

APPLICATION FOR CERTIFICATION

On Behalf of
Chang An Hop Yee Toys Mfy
Walkie Talkie

Model : AB 000597

Prepared for : Chang An Hop Yee Toys Mfy
Jie Kou Management Region, Chang An,
Dongguan, Guangdong Province, China.

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

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Report Number : ACS-F01069
Date of Test : Jun. 11, 2001
Date of Report : July. 05, 2001

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TEST REPORT CERTIFICATION

Applicant : Chang An Hop Yee Toys Mfy
Manufacturer : Chang An Hop Yee Toys Mfy
EUT Description : Walkie Talkie
(A) MODEL NO. : AB 000597
(B) SERIAL NO. : N/A
(C) POWER SUPPLY : 9V DC Battery

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C October 1998 & ANSI C63.4-1992

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 both radiated and conducted emissions. The measurement results are contained in this test report and AUDIX TECHNOLOGY (SHENZHEN) CO., LTD. is assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the Equipment Under Test (EUT) is to be technically compliant with the 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 : Jun. 11, 2001

Prepared by :

Tracy Lin
Tracy Lin / Assistant

Reviewer :

Rees Zeng
Rees Zeng / Engineer

Approved & Authorized Signer :

For and on behalf of
AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Alex Deng Jul-13-2001
Alex Deng Authorized Signature(s)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Description : Walkie Talkie (with permanent Antenna 14cm.)
This report is about transmitter FCC ID and the receiver
FCC DOC report please refer to AUDIX Number
ACS-F01069

Model Number : AB 000597

Applicant : Chang An Hop Yee Toys Mfy

Jie Kou Management Region, Chang An,
Dongguan, Guangdong Province, China.

Manufacturer : Chang An Hop Yee Toys Mfy

Jie Kou Management Region, Chang An,
Dongguan, Guangdong Province, China.

Date of Test : Jun. 11, 2001

1.2. Test Facility

Site Description

3m Anechoic Chamber : Certificated by FCC, USA
Aug. 20, 2000
Registration Number: 90454

3m & 10m Open Site : Certificated by FCC, USA
Jan. 29, 2001

EMC Lab. Certificated by VCCI, Japan
Oct. 29, 1998

Certificated by DATech, German
Feb. 02, 1999

Certificated by NVLAP, USA
NVLAP Code: 200372-0

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. Measurement Uncertainty

Conduction Uncertainty = $\pm 2.66\text{dB}$

Radiation Uncertainty = $\pm 4.26\text{dB}$

2. POWER LINE CONDUCTED MEASUREMENT

According to Paragraph (f) of FCC Part 15 section 15.107, 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 MEASUREMENT

3.1. Test Equipment

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

3.1.1. For Chamber #3

Item	Equipment	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	85422E	3625A00181	Jun. 03, 01	1 Year
2.	Test Receiver	Rohde & Schwarz	ESVS20	830350/005	Jun. 03, 01	1 Year
3.	Amplifier	HP	8447D	2944A07794	Jun. 02, 01	1/2 Year
4.	Bilog Antenna	Chase	CBL6112A	2176	Mar. 25, 01	1 Year
5.	Computer	N/A	N/A	N/A	N/A	N/A
6.	Printer	NEC	P3800	568101448	N/A	N/A
7.	Coaxial Switch	Anritsu	MP59B	M20531	Jun. 03, 01	1 Year
8.	FR Cable	MIYAZAKI	5D-2W	3# Chamber No.1	Feb. 27, 01	1/2 Year
9.	FR Cable	MIYAZAKI	5D-2W	3# Chamber No.2	Feb. 27, 01	1/2 Year
10.	FR Cable	FUJIKURA	RG-55/U	3# Chamber No.3	Feb. 27, 01	1/2 Year
11.	FR Cable	FUJIKURA	RG-55/U	3# Chamber No.4	Feb. 27, 01	1/2 Year

