FCC 47 CFR PART 15 SUBPART C 15.247

TEST REPORT

FOR

WLAN IP Extender

Model : KLXX000X

Trade Name : CVIEW/ CVIEWTEK

Issued to

Kelung Technology Industrial Co., Ltd.
2F, No.859, Jingguo Rd., Taoyuan Dist., Taoyuan City, Taiwan

Issued by
WH Technology Corp.

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1. General Information

Applicant	:	**Kelung Technology Industrial Co., Ltd.**
Address	:	**2F, No.859, Jingguo Rd., Taoyuan Dist., Taoyuan City, Taiwan**
Manufacturer	:	**Kelung Technology Industrial Co., Ltd.**
Address	:	**2F, No.859, Jingguo Rd., Taoyuan Dist., Taoyuan City, Taiwan**
EUT	:	**WLAN IP Extender**
Model Name	:	**KLXX000X**
Model Differences	:	**X=A-Z, a-z, 0-9, "-","/","\" or Blank, representing different market areas, without affecting product Safety and EMC performance**

Is here with confirmed to comply with the requirements set out in the FCC Rules and Regulations Part 15 Subpart C and the measurement procedures were according to ANSI C63.10:2013. The said equipment in the configuration described in this report shows the maximum emission levels emanating from equipment are within the compliance requirements.

FCC part 15 subpart C

Receipt Date : 03/11/2018 Final Test Date : 06/26/2019

Tested By:		**Reviewed by:**	
Jun. 26, 2019		Jun. 26, 2019	
Date	Bing Zhang / Project Engineer	**Date**	Bell Wei / Manager Designation Number: TW2954

2. Report of Measurements and Examinations

2.1 List of Measurements and Examinations

Test Result measurement is not including uncertainty.

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

3. Test Configuration of Equipment under Test

3.1 Description of the tested samples

EUT Name	:	WLAN IP Extender
Model Number	:	KLXX000X
FCC ID	:	2ARED-KLXX000X
Receipt Date	:	03/01/2018
Power From	:	☐Inside ☑Outside ☐Battery ☑Adaptor ☐AC Power Source ☐DC Power Source ☐Support Unit PC
Operate Frequency	:	Refer to the channel list as described below (2412~2462MHz)
Modulation Technique	:	802.11b：DSSS 802.11g：OFDM 802.11n：OFDM
Number of Channels	:	802.11b, 802.11g, 802.11n, HT20：11 802.11n, HT40：7
Channel spacing	:	☐N/A ☑_____5_____MHz
Operating Mode	:	☐Simplex ☑ Half Duplex
Antenna Type	:	Helical Antenna Panel Antenna
Antenna gain	:	Helical Antenna: 14 dBi Panel Antenna: 12 dBi

3.2 Carrier Frequency of Channels

802.11b, 802.11g, 802.11n HT 20

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

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

3.3 Test Mode and Test Software

a. During testing, the interface cables and equipment positions were varied according to ANSI C63.10.
b. The complete test system included Notebook and EUT for RF test.
c. An executive “QATool.exe” under WIN7 was executed to keep transmitting and receiving data via Wireless.
d. The following test modes were performed for test:
   - 802.11b/g/n HT20: CH01: 2412MHz, CH06: 2437MHz, CH11: 2462MHz
   - 802.11n HT40: CH03: 2422MHz, CH06: 2437MHz, CH09: 2452MHz
e. For radiated emission test, every axis (X, Y, Z) was verified, and show the worst (Y axis) result on this report.

3.4 TEST Methodology & General Test Procedures

All testing as described bellowed were performed in accordance with ANSI C63.10 and FCC CFR 47 Part 15 Subpart C.

Conducted Emissions

The EUT is placed on a wood table, which is at 0.8 m above ground plane acceding to clause 15.207 and requirements of ANSI C63.10. Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30MHz are using CISPR Quasi-Peak / Average detectors.

Radiated Emissions

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

1) Putting the EUT on the platform and turning on the EUT (on/off button on the bottom of the EUT).
2) Setting test channel described as “Channel setting and operating condition”, and testing channel by channel.
3) For the maximum output power measurement, we followed the method of measurement KDB 558074 D01.
4) For the spurious emission test based on ANSI(2014), at the frequency where below 1GHz used quasi-peak detector mode; where above 1GHz used the peak and average detector mode. IF the peak value may be under average limit, the average mode will not be performed.

3.5 Measurement Uncertainty

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

3.6 Description of the Support Equipments

Setup Diagram

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

Support Equipment

Peripherals Devices:

OUTSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID	Trade name	Data Cable	Power Cord
1	Notebook	HSTNN-Q95C	5CD5514JLJ	N/A	HP	N/A	Unshielded 1.8m
INSIDE SUPPORT EQUIPMENT							
No.	Equipment	Model	Serial No.	FCC ID	Trade name	Data Cable	Power Cord
1	Adapter	GST25B12-P1J	N/A	N/A	MW	N/A	N/A

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

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

4. Test and measurement equipment

4.1 Calibration

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

4.2 Equipment

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

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

TABLELIST OF TEST AND MEASUREMENT EQUIPMENT

Test Site	Instrument	Manufacturer	Model No.	S/N	Next Cal. Date
Conduction	Spectrum (9k-26GHz)	AGILENT	N9010A	MY51280195	2019/09/11
	Spectrum (9K-3GHz)	R&S	FSP3	833387/010	2019/12/05
	EMI Receiver	R&S	ESHS10	830223/008	2020/06/01
	LISN	Rolf Heine Hochfrequenztechnik	NNB-2/16z	98062	2020/06/01
	ISN	Schwarzbeck	8-Wire ISN CAT5	CAT5-8158-0094	2019/10/17
	RF Cable	N/A	N/A	EMI-3	2019/10/10
Radiation	Bilog antenna (30M-1GHz)	ETC	MCTD2786B	BLB16M04004/ JB-5-004	2020/05/30
	Double Ridged Guide Horn antenna (1G-18GHz)	ETC	MCTD 1209	DRH15N0 2009	2019/12/13

	Horn antenna (18G-26GHz)	com-power	AH-826	81000	2019/08/29
	LOOP Antenna (Below 30MHz)	EMCO	6507	146361	2019/12/13
	Pre amplifier (30M-1GHz)	EMC INSTRUMENT	EMC9135	980334	2020/06/01
	Microwave Preamplifier (1G-18GHz)	EMC INSTRUMENT	EMC051845	980108	2019/12/06
	Pre amplifier (18G-26GHz)	MITEQ	JS4-18002600-30-5A	808329	2019/08/09
	RF Cable (9k-1GHz)	EMCI	N male on end of both sides (EMI4)	30m	2019/12/06
	RF CABLE (1G-26GHz)	SUCOFLEX	104PEA	27348/4PEA	2020/06/01
	RF CABLE (1G-18GHz)	HARBOUR INDUSTRIES	LL142MI (7M)	NA	2019/08/09
	RF CABLE (18G-26GHz)	AGILENT	EMC102-KM-KM-600	160102	2019/07/29
	Receiver	R&S	ESVS30	826006/002	2019/12/06
	Spectrum Analyzer (9k-40GHz)	ADVANTEST	R3182	150900201	2020/01/17
	Spectrum (9k-7GHz)	R&S	FSP7	830180/006	2020/04/16
	TRUE RMS MULTIMETER	VICTOR	VC9805A	991890136	2019/08/14
Software	e3	AUDIX	N/A	N/A	2019/08/09
SG	SINGAL GENTERATOR (100k-1GHz)	HP	8648A	3619U00426	2019/12/06

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

5. Antenna Requirements

5.1 Standard Applicable

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

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

5.2 Antenna Construction and Directional Gain: Meet FCC 47 CFR Section 15.203 requirement.

802.11b/g/n:
Antenna Type: Helical Antenna / Panel Antenna
Antenna Gain: 14 dBi / 12 dBi

6. Test of Conducted Emission

6.1 Test Limit

Conducted Emissions were measured from 150 kHz to 30 MHz with a bandwidth of 9 KHz on the 120 VAC power and return leads of the EUT according to the methods defined in ANSI C63.4-2014 Section 3.1. The EUT was placed on a nonmetallic stand in a shielded room 0.8 meters above the ground plane as shown in section 2.2. The interface cables and equipment positioning were varied within limits of reasonable applications to determine the position produced maximum conducted emissions.

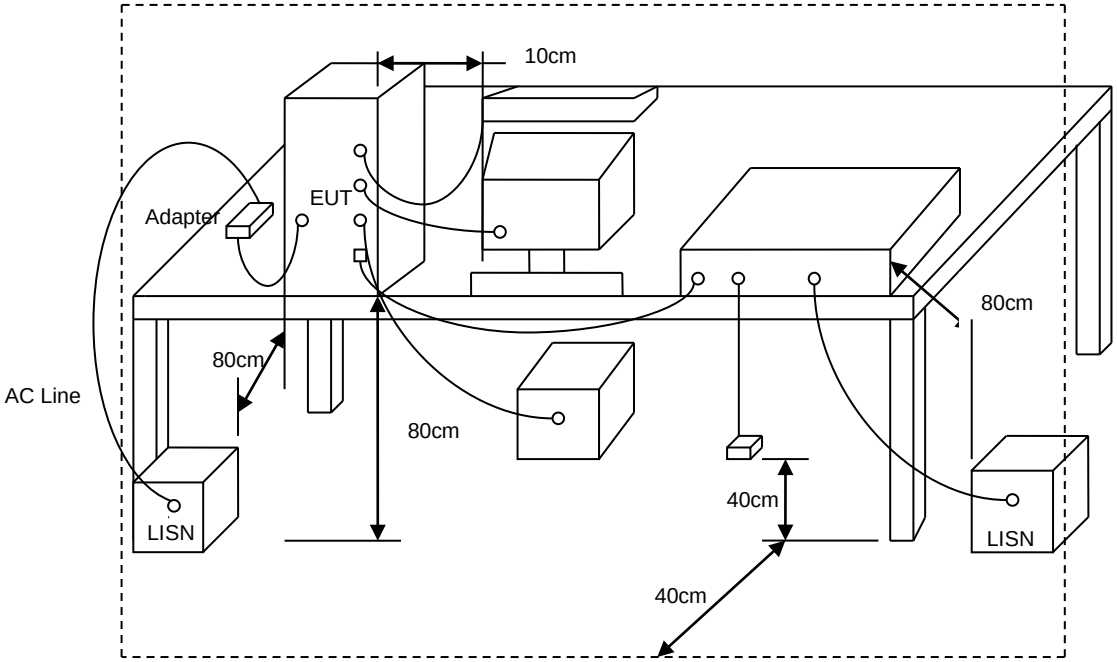
Frequency (MHz)	Quasi Peak (dB μ V)	Average (dB μ V)
0.15 – 0.5	66-56*	56-46*
0.5 – 5.0	56	46
5.0 – 30.0	60	50

*Decreases with the logarithm of the frequency.

6.2 Test Procedures

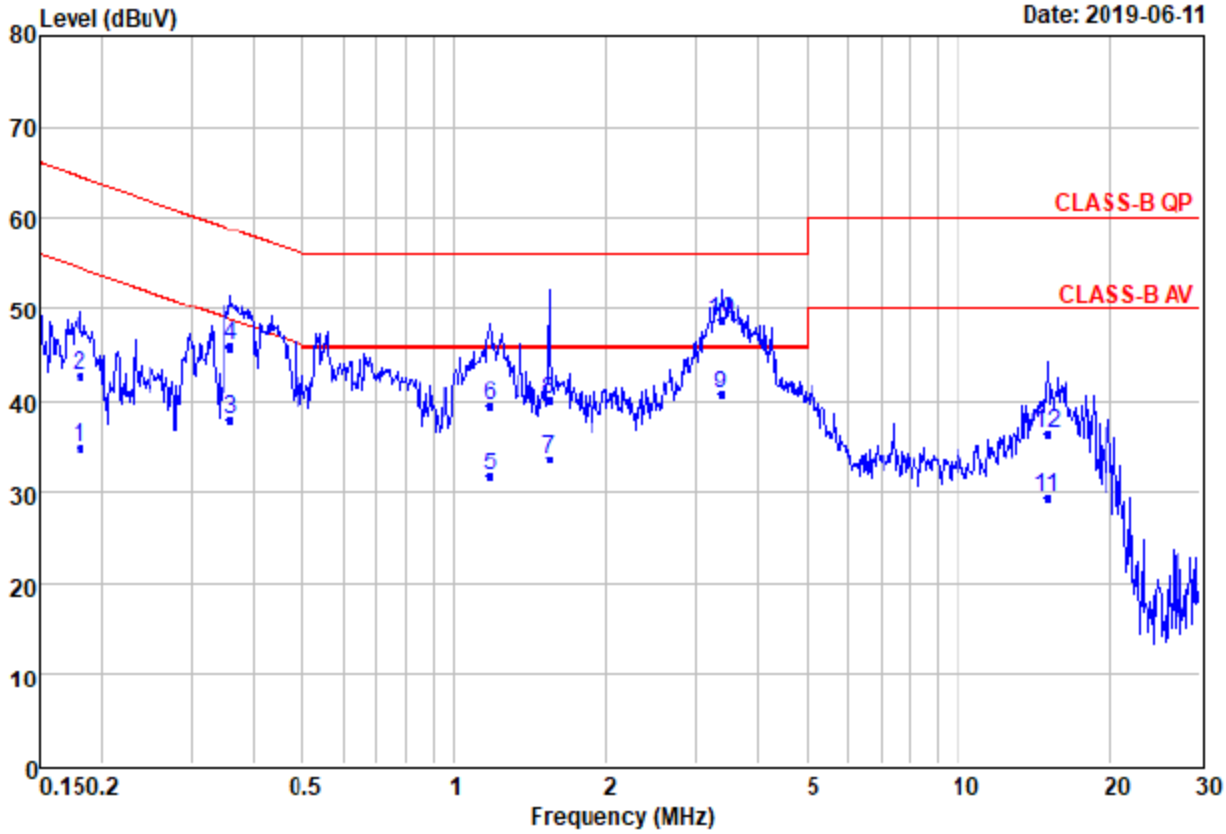
a. The EUT was placed 0.4 meter from the conducting wall of the shielding room was kept at least 80 centimeters from any other grounded conducting surface.
b. Connect EUT to the power mains through a line impedance stabilization network (LISN).
c. All the support units are connecting to the other LISN.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

6.3 Typical Test Setup



6.4 Test Result and Data

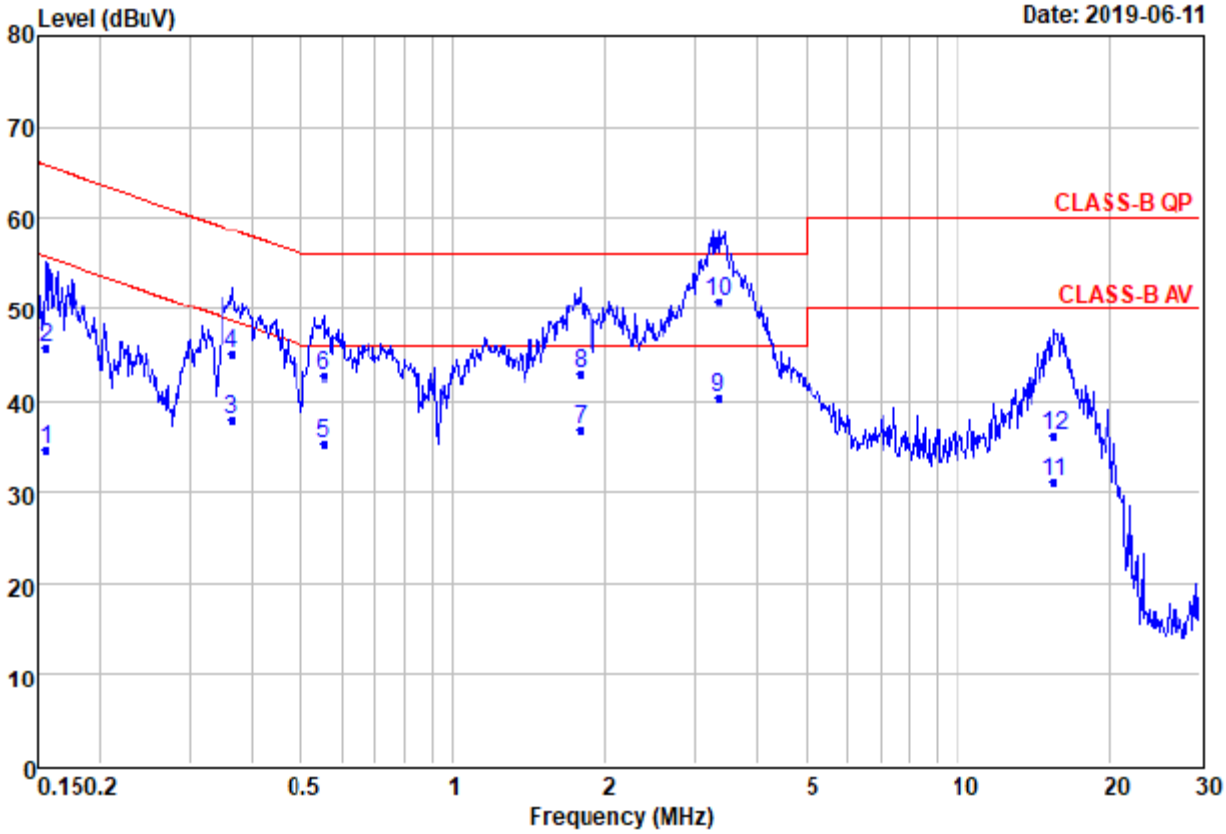
Power :	AC 120V	Pol/Phase :	LINE
Test Mode :	TX n HT40 CH03 2422MHz	Temperature :	26 °C
Memo :		Humidity :	45 %



Remarks : Factor=Insrtion loss+Cable loss

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	
1	0.18	24.80	34.92	10.12	-19.54	54.46	Average
2	0.18	32.80	42.92	10.12	-21.54	64.46	QP
3	0.36	27.89	38.03	10.14	-10.71	48.74	Average
4	0.36	35.79	45.93	10.14	-12.81	58.74	QP
5	1.17	21.50	31.68	10.18	-14.32	46.00	Average
6	1.17	29.20	39.38	10.18	-16.62	56.00	QP
7	1.54	23.50	33.70	10.20	-12.30	46.00	Average
8	1.54	29.90	40.10	10.20	-15.90	56.00	QP
9 @	3.36	30.50	40.77	10.27	-5.23	46.00	Average
10	3.36	38.50	48.77	10.27	-7.23	56.00	QP
11	14.99	18.90	29.45	10.55	-20.55	50.00	Average
12	14.99	25.90	36.45	10.55	-23.55	60.00	QP

Power :	AC 120V	Pol/Phase :	NEUTRAL
Test Mode :	TX n HT40 CH03 2422MHz	Temperature :	26 °C
Memo :		Humidity :	45 %



Remarks : Factor=Insrtion loss+Cable loss

	Freq	Read Level	Level	Factor	Over Limit	Limit Line	Remark
	MHz	dBuV	dBuV	dB	dB	dBuV	
1	0.16	24.50	34.69	10.19	-21.00	55.69	Average
2	0.16	35.50	45.69	10.19	-20.00	65.69	QP
3	0.36	27.79	38.02	10.23	-10.63	48.65	Average
4	0.36	34.89	45.12	10.23	-13.53	58.65	QP
5	0.55	25.20	35.44	10.24	-10.56	46.00	Average
6	0.55	32.50	42.74	10.24	-13.26	56.00	QP
7	1.78	26.61	36.91	10.30	-9.09	46.00	Average
8	1.78	32.51	42.81	10.30	-13.19	56.00	QP
9	3.33	30.00	40.40	10.40	-5.60	46.00	Average
10 @	3.33	40.50	50.90	10.40	-5.10	56.00	QP
11	15.47	20.50	31.20	10.70	-18.80	50.00	Average
12	15.47	25.50	36.20	10.70	-23.80	60.00	QP

