



## FCC PART 15B

## TEST REPORT

For

### Global Distribution FZE

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U.A.E

**FCC ID: 2ADPL-I121**

<b>Report Type:</b> Original Report	<b>Product Type:</b> MOBILE PHONE
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<b>Report Number:</b> <u>RDG141208003-00B</u>	
<b>Report Date:</b> <u>2014-12-19</u>	
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## GENERAL INFORMATION

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

The *Global Distribution FZE*'s product, model number: *i121 (FCC ID: 2ADPL-I121)* (or the "EUT") in this report was a *MOBILE PHONE*, which was measured approximately: 11 cm (L) x 4.7 cm (W) x 1.5 cm (H), rated input voltage: DC3.7 V rechargeable Li-ion or DC5V charging from adapter.

Adapter information:

Model: TPA-250505CU  
Input: AC100-240V, 50/60Hz, 0.2A  
Output: DC 5.0V, 0.5A

\* All measurement and test data in this report was gathered from production sample serial number: 141208003 (Assigned by BACL, Dongguan). The EUT was received on 2014-12-09.

### Objective

This report is prepared on behalf of *Global Distribution FZE* in accordance with Part 2, Subpart J, Part 15, Subparts A and B of the Federal Communications Commission's rules.

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

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

FCC Part 15C DSS submissions with FCC ID: 2ADPL-I121.  
FCC Part 22H, 24E PCE submissions with FCC ID: 2ADPL-I121.

### 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 Communications 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 C63.4-2003.

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

The exercise software “Withrax” was used during test.

### Equipment Modifications

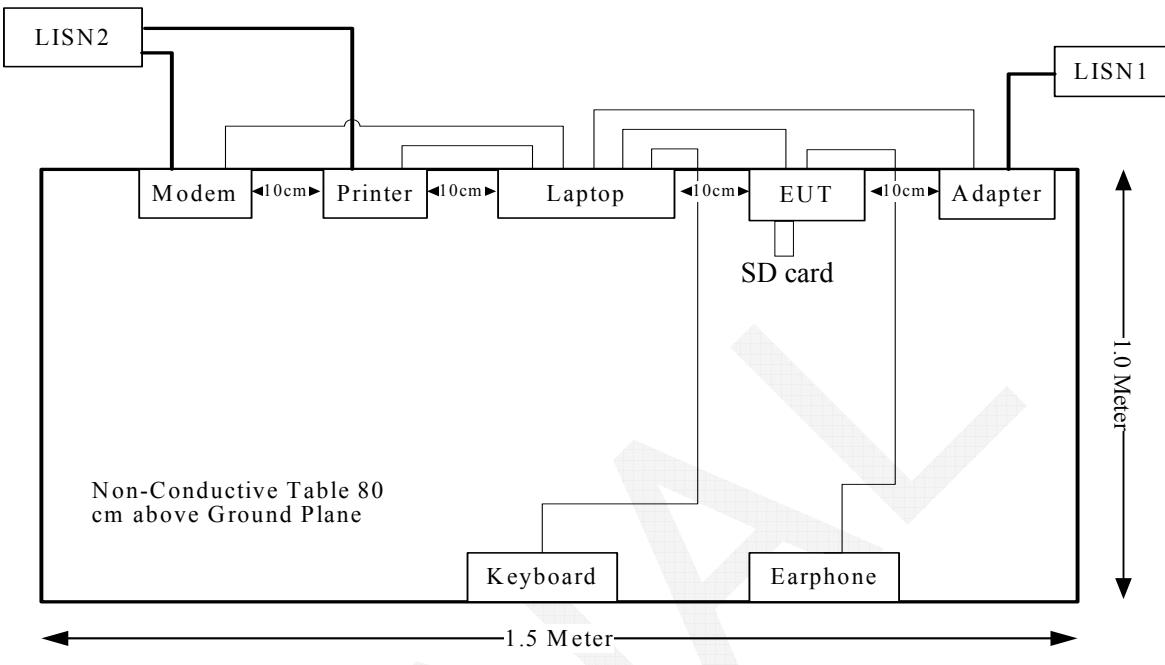
No modification was made to the EUT.

### Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	Laptop	PP11L	QDS-BRCM1017
HP	Printer	C3941A	JPTVOB2337
DELL	Keyboard	L100	CNORH656658907BL05DC
SAST	Modem	AEM-2100	0293
Kingston	Micro SD card	4GB	/

### External I/O Cable

Cable Description	Shielding Type	Ferrite Core	Length (m)	From Port	To
Serial Cable	Yes	No	1.2	Serial Port of Laptop	Modem
Parallel Cable	Yes	No	1.2	Parallel Port of Laptop	Printer
Keyboard Cable	Yes	No	1.8	USB Port of Laptop	Keyboard
USB Cable	Yes	No	1.0	USB Port of Laptop	EUT
Earphone Cable	No	No	0.94	Earphone port of EUT	Earphone

**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

FINAL

## FCC §15.107 – AC LINE CONDUCTED EMISSIONS

### Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If  $U_{\text{lab}}$  is less than or equal to  $U_{\text{cisp}}_{\text{r}}$  of Table 1, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If  $U_{\text{lab}}$  is greater than  $U_{\text{cisp}}_{\text{r}}$  of Table 1, then:

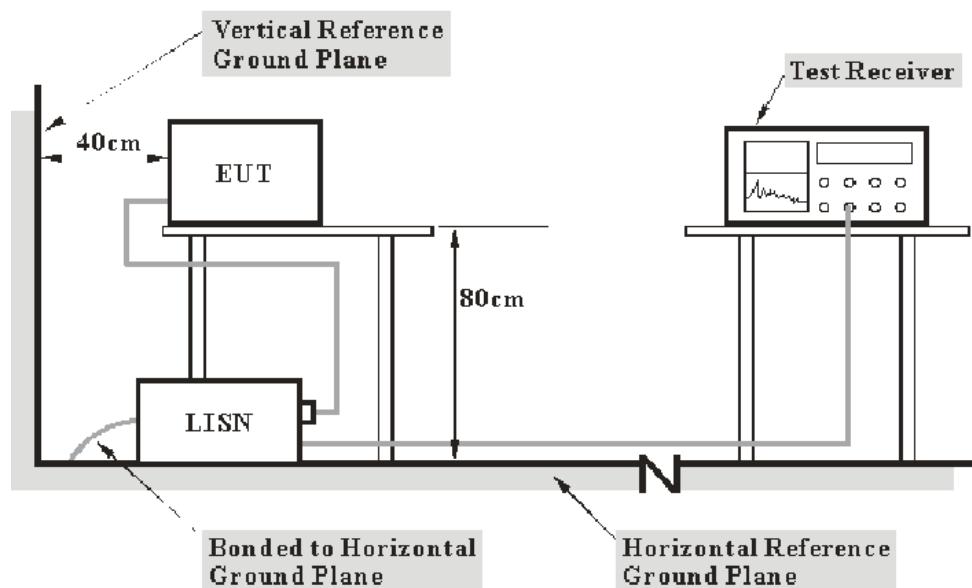
- compliance is deemed to occur if no measured disturbance level, increased by  $(U_{\text{lab}} - U_{\text{cisp}}_{\text{r}})$ , exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by  $(U_{\text{lab}} - U_{\text{cisp}}_{\text{r}})$ , exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of conducted disturbance at mains port using AMN at Bay Area Compliance Laboratories Corp. (Dongguan) is 3.46 dB (150 kHz to 30 MHz).

Table 1 – Values of  $U_{\text{cisp}}_{\text{r}}$

Measurement	$U_{\text{cisp}}_{\text{r}}$
Conducted disturbance at mains port using AMN (150 kHz to 30 MHz)	3.4 dB

### 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 C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.107 Class B limits.

The adapter of laptop 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 30MHz.

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

Frequency Range	IF B/W
150 kHz – 30 MHz	9 kHz

### Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	EMI Test Receiver	ESCS 30	830245/006	2013-11-20	2014-11-20
R&S	L.I.S.N	ESH3-Z5	843331/015	N/A	N/A
R&S	Two-line V-network	ENV 216	3560.6550.12	2014-01-22	2015-01-22
R&S	Test Software	EMC32	Version8.53.0	N/A	N/A

\* **Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

### Test Procedure

During the conducted emission test, the adapter of laptop 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.

