

APPLICATION CERTIFICATION
On Behalf of
LB Technology Co., Ltd.

2.4GHz Digital Wireless Camera
Model No.: 51442-30V

FCC ID: OIE56404DT

Prepared for : LB Technology Co., Ltd.
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Zhongshan City, Guangdong, China

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Report Number : ATE20120688
Date of Test : June 1-24 & July 3, 2012
Date of Report : July 4, 2012

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Test Report Certification

Applicant : LB Technology Co., Ltd.
Manufacturer : LB Technology Co., Ltd.
EUT Description : 2.4GHz Digital Wireless Camera
(A) MODEL NO.: 51442-30V
(B) SERIAL NO.: N/A
(C) POWER SUPPLY: DC 12V (Power by adapter)

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 : June 1-24, 2012

Prepared by : APPLE
(Engineer)

Approved & Authorized Signer : Handwritten Signature
(Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	2.4GHz Digital Wireless Camera
Model Number	:	51442-30V
Trade name	:	LBtech
Frequency Band	:	2402MHz-2478MHz
Number of Channels	:	39
Antenna Gain	:	3dBi
Power Supply	:	DC 12V (Power by adapter)
Adapter	:	Model number: FKS308HSC-1201000N Input: AC 100-240V; 50/60Hz Output: DC 12V/1000mA
Applicant	:	LB Technology Co., Ltd.
Address	:	No.5 Xiaoyang Rd., First Industrial Park, Tanzhou Town, Zhongshan City, Guangdong, China
Manufacturer	:	LB Technology Co., Ltd.
Address	:	No.5 Xiaoyang Rd., First Industrial Park, Tanzhou Town, Zhongshan City, Guangdong, China
Date of sample received	:	June 1, 2012
Date of Test	:	June 1-24, 2012

1.2. Special Accessory and Auxiliary Equipment

n.a.

1.3. 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

1.4. 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 date	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 8, 2012	Jan. 7, 2013
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 8, 2012	Jan. 7, 2013
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 8, 2012	Jan. 7, 2013
Pre-Amplifier	Rohde&Schwarz	CBLU118354 0-01	3791	Jan. 8, 2012	Jan. 7, 2013
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 8, 2012	Jan. 7, 2013
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 8, 2012	Jan. 7, 2013
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 8, 2012	Jan. 7, 2013
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 8, 2012	Jan. 7, 2013
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 8, 2012	Jan. 7, 2013

3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

The mode is used: Transmitting mode

Low Channel: 2402MHz

Middle Channel: 2440MHz

High Channel: 2478MHz

Hopping

3.2. Configuration and peripherals



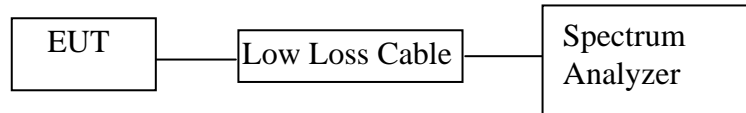
(EUT: 2.4GHz Digital Wireless Camera)

4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.247(a)(1)	20dB Bandwidth Test	Compliant
Section 15.247(a)(1)	Carrier Frequency Separation Test	Compliant
Section 15.247(a)(1)(iii)	Number Of Hopping Frequency Test	Compliant
Section 15.247(a)(1)(iii)	Dwell Time Test	Compliant
Section 15.247(b)(1)	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)	Conducted Spurious Emission Test	Compliant
Section 15.207	AC Power Line Conducted Emission Test	Compliant
Section 15.203	Antenna Requirement	Compliant

5. 20DB BANDWIDTH TEST

5.1. Block Diagram of Test Setup



(EUT: 2.4GHz Digital Wireless Camera)

5.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater.

5.3. EUT Configuration on Measurement

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

5.3.1. 2.4GHz Digital Wireless Camera (EUT)

Model Number : 51442-30V
 Serial Number : N/A
 Manufacturer : LB Technology Co., Ltd.

5.4. Operating Condition of EUT

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

5.4.2. Turn on the power of all equipment.

5.4.3. Let the EUT work in TX(Hopping off) modes measure it. The transmit frequency are 2402-2478MHz. We select 2402MHz, 2440MHz, 2478MHz 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 30kHz and VBW to 100kHz.

5.5.3. The 20dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 20dB.

5.6. Test Result

PASS.

Date of Test:	<u>June 4, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX</u>	Test Engineer:	<u>Apple</u>

Channel	Frequency (MHz)	20dB Bandwidth (MHz)	Limit (MHz)
Low	2402	1.596	N/A
Middle	2440	1.596	N/A
High	2478	1.602	N/A

Note: N/A: 1) The 20 dB bandwidth of the hopping channel is not limit.

2) The data of 20 dB bandwidth of the hopping channel is limit of carrier frequencies separated

The spectrum analyzer plots are attached as below.

"Spectrum analyzer" is R/S



Date: 3.JUL.2012 19:25:46

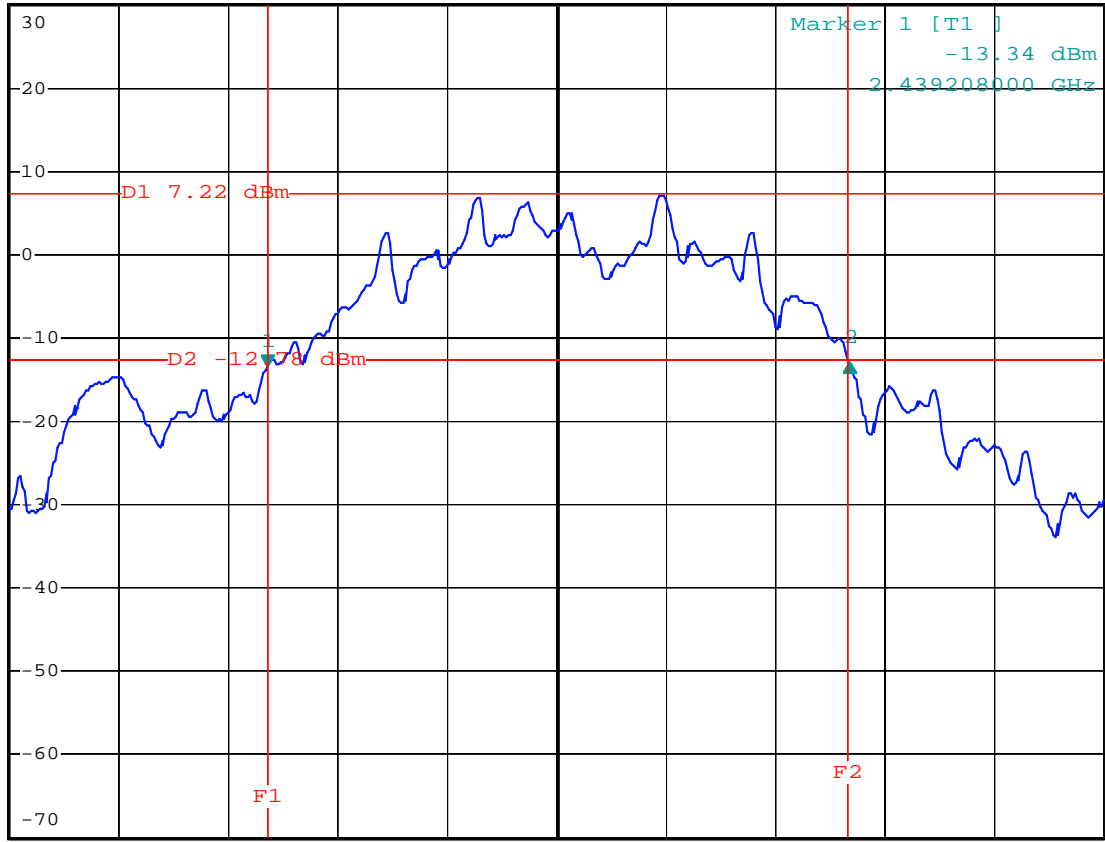


*RBW 30 kHz Delta 2 [T1]
*VBW 100 kHz 0.55 dB
*SWT 5 ms 1.596000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Center 2.44 GHz

300 kHz/

Span 3 MHz

Date: 3.JUL.2012 19:36:49

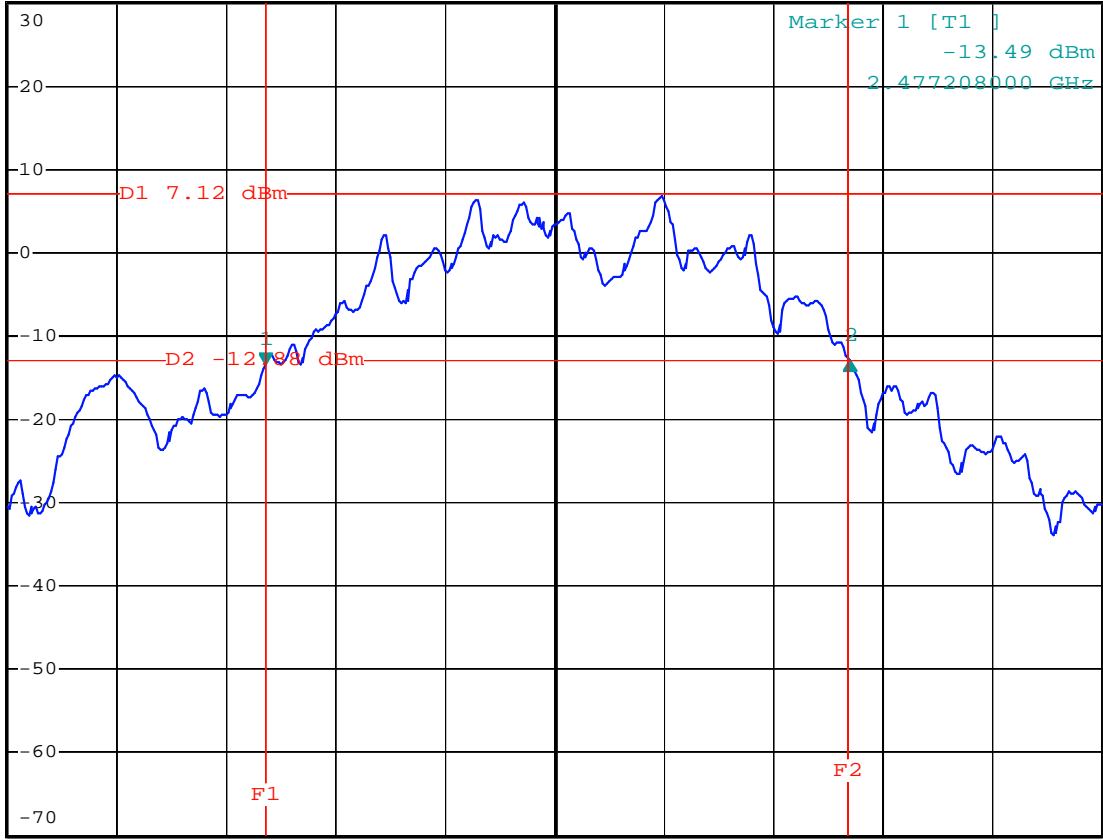


*RBW 30 kHz Delta 2 [T1]
*VBW 100 kHz 0.56 dB
*SWT 5 ms 1.602000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Center 2.478 GHz

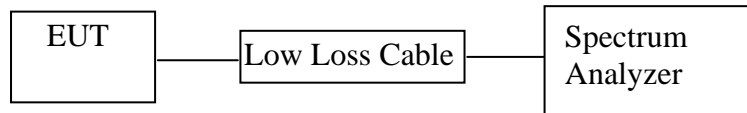
300 kHz/

Span 3 MHz

Date: 3.JUL.2012 19:23:00

6. CARRIER FREQUENCY SEPARATION TEST

6.1. Block Diagram of Test Setup



(EUT: 2.4GHz Digital Wireless Camera)

6.2. The Requirement For Section 15.247(a)(1)

Section 15.247(a)(1): Frequency hopping systems shall have hopping channel carrier frequencies separated by a minimum of 25 kHz or the 20 dB bandwidth of the hopping channel, whichever is greater. Alternatively, frequency hopping systems operating in the 2400-2483.5 MHz band may have hopping channel carrier frequencies that are separated by 25 kHz or two-thirds of the 20 dB bandwidth of the hopping channel, whichever is greater, provided the systems operate with an output power no greater than 125 mW. The system shall hop to channel frequencies that are selected at the system hopping rate from a pseudorandomly ordered list of hopping frequencies. Each frequency must be used equally on the average by each transmitter. The system receivers shall have input bandwidths that match the hopping channel bandwidths of their corresponding transmitters and shall shift frequencies in synchronization with the transmitted signals.

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. 2.4GHz Digital Wireless Camera (EUT)

Model Number : 51442-30V
 Serial Number : N/A
 Manufacturer : LB Technology Co., Ltd.

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 (Hopping on) modes measure it. The transmit frequency are 2402-2478MHz. We select 2402MHz, 2440MHz, 2478MHz 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 100kHz and VBW to 300kHz. Adjust Span to 3 MHz.

6.5.3. Set the adjacent channel of the EUT maxhold another trace.

6.5.4. Measurement the channel separation

6.6. Test Result

PASS.

Date of Test:	<u>June 4, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>Hopping</u>	Test Engineer:	<u>Apple</u>

Channel	Channel Frequency (MHz)	Channel separation (MHz)	Limit
Low	2402	2.004	> 20 dB bandwidth (1.596MHz) or 25kHz (whichever is greater)
Middle	2440	2.012	> 20 dB bandwidth (1.596MHz) or 25kHz (whichever is greater)
High	2478	2.004	> 20 dB bandwidth (1.602MHz) or 25kHz (whichever is greater)

The spectrum analyzer plots are attached as below.

"Spectrum analyzer" is R/S

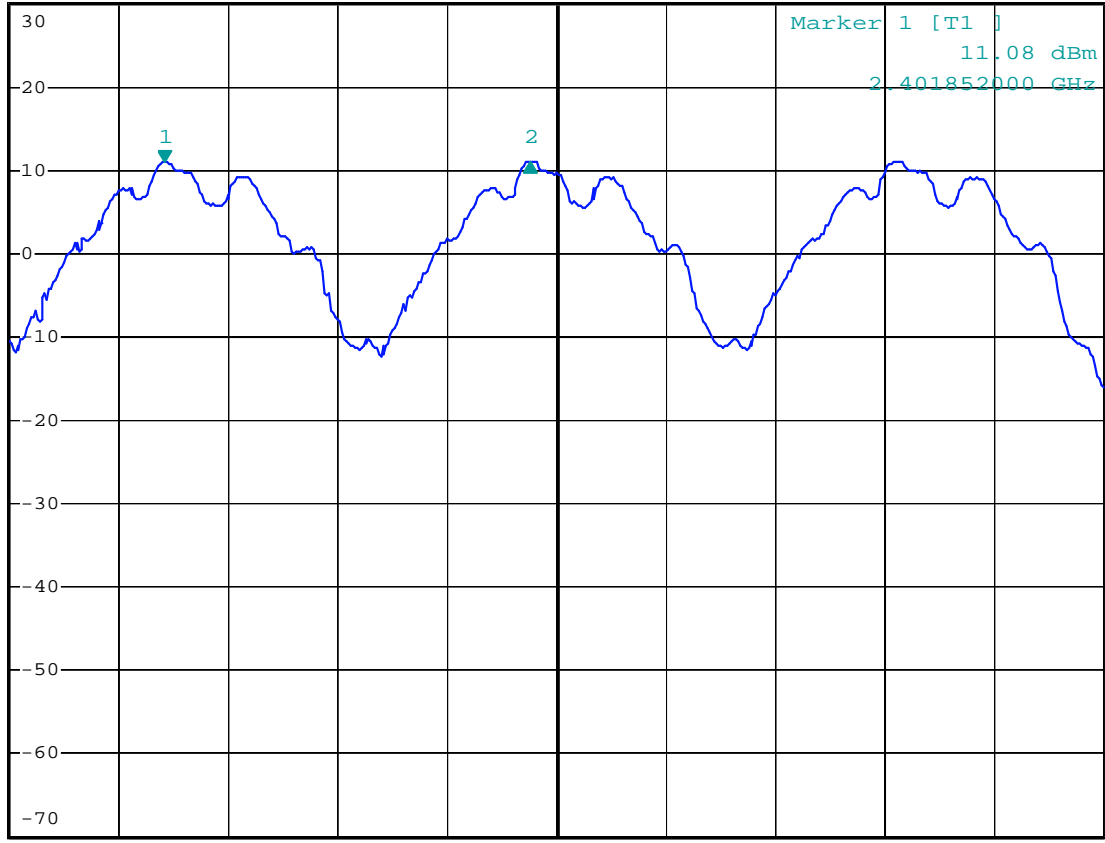


*RBW 100 kHz Delta 2 [T1]
*VBW 300 kHz -0.02 dB
*SWT 2.5 ms 2.004000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Center 2.404 GHz

600 kHz/

Span 6 MHz

Date: 4.JUN.2012 12:08:50

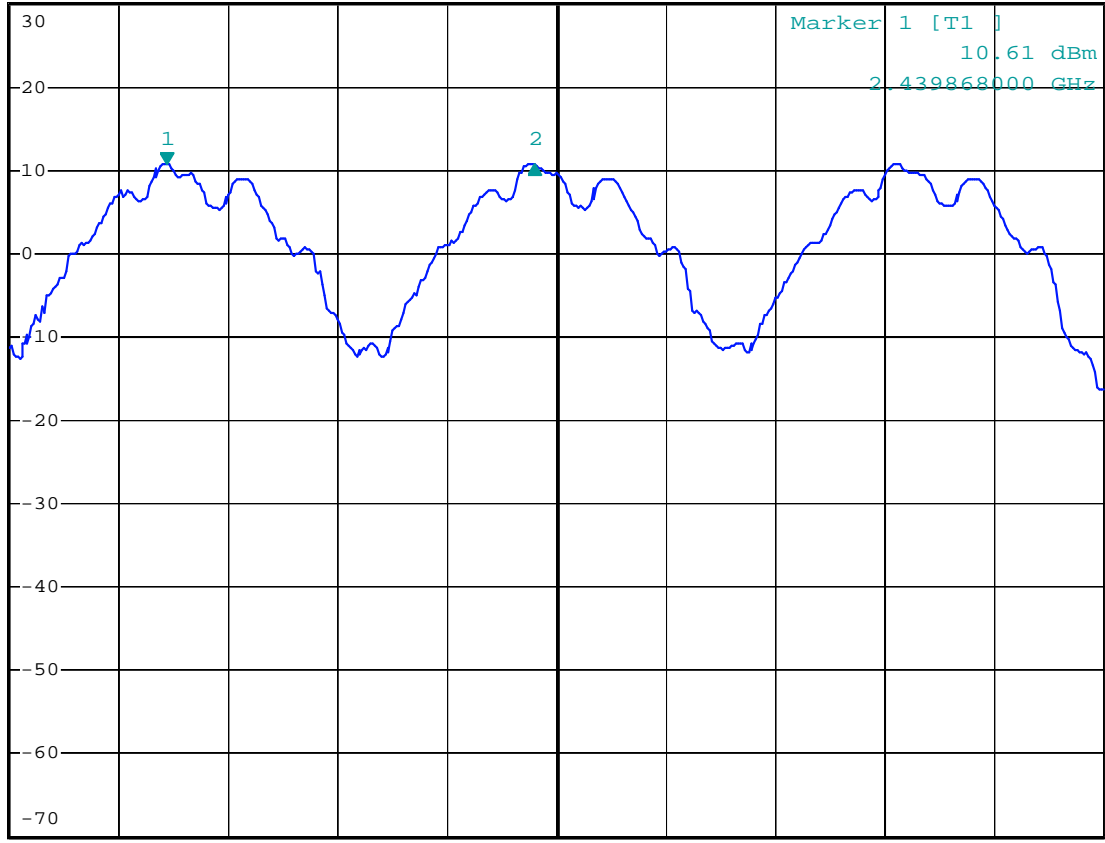


*RBW 100 kHz Delta 2 [T1]
*VBW 300 kHz 0.03 dB
*SWT 2.5 ms 2.012000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Center 2.442 GHz 600 kHz/ Span 6 MHz

Date: 4.JUN.2012 12:07:41

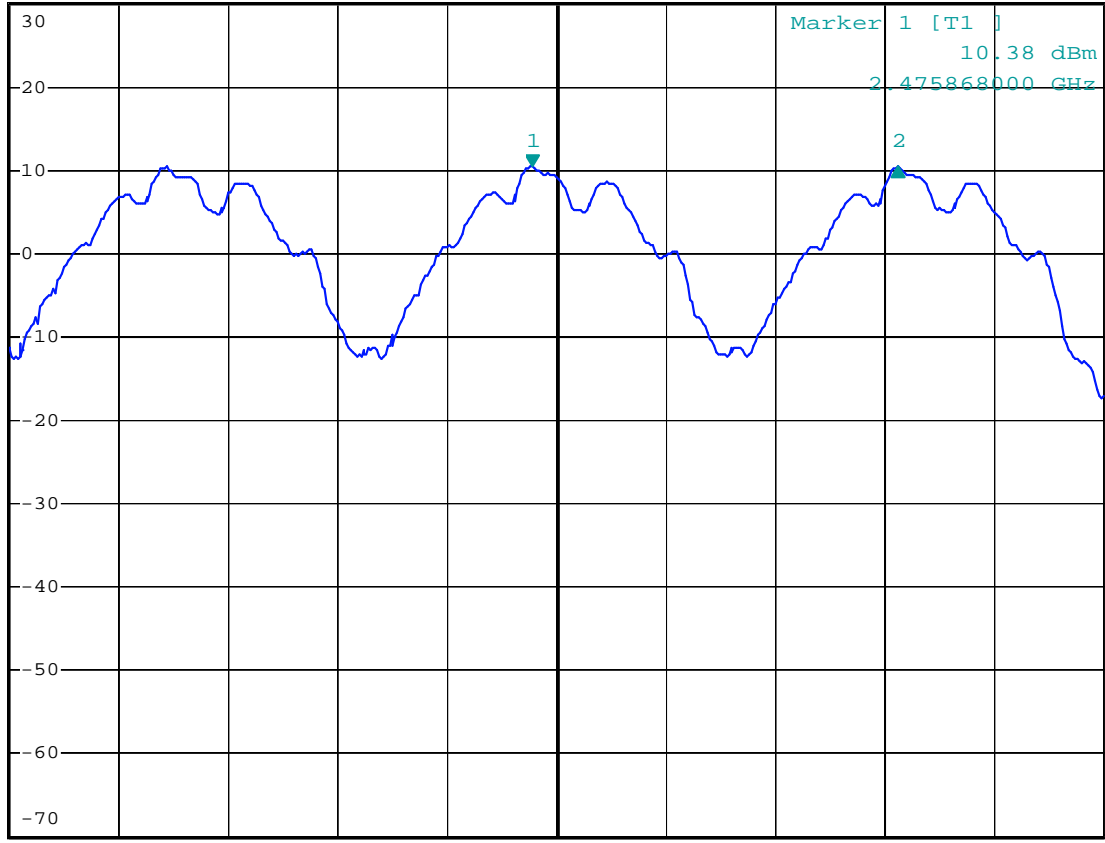


*RBW 100 kHz Delta 2 [T1]
*VBW 300 kHz -0.06 dB
*SWT 2.5 ms 2.004000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH

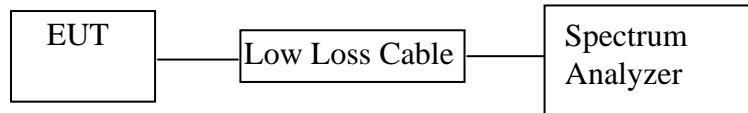


Center 2.476 GHz 600 kHz/ Span 6 MHz

Date: 4.JUN.2012 12:11:27

7. NUMBER OF HOPPING FREQUENCY TEST

7.1. Block Diagram of Test Setup



(EUT: 2.4GHz Digital Wireless Camera)

7.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels.

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. 2.4GHz Digital Wireless Camera (EUT)

Model Number	:	51442-30V
Serial Number	:	N/A
Manufacturer	:	LB Technology Co., Ltd.

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 (Hopping on) modes measure it.

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 the spectrum analyzer as Span=30MHz, RBW=300kHz, VBW=300kHz.

7.5.3. Max hold, view and count how many channel in the band.

7.6. Test Result

PASS.

Date of Test:	<u>June 4, 2012</u>	Temperature:	<u>25°C</u>
	<u>2.4GHz Digital Wireless</u>		
EUT:	<u>Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>Hopping</u>	Test Engineer:	<u>Apple</u>

Total number of hopping channel	Measurement result (CH)	Limit (CH)
	39	>15

The spectrum analyzer plots are attached as below.

"Spectrum analyzer" is R/S

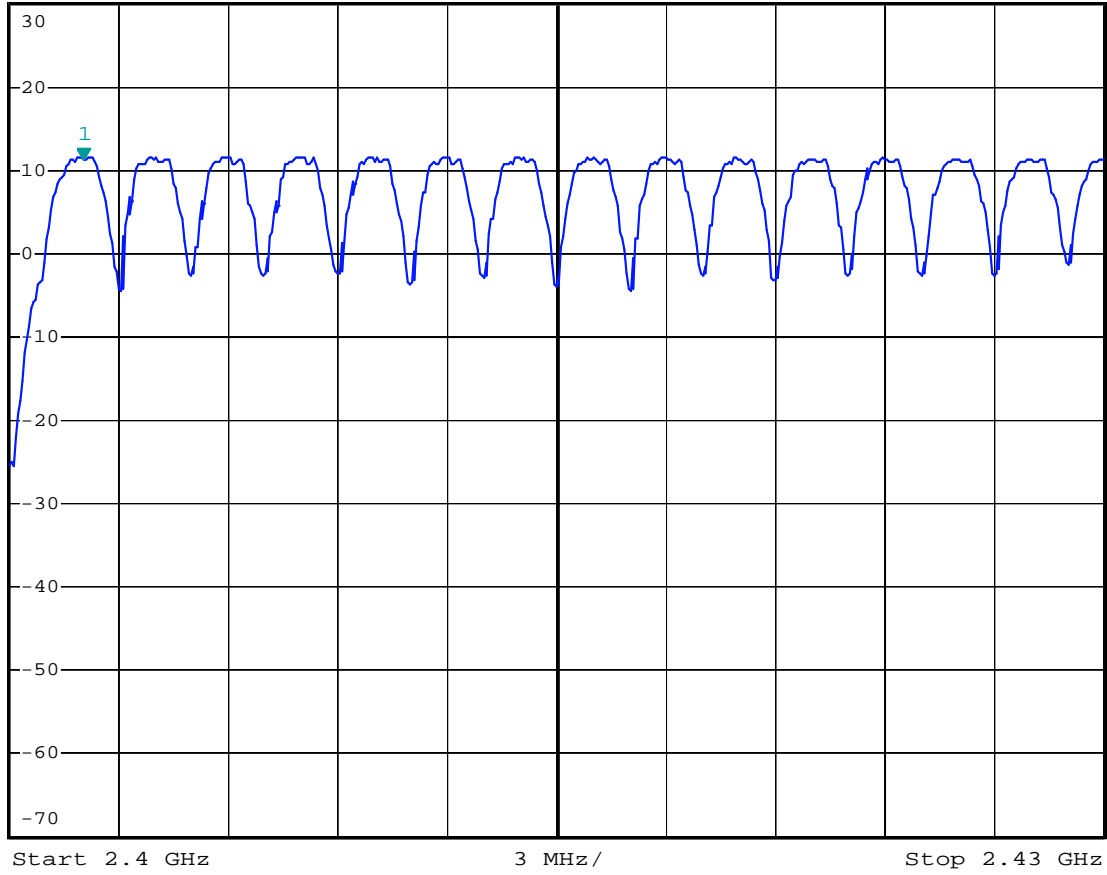


*RBW 300 kHz Marker 1 [T1]
*VBW 300 kHz 11.19 dBm
*SWT 2.5 ms 2.402064000 GHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Date: 4.JUN.2012 12:25:25

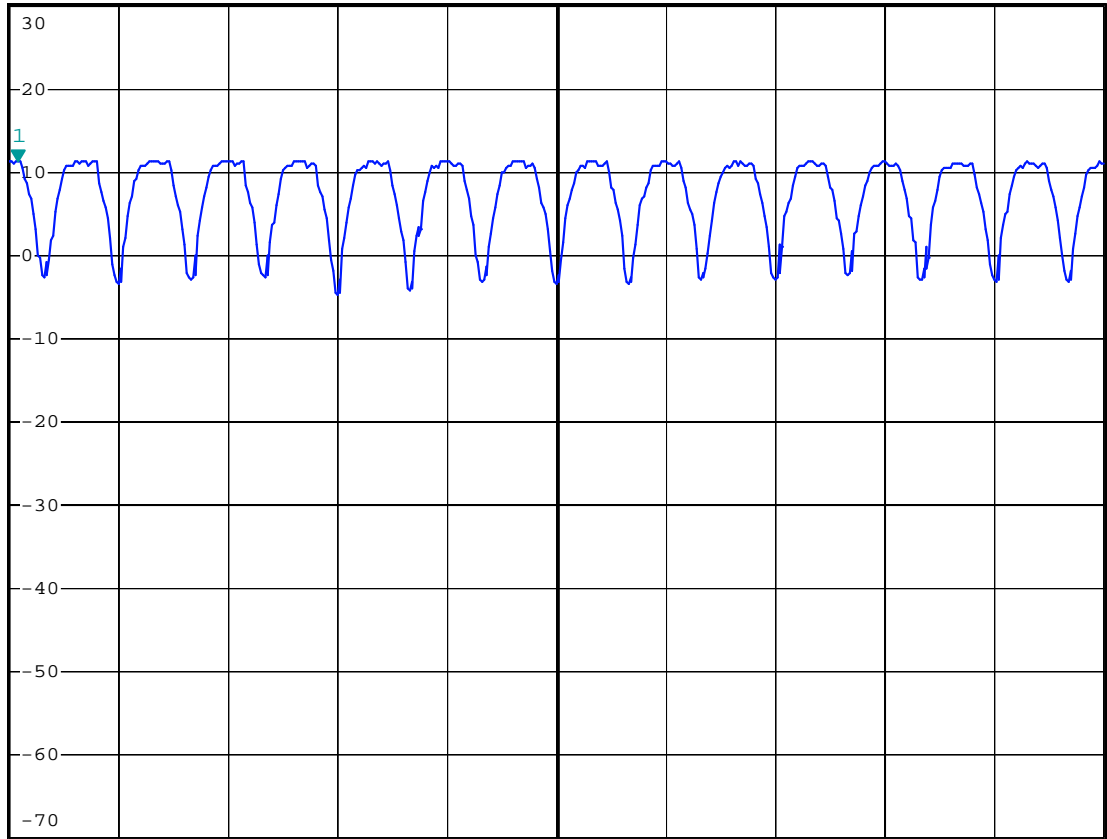


*RBW 300 kHz Marker 1 [T1]
*VBW 300 kHz 11.31 dBm
*SWT 2.5 ms 2.430240000 GHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Start 2.43 GHz

3 MHz/

Stop 2.46 GHz

Date: 4.JUN.2012 12:26:39

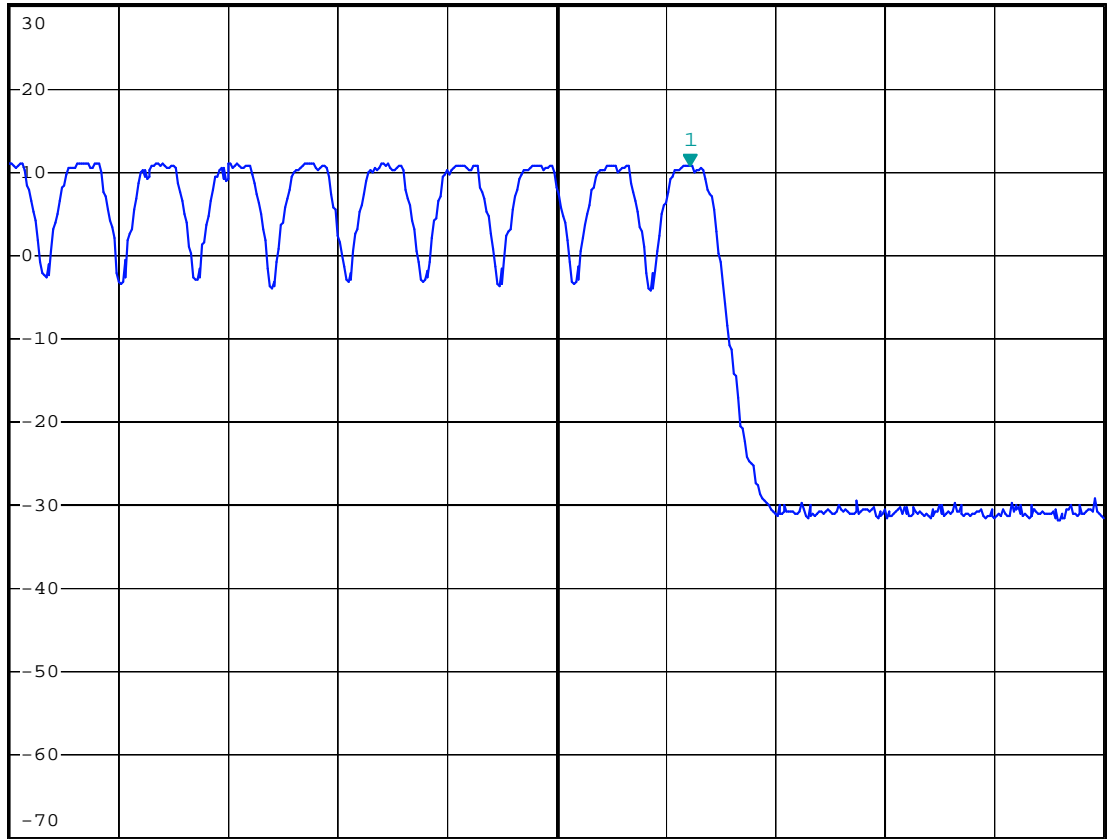


*RBW 300 kHz Marker 1 [T1]
*VBW 300 kHz 10.66 dBm
*SWT 2.5 ms 2.478038000 GHz

Ref 30 dBm

Att 60 dB

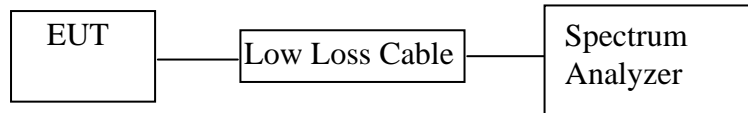
1 PK
MAXH



Date: 4.JUN.2012 12:28:26

8. DWELL TIME TEST

8.1. Block Diagram of Test Setup



(EUT: 2.4GHz Digital Wireless Camera)

8.2. The Requirement For Section 15.247(a)(1)(iii)

Section 15.247(a)(1)(iii): Frequency hopping systems in the 2400-2483.5 MHz band shall use at least 15 channels. The average time of occupancy on any channel shall not be greater than 0.4 seconds within a period of 0.4 seconds multiplied by the number of hopping channels employed. Frequency hopping systems may avoid or suppress transmissions on a particular hopping frequency provided that a minimum of 15 channels are used.

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. 2.4GHz Digital Wireless Camera (EUT)

Model Number	:	51442-30V
Serial Number	:	N/A
Manufacturer	:	LB Technology Co., Ltd.

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 (Hopping on) modes measure it. The transmit frequency are 2402-2478MHz. We select 2402MHz, 2440MHz, 2478MHz TX frequency to transmit.

8.5. Test Procedure

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

8.5.2. Set center frequency of spectrum analyzer = operating frequency.

8.5.3. Set the spectrum analyzer as RBW=100kHz, VBW=300kHz, Span=0Hz, Adjust Sweep=15.6s. Get the burst (in 15.6s.).

8.5.4. Set the spectrum analyzer as RBW=1MHz, VBW=3MHz, Span=0Hz, Adjust Sweep=10ms. Get the pulse time.

8.5.5. Repeat above procedures until all frequency measured were complete.

8.6. Test Result

PASS.

Date of Test:	<u>June 4, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>Hopping</u>	Test Engineer:	<u>Apple</u>

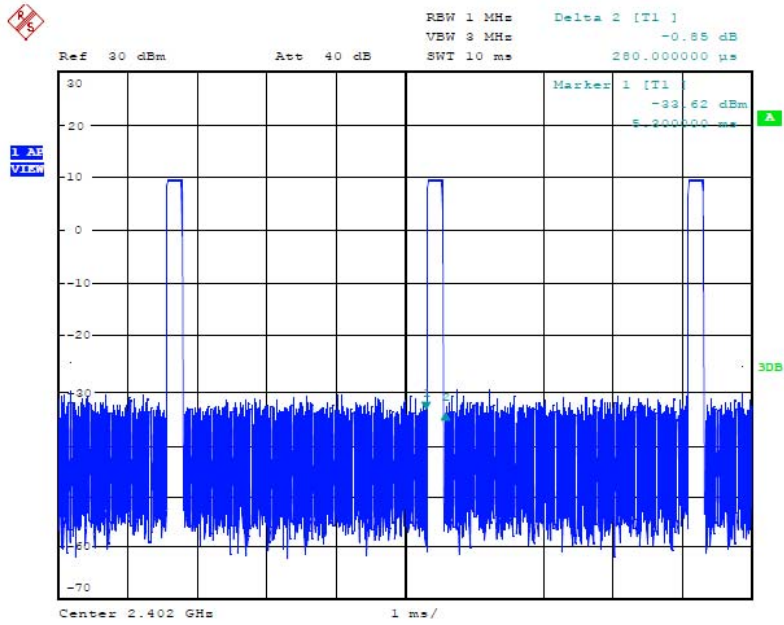
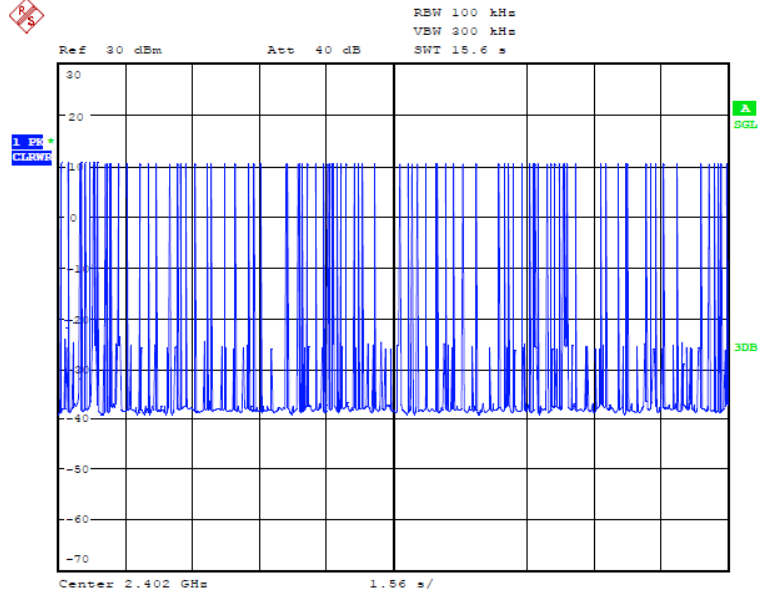
A period transmit time = $0.4 \times 39 = 15.6$

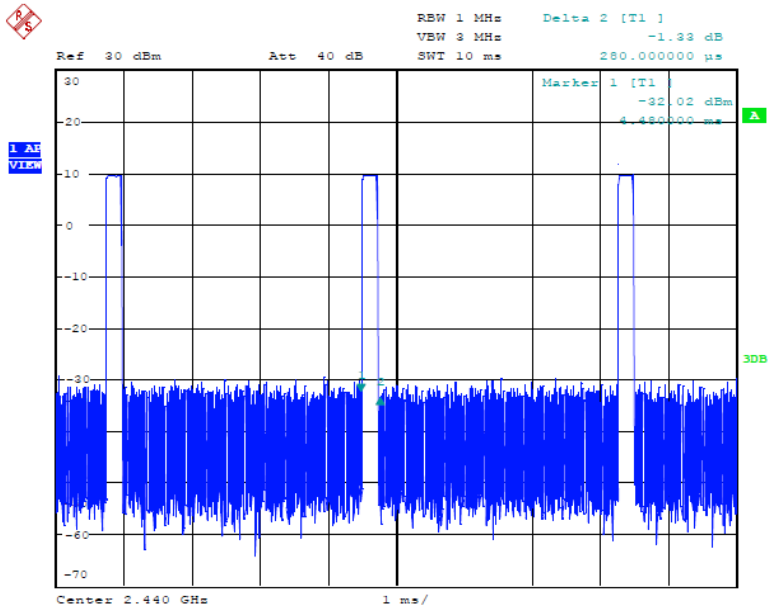
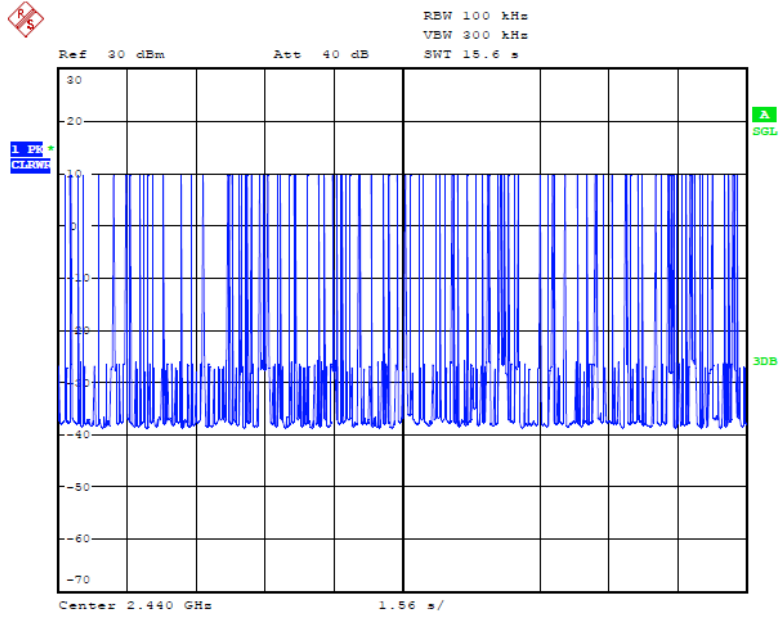
Dwell time = pulse time \times burst (in 15.6 sec.)

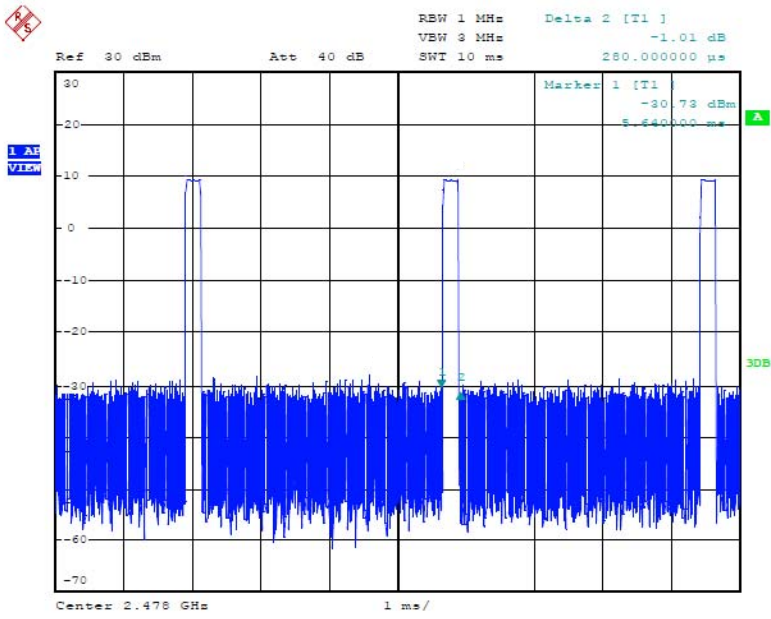
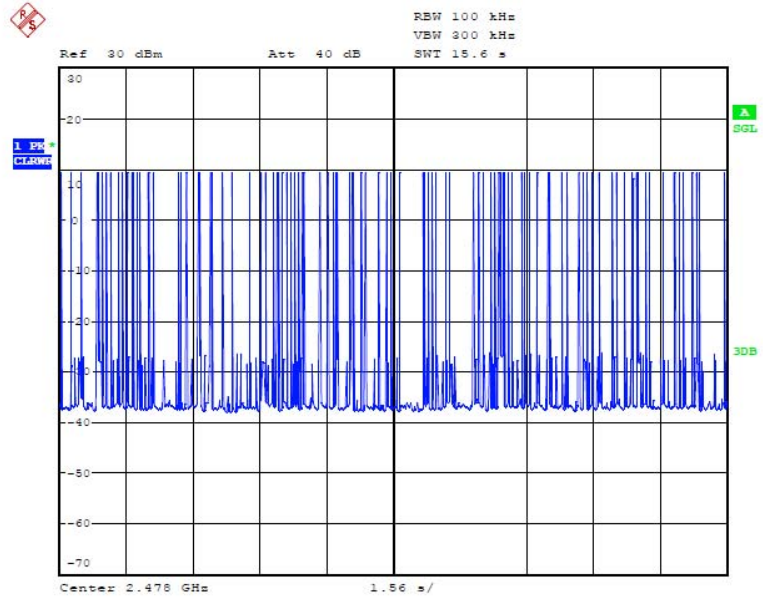
Channel	Channel Frequency (MHz)	Pulse Time (ms)	Burst (in 15.6 sec.)	Dwell Time (ms)	Limit (ms)
Low	2402	0.280	93	26.04	400
Middle	2440	0.280	108	30.24	400
High	2478	0.280	103	28.84	400

The spectrum analyzer plots are attached as below.

"Spectrum analyzer" is R/S

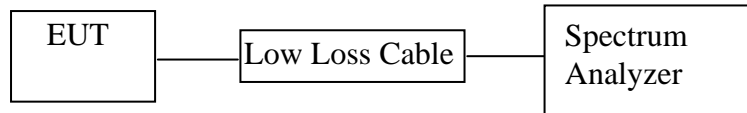






9. MAXIMUM PEAK OUTPUT POWER TEST

9.1. Block Diagram of Test Setup



(EUT: 2.4GHz Digital Wireless Camera)

9.2. The Requirement For Section 15.247(b)(1)

Section 15.247(b)(1): For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt. For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts.

9.3. 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.

9.3.1. 2.4GHz Digital Wireless Camera (EUT)

Model Number : 51442-30V
 Serial Number : N/A
 Manufacturer : LB Technology Co., Ltd.

9.4. Operating Condition of EUT

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

9.4.2. Turn on the power of all equipment.

9.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2478MHz. We select 2402MHz, 2440MHz, 2478MHz TX frequency to transmit.

9.5. Test Procedure

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

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

9.5.3. Measurement the maximum peak output power.

9.6. Test Result

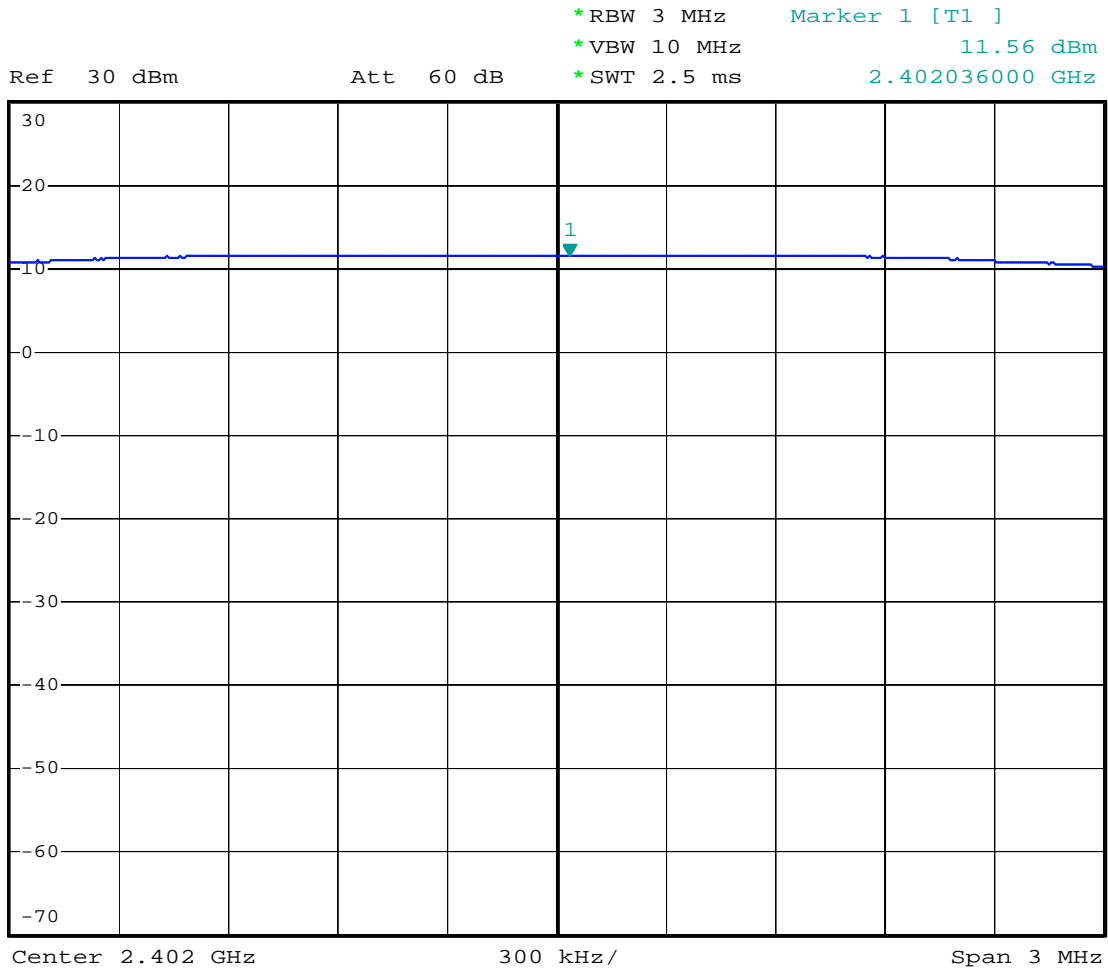
PASS.

Date of Test:	<u>June 4, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX</u>	Test Engineer:	<u>Apple</u>

Channel	Frequency (MHz)	Peak Output Power (dBm)	Peak Output Power (mW)	Limits dBm / mW
Low	2402	11.56	14.32	21 dBm / 125 mW
Middle	2440	11.87	15.38	21 dBm / 125 mW
High	2478	11.10	12.88	21 dBm / 125 mW

The spectrum analyzer plots are attached as below.

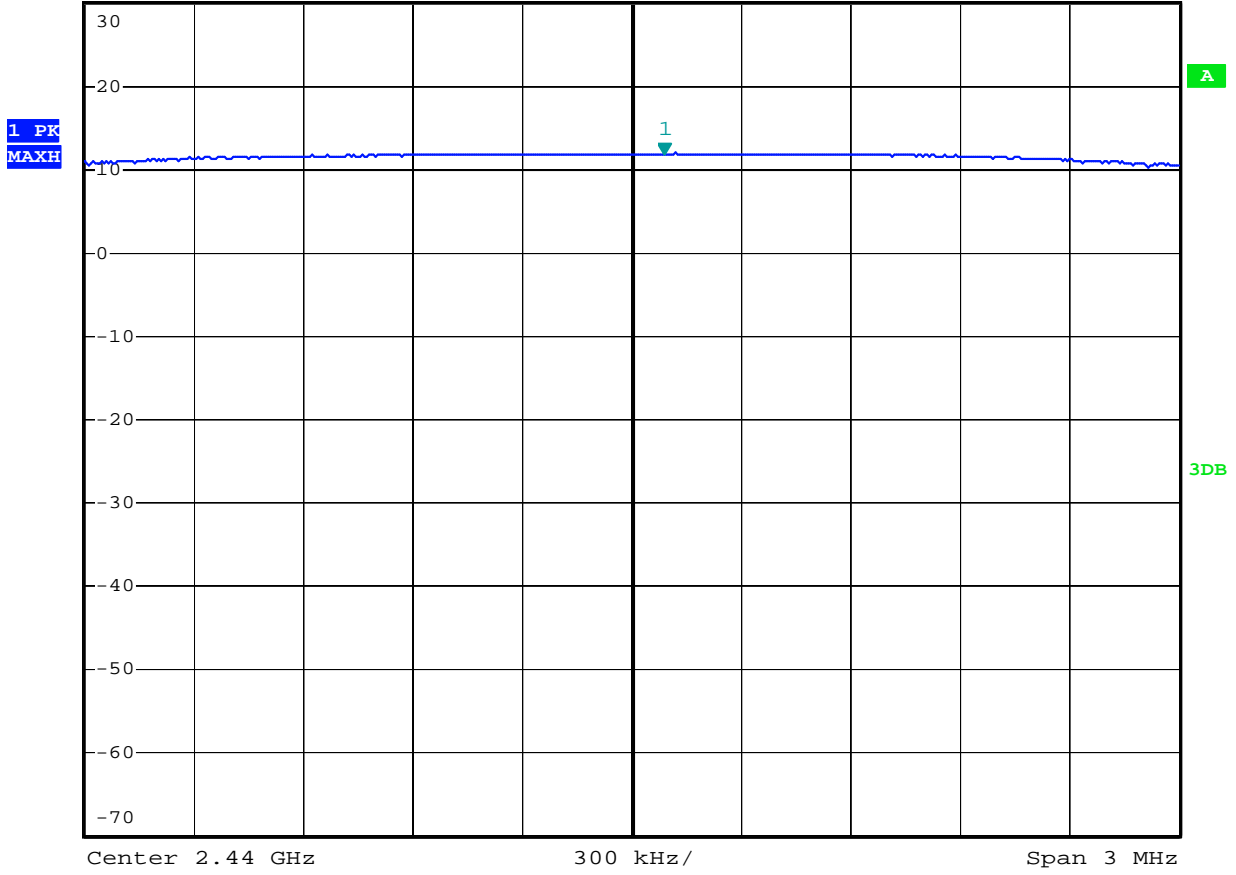
"Spectrum analyzer" is R/S



Date: 3.JUL.2012 19:27:15



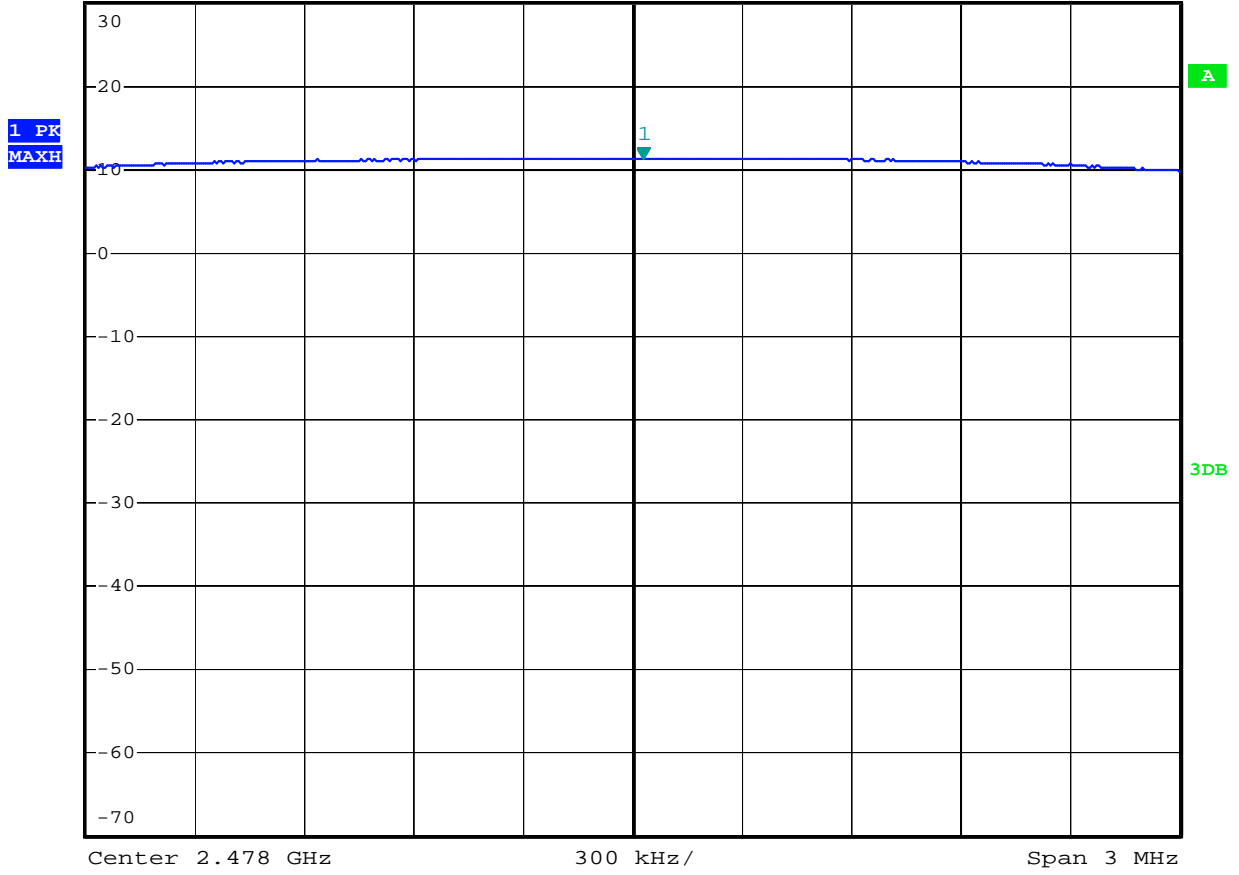
Ref 30 dBm Att 60 dB *RBW 3 MHz Marker 1 [T1]
*VBW 10 MHz 11.87 dBm
*SWT 2.5 ms 2.440090000 GHz



Date: 3.JUL.2012 19:33:18



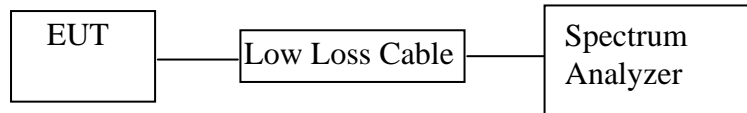
Ref 30 dBm Att 60 dB *RBW 3 MHz Marker 1 [T1]
*VBW 10 MHz 11.10 dBm
*SWT 2.5 ms 2.478030000 GHz



Date: 3.JUL.2012 19:19:29

10.BAND EDGE COMPLIANCE TEST

10.1.Block Diagram of Test Setup



(EUT: 2.4GHz Digital Wireless Camera)

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 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.

10.3.1.2.4GHz Digital Wireless Camera (EUT)

Model Number	:	51442-30V
Serial Number	:	N/A
Manufacturer	:	LB Technology Co., Ltd.

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 (Hopping off, Hopping on) modes measure it. The transmit frequency are 2402-2478MHz. We select 2402MHz, 2478MHz TX frequency to transmit.

10.5. Test Procedure

Conducted Band Edge:

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.

Radiate Band Edge:

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

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

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

10.5.6. 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

10.5.7. The band edges was measured and recorded.

10.6. Test Result

Pass

Date of Test:	<u>June 4, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX (Hopping off)</u>	Test Engineer:	<u>Apple</u>

Conducted test

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2402	34.52	> 20dBc
2478	39.54	> 20dBc

Date of Test:	<u>June 4, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX (Hopping on)</u>	Test Engineer:	<u>Apple</u>

Conducted test

Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2402	35.04	> 20dBc
2478	36.90	> 20dBc

"Spectrum analyzer" is R/S

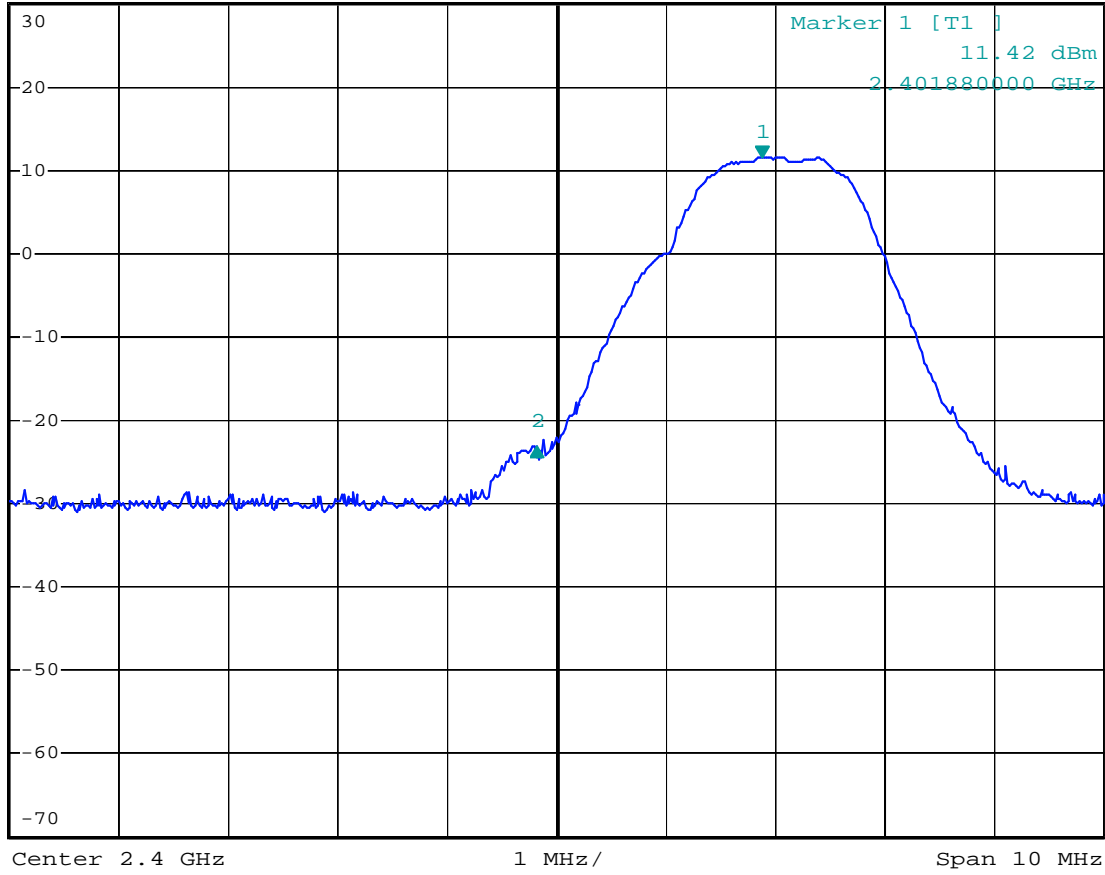


*RBW 300 kHz Delta 2 [T1]
*VBW 1 MHz -34.52 dB
*SWT 2.5 ms -2.060000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Date: 3.JUL.2012 19:28:57

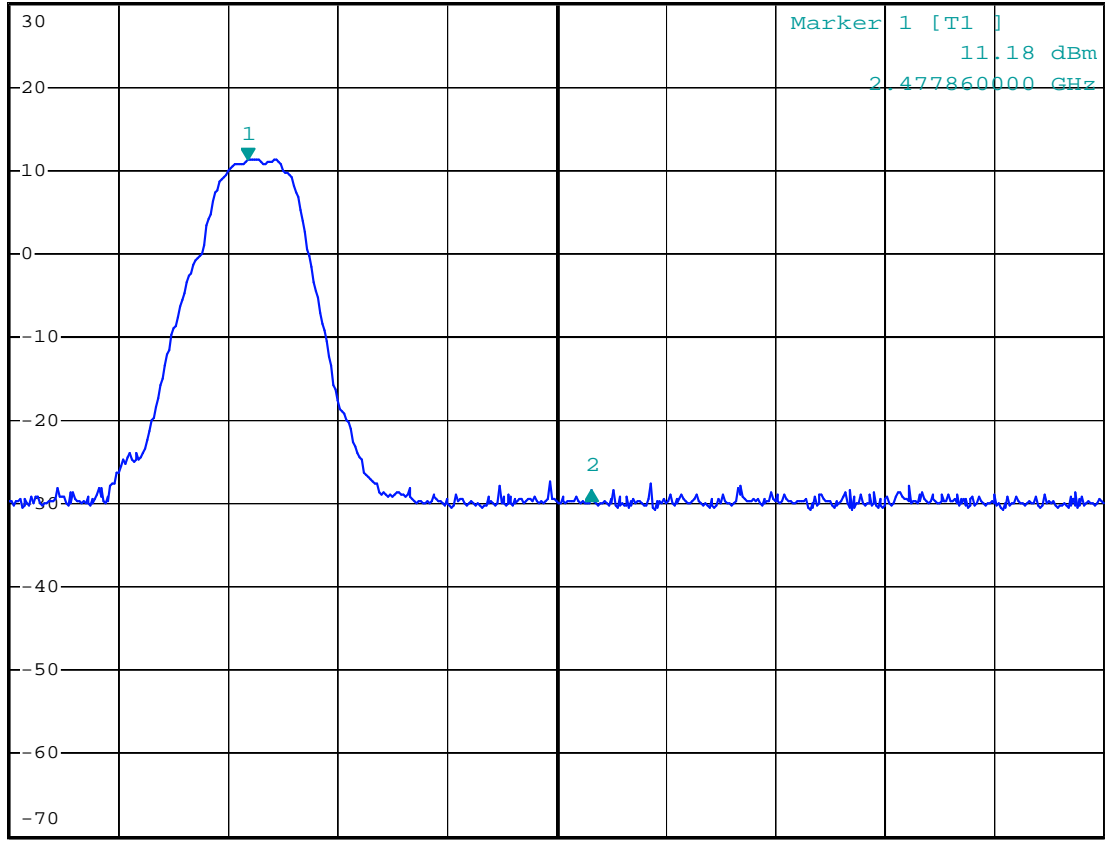


*RBW 300 kHz Delta 2 [T1]
*VBW 1 MHz -39.54 dB
*SWT 2.5 ms 6.280000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH

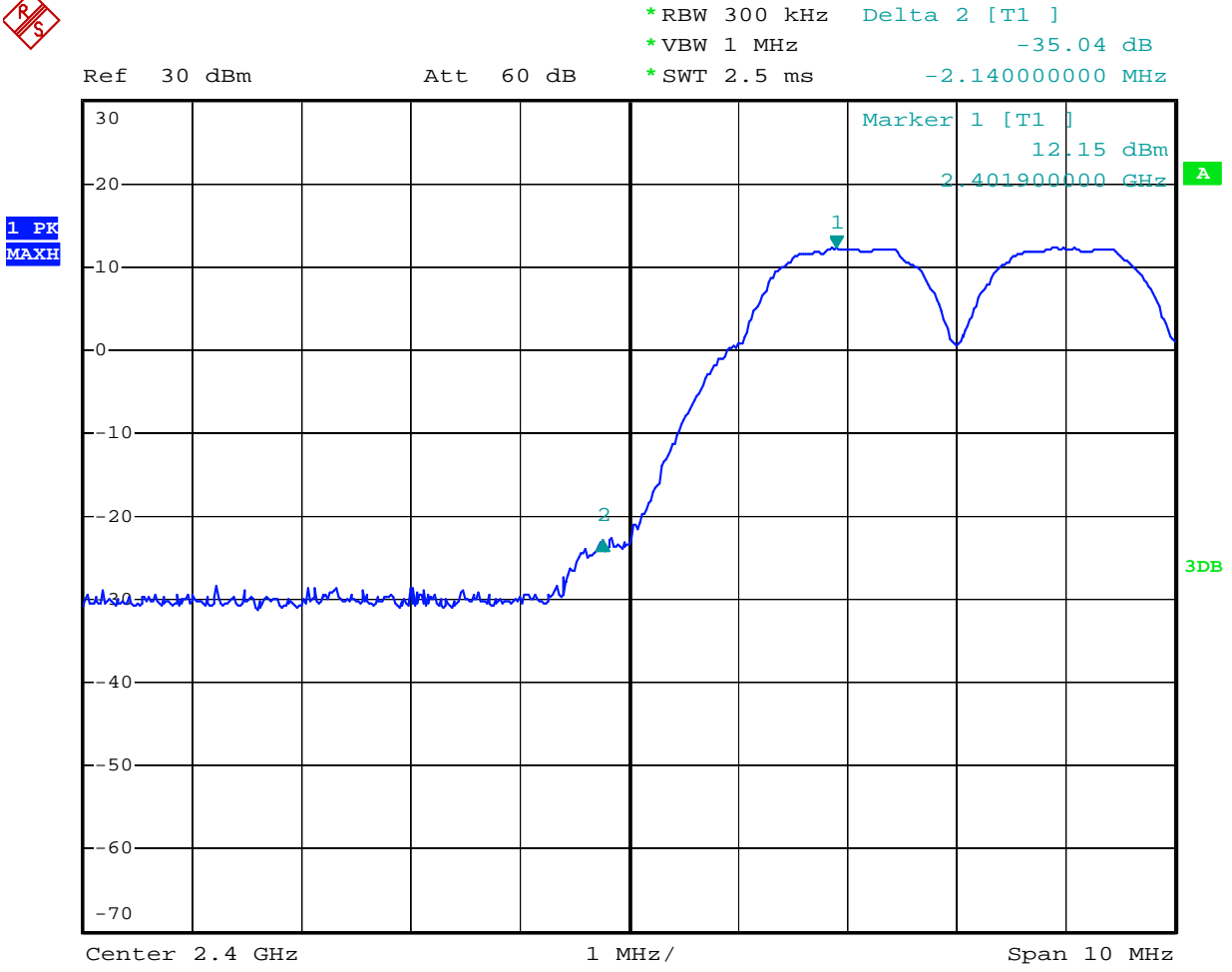


Center 2.4835 GHz

2 MHz/

Span 20 MHz

Date: 3.JUL.2012 19:21:04



Date: 3.JUL.2012 19:50:00

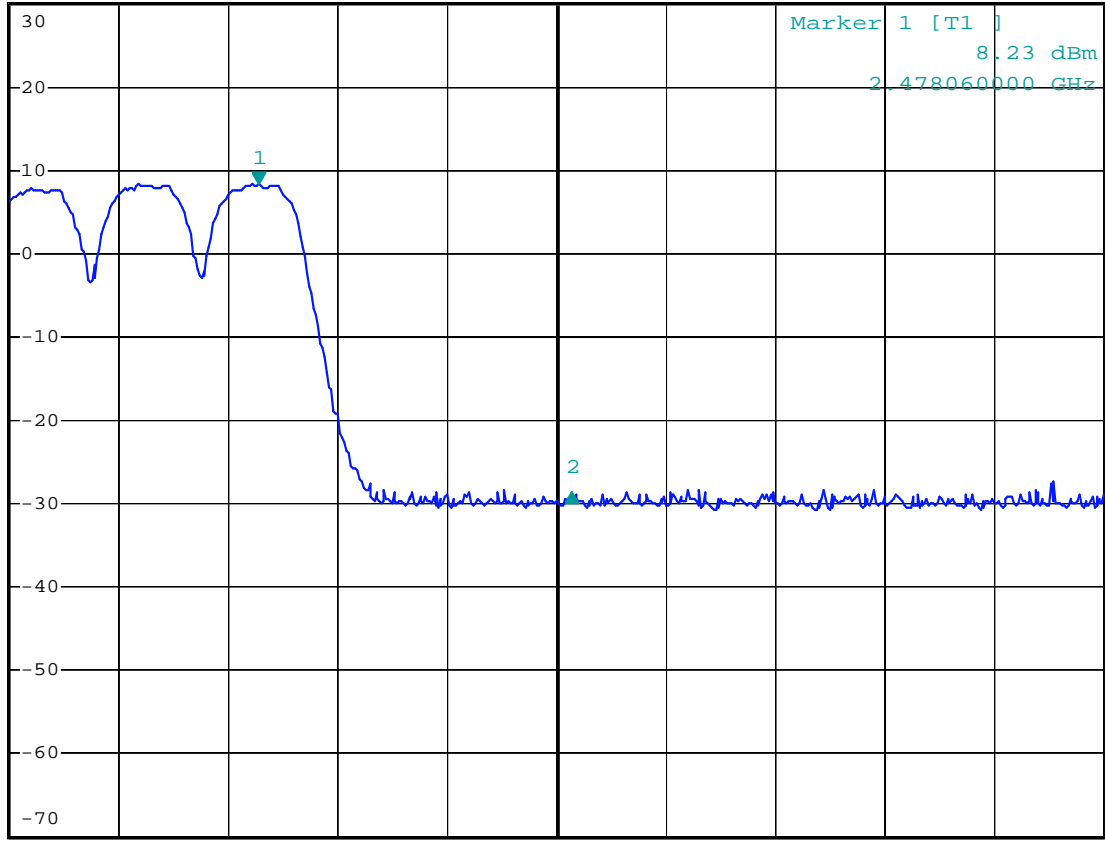


*RBW 300 kHz Delta 2 [T1]
*VBW 1 MHz -36.90 dB
*SWT 2.5 ms 5.720000000 MHz

Ref 30 dBm

Att 60 dB

1 PK
MAXH



Center 2.4835 GHz

2 MHz /

Span 20 MHz

Date: 3.JUL.2012 19:48:41

Radiated Band Edge Result

Date of Test:	<u>June 7, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX (2402MHz)</u>	Test Engineer:	<u>Kai</u>

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2310.000	39.62	44.83	-7.81	31.81	37.02	54	74	-22.19	-36.98	Vertical
2374.150	40.17	45.58	-7.63	32.54	37.95	54	74	-21.46	-36.05	Vertical
2390.523	41.49	46.85	-7.52	33.97	39.33	54	4	-20.03	-34.67	Vertical
2310.000	40.39	45.59	-7.81	32.58	37.78	54	74	-21.42	-36.22	Horizontal
2374.150	40.15	45.52	-7.63	32.52	37.89	54	74	-21.48	-36.11	Horizontal
2390.000	42.96	48.46	-7.53	35.43	40.93	54	74	-18.57	-33.07	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:

$$\text{Result} = \text{Reading} + \text{Corrected Factor}$$
3. Display the measurement of peak values.

Date of Test:	<u>June 7, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX (2478MHz)</u>	Test Engineer:	<u>Kai</u>

Frequency (MHz)	Reading(dBμV/m)		Factor(dB) Corr.	Result(dBμV/m)		Limit(dBμV/m)		Margin(dB)		Polarization
	AV	PEAK		AV	PEAK	AV	PEAK	AV	PEAK	
2483.343	47.91	53.94	-7.37	40.54	46.57	54	74	-13.46	-27.43	Vertical
2487.190	44.69	49.62	-7.38	37.31	42.24	54	74	-16.69	-31.76	Vertical
2500.000	41.11	46.70	-7.40	33.71	39.30	54	74	-20.29	-34.70	Vertical
2483.027	45.55	50.03	-7.37	38.18	42.66	54	74	-15.82	-31.34	Horizontal
2487.190	40.25	45.94	-7.38	32.87	38.56	54	74	-21.13	-35.44	Horizontal
2500.000	40.69	45.76	-7.40	33.29	38.36	54	74	-20.71	-35.64	Horizontal

Note:

1. Emissions attenuated more than 20 dB below the permissible value are not reported.
2. The field strength is calculated by adding the antenna factor, high pass filter loss(if used) and cable loss, and subtracting the amplifier gain(if any)from the measured reading. The basic equation calculation is as follows:
Result = Reading + Corrected Factor
3. Display the measurement of peak values.



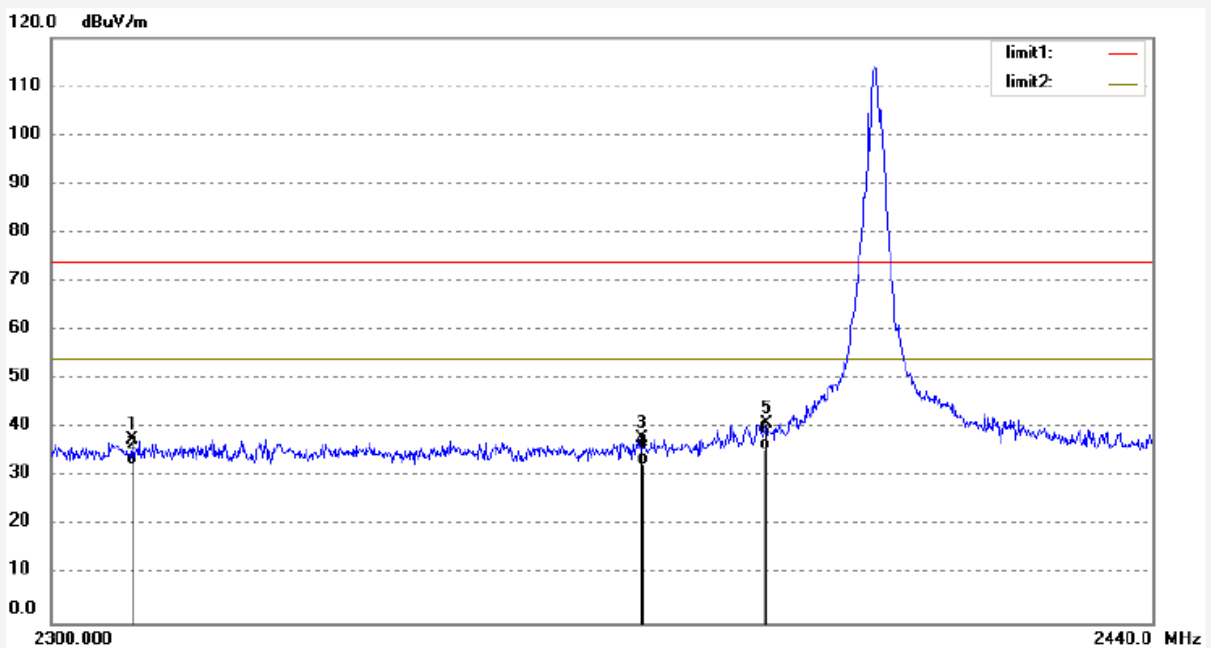
ACCURATE TECHNOLOGY CO., LTD.

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.: Bob #2352	Polarization: Horizontal
Standard: FCC 15C PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/07/
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 5/17/47
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX 2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	45.59	-7.81	37.78	74.00	-36.22	peak			
2	2310.000	40.39	-7.81	32.58	54.00	-21.42	AVG			
3	2374.150	45.52	-7.63	37.89	74.00	-36.11	peak			
4	2374.150	40.15	-7.63	32.52	54.00	-21.48	AVG			
5	2390.000	48.46	-7.53	40.93	74.00	-33.07	peak			
6	2390.000	42.96	-7.53	35.43	54.00	-18.57	AVG			



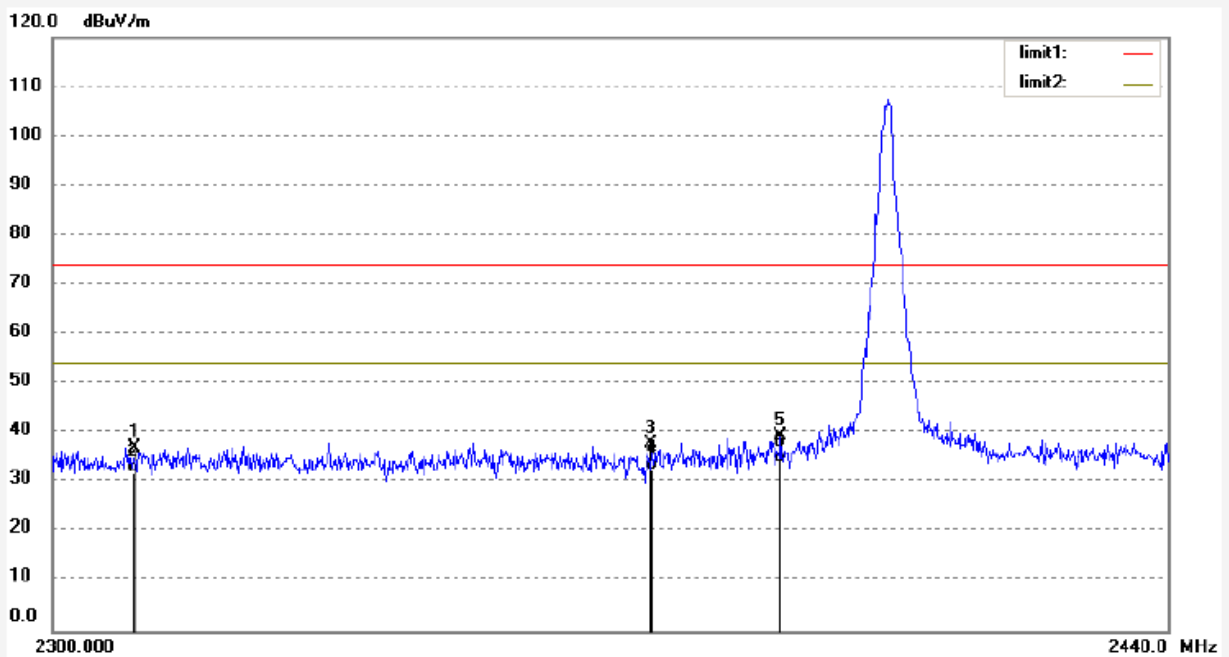
ACCURATE TECHNOLOGY CO., LTD.

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.: Bob #2354	Polarization: Vertical
Standard: FCC 15C PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/07/
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 5/21/11
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX 2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2310.000	44.83	-7.81	37.02	74.00	-36.98	peak			
2	2310.000	39.62	-7.81	31.81	54.00	-22.19	AVG			
3	2374.150	45.58	-7.63	37.95	74.00	-36.05	peak			
4	2374.150	40.17	-7.63	32.54	54.00	-21.46	AVG			
5	2390.523	46.85	-7.52	39.33	74.00	-34.67	peak			
6	2390.523	41.49	-7.52	33.97	54.00	-20.03	AVG			



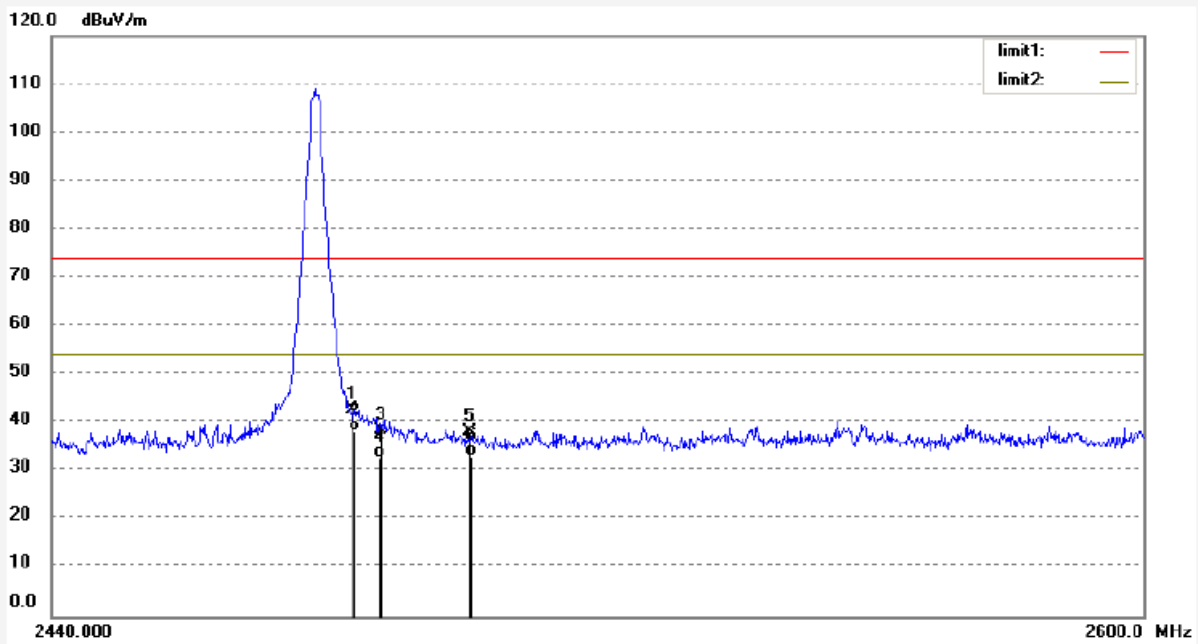
ACCURATE TECHNOLOGY CO., LTD.

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.: Bob #2356	Polarization: Horizontal
Standard: FCC 15C PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/07/
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 5/33/58
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX 2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.027	50.03	-7.37	42.66	74.00	-31.34	peak			
2	2483.027	45.55	-7.37	38.18	54.00	-15.82	AVG			
3	2487.190	45.94	-7.38	38.56	74.00	-35.44	peak			
4	2487.190	40.25	-7.38	32.87	54.00	-21.13	AVG			
5	2500.000	45.76	-7.40	38.36	74.00	-35.64	peak			
6	2500.000	40.69	-7.40	33.29	54.00	-20.71	AVG			



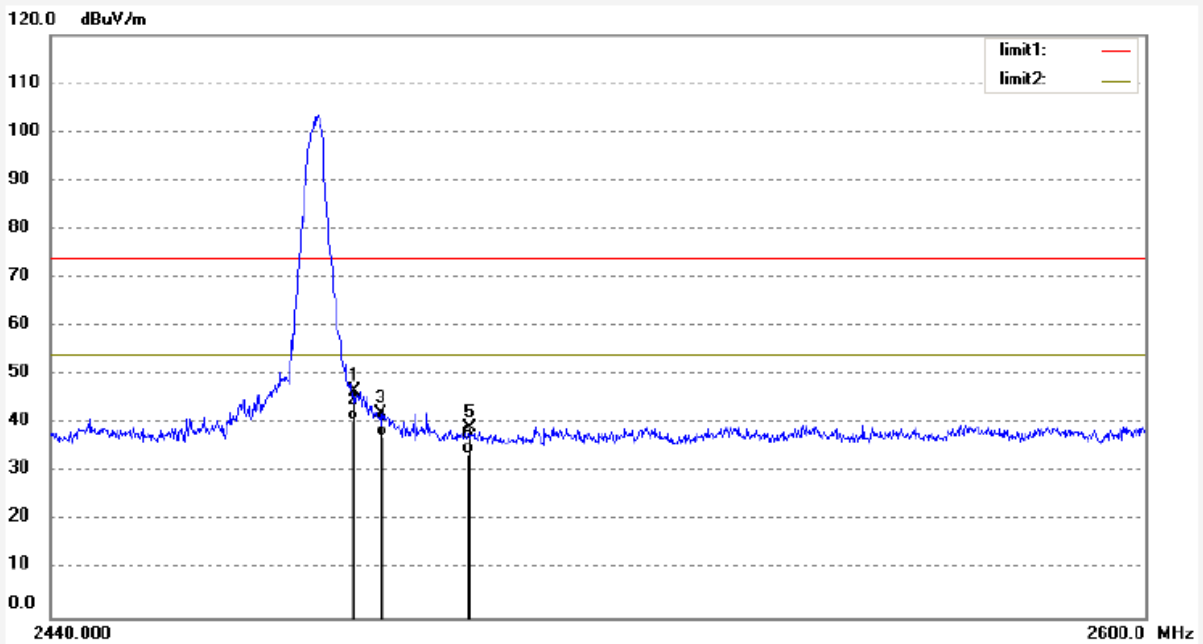
ACCURATE TECHNOLOGY CO., LTD.

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.: Bob #2355	Polarization: Vertical
Standard: FCC 15C PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/07/
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 5/30/57
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX 2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688

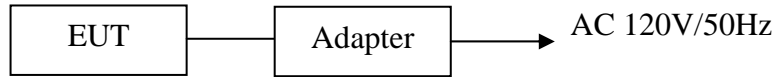


No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.343	53.94	-7.37	46.57	74.00	-27.43	peak			
2	2483.343	47.91	-7.37	40.54	54.00	-13.46	AVG			
3	2487.190	49.62	-7.38	42.24	74.00	-31.76	peak			
4	2487.190	44.69	-7.38	37.31	54.00	-16.69	AVG			
5	2500.000	46.70	-7.40	39.30	74.00	-34.70	peak			
6	2500.000	41.11	-7.40	33.71	54.00	-20.29	AVG			

11.RADIATED SPURIOUS EMISSION TEST

11.1.Block Diagram of Test Setup

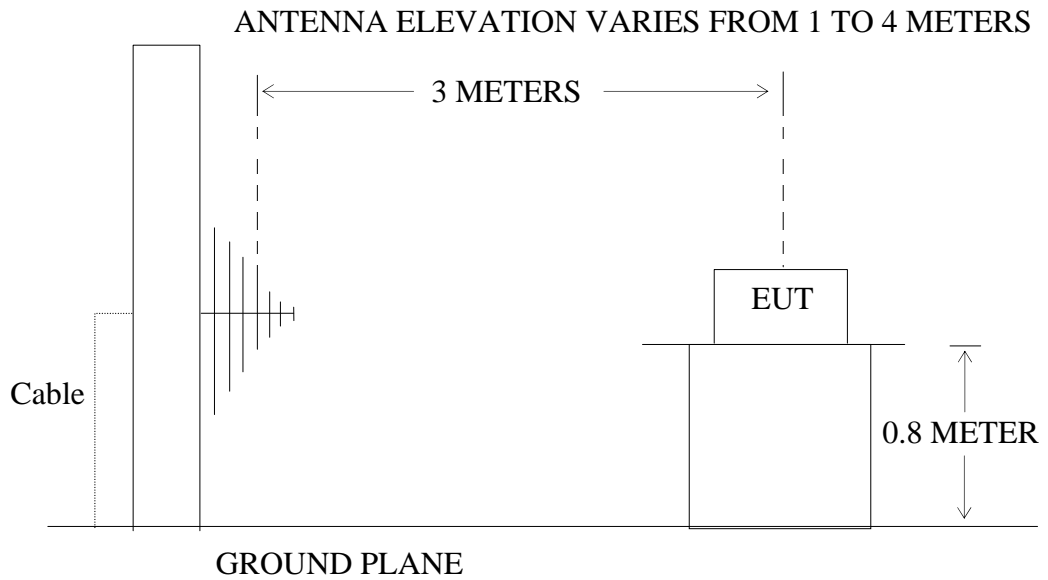
11.1.1.Block diagram of connection between the EUT and simulators



Setup: Transmitting mode

(EUT: 2.4GHz Digital Wireless Camera)

11.1.2.Semi-Anechoic Chamber Test Setup Diagram



(EUT: 2.4GHz Digital Wireless Camera)

11.2.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).

11.3.Restricted bands of operation

11.3.1.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
¹ 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	(²)
13.36-13.41			

¹Until February 1, 1999, this restricted band shall be 0.490-0.510

²Above 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.

11.4. 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.

11.4.1.2. 4GHz Digital Wireless Camera (EUT)

Model Number : 51442-30V
 Serial Number : N/A
 Manufacturer : LB Technology Co., Ltd.

11.5. Operating Condition of EUT

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

11.5.2. Turn on the power of all equipment.

11.5.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2478MHz. We select 2402MHz, 2440MHz, 2478MHz TX frequency to transmit.

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

The frequency range from 9kHz to 25GHz is checked.

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

11.7. The Field Strength of Radiation Emission Measurement Results

PASS.

Date of Test:	<u>June 6, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/60Hz</u>
Test Mode:	<u>TX (2402MHz)</u>	Test Engineer:	<u>Apple</u>

Below 30MHz

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

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBµV/m)		Factor Corr. (dB)	Result (dBµV/m)		Limit (dBµV/m)	Margin (dB)		Polarization
	QP			QP			QP		
35.5112	13.62		16.66	30.28		40.00	-9.72		Vertical
142.7692	14.67		14.49	29.16		43.50	-14.34		Vertical
364.8026	12.87		21.46	34.33		46.00	-11.67		Vertical
121.0363	10.39		14.75	25.14		43.50	-18.36		Horizontal
147.8747	11.10		14.51	25.61		43.50	-17.89		Horizontal
364.8260	11.08		21.46	32.54		46.00	-13.46		Horizontal

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBµV/m)		Factor Corr. (dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dBµV/m)		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. *: Denotes restricted band of operation.

Date of Test:	June 6, 2012	Temperature:	25°C
EUT:	2.4GHz Digital Wireless Camera	Humidity:	50%
Model No.:	51442-30V	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2440MHz)	Test Engineer:	Apple

Below 30MHz

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

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBµV/m)		Factor Corr. (dB)	Result (dBµV/m)		Limit (dBµV/m)		Margin (dB)		Polarization
	QP			QP		QP		QP		
34.1649	12.32		16.88	29.20		40.00		-10.80		Vertical
121.0363	14.26		14.75	29.01		43.50		-14.49		Vertical
364.8026	12.52		21.46	33.98		46.00		-12.02		Vertical
121.0363	14.11		14.75	28.86		43.50		-14.64		Horizontal
144.7899	8.29		14.48	22.77		43.50		-20.72		Horizontal
364.8026	12.76		21.46	34.22		46.00		-11.78		Horizontal

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBµV/m)		Factor Corr. (dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dBµV/m)		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. *: Denotes restricted band of operation.

Date of Test:	June 6, 2012	Temperature:	25°C
EUT:	2.4GHz Digital Wireless Camera	Humidity:	50%
Model No.:	51442-30V	Power Supply:	AC 120V/60Hz
Test Mode:	TX (2478MHz)	Test Engineer:	Apple

Below 30MHz

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

For 30MHz-1000MHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading (dBµV/m)	Factor Corr. (dB)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Polarization
	QP		QP	QP	QP	
34.0451	11.74	16.91	28.65	40.00	-11.35	Vertical
121.0363	16.01	14.75	30.76	43.50	-12.74	Vertical
428.7960	11.48	23.01	34.49	46.00	-11.51	Vertical
121.0363	11.93	14.75	26.68	43.50	-16.82	Horizontal
170.1888	7.00	15.72	22.72	43.50	-20.78	Horizontal
364.8026	11.34	21.46	32.80	46.00	-13.20	Horizontal

For 1GHz-25GHz

Corrected Factor = Antenna Factor + Cable Loss – Amplifier Gain

Frequency (MHz)	Reading(dBµV/m)		Factor Corr. (dB)	Result(dBµV/m)		Limit(dBµV/m)		Margin(dBµV/m)		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. *: Denotes restricted band of operation.



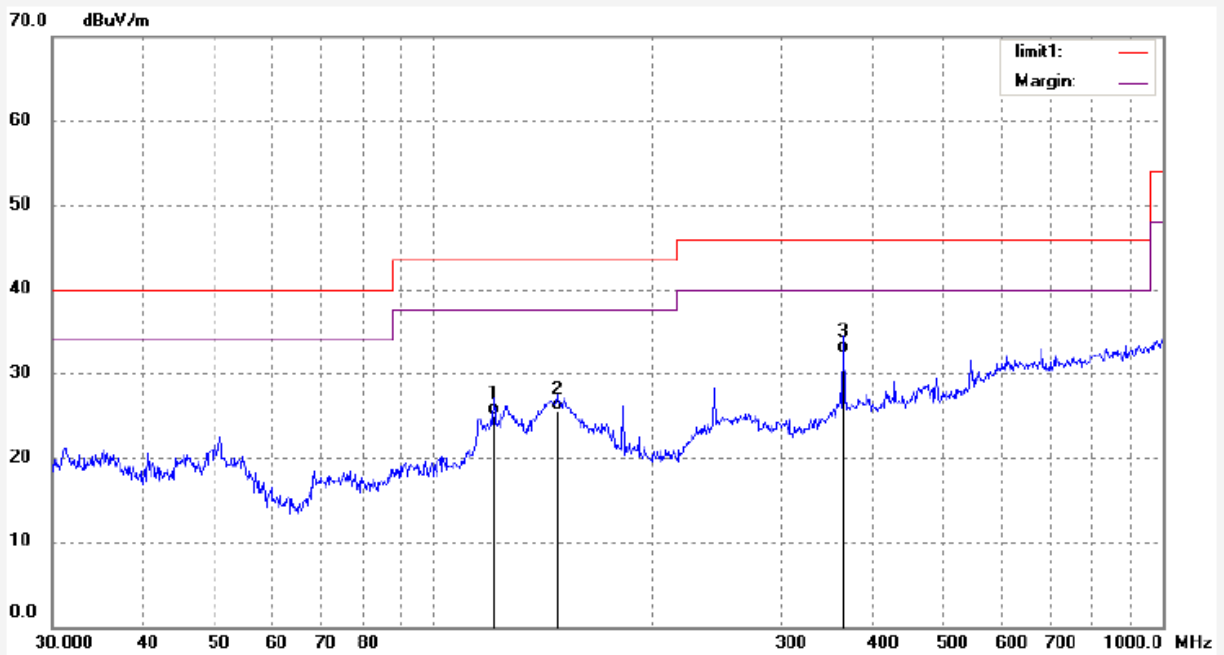
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Science & Industry Park,Nanshan Shenzhen,P.R.China

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

Job No.: Bob #911	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 9/05/24
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	121.0363	10.39	14.75	25.14	43.50	-18.36	QP			
2	147.8747	11.10	14.51	25.61	43.50	-17.89	QP			
3	364.8026	11.08	21.46	32.54	46.00	-13.46	QP			



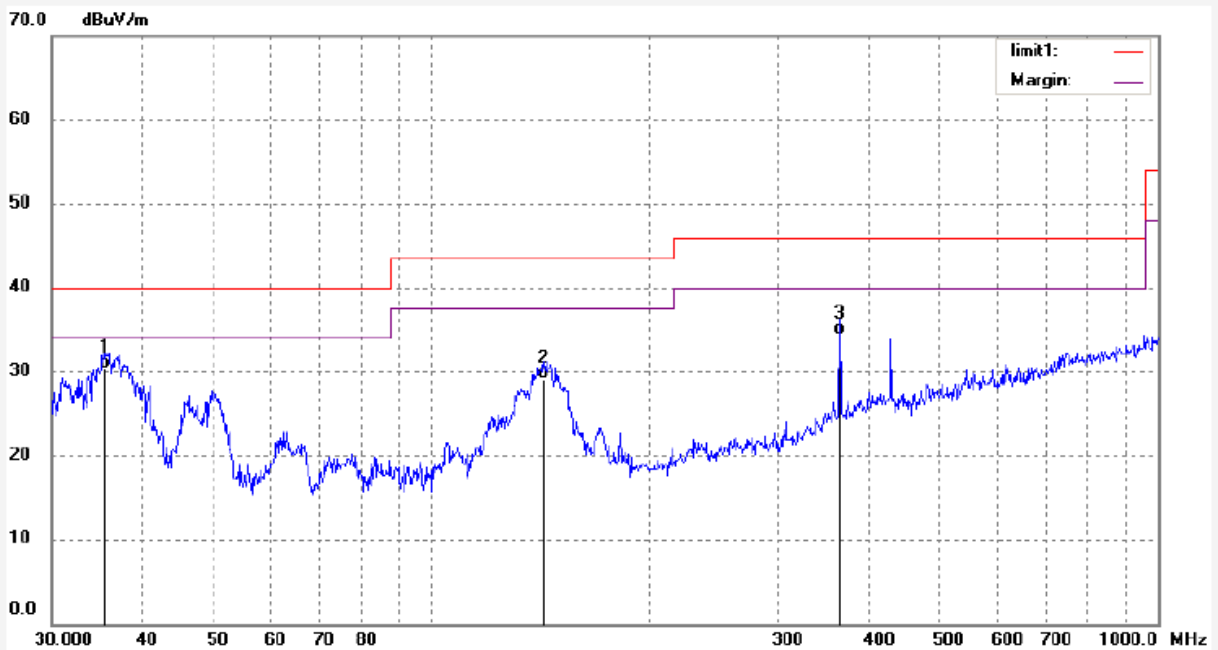
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Site: 966 chamber
Tel:+86-0755-26503290
Fax:+86-0755-26503396

Job No.: Bob #912	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 9/06/55
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	35.5112	13.62	16.66	30.28	40.00	-9.72	QP			
2	142.7692	14.67	14.49	29.16	43.50	-14.34	QP			
3	364.8026	12.87	21.46	34.33	46.00	-11.67	QP			



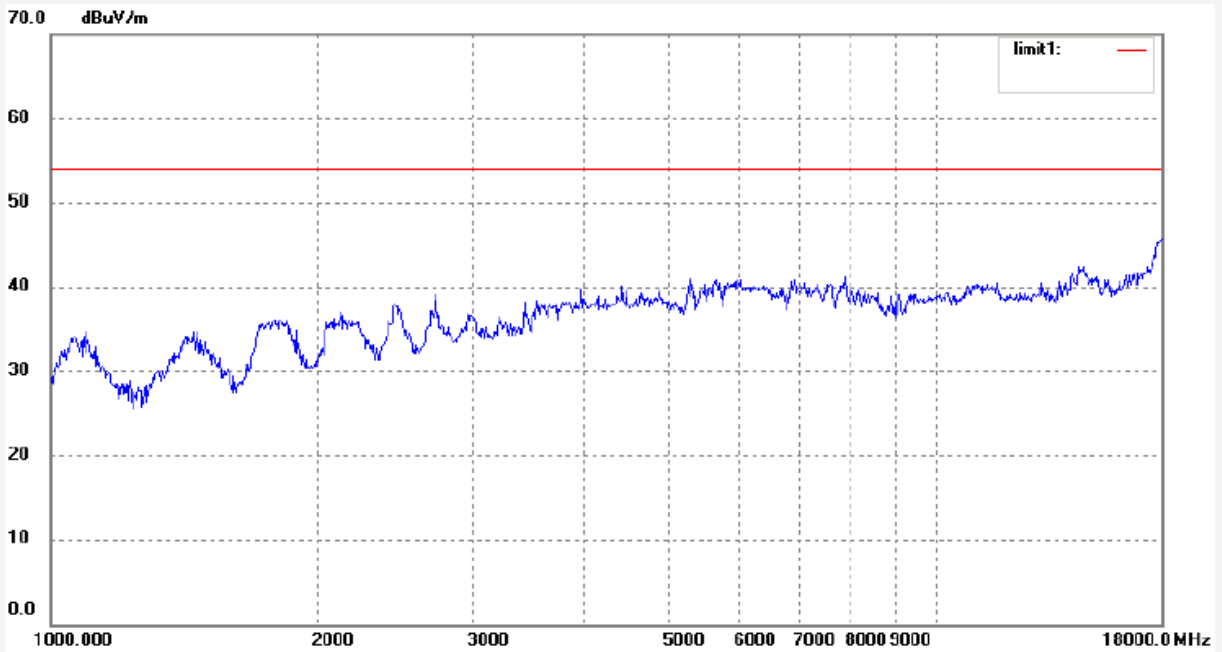
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Fax:+86-0755-26503396

Job No.: Bob #1619	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 11:40:11
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: Tx 2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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.: Bob #1620

Standard: FCC Class B 3M Radiated

Test item: Radiation Test

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

EUT: 2.4GHz Digital Wireless Camera

Mode: Tx 2402

Model: 51442-30V

Manufacturer: LB

Polarization: Vertical

Power Source: AC 120V/60Hz

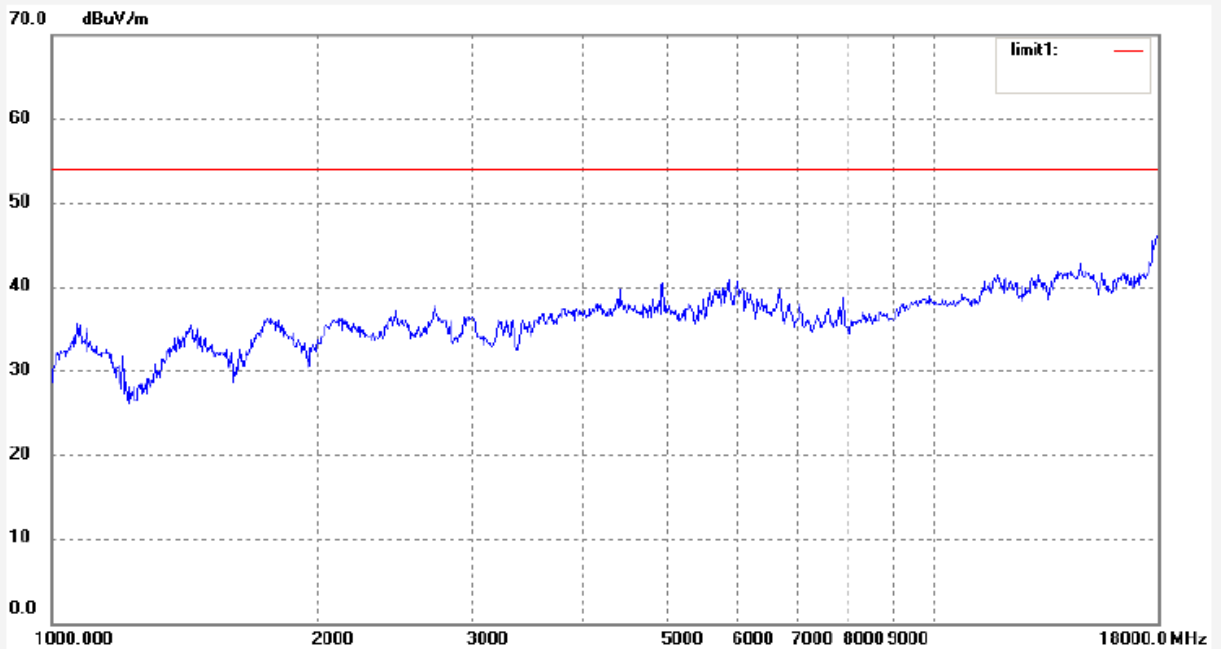
Date: 12/06/06

Time: 11:43:23

Engineer Signature: Bob

Distance: 3m

Note: Report No.:ATE20120688



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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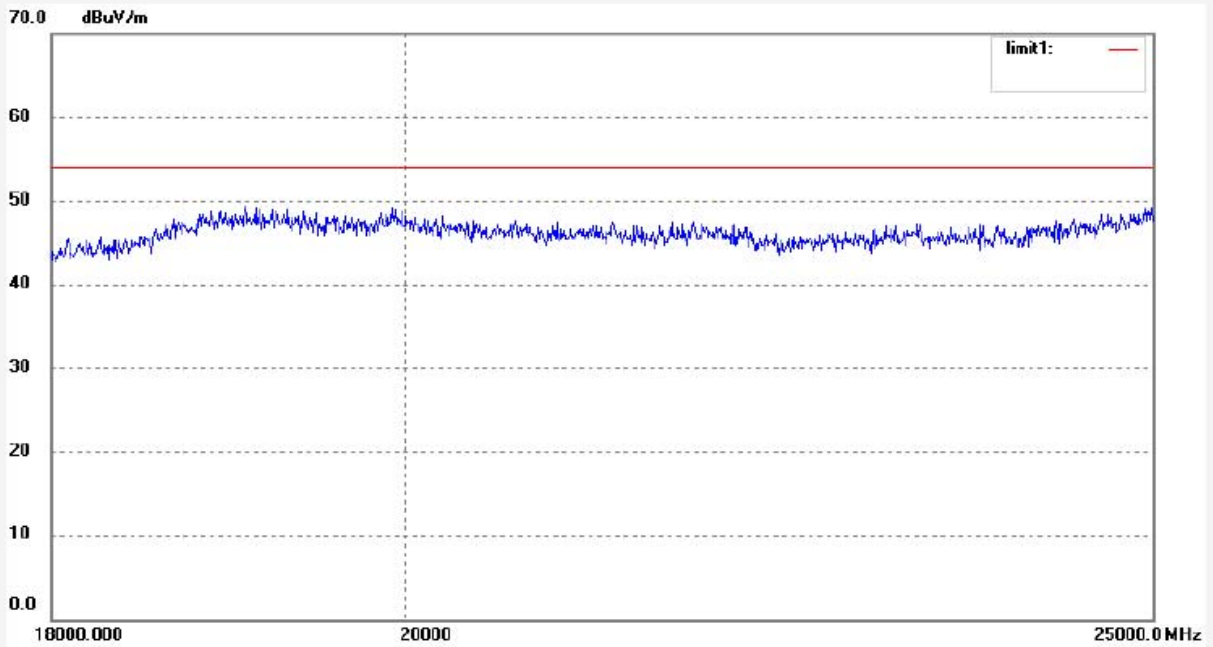
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Site: 966 chamber
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Job No.: Bob #1601	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 10:05:15
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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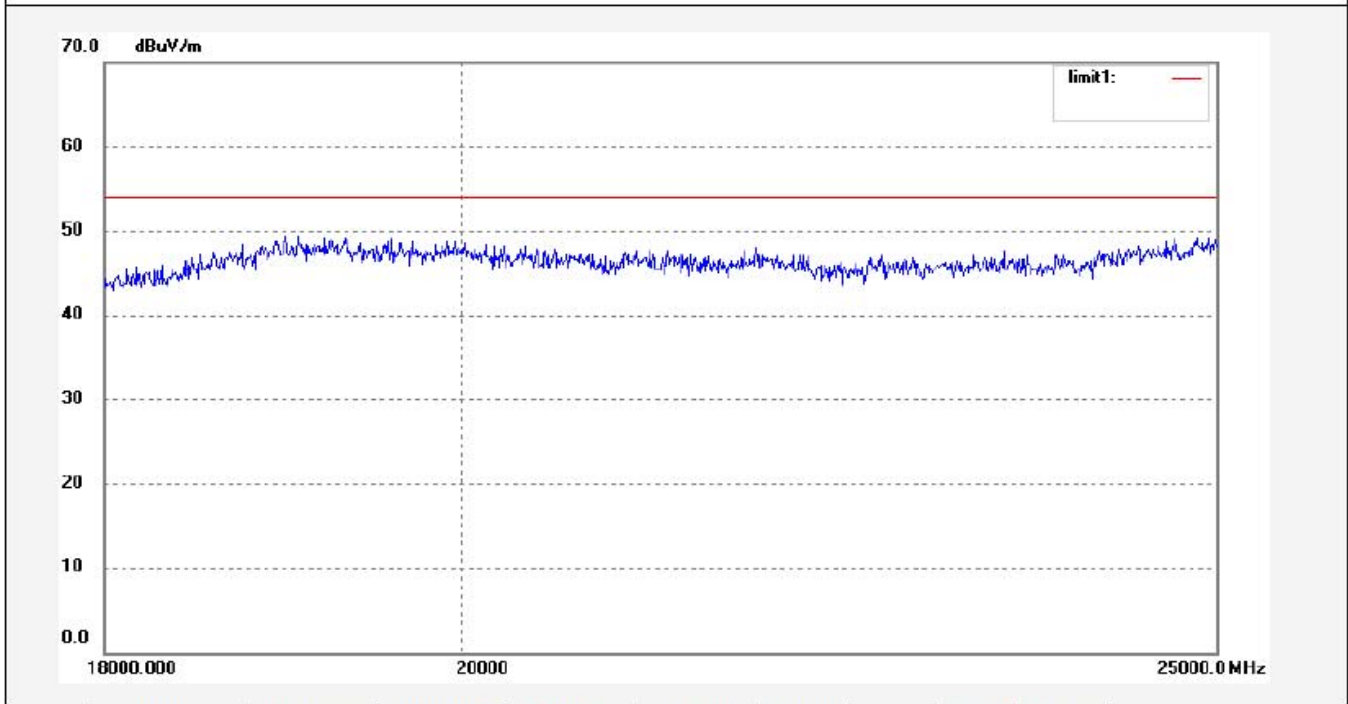
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Site: 966 chamber
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Job No.: Bob #1602	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 10:09:22
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: TX2402	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
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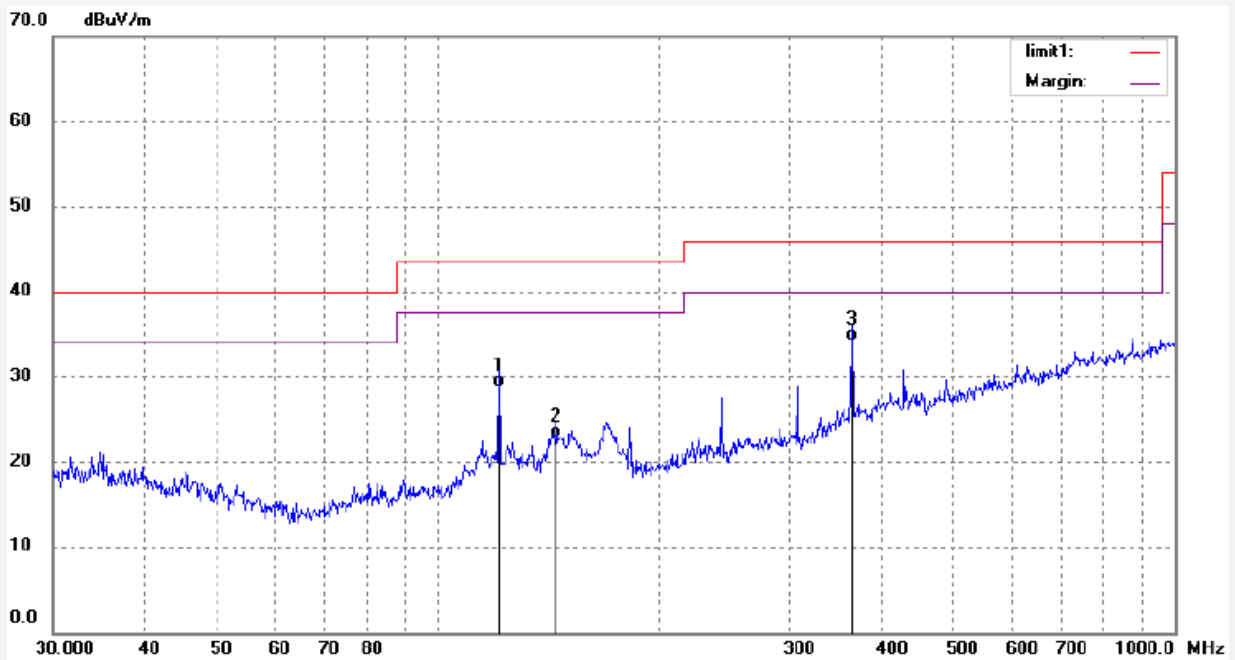
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Site: 966 chamber
Tel:+86-0755-26503290
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Job No.: Bob #914
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 24 C / 48 %
EUT: 2.4GHz Digital Wireless Camera
Mode: TX2440
Model: 51442-30V
Manufacturer: LB

Polarization: Horizontal
Power Source: AC 120V/60Hz
Date: 12/06/06
Time: 9/20/33
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	121.0363	14.11	14.75	28.86	43.50	-14.64	QP			
2	144.7899	8.29	14.48	22.77	43.50	-20.73	QP			
3	364.8026	12.76	21.46	34.22	46.00	-11.78	QP			



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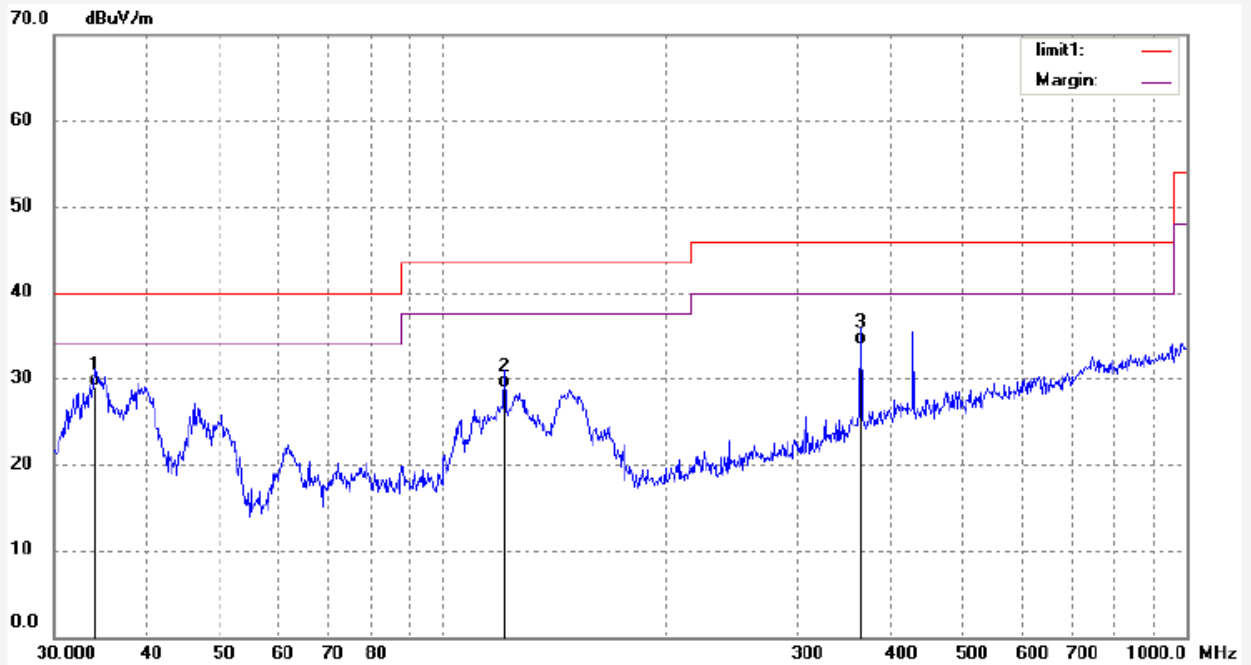
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Job No.: Bob #913
Standard: FCC Class B 3M Radiated
Test item: Radiation Test
Temp.(C)/Hum.(%) 24 C / 48 %
EUT: 2.4GHz Digital Wireless Camera
Mode: TX2440
Model: 51442-30V
Manufacturer: LB

Polarization: Vertical
Power Source: AC 120V/60Hz
Date: 12/06/06
Time: 9/19/10
Engineer Signature:
Distance: 3m

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.1649	12.32	16.88	29.20	40.00	-10.80	QP			
2	121.0363	14.26	14.75	29.01	43.50	-14.49	QP			
3	364.8026	12.52	21.46	33.98	46.00	-12.02	QP			



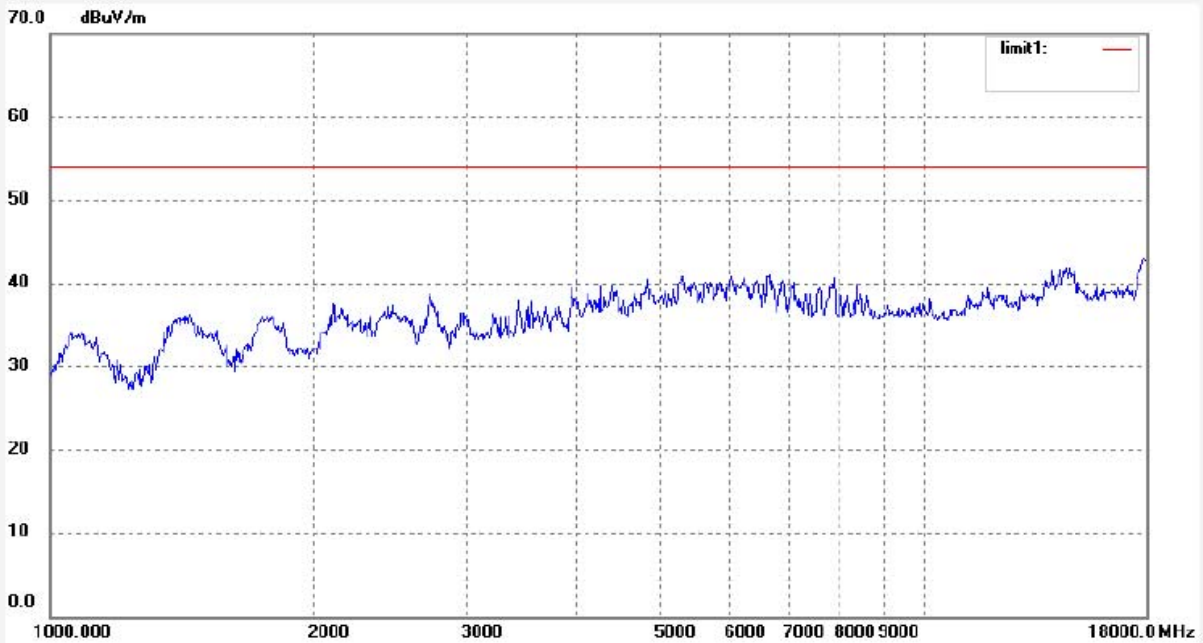
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Job No.: Bob #1622	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 11:50:42
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: Tx2440	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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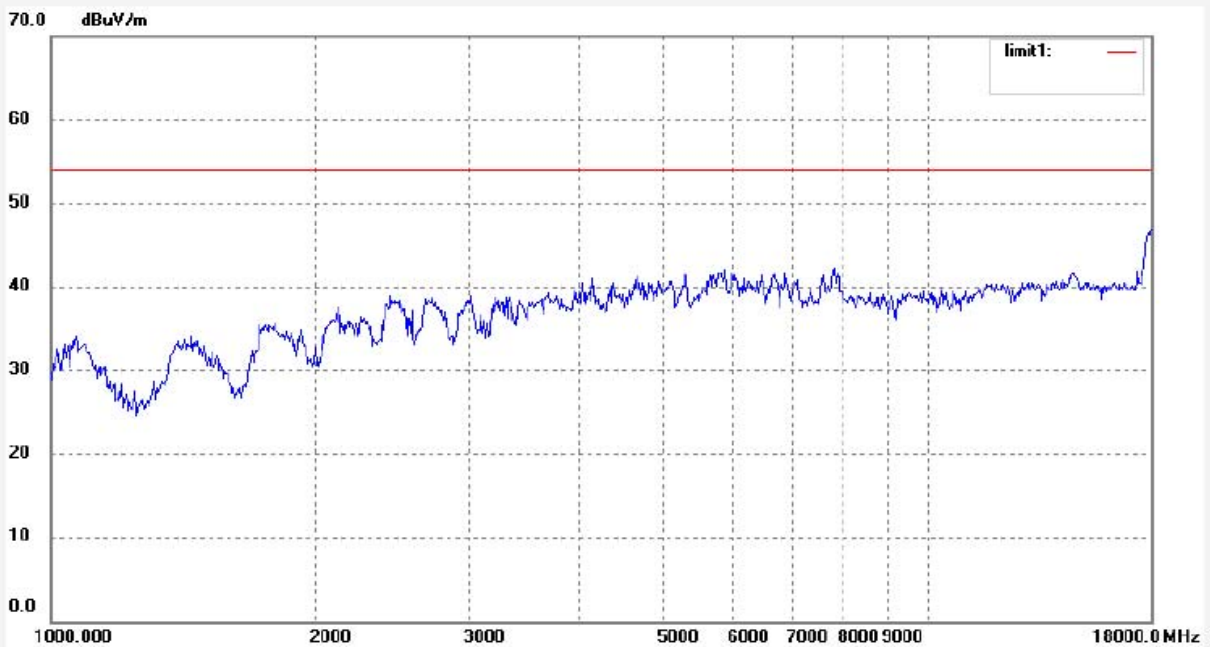
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Job No.: Bob #1621	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 11:46:45
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: Tx2440	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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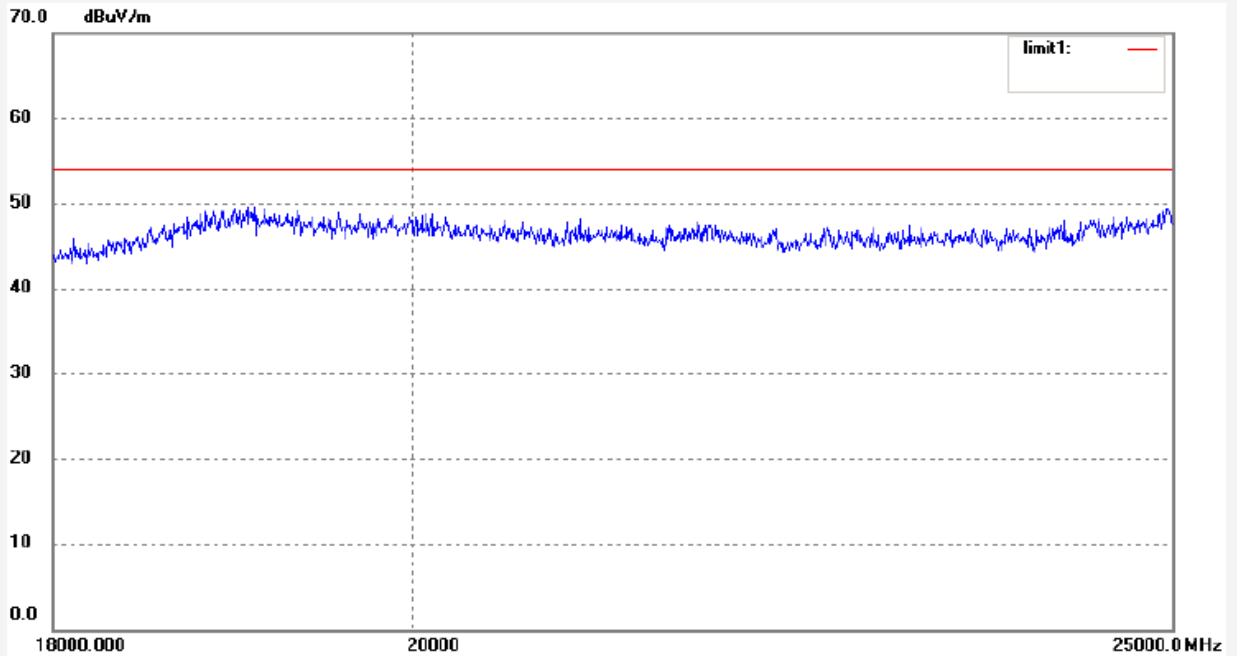
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Site: 966 chamber
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Job No.: Bob #1604	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 10:18:36
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: TX2440	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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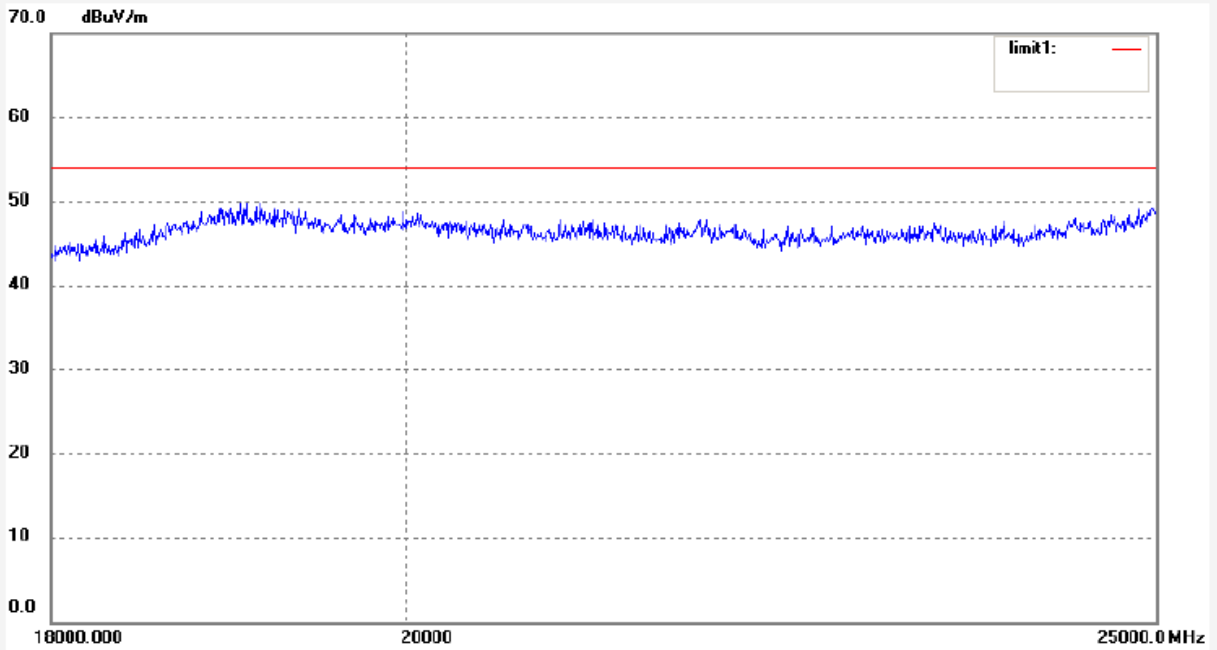
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Site: 966 chamber
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Job No.: Bob #1603	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 10:14:45
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: TX2440	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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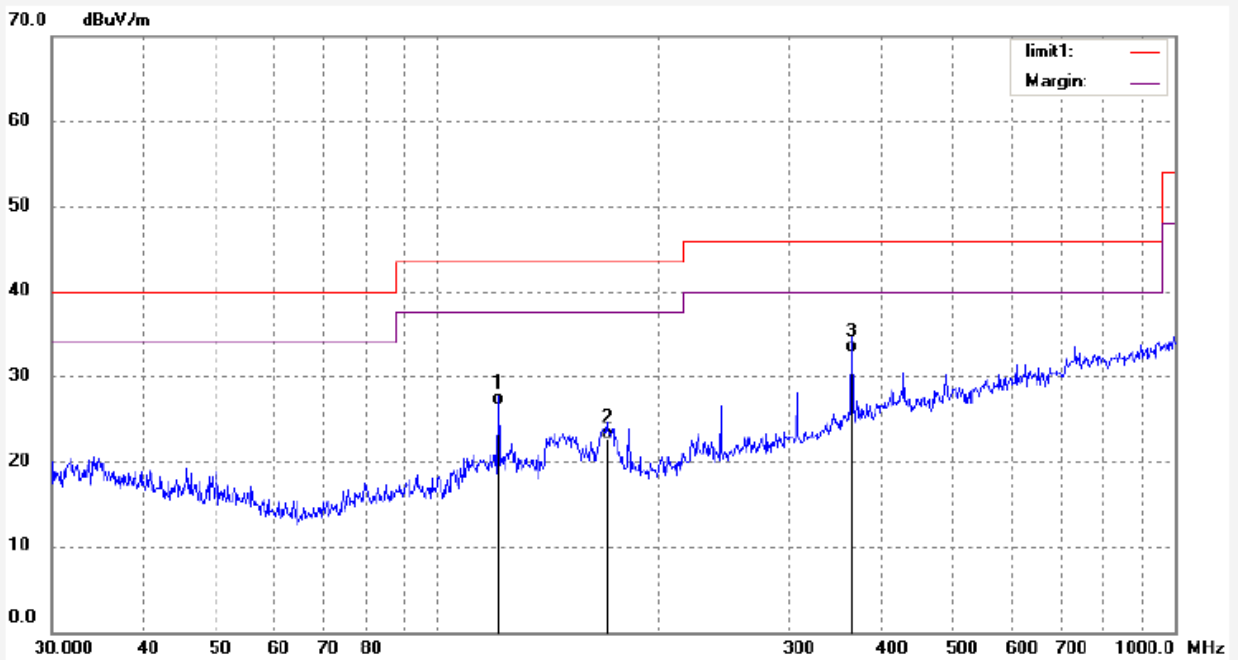
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Job No.: Bob #915	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 9/21/37
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX2478	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	121.0363	11.93	14.75	26.68	43.50	-16.82	QP			
2	170.1888	7.00	15.72	22.72	43.50	-20.78	QP			
3	364.8026	11.34	21.46	32.80	46.00	-13.20	QP			



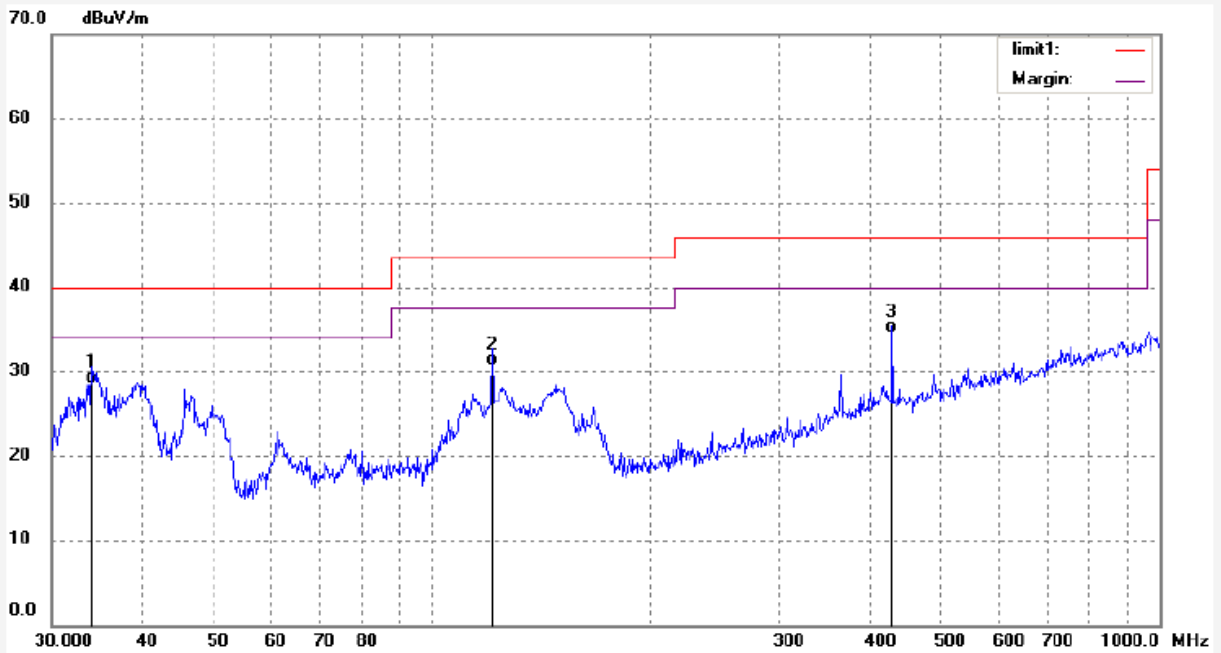
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Job No.: Bob #916	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 9/22/34
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature:
Mode: TX2478	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report NO.:ATE20120688



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	34.0451	11.74	16.91	28.65	40.00	-11.35	QP			
2	121.0363	16.01	14.75	30.76	43.50	-12.74	QP			
3	428.7960	11.48	23.01	34.49	46.00	-11.51	QP			



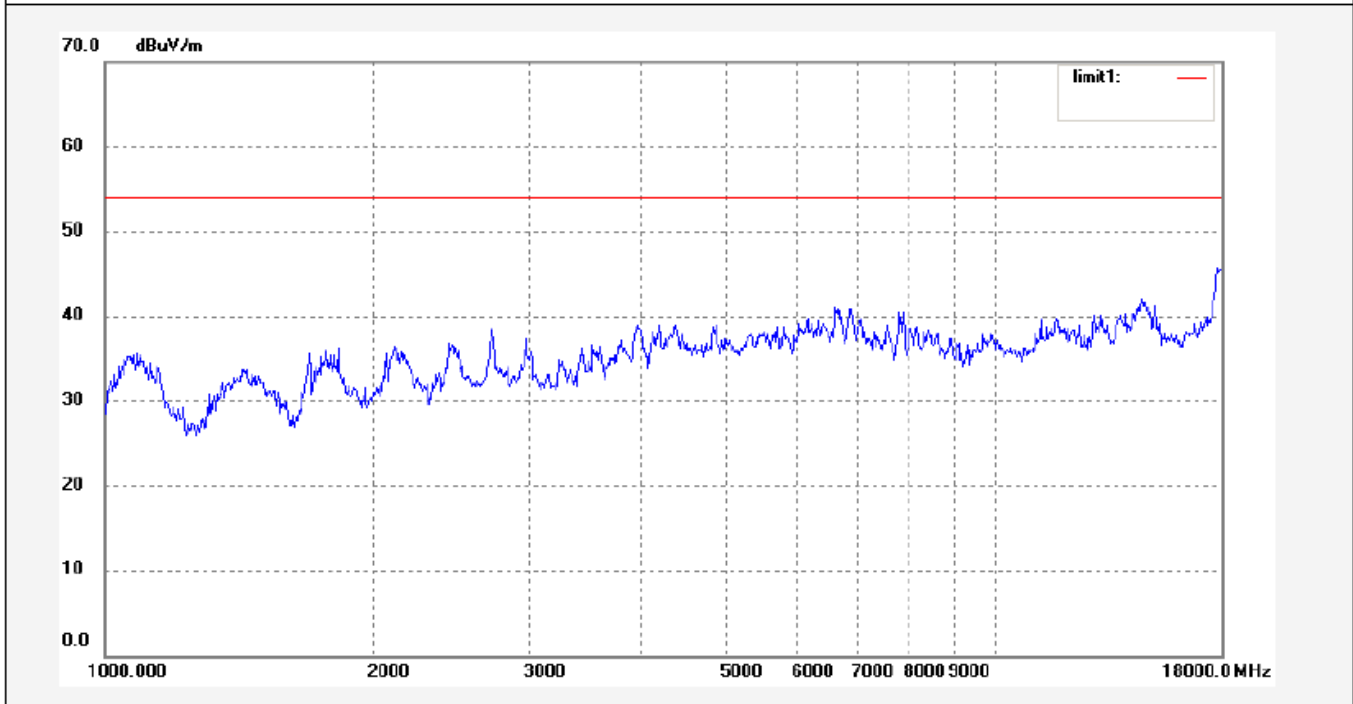
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Site: 966 chamber
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Job No.: Bob #1623	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 11:53:36
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: Tx2478	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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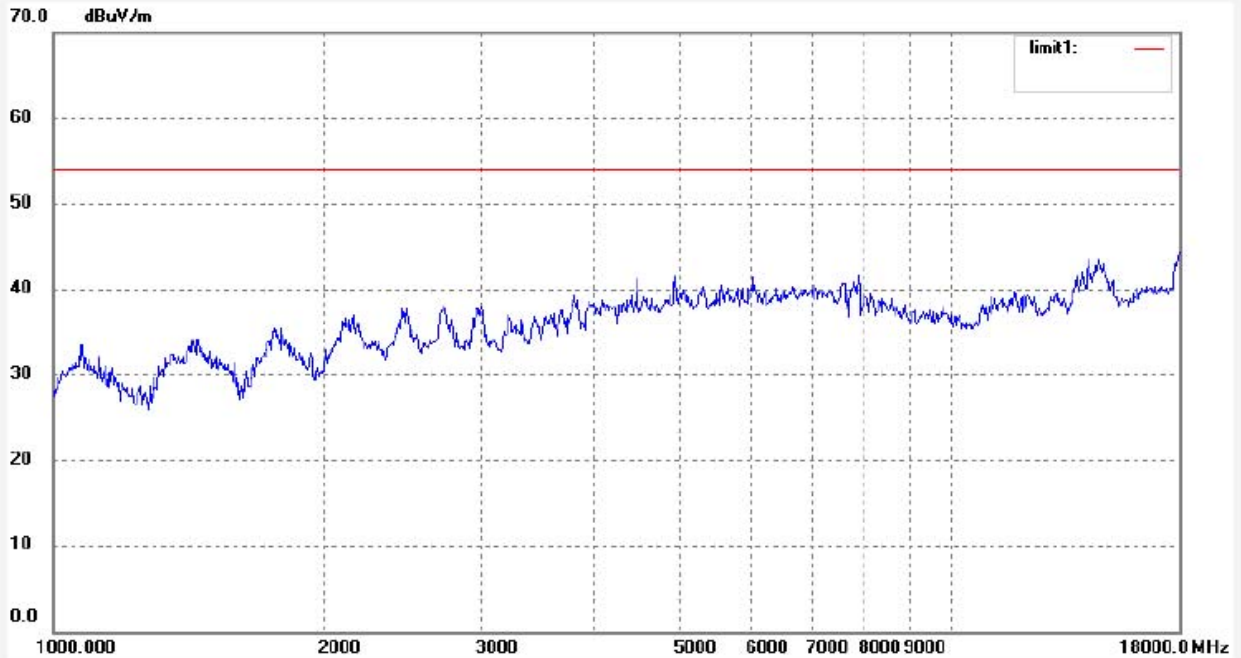
ACCURATE TECHNOLOGY CO., LTD.

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.: Bob #1624	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 24 C / 48 %	Time: 11:56:56
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: Tx2478	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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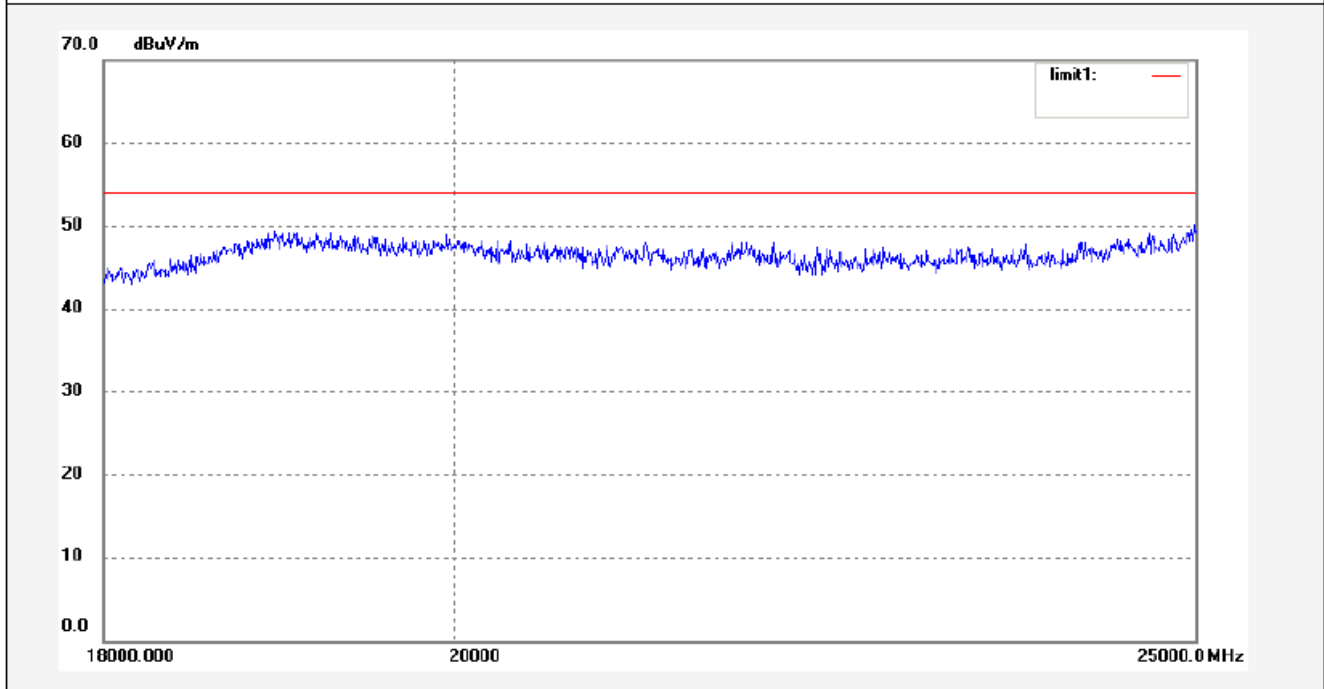
ACCURATE TECHNOLOGY CO., LTD.

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.: Bob #1605	Polarization: Horizontal
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 10:23:55
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: TX2478	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

Note: Report No.:ATE20120688



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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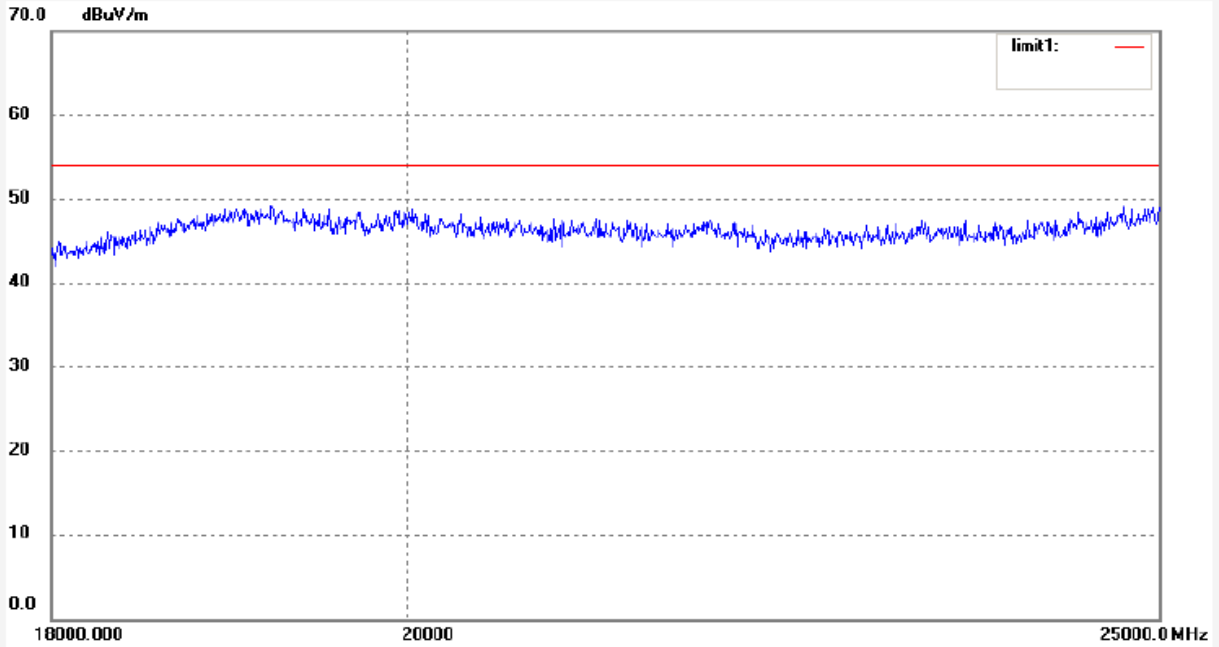
ACCURATE TECHNOLOGY CO., LTD.

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.: Bob #1606	Polarization: Vertical
Standard: FCC Class B 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 12/06/06
Temp.(C)/Hum.(%) 25 C / 50 %	Time: 10:27:11
EUT: 2.4GHz Digital Wireless Camera	Engineer Signature: Bob
Mode: TX2478	Distance: 3m
Model: 51442-30V	
Manufacturer: LB	

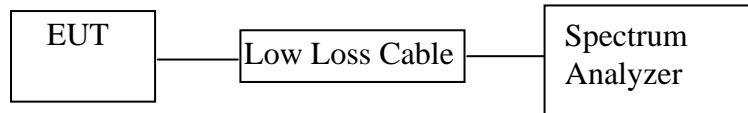
Note: Report No.:ATE20120688



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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12. CONDUCTED SPURIOUS EMISSION COMPLIANCE TEST

12.1. Block Diagram of Test Setup



(EUT: 2.4GHz Digital Wireless Camera)

12.2. 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).

12.3. 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.

12.3.1. 2.4GHz Digital Wireless Camera (EUT)

Model Number	:	51442-30V
Serial Number	:	N/A
Manufacturer	:	LB Technology Co., Ltd.

12.4. Operating Condition of EUT

12.4.1. Setup the EUT and simulator as shown as Section 12.1.

12.4.2. Turn on the power of all equipment.

12.4.3. Let the EUT work in TX (Hopping off) modes measure it. The transmit frequency are 2402-2478MHz. We select 2402MHz, 2440MHz, 2478MHz TX frequency to transmit.

12.5. Test Procedure

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

12.5.2. 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).

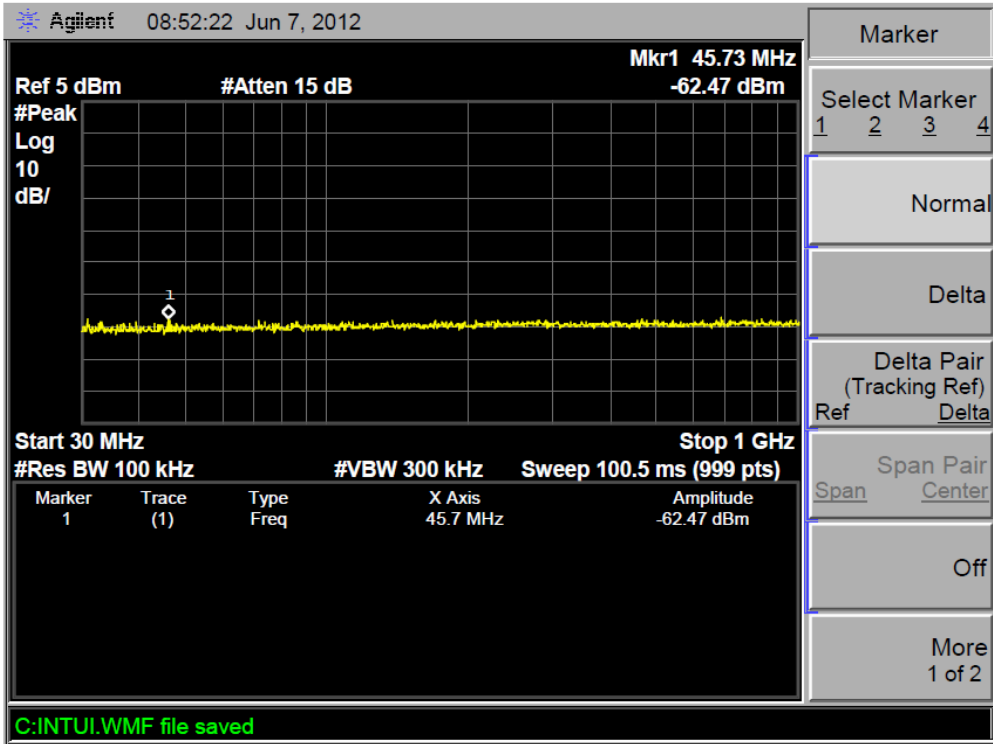
12.5.3. The Conducted Spurious Emission was measured and recorded.

12.6. Test Result

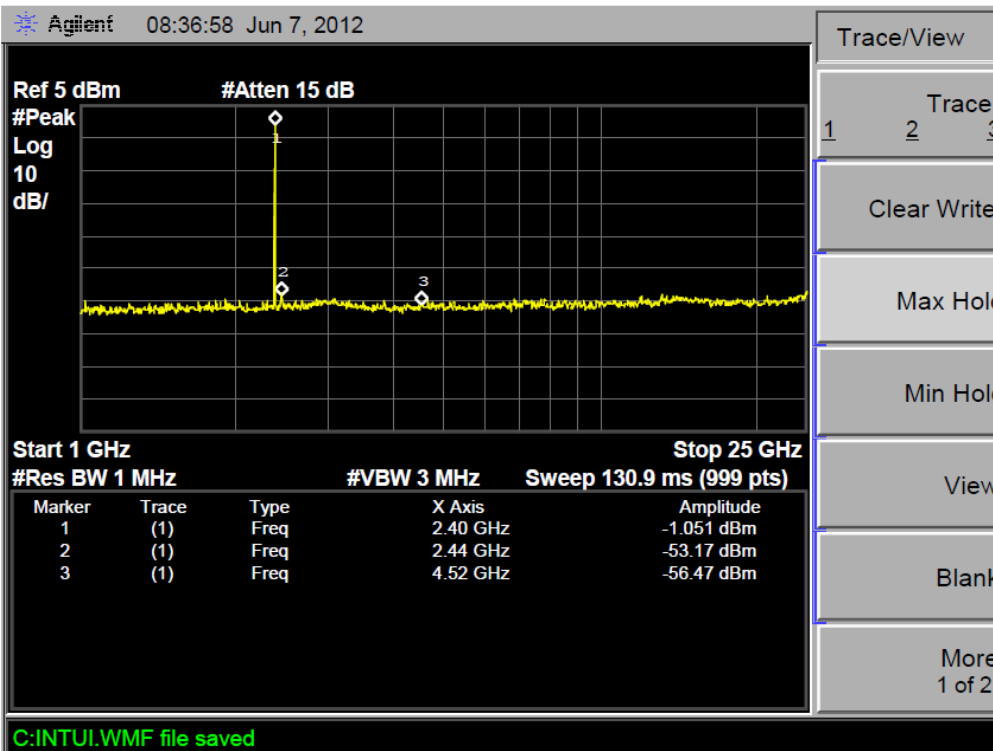
Pass.

The spectrum analyzer plots are attached as below.

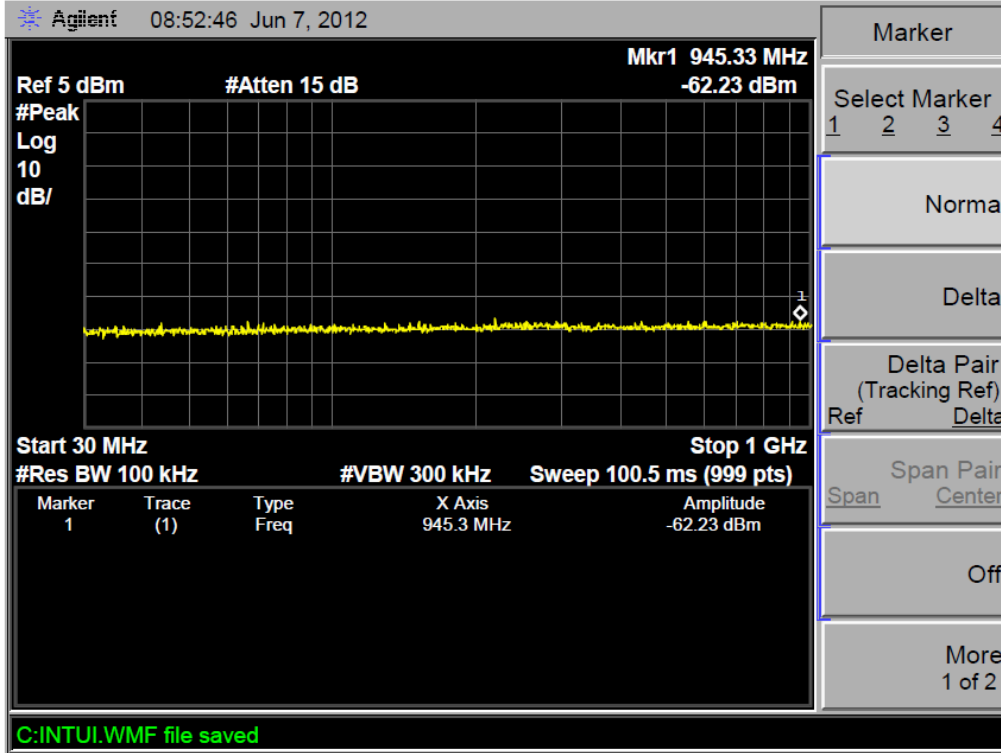
"Spectrum analyzer" is Agilent
TX 2402GHz (30MHz-1GHz)



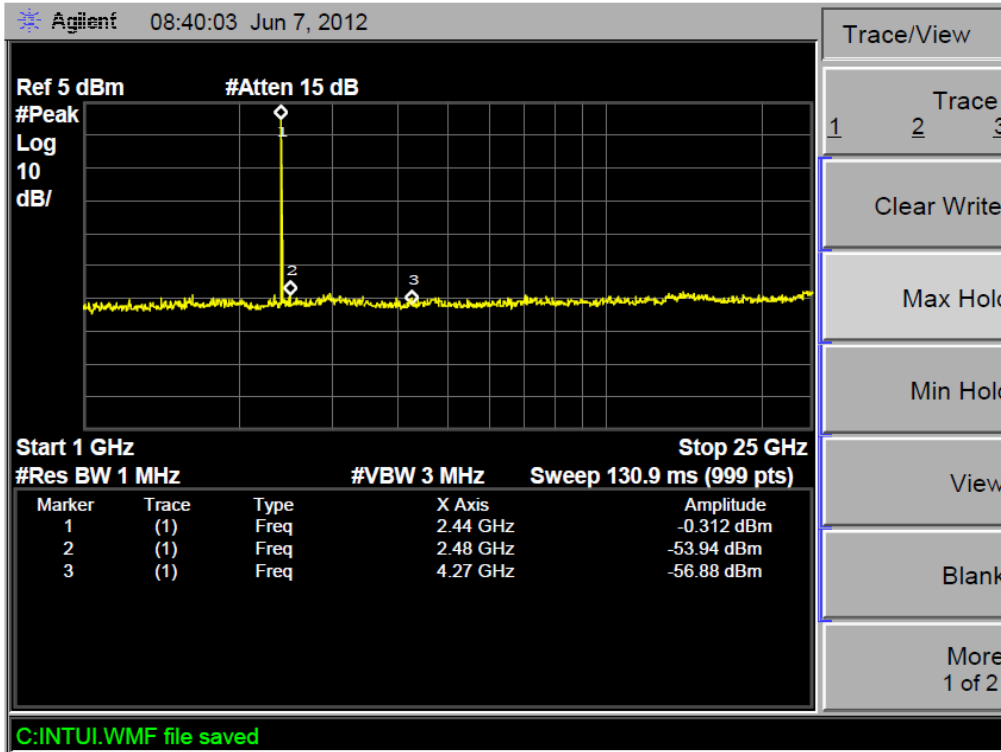
(1GHz-25GHz)



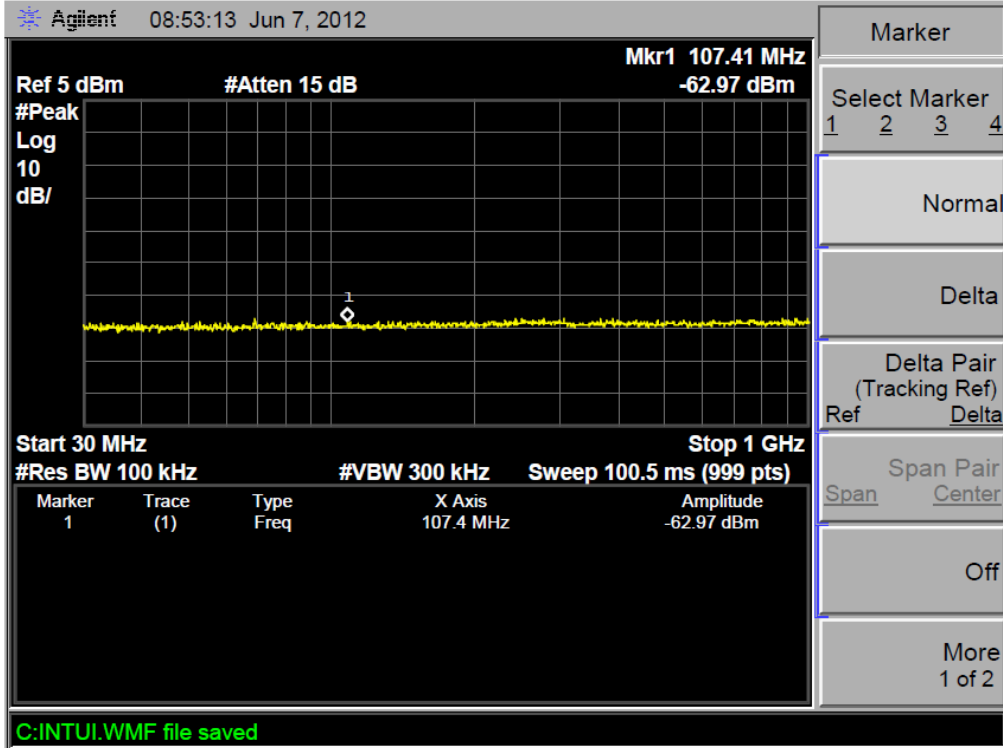
TX 2440GHz (30MHz-1GHz)



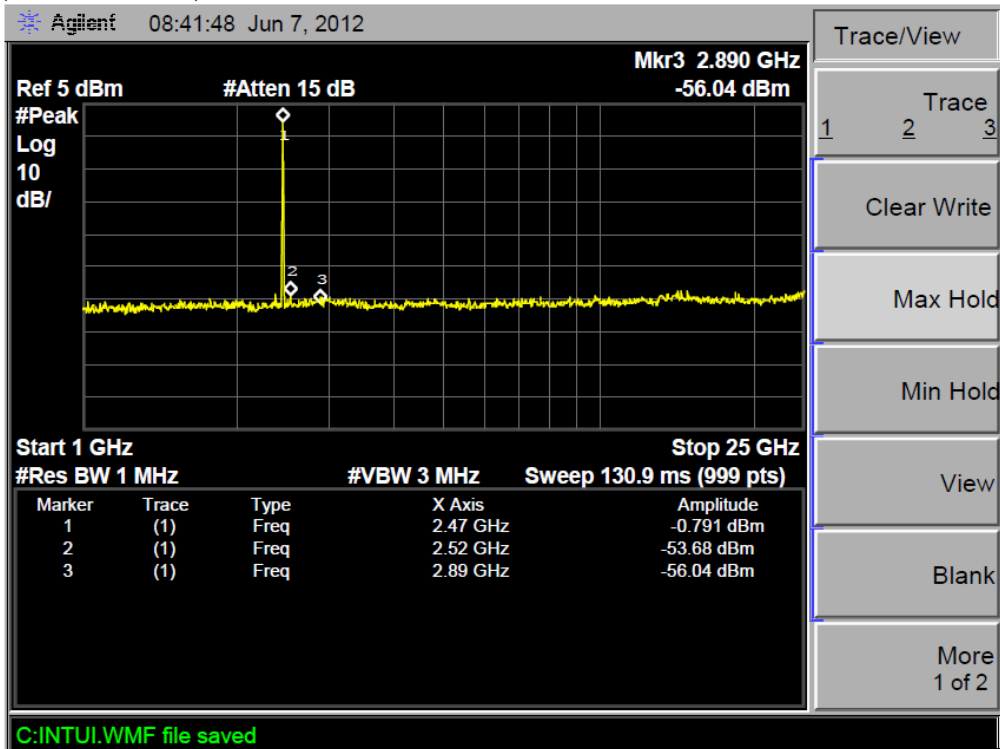
(1GHz-25GHz)



TX 2478GHz (30MHz-1GHz)



(1GHz-25GHz)

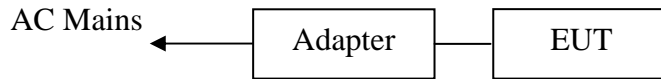


13.AC POWER LINE CONDUCTED EMISSION FOR FCC PART

15 SECTION 15.207(A)

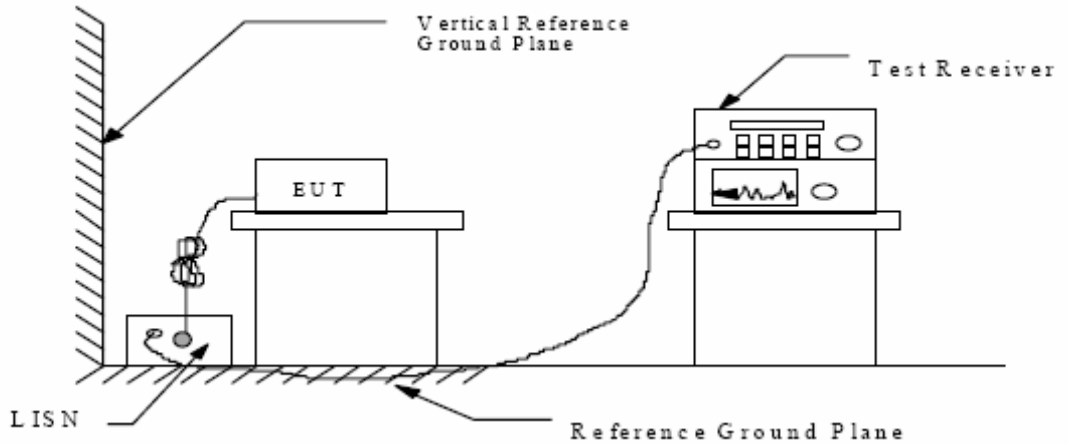
13.1.Block Diagram of Test Setup

13.1.1.Block diagram of connection between the EUT and simulators



(EUT: 2.4GHz Digital Wireless Camera)

13.1.2.Shielding Room Test Setup Diagram



(EUT: 2.4GHz Digital Wireless Camera)

13.2.The Emission Limit

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

Frequency (MHz)	Limit dB(μV)	
	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.

13.3.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.

13.3.1.2.4GHz Digital Wireless Camera (EUT)

Model Number : 51442-30V
Serial Number : N/A
Manufacturer : LB Technology Co., Ltd.

13.4.Operating Condition of EUT

13.4.1.Setup the EUT and simulator as shown as Section 13.1.

13.4.2.Turn on the power of all equipment.

13.4.3.Let the EUT work in (Tx) mode measure it.

13.5.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.

13.6. Power Line Conducted Emission Measurement Results

PASS.

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

Date of Test:	<u>June 8, 2012</u>	Temperature:	<u>25°C</u>
EUT:	<u>2.4GHz Digital Wireless Camera</u>	Humidity:	<u>50%</u>
Model No.:	<u>51442-30V</u>	Power Supply:	<u>AC 120V/ 60Hz</u>
Test Mode:	<u>Tx</u>	Test Engineer:	<u>Apple</u>

Frequency (MHz)	Result (dB μ V)	Limit (dB μ V)	Margin (dB)	Detector	Line
0.194439	52.20	63.8	-11.6	QP	Neutral
0.535976	44.20	56	-11.8	QP	
0.585177	44.30	56	-11.7	QP	
0.195997	36.70	53.8	-17.1	AV	
0.527486	29.70	46	-16.3	AV	
0.585177	28.00	46	-18.0	AV	
0.195997	52.70	63.8	-11.1	QP	Live
0.527486	47.90	56	-8.1	QP	
0.578211	47.80	56	-8.2	QP	
0.199152	38.90	53.6	-14.7	AV	
0.515002	32.70	46	-13.3	AV	
0.578211	32.20	46	-13.8	AV	

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

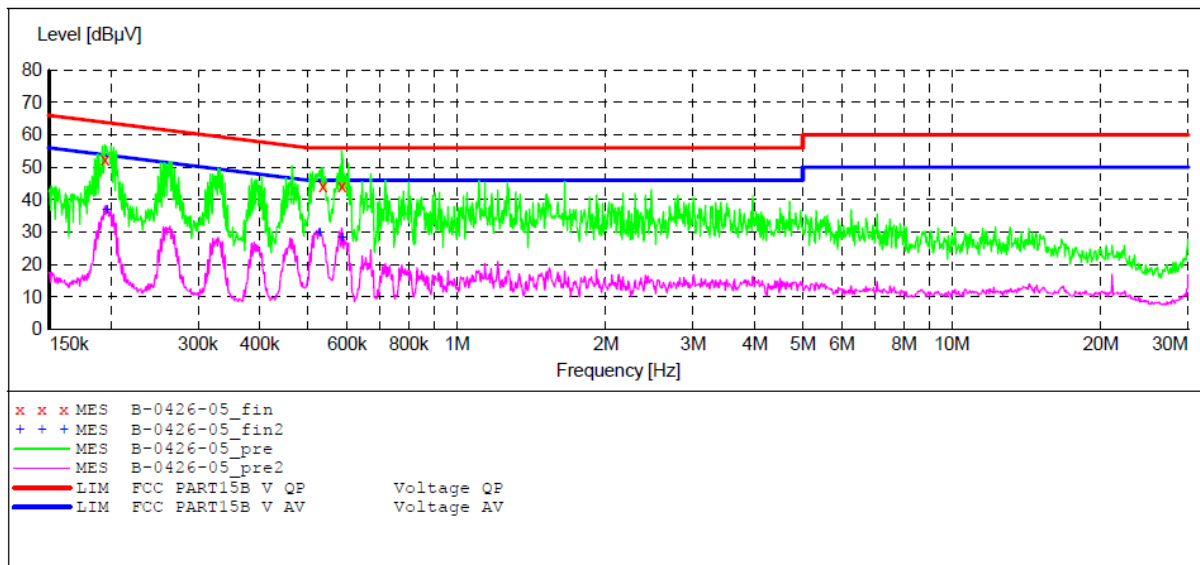
ACCURATE TECHNOLOGY CO.,LTD

CONDUCTED EMISSION STANDARD FCC PART15B

EUT: 2.4GHz Digital Wireless Camera M/N:56404
 Manufacturer: LB
 Operating Condition: TX
 Test Site: 1#Shielding Room
 Operator: Bob
 Test Specification: N 120V/60Hz
 Comment: Report No.:ATE20120688
 Start of Test: 6/8/2012 / 8:51:44PM

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: "B-0426-05_fin"

6/8/2012 8:54PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.194439	52.20	11.2	63.8	11.6	QP	N	GND
0.535976	44.20	12.0	56	11.8	QP	N	GND
0.585177	44.30	12.0	56	11.7	QP	N	GND

MEASUREMENT RESULT: "B-0426-05_fin2"

6/8/2012 8:54PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195997	36.70	11.2	53.8	17.1	AV	N	GND
0.527486	29.70	12.0	46	16.3	AV	N	GND
0.585177	28.00	12.0	46	18.0	AV	N	GND

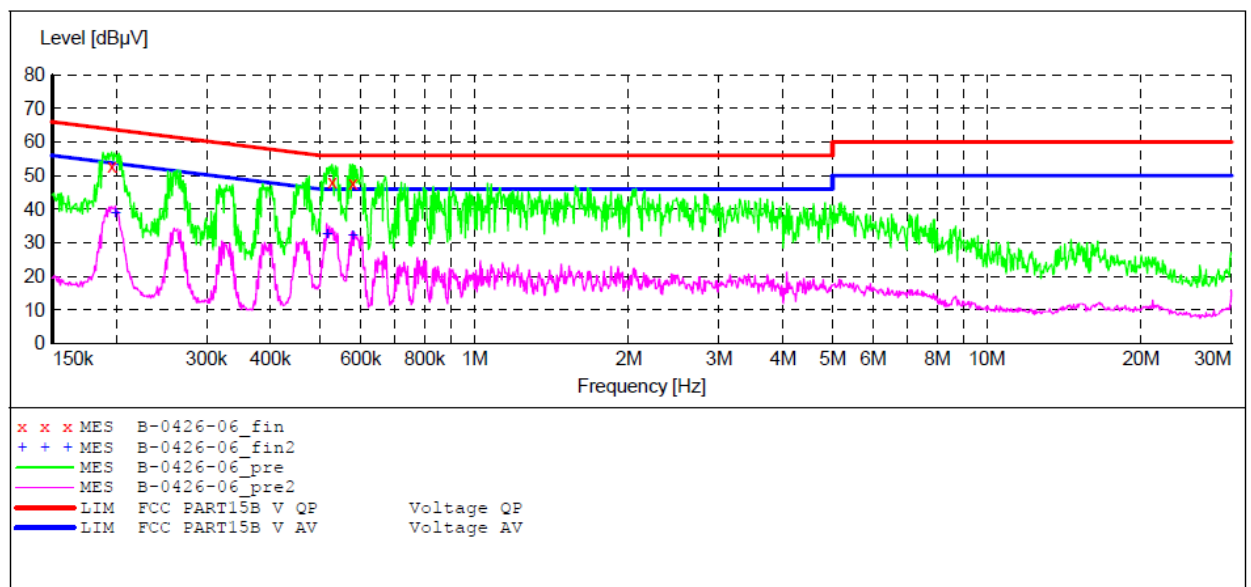
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART15B

EUT: 2.4GHz Digital Wireless Camera M/N:56404
 Manufacturer: LB
 Operating Condition: TX
 Test Site: 1#Shielding Room
 Operator: Bob
 Test Specification: L 120V/60Hz
 Comment: Report No.:ATE20120688
 Start of Test: 6/8/2012 / 8:54:42PM

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: "B-0426-06_fin"

6/8/2012 8:57PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.195997	52.70	11.2	63.8	11.1	QP	L1	GND
0.527486	47.90	12.0	56	8.1	QP	L1	GND
0.578211	47.80	12.0	56	8.2	QP	L1	GND

MEASUREMENT RESULT: "B-0426-06_fin2"

6/8/2012 8:57PM

Frequency MHz	Level dBµV	Transd dB	Limit dBµV	Margin dB	Detector	Line	PE
0.199152	38.90	11.2	53.6	14.7	AV	L1	GND
0.515002	32.70	12.0	46	13.3	AV	L1	GND
0.578211	32.20	12.0	46	13.8	AV	L1	GND

14.ANTENNA REQUIREMENT

14.1.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.

14.2.Antenna Construction

The antenna type used in this product is Reverse Polarity (RP-SMA) connectors. and it is considered to meet antenna requirement of FCC. Refer to the product photo.



Antenna