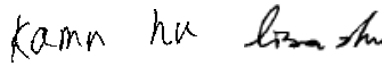


FCC PART 15.247
EMI MEASUREMENT AND TEST REPORT
For
Audex Telecom Industrial Co., Ltd.

4/F., Chuangye Center, Kangle Rd., Zhongshan Torch Hi-Tech Industrial Zone, Zhongshan China

FCC ID: P68STB2812388

February 16, 2006

This Report Concerns: ☒ Original Report	Equipment Type: Compact Stereo System
Test Engineer: Kamn Hu and Lisa Zhu 	
Report No.: RSZ05111605	
Test Date: January 17, 2006- February 7, 2006	
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 Audex Telecom Industrial Co., Ltd.'s product, model number: STB-2812 or the "EUT" as referred to in this report is a *Compact Stereo System*, which measures approximately 23.5 cm L x 7.5 cmW x 3.5 cmH, rated input voltage: Battery 6 V, USB 5V, AC 230V/50Hz.

** The test data gathered are from production sample, serial number: 0511032 provided by the manufacturer, we receive the EUT on 2005-11-16.*

Objective

This Type approval report is prepared on behalf of Audex Telecom Industrial Co., Ltd. in accordance with Part 2, Subpart J, Part 15, Subparts A, B and C of the Federal Communication Commissions rules.

The tests were performed in order to determine compliance with FCC Part 15, Subpart C, and section 15.203, 15.205, 15.209 and 15.247 rules.

Related Submittal(s)/Grant(s)

No related submittal(s).

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 emissions measurement was performed and 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 and Industrial Canada registration test site No.: 5500A. 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>

SYSTEM TEST CONFIGURATION

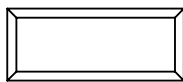
Description of Test Configuration

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

Equipment Modifications

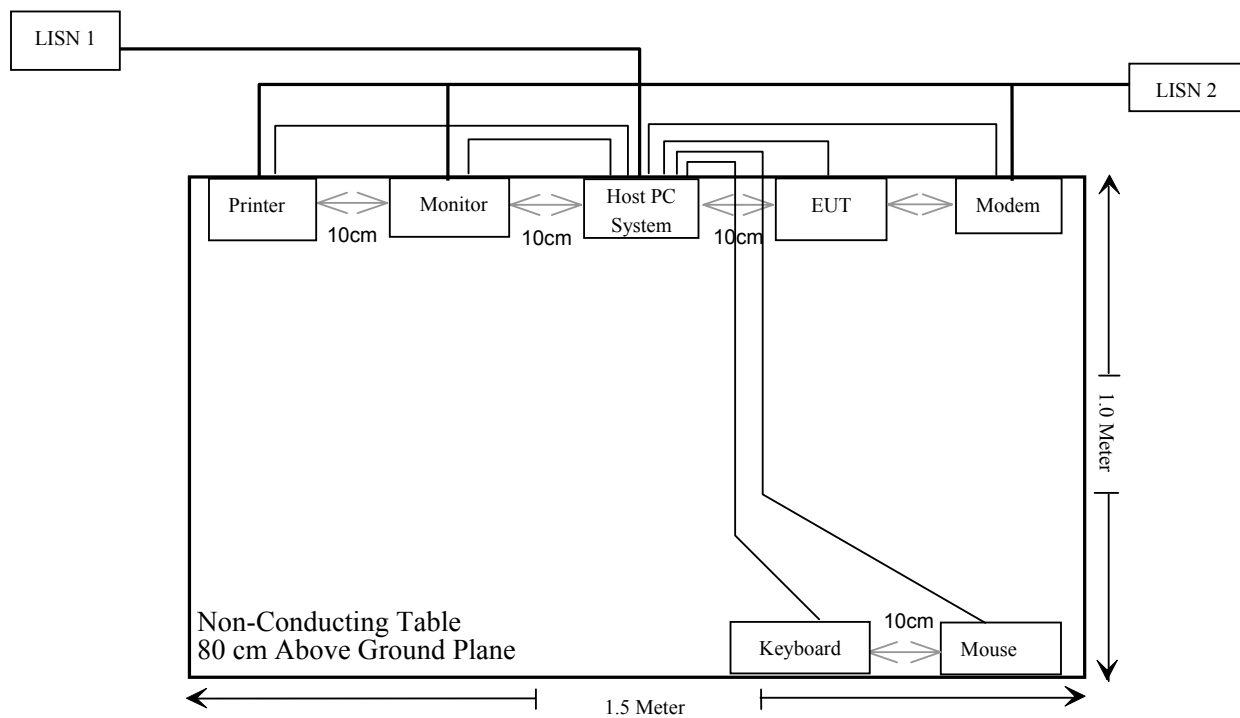
Bay Area Compliance Lab Corp. (ShenZhen) has not done any modification on the EUT.

Configuration of Test Setup



EUT

Block Diagram of Test Setup



SUMMARY OF TEST RESULTS

FCC RULES	DESCRIPTION OF TEST	RESULT
§15.203	Antenna Requirement	Compliant
§15.205	Restricted Band	Compliant
§15.205, §15.209, §15.247(d)	Radiated Emission	Compliant *
§15.247 (a)(1)	20 dB Bandwidth	Compliant
§15.247(a)(1)	Channel Separation Test	Compliant
§15.247(a)(1)(iii)	Time of occupancy (Dwell Time)	Compliant
§15.247(a)(1)(iii)	Quantity of hopping channel Test	Compliant
§15.247(b)(1)	Peak Output Power Measurement	Compliant
§15.247(d)	Band edges testing	Compliant

* Within measurement uncertainty

§15.203 - ANTENNA REQUIREMENT

Applicable Standard

According to § 15.203, 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.

And according to § 15.247 (b) (4), if transmitting antennas of directional gain greater than 6 dBi are used the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

The antenna for this device is an integral antenna with gain of -1 dBi.

§15.205, §15.209, §15.247 - RADIATED EMISSION

Applicable Standard

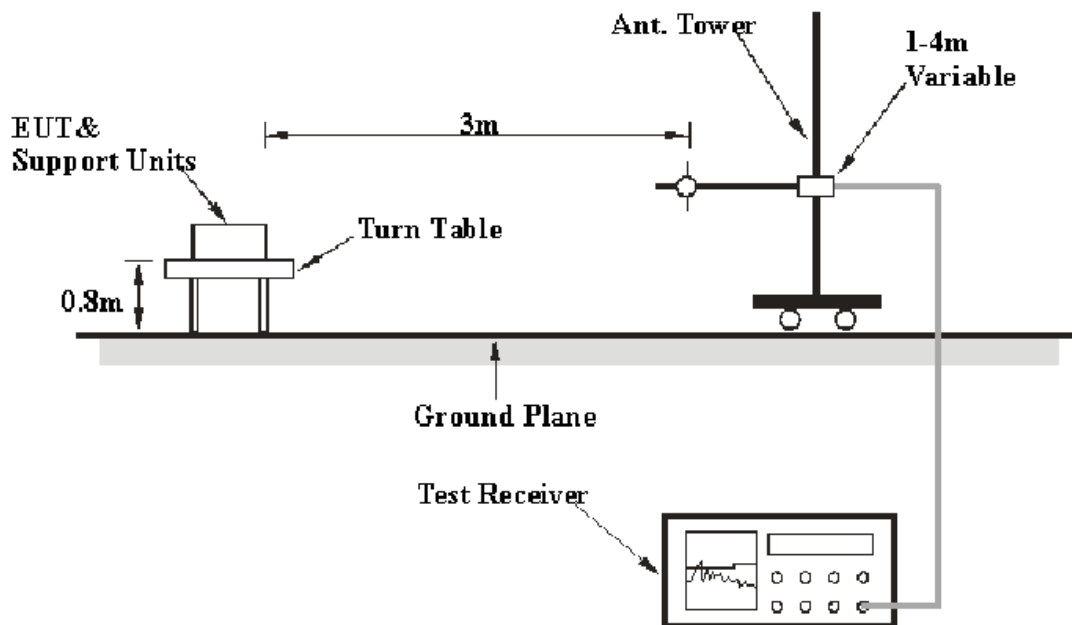
According to FCC §15.247 (d)

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 ± 4.0 dB.

EUT Setup



The radiated emission tests were performed in the 3-meter Chamber, using the setup accordance with the ANSI C63.4-2003. The specification used was the FCC 15.209 and FCC 15.247 limits.

EMI Test Receiver & Spectrum Analyzer Setup

The system was investigated from 30 MHz to 25 GHz.

During the radiated emission test, the EMI test receiver & Spectrum Analyzer Setup were set with the following configurations:

<i>Frequency Range</i>	<i>RBW</i>	<i>Video B/W</i>
30MHz – 1000 MHz	100 kHz	300 kHz
1000 MHz – 25 GHz	1 MHz	3 MHz

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
A.H. System	Horn Antenna	SAS-200/571	135	2005-4-28	2006-4-28
HP	Amplifier	HP8447D	2944A09795	2005-8-17	2006-8-17
HP	Preamplifier	8449B	3008A00277	2005-8-17	2006-8-17
Rohde & Schwarz	Spectrum Analyzer	FSEM30	849720/019	2005-11-10	2006-11-10
Rohde&Schwarz	EMI Test Receiver	ESCI	100035	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

For the radiated emissions test, the host PC and all support equipment power cords were connected to the AC floor outlet.

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

All data was recorded in the PK&AV 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 Amplitude 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 maximum limit. The equation for margin calculation is as follows:

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

Test Results Summary

According to the recorded data in following table, the EUT complied with the FCC Title 47, Part 15, Subpart C, section 15.205, 15.209, and 15.247, with the worst margin reading of:

30 -1000MHz:

Running: **-1.3 dB at 793.396 MHz** in the **Vertical** polarization, Adapter Power

Standby: **-2.0 dB at 821.710 MHz** in the **Horizontal** polarization, Adapter Power

Running: **-1.9 dB at 821.710 MHz** in the **Vertical** polarization, USB Power

Standby: **-2.1 dB at 760.704 MHz** in the **Horizontal** polarization, USB Power

1GHz-25GHz:

Low Channel: **-10.5 dB at 9608 MHz** in the **Horizontal** polarization.

Middle Channel: **-10.1 dB at 9764 MHz** in the **Horizontal** polarization.

High Channel: **-10.2 dB at 9920 MHz** in the **Horizontal** polarization.

Test Data

Environmental Conditions

Temperature:	25 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

The testing was performed by Kamn Hu on 2006-2-7.

Test Mode: Running (Adapter Power)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Meter Reading dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
30 -1000MHz											
793.396	47.6	PK	45	1.2	V	21.9	3.3	28.1	44.7	46.0	-1.3*
793.396	47.3	PK	60	1.0	H	21.9	3.3	28.1	44.4	46.0	-1.6*
821.710	47.2	PK	360	1.2	V	22.1	3.3	28.2	44.4	46.0	-1.6*
325.596	55.2	PK	120	1.5	H	14.3	1.7	27.7	43.5	46.0	-2.5*
325.596	55.2	PK	120	1.5	H	14.3	1.7	27.7	43.5	46.0	-2.5*
845.088	45.8	QP	90	1.0	H	22.3	3.4	28.2	43.3	46.0	-2.7*
212.269	53.1	QP	60	1.0	H	11.4	1.3	27.9	37.9	43.5	-5.6
212.269	53.1	QP	60	1.0	H	11.4	1.3	27.9	37.9	43.5	-5.6
207.850	52.3	QP	180	1.0	H	11.9	1.3	27.9	37.6	43.5	-5.9
207.850	52.3	QP	180	1.0	H	11.9	1.3	27.9	37.6	43.5	-5.9
189.739	52.4	QP	270	1.2	V	11.7	1.3	28.1	37.3	43.5	-6.2
184.490	52.2	QP	180	1.5	V	11.8	1.3	28.1	37.2	43.5	-6.3
204.955	50.8	QP	300	1.0	V	12.6	1.3	28.0	36.7	43.5	-6.8
168.414	51.1	QP	45	1.0	V	12.5	1.2	28.3	36.5	43.5	-7.0
192.414	51.2	QP	45	1.0	H	11.8	1.3	28.0	36.3	43.5	-7.2
192.414	51.2	QP	45	1.0	H	11.8	1.3	28.0	36.3	43.5	-7.2

