NVLAP LAB CODE 200707-0

FCC PART 15.239

MEASUREMENT AND TEST REPORT

For

POWER 7 TECHNOLOGY Co., Ltd.

Building A ,Zhangkeng Industry Zone, Minfu Rd.,Minzhi Village, Longhua Town, BaoAn District, Shenzhen, Guangdong Province P.R.of China

FCC ID: TQN-FMCUPB0807

This Report Concerns:	Equipment Type:
☒ Original Report	FM Transmitter

Test Engineer:	Jim Li
Report No.:	RSZ08062703
Test Date:	2008-07-02 to 2007-07-10
Report Date:	2008-07-10
Reviewed By:	Simon Mo
Prepared By:	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

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GENERAL INFORMATION

Product Description for Equipment Under Test (EUT)

The *POWER 7 TECHNOLOGY Co., Ltd.* 's product, model: *FMCUP* or the "EUT" as referred to in this report is a *FM transmitter* which measures approximately 6.80 cm L x 8.50 cm D, rated input voltage: DC 12~24V power.

** All measurement and test data in this report was gathered from production sample serial number: 0806069 (Assigned by BACL, Shenzhen). The EUT was received on 2008-06-27.*

Objective

This Type approval report is prepared on behalf of *POWER 7 TECHNOLOGY Co., Ltd.* in accordance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.207, 15.209, and 15.239 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 Laboratories 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 Laboratories 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, 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 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 Laboratories 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.

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

The special accessories were provided by manufacturer.

Equipment Modifications

Bay Area Compliance Laboratories Corp. (Shenzhen) has not done any modification on the EUT.

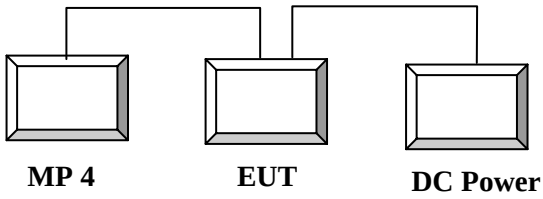
Local Support Equipment List and Details

Manufacturer	Description	Model	Serial Number	FCC ID
ipod	MP4	A1238	8Q7511Y1YMV	N/A

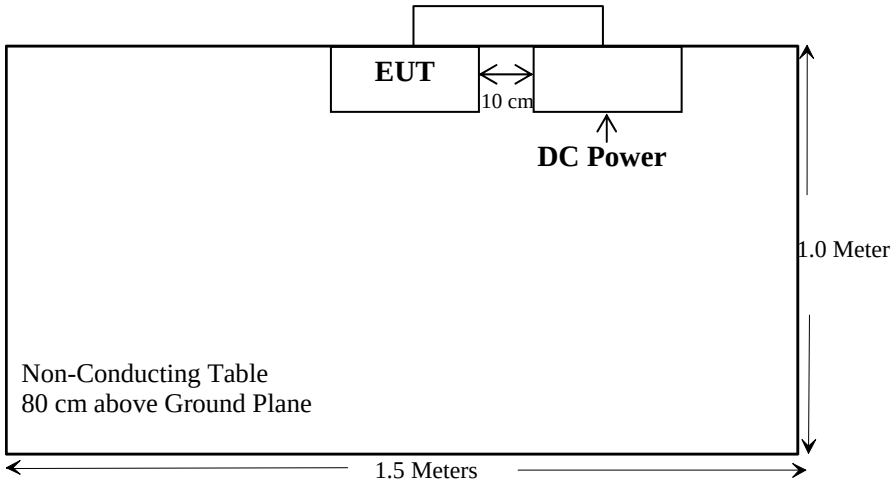
External I/O Cable

Cable Description	Length (M)	From/Port	To
Unshielded Detachable DC Cable	0.40	EUT	DC Power

Configuration of Test Setup



Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Test Result
§15.203	Antenna Requirement	Compliant
§15.209 §15.239	Radiated Emission	Compliant
§15.239 (a)	Band Edges	Compliant
§15.239 (a)	Emission Bandwidth	Compliant

§15.203 - ANTENNA REQUIREMENT

Standard Applicable

Standard Applicable

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section.

Antenna Connector Construction.

The EUT has permanently attached antenna, which, in accordance to the above section, is considered sufficient to comply with the provision of this section, please see EUT photo for details.

