



FCC PART 15B
TEST REPORT

For

Intelligent Technology Inc.

Yuanhe 3 Street, Tongsha Industrial Zone, Dongchen Area, Dongguan, Guangdong, China

FCC ID: ZVY-GS308A

| | |
|--|--|
| Report Type: Original Report | Product Type: 8-Port Gigabit Ethernet Switch |
| Test Engineer: Allen Qiao | <i>Allen Qiao</i> |
| Report Number: R1DG120508007-00 | |
| Report Date: 2012-05-14 | |
| Reviewed By: Harry Wu EMC Engineer | <i>Harry Wu</i> |
| Test Laboratory: | Bay Area Compliance Laboratories Corp. (Shenzhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China Tel: +86-755-33320018 Fax: +86-755-33320008 www.baclcorp.com.cn |

Note: This test report is prepared for the customer shown above and for the equipment described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. This report **must not** be used by the customer to claim product certification, approval, or endorsement by NVLAP*, or any agency of the Federal Government.

* This report contains data that are not covered by the NVLAP accreditation and are marked with an asterisk "★" (Rev.2)

TABLE OF CONTENTS

| | |
|---|-----------|
| GENERAL INFORMATION | 3 |
| PRODUCT DESCRIPTION FOR EQUIPMENT UNDER TEST (EUT)..... | 3 |
| OBJECTIVE | 3 |
| RELATED SUBMITTAL(S)/GRANT(S)..... | 3 |
| TEST FACILITY | 3 |
| SYSTEM TEST CONFIGURATION (FCC §15.27) | 4 |
| JUSTIFICATION | 4 |
| EUT EXERCISE SOFTWARE | 4 |
| EQUIPMENT MODIFICATIONS | 4 |
| LOCAL SUPPORT EQUIPMENT LIST AND DETAILS | 4 |
| EXTERNAL I/O CABLE..... | 4 |
| BLOCK DIAGRAM OF TEST SETUP | 5 |
| SUMMARY OF TEST RESULTS | 6 |
| FCC §15.107 – AC LINE CONDUCTED EMISSIONS | 7 |
| MEASUREMENT UNCERTAINTY | 7 |
| EUT SETUP | 7 |
| EMI TEST RECEIVER SETUP..... | 8 |
| TEST PROCEDURE | 8 |
| TEST EQUIPMENT LIST AND DETAILS..... | 8 |
| TEST RESULTS SUMMARY | 8 |
| TEST DATA | 8 |
| FCC §15.109 - RADIATED EMISSIONS | 11 |
| MEASUREMENT UNCERTAINTY..... | 11 |
| EUT SETUP | 11 |
| EMI TEST RECEIVER SETUP..... | 12 |
| TEST PROCEDURE | 12 |
| CORRECTED AMPLITUDE & MARGIN CALCULATION | 12 |
| TEST EQUIPMENT LIST AND DETAILS..... | 13 |
| TEST RESULTS SUMMARY | 13 |
| TEST DATA | 13 |

GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *Intelligent Technology Inc.*'s product, model number: *GS308A (FCC ID: ZVY-GS308A)* (the "EUT") in this report is a 8-Port Gigabit Ethernet Switch, which was measured approximately: 19.3 cm (L) x 8.4 cm (W) x 2.6 cm (H), rated input voltage: AC 120V/60Hz, the highest operating frequency is 25 MHz.

All measurement and test data in this report was gathered from production sample serial number: GS308A10026C00001 (Assigned by applicant). The EUT was received on 2012-05-08.

Objective

This report is prepared on behalf of *Intelligent Technology Inc.* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communication Commissions rules.

The objective of the manufacturer is to determine compliance with FCC Part 15 Class B.

