

TEST REPORT

Verified Code: 960694

Report No.:	E20201010106801-4	Application No.:	E20201010106801
Client:	Shen Zhen MTC Co., LTD		
Address:	MTC Industry Park, 1st Lilang Road, Xialilang community, Nanwan street, Longgang district, Shenzhen, China		
Sample Description:	Google Android TV BOX		
Model:	UI-7060A		
Test Specification:	FCC Part 15 Subpart C 15.247		
Receipt Date:	2020-10-16		
Test Date:	2020-10-28 to 2020-11-13		
Issue Date:	2020-12-08		
Test Result:	Pass		
Prepared By: Test Engineer <i>Xie Jang</i>	Reviewed By: Technical Manager <i>Wu Haoting</i>	Approved By: Manager <i>Wu Chengrong</i>	
Other Aspects:			
Note: Note			
Abbreviations: ok / P = passed; fail / F = failed; n.a. / N = not applicable;			
The test result in this test report refers exclusively to the presented test sample. This report shall not be reproduced except in full, without the written approval of GRGT.			



DIRECTIONS OF TEST

- 1. This station carries out test task according to the national regulation of verifications which can be traced to National Primary Standards and BIPM.**
- 2. The test report merely corresponds to the test sample. It is not permitted to copy extracts of these test result without the written permission of the test laboratory.**
- 3. If there is any objection concerning the test, the client should inform the laboratory within 15 days from the date of receiving the test report.**

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1. TEST RESULT SUMMARY

Standard	Item	Limit / Severity	Result
FCC Part 15, Subpart C (15.247)	Antenna Requirement	§15.203	PASS
	Conducted Emissions	§15.207 (a)	PASS
	Radiated Spurious Emission	§15.247(d)	PASS
	6 dB Bandwidth	§15.247 (a)(2)	PASS
	Maximum Peak Output Power	§15.247(b)(3)	PASS
	Power Spectral Density	§15.247(e)	PASS
	Conducted band edges and Spurious Emission	§15.247(d)	PASS
	Restricted bands of operation	§15.205	PASS

The EUT have two antennas. The antenna is internal antenna.

The max gain of antenna 1 is 2.64dBi and antenna 2 is 1.95dBi is 1dBi. which accordance 15.203. is considered sufficient to comply with the provisions of this section.

2. GENERAL DESCRIPTION OF EUT

2.1. APPLICANT

Name: Shen Zhen MTC Co., LTD
 Address: MTC Industry Park, 1st Lilang Road, Xialilang community, Nanwan street, Longgang district, Shenzhen, China

2.2. MANUFACTURER

Name: DIGITAL MULTIMEDIA TECHNOLOGY CO., LTD
 Address: 14th Floor, 726, Eonju-ro, Gangnam-gu, Seoul, Republic of Korea

2.3. FACTORY

Name: PT. PAMPAS ELECTRIC
 Address: JL. KRUIING 2 BLOK L9 NO.9 KAWASAN INDUSTRI DELTA SILICON, LIPPO CIKARANG, KEL SUKARESMI, KEC. CIKARANG SELATAN KAB. BEKASI JAWA BARAT 17530

2.4. BASIC DESCRIPTION OF EQUIPMENT UNDER TEST

Equipment: Google Android TV BOX

Model No.: UI-7060A

Adding Model: UI-7060

Model Differences: UI-7060, UI-7060A board, schematic, hardware version, software version, structure are same, the difference as below:

model name	EMMC	DDR	S/PDIF	Remote Control
UI-7060	4G EMMC	1GB DDR3-2133, 16bits(4Gb*2)	/	Infrared Remote Control
UI-7060A	8G EMMC	2GB DDR3-2133, 16bits(4Gb*4)	1	Bluetooth Control

Trade Name: DMT, TIVO, EVOLUTION DIGITAL, NELSON CABLE, LINGVO TV, SFN, ODK, ODV, Homecast, Mid air Connect

FCC ID: 2AHVH-UI7060

Power Supply: DC12V power supplied by adapter

Adapter: CHENZHOU FRECOM ELECTRONICS CO., LTD

Specification: Model: F12L46-120100SPAU
 Input: 100-240V~50/60Hz 0.3A
 Output: 12.0V --- 1.0A 12.0W

Frequency Range: 2412MHz~2462MHz: 802.11b; 802.11g; 802.11n(HT20)
 2422MHz~2452MHz: 802.11n(HT40);

Transmit Power: 14.42dBm for 802.11b mode (antenna 1)
 13.27dBm for 802.11b mode (antenna 2)
 15.26dBm for 802.11g mode (antenna 1)

15.72dBm for 802.11g mode (antenna 2)
 17.81dBm for 802.11n HT20 mode(MIMO)
 18.04dBm for 802.11n HT40 mode(MIMO)

Modulation type: DSSS for 802.11b mode;
 OFDM for 802.11g mode;
 OFDM for 802.11n mode.

Channel space: 5MHz

Antenna Specification: Internal antenna 1 with 2.64dBi gain (Max.)
 Internal antenna 2 with 1.95dBi gain (Max)

Temperature Range: -10 °C ~+40 °C

Hardware Version: IP1510-ZC01-01

Software Version: 20201027-135554

Sample No: 0001, 0008

Note: /

2.5. TEST OPERATION MODE

Test Item	Mode No.	Description of the modes
Conducted Emission	1	2.4G wifi Transmitting
Radiated Emission	1	2.4G wifi Transmitting

2.6. LOCAL SUPPORTIVE INSTRUMENTS

Name of Equipment	Manufacturer	Model	Serial Number	Note
Notebook	LENOVO	TianYi 310-14ISK	MP18DLC6	/
Adapter (Notebook)	LENOVO	ADLX65NCC3A	N/A	/
Cable				
AC cable	/	/	/	Unshielded, 1.00m
DC cable	/	/	/	Shielded, 1.80m

Test software:

Software version
adb

Mode	Date Rate	Frequency (MHz)	Power Setting
802.11b	1M	2412	29/33
		2437	29/33
		2462	29/33
802.11g	6M	2412	23/27
		2437	23/27
		2462	23/27
802.11n HT20	MCS0	2412	23/26
		2437	23/26
		2462	23/26
802.11n HT40	MCS0	2422	22/25
		2437	22/25
		2452	22/25

3. LABORATORY AND ACCREDITATIONS

3.1. LABORATORY

The tests & measurements refer to this report were performed by Shenzhen EMC Laboratory of Guangzhou GRG Metrology & Test Co., Ltd.

Add : Address: No.1301 Guanguang Road Xinlan Community, Guanlan Street,
Longhua District Shenzhen, 518110, People's Republic of China

P.C. : 518000

Tel : 0755-61180008

Fax : 0755-61180008

3.2. ACCREDITATIONS

A2LA	Certificate Number 2861.01
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3.3. MEASUREMENT UNCERTAINTY

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Measurement		Frequency	Uncertainty
Radiated Emission	Horizontal	30MHz~1000MHz	4.3dB
		1GHz~18GHz	5.6dB
	Vertical	30MHz~1000MHz	4.3dB
		1GHz~18GHz	5.6dB
Conduction Emission		9 kHz ~ 150 kHz	2.8 dB
		150 kHz ~ 10 MHz	2.8 dB
		10 MHz ~ 30 MHz	2.2 dB

This uncertainty represents an expanded uncertainty factor of $k=2$.

4. LIST OF USED TEST EQUIPMENT AT GRGT

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
Conducted Emissions				
EMI TEST RECEIVER	R&S	ESCI	100783	2020/11/27
LISN(EUT)	R&S	ENV216	101543	2021/03/24
EZ-EMC	EZ	CCS-3A1-CE	/	/
Radiated Spurious Emission& Restricted bands of operation				
TEST RECEIVER	R&S	ESU26	EMC26-G260	2021/09/22
Spectrum Analyzer	Agilent	N9010A	MY52221469	2021/05/16
Bilog Antenna	Schwarzbeck	VULB 9163	01279	2021/03/14
Horn Antenna	Schwarzbeck	BBHA 9120D(1201)	02143	2020/12/28
Board-Band Horn Antenna	Schwarzbeck	BBHA 9170	BBHA 9170-497	2020/11/30
Amplifier	Tonscend	TAP9E6343	AP20E806065	2021/06/28
Amplifier	Tonscend	TAP01018048	AP20E8060075	2021/06/28
Amplifier	Tonscend	TAP037030	AP20E8060081	2021/06/28
Amplifier	Tonscend	TAP184050	AP20E806071	2021/06/15
Test S/W	Tonscend	JS32-RE/2.5.2.4		
6 dB Bandwidth				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2021/05/16
Maximum Peak Output Power				
Pulse power sensor	Agilent	MA2411B	1126150	2021/04/13
Power meter	Anritsu	ML2495A	1204003	2021/04/13
Conducted band edges and Spurious Emission				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2021/05/16
Power Spectral Density				
Spectrum Analyzer	Agilent	N9010A	MY52221469	2021/05/16

5. CONDUCTED EMISSION MEASUREMENT

5.1. LIMITS

Frequency range	Limits (dBμV)	
	Quasi-peak	Average
150kHz ~ 0.5MHz	66~56	56~46
0.5 MHz ~ 5 MHz	56	46
5 MHz ~ 30 MHz	60	50

NOTE: (1) The lower limit shall apply at the transition frequencies.

(2) The limit decreases in line with the logarithm of the frequency in the range of 150 kHz to 0.5MHz.

5.2. TEST PROCEDURES

Procedure of Preliminary Test

Test procedures follow ANSI C63.4:2014.

For measurement of the disturbance voltage the equipment under test (EUT) is connected to the power supply mains and any other extended network via one or more artificial network(s). An EUT, whether intended to be grounded or not, and which is to be used on a table is configured as follows:

- Either the bottom or the rear of the EUT shall be at a controlled distance of 40 cm from a reference ground plane. This ground plane is normally the wall or floor of a shielded room. It may also be a grounded metal plane of at least 2 m by 2 m. This is physically accomplished as follows:

- 1) place the EUT on a table of non-conducting material which is at least 80 cm high. Place the EUT so that it is 40 cm from the wall of the shielded room, or
- 2) place the EUT on a table of non-conducting material which is 40 cm high so that the bottom of the EUT is 40 cm above the ground plane;

- All other conductive surfaces of the EUT shall be at least 80 cm from the reference ground plane;

- The EUT are placed on the floor that one side of the housings is 40 cm from the vertical reference ground plane and other metallic parts;

- Interconnecting cables that hang closer than 40 cm to the ground plane shall be folded back and forth forming a bundle 30 cm to 40 cm long, hanging approximately in the middle between the ground plane and the table.

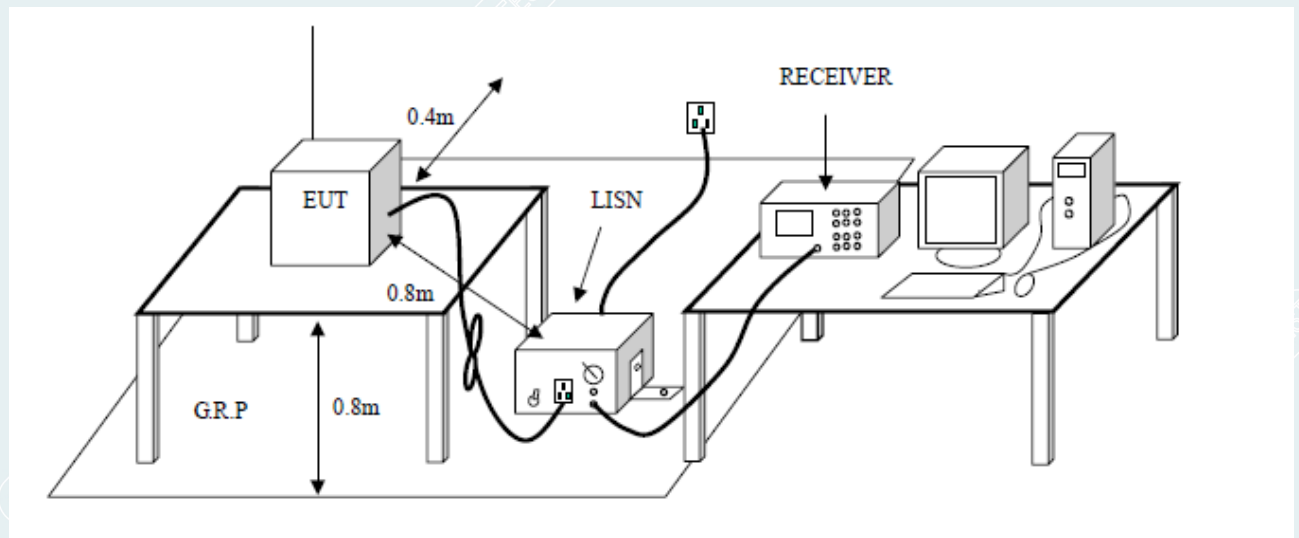
- I/O cables that are connected to a peripheral shall be bundled in the centre. The end of the cable may be terminated if required using correct terminating impedance. The total length shall not exceed 1 m.

The test mode(s) described in Item 2.4 were scanned during the preliminary test. After the preliminary scan, we found the test mode described in Item 2.4 producing the highest emission level. The EUT configuration and cable configuration of the above highest emission levels were recorded for reference of the final test.

Procedure of Final Test

EUT and support equipment were set up on the test bench as per the configuration with highest emission level in the preliminary test. A scan was taken on both power lines, recording at least the six highest emissions. Emission frequency and amplitude were recorded into a computer in which correction factors were used to calculate the emission level and compare reading to the applicable limit. The test data of the worst-case condition(s) was recorded.