### Corrected Amplitude & Margin Calculation

The basic equation is as follows:

$$V_C = V_R + A_C + VDF$$

$$C_f = A_C + VDF$$

Herein,

$V_C$  (cord. Reading): corrected voltage amplitude

$V_R$ : reading voltage amplitude

$A_C$ : attenuation caused by cable loss

VDF: voltage division factor of AMN  
C<sub>f</sub>: Correction Factor

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

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

## Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Part 15 B Class B, with the worst margin reading of:

**4.20 dB at 0.166371 MHz in the Neutral conducted mode**

## Test Data

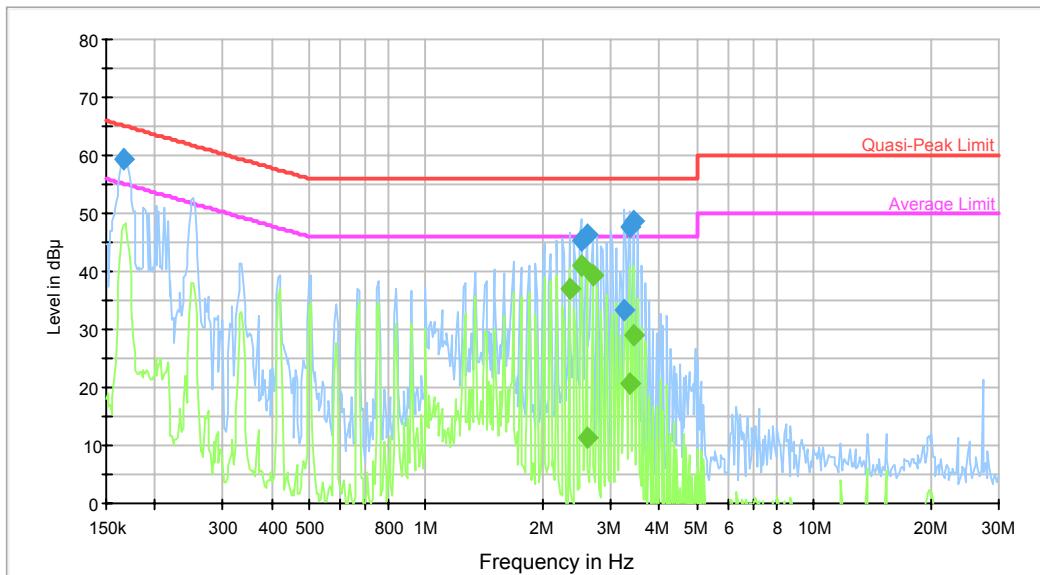
### Environmental Conditions

<b>Temperature:</b>	20.3°C
<b>Relative Humidity:</b>	29%
<b>ATM Pressure:</b>	102.3 kPa