Test Mode: Standby (Adapter Power)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency	Meter Reading	Comments	Angle	Height	Polar	Antenna Loss	Cable Loss	Amp. Gain	Corr. Ampl.	Limit	Margin
MHz	dBμV/m		Degree	Meter	H/ V	dB	dB	dB	dBμV/m	dBμV/m	dB
30 -1000MHz											
821.710	46.9	QP	90	1.0	H	22.1	3.3	28.2	44.1	46.0	-2.0*
734.491	47.8	QP	300	1.0	V	21.2	3.1	28.3	43.8	46.0	-2.2*
325.596	55.2	PK	60	1.0	H	14.3	1.7	27.7	43.5	46.0	-2.5*
793.396	47.6	QP	45	1.2	V	21.9	3.3	28.1	42.6	46.0	-3.4*
821.710	47.5	QP	360	1.2	V	22.1	3.3	28.2	42.6	46.0	-3.4*
252.948	56.4	PK	120	1.5	H	12.3	1.3	27.6	42.4	46.0	-3.6*
709.182	46.9	QP	270	1.2	V	20.6	3.0	28.8	41.7	46.0	-4.3
206.398	53.0	QP	180	1.5	V	11.9	1.3	27.9	38.3	43.5	-5.2
189.739	52.8	QP	180	1.0	H	11.7	1.3	28.1	37.7	43.5	-5.8
207.850	52.3	QP	60	1.0	H	11.9	1.3	27.9	37.6	43.5	-5.9
176.880	52.0	QP	45	1.0	V	11.9	1.2	28.2	36.9	43.5	-6.6
144.335	47.1	QP	45	1.0	H	13.8	1.1	28.5	33.5	43.5	-10.0

Test Mode: Running (USB Power)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency	Meter Reading	Comments	Angle	Height	Polar	Antenna Loss	Cable Loss	Amp. Gain	Corr. Ampl.	Limit	Margin
MHz	dBμV/m		Degree	Meter	H/ V	dB	dB	dB	dBμV/m	dBμV/m	dB
30 -1000MHz											
821.710	46.9	PK	90	1.0	V	22.1	3.3	28.2	44.1	46	-1.9*
684.745	48.7	PK	300	1.0	H	20.6	3.0	28.7	43.6	46	-2.4*
734.491	47.5	PK	120	1.5	V	21.2	3.1	28.3	43.5	46	-2.5*
793.356	46.2	PK	45	1.2	H	21.9	3.3	28.1	43.3	46	-2.7*
661.151	48.5	PK	60	1.0	V	20.3	2.9	28.6	43.1	46	-2.9*
325.596	54.4	QP	270	1.2	H	14.3	1.7	27.7	42.7	46	-3.3*
793.396	45.5	PK	60	1.0	V	21.9	3.3	28.1	42.6	46	-3.4*
40.559	50.5	PK	180	1.0	V	14.3	0.6	28.8	36.5	40	-3.5*
30.211	40.2	PK	45	1.0	V	24.1	0.6	28.8	36.1	40	-3.9*
821.710	44.9	QP	360	1.2	H	22.1	3.3	28.2	42.1	46	-3.9*
222.950	53.2	PK	180	1.5	H	11.5	1.3	27.8	38.2	46	-7.8
219.845	52.7	PK	45	1.0	H	11.4	1.3	27.8	37.6	46	-8.4

Test Mode: Standby (USB Power)

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Meter Reading dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
30 -1000MHz											
760.704	47.5	PK	60	1.0	H	21.3	3.2	28.1	43.9	46.0	-2.1*
793.396	46.5	PK	90	1.0	H	21.9	3.3	28.1	43.6	46.0	-2.4*
684.745	48.7	PK	270	1.2	V	20.6	3.0	28.7	43.6	46.0	-2.4*
40.559	51.5	PK	45	1.0	V	14.3	0.6	28.8	37.5	40.0	-2.5*
301.422	55.3	PK	60	1.0	H	13.9	1.6	27.7	43.1	46.0	-2.9*
661.151	48.3	PK	180	1.5	V	20.3	2.9	28.6	42.9	46.0	-3.1*
760.704	46.3	QP	45	1.2	V	21.3	3.2	28.1	42.7	46.0	-3.3*
793.396	45.4	QP	360	1.2	V	21.9	3.3	28.1	42.5	46.0	-3.5*
734.491	46.2	QP	300	1.0	V	21.2	3.1	28.3	42.2	46.0	-3.8*
325.956	53.8	QP	120	1.5	H	14.3	1.7	27.7	42.1	46.0	-3.9*
204.955	50.2	PK	45	1.0	H	12.6	1.3	28.0	36.1	43.5	-7.4
230.907	51.7	PK	180	1.0	H	11.7	1.3	27.7	37.0	46.0	-9.0

* Within measurement uncertainty

Test mode: Transmitting

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Meter Reading dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Low Channel (1GHz-25GHz)											
9608	32.58	AV(harmonic)	60	1.0	H	38.0	7.0	34.1	43.5	54	-10.5
9608	32.20	AV(harmonic)	60	1.0	V	38.0	7.0	34.1	43.1	54	-10.9
7206	32.06	AV(harmonic)	180	1.2	V	35.8	6.0	33.7	40.2	54	-13.8
7206	31.46	AV(harmonic)	180	1.2	H	35.8	6.0	33.7	39.6	54	-14.4
9608	46.43	PK(harmonic)	45	1.2	H	38.0	7.0	34.1	57.3	74	-16.7
4804	31.56	AV (harmonic)	60	1.0	H	33.8	5.2	33.4	37.2	54	-16.8
4804	31.43	AV(harmonic)	60	1.0	V	33.8	5.2	33.4	37.0	54	-17.0
9608	45.75	PK(harmonic)	45	1.2	V	38.0	7.0	34.1	56.7	74	-17.4
7206	45.05	PK(harmonic)	45	1.2	H	35.8	6.0	33.7	53.2	74	-20.9
7206	44.94	PK(harmonic)	45	1.2	V	35.8	6.0	33.7	53.0	74	-21.0
4804	45.33	PK (harmonic)	45	1.0	H	33.8	5.2	33.4	50.9	74	-23.1
4804	45.31	PK(harmonic)	45	1.0	V	33.8	5.2	33.4	50.9	74	-23.1
2402	94.02	PK (fundamental)	45	1.0	H	28.1	3.7	35.0	90.8		
2402	80.60	AV (fundamental)	180	1.2	H	28.1	3.7	35.0	77.4		
2402	91.48	PK (fundamental)	45	1.0	V	28.1	3.7	35.0	88.3		
2402	78.15	AV (fundamental)	180	1.2	V	28.1	3.7	35.0	75.0		

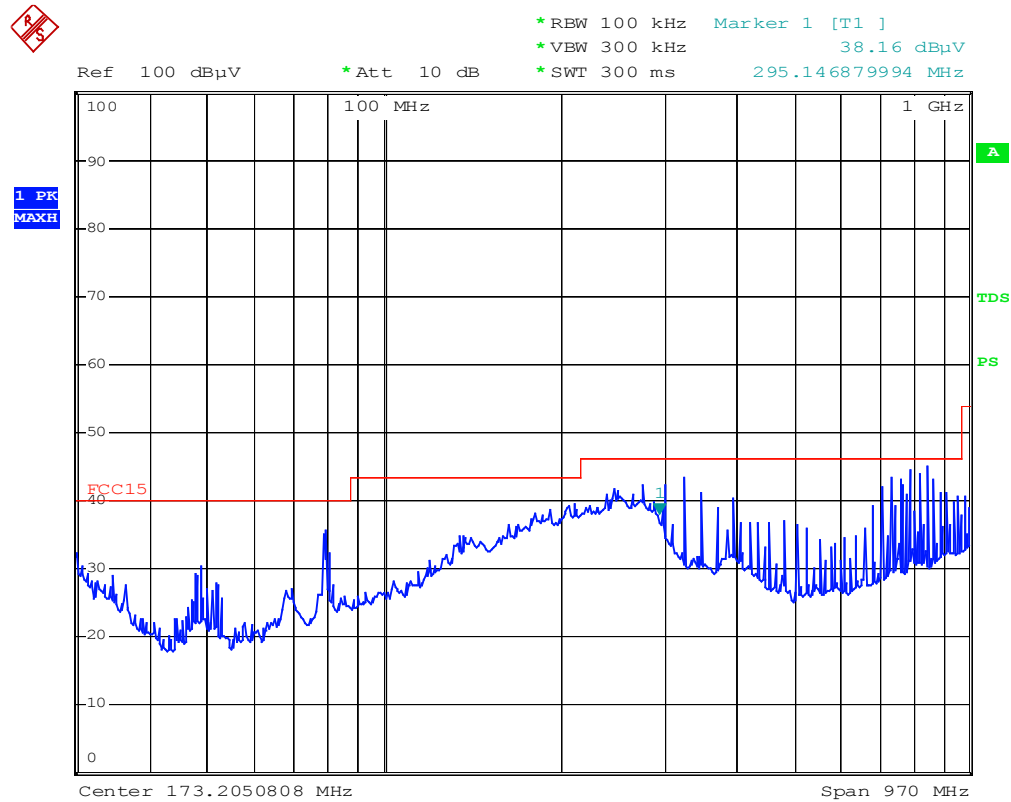
Test mode: Transmitting

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Meter Reading dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
Middle Channel (1GHz-25GHz)											
9764	33.02	AV(harmonic)	60	1.0	H	38.0	7.0	34.1	43.9	54	-10.1
9764	32.58	AV(harmonic)	60	1.0	V	38.0	7.0	34.1	43.5	54	-10.5
7323	31.48	AV(harmonic)	180	1.2	H	35.8	6.1	33.7	39.7	54	-14.3
7323	31.45	AV(harmonic)	180	1.2	V	35.8	6.1	33.7	39.7	54	-14.4
9764	47.54	PK(harmonic)	45	1.2	V	38.0	7.0	34.1	58.4	74	-15.6
4882	31.52	AV (harmonic)	60	1.0	H	33.8	5.2	33.4	37.1	54	-16.9
9764	46.21	PK(harmonic)	45	1.2	H	38.0	7.0	34.1	57.1	74	-16.9
4882	31.46	AV(harmonic)	60	1.0	V	33.8	5.2	33.4	37.1	54	-16.9
7323	45.35	PK(harmonic)	45	1.2	H	35.8	6.1	33.7	53.6	74	-20.5
7323	44.63	PK(harmonic)	45	1.2	V	35.8	6.1	33.7	52.8	74	-21.2
4882	45.87	PK(harmonic)	45	1.0	V	33.8	5.2	33.4	51.5	74	-22.5
4882	45.47	PK (harmonic)	45	1.0	H	33.8	5.2	33.4	51.1	74	-22.9
2441	91.91	PK (fundamental)	45	1.0	H	28.1	3.7	35.0	88.7		
2441	78.76	AV (fundamental)	180	1.2	H	28.1	3.7	35.0	75.6		
2441	89.17	PK (fundamental)	45	1.0	V	28.1	3.7	35.0	86.0		
2441	75.64	AV (fundamental)	180	1.2	V	28.1	3.7	35.0	72.4		

Test mode: Transmitting

INDICATED			TABLE	ANTENNA		CORRECTION FACTOR			CORRECTED AMPLITUDE	FCC 15 SUBPART C	
Frequency MHz	Meter Reading dBμV/m	Comments	Angle Degree	Height Meter	Polar H/ V	Antenna Loss dB	Cable Loss dB	Amp. Gain dB	Corr. Ampl. dBμV/m	Limit dBμV/m	Margin dB
High Channel (1GHz-25GHz)											
9920	33.02	AV(harmonic)	60	1.0	H	37.6	7.3	34.1	43.8	54	-10.2
9920	32.26	AV(harmonic)	60	1.0	V	37.6	7.3	34.1	43.1	54	-10.9
7440	31.43	AV(harmonic)	180	1.2	H	35.8	6.1	33.7	39.6	54	-14.4
7440	31.43	AV(harmonic)	180	1.2	V	35.8	6.1	33.7	39.6	54	-14.4
9920	46.40	PK(harmonic)	45	1.2	H	37.6	7.3	34.1	57.2	74	-16.8
4960	31.43	AV (harmonic)	60	1.0	H	33.8	5.2	33.4	37.0	54	-17.0
4960	31.43	AV(harmonic)	60	1.0	V	33.8	5.2	33.4	37.0	54	-17.0
9920	44.59	PK(harmonic)	45	1.2	V	37.6	7.3	34.1	55.4	74	-18.6
7440	44.69	PK(harmonic)	45	1.2	V	35.8	6.1	33.7	52.9	74	-21.1
7440	44.50	PK(harmonic)	45	1.2	H	35.8	6.1	33.7	52.7	74	-21.3
4960	45.59	PK(harmonic)	45	1.0	V	33.8	5.2	33.4	51.2	74	-22.8
4960	44.30	PK (harmonic)	45	1.0	H	33.8	5.2	33.4	49.9	74	-24.1
2480	90.62	PK (fundamental)	45	1.0	H	28.1	3.7	35.0	87.4		
2480	76.44	AV (fundamental)	180	1.2	H	28.1	3.7	35.0	73.2		
2480	86.52	PK (fundamental)	45	1.0	V	28.1	3.7	35.0	83.3		
2480	73.99	AV (fundamental)	180	1.2	V	28.1	3.7	35.0	70.8		

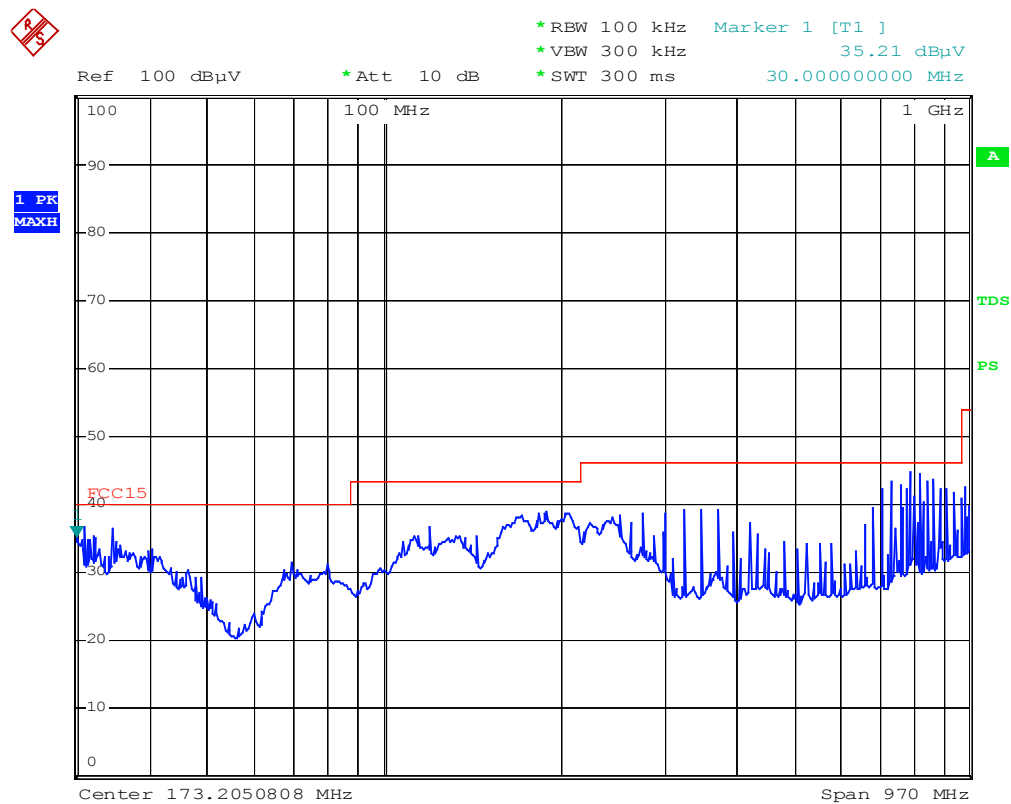
Horizontal:



AUDEX STB 2812 ADAPTER POWER RUNNING H

Date: 7.FEB.2006 15:26:06

Vertical:

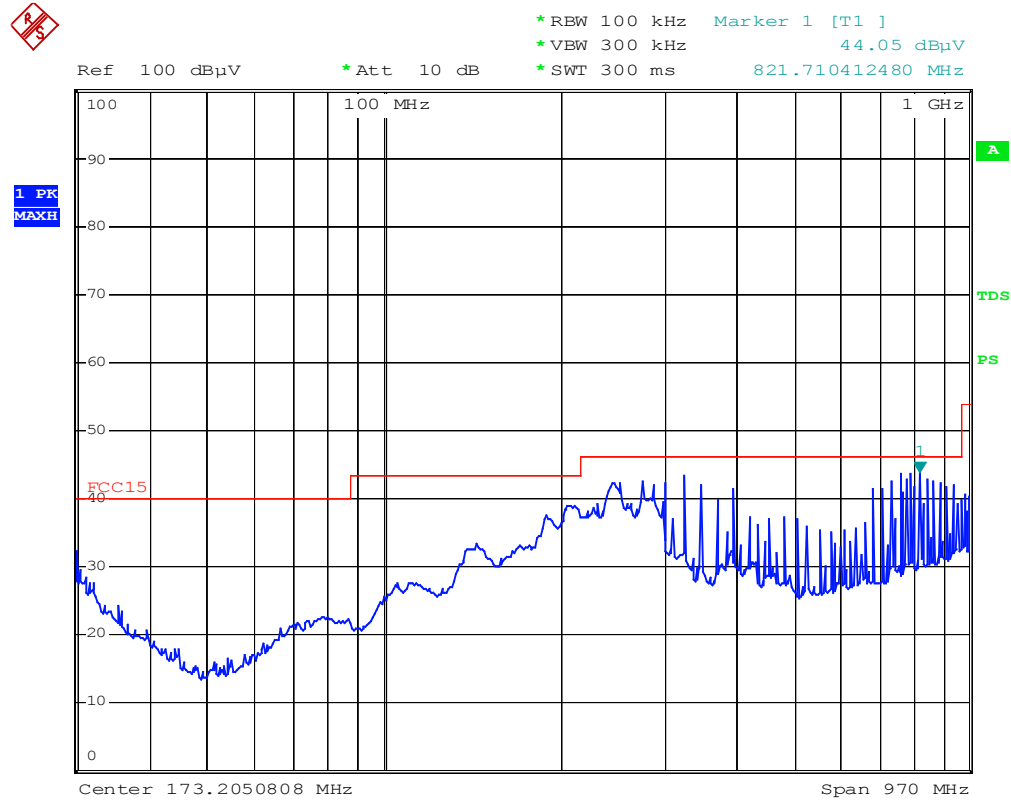


AUDEX STB 2812 ADAPTER POWER RUNNING V

Date: 7.FEB.2006 15:35:35

Test Mode: Standby (Adapter Power)

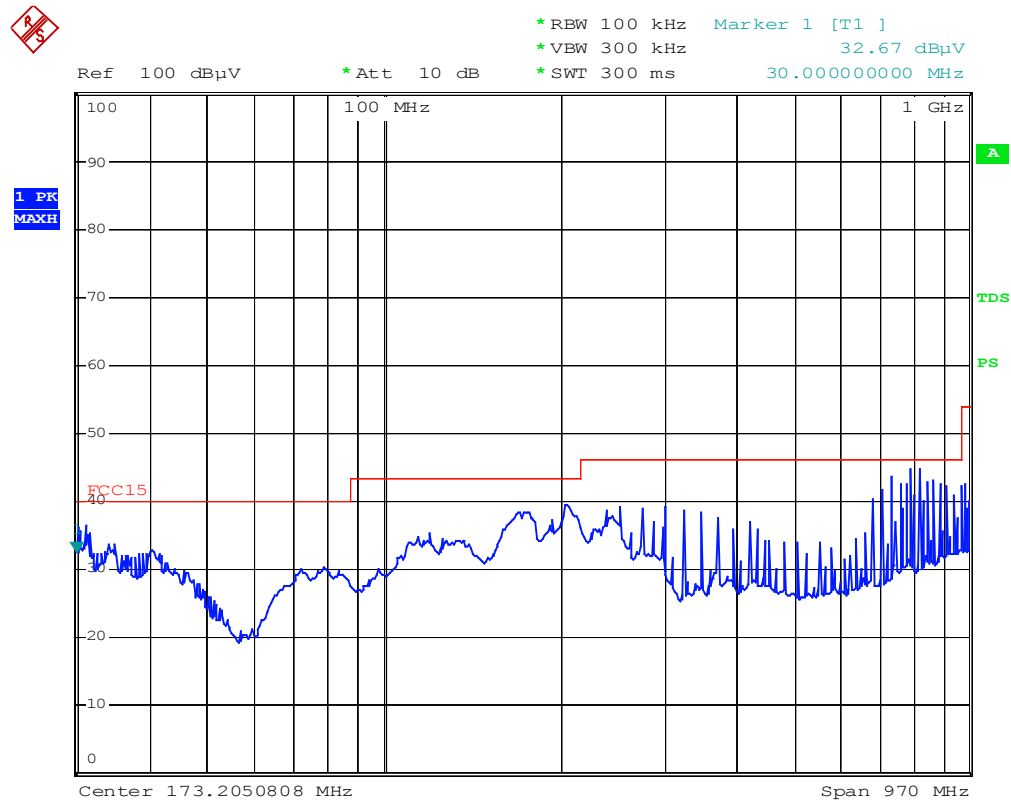
Horizontal:



AUDEX STB 2812 ADAPTER POWER STANDBY H

Date: 7.FEB.2006 14:25:21

Vertical:

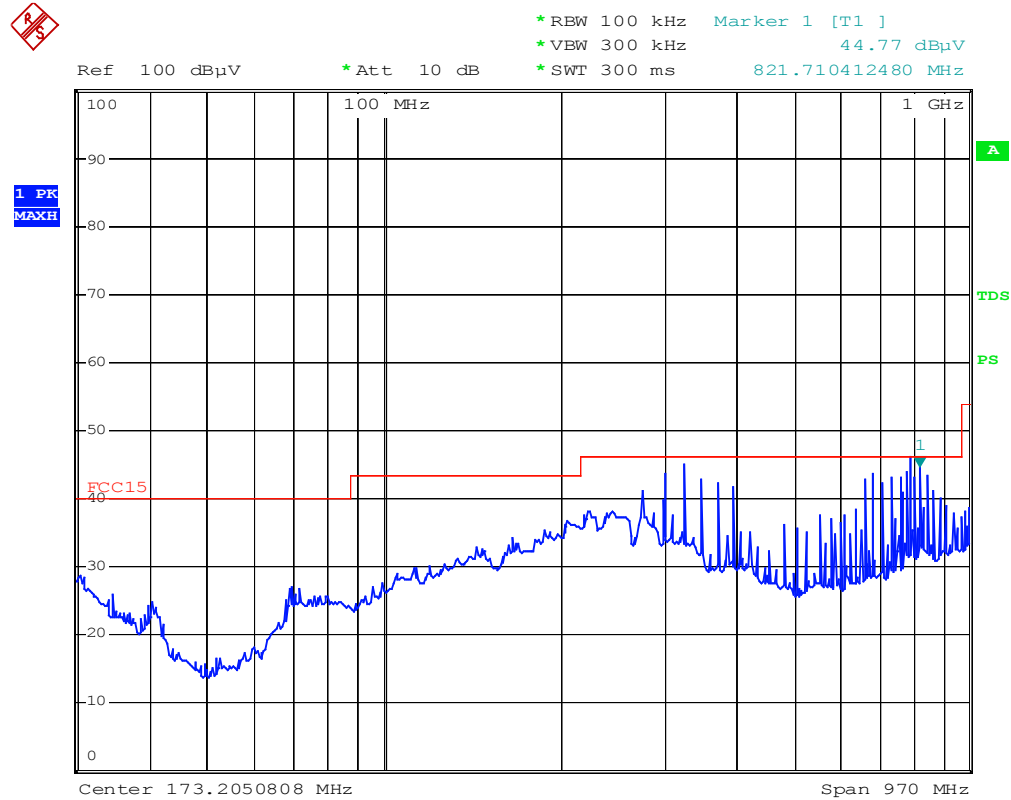


AUDEX STB 2812 ADAPTER POWER STANDBY V

Date: 7.FEB.2006 14:44:52

Test Mode: Running (USB Power)

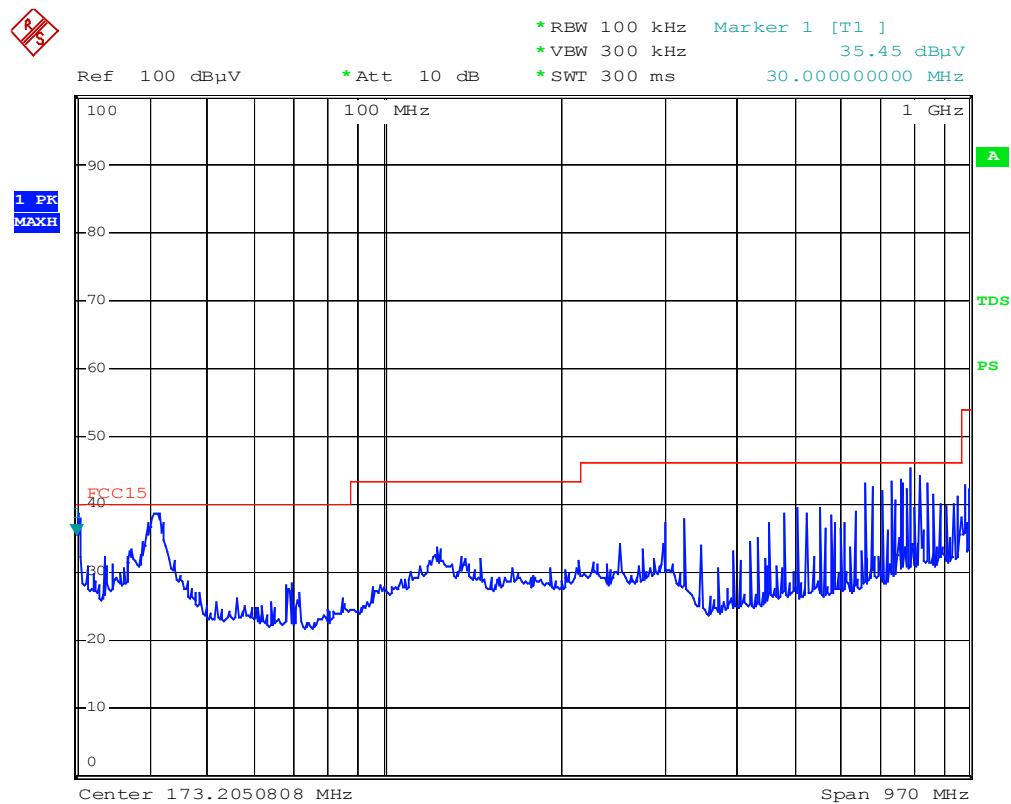
Horizontal:



AUDEX STB 2812 USB POWER RUNNING H

Date: 7.FEB.2006 17:06:16

Vertical:

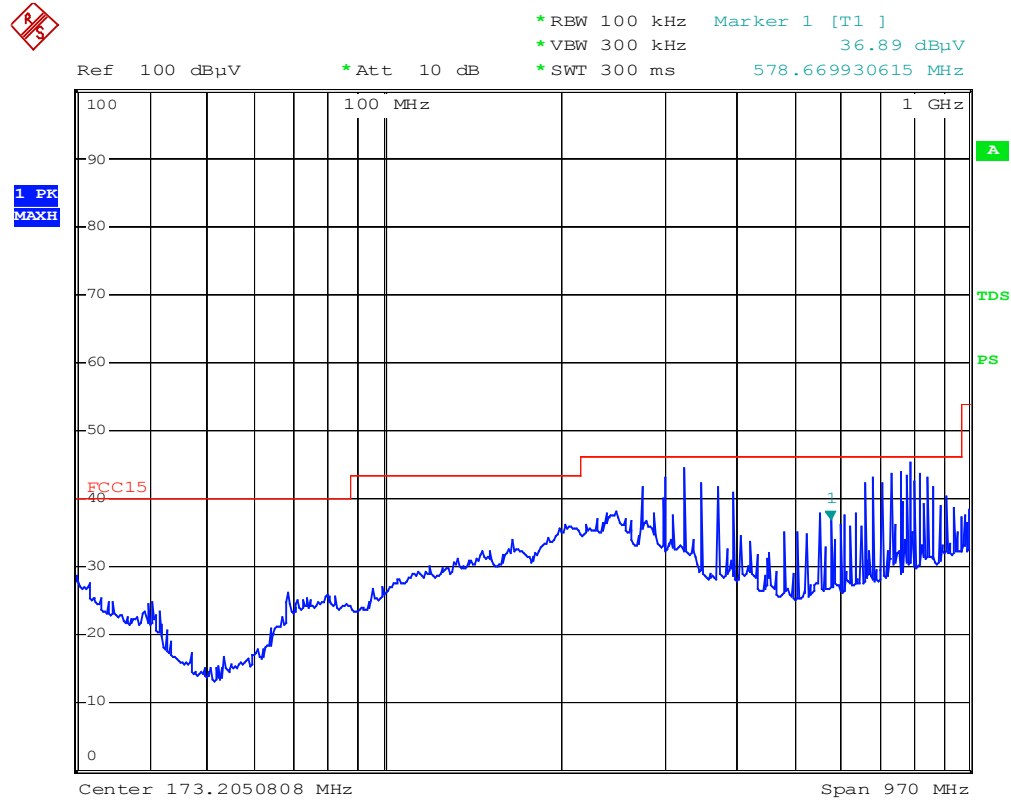


AUDEX STB 2812 USB POWER RUNNING V

Date: 7.FEB.2006 16:49:42

Test Mode: Standby (USB Power)

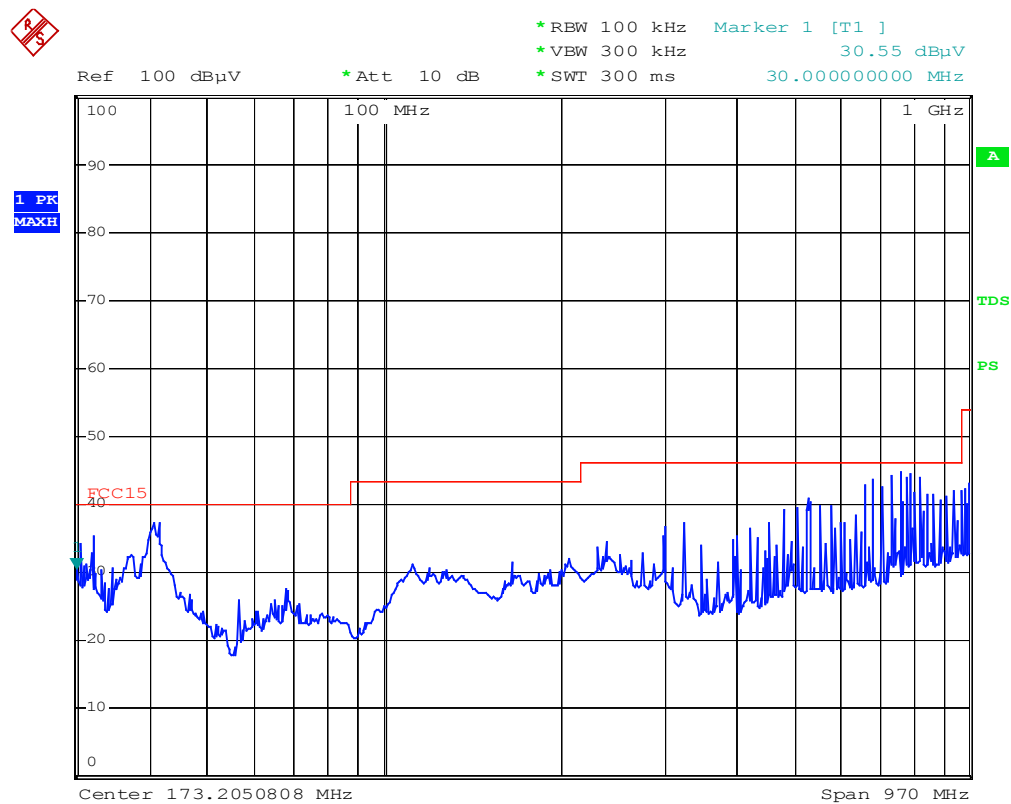
Horizontal:



AUDEX STB 2812 USB POWER STANDBY H

Date: 7.FEB.2006 17:31:01

Vertical:



AUDEX STB 2812 USB POWER STANDBY V

Date: 7.FEB.2006 17:40:50

§15.247(a)(1)-CHANNEL SEPARATION TEST

Applicable Standard

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20dB bandwidth of the hopping channel, whichever is greater provided the systems operate with an output power no greater than 125 mW.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100028	2005-8-17	2006-8-17

* **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

1. Set the EUT in transmitting mode, spectrum Bandwidth was set at 100 kHz, maxhold the channel.
2. Set the adjacent channel of the EUT maxhold another truce
3. Measure the channel separation.

Limit

FCC Part 15, Subpart C Section 15.247(a)(1). Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB Bandwidth of the hopping channel, whichever is greater.

FREQUENCY RANGE (MHz)	Limit (kHz)
902-928	>25kHz or the 20dB bandwidth
2400-2483.5	>25kHz or two-thirds of the 20dB bandwidth
5725-5850	>25kHz or the 20dB bandwidth

Test Data

Environmental Conditions

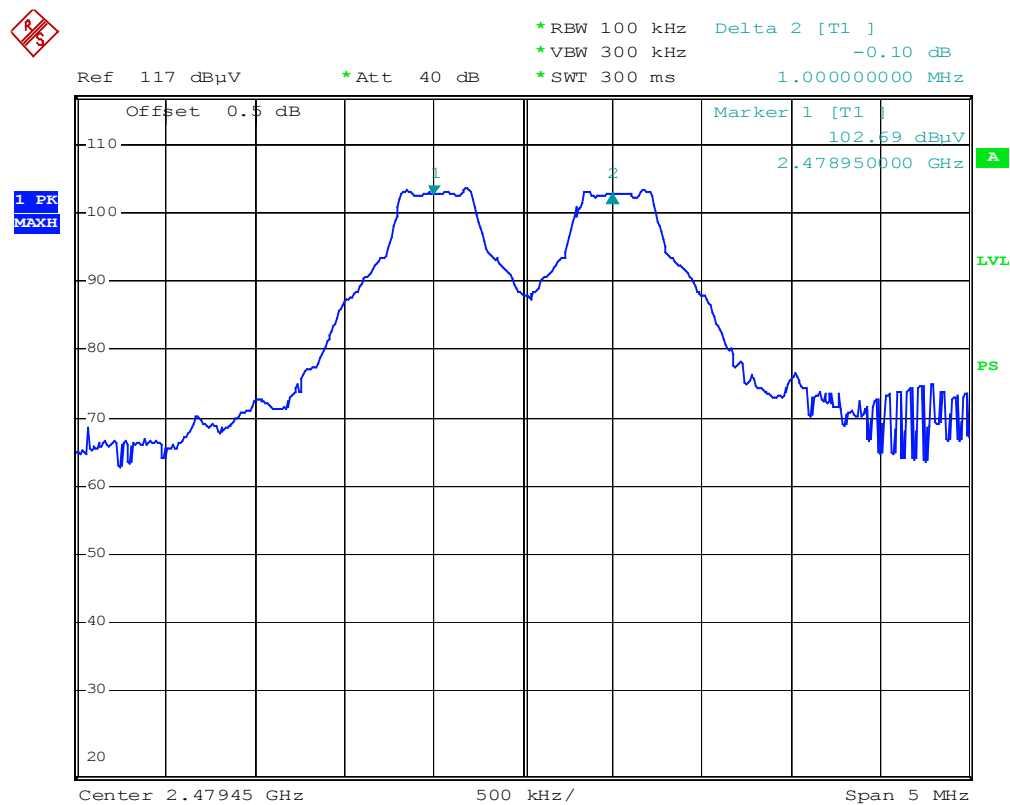
Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Kamn Hu on 2006-1-17.

Test Result: Pass

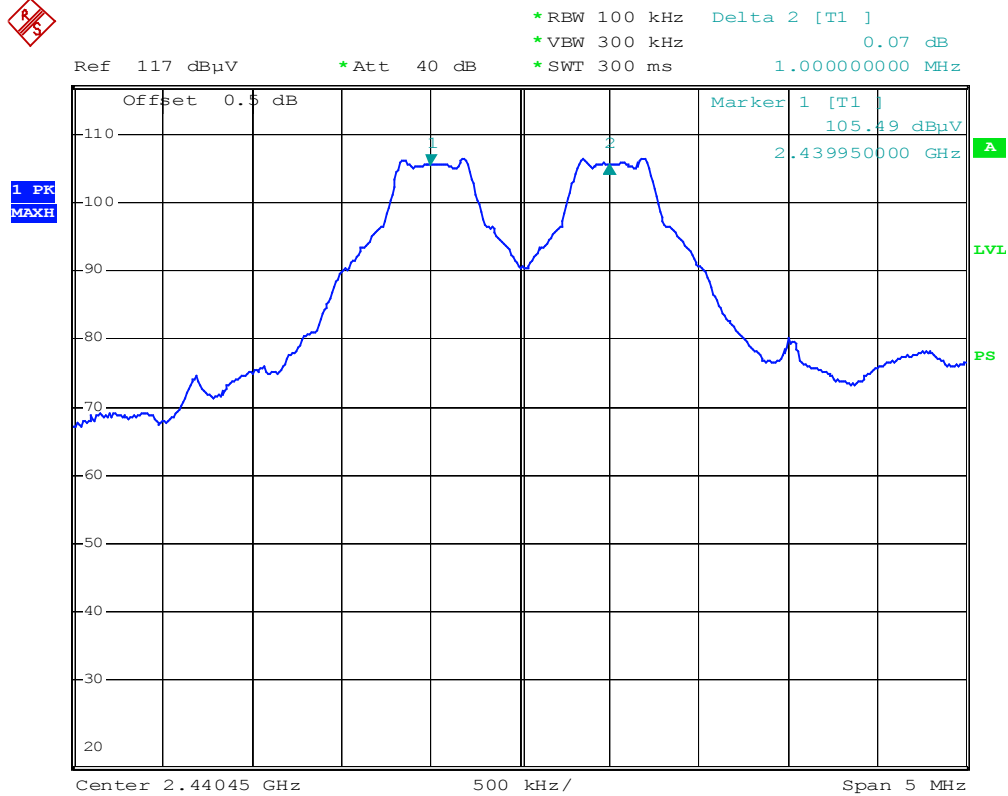
Test mode: Transmitting

CHANNEL	CHANNEL FREQUENCY (MHz)	SEPARATION READ VALUE (kHz)	SEPARATION LIMIT (kHz)
Low Channel	2402	1000	>766.667
Adjacency Channel	2403		
Middle Channel	2441	1000	>760.000
Adjacency Channel	2442		
High Channel	2479	1000	>760.000
Adjacency Channel	2480		