5.3. TEST SETUP



5.4. DATA SAMPLE

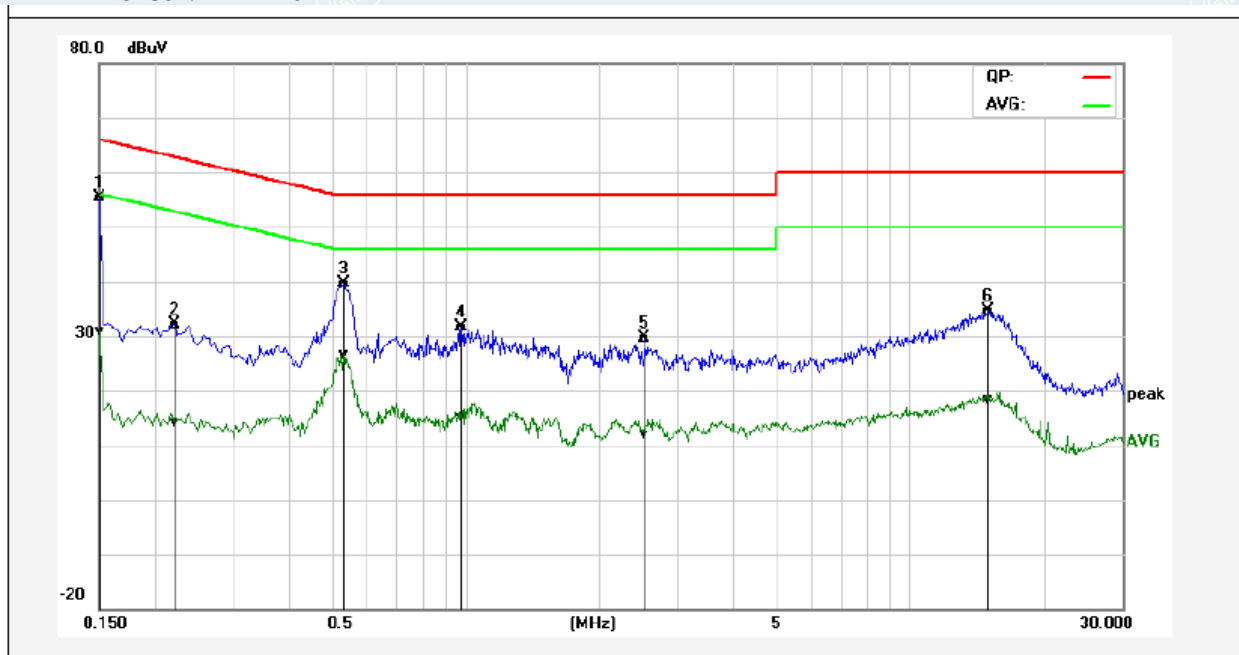
Frequency (MHz)	QuasiPeak Reading (dBuV)	Average Reading (dBuV)	Correction Factor (dB)	QuasiPeak Result (dBuV)	Average Result (dBuV)	QuasiPeak Limit (dBuV)	Average Limit (dBuV)	QuasiPeak Margin (dB)	Average Margin (dB)	Remark (Pass/Fail)
X.XXXX	32.69	25.65	11.52	44.21	37.17	65.78	55.79	-21.57	-18.62	Pass

Factor = Insertion loss of LISN + Cable Loss
 Result = Quasi-peak Reading/ Average Reading + Factor
 Limit = Limit stated in standard
 Margin = Result (dBuV) – Limit (dBuV)

5.5. TEST RESULTS

Model No.	UI-7060A	RBW,VBW	9 kHz
Environmental Conditions	22°C/43%RH	Test Mode	Mode 1
Tested By	Luo Ping	Line	L
Tested Date	2020/10/28	Test Voltage	AC120V/60Hz

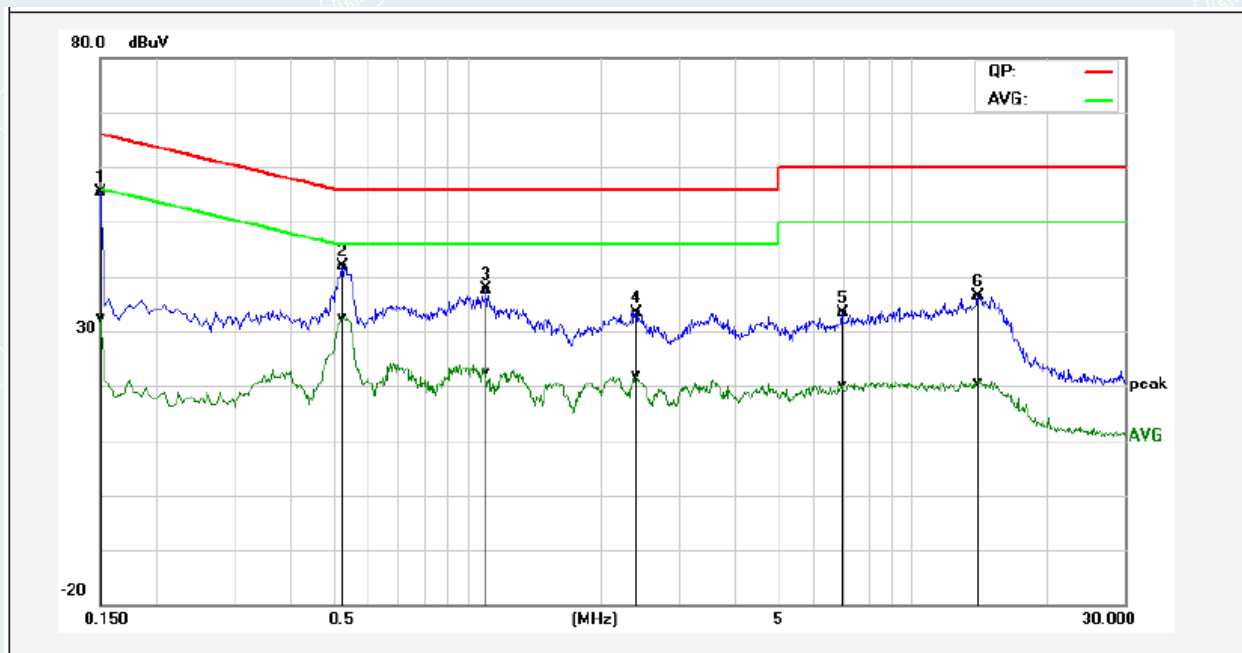
2412MHz for 802.11n HT20



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1500	45.79	21.31	9.67	55.46	30.98	65.99	56.00	-10.53	-25.02	Pass
2	0.2220	22.51	4.52	9.68	32.19	14.20	62.74	52.74	-30.55	-38.54	Pass
3	0.5340	30.00	16.95	9.67	39.67	26.62	56.00	46.00	-16.33	-19.38	Pass
4	0.9820	22.01	5.39	9.71	31.72	15.10	56.00	46.00	-24.28	-30.90	Pass
5	2.5380	19.77	2.12	9.75	29.52	11.87	56.00	46.00	-26.48	-34.13	Pass
6	14.9700	24.78	8.51	9.89	34.67	18.40	60.00	50.00	-25.33	-31.60	Pass

Model No.	UI-7060A	RBW,VBW	9 kHz
Environmental Conditions	22°C/43%RH	Test Mode	Mode 1
Tested By	Luo Ping	Line	N
Tested Date	2020/10/28	Test Voltage	AC120V/60Hz

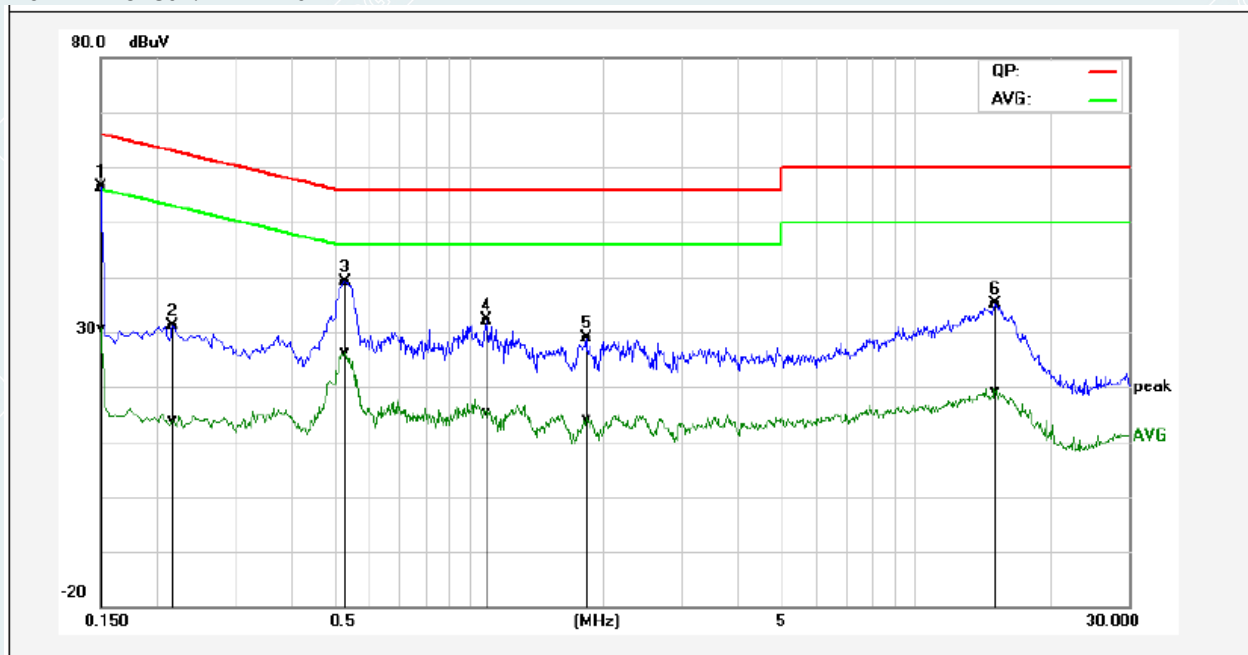
2412MHz for 802.11n HT20



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1500	45.65	22.66	9.67	55.32	32.33	65.99	56.00	-10.67	-23.67	Pass
2	0.5260	32.14	22.65	9.67	41.81	32.32	56.00	46.00	-14.19	-13.68	Pass
3	1.1060	27.96	12.67	9.71	37.67	22.38	56.00	46.00	-18.33	-23.62	Pass
4	2.4020	23.68	12.16	9.74	33.42	21.90	56.00	46.00	-22.58	-24.10	Pass
5	6.9740	23.44	10.27	9.82	33.26	20.09	60.00	50.00	-26.74	-29.91	Pass
6	14.0500	26.39	10.83	9.88	36.27	20.71	60.00	50.00	-23.73	-29.29	Pass

Model No.	UI-7060A	RBW,VBW	9 kHz
Environmental Conditions	22°C/43%RH	Test Mode	Mode 1
Tested By	Luo Ping	Line	L
Tested Date	2020/10/28	Test Voltage	AC120V/60Hz

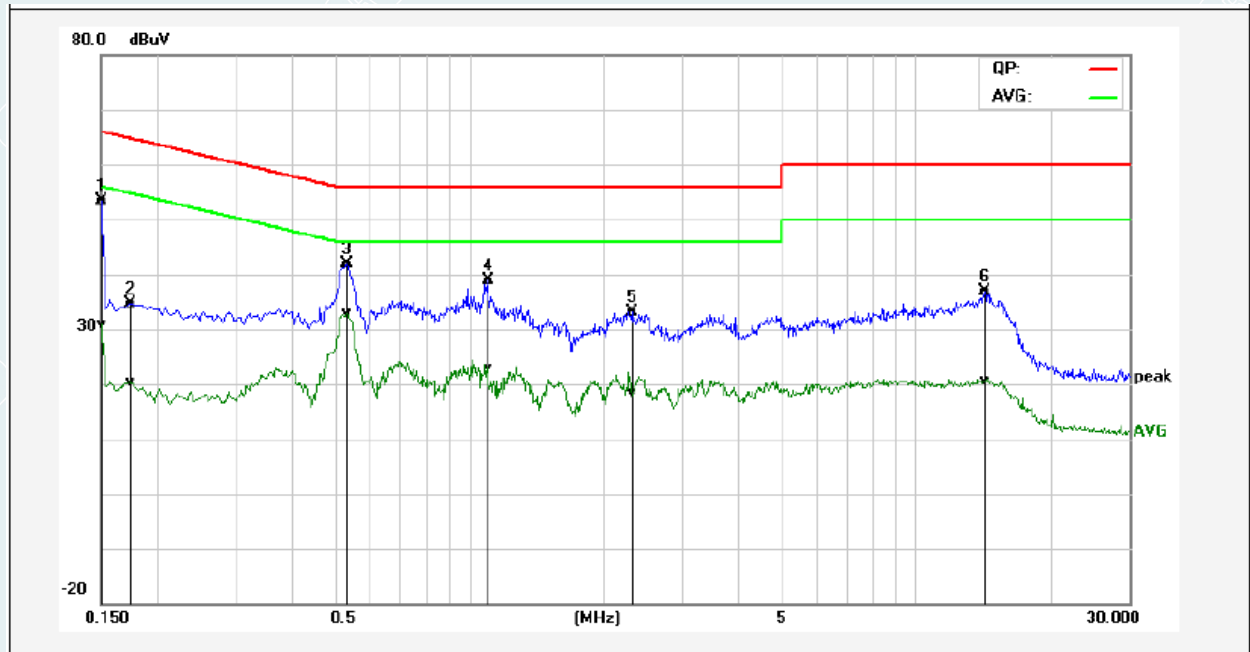
2462MHz for 802.11n HT20



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1500	46.81	20.84	9.67	56.48	30.51	65.99	56.00	-9.51	-25.49	Pass
2	0.2180	21.38	4.14	9.68	31.06	13.82	62.89	52.89	-31.83	-39.07	Pass
3	0.5299	29.52	16.63	9.67	39.19	26.30	56.00	46.00	-16.81	-19.70	Pass
4	1.0940	22.49	5.64	9.71	32.20	15.35	56.00	46.00	-23.80	-30.65	Pass
5	1.8380	19.07	4.39	9.73	28.80	14.12	56.00	46.00	-27.20	-31.88	Pass
6	15.0980	25.15	9.24	9.89	35.04	19.13	60.00	50.00	-24.96	-30.87	Pass