Result: Compliant

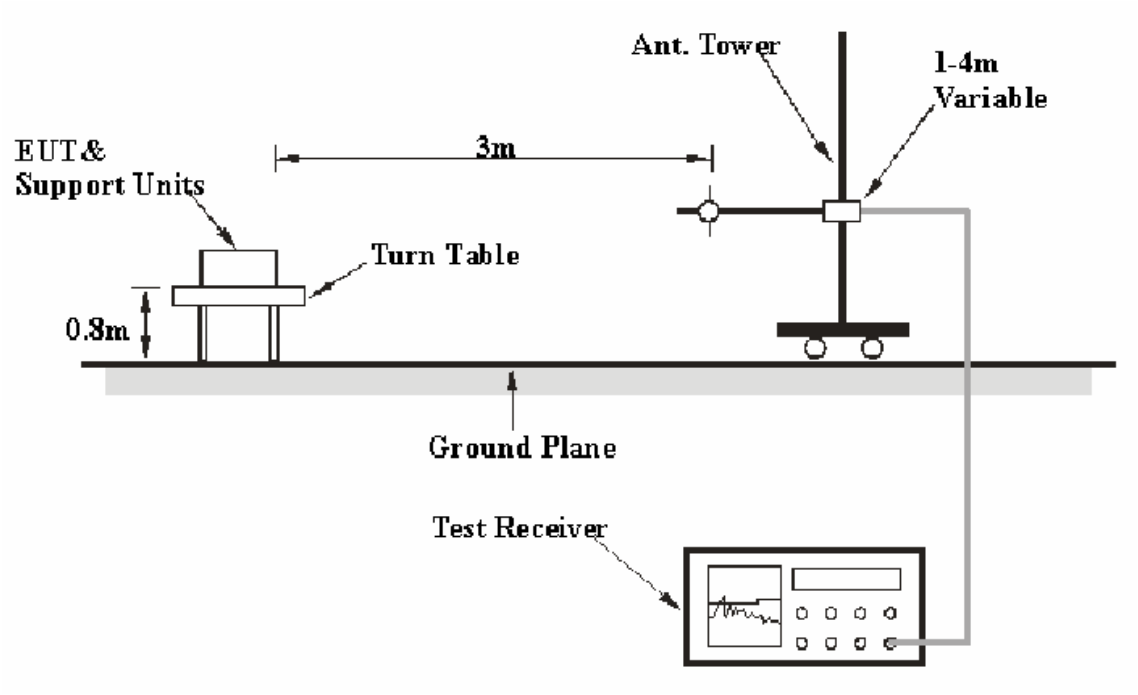
§15.209 and §15.239- RADIATED EMISSION

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 Laboratories Corp. (Shenzhen) is ±4.0 dB.

EUT Setup



The radiated emission tests were performed in the 3 meters chamber B test site, using the setup accordance with the ANSI C63.4 - 2003. The specification used was the FCC Part 15.209 and FCC Part 15.239.

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	***RBW***	***VBW***
30 – 1000 MHz	100 kHz	300 kHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
HP	Amplifier	8447E	1937A01046	2007-11-15	2008-11-15
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2007-08-14	2008-08-14
HP	Amplifier	8449B	3008A00277	2007-09-29	2008-09-29
Sunol Sciences	Horn Antenna	DRH-118	A052604	2007-09-25	2008-09-25
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2007-05-09	2008-05-09

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

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

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:

Corrected Amplitude = Meter Reading + Antenna Loss + 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 5.8dB means the emission is 5.8dB 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 EUT complied with the FCC Part 15.209 and 15.239, with the worst margin reading of:

10.30 dB at **88.1 MHz** in the **Horizontal** polarization, Low Channel.

8.86 dB at **98.1 MHz** in the **Horizontal** polarization, Middle Channel.

10.60 dB at **107.90 MHz** in the **Horizontal** polarization, High Channel.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	56%
ATM Pressure:	100.2kPa

The testing was performed by Jim Li on 2008-07-02.

