

APPLICATION CERTIFICATION FCC Part 15C  
On Behalf of  
Interactive Toy Concepts Limited

Wi-Spi Helicopter  
Model No.: 44077

FCC ID: QE844077

Prepared for : Interactive Toy Concepts Limited  
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Date of Test : March 27-31, 2012  
Date of Report : March 31, 2012

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## Test Report Certification

Applicant : Interactive Toy Concepts Limited  
 Manufacturer : Interactive Toy Concepts Limited  
 EUT Description : Wi-Spi Helicopter  
 (A) MODEL NO.: 44077  
 (B) SERIAL NO.: N/A  
 (C) POWER SUPPLY: DC 3.7V

Measurement Procedure Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247**  
**ANSI C63.4: 2003**

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 15.247 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 : March 27-31, 2012

Prepared by :

Apple Lv

(Engineer)

Approved & Authorized Signer :

James

(Manager)

## 1. GENERAL INFORMATION

### 1.1. Description of Device (EUT)

EUT : Wi-Spi Helicopter

Model Number : 44077

Frequency Band : 2412-2462MHz

Number of Channels : 11

Antenna Gain : 2dBi

Power Supply : DC 3.7V (Lithium ion battery)

Data Rate : IEEE 802.11b: 11/5.5/2/1Mbps  
IEEE 802.11g: 54/48/36/24/18/12/9/6Mbps

Applicant : Interactive Toy Concepts Limited

Address : Unit 709, 7/F., Tower 2, Cheung Sha Wan Plaza, No.833  
Cheung Sha Wan Rd., Kowloon, Hong Kong

Manufacturer : Interactive Toy Concepts Limited

Address : Unit 709, 7/F., Tower 2, Cheung Sha Wan Plaza, No.833  
Cheung Sha Wan Rd., Kowloon, Hong Kong

Date of sample received : March 27, 2012

Date of Test : March 27-31, 2012

## 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 = 3.08dB, k=2  
(9kHz-30MHz)

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

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

## 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	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 7, 2013

### 3. OPERATION OF EUT DURING TESTING

#### 3.1. Operating Mode

The mode is used: **802.11b Transmitting mode**

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

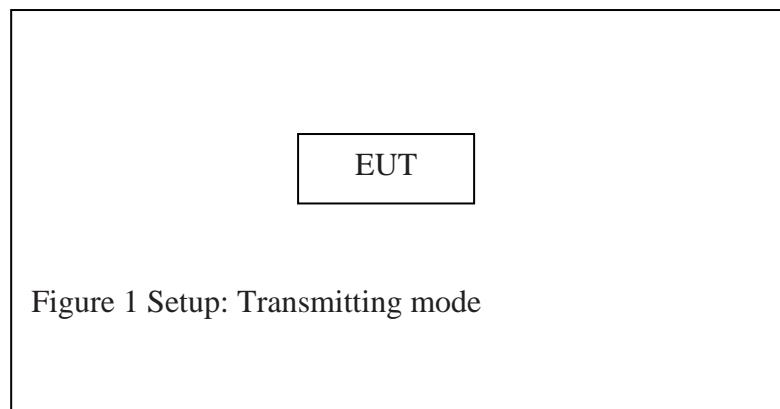
**802.11g Transmitting mode**

Low Channel: 2412MHz

Middle Channel: 2437MHz

High Channel: 2462MHz

#### 3.2. Configuration and peripherals

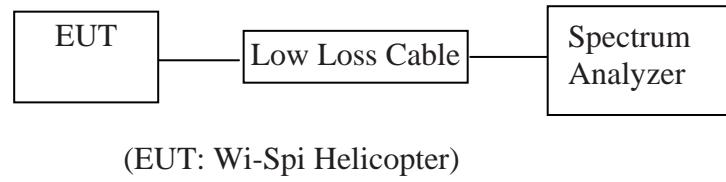


## 4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
Section 15.247(e)	Power Spectral Density Test	Compliant
Section 15.247(b)(3)	Maximum Peak Output Power Test	Compliant
Section 15.247(d)	Band Edge Compliance Test	Compliant
Section 15.247(d) Section 15.209	Radiated Spurious Emission Test	Compliant
Section 15.247(d)	Antenna Conducted Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

## 5. 6DB BANDWIDTH MEASUREMENT

### 5.1. Block Diagram of Test Setup



### 5.2. The Requirement For Section 15.247(a)(2)

Section 15.247(a)(2): Systems using digital modulation techniques may operate in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

### 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. Wi-Spi Helicopter (EUT)

Model Number	:	44077
Serial Number	:	N/A
Manufacturer	:	Interactive Toy Concepts Limited

### 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 2412-2462MHz. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

## 5.5. Test Procedure

5.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

5.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.

5.5.3. The 6dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6dB.

## 5.6. Test Result

**PASS.**

Date of Test:	March 28, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	TX	Test Engineer:	Apple

The test was performed with 802.11b

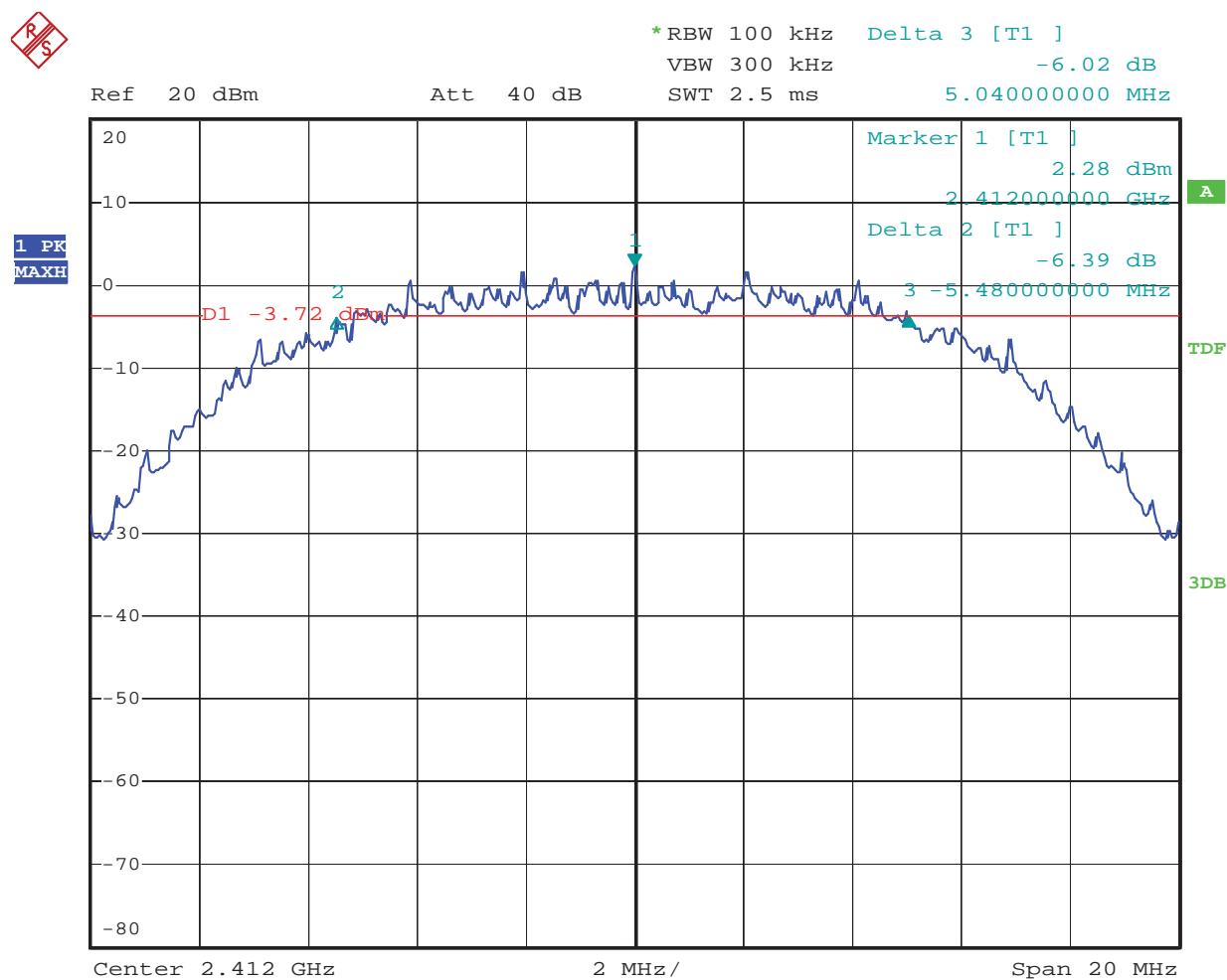
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	10.52	> 0.5MHz
Middle	2437	10.28	> 0.5MHz
High	2462	10.20	> 0.5MHz

The test was performed with 802.11g

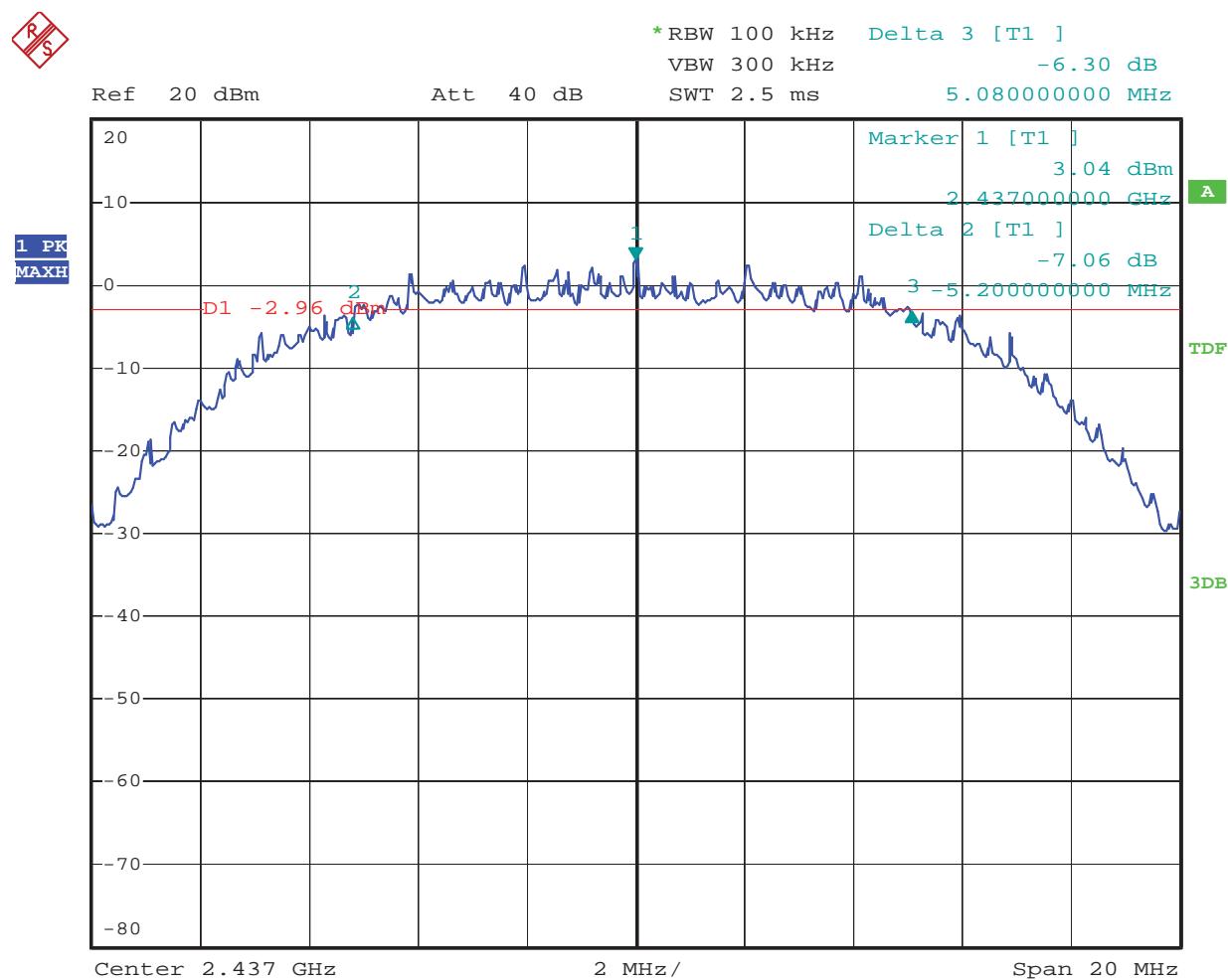
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	16.44	> 0.5MHz
Middle	2437	16.44	> 0.5MHz
High	2462	17.48	> 0.5MHz

The spectrum analyzer plots are attached as below.

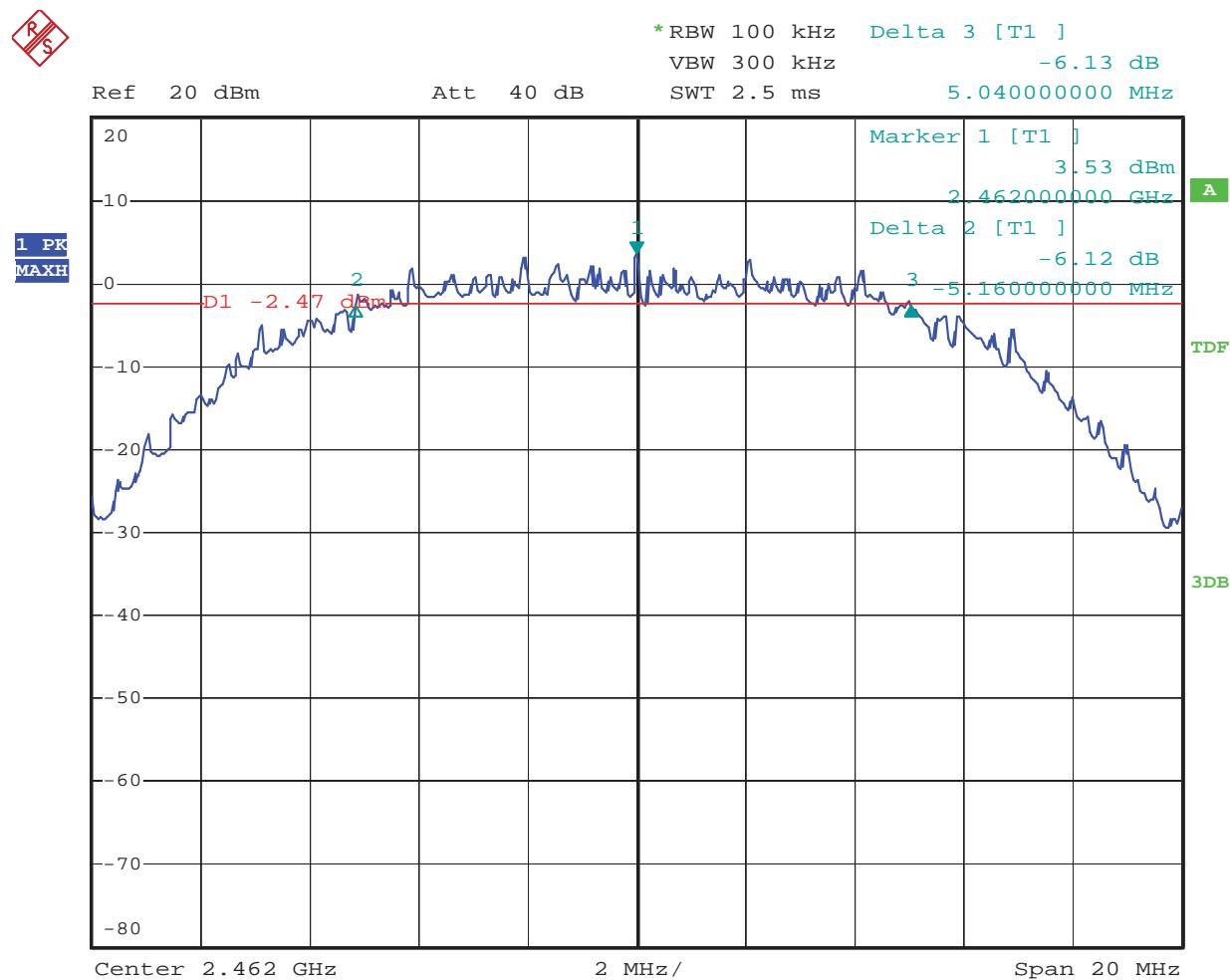
## 802.11b Channel Low 2412MHz



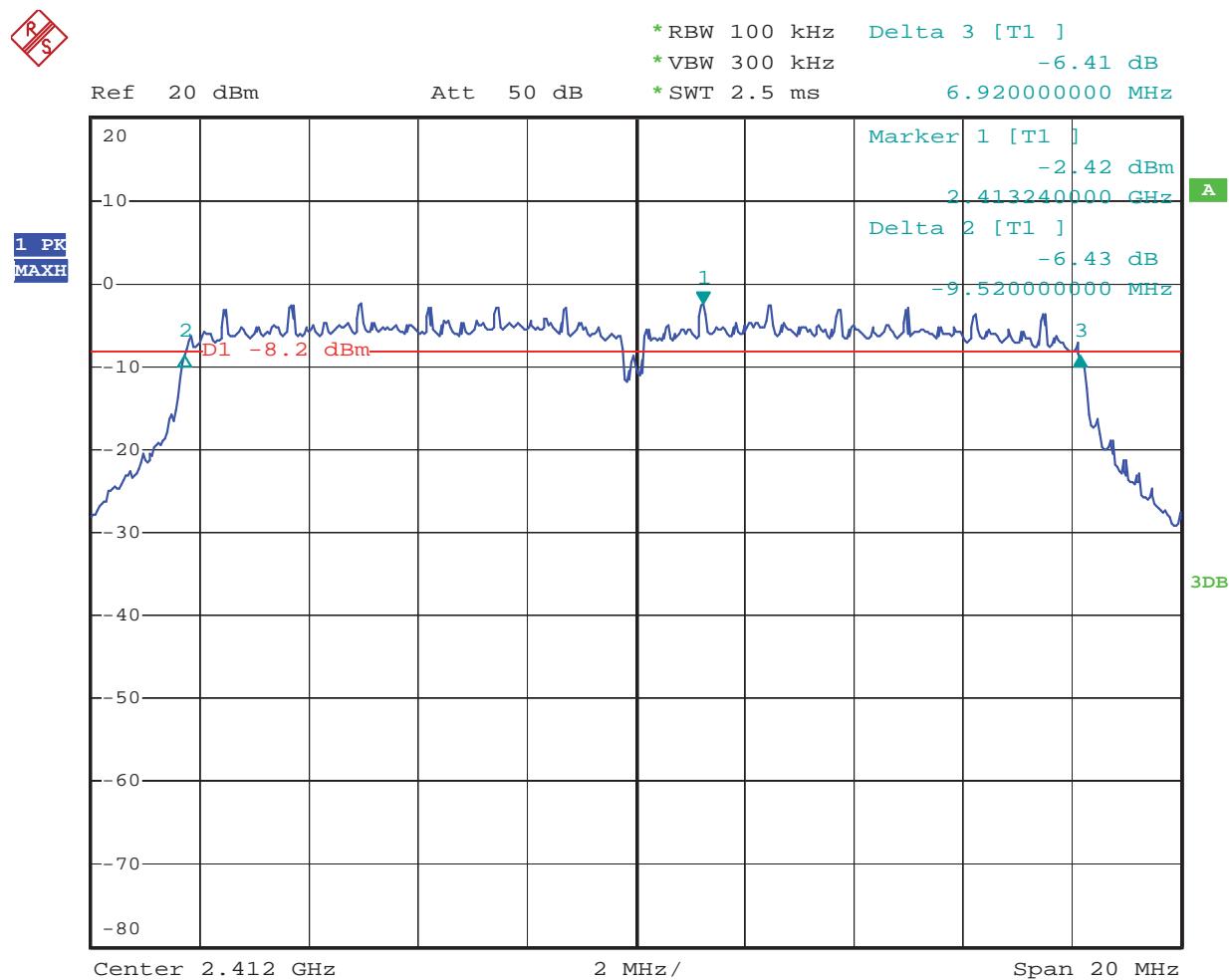
## 802.11b Channel Middle 2437MHz



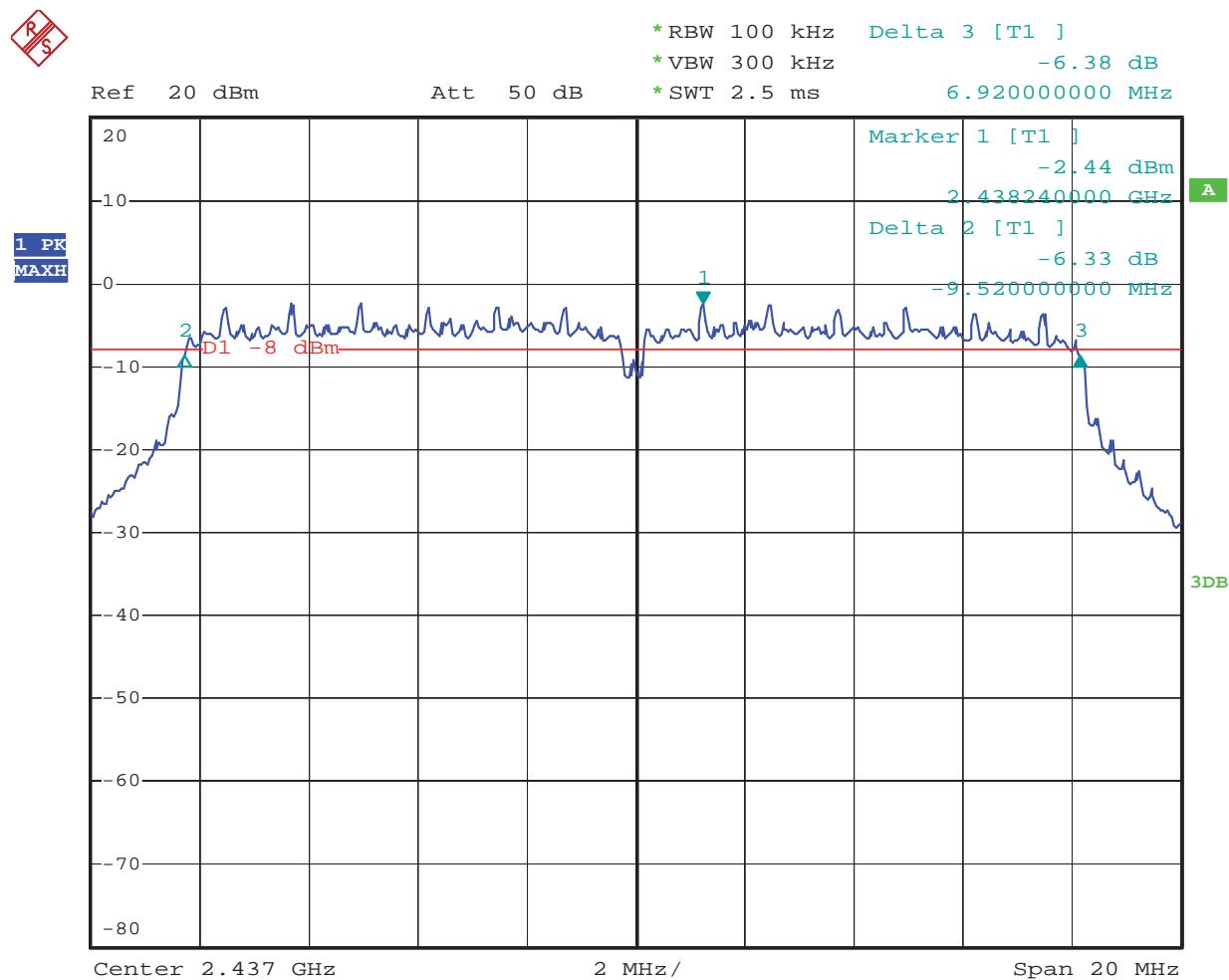
## 802.11b Channel High 2462MHz



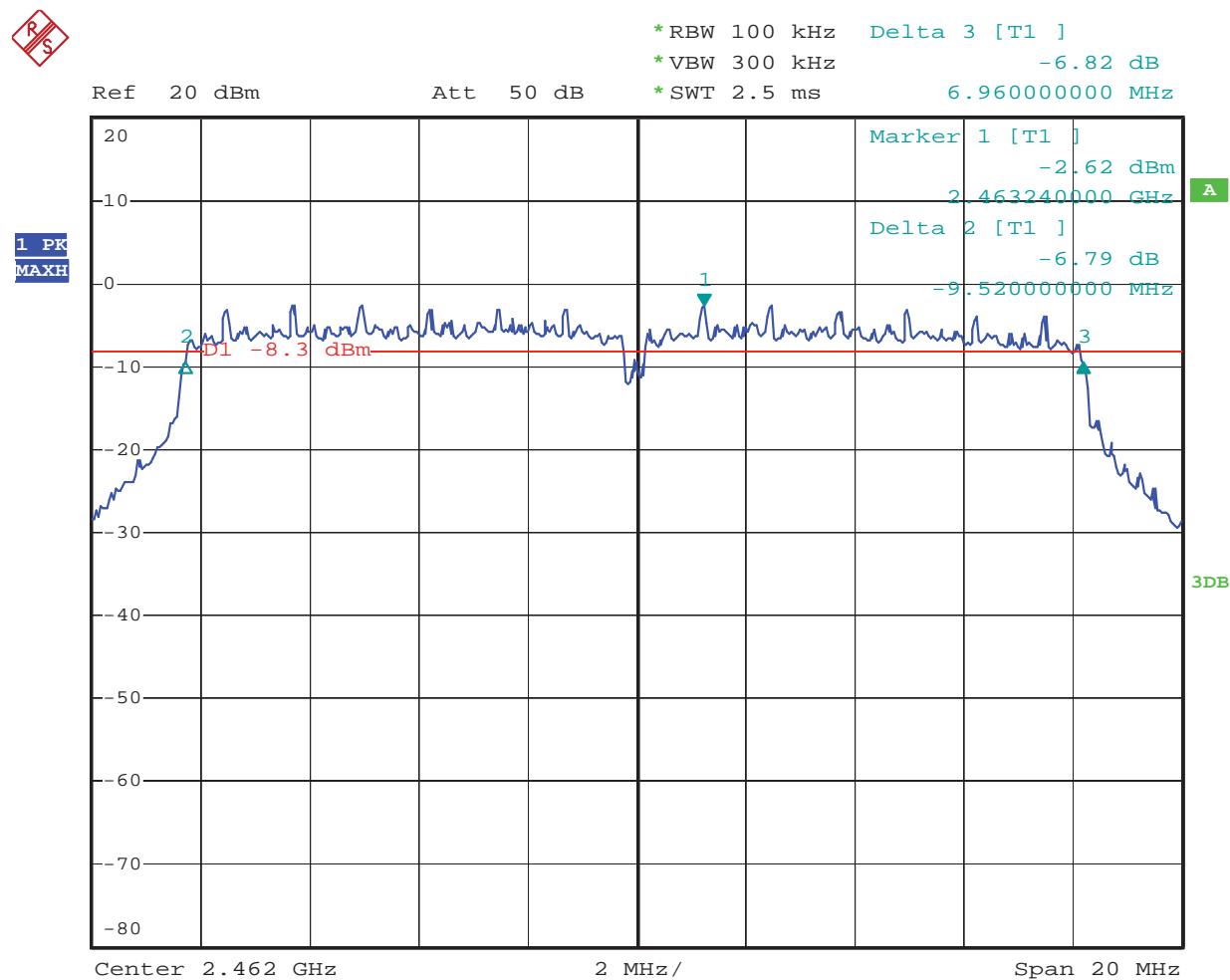
## 802.11g Channel Low 2412MHz



## 802.11g Channel Middle 2437MHz

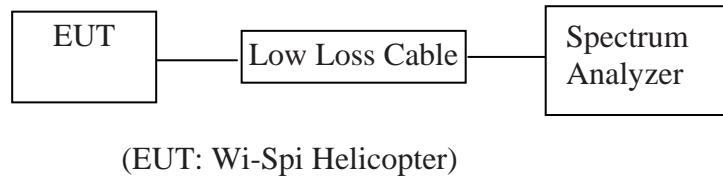


## 802.11g Channel High 2462MHz



## 6. MAXIMUM PEAK OUTPUT POWER

### 6.1. Block Diagram of Test Setup



### 6.2. The Requirement For Section 15.247(b)(3)

Section 15.247(b)(3): For systems using digital modulation in the 902-928MHz, 2400-2483.5MHz, and 5725-5850MHz bands: 1 Watt.

