

FCC PART 15 B

EMI MEASUREMENT AND TEST REPORT

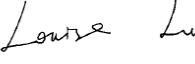
For

Planet Toys (HK) Ltd

1107 Chinachem Golden Plaza, 77 Mody RD, TsimShaTsui East, Kowloon, Hong Kong

FCC ID: SZ23615R49

September 23, 2005

This Report Concerns: <input checked="" type="checkbox"/> Original Report	Equipment Type: Receiver, Toy Remote Control
Test Engineer: Louise Lu 	
Report No.: RSZ05091702	
Receive EUT Date/ September 17, 2005/ Test Date: September 20-21, 2005	
Reviewed By: Chris Zeng 	
Prepared By: Bay Area Compliance Lab Corp. (ShenZhen) 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China Tel: 86-755-33320018 Fax: 86-755-33320008	

Note: The test report is specially limited to the above company and this particular sample only.
It may not be duplicated without prior written consent of Bay Area Compliance Lab
Corp. (ShenZhen). This report **must not** be used by the client to claim product certification,
approval, or endorsement by NVLAP, NIST or any agency of the US Government.

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The Planet Toys (HK) Ltd 's product, model number: 3615 or the "EUT" as referred to in this report is a receiver of Toy Remote Control, the product name is 1:12 scale RC. The EUT is measured approximately 54.0cm L x 18.3cm W x 24.4cm H, rated input voltage: DC 9.6 V battery, AC 120 V/60 Hz.

AC/DC Adapter Manufacturer: MUCTIWIN, Model No.: MD-12500
Input: 120 V/60 Hz 12 VA, Output: 12 V DC 500mA

** The test data gathered are from production sample, serial number: 0507026, provided by the manufacturer.*

Objective

This Type approval report is prepared on behalf of *Planet Toys (HK) Ltd* in accordance with Part 2, Subpart J, and Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC rules, section 15.109 rules.

Related Submittal(s)/Grant(s)

No Related Submittals.

Test Methodology

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

All radiated and conducted emissions measurement was performed at Bay Area Compliance Lab Corp. (ShenZhen). The radiated testing was performed at an antenna-to-EUT distance of 3 meters.

Test Facility

The Test site used by Bay Area Compliance Lab Corp. (ShenZhen) to collect test data is located in the 6/F, the 3rd Phase of WanLi Industrial Building, ShiHua Road, FuTian Free Trade Zone, ShenZhen, Guangdong 518038, P.R.China.

Test site at Bay Area Compliance Lab 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 November 04, 2004. 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.: 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 Lab Corp. (ShenZhen) is a National Institute of Standards and Technology (NIST) accredited laboratory, under the National Voluntary Laboratory Accredited Program (Lab Code 200707-0). The current scope of accreditations can be found at <http://ts.nist.gov/ts/htdocs/210/214/scopes/2007070.htm>.

External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded Undetachable DC Cable	1.75	EUT	Adapter

SYSTEM TEST CONFIGURATION

Justification

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

EUT Exercise Software

N/A.

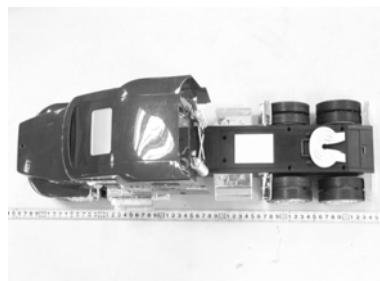
Special Accessories

N/A.

