

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

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APPENDIX I

(3 Pages)

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:

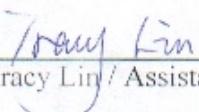
FCC Rules and Regulations Part 15 Subpart C October 1998 & ANSI C63.4-1992

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.

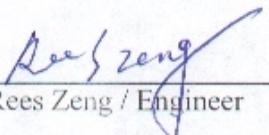
This report applies to above tested sample only. This report shall not be reproduced in part without written approval of AUDIX TECHNOLOGY (SHENZHEN) CO., LTD.

Date of Test : Jun. 11, 2001

Prepared by :


Tracy Lin / Assistant

Reviewer :


Rees Zeng / Engineer

Approved & Authorized Signer :

Alex Deng JUL-12-2001
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 | = | ± 2.66dB |
| Radiation Uncertainty | = | ± 4.26dB |

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

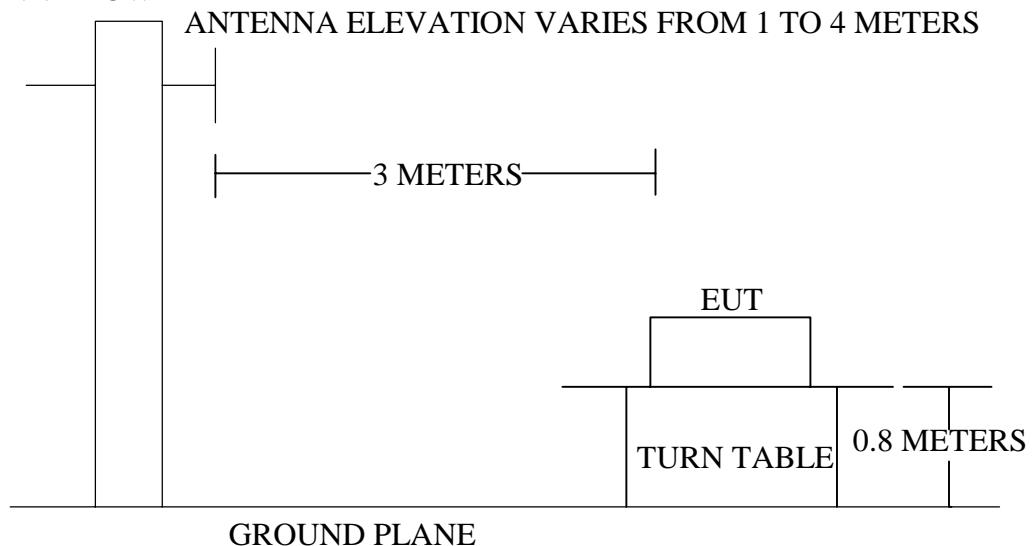
3.2.1. diagram of connection between the EUT and simulators



(EUT: Walkie Talkie)

3.2.2. Chamber # 3 Test Setup Diagram

ANTENNA TOWER



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 ($\text{dB}(\mu\text{V})$) = $20 \log_{10}$ 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 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.

