

FCC CERTIFICATION
On Behalf of
Zhejiang Taizhou Huangyan Yinxiang Electronic Co., Ltd.

Remote Control
Model No.: YX2010

FCC ID: USS27MHZTX

Prepared for : Zhejiang Taizhou Huangyan Yinxiang Electronic Co., Ltd.
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Date of Test : November 21, 2006
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TABLE OF CONTENTS

Description	Page
Test Report Certification	
1. GENERAL INFORMATION	4
1.1. Description of Device (EUT).....	4
1.2. Description of Test Facility	4
1.3. Measurement Uncertainty	4
2. MEASURING DEVICE AND TEST EQUIPMENT	5
3. RADIATED EMISSION FOR FCC PART 15 SECTION 15.227(B).....	6
3.1. Block Diagram of Test Setup.....	6
3.2. The Field Strength of Radiation Emission Measurement Limits.....	6
3.3. Configuration of EUT on Measurement	7
3.4. Operating Condition of EUT	7
3.5. Test Procedure	7
3.6. The Field Strength of Radiation Emission Measurement Results	8
4. FUNDAMENTAL RADIATED EMISSION FOR FCC PART 15 SECTION 15.227(A)	9
4.1. Block Diagram of Test Setup.....	9
4.2. The Emission Limit For Section 15.227(a)	9
4.3. EUT Configuration on Measurement	10
4.4. Operating Condition of EUT	10
4.5. Test Procedure	10
4.6. The Emission Measurement Result	11
5. BAND EDGES	12
5.1. The Requirement	12
5.2. EUT Configuration on Measurement	12
5.3. Operating Condition of EUT	12
5.4. Test Procedure	12
5.5. The Measurement Result	13
APPENDIX I (TEST CURVES) (3pages)	

Test Report Certification

Applicant : Zhejiang Taizhou Huangyan Yinxian Electronic Co., Ltd.
 Manufacturer : Zhejiang Taizhou Huangyan Yinxian Electronic Co., Ltd.
 EUT Description : Remote Control
 (A) MODEL NO.: YX2010
 (B) SERIAL NO.: N/A
 (C) POWER SUPPLY: 12V DC ("AA" batteries 8×)

Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.227: 2006

The device described above is tested by ACCURATE TECHNOLOGY 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 Section 15.227 limits. The measurement results are contained in this test report and ACCURATE TECHNOLOGY 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 ACCURATE TECHNOLOGY CO. LTD.

Date of Test : November 21, 2006

Prepared by : 
 (Engineer)

Reviewer : 
 (Quality Manager)

Approved & Authorized Signer : 
 (Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Remote Control
Model Number	:	YX2010
Power Supply	:	12V DC ("AA" batteries 8×)
Operation Frequency	:	27.045MHz
Modulation Type	:	FM
Applicant	:	Zhejiang Taizhou Huangyan Yinxian Electronic Co., Ltd.
Address	:	Room 202, Unit 2, Shuijingxin Garden, Huangyan Town Taizhou City, Zhejiang Province, China
Manufacturer	:	Zhejiang Taizhou Huangyan Yinxian Electronic Co., Ltd.
Address	:	Room 202, Unit 2, Shuijingxin Garden, Huangyan Town Taizhou City, Zhejiang Province, China
Date of sample received	:	November 16, 2006
Date of Test	:	November 21, 2006

1.2. Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen, May 10, 2004 Accredited by FCC, May 10, 2004 The Certificate Registration Number is 253065 Accredited by Industry Canada, May 18, 2004 The Certificate Registration Number is IC 5077
Name of Firm	:	ACCURATE TECHNOLOGY CO. LTD
Site Location	:	F1, Bldg. A, Changyuan New Material Port, Keyuan Rd. Science & Industry Park, Nanshan, Shenzhen, Guangdong P.R. China

