

FCC CERTIFICATION
On Behalf of
Estes-Cox Corporation d/b/a Estes Industries and Cox

2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes
Model No.: #4550-3

FCC ID: M45-45503

Prepared for : Estes-Cox Corporation d/b/a Estes Industries and Cox
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Report Number : ATE20130975
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APPENDIX I (TEST CURVES) (26 pages)

Test Report Certification

Applicant : Estes-Cox Corporation d/b/a Estes Industries and Cox
Manufacturer : SHANG HAI C.C.LEE MODEL CO., LTD.
EUT Description : 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes
(A) MODEL NO.: #4550-3
(B) POWER SUPPLY: 9V DC (“AA” batteries 6×)

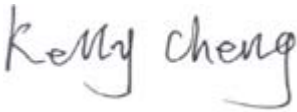
Measurement Procedure Used:

FCC Rules and Regulations Part 15 Subpart C Section 15.249
ANSI C63.4: 2009

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 15.249 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 : May 20-30, 2013

Prepared by : 
(Kelly Cheng, Engineer)

Approved & Authorized Signer : 
(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes
Model Number	:	#4550-3
Power Supply	:	9V DC (“AA” batteries 6×)
Operate Frequency	:	2402.000-2480.000MHz
Modulation Type	:	GFSK
Applicant Address	:	Estes-Cox Corporation d/b/a Estes Industries and Cox 1295 H Street, 227 Penrose, Colorado 81240 United States
Manufacturer Address	:	SHANG HAI C.C.LEE MODEL CO., LTD. No.1289, MIDDLE JIASONG ROAD, HUAXIN TOWN, QINGPU AREA, SHANGHAI, CHINA
Date of sample received	:	May 15, 2013
Date of Test	:	May 20-30, 2013

1.2. Description of Test Facility

EMC Lab	:	Accredited by TUV Rheinland Shenzhen Listed by FCC The Registration Number is 752051 Listed by Industry Canada The Registration Number is 5077A-2 Accredited by China National Accreditation Committee for Laboratories The Certificate Registration Number is L3193
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
(9kHz-30MHz) = 3.08dB, k=2

Radiated emission expanded uncertainty
(30MHz-1000MHz) = 4.42dB, k=2

Radiated emission expanded uncertainty
(Above 1GHz) = 4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated date	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 12, 2013	Jan. 11, 2014
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 12, 2013	Jan. 11, 2014
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 12, 2013	Jan. 11, 2014
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 12, 2013	Jan. 11, 2014
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Feb. 06, 2013	Feb. 05, 2014
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Feb. 06, 2013	Feb. 05, 2014
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Feb. 06, 2013	Feb. 05, 2014
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Feb. 06, 2013	Feb. 05, 2014
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 12, 2013	Jan. 11, 2014
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 12, 2013	Jan. 11, 2014

3. SUMMARY OF TEST RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Conducted Emission	N/A
Section 15.249(a)	Fundamental and Harmonics Radiated Emission	Compliant
Section 15.249(d)	Spurious Radiated Emission	Compliant
Section 15.249(d)	Band Edge	Compliant
Section 15.203	Antenna Requirement	Compliant

Remark: "N/A" means "Not applicable".

4. FUNDAMENTAL AND HARMONICS RADIATED EMISSION FOR SECTION 15.249(A)

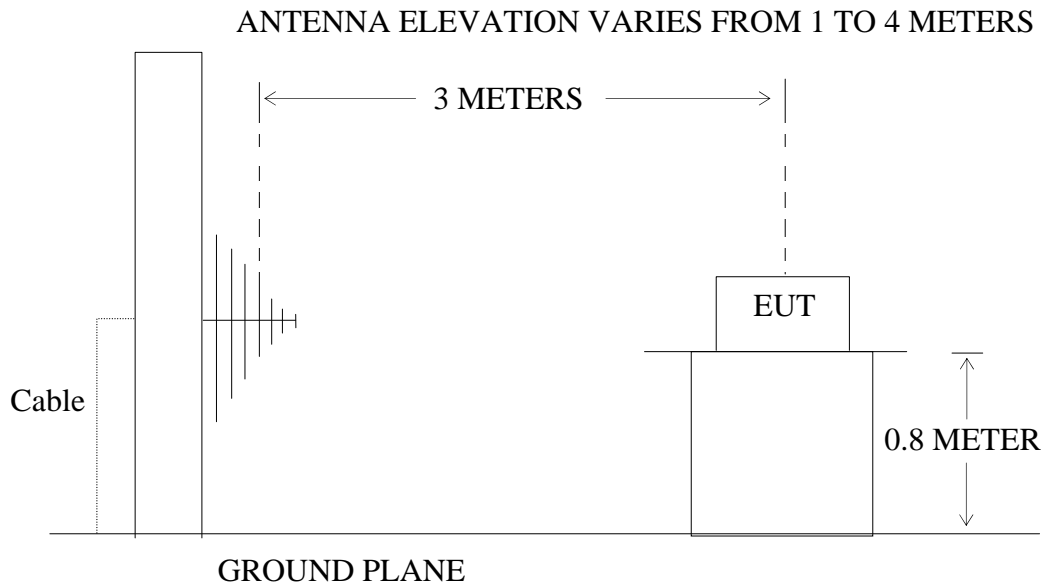
4.1. Block Diagram of Test Setup

4.1.1. Block diagram of connection between the EUT and simulators



(EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes)

4.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes)

4.2.The Emission Limit

4.2.1.For intentional radiators, According to section 15.249(a), Operation within the frequency band of 2.4 to 2.4835GHz, The fundamental field strength shall not exceed 94 dB μ V/m and the harmonics shall not exceed 54 dB μ V/m.

Fundamental Frequency	Field Strength of Fundamental (millivolts/meter)	Field Strength of harmonics (microvolts/meter)
902-928MHz	50	500
2400-2483.5MHz	50	500
5725-5875MHz	50	500
24.0-24.25GHz	250	2500

4.2.2.According to section 15.249(e), as shown in section 15.35(b), the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

4.3.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.

4.3.1. 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes (EUT)

Model Number : #4550-3
 Serial Number : N/A
 Manufacturer : SHANG HAI C.C.LEE MODEL 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 modes measure it. The transmit frequency are 2402.000-2480.000MHz. We are select 2402.000MHz, 2441.000MHz, 2480.000MHz TX frequency to transmit.

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. 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 bi-log 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 ANSI C63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 120kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 25000MHz is checked.

4.6. The Field Strength of Radiation Emission Measurement Results

PASS.

Date of Test: <u>May 27, 2013</u>	Temperature: <u>25°C</u>
2.4GHz two-channel radio transmitter for use with	
EUT: <u>radio-controlled model airplanes</u>	Humidity: <u>50%</u>
Model No.: <u>#4550-3</u>	Power Supply: <u>DC 9V</u>
Test Mode: <u>TX 2402.000MHz</u>	Test Engineer: <u>Alen</u>

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2402.000	88.32	91.21	-7.54	80.78	83.67	94.00	114.00	-9.22	-30.33	Vertical
2402.000	86.87	89.46	-7.54	79.33	81.92	94.00	114.00	-10.67	-32.08	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
4804.000	48.10	51.05	-0.71	47.39	50.34	54.00	74.00	-6.61	-23.66	Vertical
4804.000	50.23	52.86	-0.71	49.52	52.15	54.00	74.00	-4.84	-21.85	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

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

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test: May 27, 2013 Temperature: 25°C
2.4GHz two-channel radio
transmitter for use with
EUT: radio-controlled model airplanes Humidity: 50%
Model No.: #4550-3 Power Supply: DC 9V
Test Mode: TX 2441.000MHz Test Engineer: Alen

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2441.000	85.45	88.24	-7.42	78.03	80.82	94.00	114.00	-15.97	-30.18	Vertical
2441.000	83.74	86.42	-7.42	76.32	79.00	94.00	114.00	-17.68	-35.00	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
4876.000	43.56	46.25	-0.23	43.33	46.02	54.00	74.00	-10.67	-27.98	Vertical
4876.000	47.21	49.90	-0.23	46.98	49.67	54.00	74.00	-7.02	-24.33	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

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

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test: May 27, 2013 Temperature: 25°C
2.4GHz two-channel radio
transmitter for use with
EUT: radio-controlled model airplanes Humidity: 50%
Model No.: #4550-3 Power Supply: DC 9V
Test Mode: TX 2480.000MHz Test Engineer: Alen

Fundamental Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2480.000	90.03	92.38	-7.33	82.70	85.05	94.00	114.00	-11.30	-28.95	Vertical
2480.000	86.69	89.57	-7.33	79.36	82.24	94.00	114.00	-14.64	-31.76	Horizontal

Harmonics Radiated Emissions

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
4960.000	47.09	49.72	0.30	47.39	50.02	54.00	74.00	-6.61	-23.98	Vertical
4960.000	45.12	47.94	0.30	45.42	48.24	54.00	74.00	-8.58	-25.76	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
3. The spectral diagrams in appendix I display the measurement of peak values.

5. SPURIOUS RADIATED EMISSION FOR SECTION 15.249(D)

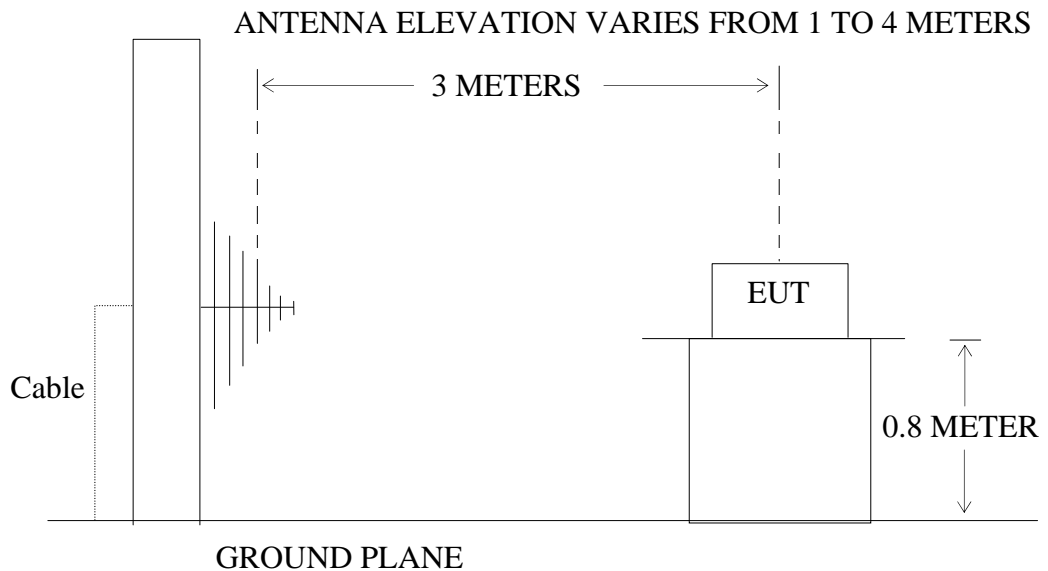
5.1. Block Diagram of Test Setup

5.1.1. Block diagram of connection between the EUT and simulators



(EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes)

5.1.2. Semi-Anechoic Chamber Test Setup Diagram



(EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes)

5.2. The Emission Limit For Section 15.249(d)

5.2.1. Emission radiated outside of the specified frequency bands, except for harmonics, shall be comply with the general radiated emission limits in Section 15.209.

Radiation Emission Measurement Limits According to Section 15.209

Frequency (MHz)	Limit		The final measurement in band 9-90kHz, 110-490kHz and above 1000MHz is performed with Average detector.
	Field Strength (microvolts/meter)	Measurement Distance (meters)	
0.009 – 0.490	2400/F(kHz)	300	

0.490 – 1.705	24000/F(kHz)	30	Except those frequency bands mention above, the final measurement for frequencies below 1000MHz is performed with Quasi Peak detector.
1.705 – 30.0	30	30	
30 - 88	100	3	
88 - 216	150	3	
216 - 960	200	3	
Above 960	500	3	

5.3.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.

5.3.1. 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes (EUT)

Model Number : #4550-3
Serial Number : N/A
Manufacturer : SHANG HAI C.C.LEE MODEL CO., LTD.

5.4.Operating Condition of EUT

5.4.1.Setup the EUT and simulator as shown as Section 5.1.

5.4.2.Turn on the power of all equipment.

5.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402.000-2480.000MHz. We are select 2402.000MHz, 2441.000MHz, 2480.000MHz TX frequency to transmit.

5.5. 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 ANSI C63.4: 2009 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The bandwidth of test receiver is set at 9kHz in below 30MHz. and set at 120kHz in 30-1000MHz, and 1MHz in above 1000MHz.

The frequency range from 9kHz to 25GHz 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.

5.6.The Emission Measurement Result

PASS.

