

# FCC REPORT

**Applicant:** Lightcomm Technology Co., Ltd.

**Address of Applicant:** RM1708-10,17/F,PROSPERITY CENTRE, 25 CHONG YIP STREET,KWUN TONG, KOWLOON, HONG KONG

**Equipment Under Test (EUT)**

Product Name: PORTABLE DVD PLAYER WITH TABLET

Model No.: MDT7001-L, MDT7002-L, MDT7003-L, MDT7004-L,  
MDT7005-L, MDT7006-L, MDT7007-L, MDT7008-L,  
MDT7009-L, PLTDVD7200

**FCC ID:** XMF-MDT7001

**Applicable standards:** FCC CFR Title 47 Part 15 Subpart C Section 15.249:2014

**Date of sample receipt:** January 11, 2016

**Date of Test:** January 12, 2016

**Date of report issued:** January 13, 2016

**Test Result :** PASS \*

\* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:



**Robinson Lo**

**Laboratory Manager**

This report details the results of the testing carried out on one sample. The results contained in this test report do not relate to other samples of the same product and does not permit the use of the GTS product certification mark. The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report.

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## 2 Version

| Version No. | Date             | Description    |
|-------------|------------------|----------------|
| 00          | June 29, 2015    | Original       |
| 01          | January 13, 2016 | Change adapter |
|             |                  |                |
|             |                  |                |
|             |                  |                |

Prepared By:

*Edward. Pan*  
Project Engineer

Date:

January 13, 2016

Check By:

*Hank. Yan*  
Reviewer

Date:

January 13, 2016

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## 4 Test Summary

| Test Item                                | Section in CFR 47     | Result |
|------------------------------------------|-----------------------|--------|
| Antenna requirement                      | 15.203                | Pass   |
| AC Power Line Conducted Emission         | 15.207                | Pass   |
| Field strength of the fundamental signal | 15.249 (a)            | N/A    |
| Spurious emissions                       | 15.249 (a) (d)/15.209 | Pass   |
| Band edge                                | 15.249 (d)/15.205     | N/A    |
| 20dB Occupied Bandwidth                  | 15.215 (c)            | N/A    |

Pass: The EUT complies with the essential requirements in the standard.

N/A: Not applicable.

### 4.1 Measurement Uncertainty

| Test Item                        | Frequency Range | Measurement Uncertainty | Notes |
|----------------------------------|-----------------|-------------------------|-------|
| Radiated Emission                | 9kHz ~ 30MHz    | $\pm 4.34\text{dB}$     | (1)   |
| Radiated Emission                | 30MHz ~ 1000MHz | $\pm 4.24\text{dB}$     | (1)   |
| Radiated Emission                | 1GHz ~ 26.5GHz  | $\pm 4.68\text{dB}$     | (1)   |
| AC Power Line Conducted Emission | 0.15MHz ~ 30MHz | $\pm 3.45\text{dB}$     | (1)   |

Note (1): The measurement uncertainty is for coverage factor of  $k=2$  and a level of confidence of 95%.

Remark: Test according to ANSI C63.4:2014 and ANSI C63.10:2013

## 5 General Information

### 5.1 Client Information

|                                 |                                                                                     |
|---------------------------------|-------------------------------------------------------------------------------------|
| Applicant:                      | Lightcomm Technology Co., Ltd.                                                      |
| Address of Applicant:           | RM1708-10,17/F,PROSPERITY CENTRE, 25 CHONG YIP STREET,KWUN TONG, KOWLOON, HONG KONG |
| Manufacturer/Factory:           | Huizhou Hengdu Electronics Co., Ltd                                                 |
| Address of Manufacture/Factory: | DIP South Area, Huiao Highway, Huizhou, Guangdong, China                            |

