



**SGS-CSTC Standards
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Report No.: SZEMO071103423RFF
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FCC ID: TW5GD2805

FCC TEST REPORT

Applicant No.: SZEMO071103423RF
Applicant/ Shenzhen Gospell Smarthome Electronic Co., LTD
Manufacture/Factory:

FCC ID : TW5GD2805

Fundamental Frequency : 2.412GHz to 2.462GHz

Equipment under Test (EUT):

Name: Wireless IP-Camera

Item No.: GD2805

Standards : FCC PART 15, SUBPART C and SUBPART B: 2007

Date of Receipt : 05 December 2007

Date of Test : 10 December to 06 August 2008

Date of Issue : 08 August 2008

Test Result :	PASS *
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* In the configuration tested, the EUT complied with the standards specified above.

Authorized Signature:

Robinson Lo
Laboratory Manager

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2 Test Summary

Test	Test Requirement	Standard Paragraph	Result
Occupied Bandwidth	FCC PART 15 :2007	Section 15.247 (a2)	PASS
Edges Measurement	FCC PART 15 2007	Section 15.247	PASS
Maximum Peak Output Power	FCC PART 15 :2007	Section 15.247 (b)	PASS
Power Spectral Density Measurement	FCC PART 15 :2007	Section 15.247 (d)	PASS
Spurious Radiated Emission (30MHz to 25GHz)	FCC PART 15 :2007	Section 15.109 / 15.209 /15.205/ 15.247 (C)	PASS
Conducted Emissions	FCC PART 15:2007	Section 15.107 / 15.207	PASS
Antenna requirement.	FCC PART 15:2007	Section 15.247 (b)	PASS



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4 General Information

4.1 Client Information

Applicant:	Shenzhen Gospell Smarthome Electronic Co., LTD
Address of Applicant:	West, 5F/ Block2, vision(SZ) park, south Hi-Tech Industrial Park, Nanshan, Shenzhen, P. R. China
Address of Manufacture& Factory:	3F/ Block A2, XingHong industrial park, Fenghuanggang, XiXiang Town, BaoAn district, ShenZhen, P. R. China

4.2 General Description of E.U.T.

Name:	Wireless IP-Camera
Item No.:	GD2805
Type of the equipment:	Stand-alone Equipment
Antenna Type;	Integral
Number of Channels	11 Channels
Type of Modulation	802.11b and 802.11g.



Verify the Frequency and Channel

Channel	Frequency (MHz)
1	2412
2	2417
3	2422
4	2427
5	2432
6	2437
7	2442
8	2447
9	2452
10	2457
11	2462

Note:

1. Section 15.31(m): Measurements on intentional radiators or receivers shall be performed at three frequencies for operating frequency range over 10 MHz. The locations of these frequencies one near the top, one near the middle and one near the bottom.

2. So all the items as followed in testing report are need to test these three frequencies with 802.11b and 802.11g modulation type respectively:

Top: Channel 1: 2412 MHz.

Middle: Channel 6: 2437MHz.

Bottom: Channel 11: 2462 MHz.

4.3 Test Location

No.198 Kezhu Road, Science Town Economic& Technology Development District Guangzhou, China
510663
Telephone: +86 (0) 20 8215 5555 Fax: +86 (0) 20 8207 5059

4.4 Other Information Requested by the Customer

None.



5 Test Results

5.1 Test Instruments

RE in Chamber						
Item	Test Equipment	Manufacturer	Model No.	Inventory No.	Cal.Date (dd-mm-yy)	Cal.Due date (dd-mm-yy)
1	3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEL0017	16-06-2007	15-06-2009
2	EMI Test Receiver	Rohde & Schwarz	ESIB26	SEL0023	12-12-2007	11-12-2008
3	EMI Test software	AUDIX	E3	SEL0050	N/A	N/A
4	Coaxial cable	TTS	N/A	SEL0028	18-06-2008	17-06-2009
5	BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEL0014	12-08-2008	11-08-2009
6	Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEL0053	18-06-2008	17-06-2009
7	Double-ridged horn (1-18GHz)	ETS-LINDGREN	3117	SEL0005	12-08-2008	11-08-2009
8	Pre-amplifier (1-18GHz)	Rohde & Schwarz	AFS42-00101 800-25-S-42	SEL0081	18-06-2008	17-06-2009

5.2 E.U.T. Operation

Input voltage: Input: AC 100-240V 50/60Hz 0.5A
Output: DC 9V 1500mA 13.5VA

Operating Environment:
Temperature: 24.0 °C
Humidity: 52 % RH
Atmospheric Pressure: 1015 mbar

Operation:

Test the EUT as a product which Direct Sequence Spread Spectrum. The total channels are 11 channels (1 to 11 channels), the fundamental frequencies are from 2.412GHz to 2.462GHz. The test procedure provided by applicant enabled the EUT to transmit and receive data at lowest (Channel 1: 2.412GHz), middle (Channel 6: 2.437GHz), and highest channel (Channel 11: 2.462GHz), frequencies individually. Pre-test all the frequencies mode and their power status, compliance test in the worse case: Channel 1, Channel 6, Channel 11

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates (802.11b 1/2/5.5/11Mbps and 802.11g 6/9/12/18/24/36/48/54Mbps) and antenna ports (if EUT with antenna diversity architecture).



5.3 Test Procedure & Measurement Data

5.3.1 Conducted Emissions

Test Requirement: FCC Part15 B
Test Method: ANSI C63.4
Frequency Range: 150KHz to 30MHz
Class / Severity: Class B
Detector: Peak for pre-scan (9kHz Resolution Bandwidth)

Operating Environment:

Temperature: 24.0 °C Humidity: 52 % RH Atmospheric Pressure: 1015 Mbar

EUT Operation: Test in normal mode. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

5.3.1.1 Measurement Data

An initial pre-scan was performed on the live and neutral lines with peak detector.

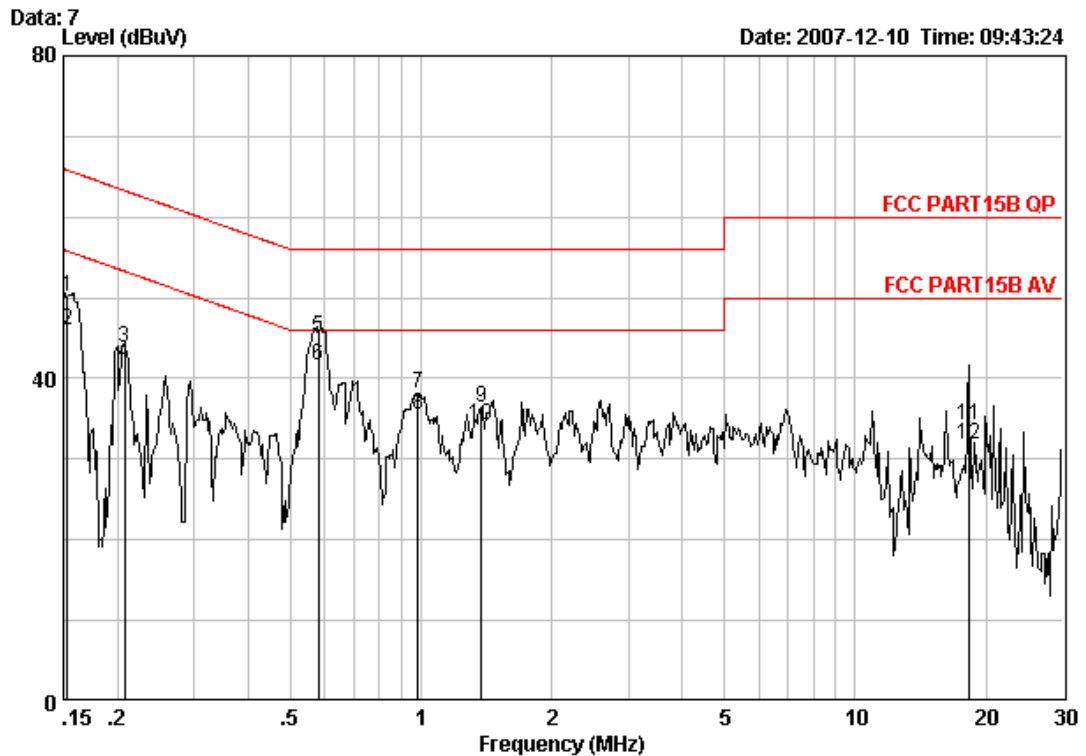
Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission were detected.