Related Submittal(s)/Grant(s)

No Related Submittal(s)/Grant(s)

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Dongguan) to collect test data is located on the No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China

Test site at Bay Area Compliance Laboratories Corp. (Dongguan) has been fully described in reports submitted to the Federal Communication Commission (FCC). The details of these reports have been found to be in compliance with the requirements of Section 2.948 of the FCC Rules on February 02, 2012. The facility also complies with the radiated and AC line conducted test site criteria set forth in ANSI C63.4-2009.

The Federal Communications Commission has the reports on file and is listed under FCC Registration No.: 273710. The test site has been approved by the FCC for public use and is listed in the FCC Public Access Link (PAL) database.

Additionally, Bay Area Compliance Laboratories Corp. (Shenzhen) is an ISO/IEC 17025 accredited laboratory, and is accredited by National Voluntary Laboratory Accredited Program (Lab Code 200707-0).



The current scope of accreditations can be found at <http://ts.nist.gov/Standards/scopes/2007070.htm>.

SYSTEM TEST CONFIGURATION (FCC §15.27)

Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

EUT Exercise Software

Traffic generator VER 1.00 was used.

Equipment Modifications

No modification was made to the EUT.

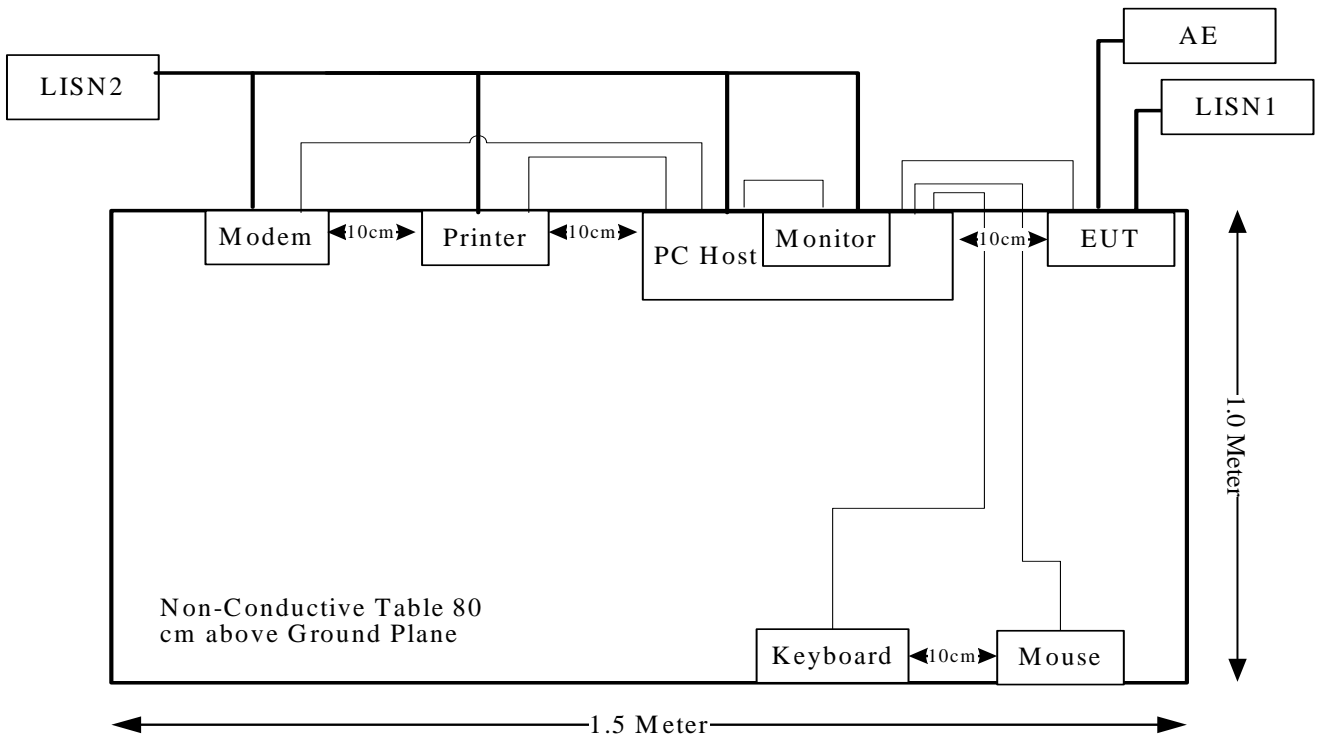
Local Support Equipment List and Details

