FCC 47 CFR PART 15 SUBPART C 15.247
TEST REPORT
FOR
Product Name: WiFi Gateway/Router

Model : MG7XX and MS1XX (X can be 0-9, A-Z or a-z for marketing purpose.)

Trade Name: ALLISCOM ALLIS COMMUNICATIONS

Issued to
ALLIS COMMUNICATIONS
10F-3, No.31-1, Lane 169, Kangning St.,Xizhi Dist,New Taipei City221, Taiwan(R.O.C.)

Issued by
WH Technology Corp.

Testing Laboratory
2954

Open Site		**No. 120, Ln. 5, Hudong St., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)**
EMC Test Site	**Xizhi Office and Lab**	**7F., No.262, Sec. 3, Datong Rd., Xizhi Dist., New Taipei City 221, Taiwan (R.O.C.)**
Tel.: +886-2-7729-7707 Fax: +886-2- 8648-1311		

Contents

1. General Information

Applicant	:	**ALLIS COMMUNICATIONS**
Address	:	**10F-3, No.31-1, Lane 169, Kangning St.,Xizhi Dist,New Taipei City221, Taiwan(R.O.C.)**
Manufacturer	:	**ALLIS COMMUNICATIONS**
Address	:	**10F-3, No.31-1, Lane 169, Kangning St.,Xizhi Dist,New Taipei City221, Taiwan(R.O.C.)**
EUT	:	**WiFi Gateway/Router**
Model Name	:	**MG7XX and MS1XX (X can be 0-9, A-Z or a-z for** marketing purpose.)
Model Differences	:	**For marketing purpose.**

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.4-2003. The said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

FCC part 15 subpart C

Receipt Date : 02/12/2015 Final Test Date : 11/12/2015

Tested By: **Reviewed by:**

Nov. 12, 2015 Bell Wei / Engineer — MAR. 13, 2015 Mike Lee / Manager

Date **Date**

Designation Number: TW1083

2. Report of Measurements and Examinations

2.1 List of Measurements and Examinations

FCC Rule	. Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. Conducted Emission	Pass
15.209 15.247(d)	. Radiated Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak Output Power	Pass
15.247(d)	. 100kHz Bandwidth of Frequency Band Edges	Pass
15.247(e)	. Power Spectral Density	Pass
1.1307 1.1310 2.1091 2.1093	. RF Exposure Compliance	Pass

3. Test Configuration of Equipment under Test

3.1 Description of the tested samples

EUT Name	:	WiFi Gateway/Router
Model Number	:	MG700
FCC ID	:	VWM-M2M
Receipt Date	:	01/05/2015
Input Voltage	:	From AC Adapter Input : AC 100-240V, 50-60Hz 0.8A Output : DC 12V, 2A
RF Output Power(e.i.r.p)	:	802.11n 15dBm OFDM; 802.11g 17dBm OFDM mode; 802.11b 20dBm, CCK mode
Power From	:	☐Inside ☑Outside ☑Adaptor ☑Battery ☐AC Power Source ☑DC Power Source ☑Support Unit PC or NB
Operate Frequency	:	Refer to the channel list as described below (2.412 ~2.472 GHz)
Modulation Technique	:	OFDM
Number of Channels	:	13
Channel spacing	:	☐N/A ☑ 5 MHz
Operating Mode	:	☐Simplex ☑ Half Duplex
Antenna Type	:	Dipole
Antenna gain	:	5 dBi

3.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT 20 (2412MHz~2472MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
01	2412	08	2447
02	2417	09	2452
03	2422	10	2457
04	2427	11	2462
05	2432	12	2467
06	2437	13	2472
07	2442		

802.11n, HT 40 (2422MHz~2452MHz)

Channel	Frequency(MHz)	Channel	Frequency(MHz)
03	2422	07	2442
04	2427	08	2447
05	2432	09	2452
06	2437	---	---

3.3 Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
b. The complete test system included Notebook and EUT for RF test.
c. An executive “QATEST” under WIN8 was executed to keep transmitting and receiving data via Wireless.
d. The following test modes were performed for test:
   - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2472MHz
   - 802.11n HT40: CH03: 2422MHz, CH06: 2437MHz, CH09: 2452MHz

3.4 TEST Methodology & General Test Procedures

All testing as described bellowed were performed in accordance with ANSI C63.4:2003 and FCC CFR 47 Part 15 Subpart C.

Conducted Emissions

The EUT is placed on a wood table, which is at 0.8 m above ground plane acceding to clause 15.207 and requirements of ANSI C63.4:2003. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz are using CISPR Quasi-Peak / Average detectors.

Radiated Emissions

The EUT is a placed on a turn table, which is 0.8 m above ground plane. The turntable was rotated through 360 degrees to determine the position of maximum emission level. The EUT is placed at 3m away from the receiving antenna, which varied from 1m to 4m to find out the highest emission. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.

1) Putting the EUT on the platform and turning on the EUT (on/off button on the bottom of the EUT).
2) Setting test channel described as “Channel setting and operating condition”, and testing channel by channel.
3) For the maximum output power measurement, we followed the method of measurement KDB558074 D01.
4) For the spurious emission test based on ANSI(2003), at the frequency where below 1GHz
used quasi-peak detector mode; where above 1GHz used the peak and average detector mode. IF the peak value may be under average limit, the average mode will not be performed.

3.5 Measurement Uncertainty

Measurement Item	Uncertainty
Radiated emission	±4.11dB
Peak Output Power(conducted)	±1.38dB
Peak Output Power(Radiated)	±1.70dB
Power Spectral Density	±1.39dB
Radiated emission(3m)	±4.11dB
Radiated emission(10m)	±3.89dB

3.6 Description of the Support Equipments

Setup Diagram

See test photographs attached in appendix 1 for the actual connections between EUT and support equipment.

Support Equipment

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1.	Notebook	K43B	N/A	N/A	ASUS	N/A	Unshielded 1.8m
2.	Printer	D4360	N/A	R33001	HP	Shielded 1.8m	Unshielded 1.8m
3.	USB Flash	TS2GJFV30	156511-6400	D33193	TRANSCEND	Shielded/ 1m	N/A

EUT							
No.	Equipment	Model	Serial No.	FCC ID/ BSMI ID	Trade name	Data Cable	Power Cord
1.	AC Adapter	DSA-24PFM-12 FUS 120200	N/A	R33050	DVD	N/A	Unshielded 1.2m

Note: All the above equipment /cable were placed in worse case position to maximize emission signals during emission test

Grounding: Grounding was in accordance with the manufacturer's requirement and conditions for the intended use.

4. Test and measurement equipment

4.1 calibration

The measuring equipment utilized to perform the tests documented in the report has been calibrated once a year or in accordance with the manufacturer's recommendations, and is traceable to recognized national standards.

4.2 equipment

The following list contains measurement equipment used for testing. The equipment conforms to the requirement of CISPR 16-1, ANSI C63.2 and. Other required standards.

Calibration of all test and measurement, including any accessories that may effect such calibration, is checked frequently to ensure the accuracy. Adjustments are made and correction factors are applied in accordance with the instructions contained in the respective.

TABLELIST OF TEST AND MEASUREMENT EQUIPMENT

Test Site	Instrument	Manufacturer	Model No.	S/N	Next Cal. Date
Conduction	EMI Test Receiver	R&S	ESHS10	830223/008	Mar. 21, 2016
	Spectrum Analyzer	R&S	FSP3	833387	Sep. 04, 2016
	RF Cable	N/A	EMI-3	N/A	Oct. 08, 2016
	L.I.S.N	Rolf Heine Hochfrequenztechnik	NNB-2/16z	98062	Apr. 01, 2016
Radiation	EMI Test Receiver	R&S	ESVS30	863342/012	Oct. 12, 2016
	Spectrum Analyzer	Nex1	NS-265	N05044006	Oct. 30, 2016
	Antenna	Schwarzbeck	VULB 9160	3074	Oct. 15, 2016
	RF Cable	N/A	N/A	N/A	Oct. 17, 2016
	Pre-Amplifier 30MHz~1GHz	Anritsu	MH648A	M15180	Oct. 08, 2016
	RF Cable 1GHz~18GHz	EMCI	N/A	N/A	July 30, 2016
	Horn Antenna 1GHZ~18GHz	COM-POWER	AH-118	10056	Mar. 12, 2016
	Pre-Amplifier 500MHz~18GHz	EMCI	EMC051845	980108	Oct. 08, 2016
	RF Cable 18GHz~26GHz	YEIDA WIRE CABLE	N/A	N/A	July 30, 2016
	Horn Antenna 18GHz~26GHz	COM-Power	AH-826	081000	Mar. 21, 2016
	Pre-Amplifier 18GHz~26GHz	MITEQ	30-5A	808329	May 28, 2016

- **CALIBRATION INTERVAL OF INSTRUMENTS LISTED ABOVE IS ONE YEAR**

5. Antenna Requirements

5.1 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.

5.2 Antenna Construction and Directional Gain

802.11b/g/n:
ANT R, ANT L
Antenna Type: Dipole Antenna
Antenna Gain: 5 dBi

Note: Directional gain = G^{ANT}+10 log(N) dBi=5+10log(2)=8.01(dBi)

6. Test of Conducted Emission

6.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2009 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

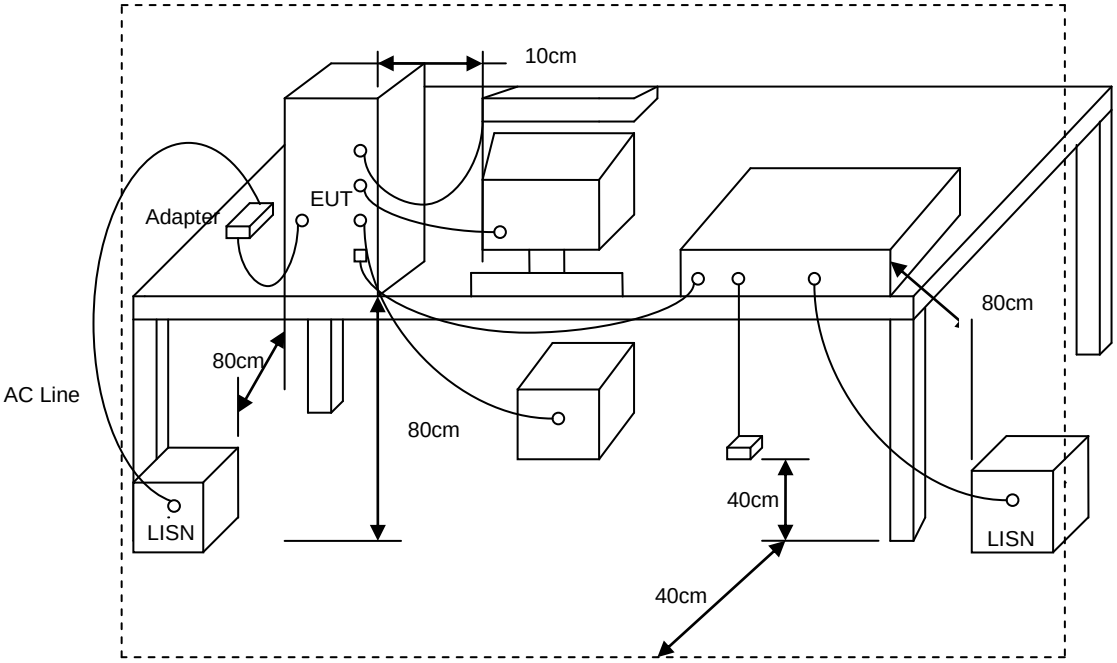
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

6.2 Test Procedures

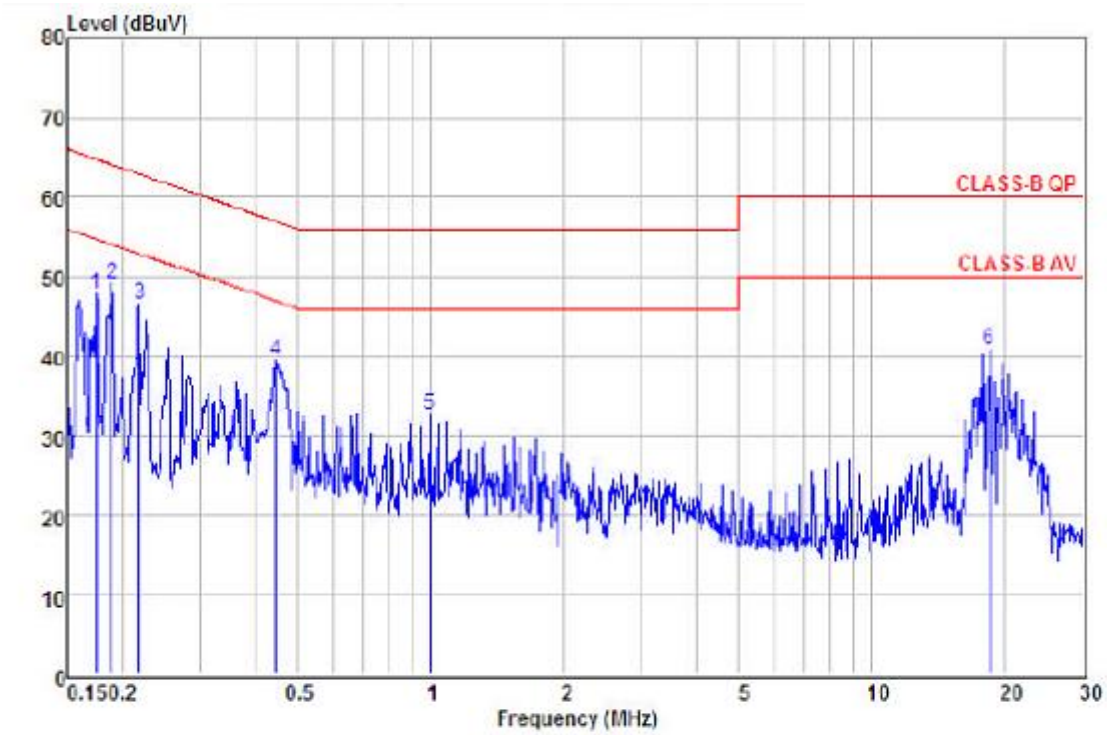
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
d. The LISN provides 50 ohm coupling impedance for the measuring instrument.
e. The FCC states that a 50 ohm, 50 micro-Henry LISN should be used.
f. Both sides of AC line were checked for maximum conducted interference.
g. The frequency range from 150 kHz to 30 MHz was searched.
h. Set the test-receiver system to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

6.3 Typical Test Setup



6.4 Test Result and Data

Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode 1	:	802.11n HT40, CH3	Temperature	:	22 °C
Test Date	:	Nov. 09, 2015	Humidity	:	60 %

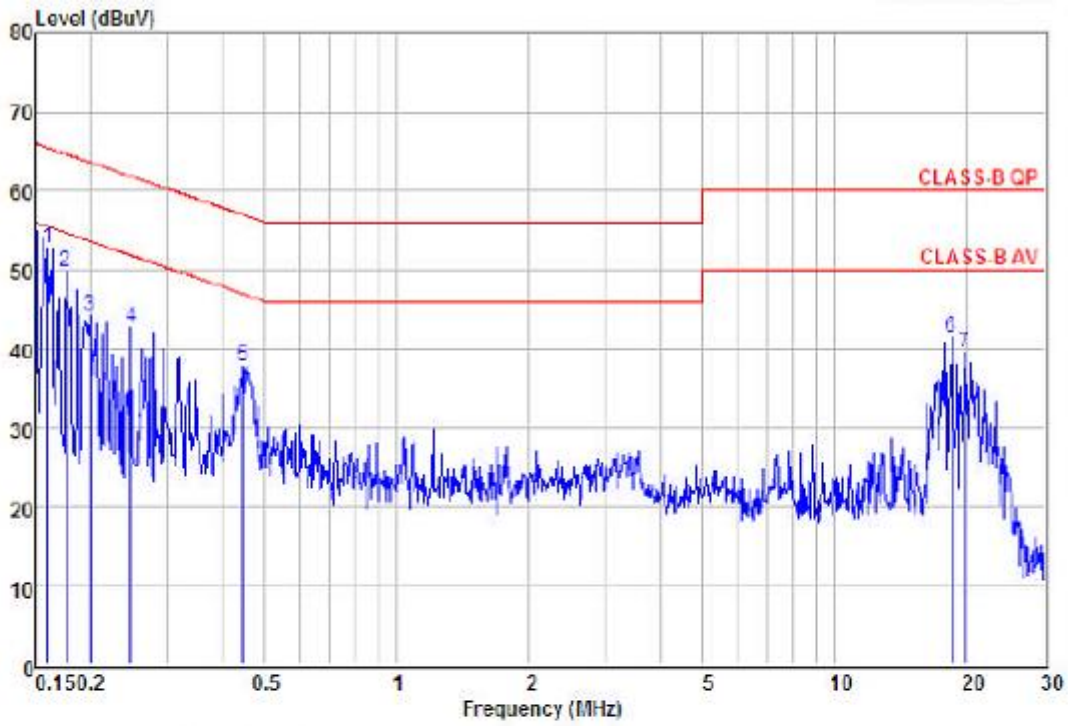


Site : Conduction
Condition : CLASS-B QP CON-LISN(103) LINE
EUT : 15010514
Power : AC 120V
Mode : Transmit
Temperature : 22
Humidity : 60
Memo : 802.11n HT40 CH3

Remarks: : Factor=Insertion loss+Cable loss

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	
1	0.17	47.59	47.92	0.33	-16.85	64.77	Peak
2	0.19	48.81	49.15	0.34	-14.91	64.06	Peak
3	0.22	46.15	46.49	0.34	-16.39	62.88	Peak
4	0.44	39.05	39.41	0.36	-17.57	56.98	Peak
5	0.99	32.29	32.67	0.38	-23.33	56.00	Peak
6	18.33	40.01	40.72	0.71	-19.28	60.00	Peak

Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode 1	:	802.11n HT40, CH3	Temperature	:	22 °C
Test Date	:	Nov. 09, 2015	Humidity	:	60 %



Site : Conduction
Condition : CLASS-B QP CON-LISN(103) NEUTRAL
EUT : 15010514
Power : AC 120V
Mode : Transmit
Temperature : 22
Humidity : 60
Memo : 802.11n HT40 CH3

Remarks: : Factor=Insertion loss+Cable loss

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	
1	0.16	52.47	52.83	0.36	-12.64	65.47	Peak
2	0.18	49.43	49.81	0.38	-14.87	64.68	Peak
3	0.20	43.85	44.23	0.38	-19.44	63.67	Peak
4	0.25	42.32	42.70	0.38	-19.16	61.86	Peak
5	0.44	37.45	37.84	0.39	-19.14	56.98	Peak
6	18.33	40.72	41.41	0.69	-18.59	60.00	Peak
7	19.74	38.84	39.54	0.70	-20.46	60.00	Peak

7. Test of Radiated Emission

7.1 Test Limit

In any 100kHz 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 20dB below that in the 100kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. If the transmitter measurement is based on the maximum conducted output power, the attenuation required under this paragraph shall be 30dB instead of 20dB. In addition, radiated emissions which fall in section 15.205(a) the restricted bands must also comply with the radiated emission limit specified in section 15.209(a).

Frequency (MHz)	Field Strength (microvolt/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

7.2 Test Procedures

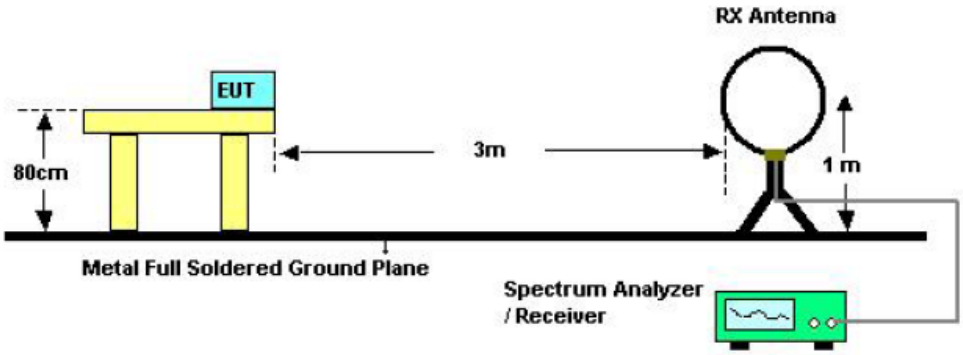
a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna is a broadband antenna and its height is varied between one meter and four meters above ground to find the maximum value of the field strength both horizontal polarization and vertical polarization of the antenna are set to make the measurement.
e. For each suspected emission the EUT was arranged to its worst case and then tune the antenna tower (from 1 M to 4 M) and turn table (from 0 degree to 360 degrees) to find the maximum reading.
f. Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.
h. For testing above 1GHz, the emission level of the EUT in peak mode was 20dB lower than average limit (that means the emission level in peak mode also complies with the limit in

average mode), then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions will be measured in average mode again and reported.

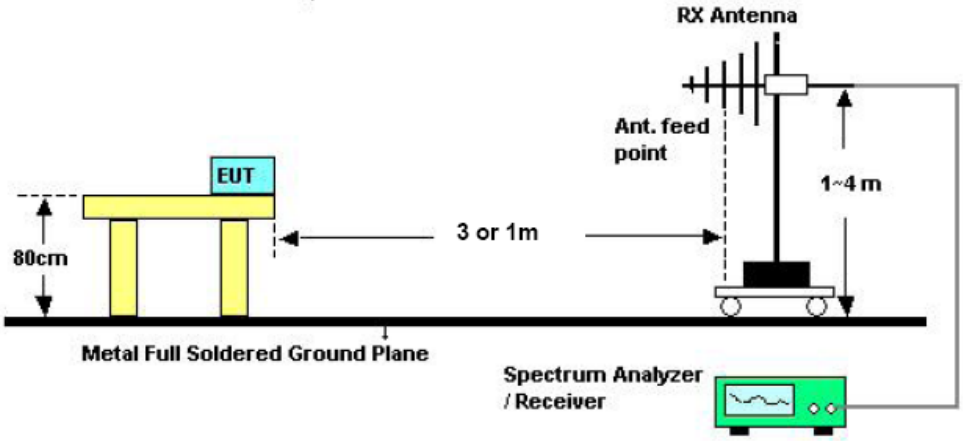
i. "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

7.3 Typical Test Setup

For radiated emissions below 30MHz



For radiated emissions above 30MHz



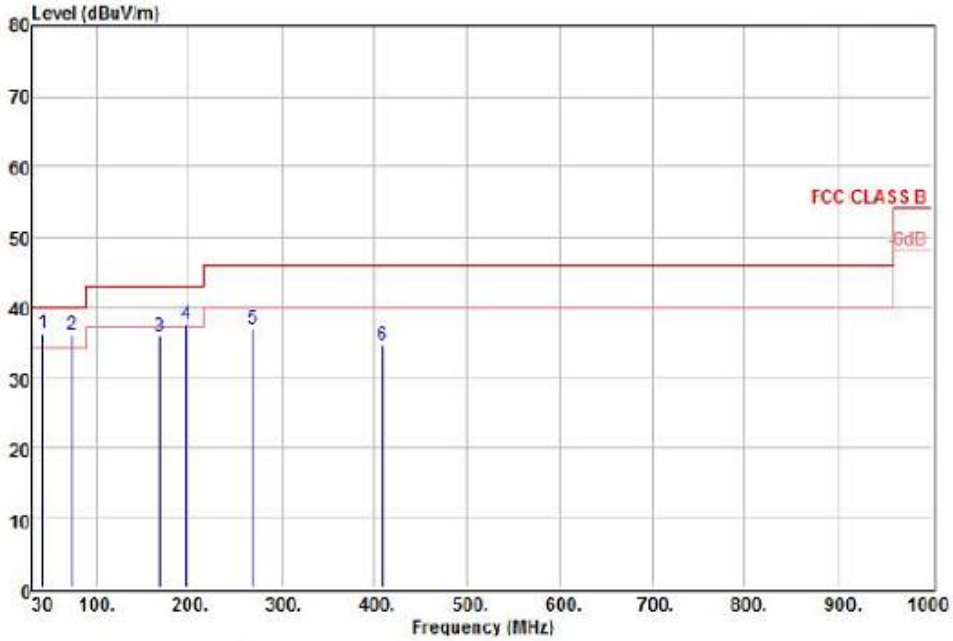
Above 10 GHz shall be extrapolated to the specified distance using an extrapolation factor of 20 dB/decade from 3m to 1m.
Distance extrapolation factor = 20 log (specific distance [3m] / test distance [1m]) (dB);
Limit line = specific limits (dBuV) + distance extrapolation factor [9.54 dB].

7.4 Test Result and Data (9kHz ~ 30MHz)

The 9kHz - 30MHz spurious emission is under limit 20dB more.

7.5 Test Result and Data (30MHz ~ 1GHz, worst emissions found)

Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 1	:	802.11n HT40, CH3	Temperature	:	22 °C
Memo	:	Dipole Antenna	Humidity	:	60 %

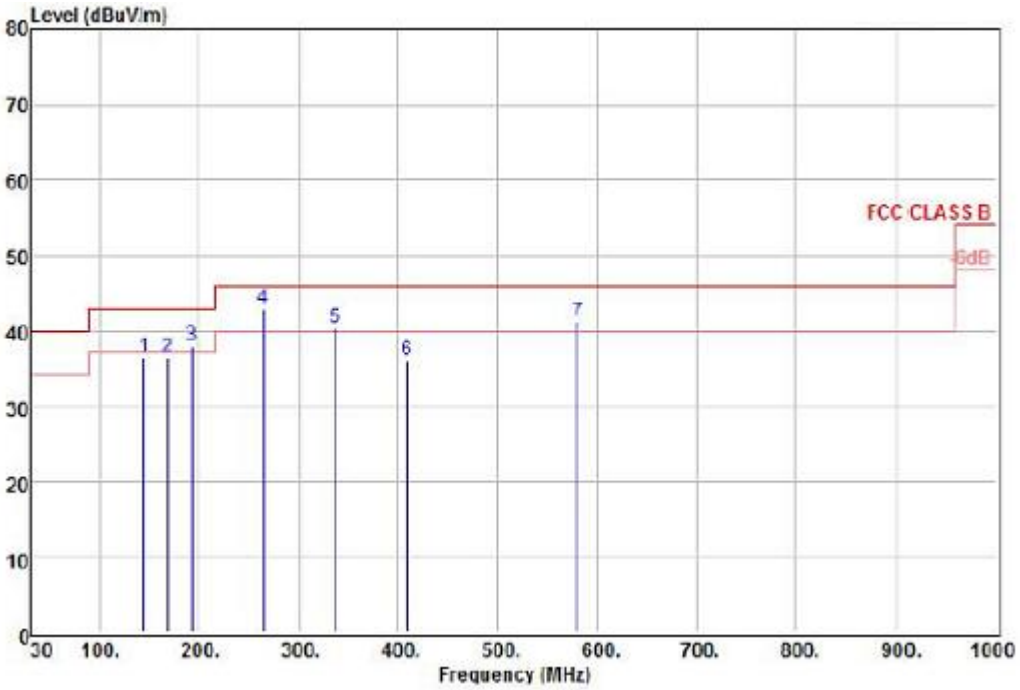


Site : open site
Condition : FCC CLASS B 3m VULB9160(30-10)-104 VERTICAL
EUT : 15010514
Power : AC 120V
Mode : Transmit
Temperature : 22
Humidity : 60
Memo : 802.11n HT40

Remarks: : 1.Result=Read Value+Factor
: 2.Factor=Antenna Factor+Cable loss-
: Amplifier Factor

	Freq	Read Level	Factor	Level	Over Limit	Limit Line	Remark
	MHz	dBuV	dB/m	dBuV/m	dB	dBuV/m	
1 !	42.06	52.24	-15.94	36.30	-3.70	40.00	QP
2 !	72.99	54.55	-18.53	36.02	-3.98	40.00	QP
3	168.27	50.80	-14.94	35.86	-7.14	43.00	QP
4 !	196.37	54.68	-17.08	37.60	-5.40	43.00	QP
5	268.10	51.79	-14.92	36.87	-9.13	46.00	QP
6	408.72	45.48	-10.92	34.56	-11.44	46.00	QP

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 1	:	802.11n HT40, CH3	Temperature	:	22 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



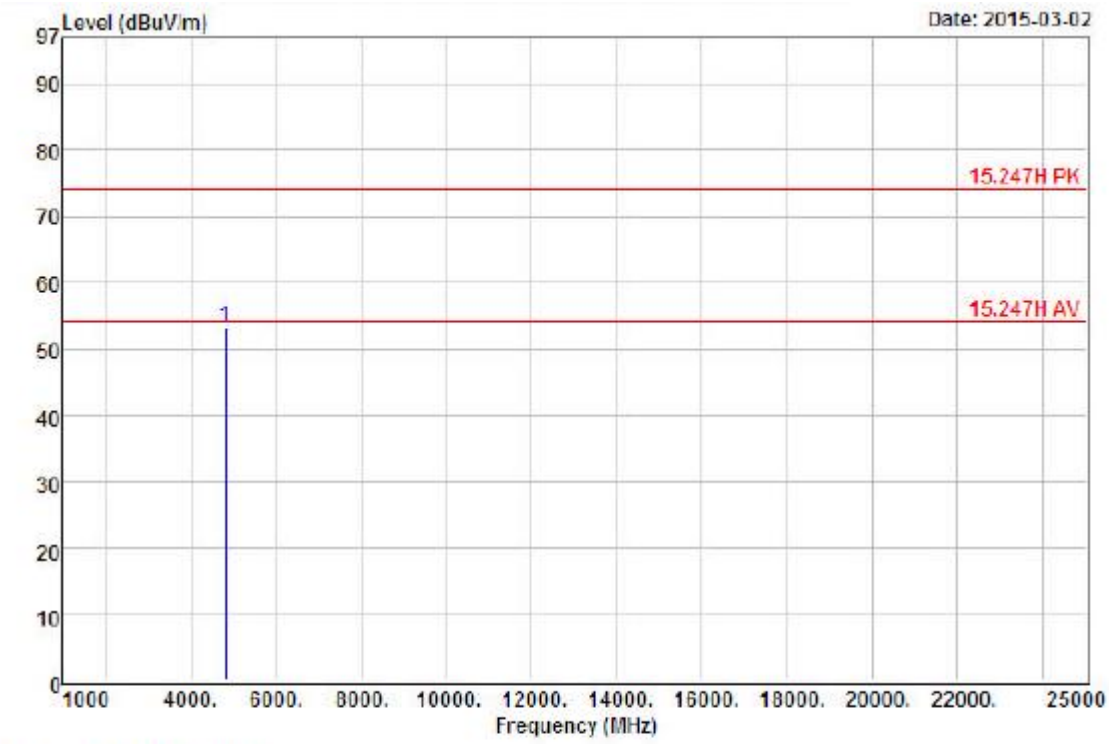
Site : open site
Condition : FCC CLASS B 3m VULB9160(30-10)-104 HORIZONTAL
EUT : 15010514
Power : AC 120V
Mode : Transmit
Temperature : 22
Humidity : 60
Memo : 802.11n HT40

Remarks: : 1.Result=Read Value+Factor
: 2.Factor=Antenna Factor+Cable loss-
: Amplifier Factor

		Freq	Read Level	Factor	Level	Over Limit	Limit Line	Remark
		MHz	dBuV	dB/m	dBuV/m	dB	dBuV/m	
1		144.00	51.53	-15.04	36.49	-6.51	43.00	QP
2		167.98	51.36	-14.92	36.44	-6.56	43.00	QP
3	!	192.39	54.80	-16.82	37.98	-5.02	43.00	QP
4	!	264.23	58.02	-15.04	42.98	-3.02	46.00	QP
5	!	336.81	53.25	-12.91	40.34	-5.66	46.00	QP
6		408.68	46.89	-10.92	35.97	-10.03	46.00	QP
7	!	580.49	48.64	-7.36	41.28	-4.72	46.00	QP

7.6 Test Result and Data (Above 1GHz)

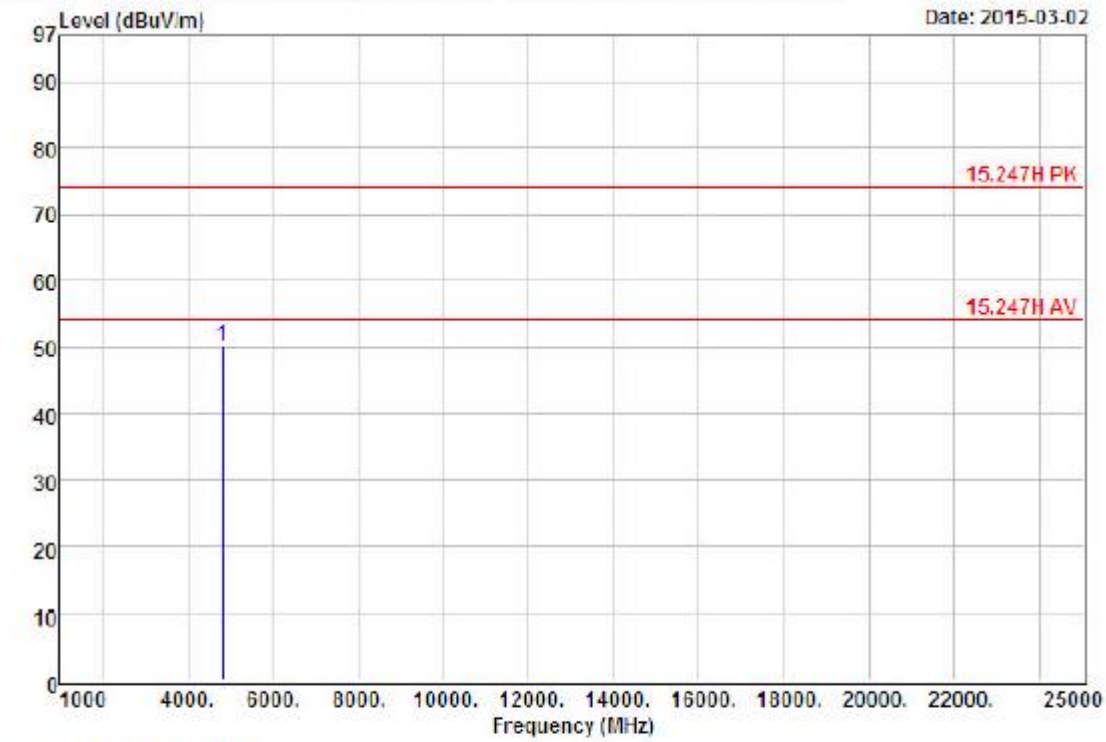
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 1	:	802.11b, CH1	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11b CH1

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4824.04	60.79	53.38	-7.41	-20.62	74.00	Peak

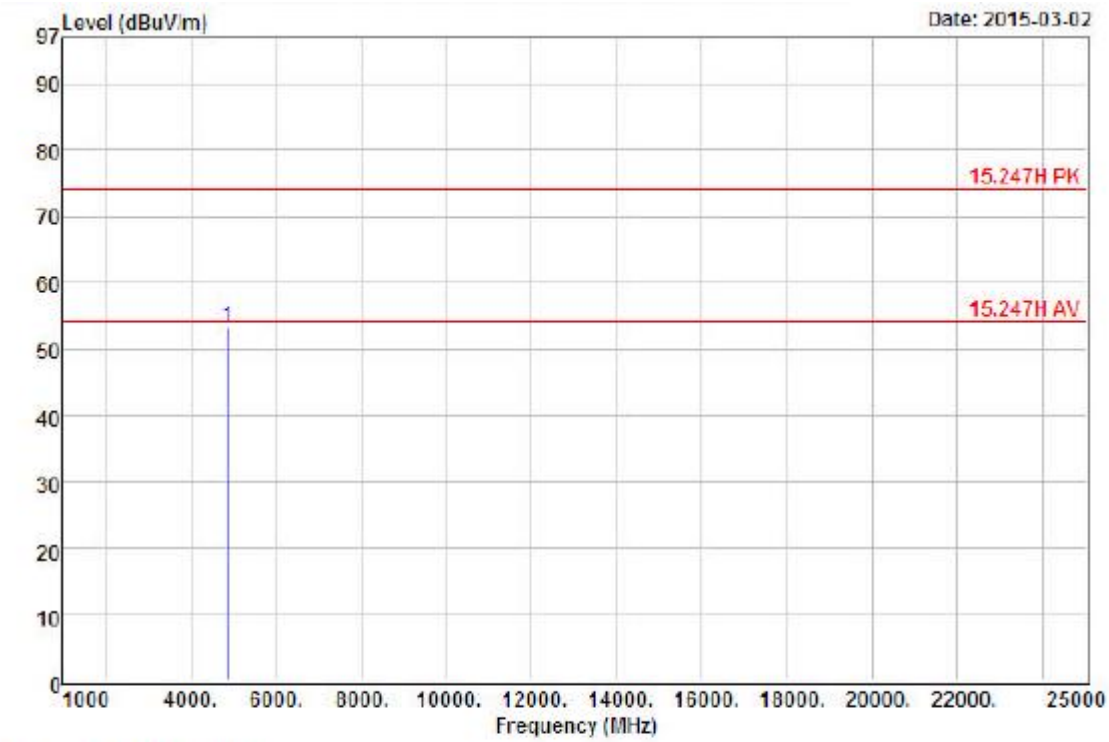
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 1	:	802.11b, CH1	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11b CH1

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4824.10	57.59	50.18	-7.41	-23.82	74.00	Peak

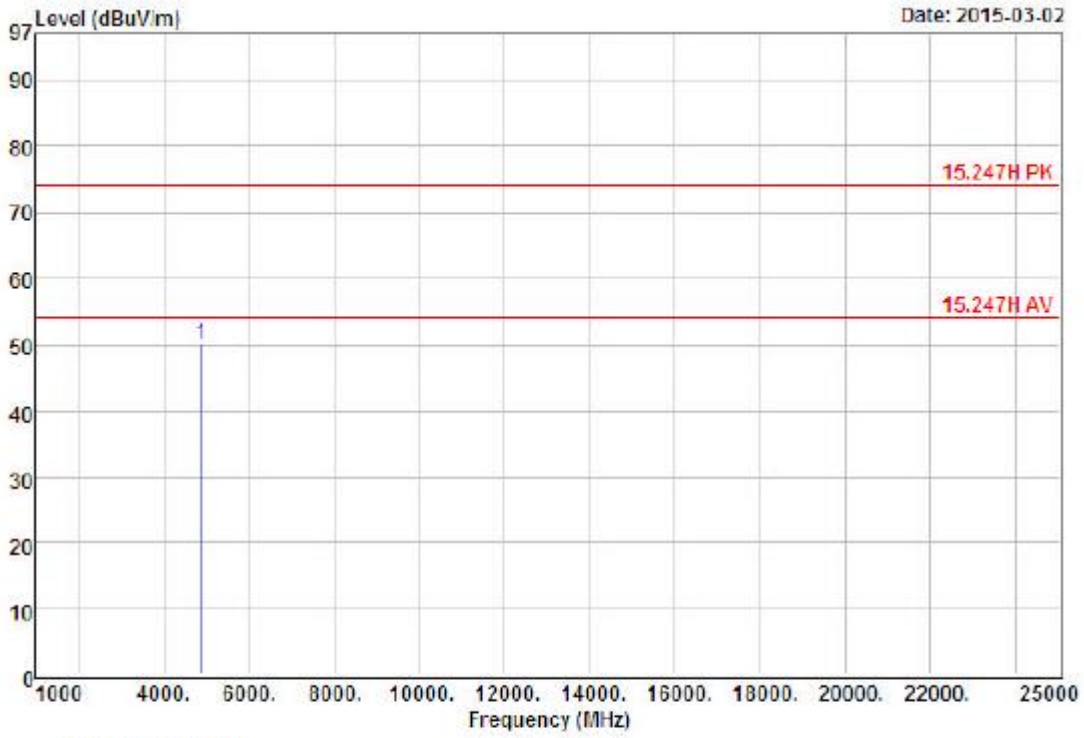
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 1	:	802.11b, CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11b CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.05	60.47	53.31	-7.16	-20.69	74.00	Peak

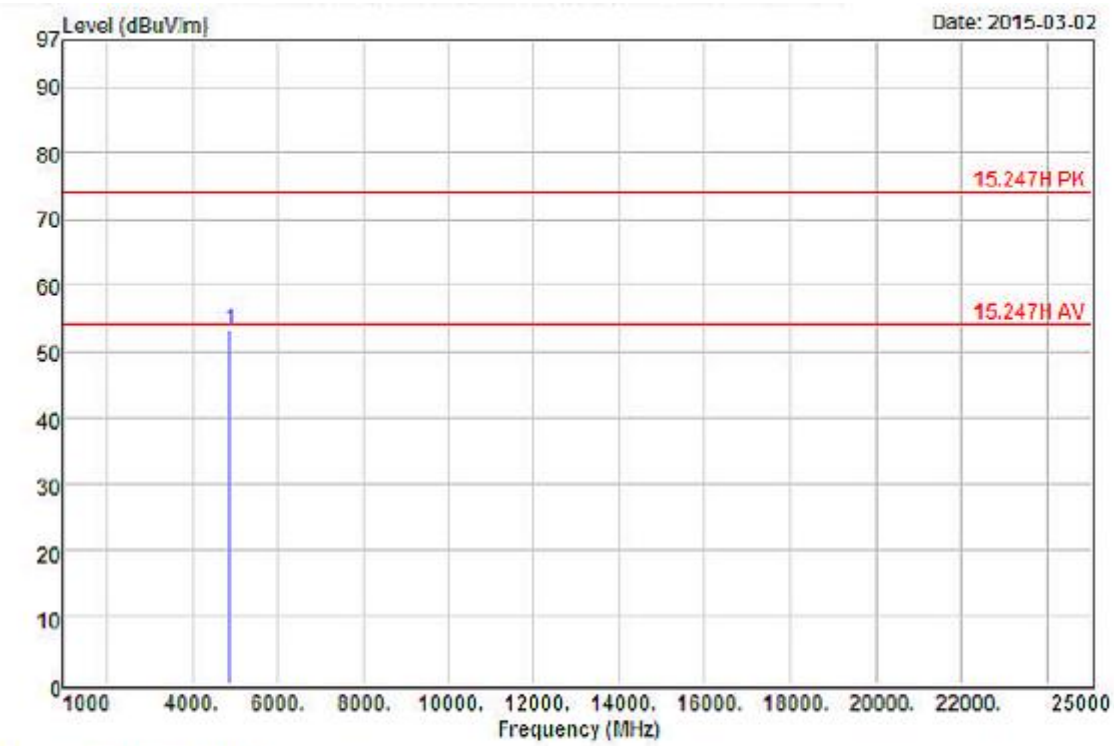
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 1	:	802.11b, CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11b CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.15	57.47	50.31	-7.16	-23.69	74.00	Peak

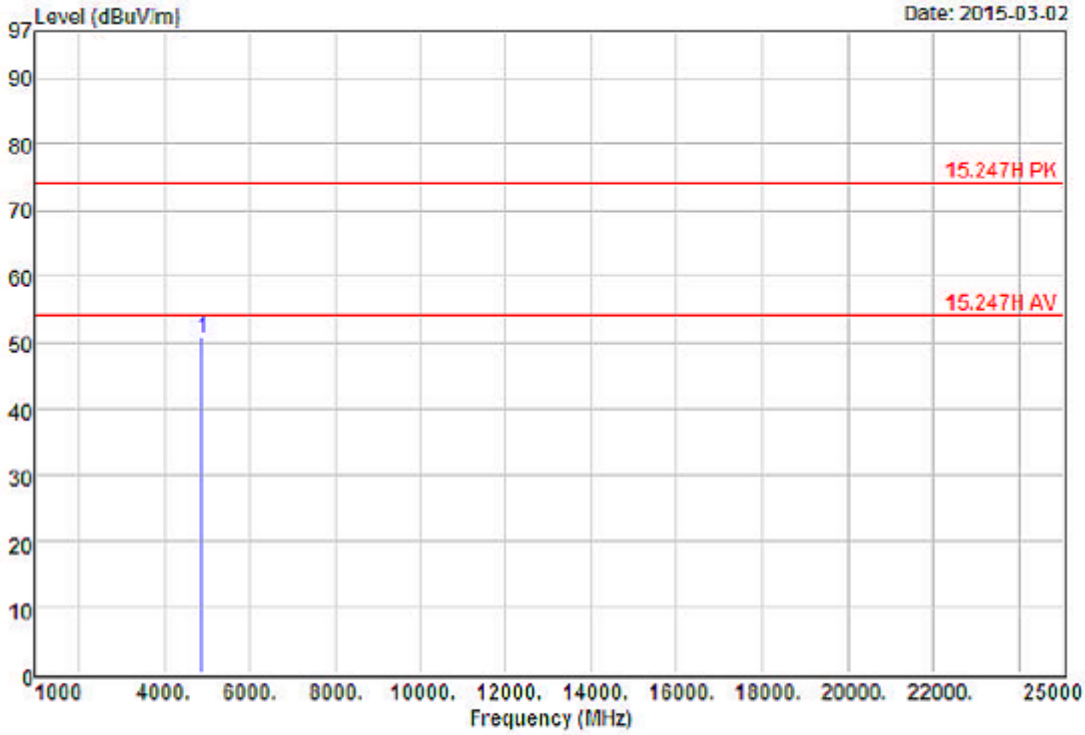
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 1	:	802.11b, CH11	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11b CH11

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4944.03	60.33	53.41	-6.92	-20.59	74.00	Peak

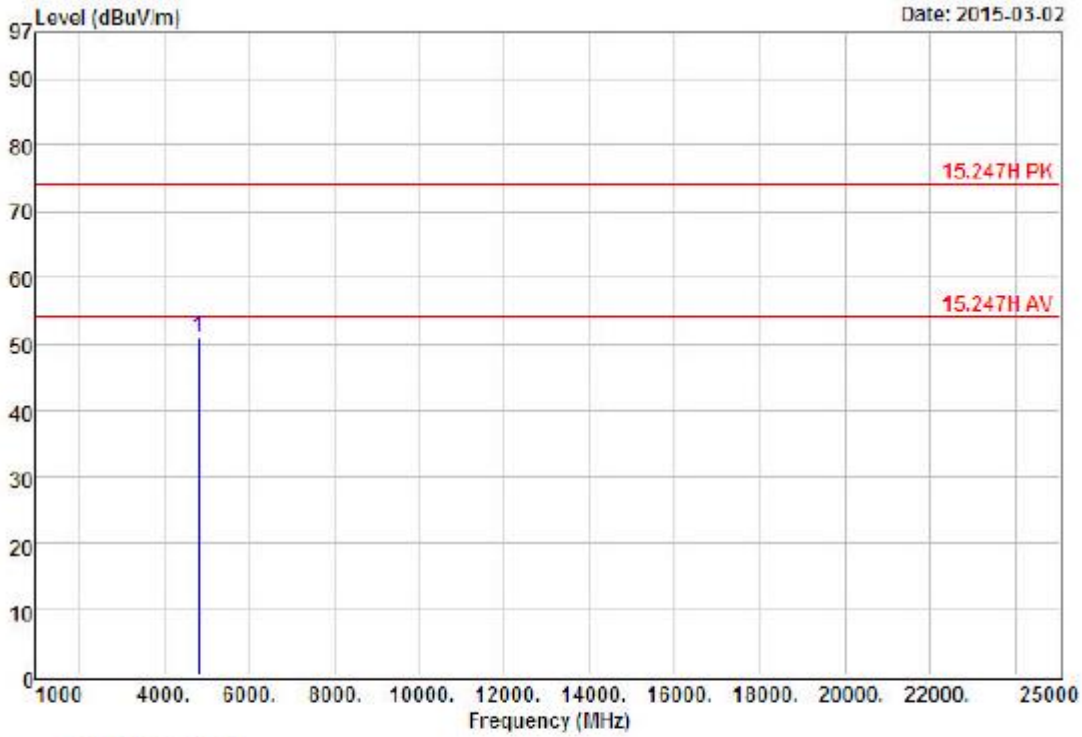
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 1	:	802.11b, CH11	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11b CH11

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4944.07	57.63	50.71	-6.92	-23.29	74.00	Peak

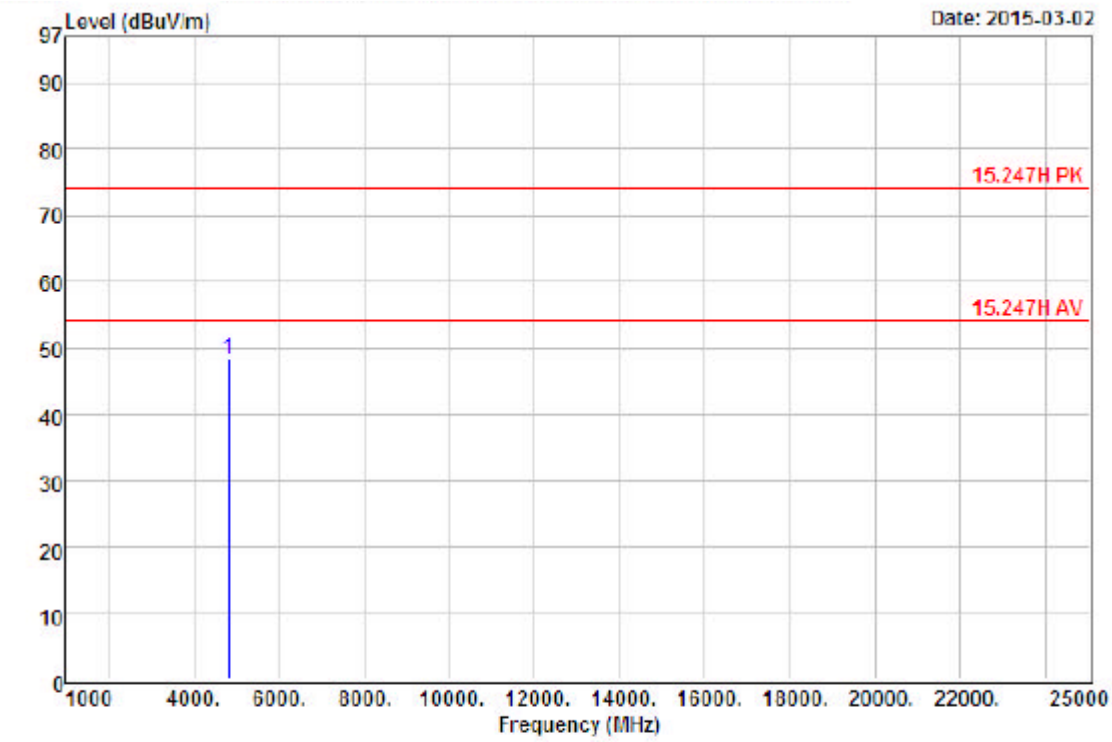
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 2	:	802.11g, CH1	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11g CH1

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4824.07	58.51	51.10	-7.41	-22.90	74.00	Peak

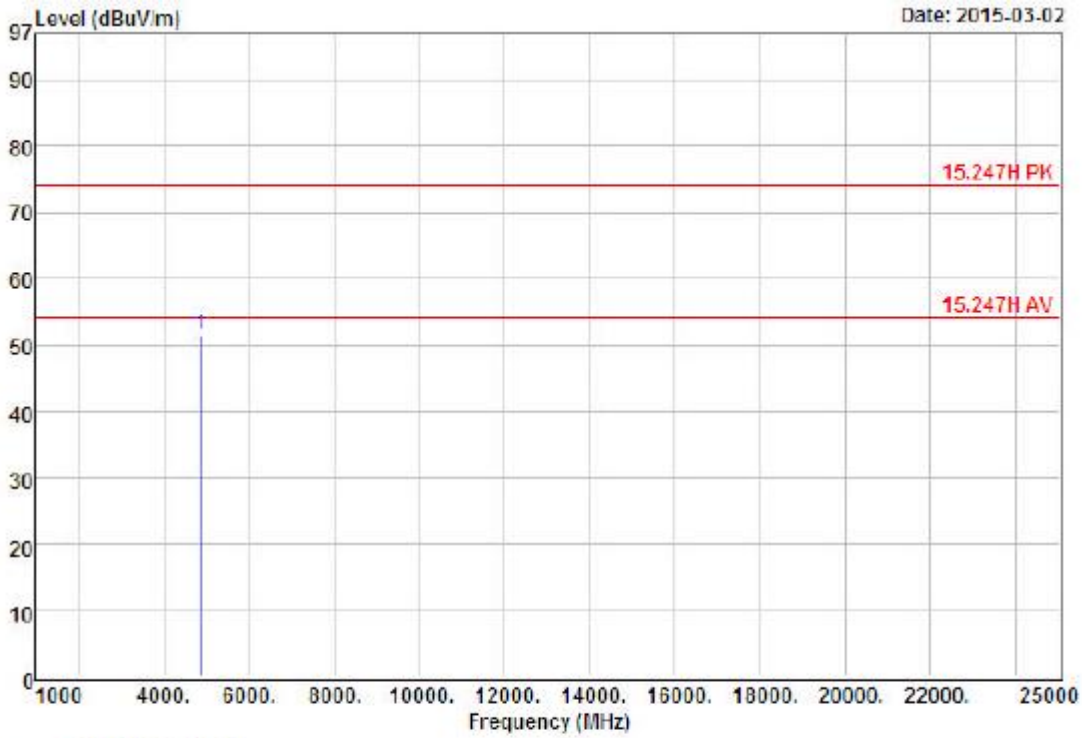
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 2	:	802.11g, CH1	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11g CH1

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4824.11	55.91	48.50	-7.41	-25.50	74.00	Peak

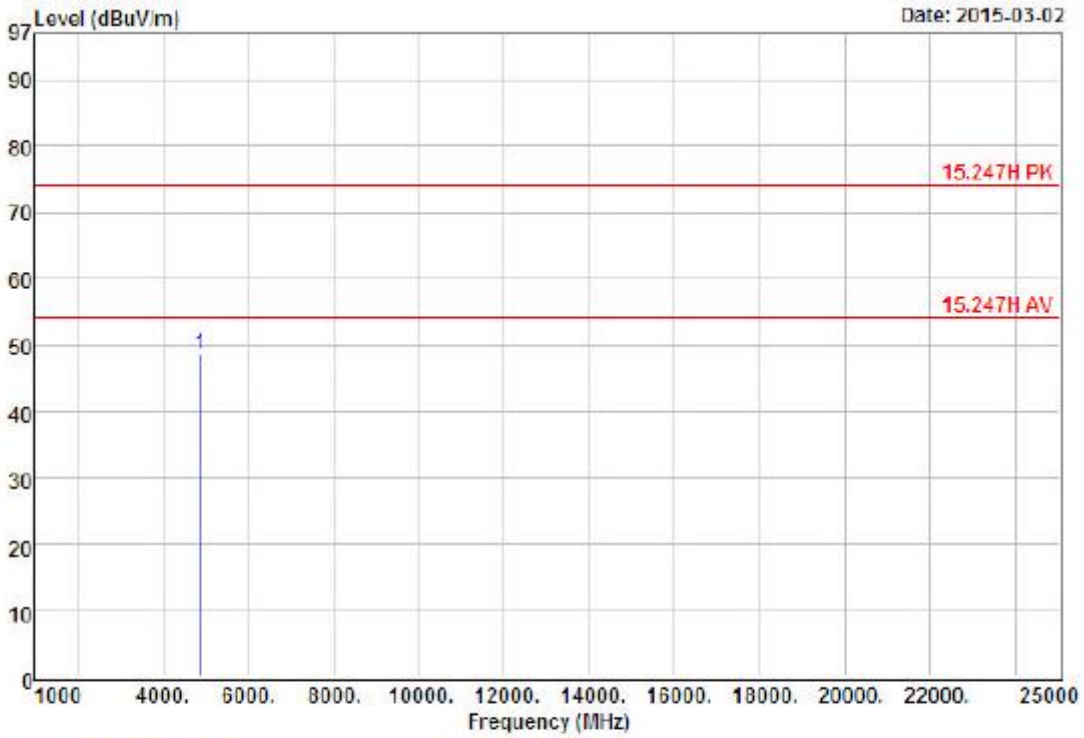
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 2	:	802.11g, CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11g CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.10	58.67	51.51	-7.16	-22.49	74.00	Peak

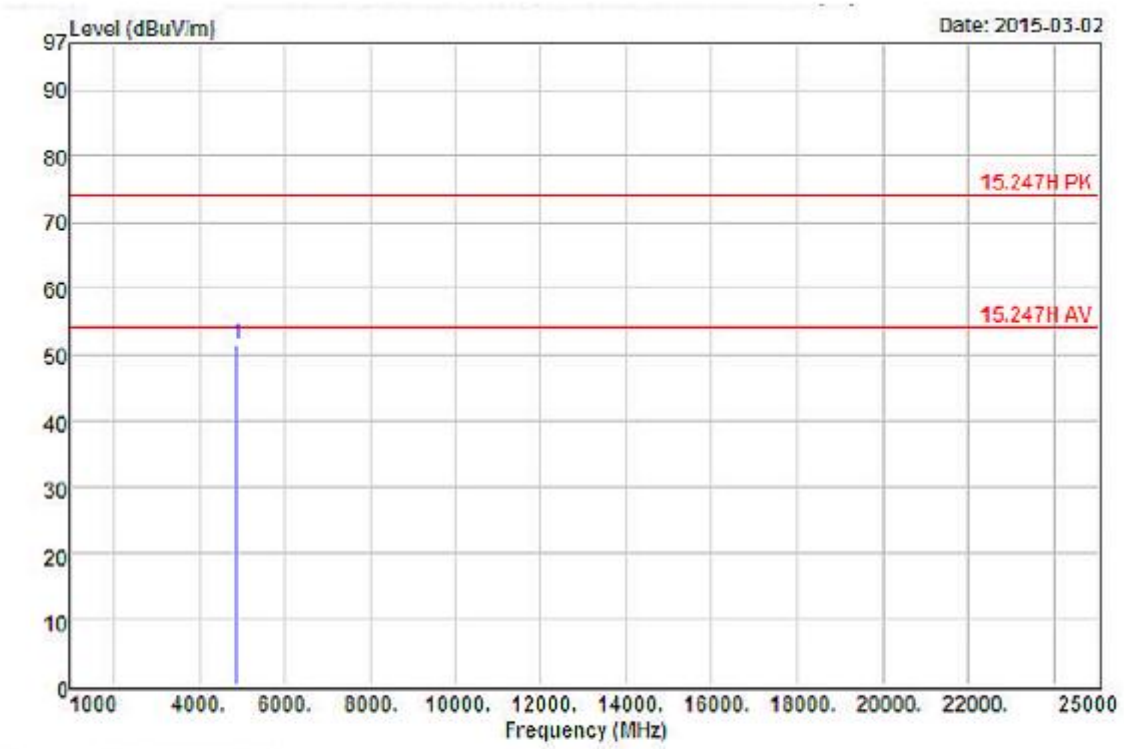
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 2	:	802.11g, CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11g CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.20	55.87	48.71	-7.16	-25.29	74.00	Peak

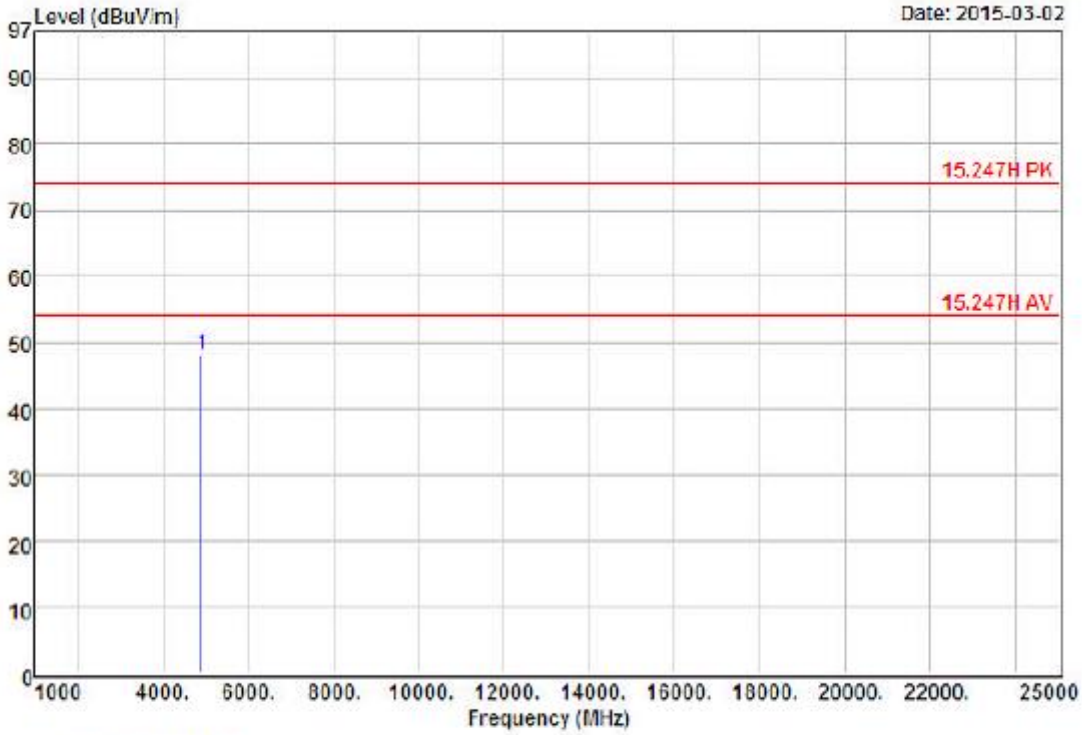
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 2	:	802.11g, CH11	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11g CH11

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4944.04	58.43	51.51	-6.92	-22.49	74.00	Peak

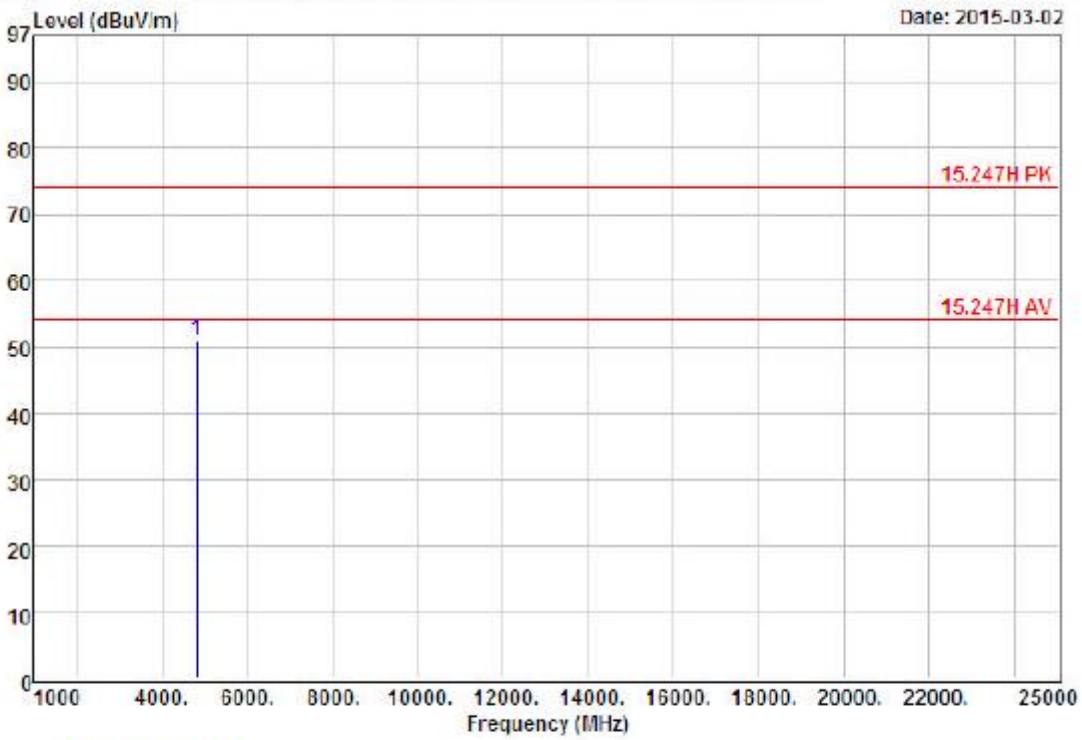
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 2	:	802.11g, CH11	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11g CH11

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4944.06	55.16	48.24	-6.92	-25.76	74.00	Peak

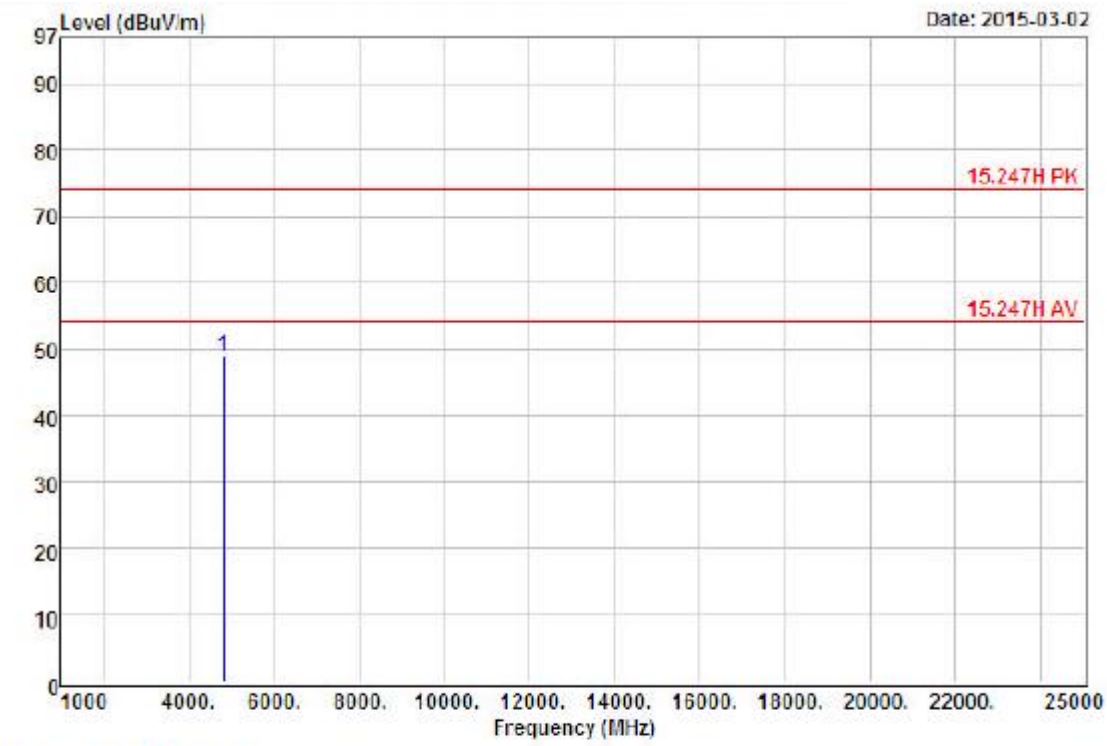
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 3	:	802.11n HT20, CH1	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11n HT20 CH1

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4824.10	58.51	51.10	-7.41	-22.90	74.00	Peak

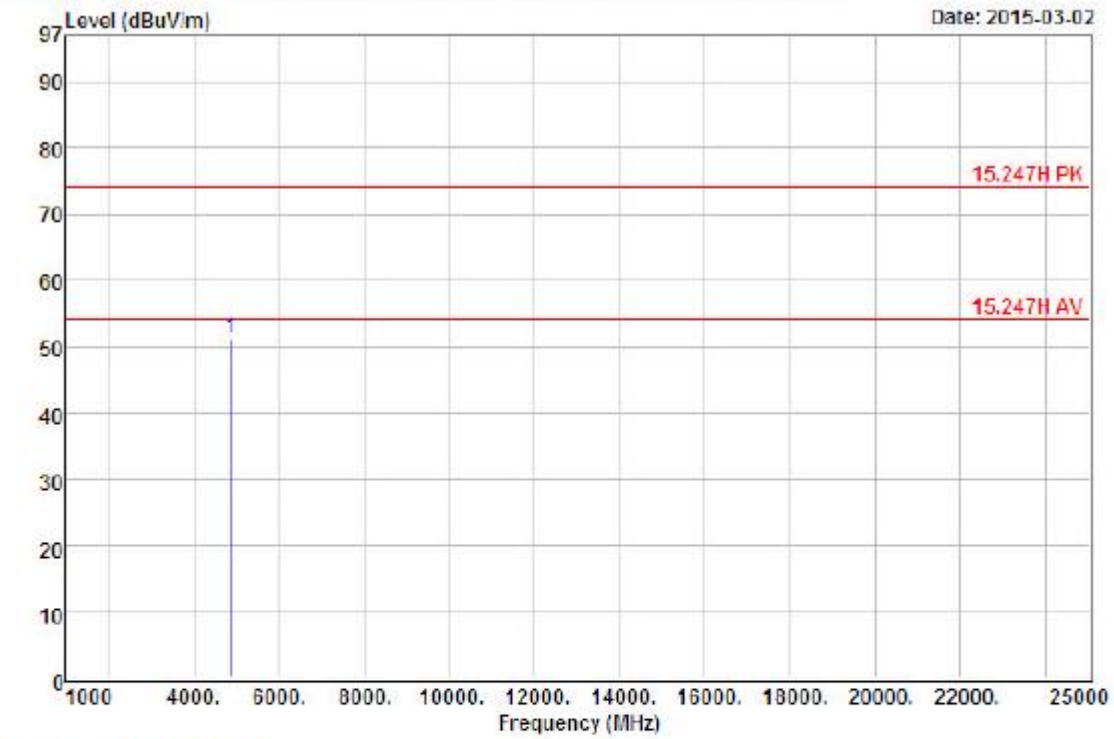
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 3	:	802.11n HT20, CH1	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11n HT20 CH1

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4824.06	56.21	48.80	-7.41	-25.20	74.00	Peak

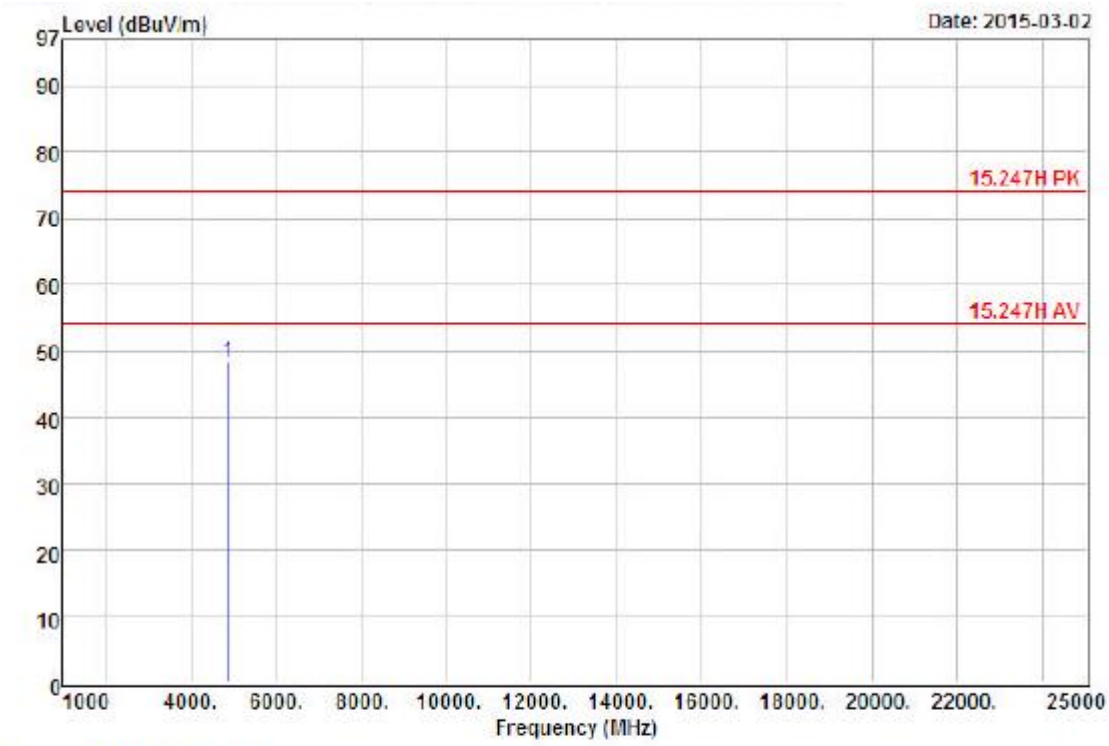
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 3	:	802.11n HT20, CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11n HT20 CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.15	58.47	51.31	-7.16	-22.69	74.00	Peak

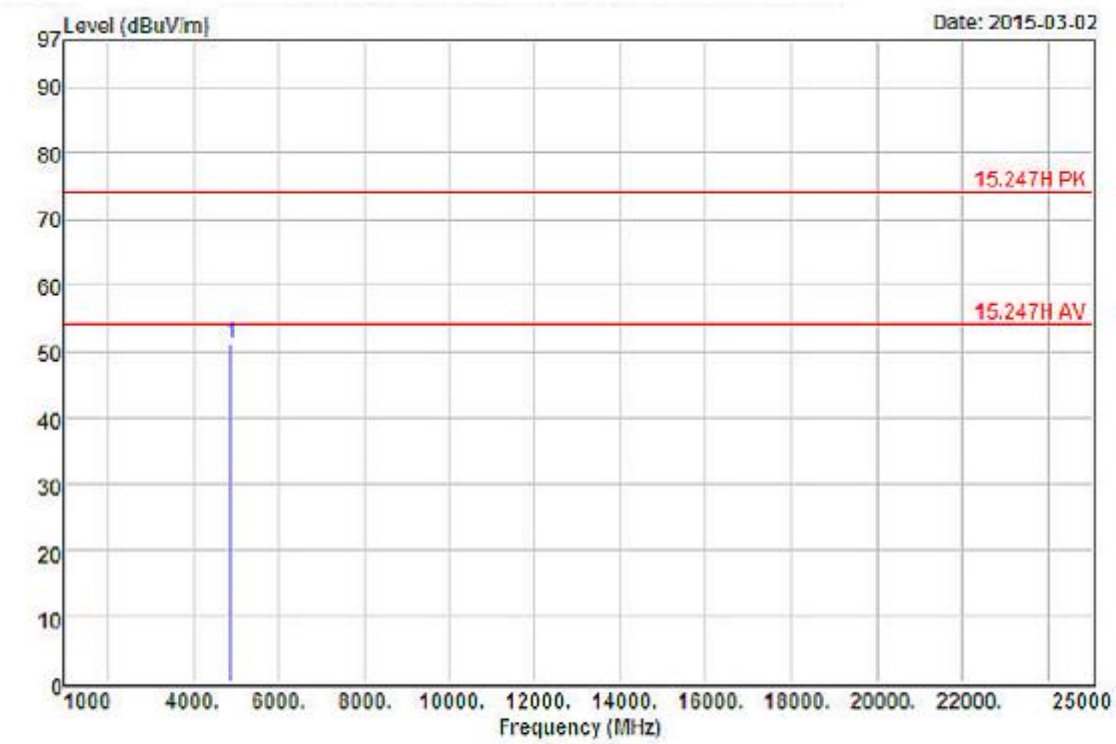
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 3	:	802.11n HT20, CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11n HT20 CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.00	55.47	48.31	-7.16	-25.69	74.00	Peak

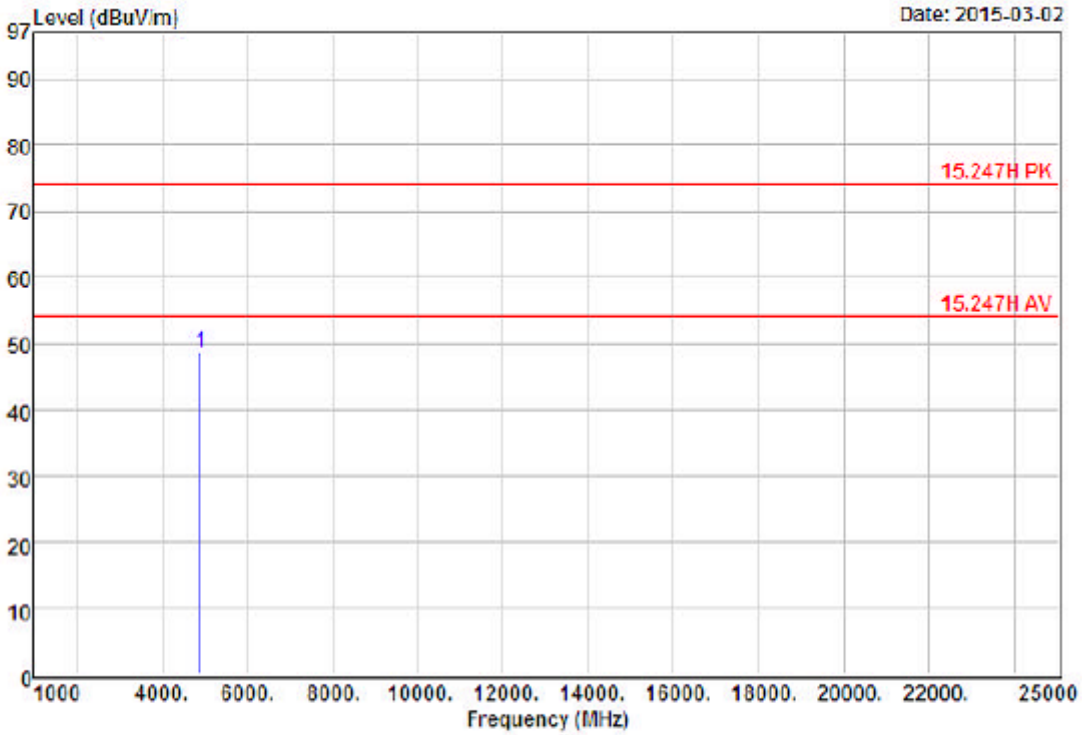
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 3	:	802.11n HT20, CH11	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11n HT20 CH11

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4944.04	58.13	51.21	-6.92	-22.79	74.00	Peak

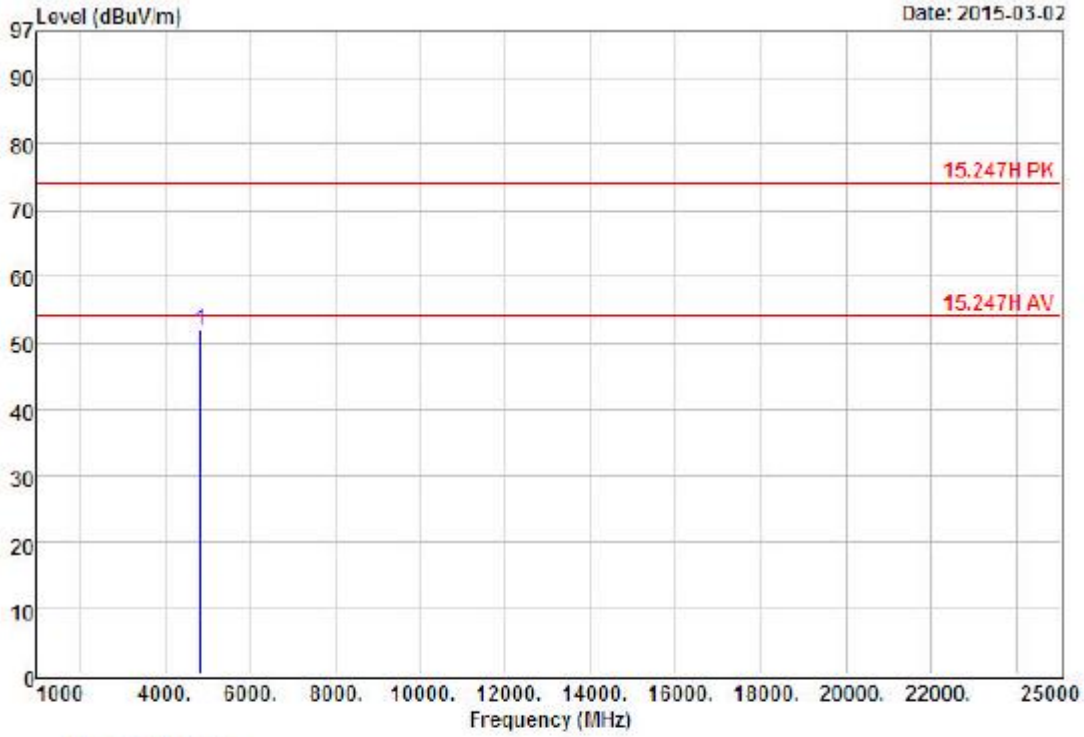
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 3	:	802.11n HT20, CH11	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11n HT20 CH11

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4944.15	55.53	48.61	-6.92	-25.39	74.00	Peak

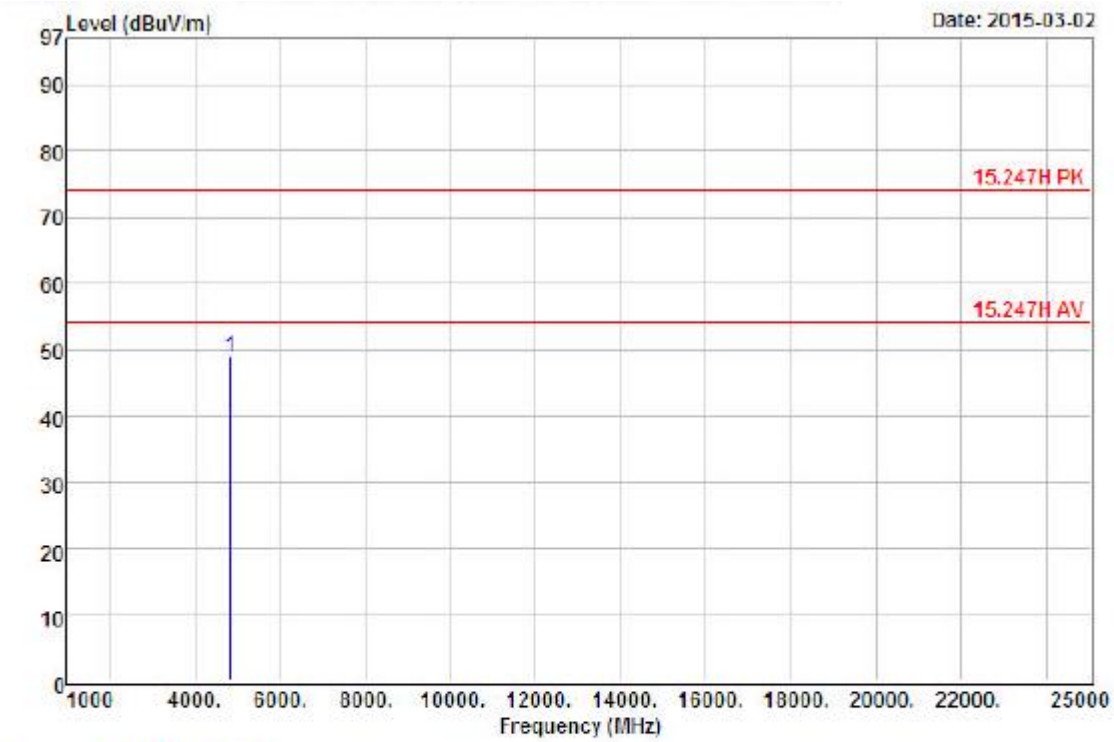
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 4	:	802.11n HT40 CH3	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11n HT40 CH3

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4844.00	59.21	51.90	-7.31	-22.10	74.00	Peak

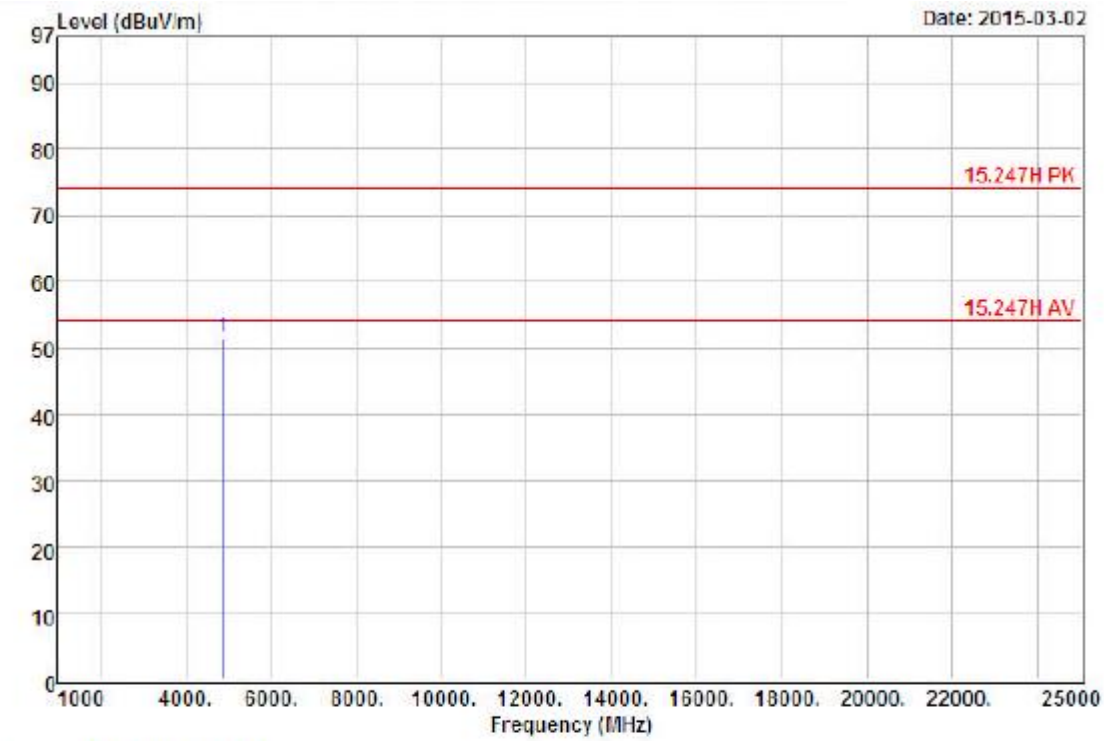
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 4	:	802.11n HT40 CH3	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11n HT40 CH3

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4844.00	56.31	49.00	-7.31	-25.00	74.00	Peak

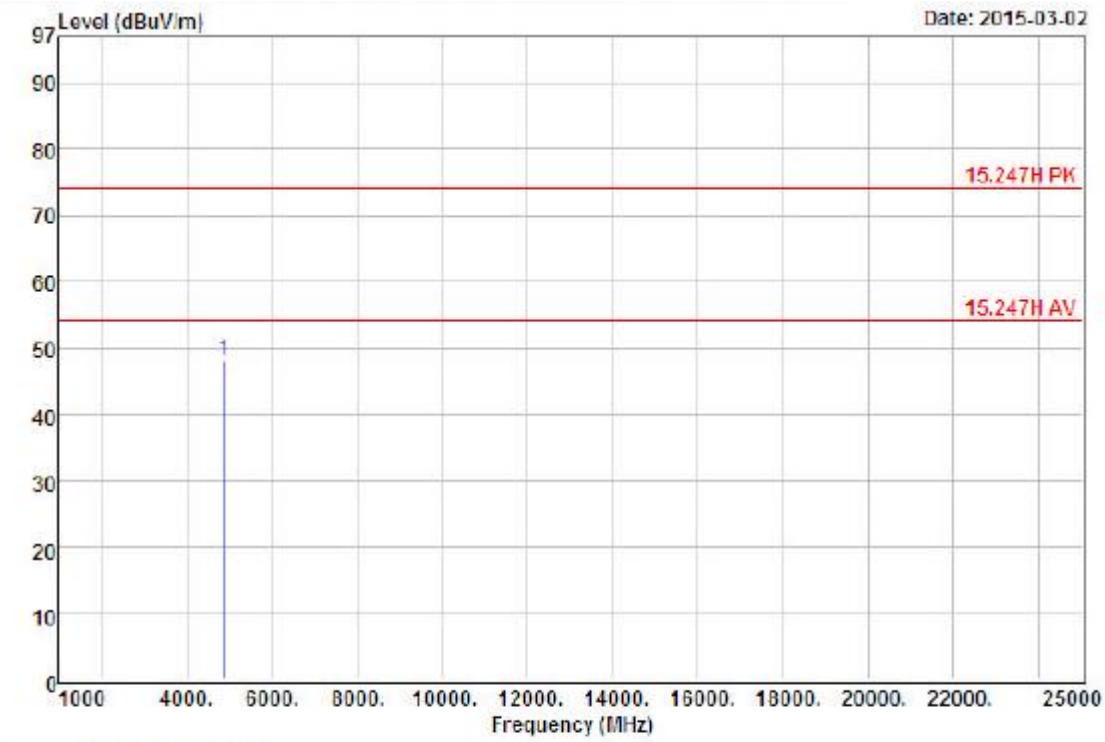
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 4	:	802.11n HT40 CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11n HT40 CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.11	58.57	51.41	-7.16	-22.59	74.00	Peak

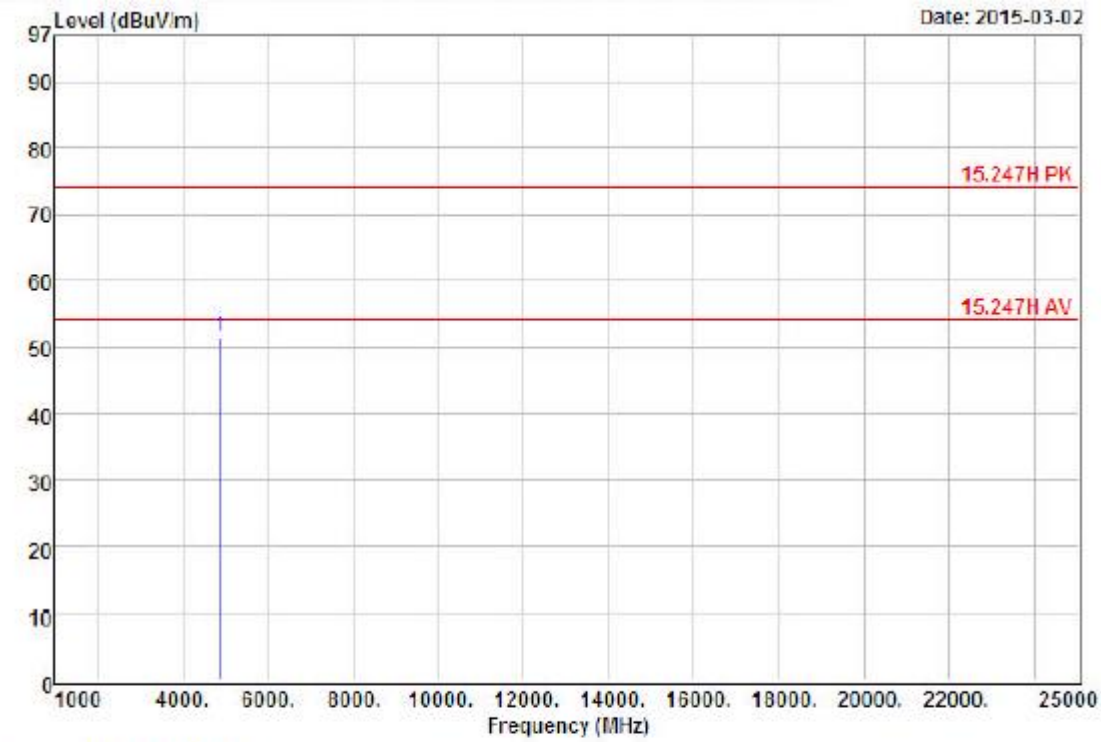
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 4	:	802.11n HT40 CH6	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11n HT40 CH6

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4874.00	55.37	48.21	-7.16	-25.79	74.00	Peak

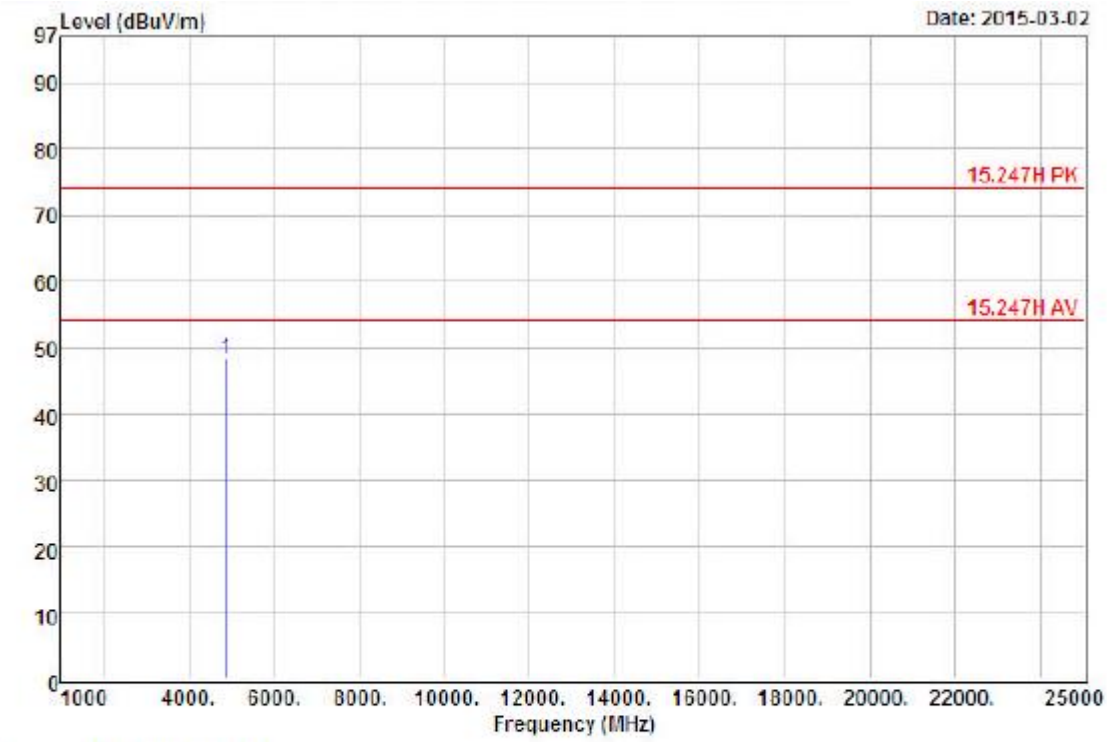
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode 4	:	802.11n HT40, CH9	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 VERTICAL
eut : 15010514
mode : Transmit
memo : 802.11n HT40 CH9

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4904.05	58.42	51.41	-7.01	-22.59	74.00	Peak

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode 4	:	802.11n HT40, CH9	Temperature	:	25 °C
Memo	:	Dipole Antenna	Humidity	:	60 %



Site : OPEN SITE
Condition: 15.247H PK AH-118(1-18G)104 HORIZONTAL
eut : 15010514
mode : Transmit
memo : 802.11n HT40 CH9

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV/m	dB/m	dB	dBuV/m	
1	4904.07	55.47	48.46	-7.01	-25.54	74.00	Peak

8. 6dB Bandwidth Measurement Data

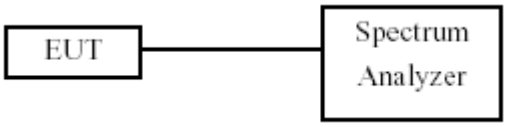
8.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

8.2 Test Procedures

a. The transmitter output was connected to the spectrum analyzer.
b. Set RBW of spectrum analyzer to 1~5% of the emission bandwidth and VBW ≥ 3x RBW.
c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
d. The 6dB Bandwidth was measured and recorded.

8.3 Test Setup Layout



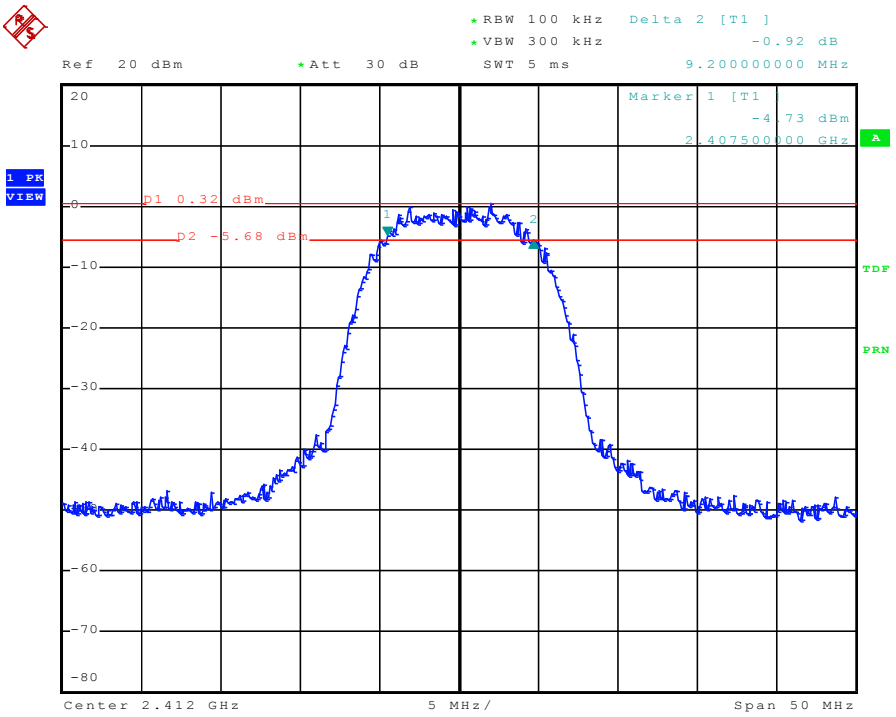
8.4 Test Result and Data

Test Date: Feb. 13, 2015 Temperature: 22℃

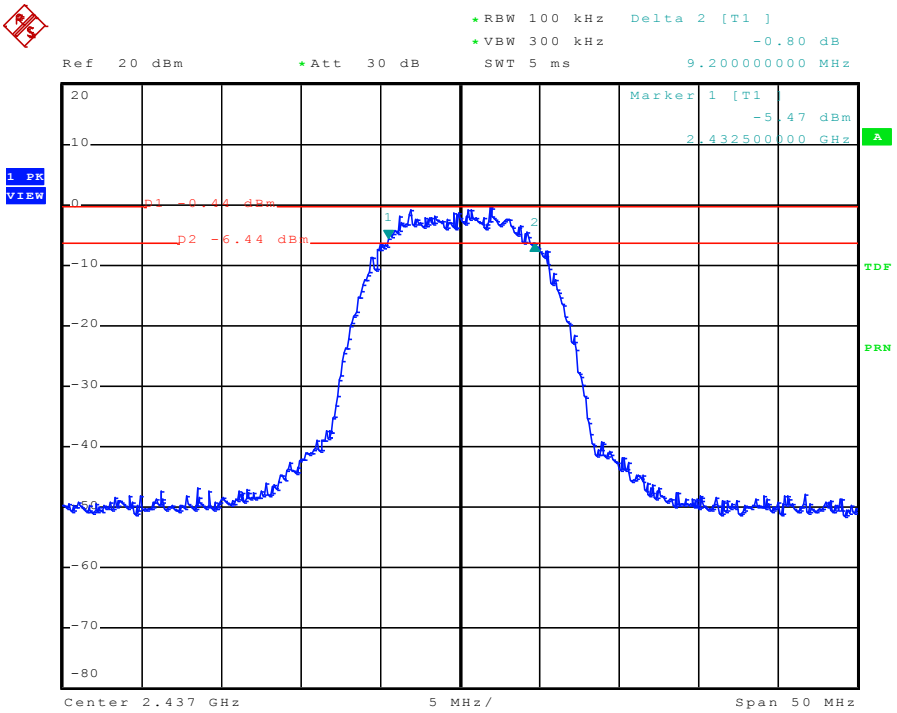
Atmospheric pressure: 1020 hPa Humidity: 60%

Modulation Standard	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	
			ANT R	ANT L
802.11b (11Mbps)	01	2412	9.2	9.2
	06	2437	9.2	9.2
	11	2472	9.2	9.2
802.11g (6Mbps)	01	2412	16.7	16.6
	06	2437	16.5	16.5
	11	2472	16.6	16.6
802.11n HT20 (6.5Mbps)	01	2412	17.8	17.7
	06	2437	17.8	17.7
	11	2472	17.8	17.7
802.11n HT40 (13.5Mbps)	03	2422	36.4	36.4
	06	2437	36.6	36.4
	09	2452	36.6	36.6

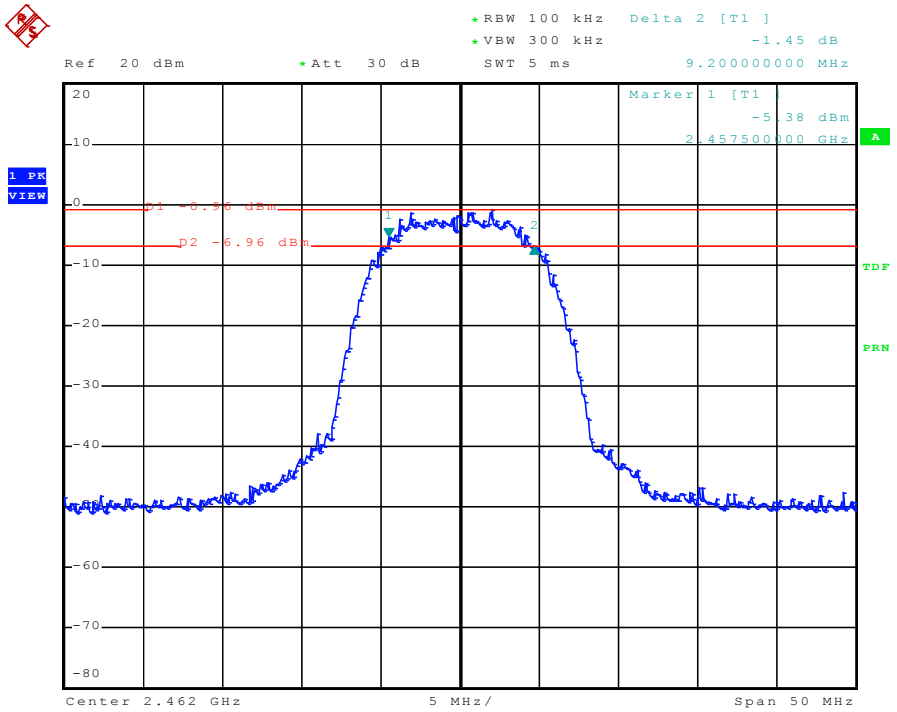
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 01



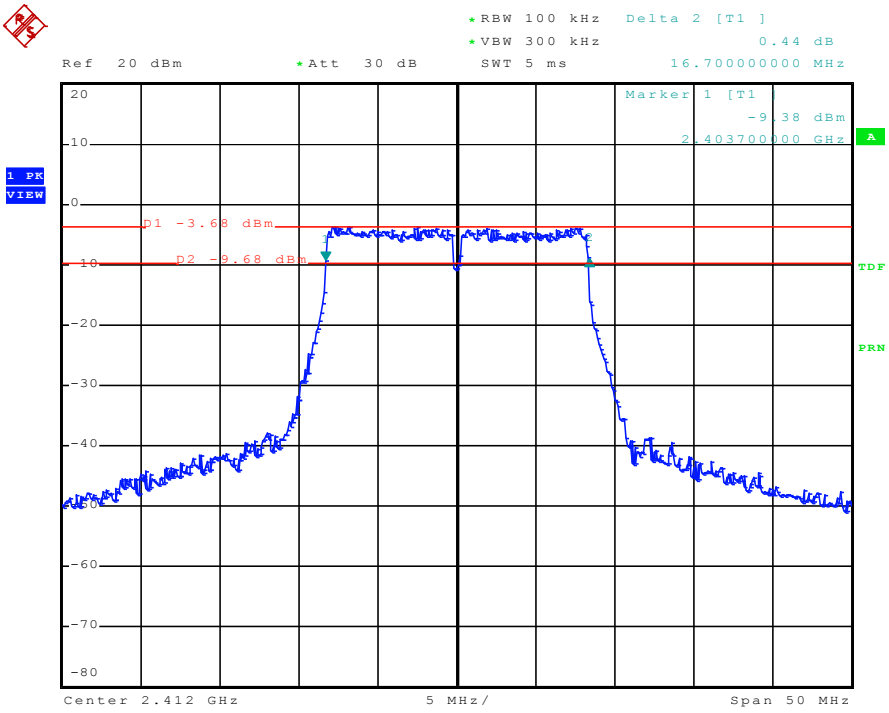
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 06



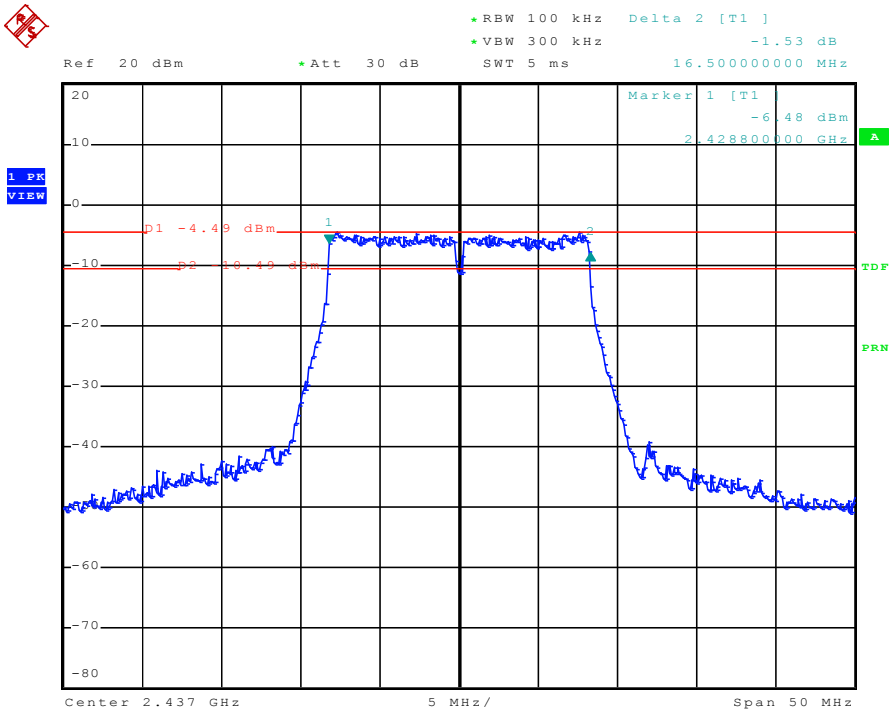
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 11



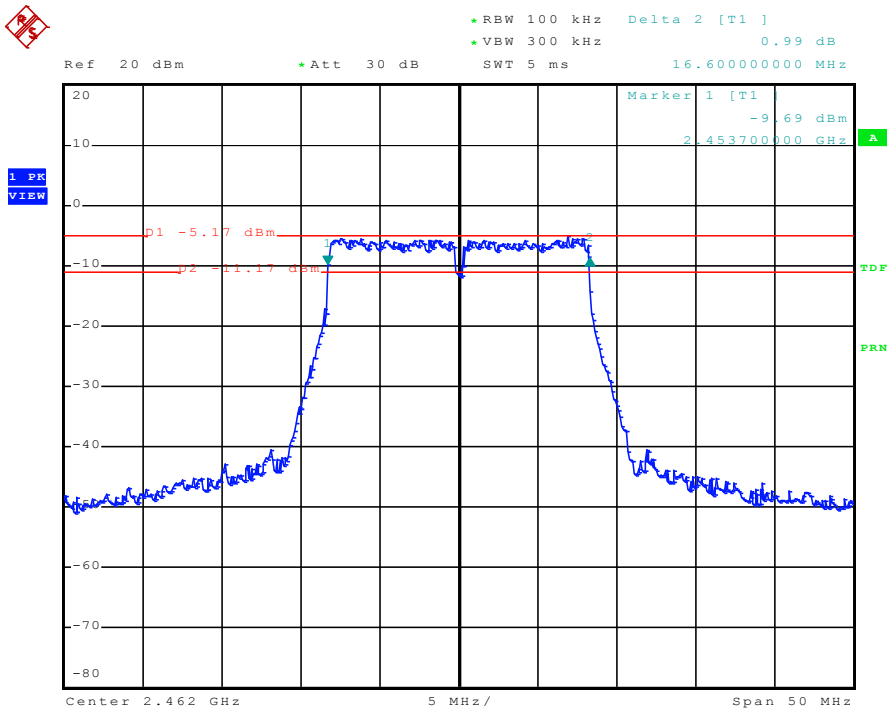
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 01



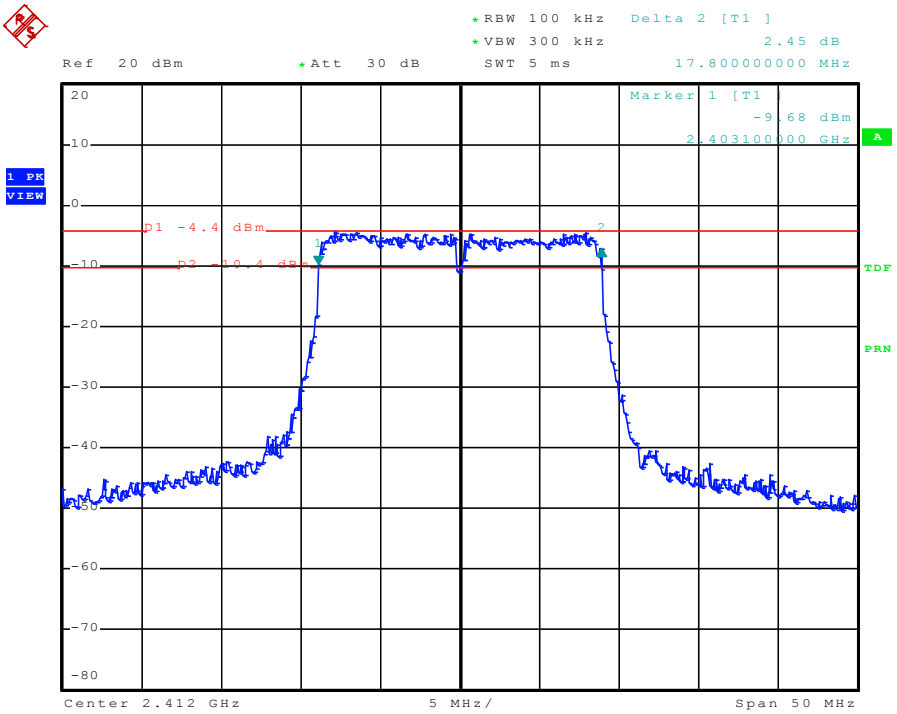
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 06



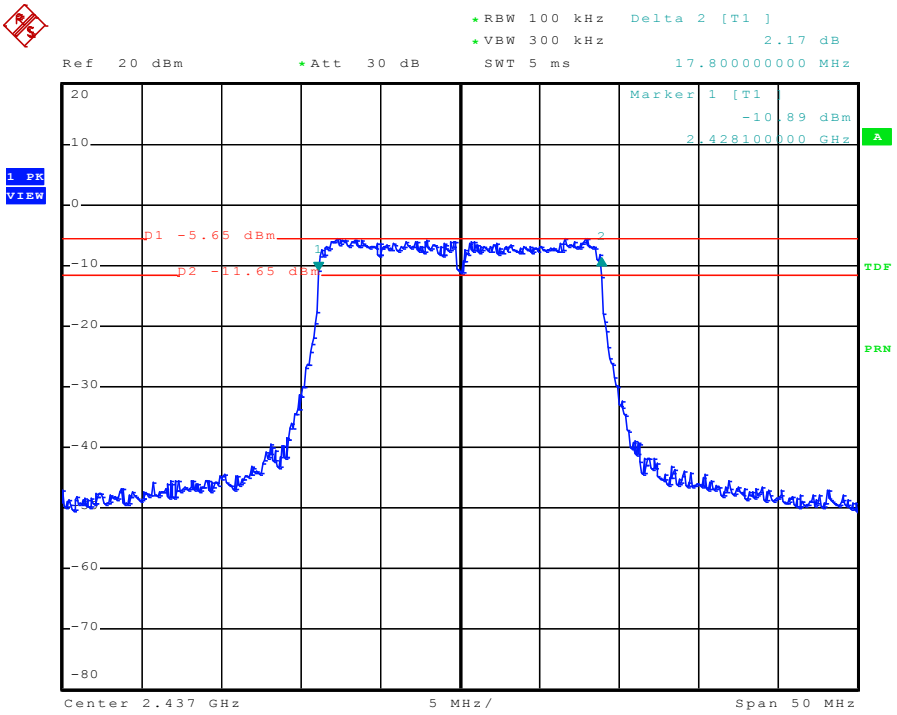
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 11



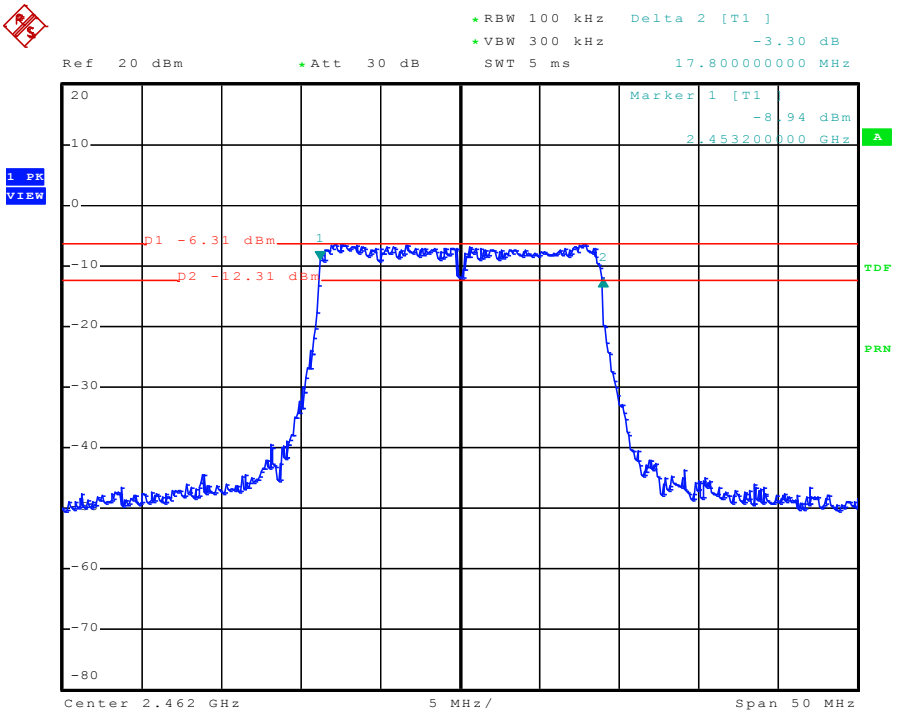
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 01



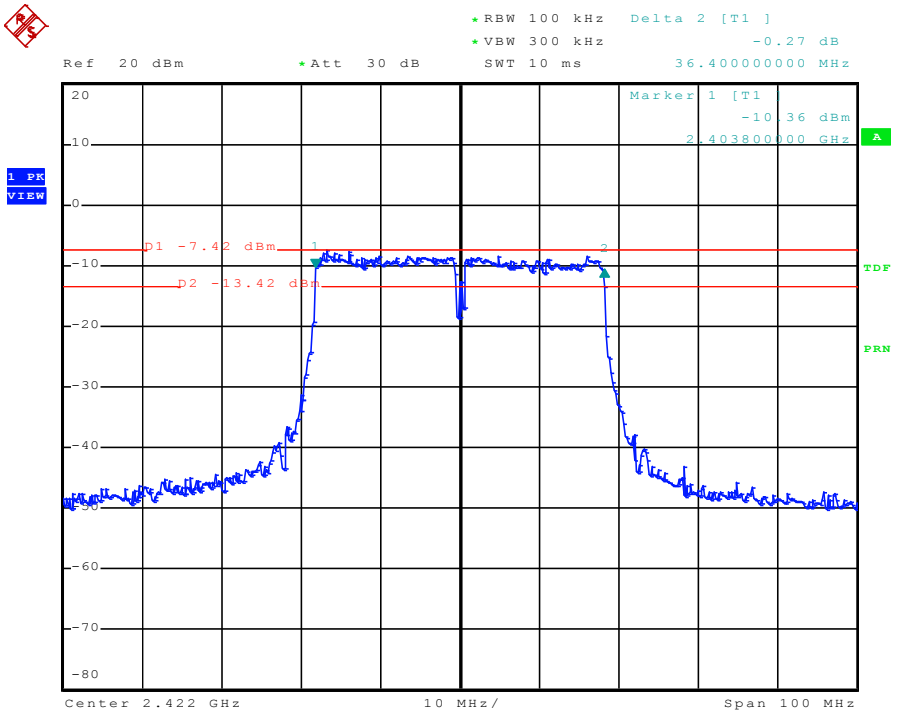
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 06



Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 11

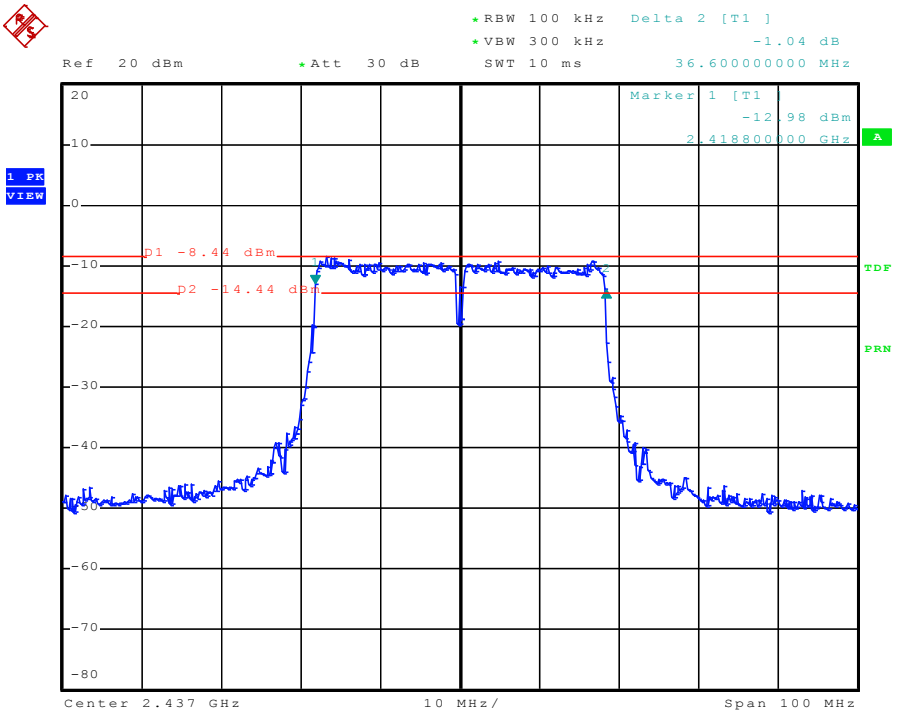


Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 03

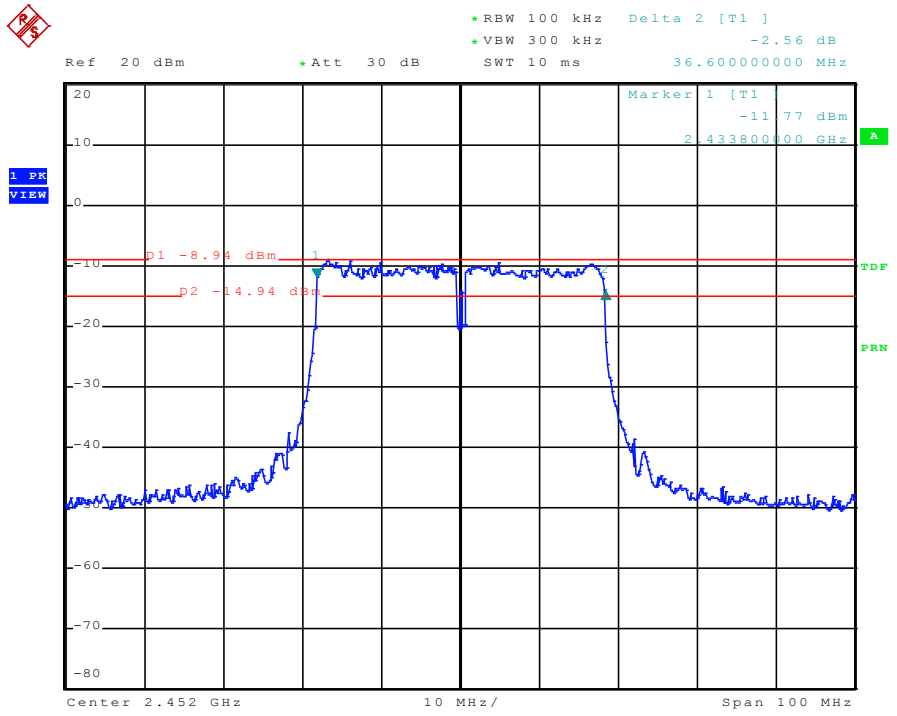


Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R

Channel: 06

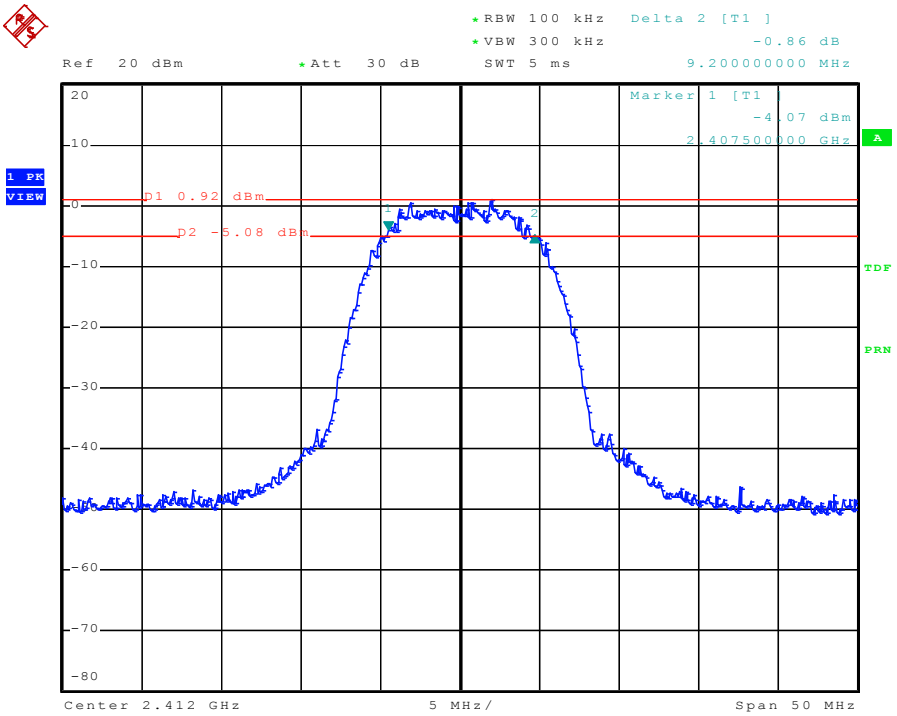


Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 09



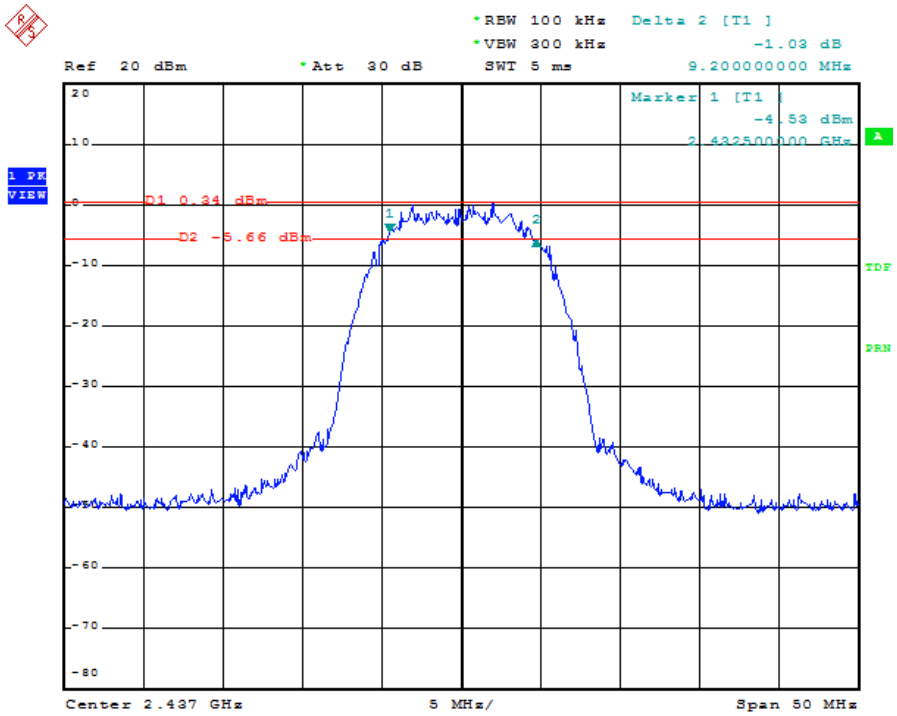
Modulation Standard: 802.11b (11Mbps), ANT L

Channel: 01



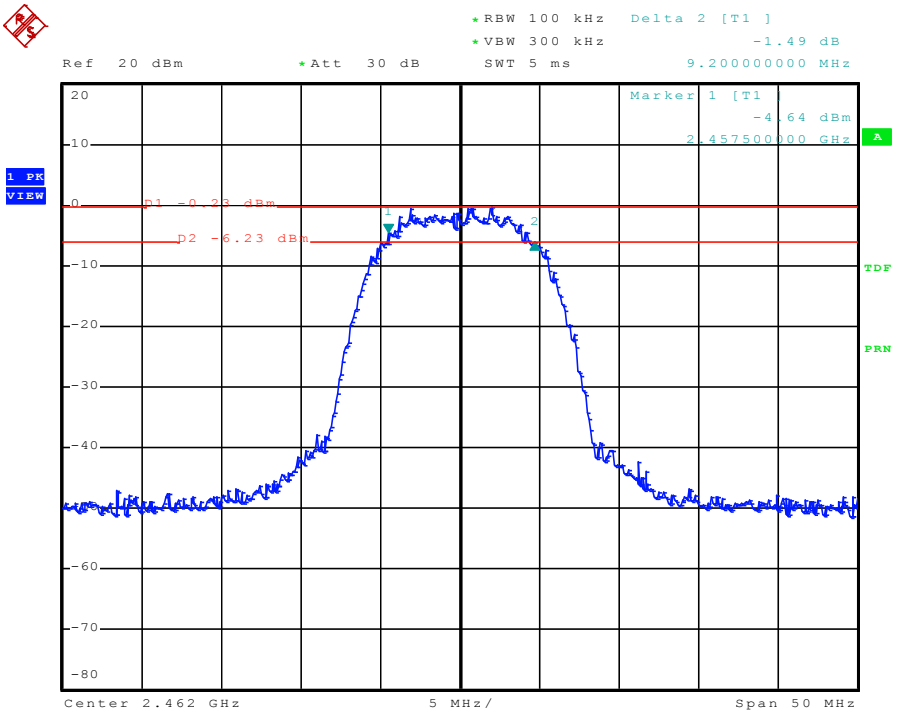
Modulation Standard: 802.11b (11Mbps), ANT L

Channel: 06

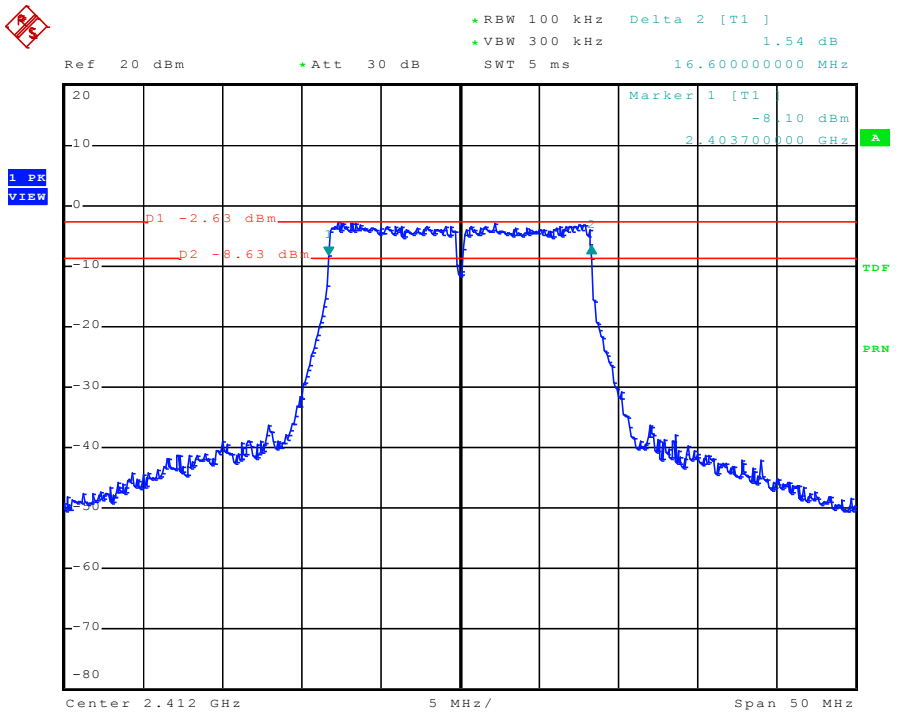


Modulation Standard: 802.11b (11Mbps), ANT L

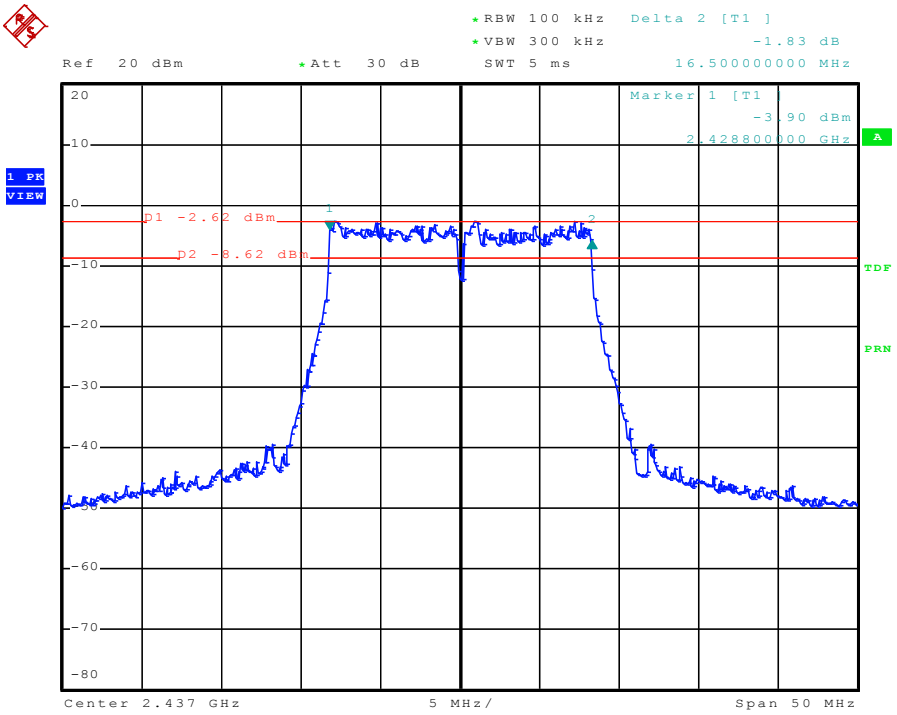
Channel: 11



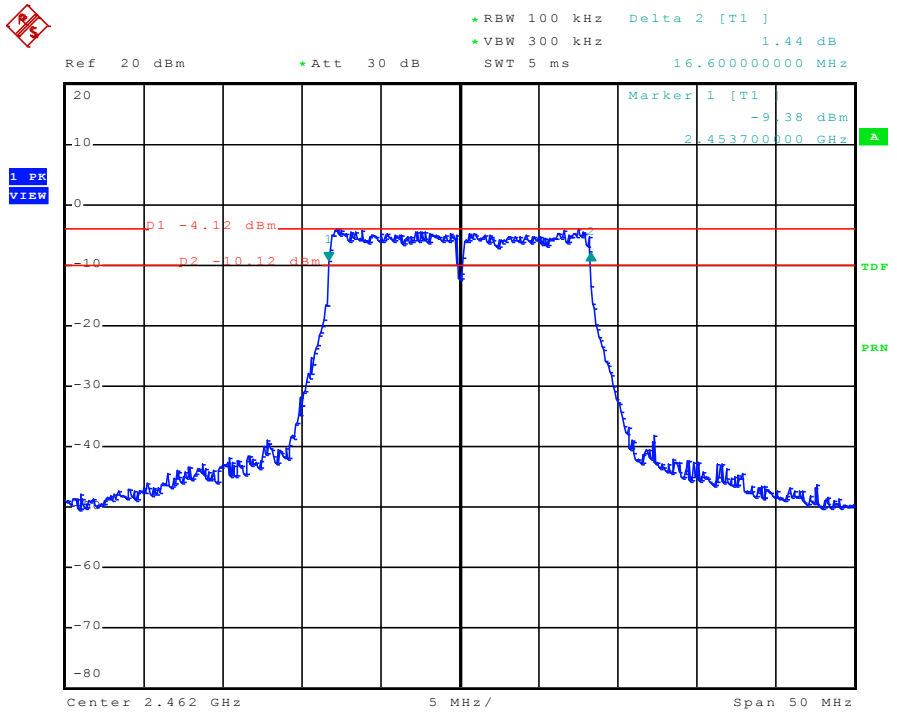
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 01



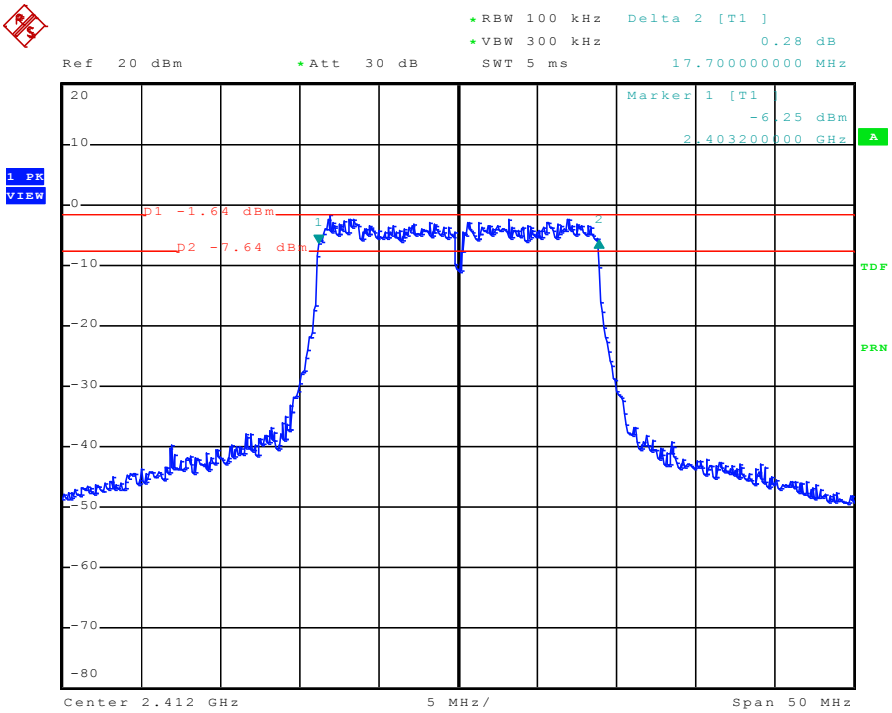
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 06



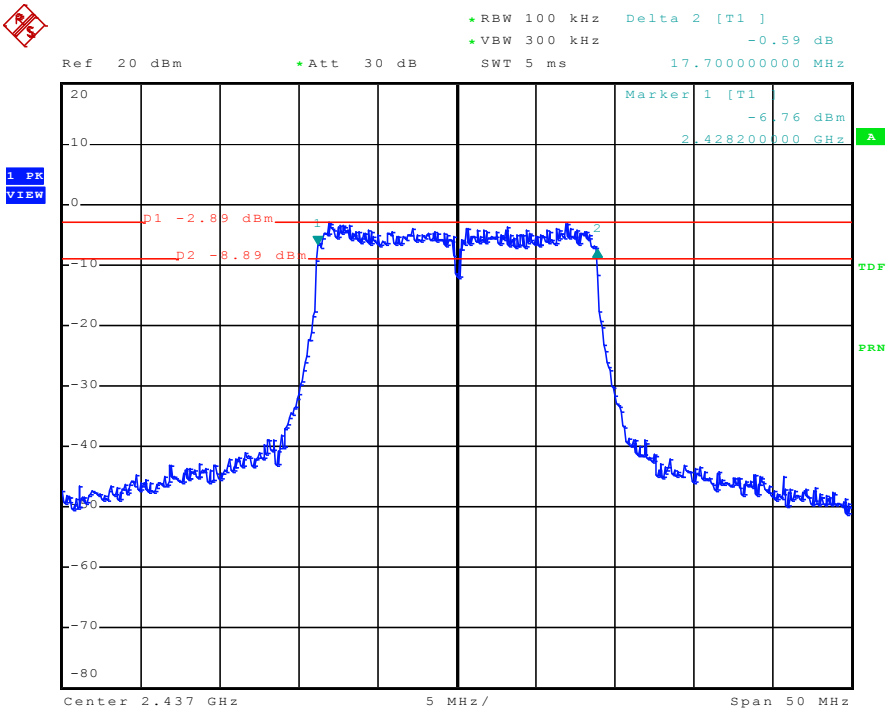
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 11



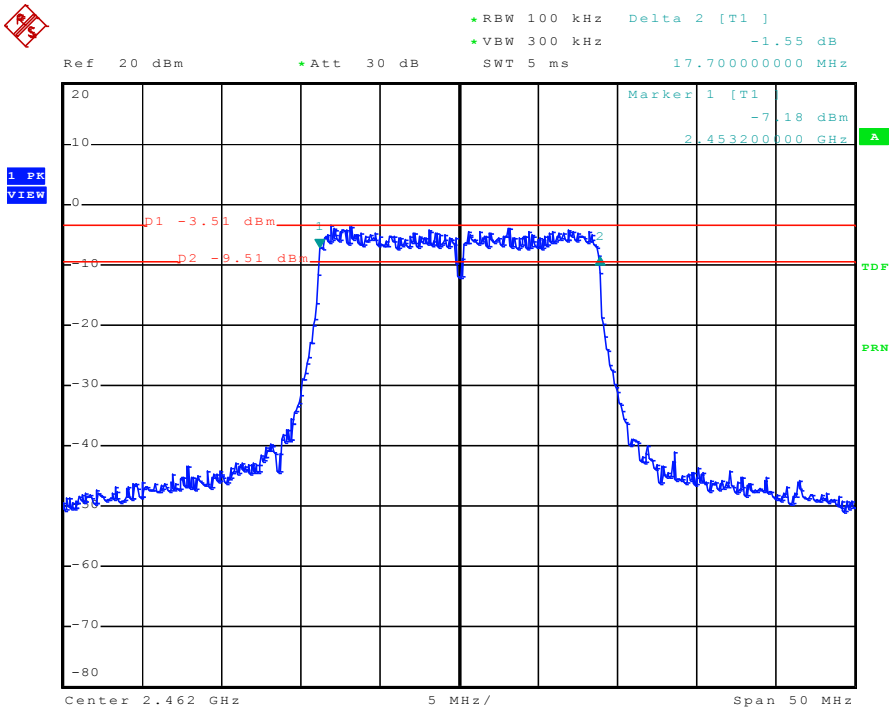
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 01



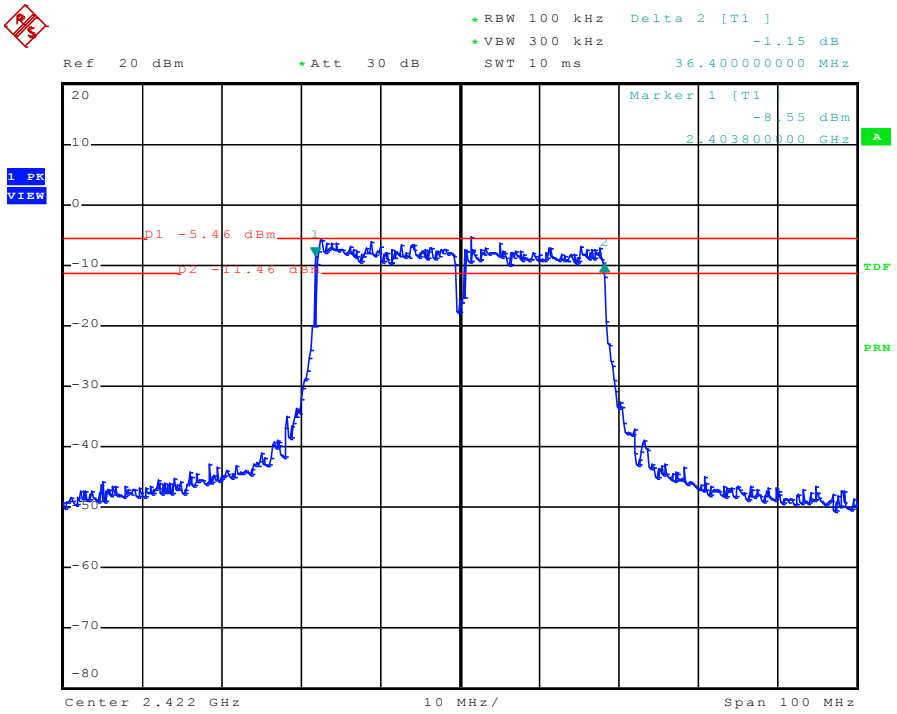
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 06



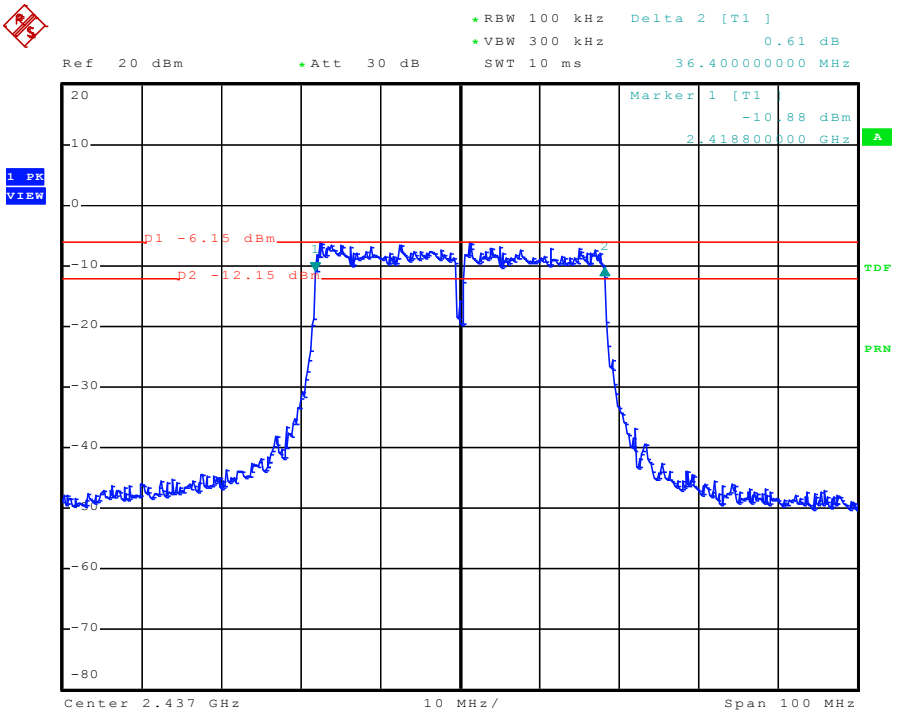
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 11



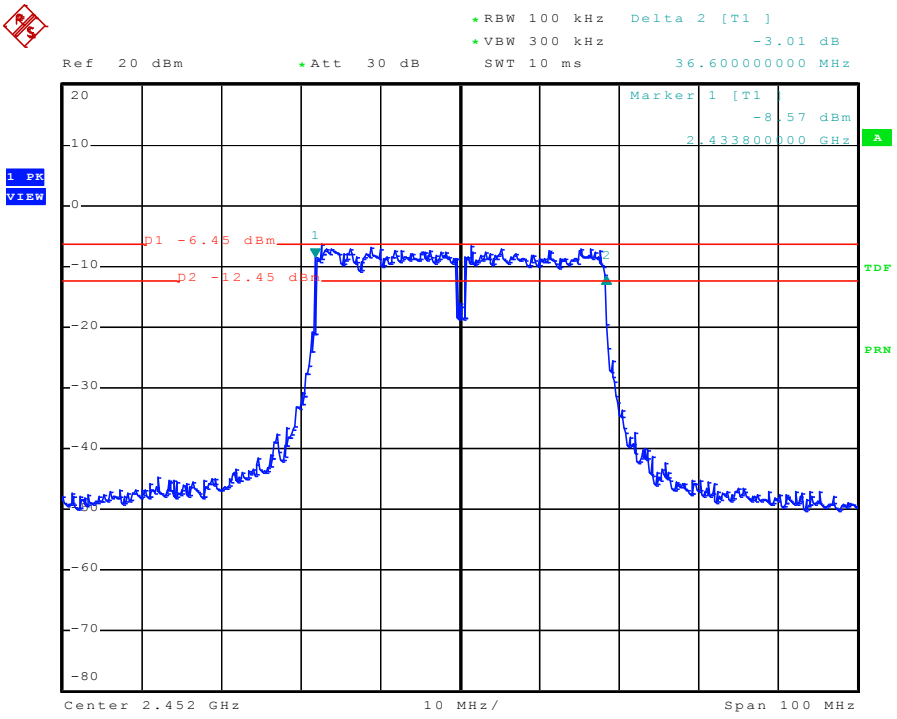
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 03



Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 06



Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 09


RBW 100 kHz
VBW 300 kHz
SWT 10 ms
Delta 2 [T1]
-3.01 dB
36.600000000 MHz
Ref 20 dBm
Att 30 dB
Marker 1 [T1]
-8.57 dBm
2.433800000 GHz
1 PK
VIEW
A
TDF
PRN
D1 -6.45 dBm
D2 -12.45 dBm
20
10
0
-10
-20
-30
-40
-50
-60
-70
-80
Center 2.452 GHz
10 MHz/
Span 100 MHz

9. Maximum Peak and Average Output Power

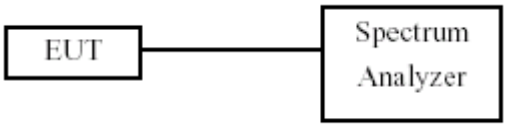
9.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

9.2 Test Procedures

a. The transmitter output was connected to spectrum analyzer.
b. The spectrum analyzer's resolution bandwidth were set at 1MHz RBW and 3MHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.
c. Use the spectrum analyzer's band/channel power measurement function with the band limits set equal to the DTS bandwidth edges (for some analyzers, this may require a manual override to ensure use of peak detector).
d. Employ trace averaging in power averaging (RMS) mode over a minimum of 100 traces.
e. Use the spectrum analyzer's band power measurement function with band limits set equal to the EBW band edges.
f. The peak and average output power was measured and recorded.

9.3 Test Setup Layout



9.4 Test Result and Data

Test Date: Feb. 13, 2015 Temperature: 22℃

Atmospheric pressure: 1020 hPa Humidity: 60%

Modulation Standard	Channel	Frequency (MHz)	Peak Power Output (dBm)		Peak Power Output(mW)	
			ANT R	ANT L	ANT R	ANT L
802.11b (11Mbps)	01	2412	17.00	17.53	50.12	56.62
	06	2437	16.25	16.95	42.17	49.55
	11	2472	15.73	16.46	37.41	44.26
802.11g (6Mbps)	01	2412	18.94	19.84	78.34	96.38
	06	2437	18.04	19.08	63.68	80.91
	11	2472	17.38	18.62	54.70	72.78

Modulation Standard	Channel	Frequency (MHz)	Peak Power Output (dBm)			Peak Power Output (mW)
			ANT R	ANT L	ANT R+L	ANT R+L
802.11n HT20 (6.5Mbps)	01	2412	18.77	20.12	22.51	178.14
	06	2437	17.61	19.12	21.44	139.33
	11	2472	16.87	18.71	20.90	122.94
802.11n HT40 (13.5Mbps)	03	2422	17.65	19.04	21.41	138.38
	06	2437	16.96	18.60	20.87	122.10
	09	2452	16.40	18.19	20.40	109.57

Test Date: Feb. 13, 2015 Temperature: 22℃

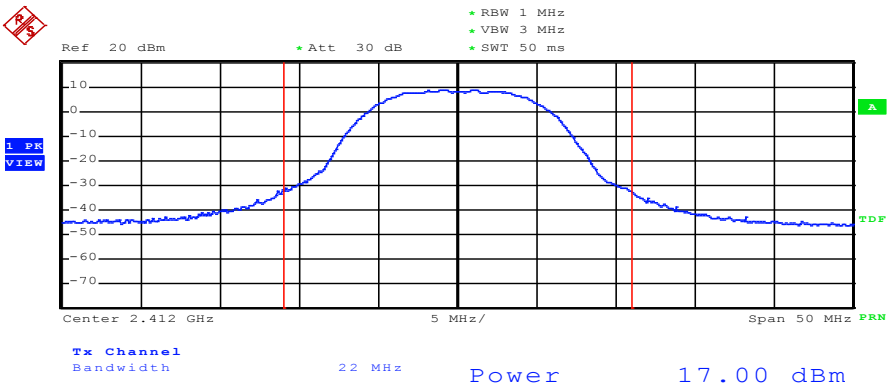
Atmospheric pressure: 1020 hPa Humidity: 60%

Modulation Standard	Channel	Frequency (MHz)	Average Power Output (dBm)		Average Power Output (mW)	
			ANT R	ANT L	ANT R	ANT L
802.11b (11Mbps)	01	2412	12.46	13.35	17.62	21.63
	06	2437	11.44	12.74	13.93	18.79
	11	2472	10.98	12.25	12.53	16.79
802.11g (6Mbps)	01	2412	11.95	13.37	15.67	21.73
	06	2437	10.81	12.32	12.05	17.06
	11	2472	10.14	12.09	10.33	16.18

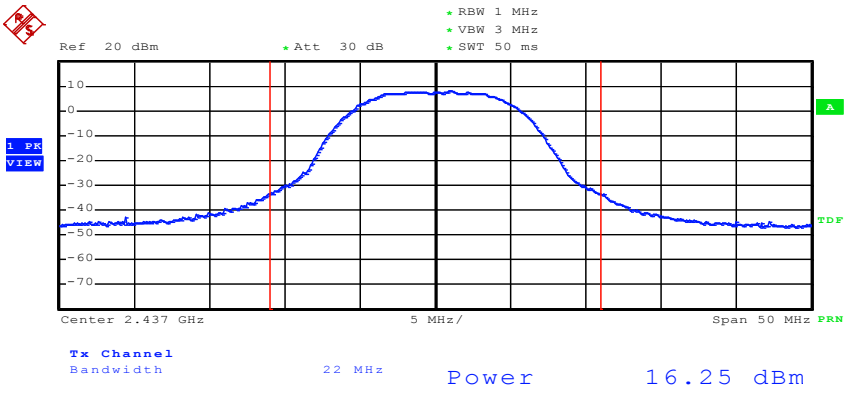
Modulation Standard	Channel	Frequency (MHz)	Average Power Output (dBm)			Average Power Output (mW)
			ANT R	ANT L	ANT R+L	ANT R+L
802.11n HT20 (6.5Mbps)	01	2412	11.95	13.92	16.06	40.33
	06	2437	10.78	12.88	14.97	31.38
	11	2472	10.13	12.11	14.24	26.56
802.11n HT40 (13.5Mbps)	03	2422	10.71	12.54	14.73	29.72
	06	2437	10.44	12.29	14.47	28.01
	09	2452	10.39	12.38	14.51	28.24

Peak Output Power

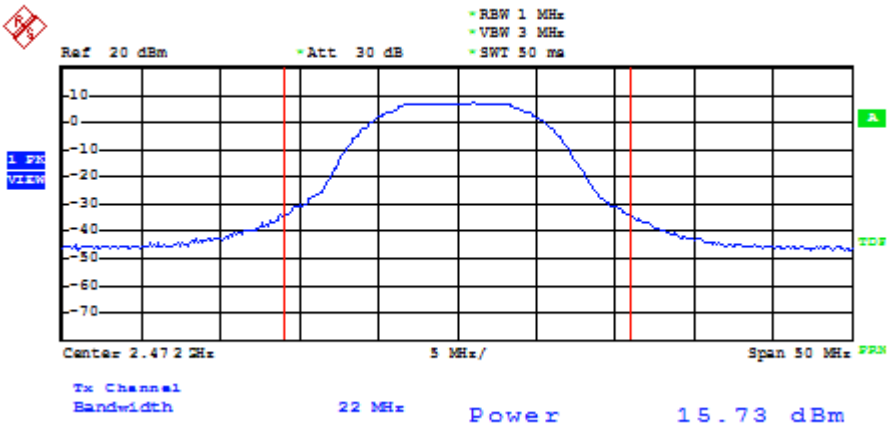
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 01



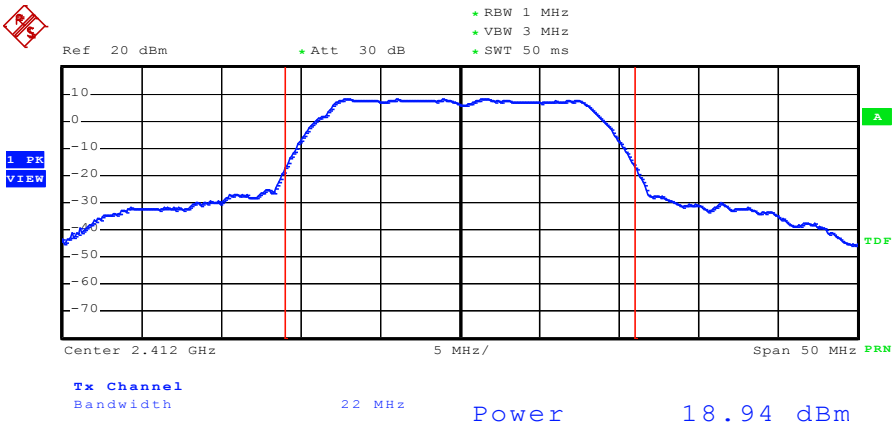
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 06



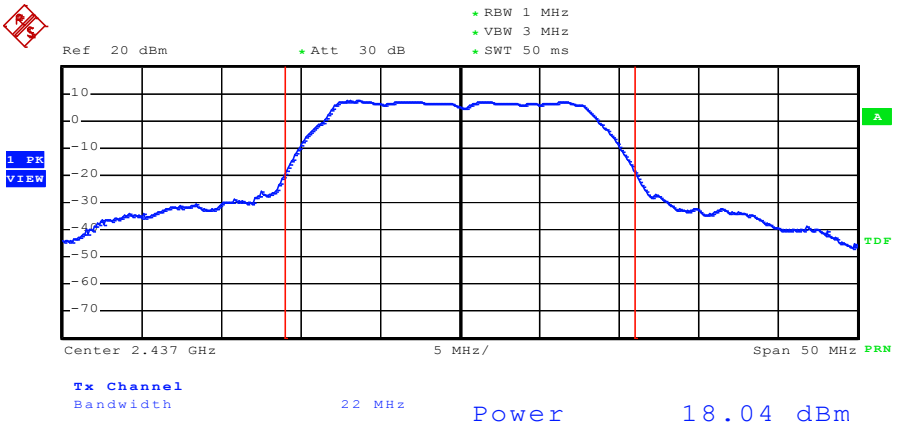
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 11



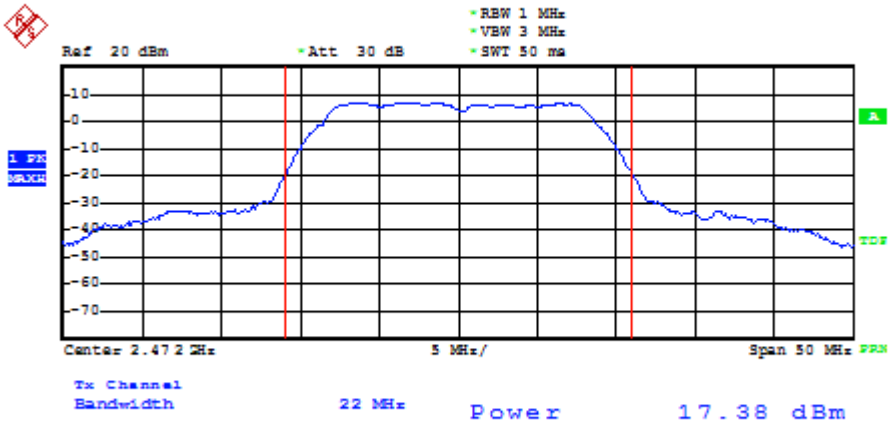
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 01



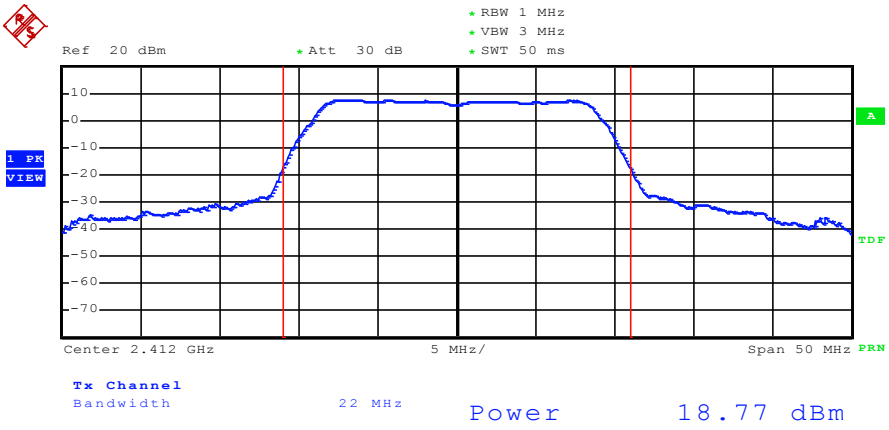
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 06



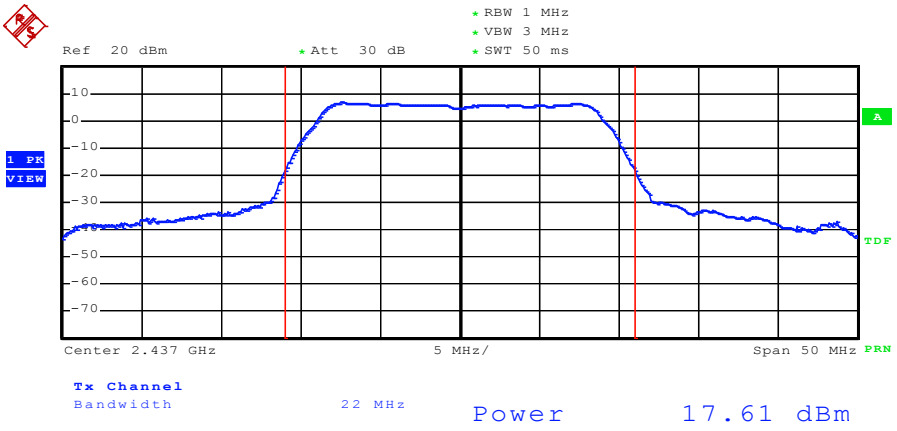
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 11



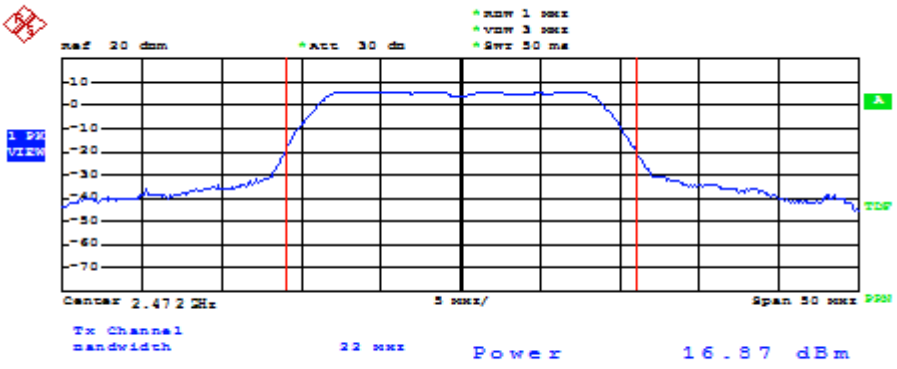
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 01



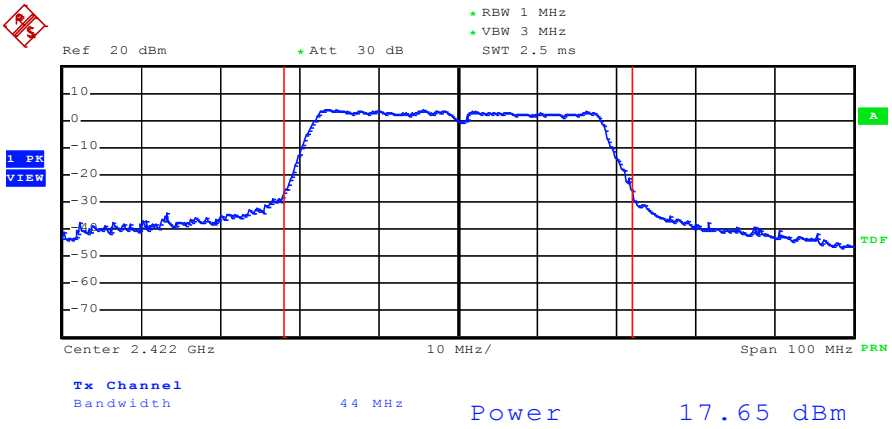
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 06



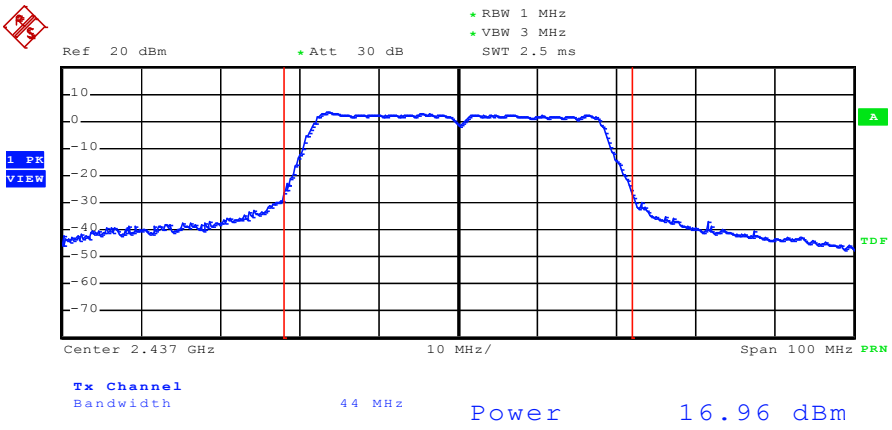
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 11



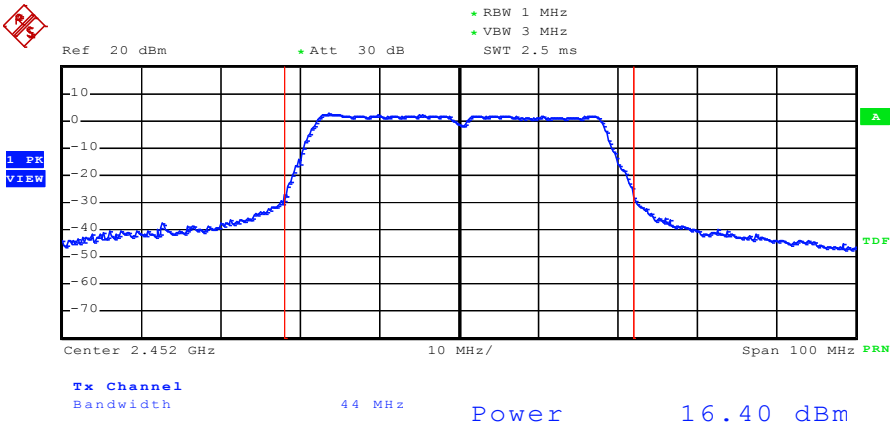
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 03



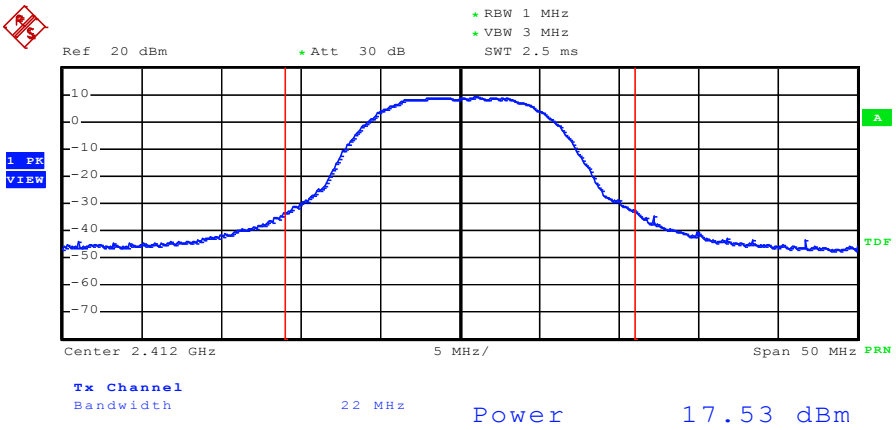
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 06



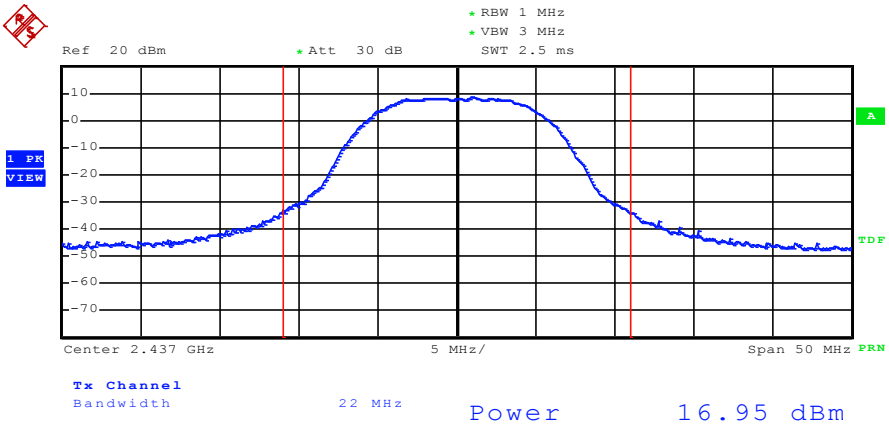
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 09



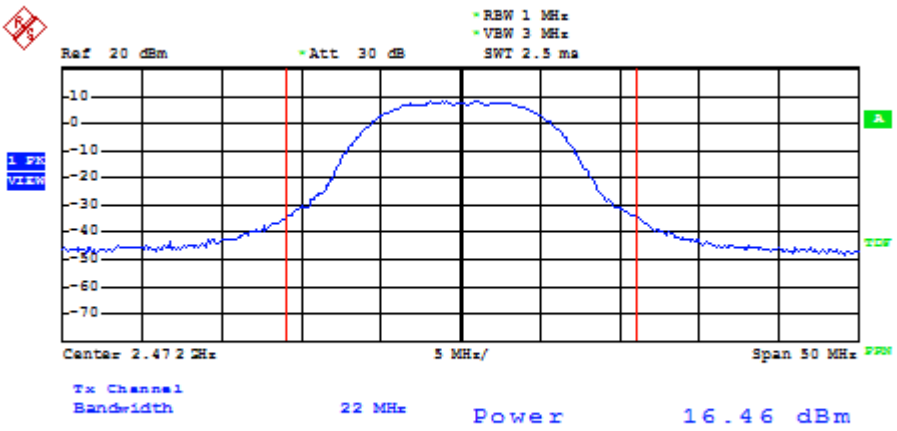
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 01



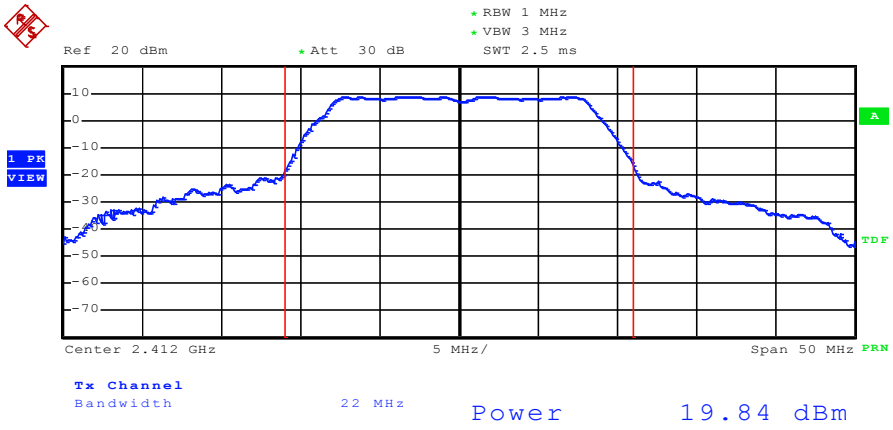
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 06



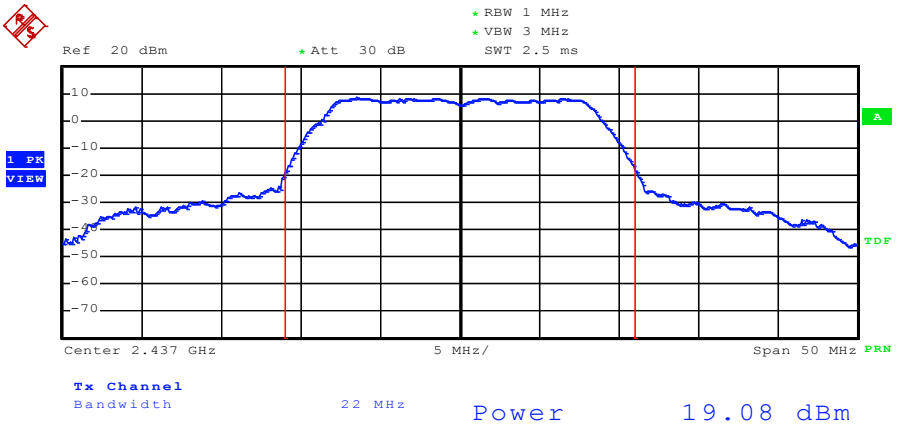
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 11



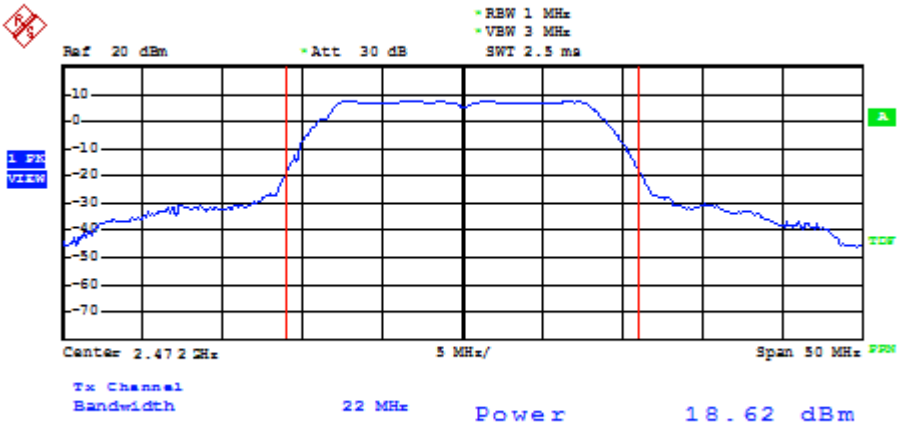
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 01



Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 06

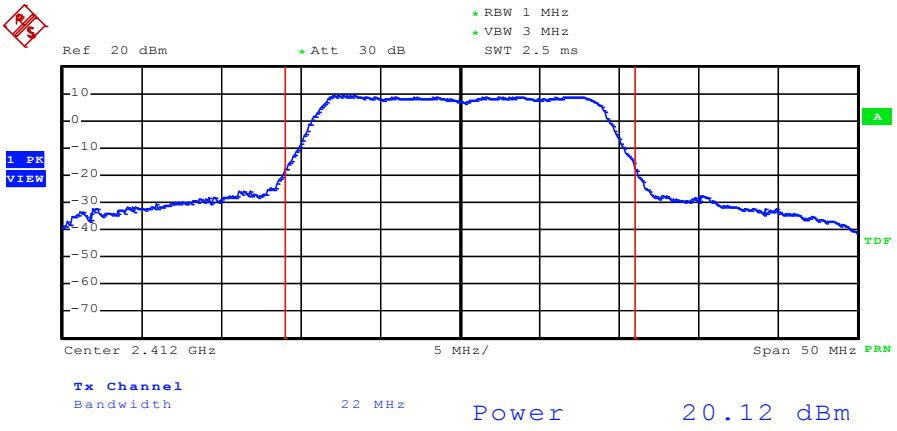


Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 11



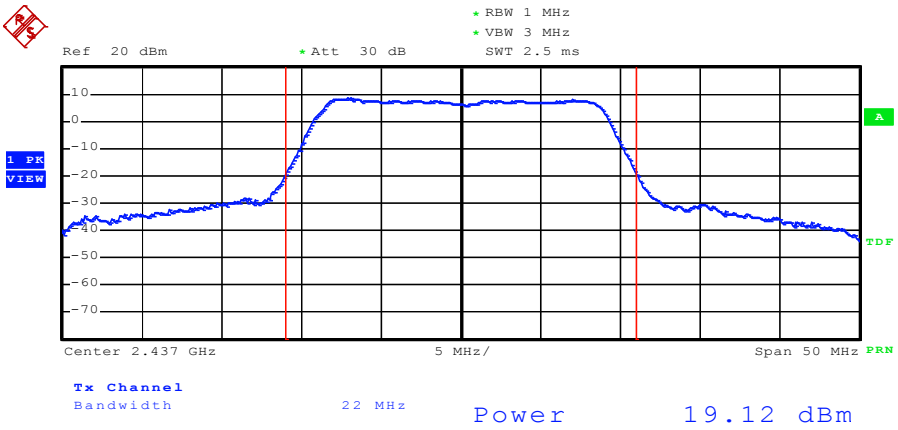
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L

Channel: 01



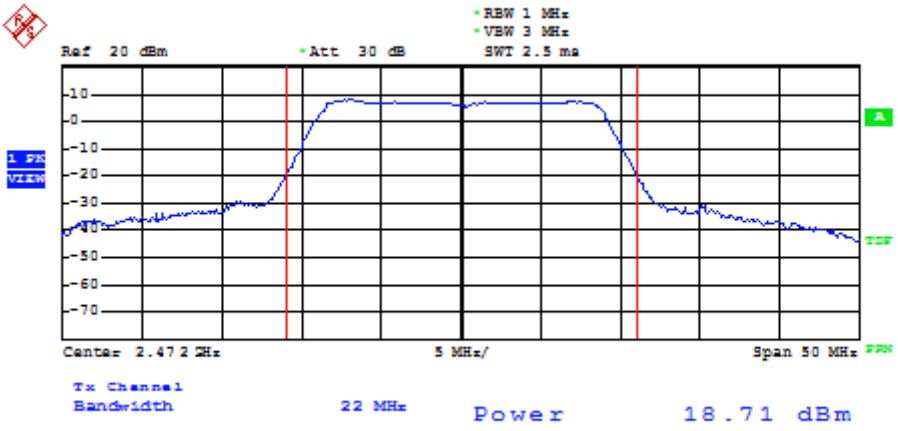
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L

Channel: 06

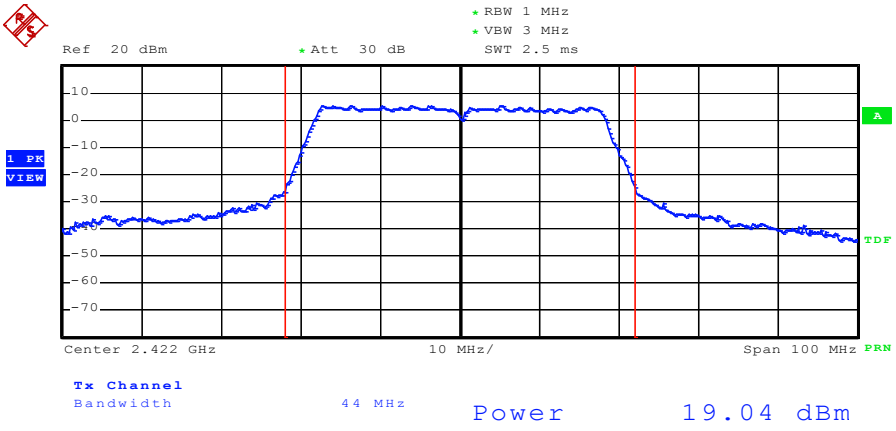


Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L

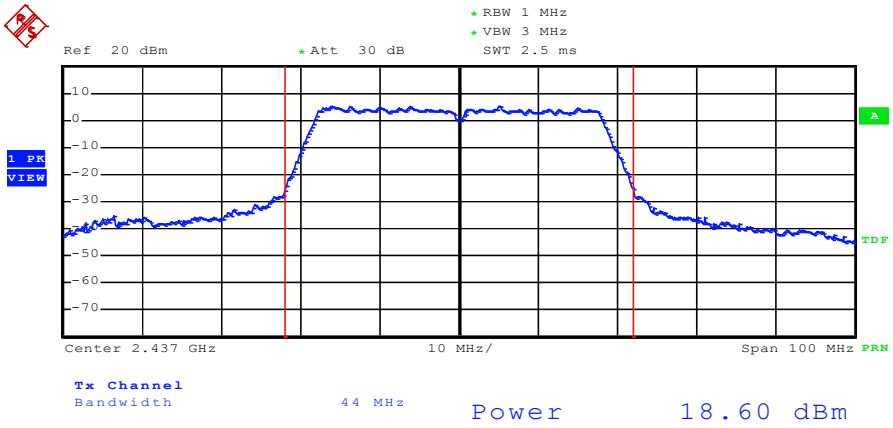
Channel: 11



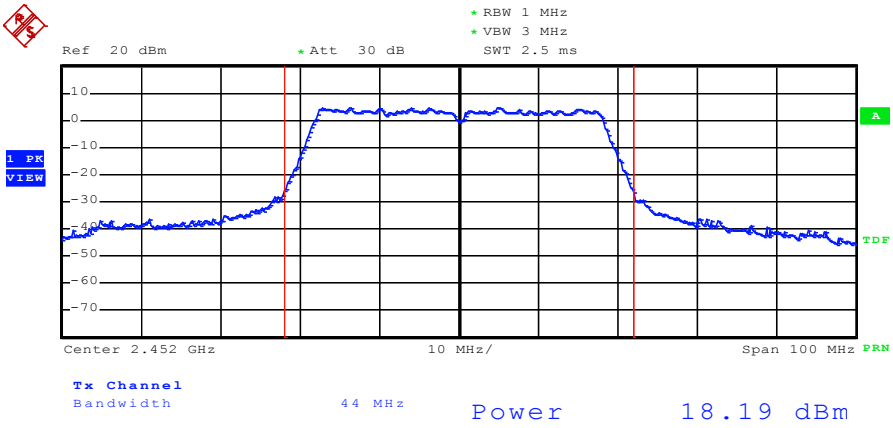
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 03



Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 06

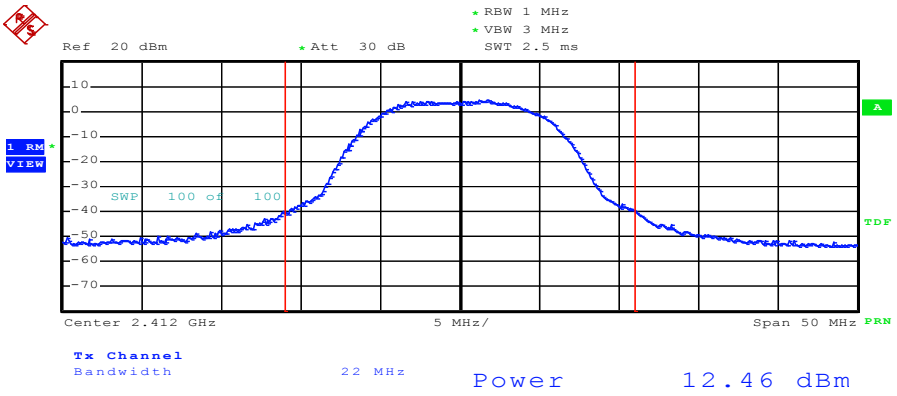


Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 09

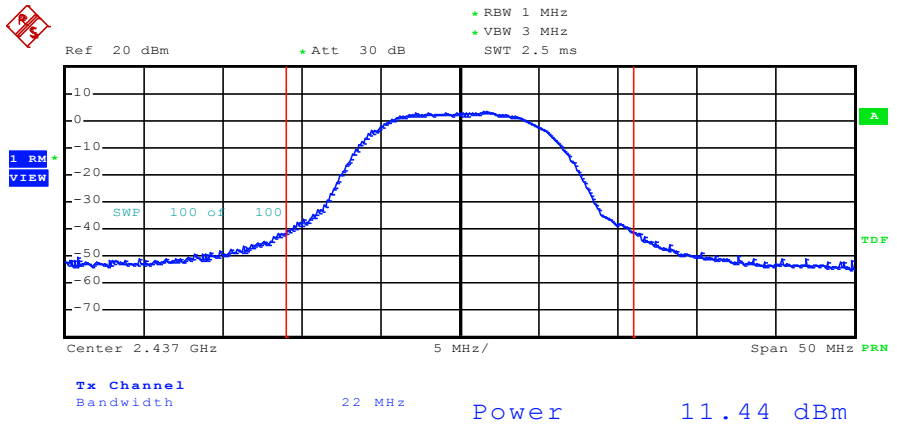


Average Output Power

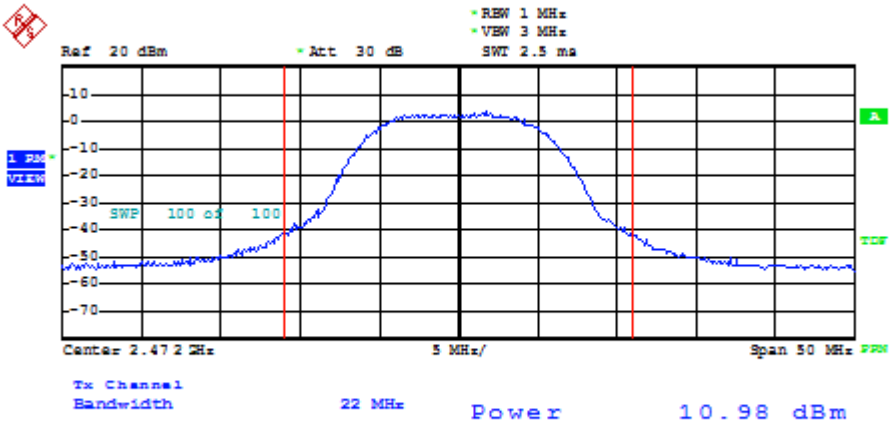
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 01



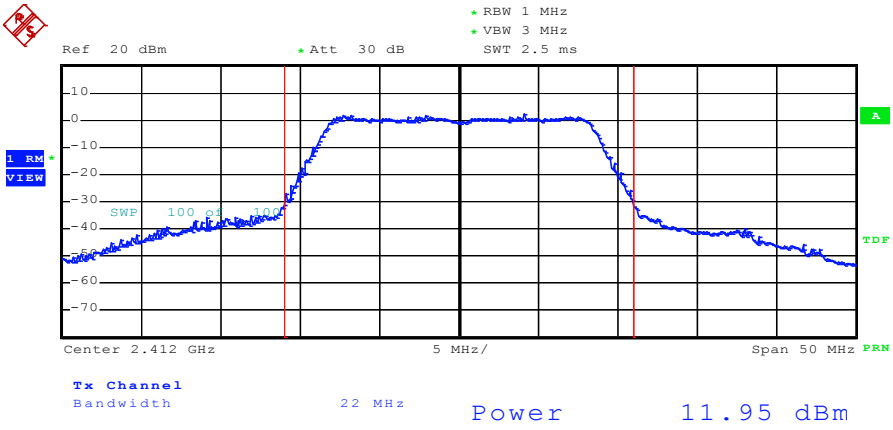
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 06



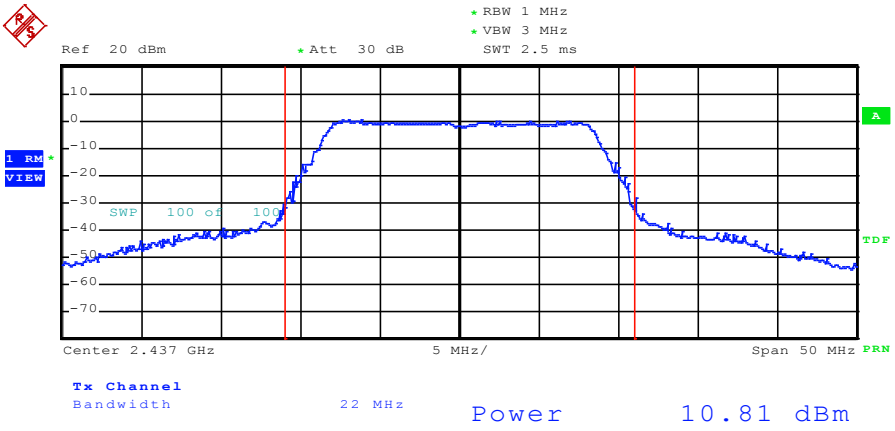
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 11



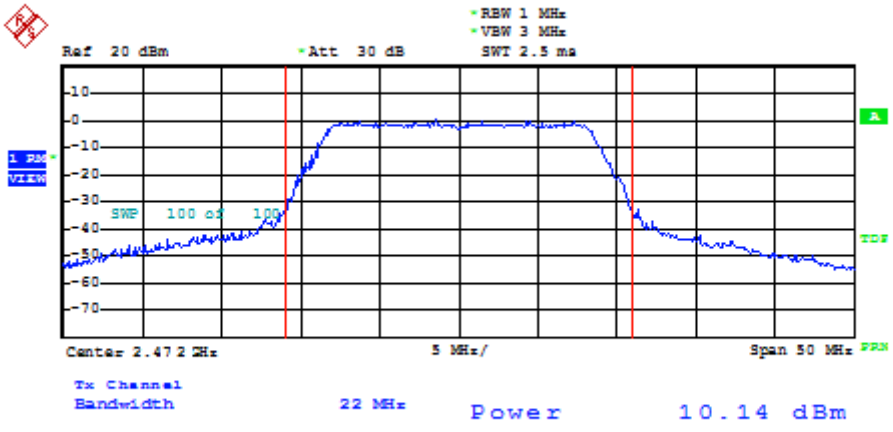
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 01



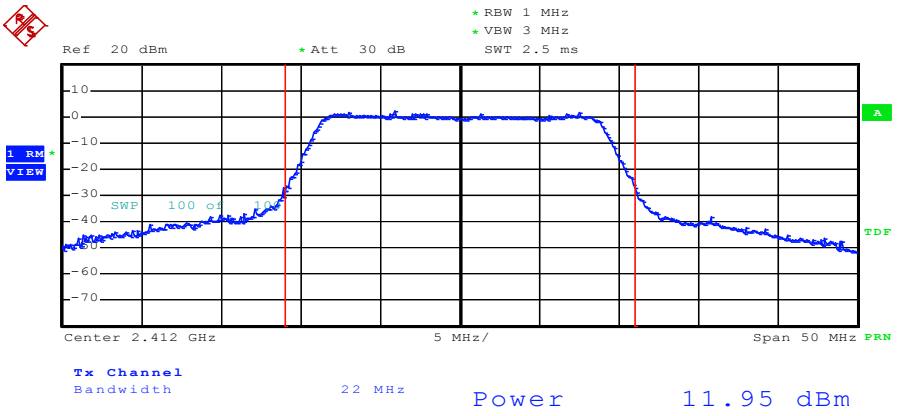
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 06



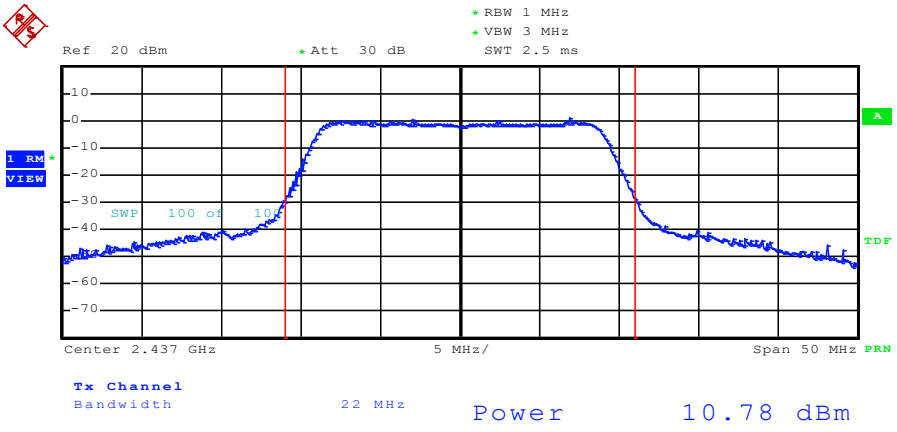
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 11



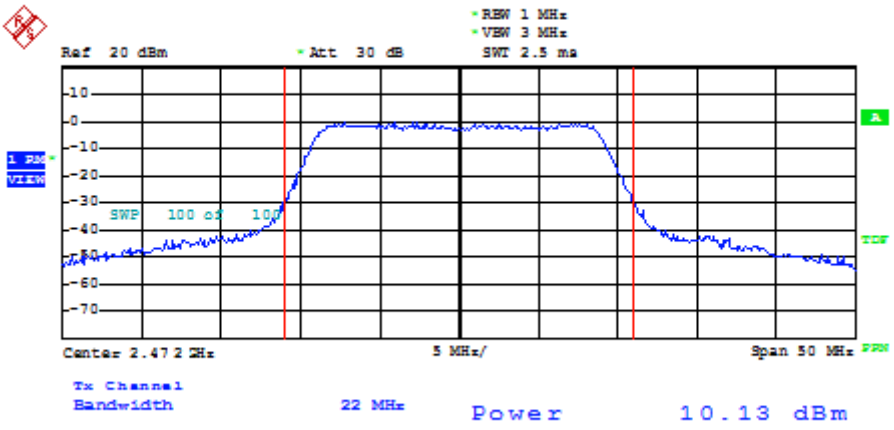
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 01



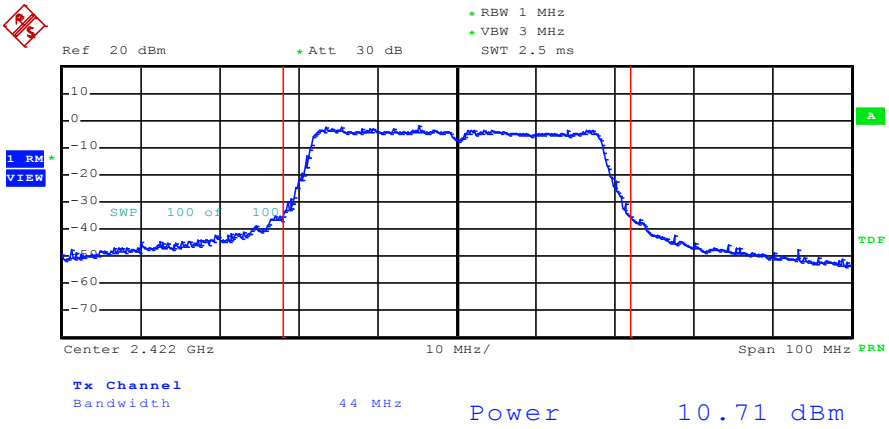
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 06



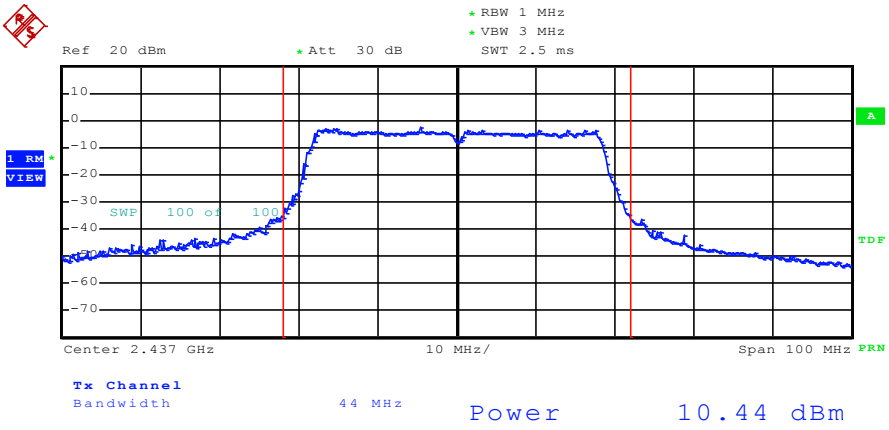
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 11



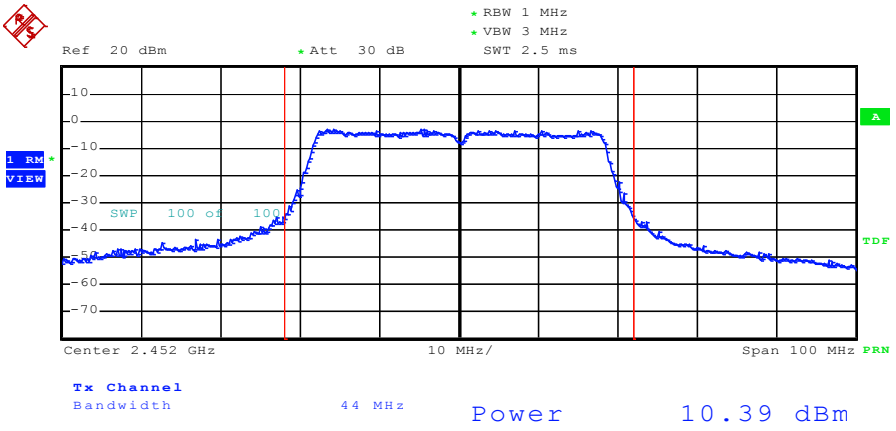
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 03



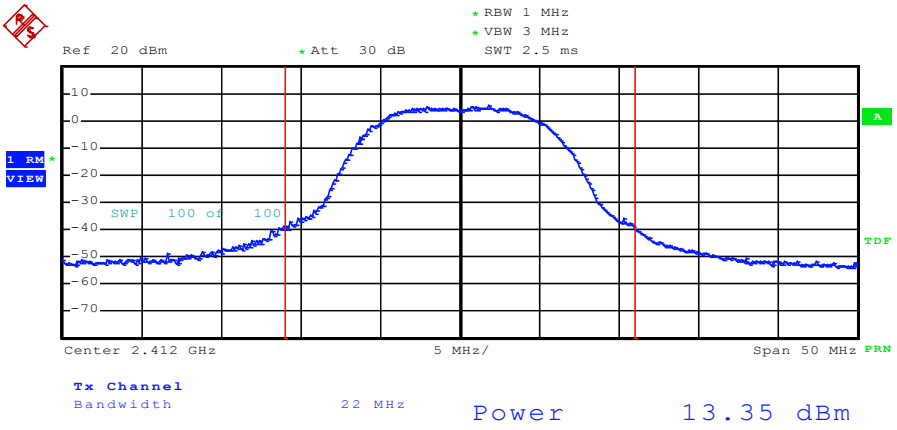
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 06



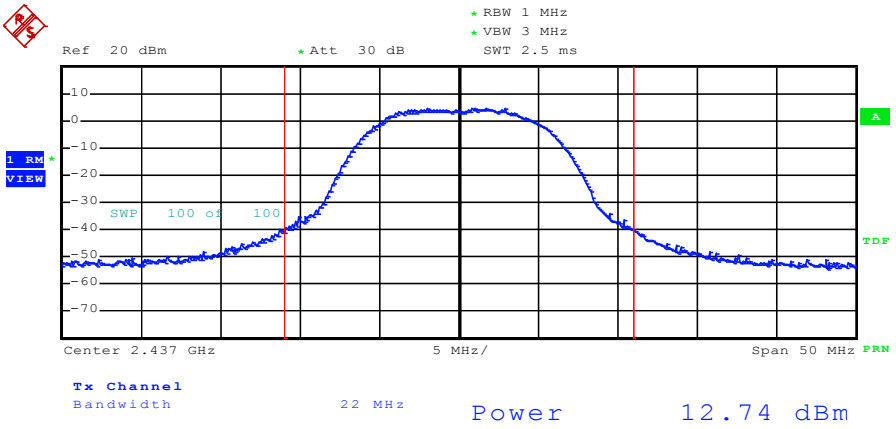
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 09



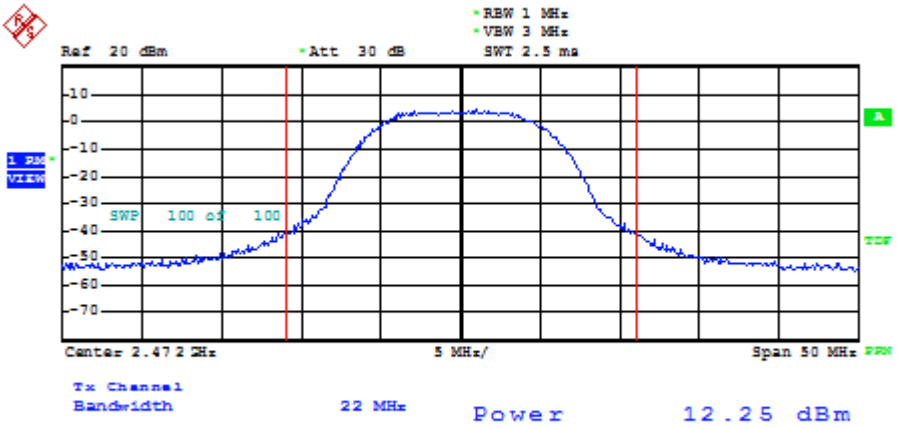
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 01



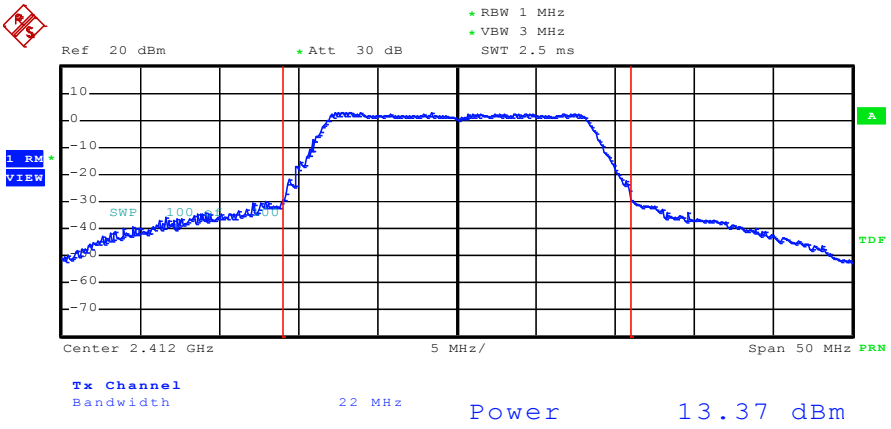
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 06



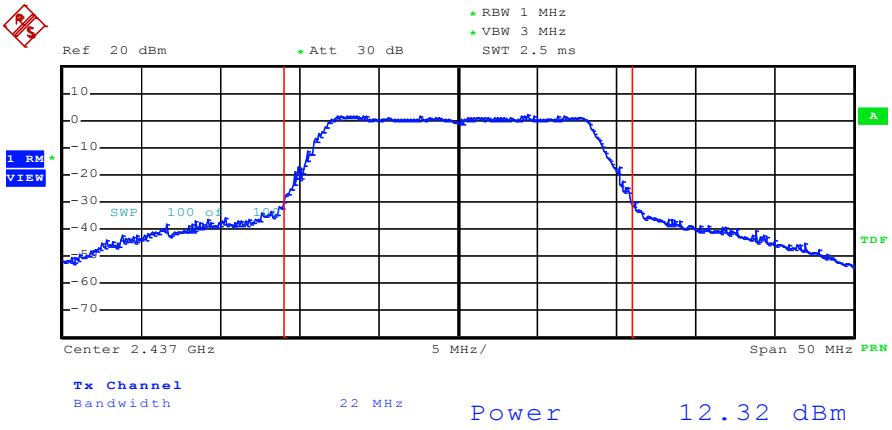
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 11



Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 01

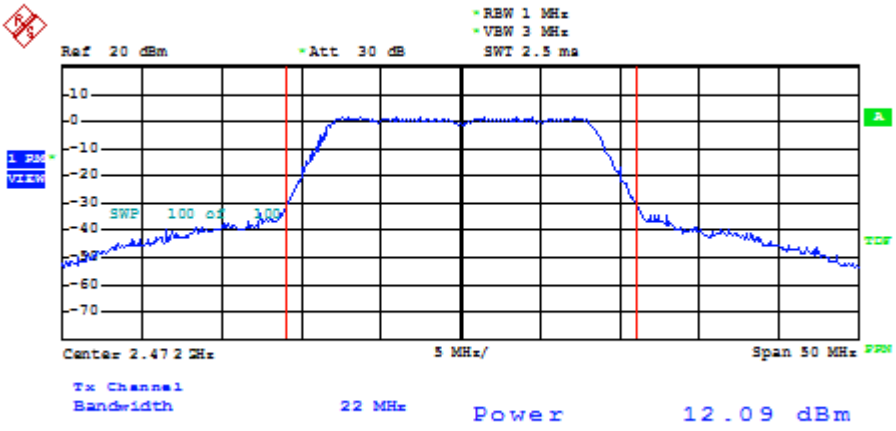


Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 06

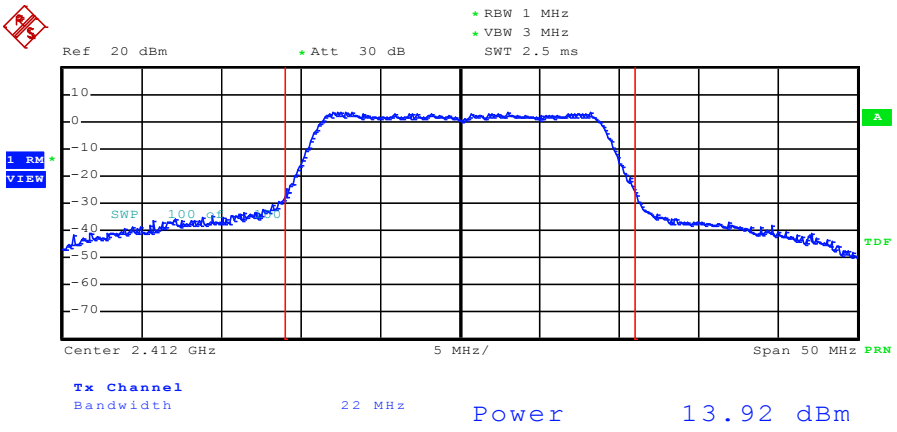


Modulation Standard: 802.11g (6Mbps), ANT L

Channel: 11

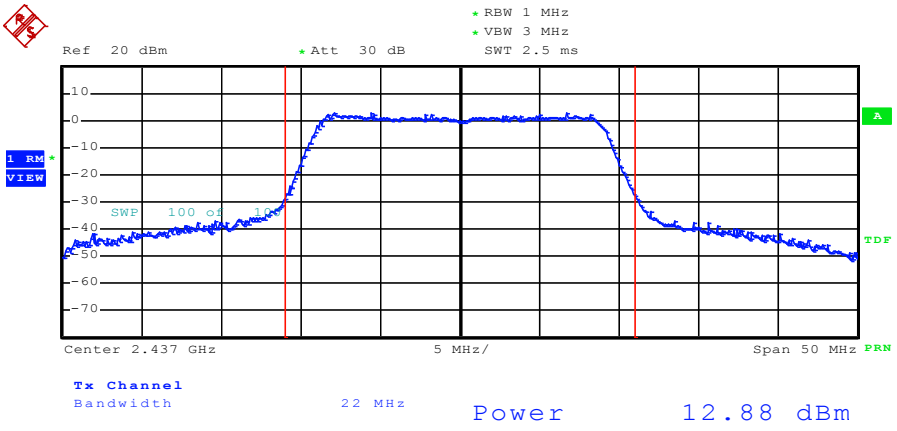


Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 01

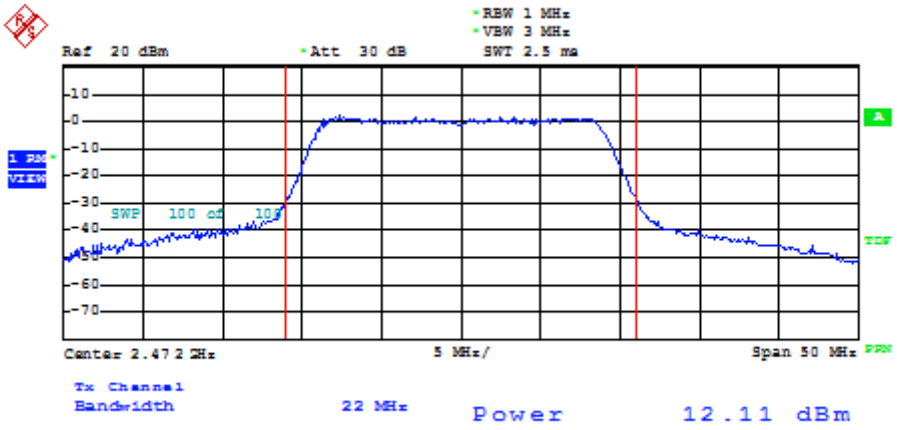


Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L

Channel: 06

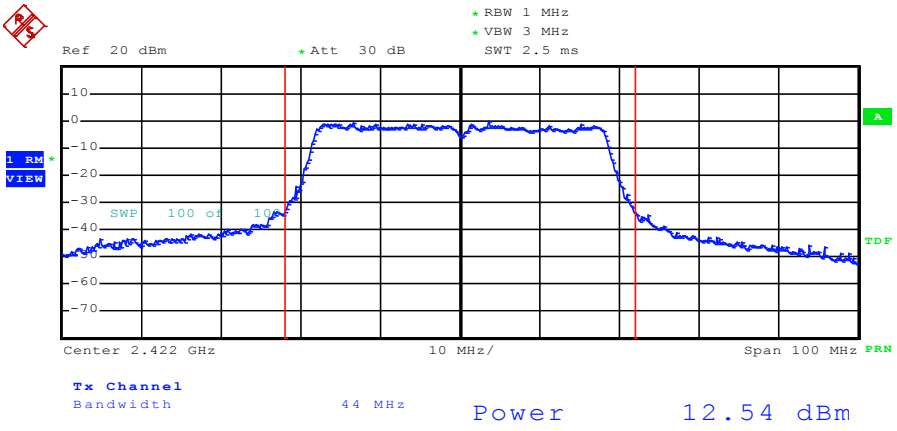


Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 11

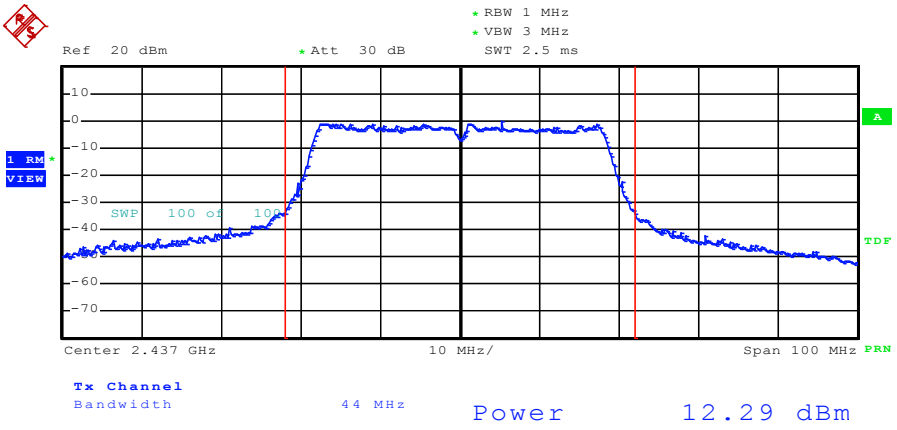


Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L

Channel: 03

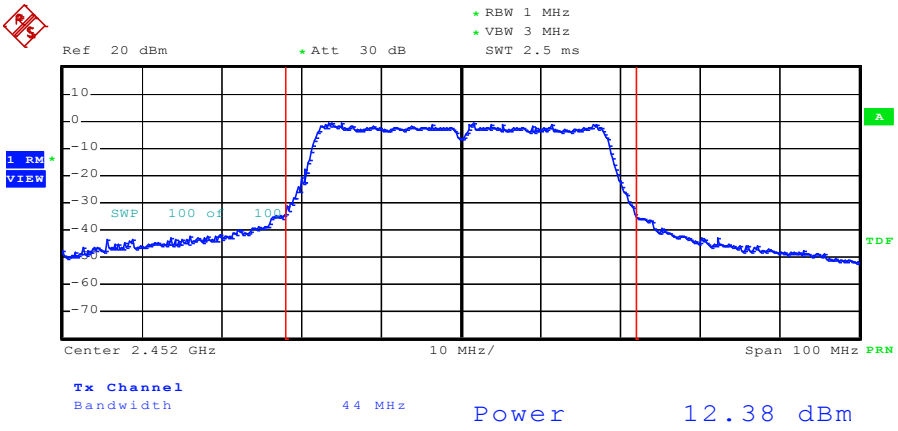


Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 06



Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L

Channel: 09


RBW 1 MHz
VBW 3 MHz
SWT 2.5 ms
Ref 20 dBm
Att 30 dB
1 RM
VIEW
SWP 100 of 100
A
TDF
Center 2.452 GHz
10 MHz/
Span 100 MHz
PRN
Tx Channel
Bandwidth
44 MHz
Power 12.38 dBm

10. Power Spectral Density

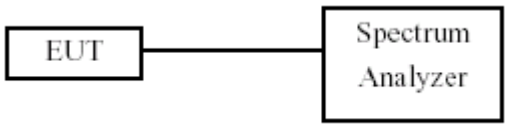
10.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm

10.2 Test Procedures

g. The transmitter output was connected to spectrum analyzer.
h. The spectrum analyzer's resolution bandwidth were set at 3KHz RBW and 30KHz VBW as that of the fundamental frequency. Set the sweep time=auto couple.
i. The power spectral density was measured and recorded.

10.3 Test Setup Layout



10.4 Test Result and Data

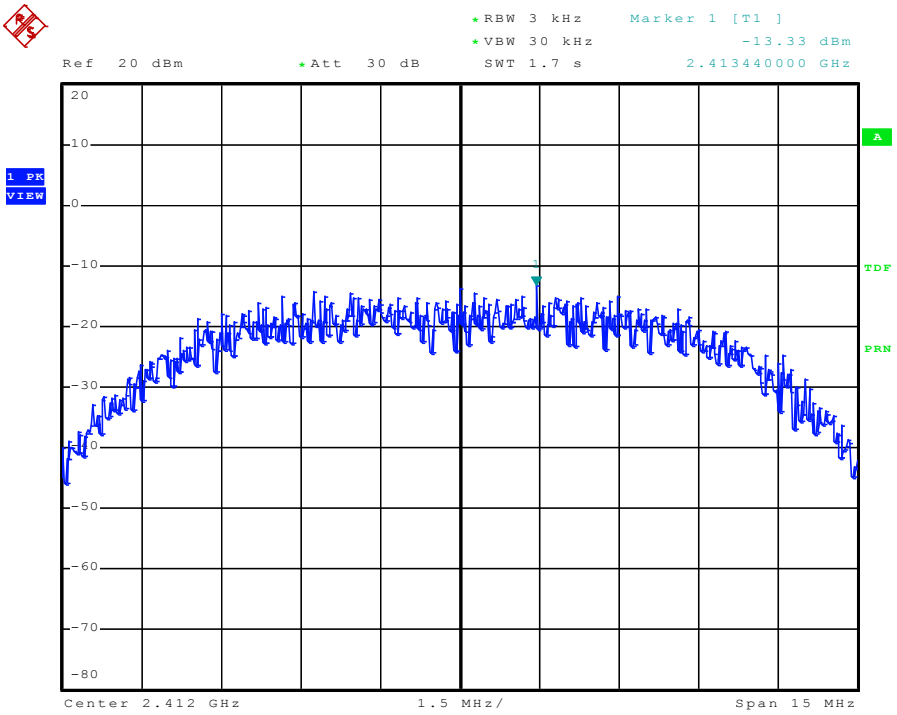
Test Date: Feb. 16, 2015 Temperature: 22℃

Atmospheric pressure: 1020 hPa Humidity: 60%

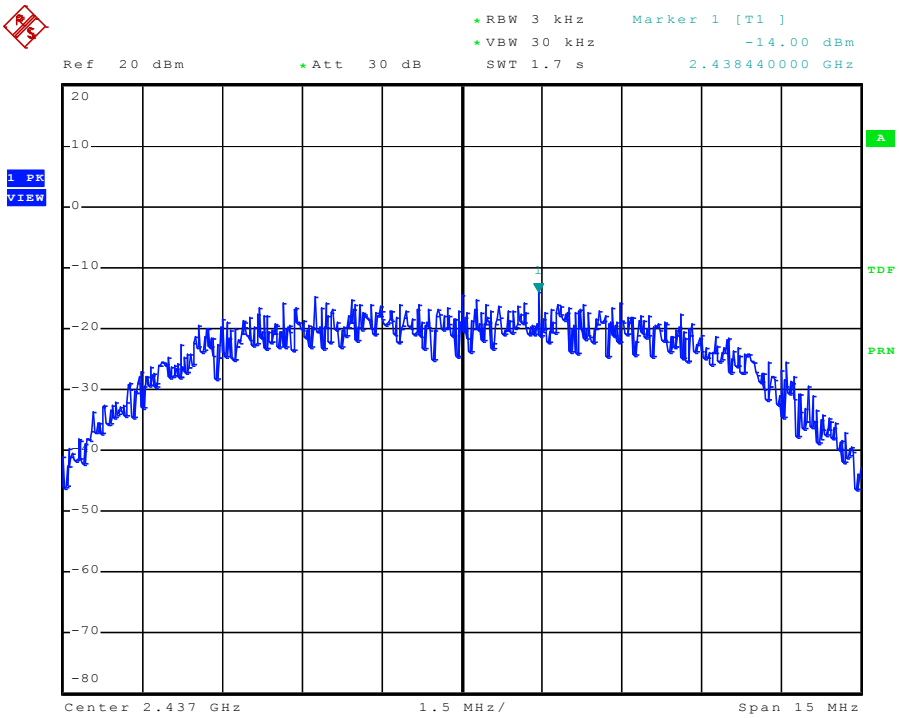
Modulation Standard	Channel	Frequency (MHz)	Measured Power Density (dBm)	
			ANT R	ANT L
802.11b (11Mbps)	01	2412	-13.33	-12.63
	06	2437	-14.00	-13.11
	11	2472	-14.60	-13.89
802.11g (6Mbps)	01	2412	-16.66	-17.54
	06	2437	-17.80	-17.24
	11	2472	-18.47	-19.09

Modulation Standard	Channel	Frequency (MHz)	Measured Power Density (dBm)		
			ANT R	ANT L	ANT R+L
802.11n HT20 (6.5Mbps)	01	2412	-16.77	-17.78	-14.24
	06	2437	-17.74	-18.13	-14.92
	11	2472	-18.93	-18.31	-15.60
802.11n HT40 (13.5Mbps)	03	2422	-17.44	-20.62	-15.73
	06	2437	-20.26	-21.32	-17.75
	09	2452	-18.07	-21.21	-16.35

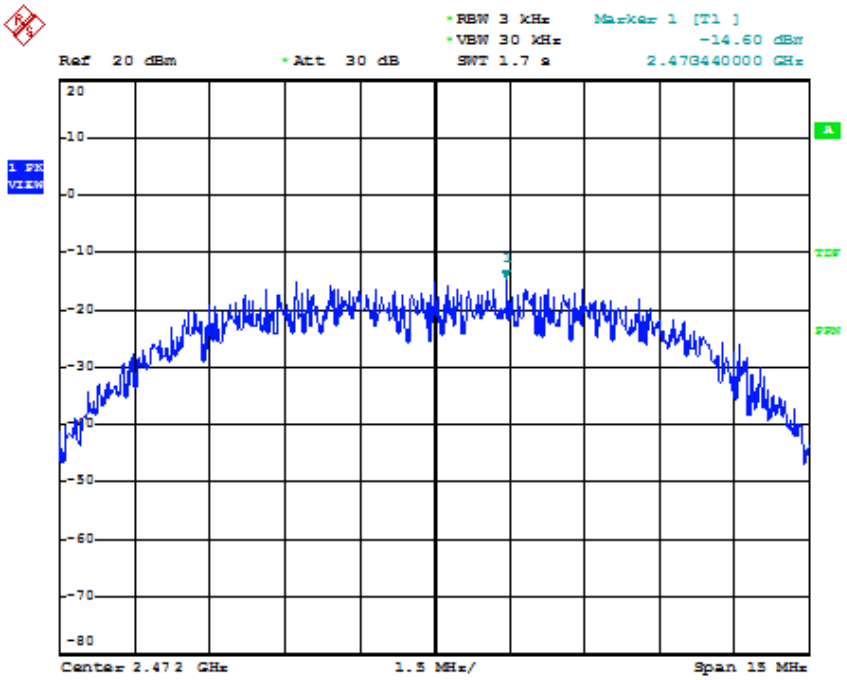
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 01



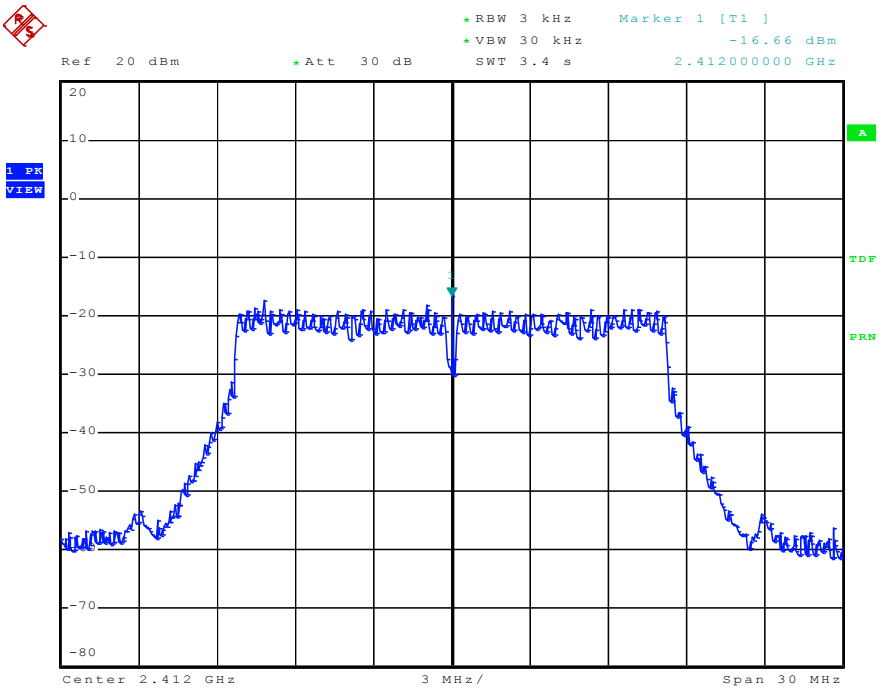
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 06



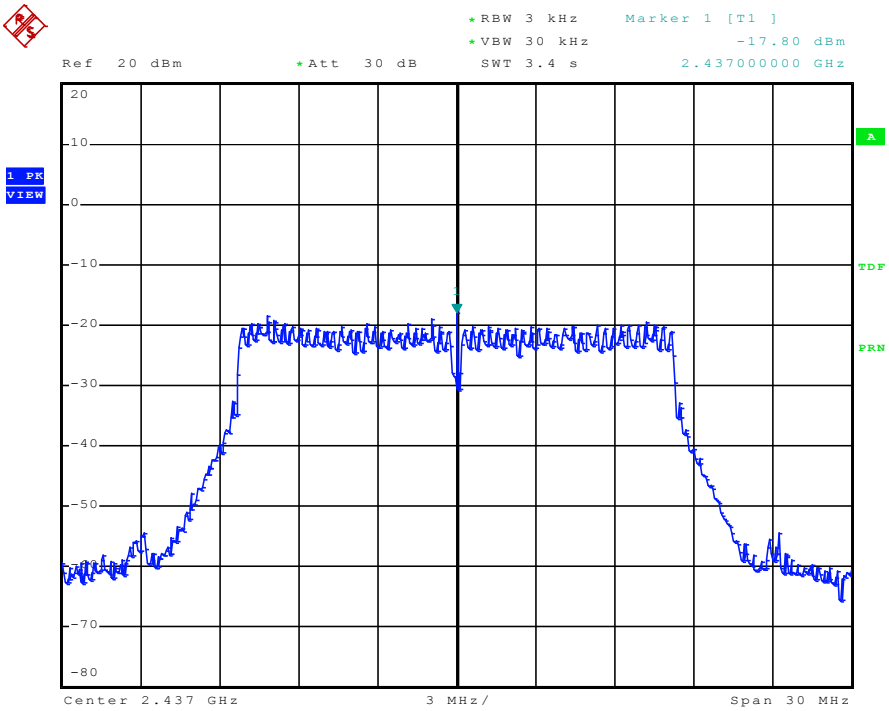
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 11



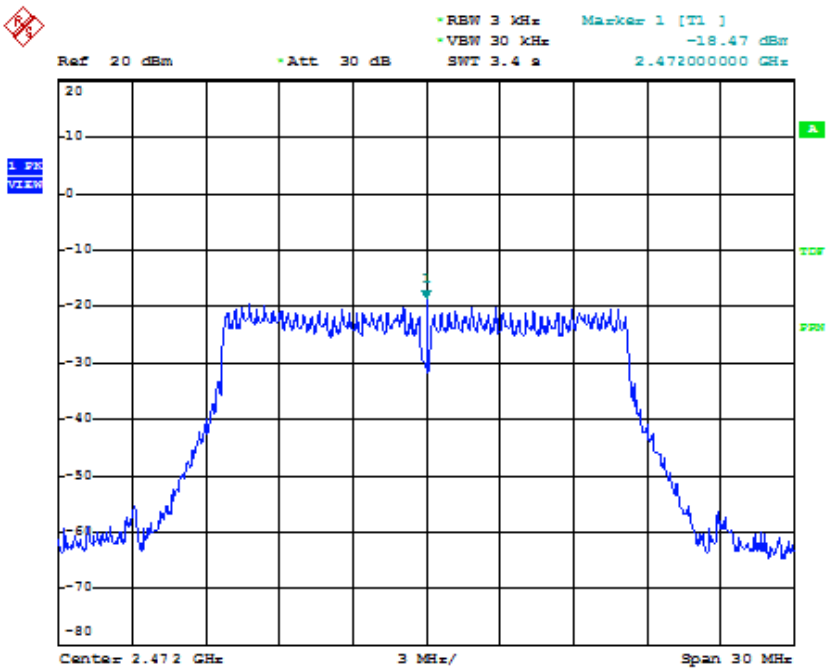
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 01



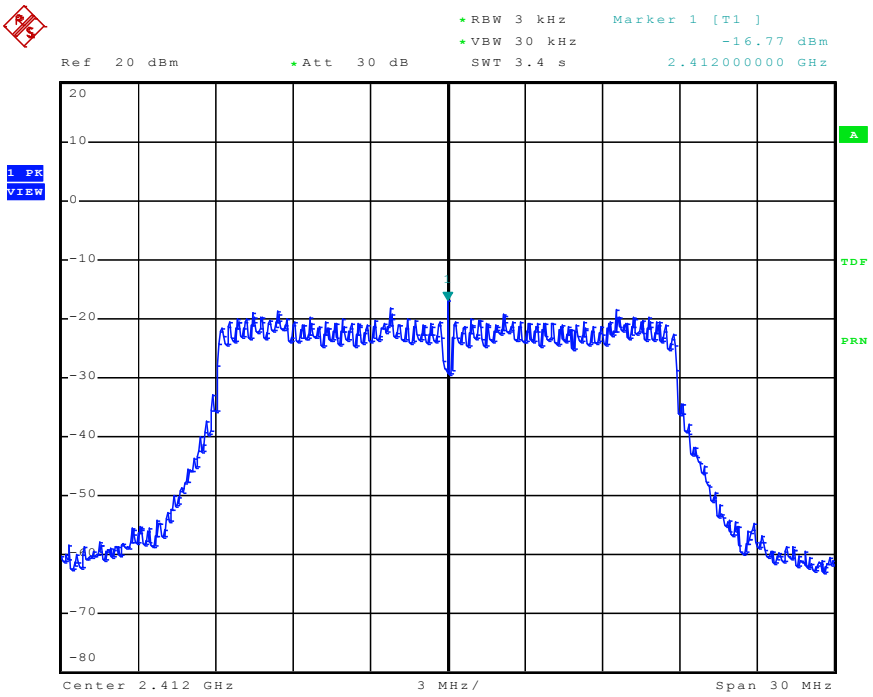
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 06



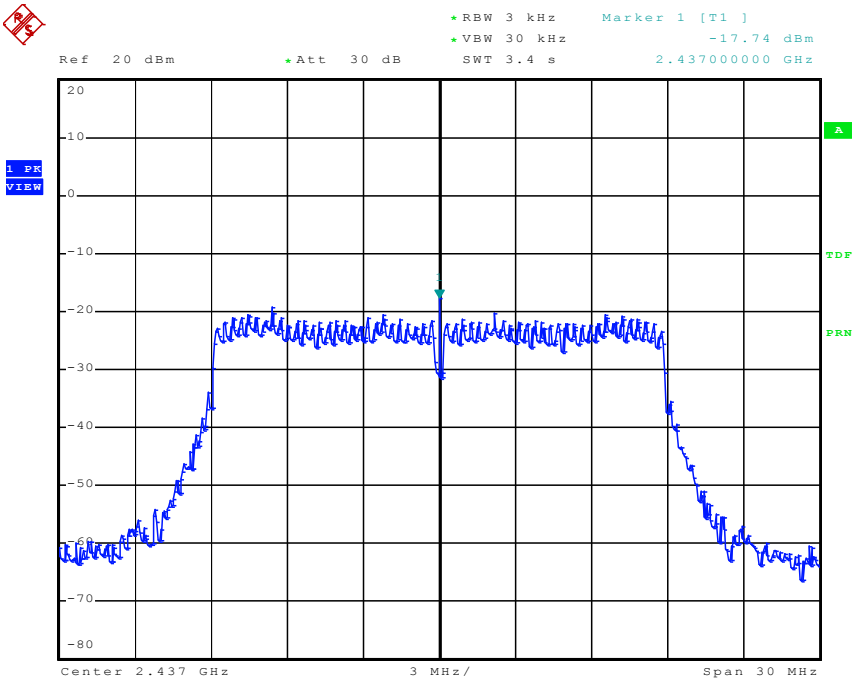
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 11



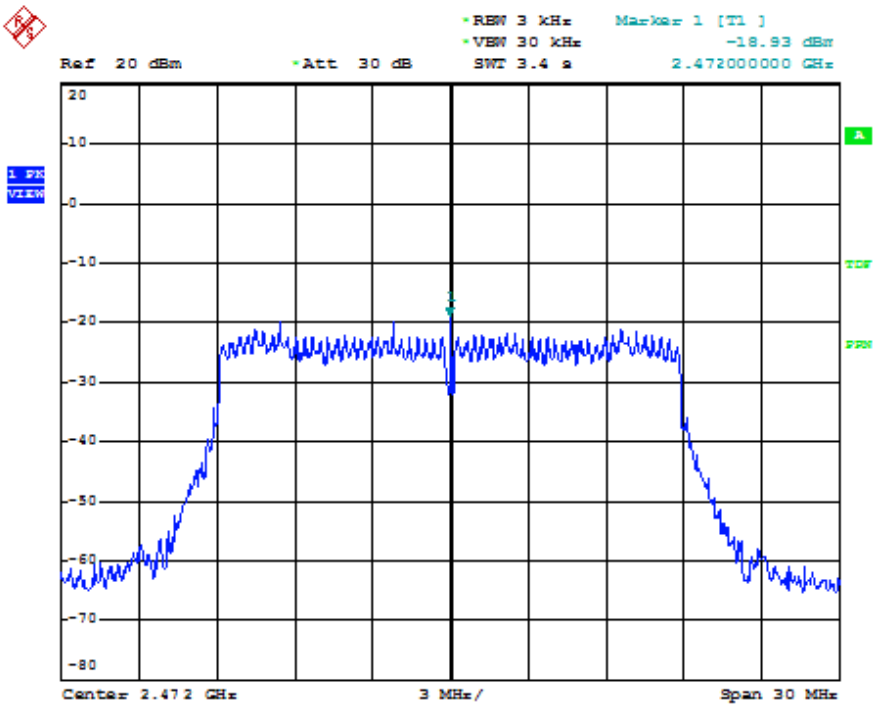
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 01



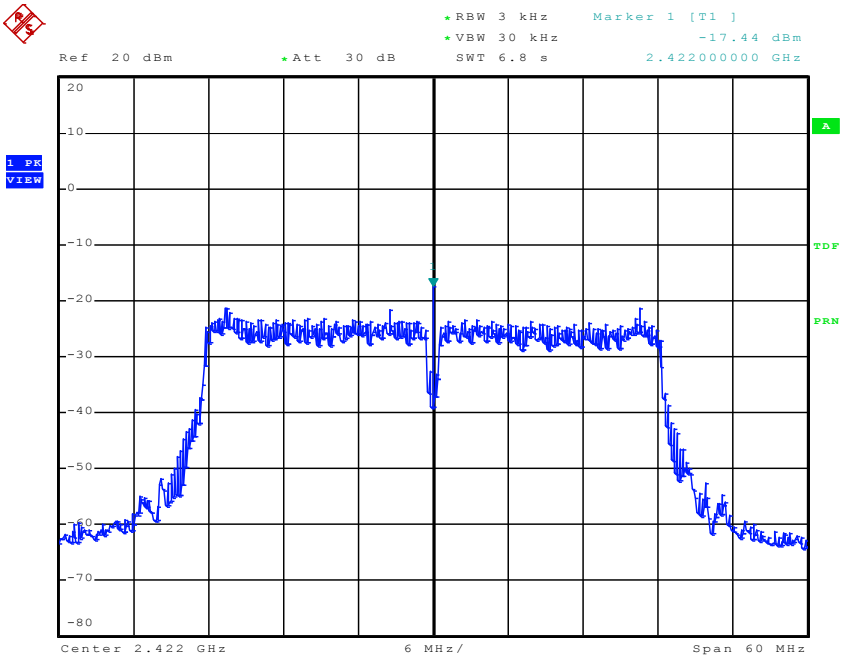
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 06



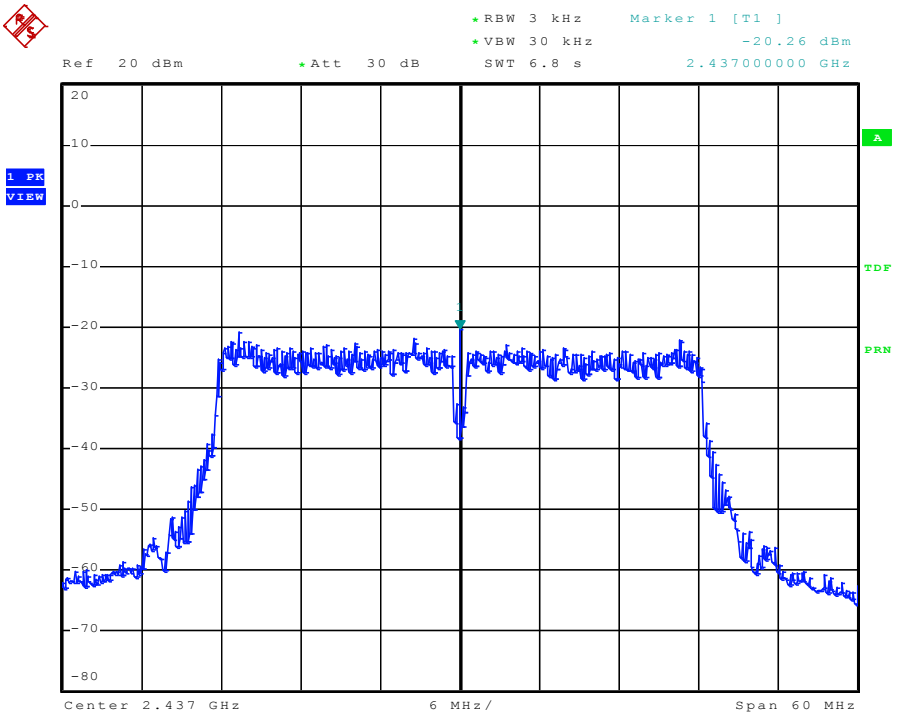
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 11



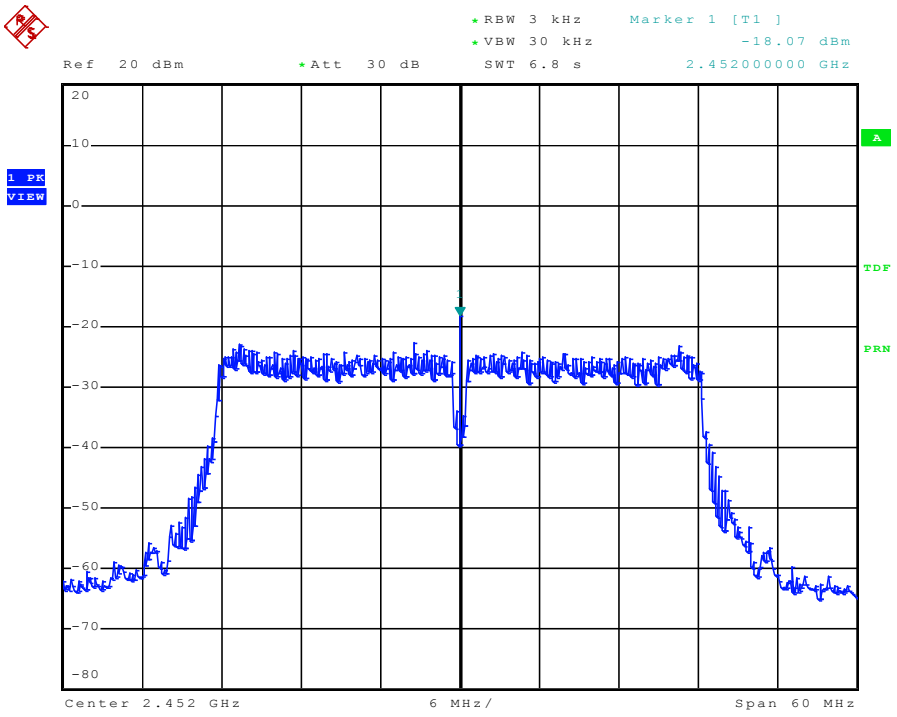
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 03



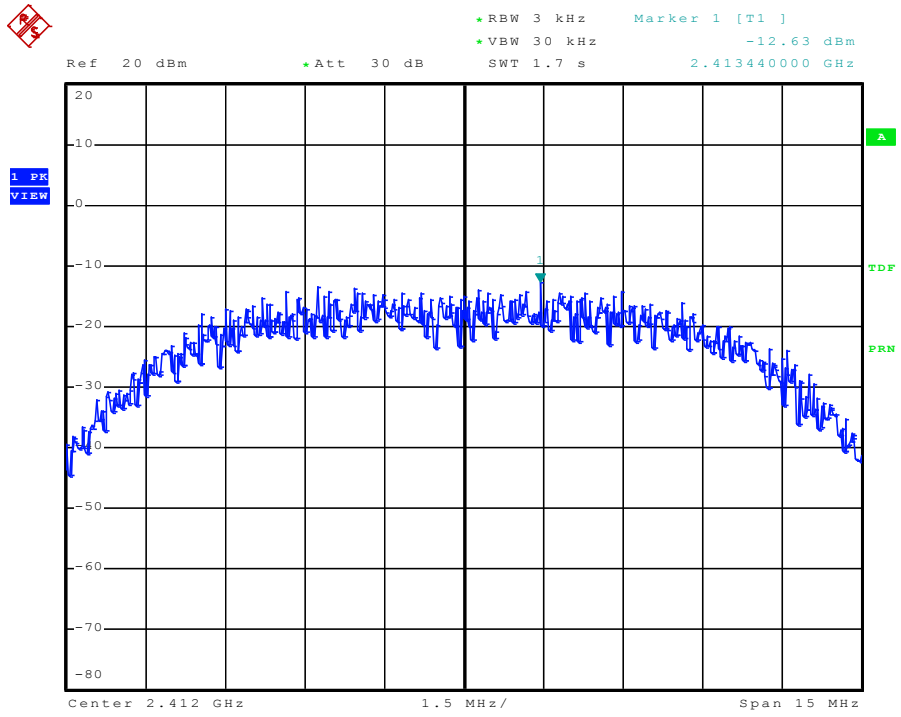
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 06



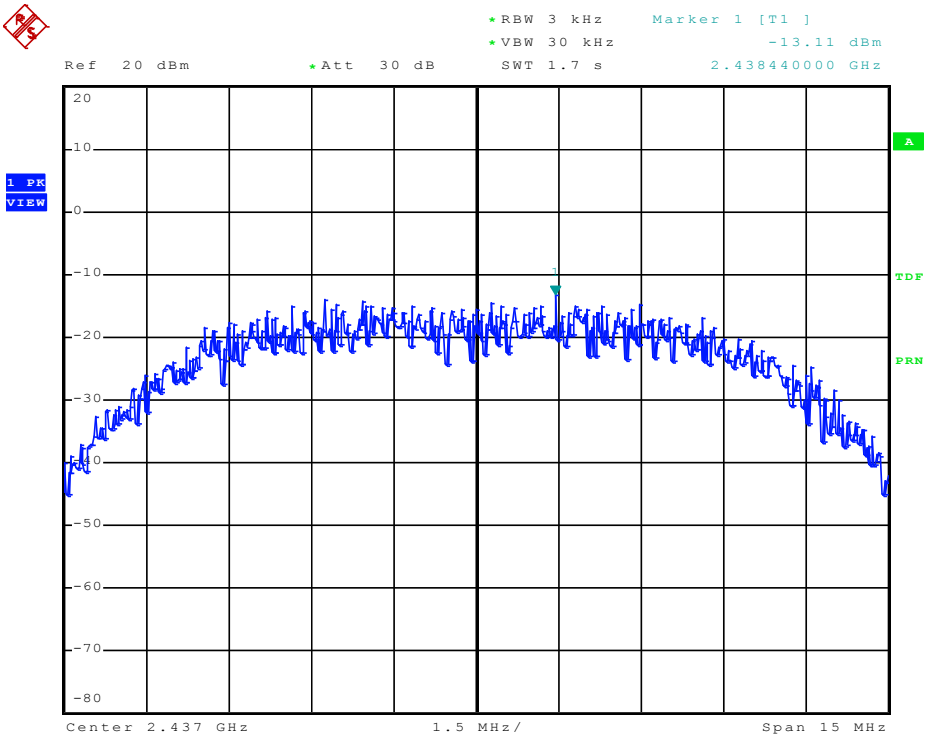
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 09



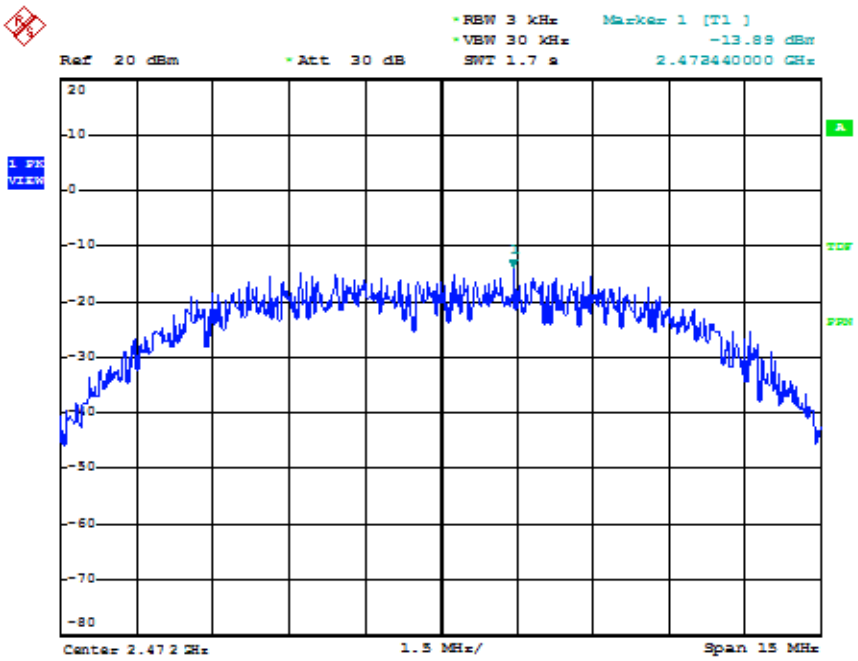
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 01



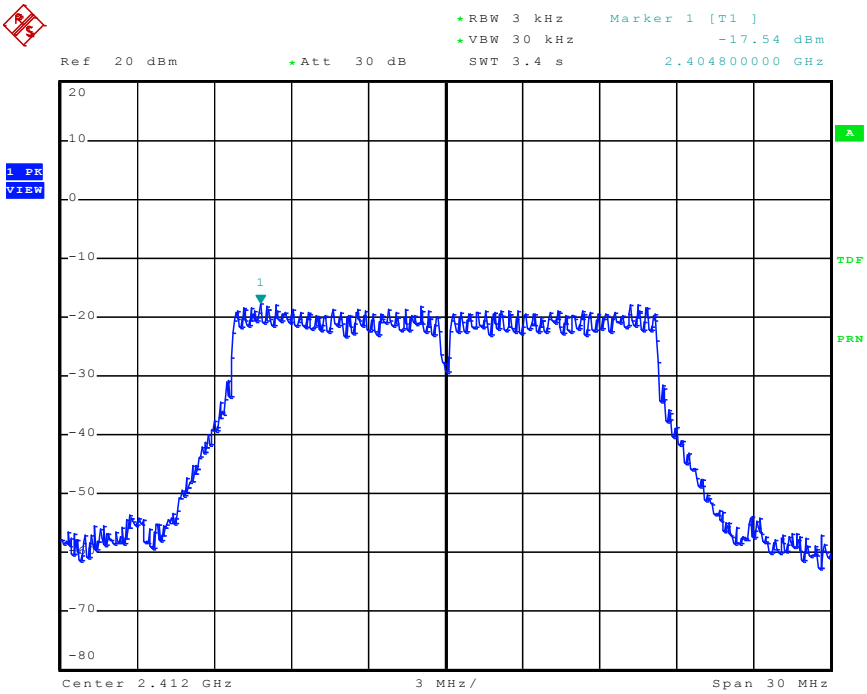
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 06



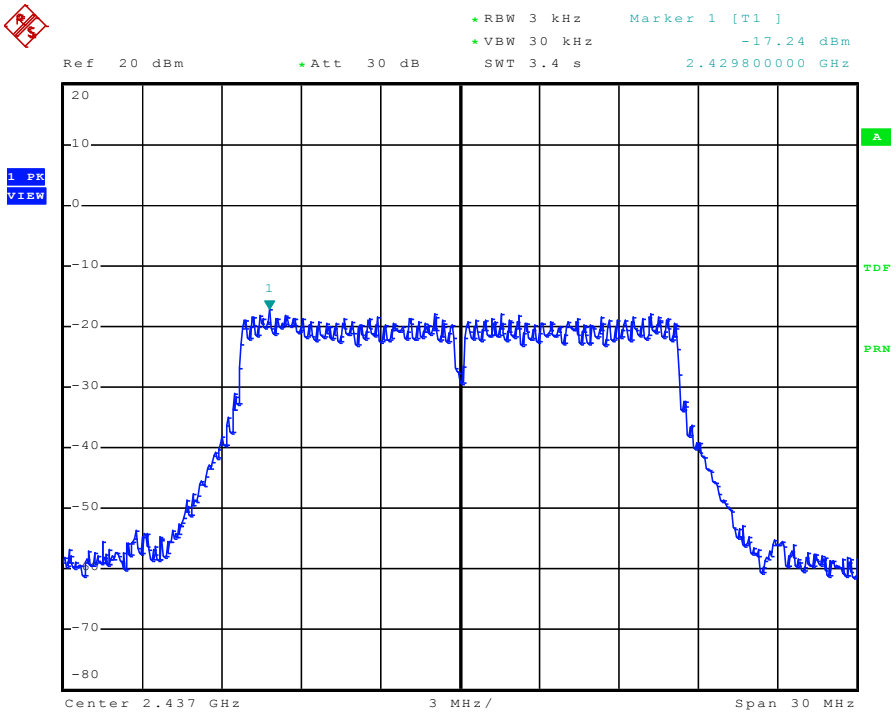
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 11



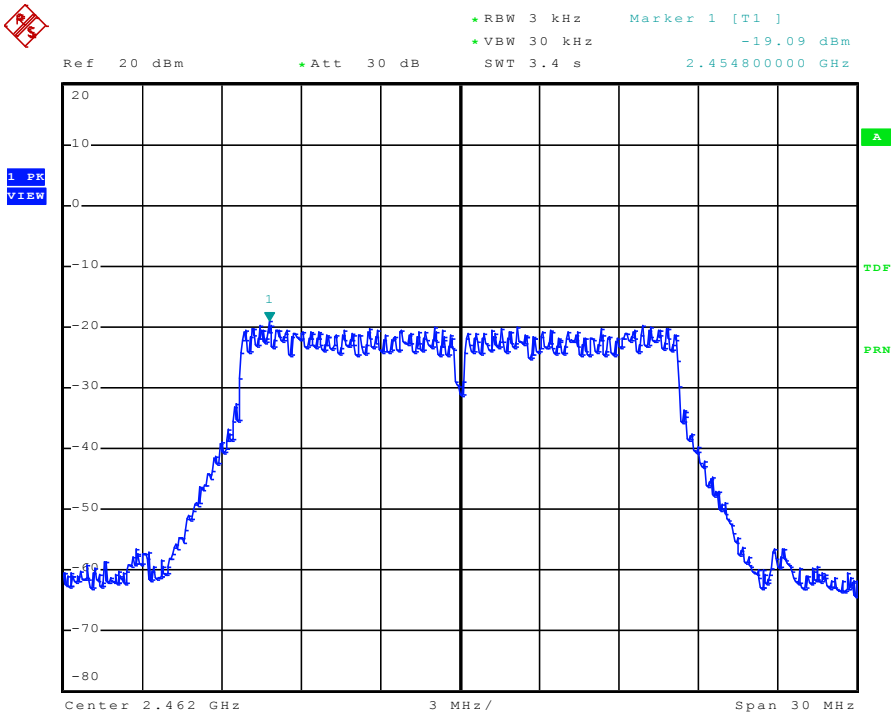
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 01



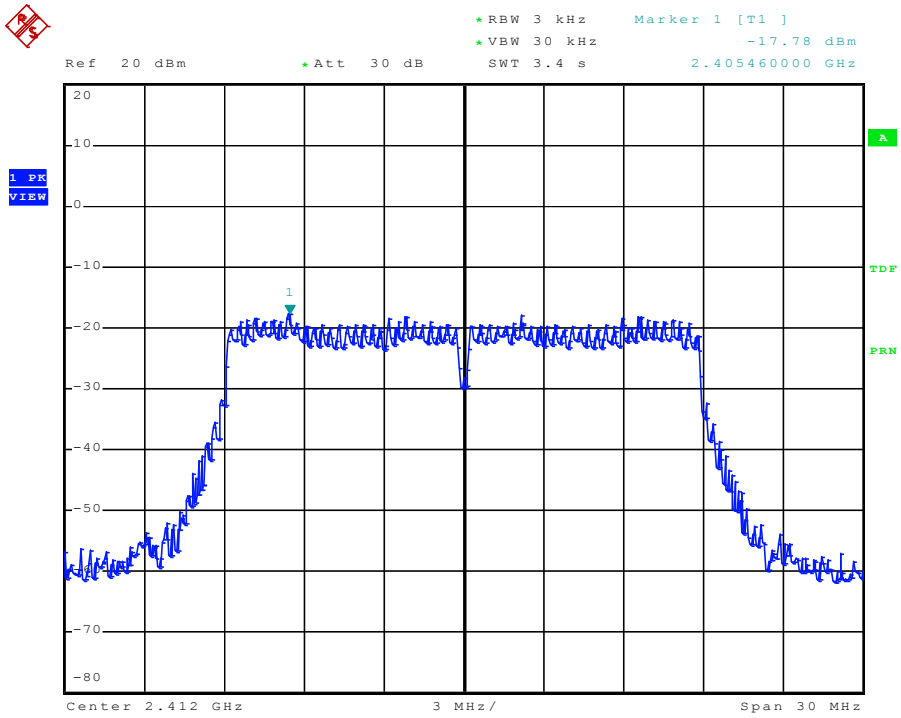
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 06



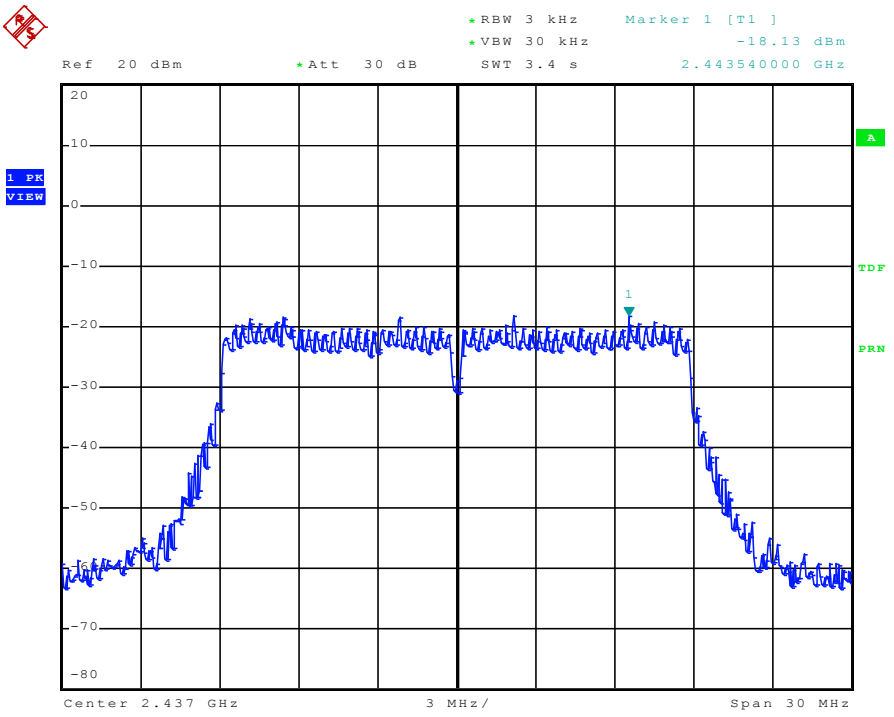
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 11



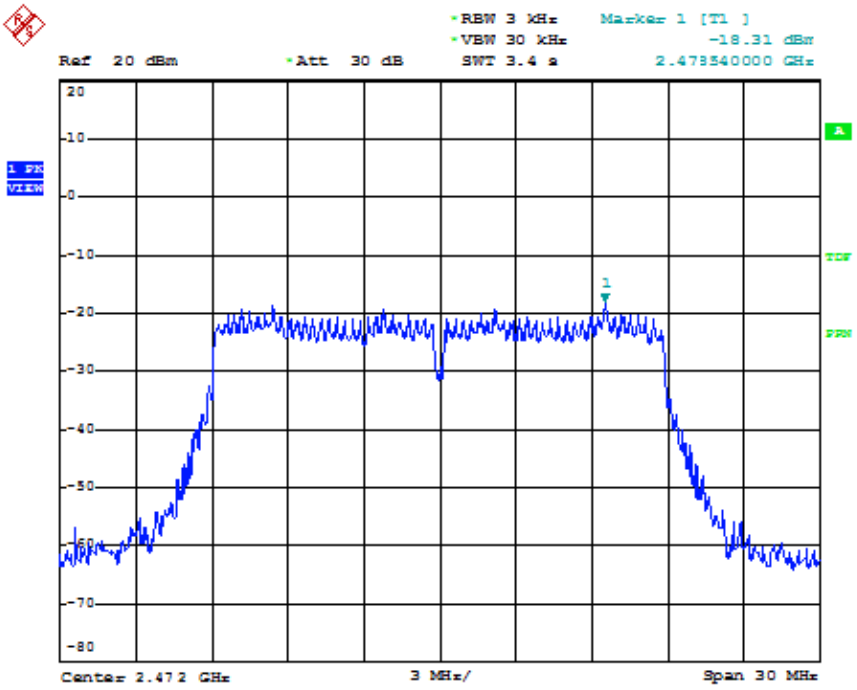
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 01



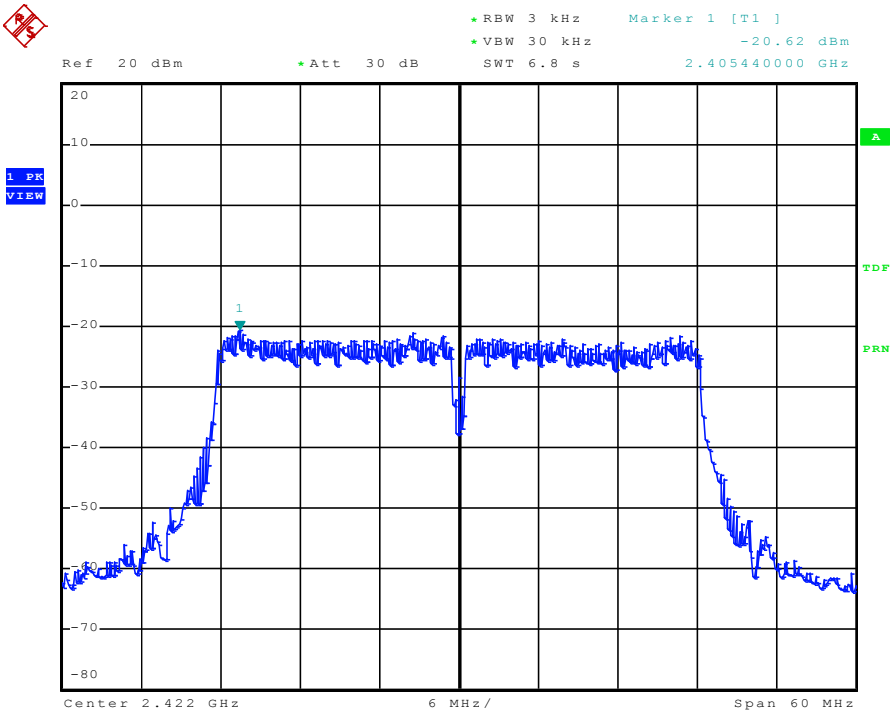
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 06



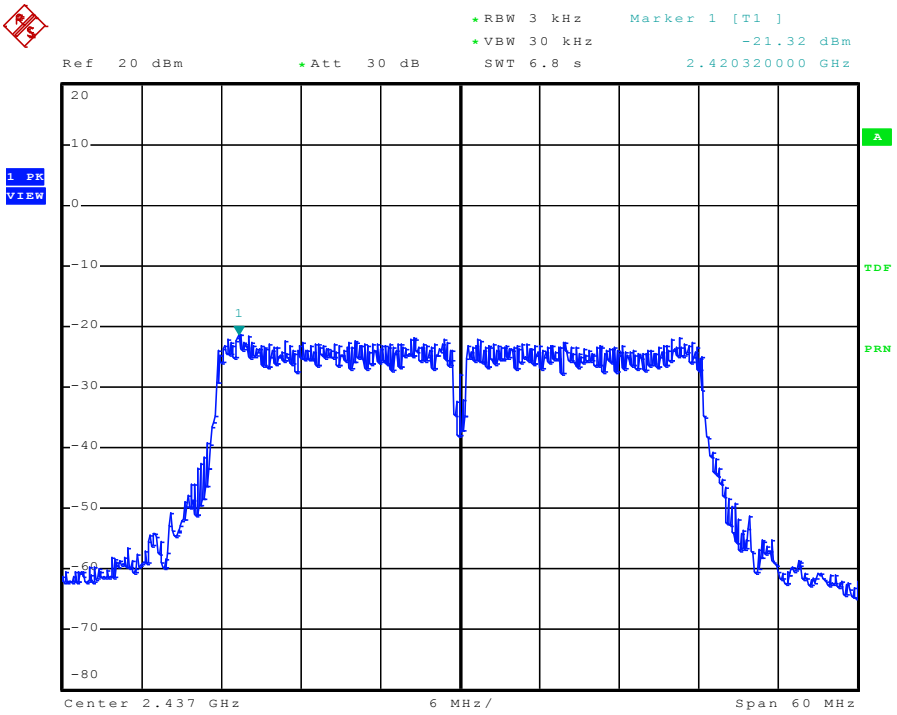
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 11



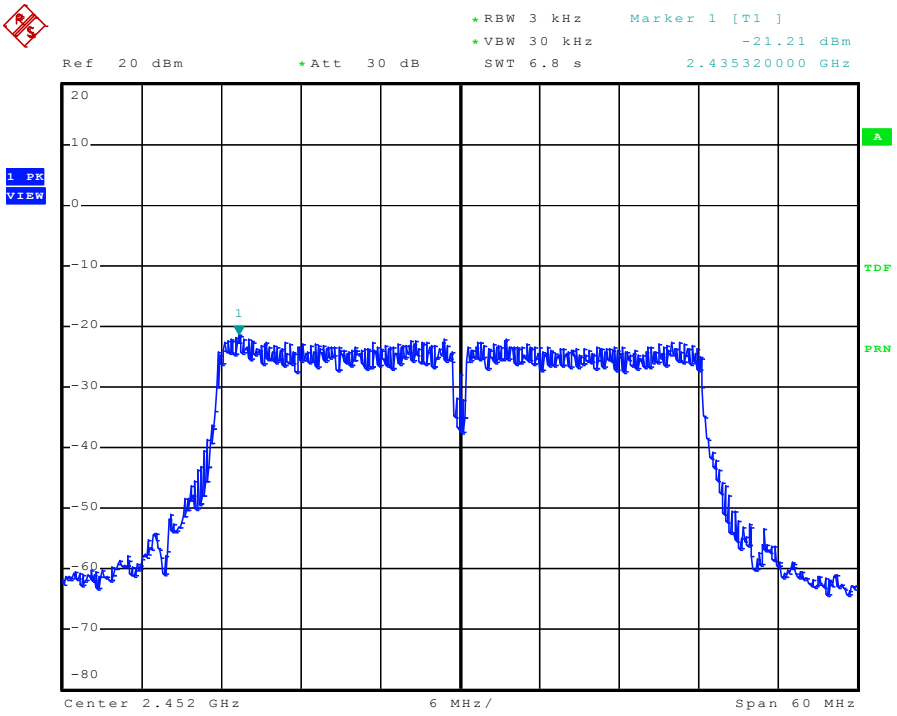
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 03



Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 06



Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 09



11. Band Edges Measurement

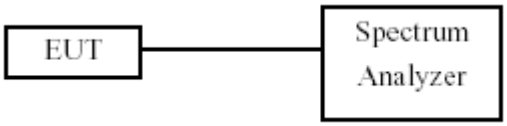
11.1 Test Limit

Below –20dB of the highest emission level of operating band (In 100 kHz Resolution Bandwidth)

11.2 Test Procedure

a. The transmitter output was connected to the spectrum analyzer via a low lose cable.
b. Set RBW of spectrum analyzer to 100 KHz and VBW of spectrum analyzer to 300 KHz with convenient frequency span including 100 KHz bandwidth from band edge.
c. Peak conducted output power measured within any 100 kHz outside the authorized frequency band shall be attenuated by at least 20dB relative to the maximum measured in-band peak PSD level.
d. The band edges was measured and recorded.

11.3 Test Setup Layout



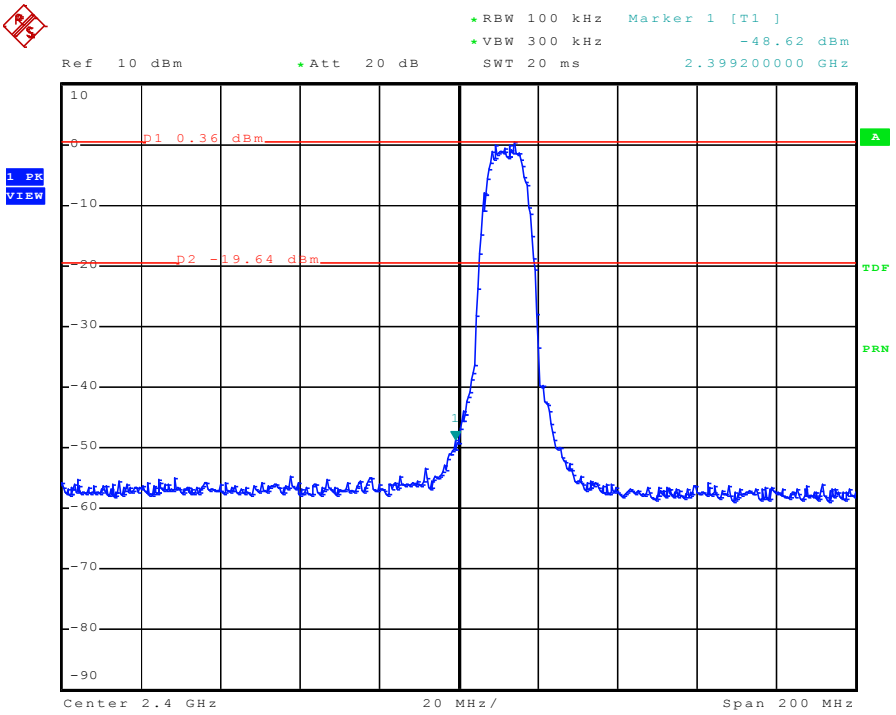
11.4 Test Result and Data

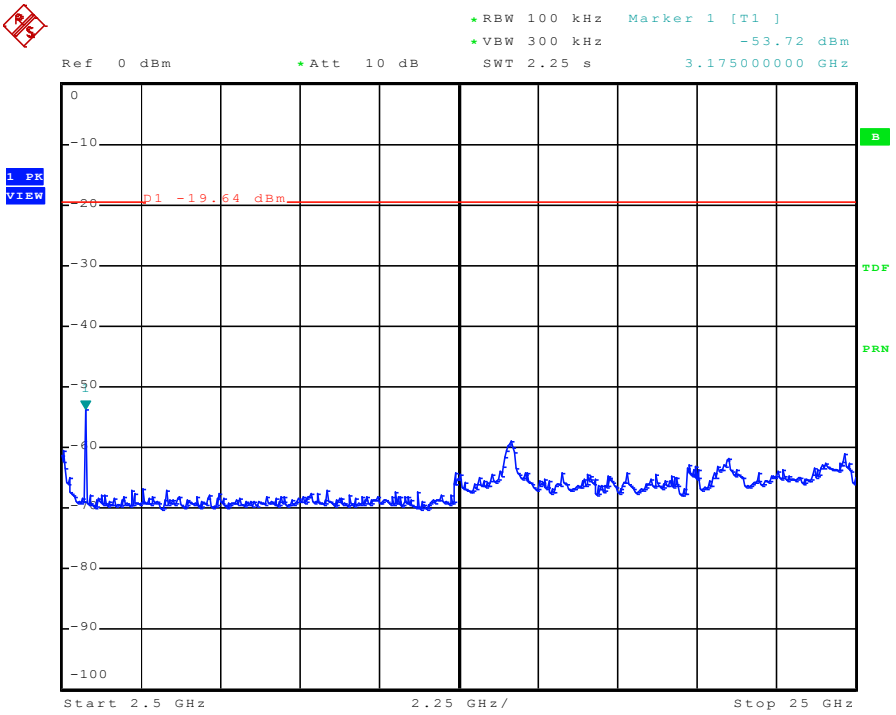
Test Date: Feb. 17, 2015 Temperature: 22℃

Atmospheric pressure: 1020 hPa Humidity: 60%

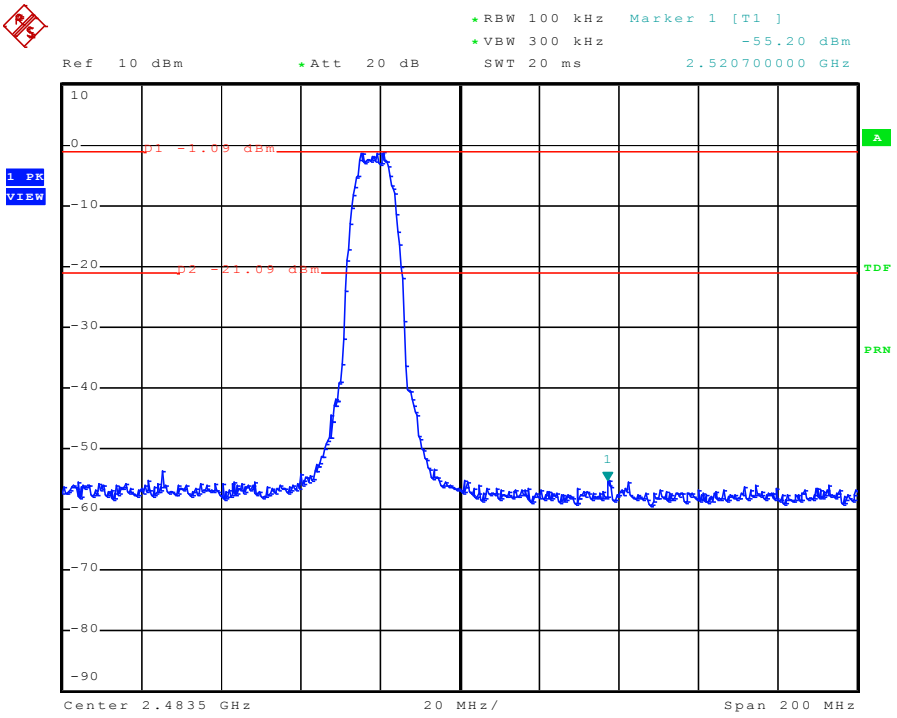
Modulation Standard	Channel	Frequency (MHz)	maximum value in frequency (MHz)		maximum value (dBm)	
			ANT R	ANT L	ANT R	ANT L
802.11b (11Mbps)	01	2412	2399.20	2400.00	-48.62	-48.20
	11	2472	2520.70	2501.50	-55.20	-55.27
802.11g (6Mbps)	01	2412	2400.00	2400.00	-38.68	-36.21
	11	2472	2483.50	2484.30	-52.59	-52.38
802.11n HT20 (6.5Mbps)	01	2412	2400.00	2400.00	-41.04	-38.44
	11	2472	2483.50	2484.30	-53.37	-50.62
802.11n HT40 (13.5Mbps)	03	2422	2399.20	2399.20	-40.12	-38.86
	09	2452	2483.50	2484.70	-51.76	-48.05

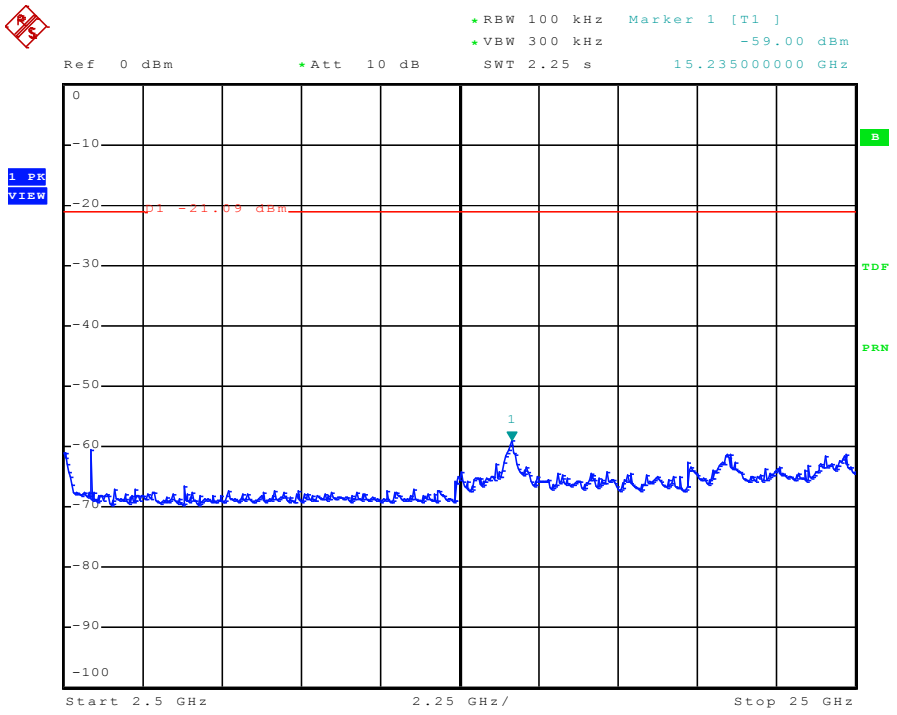
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 01



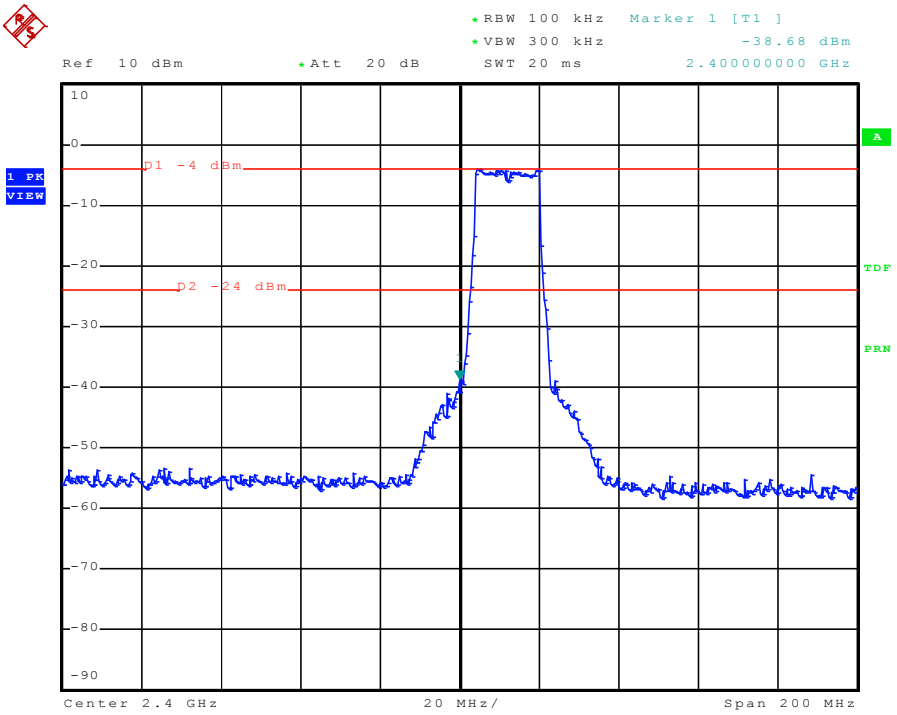


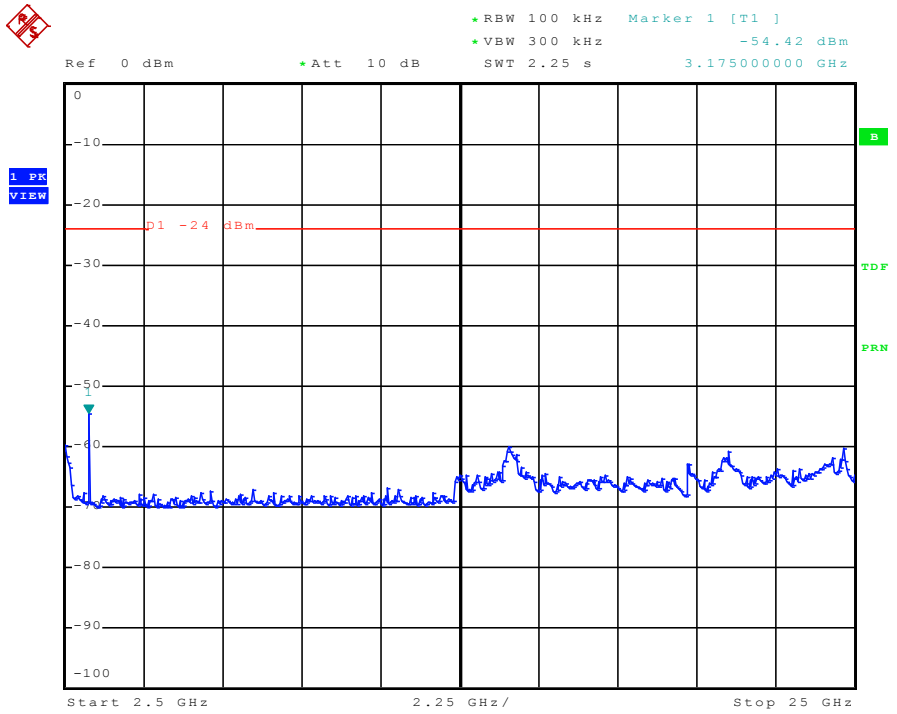
Modulation Standard: 802.11b (11Mbps), ANT R
Channel: 11



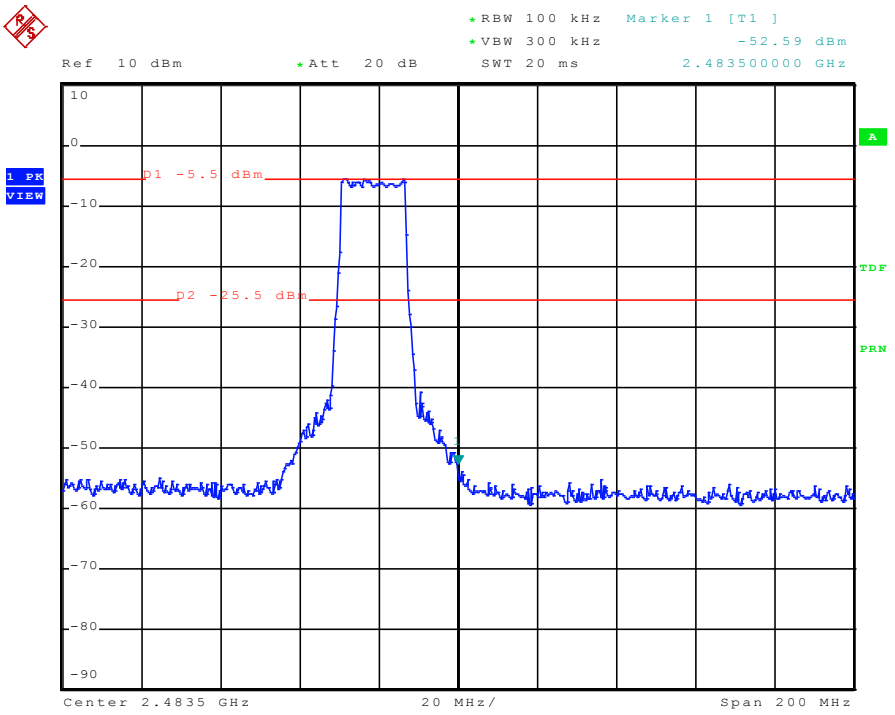


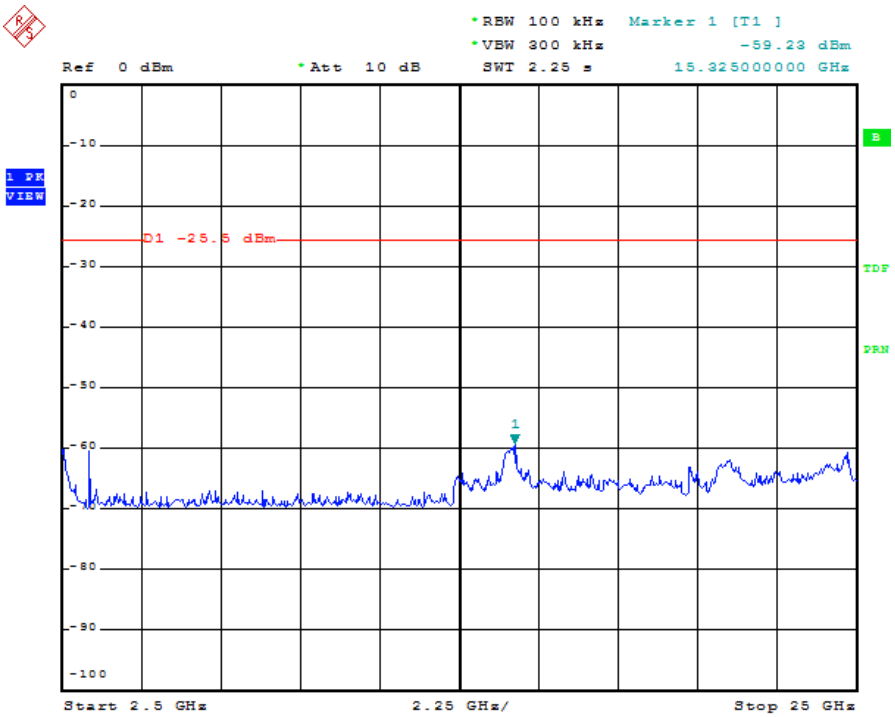
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 01



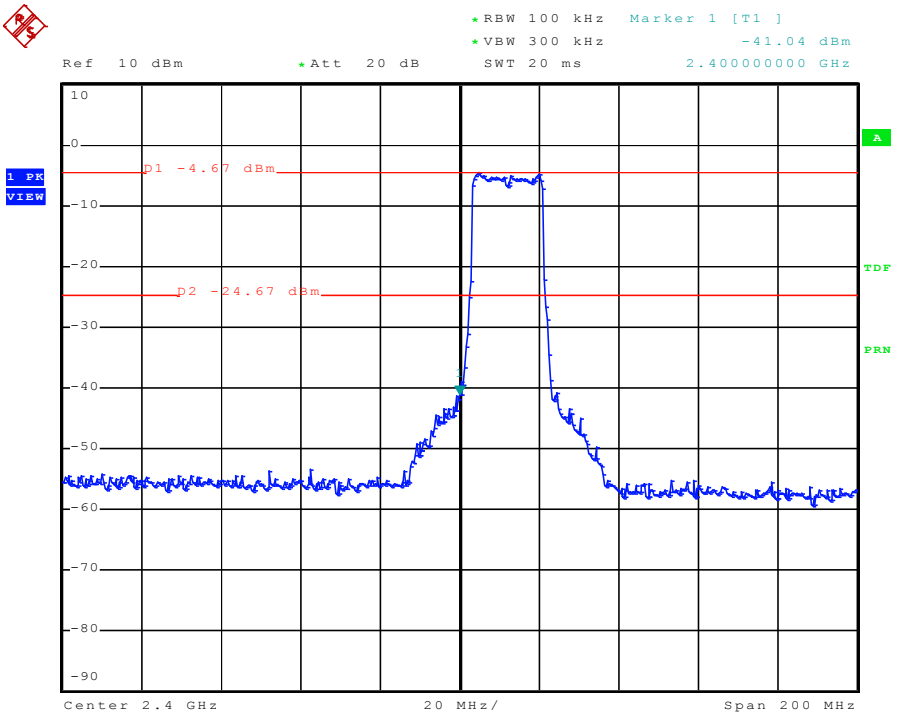


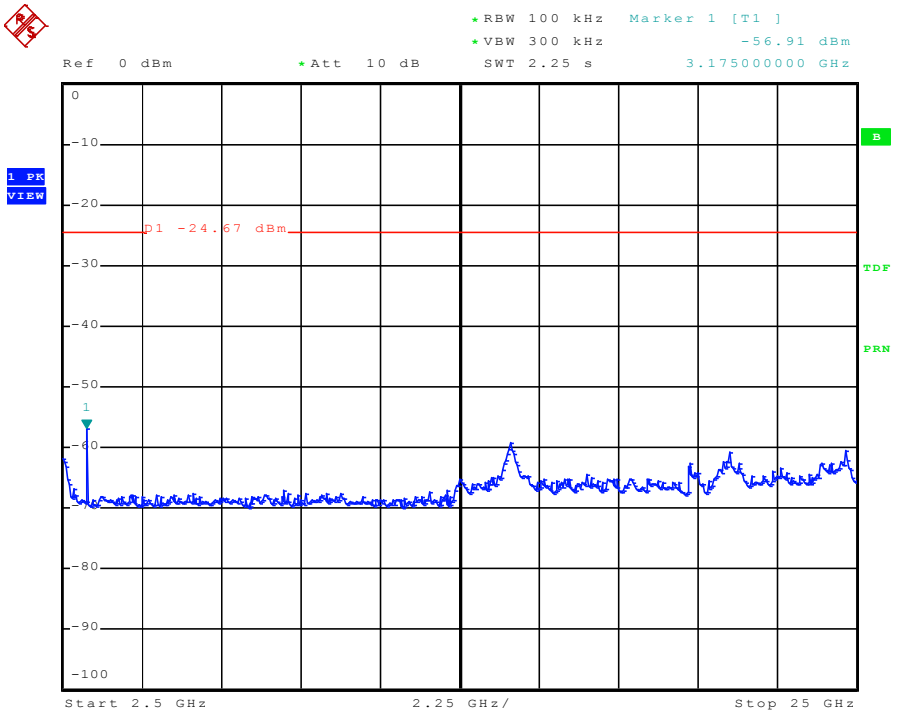
Modulation Standard: 802.11g (6Mbps), ANT R
Channel: 11



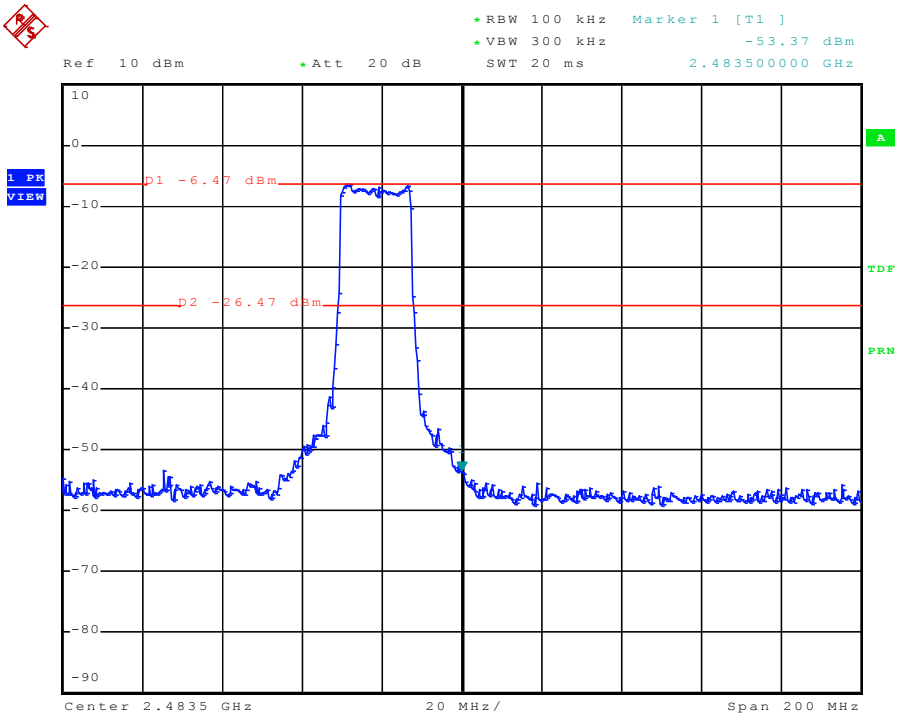


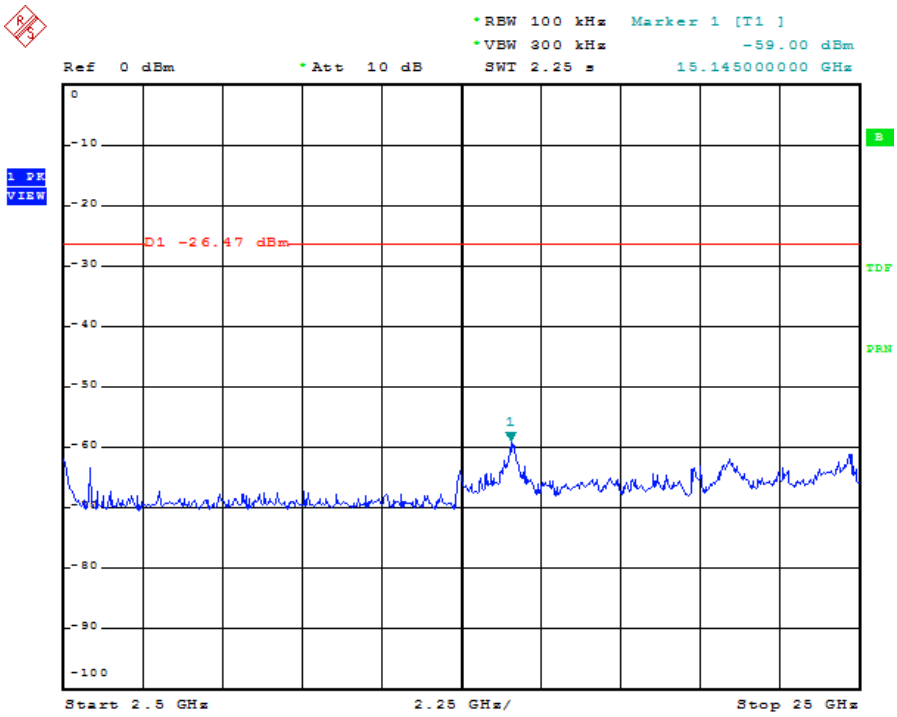
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 01



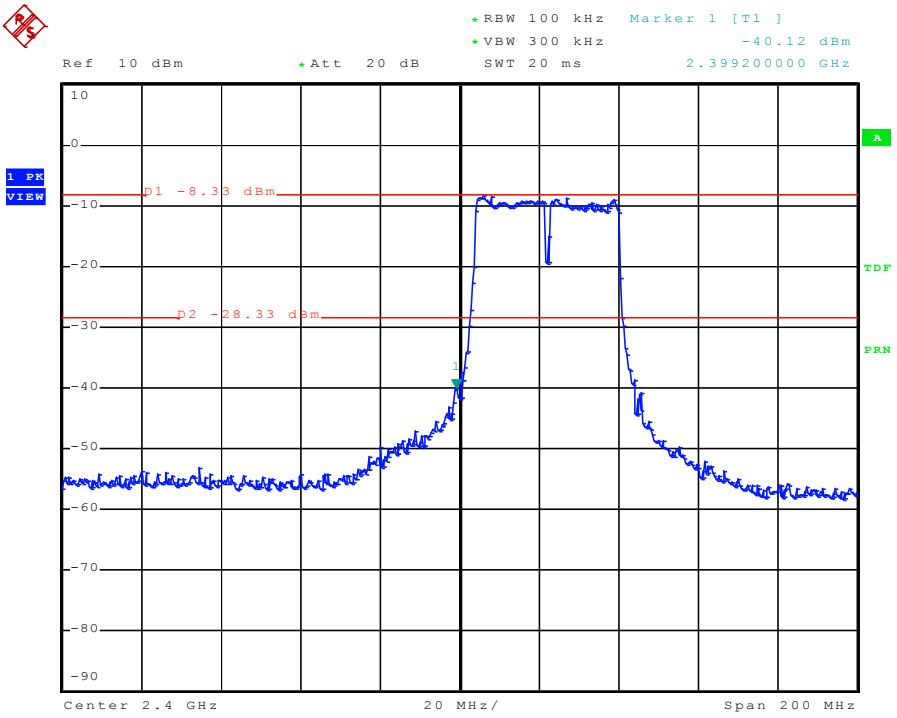


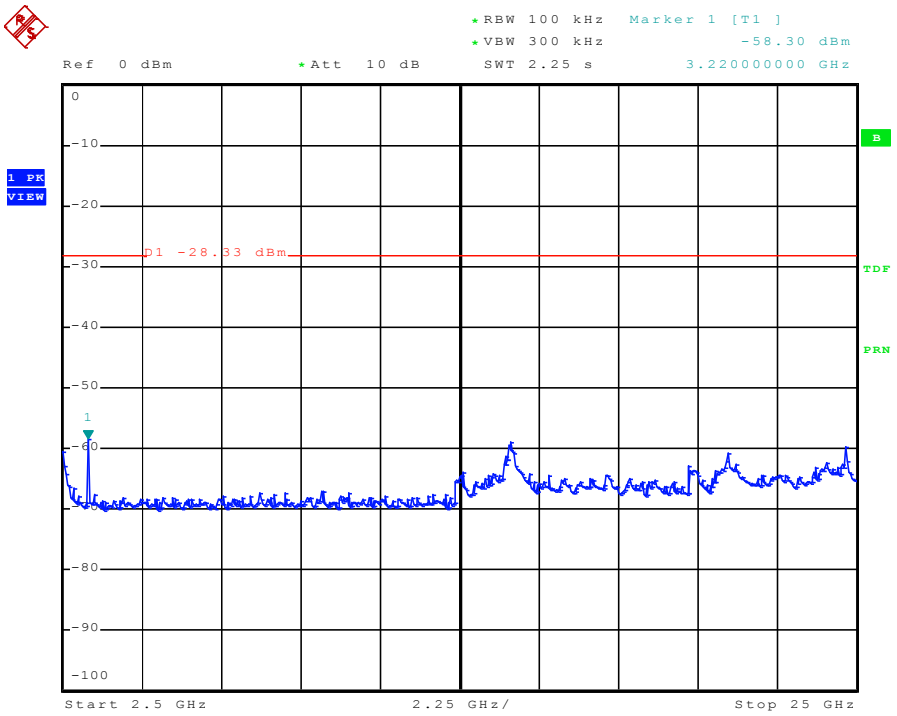
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT R
Channel: 11



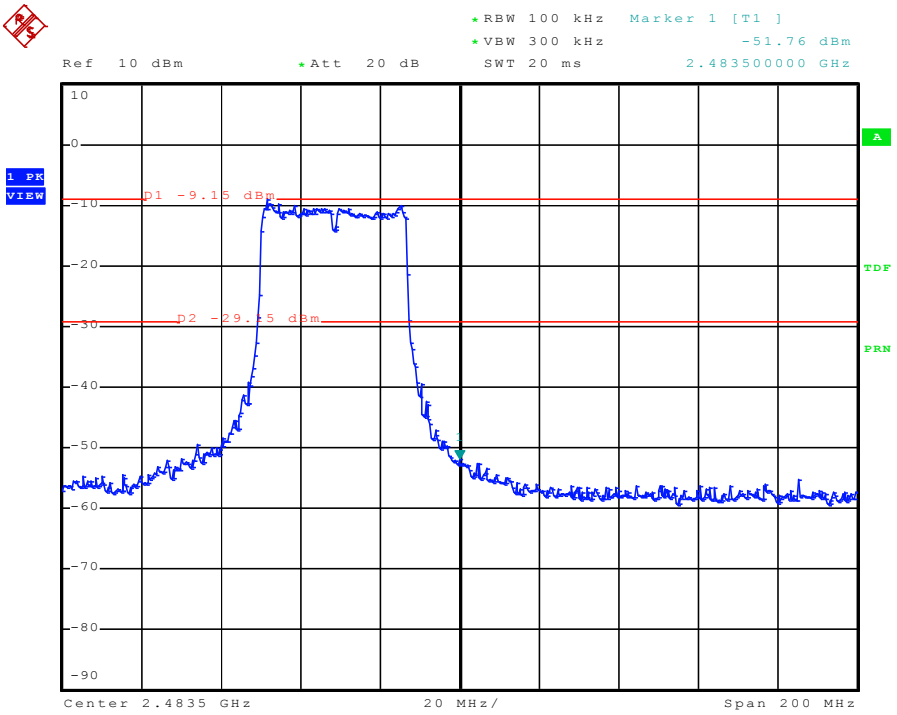


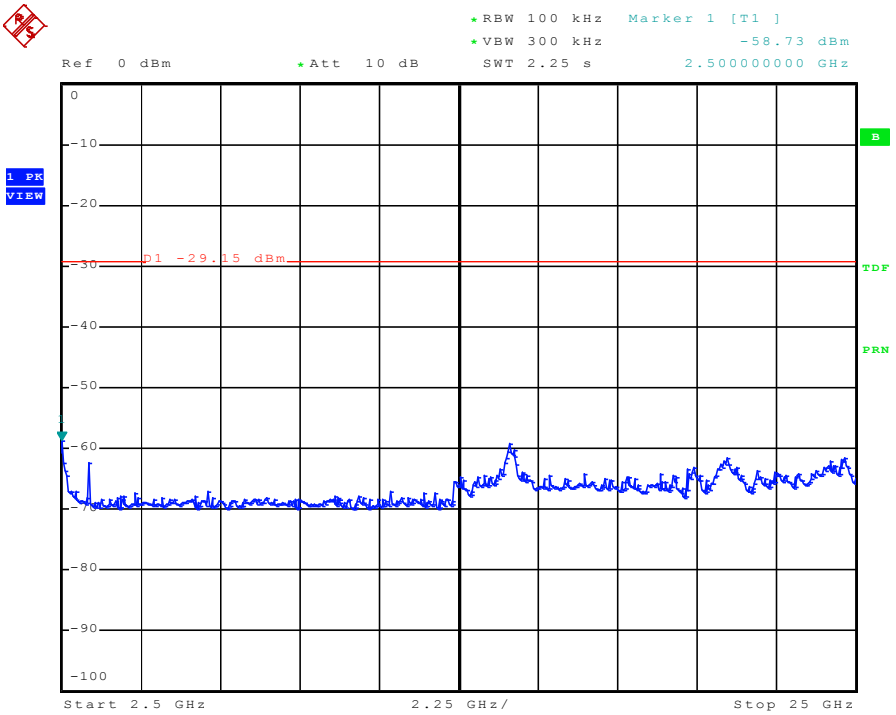
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 03



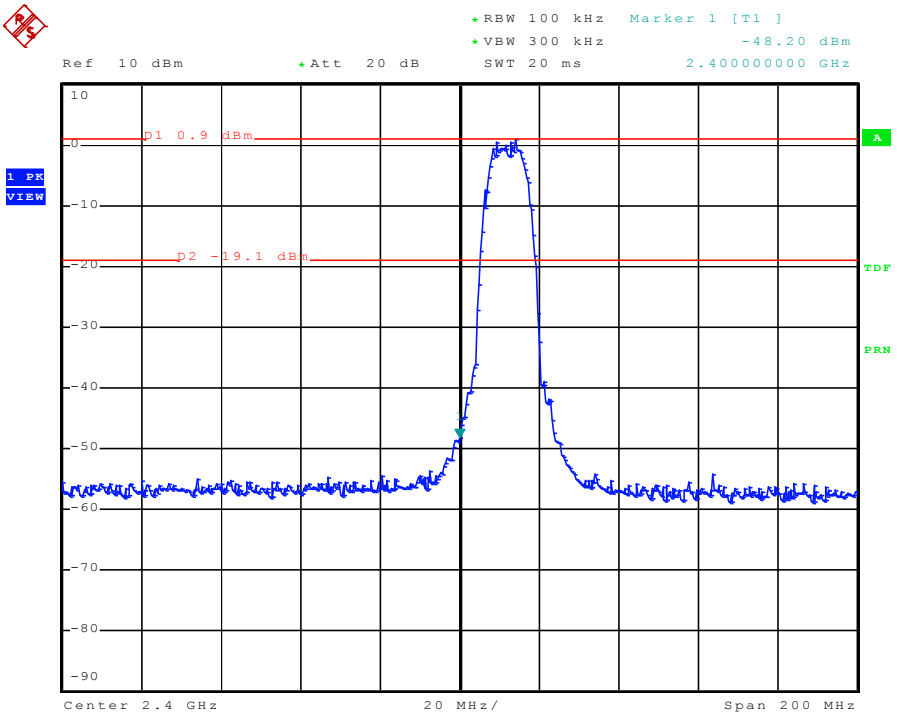


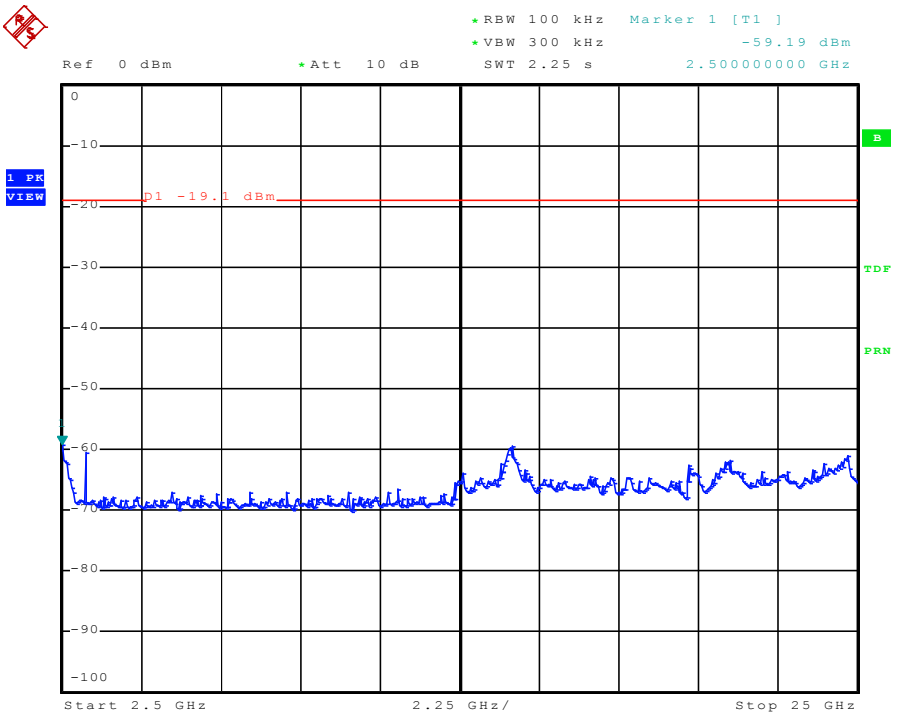
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT R
Channel: 09



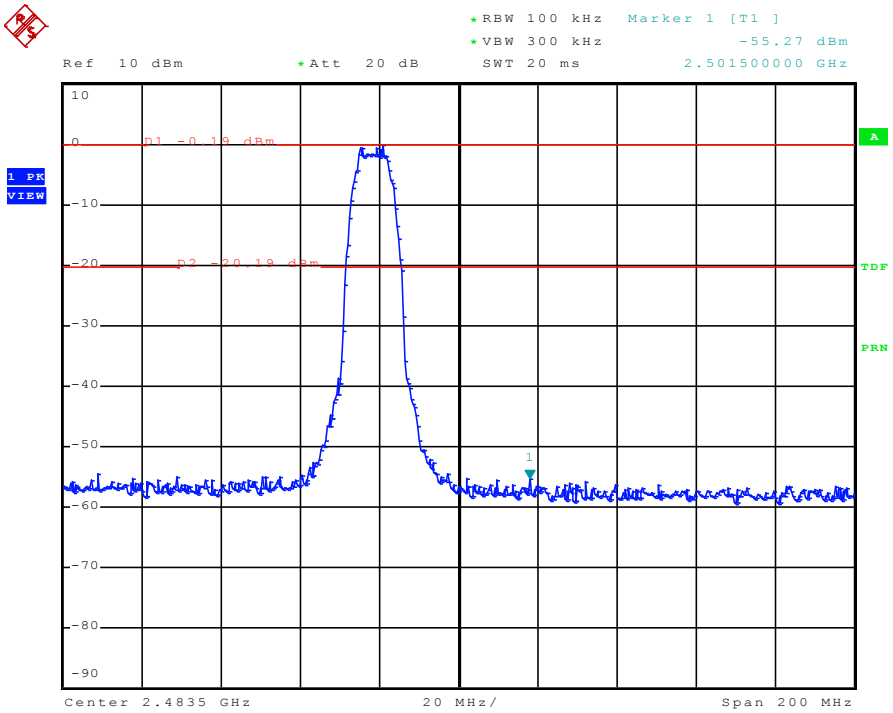


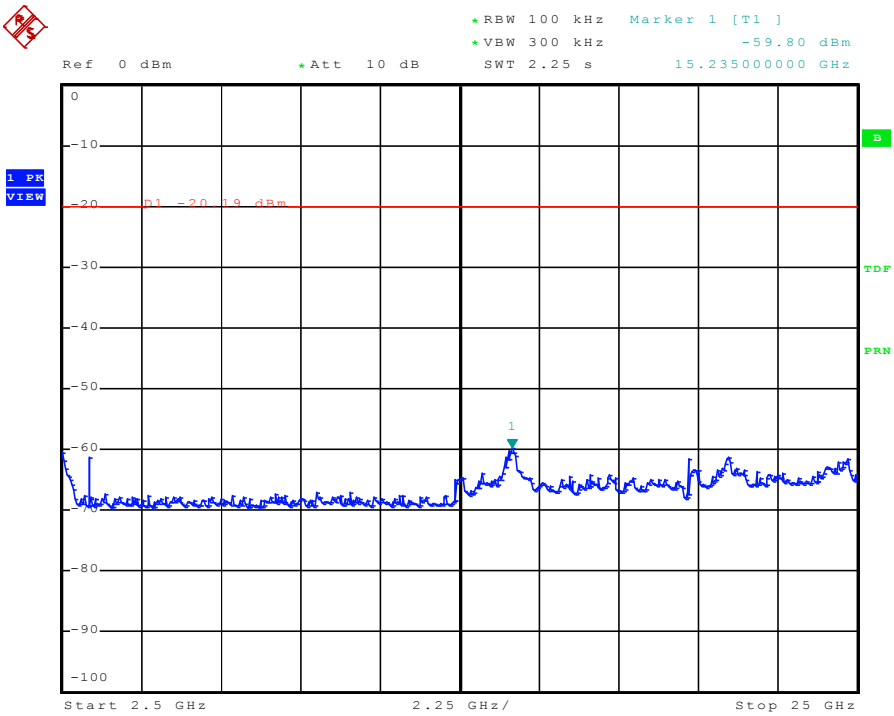
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 01



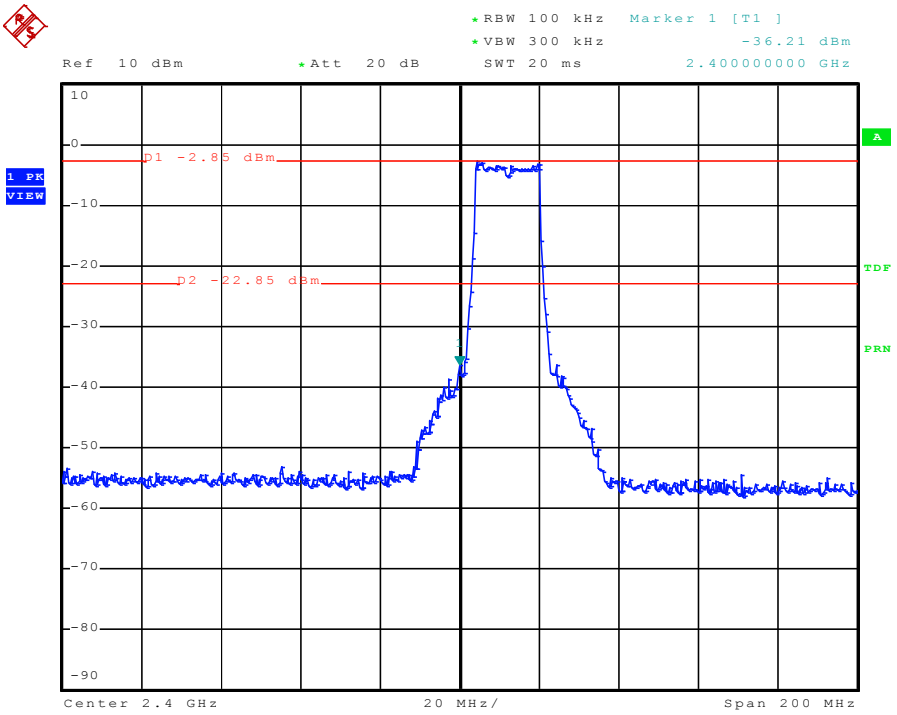


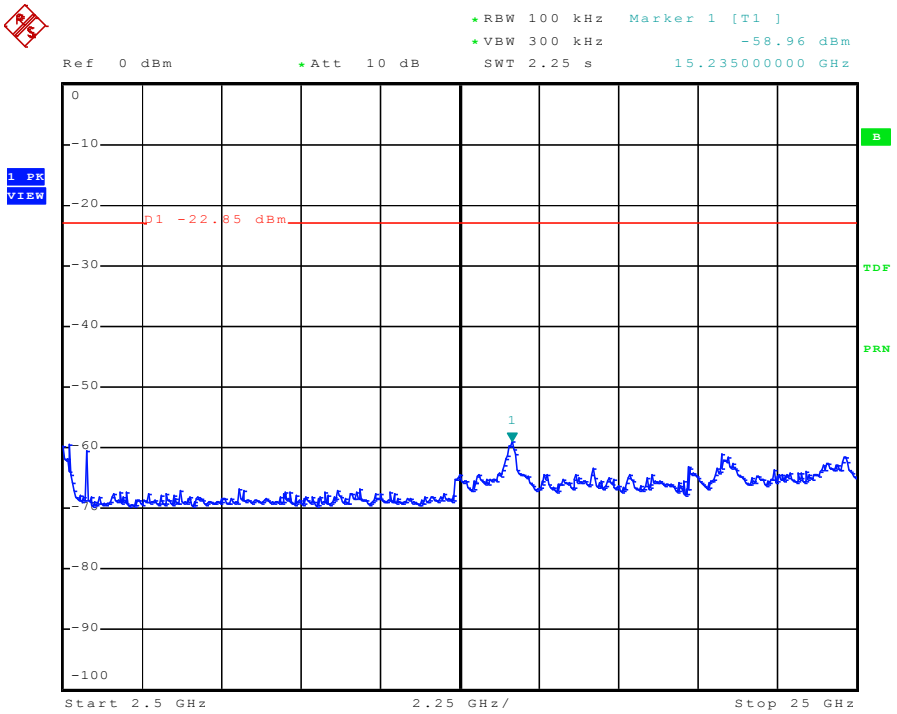
Modulation Standard: 802.11b (11Mbps), ANT L
Channel: 11



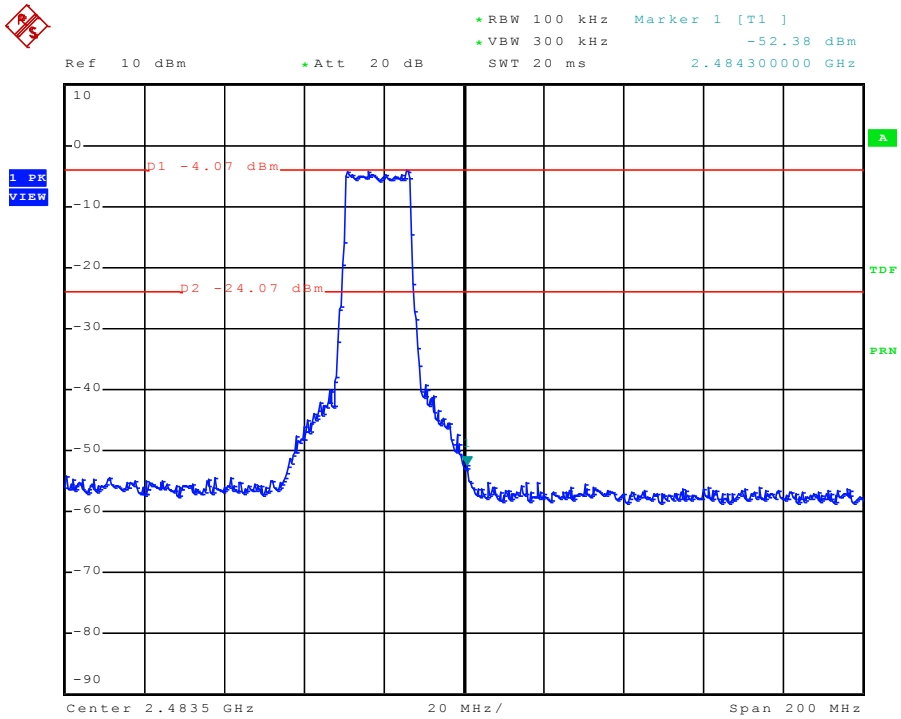


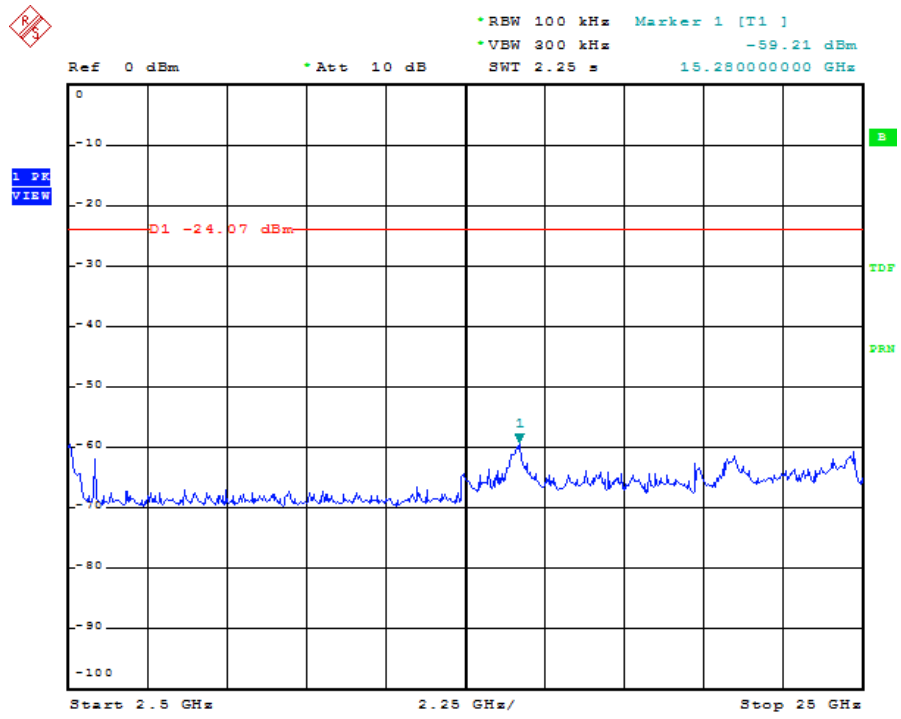
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 01



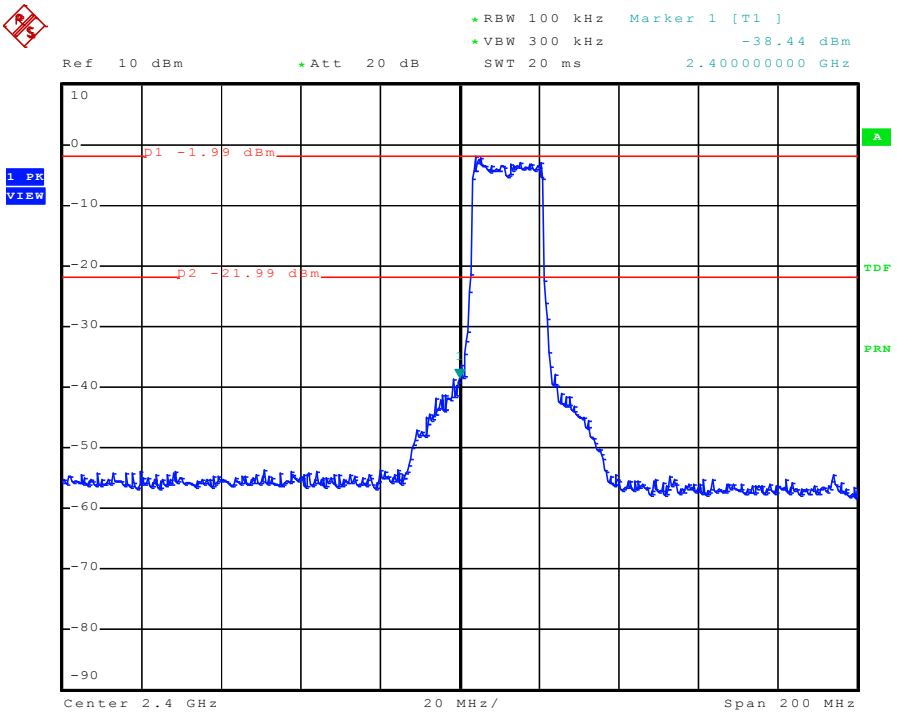


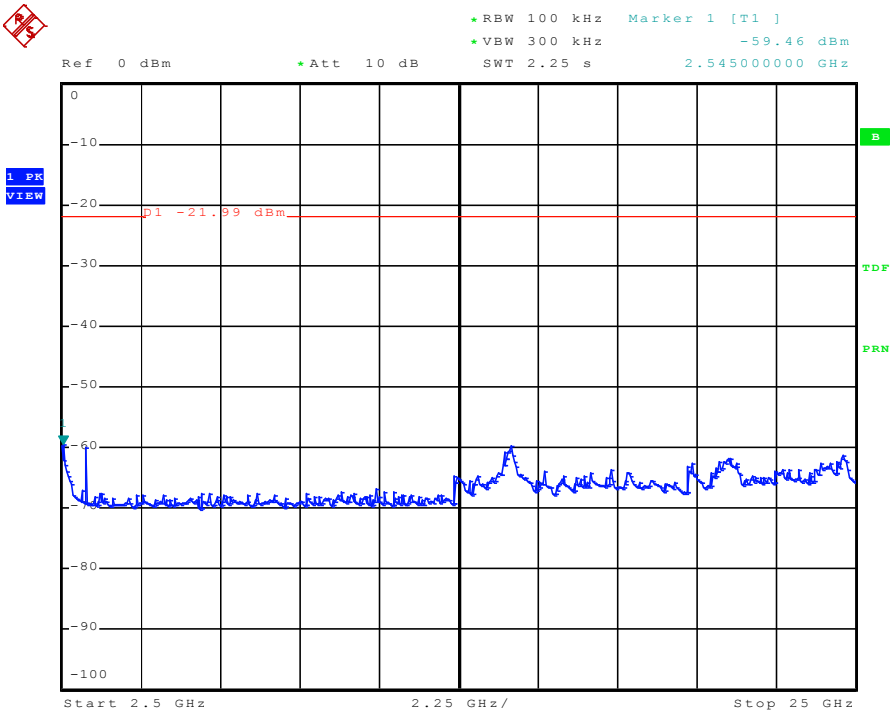
Modulation Standard: 802.11g (6Mbps), ANT L
Channel: 11



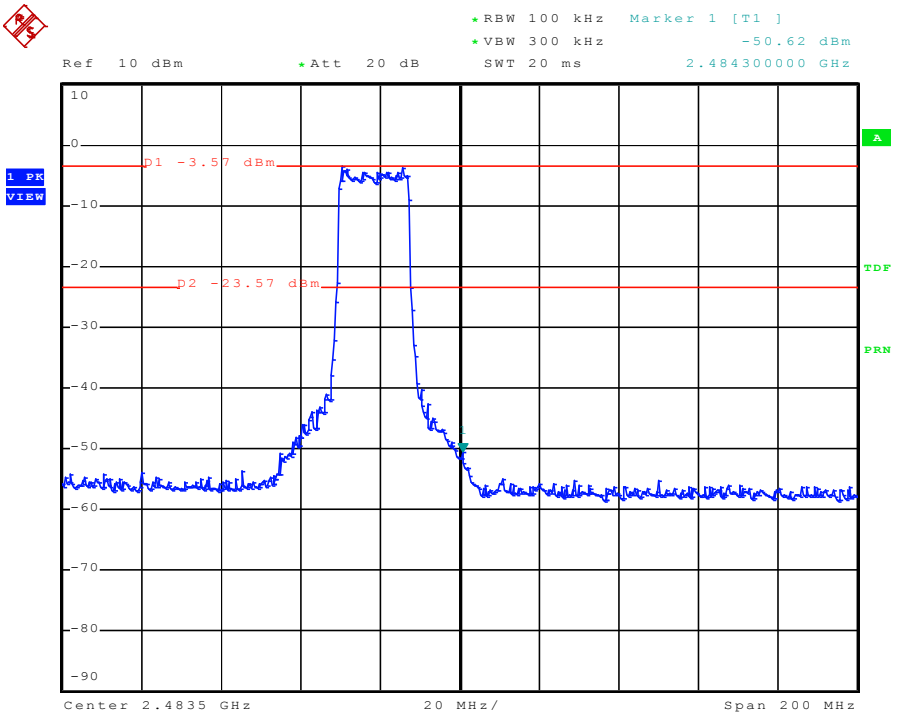


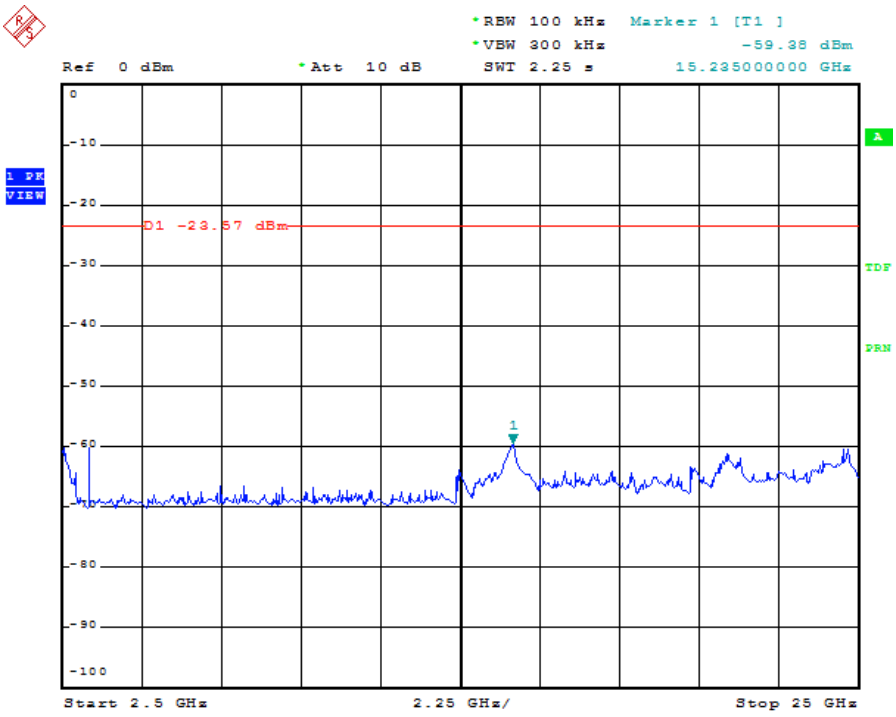
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 01



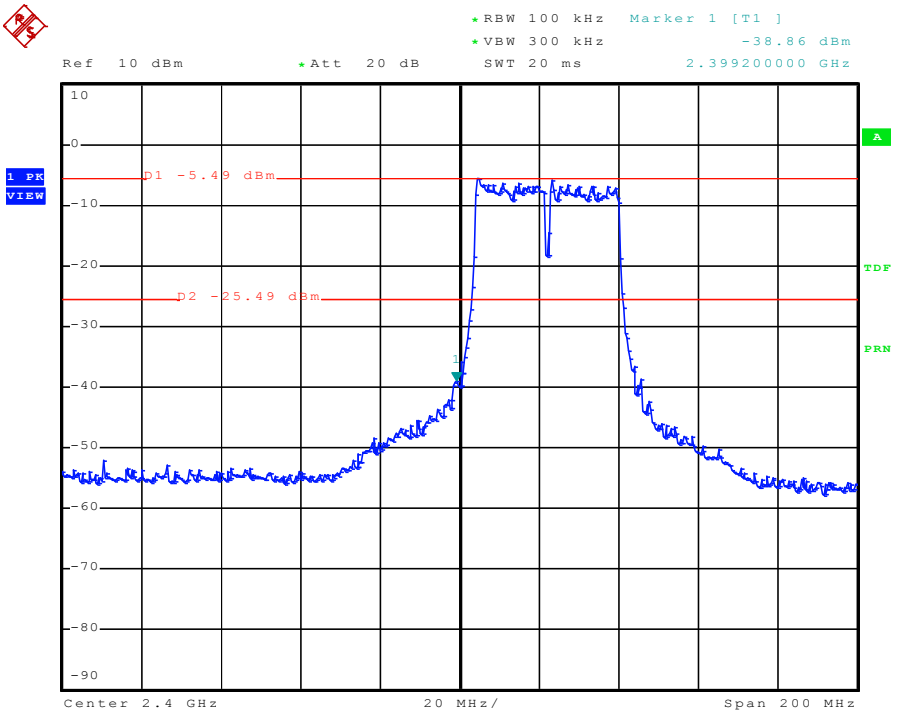


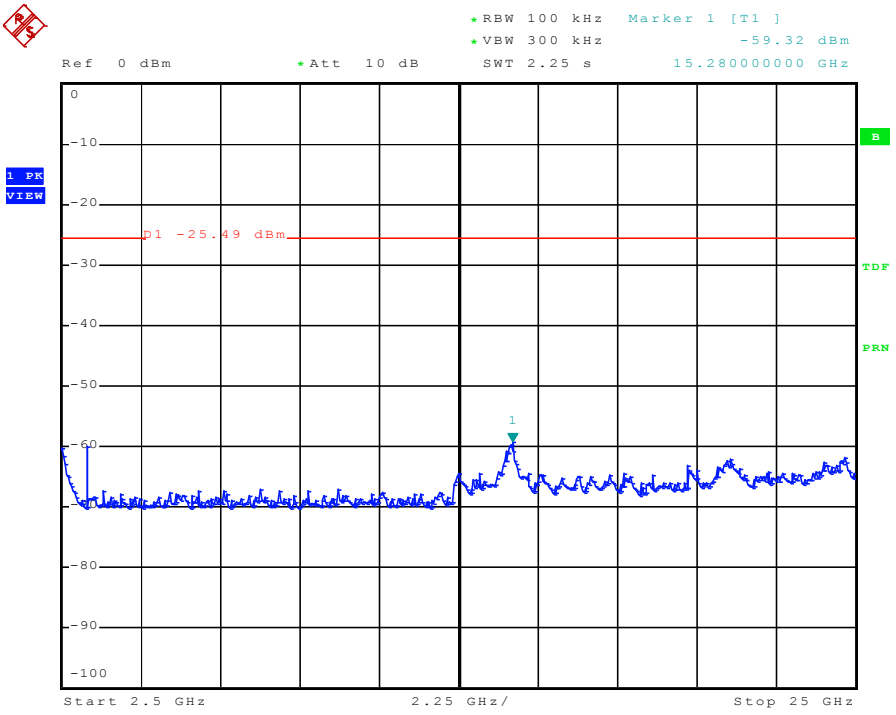
Modulation Standard: 802.11n HT20 (6.5Mbps), ANT L
Channel: 11



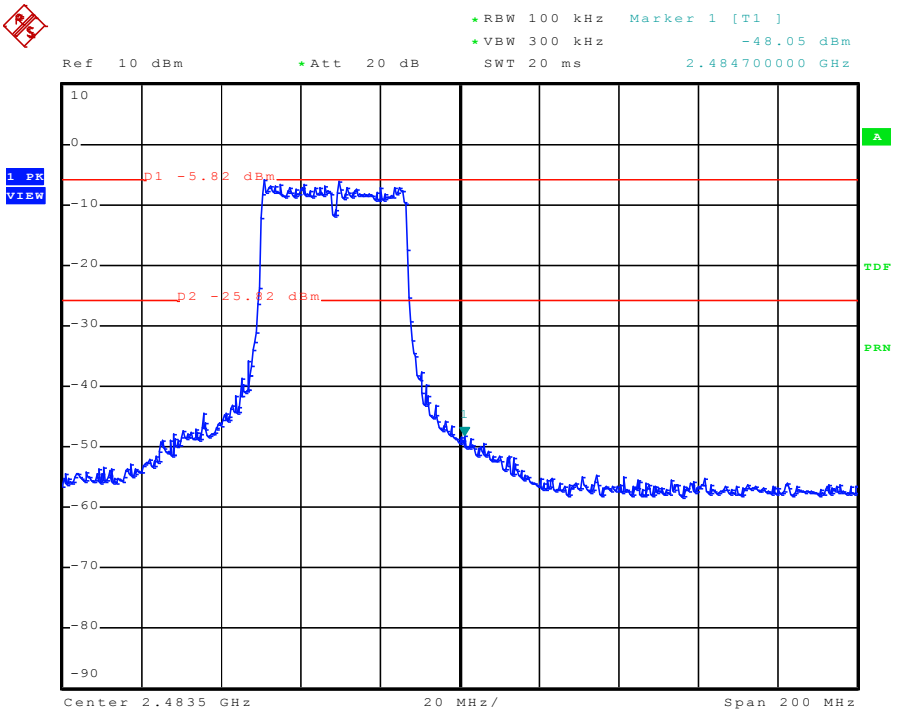


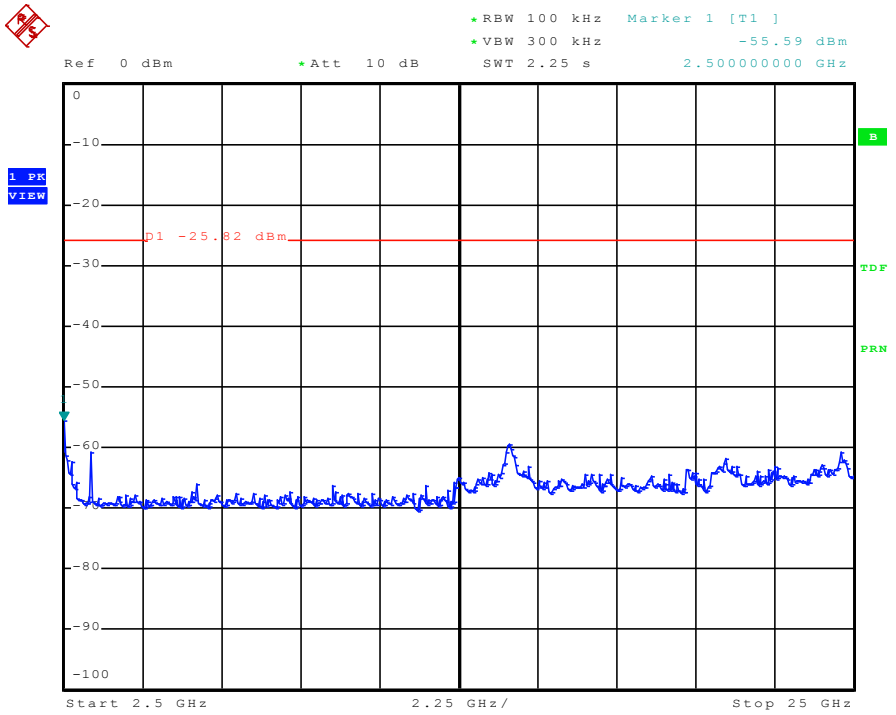
Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 03





Modulation Standard: 802.11n HT40 (13.5Mbps), ANT L
Channel: 09





11.5 Restrict Band Emission Measurement Data

Power	:	AC 120V	Temperature	:	22 °C
Test Date	:	Feb. 26, 2015	Humidity	:	60 %
Memo	:	Dipole Antenna			

IEEE 802.11b

Channel 1 — Fundamental Frequency: 2412 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2354.88	H	57.58	-16.79	40.79	Peak	74	54	-33.21	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2386.30	V	61.08	-16.71	44.37	Peak	74	54	-29.63	360	1.0
---	V	---	---	---	Ave	74	54	---	---	---

Channel 11 — Fundamental Frequency: 2472 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2499.24	H	56.16	-16.41	39.75	Peak	74	54	-34.25	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2483.74	V	63.66	-16.45	47.21	Peak	74	54	-26.79	360	1.0
---	V	---	---	---	Ave	74	54	---	---	---

IEEE 802.11g

Channel 1 — Fundamental Frequency: 2412 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2389.66	H	66.87	-16.70	50.17	Peak	74	54	-23.83	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2389.97	V	71.27	-16.70	54.57	Peak	74	54	-19.43	185	1.0
2389.80	V	54.10	-16.70	37.40	Ave	74	54	-16.60	185	1.0

Channel 11 — Fundamental Frequency: 2472 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2498.02	H	63.19	-16.41	46.78	Peak	74	54	-27.22	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2483.51	V	65.77	-16.45	49.32	Peak	74	54	-24.68	188	1.0
---	V	---	---	---	Ave	74	54	---	---	---

IEEE 802.11n HT20

Channel 1						Fundamental Frequency: 2412 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2389.97	H	68.64	-16.70	51.94	Peak	74	54	-22.06	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2388.54	V	71.88	-16.70	55.18	Peak	74	54	-18.82	186	1.0
2389.80	V	54.20	-16.70	37.50	Ave	74	54	-16.50	186	1.0
Channel 11						Fundamental Frequency: 2472 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2483.96	H	68.89	-16.45	52.44	Peak	74	54	-21.56	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2483.74	V	71.94	-16.45	55.49	Peak	74	54	-18.51	182	1.0
2483.51	V	55.23	-16.45	38.78	Ave	74	54	-15.22	182	1.0

IEEE 802.11n HT40

Channel 3						Fundamental Frequency: 2422 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2383.85	H	64.36	-16.72	47.64	Peak	74	54	-26.36	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2388.13	V	72.91	-16.70	56.21	Peak	74	54	-17.79	180	1.0
2389.38	V	57.60	-16.70	40.90	Ave	74	54	-13.10	180	1.0
Channel 9						Fundamental Frequency: 2452 MHz				
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)	Table Deg.	Ant High (m)
						Peak	Ave			
2487.23	H	63.72	-16.44	47.28	Peak	74	54	-26.72	0	1.0
---	H	---	---	---	Ave	74	54	---	---	---
2485.26	V	72.18	-16.44	55.74	Peak	74	54	-18.26	182	1.0
2483.51	V	56.10	-16.45	39.65	Ave	74	54	-14.35	182	1.0

12. Restricted Bands of Operation

Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.09000 – 0.11000	16.42000 – 16.42300	399.9 – 410.0	4.500 – 5.150
0.49500 – 0.505**	16.69475 – 16.69525	608.0 – 614.0	5.350 – 5.460
2.17350 – 2.19050	16.80425 – 16.80475	960.0 – 1240.0	7.250 – 7.750
4.12500 – 4.12800	25.50000 – 25.67000	1300.0 – 1427.0	8.025 – 8.500
4.17725 – 4.17775	37.50000 – 38.25000	1435.0 – 1626.5	9.000 – 9.200
4.20725 – 4.20775	73.00000 – 74.60000	1645.5 – 1646.5	9.300 – 9.500
6.21500 – 6.21800	74.80000 – 75.20000	1660.0 – 1710.0	10.600 – 12.700
6.26775 – 6.26825	108.00000 – 121.94000	1718.8 – 1722.2	13.250 – 13.400
6.31175 – 6.31225	123.00000 – 138.00000	2200.0 – 2300.0	14.470 – 14.500
8.29100 – 8.29400	149.90000 – 150.05000	2310.0 – 2390.0	15.350 – 16.200
8.36200 – 8.36600	156.52475 – 156.52525	2483.5 – 2500.0	17.700 – 21.400
8.37625 – 8.38675	156.70000 – 156.90000	2655.0 – 2900.0	22.010 – 23.120
8.41425 – 8.41475	162.01250 – 167.17000	3260.0 – 3267.0	23.600 – 24.000
12.29000 – 12.29300	167.72000 – 173.20000	3332.0 – 3339.0	31.200 – 31.800
12.51975 – 12.52025	240.00000 – 285.00000	3345.8 – 3358.0	36.430 – 36.500
12.57675 – 12.57725	322.00000 – 335.40000	3600.0 – 4400.0	Above 38.6
13.36000 – 13.41000			

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

12.1 Labeling Requirement

The device shall bear the following statement in a conspicuous location on the device:
This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.