FCC PART 15C REPORT FOR CERTIFICATION
On Behalf of

CTOUCH Europe B.V.

WIFI MODULE

Model Number: WIM000AS

FCC ID: 2APQQ-WIM000AS

Prepared for:	CTOUCH Europe B.V.
	Achtseweg Zuid 153R, 5651 GW Eindhoven, Nederlands
Prepared By:	EST Technology Co., Ltd.
	Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China
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Report Number:	ESTE-R2003022
Date of Test:	Dec. 23, 2019~Mar. 04, 2020
Date of Report:	Mar. 06, 2020

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EST Technology Co., Ltd.

Applicant: **Address:**	CTOUCH Europe B.V. Achtseweg Zuid 153R, 5651 GW Eindhoven, Nederlands
Manufacturer: **Address:**	CTOUCH Europe B.V. Achtseweg Zuid 153R, 5651 GW Eindhoven, Nederlands
E.U.T:	WIFI MODULE
Model Number:	WIM000AS
Power Supply:	DC 12V From Adapter Input AC 100-240V, 50/60Hz
Trade Name:	CTOUCH Serial No.: ------
Date of Receipt:	Dec. 23, 2019 Date of Test: Dec. 23, 2019~Mar. 04, 2020
Test Specification:	FCC Part 15 Subpart C (15.247) ANSI C63.10:2013 FCC KDB 558074 D01 15.247 Meas Guidance v05r02 FCC KDB 662911 D01 Multiple Transmitter Output v02r01
Test Result:	The device described above is tested by EST Technology Co., Ltd. The measurement results were contained in this test report and EST Technology Co., Ltd. was assumed full responsibility for the accuracy and completeness of these measurements. Also, this report shows that the EUT to be technically compliance with the FCC Rules and Regulations Part 15 Subpart C requirements. This report applies to above tested sample only and shall not be reproduced in part without written approval of EST Technology Co., Ltd. **Date:** Mar. 05, 2020

Prepared by:	Reviewed by:	Approved by:
Ring	Shawn	
Ring / Assistant	Shawn/ Engineer	Iceman Hu / Manager

Other Aspects:
None.

Abbreviations: OK/P=passed fail/F=failed n.a/N=not applicable E.U.T=equipment under tested

This test report is based on a single evaluation of one sample of above mentioned products ,It is not permitted to be duplicated in extracts without written approval of EST Technology Co., Ltd.

1. GENERAL INFORMATION

1.1. Description of Device (EUT)

Product Name	:	WIFI MODULE
Model Number	:	WIM000AS
Software Version	:	V01
Hardware Version	:	V01
Operation frequency	:	2412MHz~2462MHz 2422MHz~2452MHz
Number of channel	:	IEEE 802.11b: 11 Channels IEEE 802.11g: 11 Channels IEEE 802.11n HT20: 11 Channels IEEE 802.11n HT40: 7 Channels
Max Output Power (PEAK)	:	IEEE 802.11b: 17.42dBm IEEE 802.11g: 19.10dBm IEEE 802.11n HT20: 19.52dBm 802.11n HT40: 19.34dBm
Modulation Type	:	IEEE 802.11b mode: DSSS(CCK,QPSK, BPSK) IEEE 802.11g mode: OFDM (BPSK/QPSK/16QAM/64QAM) IEEE 802.11n mode: OFDM (BPSK/QPSK/16QAM/64QAM)
Sample Type	:	Prototype production

Note:

For a more detailed features description, please refer to the manufacturer's specifications or the user's manual.

1.2. Antenna Information

Ant No.	Brand	Model Name	Antenna Type	Connector	Gain (dBi)
1	N/A	N/A	External antenna	N/A	2
2	N/A	N/A	External antenna	N/A	2

Note:

1. The EUT has two antennas,the antennas can support SISO function in IEEE 802.11b and IEEE 802.11g,and can support MIMO function in IEEE 802.11n.
2. The EUT can work as CDD mode in IEEE 802.11n HT20 and IEEE 802.11n HT40,and can operate with one spatial stream.
3. According to ANSI C63.10:2013 14.4.3.2.5 a):

   Directional gain=2dBi+10×log(2/1)dB=5.01dBi＜6dBi

   So,the output power limit and power spectral density no need to be reduced.
4. After pre-test all antenna configurations,the worst case configuration as list below.

ANT No. / TX Mode	SISO Configuration	MIMO Configuration
IEEE 802.11b	ANT1+ANT2	/
IEEE 802.11g	ANT1+ANT2	/
IEEE 802.11n HT20	/	ANT1+ANT2
IEEE 802.11n HT40	/	ANT1+ANT2

2. SUMMARY OF TEST

2.1. Summary of test result

Report Section	Description of Test Item	FCC Standard Section	Results
3	6dB Bandwidth	15.247(a)(2)	PASS
4	Maximum Peak Output Power	15.247(b)(3)	PASS
5	Power Spectral Density	15.247(e)	PASS
6	Conducted Band Edge	15.247(d)	PASS
7	Conducted Spurious Emissions	15.247(d)	PASS
8	Radiated Spurious Emissions and Band Edge	15.205 15.209 15.247(d)	PASS
9	AC Power Line Conducted Emissions	15.207	PASS
10	Antenna Requirement	15.203	PASS

Note:

(1) “N/A” denotes test is not applicable in this test report

2.2. Test Facilities

EMC Lab : Certificated by CNAS, CHINA
Registration No.: L5288
Date of registration: November 13, 2017

Certificated by FCC, USA
Designation Number: CN1215
Test Firm Registration Number: 722932
Date of registration: November 21, 2017

Certificated by A2LA, USA
Registration No.: 4366.01
Date of registration: November 07, 2017

Certificated by Industry Canada
CAB identifier No.: CN0035
Date of registration: January 04, 2019

Certificated by VCCI, Japan
Registration No.: R-13663; C-14103
Date of registration: July 25, 2017
This Certificate is valid until: July 24, 2020

Certificated by TUV Rheinland, Germany
Registration No.: UA 50413872 0001
Date of registration: July 31, 2018

Certificated by TUV/PS, Shenzhen
Registration No.: SCN1017
Date of registration: January 27, 2011

Certificated by Intertek ETL SEMKO
Registration No.: 2011-RTL-L2-64
Date of registration: April 28, 2011

Certificated by Nemko, Hong Kong
Registration No.: 175193
Date of registration: May 4, 2011

Name of Firm : EST Technology Co., Ltd.

Site Location : Chilingxiang, Qishantou, Santun, Houjie, Dongguan, Guangdong, China

2.3. Measurement uncertainty

Test Item	Uncertainty
Uncertainty for Conduction emission test	±3.48dB
Uncertainty for spurious emissions test (30MHz-1GHz)	±4.60 dB(Polarize: H)
	±4.68 dB(Polarize: V)
Uncertainty for spurious emissions test (1GHz to 18GHz)	±4.96dB
Uncertainty for radio frequency	7×10^{-8}
Uncertainty for conducted RF Power	0.20dB
Uncertainty for Power density test	0.26dB

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

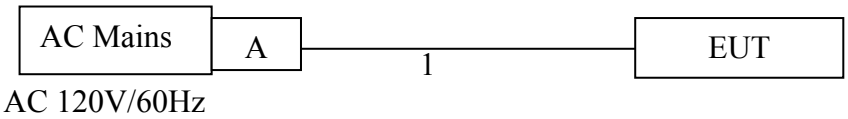
2.4. Assistant equipment used for test

Item	Equipment	Brand	Model Name/Type No.	FCC ID	Series No.
A	Adapter	FSP GROUP INC.	FSP065-10AABA	-	-

Item	Shielded Type	Ferrite Core	Length	Note
1	NO	NO	2.4m	DC Cable

2.5. Block Diagram

For radiated emissions test: EUT was placed on a turn table, which is 0.8 (or 1.5) meter high above ground. EUT was beset into 2.4G WIFI test mode by software before test.



(EUT: WIFI MODULE)

2.6. Test Mode

The test mode was selected for the final test as listed below.

Test Item	Mode	Date Rate	Test Channel
6dB Bandwidth	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High
Maximum Peak Output Power	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High
Power Spectral Density	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High
Conducted Band Edge	IEEE 802.11b	1Mbps	Low/ High
	IEEE 802.11g	6Mbps	Low/ High
	IEEE 802.11n HT20	MCS8	Low/ High
	IEEE 802.11n HT40	MCS8	Low/ High
Conducted Spurious Emissions	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High
Radiated Spurious Emissions(Below 1GHz)	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High
Radiated Spurious Emissions(Above 1GHz)	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High
Radiated Band Edge	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High
AC Power Line Conducted Emissions	IEEE 802.11b	1Mbps	Low/Middle/High
	IEEE 802.11g	6Mbps	Low/Middle/High
	IEEE 802.11n HT20	MCS8	Low/Middle/High
	IEEE 802.11n HT40	MCS8	Low/Middle/High

Note:

1. In radiated measurement,the EUT had been pre-scan on the positioned of each 3 axis(X,Y,Z), the worst case was found when positioned on **X-plane.**

2.7. Power Setting of Test Software

Software Name	MPTool		
Frequency(MHz)	2412	2437	2462
IEEE 802.11b Setting	45	45	45
IEEE 802.11g Setting	45	45	45
IEEE 802.11n HT20 Setting	42	42	42
Frequency(MHz)	2422	2437	2452
IEEE 802.11n HT40 Setting	42	42	42

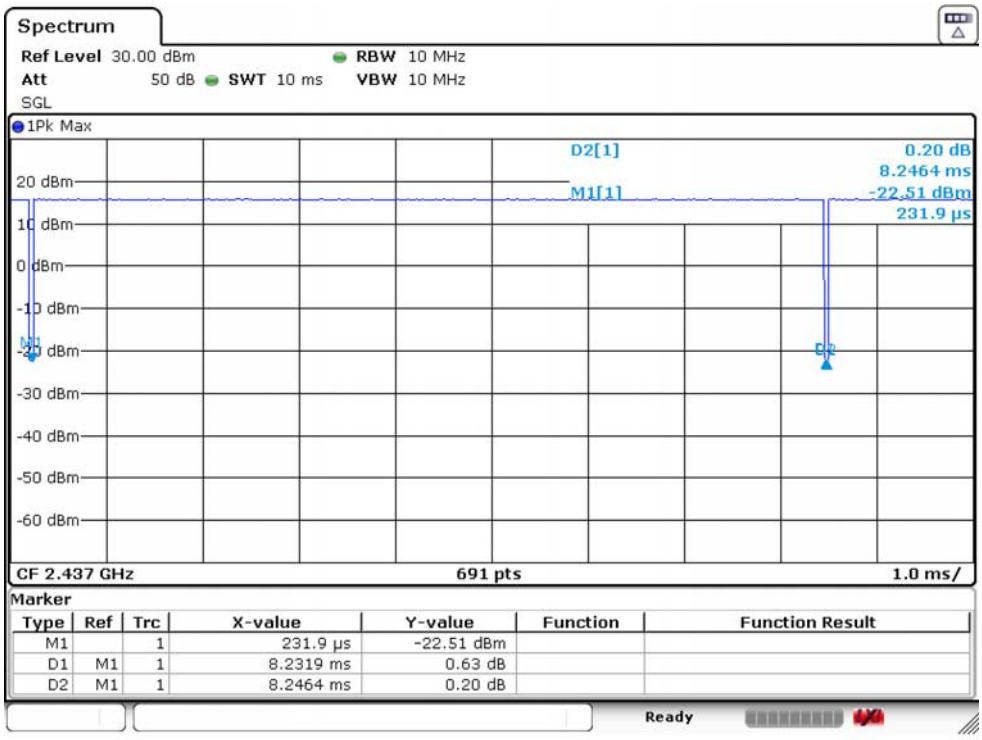
2.8. Duty Cycle

Temperature	24..8℃	Relative Humidity	55%	Test Voltage	120V/60Hz
Mode	Fre(MHz)	On time(ms)	Total Time(ms)	Duty Cycle(%)	Duty Factor(dBm)
IEEE 802.11b	2437	8.23190	8.24640	99.82	0.00
IEEE 802.11g	2437	1.37391	1.41449	97.13	0.13
IEEE 802.11n HT20	2437	1.28696	1.32754	96.94	0.13
IEEE 802.11n HT40	2437	0.64058	0.68696	93.25	0.30

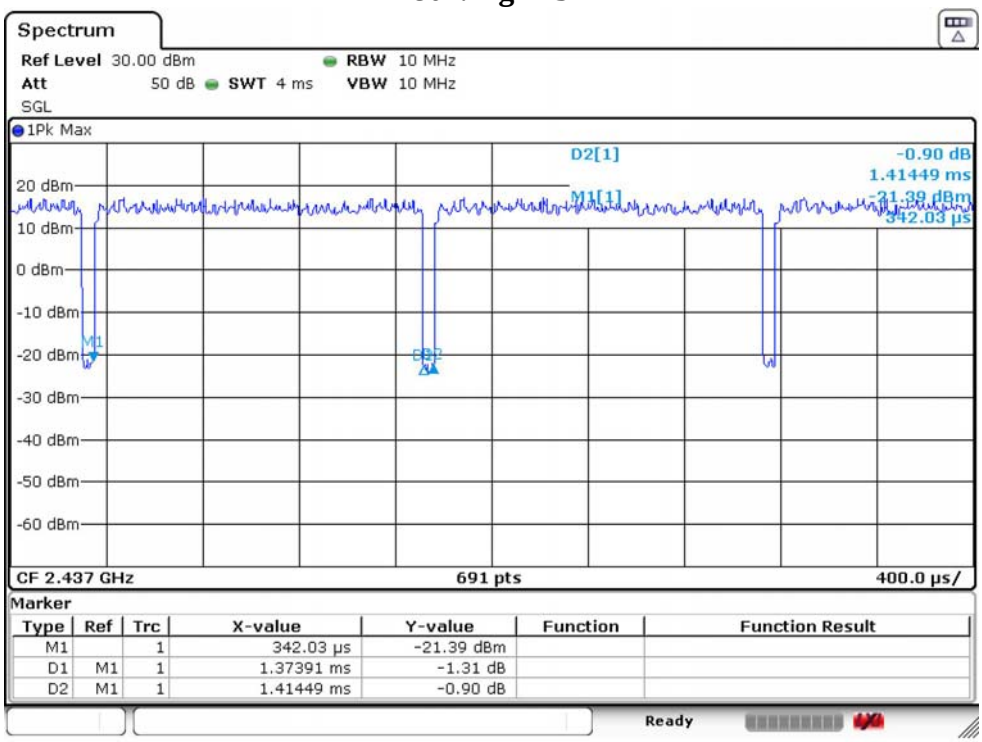
Note:

1. If duty cycle <98 %, the conducted average output power and average power spectral density should be add duty factor.
2. If duty cycle≥98 %,the EUT is consider to be transmitting continuously,the conducted average output power and average power spectral density no need to add duty factor(consider to be zero).
3. The conducted peak output power and peak power spectral density no need to consider duty factor.
4. The on-time time is transmission duration(T).

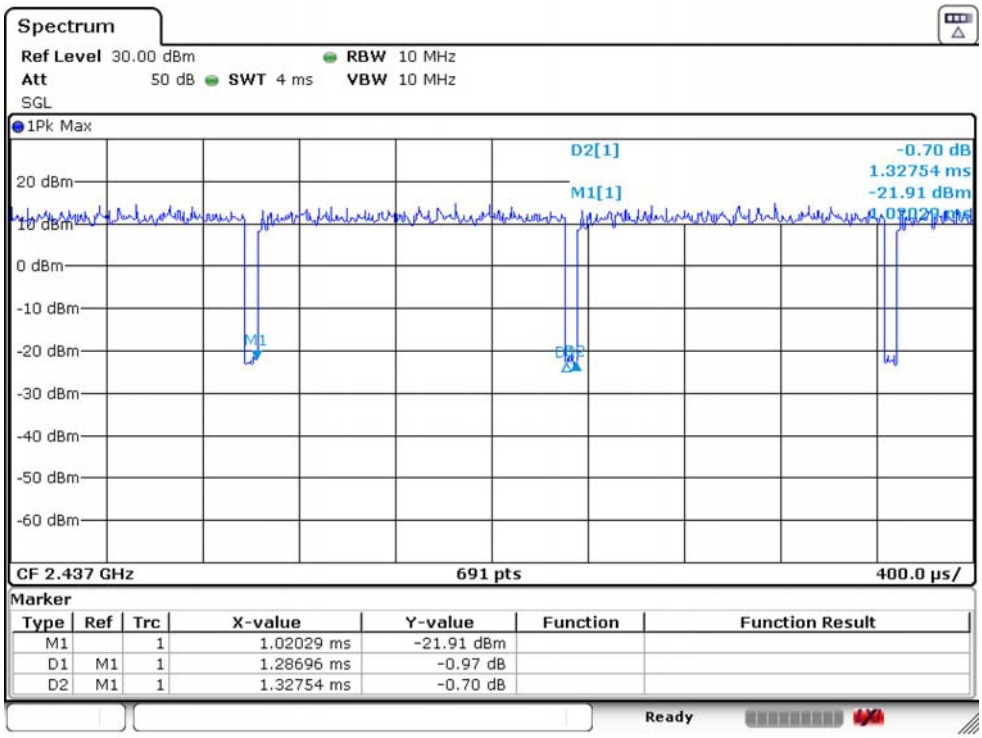
IEEE 802.11b 2437MHz



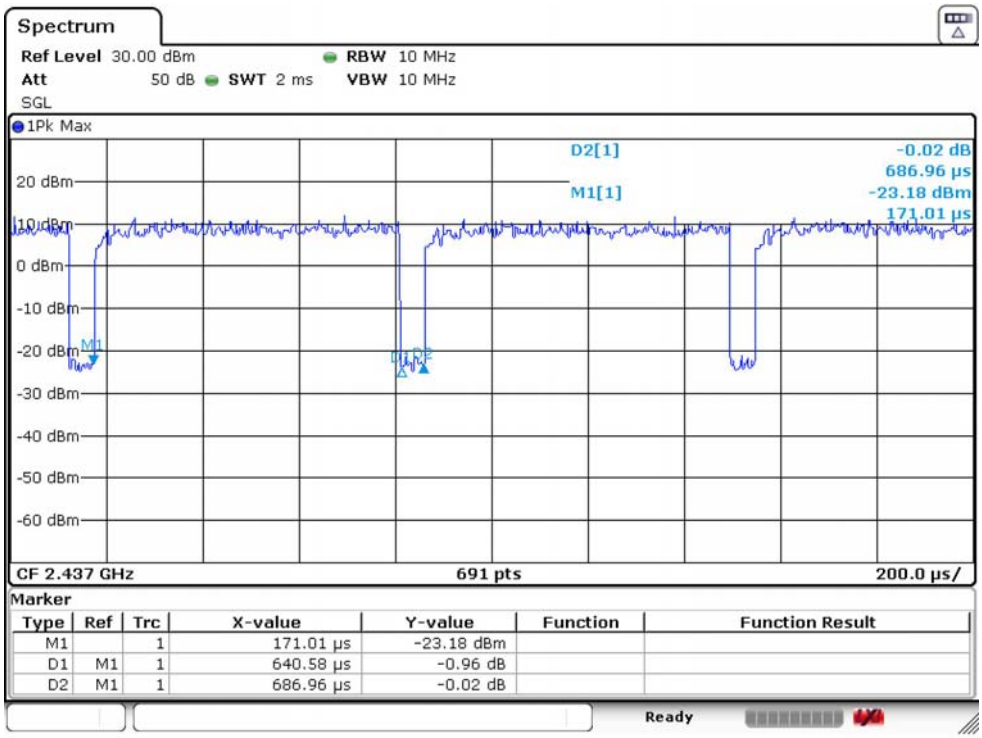
IEEE 802.11g 2437MHz



IEEE 802.11n HT20 2437MHz



IEEE 802.11n HT40 2437MHz



2.9. Channel List

IEEE 802.11b/802.11g/802.11n HT20					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
1	2412	6	2437	11	2462
2	2417	7	2442		
3	2422	8	2447		
4	2427	9	2452		
5	2432	10	2457		
IEEE 802.11n HT40					
Channel	Frequency (MHz)	Channel	Frequency (MHz)	Channel	Frequency (MHz)
3	2422	6	2437	9	2452
4	2427	7	2442		
5	2432	8	2447		

2.10. Test Equipment List

For conducted emission test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESHS30	EST-E001	LISAI	June 14,19	1 Year
Artificial Mains Network	Rohde & Schwarz	ENV216	EST-E002	LISAI	June 14,19	1 Year
Pulse Limiter	Rohde & Schwarz	ESH3-Z2	EST-E078	LISAI	June 14,19	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A

For radiated emission test(9kHz-30MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 14,19	1 Year
Active Loop Antenna	SCHWAREB ECK	FMZB 1519B	EST-E054	LISAI	June 14,19	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
9kHz-30MHz Cable	N/A	EST-001	N/A	N/A	N/A	N/A

For radiated emissions test (30MHz-1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
EMI Test Receiver	Rohde & Schwarz	ESR7	EST-E047	LISAI	June 14,19	1 Year
Bilog Antenna	Teseq	CBL 6111D	EST-E034	LISAI	June 14,19	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
30-1000MHz Cable	N/A	EST-002	N/A	N/A	N/A	N/A

For radiated emission test(Above 1000MHz)						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Horn Antenna	SCHWARZB ECK	BBHA9120D	EST-E031	LISAI	June 14,19	1 Year
Signal Amplifier	SCHWARZB ECK	BBV9718	EST-E032	LISAI	June 14,19	1 Year
Spectrum Analyzer	Rohde &Schwarz	FSV40	EST-E069	LISAI	June 14,19	1 Year
Test Software	Audix	e3-6.111221a	N/A	N/A	N/A	N/A
Above 1GHz Cable	N/A	EST-003	N/A	N/A	N/A	N/A

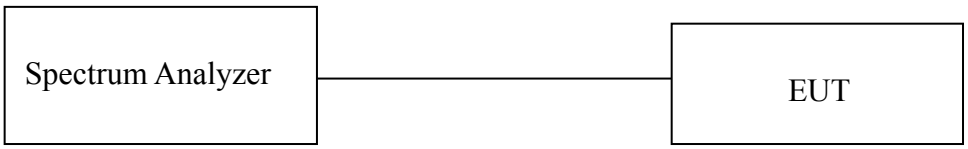
For connect EUT antenna terminal test						
Equipment	Manufacturer	Model No.	Serial No.	Calibration Body	Last Cal.	Next Cal.
Spectrum Analyzer	Rohde &Schwarz	FSV40	EST-E069	LISAI	June 14,19	1 Year

3. 6dB Bandwidth

3.1. Limit

Systems using digital modulation techniques operate in the 2400-2483.5 MHz,the minimum 6 dB bandwidth shall be at least 500 kHz.

