

FCC Part 15B

Measurement and Test Report

For

Vigorhood Photoelectric Shenzhen Co., Ltd

**F Building, Hongfa Tech Industrial Park, Songbai Rd. Shiyan Town, Baoan
District, Shenzhen, China**

Report Concerns: Original Report	Equipment Type: Chumby 3.5 inch Multi-Media Device
Model:	<u>CY35</u>
Report No.:	<u>STR11068004E-3</u>
Test Date:	<u>2011-06-05 to 2011-07-27</u>
Issue Date:	<u>2011-09-16</u>
Tested By:	<u>Silin Chen / Engineer</u> <i>Silin chen</i>
Reviewed By:	<u>Lahm Peng / EMC Manager</u> <i>Lahm peng</i>
Approved & Authorized By:	<u>Jandy so / PSQ Manager</u> <i>Jandyso</i>
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Note: This test report is limited to the above client company and the product model only. It may not be duplicated without prior permitted by SEM.Test Compliance Service Co., Ltd.

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1. GENERAL INFORMATION

1.1 Product Description for Equipment Under Test (EUT)

Client Information

Applicant: Vigorhood Photoelectric Shenzhen Co., Ltd
Address of applicant: F Building, Hongfa Tech Industrial Park, Songbai Rd.
Shiyan Town, Baoan District, Shenzhen, China

Manufacturer: Vigorhood Photoelectric Shenzhen Co., Ltd
Address of manufacturer: F Building, Hongfa Tech Industrial Park, Songbai Rd.
Shiyan Town, Baoan District, Shenzhen, China

General Description of E.U.T

Items	Description
EUT Description:	Chumby 3.5 inch Multi-Media Device
Trade Name:	ATiger
Model No.:	CY35
Rated Voltage:	100~240V Adapter DC 5V
Rated Current:	2A

The test data is gathered from a production sample, provided by the manufacturer.

1.2 Test Standards

The following report is prepared on behalf of the Vigorhood Photoelectric Shenzhen Co., Ltd in accordance with Part 2, Subpart J, and Part 15, Subparts A and C of the Federal Communication Commissions rules.

The objective is to determine compliance with FCC Part 15, Subpart C, and section 15.205, 15.107, and 15.109 rules.

Maintenance of compliance is the responsibility of the manufacturer. Any modification of the product, which result in lowering the emission, should be checked to ensure compliance has been maintained.

1.3 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.

The equipment under test (EUT) was configured to measure its highest possible susceptibility against the tested phenomena. The test modes were adapted accordingly in reference to the Operating Instructions.

1.4 Test Facility

- **FCC – Registration No.: 994117**

SEM.Test Compliance Services Co., Ltd. EMC Laboratory has been registered and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files and the Registration is 994117.

- **Industry Canada (IC) Registration No.: 7673A**

The 3m Semi-anechoic chamber of SEM.Test Compliance Services Co., Ltd. has been registered by Certification and Engineering Bureau of Industry Canada for radio equipment testing with Registration No.: 7673A.

- **CNAS Registration No.: L4062**

Shenzhen SEM.Test Electronics Service Co., Ltd. is a testing organization accredited by China National Accreditation Service for Conformity Assessment (CNAS) according to ISO/IEC 17025. The accreditation certificate number is L4062. All measurement facilities used to collect the measurement data are located at 3/F, Jinbao Commerce Building, Xin'an Fanshen Road, Bao'an District, Shenzhen, P.R.C (518101)

1.5 EUT Exercise Software

The EUT exercise program used during the testing was designed to exercise the system components.

1.6 Accessories Equipment List and Details

Description	Manufacturer	Model	Serial Number
USB disk	Lenovo	L512M	N/A

1.7 EUT Cable List and Details

Cable Description	Length (M)	Shielded/Unshielded	With Core/Without Core
DC Cable	1.4	Unshielded	With Core

2. SUMMARY OF TEST RESULTS

Description of Test	Result
§15.107 (a) Conducted Emission	Compliant
§15.109(a) Radiated Emission	Compliant

3. §15.107 (a) CONDUCTED EMISSIONS

3.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any conducted emissions measurement is ± 2.88 dB.