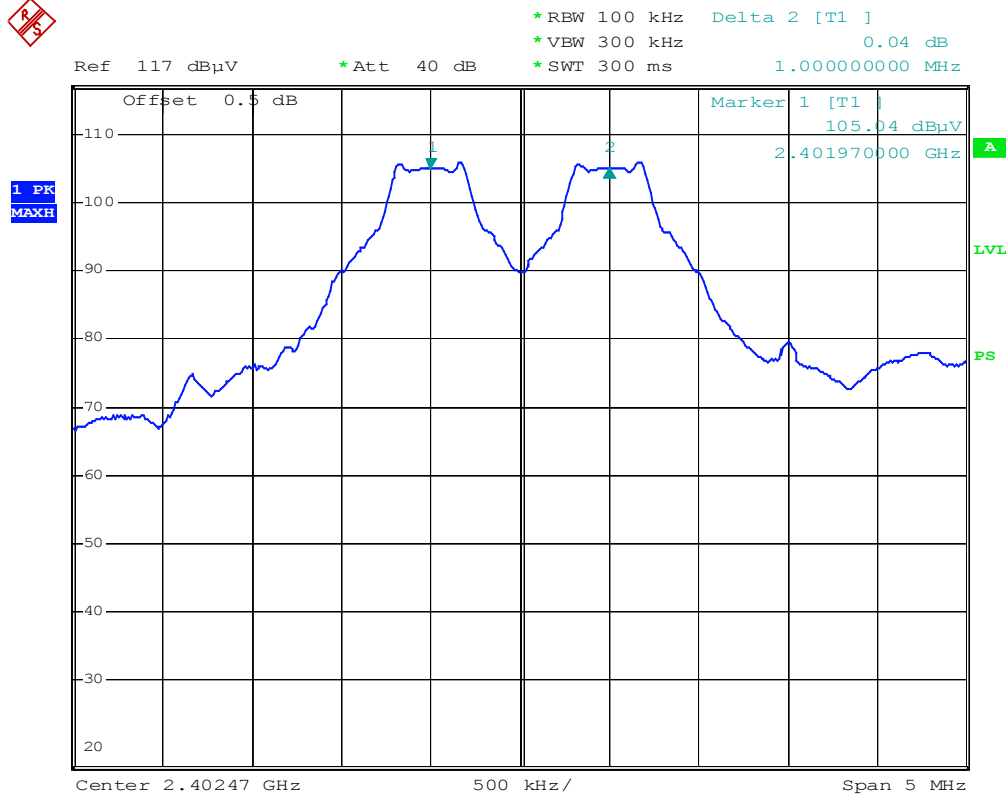
Audex ADB-2812 CHANNEL SEPARATION HIGH CH

Date: 17.JAN.2006 10:38:06



Audex ADB-2812 CHANNEL SEPARATION MID CH

Date: 17.JAN.2006 10:34:00



Audex ADB-2812 CHANNEL SEPARATION LOW CH

Date: 17.JAN.2006 10:29:40

§15.247(a)(1) –20dB BANDWIDTH TESTING

Applicable Standard

Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20dB Bandwidth of the hopping channel, whichever is greater.

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

* **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

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect it to measurement instrument. Then set it to any one convenient frequency within its operating range. Set a reference level on the measuring instrument equal to the highest peak value.
3. Measure the frequency difference of two frequencies that were attenuated 20 dB from the reference level. Record the frequency difference as the emission bandwidth.
4. Repeat above procedures until all frequencies measured were complete.

Test Data

Environmental Conditions

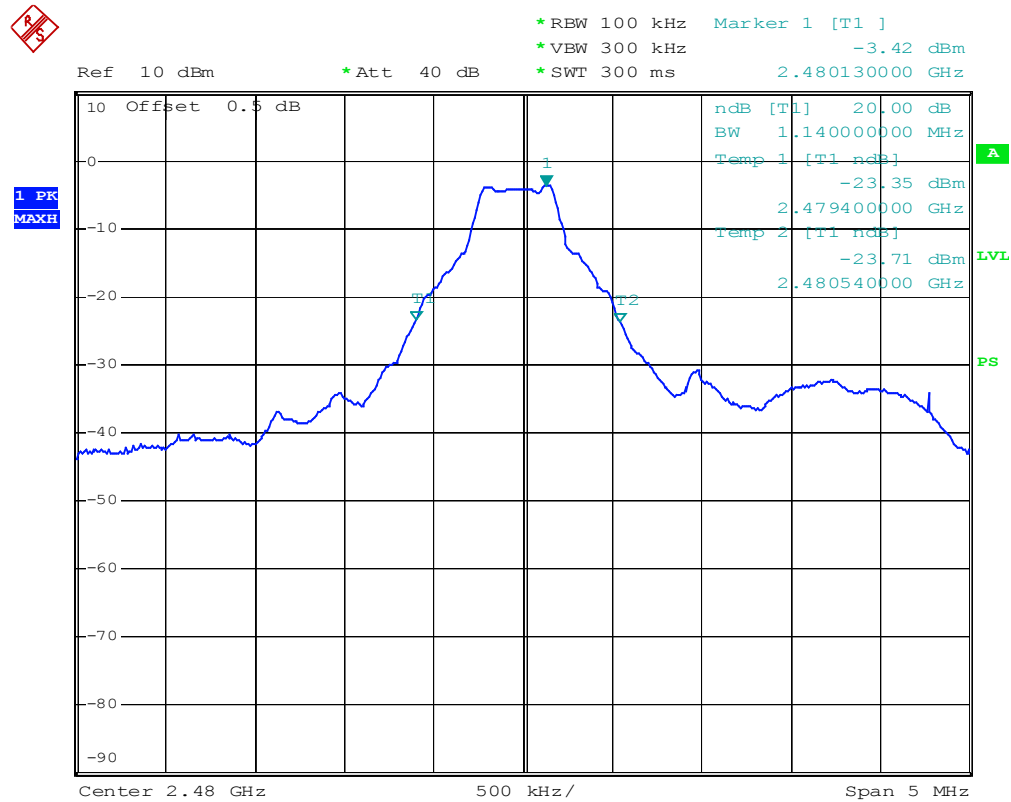
Temperature:	25 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

The testing was performed by Kamn Hu on 2006-1-17.

Test Mode: Transmitting

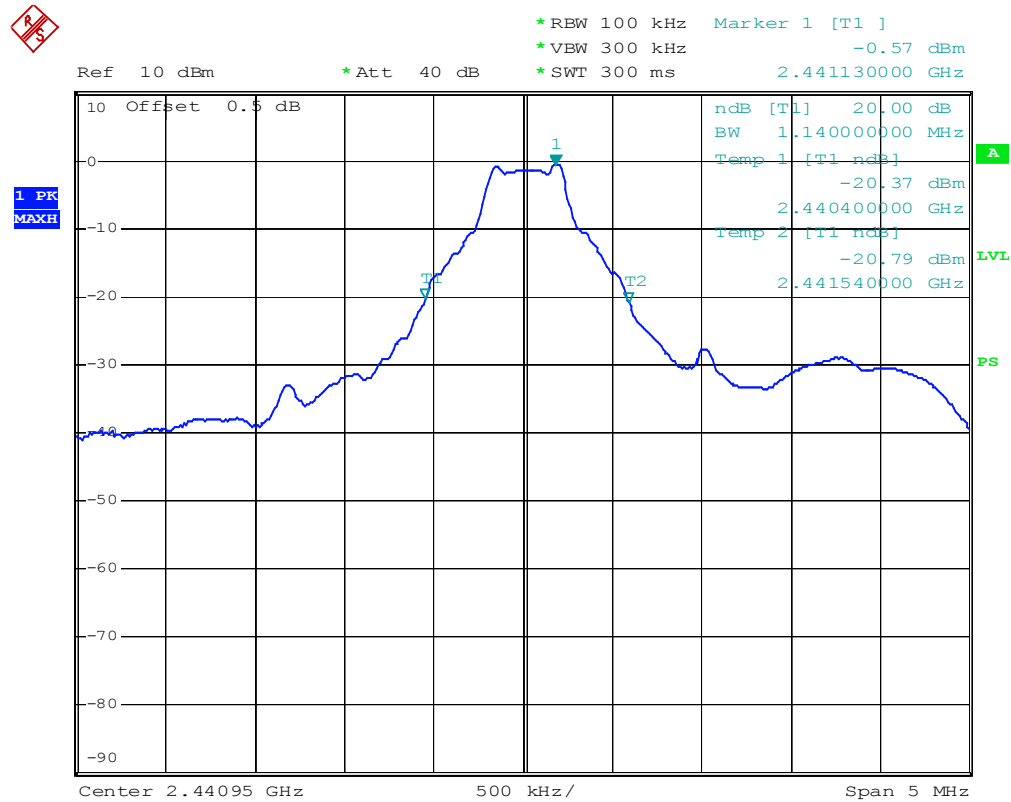
Channel	Channel frequency (MHz)	20dB Bandwidth (kHz)
Low Channel	2402	1150
Middle Channel	2441	1140
High Channel	2480	1140

Test Result: Pass



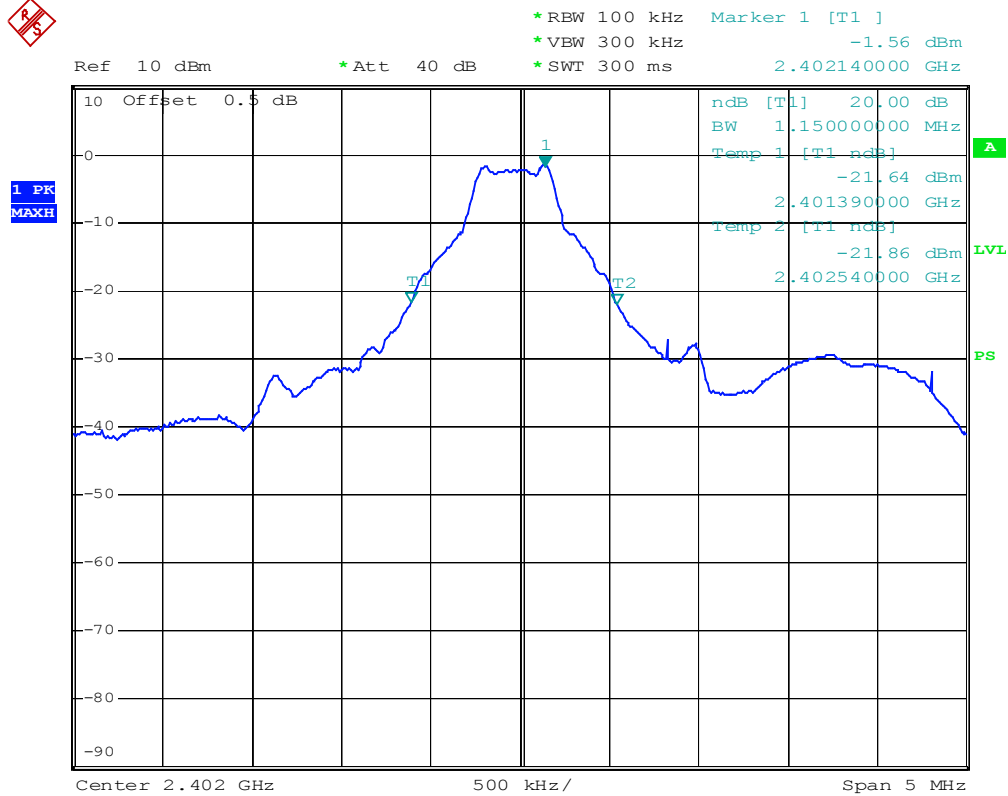
Audex ADB-2812 20dB BW HIGH CH

Date: 17.JAN.2006 08:43:31



Audex ADB-2812 20dB BW MID CH

Date: 17.JAN.2006 08:41:32



Audex ADB-2812 20dB BW LOW CH

Date: 17.JAN.2006 08:42:24

§15.247(a)(1)(iii)-QUANTITY OF HOPPING CHANNEL TEST

Applicable Standard

Frequency hopping systems in the 2400–2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2004-9-15	2005-9-15

* **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

1. Check the calibration of the measuring instrument (SA) using either an internal calibrator or a known signal from an external generator.
2. Set the EUT in transmitting mode from first channel to last.
3. By using the Max-Hold function record the Quantity of the channel.