Date of Test: May 27-29, 2013 Temperature: 25°C
 2.4GHz two-channel radio
 transmitter for use with
 EUT: radio-controlled model airplanes Humidity: 50%
 Model No.: #4550-3 Power Supply: DC 9V
 Test Mode: TX 2402.000MHz Test Engineer: Alen

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	X
-	-	-	-	-	-	Y
-	-	-	-	-	-	Z

30MHz-25GHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>May 27-29, 2013</u>	Temperature:	<u>25°C</u>
	<u>2.4GHz two-channel radio transmitter for use with</u>		
EUT:	<u>radio-controlled model airplanes</u>	Humidity:	<u>50%</u>
Model No.:	<u>#4550-3</u>	Power Supply:	<u>DC 9V</u>
Test Mode:	<u>TX 2441.000MHz</u>	Test Engineer:	<u>Alen</u>

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	X
-	-	-	-	-	-	Y
-	-	-	-	-	-	Z

30MHz-25GH

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

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

3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test:	<u>May 27-29, 2013</u>	Temperature:	<u>25°C</u>
	<u>2.4GHz two-channel radio transmitter for use with</u>		
EUT:	<u>radio-controlled model airplanes</u>	Humidity:	<u>50%</u>
Model No.:	<u>#4550-3</u>	Power Supply:	<u>DC 9V</u>
Test Mode:	<u>TX 2480.000MHz</u>	Test Engineer:	<u>Alen</u>

Below 30MHz

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	X
-	-	-	-	-	-	Y
-	-	-	-	-	-	Z

30MHz-25GH

Frequency (MHz)	Reading (dBμV/m)	Factor(dB) Corr.	Result (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
-	-	-	-	-	-	Vertical
-	-	-	-	-	-	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

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

3. The spectral diagrams in appendix I display the measurement of peak values.

6. BAND EDGES

6.1.The Requirement

6.1.1.Band Edge from 2400MHz to 2483.5MHz. Emission radiated outside of the specified frequency bands, except for harmonics, shall be attenuated by at least 50 dB below the level of the fundamental or to the general radiated emission limits in Section 15.209, whichever is the lesser attenuation.

6.2.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.

6.2.1. 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes (EUT)

Model Number : #4550-3
 Serial Number : N/A
 Manufacturer : SHANG HAI C.C.LEE MODEL CO., LTD.

6.3.Operating Condition of EUT

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

6.3.2.Turn on the power of all equipment.

6.3.3. Let the EUT work in TX modes measure it. The transmit frequency are 2402.000-2480.000MHz MHz. We are select 2402.000MHz, 2480.000MHz TX frequency to transmit.

6.4.Test Procedure

1. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.
2. The turntable was rotated for 360 degrees to determine the position of maximum emission level.
3. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.
4. Set the spectrum analyzer in the following setting in order to capture the lower and upper band-edges of the emission:
 RBW=1MHz, VBW=1MHz

6.5.The Measurement Result

Pass.

Date of Test:	<u>May 27, 2013</u>	Temperature:	<u>25°C</u>
	<u>2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes</u>	Humidity:	<u>50%</u>
EUT:	<u>airplanes</u>	Power Supply:	<u>DC 9V</u>
Model No.:	<u>#4550-3</u>	Test Engineer:	<u>Alen</u>
Test Mode:	<u>TX 2402.000MHz(Hopping)</u>		

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2379.603	48.87	53.95	-7.59	41.28	46.36	54.00	74.00	-12.72	-27.64	Vertical
2400.000	50.68	55.68	-7.46	43.22	48.22	54.00	74.00	-10.78	-25.78	Vertical
2397.055	45.62	50.80	-7.48	38.14	43.32	54.00	74.00	-15.86	-30.68	Horizontal
2400.000	48.10	52.79	-7.46	40.64	45.33	54.00	74.00	-13.36	-28.67	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test: May 27, 2013 Temperature: 25°C
2.4GHz two-channel radio transmitter
for use with radio-controlled model
EUT: airplanes Humidity: 50%
Model No.: #4550-3 Power Supply: DC 9V
Test Mode: TX 2480.000MHz (Hopping) Test Engineer: Alen

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	55.98	60.85	-7.37	48.61	53.48	54.00	74.00	-5.39	-20.52	Vertical
2483.971	55.12	60.22	-7.38	47.74	52.84	54.00	74.00	-6.26	-21.16	Vertical
2483.500	53.65	58.27	-7.38	46.27	50.89	54.00	74.00	-7.37	-23.11	Horizontal
2483.770	50.25	55.18	-7.38	42.87	47.80	54.00	74.00	-11.13	-26.20	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

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

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test: May 27, 2013 Temperature: 25°C
 2.4GHz two-channel radio transmitter
 for use with radio-controlled model
 EUT: airplanes Humidity: 50%
 Model No.: #4550-3 Power Supply: DC 9V
 Test Mode: TX 2402.000MHz(Non-hopping) Test Engineer: Alen

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2397.055	47.63	51.25	-7.48	40.15	43.77	54.00	74.00	-13.85	-30.23	Vertical
2399.976	50.32	54.68	-7.46	42.86	47.22	54.00	74.00	-11.14	-26.78	Vertical
2398.880	50.02	54.47	-7.46	42.56	47.01	54.00	74.00	-11.44	-26.99	Horizontal
2400.098	46.52	50.82	-7.46	39.06	43.36	54.00	74.00	-14.94	-30.64	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. 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:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$
 Where Corrected Factor = Antenna Factor + Cable Loss + High Pass Filter Loss – Amplifier Gain
3. The spectral diagrams in appendix I display the measurement of peak values.

Date of Test: May 27, 2013 Temperature: 25°C
2.4GHz two-channel radio transmitter
for use with radio-controlled model
EUT: airplanes Humidity: 50%
Model No.: #4550-3 Power Supply: DC 9V
Test Mode: TX 2480.000MHz (Non-hopping) Test Engineer: Alen

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.500	50.36	54.62	-7.37	42.99	47.25	54.00	74.00	-11.01	-26.75	Vertical
2483.810	50.04	53.68	-7.38	42.66	46.30	54.00	74.00	-11.34	-27.70	Vertical
2483.500	53.28	57.81	-7.37	45.91	50.44	54.00	74.00	-8.09	-23.56	Horizontal
2484.051	52.35	56.57	-7.38	44.97	49.19	54.00	74.00	-9.03	-24.81	Horizontal

Note:

- Emissions attenuated more than 20 dB below the permissible value are not reported.
- 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:

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

$$\text{Where Corrected Factor} = \text{Antenna Factor} + \text{Cable Loss} + \text{High Pass Filter Loss} - \text{Amplifier Gain}$$
- The spectral diagrams in appendix I display the measurement of peak values.

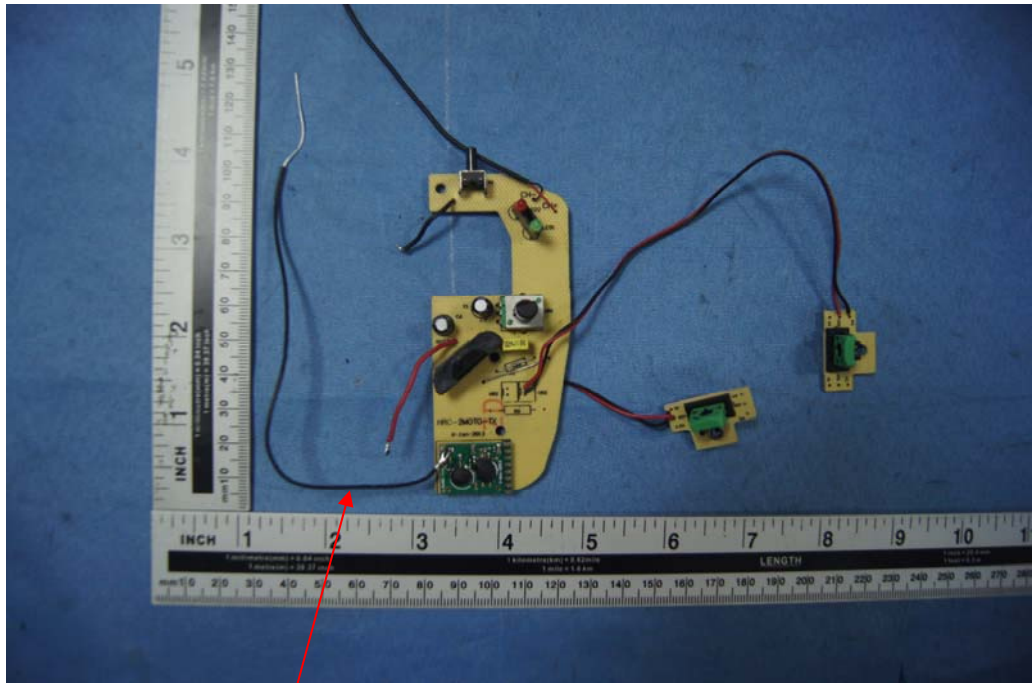
7. ANTENNA REQUIREMENT

7.1.The Requirement

7.1.1. According to Section 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.

7.2. Antenna Construction

The antenna is PCB Layout antenna, no consideration of replacement.



Antenna

APPENDIX I (Test Curves)



