Lab Code: 200707-0

FCC PART 15 CLASS B

TEST REPORT

For

TRULY Semiconductors Ltd.

North of the Dong Chong Road, Truly Industrial Area, Shan Wei City,
Guang Dong Province, China

FCC ID: OORZTIC-2W0001

Report Type:	**Product Type:**
Original Report	Zone Trusted Information Channel

Test Engineer:	Andrew Shu
Report Number:	RSZ120618009-00
Report Date:	2012-07-17
Reviewed By:	Dick Zhang EMC Leader
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

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GENERAL INFORMATION

Product Description for Equipment under Test (EUT)

The *TRULY Semiconductors Ltd.*'s product, model number: *OEL2W0001-E (FCC ID: OORZTIC-2W0001)* or the "EUT" in this report was a *Zone Trusted Information Channel,* which was measured approximately: 8.3 cm (L) x 3.4 cm (W) x 1.1 cm (H), rated input voltage: DC 5 V from USB. The highest operating frequency is 48 MHz.

** All measurement and test data in this report was gathered from production sample serial number: IBMXXXXXXXXXX (Assigned by applicant). The EUT was received on 2012-06-18.*

Objective

This test report is prepared on behalf of *TRULY Semiconductors Ltd.* 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 the compliance of the EUT with FCC Part 15 B.

Related Submittal(s)/Grant(s)

No related submittal(s).

Test Facility

The Test site used by Bay Area Compliance Laboratories Corp. (Shenzhen) to collect test data is located on the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone Shenzhen, Guangdong, China.

Test site at Bay Area Compliance Laboratories Corp. (Shenzhen) 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 December 06, 2010. 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.: 382179. 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

Description of Test Configuration

The system was configured for testing in a manufacturer testing fashion.

EUT Exercise Software

No EUT exercise software was used.

Equipment Modifications

No modification was made to the EUT tested.

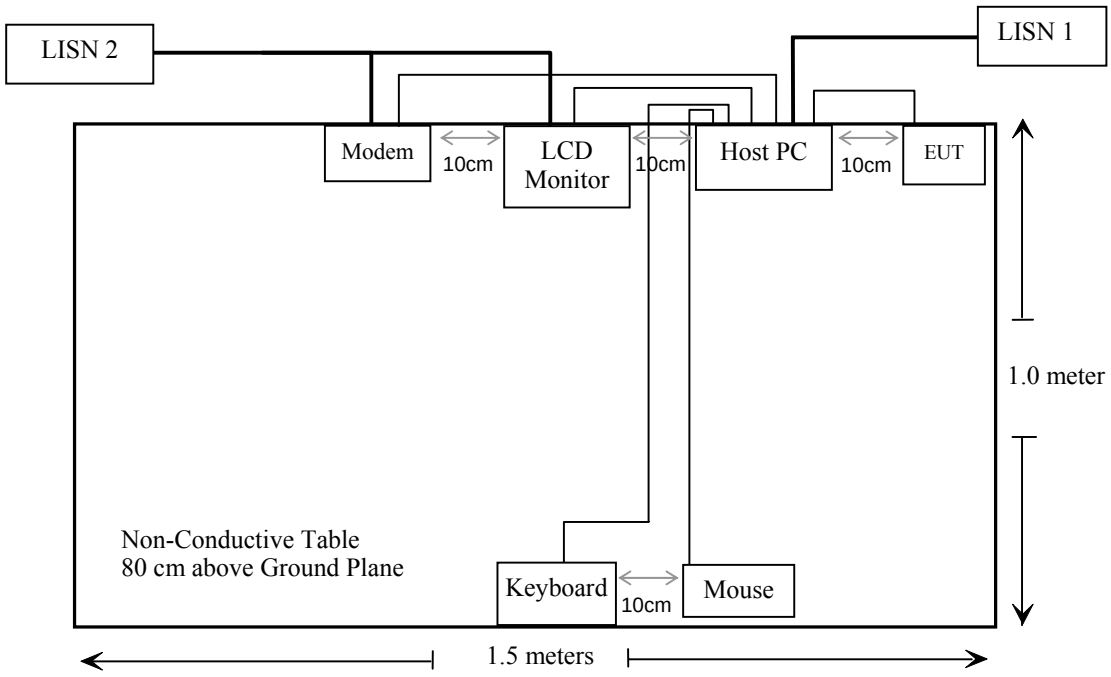
Support Equipment List and Details

Manufacturer	Description	Model	Serial Number
DELL	PC	VOSTRO 220S	127BP2X
DELL	Keyboard	L100	CNORH656658907BL04TY
DELL	Mouse	MOC5UO	G1B0096D
DELL	LCD Monitor	E178WFPC	CN-OWY564-64180-7C4-2SQH
ECOM	Modem	5600bps	N/A