### 5.2 General Description of EUT

|                                                                                                                                                                                 |                                                                                                                    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------|
| Product Name:                                                                                                                                                                   | PORTABLE DVD PLAYER WITH TABLET                                                                                    |
| Model No.:                                                                                                                                                                      | MDT7001-L, MDT7002-L, MDT7003-L, MDT7004-L, MDT7005-L, MDT7006-L, MDT7007-L, MDT7008-L, MDT7009-L, PLTDVD7200      |
| Test Model No.:                                                                                                                                                                 | MDT7001-L                                                                                                          |
| <i>Remark: All above models are identical in the same PCB layout, interior structure and electrical circuits. The only difference is the model name for commercial purpose.</i> |                                                                                                                    |
| Operation Frequency:                                                                                                                                                            | 2402MHz~2480MHz                                                                                                    |
| Channel numbers:                                                                                                                                                                | 79                                                                                                                 |
| Channel separation:                                                                                                                                                             | 1MHz                                                                                                               |
| Modulation type:                                                                                                                                                                | GFSK, Pi/4DQPSK, 8DPSK                                                                                             |
| Antenna Type:                                                                                                                                                                   | PIFA antenna                                                                                                       |
| Antenna gain:                                                                                                                                                                   | 2.5dBi (declare by Applicant)                                                                                      |
| Power supply:                                                                                                                                                                   | Model No.: TEKA012-0502000UK<br>Input: 100-240V~50/60Hz 0.35A MAX<br>Output: 5.0V --- 2A<br>DC 3.7V Li-ion Battery |

| Operation Frequency each of channel |           |         |           |         |           |         |           |
|-------------------------------------|-----------|---------|-----------|---------|-----------|---------|-----------|
| Channel                             | Frequency | Channel | Frequency | Channel | Frequency | Channel | Frequency |
| 1                                   | 2402MHz   | 21      | 2422MHz   | 41      | 2442MHz   | 61      | 2462MHz   |
| 2                                   | 2403MHz   | 22      | 2423MHz   | 42      | 2443MHz   | 62      | 2463MHz   |
| ⋮                                   | ⋮         | ⋮       | ⋮         | ⋮       | ⋮         | ⋮       | ⋮         |
| 19                                  | 2420MHz   | 39      | 2440MHz   | 59      | 2460MHz   | 79      | 2480MHz   |
| 20                                  | 2421MHz   | 40      | 2441MHz   | 60      | 2461MHz   |         |           |

Note:

In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

| Channel             | Frequency |
|---------------------|-----------|
| The lowest channel  | 2402MHz   |
| The middle channel  | 2441MHz   |
| The Highest channel | 2480MHz   |

### 5.3 Test mode

|                                                                                                                                                                                                                                              |                                                |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Transmitting mode                                                                                                                                                                                                                            | Keep the EUT in continuously transmitting mode |
| <i>Remark: During the test, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.</i> |                                                |

#### Final Test Mode:

The EUT was tested in GFSK, Pi/4 QPSK, 8DPSK modulation, and found the GFSK modulation is the worst case.

According to ANSI C63.4 2009 standards, the test results are both the “worst case” and “worst setup”:

Y axis (see the test setup photo)

## 5.4 Description of Support Units

None

## 5.5 Test Facility

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

- **CNAS —Registration No.: CNAS L5775**

CNAS has accredited Global United Technology Services Co., Ltd. To ISO/IEC 17025 General Requirements for the competence of testing and calibration laboratories (CNAS-CL01 Accreditation Criteria for the Competence of Testing and Calibration Laboratories) for the competence in the field of testing.

- **FCC —Registration No.: 600491**

Global United Technology Services Co., Ltd., Shenzhen 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 files. Registration 600491, June 28, 2013.

- **Industry Canada (IC) —Registration No.: 9079A-2**

The 3m Semi-anechoic chamber of Global United Technology Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 9079A-2, June 26, 2013.

## 5.6 Test Location

All tests were performed at:

Global United Technology Services Co., Ltd.

Room 301-309, 3th Floor, Block A, Huafeng Jinyuan Business Building, No. 300 Laodong Industrial Zone, Xixiang Road, Baoan District, Shenzhen, China

Tel: 0755-27798480

Fax: 0755-27798960

## 5.7 Description of Support Units

None.

## 5.8 Other Information Requested by the Customer

None.

