in any way unless done so by BALUN and all revisions are duly noted in the revisions section.
- (6) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.
- (7) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

## 2 PRODUCT INFORMATION

### 2.1 Applicant Information

|           |                                                                         |
|-----------|-------------------------------------------------------------------------|
| Applicant | iWaylink INC                                                            |
| Address   | 6F., No. 288, Sec. 6, Civic Blvd., Xinyi Dist., Taipei city 110, Taiwan |

### 2.2 Manufacturer Information

|              |                                                                         |
|--------------|-------------------------------------------------------------------------|
| Manufacturer | iWaylink INC                                                            |
| Address      | 6F., No. 288, Sec. 6, Civic Blvd., Xinyi Dist., Taipei city 110, Taiwan |

### 2.3 Factory Information

|         |     |
|---------|-----|
| Factory | N/A |
| Address | N/A |

### 2.4 General Description for Equipment under Test (EUT)

|                                           |                                                                                                                                                       |
|-------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| EUT Name                                  | Rugged Mobile Computer                                                                                                                                |
| Model Name Under Test                     | TC601                                                                                                                                                 |
| Series Model Name                         | N/A                                                                                                                                                   |
| Description of Model name differentiation | The model TC601 has two configurations, (ROM: 64G, RAM: 4G) and (ROM: 32G, RAM: 3G), two configurations are identical each other, except ROM and RAM. |
| Hardware Version                          | V3                                                                                                                                                    |
| Software Version                          | 1.0.1.681.0                                                                                                                                           |
| Dimensions (Approx.)                      | N/A                                                                                                                                                   |
| Weight (Approx.)                          | N/A                                                                                                                                                   |

## 2.5 Ancillary Equipment

|                       |                      |                                     |
|-----------------------|----------------------|-------------------------------------|
| Ancillary Equipment 1 | Battery 1            |                                     |
|                       | Battery Name         | N/A                                 |
|                       | Brand Name           | N/A                                 |
|                       | Model No.            | TC601A                              |
|                       | Capacitance          | 4000mAh                             |
|                       | Rated Voltage        | 3.85V                               |
|                       | Limit Charge Voltage | 4.4V                                |
| Ancillary Equipment 2 | Battery 2            |                                     |
|                       | Battery Name         | N/A                                 |
|                       | Brand Name           | N/A                                 |
|                       | Model No.            | U0086                               |
|                       | Capacitance          | 60mAh                               |
|                       | Rated Voltage        | 3.7V                                |
|                       | Limit Charge Voltage | 4.2V                                |
| Ancillary Equipment 3 | Adapter              |                                     |
|                       | Brand Name           | N/A                                 |
|                       | Model No.            | A138A-120150U-US2 (US Plug)         |
|                       | Serial No.           | N/A                                 |
|                       | Rated Input          | 100-240 V~, 0.5 A, 50/60 Hz         |
|                       | Rated Output         | 5 V= 2.5 A / 9 V= 2 A / 12 V= 1.5 A |
|                       | Manufacturer         | N/A                                 |
| Ancillary Equipment 4 | USB Cable            |                                     |
|                       | Length (Approx.)     | 1 m                                 |

## 2.6 Technical Information

|                                   |                                                                                                                                                                                  |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network and Wireless connectivity | 2G Network GSM/GPRS/EDGE 850/1900 MHz<br>3G Network WCDMA/HSDPA/HSUPA Band 2/5<br>4G Network FDD LTE Band 2/4/5/7/12/17<br>TDD LTE Band 41<br>Bluetooth, WIFI, GPS, GLONASS, NFC |
|-----------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### 3 SUMMARY OF TEST RESULTS

#### 3.1 Test Standards

| No. | Identity                                      | Document Title                                                                                                                                                                |
|-----|-----------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | 47 CFR Part 15 Subpart B<br>(10-1-19 Edition) | Unintentional Radiators                                                                                                                                                       |
| 2   | ANSI C63.4-2014                               | American National Standard for Methods of<br>Measurement of Radio-Noise Emissions from Low-<br>Voltage Electrical and Electronic Equipment in the<br>Range of 9 kHz to 40 GHz |

#### 3.2 Verdict

| No. | Description                  | FCC Rule | Test Verdict | Result     |
|-----|------------------------------|----------|--------------|------------|
| 1   | Radiated Emission            | 15.109   | Pass         | Annex A .1 |
| 2   | Conducted Emission, AC Ports | 15.107   | N/A          | Annex A .2 |

Note: The only difference between the EUT (test samples in this report) and testing sample of report BL-SZ19C0149-401, which was issued by Shenzhen BALUN Technology Co., Ltd. on Mar. 26, 2020 shown as below:

1.Add second supply screen.

All items were retested in this report, but only the worst data was shown in this report.

#### 3.3 Test Uncertainty

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

| Measurement                        | Value   |
|------------------------------------|---------|
| Conducted emissions (9 kHz-30 MHz) | 2.96 dB |
| Radiated emissions (30 MHz-1 GHz)  | 3.67 dB |
| Radiated emissions (1 GHz-18 GHz)  | 3.57 dB |
| Radiated emissions (18 GHz-40 GHz) | 5.16 dB |

## 4 GENERAL TEST CONFIGURATIONS

### 4.1 Test Environments

| Environment Parameter                     | Selected Values During Tests |                                         |                   |                    |
|-------------------------------------------|------------------------------|-----------------------------------------|-------------------|--------------------|
|                                           | Temperature                  | Voltage                                 | Relative Humidity | Ambient Pressure   |
| Normal Temperature, Normal Voltage (NTNV) | 20°C to 25°C                 | AC 120 V/60 Hz or DC 3.85V from Battery | 30% to 60%        | 100 kPa to 102 kPa |