3.2. Test Setup



3.3. Spectrum Analyzer Setting

6dB Bandwidth

Spectrum Parameters	Setting
RBW	100KHz
VBW	300KHz
Span	40MHz(20MHz Bandwidth mode)/80MHz(40MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

99% Occupied Bandwidth

Spectrum Parameters	Setting
RBW	300KHz(20MHz Bandwidth mode)/1MHz(40MHz Bandwidth mode)
VBW	1MHz(20MHz Bandwidth mode)/3MHz(40MHz Bandwidth mode)
Span	40MHz(20MHz Bandwidth mode)/80MHz(40MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

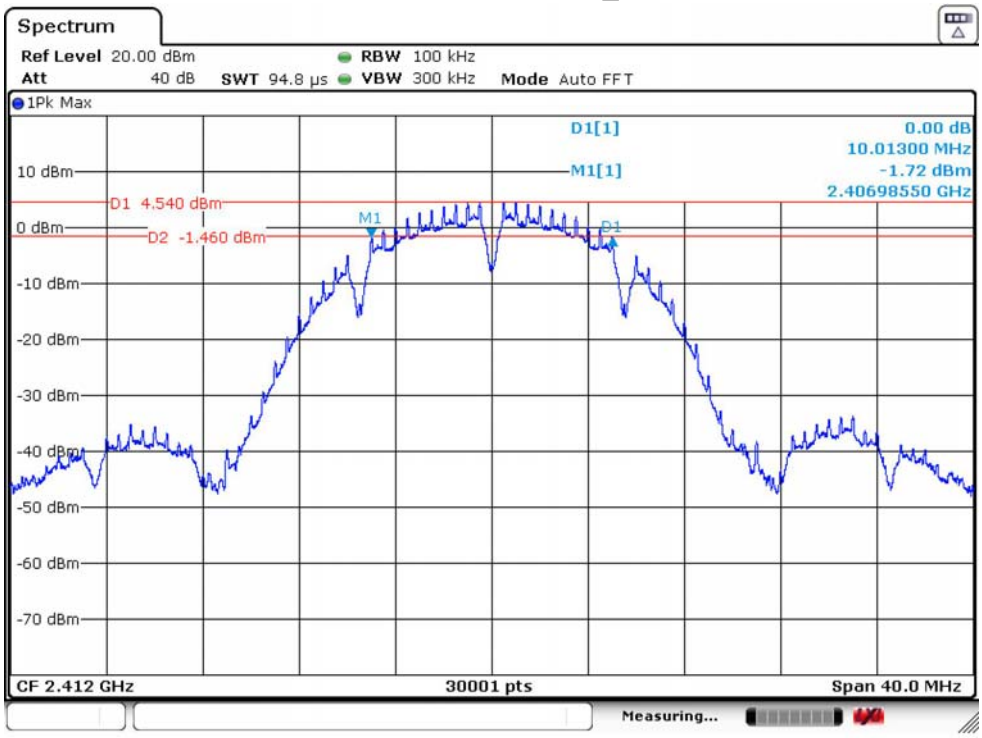
3.4. Test Procedure

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 3.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

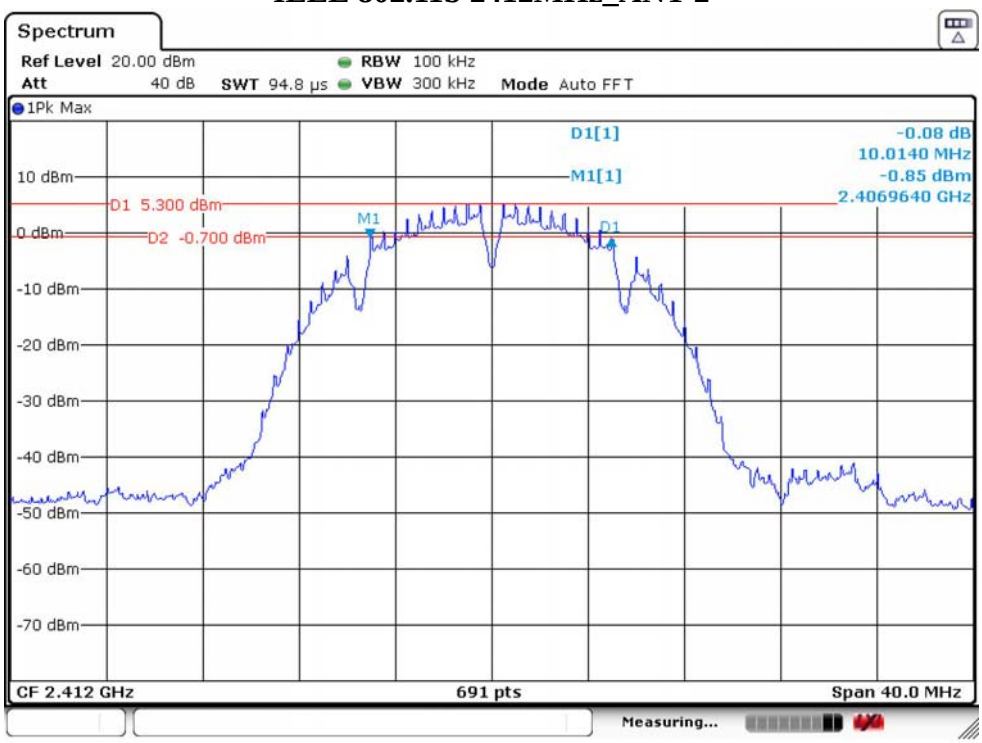
3.5. Test Result

Temperature	24.8℃	Relative Humidity	55%	Test Voltage	120V/60Hz
Mode	Freq (MHz)	6dB Bandwidth (MHz)		Limit (MHz)	Result
		ANT 1	ANT 2		
IEEE 802.11b	2412	10.01	10.01	⩾0.5	PASS
	2437	10.01	10.07	⩾0.5	PASS
	2462	10.02	10.07	⩾0.5	PASS
IEEE 802.11g	2412	16.32	16.31	⩾0.5	PASS
	2437	16.32	16.31	⩾0.5	PASS
	2462	16.32	16.31	⩾0.5	PASS
IEEE 802.11n HT20	2412	17.15	16.91	⩾0.5	PASS
	2437	16.93	16.91	⩾0.5	PASS
	2462	16.93	16.90	⩾0.5	PASS
IEEE 802.11n HT40	2422	36.03	36.03	⩾0.5	PASS
	2437	36.04	36.02	⩾0.5	PASS
	2452	36.05	36.03	⩾0.5	PASS

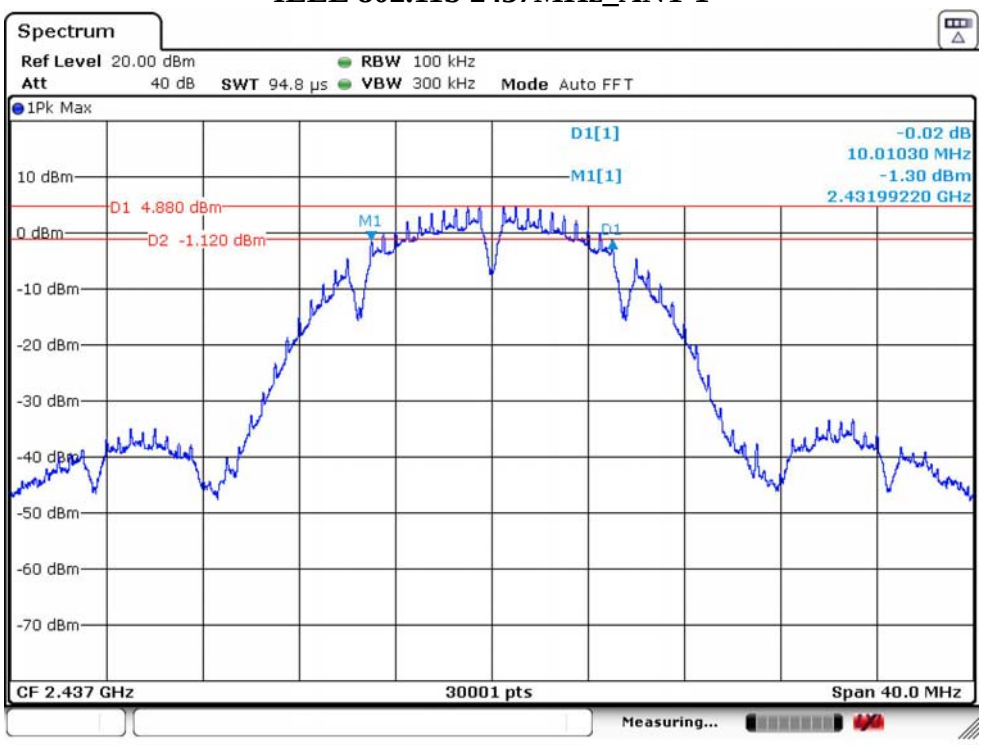
IEEE 802.11b 2412MHz_ANT 1



IEEE 802.11b 2412MHz_ANT 2



IEEE 802.11b 2437MHz_ANT 1



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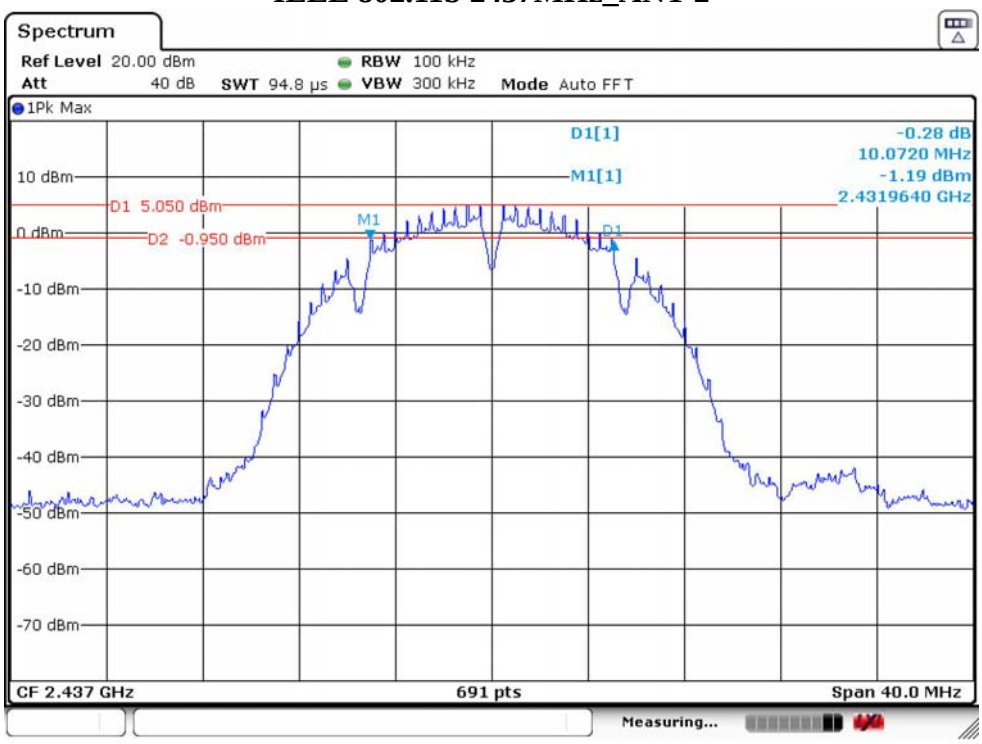

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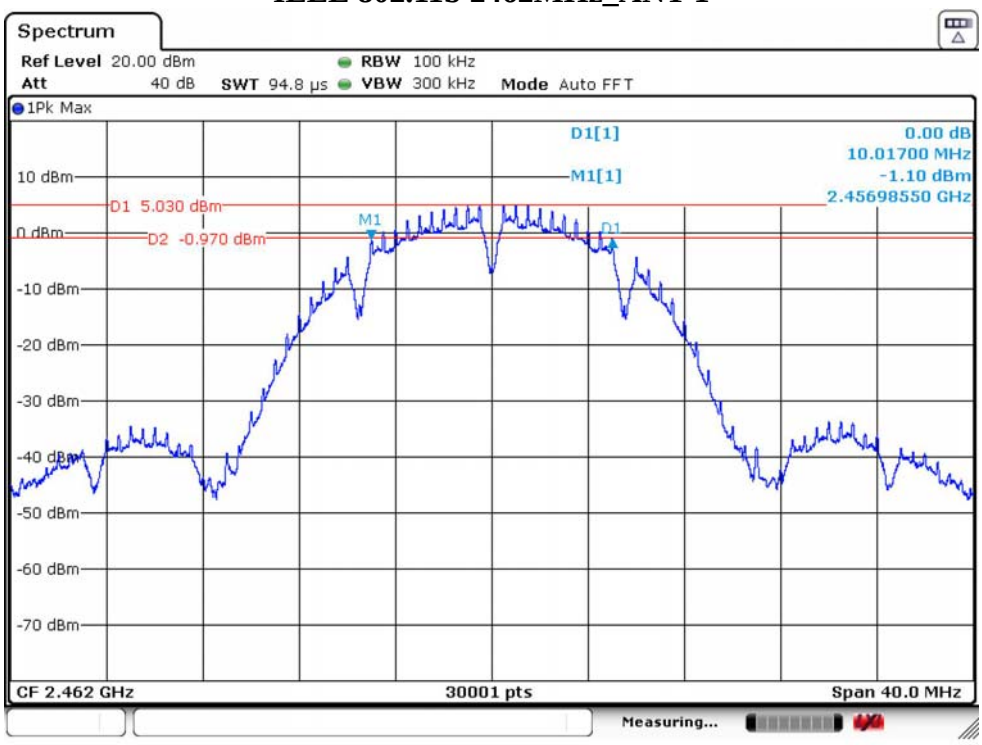
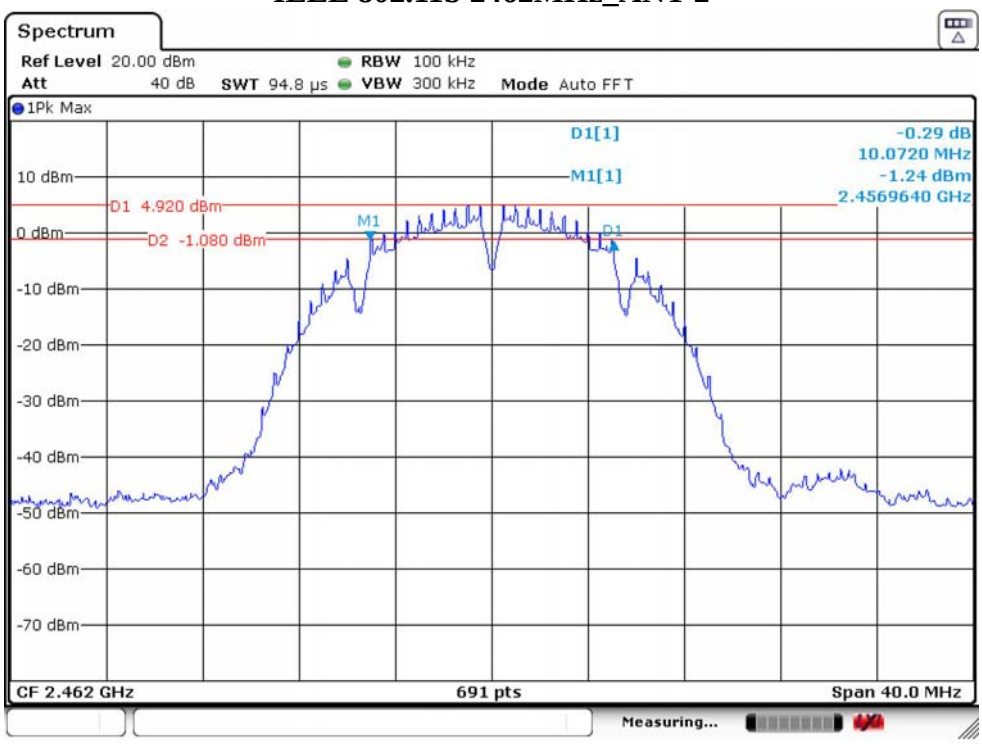
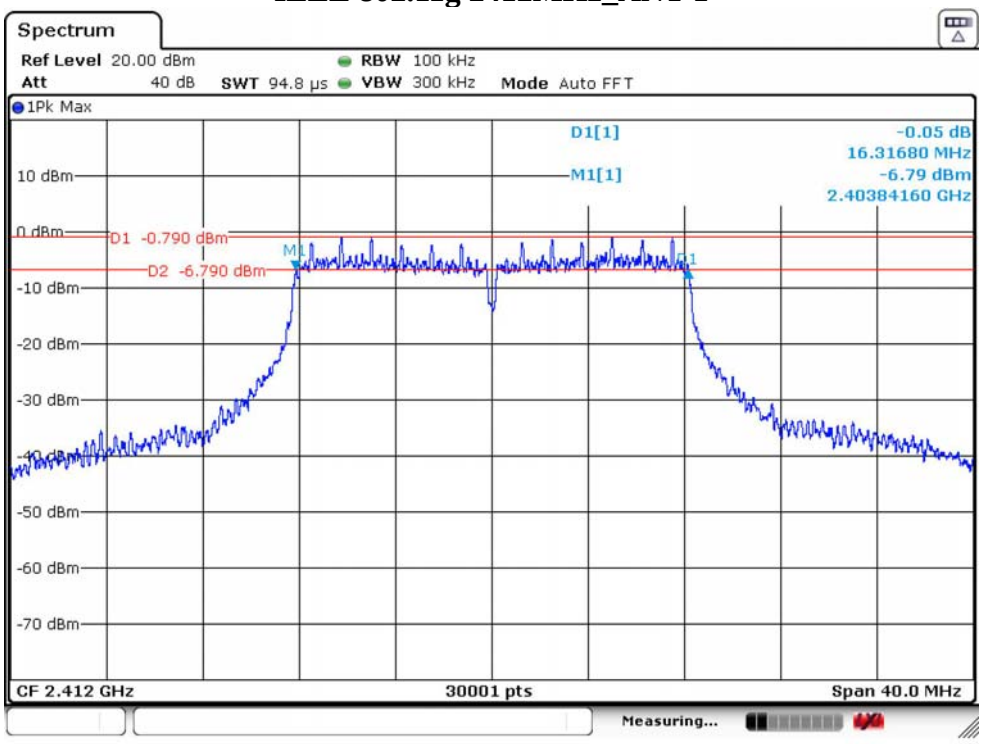