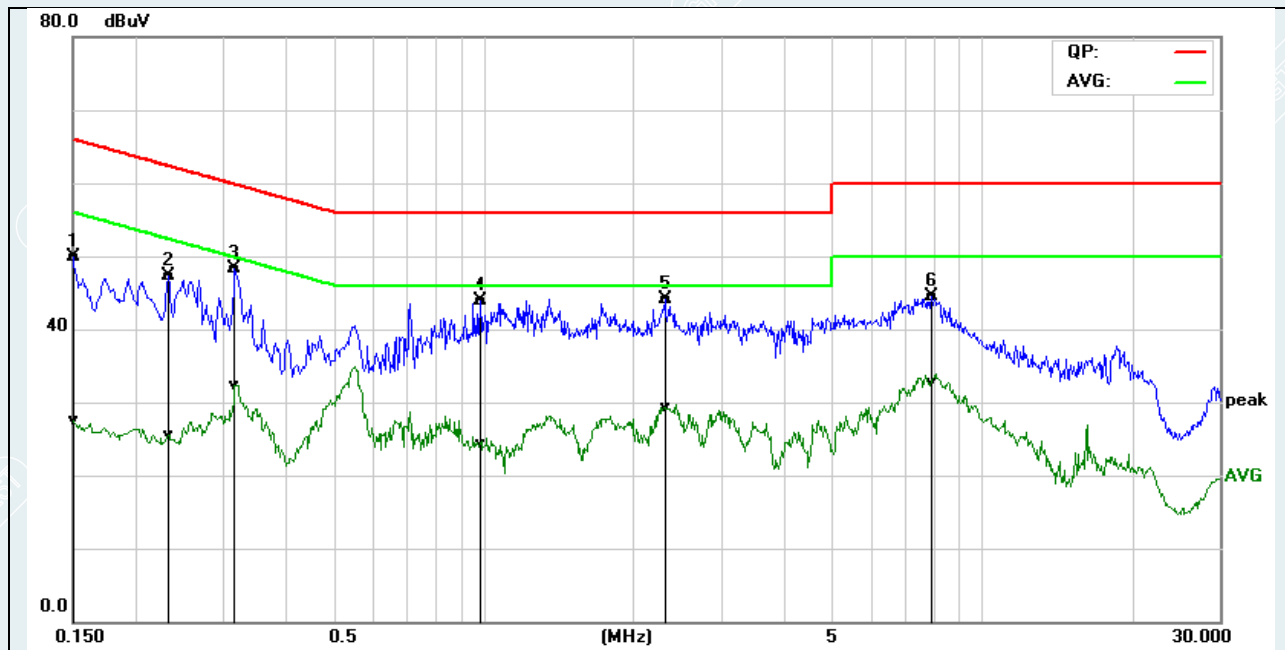
Model No.	UI-7060A	RBW,VBW	9 kHz
Environmental Conditions	22°C/43%RH	Test Mode	Mode 1
Tested By	Luo Ping	Line	N
Tested Date	2020/10/28	Test Voltage	AC120V/60Hz

2462MHz for 802.11n HT20



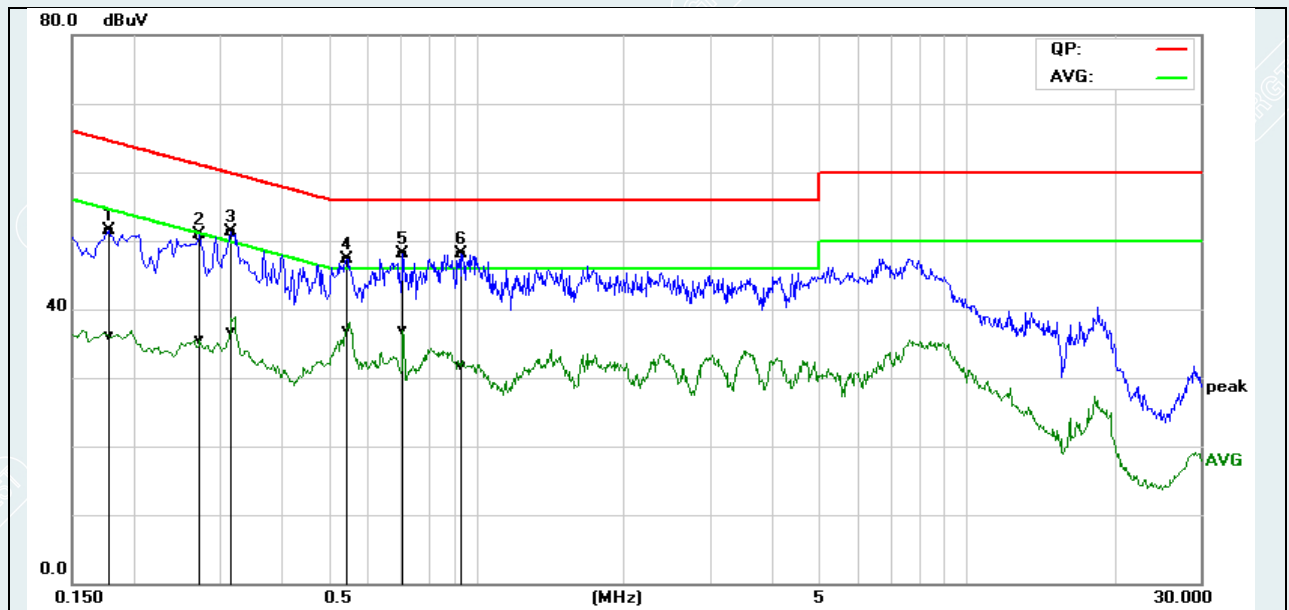
No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1*	0.1500	43.76	21.27	9.67	53.43	30.94	65.99	56.00	-12.56	-25.06	Pass
2	0.1740	24.97	10.68	9.67	34.64	20.35	64.76	54.77	-30.12	-34.42	Pass
3	0.5340	32.21	23.16	9.67	41.88	32.83	56.00	46.00	-14.12	-13.17	Pass
4	1.1019	29.19	13.29	9.71	38.90	23.00	56.00	46.00	-17.10	-23.00	Pass
5	2.3260	23.39	8.70	9.74	33.13	18.44	56.00	46.00	-22.87	-27.56	Pass
6	14.2540	26.91	10.71	9.88	36.79	20.59	60.00	50.00	-23.21	-29.41	Pass

Model No.	UI-7060A	RBW,VBW	9 kHz
Environmental Conditions	24.5°C/43%RH	Test Mode	Mode 1
Tested By	Luo Ping	Line	L
Tested Date	2020/10/26	Test Voltage	AC230V/50Hz



No.	Frequency (MHz)	QuasiPeak reading (dBuV)	Average reading (dBuV)	Correction factor (dB)	QuasiPeak result (dBuV)	Average result (dBuV)	QuasiPeak limit (dBuV)	Average limit (dBuV)	QuasiPeak margin (dB)	Average margin (dB)	Remark
1	0.1500	40.29	17.99	9.61	49.90	27.60	65.99	56.00	-16.09	-28.40	Pass
2	0.2340	37.72	15.92	9.61	47.33	25.53	62.30	52.31	-14.97	-26.78	Pass
3*	0.3180	38.75	22.79	9.61	48.36	32.40	59.76	49.76	-11.40	-17.36	Pass
4	0.9860	34.22	14.63	9.62	43.84	24.25	56.00	46.00	-12.16	-21.75	Pass
5	2.3179	34.51	19.63	9.62	44.13	29.25	56.00	46.00	-11.87	-16.75	Pass
6	7.8980	34.75	22.96	9.71	44.46	32.67	60.00	50.00	-15.54	-17.33	Pass

Model No.	UI-7060A	RBW,VBW	9 kHz
Environmental Conditions	24.5°C/43%RH	Test Mode	Mode 1
Tested By	Luo Ping	Line	N
Tested Date	2020/10/26	Test Voltage	AC230V/50Hz



No.	Frequency	QuasiPeak reading	Average reading	Correction factor	QuasiPeak result	Average result	QuasiPeak limit	Average limit	QuasiPeak margin	Average margin	Remark
	(MHz)	(dBuV)	(dBuV)	(dB)	(dBuV)	(dBuV)	(dBuV)	(dBuV)	(dB)	(dB)	
1	0.1780	41.86	26.47	9.61	51.47	36.08	64.57	54.58	-13.10	-18.50	Pass
2	0.2740	41.19	25.82	9.61	50.80	35.43	60.99	51.00	-10.19	-15.57	Pass
3	0.3150	41.63	27.02	9.61	51.24	36.63	59.84	49.84	-8.60	-13.21	Pass
4	0.5460	37.77	27.35	9.62	47.39	36.97	56.00	46.00	-8.61	-9.03	Pass
5*	0.7100	38.58	27.28	9.61	48.19	36.89	56.00	46.00	-7.81	-9.11	Pass
6	0.9340	38.51	22.15	9.62	48.13	31.77	56.00	46.00	-7.87	-14.23	Pass

6. RADIATED SPURIOUS EMISSIONS

6.1. LIMITS

In any 100 kHz 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 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required.

Frequency (MHz)	Quasi-peak($\mu\text{V/m}$)	Measurement distance(m)	Quasi-peak($\text{dB}\mu\text{V/m}$)@distance 3m
0.009-0.490	2400/F(kHz)	300	53.8~88.5
0.490-1.705	24000/F(kHz)	30	43~53.8
1.705-30.0	30	30	49.5
30 ~ 88	100	3	40
88~216	150	3	43.5
216 ~ 960	200	3	46
Above 960	500	3	54

NOTE: (1) The lower limit shall apply at the transition frequencies.

NOTE: (2) Above 18G Limit= $74+20\log(3/1)=83.54$ ($\text{dB}\mu\text{V/m}$).

6.2. TEST PROCEDURES (please refer to measurement standard)

1) Sequence of testing 9 kHz to 30 MHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 0.8 m height is used.
- If the EUT is a floor standing device, it is placed on the ground.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions.
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0° to 315° using 45° steps.
- The antenna height is 0.8 meter.
- At each turntable position the analyzer sweeps with peak detection to find the maximum of all emissions

Final measurement:

- Identified emissions during the pre measurement the software maximizes by rotating the turntable position (0 °to 360 °) and by rotating the elevation axes (0 °to 360 °).
- The final measurement will be done in the position (turntable and elevation) causing the highest emissions with QPK detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement and the limit will be stored.

2) Sequence of testing 30 MHz to 1 GHz**Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a table with 0.8 m height is used, which is placed on the ground plane.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0 °to 315 °using 45 °steps.
- The antenna is polarized vertical and horizontal.
- The antenna height changes from 1 to 3 meter.
- At each turntable position, antenna polarization and height the analyzer sweeps three times in peak to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meter.
- The final measurement will be done with QP detector with an EMI receiver.
- The final levels, frequency, measuring time, bandwidth, antenna height, antenna polarization, turntable angle, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement with marked maximum final measurements and the limit will be stored.

3) Sequence of testing 1 GHz to 18 GHz

Setup:

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 3 meter.
- The EUT was set into operation.

Pre measurement:

- The turntable rotates from 0 ° to 315 ° using 45 ° steps.
- The antenna is polarized vertical and horizontal.
- The antenna height scan range is 1 meter to 2.5 meter.
- At each turntable position and antenna polarization the analyzer sweeps with peak detection to find the maximum of all emissions.

Final measurement:

- The final measurement will be performed with minimum the six highest peaks.
- According to the maximum antenna and turntable positions of premeasurement the software maximize the peaks by changing turntable position ($\pm 45^\circ$) and antenna movement between 1 and 4 meter. This procedure is repeated for both antenna polarizations.
- The final measurement will be done in the position (turntable, EUT-table and antenna polarization) causing the highest emissions with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, turntable position, EUT-table position, antenna polarization, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the pre measurement with marked maximum final measurements and the limit will be stored.

4) Sequence of testing above 18 GHz**Setup:**

- The equipment was set up to simulate a typical usage like described in the user manual or described by manufacturer.
- If the EUT is a tabletop system, a rotatable table with 1.5 m height is used.
- If the EUT is a floor standing device, it is placed on the ground plane with insulation between both.
- Auxiliary equipment and cables were positioned to simulate normal operation conditions
- The AC power port of the EUT (if available) is connected to a power outlet below the turntable.
- The measurement distance is 1 meter.
- The EUT was set into operation.

Pre measurement:

- The antenna is moved spherical over the EUT in different polarisations of the antenna.

Final measurement:

- The final measurement will be performed at the position and antenna orientation for all detected emissions that were found during the premeasurements with Peak and Average detector.
- The final levels, frequency, measuring time, bandwidth, correction factor, margin to the limit and limit will be recorded. Also a plot with the graph of the premeasurement and the limit will be stored.

NOTE: The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 3MHz for RMS Average (Duty cycle < 98%) for Average detection (AV) at frequency above 1GHz, then the measurement results was added to a correction factor ($10 \log(1/\text{duty cycle})$).