| Manufacturer | Description | Model | Serial Number |
|--------------|-------------|----------|--------------------------|
| DELL | PC | DCNE | CK2Z891 |
| DELL | Monitor | E2010HC | CH-03D6N6-64180-042-DQ1M |
| DELL | Mouse | OCJ339 | F0Y02P7Y |
| HP | Laser Jet5L | C3941A | JPTVOB2337 |
| DELL | Keyboard | L100 | CNORH656658907BL05DC |
| SAST | Modem | AEM-2100 | 0293 |

External I/O Cable

| Cable Description | Length (m) | From | To |
|------------------------------------|------------|---------------------|------------------|
| Shielded Detachable Mouse Cable | 1.5 | Mouse Port of PC | Mouse |
| Shielded Detachable Printer Cable | 1.2 | Parallel Port of PC | Printer |
| Shielded Detachable Serial Cable | 1.2 | Serial Port of PC | Modem |
| Shielded Detachable VGA Cable | 1.5 | VGA Port of PC | Monitor |
| Shielded Detachable Keyboard Cable | 1.5 | Keyboard Port of PC | Keyboard |
| RJ45 Cable | 1.5 | RJ45 Port of PC | RJ45 Port of EUT |

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

| FCC Rules | Description of Test | Results |
|------------------|--|----------------|
| §15.107 | AC Line Conducted Emissions | Compliance |
| §15.109 | Radiated Emissions | Compliance |
| §15.33 | Frequency range of radiated measurements | Compliance |
| §15.27 | Special Accessories | Compliance |

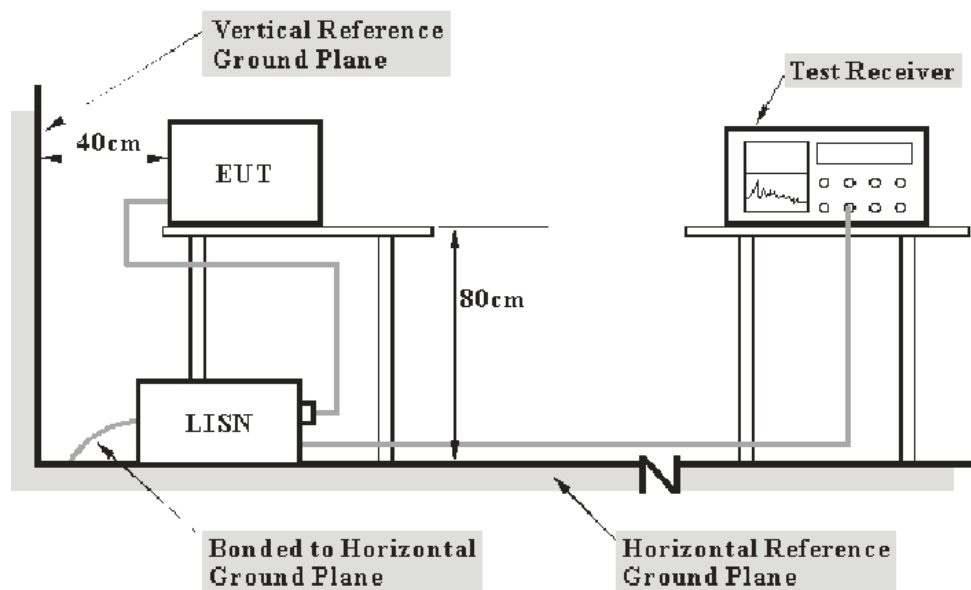
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, and LISN.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is ± 2.4 dB.(k=2, 95% level of confidence)

EUT Setup



- Note: 1. Support units were connected to second LISN.
2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

The setup of EUT is according with per ANSI C63.4-2009 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The EUT was connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

The EMI test receiver was set to investigate the spectrum from 150 kHz to 30 MHz.

