RADIO TEST REPORT

For

Shenzhen Century Xinyang Tech Co., Ltd

Wireless Module

Model No.: SL-D001A

Prepared for	:	Shenzhen Century Xinyang Tech Co., Ltd
Address	:	Room 3001-3002, East Tower 30/F, Nanshan Software Park, Shenzhen, China
Prepared by	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Address	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Date of receipt of test sample	:	May 24, 2012
Number of tested samples	:	1
Serial number	:	Prototype
Date of Test	:	May 24, 2012 – August 22, 2012
Date of Report	:	August 22, 2012

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

TEST REPORT
FCC CFR 47 PART 15 C(15.247)

Report Reference No.	**:**	**LCS120807033TF**
Date of Issue	:	August 22, 2012
Testing Laboratory Name.....	**:**	**Shenzhen LCS Compliance Testing Laboratory Ltd.**
Address	:	1F., Xingyuan Industrial Park, Tongda Road, Bao'an Blvd., Bao'an District, Shenzhen, Guangdong, China
Testing Location/ Procedure.....	:	Full application of Harmonised standards ■ Partial application of Harmonised standards ☐ Other standard testing method ☐
Applicant's Name.....	**:**	**Shenzhen Century Xinyang Tech Co., Ltd**
Address	:	Room 3001～3002, East Tower 30/F, Nanshan Software Park, Shenzhen, China
Test Specification		
Standard	:	FCC CFR 47 PART 15 Subpart C: 2011, ANSI C63.4
Test Report Form No.....	**:**	LCSEMC-1.0
TRF Originator	:	Shenzhen LCS Compliance Testing Laboratory Ltd.
Master TRF	:	Dated 2011-03

SHENZHEN LCS COMPLIANCE TESTING LABORATORY LTD. All rights reserved.
This publication may be reproduced in whole or in part for non-commercial purposes as long as the Shenzhen LCS Compliance Testing Laboratory Ltd. is acknowledged as copyright owner and source of the material. Shenzhen LCS Compliance Testing Laboratory Ltd. takes no responsibility for and will not assume liability for damages resulting from the reader's interpretation of the reproduced material due to its placement and context.

Test Item Description.	**:**	**Wireless Module**
Trade Mark	:	widemac
Manufacturer.....	:	Shenzhen Century Xinyang Tech Co., Ltd
Model/ Type reference.....	:	SL-D001A
Ratings	:	DC 5V, Current: 500mA
Result	:	**Positive**

Compiled by:	**Supervised by:**	**Approved by:**
Ada Liang / File administrators	Vito Cao/ Technique principal	Gavin Liang/ Manager

EMC -- TEST REPORT

Test Report No. : LCS120807033TF	August 22, 2012 Date of issue

Type / Model.....	: SL-D001A
EUT.....	: Wireless Module
Applicant.....	**: Shenzhen Century Xinyang Tech Co., Ltd**
Address.....	: Room 3001～3002, East Tower 30/F, Nanshan Software Park, Shenzhen, China
Telephone.....	: /
Fax.....	: /
Manufacturer.....	**: Shenzhen Century Xinyang Tech Co., Ltd**
Address.....	: Room 3001～3002, East Tower 30/F, Nanshan Software Park, Shenzhen, China
Telephone.....	: /
Fax.....	: /
Factory.....	**: Shenzhen Century Xinyang Tech Co., Ltd**
Address.....	: Room 3001～3002, East Tower 30/F, Nanshan Software Park, Shenzhen, China
Telephone.....	: /
Fax.....	: /

Test Result:	**Positive**

The test report merely corresponds to the test sample.

It is not permitted to copy extracts of these test result without the written permission of the test laboratory.

TABLE OF CONTENTS

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

EUT : Wireless Module

Model Number : SL-D001A

Power Supply : DC 5.0V

Frequency Range : 2412.00-2462.00MHz, (Channel Number: 11, Channel Frequency=2412+5(K-1), K=1, 2, 3 ……11)

Modulation Technology : IEEE 802.11b: DSSS(CCK,DQPSK,DBPSK)
IEEE 802.11g: OFDM (BPSK, QPSK, 16-QAM, 64-QAM)
IEEE 802.11n HT20, HT40: OFDM (64QAM, 16QAM, QPSK,BPSK)

Antenna Gain : 1.0dBi

1.2. Host System Configuration List and Details

Manufacturer	Description	Model	Serial Number	Certificate
Lenovo	Notebook	Lenovo B470	WB05067151	DoC

1.3. External I/O Cable

Cable Description	Length (M)	From/Port	To
N/A	N/A	N/A	N/A

1.4. Description of Test Facility

Site Description EMC Lab. :

Accredited by CNAS, June 04, 2010

The Certificate Registration Number. is L4595.

Accredited by FCC, July 14, 2011

The Certificate Registration Number. is 899208.

Accredited by Industry Canada, May. 02, 2011

The Certificate Registration Number. is 9642A-1

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

1.5. Statement of The Measurement Uncertainty

The data and results referenced in this document are true and accurate. The reader is cautioned that there may be errors within the calibration limits of the equipment and facilities. The measurement uncertainty was calculated for all measurements listed in this test report acc. To CISPR 16 – 4 "Specification for radio disturbance and immunity measuring apparatus and methods – Part 4: Uncertainty in EMC Measurements" and is documented in the LCS quality system acc. To DIN EN ISO/IEC 17025. Furthermore, component and process variability of devices similar to that tested may result in additional deviation. The manufacturer has the sole responsibility of continued compliance of the device.

1.6. Measurement Uncertainty

Test Item		Frequency Range	Uncertainty	Note
Radiation Uncertainty	:	30MHz~200MHz	±2.96dB	(1)
		200MHz~1000MHz	±3.10dB	(1)
		1GHz~26.5GHz	±3.80dB	(1)
Conduction Uncertainty	:	150kHz~30MHz	±1.63dB	(1)
Power disturbance	:	30MHz~300MHz	±1.60dB	(1)

(1). This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

1.7. Description Of Test Modes

The EUT has been tested under operating condition.

Worst-case mode and channel used for 150kHz-30 MHz power line conducted emissions was the mode and channel with the highest output power, that was determined to be 802.11b mode, mid channel.

Worst-case mode and channel used for 9kHz-1000 MHz radiated and power line conducted emissions was the mode and channel with the highest output power, that was determined to be 802.11b mode, mid channel.

Worst-Case data rates were utilized from preliminary testing of the Chipset, worst-case data rates used during the testing are as follows:

For MIMO PSD measurement preliminary testing showed that combiner is worst-case compared to individual chains; therefore final measurements were performed using combiner for all channels and modes.

802.11b Mode - port 1.
802.11g Mode - port 1.
802.11n Mode HT20 - port 1.
802.11n Mode HT40 - port 1.

802.11b Mode - port 2.
802.11g Mode - port 2.
802.11n Mode HT20 - port 2.
802.11n Mode HT40 - port 2.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

2. TEST METHODOLOGY

All measurements contained in this report were conducted with ANSI C63.4-2003, American National Standard for Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the range of 9 kHz to 40 GHz.

The radiated testing was performed at an antenna-to-EUT distance of 3 meters. All radiated and conducted emissions measurement was performed at Shenzhen LCS Compliance Testing Laboratory Ltd..

2.1. EUT Configuration

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

2.2. EUT Exercise

The EUT was operated in the engineering mode to fix the TX frequency that was for the purpose of the measurements.

According to FCC's request, Test Procedure KDB558074 is required to be used for this kind of FCC 15.247 digital modulation device.

According to its specifications, the EUT must comply with the requirements of the Section 15.203, 15.205, 15.207, 15.209 and 15.247 under the FCC Rules Part 15 Subpart C.

2.3. General Test Procedures

2.3.1 Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 13.1.4.1 of ANSI C63.4 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz using Quasi-peak and average detector modes.

2.3.2 Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the maximum emissions, exploratory radiated emission measurements were made according to the requirements in Section 13.1.4.1 of ANSI C63.4

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

3. SYSTEM TEST CONFIGURATION

3.1. Justification

The system was configured for testing in a typical fashion (as normally used by a typical user).

3.2. EUT Exercise Software

N/A.

3.3. Special Accessories

N/A.

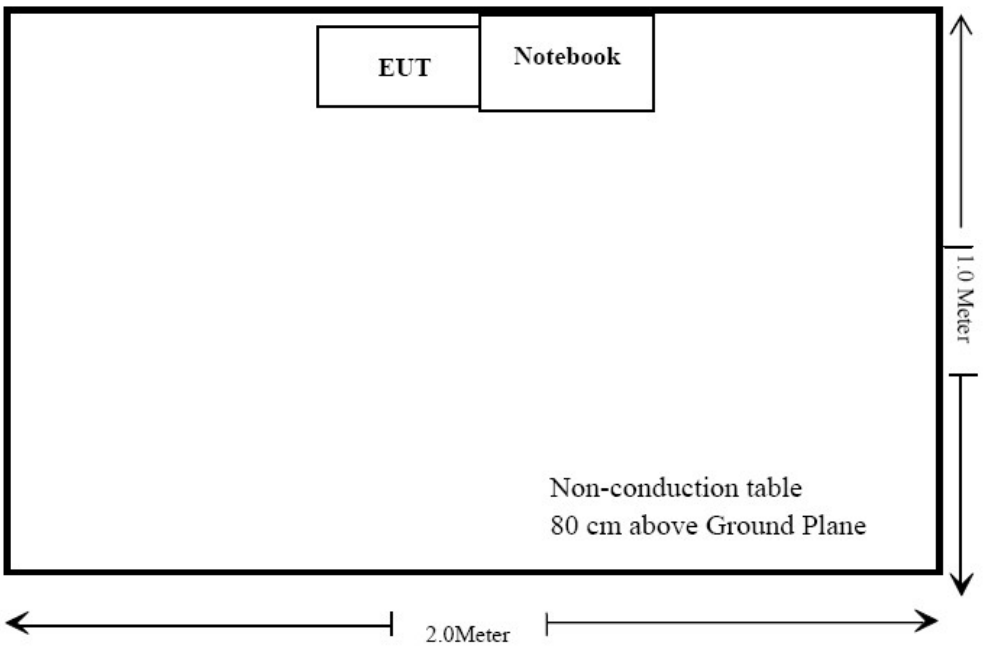
3.4. Block Diagram/Schematics

Please refer to the report.

3.5. Equipment Modifications

Shenzhen LCS Compliance Testing Laboratory Ltd. has not done any modification on the EUT.

3.6. Block Diagram of Test Setup



4. SUMMARY OF TEST RESULTS

Applied Standard: 47 CFR FCC Part 15 Subpart C		
FCC Rules	**Description of Test**	**Result**
§15.247(b)	Maximum Conducted Output Power	Compliant
§15.247(e)	Power Spectral Density	Compliant
§15.247(a)(2)	6dB Bandwidth	Compliant
§15.247(a)	Occupied Bandwidth	Compliant
§15.209, §15.247(d)	Radiated and Conducted Spurious Emissions	Compliant
§15.205	Emissions at Restricted Band	Compliant
§15.207(a)	Conducted Emissions	Compliant
§15.203	Antenna Requirements	Compliant
§15.247(i)§2.1093§1.1307	RF Exposure	Compliant

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5. TEST RESULT

5.1. Maximum Conducted Output Power Measurement

5.1.1. Standard Applicable

According to §15.247(b): if transmitting antennas of directional gain greater than 6 dBi are used the peak output power from the intentional radiator shall be reduced below the stated values in the Table 24, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Systems operating in the 2400 – 2483.5 MHz band may employ transmitting antennas with directional gain greater than 6 dBi provided the maximum peak output power of the intentional radiator is reduced by 1 dB for every 3 dB that the directional gain of the antenna exceeds 6 dBi.

Fixed, point-to-point operation excludes the use of point-to-multipoint systems, omni-directional applications, and multiple co-located intentional radiators transmitting the same information. The operator of the spread spectrum intentional radiator or, if the equipment is professionally installed, the installer is responsible for ensuring that the system is used exclusively for fixed, point-to-point operations. The instruction manual furnished with the intentional radiator shall contain language in the installation instructions informing the operator and the installer of this responsibility.

5.1.2. Measuring Instruments and Setting

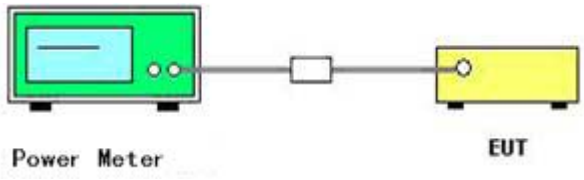
Please refer to section 6 of equipments list in this report.

5.1.3. Test Procedures

a. The transmitter output (antenna port) was connected to the power meter.

b. Detector = peak.

5.1.4. Test Setup Layout



5.1.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.1.6. Test Result of Maximum Conducted Output Power

Temperature	25℃	Humidity	60%
Test Engineer	Vito Cao	Configurations	802.11b/g/n

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11b（Port1&Port2）

Channel	Frequency	Port 1 (dBm)	Port 2 (dBm)	Output power Port 1(W)	Output power Port 2(W)	Total (W)	Limit (W)
1	2412	9.54	9.10	0.00899	0.00813	/	1
6	2437	8.45	7.49	0.00670	0.00561	/	1
11	2462	7.03	5.86	0.00505	0.00385	/	1

802.11g（Port1+Port2）

Channel	Frequency	Port 1 (dBm)	Port 2 (dBm)	Output power Port 1(W)	Output power Port 2(W)	Total (W)	Limit (W)
1	2412	5.32	6.73	0.00340	0.00471	0.008114	1
6	2437	4.54	6.33	0.00284	0.00430	0.007140	1
11	2462	3.51	5.66	0.00224	0.00368	0.005925	1

802.11n HT20（Port1+Port2）

Channel	Frequency	Port 1 (dBm)	Port 2 (dBm)	Output power Port 1(W)	Output power Port 2(W)	Total (W)	Limit (W)
1	2412	5.33	5.84	0.00341	0.00384	0.007249	1
6	2437	4.84	5.26	0.00305	0.00336	0.006405	1
11	2462	3.25	6.10	0.00211	0.00407	0.006187	1

802.11n HT40 Port1+Port2）

Channel	Frequency	Port 1 (dBm)	Port 2 (dBm)	Output power Port 1(W)	Output power Port 2(W)	Total (W)	Limit (W)
3	2422	6.70	6.51	0.00468	0.00448	0.009154	1
6	2437	6.24	6.31	0.00421	0.00428	0.008483	1
9	2452	4.97	4.64	0.00314	0.00291	0.006051	1

Note:Total Output Power = Port 1 (10^(Output Power/10)/1000) + Port 2 (10^(Output Power/10)/1000)

The EUT shall be simultaneous transmission at the Antenna 1 and Antenna 2 for the 802.11a, 802.11g, 802.11n HT20 or HT40, 802.11b mode shall be transmission only single Antenna (Antenna 1 or Antenna 2).

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5.2. Power Spectral Density Measurement

5.2.1. Standard Applicable

According to §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.

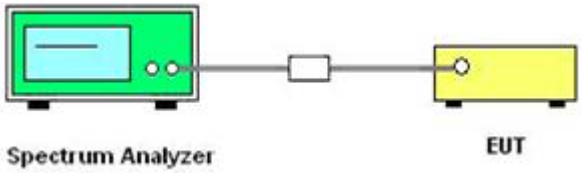
5.2.2. Measuring Instruments and Setting

Please refer to section 6 of equipments list in this report. The following table is the setting of Spectrum Analyzer.

5.2.3. Test Procedures

1. The transmitter was connected directly to a Spectrum Analyzer through a directional couple.
2. The power was monitored at the coupler port with a Spectrum Analyzer. The power level was set to the maximum level.
3. Set the RBW = 100 kHz.
4. Set the VBW ≥ 300 kHz.
5. Set the span to a value that is 5-30 % greater than the EBW.
6. Detector = peak.
7. Sweep time = auto couple.
8. Trace mode = max hold.
9. Allow trace to fully stabilize.
10. Use the peak marker function to determine the maximum power level in any 100 kHz band segment within the fundamental EBW.
11. Scale the observed power level to an equivalent value in 3 kHz by adjusting (reducing) the measured power by a bandwidth correction factor (BWCF) where BWCF = 10log (3 kHz/100kHz = -15.2 dB).
12. The resulting peak PSD level must be ≤ 8 dBm.

5.2.4. Test Setup Layout



5.2.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5.2.6. Test Result of Power Spectral Density

Temperature	25℃	Humidity	60%
Test Engineer	Vito Cao	Configurations	802.11b/g/n

802.11b（Port1&Port2）

Channel	Frequency	Port 1 (dBm/100KHz)	Port 2 (dBm/100KHz)	Port 1 (dBm/3KHz)	Port 2 (dBm/3KHz)	Max. Limit (dBm/3KHz)
1	2412	-7.922	-6.941	-23.122	-22.141	8
6	2437	-8.522	-7.494	-23.722	-22.694	8
11	2462	-9.903	-9.244	-25.103	-24.444	8

802.11g（Port1+Port2）

Channel	Frequency	Port 1 (dBm/100KHz)	Port 2 (dBm/100KHz)	Total (dBm/100KHz)	BWCF (dB)	Max. Limit (dBm/3KHz)
1	2412	-12.91	-12.27	-9.57	-15.2	8
6	2437	-13.64	-13.04	-10.32	-15.2	8
11	2462	-14.66	-14.14	-11.38	-15.2	8

802.11n HT20（Port1+Port2）

Channel	Frequency	Port 1 (dBm/100KHz)	Port 2 (dBm/100KHz)	Total (dBm/100KHz)	BWCF (dB)	Max. Limit (dBm/3KHz)
1	2412	-13.85	-12.18	-9.92	-15.2	8
6	2437	-13.94	-13.35	-10.62	-15.2	8
11	2462	-16.15	-15.09	-12.58	-15.2	8

802.11n HT40（Port1+Port2）

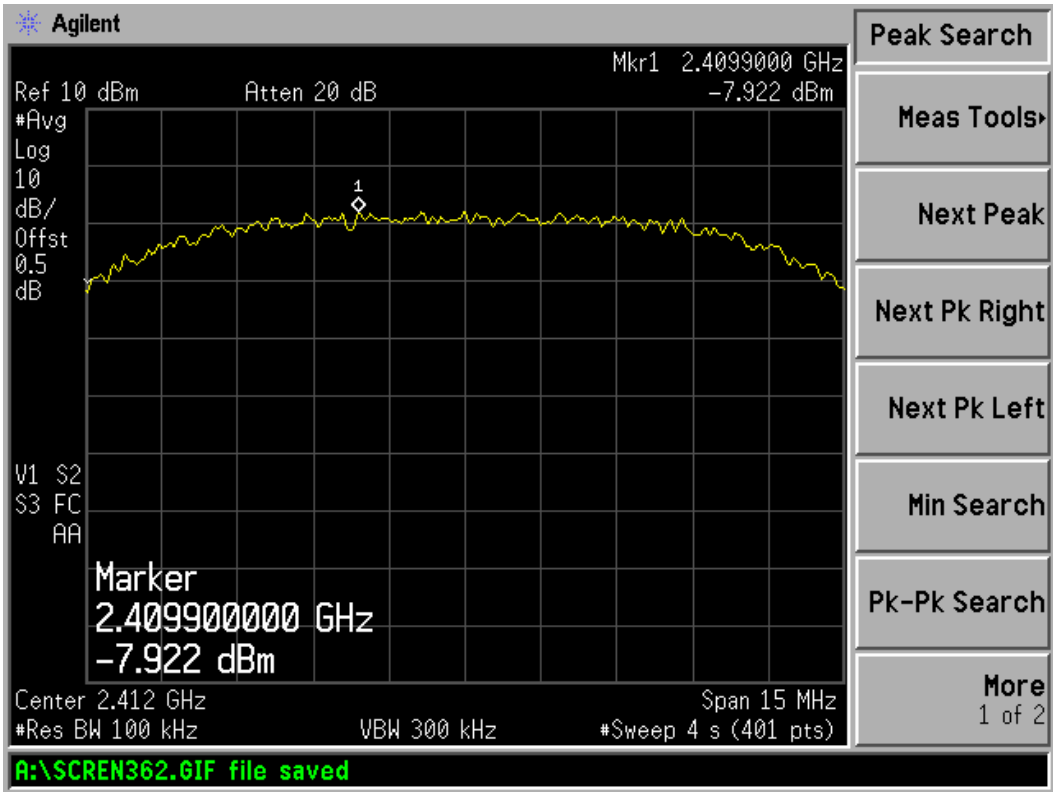
Channel	Frequency	Port 1 (dBm/100KHz)	Port 2 (dBm/100KHz)	Total (dBm/100KHz)	BWCF (dB)	Max. Limit (dBm/3KHz)
3	2422	-18.02	-17.62	-14.17	-15.2	8
6	2437	-20.31	-16.87	-15.25	-15.2	8
9	2452	-20.47	-17.62	-15.84	-15.2	8

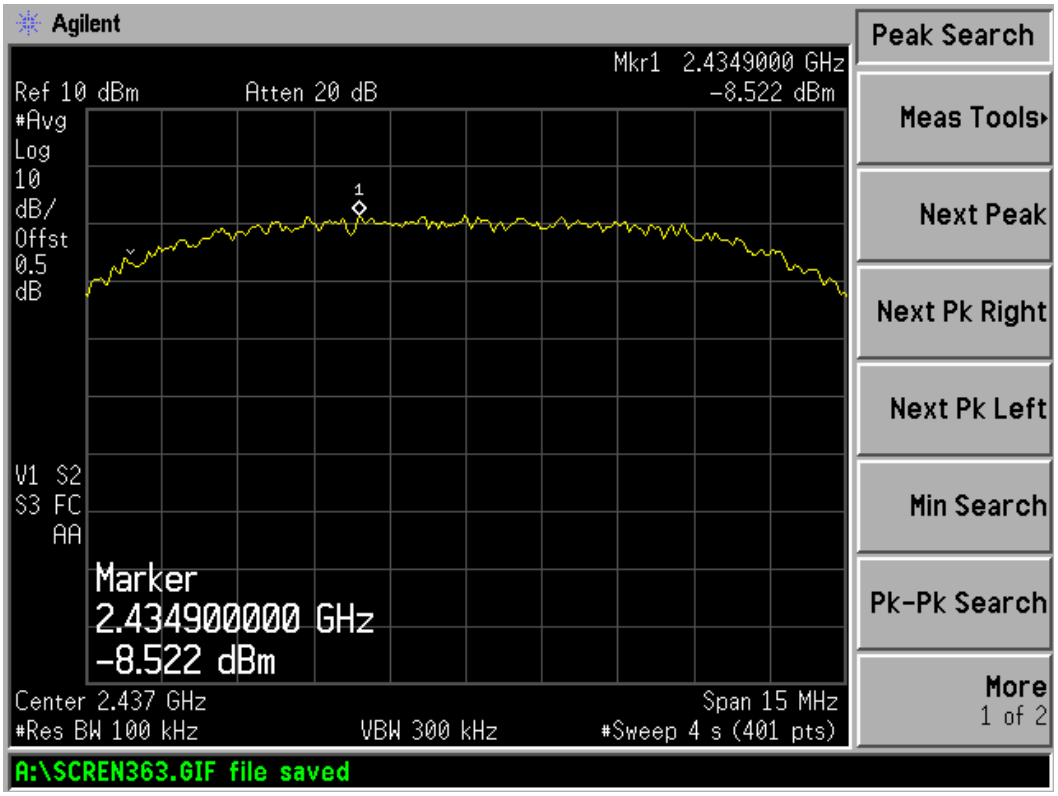
Note:Total Output Power = Port 1 (10^(Output Power/10)/1000) + Port 2 (10^(Output Power/10)/1000)
The EUT shall be simultaneous transmission at the Antenna 1 and Antenna 2 for the 802.11a, 802.11g, 802.11n HT20 or HT40, 802.11b mode shall be transmission only single Antenna (Antenna 1 or Antenna 2).