*The testing was performed by Dean Liu on 2014-12-18*

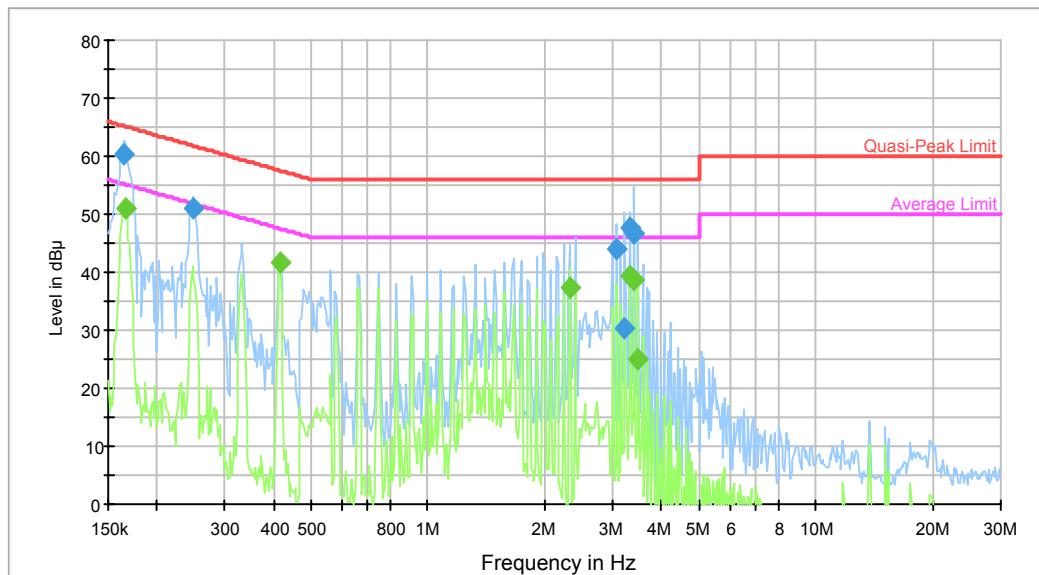
*Test mode: USB Downloading*

**AC 120V/60Hz, Line:**



Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.166371	59.5	9.000	L1	10.2	5.7	65.1	Compliance
2.518372	45.5	9.000	L1	10.5	10.5	56.0	Compliance
2.599932	46.3	9.000	L1	10.5	9.7	56.0	Compliance
3.249802	33.2	9.000	L1	10.6	22.8	56.0	Compliance
3.355051	47.6	9.000	L1	10.6	8.4	56.0	Compliance
3.436218	48.5	9.000	L1	10.7	7.5	56.0	Compliance

Frequency (MHz)	Average (dB $\mu$ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
2.344095	36.9	9.000	L1	10.5	9.1	46.0	Compliance
2.518372	41.1	9.000	L1	10.5	4.9	46.0	Compliance
2.599932	11.2	9.000	L1	10.5	34.8	46.0	Compliance
2.684134	39.3	9.000	L1	10.5	6.7	46.0	Compliance
3.355051	20.8	9.000	L1	10.6	25.2	46.0	Compliance
3.436218	29.0	9.000	L1	10.7	17.0	46.0	Compliance

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

Frequency (MHz)	QuasiPeak (dB $\mu$ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.165051	60.4	9.000	N	10.5	4.8	65.2	Compliance
0.247802	50.9	9.000	N	11.2	10.9	61.8	Compliance
3.073500	44.1	9.000	N	10.7	11.9	56.0	Compliance
3.224010	30.2	9.000	N	10.7	25.8	56.0	Compliance
3.328423	47.7	9.000	N	10.7	8.3	56.0	Compliance
3.408946	46.7	9.000	N	10.7	9.3	56.0	Compliance

Frequency (MHz)	Average (dB $\mu$ V)	Bandwidth (kHz)	Line	Corr. (dB)	Margin (dB)	Limit (dB $\mu$ V)	Comment
0.166371	50.9	9.000	N	10.6	4.2	55.1	Compliance
0.415949	41.8	9.000	N	10.7	5.7	47.5	Compliance
2.325491	37.3	9.000	N	10.5	8.7	46.0	Compliance
3.328423	39.3	9.000	N	10.7	6.7	46.0	Compliance
3.408946	38.5	9.000	N	10.7	7.5	46.0	Compliance
3.491417	25.1	9.000	N	10.7	20.9	46.0	Compliance

## FCC §15.109 - RADIATED EMISSIONS

### Measurement Uncertainty

Compliance or non- compliance with a disturbance limit shall be determined in the following manner:

If  $U_{\text{lab}}$  is less than or equal to  $U_{\text{cispr}}$  of Table 2, then:

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

If  $U_{\text{lab}}$  is greater than  $U_{\text{cispr}}$  of Table 1, then:

- compliance is deemed to occur if no measured disturbance level, increased by  $(U_{\text{lab}} - U_{\text{cispr}})$ , exceeds the disturbance limit;
- non - compliance is deemed to occur if any measured disturbance level, increased by  $(U_{\text{lab}} - U_{\text{cispr}})$ , exceeds the disturbance limit.

Based on CISPR 16-4-2: 2011, measurement uncertainty of radiated emission at a distance of 3m at Bay Area Compliance Laboratories Corp. (Dongguan) is:

30M~200MHz: 5.0 dB

200M~1GHz: 6.2 dB

1G~6GHz: 4.45 dB

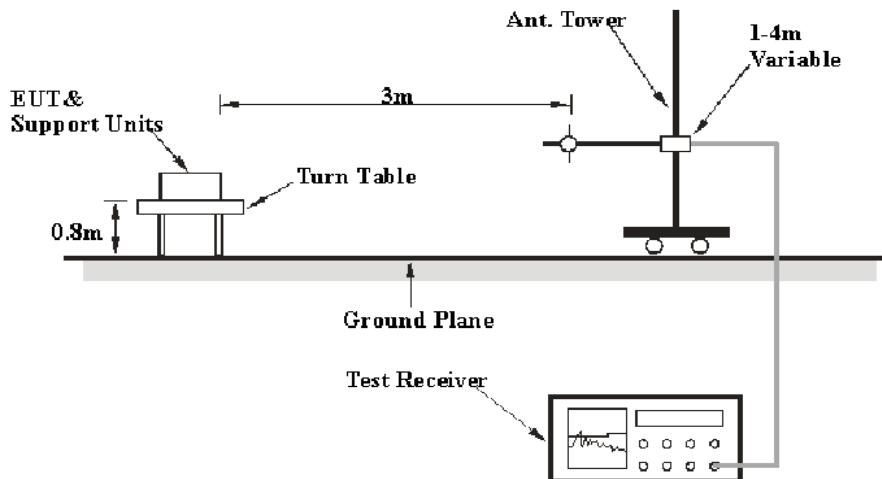
6G~18GHz: 5.23 dB

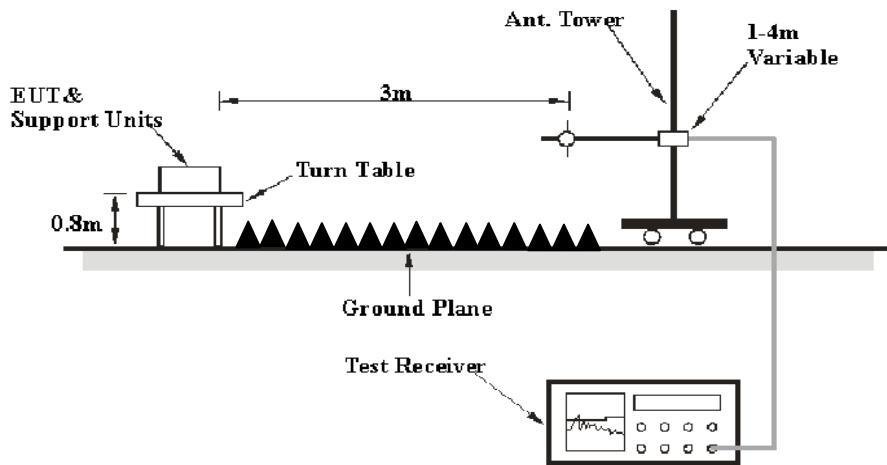
Table 2 – Values of  $U_{\text{cispr}}$

Measurement	$U_{\text{cispr}}$
Radiated disturbance (electric field strength at an OATS or in a SAC) (30 MHz to 1000 MHz)	6.3 dB
Radiated disturbance (electric field strength in a FAR) (1 GHz to 6 GHz)	5.2 dB
Radiated disturbance (electric field strength in a FAR) (6 GHz to 18 GHz)	5.5 dB

### EUT Setup

Below 1 GHz:



**Above 1GHz:**

The radiated emission test was performed in the 3 meters chamber test site, using the setup accordance with the ANSI C63.4-2003. 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 adapter of laptop was 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 2 GHz.

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

Frequency Range	RBW	Video B/W	IF B/W	Detector
30 MHz – 1000 MHz	120 kHz	300 kHz	120 kHz	QP
Above 1 GHz	1MHz	3 MHz	/	PK
	1MHz	10 Hz	/	Ave.

### Test Procedure

For the radiated emissions test, the adapter of laptop 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.

The data was recorded in Quasi-peak detection mode for 30 MHz to 1 GHz, Peak and average detection mode above 1 GHz.

## Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
R&S	Spectrum Analyzer	FSEM	DE31388	2014-05-09	2015-05-09
ETS-Lindgren	Horn Antenna	3115	000 527 35	2012-09-06	2015-09-06
Mini-Circuit	Amplifier	ZVA-213-S+	054201245	2014-02-19	2015-02-19
R&S	EMI Test Receiver	ESCI	100224	2014-05-09	2015-05-09
Sunol Sciences	Antenna	JB3	A060611-3	2014-07-28	2017-07-27
HP	Amplifier	8447E	2434A02181	2014-09-01	2015-09-01
R&S	EMI Test Receiver	ESCI	100224	2014-05-09	2015-05-09

**\* Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Dongguan) attests that all calibrations have been performed, traceable to National Primary Standards and International System of Units (SI).