6.3. TEST SETUP

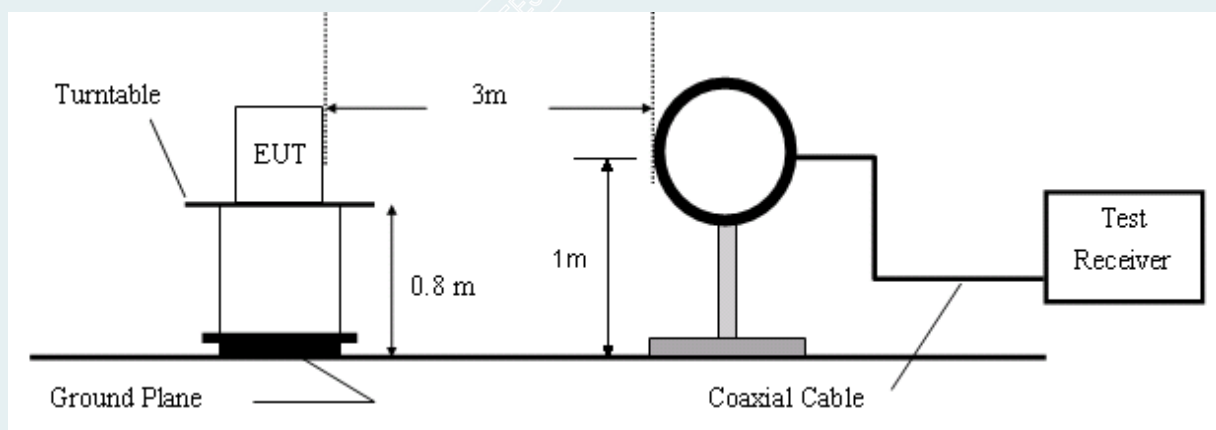


Figure 1. 9KHz to 30MHz radiated emissions test configuration

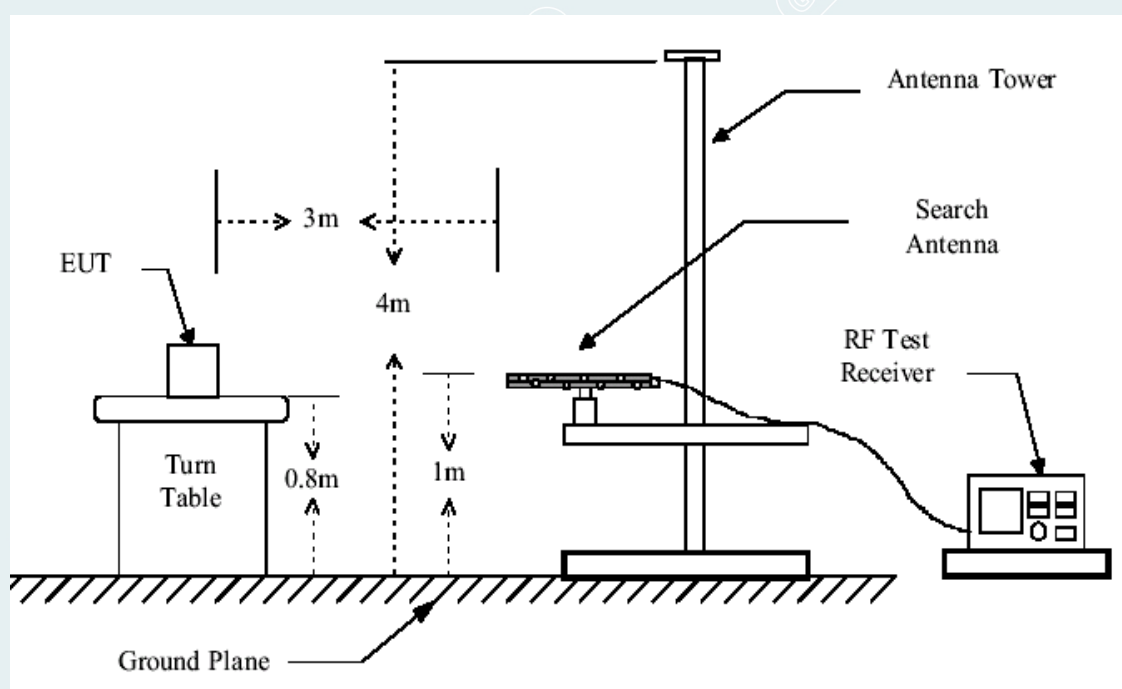


Figure 2. 30MHz to 1GHz radiated emissions test configuration

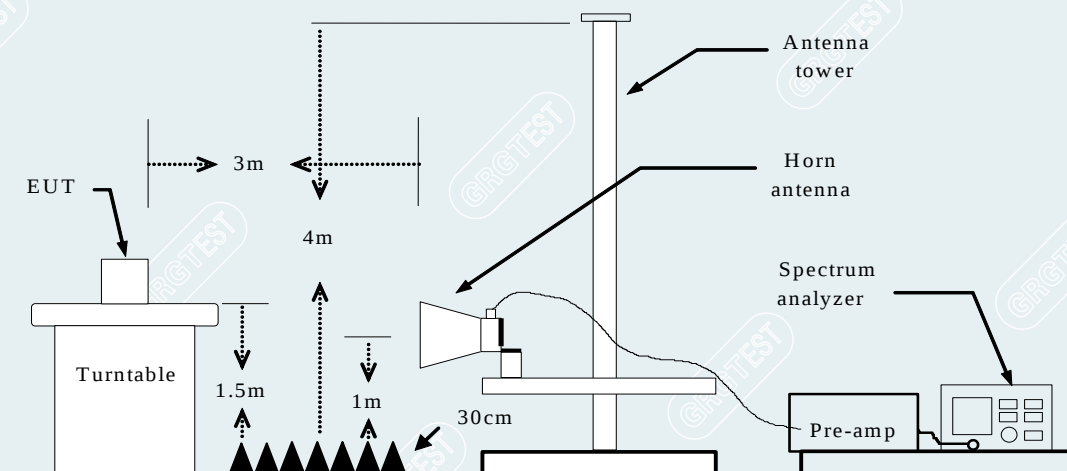


Figure 3. Above 1GHz radiated emissions test configuration

6.4. DATA SAMPLE

30MHz to 1GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	37.06	-15.48	21.58	40.00	-18.42	QP	Vertical

Above 1 GHz

No.	Frequency (MHz)	Reading (dBuV/m)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Remark	Pole
xxx	xxx	65.45	-11.12	54.33	74.00	-19.67	peak	Vertical
xxx	xxx	63.00	-11.12	51.88	54.00	-2.12	AVG	Vertical

Frequency (MHz)

= Emission frequency in MHz

Ant.Pol. (H/V)

= Antenna polarization

Reading (dBuV)

= Uncorrected Analyzer / Receiver reading

Correction Factor (dB/m)

= Antenna factor + Cable loss – Amplifier gain

Result (dBuV/m)

= Reading (dBuV) + Correction Factor (dB/m)

Limit (dBuV/m)

= Limit stated in standard

Margin (dB)

= Remark Result (dBuV/m) – Limit (dBuV/m)

Peak

= Peak Reading

QP

= Quasi-peak Reading

AVG

= Average Reading

6.5. TEST RESULTS

30MHz to 1GHz

Recorded the worst case results in this report (IEEE 802.11n HT40)

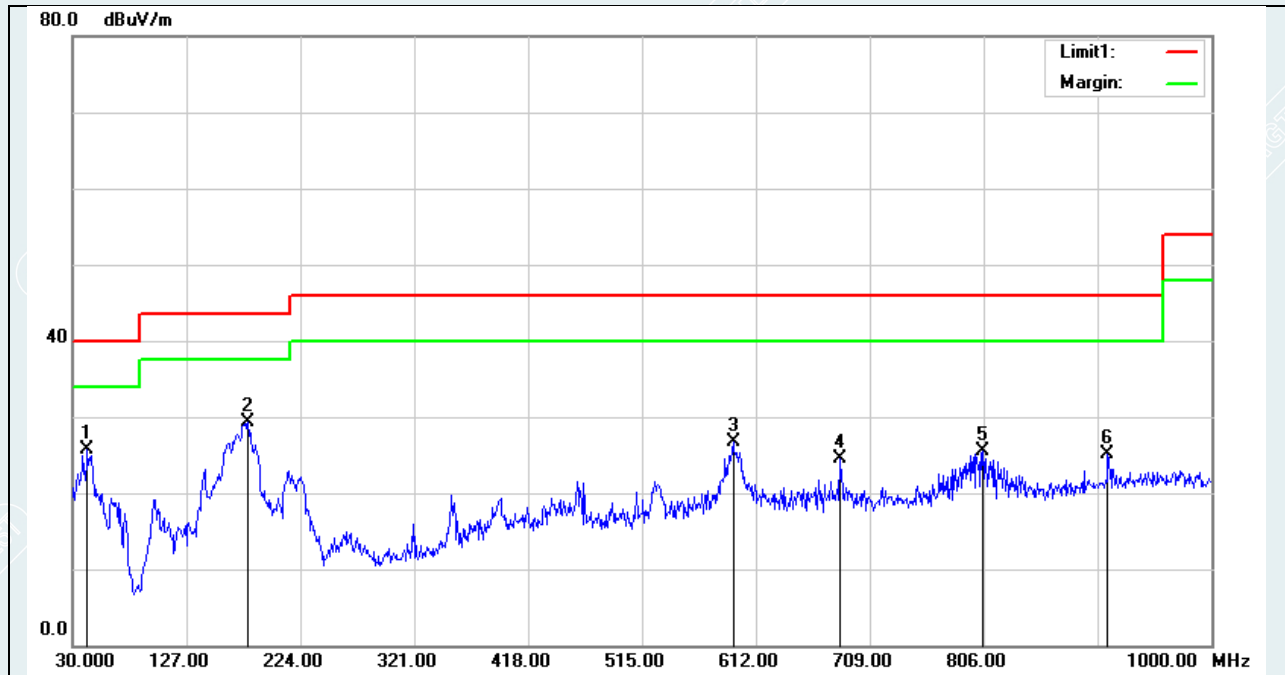
Mode: TX/ IEEE 802.11n HT40

Lowest channel (2422MHz)

Polarity

Date: 2020/11/08

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	42.6100	48.96	-23.20	25.76	40.00	-14.24	100	355	QP
2*	179.3800	57.31	-27.94	29.37	43.50	-14.13	100	210	QP
3	592.6000	44.38	-17.70	26.68	46.00	-19.32	100	87	QP
4	683.7800	41.46	-16.95	24.51	46.00	-21.49	100	355	QP
5	805.0300	40.87	-15.43	25.44	46.00	-20.56	100	273	QP
6	911.7300	39.79	-14.65	25.14	46.00	-20.86	100	355	QP

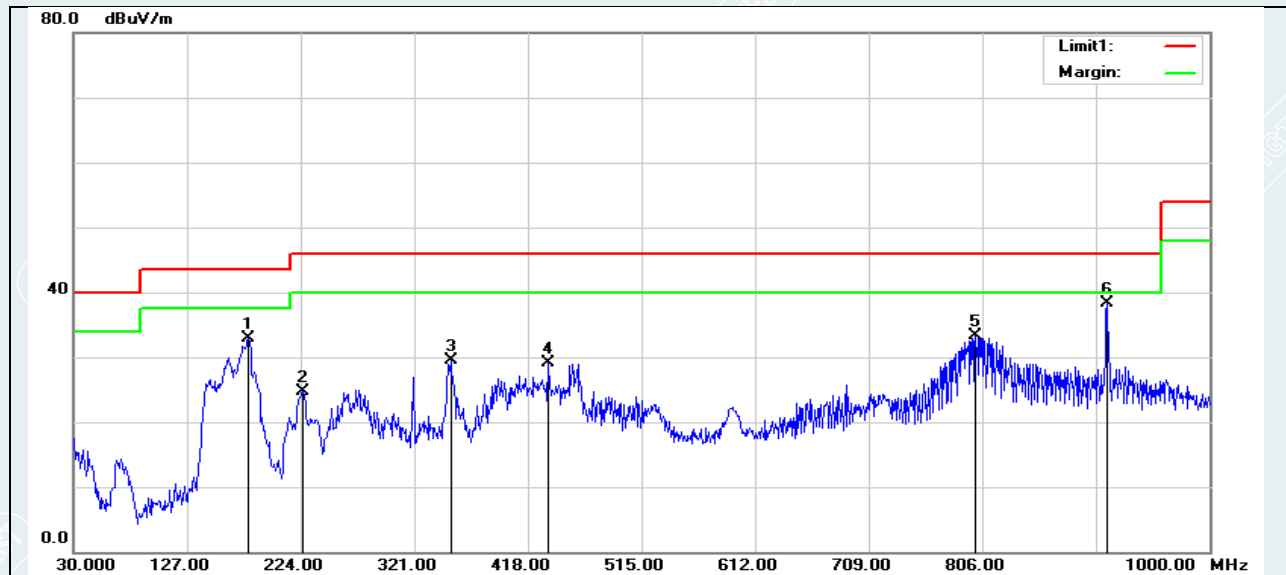
Mode: TX/ IEEE 802.11n HT40

Lowest channel (2422MHz)

Polarity

Date: 2020/11/08

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	179.3800	60.94	-27.94	33.00	43.50	-10.50	100	61	QP
2	225.9400	50.37	-25.60	24.77	46.00	-21.23	100	346	QP
3	352.0400	51.92	-22.51	29.41	46.00	-16.59	100	12	QP
4	435.4600	49.41	-20.28	29.13	46.00	-16.87	100	150	QP
5	800.1800	48.72	-15.48	33.24	46.00	-12.76	100	147	QP
6*	912.7000	52.91	-14.63	38.28	46.00	-7.72	100	333	QP