During the conducted emission test, the EMI test receiver was set with the following configurations:

| | |
|-------------------------------|----------------------|
| <i>Frequency Range</i> | <i>IF B/W</i> |
| 150 kHz – 30 MHz | 9 kHz |

Test Procedure

During the conducted emission test, the EUT was connected to the outlet of the first LISN and the other support equipments were connected to the outlet of the second LISN.

Maximizing procedure was performed on the six (6) highest emissions of the EUT.

All data was recorded in the Quasi-peak and average detection mode.

Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|---------|---------------|------------------|----------------------|
| Rohde & Schwarz | EMI Test Receiver | ESCS30 | 100176 | 2011-11-24 | 2012-11-23 |
| Rohde & Schwarz | L.I.S.N.1 | ESH2-Z5 | 892107/021 | 2011-11-17 | 2012-11-16 |
| Com-Power | L.I.S.N.2 | LI-200 | 12208 | N/A | N/A |

* **Statement of Traceability:** Bay Area Compliance Laboratory Corp. (Shenzhen) attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15.107, with the worst margin reading of:

12.10 dB at 2.965 MHz in the Neutral conducted

Test Data

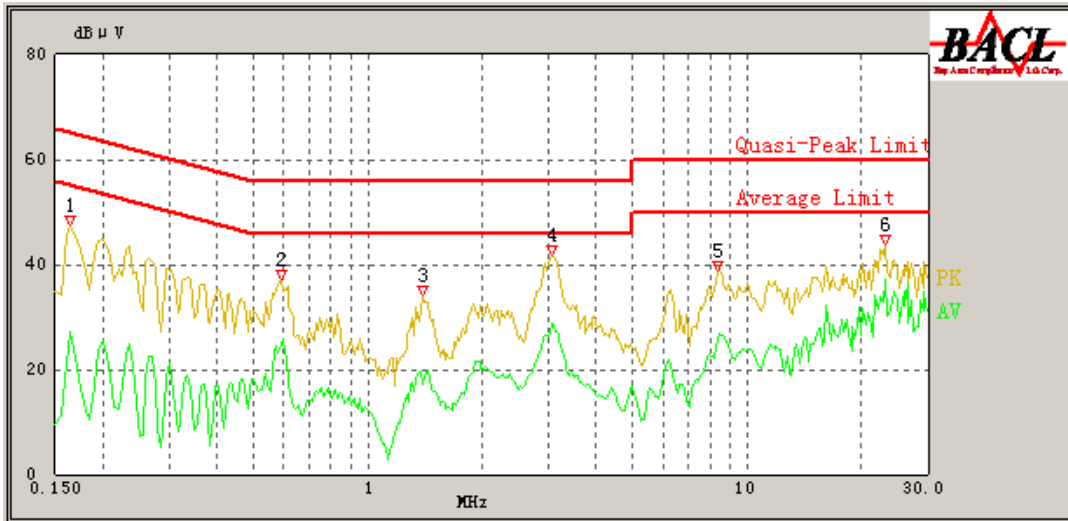
Environmental Conditions

| | |
|---------------------------|-----------|
| Temperature: | 25 °C |
| Relative Humidity: | 48 % |
| ATM Pressure: | 100.0 kPa |