### 6.3. 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.

#### 6.3.1. Wi-Spi Helicopter (EUT)

Model Number : 44077  
 Serial Number : N/A  
 Manufacturer : Interactive Toy Concepts Limited

### 6.4. Operating Condition of EUT

6.4.1. Setup the EUT and simulator as shown as Section 6.1.

6.4.2. Turn on the power of all equipment.

6.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462MHz. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

## 6.5. Test Procedure

6.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

6.5.2. Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz.

6.5.3. Measurement the maximum peak output power.

## 6.6. Test Result

**PASS.**

Date of Test:	March 28, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	TX	Test Engineer:	Apple

The test was performed with 802.11b

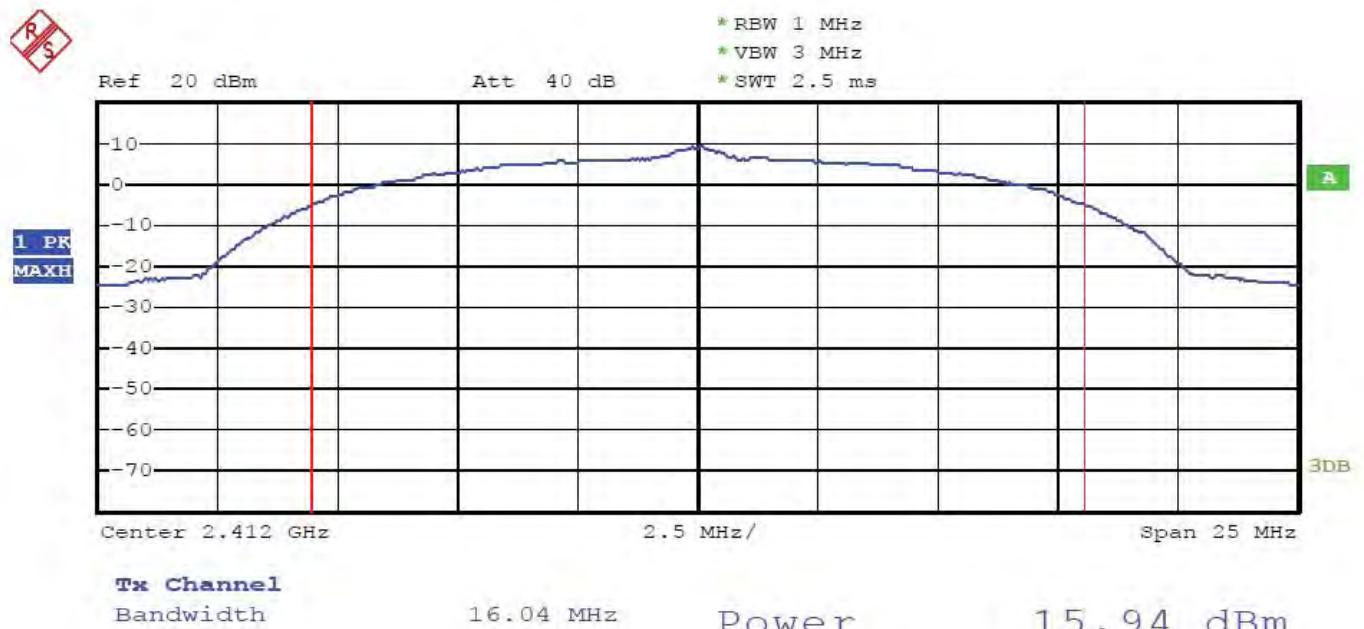
Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2412	15.94	39.26	30 dBm / 1 W
Middle	2437	16.23	41.98	30 dBm / 1 W
High	2462	16.05	40.27	30 dBm / 1 W

The test was performed with 802.11g

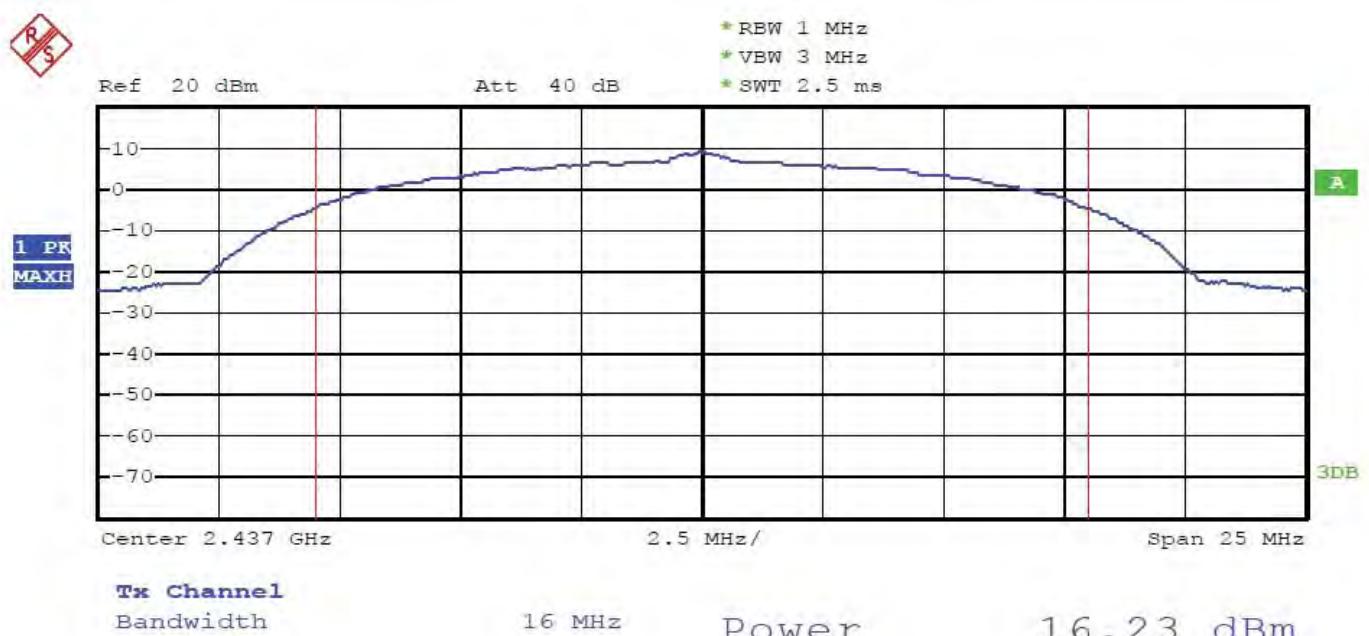
Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / W
Low	2412	17.23	52.84	30 dBm / 1 W
Middle	2437	17.65	58.21	30 dBm / 1 W
High	2462	17.74	59.43	30 dBm / 1 W

The spectrum analyzer plots are attached as below.

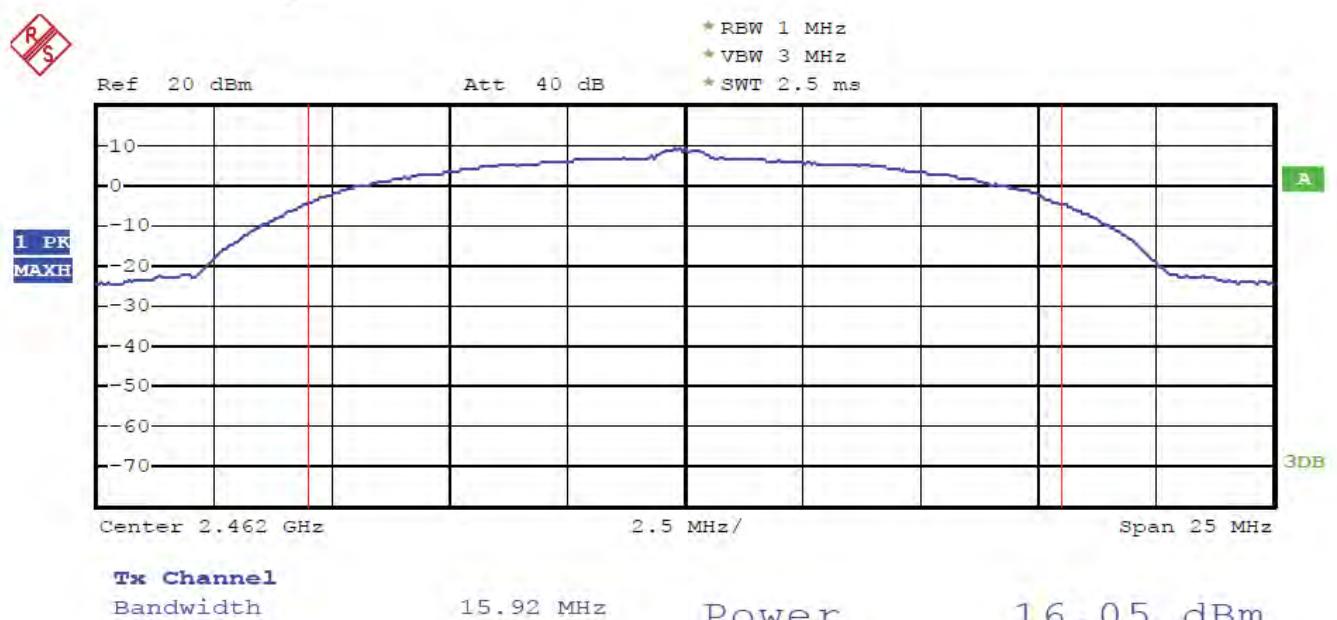
## 802.11b Channel Low 2412MHz



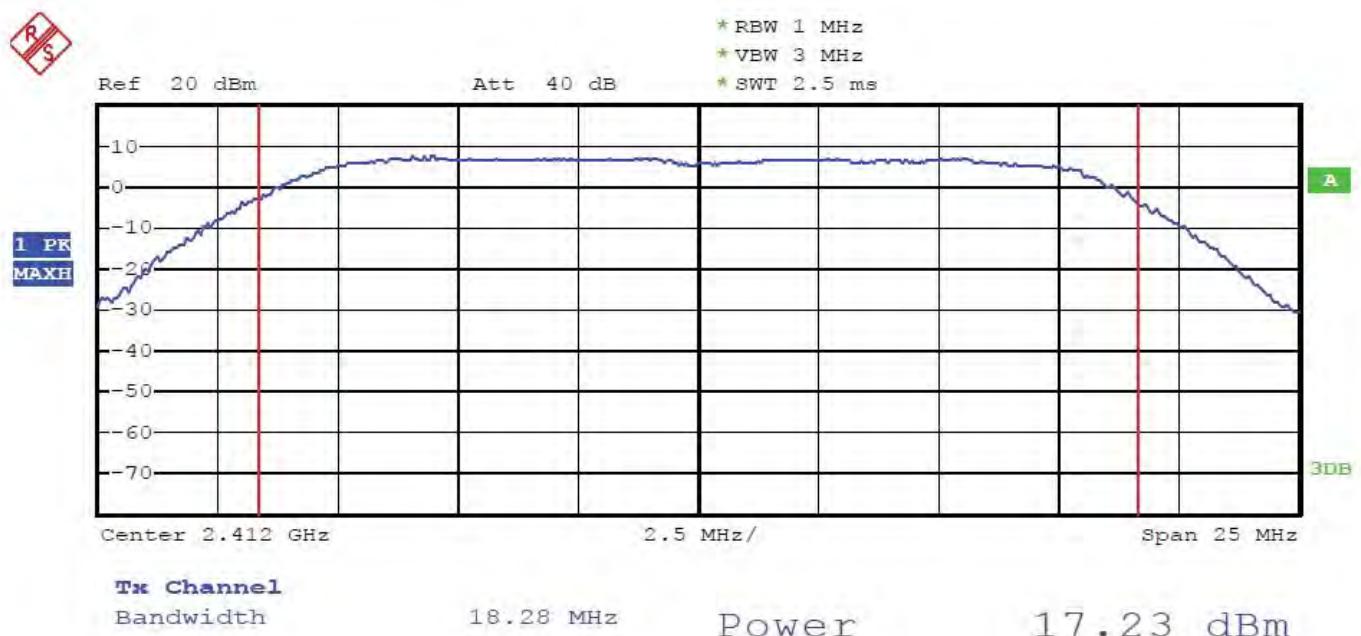
## 802.11b Channel Middle 2437MHz



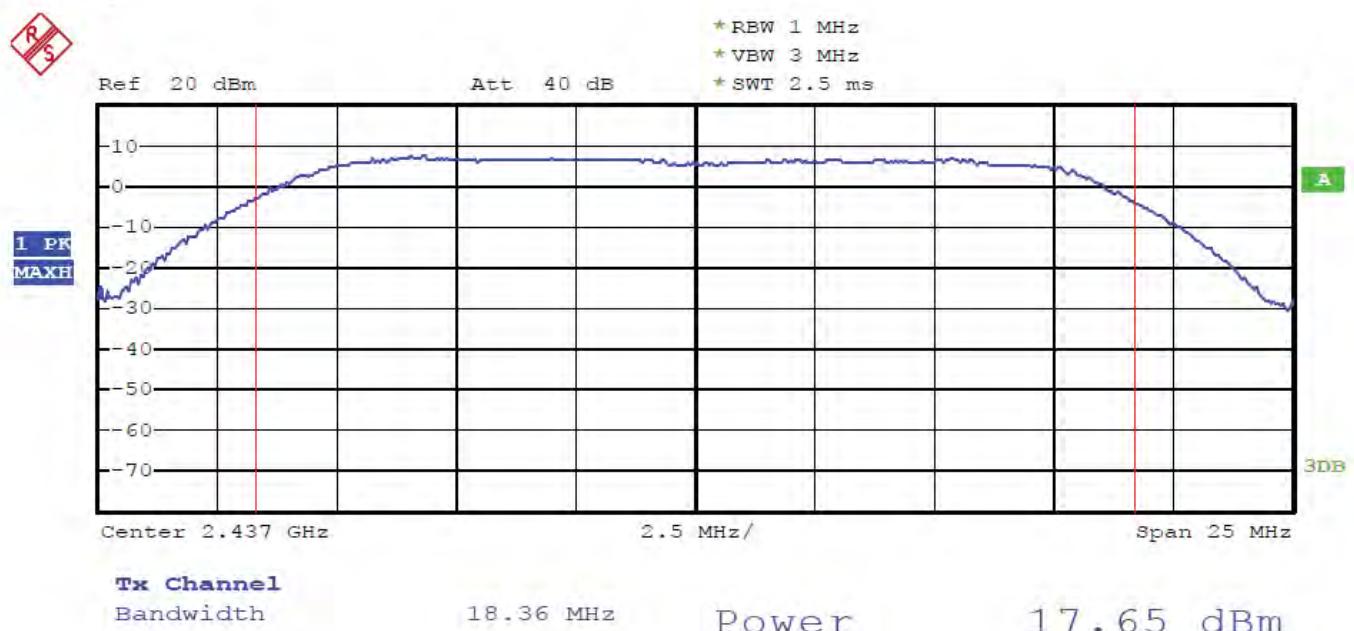
## 802.11b Channel High 2462MHz



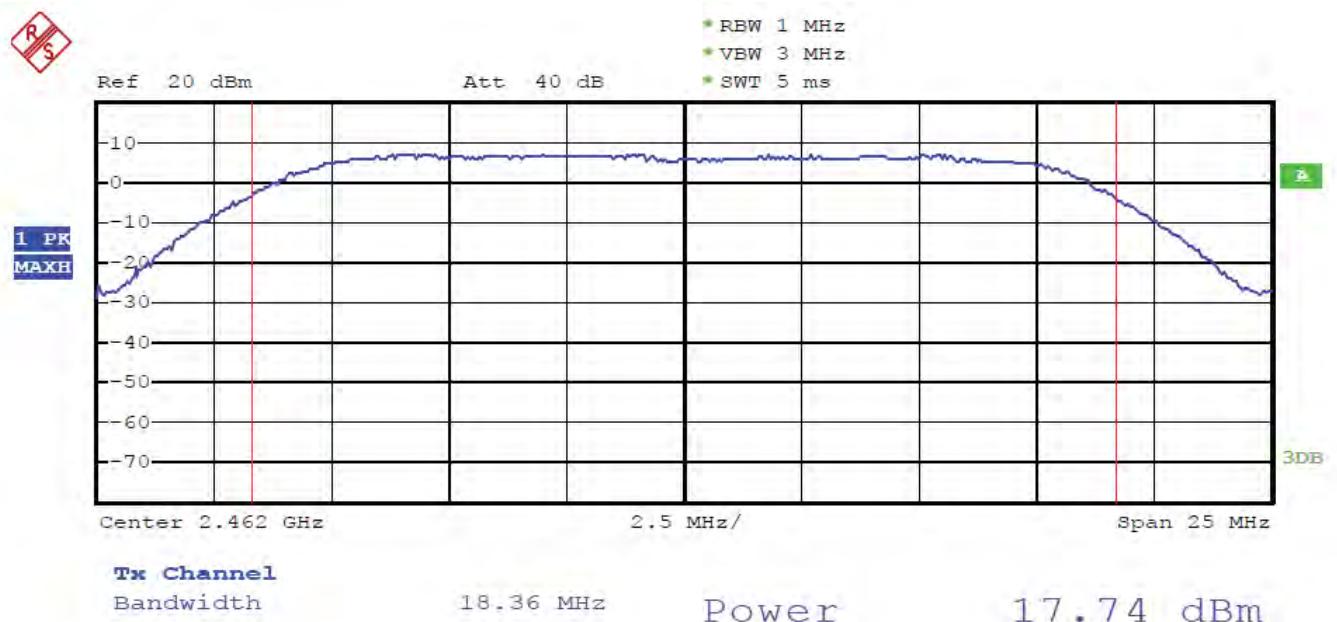
## 802.11g Channel Low 2412MHz



## 802.11g Channel Middle 2437MHz

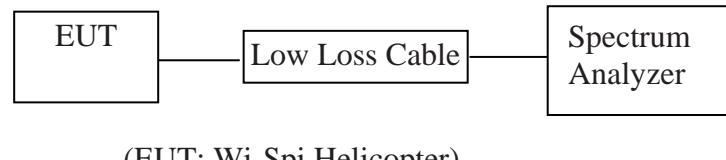


## 802.11g Channel High 2462MHz



## 7. POWER SPECTRAL DENSITY MEASUREMENT

### 7.1. Block Diagram of Test Setup



### 7.2. The Requirement For Section 15.247(e)

Section 15.247(e): For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission.