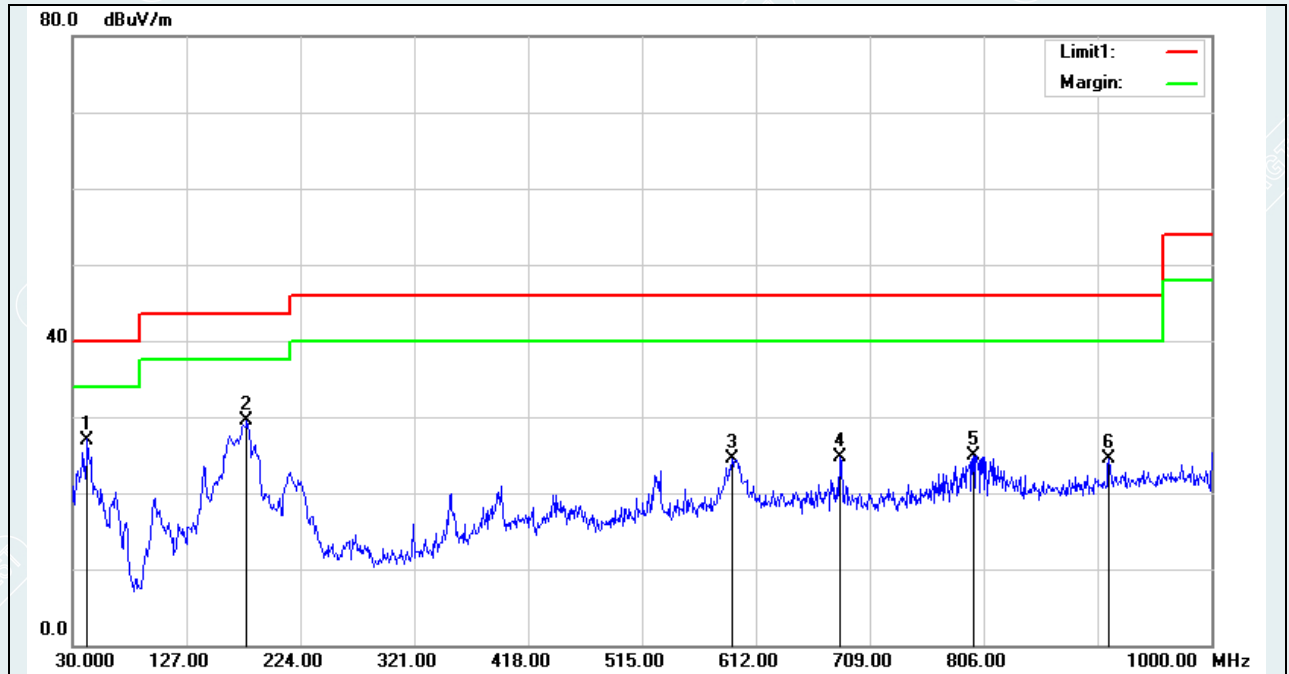
Mode: TX/ IEEE 802.11n HT40

Middle channel (2437MHz)

Polarity

Date: 2020/11/08

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1*	42.6100	50.20	-23.20	27.00	40.00	-13.00	100	75	QP
2	178.4100	57.43	-27.93	29.50	43.50	-14.00	100	232	QP
3	591.6300	42.16	-17.73	24.43	46.00	-21.57	100	343	QP
4	683.7800	41.59	-16.95	24.64	46.00	-21.36	100	221	QP
5	797.2700	40.49	-15.52	24.97	46.00	-21.03	100	109	QP
6	912.7000	39.22	-14.63	24.59	46.00	-21.41	100	329	QP

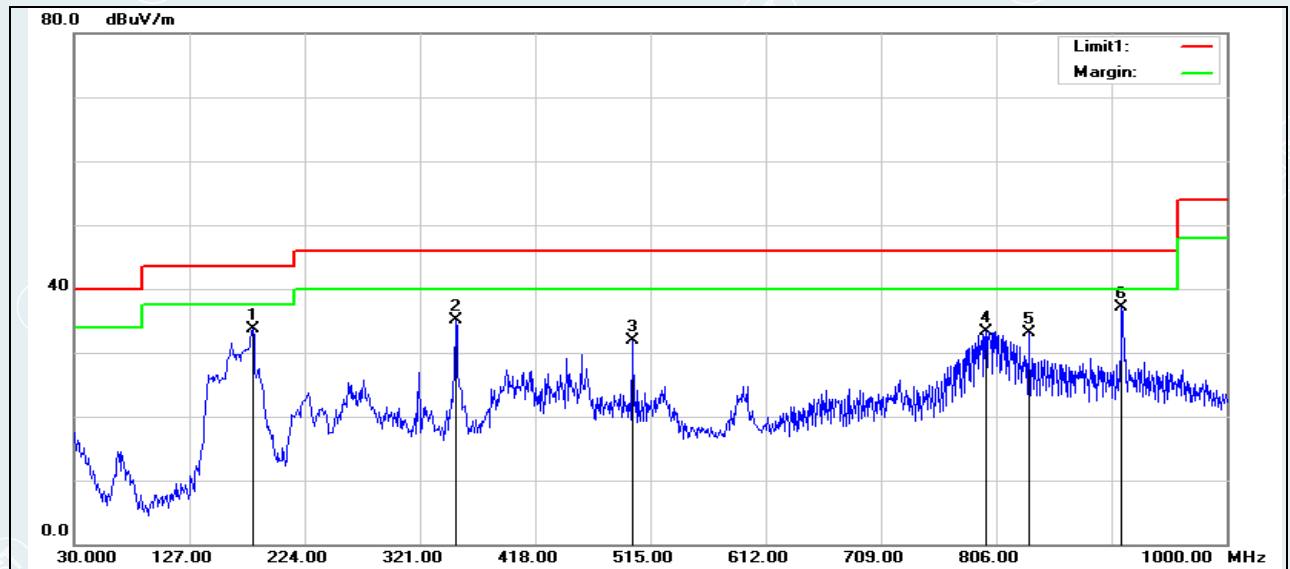
Mode: TX/ IEEE 802.11n HT40

Middle channel (2437MHz)

Polarity

Date: 2020/11/08

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	180.3500	61.56	-27.93	33.63	43.50	-9.87	100	64	QP
2	351.0700	57.60	-22.54	35.06	46.00	-10.94	100	274	QP
3	499.4800	51.14	-19.32	31.82	46.00	-14.18	100	359	QP
4	797.2700	48.87	-15.52	33.35	46.00	-12.65	100	148	QP
5	833.1600	48.41	-15.21	33.20	46.00	-12.80	100	359	QP
6*	911.7300	51.84	-14.65	37.19	46.00	-8.81	100	336	QP

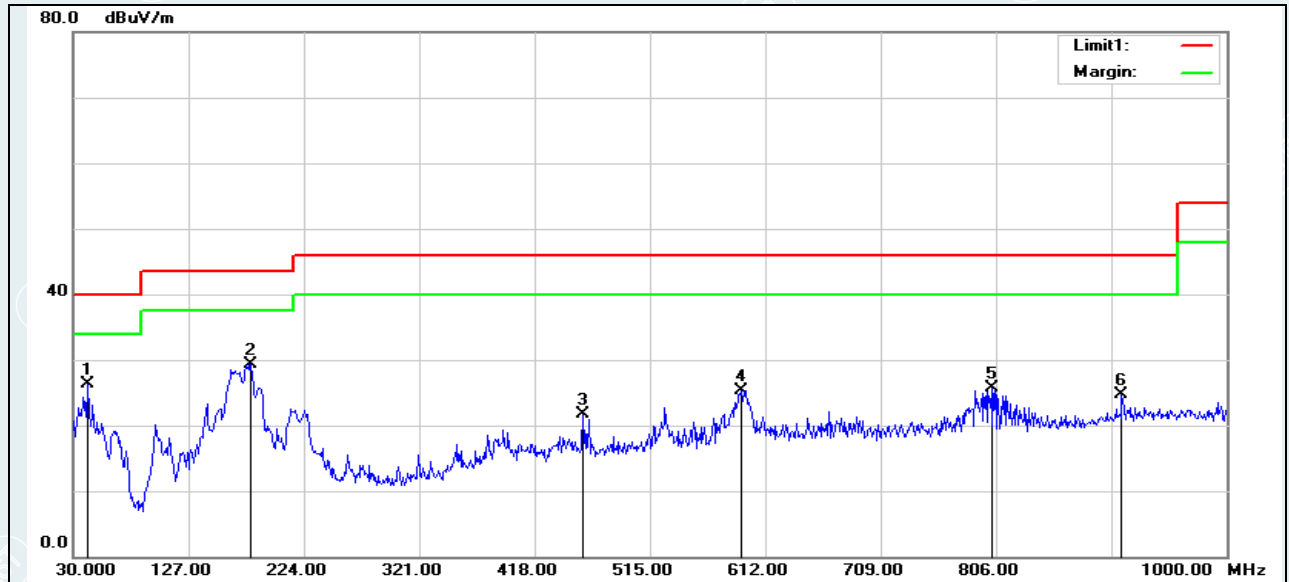
Mode: TX/ IEEE 802.11n HT40

Highest channel (2452MHz)

Polarity

Date: 2020/11/08

Vertical



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1*	42.6100	49.50	-23.20	26.30	40.00	-13.70	100	109	QP
2	179.3800	57.29	-27.94	29.35	43.50	-14.15	100	256	QP
3	458.7400	41.56	-19.93	21.63	46.00	-24.37	100	308	QP
4	591.6300	43.02	-17.73	25.29	46.00	-20.71	100	100	QP
5	802.1200	41.21	-15.47	25.74	46.00	-20.26	100	109	QP
6	911.7300	39.34	-14.65	24.69	46.00	-21.31	100	341	QP

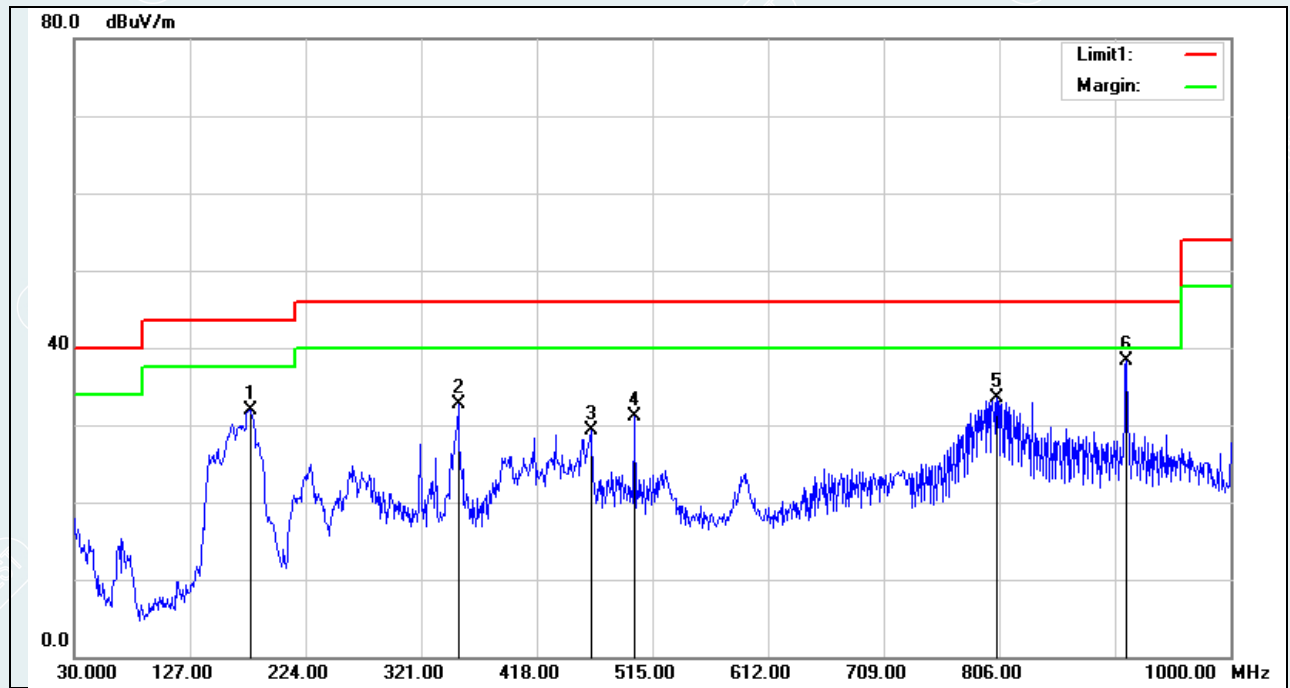
Mode: TX/ IEEE 802.11n HT40

Highest channel (2452MHz)

Polarity

Date: 2020/11/08

Horizontal



No.	Frequency (MHz)	Reading (dBuV)	Correct Factor(dB/m)	Result (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Height (cm)	Degree (deg.)	Remark
1	177.4400	59.83	-27.92	31.91	43.50	-11.59	100	62	QP
2	352.0400	55.27	-22.51	32.76	46.00	-13.24	100	293	QP
3	463.5900	49.08	-19.85	29.23	46.00	-16.77	100	194	QP
4	500.4500	50.44	-19.30	31.14	46.00	-14.86	100	360	QP
5	804.0600	49.00	-15.45	33.55	46.00	-12.45	100	146	QP
6*	912.7000	52.94	-14.63	38.31	46.00	-7.69	100	344	QP

Remark:

- 1 No emission found between lowest internal used/generated frequency to 30MHz.
- 2 Radiated emissions measured in frequency range from 9 kHz to 1GHz were made with an instrument using Quasi-peak detector mode.
- 3 Data of measurement within this frequency range shown "---" in the table above means the reading of emissions are attenuated more than 20dB below the permissible limits or the field strength is too small to be measured.
- 4 The IF bandwidth of Receiver between 30MHz to 1GHz was 120 kHz.