## 6 Test Instruments list

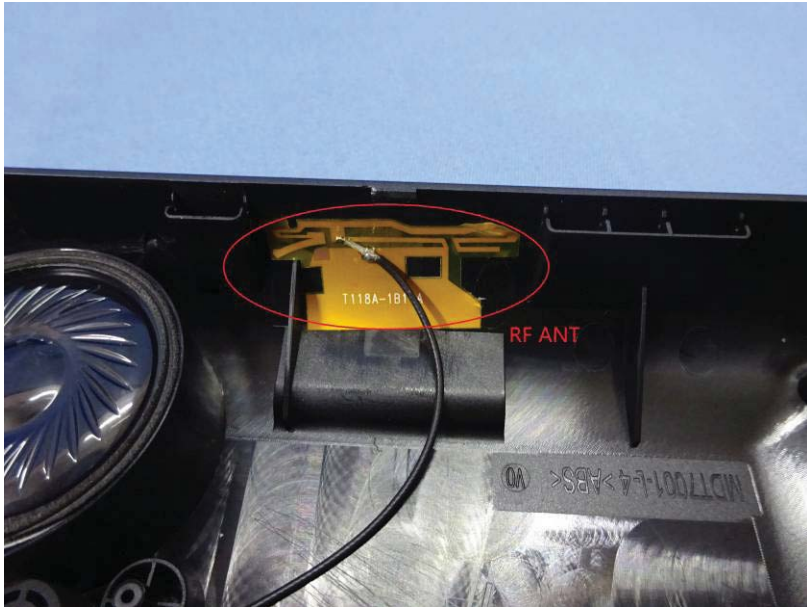
| Radiated Emission: |                               |                                |                             |               |                     |                         |
|--------------------|-------------------------------|--------------------------------|-----------------------------|---------------|---------------------|-------------------------|
| Item               | Test Equipment                | Manufacturer                   | Model No.                   | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                  | 3m Semi- Anechoic Chamber     | ZhongYu Electron               | 9.2(L)*6.2(W)* 6.4(H)       | GTS250        | Mar. 28 2015        | Mar. 27 2016            |
| 2                  | Control Room                  | ZhongYu Electron               | 6.2(L)*2.5(W)* 2.4(H)       | GTS251        | N/A                 | N/A                     |
| 3                  | Spectrum Analyzer             | Agilent                        | E4440A                      | GTS533        | June 30 2015        | June 29 2016            |
| 4                  | EMI Test Receiver             | Rohde & Schwarz                | ESU26                       | GTS203        | June 30 2015        | June 29 2016            |
| 5                  | BiConiLog Antenna             | SCHWARZBECK<br>MESS-ELEKTRONIK | VULB9163                    | GTS214        | June 30 2015        | June 29 2016            |
| 6                  | Double -ridged waveguide horn | SCHWARZBECK<br>MESS-ELEKTRONIK | 9120D-829                   | GTS208        | June 26 2015        | June 24 2016            |
| 7                  | Horn Antenna                  | ETS-LINDGREN                   | 3160                        | GTS217        | Mar. 27 2015        | Mar. 26 2016            |
| 8                  | EMI Test Software             | AUDIX                          | E3                          | N/A           | N/A                 | N/A                     |
| 9                  | Coaxial Cable                 | GTS                            | N/A                         | GTS213        | Mar. 28 2015        | Mar. 27 2016            |
| 10                 | Coaxial Cable                 | GTS                            | N/A                         | GTS211        | Mar. 28 2015        | Mar. 27 2016            |
| 11                 | Coaxial cable                 | GTS                            | N/A                         | GTS210        | Mar. 28 2015        | Mar. 27 2016            |
| 12                 | Coaxial Cable                 | GTS                            | N/A                         | GTS212        | Mar. 28 2015        | Mar. 27 2016            |
| 13                 | Amplifier(100kHz-3GHz)        | HP                             | 8347A                       | GTS204        | June 30 2015        | June 29 2016            |
| 14                 | Amplifier(2GHz-20GHz)         | HP                             | 8349B                       | GTS206        | June 30 2015        | June 29 2016            |
| 15                 | Amplifier (18-26GHz)          | Rohde & Schwarz                | AFS33-18002<br>650-30-8P-44 | GTS218        | June 26 2015        | June 24 2016            |
| 16                 | Band filter                   | Amindeon                       | 82346                       | GTS219        | Mar. 28 2015        | Mar. 27 2016            |

| Conducted Emission: |                   |                                |                      |               |                     |                         |
|---------------------|-------------------|--------------------------------|----------------------|---------------|---------------------|-------------------------|
| Item                | Test Equipment    | Manufacturer                   | Model No.            | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                   | Shielding Room    | ZhongYu Electron               | 7.0(L)x3.0(W)x3.0(H) | GTS264        | June 30 2015        | June 29 2016            |
| 2                   | EMI Test Receiver | Rohde & Schwarz                | ESCS30               | GTS223        | June 30 2015        | June 29 2016            |
| 3                   | 10dB Pulse Limita | Rohde & Schwarz                | N/A                  | GTS224        | June 30 2015        | June 29 2016            |
| 4                   | Coaxial Switch    | ANRITSU CORP                   | MP59B                | GTS225        | June 30 2015        | June 29 2016            |
| 5                   | LISN              | SCHWARZBECK<br>MESS-ELEKTRONIK | NSLK 8127            | GTS226        | June 30 2015        | June 29 2016            |
| 6                   | Coaxial Cable     | GTS                            | N/A                  | GTS227        | June 30 2015        | June 29 2016            |
| 7                   | EMI Test Software | AUDIX                          | E3                   | N/A           | N/A                 | N/A                     |

