



# FCC PART 15B, CLASS B

## TEST REPORT

For

### Lanready Technologies Inc.

3F,NO.166,Sinhu 2nd Rd.,Neihu District,Taipei,Taiwan ,ROC

**FCC ID:SCDDS505**

<b>Report Type:</b> Original Report	<b>Product Type:</b> 5-Port 10/100/1000Mbps Green Switch
<b>Test Engineer:</b> Star Xie	<i>Star Xie</i>
<b>Report Number:</b> R1DG121019009-00	
<b>Report Date:</b> 2012-11-16	
<b>Reviewed By:</b> Harry Wu EMC Engineer	<i>Harry Wu</i>
<b>Test Laboratory:</b> Bay Area Compliance Laboratories Corp. (Dongguan) No.69 Pulongcun, Puxinhu Industrial Zone, Tangxia, Dongguan, Guangdong, China Tel: +86-769-86858888 Fax: +86-769-86858891 <a href="http://www.baclcorp.com.cn">www.baclcorp.com.cn</a>	

Note: This test report is prepared for the customer shown above and for the device described herein. It may not be duplicated or used in part without prior written consent from Bay Area Compliance Laboratories Corp. (Dongguan).

**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.....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.....7  
    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.....11  
    TEST PROCEDURE .....12  
    CORRECTED AMPLITUDE & MARGIN CALCULATION .....12  
    TEST EQUIPMENT LIST AND DETAILS.....12  
    TEST RESULTS SUMMARY .....12  
    TEST DATA .....13

**DECLARATION LETTER .....15**

## GENERAL INFORMATION

---

### Product Description for Equipment under Test (EUT)

The *Lanready Technologies Inc.*'s product, model number: *AGSW503 (FCC ID: SCDDS505)* (the "EUT") in this report is a *5-Port 10/100/1000Mbps Green Switch*, which was measured approximately: 13.5 cm (L) x 7.5 cm (W) x 2.5 cm (H), rated input voltage: AC 120V, the highest operating frequency is 25 MHz.

Notes: *the series product, model AGSW503, DS505, CS1005G are electrically identical, the difference between them is just the model name and logo on the shell, we selected AGSW503 for fully testing, the details was explained in the attached declaration letter.*

*All measurement and test data in this report was gathered from production sample serial number: 121019009 (Assigned by BACL, Dongguan). The EUT was received on 2012-10-23.*

### Objective

This report is prepared on behalf of *Lanready Technologies 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 15B, 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.

## SYSTEM TEST CONFIGURATION

### Justification

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

### EUT Exercise Software

Tfgen traffic generator ver 1.00 was used.

### Equipment Modifications

No modification was made to the EUT.

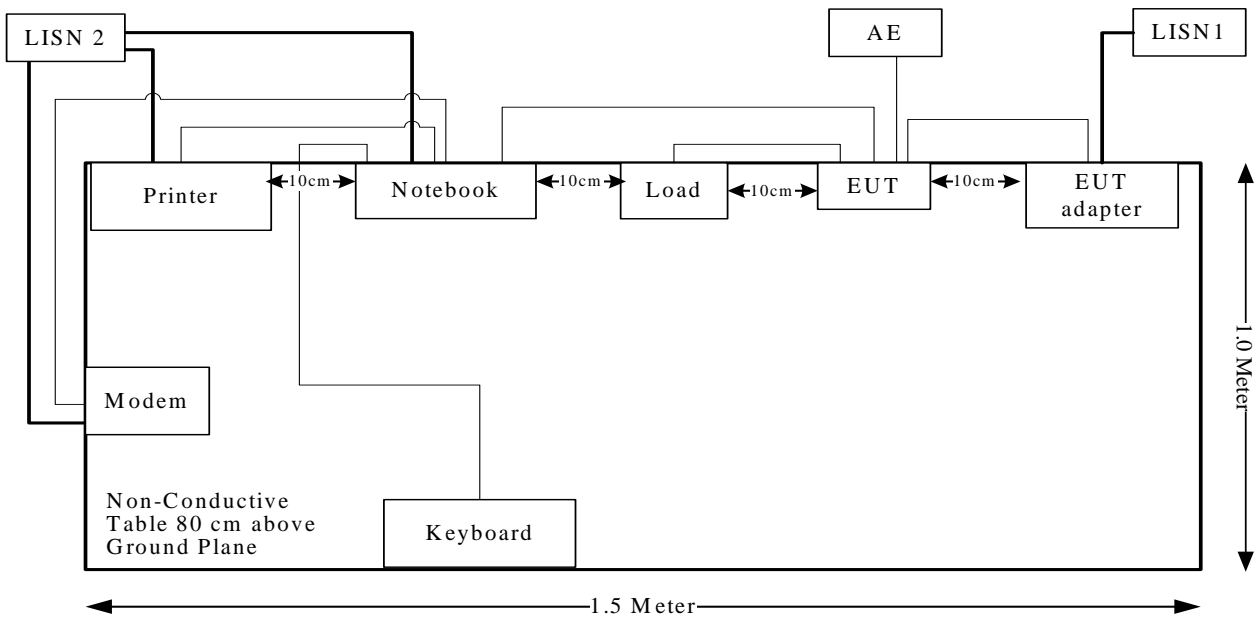
### Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Notebook computer	PP11L	QDS-BRCM1017
HP	Laser Jet5L	C3941A	JPTVOB2337
DELL	Keyboard	L100	CNORH656658907BL 05DC
SAST	Modem	AEM-2100	293