The testing was performed by Allen Qiao on 2012-05-12

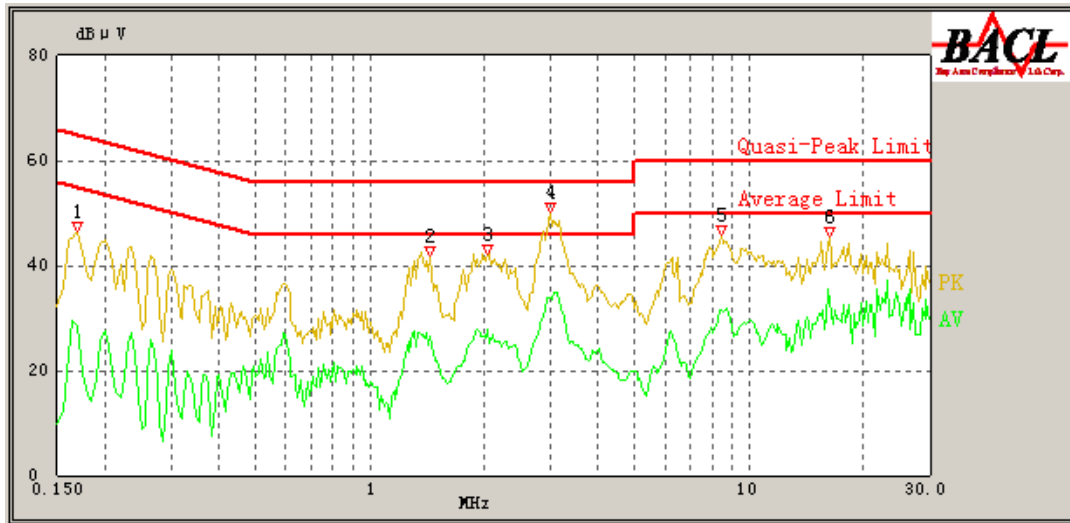
Test mode: Running

120 V, 60 Hz, Line:



| Frequency (MHz) | Reading (dBμV) | Correction (dB) | Limit (dBμV) | Margin (dB) | Detector (PK/Ave./QP) |
|-----------------|----------------|-----------------|--------------|-------------|-----------------------|
| 23.125 | 37.02 | 2.18 | 50.00 | 12.98 | Ave. |
| 3.060 | 28.87 | 0.49 | 46.00 | 17.13 | Ave. |
| 23.130 | 40.78 | 2.18 | 60.00 | 19.22 | QP |
| 0.590 | 24.97 | 0.43 | 46.00 | 21.03 | Ave. |
| 3.060 | 34.96 | 0.49 | 56.00 | 21.04 | QP |
| 0.165 | 44.20 | 0.41 | 65.57 | 21.37 | QP |
| 0.590 | 32.51 | 0.43 | 56.00 | 23.49 | QP |
| 8.380 | 25.55 | 0.60 | 50.00 | 24.45 | Ave. |
| 1.395 | 28.40 | 0.46 | 56.00 | 27.60 | QP |
| 0.165 | 27.28 | 0.41 | 55.57 | 28.29 | Ave. |
| 1.395 | 17.26 | 0.46 | 46.00 | 28.74 | Ave. |
| 8.340 | 31.26 | 0.60 | 60.00 | 28.74 | QP |

120 V, 60 Hz, Neutral:



| Frequency (MHz) | Reading (dBµV) | Correction (dB) | Limit (dBµV) | Margin (dB) | Detector (PK/Ave./QP) |
|-----------------|----------------|-----------------|--------------|-------------|-----------------------|
| 2.965 | 33.90 | 0.49 | 46.00 | 12.10 | Ave. |
| 2.990 | 41.73 | 0.49 | 56.00 | 14.27 | QP |
| 16.225 | 35.49 | 1.37 | 50.00 | 14.51 | Ave. |
| 2.035 | 27.79 | 0.48 | 46.00 | 18.21 | Ave. |
| 8.520 | 31.17 | 0.61 | 50.00 | 18.83 | Ave. |
| 16.230 | 40.49 | 1.37 | 60.00 | 19.51 | QP |
| 1.445 | 26.48 | 0.46 | 46.00 | 19.52 | Ave. |
| 2.050 | 36.06 | 0.48 | 56.00 | 19.94 | QP |
| 1.445 | 35.37 | 0.46 | 56.00 | 20.63 | QP |
| 8.420 | 38.25 | 0.60 | 60.00 | 21.75 | QP |
| 0.170 | 42.60 | 0.41 | 65.43 | 22.83 | QP |
| 0.170 | 28.37 | 0.41 | 55.43 | 27.06 | Ave. |

