



# FCC TEST REPORT

According to

## FCC Rules and Regulations Part 15 Subpart C

Applicant	: COMTREND CORPORATION
Address	: 3F-1, No. 10, Lane 609, Chung Hsin Road, Section 5, SanChung District, New Taipei City, Taiwan 241
Equipment	: Powerline Ethernet Adapter with WiFi
Model No.	: PowerGrid 9142s
Trade Name	: COMTREND
FCC ID	: L9VPG-9142S

- The test result refers exclusively to the test presented test model / sample.,
- Without written approval of **CerpPASS Technology Corp.**, the test report shall not be reproduced except in full.
- The EUT is also considered as a kind of computer peripheral, because the connection to computer is necessary for typical use. It has been verified to comply with the requirements of FCC Part 15, Subpart B, Class B (DoC). The test report has been issued separately.

Laboratory Accreditation





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# CERTIFICATE OF COMPLIANCE

According to

## FCC Rules and Regulations Part 15 Subpart C

Applicant : COMTREND CORPORATION  
Address : 3F-1, No. 10, Lane 609, Chung Hsin Road,  
Section 5, SanChung District, New Taipei City,  
Taiwan 241  
Equipment : Powerline Ethernet Adapter with WiFi  
Model No. : PowerGrid 9142s  
FCC ID : L9VPG-9142S

### I HEREBY CERTIFY THAT :

The measurements shown in this test report were made in accordance with the procedures given in **ANSI C63.4 2009, KDB558074 & KDB662911**. The equipment was **passed** the test performed according to **FCC Rules and Regulations Part 15 Subpart C (2010)**. The sample was received on Nov. 26, 2014 and the testing was carried out on Dec. 05, 2014 at **Cerpass Technology Corp.**

Approved by:



Hill Chen  
EMC/RF B.U. Assistant Manager

Tested by:



Aiden Lu  
Engineer



# 1. Report of Measurements and Examinations

## 1.1 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



## 2. Test Configuration of Equipment under Test

### 2.1 Feature of Equipment under Test

Interface	RJ45 x 1 for Ethernet connection Internal WiFi Antenna x 2 AC power Plug x 1 PLC pairing button x 1 Reset button x 1 WPS button x 1
Ethernet	10/100Mbps BaseT auto-sense Auto rate and duplex negotiation MDI/MDX support
WLAN (WiFi)	802.11 b/g/n WLAN (2.4GHz) 11 Channels (US, Canada) / 13 Channels (Europe) WEP/WPA/WPA2
Modulations	OFDM, FEC, Flexible frequency configuration BPSK/QPSK/16-QAM/64-QAM for WiFi
Data Rate	Up to 200Mbps by PLC transmission Up to 300Mbps by WiFi transmission
Management	HTTP Web-based: Firmware upgrade via TFTP
Networking Protocols	802.1D Ethernet Bridge 802.1Q VLAN Quality of Service (QoS) IGMP (IPv4) Snooping & MLD (IPv6) Snooping
Power	110-240VAC 50Hz/60Hz
Environment Condition	Operating temperature: 0 ~ 40 degrees Celsius Relative humidity: 8 ~ 95% (non-condensing)
Dimensions	EU (UK/French/NA) version 93mm(H) x 29.6mm(W) x 59mm(with plug)(D)



## 2.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT 20 (2412MHz~2462MHz)

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

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

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

Note: Channels remarked “\*” are selected to perform test.

## 2.3 Test Mode and Test Software

- During testing, the interface cables and equipment positions were varied according to ANSI C63.4.
  - The complete test system included Notebook and EUT for RF test.
  - An executive program, “MP TOOL RTL819x 2.3” under WIN XP was executed to transmit and receive data via WLAN.
  - The following test modes were performed for test:
    - <Conduction and Radiation 30MHz ~ 1GHz>
      - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz
      - 802.11n HT40: CH03: 2422MHz, CH06: 2437MHz, CH09: 2452MHz
    - <Radiation 1GHz ~ 25GHz>
      - Test Mode 1: ANT A
        - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz
        - 802.11n HT40: CH03: 2422MHz, CH06: 2437MHz, CH09: 2452MHz
      - Test Mode 2: ANT B
        - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz
        - 802.11n HT40: CH03: 2422MHz, CH06: 2437MHz, CH09: 2452MHz
- caused “Test Mode 1” was the worst case, they were reported as the final data.  
 \*The worst case data rate: 802.11b (1Mbps), 802.11g (6Mbps),  
 802.11n HT20 (13Mbps), 802.11n HT40 (27Mbps)





\* Power output of data rate:

Average:

802.11b					802.11g				
Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting	Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting
11M	21.78	20.03	62	62	54M	19.15	15.82	62	57
5.5M	21.92	20.18	62	62	48M	19.21	15.88	62	57
2M	22.11	20.33	62	62	36M	19.26	15.95	62	57
1M	22.32	20.45	62	62	24M	19.32	16.02	62	57
					18M	19.38	16.09	62	57
					12M	19.45	16.16	62	57
					9M	19.51	16.25	62	57
					6M	19.56	16.32	62	57

802.11n HT20					802.11n HT40				
Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting	Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting
130/15	16.42	15.04	57	57	270/15	15.87	14.72	57	57
117/14	16.55	15.12	57	57	243/14	15.95	14.81	57	57
104/13	16.65	15.18	57	57	216/13	16.05	14.88	57	57
78/12	16.73	15.26	57	57	162/12	16.11	14.97	57	57
52/11	16.81	15.32	57	57	108/11	16.18	15.05	57	57
39/10	16.88	15.38	57	57	81/10	16.25	15.11	57	57
26/9	16.95	15.45	57	57	54/9	16.31	15.18	57	57
13/8	17.02	15.52	57	57	27/8	16.38	15.25	57	57



Peak:

802.11b					802.11g				
Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting	Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting
11M	22.65	21.28	62	62	54M	23.28	21.67	62	57
5.5M	22.85	21.45	62	62	48M	23.35	21.78	62	57
2M	23.08	21.58	62	62	36M	23.41	21.85	62	57
1M	23.35	21.85	62	62	24M	23.47	21.93	62	57
					18M	23.52	22.02	62	57
					12M	23.58	22.08	62	57
					9M	23.65	22.15	62	57
					6M	23.72	22.23	62	57

802.11n HT20					802.11n HT40				
Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting	Data Rate (Mbps)	Ant A Power Output (dBm)	Ant B Power Output (dBm)	Ant A setting	Ant B setting
130/15	22.41	21.45	57	57	270/15	21.83	21.15	57	57
117/14	22.52	21.52	57	57	243/14	21.92	21.23	57	57
104/13	22.65	21.59	57	57	216/13	21.98	21.32	57	57
78/12	22.75	21.66	57	57	162/12	22.07	21.38	57	57
52/11	22.83	21.72	57	57	108/11	22.15	21.45	57	57
39/10	22.91	21.78	57	57	81/10	22.21	21.52	57	57
26/9	22.97	21.85	57	57	54/9	22.28	21.58	57	57
13/8	23.08	21.92	57	57	27/8	22.35	21.67	57	57

### 2.4 Description of Test System

Device	Manufacturer	Model No.	Description
Notebook	DELL	INSPIRON 510m	Power Cable, Unshielding 1.8m

Used cable

Cable	Quantity	Description
RJ45	1	Unshielding, 15.0m



## 2.5 General Information of Test

Test Site :	CerpPASS Technology Corporation Test Laboratory No.10, Lane 2, Lianfu Street, Luzhu Township, Taoyuan County 33848, Taiwan, R.O.C.
Test Site Location :	No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C.
FCC Registration Number :	<input type="checkbox"/> TW1079, <input checked="" type="checkbox"/> TW1061, <input type="checkbox"/> 390316, <input checked="" type="checkbox"/> 228391, <input type="checkbox"/> 641184
IC Registration Number :	<input type="checkbox"/> 4934B-1, <input checked="" type="checkbox"/> 4934E-1, <input type="checkbox"/> 4934E-2
VCCI Registration Number :	<input checked="" type="checkbox"/> T-2205 for Telecommunication Test <input checked="" type="checkbox"/> C-4463 for Conducted emission test <input checked="" type="checkbox"/> R-3428 for Radiated emission test <input checked="" type="checkbox"/> G-812 for radiated disturbance above 1GHz <input type="checkbox"/> G-813 for radiated disturbance above 1GHz
Frequency Range Investigated :	Conducted Emission Test: from 150 kHz to 30 MHz Radiated Emission Test: from 30 MHz to 25,000 MHz
Test Distance :	The test distance of radiated emission below 1GHz from antenna to EUT is 10 M. The test distance of radiated emission above 1GHz from antenna to EUT is 3 M.



### 3. Antenna Requirements

#### 3.1 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.

#### 3.2 Antenna Construction and Directional Gain

Antenna Type: PIFA Antenna

Antenna A Gain: 3.29 dBi

Antenna B Gain: 1.76 dBi

Note: Directional gain =  $10 \log(10^{\text{gain1}/20} + 10^{\text{gain2}/20}) \text{ dBi} = 10 \log(0.443) = 4.43 \text{ (dBi)}$



## 4. Test of Conducted Emission

### 4.1 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 $\mu$ V)	Average (dB $\mu$ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

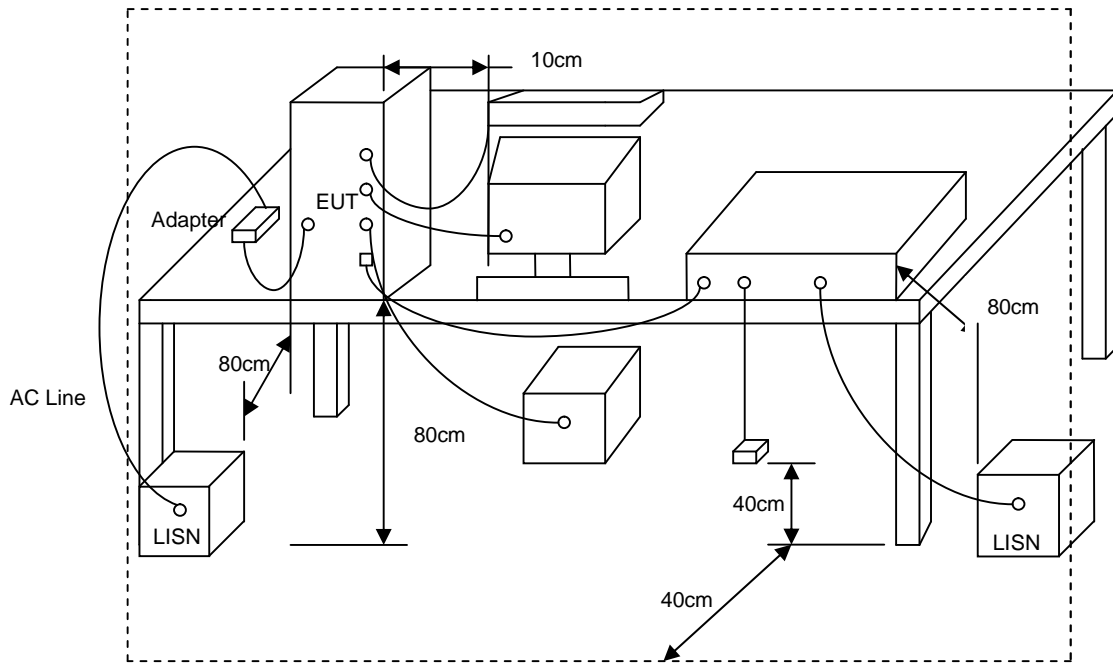
\*Decreases with the logarithm of the frequency.

### 4.2 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.



### 4.3 Typical Test Setup



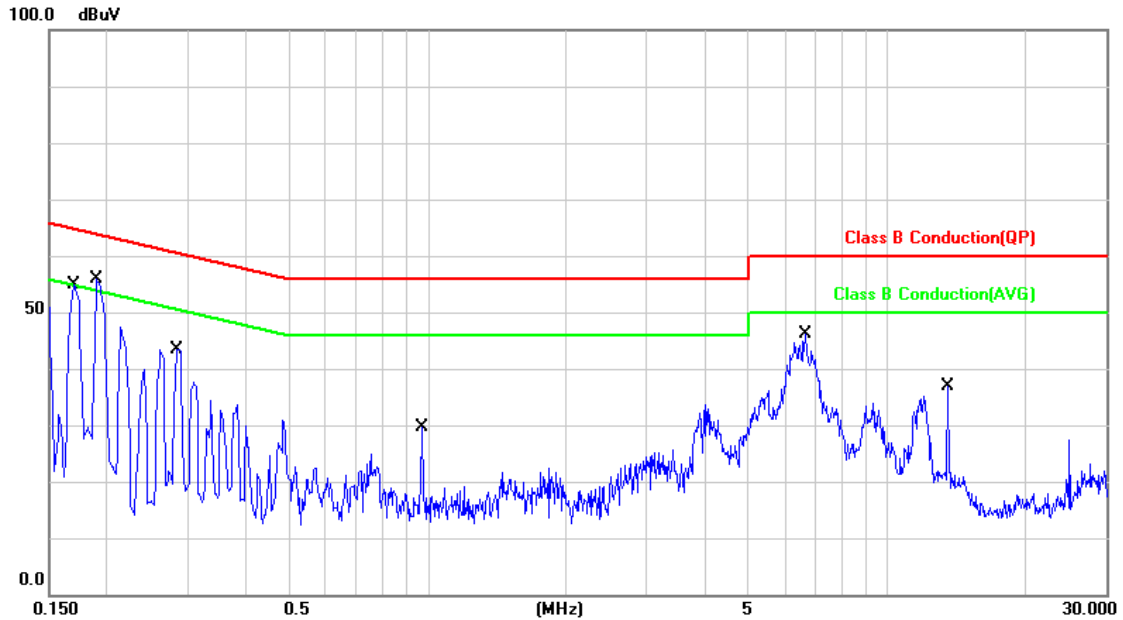
### 4.4 Measurement Equipment

Instrument	Model No.	Manufacturer	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI	101423	2014/06/05	2015/06/04
LISN	Schwarzbeck	NSLK 8127	8127-740	2014/08/14	2015/08/13
LISN	Schwarzbeck	NSLK 8127	8127-516	2014/03/10	2015/03/09
Pulse Limiter	R&S	ESH3-Z2	101933	2014/08/12	2015/08/11
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A



### 4.5 Test Result and Data

Power	: AC 120V	Pol/Phase	: LINE
Test Mode 1	: 802.11g, CH1	Temperature	: 23 °C
		Humidity	: 55 %
Test date	: Dec. 05, 2014	Atmospheric Pressure	: 1008 hpa

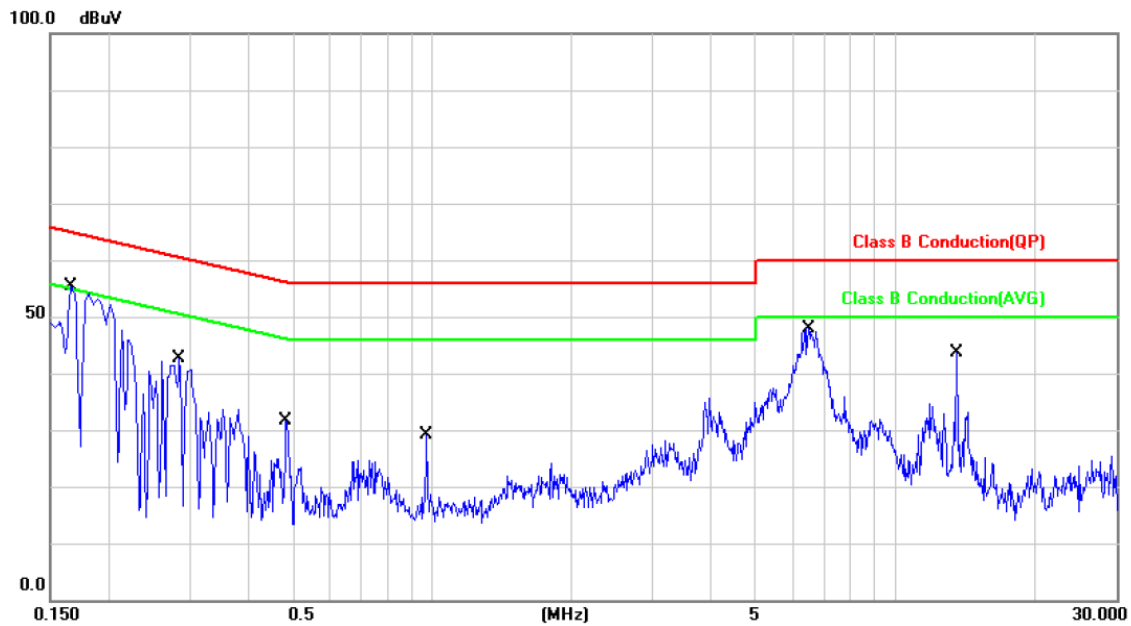


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1700	9.92	42.62	52.54	64.96	-12.42	QP	P
2	0.1700	9.92	24.10	34.02	54.96	-20.94	AVG	P
3	0.1900	9.92	42.80	52.72	64.03	-11.31	QP	P
4	0.1900	9.92	26.76	36.68	54.03	-17.35	AVG	P
5	0.2860	9.92	30.85	40.77	60.64	-19.87	QP	P
6	0.2860	9.92	15.86	25.78	50.64	-24.86	AVG	P
7	0.9740	9.96	19.34	29.30	56.00	-26.70	QP	P
8	0.9740	9.96	19.00	28.96	46.00	-17.04	AVG	P
9	6.6340	10.17	30.52	40.69	60.00	-19.31	QP	P
10	6.6340	10.17	21.73	31.90	50.00	-18.10	AVG	P
11	13.5580	10.35	30.12	40.47	60.00	-19.53	QP	P
12	13.5580	10.35	27.24	37.59	50.00	-12.41	AVG	P

Note: Level = Reading + Factor  
Margin = Level – Limit



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 1	: 802.11g, CH1	Temperature	: 23 °C
		Humidity	: 55 %
Test date	: Dec. 05, 2014	Atmospheric Pressure	: 1008 hpa



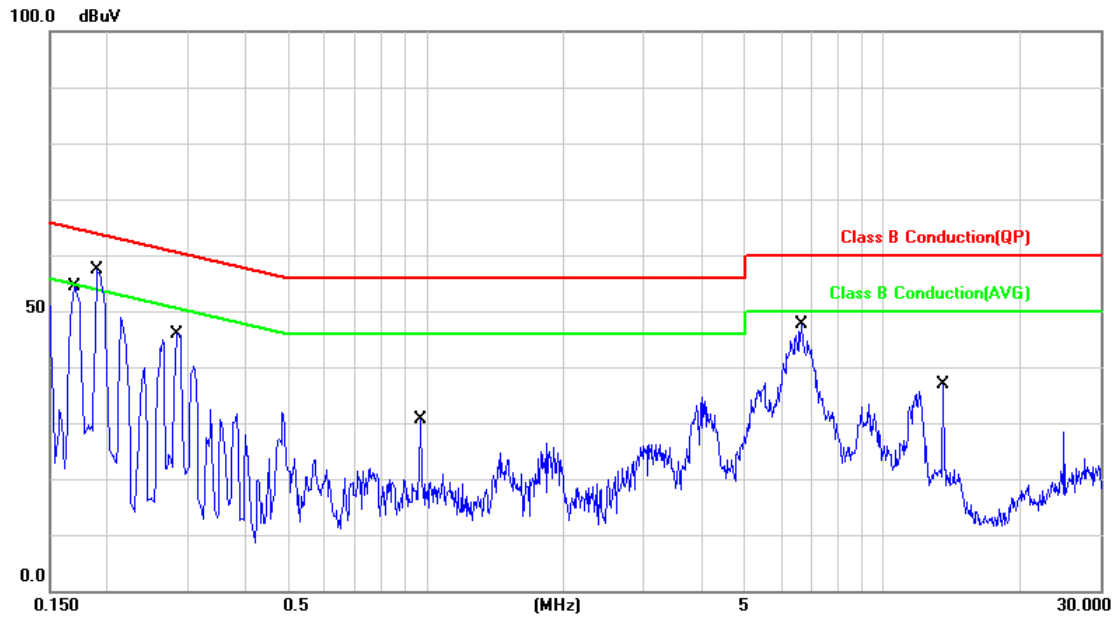
No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1650	9.92	43.72	53.64	65.20	-11.56	QP	P
2	0.1650	9.92	26.97	36.89	55.20	-18.31	AVG	P
3	0.2858	9.91	28.68	38.59	60.64	-22.05	QP	P
4	0.2858	9.91	12.32	22.23	50.64	-28.41	AVG	P
5	0.4862	9.92	19.48	29.40	56.23	-26.83	QP	P
6	0.4862	9.92	19.09	29.01	46.23	-17.22	AVG	P
7	0.9742	9.96	17.83	27.79	56.00	-28.21	QP	P
8	0.9742	9.96	17.85	27.81	46.00	-18.19	AVG	P
9	6.4939	10.16	30.52	40.68	60.00	-19.32	QP	P
10	6.4939	10.16	22.58	32.74	50.00	-17.26	AVG	P
11	13.5518	10.33	31.86	42.19	60.00	-17.81	QP	P
12	13.5518	10.33	28.91	39.24	50.00	-10.76	AVG	P

Note: Level = Reading + Factor  
Margin = Level – Limit





Power	: AC 120V	Pol/Phase	: LINE
Test Mode 1	: 802.11n HT20, CH1	Temperature	: 23 °C
		Humidity	: 55 %
Test date	: Dec. 05, 2014	Atmospheric Pressure	: 1008 hpa

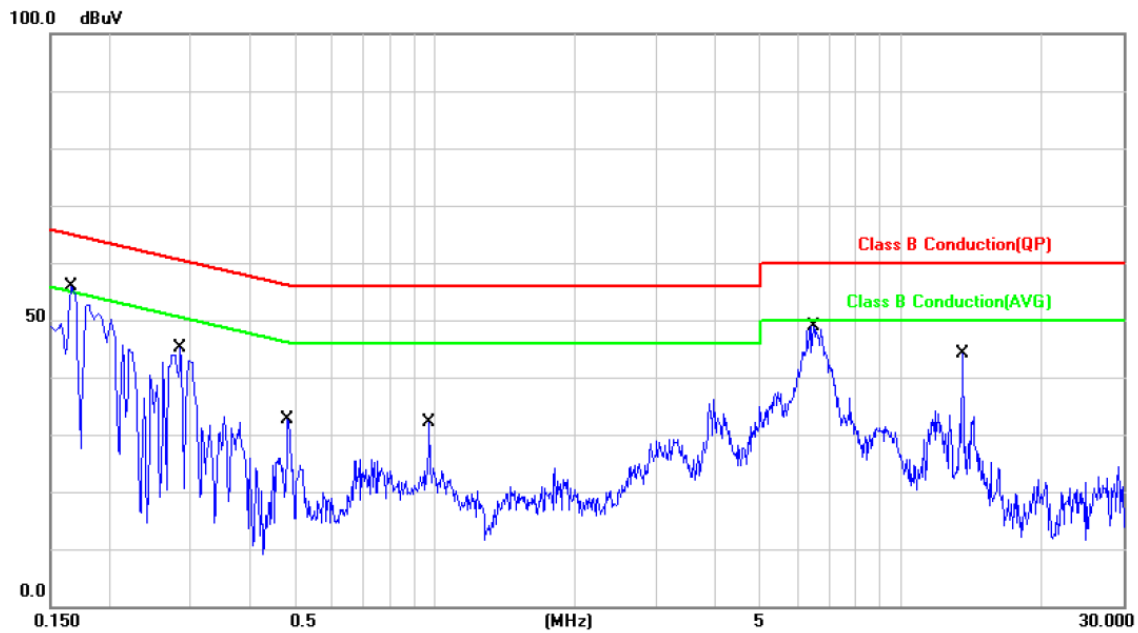


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1711	9.92	42.61	52.53	64.90	-12.37	QP	P
2	0.1711	9.92	24.20	34.12	54.90	-20.78	AVG	P
3	0.1920	9.92	42.77	52.69	63.95	-11.26	QP	P
4	0.1920	9.92	26.74	36.66	53.95	-17.29	AVG	P
5	0.2858	9.92	30.80	40.72	60.64	-19.92	QP	P
6	0.2858	9.92	15.83	25.75	50.64	-24.89	AVG	P
7	0.9738	9.96	19.35	29.31	56.00	-26.69	QP	P
8	0.9738	9.96	18.94	28.90	46.00	-17.10	AVG	P
9	6.6339	10.17	30.53	40.70	60.00	-19.30	QP	P
10	6.6339	10.17	21.74	31.91	50.00	-18.09	AVG	P
11	13.5579	10.35	30.06	40.41	60.00	-19.59	QP	P
12	13.5579	10.35	27.27	37.62	50.00	-12.38	AVG	P

Note: Level = Reading + Factor  
Margin = Level – Limit



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 1	: 802.11n HT20, CH1	Temperature	: 23 °C
		Humidity	: 55 %
Test date	: Dec. 05, 2014	Atmospheric Pressure	: 1008 hpa

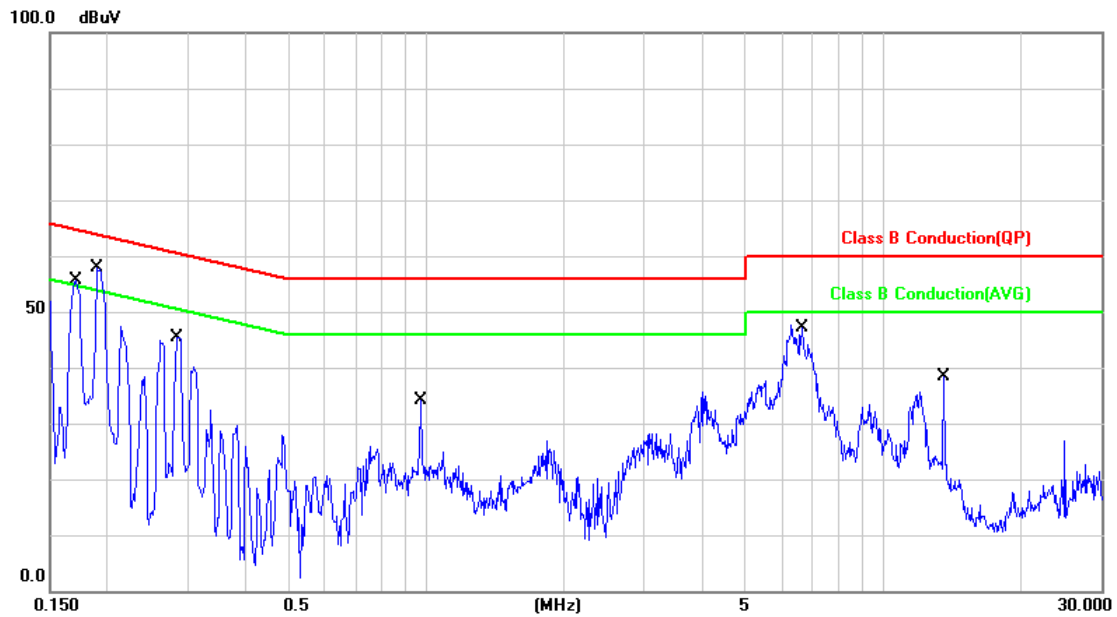


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1658	9.92	43.67	53.59	65.16	-11.57	QP	P
2	0.1658	9.92	27.04	36.96	55.16	-18.20	AVG	P
3	0.2850	9.91	28.71	38.62	60.67	-22.05	QP	P
4	0.2850	9.91	12.32	22.23	50.67	-28.44	AVG	P
5	0.4857	9.92	19.42	29.34	56.24	-26.90	QP	P
6	0.4857	9.92	19.19	29.11	46.24	-17.13	AVG	P
7	0.9742	9.96	17.88	27.84	56.00	-28.16	QP	P
8	0.9742	9.96	17.80	27.76	46.00	-18.24	AVG	P
9	6.4937	10.16	30.56	40.72	60.00	-19.28	QP	P
10	6.4937	10.16	22.58	32.74	50.00	-17.26	AVG	P
11	13.5520	10.33	31.90	42.23	60.00	-17.77	QP	P
12	13.5520	10.33	28.93	39.26	50.00	-10.74	AVG	P

Note: Level = Reading + Factor  
Margin = Level – Limit



Power	: AC 120V	Pol/Phase	: LINE
Test Mode 1	: 802.11n HT40, CH3	Temperature	: 23 °C
		Humidity	: 55 %
Test date	: Dec. 05, 2014	Atmospheric Pressure	: 1008 hpa

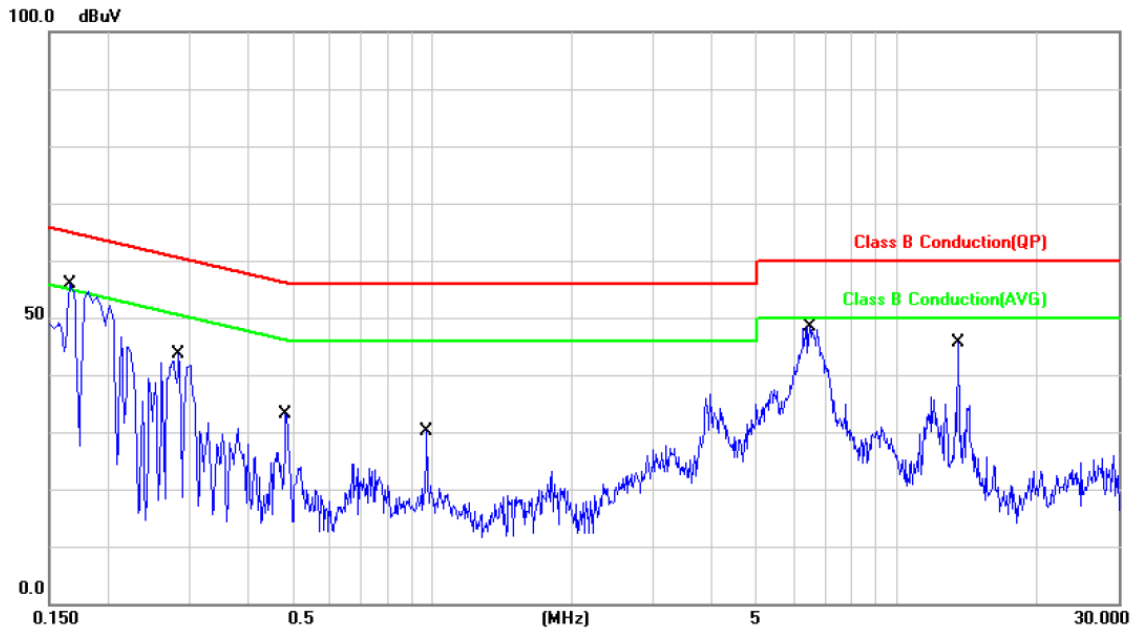


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1689	9.92	42.59	52.51	65.01	-12.50	QP	P
2	0.1689	9.92	24.38	34.30	55.01	-20.71	AVG	P
3	0.1899	9.92	42.67	52.59	64.04	-11.45	QP	P
4	0.1899	9.92	26.69	36.61	54.04	-17.43	AVG	P
5	0.2830	9.92	30.82	40.74	60.72	-19.98	QP	P
6	0.2830	9.92	15.95	25.87	50.72	-24.85	AVG	P
7	0.9720	9.96	19.37	29.33	56.00	-26.67	QP	P
8	0.9720	9.96	18.83	28.79	46.00	-17.21	AVG	P
9	6.6300	10.17	30.54	40.71	60.00	-19.29	QP	P
10	6.6300	10.17	21.71	31.88	50.00	-18.12	AVG	P
11	13.5700	10.35	30.06	40.41	60.00	-19.59	QP	P
12	13.5700	10.35	27.24	37.59	50.00	-12.41	AVG	P

Note: Level = Reading + Factor  
Margin = Level – Limit



Power	: AC 120V	Pol/Phase	: NEUTRAL
Test Mode 1	: 802.11n HT40, CH3	Temperature	: 23 °C
		Humidity	: 55 %
Test date	: Dec. 05, 2014	Atmospheric Pressure	: 1008 hpa



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1660	9.92	43.58	53.50	65.15	-11.65	QP	P
2	0.1660	9.92	26.97	36.89	55.15	-18.26	AVG	P
3	0.2860	9.91	28.71	38.62	60.64	-22.02	QP	P
4	0.2860	9.91	12.32	22.23	50.64	-28.41	AVG	P
5	0.4860	9.92	19.42	29.34	56.24	-26.90	QP	P
6	0.4860	9.92	19.08	29.00	46.24	-17.24	AVG	P
7	0.9740	9.96	17.86	27.82	56.00	-28.18	QP	P
8	0.9740	9.96	17.82	27.78	46.00	-18.22	AVG	P
9	6.4940	10.16	30.52	40.68	60.00	-19.32	QP	P
10	6.4940	10.16	22.60	32.76	50.00	-17.24	AVG	P
11	13.5620	10.33	31.91	42.24	60.00	-17.76	QP	P
12	13.5620	10.33	28.97	39.30	50.00	-10.70	AVG	P

Note: Level = Reading + Factor  
Margin = Level – Limit



## 5. Test of Radiated Emission

### 5.1 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

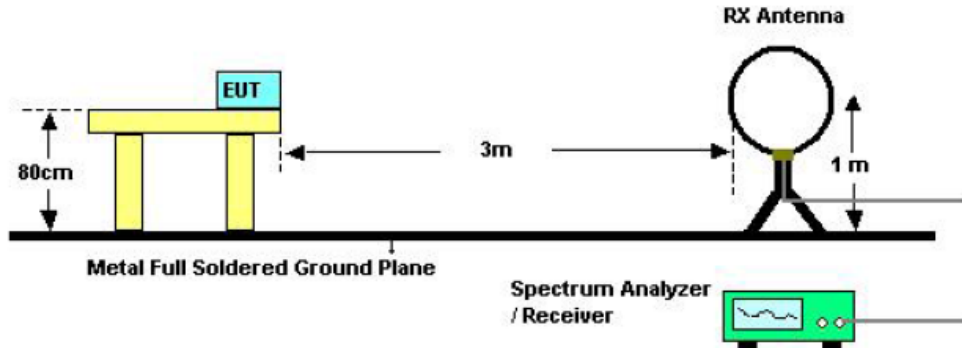
### 5.2 Test Procedures

- The EUT was placed on a rotatable table top 0.8 meter above ground.
- The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
- The table was rotated 360 degrees to determine the position of the highest radiation.
- 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.
- 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.
- Set the test-receiver system to Peak or CISPR quasi-peak Detect Function and specified bandwidth with Maximum Hold Mode.
- 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.
- 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.
- "Cone of radiation" has been considered to be 3dB bandwidth of the measurement antenna.

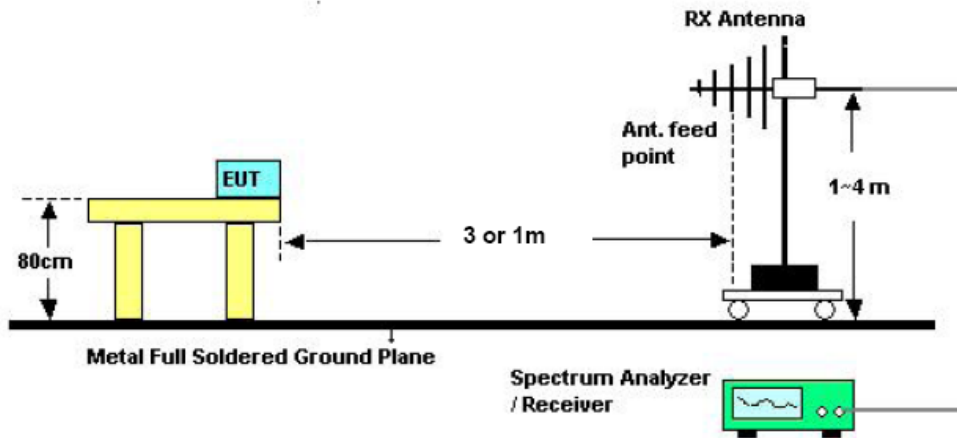


### 5.3 Typical Test Setup

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].