1.3. Measurement Uncertainty

Conducted emission expanded uncertainty	=	2.23dB, k=2
Radiated emission expanded uncertainty	=	4.12dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	03.31.2007
EMI Test Receiver	Rohde&Schwarz	ESI26	838786/013	01.02.2007
Loop Antenna	Schwarzbeck	FMZB1516	113	01.02.2007
Bilog Antenna	Schwarzbeck	VULB9163	9163-194	03.31.2007
Bilog Antenna	Chase	CBL6112B	2591	03.31.2007
Horn Antenna	Rohde&Schwarz	HF906	100013	01.02.2007
Spectrum Analyzer	Anritsu	MS2651B	6200238856	03.31.2007
Pre-Amplifier	Agilent	8447D	2944A10619	03.31.2007

3. RADIATED EMISSION FOR FCC PART 15 SECTION 15.227(B)

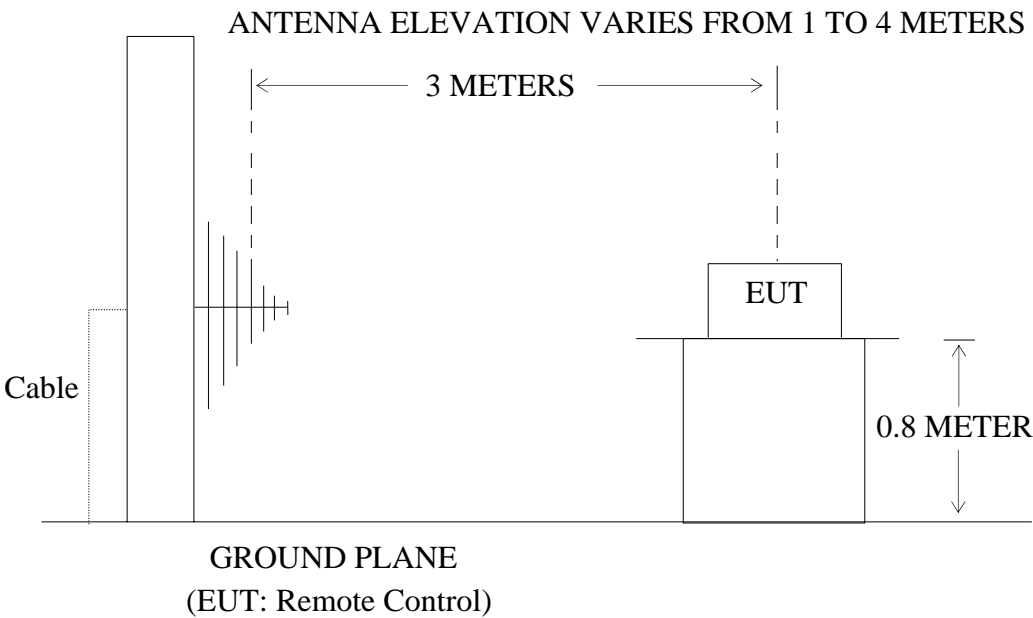
3.1. Block Diagram of Test Setup

3.1.1. Block diagram of connection between the EUT and simulators



(EUT: Remote Control)

3.1.2. Anechoic Chamber Test Setup Diagram



3.2. The Field Strength of Radiation Emission Measurement Limits

3.2.1. The field strength of any emissions which appear outside of this band shall not exceed the general radiated emission limits in section 15.209

Radiation Emission Measurement Limits According to Section 15.209(a)

Frequency (MHz)	Limit,		The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those
	Field Strength of Quasi-peak Value (microvolts/m)	Field Strength of Quasi-peak Value (dBμV/m)	
30 - 88	100	40	
88 - 216	150	43.5	

216 - 960	200	46	frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
Above 960	500	54	

3.3.Configuration of EUT 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.

3.3.1. Remote Control (EUT)

Model Number : 8801
Serial Number : N/A
Manufacturer : Zhejiang Taizhou Huangyan Yinxian Electronic Co., Ltd.

