



Partial FCC RF Test Report

APPLICANT : DT Research Inc.
EQUIPMENT : WLAN Module
BRAND NAME : DT Research Inc.
MODEL NAME : 600B
FCC ID : YE3600B
STANDARD : FCC Part 15 Subpart C §15.247
CLASSIFICATION : (DTS) Digital Transmission System

This is a partial report which is included Peak Output Power Measurement and AC Conducted Emission test item. The product was received on Feb. 25, 2013 and completely tested on Feb. 28, 2013. We, SPORTON INTERNATIONAL INC., would like to declare that the tested sample has been evaluated in accordance with the procedures and shown the compliance with the applicable technical standards.

The test results in this report apply exclusively to the tested model / sample. Without written approval of SPORTON INTERNATIONAL INC., the test report shall not be reproduced except in full.

Reviewed by: Joseph Lin / Supervisor

Approved by: Jones Tsai / Manager



Testing Laboratory
1190

SPORTON INTERNATIONAL INC.

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APPENDIX A. PHOTOGRAPHS OF EUT

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REVISION HISTORY



SUMMARY OF TEST RESULT

| Report Section | FCC Rule | IC Rule | Description | Limit | Result | Remark |
|----------------|-----------------------|----------------------|-----------------------|-----------|--------|--|
| 3.1 | 15.247(b)(1) | RSS-210 A8.1(b) | Peak Output Power | ≤ 30dBm | Pass | - |
| 3.2 | 15.207 | RSS-210 Gen 7.2.2 | AC Conducted Emission | 15.207(a) | Pass | Under limit 9.20 dB at 0.190 MHz |
| 3.3 | 15.203 & 15.247(b) | RSS-210 A8.4 | Antenna Requirement | N/A | Pass | - |



1 General Description

1.1 Applicant

DT Research Inc.

6F., NO.1, NingPo E. St., Taipei, 100 Taiwan, R.O.C.

1.2 Manufacturer

DT Research Inc.

6F., NO.1, NingPo E. St., Taipei, 100 Taiwan, R.O.C.

1.3 Feature of Equipment Under Test

| Product Feature | |
|--|---|
| Equipment | WLAN Module |
| Brand Name | DT Research Inc. |
| Model Name | 600B |
| FCC ID | YE3600B |
| Installed into Mobile Tablet | Brand Name : DT Research Inc. Model Name : DT365 |
| EUT supports Radios application | WLAN 11abgn / Bluetooth 2.1/3.0/4.0 |
| EUT Stage | Production Unit |

Remark: The above EUT's information was declared by manufacturer. Please refer to the specifications or user's manual for more detailed description.

1.4 Product Specification of Equipment Under Test

| Product Specification subjective to this standard | |
|---|--|
| Tx/Rx Frequency Range | 2402 MHz ~ 2480 MHz |
| Number of Channels | 40 |
| Carrier Frequency of Each Channel | 40 Channel(37 hopping + 3 advertising channel) |
| Maximum Output Power to Antenna | Bluetooth 4.0 - LE : 5.79 dBm (0.0038 W) |
| Antenna Type | PIFA Antenna type with gain 0.68 dBi |
| Type of Modulation | Bluetooth 4.0 - LE : GFSK |



1.5 Testing Site

| | | | |
|---------------------------|--|---------|--------------------------------|
| Test Site | SPORTON INTERNATIONAL INC. | | |
| Test Site Location | No. 52, Hwa Ya 1 st Rd., Hwa Ya Technology Park, Kwei-Shan Hsiang, Tao Yuan Hsien, Taiwan, R.O.C. TEL: +886-3-3273456 / FAX: +886-3-3284978 | | |
| Test Site No. | Sporton Site No. | | FCC/IC Registration No. |
| | TH02-HY | CO05-HY | 722060/4086B-1 |

The test site complies with ANSI C63.4 2003 requirement.

1.6 Applied Standards

According to the specifications of the manufacturer, the EUT must comply with the requirements of the following standards:

- FCC Part 15 Subpart C §15.247
- FCC KDB Publication No. 558074 D01 DTS Meas. Guidance v02
- ANSI C63.10-2009

Remark:

1. All test items were verified and recorded according to the standards and without any deviation during the test.
2. This EUT has also been tested and complied with the requirements of FCC Part 15, Subpart B, recorded in a separate test report.