## 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 Results Summary

According to the data in the following table, the EUT complied with the FCC Part 15 B Class B, with the worst margin reading of:

**4.39 dB at 288.0200 MHz in the Vertical polarization**

## Test Data

### Environmental Conditions

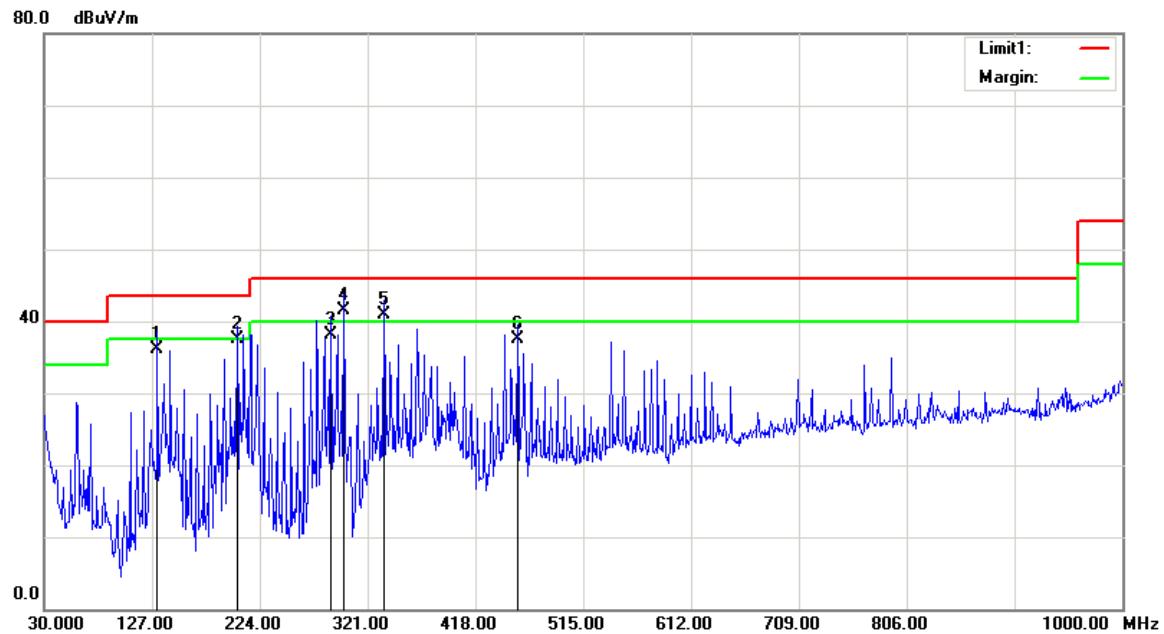
Temperature:	23.8 °C
Relative Humidity:	54 %
ATM Pressure:	101.6 kPa