| General used equipment: |                |              |           |               |                     |                         |
|-------------------------|----------------|--------------|-----------|---------------|---------------------|-------------------------|
| Item                    | Test Equipment | Manufacturer | Model No. | Inventory No. | Cal.Date (mm-dd-yy) | Cal.Due date (mm-dd-yy) |
| 1                       | Barometer      | ChangChun    | DYM3      | GTS257        | July 07 2015        | July 06 2016            |

## 7 Test results and Measurement Data

### 7.1 Antenna requirement

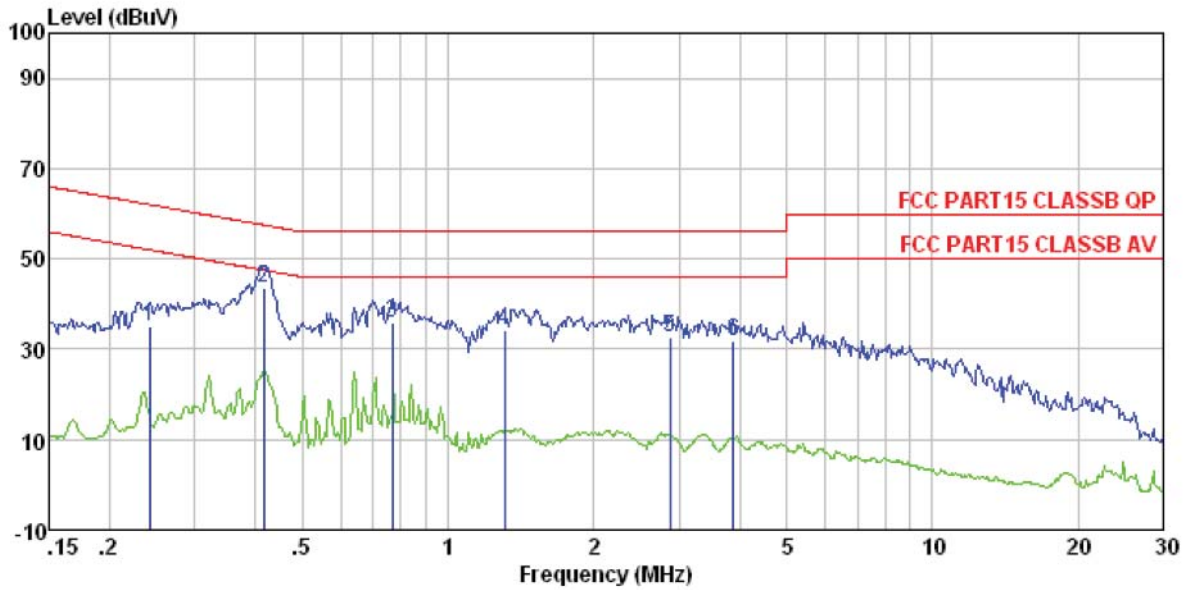
|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |                             |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| <b>Standard requirement:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                     | FCC Part15 C Section 15.203 |
| <b>15.203 requirement:</b><br>An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. |                             |
| <b>EUT Antenna:</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                             |
| <p><i>The antenna is PIFA antenna, the best case gain of the antenna is 2.5dBi</i></p>                                                                                                                                                                                                                                                                                                        |                             |