Equipment Modifications

Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

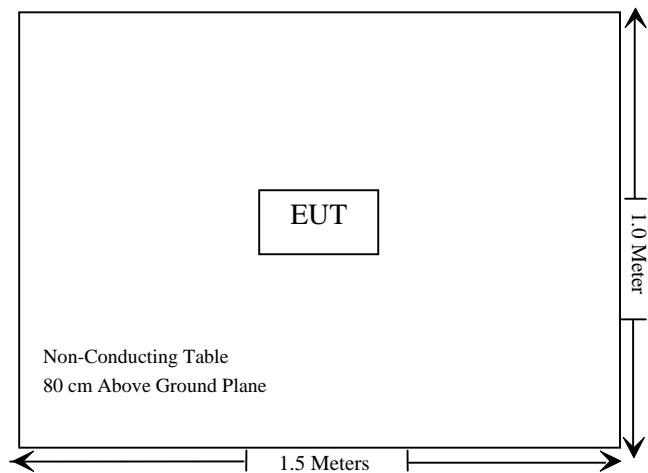
Configuration of Test Setup



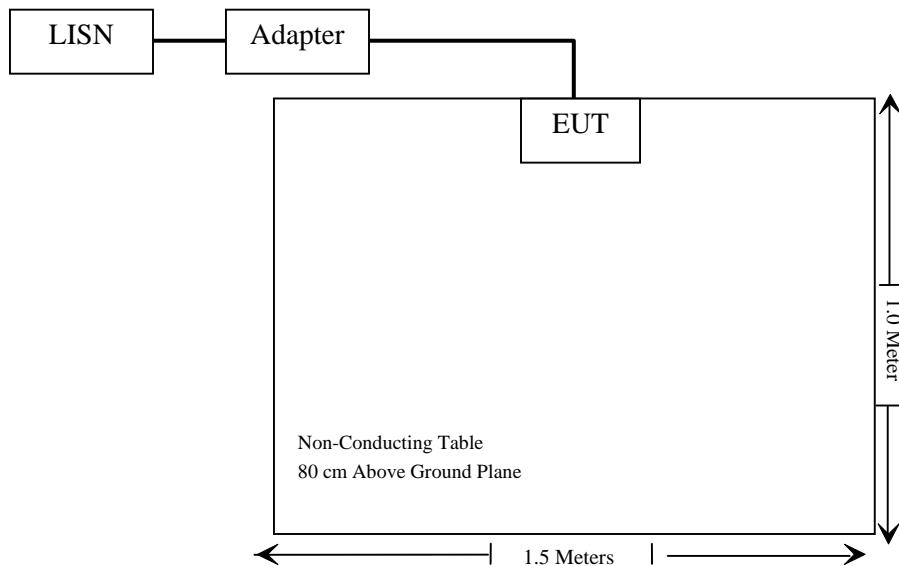
EUT

Block Diagram of Test Setup

Receiving Mode:



Charging Mode:



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.107(a)	Conducted Emission	Compliant
§15.109(a)	Radiated Emission	Compliant

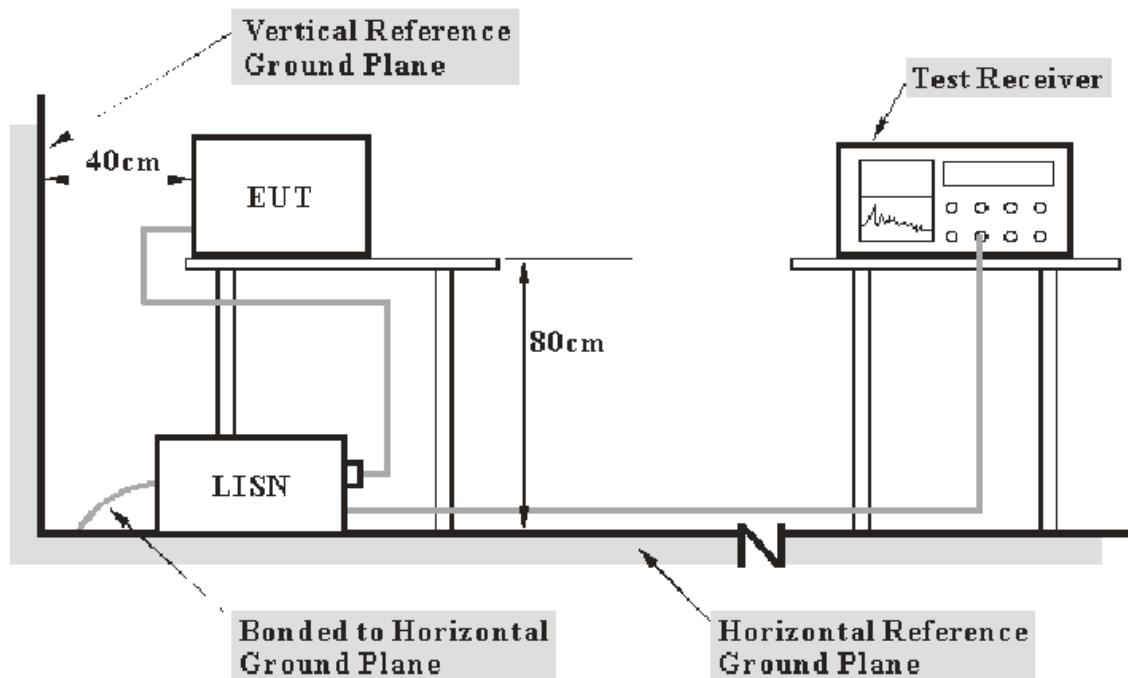
§15.107(a) - CONDUCTED EMISSION

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 NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is ± 3.2 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 15.109.

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:

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

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Com-Power	L.I.S.N.	LI-200	12005	N/A	N/A
Com-Power	L.I.S.N.	LI-200	12008	N/A	N/A
Rohde & Schwarz	EMI Test Receiver	ESCS30	830245/006	2005-1-26	2006-1-26
Rohde & Schwarz	L.I.S.N.	ESH2-Z5	892107/021	2005-2-28	2006-2-28

* Com-Power's LISN were used as the supporting equipment.

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

Test Procedure

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

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the [FCC Part 15.109](#), with the worst margin reading of:

-14.20 dB at 0.150 MHz in the **Line** conductor mode.

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	58 %
ATM Pressure:	1000mbar

The testing was performed by Louise Lu on 2005-9-21.