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

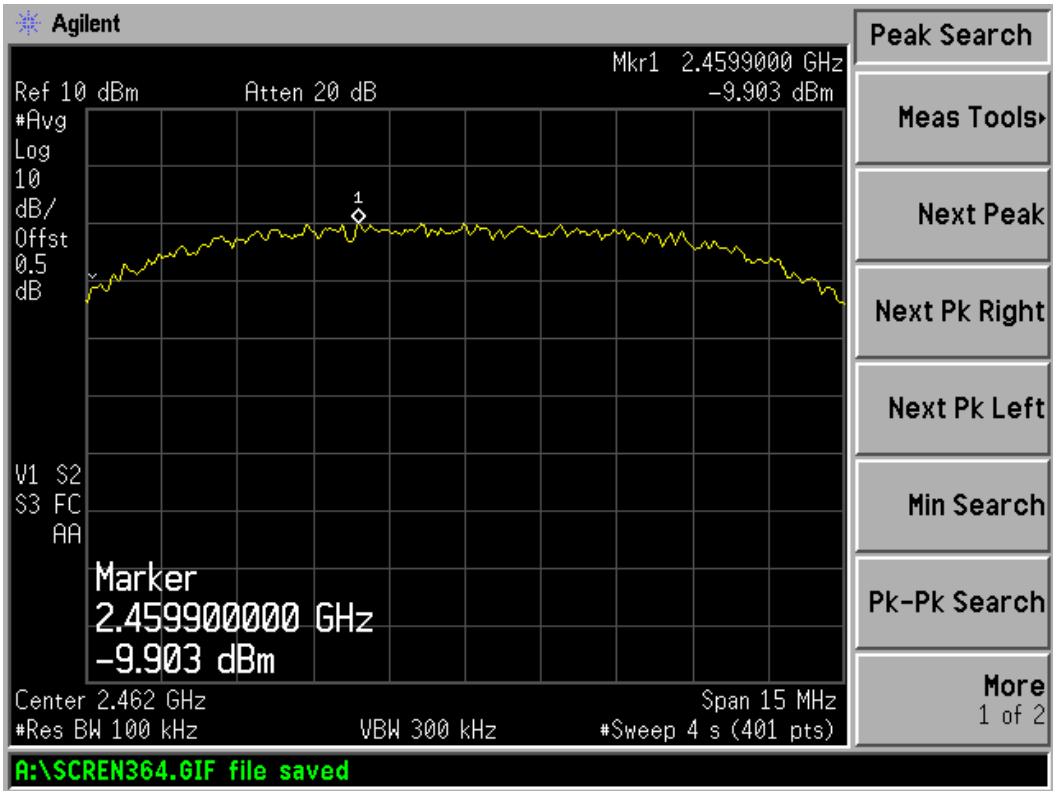
802.11 b mode - port 1

Date: June 15, 2012



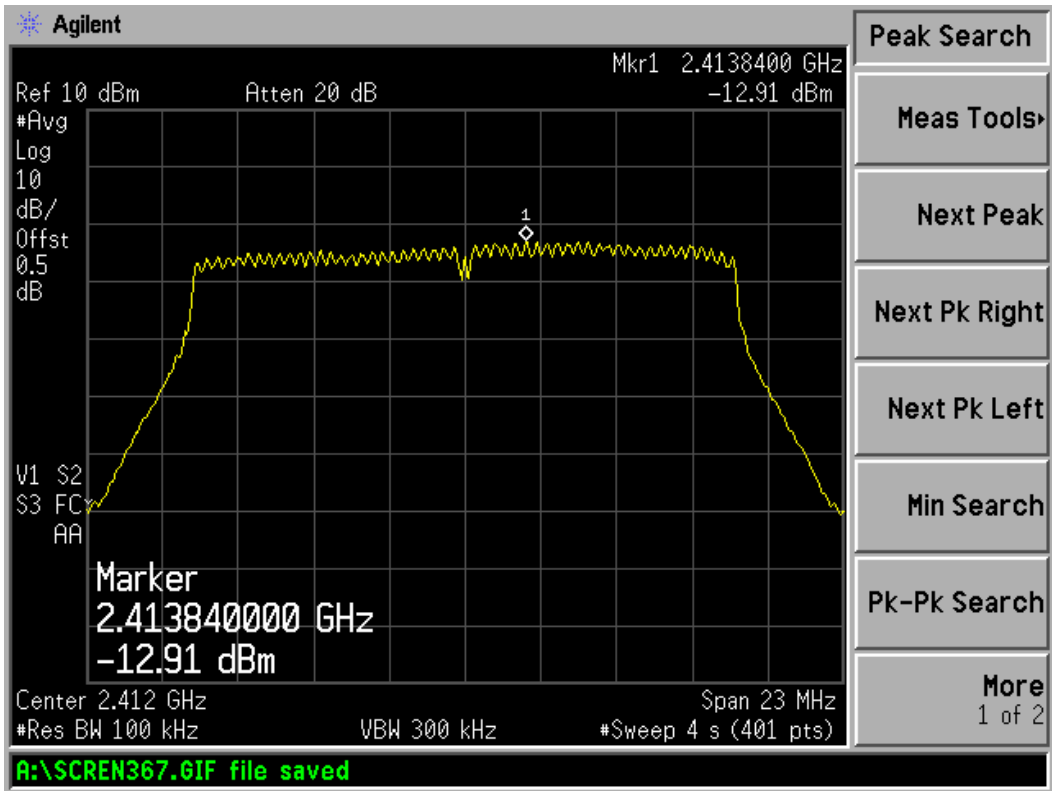


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

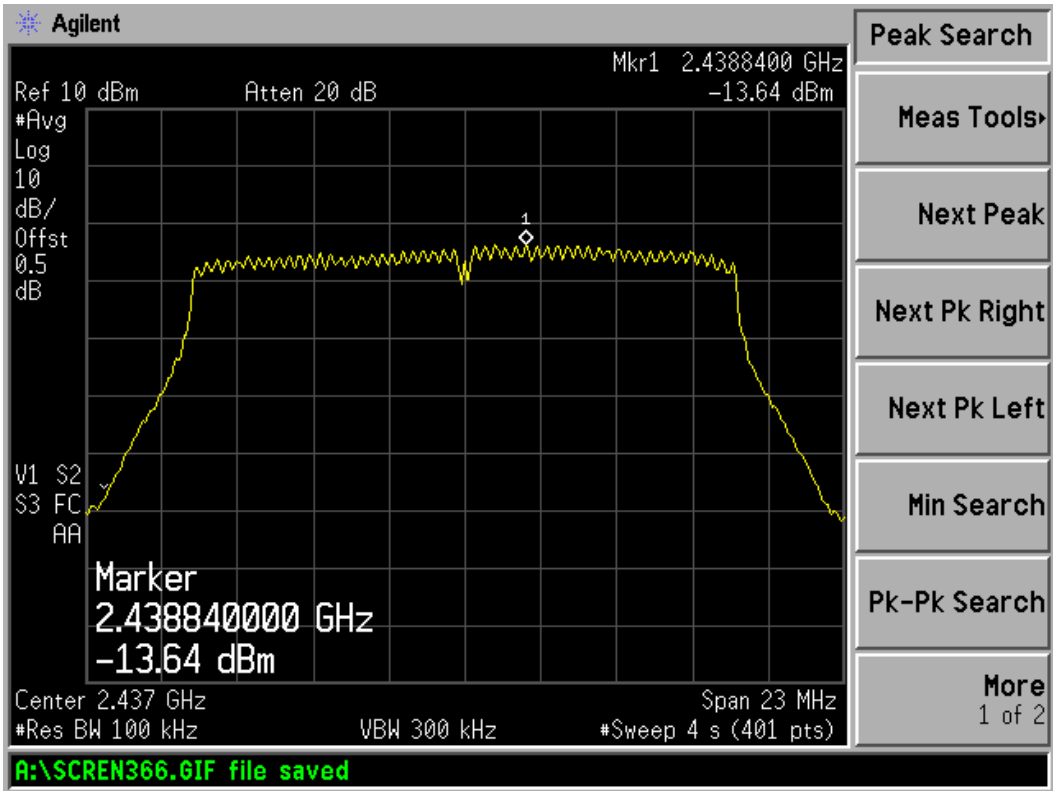


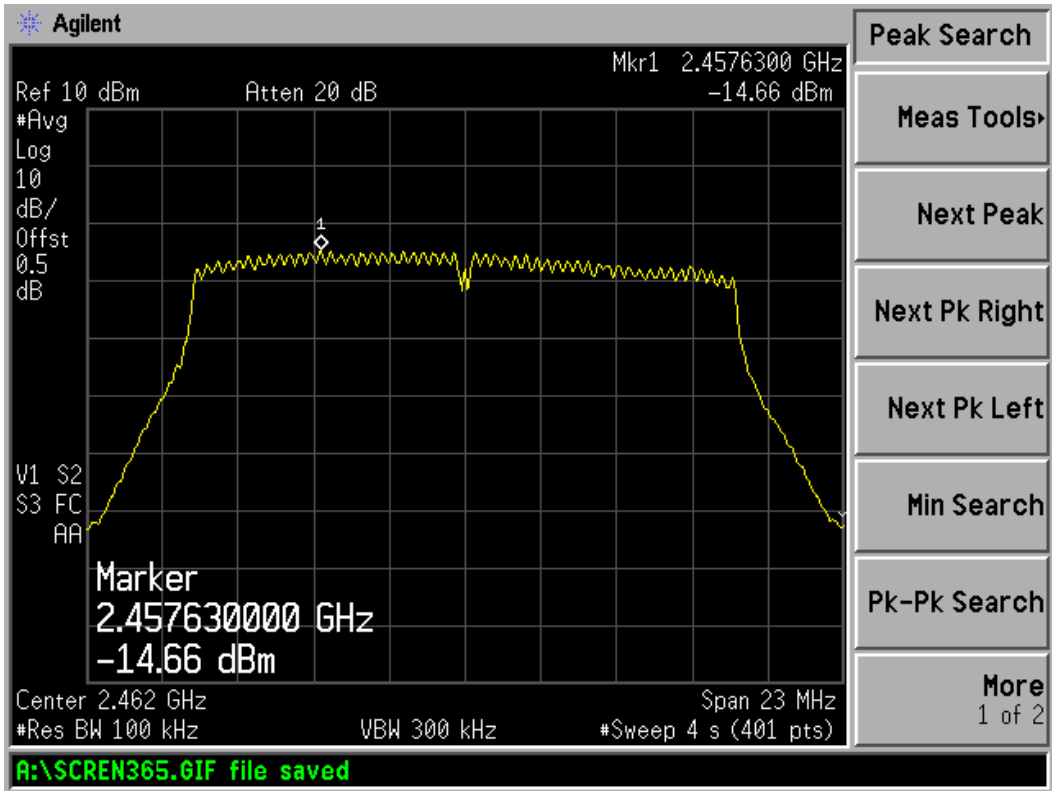
802.11 g mode - port 1

Date: June 15, 2012



This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

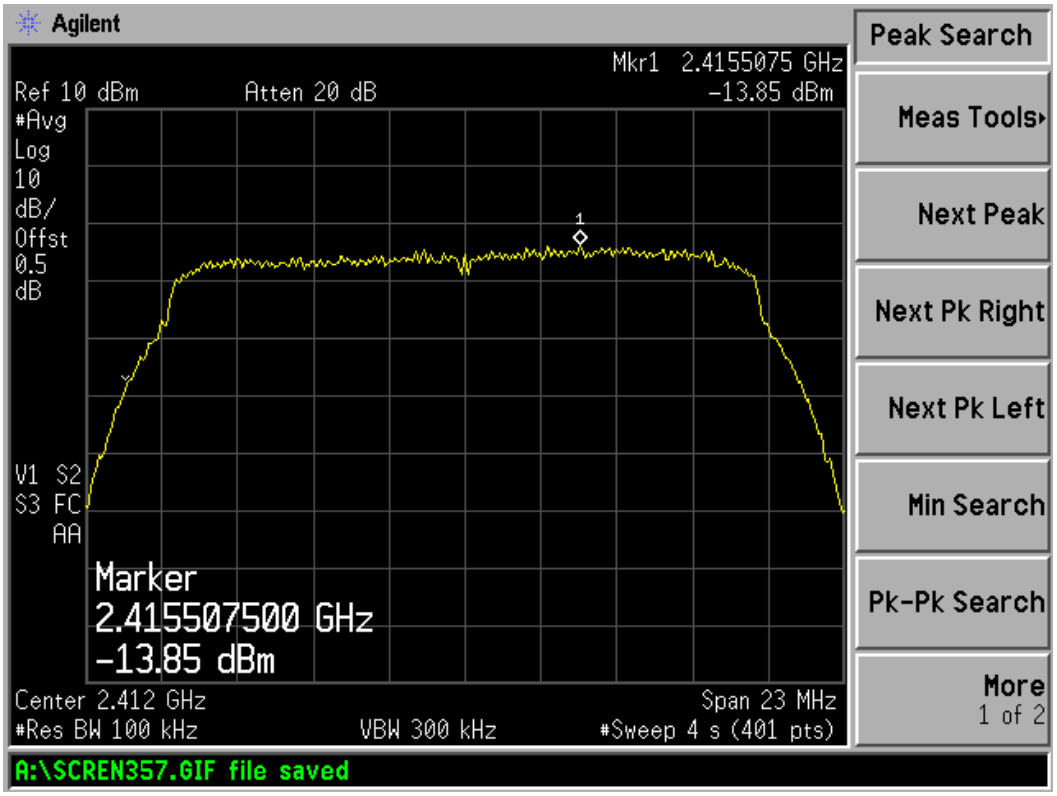


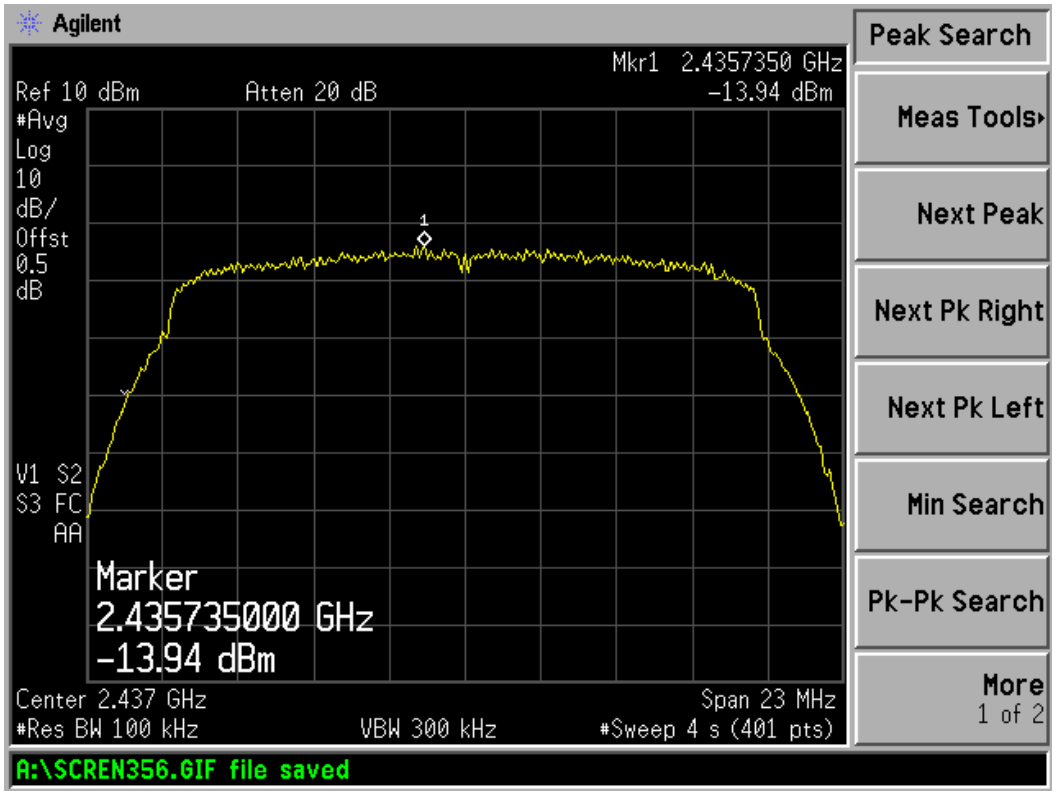


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

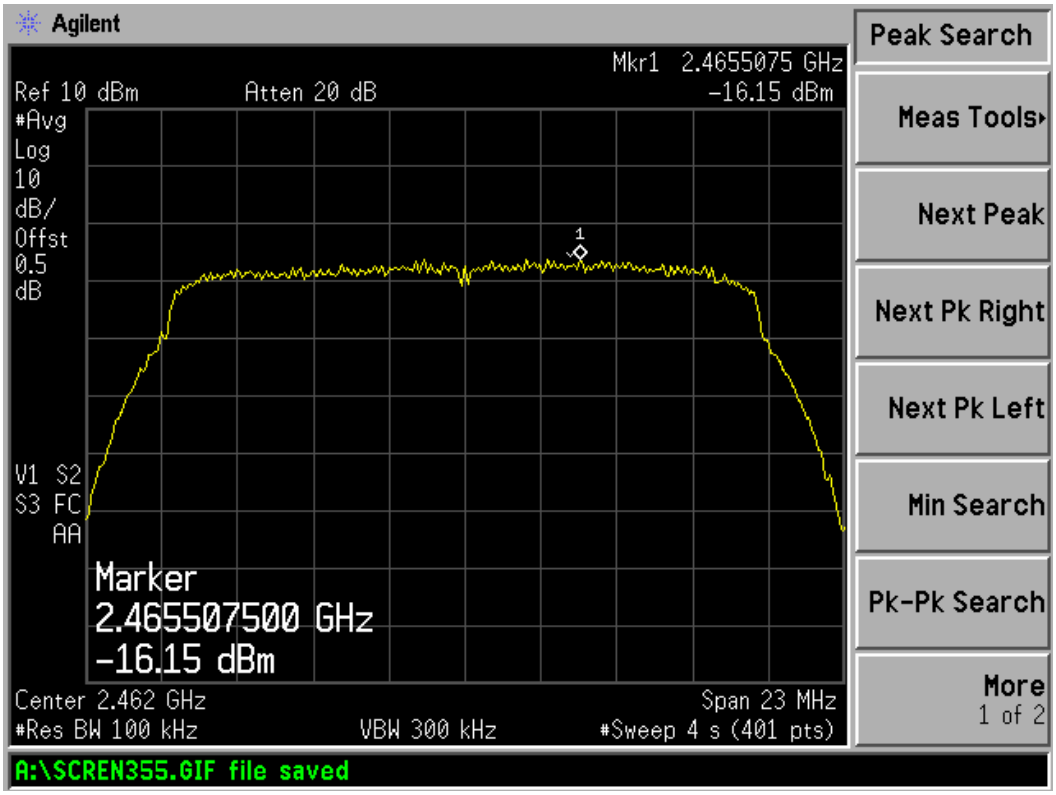
802.11 n HT20 mode - port 1

Date: June 15, 2012



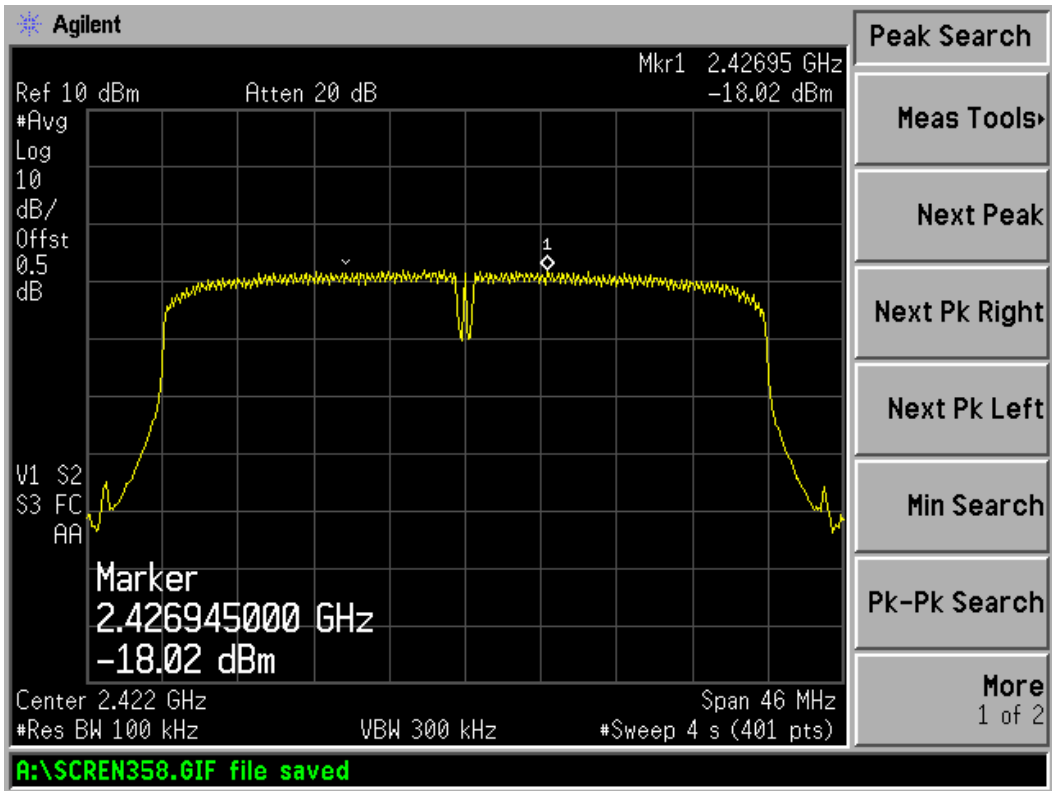


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

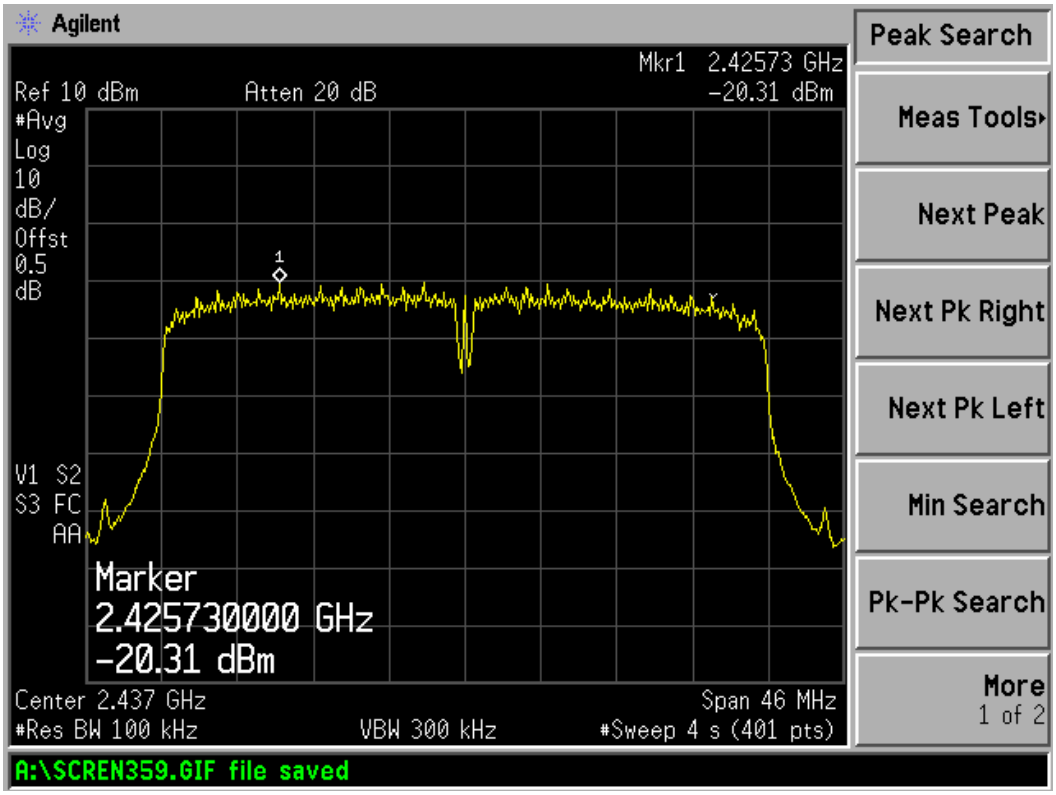


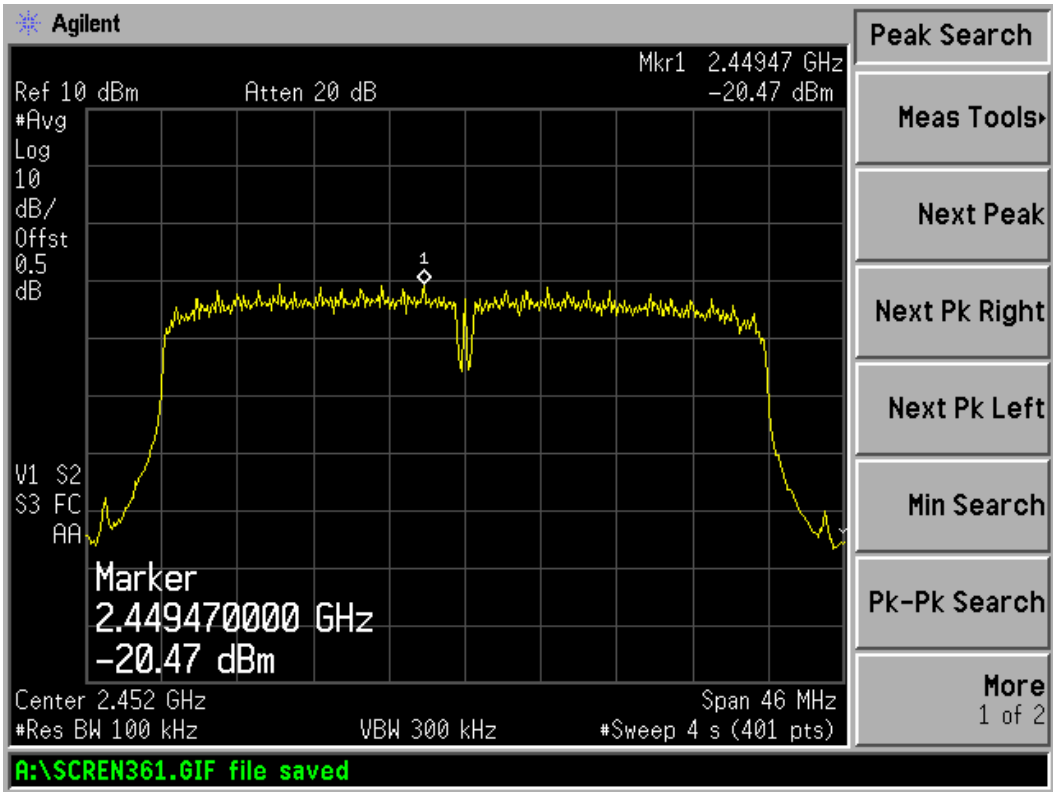
802.11 n HT40 mode - port 1

Date: June 15, 2012



This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

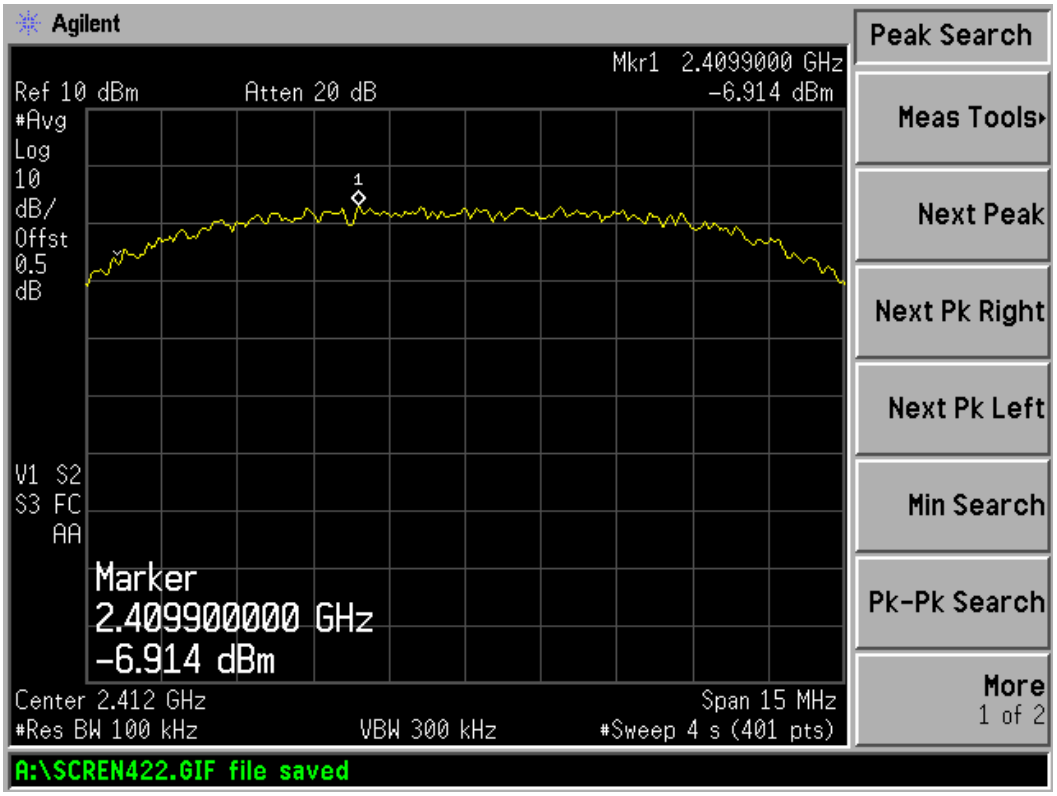


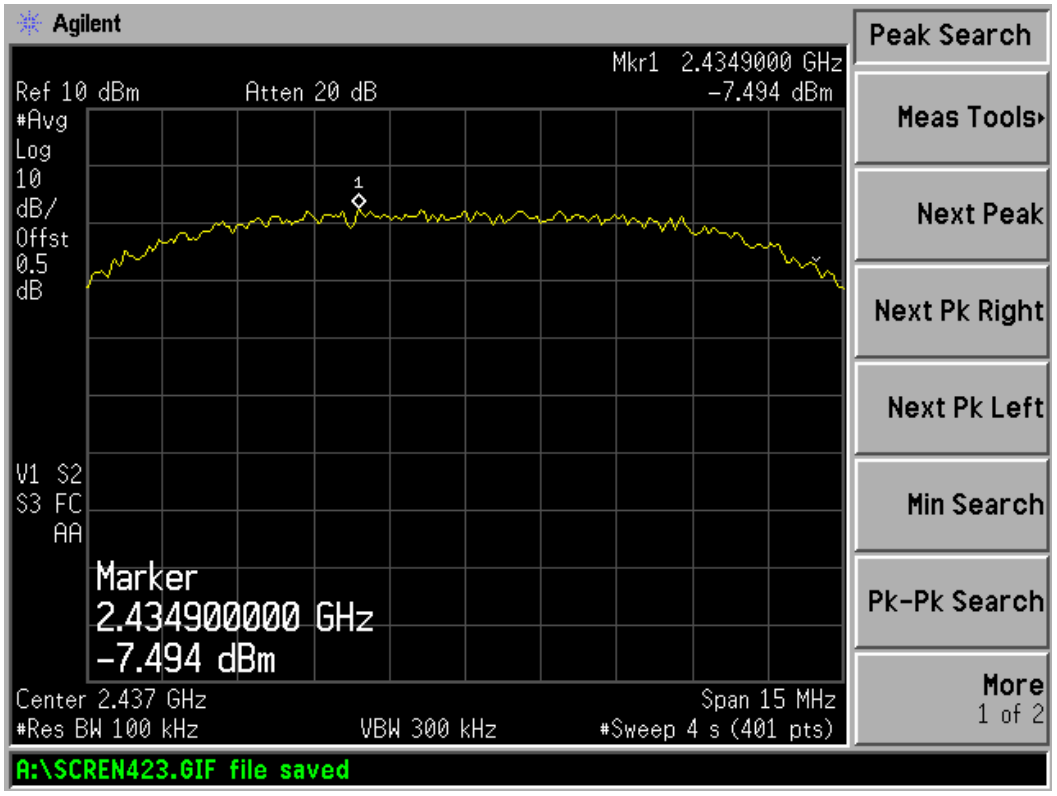


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

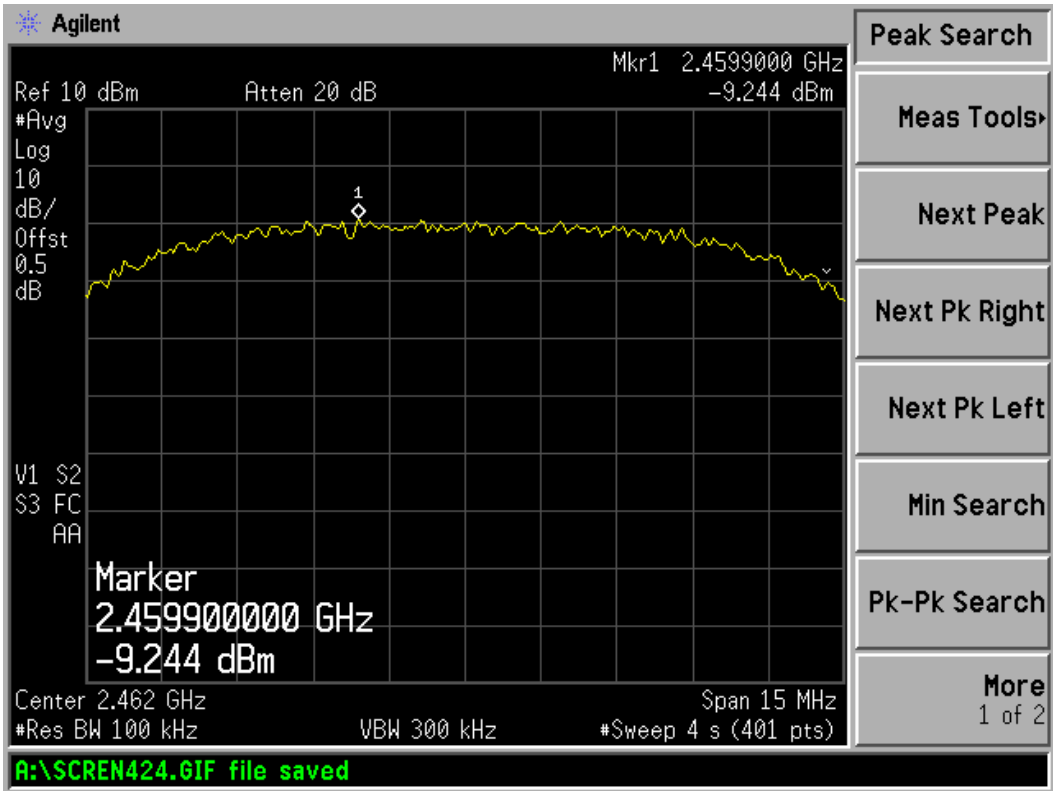
802.11 b mode - port 2

Date: June 15, 2012



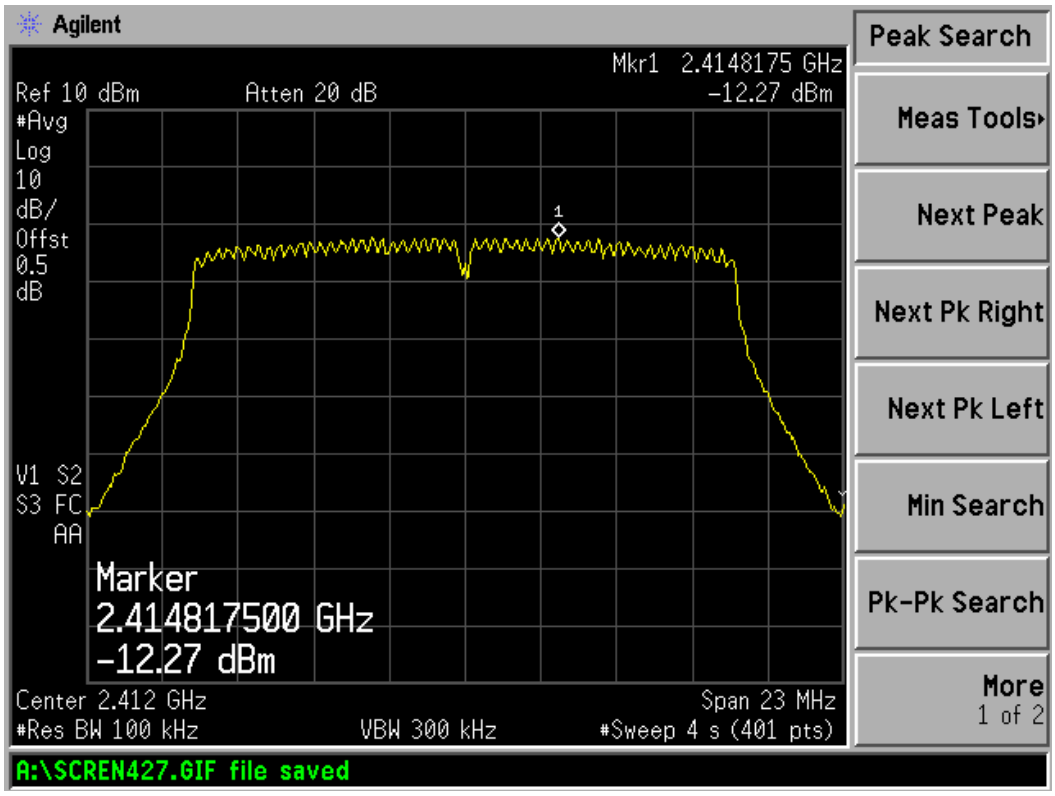


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

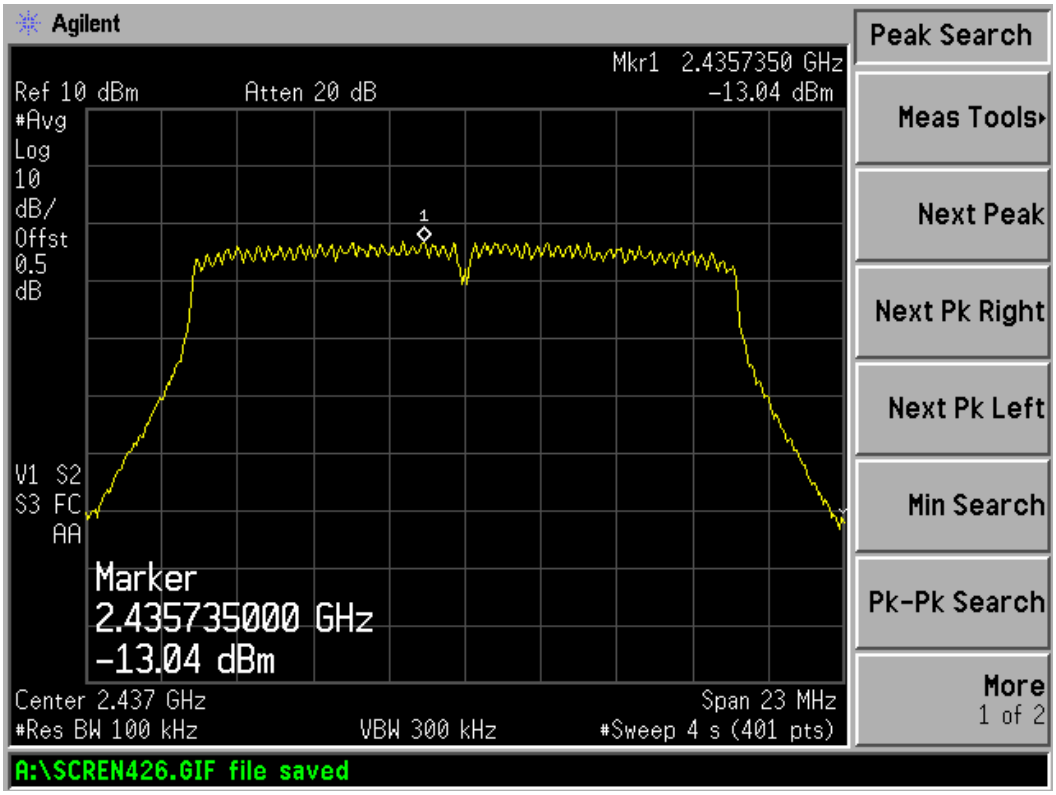


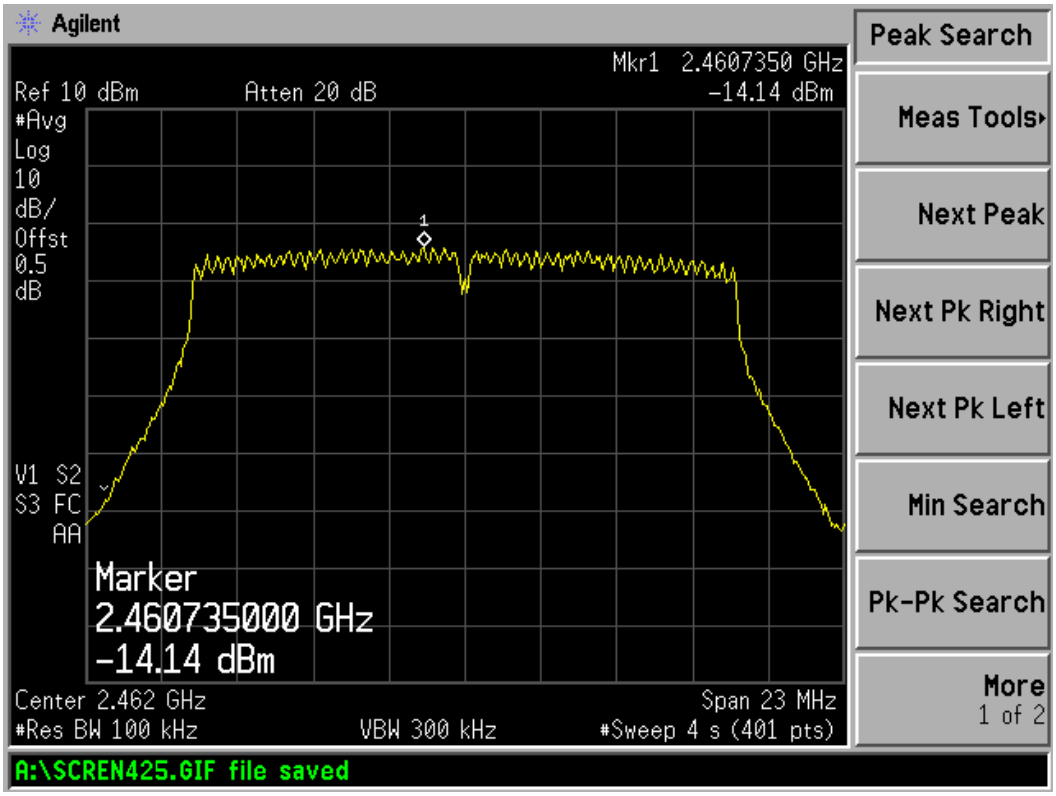
802.11g mode - port 2

Date: June 15, 2012



This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

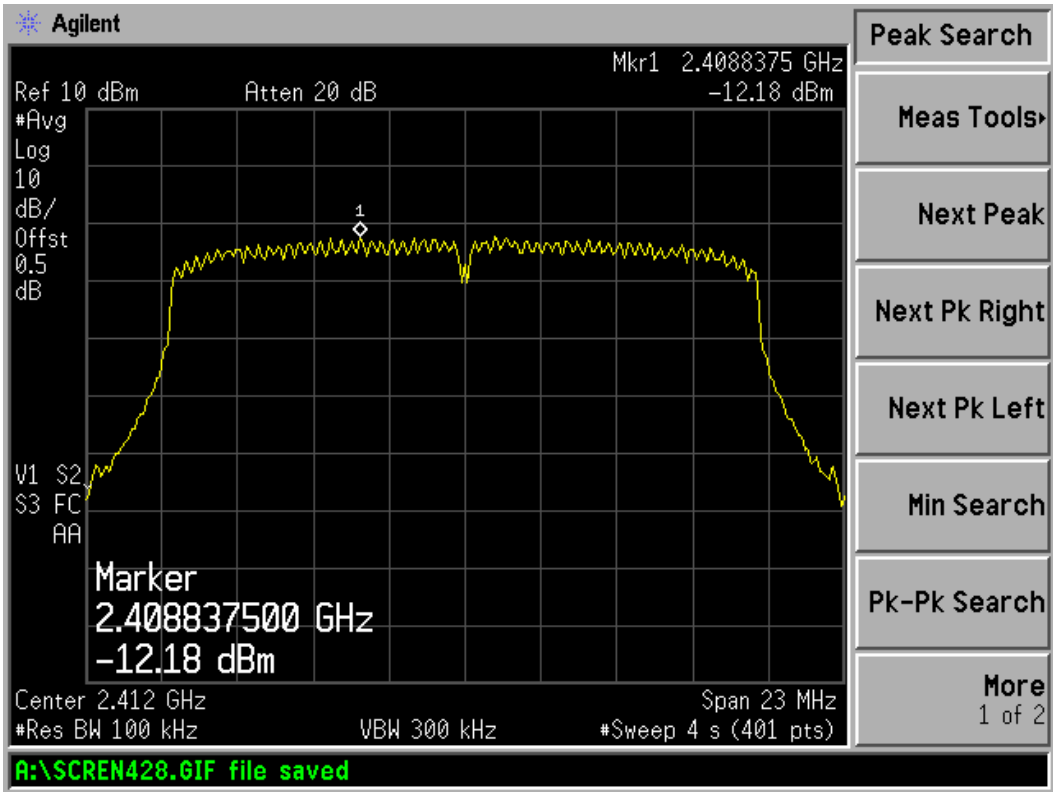


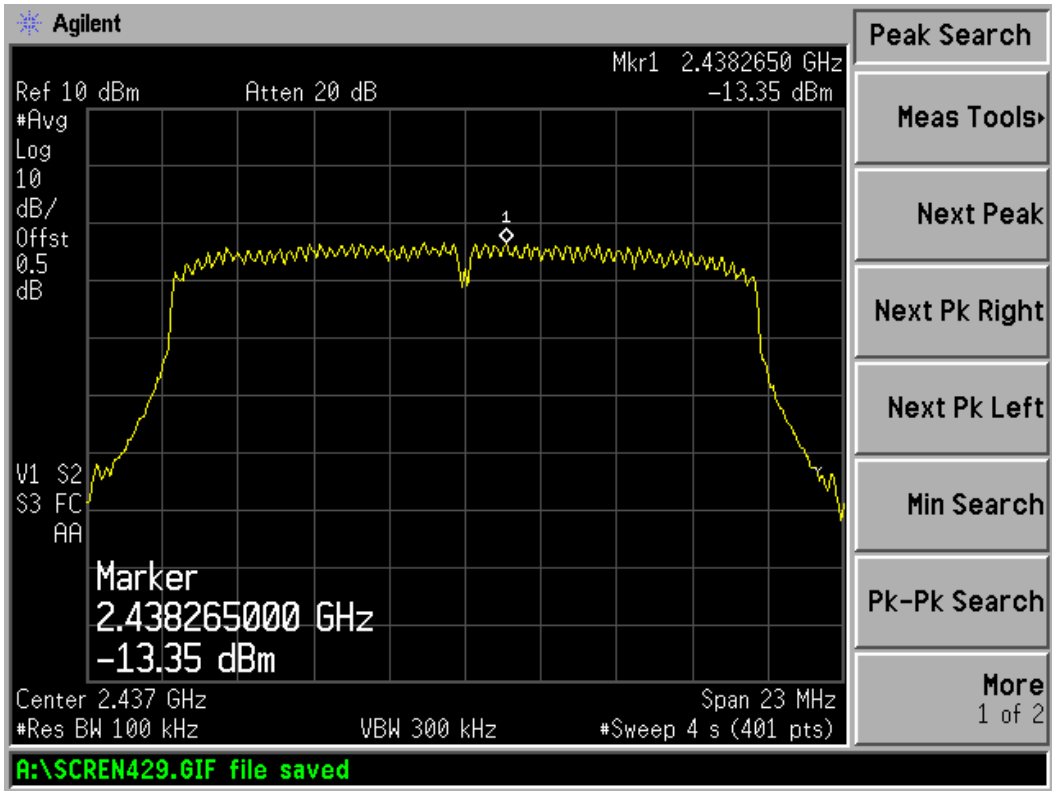


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

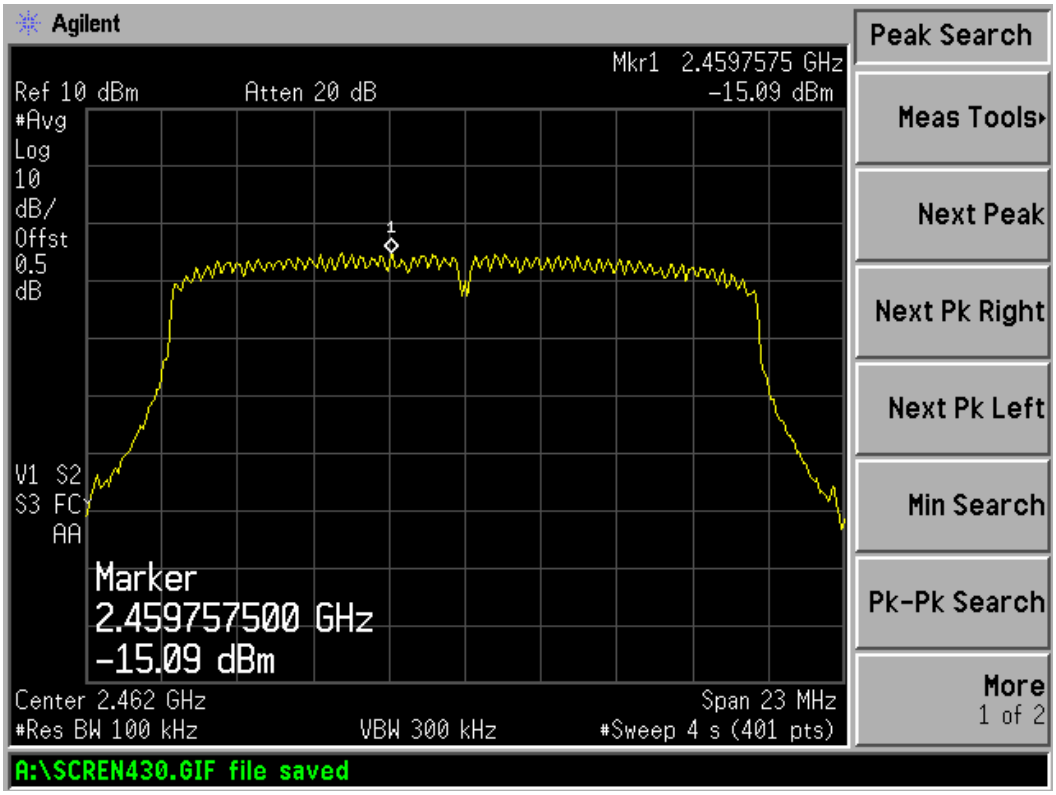
802.11 n HT20 mode - port 2

Date: June 15, 2012



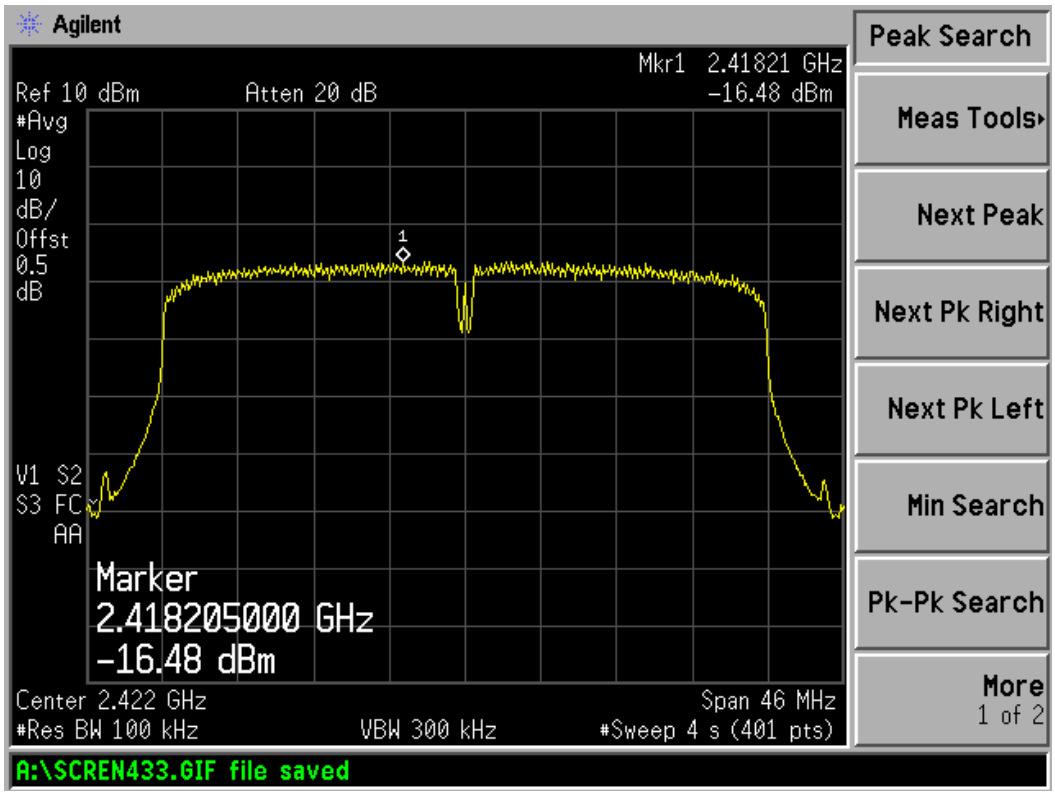


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

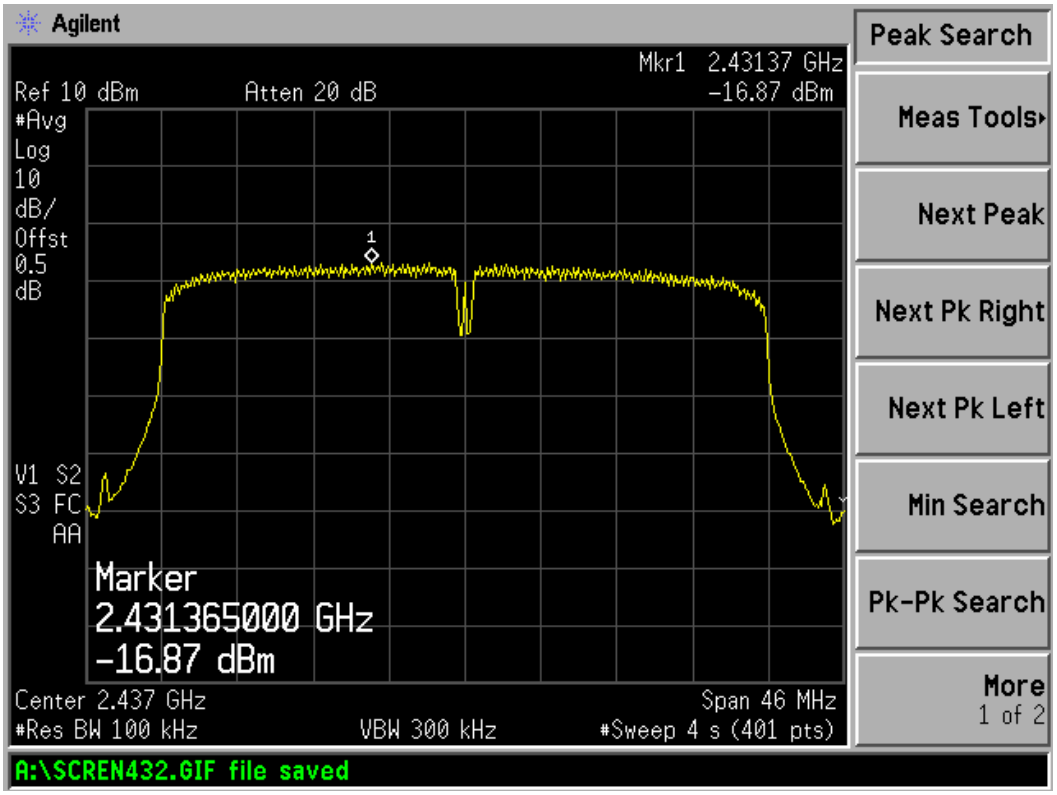


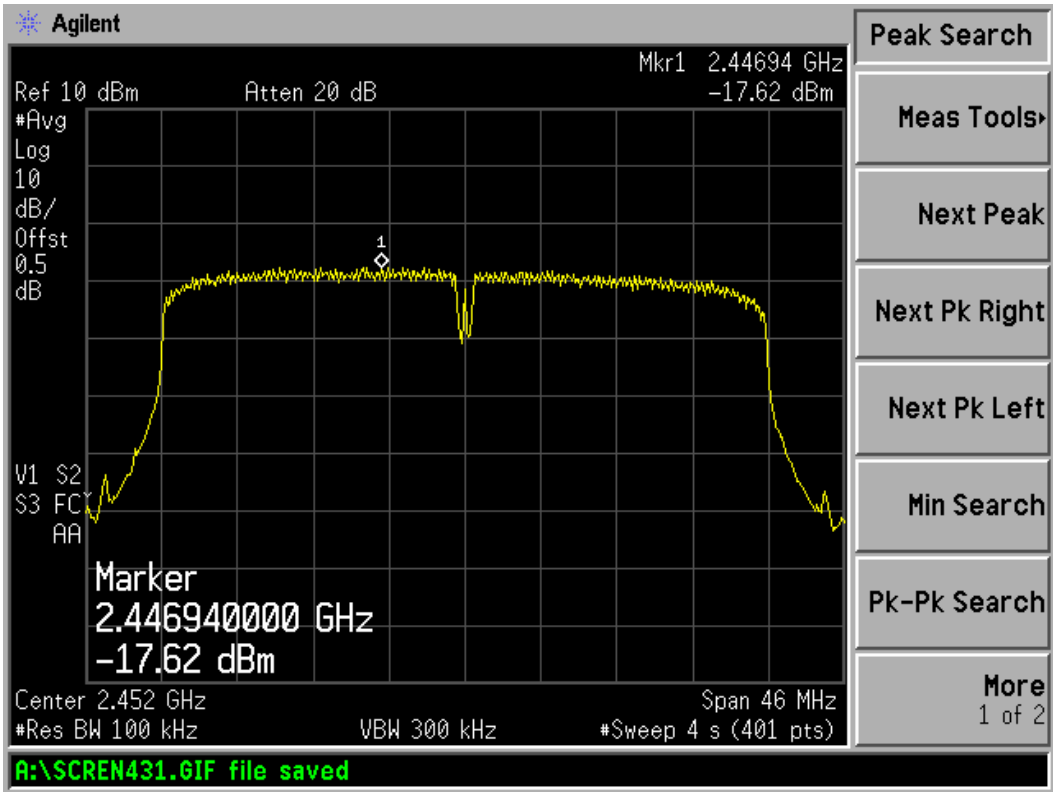
802.11 n HT40 mode - port 2

Date: June 15, 2012



This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..





This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5.3. 6 dB And 99% Bandwidth Measurement

5.3.1. Standard Applicable

According to §15.247(a): Operation under the provisions of this section is limited to frequency hopping and digitally modulated intentional radiators that comply with the following provisions:

For systems using digital modulation techniques, the EUT may operate in the 902-928 MHz, 2400-2483.5 MHz and 5725-5850 MHz bands. The minimum 6dB bandwidth shall be at least 500 kHz.