Test Mode: Transmitting

Frequency (MHz)	Receiver Reading (dBμV)	Detector PK/QP/AV	Direction Degree	Antenna			Cable Loss (dB)	Pre-Amp. Gain (dB)	Cord. Amp. (dBμV/m)	FCC Part 15.239 & 15.209		
				Height (m)	Polar (H/V)	Factor (dB/m)				Limit (dBμV/m)	Margin (dB)	Remarks
Frequency in Low Channel 88.1 MHz												
88.10	67.10	AV	90	1.0	H	5.6	1.20	36.20	37.70	48.0	10.30	Fund.
88.10	66.40	AV	90	1.0	V	5.6	1.20	36.20	37.00	48.0	11.00	Fund.
176.20	47.17	QP	120	1.2	H	10.0	1.75	36.69	22.23	43.5	21.27	Harmonic
176.20	46.10	QP	60	1.2	V	10.0	1.75	36.69	21.16	43.5	22.34	Harmonic
88.10	67.45	PK	180	1.3	H	5.6	1.20	36.20	38.05	68.0	29.95	Fund.
88.10	67.20	PK	90	1.2	V	5.6	1.20	36.20	37.80	68.0	30.20	Fund.
264.30	34.00	QP	180	1.3	H	10.5	2.19	36.78	9.91	46.0	36.09	Harmonic
264.30	33.60	QP	320	1.1	V	10.5	2.19	36.78	9.51	46.0	36.49	Harmonic
Frequency in Low Channel 98.1 MHz												
98.1	65.8	AV	142	1.1	H	8.4	1.24	36.30	39.14	48.0	8.86	Fund.
98.1	59.8	AV	243	1.0	V	8.4	1.24	36.30	33.14	48.0	14.86	Fund.
196.2	49.2	QP	156	1.2	H	10.1	1.83	36.78	24.35	43.5	19.15	Harmonic
196.2	43.1	QP	265	1.4	V	10.1	1.83	36.78	18.25	43.5	25.25	Harmonic
294.3	42.5	QP	135	1.3	H	10.7	2.33	37.29	18.24	46.0	27.76	Harmonic
98.1	66.5	PK	234	1.0	H	8.4	1.24	36.30	39.84	68.0	28.16	Fund.
294.3	39.0	QP	85	1.0	V	10.7	2.33	37.29	14.74	46.0	31.26	Harmonic
98.1	60.7	PK	153	1.5	V	8.4	1.24	36.30	34.04	68.0	33.96	Fund.
Frequency in Low Channel 107.9 MHz												
107.9	61.5	AV	256	1.3	H	10.9	1.34	36.34	37.40	48.0	10.60	Fund.
107.9	54.7	AV	142	1.1	V	10.9	1.34	36.34	30.60	48.0	17.40	Fund.
215.8	50.3	QP	128	1.5	H	9.3	1.95	36.86	24.69	43.5	18.81	Harmonic
323.7	47.7	QP	156	1.2	H	12.3	2.48	37.40	25.08	46.0	20.92	Harmonic
215.8	44.8	QP	240	1.4	V	9.3	1.95	36.86	19.19	43.5	24.31	Harmonic
107.9	62.7	PK	145	1.2	H	10.9	1.34	36.34	38.60	68.0	29.40	Fund.
323.7	37.8	QP	210	1.2	V	12.3	2.48	37.40	15.18	46.0	30.82	Harmonic
107.9	55.9	PK	142	1.4	V	10.9	1.34	36.34	31.80	68.0	36.20	Fund.

§15.239(a) – BAND EDGES

Standard applicable

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88–108 MHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
HP	Amplifier	8447E	1937A01046	2007-11-15	2008-11-15
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2007-08-14	2008-08-14

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

With the EUT's antenna attached, the EUT's radiated emission power was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