3.2 Test Equipment List and Details

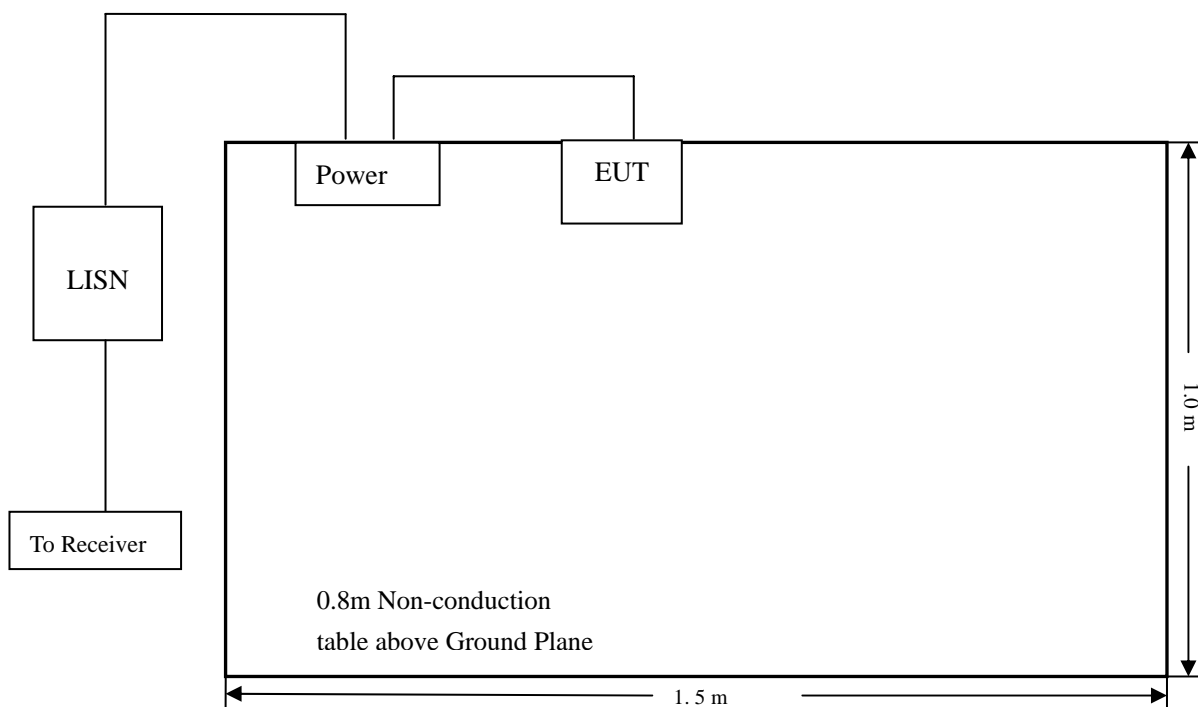
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
EMI Test Receiver	Rohde & Schwarz	ESPI	101611	2010-12-20	2011-12-19
L.I.S.N	Schwarz beck	NSLK8126	8126-224	2010-12-20	2011-12-19
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	100911	2010-12-20	2011-12-19

Statement of Traceability: All calibrations have been performed per the NVLAP requirements traceable to the NIST.

3.3 Test Procedure

Test is conducting under the description of 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.

3.4 Basic Test Setup Block Diagram



3.5 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	52%
ATM Pressure:	1011 mbar

3.6 Summary of Test Results/Plots

According to the data in section 3.7, the EUT complied with the FCC Part 15.107 Conducted margin for a Class B device, with the *worst* margin reading of:

-7.19 dB μ V at **0.494 MHz** in the **Line, Ave** detector, 0.15-30MHz

3.7 Conducted Emissions Test Data

Plot of Conducted Emissions Test Data

Conducted Disturbance

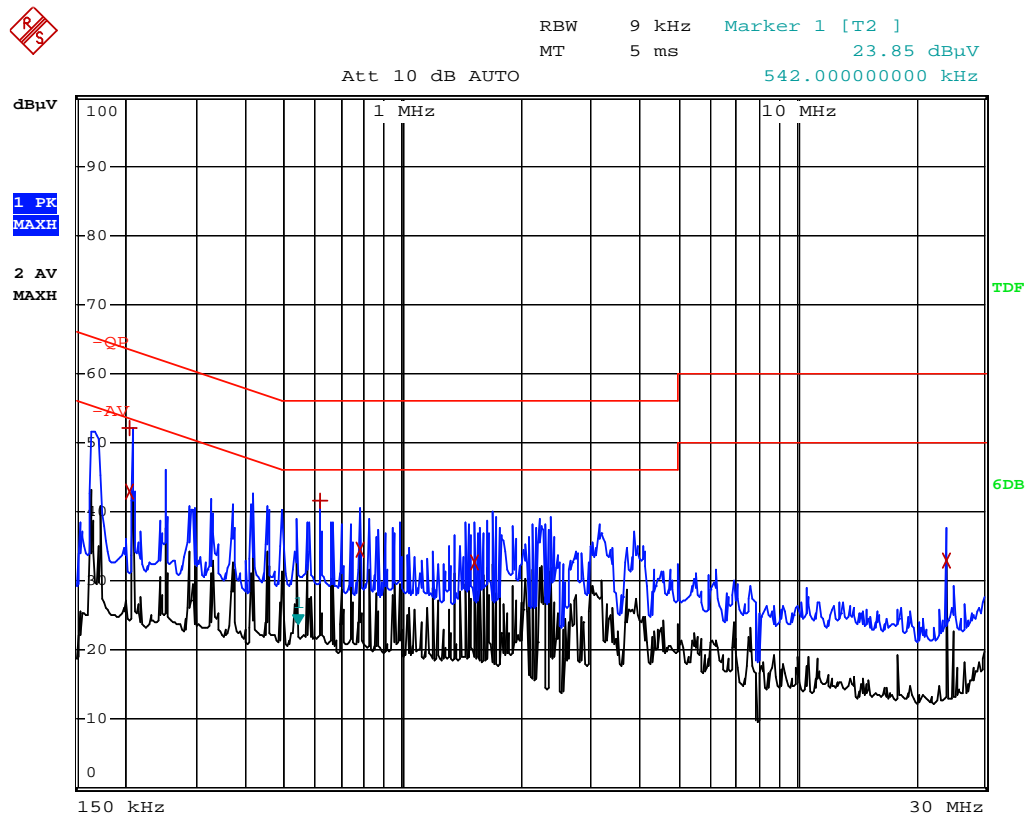
EUT: Chumby 3.5 inch Multi-Media Device

M/N: CY35

Operating Condition: Playing with USB Disk

Test Specification: N

Comment: 120V/60Hz; Adaptor DC 5V



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	206 kHz	52.11	-11.25
2 Average	206 kHz	42.98	-10.38
1 Max Peak	618 kHz	41.51	-14.48
2 Average	782 kHz	34.47	-11.52
2 Average	1.526 MHz	32.63	-13.36
2 Average	23.986 MHz	32.96	-17.04