Above 1GHz-18GHz:

Mode: TX / IEEE 802.11b (antenna 1)

Lowest channel (2412MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3187.5000	59.50	43.86	-15.64	74.00	30.14	150	174	Vertical
2	3648.7500	61.69	47.34	-14.35	74.00	26.66	150	37	Vertical
3	4823.4375	65.03	54.74	-10.29	74.00	19.26	150	273	Vertical
4	5475.0000	55.97	46.73	-9.24	74.00	27.27	150	279	Vertical
5	9647.8125	46.44	48.94	2.50	74.00	25.06	150	314	Vertical
6	17984.0625	38.13	59.08	20.95	74.00	14.92	150	342	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4823.7467	-10.28	61.76	51.48	54.00	2.52	150	356.7	Vertical
2	9647.8125	2.50	43.87	44.51	54.00	7.63	150	314	Vertical
3	17984.0625	20.95	26.38	47.33	54.00	6.67	150	342	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3645.9375	60.98	46.66	-14.32	74.00	27.34	150	37	Horizontal
2	4823.4375	59.10	48.81	-10.29	74.00	25.19	150	88	Horizontal
3	6432.1875	48.68	42.17	-6.51	74.00	31.83	150	157	Horizontal
4	9168.7500	43.75	45.18	1.43	74.00	28.82	150	3	Horizontal
5	13988.4375	39.04	49.37	10.33	74.00	24.63	150	88	Horizontal
6	17997.1875	37.27	58.52	21.25	74.00	15.48	150	152	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4823.9786	-10.28	57.49	47.21	54.00	6.79	150	356.7	Horizontal
2	17997.1875	21.25	27.22	48.47	54.00	5.53	150	152	Horizontal

Mode: TX/ IEEE 802.11b (antenna 1)
Middle channel (2437 MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3189.3750	58.99	43.37	-15.62	74.00	30.63	150	174	Vertical
2	3647.8125	63.64	49.30	-14.34	74.00	24.70	150	20	Vertical
3	4873.1250	58.89	49.43	-9.46	74.00	24.57	150	145	Vertical
4	7311.5625	49.36	45.70	-3.66	74.00	28.30	150	310	Vertical
5	9748.1250	47.11	49.68	2.57	74.00	24.32	150	310	Vertical
6	17983.1250	37.53	58.46	20.93	74.00	15.54	150	31	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3660.9657	-14.51	43.37	28.86	54.00	25.14	150	356.8	Vertical
2	4873.9059	-9.44	54.47	45.03	54.00	8.97	150	356.8	Vertical
3	9748.1250	2.57	40.72	43.29	54.00	10.71	150	310	Vertical
4	17983.1250	20.93	27.14	48.07	54.00	5.93	150	31	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3647.8125	60.38	46.04	-14.34	74.00	27.96	150	142	Horizontal
2	4873.1250	58.06	48.60	-9.46	74.00	25.40	150	244	Horizontal
3	6497.8125	48.79	42.46	-6.33	74.00	31.54	150	148	Horizontal
4	9748.1250	46.15	48.72	2.57	74.00	25.28	150	210	Horizontal
5	14003.4375	39.86	50.24	10.38	74.00	23.76	150	239	Horizontal
6	17962.5000	37.99	58.45	20.46	74.00	15.55	150	239	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4873.1250	-9.46	55.76	46.30	54.00	7.70	150	244	Horizontal
2	9748.1250	2.57	42.01	44.58	54.00	9.42	150	210	Horizontal
3	17962.5000	20.46	27.38	47.84	54.00	6.16	150	239	Horizontal

Mode: TX / IEEE 802.11b (antenna 1)
Highest channel (2462MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3195.9375	58.68	43.13	-15.55	74.00	30.87	150	78	Vertical
2	3649.6875	58.50	44.13	-14.37	74.00	29.87	150	27	Vertical
3	4923.7500	58.81	49.88	-8.93	74.00	24.12	150	135	Vertical
4	5991.5625	51.02	42.82	-8.20	74.00	31.18	150	113	Vertical
5	11272.5000	41.44	48.50	7.06	74.00	25.50	150	32	Vertical
6	17993.4375	37.03	58.19	21.16	74.00	15.81	150	209	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4924.0656	-8.92	52.78	45.37	54.00	10.14	150	3.3	Vertical
2	17993.4375	21.16	26.84	48.00	54.00	6.00	150	209	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3653.4375	57.19	42.78	-14.41	74.00	31.22	150	97	Horizontal
2	4923.7500	56.28	47.35	-8.93	74.00	26.65	150	244	Horizontal
3	5468.4375	49.28	40.05	-9.23	74.00	33.95	150	284	Horizontal
4	6565.3125	49.75	43.67	-6.08	74.00	30.33	150	199	Horizontal
5	14007.1875	38.74	49.07	10.33	74.00	24.93	150	193	Horizontal
6	17971.8750	37.02	57.69	20.67	74.00	16.31	150	346	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4923.7500	-8.93	52.64	43.71	54.00	10.29	150	244	Horizontal
2	17971.8750	20.67	26.56	47.23	54.00	6.77	150	346	Horizontal

Mode: TX / IEEE 802.11g (antenna 2)
Lowest channel (2412MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3194.0625	58.20	42.63	-15.57	74.00	31.37	150	174	Vertical
2	3645.9375	63.21	48.89	-14.32	74.00	25.11	150	32	Vertical
3	4823.4375	54.00	43.71	-10.29	74.00	30.29	150	123	Vertical
4	5472.1875	51.72	42.49	-9.23	74.00	31.51	150	266	Vertical
5	14029.6875	39.58	49.64	10.06	74.00	24.36	150	94	Vertical
6	17989.6875	38.28	59.36	21.08	74.00	14.64	150	89	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3645.9375	-14.32	49.64	35.32	54.00	18.68	150	32	Vertical
2	17989.6875	21.08	27.08	48.16	54.00	5.84	150	89	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3646.8750	60.96	46.63	-14.33	74.00	27.37	150	284	Horizontal
2	4823.4375	59.80	49.51	-10.29	74.00	24.49	150	216	Horizontal
3	5476.8750	49.17	39.93	-9.24	74.00	34.07	150	284	Horizontal
4	6432.1875	49.22	42.71	-6.51	74.00	31.29	150	238	Horizontal
5	13981.8750	39.81	50.08	10.27	74.00	23.92	150	159	Horizontal
6	17998.1250	36.59	57.86	21.27	74.00	16.14	150	125	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4823.9013	-10.28	45.83	35.55	54.00	18.45	150	3.3	Horizontal
2	17998.1250	21.27	27.24	48.51	54.00	5.49	150	125	Horizontal

Mode: TX/ IEEE 802.11g (antenna 2)
Middle channel (2437 MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3646.8750	59.60	45.27	-14.33	74.00	28.73	150	222	Vertical
2	4873.1250	50.87	41.41	-9.46	74.00	32.59	150	152	Vertical
3	5474.0625	52.46	43.22	-9.24	74.00	30.78	150	273	Vertical
4	5984.0625	51.54	43.34	-8.20	74.00	30.66	150	111	Vertical
5	13991.2500	39.90	50.25	10.35	74.00	23.75	150	2	Vertical
6	17995.3125	37.56	58.76	21.20	74.00	15.24	150	77	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17995.3125	21.20	27.34	48.54	54.00	5.46	150	77	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3645.0000	57.64	43.33	-14.31	74.00	30.67	150	125	Horizontal
2	4873.1250	55.72	46.26	-9.46	74.00	27.74	150	210	Horizontal
3	6498.7500	48.35	42.03	-6.32	74.00	31.97	150	193	Horizontal
4	9173.4375	43.63	45.08	1.45	74.00	28.92	150	266	Horizontal
5	11289.3750	41.43	48.65	7.22	74.00	25.35	150	329	Horizontal
6	17990.6250	37.68	58.78	21.10	74.00	15.22	150	125	Horizontal

PK Final Data List						
NO.	Freq. [MHz]	Factor [dB]	Height [cm]	Angle [°]	Polarity	
1	17990.6250	21.10	150	125	Horizontal	

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17990.6250	21.10	25.89	46.99	54.00	7.01	150	125	Horizontal

Mode: TX/ IEEE 802.11g (antenna 2)
Highest channel (2462MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3197.8125	59.64	44.11	-15.53	74.00	29.89	150	187	Vertical
2	4923.7500	49.28	40.35	-8.93	74.00	33.65	150	323	Vertical
3	5987.8125	51.70	43.50	-8.20	74.00	30.50	150	182	Vertical
4	6565.3125	49.32	43.24	-6.08	74.00	30.76	150	120	Vertical
5	13996.8750	39.60	49.99	10.39	74.00	24.01	150	204	Vertical
6	17986.8750	37.40	58.41	21.01	74.00	15.59	150	198	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17986.8750	21.01	26.38	47.39	54.00	6.61	150	198	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3647.8125	61.52	47.18	-14.34	74.00	26.82	150	357	Horizontal
2	4923.7500	54.89	45.96	-8.93	74.00	28.04	150	214	Horizontal
3	6565.3125	48.92	42.84	-6.08	74.00	31.16	150	197	Horizontal
4	7275.9375	47.51	43.94	-3.57	74.00	30.06	150	260	Horizontal
5	13989.3750	39.02	49.35	10.33	74.00	24.65	150	4	Horizontal
6	17847.1875	38.00	56.06	18.06	74.00	17.94	150	26	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17847.1875	18.06	27.01	45.07	54.00	8.93	150	26	Horizontal

Mode: TX / IEEE 802.11n HT20 (MIMO)
Lowest channel (2412MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3189.3750	57.97	42.35	-15.62	74.00	31.65	150	186	Vertical
2	3647.8125	65.45	51.11	-14.34	74.00	22.89	150	134	Vertical
3	4823.4375	59.08	48.79	-10.29	74.00	25.21	150	255	Vertical
4	5972.8125	51.25	43.06	-8.19	74.00	30.94	150	180	Vertical
5	14015.6250	39.66	49.89	10.23	74.00	24.11	150	220	Vertical
6	17994.3750	36.96	58.14	21.18	74.00	15.86	150	140	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3647.8125	-14.34	48.31	33.97	54.00	20.03	150	134	Vertical
2	4823.4375	-10.29	46.88	36.59	54.00	17.41	150	255	Vertical
3	17994.3750	21.18	27.43	48.61	54.00	5.39	150	140	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3645.0000	60.88	46.57	-14.31	74.00	27.43	150	295	Horizontal
2	4823.4375	60.19	49.90	-10.29	74.00	24.10	150	210	Horizontal
3	6432.1875	48.79	42.28	-6.51	74.00	31.72	150	101	Horizontal
4	11296.8750	40.80	48.09	7.29	74.00	25.91	150	3	Horizontal
5	14001.5625	39.40	49.80	10.40	74.00	24.20	150	255	Horizontal
6	17982.1875	37.62	58.53	20.91	74.00	15.47	150	204	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3646.7524	-14.31	47.01	32.70	54.00	21.30	150	356.7	Horizontal
2	4823.4375	-10.29	49.68	39.39	54.00	14.61	150	210	Horizontal

Mode: TX/ IEEE 802.11n HT20 (MIMO)
Middle channel (2437 MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3195.9375	58.32	42.77	-15.55	74.00	31.23	150	75	Vertical
2	3645.9375	63.23	48.91	-14.32	74.00	25.09	150	334	Vertical
3	4874.0625	56.15	46.71	-9.44	74.00	27.29	150	214	Vertical
4	5973.7500	51.33	43.14	-8.19	74.00	30.86	150	185	Vertical
5	18000.0000	37.78	59.09	21.31	74.00	14.91	150	243	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3645.9375	-14.32	46.38	32.06	54.00	21.94	150	334	Vertical
2	18000.0000	21.31	26.10	47.41	54.00	6.59	150	243	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3645.0000	59.21	44.90	-14.31	74.00	29.10	150	5	Horizontal
2	4873.1250	55.66	46.20	-9.46	74.00	27.80	150	215	Horizontal
3	6498.7500	49.24	42.92	-6.32	74.00	31.08	150	238	Horizontal
4	11313.7500	40.92	48.10	7.18	74.00	25.90	150	255	Horizontal
5	13995.9375	39.17	49.56	10.39	74.00	24.44	150	267	Horizontal
6	17979.3750	37.29	58.13	20.84	74.00	15.87	150	108	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	4873.1250	-9.46	47.60	38.14	54.00	15.86	150	215	Horizontal
2	17979.3750	20.84	25.89	46.73	54.00	7.27	150	108	Horizontal

Mode: TX/ IEEE 802.11n HT20 (MIMO)
Highest channel (2462MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3193.1250	59.91	44.33	-15.58	74.00	29.67	150	181	Vertical
2	3651.5625	58.85	44.46	-14.39	74.00	29.54	150	317	Vertical
3	4923.7500	54.95	46.02	-8.93	74.00	27.98	150	244	Vertical
4	5983.1250	51.02	42.82	-8.20	74.00	31.18	150	114	Vertical
5	8390.6250	45.75	44.87	-0.88	74.00	29.13	150	119	Vertical
6	17999.062	36.35	57.64	21.29	74.00	16.36	150	312	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17999.0625	21.29	26.74	48.03	54.00	5.97	150	312	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3648.7500	64.23	49.88	-14.35	74.00	24.12	150	357	Horizontal
2	4923.7500	56.77	47.84	-8.93	74.00	26.16	150	300	Horizontal
3	5467.5000	48.40	39.17	-9.23	74.00	34.83	150	357	Horizontal
4	6565.3125	48.83	42.75	-6.08	74.00	31.25	150	238	Horizontal
5	14011.8750	39.40	49.68	10.28	74.00	24.32	150	312	Horizontal
6	17994.3750	37.23	58.41	21.18	74.00	15.59	150	340	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3648.7500	-14.35	47.93	33.58	54.00	20.42	150	357	Horizontal
2	4923.7500	-8.93	48.31	39.38	54.00	14.62	150	300	Horizontal
3	17994.3750	21.18	24.51	45.69	54.00	8.31	150	340	Horizontal