## 7.2 Conducted Emissions

|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |           |
|--------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------|-----------|
| Test Requirement:                                | FCC Part15 C Section 15.207                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |              |           |
| Test Method:                                     | ANSI C63.10:2013                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |           |
| Test Frequency Range:                            | 150KHz to 30MHz                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |           |
| Class / Severity:                                | Class B                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |              |           |
| Receiver setup:                                  | RBW=9KHz, VBW=30KHz, Sweep time=auto                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |           |
| Limit:                                           | Frequency range (MHz)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | Limit (dBuV) |           |
|                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Quasi-peak   | Average   |
|                                                  | 0.15-0.5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 66 to 56*    | 56 to 46* |
|                                                  | 0.5-5                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 56           | 46        |
|                                                  | 5-30                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 60           | 50        |
| * Decreases with the logarithm of the frequency. |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |              |           |
| Test setup:                                      | <div><p style="text-align: center;"><b>Reference Plane</b></p><p>The diagram illustrates the test setup. A horizontal line at the top represents the 'Reference Plane'. Below it, on the left, is a box labeled 'AUX Equipment' connected to a box labeled 'E.U.T' (Equipment Under Test). Above 'AUX Equipment' is a box labeled 'LISN' (Line Impedance Stabilization Network). A vertical double-headed arrow indicates a distance of '40cm' between the 'Reference Plane' and the 'LISN'. To the right of the 'E.U.T' is another 'LISN' box, with a diagonal line indicating a distance of '80cm' from the 'E.U.T'. This second 'LISN' is connected to a 'Filter' box, which is then connected to 'AC power'. Below the 'Filter' is a box labeled 'EMI Receiver'. The entire setup is on a 'Test table/Insulation plane'.</p><p><i>Remark:<br/>E.U.T: Equipment Under Test<br/>LISN: Line Impedance Stabilization Network<br/>Test table height=0.8m</i></p></div> |              |           |
| Test procedure:                                  | <div><ol style="list-style-type: none"><li>1. The E.U.T is connected to the main power through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm/50uH coupling impedance for the measuring equipment.</li><li>2. The peripheral devices are also connected to the main power through a LISN that provides a 50ohm/50uH coupling impedance with 50ohm termination. (Please refer to the block diagram of the test setup and photographs).</li><li>3. Both sides of A.C. line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10:2013 on conducted measurement.</li></ol></div>                                                                                                                                                                                                                 |              |           |
| Test Instruments:                                | Refer to section 6.0 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |           |
| Test mode:                                       | Refer to section 5.3 for details                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |              |           |
| Test results:                                    | Pass                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |              |           |

**Measurement data:**

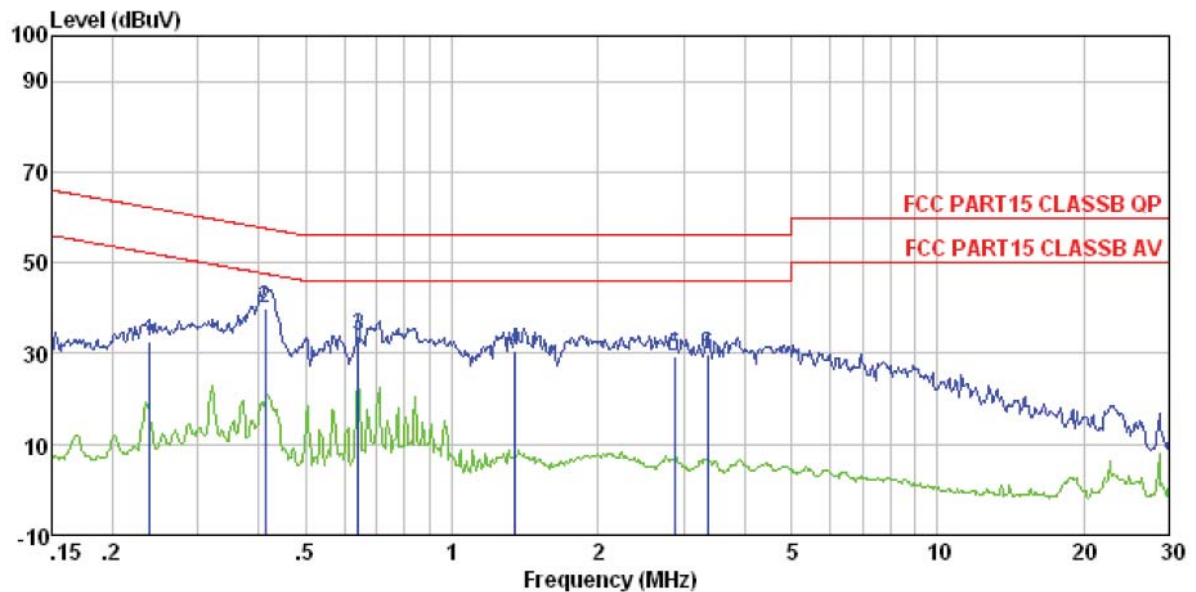
Line:



Condition : FCC PART15 CLASSB QP LISN-2013 LINE  
 Job No. : 0017  
 Test mode : Bluetooth 3.0 mode  
 Test Engineer: Arslan

|   | Freq  | Read Level | LISN Level | LISN Factor | Cable Loss | Limit Line | Over Limit | Remark |
|---|-------|------------|------------|-------------|------------|------------|------------|--------|
|   | MHz   | dBuV       | dBuV       | dB          | dB         | dBuV       | dB         |        |
| 1 | 0.242 | 35.01      | 35.25      | 0.12        | 0.12       | 62.04      | -26.79     | QP     |
| 2 | 0.417 | 43.39      | 43.62      | 0.12        | 0.11       | 57.51      | -13.89     | QP     |
| 3 | 0.767 | 35.72      | 35.99      | 0.14        | 0.13       | 56.00      | -20.01     | QP     |
| 4 | 1.310 | 33.97      | 34.22      | 0.12        | 0.13       | 56.00      | -21.78     | QP     |
| 5 | 2.869 | 32.35      | 32.65      | 0.15        | 0.15       | 56.00      | -23.35     | QP     |
| 6 | 3.881 | 31.50      | 31.85      | 0.20        | 0.15       | 56.00      | -24.15     | QP     |

## Neutral:



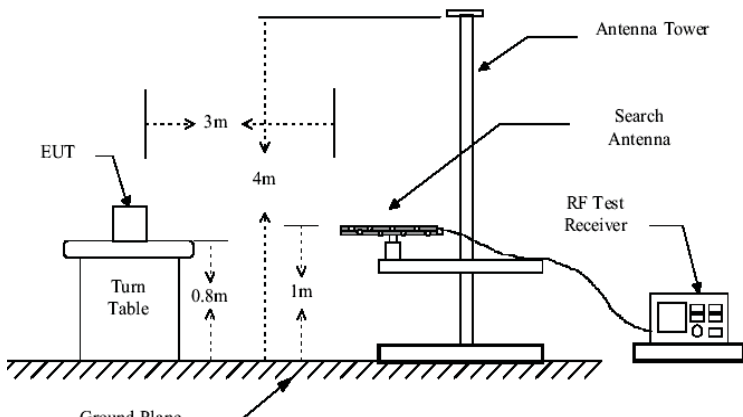
Condition : FCC PART15 CLASSB QP LISN-2013 NEUTRAL  
 Job No. : 0017  
 Test mode : Bluetooth 3.0 mode  
 Test Engineer: Arslan

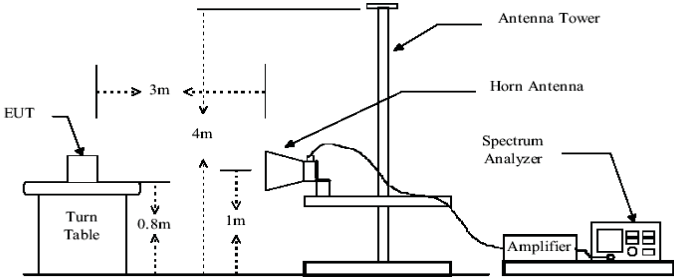
|   | Freq  | Read Level | Level | LISN Factor | Cable Loss | Limit Line | Over Limit | Remark |
|---|-------|------------|-------|-------------|------------|------------|------------|--------|
|   | MHz   | dBuV       | dBuV  | dB          | dB         | dBuV       | dB         |        |
| 1 | 0.239 | 32.29      | 32.47 | 0.06        | 0.12       | 62.13      | -29.66     | QP     |
| 2 | 0.413 | 39.62      | 39.79 | 0.06        | 0.11       | 57.59      | -17.80     | QP     |
| 3 | 0.641 | 33.68      | 33.88 | 0.07        | 0.13       | 56.00      | -22.12     | QP     |
| 4 | 1.352 | 30.31      | 30.53 | 0.09        | 0.13       | 56.00      | -25.47     | QP     |
| 5 | 2.869 | 29.26      | 29.52 | 0.11        | 0.15       | 56.00      | -26.48     | QP     |
| 6 | 3.364 | 29.30      | 29.58 | 0.13        | 0.15       | 56.00      | -26.42     | QP     |

## Notes:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Final Level = Receiver Read level + LISN Factor + Cable Loss
4. If the average limit is met when using a quasi-peak detector receiver, the EUT shall be deemed to meet both limits and measurement with the average detector receiver is unnecessary.