### External I/O Cable

Cable Description	Length (m)	From	To
Shielded Detachable Printer Cable	1.2	Parallel Port of PC	Printer
Shielded Detachable Serial Cable	1.2	Serial Port of PC	Modem
Shielded Detachable Keyboard Cable	1.5	Keyboard Port of PC	Keyboard
RJ45 Cabel	1.5	RJ45 Port of PC	EUT

### Block Diagram of Test Setup



---

## **SUMMARY OF TEST RESULTS**

---

<b>FCC Rules</b>	<b>Description of Test</b>	<b>Results</b>
§15.107	AC Line Conducted Emissions	Compliance
§15.109	Radiated Emissions	Compliance

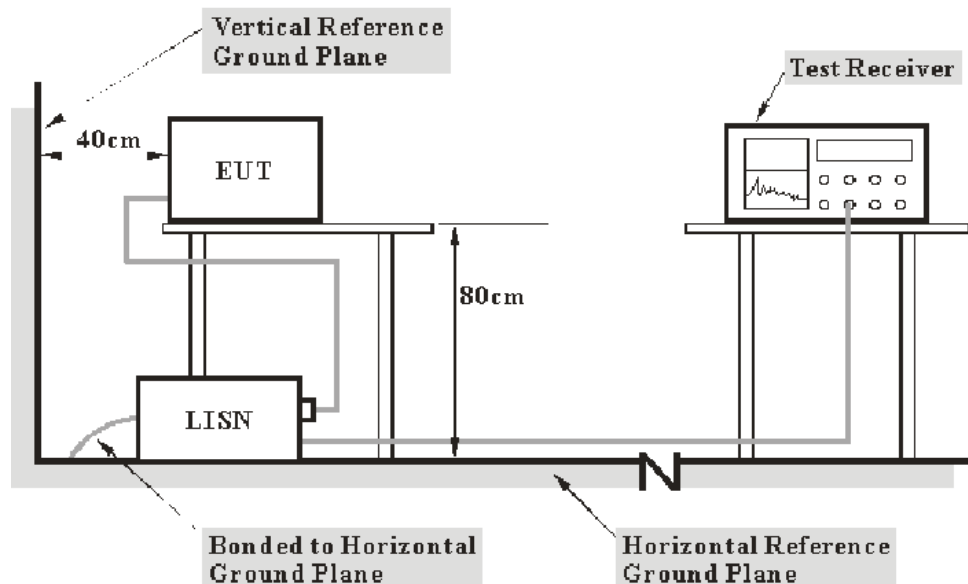
## FCC §15.107 – AC LINE CONDUCTED EMISSIONS

### Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are Receiver, 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. (Dongguan) is 1.5 dB, and the uncertainty will not be taken into consideration for all the test data recorded in the report.