Test Mode: Charging

LINE CONDUCTED EMISSIONS				FCC PART 15.109	
Frequency MHz	Amplitude dB μ V	Detector QP/AV	Phase Line/Neutral	Limit dB μ V	Margin dB
0.150	51.80	QP	Line	66.00	-14.20
0.150	51.00	QP	Neutral	66.00	-15.00
19.520	30.80	QP	Line	60.00	-29.20
3.970	24.50	QP	Neutral	56.00	-31.50
1.150	23.00	QP	Neutral	56.00	-33.00
19.520	16.80	AV	Line	50.00	-33.20
4.800	22.70	QP	Neutral	56.00	-33.30
4.725	22.60	QP	Line	56.00	-33.40
4.040	22.30	QP	Line	56.00	-33.70
1.150	10.90	AV	Neutral	46.00	-35.10
4.725	10.50	AV	Line	46.00	-35.50
7.775	23.80	QP	Neutral	60.00	-36.20
10.275	23.80	QP	Neutral	60.00	-36.20
10.365	23.80	QP	Line	60.00	-36.20
4.800	9.60	AV	Neutral	46.00	-36.40
7.870	23.30	QP	Line	60.00	-36.70
4.040	9.30	AV	Line	46.00	-36.70
0.150	19.00	AV	Neutral	56.00	-37.00
3.970	8.70	AV	Neutral	46.00	-37.30
0.150	18.40	AV	Line	56.00	-37.60
7.870	9.80	AV	Line	50.00	-40.20
10.275	9.40	AV	Neutral	50.00	-40.60
7.775	9.30	AV	Neutral	50.00	-40.70
10.365	9.00	AV	Line	50.00	-41.00

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

Conducted Disturbance Test FCC Part 15

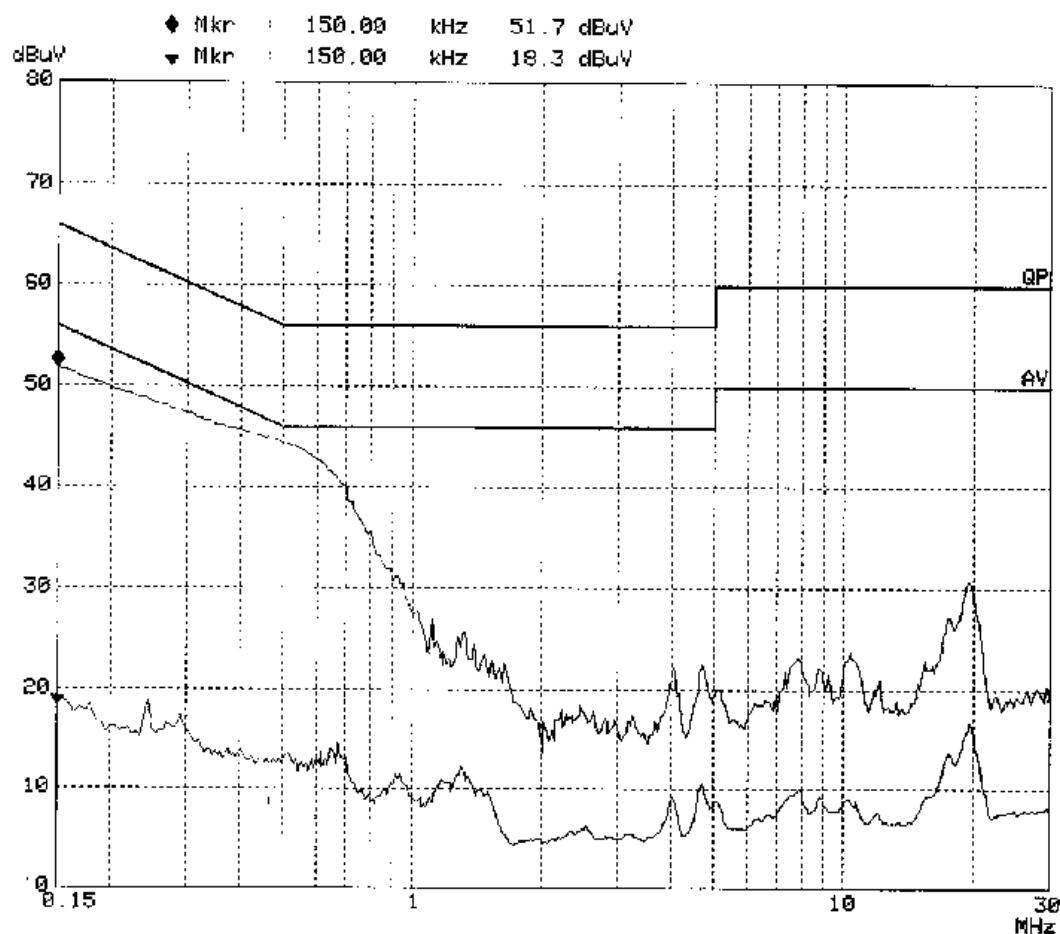
EUT: 1:12 scale RC M/N:3615
Manuf: Planet
Op Cond: Charging
Operator: Louise
Test Spec: AC 120V/60Hz 1
Comment: Temp:27
Humi:58%
Date: 21. Sep 05 16:06

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO	LN OFF

Transducer No. Start Stop Name
1 9k 30M FACTOR

Final Measurement: x QP / + AV
Meas Time: 1 s
Subranges: 25
Acc Margin: 6dB



Conducted Disturbance Test FCC Part 15

EUT: 1:12 scale RC M/N:3615
Manuf: Planet
Op Cond: Charging
Operator: Louise
Test Spec: AC 120V/60Hz N
Comment: Temp:27
 Humi:58%
Date: 21. Sep 05 15:49