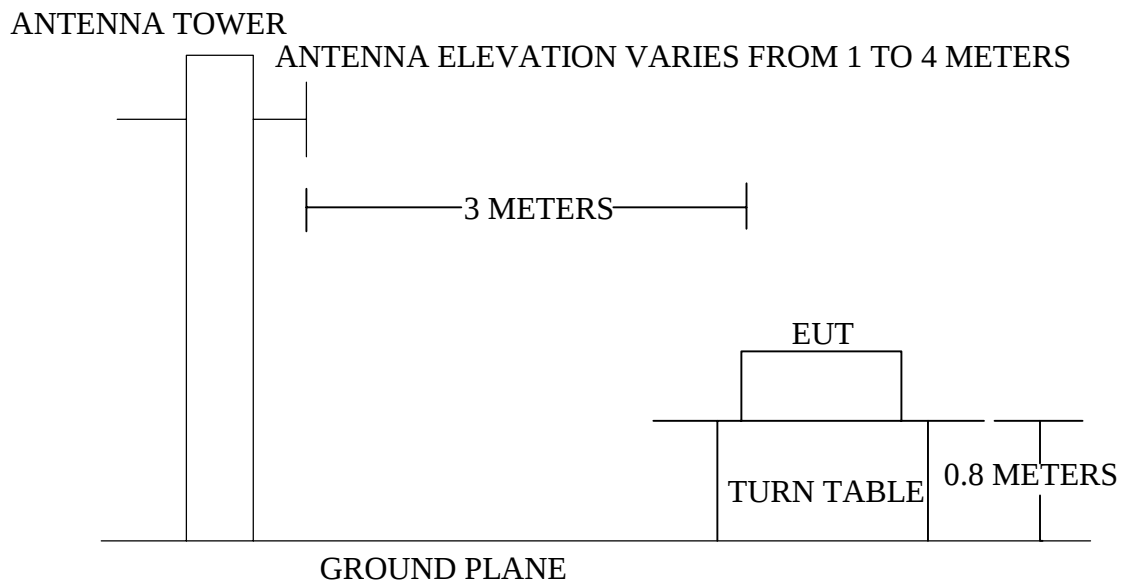
3.2. Block Diagram of Test Setup

3.2.1. diagram of connection between the EUT and simulators



(EUT: Walkie Talkie)

3.2.2. Chamber # 3 Test Setup Diagram



3.3. Radiated Emission Limit (Class B)

FREQUENCY MHz	DISTANCE Meters	FIELD STRENGTHS LIMIT	
		$\mu\text{V/m}$	$\text{dB}(\mu\text{V})/\text{m}$
Fundamental Frequency	3	1000	60
30 ~ 88	3	100	40.0
88 ~ 216	3	150	43.5
216 ~ 960	3	200	46.0
Above 960	3	500	54.0

- Remark :
- (1) Emission level $(\text{dB})\mu\text{V} = 20 \log \text{Emission level } \mu\text{V/m}$
 - (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 Measurement

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

3.4.1. Walkie Talkie (EUT)

Model Number : AB 000597
Serial Number : N/A
Manufacturer : Chang An Hop Yee Toys Mfy

3.5. Operating Condition of EUT

1. Setup the EUT as shown in Section 3.2..
2. Let the the EUT work in test mode (Transmitting) and measure it.

3.6. Test Procedure

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. EUT is set 3.0 meters away from the receiving antenna, which is mounted on a antenna tower. The antenna can be moved up and down between 1.0 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 are set on measurement. In order to find the maximum emission levels, all of the interface cables must be manipulated according to ANSI C63.4-1992 on radiated emission measurement.

The bandwidth of the EMI test receiver (R&S ESVS20) is set at 120KHz in the 30-10000MHz and 1MHz had been set in above 10000MHz Range.

The frequency range from 30MHz to 10000MHz is checked.

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

3.7. Radiated Emission Noise Measurement Result

PASS.

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

Please see the following pages.