IEEE 802.11b 2462MHz_ANT 2



IEEE 802.11g 2412MHz_ANT 1



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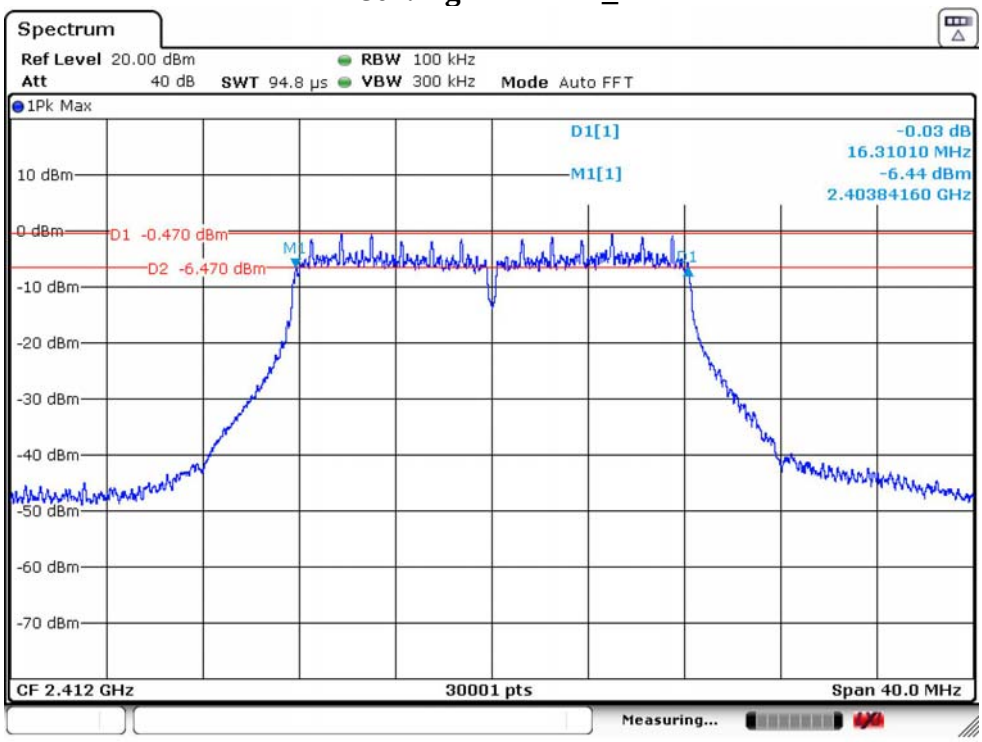
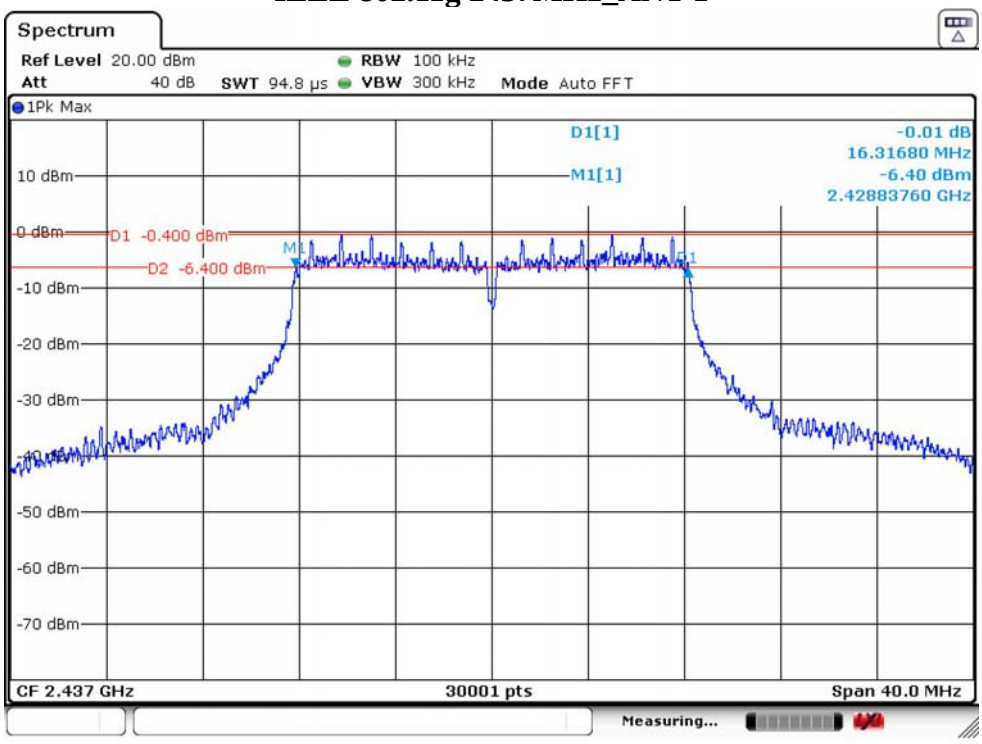
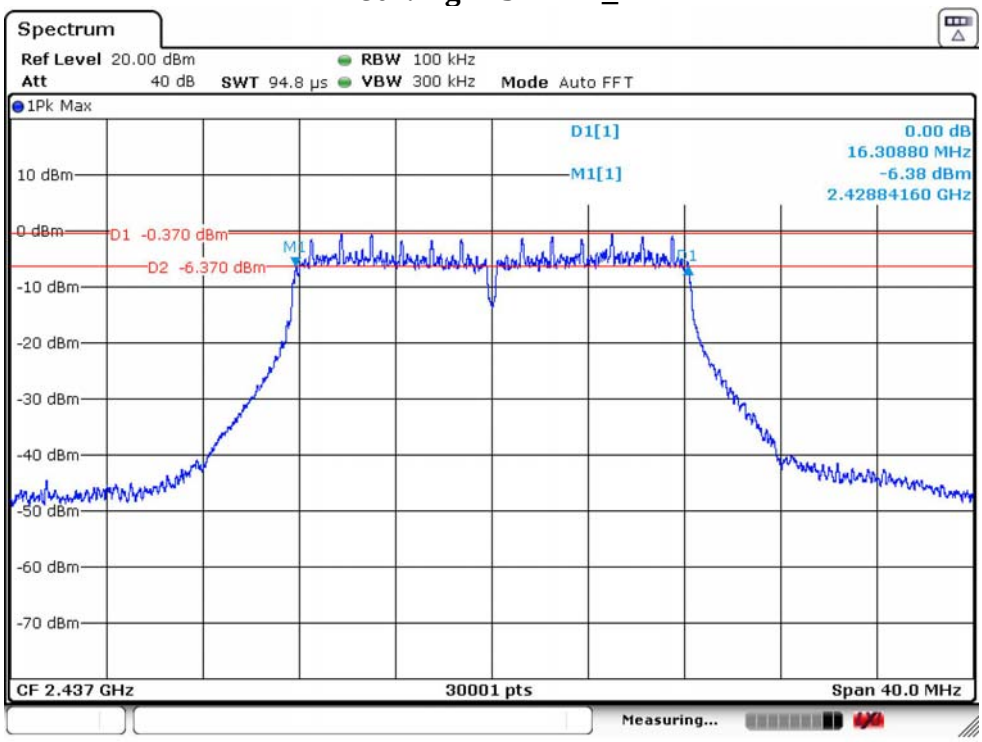


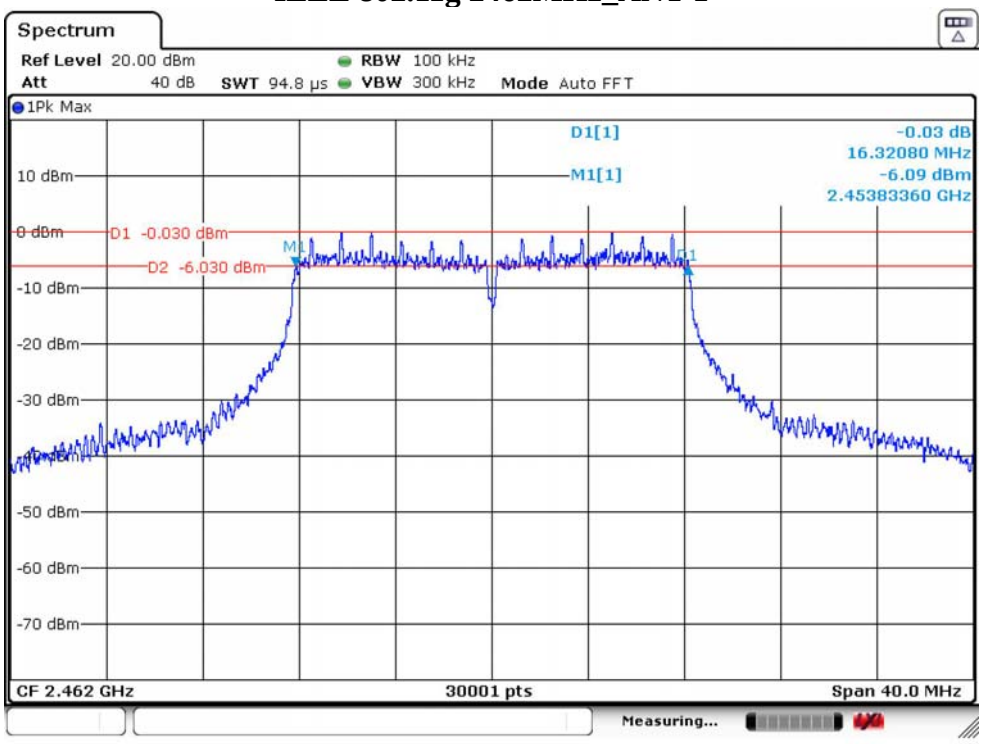
IEEE 802.11g 2437MHz_ANT 1



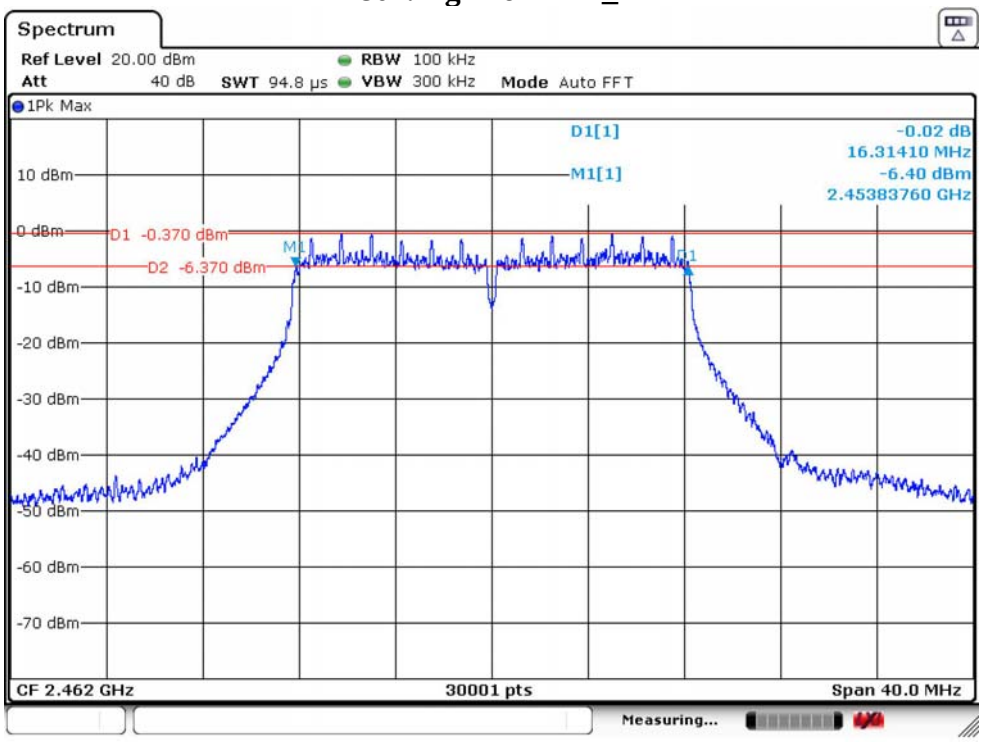
IEEE 802.11g 2437MHz_ANT 2



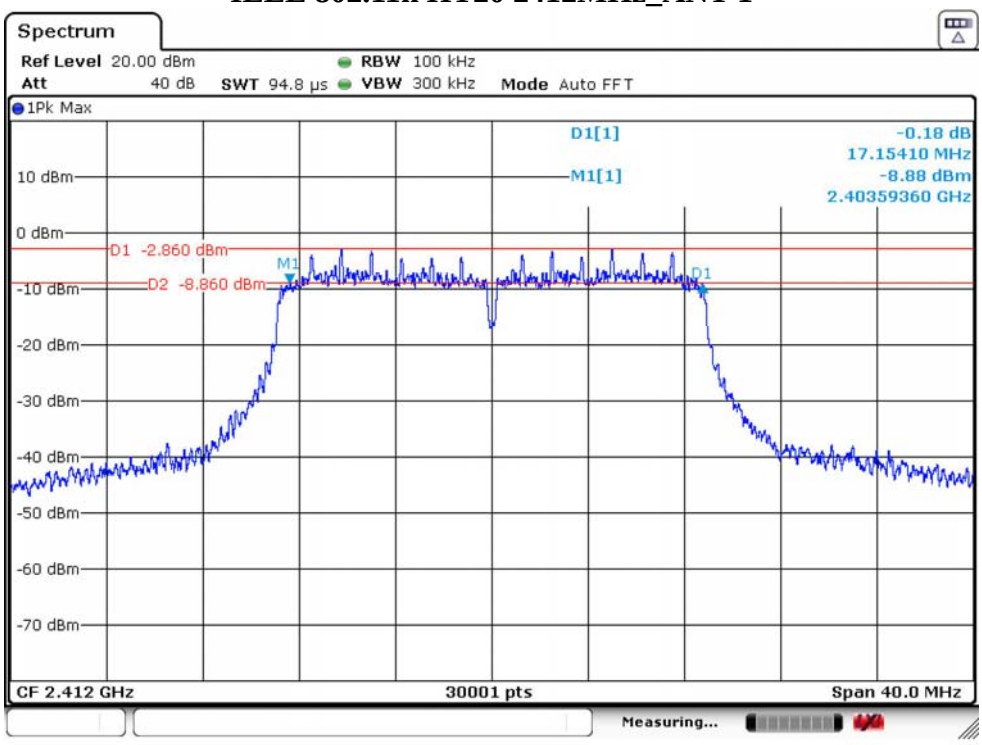
IEEE 802.11g 2462MHz_ANT 1



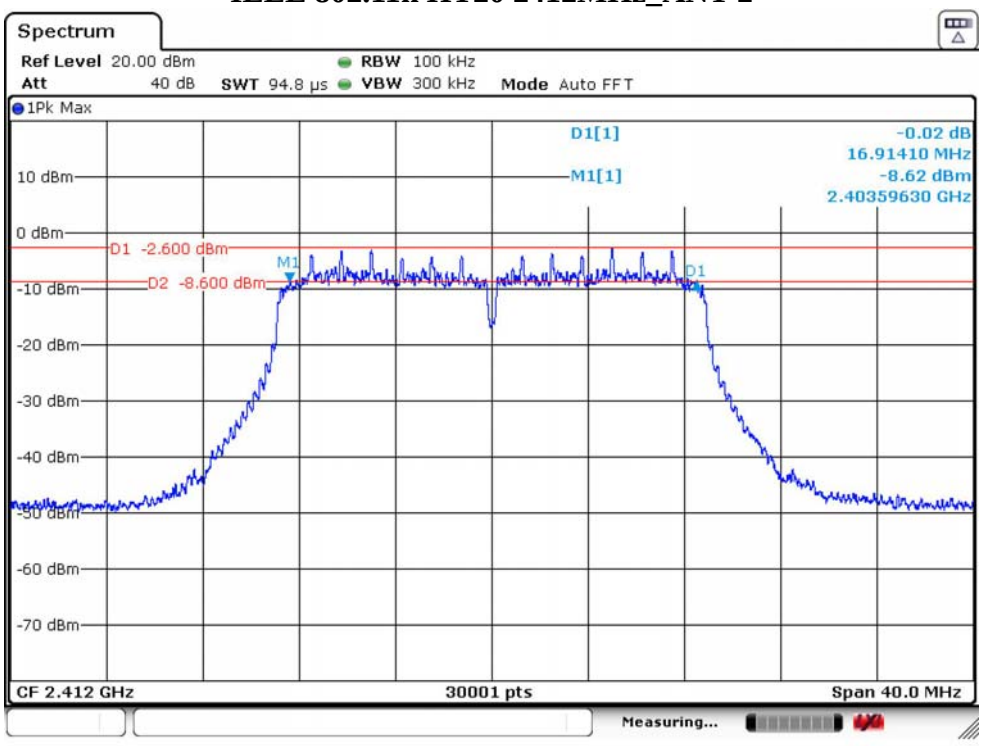
IEEE 802.11g 2462MHz_ANT 2



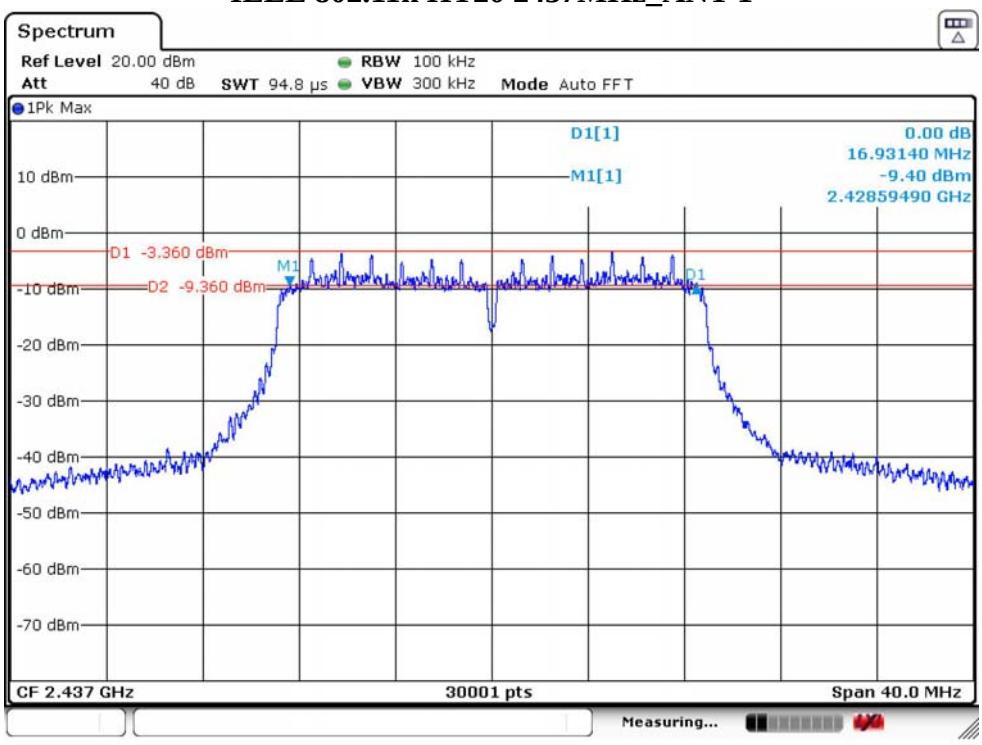
IEEE 802.11n HT20 2412MHz_ANT 1



IEEE 802.11n HT20 2412MHz_ANT 2



IEEE 802.11n HT20 2437MHz_ANT 1



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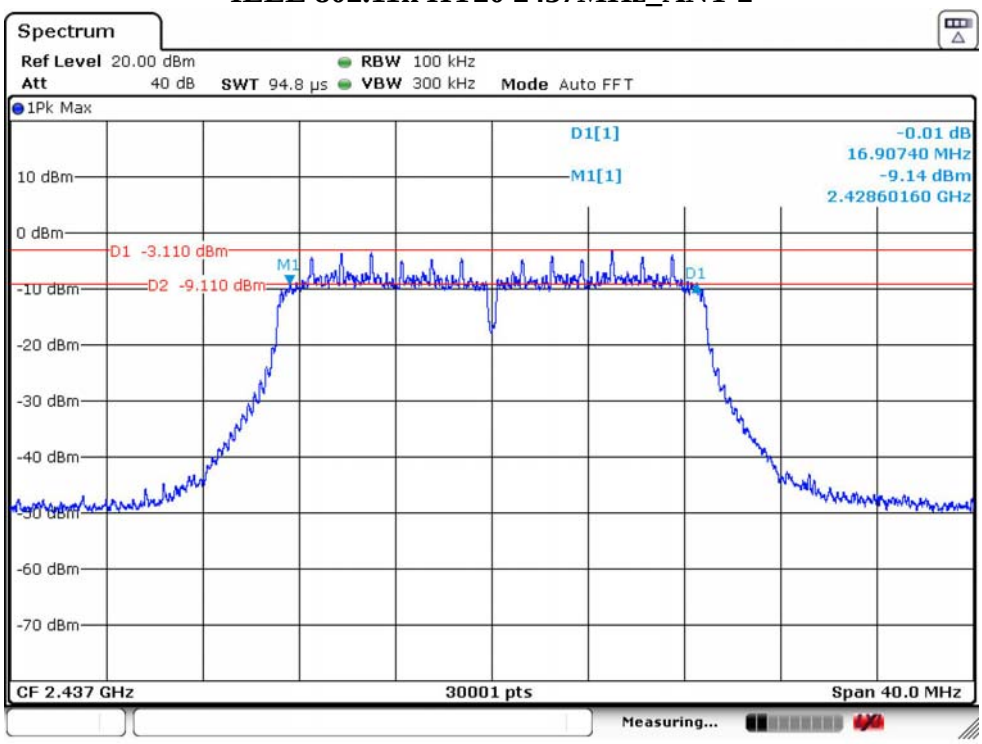
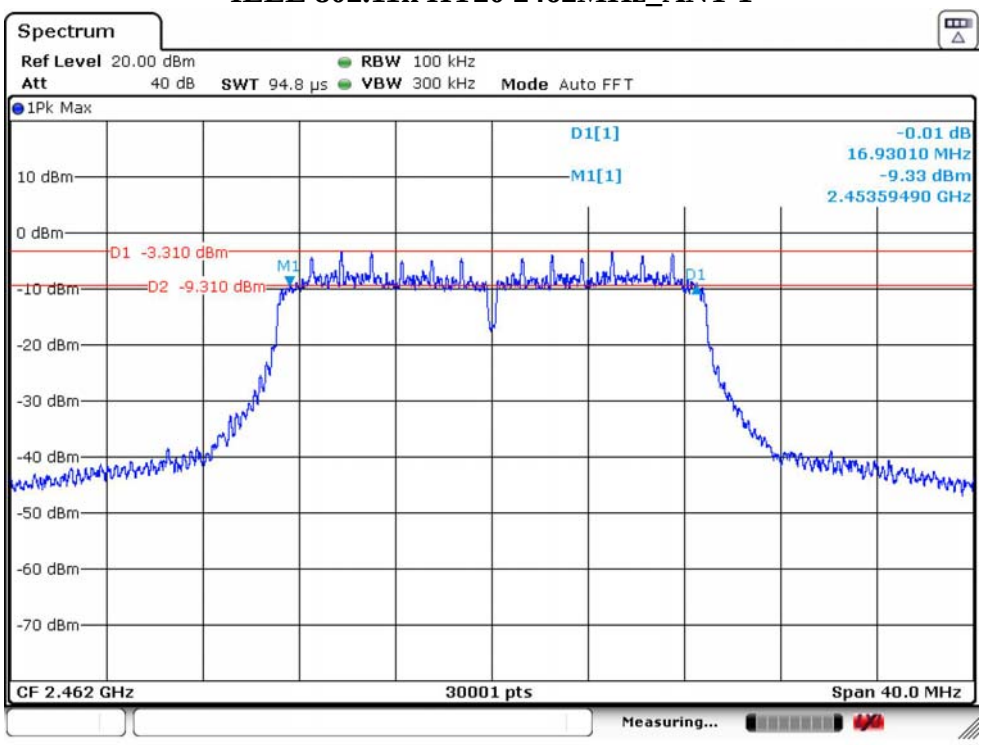
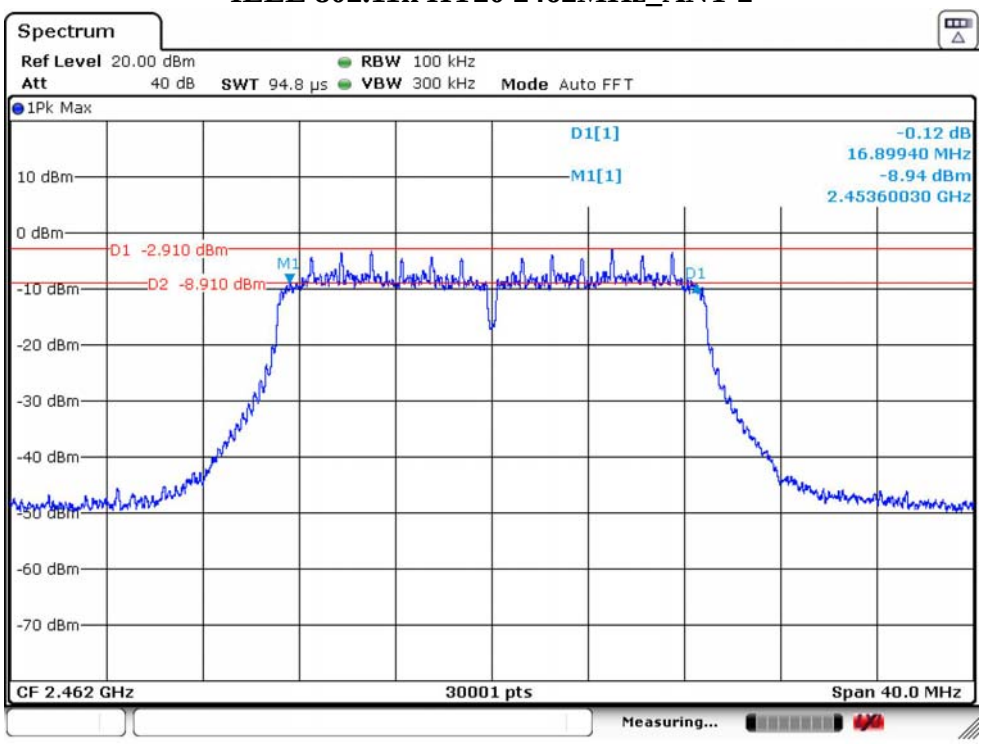