### 4.2 Test Equipment List

| Radiated Emission Test For Frequency Below 1 GHz (10 m) |                         |                   |            |            |            |                          |
|---------------------------------------------------------|-------------------------|-------------------|------------|------------|------------|--------------------------|
| Description                                             | Manufacturer            | Model             | Serial No. | Cal. Date  | Cal. Due   | Use                      |
| EMI Receiver                                            | ROHDE&SCHWARZ           | ESRP              | 101036     | 2021.06.01 | 2022.05.31 | <input type="checkbox"/> |
| Test Antenna-Bi-Log                                     | SCHWARZBECK             | VULB 9168         | 9168-0883  | 2020.05.11 | 2022.05.10 | <input type="checkbox"/> |
| Anechoic Chamber                                        | EMC Electronic Co., Ltd | 20.10*11.60*7.35m | N/A        | 2018.08.08 | 2021.08.07 | <input type="checkbox"/> |
| Test Software                                           | BALUN                   | BL410_E           | V19.918    | --         | --         | <input type="checkbox"/> |

| Radiated Emission Test For Frequency Below 1 GHz (3 m) |                 |           |            |            |            |                                     |
|--------------------------------------------------------|-----------------|-----------|------------|------------|------------|-------------------------------------|
| Description                                            | Manufacturer    | Model     | Serial No. | Cal. Date  | Cal. Due   | Use                                 |
| EMI Receiver                                           | ROHDE & SCHWARZ | FSV40     | 101544     | 2021.01.14 | 2022.01.13 | <input checked="" type="checkbox"/> |
| Test Antenna-Bi-Log                                    | SCHWARZBECK     | VULB 9163 | 9163-624   | 2019.07.02 | 2022.07.01 | <input checked="" type="checkbox"/> |
| Anechoic Chamber                                       | YIHENG          | 9m*6m*6m  | N/A        | 2018.07.18 | 2022.07.27 | <input checked="" type="checkbox"/> |
| Test Software                                          | BALUN           | BL410_E   | V19.918    | --         | --         | <input checked="" type="checkbox"/> |

| Radiated Emission Test For Frequency 1 GHz-18 GHz |                 |            |            |            |            |                                     |
|---------------------------------------------------|-----------------|------------|------------|------------|------------|-------------------------------------|
| Description                                       | Manufacturer    | Model      | Serial No. | Cal. Date  | Cal. Due   | Use                                 |
| EMI Receiver                                      | ROHDE & SCHWARZ | FSV40      | 101544     | 2021.01.14 | 2022.01.13 | <input checked="" type="checkbox"/> |
| Test Antenna-Horn                                 | SCHWARZBECK     | BBHA 9120D | 9120D-1917 | 2019.07.02 | 2022.07.01 | <input checked="" type="checkbox"/> |
| Anechoic Chamber                                  | YIHENG          | 9m*6m*6m   | N/A        | 2018.07.18 | 2022.07.17 | <input checked="" type="checkbox"/> |
| Anechoic Chamber                                  | YIHENG          | 9m*6m*6m   | N/A        | 2021.07.17 | 2022.07.16 | <input checked="" type="checkbox"/> |
| Test Software                                     | BALUN           | BL410_E    | V19.918    | --         | --         | <input checked="" type="checkbox"/> |



| Radiated Emission Test For Frequency Above 18 GHz |                 |             |            |            |            |                                     |
|---------------------------------------------------|-----------------|-------------|------------|------------|------------|-------------------------------------|
| Description                                       | Manufacturer    | Model       | Serial No. | Cal. Date  | Cal. Due   | Use                                 |
| EMI Receiver                                      | ROHDE & SCHWARZ | FSV40       | 101544     | 2021.01.14 | 2022.01.13 | <input checked="" type="checkbox"/> |
| Test Antenna-Horn                                 | A-INFOMW        | LB-180400KF | J211060273 | 2020.01.06 | 2022.01.05 | <input checked="" type="checkbox"/> |
| Anechoic Chamber                                  | YIHENG          | 9m*6m*6m    | N/A        | 2018.07.18 | 2022.07.17 | <input checked="" type="checkbox"/> |
| Anechoic Chamber                                  | YIHENG          | 9m*6m*6m    | N/A        | 2021.07.17 | 2022.07.16 | <input checked="" type="checkbox"/> |
| Test Software                                     | BALUN           | BL410_E     | V19.918    | --         | --         | <input checked="" type="checkbox"/> |

| Conducted disturbance Test |                            |                |            |            |            |                          |
|----------------------------|----------------------------|----------------|------------|------------|------------|--------------------------|
| Description                | Manufacturer               | Model          | Serial No. | Cal. Date  | Cal. Due   | Use                      |
| EMI Receiver               | ROHDE&SCHWARZ              | ESRP           | 101036     | 2021.06.01 | 2022.05.31 | <input type="checkbox"/> |
| LISN                       | SCHWARZBECK                | NSLK 8127      | 8127-687   | 2021.06.08 | 2022.06.07 | <input type="checkbox"/> |
| Shielded Enclosure         | YiHeng Electronic Co., Ltd | 3.4m*3.1m*2.8m | N/A        | 2018.08.16 | 2021.08.15 | <input type="checkbox"/> |
| Test Software              | BALUN                      | BL410_E        | V19.918    | --         | --         | <input type="checkbox"/> |