7. Test of Radiated Emission

7.1 Test Limit

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

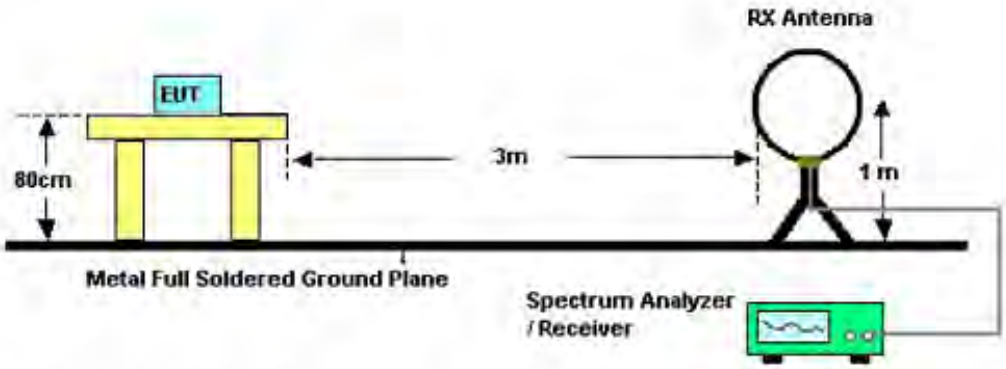
Frequency (MHz)	Field Strength (microvolt/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

7.2 Test Procedures

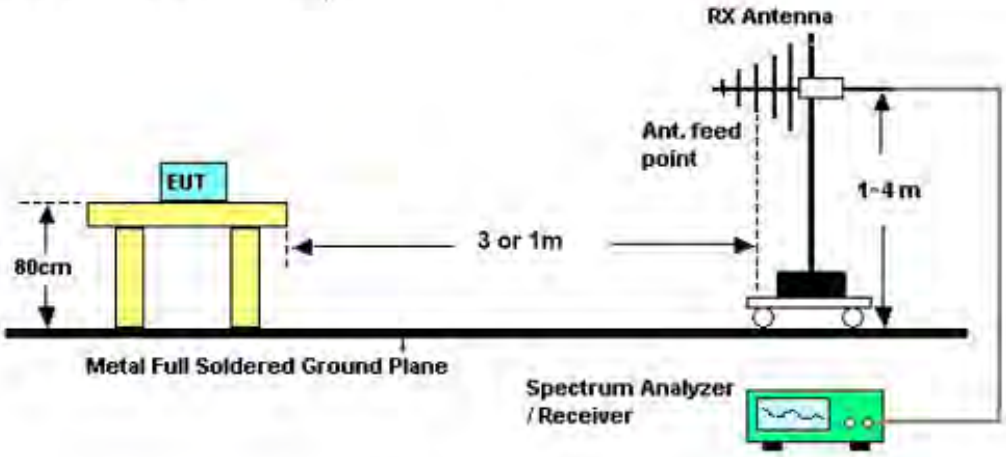
a. The EUT was placed on a rotatable table top 0.8 meter above ground.
b. The EUT was set 3 meters from the interference receiving antenna which was mounted on the top of a variable height antenna tower.
c. The table was rotated 360 degrees to determine the position of the highest radiation.
d. The antenna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

7.3 Typical Test Setup

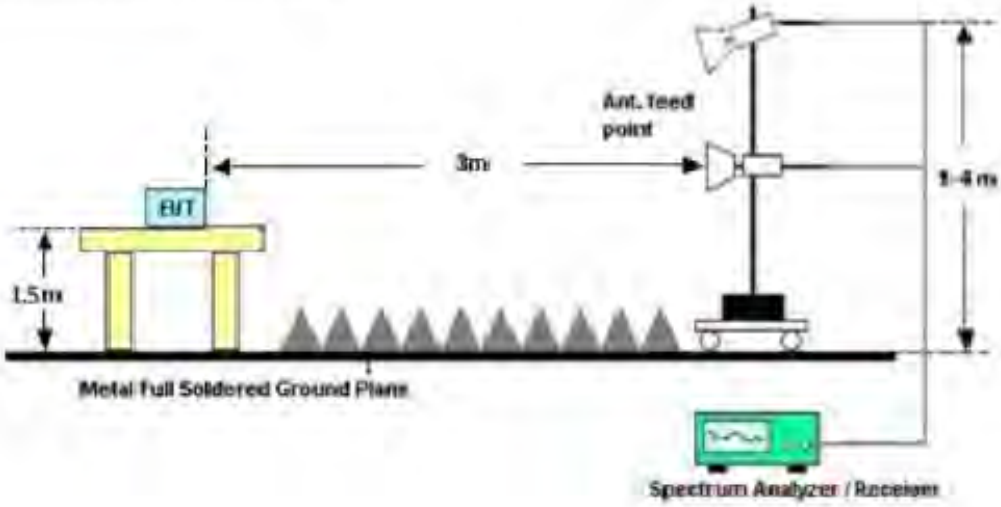
For radiated emissions below 30MHz



For radiated emissions above 30MHz



For radiated emissions above 1GHz

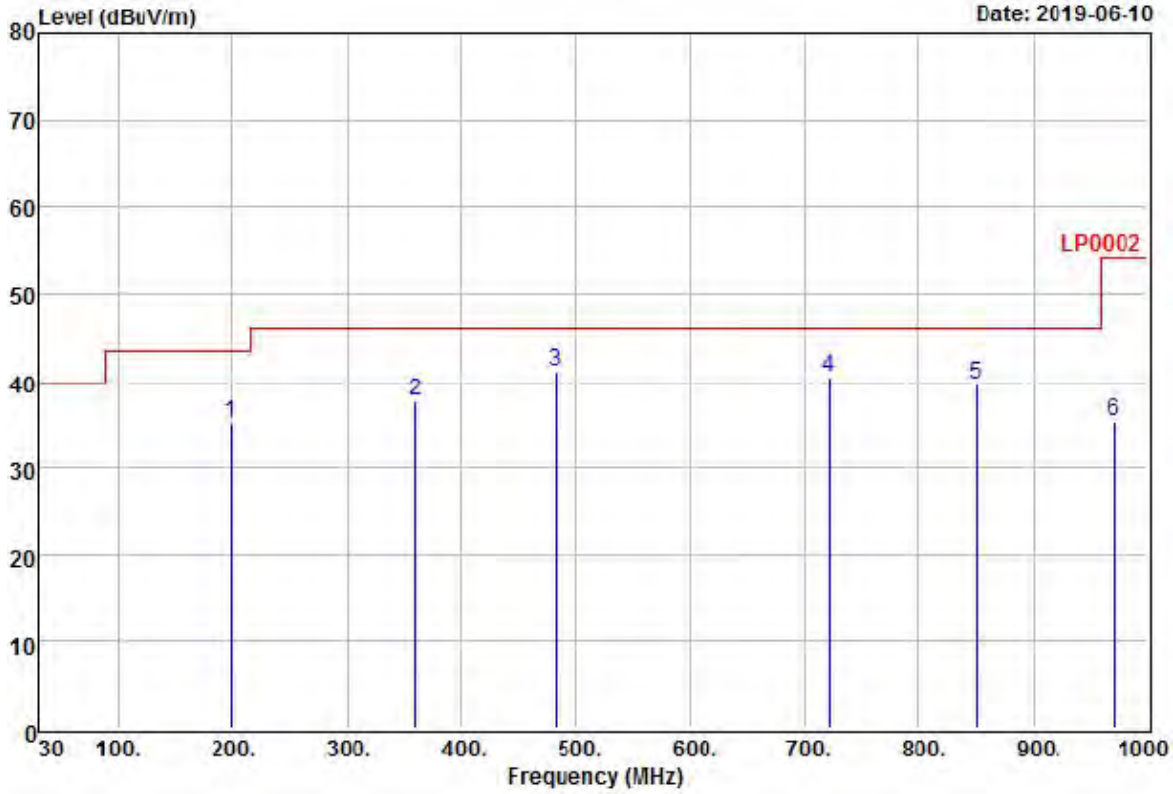


7.4 Test Result and Data (9kHz ~ 30MHz)

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

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

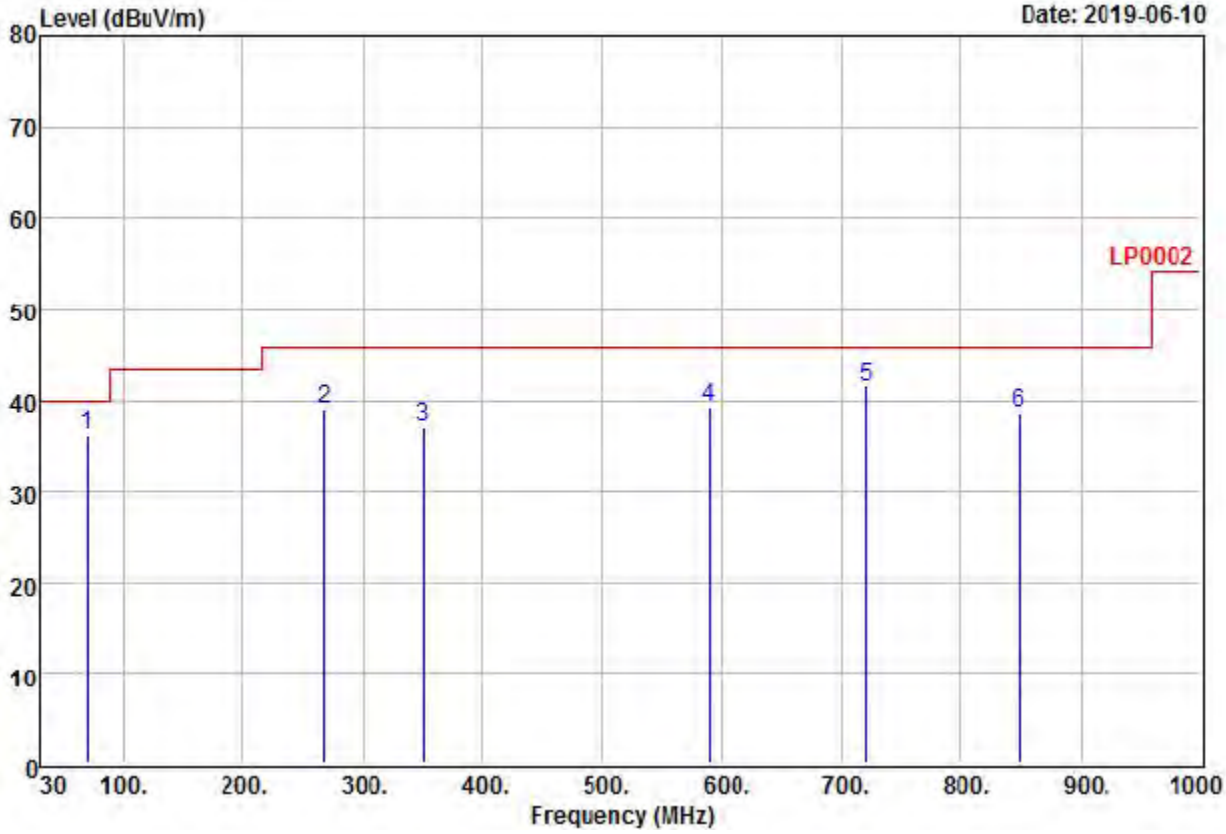
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	TX n HT40 CH03 2422MHz	Temperature :	28 °C
Memo :	Helical Antenna	Humidity :	68 %



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

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	198.62	53.46	-18.28	35.18	43.50	-8.32	QP
2	359.33	49.77	-11.97	37.80	46.00	-8.20	QP
3 @	482.29	50.38	-9.30	41.08	46.00	-4.92	QP
4	721.68	46.83	-6.37	40.46	46.00	-5.54	QP
5	849.75	43.29	-3.61	39.68	46.00	-6.32	QP
6	970.16	36.37	-0.92	35.45	54.00	-18.55	QP

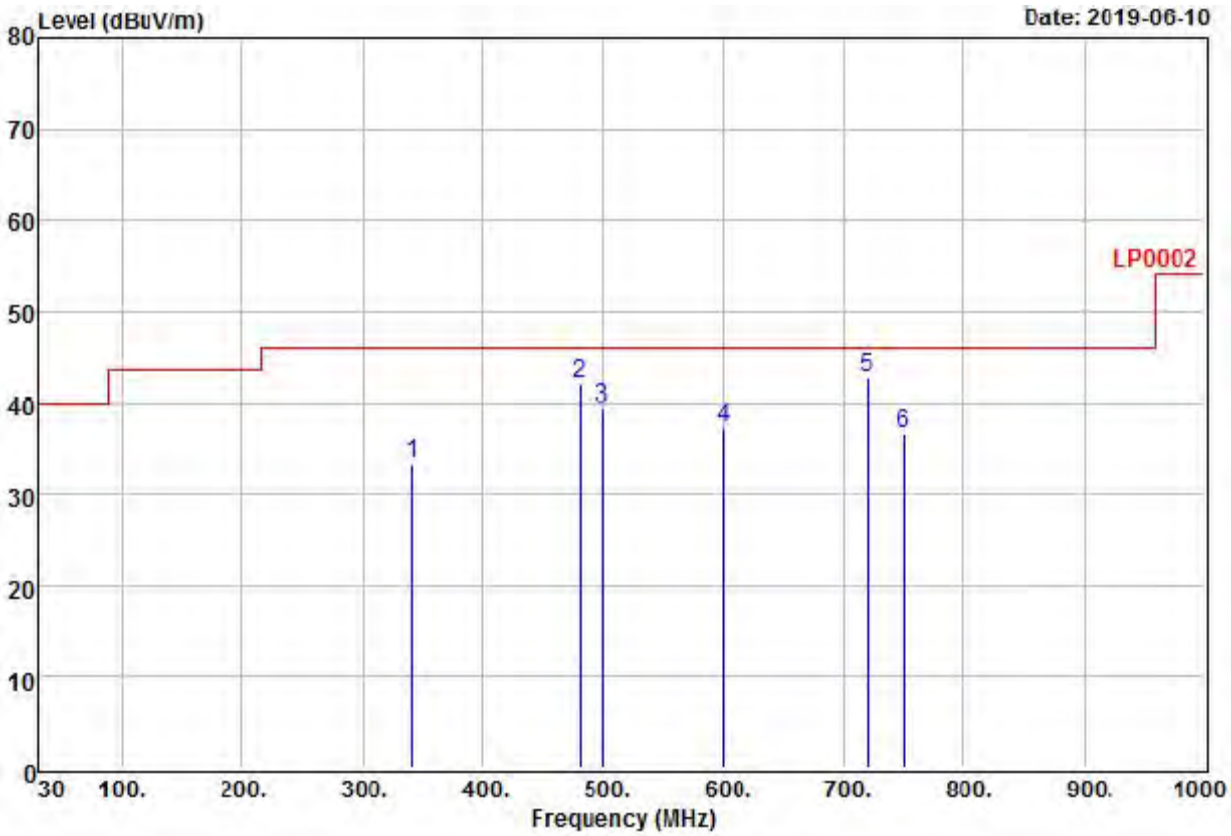
Power	:	AC 120V	Pol/Phase	:	VERTICAL
Test Mode	:	TX n HT40 CH03 2422MHz	Temperature	:	28 °C
Memo	:	Helical Antenna	Humidity	:	68 %



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

		Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	@	70.45	58.44	-22.16	36.28	40.00	-3.72	QP
2		268.20	53.41	-14.46	38.95	46.00	-7.05	QP
3		350.59	49.31	-12.26	37.05	46.00	-8.95	QP
4		589.71	48.17	-8.89	39.28	46.00	-6.72	QP
5		720.84	48.02	-6.38	41.64	46.00	-4.36	QP
6		847.95	42.34	-3.66	38.68	46.00	-7.32	QP

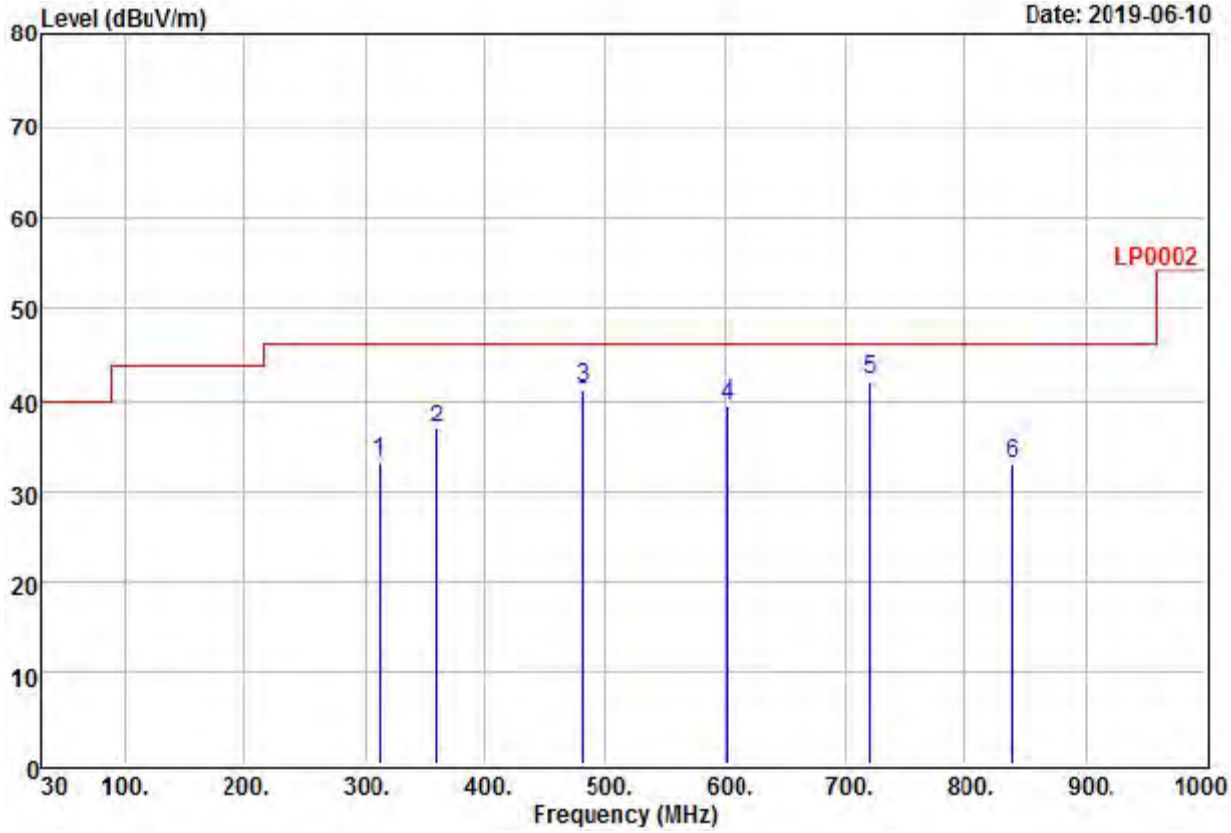
Power :	AC 120V	Pol/Phase :	HORIZONTAL
Test Mode :	TX n HT40 CH03 2422MHz	Temperature :	28 °C
Memo :	Panel Antenna	Humidity :	68 %



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

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	341.37	33.37	0.00	33.37	46.00	-12.63	QP
2	480.73	42.08	0.00	42.08	46.00	-3.92	QP
3	500.00	39.45	0.00	39.45	46.00	-6.55	QP
4	600.22	37.36	0.00	37.36	46.00	-8.64	QP
5 @	720.05	42.64	0.00	42.64	46.00	-3.36	QP
6	750.22	36.71	0.00	36.71	46.00	-9.29	QP

