# FCC TEST REPORT

## 47 CFR FCC Part 15 Subpart B

| | |
|---|---|
| **Report Reference No.....:** | **MWR161000110** |
| **FCC ID.....:** | **RQQHLT-TITAN LTE** |
| Compiled by ( position+printed name+signature)..: | File administrators Martin Ao |
| Supervised by ( position+printed name+signature)..: | Test Engineer Yuchao Wang |
| Approved by ( position+printed name+signature)..: | Manager Dixon Hao |
| Date of issue.....: | October 24, 2016 |

| | |
|---|---|
| **Representative Laboratory Name** .: | **Maxwell International Co., Ltd.** |
| Address .....: | Room 509, Hongfa center building, Baoan District, Shenzhen, Guangdong, China |

| | |
|---|---|
| **Testing Laboratory Name** .....: | **Shenzhen CTL Testing Technology Co., Ltd.** |
| Address .....: | Floor 1-A, Baisha Technology Park, No.3011, Shahexi Road, Nanshan District, Shenzhen, China 518055 |

| | |
|---|---|
| **Applicant's name**.....: | **HYUNDAI CORPORATION** |
| Address .....: | 140-2, Kye-dong, Chongro-ku, Seoul, South Korea |

| | |
|---|---|
| **Test specification** .....**:** | |
| Standard .....: | **47 CFR FCC Part 15 Subpart B - Unintentional Radiators** |
| | **ANSI C63.4: 2014** |
| TRF Originator.....: | Maxwell International Co., Ltd. |



| | |
|---|---|
| **Test item description .....:** | Mobile Phone |
| Trade Mark .....: | HYUNDAI |
| **Manufacturer**.....: | **Shenzhen Rainbow Time Technology Co.,Ltd** |
| Model/Type reference.....: | TITAN LTE |
| Listed Models .....: | / |
| Rating .....: | DC 3.70V |
| Hardware version .....: | 5101SP_S52 |
| Software version .....: | V1.0 |
| Result.....: | **PASS** |

# T E S T R E P O R T

| Test Report No. : | MWR161000110 | October 24, 2016<br>Date of issue |
|---|---|---|

| | | |
|---|---|---|
| Equipment under Test | : | Mobile Phone |
| Model /Type | : | TITAN LTE |
| Listed Models | : | / |
| **Applicant** | : | **HYUNDAI CORPORATION** |
| Address | : | 140-2, Kye-dong, Chongro-ku, Seoul, South Korea |
| **Manufacturer** | : | **Shenzhen Rainbow Time Technology Co.,Ltd** |
| Address | : | Room 905, ChangHong Technology Building, Science and Technology Park, Nanshan District, Shenzhen, China |

| **Test Result**: | **PASS** |
|---|---|

# Revison History

| Revision | Issue Date | Revisions | Revised By |
|---|---|---|---|
| 00 | 2016-10-24 | Initial Issue | Dixon Hao |
| | | | |
| | | | |

# Contents

# 1 TEST STANDARDS

The tests were performed according to following standards:

47 CFR FCC Part 15 Subpart B - Unintentional Radiators
ANSI C63.4: 2014 – American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the
Range of 9 kHz to 40GHz

# 2 SUMMARY

## 2.1 General Remarks

| | | |
|---|---|---|
| Date of receipt of test sample | : | September 18, 2016 |
| | | |
| | | |
| Testing commenced on | : | September 19, 2016 |
| | | |
| | | |
| Testing concluded on | : | October 24, 2016 |

## 2.2 Product Description

The **HYUNDAI CORPORATION**'s Model: TITAN LTE or the "EUT" as referred to in this report; more general information as follows, for more details, refer to the user's manual of the EUT.

| | |
|---|---|
| Name of EUT | Mobile Phone |
| Model Number | TITAN LTE |
| Modilation Type | GMSK for GSM/GPRS/EDGE, 8-PSK for EDGE only downlink, QPSK for UMTS, QPSK/16QAM for LTE |
| Antenna Type | Internal |
| UMTS Operation Frequency Band | Device supported UMTS FDD Band II, FDD Band V |
| WLAN FCC Operation frequency | IEEE 802.11b:2412-2462MHz<br>IEEE 802.11g:2412-2462MHz<br>IEEE 802.11n HT20:2412-2462MHz<br>IEEE 802.11n HT40:2422-2452MHz |
| BT FCC Operation frequency | 2402MHz-2480MHz |
| HSDPA Release Version | Release 10 |
| HSUPA Release Version | Release 6 |
| DC-HSUPA Release Version | Not Supported |
| WCDMA Release Version | R99 |
| WLAN FCC Modulation Type | IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)<br>IEEE 802.11g: OFDM(64QAM, 16QAM, QPSK, BPSK)<br>IEEE 802.11n HT20: OFDM (64QAM, 16QAM, QPSK,BPSK)<br>IEEE 802.11n HT40: OFDM (64QAM, 16QAM, QPSK,BPSK) |
| BT Modulation Type | GFSK,8DPSK,π/4DQPSK(BT3.0+EDR),GFSK(BLE) |
| Hardware version | 5101SP_S52 |
| Software version | V1.0 |
| Android version | Android 5.1 |
| GPS function | Supported |
| WLAN | Supported 802.11b/802.11g/802.11n |
| Bluetooth | Supported BT 4.0/BT 3.0+EDR |
| GSM/EDGE/GPRS | Supported GSM/GPRS/EDGE |
| GSM/EDGE/GPRS Power Class | GSM850:Power Class 4/ PCS1900:Power Class 1 |
| GSM/EDGE/GPRS Operation Frequency | GSM850 :824.2MHz-848.8MHz/PCS1900:1850.2MHz-1909.8MHz |
| GSM/EDGE/GPRS Operation Frequency Band | GSM850/PCS1900/GPRS850/GPRS1900/EDGE850/EDGE1900 |
| GSM Release Version | R99 |
| GPRS/EDGE Multislot Class | GPRS: Multi-slot Class 12 |
| Extreme temp. Tolerance | -30°C to +50°C |
| Extreme vol. Limits | 3.40VDC to 4.20VDC (nominal: 3.80VDC) |
| GPRS operation mode | Class B |