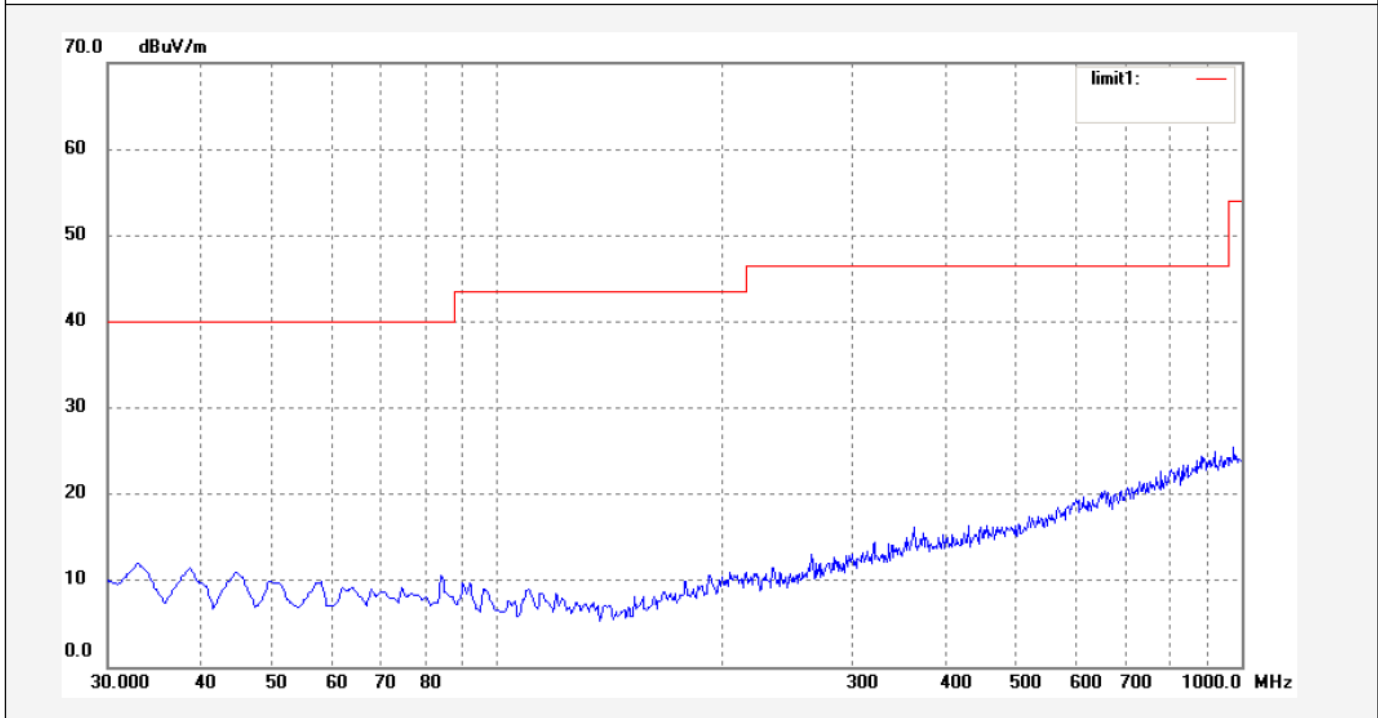
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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: alen #676	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 26 C / 55 %	Time: 10/33/35
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2402MHz	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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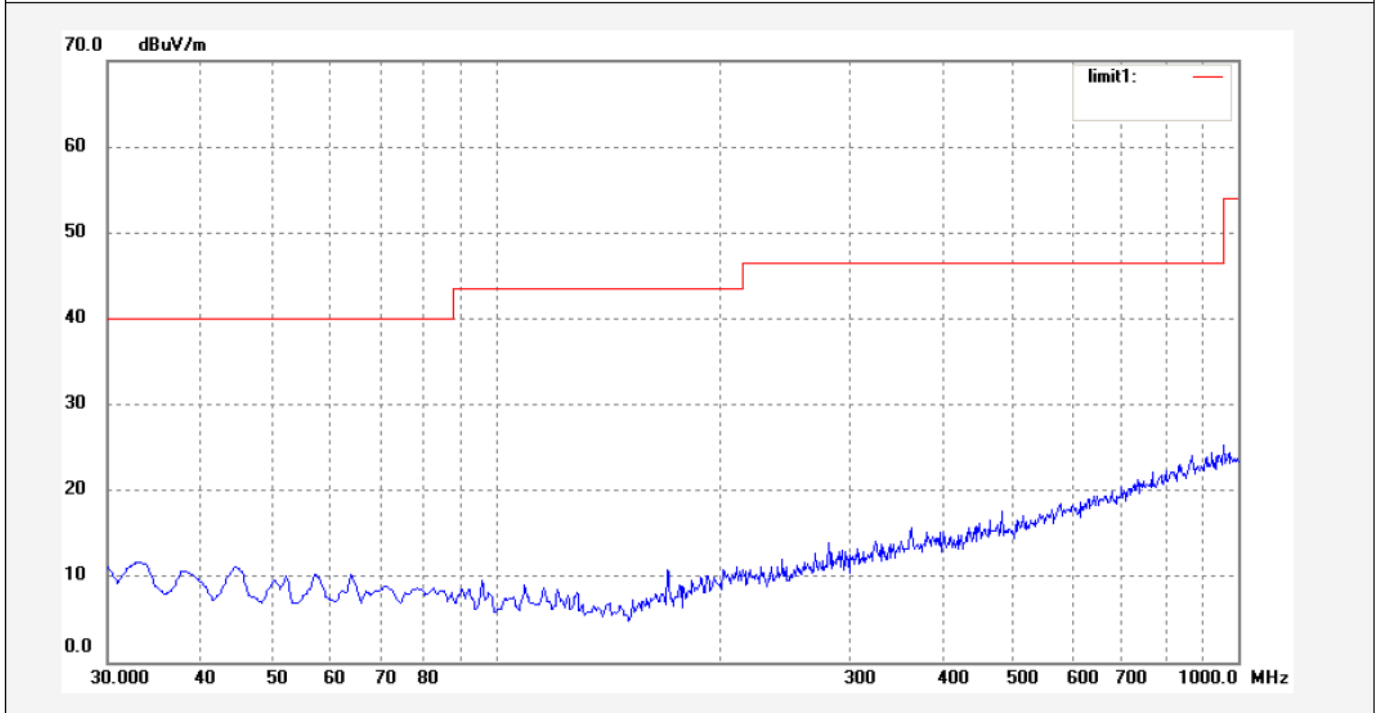
Site: 1# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: alen #675	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 26 C / 55 %	Time: 10/32/45
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2402MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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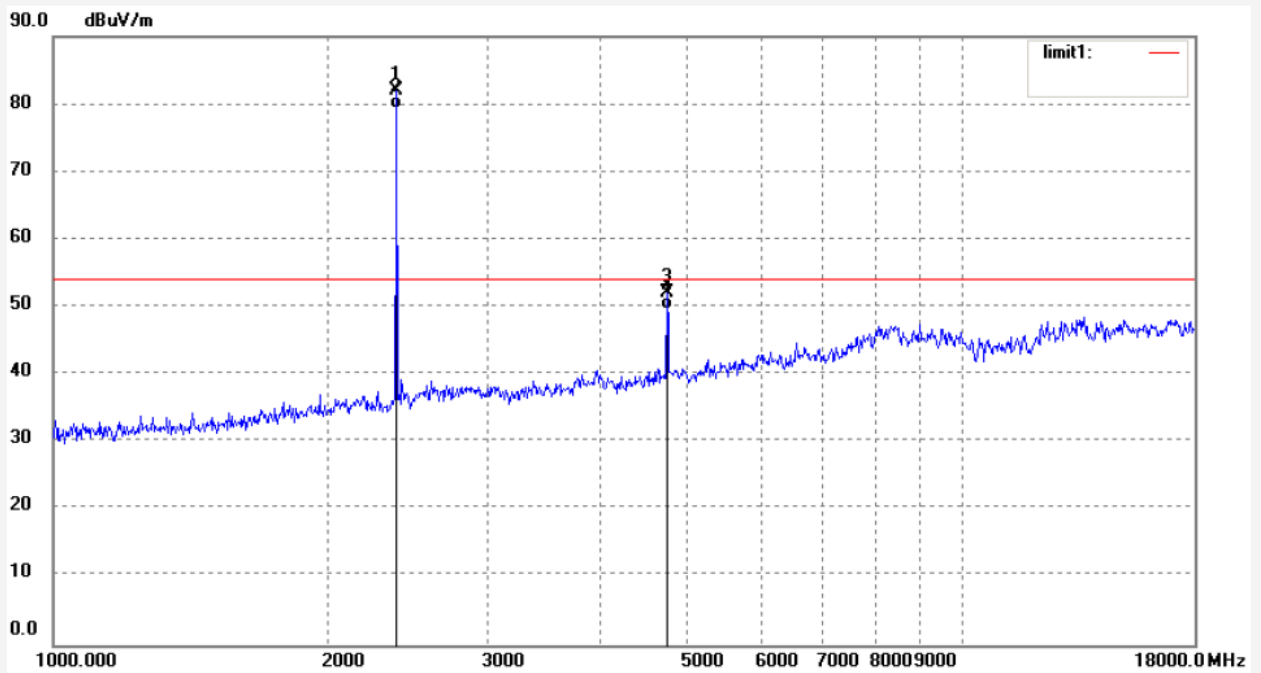
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Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1174	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/11/50
EUT: 2.4GHz two-channel radio transmitter for use with radio- controlled model airplanes	
Mode: TX 2402MHz	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	89.46	-7.54	81.92	114.00	-32.08	peak			
2	2402.000	86.87	-7.54	79.33	94.00	-10.67	AVG			
3	4804.000	52.86	-0.71	52.15	74.00	-21.85	peak			
4	4804.000	50.23	-0.71	49.52	54.00	-4.48	AVG			



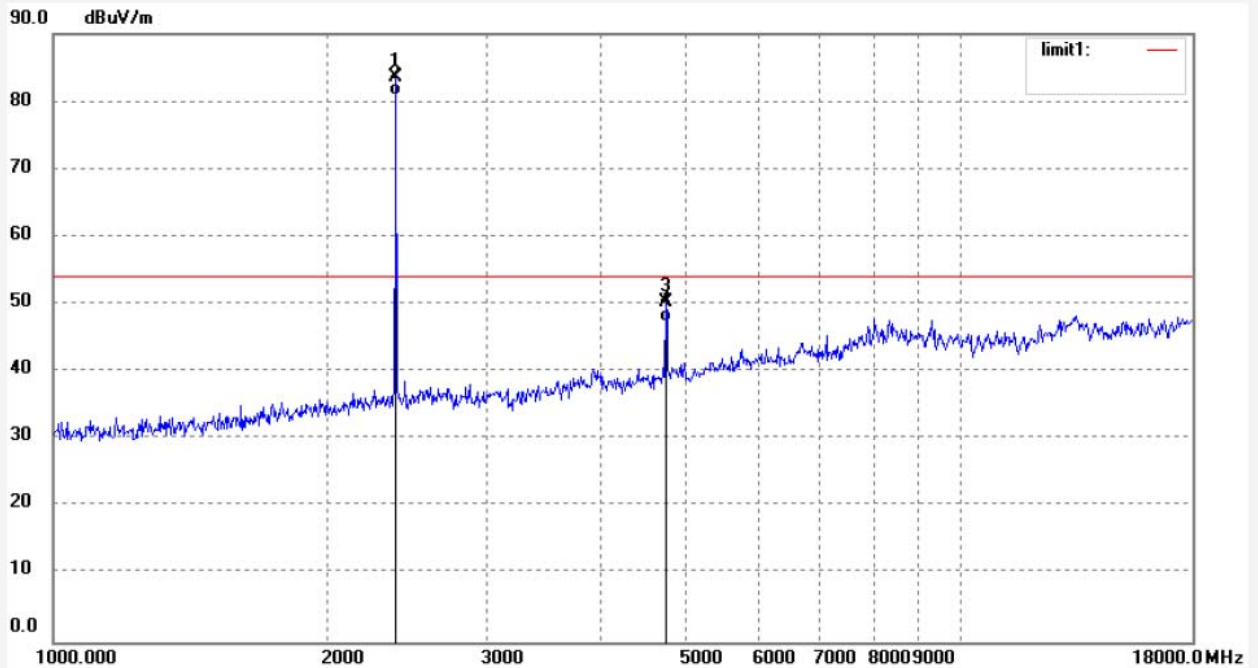
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Site: 2# Chamber
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Fax:+86-0755-26503396

Job No.: ALEN #1175	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/13/33
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2402MHz	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2402.000	91.21	-7.54	83.67	114.00	-30.33	peak			
2	2402.000	88.32	-7.54	80.78	94.00	-9.22	AVG			
3	4804.000	51.05	-0.71	50.34	74.00	-23.66	peak			
4	4804.000	48.10	-0.71	47.39	54.00	-6.61	AVG			