### 4.3 Test Enclosure list

| Description                      | Manufacturer | Model          | Serial No. | Length | Description         | Use                                 |
|----------------------------------|--------------|----------------|------------|--------|---------------------|-------------------------------------|
| PC                               | Dell         | 015K3N         | N/A        | N/A    | Special Handled     | <input type="checkbox"/>            |
| Laptop                           | Apple        | N/A            | N/A        | N/A    | N/A                 | <input checked="" type="checkbox"/> |
| Printer                          | HP           | DESKJET 1000   | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Keyboard                         | Logitech     | Y-BP62a        | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Mouse                            | Logitech     | M100           | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| USB disk                         | Kingston     | N/A            | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| TF Card                          | Kingston     | N/A            | N/A        | N/A    | N/A                 | <input checked="" type="checkbox"/> |
| VGA Cable                        | N/A          | N/A            | N/A        | 1.5 m  | Shielded with core  | <input type="checkbox"/>            |
| HDMI Cable                       | N/A          | N/A            | N/A        | 1.5 m  | Shielded with core  | <input type="checkbox"/>            |
| DVI Cable                        | N/A          | N/A            | N/A        | 1.5 m  | Shielded with core  | <input type="checkbox"/>            |
| Coaxial video cable              | N/A          | N/A            | N/A        | 2.0 m  | Shielded with core  | <input type="checkbox"/>            |
| iPhone                           | Apple        | A1586          | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Phone                            | MI           | M4             | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Bluetooth Earphone               | SAMSUNG      | Gear Circle    | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Wireless Communications Test Set | R&S          | CMW500         | 142028     | N/A    | Cal. Due 2022.01.13 | <input checked="" type="checkbox"/> |
| WIFI Router                      | TP-LINK      | TL-WDR7500     | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Earphone                         | HUAWEI       | N/A            | N/A        | N/A    | N/A                 | <input checked="" type="checkbox"/> |
| Car Battery                      | Camel        | 55530          | N/A        | N/A    | 12 V/55 Ah          | <input type="checkbox"/>            |
| Artificial load                  | N/A          | N/A            | N/A        | N/A    | 2.5 $\Omega$ /100 W | <input type="checkbox"/>            |
| Artificial load                  | N/A          | N/A            | N/A        | N/A    | 5 $\Omega$ /100 W   | <input type="checkbox"/>            |
| Electronic Load                  | ITECH        | IT8511         | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Ground Wire                      | N/A          | N/A            | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Power Line                       | N/A          | N/A            | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| LCD Monitor                      | SAMSUNG      | UA32C4000P     | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Analog Serial Port Connector     | N/A          | N/A            | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| RJ45 Cable                       | N/A          | N/A            | N/A        | 1.5 m  | Shielded with core  | <input type="checkbox"/>            |
| HIP Switch                       | N/A          | HIP switch 150 | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Adapter                          | N/A          | GST18A24       | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| Fiber Cable                      | N/A          | N/A            | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |
| POE Adapter                      | N/A          | GRT-480050     | N/A        | N/A    | N/A                 | <input type="checkbox"/>            |

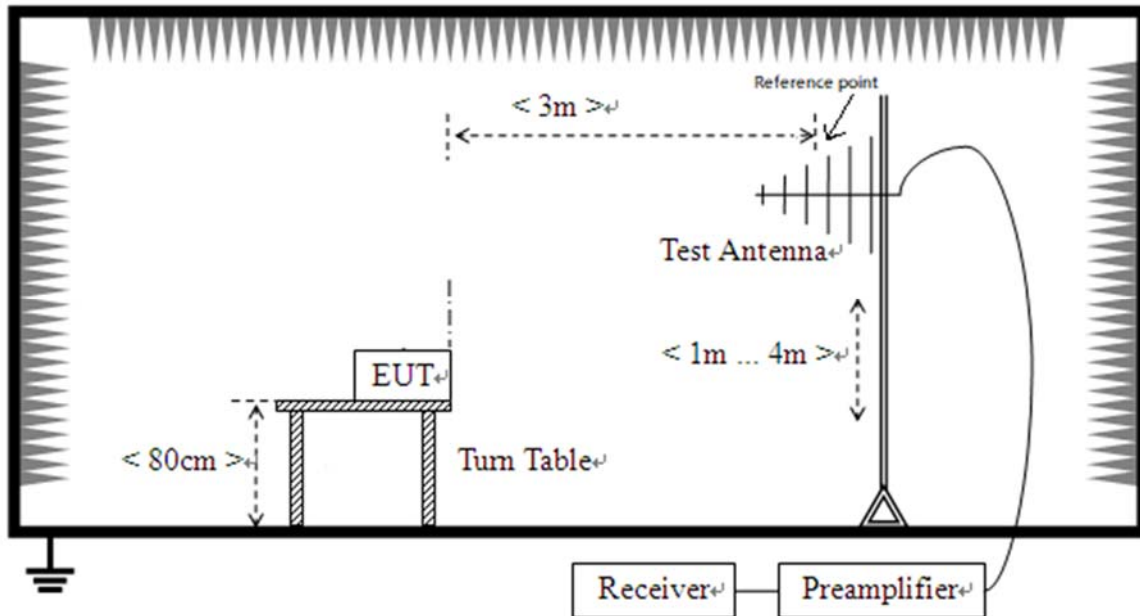
## 4.4 Test Configurations

| Test Configurations (TC) No. | Description                                                                                                                                                             |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TC01                         | <u>The GSM 850 MHz Test Mode</u><br>GSM 850 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Camera                           |
| TC02                         | <u>The EDGE 850 MHz Test Mode</u><br>EDGE 850 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GLONASS RX + NFC Link + Video Play                 |
| TC03                         | <u>The GSM 850 MHz Test Mode with internal speaker</u><br>GSM 850 Link + Adapter + USB Cable + Battery + BT Link + WIFI Link + GPS RX + NFC Link + Barcode Scanning     |
| TC04                         | <u>The GSM 1900 MHz Test Mode</u><br>GSM 1900 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GLONASS RX+ NFC Link + Camera                      |
| TC05                         | <u>The EDGE 1900 MHz Test Mode</u><br>EDGE 1900 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Video Play                   |
| TC06                         | <u>The WCDMA Band 2 MHz Test Mode</u><br>WCDMA Band 2 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GLONASS RX + NFC Link + Barcode Scanning   |
| TC07                         | <u>The WCDMA Band 5 MHz Test Mode</u><br>WCDMA Band 5 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Camera                 |
| TC08                         | <u>The FDD LTE Band 2 MHz Test Mode</u><br>LTE Band 2 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GLONASS RX + NFC Link + Video Play         |
| TC09                         | <u>The FDD LTE Band 4 MHz Test Mode</u><br>LTE Band 4 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Barcode Scanning       |
| TC10                         | <u>The FDD LTE Band 5 MHz Test Mode</u><br>LTE Band 5 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GLONASS RX + NFC Link + Camera             |
| TC11                         | <u>The FDD LTE Band 7 MHz Test Mode</u><br>LTE Band 7 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Video Play             |
| TC12                         | <u>The FDD LTE Band 12 MHz Test Mode</u><br>LTE Band 12 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GLONASS RX + NFC Link + Barcode Scanning |
| TC13                         | <u>The FDD LTE Band 17 MHz Test Mode</u><br>LTE Band 17 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Camera               |