## 2.3 Equipment under Test

### Power supply system utilised

| | | | | | |
|---|---|---|---|---|---|
| Power supply voltage | : | ○ | 120V / 60 Hz | ○ | 115V / 60Hz |
| | | ○ | 12 V DC | ○ | 24 V DC |
| | | ● | Other (specified in blank below) | | |

DC 3.80V

## 2.4 Short description of the Equipment under Test (EUT)

### 2.4.1 General Description

TITAN LTE is subscriber equipment in the WCDMA/GSM system. The HSPA/UMTS frequency band is Band I, Band II and Band V; The GSM/GPRS/EDGE frequency band includes GSM850 and GSM900 and DCS1800 and PCS1900, but only Band II, Band V , GSM850 and PCS1900 bands test data included in this report. The Mobile Phone implements such functions as RF signal receiving/transmitting, HSPA/UMTS and GSM/GPRS/EDGE protocol processing, voice, video MMS service, GPS and WIFI etc. Externally it provides micro SD card interface, earphone port (to provide voice service) and SIM card interface. It also provides Bluetooth module to synchronize data between a PC and the phone, or to use the built-in modem of the phone to access the Internet with a PC, or to exchange data with other Bluetooth devices.

NOTE: Unless otherwise noted in the report, the functional boards installed in the units shall be selected from the below list, but not means all the functional boards listed below shall be installed in one unit.

### 2.4.2 Test Environments

NOTE: The values used in the test report maybe stringent than the declared.

| Environment Parameter | Selected Values During Tests | | |
|---|---|---|---|
| NTNV | Temperature | Voltage | Relative Humidity |
| | Ambient | 3.8VDC | Ambient |

## 2.5 EUT operation mode

The EUT has been tested under typical operating condition.

## 2.6 Related Submittal(s) / Grant (s)

This submittal(s) (test report) is intended for **FCC ID: RQQHLT-TITAN LTE** filing to comply with FCC Part 15, Subpart B Rules.

## 2.7 Internal Identification of AE used during the test

| AE ID* | Description |
|---|---|
| AE1 | Charger |

AE1
Model: DC500
INPUT: AC180-240V~ 50/60Hz 0.15A
OUTPUT: DC 5.0V 1000mA

*AE ID: is used to identify the test sample in the lab internally.
We not used AE1 when for FCC Part 15B test.

## 2.8 Modifications

No modifications were implemented to meet testing criteria.

## 2.9 EUT configuration

**The following peripheral devices and interface cables were connected during the measurement:**

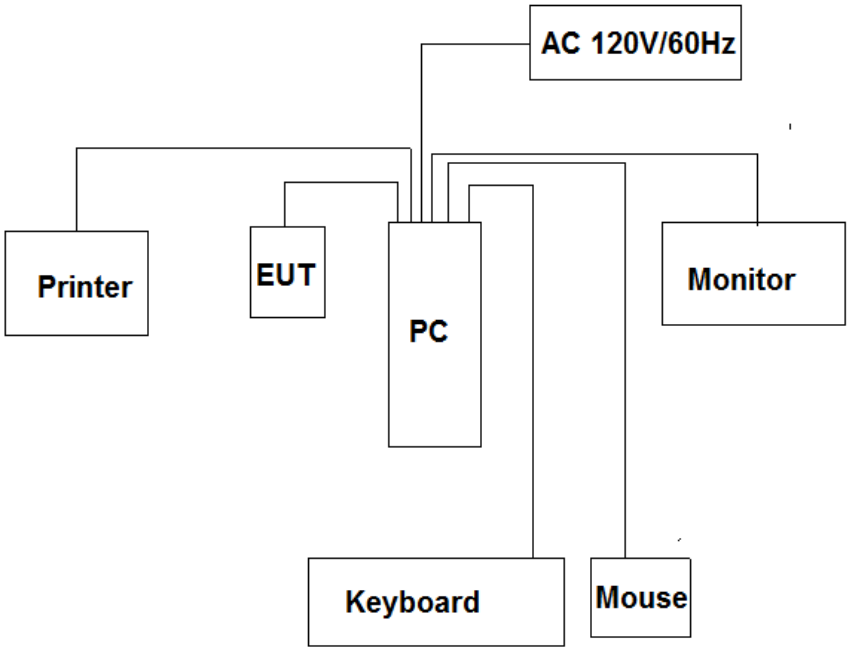
● - supplied by the manufacturer

○ - supplied by the lab

| | | | |
|---|---|---|---|
| ○ | Power Cable | Length (m) : | / |
| | | Shield : | / |
| | | Detachable : | / |
| ○ | Multimeter | Manufacturer : | / |
| | | Model No. : | / |

## 2.10 Configuration of Tested System

**Configuration of Tested System**




**Equipment Used in Tested System**

| No. | Equipment | Manufacturer | Model No. | Serial No. | Length | shielded/unshielded | Notes |
|---|---|---|---|---|---|---|---|
| 1 | PC | HP | Pavalion | A131101550 | / | / | DOC |
| 2 | Mouse | DELL | MO56UOA | G0E02SY7 | 1.00m | unshielded | DOC |
| 3 | Keyboard | DELL | KB212 | H548787 | 1.00m | unshielded | DOC |
| 4 | Monitor | DELL | W1972a | 6CM3212F7C | / | / | DOC |
| 5 | Printer | Epson | R230 | R8792T58 | / | / | DOC |
| 6 | USB Cable (EUT to PC) | Genshuo | USB 2.0 | N/A | 0.60m | unshielded | N/A |
| 7 | Power line | / | / | N/A | 1.00m | unshielded | N/A |

# 3 TEST ENVIRONMENT

## 3.1 Address of the test laboratory

**Shenzhen CTL Testing Technology Co., Ltd.**
Floor 1-A, Baisha Technology Park, No. 3011, Shahexi Road, Nanshan, Shenzhen 518055 China

There is one 3m semi-anechoic chamber and two line conducted labs for final test. The Test Sites meet the requirements in documents ANSI C63.4, CISPR 22/EN 55022 and CISPR16-4-1 SVSWR requirements.