External I/O Cable

Cable Description	Length (m)	From/Port	To
Shielded Undetachable K/B Cable	1.5	Keyboard	Host PC
Shielded Undetachable Mouse Cable	1.5	Mouse	Host PC
Shielded Detachable VGA Cable	1.5	LCD Monitor	Host PC
Unshielded Detachable AC Cable	1.0	LISN	Host PC
Shielded Detachable Serial Cable	1.5	Modem	Host PC
Unshielded Detachable USB Cable	1.6	Host PC	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 Spurious Emissions	Compliance

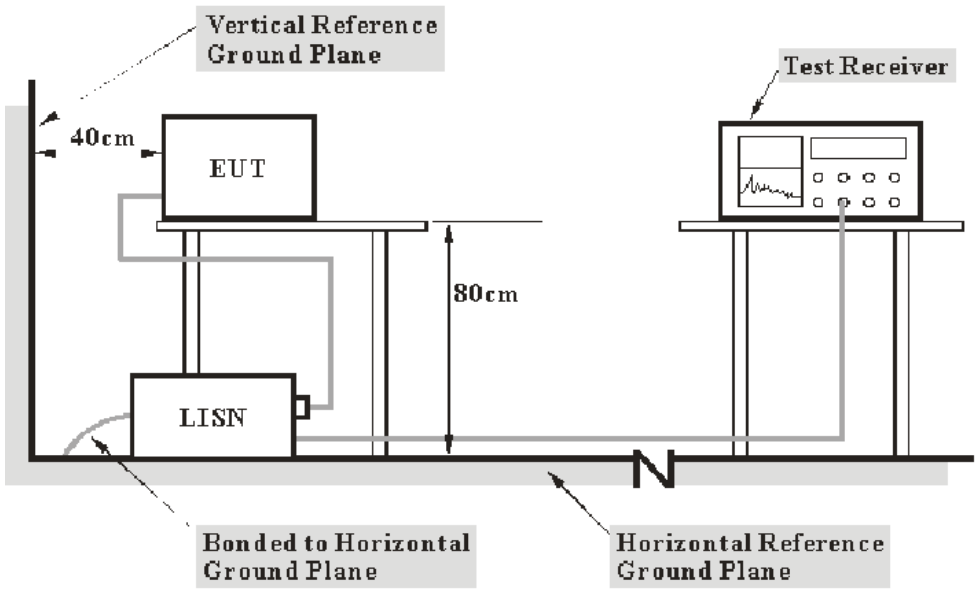
FCC §15.107 – AC LINE CONDUCTED EMISSIONS

Measurement Uncertainty

All measurements involve certain levels of uncertainties, especially in field of EMC. The factors contributing to uncertainties are 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 spacing between the peripherals was 10 cm.

The host 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:

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

Test Procedure

During the conducted emission test, the host PC was conncected to the outlet of the first LISN, and the other relevant equipments were connected to 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.	ESH2-Z5	892107/021	2011-11-17	2012-11-16
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12208	N/A	N/A
Rohde & Schwarz	Pulse limiter	ESH3Z2	DE25985	2011-07-08	2012-07-07
BACL	CE Test software	BACL-CE	V1.0	-	-

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

Corrected Factor & Margin Calculation

The Corrected factor is calculated by adding LISN/ISN VDF (Voltage Division Factor), Cable Loss and Pulse Limiter Attenuation. The basic equation is as follows:

Correction Factor = LISN VDF + Cable Loss + Pulse Limiter Attenuation

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 7 dB below the limit. The equation for margin calculation is as follows:

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the recorded data in following table, the worst margin reading of:

10.07 dB at **1.105 MHz** in **Neutral** conducted mode

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m \pm U_{(Lm)} \leq L_{lim} \pm U_{cispr}$$
$$\text{or } U_{(Lm)} \leq Margin \pm U_{cispr}$$

The measurement result of EUT is below the limit level by a margin 10.07 dB and
$U_{(Lm)}$(2.4dB)≤*Margin*(10.07 dB) +U_{cispr}(3.4 dB),
so the EUT complies with the limit of the FCC Part 15.107 Class B.