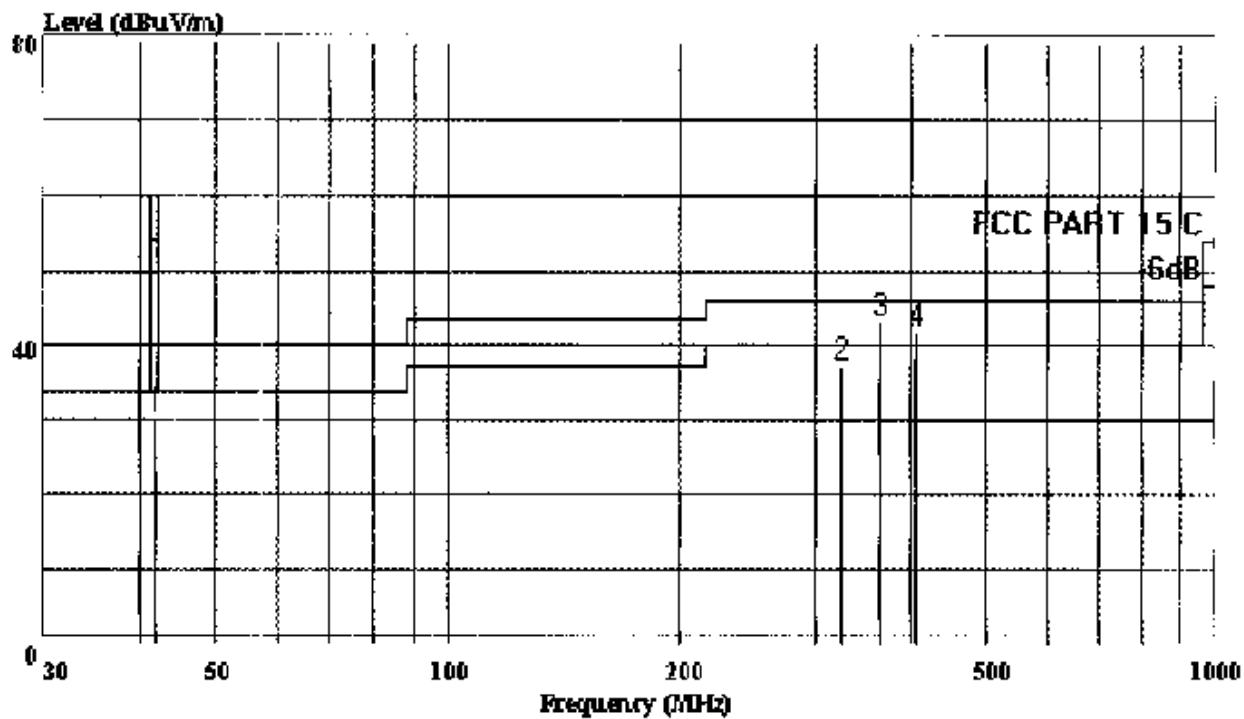


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Data#: 9 File#: hcp.EMI

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
 UNIT: : Walkie Talkie
 V/N: : AB 000597
 Power: : DC 9V Battery
 Memot: : Transmitting
 Test Engineer:: Rees Zeng

| Freq | Level | Limit | | Over Limit | Read Level | Probe Factor | Cable Loss | Page: 1 | |
|------|---------|--------|-------|------------|------------|--------------|------------|---------|---------------|
| | | Line | dB | | | | | | Preamp Factor |
| MHz | dBuV/m | dBuV/m | 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 |

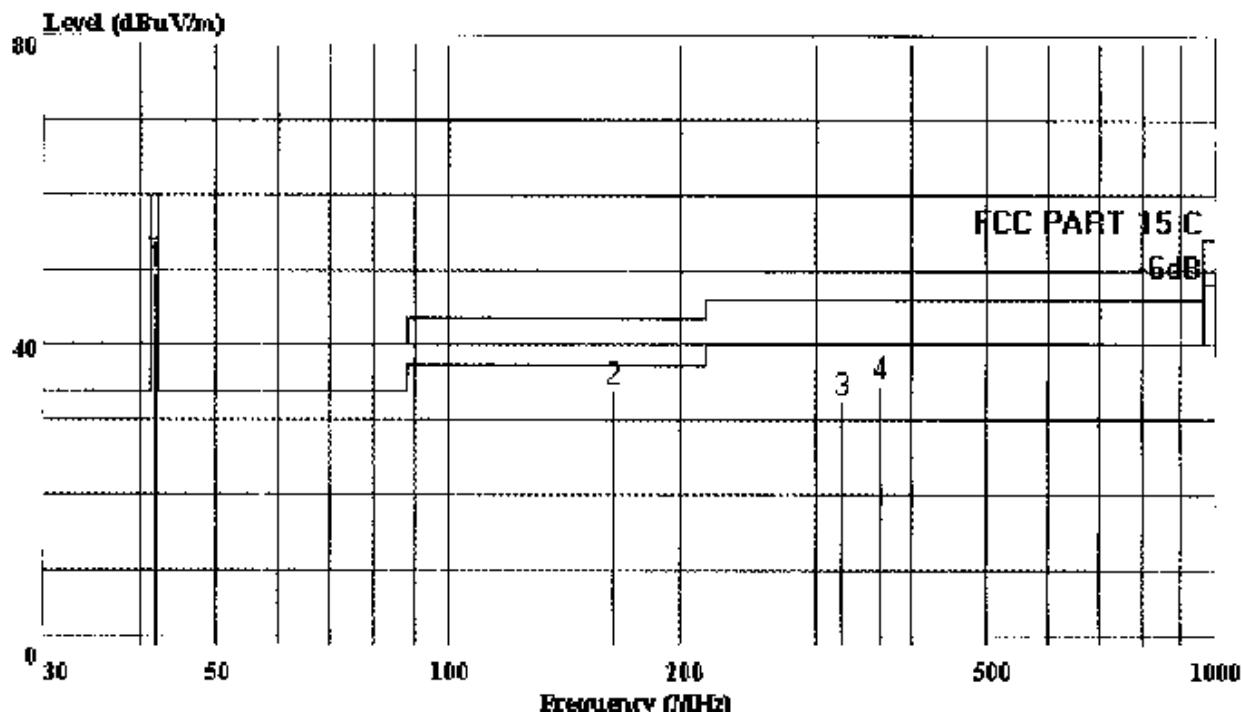


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Data#: 10 File#: hop.EMI

Date: 2001-06-11 Time: 09:34:57



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

Trace:

Ref Trace:

Condition: FCC PART 15 C 3m 2176FACTOR VERTICAL

RUT: : Walkie Talkie
 V/N: : AB 000597
 Power: : DC 9V Battery
 Memo: : Transmitting
 Test Engineer: Rees Zeng

| Freq | Level | Limit | | Over Limit | Rear Level | Probe Factor | Cable | Prear Loss | Remark | Preset Factor |
|------|---------|-------|--------|------------|------------|--------------|-------|------------|--------|---------------|
| | | MHz | dBuV/m | dBuV/m | dB | dBuV | dB | 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

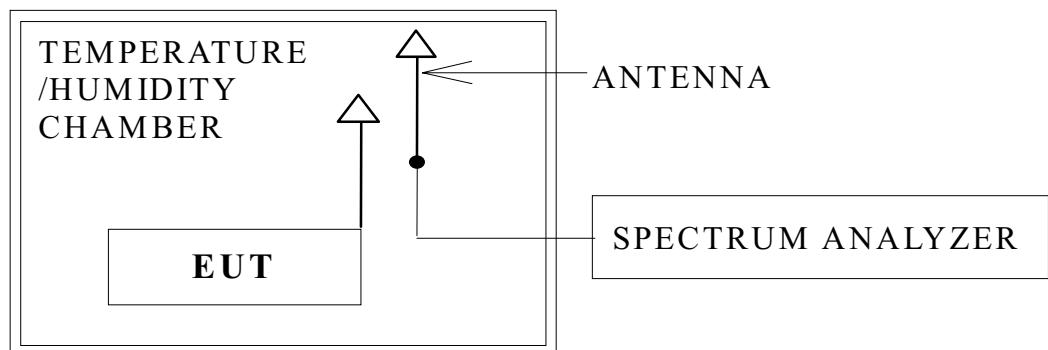
| Item | Type | Manufacturer | Model No. | Serial No. | Last Cal. | Cal. Interval |
|------|-------------------------------|--------------|-----------|------------|--------------|---------------|
| 1. | Temperature /Humidity Chamber | Giant Force | GTH-066P | 94075-2 | Apr. 26, 01' | 1 Year |
| 2. | 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 |