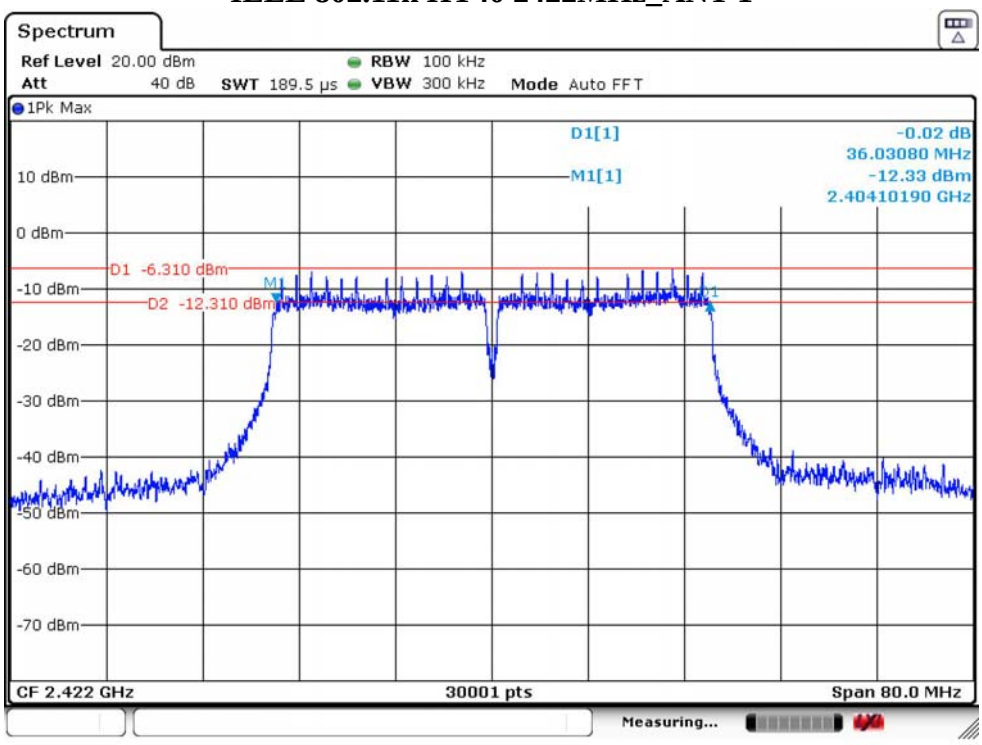
IEEE 802.11n HT20 2462MHz_ANT 1



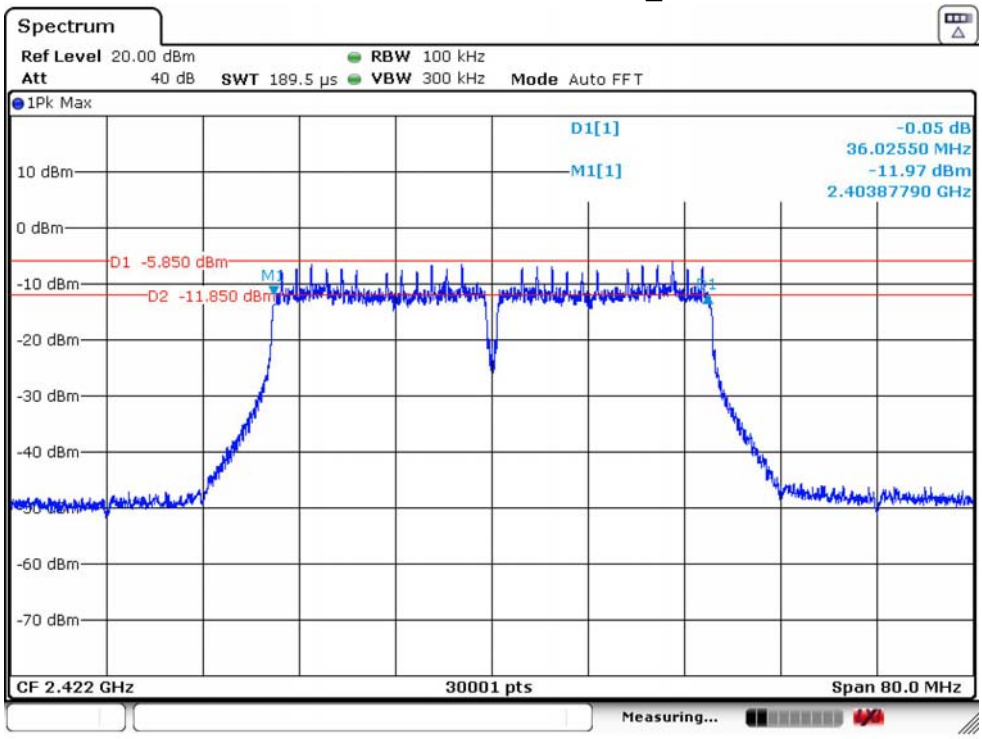
IEEE 802.11n HT20 2462MHz_ANT 2



IEEE 802.11n HT40 2422MHz_ANT 1



IEEE 802.11n HT40 2422MHz_ANT 2



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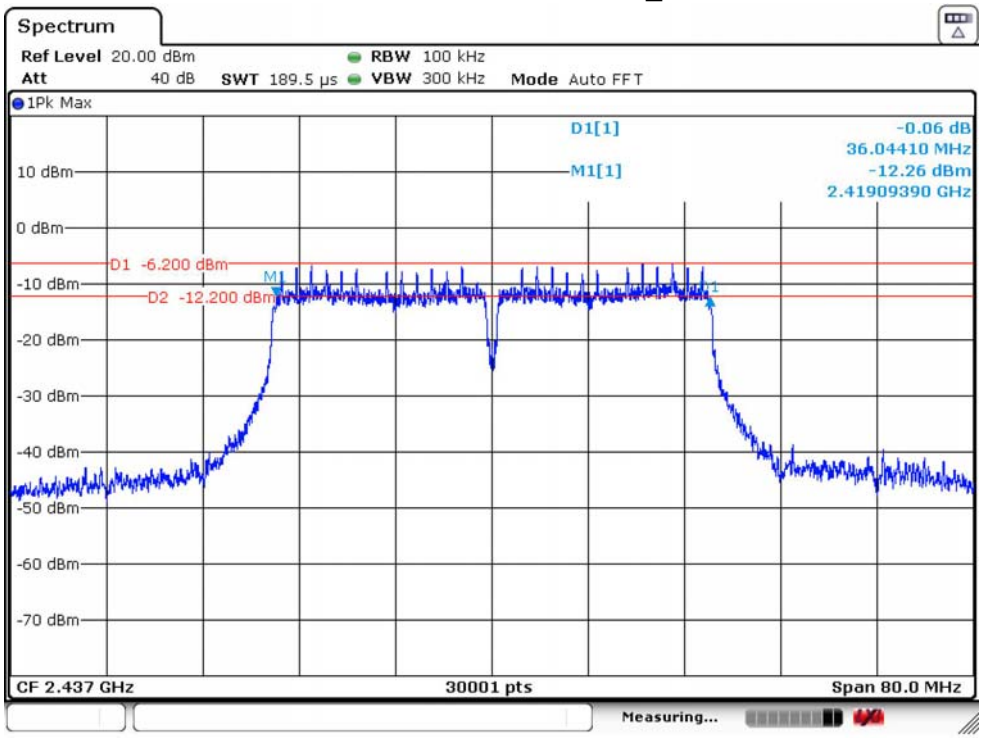
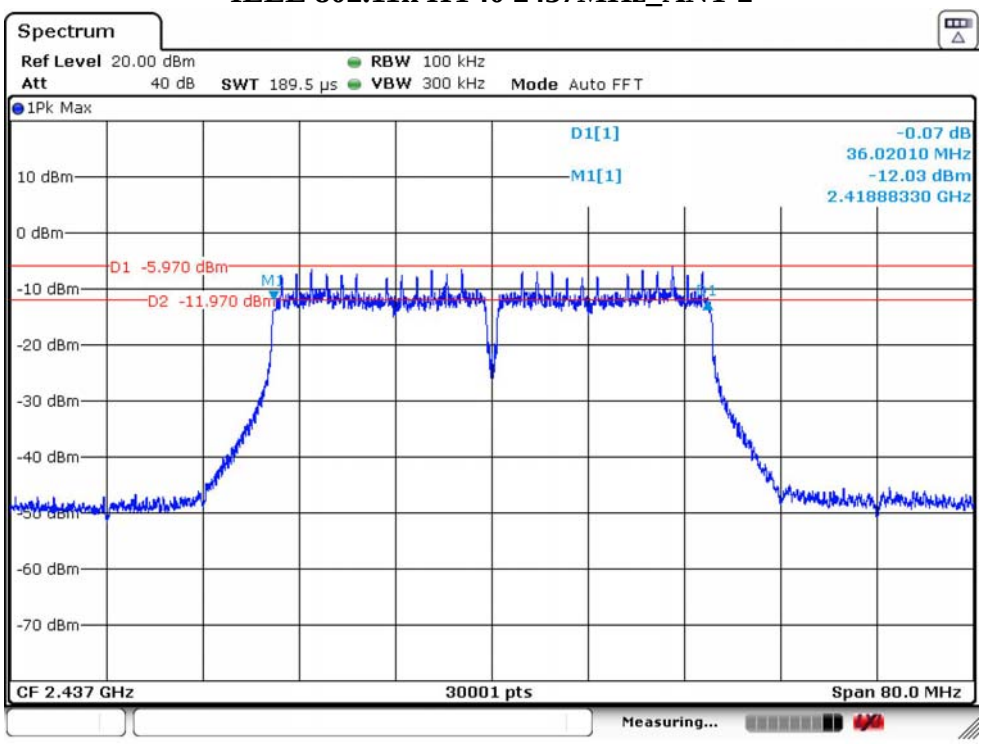
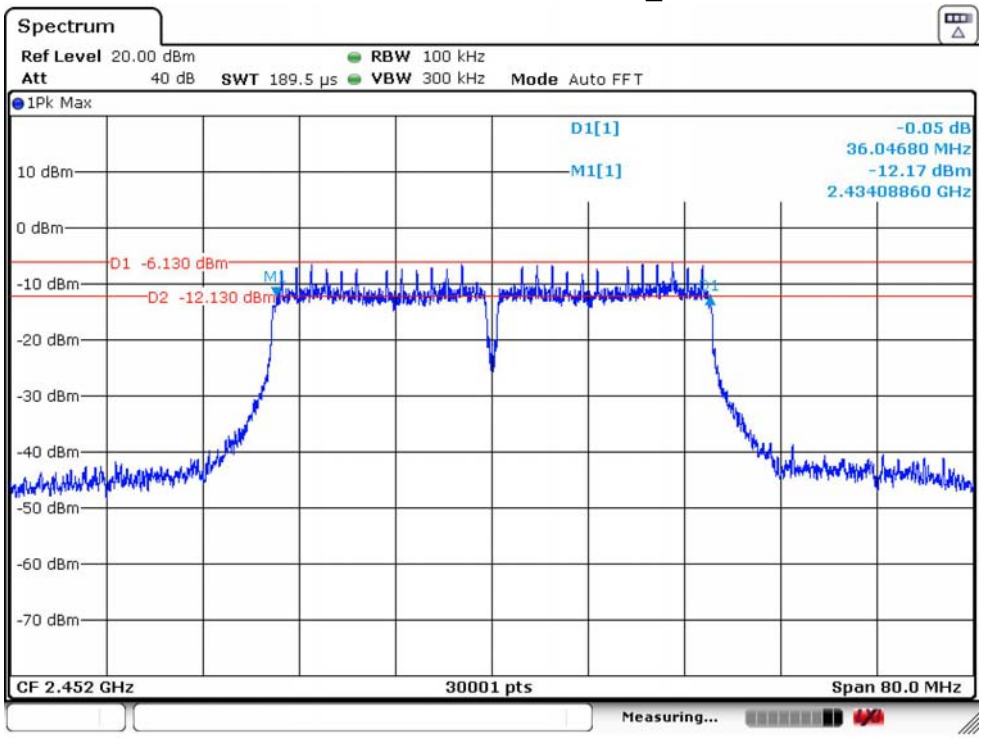


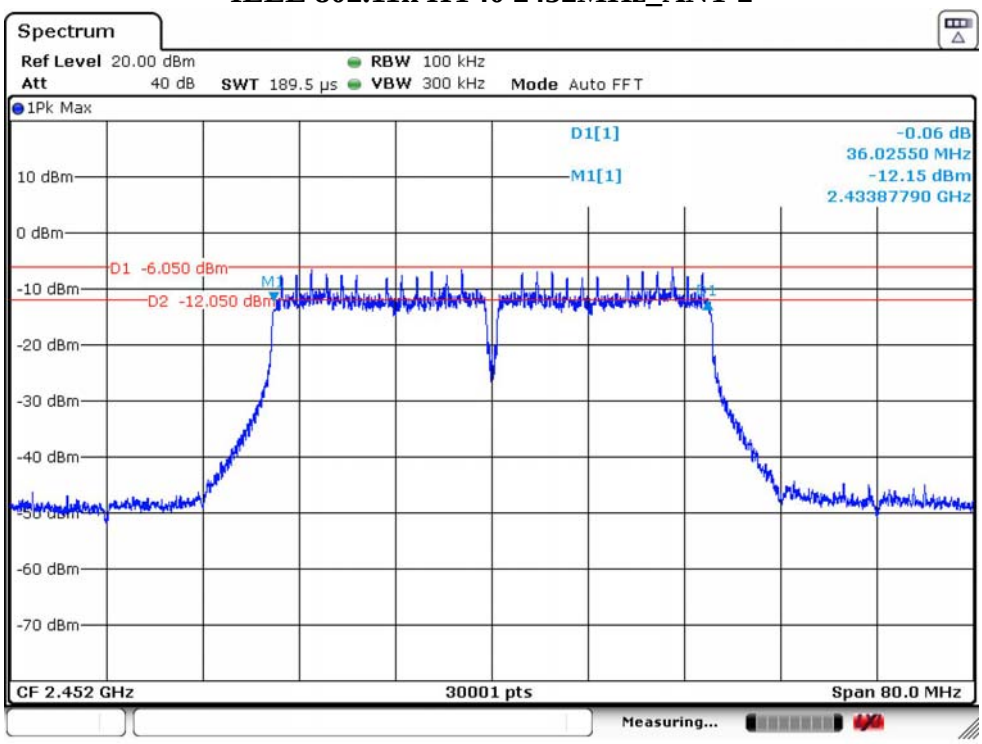
IEEE 802.11n HT40 2437MHz_ANT 2



IEEE 802.11n HT40 2452MHz_ANT 1



IEEE 802.11n HT40 2452MHz_ANT 2

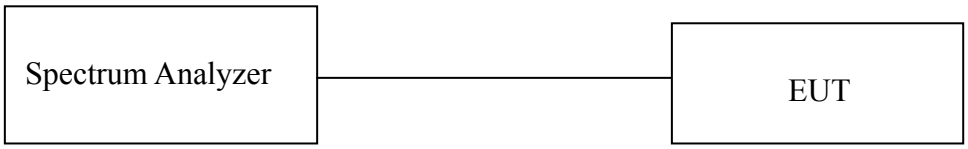


4. MAXIMUM PEAK OUTPUT POWER

4.1. Limit

For systems using digital modulation in 2400-2483.5MHz,the maximum peak output power is 1 Watt(30dBm).

4.2. Test Setup



4.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	1MHz
VBW	3MHz
Span	40MHz(20MHz Bandwidth mode)/80MHz(40MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

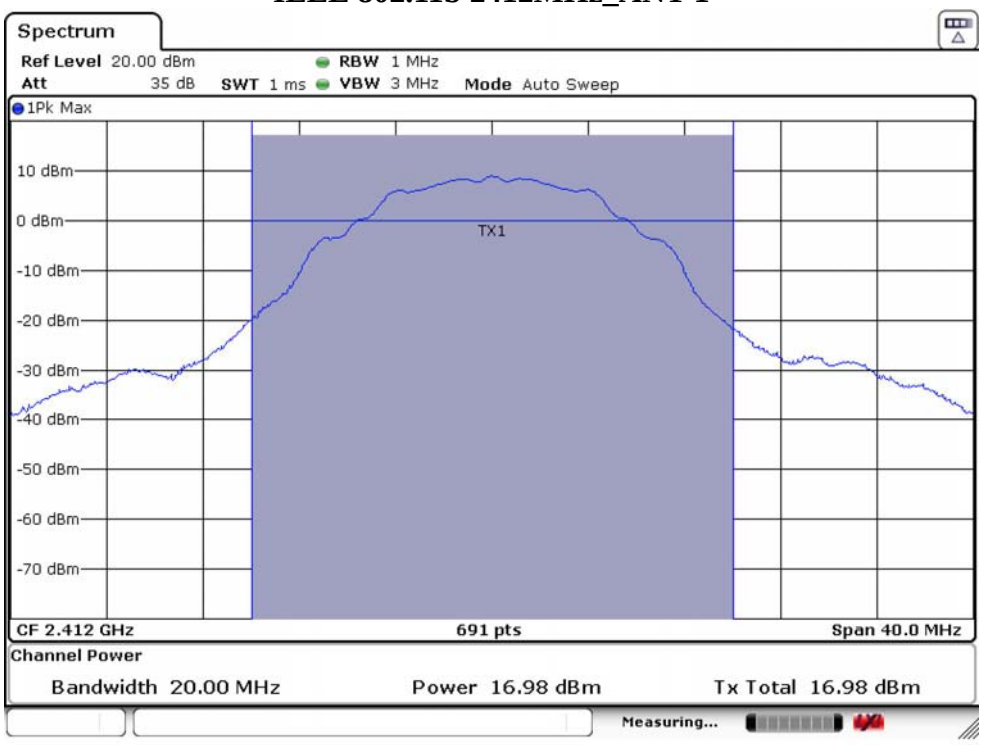
4.4. Test Procedure

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 4.3.
c. Set the EUT transmit continuously with maximum output power.
d. Use the channel power function to measure maximum peak output power, allow trace to stabilize, save test pictures.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

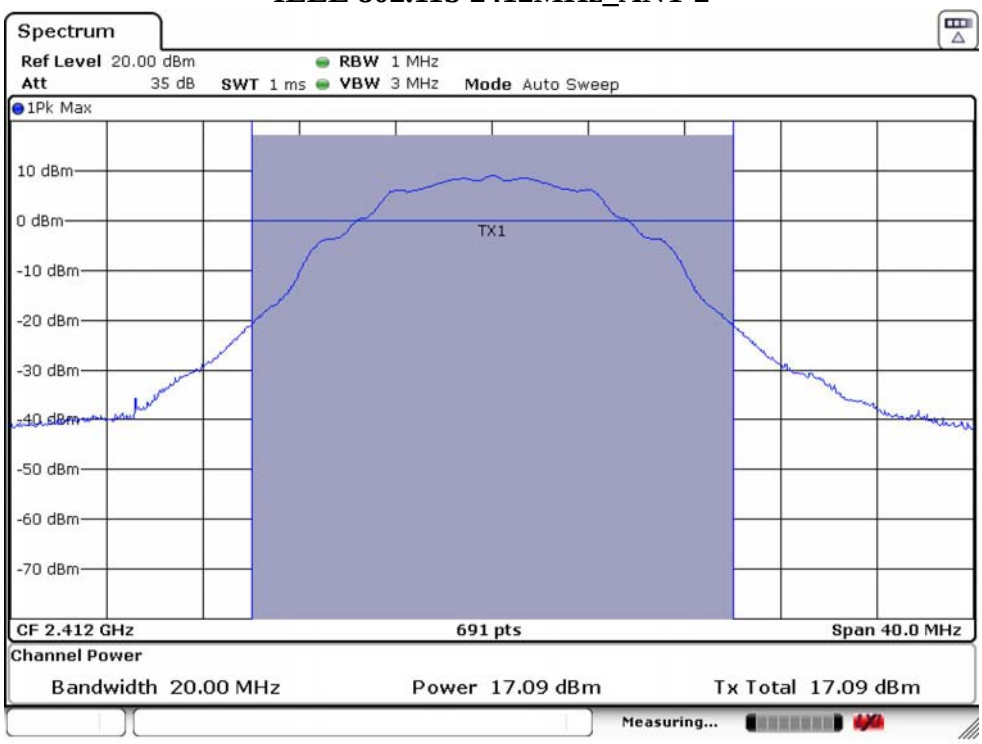
4.5. Test Result

Temperature	24.8℃	Relative Humidity		55%				Test Voltage		120V/60Hz
Mode	Freq (MHz)	Peak Output Power (dBm)		Total Peak Output Power (W)		Total Peak Output Power (dBm)		Limit		Result
		ANT 1	ANT 2	ANT 1	ANT 2	ANT 1	ANT 2	W	dBm	
IEEE 802.11b	2412	16.98	17.09	0.0499	0.0512	16.98	17.09	1.0000	30.00	PASS
	2437	17.32	17.04	0.0540	0.0506	17.32	17.04	1.0000	30.00	PASS
	2462	17.42	16.91	0.0552	0.0491	17.42	16.91	1.0000	30.00	PASS
IEEE 802.11g	2412	18.62	18.81	0.0728	0.0760	18.62	18.81	1.0000	30.00	PASS
	2437	18.87	18.8	0.0771	0.0759	18.87	18.8	1.0000	30.00	PASS
	2462	19.15	18.72	0.0822	0.0745	19.15	18.72	1.0000	30.00	PASS
IEEE 802.11n HT20	2412	16.13	16.23	0.0830		19.19		1.0000	30.00	PASS
	2437	16.24	16.67	0.0885		19.47		1.0000	30.00	PASS
	2462	16.38	16.64	0.0896		19.52		1.0000	30.00	PASS
IEEE 802.11n HT40	2422	15.84	16.13	0.0794		19.00		1.0000	30.00	PASS
	2437	16.28	16.38	0.0859		19.34		1.0000	30.00	PASS
	2452	16.41	16.03	0.0838		19.23		1.0000	30.00	PASS

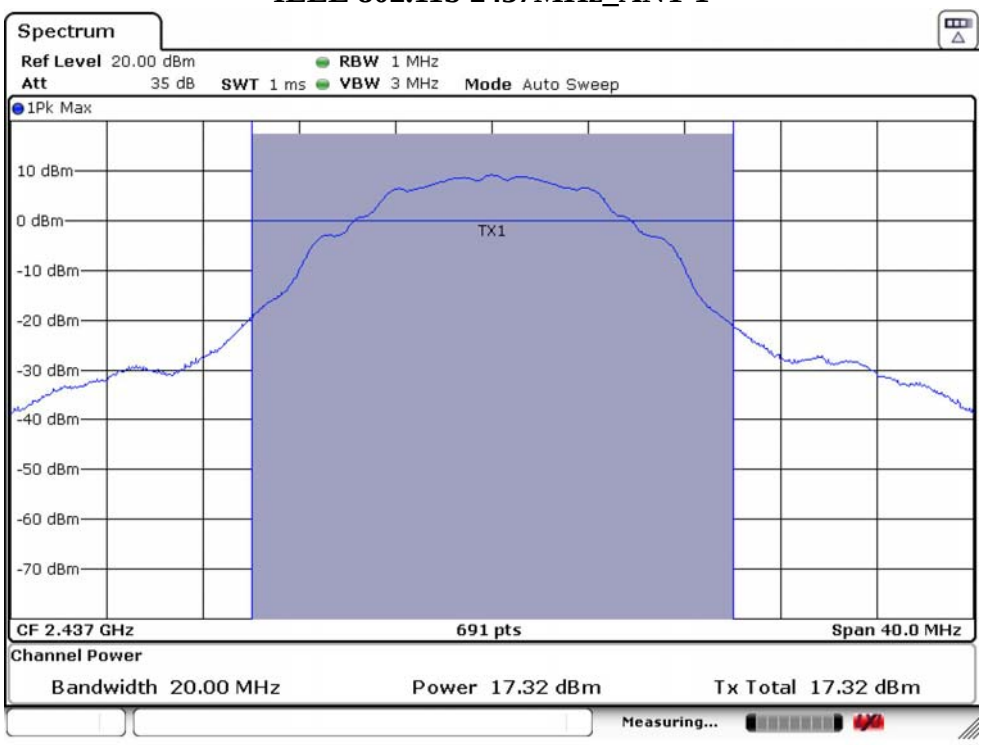
IEEE 802.11b 2412MHz_ANT 1



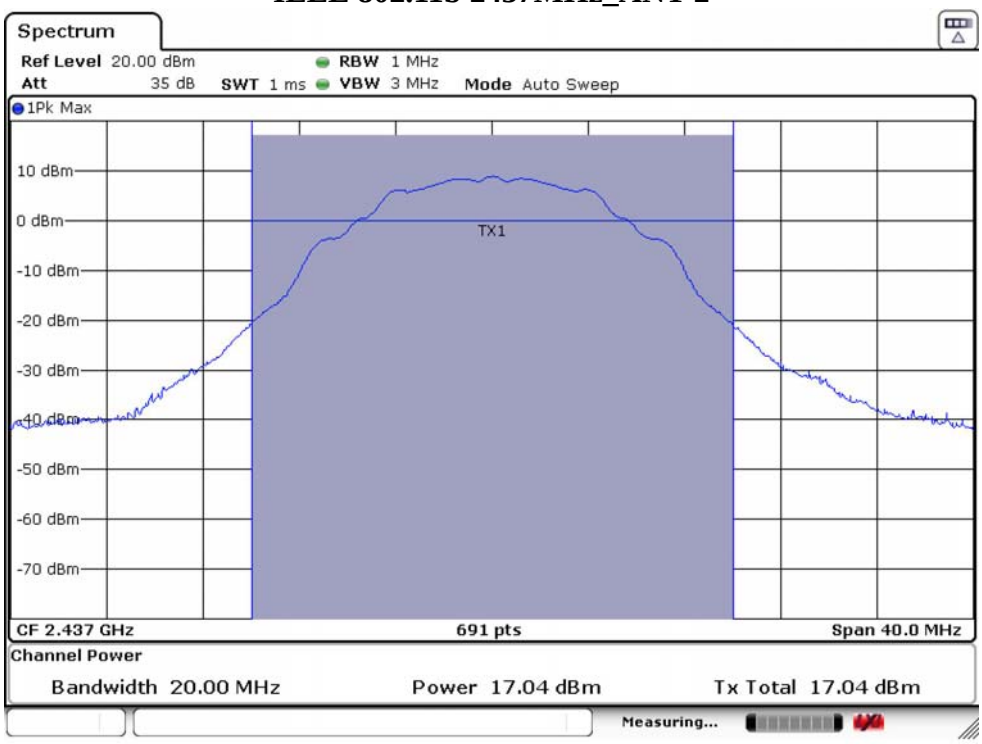
IEEE 802.11b 2412MHz_ANT 2



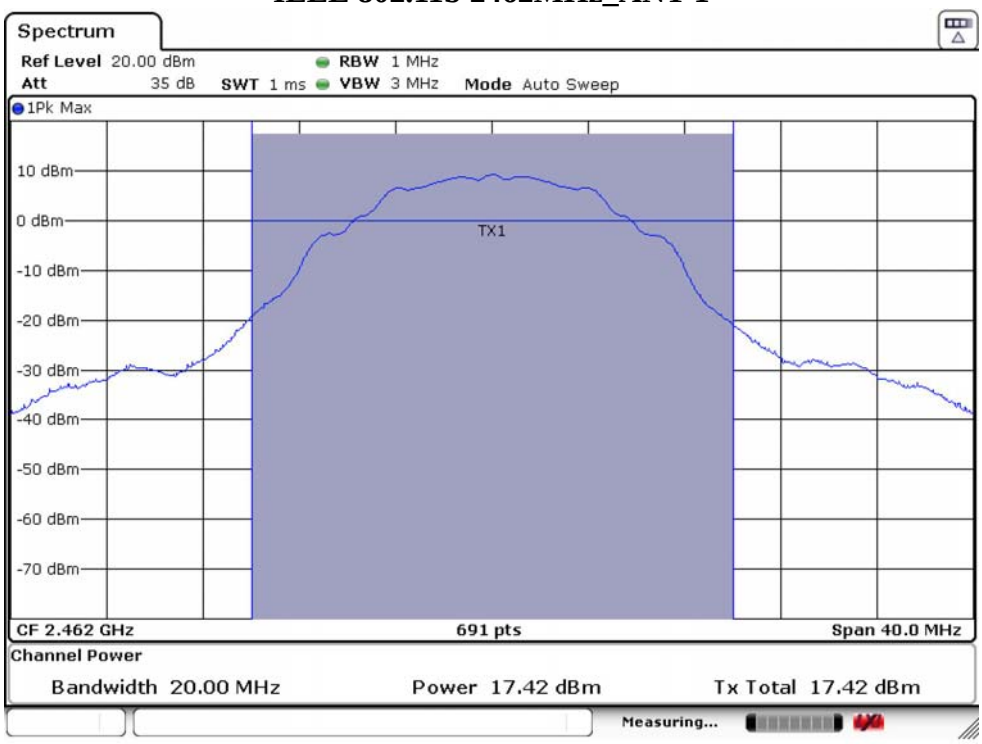
IEEE 802.11b 2437MHz_ANT 1



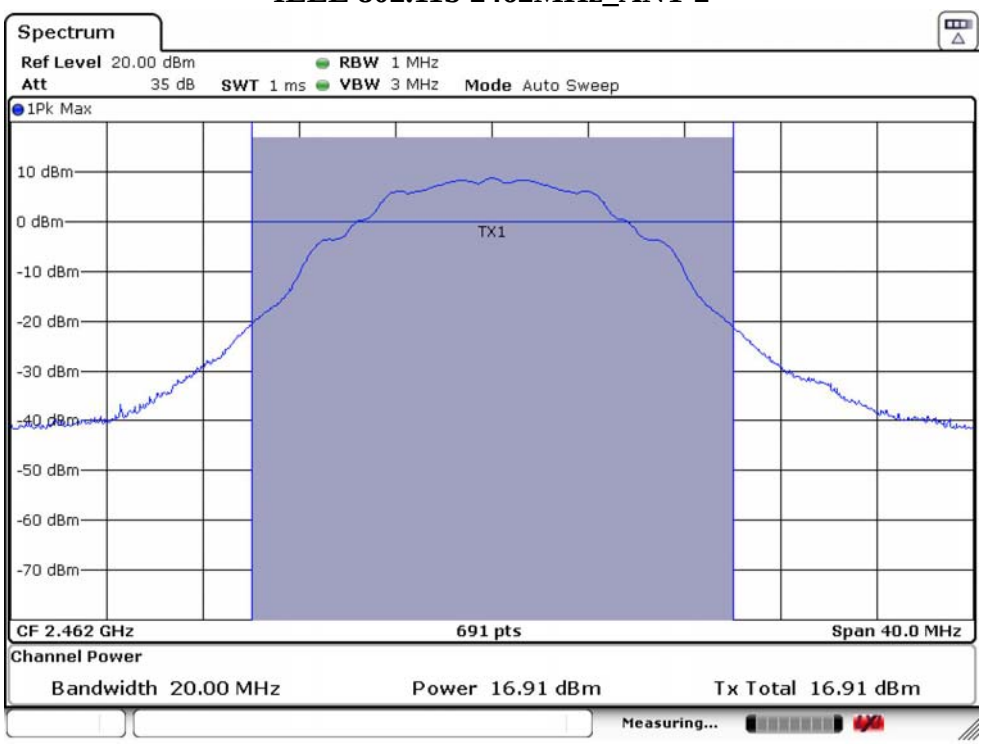
IEEE 802.11b 2437MHz_ANT 2



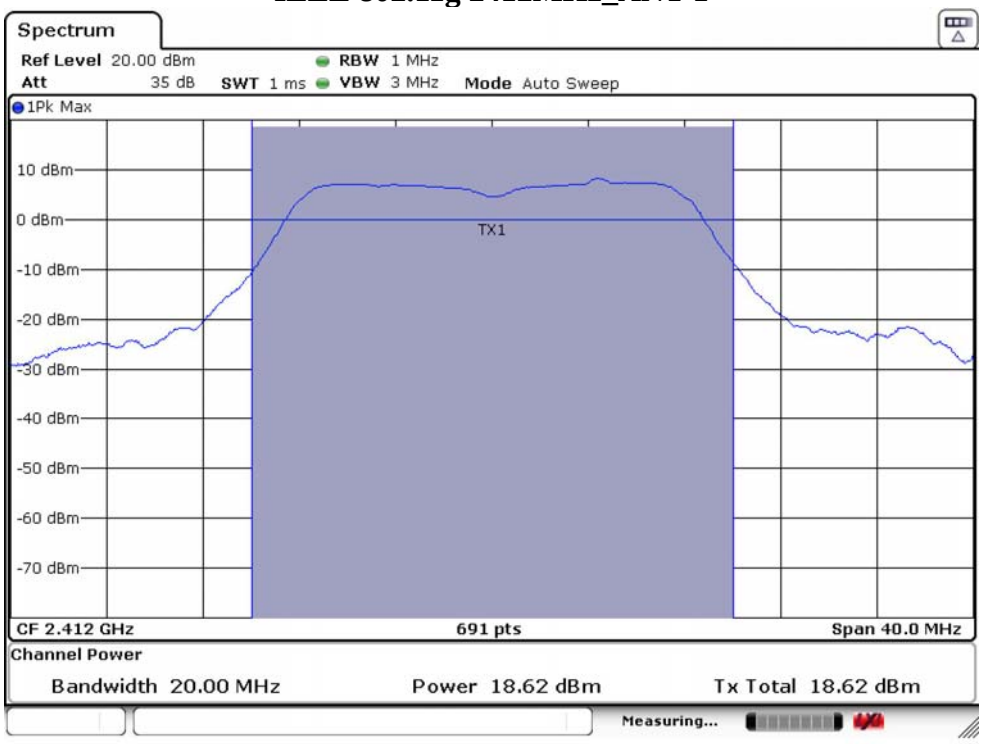
IEEE 802.11b 2462MHz_ANT 1



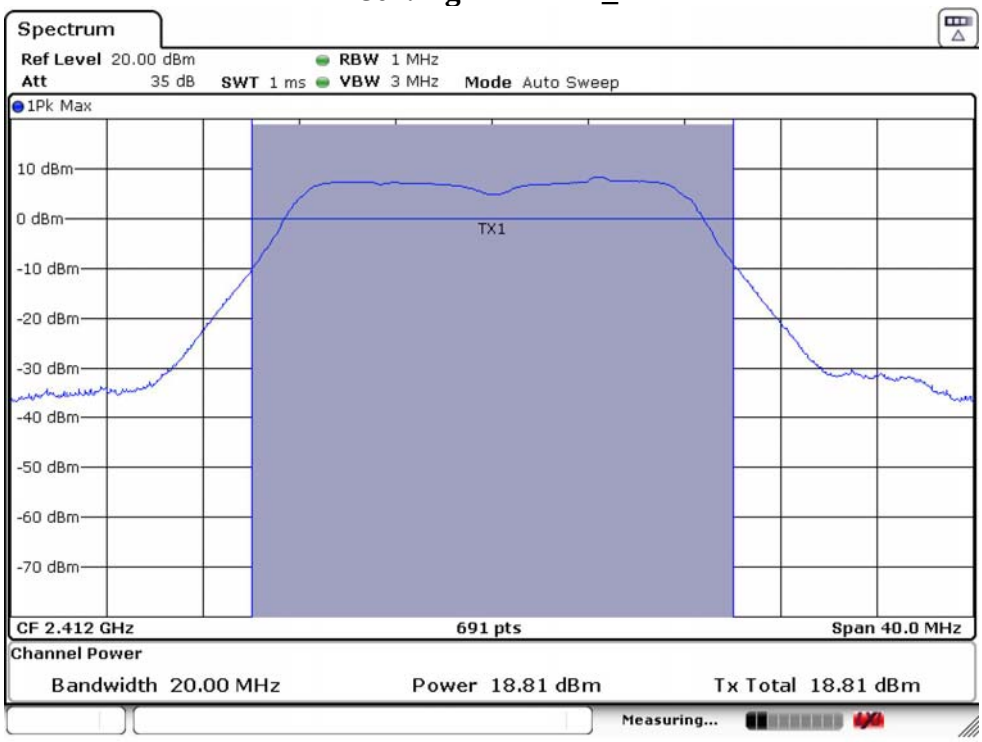
IEEE 802.11b 2462MHz_ANT 2



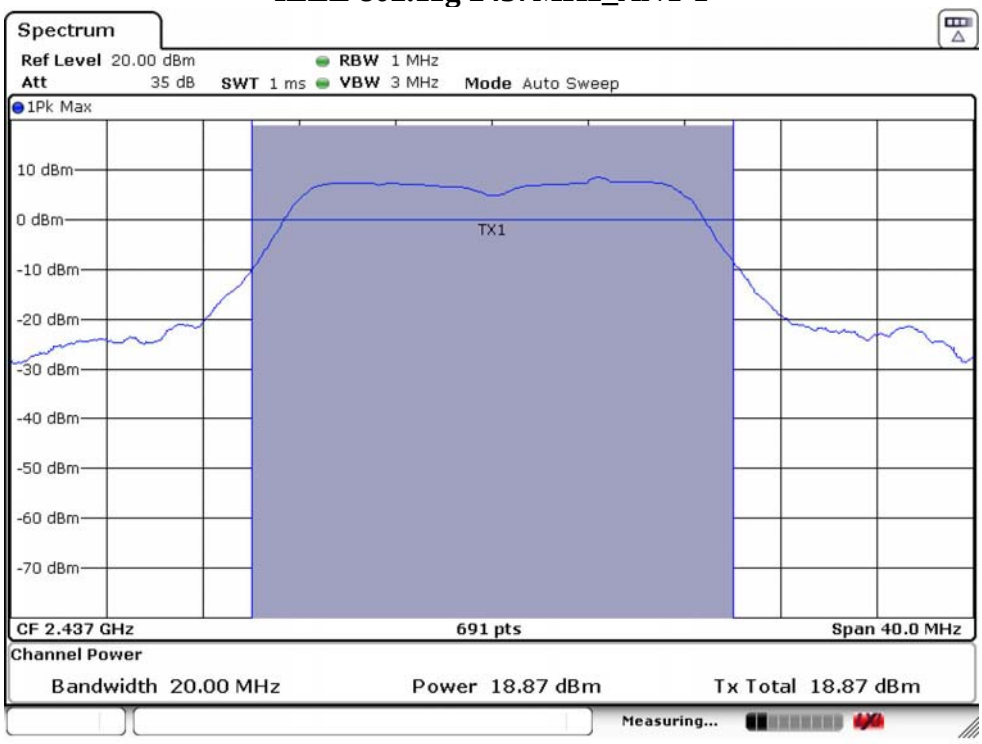
IEEE 802.11g 2412MHz_ANT 1



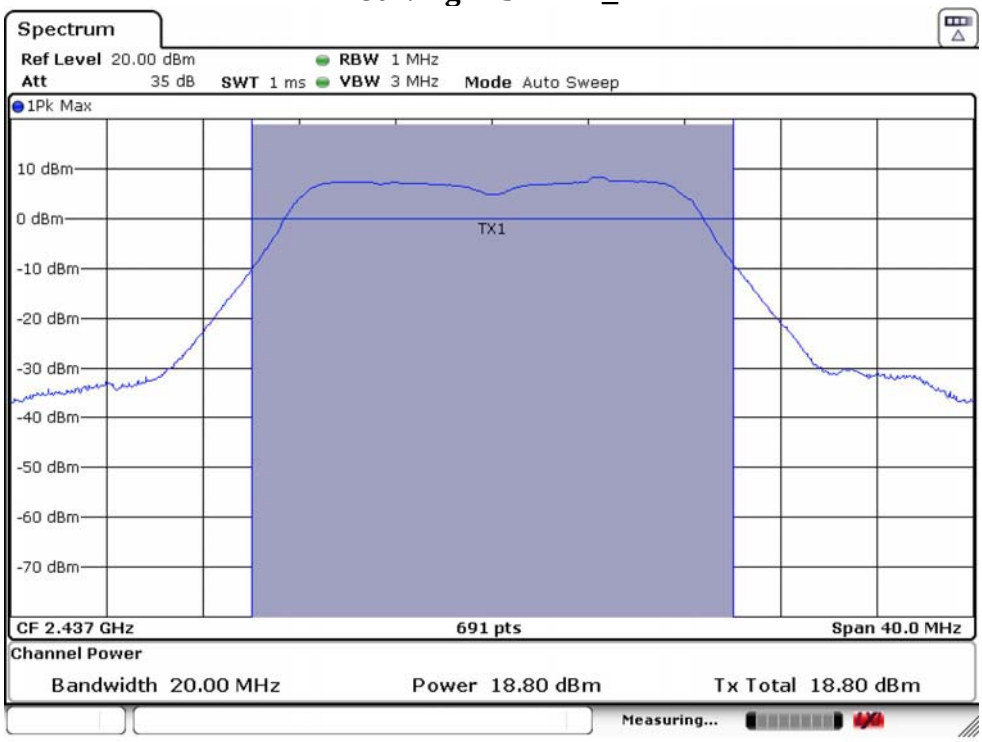
IEEE 802.11g 2412MHz_ANT 2



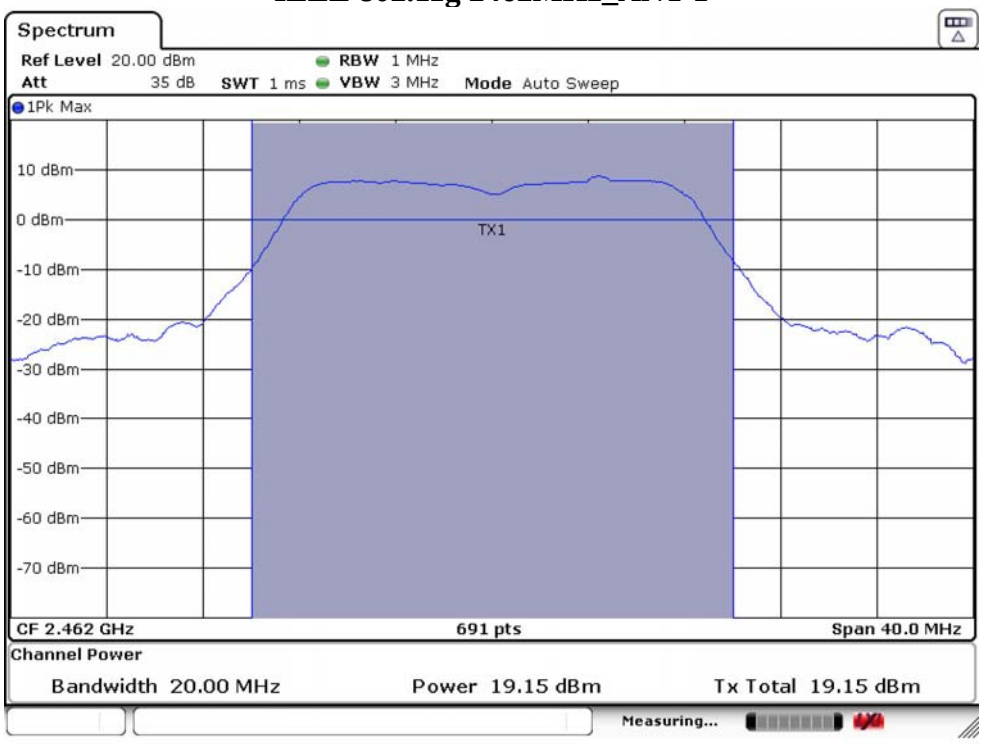
IEEE 802.11g 2437MHz_ANT 1



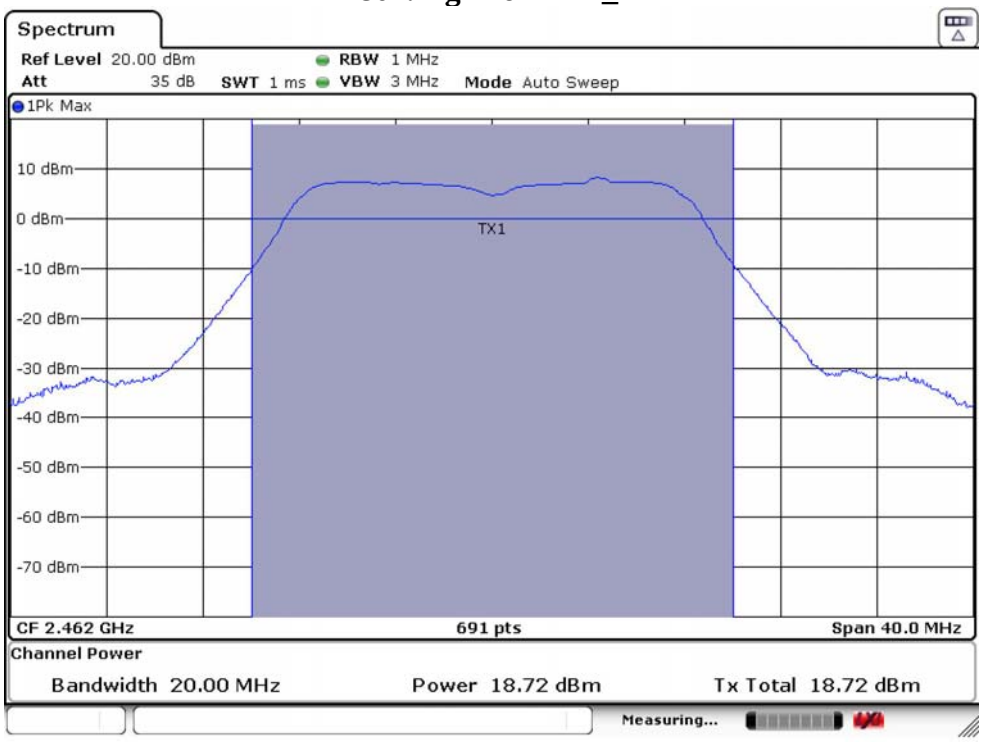
IEEE 802.11g 2437MHz_ANT 2



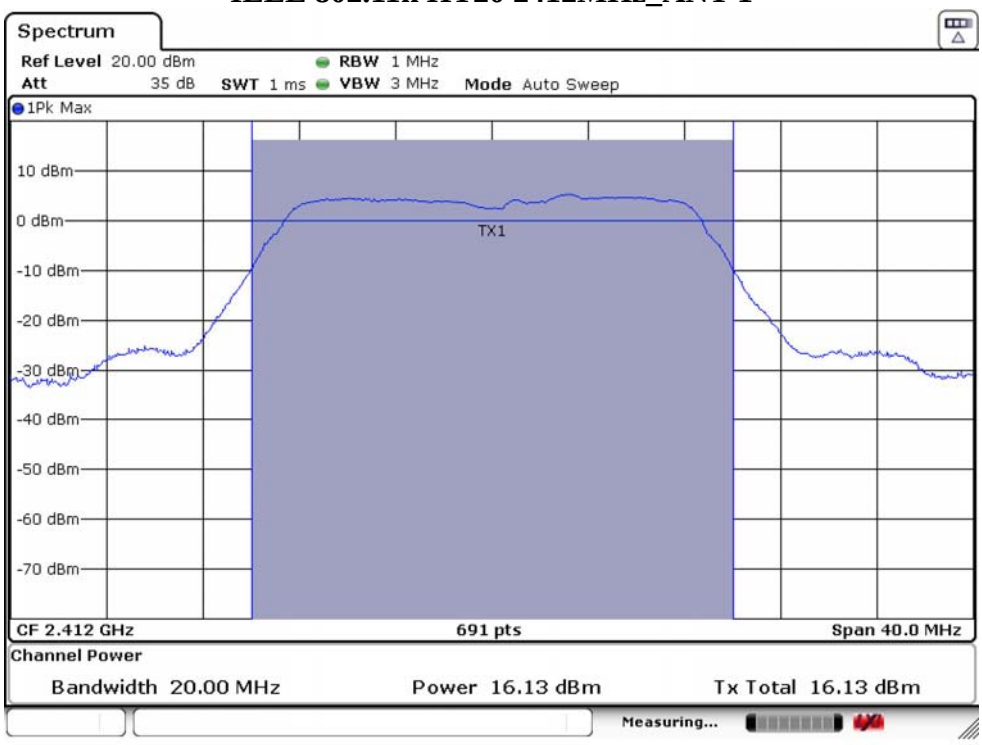
IEEE 802.11g 2462MHz_ANT 1



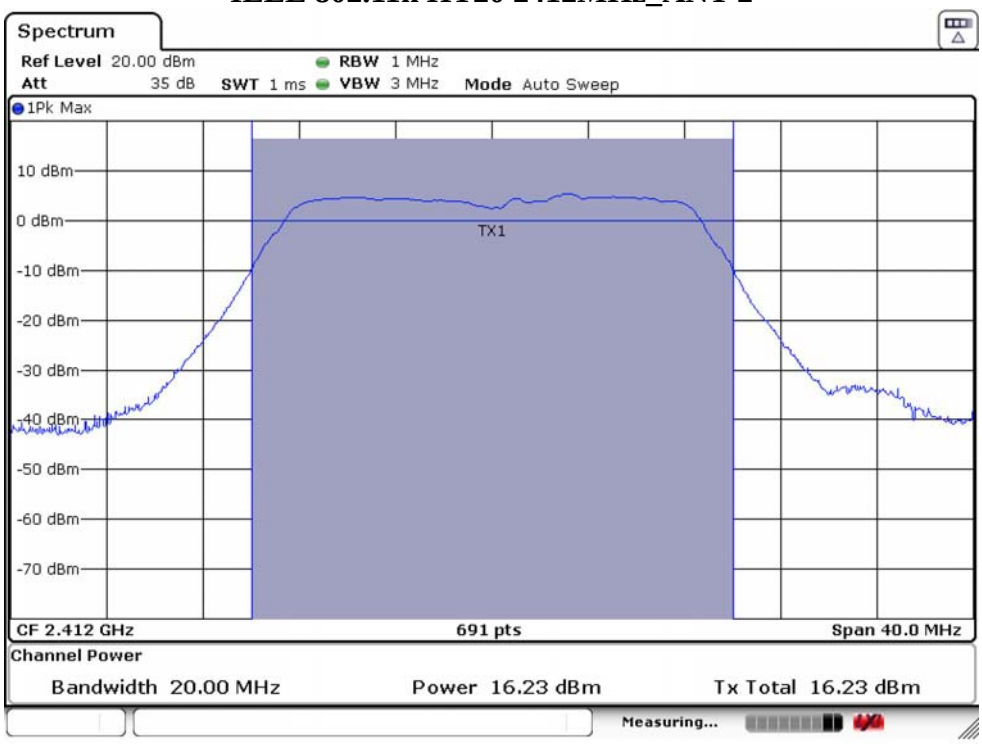
IEEE 802.11g 2462MHz_ANT 2



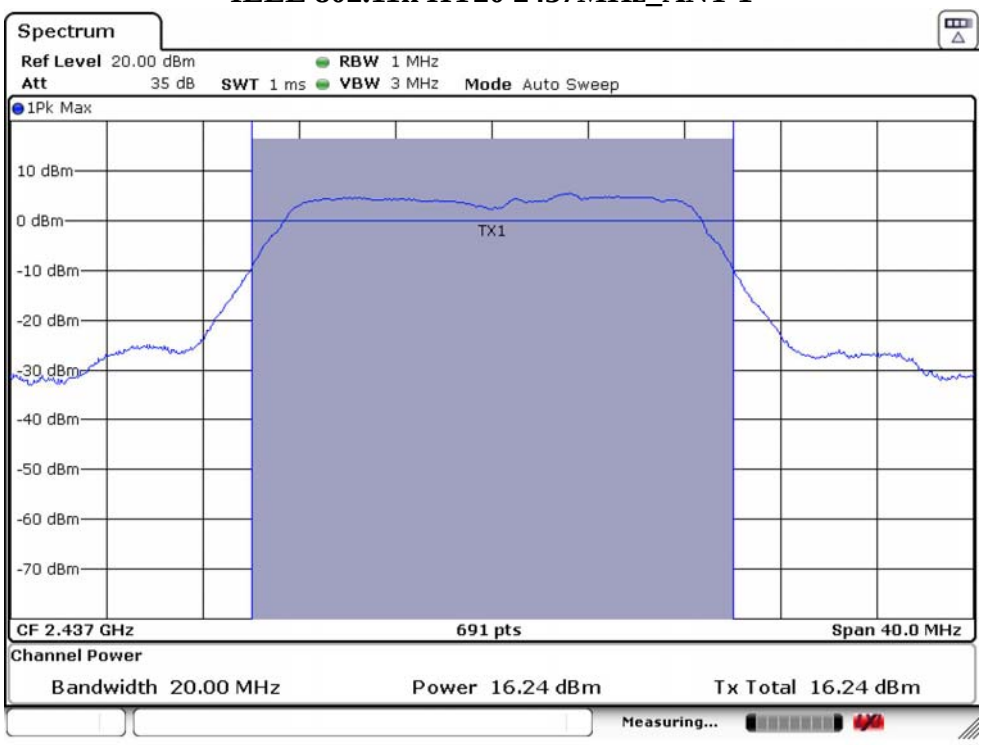
IEEE 802.11n HT20 2412MHz_ANT 1



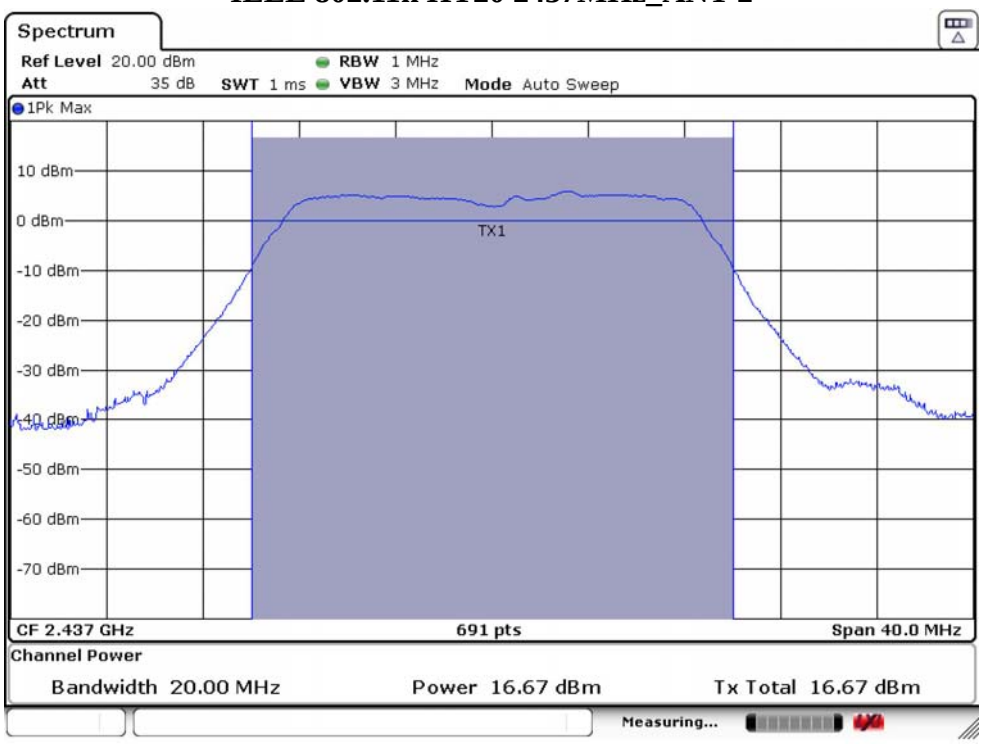
IEEE 802.11n HT20 2412MHz_ANT 2



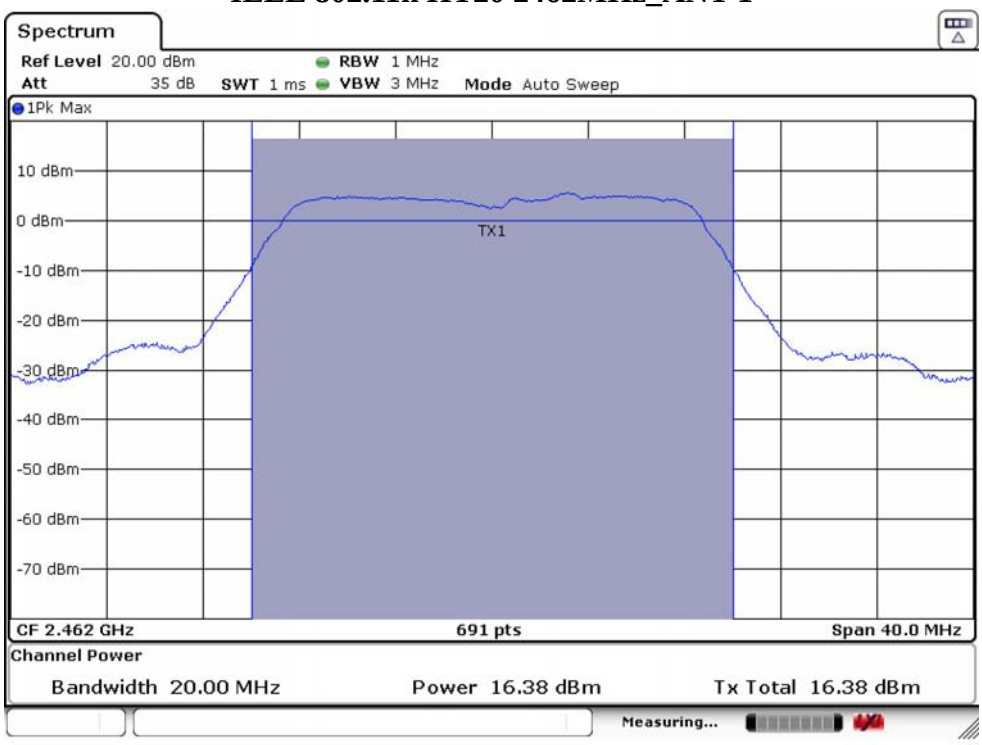
IEEE 802.11n HT20 2437MHz_ANT 1



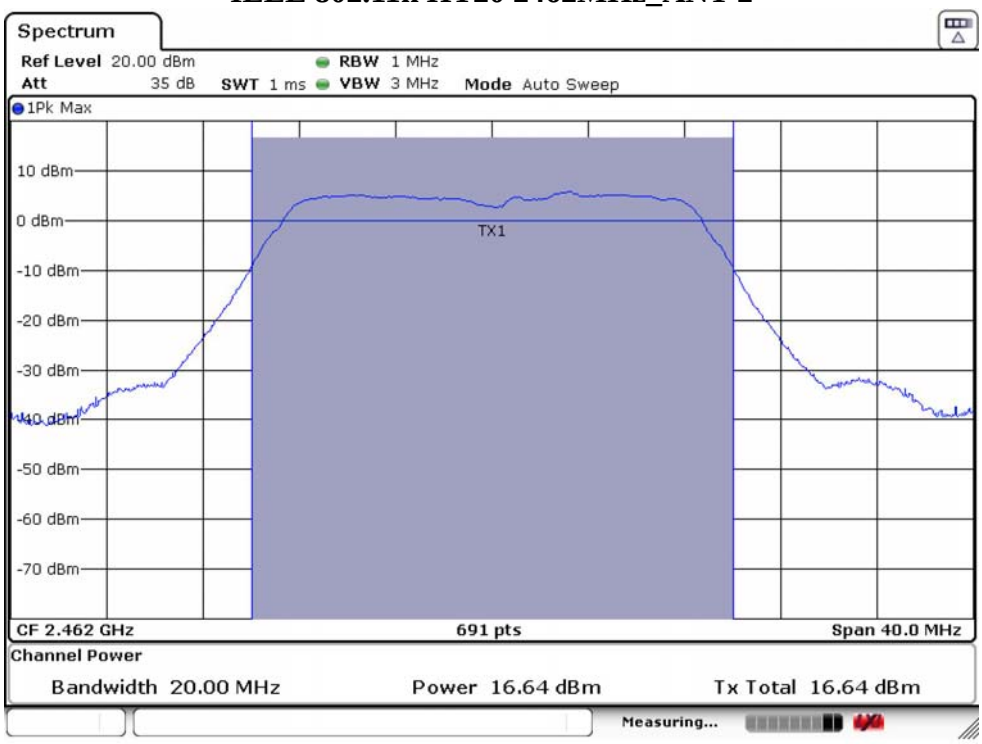
IEEE 802.11n HT20 2437MHz_ANT 2



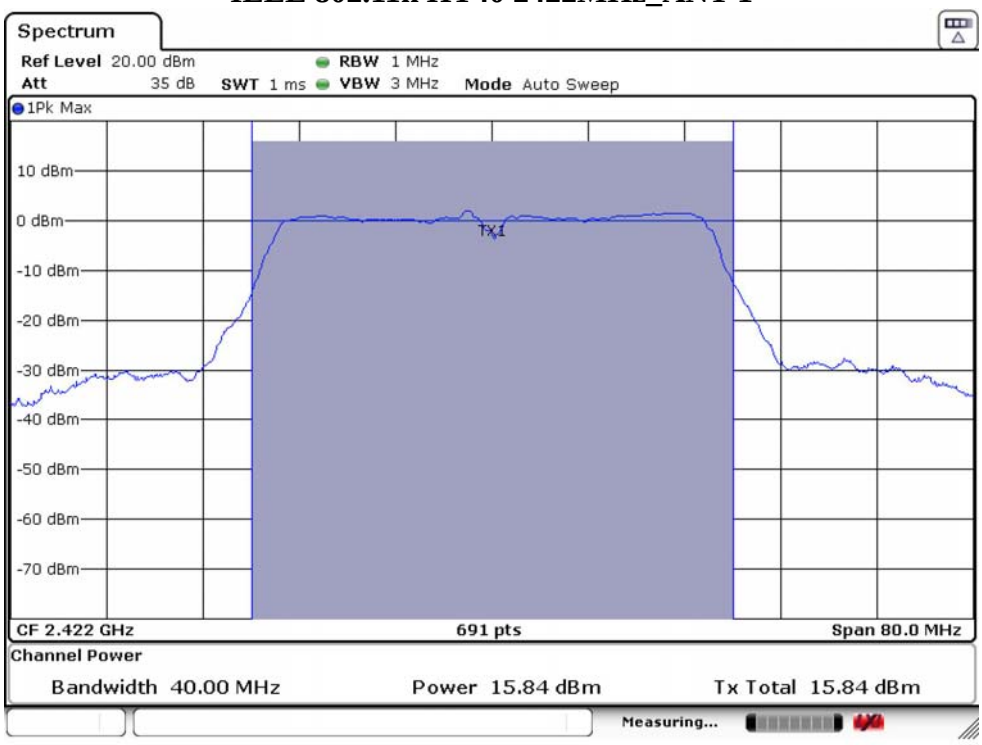
IEEE 802.11n HT20 2462MHz_ANT 1



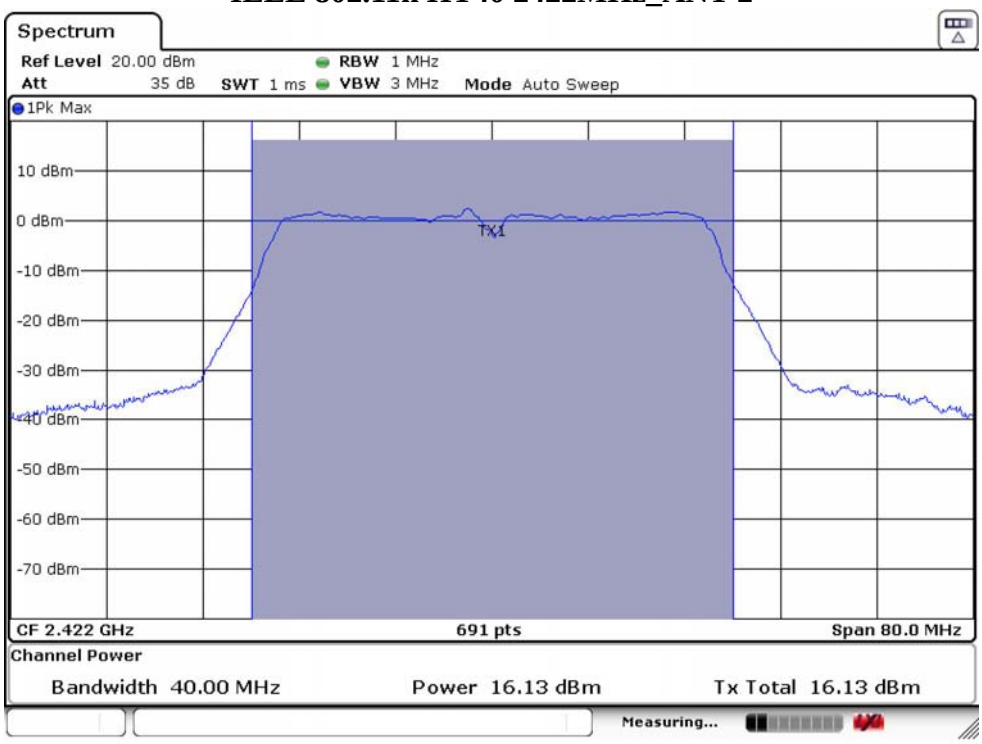
IEEE 802.11n HT20 2462MHz_ANT 2



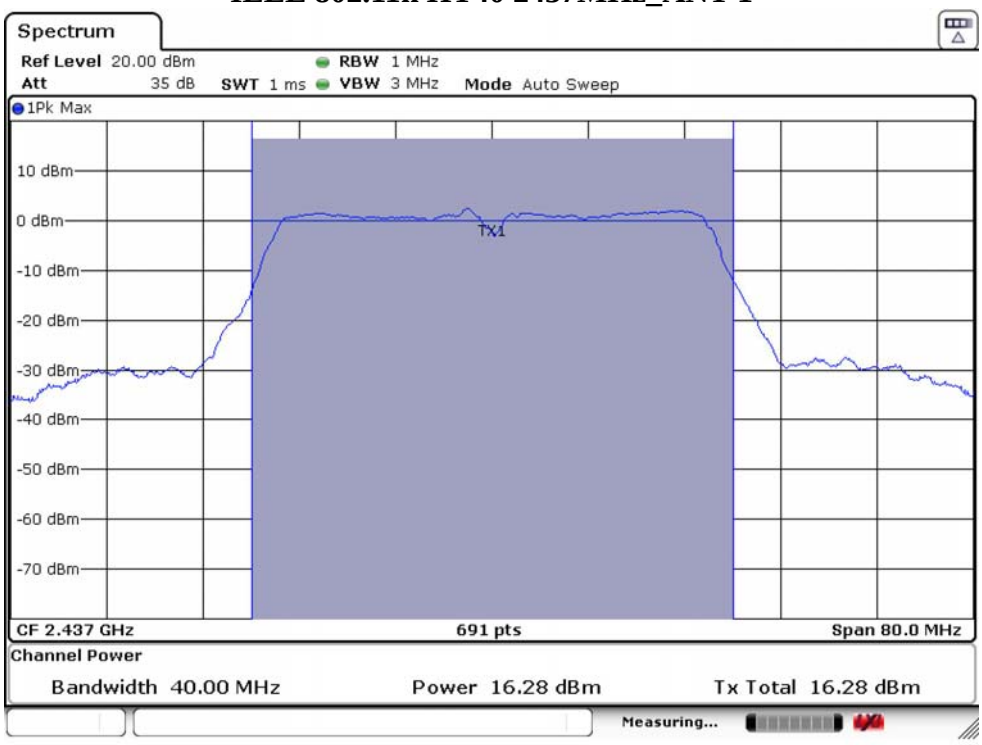
IEEE 802.11n HT40 2422MHz_ANT 1



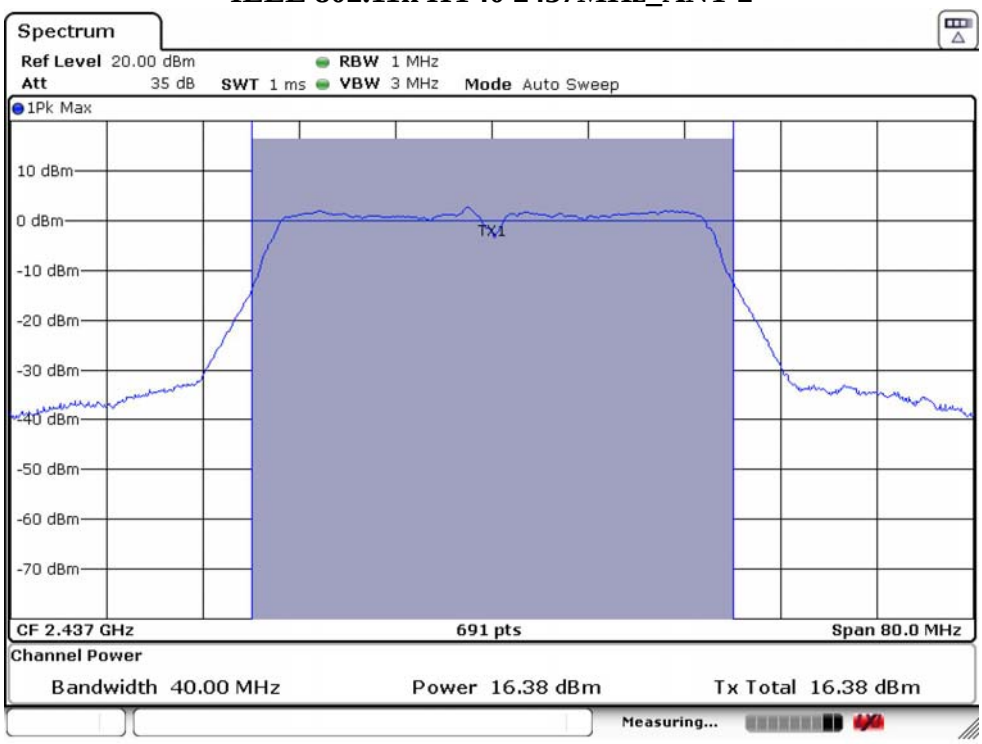
IEEE 802.11n HT40 2422MHz_ANT 2



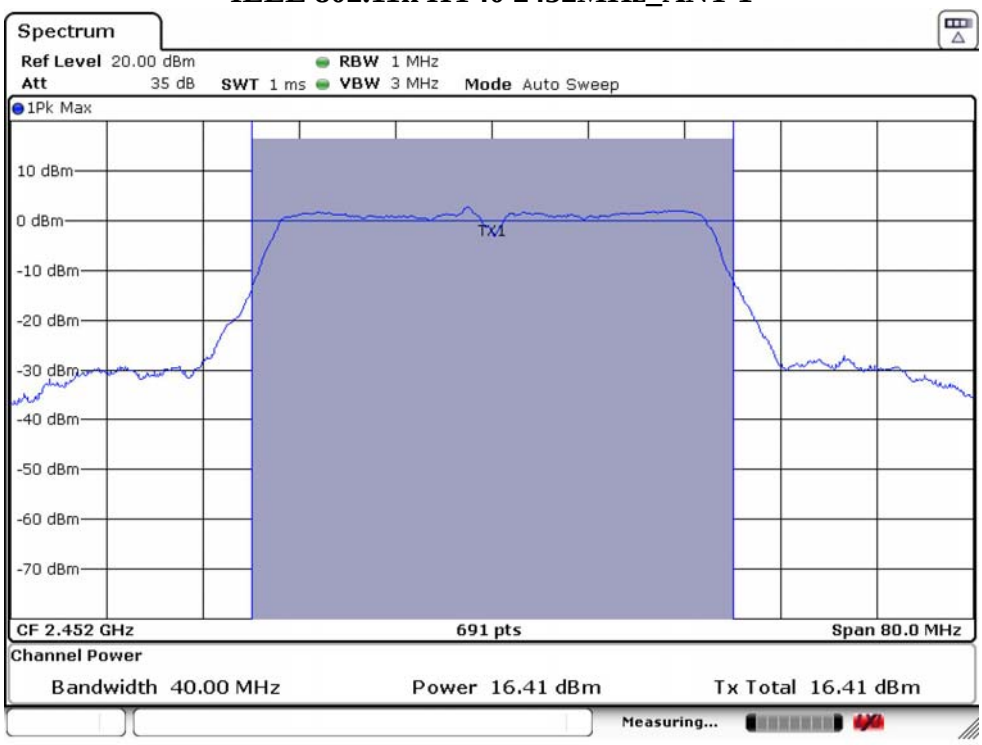
IEEE 802.11n HT40 2437MHz_ANT 1



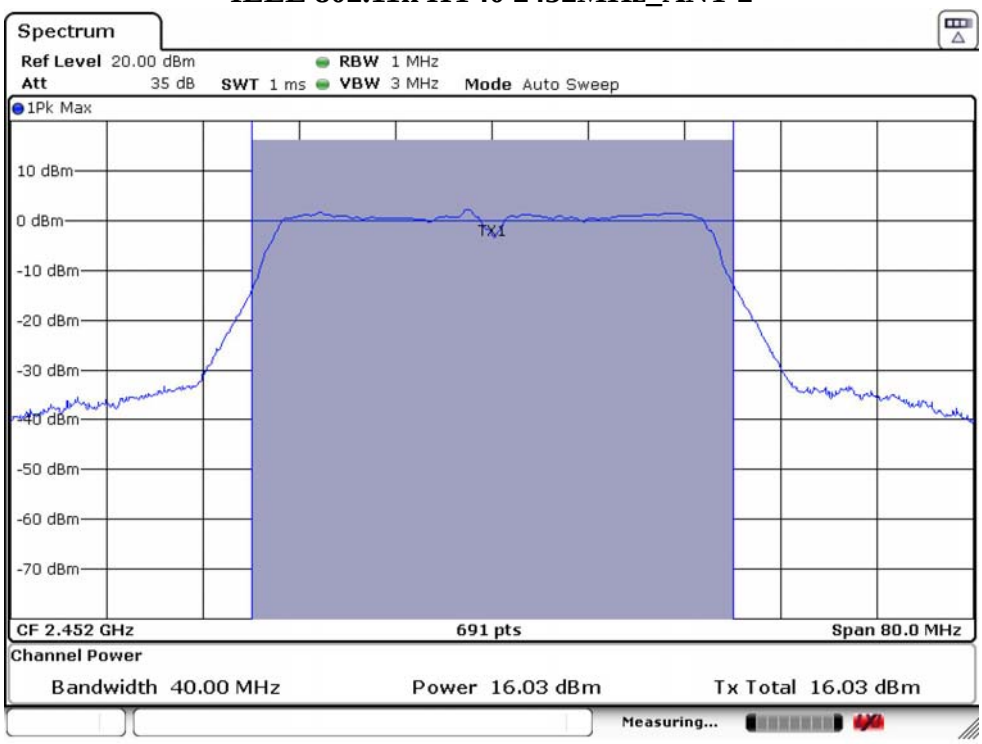
IEEE 802.11n HT40 2437MHz_ANT 2



IEEE 802.11n HT40 2452MHz_ANT 1



IEEE 802.11n HT40 2452MHz_ANT 2

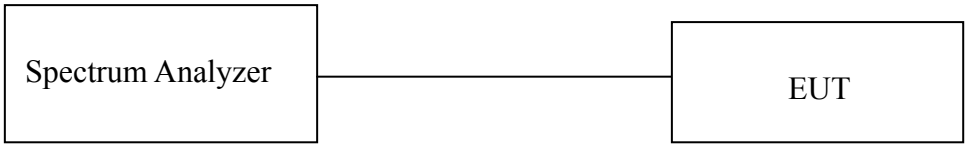


5. POWER SPECTRAL DENSITY

5.1. Limit

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. Test Setup



5.3. Spectrum Analyzer Setting

Spectrum Parameters	Setting
RBW	3KHz
VBW	10KHz
Span	30MHz(20MHz Bandwidth mode)/60MHz(40MHz Bandwidth mode)
Sweep Time	Auto
Detector	Peak
Trace Mode	Max Hold

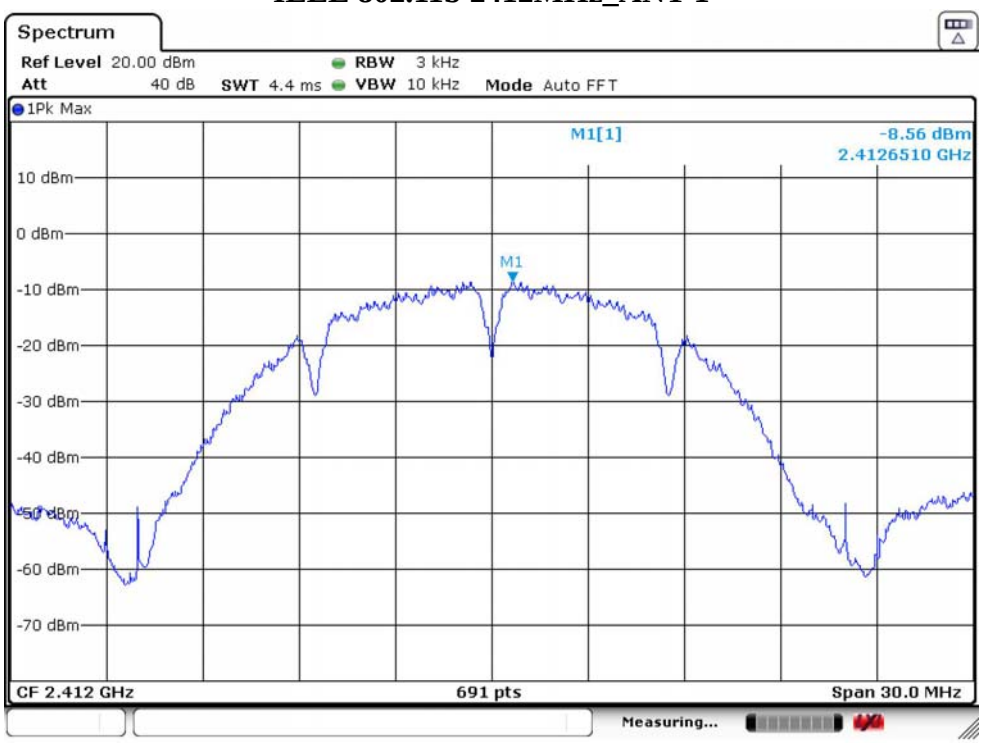
5.4. Test Procedure

a. Connect EUT antenna terminal to the spectrum analyzer with RF cable.
b. Spectrum analyzer setting parameters in accordance with section 5.3.
c. Set the EUT transmit continuously with maximum output power.
d. Allow trace to stabilize, use the marker-to-peak function to set the marker to the peak of the emission.
e. Repeat above procedures until all modes and channels were measured.
f. Record the results in the test report.

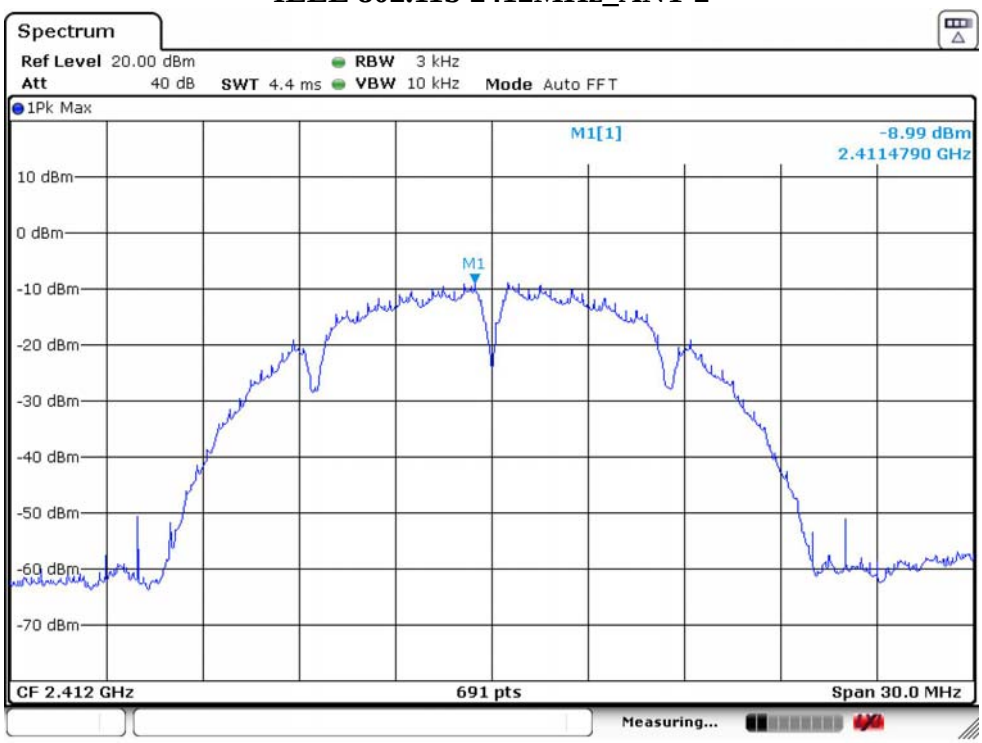
5.5. Test Result

Temperature	24.8℃	Relative Humidity		55%	Test Voltage	120V/60Hz
Mode	Freq (MHz)	Power Density (dBm/3KHz)		Total Power Density (dBm/3KHz)	Limit (dBm/3KHz)	Result
		ANT 1	ANT 2			
IEEE 802.11b	2412	-8.56	-8.99	-8.56	8.00	PASS
	2437	-8.28	-9.04	-8.28	8.00	PASS
	2462	-8.13	-9.05	-8.13	8.00	PASS
IEEE 802.11g	2412	-13.92	-14.56	-13.92	8.00	PASS
	2437	-14.32	-14.51	-14.32	8.00	PASS
	2462	-14.36	-14.44	-14.36	8.00	PASS
IEEE 802.11n HT20	2412	-15.78	-16.53	-13.13	8.00	PASS
	2437	-15.77	-16.58	-13.15	8.00	PASS
	2462	-15.70	-16.71	-13.17	8.00	PASS
IEEE 802.11n HT40	2422	-19.42	-20.42	-16.88	8.00	PASS
	2437	-20.10	-20.41	-17.24	8.00	PASS
	2452	-19.80	-20.51	-17.13	8.00	PASS