Plot of Conducted Emissions Test Data

Conducted Disturbance

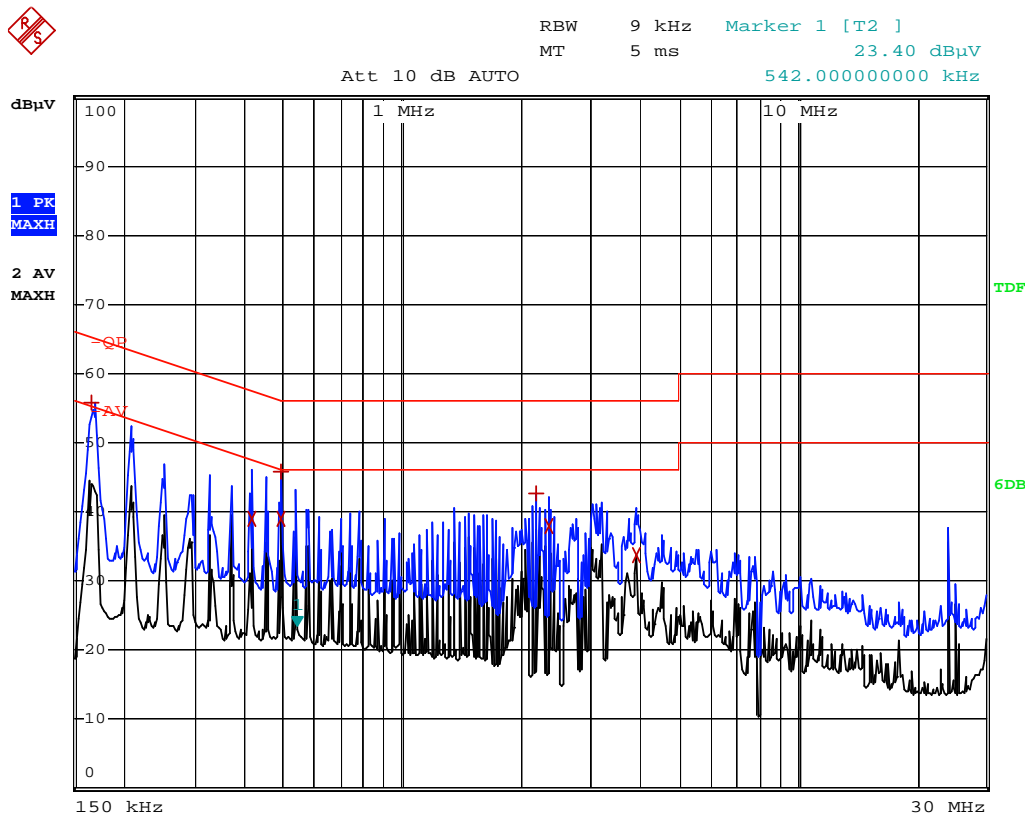
EUT: Chumby 3.5 inch Multi-Media Device

M/N: CY35

Operating Condition: Playing with USB Disk

Test Specification: L

Comment: 120V/60Hz; Adaptor DC 5V



EDIT PEAK LIST (Prescan Results)			
Trace1:	-QP		
Trace2:	-AV		
Trace3:	---		
TRACE	FREQUENCY	LEVEL dBμV	DELTA LIMIT dB
1 Max Peak	166 kHz	55.77	-9.38
2 Average	414 kHz	38.91	-8.65
1 Max Peak	494 kHz	45.79	-10.30
2 Average	494 kHz	38.90	-7.19
1 Max Peak	2.182 MHz	42.63	-13.36
2 Average	2.346 MHz	37.99	-8.00
2 Average	3.91 MHz	33.71	-12.28

4. §15.109(a)- RADIATED EMISSION

4.1 Measurement Uncertainty

Base on NIS 81, The Treatment of Uncertainty in EMC Measurements, the best estimate of the uncertainty of any radiation emissions measurement is ± 5.10 dB.

4.2 Test Equipment List and Details

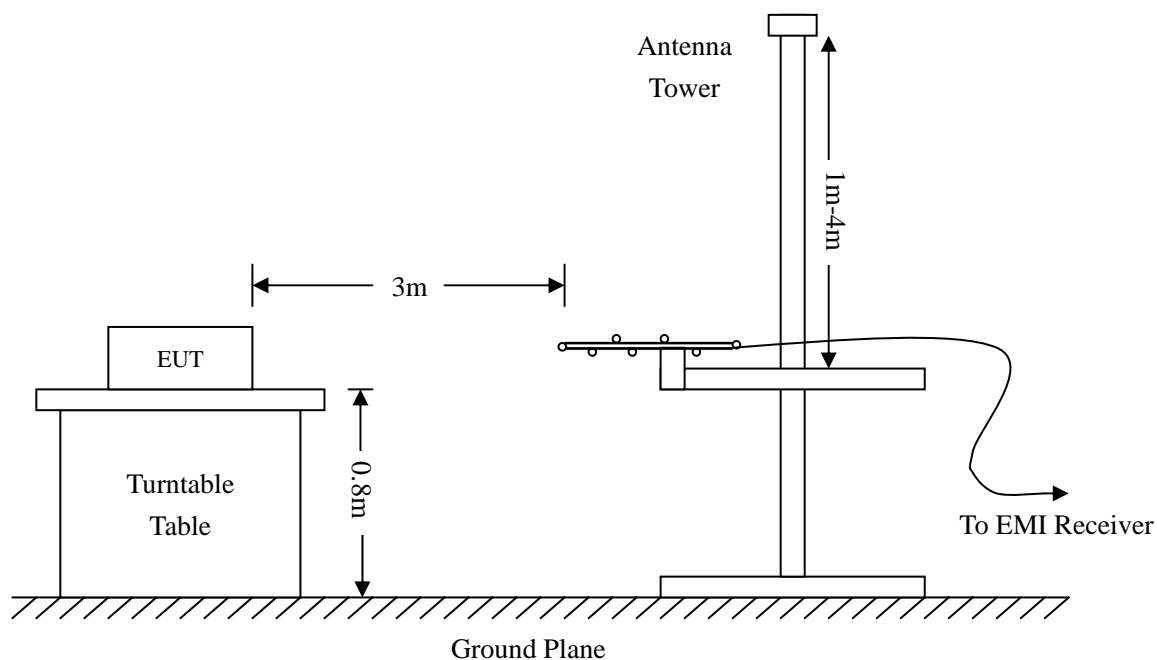
Description	Manufacturer	Model	Serial Number	Cal. Date	Due. Date
Spectrum Analyzer	R&S	FSP	836079/035	2010-12-20	2011-12-19
EMI Test Receiver	R&S	ESVB	825471/005	2010-12-20	2011-12-19
Positioning Controller	C&C	CC-C-1F	N/A	2010-12-20	2011-12-19
RF Switch	EM	EMSW18	SW060023	2010-12-20	2011-12-19
Pre-amplifier	Agilent	8447F	3113A06717	2010-12-20	2011-12-19
Pre-amplifier	Compliance Direction	PAP-0118	24002	2010-12-20	2011-12-19
Trilog Broadband Antenna	SCHWARZBECK	VULB9163	9163-333	2011-01-09	2012-01-08
Horn Antenna	ETS	3117	00086197	2011-01-09	2012-01-08