### 5.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI	100443	2014/04/09	2015/04/08
Bilog Antenna	Schwarzbeck	VULB 9168	275	2014/09/18	2015/09/17
Amplifier	QuieTek	AP/0100A	CHM0906075	2014/09/17	2015/09/16
SPECTRUM ANALYZER	R&S	FSP40	100219	2014/09/03	2015/09/02
HORN ANTENNA	EMCO	3115	31601	2014/07/09	2015/07/08
PREAMPLIFIER	AGILENT	8449B	3008A01954	2014/03/28	2015/03/27
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A

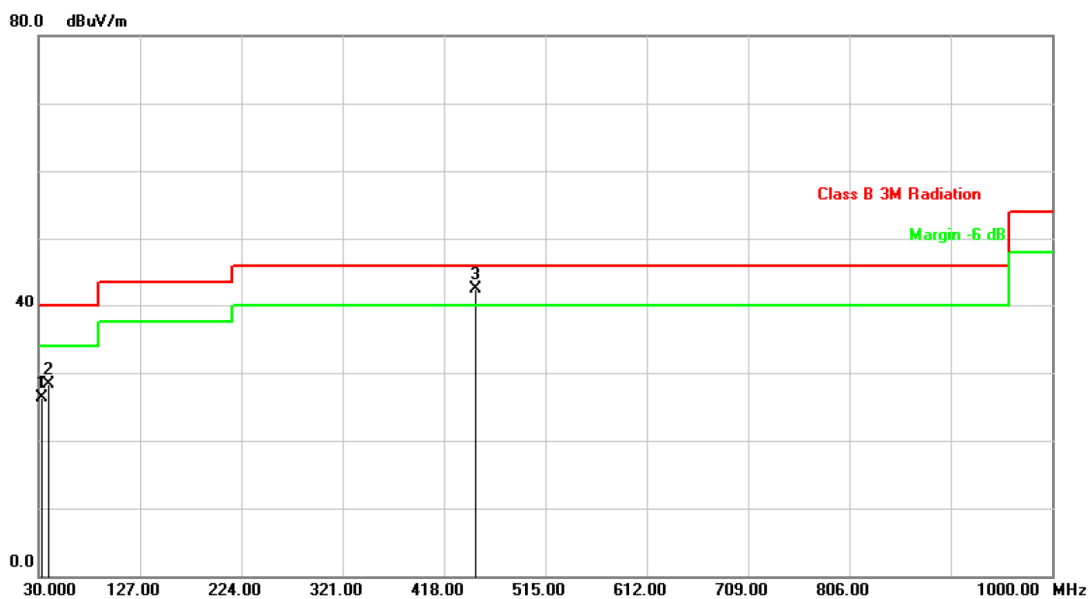


### 5.5 Test Result and Data (9kHz ~ 30MHz)

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

### 5.6 Test Result and Data (30MHz ~ 1GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11g, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

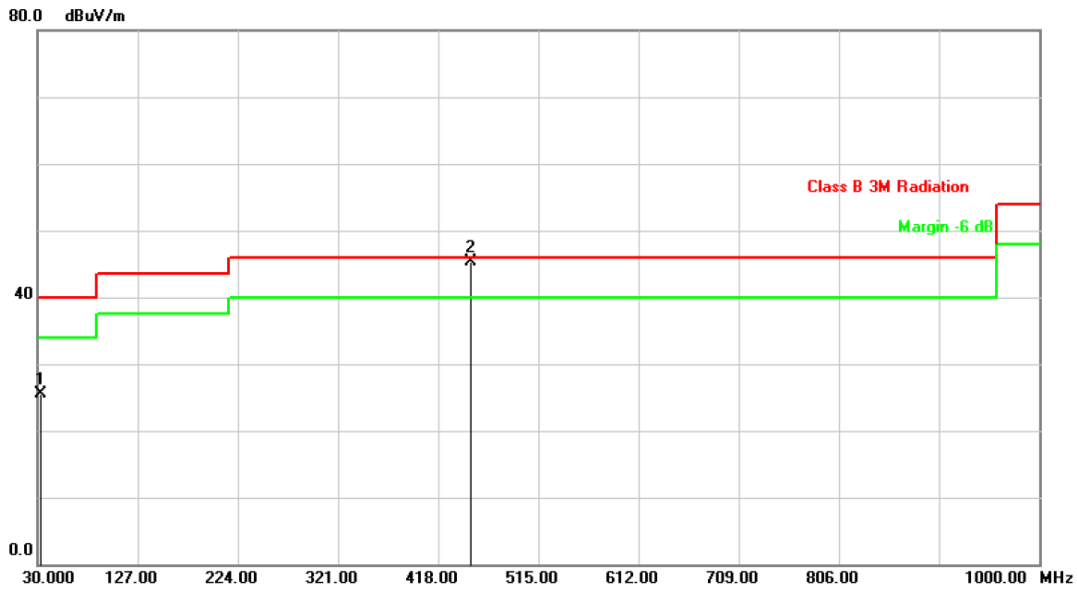


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	32.9100	-18.39	44.67	26.28	40.00	-13.72	QP	100	241
2	39.7000	-18.31	46.65	28.34	40.00	-11.66	QP	100	241
3	448.0700	-13.70	56.15	42.45	46.00	-3.55	QP	100	241

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11g, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa



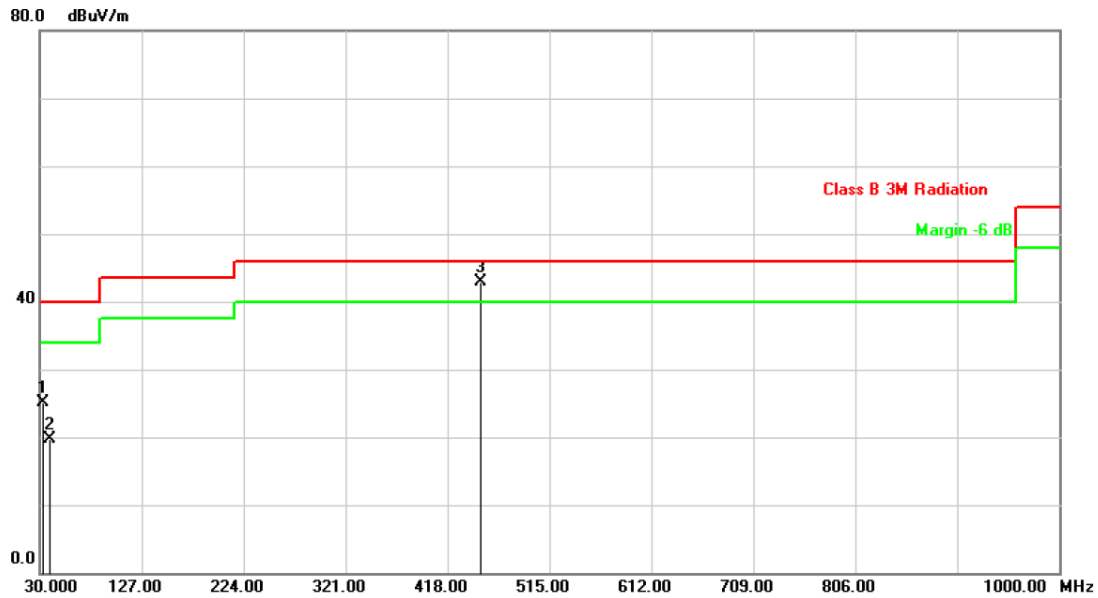
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	32.9099	-18.39	43.94	25.55	40.00	-14.45	QP	100	235
2	449.0400	-13.68	56.49	42.81	46.00	-3.19	QP	100	235

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11n HT20, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

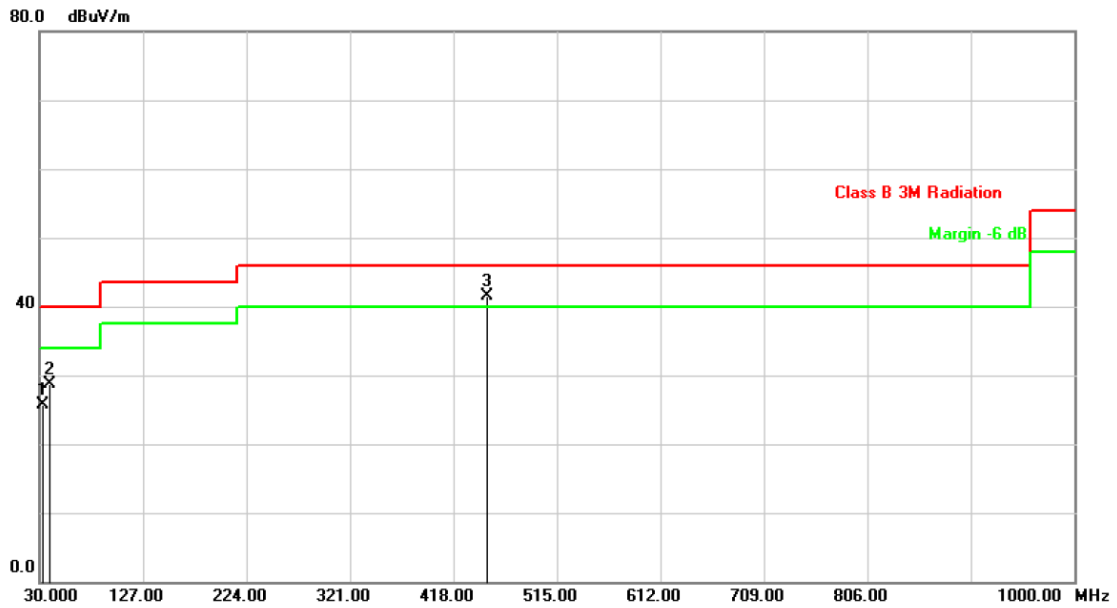


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	32.9100	-18.39	43.49	25.10	40.00	-14.90	QP	102	232
2	39.7000	-18.31	38.00	19.69	40.00	-20.31	QP	102	232
3	449.0400	-13.68	56.55	42.87	46.00	-3.13	QP	102	232

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11n HT20, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

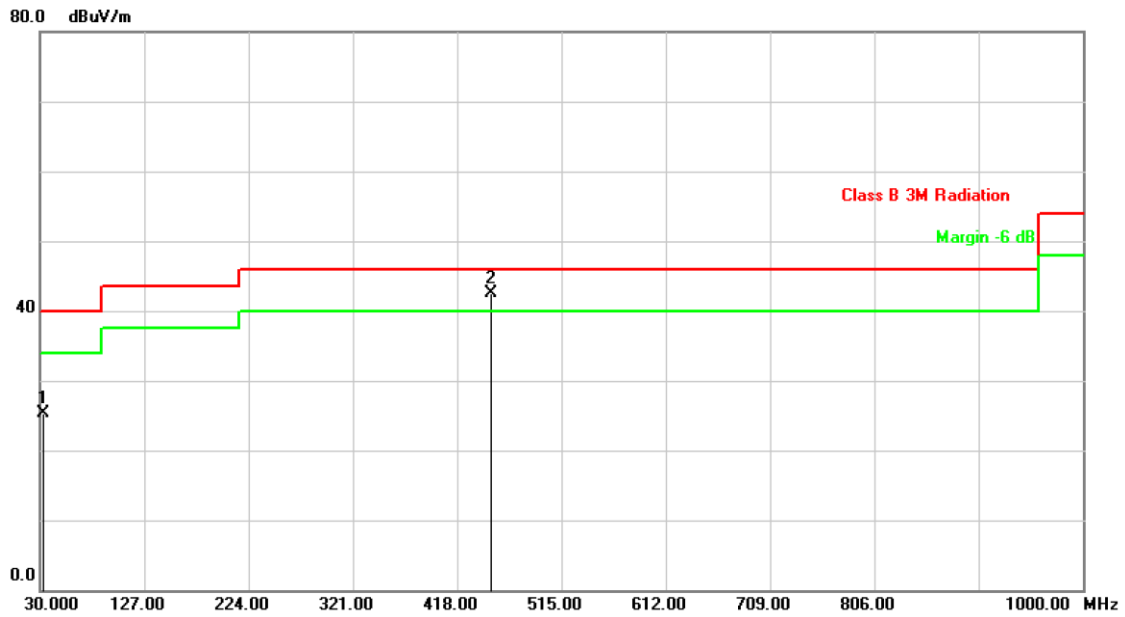


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	32.9100	-18.39	44.05	25.66	40.00	-14.34	QP	102	238
2	39.7000	-18.31	47.06	28.75	40.00	-11.25	QP	102	238
3	449.0400	-13.68	55.18	41.50	46.00	-4.50	QP	102	238

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11n HT40, CH3	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

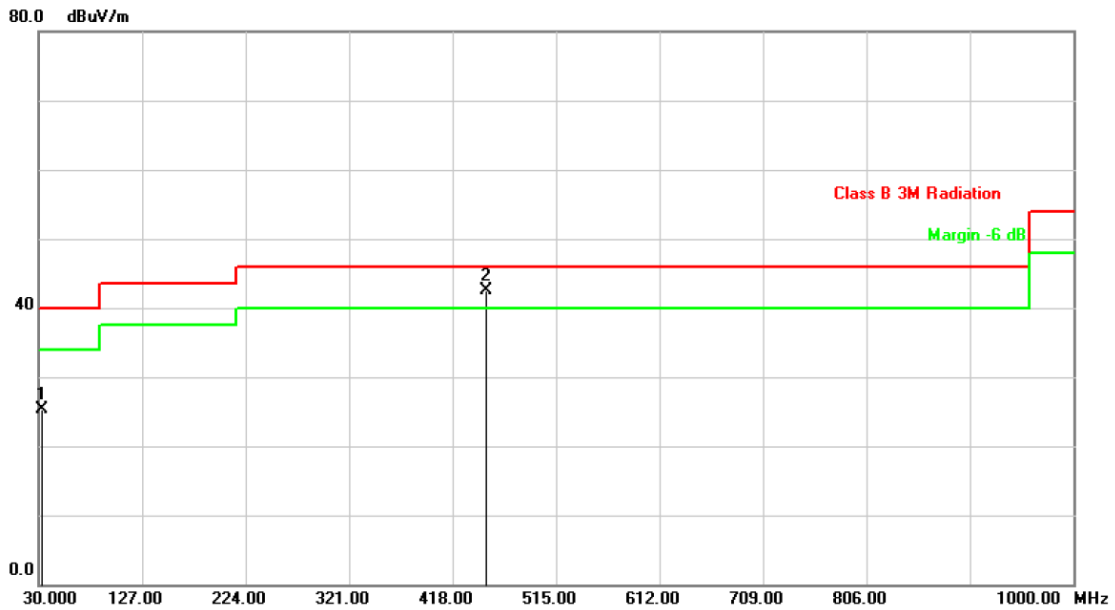


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	32.9100	-18.39	43.70	25.31	40.00	-14.69	QP	101	237
2	449.0400	-13.68	56.26	42.58	46.00	-3.42	QP	101	237

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11n HT40, CH3	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa



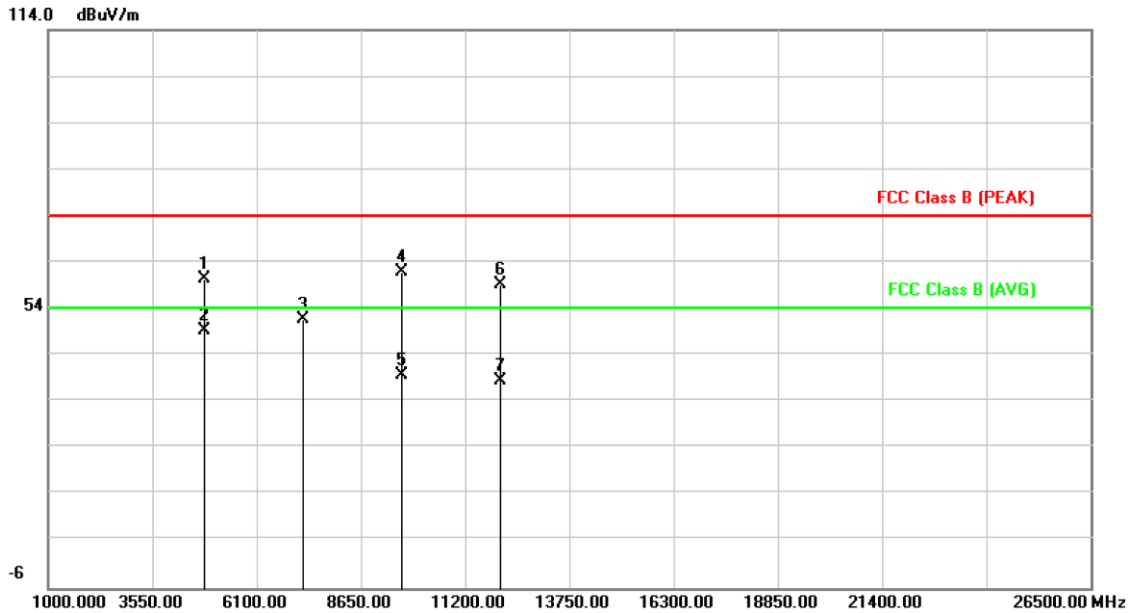
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	32.9100	-18.39	43.01	24.62	40.00	-15.38	QP	101	237
2	449.0400	-13.68	56.46	42.78	46.00	-3.22	QP	101	237

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor



5.7 Test Result and Data (1GHz ~ 25GHz)

Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11b, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

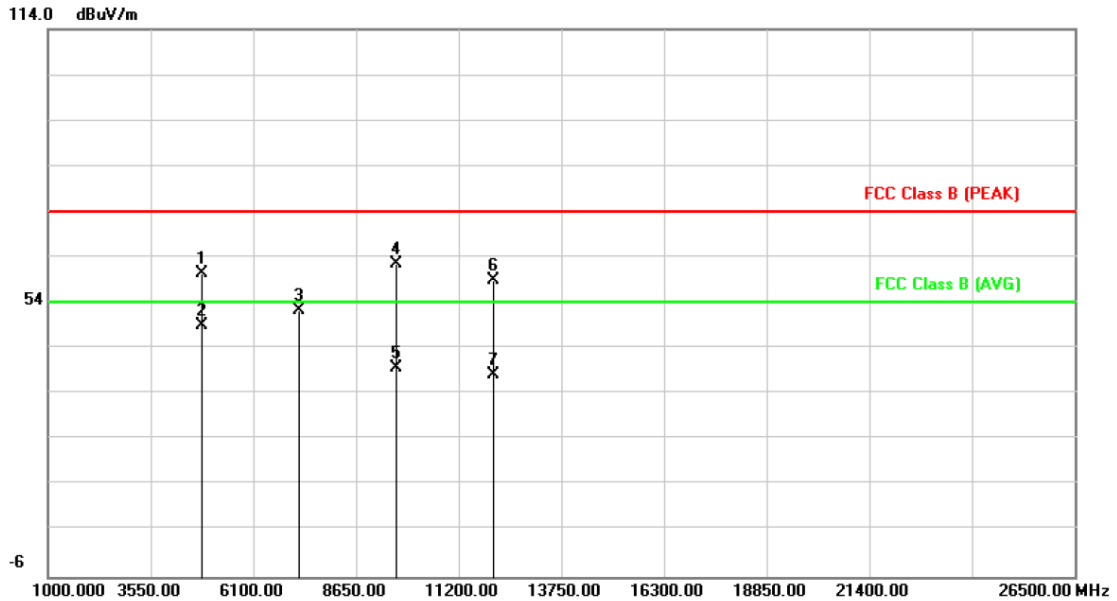


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	78.53	60.52	74.00	-13.48	peak	100	204
2	4825.000	-18.01	67.28	49.27	54.00	-4.73	AVG	100	204
3	7222.000	-12.66	64.38	51.72	74.00	-22.28	peak	100	204
4	9644.500	-6.56	68.48	61.92	74.00	-12.08	peak	100	204
5	9644.500	-6.56	46.21	39.65	54.00	-14.35	AVG	100	204
6	12067.000	-2.55	61.68	59.13	74.00	-14.87	peak	100	204
7	12067.000	-2.55	40.96	38.41	54.00	-15.59	AVG	100	204

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11b, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

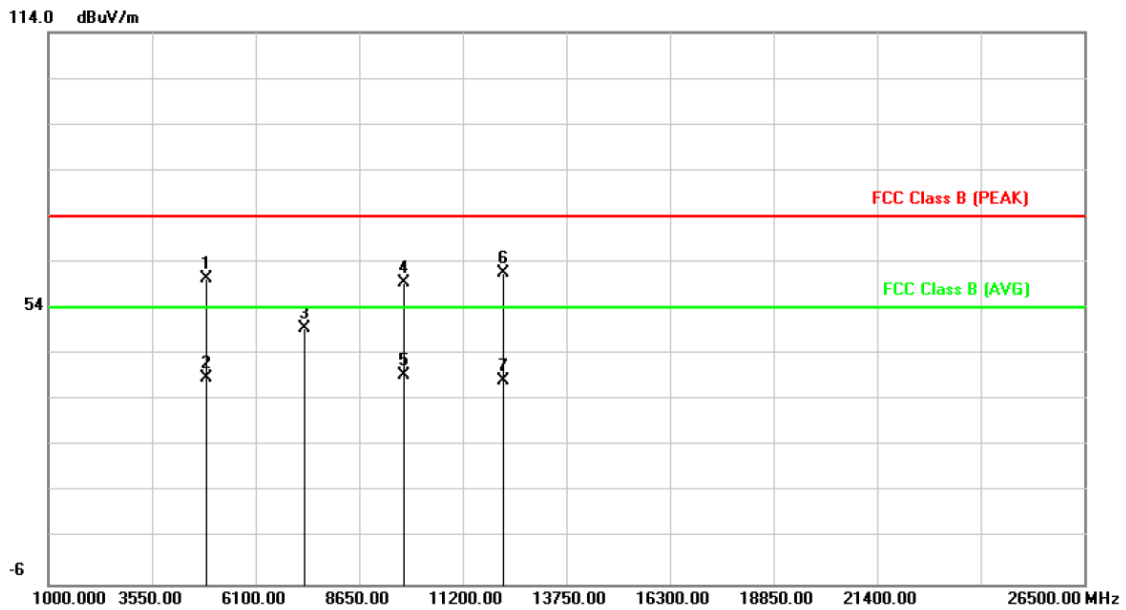


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	78.52	60.51	74.00	-13.49	peak	100	210
2	4825.000	-18.01	67.03	49.02	54.00	-4.98	AVG	100	210
3	7222.000	-12.66	65.02	52.36	74.00	-21.64	peak	100	210
4	9644.500	-6.56	68.97	62.41	74.00	-11.59	peak	100	210
5	9644.500	-6.56	46.20	39.64	54.00	-14.36	AVG	100	210
6	12067.000	-2.55	61.64	59.09	74.00	-14.91	peak	100	210
7	12067.000	-2.55	40.93	38.38	54.00	-15.62	AVG	100	210

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11b, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

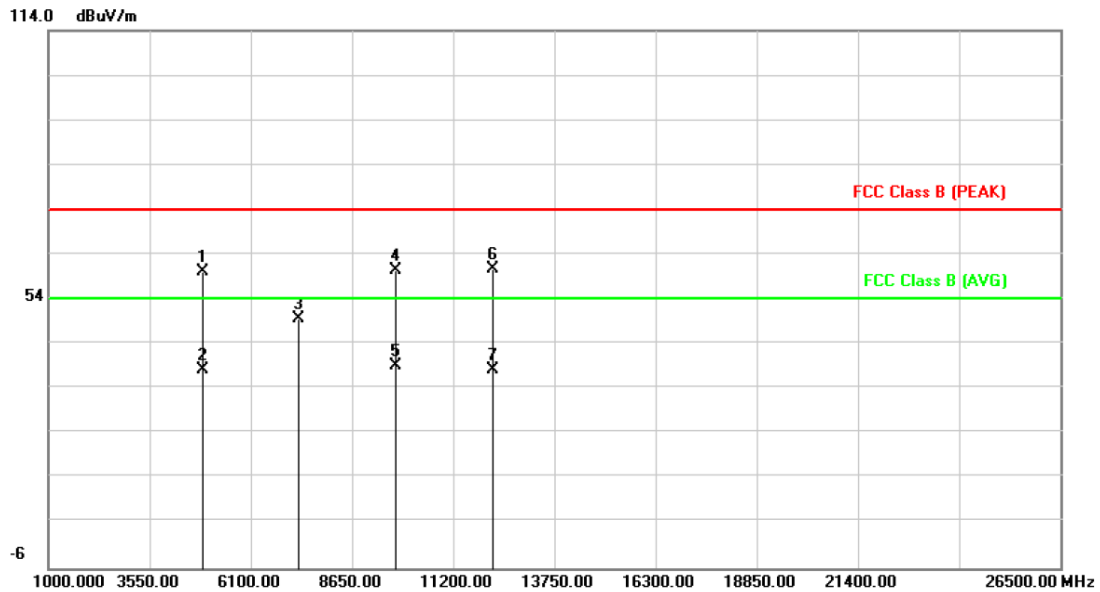


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4876.000	-17.87	78.32	60.45	74.00	-13.55	peak	102	200
2	4876.000	-17.87	56.68	38.81	54.00	-15.19	AVG	102	200
3	7298.500	-12.12	61.73	49.61	74.00	-24.39	peak	102	200
4	9746.500	-6.50	65.95	59.45	74.00	-14.55	peak	102	200
5	9746.500	-6.50	45.91	39.41	54.00	-14.59	AVG	102	200
6	12194.500	-2.64	64.37	61.73	74.00	-12.27	peak	102	200
7	12194.500	-2.64	40.95	38.31	54.00	-15.69	AVG	102	200

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11b, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa



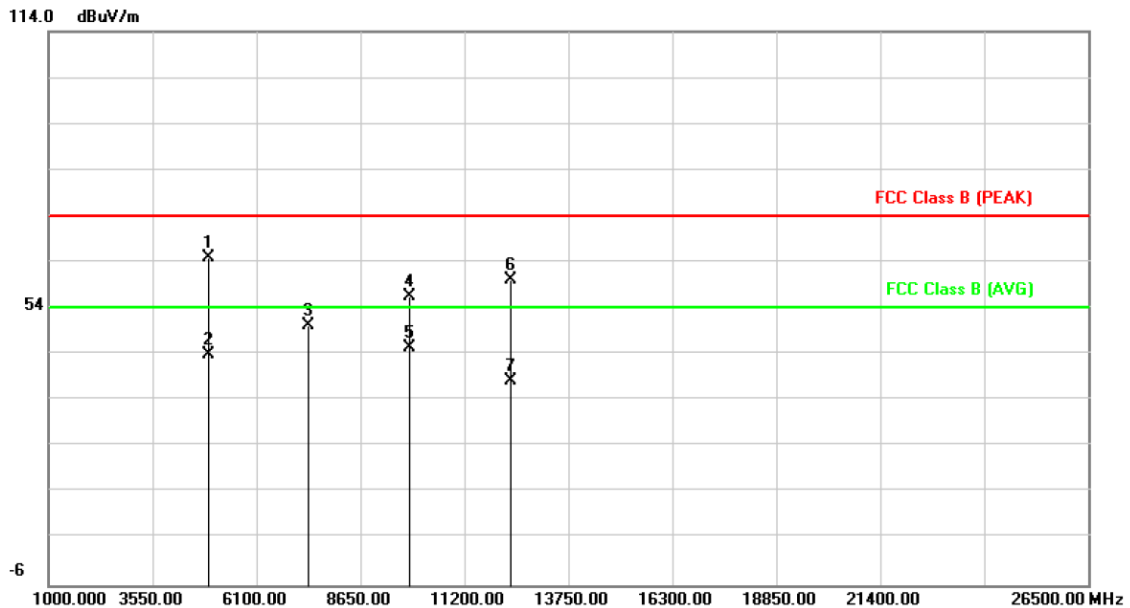
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4876.000	-17.87	78.17	60.30	74.00	-13.70	peak	100	195
2	4876.000	-17.87	56.12	38.25	54.00	-15.75	AVG	100	195
3	7298.500	-12.12	61.75	49.63	74.00	-24.37	peak	100	195
4	9746.500	-6.50	66.94	60.44	74.00	-13.56	peak	100	195
5	9746.500	-6.50	45.68	39.18	54.00	-14.82	AVG	100	195
6	12194.500	-2.64	63.30	60.66	74.00	-13.34	peak	100	195
7	12194.500	-2.64	40.92	38.28	54.00	-15.72	AVG	100	195

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11b, CH11	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

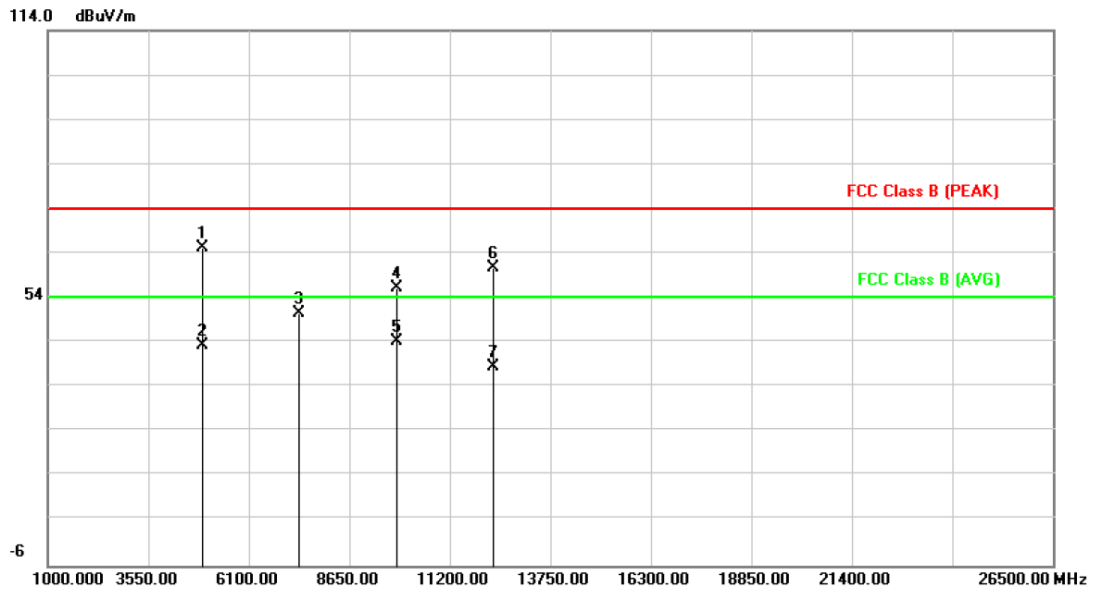


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4927.000	-17.75	82.67	64.92	74.00	-9.08	peak	100	201
2	4927.000	-17.75	61.72	43.97	54.00	-10.03	AVG	100	201
3	7375.000	-11.60	61.82	50.22	74.00	-23.78	peak	100	201
4	9848.500	-6.44	63.11	56.67	74.00	-17.33	peak	100	201
5	9848.500	-6.44	51.89	45.45	54.00	-8.55	AVG	100	201
6	12322.000	-2.74	62.87	60.13	74.00	-13.87	peak	100	201
7	12322.000	-2.74	41.02	38.28	54.00	-15.72	AVG	100	201

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11b, CH11	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

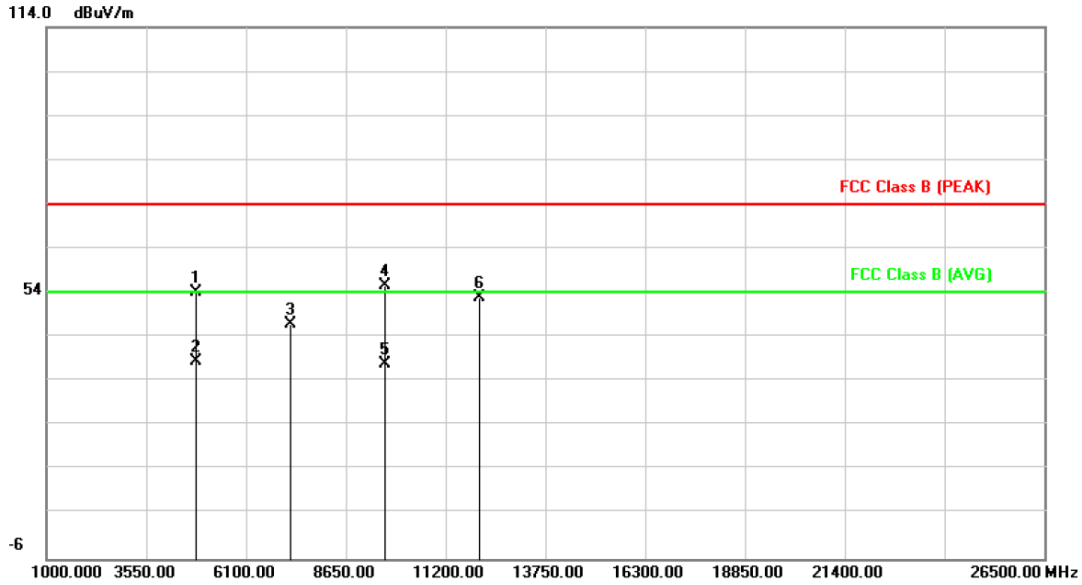


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4927.000	-17.75	83.07	65.32	74.00	-8.68	peak	104	197
2	4927.000	-17.75	60.99	43.24	54.00	-10.76	AVG	104	197
3	7375.000	-11.60	62.09	50.49	74.00	-23.51	peak	104	197
4	9848.500	-6.44	62.68	56.24	74.00	-17.76	peak	104	197
5	9848.500	-6.44	50.81	44.37	54.00	-9.63	AVG	104	197
6	12296.500	-2.73	63.55	60.82	74.00	-13.18	peak	104	197
7	12296.500	-2.73	41.23	38.50	54.00	-15.50	AVG	104	197

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11g, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

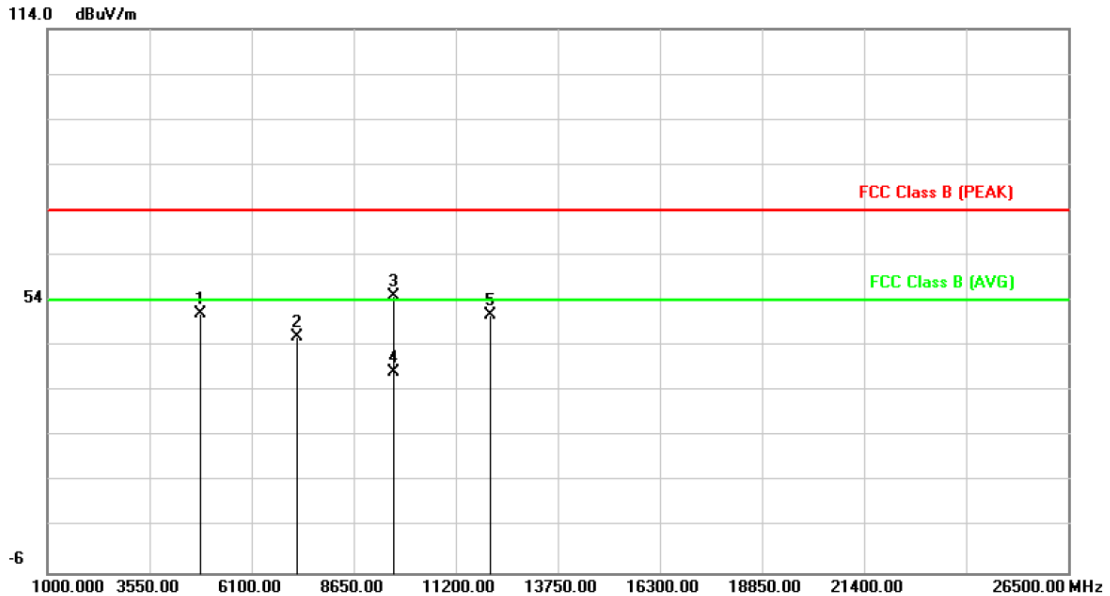


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	72.19	54.18	74.00	-19.82	peak	100	168
2	4825.000	-18.01	56.55	38.54	54.00	-15.46	AVG	100	156
3	7236.000	-12.57	59.48	46.91	74.00	-27.09	peak	100	168
4	9644.500	-6.56	62.16	55.60	74.00	-18.40	peak	100	168
5	9644.500	-6.56	44.66	38.10	54.00	-15.90	AVG	100	168
6	12060.000	-2.54	55.46	52.92	74.00	-21.08	peak	100	168

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11g, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

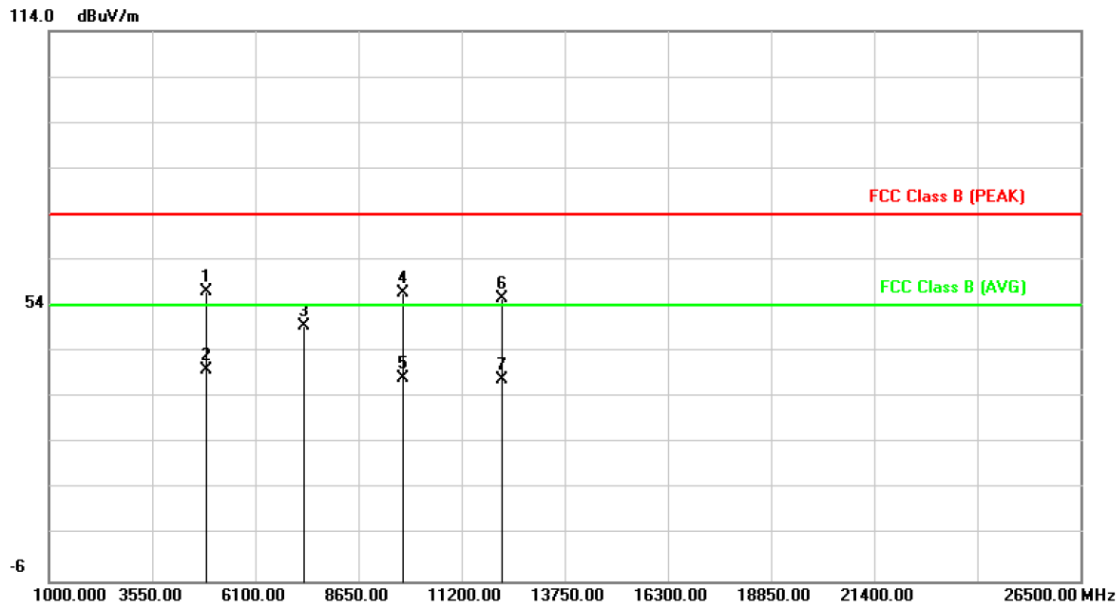


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	69.25	51.24	74.00	-22.76	peak	100	202
2	7236.000	-12.57	58.71	46.14	74.00	-27.86	peak	100	202
3	9644.500	-6.56	61.71	55.15	74.00	-18.85	peak	100	202
4	9644.500	-6.56	44.76	38.20	54.00	-15.80	AVG	100	202
5	12060.000	-2.54	53.50	50.96	74.00	-23.04	peak	100	202

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11g, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

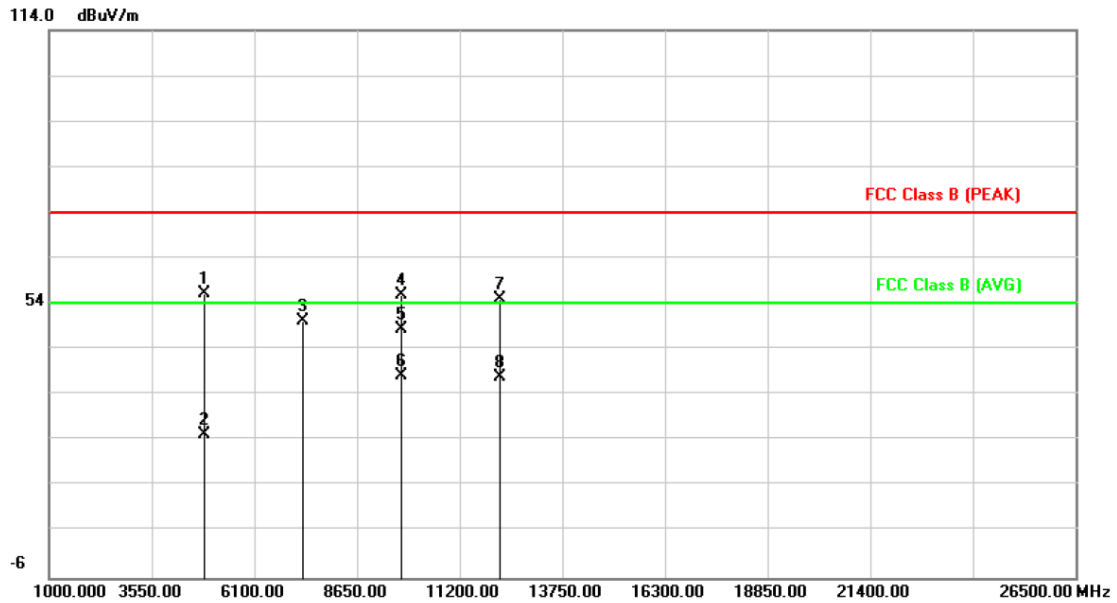


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4876.000	-17.87	75.14	57.27	74.00	-16.73	peak	100	205
2	4876.000	-17.87	57.87	40.00	54.00	-14.00	AVG	100	205
3	7298.500	-12.12	61.68	49.56	74.00	-24.44	peak	100	205
4	9746.500	-6.50	63.26	56.76	74.00	-17.24	peak	100	205
5	9746.500	-6.50	44.73	38.23	54.00	-15.77	AVG	100	205
6	12194.500	-2.64	58.36	55.72	74.00	-18.28	peak	100	205
7	12194.500	-2.64	40.59	37.95	54.00	-16.05	AVG	100	205

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11g, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

