

APPLICATION FOR CERTIFICATION

On Behalf of
Advanced Multimedia Devices, Inc.

Wireless Switch Converter

Model Number: WSC-TX

Prepared for : Advanced Multimedia Devices, Inc.
200 Frank Road, Hicksville, NY 11801, U.S.A

Prepared By : Audix Technology (Shenzhen) Co., Ltd.
No. 6, Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
Nantou, Shenzhen, Guangdong, China

Tel: (0755) 26639496

Report Number : ACS-F04045
Date of Test : Feb.15, 2004
Date of Report : Feb.24, 2004

TABLE OF CONTENTS

Description	Page
Test Report Declaration	
1. GENERAL INFORMATION	1-1
1.1. Description of Device (EUT)	1-1
1.2. Test Facility	1-2
1.3. Test Uncertainty	1-2
2. POWER LINE CONDUCTED EMISSION TEST	2-1
3. RADIATED EMISSION TEST	3-1
3.1. Test Equipment	3-1
3.2. Block Diagram of Test Setup	3-1
3.3. Radiated Emission Limit	3-2
3.4. EUT Configuration on Test	3-3
3.5. Operating Condition of EUT	3-3
3.6. Test Procedure	3-3
3.7. Radiated Emission Test Results	3-4
4. BANDWIDTH TEST	4-1
4.1. Test Equipment	4-1
4.2. Test Standard	4-1
4.3. Bandwidth Limit	4-1
4.4. Test Procedure	4-1
5. PHOTOGRAPH	5-1
5.1. Photo of Radiated Emission Test (In Anechoic Chamber)	5-1

APPENDIX I

(5 pages)

TEST REPORT DECLARATION

Applicant : Advanced Multimedia Devices, Inc.
 Manufacturer : (Caldman) Electronics Mfy. Shen Zhen, China
 EUT Description : Wireless Switch Converter
 (A) MODEL NO. : WSC-TX
 (B) SERIAL NO. : F2004022401
 (C) POWER SUPPLY: DC 3V

Test Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Mar, 2003.

The device described above is tested by Audix Technology (Shenzhen) Co., Ltd. to determine the maximum emission levels emanating from the device. The maximum emission levels are compared to the FCC Part 15 Subpart C limits for radiated and conducted emissions. The test results are contained in this test report and Audix Technology (Shenzhen) Co., Ltd. is assumed full responsibility for the accuracy and completeness of tests. Also, this report shows that EUT is technically compliant with FCC requirements.

This report applies to above tested sample only. This report shall not be reproduced in part without written approval of Audix Technology (Shenzhen) Co., Ltd.

Date of Test :

Feb.15, 2004

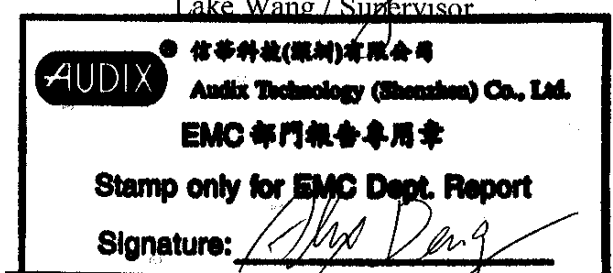
Prepared by :

Jane Dai

Jane Dai / Assistant

Reviewer :

Lake Wang / Supervisor



Alex Deng / Assistant Manager

Approved & Authorized Signer :

Name of the Representative of the Responsible Party :

Signature :

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description	:	Wireless Switch Converter This report is about transmitter FCC ID and the Receiver FCC DOC report please refer to AUDIX Number ACS-F04019.
Model Number	:	WSC-TX
Applicant	:	Advanced Multimedia Devices, Inc. 200 Frank Road, Hicksville, NY 11801, U.S.A
Manufacturer	:	(Caldman) Electronics Mfy. Shen Zhen, China Xin An Zhen Liu Tong (Caldman) Electronics Mfy. Shen Zhen, China
Data Cable	:	Unshielded, Detachable, 1.0m
Date of Test	:	Feb.15, 2004

1.2. Test Facility

Site Description

3m Anechoic Chamber : Certificated by FCC, USA
Aug. 15, 2003

EMC Lab. : Certificated by DATech, German
Feb. 02, 2004

Certificated by NVLAP, USA
NVLAP Code: 200372-0
Mar. 31, 2003

Name of Firm : Audix Technology (Shenzhen) Co., Ltd.

Site Location : No. 6, Ke Feng Rd., 52 Block,
Shenzhen Science & Industrial Park,
Nantou, Shenzhen, Guangdong, China

1.3. Test Uncertainty

Conducted Emission Uncertainty = $\pm 2.66\text{dB}$

Radiated Emission Uncertainty = $\pm 4.26\text{dB}$

2. POWER LINE CONDUCTED EMISSION TEST

According to Paragraph (f) of FCC Part 15 section 15.231, Tests to demonstrate compliance with the conducted limits are not required for devices which only employ battery power for operation and which do not operate from the AC power lines or contain provisions for operation while connected to the AC power lines.

3. RADIATED EMISSION TEST

3.1. Test Equipment

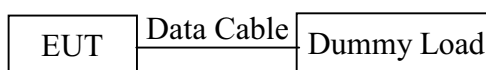
The following test equipments are used during the radiated emission Test :