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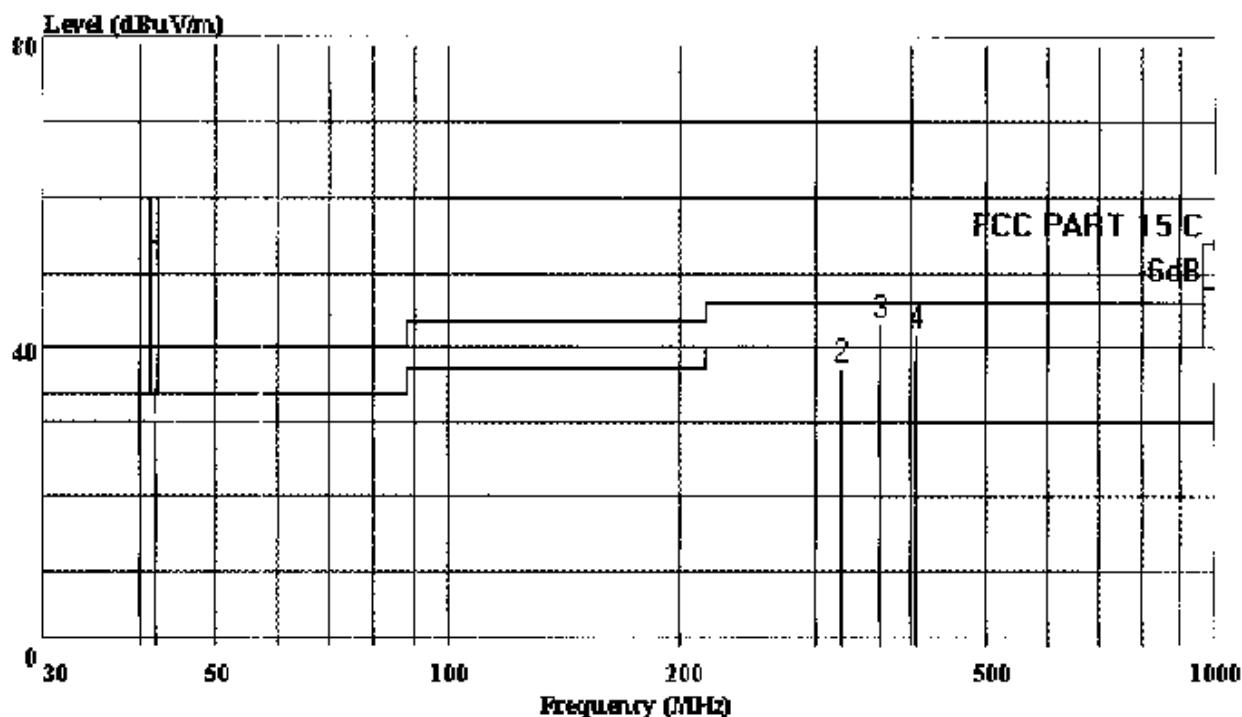
Tel: 0755-6639495~7

Fax: 0755-6632877

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Date: 2001-06-11 Time: 09:25:16



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

Trace:

Ref Trace:

Condition: FCC PART 15 C 3m 2176FACTOR HORIZONTAL

EUT: : Walkie Talkie

V/N: : AB 000597

Power: : DC 9V Battery

Mode: : Transmitting

Test Engineer: : Ross Zeng

Page: 1

	Freq	Level	Limit	Over	Read	Probe	Cable	Preamp
	MHz	dBuV/m	dBuV/m	Limit	Level	Factor	Loss	Factor
				dB	dBuV	dB	dB	dB
1	41.640	30.60	60.00	-29.40	17.37	11.92	1.31	0.0
2	324.680	37.50	46.00	-8.50	13.77	19.33	4.40	0.0
3	363.680	43.20	46.00	-2.80	17.69	20.94	4.57	0.0
4	405.390	42.00	46.00	-4.00	15.32	21.95	4.73	0.0