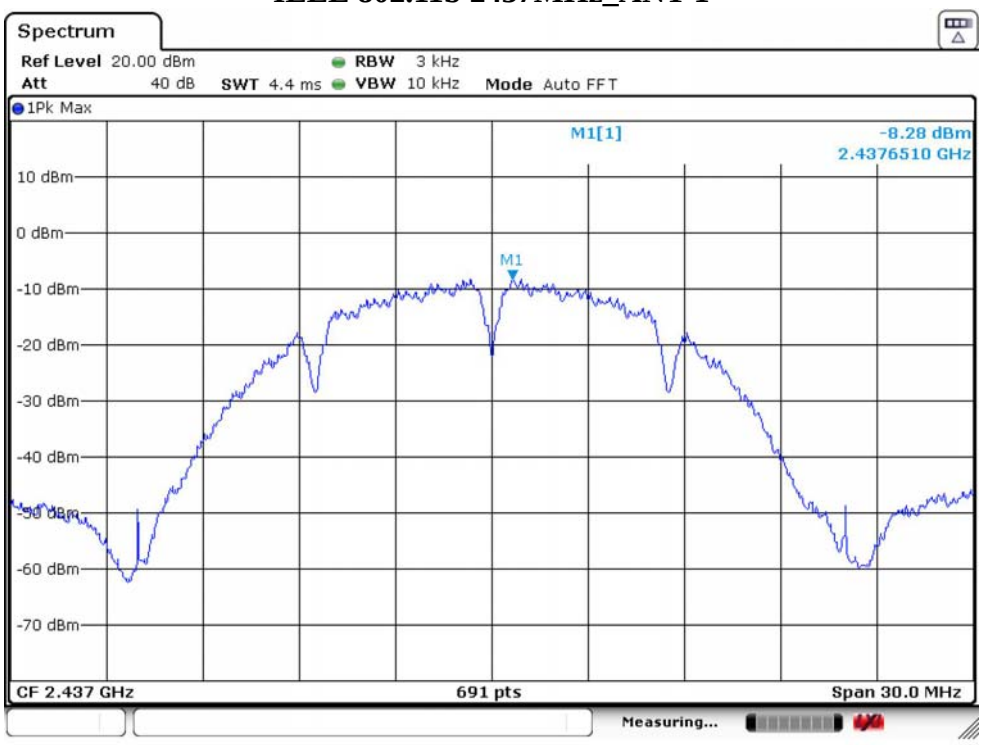
IEEE 802.11b 2412MHz_ANT 1



IEEE 802.11b 2412MHz_ANT 2



IEEE 802.11b 2437MHz_ANT 1



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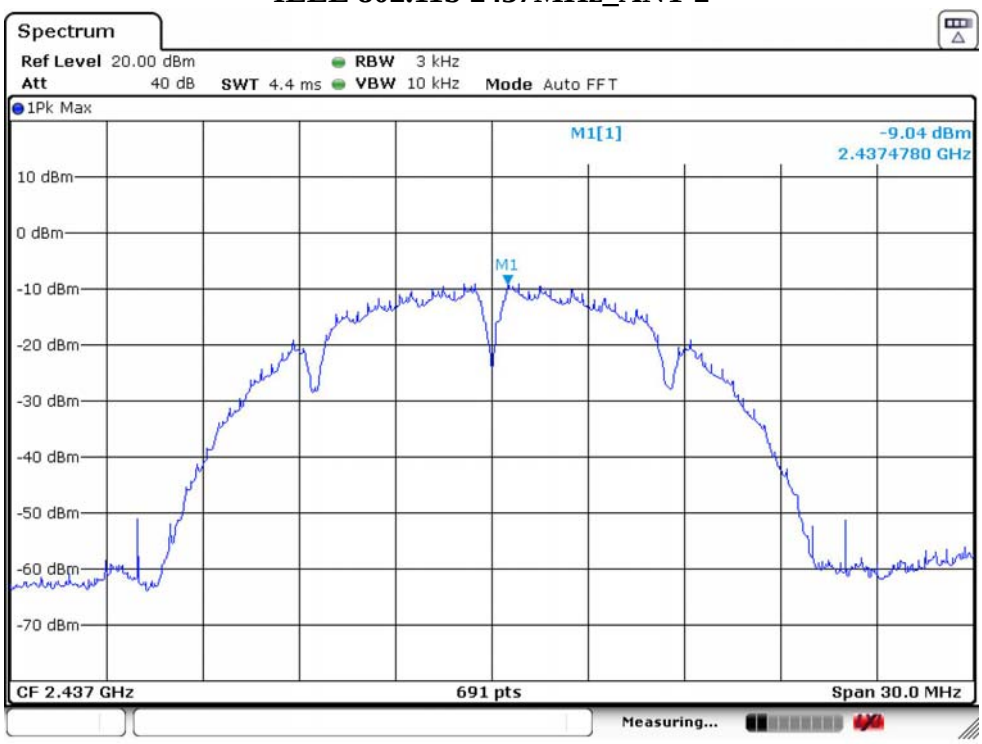
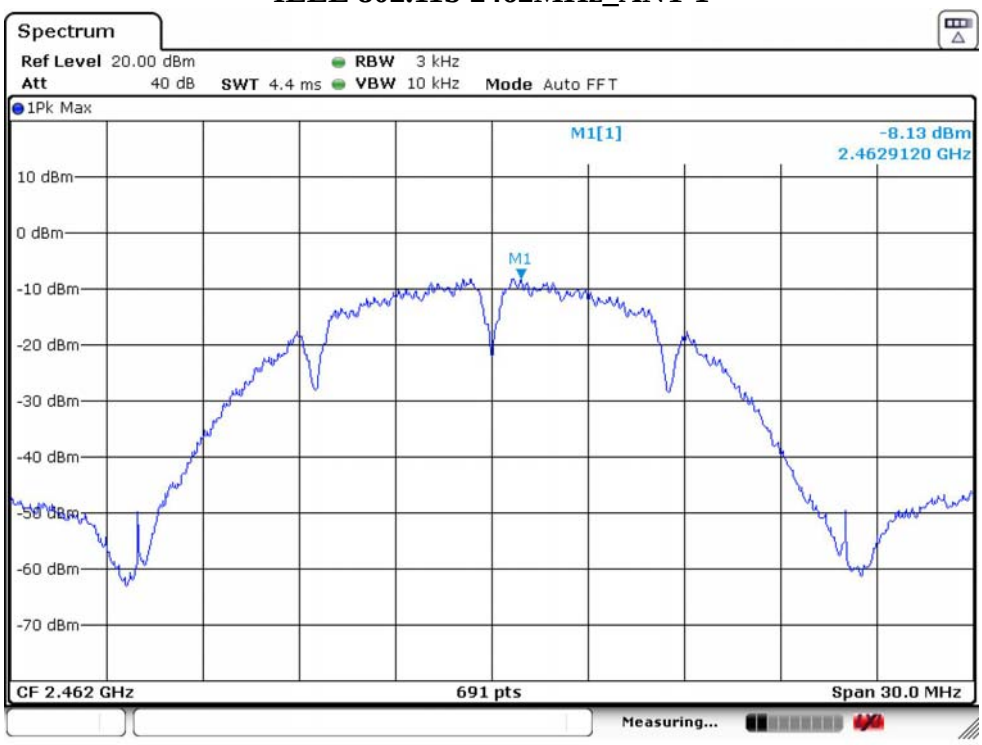


IEEE 802.11b 2462MHz_ANT 1



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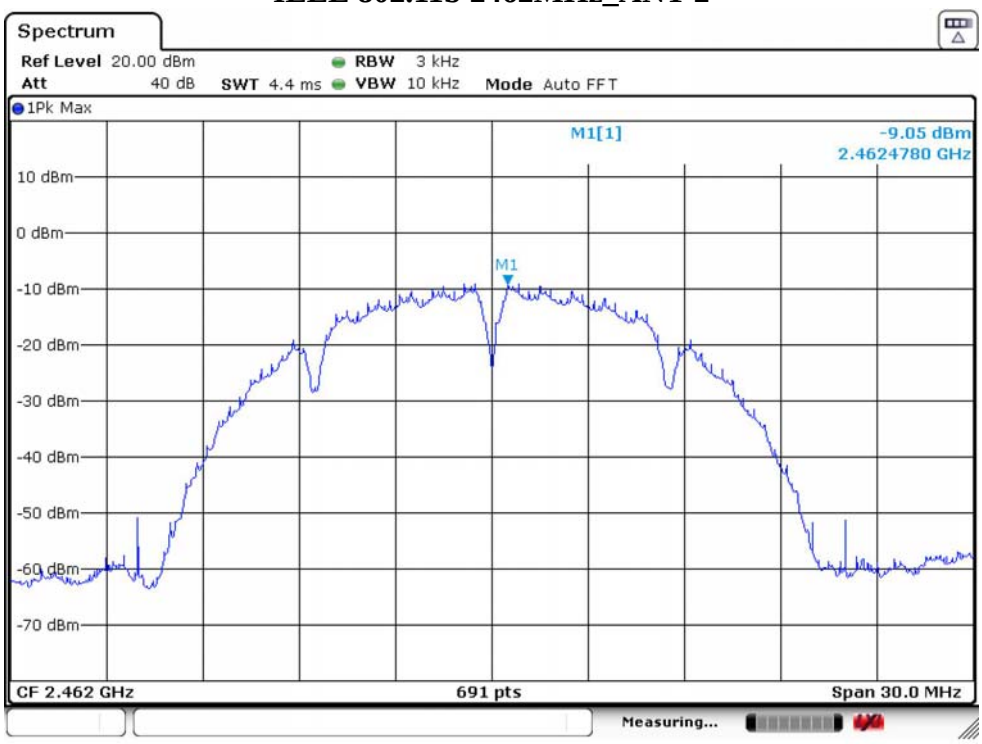

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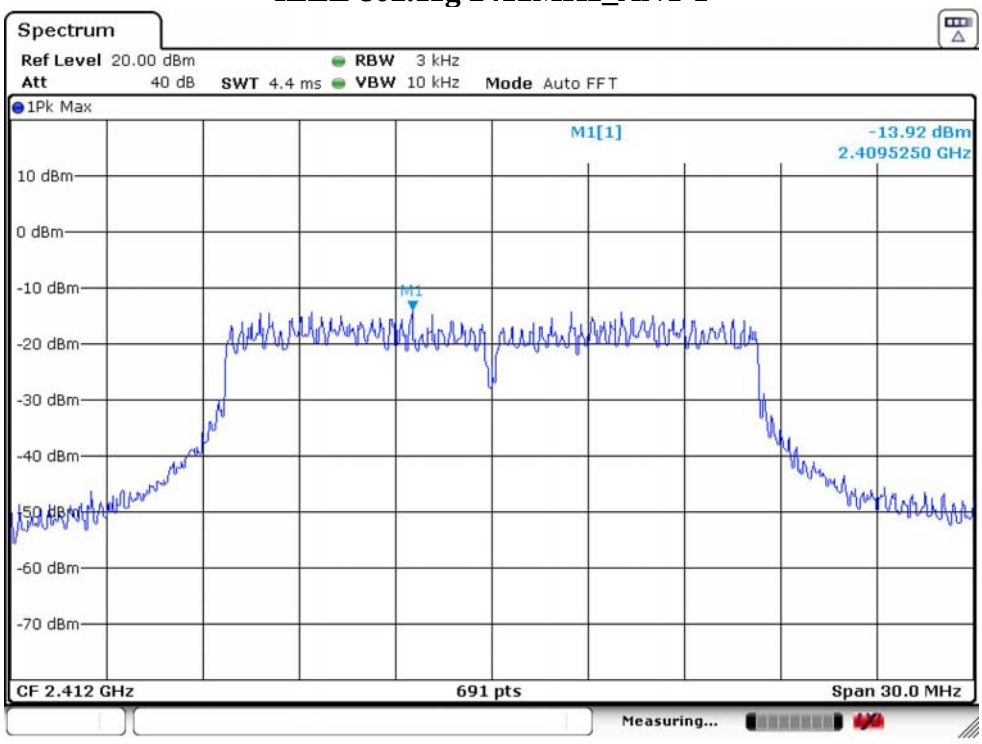

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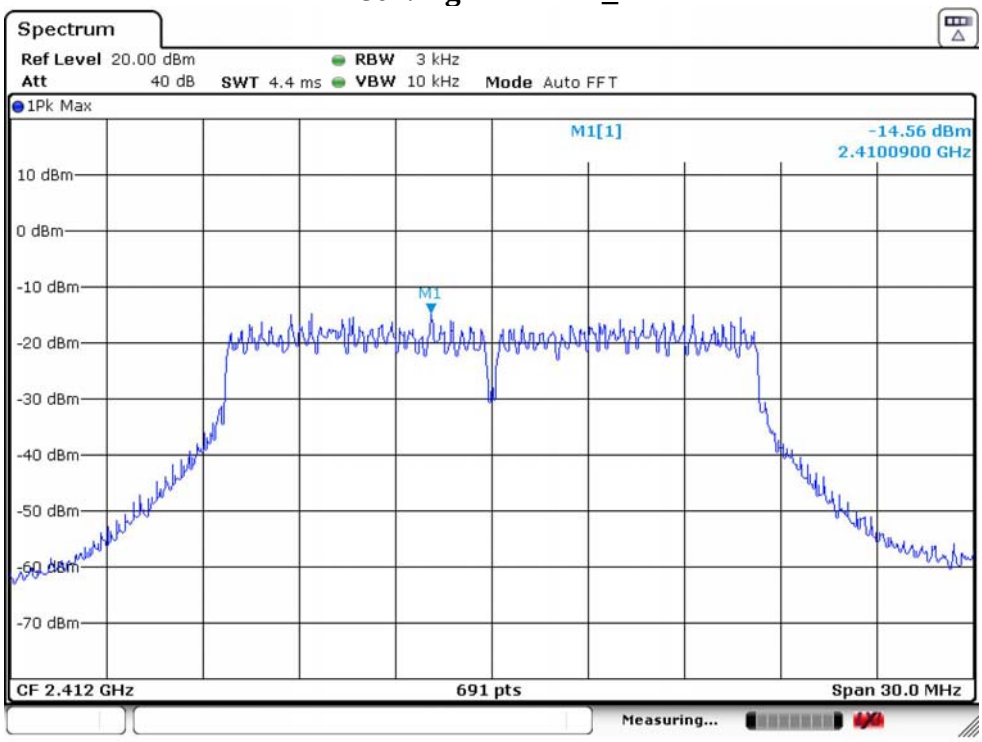

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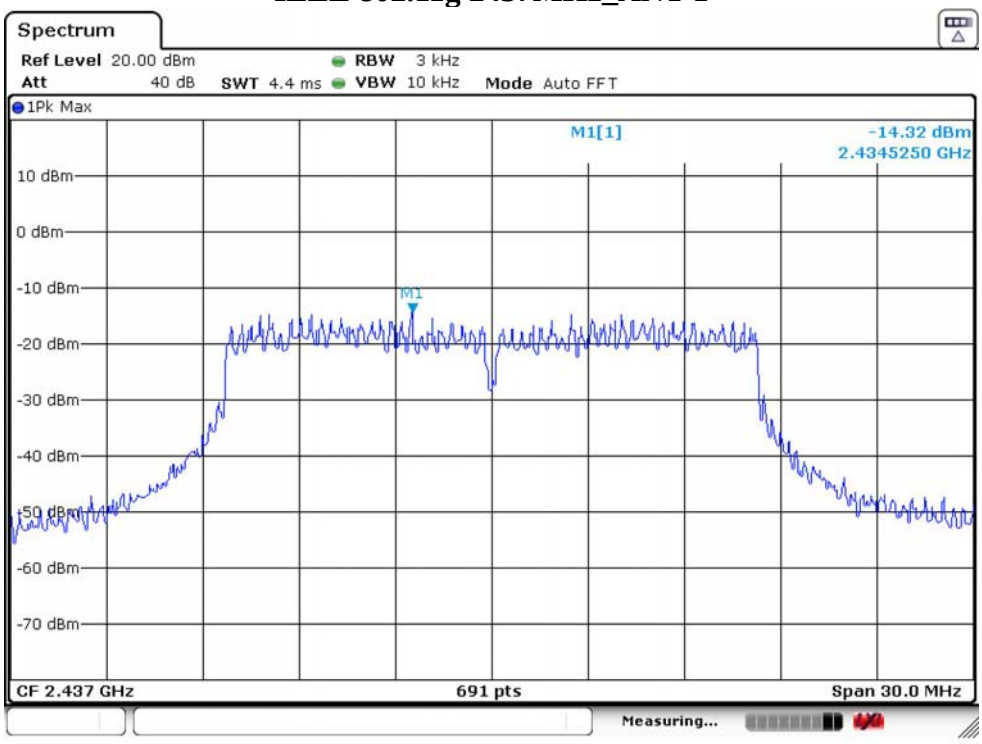
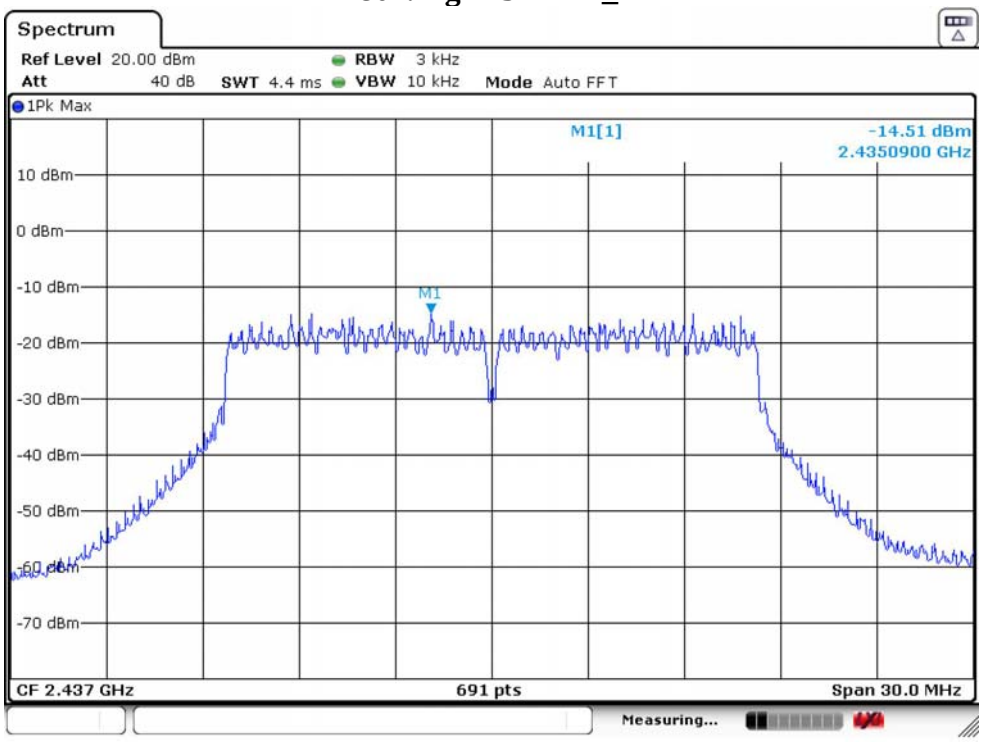
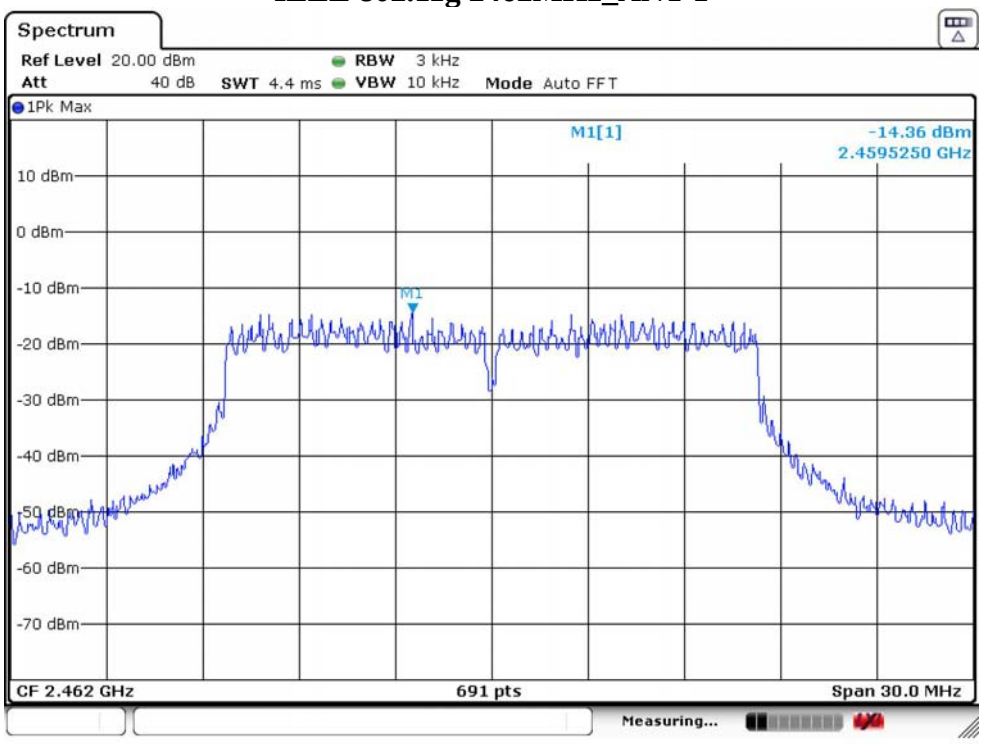
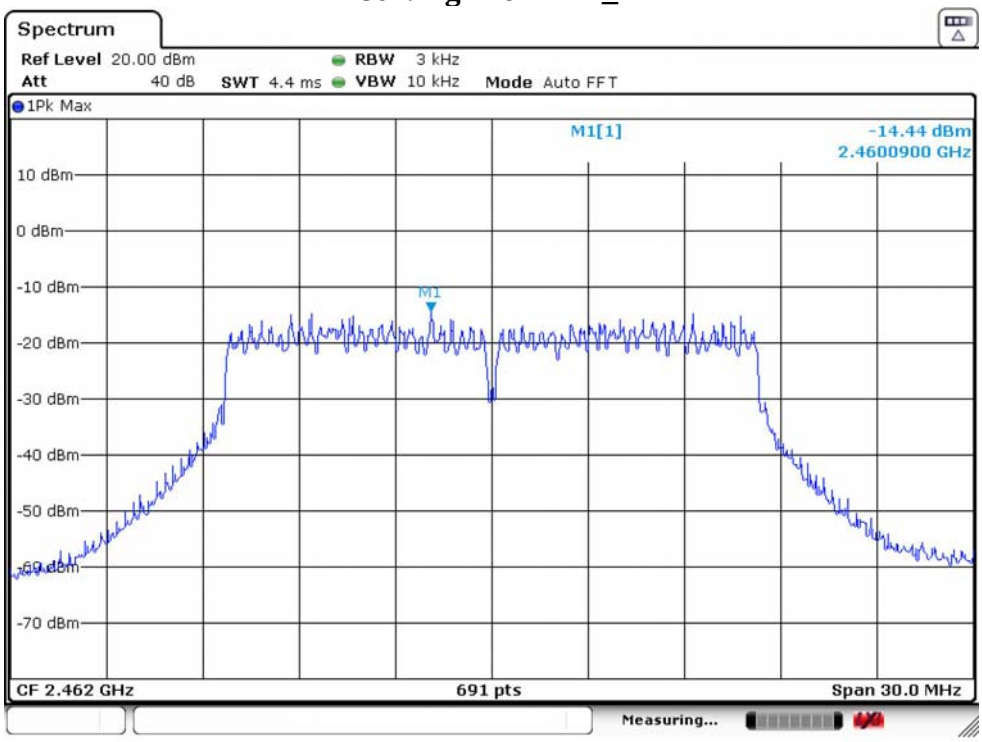


IEEE 802.11g 2437MHz_ANT 1



IEEE 802.11g 2462MHz_ANT 1



IEEE 802.11g 2462MHz_ANT 1