## 3.2 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

### IC Registration No.: 9618B

The 3m alternate test site of Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered by Certification and Engineer Bureau of Industry Canada for the performance of with Registration No.: 9618B on November 13, 2013.

### FCC-Registration No.: 970318

Shenzhen CTL Testing Technology Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Registration 970318, December 19, 2013.

## 3.3 Environmental conditions

During the measurement the environmental conditions were within the listed ranges:

| | |
|---|---|
| Temperature: | 15-35 ° C |
| Humidity: | 30-60 % |
| Atmospheric pressure: | 950-1050mbar |

## 3.4 Statement of the measurement uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. to CISPR 16 - 4 “Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements“ and is documented in the Shenzhen CTL Testing Technology Co., Ltd. quality system acc. to DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

Hereafter the best measurement capability for CTL laboratory is reported:

| Test | Range | Measurement Uncertainty | Notes |
|---|---|---|---|
| Radiated Emission | 30~1000MHz | 4.5 dB | (1) |
| Radiated Emission | 1~18GHz | 4.6 dB | (1) |
| Conducted Disturbance | 0.009~30MHz | 3.5 dB | (1) |

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

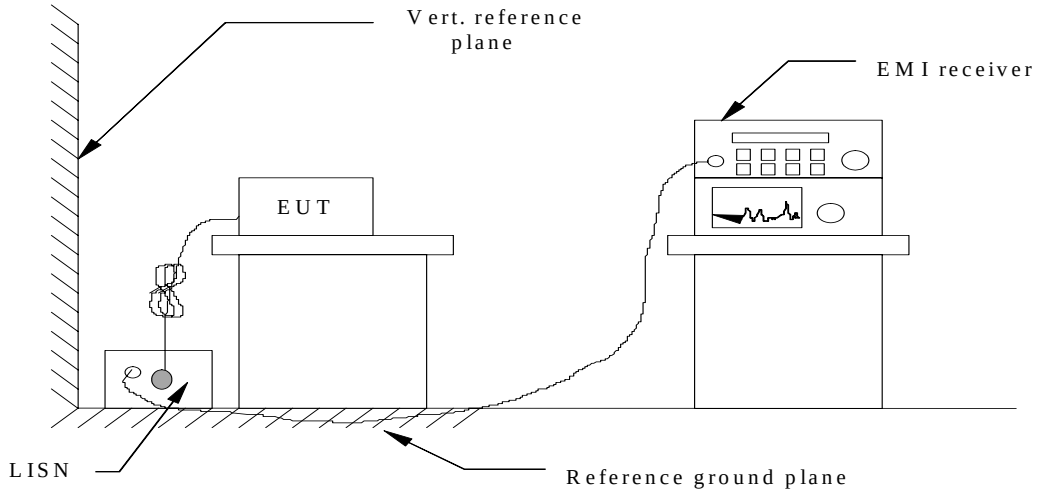
## 3.5 Equipments Used during the Test

| Test Equipment | Manufacturer | Model No. | Serial No. | Calibration Date | Calibration Due Date |
|---|---|---|---|---|---|
| Bilog Antenna | Sunol Sciences Corp. | JB1 | A061713 | 2016/06/02 | 2017/06/01 |
| EMI Test Receiver | R&S | ESCI | 103710 | 2016/06/02 | 2017/06/01 |
| Spectrum Analyzer | Agilent | N9030A | MY49430428 | 2016/05/21 | 2017/05/20 |
| Controller | EM Electronics | Controller EM 1000 | N/A | 2016/05/21 | 2017/05/20 |
| Horn Antenna | SCHWARZBECK | BBHA9170D | BBH A9170179 | 2016/05/19 | 2017/05/18 |
| Horn Antenna | Sunol Sciences Corp. | DRH-118 | A062013 | 2016/05/19 | 2017/05/18 |
| EMC Test Software | R&S | ES-K1 | N/A | N/A | N/A |
| EMC Test Software | Audix | E3 | N/A | N/A | N/A |
| Active Loop Antenna | SCHWARZBECK | FMZB1519 | 1519-037 | 2016/05/19 | 2017/05/18 |
| Amplifier | Agilent | 8349B | 3008A02306 | 2016/05/19 | 2017/05/18 |
| Amplifier | Agilent | 8447D | 2944A10176 | 2016/05/19 | 2017/05/18 |
| Temperature/ Humidity Meter | Gangxing | CTH-608 | 02 | 2016/05/20 | 2017/05/19 |
| High-Pass Filter | K&L | 9SH10-2700/X12750-O/O | N/A | 2016/05/20 | 2017/05/19 |
| High-Pass Filter | K&L | 41H10-1375/U12750-O/O | N/A | 2016/05/20 | 2017/05/19 |
| Coaxial Cables | HUBER+SUHNER | SUCOFLEX 104PEA-10M | 10m | 2016/06/02 | 2017/06/01 |
| Coaxial Cables | HUBER+SUHNER | SUCOFLEX 104PEA-3M | 3m | 2016/06/02 | 2017/06/01 |
| Coaxial Cables | HUBER+SUHNER | SUCOFLEX 104PEA-3M | 3m | 2016/06/02 | 2017/06/01 |
| RF Cable | Megalon | RF-A303 | N/A | 2016/06/02 | 2017/06/01 |
| Power Sensor | R&S | NRP-Z4 | 823.3618.03 | 2016/06/02 | 2017/06/01 |
| Power Meter | R&S | NRVS | 1020.1809.02 | 2016/06/02 | 2017/06/01 |
| System Simulator | R&S | CMU200 | 115419 | 2016.05.22 | 2017.05.21 |

# 4 TEST CONDITIONS AND RESULTS

## 4.1 AC Main Conducted Emissions

**TEST CONFIGURATION**




**TEST PROCEDURE**

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.4-2014.
2. Support equipment, if needed, was placed as per ANSI C63.4-2014.
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.4-2014.
4. The EUT received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.
8. During the above scans, the emissions were maximized by cable manipulation.