FCC §15.109 - RADIATED EMISSIONS

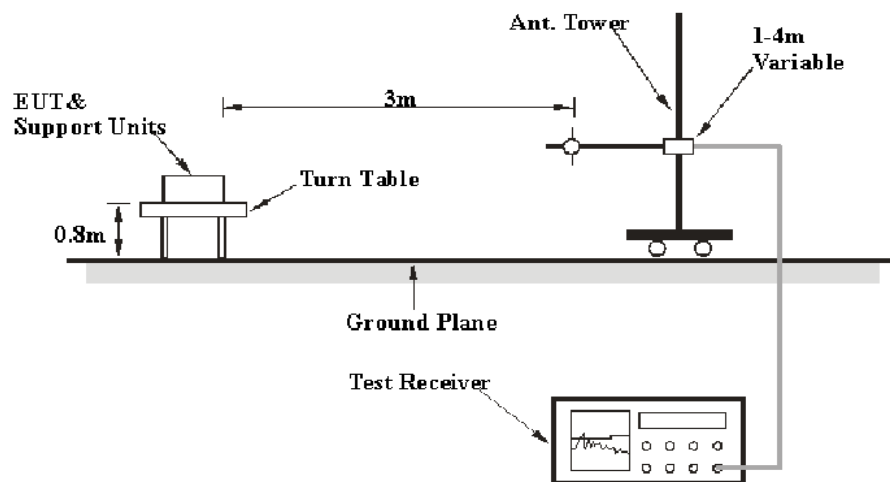
Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are spectrum analyzer, cable loss, antenna factor calibration, antenna directivity, antenna factor variation with height, antenna phase center variation, antenna factor frequency interpolation, measurement distance variation, site imperfections, mismatch (average), and system repeatability.

Based on CISPR 16-4-2, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB. ($k=2$, 95% level of confidence)

EUT Setup

Below 1 GHz:



The radiated emission tests were performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2009. The specification used was the FCC Part 15.109, Class B limits.

The external I/O cables were draped along the test table and formed a bundle 30 to 40 cm long in the middle.

The EUT connected to a 120 VAC/60 Hz power source.

EMI Test Receiver Setup

According to FCC 15.33 requirements, the system was measured from 30 MHz to 1 GHz.

During the radiated emission test, the EMI test receiver was set with the following configurations:

| <u>Frequency Range</u> | <u>RBW</u> | <u>Video B/W</u> | <u>Detector</u> |
|------------------------|------------|------------------|-----------------|
| 30MHz – 1000 MHz | 120 kHz | 300 kHz | QP |

Test Procedure

For the radiated emissions test, the EUT was connected to the first AC floor outlet and the other support equipments were connected to the second AC floor outlet.

Maximizing procedure was performed on the highest emissions to ensure that the EUT complied with all installation combinations.

Data was recorded in Quasi-peak detection mode for frequency range of 30 MHz-1 GHz

Corrected Amplitude & Margin Calculation

The Corrected Amplitude is calculated by adding the Antenna Loss and Cable Loss, and subtracting the Amplifier Gain from the Meter Reading. The basic equation is as follows:

$$\text{Corrected Amplitude} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of 7dB means the emission is 7dB below the limit. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Limit} - \text{Corrected Amplitude}$$