5.3.2. Measuring Instruments and Setting

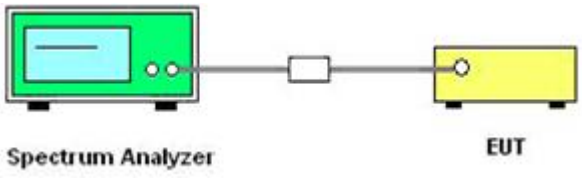
Please refer to section 6 of equipments list in this report. The following table is the setting of the Spectrum Analyzer.

Spectrum Parameter	Setting
Attenuation	10dB
Span Frequency	> RBW
Detector	Peak
Trace	Max Hold
Sweep Time	Auto

5.3.3. Test Procedures

1. The transmitter output (antenna port) was connected to the spectrum analyzer in peak hold mode.
2. The bandwidth of the fundamental frequency was measured with the spectrum analyzer using a RBW approximately 1% of the total emission bandwidth, VBW > RBW.
3. The 6 dB Bandwidth was measured and recorded. The measurements were repeated at the low and high channels.

5.3.4. Test Setup Layout



5.3.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.3.6. Test Result of Occupied Bandwidth

Temperature	25℃	Humidity	60%
Test Engineer	Vito Cao	Configurations	802.11b/g/n

802.11b mode – port 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
1	2412	11.943	13.9164	500	Complies
6	2437	12.132	13.8959	500	Complies
11	2462	11.976	13.8738	500	Complies

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11g mode – port 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
1	2412	16.006	17.3338	500	Complies
6	2437	16.625	17.3421	500	Complies
11	2462	16.124	17.0963	500	Complies

802.11 HT20 mode – port 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
1	2412	17.191	17.6131	500	Complies
6	2437	16.530	17.3237	500	Complies
11	2462	17.049	17.6352	500	Complies

802.11 HT40 mode – port 1

Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
3	2422	34.877	35.6660	500	Complies
6	2437	35.523	35.7303	500	Complies
9	2452	34.940	35.6134	500	Complies

802.11b mode – port 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
1	2412	11.711	13.7643	500	Complies
6	2437	11.698	13.7524	500	Complies
11	2462	11.675	13.7576	500	Complies

802.11g mode – port 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
1	2412	16.171	16.9110	500	Complies
6	2437	16.124	16.8629	500	Complies
11	2462	16.156	16.8867	500	Complies

802.11 HT20 mode – port 2

Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
1	2412	17.138	17.6812	500	Complies
6	2437	17.079	17.6605	500	Complies
11	2462	16.971	17.6230	500	Complies

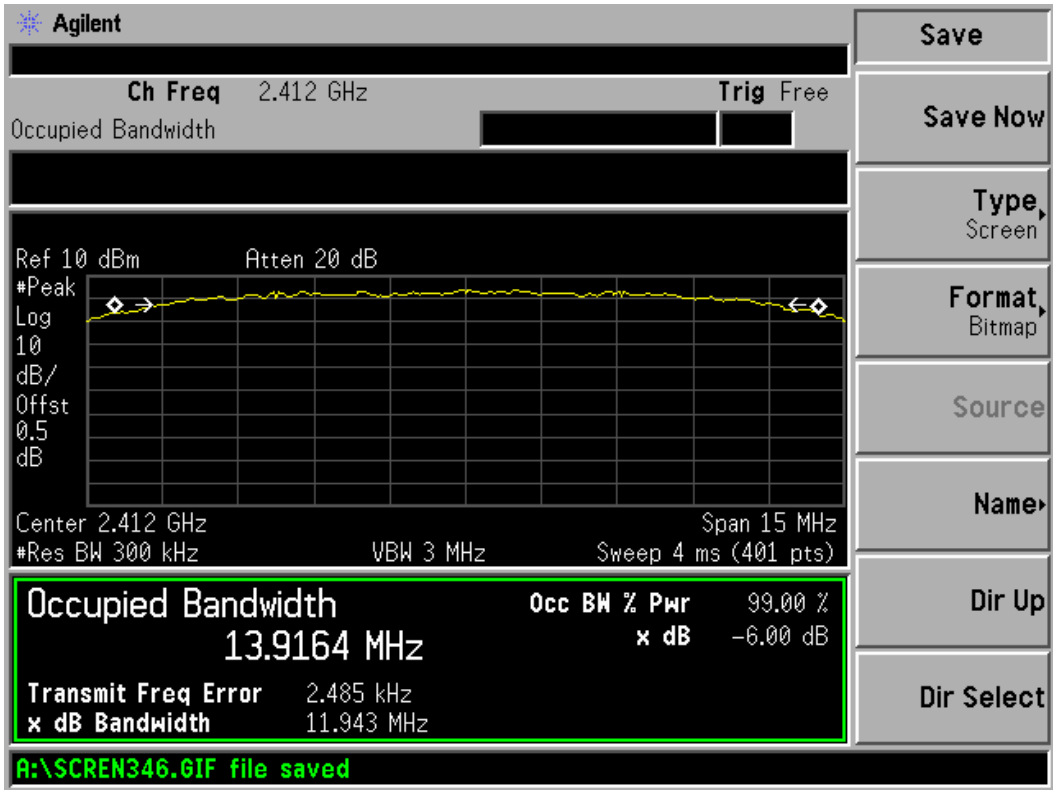
802.11 HT40 mode – port 2

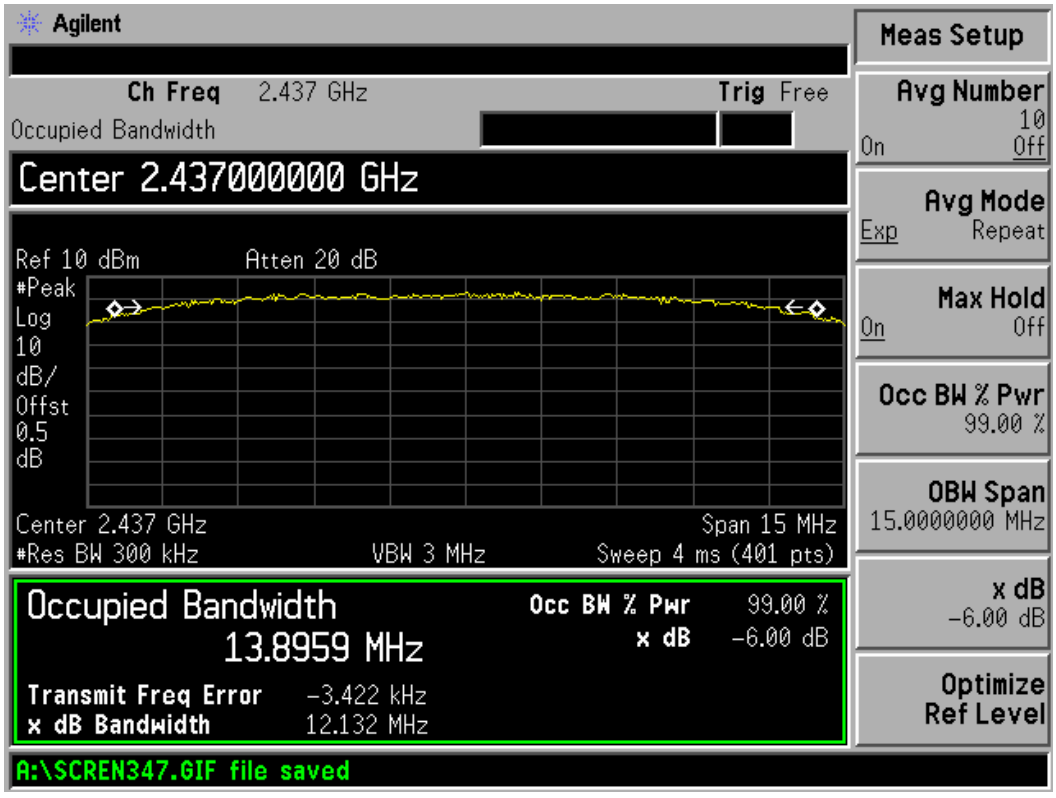
Channel	Frequency	6dB Bandwidth (MHz)	99% Bandwidth (kHz)	Min. Limit (kHz)	Result
3	2422	35.307	35.6345	500	Complies
6	2437	35.391	35.6531	500	Complies
9	2452	35.294	35.5751	500	Complies