Limit

FCC Part 15, Subpart C Section 15.247

FREQUENCY RANGE (MHz)	Limit (Quantity of Hopping Channel)			
	20 dB bandwidth <250 kHz	20 dB bandwidth >250 kHz	20 dB bandwidth <1 MHz	20 dB bandwidth >1 MHz
902-928	50	25	N/A	N/A
2400-2483.5	N/A	N/A	≥15	≥15
5725-5850	N/A	N/A	N/A	N/A

Test Data

Environmental Conditions

Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

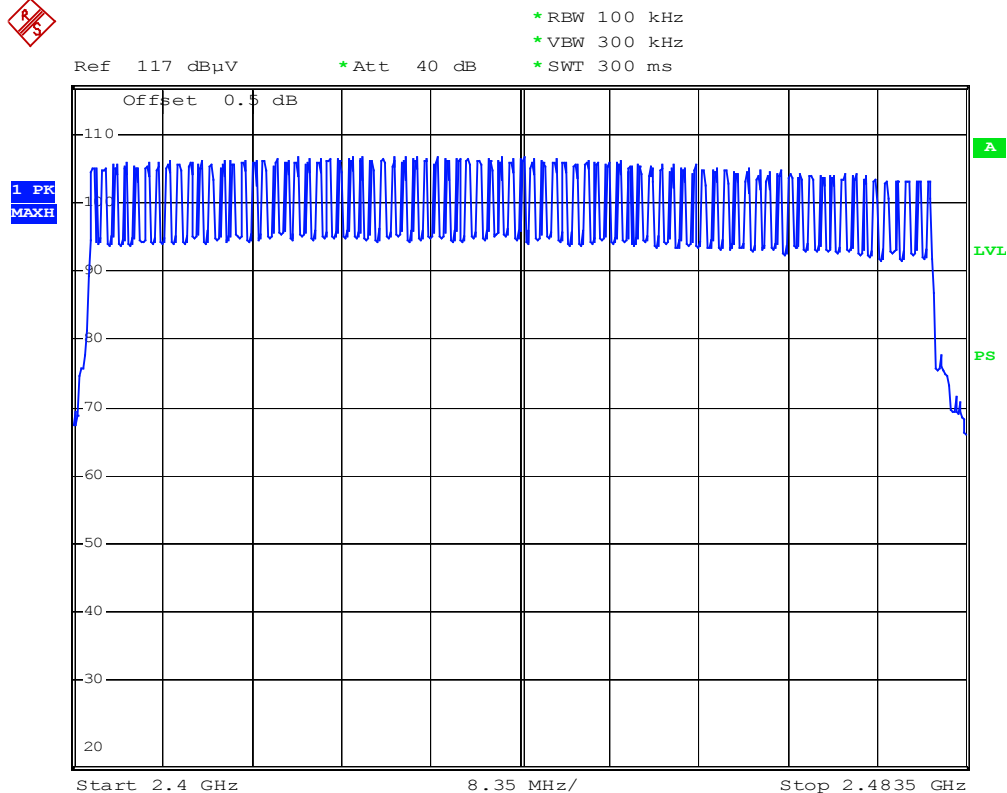
The testing was performed by Kamn Hu on 2006-1-17.

Test mode: Transmitting

The frequency hopping systems operating in 2.402~2.480 GHz band employ 79 nonoverlapping channels.

Hopping Channel Frequency Range (MHz)	Quantity OF hopping Channel Read Value (Channel)	Quantity Of Hopping channel limit (Channel)
2402.0 ~ 2480.0	79	>15

Test Result: Pass



Audex ADB-2812 QUANTITY OF HOPPING CHANNEL 79

Date: 17.JAN.2006 11:12:19

§15.247(a)(1)(iii) - TIME OF OCCUPANCY (DWELL TIME)**Applicable Standard**

Frequency hopping systems in the 2400-2483.5 MHz shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

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

* **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

The EUT was worked in channel hopping; Spectrum SPAN was set as 0. Sweep was set as 0.4 X channel no.(s), The quantity of False was get from single sweep. In addition, the time of single Pluses was tested.

Limit

FCC Part 15, Subpart C Section 15.247.

FREQUENCY RANGE (MHz)	LIMIT (ms)		
	20dB bandwidth <250kHz (50 Channel)	20dB bandwidth >250kHz (50 Channel)	20dB bandwidth <1 MHz (79 Channel)
902-928	N/A	N/A	N/A
2400-2483.5	N/A	N/A	31.6s
5725-5850	N/A	N/A	N/A

Test Data**Environmental Conditions**

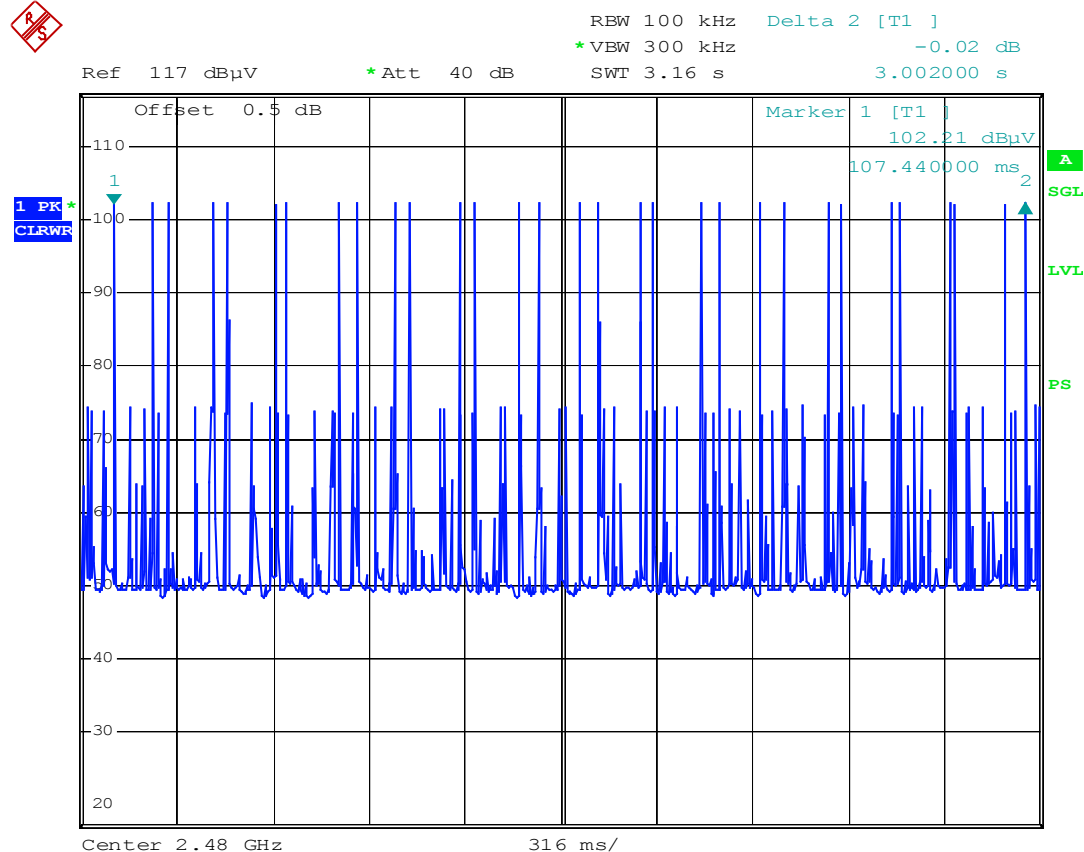
Temperature:	27 °C
Relative Humidity:	50 %
ATM Pressure:	1009 mbar

The testing was performed by Kamn Hu on 2006-1-17.

Test mode: Transmitting

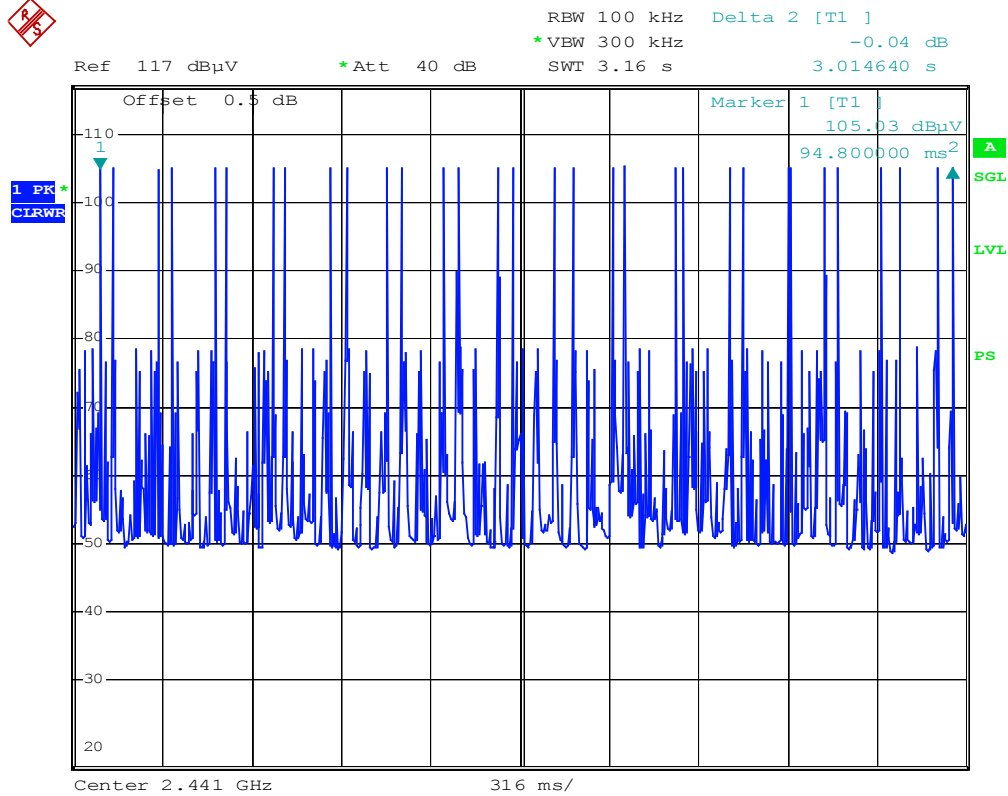
Channel	Frequency (MHz)	Pulse Wide m Sec	Number of hopping Pluses in 0.4*channel number	Dwell Time Sec	Limit Sec
Low channel	2402	0.42	310	0.13	0.4
Middle channel	2441	0.42	310	0.13	0.4
High channel	2480	0.42	310	0.13	0.4