4.3 Test Procedure

The setup of EUT is according with per ANSI C63.4-2003 measurement procedure. The specification used was with the FCC Part 15.109 Limit.

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.



4.4 Test Receiver Setup

During the radiated emission test for above 1GHz, the test receiver was set with the following configurations:

For peak detector:

RBW = 1000kHz, VBW = 3000kHz, Sweep Time = Auto

For average detector:

RBW = 1000kHz, VBW = 10Hz, Sweep Time = Auto

4.5 Corrected Amplitude & Margin Calculation

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

$$\text{Corr. Ampl.} = \text{Indicated Reading} - \text{Corr. Factor}$$

The “**Margin**” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -6dB μ V means the emission is 6dB μ V below the maximum limit for Class B. The equation for margin calculation is as follows:

$$\text{Margin} = \text{Corr. Ampl.} - \text{FCC Part 15.109 Limit}$$

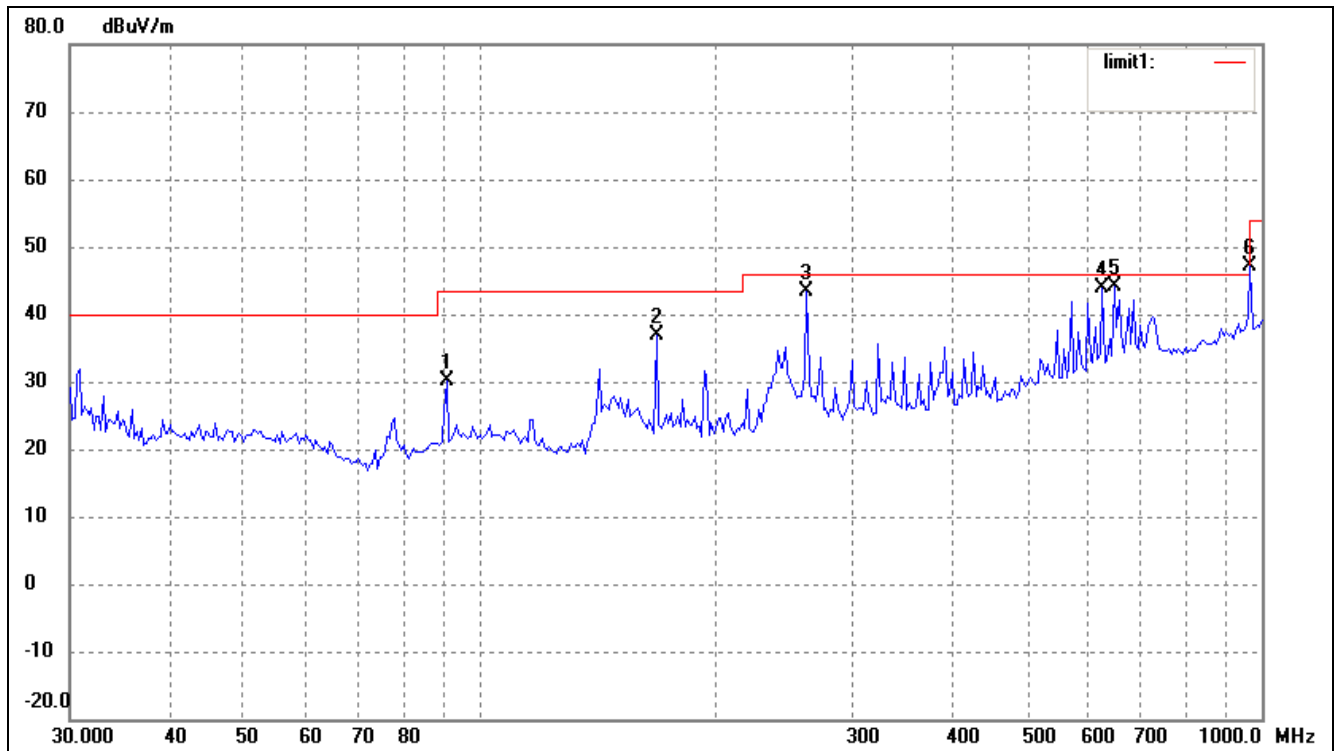
4.6 Environmental Conditions

Temperature:	23 °C
Relative Humidity:	55 %
ATM Pressure:	1011 mbar

4.7 Summary of Test Results/Plots

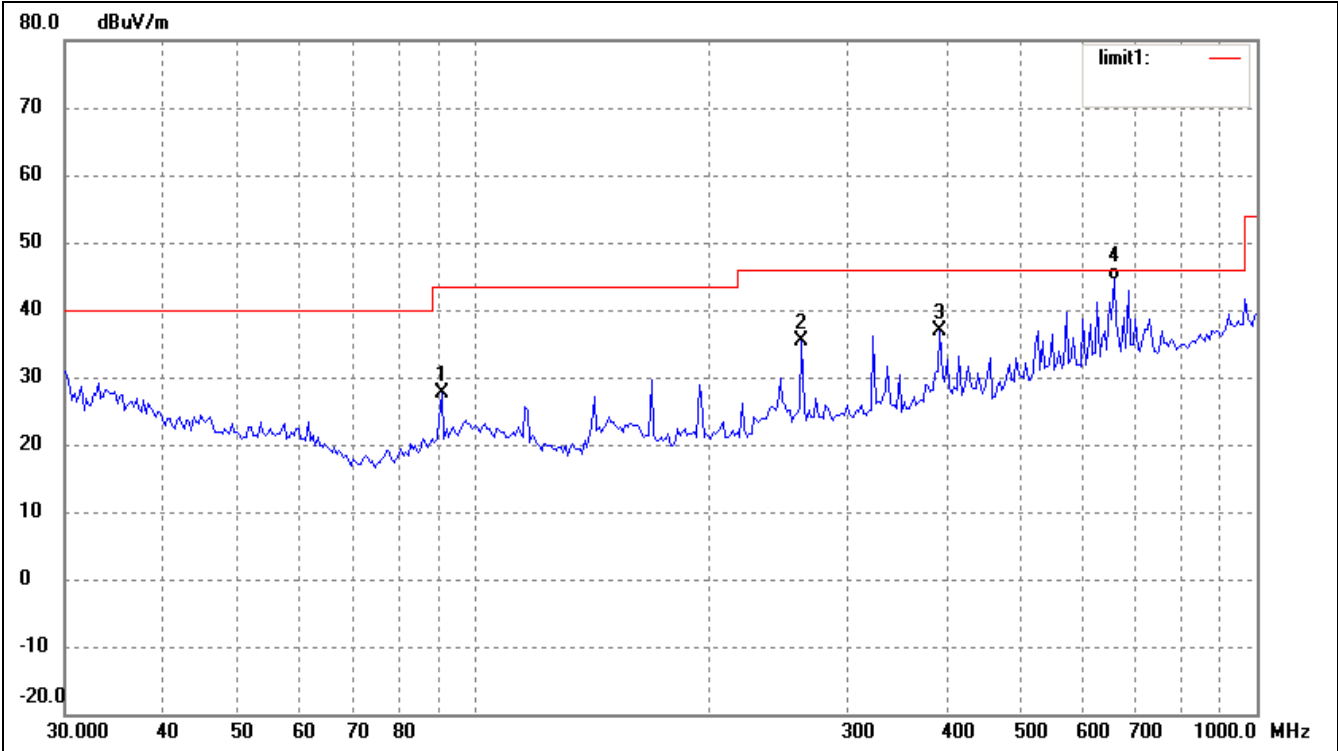
According to the data, the EUT complied with the FCC Part 15.109 Class B standards, and had the worst margin of:

-1.50 dB μ V at 654.5300 MHz in the Vertical polarization, 30 MHz to 2 GHz, 3Meters

Plot of Radiation Emissions Test*Radiated Disturbance**EUT: Chumby 3.5 inch Multi-Media Device**M/N: CY35**Operating Condition: Playing with USB Disk**Test Specification: Horizontal & Vertical**Comment: 120V/60Hz; Adaptor DC 5V**Radiated Emissions From 30MHz to 1GHz**Horizontal*