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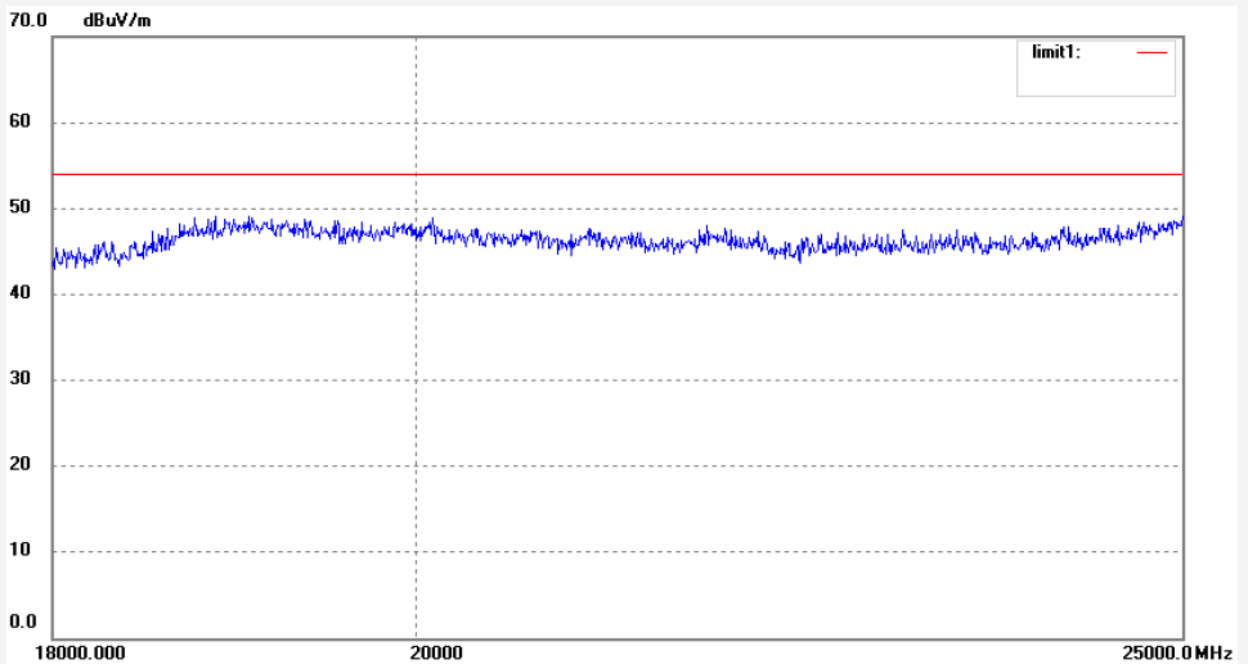
Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Alen #689	Polarization: Horizontal
Standard: FCC 15C	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/29/
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 13:22:56
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2402MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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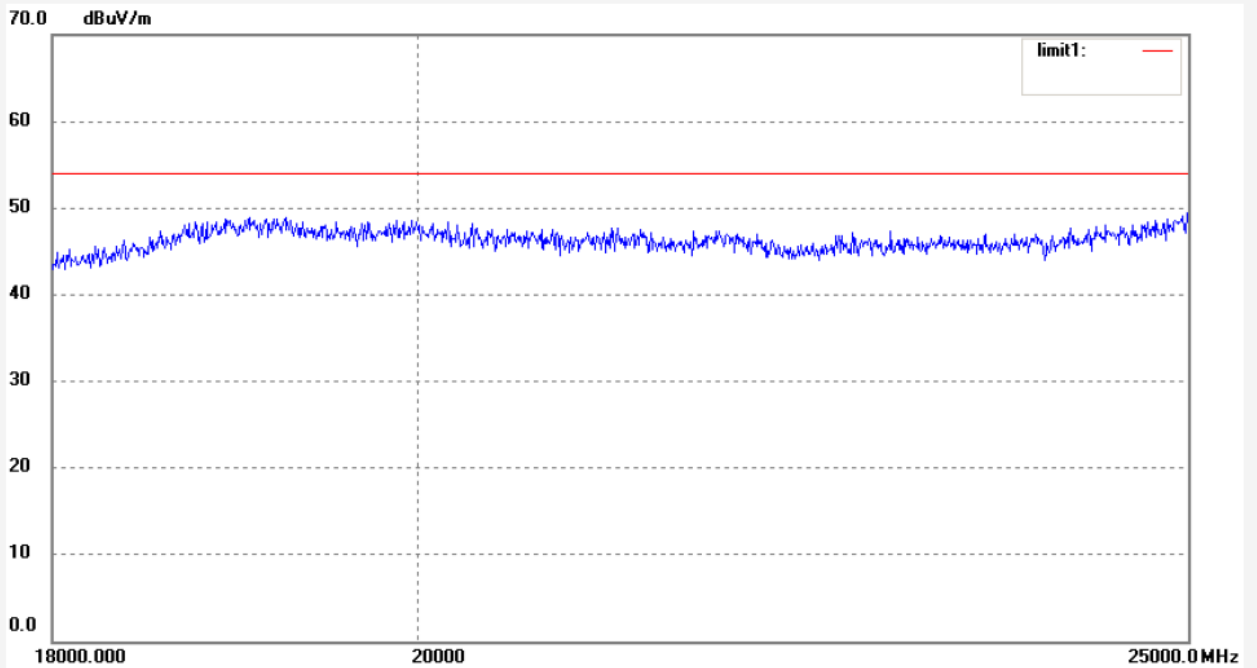
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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Alen #688	Polarization: Vertical
Standard: FCC 15C	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/29/
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 13:21:05
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2402MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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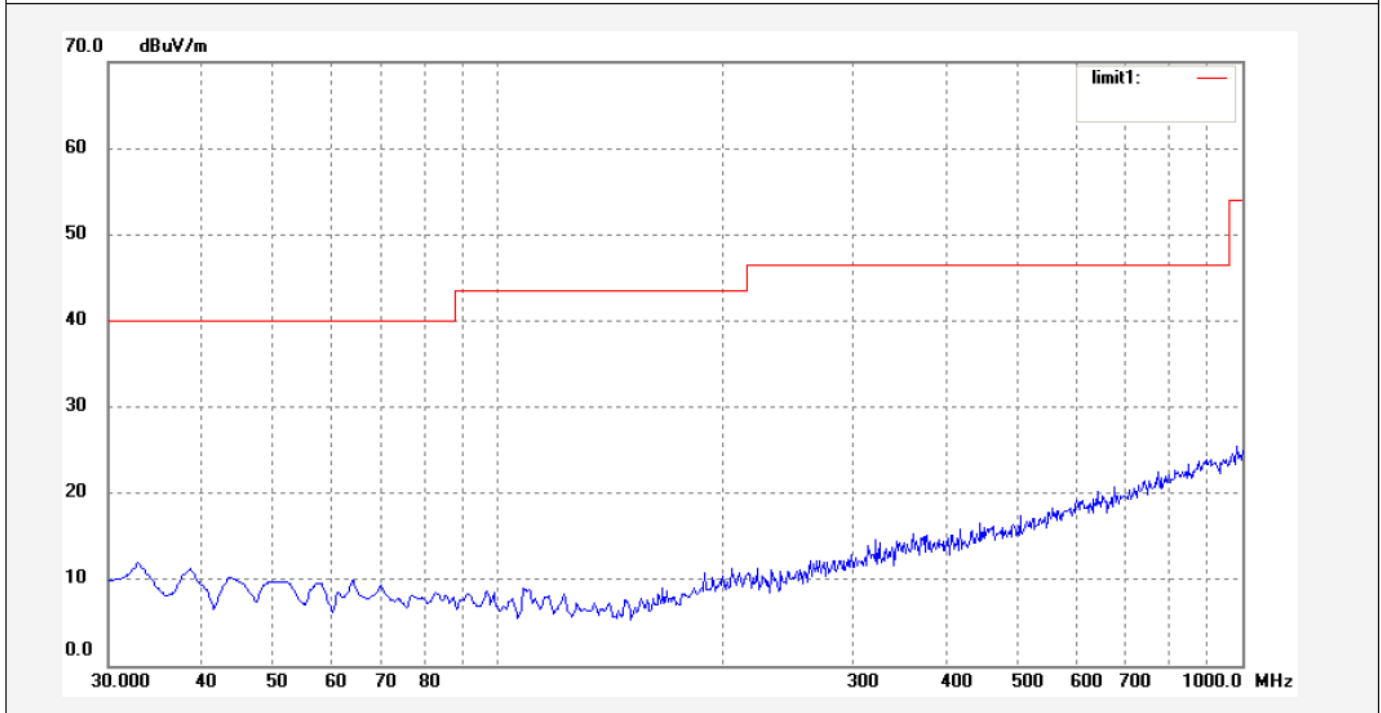
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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: alen #673	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 26 C / 55 %	Time: 10/31/37
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2441MHz	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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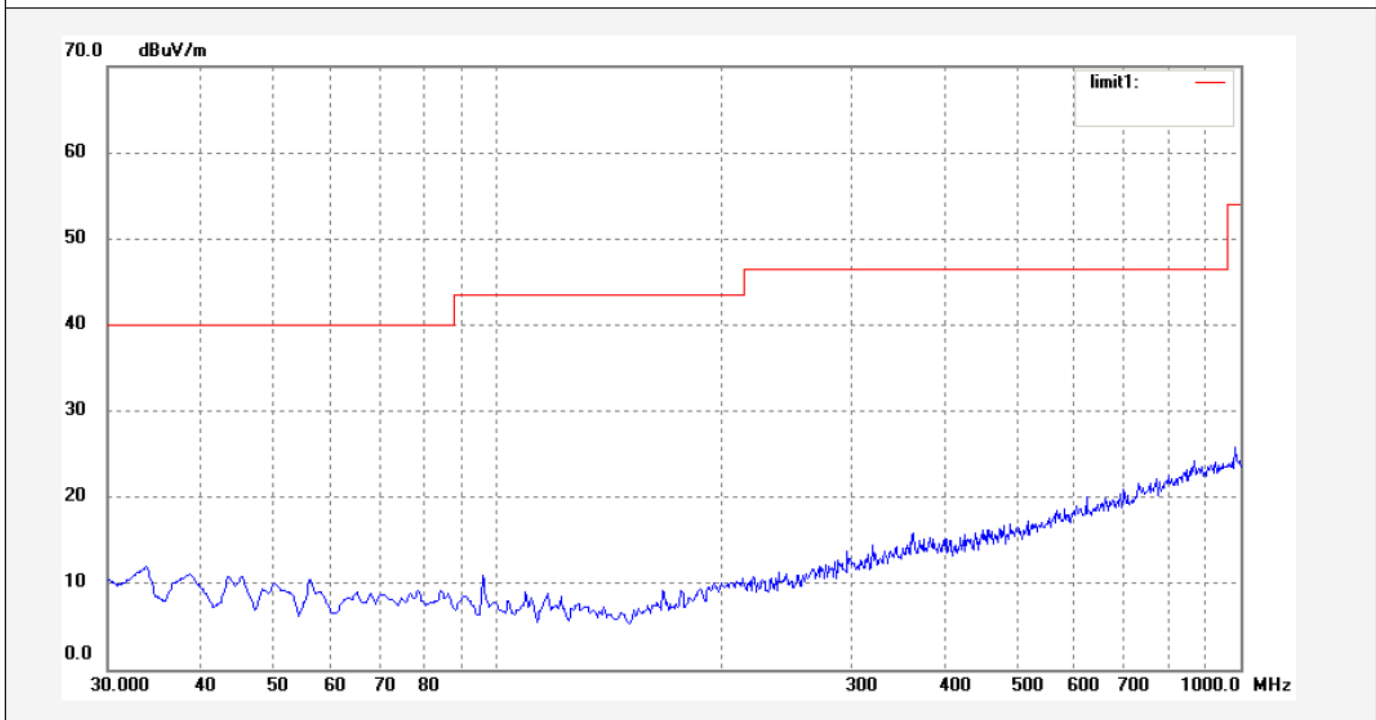
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Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: alen #674	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 26 C / 55 %	Time: 10/32/24
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2441MHz	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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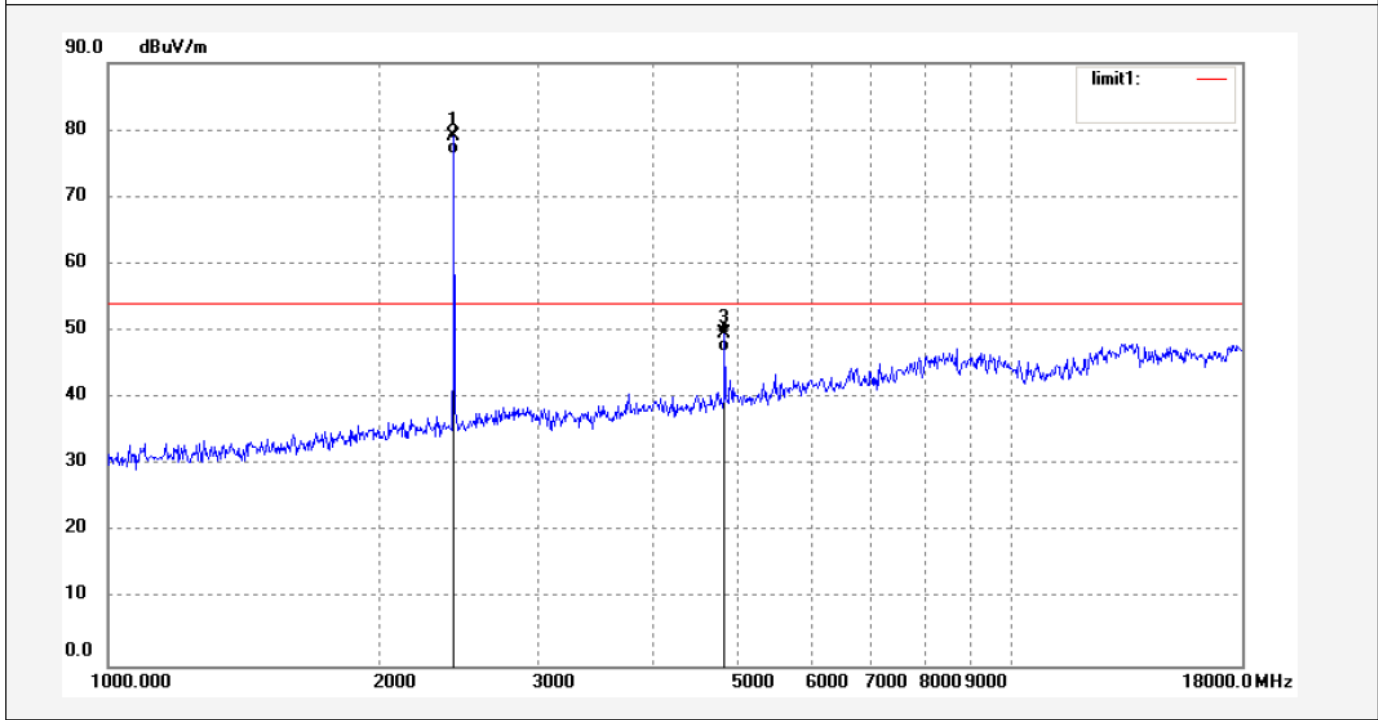
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Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1178	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/18/31
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2441MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	86.42	-7.42	79.00	114.00	-35.00	peak			
2	2441.000	83.74	-7.42	76.32	94.00	-17.68	AVG			
3	4876.000	49.90	-0.23	49.67	74.00	-24.33	peak			
4	4876.000	47.21	-0.23	46.98	54.00	-7.02	AVG			



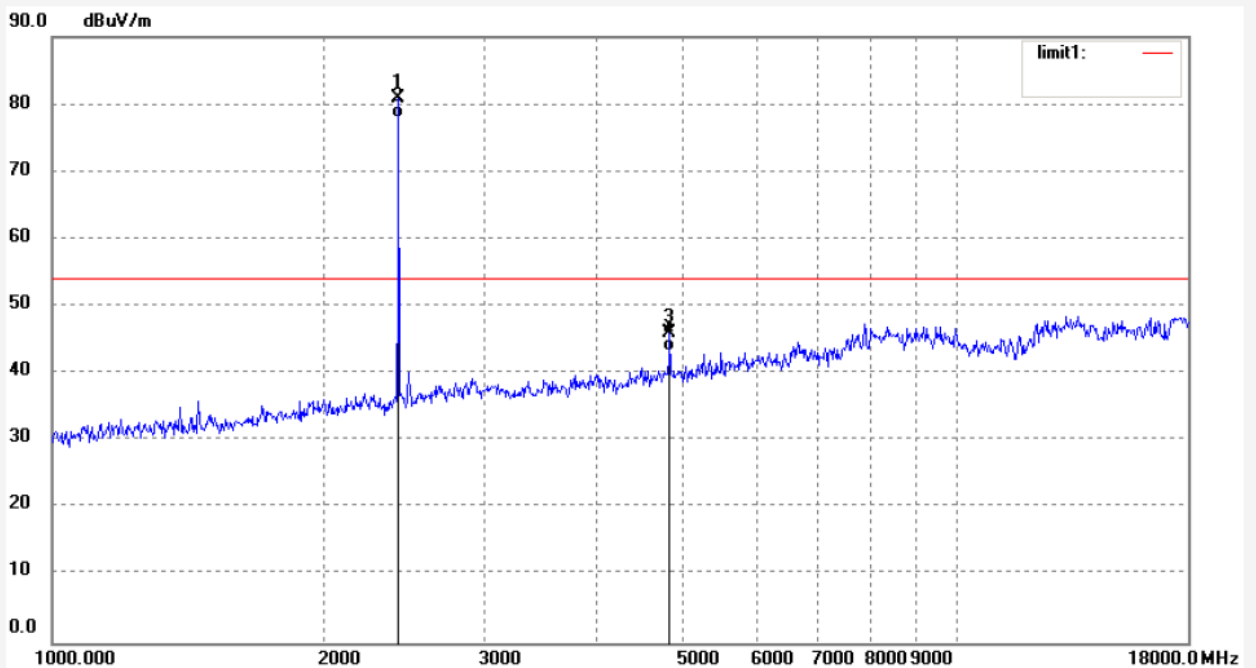
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Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1179	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/20/02
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2441MHz	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2441.000	88.24	-7.42	80.82	114.00	-30.18	peak			
2	2441.000	85.45	-7.42	78.03	94.00	-15.97	AVG			
3	4876.000	46.25	-0.23	46.02	74.00	-27.98	peak			
4	4876.000	43.56	-0.23	43.33	54.00	-10.67	AVG			