Test Data

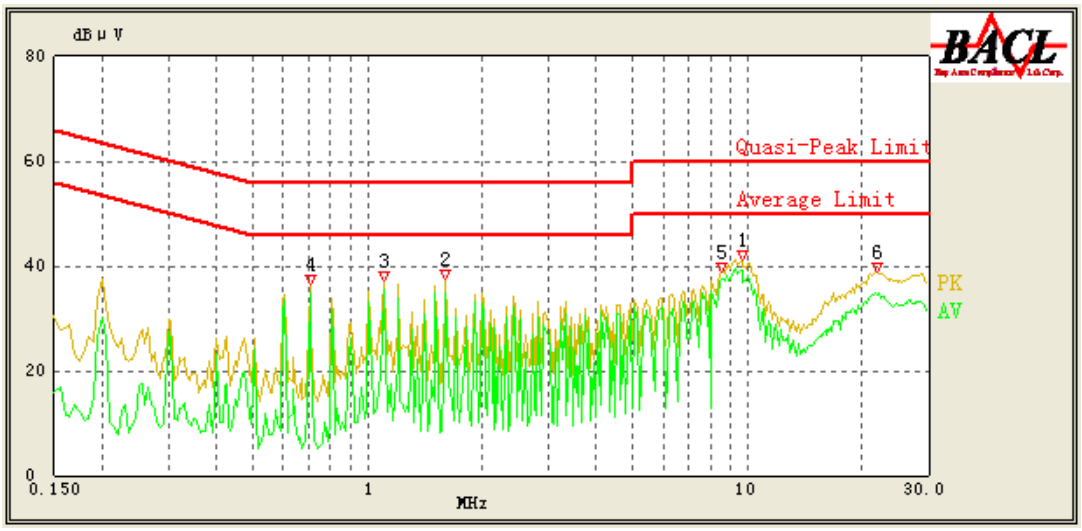
Environmental Conditions

Temperature:	25 ℃
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Andrew Shu on 2012-06-26.