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	90.8554	22.85	7.25	30.10	43.50	-13.40	360	100	peak
2	168.4138	32.00	4.84	36.84	43.50	-6.66	360	100	peak
3	261.9753	34.36	9.00	43.36	46.00	-2.64	360	100	peak
4	625.0780	26.90	16.88	43.78	46.00	-2.22	360	100	peak
5	647.3856	27.03	17.07	44.10	46.00	-1.90	360	100	peak
6	965.5421	25.12	22.10	47.22	54.00	-6.78	360	100	peak

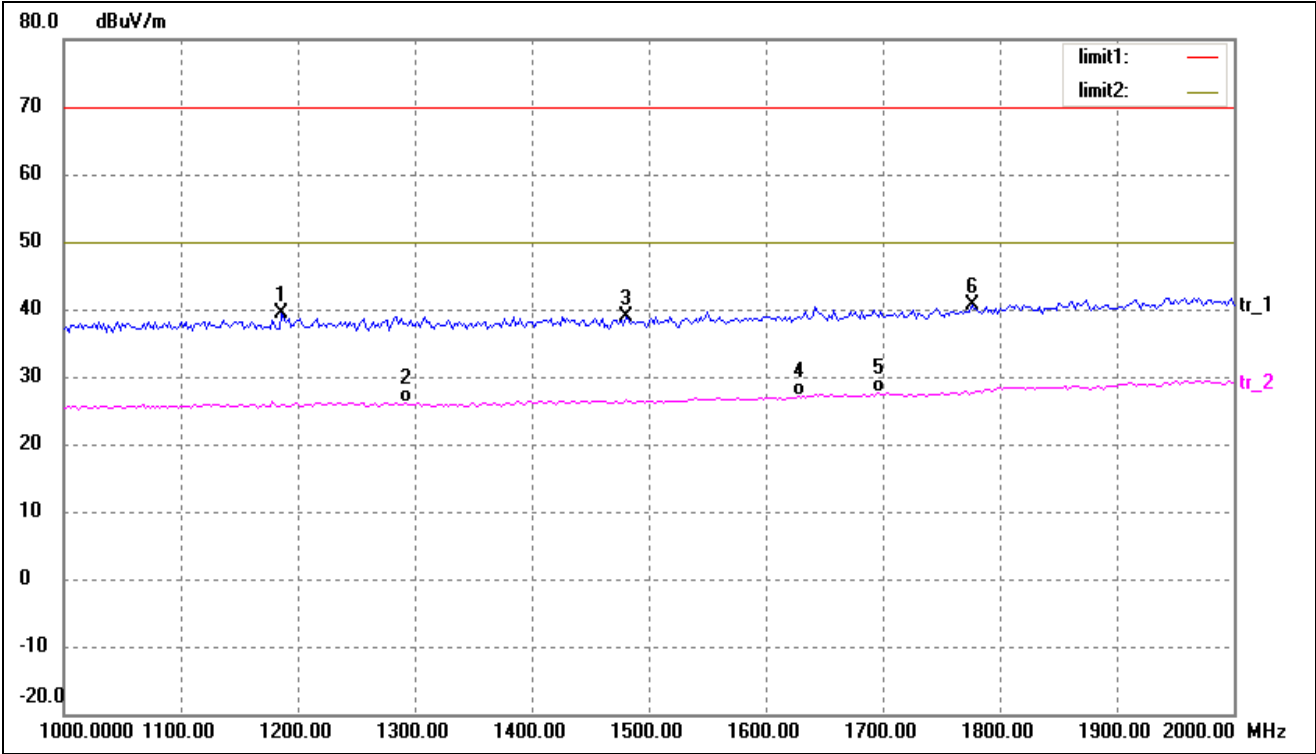
Vertical



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	Factor(dB)	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	90.8554	20.44	7.25	27.69	43.50	-15.81	360	100	peak
2	261.9753	26.41	9.00	35.41	46.00	-10.59	360	100	peak
3	393.4723	25.63	11.35	36.98	46.00	-9.02	360	100	peak
4	654.5300	27.38	17.12	44.50	46.00	-1.50	0	150	QP