The following Quasi-Peak and Average measurements were performed on the EUT.:



1. For EUT communicating with worst case mode.

Level Line



Site : Shielding Room
Condition : FCC PART 15B QP CE LINE
EUT : Wireless IP Camera
Job : 3423RF
Test Mode : ON

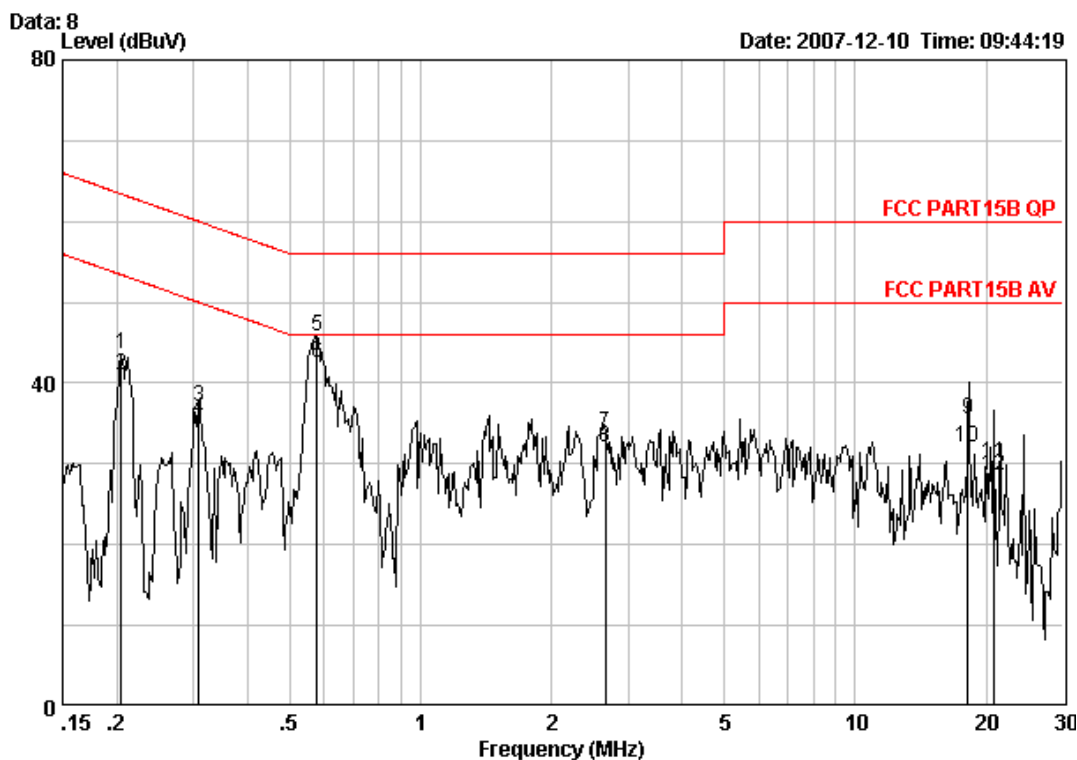
	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.15321	-0.01	-0.05	50.25	50.19	65.82	-15.63	QP
2	0.15321	-0.01	-0.05	46.11	46.05	55.82	-9.77	Average
3	0.20723	-0.09	-0.04	44.04	43.90	63.32	-19.41	QP
4	0.20723	-0.09	-0.04	42.09	41.95	53.32	-11.36	Average
5	0.57923	0.00	-0.04	45.25	45.21	56.00	-10.79	QP
6	0.57923	0.00	-0.04	41.67	41.63	46.00	-4.37	Average
7	0.98391	0.10	-0.05	38.12	38.17	56.00	-17.83	QP
8	0.98391	0.10	-0.05	35.44	35.49	46.00	-10.51	Average
9	1.374	0.10	-0.05	36.25	36.30	56.00	-19.70	QP
10	1.374	0.10	-0.05	34.08	34.13	46.00	-11.87	Average
11	18.328	0.31	-0.60	34.40	34.11	60.00	-25.89	QP
12	18.328	0.31	-0.60	32.16	31.87	50.00	-18.13	Average



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Neutral Line



Site : Shielding Room
Condition : FCC PART15B QP CE NEUTRAL
EUT : Wireless IP Camera
Job : 3423RF
Test Mode : ON

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1	0.20505	-0.09	-0.04	43.78	43.64	63.40	-19.76	QP
2	0.20505	-0.09	-0.04	41.03	40.89	53.40	-12.51	Average
3	0.30834	0.00	-0.04	37.11	37.07	60.02	-22.94	QP
4	0.30834	0.00	-0.04	35.49	35.45	50.02	-14.56	Average
5	0.57617	0.00	-0.04	45.88	45.84	56.00	-10.16	QP
6 @	0.57617	0.00	-0.04	42.61	42.57	46.00	-3.43	Average
7	2.664	0.10	-0.07	33.76	33.78	56.00	-22.22	QP
8	2.664	0.10	-0.07	32.04	32.07	46.00	-13.93	Average
9	18.135	0.31	-0.62	35.77	35.45	60.00	-24.55	QP
10	18.135	0.31	-0.62	32.46	32.15	50.00	-17.85	Average
11	20.924	0.33	-0.78	30.63	30.19	60.00	-29.81	QP
12	20.924	0.33	-0.78	29.10	28.66	50.00	-21.34	Average

TEST RESULTS: The unit does meet the FCC requirements.

FCC ID: TW5GD2805

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5.3.2 Radiated Emissions

Test Requirement: FCC Part15 C Section 15.247, 15.209 and 15.205

Select test mode: 802.11 b 11Mbps & 802.11g 6Mbps

Measurement Distance: 3m (Semi-Anechoic Chamber)

Requirement:

Frequency range 30 MHz – 25GHz for transmitting mode.

The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Spectrum: 30 MHz - 1000 MHz: RBW=120KHz, VBW=300KHz

above 1GHz Peak RBW=1 MHz, VBW=1 MHz

Average: RBW=1MHz, VBW=10Hz

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates (802.11b 1/2/5.5/11Mbps and 802.11g 6/9/12/18/24/36/48/54Mbps) and antenna ports (if EUT with antenna diversity architecture).

Following channel(s) was (were) selected for the final test as listed below. 802.11b 11Mbps and 802.11g 6Mbps

Limit: 40.0 dBμV/m between 30MHz & 88MHz

43.5 dBμV/m between 88MHz & 216MHz

46.0 dBμV/m between 216MHz & 960MHz

54.0 dBμV/m above 960MHz

Test Procedure: The procedure used was ANSI Standard C63.4-2000. The receiver was scanned from 30MHz to 25GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators, measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

The field strength is calculated by adding the Antenna Factor, Cable Factor & Peramplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Factor – Peramplifier Factor



The following test results were performed on the EUT on 14 August 2008:

1. For EUT communicating with 802.11b Mode. Channel – 1

Frequency (MHz)	Antenna Polarization	Emission Level Qusia-Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB)
246.11	Vertical	32.1	46	13.9
325.85	Vertical	34.9	46	11.1
512.72	Horizontal	35.3	46	10.7
681.37	Horizontal	36.2	46	9.8

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2310	59.4	74	14.6	PK
2310	47.8	54	6.2	AV
2390	63.1	74	10.9	PK
2390	49.2	54	4.8	AV
4824	57.5	74.0	16.5	PK
4824	50.2	54.0	3.8	AV
7236	49.7	74.0	24.3	PK
7236	43.0	54.0	11.0	AV

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 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, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.



2. For EUT communicating with 802.11b Mode. Channel – 6
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Emission Level Qusia-Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB)
248.21	Vertical	34.9	46	11.1
353.70	Vertical	30.1	46	15.9
556.03	Horizontal	40.3	46	5.7
509.27	Horizontal	40.5	46	5.5

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
4884	58.1	74.0	15.9	PK
4884	46.3	54.0	7.7	AV
7326	58.4	74.0	15.6	PK
7326	45.7	54.0	8.3	AV

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 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, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.



3. For EUT communicating with 802.11b Mode. Channel – 11
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Emission Level Qusia-Peak (dBuV/m)	Limit (dBuV/m)	Margin (dB))
263.84	Vertical	37.2	46	12.3
398.76	Vertical	36.1	46	11.2
585.23	Horizontal	40.7	46	5.3
681.24	Horizontal	39.6	46	6.4

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2483.5	62.1	74.0	11.9	PK
2483.5	47.2	54.0	6.8	AV
2500	57.3	74.0	16.7	PK
2500	39.2	54.0	14.8	AV
4924	56.2	74.0	17.8	PK
4924	47.3	54.0	6.7	AV
7386	59.1	74.0	14.9	PK
7386	48.7	54.0	5.3	AV

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 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, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.



4. For EUT communicating with 802.11g Mode. Channel – 1
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)
102.32	Vertical	35.8	43.5	7.7
415.54	Vertical	38.5	46.0	7.5
389.37	Horizontal	39.4	46.0	6.6
651.84	Horizontal	38.1	46.0	7.9

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2310	63.8	74.0	10.2	PK
2310	48.1	54.0	5.9	AV
2390	60.6	74.0	13.4	PK
2390	47.2	54.0	6.8	AV
4824	58.9	74.0	15.1	PK
4824	46.7	54.0	7.3	AV
7236	54.4	74.0	19.6	PK
7236	40.3	54.0	13.7	AV

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 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, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.



