

APPLICATION CERTIFICATION FCC Part 15C

On Behalf of
Shenzhen Leshi Video Technology Co.,Ltd

Mobile Wifi Camera
Model No.: C400, L800, L810

FCC ID: 2AJPAC400

Prepared for : Shenzhen Leshi Video Technology Co.,Ltd
Address : 5th Floor, 2nd Block, Zhongyuntai Industrial Park, No.1
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Report No. : ATE20172586
Date of Test : Jan. 2-Jan. 10, 2018
Date of Report : Jan. 12, 2018

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Test Report Certification

Applicant : Shenzhen Leshi Video Technology Co.,Ltd
Address : 5th Floor, 2nd Block, Zhongyuntai Industrial Park, No.1 Road,
Tangtou, Shiyan Street, Bao'an District, Shenzhen, China

Manufacturer : Shenzhen Leshi Video Technology Co.,Ltd
Address : 5th Floor, 2nd Block, Zhongyuntai Industrial Park, No.1 Road,
Tangtou, Shiyan Street, Bao'an District, Shenzhen, China

Product : Mobile Wifi Camera
Model No. : C400, L800, L810
Trade name : Freecam

Measurement Procedure Used:

**FCC Rules and Regulations Part 15 Subpart C Section 15.247: 2018
ANSI C63.10: 2013**

The EUT was tested according to DTS test procedure of Apr 05, 2017 KDB558074 D01 DTS Meas Guidance v04 for compliance to FCC 47CFR 15.247 requirements
The device described above is tested by Shenzhen 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 Shenzhen 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 Shenzhen Accurate Technology Co., Ltd.

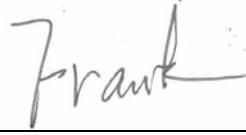
Date of Test :

Jan. 2-Jan. 10, 2018

Date of Report :

Jan. 12, 2018

Test Engineer :


(Frank Lü, Engineer)

Prepared by :


(Steve Yang, Engineer)

Approved & Authorized Signer :


(Sean Liu, Manager)

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT	:	Mobile Wifi Camera
Model Number	:	C400, L800, L810 (Note: We hereby state that these models are identical in interior structure, electrical circuits and components, Just appearance shape is different. Therefore, only model C400 is for tests.)
Frequency Range	:	802.11b/g/n(20MHz): 2412-2462MHz
Number of Channels	:	802.11b/g/n (20MHz):11
Antenna Gain	:	3dBi
Type of Antenna	:	Integral antenna
Power Supply	:	DC 5V(Powered by USB port)
Data Rate	:	802.11b: 11, 5.5, 2, 1 Mbps 802.11g: 54, 48, 36, 24, 18, 12, 9, 6 Mbps 802.11n: 72.2~6.5Mbps
Modulation Type	:	DSSS, OFDM (Because of firmware limitation, this device only supports 80.211b, 802.11g, 802.11n 20MHz Bandwidth, without the 802.11n 40MHz Bandwidth mode)
Hardware version	:	V1.1
Software version	:	V1.9.42

1.2.Carrier Frequency of Channels

802.11b, 802.11g, 802.11n (20MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	07	2442
02	2417	08	2447
03	2422	09	2452
04	2427	10	2457
05	2432	11	2462
06	2437	---	---

1.3.Accessory and Auxiliary Equipment

Adapter : Manufacturer: SAMSUNG
(provided by manufacturer) Model: ETA0U83EWE
Input: 100-240V~50-60Hz 0.15A
Output: DC 5V= 1.0A

PC : Manufacturer: LENOVO
(provided by laboratory) M/N: 4290-RT8
S/N: R9-FW93G 11/08

1.4. Description of Test Facility

- EMC Lab : Recognition of accreditation by Federal Communications Commission (FCC)
The Designation Number is CN1189
The Registration Number is 708358
- Listed by Innovation, Science and Economic Development Canada (ISED)
The Registration Number is 5077A-2
- Accredited by China National Accreditation Service for Conformity Assessment (CNAS)
The Registration Number is CNAS L3193
- Accredited by American Association for Laboratory Accreditation (A2LA)
The Certificate Number is 4297.01
- Name of Firm : Shenzhen Accurate Technology Co., Ltd.
Site Location : 1/F., Building A, Changyuan New Material Port, Science & Industry Park, Nanshan District, Shenzhen, Guangdong, P.R. China

1.5. Measurement Uncertainty

- Conducted Emission Expanded Uncertainty = 2.23dB, k=2
- Radiated emission expanded uncertainty (9kHz-30MHz) = 3.08dB, k=2
- Radiated emission expanded uncertainty (30MHz-1000MHz) = 4.42dB, k=2
- Radiated emission expanded uncertainty (Above 1GHz) = 4.06dB, k=2

2. MEASURING DEVICE AND TEST EQUIPMENT

Table 1: List of Test and Measurement Equipment

Kind of equipment	Manufacturer	Type	S/N	Calibrated dates	Calibrated until
EMI Test Receiver	Rohde&Schwarz	ESCS30	100307	Jan. 06, 2018	1 Year
EMI Test Receiver	Rohde&Schwarz	ESPI3	101526/003	Jan. 06, 2018	1 Year
Spectrum Analyzer	Rohde&Schwarz	FSV-40	101495	Jan. 06, 2018	1 Year
Spectrum Analyzer	Agilent	E7405A	MY45115511	Jan. 06, 2018	1 Year
Pre-Amplifier	Rohde&Schwarz	CBLU1183540-01	3791	Jan. 06, 2018	1 Year
Loop Antenna	Schwarzbeck	FMZB1516	1516131	Jan. 06, 2018	1 Year
Bilog Antenna	Schwarzbeck	VULB9163	9163-323	Jan. 06, 2018	1 Year
Horn Antenna	Schwarzbeck	BBHA9120D	9120D-655	Jan. 06, 2018	1 Year
Horn Antenna	Schwarzbeck	BBHA9170	9170-359	Jan. 06, 2018	1 Year
Open Switch and Control Unit	Rohde&Schwarz	OSP120 + OSP-B157	101244 + 100866	Jan. 06, 2018	1 Year
LISN	Rohde&Schwarz	ESH3-Z5	100305	Jan. 06, 2018	1 Year
LISN	Schwarzbeck	NSLK8126	8126431	Jan. 06, 2018	1 Year
Highpass Filter	Wainwright Instruments	WHKX3.6/18G-10SS	N/A	Jan. 06, 2018	1 Year
Band Reject Filter	Wainwright Instruments	WRCG2400/2485-2375 /2510-60/11SS	N/A	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-5m(Frequency range:9KHz-26.5GHz)	NO.3	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-5m(Frequency range:9KHz-26.5GHz)	NO.4	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-1m(Frequency range:9KHz-26.5GHz)	NO.5	Jan. 06, 2018	1 Year
RF COAXIAL CABLE	SUHNER	N-1m(Frequency range:9KHz-26.5GHz)	NO.6	Jan. 06, 2018	1 Year
Temporary antenna connector	NTGS	14AE	N/A	Jan. 10, 2018	N/A

Note: The temporary antenna connector is soldered on the PCB board in order to perform conducted tests and this temporary antenna connector is listed in the equipment list.

3. OPERATION OF EUT DURING TESTING

3.1. Operating Mode

The mode is used: **1.802.11b Transmitting mode**

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

2.802.11g Transmitting mode

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

3.802.11n (20MHz) Transmitting mode

Low Channel: 2412MHz
Middle Channel: 2437MHz
High Channel: 2462MHz

Note: The WiFi has been tested under continuous transmission mode.

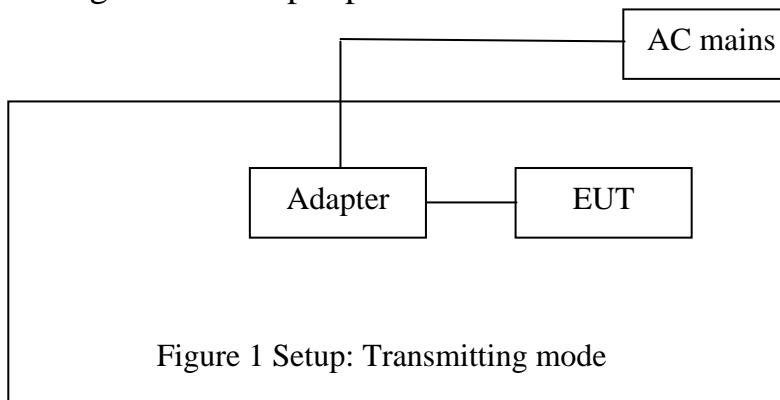
EUT is connected to a computer through the usb-serial controller tool and Use test software to set the test mode.

Test software is DutApiWiFi8801BrdigeUart

output power setting table

Test Mode	Set Tx Output Power	Data rate
802.11b	18dBm	11Mbps
802.11g	10dBm	54Mbps
802.11n(HT20)	11dBm	MCS7

3.2. Configuration and peripherals

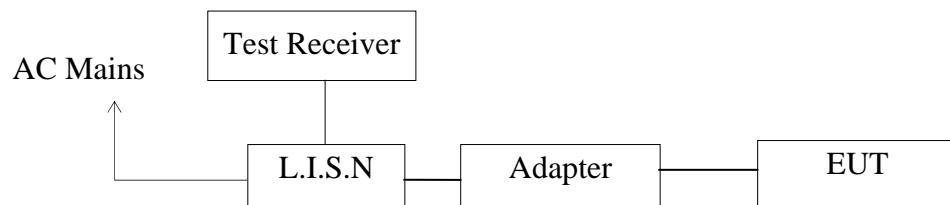


4. TEST PROCEDURES AND RESULTS

FCC Rules	Description of Test	Result
Section 15.207	Power Line Conducted Emission	Compliant
Section 15.247(a)(2)	6dB Bandwidth Test	Compliant
KDB558074 D01 DTS Meas Guidance v04	Duty cycle	Compliant
KDB558074 D01 DTS Meas Guidance v04	OBW	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 15.203	Antenna Requirement	Compliant

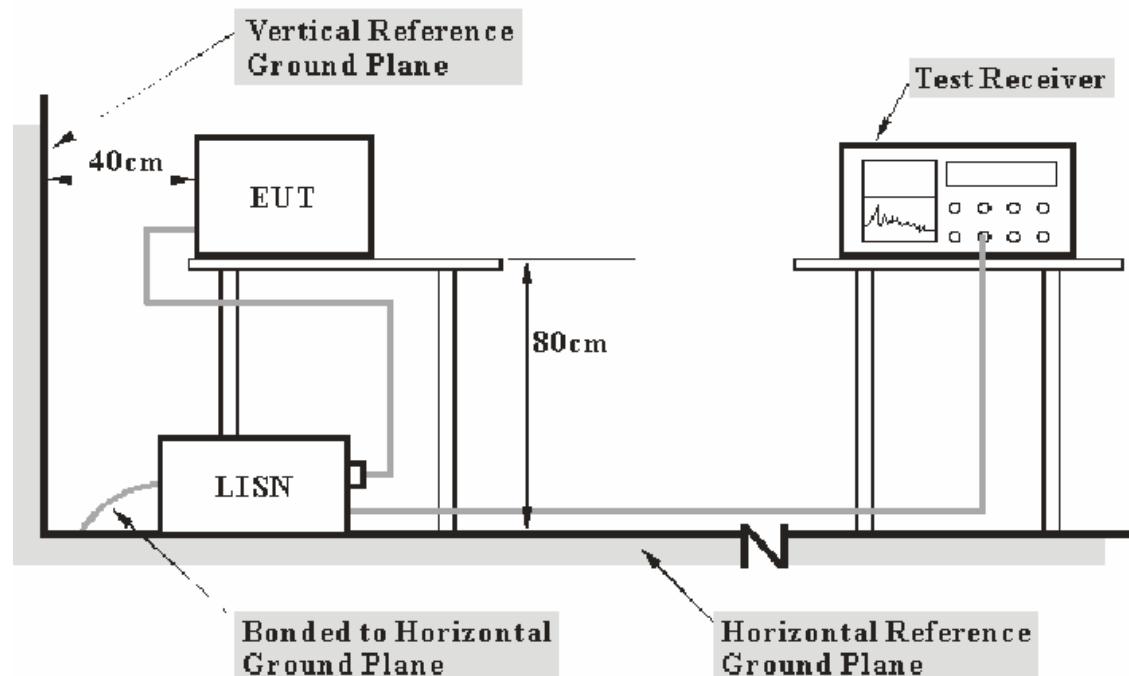
5. POWER LINE CONDUCTED MEASUREMENT

5.1. Block Diagram of Test Setup



(EUT: Mobile Wifi Camera)

5.1.1. Test System Setup



- Note:
1. Support units were connected to second LISN.
 2. Both of LISNs (AMN) 80 cm from EUT and at the least 80 cm from other units and other metal planes support units.

5.2.Power Line Conducted Emission Measurement Limits

Frequency (MHz)	Limit dB(μ 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

NOTE1: The lower limit shall apply at the transition frequencies.
NOTE2: The limit decreases linearly with the logarithm of the frequency in the range 0.15MHz to 0.50MHz.

5.3.Configuration of EUT on Measurement

The equipments are installed on Power Line Conducted Emission Measurement to meet the commission requirement and operating regulations in a manner, which tends to maximize its emission characteristics in a normal application.

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 test mode and measure it.

5.5.Test Procedure

The EUT is put on the plane 0.8 m 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 C63.10: 2013 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.

5.6.Data Sample

Frequency (MHz)	Transducer value (dB)	QuasiPeak Level (dB μ V)	Average Level (dB μ V)	QuasiPeak Limit (dB μ V)	Average Limit (dB μ V)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XX	10.5	51.1	34.2	56.0	46.0	4.9	11.8	Pass

Frequency(MHz) = Emission frequency in MHz

Transducer value(dB) = Insertion loss of LISN + Cable Loss

Level(dB μ V) = Quasi-peak Reading/Average Reading + Transducer value

Limit (dB μ V) = Limit stated in standard

Margin = Limit (dB μ V) - Level (dB μ V)

Calculation Formula:

Margin = Limit (dB μ V) - Level (dB μ V)

5.7.Power Line Conducted Emission Measurement Results

PASS.

Test Lab: Shielding room

Test Engineer: Frank

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

Maximizing procedure was performed on the six (6) highest emissions of the EUT. Emissions attenuated more than 20 dB below the permissible value are not reported.

All data was recorded in the Quasi-peak and average detection mode.

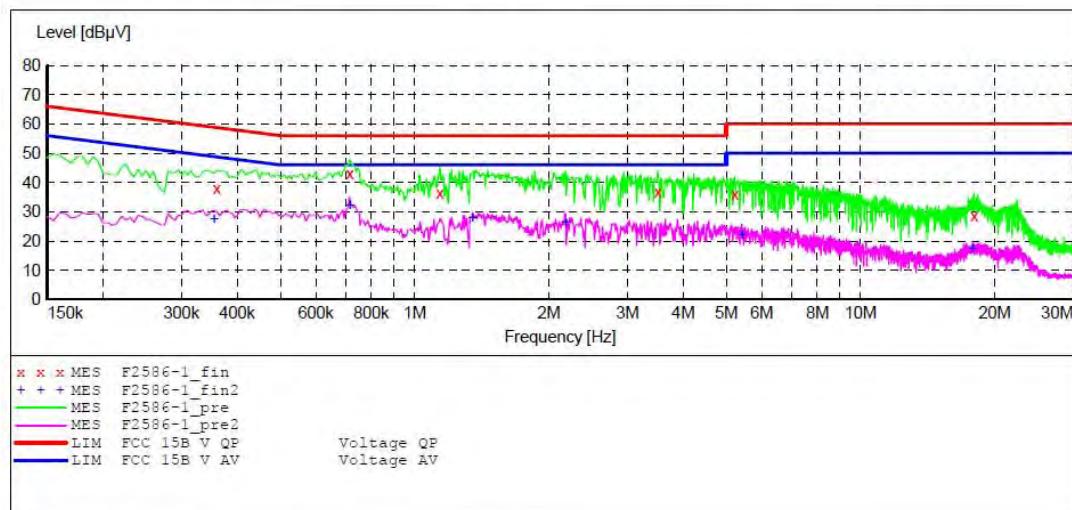
The spectral diagrams are attached as below.

ACCURATE TECHNOLOGY CO., LTD**CONDUCTED EMISSION STANDARD FCC PART 15C**

EUT: Mobile Wifi Camera M/N:C400
 Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd
 Operating Condition: Wifi communication
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 240V/60Hz
 Comment: Report NO.:ATE20172586
 Start of Test: 1/2/2018 / 9:09:19AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: -SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "F2586-1_fin"**

1/2/2018 9:10AM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.360000	37.90	10.6	59	20.8	QP	L1	GND
0.715000	42.80	10.8	56	13.2	QP	L1	GND
1.140000	36.40	10.9	56	19.6	QP	L1	GND
3.510000	36.70	11.1	56	19.3	QP	L1	GND
5.220000	35.90	11.2	60	24.1	QP	L1	GND
17.965000	28.50	11.4	60	31.5	QP	L1	GND

MEASUREMENT RESULT: "F2586-1_fin2"

1/2/2018 9:10AM

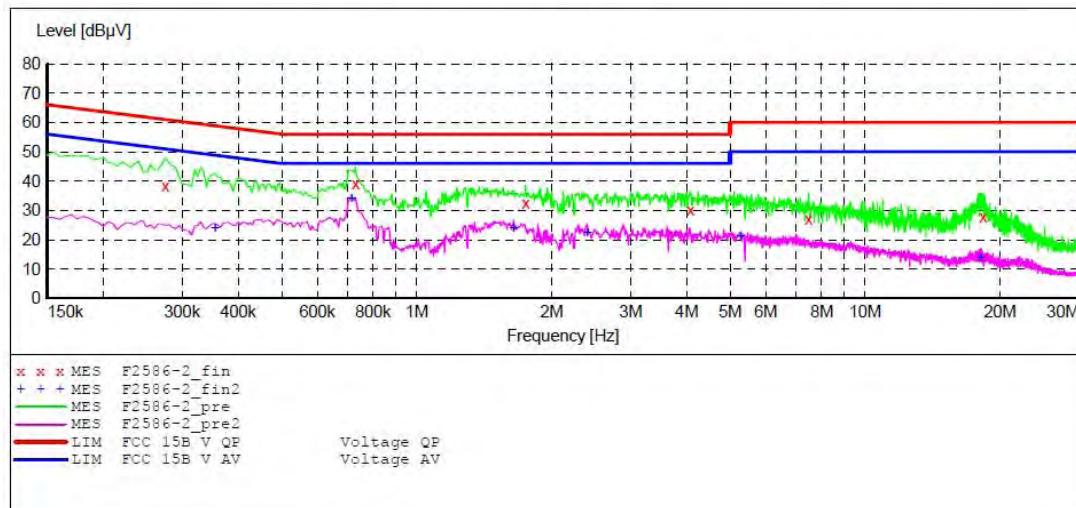
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.355000	27.50	10.6	49	21.3	AV	L1	GND
0.715000	32.10	10.8	46	13.9	AV	L1	GND
1.350000	27.90	10.9	46	18.1	AV	L1	GND
2.180000	26.20	11.0	46	19.8	AV	L1	GND
5.420000	21.80	11.2	50	28.2	AV	L1	GND
17.815000	17.10	11.4	50	32.9	AV	L1	GND

ACCURATE TECHNOLOGY CO., LTD**CONDUCTED EMISSION STANDARD FCC PART 15C**

EUT: Mobile Wifi Camera M/N:C400
 Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd
 Operating Condition: Wifi communication
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 240V/60Hz
 Comment: Report NO.:ATE20172586
 Start of Test: 1/2/2018 / 9:10:55AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "F2586-2_fin"**

1/2/2018 9:14AM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.275000	38.30	10.6	61	22.7	QP	N	GND
0.730000	39.20	10.8	56	16.8	QP	N	GND
1.750000	32.50	11.0	56	23.5	QP	N	GND
4.080000	30.00	11.1	56	26.0	QP	N	GND
7.480000	26.90	11.2	60	33.1	QP	N	GND
18.325000	27.90	11.4	60	32.1	QP	N	GND

MEASUREMENT RESULT: "F2586-2_fin2"

1/2/2018 9:14AM

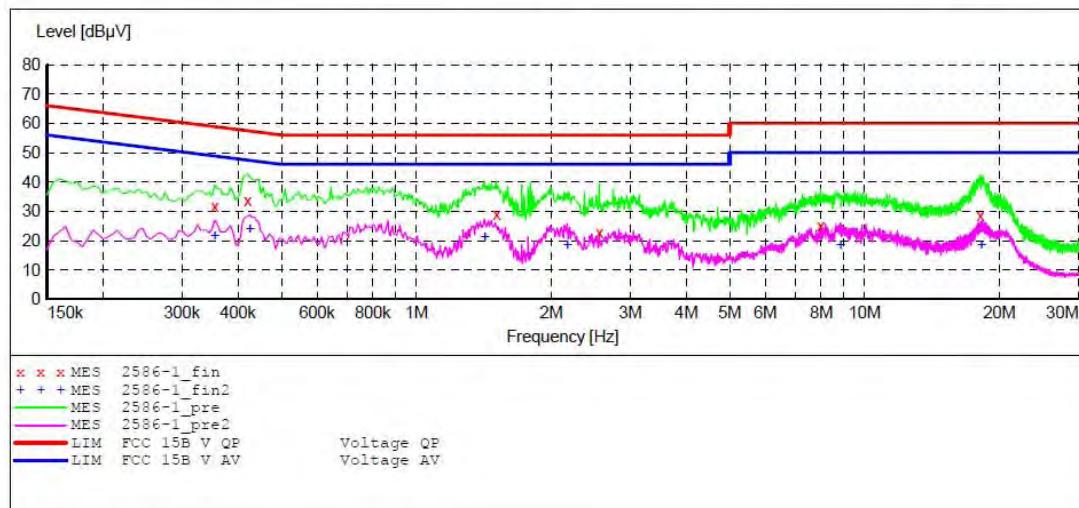
Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.355000	23.70	10.6	49	25.1	AV	N	GND
0.715000	34.10	10.8	46	11.9	AV	N	GND
1.645000	23.80	10.9	46	22.2	AV	N	GND
2.400000	22.30	11.0	46	23.7	AV	N	GND
5.280000	21.10	11.2	50	28.9	AV	N	GND
18.130000	13.70	11.4	50	36.3	AV	N	GND

ACCURATE TECHNOLOGY CO., LTD**CONDUCTED EMISSION STANDARD FCC PART 15C**

EUT: Mobile Wifi Camera M/N:C400
 Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd
 Operating Condition: Wifi communication
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: L 120V/60Hz
 Comment: Report NO.:ATE20172586
 Start of Test: 1/2/2018 / 10:48:33AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average

**MEASUREMENT RESULT: "2586-1_fin"**

1/2/2018 10:49AM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.355000	31.70	10.6	59	27.1	QP	L1	GND
0.420000	33.50	10.7	57	23.9	QP	L1	GND
1.510000	29.10	10.9	56	26.9	QP	L1	GND
2.560000	22.70	11.0	56	33.3	QP	L1	GND
7.970000	25.20	11.2	60	34.8	QP	L1	GND
18.115000	28.50	11.4	60	31.5	QP	L1	GND

MEASUREMENT RESULT: "2586-1_fin2"

1/2/2018 10:49AM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.355000	21.40	10.6	49	27.4	AV	L1	GND
0.425000	23.90	10.7	47	23.4	AV	L1	GND
1.420000	21.10	10.9	46	24.9	AV	L1	GND
2.170000	18.30	11.0	46	27.7	AV	L1	GND
8.840000	18.50	11.3	50	31.5	AV	L1	GND
18.235000	18.40	11.4	50	31.6	AV	L1	GND

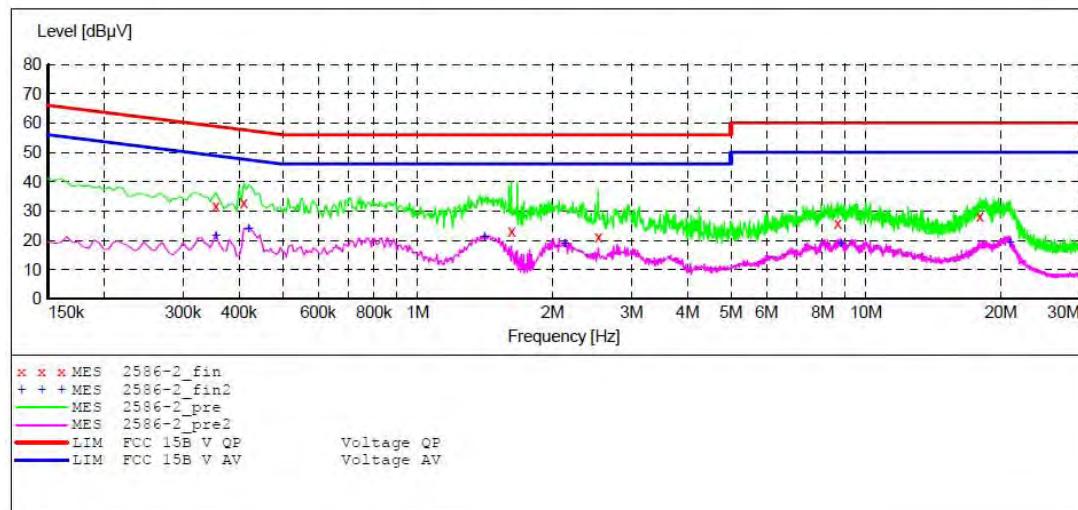
ACCURATE TECHNOLOGY CO., LTD

CONDUCTED EMISSION STANDARD FCC PART 15C

EUT: Mobile Wifi Camera M/N:C400
 Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd
 Operating Condition: Wifi communication
 Test Site: 1#Shielding Room
 Operator: Frank
 Test Specification: N 120V/60Hz
 Comment: Report NO.:ATE20172586
 Start of Test: 1/2/2018 / 10:53:58AM

SCAN TABLE: "V 9K-30MHz fin"

Short Description: _SUB_STD_VTERM2 1.70
 Start Stop Step Detector Meas. IF Transducer
 Frequency Frequency Width Time Bandw.
 9.0 kHz 150.0 kHz 100.0 Hz QuasiPeak 1.0 s 200 Hz NSLK8126 2008
 Average
 150.0 kHz 30.0 MHz 5.0 kHz QuasiPeak 1.0 s 9 kHz NSLK8126 2008
 Average



MEASUREMENT RESULT: "2586-2_fin"

1/2/2018 10:57AM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.355000	31.80	10.6	59	27.0	QP	N	GND
0.410000	32.70	10.7	58	24.9	QP	N	GND
1.620000	22.90	10.9	56	33.1	QP	N	GND
2.530000	21.20	11.0	56	34.8	QP	N	GND
8.650000	25.80	11.3	60	34.2	QP	N	GND
17.935000	28.10	11.4	60	31.9	QP	N	GND

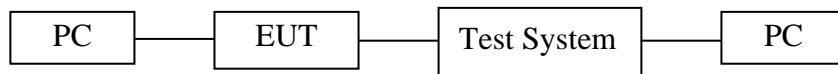
MEASUREMENT RESULT: "2586-2_fin2"

1/2/2018 10:57AM

Frequency MHz	Level dB μ V	Transd dB	Limit dB μ V	Margin dB	Detector	Line	PE
0.355000	21.50	10.6	49	27.3	AV	N	GND
0.420000	23.90	10.7	47	23.5	AV	N	GND
1.410000	21.20	10.9	46	24.8	AV	N	GND
2.130000	18.70	11.0	46	27.3	AV	N	GND
8.790000	19.00	11.3	50	31.0	AV	N	GND
20.950000	19.20	11.4	50	30.8	AV	N	GND

6. 6DB BANDWIDTH MEASUREMENT

6.1. Block Diagram of Test Setup



6.2. 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.

6.3. EUT Configuration on Measurement

The 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.

6.4. 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 2412-2462. We select 2412MHz, 2437MHz, 2462MHz TX frequency to transmit.