3.4.Operating Condition of EUT

3.4.1. Setup the EUT and simulator as shown as Section 3.1.

3.4.2. Turn on the power of all equipment.

3.4.3. Let the EUT work in TX modes(on) measure it.

3.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable 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 an 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 polarizations 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 FCC Part 15 Subpart C on radiated emission measurement.

The bandwidth of test receiver (R&S ESCS30) is set at 120KHz in 30-1000MHz. The frequency range from 30MHz to 1000MHz is checked.

The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector. Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.

3.6.The Field Strength of Radiation Emission Measurement Results

PASS.

The frequency range 30MHz to 1000MHz is investigated.

Date of Test:	November 21, 2006	Temperature:	23°C
EUT:	Remote Control	Humidity:	52%
Model No.:	YX2010	Power Supply:	12V DC ("AA" battery 8×)
Test Mode:	TX 27.045MHz	Test Engineer:	Andy

Polarization	Frequency (MHz)	Reading(dBμV/m) QP	Factor Corr.(dB)	Result(dBμV/m) QP	Limits(dBμV/m) QP	Margin(dBμV/m) QP
Horizontal	54.104	18.7	11.7	30.4	40.0	9.6
Horizontal	81.132	24.9	8.9	33.8	40.0	6.2
Horizontal	108.172	29.0	7.0	36.0	43.5	7.5
Horizontal	121.688	27.2	6.3	33.5	43.5	10.0
Horizontal	135.216	28.2	5.5	33.7	43.5	9.8
Horizontal	162.262	25.1	6.7	31.8	43.5	11.7
Horizontal	175.770	29.1	8.0	37.1	43.5	6.4
Horizontal	189.302	23.7	9.0	32.7	43.5	10.8
Horizontal	243.388	23.9	9.8	33.7	46.0	12.3
Horizontal	270.420	20.9	11.1	32.0	46.0	14.0
Horizontal	283.954	22.3	11.8	34.1	46.0	11.9
Horizontal	297.460	18.9	12.4	31.3	46.0	14.7
Vertical	81.140	24.6	5.3	29.9	40.0	10.1
Vertical	108.170	27.1	7.0	34.1	43.5	9.4
Vertical	121.684	27.5	7.2	34.7	43.5	8.8
Vertical	135.212	27.4	7.3	34.7	43.5	8.8
Vertical	148.744	25.4	7.5	32.9	43.5	10.6
Vertical	162.272	28.8	8.0	36.8	43.5	6.7
Vertical	175.768	27.7	8.4	36.1	43.5	7.4
Vertical	189.312	21.3	8.8	30.1	43.5	13.4
Vertical	202.842	22.2	8.9	31.1	43.5	12.4
Vertical	243.370	25.3	8.6	33.9	46.0	12.1
Vertical	256.913	19.9	9.3	29.2	46.0	16.8
Vertical	270.442	17.0	10.2	27.2	46.0	18.8
Vertical	283.954	17.8	11.4	29.2	46.0	16.8

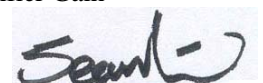
The spectral diagrams in appendix 1 display the measurement of un-weighted peak values.

The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$

Reviewer :