### 7.3. 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.

#### 7.3.1. Wi-Spi Helicopter (EUT)

Model Number	:	44077
Serial Number	:	N/A
Manufacturer	:	Interactive Toy Concepts Limited

### 7.4. Operating Condition of EUT

7.4.1. Setup the EUT and simulator as shown as Section 7.1.

7.4.2. Turn on the power of all equipment.

7.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462MHz. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

## 7.5. Test Procedure

7.5.1. The transmitter output was connected to the spectrum analyzer through a low loss cable.

7.5.2. Set RBW of spectrum analyzer to 3kHz and VBW to 10kHz, sweep time = Span/3kHz.

7.5.3. Measurement the maximum power spectral density.

## 7.6. Test Result

**PASS.**

Date of Test:	<u>March 28, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>Wi-Spi Helicopter</u>	Humidity:	<u>50%</u>
Model No.:	<u>44077</u>	Power Supply:	<u>DC 3.7V</u>
Test Mode:	<u>TX</u>	Test Engineer:	<u>Apple</u>

The test was performed with 802.11b

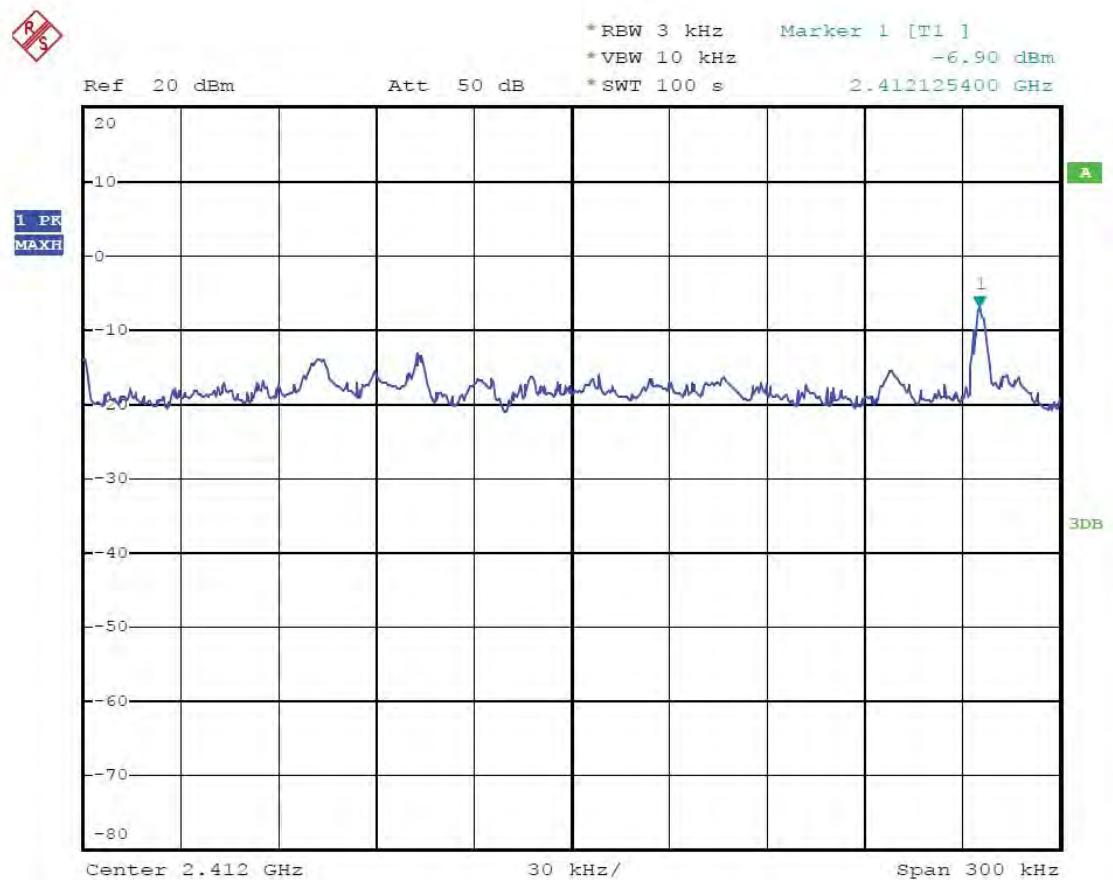
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-6.90	8 dBm
Middle	2437	-6.67	8 dBm
High	2462	-6.48	8 dBm

The test was performed with 802.11g

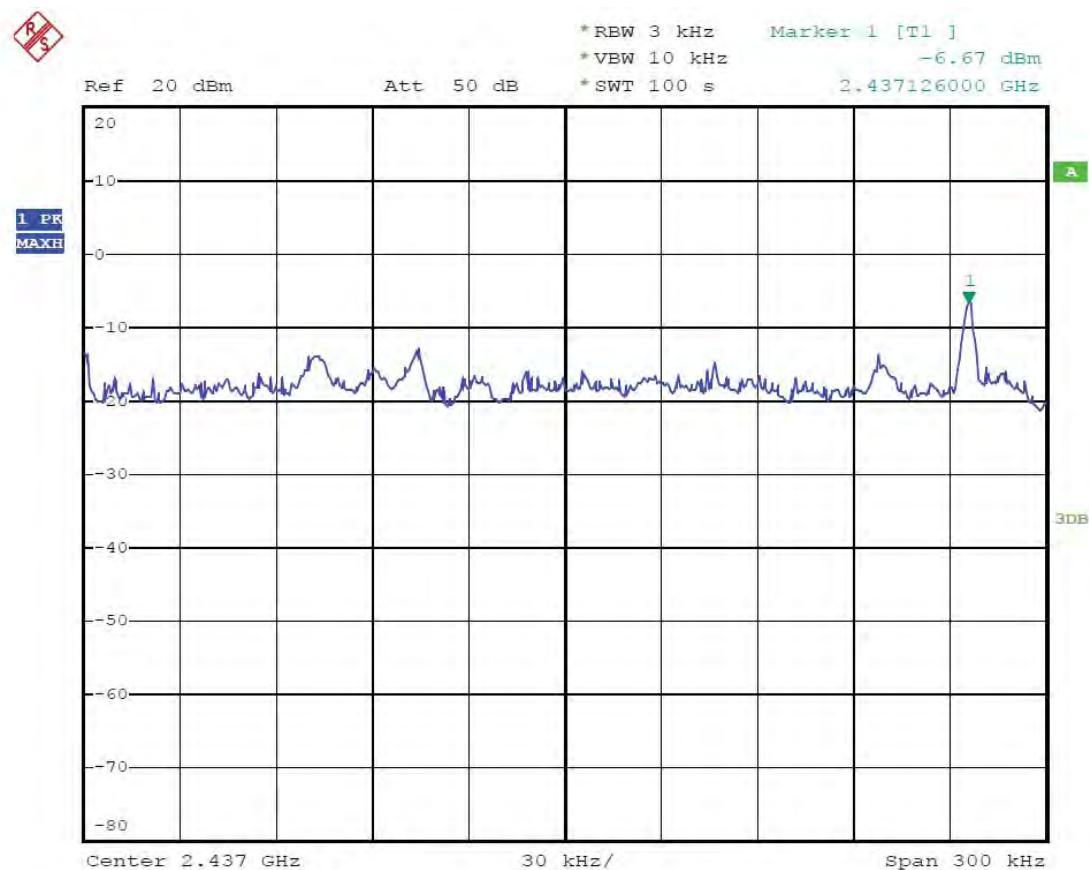
Channel	Frequency (MHz)	Power Spectral Density (dBm)	Limits (dBm)
Low	2412	-13.32	8 dBm
Middle	2437	-13.58	8 dBm
High	2462	-13.75	8 dBm

The spectrum analyzer plots are attached as below.

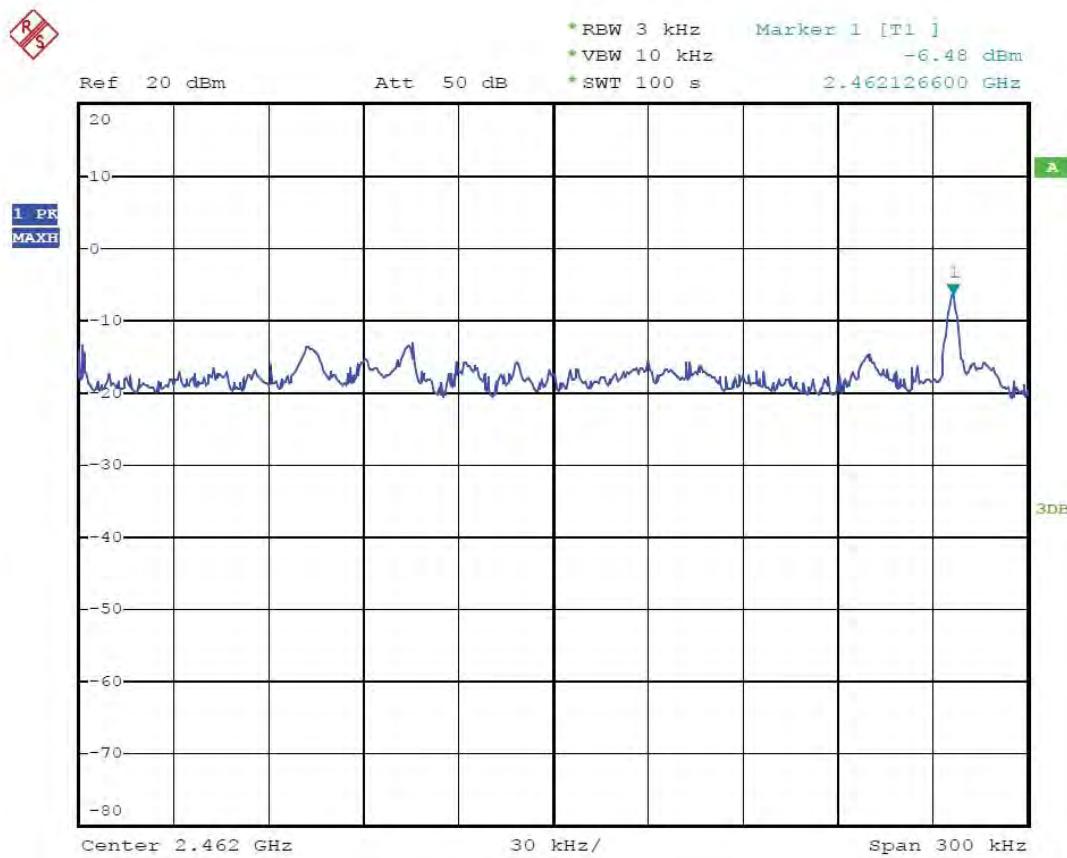
## 802.11b Channel Low 2412MHz



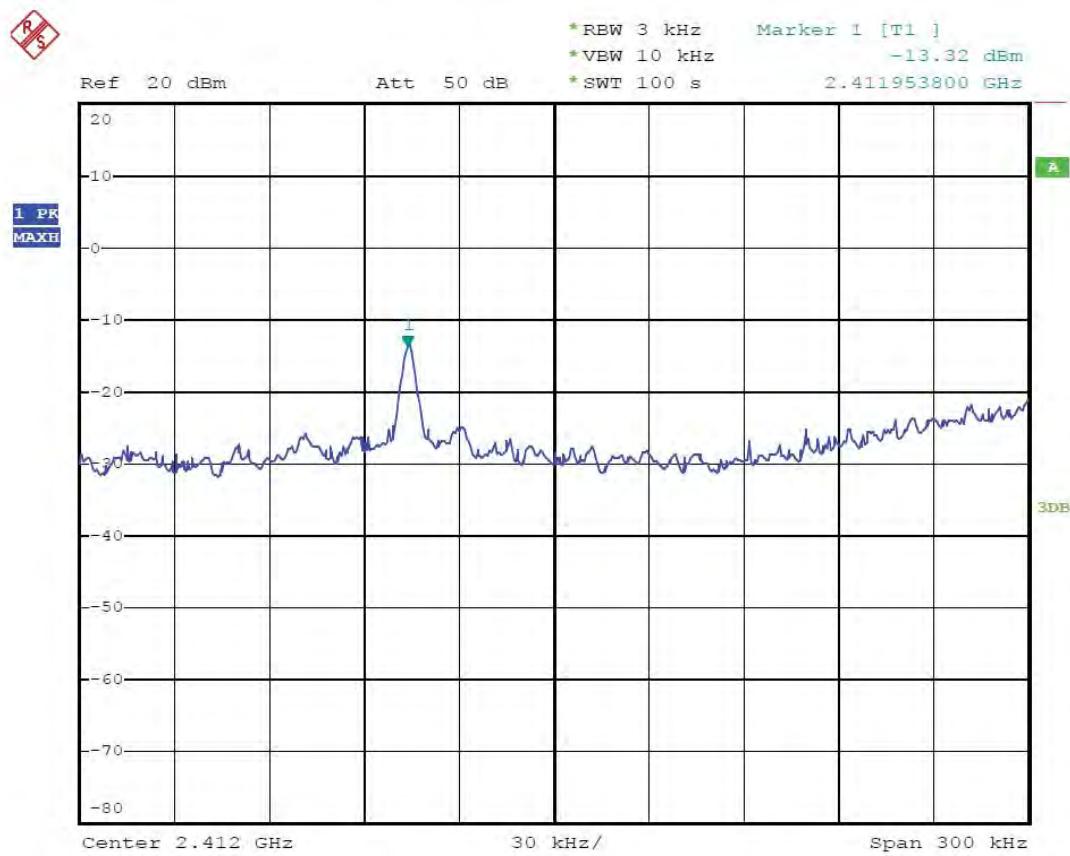
## 802.11b Channel Middle 2437MHz



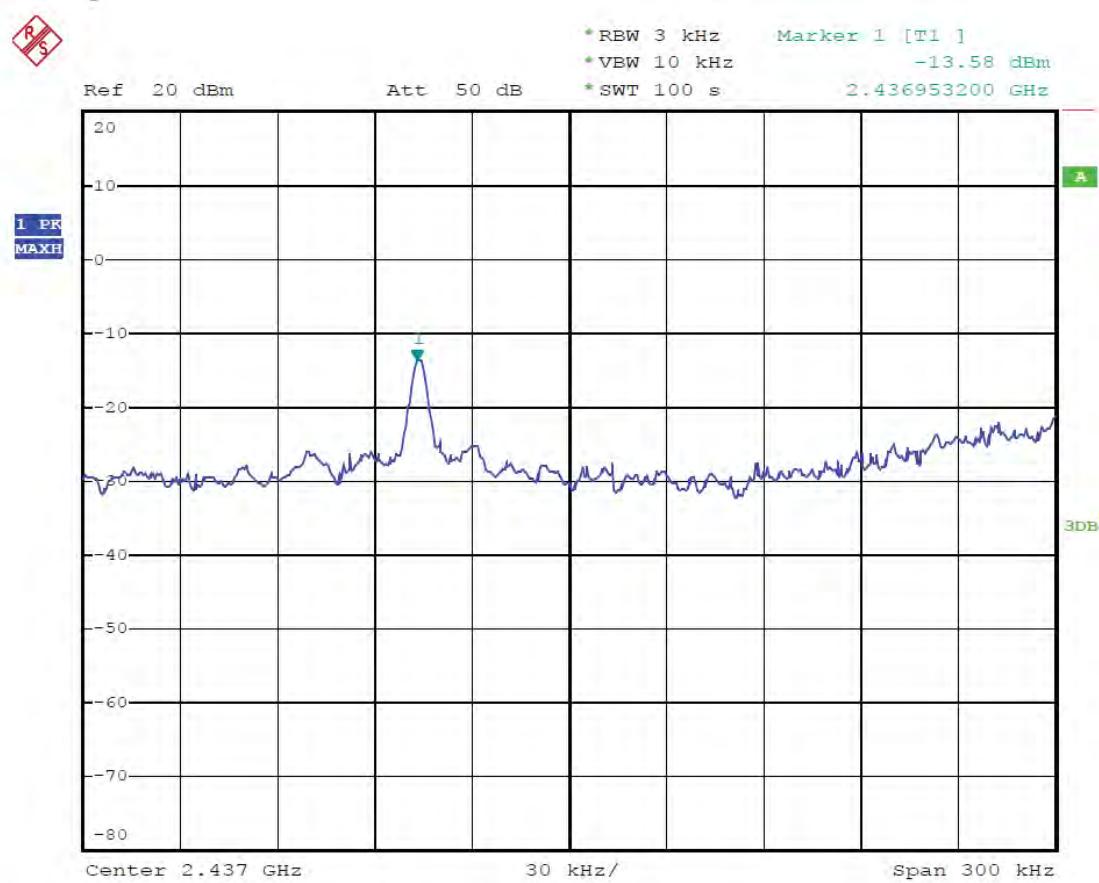
## 802.11b Channel High 2462MHz



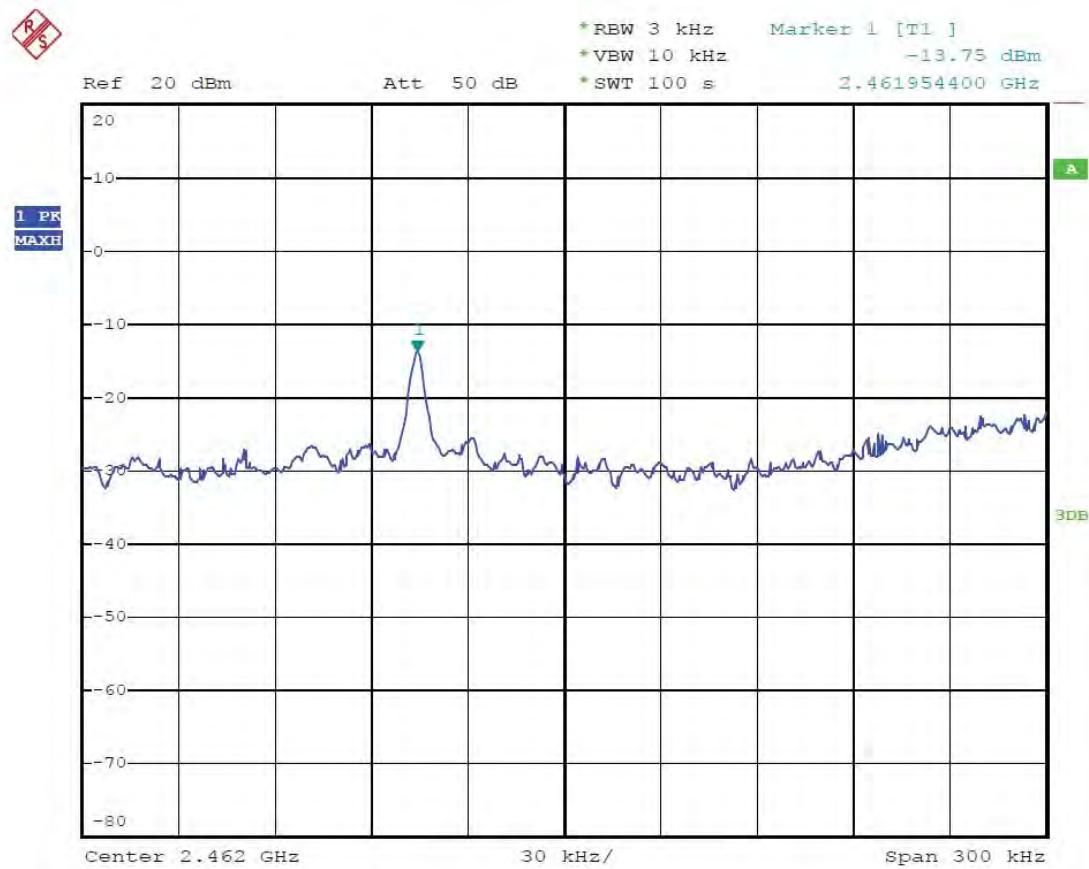
## 802.11g Channel Low 2412MHz



## 802.11g Channel Middle 2437MHz

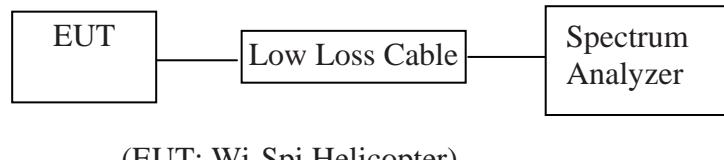


## 802.11g Channel High 2462MHz



## 8. BAND EDGE COMPLIANCE TEST

### 8.1. Block Diagram of Test Setup



(EUT: Wi-Spi Helicopter)

### 8.2. The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 8.3. 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.

#### 8.3.1. Wi-Spi Helicopter (EUT)

Model Number	:	44077
Serial Number	:	N/A
Manufacturer	:	Interactive Toy Concepts Limited

## 8.4. Operating Condition of EUT

8.4.1. Setup the EUT and simulator as shown as Section 8.1.

8.4.2. Turn on the power of all equipment.

8.4.3. Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462MHz. We select 2412MHz, 2462MHz TX frequency to transmit.

## 8.5. Test Procedure

Conducted Band Edge:

8.5.1. The transmitter output was connected to the spectrum analyzer via a low loss cable.

8.5.2. Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz.

Radiate Band Edge:

8.5.3. The EUT is placed on a turntable, which is 0.8m above the ground plane and worked at highest radiated power.

8.5.4. The turntable was rotated for 360 degrees to determine the position of maximum emission level.

8.5.5. EUT is set 3m away from the receiving antenna, which is varied from 1m to 4m to find out the highest emission.

8.5.6. 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

8.5.7. The band edges was measured and recorded.

## 8.6. Test Result

**Pass**

**Conducted test**

Date of Test:	March 28, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	TX	Test Engineer:	Apple

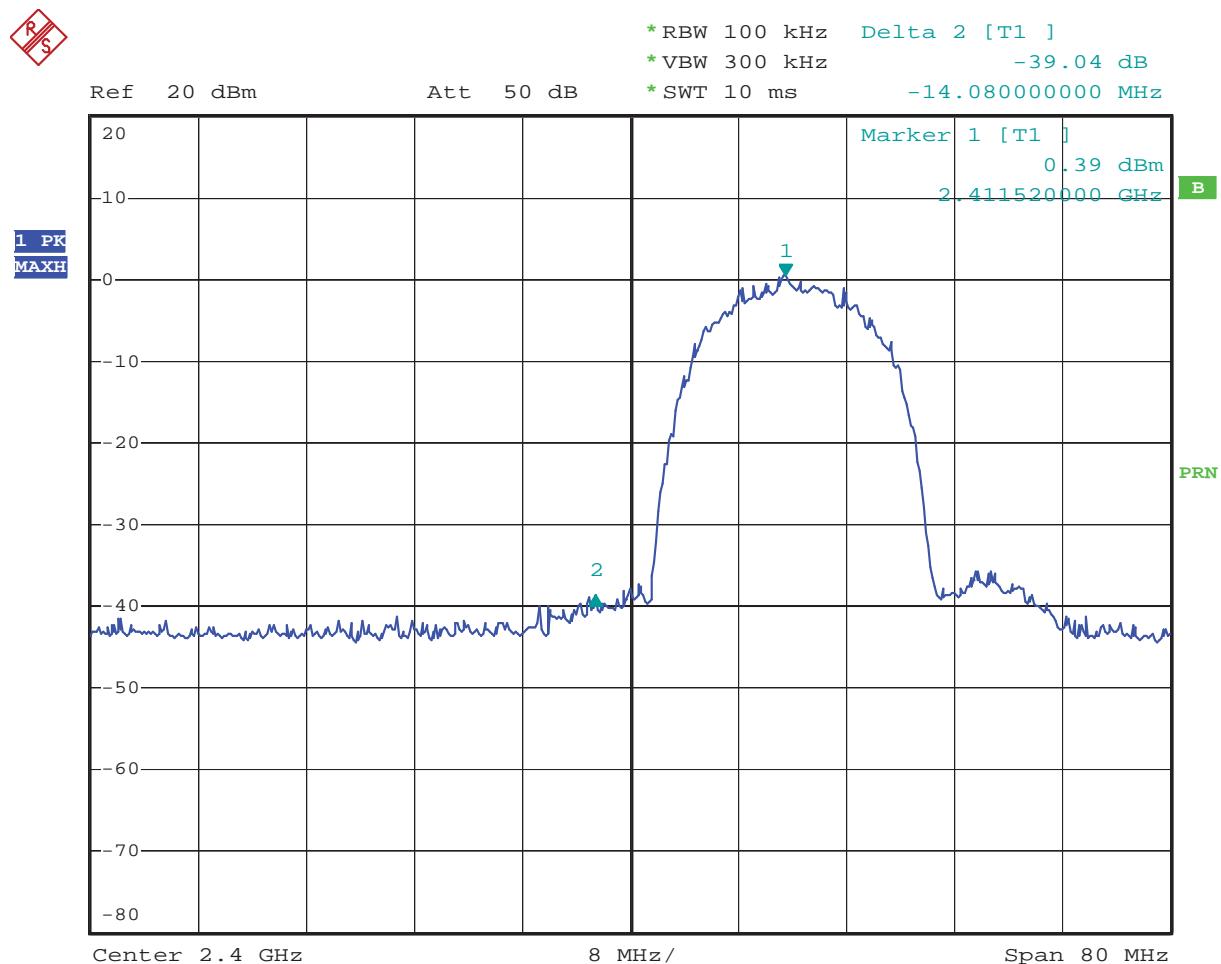
The test was performed with 802.11b

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	39.04	> 20dBc
2462	42.72	> 20dBc

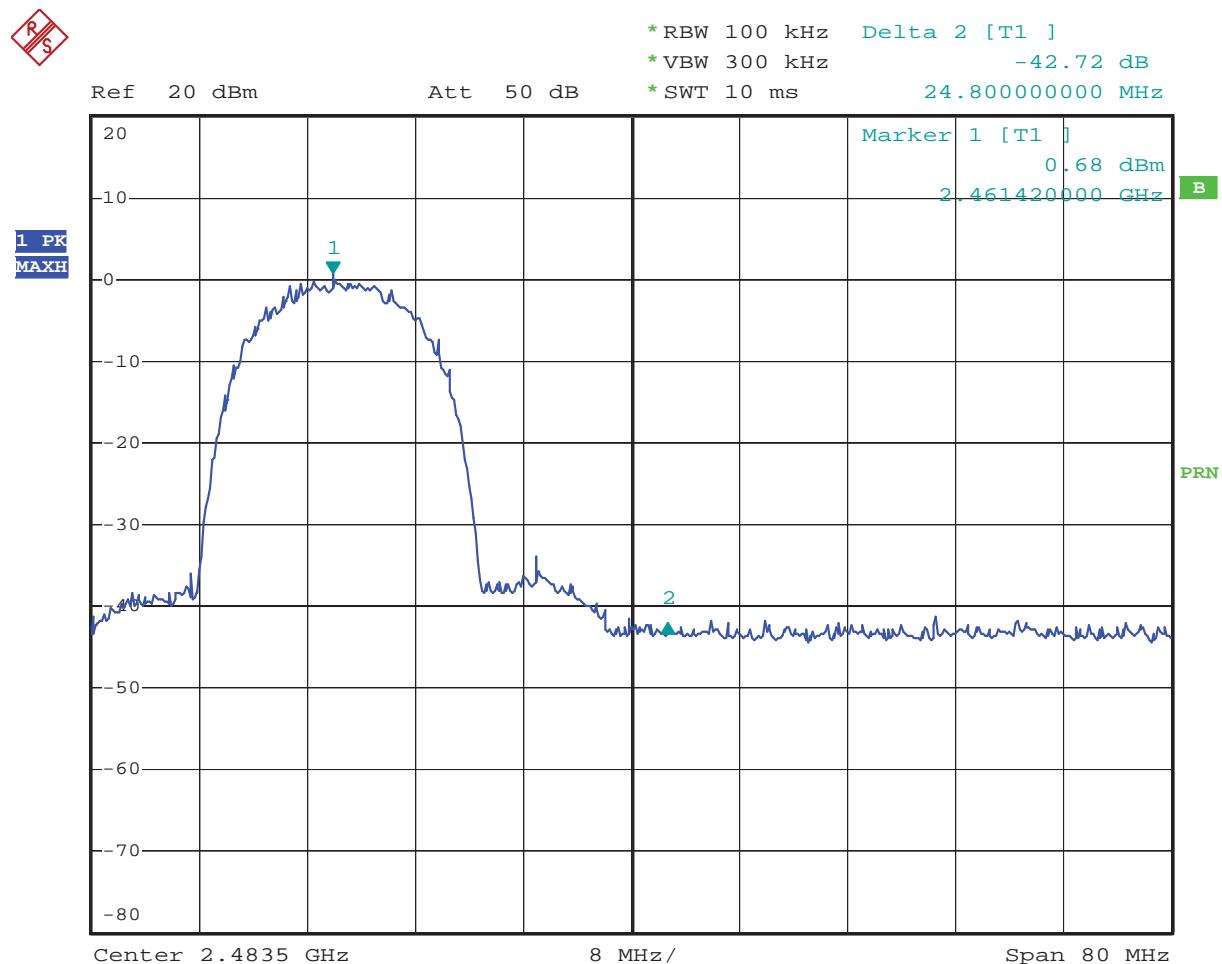
The test was performed with 802.11g

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2412	36.45	> 20dBc
2462	39.54	> 20dBc