## 7.3 Radiated Emission Method

|                                                         |                                                                                                                                                                                                                                                                |            |                    |                                   |                      |
|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------|-----------------------------------|----------------------|
| Test Requirement:                                       | FCC Part15 C Section 15.209                                                                                                                                                                                                                                    |            |                    |                                   |                      |
| Test Method:                                            | ANSI C63.10:2013                                                                                                                                                                                                                                               |            |                    |                                   |                      |
| Test Frequency Range:                                   | 30MHz-1GHz                                                                                                                                                                                                                                                     |            |                    |                                   |                      |
| Test site:                                              | Measurement Distance: 3m                                                                                                                                                                                                                                       |            |                    |                                   |                      |
| Receiver setup:                                         | Frequency                                                                                                                                                                                                                                                      | Detector   | RBW                | VBW                               | Value                |
|                                                         | 30MHz-1GHz                                                                                                                                                                                                                                                     | Quasi-peak | 120KHz             | 300KHz                            | Quasi-peak           |
|                                                         | Above 1GHz                                                                                                                                                                                                                                                     | Peak       | 1MHz               | 3MHz                              | Peak                 |
|                                                         |                                                                                                                                                                                                                                                                | Peak       | 1MHz               | 10Hz                              | Average              |
| Limit:<br>(Field strength of the<br>fundamental signal) | Frequency                                                                                                                                                                                                                                                      |            | Limit (dBuV/m @3m) |                                   | Remark               |
|                                                         | 2400MHz-2483.5MHz                                                                                                                                                                                                                                              |            | 94.00              |                                   | Average Value        |
|                                                         |                                                                                                                                                                                                                                                                |            | 114.00             |                                   | Peak Value           |
| Limit:<br>(Spurious Emissions)                          | Frequency                                                                                                                                                                                                                                                      |            | Limit (uV/m)       | Value                             | Measurement Distance |
|                                                         | 0.009MHz-1.705MHz                                                                                                                                                                                                                                              |            | 2400/F(KHz)        | QP (except 9-90 kHz, 110-490 kHz) | 300m                 |
|                                                         | 0.490MHz-1.705MHz                                                                                                                                                                                                                                              |            | 24000/F(KHz)       | QP                                | 30m                  |
|                                                         | 1.705MHz-30MHz                                                                                                                                                                                                                                                 |            | 30                 | QP                                | 30m                  |
|                                                         | 30MHz-88MHz                                                                                                                                                                                                                                                    |            | 100                | QP                                | 3m                   |
|                                                         | 88MHz-216MHz                                                                                                                                                                                                                                                   |            | 150                | QP                                |                      |
|                                                         | 216MHz-960MHz                                                                                                                                                                                                                                                  |            | 200                | QP                                |                      |
|                                                         | 960MHz-1GHz                                                                                                                                                                                                                                                    |            | 500                | QP                                |                      |
|                                                         | Above 1GHz                                                                                                                                                                                                                                                     |            | 500                | Average                           |                      |
|                                                         |                                                                                                                                                                                                                                                                |            | 5000               | Peak                              |                      |
| Limit:<br>(band edge)                                   | Emissions radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation. |            |                    |                                   |                      |
| Test setup:                                             | Below 1GHz                                                                                                                                                                                                                                                     |            |                    |                                   |                      |
|                                                         |                                                                                                                                                                            |            |                    |                                   |                      |
|                                                         | Above 1GHz                                                                                                                                                                                                                                                     |            |                    |                                   |                      |

|                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
|--------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                          |  <p>The diagram illustrates the test setup. An EUT (Equipment Under Test) is placed on a turn table at a height of 0.8m. The turn table is rotated 360 degrees. The EUT is positioned 3m away from the antenna tower. The antenna tower has a horn antenna at a height of 4m. The antenna height is varied from 1m to 4m. The spectrum analyzer is connected to the antenna tower via an amplifier.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| <p>Test Procedure:</p>   | <ol style="list-style-type: none"> <li>1. The EUT was placed on the top of a rotating table 0.8m above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.</li> <li>2. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.</li> <li>3. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.</li> <li>4. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.</li> <li>5. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.</li> <li>6. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.</li> </ol> |
| <p>Test Instruments:</p> | <p>Refer to section 6.0 for details</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>Test mode:</p>        | <p>Refer to section 5.3 for details</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <p>Test results:</p>     | <p>Pass</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |

**Measurement data:**

## 7.3.1 Spurious emissions

Note: Pre-scan all kind of the place mode (X-axis, Y-axis, Z-axis), and found the Y-axis which it is worse case.