**CONDUCTED POWER LINE EMISSION LIMIT**

For unintentional device, according to § 15.107(a) Line Conducted Emission Limits is as following：

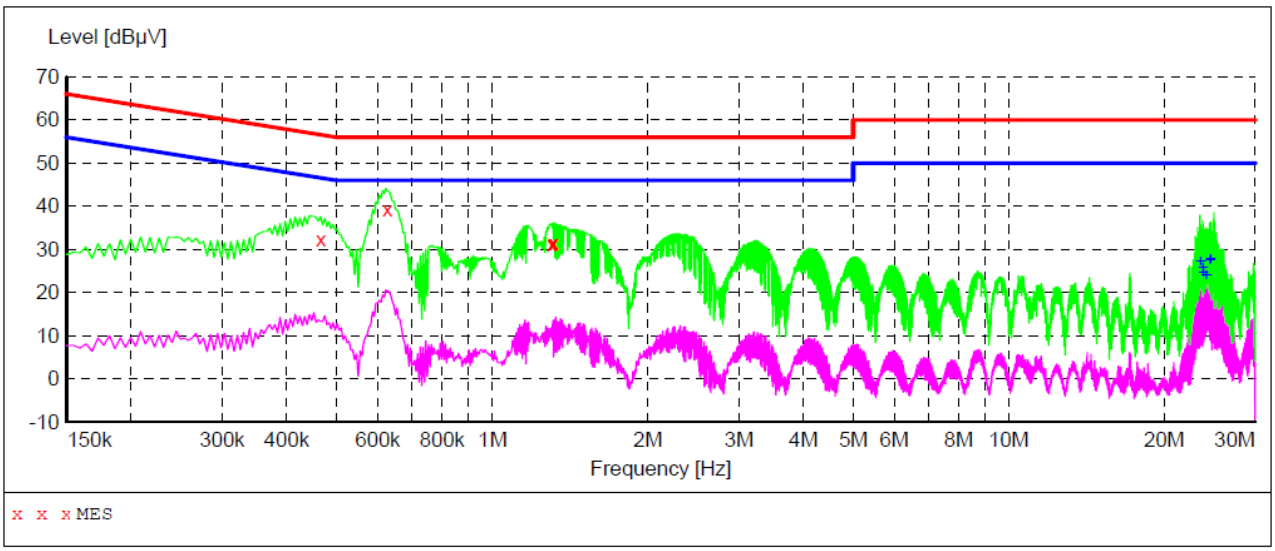
| Frequency (MHz) | Maximum RF Line Voltage (dBμV) | | | |
|---|---|---|---|---|
| | CLASS A | | CLASS B | |
| | Q.P. | Ave. | Q.P. | Ave. |
| 0.15 - 0.50 | 79 | 66 | 66-56* | 56-46* |
| 0.50 - 5.00 | 73 | 60 | 56 | 46 |
| 5.00 - 30.0 | 73 | 60 | 60 | 50 |

* Decreasing linearly with the logarithm of the frequency

**TEST RESULTS**

*Remark:*
*1. We tested the playing video Mode, Data transmission (connected PC) Mode, camera Mode and so on, and recorded the worst case at the playing video Mode.*

***L:***



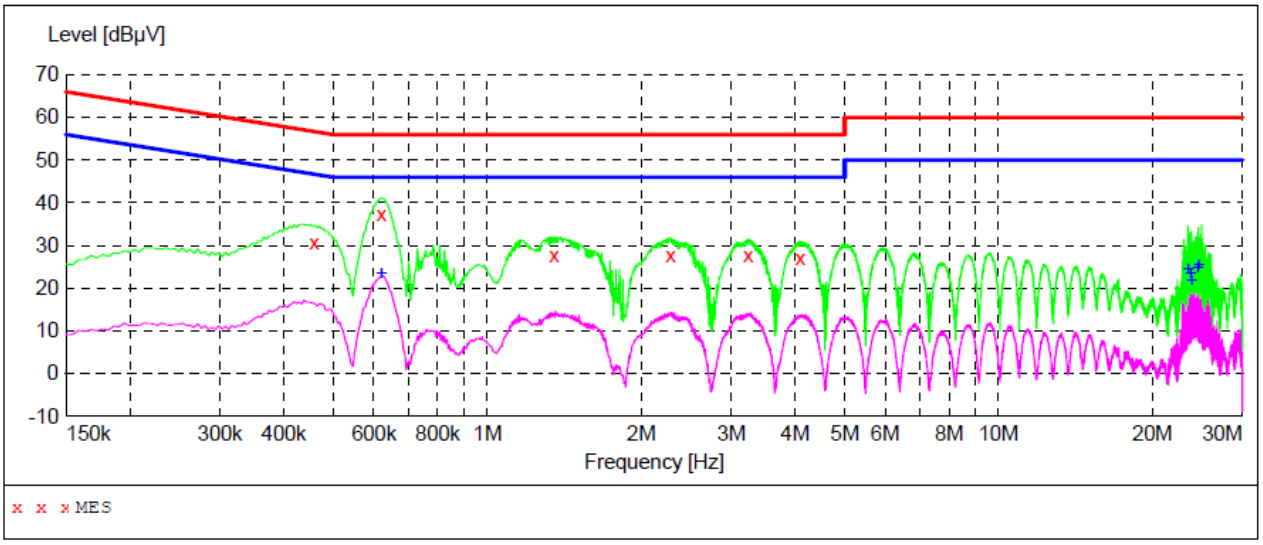

***MEASUREMENT RESULT:***

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.466000 | 32.30 | 10.2 | 57 | 24.3 | QP | L1 | GND |
| 0.626000 | 39.20 | 10.2 | 56 | 16.8 | QP | L1 | GND |
| 1.304000 | 31.20 | 10.3 | 56 | 24.8 | QP | L1 | GND |
| 1.310000 | 31.30 | 10.3 | 56 | 24.7 | QP | L1 | GND |
| 1.316000 | 31.30 | 10.3 | 56 | 24.7 | QP | L1 | GND |