Scan Settings (1 Range)

Frequencies			Receiver Settings				
Start	Stop	Step	IF BW	Detector	M-Time	Atten	Preamp
150k	30M	5k	9k	PK+AV	20ms	AUTO	LN OFF

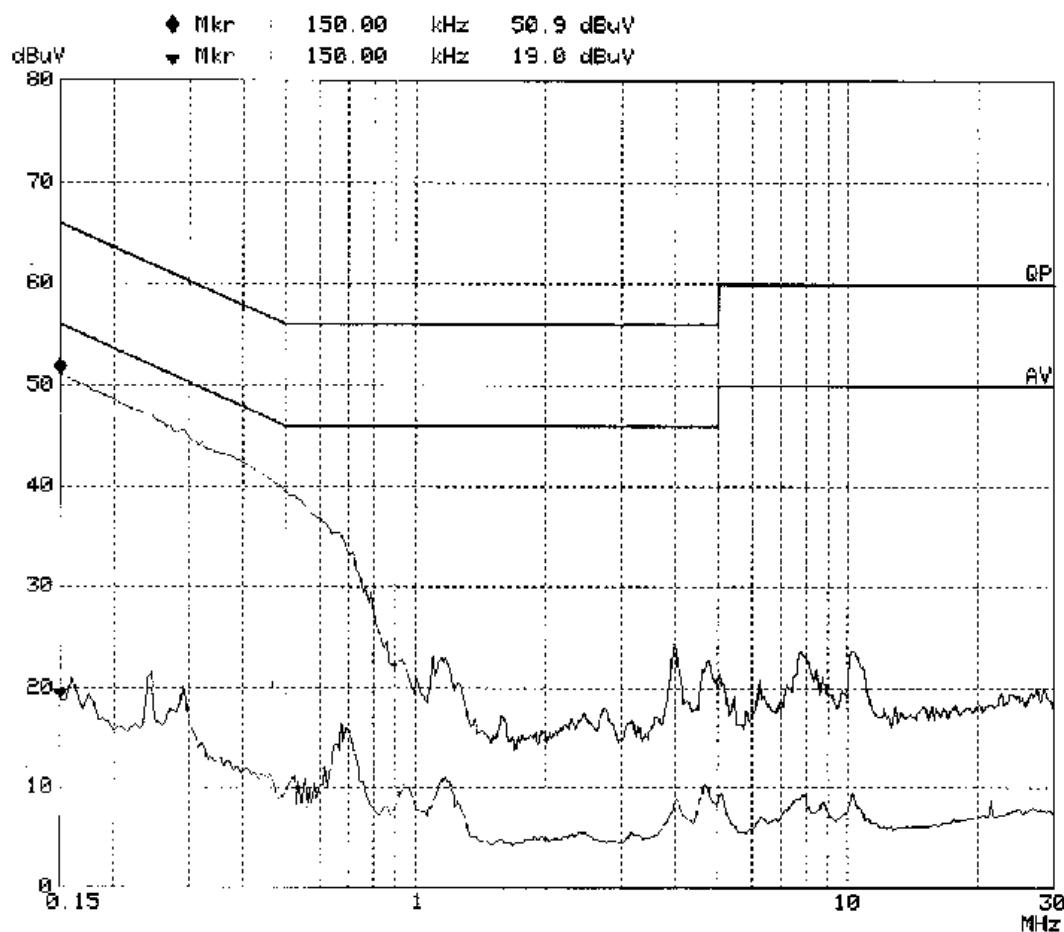
Transducer No. Start Stop Name
1 9k 30M FACTOR