|      |                                                                                                                                                                   |
|------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| TC14 | <u>The TDD LTE Band 41 MHz Test Mode</u><br>LTE Band 41 Link + Adapter + USB Cable + Battery + TF Card + BT Link + WIFI Link + GLONASS RX + NFC Link + Video Play |
| TC15 | <u>The Idle Test Mode</u><br>GPRS 850 (Idle) + Adapter + USB Cable + Battery + TF Card                                                                            |
| TC16 | <u>The USB Test Mode Test Mode</u><br>GSM 850 Link + USB Cable + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Laptop                             |
| TC17 | <u>The Earphone Test Mode Test Mode</u><br>GSM 850 Link + Battery + TF Card + BT Link + WIFI Link + GPS RX + NFC Link + Earphone                                  |

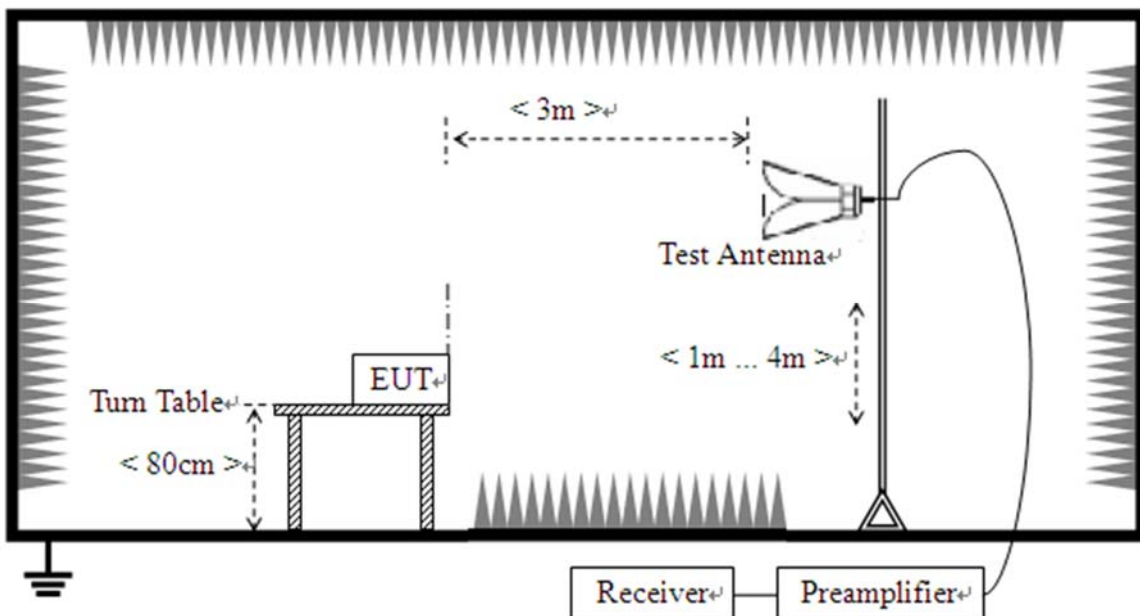
## 4.5 Test Setups

### Test Setup 1



(For Radiated Emission Test (30 MHz-1 GHz))

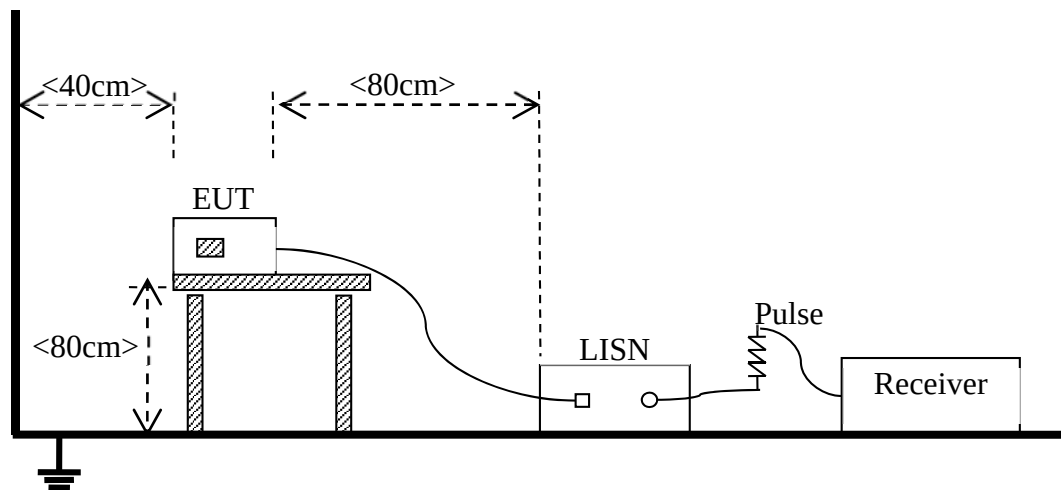
### Test Setup 2



(For Radiated Emission Test (above 1 GHz))



### Test Setup 3



(For Conducted Emission, AC Ports Test)