2 Test Configuration of Equipment Under Test

2.1 Descriptions of Test Mode

The RF output power was recorded in the following table:

| Channel | Frequency | Bluetooth 4.0 – LE RF Output Power |
|---------|-----------|------------------------------------|
| | | Data Rate / Modulation |
| | | GFSK |
| | | 1Mbps |
| Ch00 | 2402MHz | 5.69 dBm |
| Ch19 | 2440MHz | 5.79 dBm |
| Ch39 | 2480MHz | 5.54 dBm |

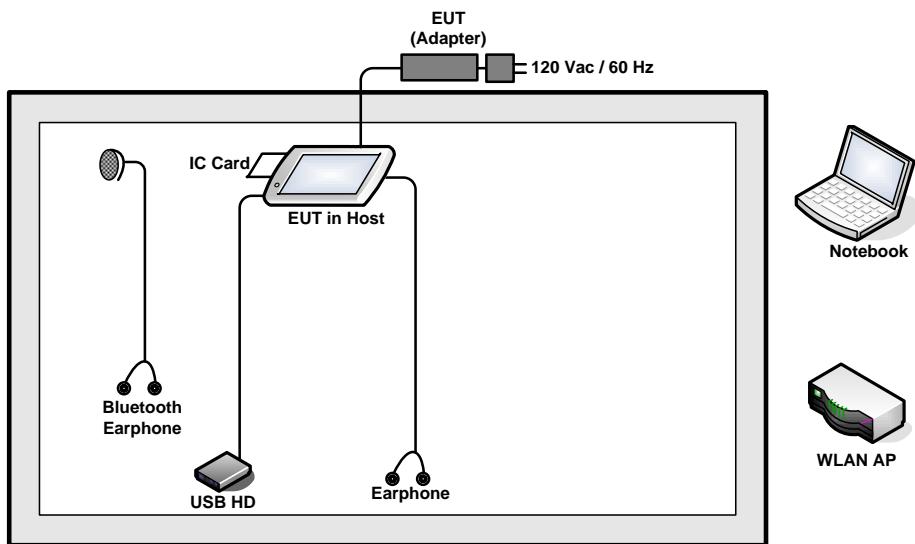
- a. The EUT has been associated with peripherals pursuant to ANSI C63.10-2009 and configuration operated in a manner tended to maximize its emission characteristics in a typical application. Frequency range investigated: conduction (150 KHz to 30 MHz).
- b. AC power line Conducted Emission was tested under maximum output power.

2.2 Test Mode

The following summary table is showing all test modes to demonstrate in compliance with the standard.

| Summary table of Test Cases | |
|--|--|
| AC Conducted Emission | Mode 1 :WLAN (2.4G) Link + Bluetooth Link + Camera + MPEG4 + H Patten + TC |
| Remark: TC stands for Test Configuration, and consists of USB Data Link with USB HD, Adapter, SD Card, Earphone, and IC Card. | |

2.3 Connection Diagram of Test System



2.4 Support Unit used in test configuration and system

| Item | Equipment | Trade Name | Model Name | FCC ID | Data Cable | Power Cord |
|------|--------------------|---------------|------------------------|-------------|-------------------|--|
| 1. | WLAN AP | D-Link | DIR-628 | KA2DIR628A2 | N/A | Unshielded, 1.8 m |
| 2. | Notebook | DELL | Latitude E6320 | FCC DoC | N/A | AC I/P: Unshielded, 1.2 m DC O/P: Shielded, 1.8 m |
| 3. | USB3.0 HD | WD | WDBPCK5000ABK -PESN | FCC DoC | Shielded, 0.5 m | N/A |
| 4. | Bluetooth Earphone | Sony Ericsson | MW600 | PY7DDA-2029 | N/A | N/A |
| 5. | Earphone | Ergotech | ET-E200 | FCC DoC | Unshielded, 1.8 m | N/A |
| 6. | SD Card | SanDisk | MicroSD HC | FCC DoC | N/A | N/A |
| 7. | IC Card | N/A | N/A | N/A | N/A | N/A |

3 Test Result

3.1 Peak Output Power Measurement

3.1.1 Limit of Peak Output Power

For systems using digital modulation in the 2400-2483.5MHz, the limit for peak output power is 30dBm. If transmitting antenna of directional gain greater than 6dBi is used, the peak output power from the intentional radiator shall be reduced below the above stated value by the amount in dB that the directional gain of the antenna exceeds 6 dBi. In case of point-to-point operation, the limit has to be reduced by 1dB for every 3dB that the directional gain of the antenna exceeds 6dBi.