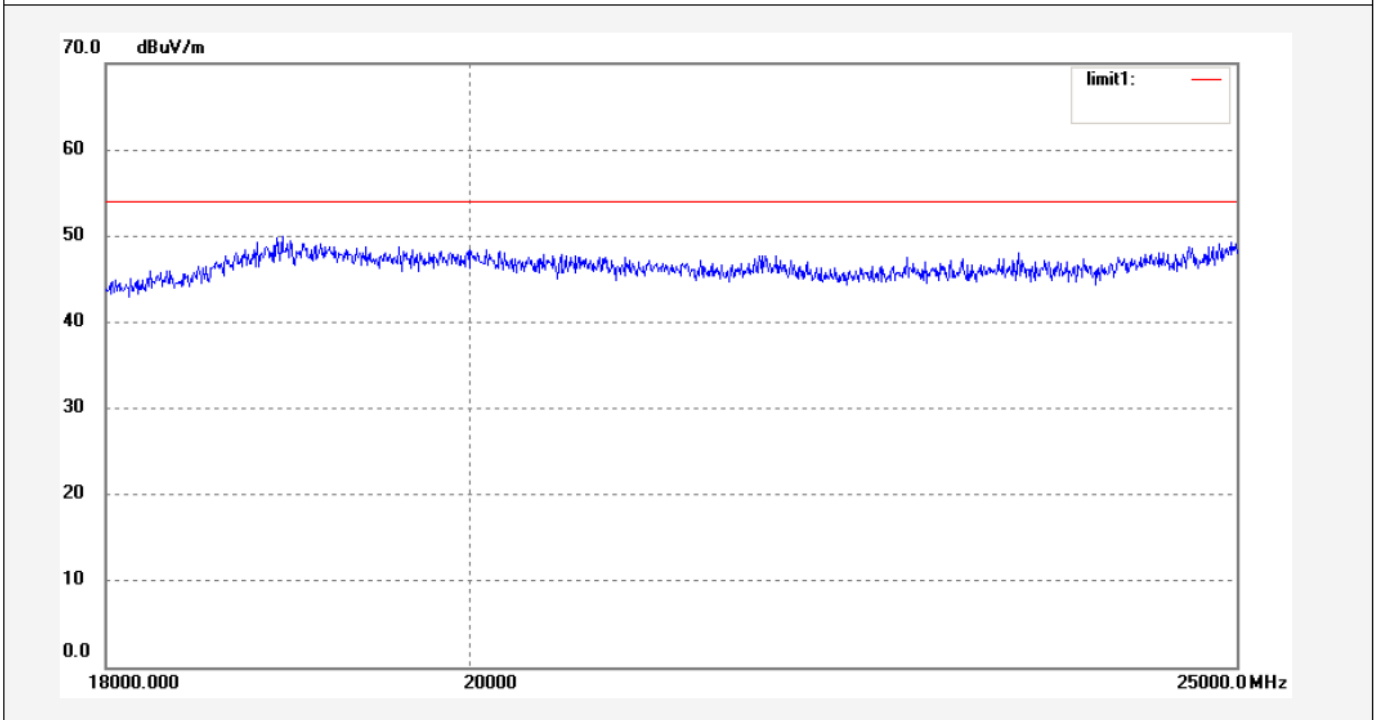
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Alen #690	Polarization: Horizontal
Standard: FCC 15C	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/29/
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 13:24:38
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2441MHz	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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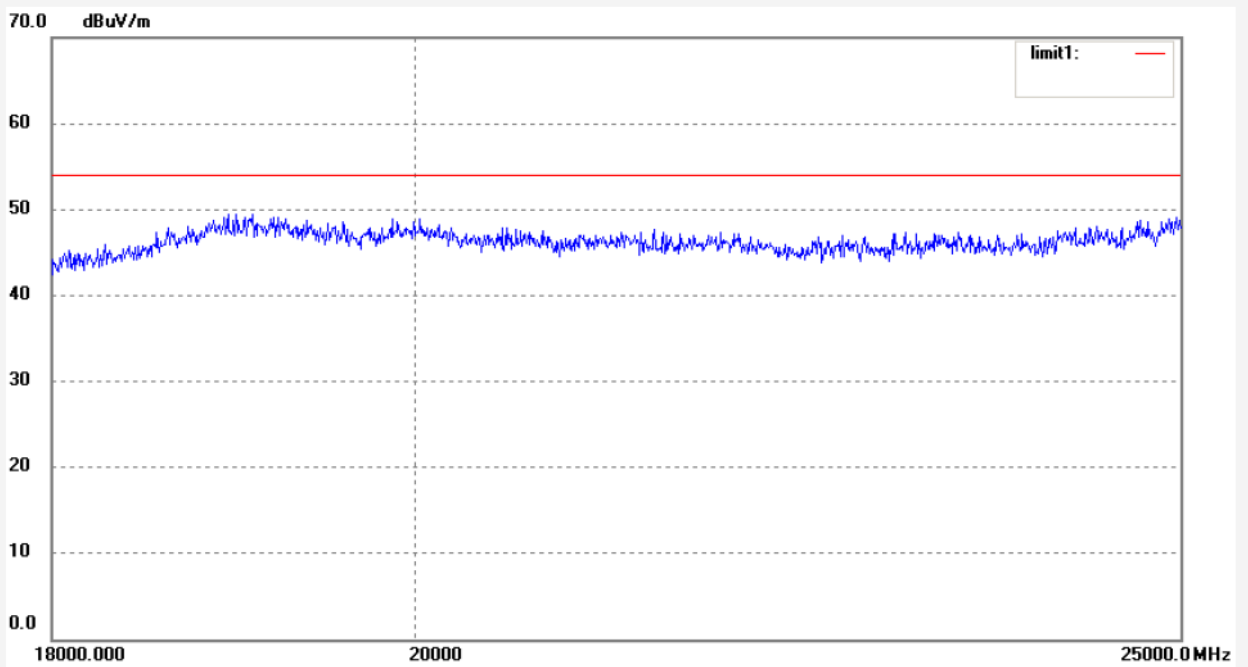
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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Alen #691	Polarization: Vertical
Standard: FCC 15C	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/29/
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 13:25:42
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2441MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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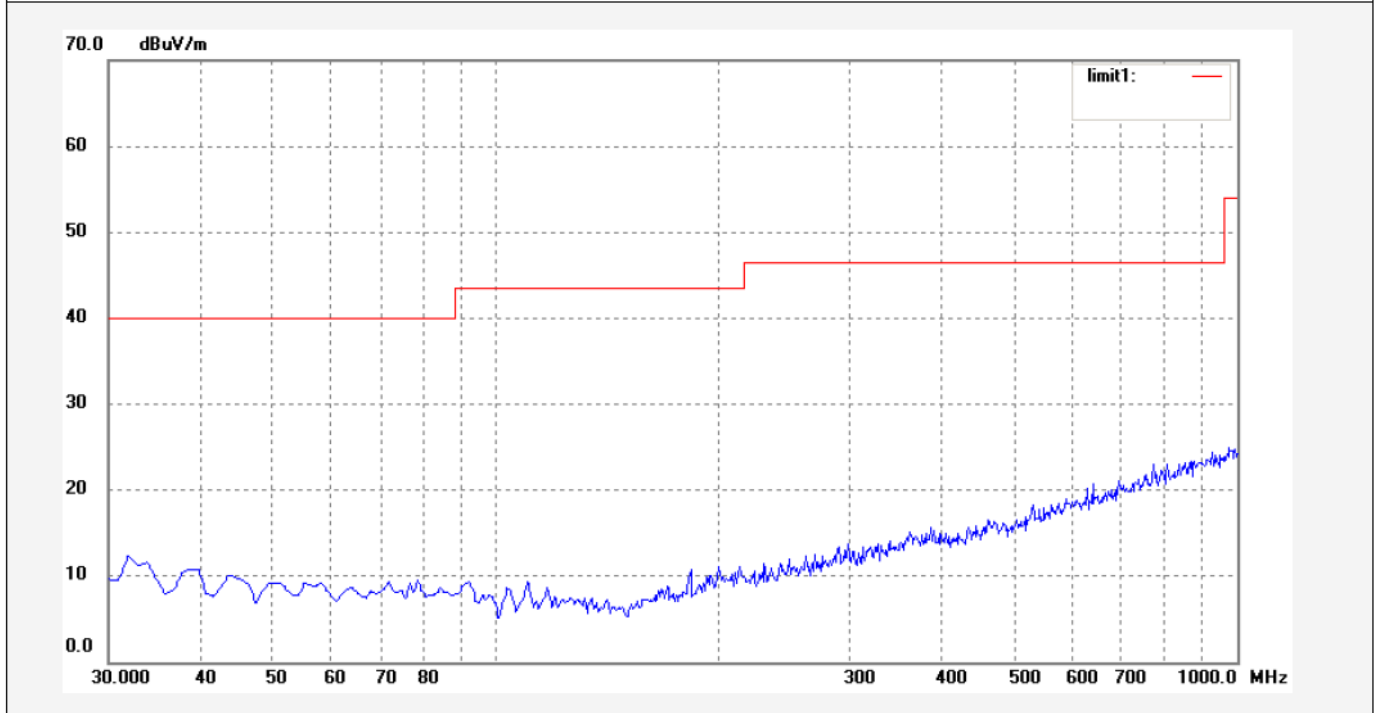
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: alen #672	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 26 C / 55 %	Time: 10/31/09
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2480MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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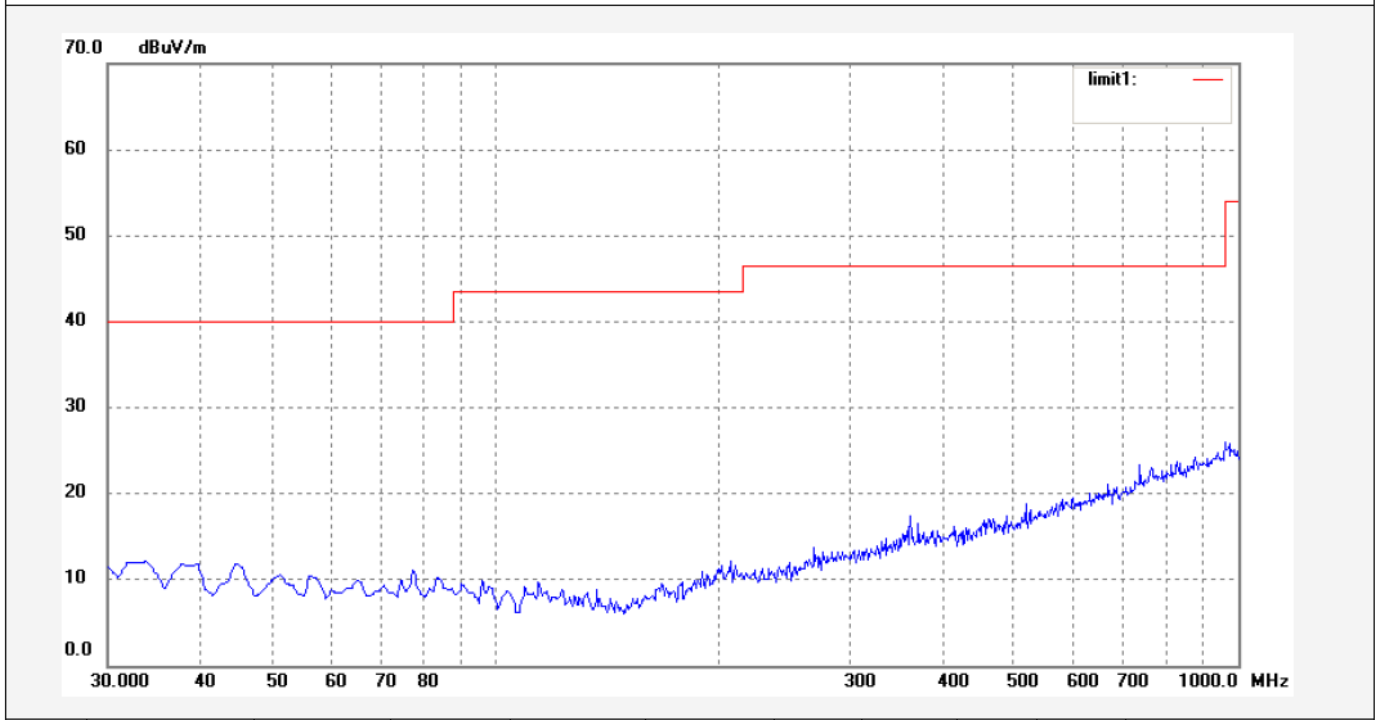
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 1# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: alen #671	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 26 C / 55 %	Time: 10/30/06
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2480MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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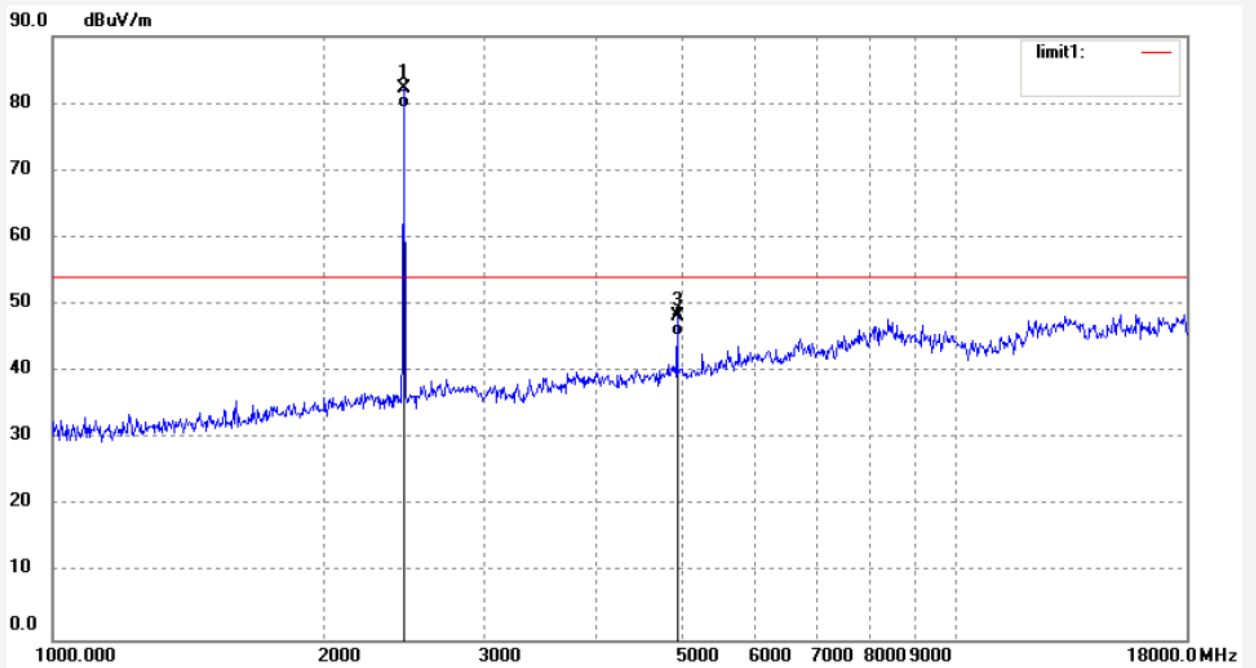
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Site: 2# Chamber
 Tel:+86-0755-26503290
 Fax:+86-0755-26503396

Job No.: ALEN #1181
 Standard: FCC Class B 3M Radiated
 Test item: Radiation Test
 Temp.(C)/Hum.(%) 25 C / 55 %
 EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes
 Mode: TX 2480MHz
 Model: #4550-3
 Manufacturer: C.C.LEE

Polarization: Horizontal
 Power Source: DC 9V
 Date: 13/05/27/
 Time: 14/22/59
 Distance: 3m

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	89.57	-7.33	82.24	114.00	-31.76	peak			
2	2480.000	86.69	-7.33	79.36	94.00	-14.64	AVG			
3	4960.000	47.94	0.30	48.24	74.00	-25.76	peak			
4	4960.000	45.12	0.30	45.42	54.00	-8.58	AVG			



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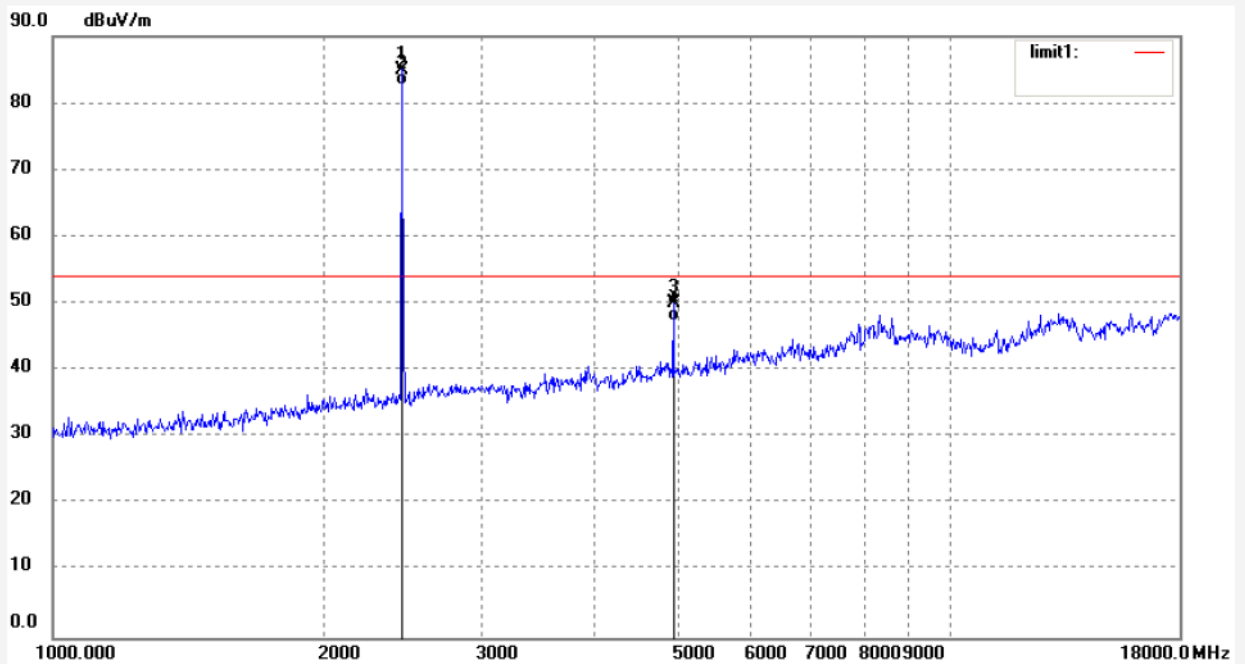
F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1180
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 25 C / 55 %
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes
Mode: TX 2480MHz
Model: #4550-3
Manufacturer: C.C.LEE

Polarization: Vertical
Power Source: DC 9V
Date: 13/05/27/
Time: 14/21/26
Distance: 3m

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2480.000	92.38	-7.33	85.05	114.00	-28.95	peak			
2	2480.000	90.03	-7.33	82.70	94.00	-11.30	AVG			
3	4960.000	49.72	0.30	50.02	74.00	-23.98	peak			
4	4960.000	47.09	0.30	47.39	54.00	-6.61	AVG			



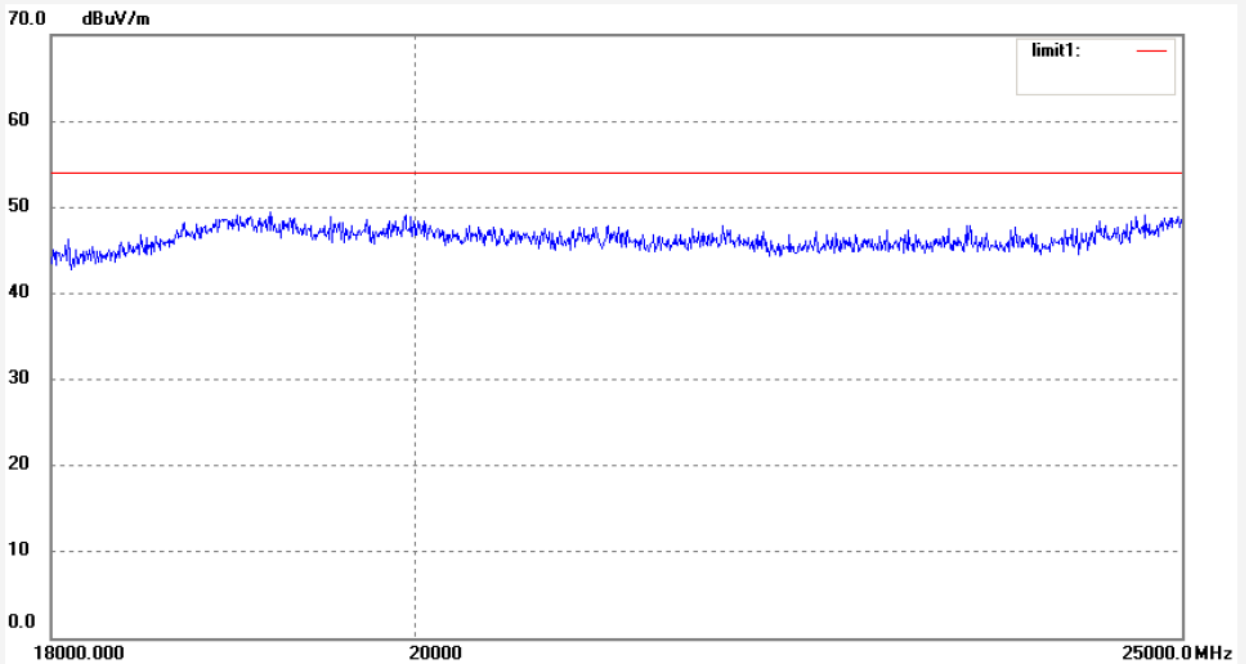
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F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Alen #693	Polarization: Horizontal
Standard: FCC 15C	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/29/
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 13:32:35
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2480MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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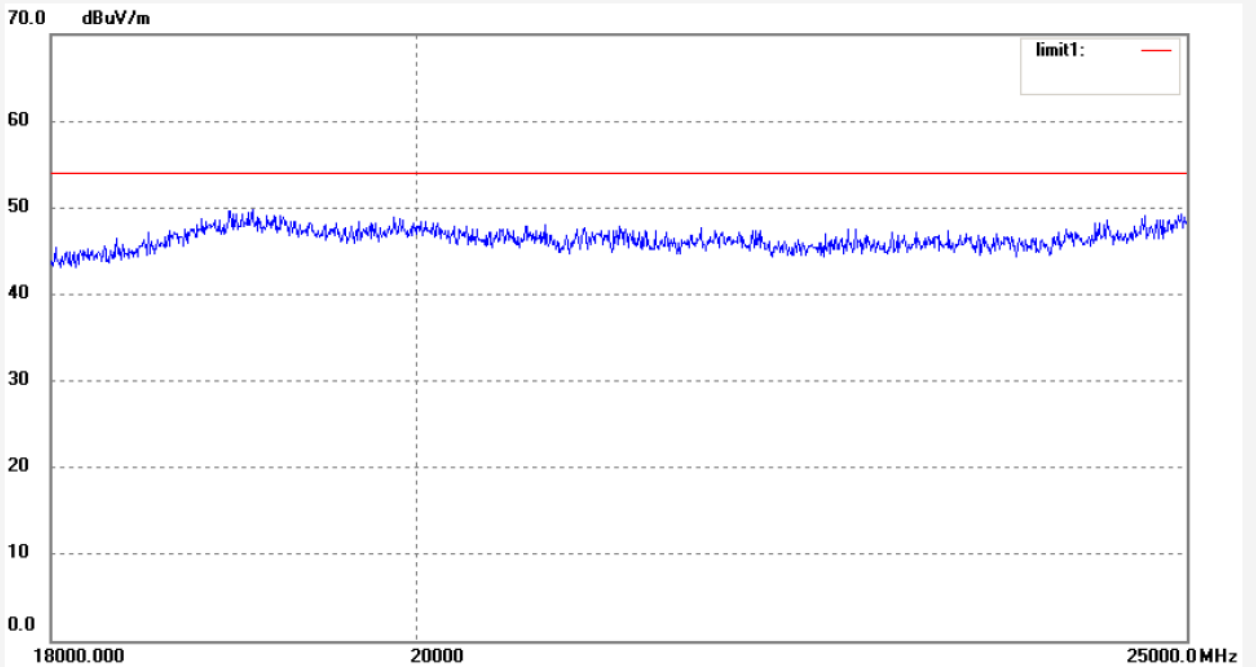
ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Alen #692	Polarization: Vertical
Standard: FCC 15C	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/29/
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 13:28:59
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2480MHz	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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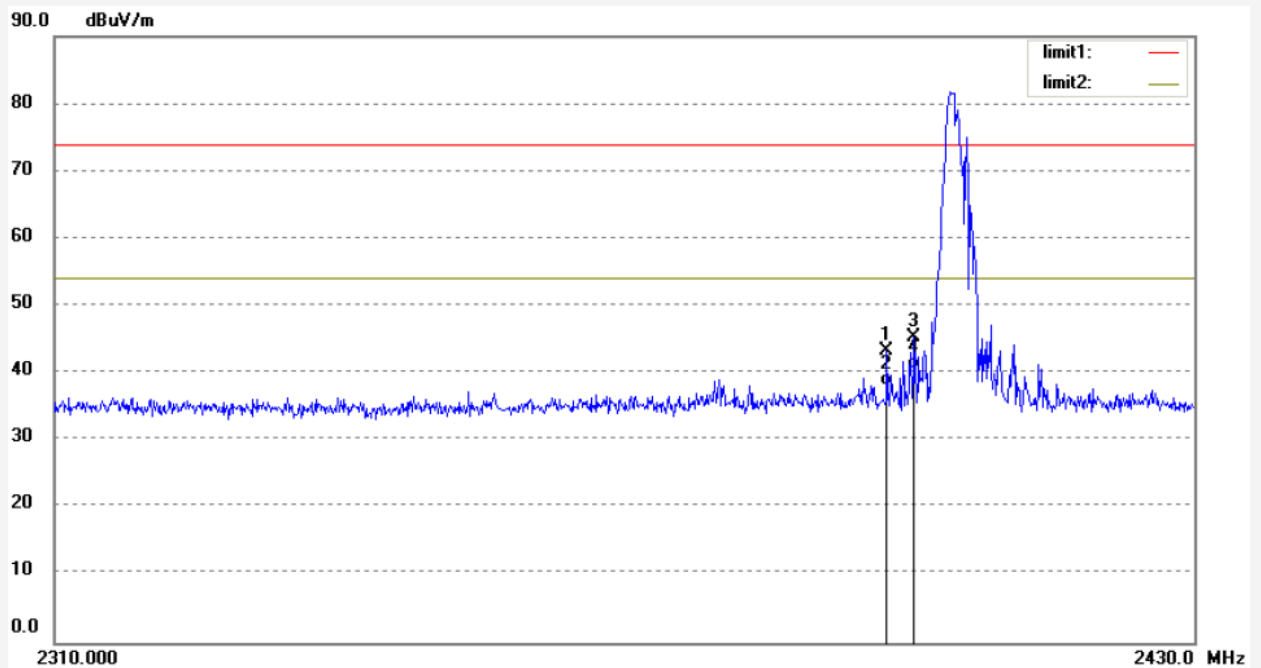
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F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1177	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/16/48
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2402MHz (Hopping)	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2397.055	50.80	-7.48	43.32	74.00	-30.68	peak			
2	2397.055	45.62	-7.48	38.14	54.00	-15.86	AVG			
3	2400.000	52.79	-7.46	45.33	74.00	-28.67	peak			
4	2400.000	48.10	-7.46	40.64	54.00	-13.36	AVG			



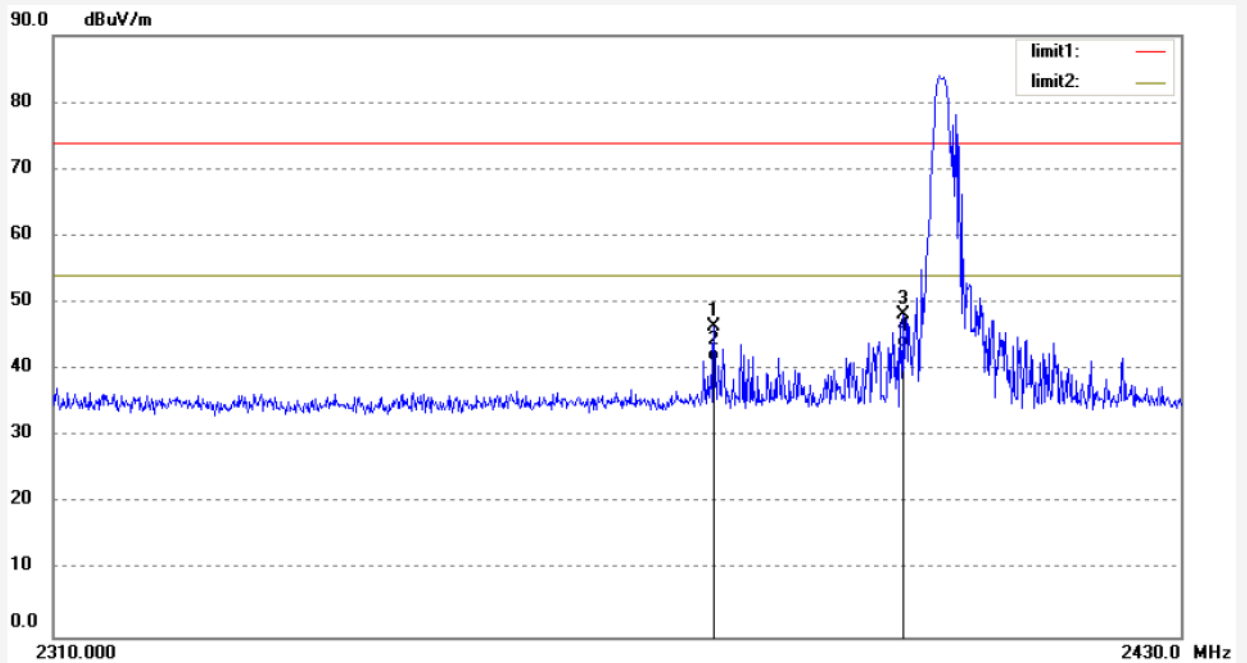
ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1176	Polarization: Vertical
Standard: FCC PK	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/15/24
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2402MHz (Hopping)	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2379.603	53.95	-7.59	46.36	74.00	-27.64	peak			
2	2379.603	48.87	-7.59	41.28	54.00	-12.72	AVG			
3	2400.000	55.68	-7.46	48.22	74.00	-25.78	peak			
4	2400.000	50.68	-7.46	43.22	54.00	-10.78	AVG			



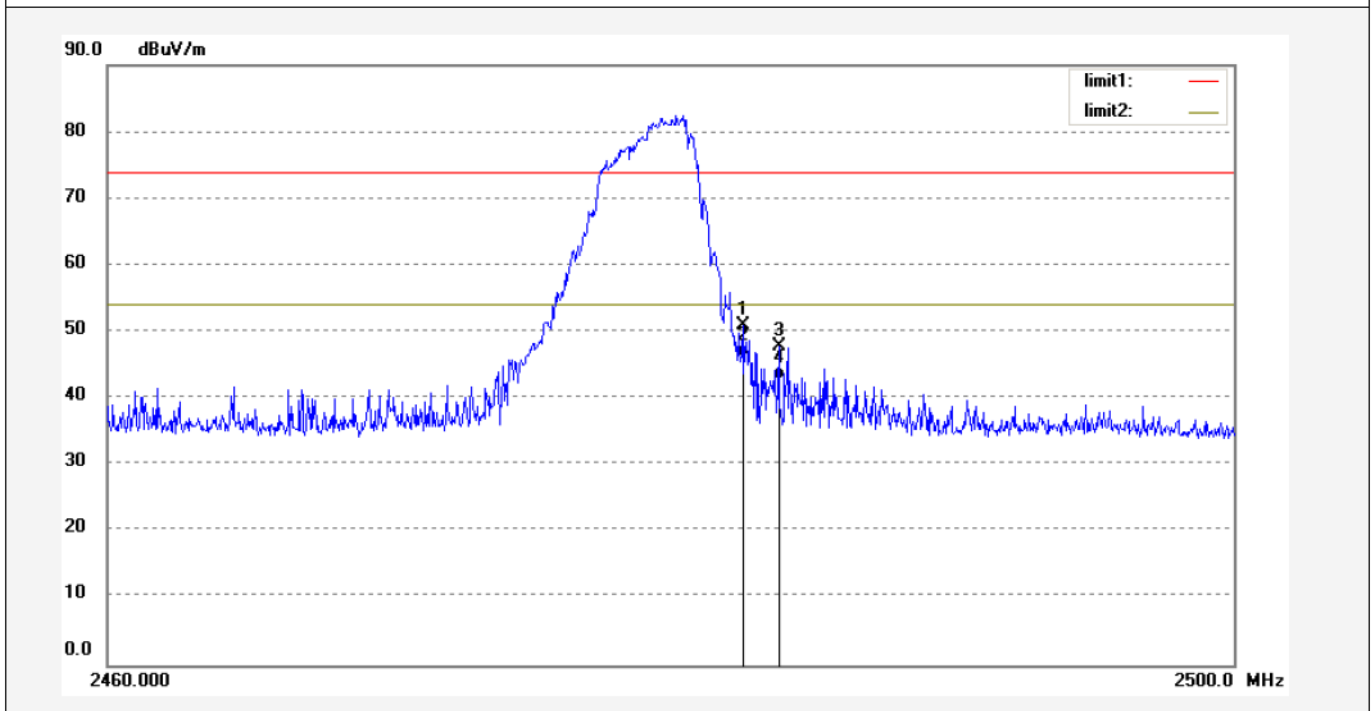
ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1182	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/25/08
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2480MHz (Hopping)	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	58.27	-7.38	50.89	74.00	-23.11	peak			
2	2483.500	53.65	-7.38	46.27	54.00	-7.73	AVG			
3	2483.770	55.18	-7.38	47.80	74.00	-26.20	peak			
4	2483.770	50.25	-7.38	42.87	54.00	-11.13	AVG			



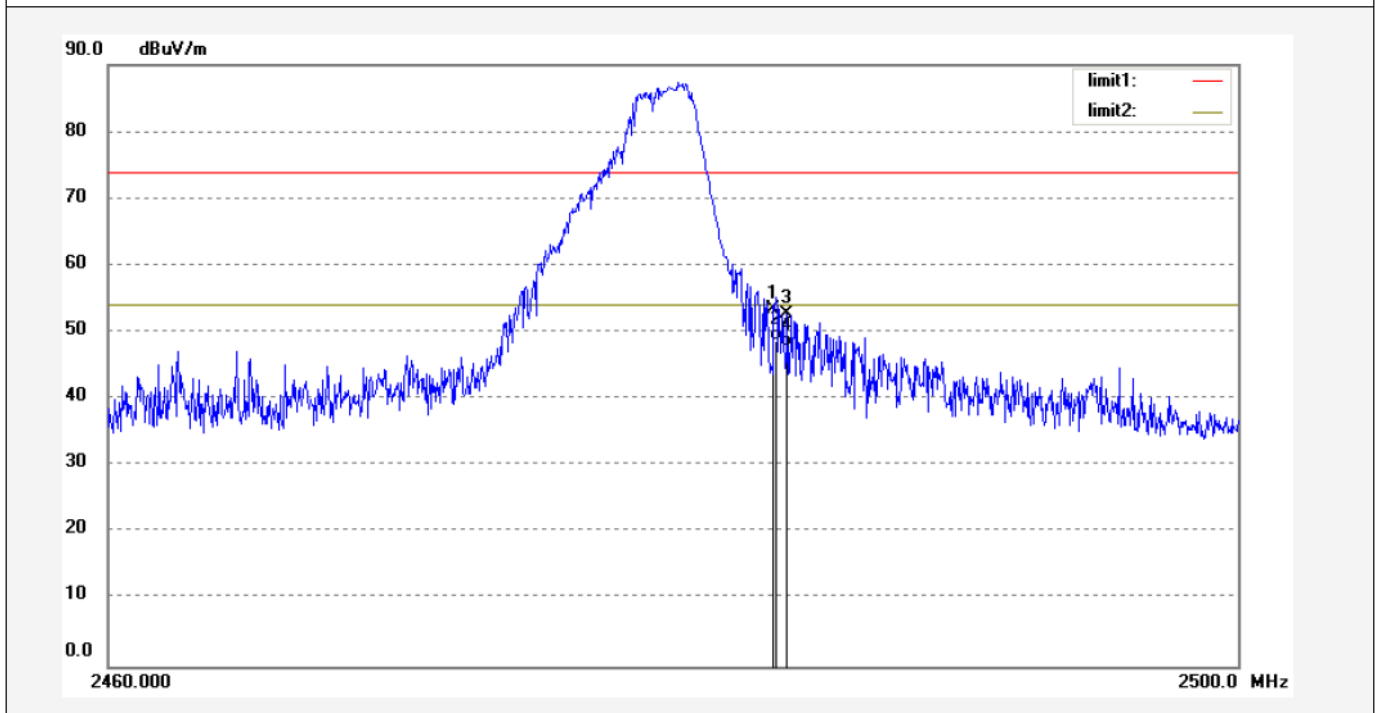
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1183	Polarization: Vertical
Standard: FCC PK	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 14/27/16
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2480MHz (Hopping)	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	60.85	-7.37	53.48	74.00	-20.52	peak			
2	2483.500	55.98	-7.37	48.61	54.00	-5.39	AVG			
3	2483.971	60.22	-7.38	52.84	74.00	-21.16	peak			
4	2483.971	55.12	-7.38	47.74	54.00	-6.26	AVG			