6.5. Test Procedure

1. Set resolution bandwidth (RBW) = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

6.6. Test Result

Test Lab: Shielding room
Test Engineer: Frank

The test was performed with 802.11b			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	9.520	> 0.5MHz
Middle	2437	9.515	> 0.5MHz
High	2462	9.510	> 0.5MHz

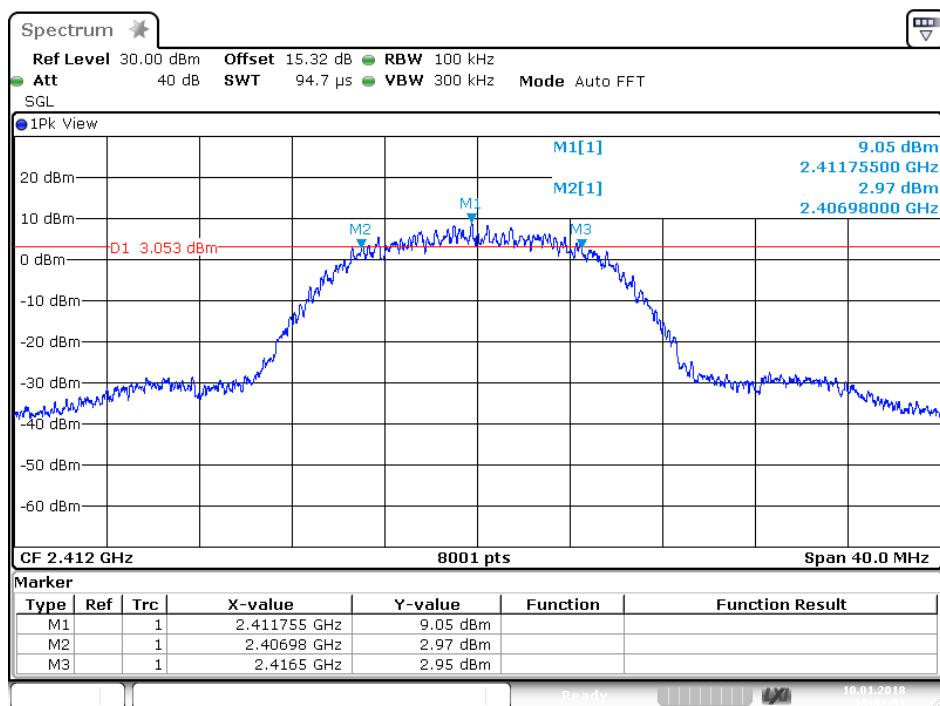
The test was performed with 802.11g			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	16.490	> 0.5MHz
Middle	2437	16.475	> 0.5MHz
High	2462	16.495	> 0.5MHz

The test was performed with 802.11n (Bandwidth: 20 MHz)			
Channel	Frequency (MHz)	6dB Bandwidth (MHz)	Limit (MHz)
Low	2412	17.785	> 0.5MHz
Middle	2437	17.795	> 0.5MHz
High	2462	17.765	> 0.5MHz

Note: We tested 802.11b/g/n mode the all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.

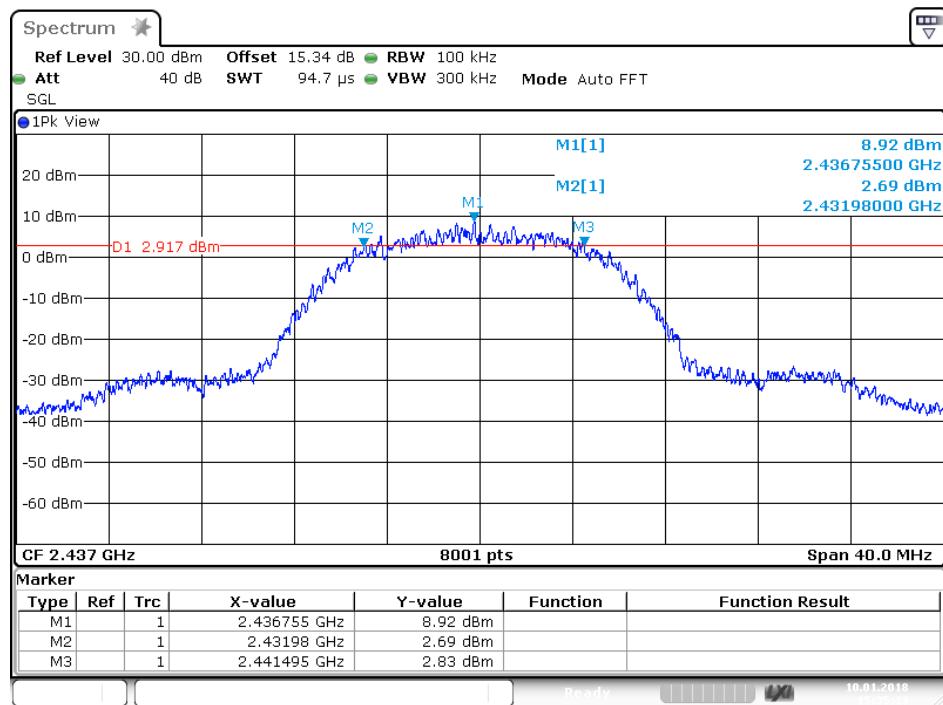
The spectrum analyzer plots are attached as below.

802.11b Channel Low 2412MHz



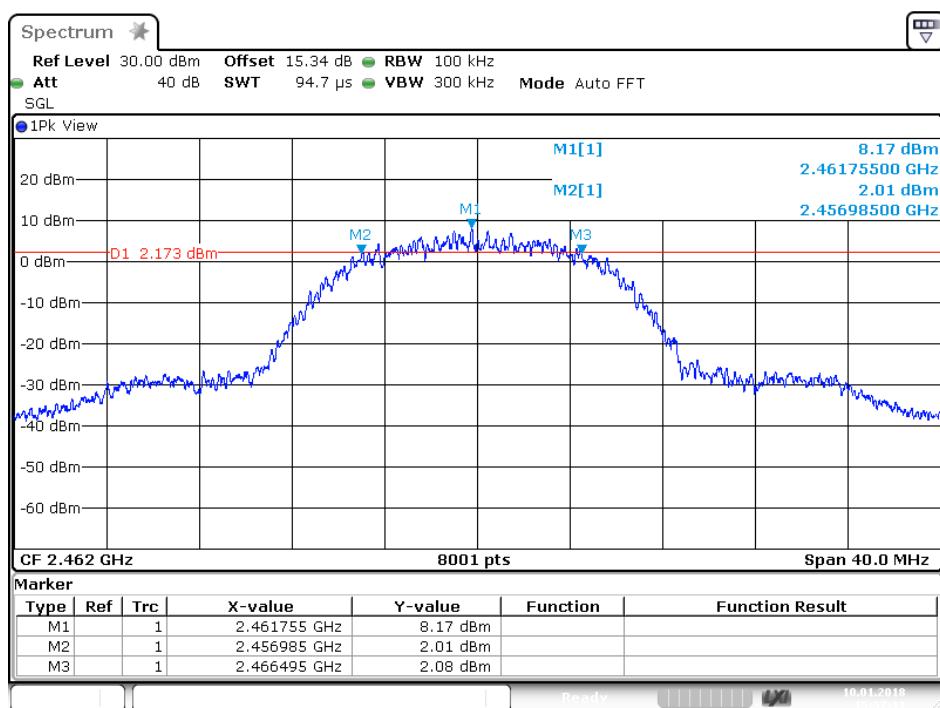
Date: 10.JAN.2018 15:32:51

802.11b Channel Middle 2437MHz



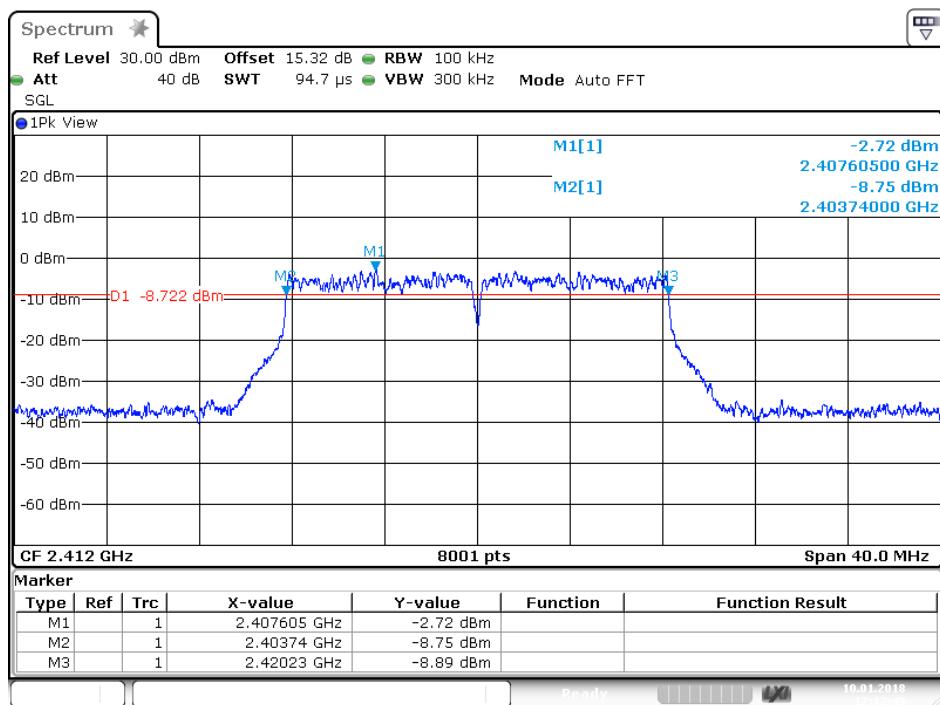
Date: 10.JAN.2018 15:35:13

802.11b Channel High 2462MHz



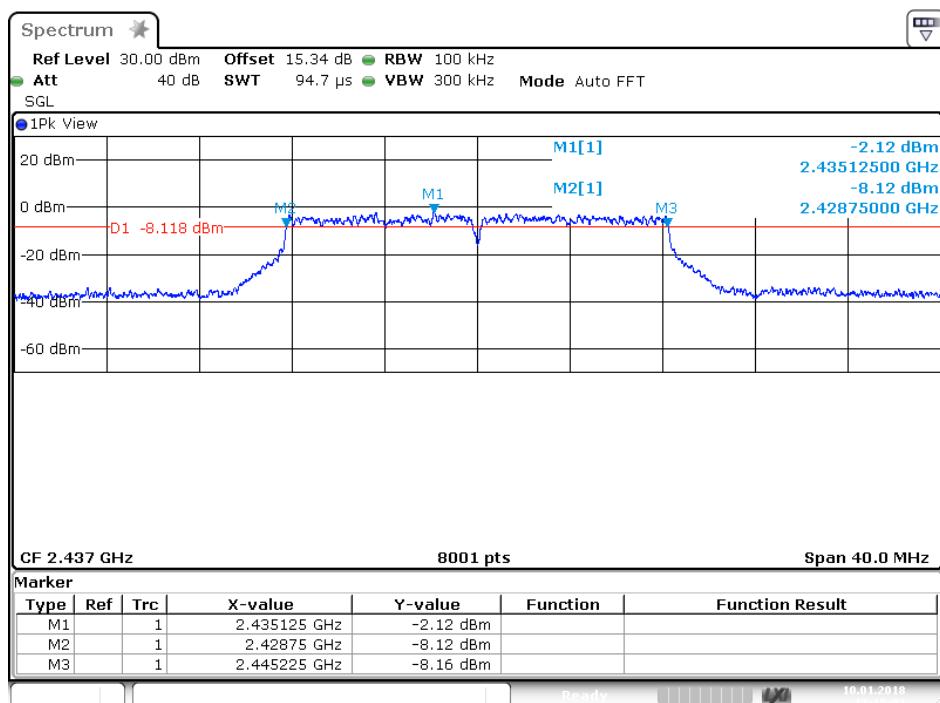
Date: 10.JAN.2018 15:37:11

802.11g Channel Low 2412MHz

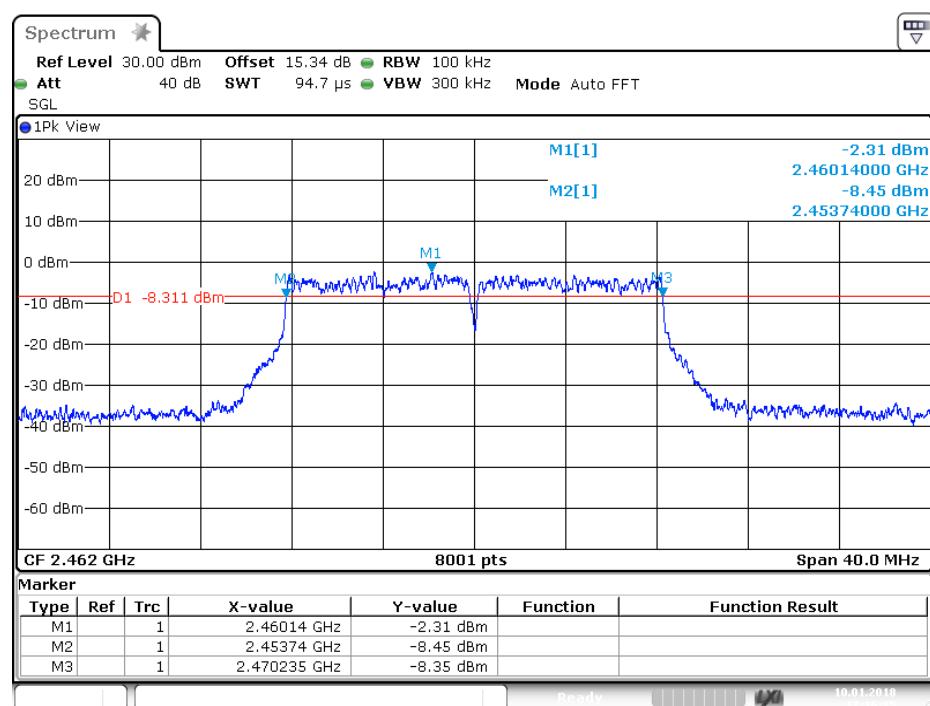


Date: 10.JAN.2018 17:12:45

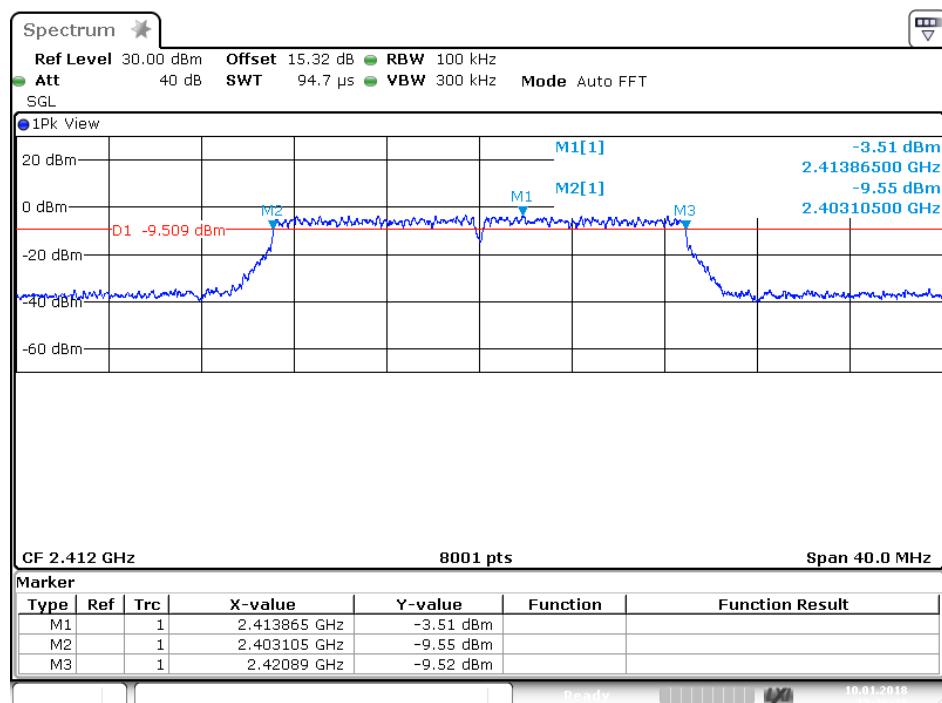
802.11g Channel Middle 2437MHz



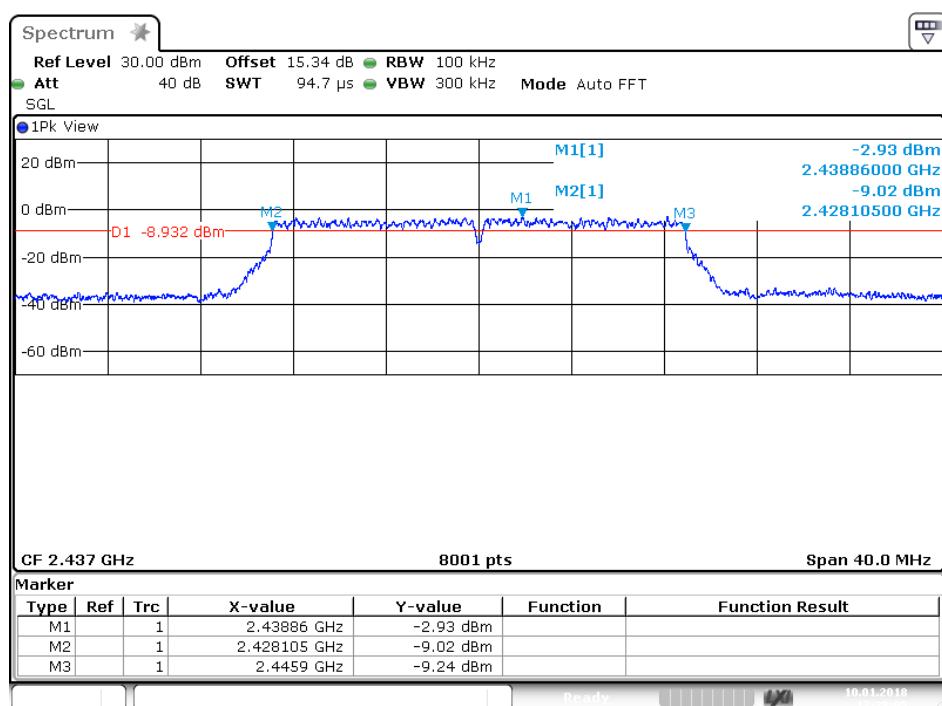
802.11g Channel High 2462MHz



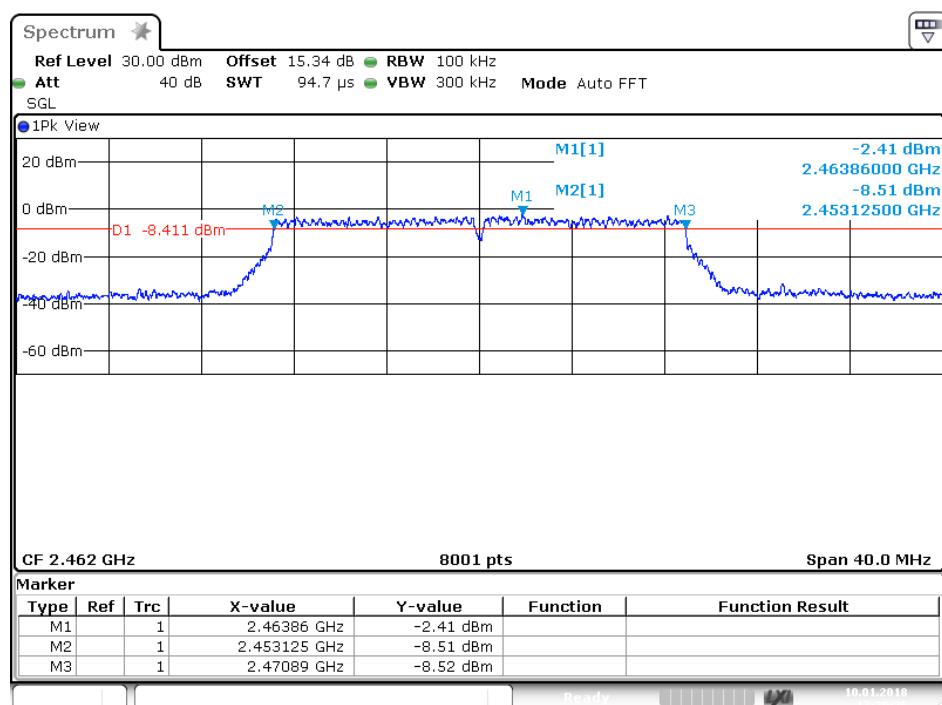
802.11n Channel Low 2412MHz (20MHz)



802.11n Channel Middle 2437MHz(20MHz)



802.11n Channel High 2462MHz(20MHz)



Date: 10.JAN.2018 17:30:26

7. DUTY CYCLE MEASUREMENT

7.1. Block Diagram of Test Setup



7.2. EUT Configuration on Measurement

The 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. Operating Condition of EUT

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

7.3.2. Turn on the power of all equipment.

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

7.4. Test Procedure

Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

1. A diode detector and an oscilloscope that together have sufficiently short response time to permit accurate measurements of the on- and off-times of the transmitted signal.
2. The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the on- and off-times of the transmitted signal
 - a. Set the center frequency of the instrument to the centre frequency of the transmission
 - b. Set RBW \geq OBW if possible; otherwise, set RBW to the largest available value(10MHz).
 - c. Set detector = Peak or average.
 - d. The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100.
(For example, if VBW and/or RBW are limited to 3MHz, then the zero-span method of measuring duty cycle shall not be used if $T \leq 16.7$ microseconds.)

7.5. Test Result

Test Lab: Shielding room

Test Engineer: Frank

The test was performed with 802.11b

Channel	Frequency (MHz)	duty cycle(x)	$10\log(1/x)$
Middle	2437	100%	0

The test was performed with 802.11g

Channel	Frequency (MHz)	duty cycle(x)	$10\log(1/x)$
Middle	2437	100%	0

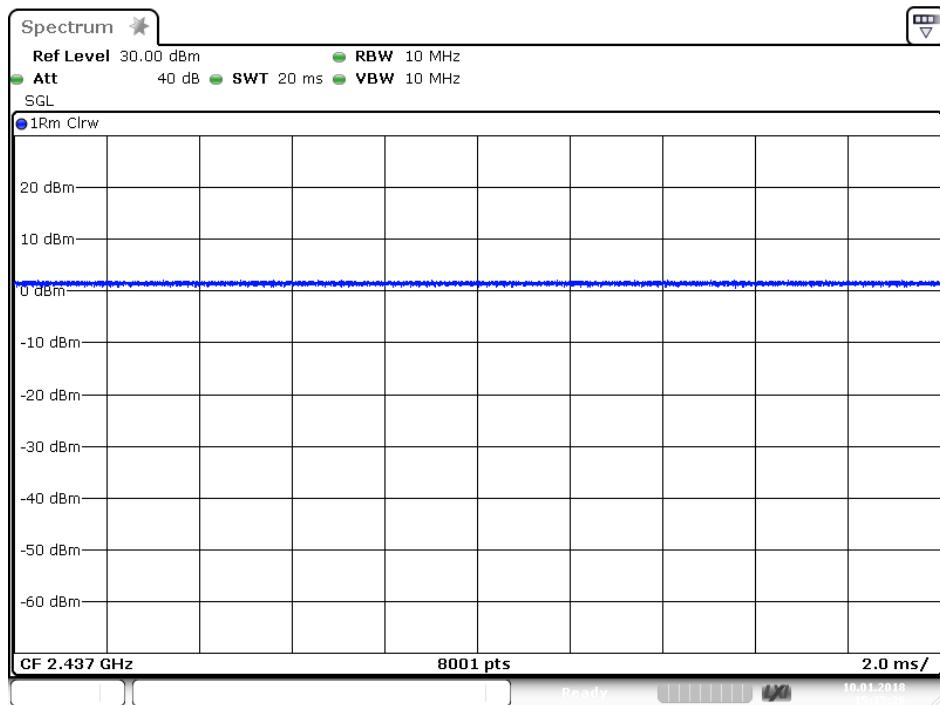
The test was performed with 802.11n (Bandwidth: 20 MHz)

Channel	Frequency (MHz)	duty cycle(x)	$10\log(1/x)$
Middle	2437	100%	0

Note: We tested 802.11b/g/n mode the all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.

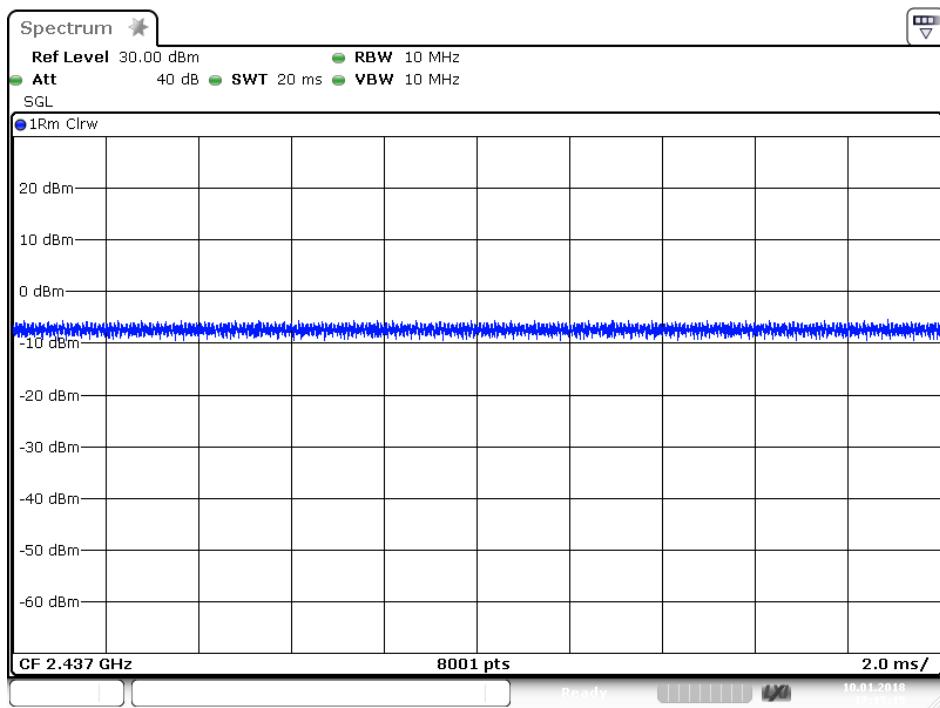
The spectrum analyzer plots are attached as below.

802.11b Channel Middle 2437MHz



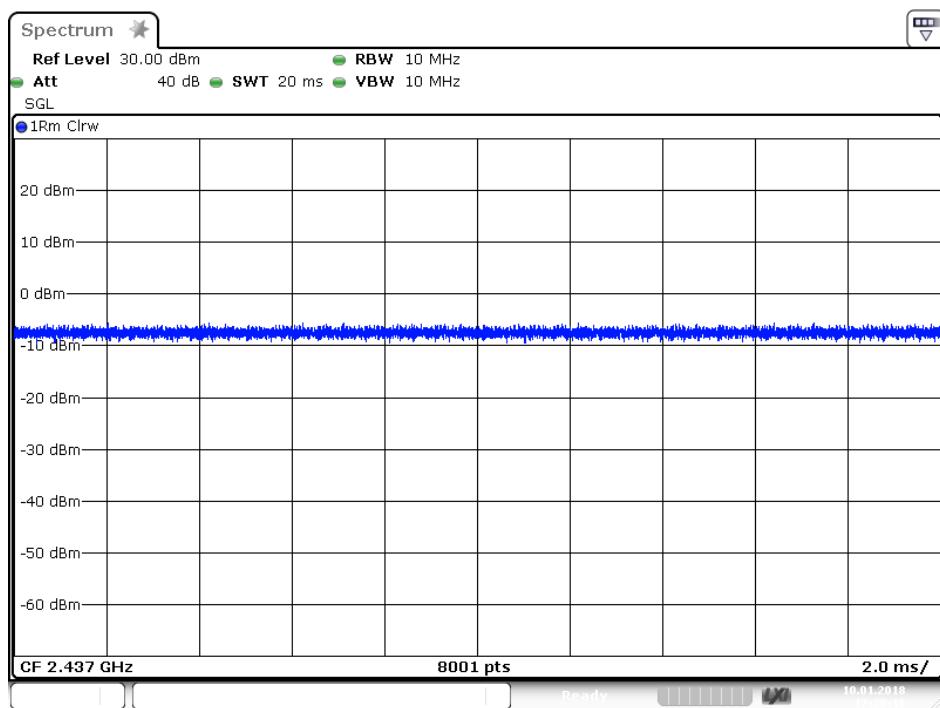
Date: 10.JAN.2018 15:35:27

802.11g Channel Middle 2437MHz



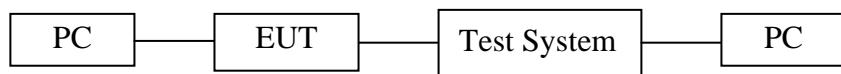
Date: 10.JAN.2018 17:15:16

802.11n Channel Middle 2437MHz(20MHz)



8. MAXIMUM CONDUCTED (AVERAGE) OUTPUT POWER

8.1. Block Diagram of Test Setup



8.2. 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.