Final Measurement: x QP / + AV

Meas Time: 1 s

Subranges: 25

Acc Margin: 6dB



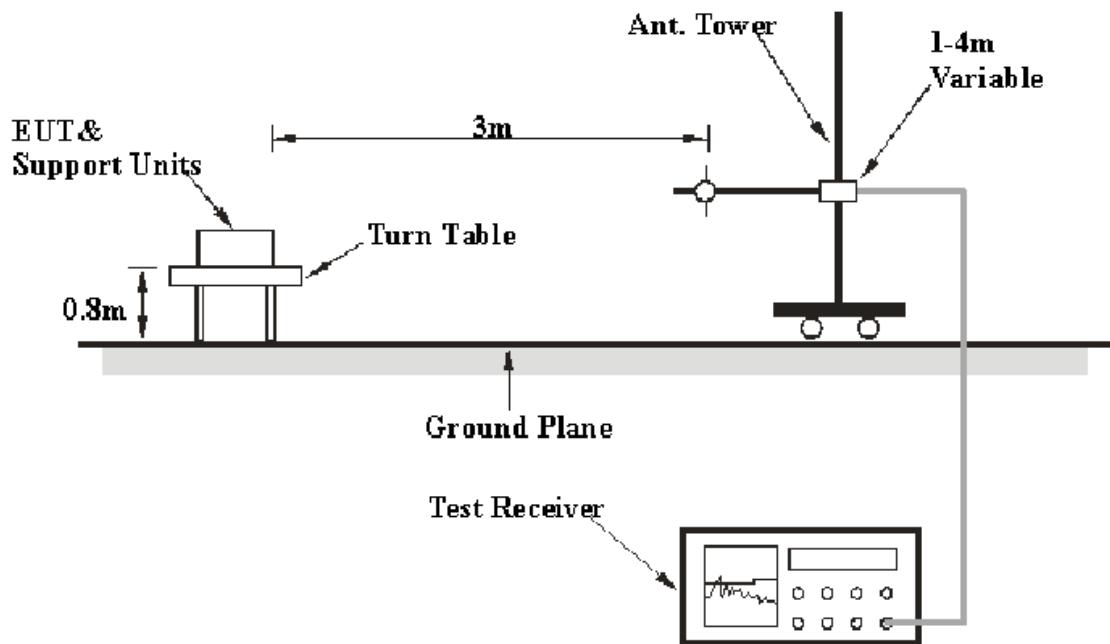
§15.109(a) - RADIATED EMISSION

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 NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of a radiation emissions measurement at Bay Area Compliance Lab Corp. (ShenZhen) is ± 4.4 dB.

EUT Setup



The radiated emission tests were performed in the chamber A test site, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.109 limits.

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 Range	R B/W	Video B/W	IF B/W
30 – 1000 MHz	100 kHz	300 kHz	120 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2005-8-17	2006-8-17
HP	Amplifier	HP8447D	2944A09795	2005-8-17	2006-8-17
Sunol Sciences	Broadband Antenna	JB1	A040904-1	2005-4-28	2006-4-28

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

Test Procedure

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

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

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:

$$\text{Corr. Ampl.} = \text{Meter Reading} + \text{Antenna Loss} + \text{Cable Loss} - \text{Amplifier Gain}$$

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:

$$\text{Margin} = \text{Corr. Ampl.} - \text{Limit}$$

Test Results Summary

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

Receiving Mode: -6.3 dB at 49.706 MHz in the **Vertical** polarization.
Charging Mode: -14.9 dB at 35.000 MHz in the **Vertical** polarization.

Test Data

Environmental Conditions

Temperature:	30 °C
Relative Humidity:	55 %
ATM Pressure:	1002mbar

The testing was performed by Louise Lu on 2005-9-20.

Test Mode: Receiving

Meter		Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier Gain	Corr. Ampl.	FCC PART 15.109		
MHz	dBuV	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit dBuV/m	Margin dB	Remark		
49.706	51.1	180	1.2	V	10.8	0.6	28.8	33.7	40.0	-6.3	PK		
52.310	49.0	60	1.2	V	8.5	0.7	28.7	29.5	40.0	-10.6	PK		
106.010	44.8	60	1.0	V	11.0	1.0	28.5	28.3	43.5	-15.2	PK		
106.010	44.1	60	1.2	H	11.0	1.0	28.5	27.6	43.5	-15.9	PK		
99.530	46.6	60	1.0	V	8.2	0.9	28.6	27.1	43.5	-16.4	PK		
50.400	42.2	45	1.0	H	8.5	0.7	28.7	22.7	40.0	-17.3	PK		
143.320	39.8	270	1.0	H	13.8	1.1	28.5	26.2	43.5	-17.3	PK		
193.770	39.6	45	1.2	H	11.8	1.3	28.0	24.7	43.5	-18.8	PK		
289.000	38.9	45	1.2	H	13.8	1.5	27.6	26.6	46.0	-19.4	PK		
144.330	35.6	45	1.2	V	13.8	1.1	28.5	22.0	43.5	-21.5	PK		
252.940	38.0	90	1.2	H	12.3	1.3	27.6	24.0	46.0	-22.0	PK		
192.410	33.8	45	1.2	V	11.8	1.3	28.0	18.9	43.5	-24.6	PK		

Test Mode: Charging

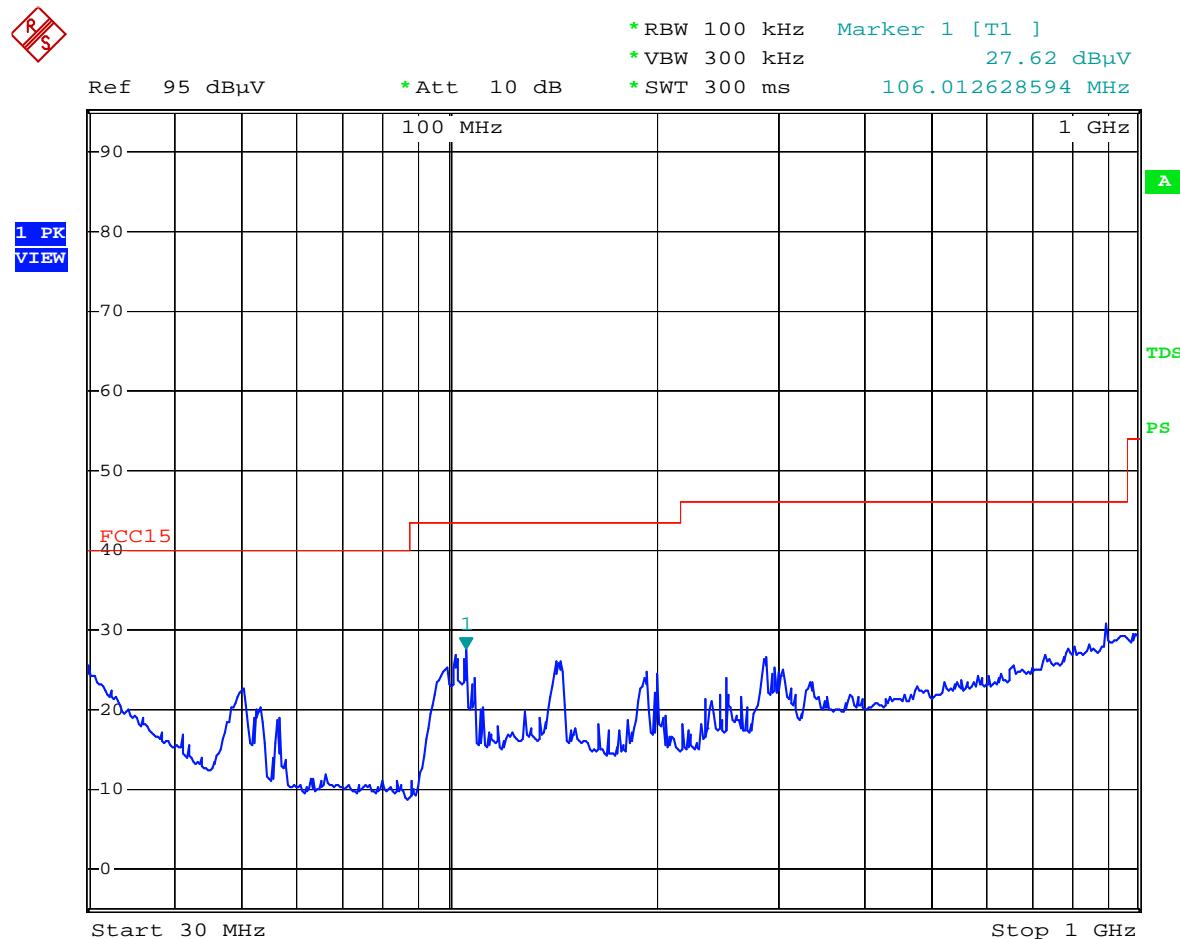
Meter		Frequency	Reading	Direction	Height	Polar	Antenna Loss	Cable loss	Amplifier Gain	Corr. Ampl.	FCC PART 15.109		
MHz	dBuV	Degree	Meter	H / V	dB	dB	dB	dBuV/m	Limit dBuV/m	Margin dB	Remark		
35.000	35.6	45	1.0	v	17.7	0.6	28.8	25.1	40.0	-14.9	PK		
56.790	37.2	60	1.0	h	7.9	0.7	28.7	17.1	40.0	-22.9	PK		
41.710	30.5	180	1.2	h	14.3	0.6	28.8	16.5	40.0	-23.5	PK		
61.360	35.7	270	1.0	v	8.1	0.8	28.7	15.9	40.0	-24.1	PK		
382.580	32.0	45	1.2	v	15.6	1.9	27.9	21.6	46.0	-24.4	PK		
141.390	32.1	45	1.2	v	13.8	1.1	28.5	18.5	43.5	-25.0	PK		
142.320	30.7	45	1.2	h	13.8	1.1	28.5	17.1	43.5	-26.4	PK		
114.510	32.1	60	1.0	h	12.2	1.0	28.5	16.8	43.5	-26.7	PK		
78.965	31.5	60	1.2	h	8.6	0.8	28.7	12.2	40.0	-27.8	PK		
279.043	29.6	45	1.2	h	13.8	1.5	27.6	17.3	46.0	-28.7	PK		
56.790	34.8	60	1.2	v	7.9	0.7	28.7	14.7	43.5	-28.8	PK		
245.950	30.8	90	1.2	v	12.3	1.3	27.7	16.7	46.0	-29.3	PK		

Plot(s) of Test Data

Plot(s) of Test Data is presented hereinafter as reference.