***MEASUREMENT RESULT:***

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---|---|---|---|---|---|---|---|
| 23.522000 | 27.20 | 11.1 | 50 | 22.8 | AV | L1 | GND |
| 23.768000 | 25.60 | 11.1 | 50 | 24.4 | AV | L1 | GND |
| 23.828000 | 24.40 | 11.1 | 50 | 25.6 | AV | L1 | GND |
| 24.128000 | 23.80 | 11.1 | 50 | 26.2 | AV | L1 | GND |
| 24.548000 | 27.30 | 11.1 | 50 | 22.7 | AV | L1 | GND |
| 24.608000 | 27.60 | 11.1 | 50 | 22.4 | AV | L1 | GND |

***N:***




***MEASUREMENT RESULT:***

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.458000 | 30.70 | 10.2 | 57 | 26.0 | QP | N | GND |
| 0.620000 | 37.30 | 10.2 | 56 | 18.7 | QP | N | GND |
| 1.352000 | 27.50 | 10.3 | 56 | 28.5 | QP | N | GND |
| 2.282000 | 27.80 | 10.4 | 56 | 28.2 | QP | N | GND |
| 3.236000 | 27.60 | 10.4 | 56 | 28.4 | QP | N | GND |
| 4.094000 | 27.00 | 10.4 | 56 | 29.0 | QP | N | GND |

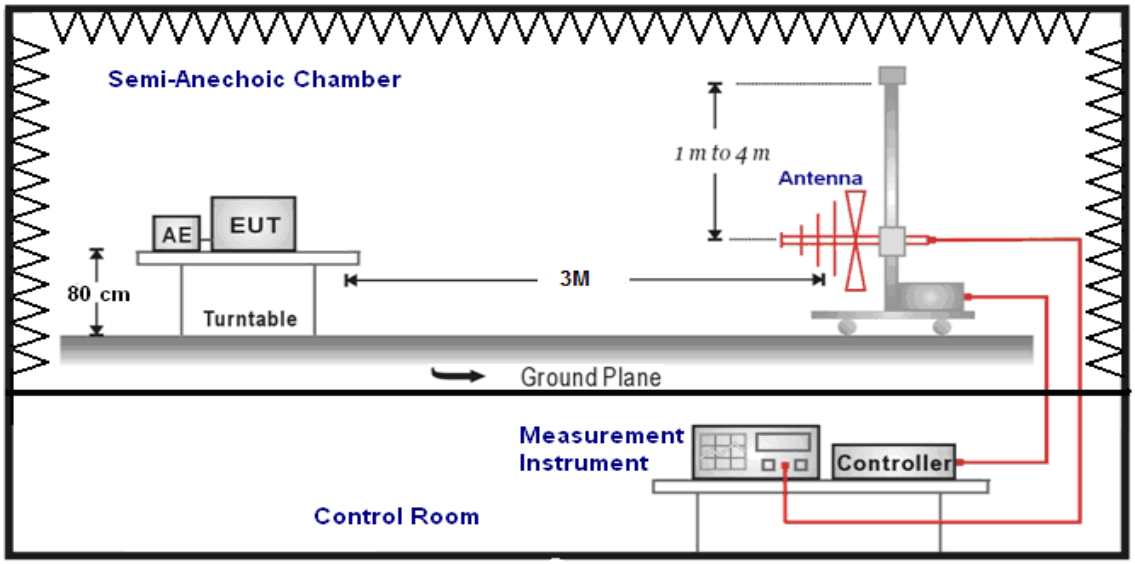
***MEASUREMENT RESULT:***

| Frequency MHz | Level dBµV | Transd dB | Limit dBµV | Margin dB | Detector | Line | PE |
|---|---|---|---|---|---|---|---|
| 0.620000 | 23.50 | 10.2 | 46 | 22.5 | AV | N | GND |
| 23.522000 | 24.40 | 11.1 | 50 | 25.6 | AV | N | GND |
| 23.762000 | 23.30 | 11.1 | 50 | 26.7 | AV | N | GND |
| 23.822000 | 21.80 | 11.1 | 50 | 28.2 | AV | N | GND |
| 24.548000 | 24.80 | 11.1 | 50 | 25.2 | AV | N | GND |
| 24.608000 | 25.20 | 11.1 | 50 | 24.8 | AV | N | GND |

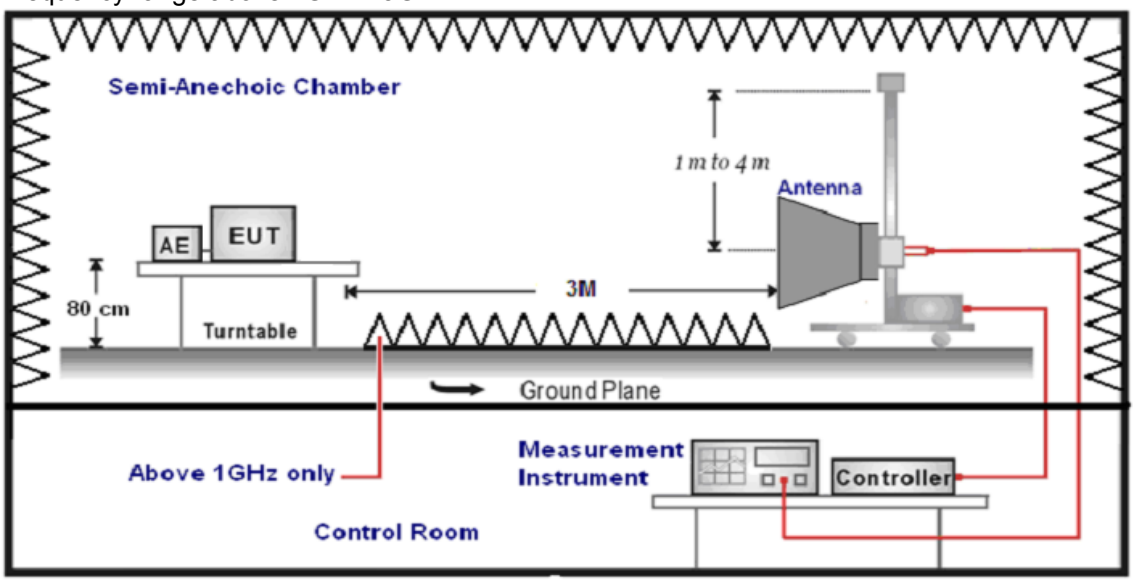
## 4.2 Radiated Emission

**TEST CONFIGURATION**

Frequency range: 30MHz – 1000MHz




Frequency range above 1GHz-25GHz




**TEST PROCEDURE**

1. The EUT is placed on a turntable, which is 0.8m above ground plane.
2. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emissions.
4. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
5. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
6. Repeat above procedures until the measurements for all frequencies are complete.
7. The maximum operation frequency was 2.45GHz, the radiated emission test frequency from 30 MHz to 13GHz.
8. The distance between test antenna and EUT as following table states:

| Test Frequency range | Test Antenna Type | Test Distance |
|---|---|---|
| 30MHz-1GHz | Ultra-Broadband Antenna | 3 |
| 1GHz-13GHz | Double Ridged Horn Antenna | 3 |

9. Setting test receiver/spectrum as following table states:

| Test Frequency range | Test Receiver/Spectrum Setting | Detector |
|---|---|---|
| 30MHz-1GHz | RBW=120KHz/VBW=1000KHz,Sweep time=Auto | QP |
| 1GHz-13GHz | Peak Value: RBW=1MHz/VBW=3MHz, Sweep time=Auto | Peak (Receiver) |
| | Average Value: RBW=1MHz/VBW=10Hz, Sweep time=Auto | Peak |

**FIELD STRENGTH CALCULATION**

The field strength is calculated by adding the Antenna Factor and Cable Factor and subtracting the Amplifier Gain and Duty Cycle Correction Factor (if any) from the measured reading. The basic equation with a sample calculation is as follows:

**FS = RA + AF + CL - AG**

| | |
|---|---|
| Where FS = Field Strength | CL = Cable Attenuation Factor (Cable Loss) |
| RA = Reading Amplitude | AG = Amplifier Gain |
| AF = Antenna Factor | |

For example

| Frequency (MHz) | FS (dBμV/m) | RA (dBμV/m) | AF (dB) | CL (dB) | AG (dB) | Transd (dB) |
|---|---|---|---|---|---|---|
| 300.00 | 40 | 58.1 | 12.2 | 1.6 | 31.90 | -18.1 |

Transd=AF +CL-AG

**RADIATION LIMIT**

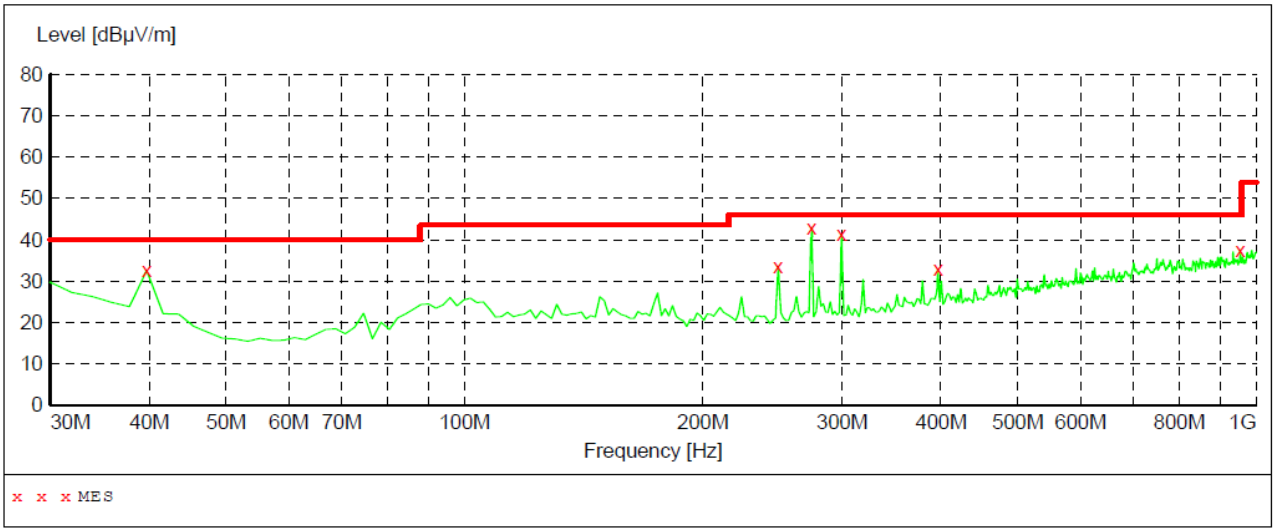
For unintentional device, according to § 15.109(a), except for Class A digital devices, the field strength of radiated emissions from unintentional radiators at a distance of 3 meters shall not exceed the following values:

| Frequency (MHz) | Distance (Meters) | Radiated (dBμV/m) | Radiated (μV/m) |
|---|---|---|---|
| 0.009-0.49 | 300 | 20log(2400/F(KHz))+80 | 2400/F(KHz) |
| 0.49-1.705 | 30 | 20log(24000/F(KHz))+40 | 24000/F(KHz) |
| 1.705-30 | 30 | 20log(30)+40 | 30 |
| 30-88 | 3 | 40.0 | 100 |
| 88-216 | 3 | 43.5 | 150 |
| 216-960 | 3 | 46.0 | 200 |
| Above 960 | 3 | 54.0 | 500 |