Mode: TX / IEEE 802.11n HT40 (MIMO)
Lowest channel (2422MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3187.5000	59.81	44.17	-15.64	74.00	29.83	150	186	Vertical
2	3650.6250	64.12	49.74	-14.38	74.00	24.26	150	1	Vertical
3	4843.1250	55.95	45.99	-9.96	74.00	28.01	150	243	Vertical
4	5476.8750	52.51	43.27	-9.24	74.00	30.73	150	278	Vertical
5	5984.0625	51.80	43.60	-8.20	74.00	30.40	150	186	Vertical
6	17968.1250	37.10	57.69	20.59	74.00	16.31	150	6	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3650.6250	-14.38	47.31	32.93	54.00	21.07	150	1	Vertical
2	17968.1250	20.59	26.87	47.46	54.00	6.54	150	6	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3647.8125	61.44	47.10	-14.34	74.00	26.90	150	357	Horizontal
2	4843.1250	57.84	47.88	-9.96	74.00	26.12	150	301	Horizontal
3	5475.0000	48.53	39.29	-9.24	74.00	34.71	150	301	Horizontal
4	6458.4375	49.16	42.72	-6.44	74.00	31.28	150	148	Horizontal
5	13962.1875	39.50	49.61	10.11	74.00	24.39	150	7	Horizontal
6	17992.5000	37.32	58.46	21.14	74.00	15.54	150	188	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3647.8125	-14.34	48.09	33.75	54.00	20.25	150	357	Horizontal
2	4843.1250	-9.96	45.46	35.50	54.00	18.50	150	301	Horizontal
3	17992.5000	21.14	27.00	48.14	54.00	5.86	150	188	Horizontal

Mode: TX/ IEEE 802.11n HT40 (MIMO)
Middle channel (2437 MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3644.0625	60.10	45.81	-14.29	74.00	28.19	150	346	Vertical
2	3993.7500	53.09	39.66	-13.43	74.00	34.34	150	260	Vertical
3	4873.1250	54.90	45.44	-9.46	74.00	28.56	150	208	Vertical
4	7163.4375	46.04	42.76	-3.28	74.00	31.24	150	306	Vertical
5	13992.1875	39.24	49.60	10.36	74.00	24.40	150	329	Vertical
6	17995.3125	37.76	58.96	21.20	74.00	15.04	150	254	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17995.3125	21.20	26.13	47.33	54.00	6.67	150	254	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3193.1250	59.33	43.75	-15.58	74.00	30.25	150	175	Horizontal
2	3649.6875	61.15	46.78	-14.37	74.00	27.22	150	43	Horizontal
3	4874.0625	56.69	47.25	-9.44	74.00	26.75	150	214	Horizontal
4	5973.7500	50.12	41.93	-8.19	74.00	32.07	150	180	Horizontal
5	14066.2500	40.07	49.68	9.61	74.00	24.32	150	237	Horizontal
6	17975.6250	36.58	57.34	20.76	74.00	16.66	150	152	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17975.6250	20.76	26.43	47.19	54.00	6.81	150	152	Horizontal

Mode: TX/ IEEE 802.11n HT40 (MIMO)
Highest channel (2452MHz)

Date: 2020/11/09

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3649.6875	66.15	51.78	-14.37	74.00	22.22	150	352	Vertical
2	4903.1250	54.77	45.77	-9.00	74.00	28.23	150	136	Vertical
3	5999.0625	50.80	42.59	-8.21	74.00	31.41	150	112	Vertical
4	7296.5625	48.75	44.96	-3.79	74.00	29.04	150	260	Vertical
5	17996.2500	36.41	57.64	21.23	74.00	16.36	150	158	Vertical

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3649.6875	-14.37	48.65	34.28	54.00	19.72	150	352	Vertical
2	17996.2500	21.23	26.46	47.69	54.00	6.31	150	158	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	3646.8750	61.09	46.76	-14.33	74.00	27.24	150	352	Horizontal
2	4904.0625	55.28	46.28	-9.00	74.00	27.72	150	192	Horizontal
3	5470.3125	50.69	41.46	-9.23	74.00	32.54	150	317	Horizontal
4	6538.1250	48.83	42.65	-6.18	74.00	31.35	150	152	Horizontal
5	14031.5625	40.01	50.04	10.03	74.00	23.96	150	94	Horizontal
6	17947.5000	37.77	57.89	20.12	74.00	16.11	150	215	Horizontal

AV Final Data List									
NO.	Freq. [MHz]	Factor [dB]	AV Reading [dBμV/m]	AV Value [dBμV/m]	AV Limit [dBμV/m]	AV Margin [dB]	Height [cm]	Angle [°]	Polarity
1	17947.5000	20.12	26.74	46.86	54.00	7.14	150	215	Horizontal

Above 18GHz-26.5GHz:

Pre-scan all modes and recorded the worst case results in this report (IEEE 802.11b)

Mode: TX / IEEE 802.11b

Lowest channel (2412MHz)

Date: 2020/11/02

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18381.6500	58.91	47.23	-11.68	83.54	36.31	100	148	Vertical
2	19295.4000	59.68	48.48	-11.20	83.54	35.06	100	59	Vertical
3	20414.0000	56.35	46.02	-10.33	83.54	37.52	100	213	Vertical
4	21127.1500	56.85	46.41	-10.44	83.54	37.13	100	237	Vertical
5	24906.2500	55.65	47.74	-7.91	83.54	35.80	100	277	Vertical
6	26431.1500	55.42	49.51	-5.91	83.54	34.03	100	261	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18192.9500	58.66	46.71	-11.95	83.54	36.83	100	333	Horizontal
2	19303.9000	57.90	46.70	-11.20	83.54	36.84	100	60	Horizontal
3	20498.1500	56.07	45.81	-10.26	83.54	37.73	100	188	Horizontal
4	22676.7000	56.87	47.74	-9.13	83.54	35.80	100	188	Horizontal
5	23744.3000	56.50	48.12	-8.38	83.54	35.42	100	245	Horizontal
6	25635.5500	55.84	48.23	-7.61	83.54	35.31	100	84	Horizontal

Mode: TX / IEEE 802.11b
Highest channel (2462MHz)

Date: 2020/11/02

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18287.3000	58.40	46.58	-11.82	83.54	36.96	100	164	Vertical
2	18866.1500	57.97	46.56	-11.41	83.54	36.98	100	139	Vertical
3	20537.2500	57.17	46.88	-10.29	83.54	36.66	100	325	Vertical
4	22161.6000	56.42	46.73	-9.69	83.54	36.81	100	212	Vertical
5	23278.5000	56.09	47.47	-8.62	83.54	36.07	100	325	Vertical
6	25468.9500	55.92	48.26	-7.66	83.54	35.28	100	188	Vertical

Suspected Data List									
NO.	Freq. [MHz]	Reading [dBμV/m]	Level [dBμV/m]	Factor [dB]	Limit [dBμV/m]	Margin [dB]	Height [cm]	Angle [°]	Polarity
1	18471.7500	58.03	46.48	-11.55	83.54	37.06	100	53	Horizontal
2	19419.5000	57.87	46.73	-11.14	83.54	36.81	100	310	Horizontal
3	20480.3000	56.92	46.64	-10.28	83.54	36.90	100	270	Horizontal
4	21577.6500	56.34	46.42	-9.92	83.54	37.12	100	229	Horizontal
5	24513.5500	55.33	47.60	-7.73	83.54	35.94	100	221	Horizontal
6	25644.9000	56.82	49.21	-7.61	83.54	34.33	100	3	Horizontal

7. 6DB BANDWIDTH

7.1. LIMITS

Systems using digital modulation techniques may operate in the 902–928 MHz, 2400–2483.5 MHz, and 5725–5850 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.

7.2. TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Set resolution bandwidth (RBW) = 100kHz. Set the video bandwidth (VBW) $\geq 3 \times$ RBW. Detector = Peak. Trace mode = max hold. Sweep = auto couple. Allow the trace to stabilize, record 6dB bandwidth value.
- 3) Repeat above procedures until all frequencies measured were complete.

7.3. TEST SETUP



7.4. TEST RESULTS

Test mode: IEEE 802.11b

Channel No.	Frequency (MHz)	Bandwidth (kHz)		Limit (kHz)	Test Result
		antenna 1	antenna 2		
1	2412	9093	9095	>500	PASS
6	2437	9100	9092		PASS
11	2462	9091	9101		PASS

Test mode: IEEE 802.11g

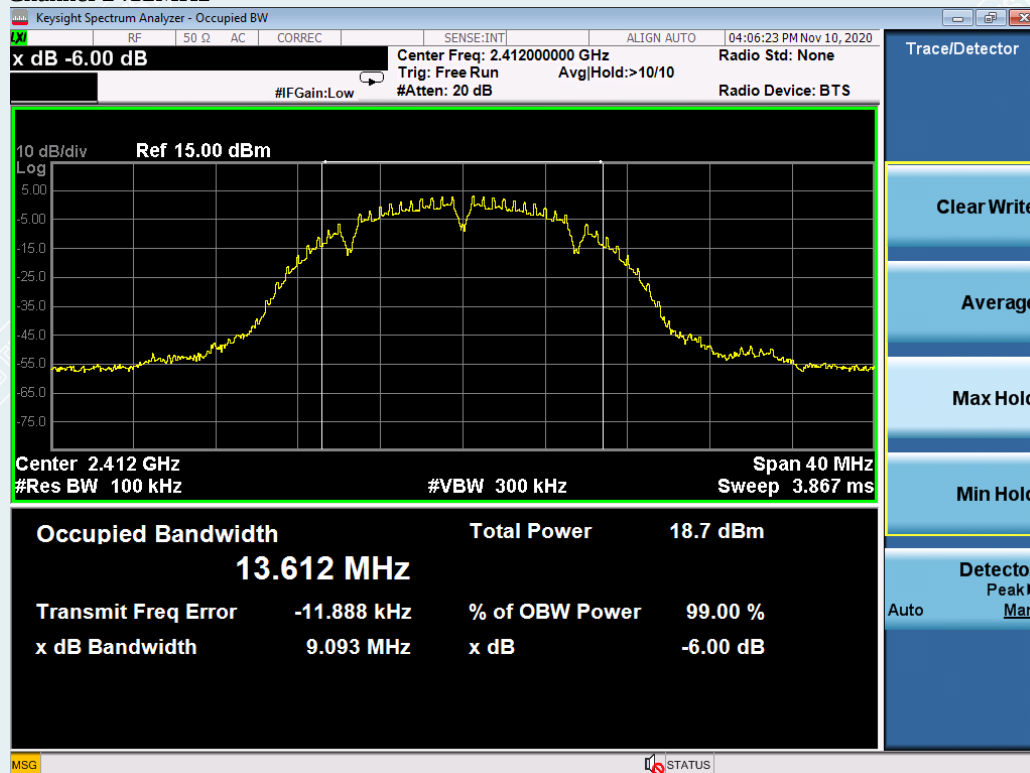
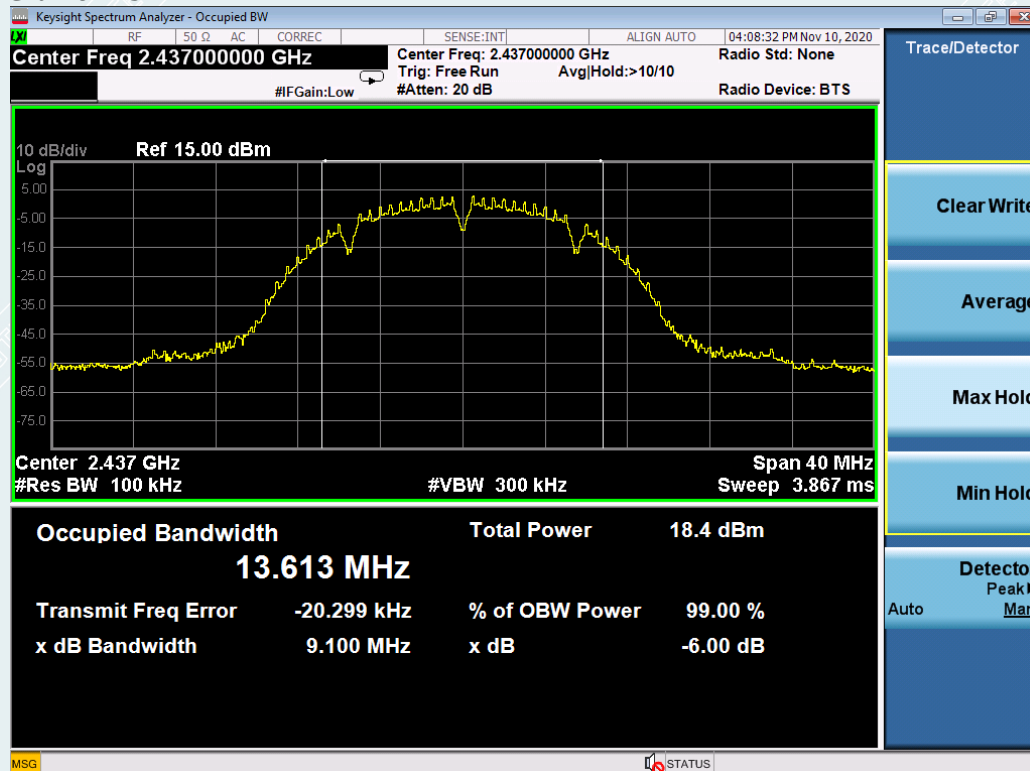
Channel No.	Frequency (MHz)	Bandwidth (kHz)		Limit (kHz)	Test Result
		antenna 1	antenna 2		
1	2412	16360	16360	>500	PASS
6	2437	16360	16360		PASS
11	2462	16360	16360		PASS