8.3. EUT Configuration on Measurement

The 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.

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

8.5. Test Procedure

8.5.1. The EUT was tested according to DTS test procedure of Apr 05, 2017 KDB5580 74 D01 DTS Meas Guidance v04 for compliance to FCC 47CFR 15.247 requirements.

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

8.5.3. Set RBW = 1-5% of the OBW, not to exceed 1 MHz, VBW $\geq 3 \times$ RBW, Sweep time = auto, Set span to at least 1.5 times the OBW, Detector = RMS.

8.5.4. Measurement the Maximum conducted (average) output power.

8.6. Test Result

Test Lab: Shielding room
Test Engineer: Frank

$$\text{Final power} = \text{Ave output power} + 10\log(1/\text{duty cycle})$$

The test was performed with 802.11b						
Channel	Frequency (MHz)	Ave output power (dBm)	10log(1/ duty cycle)	Final power (dBm)	Final power (W)	Limits dBm / W
Low	2412	18.71	0	18.71	0.0743	30 dBm / 1 W
Middle	2437	17.96	0	17.96	0.0625	30 dBm / 1 W
High	2462	17.50	0	17.50	0.0562	30 dBm / 1 W

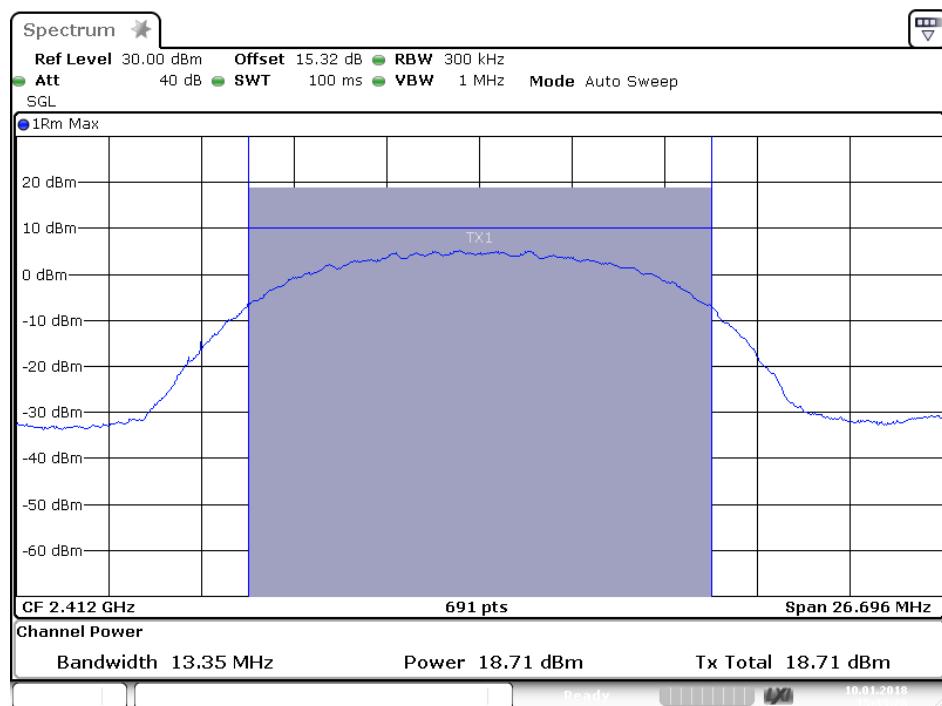
The test was performed with 802.11g						
Channel	Frequency (MHz)	Ave output power (dBm)	10log(1/ duty cycle)	Final power (dBm)	Final power (W)	Limits dBm / W
Low	2412	10.30	0	10.30	0.0107	30 dBm / 1 W
Middle	2437	10.60	0	10.60	0.0115	30 dBm / 1 W
High	2462	10.61	0	10.61	0.0115	30 dBm / 1 W

The test was performed with 802.11n (20MHz)						
Channel	Frequency (MHz)	Ave output power (dBm)	10log(1/ duty cycle)	Final power (dBm)	Final power (W)	Limits dBm / W
Low	2412	10.43	0	10.43	0.0110	30 dBm / 1 W
Middle	2437	10.84	0	10.84	0.0121	30 dBm / 1 W
High	2462	11.11	0	11.11	0.0129	30 dBm / 1 W

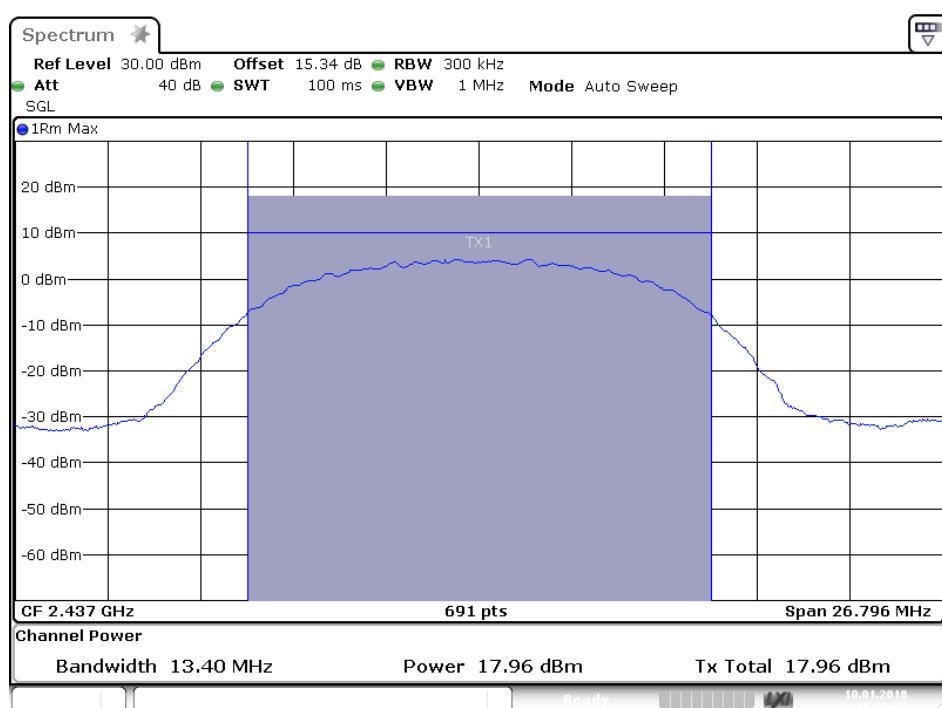
Note: We tested 802.11b/g/n mode the all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.

The spectrum analyzer plots are attached as below.

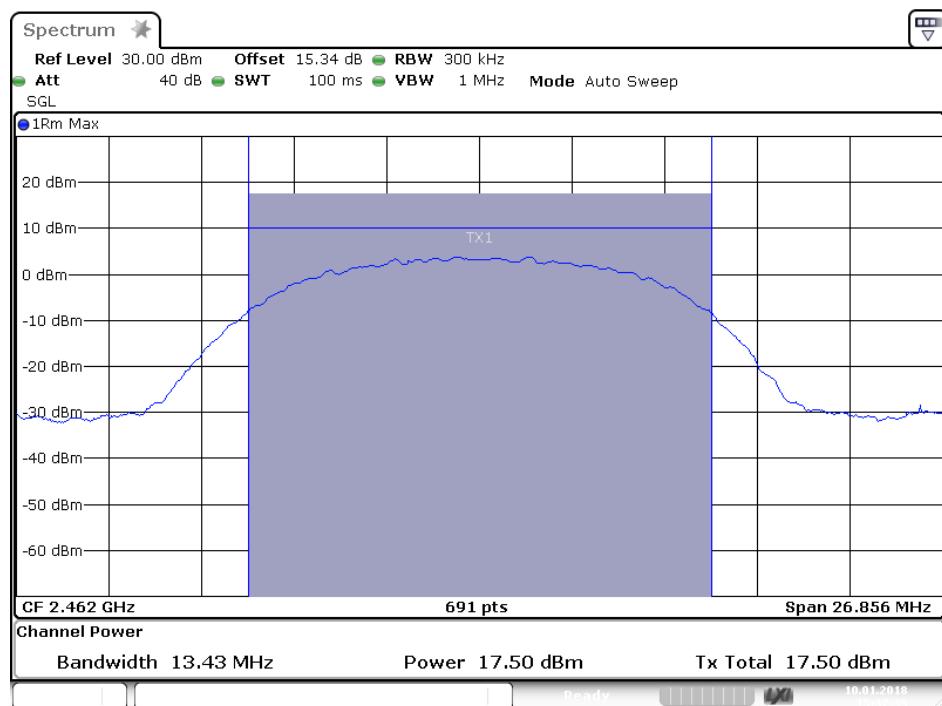
802.11b Channel Low 2412MHz



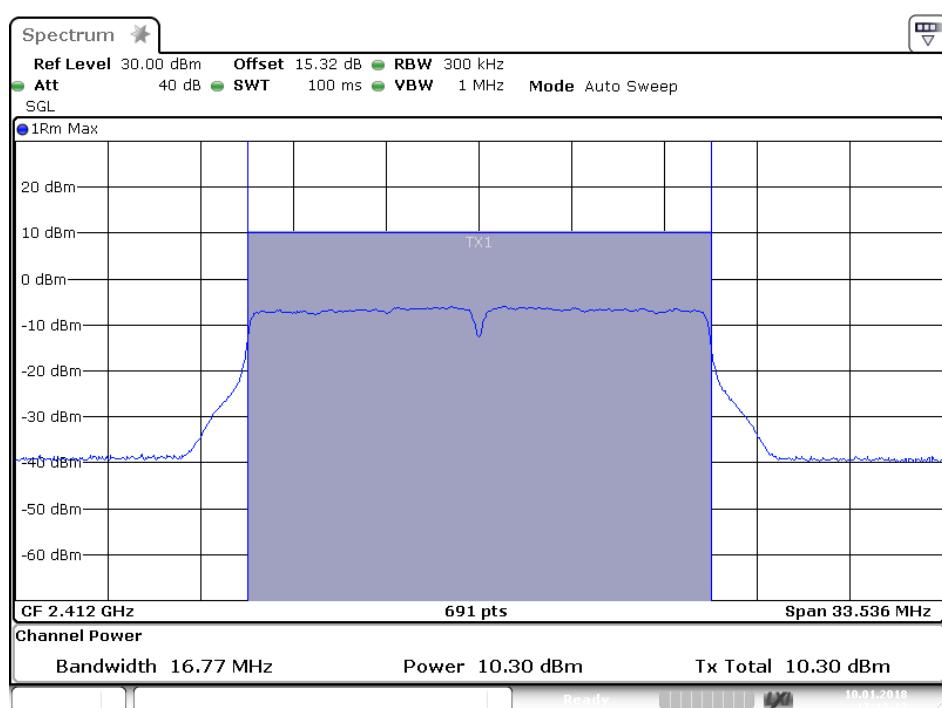
802.11b Channel Middle 2437MHz



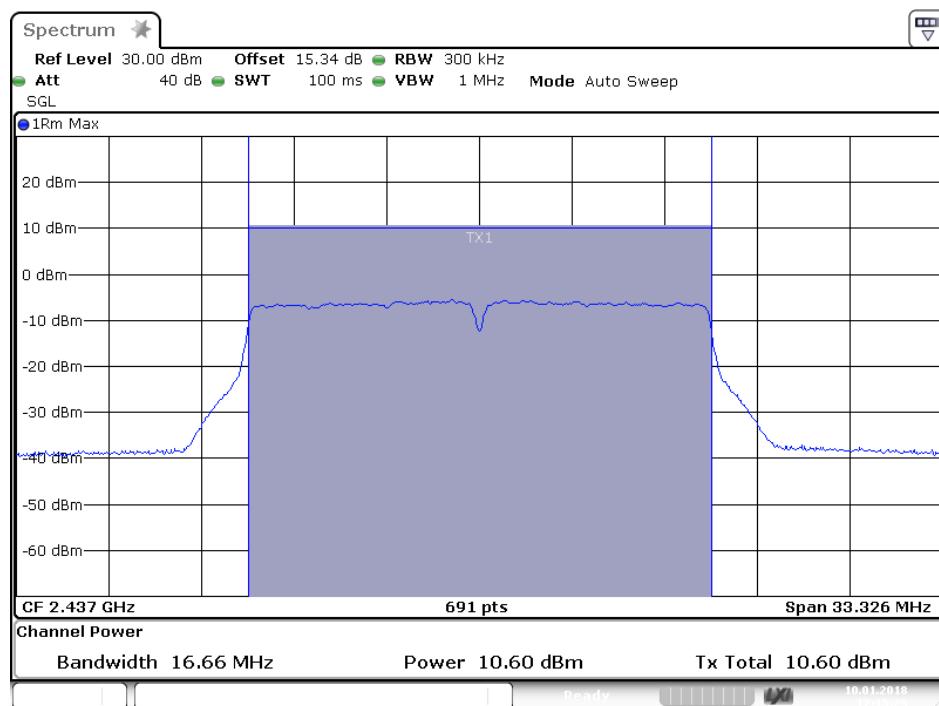
802.11b Channel High 2462MHz



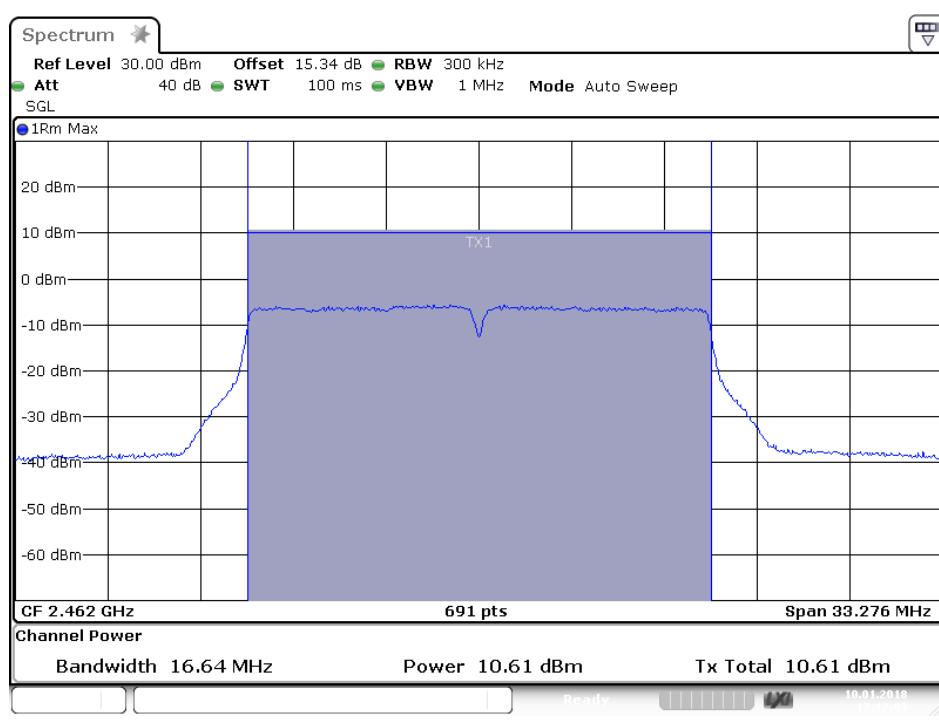
802.11g Channel Low 2412MHz



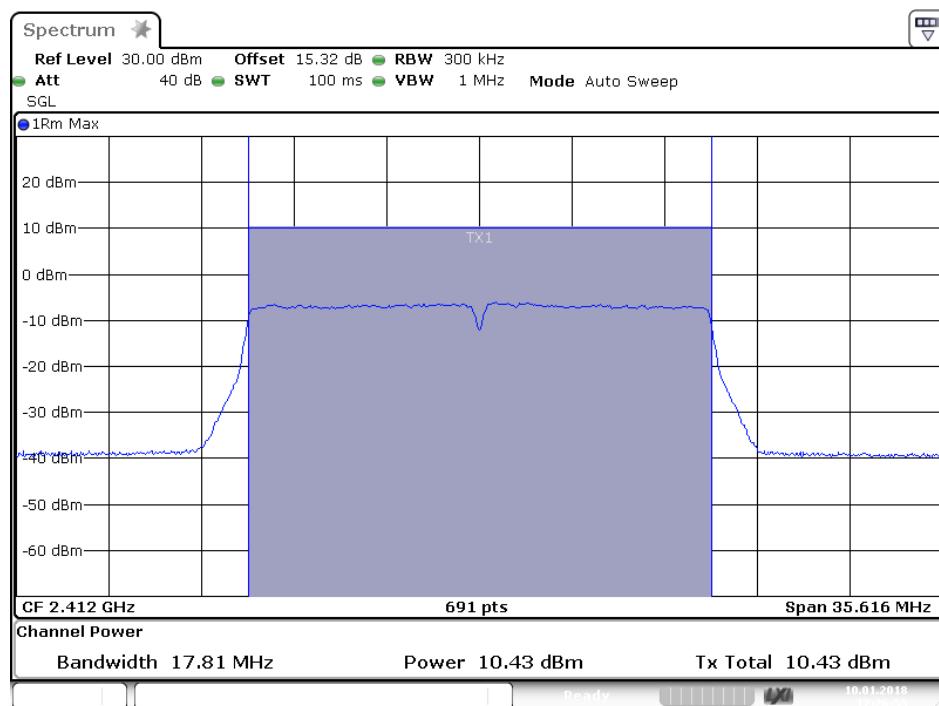
802.11g Channel Middle 2437MHz



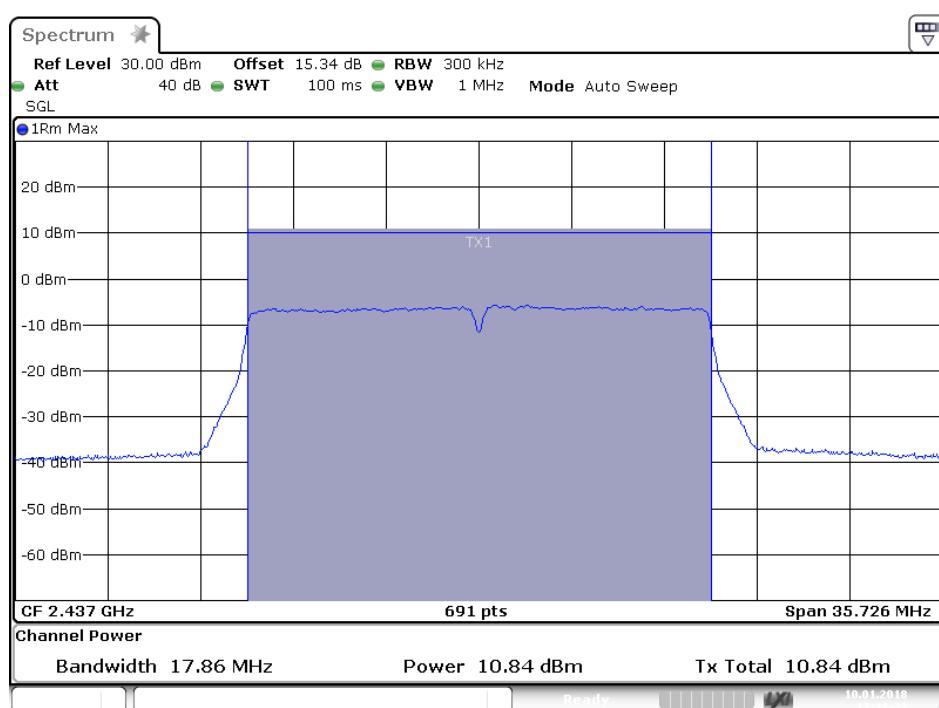
802.11g Channel High 2462MHz



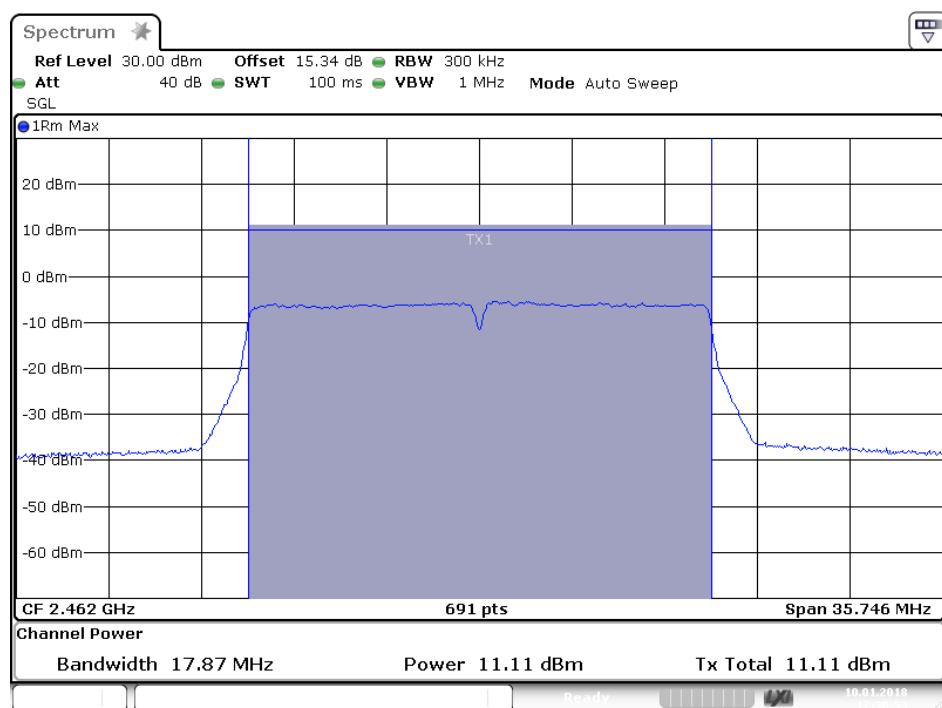
802.11n Channel Low 2412MHz (20MHz)



802.11n Channel Middle 2437MHz (20MHz)



802.11n Channel High 2462MHz (20MHz)



9. POWER SPECTRAL DENSITY MEASUREMENT

9.1. Block Diagram of Test Setup



9.2. 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.

9.3. EUT Configuration on Measurement

The 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.

9.4. 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 modes measure it. The transmit frequency are 2412-2462. We select 2412MHz, 2437MHz, 2462MHz 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. Measurement Procedure AVGPSD-2:

This procedure is applicable when the EUT cannot be configured to transmit continuously(i.e., duty cycle<98%), and when sweep triggering/signal gating cannot be used to measure only when the EUT is transmitting at its maximum power control level, and when the transmission duty is constant(i.e., duty cycle variations are less than $\pm 2\%$):

Measure the duty cycle(x) of the transmitter output signal as described in Section 6.0.

Set instrument center frequency to DTS channel center frequency.
 Set span to at least $1.5 \times \text{OBW}$.
 Set RBW to: $3\text{kHz} \leq \text{RBW} \leq 100\text{kHz}$.
 Set VBW $\geq 3 \times \text{RBW}$
 Detector=power averaging(RMS) or sample detector(when RMS not available).
 Ensure that the number of measurement points in sweep $\geq 2 \times \text{span/RBW}$.
 Sweep time=auto couple.
 Do not use sweep triggering. Allow sweep to “free run”.
 Employ trace averaging(RMS) mode over a minimum of 100 traces.
 Use the peak maker function to determine the maximum amplitude level.
 Add $10\log(1/x)$, where x is the duty cycle measured in step(a, to the measured PSD to compute the average PSD during the actual transmission time.
 If resultant value exceeds the limit, then reduce RBW(no less than 3kHz) and repeat(note that this may require zooming in on the emission of interest and reducing the span in order to meet the minimum measurement point requirement as the RBW is reduced).

9.6. Test Result

Test Lab: Shielding room

Test Engineer: Frank

The test was performed with 802.11b

Channel	Frequency (MHz)	AVG Power Spectral Density (dBm/3KHz)	$10\log(1/\text{duty cycle})$	Final Power Spectral Density (dBm/3KHz)	Limits (dBm/3KHz)
Low	2412	-6.49	0	-6.49	8 dBm
Middle	2437	-7.07	0	-7.07	8 dBm
High	2462	-7.59	0	-7.59	8 dBm

The test was performed with 802.11g

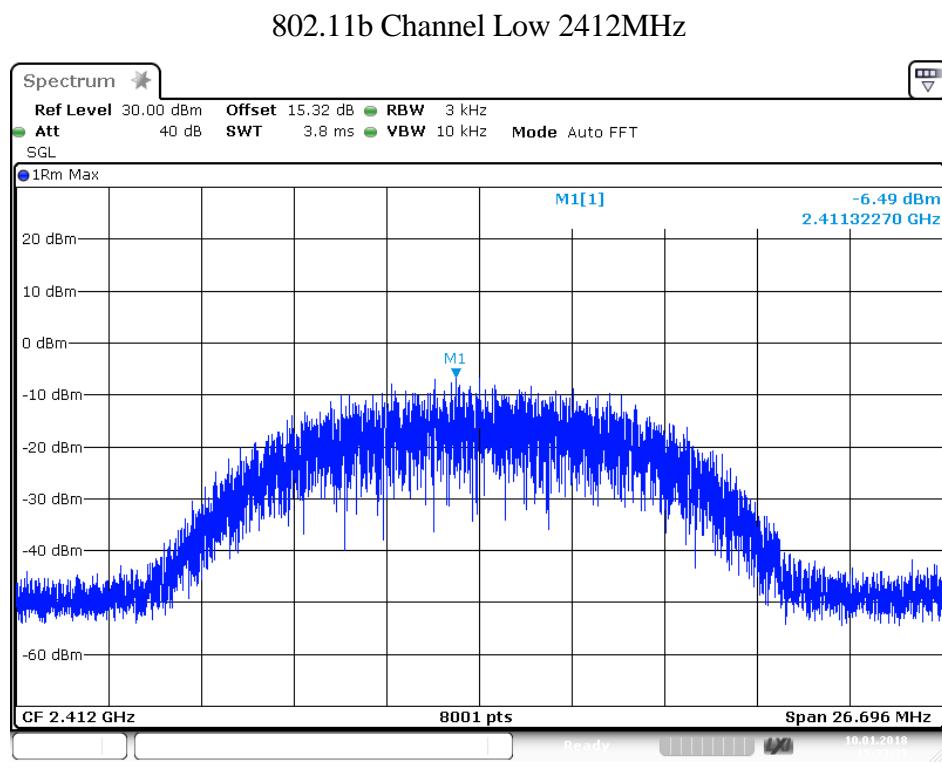
Channel	Frequency (MHz)	AVG Power Spectral Density (dBm/3KHz)	$10\log(1/\text{duty cycle})$	Final Power Spectral Density (dBm/3KHz)	Limits (dBm/3KHz)
Low	2412	-18.00	0	-18.00	8 dBm
Middle	2437	-17.86	0	-17.86	8 dBm
High	2462	-17.63	0	-17.63	8 dBm

The test was performed with 802.11n (20MHz)

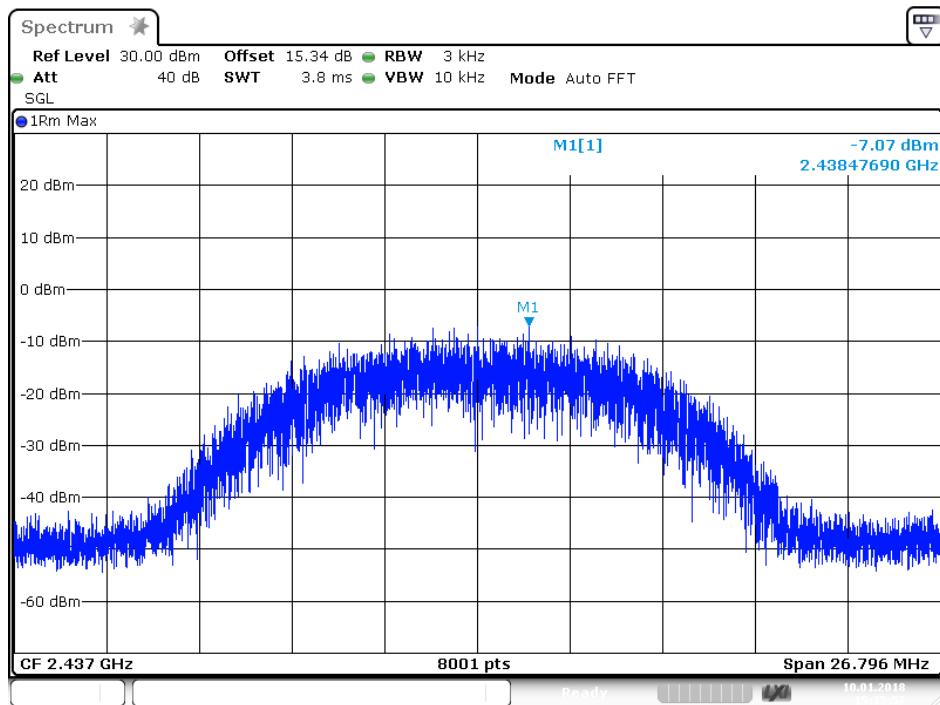
Channel	Frequency (MHz)	AVG Power Spectral Density (dBm/3KHz)	10log(1/ duty cycle)	Final Power Spectral Density (dBm/3KHz)	Limits (dBm/3KHz)
Low	2412	-16.73	0	-16.73	8 dBm
Middle	2437	-16.22	0	-16.22	8 dBm
High	2462	-16.00	0	-16.00	8 dBm

Note: We tested 802.11b/g/n mode the all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.