### 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 PC 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
R & S	EMI Test Receiver	ESCS 30	830245/006	2012-10-08	2013-10-07
R & S	LISN1	ESH3-Z5	843331/015	2012-10-08	2013-10-07
R & S	LISN2	ESH3-Z5	100113	2012-10-08	2013-10-07

## 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:

**4.62 dB at 0.315MHz in the Line conducted**

## Test Data

### Environmental Conditions

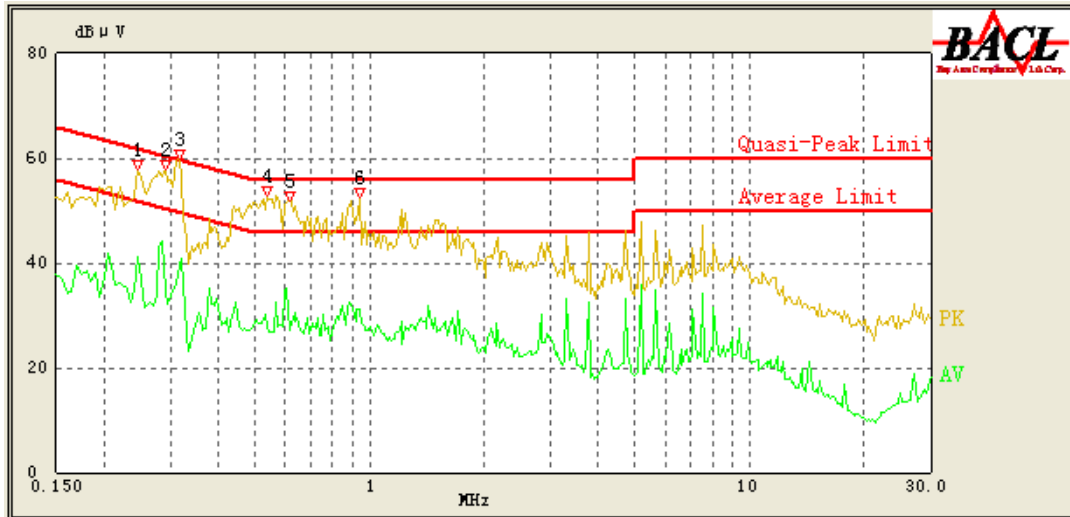
<b>Temperature:</b>	27.3 °C
<b>Relative Humidity:</b>	63 %
<b>ATM Pressure:</b>	100.6 kPa

*The testing was performed by Star Xie on 2012-10-29.*



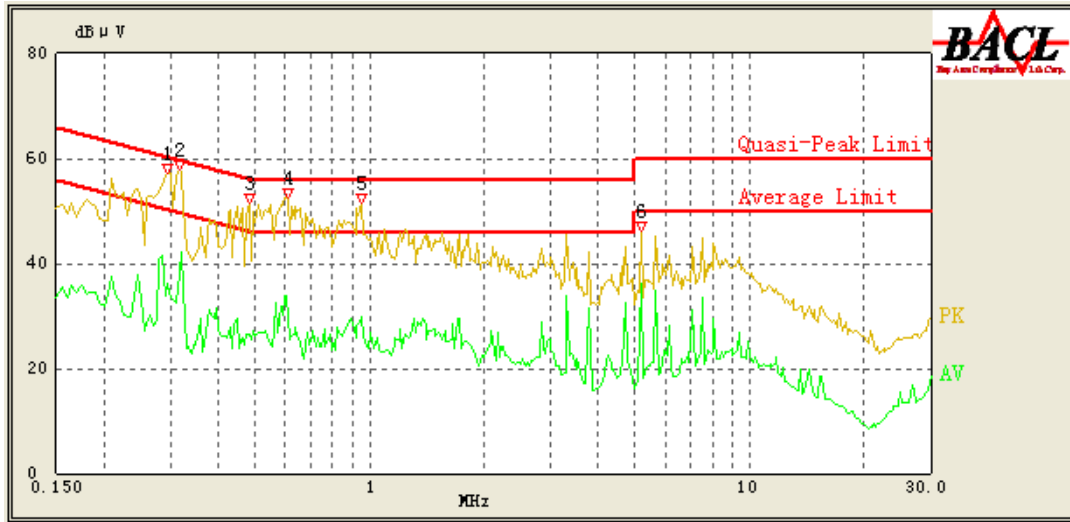
Test mode: Running

120 V, 60 Hz, Line:



No.	Frequency (MHz)	Cord. Reading (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/AV/QP)
1	0.245	51.56	0.37	63.29	11.73	QP
2	0.245	41.09	0.37	53.29	12.20	AV
3	0.290	55.03	0.35	62.00	6.97	QP
4	0.290	34.84	0.35	52.00	17.16	AV
5	0.315	56.67	0.34	61.29	4.62	QP
6	0.315	39.53	0.34	51.29	11.76	AV
7	0.540	43.25	0.31	56.00	12.75	QP
8	0.535	28.15	0.31	46.00	17.85	AV
9	0.615	47.36	0.32	56.00	8.64	QP
10	0.615	27.03	0.32	46.00	18.97	AV
11	0.945	44.91	0.32	56.00	11.09	QP
12	0.945	31.21	0.32	46.00	14.79	AV

**120 V, 60 Hz, Neutral:**



No.	Frequency (MHz)	Cord. Reading (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/AV/QP)
1	0.295	48.59	0.23	61.86	13.27	QP
2	0.295	36.04	0.23	51.86	15.82	AV
3	0.315	52.35	0.23	61.29	8.94	QP
4	0.315	38.19	0.23	51.29	13.10	AV
5	0.485	39.51	0.21	56.43	16.92	QP
6	0.485	26.36	0.21	46.43	20.07	AV
7	0.610	43.16	0.22	56.00	12.84	QP
8	0.605	33.77	0.22	46.00	12.23	AV
9	0.950	43.28	0.23	56.00	12.72	QP
10	0.950	29.70	0.23	46.00	16.30	AV
11	5.195	44.06	0.41	60.00	15.94	QP
12	5.195	36.21	0.41	50.00	13.79	AV

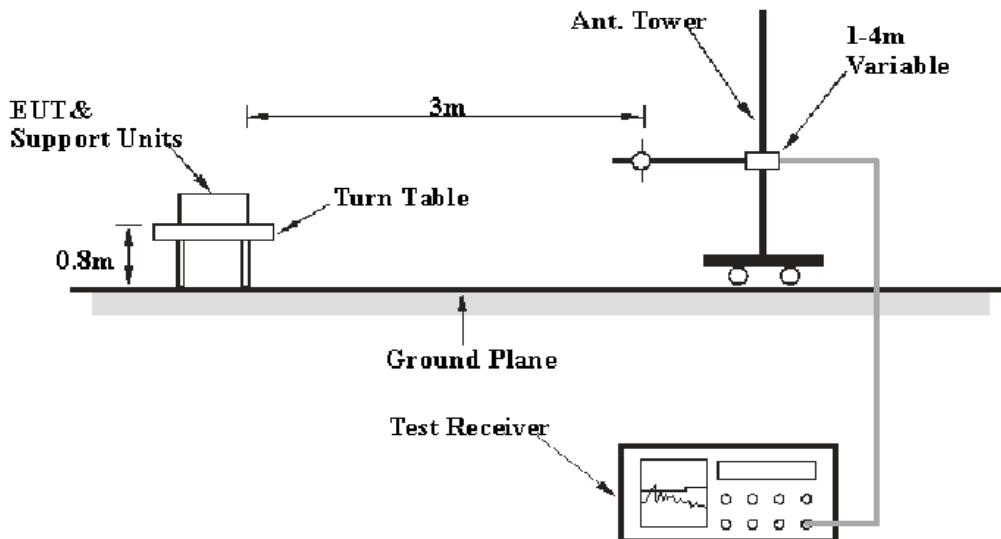
## FCC §15.109 - RADIATED EMISSIONS

### 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 radiation emissions measurement from 30 MHz to 1 GHz at Bay Area Compliance Laboratories Corp. (Dongguan) is 4.9 dB, and the uncertainty will not be taken into consideration for all the test data recorded in the report.