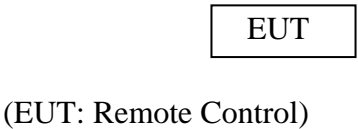


4. FUNDAMENTAL RADIATED EMISSION FOR FCC PART 15

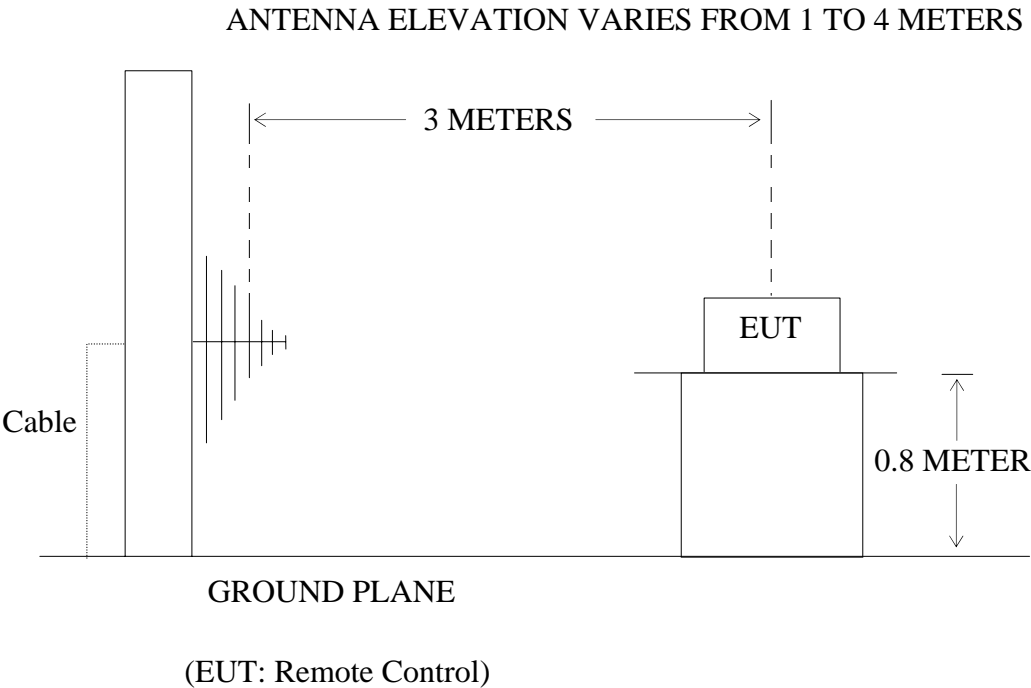
SECTION 15.227(A)

4.1. Block Diagram of Test Setup

4.1.1. Block diagram of connection between the EUT and simulators



4.1.2. Anechoic Chamber Test Setup Diagram



4.2. The Emission Limit For Section 15.227(a)

4.2.1 The field strength of any emission within this band shall not exceed 10,000microvolts/meter at 3 meters. The emission limit in this paragraph is based on measurement instrumentation employing an average detector. The provisions in Section 15.35 for limiting peak emission apply.

4.3.EUT Configuration on Measurement

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

4.3.1. Remote Control (EUT)

Model Number	:	YX2010
Serial Number	:	N/A
Manufacturer	:	Zhejiang Taizhou Huangyan Yinxiang Electronic Co., Ltd.

4.4.Operating Condition of EUT

4.4.1.Setup the EUT and simulator as shown as Section 4.1.

4.4.2.Turn on the power of all equipment.

4.4.3.Let the EUT work in TX mode (On) measure it.

4.5.Test Procedure

The EUT and its simulators are placed on a turntable, which is 0.8 meter high above ground. The turntable 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 an antenna tower. calibrated Loop antenna is used as receiving antenna. In order to find the maximum emission levels, all of the interface cables must be manipulated according to FCC Part 15 on radiated emission measurement.

The bandwidth of test receiver (R&S ESCS30) is set at 9KHz in 9kHz-30MHz

4.6.The Emission Measurement Result

PASS.

Date of Test:	November 21, 2006	Temperature:	23°C
EUT:	Remote Control	Humidity:	52%
Model No.:	YX2010	Power Supply:	12V DC ("AA" battery 8×)
Test Mode:	TX	Test Engineer:	Andy

Fundamental Radiated Emissions

Test conditions		Fundamental Frequency	
		27.045MHz	
T _{nom} (23°C)	Unit	(dBμV/m)/ (μ V/m) AV	(dBμV/m)/(μ V/m) PEAK
		74.1/5070	75.7/6095
limit		80/10,000	100/100,000
Note: Measurement was performed with modulated signal with average detector and peak detector.			

The spectral diagrams in appendix 1.

Reviewer :



5. BAND EDGES

5.1.The Requirement

5.1.1. The wanted emission within the band 26.96-27.28MHz.

5.2.EUT Configuration on Measurement

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

5.2.1.Remote Control (EUT)

Model Number	:	YX2010
Serial Number	:	N/A
Manufacturer	:	Zhejiang Taizhou Huangyan Yinxiang Electronic Co., Ltd.

5.3.Operating Condition of EUT

5.3.1.Setup the EUT and simulator as shown as Section 4.1.

5.3.2.Turn on the power of all equipment.

5.3.3.Let the EUT work in TX mode (On) measure it.

5.4.Test Procedure

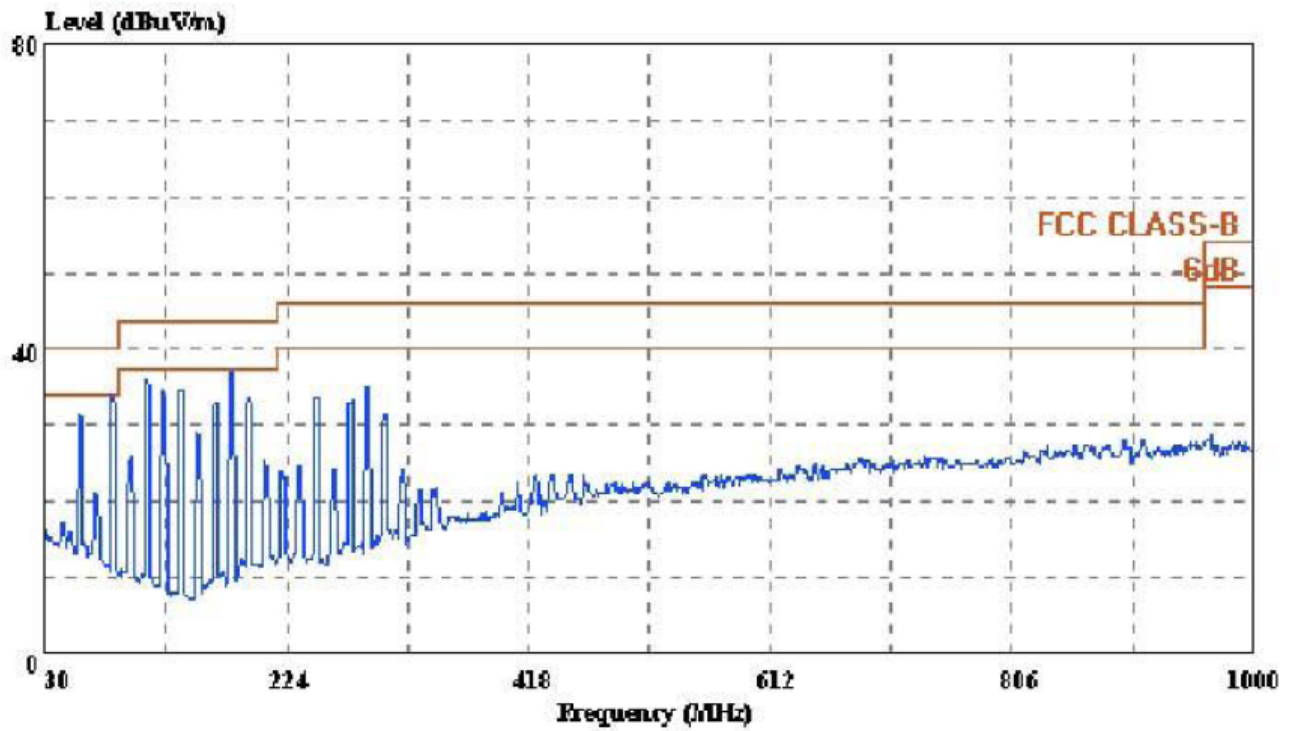
The transmitter output was fed into the spectrum analyzer and photo was taken. The vertical scale is set to 10dB per division; the horizontal scale is set to 32kHz per division. Star frequency are 26.96MHz, stop frequency are 27.28MHz .
RBW are 3kHz, VBW are 3kHz, Sweep time are 10ms.