## 4.6 Test Conditions

| Test Case                                                                                                                                                                                                                                                                                                                                            | Test Conditions    |                               |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|-------------------------------|
| Radiated Emission                                                                                                                                                                                                                                                                                                                                    | Test Env.          | NTNV                          |
|                                                                                                                                                                                                                                                                                                                                                      | Test Setup         | Test Setup 1&2                |
|                                                                                                                                                                                                                                                                                                                                                      | Test Configuration | TC01~TC17 <small>Note</small> |
| <p>Note: Based on client request, all normal using modes of the normal function were tested but only the worst test data of the worst mode is reported by this report. The Idle Test Mode is the worst mode in this report. Tested all mode on configuration (ROM: 64G, RAM: 4G), other configuration (ROM: 32G, RAM: 3G) tested the worst case.</p> |                    |                               |

## 5 TEST ITEMS

### 5.1 Emission Tests

#### 5.1.1 Radiated Emission

##### 5.1.1.1 Limit

| Frequency range<br>(MHz) | Class B (at 3 m)                      |                                         | Class B (at 10 m)                       | Class A (at 10 m)                     |                                         |
|--------------------------|---------------------------------------|-----------------------------------------|-----------------------------------------|---------------------------------------|-----------------------------------------|
|                          | Field Strength<br>( $\mu\text{V/m}$ ) | Field Strength<br>(dB $\mu\text{V/m}$ ) | Field Strength<br>(dB $\mu\text{V/m}$ ) | Field Strength<br>( $\mu\text{V/m}$ ) | Field Strength<br>(dB $\mu\text{V/m}$ ) |
| 30 - 88                  | 100                                   | 40                                      | 30                                      | 90                                    | 39                                      |
| 88 - 216                 | 150                                   | 43.5                                    | 33.5                                    | 150                                   | 43.5                                    |
| 216 - 960                | 200                                   | 46                                      | 36                                      | 210                                   | 46.4                                    |
| Above 960                | 500                                   | 54                                      | 44                                      | 300                                   | 49.5                                    |

NOTE:

- 1) Field Strength (dB $\mu\text{V/m}$ ) =  $20 \cdot \log$  [Field Strength ( $\mu\text{V/m}$ )].
- 2) In the emission tables above, the tighter limit applies at the band edges.

##### 5.1.1.2 Test Setup

Refer to 4.5 section (test setup 1 to test setup 2) for radiated emission test, the photo of test setup please refer to ANNEX B.

##### 5.1.1.3 Test Procedure

All Spurious Emission tests were performed in X, Y, Z axis direction. And only the worst axis test condition was recorded in this test report.

An initial pre-scan was performed in the chamber using the EMI Receiver in peak detection mode. Quasi-peak measurements were conducted based on the peak sweep graph. The EUT was measured by Bi-Log antenna with 2 orthogonal polarities.

##### 5.1.1.4 Test Result

Please refer to ANNEX A.1.

NOTE:

1. Results (dB $\mu\text{V/m}$ ) = Reading (dB $\mu\text{V}$ ) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor (dB/m) = Antenna Factor (dB/m) + Cable Factor (dB) – Amplifier Gain (dB)

3. Over limit = Results – Limit.

## 5.1.2 Conducted Emission

### 5.1.2.1 Test Limit

| Frequency range (MHz) | Class A                 |                      |
|-----------------------|-------------------------|----------------------|
|                       | Quasi-peak (dB $\mu$ V) | Average (dB $\mu$ V) |
| 0.15 - 0.50           | 79                      | 66                   |
| 0.50 - 30             | 73                      | 60                   |

| Frequency range (MHz) | Class B                 |                      |
|-----------------------|-------------------------|----------------------|
|                       | Quasi-peak (dB $\mu$ V) | Average (dB $\mu$ V) |
| 0.15 - 0.50           | 66 to 56                | 56 to 46             |
| 0.50 - 5              | 56                      | 46                   |
| 5 - 30                | 60                      | 50                   |

#### NOTE:

- 1) The lower limit shall apply at the band edges.
- 2) The limit decreases linearly with the logarithm of the frequency in the range 0.15 - 0.50 MHz.

### 5.1.2.2 Test Setup

Refer to 4.5 section test (test setup 3) for conducted emission, the photo of test setup please refer to ANNEX B.

### 5.1.2.3 Test Procedure

The EUT is connected to the power mains through a LISN which provides 50  $\Omega$ /50  $\mu$ H of coupling impedance for the measuring instrument. The test frequency range is from 150 kHz to 30 MHz. The maximum conducted interference is searched using Peak (PK), Quasi-peak (QP) and Average (AV) detectors; the emission levels that are more than the AV and QP limits, and that have narrow margins from the AV and QP limits will be re-measured with AV and QP detectors. Tests for both L phase and N phase lines of the power mains connected to the EUT are performed.

Devices subject to Part 15 must be tested for all available U.S. voltages and frequencies (such as a nominal 120 VAC, 50/60 Hz and 240 VAC, 50/60 Hz) for which the device is capable of operation. A device rated for 50/60 Hz operation need not be tested at both frequencies provided the radiated and line conducted emissions are the same at both frequencies.

### 5.1.2.4 Test Result

Please refer to ANNEX A.2.

#### NOTE:

1. Results (dB $\mu$ V/m) = Reading (dB $\mu$ V) + Factor (dB/m)

The reading level is calculated by software which is not shown in the sheet

2. Factor = Insertion loss + Cable loss

3. Over limit = Results – Limit.

## ANNEX A TEST RESULTS

### A.1 Radiated Emission

Note 1: The symbol of “--” in the table which means not application.