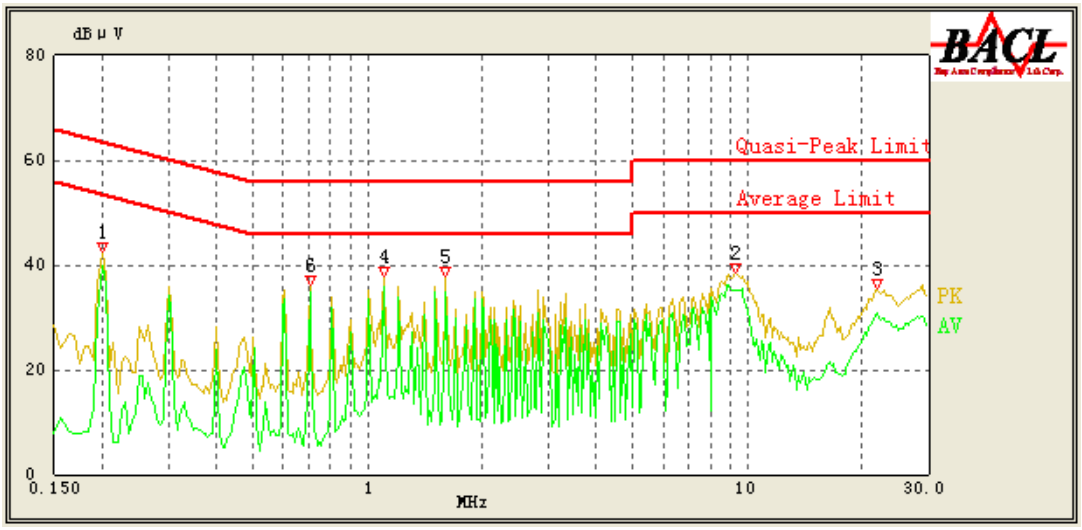
EUT Operation Mode: Running

AC 120V/60 Hz, Line



Frequency (MHz)	Corrected Amplitude (dBμV)	Correction Factor (dB)	Limit (dBμV)	Margin (dB)	Detector (PK/Ave./QP)
1.105	35.57	9.87	46.00	10.43	Ave.
9.655	39.11	10.27	50.00	10.89	Ave.
1.610	35.00	9.89	46.00	11.00	Ave.
0.705	34.67	9.76	46.00	11.33	Ave.
8.550	37.52	10.21	50.00	12.48	Ave.
22.030	34.62	12.38	50.00	15.38	Ave.
1.105	35.59	9.87	56.00	20.41	QP
1.610	35.45	9.89	56.00	20.55	QP
9.655	39.24	10.27	60.00	20.76	QP
0.705	34.84	9.76	56.00	21.16	QP
8.550	38.34	10.21	60.00	21.66	QP
22.025	35.75	12.38	60.00	24.25	QP

AC 120V/60 Hz, Neutral



Frequency (MHz)	Corrected Amplitude (dBµV)	Correction Factor (dB)	Limit (dBµV)	Margin (dB)	Detector (PK/Ave./QP)
1.105	35.93	9.87	46.00	10.07	Ave.
0.705	34.90	9.76	46.00	11.10	Ave.
1.610	34.68	9.89	46.00	11.32	Ave.
9.250	35.30	10.24	50.00	14.70	Ave.
0.200	39.84	9.64	54.57	14.73	Ave.
1.105	36.90	9.87	56.00	19.10	QP
22.025	30.80	12.25	50.00	19.20	Ave.
0.705	35.80	9.76	56.00	20.20	QP
1.610	35.37	9.89	56.00	20.63	QP
9.255	36.43	10.25	60.00	23.57	QP
0.200	40.72	9.64	64.57	23.85	QP
21.925	32.46	12.26	60.00	27.54	QP

Note:
1) Corrected Amplitude = Reading + Correction Factor
2) Correction Factor =LISN/ISN VDF (Voltage Division Factor) + Cable Loss + Pulse Limiter Attenuation
The corrected factor has been input into the transducer of the test software.
3) Margin = Limit – Corrected Amplitude

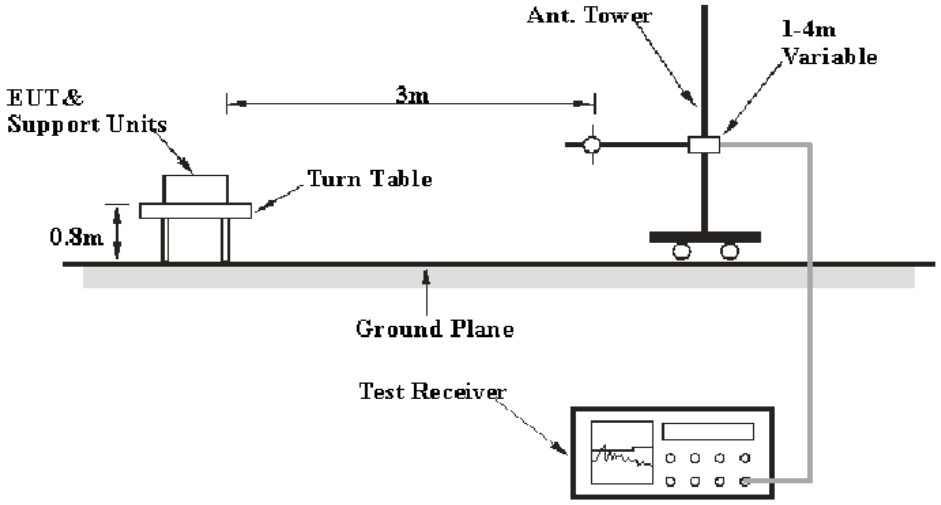
FCC §15.109 - RADIATED SPURIOUS EMISSIONS

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 estimation of the uncertainty of radiation emissions measurement at Bay Area Compliance Laboratories Corp. (Shenzhen) is 4.0 dB. (k=2, 95% level of confidence)

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 spacing between the peripherals was 10 cm.

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

EMI Test Receiver Setup

The system was investigated from 30 MHz to 1000 MHz.

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

Frequency	***RB/W***	***VB/W***	***IF B/W***	***Detection***
30 MHz-1 GHz	100 kHz	300 kHz	120 kHz	Quasi-peak

Test Procedure

For the radiated emissions test, the host PC and relevant equipments were connected to AC floor outlet for downloading mode.