### EUT Setup



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
R & S	EMI Test Receiver	ESCI	100224	2012-11-11	2013-11-10
Sunol Sciences	Hybrid Antennas	JB3	A060611-1	2012-09-06	2013-09-05
HP	Pre-amplifier	8447E	2434A02181	2012-10-08	2013-10-07
R & S	Spectrum Analyzer	FSEM	1079 8500	2012-10-09	2013-10-08
Beijingdayang	Horn Antenna	OMCDH10180	10279001B	2010-07-30	2015-07-29
Mini-Circuits	Wideband Amplifier	ZVA-183-S+	96901149	N/A	N/A

## 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:

**3.40 dB at 750.7100 MHz in the Horizontal polarization for below 1 G.**

**Test Data**

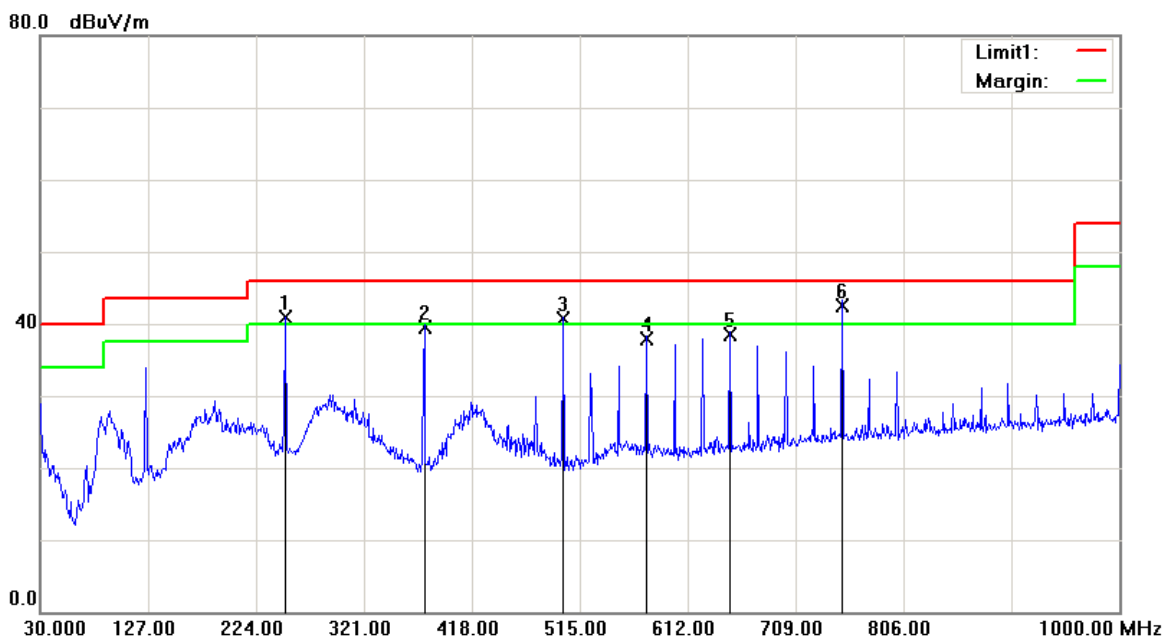
**Environmental Conditions**

<b>Temperature:</b>	23°C
<b>Relative Humidity:</b>	45 %
<b>ATM Pressure:</b>	101.3 kPa

The testing was performed by Star Xie on 2012-11-15.