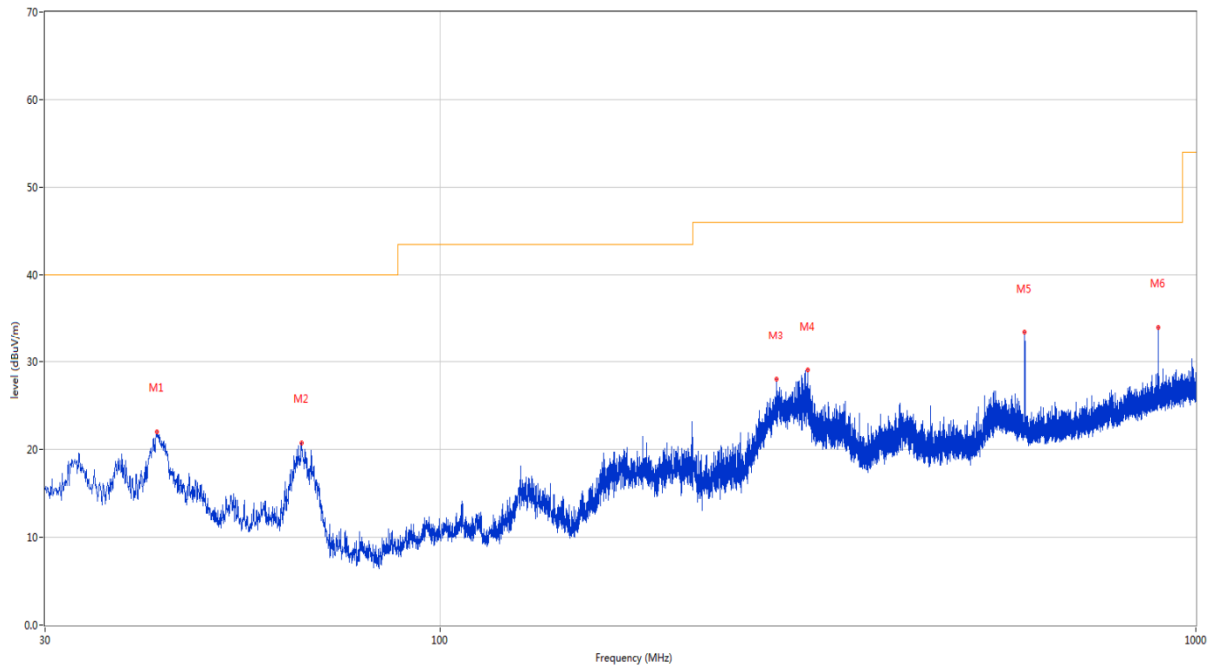
Note 2: For the test data above 1 GHz, according the ANSI C63.4-2014, where limits are specified for both average and peak (or quasi-peak) detector functions, if the peak (or quasi-peak) measured value complies with the average limit, it is unnecessary to perform an average measurement.

Note 3: The Radiated Emission from 18G-40G is noise only, do not show on the report.

#### Test Data and Plots

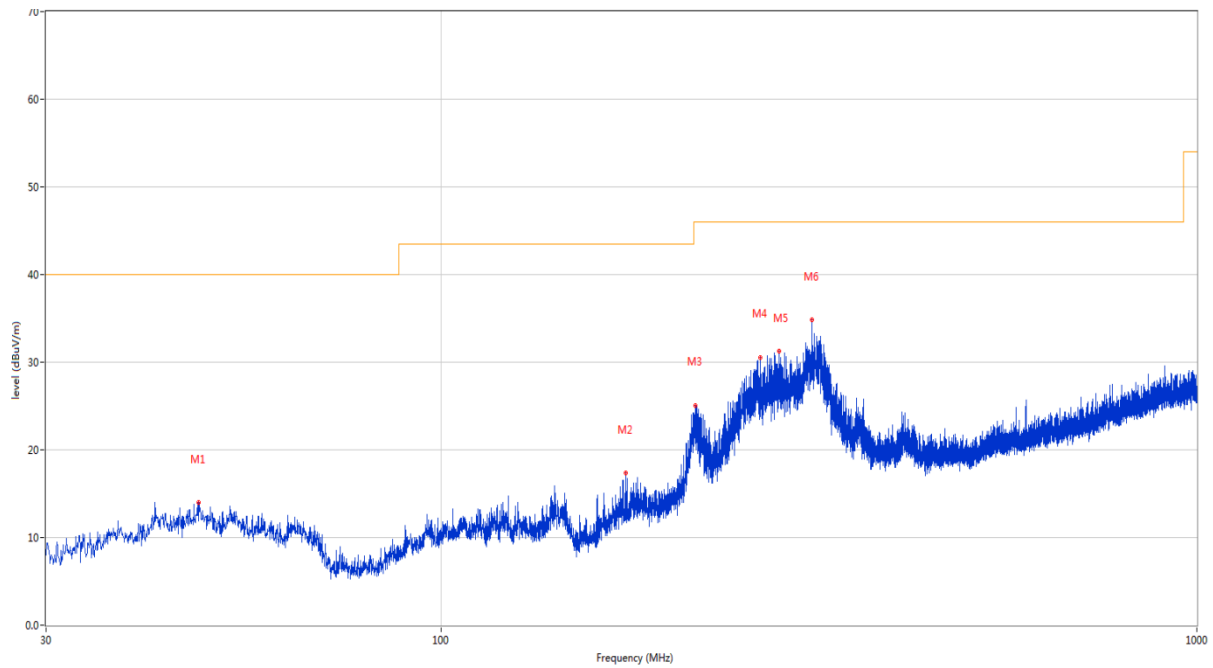
##### The Idle Test Mode

##### A.1.1 Test Antenna Vertical, 30 MHz – 1 GHz



| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Over Limit (dB) | Detector | Table (Degree) | Height (cm) | Antenna  | Verdict |
|-----|-----------------|------------------|-------------|----------------|-----------------|----------|----------------|-------------|----------|---------|
| 1   | 42.173          | 22.03            | -23.44      | 40.0           | -17.97          | Peak     | 69.70          | 100         | Vertical | Pass    |
| 2   | 65.502          | 20.79            | -25.08      | 40.0           | -19.21          | Peak     | 10.50          | 100         | Vertical | Pass    |
| 3   | 278.708         | 27.99            | -21.88      | 46.0           | -18.01          | Peak     | 165.50         | 100         | Vertical | Pass    |
| 4   | 306.402         | 29.09            | -21.37      | 46.0           | -16.91          | Peak     | 223.30         | 100         | Vertical | Pass    |
| 5   | 594.006         | 33.46            | -14.68      | 46.0           | -12.54          | Peak     | 260.00         | 100         | Vertical | Pass    |
| 6   | 890.972         | 34.03            | -10.13      | 46.0           | -11.97          | Peak     | 181.20         | 100         | Vertical | Pass    |