5. For EUT communicating with 802.11g. Channel – 6
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)
87.38	Vertical	35.0	43.5	8.5
472.14	Vertical	38.1	46.0	7.9
467.21	Horizontal	37.3	46.0	8.7
821.08	Horizontal	37.4	46.0	8.6

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
4874	59.8	74.0	14.2	PK
4874	50.2	54.0	3.8	AV
7311	55.7	74.0	18.3	PK
7311	45.1	54.0	8.9	AV

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 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, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.

6. For EUT communicating with 802.11g. Channel – 11
30MHz- 1000MHz

Frequency (MHz)	Antenna Polarization	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)
98.71	Vertical	39.6	43.5	3.9
615.4	Vertical	38.9	46	7.1
389.37	Horizontal	36.0	46.0	10.0
651.84	Horizontal	39.3	46.0	5.7

Above 1000MHz

Frequency (MHz)	Level (dBuV/m)	Limit Line (dBuV/m)	Margin (dB)	
2483.5	65.7	74.0	8.3	PK
2483.5	44.9	54.0	9.1	AV
2500	63.1	74.0	10.9	PK
2500	39.7	54.0	14.3	AV
4924	61.9	74.0	12.1	PK
4924	50.8	54.0	3.2	AV
7386	56.5	74.0	17.5	PK
7386	47.8	54.0	6.2	AV

Remark:

According to 15.35 (b) When average radiated emission measurements are specified in the regulations, including emission measurements below 1000 MHz, there is also a limit on the radio frequency emissions, as measured using instrumentation with a peak detector function, corresponding to 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, e.g., see Section 15.255.

TEST RESULTS: The unit does meet the FCC requirements.



5.3.3 Occupied Bandwidth

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.247:
Select test mode: 802.11 b 11Mbps & 802.11g 6Mbps
Requirements: 15.247 (a2) For direct sequence systems, the minimum 6 dB bandwidth shall be at least 500 kHz.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates (802.11b 1/2/5.5/11Mbps and 802.11g 6/9/12/18/24/36/48/54Mbps) and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
802.11b 11Mbps and 802.11g 6Mbps

Method of measurement: The transmitter output was connected to the spectrum analyzer through an attenuator. The bandwidth of the fundamental frequency was measured by spectrum analyzer with 100 kHz/300kHz RBW and 100 kHz VBW. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB. Analyzer and the attached plot was taken. Frequency range 30 MHz – 25GHz for transmitting mode.
The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Test results:

1. The EUT communicating with 802.11b Mode

Channel	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2.412	10.4	0.5	Pass
6	2.437	10.4	0.5	Pass
11	2.462	11.6	0.5	Pass

2. The EUT communicating with 802.11g Mode

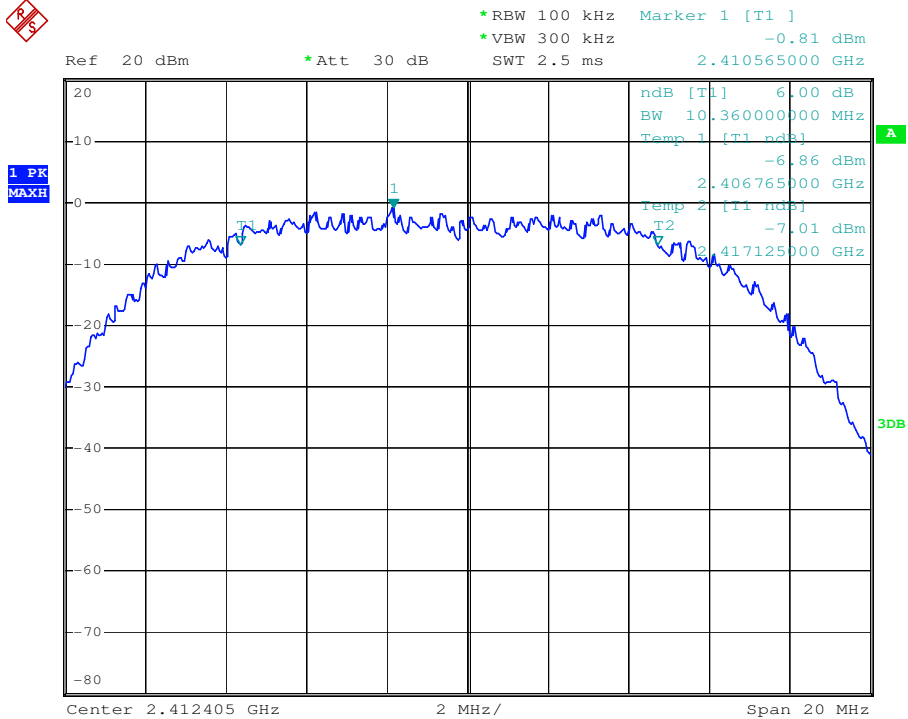
Channel	CHANNEL FREQUENCY (MHz)	6 dB BANDWIDTH (MHz)	MINIMUM LIMIT (MHz)	PASS/FAIL
1	2.412	16.72	0.5	Pass
6	2.437	16.56	0.5	Pass
11	2.462	15.92	0.5	Pass

Conclusion:: The unit does meet the FCC requirements.

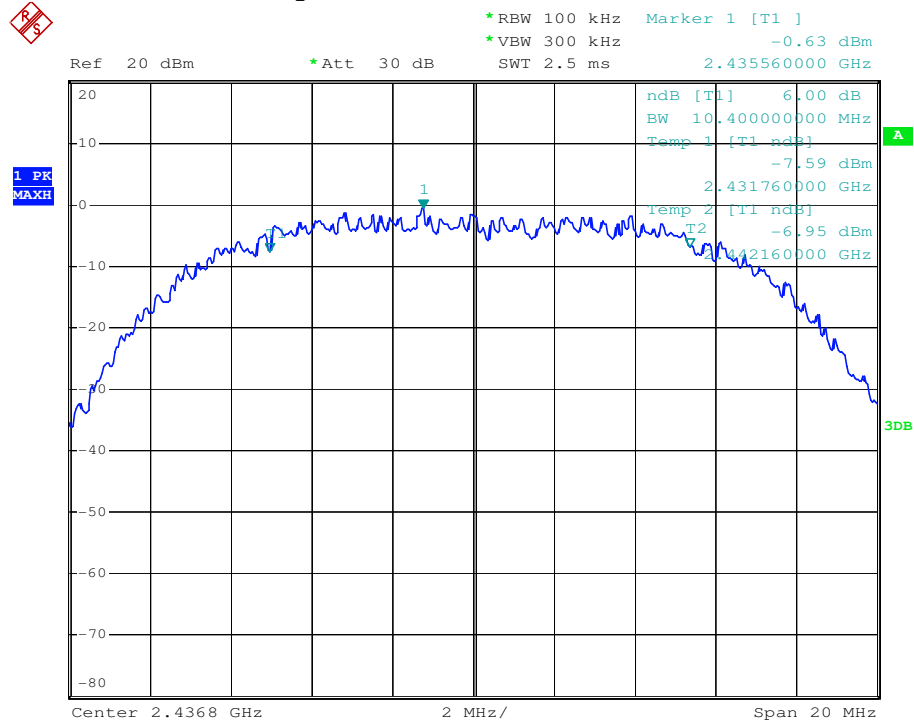
Please refer to the graph as below:



1. For EUT communicating with 802.11b Mode. Channel – 1

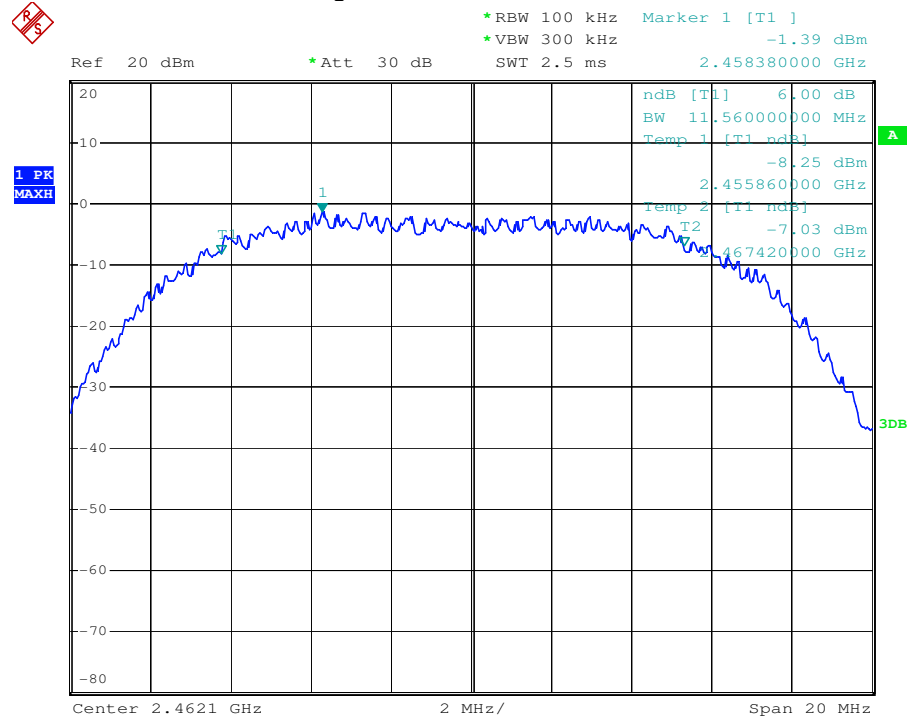


2. For EUT communicating with 802.11b Mode. Channel – 6

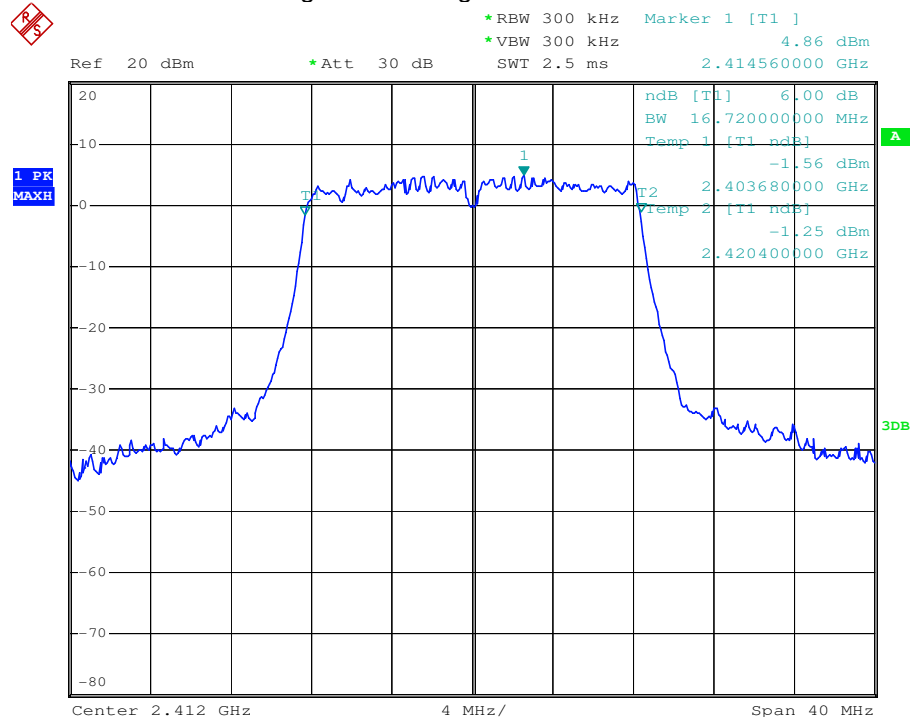




3. For EUT communicating with 802.11b Mode. Channel – 11

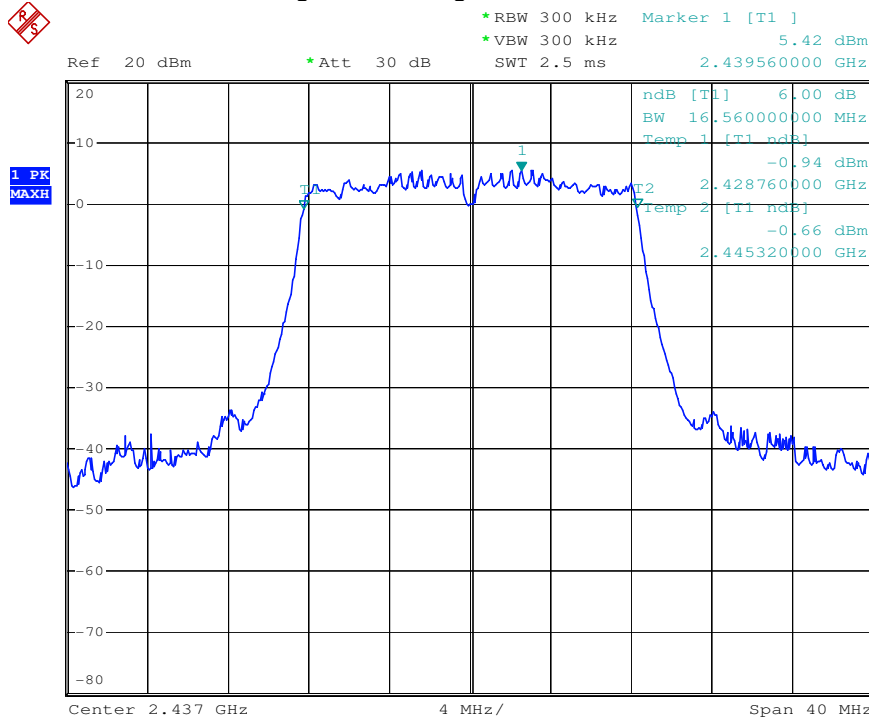


4. For EUT communicating with 802.11g Mode. Channel – 1

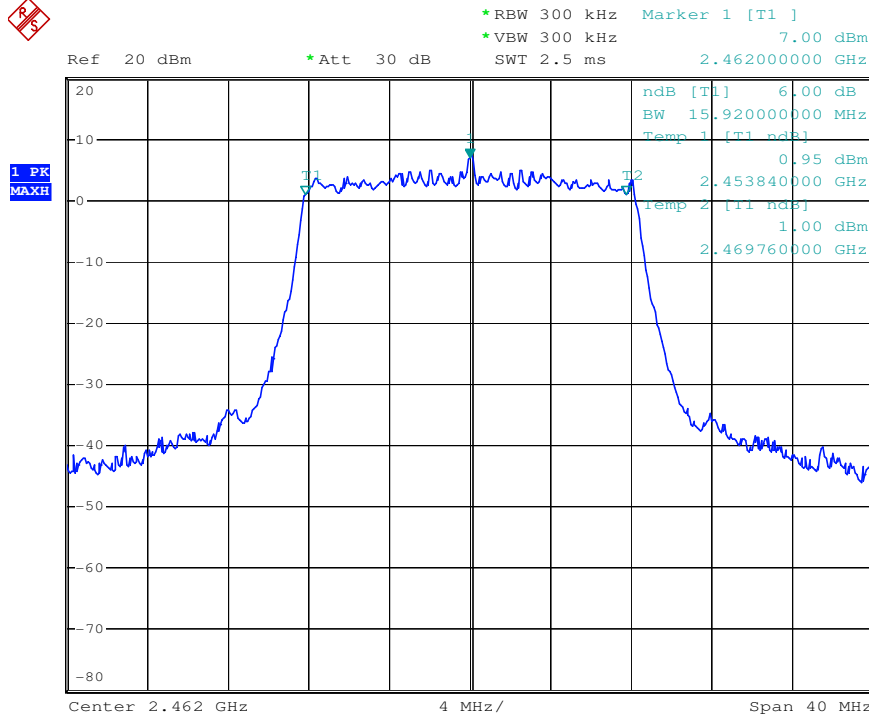




5. For EUT communicating with 802.11g Mode. Channel -6



6. For EUT communicating with 802.11g Mode. Channel - 11





Maximum Peak Output Power:

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.247.
Select test mode: 802.11 b 6/11Mbps & 802.11g 6/54Mbps
Test Date: 20 November 2007

Method of measurement:

The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.

Spectrum: RBW=1MHz, VBW=3MHz

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates (802.11b 1/2/5.5/11Mbps and 802.11g 6/9/12/18/24/36/48/54Mbps) and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below. 802.11b 11Mbps and 802.11g 6Mbps.

Requirements:

Regulation 15.247 (b) The Limit of Maximum Peak Output Power Measurement is 30dBm.

Test results

1. For EUT communicating with 802.11b RATE 11M Mode

Channel	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER Limit (dBm)	PASS/FAIL
1	2.412	12.02	30.0	Pass
6	2.437	12.03	30.0	Pass
11	2.462	12.09	30.0	Pass

2. For EUT communicating 802.11g RATE 6M Mode

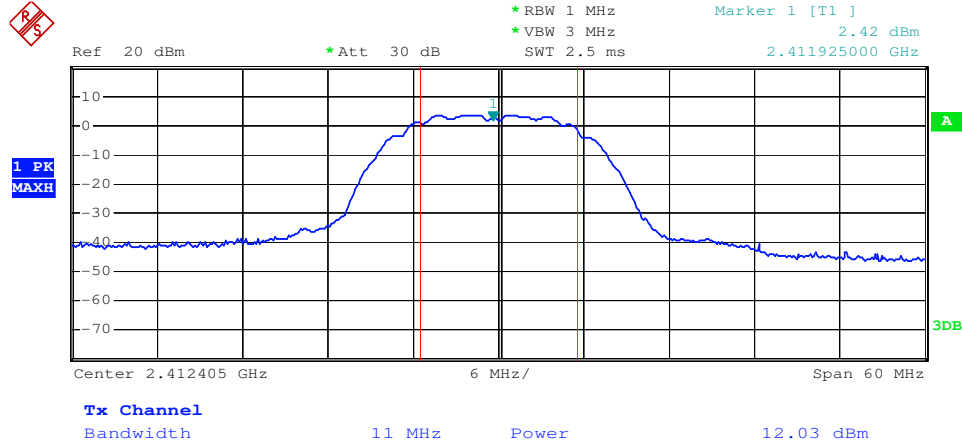
Channel	CHANNEL FREQUENCY (MHz)	PEAK POWER OUTPUT (dBm)	PEAK POWER Limit (dBm)	PASS/FAIL
1	2.412	16.61	30.0	Pass
6	2.437	15.14	30.0	Pass
11	2.462	14.15	30.0	Pass