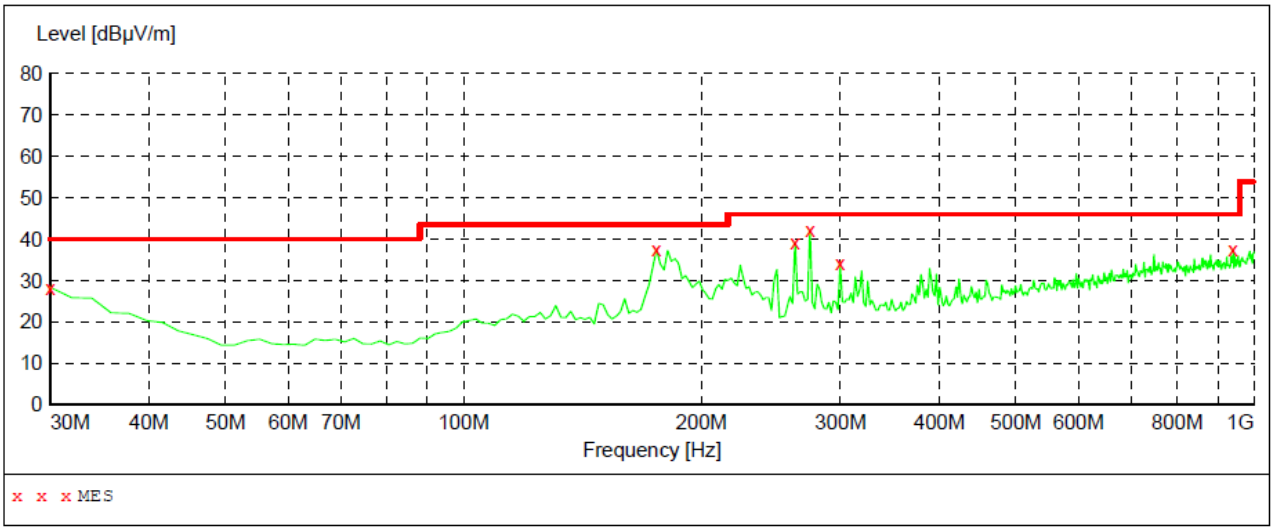
**TEST RESULTS**

*Remark:*
*1. We tested the playing video Mode, Data transmission (connected PC) Mode, camera Mode and so on, and recorded the worst case at the playing video Mode.*

***For 30 MHz – 1 GHz***

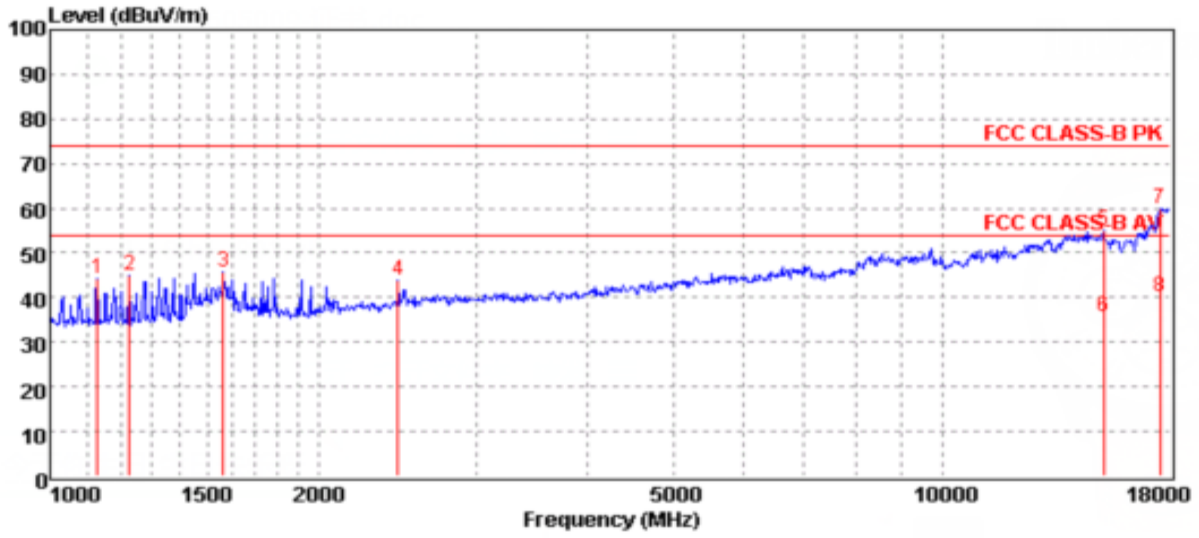



| Frequency | Level | Transd | Limit | Margin | Det. | Height | Azimuth | Polarization |
|---|---|---|---|---|---|---|---|---|
| MHz | dBµV/m | dB | dBµV/m | dB | | cm | deg | |
| 39.700000 | 32.55 | 13.42 | 40.00 | 7.45 | Peak | 108.00 | 265.00 | HORIZONTAL |
| 249.22000 | 33.61 | 13.86 | 46.00 | 12.39 | Peak | 124.00 | 247.00 | HORIZONTAL |
| 274.44000 | 43.00 | 15.11 | 46.00 | 3.00 | Peak | 100.00 | 144.00 | HORIZONTAL |
| 299.66000 | 41.36 | 15.25 | 46.00 | 4.64 | Peak | 200.00 | 89.00 | HORIZONTAL |
| 396.66000 | 32.89 | 17.94 | 46.00 | 13.11 | Peak | 250.00 | 346.00 | HORIZONTAL |
| 955.38000 | 37.57 | 26.63 | 46.00 | 8.43 | Peak | 242.00 | 300.00 | HORIZONTAL |