Test Result: Pass



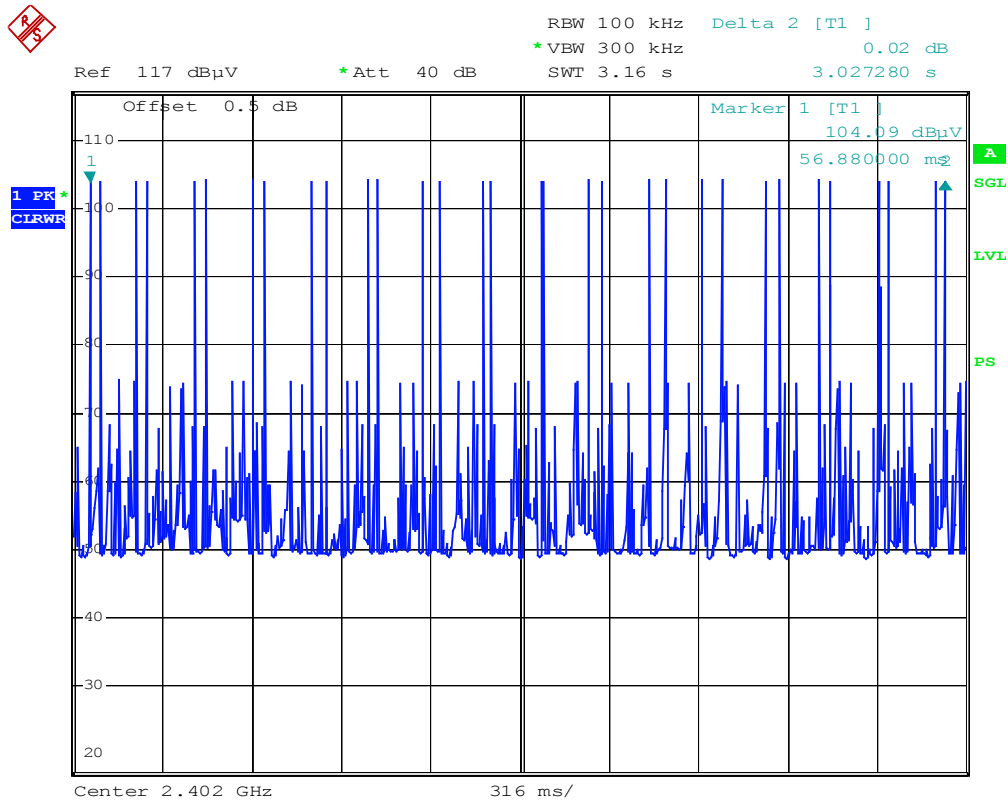
Audex ADB-2812 NO. OF PLUSES HIGH CH

Date: 17.JAN.2006 11:43:14



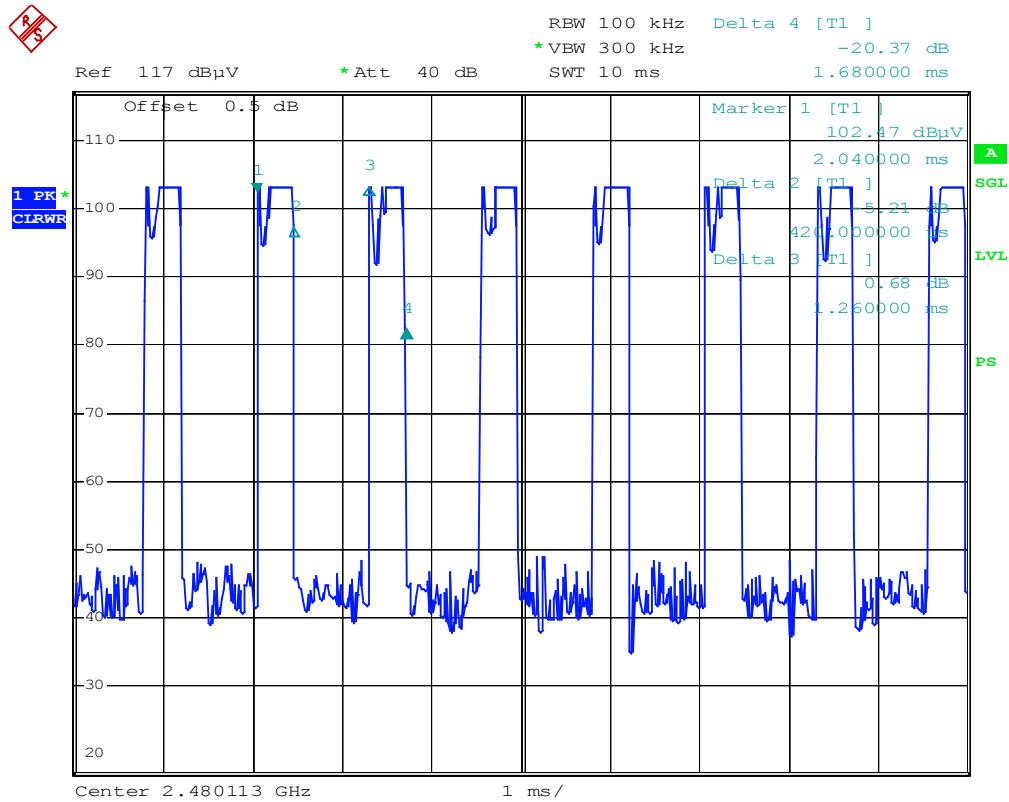
Audex ADB-2812 NO. OF PLUSES MID CH

Date: 17.JAN.2006 11:47:36



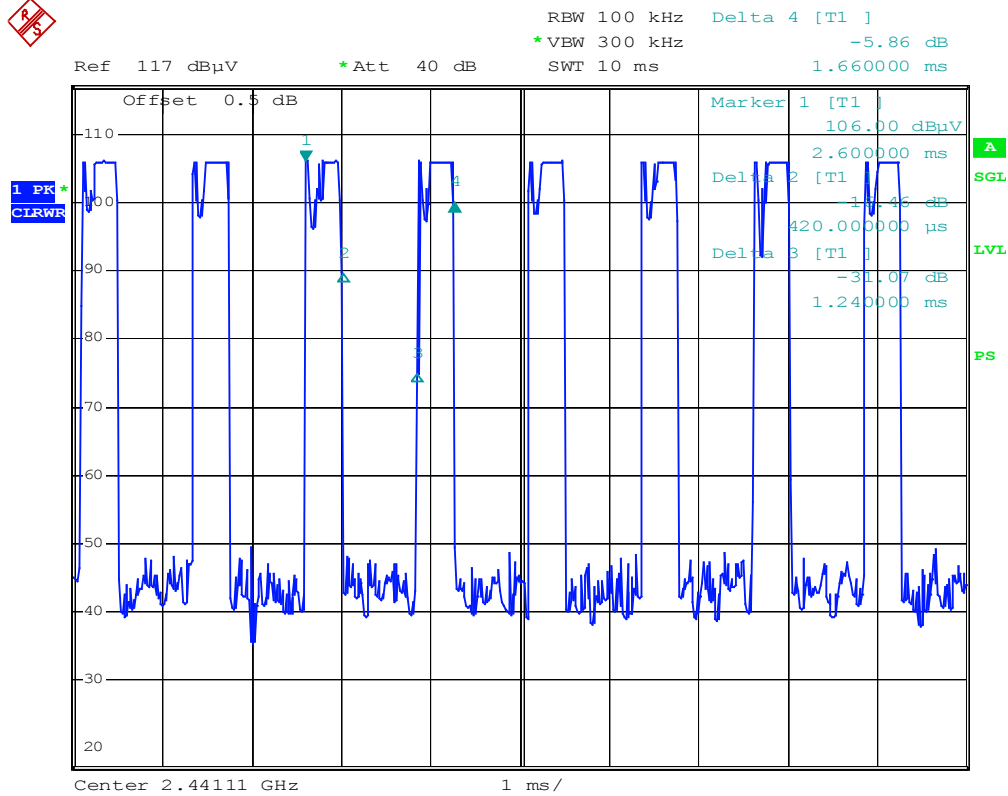
Audex ADB-2812 NO. OF PUSES LOW CH

Date: 17.JAN.2006 11:45:05



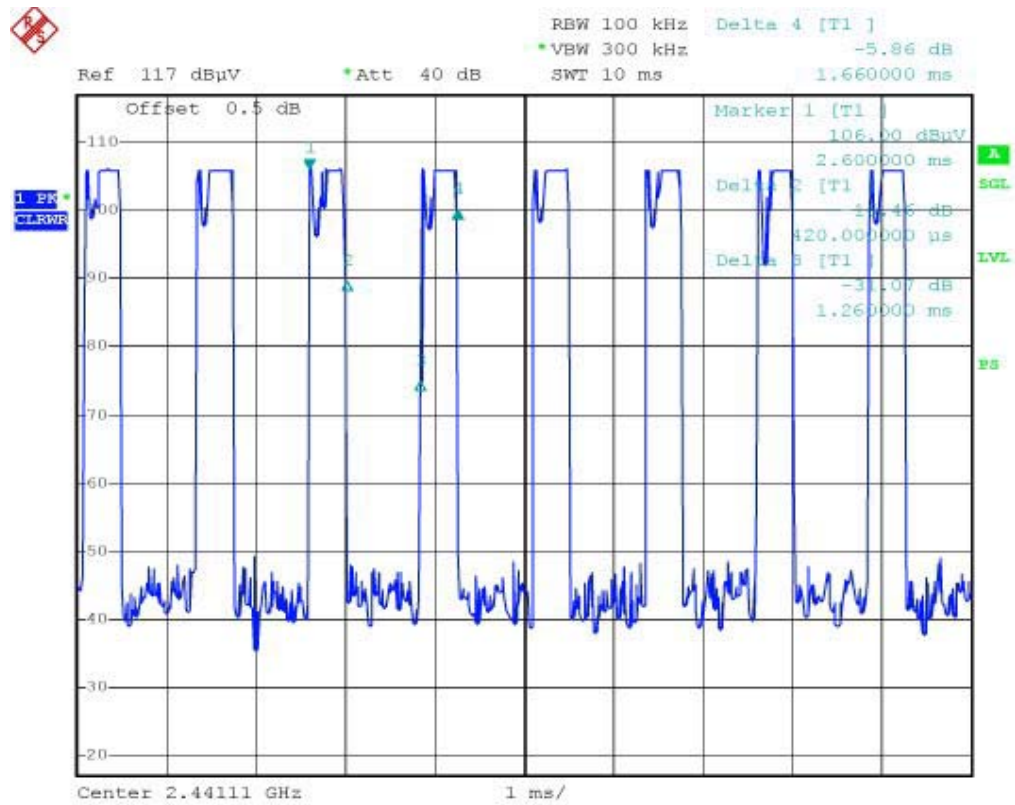
Audex ADB-2812 CHANNEL PLUS WIDTH HIGH CH

Date: 17.JAN.2006 11:02:52



Audex ADB-2812 CHANNEL PLUS WIDTH MID CH

Date: 17.JAN.2006 11:00:42



Audex ADB-2812 CHANNEL PLUS WIDTH

Date: 17.JAN.2006 11:00:42

§15.247(b)(1) - PEAK OUTPUT POWER MEASUREMENT

Applicable Standard

According to §15.247(b) (1), for frequency hopping systems operating in the 2400–2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725–5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400–2483.5 MHz band: 0.125 watts.

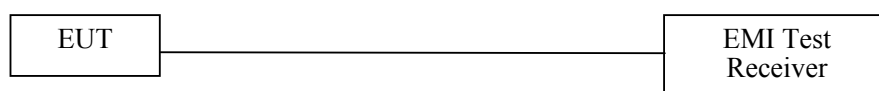
Test Equipment List and Details

Manufacturer	Description	Model	Serial Number	Calibration Date	Calibration Due Date
Rohde & Schwarz	EMI Test Receiver	ESCI	100035	2005-8-17	2006-8-17

* **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

1. Place the EUT on a bench and set it in transmitting mode.
2. Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to a EMI Test Receiver.
3. Add a correction factor to the display.



Test Data

Environmental Conditions

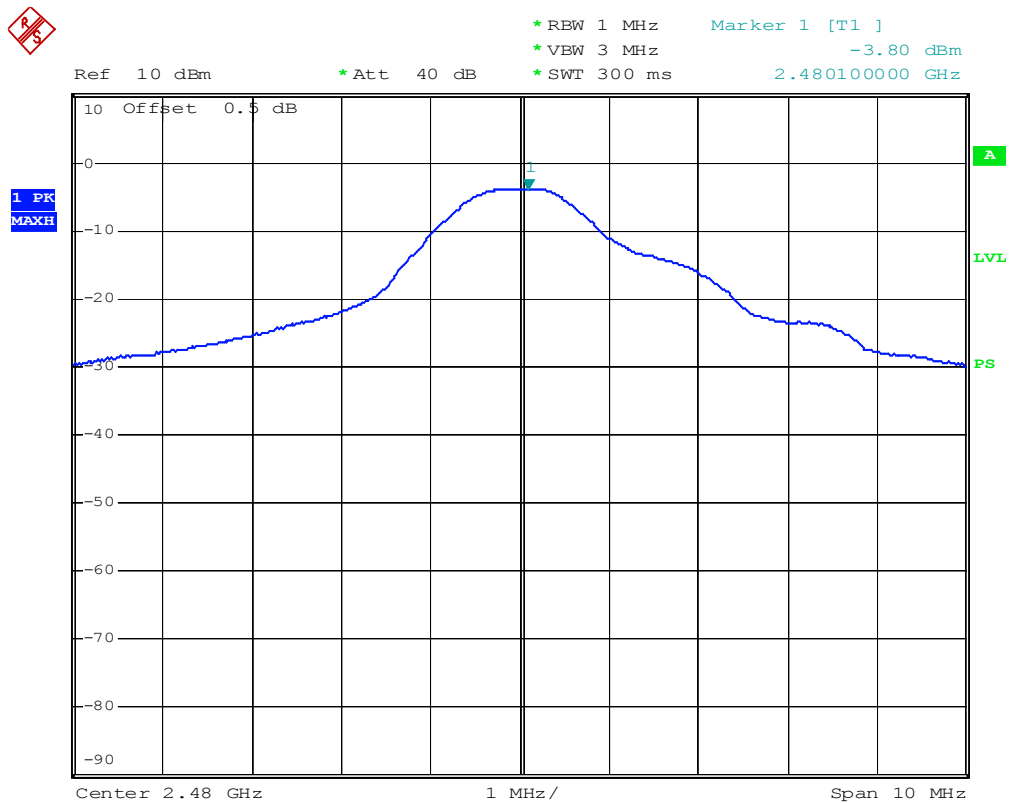
Temperature:	25 ° C
Relative Humidity:	53%
ATM Pressure:	1009mbar

The testing was performed by Kamn Hu on 2006-1-17.

Please refer to the following plots.