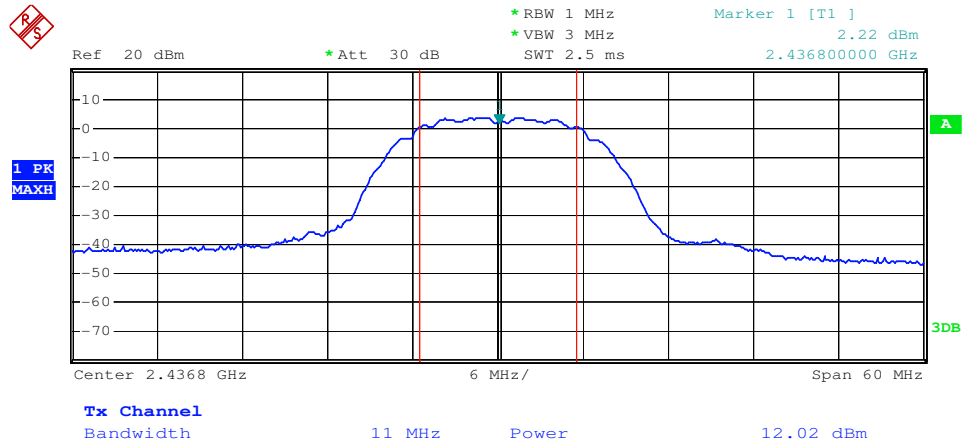
Test Result:

Please refer to the measurement graph and data.

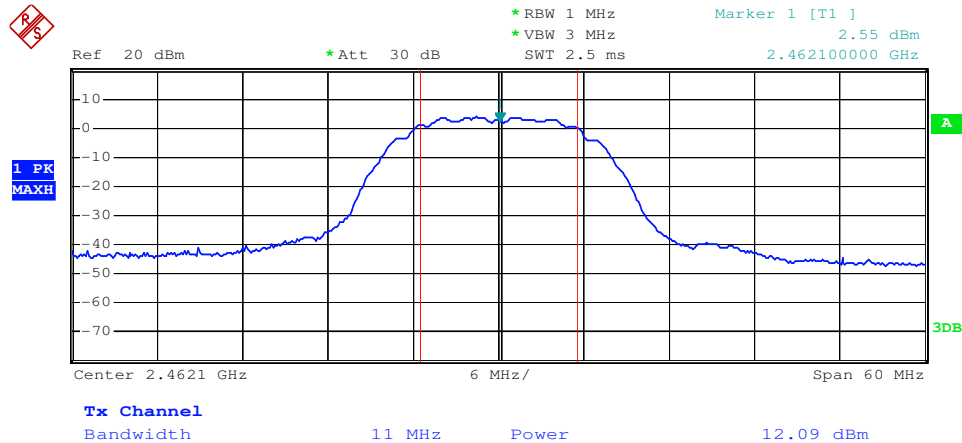
802.11b 11M CHANNEL 1



CHANNEL 6

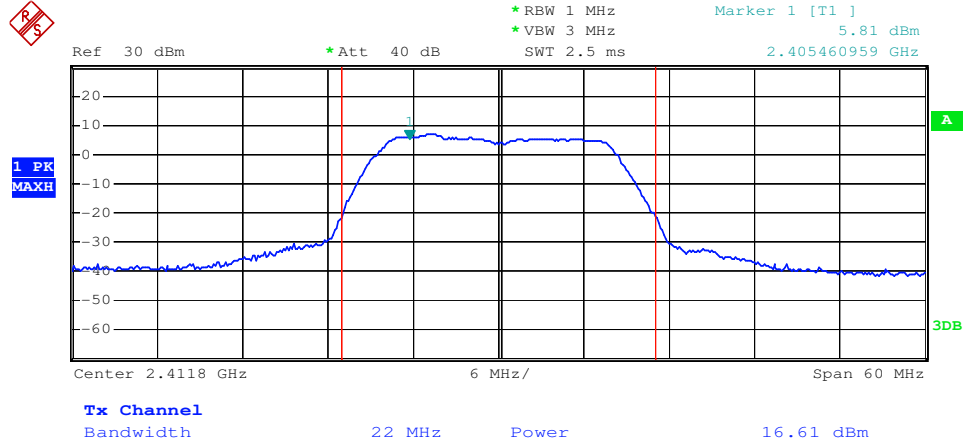


CHANNEL 11

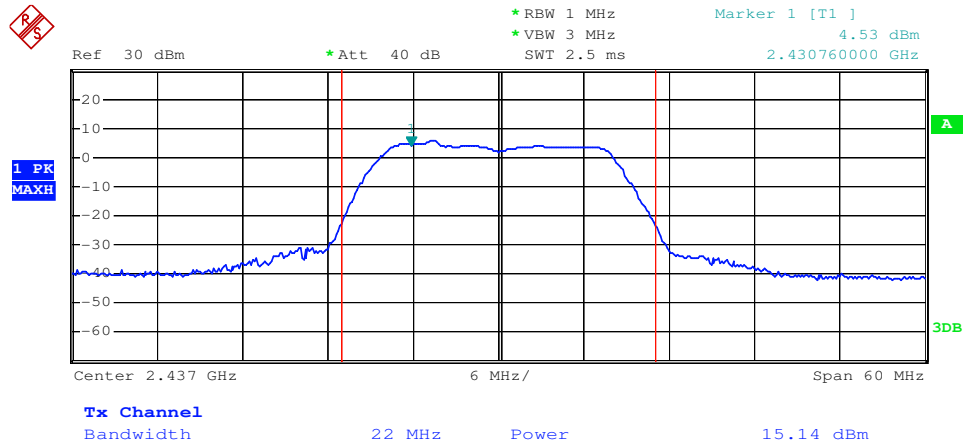




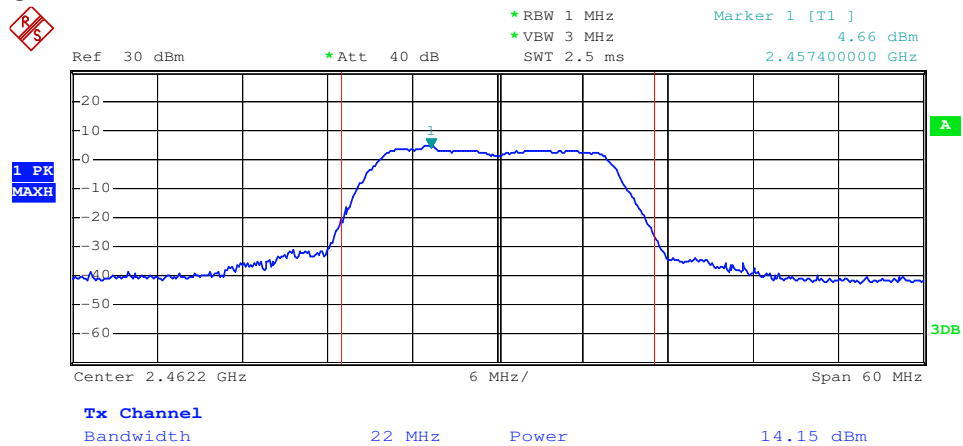
802.11g 6M CHANNEL 1



CHANNEL 6



CHANNEL 11



Conclusion: The EUT meets the requirements of this section.



5.3.4 Band Edges Measurement

Test Requirement: FCC Part15 C Section 15.247(d)
Test Method: Based on FCC Part15 C Section 15.247:
KDB Publication No. 558074 Public Notice DA 00-705 for DSS.
Select test mode: 802.11 b 11Mbps & 802.11g 6Mbps
Requirements:

Regulation 15.247 (d) In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.