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

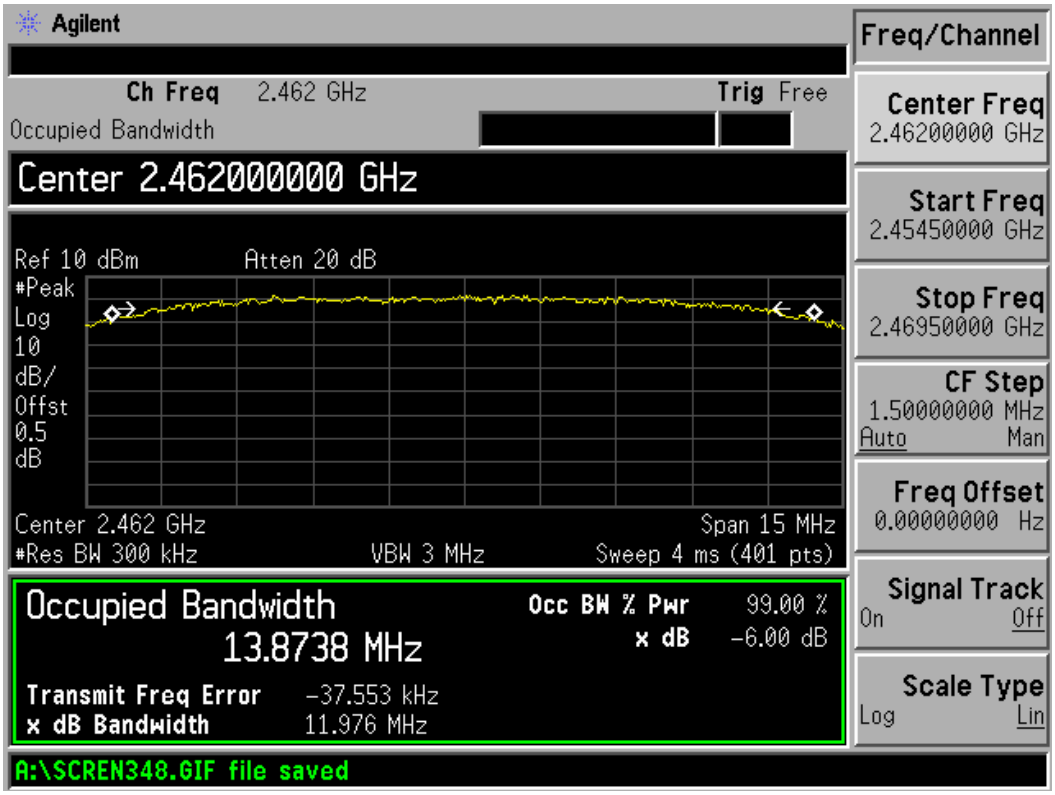
802.11b mode – port 1

Date: June 15, 2012



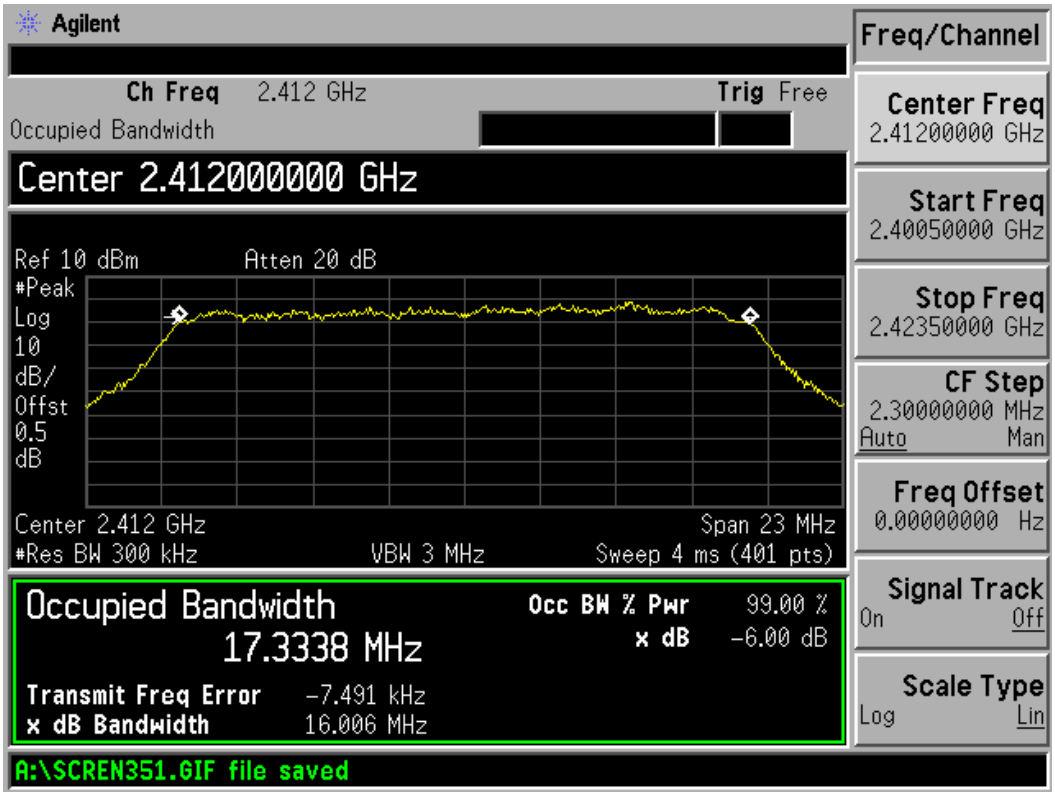


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

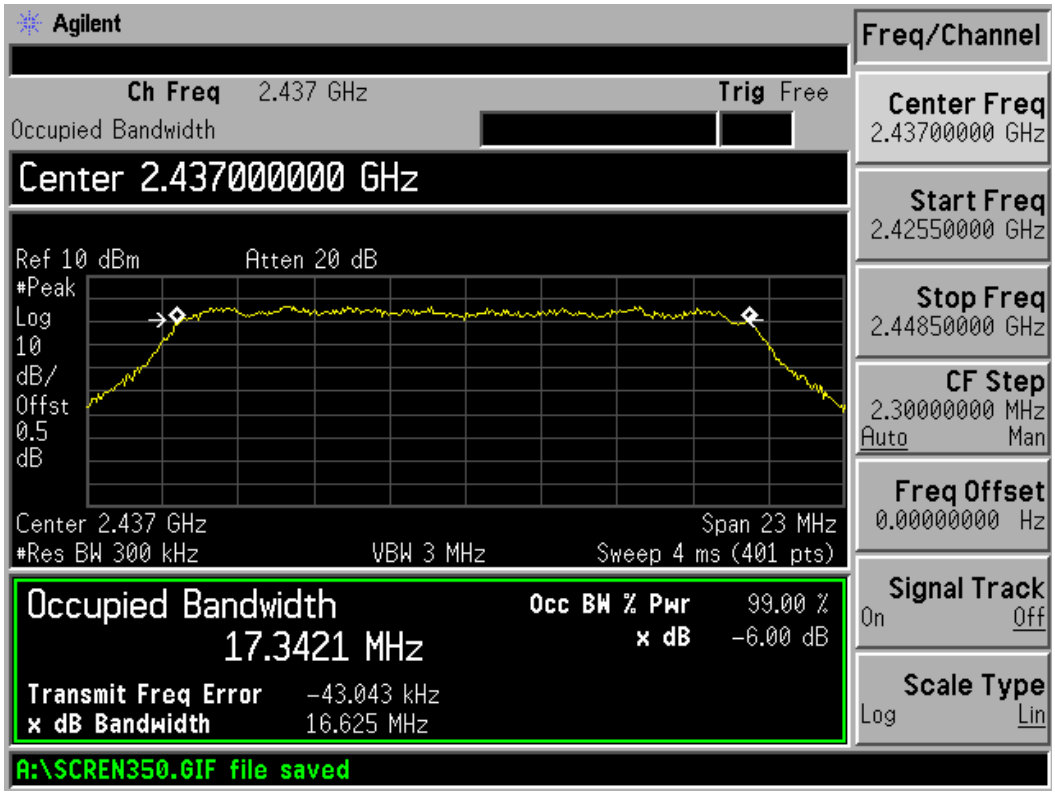


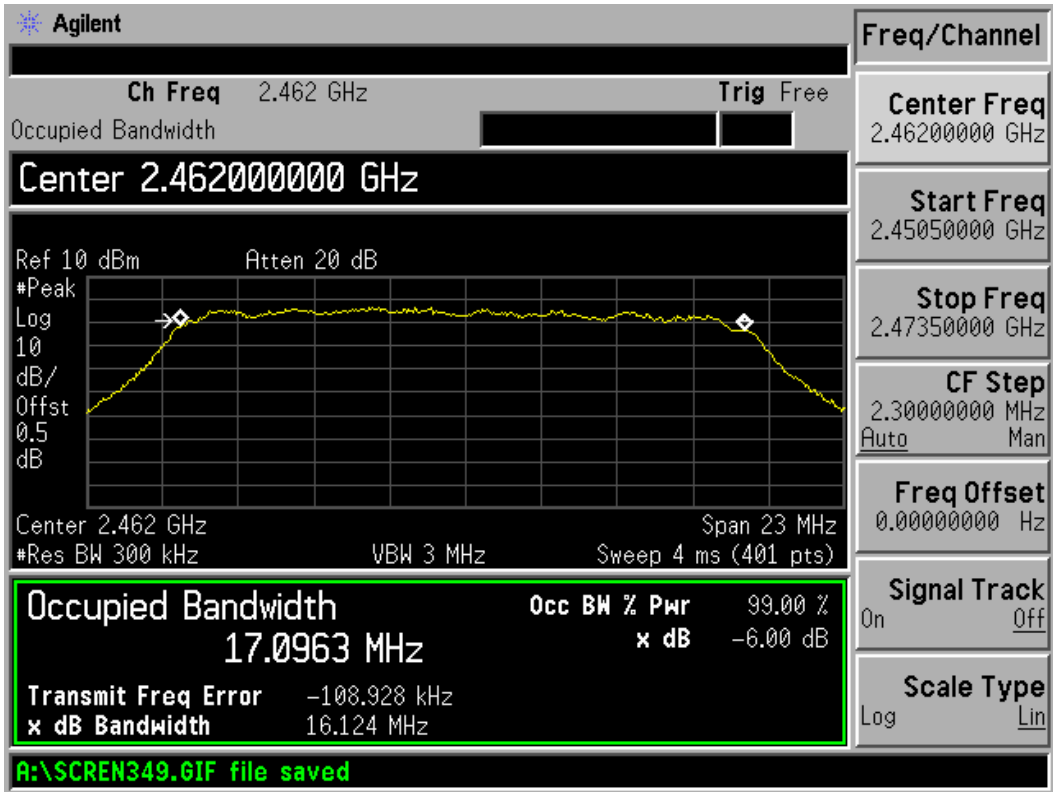
802.11g mode – port 1

Date: June 15, 2012



This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

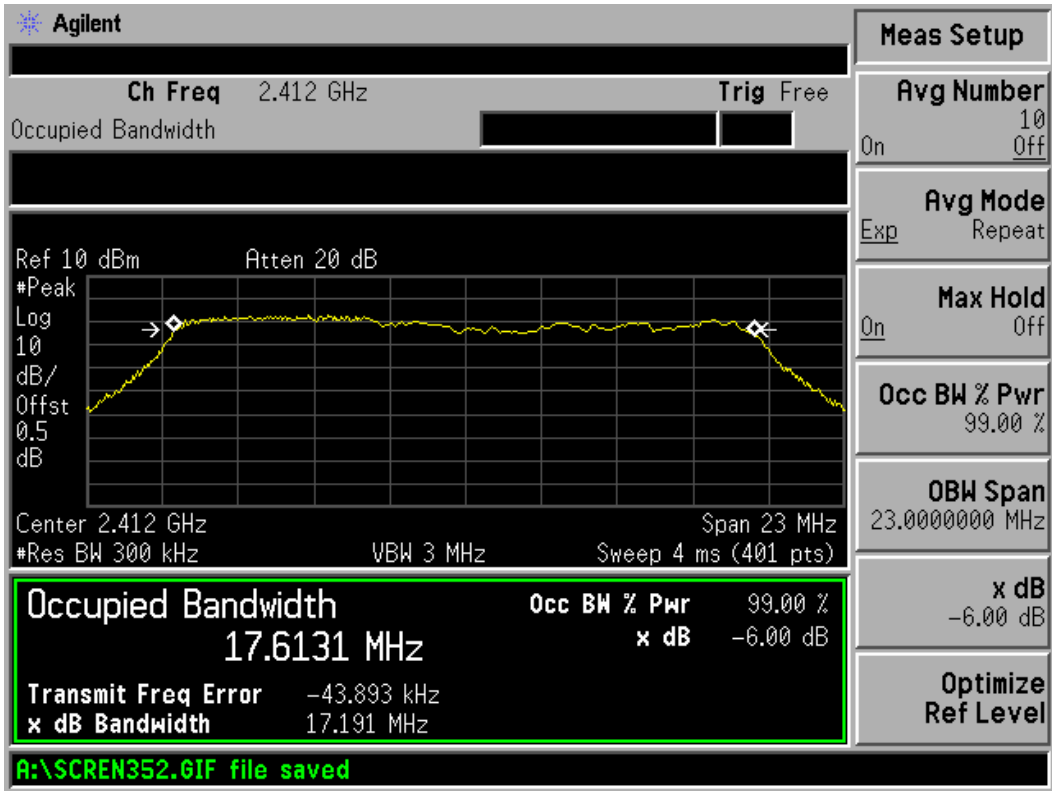


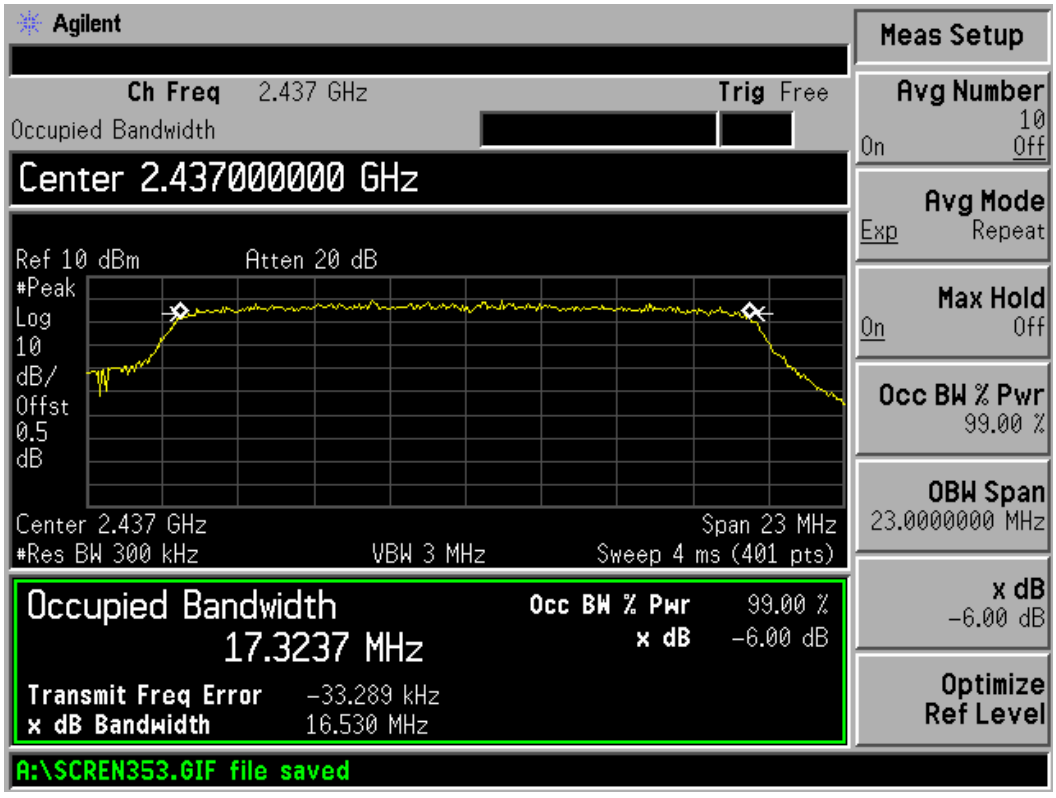


This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

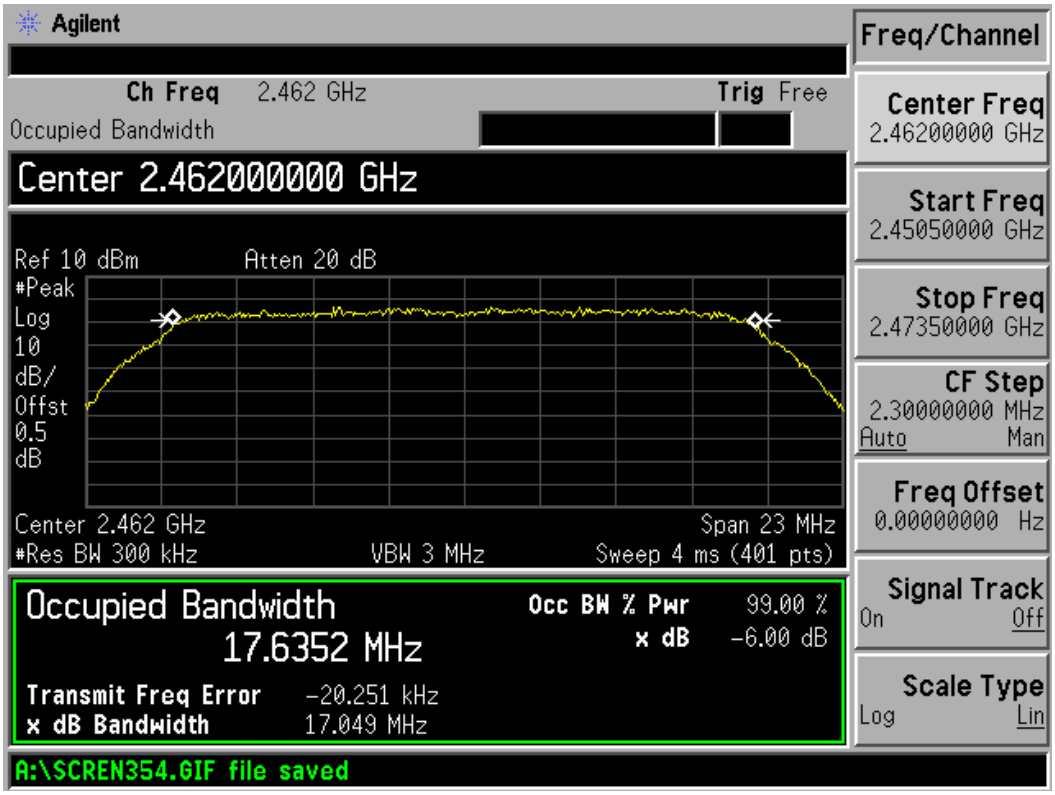
802.11n HT20 mode – port 1

Date: June 15, 2012



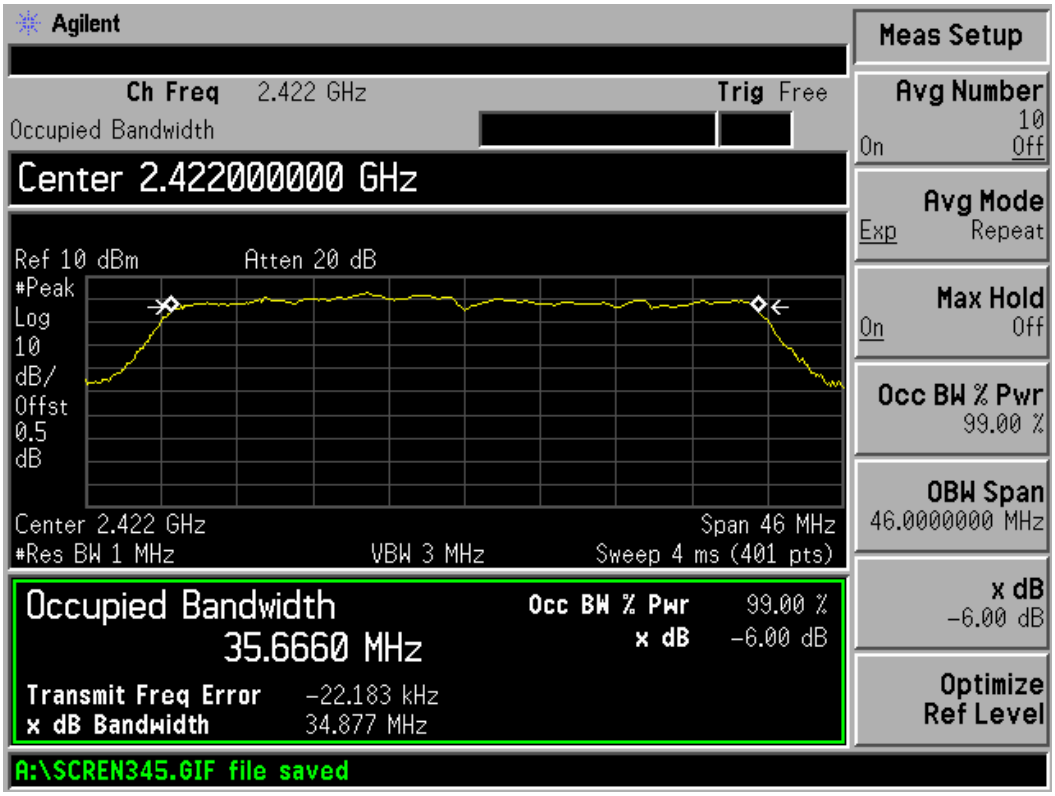


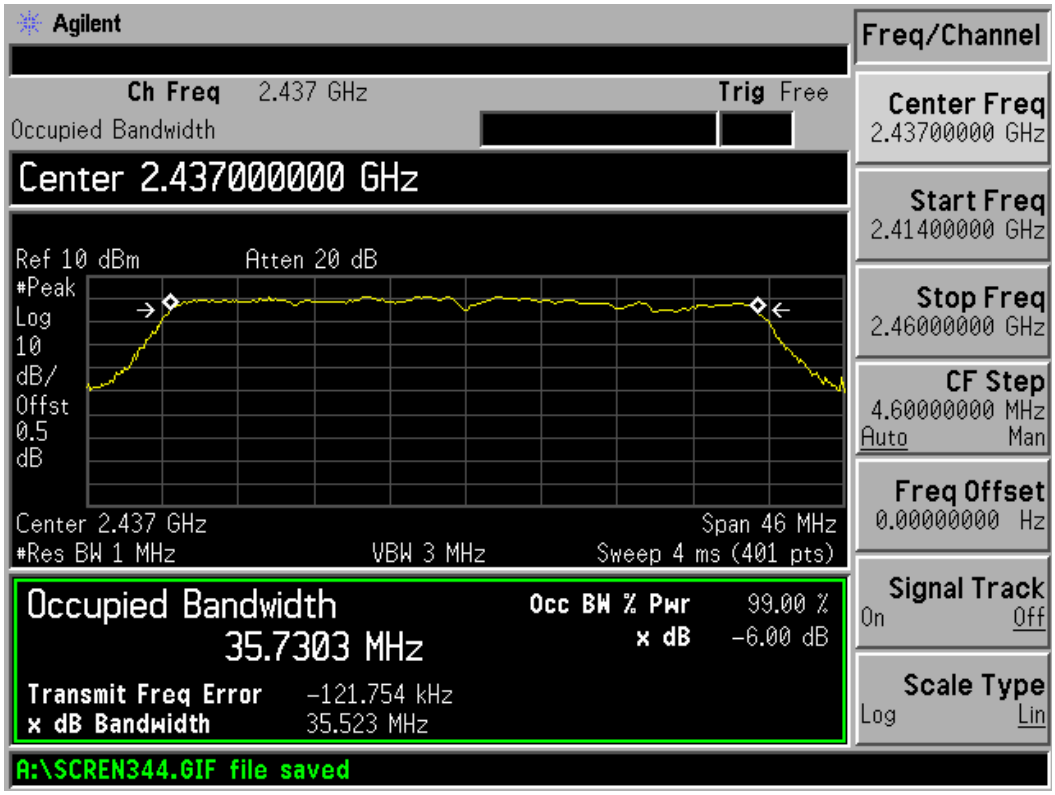
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

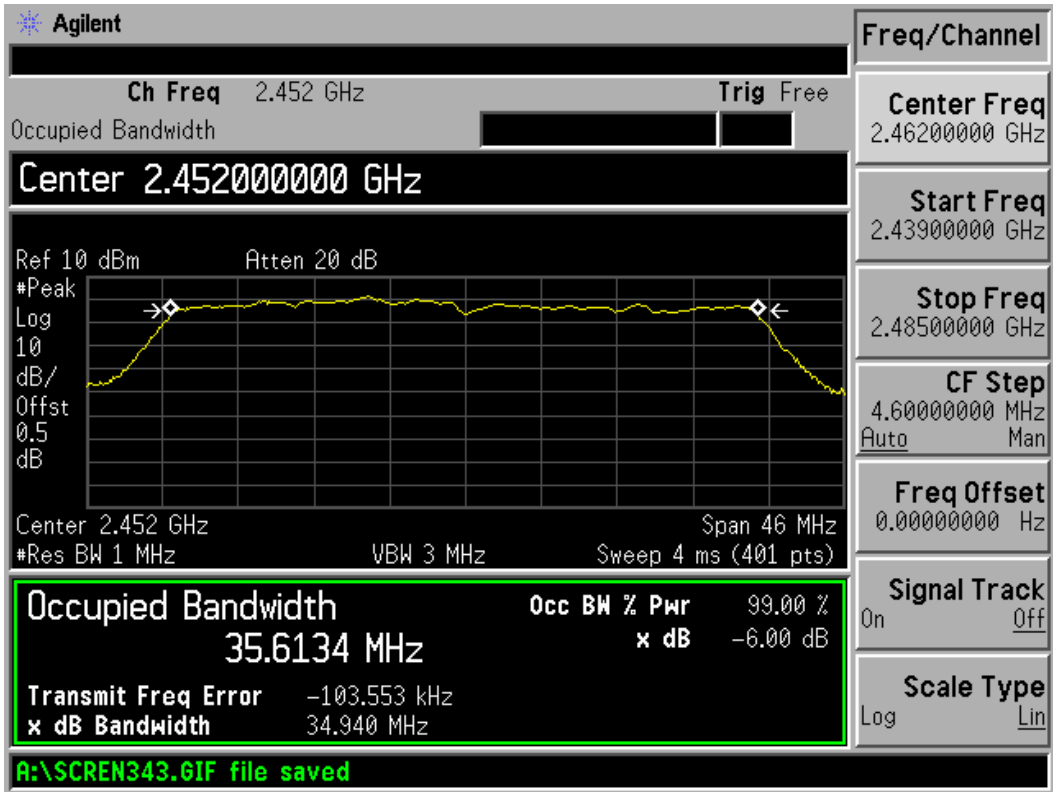


802.11n HT40 mode – port 1

Date: June 15, 2012



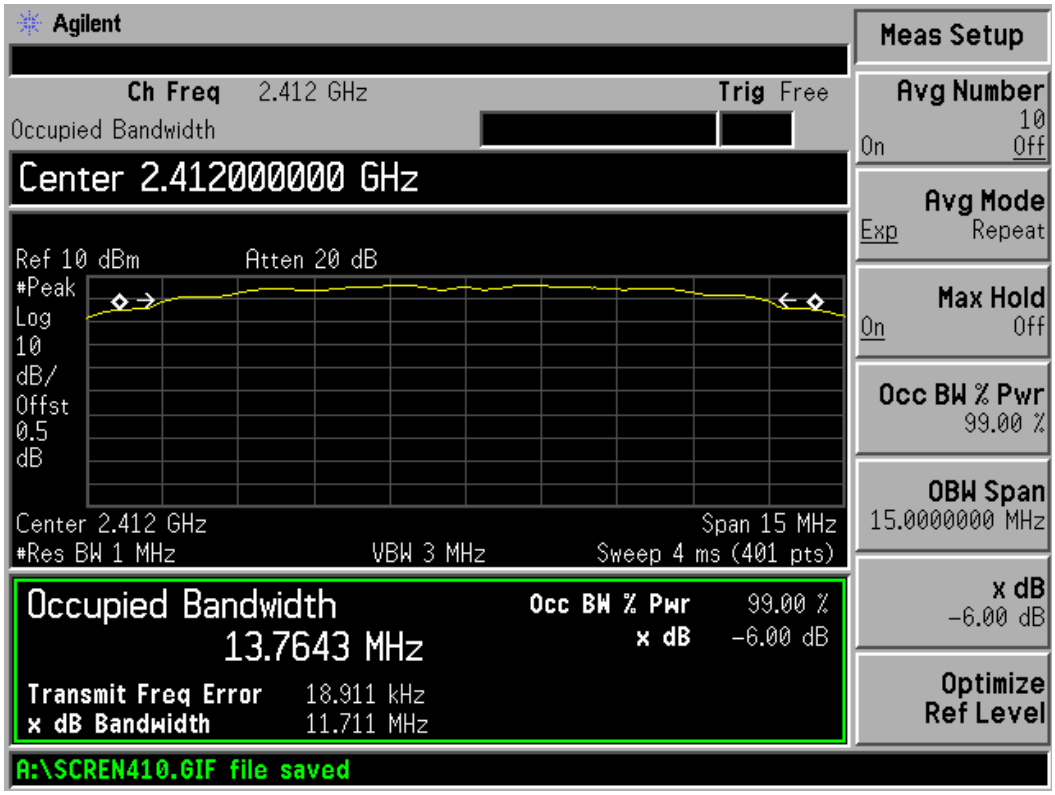


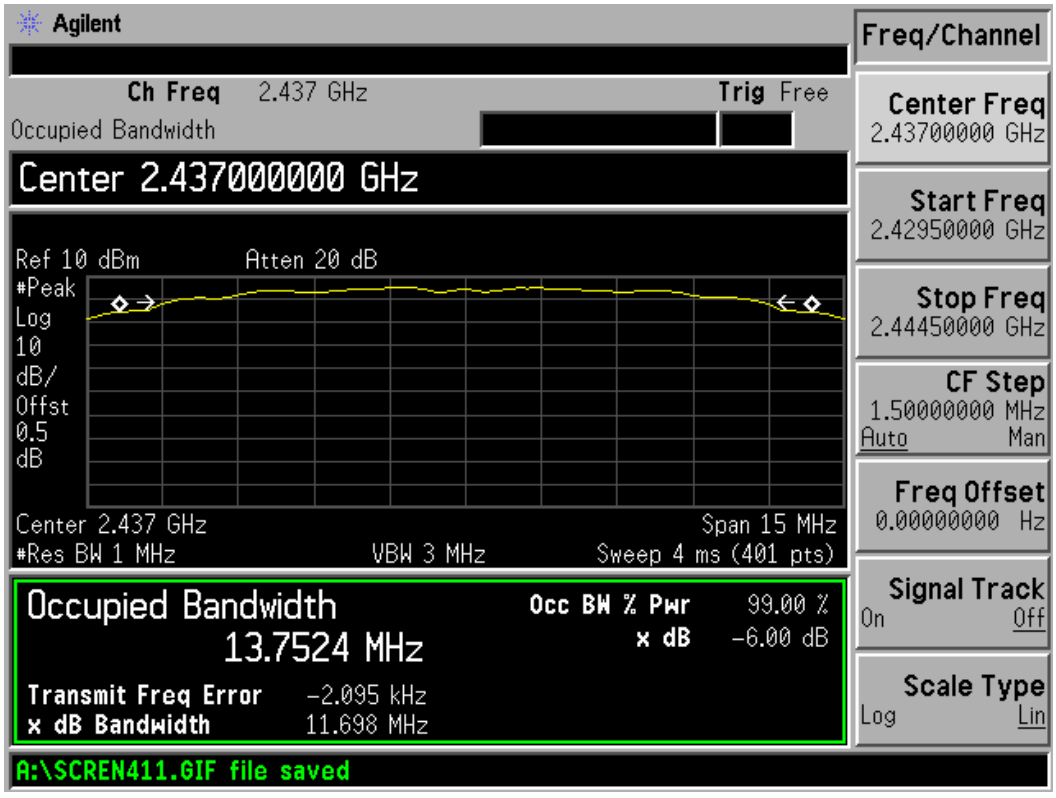


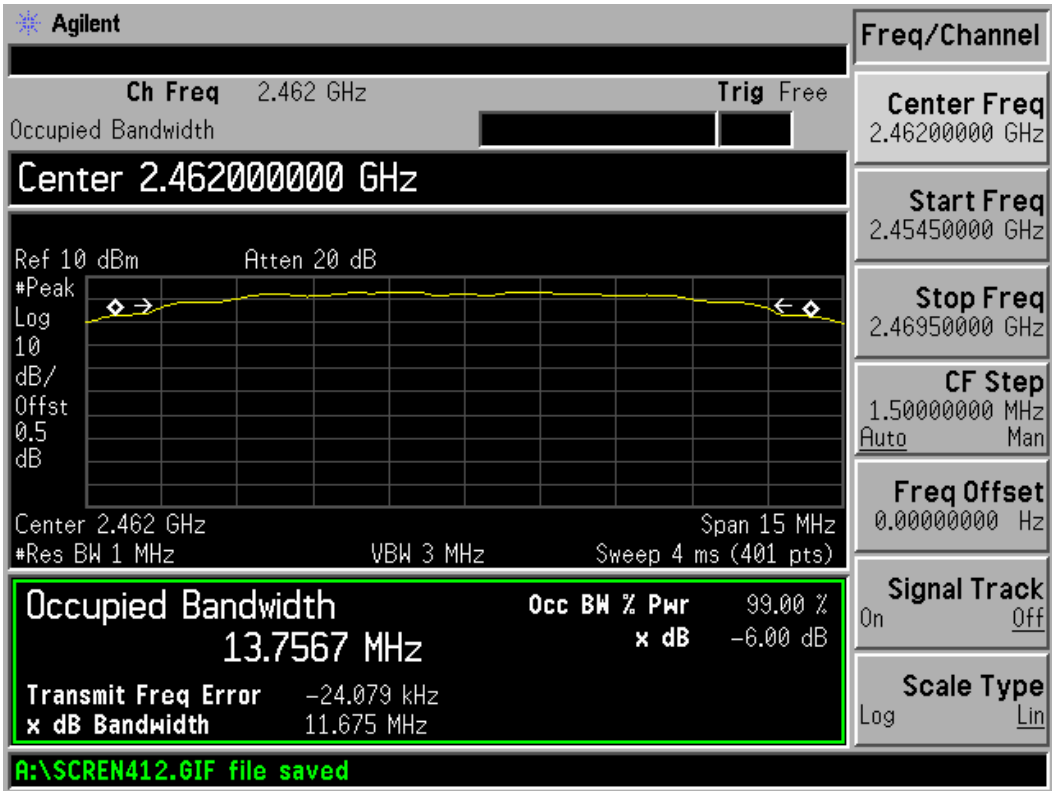
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11b mode – port 2

Date: June 15, 2012

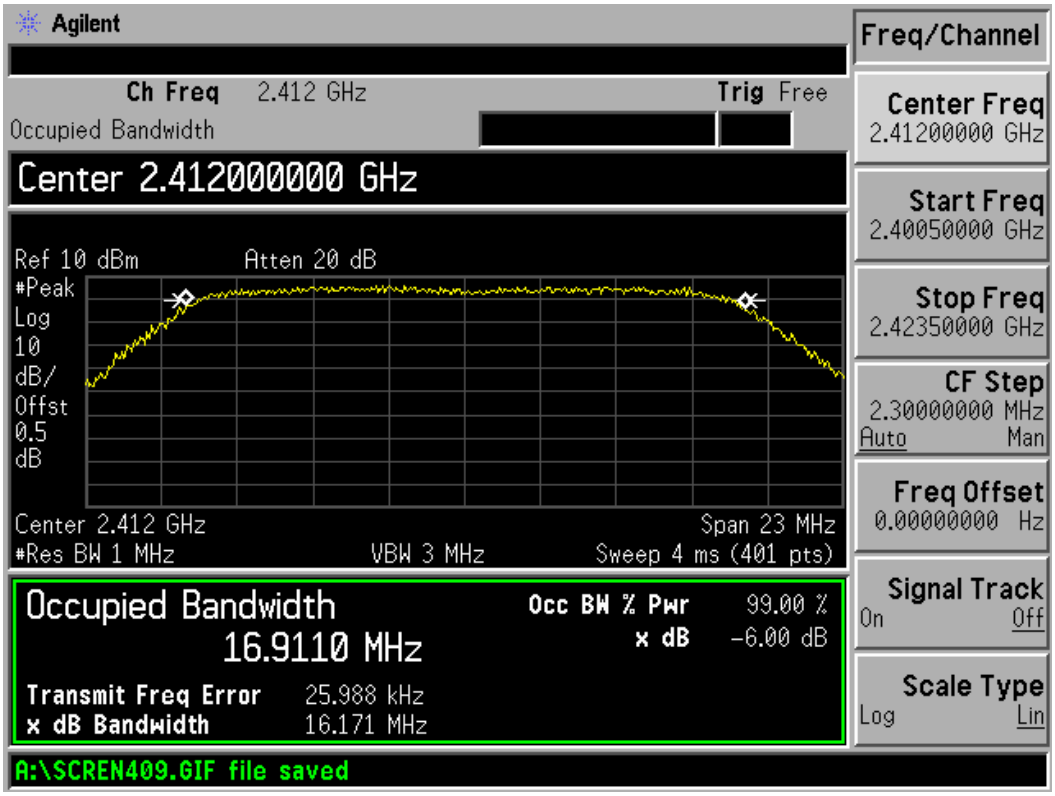




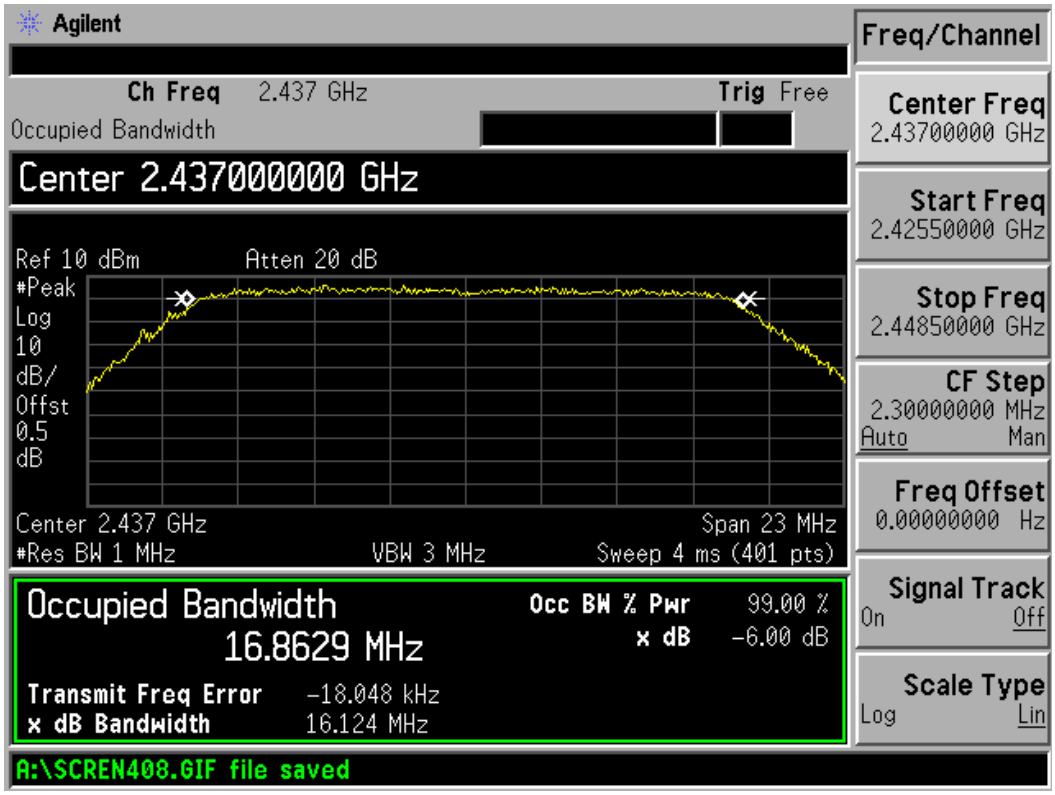


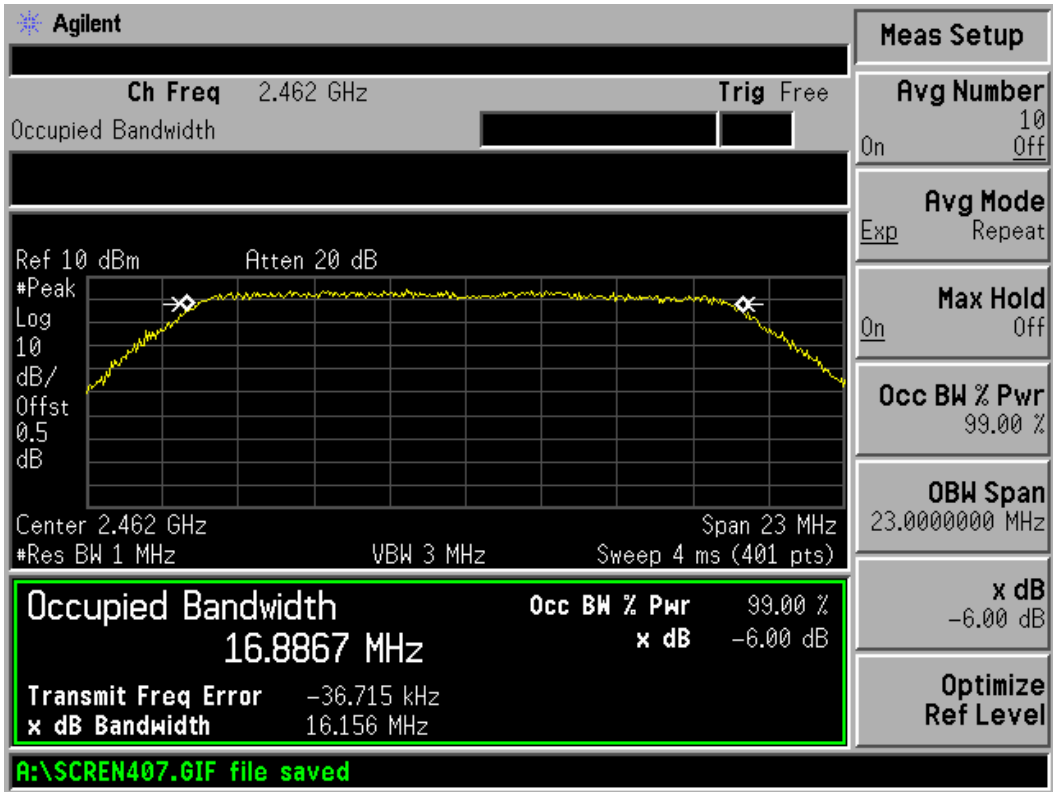
802.11g mode – port 2

Date: June 15, 2012



This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

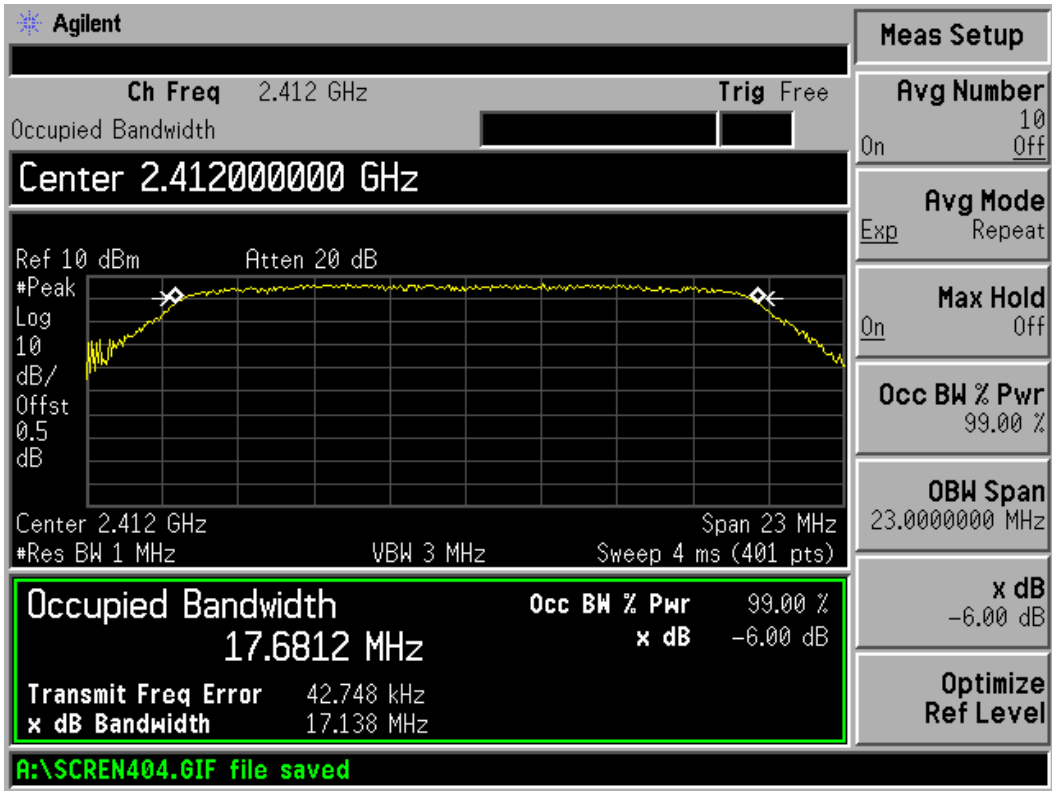


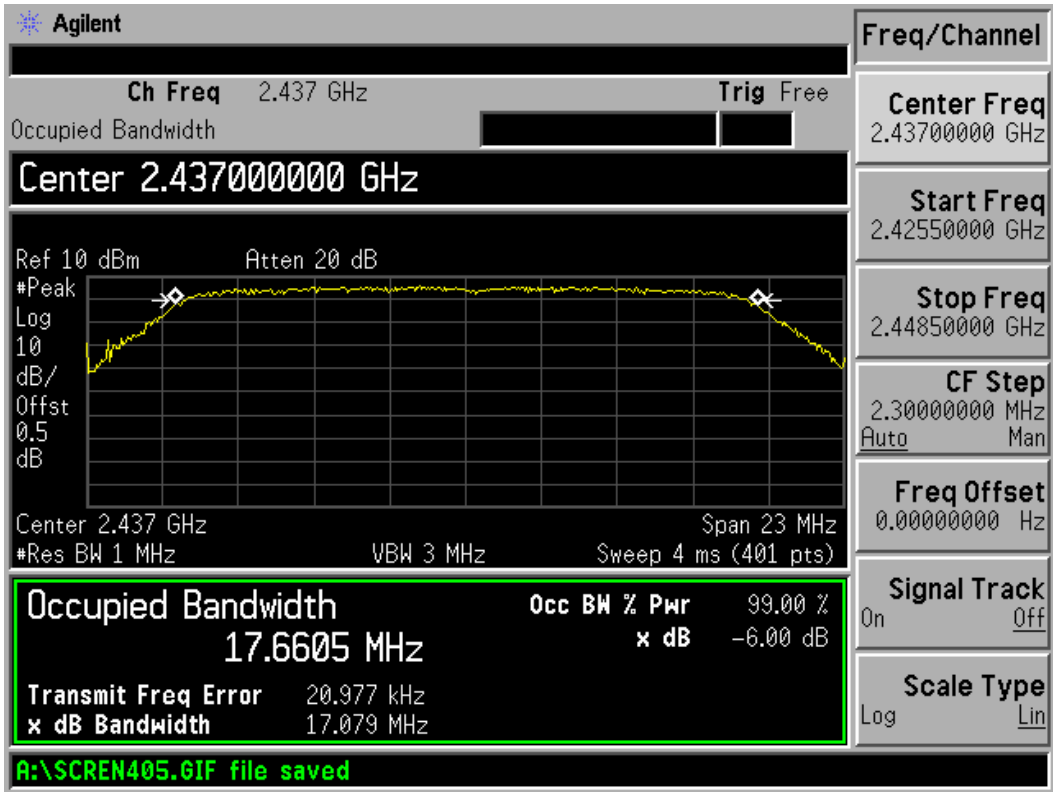


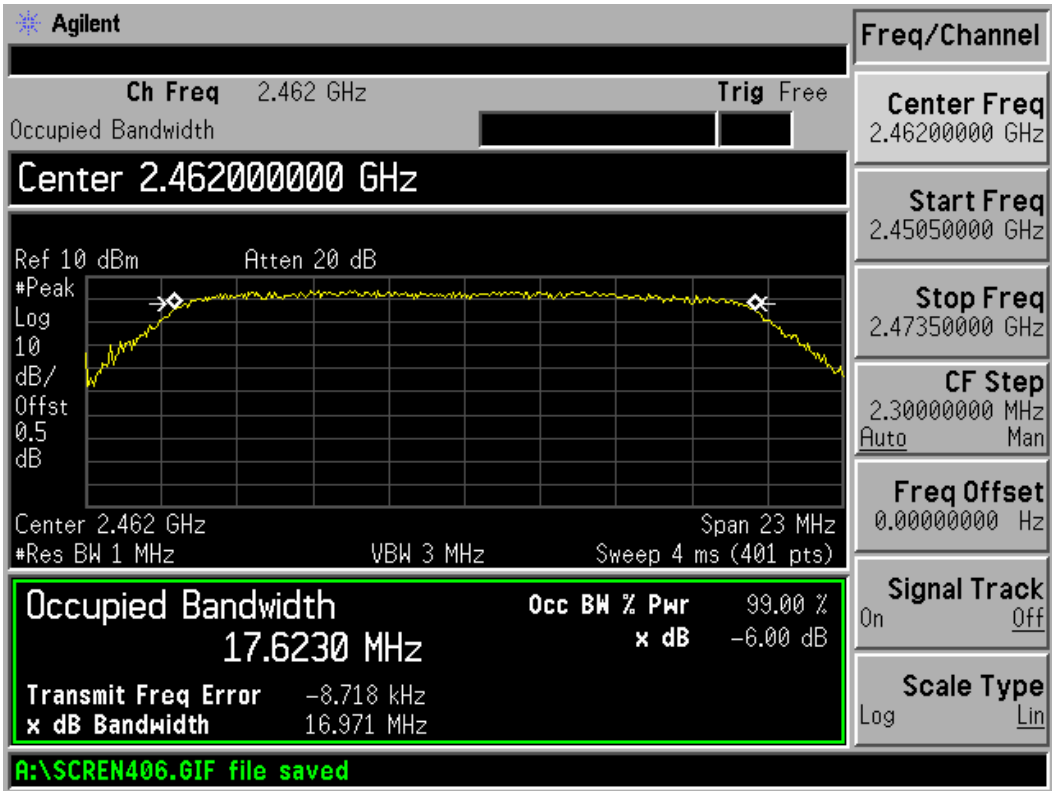
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11n HT20 mode – port 2