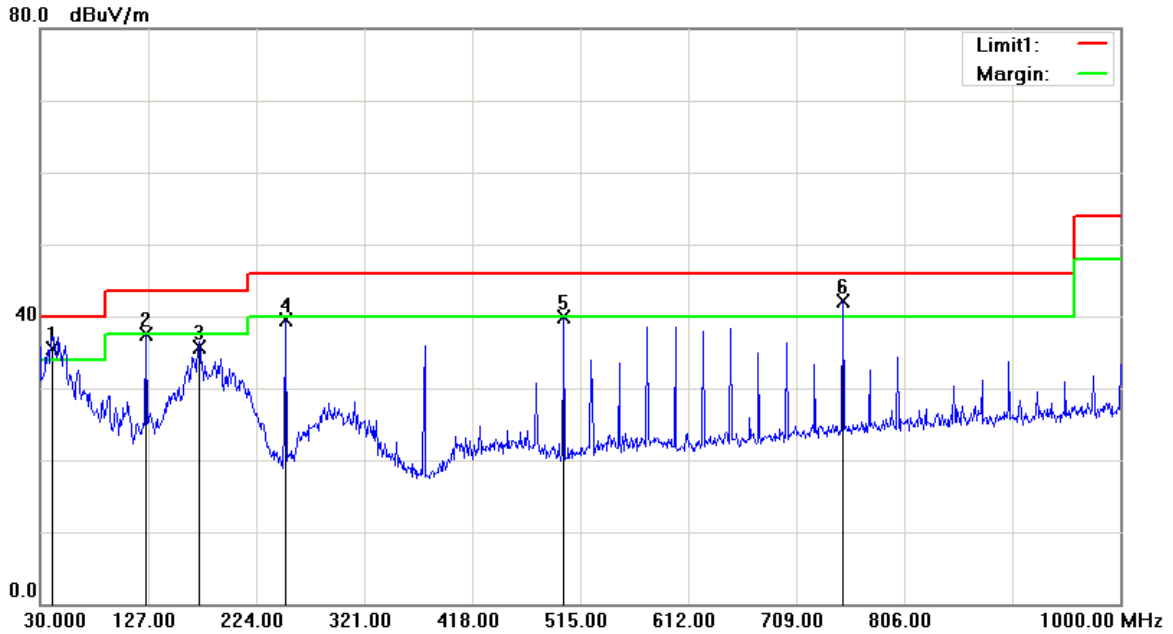
Test mode: Running

**Horizontal:**



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
250.1900	49.01	QP	-8.18	40.83	46.00	5.17
375.3200	44.10	QP	-4.50	39.60	46.00	6.40
500.4500	42.97	QP	-2.27	40.70	46.00	5.30
575.1400	38.90	QP	-1.00	37.90	46.00	8.10
649.8300	38.74	QP	-0.14	38.60	46.00	7.40
750.7100	41.40	QP	1.20	42.60	46.00	3.40

**Vertical:**



Frequency (MHz)	Receiver Reading (dBuV/m)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dBuV/m)	Limit (dBuV/m)	Margin (dB)
40.6700	42.53	QP	-6.93	35.60	40.00	4.40
125.0600	43.86	QP	-6.26	37.60	43.50	5.90
172.5900	44.46	QP	-8.76	35.70	43.50	7.80
250.1900	47.69	QP	-8.18	39.51	46.00	6.49
500.4500	42.15	QP	-2.27	39.88	46.00	6.12
750.7100	40.90	QP	1.20	42.10	46.00	3.90

## **DECLARATION LETTER**

---

**Lanready Technologies Inc.**

Add: 3F,NO.166, Sinhu 2nd Rd.,Neihu District,Taipei,Taiwan,R.O.C

Tel: 886-2-27968188

Fax: 886-2-27968158

### **DECLARATION OF SIMILARITY**

November 12, 2012

To:

Bay Area Compliance Laboratories Corp.

6/F, the 3rd Phase of Wan Li Industrial Bldg., Shihua Rd.,

FuTian Free Trade Zone, Shenzhen, China

Tel: +86 755 33320018 ext. 8116 Fax: +86 755 33320008

<http://www.baclcorp.com>

Dear Sir or Madam:

We, Lanready Technologies Inc., hereby declare that product: 5-Port 10/100/1000Mbps Green Switch, models: DS505, CS1005G are electrically identical with the same electromagnetic emissions and electromagnetic compatibility characteristics as model AGSW503 tested by BAACL, the results of which are featured in BAACL project: R1DG121019009.

A description of the differences between the tested model and those that are declared similar areas follows:

Model: AGSW503, DS505, CS1005G, the only different is the model name and the logo on the shell.

Please contact me should there be need for any additional clarification or information.

Best Regards,



Signature:

Printed Name: Michelle Yang

Title: General Manager

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