Test Mode: Receiving

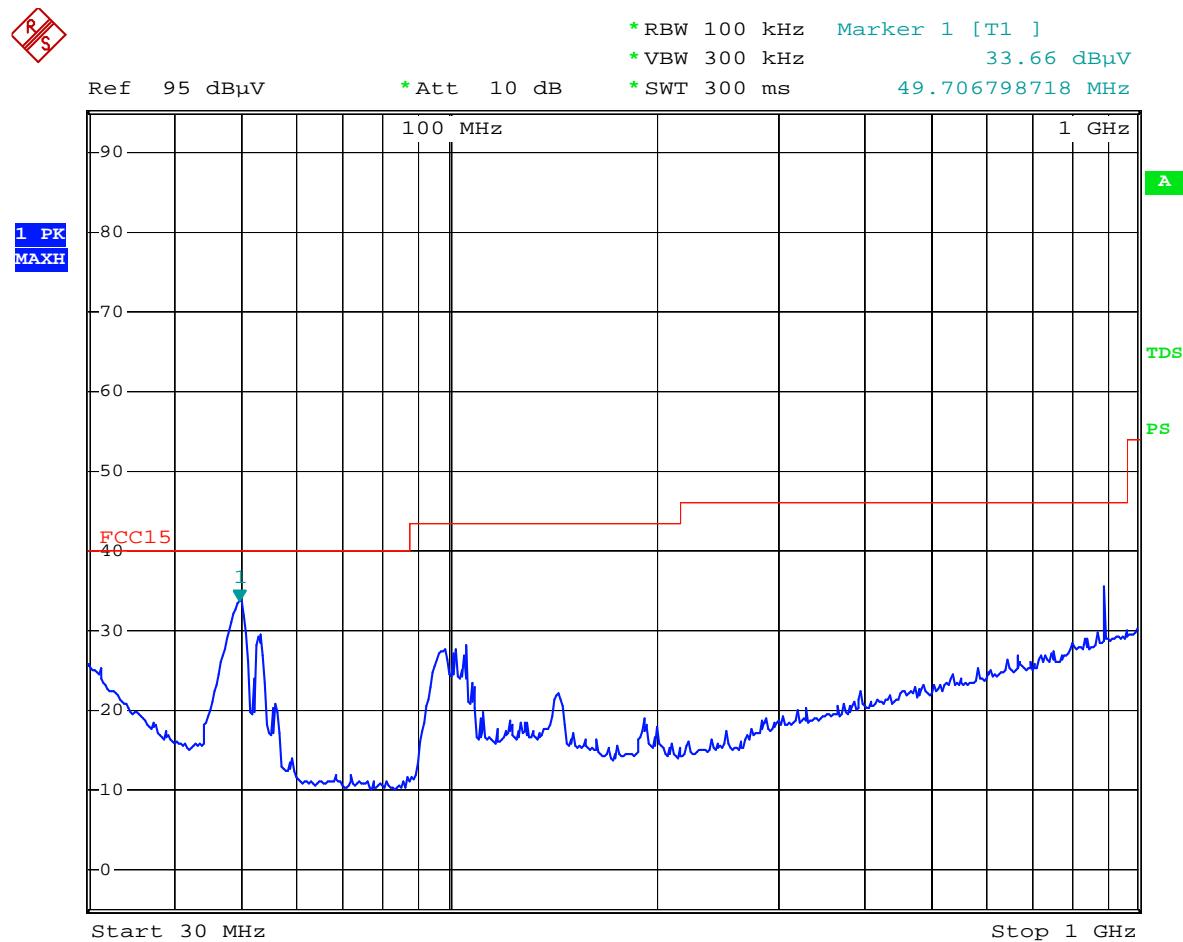
Horizontal:



Planet 1:12 scale RC M/N:3615 receiving (Horizontal)

Date: 20.SEP.2005 16:17:56

Vertical:

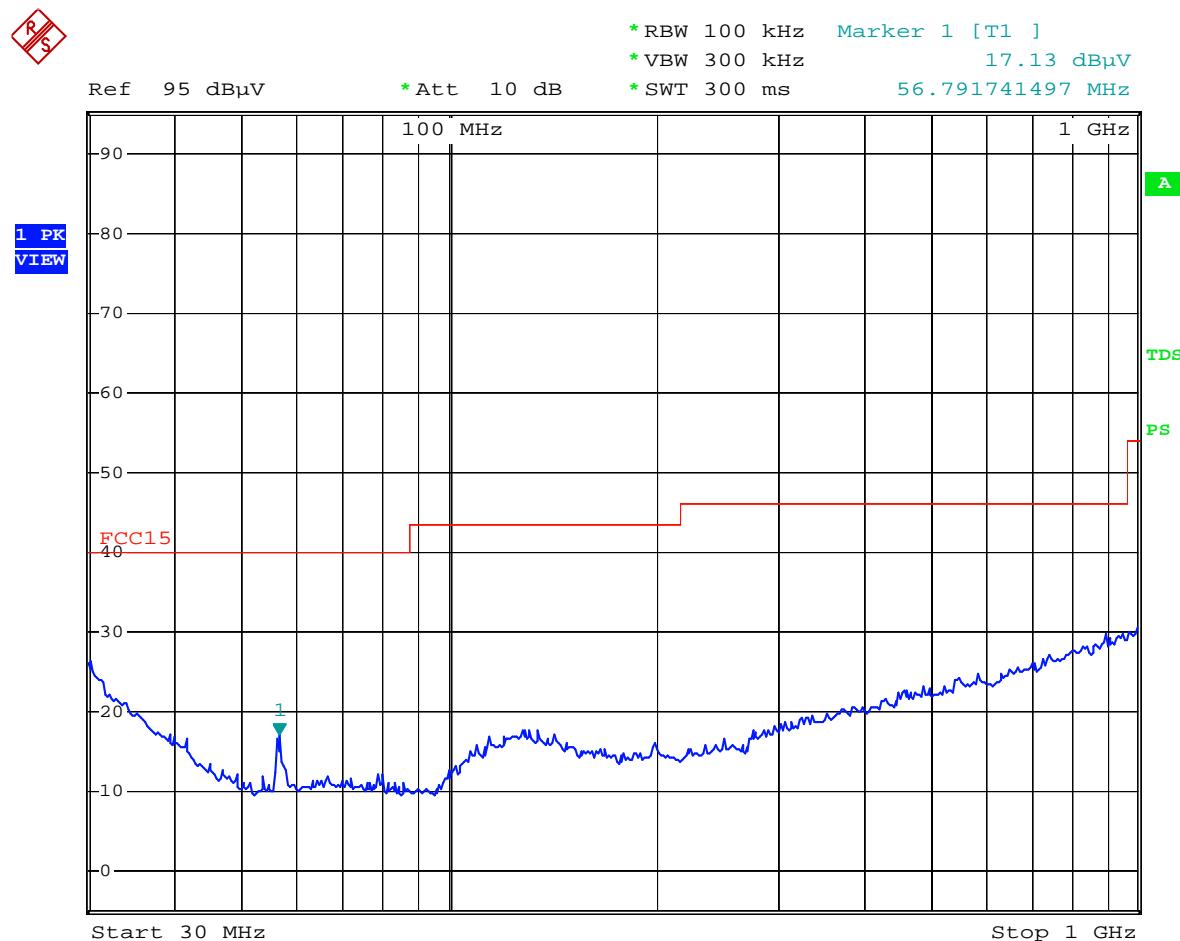


Planet 1:12 scale RC M/N:3615 receiving (Vertical)

Date: 20.SEP.2005 16:07:51

Test Mode: Charging

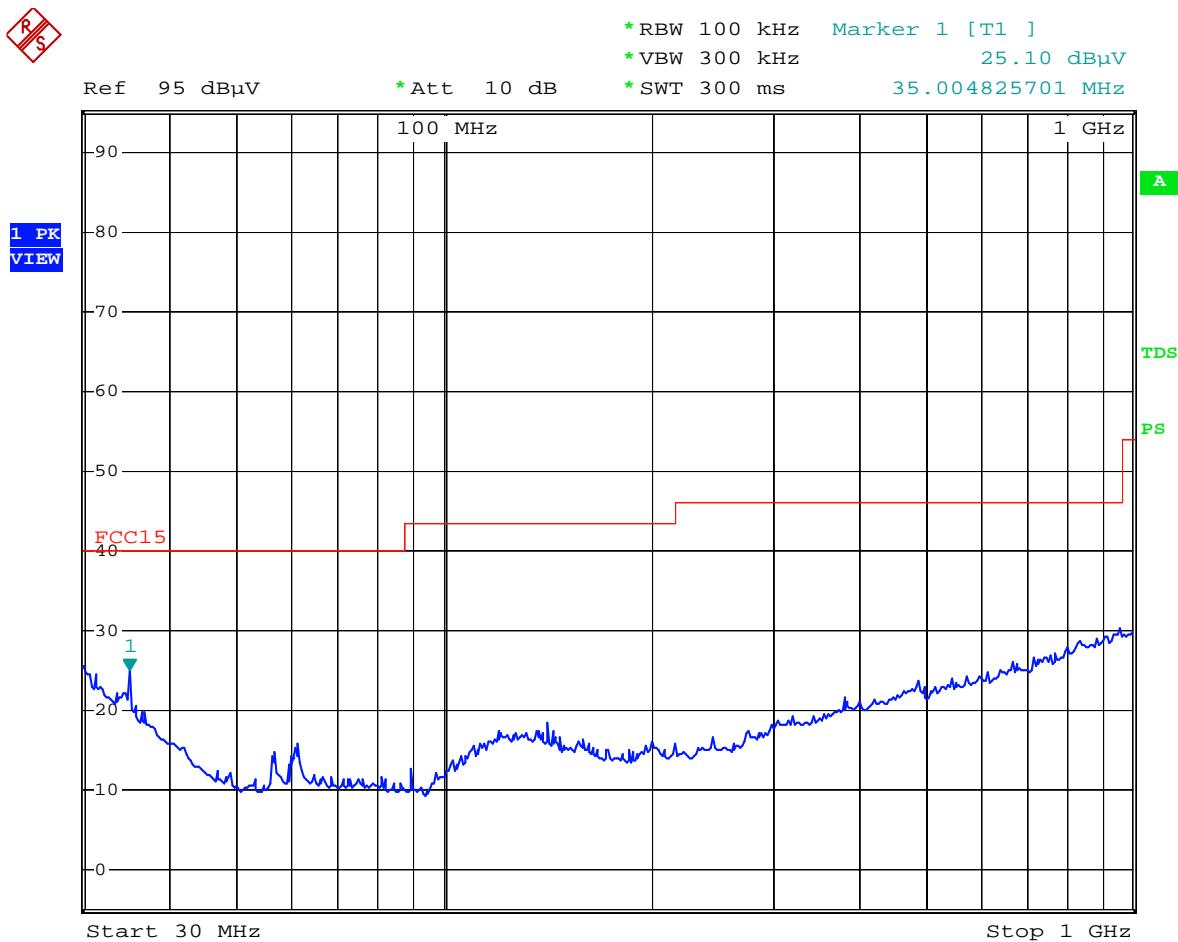
Horizontal:



Planet 1:12 scale RC M/N:3615 charging (Horizontal)

Date: 20.SEP.2005 17:15:31

Vertical:



Planet 1:12 scale RC M/N:3615 charging (Vertical)

Date: 20.SEP.2005 17:22:19