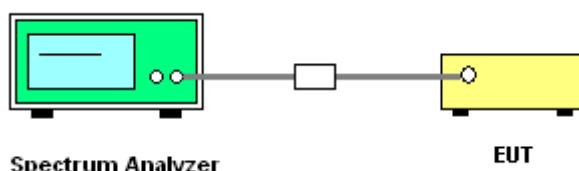
3.1.2 Measuring Instruments

See list of measuring instruments of this test report.

3.1.3 Test Procedures

1. The testing follows the Measurement Procedure of FCC KDB No. 558074 DTS D01 Meas. Guidance v02.
2. The RF output of EUT was connected to the spectrum analyzer by RF cable and attenuator. The path loss was compensated to the results for each measurement.
3. Set to the maximum power setting and enable the EUT transmit continuously.
4. Measure the conducted output power and record the results in the test report.
5. For MIMO mode, calculation method follows FCC KDB 662911 D01 Multiple Transmitter Output v01r02.

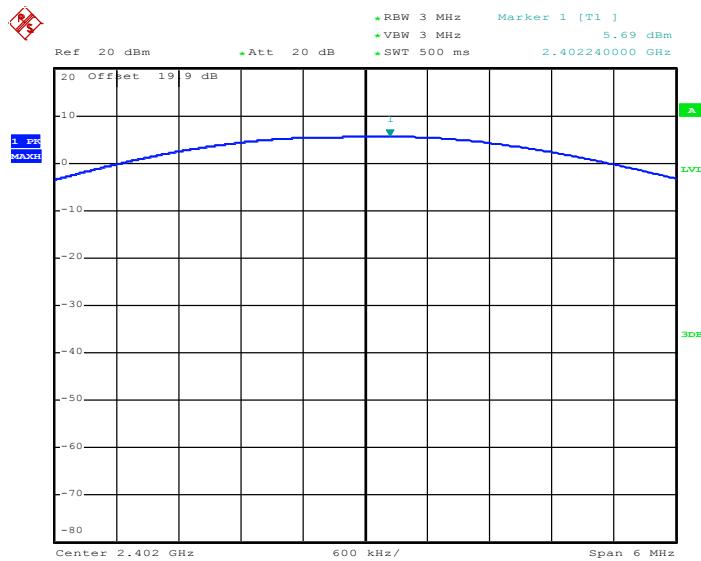
3.1.4 Test Setup



3.1.5 Test Result of Peak Output Power

| | | | |
|------------------------|--------------------|----------------------------|---------|
| Test Mode : | Bluetooth 4.0 - LE | Temperature : | 24~26°C |
| Test Engineer : | Jeff Chou | Relative Humidity : | 50~53% |

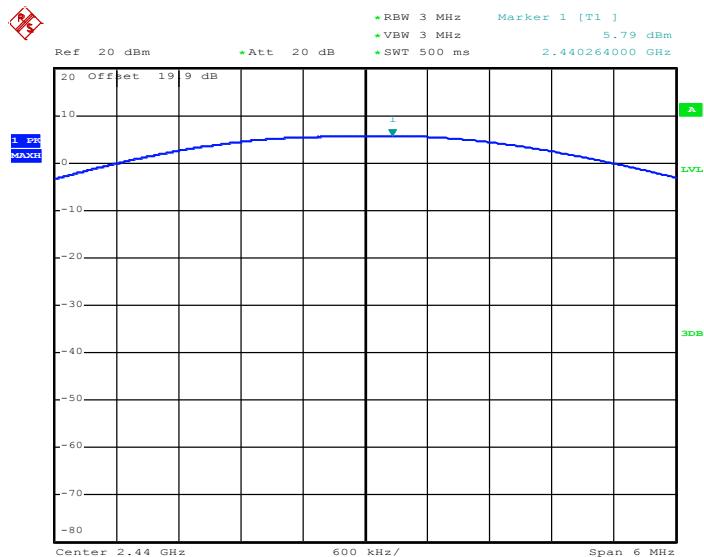
| Channel | Frequency (MHz) | RF Power (dBm) | | |
|---------|--------------------|----------------|----------------------|-----------|
| | | GFSK | Max. Limits (dBm) | Pass/Fail |
| | | 1 Mbps | | |
| 00 | 2402 | 5.69 | 30.00 | Pass |
| 19 | 2440 | 5.79 | 30.00 | Pass |
| 39 | 2480 | 5.54 | 30.00 | Pass |

Peak Output Power Plot on Channel 00


Date: 28.FEB.2013 21:39:30

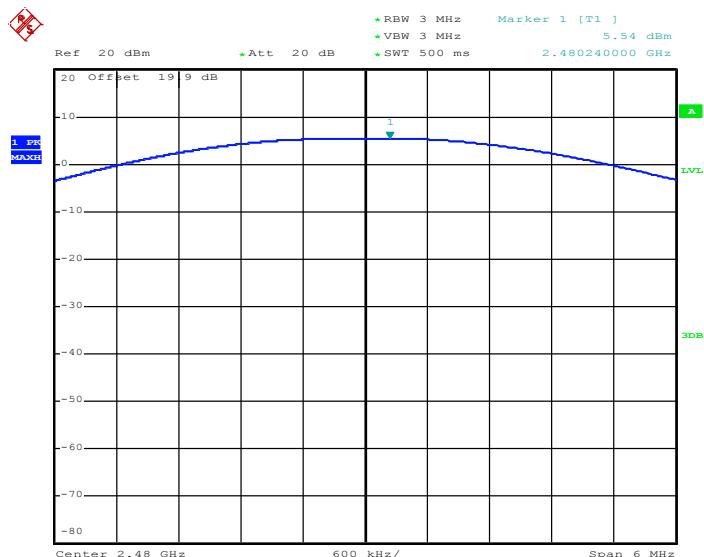


Peak Output Power Plot on Channel 19



Date: 28.FEB.2013 21:38:20

Peak Output Power Plot on Channel 39



Date: 28.FEB.2013 21:40:18



3.2 AC Conducted Emission Measurement

3.2.1 Limit of AC Conducted Emission

For equipment that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed the limits in the following table.

| Frequency of emission (MHz) | Conducted limit (dB μ V) | |
|-----------------------------|------------------------------|-----------|
| | 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.

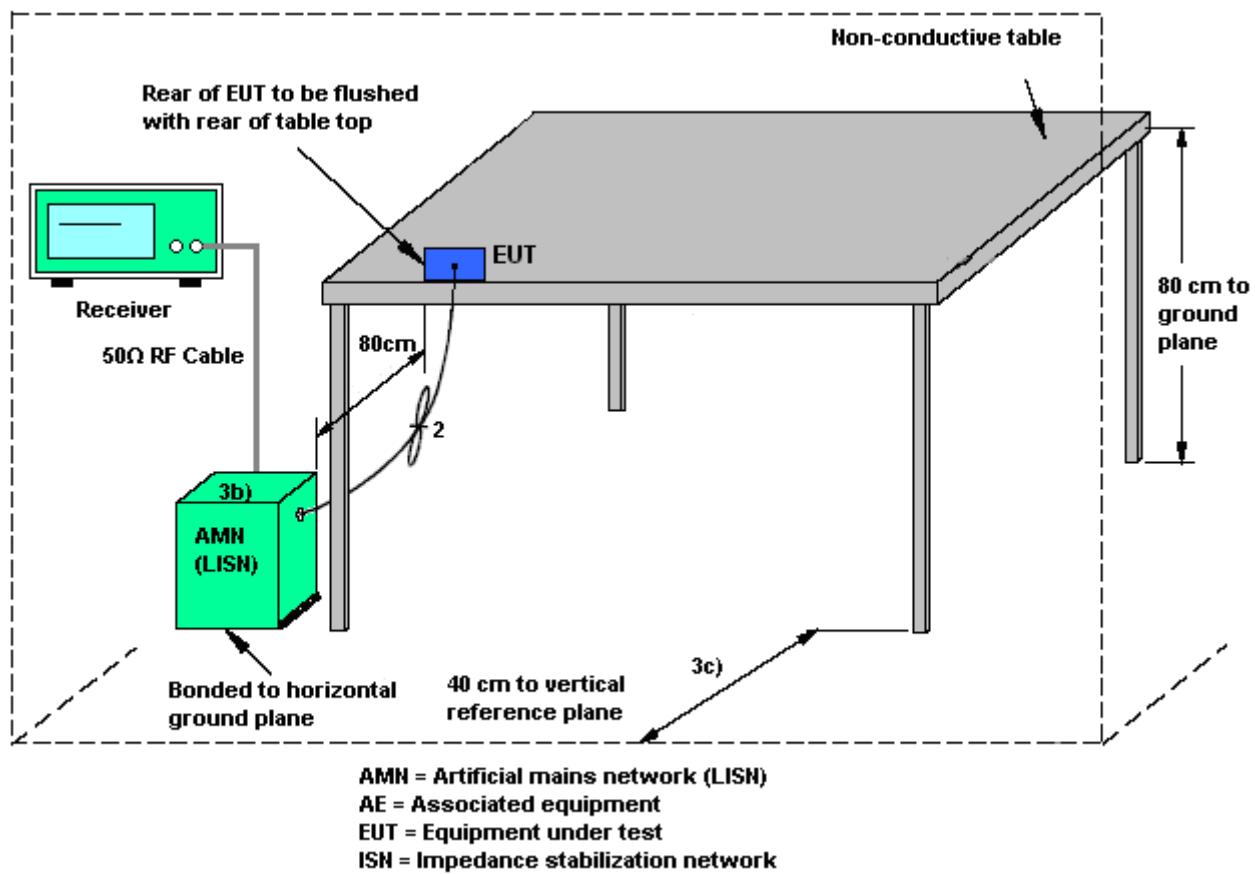
3.2.2 Measuring Instruments

See list of measuring instruments of this test report.

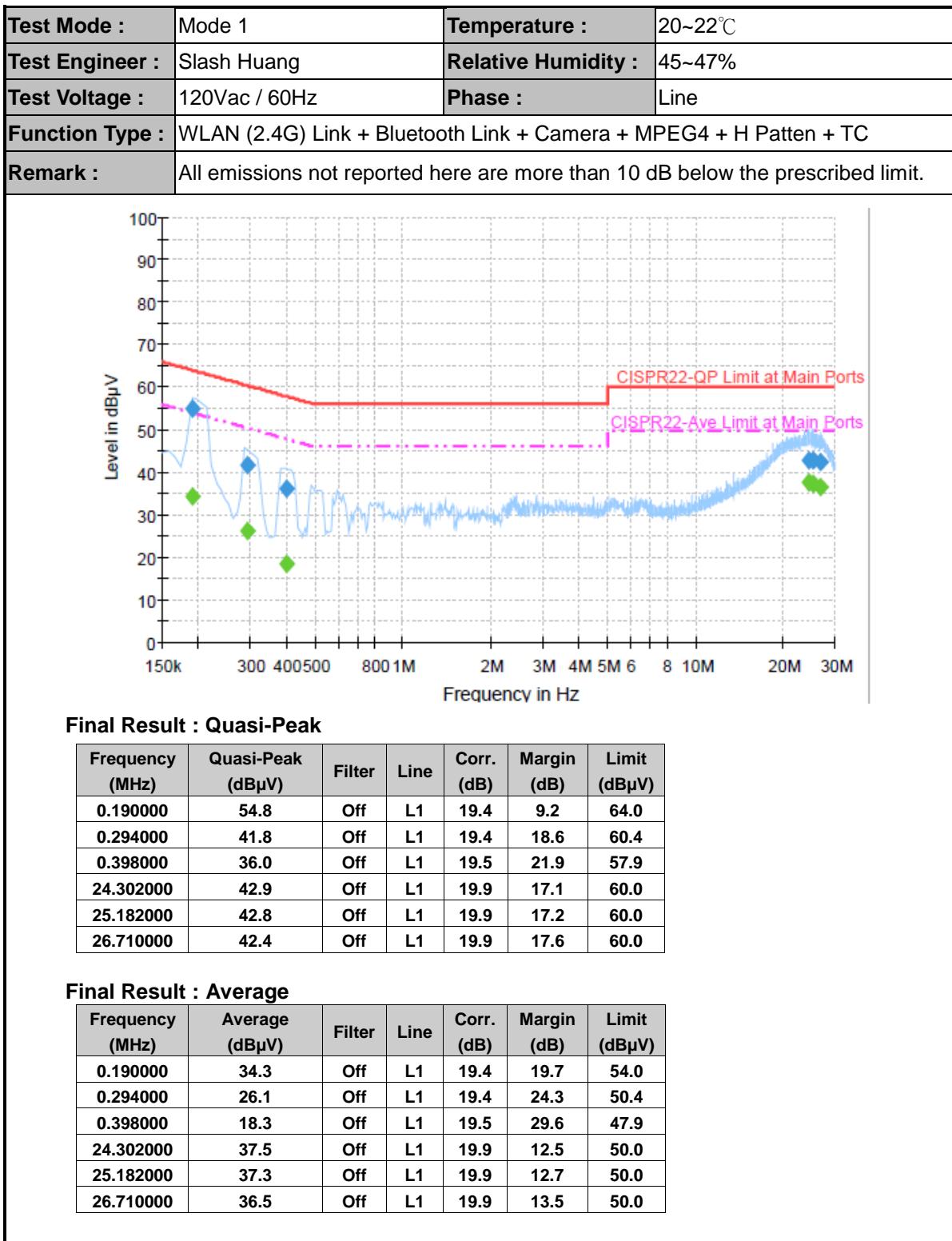
3.2.3 Test Procedures

1. The testing follows the guidelines in ANSI C63.10-2009.
2. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
3. Connect EUT to the power mains through a line impedance stabilization network (LISN).
4. All the support units are connecting to the other LISN.
5. The LISN provides 50 ohm coupling impedance for the measuring instrument.
6. The FCC states that a 50 ohm, 50 microhenry LISN should be used.
7. Both sides of AC line were checked for maximum conducted interference.
8. The frequency range from 150 kHz to 30 MHz was searched.
9. Set the test-receiver system to Peak Detect Function and specified bandwidth with Maximum Hold Mode.

3.2.4 Test Setup

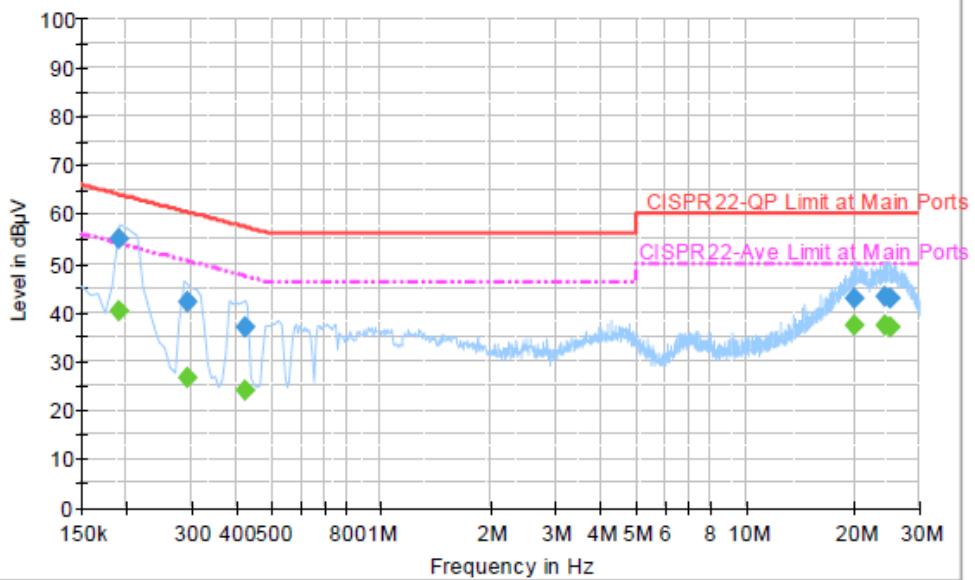


3.2.5 Test Result of AC Conducted Emission





| | | | |
|------------------------|---|----------------------------|---------|
| Test Mode : | Mode 1 | Temperature : | 20~22°C |
| Test Engineer : | Slash Huang | Relative Humidity : | 45~47% |
| Test Voltage : | 120Vac / 60Hz | Phase : | Neutral |
| Function Type : | WLAN (2.4G) Link + Bluetooth Link + Camera + MPEG4 + H Patten + TC | | |
| Remark : | All emissions not reported here are more than 10 dB below the prescribed limit. | | |