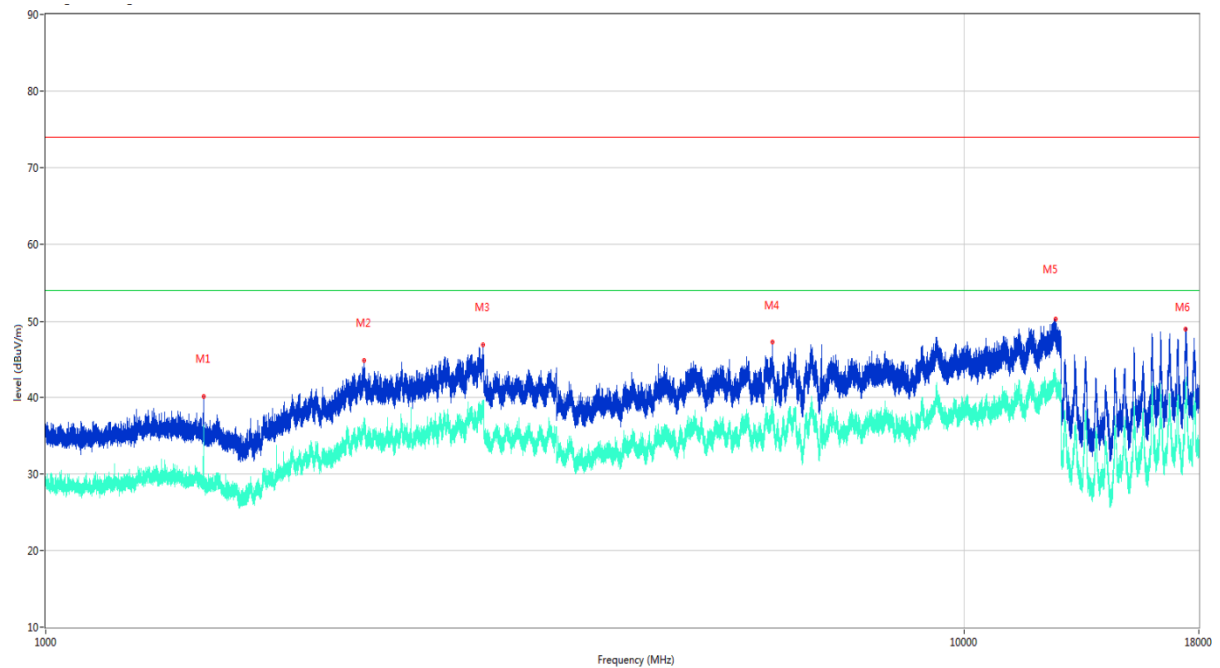
## A.1.2 Test Antenna Horizontal, 30 MHz – 1 GHz



| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Over Limit (dB) | Detector | Table (Degree) | Height (cm) | Antenna    | Verdict |
|-----|-----------------|------------------|-------------|----------------|-----------------|----------|----------------|-------------|------------|---------|
| 1   | 47.703          | 14.00            | -22.71      | 40.0           | -26.00          | Peak     | 258.70         | 200         | Horizontal | Pass    |
| 2   | 175.548         | 17.32            | -26.44      | 43.5           | -26.18          | Peak     | 58.40          | 100         | Horizontal | Pass    |
| 3   | 217.162         | 25.07            | -24.09      | 46.0           | -20.93          | Peak     | 154.20         | 100         | Horizontal | Pass    |
| 4   | 264.449         | 30.53            | -22.16      | 46.0           | -15.47          | Peak     | 132.80         | 100         | Horizontal | Pass    |
| 5   | 280.017         | 31.21            | -21.79      | 46.0           | -14.79          | Peak     | 116.90         | 100         | Horizontal | Pass    |
| 6   | 309.797         | 34.86            | -21.35      | 46.0           | -11.14          | Peak     | 116.90         | 100         | Horizontal | Pass    |