Test Procedures:

Procedure: The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.
Spectrum: Peak RBW=100KHz, VBW=300KHz

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates (802.11b 1/2/5.5/11Mbps and 802.11g 6/9/12/18/24/36/48/54Mbps) and antenna ports (if EUT with antenna diversity architecture).
Following channel(s) was (were) selected for the final test as listed below.
802.11b 11Mbps and 802.11g 6Mbps

Test Result:

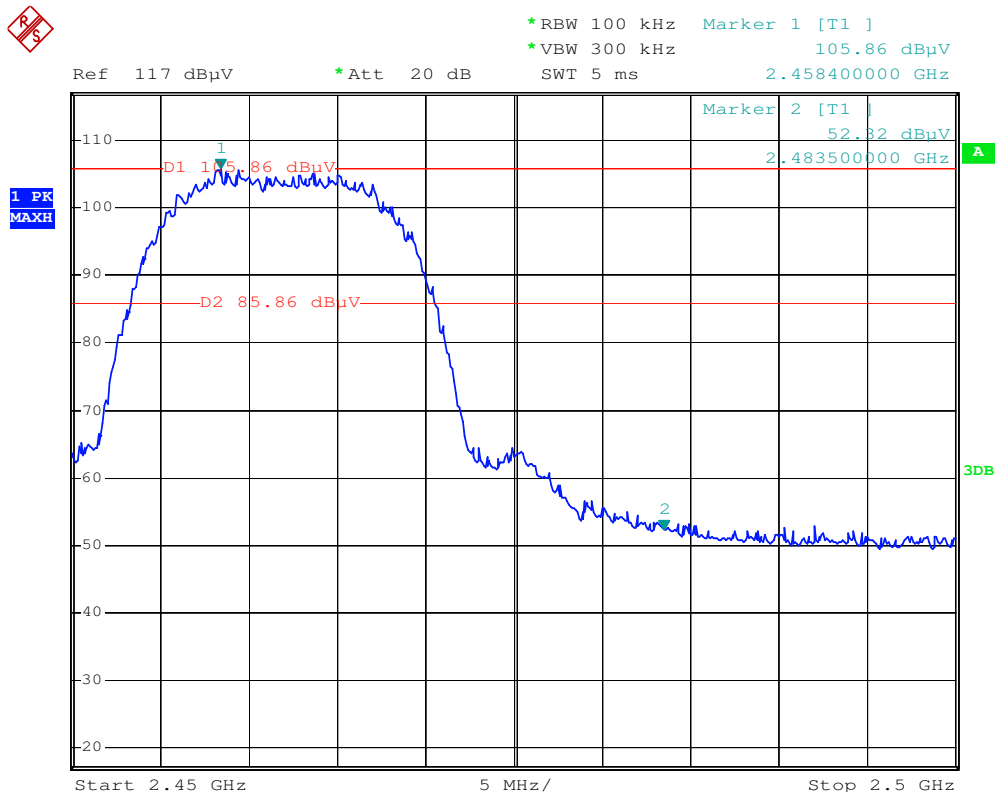
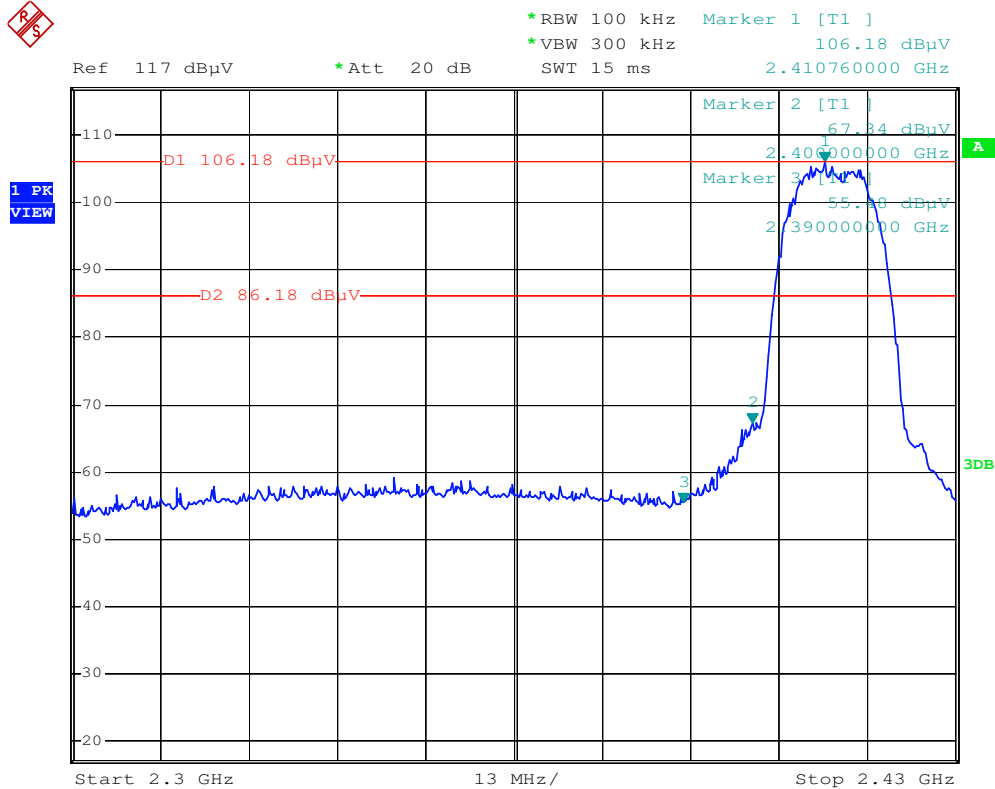
Please refer to the measurement graph and data.



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802.11b



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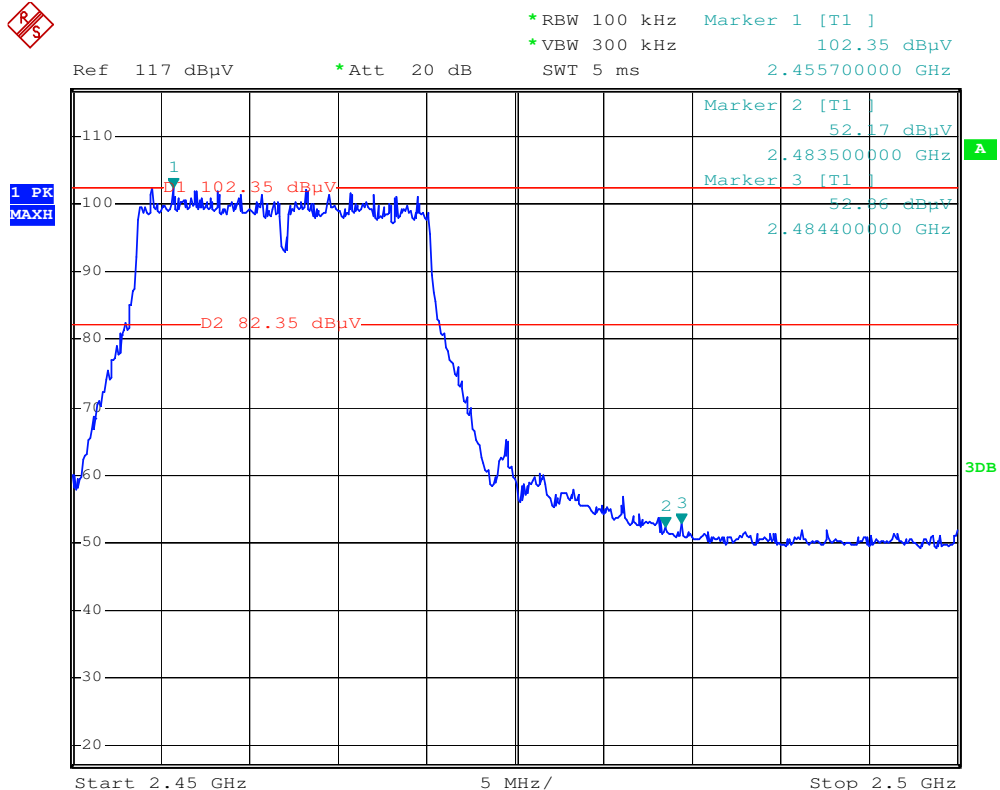
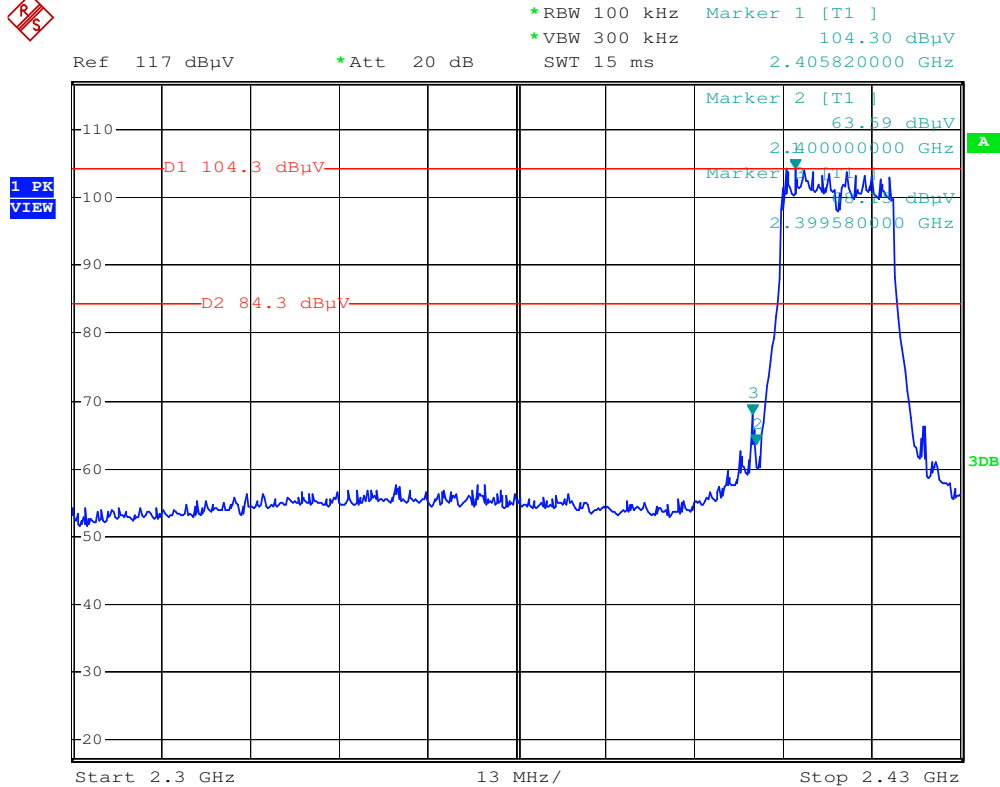
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802.11g