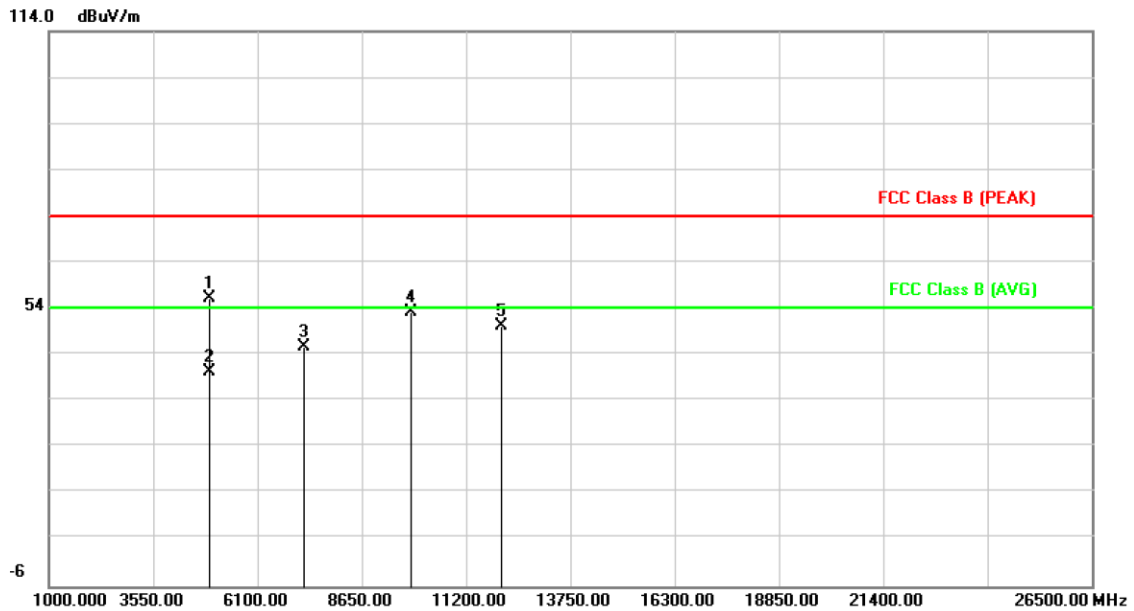


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4850.500	-17.94	74.13	56.19	74.00	-17.81	peak	100	205
2	4850.500	-17.94	43.39	25.45	54.00	-28.55	AVG	100	205
3	7298.500	-12.12	62.44	50.32	74.00	-23.68	peak	100	205
4	9746.500	-6.50	62.34	55.84	74.00	-18.16	peak	100	205
5	9746.500	-6.50	54.97	48.47	54.00	-5.53	AVG	100	205
6	9746.500	-6.50	44.68	38.18	54.00	-15.82	AVG	100	205
7	12194.500	-2.64	57.66	55.02	74.00	-18.98	peak	100	205
8	12194.500	-2.64	40.64	38.00	54.00	-16.00	AVG	100	205

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11g, CH11	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

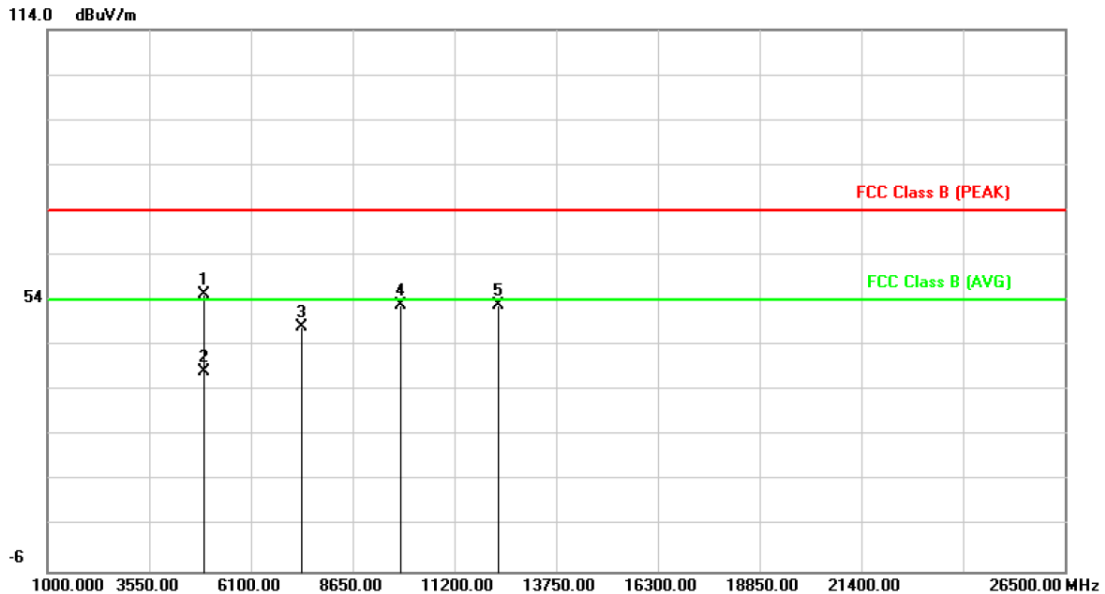


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4927.000	-17.75	73.88	56.13	74.00	-17.87	peak	100	205
2	4927.000	-17.75	58.18	40.43	54.00	-13.57	AVG	100	205
3	7236.000	-12.57	58.31	45.74	74.00	-28.26	peak	100	205
4	9848.500	-6.44	59.81	53.37	74.00	-20.63	peak	100	205
5	12060.000	-2.54	52.67	50.13	74.00	-23.87	peak	100	205

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11g, CH11	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa



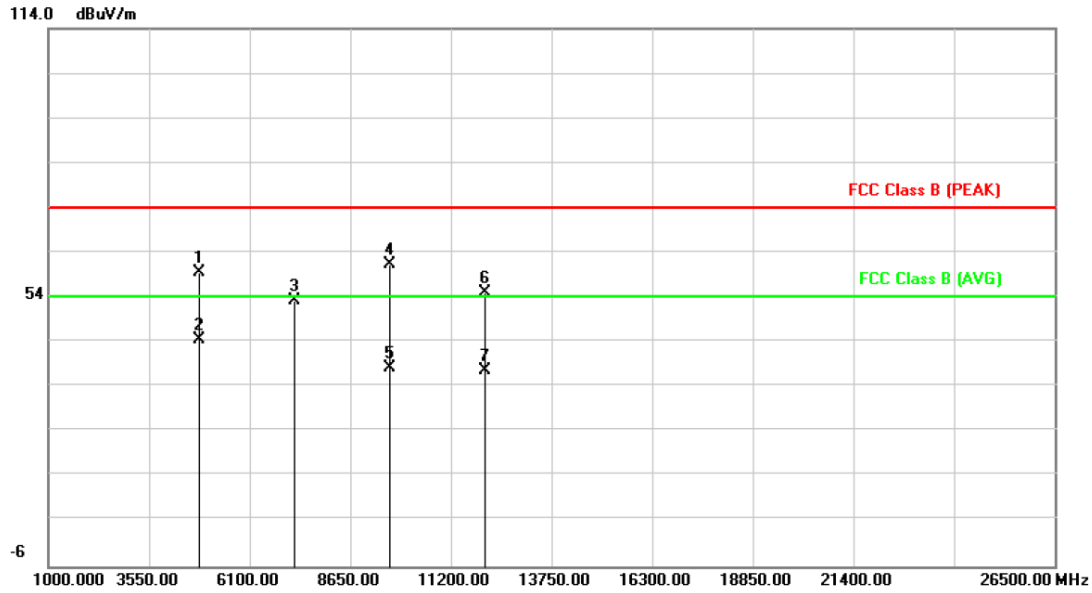
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4927.000	-17.75	73.18	55.43	74.00	-18.57	peak	100	192
2	4927.000	-17.75	56.09	38.34	54.00	-15.66	AVG	100	192
3	7375.000	-11.60	59.76	48.16	74.00	-25.84	peak	100	192
4	9848.500	-6.44	59.41	52.97	74.00	-21.03	peak	100	192
5	12296.500	-2.73	55.56	52.83	74.00	-21.17	peak	100	192

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11n HT20, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

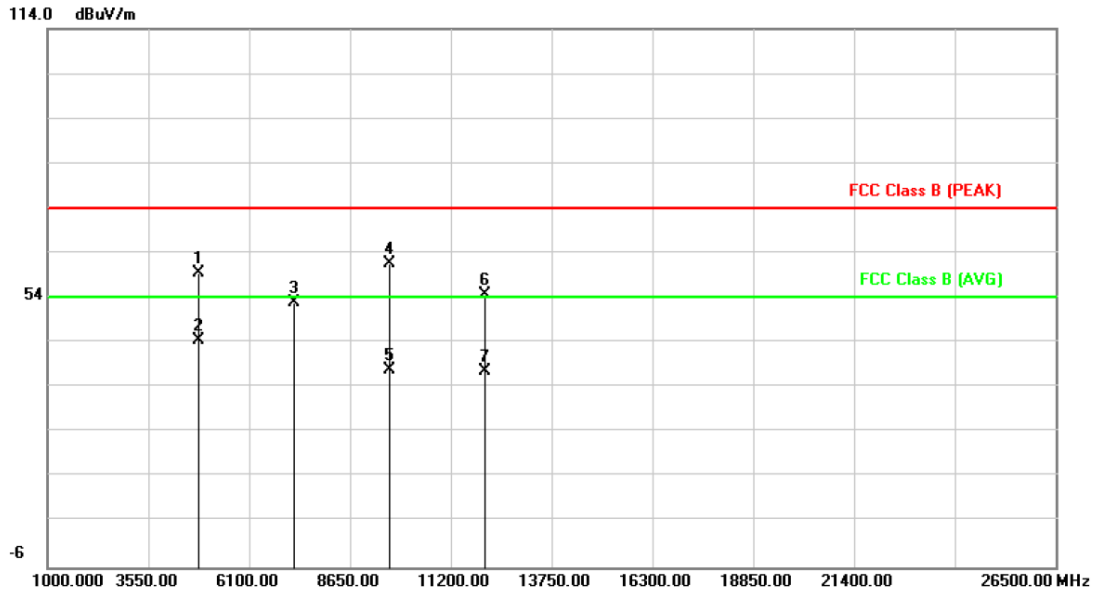


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	77.68	59.67	74.00	-14.33	peak	100	200
2	4825.000	-18.01	62.53	44.52	54.00	-9.48	AVG	100	200
3	7222.000	-12.66	65.78	53.12	74.00	-20.88	peak	100	200
4	9644.500	-6.56	67.82	61.26	74.00	-12.74	peak	100	200
5	9644.500	-6.56	44.68	38.12	54.00	-15.88	AVG	100	200
6	12067.000	-2.55	57.69	55.14	74.00	-18.86	peak	100	200
7	12067.000	-2.55	40.22	37.67	54.00	-16.33	AVG	100	200

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11n HT20, CH1	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

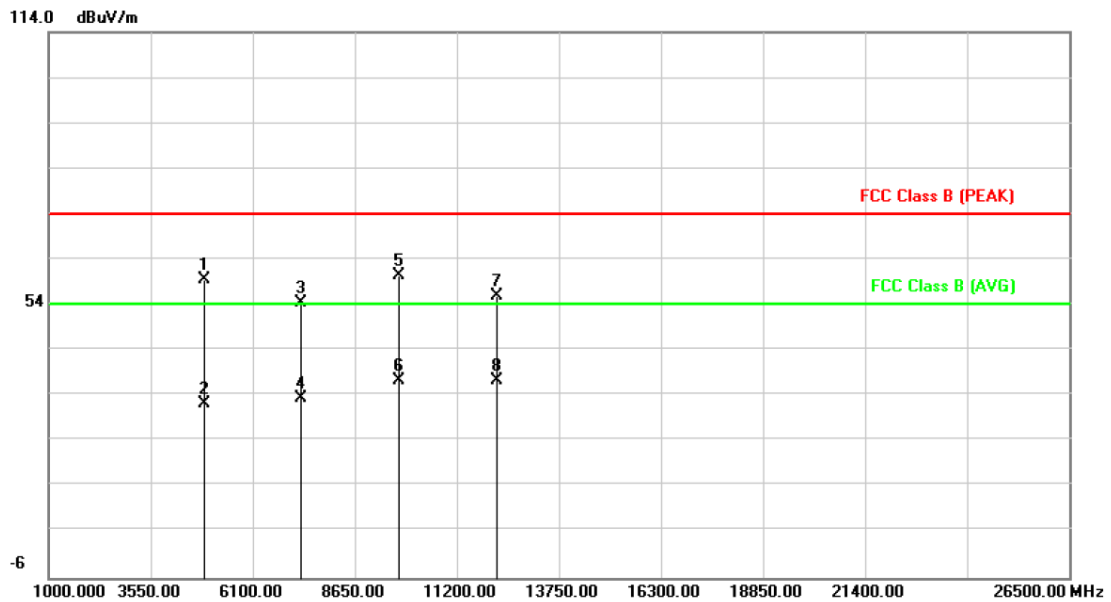


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	77.43	59.42	74.00	-14.58	peak	100	205
2	4825.000	-18.01	62.67	44.66	54.00	-9.34	AVG	100	205
3	7222.000	-12.66	65.51	52.85	74.00	-21.15	peak	100	205
4	9644.500	-6.56	68.20	61.64	74.00	-12.36	peak	100	205
5	9644.500	-6.56	44.59	38.03	54.00	-15.97	AVG	100	205
6	12067.000	-2.55	57.42	54.87	74.00	-19.13	peak	100	205
7	12067.000	-2.55	40.23	37.68	54.00	-16.32	AVG	100	205

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11n HT20, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

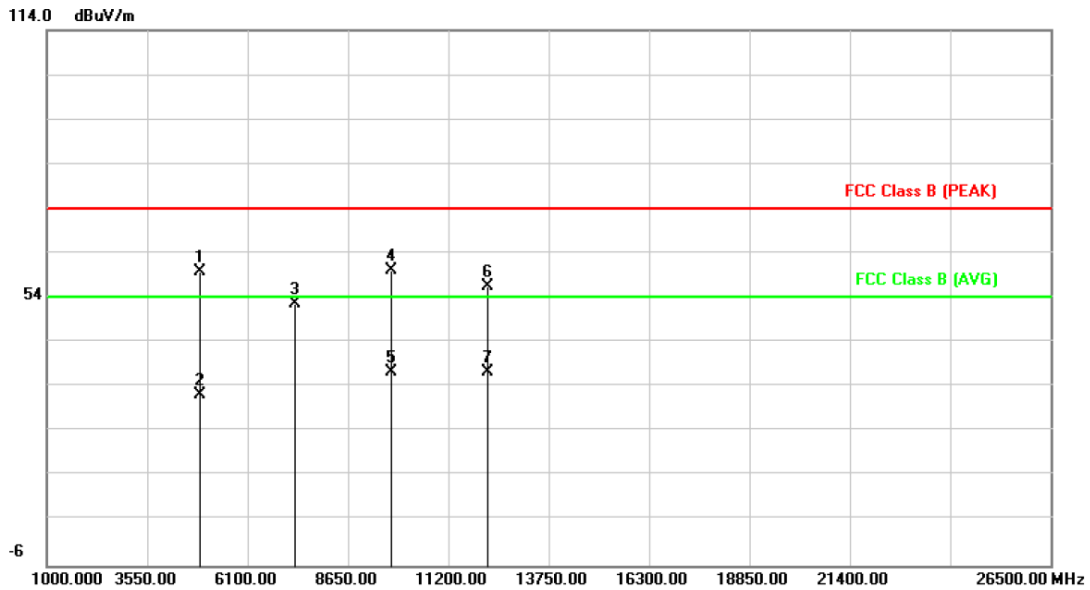


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4876.000	-17.87	77.50	59.63	74.00	-14.37	peak	102	211
2	4876.000	-17.87	50.06	32.19	54.00	-21.81	AVG	102	211
3	7298.500	-12.12	66.53	54.41	74.00	-19.59	peak	102	211
4	7298.500	-12.12	45.64	33.52	54.00	-20.48	AVG	102	211
5	9746.500	-6.50	67.01	60.51	74.00	-13.49	peak	102	211
6	9746.500	-6.50	43.72	37.22	54.00	-16.78	AVG	102	211
7	12194.500	-2.64	58.46	55.82	74.00	-18.18	peak	102	211
8	12194.500	-2.64	39.98	37.34	54.00	-16.66	AVG	102	211

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11n HT20, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

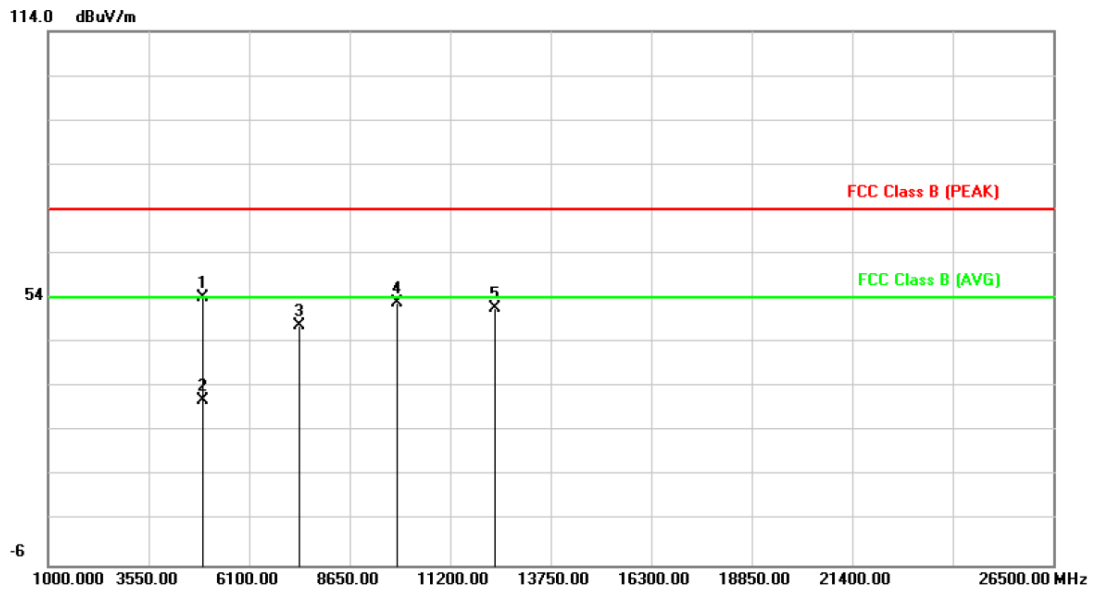


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4876.000	-17.87	77.65	59.78	74.00	-14.22	peak	101	208
2	4876.000	-17.87	49.99	32.12	54.00	-21.88	AVG	101	208
3	7298.500	-12.12	64.78	52.66	74.00	-21.34	peak	101	208
4	9746.500	-6.50	66.73	60.23	74.00	-13.77	peak	101	208
5	9746.500	-6.50	43.76	37.26	54.00	-16.74	AVG	101	208
6	12194.500	-2.64	59.07	56.43	74.00	-17.57	peak	101	208
7	12194.500	-2.64	40.01	37.37	54.00	-16.63	AVG	101	208

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode 1	: 802.11n HT20, CH11	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

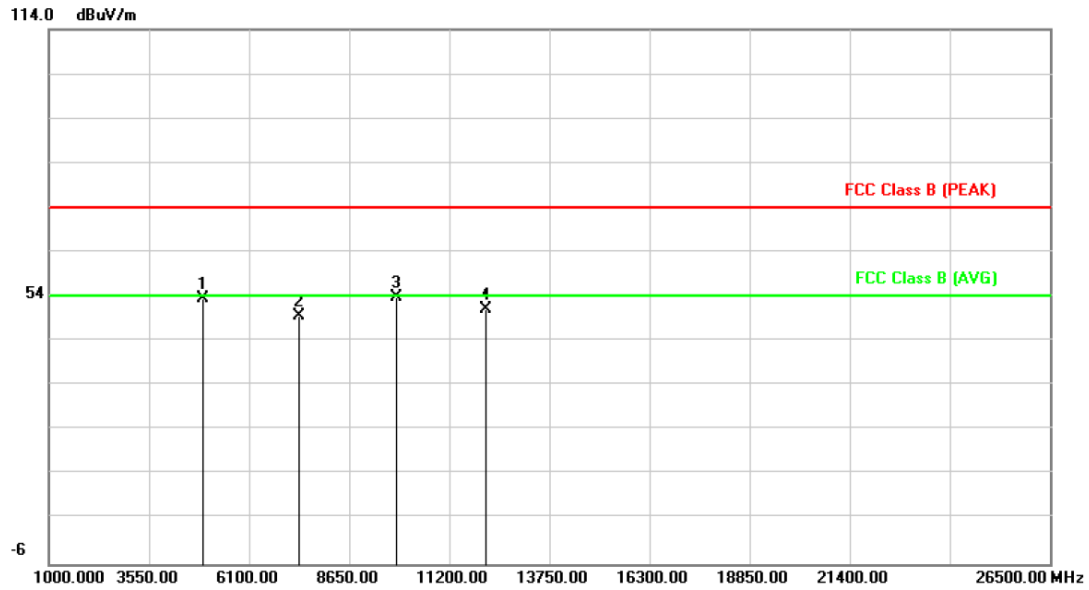


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4927.000	-17.75	71.86	54.11	74.00	-19.89	peak	100	204
2	4927.000	-17.75	48.70	30.95	54.00	-23.05	AVG	100	204
3	7375.000	-11.60	59.56	47.96	74.00	-26.04	peak	100	204
4	9848.500	-6.44	59.33	52.89	74.00	-21.11	peak	100	204
5	12347.500	-2.77	54.41	51.64	74.00	-22.36	peak	100	204

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode 1	: 802.11n HT20, CH11	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

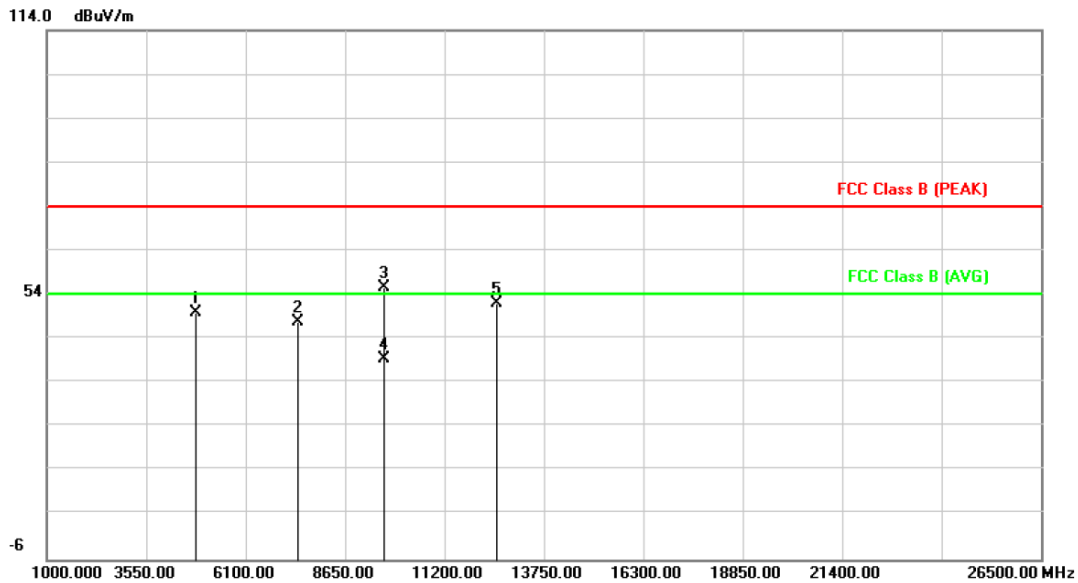


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4927.000	-17.75	71.31	53.56	74.00	-20.44	peak	101	211
2	7375.000	-11.60	61.18	49.58	74.00	-24.42	peak	101	211
3	9848.500	-6.44	60.28	53.84	74.00	-20.16	peak	101	211
4	12143.500	-2.61	53.67	51.06	74.00	-22.94	peak	101	211

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11n HT40, CH3	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

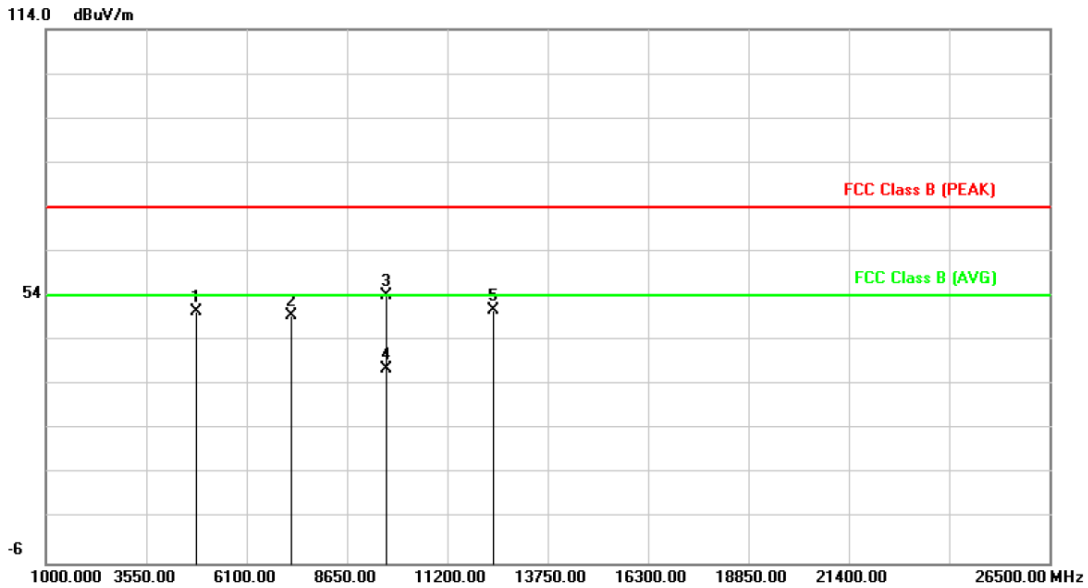


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	68.00	49.99	74.00	-24.01	peak	101	202
2	7426.000	-11.24	59.13	47.89	74.00	-26.11	peak	101	202
3	9644.500	-6.56	62.10	55.54	74.00	-18.46	peak	101	202
4	9644.500	-6.56	45.98	39.42	54.00	-14.58	AVG	101	317
5	12551.500	-3.06	55.24	52.18	74.00	-21.82	peak	101	202

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11n HT40, CH3	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa



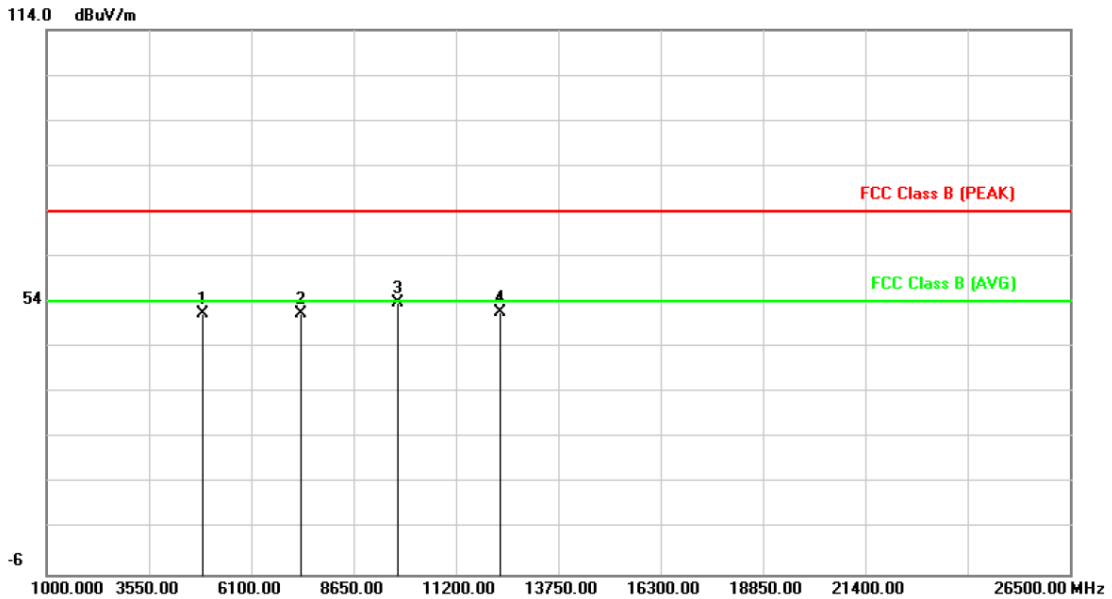
No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4825.000	-18.01	68.57	50.56	74.00	-23.44	peak	101	207
2	7222.000	-12.66	62.37	49.71	74.00	-24.29	peak	101	207
3	9644.500	-6.56	60.58	54.02	74.00	-19.98	peak	101	207
4	9644.500	-6.56	44.29	37.73	54.00	-16.27	AVG	101	207
5	12373.000	-2.78	53.69	50.91	74.00	-23.09	peak	101	207

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor





Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11n HT40, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

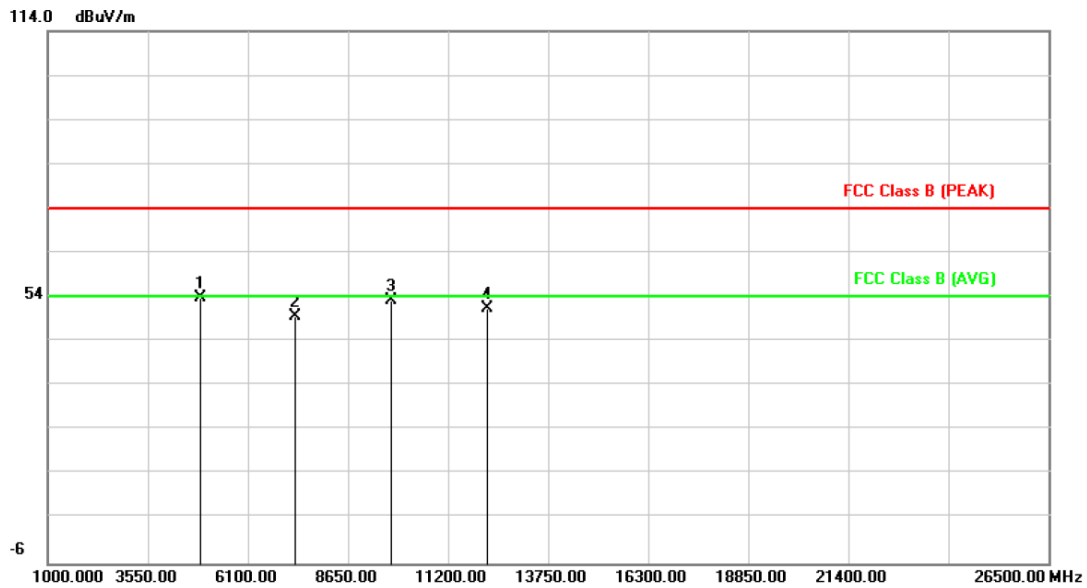


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4876.000	-17.87	69.26	51.39	74.00	-22.61	peak	100	203
2	7324.000	-11.95	63.49	51.54	74.00	-22.46	peak	100	203
3	9746.500	-6.50	60.40	53.90	74.00	-20.10	peak	100	203
4	12296.500	-2.73	54.56	51.83	74.00	-22.17	peak	100	203

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11n HT40, CH6	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

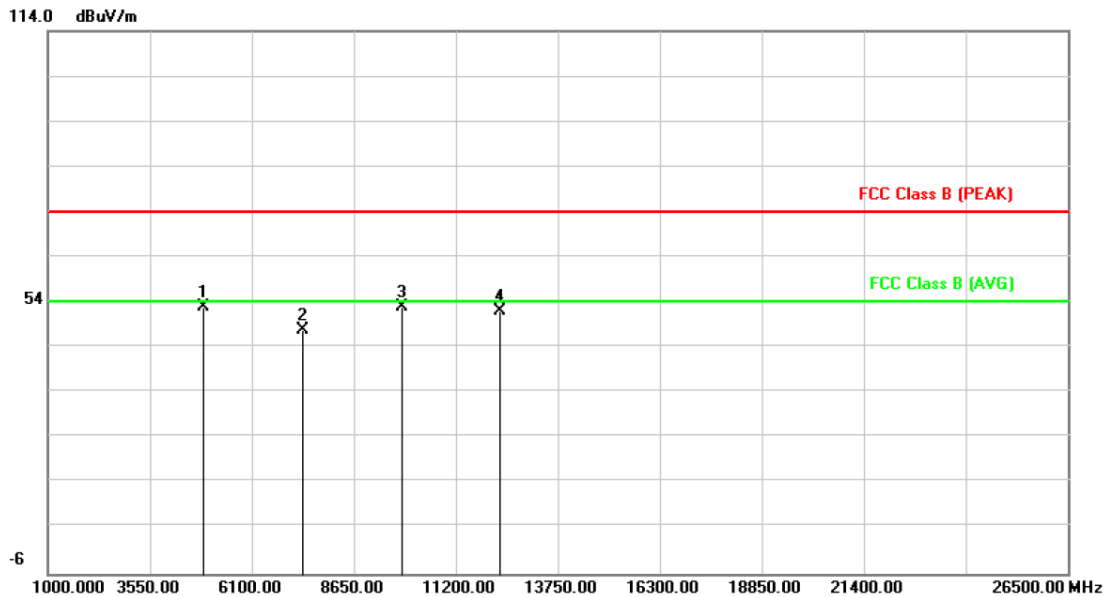


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4876.000	-17.87	71.72	53.85	74.00	-20.15	peak	100	205
2	7298.500	-12.12	61.83	49.71	74.00	-24.29	peak	100	205
3	9746.500	-6.50	59.73	53.23	74.00	-20.77	peak	100	205
4	12194.500	-2.64	54.21	51.57	74.00	-22.43	peak	100	205

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: VERTICAL
Test Mode	: 802.11n HT40, CH9	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa

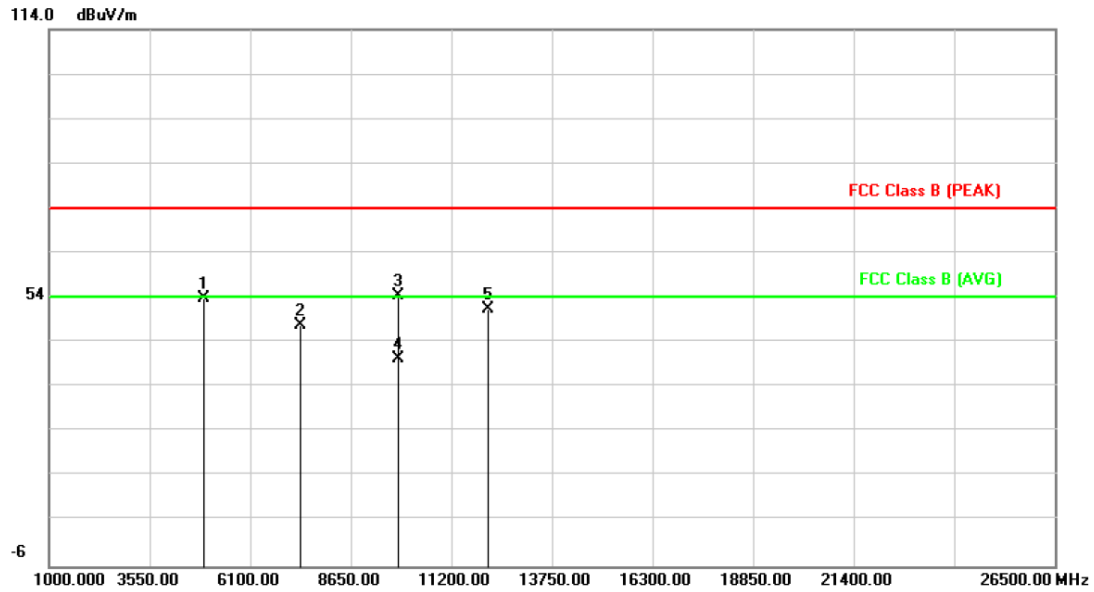


No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4901.500	-17.82	70.87	53.05	74.00	-20.95	peak	100	209
2	7375.000	-11.60	59.43	47.83	74.00	-26.17	peak	100	209
3	9848.500	-6.44	59.40	52.96	74.00	-21.04	peak	100	209
4	12296.500	-2.73	54.76	52.03	74.00	-21.97	peak	100	209

Note: Level = Reading + Factor  
Margin = Level – Limit  
Factor= Antenna Factor + Cable Loss - Amplifier Factor



Power	: AC 120V	Pol/Phase	: HORIZONTAL
Test Mode	: 802.11n HT40, CH9	Temperature	: 22 °C
		Humidity	: 52 %
Test Date	: Nov. 27, 2014	Atmospheric Pressure	: 1010 hpa



No.	Frequency (MHz)	Factor (dB/m)	Reading (dBuV)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Det.	Height (cm)	Azimuth (deg)
1	4927.000	-17.75	71.50	53.75	74.00	-20.25	peak	103	212
2	7375.000	-11.60	59.55	47.95	74.00	-26.05	peak	103	212
3	9848.500	-6.44	60.92	54.48	74.00	-19.52	peak	103	212
4	9848.500	-6.44	46.70	40.26	54.00	-13.74	AVG	103	212
5	12143.500	-2.61	53.99	51.38	74.00	-22.62	peak	103	212

Note: Level = Reading + Factor  
 Margin = Level – Limit  
 Factor= Antenna Factor + Cable Loss - Amplifier Factor



## 6. 6dB Bandwidth Measurement Data

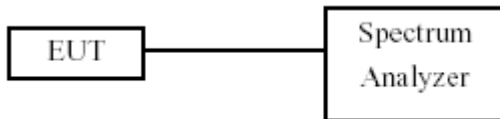
### 6.1 Test Limit

The minimum of 6dB Bandwidth Measurement is 0.5 MHz.

### 6.2 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  $VBW \geq 3x RBW$ .
- 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.

### 6.3 Test Setup Layout



### 6.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100047	2014/03/27	2015/03/26



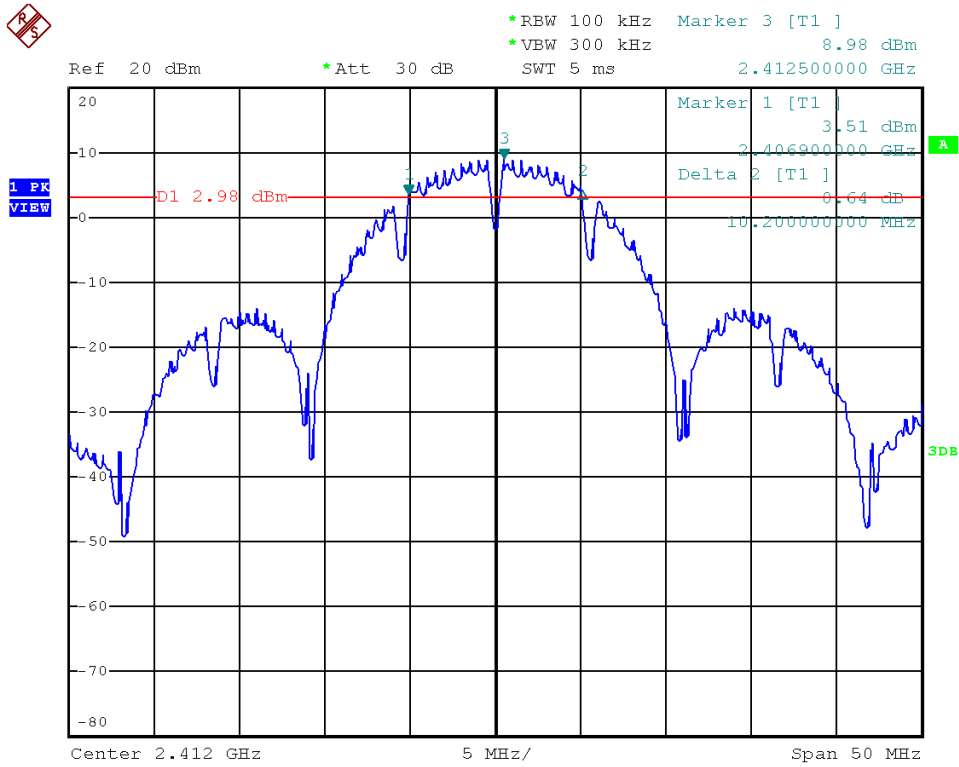
### 6.5 Test Result and Data

Test Date : Dec. 02, 2014      Temperature : 21°C  
Atmospheric pressure : 1088 hPa      Humidity : 51%

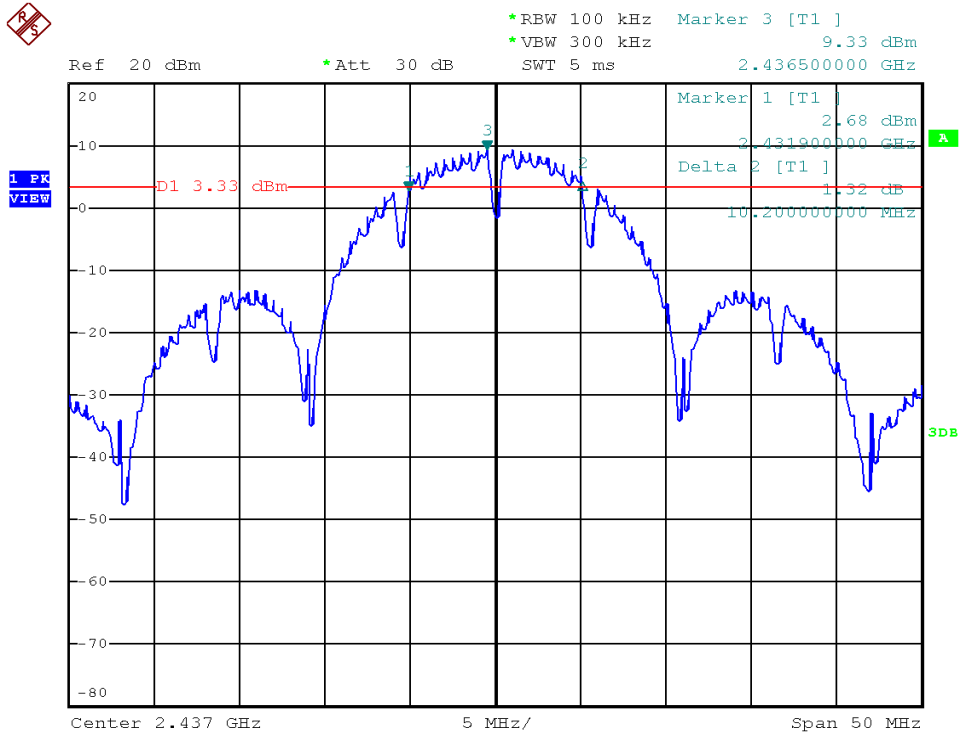
Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)	
			ANT A	ANT B
IEEE 802.11b (1Mbps)	01	2412	10.2	10.1
	06	2437	10.2	11.1
	11	2462	10.2	10.2
IEEE 802.11g (6Mbps)	01	2412	16.6	16.6
	06	2437	16.6	16.6
	11	2462	16.6	16.6
IEEE 802.11n HT20 (13Mbps)	01	2412	17.9	17.9
	06	2437	16.6	17.9
	11	2462	17.8	17.7
IEEE 802.11n HT40 (27Mbps)	03	2422	36.6	36.6
	06	2437	36.6	36.6
	09	2452	36.2	36.6



Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 01

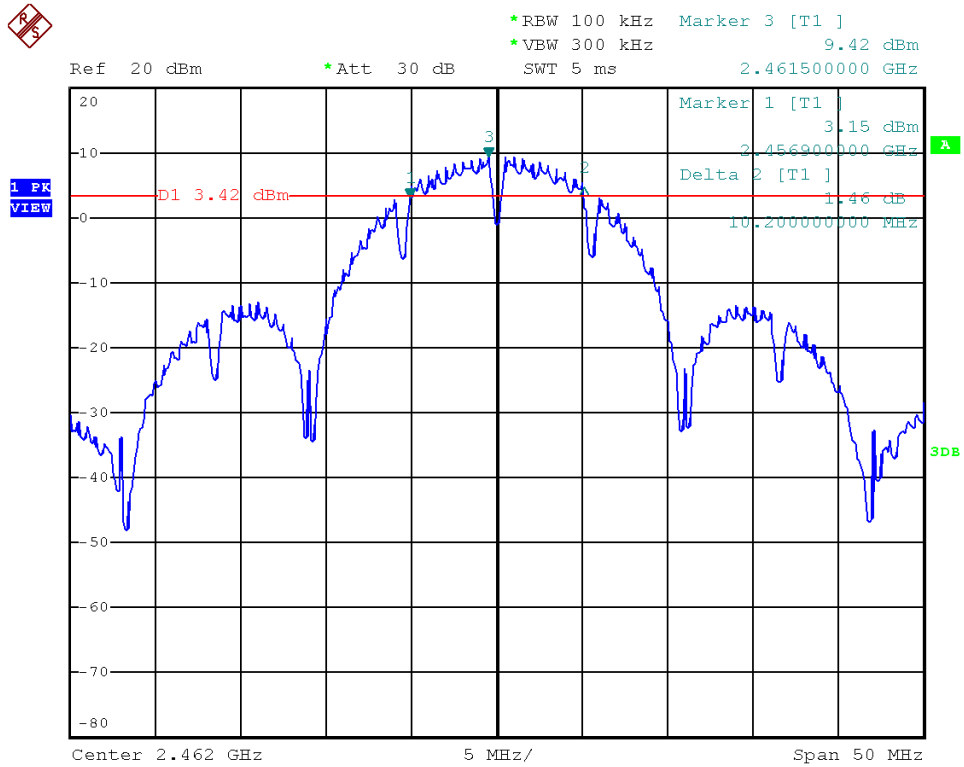


Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 06

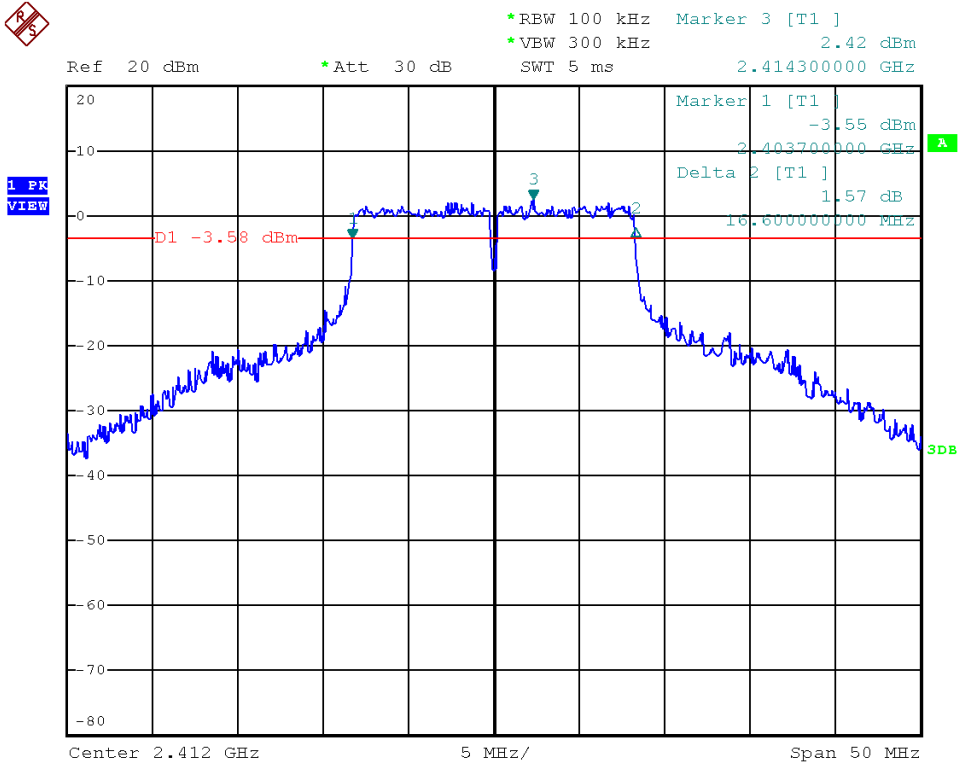




Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 11



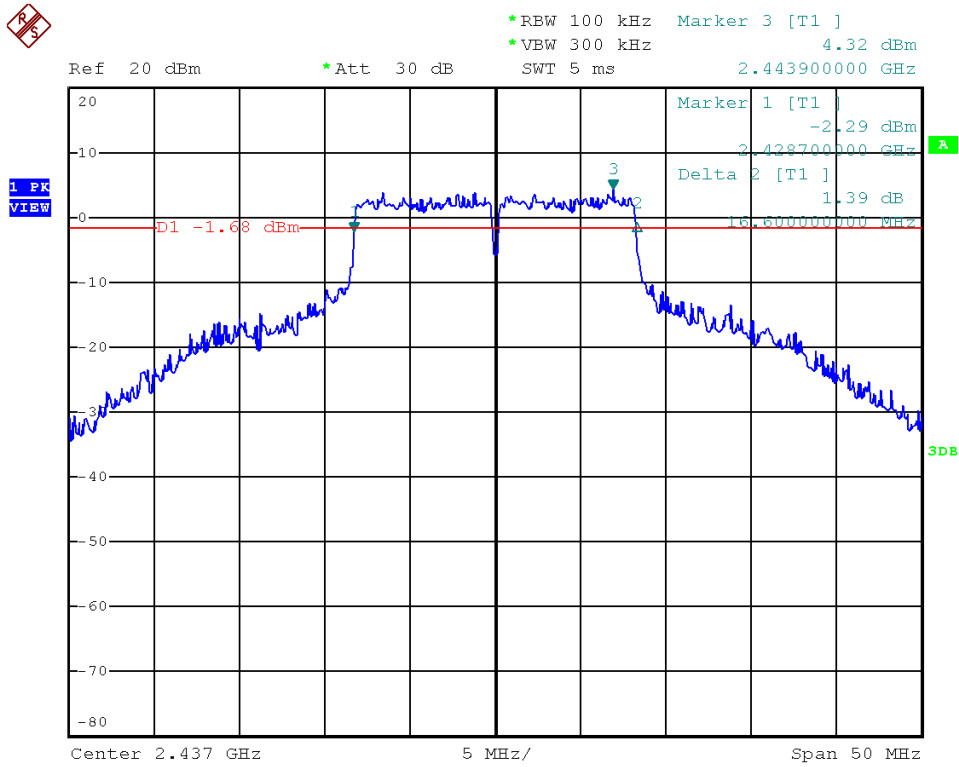
Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 01



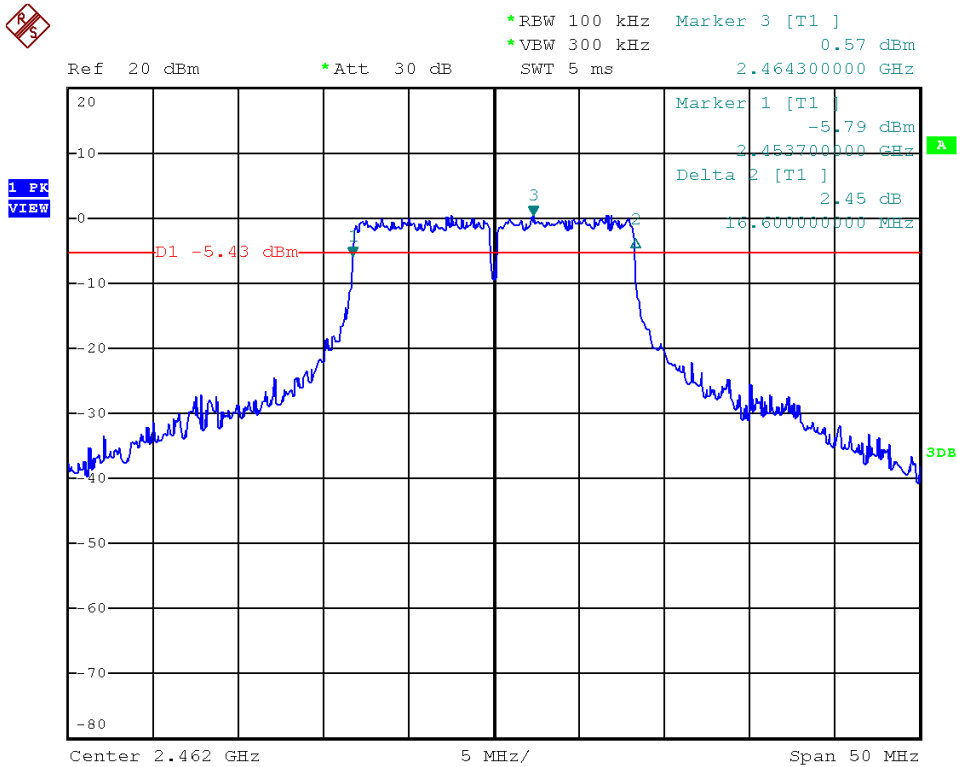




Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 06

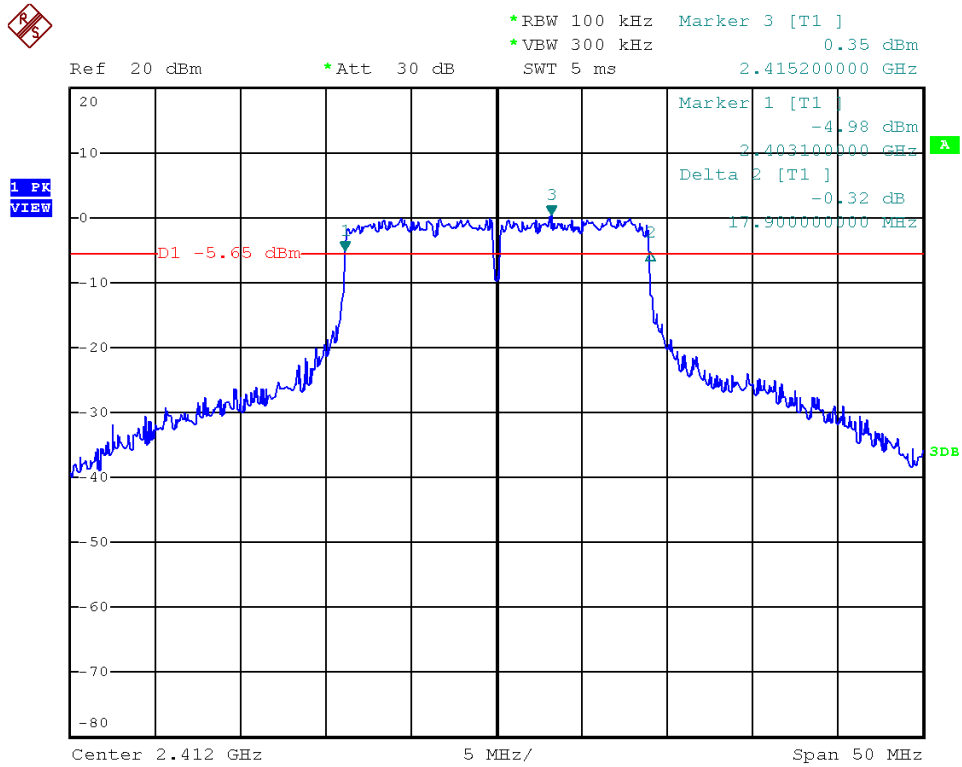


Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 11

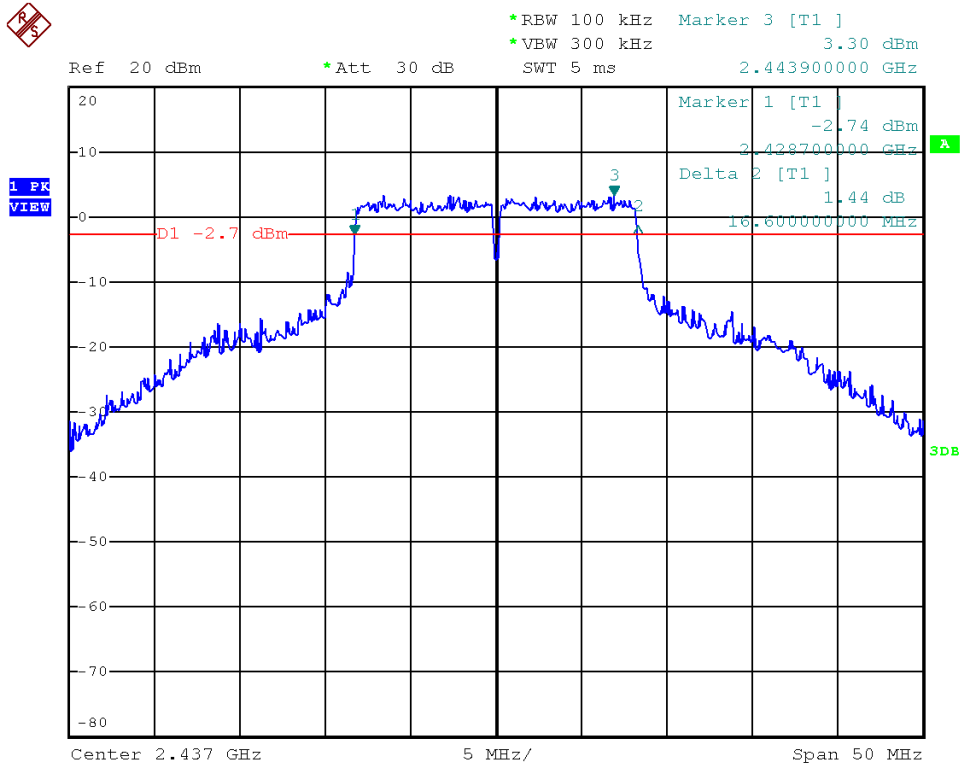




Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 01

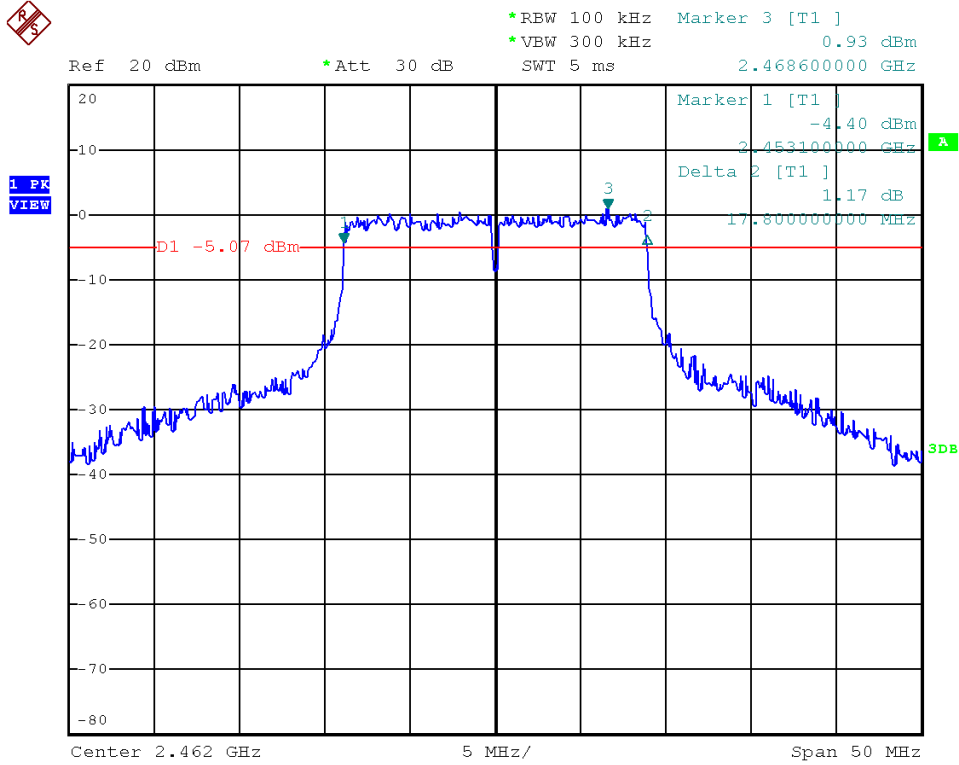


Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 06

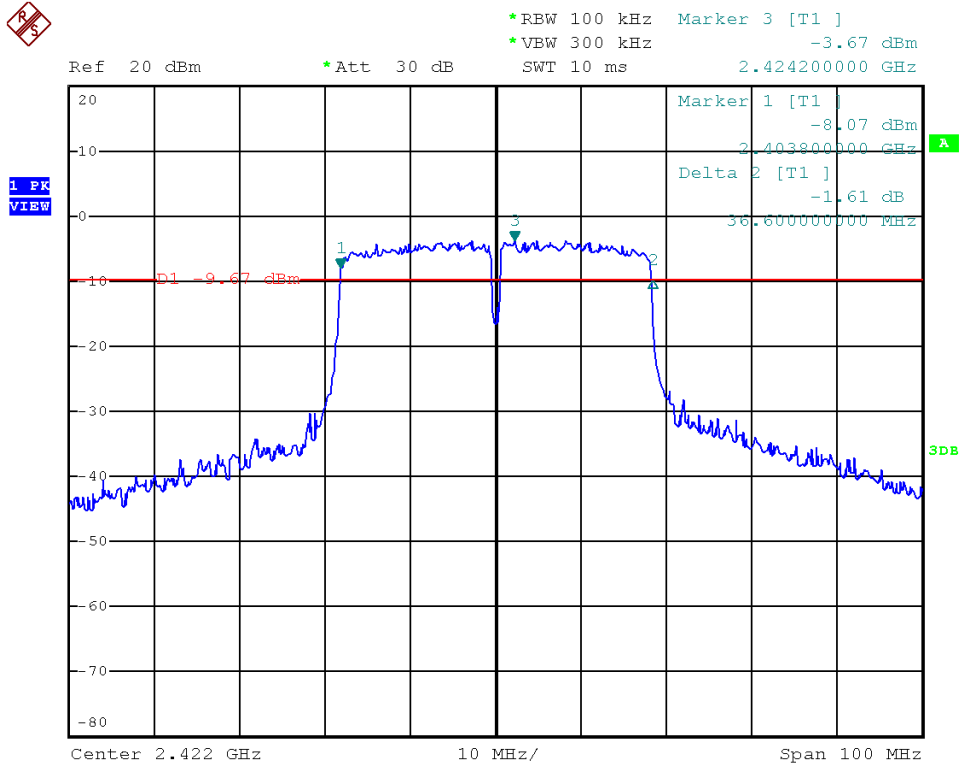




Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 11

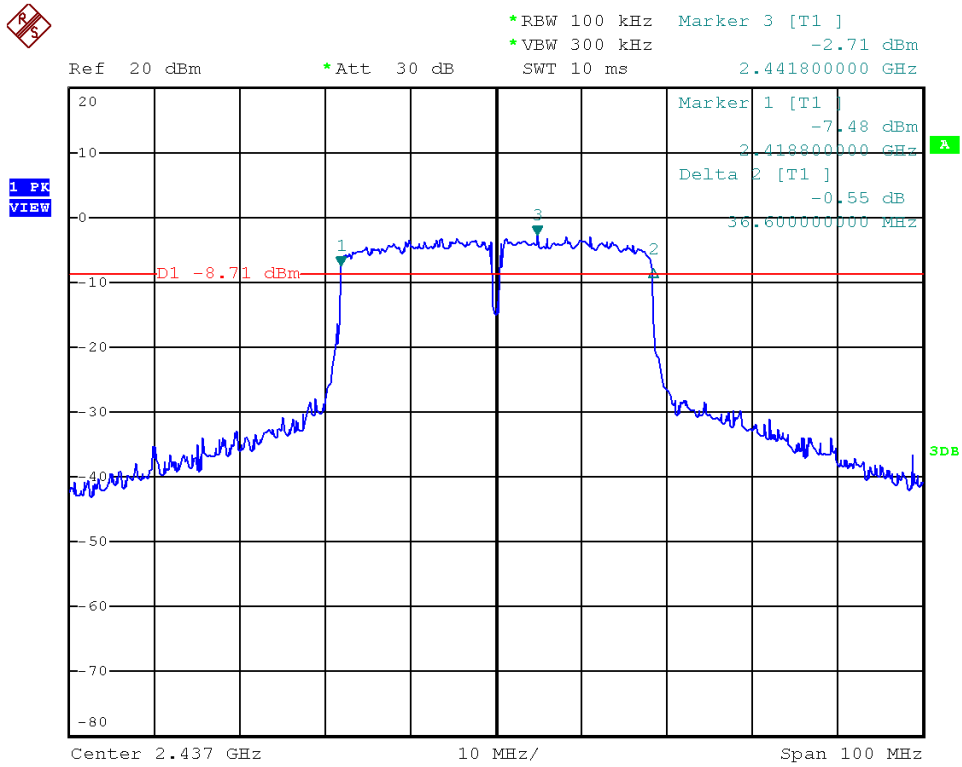


Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 03

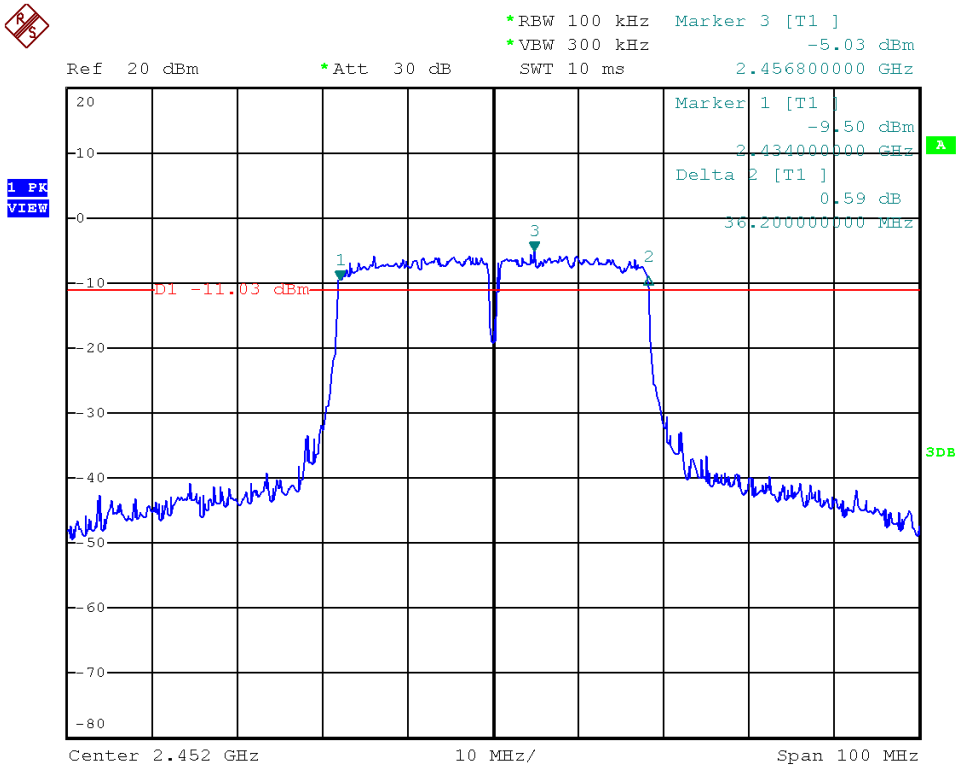




Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 06

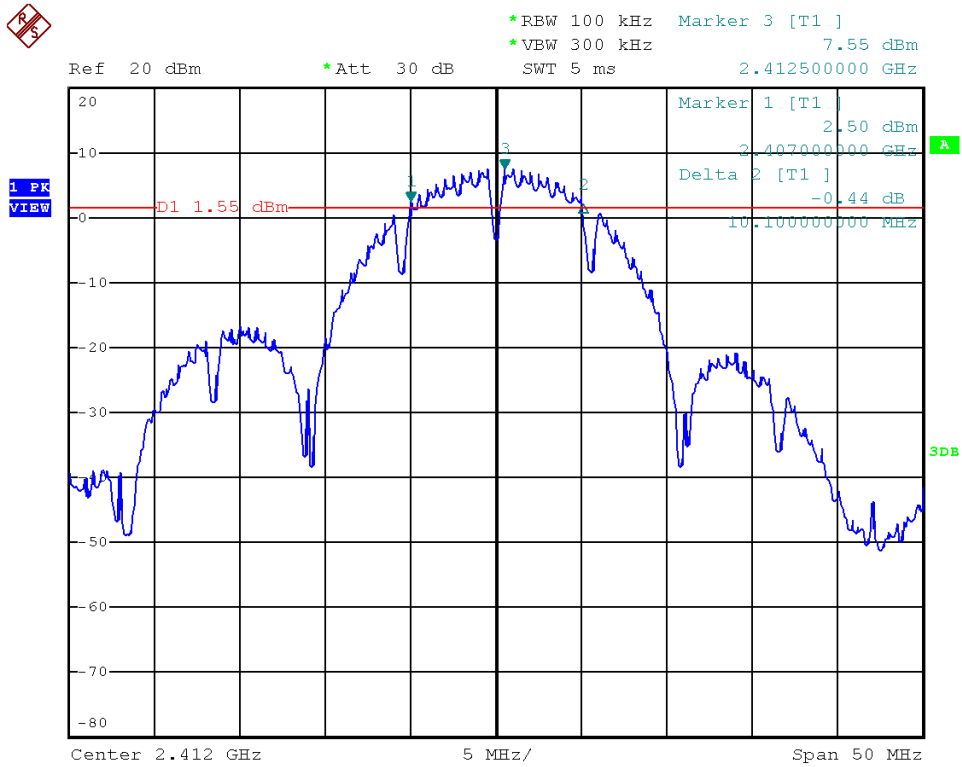


Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 09

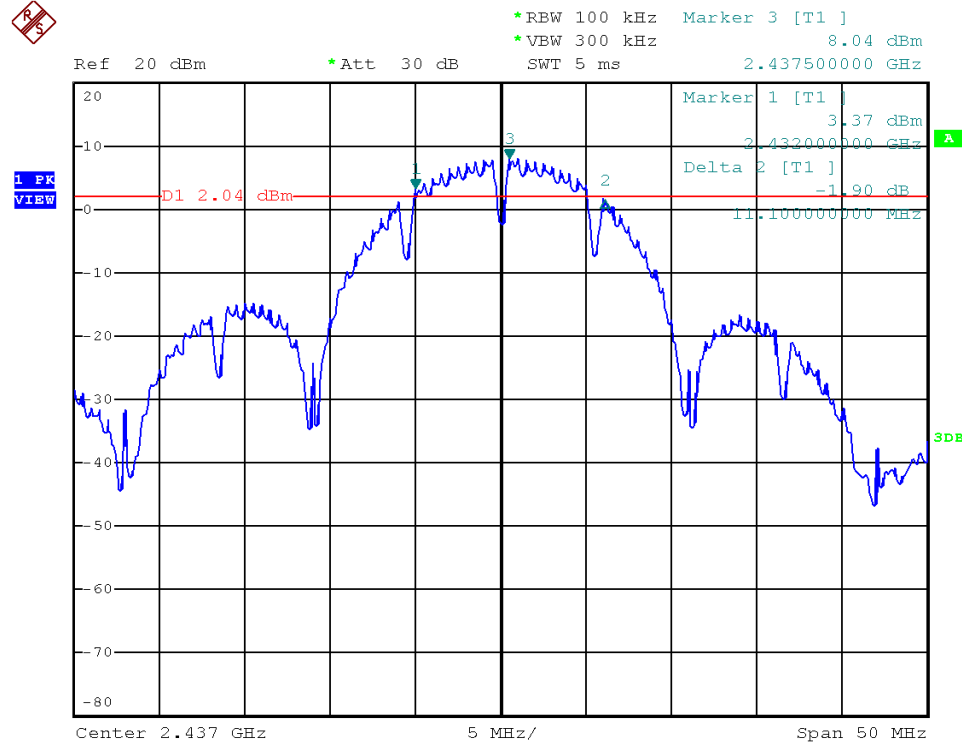




Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 01

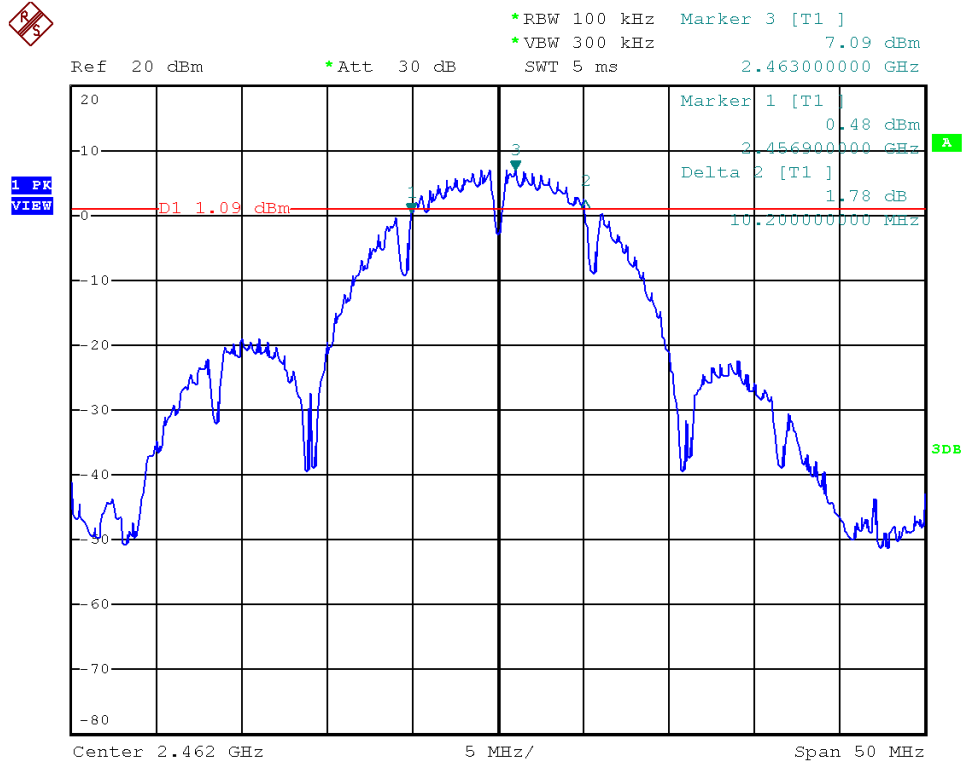


Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 06

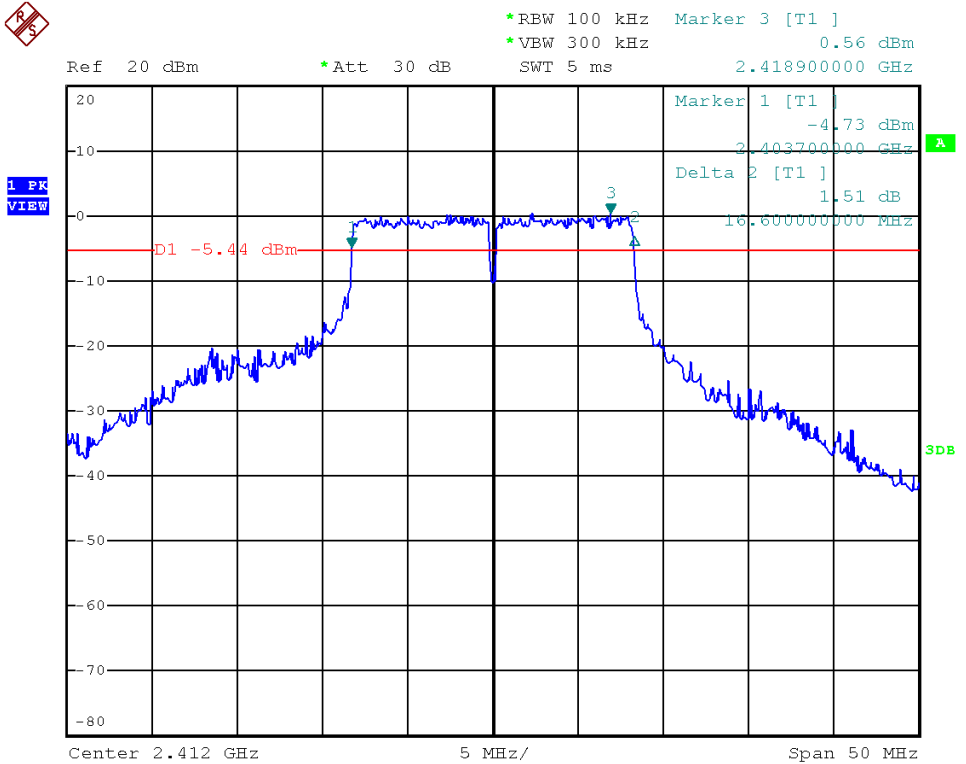




Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 11

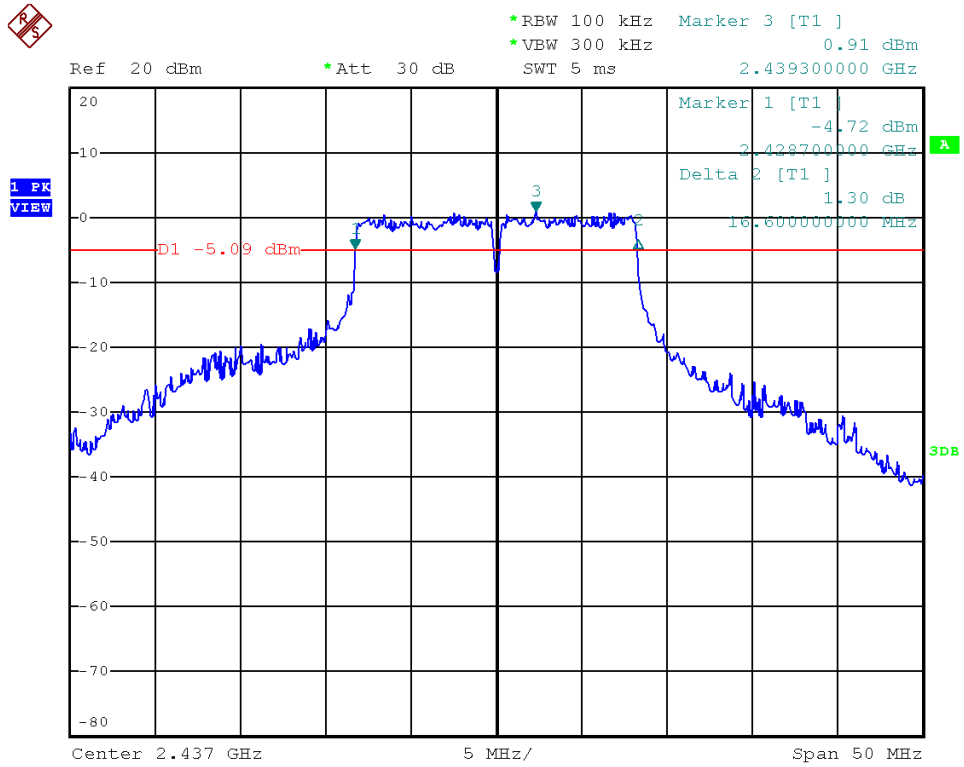


Modulation Standard: 802.11g (6Mbps), ANT B  
Channel: 01

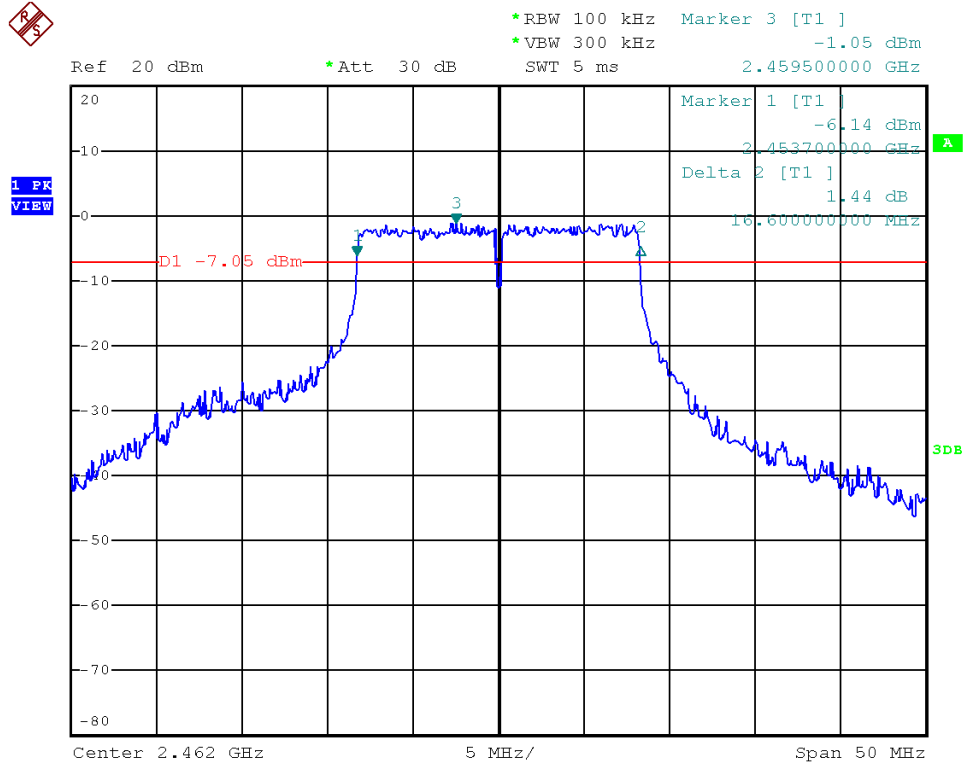




Modulation Standard: 802.11g (6Mbps), ANT B  
Channel: 06

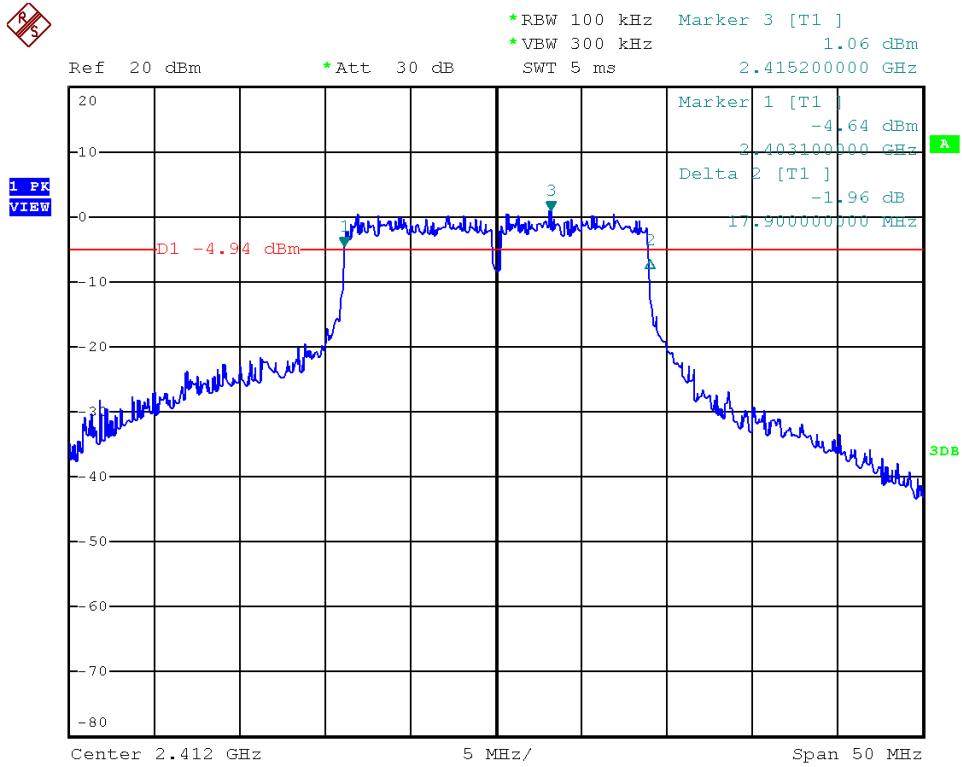


Modulation Standard: 802.11g (6Mbps), ANT B  
Channel: 11

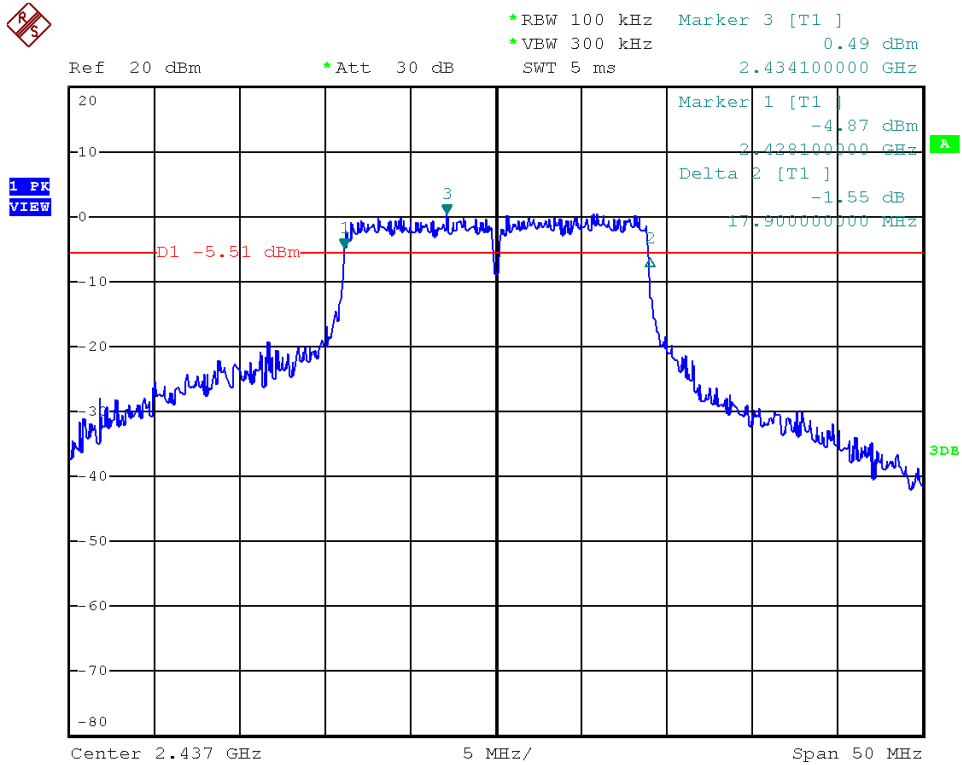




Modulation Standard: 802.11n HT20 (13Mbps), ANT B  
Channel: 01



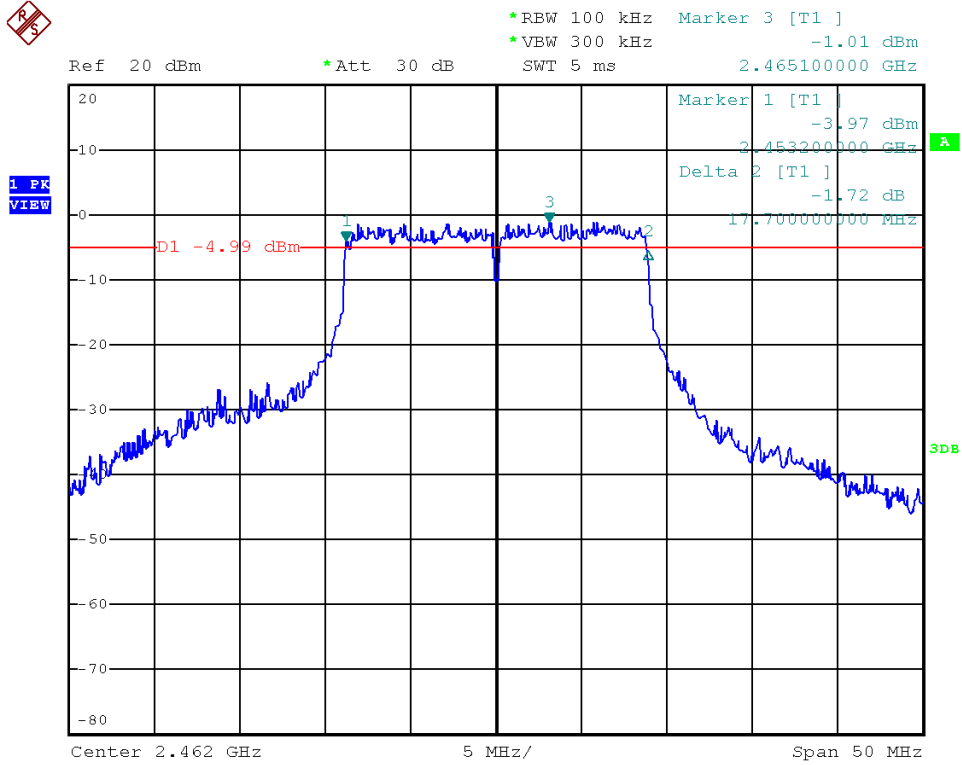
Modulation Standard: 802.11n HT20 (13Mbps), ANT B  
Channel: 06



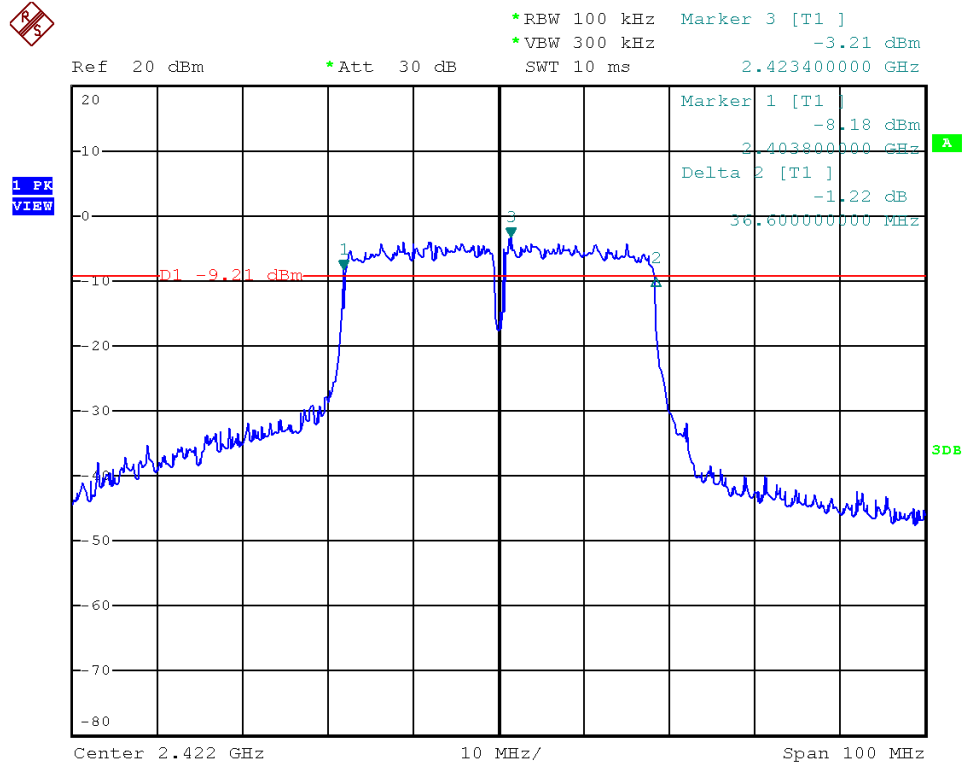




Modulation Standard: 802.11n HT20 (13Mbps), ANT B  
Channel: 11

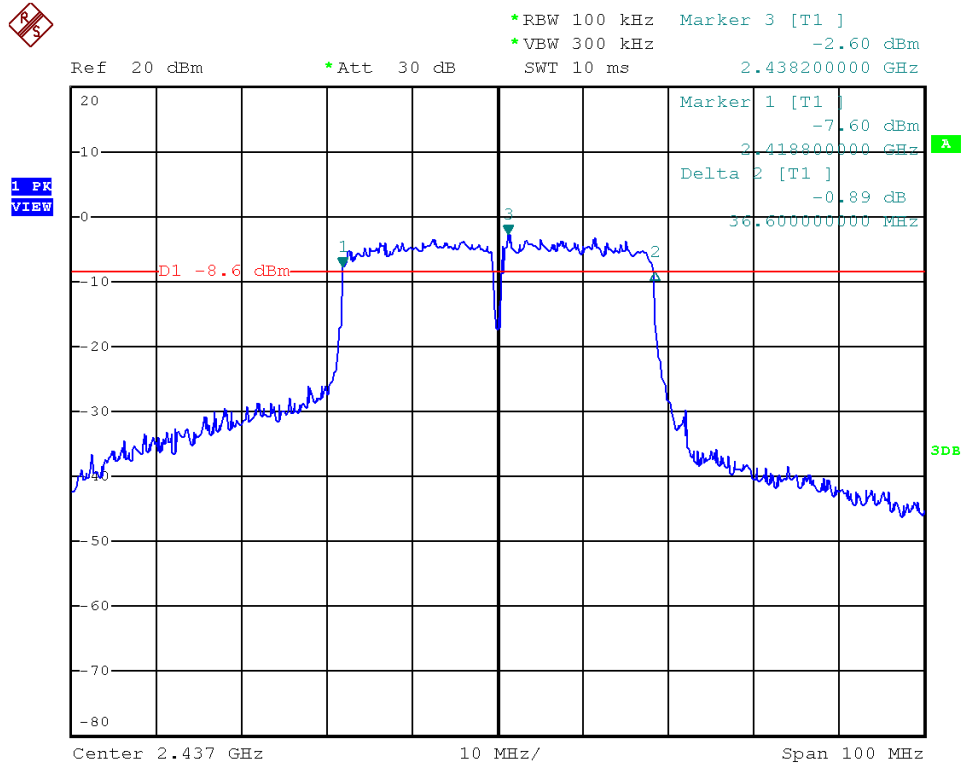


Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 03

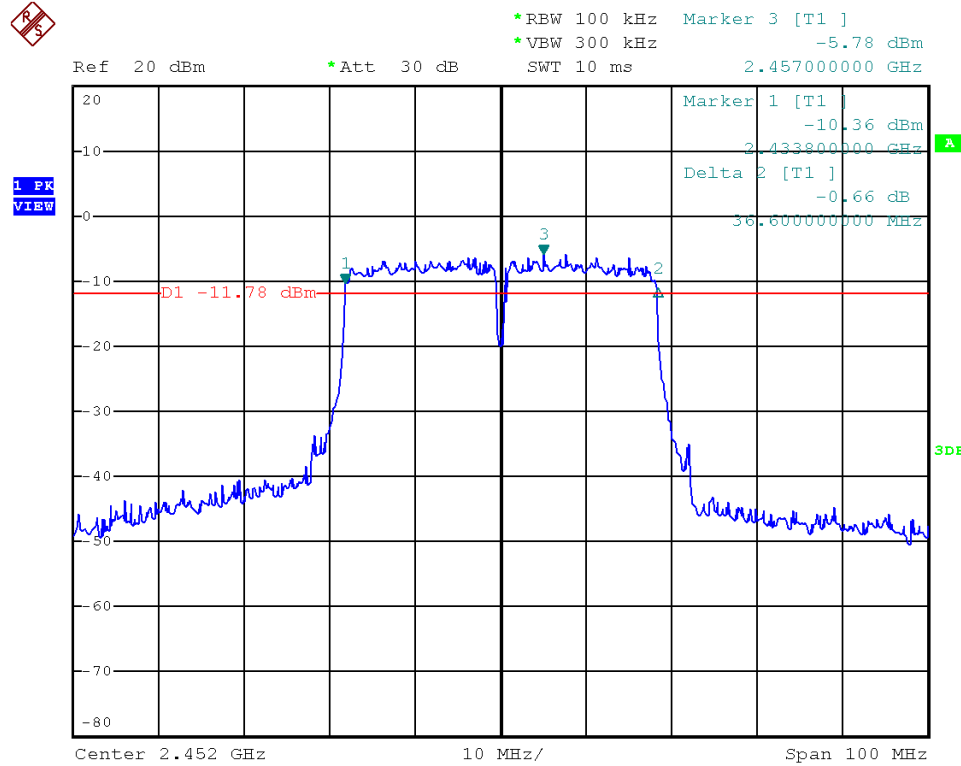




Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 06



Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 09





## 7. Maximum Peak and Average Output Power

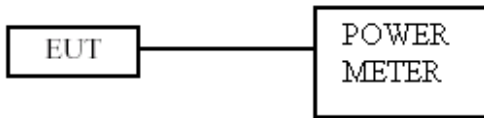
### 7.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.

### 7.2 Test Procedures

The antenna port (RF output) of the EUT was connected to the input (RF input) of a power meter. Power was read directly from the meter and cable loss connection was added to the reading to obtain power at the EUT antenna terminal. The EUT Output Power was set to maximum to produce the worse case test result.

### 7.3 Test Setup Layout



### 7.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
SERIES POWER METER	ANRITSU	ML2495A	1224005	2014/03/27	2015/03/26
POWER SENSOR	ANRITSU	MA2411B	1207295	2014/03/27	2015/03/26



**7.5 Test Result and Data**

Test Date : Dec. 02, 2014 Temperature : 21°C  
 Atmospheric pressure : 1088 hPa Humidity : 51%

Modulation Standard	Channel	Frequency (MHz)	Peak Power Output (dBm)			Peak Output Power (mW)
			ANT A	ANT B	ANT A+B	ANT A+B
802.11b (1Mbps)	01	2412	22.72	21.22	25.04	319.50
	06	2437	23.03	21.85	25.49	354.02
	11	2462	23.35	21.16	25.40	346.89
802.11g (6Mbps)	01	2412	22.99	22.12	25.59	362.00
	06	2437	23.72	22.23	26.05	402.61
	11	2462	23.52	22.05	25.86	385.23
802.11n HT20 (13Mbps)	01	2412	22.12	21.65	24.90	309.15
	06	2437	22.92	21.92	25.46	351.48
	11	2462	22.55	21.78	25.19	330.55
802.11n HT40 (27Mbps)	03	2422	21.82	21.27	24.56	286.02
	06	2437	22.35	21.67	25.03	318.68
	09	2452	21.45	20.08	23.83	241.50

Test Date : Dec. 02, 2014 Temperature : 21°C  
 Atmospheric pressure : 1088 hPa Humidity : 51%

Modulation Standard	Channel	Frequency (MHz)	AVG Power Output (dBm)			Peak Output Power (mW)
			ANT A	ANT B	ANT A+B	ANT A+B
802.11b (1Mbps)	01	2412	21.55	19.66	23.72	235.36
	06	2437	22.01	20.45	24.31	269.77
	11	2462	22.32	19.65	24.20	262.87
802.11g (6Mbps)	01	2412	17.55	16.07	19.88	97.34
	06	2437	19.56	16.32	21.25	133.22
	11	2462	18.43	15.02	20.06	101.43
802.11n HT20 (13Mbps)	01	2412	15.82	14.75	18.33	68.05
	06	2437	17.02	15.52	19.34	86.00
	11	2462	16.42	14.85	18.72	74.40
802.11n HT40 (27Mbps)	03	2422	15.65	14.52	18.13	65.04
	06	2437	16.38	15.25	18.86	76.95
	09	2452	14.08	12.45	16.35	43.17



## 8. Power Spectral Density

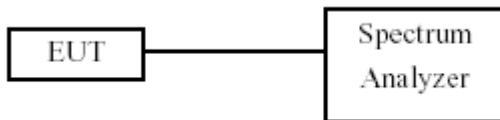
### 8.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

### 8.2 Test Procedures

- a. The transmitter output was connected to spectrum analyzer.
- b. 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.
- c. The power spectral density was measured and recorded.

### 8.3 Test Setup Layout



### 8.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100047	2014/03/27	2015/03/26

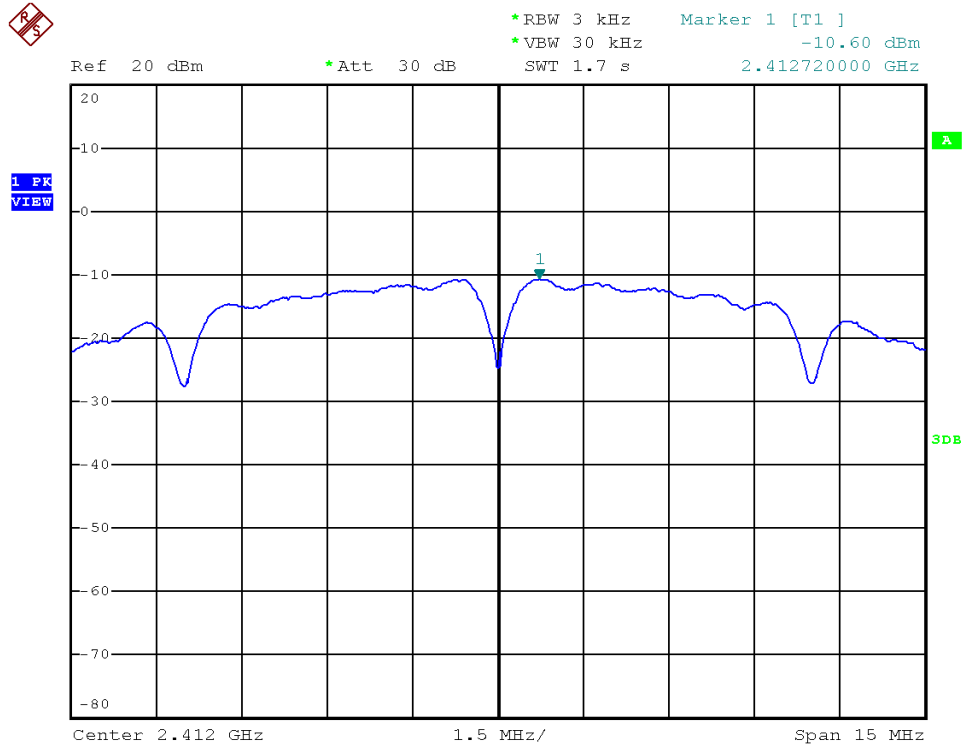
### 8.5 Test Result and Data

Test Date : Nov. 24, 2014      Temperature : 24°C  
 Atmospheric pressure : 1027 hPa      Humidity : 52%

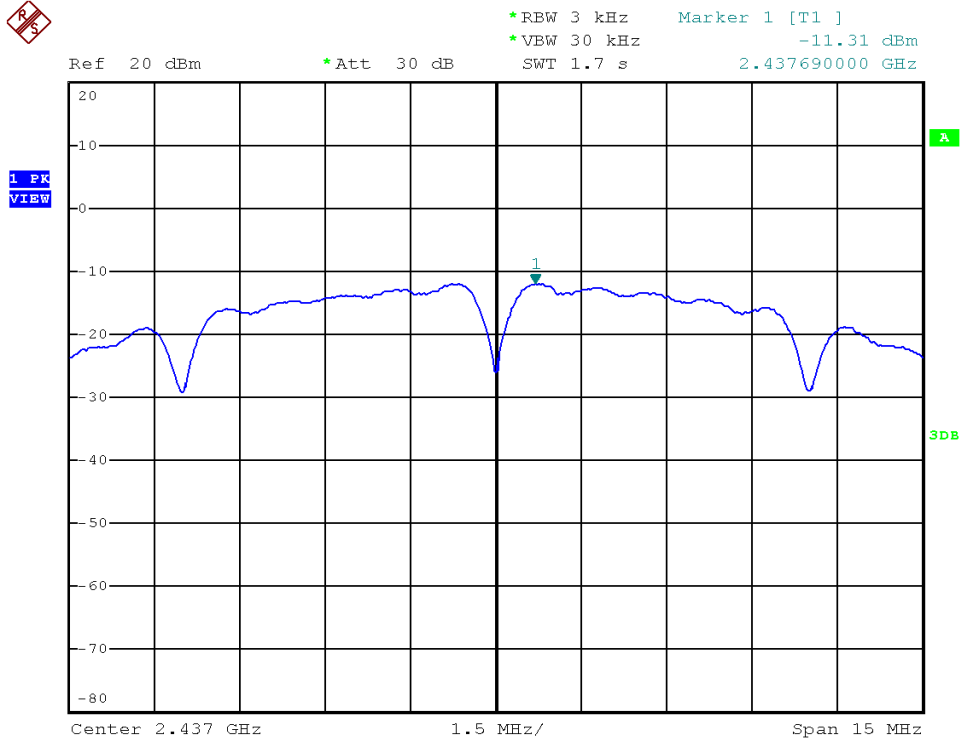
Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3 kHz Bandwidth (dBm)		
			ANT A	ANT B	ANT A+B
IEEE 802.11b (1Mbps)	01	2412	-10.60	-12.47	-8.42
	06	2437	-11.31	-11.78	-8.53
	11	2462	-10.08	-12.51	-8.12
IEEE 802.11g (6Mbps)	01	2412	-12.83	-13.67	-10.22
	06	2437	-13.27	-14.33	-10.76
	11	2462	-12.25	-15.55	-10.58
IEEE 802.11n HT20 (13Mbps)	01	2412	-12.62	-14.03	-10.26
	06	2437	-11.83	-13.84	-9.71
	11	2462	-11.30	-13.82	-9.37
IEEE 802.11n HT40 (27Mbps)	03	2422	-15.60	-17.79	-13.55
	06	2437	-15.61	-17.85	-13.58
	09	2452	-17.04	-20.44	-15.41



Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 01

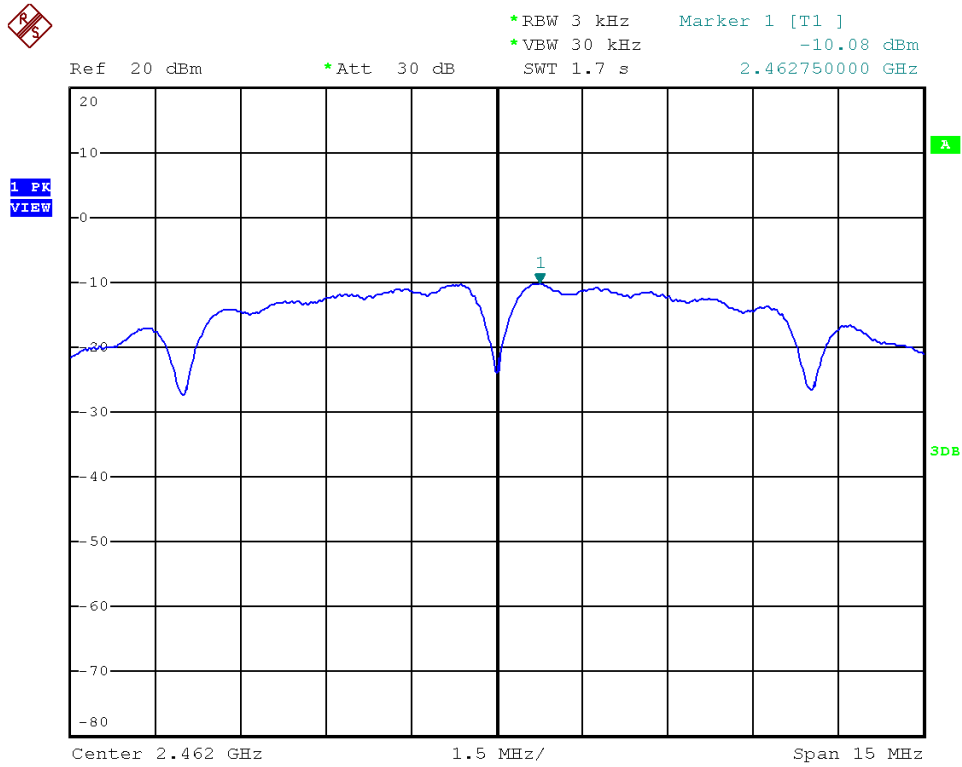


Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 06

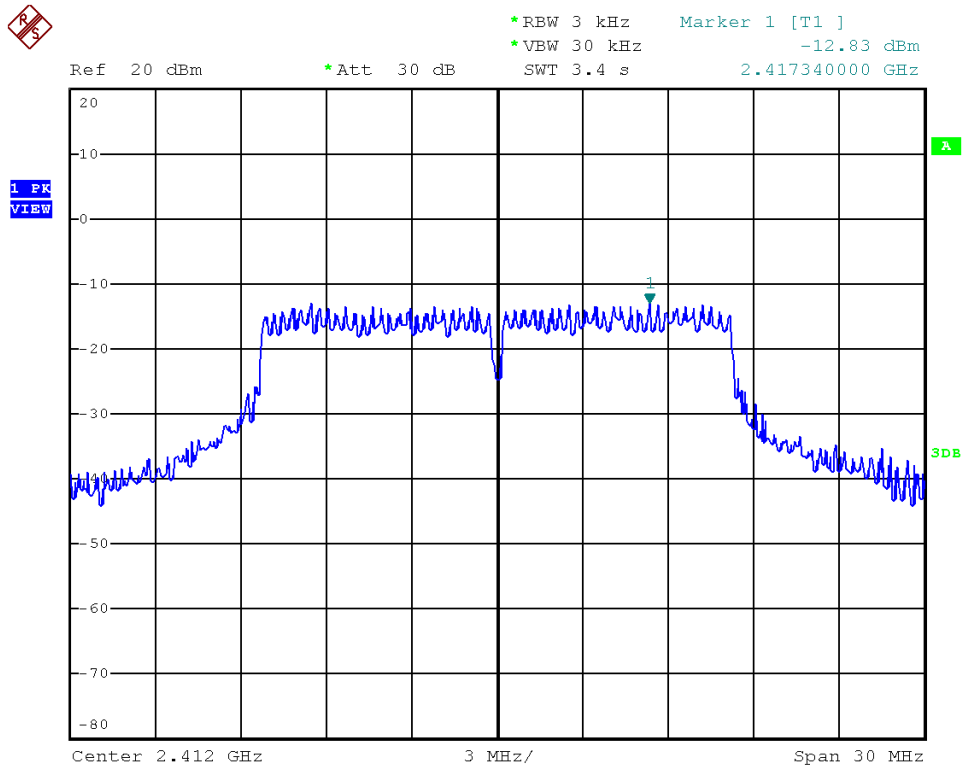




Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 11

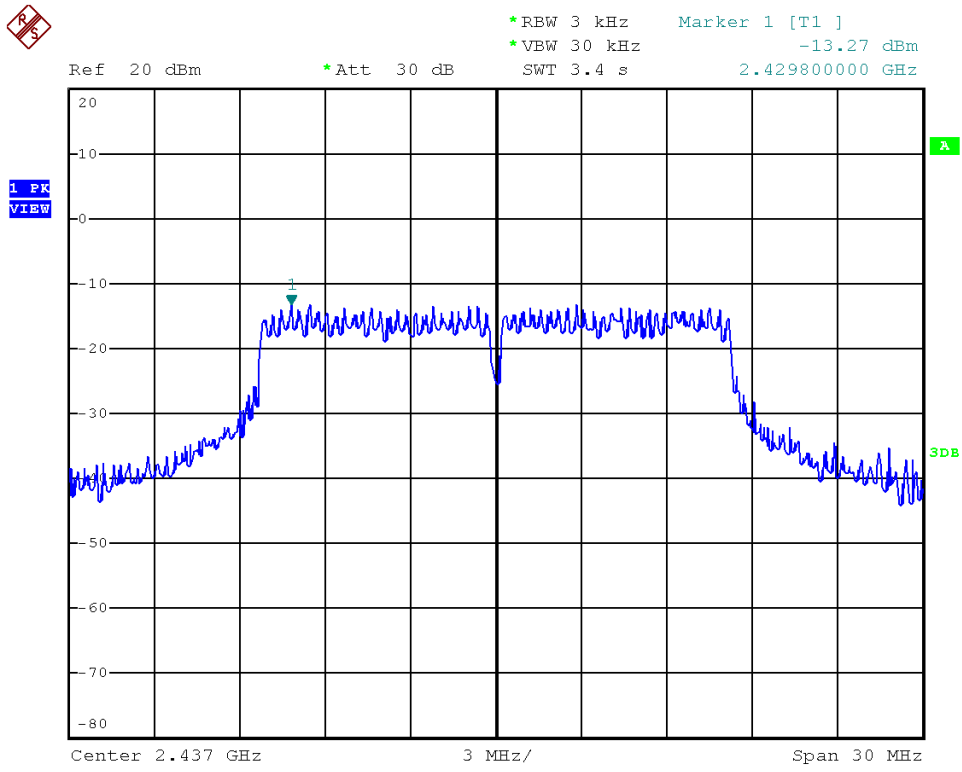


Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 01

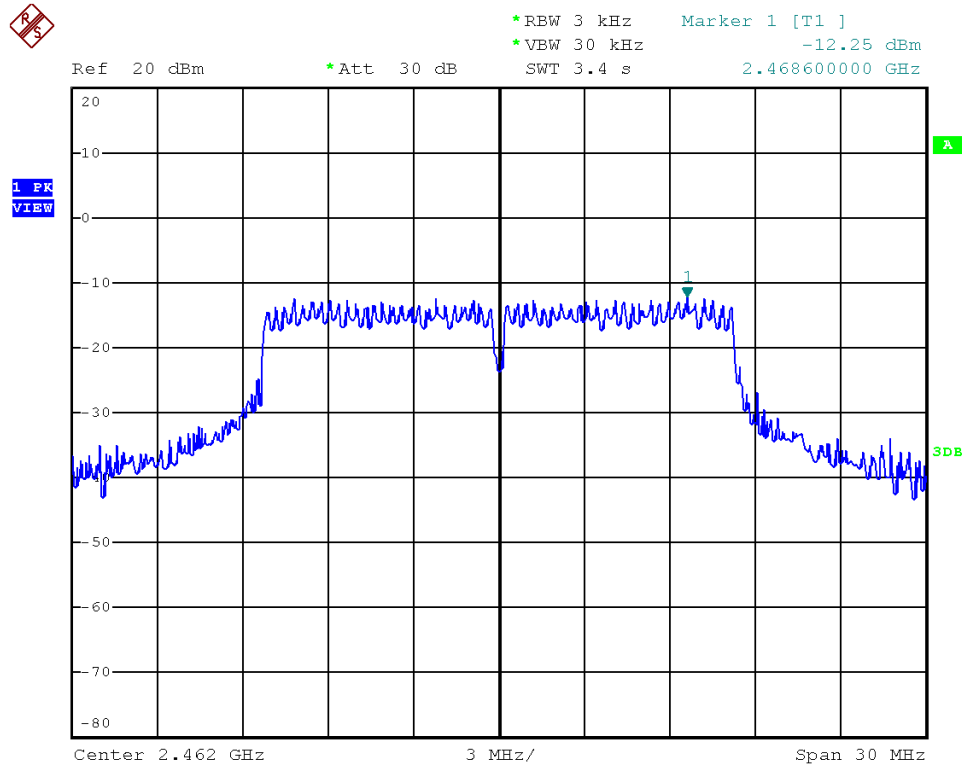




Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 06



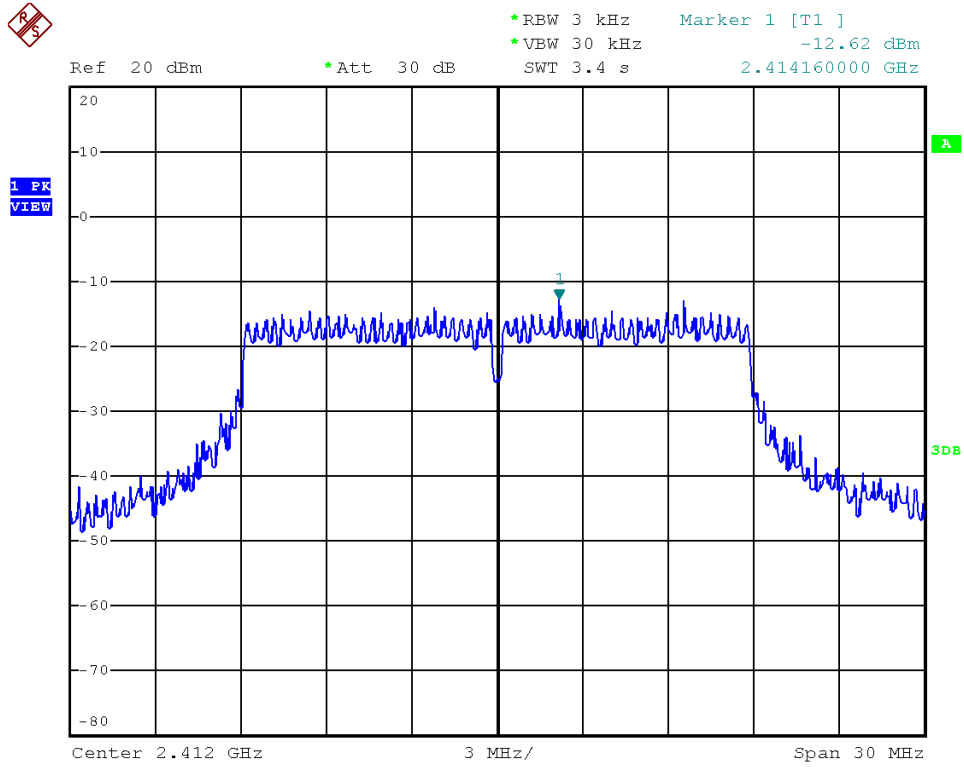
Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 11



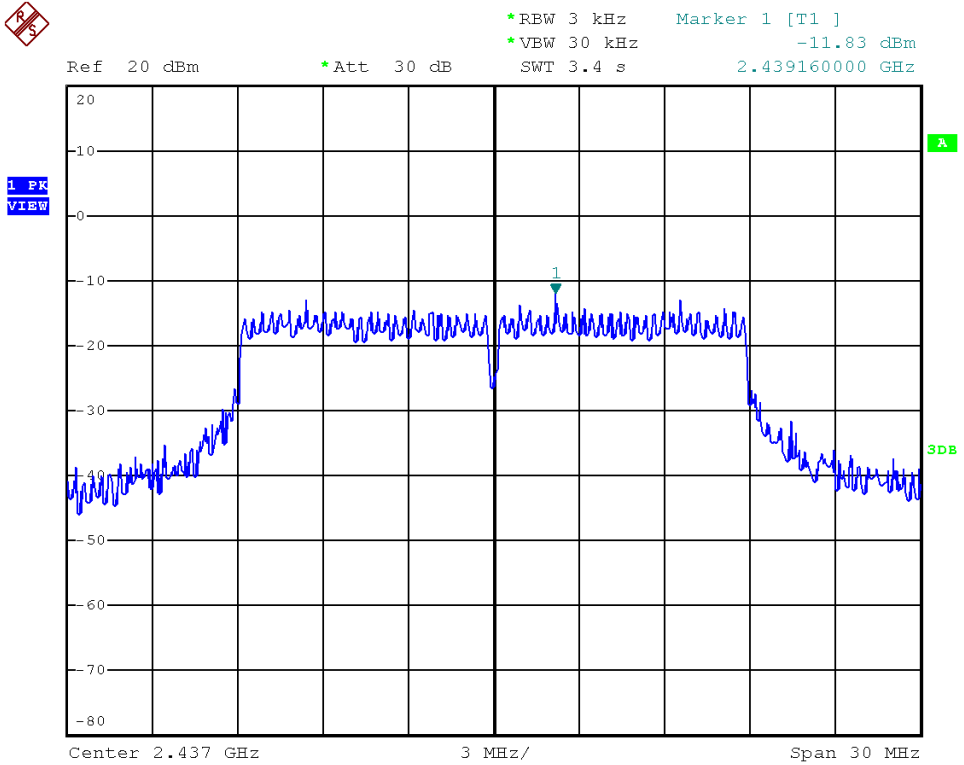




Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 01

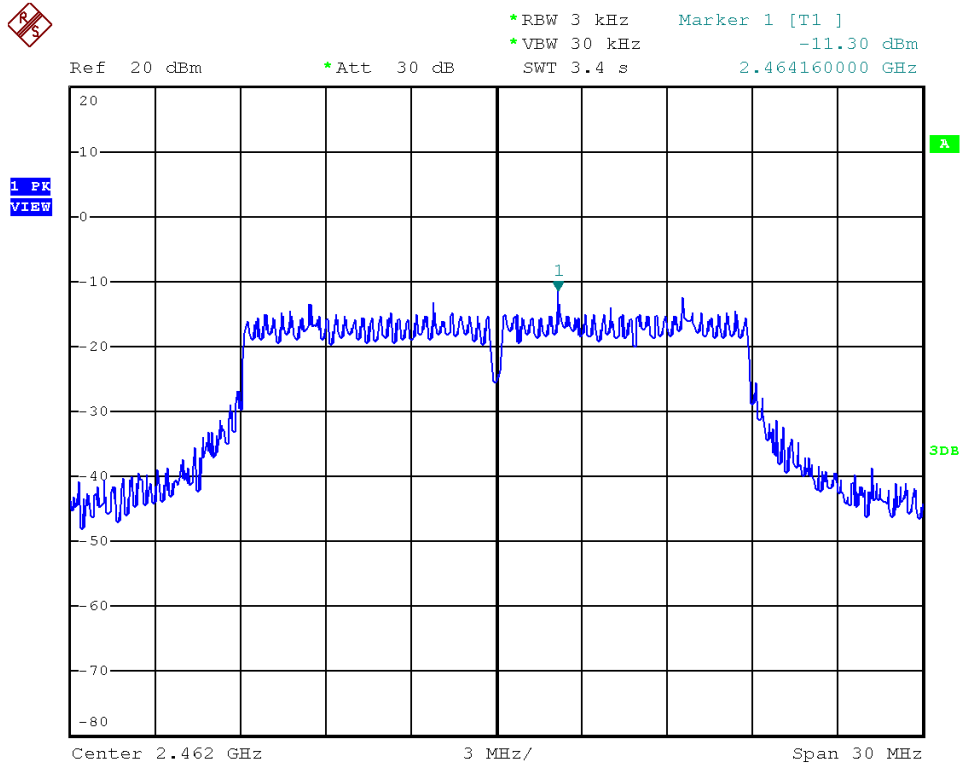


Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 06

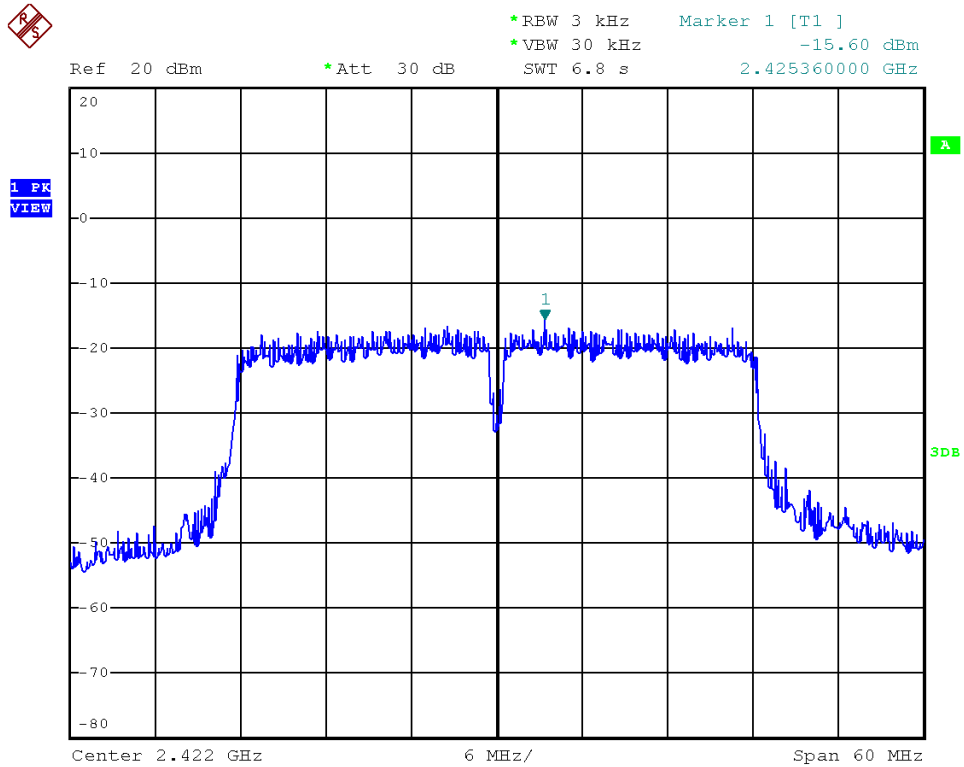




Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 11

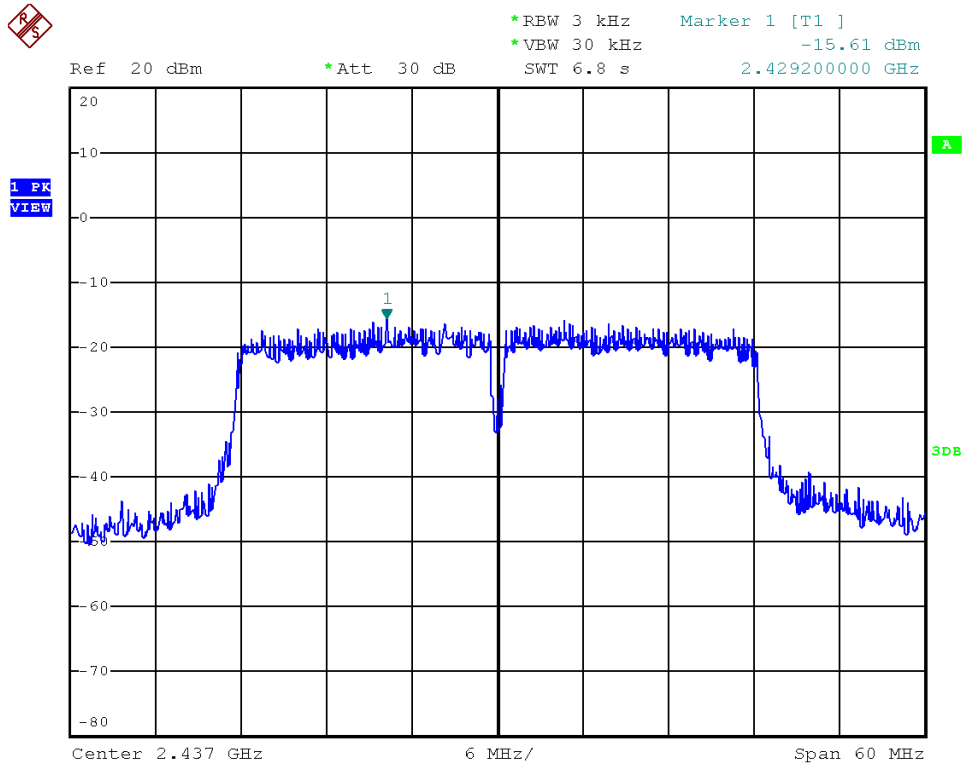


Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 03

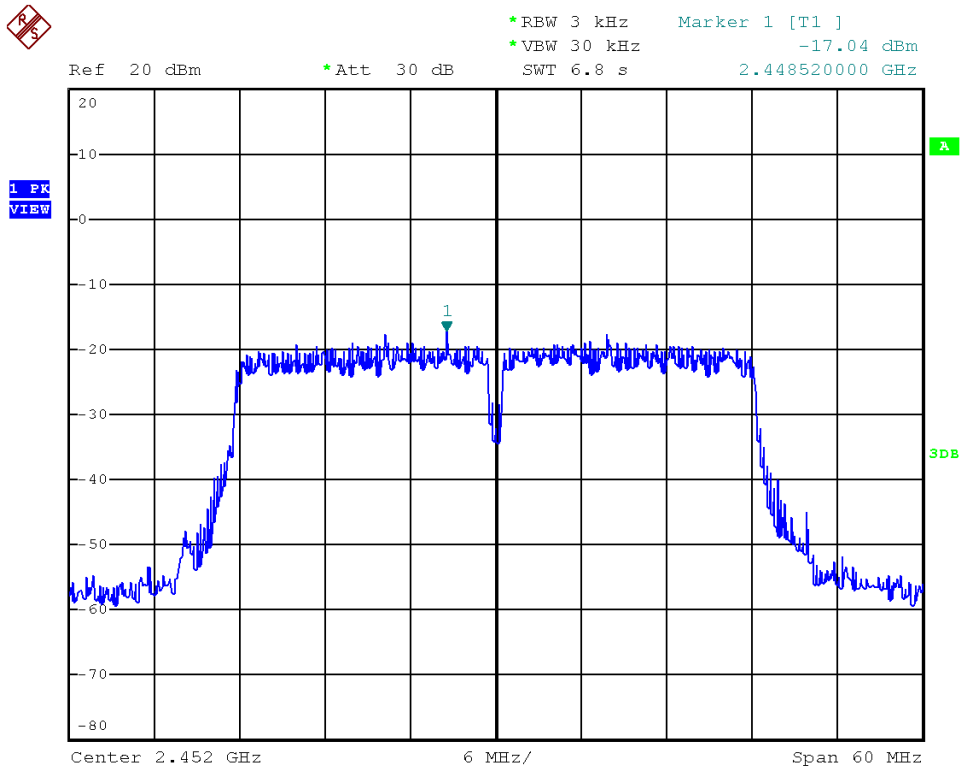




Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 06

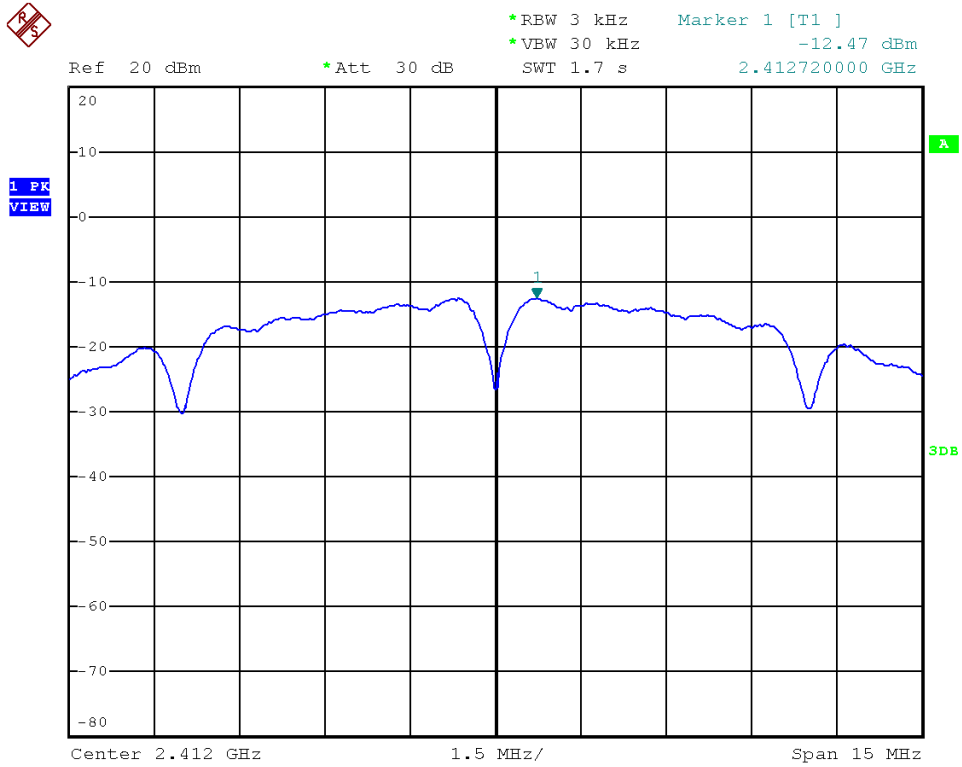


Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 09

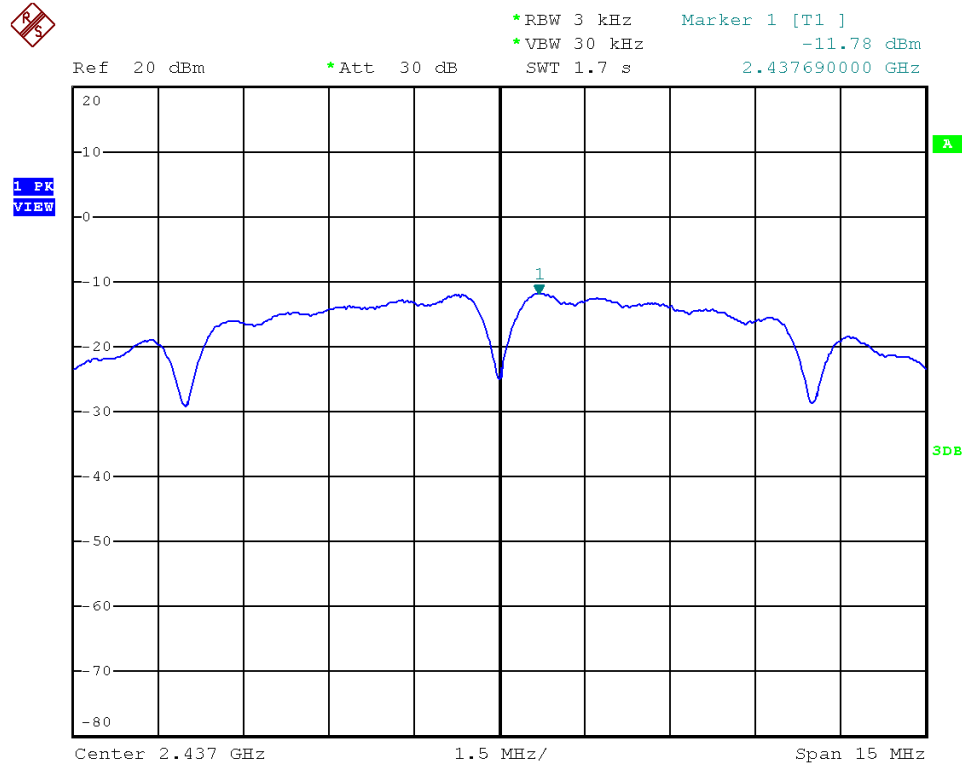




Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 01

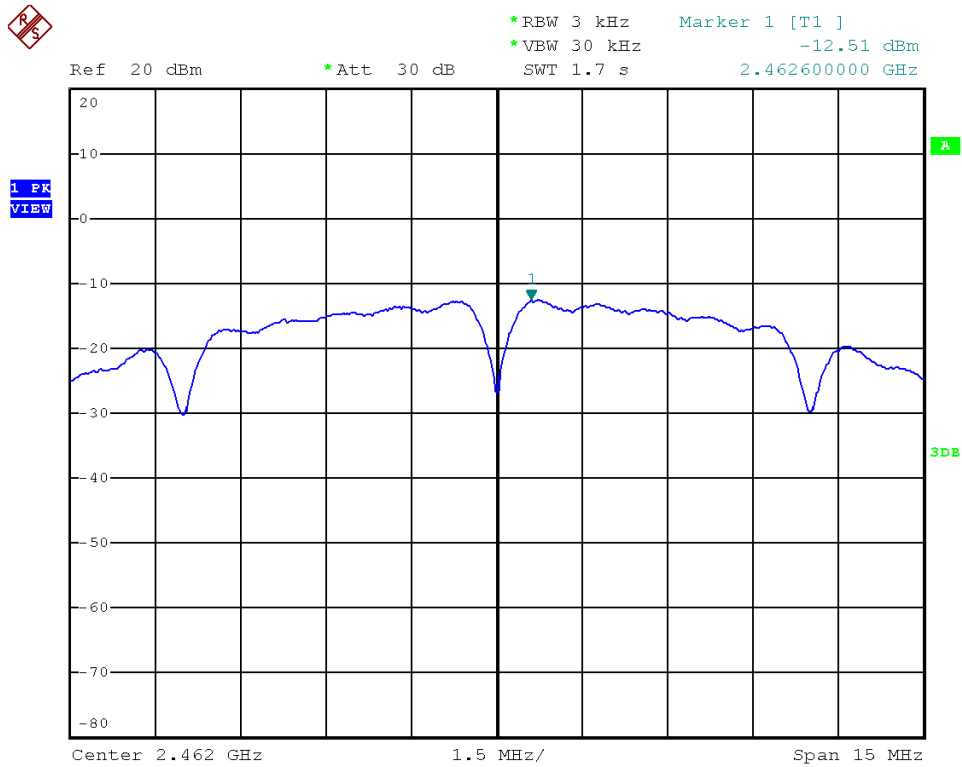


Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 06

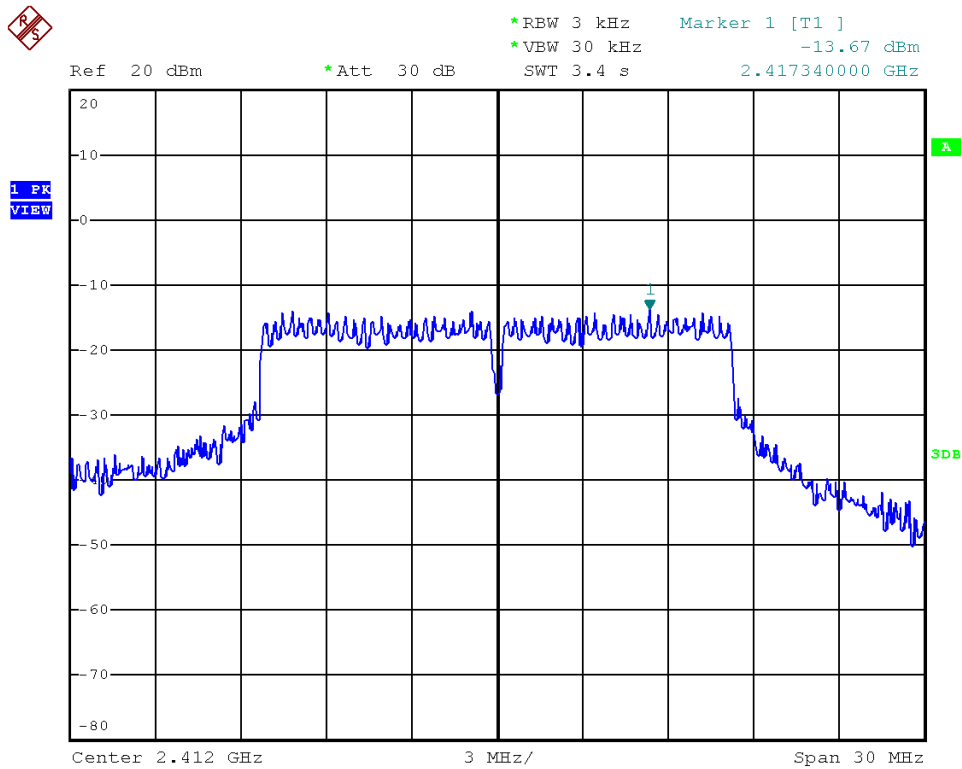




Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 11

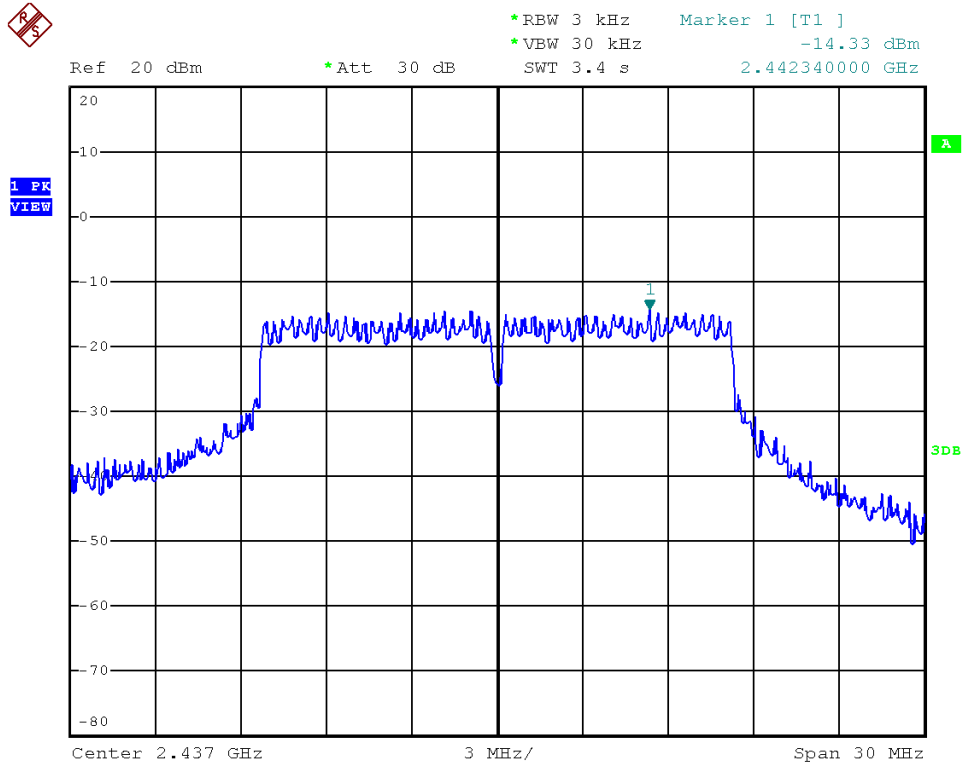


Modulation Standard: 802.11g (6Mbps), ANT B  
Channel: 01

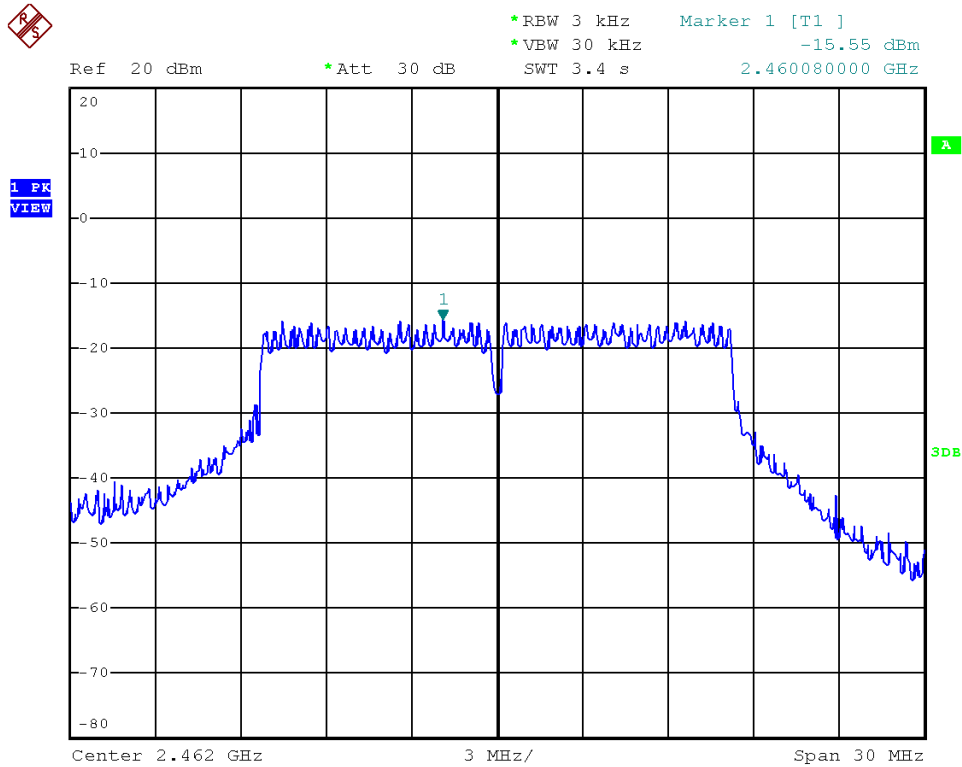




Modulation Standard: 802.11g (6Mbps), ANT B  
Channel: 06

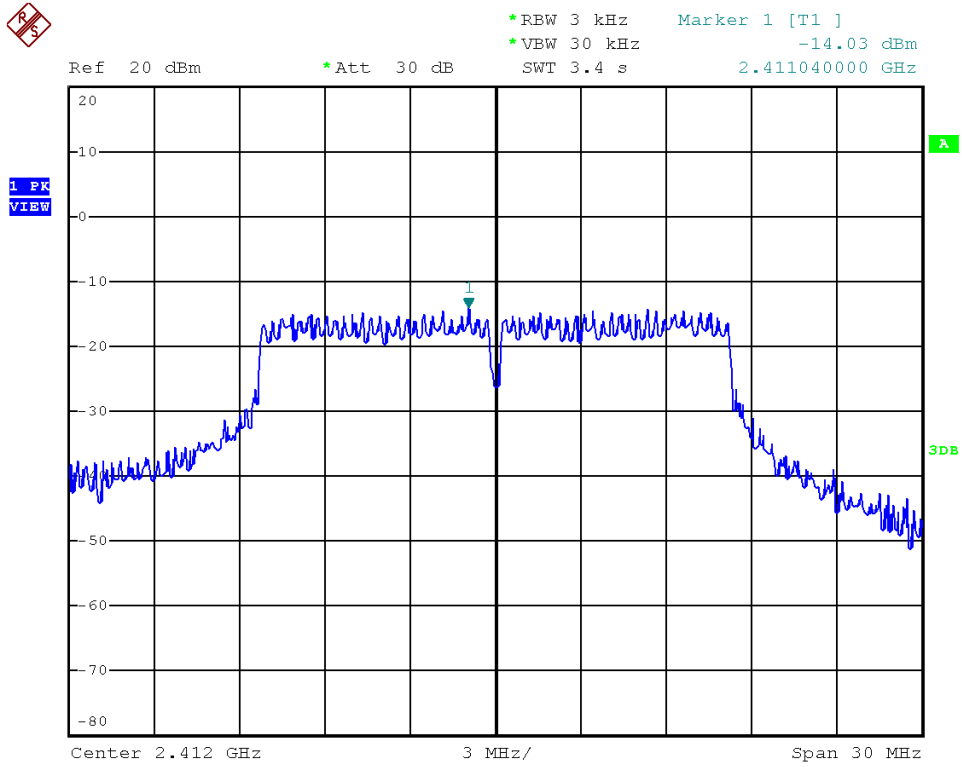


Modulation Standard: 802.11g (6Mbps), ANT B  
Channel: 11

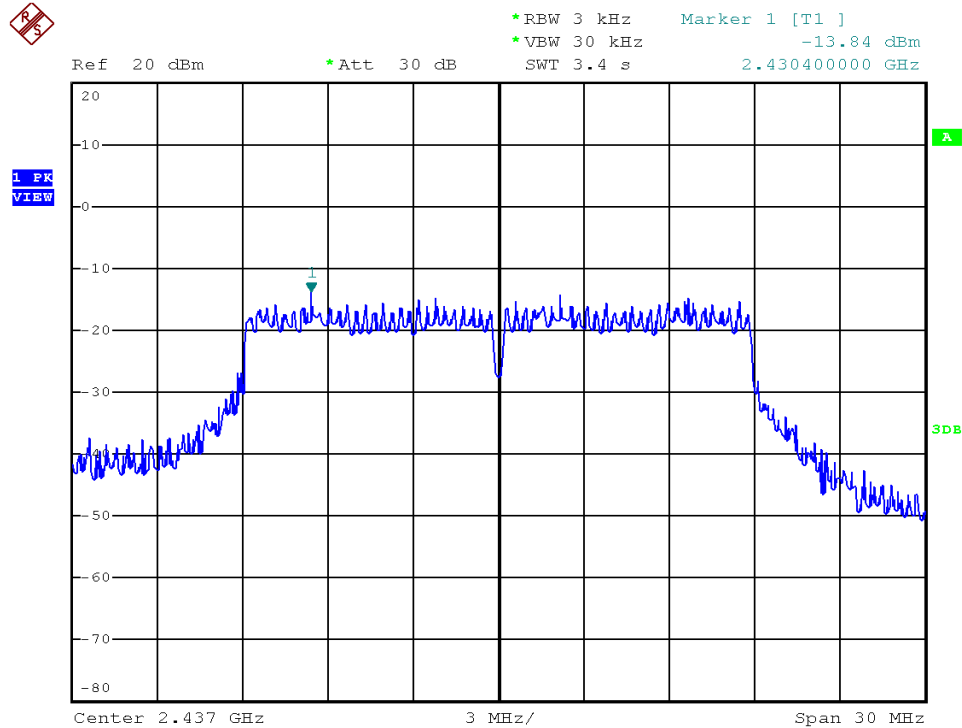




Modulation Standard: 802.11n HT20 (13Mbps), ANT B  
Channel: 01

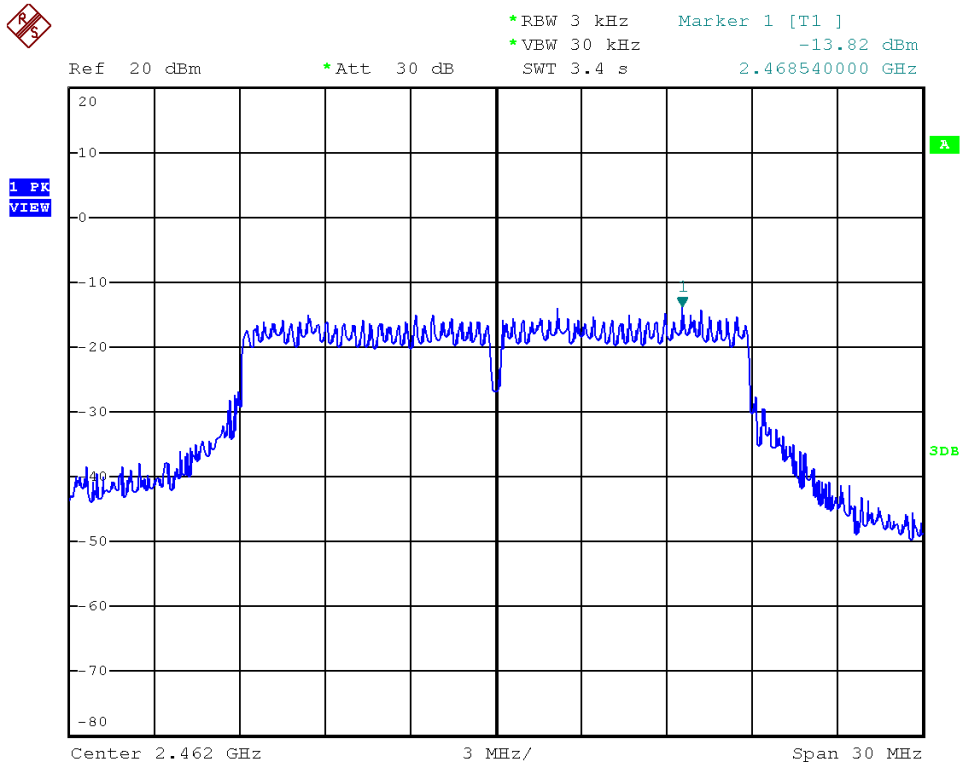


Modulation Standard: 802.11n HT20 (13Mbps), ANT B  
Channel: 06

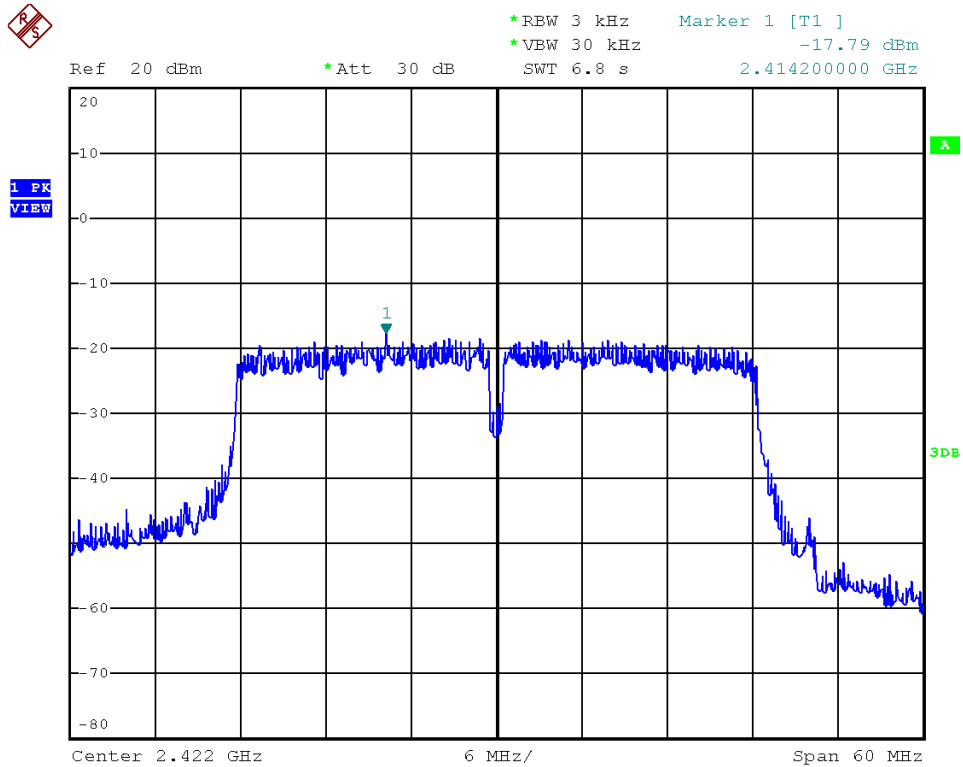




Modulation Standard: 802.11n HT20 (13Mbps), ANT B  
Channel: 11



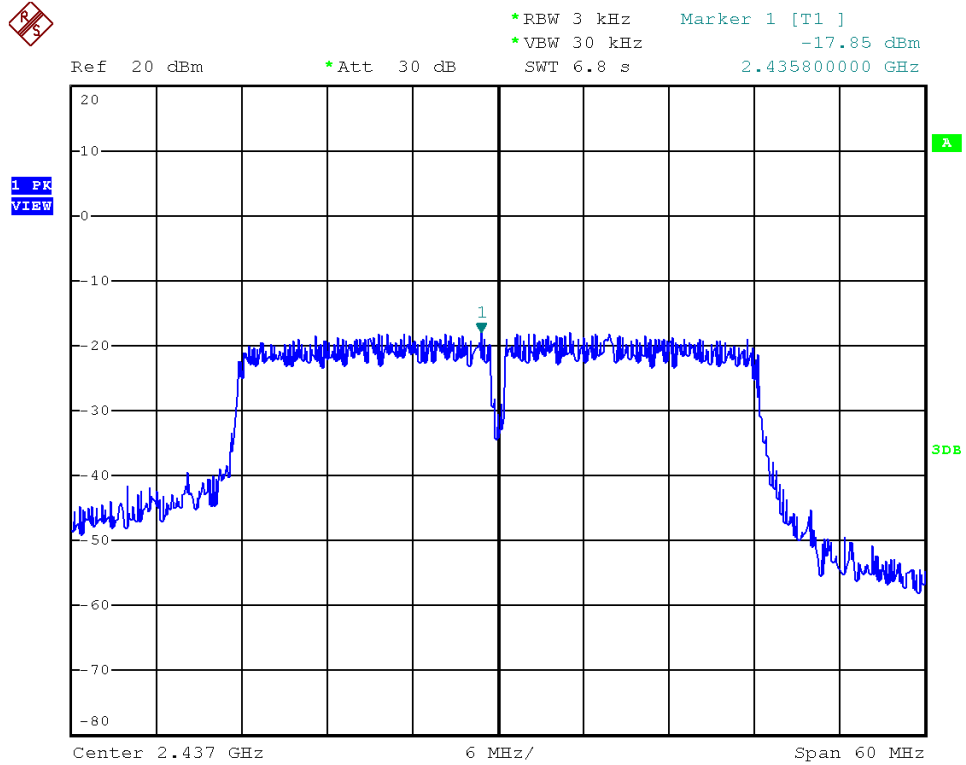
Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 03



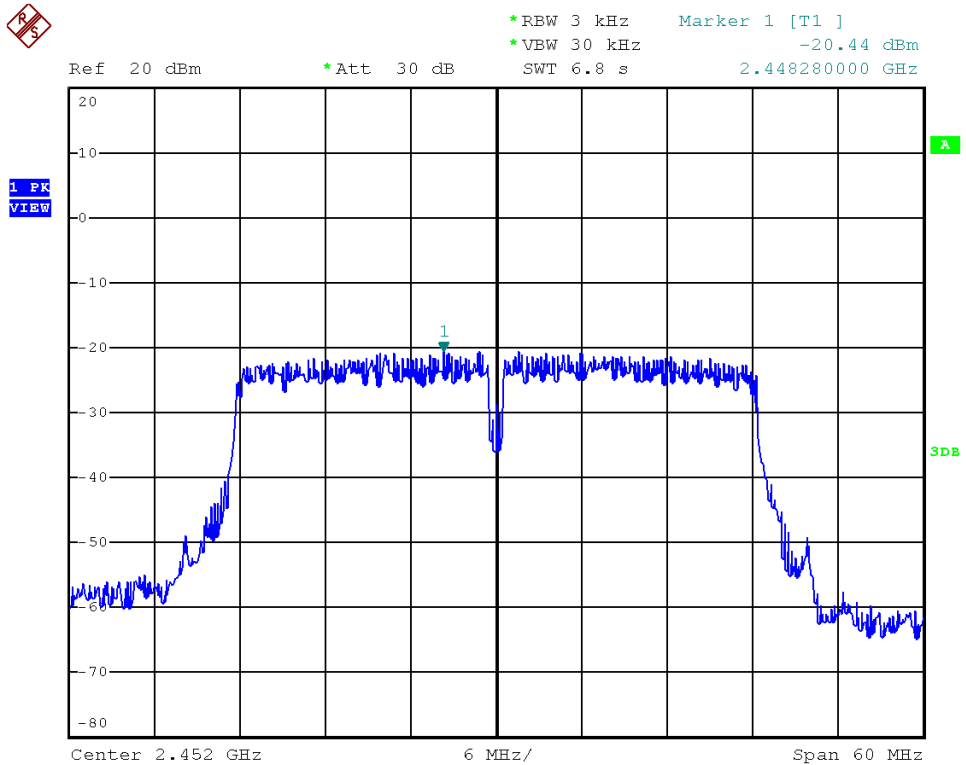




Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 06



Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 09





## 9. Band Edges Measurement

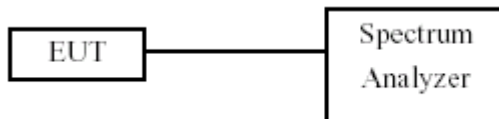
### 9.1 Test Limit

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

### 9.2 Test Procedure

- The transmitter output was connected to the spectrum analyzer via a low lose cable.
- 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.
- 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.
- The band edges was measured and recorded.

### 9.3 Test Setup Layout



### 9.4 Measurement Equipment

Instrument/Ancillary	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
Spectrum Analyzer	R&S	FSP40	100047	2014/03/27	2015/03/26

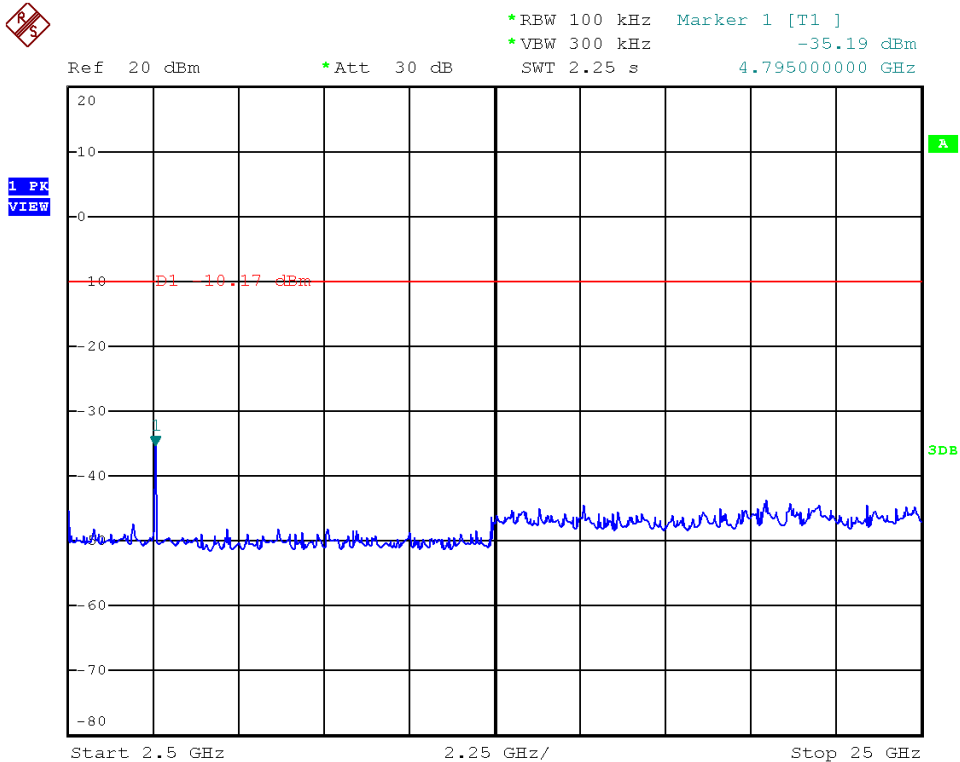
### 9.5 Test Result and Data

Test Date : Nov. 26, 2014      Temperature : 24°C  
 Atmospheric pressure : 1027 hPa      Humidity : 52%

Modulation Type	Channel	Frequency (MHz)	Maximum value in frequency (MHz)		Test Result (dB)	
			ANT A	ANT B	ANT A	ANT B
IEEE 802.11b (1Mbps)	01	2412	2397.6	23875.0	-22.46	-55.94
	11	2462	2475.9	2509.1	-38.37	-48.03
IEEE 802.11g (6Mbps)	01	2412	2399.2	2399.2	-22.26	-22.71
	11	2462	2484.5	2489.1	-31.97	-30.30
IEEE 802.11n HT20 (13Mbps)	01	2412	2420.0	2398.6	-24.82	-21.06
	11	2462	2489.1	2485.5	-32.63	-39.54
IEEE 802.11n HT40 (27Mbps)	03	2422	2397.0	2398.8	-35.97	-30.89
	09	2452	2486.3	2453.3	-42.21	-47.34

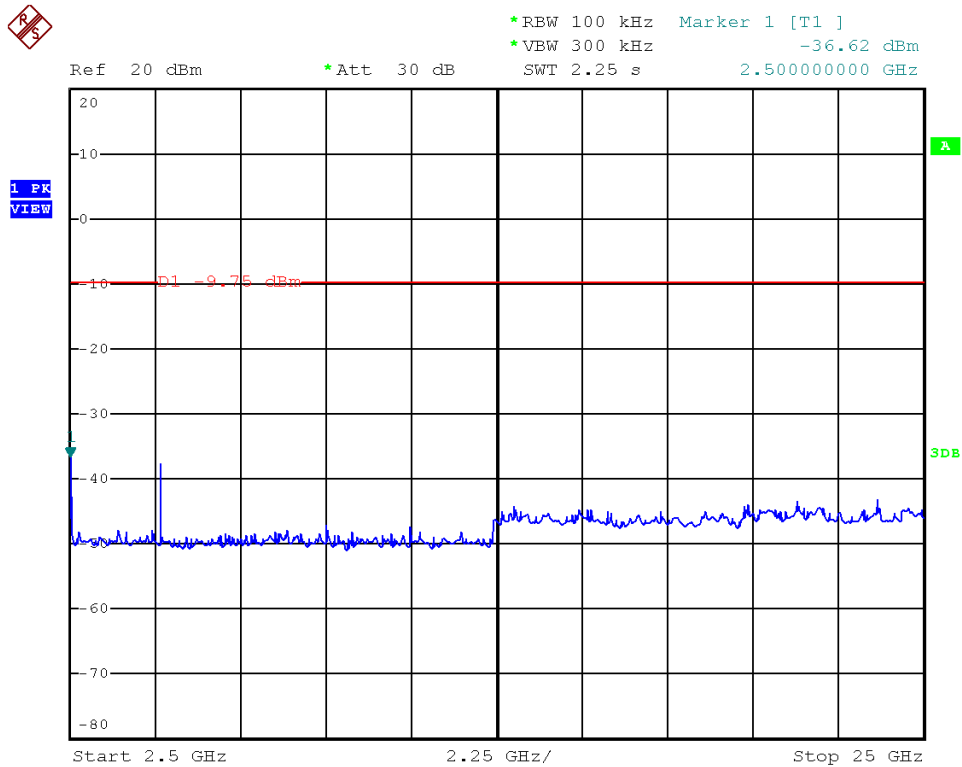
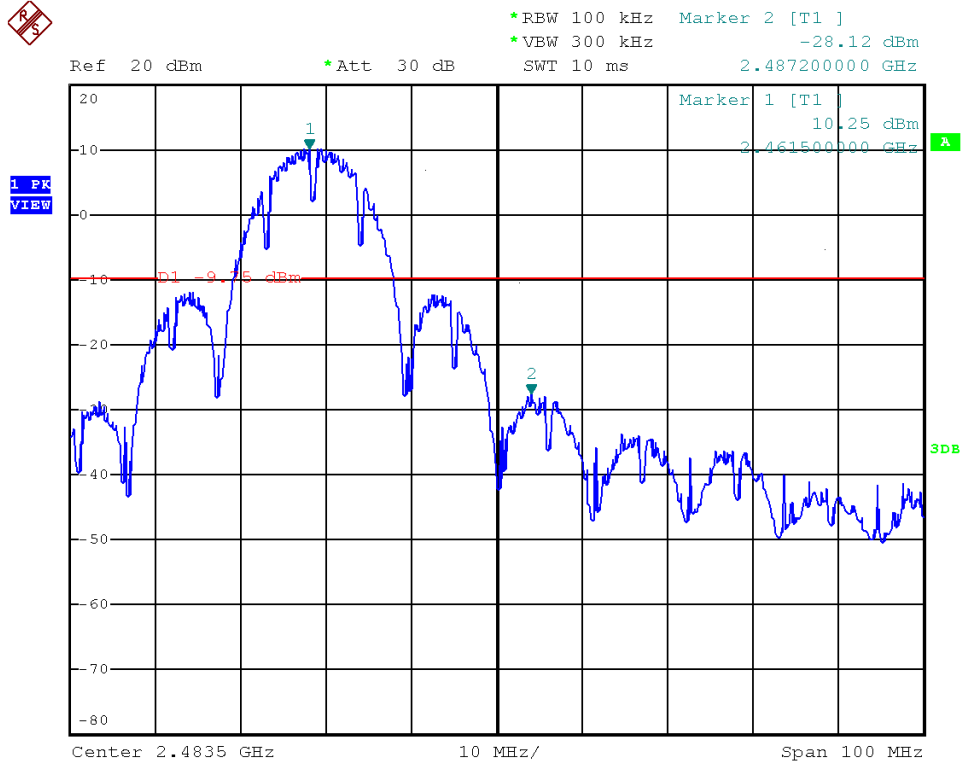


Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 01



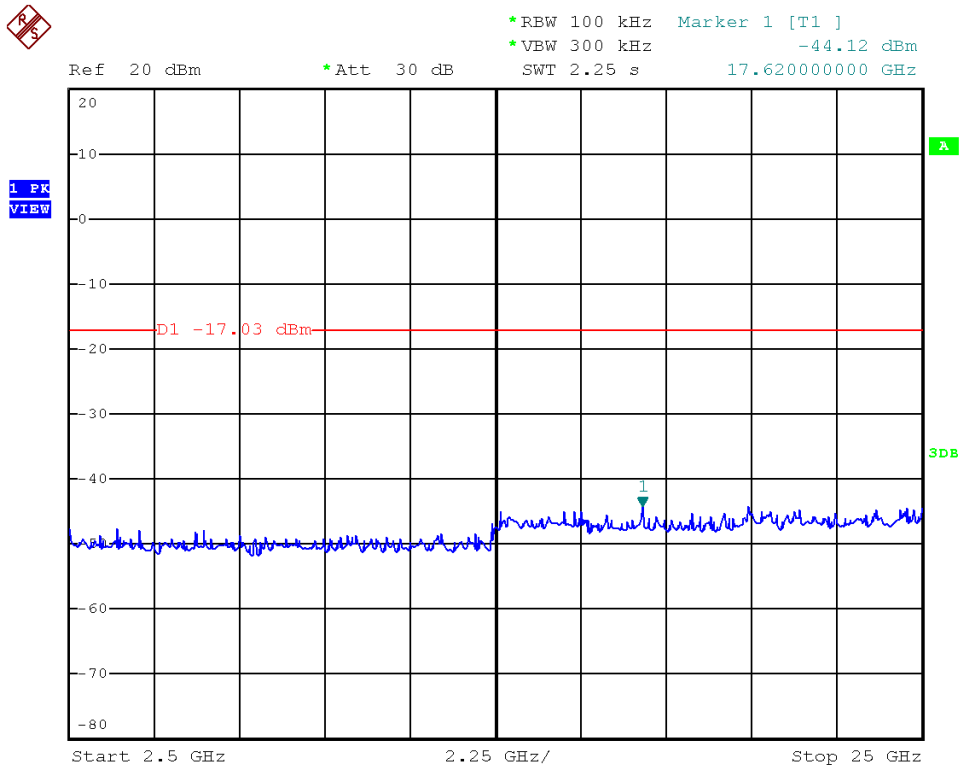
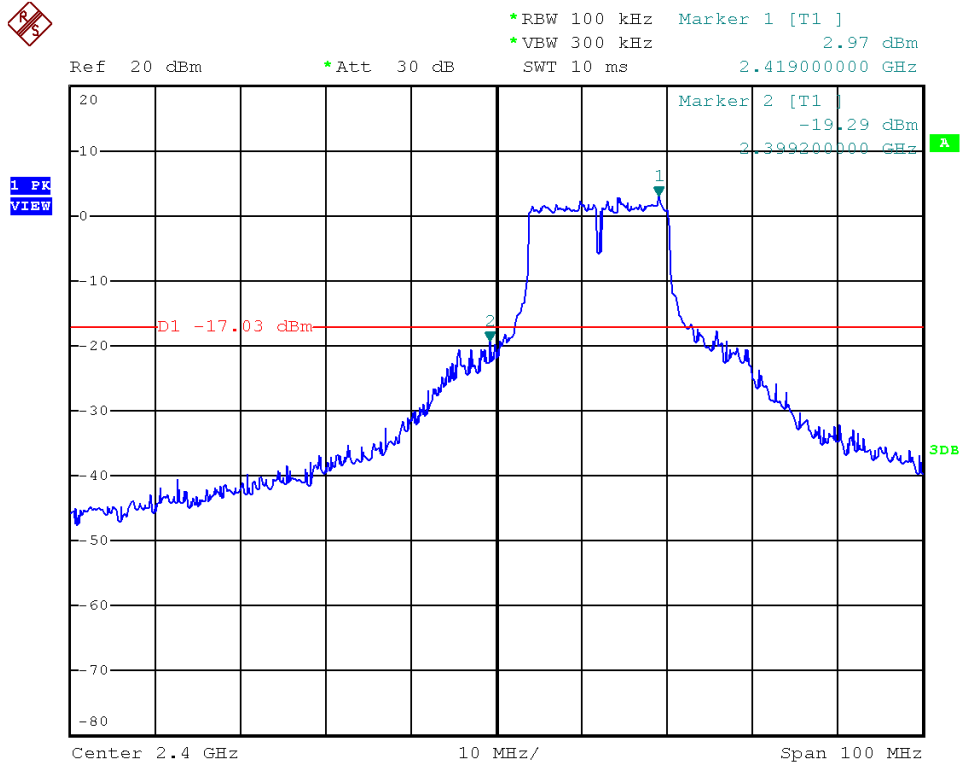


Modulation Standard: 802.11b (1Mbps), ANT A  
Channel: 11



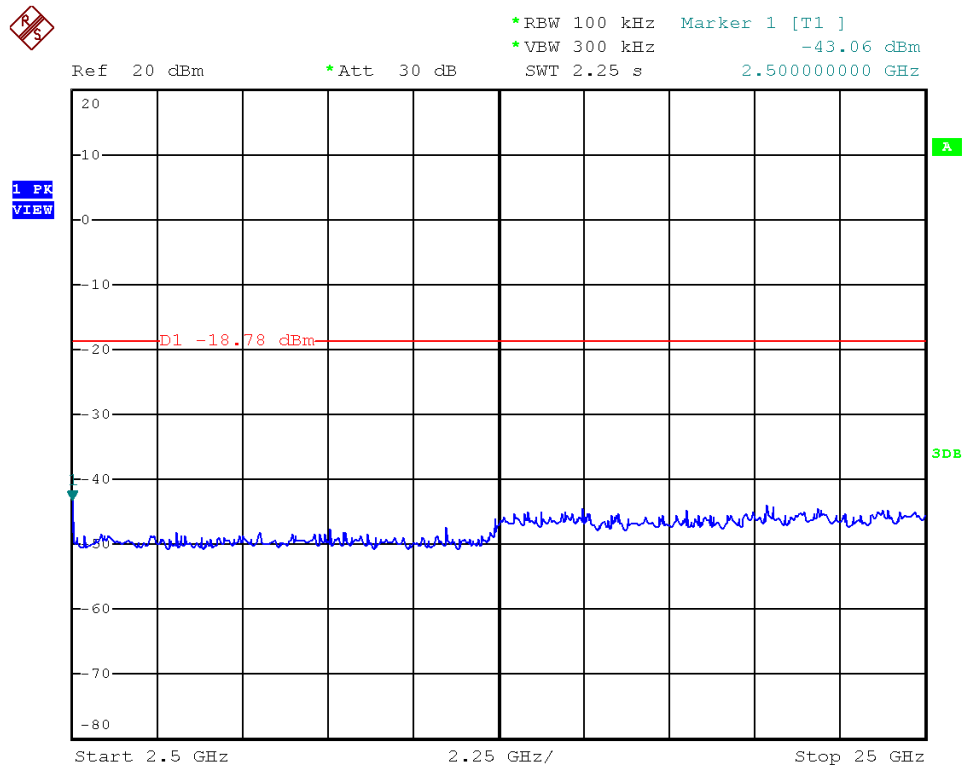
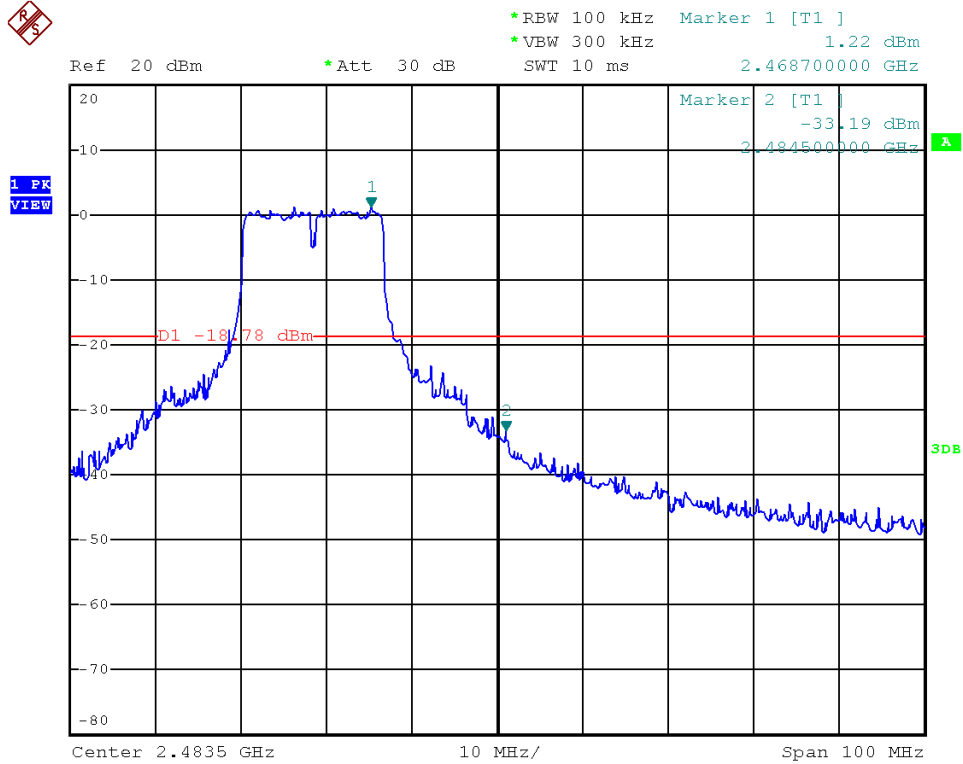


Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 01



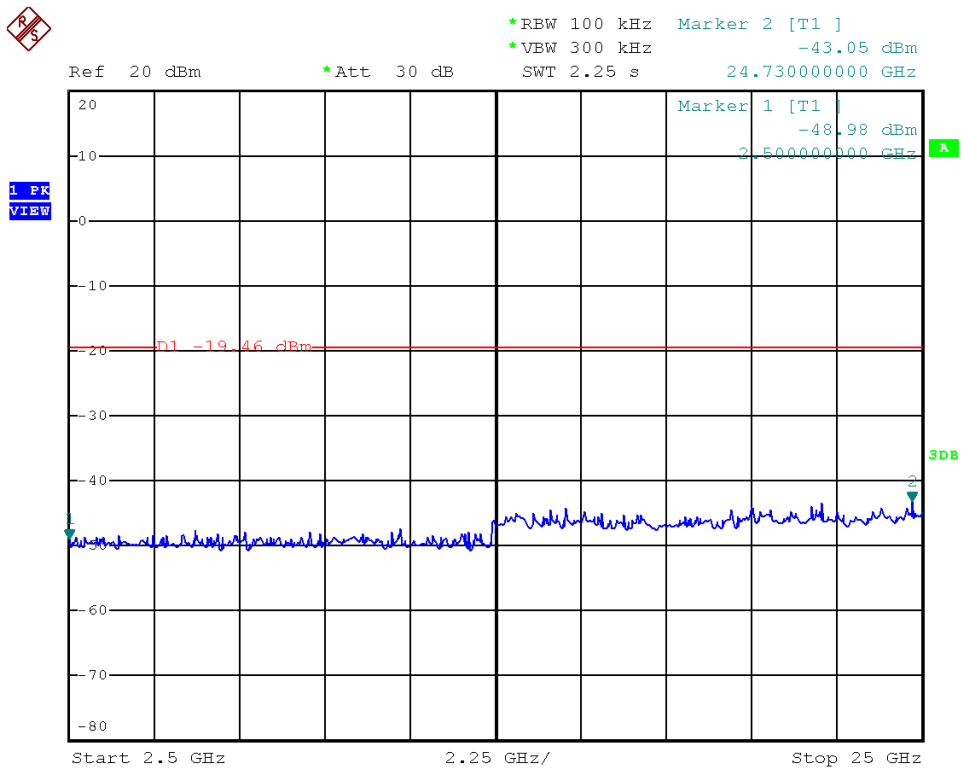
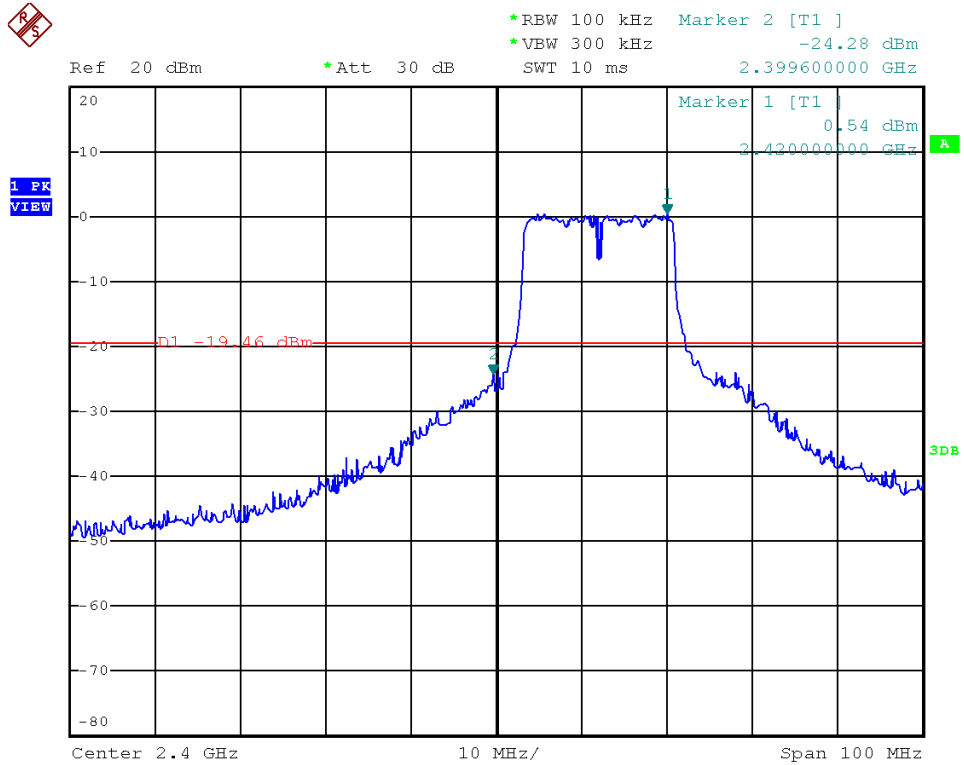


Modulation Standard: 802.11g (6Mbps), ANT A  
Channel: 11



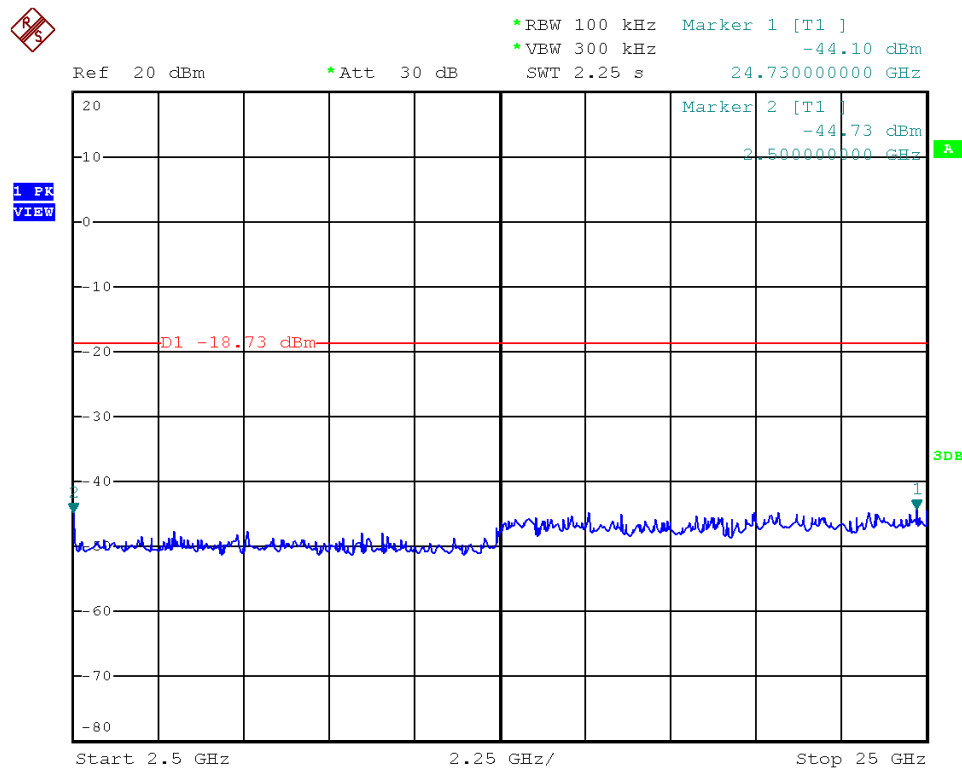
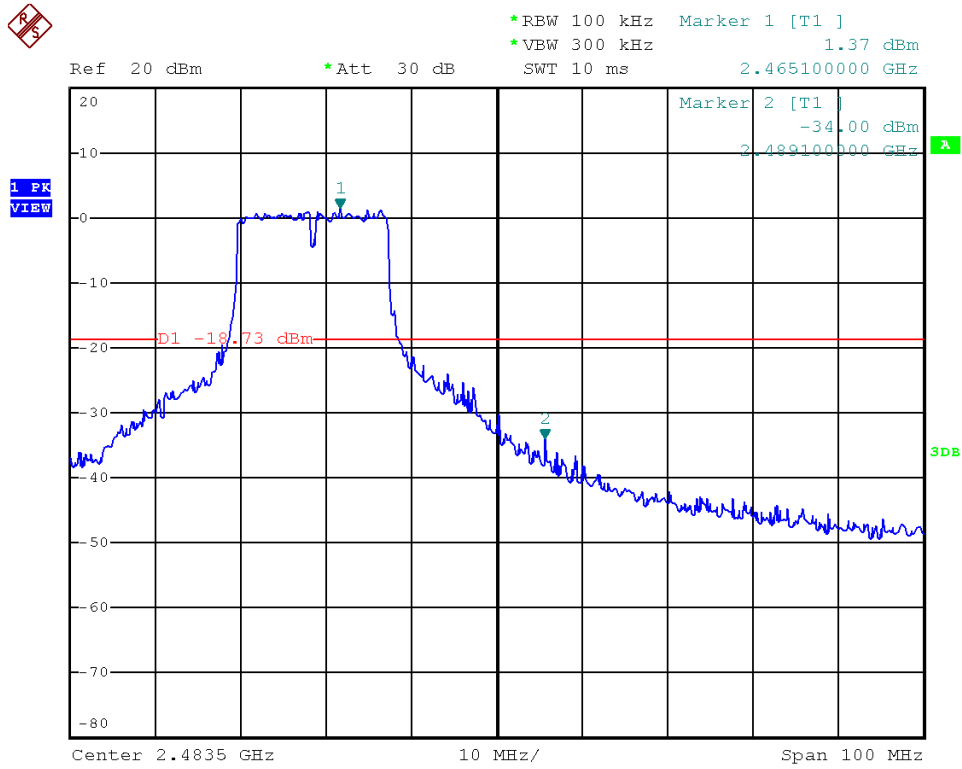


Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 01





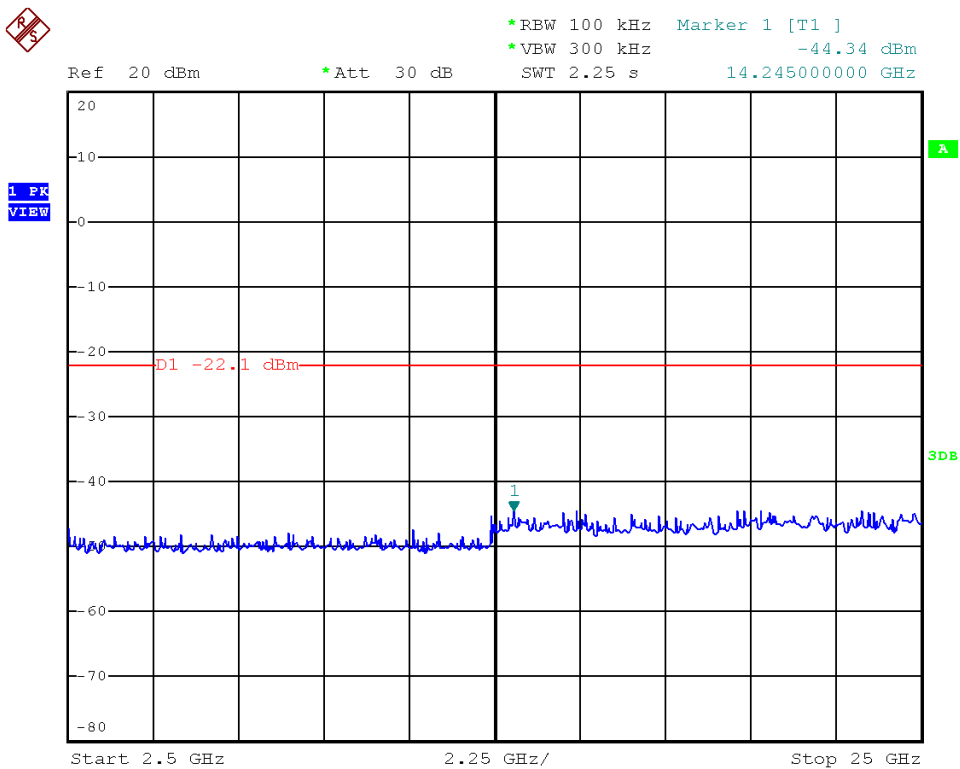
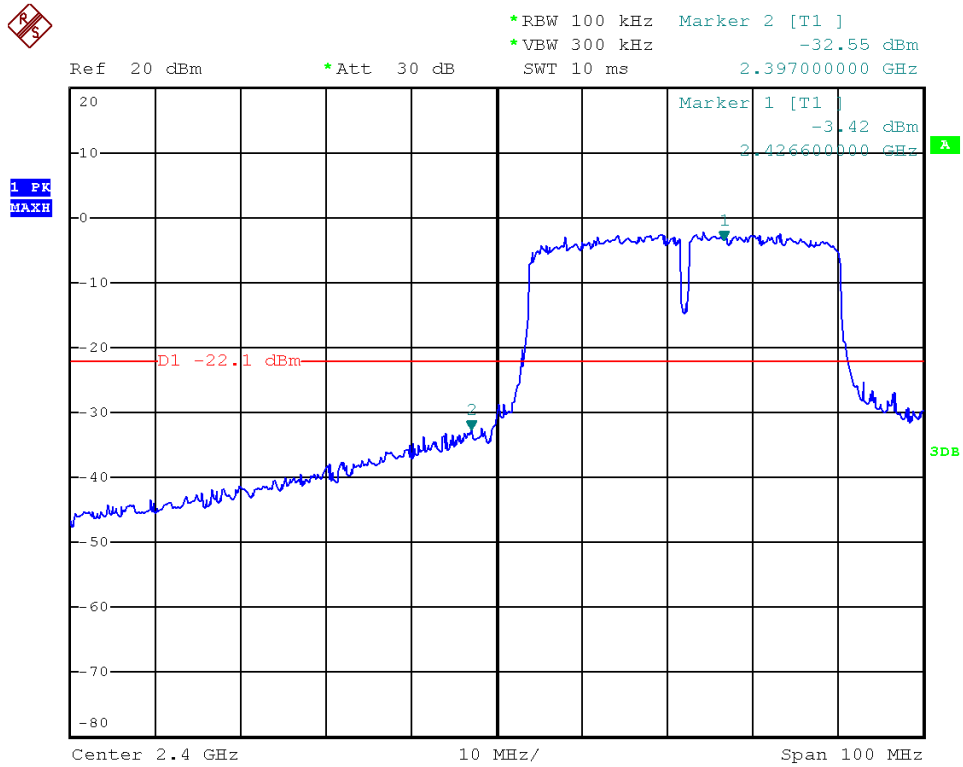
Modulation Standard: 802.11n HT20 (13Mbps), ANT A  
Channel: 11





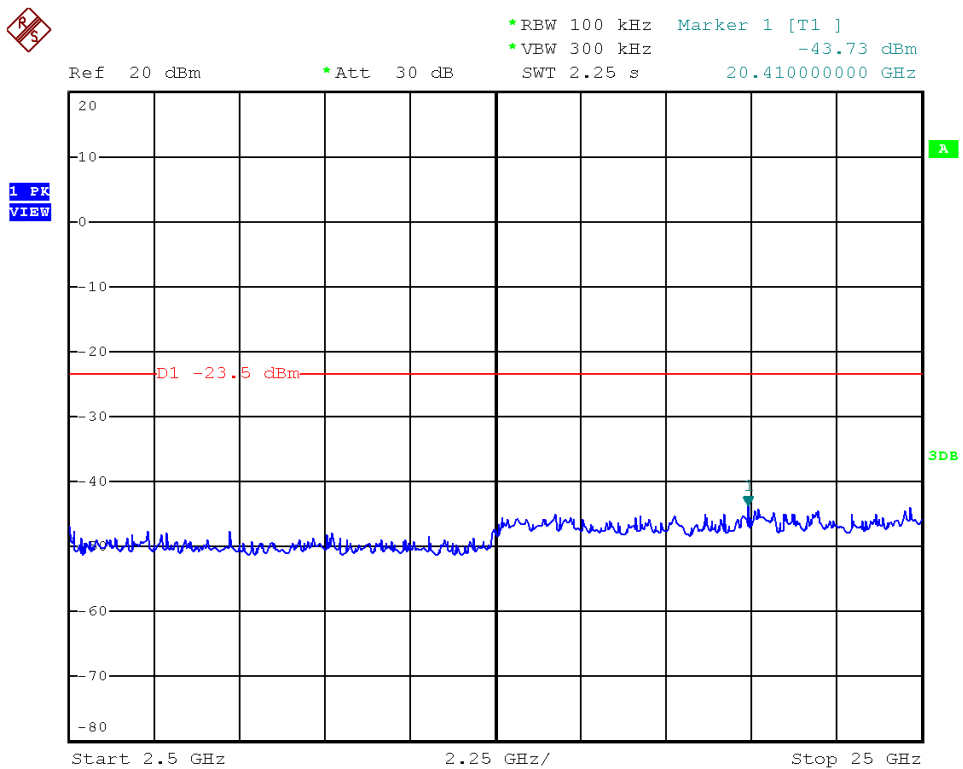
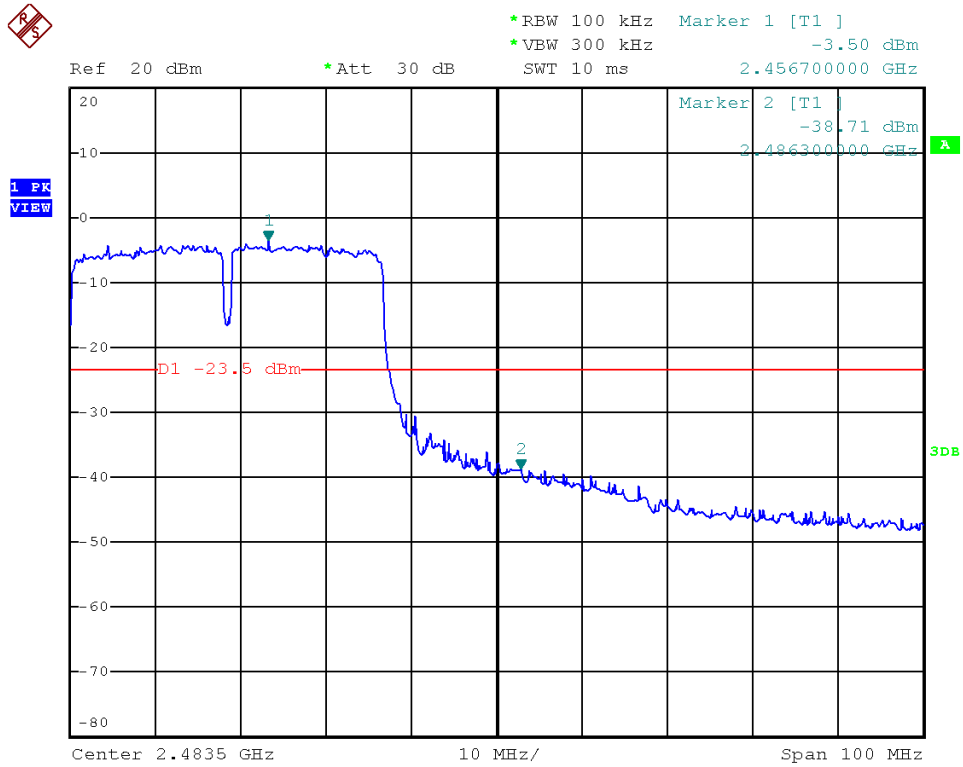


Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 03



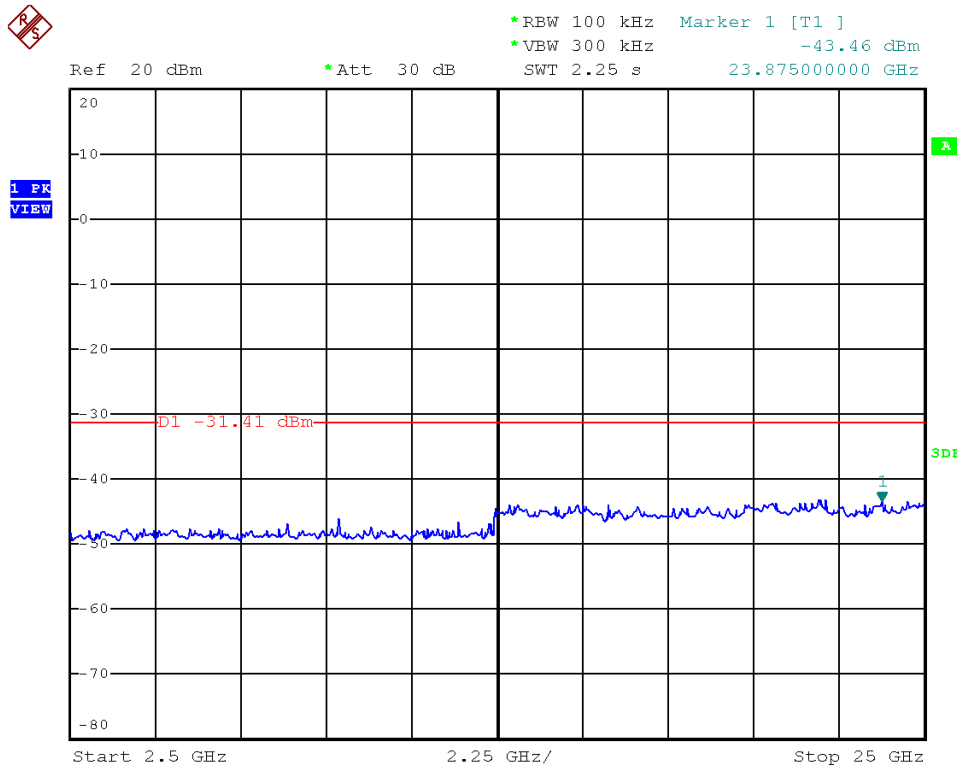
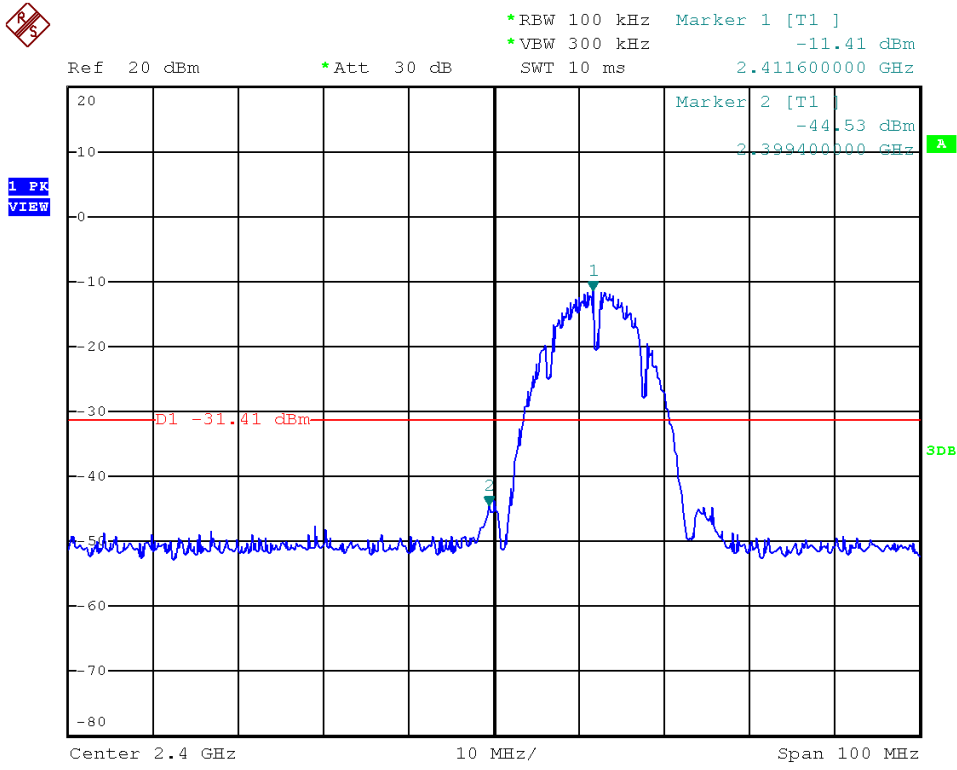


Modulation Standard: 802.11n HT40 (27Mbps), ANT A  
Channel: 09



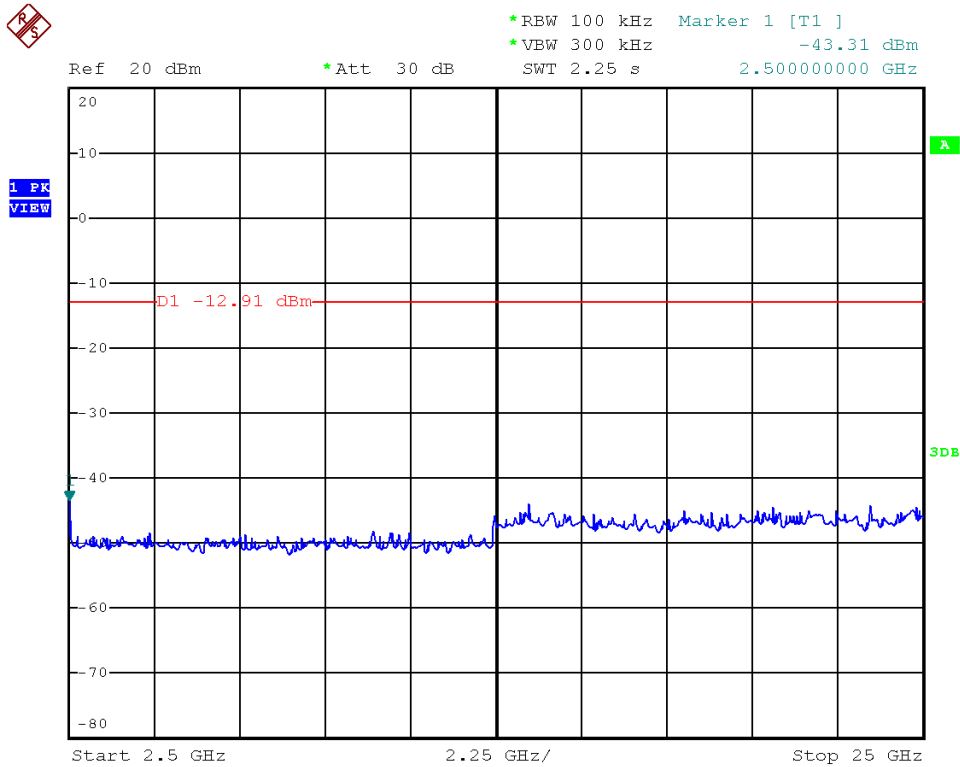
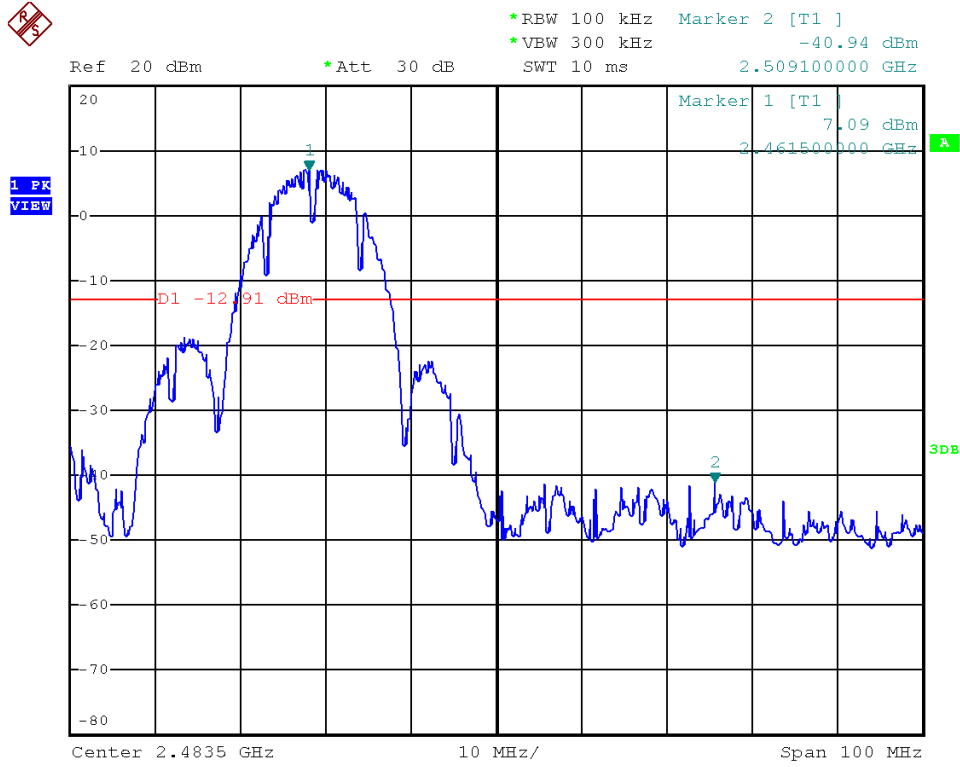


Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 01



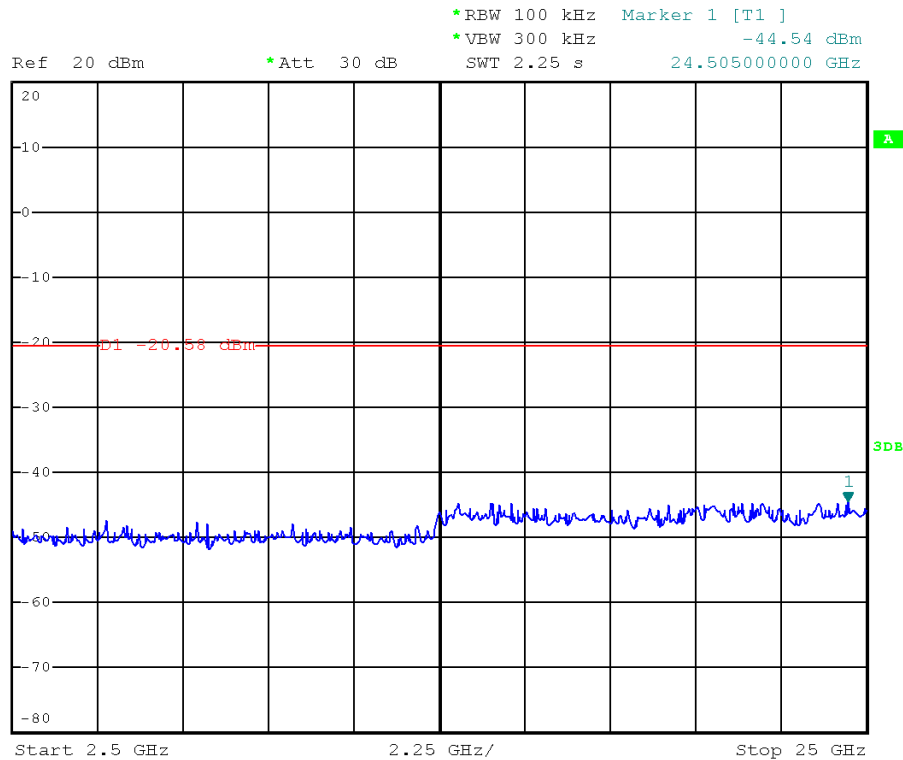
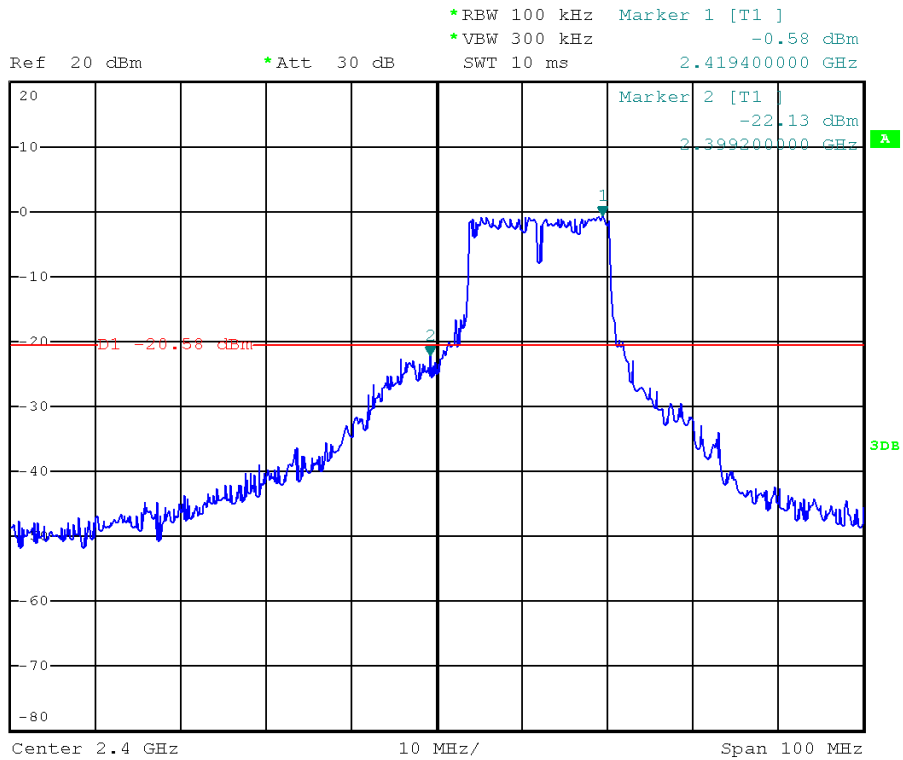


Modulation Standard: 802.11b (1Mbps), ANT B  
Channel: 11



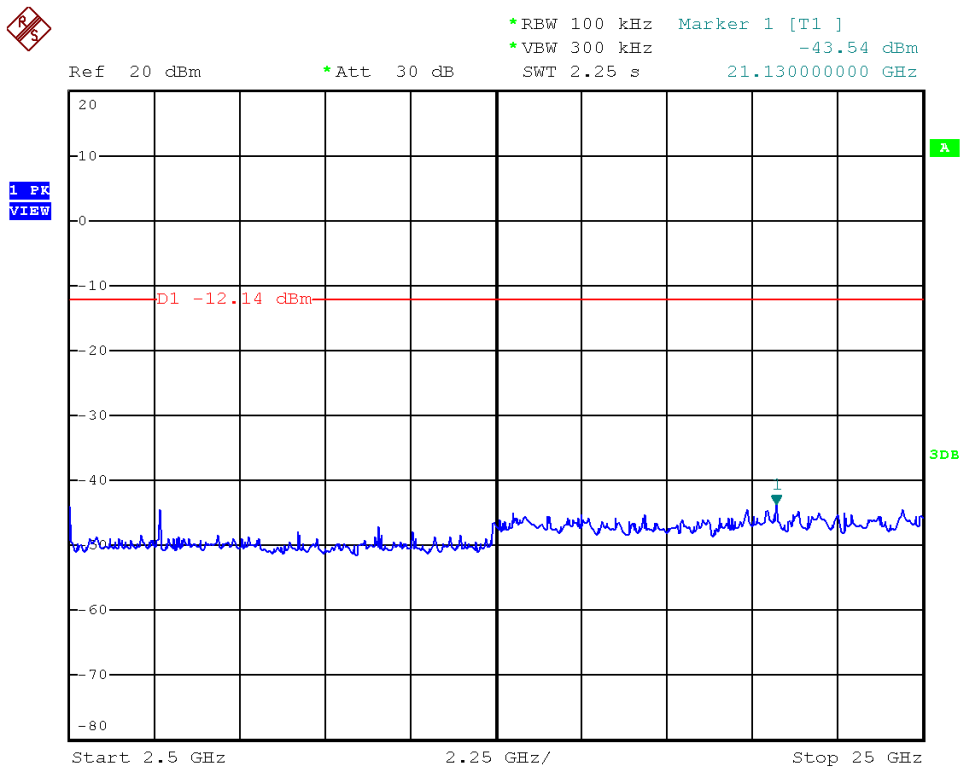
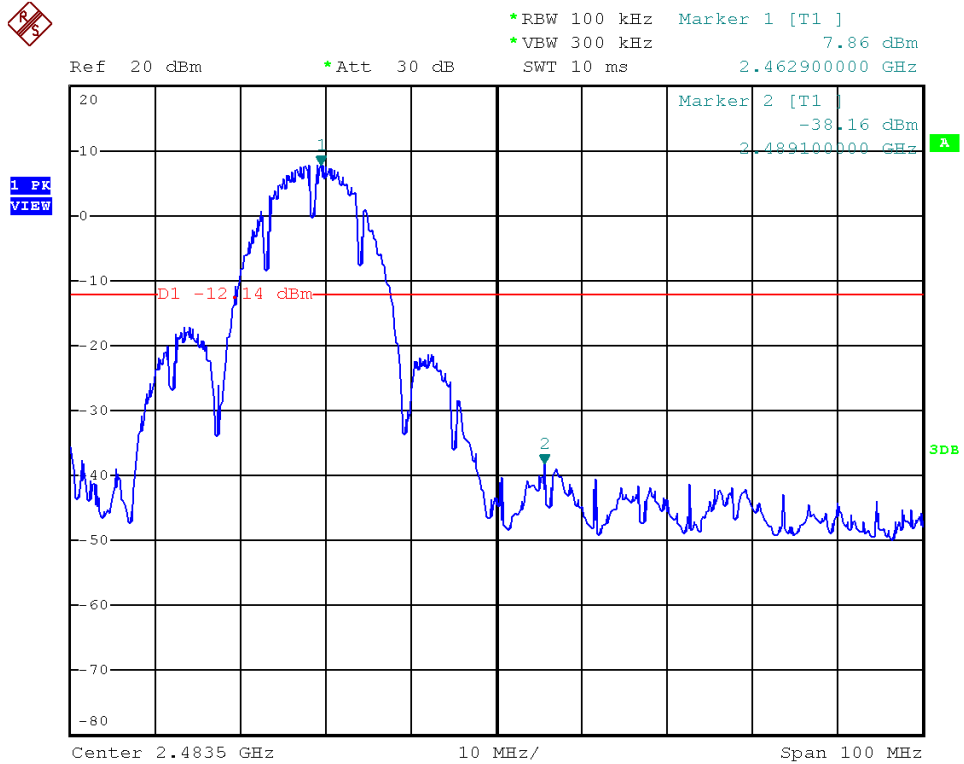


Modulation Standard: 802.11g (6Mbps), ANT B  
Channel: 01





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



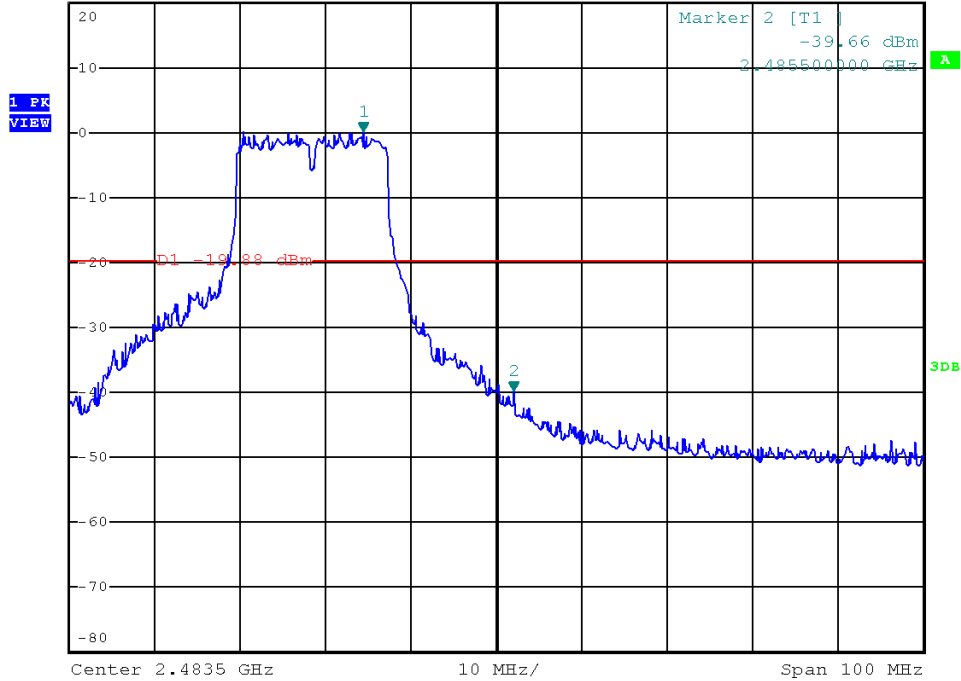




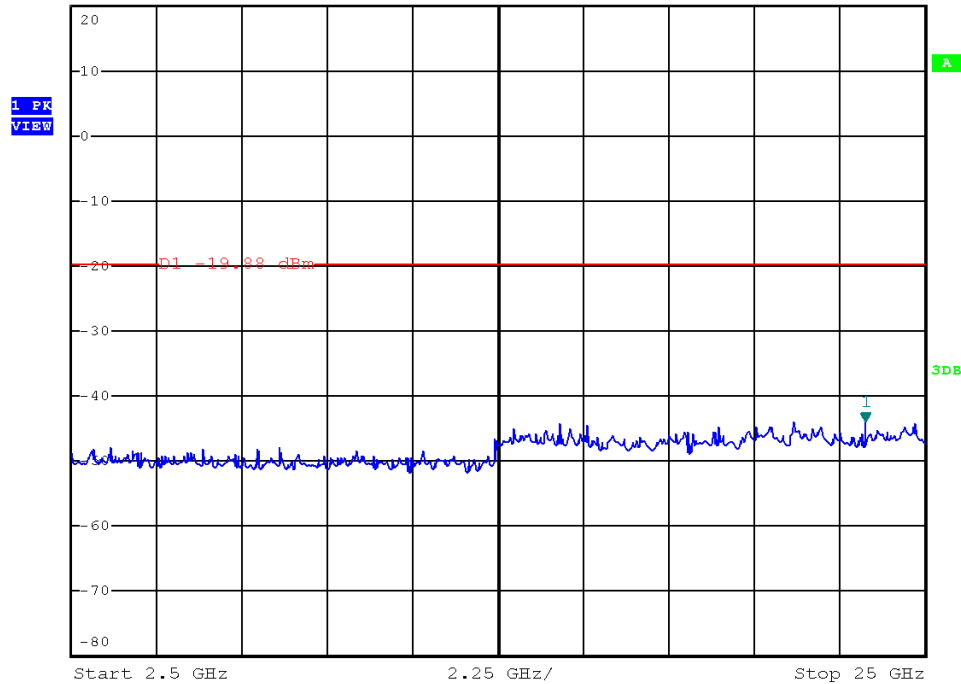
Modulation Standard: 802.11n HT20 (13Mbps), ANT B  
Channel: 11



Ref 20 dBm \*Att 30 dB \*RBW 100 kHz Marker 1 [T1] 0.12 dBm  
\*VBW 300 kHz 2.467900000 GHz  
SWT 10 ms



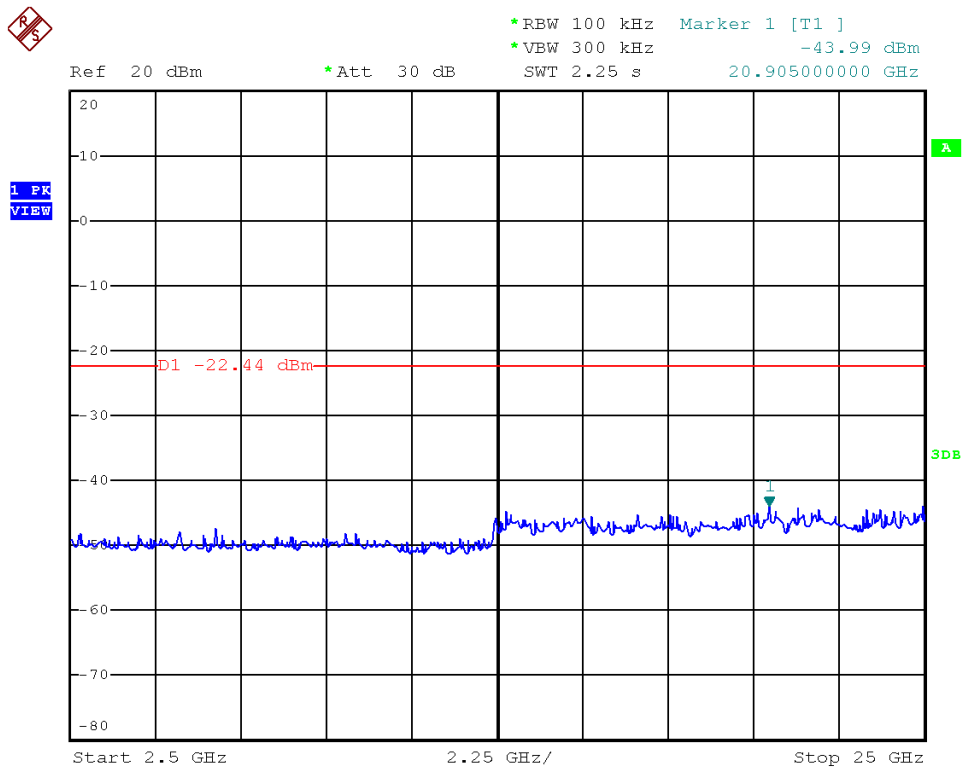
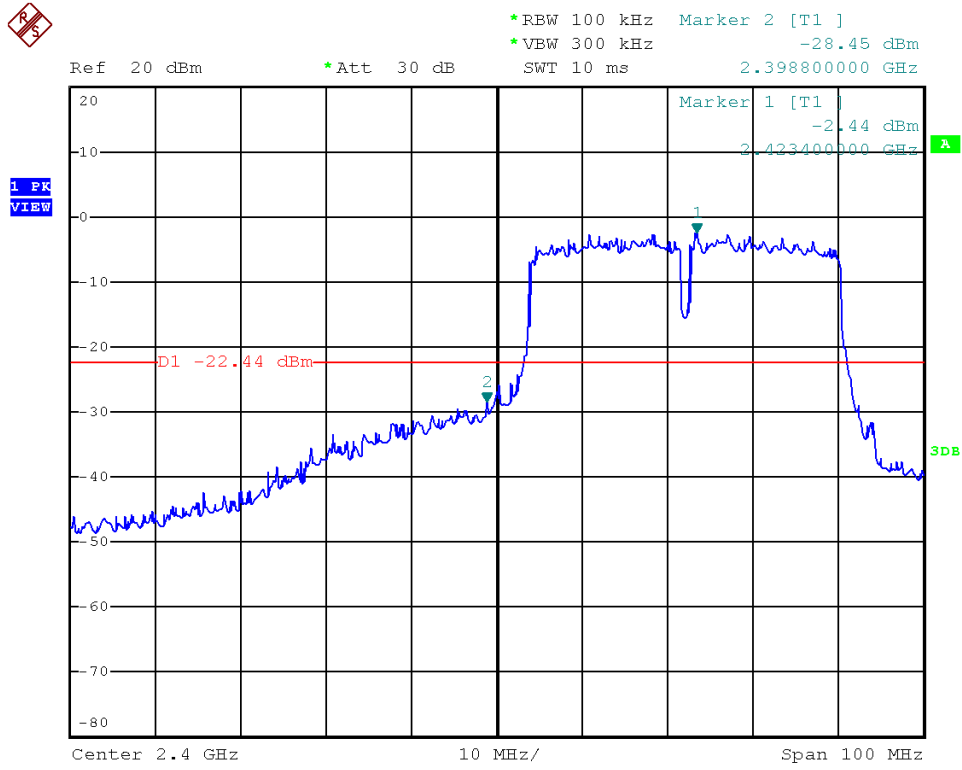
Ref 20 dBm \*Att 30 dB \*RBW 100 kHz Marker 1 [T1] -43.88 dBm  
\*VBW 300 kHz 23.425000000 GHz  
SWT 2.25 s





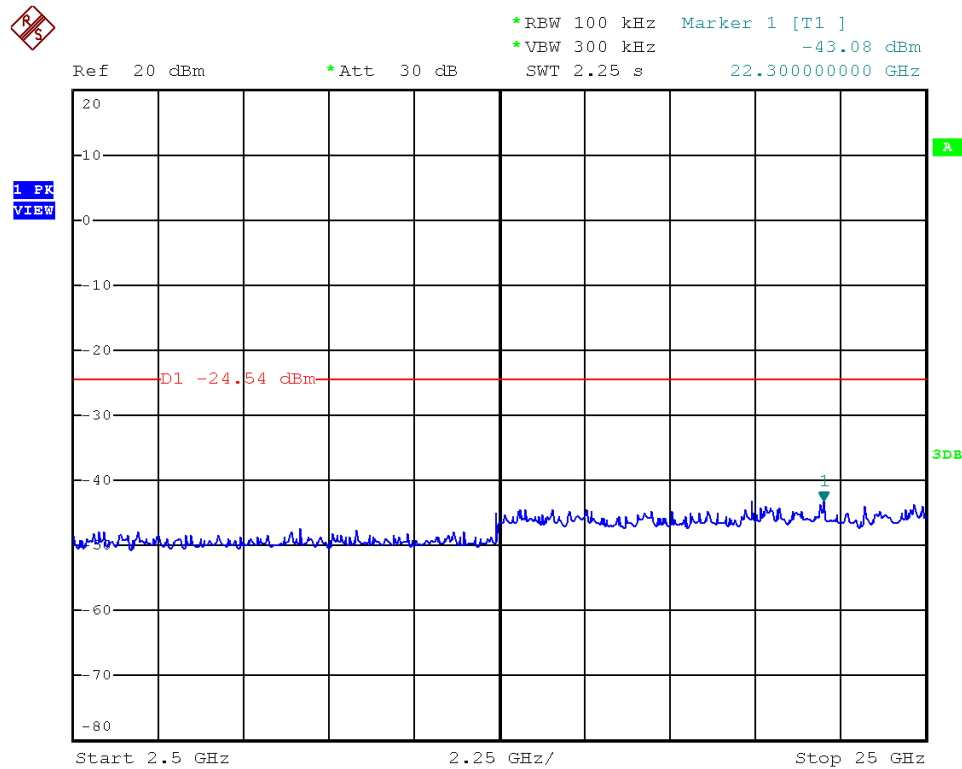
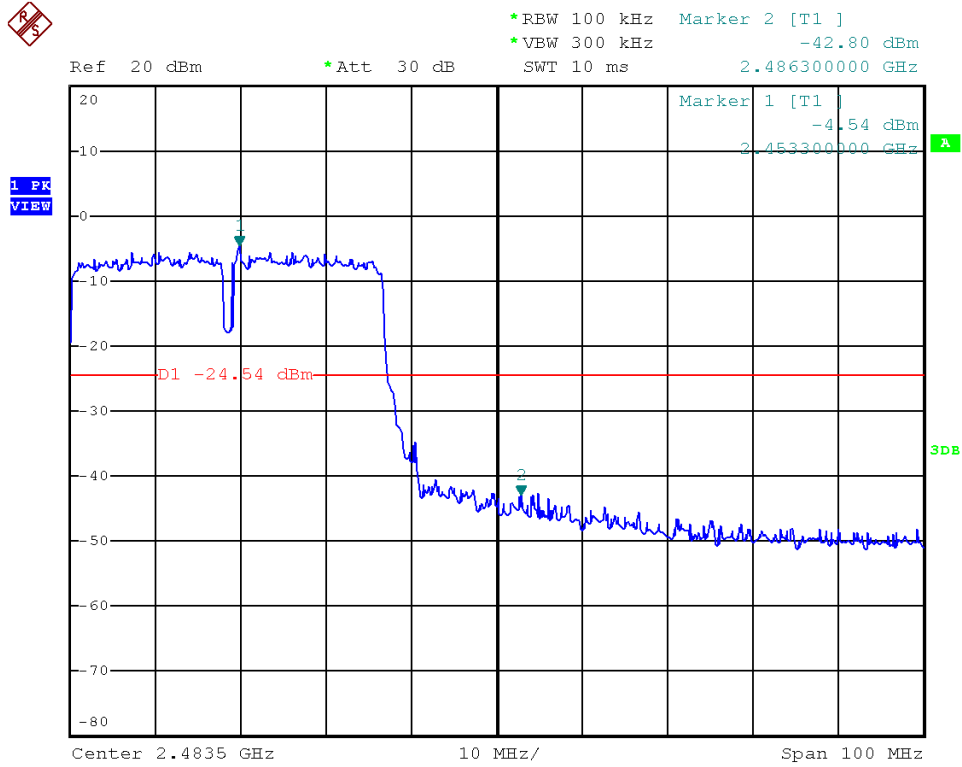


Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 03





Modulation Standard: 802.11n HT40 (27Mbps), ANT B  
Channel: 09



**9.6 Restrict Band Emission Measurement Data**

Test Date: Nov. 22, 2014

Temperature: 24 °C

Atmospheric pressure: 1027 hPa

Humidity: 52 %

ANT A

Modulation Standard: IEEE 802.11b (1Mbps)

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			
2375.484	V	60.01	-1.24	58.77	Peak	74	54	-15.23	232	1.0
2375.484	V	53.22	-12.4	51.98	Ave	74	54	-2.02	232	1.0
2382.930	H	58.44	-1.21	58.44	Peak	74	54	-16.77	232	1.0
2382.930	H	43.94	-1.21	43.93	Ave	74	54	-11.28	232	1.0
Channel 11						Fundamental Frequency: 2462 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			
2489.474	V	62.64	-0.80	61.84	Peak	74	54	-12.16	233	1.02
2489.474	V	51.01	-0.80	50.21	Ave	74	54	-3.79	233	1.02
2489.702	H	62.93	-0.79	62.14	Peak	74	54	-11.86	235	1.02
2489.702	H	42.13	-0.79	41.34	Ave	74	54	-12.6	235	1

Modulation Standard: IEEE 802.11g (6Mbps)

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			
2389.560	V	70.72	-1.19	69.53	Peak	74	54	-4.47	235	1.0
2389.560	V	51.95	-1.19	50.76	Ave	74	54	-3.24	235	1.0
2389.254	H	70.94	-1.19	59.75	Peak	74	54	-4.25	232	1.0
2389.254	H	45.01	-1.19	43.82	Ave	74	54	-10.18	232	1.0
Channel 11						Fundamental Frequency: 2462 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			
2485.484	V	74.15	-0.81	73.34	Peak	74	54	-0.66	232	1.0
2485.484	V	52.51	-0.81	52.51	Ave	74	54	-1.49	232	1.0
2483.508	H	73.86	-0.82	73.04	Peak	74	54	-0.96	232	1.01
2483.508	H	46.94	-0.82	46.12	Ave	74	54	-7.88	232	1.01



ANT B

Modulation Standard: IEEE 802.11b (1Mbps)

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			
2382.28	V	62.90	-1.21	61.69	Peak	74	54	-12.31	232	1.0
2382.28	V	52.20	-1.21	50.99	Ave	74	54	-3.01	232	1.0
2386.398	H	61.47	-1.19	60.28	Peak	74	54	-13.72	232	1.0
2386.398	H	48.66	-1.19	47.47	Ave	74	54	-6.53	232	1.0
Channel 11						Fundamental Frequency: 2462 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			
2491.374	V	60.91	-0.79	60.12	Peak	74	54	-13.882	233	1.02
2489.474	V	46.69	-0.79	45.90	Ave	74	54	-8.10	233	1.02
2490.880	H	58.94	-0.79	58.15	Peak	74	54	-15.85	234	1.0
2490.880	H	42.18	-0.79	41.39	Ave	74	54	-12.61	234	1.0

Modulation Standard: IEEE 802.11g (6Mbps)

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			
2388.540	V	68.13	-1.19	66.94	Peak	74	54	-7.06	232	1.05
2388.540	V	49.90	-1.19	48.71	Ave	74	54	-5.29	232	1.05
2380.686	H	62.60	-1.22	61.38	Peak	74	54	-12.62	230	1.04
2380.686	H	44.77	-1.22	43.55	Ave	74	54	-10.45	230	1.04
Channel 11						Fundamental Frequency: 2462 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			
2484.572	V	64.45	-0.82	63.63	Peak	74	54	-10.37	236	1.03
2484.572	V	45.31	-0.82	44.49	Ave	74	54	-9.51	236	1.03
2484.458	H	60.37	-0.82	59.55	Peak	74	54	-14.45	227	1.05
2484.458	H	42.94	-0.82	42.12	Ave	74	54	-11.88	227	1.05



ANT A + B

Modulation Standard: IEEE 802.11n HT20 (13Mbps)

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			
2388.438	V	71.84	-1.19	70.65	Peak	74	54	-3.35	232	1.03
2388.438	V	51.76	-1.19	50.57	Ave	74	54	-3.43	232	1.03
2388.540	H	71.10	-1.19	69.91	Peak	74	54	-4.09	237	1.01
2388.540	H	51.73	-1.19	50.54	Ave	74	54	-3.46	237	1.01
Channel 11						Fundamental Frequency: 2462 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			
2484.382	V	67.11	-0.82	66.29	Peak	74	54	-7.71	234	1.05
2484.382	V	50.07	-0.82	49.25	Ave	74	54	-4.75	234	1.05
2485.712	H	69.83	-0.81	69.02	Peak	74	54	-4.98	233	1.02
2485.712	H	43.95	-0.81	43.14	Ave	74	54	-10.86	233	1.02

Modulation Standard: IEEE 802.11n HT40 (27Mbps)

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			
2384.256	V	68.39	-1.20	67.19	Peak	74	54	-6.81	232	1.00
2384.256	V	51.97	-1.20	50.77	Ave	74	54	-3.23	232	1.00
2384.256	H	68.41	-1.20	67.21	Peak	74	54	-6.79	234	1.06
2384.256	H	48.63	-1.20	47.43	Ave	74	54	-6.57	234	1.06
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			
2486.416	V	59.02	-0.81	58.21	Peak	74	54	-15.79	236	1.01
2486.416	V	24.51	-0.81	23.70	Ave	74	54	-30.30	236	1.01
2485.600	H	61.98	-22.21	39.77	Peak	74	54	-34.23	232	1.00
---	H	---	---	---	Ave	74	54	---	---	---

Notes:

1. Result = Meter Reading + Factor
2. Factor = Antenna Factor + Cable Loss – Amplifier
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz (detector peak mode) for Peak detection at frequency above 1GHz.
4. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3 MHz (detector sample mode) for Average detection at frequency above 1GHz.



### 10. 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 – 5.250
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

#### 10.1 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.