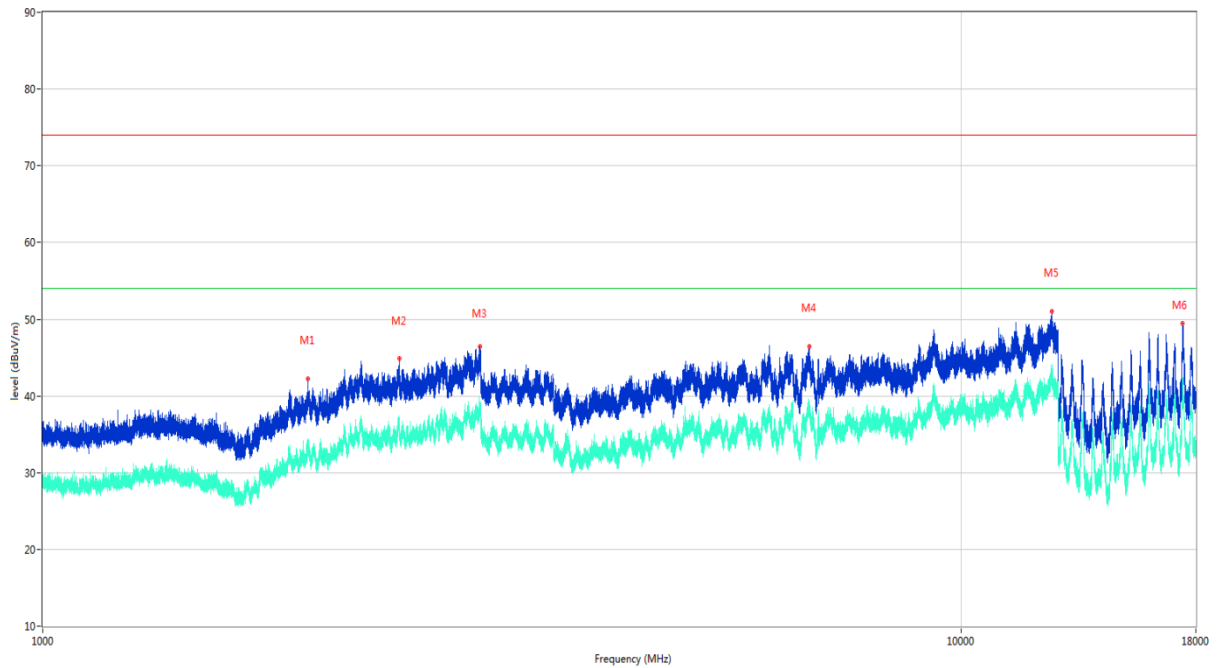


### A.1.3 Test Antenna Vertical, 1 GHz – 18 GHz



| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Over Limit (dB) | Detector | Table (Degree) | Height (cm) | Antenna  | Verdict |
|-----|-----------------|------------------|-------------|----------------|-----------------|----------|----------------|-------------|----------|---------|
| 1   | 1485.200        | 40.06            | -15.44      | 74.0           | -33.94          | Peak     | 210.20         | 100         | Vertical | Pass    |
| 1** | 1485.200        | 36.38            | -15.44      | 54.0           | -17.62          | AV       | 210.20         | 100         | Vertical | Pass    |
| 2   | 2223.200        | 44.77            | -8.49       | 74.0           | -29.23          | Peak     | 133.30         | 100         | Vertical | Pass    |
| 2** | 2223.200        | 36.51            | -8.49       | 54.0           | -17.49          | AV       | 133.30         | 100         | Vertical | Pass    |
| 3   | 2990.500        | 46.82            | -5.16       | 74.0           | -27.18          | Peak     | 150.70         | 100         | Vertical | Pass    |
| 3** | 2990.500        | 38.25            | -5.16       | 54.0           | -15.75          | AV       | 150.70         | 100         | Vertical | Pass    |
| 4   | 6178.400        | 47.16            | -2.49       | 74.0           | -26.84          | Peak     | 36.30          | 100         | Vertical | Pass    |
| 4** | 6178.400        | 37.99            | -2.49       | 54.0           | -16.01          | AV       | 36.30          | 100         | Vertical | Pass    |
| 5   | 12560.825       | 50.32            | 21.90       | 74.0           | -23.68          | Peak     | 135.90         | 100         | Vertical | Pass    |
| 5** | 12560.825       | 42.06            | 21.90       | 54.0           | -11.94          | AV       | 135.90         | 100         | Vertical | Pass    |
| 6   | 17410.949       | 48.97            | 25.34       | 74.0           | -25.03          | Peak     | 240.70         | 100         | Vertical | Pass    |
| 6** | 17410.949       | 40.96            | 25.34       | 54.0           | -13.04          | AV       | 240.70         | 100         | Vertical | Pass    |

#### A.1.4 Test Antenna Horizontal, 1 GHz – 18 GHz



| No. | Frequency (MHz) | Results (dBuV/m) | Factor (dB) | Limit (dBuV/m) | Over Limit (dB) | Detector | Table (Degree) | Height (cm) | Antenna    | Verdict |
|-----|-----------------|------------------|-------------|----------------|-----------------|----------|----------------|-------------|------------|---------|
| 1   | 1944.600        | 42.29            | -11.96      | 74.0           | -31.71          | Peak     | 352.80         | 100         | Horizontal | Pass    |
| 1** | 1944.600        | 33.44            | -11.96      | 54.0           | -20.56          | AV       | 352.80         | 100         | Horizontal | Pass    |
| 2   | 2443.000        | 44.86            | -8.72       | 74.0           | -29.14          | Peak     | 32.00          | 100         | Horizontal | Pass    |
| 2** | 2443.000        | 36.05            | -8.72       | 54.0           | -17.95          | AV       | 32.00          | 100         | Horizontal | Pass    |
| 3   | 2990.200        | 46.44            | -5.12       | 74.0           | -27.56          | Peak     | 14.30          | 100         | Horizontal | Pass    |
| 3** | 2990.200        | 38.27            | -5.12       | 54.0           | -15.73          | AV       | 14.30          | 100         | Horizontal | Pass    |
| 4   | 6831.000        | 46.41            | -1.85       | 74.0           | -27.59          | Peak     | 255.50         | 100         | Horizontal | Pass    |
| 4** | 6831.000        | 38.49            | -1.85       | 54.0           | -15.51          | AV       | 255.50         | 100         | Horizontal | Pass    |
| 5   | 12551.338       | 51.01            | 21.89       | 74.0           | -22.99          | Peak     | 0.00           | 100         | Horizontal | Pass    |
| 5** | 12551.338       | 41.89            | 21.89       | 54.0           | -12.11          | AV       | 0.00           | 100         | Horizontal | Pass    |
| 6   | 17423.813       | 49.43            | 25.62       | 74.0           | -24.57          | Peak     | 170.30         | 100         | Horizontal | Pass    |
| 6** | 17423.813       | 40.09            | 25.62       | 54.0           | -13.91          | AV       | 170.30         | 100         | Horizontal | Pass    |

## A.2 Conducted Emission

Note: Not applicable.

## **ANNEX B TEST SETUP PHOTOS**

Please refer the document “BL-SZ2170164-AE.PDF”.

## **ANNEX C EUT EXTERNAL PHOTOS**

Please refer the document “BL-SZ2170164-AW.PDF”.

## **ANNEX D EUT INTERNAL PHOTOS**

Please refer the document “BL-SZ2170164-AI.PDF”.

--END OF REPORT--