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5.3.5 Power Spectral Density Measurement

Test Requirement: FCC Part15 C
Test Method: Based on FCC Part15 C Section 15.247.
Requirements:

Regulation 15.247 (d) For direct sequence systems, the peak 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

Test Procedures:

Set spectrum analyzer RBW = 3 KHz, VBW > RBW (e.g. VBW = 10 KHz). Turn around the table to find maximum emission. Then set the Span = 300 KHz and sweep time = 100 sec. Peak the maximum emission again. The peak level measured must be no greater than + 8dBm.

Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates (802.11b 1/2/5.5/11Mbps and 802.11g 6/9/12/18/24/36/48/54Mbps) and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
802.11b 11Mbps and 802.11g 6Mbps

The EUT was set transmitting continuously and force selection of output power level and channel number. We'd observed that the peak levels aren't greater than +8dBm limit.

The EUT was setup to ANSI C63.4,2003, tested to DTS test procedure of Oct 2002 KDB558074 for compliance to FCC 47CFR 15.247 requirements.



Test Result:

1. For EUT communicating with 802.11b Mode

Channel	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM Limit (dBm)	PASS/FAIL
1	2.412	-18.0	8.0	Pass
6	2.437	-16.7	8.0	Pass
11	2.462	-16.4	8.0	Pass

2. For EUT communicating with 802.11g Mode

Channel	CHANNEL FREQUENCY (MHz)	RF POWER LEVEL IN 3 KHz BW (dBm)	MAXIMUM Limit (dBm)	PASS/FAIL
1	2.412	-20.0	8.0	Pass
6	2.437	-21.3	8.0	Pass
11	2.462	-22.4	8.0	Pass

Conclusion:

The EUT meets the requirements of this section.

Please refer to the graph as below:



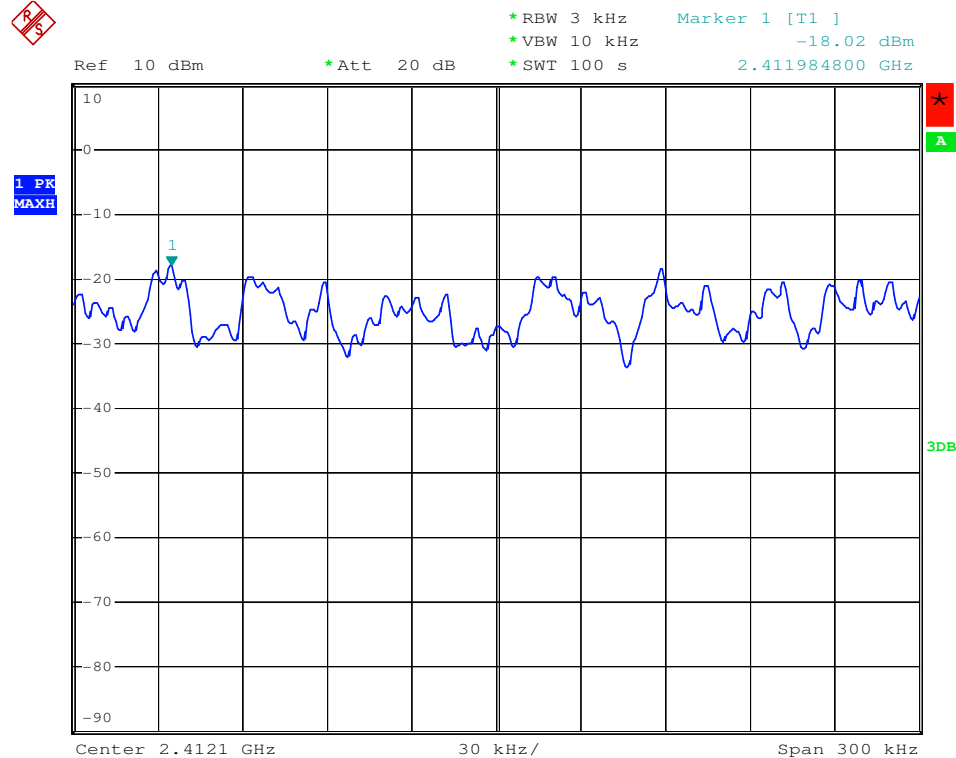
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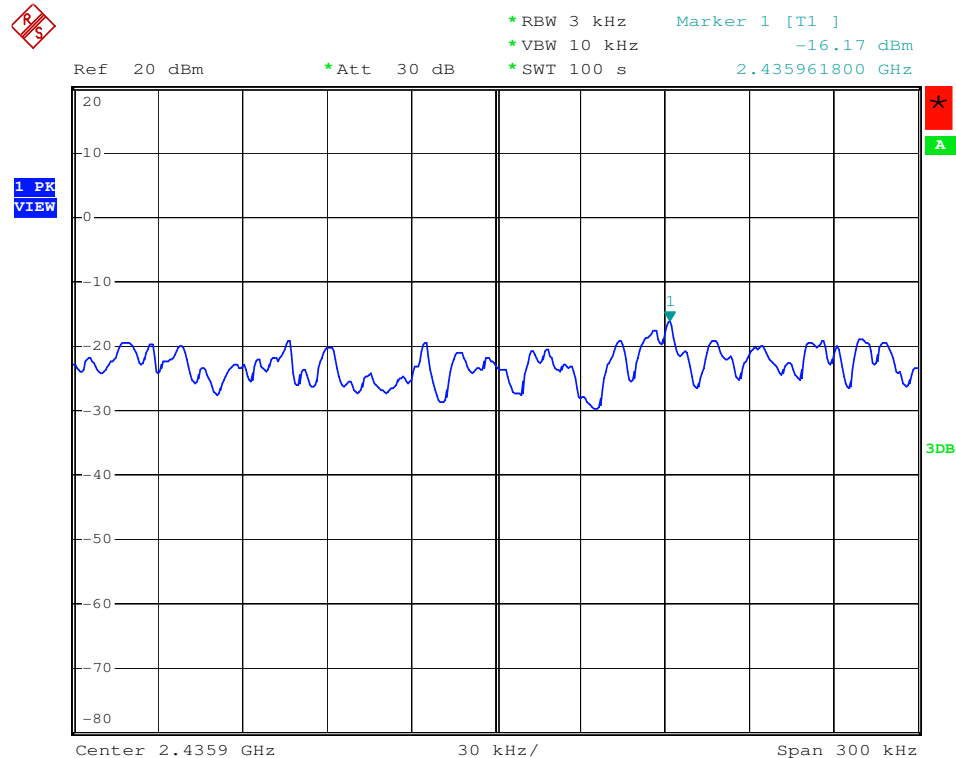
Test Result:

Please refer to the measurement graph and data.