3.1.1. For Anechoic Chamber

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	EMI Spectrum	HP	85422E	3625A00181	May.31, 03	1 Year
2.	Test Receiver	Rohde & Schwarz	ESVS10	834468/011	May.31, 03	1 Year
3.	Amplifier	HP	8447D	2944A07794	Sep.18, 03	1/2 Year
4.	Bilog Antenna	Schaffner	CBL6111C	2598	Jan. 13, 04	1 Year
5.	PC	N/A	586ATX3	N/A	N/A	N/A
6.	Printer	HP	Laserjet6P	SGCF019673	N/A	N/A
7.	RF Cable	MIYAZAKI	5D-2W	3# Chamber No.1	Feb.01, 04	1/2 Year
8.	RF Cable	MIYAZAKI	5D-2W	3# Chamber No.2	Feb.01, 04	1/2 Year
9.	RF Cable	FUJIKURA	RG-55/U	3# Chamber No.3	Feb.01, 04	1/2 Year
10.	RF Cable	FUJIKURA	RG-55/U	3# Chamber No.4	Feb.01, 04	1/2 Year
11.	Coaxial Switch	Anritsu	MP59B	M73989	Sep.18, 03	1/2 Year
12.	EMI Spectrum Analyzer	Agilent	E4407B	MY41440292	Jun.22, 03	1 Year
13.	Horn Antenna	EMCO	3115	9607-4877	Dec.02, 02	1.5 Year
14.	High Frequency Cable	Huber + Suhner	Sucoflex 104	182769/4	May.29, 03	1 Year
15.	High Frequency Cable	Huber + Suhner	Sucoflex 104	182768/4	May.29, 03	1 Year
16.	High Frequency Cable	Huber + Suhner	Sucoflex 104	182771/4	May.29, 03	1 Year
17.	High Frequency Cable	Huber + Suhner	Sucoflex 104	182770/4	May.29, 03	1 Year

3.2. Block Diagram of Test Setup

3.2.1. Block Diagram of connection between EUT and simulators

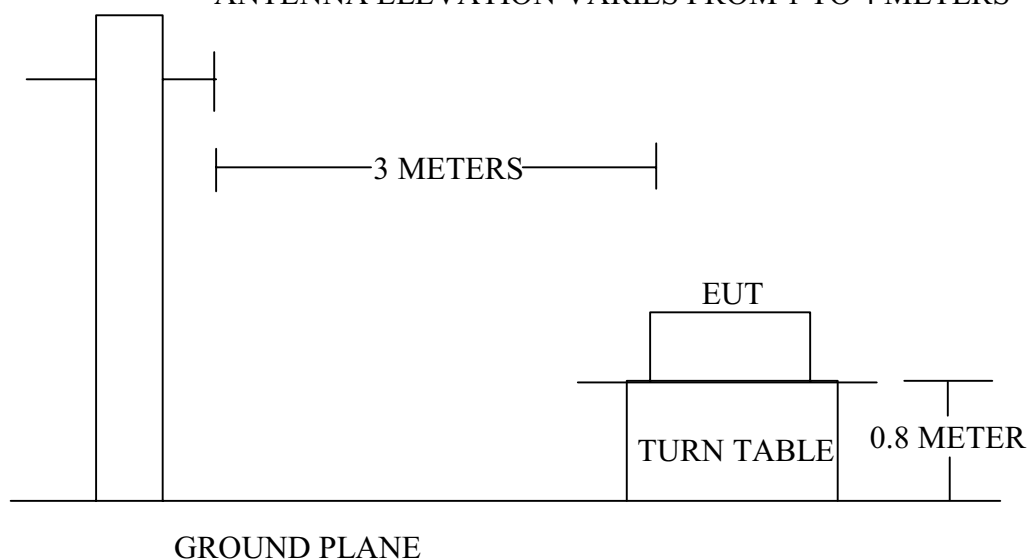


(EUT: Wireless Switch Converter)

3.2.2. Anechoic Chamber Setup Diagram

ANTENNA TOWER

ANTENNA ELEVATION VARIES FROM 1 TO 4 METERS



3.3. Radiated Emission Limit

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V}/\text{m}$	$\text{dB}(\mu\text{V})/\text{m}$
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0
Fundamental: Harmonics:	3	80.82 $\text{dB}(\mu\text{V})/\text{m}$ 60.82 $\text{dB}(\mu\text{V})/\text{m}$	

- Remark :
- (1) Emission level $\text{dB}\mu\text{V} = 20 \log$ Emission level $\mu\text{V}/\text{m}$
 - (2) The smaller limit shall apply at the cross point between two frequency bands.
 - (3) Distance is the distance in meters between the measuring instrument, antenna and the closest point of any part of the device or system.

3.4. EUT Configuration on Test

The following equipment are installed on Radiated Emission Test to meet the commission requirements and operating regulations in a manner which tends to maximize its emission characteristics in normal application.

3.4.1. Wireless Switch Converter (EUT)

Model Number	:	WSC-TX
Serial Number	:	F2004022401
Manufacturer	:	(Caldman) Electronics Mfy. Shen Zhen, China

3.5. Operating Condition of EUT

3.5.1. Setup the EUT as shown in Section 3.2..

3.5.2. Let the EUT work in test modes (On) and test it.

3.6. Test Procedure

The EUT and its simulators are placed on a turn table, which is 0.8 meter high above ground. The turn table can rotate 360 degrees to determine the position of the maximum emission level. The EUT is set 3 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bilog antenna) is used as receiving antenna. Both horizontal and vertical polarization of the antenna is set on Test. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-2001 on radiated emission Test.

The bandwidth of the EMI test receiver (R&S ESVS20) is set at 120KHz from 30MHz to 1000MHz and the spectrum analyzer is set at 1MHz above 1GHz.

The frequency range from 30MHz to 1000MHz and above 1000MHz are checked.

The test modes (On) is tested in Anechoic Chamber and all the scanning waveforms are attached in Appendix I.

3.7. Radiated Emission Test Results

PASS.

The frequency range from 30MHz to 1000MHz is investigated.

Please see the following pages.

Date of Test :	Feb.15, 2004	Temperature :	23°C
EUT :	Wireless Switch Converter	Humidity :	54%
Model No. :	WSC-TX	Test Mode :	On
Test Engineer:	Seco		

Frequency	Antenna	Cable	Meter Reading	Emission Level	Over	Limits
MHz	Factor	Loss	Horizontal	Horizontal	Limits	
	dB/m	dB	dBμV	dBμV/m	dBμV/m	dBμV/m
433.900	16.98	4.93	33.32	55.23	-25.59	80.82
867.900	22.29	7.26	6.54	36.09	-24.73	60.82

Remark: 1. All readings are QP values.

2. Emission Level = Antenna Factor + Meter Reading+Cable Loss

3.The bandwidth of the RBW is set at 120KHz and VBW is set at 300KHz.