**Final Result : Quasi-Peak**

| Frequency (MHz) | Quasi-Peak (dB μ V) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dB μ V) |
|-----------------|-------------------------|--------|------|------------|-------------|--------------------|
| 0.190000 | 54.7 | Off | N | 19.4 | 9.3 | 64.0 |
| 0.294000 | 42.0 | Off | N | 19.4 | 18.4 | 60.4 |
| 0.422000 | 37.0 | Off | N | 19.4 | 20.4 | 57.4 |
| 19.926000 | 42.9 | Off | N | 19.9 | 17.1 | 60.0 |
| 24.190000 | 43.3 | Off | N | 20.0 | 16.7 | 60.0 |
| 25.054000 | 43.0 | Off | N | 20.0 | 17.0 | 60.0 |

Final Result : Average

| Frequency (MHz) | Average (dB μ V) | Filter | Line | Corr. (dB) | Margin (dB) | Limit (dB μ V) |
|-----------------|----------------------|--------|------|------------|-------------|--------------------|
| 0.190000 | 40.1 | Off | N | 19.4 | 13.9 | 54.0 |
| 0.294000 | 26.5 | Off | N | 19.4 | 23.9 | 50.4 |
| 0.422000 | 24.1 | Off | N | 19.4 | 23.3 | 47.4 |
| 19.926000 | 37.4 | Off | N | 19.9 | 12.6 | 50.0 |
| 24.190000 | 37.3 | Off | N | 20.0 | 12.7 | 50.0 |
| 25.054000 | 37.0 | Off | N | 20.0 | 13.0 | 50.0 |



3.3 Antenna Requirements

3.3.1 Standard Applicable

If directional gain of transmitting antennas is greater than 6dBi, the power shall be reduced by the same level in dB comparing to gain minus 6dBi. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the FCC rule.

3.3.2 Antenna Connected Construction

I-PEX connector used.

3.3.3 Antenna Gain

The antenna peak gain of EUT is less than 6 dBi. Therefore, it is not necessary to reduce maximum peak output power limit.



4 List of Measuring Equipment

| Instrument | Manufacturer | Model No. | Serial No. | Characteristics | Calibration Date | Test Date | Due Date | Remark |
|-------------------|-----------------|-----------|------------|-----------------|------------------|---------------|---------------|----------------------|
| Spectrum Analyzer | R&S | FSP40 | 100055 | 9kHz~40GHz | Jun. 06, 2012 | Feb. 28, 2013 | Jun. 05, 2013 | Conducted (TH02-HY) |
| EMI Test Receiver | Rohde & Schwarz | ESCS 30 | 100356 | 9KHz – 2.75GHz | Nov. 13, 2012 | Feb. 27, 2013 | Nov. 12, 2013 | Conduction (CO05-HY) |
| Two-LISN | Rohde & Schwarz | ENV216 | 100081 | 9KHz ~ 30MHz | Dec. 12, 2012 | Feb. 27, 2013 | Dec. 11, 2013 | Conduction (CO05-HY) |
| Two-LISN | Rohde & Schwarz | ENV216 | 100080 | 9KHz ~ 30MHz | Dec. 06, 2012 | Feb. 27, 2013 | Dec. 05, 2013 | Conduction (CO05-HY) |
| AC Power Source | APC | APC-1000W | N/A | N/A | N/A | Feb. 27, 2013 | N/A | Conduction (CO05-HY) |



5 Uncertainty of Evaluation

Uncertainty of Conducted Emission Measurement (150 kHz ~ 30 MHz)

| | |
|--|-------------|
| Measuring Uncertainty for a Level of Confidence of 95% (U = 2Uc(y)) | 2.26 |
|--|-------------|



Appendix A. Photographs of EUT

Please refer to Sporton report number EP322535 as below.