Date: June 15, 2012

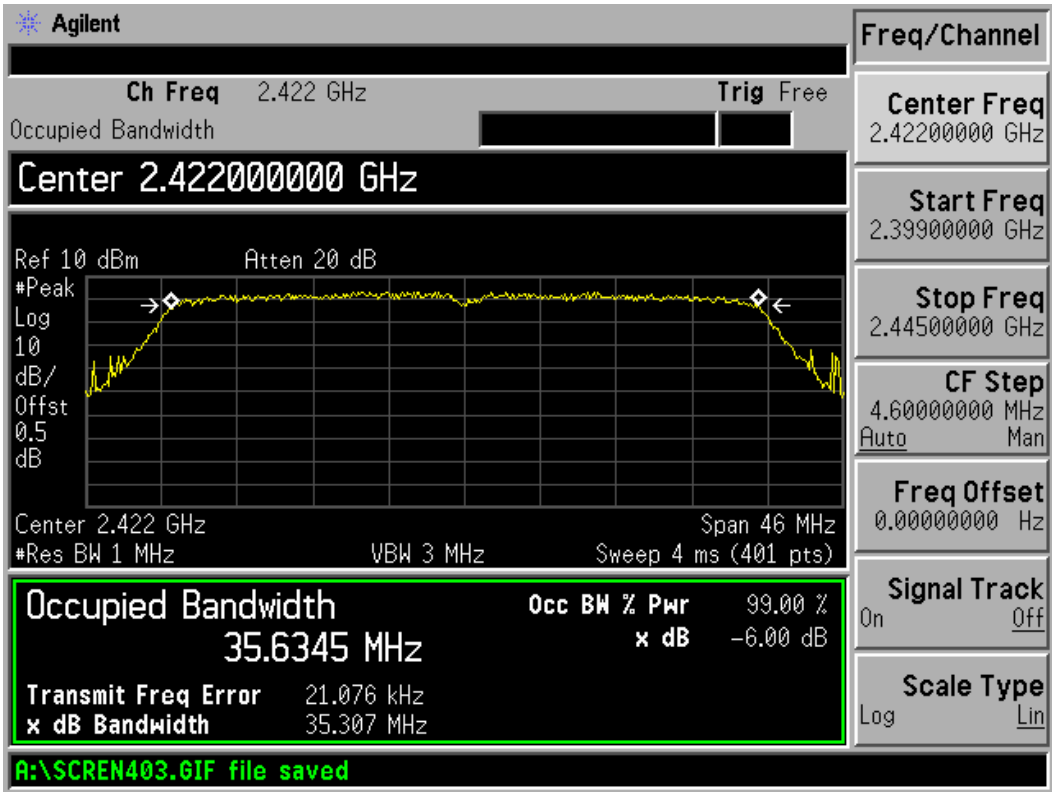


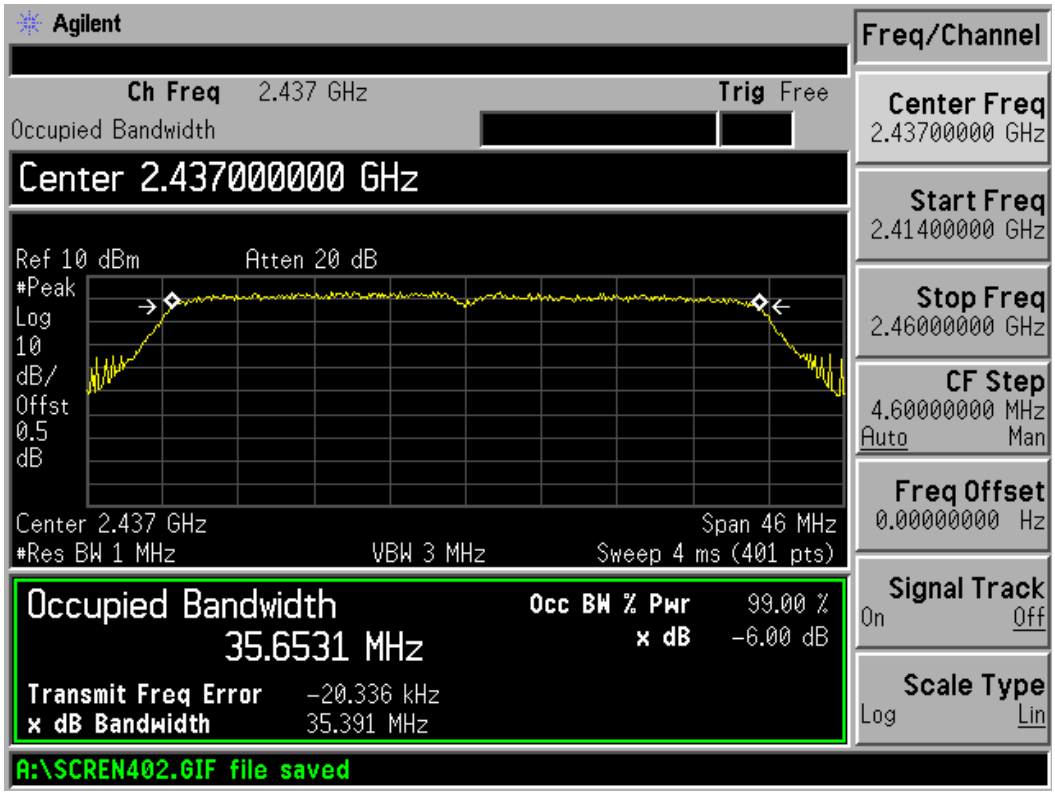


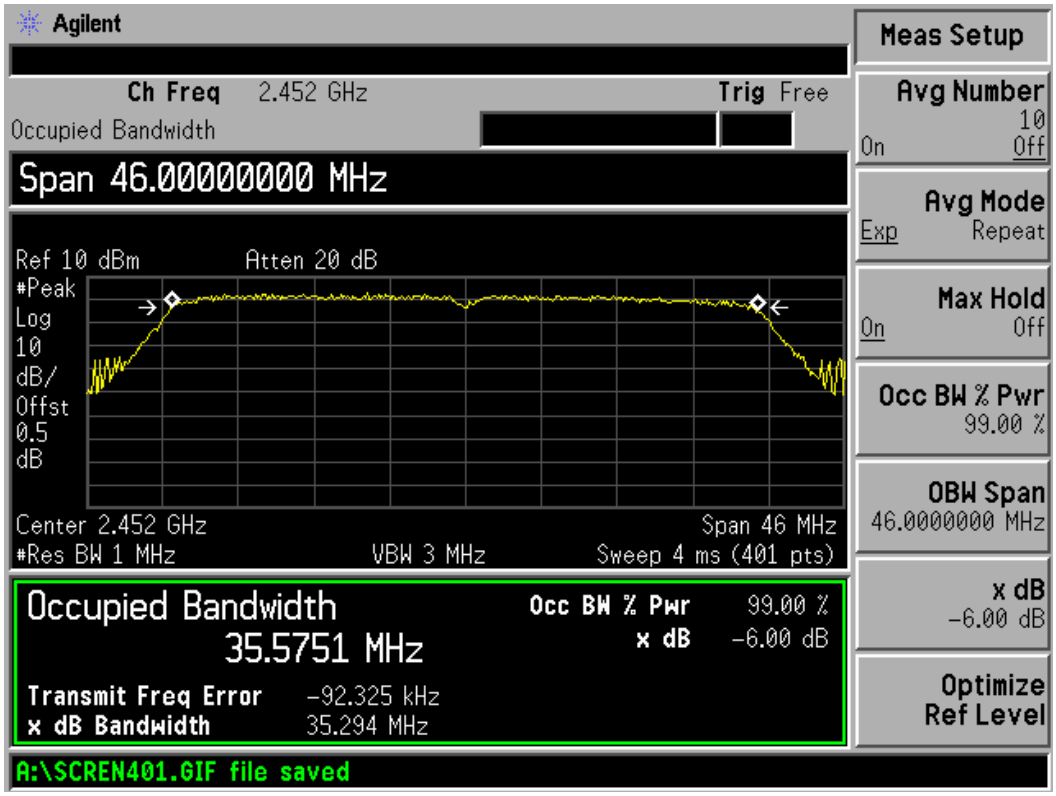


802.11n HT40 mode – port 2

Date: June 15, 2012







This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5.4. Radiated Emissions Measurement

5.4.1. Standard Applicable

According to §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. Attenuation below the general limits specified in § 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a). then the 15.209(a) limit in the table below has to be followed.

Frequencies(MHz)	Field Strength(micorvolts/meter)	Measurement Distance(meters)
0.009~0.490	2400/F(KHz)	300
0.490~1.705	24000/F(KHz)	30
1.705~30.0	30	30
30~88	100	3
88~216	150	3
216~960	200	3
Above 960	500	3

5.4.2. Measuring Instruments and Setting

Please refer to section 6 of equipments list in this report. The following table is the setting of spectrum analyzer and receiver.

Spectrum Parameter	Setting
Attenuation	Auto
Start Frequency	1000 MHz
Stop Frequency	10th carrier harmonic
RB / VB (Emission in restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average
RB / VB (Emission in non-restricted band)	1MHz / 3MHz for Peak, 1 MHz / 10Hz for Average

Spectrum Parameter	Setting
Attenuation	Auto
Start ~ Stop Frequency	9kHz~150kHz / RB 200Hz for QP
Start ~ Stop Frequency	150kHz~30MHz / RB 9kHz for QP
Start ~ Stop Frequency	30MHz~1000MHz / RB 100kHz for QP

5.4.3. Test Procedures

1. Configure the EUT according to ANSI C63.4. The EUT was placed on the top of the turntable 0.8 meter above ground. The phase center of the receiving antenna mounted on the top of a height-variable antenna tower was placed 3 meters far away from the turntable.

2. Power on the EUT and all the supporting units. The turntable was rotated by 360 degrees to determine the position of the highest radiation.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

3. The height of the broadband receiving antenna was varied between one meter and four meters above ground to find the maximum emissions field strength of both horizontal and vertical polarization.

4. For each suspected emissions, the antenna tower was scan (from 1 m to 4 m) and then the turntable was rotated (from 0 degree to 360 degrees) to find the maximum reading

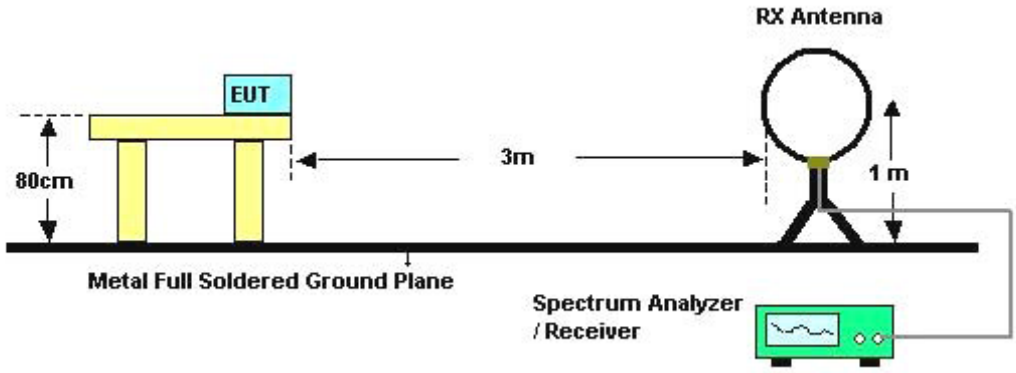
5. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function with specified bandwidth under Maximum Hold Mode.

6. For intentional radiators with a digital device portion which operates below 10 GHz, the spectrum was investigated as per §15.33(a)(1) and §15.33(a)(4); i.e., the lowest RF signal generated or used in the device up to the 10th harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

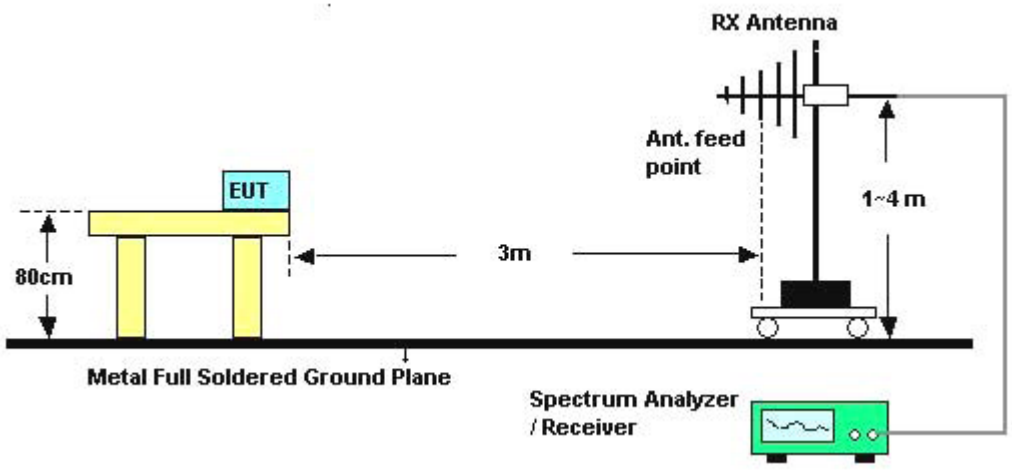
7. In accordance with §15.35(b) the limit on the radio frequency emissions as measured using instrumentation with a peak detector function shall be 20 dB above the maximum permitted average limit for the frequency being investigated unless a different peak emission limit is otherwise specified in the rules.

5.4.4. Test Setup Layout

For radiated emissions below 30MHz



For radiated emissions above 30MHz



Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade form 3m to 1.5m.

Distance extrapolation factor = 20 log (specific distanc [3m] / test distance [1.5m]) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor [6 dB].

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5.4.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.4.6. Results of Radiated Emissions (9kHz~30MHz)

Temperature	25℃	Humidity	60%
Test Engineer	Vito Cao	Configurations	802.11b

Freq. (MHz)	Level (dBuV)	Over Limit (dB)	Over Limit (dBuV)	Remark
-	-	-	-	See Note

Note:

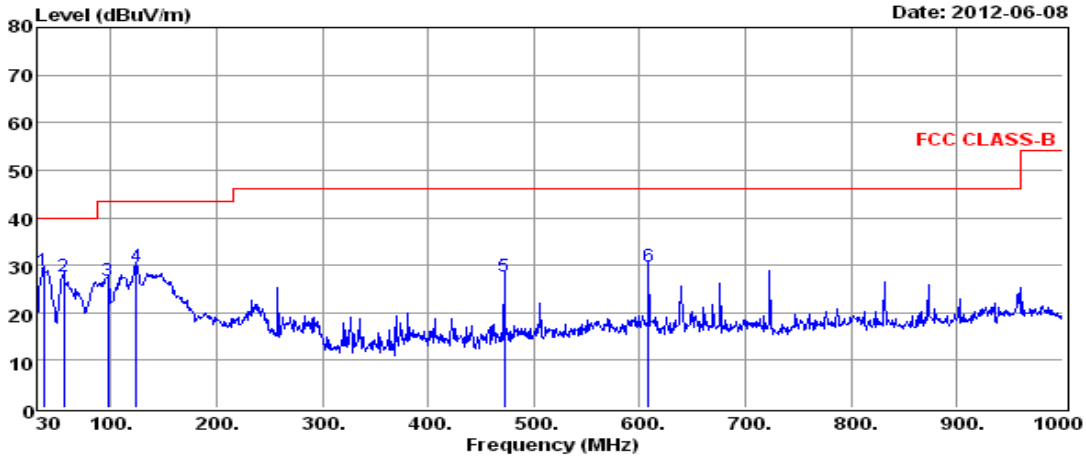
The amplitude of spurious emissions which are attenuated by more than 20 dB below the permissible value has no need to be reported.

Distance extrapolation factor = 40 log (specific distance / test distance) (dB);

Limit line = specific limits (dBuV) + distance extrapolation factor.

5.4.7. Results of Radiated Emissions (30MHz~1GHz)

Temperature	25℃	Humidity	60%
Test Engineer	Vito Cao	Configurations	Normal Link

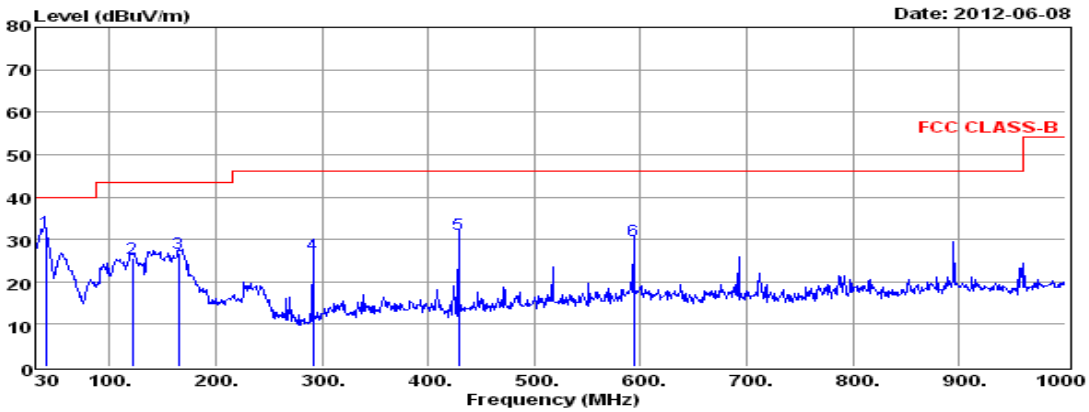


Env. /Ins: 24℃/56%
EUT: Wireless Adapter
M/N: SL-D001A
Power Rating: DC 5V From PC Input AC 120/60Hz
Test Mode: ON
Operator: FOX
Memo:
pol: HORIZONTAL

	Freq.	Reading	CabLos	AntFac	PreFac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	36.79	46.11	0.00	12.76	30.13	28.74	40.00	-11.26	QP
2	55.22	44.94	0.00	13.01	30.15	27.80	40.00	-12.20	QP
3	96.93	43.97	0.00	12.96	30.20	26.73	43.50	-16.77	QP
4	124.09	49.98	0.00	9.85	30.20	29.63	43.50	-13.87	QP
5	472.32	41.72	0.00	15.89	30.06	27.55	46.00	-18.45	QP
6	608.12	41.15	0.00	18.48	30.00	29.63	46.00	-16.37	QP

Note: 1. All readings are Quasi-peak values.
2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.
3. The emission levels that ate 20dB below the official limit are not reported.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..



Env. /Ins: 24℃/56%
EUT: Wireless Adapter
M/N: SL-D001A
Power Rating: DC 5V From PC Input AC 120/60Hz
Test Mode: ON
Operator: FOX
Memo:
pol: VERTICAL

	Freq.	Reading	CabLos	AntFac	PreFac	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB/m	dB	dBuV/m	dBuV/m	dB	
1	39.70	48.46	0.00	13.50	30.13	31.83	40.00	-8.17	QP
2	121.18	45.43	0.00	10.30	30.20	25.53	43.50	-17.97	QP
3	164.83	48.22	0.00	8.81	30.20	26.83	43.50	-16.67	QP
4	291.90	43.61	0.00	12.90	30.15	26.36	46.00	-19.64	QP
5	428.67	45.91	0.00	15.51	30.09	31.33	46.00	-14.67	QP
6	593.57	41.48	0.00	18.33	30.00	29.81	46.00	-16.19	QP

Note: 1. All readings are Quasi-peak values.
2. Measured = Reading + Antenna Factor + Cable Loss - Amp Factor.
3. The emission levels that ate 20dB below the official limit are not reported.

Note:

Pre-scan all mode and recorded the worst case results in this report (802.11b middle Channel).

Emission level (dBuV/m) = 20 log Emission level (uV/m).

Corrected Reading: Antenna Factor + Cable Loss + Read Level - Preamp Factor = Level.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5.4.8. Results for Radiated Emissions (1GHz~10th Harmonic)

PASS.

We found port 1 antenna radiated emissions was worst case through pre-scan, so this condition was recorded.

802.11b mode

Channel 1

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4824.12	47.67	45.71	33.06	35.04	3.94	74	-26.33	Peak	Horizontal
4824.23	39.21	37.25	33.06	35.04	3.94	54	-14.79	Average	Horizontal
4824.12	48.24	46.28	33.06	35.04	3.94	74	-25.76	Peak	Vertical
4824.25	40.12	38.16	33.06	35.04	3.94	54	-13.88	Average	Vertical

Channel 6

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4874.65	47.86	45.89	33.16	35.15	3.96	74	-26.14	Peak	Horizontal
4874.65	36.09	34.12	33.16	35.15	3.96	54	-17.91	Average	Horizontal
4874.65	46.28	44.31	33.16	35.15	3.96	74	-27.72	Peak	Vertical
4874.65	35.76	33.79	33.16	35.15	3.96	54	-18.24	Average	Vertical

Channel 11

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4924.37	46.36	44.26	33.26	35.14	3.98	74	-27.64	Peak	Horizontal
4924.37	34.78	32.68	33.26	35.14	3.98	54	-19.22	Average	Horizontal
4924.37	45.27	43.17	33.26	35.14	3.98	74	-28.73	Peak	Vertical
4924.37	34.05	31.95	33.26	35.14	3.98	54	-19.95	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11g mode

Channel 1

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4824.75	47.33	45.37	33.06	35.04	3.94	74	-26.67	Peak	Horizontal
4824.96	37.58	35.62	33.06	35.04	3.94	54	-16.42	Average	Horizontal
4824.75	46.70	44.74	33.06	35.04	3.94	74	-27.3	Peak	Vertical
4824.96	35.65	33.69	33.06	35.04	3.94	54	-18.35	Average	Vertical

Channel 6

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4874.38	48.25	46.28	33.16	35.15	3.96	74	-25.75	Peak	Horizontal
4874.38	40.13	38.16	33.16	35.15	3.96	54	-13.87	Average	Horizontal
4874.38	47.74	45.77	33.16	35.15	3.96	74	-26.26	Peak	Vertical
4874.38	41.42	39.45	33.16	35.15	3.96	54	-12.58	Average	Vertical

Channel 11

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4924.85	50.82	48.72	33.26	35.14	3.98	74	-23.18	Peak	Horizontal
4924.85	41.28	39.18	33.26	35.14	3.98	54	-12.72	Average	Horizontal
4924.85	48.32	46.22	33.26	35.14	3.98	74	-25.68	Peak	Vertical
4924.85	42.39	40.29	33.26	35.14	3.98	54	-11.61	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11n HT20 mode

Channel 1

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4824.75	45.33	43.23	33.06	35.04	3.94	74	-28.67	Peak	Horizontal
4824.96	35.84	33.74	33.06	35.04	3.94	54	-18.16	Average	Horizontal
4824.75	44.29	42.19	33.06	35.04	3.94	74	-29.71	Peak	Vertical
4824.96	34.63	32.53	33.06	35.04	3.94	54	-19.37	Average	Vertical

Channel 6

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4874.42	46.8	44.7	33.16	35.15	3.96	74	-27.2	Peak	Horizontal
4874.42	36.29	34.19	33.16	35.15	3.96	54	-17.71	Average	Horizontal
4874.42	45.33	43.23	33.16	35.15	3.96	74	-28.67	Peak	Vertical
4874.42	35.66	33.56	33.16	35.15	3.96	54	-18.34	Average	Vertical

Channel 11

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4924.68	49.61	47.51	33.26	35.14	3.98	74	-24.39	Peak	Horizontal
4924.68	40.34	38.24	33.26	35.14	3.98	54	-13.66	Average	Horizontal
4924.68	47.88	45.78	33.26	35.14	3.98	74	-26.12	Peak	Vertical
4924.68	41.93	39.83	33.26	35.14	3.98	54	-12.07	Average	Vertical

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11n HT40 mode

Channel 1

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4844.46	44.14	42.18	33.06	35.04	3.94	74	-29.86	Peak	Horizontal
4844.46	37.3	35.34	33.06	35.04	3.94	54	-16.7	Average	Horizontal
4844.46	42.45	40.49	33.06	35.04	3.94	74	-31.55	Peak	Vertical
4844.46	35.67	33.71	33.06	35.04	3.94	54	-18.33	Average	Vertical

Channel 6

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4874.29	47.73	45.76	33.16	35.15	3.96	74	-26.27	Peak	Horizontal
4874.29	37.36	35.39	33.16	35.15	3.96	54	-16.64	Average	Horizontal
4874.29	46.15	44.18	33.16	35.15	3.96	74	-27.85	Peak	Vertical
4874.29	35.44	33.47	33.16	35.15	3.96	54	-18.56	Average	Vertical

Channel 11

Freq MHz	Level dBuV/m	Read Level dBuV	Ant. Fac dB/m	Pre. Fac dB	Cab.Los dB	Limit Line dBuV/m	Over limit dB	Remark	Pol/Phase
4844.29	50.52	48.42	33.26	35.14	3.98	74	-23.48	Peak	Horizontal
4844.29	41.01	38.91	33.26	35.14	3.98	54	-12.99	Average	Horizontal
4904.54	47.36	45.26	33.26	35.14	3.98	74	-26.64	Peak	Vertical
4904.54	41.47	39.37	33.26	35.14	3.98	54	-12.53	Average	Vertical

Notes:

1. Measuring frequencies from 9k~10th harmonic (ex. 26GHz), No emission found between lowest internal used/generated frequency to 30 MHz.

2. Radiated emissions measured in frequency range from 9k~10th harmonic (ex. 26GHz) were made with an instrument using Peak detector mode.

3. Data of measurement within this frequency range shown " --- " in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

5.5. Conducted Spurious Emissions

5.5.1. Standard Applicable

According to§15.247 (d): Output power was measured based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits.

5.5.2. Measuring Instruments and Setting

Please refer to section 6 of equipments list in this report. The following table is the setting of the spectrum analyzer.

Spectrum Parameter	Setting
Detector	Peak
Attenuation	Auto
RB / VB (Emission in restricted band)	100KHz/300KHz
RB / VB (Emission in non-restricted band)	100KHz/300KHz

5.5.3. Test Procedures

The transmitter output is connected to a spectrum analyzer. The resolution bandwidth is set to 100 kHz. The video bandwidth is set to 300 kHz

The spectrum from 30 MHz to 40 GHz is investigated with the transmitter set to the lowest, middle, and highest channels.

Preliminary tests on individual chains, and on all chains with a combiner, were performed. The worst-case configuration was with a combiner, therefore final test were performed with all chains feeding a combiner.

5.5.4. Test Setup Layout

This test setup layout is the same as that shown in section 5.4.4.

5.5.5. EUT Operation during Test

The EUT was programmed to be in continuously transmitting mode.

5.5.6. Test Results of Conducted Spurious Emissions

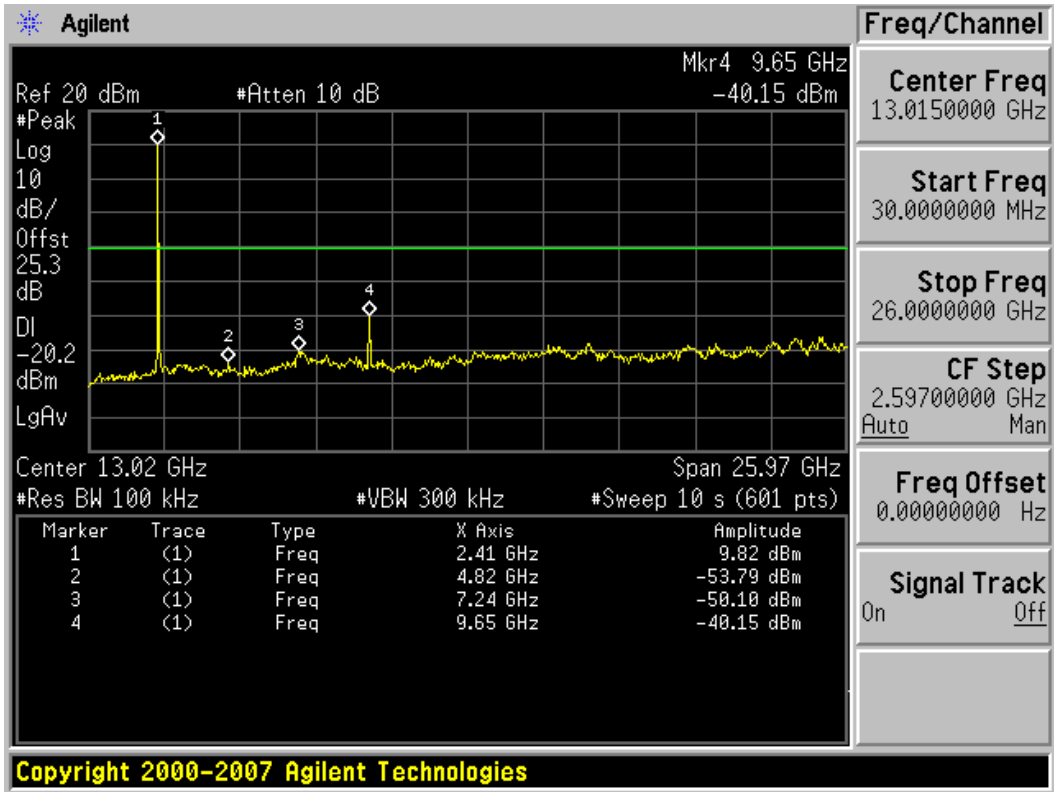
PASS.

We found port 1 antenna spurious emissions was worst case through pre-scan, so this condition was recorded.

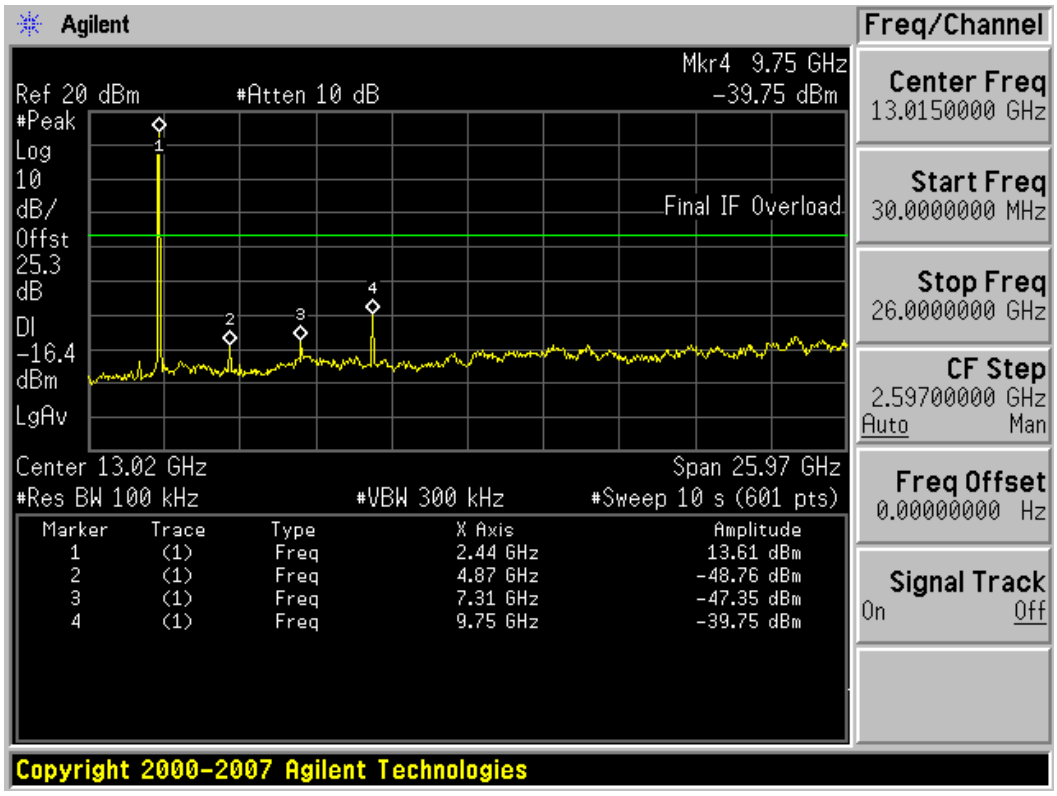
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