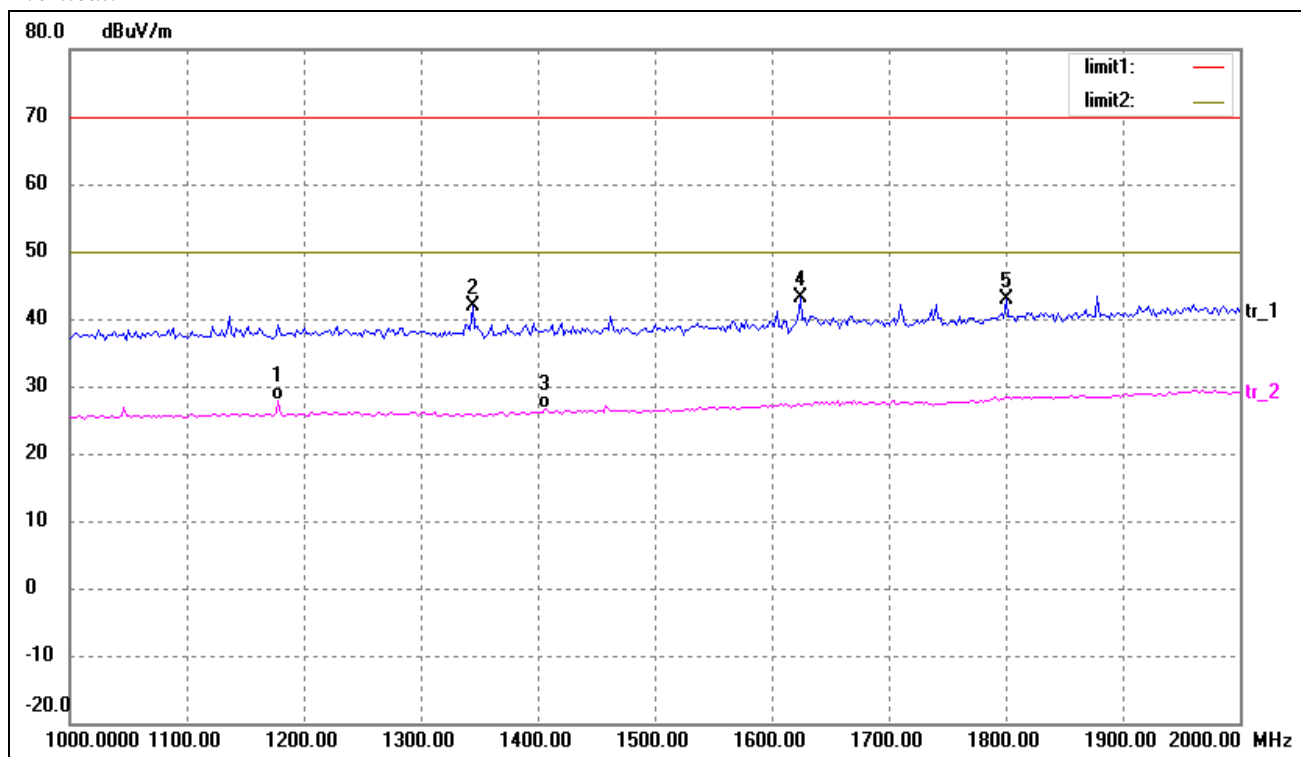
Radiated Emissions Above 1GHz

Horizontal:



No.	Frequency	Reading	Correct	Result	Limit	Margin	Degree	Height	Remark
	(MHz)	(dBuV/m)	dB/m	(dBuV/m)	(dBuV/m)	(dB)	(°)	(cm)	
1	1186.000	51.11	-11.71	39.40	70.00	-30.60	360	100	peak
2	1292.000	37.70	-11.57	26.13	50.00	-23.87	360	100	AVG
3	1480.000	50.22	-11.28	38.94	70.00	-31.06	360	100	peak
4	1628.000	37.50	-10.46	27.04	50.00	-22.96	360	100	AVG
5	1696.000	37.57	-10.05	27.52	50.00	-22.48	360	100	AVG
6	1776.000	50.21	-9.56	40.65	70.00	-29.35	360	100	peak

Vertical:



No.	Frequency (MHz)	Reading (dBuV/m)	Correct dB/m	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Degree (°)	Height (cm)	Remark
1	1178.000	39.69	-11.73	27.96	50.00	-22.04	360	100	AVG
2	1344.000	53.34	-11.49	41.85	70.00	-28.15	360	100	peak
3	1406.000	37.92	-11.38	26.54	50.00	-23.46	360	100	AVG
4	1624.000	53.57	-10.50	43.07	70.00	-26.93	360	100	peak
5	1800.000	52.24	-9.42	42.82	70.00	-27.18	360	100	peak

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