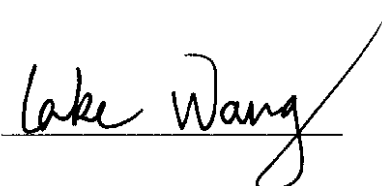
Frequency	Antenna	Cable	Meter Reading	Emission Level	Over	Limits
MHz	Factor	Loss	Vertical	Vertical	Limits	
	dB/m	dB	dBμV	dBμV/m	dBμV/m	dBμV/m
433.900	16.81	4.89	32.51	54.21	-26.61	80.82
867.900	22.89	7.26	9.59	39.74	-21.08	60.82

Remark: 1. All readings are QP values.

2. Emission Level = Antenna Factor + Meter Reading+Cable Loss

3.The bandwidth of the RBW is set at 120KHz and VBW is set at 300KHz.

Reviewer :



Date of Test :	Feb.15, 2004	Temperature :	23°C
EUT :	Wireless Switch Converter	Humidity :	54%
Model No. :	WSC-TX	Test Mode :	On
Test Engineer:	Seco		

Frequency	Antenna	Preamp	Cable	Meter Reading	Emission Level	Over	Limits	Remark
MHz	Factor	Factor	Loss	Horizontal	Horizontal	Limits		
	dB	dB	dB	dBμV	dBμV/m	dBμV/m	dBμV/m	
1296.000	24.36	36.88	2.38	45.17	35.03	-18.97	54.00	Average
1740.000	26.23	35.69	2.75	42.57	35.86	-18.14	54.00	Average
1296.000	24.36	36.88	2.38	50.17	40.03	-13.97	54.00	Peak
1740.000	26.23	35.69	2.75	47.57	40.86	-13.14	54.00	Peak

Remark: 1. All readings are Peak and Average values.

2. Emission Level =Antenna Factor + Cable Loss + Meter Reading– Preamp Factor

Frequency	Antenna	Preamp	Cable	Meter Reading	Emission Level	Over	Limits	Remark
MHz	Factor	Factor	Loss	Vertical	Vertical	Limits		
	dB	dB	dB	dBμV	dBμV/m	dBμV/m	dBμV/m	
1296.000	24.36	36.88	2.38	43.79	33.65	-20.35	54.00	Average
1740.000	26.23	35.69	2.75	40.74	34.03	-19.97	54.00	Average
1296.000	24.36	36.88	2.38	49.79	39.65	-14.35	54.00	Peak
1740.000	26.23	35.69	2.75	46.74	40.03	-13.97	54.00	Peak

Remark: 1. All readings are Average and Peak values.

2. Emission Level =Antenna Factor + Cable Loss + Meter Reading– Preamp Factor

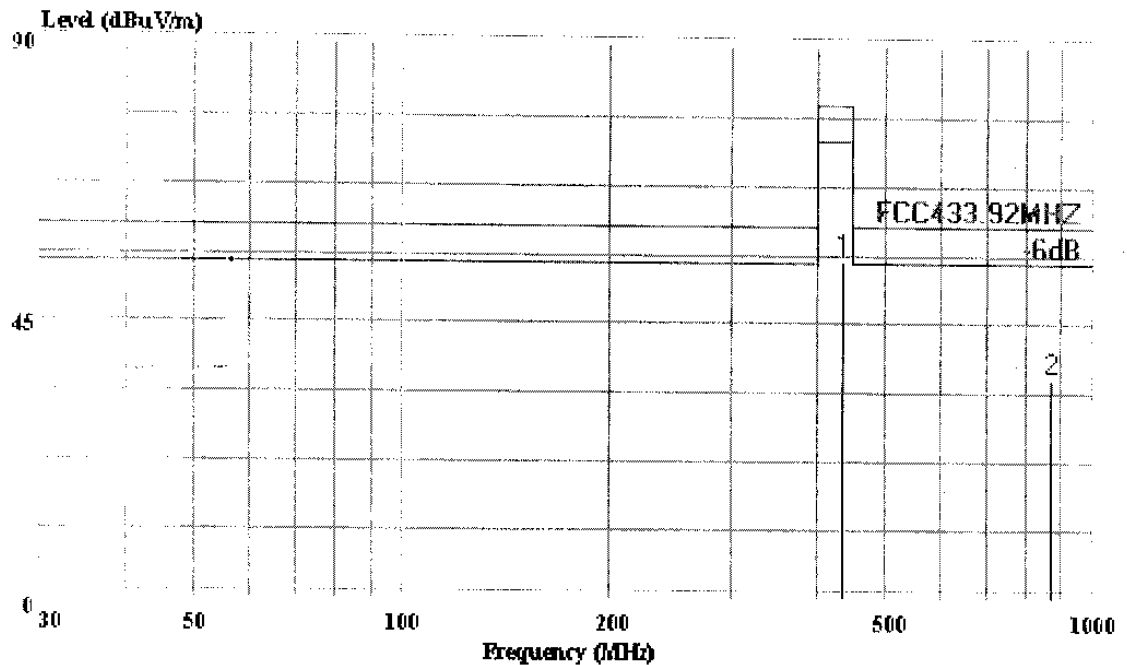
Reviewer :

Lake Wang



Shenzhen Science & Ind. Park
Tel: 0755-26639495~7
Fax: 0755-26632877

Date#: File#: Advanced.emi Date: 2004-02-15 Time: 16:25:24



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (3# Chamber)

Trace:

Ref Trace:

Condition: FCC433.92MHz 3m 2598FACTOR HORIZONTAL

RJT : Wireless Switch Converter

M/N : WSC-TX

Power : Battery DC 3V

Test Engineer: Seco

Memo : On

: Temp:23' Humi:54%

: AntPos:0' TablePos:1.1m

Page: 1

			Limit	Over	Read	Cable	Probe
Freq	Level	Line	Limit	Limit	Level	Loss	Factor
MHz	dBuV/m	dBuV/m		dB	dBuV	dB	dB
1	433.900	55.23	80.82	-25.59	33.32	4.93	16.98
2	867.900	36.09	60.82	-24.73	6.54	7.26	22.29