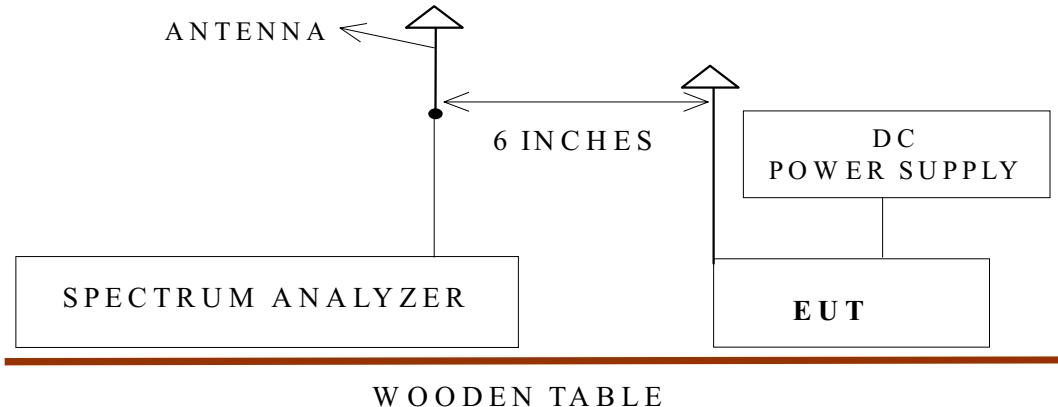
4.2. Block Diagram of Test Setup

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

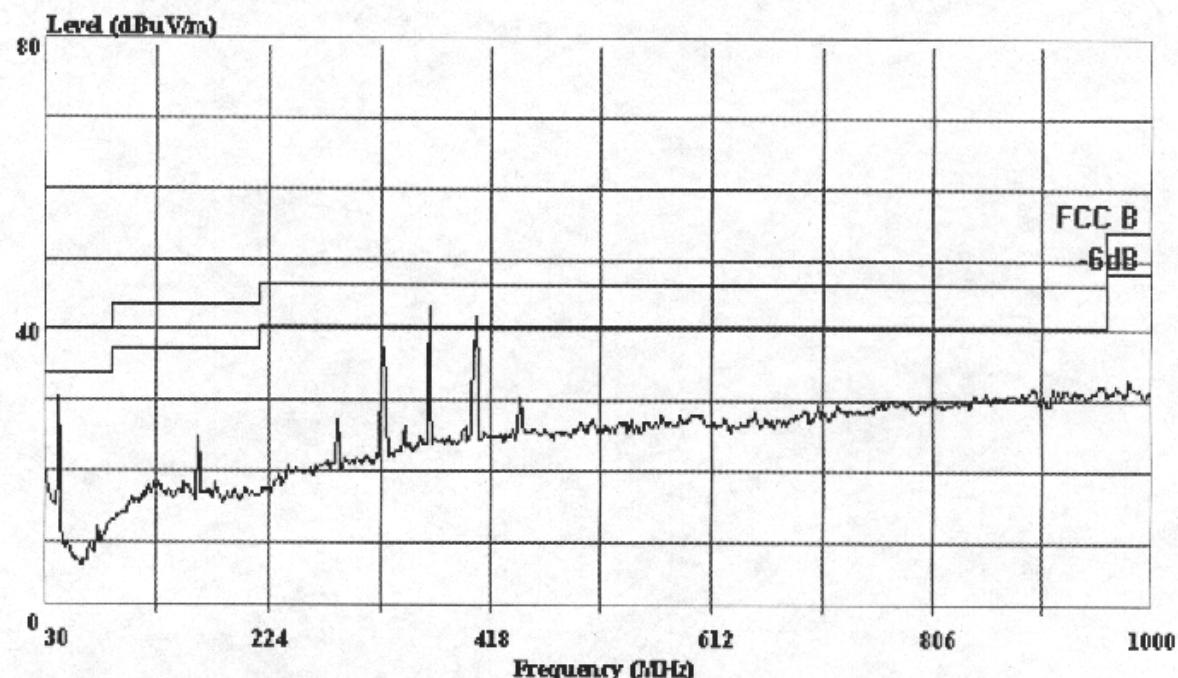


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Date: 2001-06-11 Time: 09:13:29



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

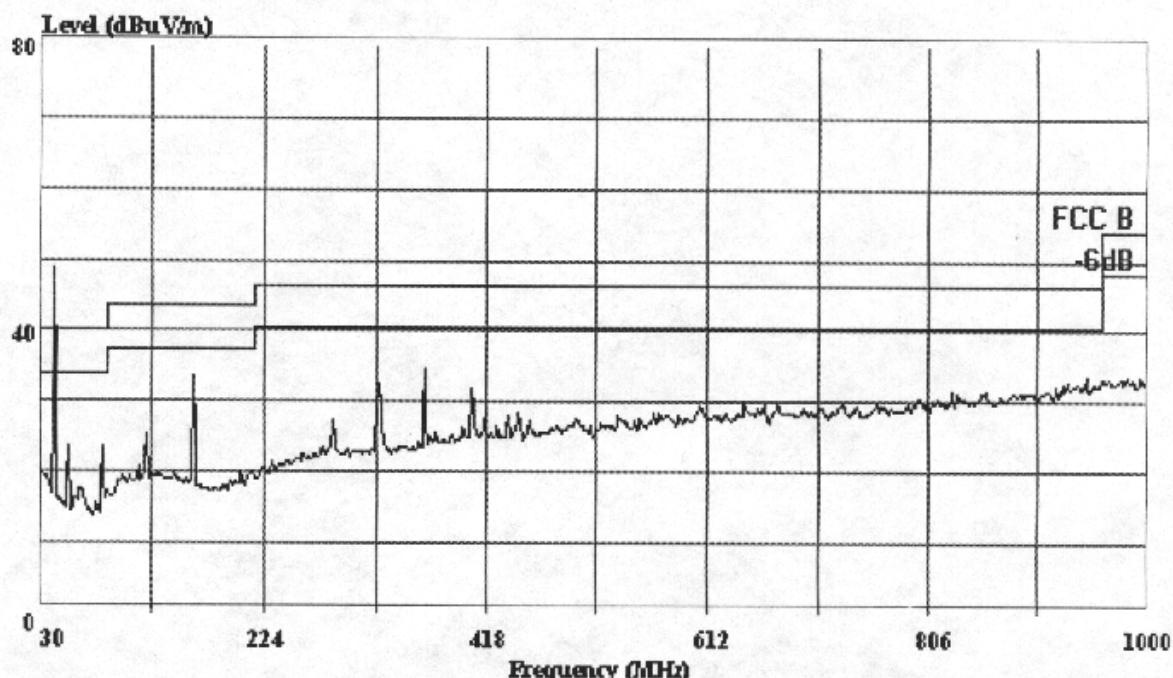


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Data#: 5 File#: hop.EMI

Date: 2001-06-11 Time: 09:12:56



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