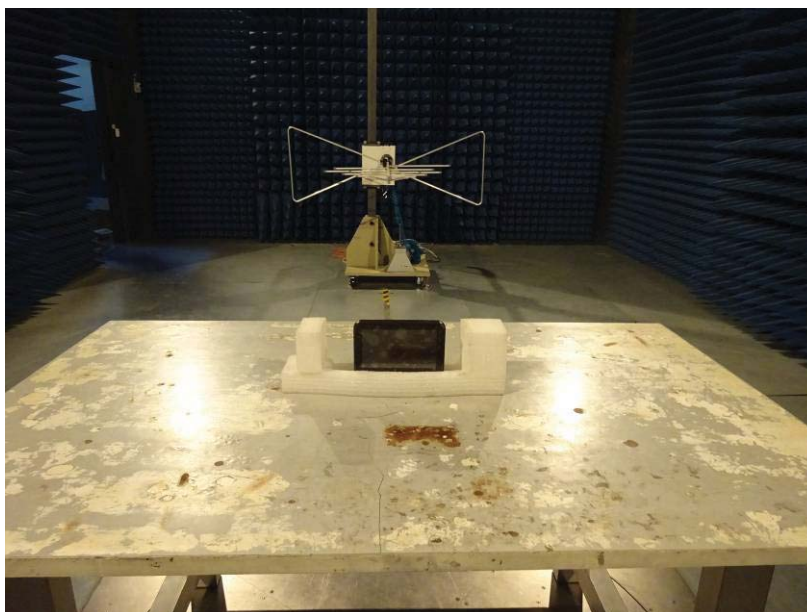
### ■ Below 1GHz

Remark: The test was performed at the lowest, middle and highest channel of GFSK, PI/4 DQPSK, 8DPSK. The data of lowest channel of GFSK was found as the worst, so only the data of that channel is reported.

| Frequency (MHz) | Read Level (dBuV) | Antenna Factor (dB/m) | Cable Loss (dB) | Preamplifier Factor (dB) | Level (dBuV/m) | Limit Line (dBuV/m) | Over Limit (dB) | polarization |
|-----------------|-------------------|-----------------------|-----------------|--------------------------|----------------|---------------------|-----------------|--------------|
| 46.50           | 36.26             | 15.46                 | 0.74            | 30.01                    | 22.45          | 40.00               | -17.55          | Vertical     |
| 104.17          | 37.69             | 14.78                 | 1.23            | 29.67                    | 24.03          | 43.50               | -19.47          | Vertical     |
| 155.91          | 46.65             | 10.51                 | 1.60            | 29.38                    | 29.38          | 43.50               | -14.12          | Vertical     |
| 269.43          | 46.58             | 14.34                 | 2.22            | 29.79                    | 33.35          | 46.00               | -12.65          | Vertical     |
| 364.26          | 41.47             | 16.46                 | 2.69            | 29.67                    | 30.95          | 46.00               | -15.05          | Vertical     |
| 729.36          | 34.67             | 21.19                 | 4.19            | 29.20                    | 30.85          | 46.00               | -15.15          | Vertical     |
| 48.84           | 48.40             | 15.32                 | 0.76            | 30.00                    | 34.48          | 40.00               | -5.52           | Horizontal   |
| 103.81          | 39.51             | 14.78                 | 1.22            | 29.68                    | 25.83          | 43.50               | -17.67          | Horizontal   |
| 143.83          | 47.56             | 10.22                 | 1.53            | 29.44                    | 29.87          | 43.50               | -13.63          | Horizontal   |
| 287.99          | 41.54             | 14.84                 | 2.31            | 29.92                    | 28.77          | 46.00               | -17.23          | Horizontal   |
| 443.29          | 41.54             | 17.57                 | 3.06            | 29.41                    | 32.76          | 46.00               | -13.24          | Horizontal   |
| 906.48          | 40.21             | 23.15                 | 4.88            | 29.10                    | 39.14          | 46.00               | -6.86           | Horizontal   |

## 8 Test Setup Photo

Radiated Emission



## Conducted Emissions



## 9 EUT Constructional Details

Reference to the test report No. GTSE15060107601

-----End-----