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

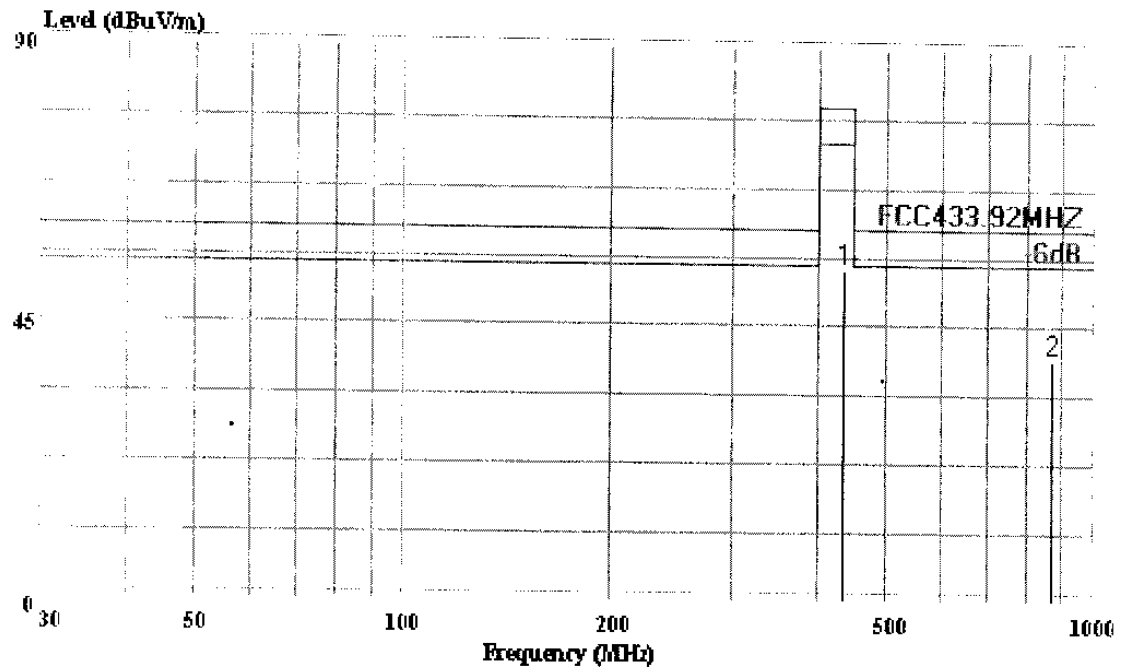
Shenzhen Science & Ind. Park

Tel: 0755-26639495~7

Fax: 0755-26632877

Data#: File#: Advanced.emi

Date: 2004-02-15 Time: 16:12:57



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (3# Chamber)

Trace:

Ref Trace:

Condition: FCC433.92MHZ 3m 2598FACTOR VERTICAL

EUT : Wireless Switch Converter

M/N : WSC-TX

Power : Battery DC 3V

Test Engineer: Seco

Memo : Oh

: Temp:23' Humi:54%

: AntPos:126' TablePos:1.2m

Page: 1

		Limit	Over	Read	Cable	Probe
Freq	Level	Line	Limit	Level	Loss	Factor
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB
1	433.900	54.21	80.82	-26.61	32.51	4.89
2	867.800	39.74	60.82	-21.08	9.59	7.26

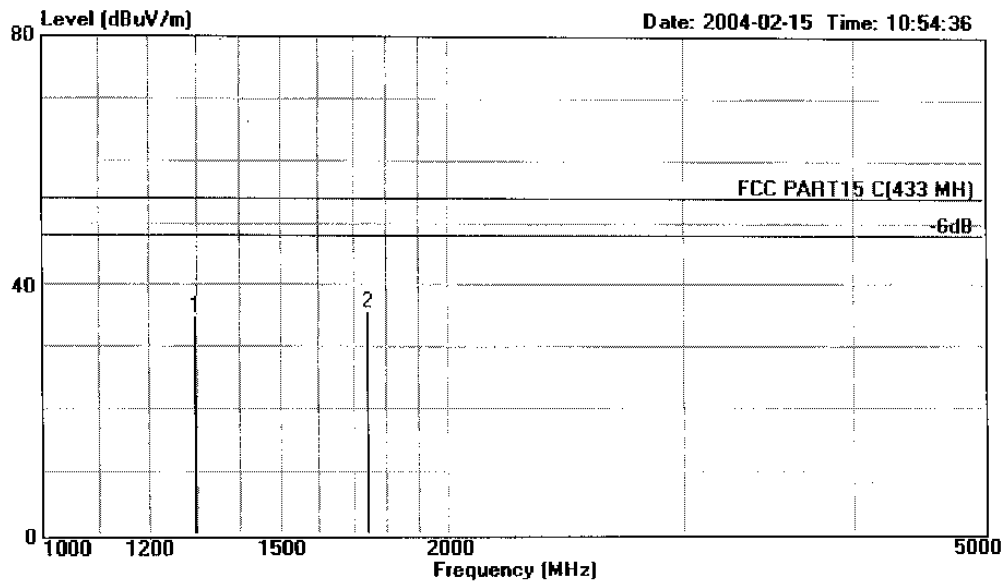


信華科技(深圳)有限公司

AUDIX Technology (Shenzhen) Co., Ltd.