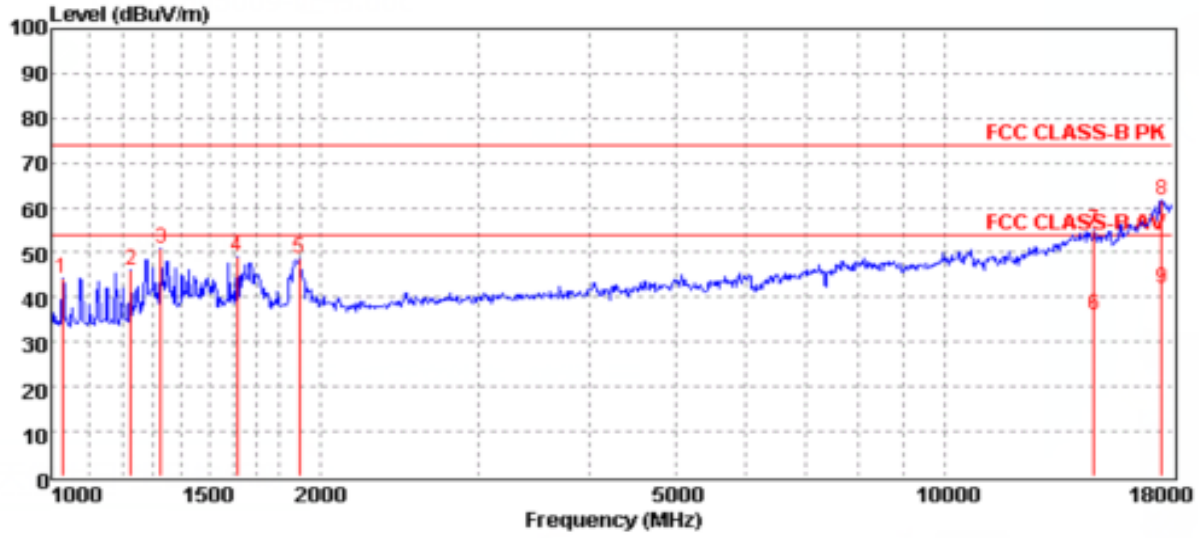



| Frequency | Level | Transd | Limit | Margin | Det. | Height | Azimuth | Polarization |
|---|---|---|---|---|---|---|---|---|
| MHz | dBµV/m | dB | dBµV/m | dB | | cm | deg | |
| 30.000000 | 28.39 | 20.84 | 40.00 | 11.61 | Peak | 100.00 | 24.00 | VERTICAL |
| 175.500000 | 37.53 | 12.96 | 43.50 | 5.97 | Peak | 124.00 | 277.00 | VERTICAL |
| 262.800000 | 39.16 | 14.82 | 46.00 | 6.84 | Peak | 104.00 | 164.00 | VERTICAL |
| 274.440000 | 42.10 | 15.14 | 46.00 | 3.90 | Peak | 100.00 | 349.00 | VERTICAL |
| 299.660000 | 34.15 | 15.22 | 46.00 | 11.85 | Peak | 100.00 | 155.00 | VERTICAL |
| 941.800000 | 37.44 | 26.45 | 46.00 | 8.56 | Peak | 150.00 | 249.00 | VERTICAL |

***For 1 GHz – 18 GHz***




| Item (Mark) | Frequency (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Margin (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1129.07 | 43.00 | 32.44 | 36.26 | 4.21 | 43.39 | 54.00 | 10.61 | Peak | Horizontal |
| 2 | 1227.79 | 44.38 | 32.49 | 36.26 | 4.28 | 44.89 | 54.00 | 9.11 | Peak | Horizontal |
| 3 | 1565.22 | 44.96 | 32.61 | 36.28 | 4.48 | 45.77 | 54.00 | 8.23 | Peak | Horizontal |
| 4 | 2456.88 | 46.20 | 28.78 | 36.15 | 4.61 | 43.44 | 54.00 | 10.56 | Peak | Horizontal |
| 5 | 15177.77 | 35.15 | 40.26 | 31.99 | 13.26 | 56.68 | 74.00 | 17.32 | Peak | Horizontal |
| 6 | 15177.77 | 14.38 | 40.26 | 31.99 | 13.26 | 35.91 | 54.00 | 18.09 | AV[1] | Horizontal |
| 7 | 17537.64 | 35.65 | 41.78 | 31.23 | 14.14 | 60.34 | 74.00 | 13.66 | Peak | Horizontal |
| 8 | 17537.64 | 15.47 | 41.78 | 31.23 | 14.14 | 40.16 | 54.00 | 13.84 | AV[1] | Horizontal |




| Item (Mark) | Frequency (MHz) | Read Level (dBμV) | Antenna Factor (dB/m) | PRM Factor dB | Cable Loss (dB) | Result Level (dBμV/m) | Limit Line (dBμV/m) | Margin (dB) | Detector | Polarization |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1029.39 | 43.97 | 32.35 | 36.22 | 4.08 | 44.18 | 54.00 | 9.82 | Peak | Vertical |
| 2 | 1227.65 | 45.84 | 32.49 | 36.26 | 4.28 | 46.35 | 54.00 | 7.65 | Peak | Vertical |
| 3 | 1327.44 | 50.38 | 32.52 | 36.26 | 4.33 | 50.97 | 54.00 | 3.03 | Peak | Vertical |
| 4 | 1615.77 | 48.47 | 32.61 | 36.28 | 4.54 | 49.34 | 54.00 | 4.66 | Peak | Vertical |
| 5 | 1894.26 | 50.60 | 30.17 | 36.17 | 4.50 | 49.10 | 54.00 | 4.90 | Peak | Vertical |
| 6 | 14710.96 | 36.96 | 39.88 | 32.64 | 12.91 | 57.11 | 74.00 | 16.89 | Peak | Vertical |
| 7 | 14710.96 | 16.04 | 39.88 | 32.64 | 12.91 | 36.19 | 54.00 | 17.81 | AV[1] | Vertical |
| 8 | 17487.19 | 36.69 | 41.78 | 31.23 | 14.14 | 61.38 | 74.00 | 12.62 | Peak | Vertical |
| 9 | 17487.19 | 18.62 | 41.78 | 31.23 | 14.14 | 43.31 | 54.00 | 10.69 | AV[1] | Vertical |

*Remark:*
*1. Result Level = Read Level + Antenna Factor + Cable loss - PRM Factor.*
*2. The other emission levels were very low against the limit.*
*3. Margin = Limit - Emission Level.*
*4. The average measurement was not performed when the peak measured data under the limit of average detection.*
*5. Detector AV is setting spectrum/receiver. RBW=1MHz/VBW=10Hz/Sweep time=Auto/Detector=Peak;*
*6."---" Mean the PK detector measured value is below average limit.*

# 5 Test Setup Photos of the EUT

Please refer to separated files for Test Setup Photos of the EUT.

# 6 External Photos of the EUT

Please refer to separated files for External Photos of the EUT.

# 7 Internal Photos of the EUT

Please refer to separated files for Internal Photos of the EUT.

**.....End of Report.....**