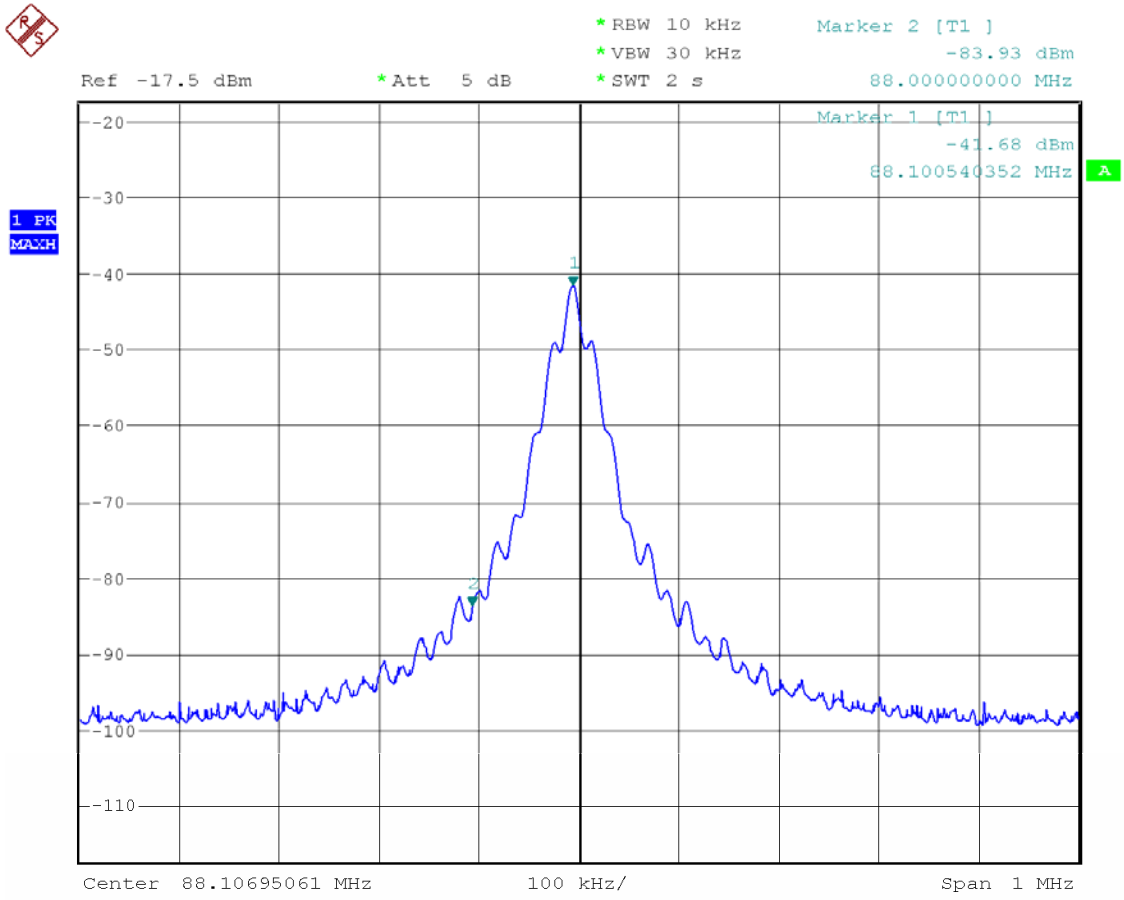
Test Data

Environmental Conditions

Temperature:	27 ° C
Relative Humidity:	56%
ATM Pressure:	100.2kPa

The testing was performed by Jim Li on 2008-07-08, 2008-07-10

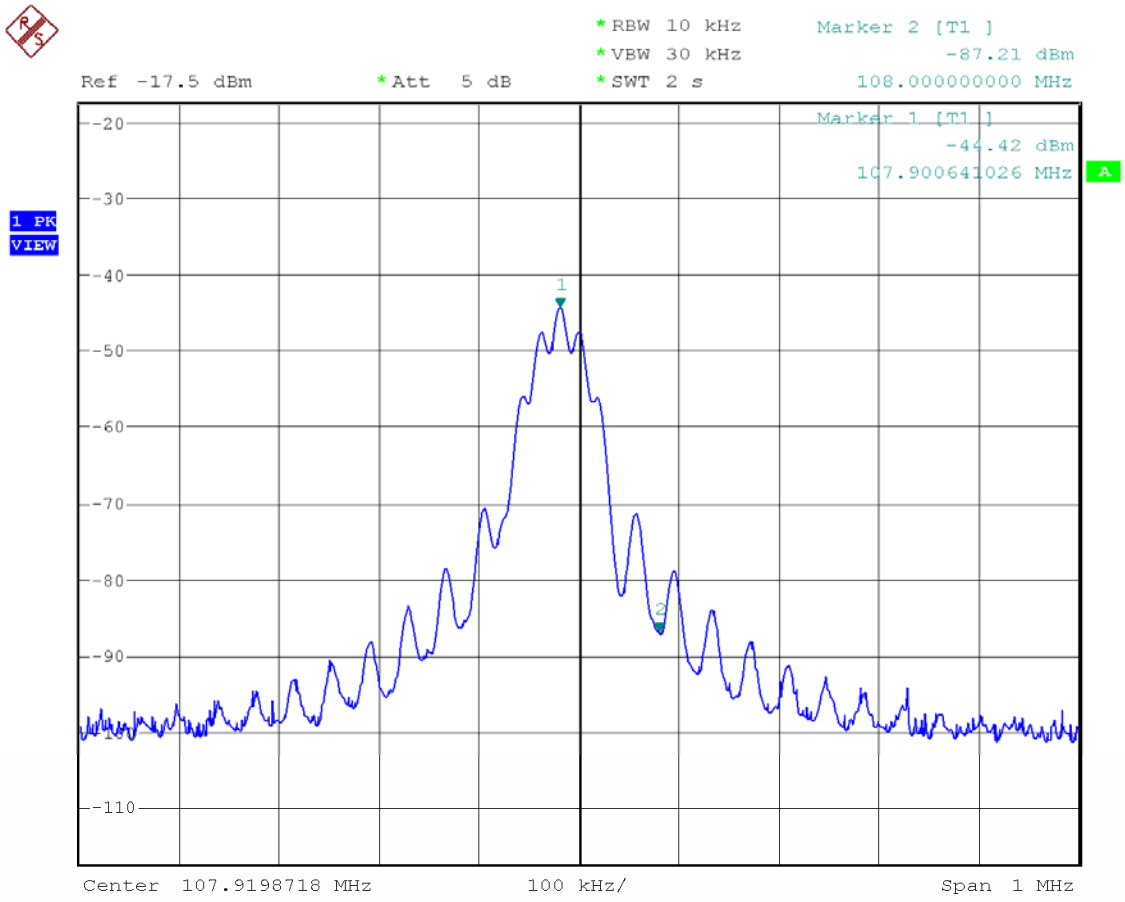