No. 6, Ke Feng Road, Block 52,
Shenzhen Science & Industry Park
Nantou, Shenzhen, Guangdong, China
Tel: +86-755-26639496 Fax: +86-755-26632877

Data#: 3 File#: C:\EMI TEST DATA\A\Advanced.EMI



Site : 1# Chamber
Condition : FCC PART15 C(433 MH) 3m 3115FACTOR HORIZONTAL
EUT : Wireless Switch Converter
M/N : WSC-TX
Power : Battery DC3V
Test Engineer : Seco
Memo : Temp:23° Humi:54%

			Over	Limit	Read	Cable	Probe	Preamp	
Freq	Level	Limit	Line	Level	Loss	Factor	Factor	Remark	
MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB		
1	1296.000	35.03	-18.97	54.00	45.17	2.38	24.36	36.88	Average
2	1740.000	35.86	-18.14	54.00	42.57	2.75	26.23	35.69	Average

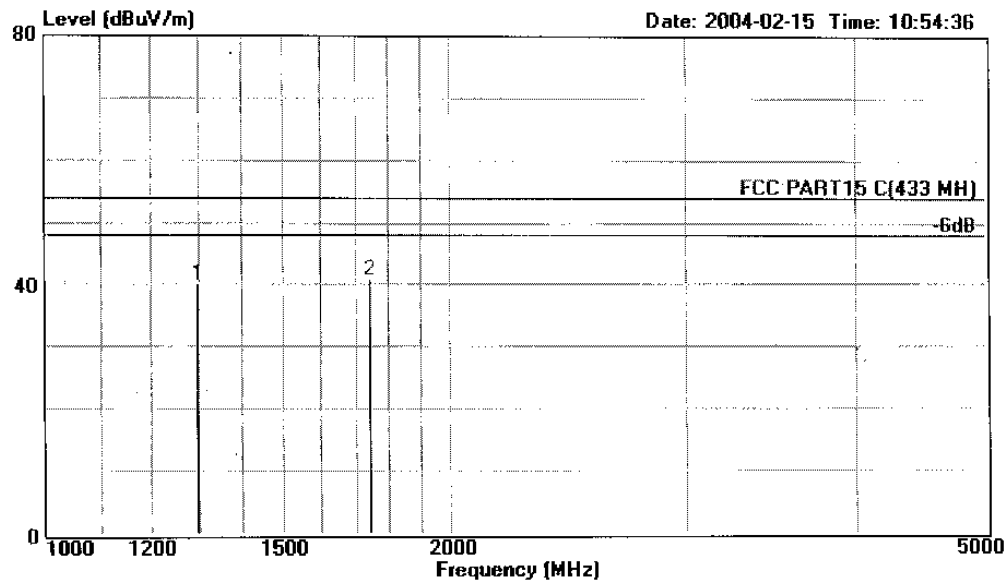


信華科技(深圳)有限公司

AUDIX Technology (Shenzhen) Co., Ltd.

No. 6, Ke Feng Road, Block 52,
Shenzhen Science & Industry Park
Nantou, Shenzhen, Guangdong, China
Tel:+86-755-26639496 Fax:+86-755-26632877

Data#: 2 File#: C:\EMI TEST DATA\A\Advanced.EMI



Site : 1# Chamber
Condition : FCC PART15 C(433 MH) 3m 3115FACTOR HORIZONTAL
EUT : Wireless Switch Converter
M/N : WSC-TX
Power : Battery DC3V
Test Engineer : Seco
Memo : Temp:23° Humi:54%

	Freq	Level	Over Limit	Limit	Read	Cable	Probe	Preamp	
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	Remark
1	1296.000	40.03	-13.97	54.00	50.17	2.38	24.36	36.88	Peak
2	1740.000	40.86	-13.14	54.00	47.57	2.75	26.23	35.69	Peak



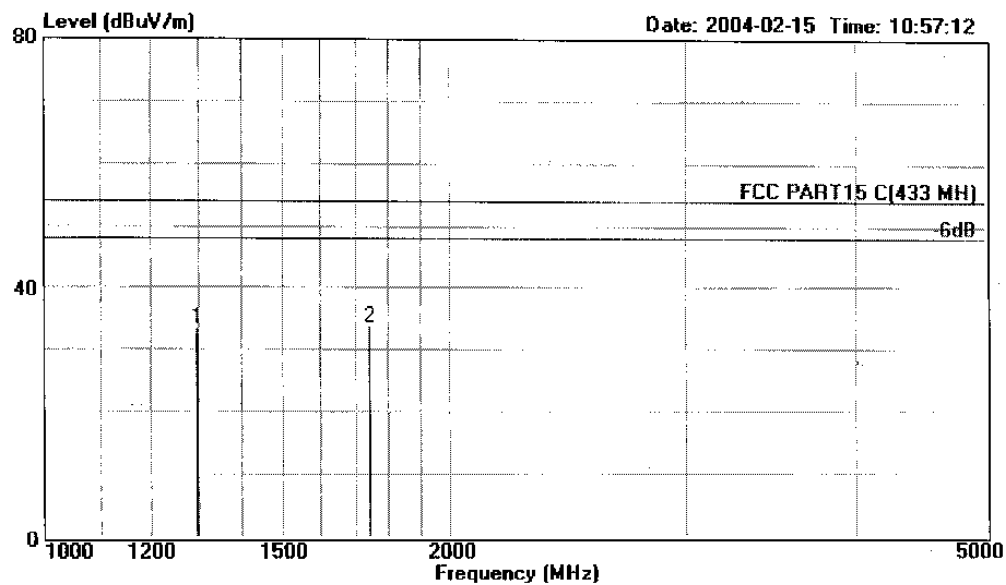
信華科技(深圳)有限公司

AUDIX Technology (Shenzhen) Co., Ltd.

No. 6, Ke Feng Road, Block 52,
Shenzhen Science & Industry Park
Nantou, Shenzhen, Guangdong, China
Tel: +86-755-26639496 Fax: +86-755-26632877

Data#: 6

File#: C:\EMI TEST DATA\A\Advanced.EMI



Site : 1# Chamber
Condition : FCC PART15 C(433 MH) 3m 3115FACTOR VERTICAL
EUT : Wireless Switch Converter
M/N : WSC-TX
Power : Battery DC3V
Test Engineer : Seco
Memo : Temp:23° Humi:54%

			Over	Limit	Read	Cable	Probe	Preamp	
	Freq	Level	Limit	Line	Level	Loss	Factor	Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	
1	1296.000	33.65	-20.35	54.00	43.79	2.38	24.36	36.88	Average
2	1740.000	34.03	-19.97	54.00	40.74	2.75	26.23	35.69	Average