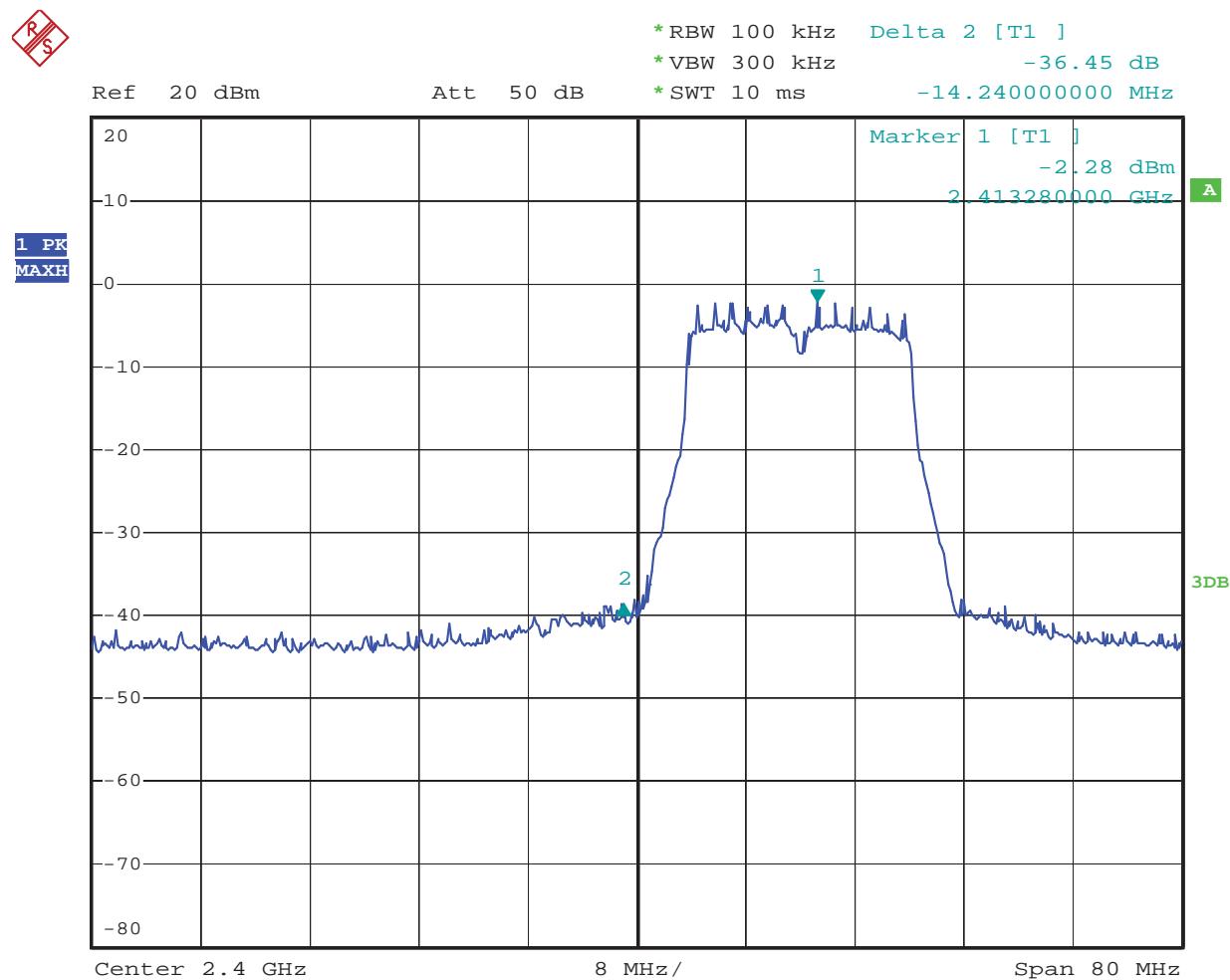
## 802.11b Channel Low 2412MHz



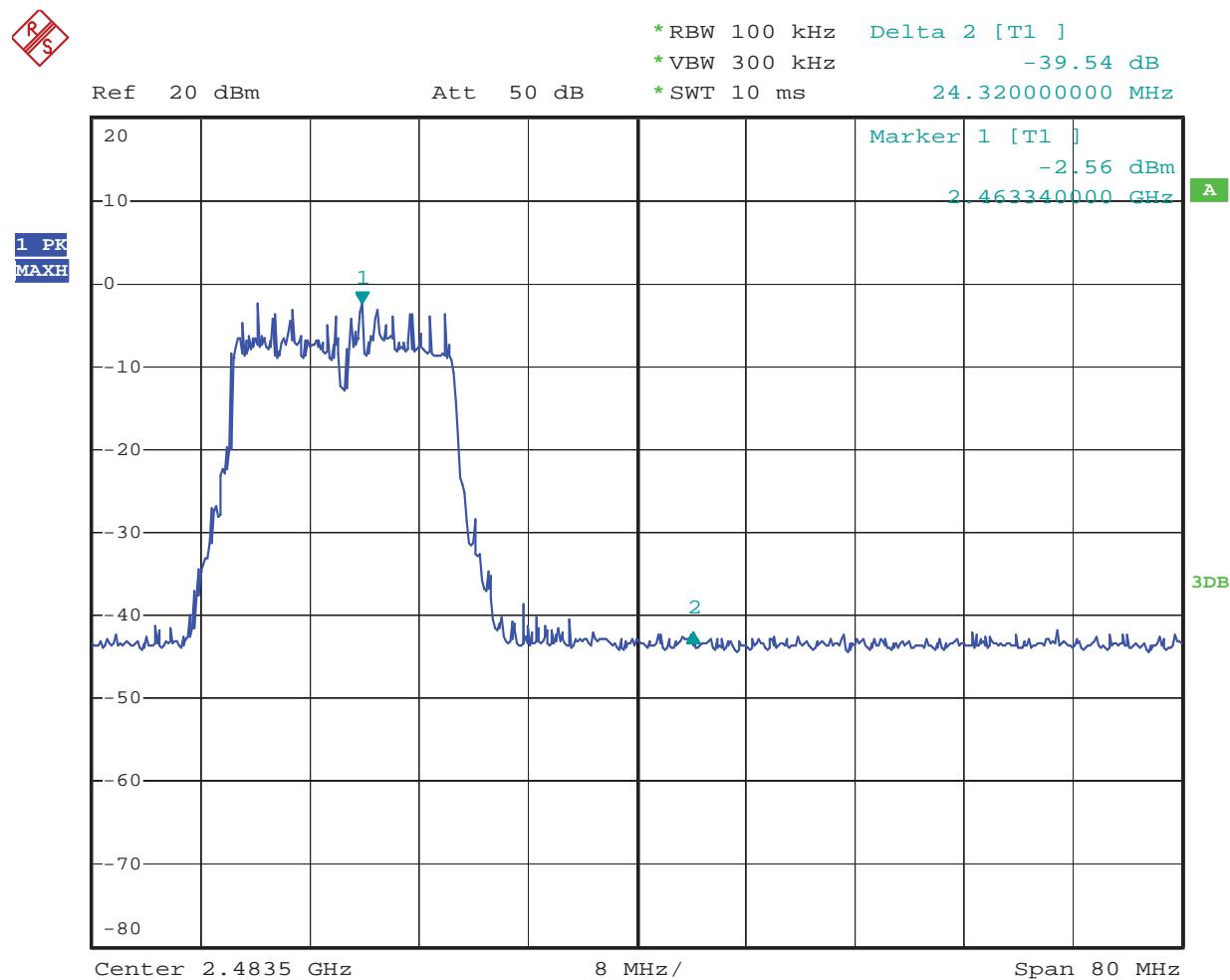
## 802.11b Channel High 2462MHz



## 802.11g Channel Low 2412MHz



## 802.11g Channel High 2462MHz



## Radiated Band Edge Result

Date of Test:	March 29, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	802.11b Channel Low 2412MHz	Test Engineer:	Apple

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor(dB) Corr.	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	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:  
Result = Reading + Corrected Factor
3. Display the measurement of peak values.

Date of Test:	March 29, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	802.11b Channel High 2462MHz	Test Engineer:	Apple

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor(dB) Corr.	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	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:  
Result = Reading + Corrected Factor
3. Display the measurement of peak values.

Date of Test:	March 29, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	802.11g Channel Low 2412MHz	Test Engineer:	Apple

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor(dB) Corr.	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	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:  
Result = Reading + Corrected Factor
3. Display the measurement of peak values.

Date of Test:	March 29, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	802.11g Channel High 2462MHz	Test Engineer:	Apple

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor(dB) Corr.	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	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:  
Result = Reading + Corrected Factor
3. Display the measurement of peak values.



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

Site: 988 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #010	Polarization: Horizontal									
Standard: FCC Part 15 PEAK 2.4G	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 19:42:26									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11b)	Distance: 3m									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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: 986 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #011	Polarization: Vertical									
Standard: FCC Part 15 PEAK 2.4G	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/28									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 19:44:12									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11b)	Distance: 3m									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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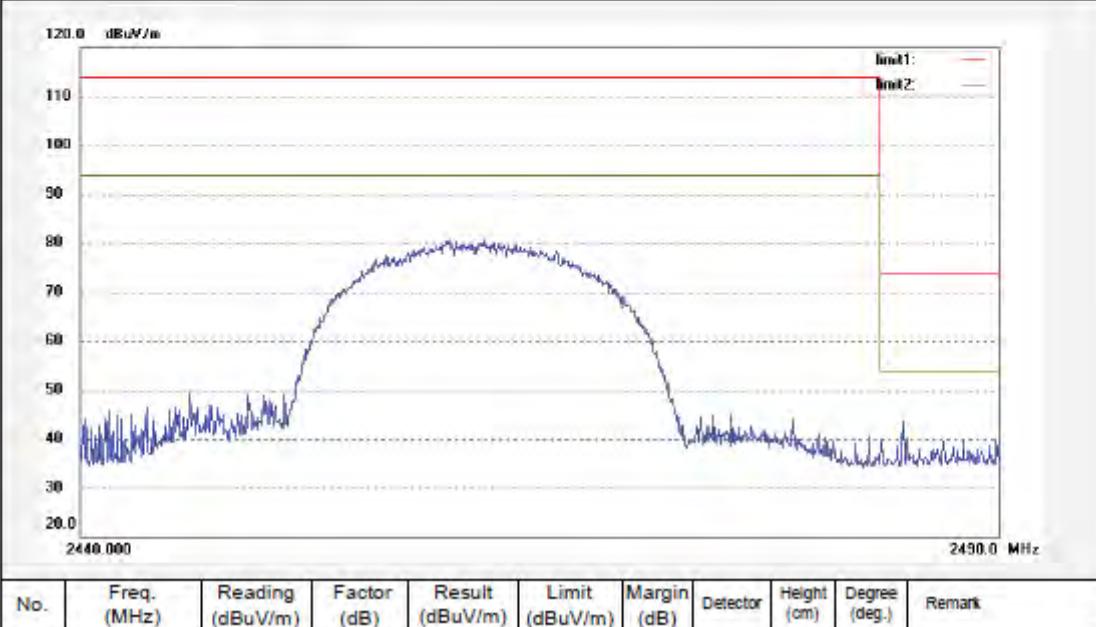
 F1,Bldg.A,Changyuan New Material Port Keyuan Rd,  
 Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.:	Apple #012	Polarization:	Horizontal
Standard:	FCC Part 15 PEAK 2.4G	Power Source:	DC 3.7V
Test item:	Radiation Test	Date:	2012/03/29
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	19:49:02
EUT:	Wi-Spi Helicopter	Engineer Signature:	Apple
Mode:	TX Channel 11 (802.11b)	Distance:	3m
Model:	44077		
Manufacturer:	Interactive Toy Concepts Limited		
Note:	Report No.:ATE20120527		





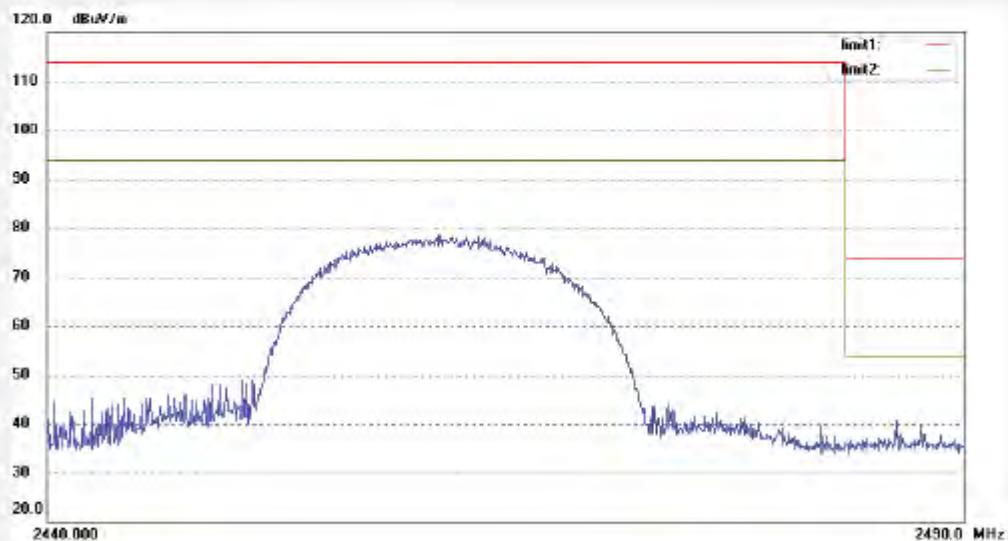
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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #013	Polarization: Vertical
Standard: FCC Part 15 PEAK 2.4G	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp. ( C)/Hum.(%) 24 C / 48 %	Time: 19:50:37
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 11 (802.11b)	Distance: 3m
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	

Note: Report No.:ATE20120527



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

Job No.:	Apple #014	Polarization:	Horizontal							
Standard:	FCC Part 15 PEAK 2.4G	Power Source:	DC 3.7V							
Test item:	Radiation Test	Date:	2012/03/29							
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	22:42:51							
EUT:	Wi-Spi Helicopter	Engineer Signature:	Kai							
Mode:	TX Channel 1 (802.11g)	Distance:								
Model:	44077									
Manufacturer:	Interactive Toy Concepts Limited									
Note:	Report No.:ATE20120527									
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

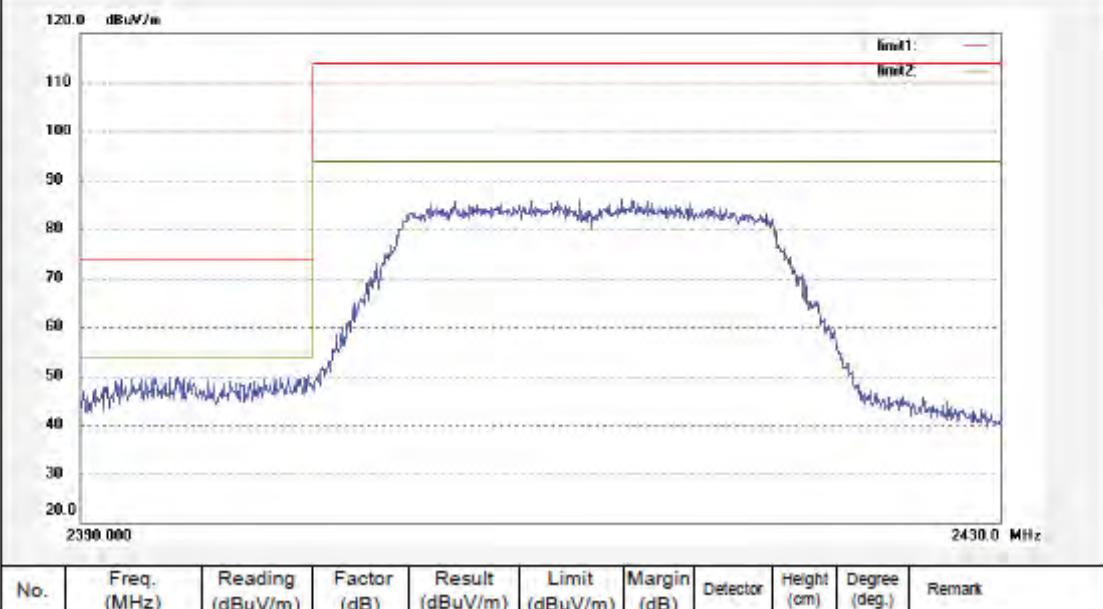


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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Apple #015	Polarization: Vertical
Standard: FCC Part 15 PEAK 2.4G	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 22:44:01
EUT: Wi-Spi Helicopter	Engineer Signature: Kai
Mode: TX Channel 1 (802.11g)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	
Note: Report No.:ATE20120527	





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

Job No.: Apple #013	Polarization: Horizontal									
Standard: FCC Part 15 PEAK 2.4G	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 22:50:06									
EUT: Wi-Spi Helicopter	Engineer Signature: Kai									
Mode: TX Channel 11 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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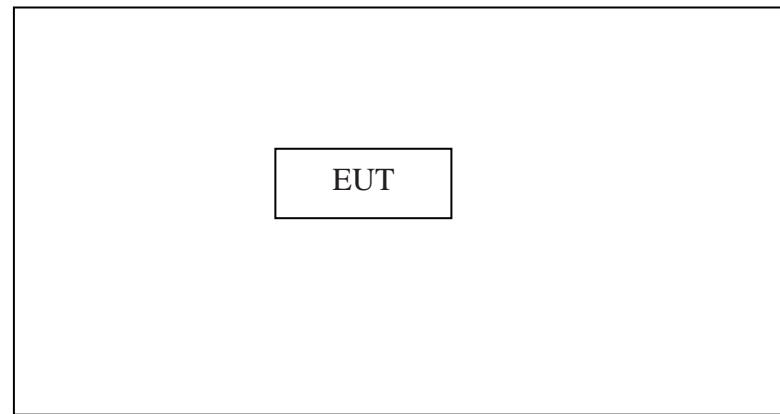
Site: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #016	Polarization: Vertical									
Standard: FCC Part 15 PEAK 2.4G	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 22:48:57									
EUT: Wi-Spi Helicopter	Engineer Signature: Kai									
Mode: TX Channel 11 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

## 9. RADIATED SPURIOUS EMISSION TEST

### 9.1. Block Diagram of Test Setup

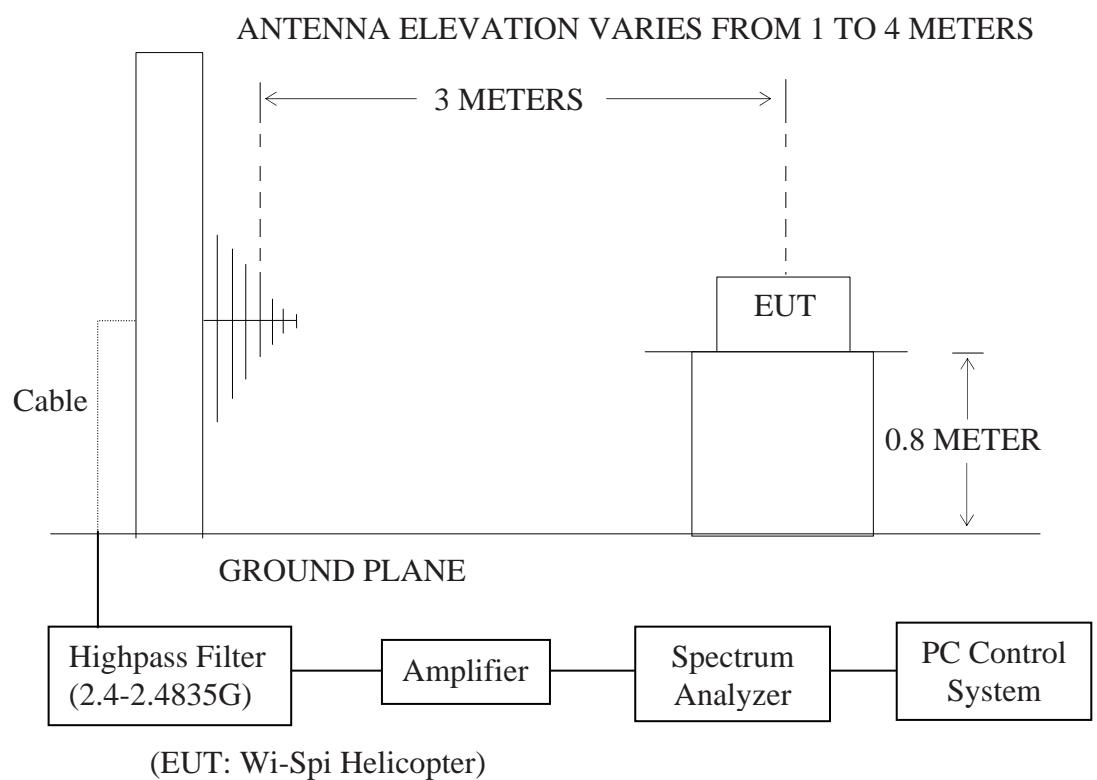
#### 9.1.1. Block diagram of connection between the EUT and peripherals



Setup: Transmitting mode

(EUT: Wi-Spi Helicopter)

#### 9.1.2. Semi-Anechoic Chamber Test Setup Diagram



## 9.2.The Limit For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

## 9.3.Restricted bands of operation

### 9.3.1.FCC Part 15.205 Restricted bands of operation

- (a) Except as shown in paragraph (d) of this section, Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15
<sup>1</sup> 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4
6.31175-6.31225	123-138	2200-2300	14.47-14.5
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5
12.57675-12.57725	322-335.4	3600-4400	( <sup>2</sup> )
13.36-13.41			

<sup>1</sup>Until February 1, 1999, this restricted band shall be 0.490-0.510

<sup>2</sup>Above 38.6

- (b) Except as provided in paragraphs (d) and (e), the field strength of emission appearing within these frequency bands shall not exceed the limits shown in Section 15.209. At frequencies equal to or less than 1000MHz, Compliance with the limits in Section 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000MHz, compliance with the emission limits in Section 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in Section 15.35 apply to these measurements.

## 9.4.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.

### 9.4.1.Wi-Spi Helicopter (EUT)

Model Number	:	44077
Serial Number	:	N/A
Manufacturer	:	Interactive Toy Concepts Limited

## 9.5.Operating Condition of EUT

9.5.1.Setup the EUT and simulator as shown as Section 9.1.

9.5.2.Turn on the power of all equipment.

9.5.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462MHz. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

## 9.6.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: 2003 on radiated emission measurement. The EUT was tested in 3 orthogonal planes.

The worst-case data rate for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode, based on previous with 802.11 WLAN product design architectures.

The bandwidth of test receiver (R&S ESI26) is set at 120kHz in 30-1000MHz. and set at 1MHz in above 1000MHz.

The frequency range from 30MHz to 25000MHz 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.

The field strength is calculated by adding the antenna factor, and cable loss, and subtracting the amplifier gain from the measured reading. The basic equation calculation is as follows:

Result = Reading + Corrected Factor

Where Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Between the antenna and Amplifier have a Highpass Filter (Restricted bands of operation is 2.4-2.4835G), setup show to 9.1.2

9.7.The Field Strength of Radiation Emission Measurement Results  
**PASS.**

Date of Test:	March 29, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	DC 3.7V
Test Mode:	802.11b Channel Low 2412MHz	Test Engineer:	Apple

**For 30MHz-1000MHz**

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dB $\mu$ V/m)	Factor Corr. (dB)	Result	Limit	Margin	Polarization
			QP	QP	QP	
208.9046	17.07	16.32	33.39	43.50	-10.11	Vertical
448.6722	12.66	22.94	35.60	46.00	-10.40	Vertical
485.3263	13.20	23.90	37.10	46.00	-8.90	Vertical
288.2611	22.40	18.55	40.95	46.00	-5.05	Horizontal
301.6440	22.61	18.72	41.33	46.00	-4.67	Horizontal
436.3396	15.34	22.91	38.25	46.00	-7.75	Horizontal

**For 1GHz-25GHz**

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor Corr. (dB)	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB $\mu$ V/m)		Polarizati on
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

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

**2. \*: Denotes restricted band of operation.**

Date of Test: March 29, 2012  
 EUT: Wi-Spi Helicopter  
 Model No.: 44077  
 Test Mode: 802.11b Channel Middle 2437MHz

Temperature: 25°C  
 Humidity: 50%  
 Power Supply: DC 3.7V  
 Test Engineer: Pei

### For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dB $\mu$ V/m)	Factor Corr. (dB)	Result	Limit	Margin	Polarization
			QP	QP	QP	
202.7460	18.05	16.20	34.25	43.50	-9.25	Vertical
448.2619	12.57	22.94	35.51	46.00	-10.49	Vertical
485.3263	13.36	23.90	37.26	46.00	-8.74	Vertical
288.2611	22.39	18.55	40.94	46.00	-5.06	Horizontal
301.6441	22.56	18.72	41.28	46.00	-4.72	Horizontal
436.3397	15.42	22.91	38.33	46.00	-7.67	Horizontal

### For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor Corr. (dB)	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB $\mu$ V/m)		Polarizati on
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

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

**2. \*: Denotes restricted band of operation.**

Date of Test: March 29, 2012  
 EUT: Wi-Spi Helicopter  
 Model No.: 44077  
 Test Mode: 802.11b Channel High 2462MHz

Temperature: 25°C  
 Humidity: 50%  
 Power Supply: DC 3.7V  
 Test Engineer: Pei

### For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dB $\mu$ V/m)	Factor Corr.	Result	Limit	Margin (dB)	Polarization
			QP	QP		
208.6579	17.29	16.31	33.60	43.50	-9.90	Vertical
448.2619	12.46	22.94	35.40	46.00	-10.60	Vertical
479.1394	14.74	23.84	38.58	46.00	-7.42	Vertical
288.2611	22.53	18.55	41.08	46.00	-4.92	Horizontal
301.6441	22.14	18.72	40.86	46.00	-5.14	Horizontal
436.3397	15.48	22.91	38.39	46.00	-7.61	Horizontal

### For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor Corr. (dB)	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB $\mu$ V/m)		Polarizati on
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

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

**2. \*: Denotes restricted band of operation.**

Date of Test: March 29, 2012	Temperature: 25°C
EUT: Wi-Spi Helicopter	Humidity: 50%
Model No.: 44077	Power Supply: DC 3.7V
Test Mode: 802.11g Channel Low 2412MHz	Test Engineer: Pei

### For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dB $\mu$ V/m)	Factor Corr.	Result	Limit	Margin	Polarization
			QP	QP	QP	
208.8929	17.26	16.32	33.58	43.50	-9.92	Vertical
356.3500	14.20	21.15	35.35	46.00	-10.65	Vertical
485.3600	13.15	23.90	37.05	46.00	-8.95	Vertical
288.7580	23.41	18.57	41.98	46.00	-4.02	Horizontal
301.0550	22.09	18.70	40.79	46.00	-5.21	Horizontal
436.2090	15.33	22.90	38.24	46.00	-7.76	Horizontal

### For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor Corr. (dB)	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB $\mu$ V/m)		Polarizati on
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

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

**2. \*: Denotes restricted band of operation.**

Date of Test: March 29, 2012  
 EUT: Wi-Spi Helicopter  
 Model No.: 44077  
 Test Mode: 802.11g Channel Middle 2437MHz

Temperature: 25°C  
 Humidity: 50%  
 Power Supply: DC 3.7V  
 Test Engineer: Pei

### For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dB $\mu$ V/m)	Factor Corr.	Result	Limit	Margin (dB)	Polarization
			QP	QP		
208.9010	17.17	16.32	33.49	43.50	-10.01	Vertical
356.3299	13.57	21.15	34.72	46.00	-11.28	Vertical
480.0281	13.16	23.86	37.02	46.00	-8.98	Vertical
288.7620	22.32	18.57	40.89	46.00	-5.11	Horizontal
301.0500	22.24	18.70	40.94	46.00	-5.06	Horizontal
313.3420	20.07	19.14	39.21	46.00	-6.79	Horizontal

### For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor Corr. (dB)	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB $\mu$ V/m)		Polarizati on
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

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

2. \*: Denotes restricted band of operation.

Date of Test: March 29, 2012  
 EUT: Wi-Spi Helicopter  
 Model No.: 44077  
 Test Mode: 802.11g Channel High 2462MHz

Temperature: 25°C  
 Humidity: 50%  
 Power Supply: DC 3.7V  
 Test Engineer: Pei

### For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dB $\mu$ V/m)	Factor Corr.	Result	Limit	Margin (dB)	Polarization
			QP	QP		
208.9124	17.45	16.32	33.77	43.50	-9.73	Vertical
448.5140	12.56	22.94	35.50	46.00	-10.50	Vertical
485.3690	13.50	23.90	37.40	46.00	-8.60	Vertical
288.4611	22.51	18.56	41.07	46.00	-4.93	Horizontal
301.5440	22.26	18.72	40.98	46.00	-5.02	Horizontal
436.3396	15.24	22.91	38.15	46.00	-7.85	Horizontal

### For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dB $\mu$ V/m)		Factor Corr. (dB)	Result(dB $\mu$ V/m)		Limit(dB $\mu$ V/m)		Margin(dB $\mu$ V/m)		Polarizati on
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
-	-	-	-	-	-	-	-	-	-	Vertical
-	-	-	-	-	-	-	-	-	-	Horizontal

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

2. \*: Denotes restricted band of operation.



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Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Apple #081	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 11:17:41									
EUT: Wi-Spi Helicopter	Engineer Signature: Applei									
Mode: TX Channel 1 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	288.2611	22.40	18.55	40.95	46.00	-5.05	QP			
2	301.6440	22.61	18.72	41.33	46.00	-4.67	QP			
3	436.3396	15.34	22.91	38.25	46.00	-7.75	QP			



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Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Apple #080	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 11:16:21									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	208.9046	17.07	16.32	33.39	43.50	-10.11	QP			
2	448.6722	12.66	22.94	35.80	46.00	-10.40	QP			
3	485.3263	13.20	23.90	37.10	46.00	-8.90	QP			



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Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #049	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:11:54									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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Fax:+86-0755-26503396

Job No.:	Apple #048	Polarization:	Vertical							
Standard:	FCC Class B 3M Radiated	Power Source:	DC 3.7V							
Test item:	Radiation Test	Date:	2012/03/29							
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	21:10:48							
EUT:	Wi-Spi Helicopter	Engineer Signature:	Apple							
Mode:	TX Channel 1 (802.11b)	Distance:								
Model:	44077									
Manufacturer:	Interactive Toy Concepts Limited									
Note:	Report No.:ATE20120527									
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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Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #050	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:13:10									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #051	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:14:11									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.:	Apple #053	Polarization:	Horizontal							
Standard:	FCC Class B 3M Radiated	Power Source:	DC 3.7V							
Test item:	Radiation Test	Date:	2012/03/29							
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	21:16:53							
EUT:	Wi-Spi Helicopter	Engineer Signature:	Apple							
Mode:	TX Channel 1 (802.11b)	Distance:								
Model:	44077									
Manufacturer:	Interactive Toy Concepts Limited									
Note:	Report No.:ATE20120527									
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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Fax:+86-0755-26503398

Job No.: Apple #052	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:15:22									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

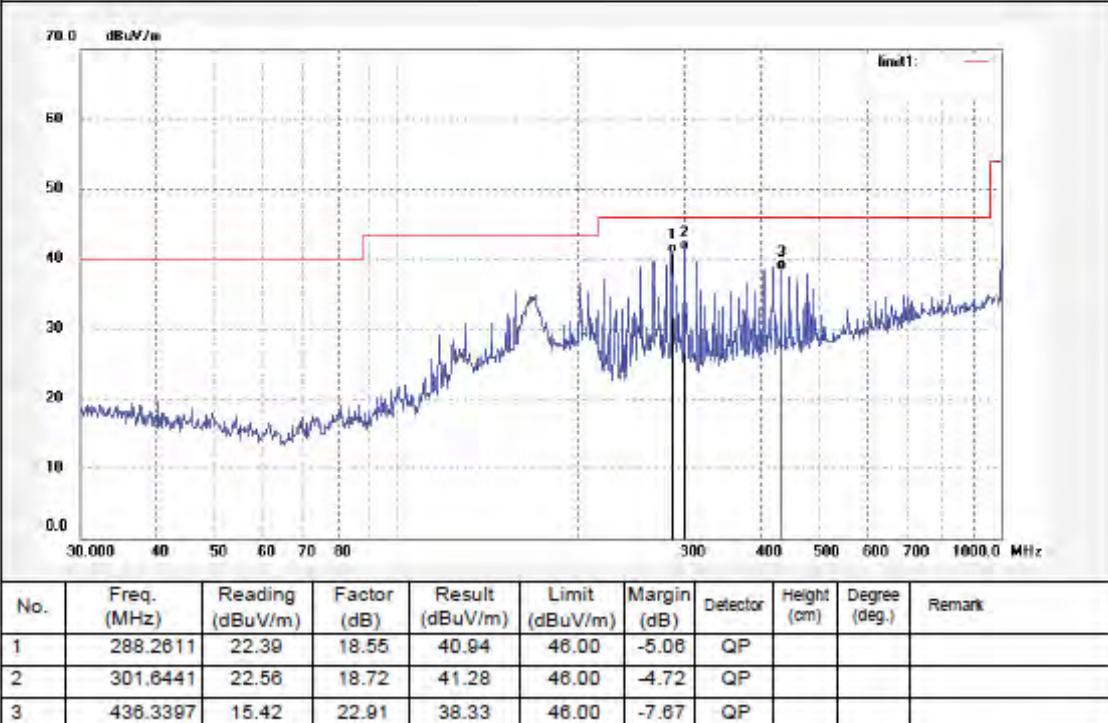


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Job No.: Apple #062	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 11:25:26
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 6 (802.11b)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	
Note: Report No.:ATE20120527	





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Job No.: Apple #063	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp. ( C)/Hum.(%) 24 C / 48 %	Time: 11:27:41									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	202.7460	18.05	16.20	34.25	43.50	-9.25	QP			
2	448.2619	12.57	22.04	35.51	46.00	-10.49	QP			
3	485.3263	13.36	23.90	37.26	46.00	-8.74	QP			



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Job No.: Apple #042	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:02:25									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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Job No.:	Apple #043	Polarization:	Vertical							
Standard:	FCC Class B 3M Radiated	Power Source:	DC 3.7V							
Test item:	Radiation Test	Date:	2012/03/29							
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	21:03:43							
EUT:	Wi-Spi Helicopter	Engineer Signature:	Apple							
Mode:	TX Channel 6 (802.11b)	Distance:								
Model:	44077									
Manufacturer:	Interactive Toy Concepts Limited									
Note: Report No.:ATE20120527										
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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Fax:+86-0755-26503396

Job No.: Apple #045	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:05:59									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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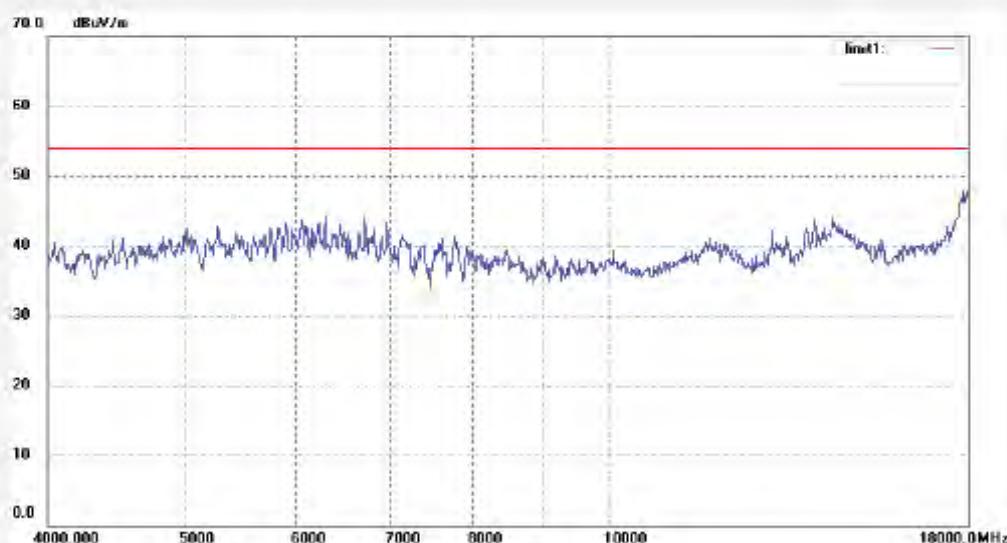
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Site: 966 chamber  
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Job No.: Apple #044  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp. ( C )/Hum.(%) 24 C / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 6 (802.11b)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Polarization: Vertical  
Power Source: DC 3.7V  
Date: 2012/03/29  
Time: 21:04:56  
Engineer Signature: Apple  
Distance:

Note: Report No.:ATE20120527



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

Job No.: Apple #046	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 21:07:07									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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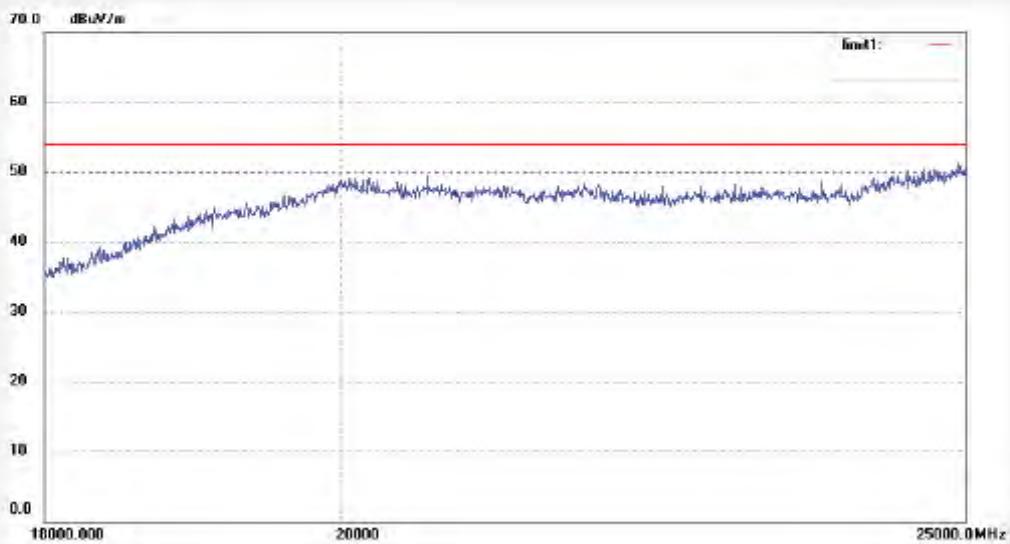
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Site: 906 chamber  
Tel:+86-0755-26503290  
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Job No.: Apple #047  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 6 (802.11b)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Polarization: Vertical  
Power Source: DC 3.7V  
Date: 2012/03/29  
Time: 21:08:59  
Engineer Signature: Apple  
Distance:

Note: Report No.:ATE20120527



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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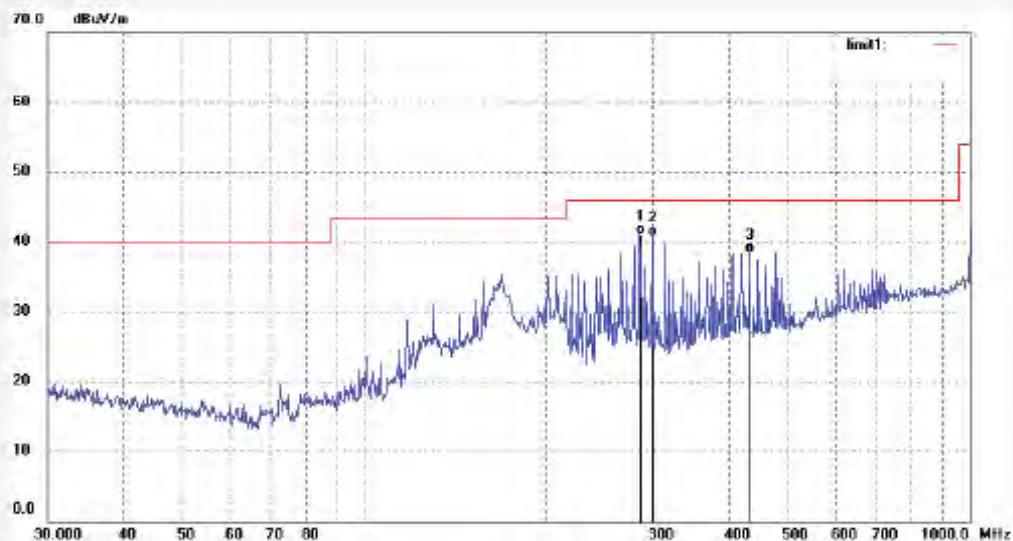
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Site: 986 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #065  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 11 (802.11b)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Polarization: Horizontal  
Power Source: DC 3.7V  
Date: 2012/03/29  
Time: 11:35:10  
Engineer Signature: Apple  
Distance:

Note: Report No.:ATE20120527



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	288.2611	22.53	18.55	41.08	46.00	-4.92	QP			
2	301.6441	22.14	18.72	40.86	46.00	-5.14	QP			
3	436.3397	15.48	22.91	38.39	46.00	-7.61	QP			

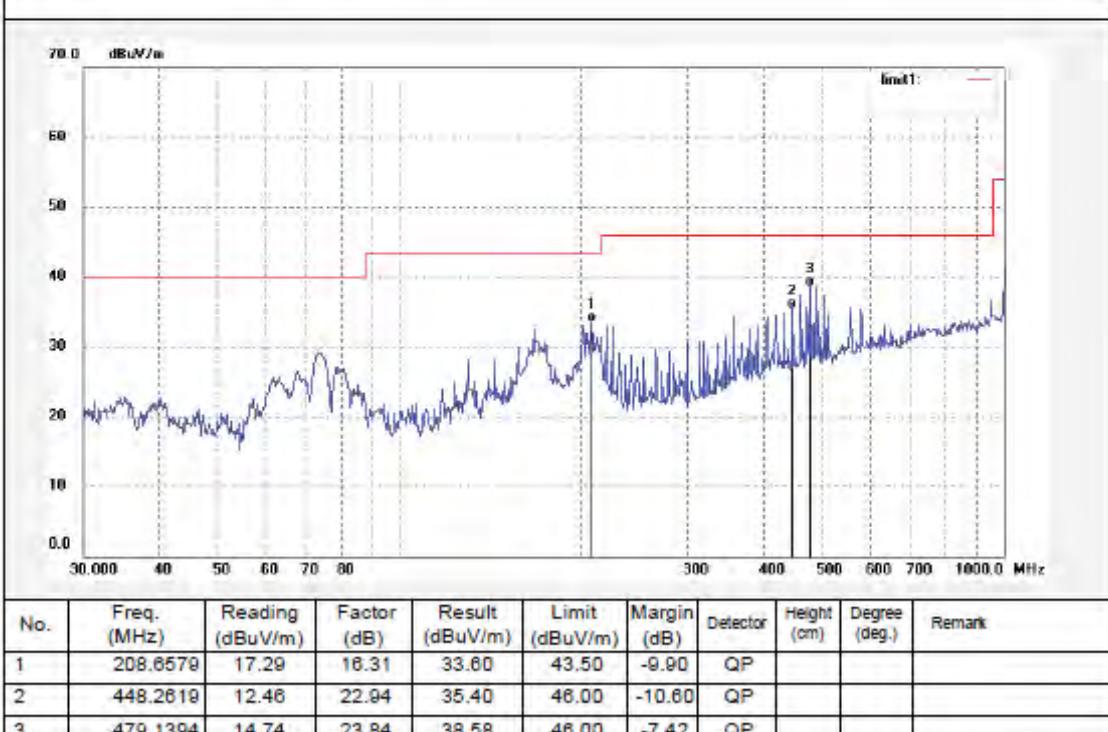


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Job No.: Apple #064	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 11:32:33
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 11 (802.11b)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	
Note: Report No.:ATE20120527	





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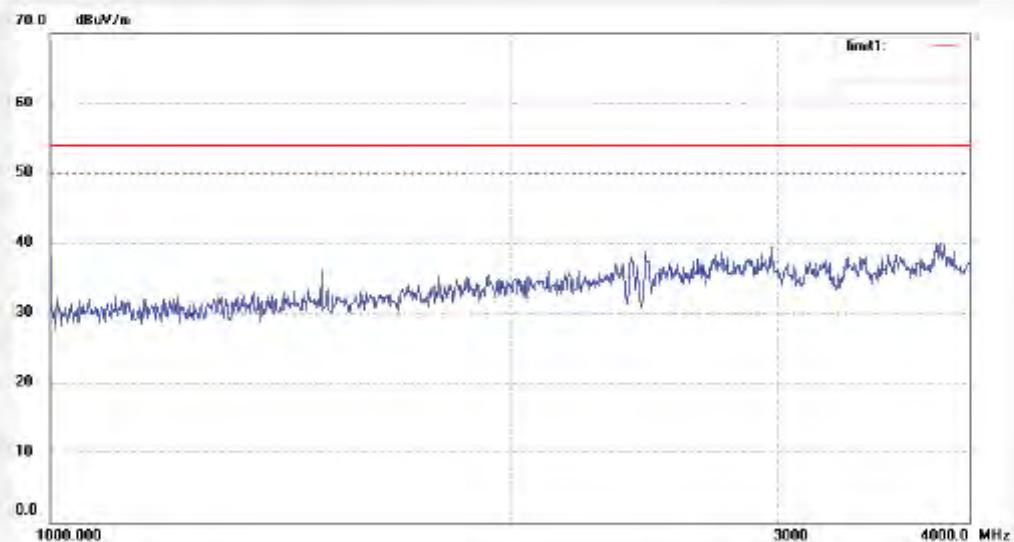
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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Apple #037  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 11 (802.11b)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Polarization: Horizontal  
Power Source: DC 3.7V  
Date: 2012/03/29  
Time: 20:55:37  
Engineer Signature: Apple  
Distance:

Note: Report No.:ATE20120527



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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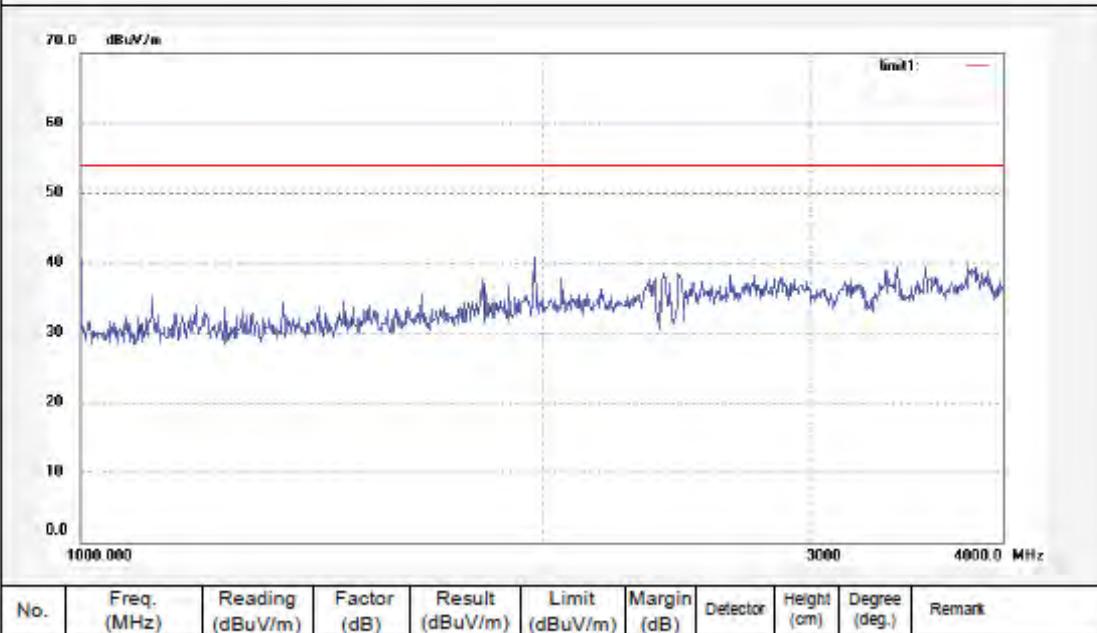


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Site: 988 chamber  
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Fax:+86-0755-26503396

Job No.: Apple #036	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:54:27
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 11 (802.11b)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	
Note: Report No.:ATE20120527	



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

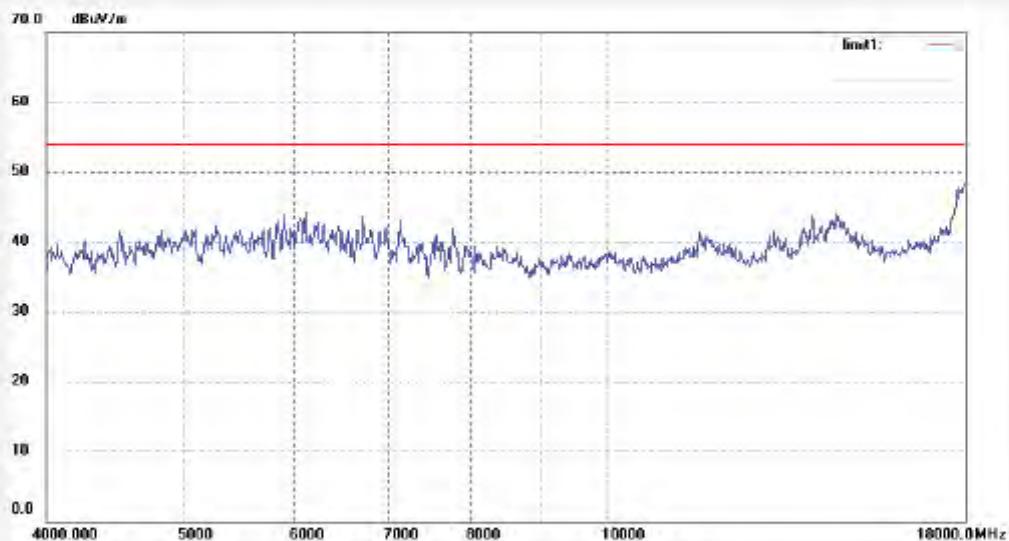


ACCURATE TECHNOLOGY CO., LTD.

F1,Bldg.A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.ChinaSite: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503398

Job No.: Apple #038      Polarization: Horizontal  
 Standard: FCC Class B 3M Radiated      Power Source: DC 3.7V  
 Test item: Radiation Test      Date: 2012/03/29  
 Temp. ( C )/Hum. (%) 24 C / 48 %      Time: 20:56:47  
 EUT: Wi-Spi Helicopter      Engineer Signature: Apple  
 Mode: TX Channel 11 (802.11b)      Distance:  
 Model: 44077  
 Manufacturer: Interactive Toy Concepts Limited

Note: Report No.:ATE20120527



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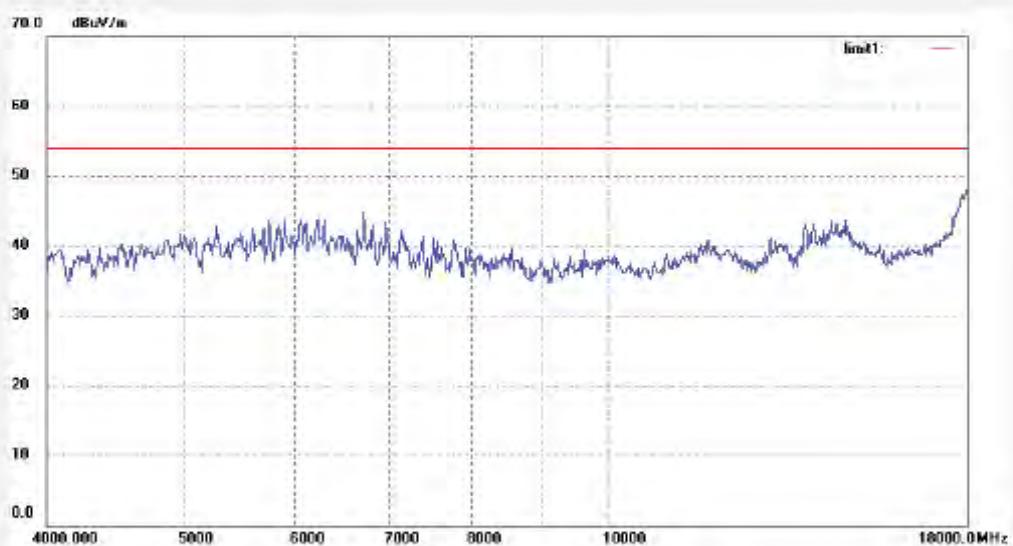
F1,Bldg.A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 986 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #039  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 11 (802.11b)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Polarization: Vertical  
Power Source: DC 3.7V  
Date: 2012/03/29  
Time: 20:57:49  
Engineer Signature: Apple  
Distance:

Note: Report No.:ATE20120527



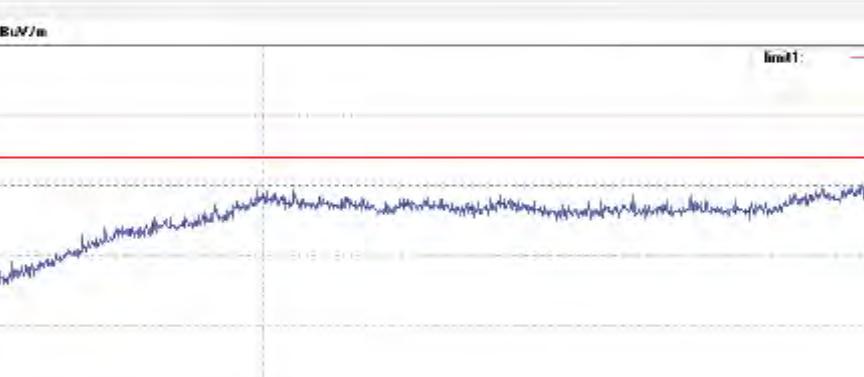
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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Site: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.:	Apple #041	Polarization:	Horizontal							
Standard:	FCC Class B 3M Radiated	Power Source:	DC 3.7V							
Test item:	Radiation Test	Date:	2012/03/29							
Temp.( C)	Hum.(%) 24 C / 48 %	Time:	21:00:33							
EUT:	Wi-Spi Helicopter	Engineer Signature:	Apple							
Mode:	TX Channel 11 (802.11b)	Distance:								
Model:	44077									
Manufacturer:	Interactive Toy Concepts Limited									
Note:	Report No.:ATE20120527									
										
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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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #040	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:59:06									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 11 (802.11b)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark



## ACCURATE TECHNOLOGY CO., LTD.

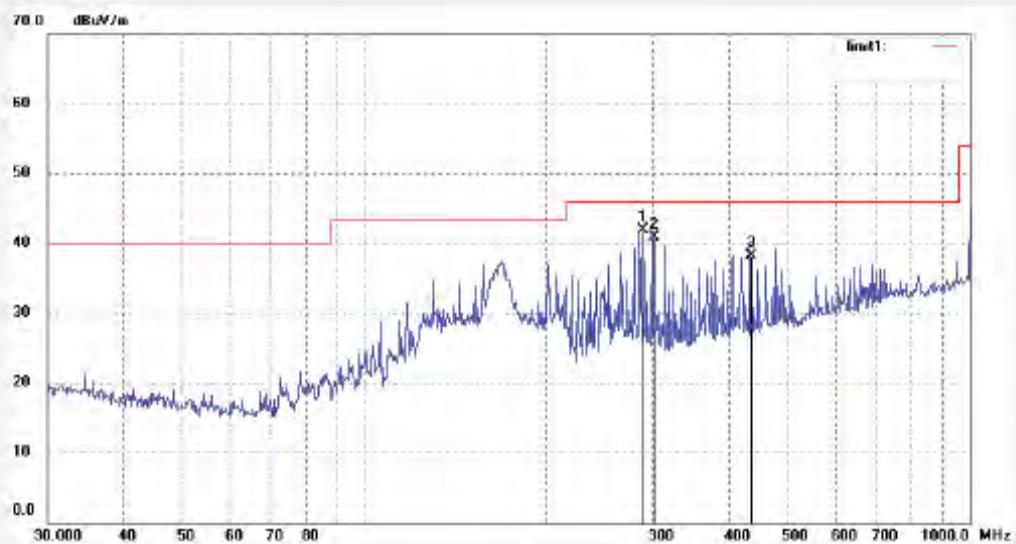
F1,Bldg.A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 968 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #054  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 1 (802.11g)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Polarization: Horizontal  
Power Source: DC 3.7V  
Date: 2012/03/29  
Time: 10/32/20  
Engineer Signature: Apple  
Distance:

Note: Report No.:ATE20120527



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	288.7580	23.41	18.57	41.98	46.00	-4.02	peak			
2	301.0550	22.09	18.70	40.79	46.00	-5.21	peak			
3	436.2090	15.33	22.91	38.24	46.00	-7.76	peak			



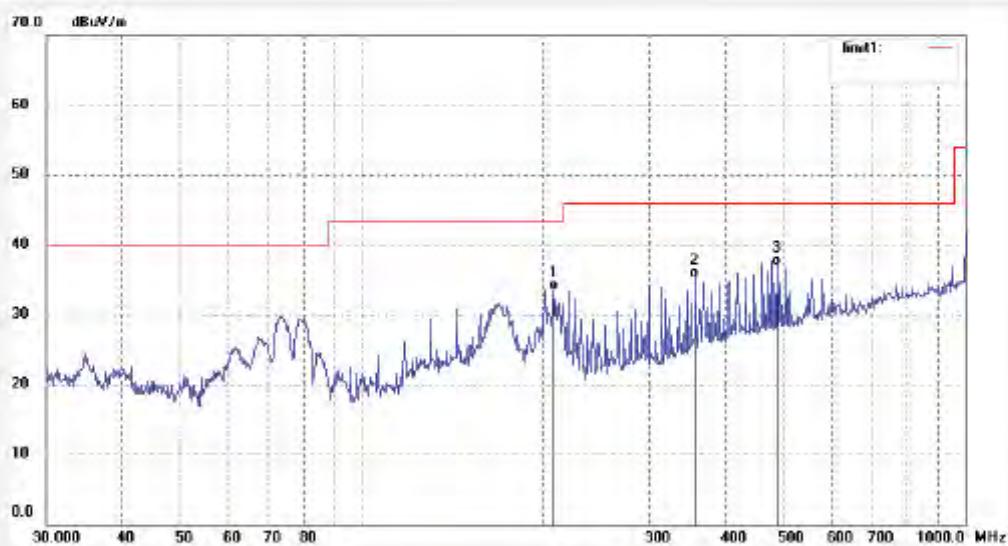
## ACCURATE TECHNOLOGY CO., LTD.

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.: Apple #055	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29/
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 10/34/35
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 1 (802.11g)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	

Note: Report No.:ATE20120527



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	208.8928	17.26	16.32	33.58	43.50	-9.92	QP			
2	356.3500	14.20	21.15	35.35	46.00	-10.65	QP			
3	485.3600	13.15	23.90	37.05	46.00	-8.95	QP			



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

Job No.: Apple #018	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:26:30									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.:	Apple #019	Polarization:	Vertical							
Standard:	FCC Class B 3M Radiated	Power Source:	DC 3.7V							
Test item:	Radiation Test	Date:	2012/03/29							
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	20:26:26							
EUT:	Wi-Spi Helicopter	Engineer Signature:	Applei							
Mode:	TX Channel 1 (802.11g)	Distance:								
Model:	44077									
Manufacturer:	Interactive Toy Concepts Limited									
Note:	Report No.:ATE20120527									
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: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #021	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:28:59									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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: 908 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #020	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:28:03									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Apple #022	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:30:25									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 1 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

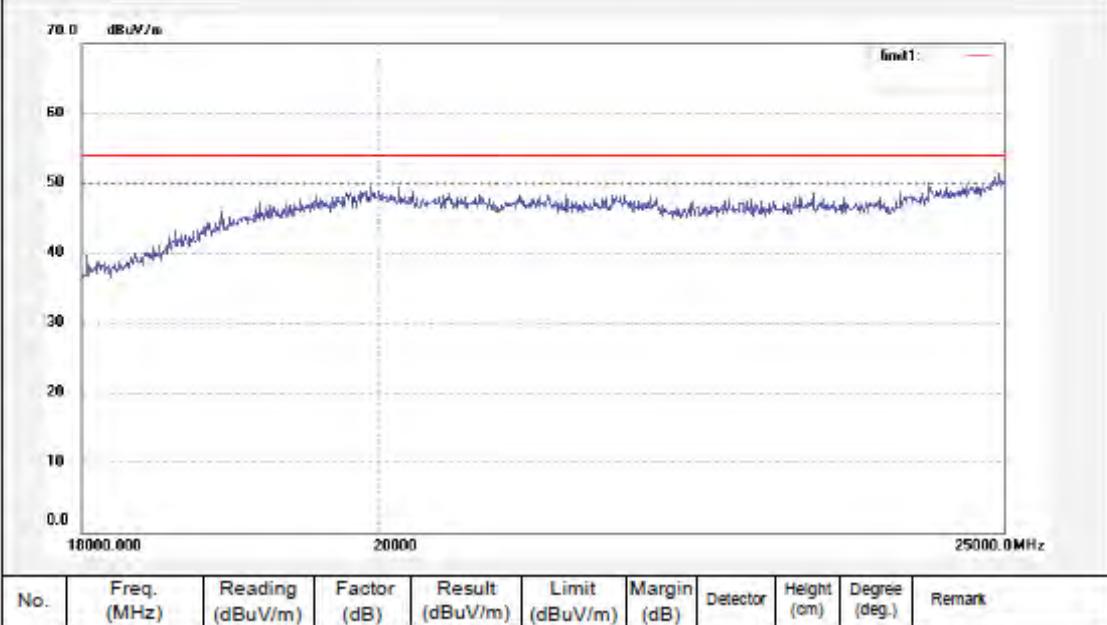


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Site: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #023	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:32:16
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 1 (802.11g)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	
Note: Report No.:ATE20120527	





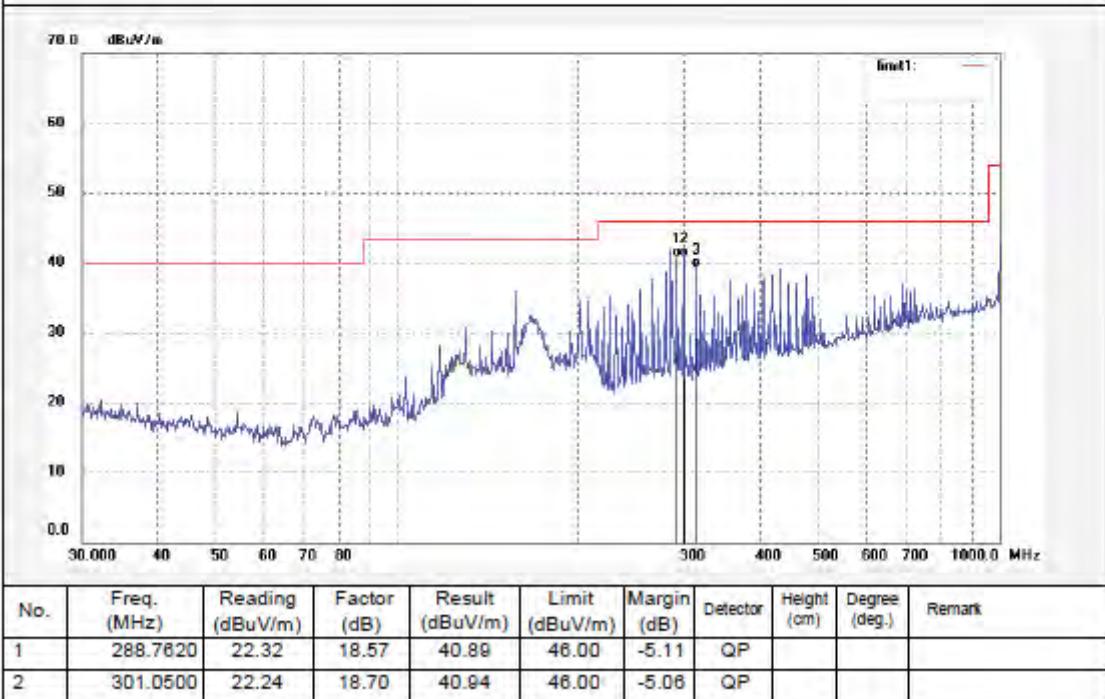
## ACCURATE TECHNOLOGY CO., LTD.

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

Site: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #057	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp. ( C)/Hum.(%) 24 C / 48 %	Time: 10/52/45
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 6 (802.11g)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	

Note: Report No.:ATE20120527

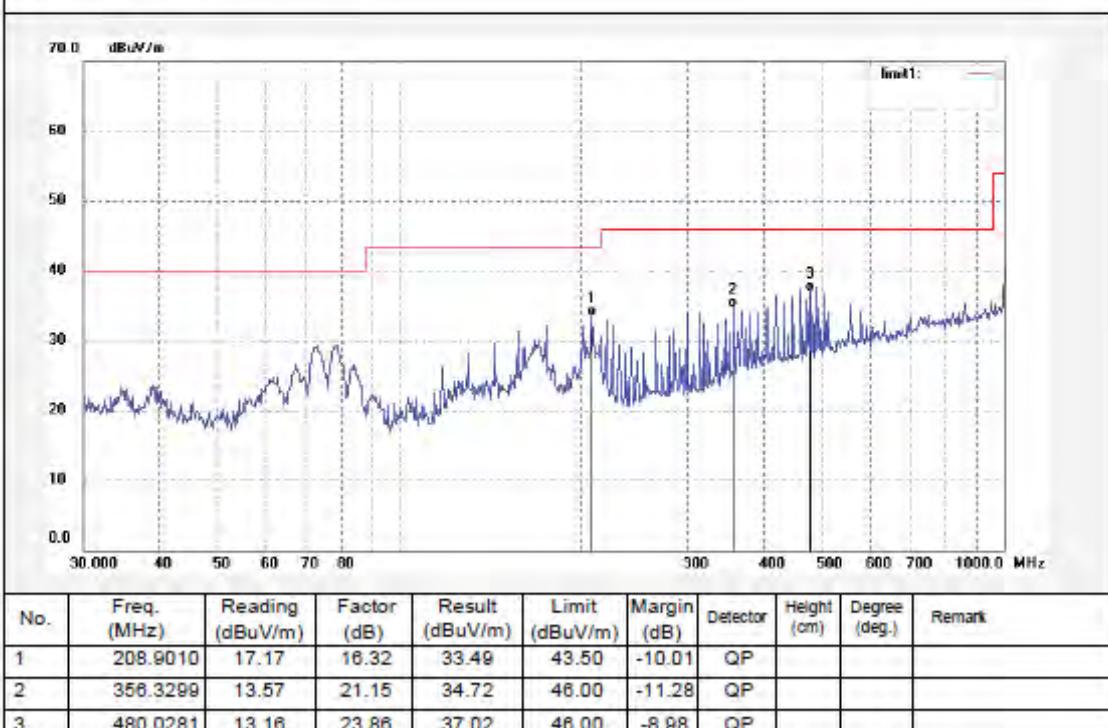




ACCURATE TECHNOLOGY CO., LTD.

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Science & Industry Park,Nanshan Shenzhen,P.R.ChinaSite: 966 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503398

Job No.: Apple #056	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 10/49/30
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 6 (802.11g)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	
Note: Report No.:ATE20120527	





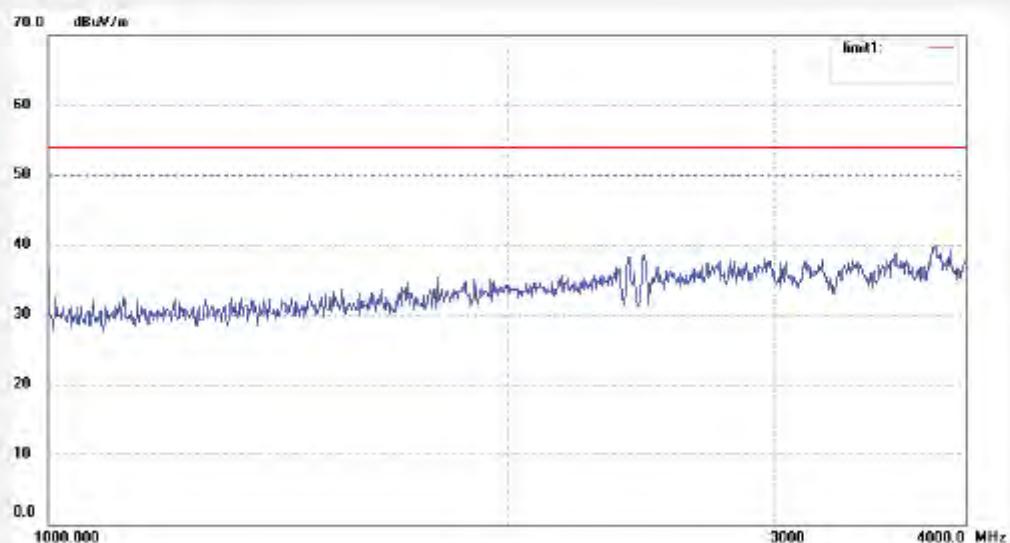
## ACCURATE TECHNOLOGY CO., LTD.

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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.: Apple #025	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:35:28
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 6 (802.11g)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	

Note: Report No.:ATE20120527



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: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #024	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:34:24									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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: 986 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #026	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:36:39									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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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Science & Industry Park,Nanshan Shenzhen,P.R.China

Site: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Apple #027	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:37:36									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Apple #029	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:40:36									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
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: 966 chamber

Tel:+86-0755-26503290

Fax:+86-0755-26503396

Job No.: Apple #028	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp. ( C) / Hum. (%) 24 C / 48 %	Time: 20:38:56									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 6 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.: ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

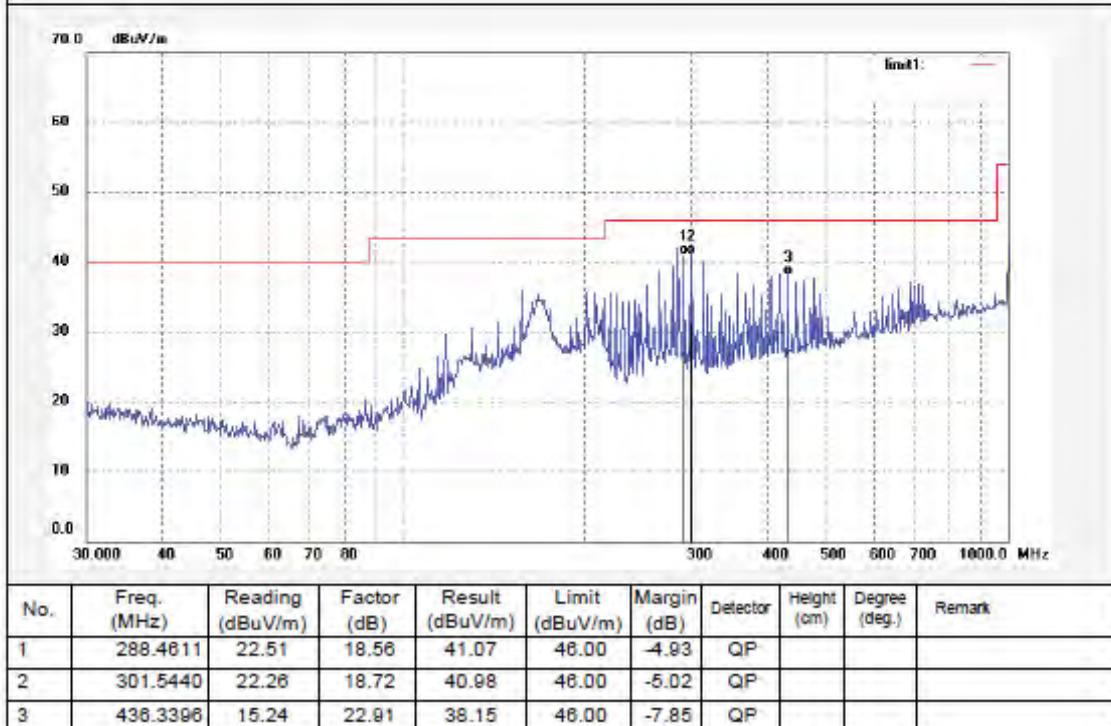


## ACCURATE TECHNOLOGY CO., LTD.

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

Site: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.: Apple #058	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V
Test item: Radiation Test	Date: 2012/03/29
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 11:03:02
EUT: Wi-Spi Helicopter	Engineer Signature: Apple
Mode: TX Channel 11 (802.11g)	Distance:
Model: 44077	
Manufacturer: Interactive Toy Concepts Limited	
Note: Report No.:ATE20120527	



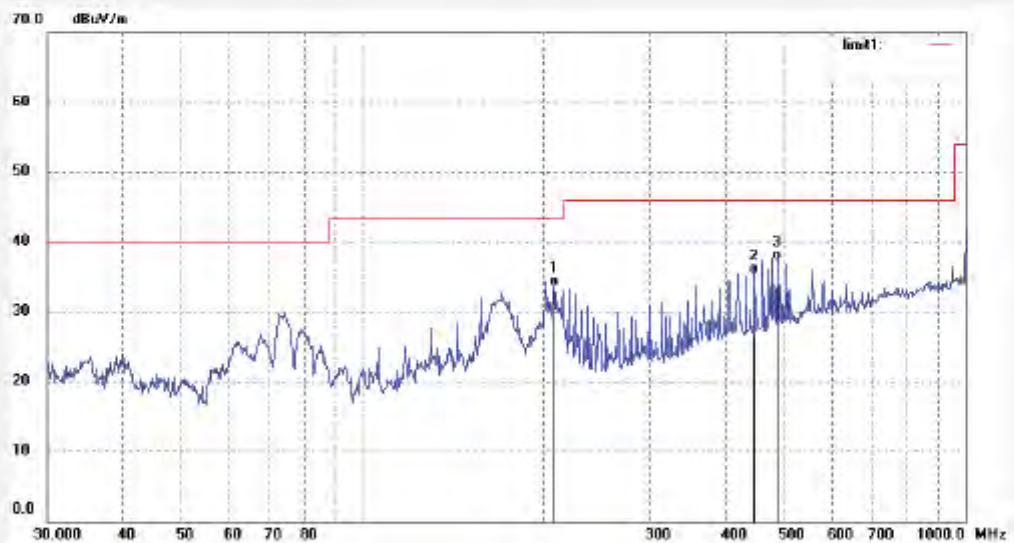


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Site: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.:	Apple #059	Polarization:	Vertical
Standard:	FCC Class B 3M Radiated	Power Source:	DC 3.7V
Test item:	Radiation Test	Date:	2012/03/29
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	11:06:15
EUT:	Wi-Spi Helicopter	Engineer Signature:	Apple
Mode:	TX Channel 11 (802.11g)	Distance:	
Model:	44077		
Manufacturer:	Interactive Toy Concepts Limited		
Note:	Report No.:ATE20120527		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	208.9124	17.45	16.32	33.77	43.50	-9.73	QP			
2	448.5140	12.56	22.94	35.50	48.00	-10.50	QP			
3	485.3690	13.50	23.90	37.40	48.00	-8.60	QP			



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

Job No.: Apple #030	Polarization: Horizontal									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:42:21									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 11 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark



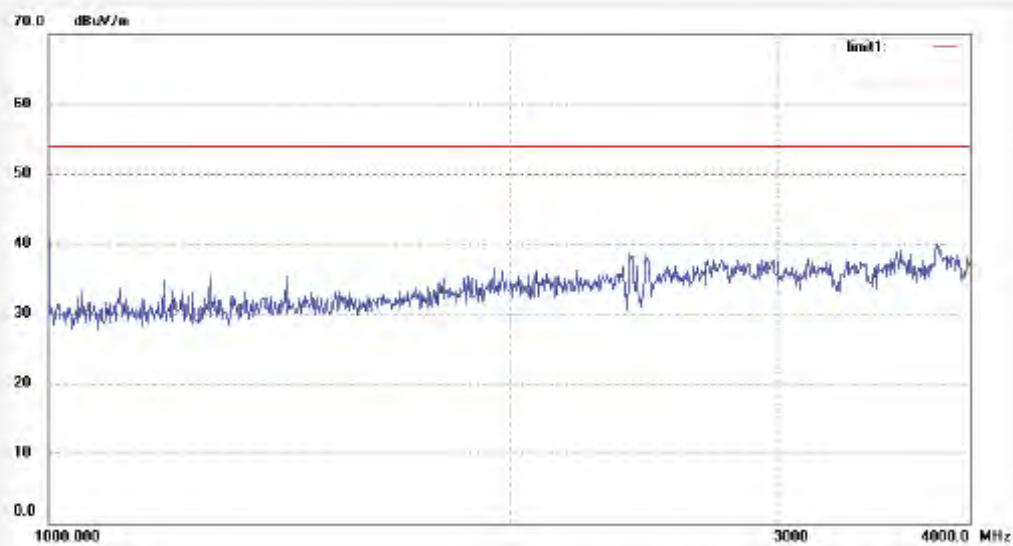
## ACCURATE TECHNOLOGY CO., LTD.

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.: Apple #031  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C) / Hum.(%) 24 / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 11 (802.11g)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Note: Report No.: ATE20120527



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

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

Job No.: Apple #033

Polarization: Horizontal

Standard: FCC Class B 3M Radiated

Power Source: DC 3.7V

Test item: Radiation Test

Date: 2012/03/29

Temp.( C)/Hum.(%) 24 C / 48 %

Time: 20:46:06

EUT: Wi-Spi Helicopter

Engineer Signature: Apple

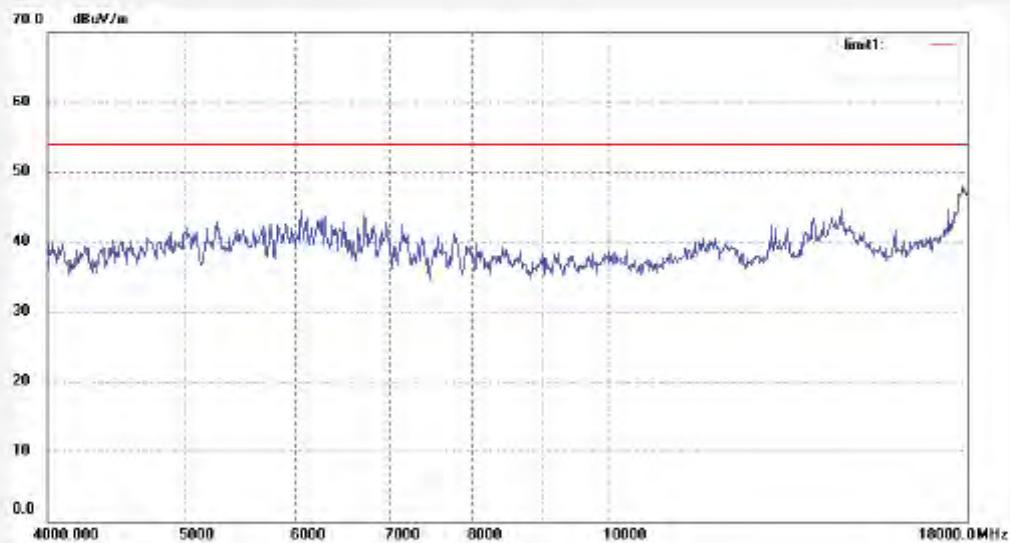
Mode: TX Channel 11 (802.11g)

Distance:

Model: 44077

Manufacturer: Interactive Toy Concepts Limited

Note: Report No.:ATE20120527



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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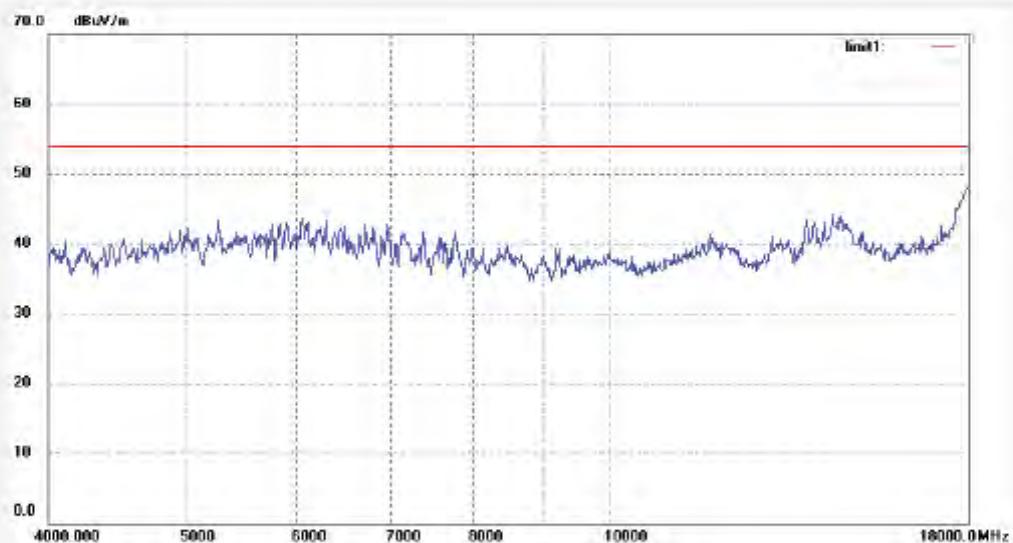
## ACCURATE TECHNOLOGY CO., LTD.

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.: Apple #032  
Standard: FCC Class B 3M Radiated  
Test item: Radiation Test  
Temp.( C)/Hum.(%) 24 C / 48 %  
EUT: Wi-Spi Helicopter  
Mode: TX Channel 11 (802.11g)  
Model: 44077  
Manufacturer: Interactive Toy Concepts Limited

Note: Report No.:ATE20120527



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: 906 chamber  
Tel:+86-0755-26503290  
Fax:+86-0755-26503396

Job No.:	Apple #034	Polarization:	Horizontal							
Standard:	FCC Class B 3M Radiated	Power Source:	DC 3.7V							
Test item:	Radiation Test	Date:	2012/03/29							
Temp.( C)/Hum.(%)	24 C / 48 %	Time:	20:47:26							
EUT:	Wi-Spi Helicopter	Engineer Signature:	Apple							
Mode:	TX Channel 11 (802.11g)	Distance:								
Model:	44077									
Manufacturer:	Interactive Toy Concepts Limited									
Note:	Report No.:ATE20120527									
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark



## ACCURATE TECHNOLOGY CO., LTD.

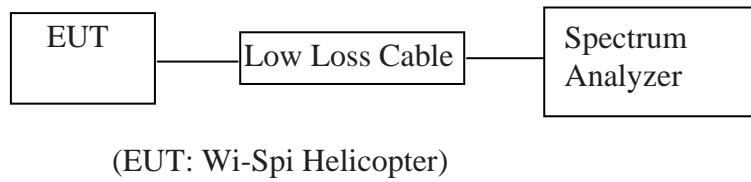
F1,Bldg.A,Changyuan New Material Port Keyuan Rd,  
Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Apple #035	Polarization: Vertical									
Standard: FCC Class B 3M Radiated	Power Source: DC 3.7V									
Test item: Radiation Test	Date: 2012/03/29									
Temp.( C)/Hum.(%) 24 C / 48 %	Time: 20:49:08									
EUT: Wi-Spi Helicopter	Engineer Signature: Apple									
Mode: TX Channel 11 (802.11g)	Distance:									
Model: 44077										
Manufacturer: Interactive Toy Concepts Limited										
Note: Report No.:ATE20120527										
No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark

## 10.CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

### 10.1.Block Diagram of Test Setup



### 10.2.The Requirement For Section 15.247(d)

Section 15.247(d): In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a).

### 10.3.EUT Configuration on Measurement

The following equipment is 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.

#### 10.3.1.Wi-Spi Helicopter (EUT)

Model Number	:	44077
Serial Number	:	N/A
Manufacturer	:	Interactive Toy Concepts Limited

## 10.4.Operating Condition of EUT

10.4.1.Setup the EUT and simulator as shown as Section 10.1.

10.4.2.Turn on the power of all equipment.

10.4.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462MHz. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

## 10.5.Test Procedure

10.5.1.The transmitter output was connected to the spectrum analyzer via a low loss cable.

10.5.2.Set RBW of spectrum analyzer to 100kHz and VBW to 300kHz (below 1GHz).

Set RBW of spectrum analyzer to 1MHz and VBW to 3MHz (above 1GHz).

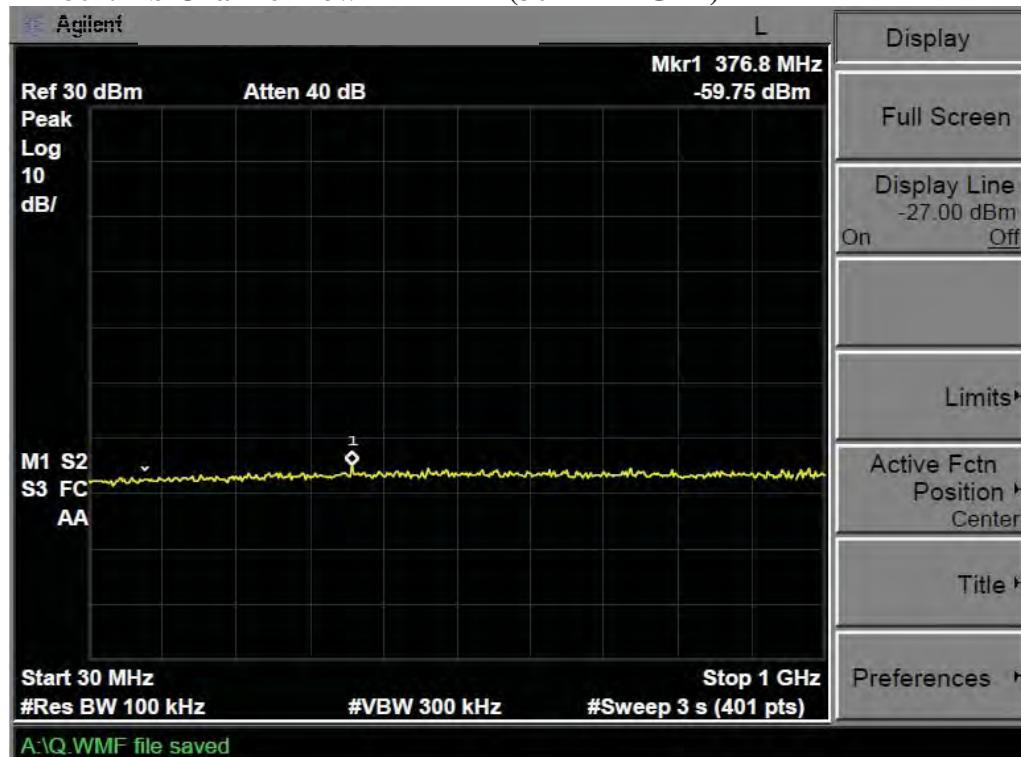
10.5.3.The Conducted Spurious Emission was measured and recorded.

## 10.6.Test Result

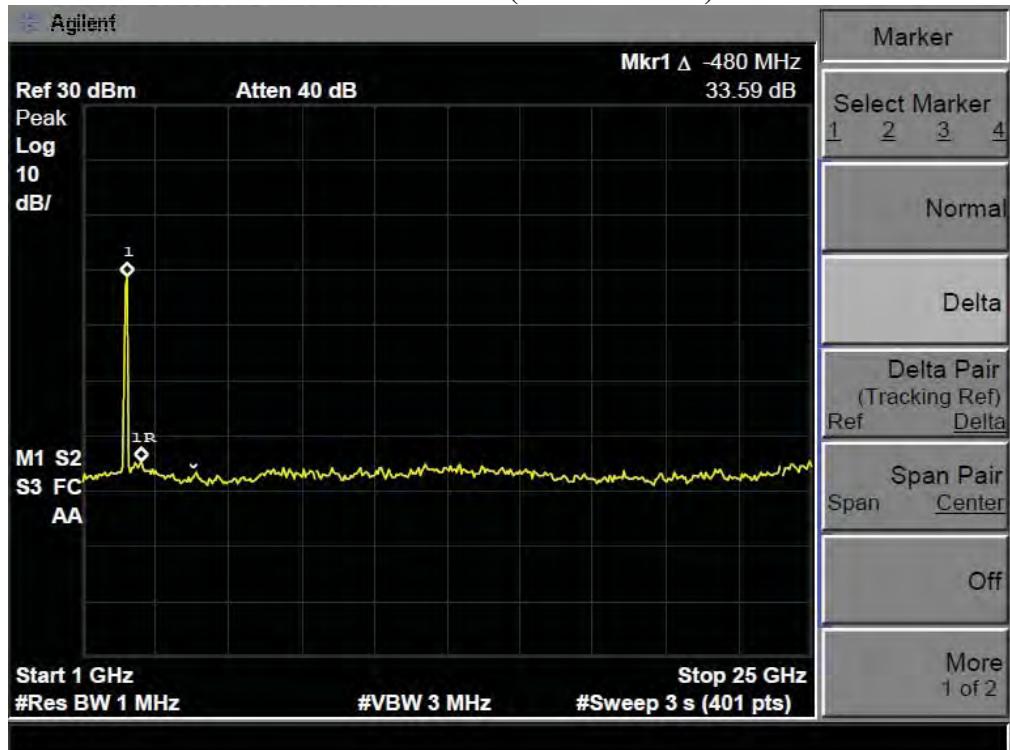
**Pass.**

The spectrum analyzer plots are attached as below.

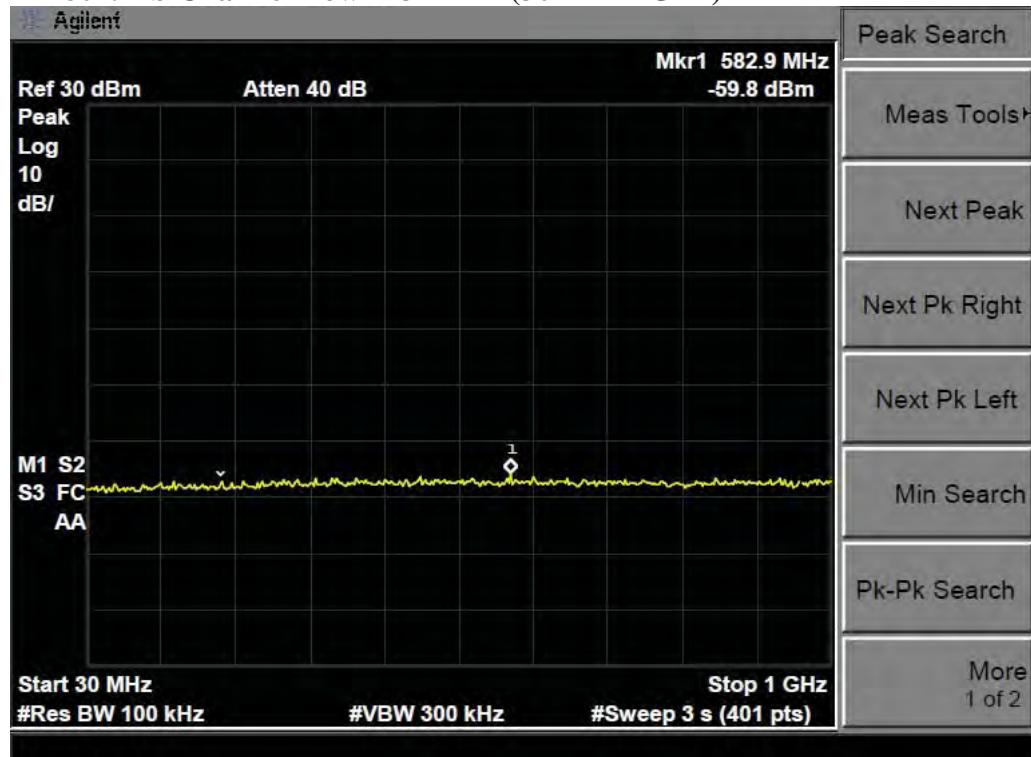
## TX 802.11b Channel Low 2412MHz (30MHz-1GHz)



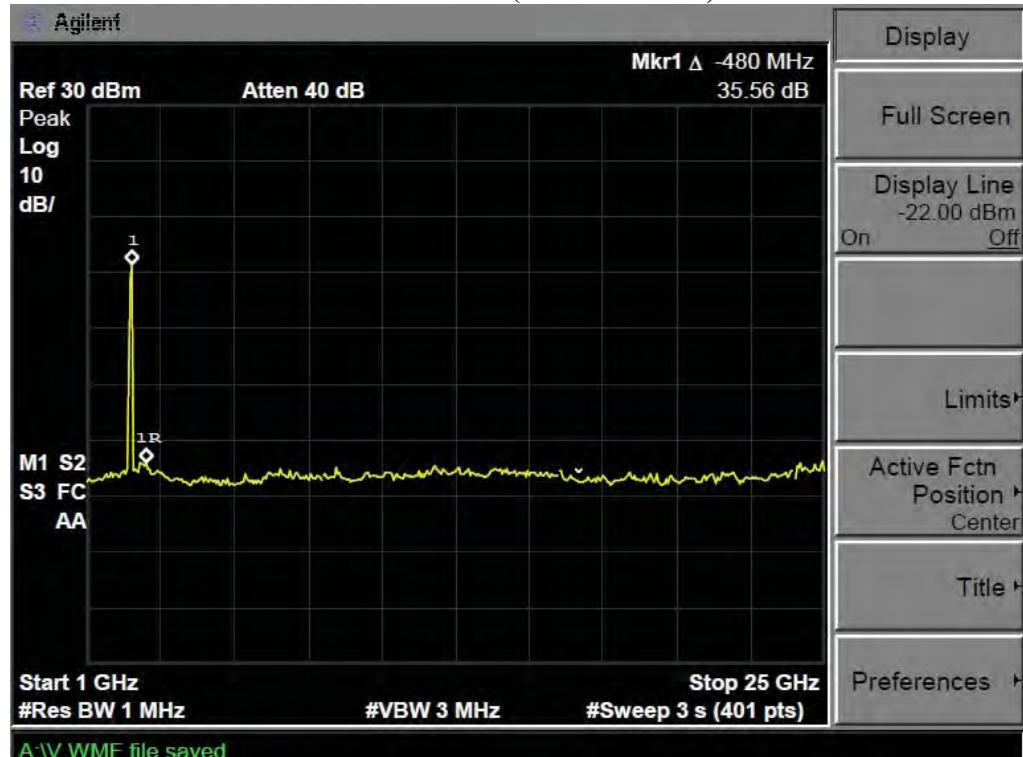
## TX 802.11b Channel Low 2412MHz (1GHz-25GHz)



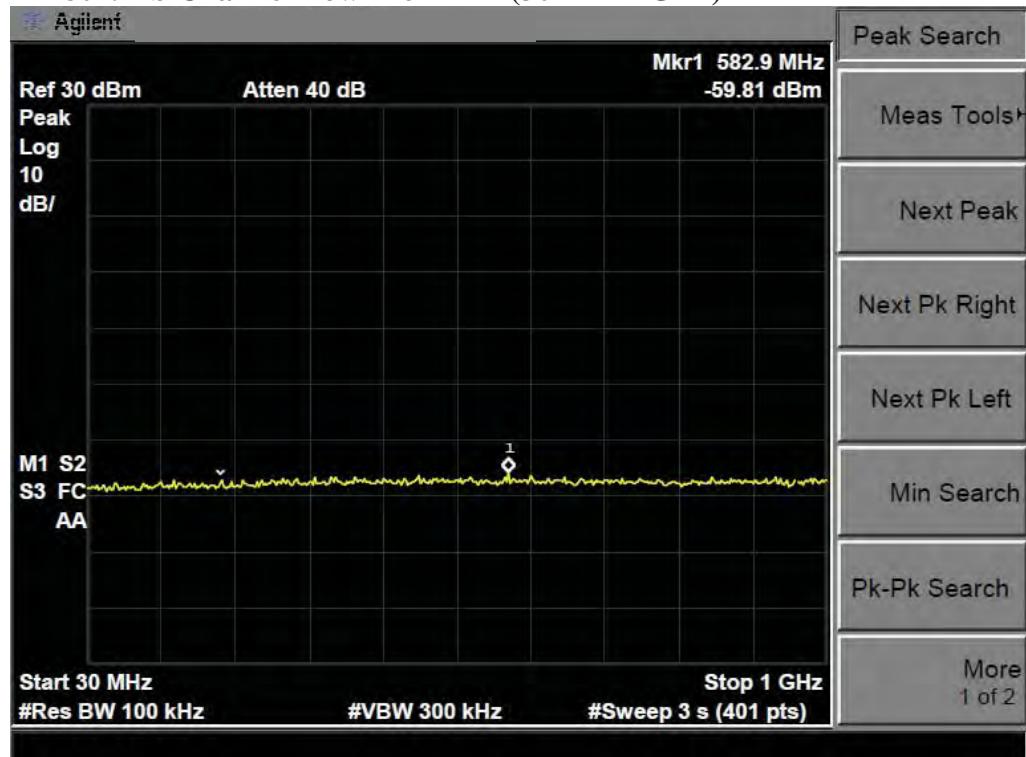
## TX 802.11b Channel Low 2437MHz (30MHz-1GHz)



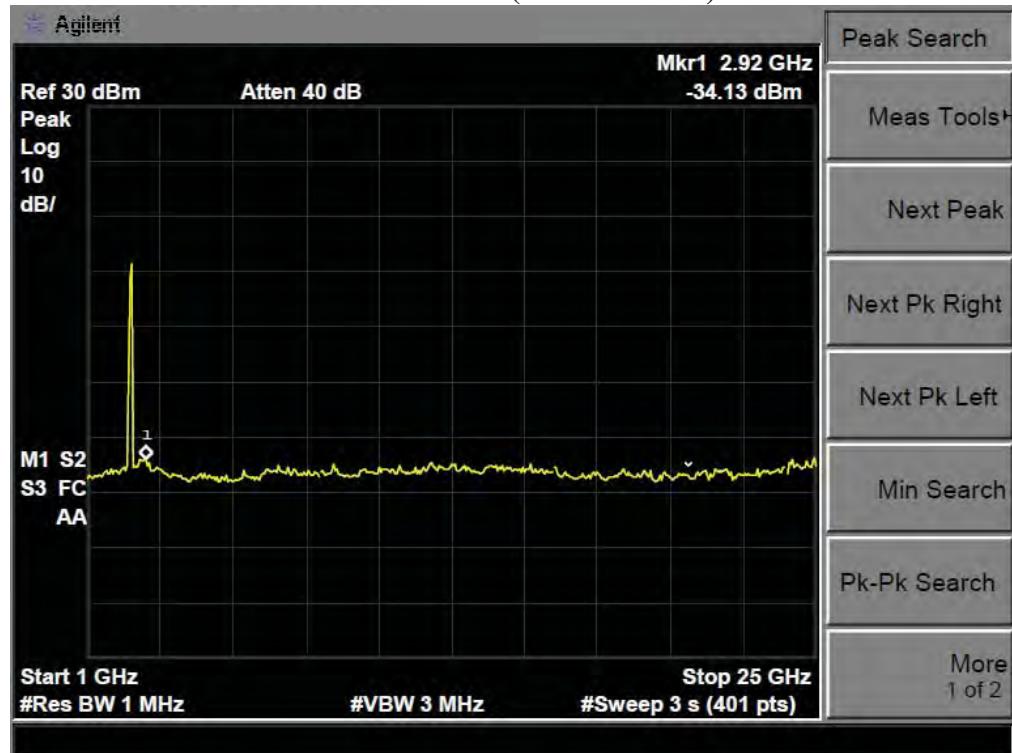
## TX 802.11b Channel Low 2437MHz (1GHz-25GHz)



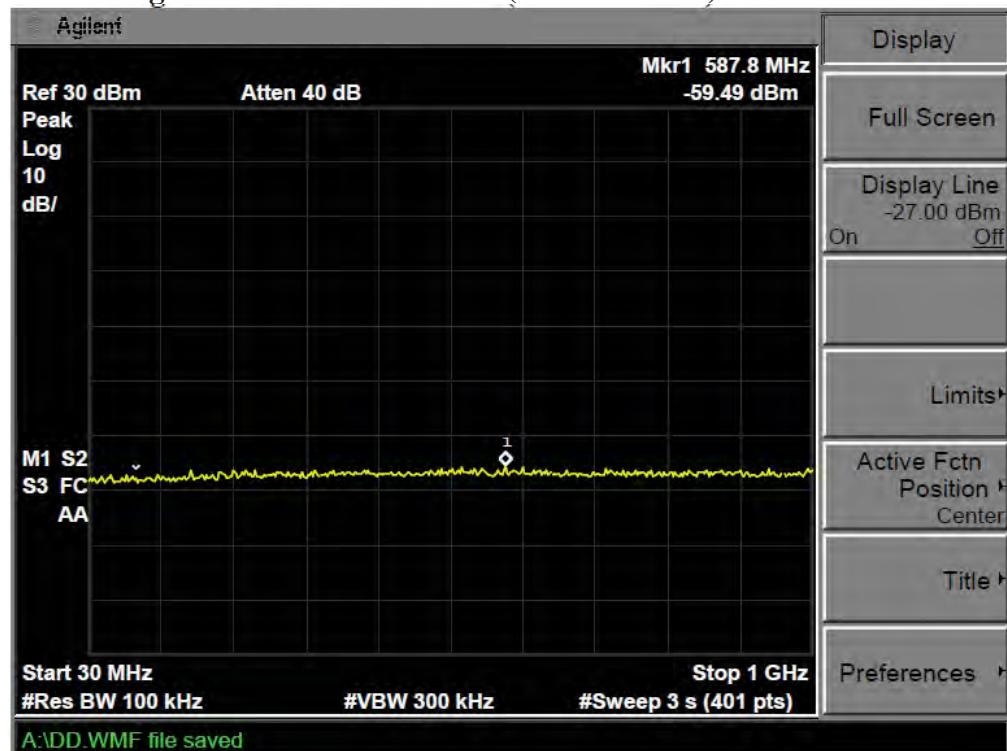
## TX 802.11b Channel Low 2462MHz (30MHz-1GHz)



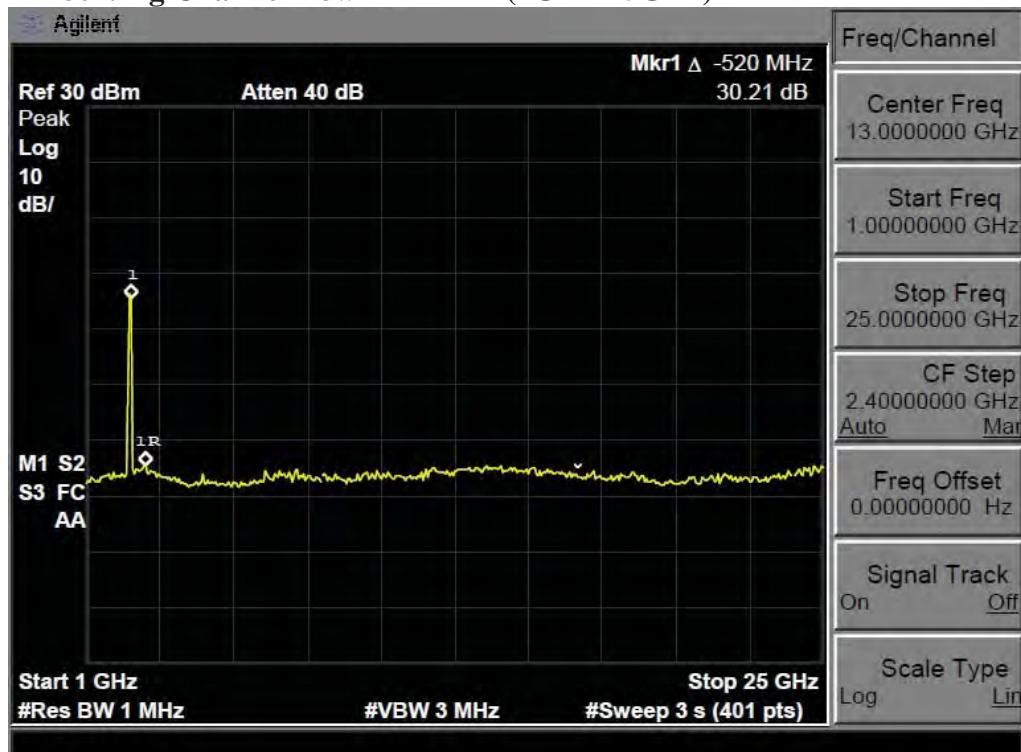
## TX 802.11b Channel Low 2462MHz (1GHz-25GHz)



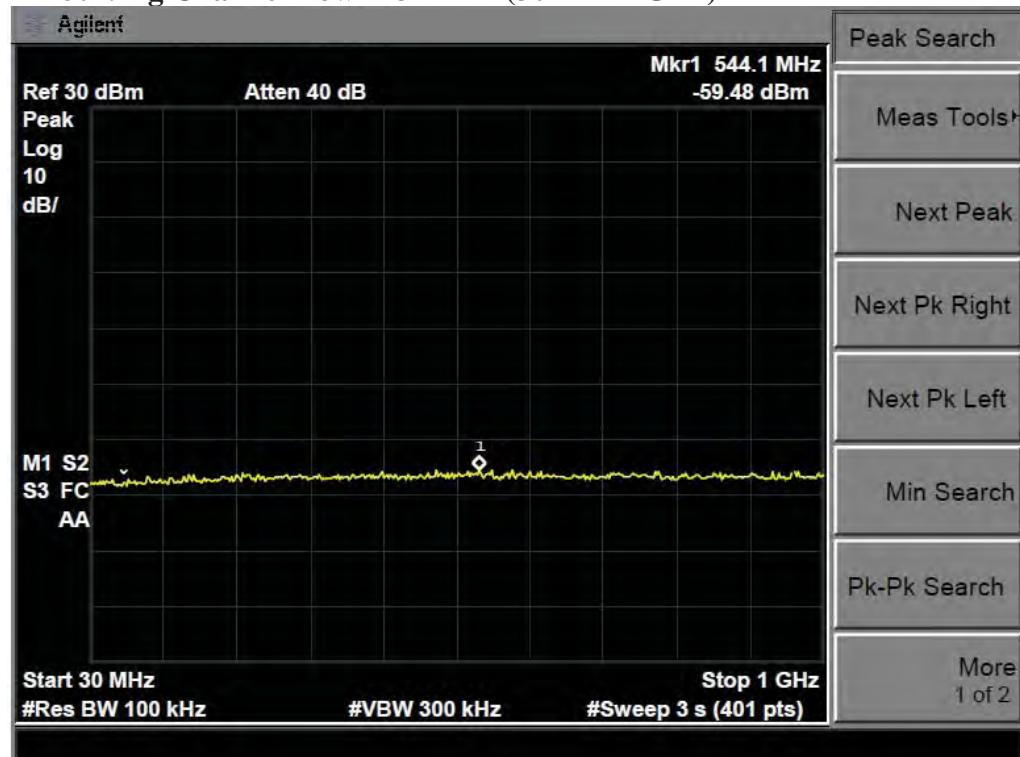
## TX 802.11g Channel Low 2412MHz (30MHz-1GHz)



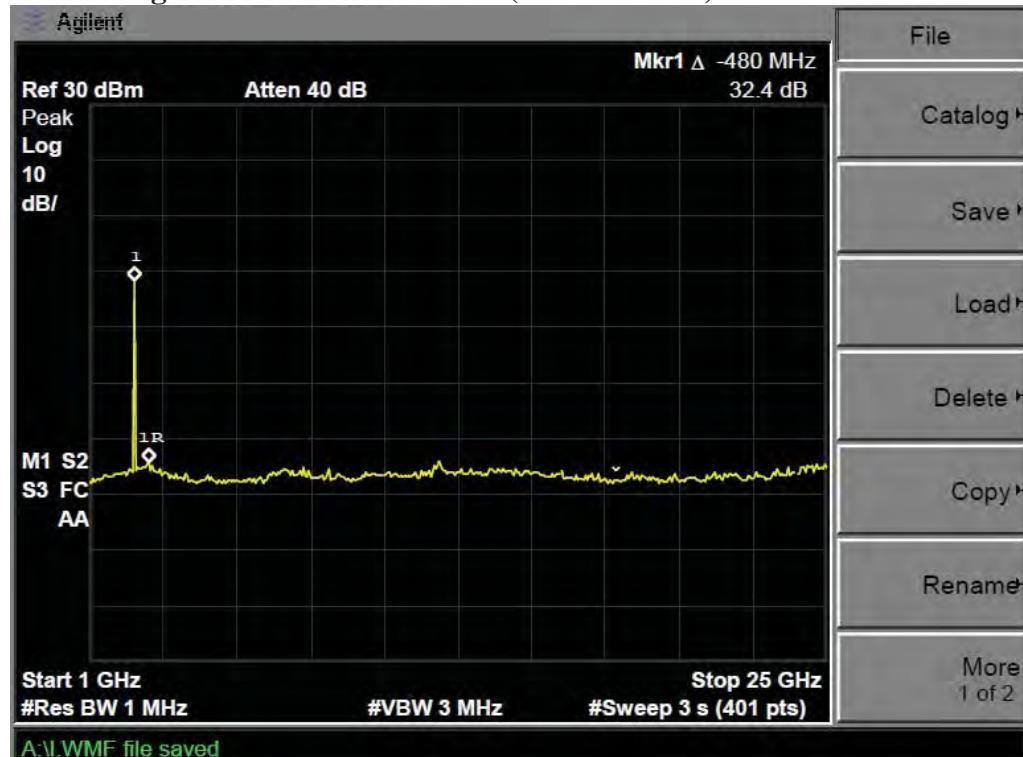
## TX 802.11g Channel Low 2412MHz (1GHz-25GHz)



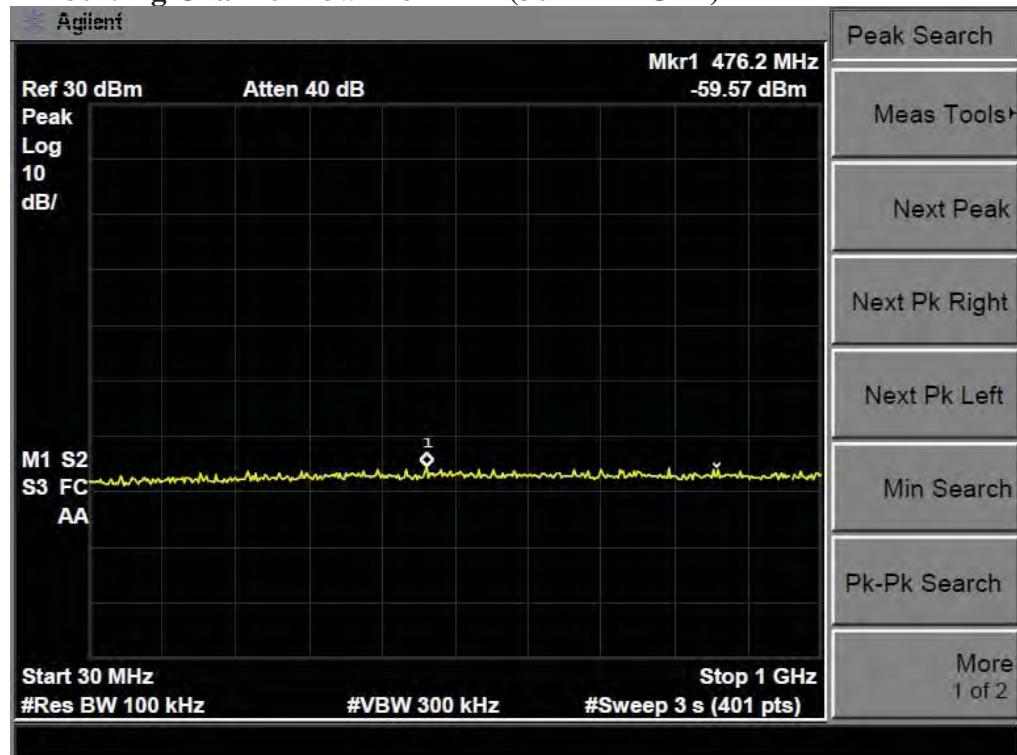
## TX 802.11g Channel Low 2437MHz (30MHz-1GHz)



## TX 802.11g Channel Low 2437MHz (1GHz-25GHz)



## TX 802.11g Channel Low 2462MHz (30MHz-1GHz)



## TX 802.11g Channel Low 2462MHz (1GHz-25GHz)

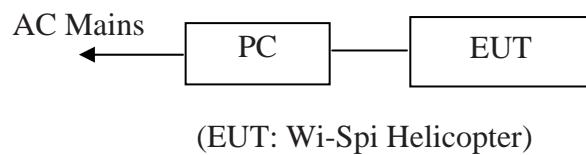


## 11.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

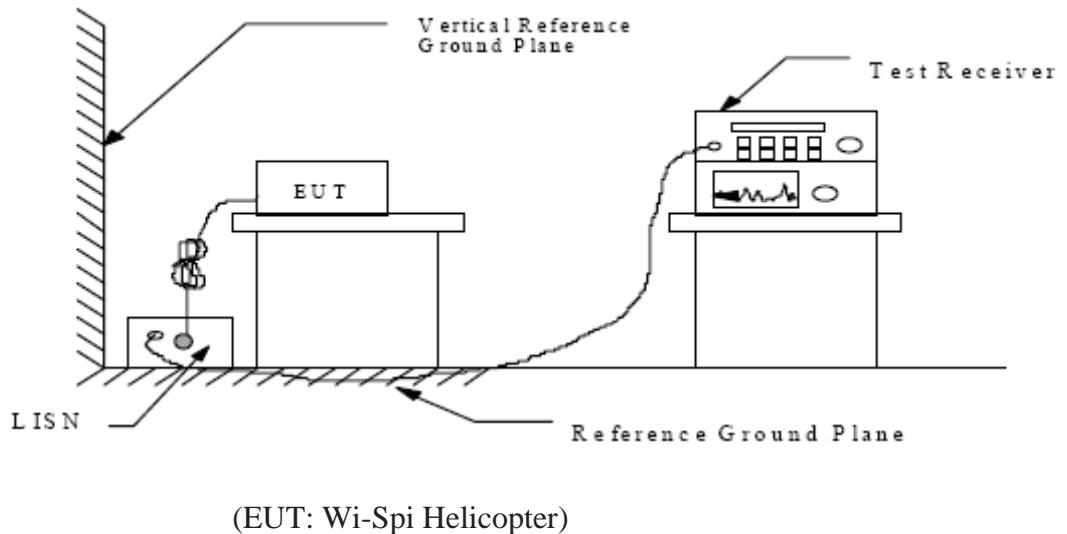
### 15 SECTION 15.207(A)

#### 11.1.Block Diagram of Test Setup

##### 11.1.1.Block diagram of connection between the EUT and simulators



##### 11.1.2.Shielding Room Test Setup Diagram



#### 11.2.The Emission Limit

##### 11.2.1.Conducted Emission Measurement Limits According to Section 15.207(a)

Frequency (MHz)	Limit dB( $\mu$ V)	
	Quasi-peak Level	Average Level
0.15 - 0.50	66.0 - 56.0 *	56.0 - 46.0 *
0.50 - 5.00	56.0	46.0
5.00 - 30.00	60.0	50.0

\* Decreases with the logarithm of the frequency.

### 11.3.Configuration of EUT on Measurement

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

#### 11.3.1.Wi-Spi Helicopter (EUT)

Model Number	:	44077
Serial Number	:	N/A
Manufacturer	:	Interactive Toy Concepts Limited

### 11.4.Operating Condition of EUT

11.4.1.Setup the EUT and simulator as shown as Section 11.1.

11.4.2.Turn on the power of all equipment.

11.4.3.Let the EUT work in Charging mode measure it.

### 11.5.Test Procedure

The EUT is put on the plane 0.8m high above the ground by insulating support and is connected to the power mains through a line impedance stabilization network (L.I.S.N.). This provides a 50ohm coupling impedance for the EUT system. Please refer the block diagram of the test setup and photographs. Both sides of AC lines are checked to find out the maximum conducted emission. In order to find the maximum emission levels, the relative positions of equipment and all of the interface cables shall be changed according to ANSI C63.4: 2003 on Conducted Emission Measurement.

The bandwidth of test receiver (R & S ESCS30) is set at 9kHz.

The frequency range from 150kHz to 30MHz is checked.

## 11.6. Power Line Conducted Emission Measurement Results

**PASS.**

The frequency range from 150kHz to 30MHz is checked.

Date of Test:	March 30, 2012	Temperature:	25°C
EUT:	Wi-Spi Helicopter	Humidity:	50%
Model No.:	44077	Power Supply:	AC 120/60Hz
Test Mode:	Charging	Test Engineer:	Pei

Frequency (MHz)	Result (dB $\mu$ V)	Limit (dB $\mu$ V)	Margin (dB)	Detector	Line
0.157990	39.00	66	26.6	QP	Neutral
0.471701	32.30	57	24.2	QP	
12.014561	31.40	60	28.6	QP	
0.159256	30.20	56	25.3	AV	
0.481211	27.40	46	18.9	AV	
12.110870	24.70	50	25.3	AV	
0.151202	33.20	66	32.7	QP	Live
0.473588	36.40	57	20.1	QP	
12.256783	33.30	60	26.7	QP	
0.187577	33.70	54	20.4	AV	
0.475482	31.30	46	15.1	AV	
12.355033	26.90	50	23.1	AV	

Emissions attenuated more than 20 dB below the permissible value are not reported.  
The spectral diagrams are attached as below.

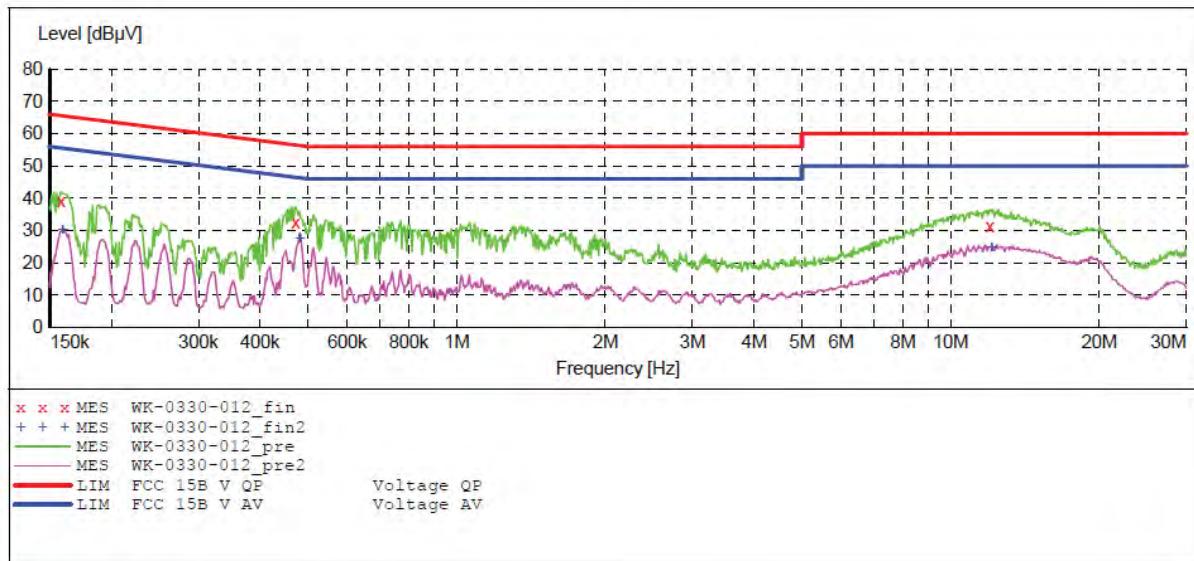
**ACCURATE TECHNOLOGY CO., LTD**

**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: Wi-Spi Helicopter M/N:44077  
 Manufacturer: Interactive Toy Concepts Limited  
 Operating Condition: Charging  
 Test Site: 1#Shielding Room  
 Operator: Apple  
 Test Specification: N 120V/60Hz  
 Comment: Mains port  
 Report No.:ATE20120527

**SCAN TABLE: "V 150K-30MHz fin"**

Short Description: SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



**MEASUREMENT RESULT: "WK-0330-012\_fin"**

3/30/2012 8:37PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB $\mu$ V	dB	dB $\mu$ V	dB			
	0.157990	39.00	11.0	66	26.6	QP	N	GND
	0.471701	32.30	12.0	57	24.2	QP	N	GND
	12.014561	31.40	11.2	60	28.6	QP	N	GND

**MEASUREMENT RESULT: "WK-0831-012\_fin2"**

3/30/2011 8:37PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dB $\mu$ V	dB	dB $\mu$ V	dB			
	0.159256	30.20	11.0	56	25.3	AV	N	GND
	0.481211	27.40	12.0	46	18.9	AV	N	GND
	12.110870	24.70	11.2	50	25.3	AV	N	GND

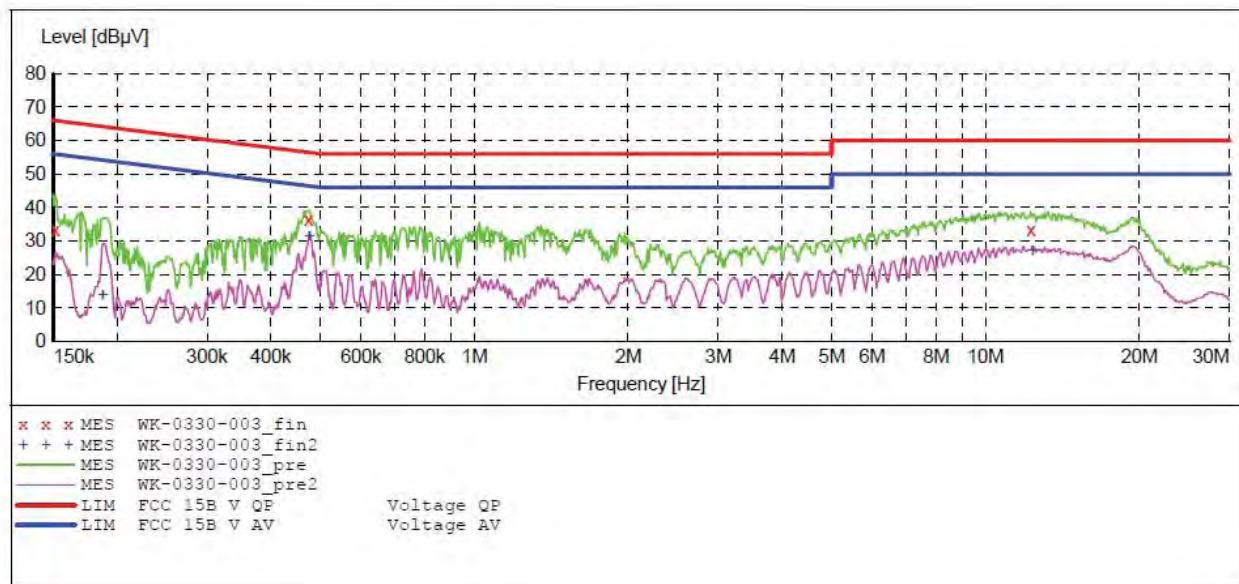
**ACCURATE TECHNOLOGY CO., LTD**

**CONDUCTED EMISSION STANDARD FCC PART 15 B**

EUT: Wi-Spi Helicopter M/N:44077  
 Manufacturer: Interactive Toy Concepts Limited  
 Operating Condition: Charging  
 Test Site: 1#Shielding Room  
 Operator: Apple  
 Test Specification: L 120V/60Hz  
 Comment: Mains port  
 Report No.:ATE20120527

**SCAN TABLE: "V 150K-30MHz fin"**

Short Description: \_SUB\_STD\_VTERM2 1.70  
 Start Stop Step Detector Meas. IF Transducer  
 Frequency Frequency Width Time Bandw.  
 150.0 kHz 30.0 MHz 0.8 % QuasiPeak 1.0 s 9 kHz NSLK8126 2008  
 Average



**MEASUREMENT RESULT: "WK-0330-003\_fin"**

3/30/2011 5:00PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dBμV	dB	dBμV	dB			
	0.151202	33.20	11.0	66	32.7	QP	L1	GND
	0.473588	36.40	12.0	57	20.1	QP	L1	GND
	12.256783	33.30	11.2	60	26.7	QP	L1	GND

**MEASUREMENT RESULT: "WK-0908-003\_fin2"**

3/30/2011 5:00PM	Frequency	Level	Transd	Limit	Margin	Detector	Line	PE
	MHz	dBμV	dB	dBμV	dB			
	0.187577	33.70	11.2	54	20.4	AV	L1	GND
	0.475482	31.30	12.0	46	15.1	AV	L1	GND
	12.355033	26.90	11.2	50	23.1	AV	L1	GND

## 12. ANTENNA REQUIREMENT

### 12.1. The Requirement

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.

### 12.2. Antenna Construction

Device is equipped with unique antenna, which isn't displaced by other antenna. Therefore, the equipment complies with the antenna requirement of Section 15.203.