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

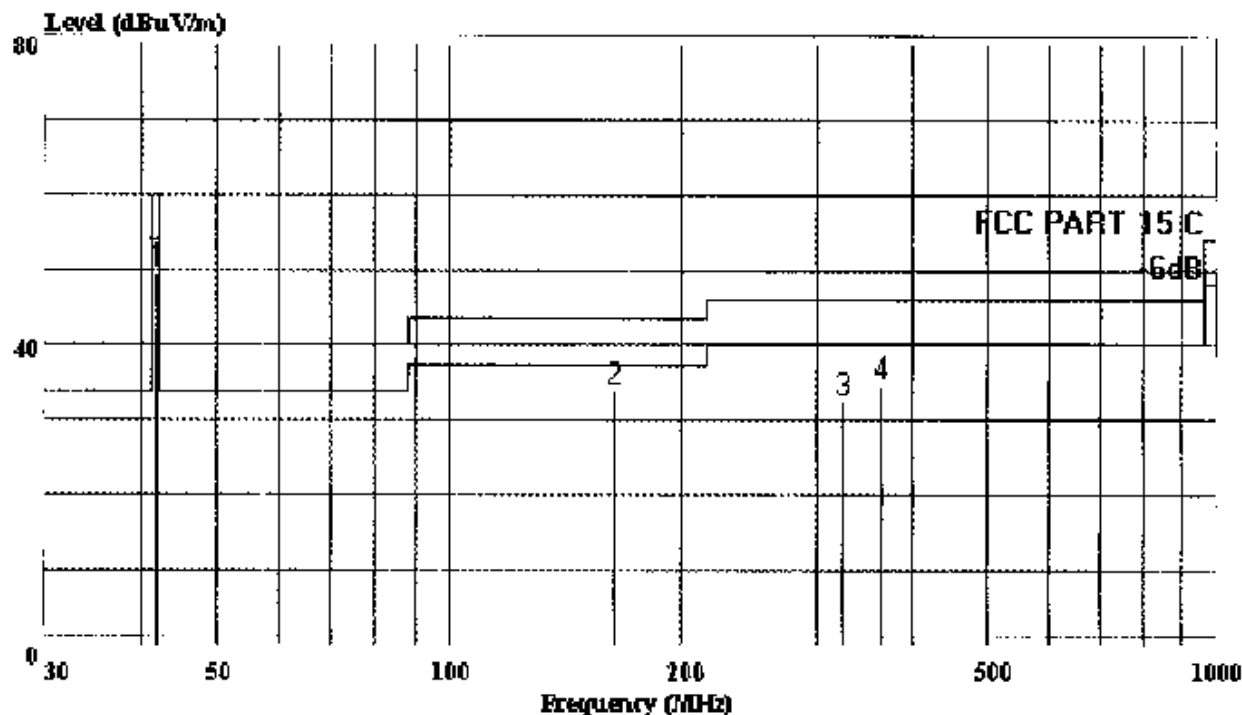
Shenzhen Science & Ind. Park.

Tel: 0755-6639495~7

Fax: 0755-6632877

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

Trace:

Ref Trace:

Condition: FCC PART 15 C 3m 2176FACTOR VERTICAL

EUT: : Walkie Talkie

V/N: : AB 000597

Power: : DC 9V Battery

Memo: : Transmitting

Test Engineer: : Rees Zeng

Page: 1

			Limit	Over	Read	Probe	Cable		
	Freq	Level	Line	Limit	Level	Factor	Loss	Remark	Factor
	MHz	dBuV/m	dBuV/m	dB	dBuV	dB	dB		dB
1	41.640	49.50	60.00	-10.50	32.52	15.67	1.31		0.0
2	162.890	33.80	43.50	-9.70	15.01	15.44	3.35		0.0
3	324.880	32.60	46.00	-13.40	8.45	19.75	4.40		0.0
4	363.680	34.50	46.00	-11.50	9.33	20.60	4.57		0.0

4. FREQUENCY STABILITY TEST

4.1. Test Equipment

The following test equipment were used during the Frequency Stability Test :

4.1.1. Temperature Variation Test

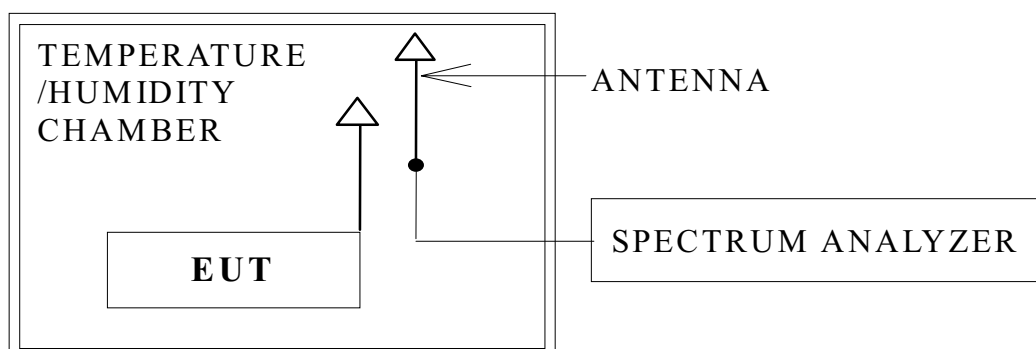
Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Temperature /Humidity Chamber	Giant Force	GTH-066P	94075-2	Apr. 26, 01'	1 Year
2.	Spectrum Analyzer	HP	8591EM	3628A00914	Jun. 03, 01'	1 Year
3.	Antenna	KENWOOD	UHF	N/N	N/A	N/A