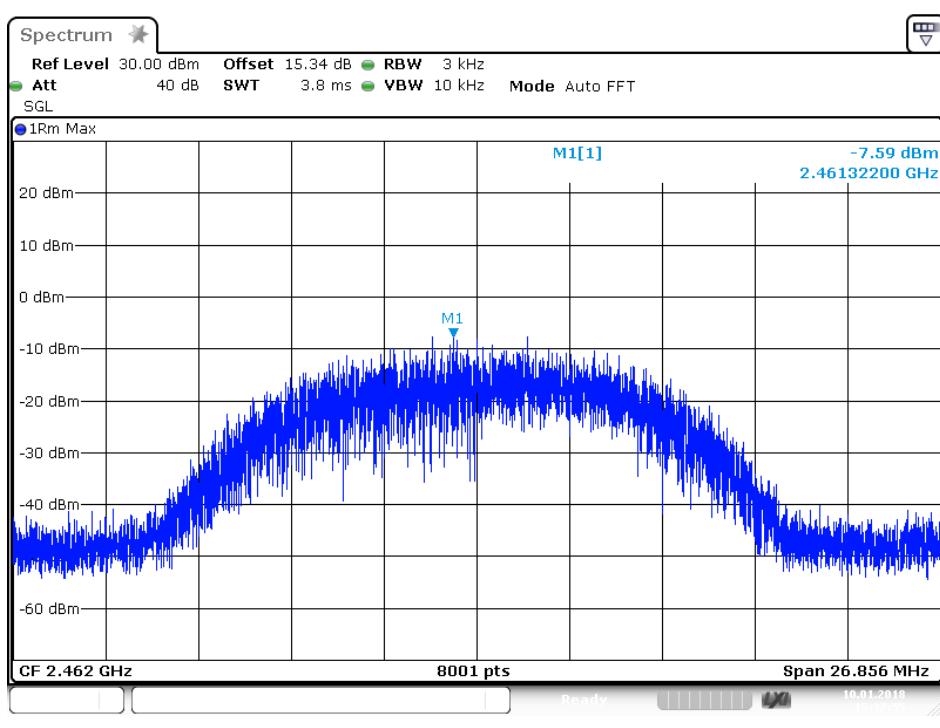
The spectrum analyzer plots are attached as below.



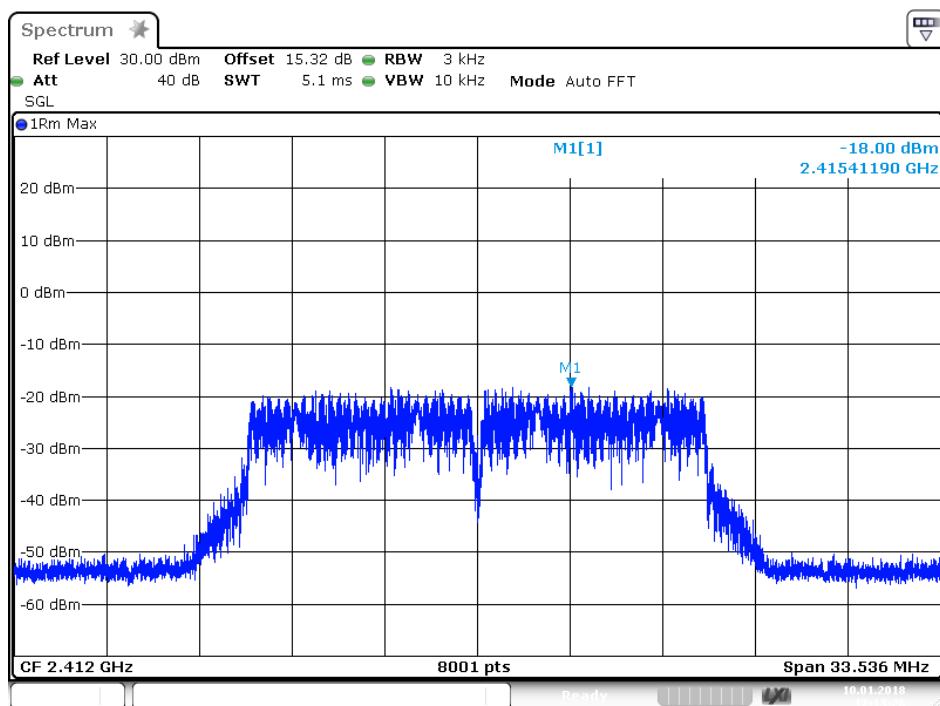
802.11b Channel Middle 2437MHz



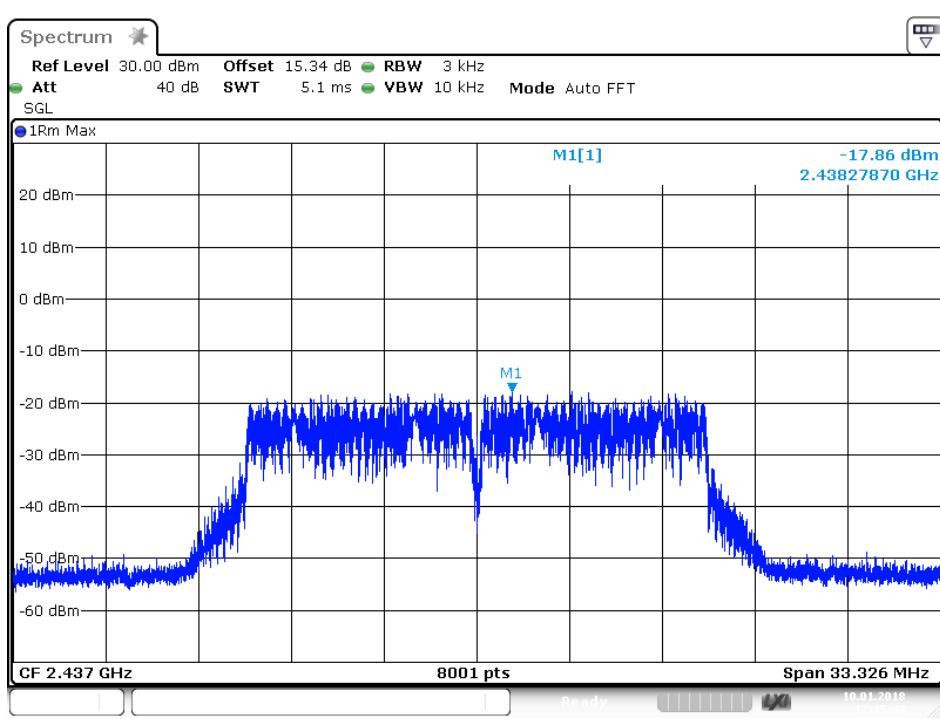
802.11b Channel High 2462MHz



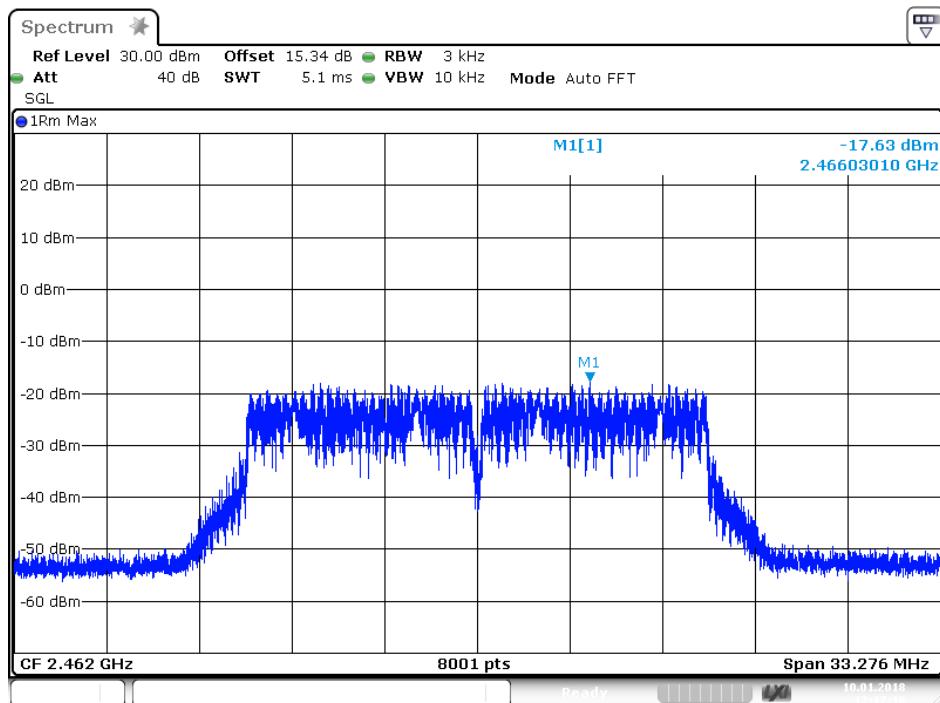
802.11g Channel Low 2412MHz



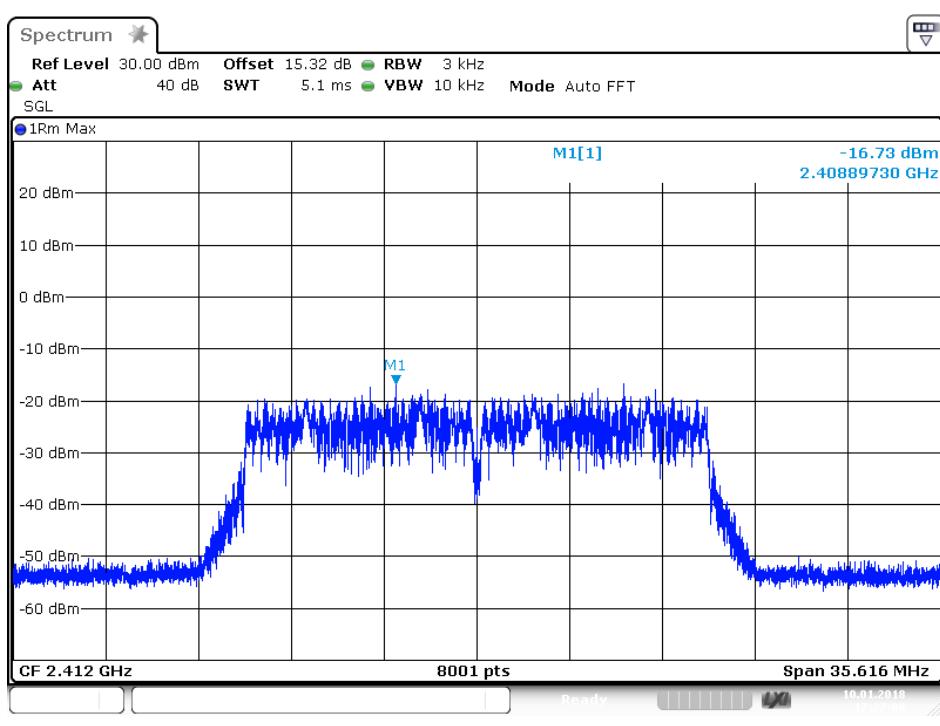
802.11g Channel Middle 2437MHz



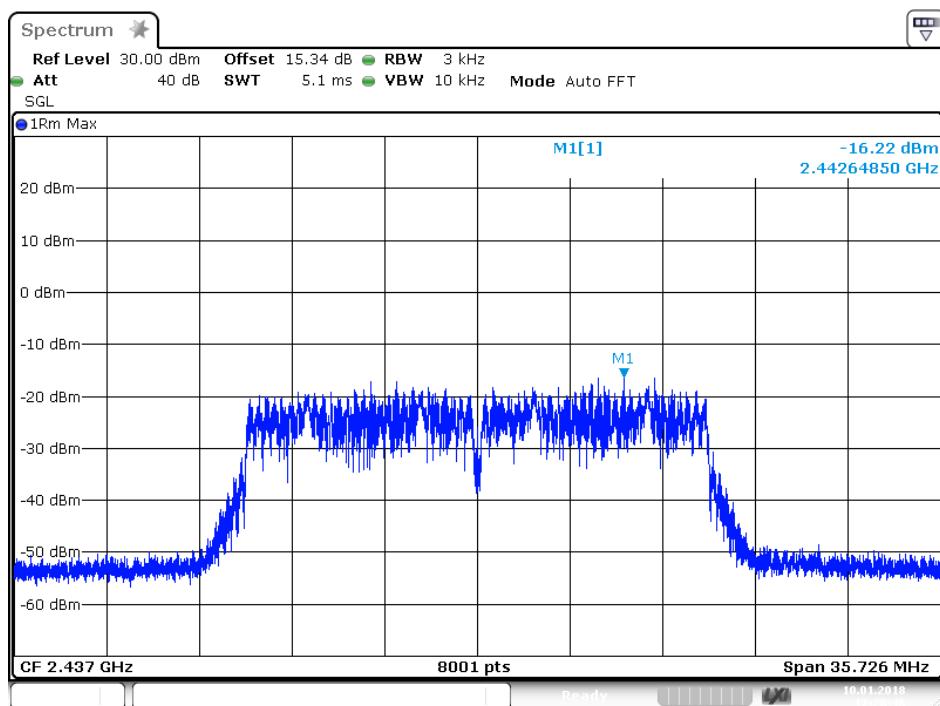
802.11g Channel High 2462MHz



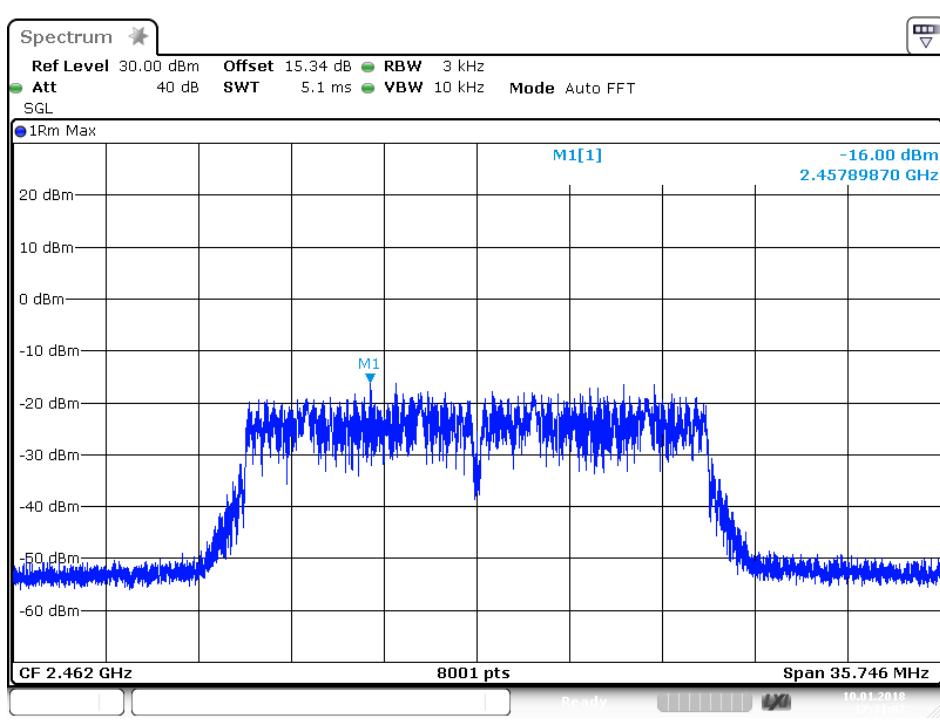
802.11n Channel Low 2412MHz (20MHz)



802.11n Channel Middle 2437MHz (20MHz)



802.11n Channel High 2462MHz(20MHz)



10.BAND EDGE 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 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.

10.4.Operating Condition of EUT

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

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 2412-2462. We select 2412MHz, 2462MHz 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 1.5m 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:

10.5.7. RBW=1MHz, VBW=1MHz

10.5.8. The band edges were measured and recorded.

10.6. Test Result

Test Lab: Shielding room

Test Engineer: Frank

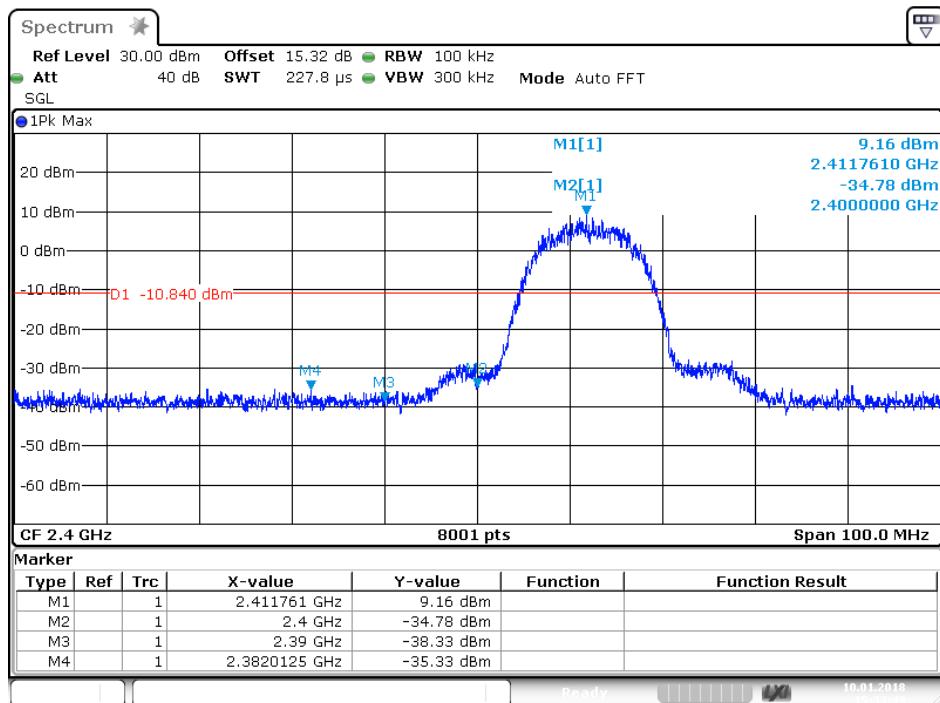
The test was performed with 802.11b		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400	43.94	> 30dBc
2483.5	47.04	> 30dBc

The test was performed with 802.11g		
Frequency (MHz)	Result of Band Edge (dBc)	Limit of Band Edge (dBc)
2400	37.52	> 30dBc
2483.5	38.29	> 30dBc

Note: We tested 802.11b/g/n mode at all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.

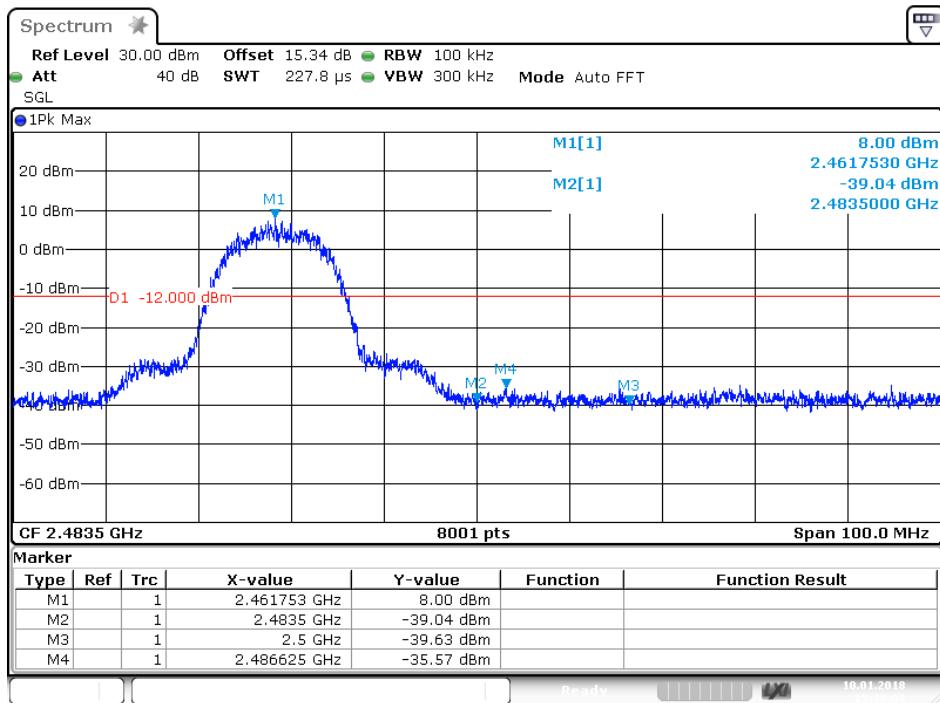
The spectrum analyzer plots are attached as below.

802.11b Channel Low 2412MHz



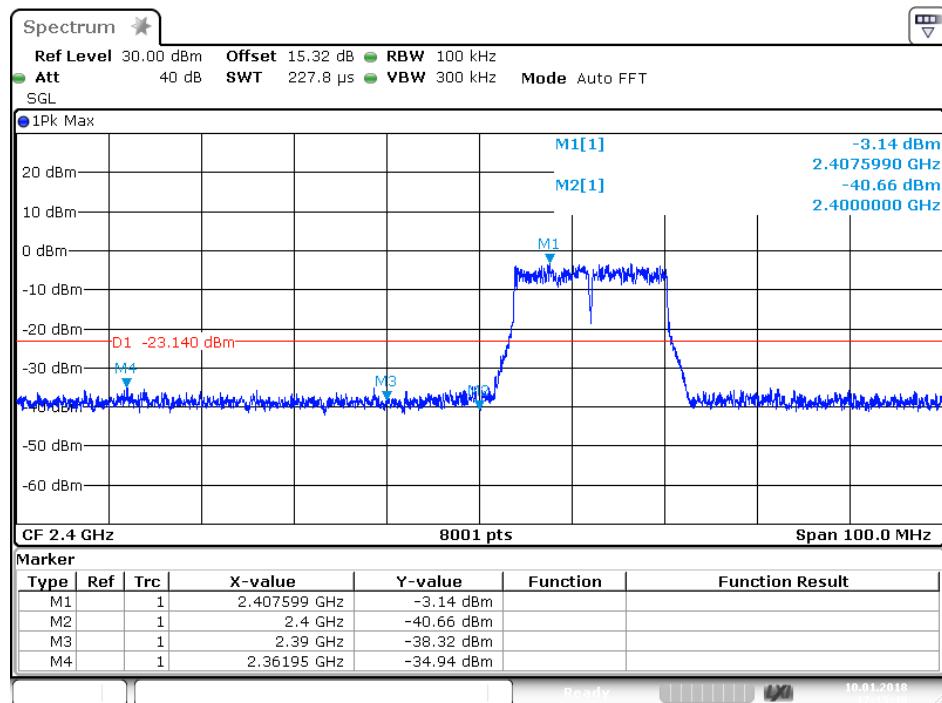
Date: 10.JAN.2018 15:33:50

802.11b Channel High 2462MHz



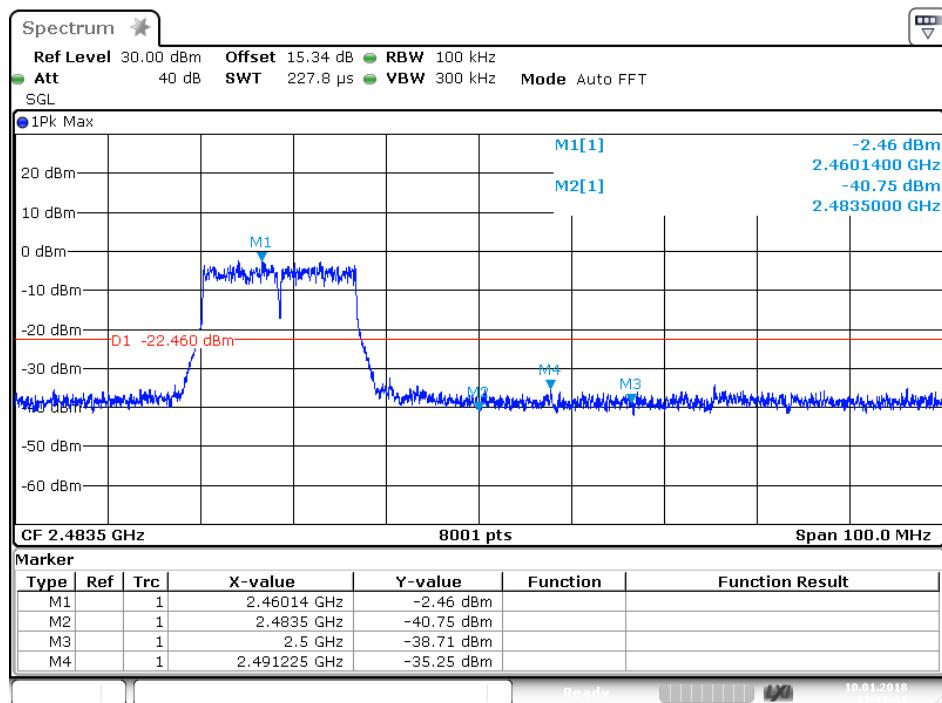
Date: 10.JAN.2018 15:38:09

802.11g Channel Low 2412MHz



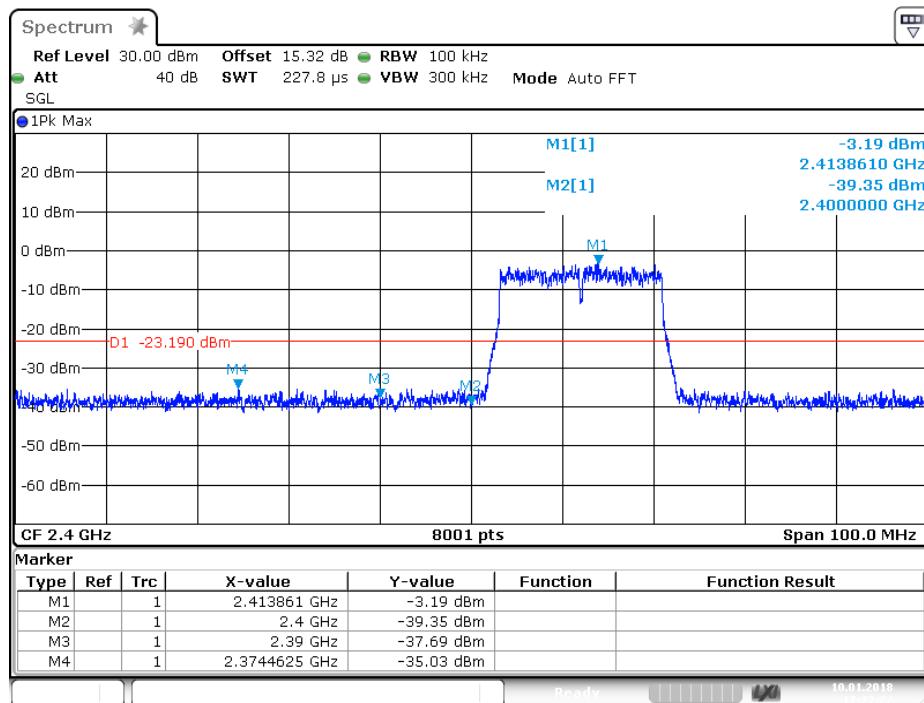
Date: 10.JAN.2018 17:13:40

802.11g Channel High 2462MHz

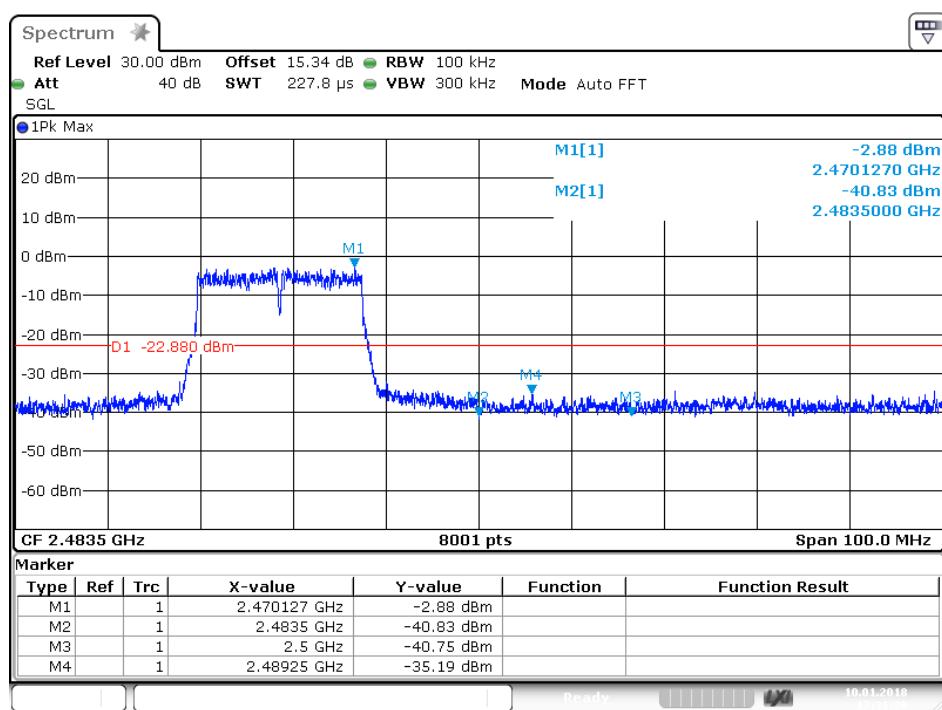


Date: 10.JAN.2018 17:17:31

802.11n Channel Low 2412MHz (20MHz)



802.11n Channel High 2462MHz (20MHz)



Radiated Band Edge Result

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.