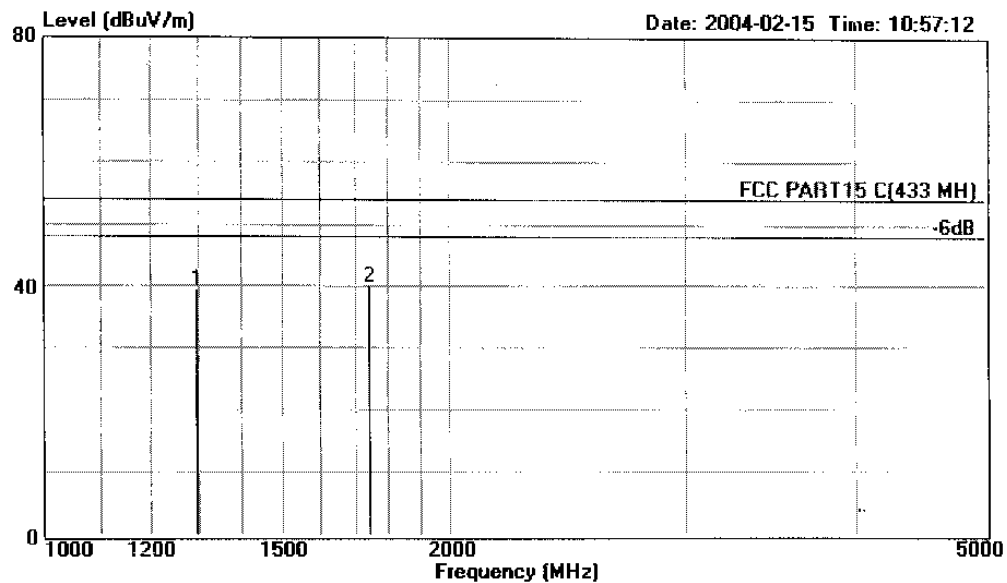


信華科技(深圳)有限公司

AUDIX Technology (Shenzhen) Co., Ltd.

No. 6, Ke Feng Road, Block 52,
Shenzhen Science & Industry Park
Nantou, Shenzhen, Guangdong, China
Tel: +86-755-26639496 Fax: +86-755-26632877

Data#: 5 File#: C:\EMI TEST DATA\A\Advanced.EMI



Site : 1# Chamber
Condition : FCC PART15 C(433 MH) 3m 3115FACTOR VERTICAL
EUT : Wireless Switch Converter
M/N : WSC-TX
Power : Battery DC3V
Test Engineer : Seco
Memo : Temp:23' Humi:54%

			Over	Limit	Read	Cable	Probe	Preamp	
	Freq	Level	Limit	Line	Level	Loss	Factor	Factor	Remark
	MHz	dBuV/m	dB	dBuV/m	dBuV	dB	dB	dB	
1	1296.000	39.65	-14.35	54.00	49.79	2.38	24.36	36.88	Peak
2	1740.000	40.03	-13.97	54.00	46.74	2.75	26.23	35.69	Peak

4. BANDWIDTH TEST

4.1. Test Equipment

The following test equipments are used during the bandwidth test:

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum	Agilent	E4407B	MY41440292	Jun 22, 03	1 Y
2.	Antenna	EMCO	3115	9607-4877	Dec 02, 02	1.5 Y
3.	Print				N/A	N/A

4.2. Test Standard

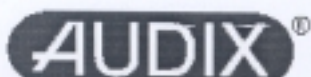
The test completeness FCC 15.231.

4.3. Bandwidth Limit

The minimum 6dB bandwidth shall be at least 500KHz.

4.4. Test Procedure

PASS.



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Shenzhen Science & Ind. Park

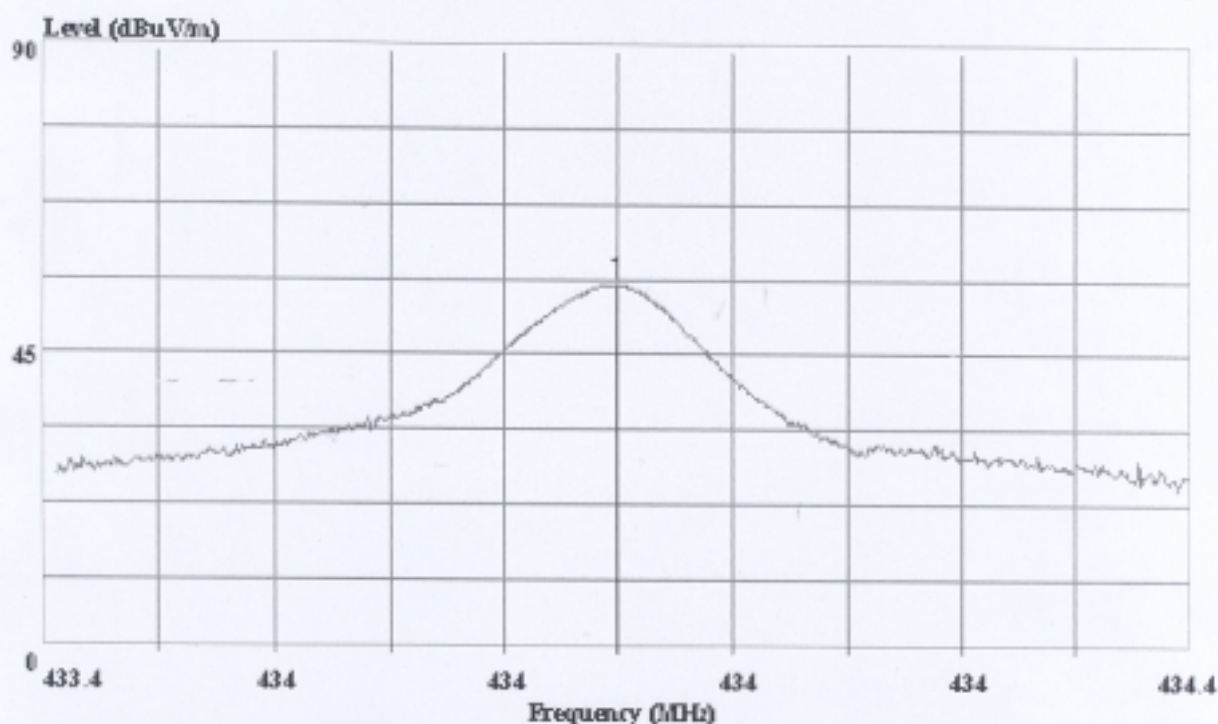
Tel: 0755-26639495~7

Fax: 0755-26632877

Data#: 72

File#: Advanced.emi

Date: 2004-02-28 Time: 08:50:17



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (3# Chamber)