4.1.2. Primary Supply Voltage Variation Test

Item	Type	Manufacturer	Model No.	Serial No.	Last Cal.	Cal. Interval
1.	Spectrum Analyzer	HP	8591EM	3628A00914	Jun. 03, 01'	1 Year
2.	Antenna	KENWOOD	UHF	N/N	N/A	N/A
3.	DC Power Supply	KING INSTRUMENT	DSP-1303D	003517	N/A	N/A

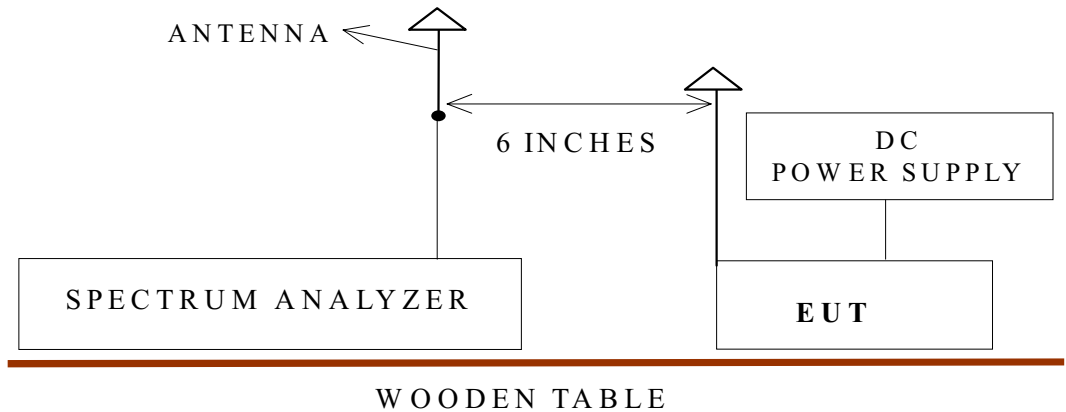
4.2. Block Diagram of Test Setup

4.2.1. Temperature Variation Test Setup



4.2.2. Primary Supply Voltage Variation Test Setup

4.2.2.1. For DC Battery (DC 9V)



4.3. Test Rules

CRF 47 Part 15 §15.229(d)

4.4. Specification Limits

The frequency tolerance of the carrier signal shall be maintained within <plus-minus> 0.01% of the operating frequency over a temperature variation of -20 degrees to +50 degrees C at normal supply voltage, and for a variation in the primary supply voltage from 85% to 115% of the rated supply voltage at a temperature of 20 degrees C. For battery operated equipment, the equipment tests shall be performed using a new battery.

4.5. EUT's Configuration during Compliance Test

The configuration of EUT are listed in Section 3.4.

4.6. Test Procedure

4.6.1. Temperature Variation

4.6.1.1. Setup the EUT and test equipment as shown on 3.2.1.

4.6.1.2. Set the EUT at Transmitting Mode, varied the temperature from -20°C to +50°C with 10°C increment for each step to find out the maximum frequency stability tolerance and minimum frequency tolerance.

4.6.2. Primary Supply Voltage Variation

4.6.2.1. Setup the EUT and test equipment as shown on 3.2.2.

4.6.2.2. Set the EUT at Transmitting Mode, varied the primary supply voltage by a transformer from 85 % to 115 % of the nominal operation power to find out the maximum frequency stability tolerance and minimum frequency tolerance.

4.7. Test Results

PASSED. Please refer to the following pages.

4.8. Frequency Stability Test Results

4.8.1. For Transmitting Mode Temperature Variation Test Results

Varied ambient temperature from -20° C to +50°C.

Temp. (°C)	Frequency Stability vs. Temperature					
	2 min		5 min		10 min	
	Measured Max. Freq. (MHz)	Tolerance (%)	Measured Max. Freq. (MHz)	Tolerance (%)	Measured Max. Freq. (MHz)	Tolerance (%)
-20	40.676	-0.009	40.678	-0.005	40.679	-0.002
-10	40.679	-0.002	40.6785	-0.003	40.6794	-0.001
0	40.6783	-0.004	40.676	-0.009	40.677	-0.007
10	40.677	-0.007	40.676	-0.009	40.679	-0.002
20	40.682	+0.005	40.673	+0.007	40.684	+0.009
30	40.681	+0.002	40.679	-0.002	40.678	-0.005
40	40.684	+0.009	40.681	+0.002	40.677	-0.007
50	40.681	+0.002	40.678	-0.005	40.683	+0.007