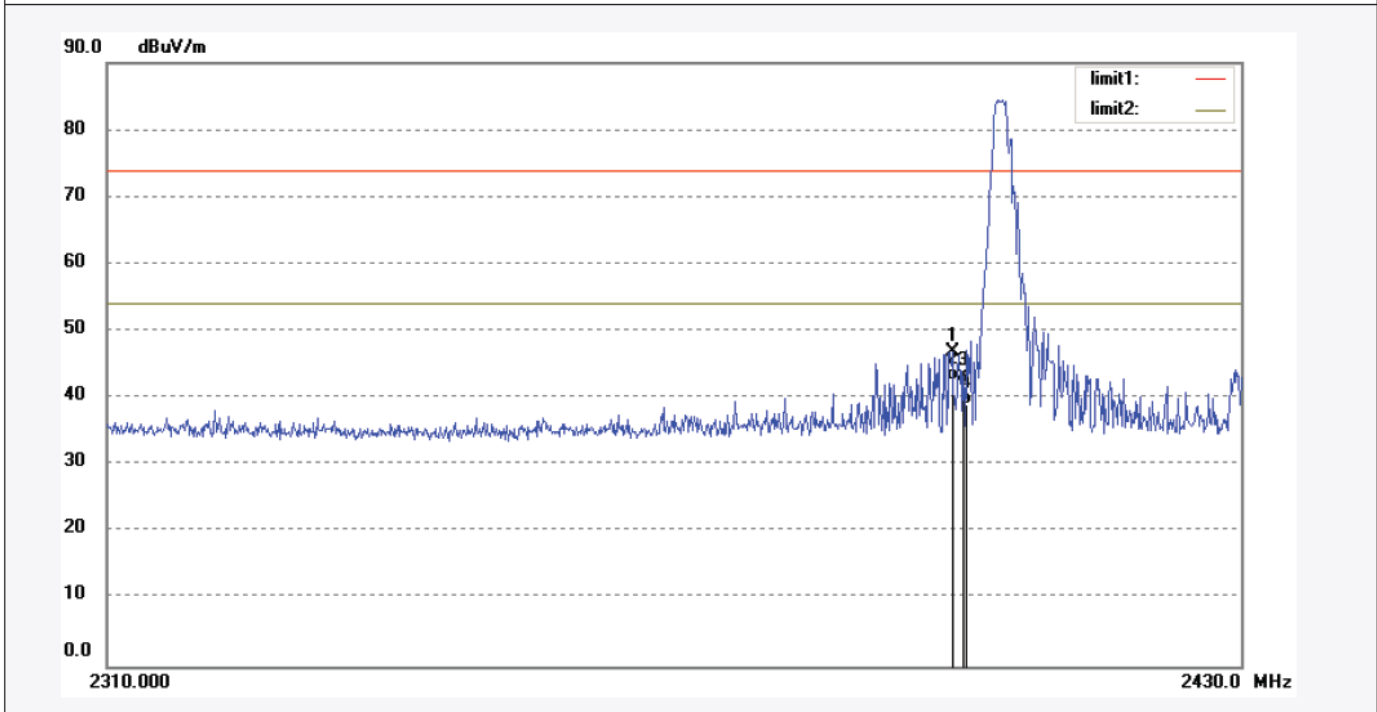
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1183	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/22/17
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2402MHz(Non-hopping)	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2398.880	54.47	-7.46	47.01	74.00	-26.99	peak			
2	2398.880	50.02	-7.46	42.56	54.00	-11.44	AVG			
3	2400.098	50.82	-7.46	43.36	74.00	-30.64	peak			
4	2400.098	46.52	-7.46	39.06	54.00	-14.94	AVG			



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Site: 2# Chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: ALEN #1183

Standard: FCC PK

Test item: Radiation Test

Temp.(C)/Hum.(%) 25 C / 55 %

EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes

Mode: TX 2402MHz (Non-hopping)

Model: #4550-3

Manufacturer: C.C.LEE

Polarization: Vertical

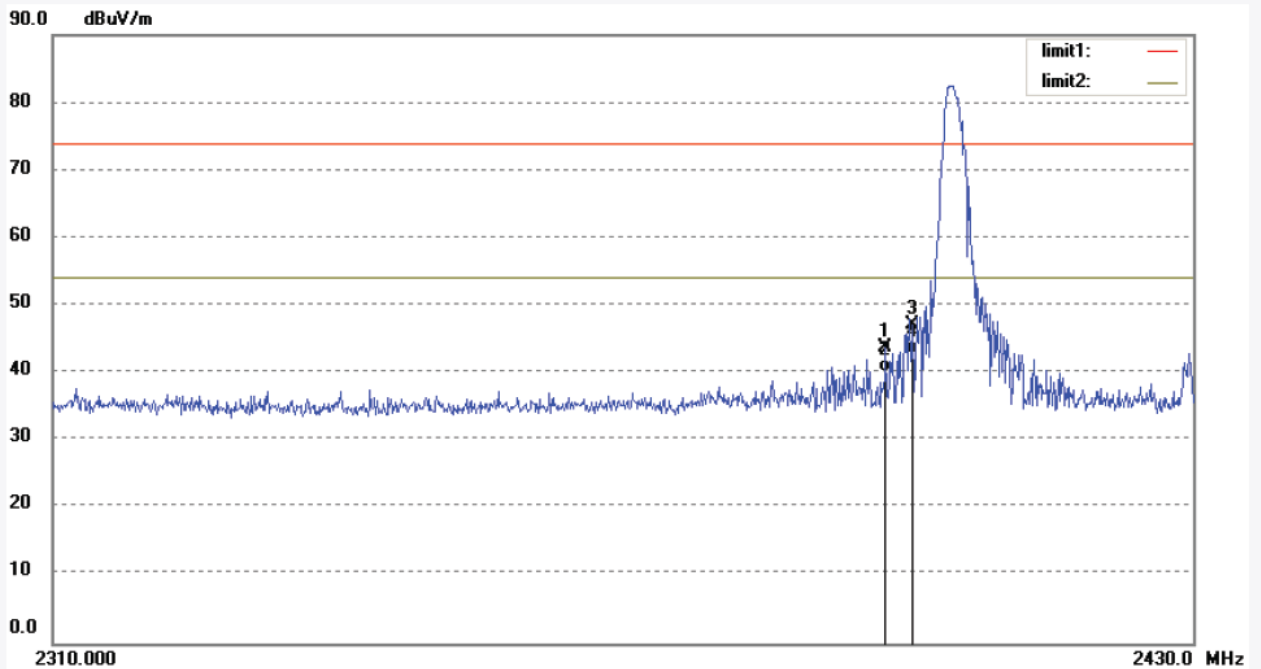
Power Source: DC 9V

Date: 13/05/27/

Time: 9/23/41

Distance: 3m

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2397.055	51.25	-7.48	43.77	74.00	-30.23	peak			
2	2397.055	47.63	-7.48	40.15	54.00	-13.85	AVG			
3	2399.976	54.68	-7.46	47.22	74.00	-26.78	peak			
4	2399.976	50.32	-7.46	42.86	54.00	-11.14	AVG			



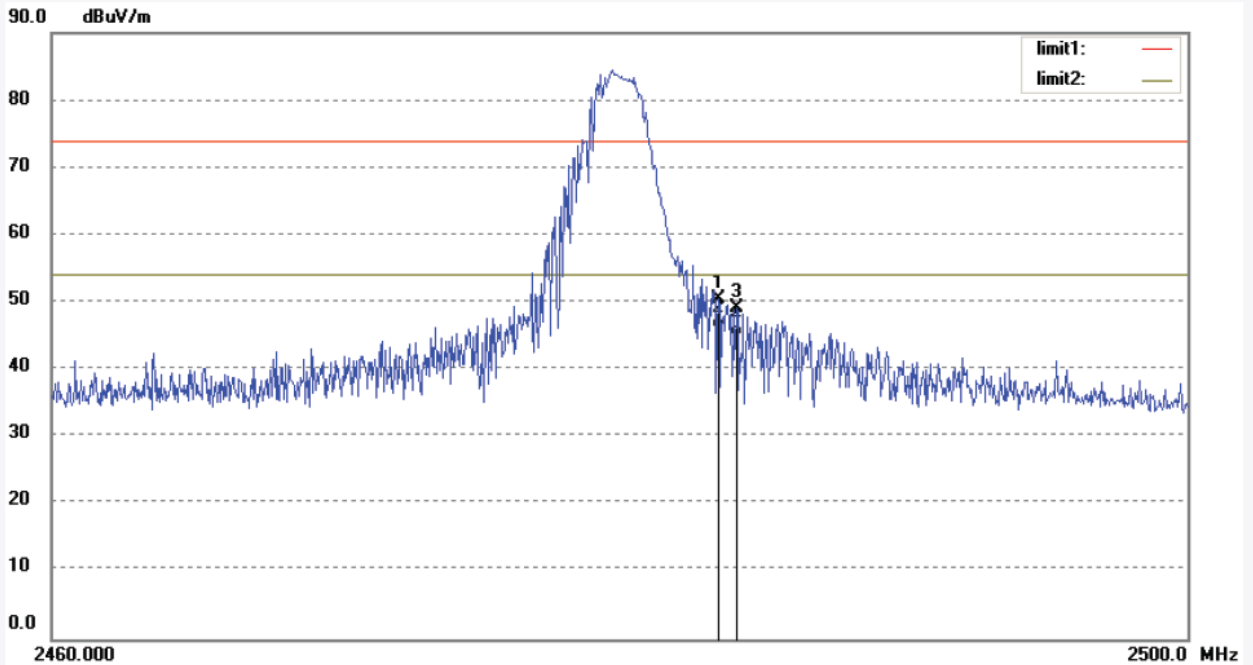
ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg,A,Changyuan New Material Port Keyuan Rd,
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1183	Polarization: Horizontal
Standard: FCC PK	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/18/51
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	
Mode: TX 2480MHz(Non-hopping)	Distance: 3m
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	57.81	-7.37	50.44	74.00	-23.56	peak			
2	2483.500	53.28	-7.37	45.91	54.00	-8.09	AVG			
3	2484.051	56.57	-7.38	49.19	74.00	-24.81	peak			
4	2484.051	52.35	-7.38	44.97	54.00	-9.03	AVG			



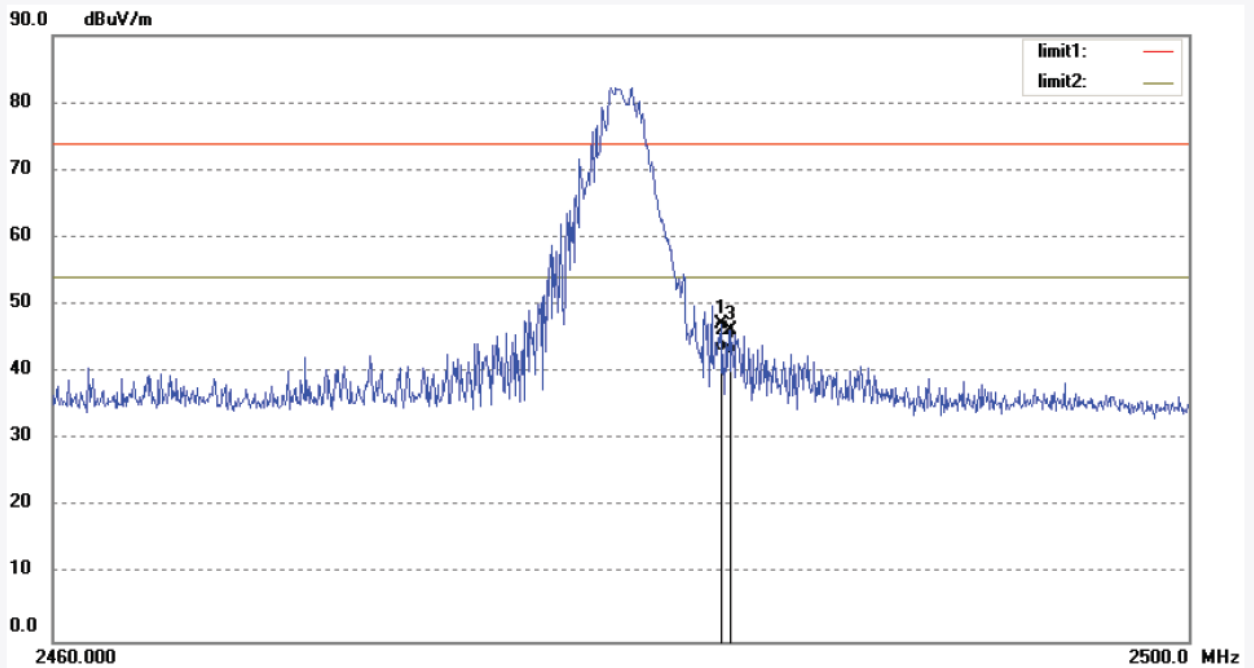
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 2# Chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: ALEN #1183	Polarization: Vertical
Standard: FCC PK	Power Source: DC 9V
Test item: Radiation Test	Date: 13/05/27/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/20/16
EUT: 2.4GHz two-channel radio transmitter for use with radio-controlled model airplanes	Distance: 3m
Mode: TX 2480MHz(Non-hopping)	
Model: #4550-3	
Manufacturer: C.C.LEE	

Note: Report No:ATE20130975



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	54.62	-7.37	47.25	74.00	-26.75	peak			
2	2483.500	50.36	-7.37	42.99	54.00	-11.01	AVG			
3	2483.810	53.68	-7.38	46.30	74.00	-27.70	peak			
4	2483.810	50.04	-7.38	42.66	54.00	-11.34	AVG			