Test Procedure:

The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

Let the EUT work in TX modes then measure it.

We select 2412MHz, 2462MHz TX frequency to transmit(802.11b/g/n20 mode).

During the radiated emission test, the spectrum analyzer was set with the following configurations:

- 1.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
- 2.The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
- 3.All modes of operation were investigated and the worst-case emissions are reported.

Test Lab: 3m Anechoic chamber

Test Engineer: Frank

Note: We tested 802.11b/g/n mode the all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.



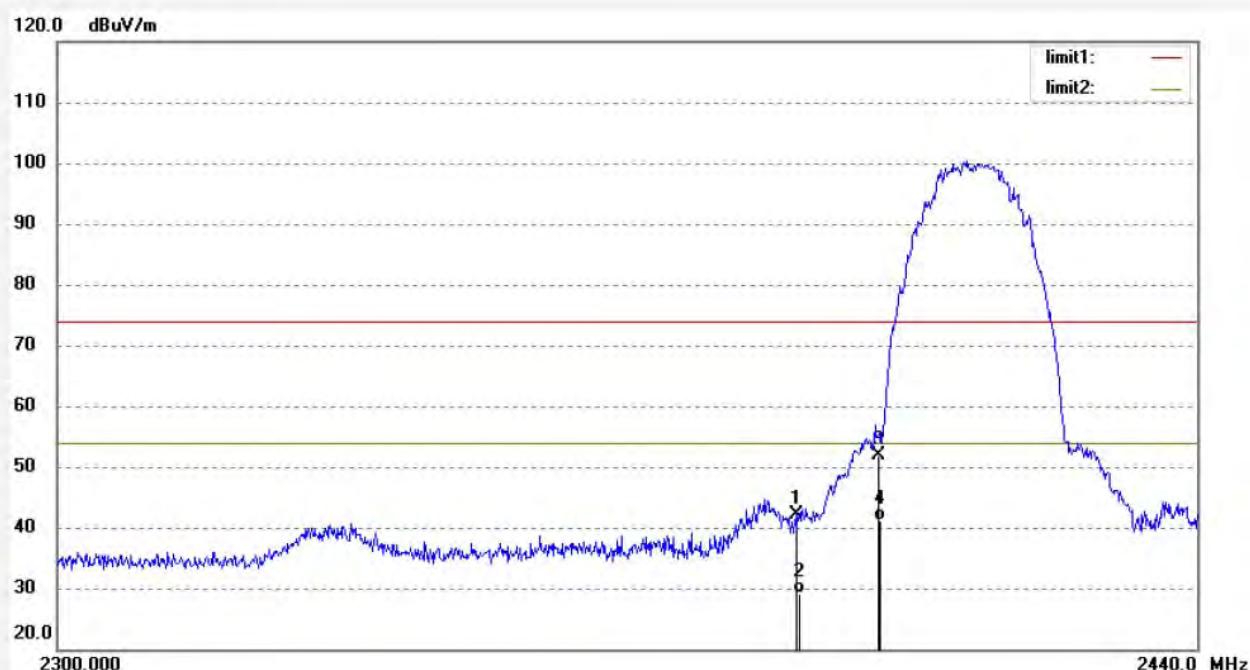
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Job No.:	frank2017 #1662	Polarization:	Horizontal
Standard:	FCC PK	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	18/01/02
Temp.(C)/Hum.(%)	25 C / 55 %	Time:	11/07/12
EUT:	Mobile Wifi Camera	Engineer Signature:	Frank
Mode:	TX Channel 1(802.11b)	Distance:	3m
Model:	C400		
Manufacturer:	Shenzhen Leshi Video Technology Co.,Ltd		

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	48.12	-5.89	42.23	74.00	-31.77	peak	250	90	
2	2390.000	35.14	-5.89	29.25	54.00	-24.75	AVG	250	134	
3	2400.000	57.74	-5.80	51.94	74.00	-22.06	peak	250	187	
4	2400.000	46.97	-5.80	41.17	54.00	-12.83	AVG	250	247	



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Job No.: frank2017 #1663

Polarization: Vertical

Standard: FCC PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 11/08/41

EUT: Mobile Wifi Camera

Engineer Signature: Frank

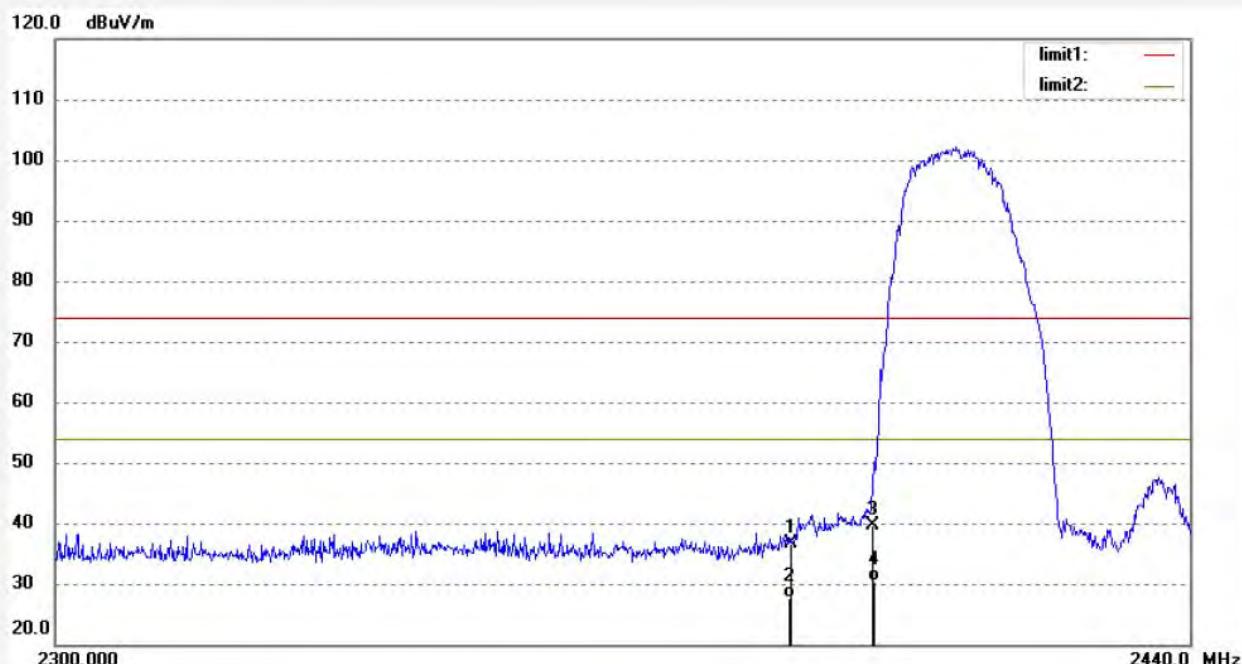
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	42.58	-5.89	36.69	74.00	-37.31	peak	150	65	
2	2390.000	33.57	-5.89	27.68	54.00	-26.32	AVG	150	120	
3	2400.000	45.36	-5.80	39.56	74.00	-34.44	peak	150	127	
4	2400.000	36.17	-5.80	30.37	54.00	-23.63	AVG	150	327	

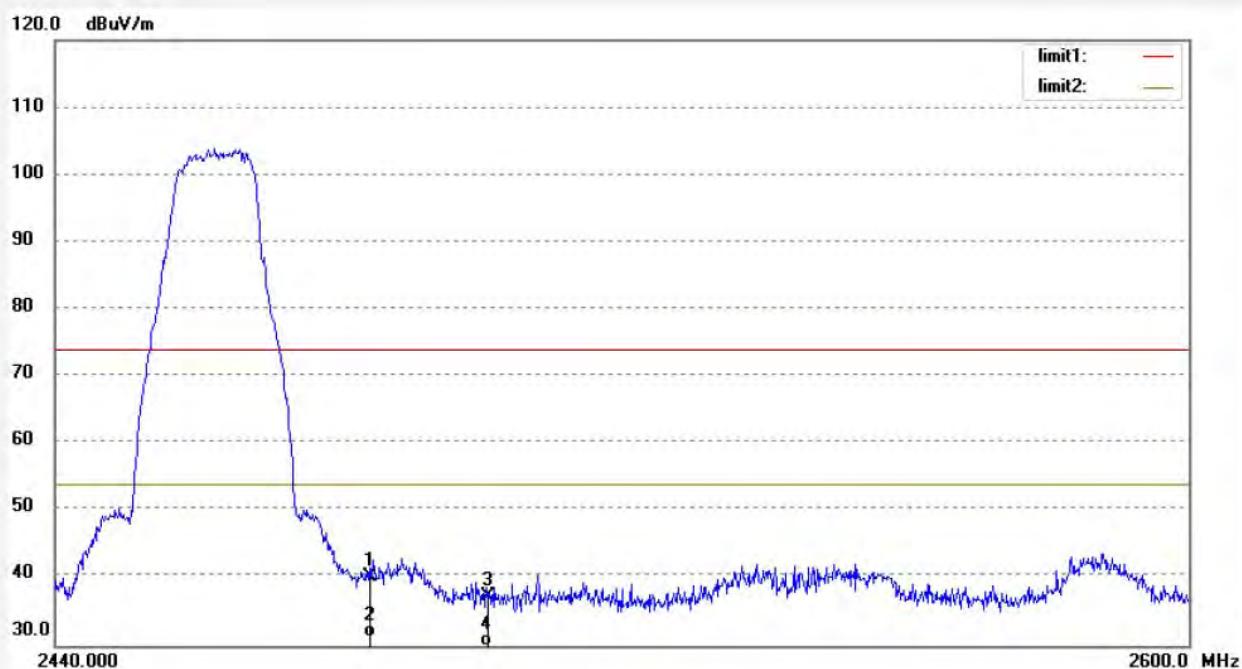


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Job No.: frank2017 #1665	Polarization: Horizontal
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 18/01/02/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/12/06
EUT: Mobile Wifi Camera	Engineer Signature: Frank
Mode: TX Channel 11(802.11b)	Distance: 3m
Model: C400	
Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd	
Note: Report No.:ATE20172586	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.69	-5.51	40.18	74.00	-33.82	peak	250	195	
2	2483.500	36.70	-5.51	31.19	54.00	-22.81	AVG	250	221	
3	2500.000	42.71	-5.50	37.21	74.00	-36.79	peak	250	35	
4	2500.000	33.69	-5.50	28.19	54.00	-25.81	AVG	300	182	

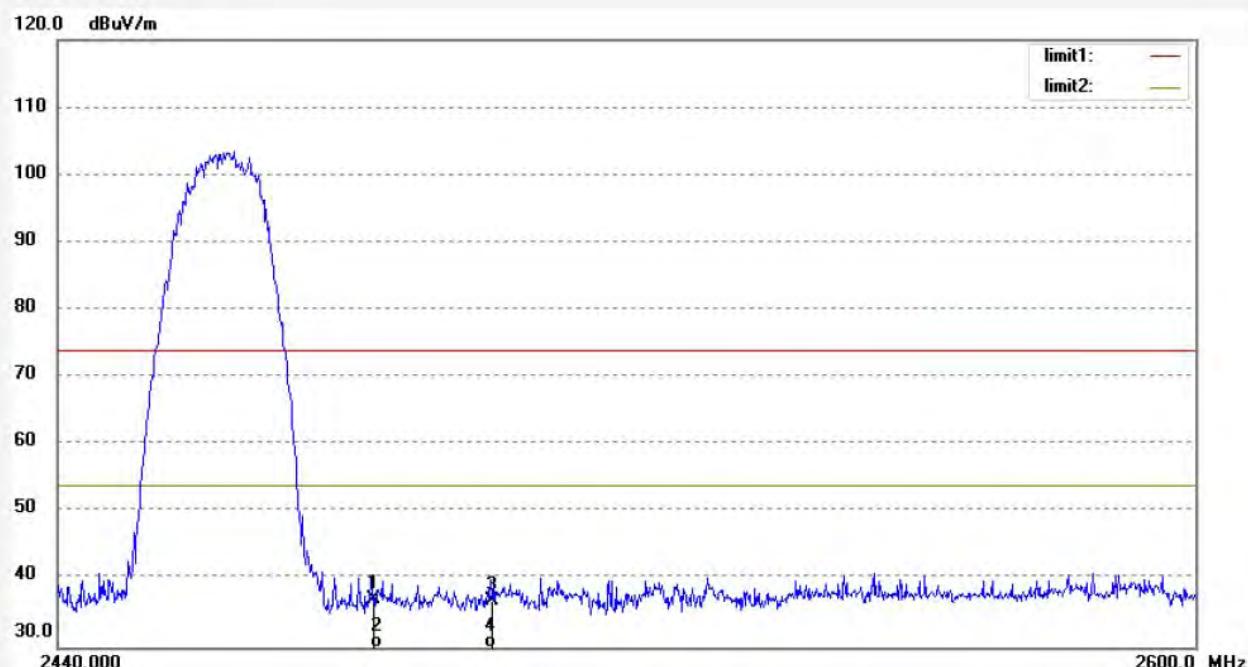


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Job No.: frank2017 #1664	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 18/01/02/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/10/41
EUT: Mobile Wifi Camera	Engineer Signature: Frank
Mode: TX Channel 11(802.11b)	Distance: 3m
Model: C400	
Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd	
Note: Report No.:ATE20172586	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	42.64	-5.51	37.13	74.00	-36.87	peak	150	54	
2	2483.500	33.70	-5.51	28.19	54.00	-25.81	AVG	150	278	
3	2500.000	42.45	-5.50	36.95	74.00	-37.05	peak	150	132	
4	2500.000	34.72	-5.50	29.22	54.00	-24.78	AVG	150	215	



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Job No.: frank2017 #1669

Polarization: Horizontal

Standard: FCC PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 11/18/55

EUT: Mobile Wifi Camera

Engineer Signature: Frank

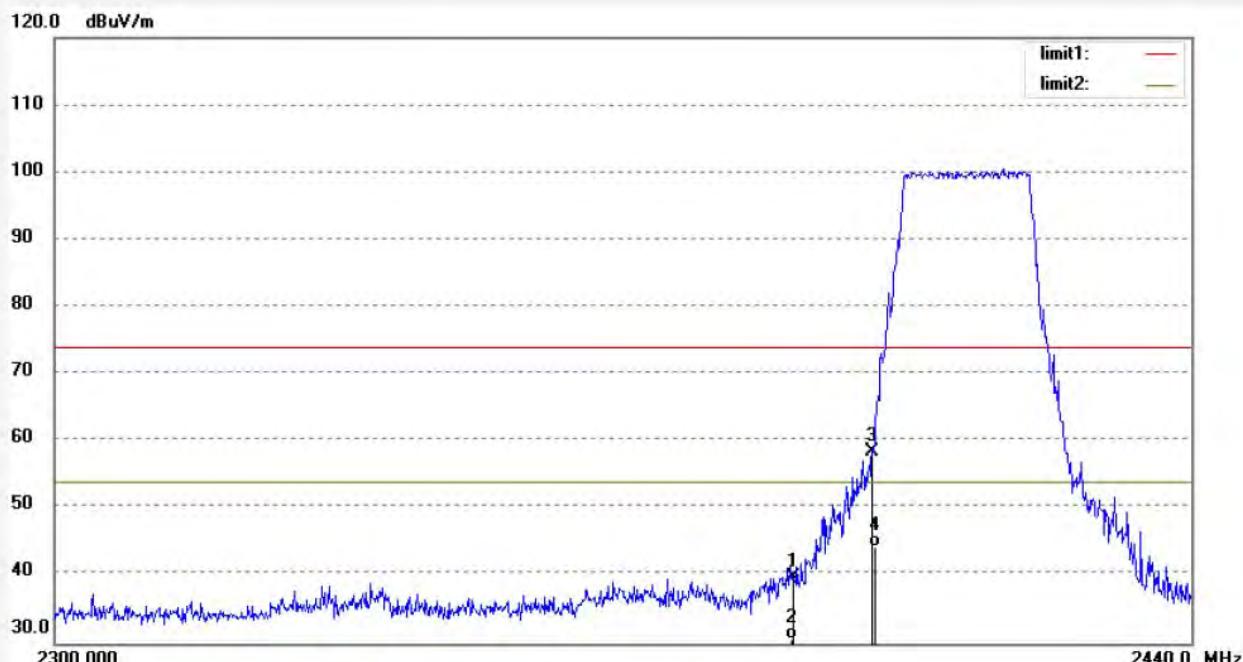
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	45.62	-5.89	39.73	74.00	-34.27	peak	250	138	
2	2390.000	36.44	-5.89	30.55	54.00	-23.45	AVG	250	357	
3	2400.000	64.19	-5.80	58.39	74.00	-15.61	peak	250	65	
4	2400.000	50.10	-5.80	44.30	54.00	-9.70	AVG	250	103	



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Job No.: frank2017 #1668

Polarization: Vertical

Standard: FCC PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 11/17/19

EUT: Mobile Wifi Camera

Engineer Signature: Frank

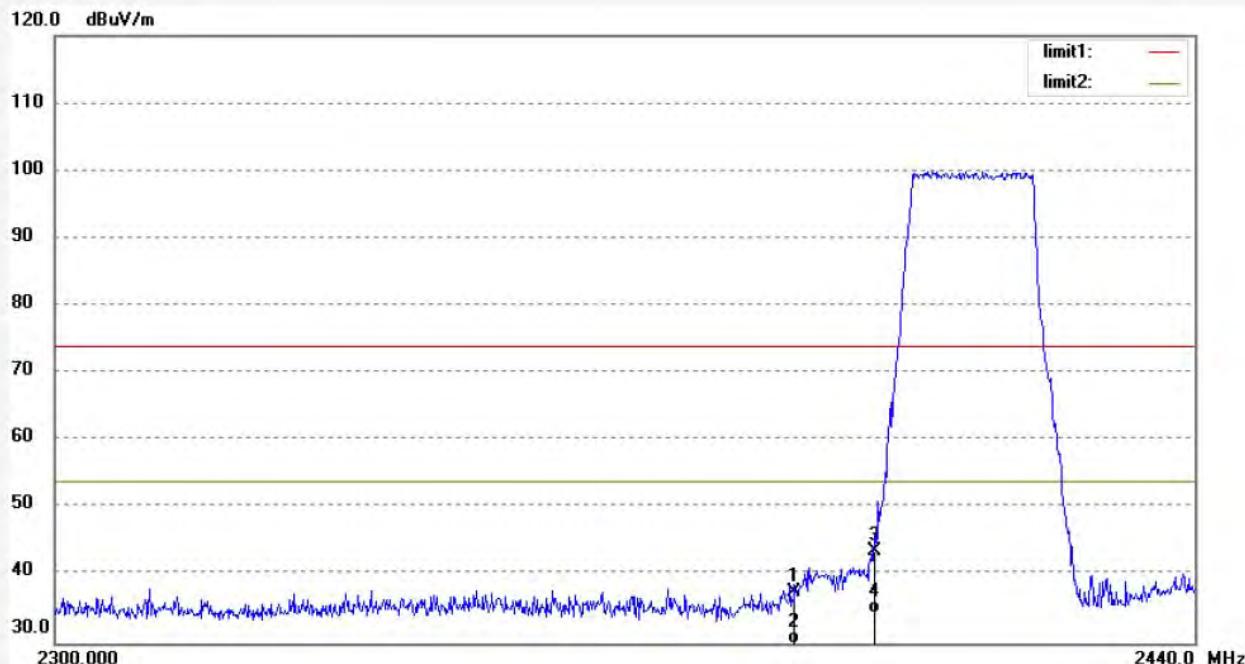
Mode: TX Channel 1(802.11g)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.35	-5.89	37.46	74.00	-36.54	peak	150	96	
2	2390.000	34.67	-5.89	28.78	54.00	-25.22	AVG	150	212	
3	2400.000	49.31	-5.80	43.51	74.00	-30.49	peak	150	167	
4	2400.000	40.10	-5.80	34.30	54.00	-19.70	AVG	150	222	



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Job No.: frank2017 #1666

Polarization: Horizontal

Standard: FCC PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 11/13/26

EUT: Mobile Wifi Camera

Engineer Signature: Frank

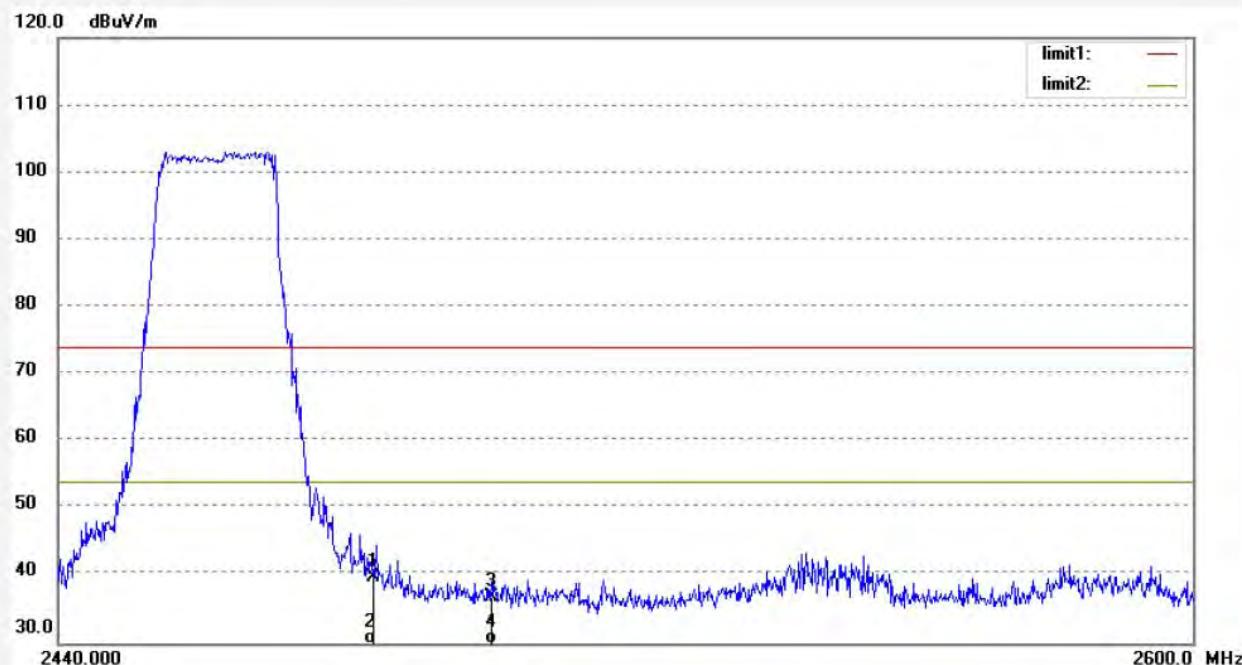
Mode: TX Channel 11(802.11g)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	45.24	-5.51	39.73	74.00	-34.27	peak	250	184	
2	2483.500	34.70	-5.51	29.19	54.00	-24.81	AVG	250	202	
3	2500.000	42.36	-5.50	36.86	74.00	-37.14	peak	250	32	
4	2500.000	32.14	-5.50	26.64	54.00	-27.36	AVG	250	123	



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Job No.: frank2017 #1667

Polarization: Vertical

Standard: FCC PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 11/15/24

EUT: Mobile Wifi Camera

Engineer Signature: Frank

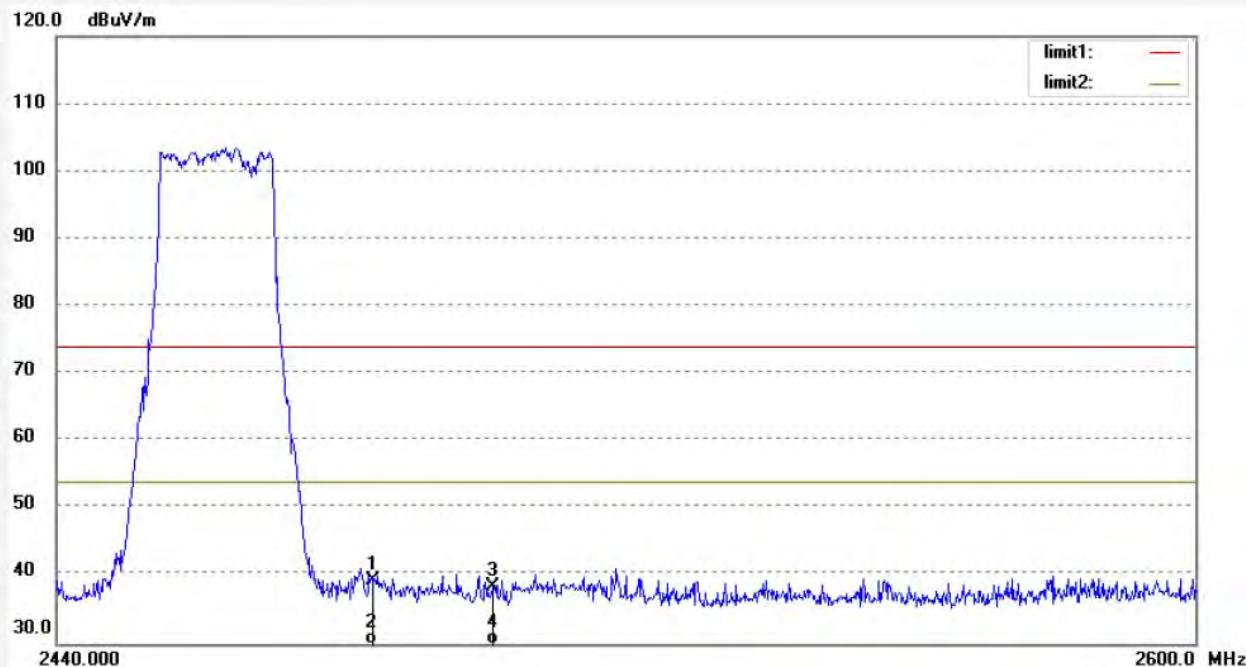
Mode: TX Channel 11(802.11g)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	44.78	-5.51	39.27	74.00	-34.73	peak	150	65	
2	2483.500	35.14	-5.51	29.63	54.00	-24.37	AVG	150	212	
3	2500.000	43.87	-5.50	38.37	74.00	-35.63	peak	150	135	
4	2500.000	34.68	-5.50	29.18	54.00	-24.82	AVG	150	348	



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Job No.: frank2017 #1670

Polarization: Horizontal

Standard: FCC PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 11/21/05

EUT: Mobile Wifi Camera

Engineer Signature: Frank

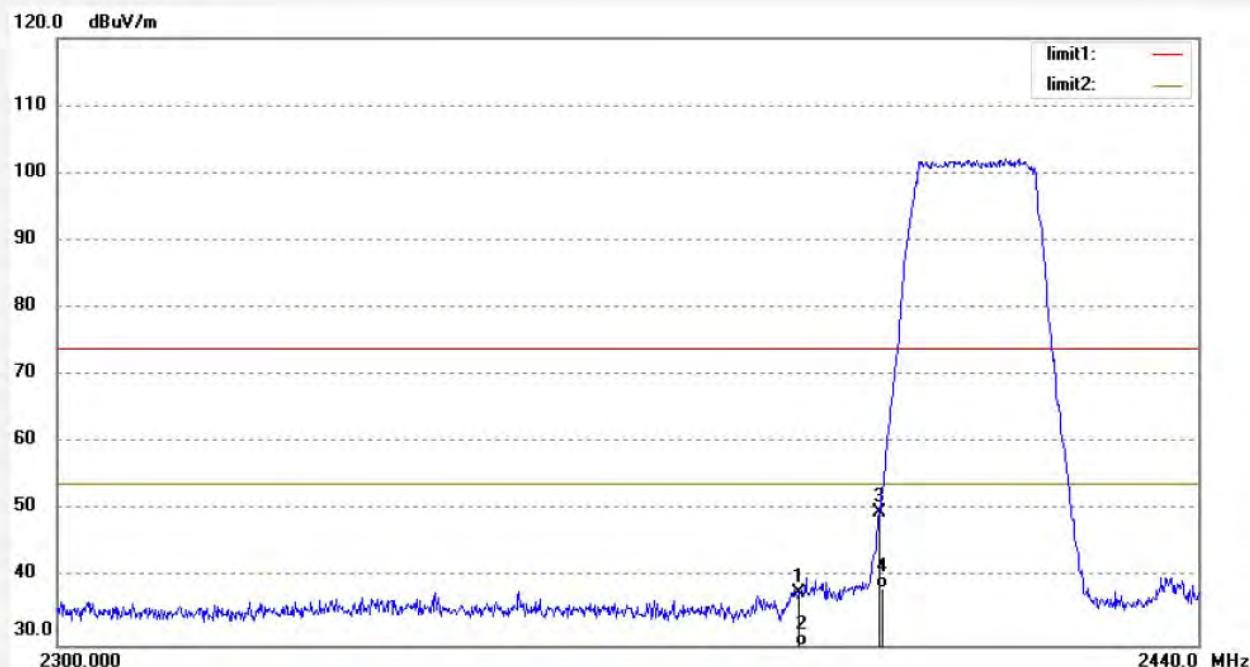
Mode: TX Channel 1(802.11n)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.63	-5.89	37.74	74.00	-36.26	peak	250	107	
2	2390.000	33.40	-5.89	27.51	54.00	-26.49	AVG	250	84	
3	2400.000	55.57	-5.80	49.77	74.00	-24.23	peak	250	328	
4	2400.000	44.20	-5.80	38.40	54.00	-15.60	AVG	250	178	

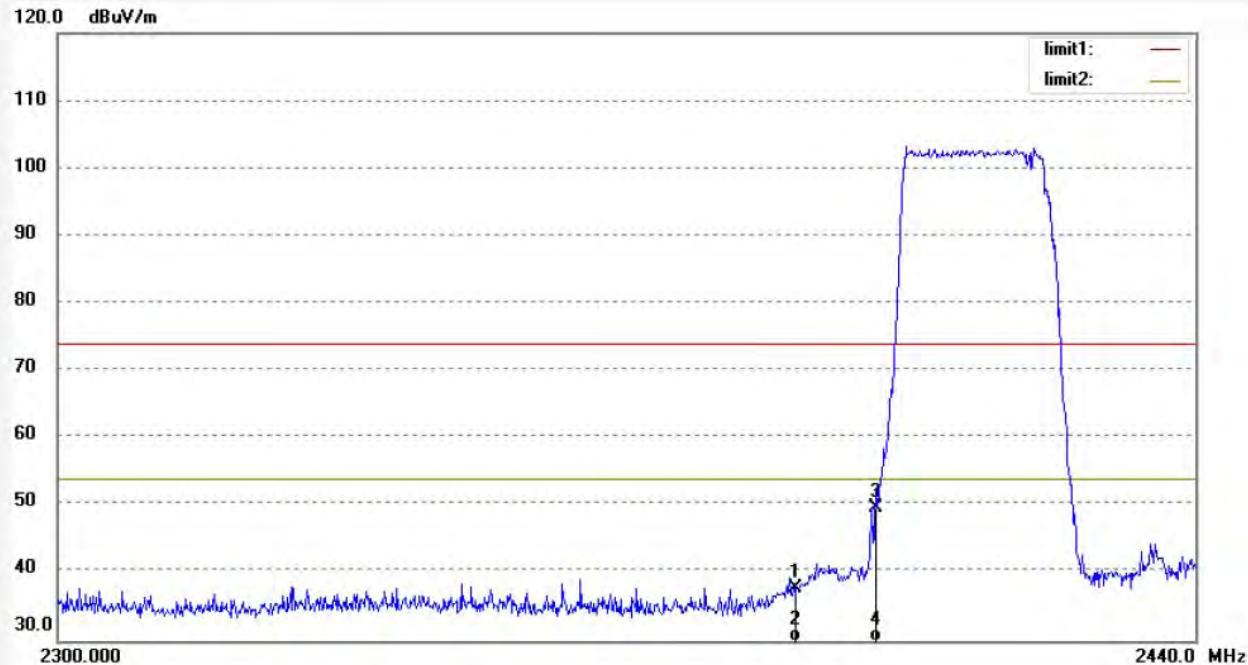


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Job No.: frank2017 #1671	Polarization: Vertical
Standard: FCC PK	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 18/01/02/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 11/22/56
EUT: Mobile Wifi Camera	Engineer Signature: Frank
Mode: TX Channel 1(802.11n)	Distance: 3m
Model: C400	
Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd	
Note: Report No.:ATE20172586	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2390.000	43.59	-5.89	37.70	74.00	-36.30	peak	150	31	
2	2390.000	34.68	-5.89	28.79	54.00	-25.21	Avg	150	357	
3	2400.000	55.50	-5.80	49.70	74.00	-24.30	peak	150	157	
4	2400.000	33.14	-5.80	27.34	54.00	-26.66	Avg	150	278	



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Job No.: frank2017 #1673

Polarization: Horizontal

Standard: FCC PK

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 11/26/08

EUT: Mobile Wifi Camera

Engineer Signature: Frank

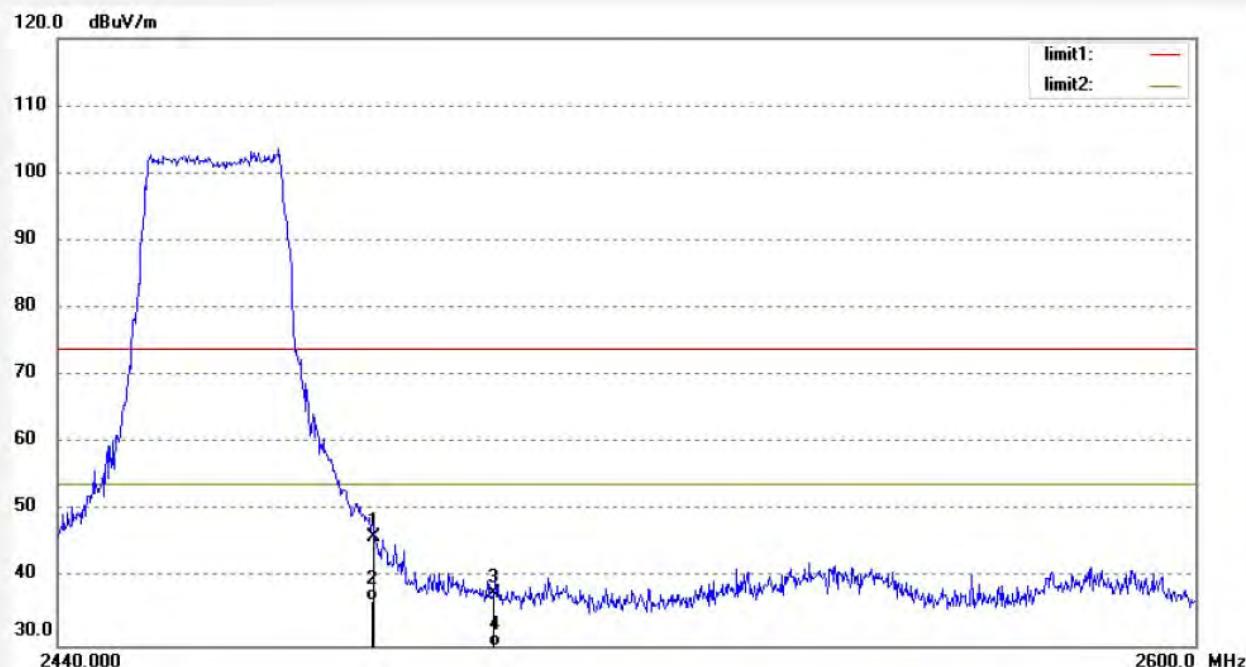
Mode: TX Channel 11(802.11n)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	51.61	-5.51	46.10	74.00	-27.90	peak	250	184	
2	2483.500	42.10	-5.51	36.59	54.00	-17.41	AVG	250	279	
3	2500.000	43.20	-5.50	37.70	74.00	-36.30	peak	250	64	
4	2500.000	33.67	-5.50	28.17	54.00	-25.83	AVG	250	183	

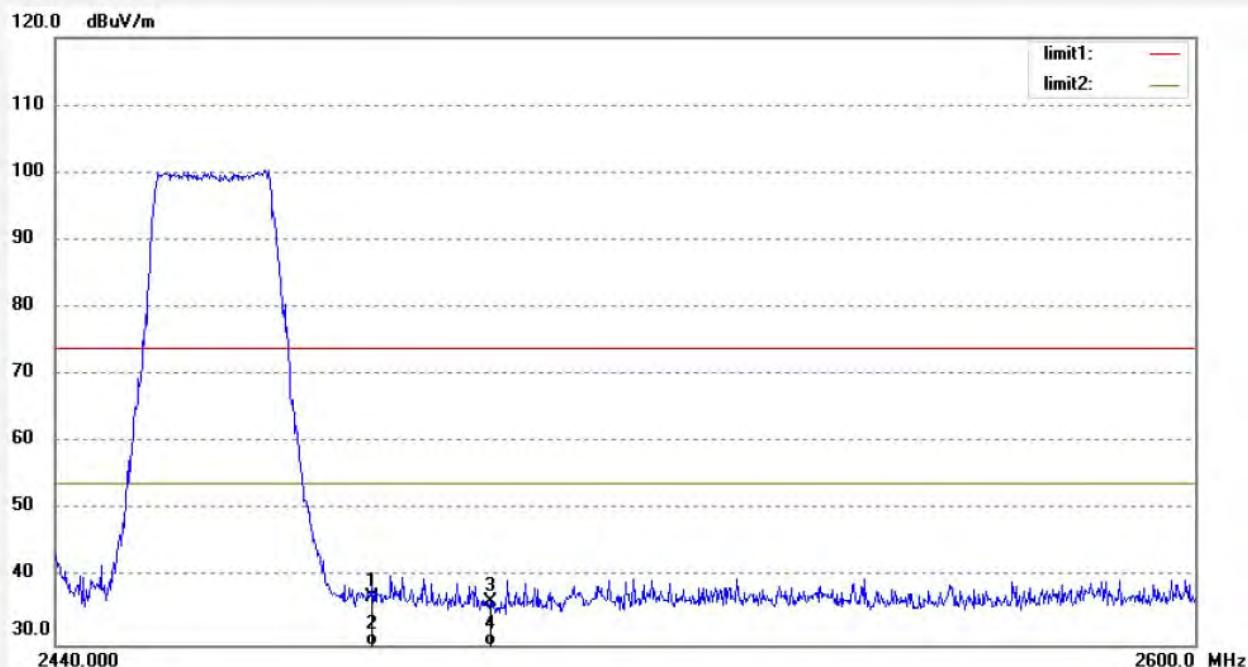


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Job No.:	frank2017 #1672	Polarization:	Vertical
Standard:	FCC PK	Power Source:	AC 120V/60Hz
Test item:	Radiation Test	Date:	18/01/02/
Temp.(C)/Hum.(%)	25 C / 55 %	Time:	11/24/24
EUT:	Mobile Wifi Camera	Engineer Signature:	Frank
Mode:	TX Channel 11(802.11n)	Distance:	3m
Model:	C400		
Manufacturer:	Shenzhen Leshi Video Technology Co.,Ltd		
Note:	Report No.:ATE20172586		



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2483.500	42.61	-5.51	37.10	74.00	-36.90	peak	150	327	
2	2483.500	33.10	-5.51	27.59	54.00	-26.41	AVG	150	247	
3	2500.000	41.93	-5.50	36.43	74.00	-37.57	peak	150	310	
4	2500.000	30.80	-5.50	25.30	54.00	-28.70	AVG	150	237	

11.RADIATED SPURIOUS EMISSION TEST

11.1.Block Diagram of Test Setup

11.1.1.Block diagram of connection between the EUT and peripherals

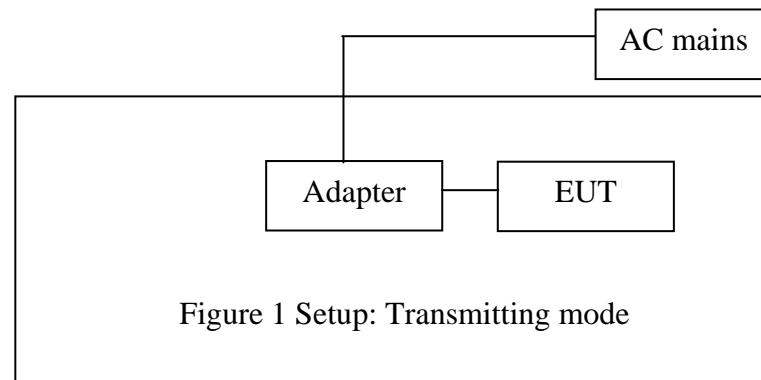
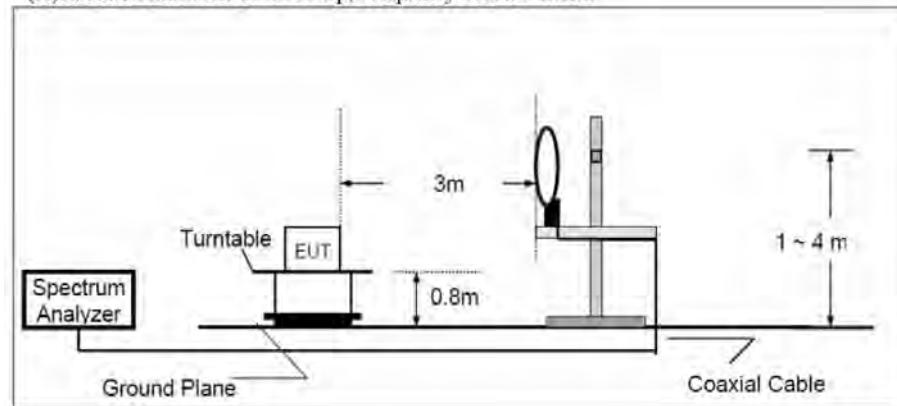


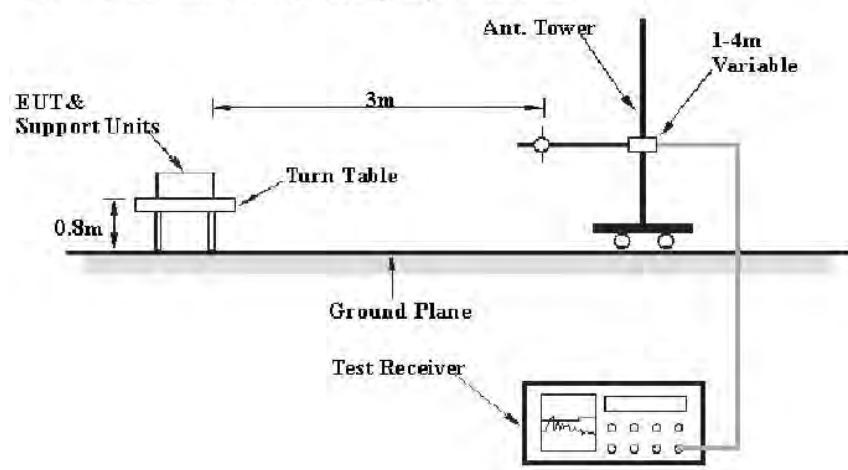
Figure 1 Setup: Transmitting mode

11.1.2.Semi-Anechoic Chamber Test Setup Diagram

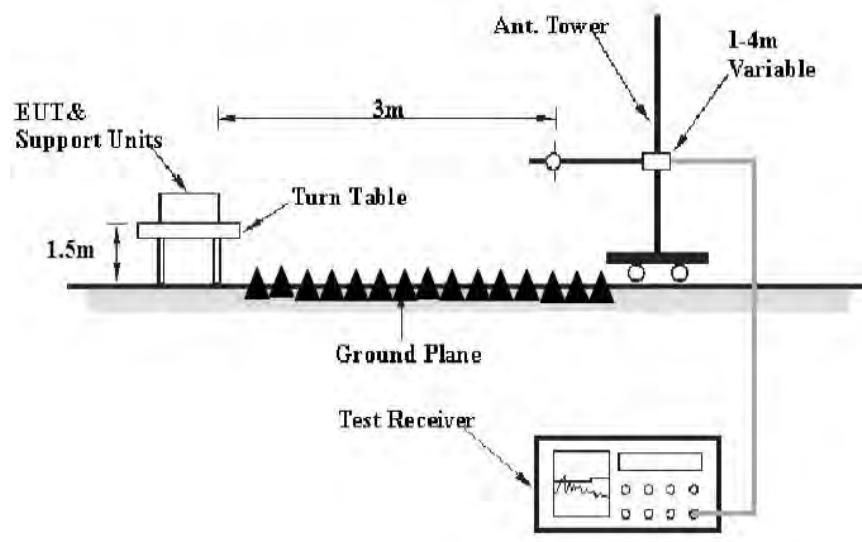
(A)Radiated Emission Test Set-Up, Frequency below 30MHz



(B)Radiated Emission Test Set-Up, Frequency 30MHz-1GHz



(C) Radiated Emission Test Set-Up, Frequency above 1GHz



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 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.

11.5.Operating Condition of EUT

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

11.5.2.Turn on the power of all equipment.

11.5.3.Let the EUT work in TX modes measure it. The transmit frequency are 2412-2462. We select 2412MHz, 2437MHz, 2462MHz 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(Below 1GHz). The EUT and its simulators are placed on a turntable, which is 1.5 meter high above ground(Above 1GHz). The turntable can rotate 360 degrees to determine the position of the maximum emission level. EUT is set 3.0 meters away from the receiving antenna, which is mounted on an antenna tower. The antenna can be moved up and down between 1.0 meter and 4 meters to find out the maximum emission level. Broadband antenna (calibrated bi-log antenna) is used as receiving antenna. Both horizontal and vertical polarizations of the antenna are set on measurement. In order to find the maximum emission levels, all of the EUT location must be manipulated according to ANSI C63.10:2013 on radiated emission measurement. This EUT was tested in 3 orthogonal positions and the worst case position data was reported.

The frequency range from 30MHz to 26500MHz is checked.

Result = Reading + Corrected Factor

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

During the radiated emission test, the spectrum analyzer was set with the following configurations:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz for peak measurement with peak detector at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 10Hz for Average measurement with peak detection at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

11.7.Data Sample

Frequency (MHz)	Reading (dB μ V)	Factor (dB/m)	Result (dB μ V/m)	Limit (dB μ V/m)	Margin (dB)	Remark
X.XX	48.69	-13.35	35.34	46	-10.66	QP

Frequency(MHz) = Emission frequency in MHz

Reading(dB μ V) = Uncorrected Analyzer/Receiver reading

Factor (dB/m) = Antenna factor + Cable Loss – Amplifier gain

Result(dB μ V/m) = Reading(dB μ V) + Factor(dB/m)

Limit (dB μ V/m) = Limit stated in standard

Margin (dB) = Result(dB μ V/m) - Limit (dB μ V/m)

QP = Quasi-peak Reading

Calculation Formula:

Margin(dB) = Result (dB μ V/m)–Limit(dB μ V/m)

Result(dB μ V/m)= Reading(dB μ V)+ Factor(dB/m)

The “Margin” column of the following data tables indicates the degree of compliance with the applicable limit. For example, a margin of -7dB means the emission is 7dB below the limit.

11.8.The Field Strength of Radiation Emission Measurement Results

Test Lab: 3m Anechoic chamber

Test Engineer: Frank

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

2. *: Denotes restricted band of operation.

3. The EUT is tested radiation emission at each test mode (802.11 b/g/n) in three axes. The worst emissions are reported in all test mode and channels.

4. The radiation emissions from 18-26.5GHz and 9KHz-30MHz are not reported, because the test values lower than the limits of 20dB.

5. We tested 802.11b/g/n mode the all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.

Below 1G



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Job No.: frank2017 #1631

Polarization: Horizontal

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02

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

Time: 9/37/15

EUT: Mobile Wifi Camera

Engineer Signature: Frank

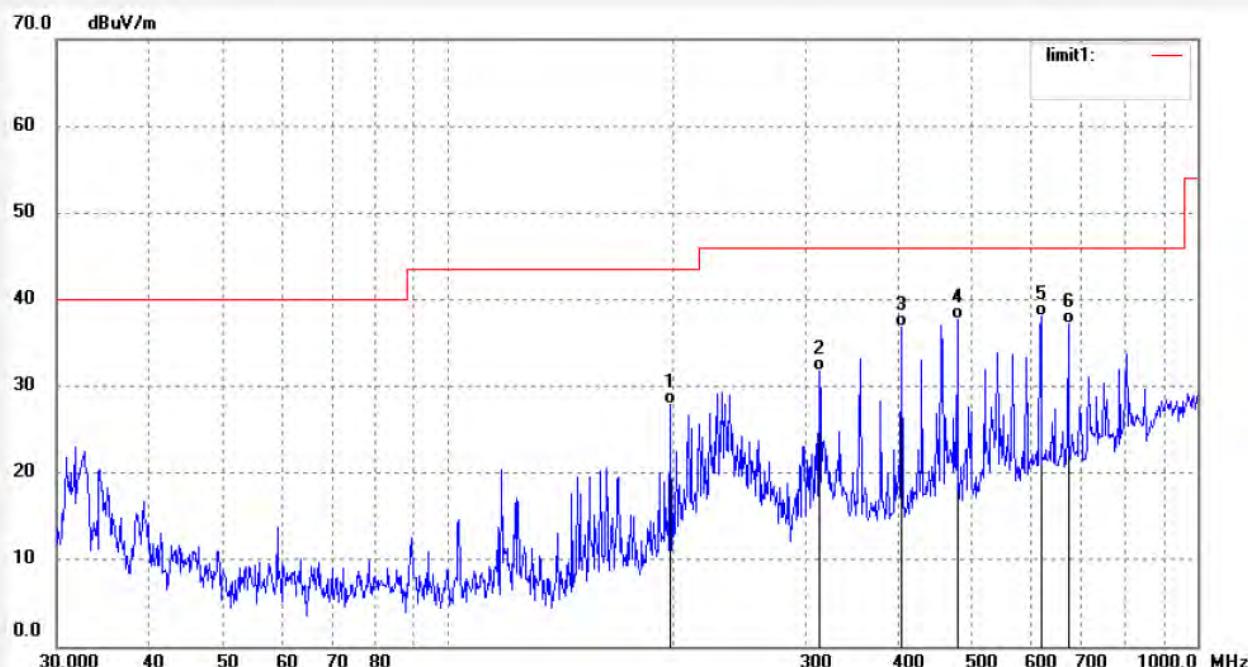
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report NO.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	197.9456	52.35	-24.48	27.87	43.50	-15.63	QP	200	123	
2	312.5482	52.67	-20.86	31.81	46.00	-14.19	QP	200	127	
3	402.5167	55.11	-18.26	36.85	46.00	-9.15	QP	200	248	
4	478.1394	54.34	-16.65	37.69	46.00	-8.31	QP	200	183	
5	617.9416	51.38	-13.30	38.08	46.00	-7.92	QP	200	64	
6	672.3103	49.36	-12.11	37.25	46.00	-8.75	QP	200	328	



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Job No.: frank2017 #1632

Polarization: Vertical

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 9/38/00

EUT: Mobile Wifi Camera

Engineer Signature: Frank

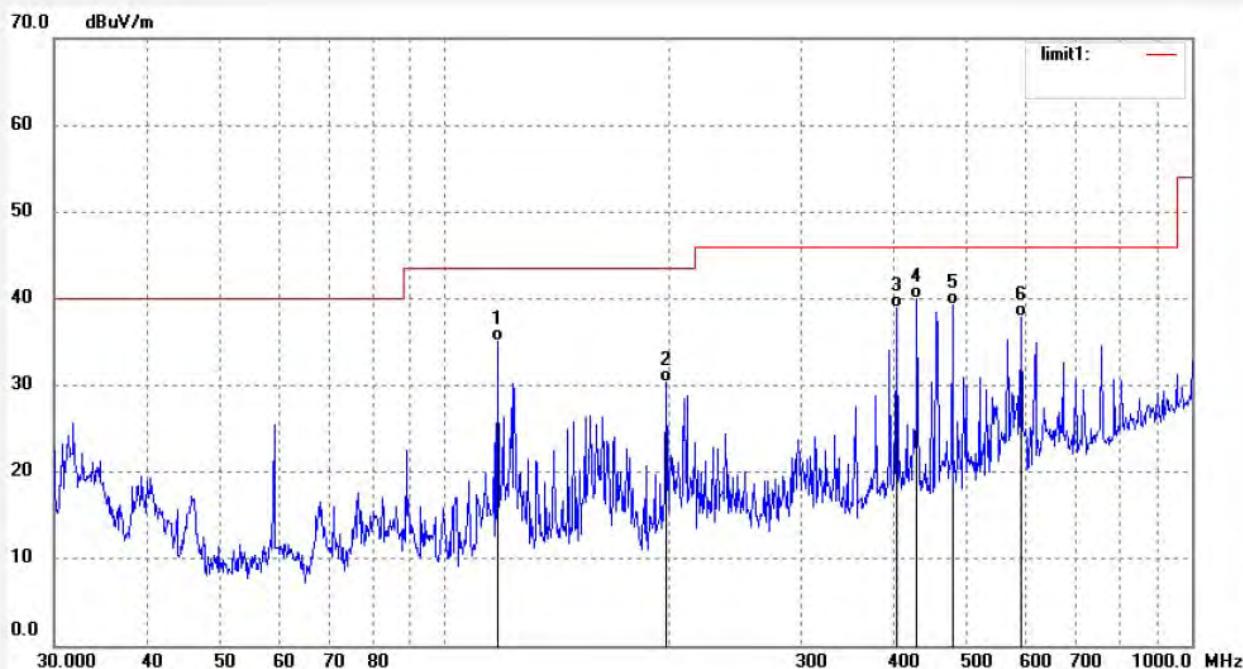
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report NO.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	117.6814	62.52	-27.39	35.13	43.50	-8.37	QP	100	298	
2	197.9456	54.87	-24.48	30.39	43.50	-13.11	QP	100	135	
3	402.5167	57.13	-18.26	38.87	46.00	-7.13	QP	100	254	
4	428.7959	57.89	-17.83	40.06	46.00	-5.94	QP	100	348	
5	478.1394	55.97	-16.65	39.32	46.00	-6.68	QP	100	127	
6	590.3510	51.83	-13.88	37.95	46.00	-8.05	QP	100	27	