Low Channel



FREQUENCY Left BandEdge

Date: 8.JUL.2008 10:44:03

High Channel



FREQUENCY Right BandEdge

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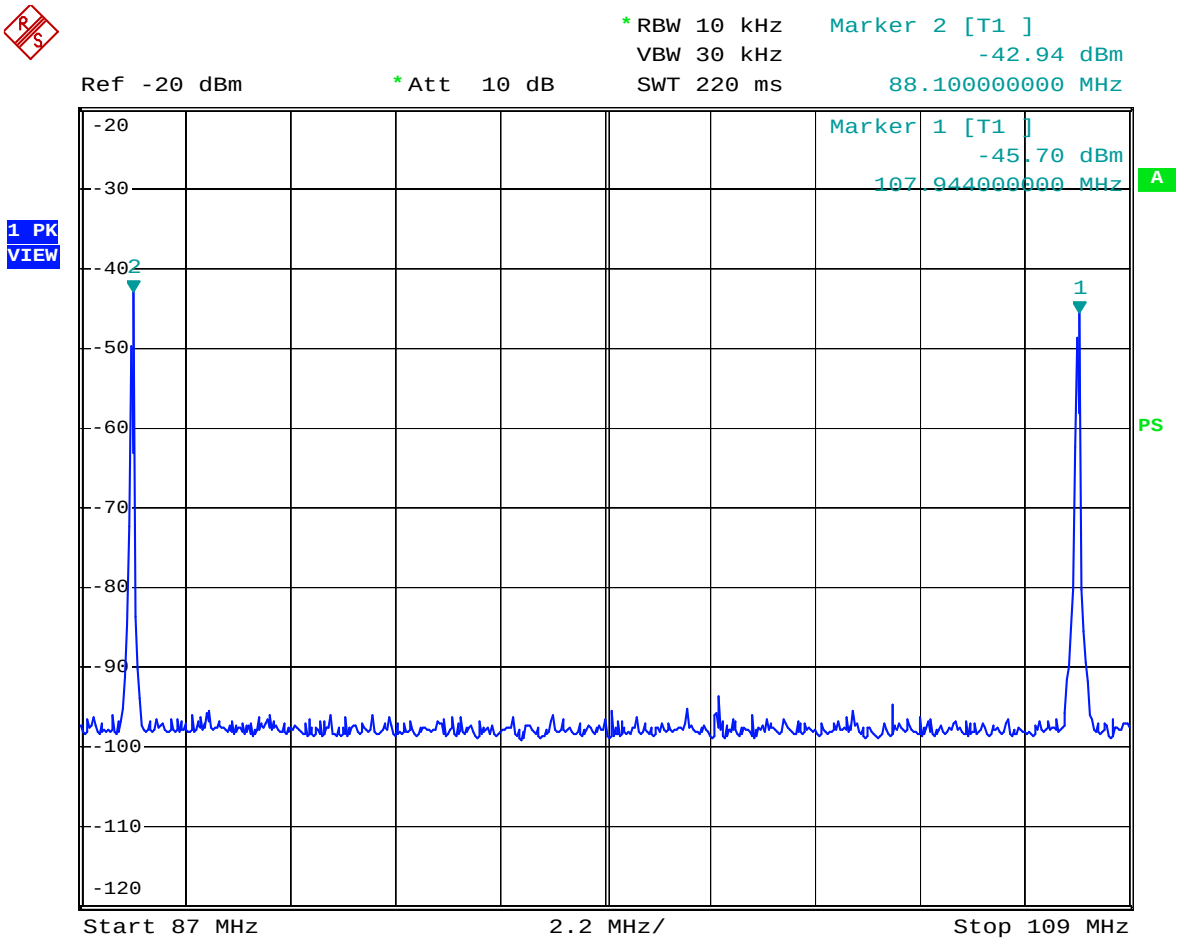
Tuning Range