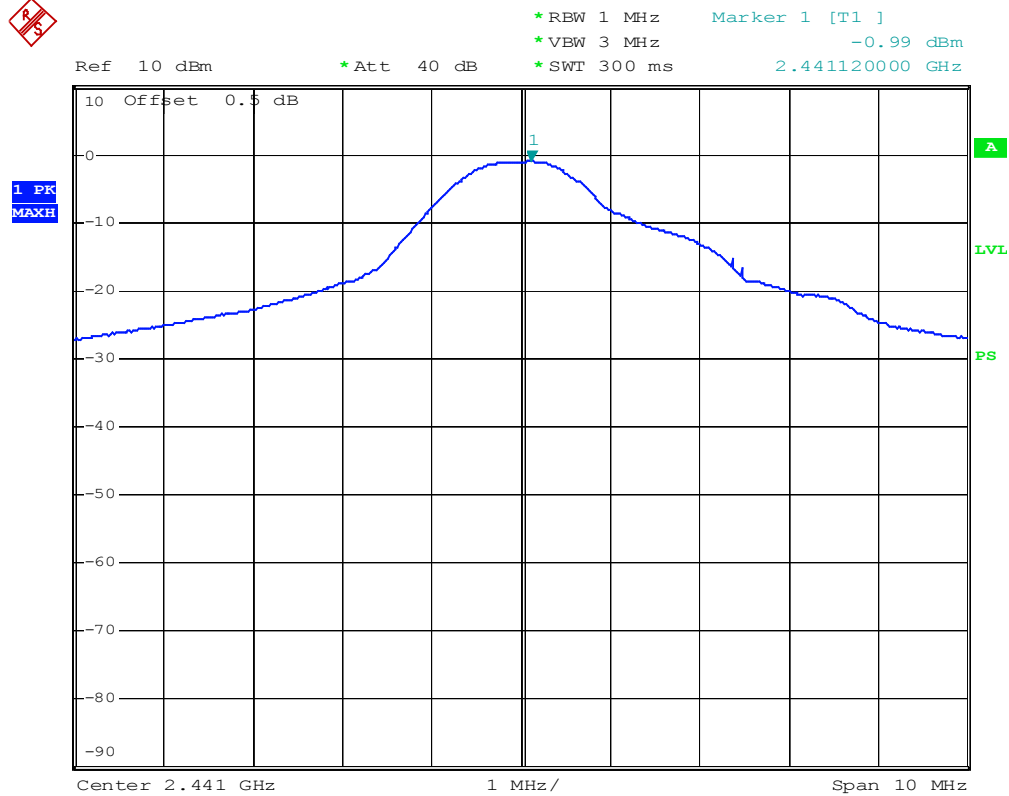
Channel	Frequency (MHz)	Peak output Power(dBm)	Limit (W)
Low Channel	2402	-2.03	1
Middle Channel	2441	-0.99	1
High Channel	2480	-3.80	1

Test Result: Pass



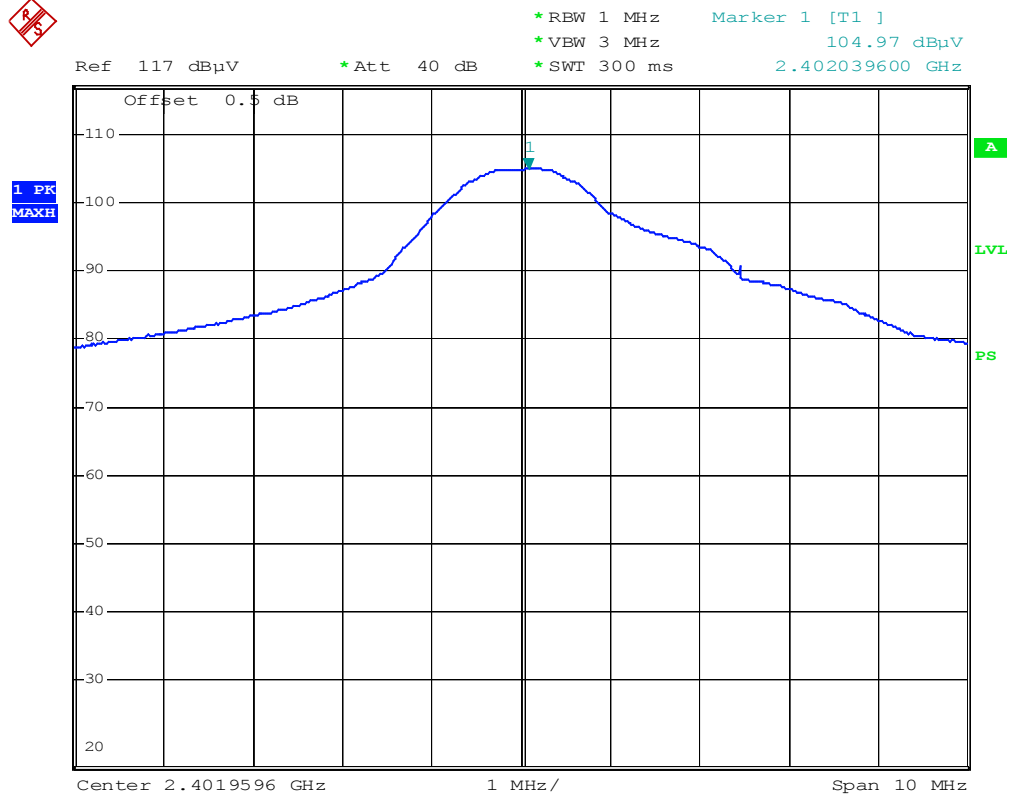
Audex ADB-2812 PEAK OUT POWER HIGH CH

Date: 17.JAN.2006 09:15:08



Audex ADB-2812 PEAK OUT POWER MID CH

Date: 17.JAN.2006 09:14:27



Audex ADB-2812 PEAK OUT POWER LOW CH

Date: 17.JAN.2006 09:12:18

§15.247(d) - 100 KHZ BANDWIDTH OF BAND EDGES**Applicable Standard**

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

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

* **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

1. Check the calibration of the measuring instrument using either an internal calibrator or a known signal from an external generator.
2. Position the EUT without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
3. Set both RBW and VBW of spectrum analyzer to 100 kHz with a convenient frequency span including 100kHz bandwidth from band edge.
4. Measure the highest amplitude appearing on spectral display and set it as a reference level. Plot the graph with marking the highest point and edge frequency.
5. Repeat above procedures until all measured frequencies were complete.

Test Data**Environmental Conditions**

Temperature:	18 °C
Relative Humidity:	53 %
ATM Pressure:	1009mbar

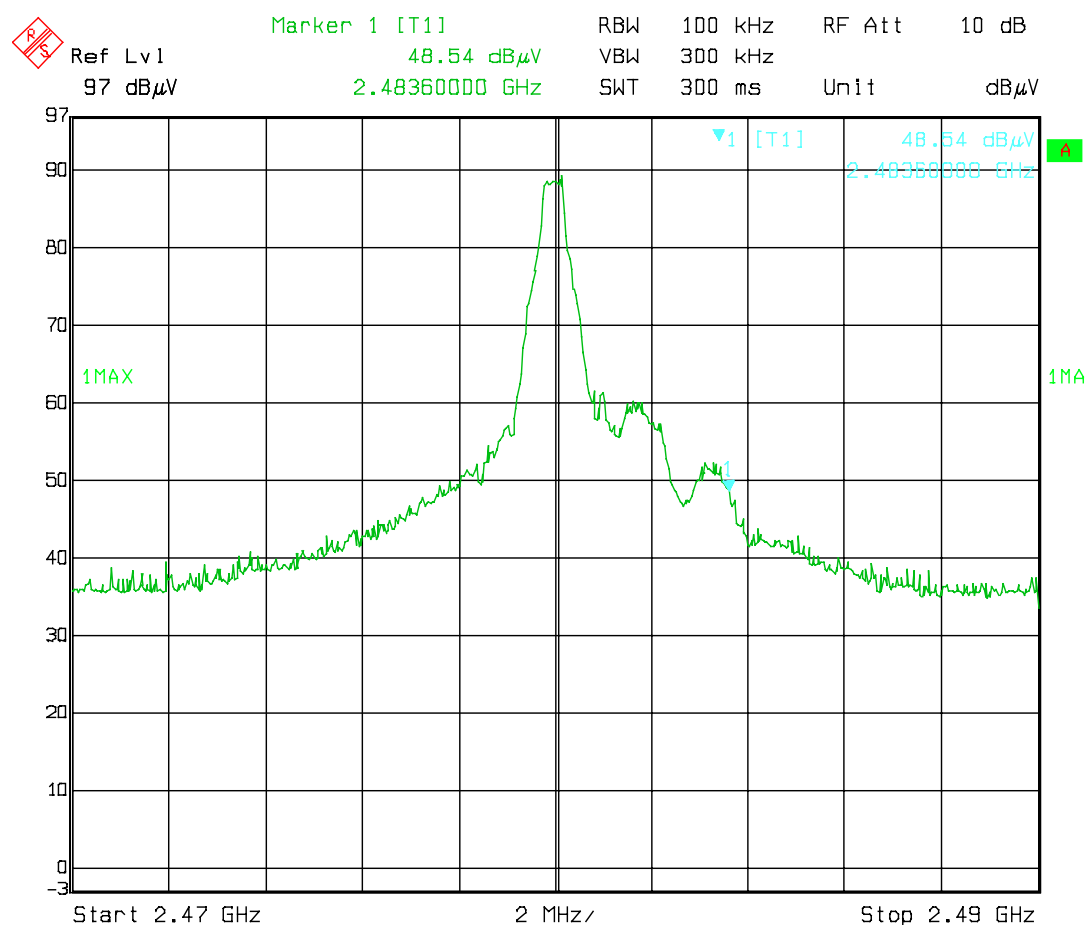
The testing was performed by Kamn Hu on 2006-1-10.

Test Mode: Transmitting

Frequency MHz	Delta of Peak to Edge Point dB	Limit dB
2399.90	52.53	<54
2483.60	48.54	<54

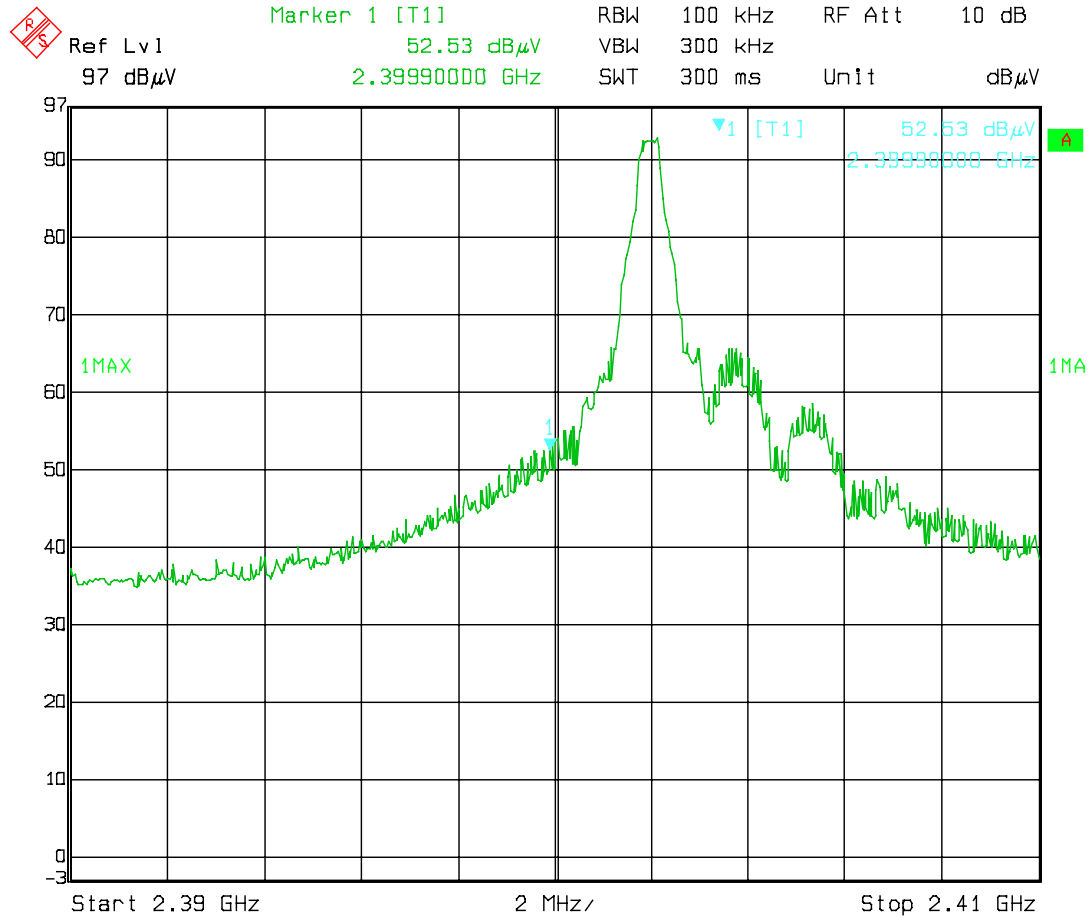
Test Result: Pass

High Channel:



Date: 18.JAN.2006 13:49:15

Low Channel:



Date: 18.JAN.2006 13:42:20