Power :	AC 120V	Pol/Phase :	VERTICAL
Test Mode :	TX n HT40 CH03 2422MHz	Temperature :	28 °C
Memo :	Panel Antenna	Humidity :	68 %



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

	Freq	Read Level	Factor	Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	
1	312.86	33.27	0.00	33.27	46.00	-12.73	QP
2	359.00	36.80	0.00	36.80	46.00	-9.20	QP
3	481.18	41.08	0.00	41.08	46.00	-4.92	QP
4	601.40	39.47	0.00	39.47	46.00	-6.53	QP
5 @	720.20	41.96	0.00	41.96	46.00	-4.04	QP
6	839.42	32.95	0.00	32.95	46.00	-13.05	QP

7.6 Test Result and Data (Above 1GHz)

Power :	AC 120V	Test Date :	2019/06/10
Temperature :	28 °C	Humidity :	68 %
Test Mode :	802.11b	Antenna :	Helical Antenna

1GHz—25GHz Radiated emission Test result

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)
						Peak	Ave	
4824.00	H	54.78	-5.83	48.95	Peak	74	54	-25.05
---	H	---	---	---	Ave	74	54	---
4824.00	V	55.02	-5.83	49.19	Peak	74	54	-24.81
---	V	---	---	---	Ave	74	54	---

Channel 6 — Fundamental Frequency: 2437 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	54.68	-5.42	49.26	Peak	74	54	-24.74
---	H	---	---	---	Ave	74	54	---
4874.00	V	54.82	-5.42	49.19	Peak	74	54	-24.60
---	V	---	---	---	Ave	74	54	---

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)
						Peak	Ave	
4924.00	H	53.22	-4.73	48.49	Peak	74	54	-25.51
---	H	---	---	---	Ave	74	54	---
4924.00	V	53.44	-4.73	48.71	Peak	74	54	-25.29
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

Power :	AC 120V	Test Date :	2019/06/10
Temperature :	28 °C	Humidity :	68 %
Test Mode :	802.11g	Antenna :	Helical Antenna

1GHz—25GHz Radiated emissison Test result								
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)
						Peak	Ave	
4824.00	H	55.49	-5.83	49.66	Peak	74	54	-24.34
---	H	---	---	---	Ave	74	54	---
4824.00	V	55.66	-5.83	49.83	Peak	74	54	-24.17
---	V	---	---	---	Ave	74	54	---
Channel 6						Fundamental Frequency: 2437 MHz		
Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	54.79	-5.42	49.37	Peak	74	54	-24.63
---	H	---	---	---	Ave	74	54	---
4874.00	V	54.92	-5.42	49.50	Peak	74	54	-24.50
---	V	---	---	---	Ave	74	54	---
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)
						Peak	Ave	
4924.00	H	53.85	-4.73	49.12	Peak	74	54	-24.88
---	H	---	---	---	Ave	74	54	---
4924.00	V	54.06	-4.73	49.33	Peak	74	54	-24.67
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

Power	:	AC 120V	Test Date	:	2019/06/10
Temperature	:	28 °C	Humidity	:	68 %
Test Mode	:	802.11n HT20	Antenna	:	Helical Antenna

1GHz—25GHz Radiated emissison Test result

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)
						Peak	Ave	
4824.00	H	55.33	-5.83	49.50	Peak	74	54	-24.50
---	H	---	---	---	Ave	74	54	---
4824.00	V	55.53	-5.83	49.70	Peak	74	54	-24.30
---	V	---	---	---	Ave	74	54	---

Channel 6 — Fundamental Frequency: 2437 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	55.23	-5.42	49.81	Peak	74	54	-24.19
---	H	---	---	---	Ave	74	54	---
4874.00	V	55.38	-5.42	49.96	Peak	74	54	-24.04
---	V	---	---	---	Ave	74	54	---

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)
						Peak	Ave	
4924.00	H	54.69	-4.73	49.96	Peak	74	54	-24.04
---	H	---	---	---	Ave	74	54	---
4924.00	V	54.86	-4.73	50.13	Peak	74	54	-23.87
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

Power	:	AC 120V	Test Date	:	2019/06/10
Temperature	:	28 °C	Humidity	:	68 %
Test Mode	:	802.11n HT40	Antenna	:	Helical Antenna

1GHz—25GHz Radiated emissison Test result

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)
						Peak	Ave	
4824.00	H	55.74	-5.74	50.00	Peak	74	54	-24.00
---	H	---	---	---	Ave	74	54	---
4824.00	V	55.98	-5.74	50.24	Peak	74	54	-23.76
---	V	---	---	---	Ave	74	54	---

Channel 6 — Fundamental Frequency: 2437 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	55.20	-5.42	49.78	Peak	74	54	-24.22
---	H	---	---	---	Ave	74	54	---
4874.00	V	55.43	-5.42	50.01	Peak	74	54	-23.99
---	V	---	---	---	Ave	74	54	---

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)
						Peak	Ave	
4924.00	H	54.57	-5.02	49.55	Peak	74	54	-24.45
---	H	---	---	---	Ave	74	54	---
4924.00	V	54.84	-5.02	49.82	Peak	74	54	-24.18
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

Power :	AC 120V	Test Date :	2019/06/10
Temperature :	28 °C	Humidity :	68 %
Test Mode	802.11b	Antenna :	Panel Antenna

1GHz—25GHz Radiated emission Test result

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)
						Peak	Ave	
4824.00	H	54.45	-5.83	48.62	Peak	74	54	-25.38
---	H	---	---	---	Ave	74	54	---
4824.00	V	54.80	-5.83	49.97	Peak	74	54	-25.03
---	V	---	---	---	Ave	74	54	---

Channel 6 Fundamental Frequency: 2437 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	54.50	-5.42	49.08	Peak	74	54	-24.92
---	H	---	---	---	Ave	74	54	---
4874.00	V	54.65	-5.42	49.23	Peak	74	54	-24.77
---	V	---	---	---	Ave	74	54	---

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)
						Peak	Ave	
4924.00	H	53.12	-4.73	48.39	Peak	74	54	-25.61
---	H	---	---	---	Ave	74	54	---
4924.00	V	53.29	-4.73	48.56	Peak	74	54	-25.44
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

Power :	AC 120V	Test Date :	2019/06/10
Temperature :	28 °C	Humidity :	68 %
Test Mode :	802.11g	Antenna :	Panel Antenna

1GHz—25GHz Radiated emissison Test result

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)
						Peak	Ave	
4824.00	H	55.31	-5.83	49.48	Peak	74	54	-24.52
---	H	---	---	---	Ave	74	54	---
4824.00	V	55.54	-5.83	49.71	Peak	74	54	-24.29
---	V	---	---	---	Ave	74	54	---

Channel 6 — Fundamental Frequency: 2437 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	54.68	-5.42	49.26	Peak	74	54	-24.74
---	H	---	---	---	Ave	74	54	---
4874.00	V	54.81	-5.42	49.39	Peak	74	54	-24.61
---	V	---	---	---	Ave	74	54	---

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)
						Peak	Ave	
4924.00	H	53.76	-4.73	49.03	Peak	74	54	-24.97
---	H	---	---	---	Ave	74	54	---
4924.00	V	53.95	-4.73	49.22	Peak	74	54	-24.78
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

Power	:	AC 120V	Test Date	:	2019/06/10
Temperature	:	28 °C	Humidity	:	68 %
Test Mode	:	802.11n HT20	Antenna	:	Panel Antenna

1GHz—25GHz Radiated emissison Test result

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)
						Peak	Ave	
4824.00	H	55.24	-5.83	49.41	Peak	74	54	-24.59
---	H	---	---	---	Ave	74	54	---
4824.00	V	55.46	-5.83	49.63	Peak	74	54	-24.37
---	V	---	---	---	Ave	74	54	---

Channel 6 — Fundamental Frequency: 2437 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	55.14	-5.42	49.72	Peak	74	54	-24.28
---	H	---	---	---	Ave	74	54	---
4874.00	V	55.24	-5.42	49.82	Peak	74	54	-24.18
---	V	---	---	---	Ave	74	54	---

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)
						Peak	Ave	
4924.00	H	54.63	-4.73	49.90	Peak	74	54	-24.10
---	H	---	---	---	Ave	74	54	---
4924.00	V	54.80	-4.73	50.07	Peak	74	54	-23.93
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

Power	:	AC 120V	Test Date	:	2019/06/10
Temperature	:	28 °C	Humidity	:	68 %
Test Mode	:	802.11n HT40	Antenna	:	Panel Antenna

1GHz—25GHz Radiated emissison Test result

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)
						Peak	Ave	
4824.00	H	55.69	-5.74	49.95	Peak	74	54	-24.05
---	H	---	---	---	Ave	74	54	---
4824.00	V	55.91	-5.74	50.17	Peak	74	54	-23.83
---	V	---	---	---	Ave	74	54	---

Channel 6 — Fundamental Frequency: 2437 MHz

Frequency (MHz)	Ant-Pol H/V	Meter Reading (dBuV)	Corrected Factor (dB)	Result (dBuV/m)	Remark	Limit (dBuV/m)		Margin (dB)
						Peak	Ave	
4874.00	H	55.09	-5.42	49.67	Peak	74	54	-24.33
---	H	---	---	---	Ave	74	54	---
4874.00	V	55.36	-5.42	49.94	Peak	74	54	-24.06
---	V	---	---	---	Ave	74	54	---

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)
						Peak	Ave	
4924.00	H	54.50	-5.02	49.48	Peak	74	54	-24.52
---	H	---	---	---	Ave	74	54	---
4924.00	V	54.79	-5.02	49.77	Peak	74	54	-24.23
---	V	---	---	---	Ave	74	54	---

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measuring frequency from 1GHz to 25GHz
4. Measurements above 1000 MHz, Peak detector setting: 1 MHz RBW with 1 MHz VBW.
5. Measurements above 1000 MHz, Average detector setting: 1 MHz RBW with 10Hz VBW.
6. Peak detector measurement data will represent the worst case results.
7. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
8. The other emission levels were 20dB below the limit.

8. 6dB Bandwidth Measurement Data

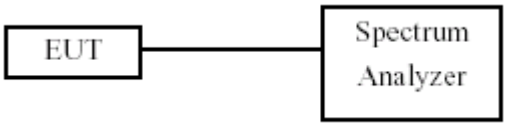
8.1 Test Limit

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

8.2 Test Procedures

a. The transmitter output was connected to the spectrum analyzer.
b. RBW = 100 kHz and VBW ≥ 3x RBW.
c. The 6 dB bandwidth is defined as the total spectrum the power of which is higher than peak power minus 6 dB.
d. The 6dB Bandwidth was measured and recorded.

8.3 Test Setup Layout



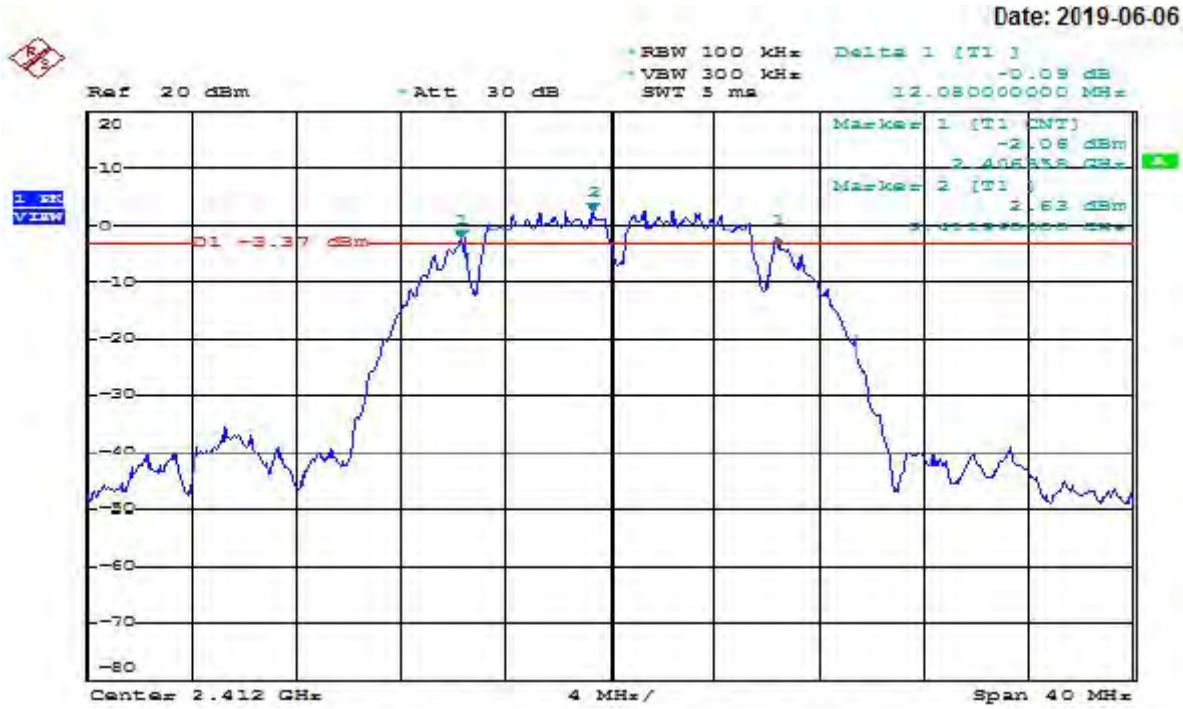
8.4 Test Result and Data

Test Date: Jun 06, 2019 Temperature: 23 ℃

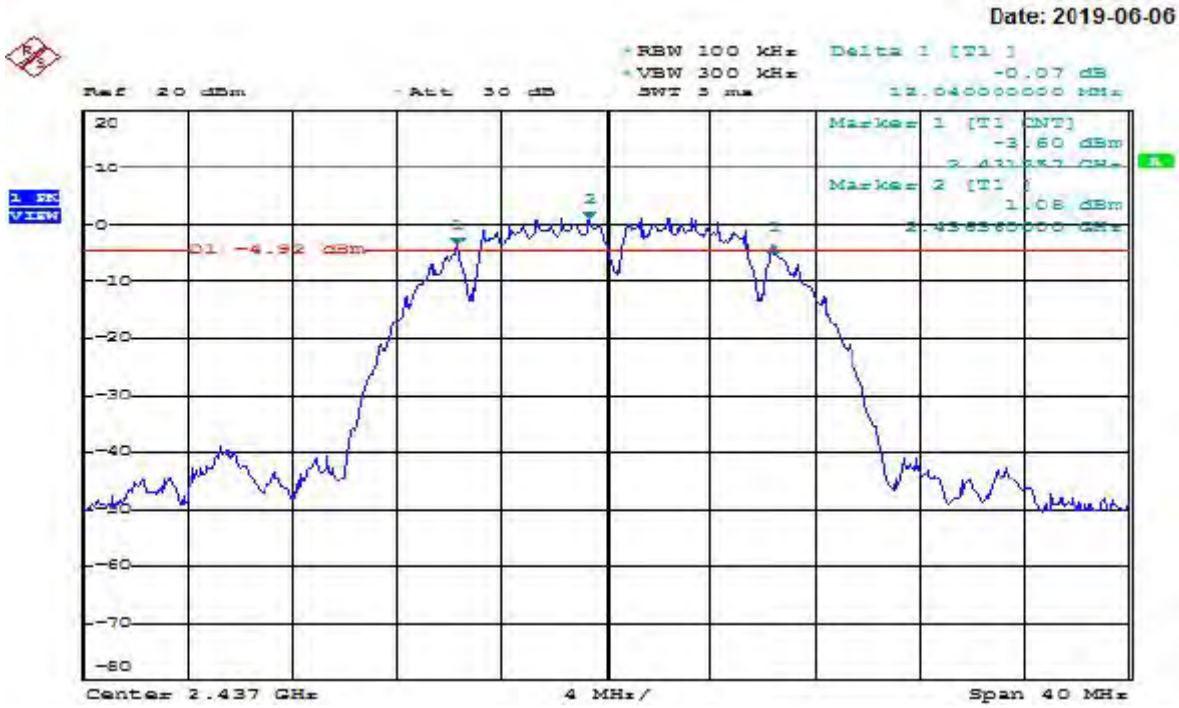
Atmospheric pressure: 1001 hPa Humidity: 49 %

Modulation Standard	Channel	Frequency (MHz)	6dB Bandwidth (MHz)
802.11b	01	2412	12.08
	06	2437	12.04
	11	2462	12.16
802.11g	01	2412	16.64
	06	2437	16.52
	11	2462	16.64
802.11n HT20	01	2412	17.68
	06	2437	17.64
	11	2462	17.68
802.11n HT40	03	2422	36.40
	06	2437	36.40
	09	2452	36.40

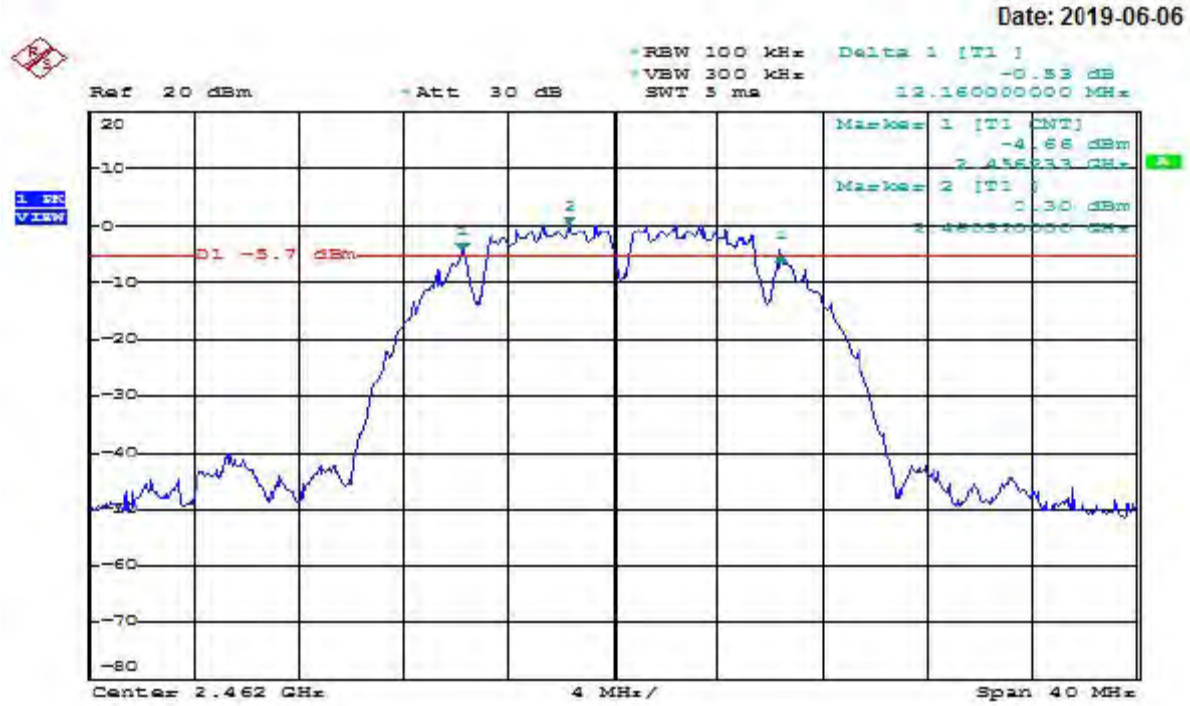
Modulation Standard: 802.11b
Channel: 01