frequency range

Date: 10.JUL.2008 17:12:40

§15.239(A) –EMISSION BANDWIDTH

Standard applicable

Emissions from the intentional radiator shall be confined within a band 200 kHz wide centered on the operating frequency. The 200 kHz band shall lie wholly within the frequency range of 88–108 MHz.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100224	2007-10-16	2008-10-16
HP	Amplifier	8447E	1937A01046	2007-11-15	2008-11-15
Sunol Sciences	Bilog Antenna	JB1	A040904-2	2007-08-14	2008-08-14

*** Statement of Traceability:** Bay Area Compliance Laboratories Corp. (Shenzhen) attests that all calibrations have been performed per the NVLAP requirements, traceable to NIST.

Test Procedure

With the EUT's antenna attached, the EUT's radiated emission power was received by the test antenna which was connected to the spectrum analyzer with the START and STOP frequencies set to the EUT's operation band.

Test Data

Environmental Conditions

Temperature:	27 ° C
Relative Humidity:	56%
ATM Pressure:	100.2kPa

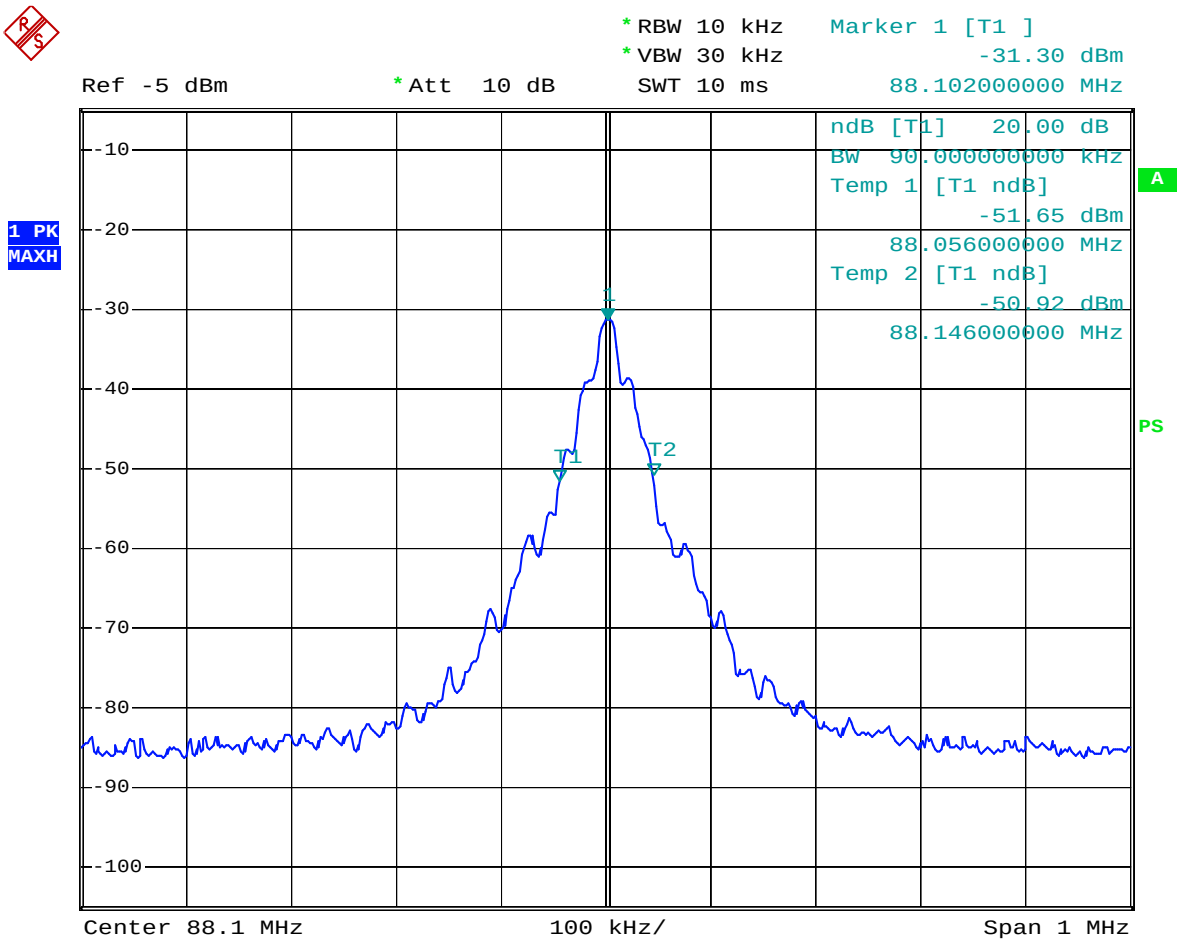
The testing was performed by Jim Li on 2008-07-04.