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Job No.: frank2017 #1634

Polarization: Horizontal

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 9/38/58

EUT: Mobile Wifi Camera

Engineer Signature: Frank

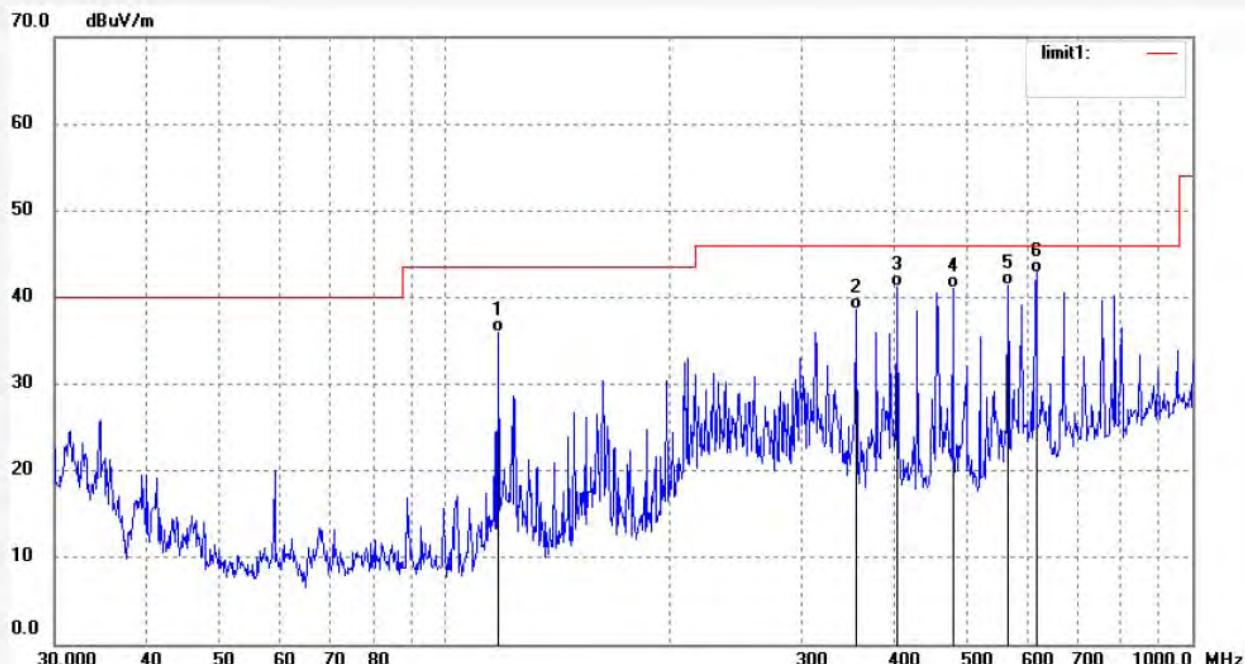
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report NO.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	117.6814	63.35	-27.39	35.96	43.50	-7.54	QP	200	106	
2	354.6911	57.74	-19.14	38.60	46.00	-7.40	QP	200	100	
3	402.5167	59.40	-18.26	41.14	46.00	-4.86	QP	200	121	
4	478.1394	57.67	-16.65	41.02	46.00	-4.98	QP	200	74	
5	565.9776	55.81	-14.45	41.36	46.00	-4.64	QP	200	128	
6	617.9416	56.02	-13.30	42.72	46.00	-3.28	QP	200	135	



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Job No.: frank2017 #1633

Polarization: Vertical

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 9/38/04

EUT: Mobile Wifi Camera

Engineer Signature: Frank

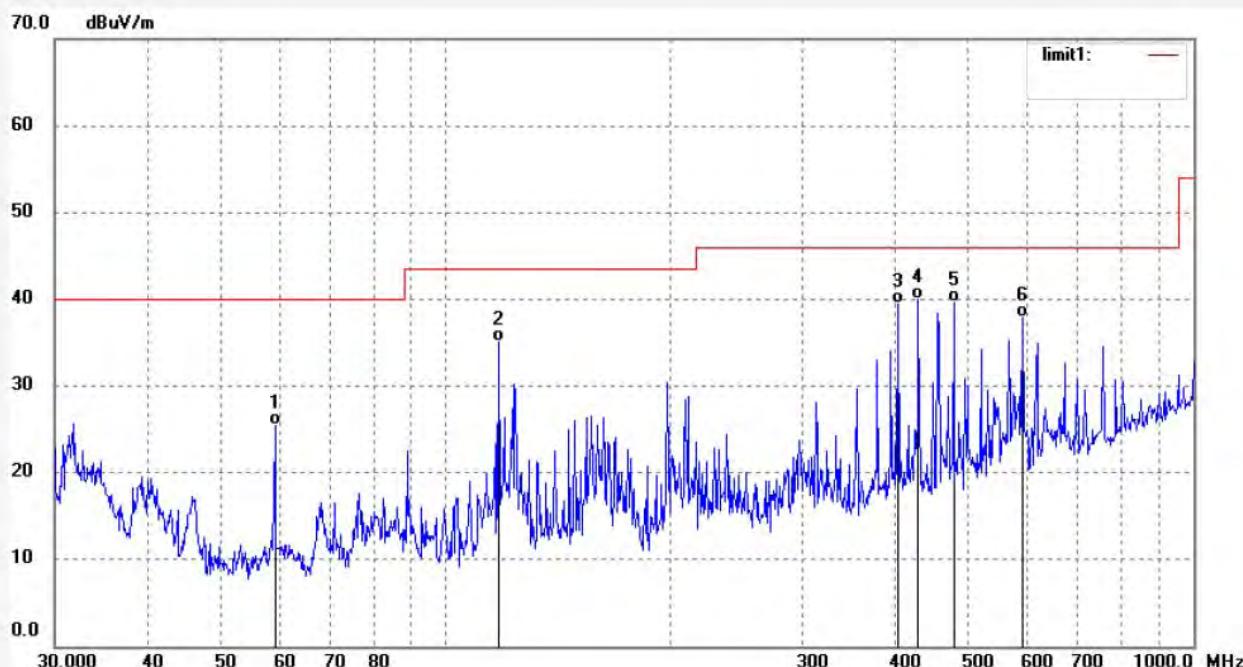
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report NO.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	59.1052	52.63	-27.17	25.46	40.00	-14.54	QP	100	138	
2	117.6814	62.52	-27.39	35.13	43.50	-8.37	QP	100	327	
3	402.5167	57.72	-18.26	39.46	46.00	-6.54	QP	100	248	
4	428.7959	57.89	-17.83	40.06	46.00	-5.94	QP	100	61	
5	478.1394	56.32	-16.65	39.67	46.00	-6.33	QP	100	329	
6	590.3510	51.83	-13.88	37.95	46.00	-8.05	QP	100	274	

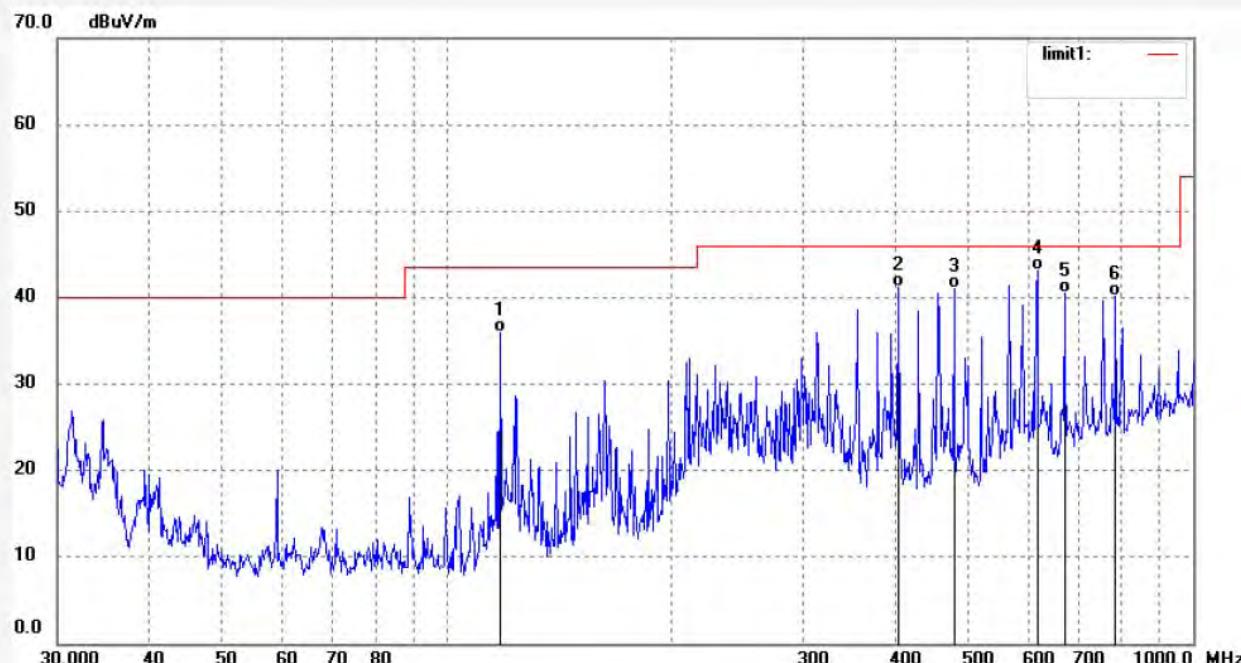


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Job No.: frank2017 #1637	Polarization: Horizontal
Standard: FCC Class C 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 18/01/02/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 9/39/22
EUT: Mobile Wifi Camera	Engineer Signature: Frank
Mode: TX Channel 11(802.11b)	Distance: 3m
Model: C400	
Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd	
Note: Report NO.:ATE20172586	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	117.6814	63.35	-27.39	35.96	43.50	-7.54	QP	200	231	
2	402.5167	59.40	-18.26	41.14	46.00	-4.86	QP	200	218	
3	478.1394	57.67	-16.65	41.02	46.00	-4.98	QP	200	349	
4	617.9416	56.52	-13.30	43.22	46.00	-2.78	QP	200	45	
5	672.3103	52.57	-12.11	40.46	46.00	-5.54	QP	200	126	
6	787.4749	49.41	-9.33	40.08	46.00	-5.92	QP	200	210	



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Job No.: frank2017 #1636

Polarization: Vertical

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 9/40/14

EUT: Mobile Wifi Camera

Engineer Signature: Frank

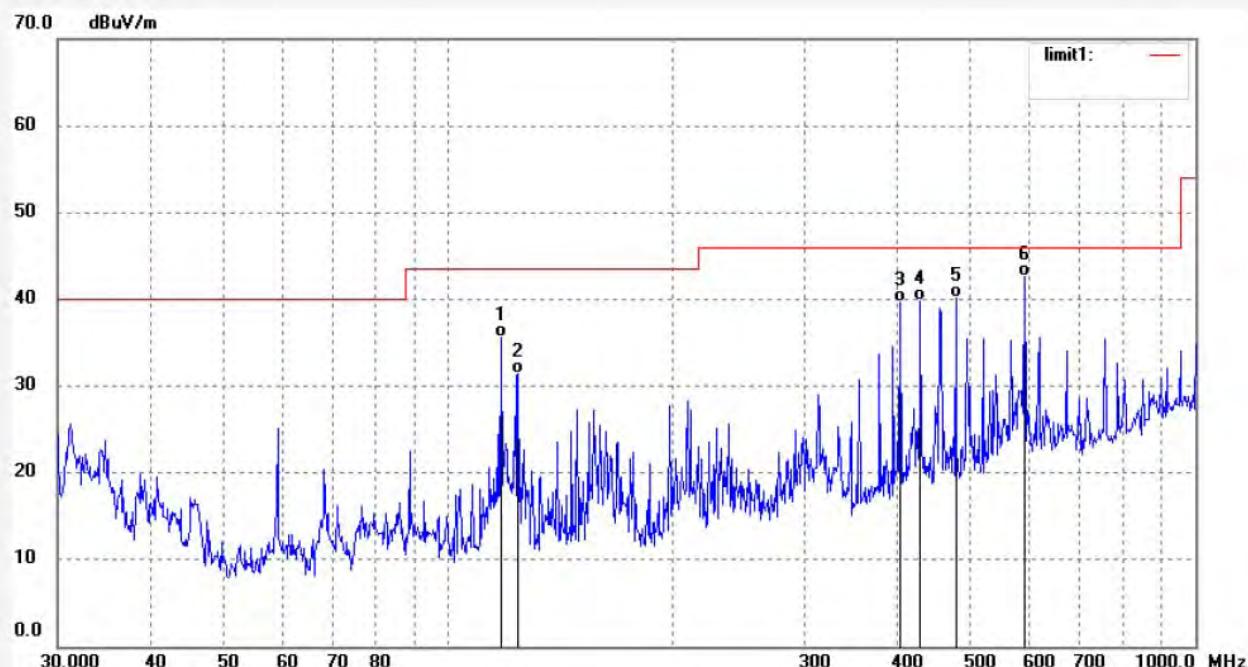
Mode: TX Channel 11(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report NO.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	117.6814	62.99	-27.39	35.60	43.50	-7.90	QP	100	218	
2	124.0501	58.94	-27.56	31.38	43.50	-12.12	QP	100	120	
3	402.5167	57.93	-18.26	39.67	46.00	-6.33	QP	100	135	
4	428.7959	57.70	-17.83	39.87	46.00	-6.13	QP	100	347	
5	478.1394	56.78	-16.65	40.13	46.00	-5.87	QP	100	127	
6	590.3510	56.55	-13.88	42.67	46.00	-3.33	QP	100	354	

Above 1G



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Job No.: frank2017 #1639

Polarization: Horizontal

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 09/47/37

EUT: Mobile Wifi Camera

Engineer Signature: Frank

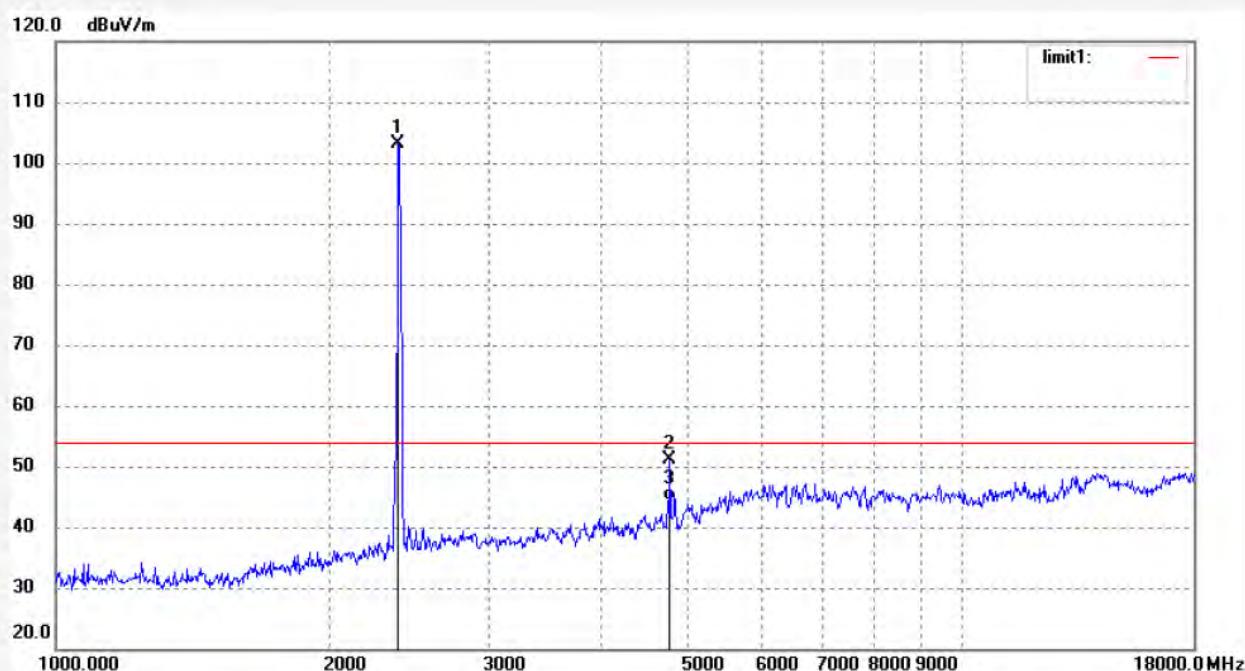
Mode: TX Channel 1(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2412.059	108.95	-5.91	103.04			peak	250	69	
2	4824.584	47.95	3.30	51.25	74.00	-22.75	peak	250	127	
3	4824.584	41.00	3.30	44.30	54.00	-9.70	AVG	250	102	

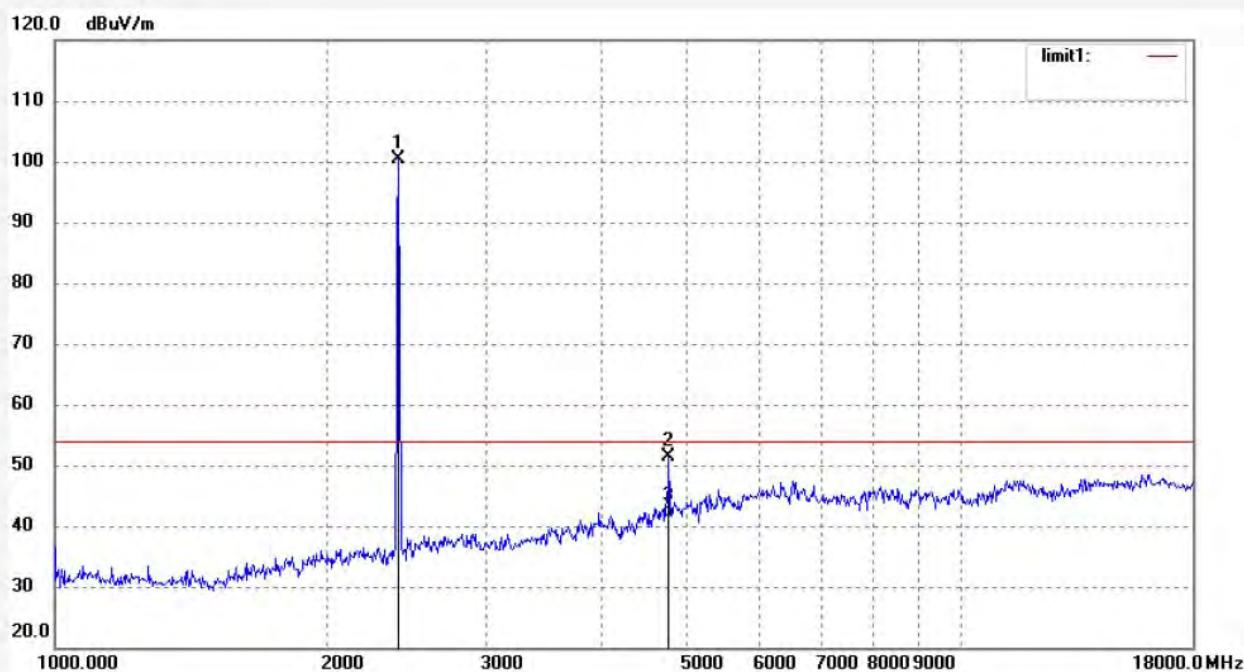


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Job No.: frank2017 #1638	Polarization: Vertical
Standard: FCC Class C 3M Radiated	Power Source: AC 120V/60Hz
Test item: Radiation Test	Date: 18/01/02/
Temp.(C)/Hum.(%) 25 C / 55 %	Time: 09/42/11
EUT: Mobile Wifi Camera	Engineer Signature: Frank
Mode: TX Channel 1(802.11b)	Distance: 3m
Model: C400	
Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd	
Note: Report No.:ATE20172586	



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2412.019	106.24	-5.84	100.40			peak	150	163	
2	4824.584	48.20	3.30	51.50	74.00	-22.50	peak	150	248	
3	4824.584	38.13	3.30	41.43	54.00	-12.57	AVG	150	247	



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Job No.: frank2017 #1640

Polarization: Horizontal

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 09/55/35

EUT: Mobile Wifi Camera

Engineer Signature: Frank

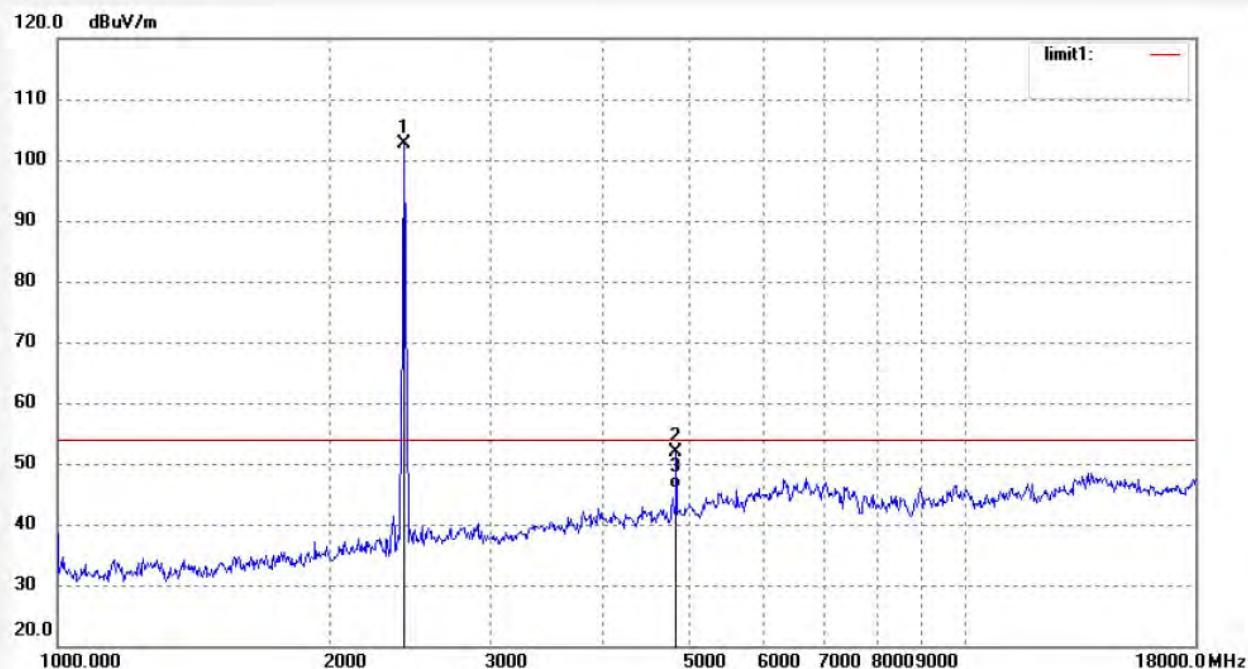
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2437.100	108.46	-5.76	102.70			peak	250	108	
2	4874.324	48.32	3.67	51.99	74.00	-22.01	peak	250	98	
3	4874.324	42.12	3.67	45.79	54.00	-8.21	AVG	250	102	



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Job No.: frank2017 #1641

Polarization: Vertical

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 09/58/09

EUT: Mobile Wifi Camera

Engineer Signature: Frank

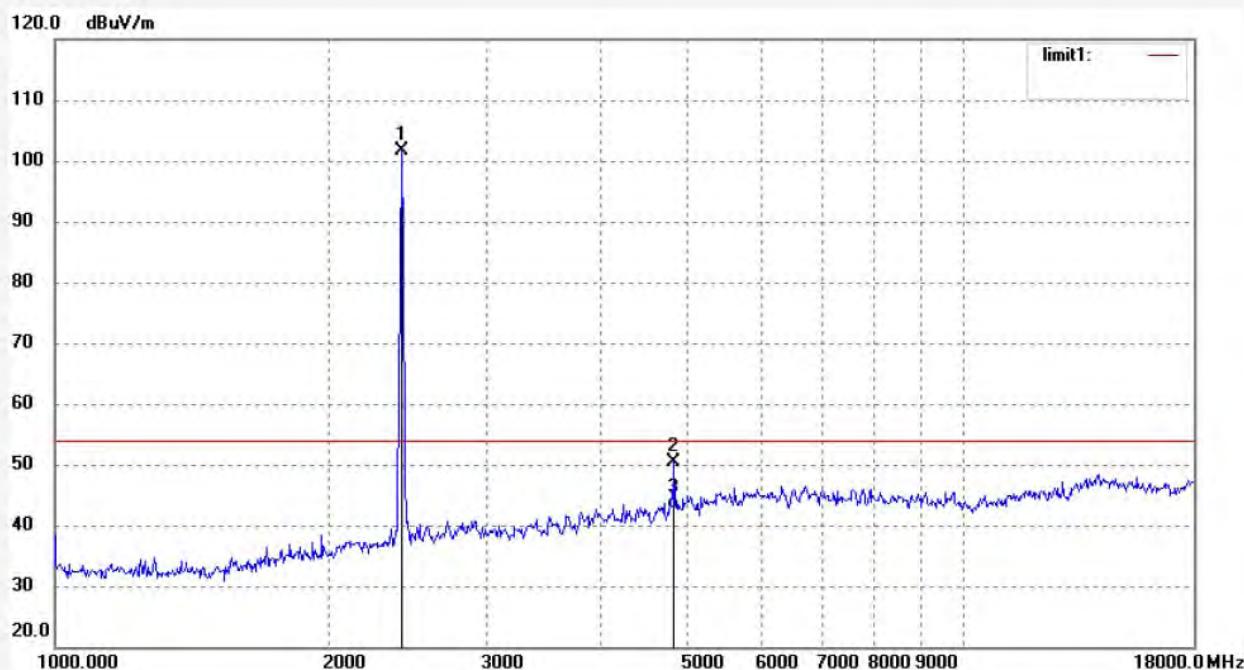
Mode: TX Channel 6(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2437.200	107.46	-5.76	101.70			peak	150	97	
2	4874.324	46.82	3.67	50.49	74.00	-23.51	peak	150	187	
3	4874.324	38.97	3.67	42.64	54.00	-11.36	AVG	150	102	



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Job No.: frank2017 #1643

Polarization: Horizontal

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 10/05/20

EUT: Mobile Wifi Camera

Engineer Signature: Frank

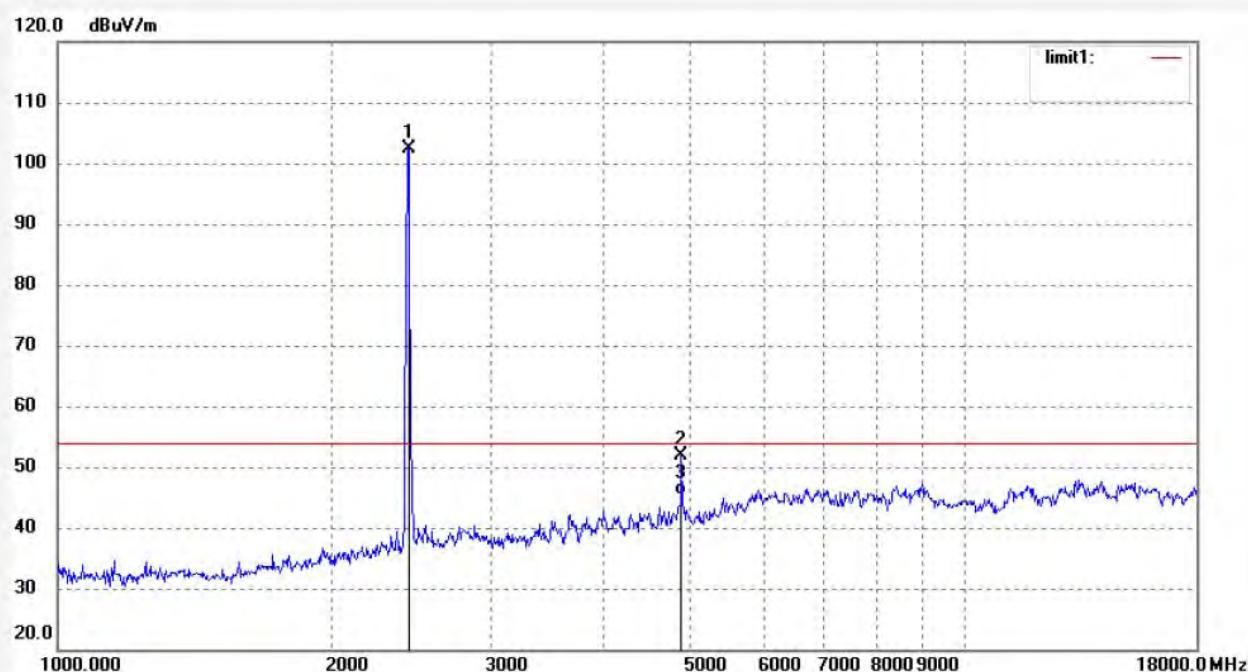
Mode: TX Channel 11(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2462.007	108.09	-5.61	102.48			peak	150	328	
2	4924.117	47.65	4.20	51.85	74.00	-22.15	peak	150	64	
3	4924.117	41.28	4.20	45.48	54.00	-8.52	AVG	150	128	