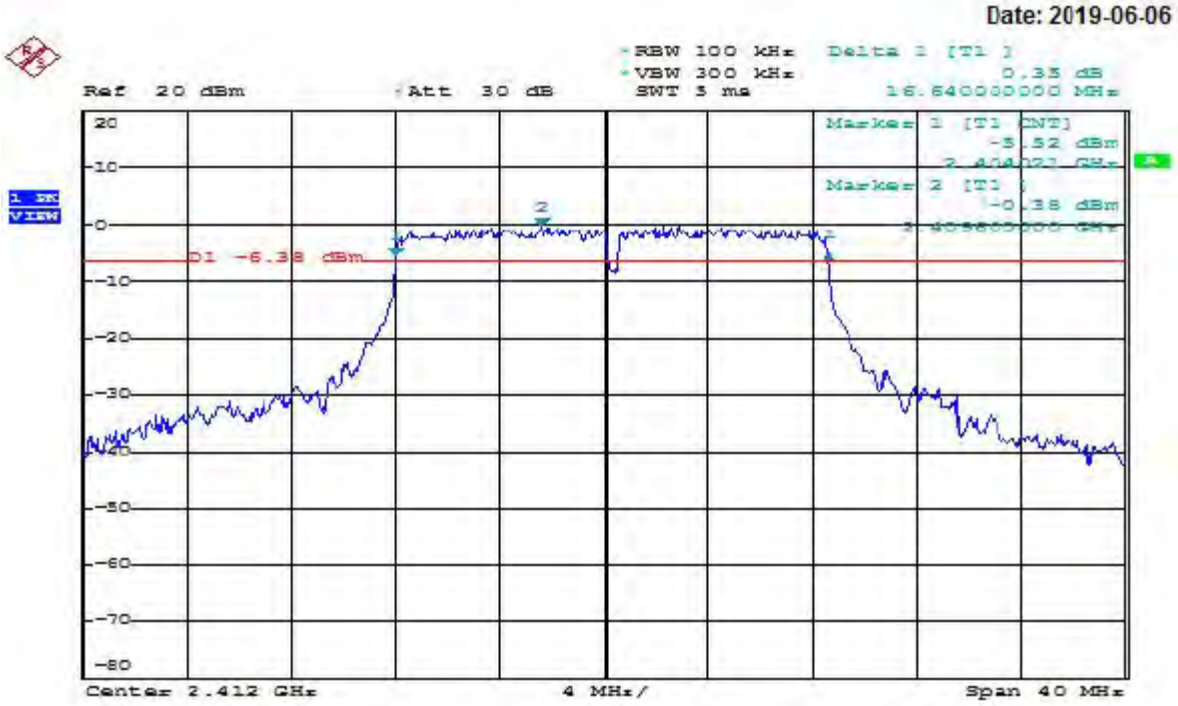
Modulation Standard: 802.11b
Channel: 06



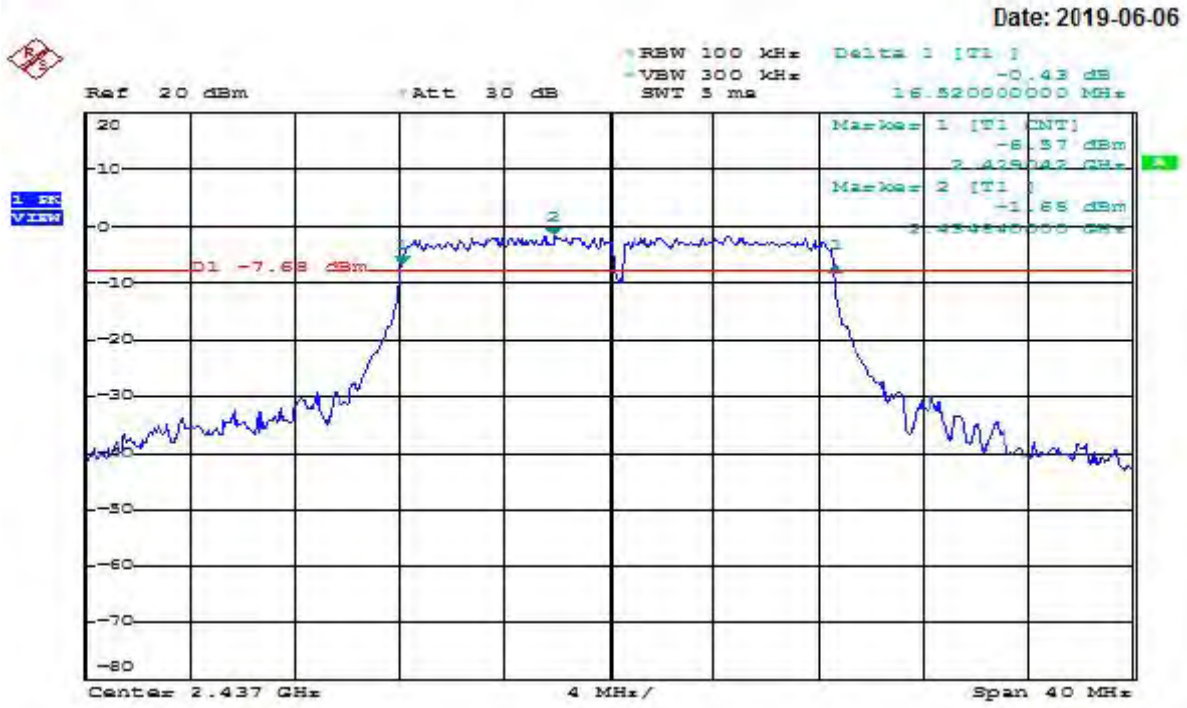
Modulation Standard: 802.11b
Channel: 11



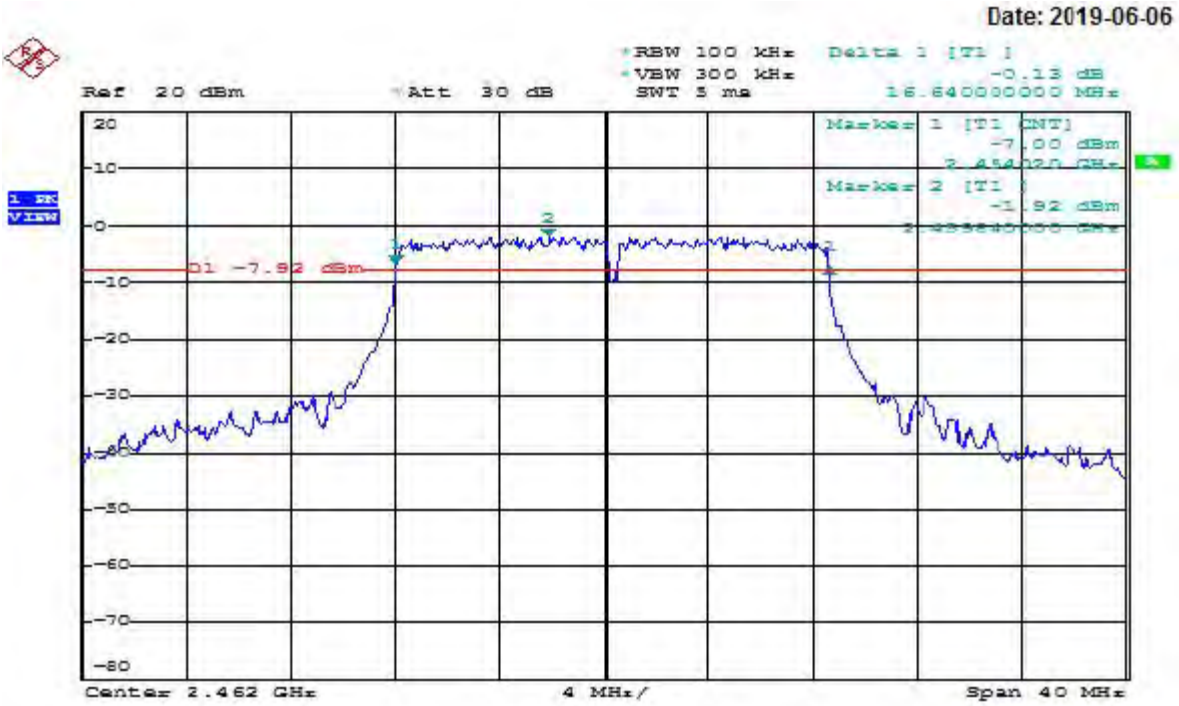
Modulation Standard: 802.11g
Channel: 01



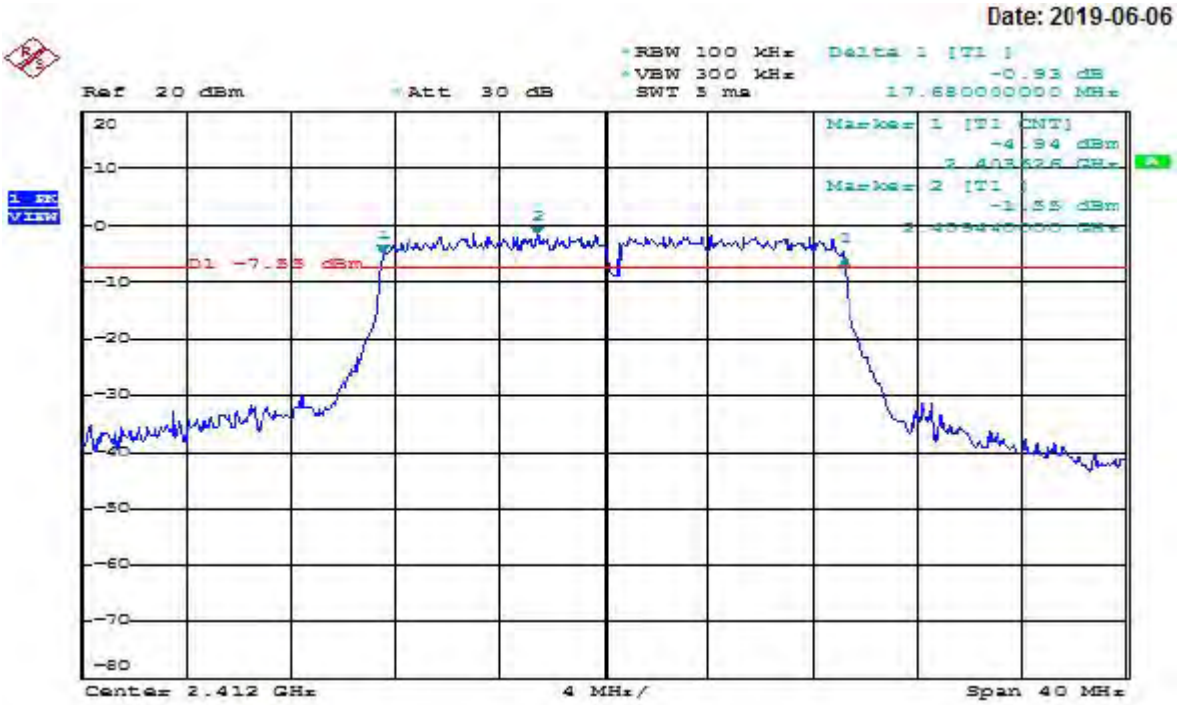
Modulation Standard: 802.11g
Channel: 06



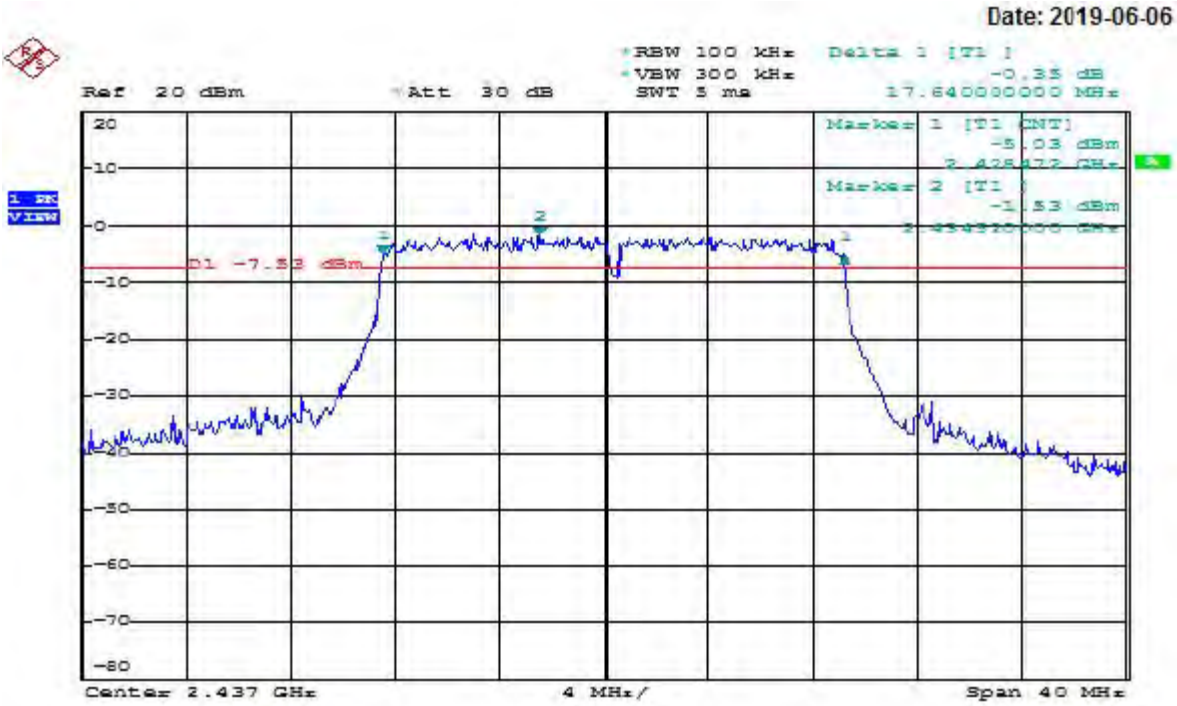
Modulation Standard: 802.11g
Channel: 11



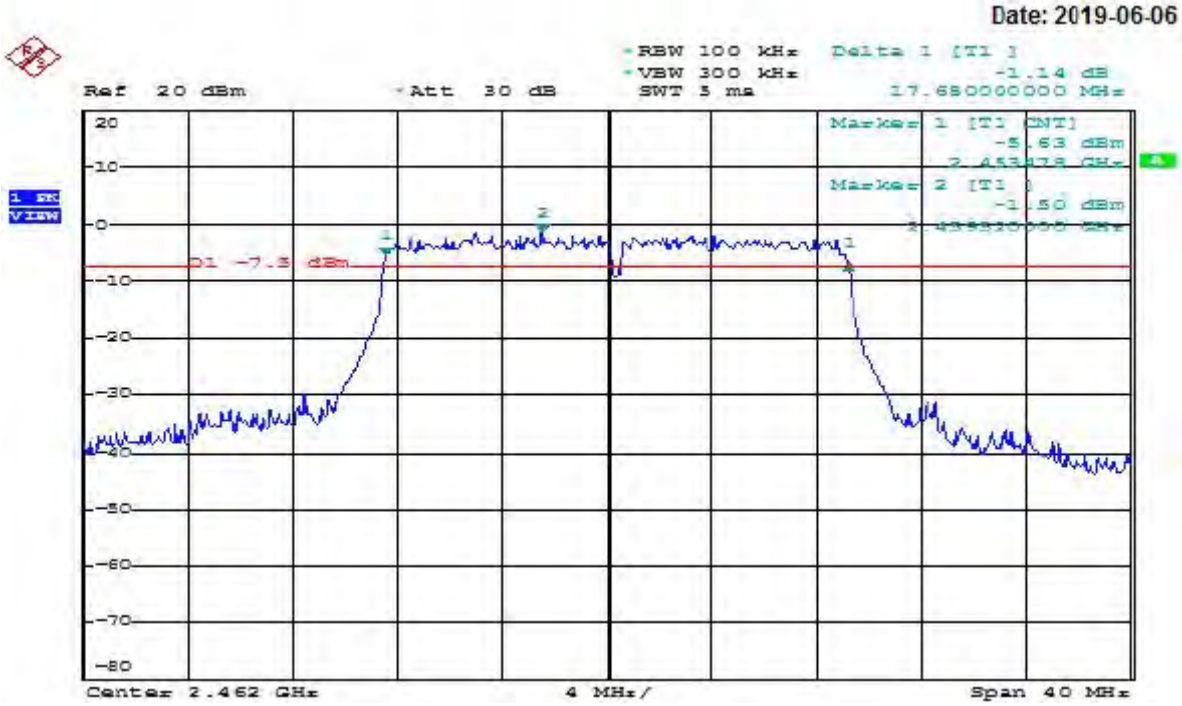
Modulation Standard: 802.11n HT20
Channel: 01



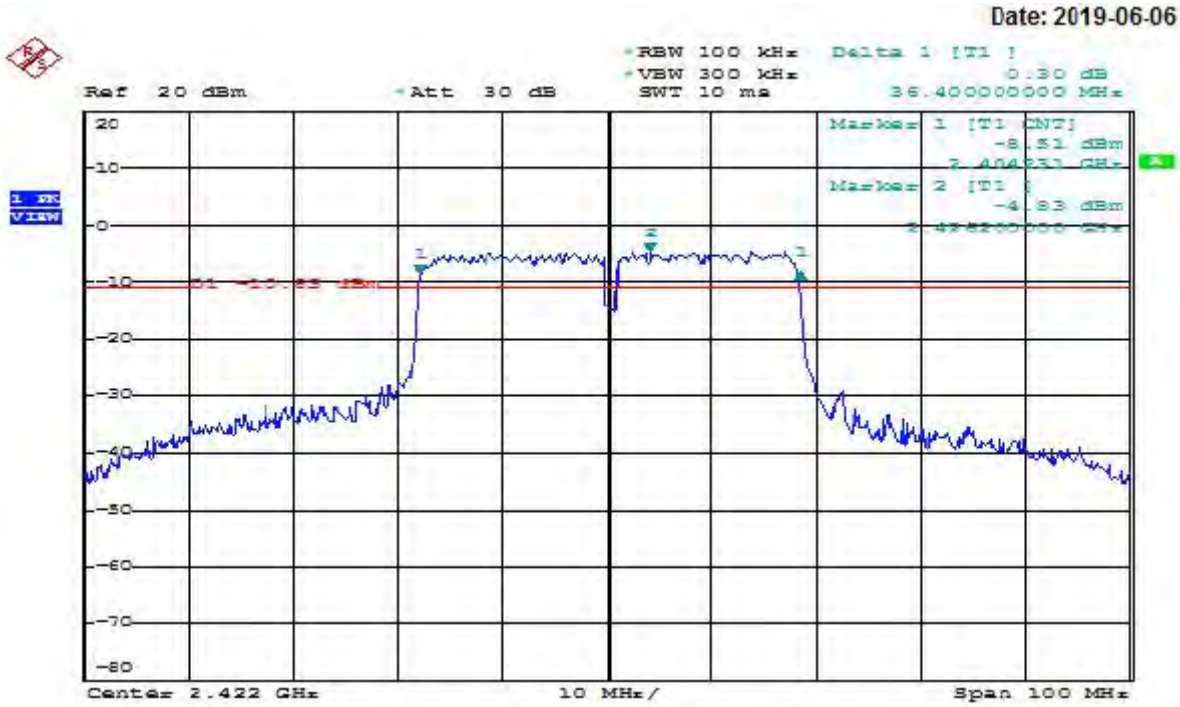
Modulation Standard: 802.11n HT20
Channel: 06



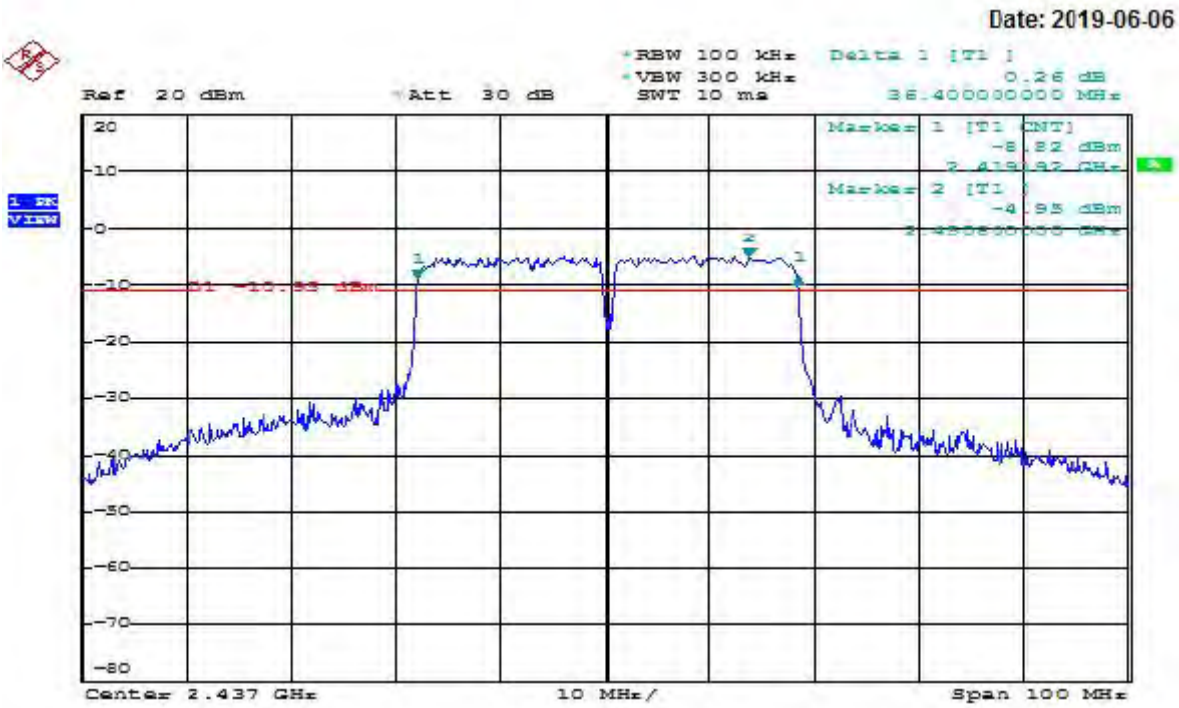
Modulation Standard: 802.11n HT20
Channel: 11



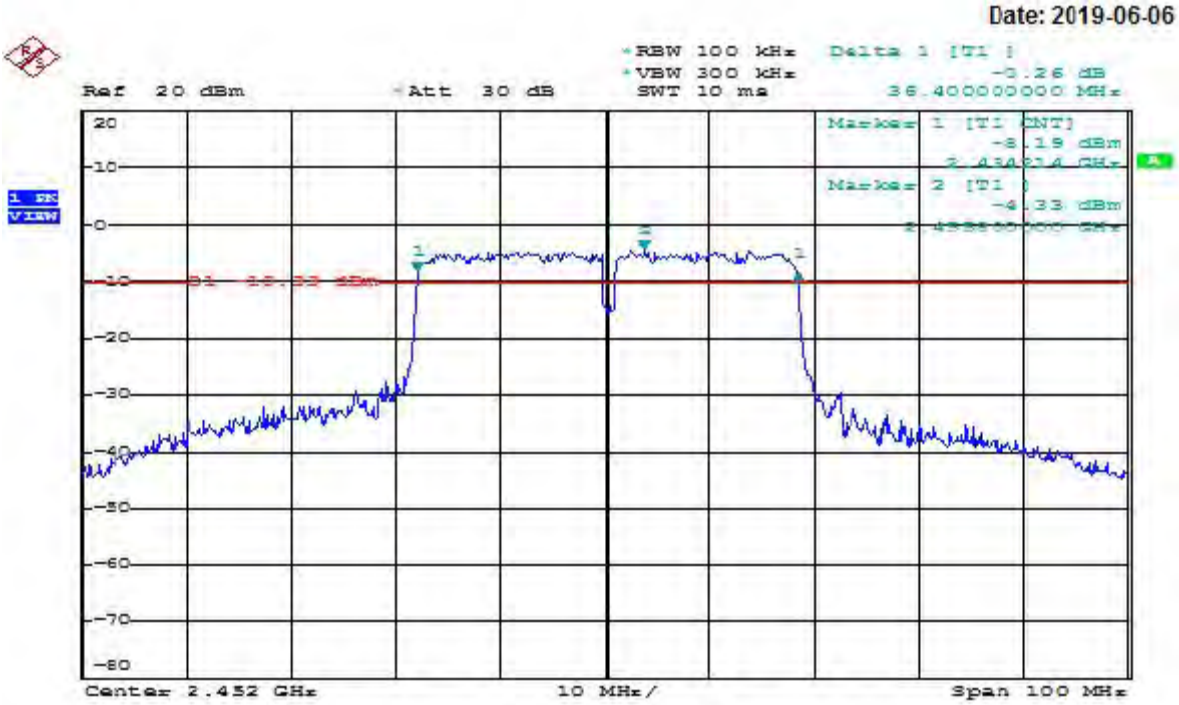
Modulation Standard: 802.11n HT40
Channel: 03



Modulation Standard: 802.11n HT40
Channel: 06



Modulation Standard: 802.11n HT40
Channel: 09



9. Maximum Peak Output Power

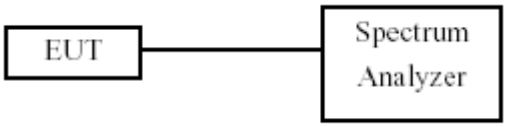
9.1 Test Limit

The Maximum Peak Output Power Measurement is 22 dBm.

9.2 Test Procedures

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

9.3 Test Setup Layout



9.4 Test Result and Data

Test Date: Jun. 06, 2019 Temperature: 23 ℃

Atmospheric pressure: 1001 hPa Humidity: 49 %

Modulation Standard	Channel	Frequency (MHz)	Peak Power Output (dBm)	Peak Power Output (mW)
802.11b	01	2412	13.90	24.558
	06	2437	14.19	26.228
	11	2462	13.23	21.049
802.11g	01	2412	20.53	113.061
	06	2437	20.16	103.866
	11	2462	20.09	102.114
802.11n HT20	01	2412	20.63	115.657
	06	2437	20.76	119.003
	11	2462	20.76	119.023
802.11n HT40	03	2422	20.90	122.967
	06	2437	20.74	118.577
	09	2452	20.68	117.013

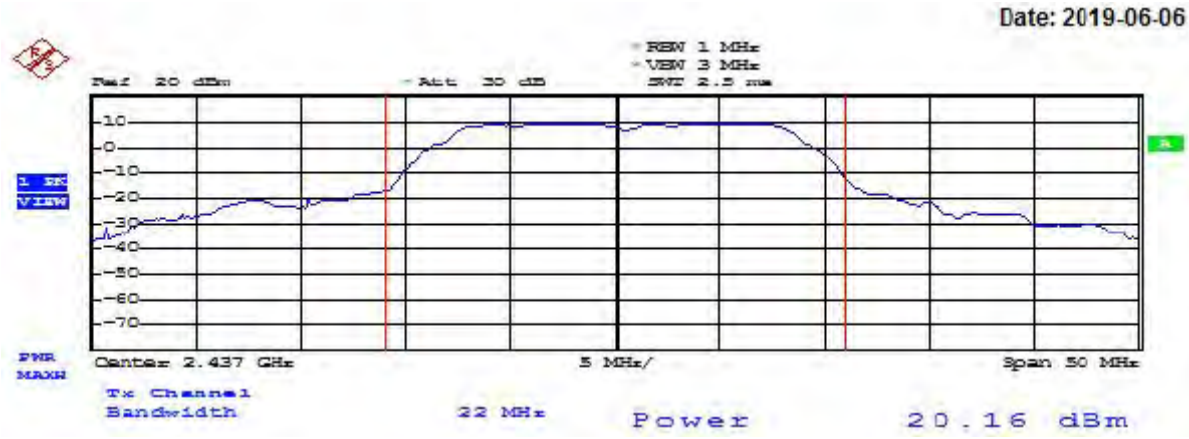
Modulation Standard: 802.11b
Channel: 01

Modulation Standard: 802.11b
Channel: 06

Modulation Standard: 802.11b
Channel: 11

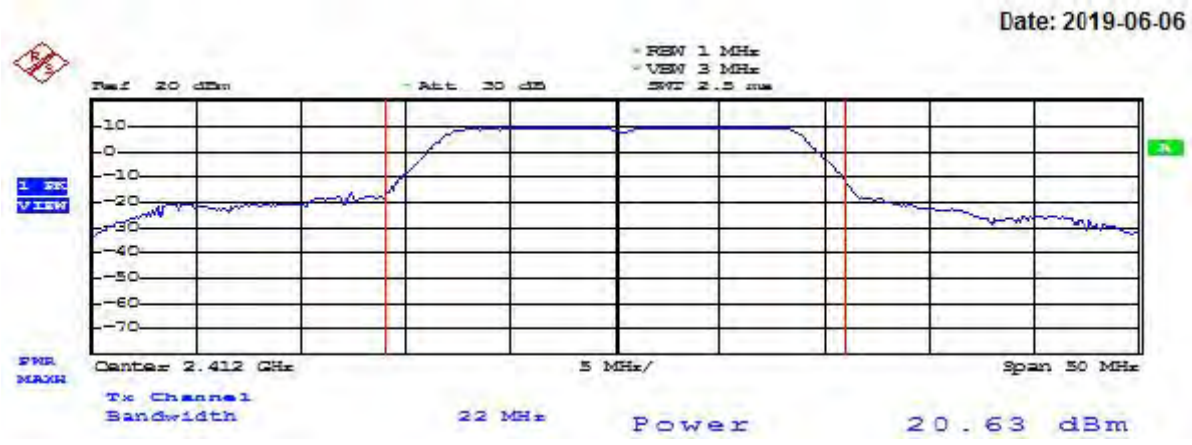
Modulation Standard: 802.11g
Channel: 01

Modulation Standard: 802.11g
Channel: 06

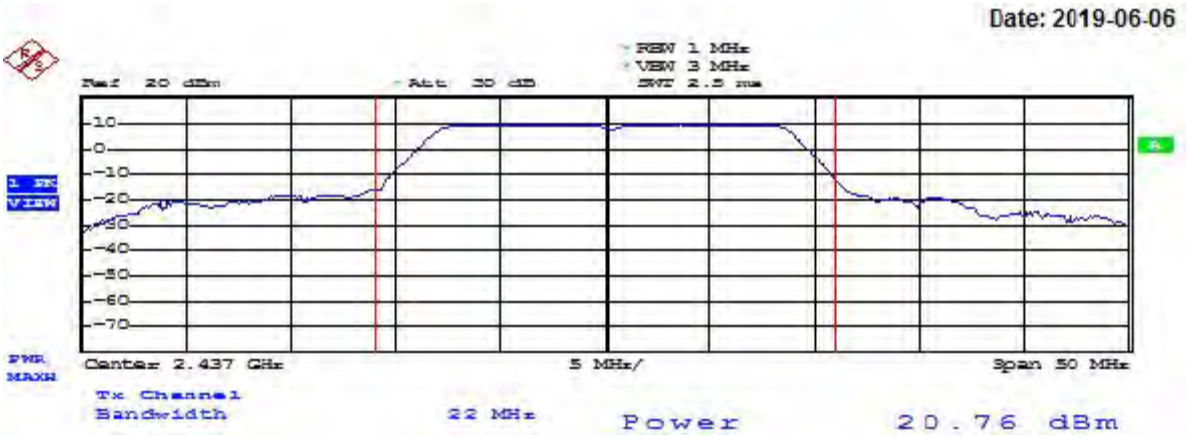


Modulation Standard: 802.11g
Channel: 11

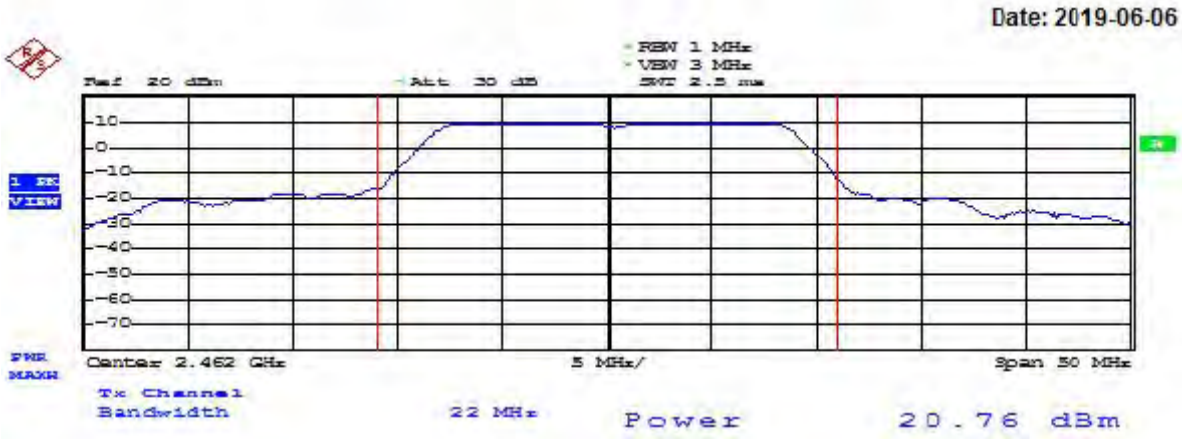
Modulation Standard: 802.11n HT20
Channel: 01



Modulation Standard: 802.11n HT20
Channel: 06



Modulation Standard: 802.11n HT20
Channel: 11



Modulation Standard: 802.11n HT40
Channel: 03

Modulation Standard: 802.11n HT40
Channel: 06

Modulation Standard: 802.11n HT40
Channel: 09

10. Power Spectral Density

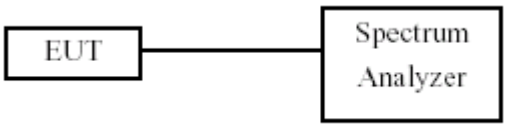
10.1 Test Limit

The Maximum of Power Spectral Density Measurement is 8 dBm

10.2 Test Procedures

a. The transmitter output was connected to spectrum analyzer.
b. The spectrum analyzer's resolution bandwidth were set at 3 kHz RBW and 10 kHz 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



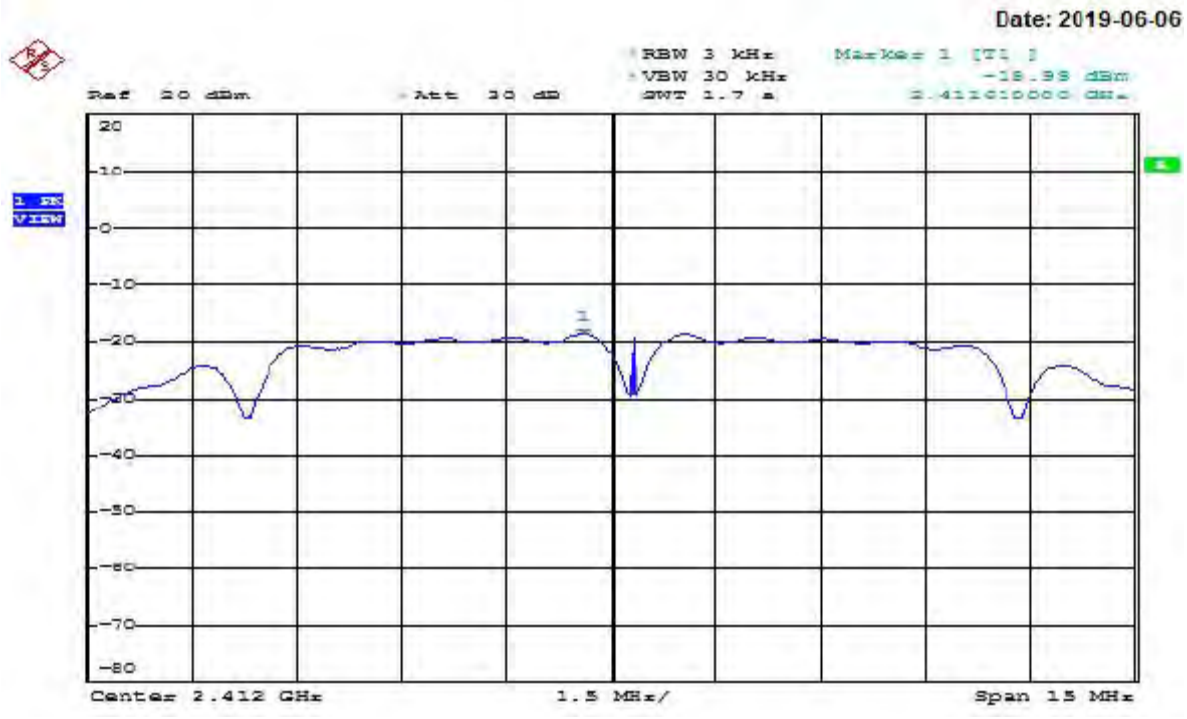
10.4 Test Result and Data

Test Date: Jun. 06, 2019 Temperature: 23 ℃

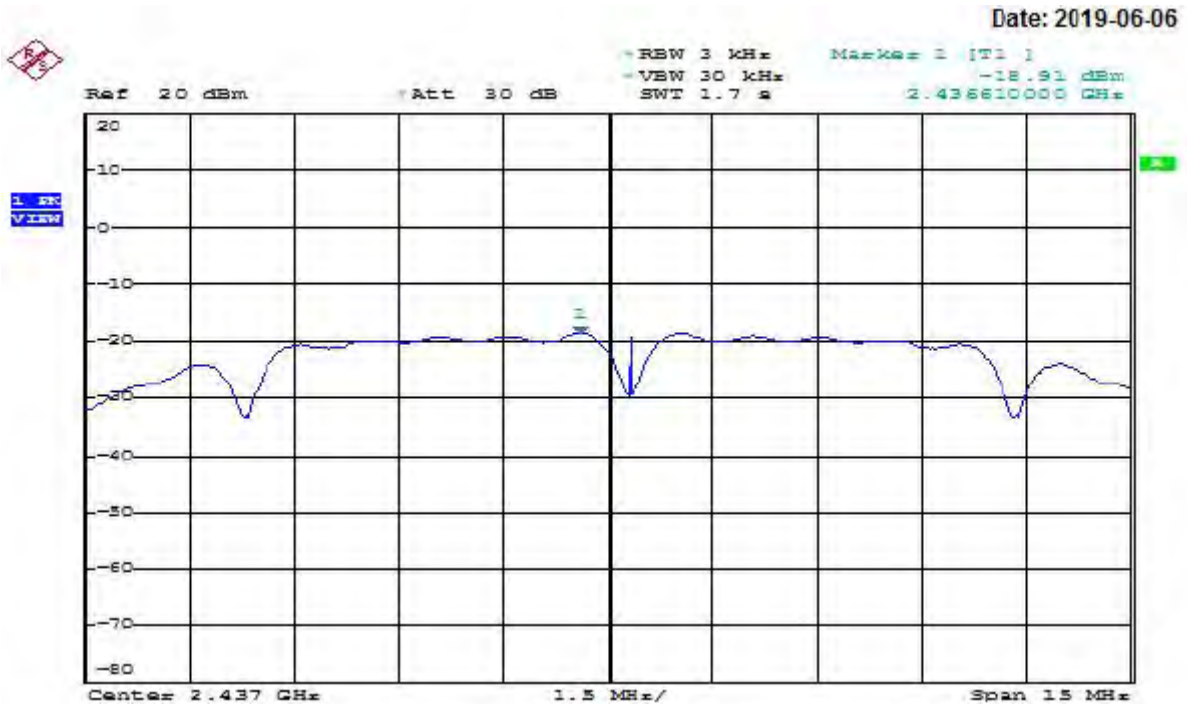
Atmospheric pressure: 1001 hPa Humidity: 49%

Modulation Standard	Channel	Frequency (MHz)	Measured Power Density (dBm)
802.11b	01	2412	-18.98
	06	2437	-18.91
	11	2462	-19.25
802.11g	01	2412	-14.84
	06	2437	-15.48
	11	2462	-15.12
802.11n HT20	01	2412	-13.25
	06	2437	-14.88
	11	2462	-14.64
802.11n HT40	03	2422	-15.29
	06	2437	-17.19
	09	2452	-16.20

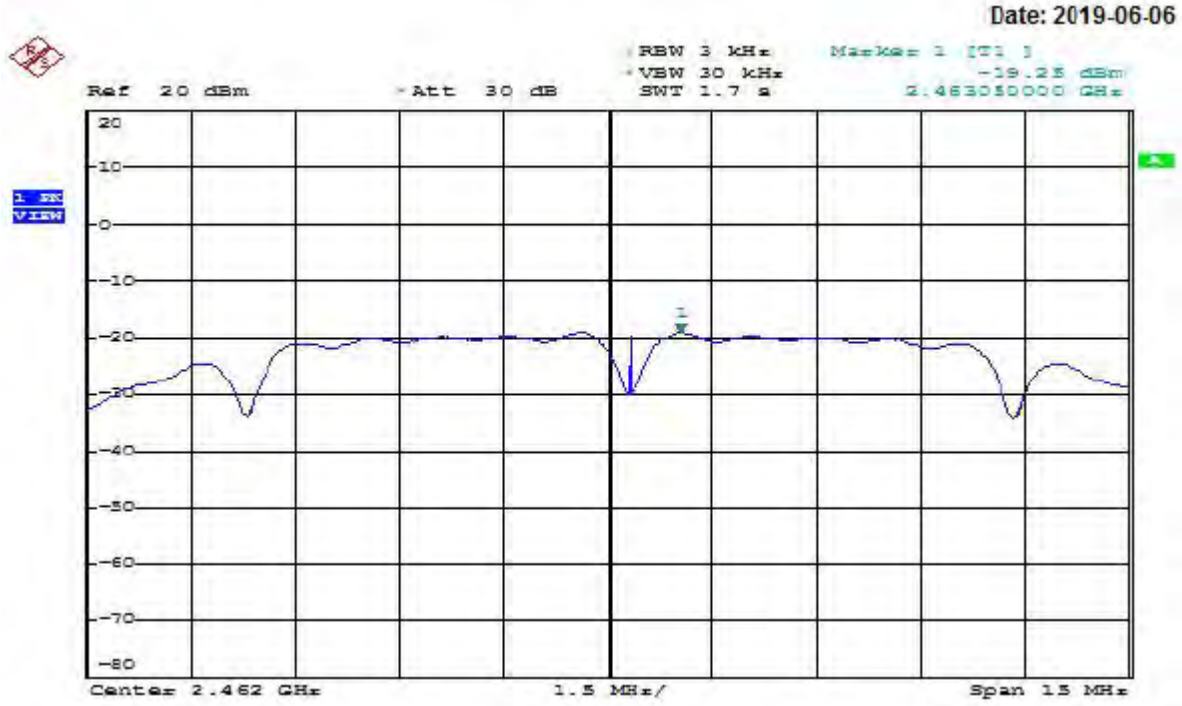
Modulation Standard: 802.11b
Channel: 01



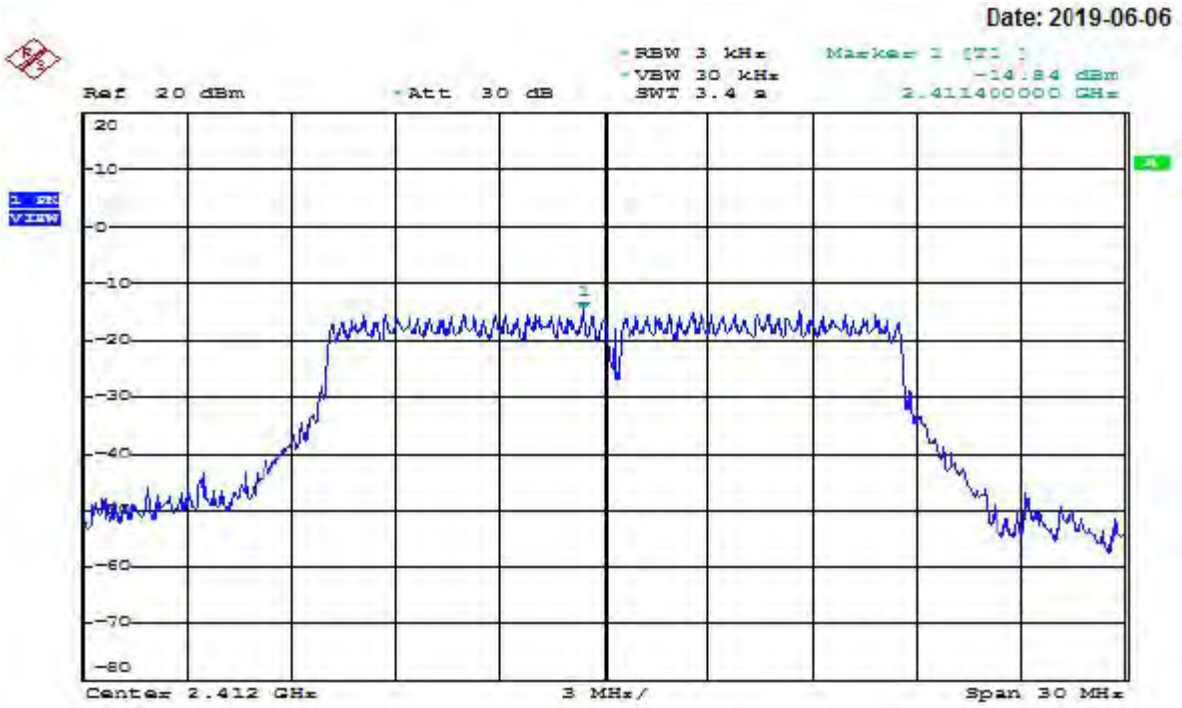
Modulation Standard: 802.11b
Channel: 06



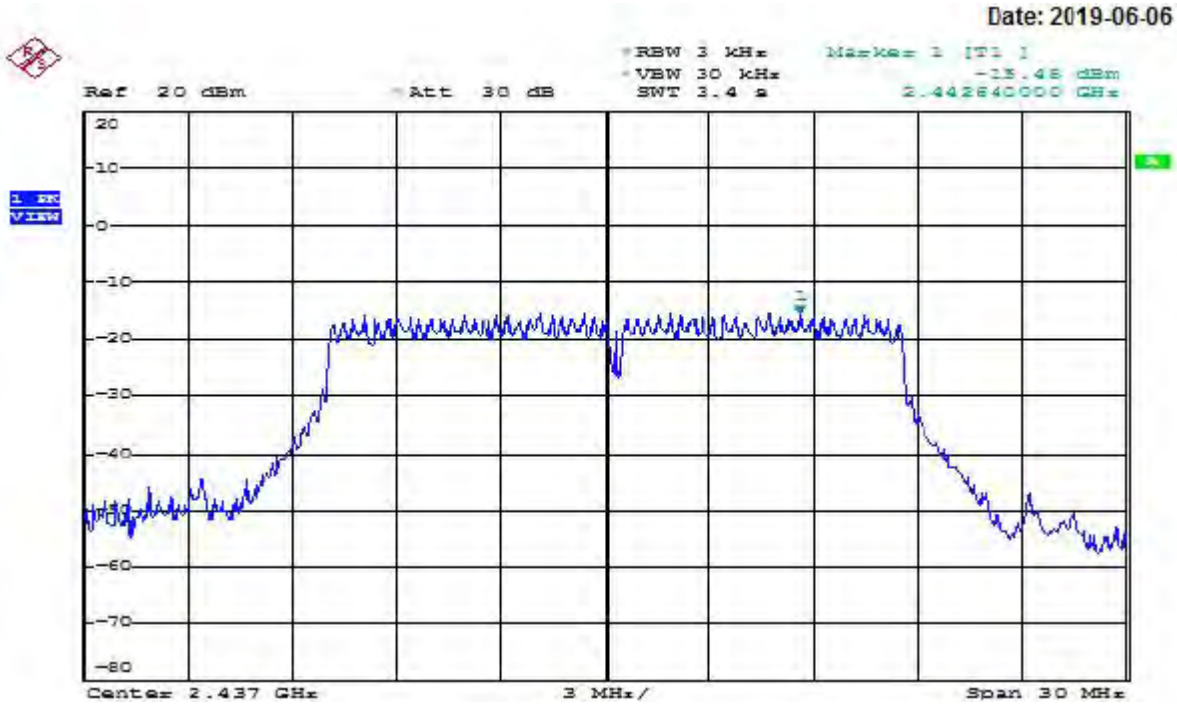
Modulation Standard: 802.11b
Channel: 11



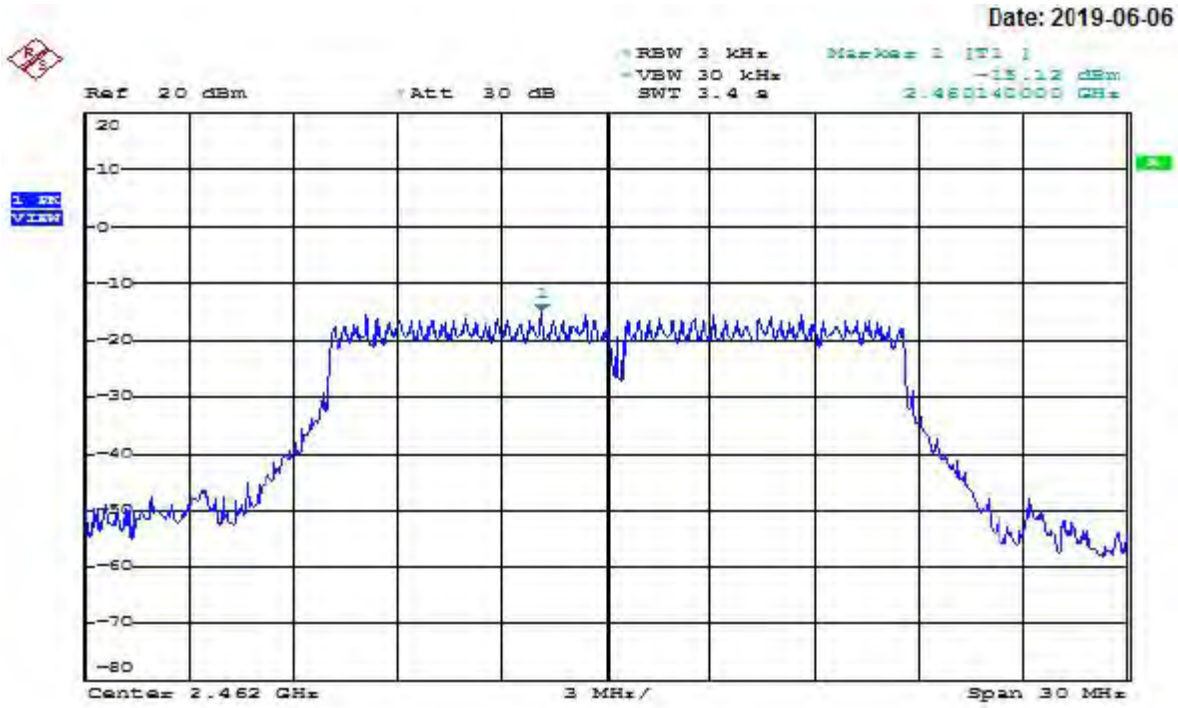
Modulation Standard: 802.11g
Channel: 01



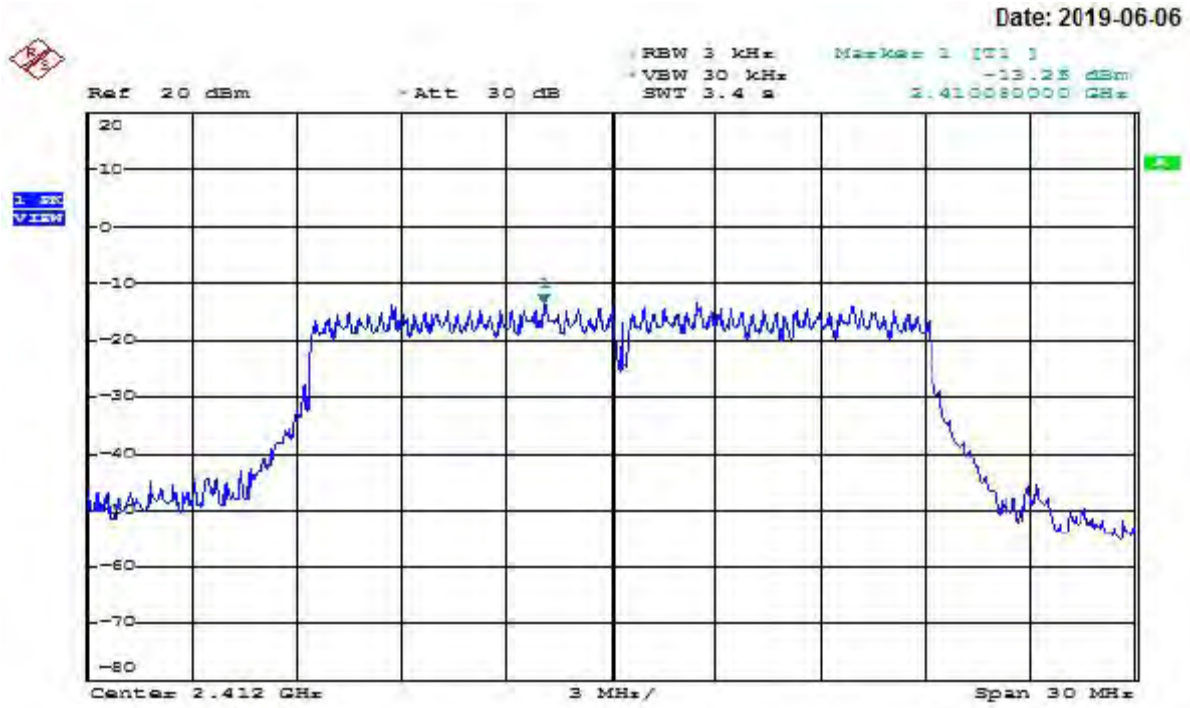
Modulation Standard: 802.11g
Channel: 06



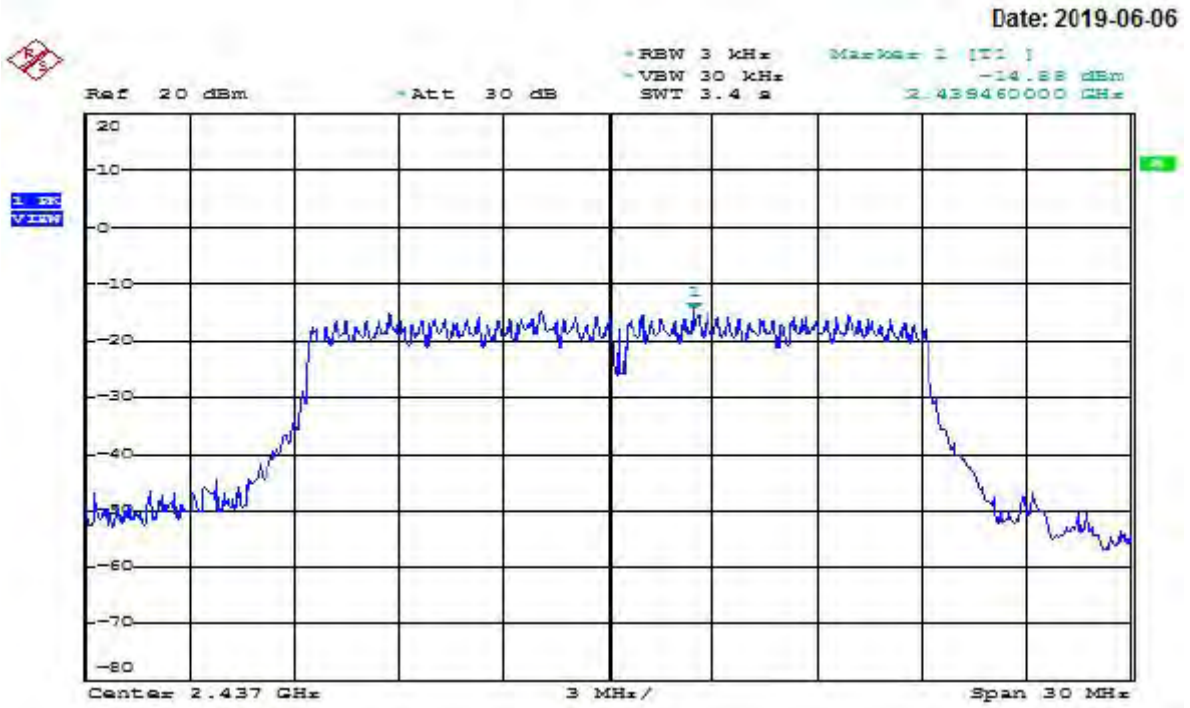
Modulation Standard: 802.11g
Channel: 11



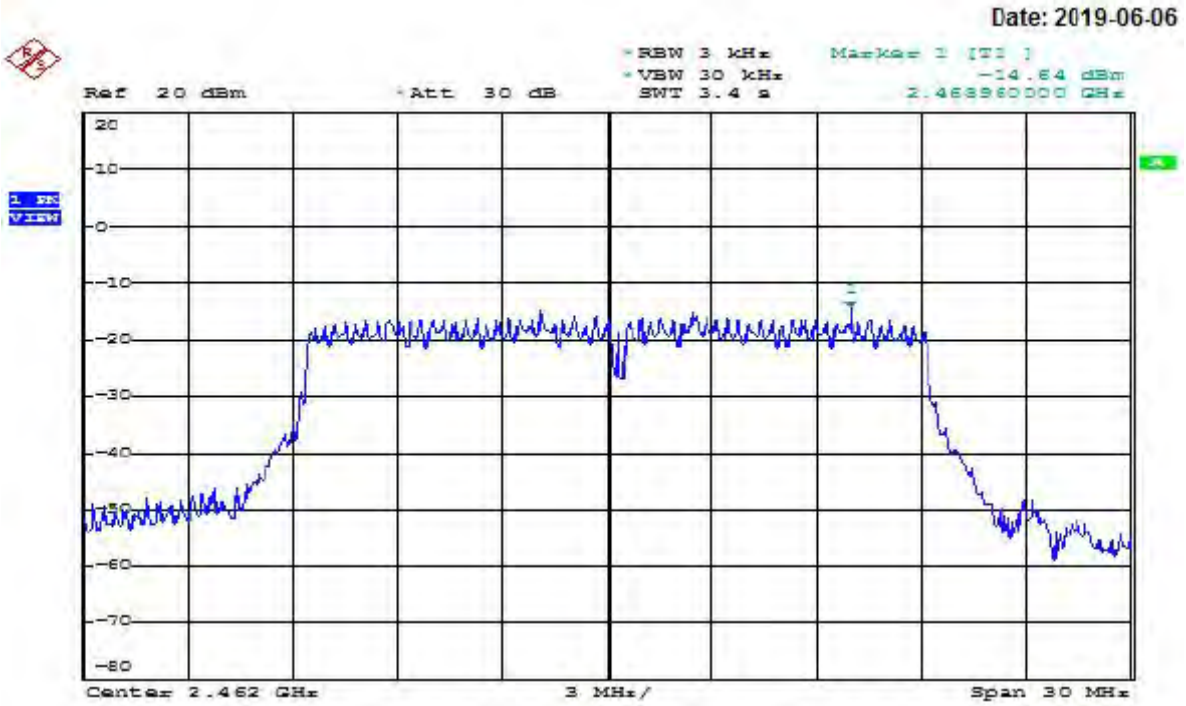
Modulation Standard: 802.11n HT20
Channel: 01



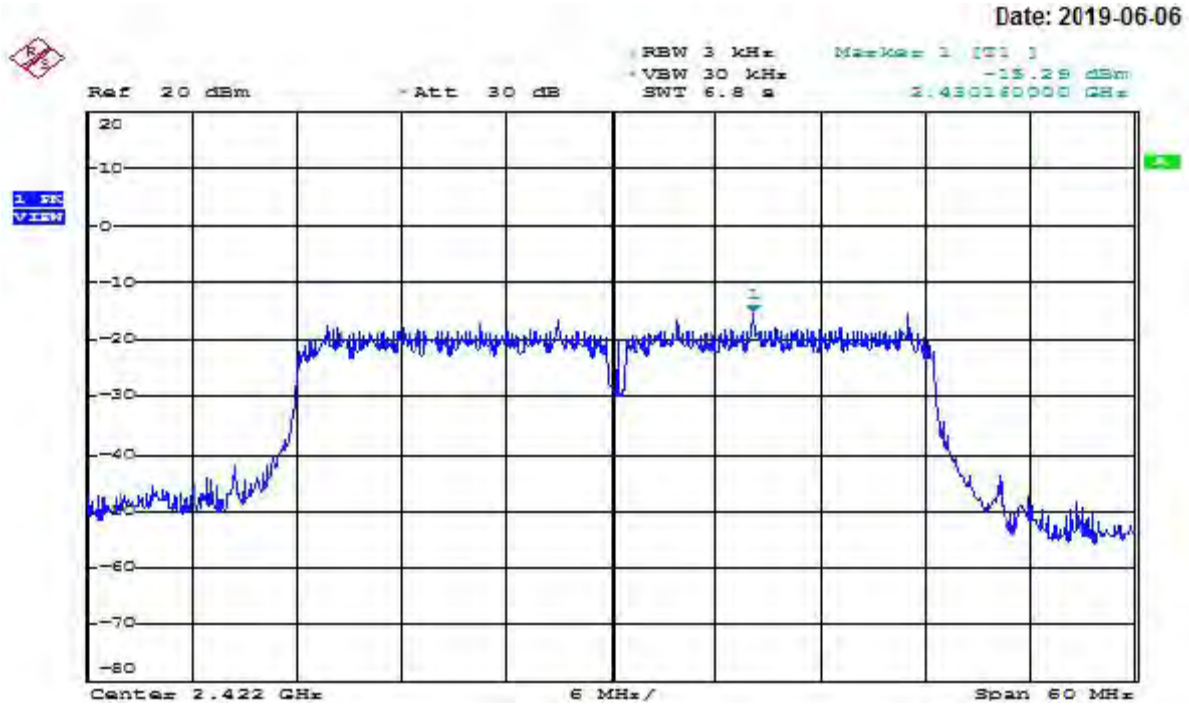
Modulation Standard: 802.11n HT20
Channel: 06



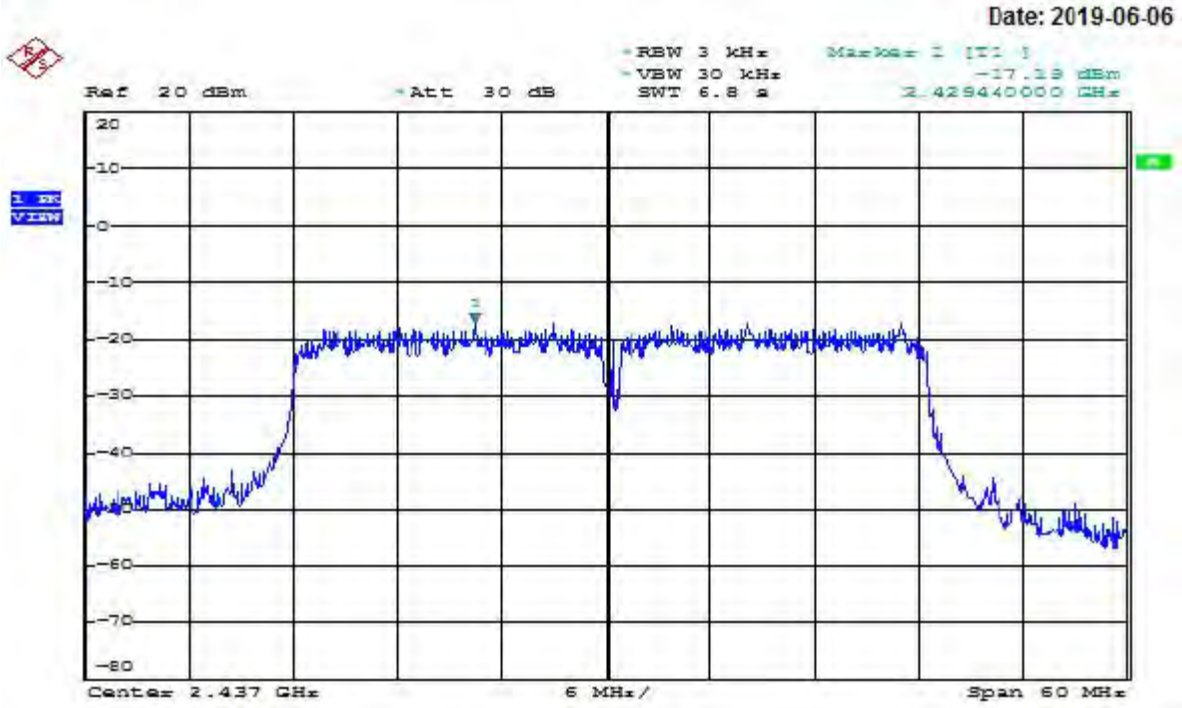
Modulation Standard: 802.11n HT20
Channel: 11



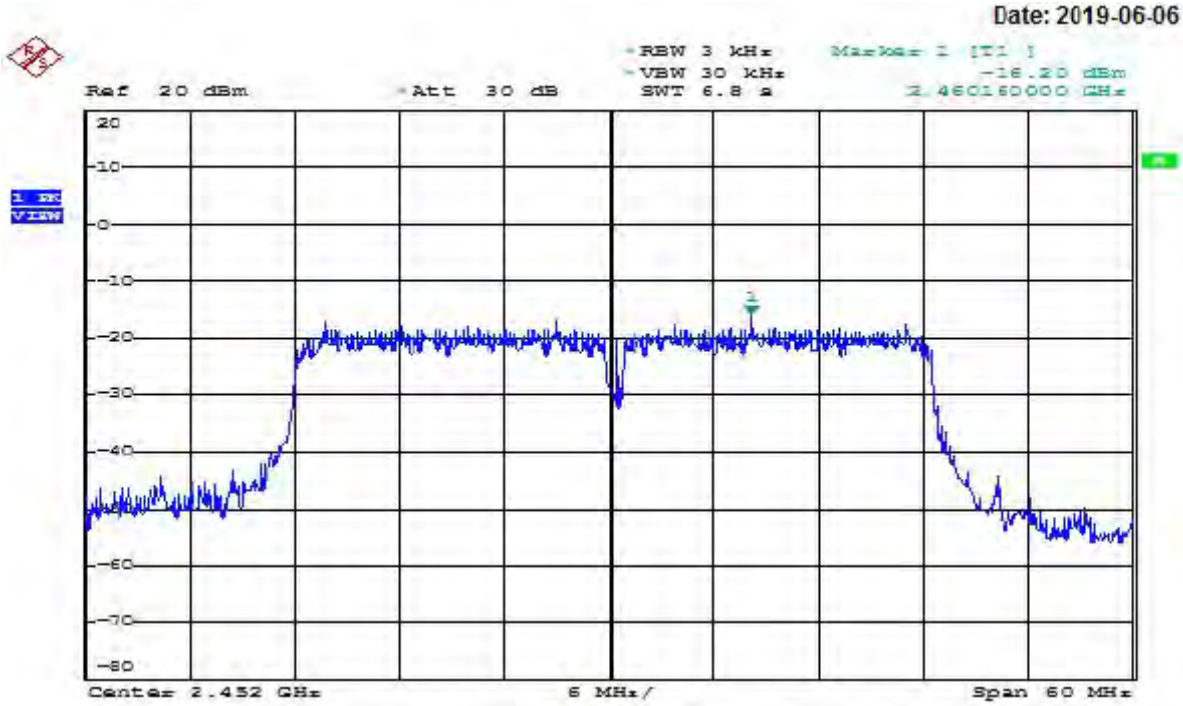
Modulation Standard: 802.11n HT40
Channel: 03



Modulation Standard: 802.11n HT40
Channel: 06



Modulation Standard: 802.11n HT40
Channel: 09



11. Band Edges Measurement

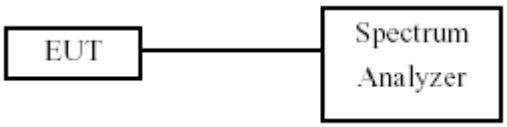
11.1 Test Limit

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

11.2 Test Procedure

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

11.3 Test Setup Layout



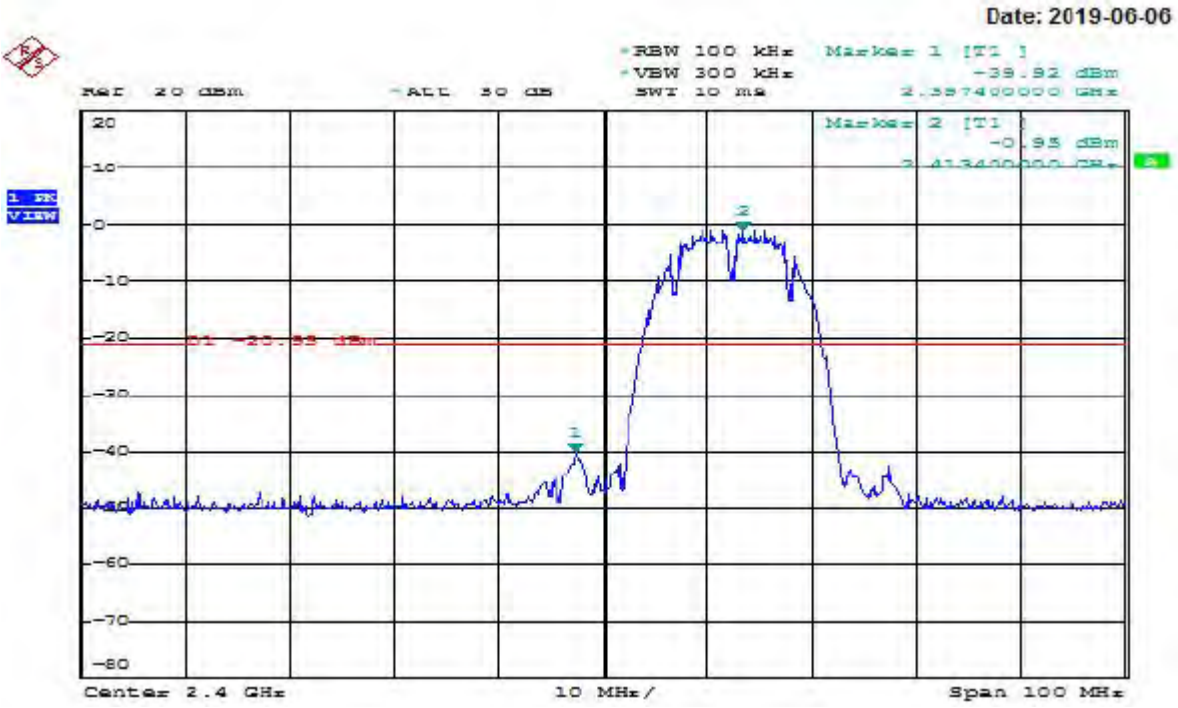
11.4 Test Result and Data

Test Date: Jun. 06, 2019 Temperature: 23 ℃

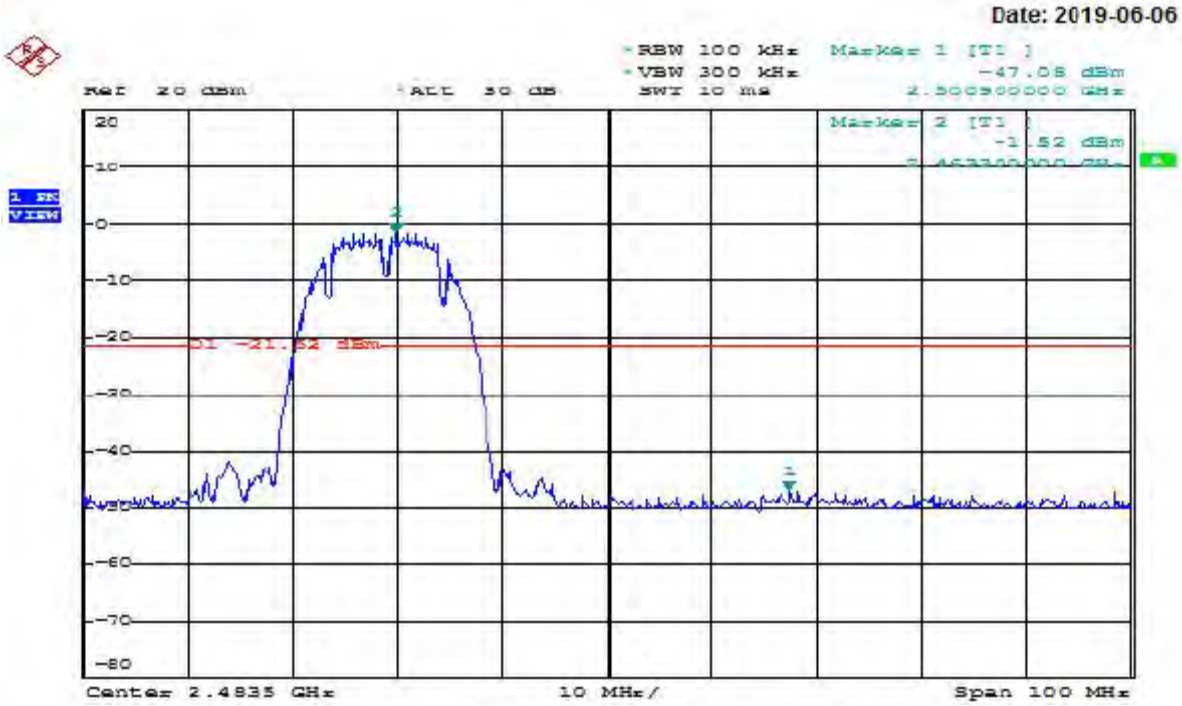
Atmospheric pressure: 1001 hPa Humidity: 49 %

Modulation Standard	Channel	Frequency (MHz)	Maximum value in frequency (MHz)	Maximum value (dBm)
802.11b	01	2412	2397.4	-39.92
	11	2462	2500.9	-47.08
802.11g	01	2412	2399.6	-31.96
	11	2462	2483.7	-43.00
802.11n HT20	01	2412	2399.2	-30.68
	11	2462	2484.1	-43.14
802.11n HT40	03	2422	2398.2	-30.28
	09	2452	2486.3	-36.38

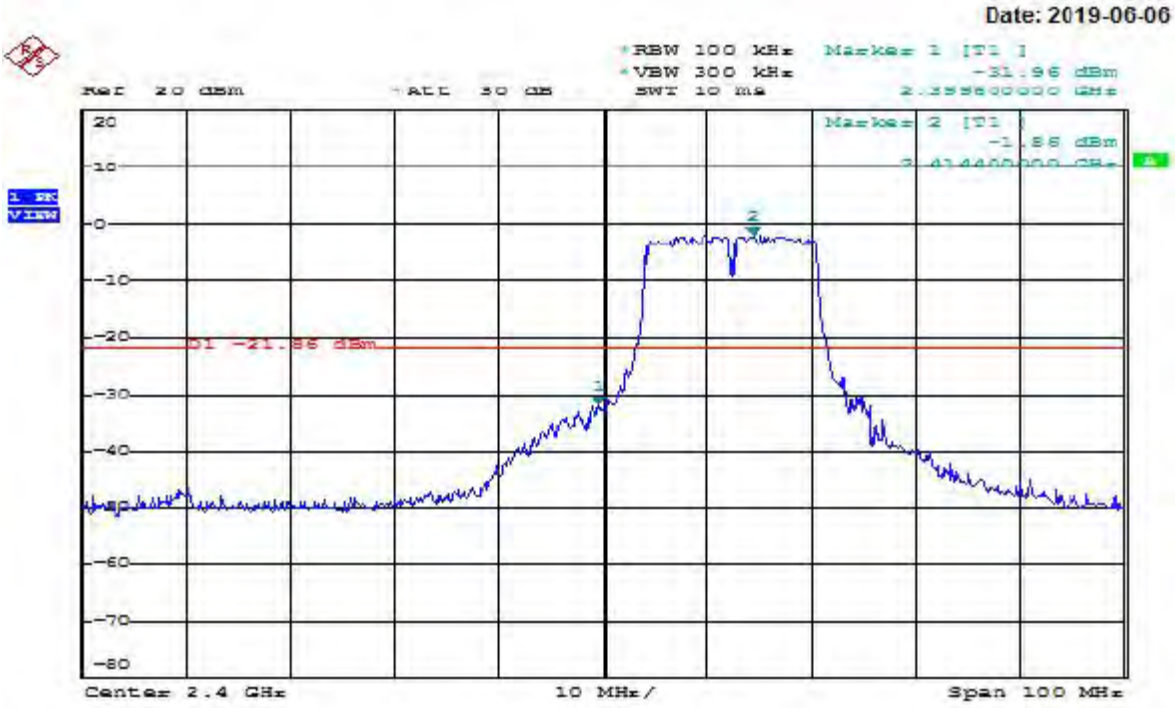
Modulation Standard: 802.11b
Channel: 01



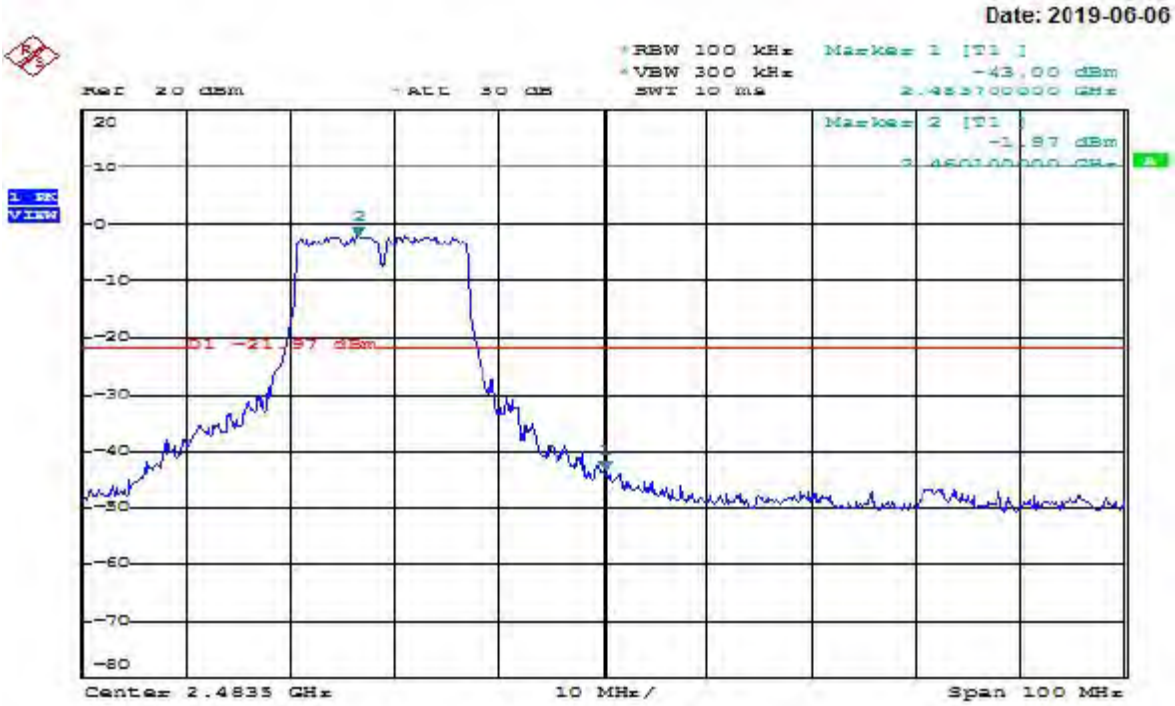
Modulation Standard: 802.11b
Channel: 11



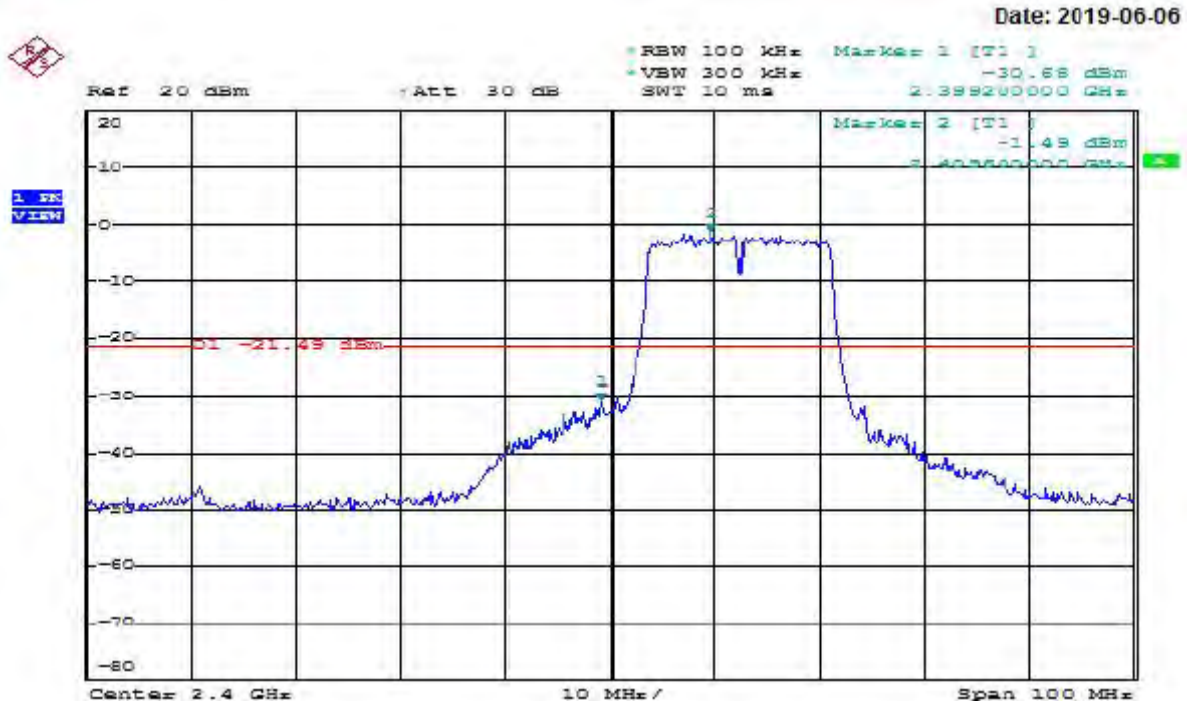
Modulation Standard: 802.11g
Channel: 01



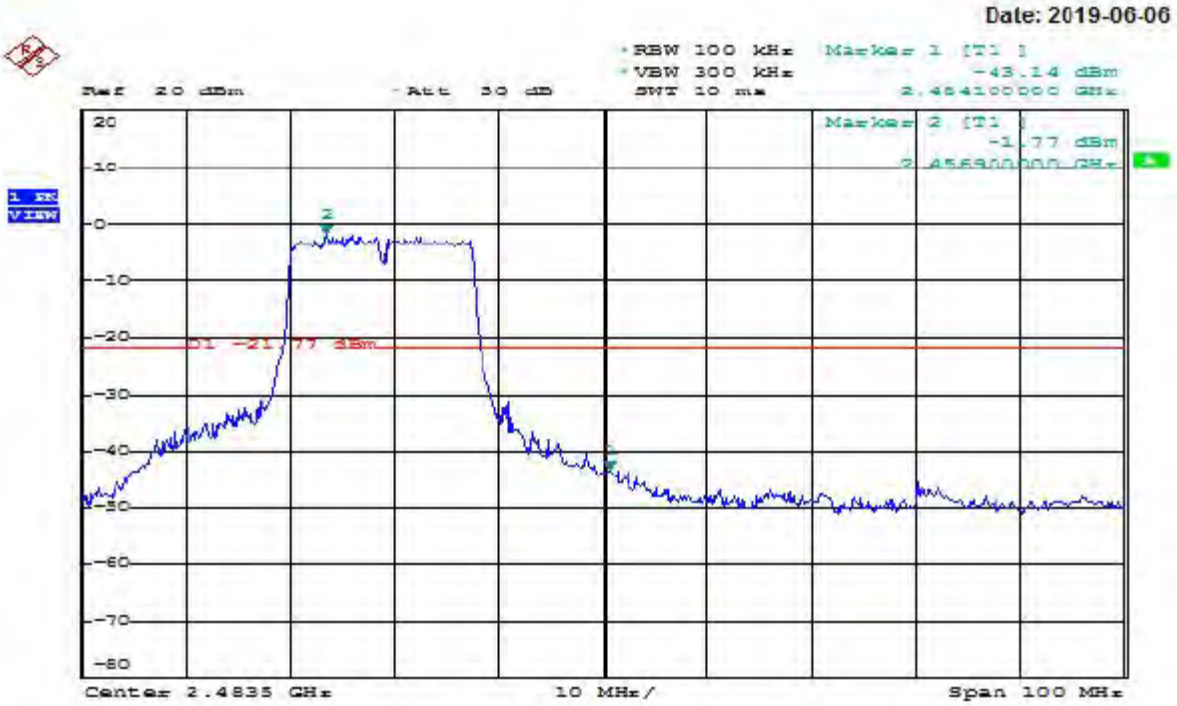
Modulation Standard: 802.11g
Channel: 11



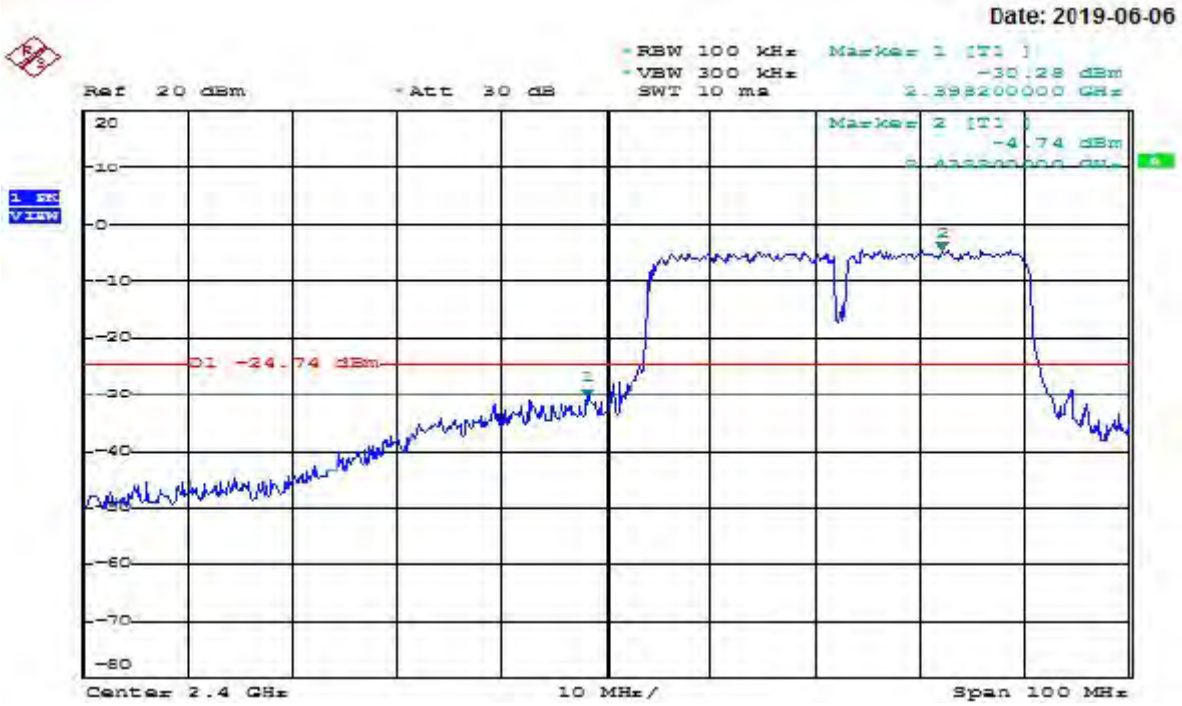
Modulation Standard: 802.11n HT20
Channel: 01



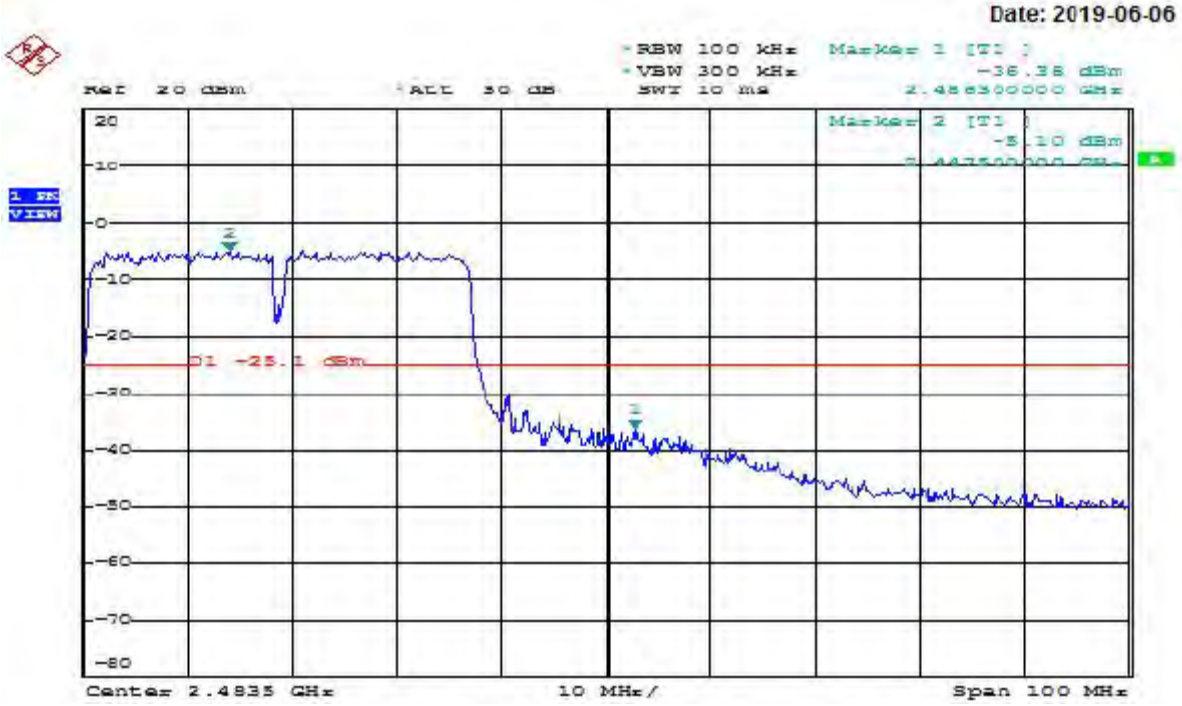
Modulation Standard: 802.11n HT20
Channel: 11



Modulation Standard: 802.11n HT40
Channel: 03



Modulation Standard: 802.11n HT40
Channel: 09



11.5 Restrict Band Emission Measurement Data

Power :	AC 120V	Pol/Phase :	H/V
Test Mode :	802.11b	Temperature :	28 °C
Memo :	Helical Antenna	Humidity :	68 %

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)
						Peak	Ave	
2385.60	H	58.96	-13.24	45.72	Peak	74	54	-28.28
---	H	---	---	---	Ave	74	54	---
2381.60	V	60.20	-13.25	46.95	Peak	74	54	-27.05
---	V	---	---	---	Ave	74	54	---
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)
						Peak	Ave	
2492.50	H	58.88	-12.58	46.30	Peak	74	54	-27.70
---	H	---	---	---	Ave	74	54	---
2488.50	V	58.66	-12.63	46.03	Peak	74	54	-27.97
---	V	---	---	---	Ave	74	54	---

Power	:	AC 120V	Pol/Phase	:	H/V
Test Mode	:	802.11g	Temperature	:	28 °C
Memo	:	Helical Antenna	Humidity	:	68 %

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)
						Peak	Ave	
2390.00	H	63.97	-13.22	50.75	Peak	74	54	-23.25
---	H	---	---	---	Ave	74	54	---
2390.00	V	64.54	-13.22	51.32	Peak	74	54	-22.68
---	V	---	---	---	Ave	74	54	---
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)
						Peak	Ave	
2483.50	H	63.97	-13.22	40.75	Peak	74	54	-23.25
---	H	---	---	---	Ave	74	54	---
2483.50	V	63.78	-12.67	51.11	Peak	74	54	-22.89
---	V	---	---	---	Ave	74	54	---

Power	:	AC 120V	Pol/Phase	:	H/V
Test Mode	:	802.11n HT20	Temperature	:	28 °C
Memo	:	Helical Antenna	Humidity	:	68 %

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)
						Peak	Ave	
2390.00	H	65.63	-13.22	52.41	Peak	74	54	-21.59
---	H	---	---	---	Ave	74	54	---
2390.00	V	66.37	-13.22	53.15	Peak	74	54	-20.85
---	V	---	---	---	Ave	74	54	---
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)
						Peak	Ave	
2483.50	H	62.51	-13.22	52.41	Peak	74	54	-21.59
---	H	---	---	---	Ave	74	54	---
2483.50	V	62.77	-12.67	50.10	Peak	74	54	-23.90
---	V	---	---	---	Ave	74	54	---

Power	:	AC 120V	Pol/Phase	:	H/V
Test Mode	:	802.11n HT40	Temperature	:	28 °C
Memo	:	Helical Antenna	Humidity	:	68 %

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)
						Peak	Ave	
2390.00	H	71.39	-13.22	58.17	Peak	74	54	-15.83
2390.00	H	58.99	-13.22	45.77	Ave	74	54	-8.23
2390.00	V	70.06	-13.22	56.84	Peak	74	54	-17.16
2390.00	V	56.50	-13.22	43.28	Ave	74	54	-10.72
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)
						Peak	Ave	
2483.50	H	66.95	-12.67	54.28	Peak	74	54	-19.72
2483.50	H	54.61	-12.67	41.94	Ave	74	54	-12.06
2483.50	V	68.15	-12.67	55.48	Peak	74	54	-18.52
2483.50	V	55.31	-12.67	42.64	Ave	74	54	-11.36

Power	:	AC 120V	Pol/Phase	:	H/V
Test Mode	:	802.11b	Temperature	:	28 °C
Memo	:	Panel Antenna	Humidity	:	68 %

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)
						Peak	Ave	
2383.60	H	57.91	-13.25	44.66	Peak	74	54	-29.34
---	H	---	---	---	Ave	74	54	---
2383.10	V	59.45	-13.25	46.20	Peak	74	54	-27.80
---	V	---	---	---	Ave	74	54	---
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)
						Peak	Ave	
2490.90	H	58.49	-12.59	45.90	Peak	74	54	-28.10
---	H	---	---	---	Ave	74	54	---
2489.90	V	57.58	-12.61	44.97	Peak	74	54	-29.03
---	V	---	---	---	Ave	74	54	---

Power	:	AC 120V	Pol/Phase	:	H/V
Test Mode	:	802.11g	Temperature	:	28 °C
Memo	:	Panel Antenna	Humidity	:	68 %

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)
						Peak	Ave	
2390.00	H	63.04	-13.22	49.82	Peak	74	54	-24.18
---	H	---	---	---	Ave	74	54	---
2390.00	V	64.26	-13.22	51.04	Peak	74	54	-22.96
---	V	---	---	---	Ave	74	54	---
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)
						Peak	Ave	
2483.50	H	62.88	-12.67	50.21	Peak	74	54	-23.79
---	H	---	---	---	Ave	74	54	---
2483.50	V	63.55	-12.67	50.88	Peak	74	54	-23.12
---	V	---	---	---	Ave	74	54	---

Power	:	AC 120V	Pol/Phase	:	H/V
Test Mode	:	802.11n HT20	Temperature	:	28 °C
Memo	:	Panel Antenna	Humidity	:	68 %

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)
						Peak	Ave	
2390.00	H	65.38	-13.22	52.16	Peak	74	54	-21.84
---	H	---	---	---	Ave	74	54	---
2390.00	V	66.19	-13.22	52.97	Peak	74	54	-21.03
---	V	---	---	---	Ave	74	54	---
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)
						Peak	Ave	
2483.50	H	62.59	-13.22	52.16	Peak	74	54	-21.84
---	H	---	---	---	Ave	74	54	---
2483.50	V	62.90	-12.67	50.23	Peak	74	54	-23.77
---	V	---	---	---	Ave	74	54	---

Power	:	AC 120V	Pol/Phase	:	H/V
Test Mode	:	802.11n HT40	Temperature	:	28 °C
Memo	:	Panel Antenna	Humidity	:	68 %

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)
						Peak	Ave	
2390.00	H	70.70	-13.22	57.48	Peak	74	54	-16.52
2390.00	H	57.34	-13.22	44.12	Ave	74	54	-9.88
2390.00	V	68.29	-13.22	55.07	Peak	74	54	-18.93
2390.00	V	55.27	-13.22	42.05	Ave	74	54	-11.95
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)
						Peak	Ave	
2483.50	H	66.26	-12.67	53.59	Peak	74	54	-20.41
---	H	---	---	---	Ave	74	54	---
2483.50	V	66.02	-12.67	53.35	Peak	74	54	-20.65
---	V	---	---	---	Ave	74	54	---

Note:

1. Emission level = Reading level + Correction factor
2. Correction factor : Antenna factor, Cable loss, Pre-Amp, etc.
3. Measurements above 1000 MHz, Peak detector setting:
   1 MHz RBW with 1 MHz VBW.
4. Measurements above 1000 MHz, Average detector setting:
   1 MHz RBW with 10Hz VBW.
5. Peak detector measurement data will represent the worst case results.
6. Where limits are specified for both average and peak detector functions, if the peak measured value complies with the average limit, it is unnecessary to perform an average measurement.
7. The other emission levels were 20dB below the limit.

12. Restricted Bands of Operation

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

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

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

12.1 Labeling Requirement

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