802.11b 11M CHANNEL 1



CHANNEL 6



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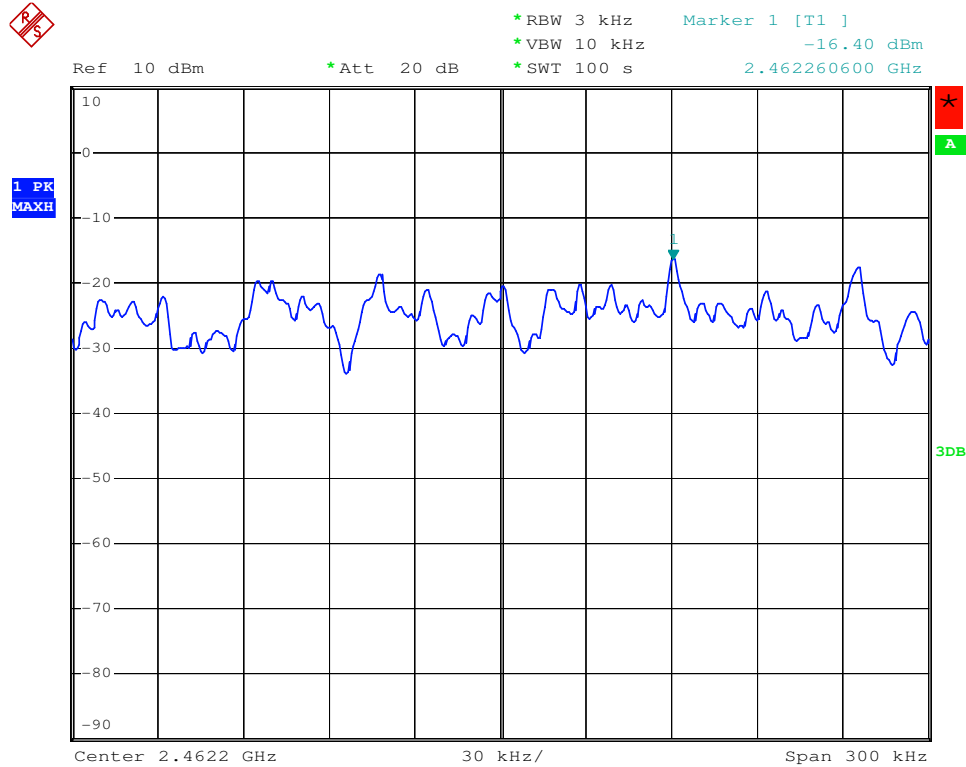
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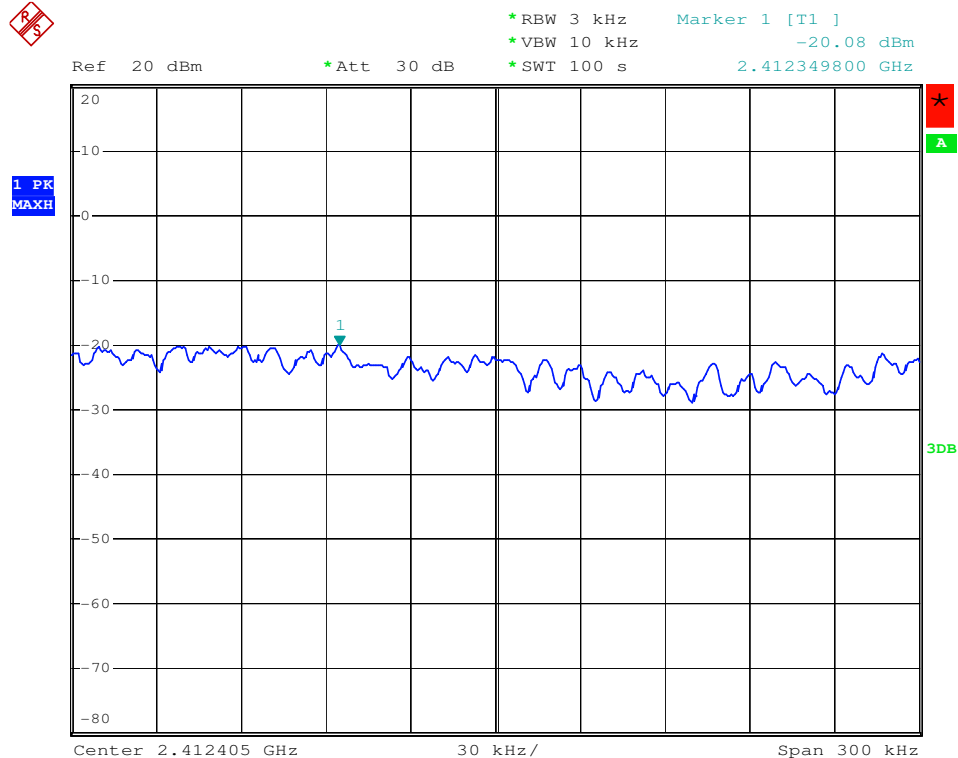
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CHANNEL 11



**802.11g 6M
CHANNEL 1**



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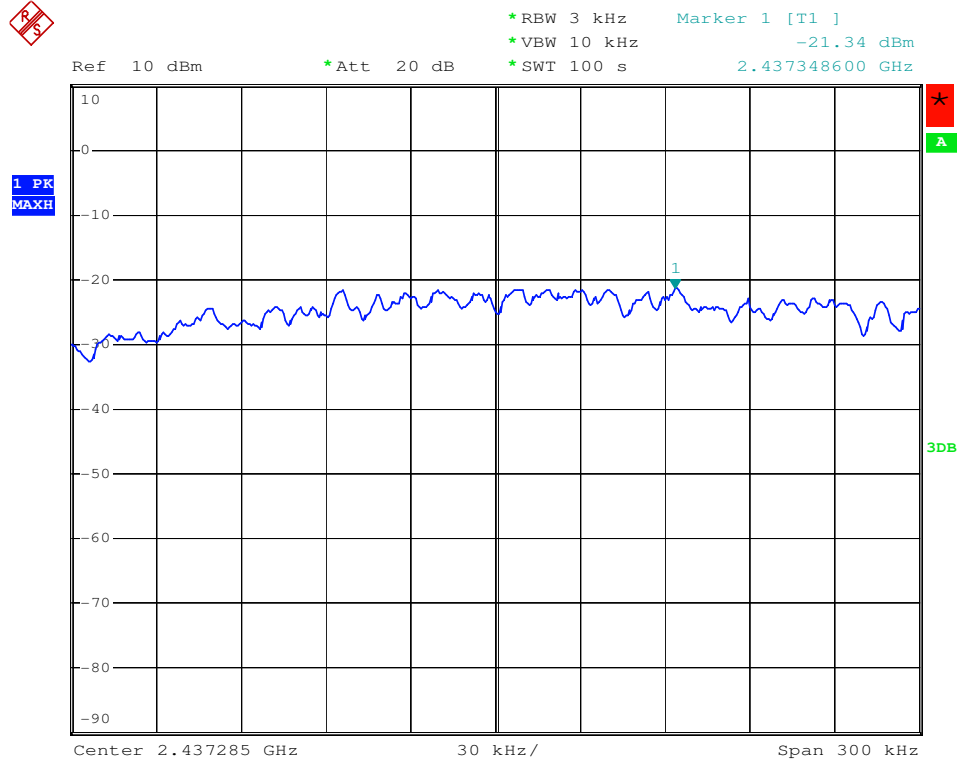
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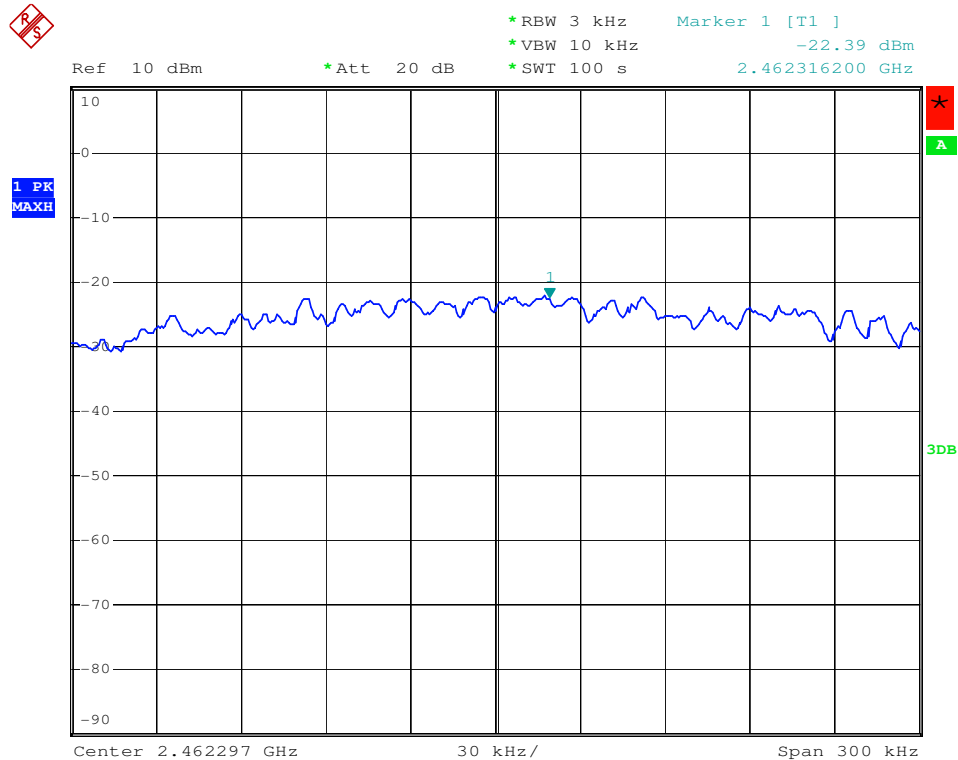
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CHANNEL 6



CHANNEL 11



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5.3.6 Antenna Requirement

STANDARD APPLICABLE

For intentional device, according to FCC 47 CFR Section 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device.

And according to FCC 47 CFR Section 15.247(b), if transmitting antennas of directional gain greater than 6dBi are used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi.