FCC RADIO TEST REPORT

Applicant	:	AOPEN Inc.
Address	:	5F., No.15, Ln. 128, Sinhu 1st Rd., Neihu District, Taipei City 114, Taiwan(R.O.C.)
Equipment	:	AOPEN Chromebase Mini Commercial
Model No.	:	WT10M-FRG
Trade Name	:	AOPEN
FCC ID	:	YEW-10MFRGCM389

I HEREBY CERTIFY THAT :

The sample was received on Feb. 16, 2017 and the testing was carried out on Mar. 02, 2017 at Cerpass Technology Corp. The test result refers exclusively to the test presented test model / sample. Without written approval of Cerpass Technology Corp., the test report shall not be reproduced except in full.

Approved by:

Mark Liao / Assistant Manager

Tested by:

Spree Yei / Engineer

Laboratory Accreditation:

Cerpass Technology Corporation Test Laboratory

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History of this test report

Report No.	Issue Date	Description
TEFI1701078	Mar. 07, 2017	Original

1. Summary of Test Procedure and Test Results

1.1 Applicable Standards

ANSI C63.4:2014

ANSI C63.10:2013

FCC Rules and Regulations Part 15 Subpart C §15.247

KDB558074

KDB662911

FCC Rule	. Description of Test	Result
15.203	. Antenna Requirement	Pass
15.207	. AC Power Line Conducted Emission	Pass
15.209 15.205	. Radiated Spurious Emission	Pass
15.247(d)	. Conducted Spurious Emission	Pass
15.247(a)(2)	. 6dB Bandwidth	Pass
15.247(b)	. Maximum Peak and Average Output Power	Pass
15.247(e)	. Power Spectral Density	Pass

This EUT has been also tested and compiled with the requirement of FCC Part 15, Subpart B, recorded in a separate test report.

2. Test Configuration of Equipment under Test

2.1 Feature of Equipment under Test

Frequency Range	802.11b/g/n: 2412-2462 MHz 802.11a: 5150-5850 MHz Bluetooth: 2402-2480 MHz BLE: 2402-2480 MHz
Modulation Type	OFDM, DSSS, FHSS, GFSK, π/4-DQPSK, 8DPSK
Data Rate	WLAN: 802.11b: 1, 2, 5.5, 11Mbps 802.11g: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11n: MCS0 – MCS15, HT20/40 802.11a: 6, 9, 12, 18, 24, 36, 48, 54Mbps 802.11ac: MCS0 – MCS9, VHT 20/40/80) Bluetooth: Bluetooth 2.1+EDR data rates of 1,2, and 3Mbps
Antenna Type	PCB Antenna
Antenna Gain	802.11b/g/n: Antenna A: 0.59dBi Antenna B: 1.85dBi 802.11a: Antenna A Band1: 2.10dBi Antenna A Band2: 2.10dBi Antenna A Band3: 2.10dBi Antenna A Band4: 2.10dBi Antenna B Band1: 0.87dBi Antenna B Band2: 0.87dBi Antenna B Band3: 0.87dBi Antenna B Band4: 0.87dBi Bluetooth: 1.85dBi BLE: 1.85dBi

2.2 Carrier Frequency of Channels

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

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

802.11n HT40 (2422MHz~2452MHz)

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

Note: Channels remarked * are selected to perform test.

2.3 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 remote workstation and EUT for RF test. The remote workstation included Notebook.
c. An executive program," Dut labtool V2.0.0.44" under Chrome was executed to transmit and receive data via WLAN.
d. The following test modes were performed for the test:
   Test Mode 1: 802.11b (1Mbps)
   Test Mode 2: 802.11g (6Mbps)
   Test Mode 3: 802.11n HT20 (6.5Mbps)
   Test Mode 4: 802.11n HT40 (13.5Mbps)
   For conduction test, caused "Test Mode 2" generated the worst case, it was reported as the final data.
   For radiated test (below 1GHz), caused "Test Mode 2" generated the worst case, it was reported as the final data.
   For radiated test (above 1GHz), caused "Test Mode 1~4" generated the worst case, they were reported as the final data.

2.4 Description of Test System

The EUT was tested alone. No support devices are needed for testing.

2.5 General Information of Test

Test Site	**Cerpass Technology Corporation Test Laboratory** Address: No.10, Ln. 2, Lianfu St., Luzhu Dist., Taoyuan City 33848, Taiwan (R.O.C.) Tel:+886-3-3226-888 Fax:+886-3-3226-881 Address: No.68-1, Shihbachongsi, Shihding Township, New Taipei City 223, Taiwan, R.O.C. Tel: +886-2-2663-8582	
	FCC	TW1079, TW1061, 390316, 228391, 641184
	IC	4934E-1, 4934E-2
	VCCI	T-2205 for Telecommunication Test C-4663 for Conducted emission test R-4218, R-4399 for Radiated emission test G-812, G-813 for radiated disturbance above 1GHz
Frequency Range Investigated:	Conducted: from 150kHz to 30 MHz Radiation: from 30 MHz to 25,000MHz	
Test Distance:	The test distance of radiated emission from antenna to EUT is 3 M.	

2.6 Measurement Uncertainty

Measurement Item	Measurement Frequency	Polarization	Uncertainty
Conducted Emission	9 kHz ~ 30 MHz	Line / Neutral	±2.9076 dB
Radiated Emission	9 kHz ~ 25,000 MHz	Vertical / Horizontal	±0.948 dB
Spurious Emission (Conducted)	-	-	±4.011 dB
Maximum Peak and Average Output Power	-	-	±0.322 dB
Power Spectral Density	-	-	±0.322 dB
Bandwidth	-	-	74.224Hz

3. Test Equipment and Ancillaries Used for Tests

Instrument	Manufacturer	Model No.	Serial No.	Calibration Date	Valid Date
EMI Receiver	R&S	ESCI3	100443	2016/03/28	2017/03/27
LISN	Schwarzbeck	NSLK 8127	8127-740	2016/08/30	2017/08/29
LISN	Schwarzbeck	NSLK 8127	8127-516	2016/09/06	2017/09/05
Pulse Limiter	R&S	ESH3-Z2	101934	2017/02/14	2018/02/13
Bilog Antenna	Schwarzbeck	VULB9168	369	2016/03/22	2017/03/21
Active Loop Antenna	EMCO	6507	40855	2016/05/11	2017/05/10
Horn Antenna	EMCO	3115	31601	2016/09/05	2017/09/04
Horn Antenna	EMCO	3116	31970	2016/03/18	2017/03/17
EXA Signal Analyzer	KEYSIGHT	N9010A	MY54200207	2016/03/16	2017/03/15
Preamplifier	EM	EM330	660	2016/03/16	2017/03/15
Preamplifier	EMC INSTRUMENTS	EMC051845SE	980333	2016/09/13	2017/09/12
Preamplifier	Agilent	8449B	3008A01954	2017/02/09	2018/02/08
Preamplifier	MITEQ	AMF-7D-00101 00-30-10P	1860212	2016/03/16	2017/03/15
Preamplifier	EMC INSTRUMENTS	EMC184045	980065	2016/11/04	2017/11/03
MXG MW Analog Signal Generator	KEYSIGHT	N5183A	MY50142931	2016/03/18	2017/03/17
Spectrum Analyzer	R&S	FSP40	100219	2016/09/01	2017/08/31
Bluetooth Tester	R&S	CBT	101133	2016/03/18	2017/03/17
Attenuator	KEYSIGHT	8491B	MY39250703	2016/03/07	2017/03/06
Rotary Attenuator	Agilent	8494B	MY42154466	2016/03/08	2017/03/07
Rotary Attenuator	Agilent	8495B	MY42146680	2016/03/08	2017/03/07
Temp & Humi chamber	T-MACHINE	TMJ-9712	T-12-040111	2016/09/05	2017/09/04
Series Power Meter	Anritsu	ML2495A	1224005	2016/03/03	2017/03/02
Power Sensor	Anritsu	MA2411B	1207295	2016/03/03	2017/03/02
Cable	HUBER SUHNER	SUCOFLEX 102	28422/2	2016/03/15	2017/03/14
Cable	HUBER SUHNER	SUCOFLEX 102	28418/2	2016/03/16	2017/03/15
Cable	HUBER SUHNER	SUCOFLEX 102	28417/2	2016/03/04	2017/03/03
Software	Farad	Ez-EMC	ver.ct3a1	N/A	N/A
Software	AUDIX	E3	V8.2014-8-6	N/A	N/A
Software	Keysight	N7607B Signal Studio	v2.0.0.1	N/A	N/A
Software	Keysight	Inservice MonitorUtility	N/A	N/A	N/A

4. Antenna Requirements

4.1 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.

4.2 Antenna Construction and Directional Gain

Antenna Type	Antenna Gain
PCB Antenna	Antenna A: 0.59 dBi
	Antenna B: 1.85 dBi

For Power directional gain= G_{ant}= 1.85 dBi

For PSD directional gain = $10 \log[(10^{G1/20} + 10^{G2/20} + \ldots + 10^{GN/20})^2 /NANT]$

= 4.25 (dBi)

5. Test of AC Power Line Conducted Emission

5.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz, according to the methods defined in ANSI C63.4-2014. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

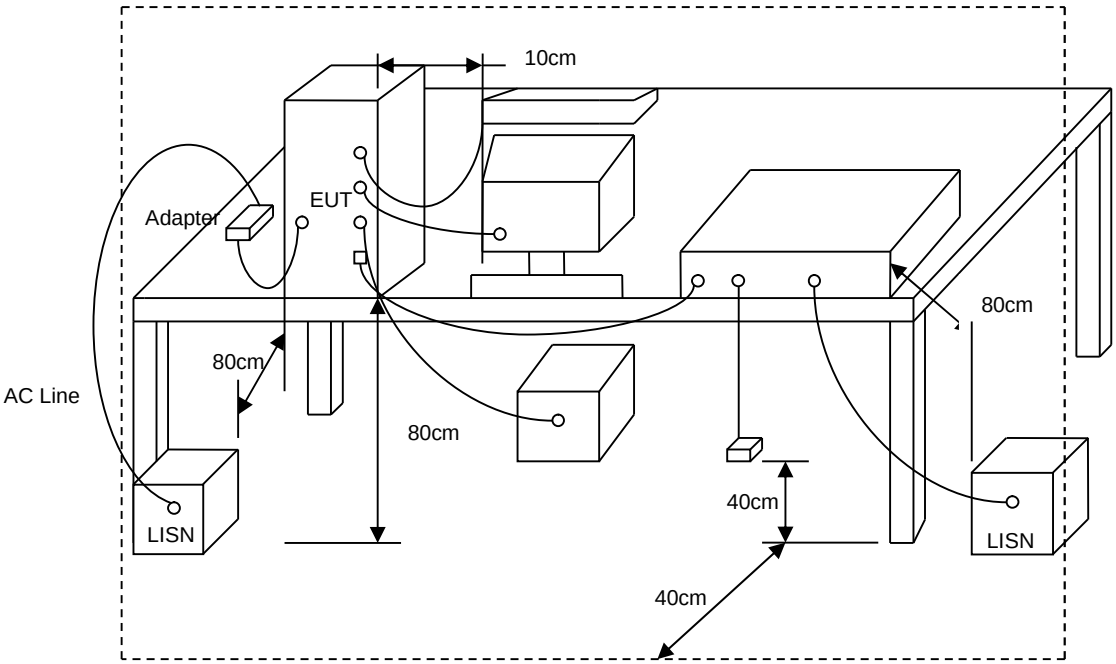
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

5.2 Test Procedures

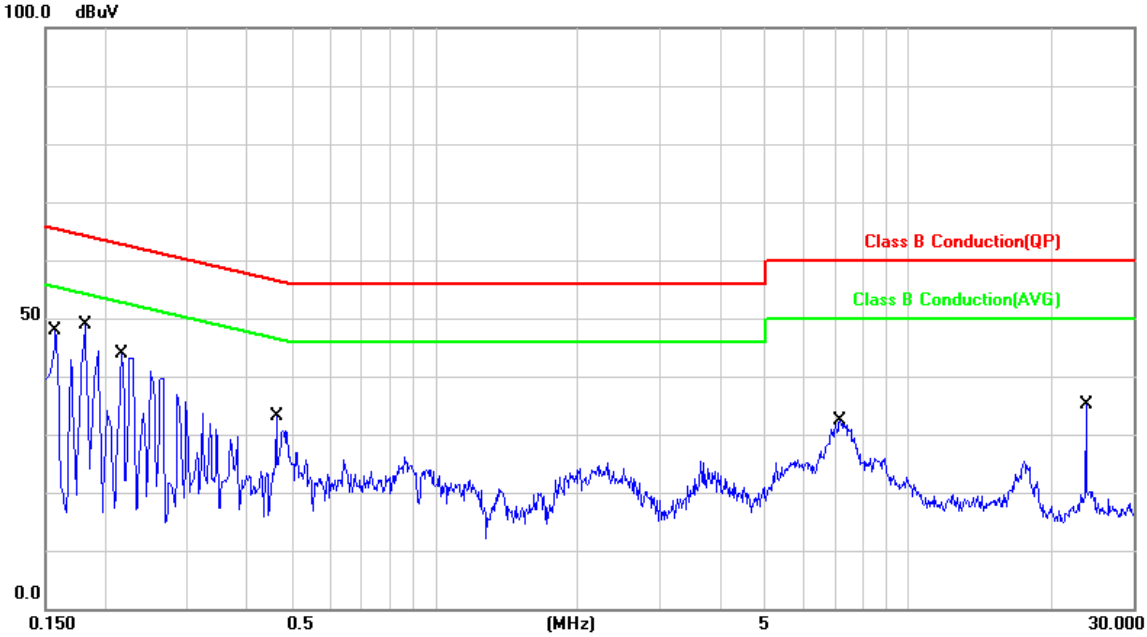
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.
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.

5.3 Typical Test Setup



5.4 Test Result and Data

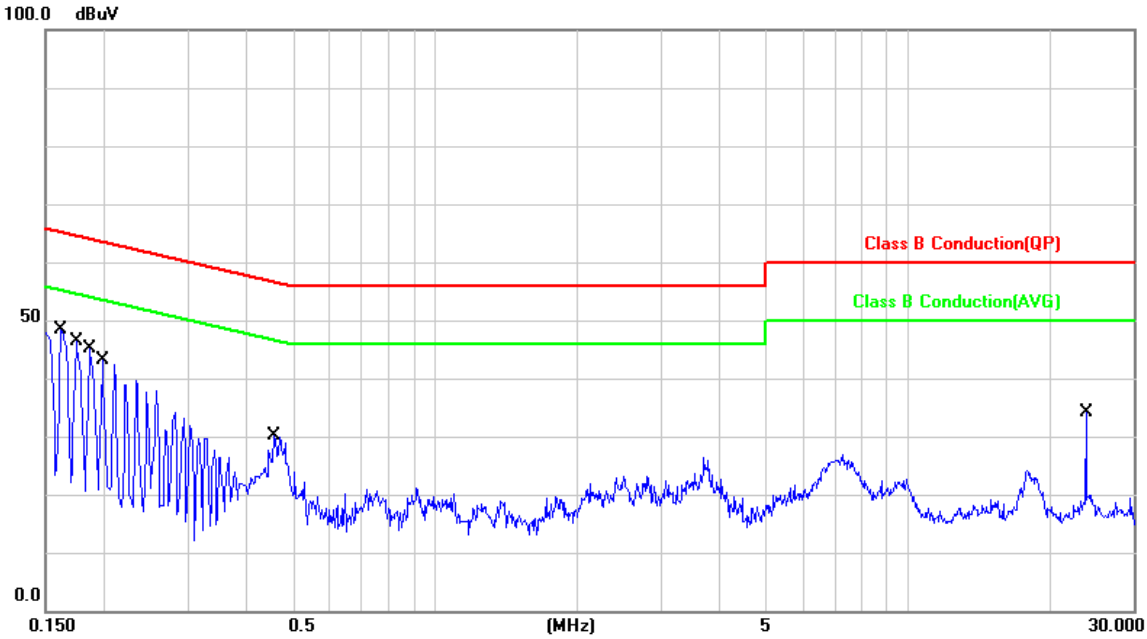
Power	:	AC 120V	Pol/Phase	:	LINE
Test Mode	:	Mode 2	Temperature	:	22 °C
Test date	:	Feb. 18, 2017	Humidity	:	56 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1580	9.98	36.78	46.76	65.56	-18.80	QP	P
2	0.1580	9.98	16.97	26.95	55.56	-28.61	AVG	P
3	0.1819	9.97	32.39	42.36	64.39	-22.03	QP	P
4	0.1819	9.97	13.59	23.56	54.39	-30.83	AVG	P
5	0.2180	9.97	25.05	35.02	62.89	-27.87	QP	P
6	0.2180	9.97	7.59	17.56	52.89	-35.33	AVG	P
7	0.4620	9.97	15.04	25.01	56.66	-31.65	QP	P
8	0.4620	9.97	6.56	16.53	46.66	-30.13	AVG	P
9	7.1900	10.21	15.00	25.21	60.00	-34.79	QP	P
10	7.1900	10.21	10.21	20.42	50.00	-29.58	AVG	P
11	23.8740	10.59	23.41	34.00	60.00	-26.00	QP	P
12	23.8740	10.59	23.56	34.15	50.00	-15.85	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator

Power	:	AC 120V	Pol/Phase	:	NEUTRAL
Test Mode	:	Mode 2	Temperature	:	22 °C
Test date	:	Feb. 18, 2017	Humidity	:	56 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F
1	0.1620	9.98	33.93	43.91	65.36	-21.45	QP	P
2	0.1620	9.98	15.40	25.38	55.36	-29.98	AVG	P
3	0.1740	9.98	34.23	44.21	64.76	-20.55	QP	P
4	0.1740	9.98	15.36	25.34	54.76	-29.42	AVG	P
5	0.1860	9.98	31.71	41.69	64.21	-22.52	QP	P
6	0.1860	9.98	12.54	22.52	54.21	-31.69	AVG	P
7	0.1980	9.98	29.87	39.85	63.69	-23.84	QP	P
8	0.1980	9.98	11.56	21.54	53.69	-32.15	AVG	P
9	0.4580	9.94	15.68	25.62	56.73	-31.11	QP	P
10	0.4580	9.94	9.43	19.37	46.73	-27.36	AVG	P
11	23.8740	10.64	21.98	32.62	60.00	-27.38	QP	P
12	23.8740	10.64	22.12	32.76	50.00	-17.24	AVG	P

Note: Level = Reading + Factor
Margin = Level – Limit
Factor = (LISN, ISN, PLC or current probe) Factor + Cable Loss+ Attenuator

6. Test of Radiated Spurious Emission

6.1 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

6.2 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.

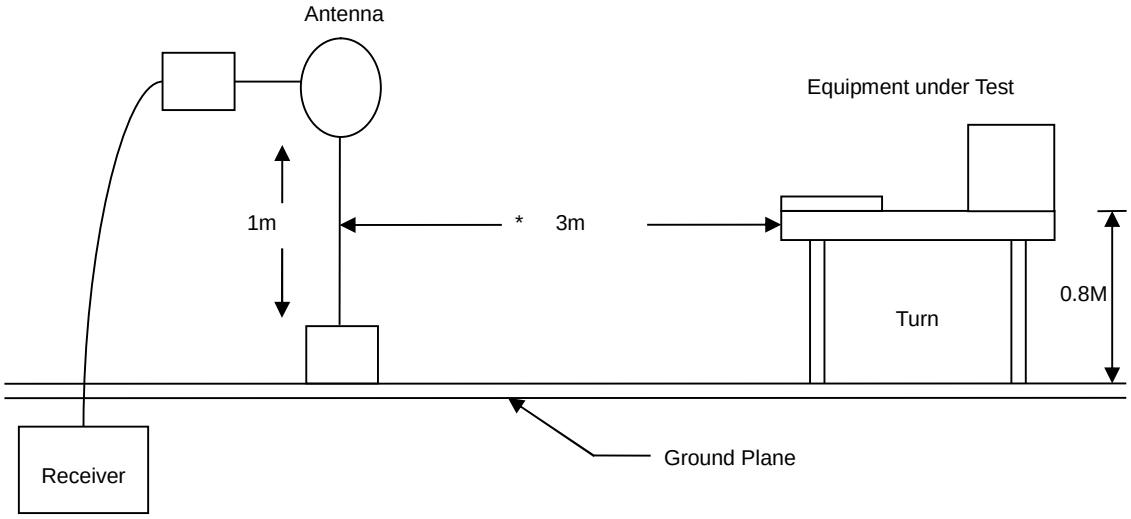
g. If the emission level of the EUT in peak mode was 3 dB lower than the limit specified, then testing will be stopped and peak values of EUT will be reported, otherwise, the emissions which do not have 3 dB margin will be repeated one by one using the quasi-peak method and reported.

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.

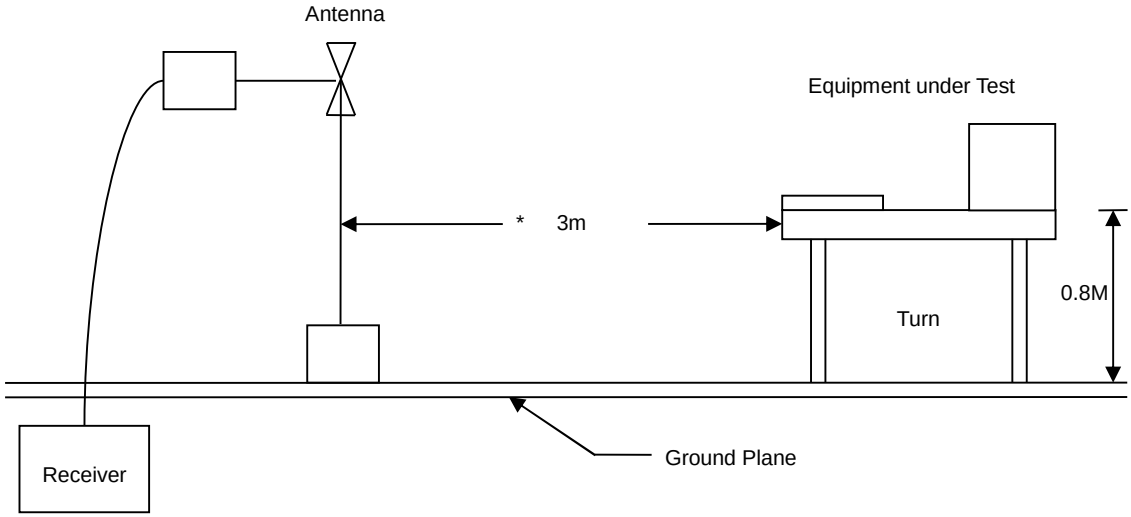
i. “Cone of radiation” has been considered to be 3dB bandwidth of the measurement antenna.

6.3 Typical Test Setup

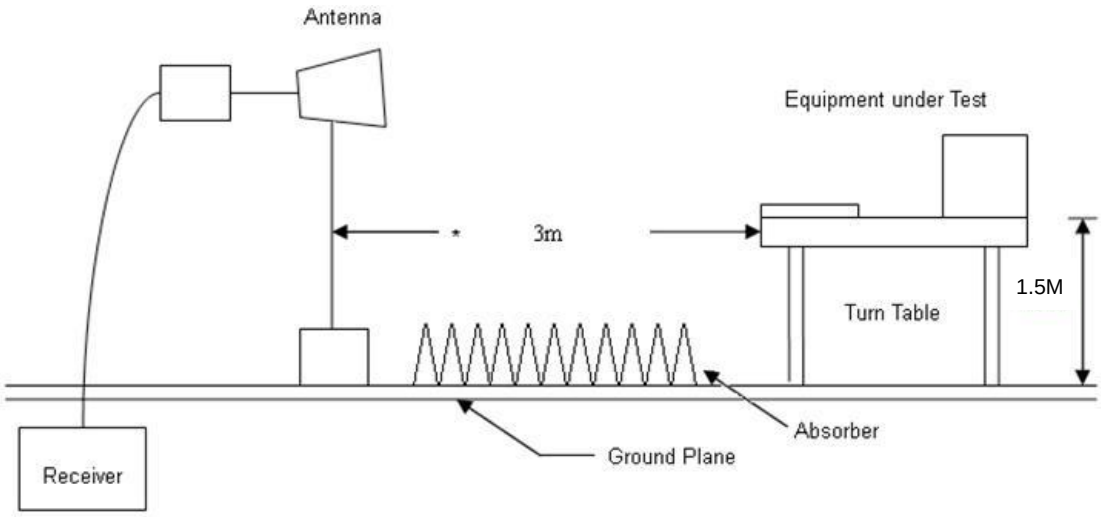
Below 30MHz test setup



30MHz- 1GHz Test Setup



Above 1GHz Test Setup

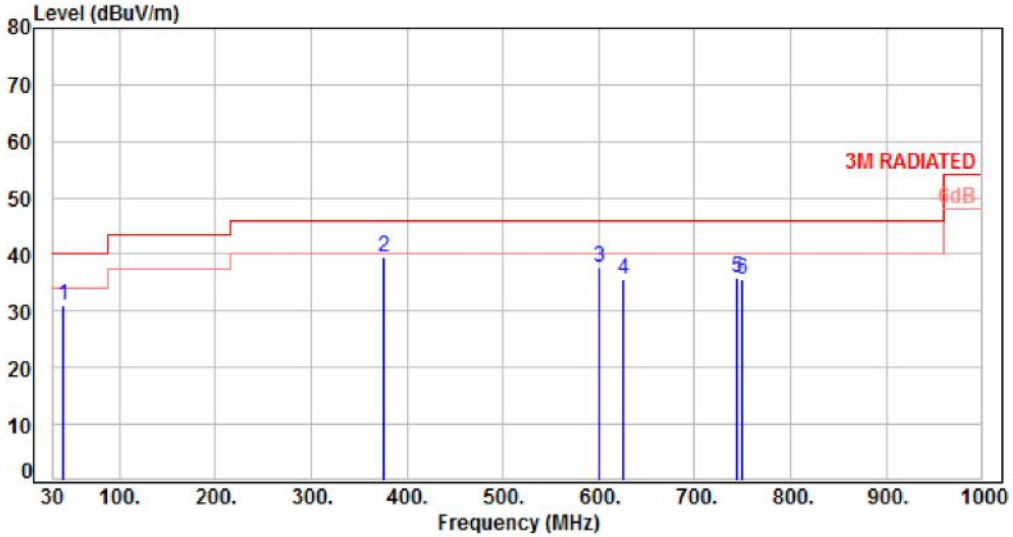


6.4 Test Result and Data (9KHz ~ 30MHz)

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

6.5 Test Result and Data (30MHz ~ 1GHz)

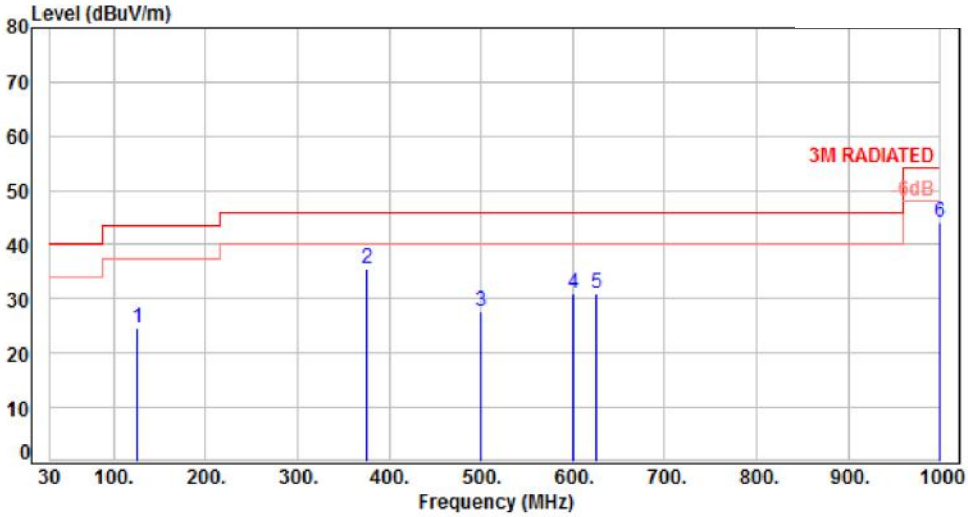
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2	Temperature	:	24 °C
Test Date	:	Feb. 20, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	41.64	-10.01	40.92	30.91	40.00	-9.09	Peak	100	0	P
2	375.32	-7.06	46.68	39.62	46.00	-6.38	Peak	100	0	P
3	600.36	-1.98	39.71	37.73	46.00	-8.27	Peak	100	0	P
4	625.58	-1.70	37.28	35.58	46.00	-10.42	Peak	100	0	P
5	743.92	0.27	35.53	35.80	46.00	-10.20	Peak	100	0	P
6	749.74	0.38	35.14	35.52	46.00	-10.48	Peak	100	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2	Temperature	:	24 °C
Test Date	:	Feb. 20, 2017	Humidity	:	63 %

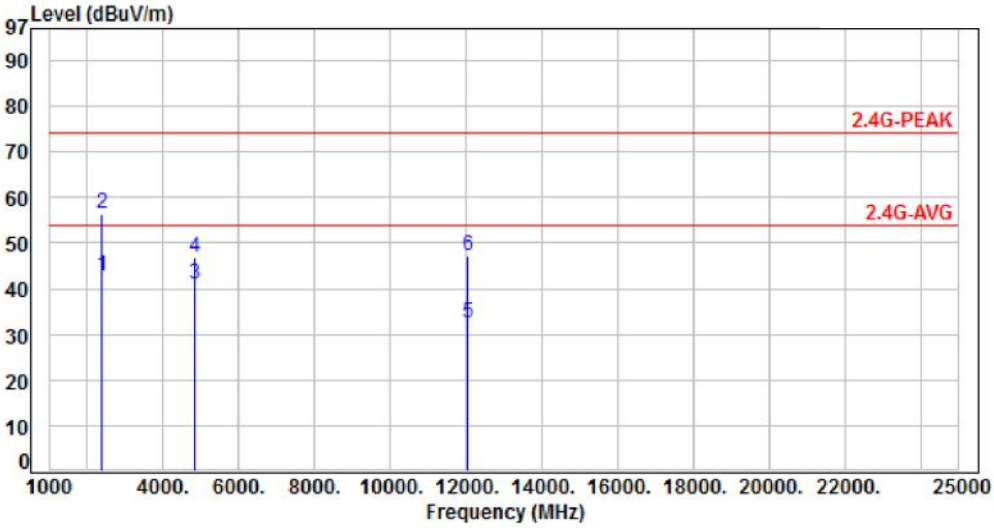


No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	125.06	-12.00	36.55	24.55	43.50	-18.95	Peak	100	0	P
2	375.32	-7.06	42.61	35.55	46.00	-10.45	Peak	100	0	P
3	499.48	-4.19	31.81	27.62	46.00	-18.38	Peak	100	0	P
4	600.36	-1.98	32.90	30.92	46.00	-15.08	Peak	100	0	P
5	625.58	-1.70	32.75	31.05	46.00	-14.95	Peak	100	0	P
6	1000.00	3.44	40.68	44.12	54.00	-9.88	Peak	100	0	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

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

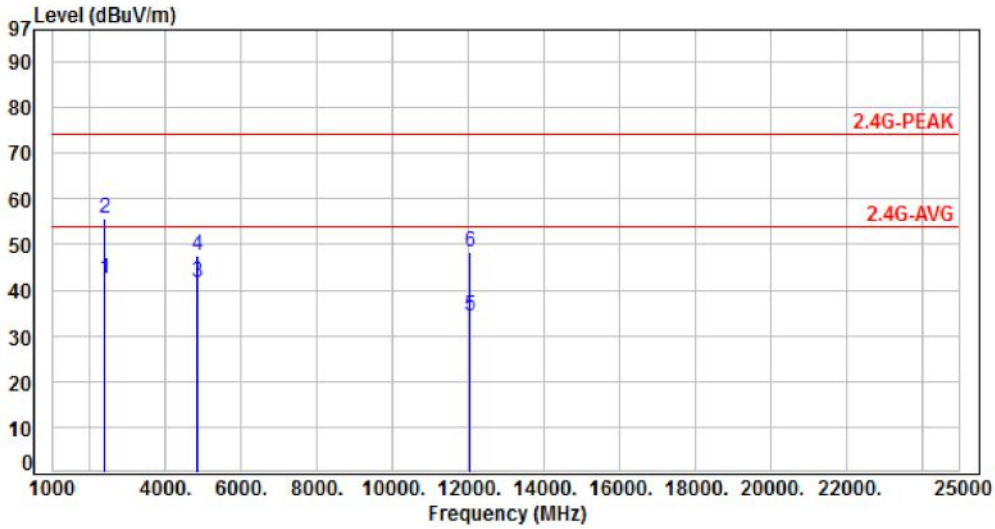
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH01	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	58.46	42.71	54.00	-11.29	Average	145	170	P
2	2390.00	-15.75	72.03	56.28	74.00	-17.72	Peak	145	170	P
3	4824.00	-7.58	48.62	41.04	54.00	-12.96	Average	354	251	P
4	4824.00	-7.58	54.42	46.84	74.00	-27.16	Peak	354	157	P
5	12060.00	2.28	30.17	32.45	54.00	-21.55	Average	168	183	P
6	12060.00	2.28	45.03	47.31	74.00	-26.69	Peak	168	183	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

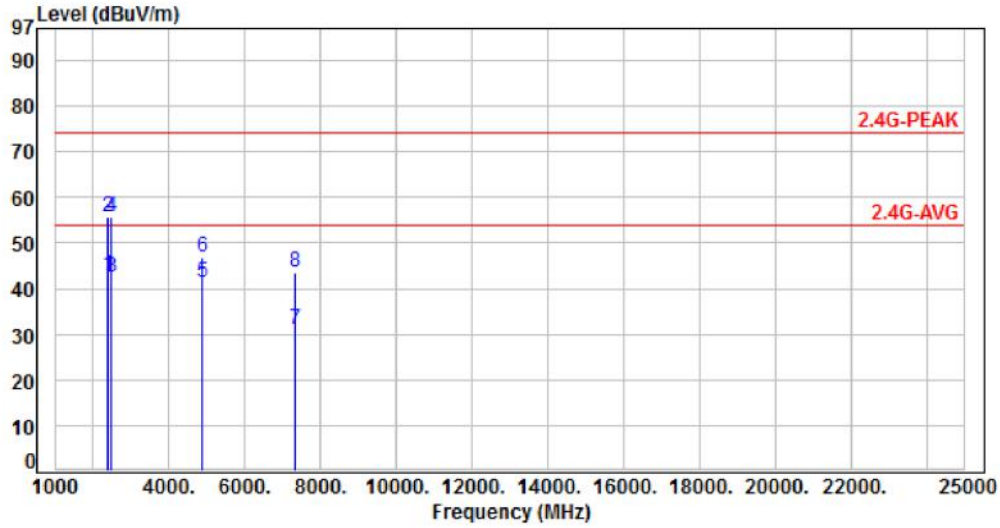
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH01	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	58.27	42.52	54.00	-11.48	Average	133	184	P
2	2390.00	-15.75	71.43	55.68	74.00	-18.32	Peak	133	184	P
3	4824.00	-7.58	49.15	41.57	54.00	-12.43	Average	100	211	P
4	4824.00	-7.58	55.23	47.65	74.00	-26.35	Peak	100	211	P
5	12060.00	2.28	32.11	34.39	54.00	-19.61	Average	100	248	P
6	12060.00	2.28	46.13	48.41	74.00	-25.59	Peak	100	248	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

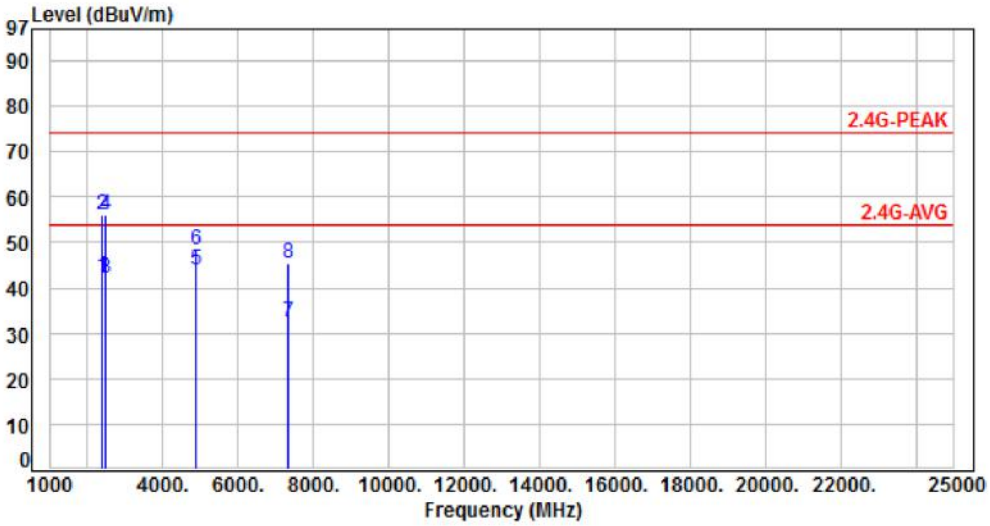
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	58.37	42.62	54.00	-11.38	Average	161	182	P
2	2390.00	-15.75	71.48	55.73	74.00	-18.27	Peak	161	182	P
3	2483.50	-15.48	57.79	42.31	54.00	-11.69	Average	161	182	P
4	2483.50	-15.48	71.13	55.65	74.00	-18.35	Peak	161	182	P
5	4874.00	-7.39	48.53	41.14	54.00	-12.86	Average	365	266	P
6	4874.00	-7.39	54.13	46.74	74.00	-27.26	Peak	365	266	P
7	7311.00	-3.50	34.58	31.08	54.00	-22.92	Average	341	243	P
8	7311.00	-3.50	46.94	43.44	74.00	-30.56	Peak	341	243	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

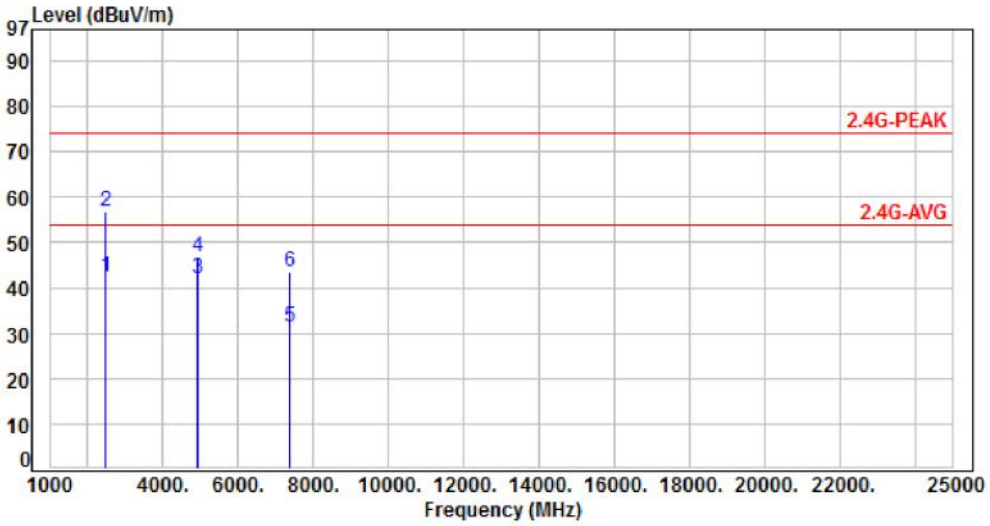
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	58.23	42.48	54.00	-11.52	Average	100	161	P
2	2390.00	-15.75	71.70	55.95	74.00	-18.05	Peak	100	161	P
3	2483.50	-15.48	57.39	41.91	54.00	-12.09	Average	100	161	P
4	2483.50	-15.48	71.45	55.97	74.00	-18.03	Peak	100	161	P
5	4874.00	-7.39	51.19	43.80	54.00	-10.20	Average	100	154	P
6	4874.00	-7.39	55.79	48.40	74.00	-25.60	Peak	100	154	P
7	7311.00	-3.50	36.07	32.57	54.00	-21.43	Average	100	172	P
8	7311.00	-3.50	48.80	45.30	74.00	-28.70	Peak	100	172	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

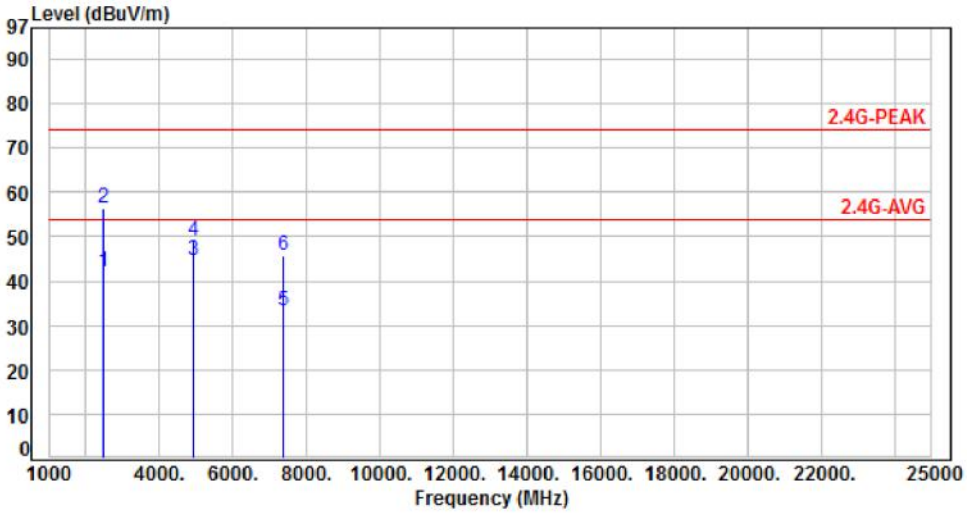
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 1, CH11	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	57.79	42.31	54.00	-11.69	Average	108	227	P
2	2483.50	-15.48	72.14	56.66	74.00	-17.34	Peak	108	227	P
3	4924.00	-7.19	49.38	42.19	54.00	-11.81	Average	110	188	P
4	4924.00	-7.19	54.21	47.02	74.00	-26.98	Peak	110	188	P
5	7386.00	-3.39	34.66	31.27	54.00	-22.73	Average	122	271	P
6	7386.00	-3.39	47.00	43.61	74.00	-30.39	Peak	122	271	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

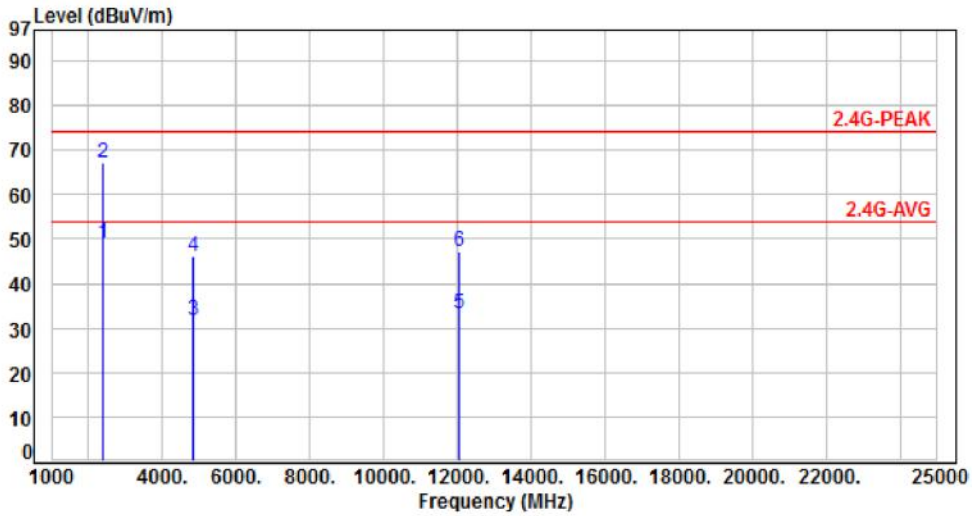
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 1, CH11	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	57.58	42.10	54.00	-11.90	Average	100	184	P
2	2483.50	-15.48	71.96	56.48	74.00	-17.52	Peak	100	184	P
3	4924.00	-7.19	51.78	44.59	54.00	-9.41	Average	100	162	P
4	4924.00	-7.19	56.37	49.18	74.00	-24.82	Peak	100	162	P
5	7386.00	-3.39	36.52	33.13	54.00	-20.87	Average	100	187	P
6	7386.00	-3.39	49.23	45.84	74.00	-28.16	Peak	100	187	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

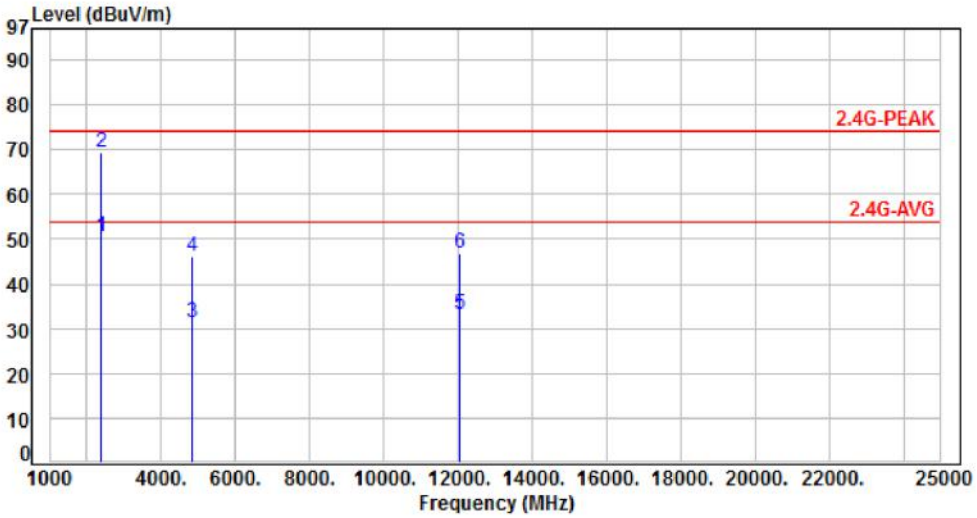
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH01	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	64.74	48.99	54.00	-5.01	Average	339	242	P
2	2390.00	-15.75	82.85	67.10	74.00	-6.90	Peak	339	242	P
3	4824.00	-7.58	39.12	31.54	54.00	-22.46	Average	216	175	P
4	4824.00	-7.58	53.82	46.24	74.00	-27.76	Peak	216	175	P
5	12060.00	2.28	30.80	33.08	54.00	-20.92	Average	183	196	P
6	12060.00	2.28	44.75	47.03	74.00	-26.97	Peak	183	196	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

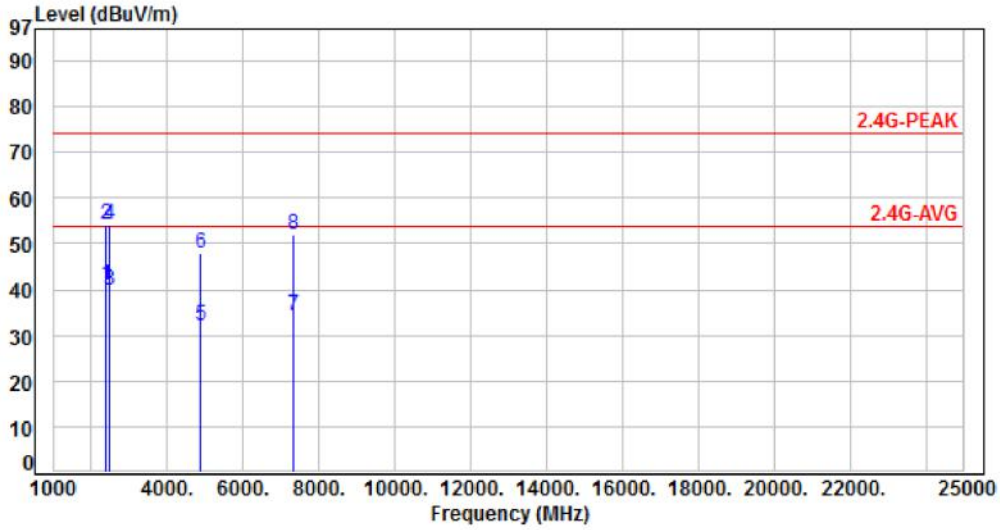
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH01	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	66.11	50.36	54.00	-3.64	Average	100	211	P
2	2390.00	-15.75	84.96	69.21	74.00	-4.79	Peak	100	211	P
3	4824.00	-7.58	38.97	31.39	54.00	-22.61	Average	134	99	P
4	4824.00	-7.58	53.86	46.28	74.00	-27.72	Peak	134	99	P
5	12060.00	2.28	30.96	33.24	54.00	-20.76	Average	147	102	P
6	12060.00	2.28	44.70	46.98	74.00	-27.02	Peak	147	102	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

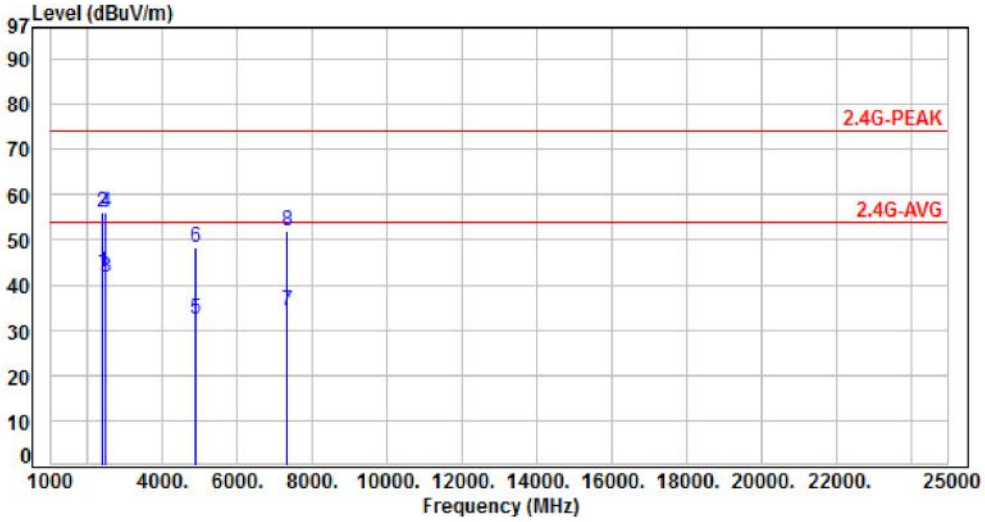
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	56.59	40.84	54.00	-13.16	Average	105	129	P
2	2390.00	-15.75	69.82	54.07	74.00	-19.93	Peak	105	129	P
3	2483.50	-15.48	55.42	39.94	54.00	-14.06	Average	105	129	P
4	2483.50	-15.48	69.70	54.22	74.00	-19.78	Peak	105	129	P
5	4874.00	-7.39	39.40	32.01	54.00	-21.99	Average	122	251	P
6	4874.00	-7.39	55.40	48.01	74.00	-25.99	Peak	122	251	P
7	7311.00	-3.50	37.63	34.13	54.00	-19.87	Average	115	301	P
8	7311.00	-3.50	55.33	51.83	74.00	-22.17	Peak	115	301	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

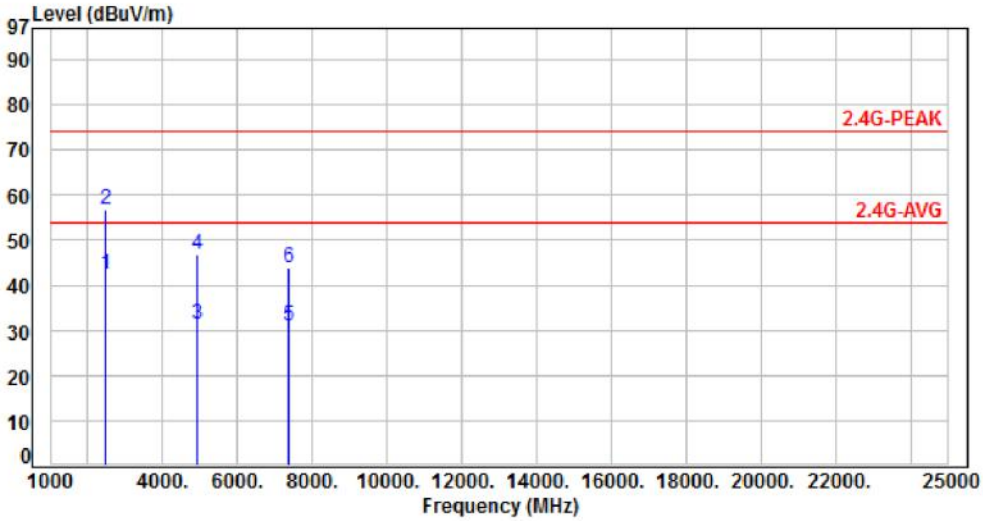
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	58.68	42.93	54.00	-11.07	Average	100	198	P
2	2390.00	-15.75	71.94	56.19	74.00	-17.81	Peak	100	198	P
3	2483.50	-15.48	57.31	41.83	54.00	-12.17	Average	100	198	P
4	2483.50	-15.48	71.53	56.05	74.00	-17.95	Peak	100	198	P
5	4874.00	-7.39	39.83	32.44	54.00	-21.56	Average	100	104	P
6	4874.00	-7.39	55.73	48.34	74.00	-25.66	Peak	100	104	P
7	7311.00	-3.50	37.88	34.38	54.00	-19.62	Average	100	166	P
8	7311.00	-3.50	55.55	52.05	74.00	-21.95	Peak	100	166	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

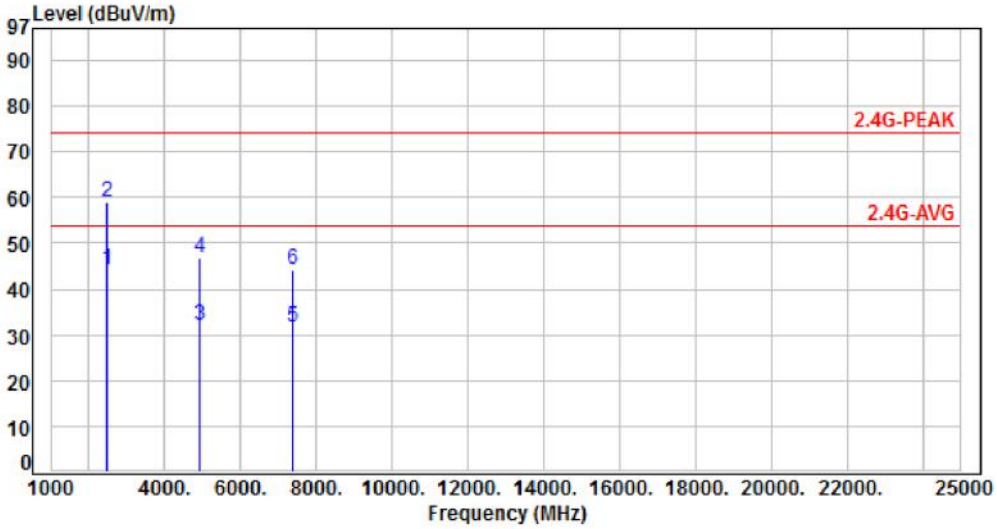
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 2, CH11	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	57.90	42.42	54.00	-11.58	Average	117	199	P
2	2483.50	-15.48	72.14	56.66	74.00	-17.34	Peak	117	199	P
3	4924.00	-7.19	38.70	31.51	54.00	-22.49	Average	106	253	P
4	4924.00	-7.19	54.11	46.92	74.00	-27.08	Peak	106	253	P
5	7386.00	-3.39	34.51	31.12	54.00	-22.88	Average	143	228	P
6	7386.00	-3.39	47.34	43.95	74.00	-30.05	Peak	143	228	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

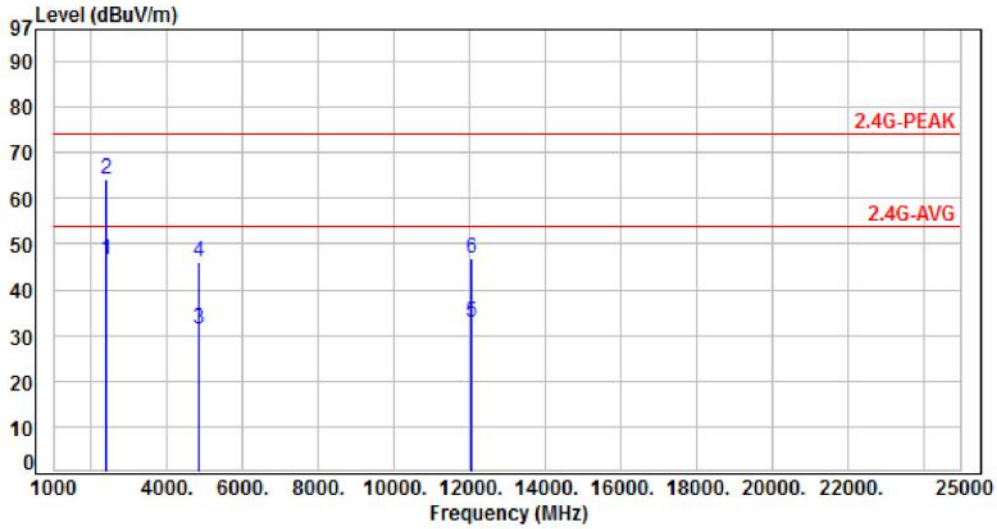
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 2, CH11	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	59.78	44.30	54.00	-9.70	Average	100	210	P
2	2483.50	-15.48	74.41	58.93	74.00	-15.07	Peak	100	210	P
3	4924.00	-7.19	39.21	32.02	54.00	-21.98	Average	155	103	P
4	4924.00	-7.19	54.21	47.02	74.00	-26.98	Peak	155	103	P
5	7386.00	-3.39	35.03	31.64	54.00	-22.36	Average	167	113	P
6	7386.00	-3.39	47.65	44.26	74.00	-29.74	Peak	167	113	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

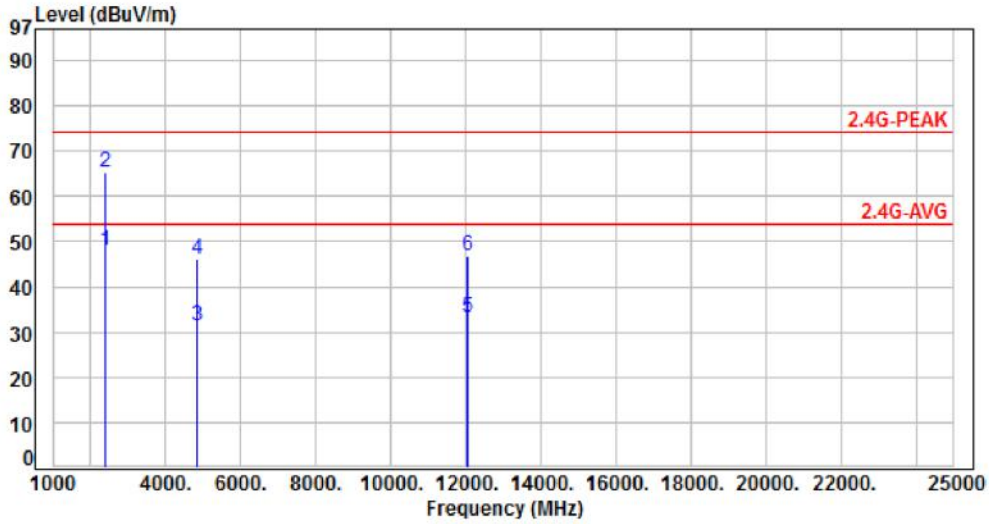
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH01	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	62.07	46.32	54.00	-7.68	Average	342	241	P
2	2390.00	-15.75	79.83	64.08	74.00	-9.92	Peak	342	241	P
3	4824.00	-7.58	38.86	31.28	54.00	-22.72	Average	214	178	P
4	4824.00	-7.58	53.66	46.08	74.00	-27.92	Peak	214	178	P
5	12060.00	2.28	30.59	32.87	54.00	-21.13	Average	181	194	P
6	12060.00	2.28	44.59	46.87	74.00	-27.13	Peak	181	194	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

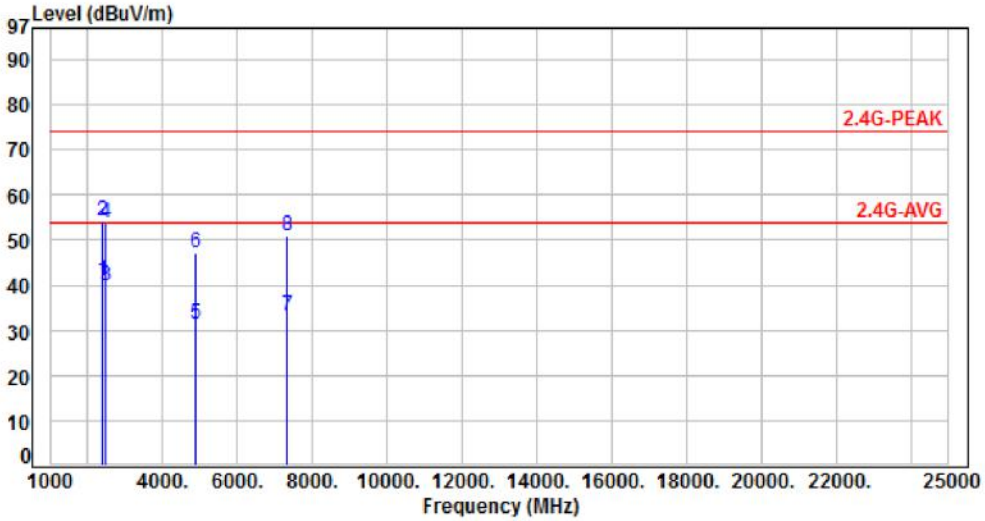
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH01	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	63.53	47.78	54.00	-6.22	Average	102	211	P
2	2390.00	-15.75	80.98	65.23	74.00	-8.77	Peak	102	211	P
3	4824.00	-7.58	38.79	31.21	54.00	-22.79	Average	125	101	P
4	4824.00	-7.58	53.71	46.13	74.00	-27.87	Peak	125	101	P
5	12060.00	2.28	30.83	33.11	54.00	-20.89	Average	146	110	P
6	12060.00	2.28	44.58	46.86	74.00	-27.14	Peak	146	110	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

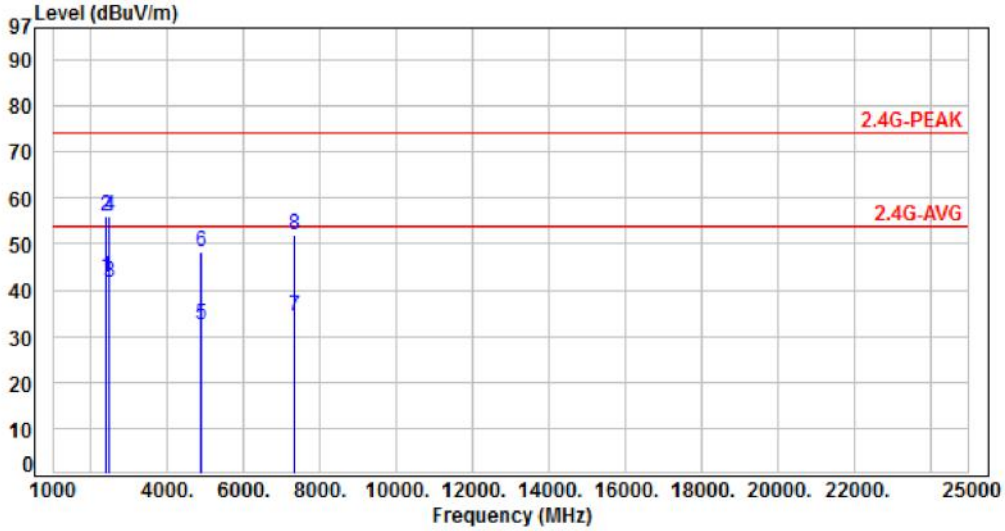
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	56.60	40.85	54.00	-13.15	Average	108	189	P
2	2390.00	-15.75	69.88	54.13	74.00	-19.87	Peak	108	189	P
3	2483.50	-15.48	55.33	39.85	54.00	-14.15	Average	108	189	P
4	2483.50	-15.48	69.29	53.81	74.00	-20.19	Peak	108	189	P
5	4874.00	-7.39	38.91	31.52	54.00	-22.48	Average	112	63	P
6	4874.00	-7.39	54.73	47.34	74.00	-26.66	Peak	112	63	P
7	7311.00	-3.50	36.60	33.10	54.00	-20.90	Average	110	155	P
8	7311.00	-3.50	54.26	50.76	74.00	-23.24	Peak	110	155	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

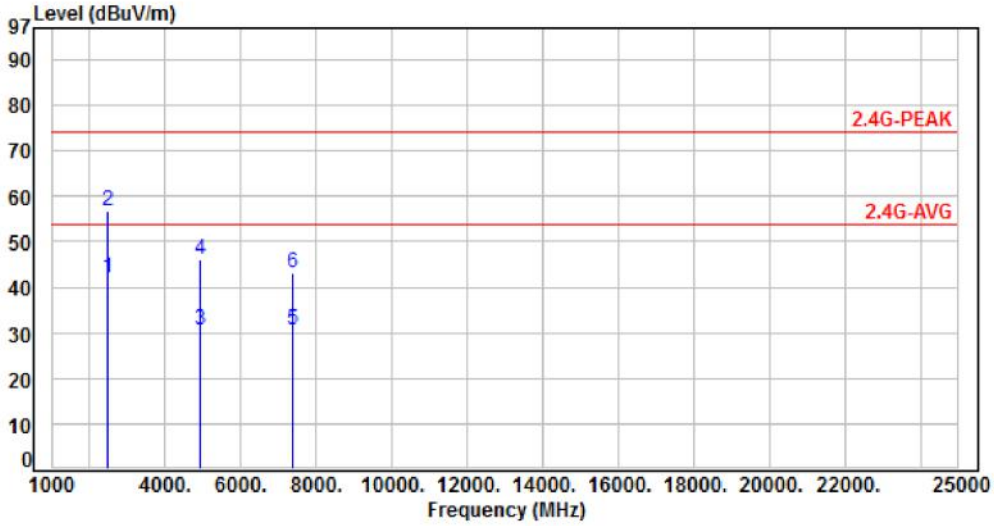
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	58.45	42.70	54.00	-11.30	Average	100	203	P
2	2390.00	-15.75	71.82	56.07	74.00	-17.93	Peak	100	203	P
3	2483.50	-15.48	57.15	41.67	54.00	-12.33	Average	100	203	P
4	2483.50	-15.48	71.40	55.92	74.00	-18.08	Peak	100	203	P
5	4874.00	-7.39	39.73	32.34	54.00	-21.66	Average	101	98	P
6	4874.00	-7.39	55.57	48.18	74.00	-25.82	Peak	101	98	P
7	7311.00	-3.50	37.70	34.20	54.00	-19.80	Average	100	172	P
8	7311.00	-3.50	55.39	51.89	74.00	-22.11	Peak	100	172	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

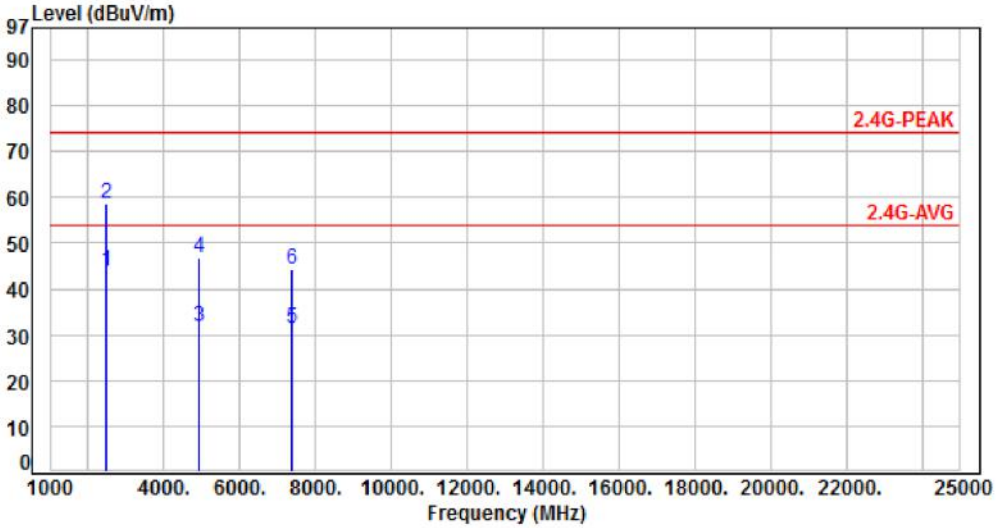
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 3, CH11	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	57.65	42.17	54.00	-11.83	Average	114	224	P
2	2483.50	-15.48	72.19	56.71	74.00	-17.29	Peak	114	224	P
3	4924.00	-7.19	37.71	30.52	54.00	-23.48	Average	133	163	P
4	4924.00	-7.19	53.12	45.93	74.00	-28.07	Peak	133	163	P
5	7386.00	-3.39	33.98	30.59	54.00	-23.41	Average	152	126	P
6	7386.00	-3.39	46.67	43.28	74.00	-30.72	Peak	152	126	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

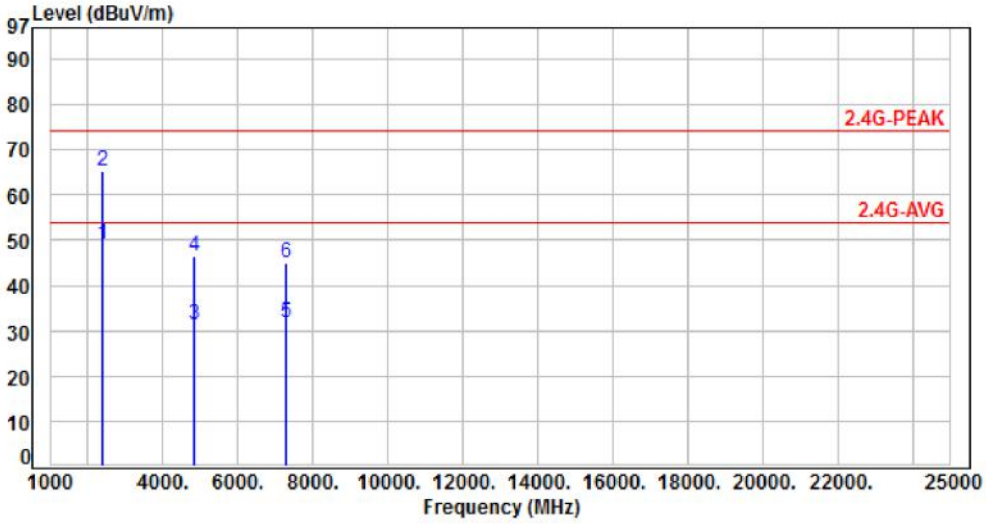
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 3, CH11	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	59.49	44.01	54.00	-9.99	Average	100	208	P
2	2483.50	-15.48	74.28	58.80	74.00	-15.20	Peak	100	208	P
3	4924.00	-7.19	38.86	31.67	54.00	-22.33	Average	147	102	P
4	4924.00	-7.19	54.05	46.86	74.00	-27.14	Peak	147	102	P
5	7386.00	-3.39	34.88	31.49	54.00	-22.51	Average	169	115	P
6	7386.00	-3.39	47.47	44.08	74.00	-29.92	Peak	169	115	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

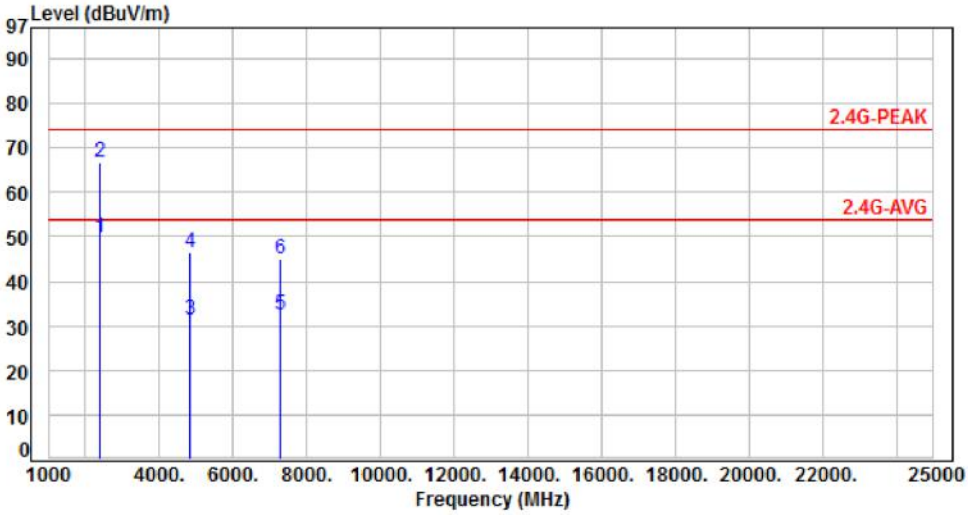
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH03	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	64.79	49.04	54.00	-4.96	Average	184	130	P
2	2390.00	-15.75	81.06	65.31	74.00	-8.69	Peak	184	130	P
3	4844.00	-7.50	38.92	31.42	54.00	-22.58	Average	347	241	P
4	4844.00	-7.50	53.96	46.46	74.00	-27.54	Peak	347	241	P
5	7266.00	-3.57	35.12	31.55	54.00	-22.45	Average	329	212	P
6	7266.00	-3.57	48.39	44.82	74.00	-29.18	Peak	329	212	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

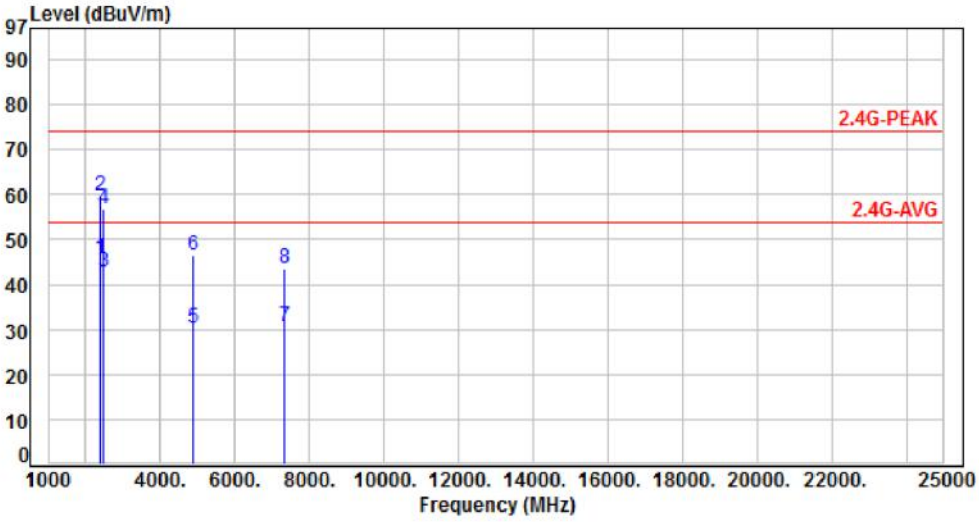
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH03	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	65.50	49.75	54.00	-4.25	Average	100	205	P
2	2390.00	-15.75	82.63	66.88	74.00	-7.12	Peak	100	205	P
3	4844.00	-7.50	38.76	31.26	54.00	-22.74	Average	102	103	P
4	4844.00	-7.50	53.86	46.36	74.00	-27.64	Peak	102	103	P
5	7266.00	-3.57	35.87	32.30	54.00	-21.70	Average	100	177	P
6	7266.00	-3.57	48.62	45.05	74.00	-28.95	Peak	100	177	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

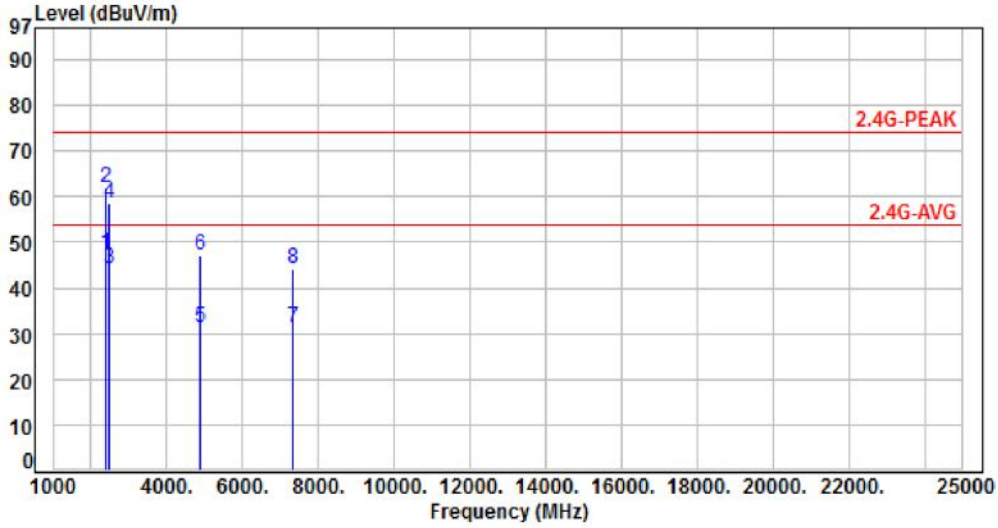
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	61.37	45.62	54.00	-8.38	Average	125	331	P
2	2390.00	-15.75	75.67	59.92	74.00	-14.08	Peak	125	331	P
3	2483.50	-15.48	58.09	42.61	54.00	-11.39	Average	125	331	P
4	2483.50	-15.48	72.10	56.62	74.00	-17.38	Peak	125	331	P
5	4874.00	-7.39	37.80	30.41	54.00	-23.59	Average	106	269	P
6	4874.00	-7.39	53.93	46.54	74.00	-27.46	Peak	106	269	P
7	7311.00	-3.50	34.23	30.73	54.00	-23.27	Average	112	281	P
8	7311.00	-3.50	46.95	43.45	74.00	-30.55	Peak	112	281	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

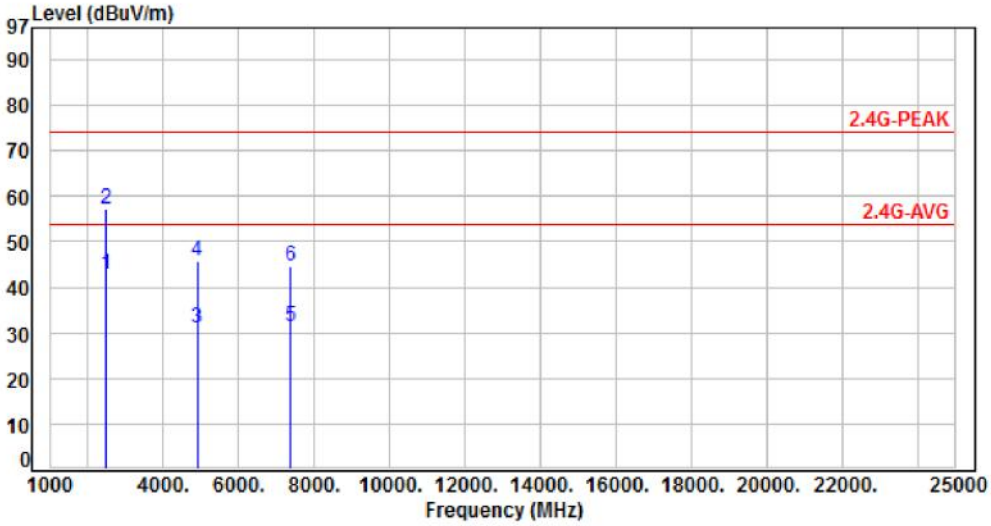
Power	:	AC 120V	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH06	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2390.00	-15.75	63.23	47.48	54.00	-6.52	Average	100	208	P
2	2390.00	-15.75	77.57	61.82	74.00	-12.18	Peak	100	208	P
3	2483.50	-15.48	59.82	44.34	54.00	-9.66	Average	100	208	P
4	2483.50	-15.48	73.97	58.49	74.00	-15.51	Peak	100	208	P
5	4874.00	-7.39	38.72	31.33	54.00	-22.67	Average	100	104	P
6	4874.00	-7.39	54.69	47.30	74.00	-26.70	Peak	100	104	P
7	7311.00	-3.50	34.73	31.23	54.00	-22.77	Average	102	143	P
8	7311.00	-3.50	47.81	44.31	74.00	-29.69	Peak	102	143	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

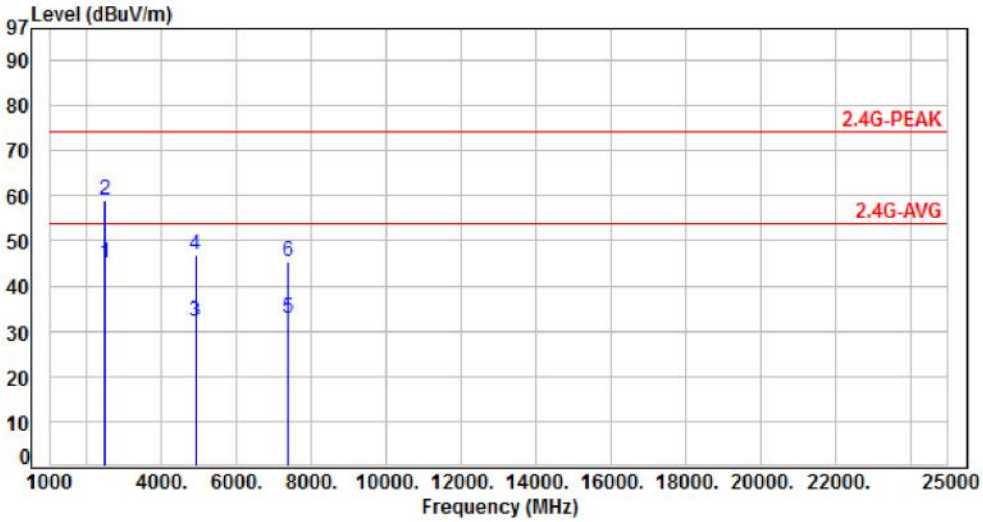
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	Mode 4, CH09	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	58.31	42.83	54.00	-11.17	Average	133	194	P
2	2483.50	-15.48	72.50	57.02	74.00	-16.98	Peak	133	194	P
3	4904.00	-7.26	38.09	30.83	54.00	-23.17	Average	110	336	P
4	4904.00	-7.26	52.98	45.72	74.00	-28.28	Peak	110	336	P
5	7356.00	-3.42	34.94	31.52	54.00	-22.48	Average	107	155	P
6	7356.00	-3.42	48.10	44.68	74.00	-29.32	Peak	107	155	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

Power	:	AC 120	Pol/Phase	:	HORIZONTAL
Test Mode	:	Mode 4, CH09	Temperature	:	24 °C
Test Date	:	Feb. 16, 2017	Humidity	:	63 %



No.	Frequency (MHz)	Factor (dB)	Reading (dBuV)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	Height (cm)	Azimuth (deg)	P/F
1	2483.50	-15.48	60.47	44.99	54.00	-9.01	Average	120	207	P
2	2483.50	-15.48	74.60	59.12	74.00	-14.88	Peak	120	207	P
3	4904.00	-7.26	39.22	31.96	54.00	-22.04	Average	100	98	P
4	4904.00	-7.26	54.12	46.86	74.00	-27.14	Peak	100	98	P
5	7356.00	-3.42	36.20	32.78	54.00	-21.22	Average	100	148	P
6	7356.00	-3.42	48.92	45.50	74.00	-28.50	Peak	100	148	P

Note: Level=Reading+Factor
Margin=Level-Limit
Factor=Antenna Factor + cable loss - Amplifier Factor

6.7 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

7. Test of Conducted Spurious Emission

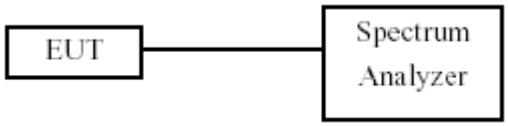
7.1 Test Limit

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

7.2 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.

7.3 Test Setup Layout



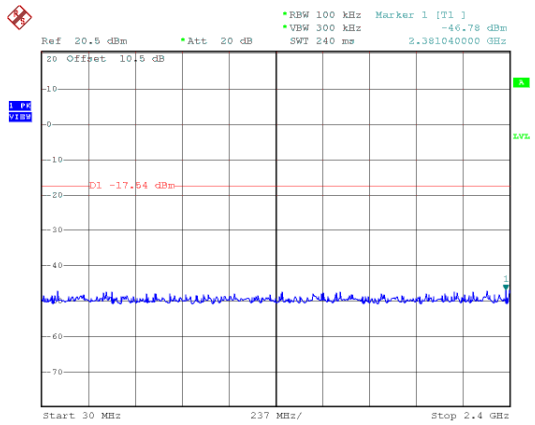
7.4 Test Result and Data

Test Result	:	PASS	Temperature	:	21°C
Test Date	:	Mar. 02, 2017	Humidity	:	58%

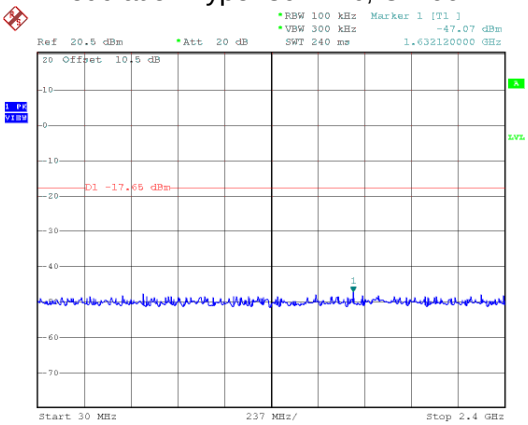
Note: Test plots refers to the following pages.

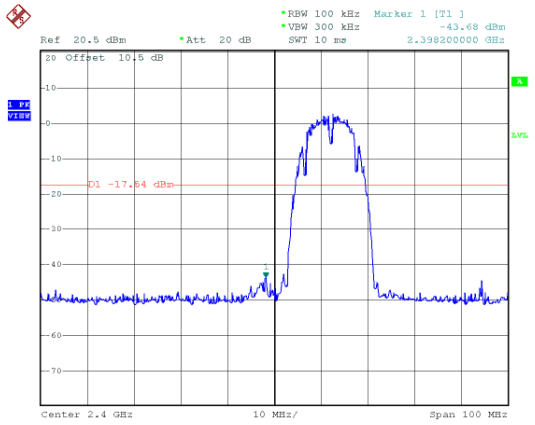
Antenna A

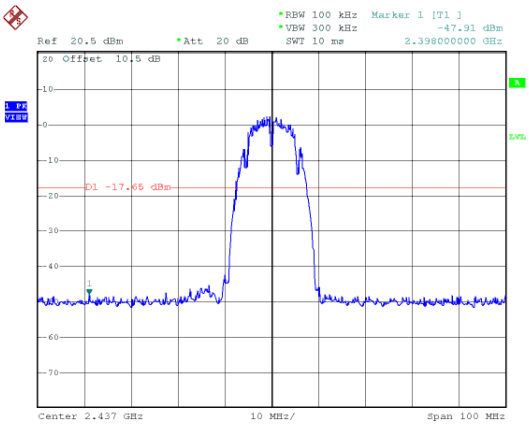
Modulation Type: 802.11b, CH 01

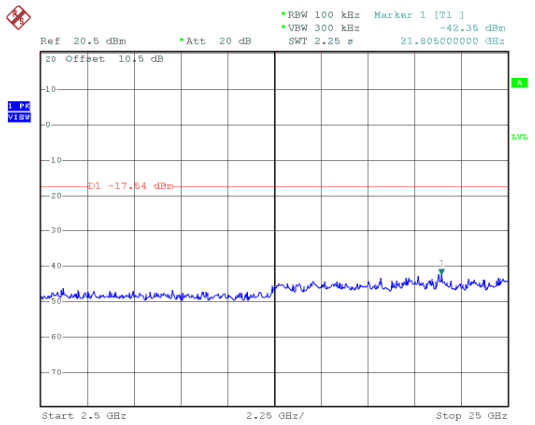


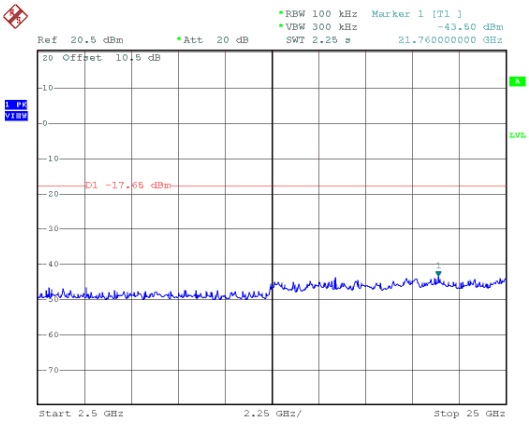
Modulation Type: 802.11b, CH 06





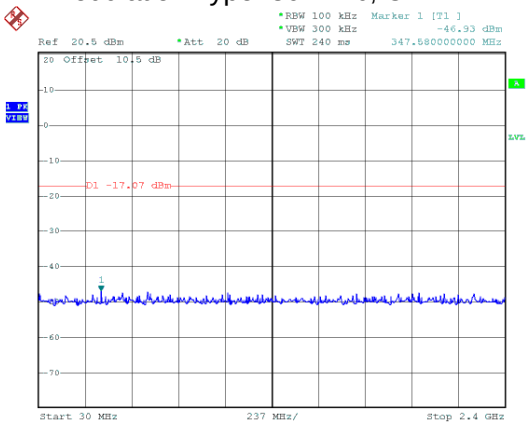


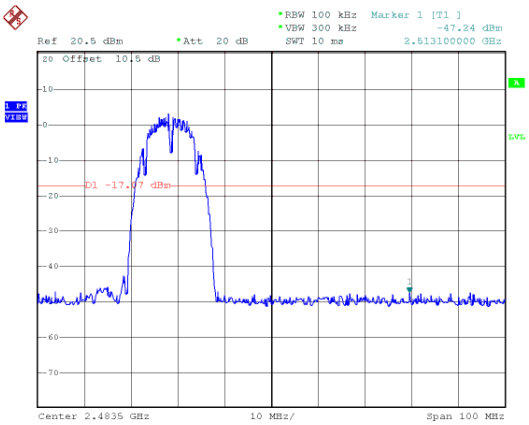


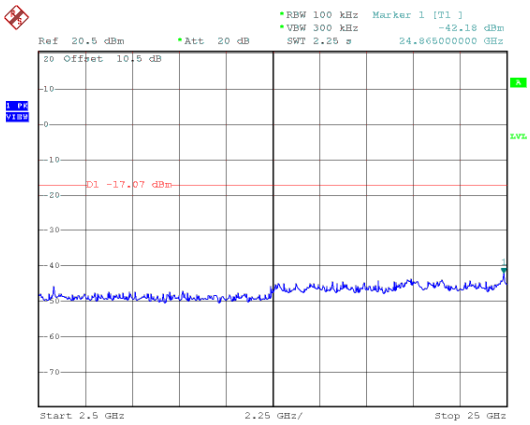


Antenna A

Modulation Type: 802.11b, CH 11

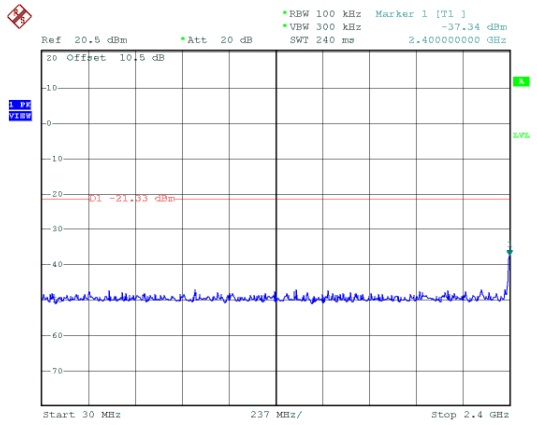




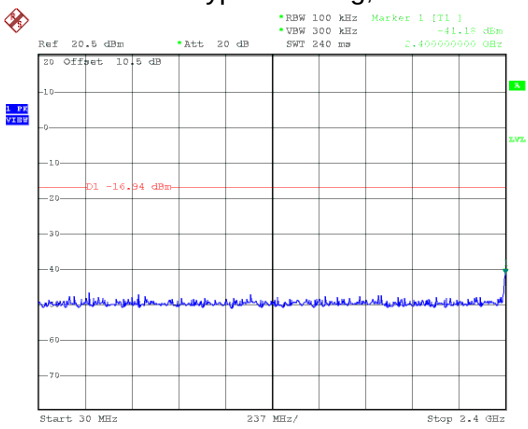


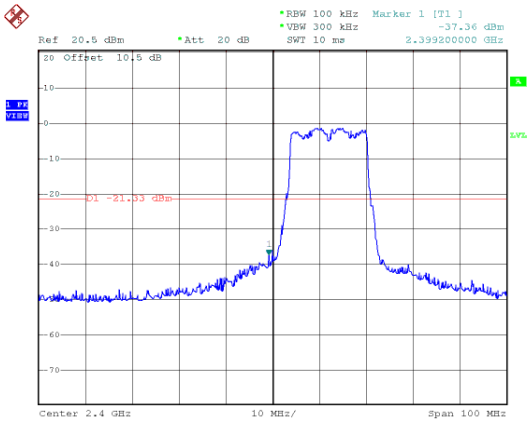
Antenna A

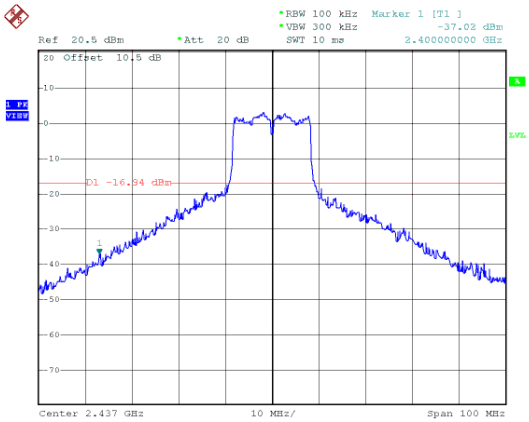
Modulation Type: 802.11g, CH 01

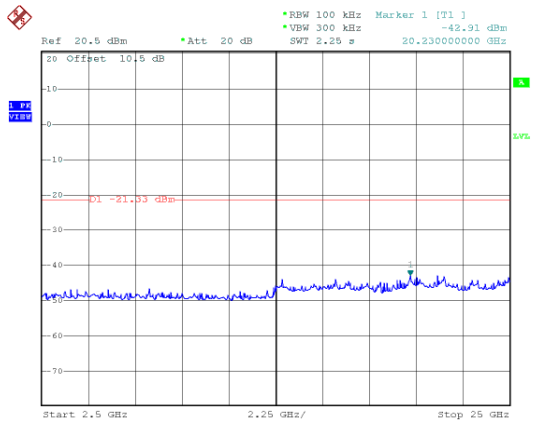


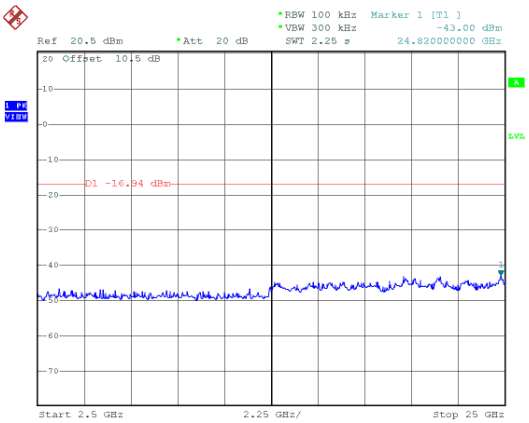
Modulation Type: 802.11g, CH 06





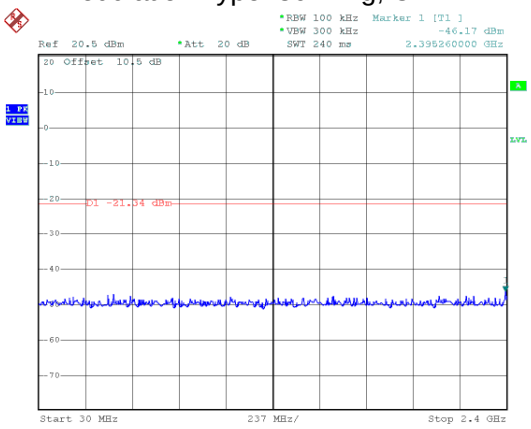


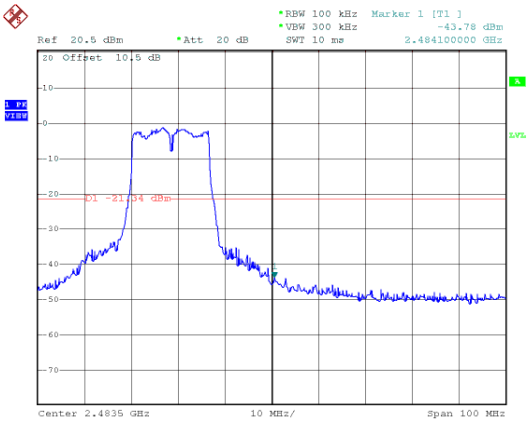


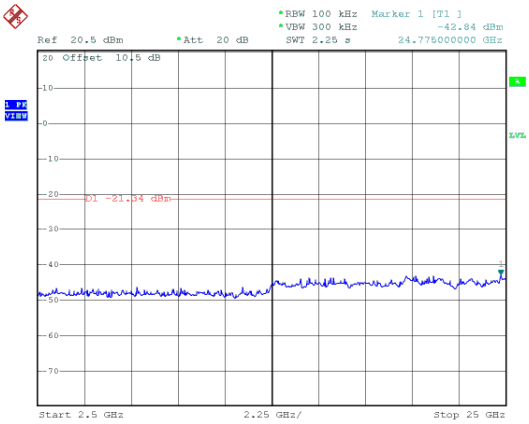


Antenna A

Modulation Type: 802.11g, CH 11

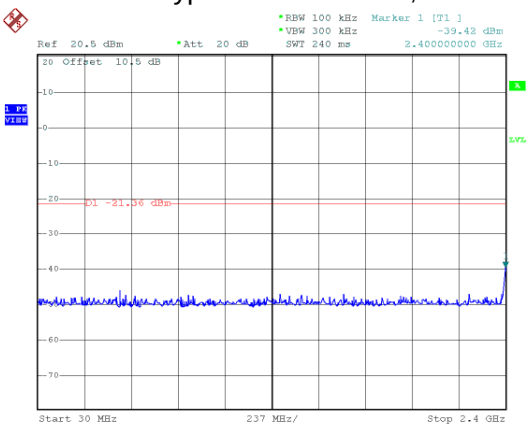




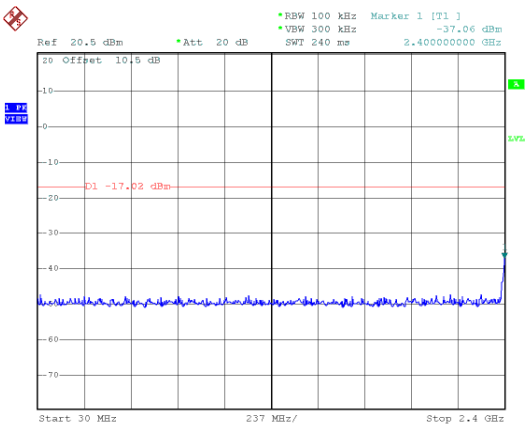


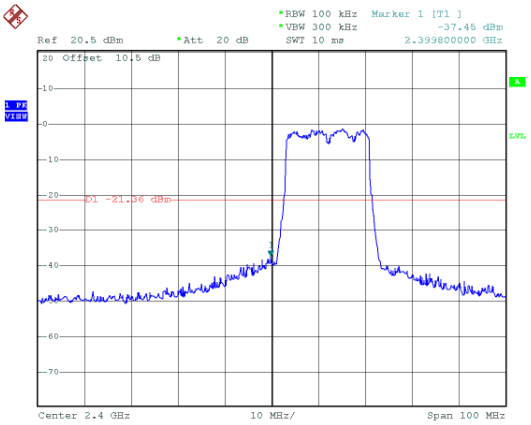
Antenna A

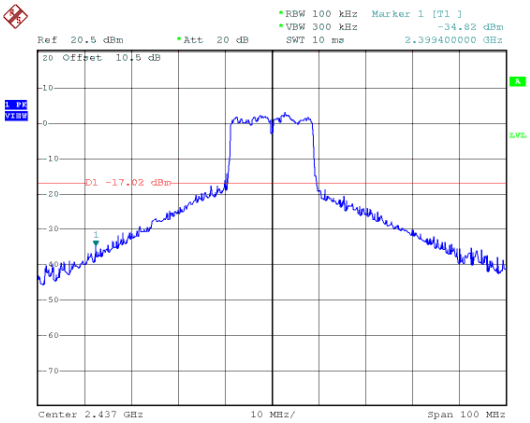
Modulation Type: 802.11n HT20, CH01

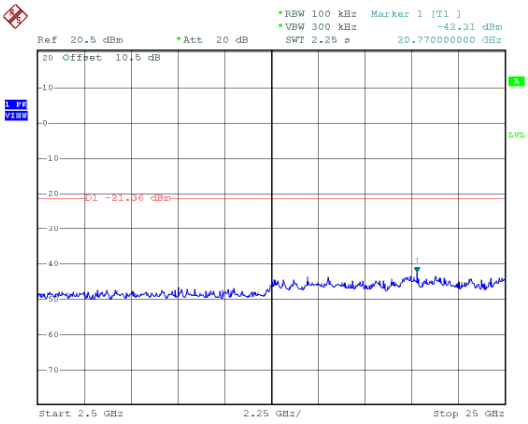


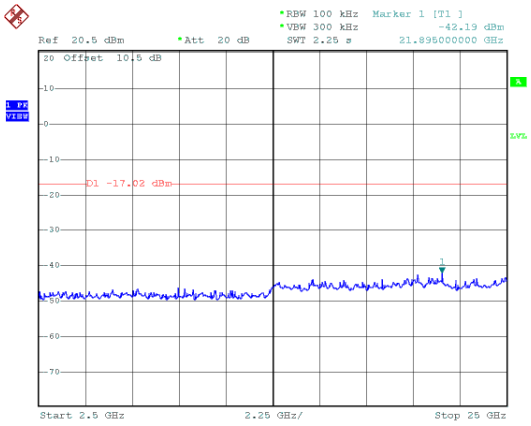
Modulation Type: 802.11n HT20, CH06





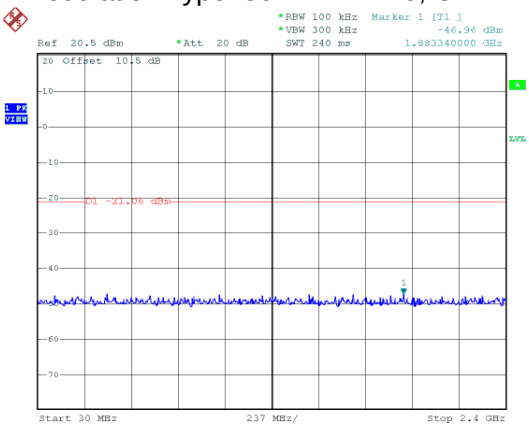


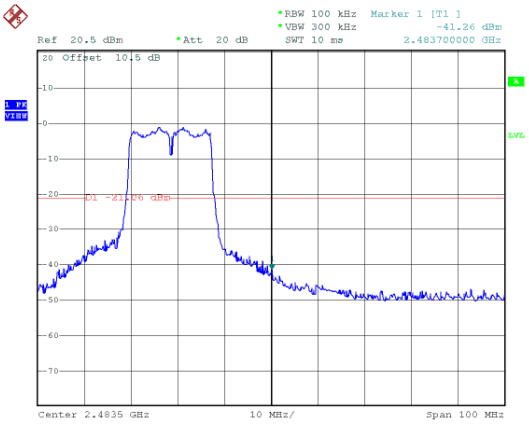


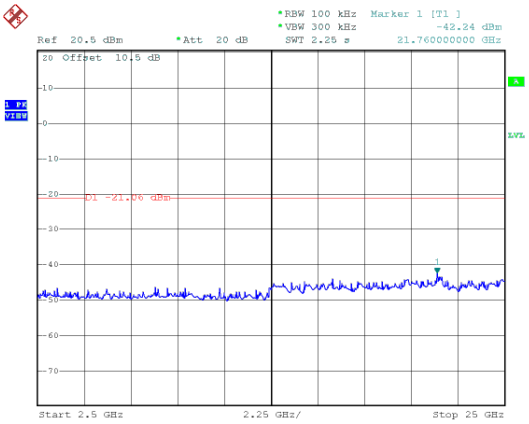


Antenna A

Modulation Type: 802.11n HT20, CH11

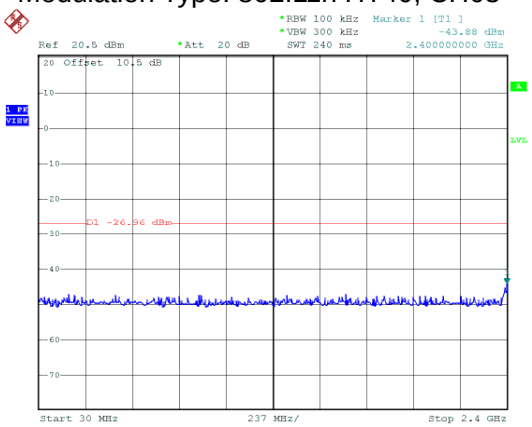




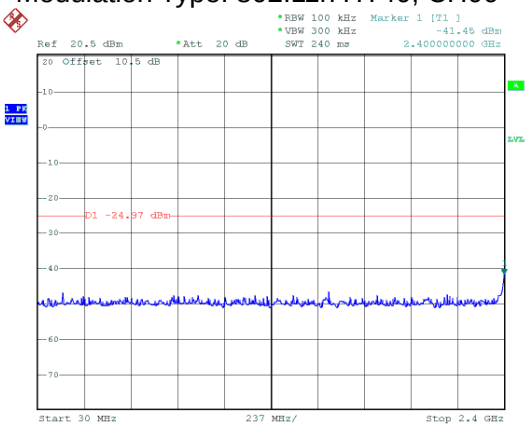


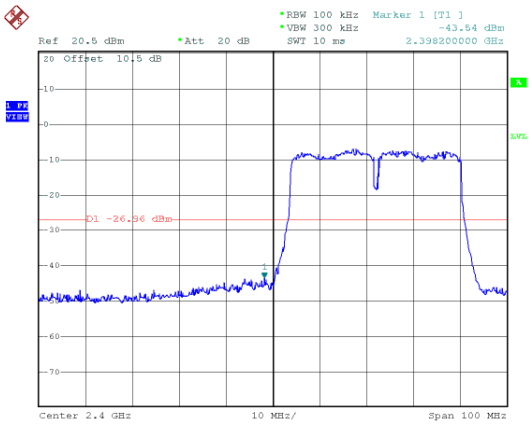
Antenna A

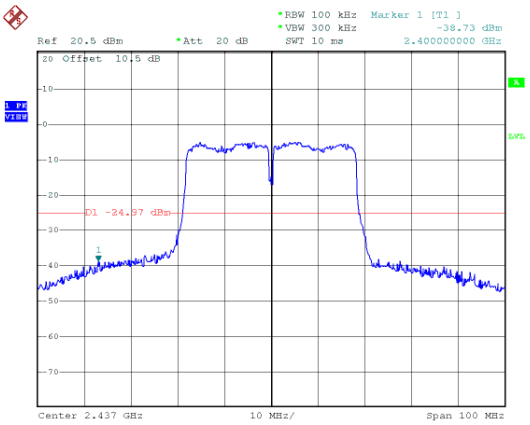
Modulation Type: 802.11n HT40, CH03

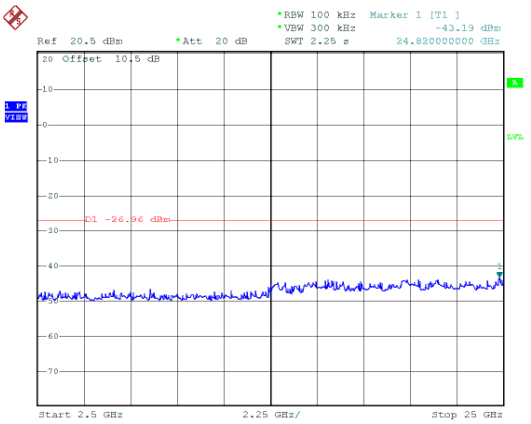


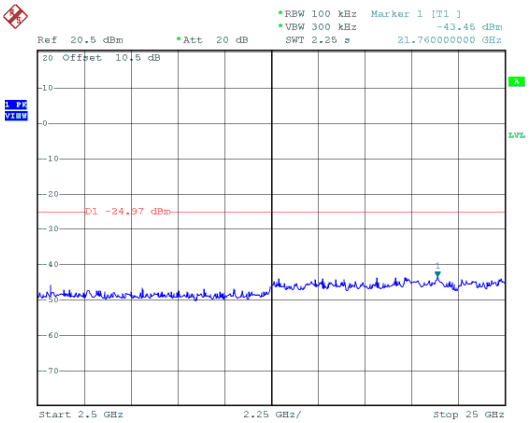
Modulation Type: 802.11n HT40, CH06





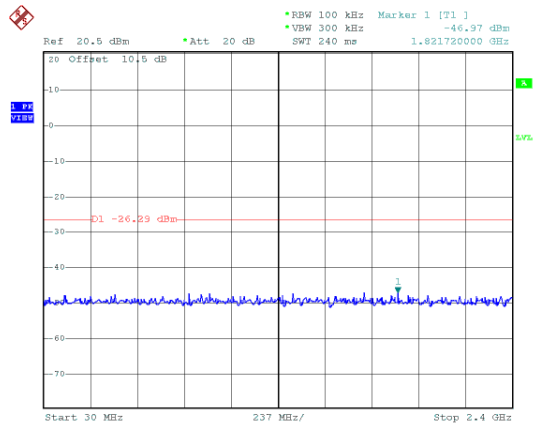


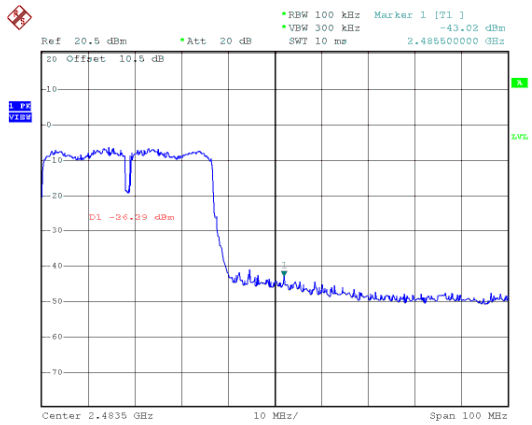


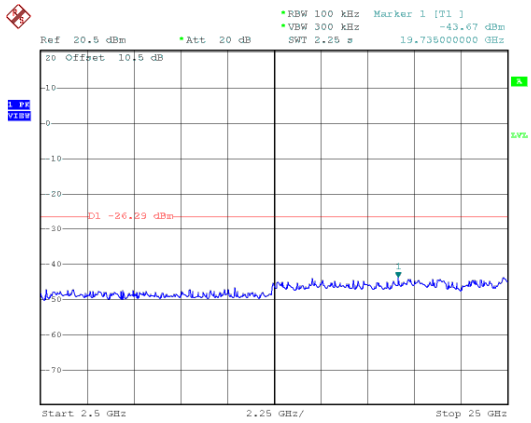


Antenna A

Modulation Type: 802.11n HT40, CH09

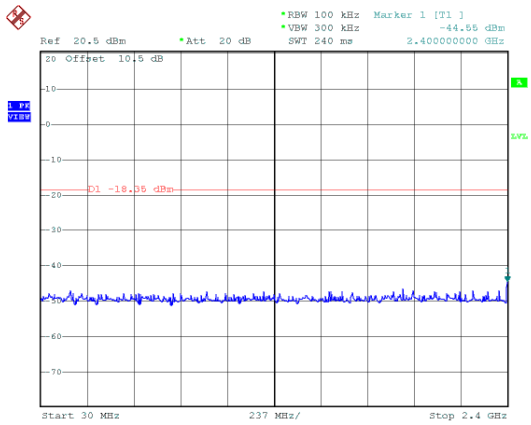




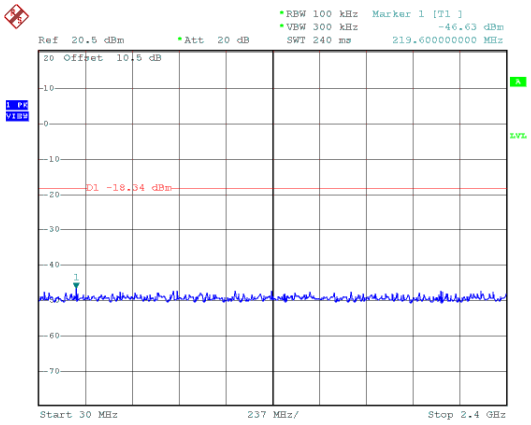


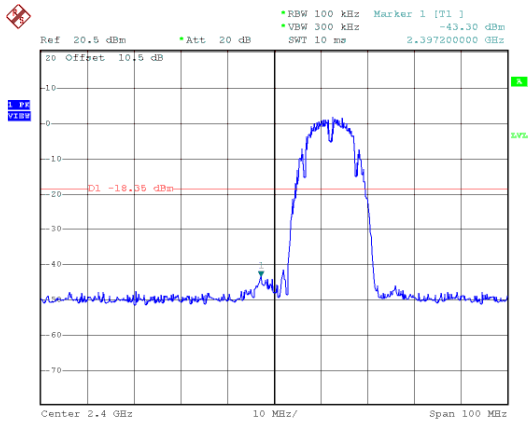
Antenna B

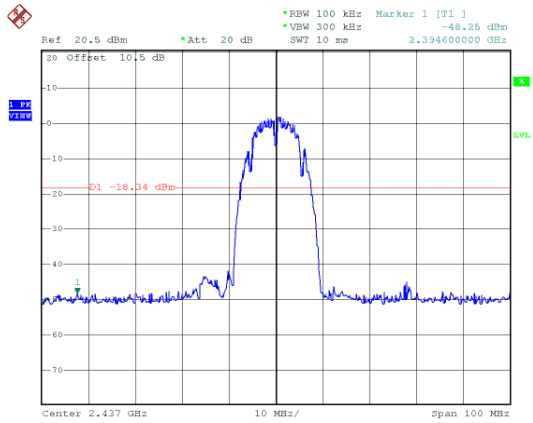
Modulation Type: 802.11b, CH 01

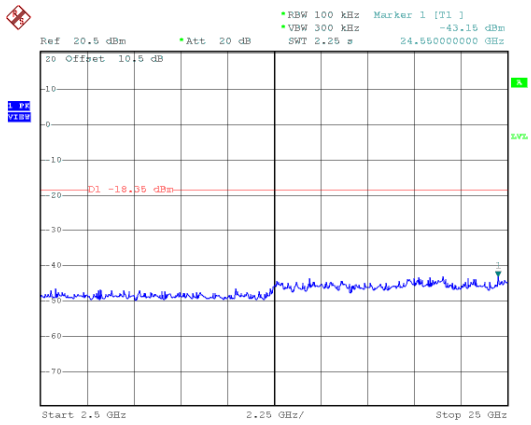


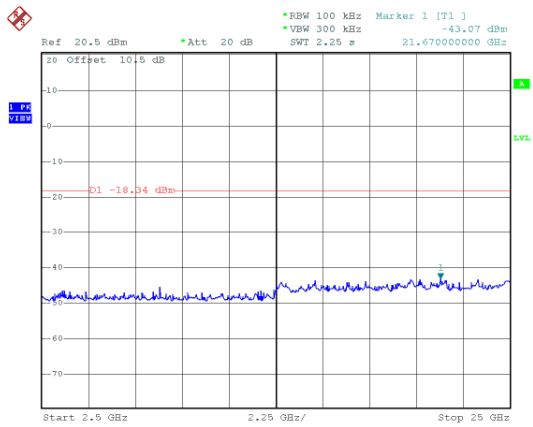
Modulation Type: 802.11b, CH 06





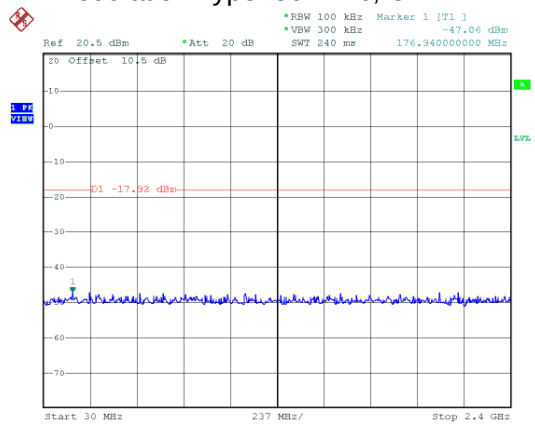


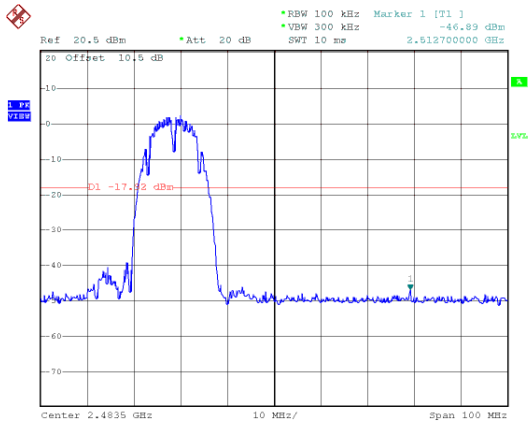


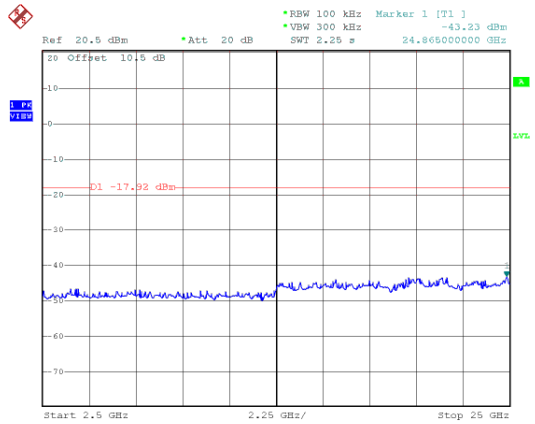


Antenna B

Modulation Type: 802.11b, CH 11

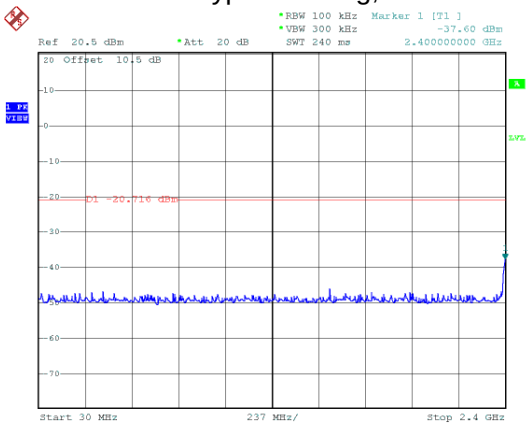




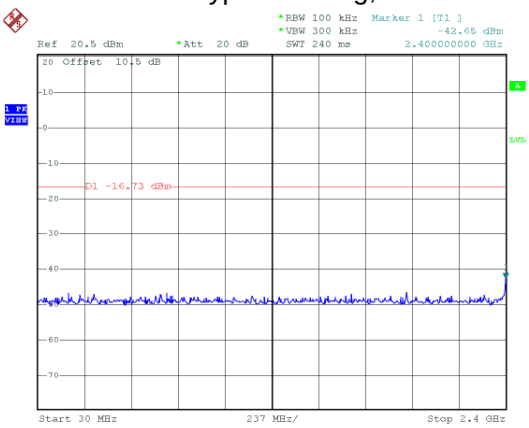


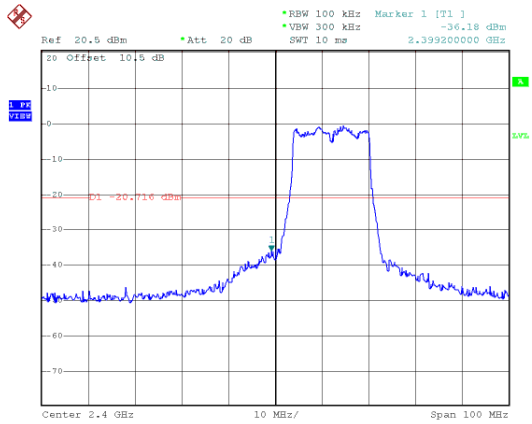
Antenna B

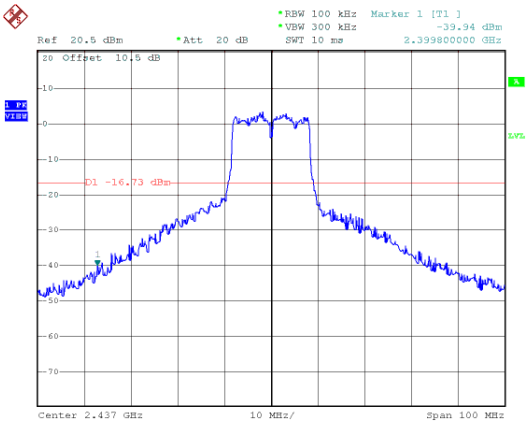
Modulation Type: 802.11g, CH 01

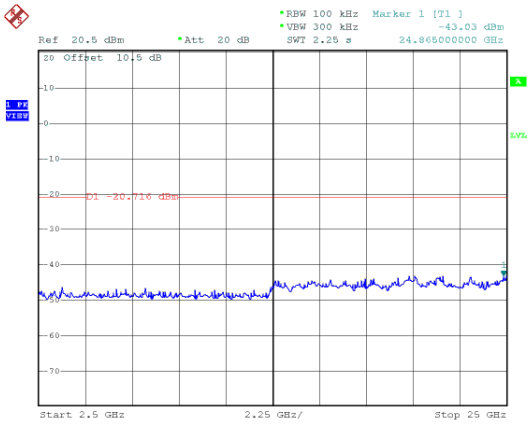


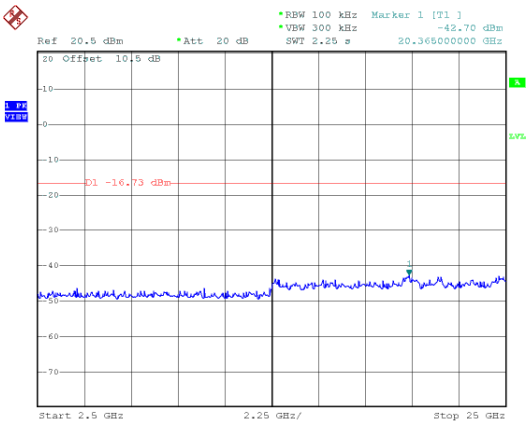
Modulation Type: 802.11g, CH 06





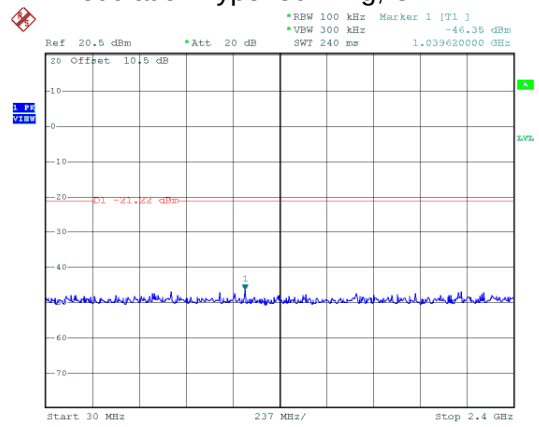


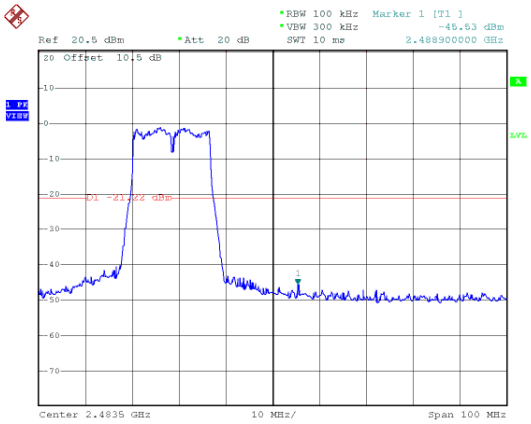


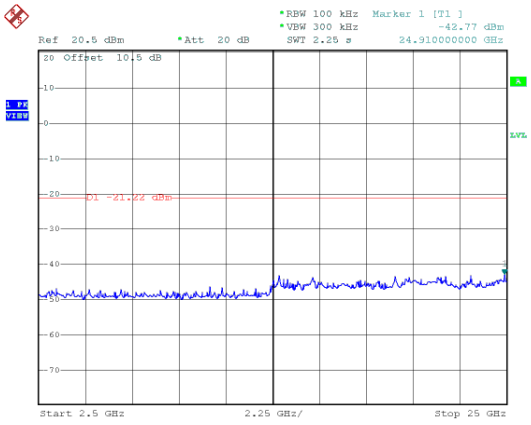


Antenna B

Modulation Type: 802.11g, CH 11

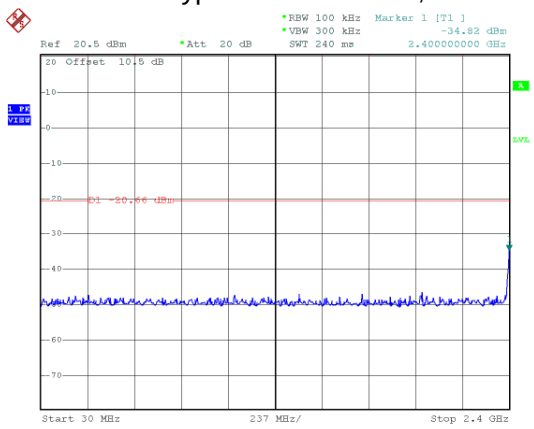




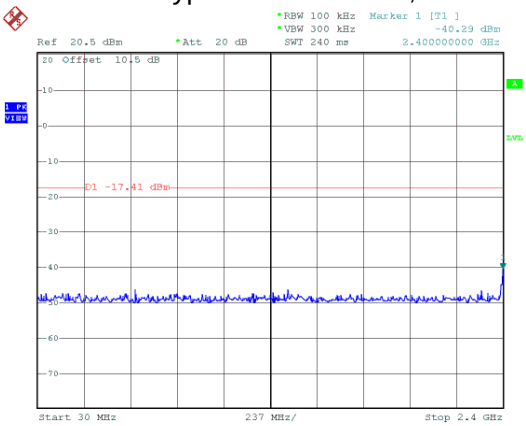


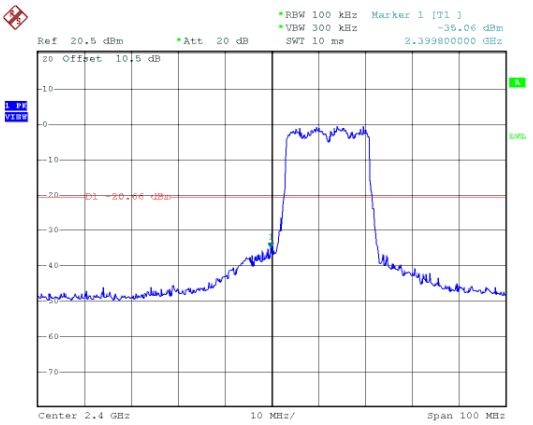
Antenna B

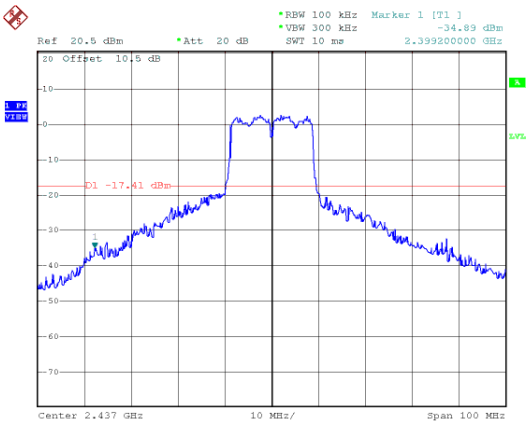
Modulation Type: 802.11n HT20, CH01

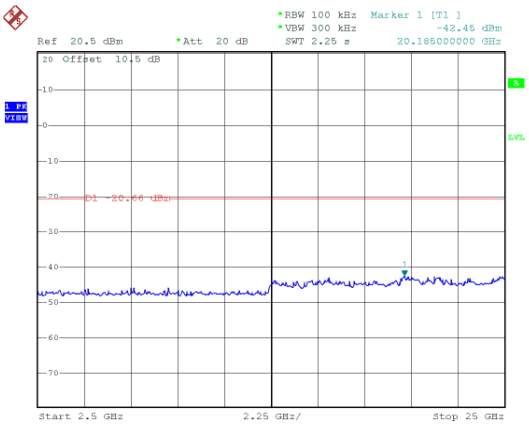


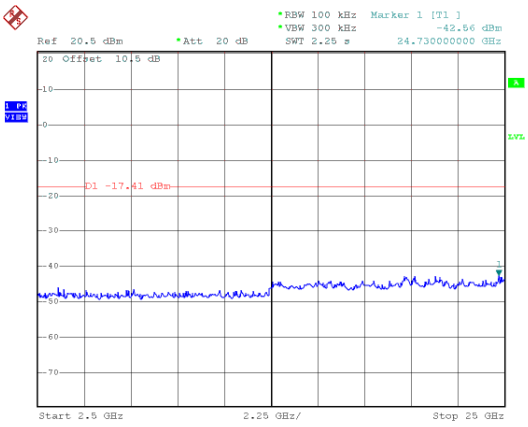
Modulation Type: 802.11n HT20, CH06





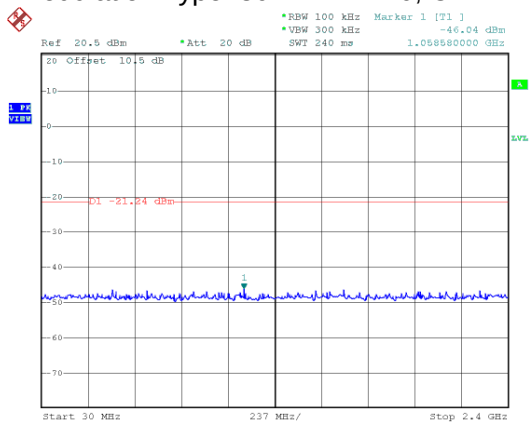


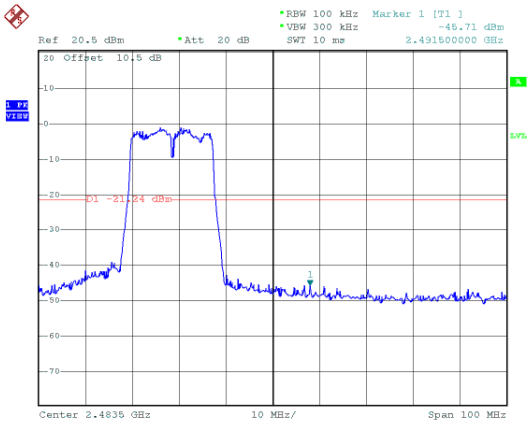


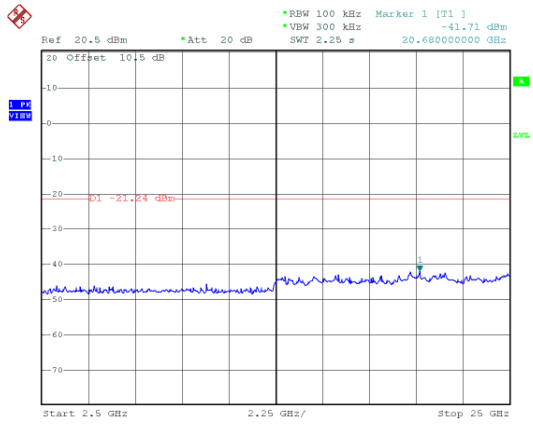


Antenna B

Modulation Type: 802.11n HT20, CH11

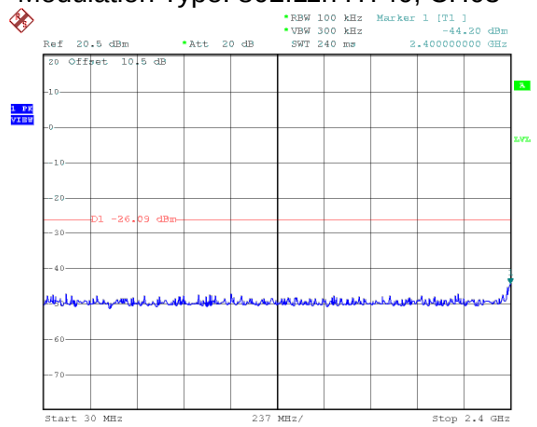


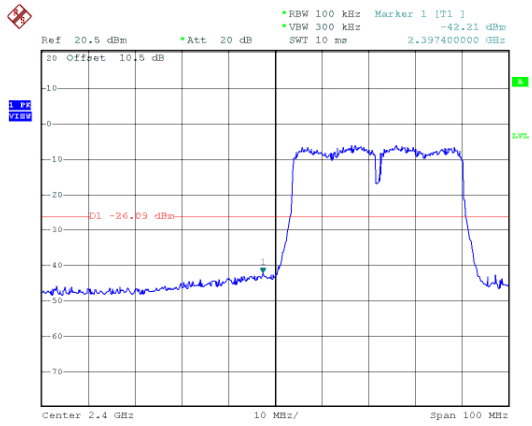


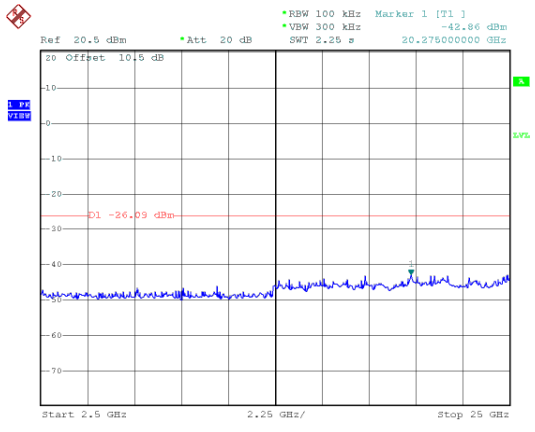


Antenna B

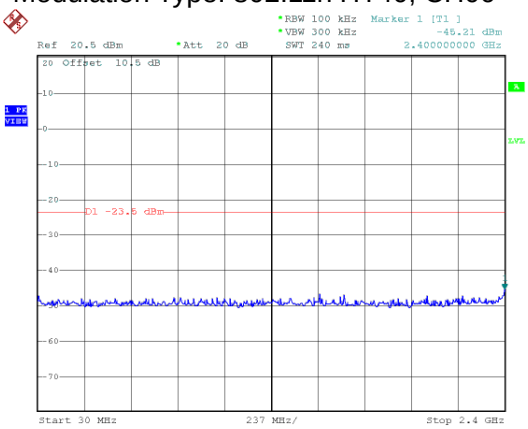
Modulation Type: 802.11n HT40, CH03

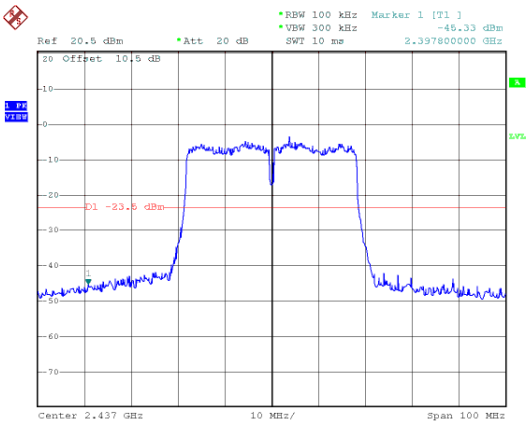


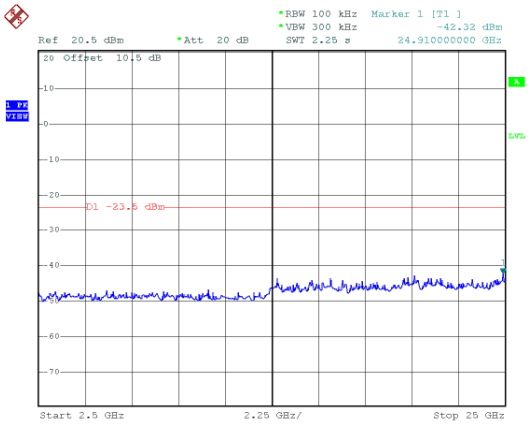




Modulation Type: 802.11n HT40, CH06

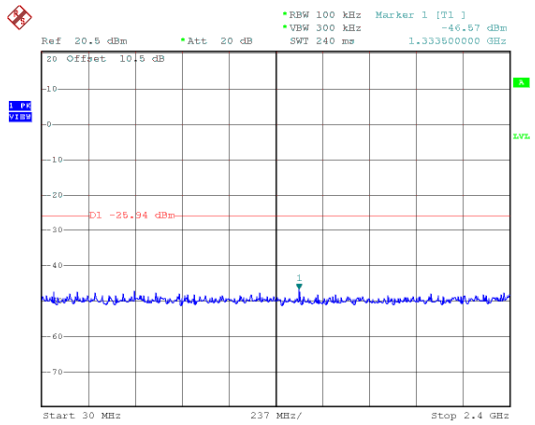


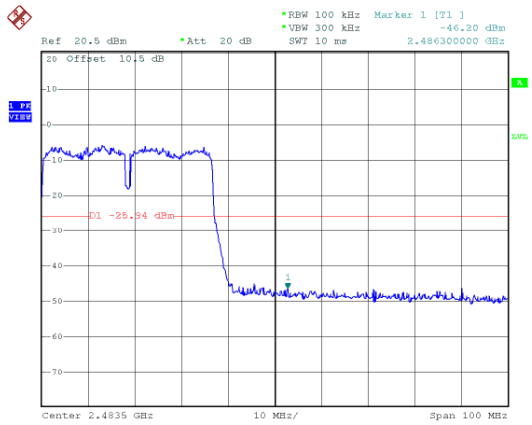


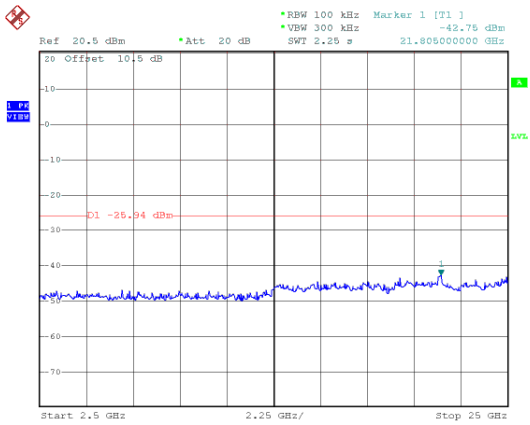


Antenna B

Modulation Type: 802.11n HT40, CH09







8. 6dB Bandwidth Measurement Data

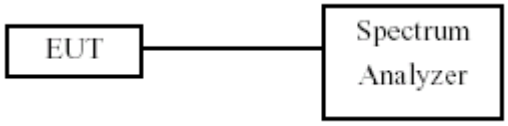
8.1 Test Limit

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

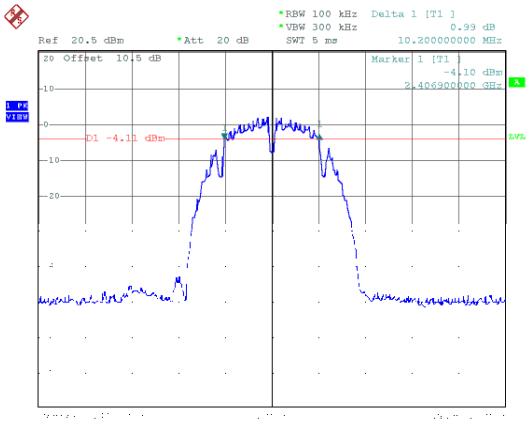
Temperature : 21°C Humidity : 58%
Test Date : Mar. 02, 2017

Modulation Type	Channel	Frequency (MHz)	6dB Bandwidth (MHz)		Limits (MHz)
			ANT A	ANT B	
IEEE 802.11b (1Mbps)	01	2412	10.20	10.10	0.5
	06	2437	9.80	9.70	0.5
	11	2462	10.10	10.00	0.5
IEEE 802.11g (6Mbps)	01	2412	16.50	16.50	0.5
	06	2437	16.50	16.50	0.5
	11	2462	16.60	16.50	0.5
IEEE 802.11n HT20 (6.5Mbps)	01	2412	17.80	17.80	0.5
	06	2437	17.80	17.70	0.5
	11	2462	17.60	17.60	0.5
IEEE 802.11n HT40 (13.5Mbps)	03	2422	36.40	36.40	0.5
	06	2437	36.40	36.40	0.5
	09	2452	36.40	36.40	0.5

Antenna A

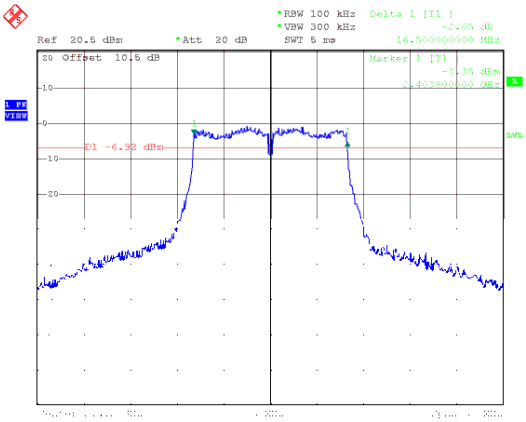
Modulation Type: 802.11b

CH01

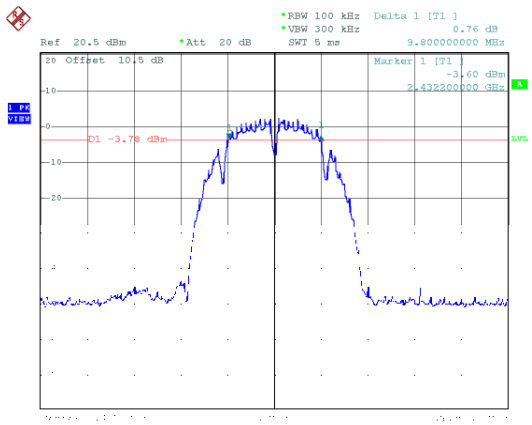


Modulation Type: 802.11g

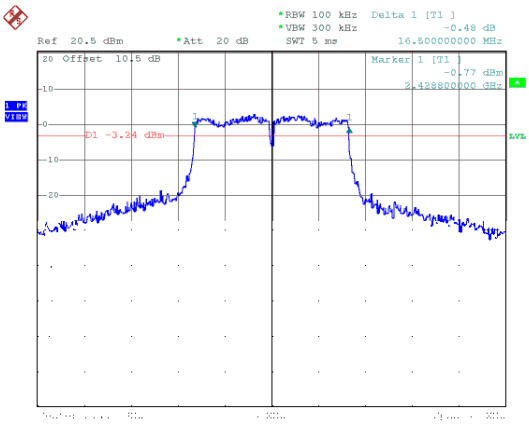
CH01



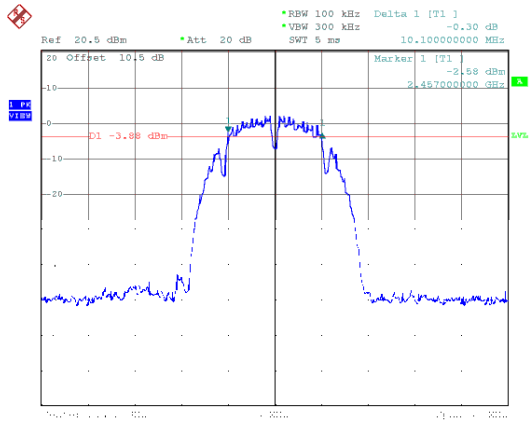
CH06



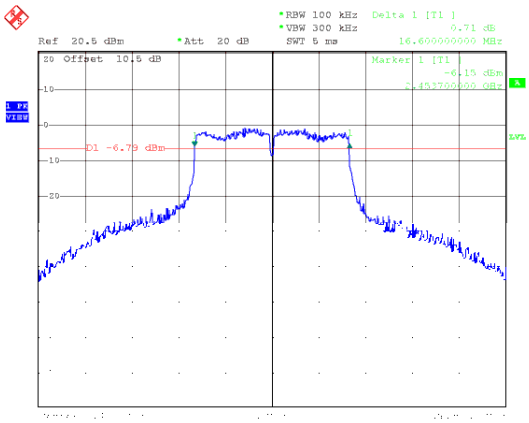
CH06



CH11



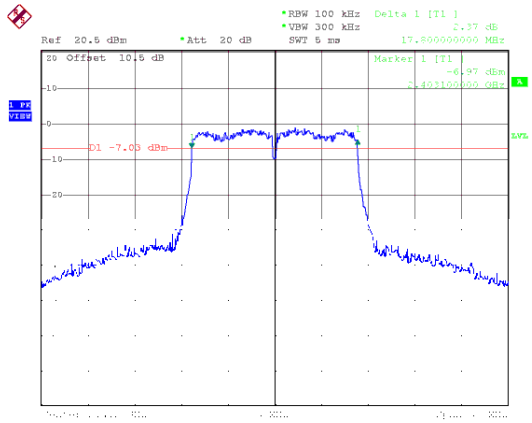
CH11



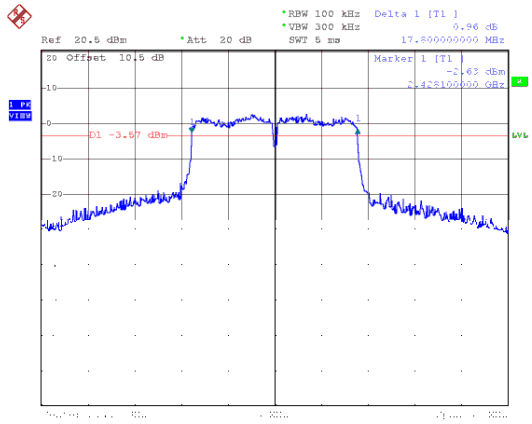
Antenna A

Modulation Type: 802.11n HT20

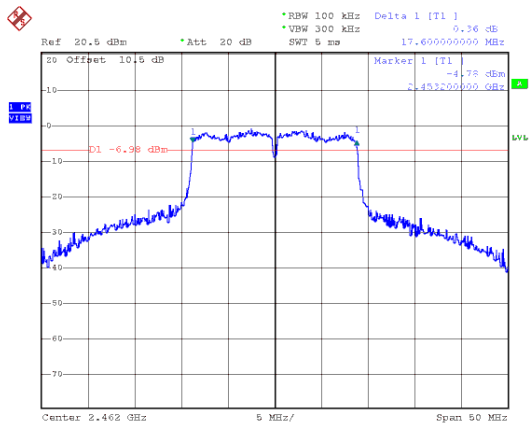
CH01



CH06

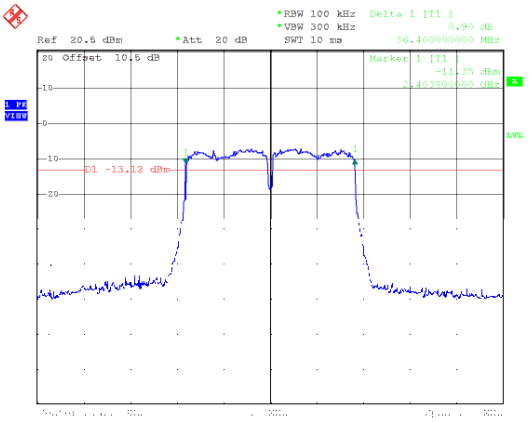


CH11

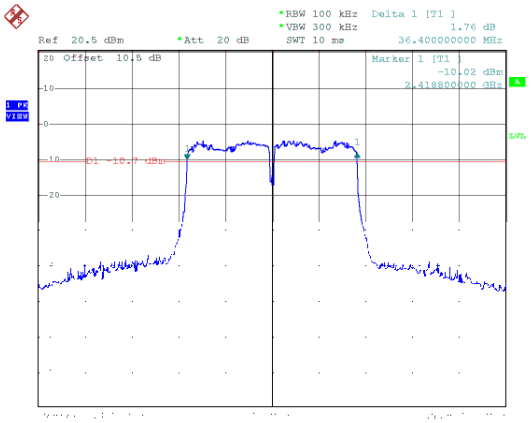


Modulation Type: 802.11n HT40

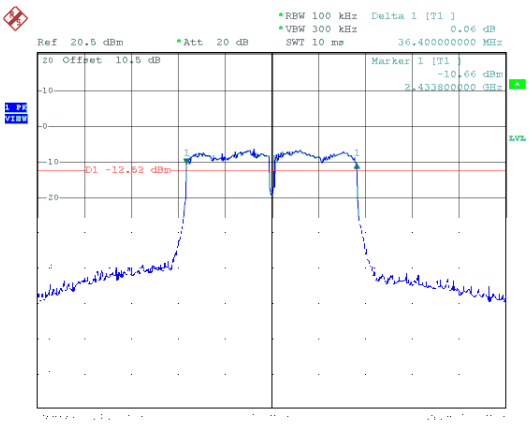
CH03



CH06



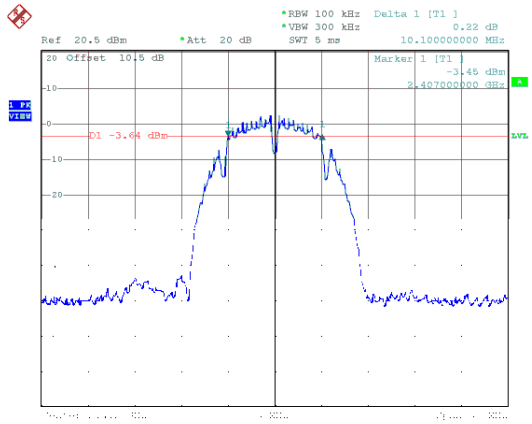
CH09



Antenna B

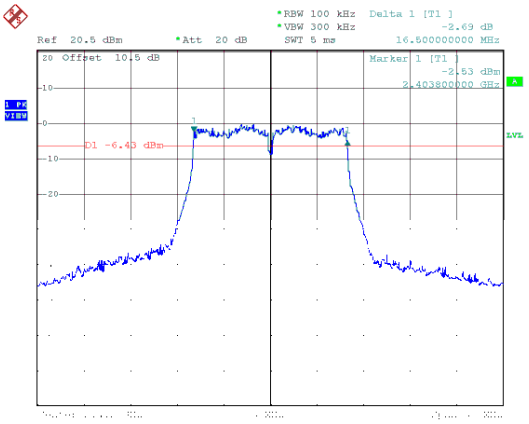
Modulation Type: 802.11b

CH01

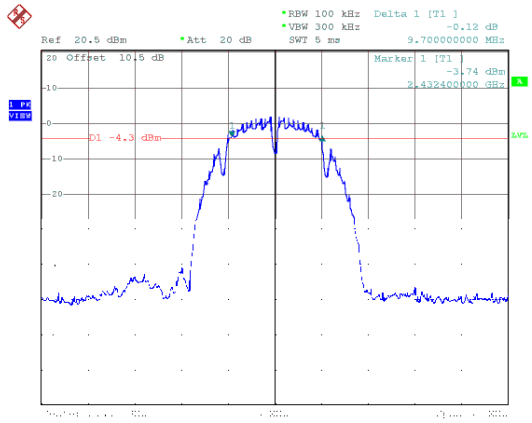


Modulation Type: 802.11g

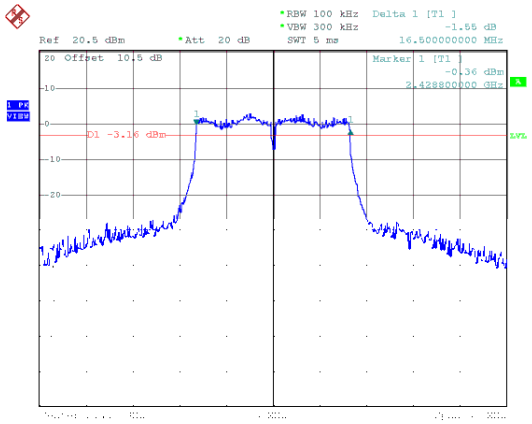
CH01



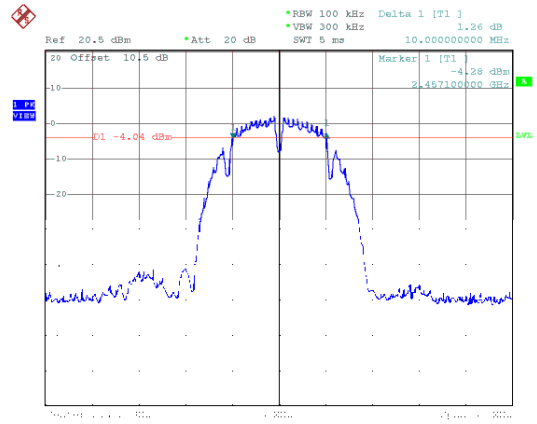
CH06



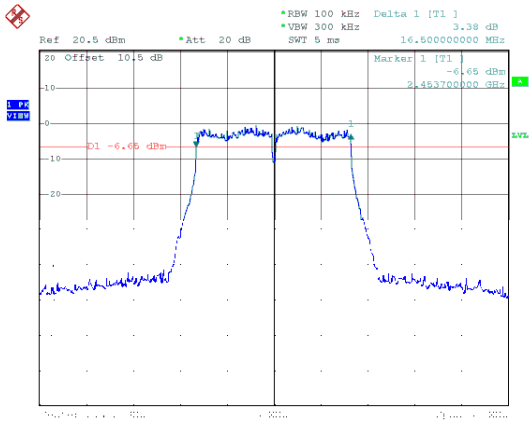
CH06



CH11



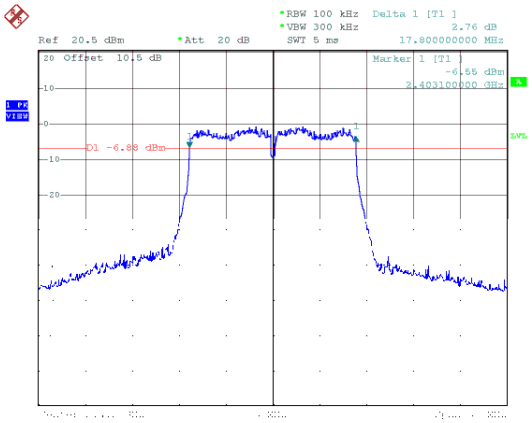
CH11



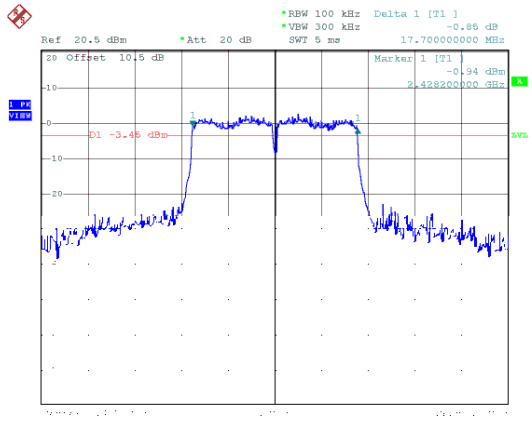
Antenna B

Modulation Type: 802.11n HT20

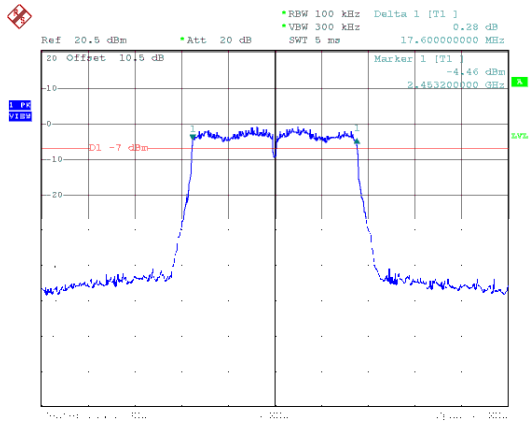
CH01



CH06

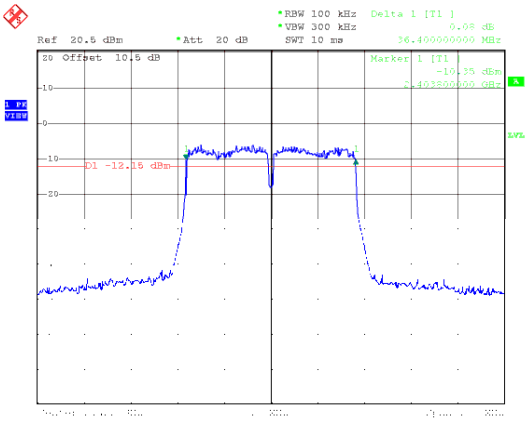


CH11

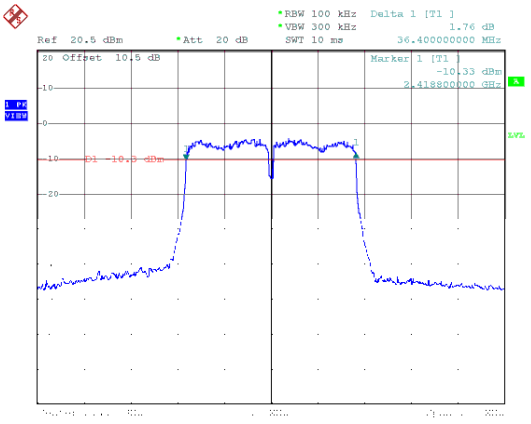


Modulation Type: 802.11n HT40

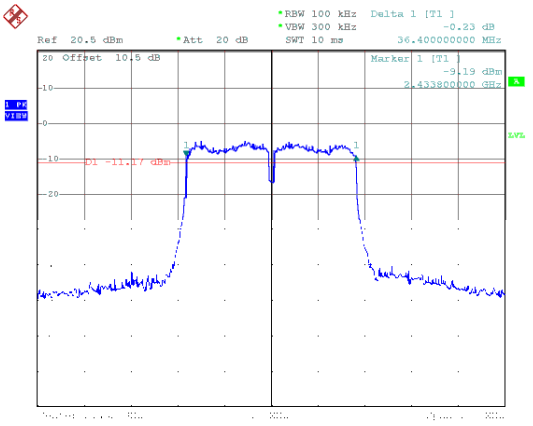
CH03



CH06



CH09



9. Maximum Peak and Average Output Power

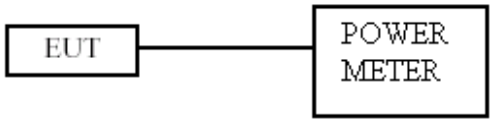
9.1 Test Limit

The Maximum Peak Output Power Measurement is 30dBm.
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

9.2 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.

9.3 Test Setup Layout



9.4 Test Result and Data

Temperature : 21 °C Humidity : 58 %

Test Date : Mar. 02. 2017

Modulation Type	Channel	Frequency (MHz)	Peak Power Output (dBm)			Peak Power Output (mW)	Power Limit (dBm)
			ANT A	ANT B	A+B	ANT A+B	
IEEE 802.11b (1Mbps)	01	2412	15.92	15.54	18.74	74.89	30.00
	06	2437	16.02	15.38	18.72	74.51	30.00
	11	2462	15.85	15.46	18.67	73.62	30.00
IEEE 802.11g (6Mbps)	01	2412	23.52	22.3	25.96	394.73	30.00
	06	2437	25	24.67	27.85	609.32	30.00
	11	2462	21.63	21.56	24.61	288.76	30.00
IEEE 802.11n HT20 (6.5Mbps)	01	2412	22.45	22.07	25.27	336.86	30.00
	06	2437	25	24.73	27.88	613.39	30.00
	11	2462	21.98	21.93	24.97	313.72	30.00
IEEE 802.11n HT40 (13.5Mbps)	03	2422	19.55	19.68	22.63	183.05	30.00
	06	2437	21.6	20.9	24.27	267.57	30.00
	09	2452	20.15	20.3	23.24	210.67	30.00

Modulation Type	Channel	Frequency (MHz)	Avg. Power Output (dBm)			Avg. Power Output (mW)	Power Limit (dBm)
			ANT A	ANT B	A+B	ANT A+B	
IEEE 802.11b (1Mbps)	01	2412	12.87	12.54	15.72	37.31	30.00
	06	2437	12.97	12.28	15.65	36.72	30.00
	11	2462	12.82	12.46	15.65	36.76	30.00
IEEE 802.11g (6Mbps)	01	2412	13.52	13.14	16.34	43.10	30.00
	06	2437	16.8	16.18	19.51	89.36	30.00
	11	2462	13.02	12.8	15.92	39.10	30.00
IEEE 802.11n HT20 (6.5Mbps)	01	2412	13.48	13.14	16.32	42.89	30.00
	06	2437	16.76	16.31	19.55	90.18	30.00
	11	2462	13.03	12.84	15.95	39.32	30.00
IEEE 802.11n HT40 (13.5Mbps)	03	2422	10.38	10.76	13.58	22.83	30.00
	06	2437	12.4	11.5	14.98	31.50	30.00
	09	2452	11.04	11.14	14.10	25.71	30.00

Note: Average power is for reference only.

10. Power Spectral Density

10.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8dBm.

If transmitting antennas of directional gain greater than 6 dBi are used, the power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi

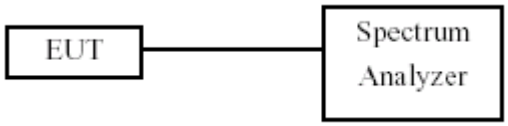
10.2 Test Procedures

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.

10.3 Test Setup Layout



10.4 Test Result and Data

Temperature : 21 °C Humidity : 58 %

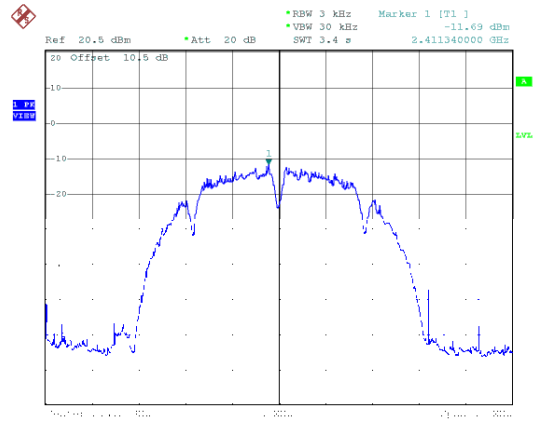
Test Date : Mar. 02. 2017

Modulation Type	Channel	Frequency (MHz)	Maximum Power Density of 3 kHz Bandwidth (dBm)		Sum chain (dBm)	Duty Cycle CF(dB)	Total PSD (dBm)	Limit (dBm)
			ANT A	ANT B				
IEEE 802.11b (1Mbps)	01	2412	-11.69	-12.26	-8.96	0.00	-8.96	8.00
	06	2437	-11.44	-12.33	-8.85	0.00	-8.85	8.00
	11	2462	-12.06	-12.26	-9.15	0.00	-9.15	8.00
IEEE 802.11g (6Mbps)	01	2412	-13.25	-13.6	-10.41	0.00	-10.41	8.00
	06	2437	-9.69	-10.41	-7.02	0.00	-7.02	8.00
	11	2462	-13.63	-16.5	-11.82	0.00	-11.82	8.00
IEEE 802.11n HT20 (6.5Mbps)	01	2412	-12.34	-12.41	-9.36	0.00	-9.36	8.00
	06	2437	-9.61	-9.76	-6.67	0.00	-6.67	8.00
	11	2462	-11.71	-16.63	-10.50	0.00	-10.50	8.00
IEEE 802.11n HT40 (13.5Mbps)	03	2422	-19.78	-18	-15.79	0.00	-15.79	8.00
	06	2437	-15.79	-17.09	-13.38	0.00	-13.38	8.00
	09	2452	-17.95	-19.98	-15.84	0.00	-15.84	8.00

Antenna A

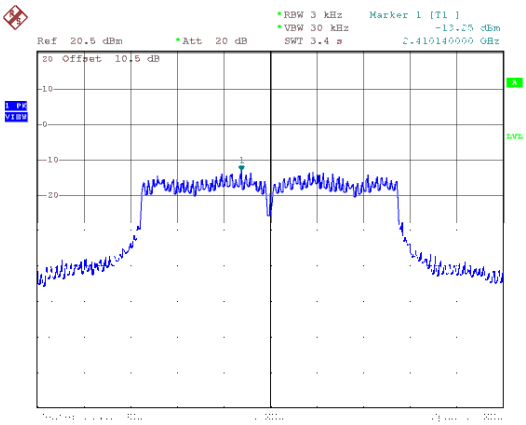
Modulation Type: 802.11b

CH01

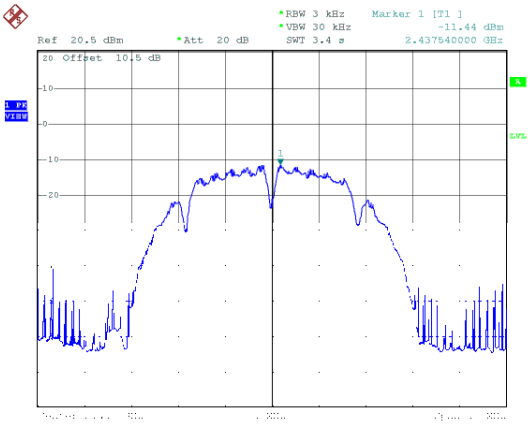


Modulation Type: 802.11g

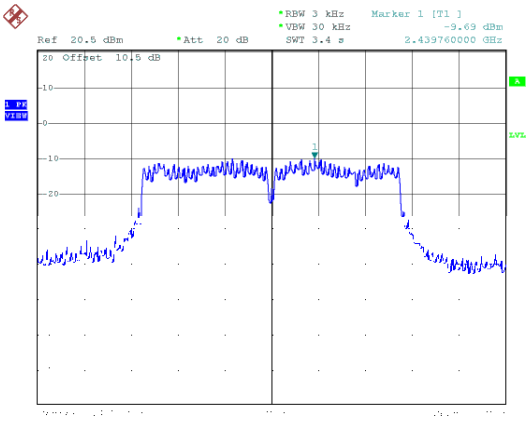
CH01



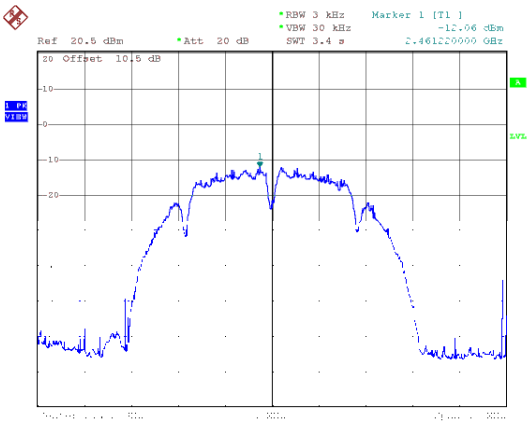
CH06



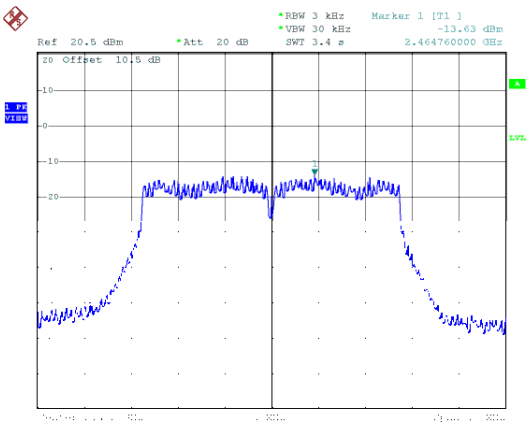
CH06



CH11



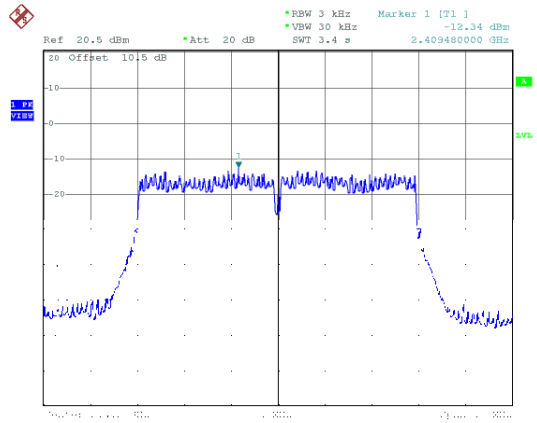
CH11



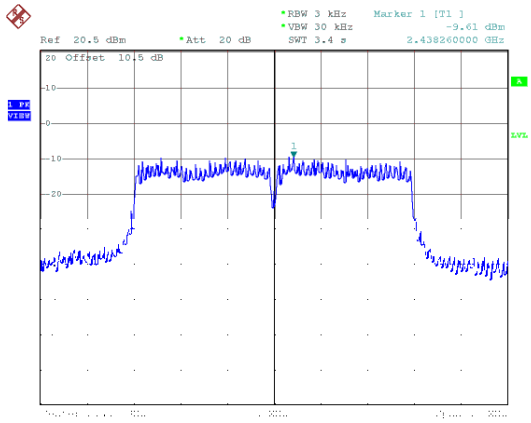
Antenna A

Modulation Type: 802.11n HT20

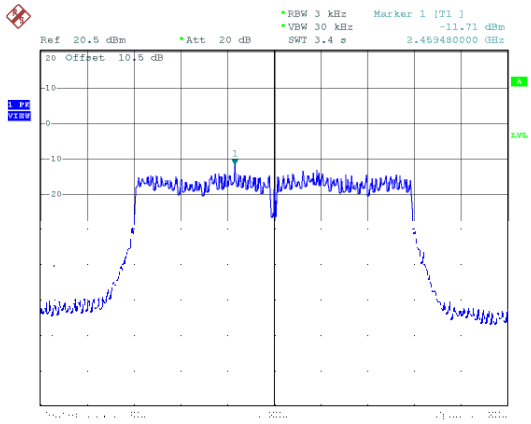
CH01



CH06

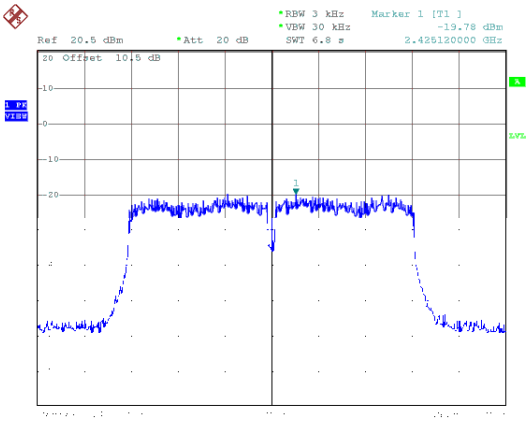


CH11

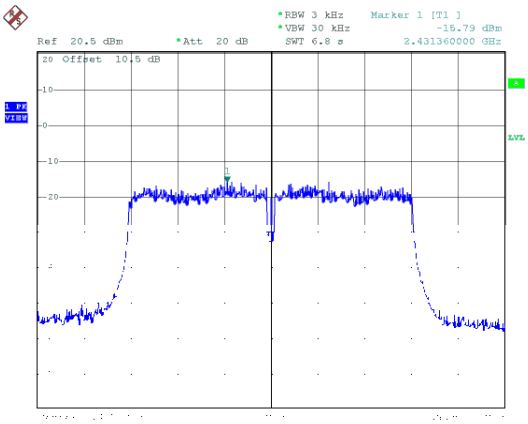


Modulation Type: 802.11n HT40

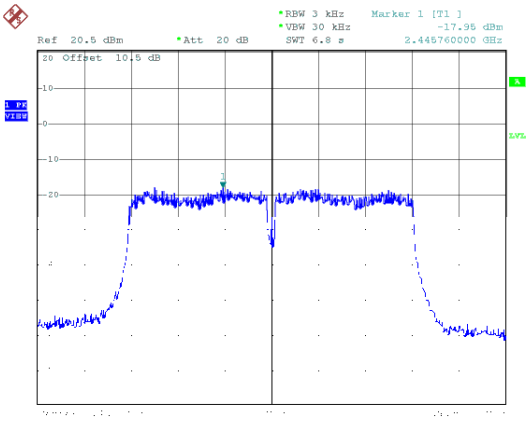
CH03



CH06



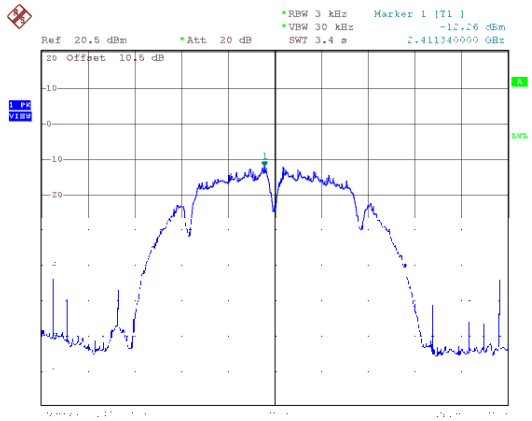
CH09



Antenna B

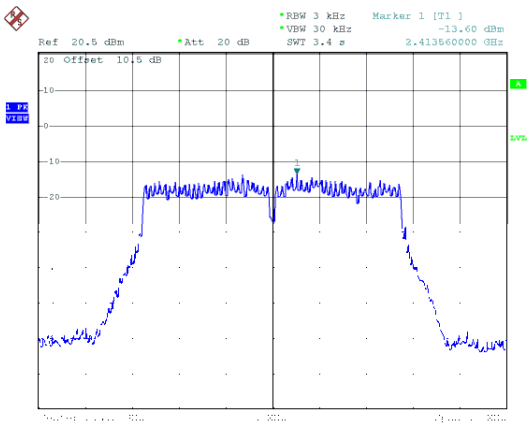
Modulation Type: 802.11b

CH01

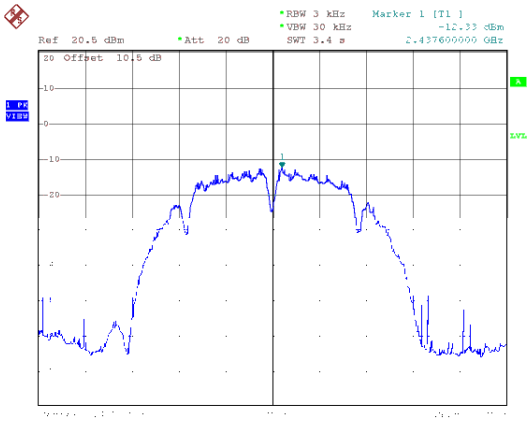


Modulation Type: 802.11g

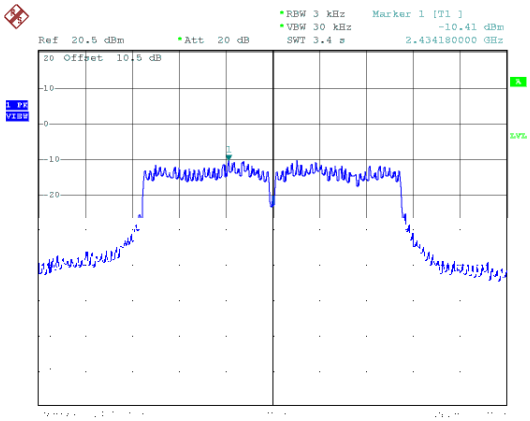
CH01



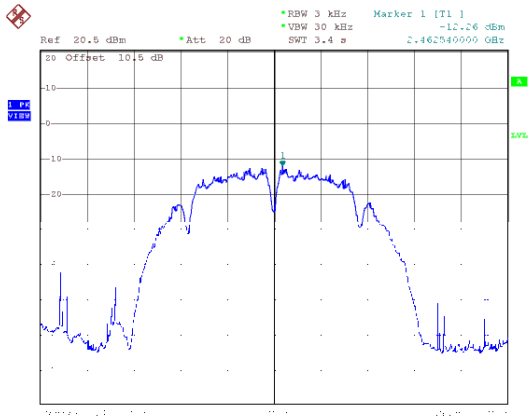
CH06



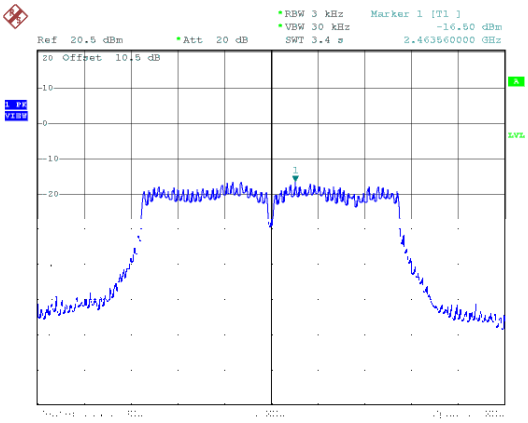
CH06



CH11



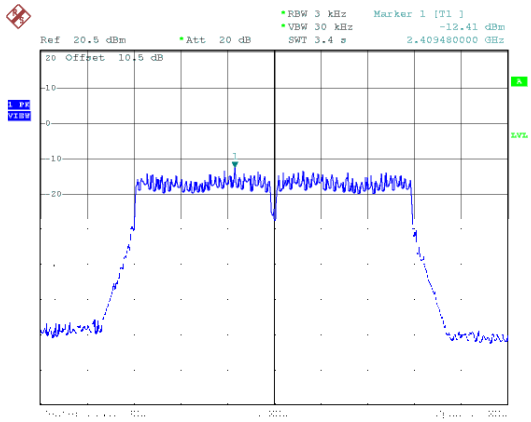
CH11



Antenna B

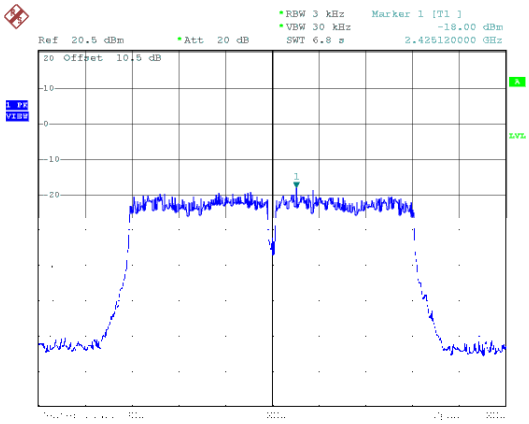
Modulation Type: 802.11n HT20

CH01

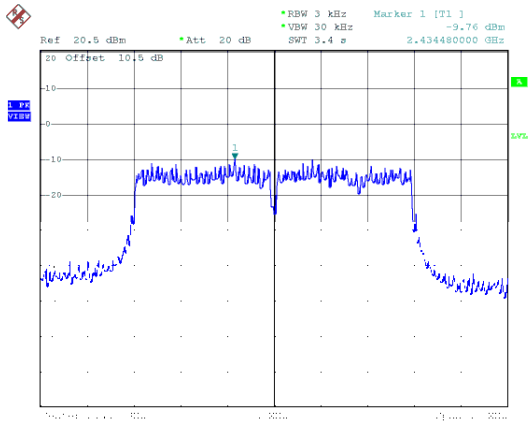


Modulation Type: 802.11n HT40

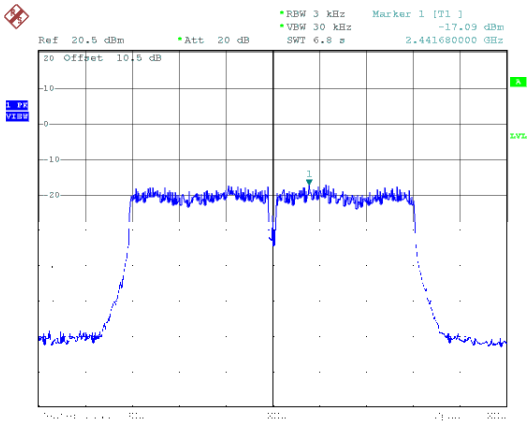
CH03



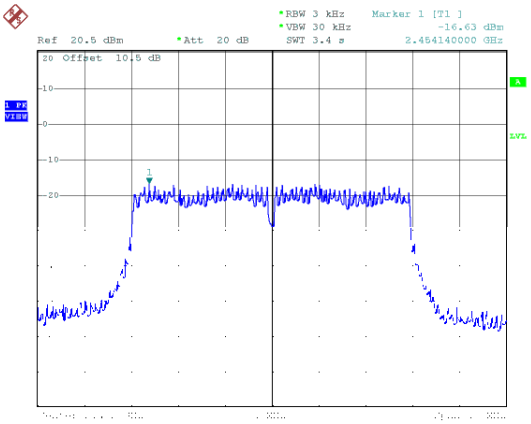
CH06



CH06



CH11



CH09