5.5.The Measurement Result

The EUT does meet the FCC requirement.

The spectral diagrams in appendix 1.

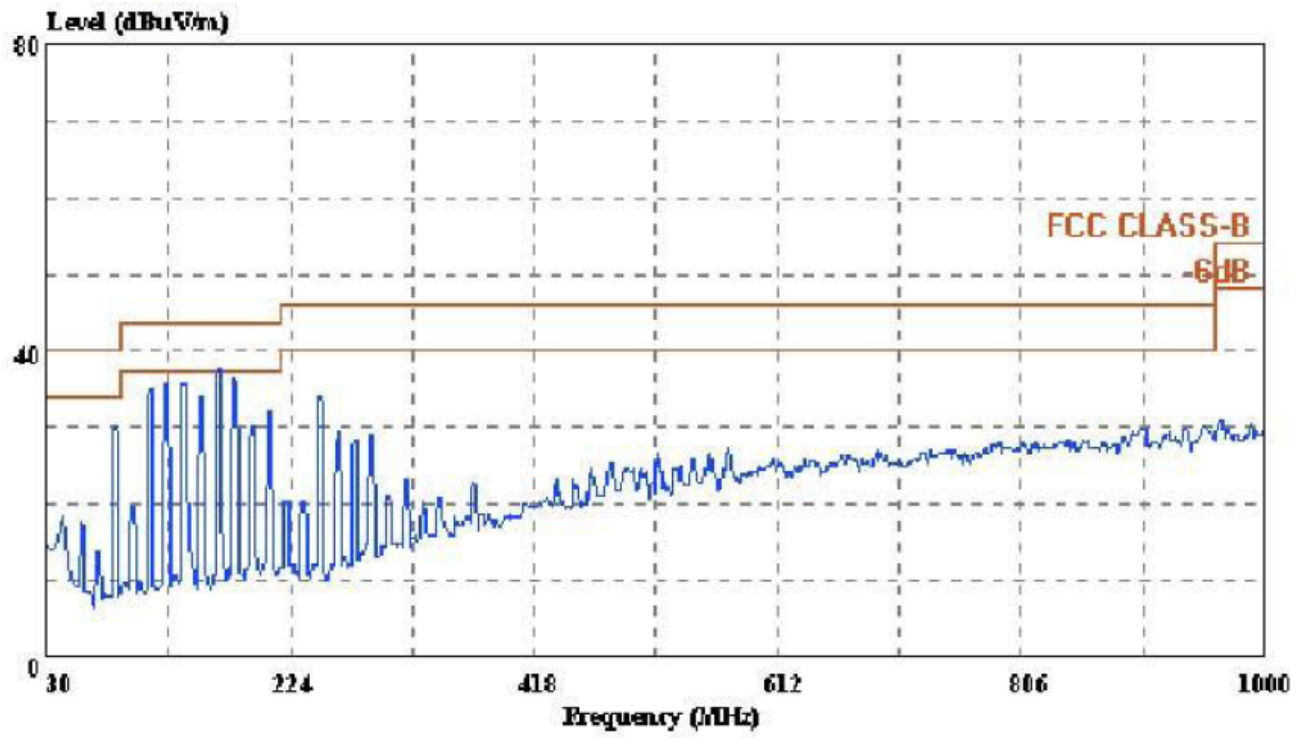
APPENDIX I (Test Curves)



Trace:

Ref Trace:

Condition: FCC CLASS-B 3m ATC VULB9163 (NEW) HORIZONTAL
eut : Remote control m/n:YX2010
power : DC 12.0V
memo : TX
manuf : YINXIANG
sample no.: 063963



Trace:

Ref Trace:

Condition: FCC CLASS-B 3m ATC VULB9163 (NEW) VERTICAL
eut : Remote control m/n:YX2010
power : DC 12.0V
memo : TX
manuf : YINXIANG
sample no.: 063963