*The testing was performed by Dean Liu on 2014-12-15*

*Test mode: USB Downloading*

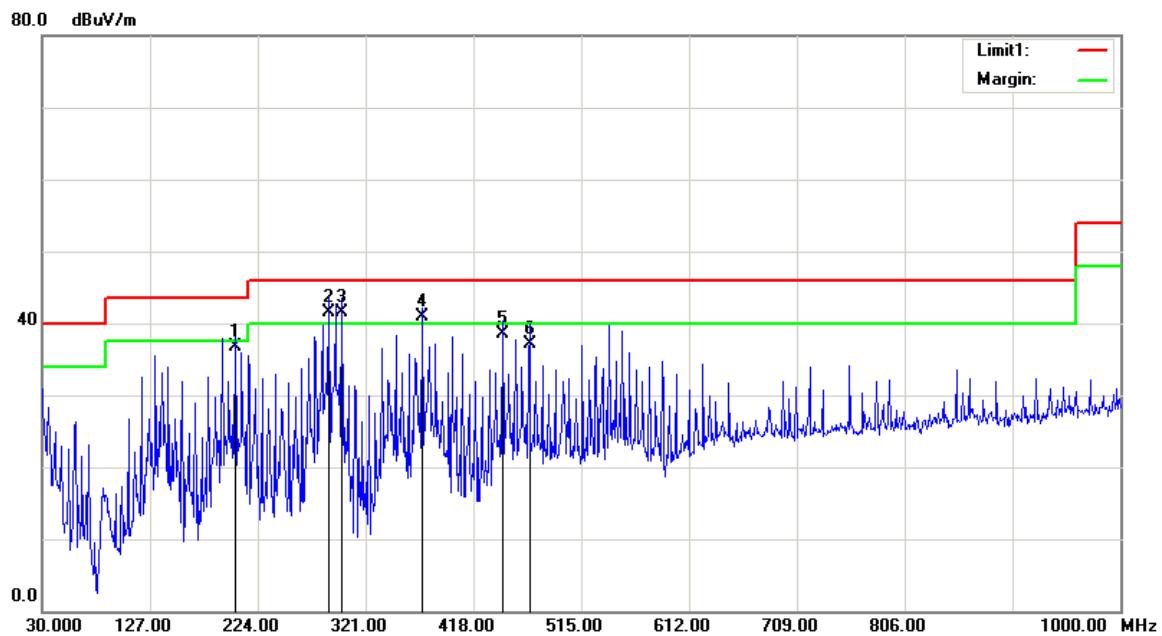
### 1) Below 1GHz

#### Horizontal:



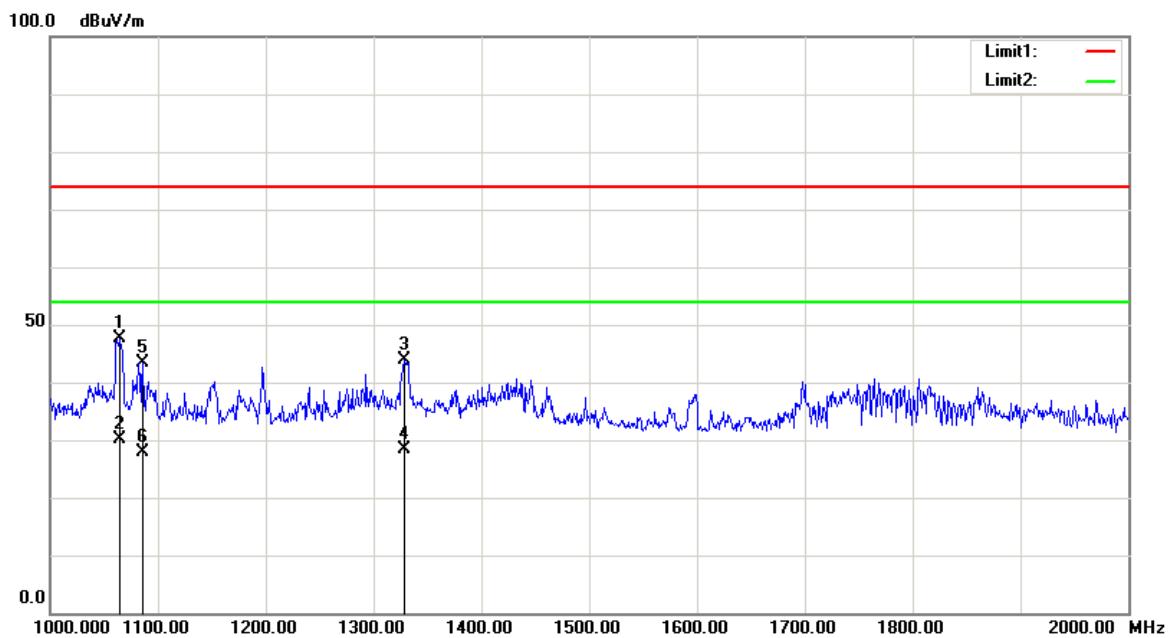
Frequency (MHz)	Receiver Reading (dB $\mu$ V)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
131.8500	42.00	QP	-5.80	36.20	43.50	7.30
203.6300	45.70	QP	-8.10	37.60	43.50	5.90*
288.0200	44.30	QP	-6.10	38.20	46.00	7.80
299.6600	47.47	QP	-5.97	41.50	46.00	4.50*
335.5500	46.28	QP	-5.38	40.90	46.00	5.10*
455.8300	39.93	QP	-2.33	37.60	46.00	8.40