4.8.2. For Transmitting Mode Primary Supply Voltage Variation Test Results

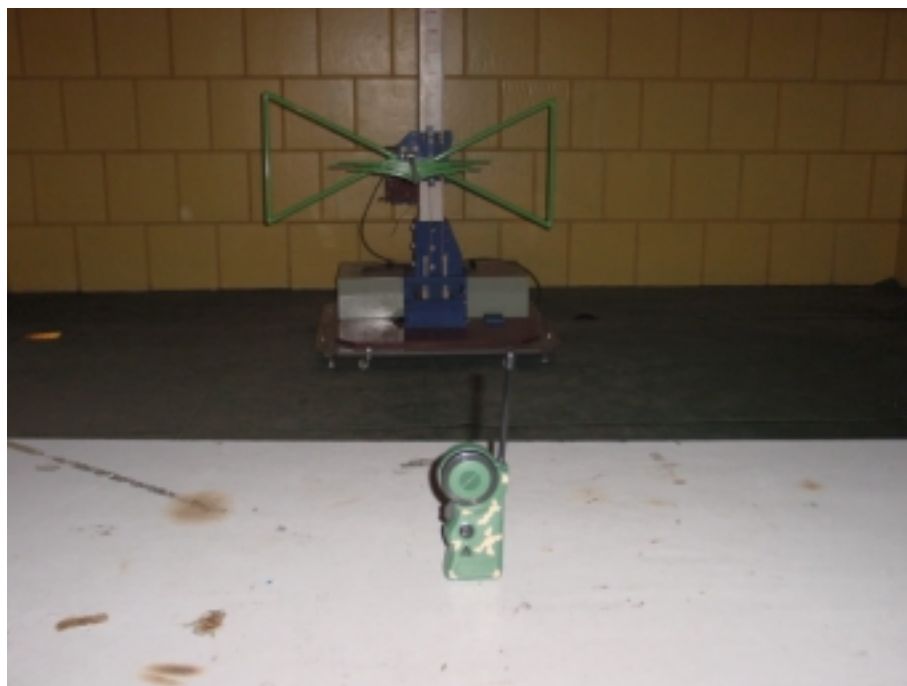
Temperature: 22°C

Varied primary supply voltage from 85% to 115%

Supply Voltage (Vdc)	Test Frequency (MHz)	Tolerance (%)
7.65(85%)	40.678	-0.005
9(100%)	40.677	-0.004
10.35(115%)	40.679	-0.002

5. PHOTOGRAPH

5.1. Photo of Radiated Emission Test (In Anechoic Chamber)



5.2. Photo of Frequency Stability Test



APPENDIX I



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

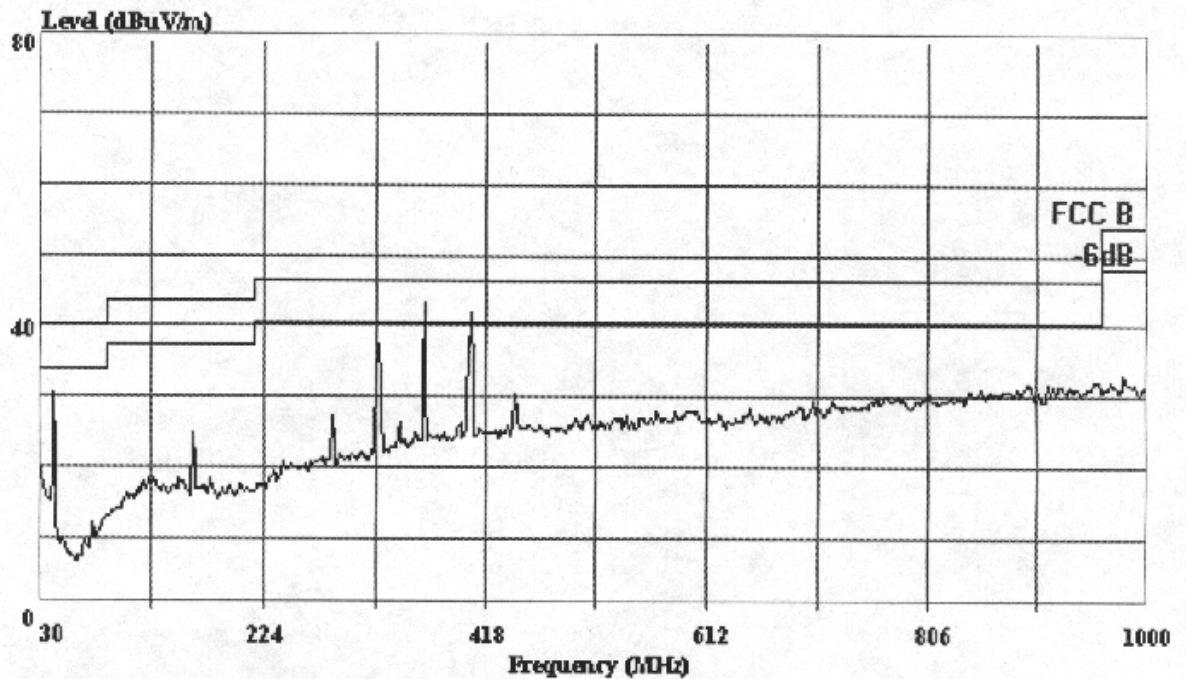
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Data#: 6 File#: hop.EMI