Trace:

Ref Trace:

Condition: 3m 2598FACTOR HORIZONTAL

EUT : Wireless Switch Converter

M/N : WSC-TX

Power : Battery DC 3V

Test Engineer: Seco

Memo : On

: Temp:23' Humi:54%

Page: 1

		Limit	Over	Read	Cable	Probe
Freq	Level	Line	Limit	Level	Loss	Factor
MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB
1	433.900	55.23	-----	58.95	4.93	16.97

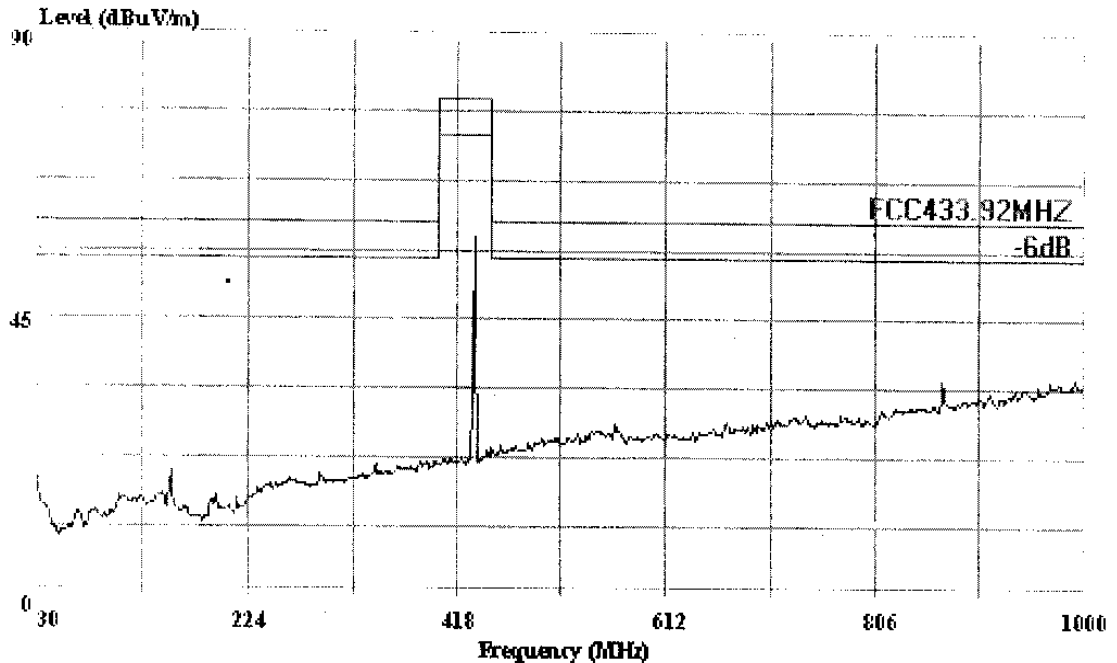
APPENDIX I



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Shenzhen Science & Ind. Park
 Tel: 0755-26639495~7
 Fax: 0755-26632877

Data#: File#: Advanced.emi Date: 2004-02-15 Time: 15:50:16



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (3# Chamber)

Trace:

Ref Trace:

Condition: FCC433.92MHZ 3m 2598FACTOR HORIZONTAL

EUT : Wireless Switch Converter

M/N : WSC-TX

Power : Battery DC 3V

Test Engineer: Seco

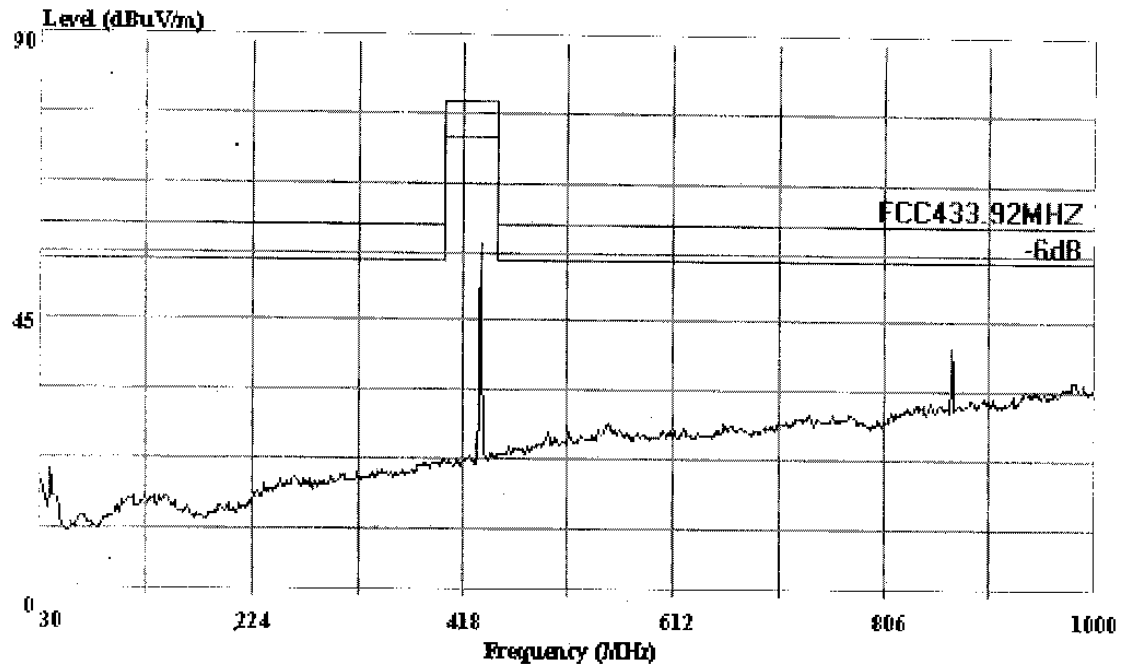
Memo : On

: Temp:23' Humi:54%

AUDIX[®]
AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Shenzhen Science & Ind. Park
Tel: 0755-26639495~7
Fax: 0755-26632877