Test Mode: Transmitting

Transmitting Channel	Frequency (MHz)	20 dB BW (kHz)	Limit (kHz)	Result
Low	88.1	90.00	200	Pass
Middle	99.1	106.00	200	Pass
High	107.9	116.00	200	Pass

Note: The bandwidth was tested with maximum audio input.

Low Channel



20dB 88.1MHz

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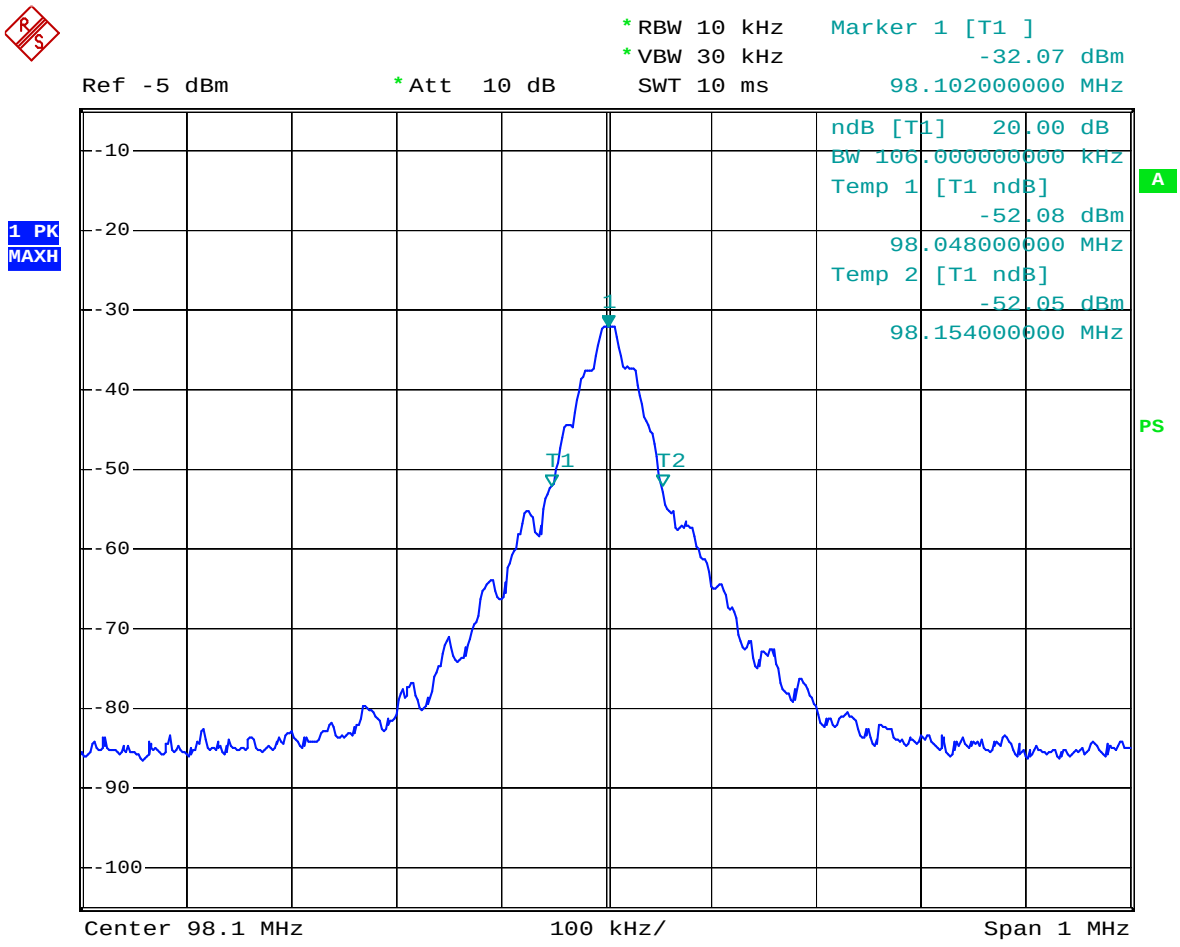
Middle Channel



20dB 98.1MHz

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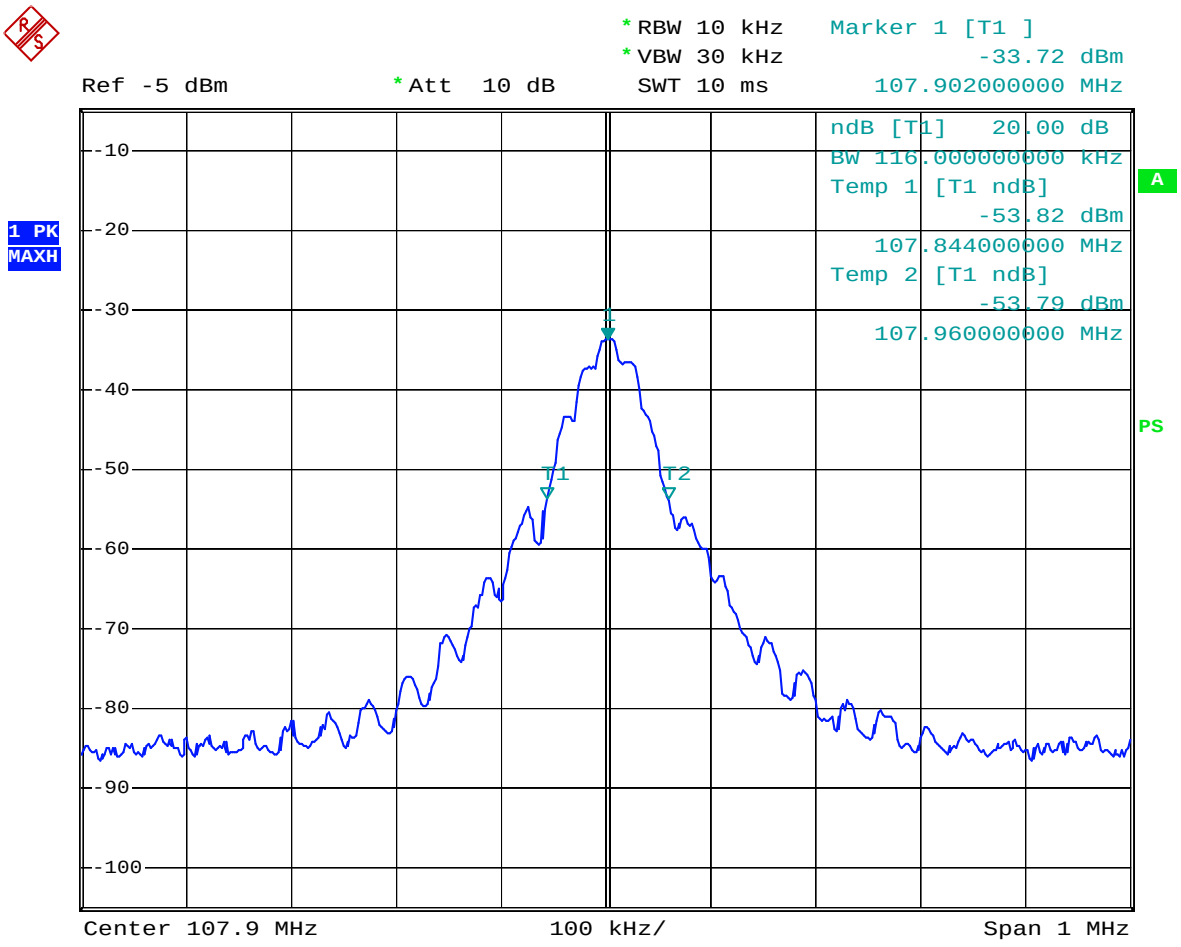
High Channel



20dB 107.9MHz

Date: 4.JUL.2008 17:35:13

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