Date: 2001-06-11 Time: 09:13:29



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

Trace:

Ref Trace:

Condition: FCC B 3m 2176FACTOR HORIZONTAL

EUT: : Walkie Talkie

M/N: : AB 000597

Power: : DC 9V Battery

Memo: : Transmitting

Test Engineer:: Rees Zeng



AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

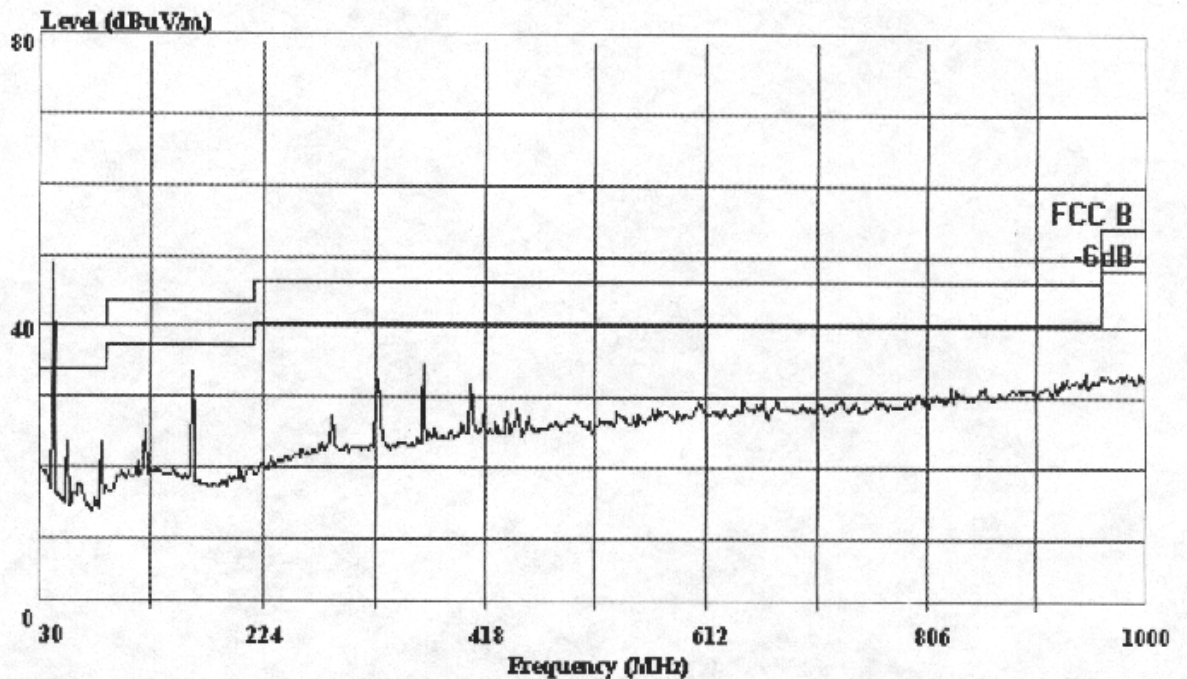
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Fax: 0755-6632877

Data#: 5 File#: hop.EMI

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

Trace:

Ref Trace:

Condition: FCC B 3m 2176FACTOR VERTICAL

EUT: : Walkie Talkie

M/N: : AB 000597

Power: : DC 9V Battery

Memo: : Transmitting

Test Engineer:: Rees Zeng