Data#: 69 File#: Advanced.emi Date: 2004-02-15 Time: 16:09:52



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. (3# Chamber)

Trace:

Ref Trace:

Condition: FCC433.92MHZ 3m 2598FACTOR VERTICAL
EUT : Wireless Switch Converter
M/N : WSC-TX
Power : Battery DC 3V
Test Engineer: Seco
Memo : On
: Temp:23' Humi:54%

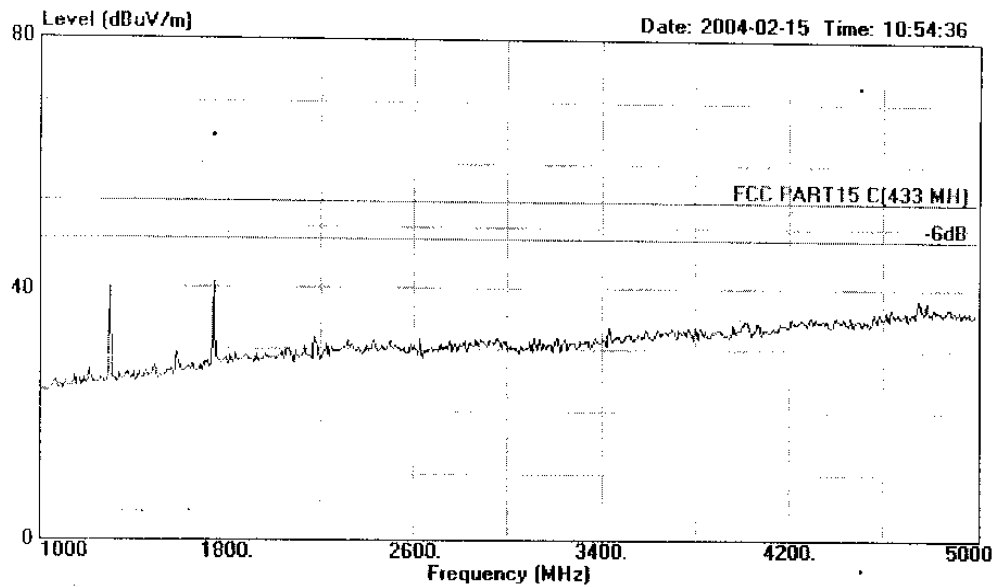


信華科技(深圳)有限公司

AUDIX Technology (Shenzhen) Co., Ltd.

No. 6, Ke Feng Road, Block 52,
Shenzhen Science & Industry Park
Nantou, Shenzhen, Guangdong, China
Tel: +86-755-26639496 Fax: +86-755-26632877

Data#: 1 File#: C:\EMI TEST DATA\A\Advanced.EMI



Site : 1# Chamber
Condition : FCC PART15 C(433 MH) 3m 3115FACTOR HORIZONTAL
EUT : Wireless Switch Converter
M/N : WSC-TX
Power : Battery DC3V
Test Engineer : Seco
Memo : Temp:23° Humi:54%

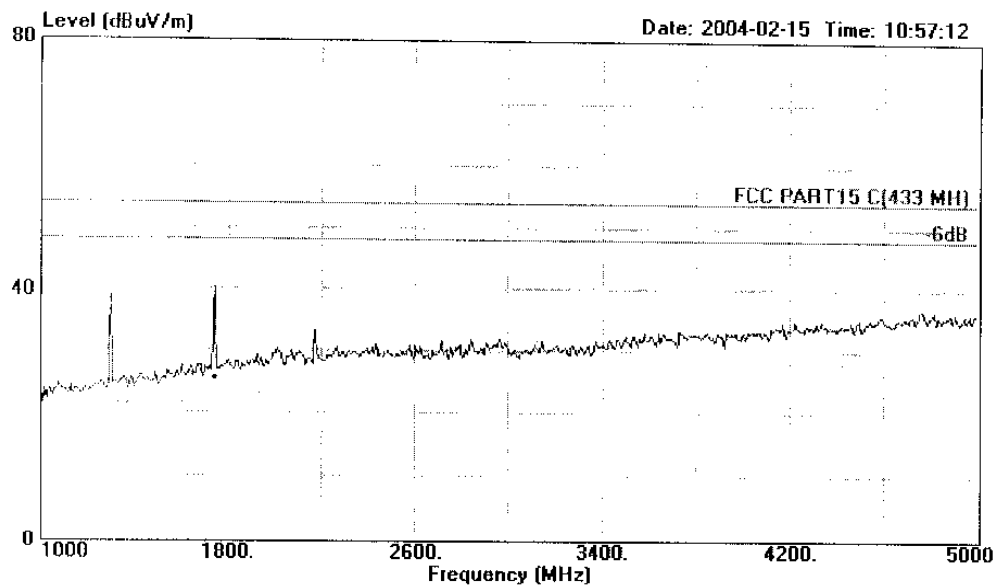


信基科技(深圳)有限公司

AUDIX Technology (Shenzhen) Co., Ltd.

No. 6, Ke Feng Road, Block 52,
Shenzhen Science & Industry Park
Nantou, Shenzhen, Guangdong, China
Tel:+86-755-26639496 Fax:+86-755-26632877

Data#: 4 File#: C:\EMI TEST DATA\A\Advanced.EMI



Site : 1# Chamber
Condition : FCC PART15 C(433 MH) 3m 3115FACTOR VERTICAL
EUT : Wireless Switch Converter
M/N : WSC-TX
Power : Battery DC3V
Test Engineer : Seco
Memo : Temp:23° Humi:54%