802.11b

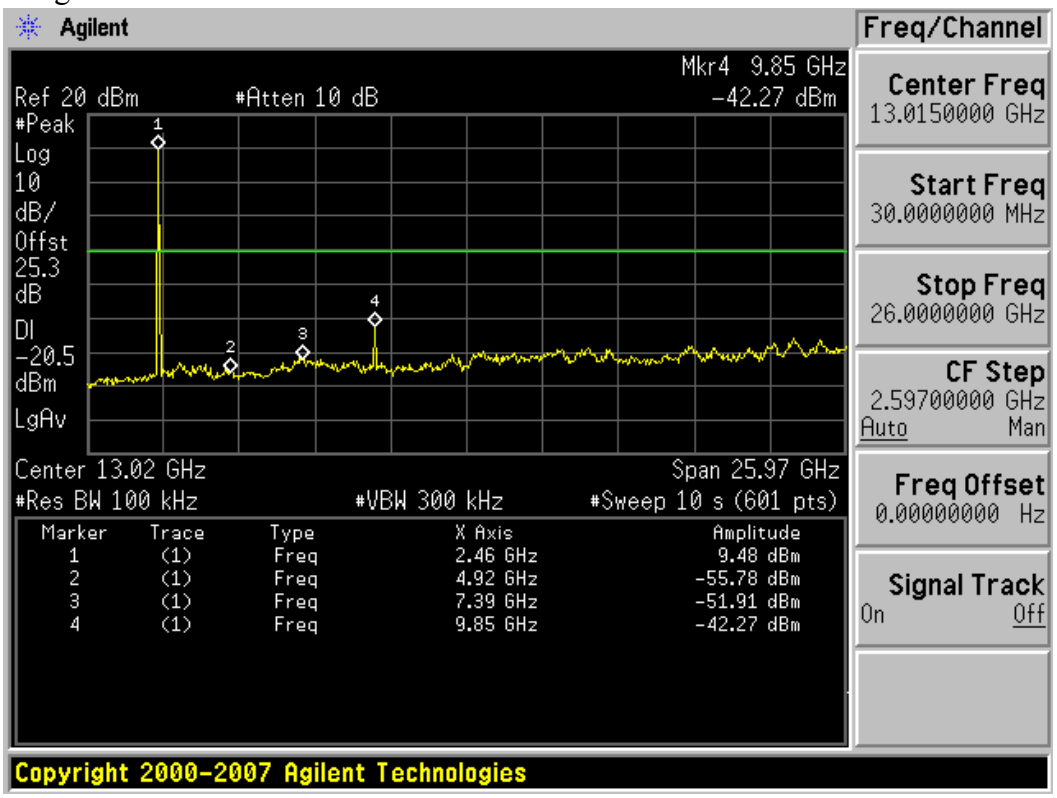
Low Channel



Middle Channel

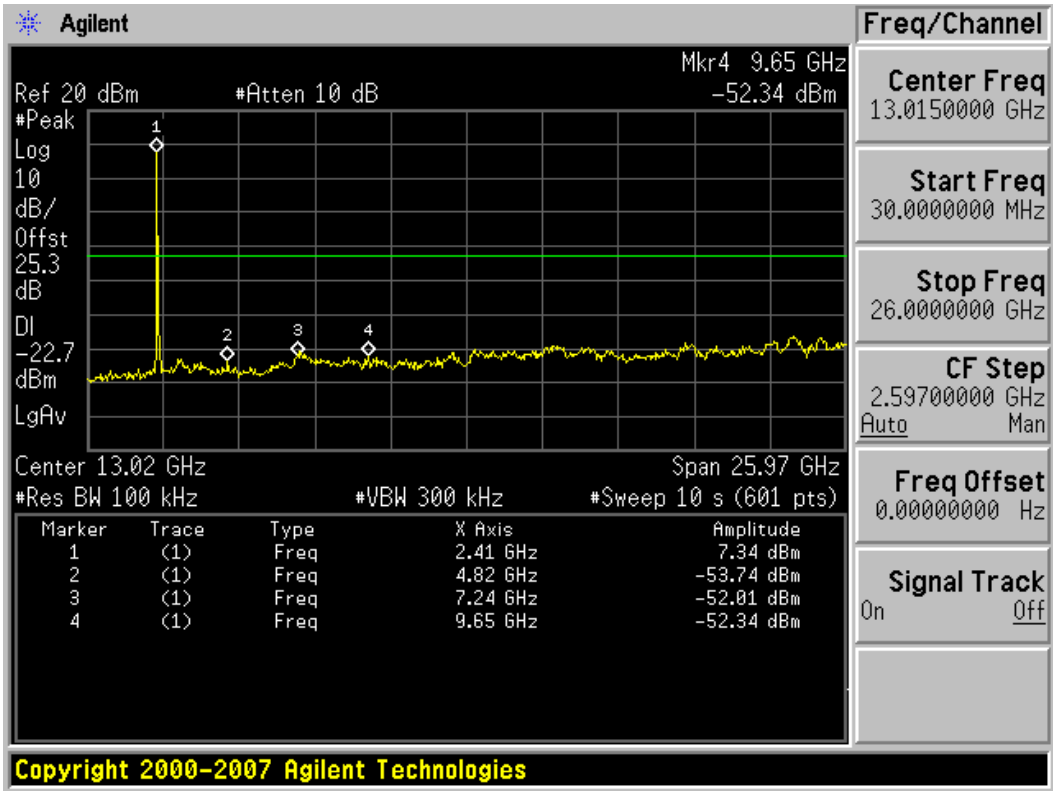


High Channel

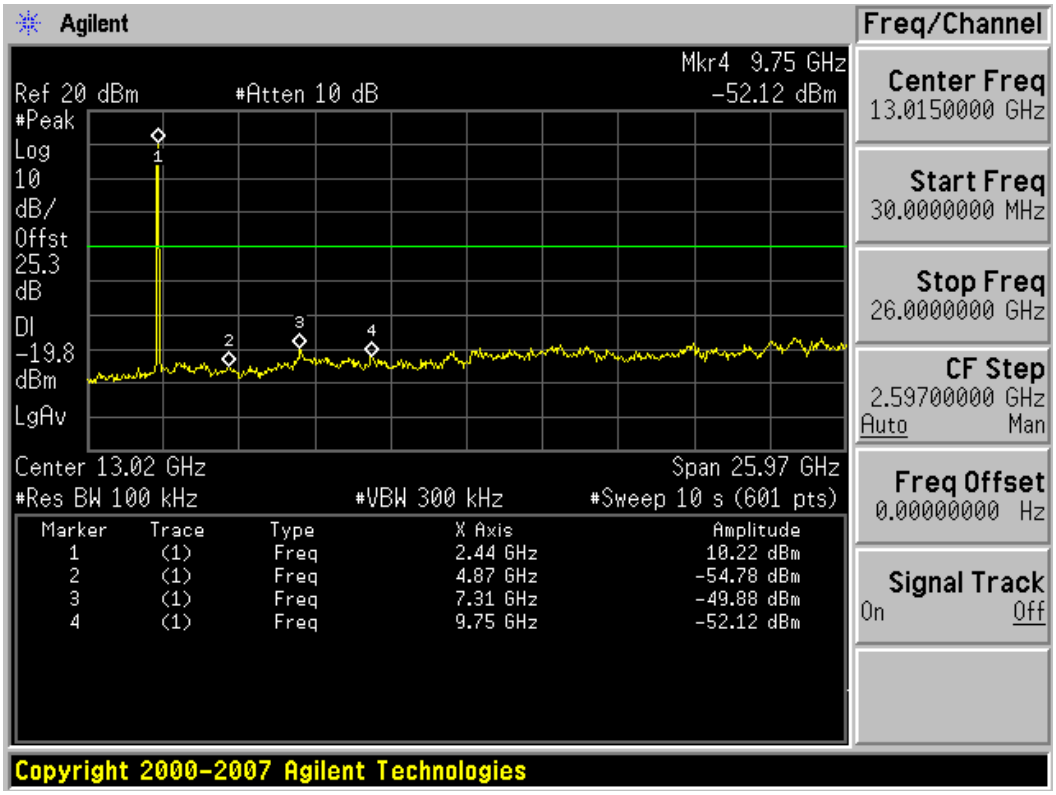


802.11g

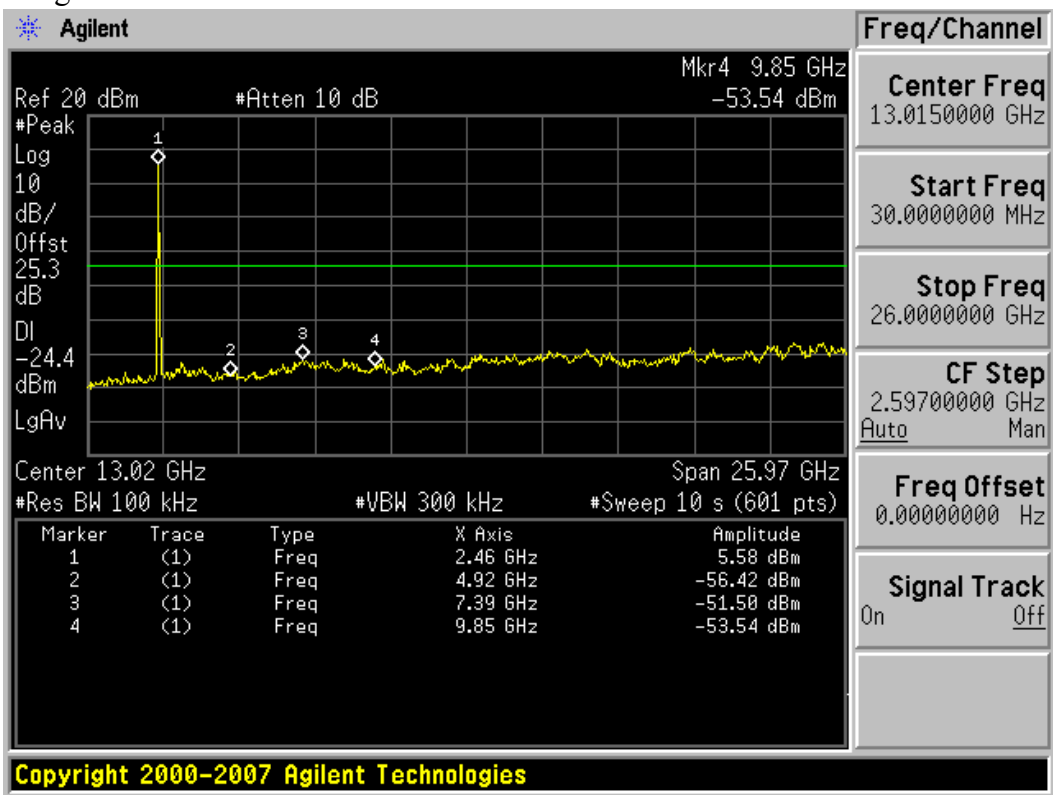
Low Channel



Middle Channel

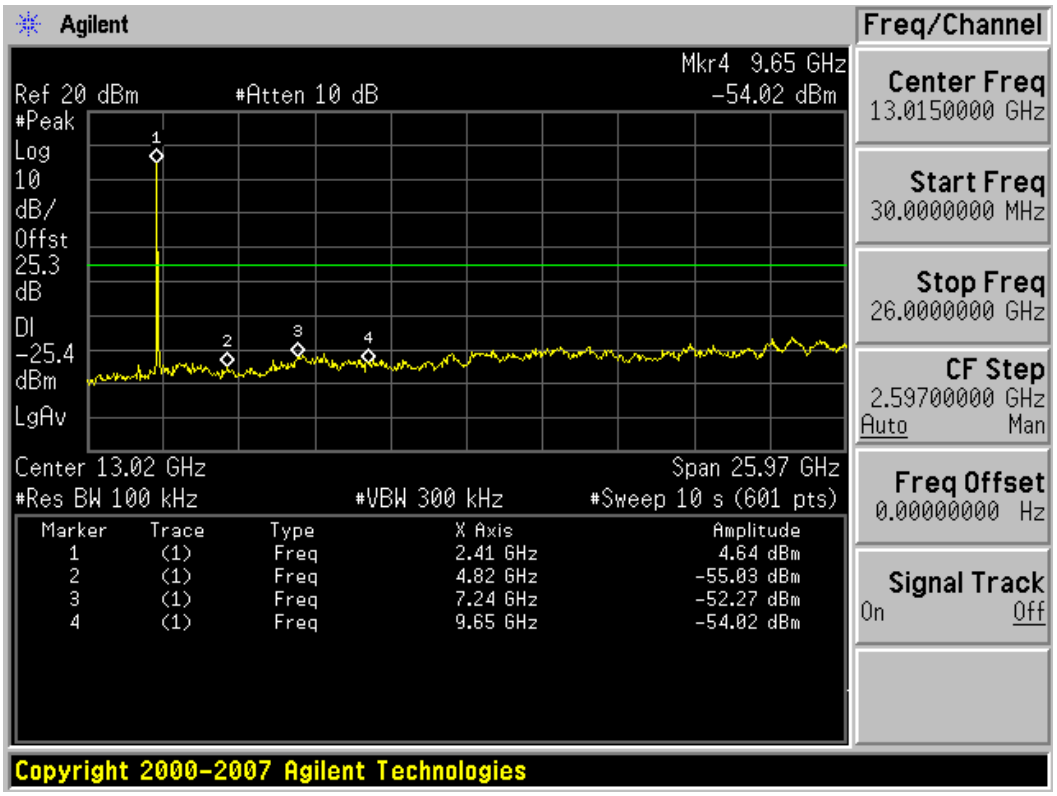


High Channel

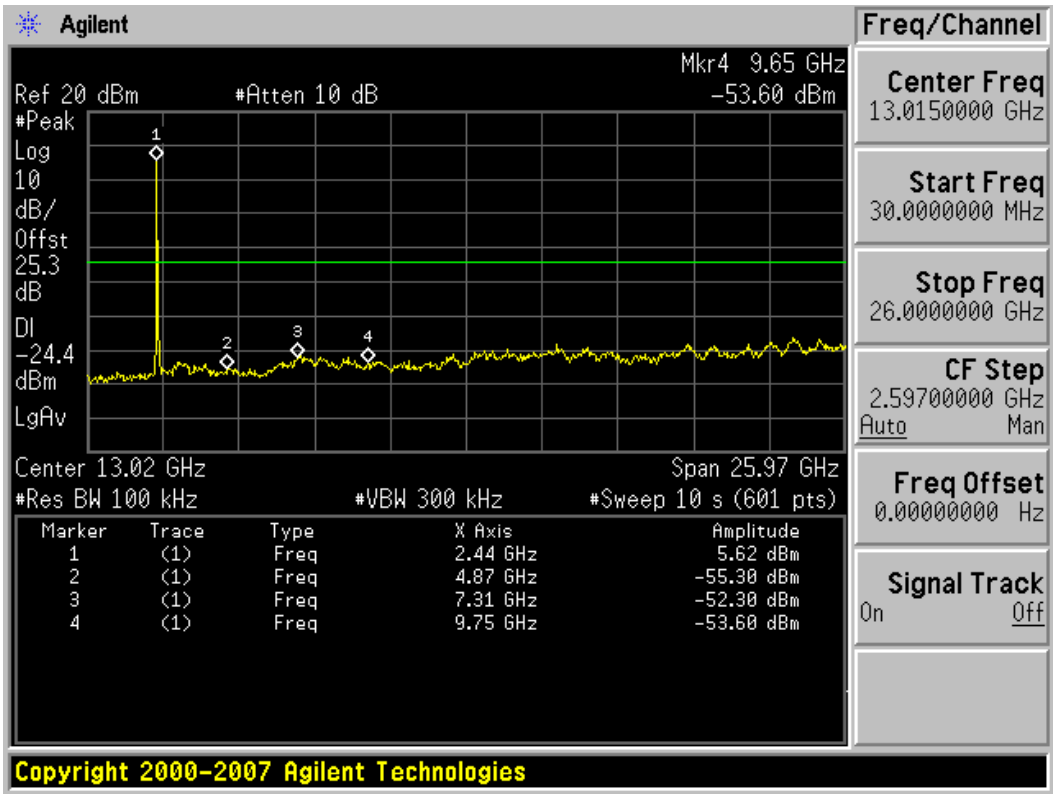


802.11n HT20

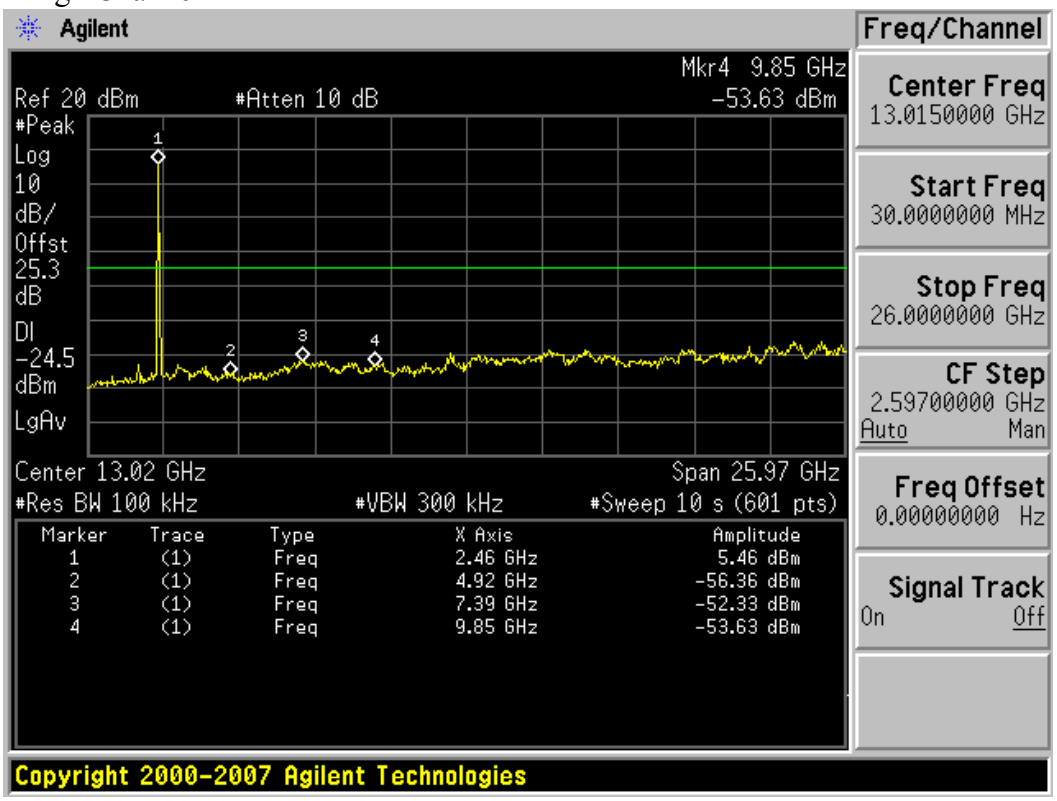
Low Channel



Middle Channel

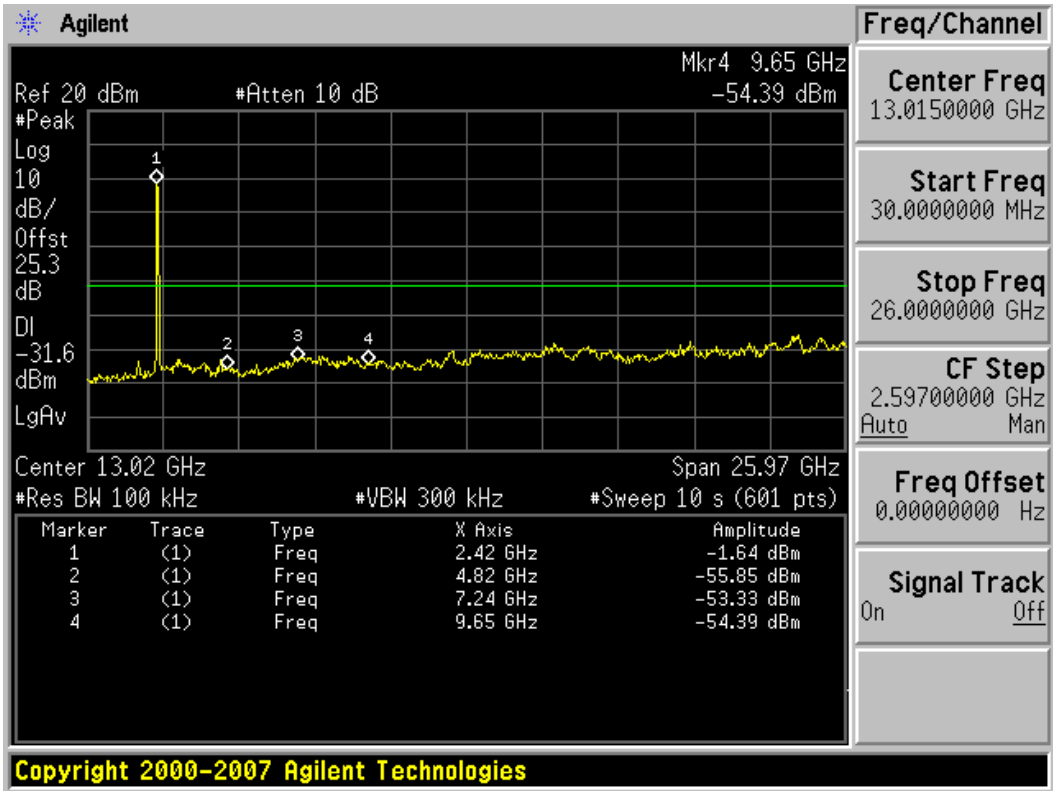


High Channel

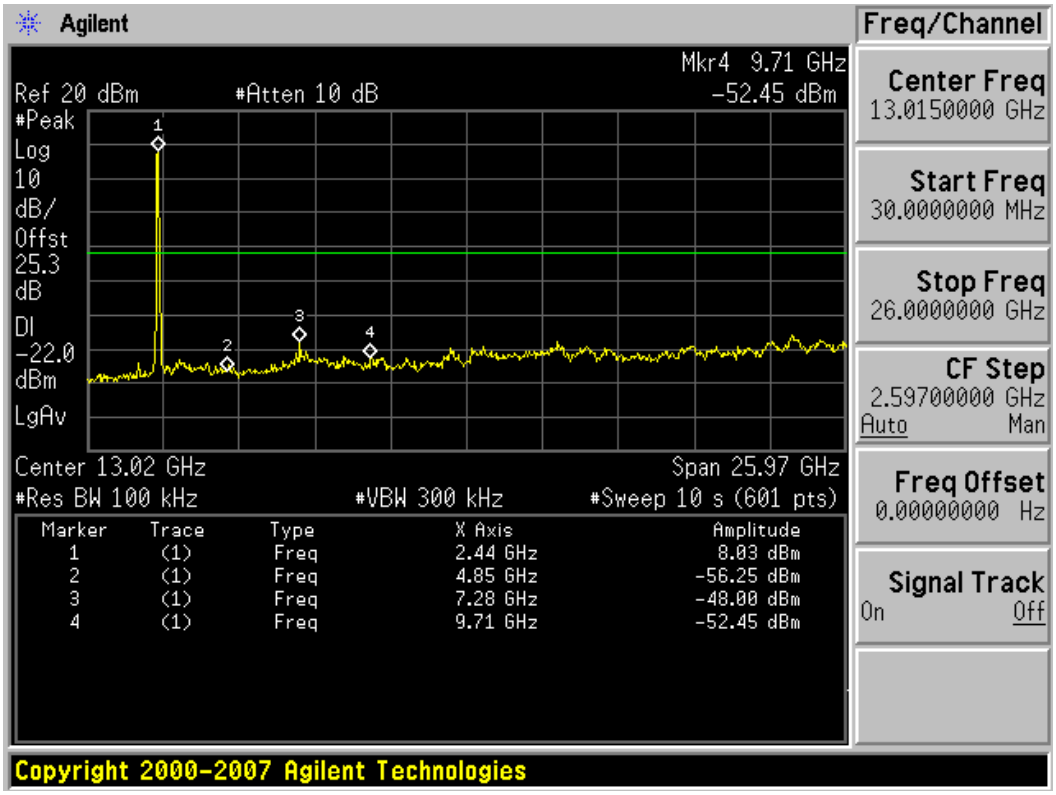


802.11n HT40

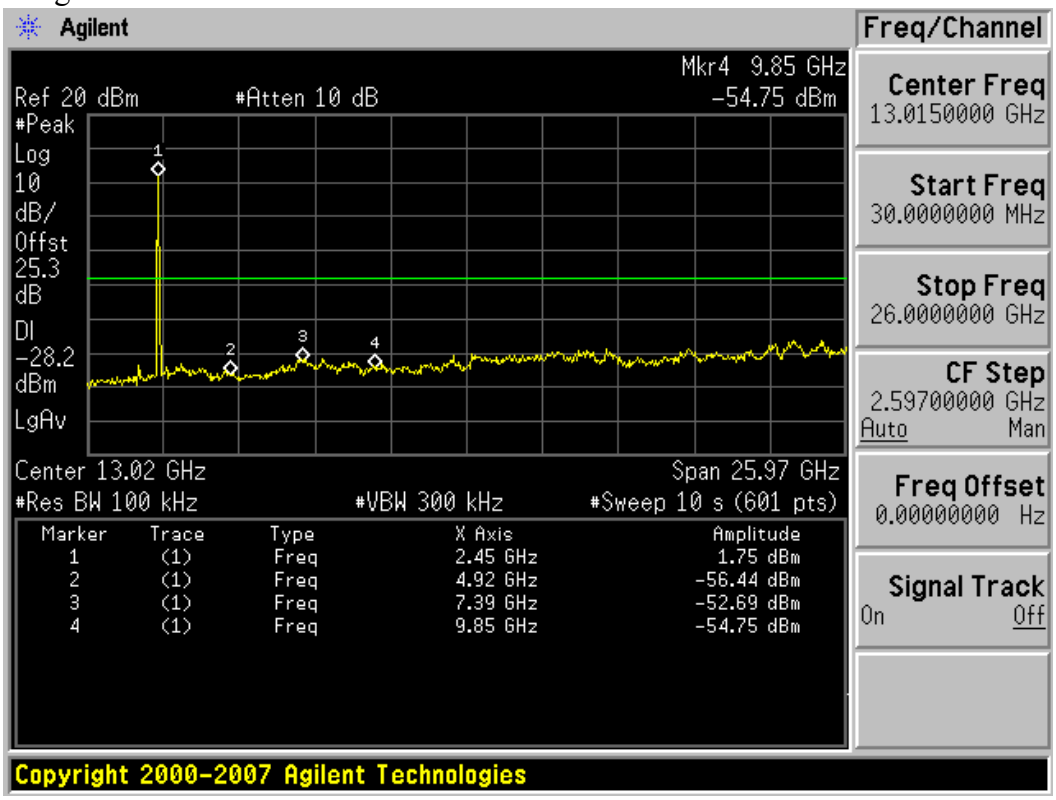
Low Channel



Middle Channel

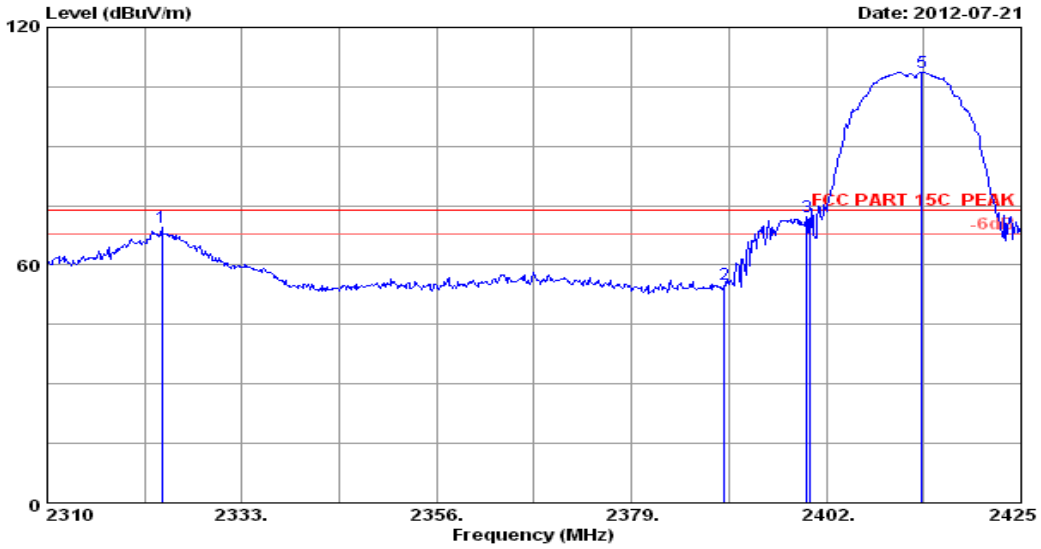


High Channel



5.5.7. Test Results of Band Edge Emissions

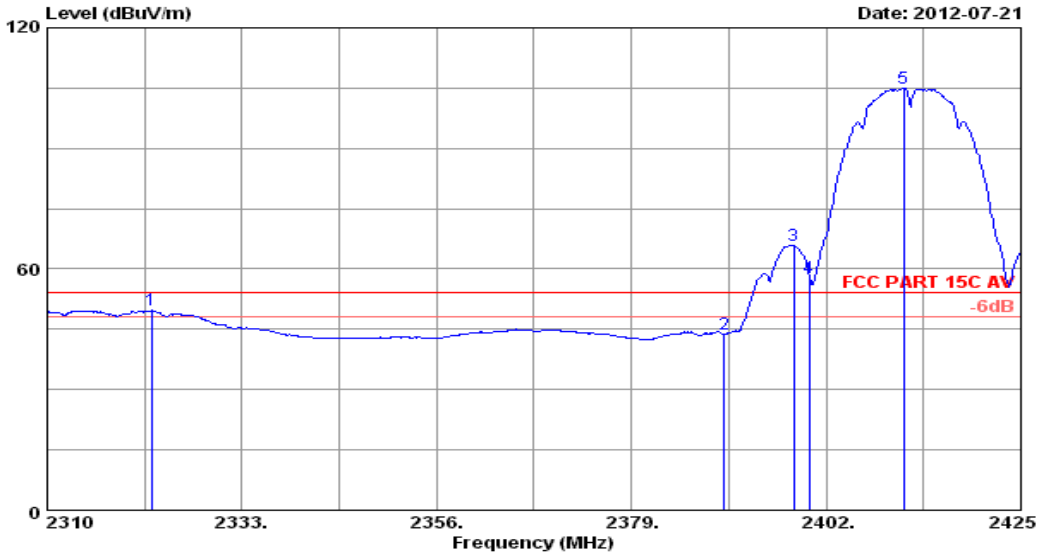
802.11b Low Channel



Site no. : RF Chamber Data no. : 3
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2323.570	27.86	5.89	34.43	70.09	69.41	74.00	4.59	Peak
2	2390.000	27.96	6.01	34.44	55.52	55.05	74.00	18.95	Peak
3	2399.700	27.96	6.01	34.44	72.74	72.27	74.00	1.73	Peak
4	2400.000	27.96	6.01	34.44	68.17	67.70	74.00	6.30	Peak
5	2413.270	27.98	6.03	34.44	109.02	108.59	74.00	-34.59	Peak

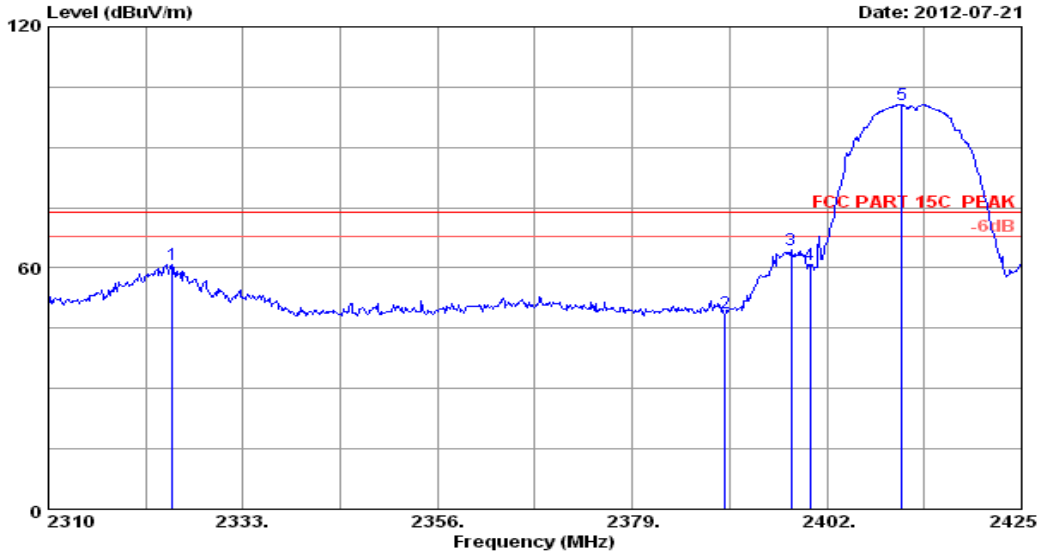
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 4
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2322.305	27.86	5.89	34.43	50.42	49.74	54.00	4.26	Average
2	2390.000	27.96	6.01	34.44	44.38	43.91	54.00	10.09	Average
3	2398.205	27.96	6.01	34.44	66.41	65.94	54.00	-11.94	Average
4	2400.000	27.96	6.01	34.44	58.19	57.72	54.00	-3.72	Average
5	2411.200	27.98	6.03	34.44	105.36	104.93	54.00	-50.93	Average

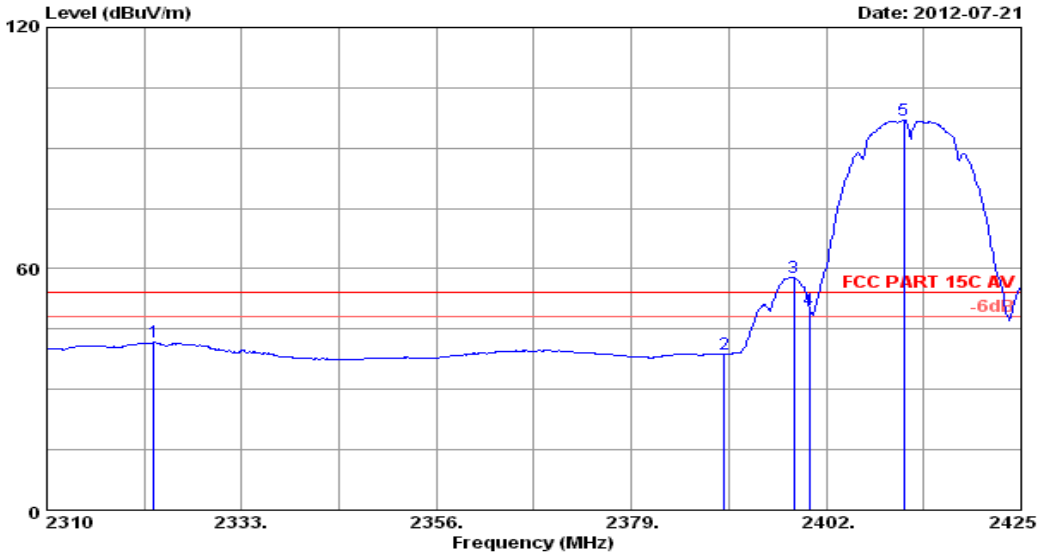
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 5
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2324.605	27.86	5.89	34.43	61.63	60.95	74.00	13.05	Peak
2	2390.000	27.96	6.01	34.44	49.41	48.94	74.00	25.06	Peak
3	2397.745	27.96	6.01	34.44	64.84	64.37	74.00	9.63	Peak
4	2400.000	27.96	6.01	34.44	61.31	60.84	74.00	13.16	Peak
5	2410.855	27.98	6.03	34.44	100.97	100.54	74.00	-26.54	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

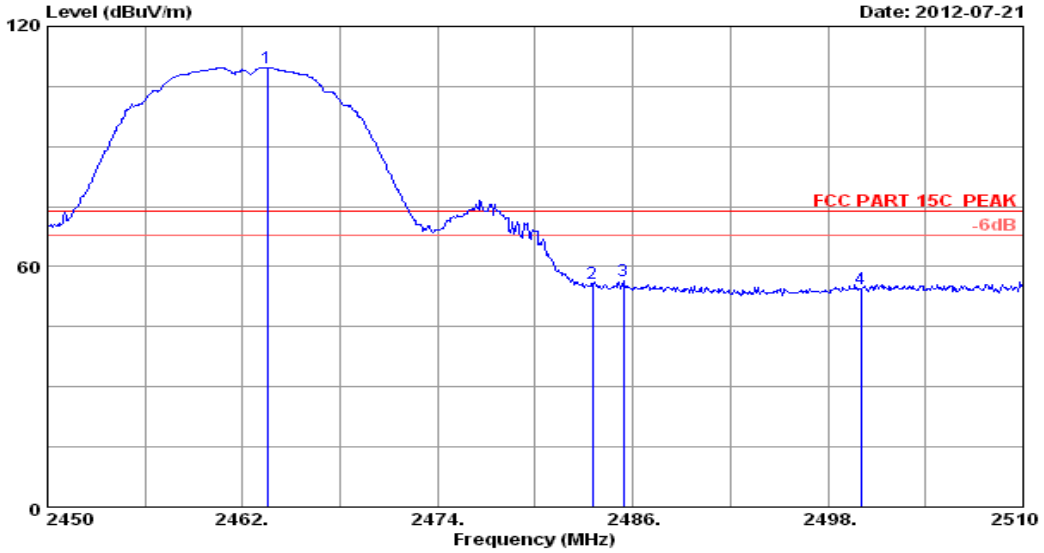


Site no. : RF Chamber Data no. : 6
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2322.650	27.86	5.89	34.43	42.35	41.67	54.00	12.33	Average
2	2390.000	27.96	6.01	34.44	39.17	38.70	54.00	15.30	Average
3	2398.205	27.96	6.01	34.44	58.38	57.91	54.00	-3.91	Average
4	2400.000	27.96	6.01	34.44	50.33	49.86	54.00	4.14	Average
5	2411.200	27.98	6.03	34.44	97.33	96.90	54.00	-42.90	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

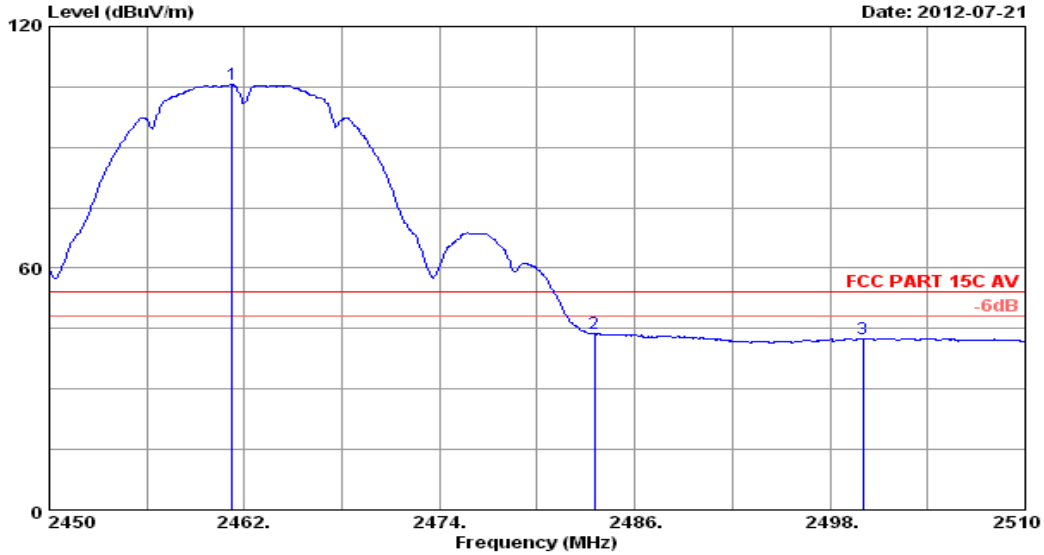
802.11b High Channel



Site no. : RF Chamber Data no. : 23
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2463.500	28.05	6.12	34.45	109.93	109.65	74.00	-35.65	Peak
2	2483.500	28.08	6.15	34.45	55.88	55.66	74.00	18.34	Peak
3	2485.400	28.08	6.15	34.45	56.83	56.61	74.00	17.39	Peak
4	2500.000	28.10	6.18	34.45	54.64	54.47	74.00	19.53	Peak

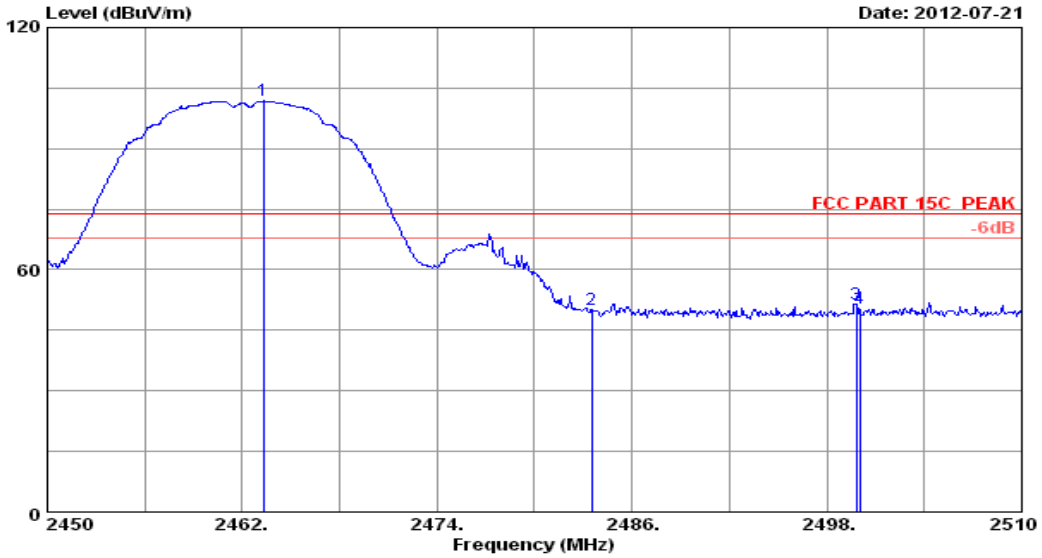
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 24
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2461.220	28.05	6.12	34.44	105.82	105.55	54.00	-51.55	Average
2	2483.500	28.08	6.15	34.45	43.96	43.74	54.00	10.26	Average
3	2500.000	28.10	6.18	34.45	42.60	42.43	54.00	11.57	Average

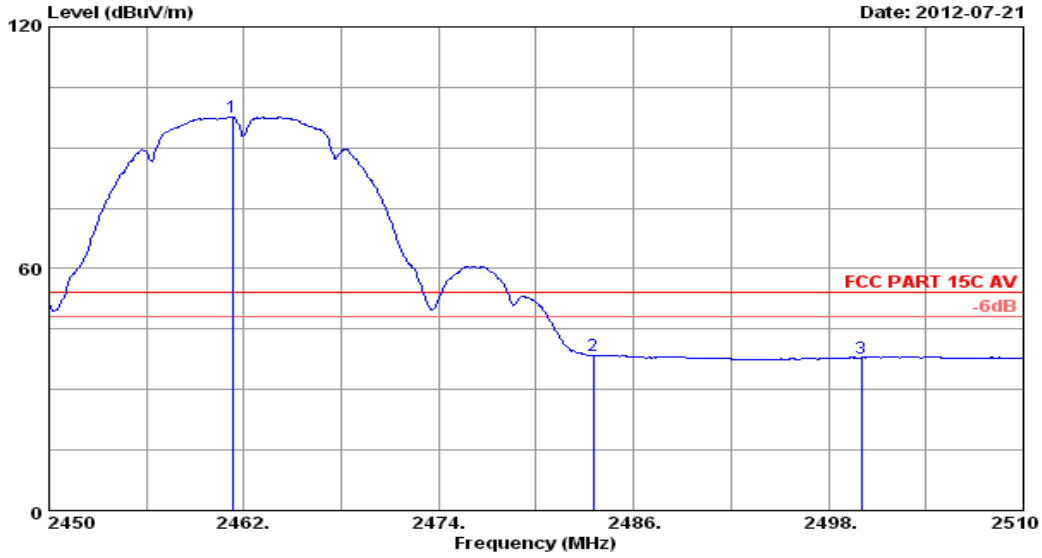
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 25
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2463.320	28.05	6.12	34.45	102.07	101.79	74.00	-27.79	Peak
2	2483.500	28.08	6.15	34.45	50.41	50.19	74.00	23.81	Peak
3	2499.800	28.10	6.18	34.45	51.67	51.50	74.00	22.50	Peak
4	2500.000	28.10	6.18	34.45	50.53	50.36	74.00	23.64	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



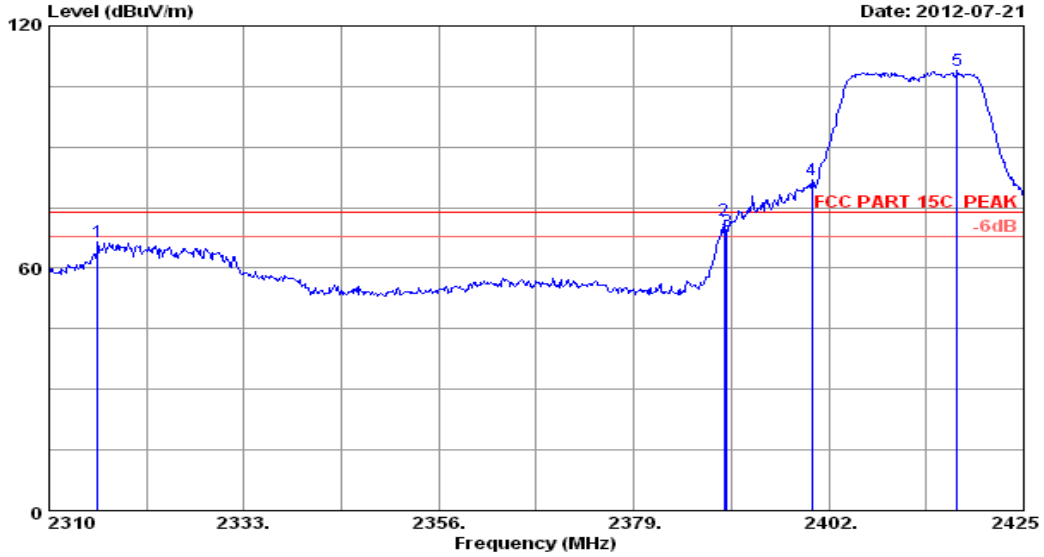
Site no. : RF Chamber Data no. : 26
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2461.280	28.05	6.12	34.44	98.04	97.77	54.00	-43.77	Average
2	2483.500	28.08	6.15	34.45	38.64	38.42	54.00	15.58	Average
3	2500.000	28.10	6.18	34.45	38.05	37.88	54.00	16.12	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

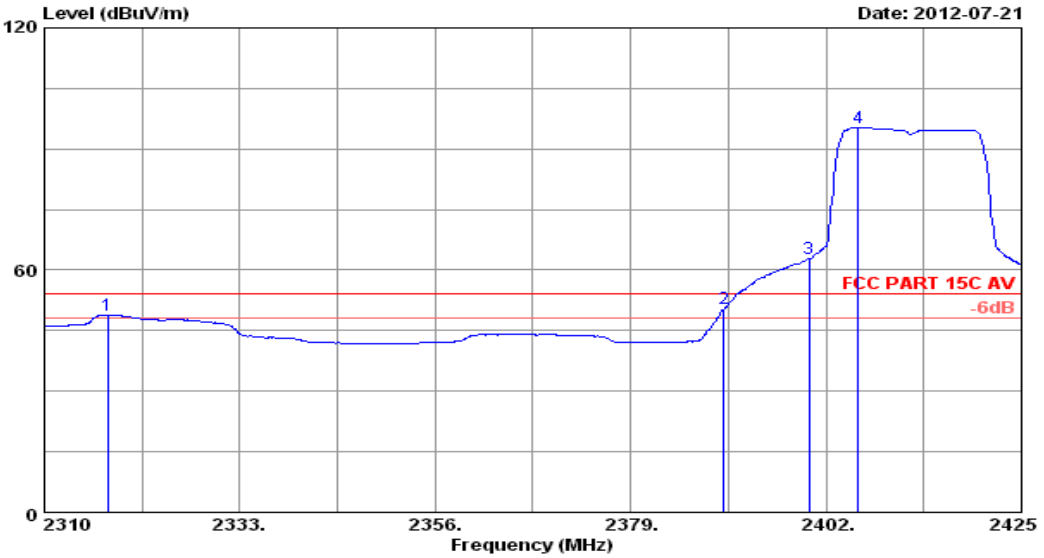
802.11g Low Channel



Site no. : RF Chamber Data no. : 27
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2315.750	27.83	5.89	34.43	67.12	66.41	74.00	7.59	Peak
2	2389.695	27.96	6.01	34.44	72.36	71.89	74.00	2.11	Peak
3	2390.000	27.96	6.01	34.44	69.76	69.29	74.00	4.71	Peak
4	2400.000	27.96	6.01	34.44	82.47	82.00	74.00	-8.00	Peak
5	2417.180	27.98	6.03	34.44	109.39	108.96	74.00	-34.96	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

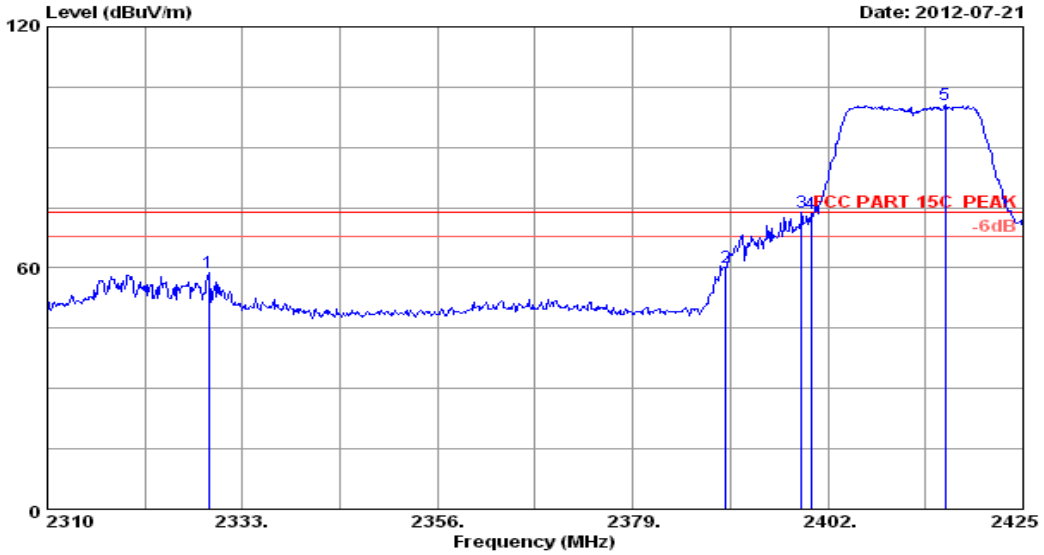


Site no. : RF Chamber Data no. : 28
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2317.475	27.83	5.89	34.43	49.61	48.90	54.00	5.10	Average
2	2390.000	27.96	6.01	34.44	50.94	50.47	54.00	3.53	Average
3	2400.000	27.96	6.01	34.44	63.25	62.78	54.00	-8.78	Average
4	2405.795	27.98	6.03	34.44	95.73	95.30	54.00	-41.30	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

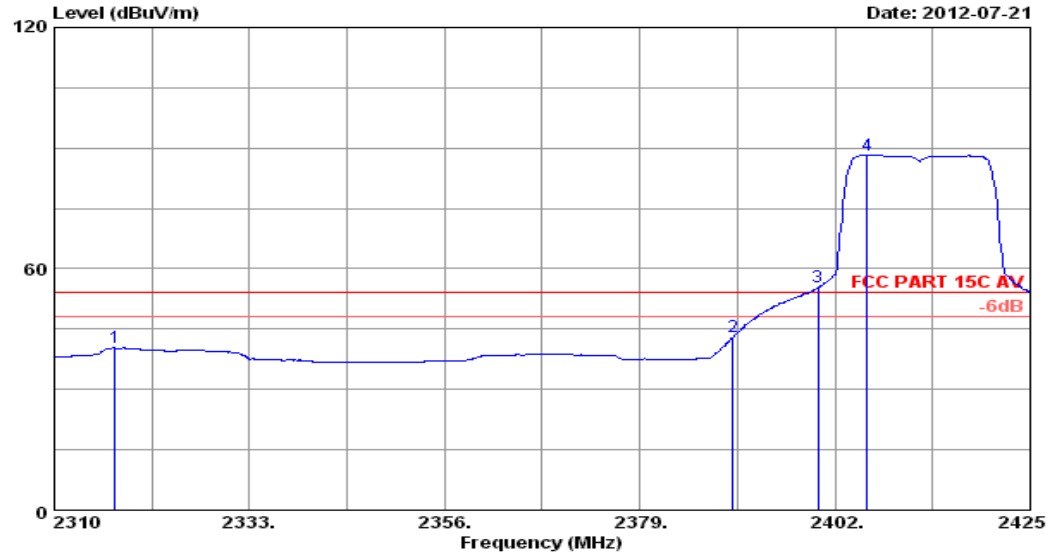
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..



Site no. : RF Chamber Data no. : 29
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2328.975	27.86	5.89	34.43	59.41	58.73	74.00	15.27	Peak
2	2390.000	27.96	6.01	34.44	60.58	60.11	74.00	13.89	Peak
3	2398.895	27.96	6.01	34.44	74.42	73.95	74.00	0.05	Peak
4	2400.000	27.96	6.01	34.44	73.96	73.49	74.00	0.51	Peak
5	2415.800	27.98	6.03	34.44	101.02	100.59	74.00	-26.59	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

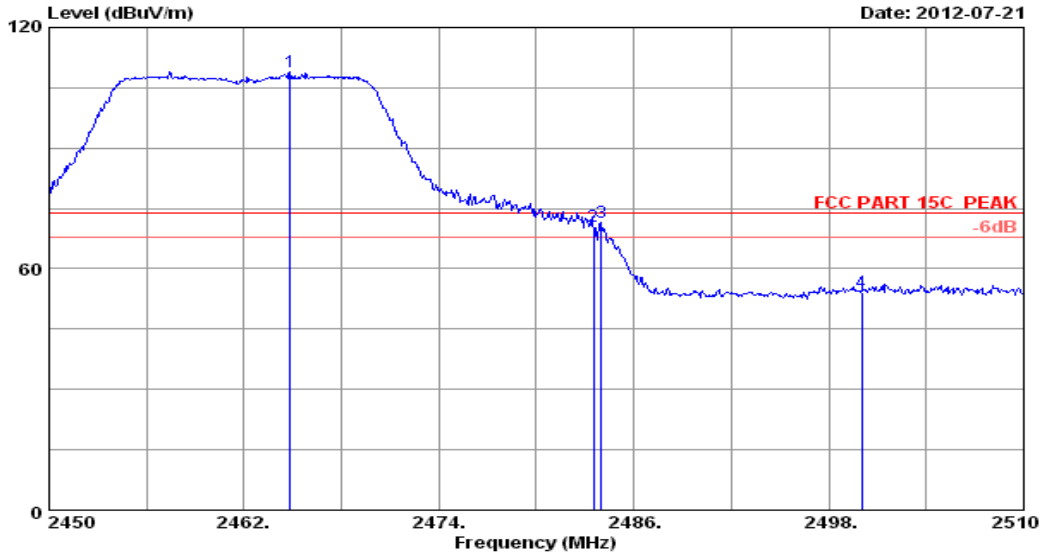


Site no. : RF Chamber Data no. : 30
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2317.130	27.83	5.89	34.43	41.02	40.31	54.00	13.69	Average
2	2390.000	27.96	6.01	34.44	43.59	43.12	54.00	10.88	Average
3	2400.000	27.96	6.01	34.44	55.81	55.34	54.00	-1.34	Average
4	2405.795	27.98	6.03	34.44	88.70	88.27	54.00	-34.27	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

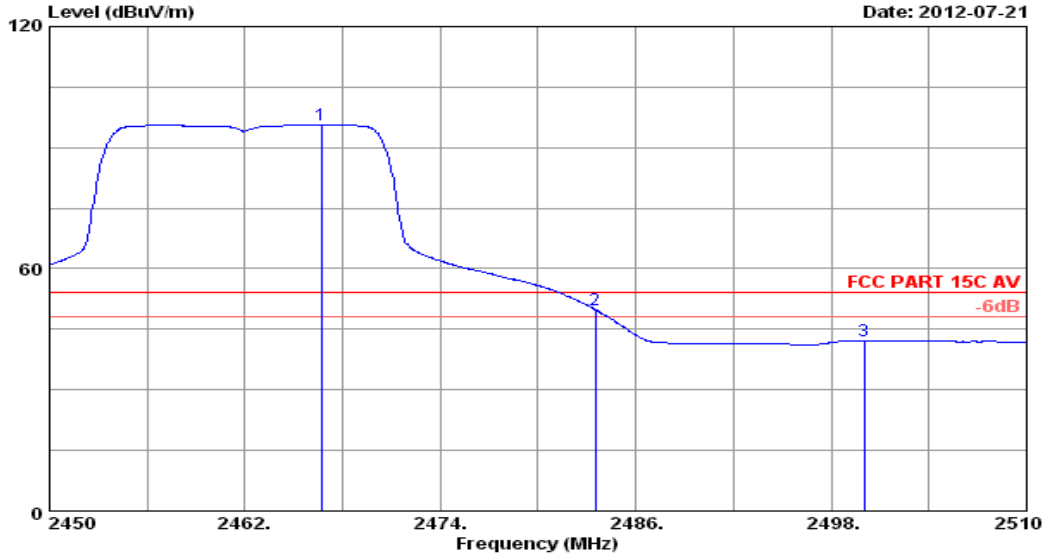
802.11g High Channel



Site no. : RF Chamber Data no. : 47
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2464.820	28.05	6.12	34.45	109.39	109.11	74.00	-35.11	Peak
2	2483.500	28.08	6.15	34.45	70.70	70.48	74.00	3.52	Peak
3	2484.020	28.08	6.15	34.45	71.64	71.42	74.00	2.58	Peak
4	2500.000	28.10	6.18	34.45	54.30	54.13	74.00	19.87	Peak

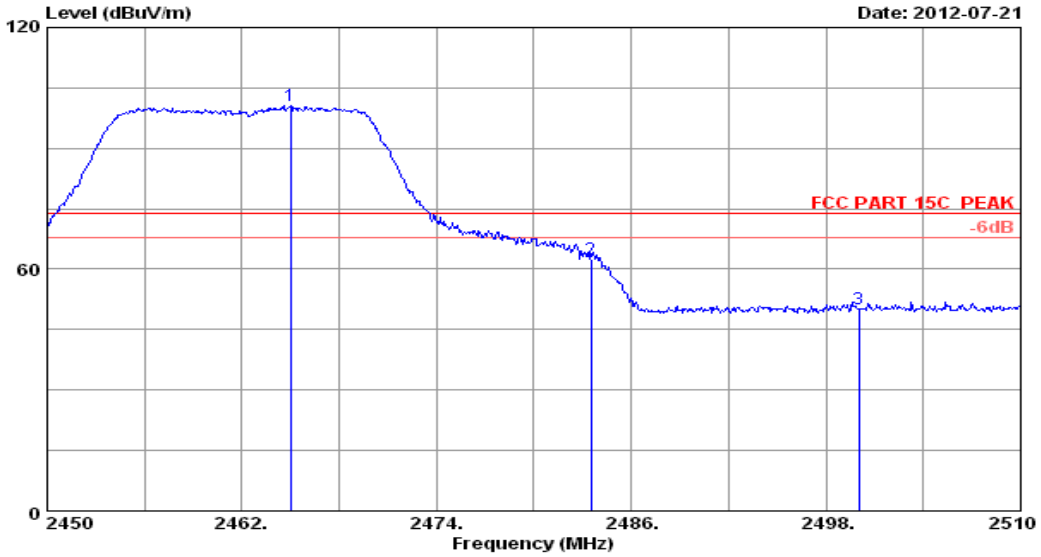
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 48
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2466.680	28.05	6.12	34.45	96.00	95.72	54.00	-41.72	Average
2	2483.500	28.08	6.15	34.45	50.18	49.96	54.00	4.04	Average
3	2500.000	28.10	6.18	34.45	42.43	42.26	54.00	11.74	Average

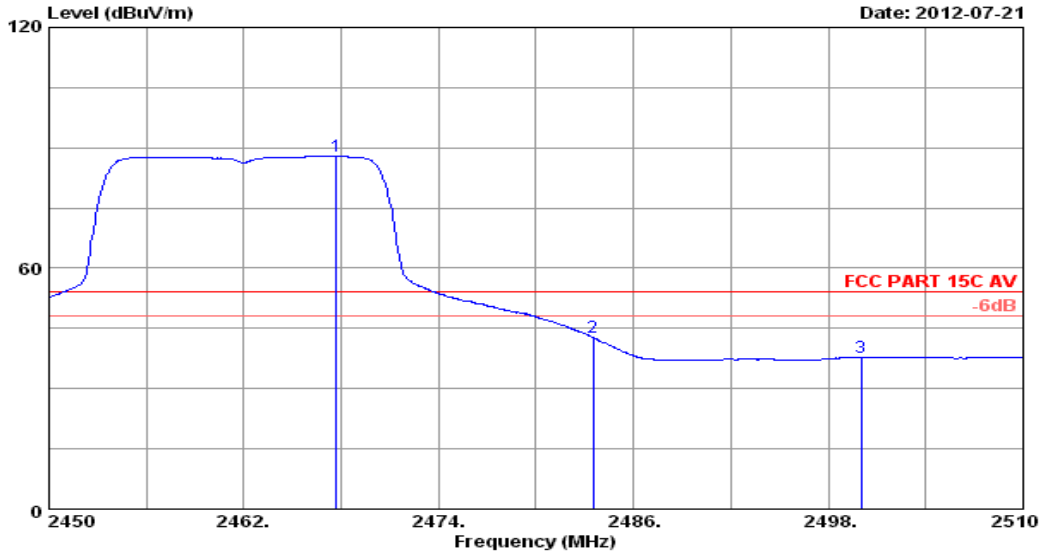
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 49
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2465.000	28.05	6.12	34.45	100.97	100.69	74.00	-26.69	Peak
2	2483.500	28.08	6.15	34.45	62.88	62.66	74.00	11.34	Peak
3	2500.000	28.10	6.18	34.45	50.19	50.02	74.00	23.98	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



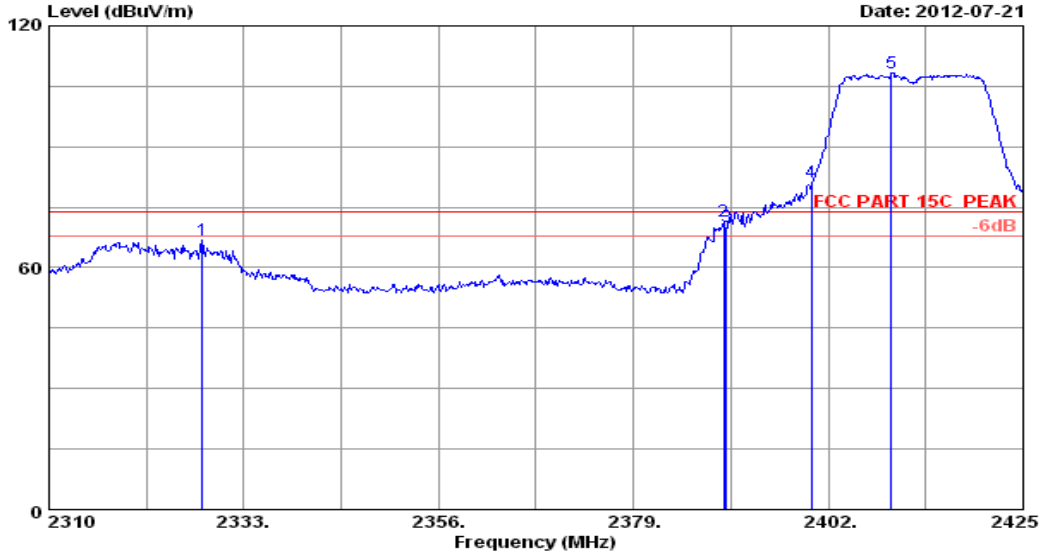
Site no. : RF Chamber Data no. : 50
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2467.700	28.05	6.12	34.45	88.16	87.88	54.00	-33.88	Average
2	2483.500	28.08	6.15	34.45	43.03	42.81	54.00	11.19	Average
3	2500.000	28.10	6.18	34.45	37.86	37.69	54.00	16.31	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

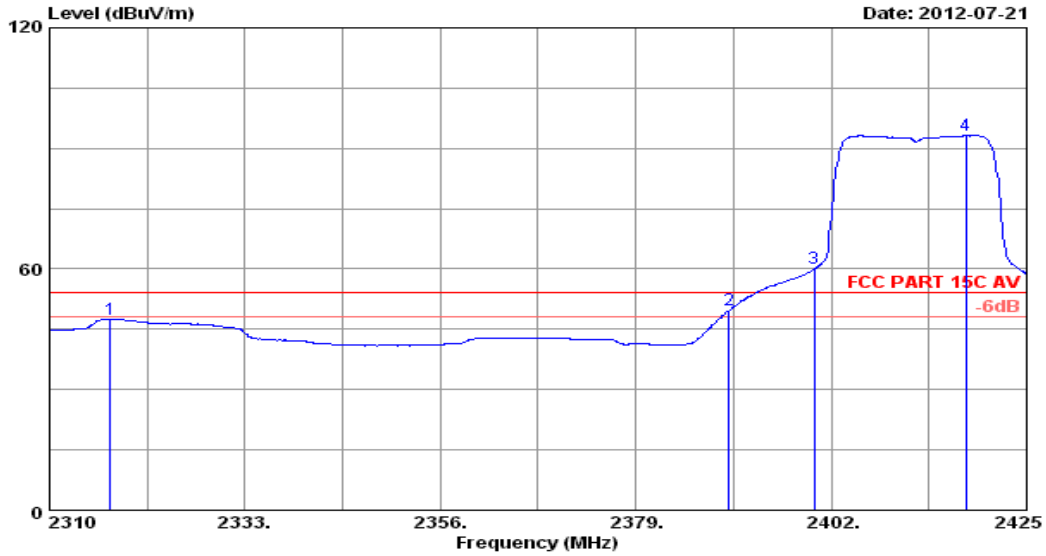
802.11n HT20 Low Channel



Site no. : RF Chamber Data no. : 73
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2328.055	27.86	5.89	34.43	67.55	66.87	74.00	7.13	Peak
2	2389.695	27.96	6.01	34.44	71.96	71.49	74.00	2.51	Peak
3	2390.000	27.96	6.01	34.44	70.69	70.22	74.00	3.78	Peak
4	2400.000	27.96	6.01	34.44	81.67	81.20	74.00	-7.20	Peak
5	2409.475	27.98	6.03	34.44	108.69	108.26	74.00	-34.26	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

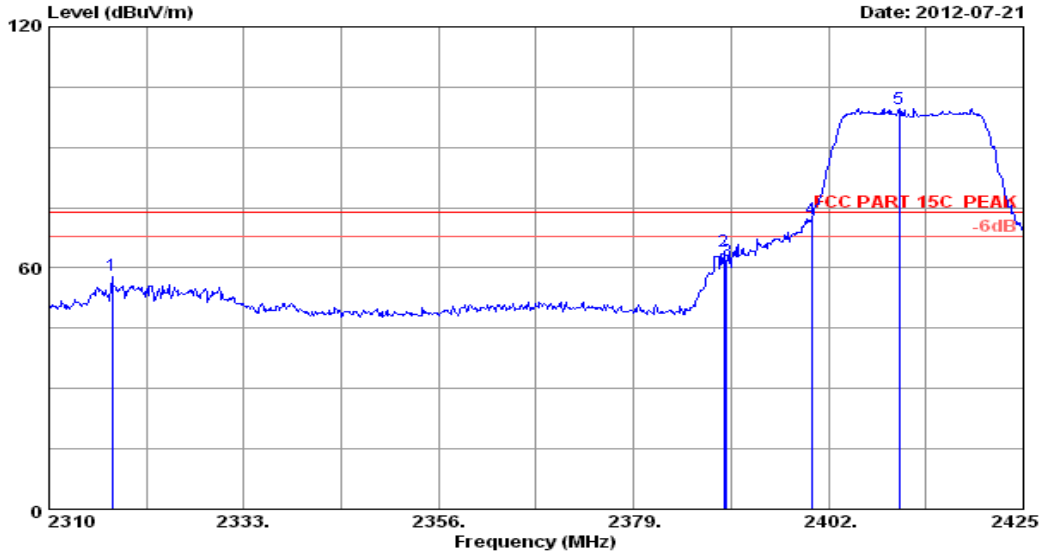


Site no. : RF Chamber Data no. : 74
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2317.130	27.83	5.89	34.43	48.16	47.45	54.00	6.55	Average
2	2390.000	27.96	6.01	34.44	50.27	49.80	54.00	4.20	Average
3	2400.000	27.96	6.01	34.44	60.56	60.09	54.00	-6.09	Average
4	2417.870	27.98	6.03	34.44	93.59	93.16	54.00	-39.16	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

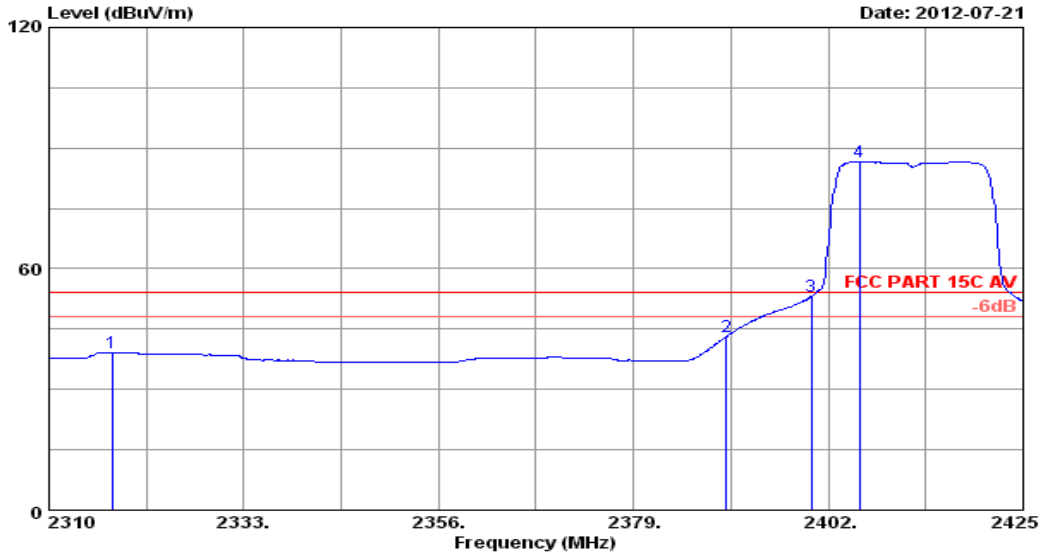
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..



Site no. : RF Chamber Data no. : 76
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2317.475	27.83	5.89	34.43	58.82	58.11	74.00	15.89	Peak
2	2389.695	27.96	6.01	34.44	64.62	64.15	74.00	9.85	Peak
3	2390.000	27.96	6.01	34.44	62.20	61.73	74.00	12.27	Peak
4	2400.000	27.96	6.01	34.44	72.79	72.32	74.00	1.68	Peak
5	2410.395	27.98	6.03	34.44	100.12	99.69	74.00	-25.69	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

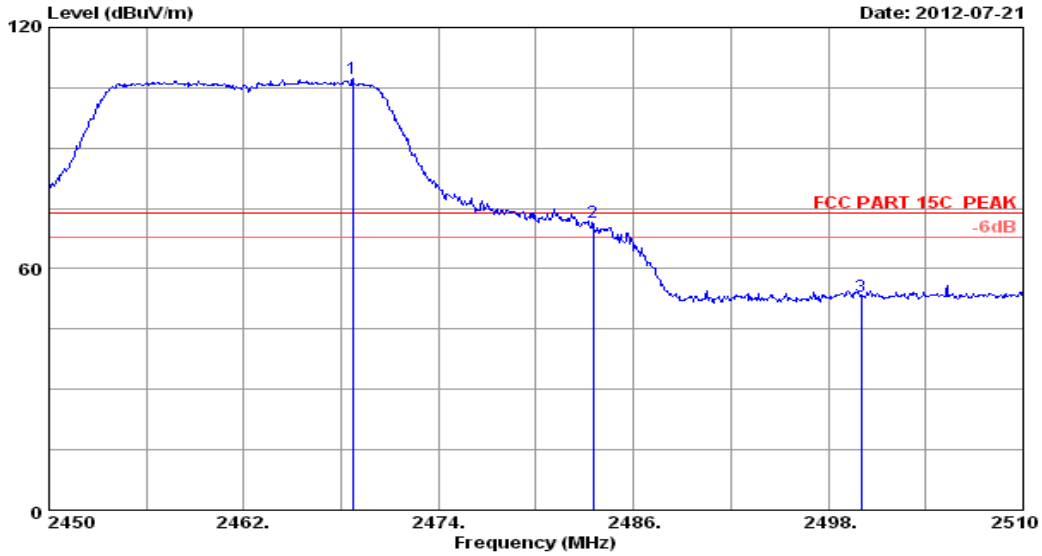


Site no. : RF Chamber Data no. : 75
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2317.475	27.83	5.89	34.43	39.96	39.25	54.00	14.75	Average
2	2390.000	27.96	6.01	34.44	43.67	43.20	54.00	10.80	Average
3	2400.000	27.96	6.01	34.44	53.75	53.28	54.00	0.72	Average
4	2405.680	27.98	6.03	34.44	87.09	86.66	54.00	-32.66	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

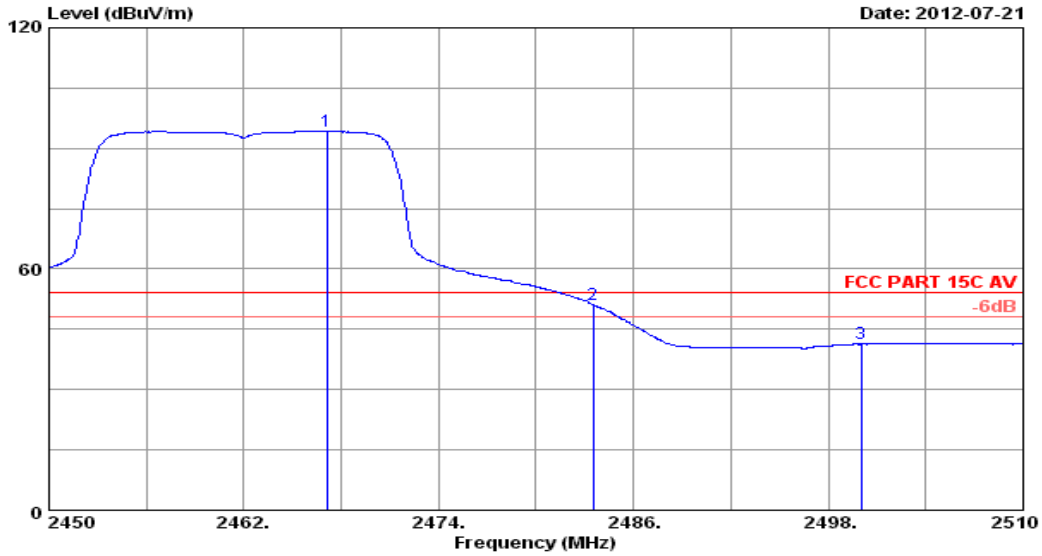
802.11n HT20 High Channel



Site no. : RF Chamber Data no. : 53
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2468.720	28.05	6.12	34.45	107.56	107.28	74.00	-33.28	Peak
2	2483.500	28.08	6.15	34.45	71.60	71.38	74.00	2.62	Peak
3	2500.000	28.10	6.18	34.45	53.23	53.06	74.00	20.94	Peak

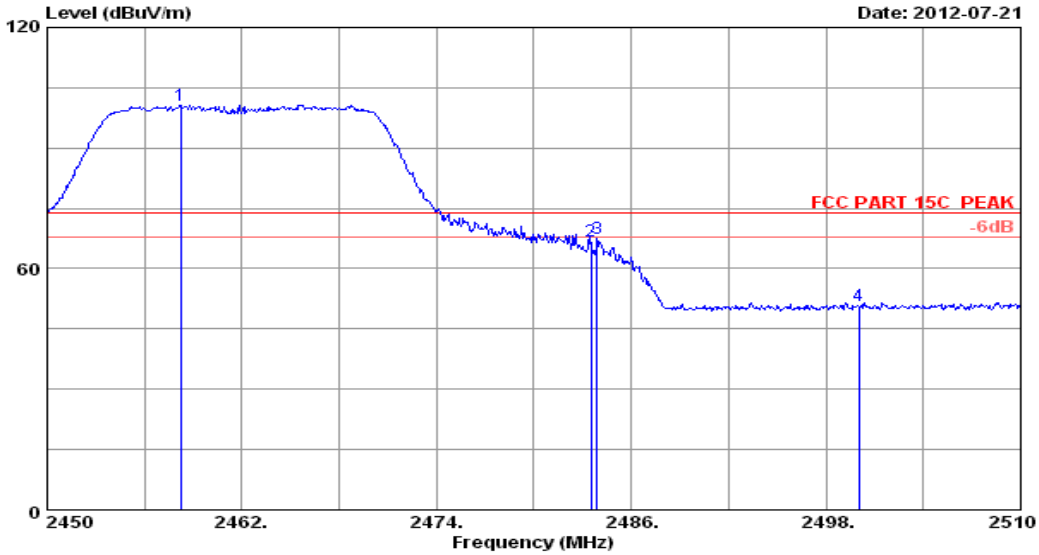
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 54
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2467.100	28.05	6.12	34.45	94.52	94.24	54.00	-40.24	Average
2	2483.500	28.08	6.15	34.45	51.26	51.04	54.00	2.96	Average
3	2500.000	28.10	6.18	34.45	41.47	41.30	54.00	12.70	Average

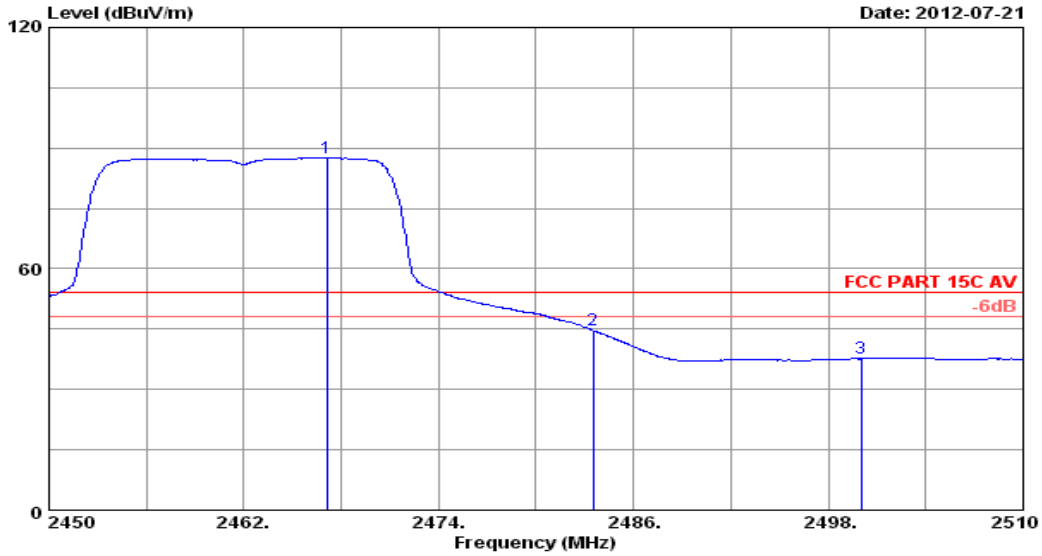
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 55
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2458.220	28.05	6.12	34.44	100.97	100.70	74.00	-26.70	Peak
2	2483.500	28.08	6.15	34.45	67.14	66.92	74.00	7.08	Peak
3	2483.900	28.08	6.15	34.45	67.60	67.38	74.00	6.62	Peak
4	2500.000	28.10	6.18	34.45	51.10	50.93	74.00	23.07	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

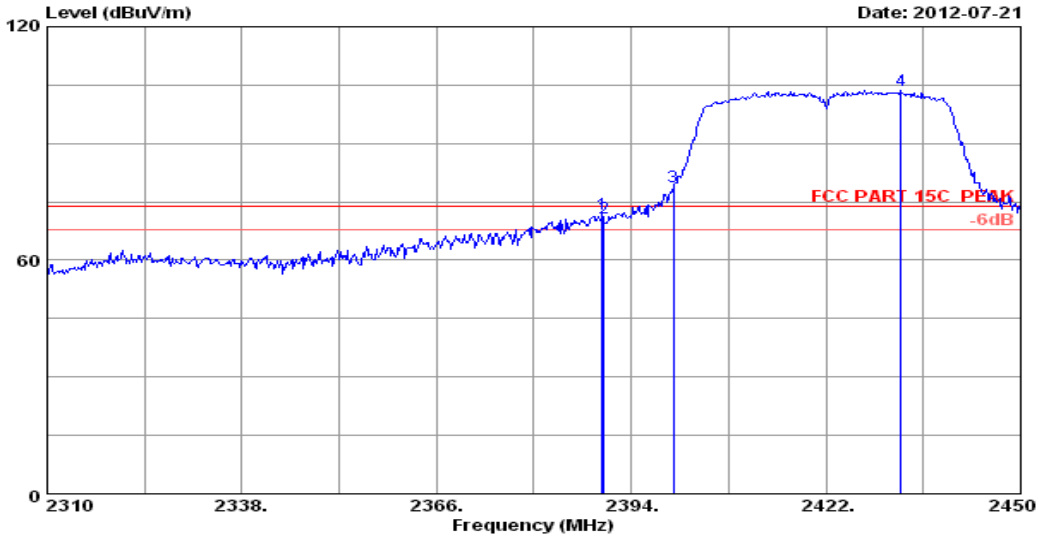


Site no. : RF Chamber Data no. : 56
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2467.100	28.05	6.12	34.45	87.78	87.50	54.00	-33.50	Average
2	2483.500	28.08	6.15	34.45	44.91	44.69	54.00	9.31	Average
3	2500.000	28.10	6.18	34.45	37.80	37.63	54.00	16.37	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

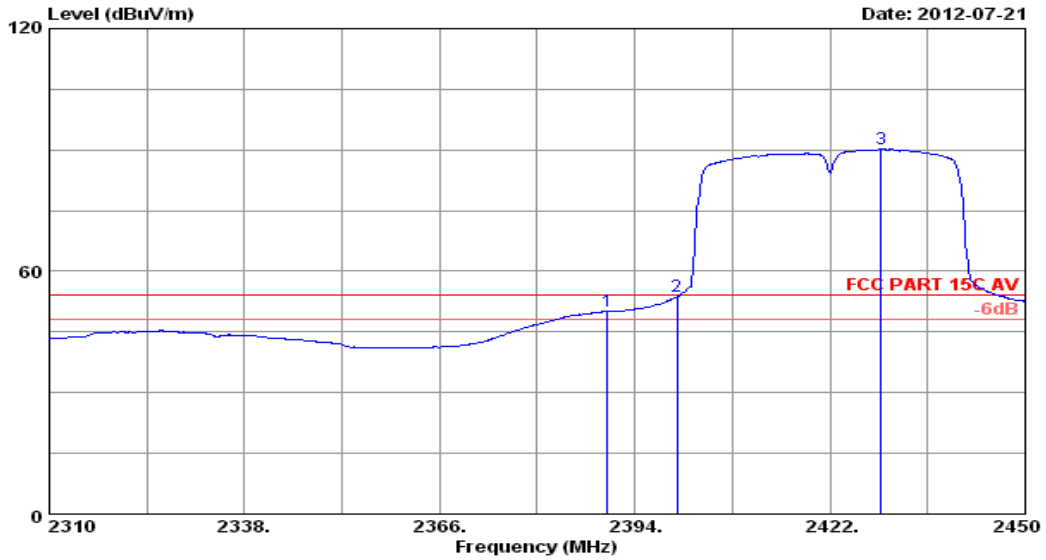
802.11n HT40 Low Channel



Site no. : RF Chamber Data no. : 79
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li
EUT : 150Mbps Wireless N Access Piont

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2389.800	27.96	6.01	34.44	72.20	71.73	74.00	2.27	Peak
2	2390.000	27.96	6.01	34.44	71.35	70.88	74.00	3.12	Peak
3	2400.000	27.96	6.01	34.44	79.28	78.81	74.00	-4.81	Peak
4	2432.780	28.00	6.06	34.44	103.95	103.57	74.00	-29.57	Peak

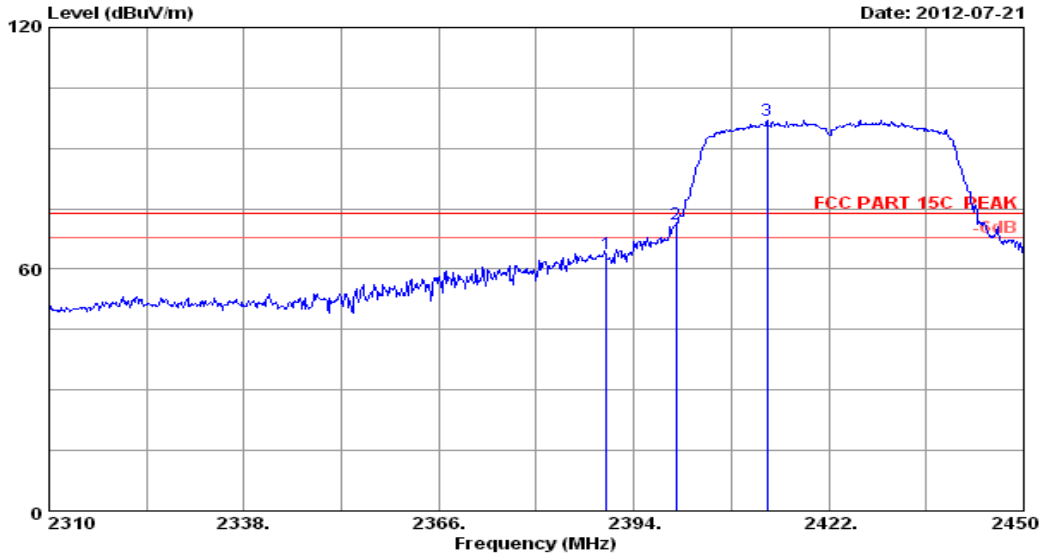
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 80
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2390.000	27.96	6.01	34.44	50.51	50.04	54.00	3.96	Average
2	2400.000	27.96	6.01	34.44	54.23	53.76	54.00	0.24	Average
3	2429.280	28.00	6.06	34.44	90.53	90.15	54.00	-36.15	Average

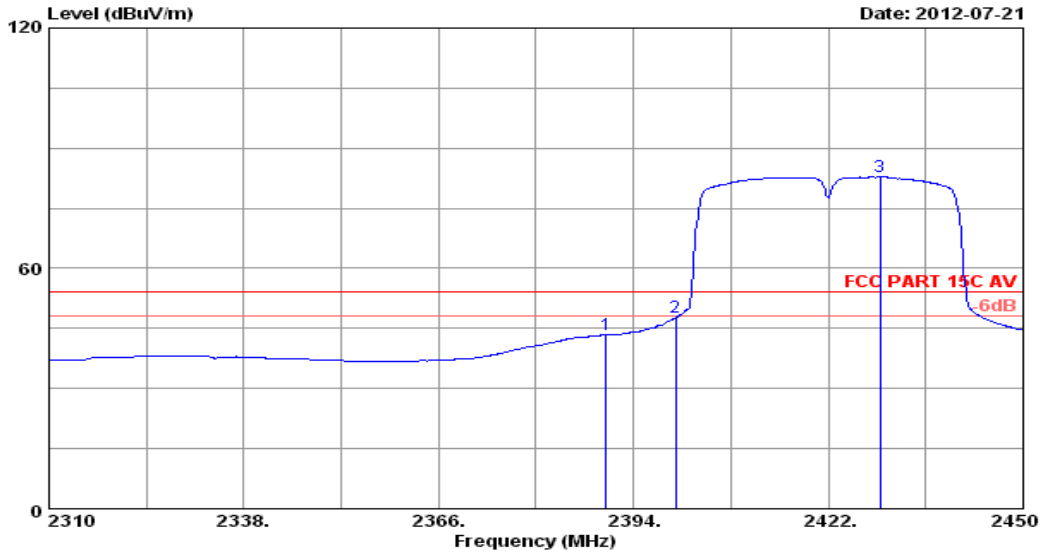
Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 82
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2390.000	27.96	6.01	34.44	64.17	63.70	74.00	10.30	Peak
2	2400.000	27.96	6.01	34.44	71.70	71.23	74.00	2.77	Peak
3	2413.180	27.98	6.03	34.44	97.46	97.03	74.00	-23.03	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

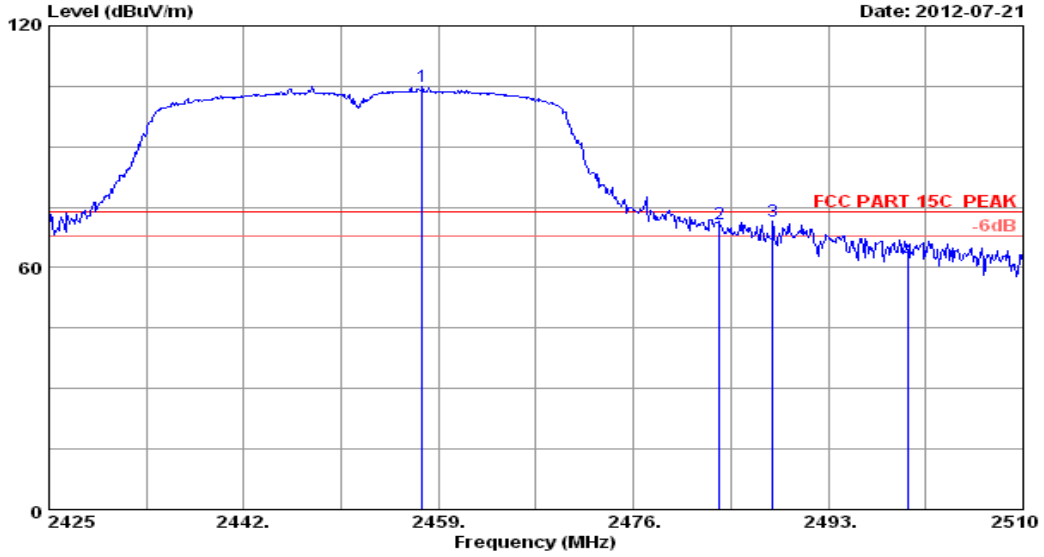


Site no. : RF Chamber Data no. : 81
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2390.000	27.96	6.01	34.44	43.87	43.40	54.00	10.60	Average
2	2400.000	27.96	6.01	34.44	48.19	47.72	54.00	6.28	Average
3	2429.420	28.00	6.06	34.44	83.24	82.86	54.00	-28.86	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

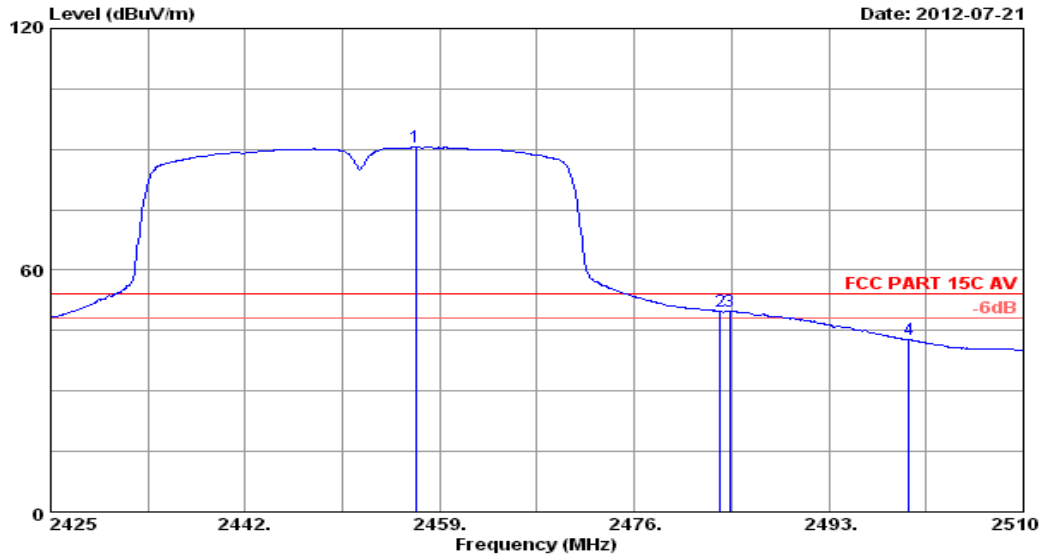
802.11n HT40 High Channel



Site no. : RF Chamber Data no. : 99
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2457.555	28.05	6.12	34.44	105.17	104.90	74.00	-30.90	Peak
2	2483.500	28.08	6.15	34.45	71.22	71.00	74.00	3.00	Peak
3	2488.155	28.10	6.15	34.45	71.57	71.37	74.00	2.63	Peak
4	2500.000	28.10	6.18	34.45	62.13	61.96	74.00	12.04	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

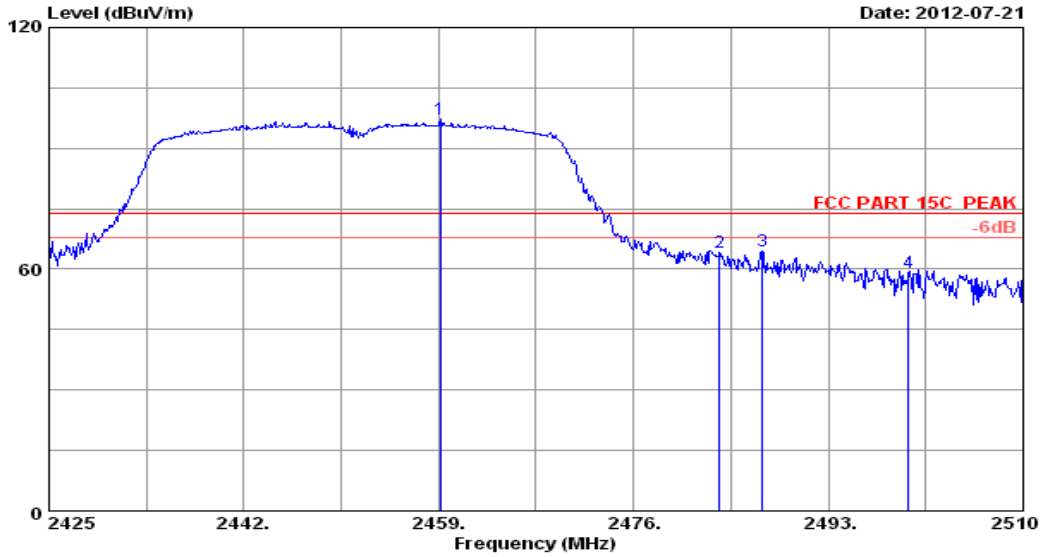


Site no. : RF Chamber Data no. : 100
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : VERTICAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2456.875	28.05	6.12	34.44	90.85	90.58	54.00	-36.58	Average
2	2483.500	28.08	6.15	34.45	50.07	49.85	54.00	4.15	Average
3	2484.330	28.08	6.15	34.45	50.17	49.95	54.00	4.05	Average
4	2500.000	28.10	6.18	34.45	42.98	42.81	54.00	11.19	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

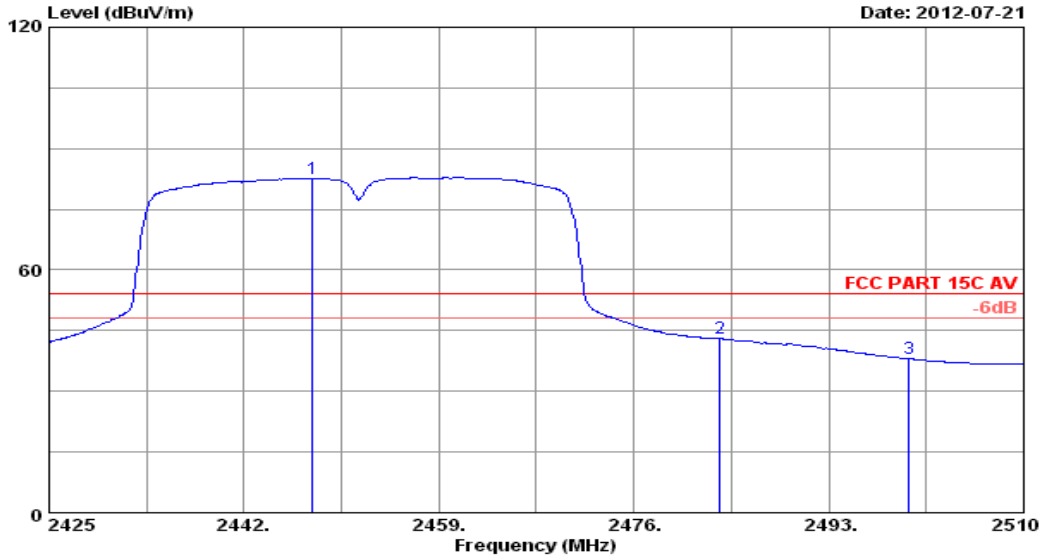
This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..



Site no. : RF Chamber Data no. : 102
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C PEAK
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2459.170	28.05	6.12	34.44	97.60	97.33	74.00	-23.33	Peak
2	2483.500	28.08	6.15	34.45	64.44	64.22	74.00	9.78	Peak
3	2487.220	28.08	6.15	34.45	64.83	64.61	74.00	9.39	Peak
4	2500.000	28.10	6.18	34.45	59.23	59.06	74.00	14.94	Peak

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.



Site no. : RF Chamber Data no. : 101
Dis. / Ant. : 3m 2011 3115 4580 Ant. pol. : HORIZONTAL
Limit : FCC PART 15C AV
Env. / Ins. : 23*C/54% Engineer : Leo-Li

	Freq. (MHz)	Ant. Factor (dB/m)	Cable loss (dB)	Amp. Factor (dB)	Reading (dBuV)	Emission Level (dBuV/m)	Limits dBuV/m)	Margin (dB)	Remark
1	2447.950	28.03	6.09	34.44	82.95	82.63	54.00	-28.63	Average
2	2483.500	28.08	6.15	34.45	43.25	43.03	54.00	10.97	Average
3	2500.000	28.10	6.18	34.45	38.24	38.07	54.00	15.93	Average

Remarks:
1. Emission Level= Antenna Factor + Cable Loss -Amp Factor + Reading.
2. The emission levels that are 20dB below the official limit are not reported.

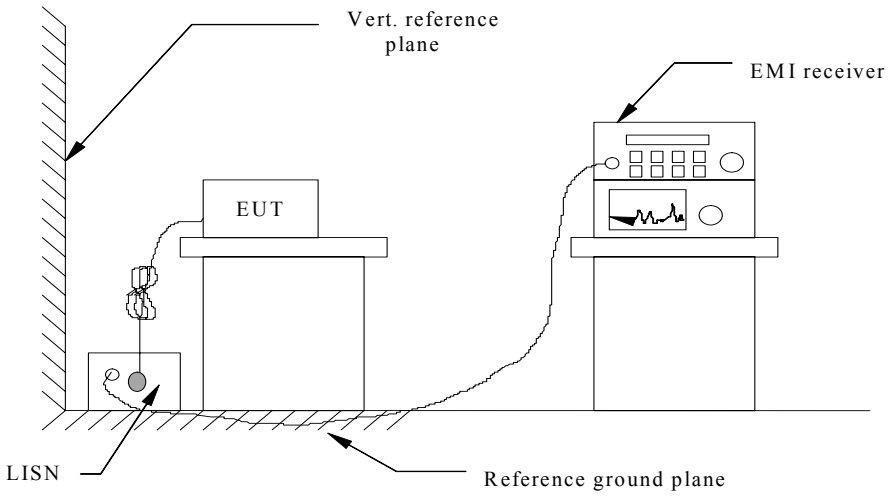
5.6. Power line conducted emissions

5.6.1 Standard Applicable

According to§15.207 (a): For an intentional radiator which is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies within the band 150 kHz to 30 MHz shall not exceed 250 microvolts (The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.50 MHz). The limits at specific frequency range is listed as follows:

Frequency Range (MHz)	Limits (dBμV)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56	56 to 46
0.50 to 5	56	46
5 to 30	60	50

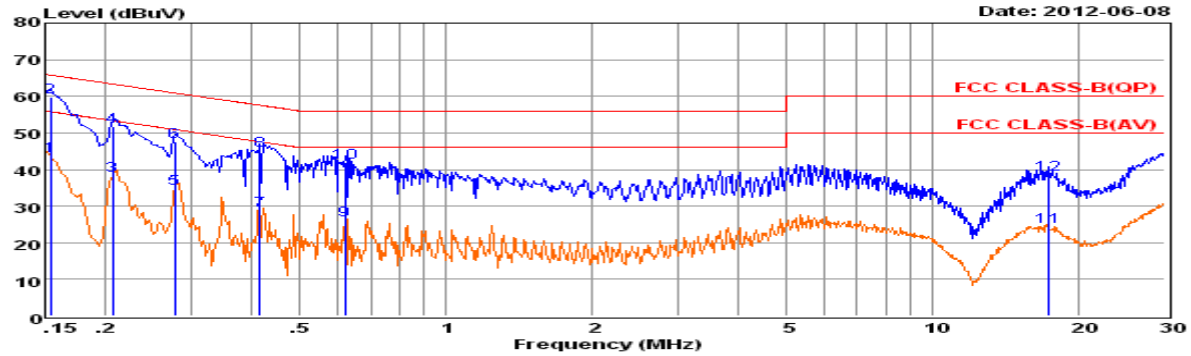
5.6.2 Block Diagram of Test Setup



5.6.3 Test Results

PASS.

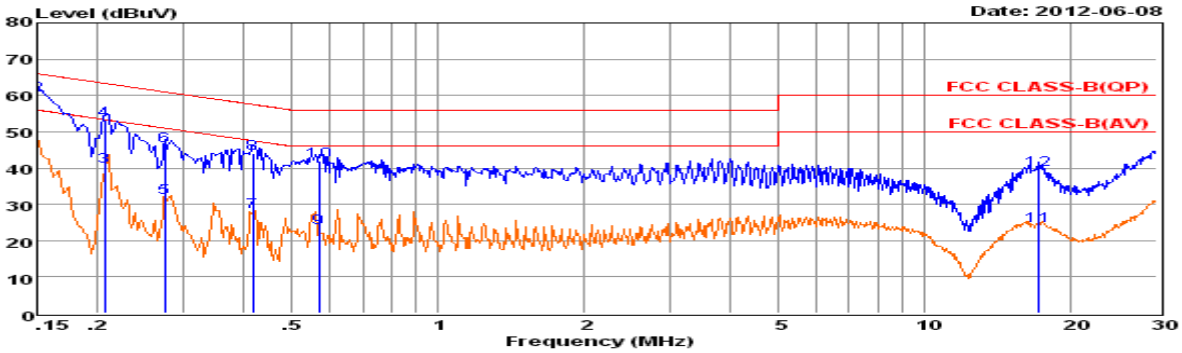
The test data please refer to following page.




```
Env. Ins:                24*/56%
EUT:                     Wireless Adapter
M/N:                     SL-D001A
Power Rating:            DC 5V From PC Input AC 120V/60Hz
Test Mode:               On
Operator:                FOX
Memo:
Pol:                     LINE
```

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.15	34.24	9.58	0.02	43.84	55.78	-11.94	Average
2	0.15	50.30	9.58	0.02	59.90	65.78	-5.88	QP
3	0.21	28.78	9.63	0.03	38.44	53.36	-14.92	Average
4	0.21	42.20	9.63	0.03	51.86	63.36	-11.50	QP
5	0.28	25.24	9.63	0.03	34.90	50.90	-16.00	Average
6	0.28	37.96	9.63	0.03	47.62	60.90	-13.28	QP
7	0.41	19.10	9.62	0.04	28.76	47.55	-18.79	Average
8	0.41	35.40	9.62	0.04	45.06	57.55	-12.49	QP
9	0.62	16.47	9.63	0.04	26.14	46.00	-19.86	Average
10	0.62	32.13	9.63	0.04	41.80	56.00	-14.20	QP
11	17.38	14.63	9.73	0.11	24.47	50.00	-25.53	Average
12	17.38	28.80	9.73	0.11	38.64	60.00	-21.36	QP

```
Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
         2. The emission levels that are 20dB below the official
            limit are not reported.
```




```
Env. Ins:                24*/56%
EUT:                     Wireless Adapter
M/N:                     SL-D001A
Power Rating:            DC 5V From PC Input AC 120V/60Hz
Test Mode:               On
Operator:                FOX
Memo:
Pol:                     NEUTRAL
```

	Freq	Reading	LisnFac	CabLos	Measured	Limit	Over	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.15	37.89	9.70	0.02	47.61	56.00	-8.39	Average
2	0.15	50.37	9.70	0.02	60.09	66.00	-5.91	QP
3	0.21	30.69	9.59	0.03	40.31	53.36	-13.05	Average
4	0.21	43.57	9.59	0.03	53.19	63.36	-10.17	QP
5	0.27	22.15	9.60	0.03	31.78	50.98	-19.20	Average
6	0.27	36.36	9.60	0.03	45.99	60.98	-14.99	QP
7	0.42	18.32	9.61	0.04	27.97	47.51	-19.54	Average
8	0.42	34.49	9.61	0.04	44.14	57.51	-13.37	QP
9	0.57	13.86	9.62	0.04	23.52	46.00	-22.48	Average
10	0.57	32.19	9.62	0.04	41.85	56.00	-14.15	QP
11	17.11	14.28	9.77	0.11	24.16	50.00	-25.84	Average
12	17.11	29.75	9.77	0.11	39.63	60.00	-20.37	QP

```
Remarks: 1. Measured = Reading + Lisn Factor +Cable Loss.
         2. The emission levels that are 20dB below the official
            limit are not reported.
```

Note: Pre-scan all mode and recorded the worst case results in this report (802.11b Channel 6)

5.7. Antenna Requirements

5.7.1. Standard Applicable

According to § 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.

5.7.2. Antenna Connector Construction

The EUT has a component antenna, which, in accordance to the above sections, is considered sufficient to comply with the provisions of these sections. Please see EUT photo for details.

5.7.3. Results: Compliance.

5.8. Deviation to test specifications

[NONE]

6. LIST OF MEASURING EQUIPMENTS

Instrument	Manufacturer	Model No.	Serial No.	Characteristics	Cal Date	Due Date
EMC Receiver	R&S	ESCS 30	100174	9kHz – 2.75GHz	June 17,2012	June 16,2013
LISN	MESS Tec	NNB-2/16Z	99079	9KHz-30MHz	June 17,2012	June 16,2013
LISN (Support Unit)	EMCO	3819/2NM	9703-1839	9KHz-30MHz	June 17,2012	June 16,2013
RF Cable-CON	UTIFLEX	3102-26886-4	CB049	9KHz-30MHz	June 26,2012	June 25,2013
ISN	SCHAFFNER	ISN ST08	21653	9KHz-30MHz	June 17,2012	June 16,2013
3m Semi Anechoic Chamber	SIDT FRANKONIA	SAC-3M	03CH03-HY	30M-1GHz 3m	June 17,2012	June 16,2013
Amplifier	SCHAFFNER	COA9231A	18667	9kHz-2GHzz	June 17,2012	June 16,2013
Amplifier	Agilent	8449B	3008A02120	1GHz-26.5GHz	June 17,2012	June 16,2013
Amplifier	MITEQ	AMF-6F-260400	9121372	26.5GHz-40GHz	June 17,2012	June 16,2013
Spectrum Analyzer	Agilent	E4446A	MY41440289	9k-26.5GHz	June 17,2012	June 16,2013
Spectrum Analyzer	Agilent	E4407B	MY41440292	9k-26.5GHz	June 17,2012	June 16,2013
Loop Antenna	R&S	HFH2-Z2	860004/001	9k-30MHz	July 07,2011	July 07,2012
By-log Antenna	SCHAFFNER	CBL 6112D	22237	30MHz-1GHz	July 07,2011	July 07,2012
Horn Antenna	EMCO	3115	6741	1GHz-18GHz	July 07,2011	July 07,2012
Horn Antenna	SCHWARZBECK	BBHA9170	BBHA9170154	15GHz-40GHz	July 07,2011	July 07,2012
RF Cable-R03m	Jye Bao	RG142	CB021	30MHz-1GHz	June 26,2012	June 25,2013
RF Cable-HIGH	SUHNER	SUCOFLEX 106	03CH03-HY	1GHz-40GHz	June 26,2012	June 25,2013
Spectrum Meter	R&S	FSP 40	100023	9kHz-40GHz	June 26,2012	June 25,2013
Power Meter	R&S	NRVS	100444	DC-40GHz	June 26,2012	June 25,2013
Power Sensor	R&S	NRV-Z51	100458	DC-30GHz	June 17,2012	June 16,2013
Power Sensor	R&S	NRV-Z32	10057	30MHz-6GHz	June 17,2012	June 16,2013
AC Power Source	HPC	HPA-500E	HPA-9100024	AC 0~300V	June 26,2012	June 25,2013
DC power Soure	GW	GPC-6030D	C671845	DC 1V-60V	June 26,2012	June 25,2013
Temp. and Humidigy	Giant Force	GTH-225-20-S	MAB0103-00	N/A	June 17,2012	June 16,2013
RF CABLE-1m	JYE Bao	RG142	CB034-1m	20MHz-7GHz	June 26,2012	June 25,2013
RF CABLE-2m	JYE Bao	RG142	CB)35-2m	20MHz-1GHz	June 26,2012	June 25,2013
Vector signal Generator	R&S	SMU200A	102098	100kHz~6GHz	June 26,2012	June 25,2013
Signal Generator	R&S	SMR40	10016	10MHz~40GHa	June 26,2012	June 25,2013
Oscilloscope	Tektonix	TDS380	B016197	400MHz/2GRS	June 17,2012	June 16,2013

This report shall not be reproduced except in full, without the written approval of Shenzhen LCS Compliance Testing Laboratory Ltd..

7. MANUFACTURER/ APPROVAL HOLDER DECLARATION

The following identical model(s):

SL-5401G	SL-5402G	SL-5405G	SL-1501N
SL-1502N	SL-1503N	SL-1504N	SL-1505N
SL-1506N	SL-1507N	SL-1508N	SL-1509N
SL-3502N	SL-3503N	SL-3504N	SL-3505N
SL-3506N	SL-D001	SL-D002	--

Belong to the tested device:

Product description : Wireless Module

Model name : SL-D001A

No additional models were tested.

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