Test Equipment List and Details

| Manufacturer | Description | Model | Serial Number | Calibration Date | Calibration Due Date |
|-----------------|-------------------|---------|---------------|------------------|----------------------|
| Rohde & Schwarz | EMI Test Receiver | ESCI | 100035 | 2011-11-11 | 2012-11-10 |
| HP | Amplifier | HP8447E | 1937A01046 | 2011-08-02 | 2012-08-01 |
| Sunol Sciences | Broadband Antenna | JB1 | A040904-2 | 2011-07-05 | 2012-07-04 |
| Sunol Sciences | Horn Antenna | DRH-118 | A052604 | 2011-12-01 | 2012-11-30 |
| HP | Preamplifier | 8449B | 3008A00277 | 2011-09-12 | 2012-09-11 |
| Rohde & Schwarz | Signal Analyzer | FSIQ 26 | 609358 | 2011-07-08 | 2012-07-07 |

* **Statement of Traceability:** Bay Area Compliance Laboratories Corp (Shenzhen). attests that all calibrations have been performed in accordance to NVLAP requirements, traceable to the NIST.

Test Results Summary

According to the data in the following table, the EUT complied with the FCC §15.109 Class B, with the worst margin reading of:

9.60 dB at 42.6100 MHz in the Vertical polarization

Test Data

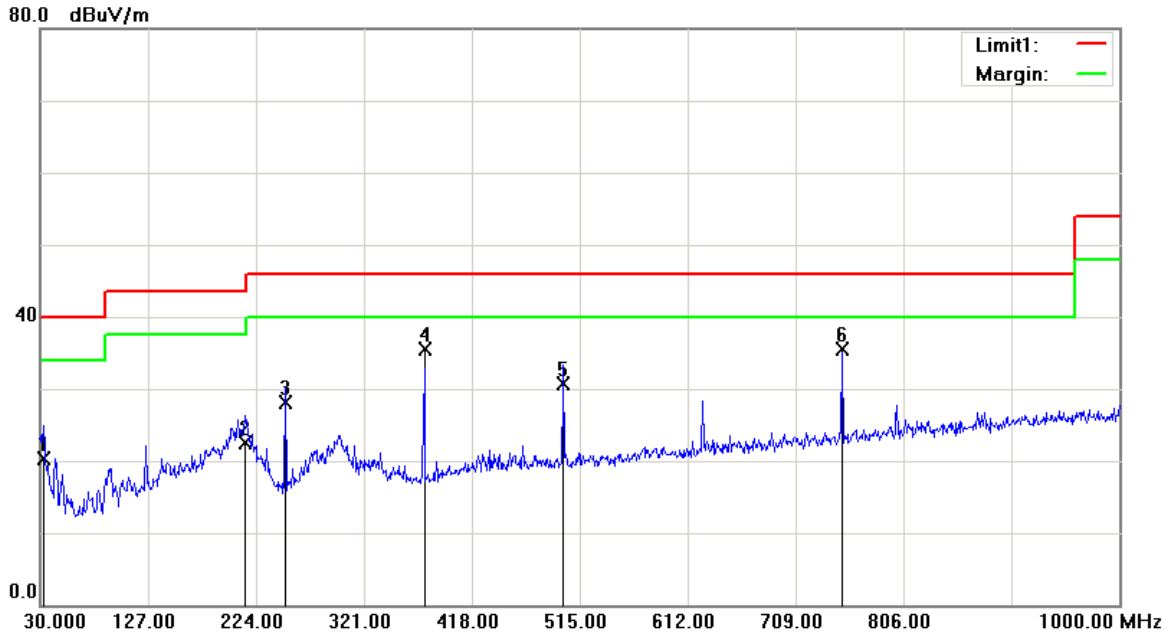
Environmental Conditions

| | |
|---------------------------|-----------|
| Temperature: | 25 °C |
| Relative Humidity: | 48 % |
| ATM Pressure: | 100.0 kPa |

The testing was performed by Allen Qiao on 2012-05-11.