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Job No.: frank2017 #1642

Polarization: Vertical

Standard: FCC Class C 3M Radiated

Power Source: AC 120V/60Hz

Test item: Radiation Test

Date: 18/01/02/

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

Time: 10/03/30

EUT: Mobile Wifi Camera

Engineer Signature: Frank

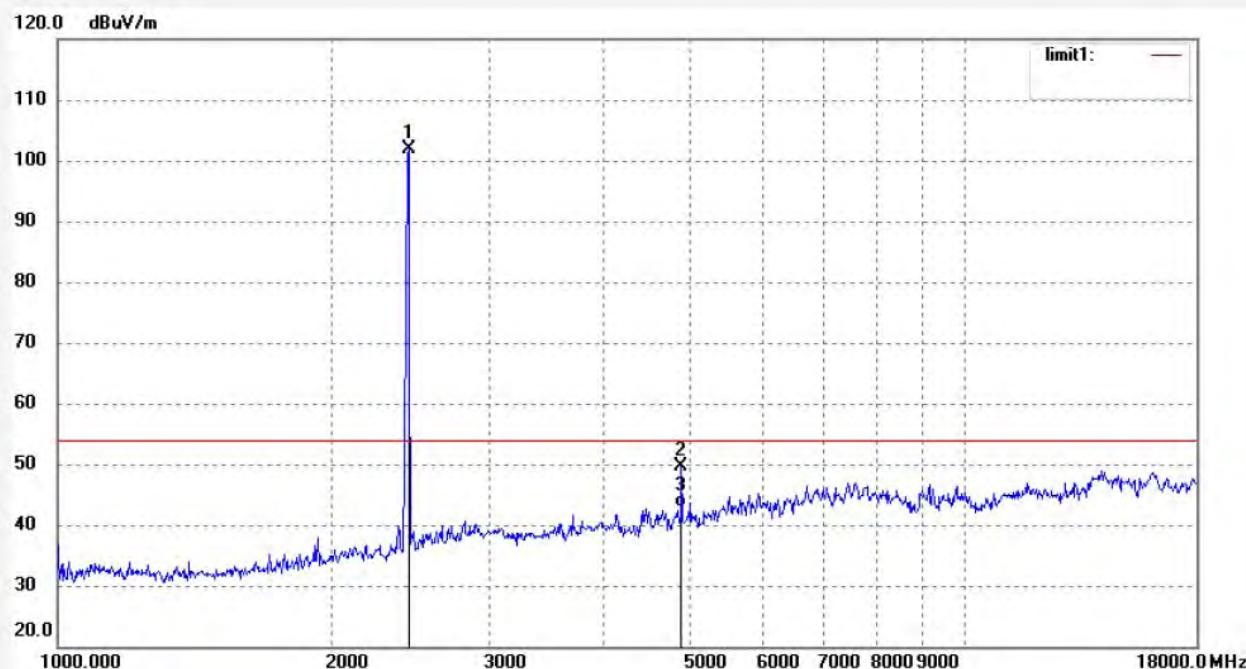
Mode: TX Channel 11(802.11b)

Distance: 3m

Model: C400

Manufacturer: Shenzhen Leshi Video Technology Co.,Ltd

Note: Report No.:ATE20172586



No.	Freq. (MHz)	Reading (dBuV/m)	Factor (dB)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Degree (deg.)	Remark
1	2462.107	107.60	-5.61	101.99			peak	150	37	
2	4924.217	45.37	4.20	49.57	74.00	-24.43	peak	150	56	
3	4924.217	38.67	4.20	42.87	54.00	-11.13	AVG	150	114	

12.99% OCCUPIED BANDWIDTH

12.1. Block Diagram of Test Setup



12.2. 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.

12.3. Operating Condition of EUT

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

12.3.2. Turn on the power of all equipment.

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

12.4. Test Procedure

12.4.1. The transmitter output was connected to the spectrum analyzer through a low loss cable. The transmitter shall be operated at its maximum carrier power measured under normal test conditions. The span of the analyzer shall be set to capture all products of the modulation process, including the emission skirts.

12.4.2. The resolution bandwidth (RBW) shall be in the range of 1% to 5% of the occupied bandwidth (OBW) and video bandwidth (VBW) shall be approximately 3x RBW.

12.4.3. A peak, or peak hold, may be used in place of the sampling detector as this may produce a wider bandwidth than the actual bandwidth (worst-case measurement). Use of a peak hold may be necessary to determine the occupied bandwidth if the device is not transmitting continuously.

12.4.4. Set SPA “Meas” function, Select “Occupied Bandwidth” function, Select “99% Power Bandwidth”. The frequency of the upper and lower markers indicating the edges of the transmitters “99% Power” emission bandwidth shall be recorded to automate by SPA.

12.5.Measurement Result

Test Lab: Shielding room
Test Engineer: Frank

The test was performed with 802.11b		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
Low	2412	13.348
Middle	2437	13.398
High	2462	13.428

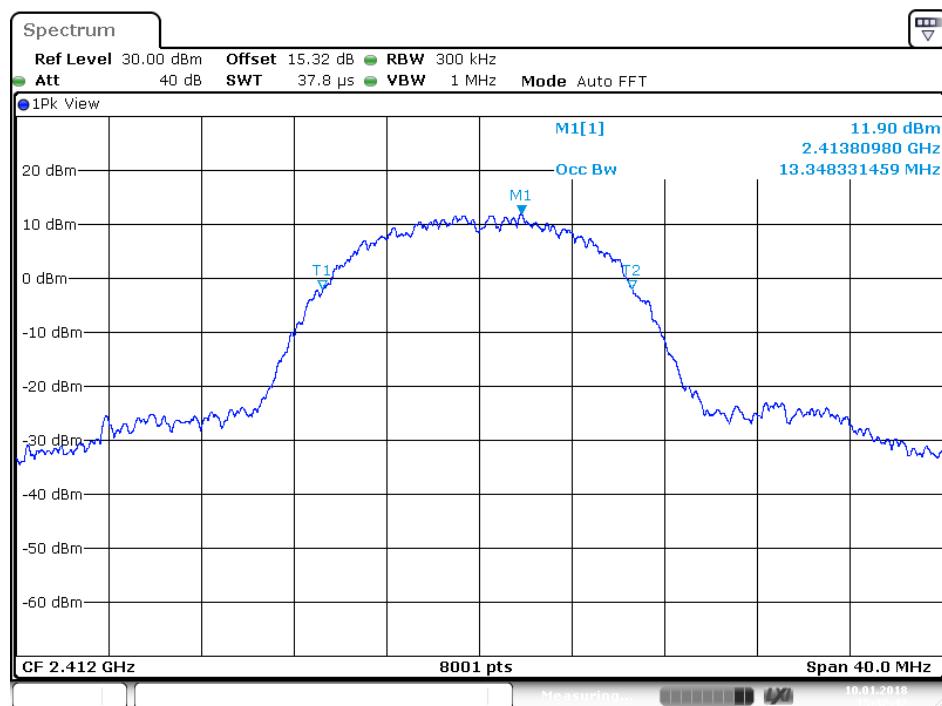
The test was performed with 802.11g		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
Low	2412	16.768
Middle	2437	16.663
High	2462	16.638

The test was performed with 802.11n (Bandwidth: 20 MHz)		
Channel	Frequency (MHz)	99% Occupied Bandwidth (MHz)
Low	2412	17.808
Middle	2437	17.863
High	2462	17.873

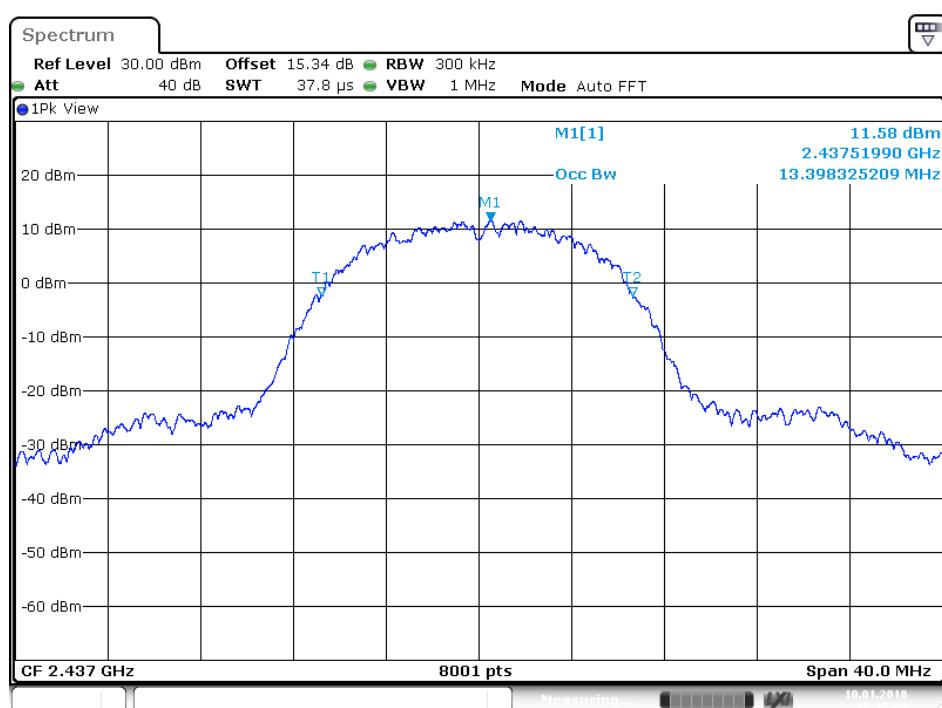
Note: We tested 802.11b/g/n mode the all data rate and recorded the worst case data for this channel to be 11Mbps for 802.11b mode and 54Mbps for 802.11g mode and MCS7 for 802.11n mode.

The spectrum analyzer plots are attached as below.

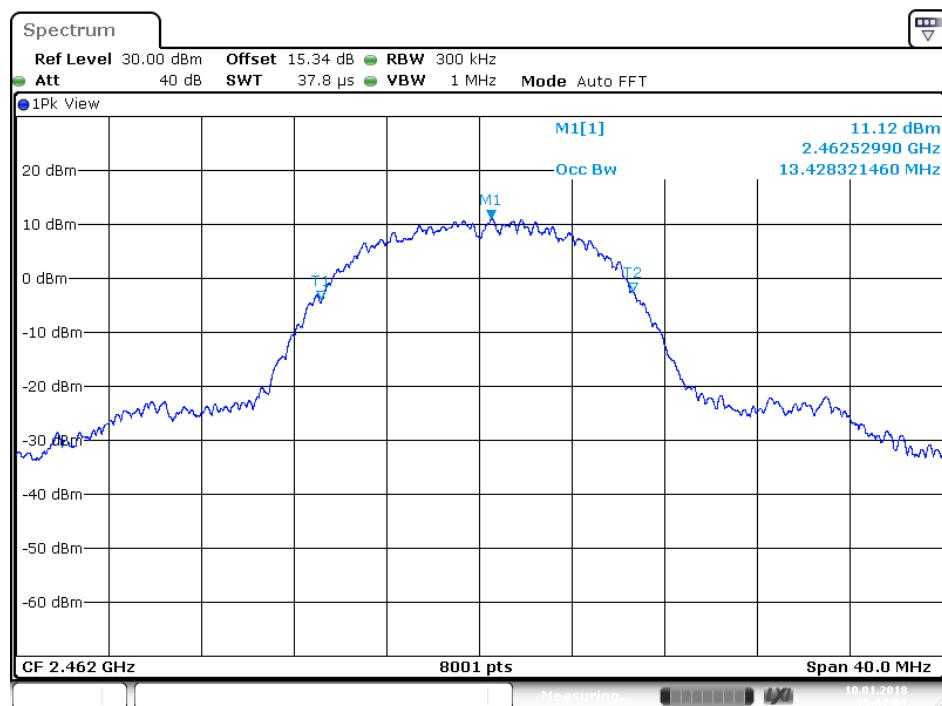
802.11b Channel Low 2412MHz



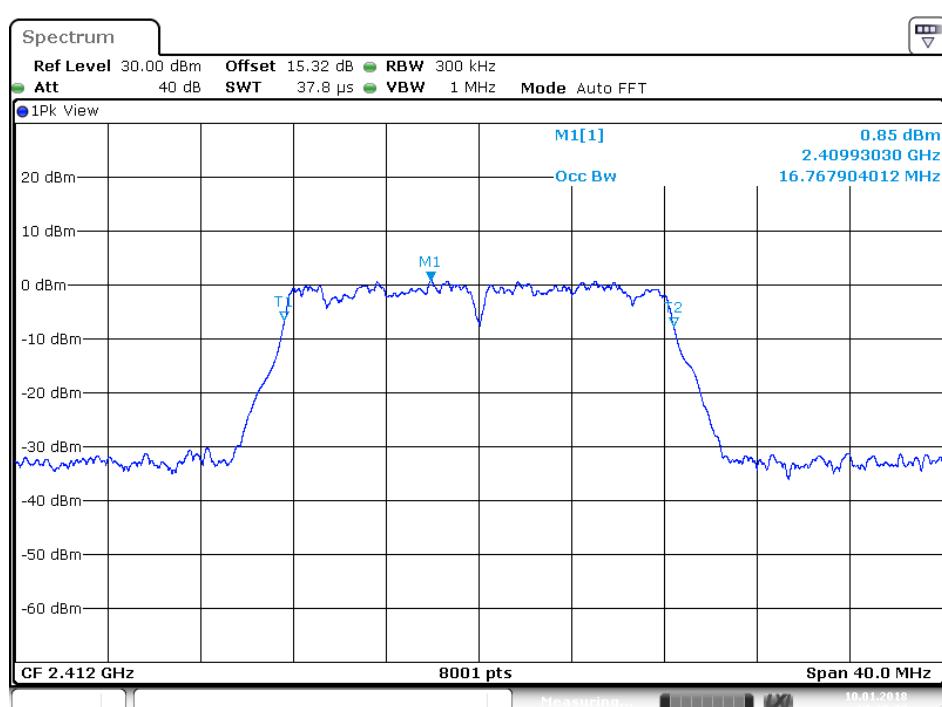
802.11b Channel Middle 2437MHz



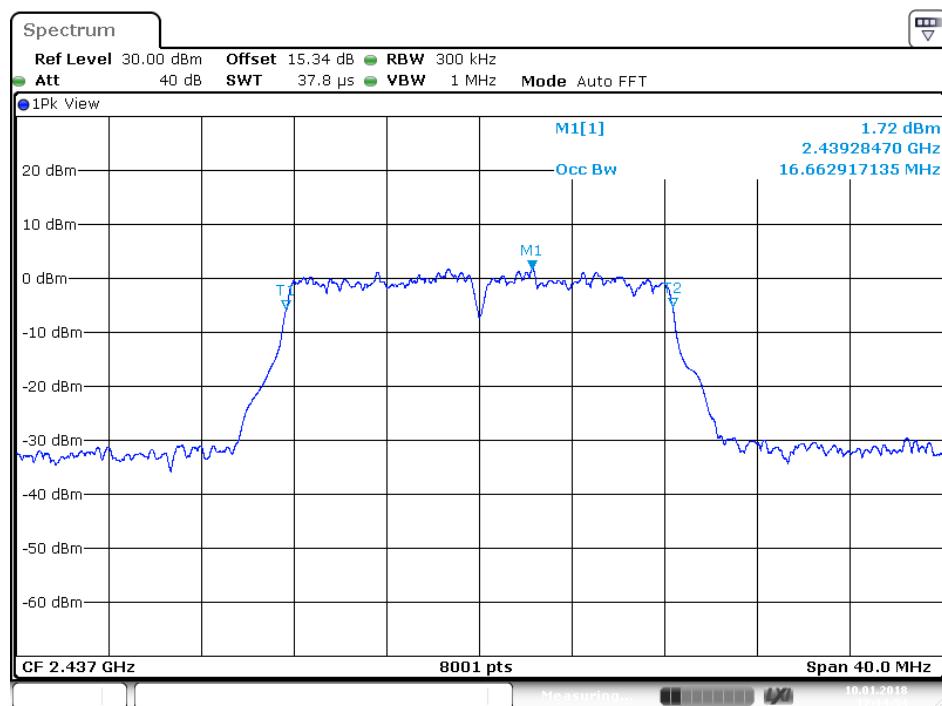
802.11b Channel High 2462MHz



802.11g Channel Low 2412MHz

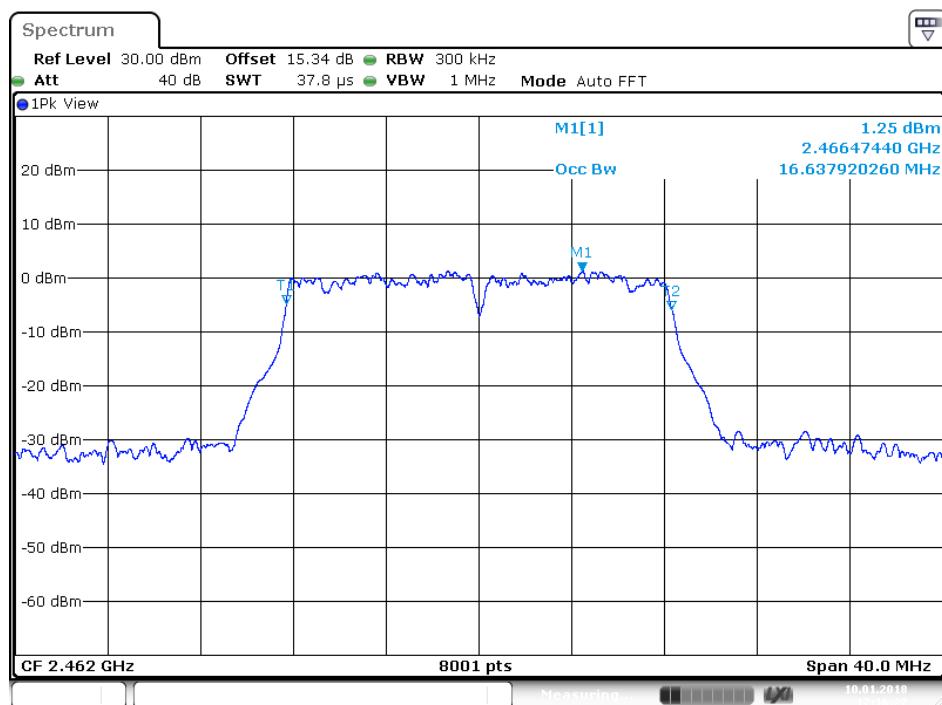


802.11g Channel Middle 2437MHz



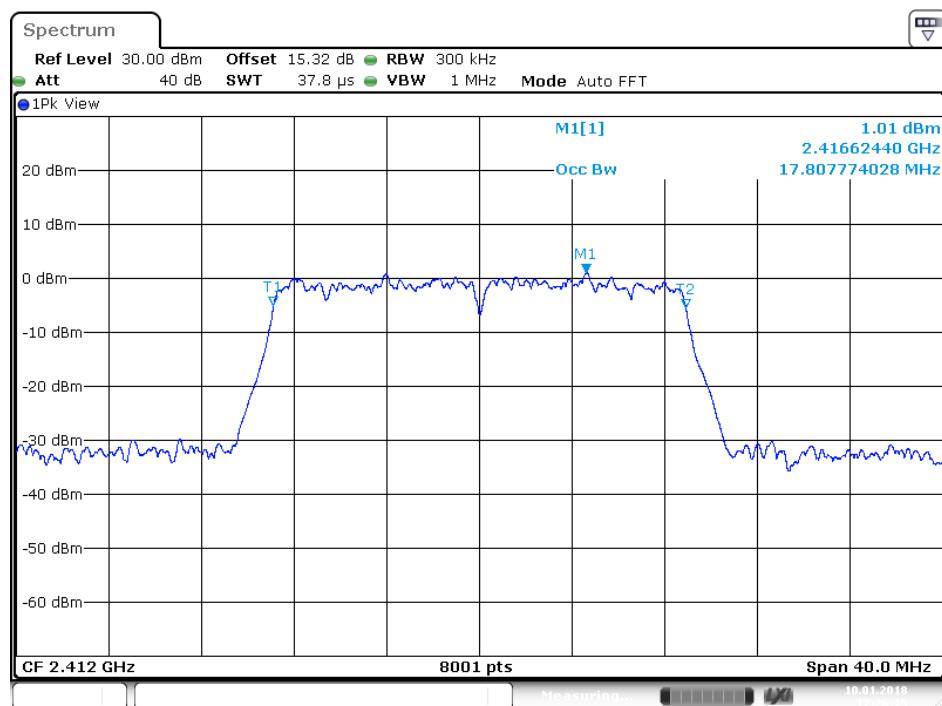
Date: 10.JAN.2018 17:14:54

802.11g Channel High 2462MHz

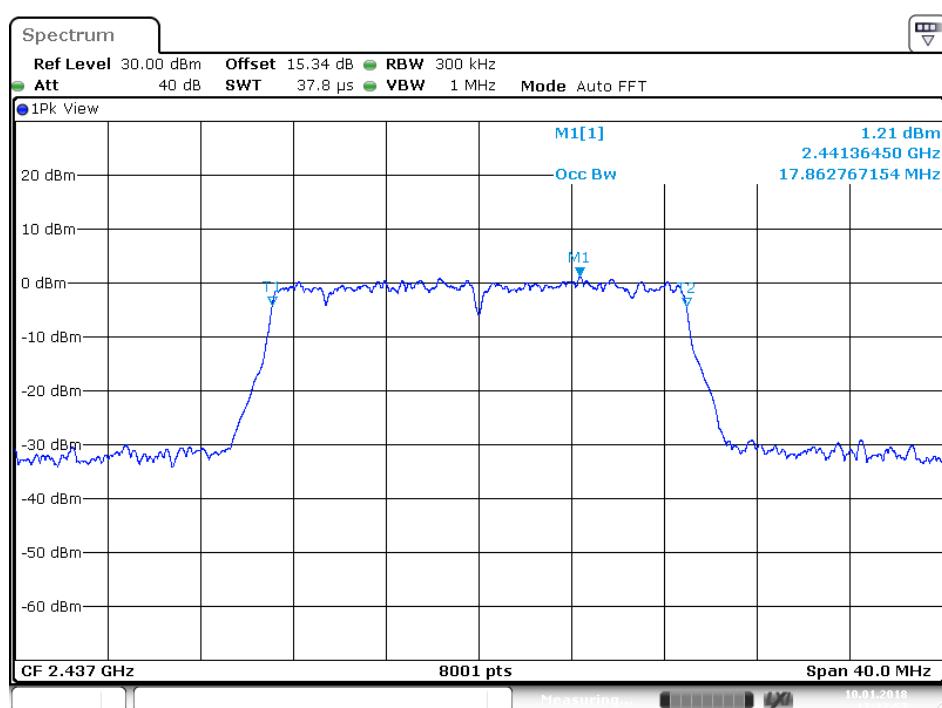


Date: 10.JAN.2018 17:16:28

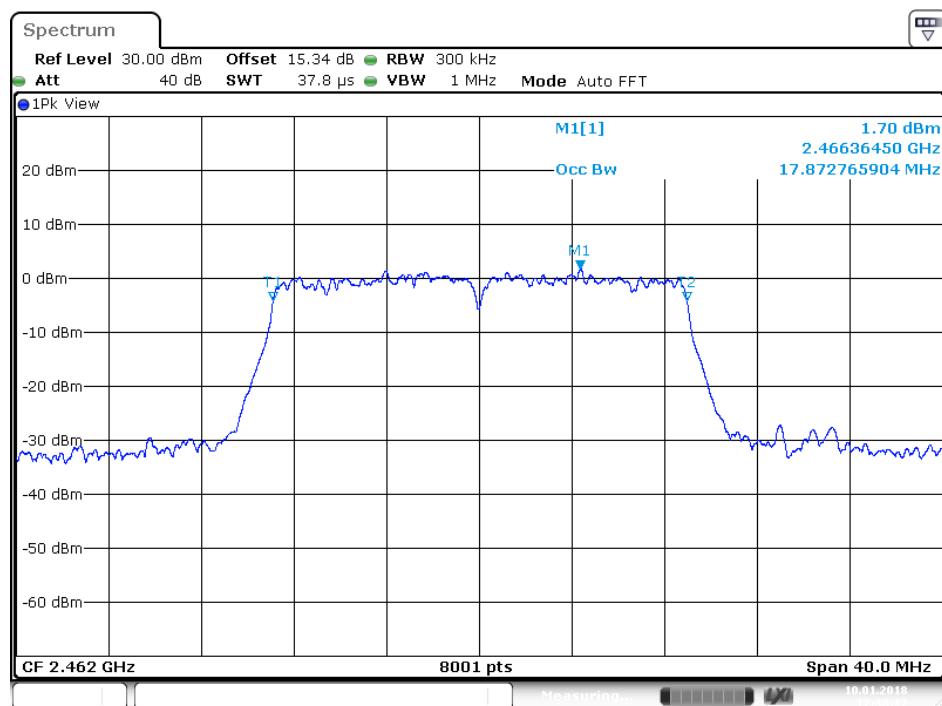
802.11n Channel Low 2412MHz (20MHz)



802.11n Channel Middle 2437MHz(20MHz)



802.11n Channel High 2462MHz(20MHz)



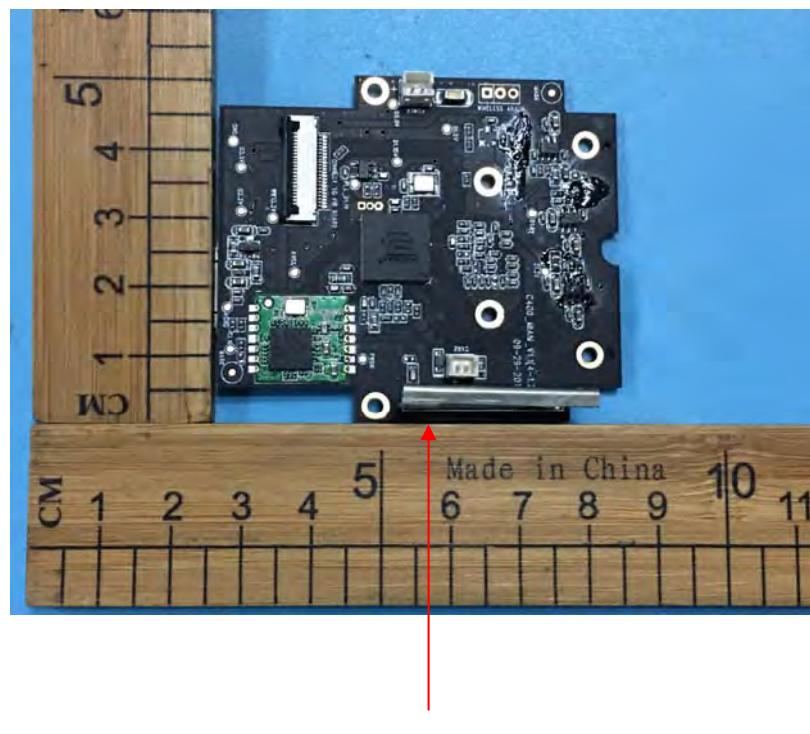
13. ANTENNA REQUIREMENT

13.1. 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.

13.2. Antenna Construction

Device is equipped with permanent attached antenna, which isn't displaced by other antenna. The Antenna gain of EUT is 3dBi. Therefore, the equipment complies with the antenna requirement of Section 15.203.



----- THE END OF TEST REPORT -----