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

All the data was recorded in the Quasi-peak detection mode from 30 MHz to 1 GHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2011-11-24	2012-11-23
Rohde & Schwarz	EMI Test Receiver	ESCI	101122	2011-11-17	2012-11-16
Sunol Sciences	Broadband Antenna	JB1	A040904-2	2011-11-28	2012-11-27
R&S	Auto test Software	EMC32	V6.30	-	-

*** 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.

Corrected Amplitude & Margin Calculation

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

Corrected Amplitude = Meter Reading + Antenna Factor + Cable Loss - Amplifier Gain

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

Margin = Limit – Corrected Amplitude

Test Results Summary

According to the data in the following table, the worst margin reading is below:

13.0 dB at **56.410000 MHz** in the **Vertical** polarization

Refer to CISPR16-4-2:2011 and CISPR 16-4-1:2009, the measured level is in compliance with the limit if

$$L_m \pm U_{(Lm)} \leq L_{lim} \pm U_{cispr}$$
$$\text{or } U_{(Lm)} \leq Margin \pm U_{cispr}$$

The measurement result of EUT is below the limit level by a margin 13.0 dB and
$U_{(Lm)}$(4dB)≤*Margin*(13.0 dB) + U_{cispr}(6.3dB),
so the EUT complies with the limit of the FCC Part 15.109 Class B.

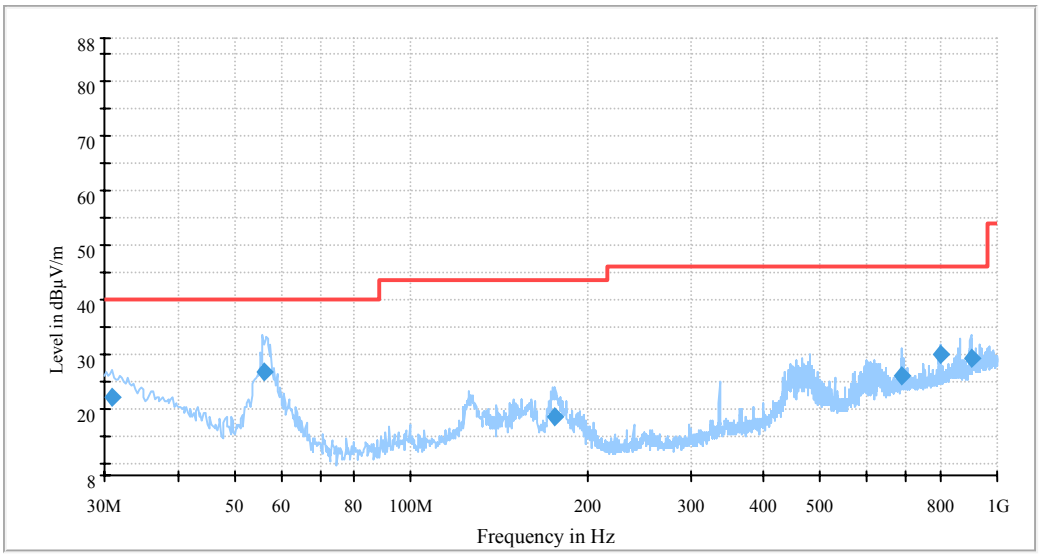
Test Data

Environmental Conditions

Temperature:	25 °C
Relative Humidity:	56 %
ATM Pressure:	100.0 kPa

The testing was performed by Andrew Shu on 2012-06-26.

EUT Operation Mode: Running



Frequency (MHz)	Corrected Amplitude (dBµV/m)	Antenna		Turntable Position (degree)	Correction Factor (dB)	Limit (dBµV/m)	Margin (dB)
		Height (cm)	Polarity (H/V)				
56.410000	27.0	104.0	V	4.0	-18.2	40.0	13.0
799.677250	30.3	125.0	H	220.0	-1.8	46.0	15.7
902.212500	29.5	236.0	H	173.0	-0.8	46.0	16.5
30.899000	22.4	103.0	V	240.0	-6.0	40.0	17.6
688.088000	26.0	203.0	H	177.0	-3.5	46.0	20.0
175.669500	18.7	102.0	V	45.0	-15.1	43.5	24.8

Note:

1) Corrected Amplitude = Meter Reading + Correction Factor
2) Correction Factor = Antenna Factor + Cable Loss - Amplifier Gain
   The corrected factor has been input into the transducer of the test software.
3) Margin = Limit – Corrected Amplitude

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