Test mode: Running

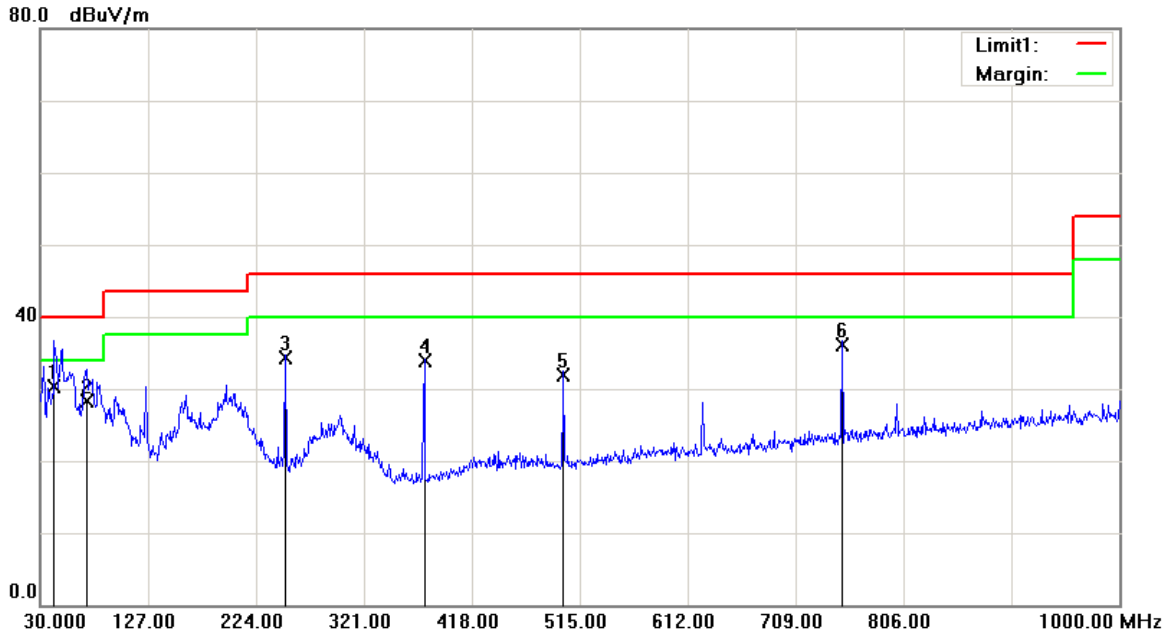
Horizontal:



| Frequency (MHz) | Reading (dBuV/m) | Detector | Corrected (dB/m) | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|-----------------|------------------|----------|------------------|-----------------|----------------|-------------|
| 375.3200 | 39.88 | QP | -4.38 | 35.50 | 46.00 | 10.50 |
| 750.7100 | 34.71 | QP | 0.79 | 35.50 | 46.00 | 10.50 |
| 500.4500 | 32.89 | QP | -2.09 | 30.80 | 46.00 | 15.20 |
| 250.1900 | 36.16 | QP | -7.96 | 28.20 | 46.00 | 17.80 |
| 32.9100 | 21.07 | QP | -0.67 | 20.40 | 40.00 | 19.60 |
| 214.3000 | 31.33 | QP | -8.83 | 22.50 | 43.50 | 21.00 |

*Within measurement uncertainty!

Vertical:



| Frequency (MHz) | Reading (dBuV/m) | Detector | Corrected dB/m | Result (dBuV/m) | Limit (dBuV/m) | Margin (dB) |
|--------------------|---------------------|----------|-------------------|--------------------|-------------------|----------------|
| 42.6100 | 38.42 | QP | -8.02 | 30.40 | 40.00 | 9.60 |
| 750.7100 | 35.31 | QP | 0.79 | 36.10 | 46.00 | 9.90 |
| 250.1900 | 42.36 | QP | -7.96 | 34.40 | 46.00 | 11.60 |
| 71.7100 | 40.31 | QP | -12.01 | 28.30 | 40.00 | 11.70 |
| 375.3200 | 38.38 | QP | -4.38 | 34.00 | 46.00 | 12.00 |
| 500.4500 | 34.09 | QP | -2.09 | 32.00 | 46.00 | 14.00 |

*Within measurement uncertainty!

***** END OF REPORT *****