*\*Within measurement uncertainty!*

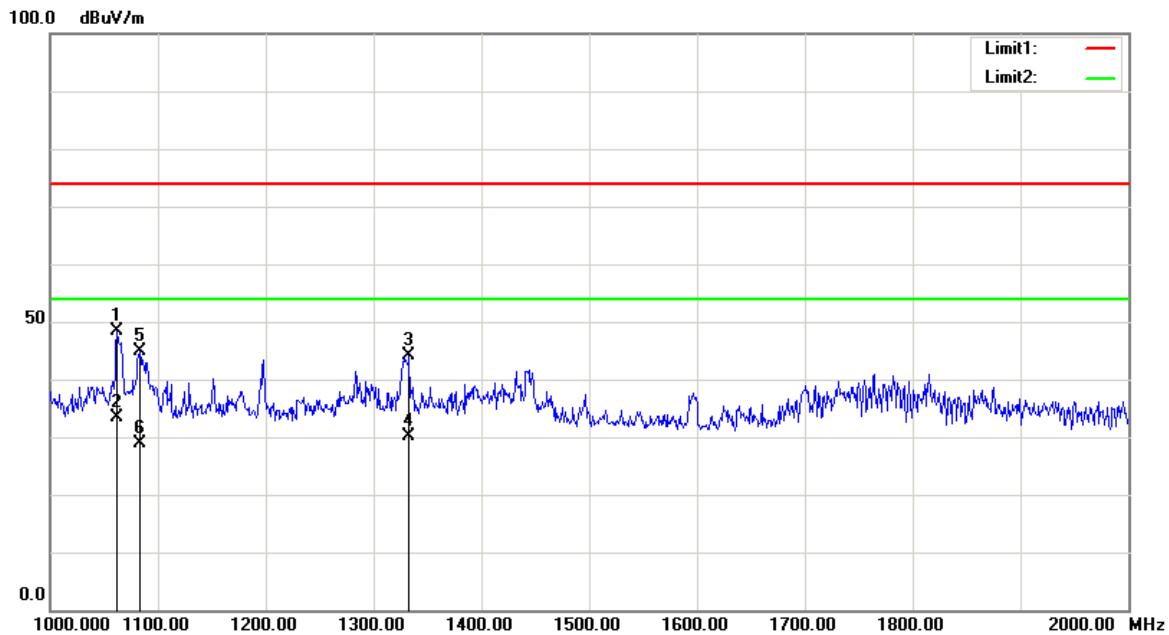
**Vertical:**

Frequency (MHz)	Receiver Reading (dB $\mu$ V)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
203.6300	44.90	QP	-8.10	36.80	43.50	6.70
288.0200	47.71	QP	-6.1	41.61	46.00	4.39*
299.6600	47.57	QP	-5.97	41.60	46.00	4.40*
372.4100	45.19	QP	-4.29	40.90	46.00	5.10*
444.1900	41.15	QP	-2.55	38.60	46.00	7.40
468.4400	38.96	QP	-1.76	37.20	46.00	8.80

\*Within measurement uncertainty!

**2) Above 1GHz****Horizontal:**

Frequency (MHz)	Receiver Reading (dB $\mu$ V)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1064.500	48.86	peak	-1.13	47.73	74.00	26.27
1064.500	31.24	AVG	-1.13	30.11	54.00	23.89
1329.500	44.59	peak	-0.65	43.94	74.00	30.06
1329.500	29.00	AVG	-0.65	28.35	54.00	25.65
1086.000	44.60	peak	-1.15	43.45	74.00	30.55
1086.000	28.93	AVG	-1.15	27.78	54.00	26.22

**Vertical:**

Frequency (MHz)	Receiver Reading (dB $\mu$ V)	Detector (PK/QP/Ave)	Correction Factor (dB)	Cord. Amp. (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)
1062.500	49.54	peak	-1.13	48.41	74.00	25.59
1062.500	34.58	AVG	-1.13	33.45	54.00	20.55
1333.000	44.66	peak	-0.63	44.03	74.00	29.97
1333.000	30.75	AVG	-0.63	30.12	54.00	23.88
1083.000	45.90	peak	-1.14	44.76	74.00	29.24
1083.000	30.01	AVG	-1.14	28.87	54.00	25.13

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