Test mode: IEEE 802.11n HT20

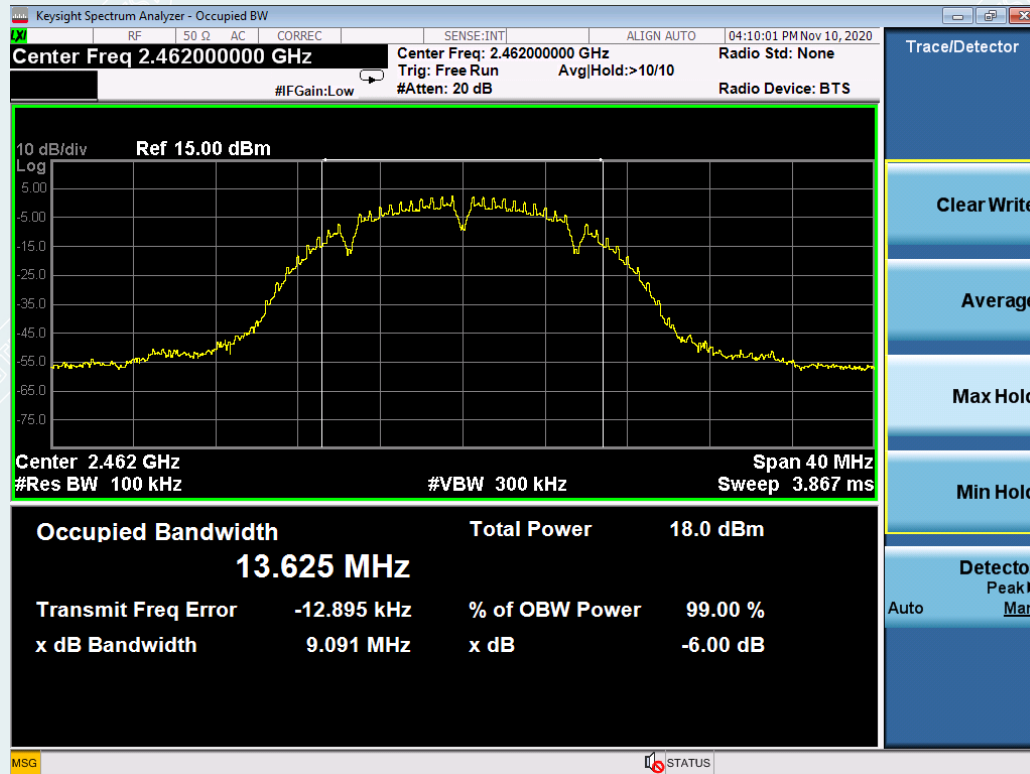
Channel No.	Frequency (MHz)	Bandwidth (kHz)		Limit (kHz)	Test Result
		antenna 1	antenna 2		
1	2412	17120	17190	>500	PASS
6	2437	17140	17150		PASS
11	2462	17180	17020		PASS

Test mode: IEEE 802.11n HT40

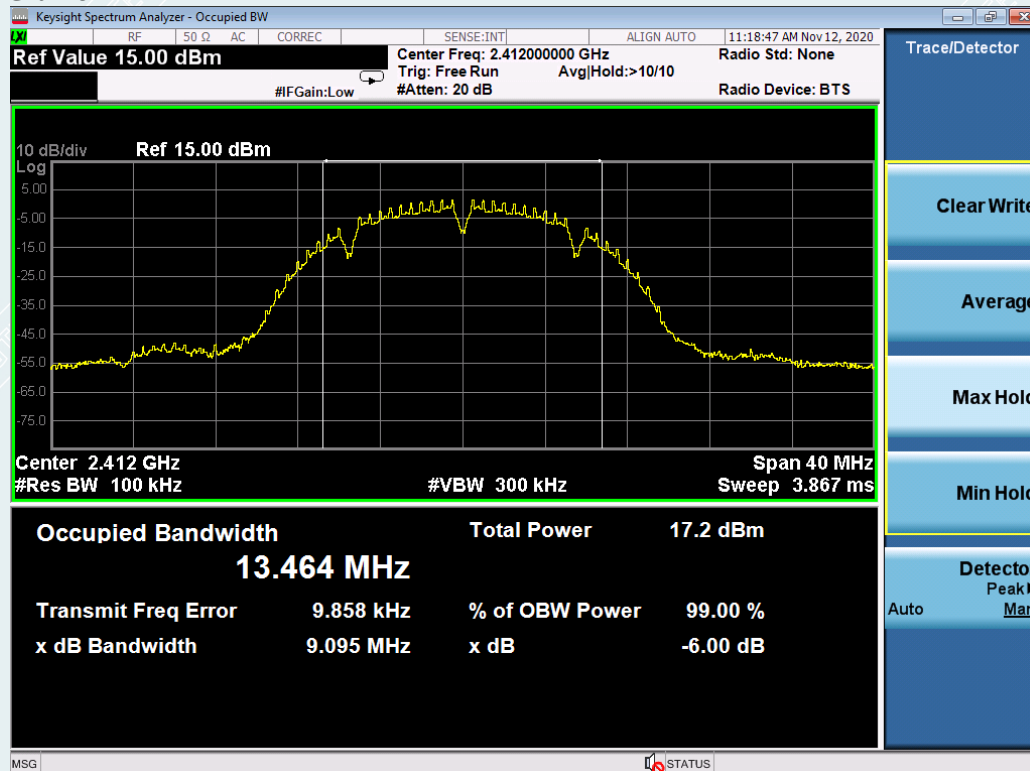
Channel No.	Frequency (MHz)	Bandwidth (kHz)		Limit (kHz)	Test Result
		antenna 1	antenna 2		
3	2422	36350	36330	>500	PASS
6	2437	36350	36350		PASS
9	2452	36120	35890		PASS

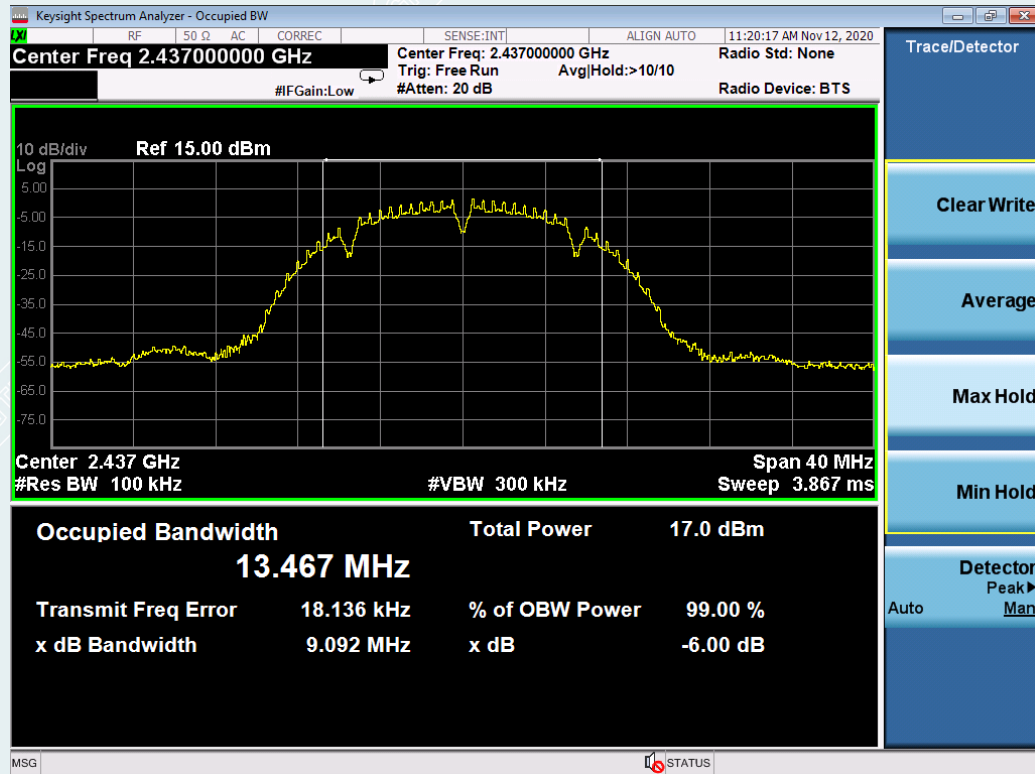
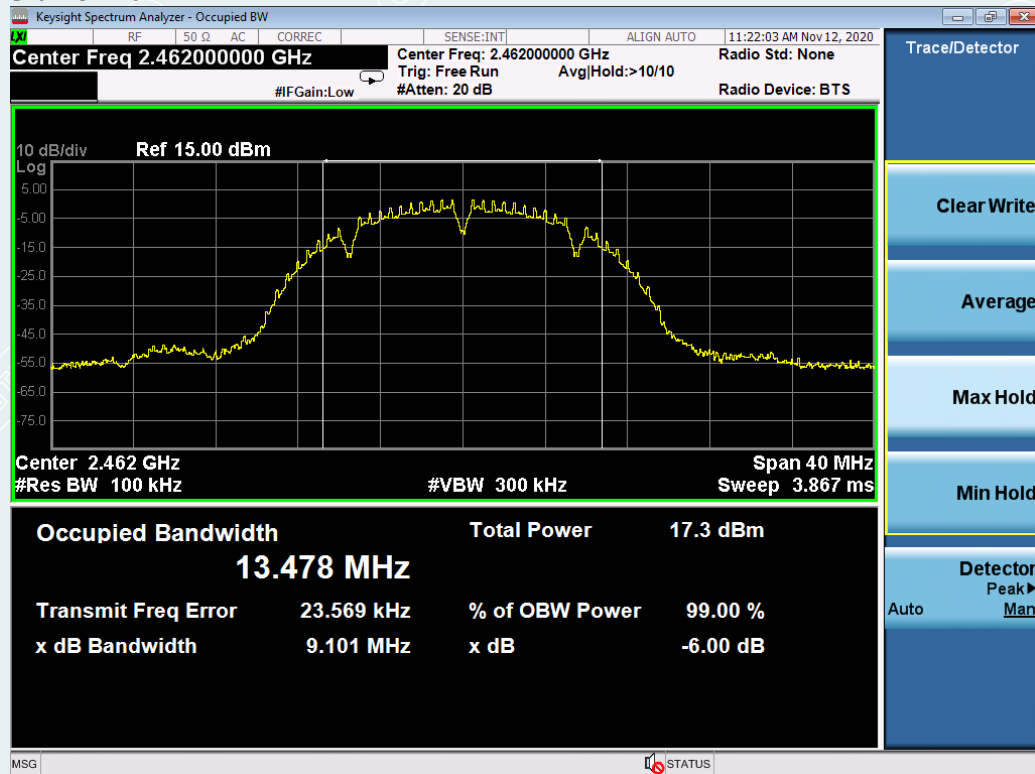
802.11b mode (antenna 1):
Channel 2412MHz802.11b mode (antenna 1):
Channel 2437MHz

802.11b mode (antenna 1):
Channel 2462MHz

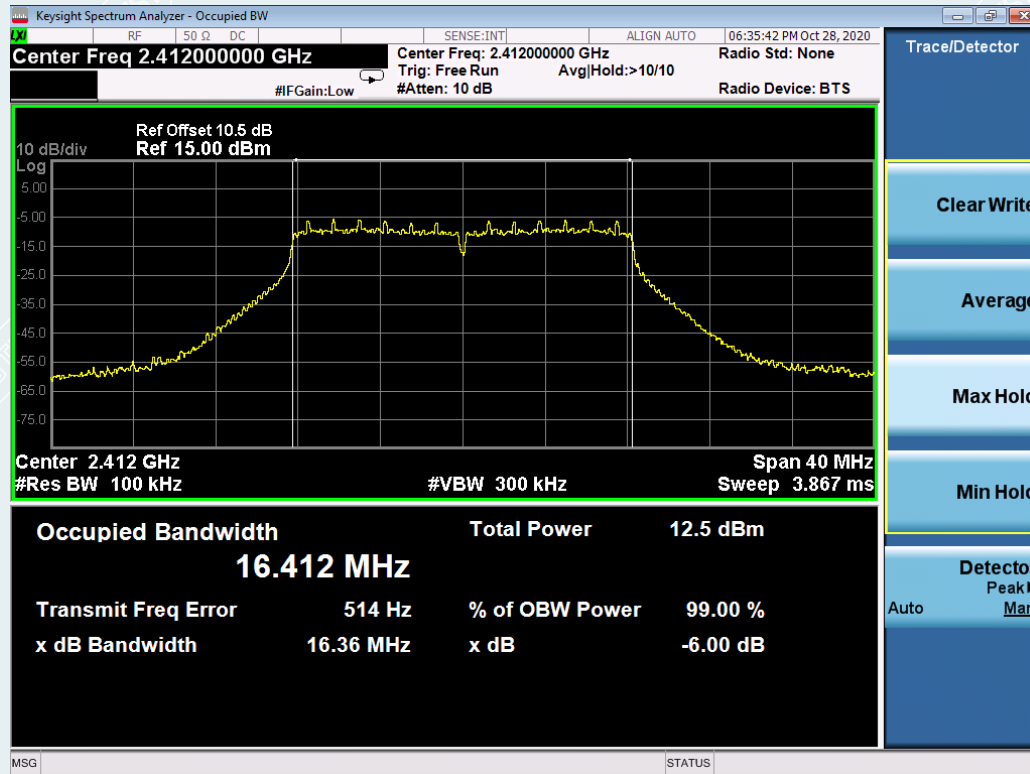


802.11b mode (antenna 2):
Channel 2412MHz

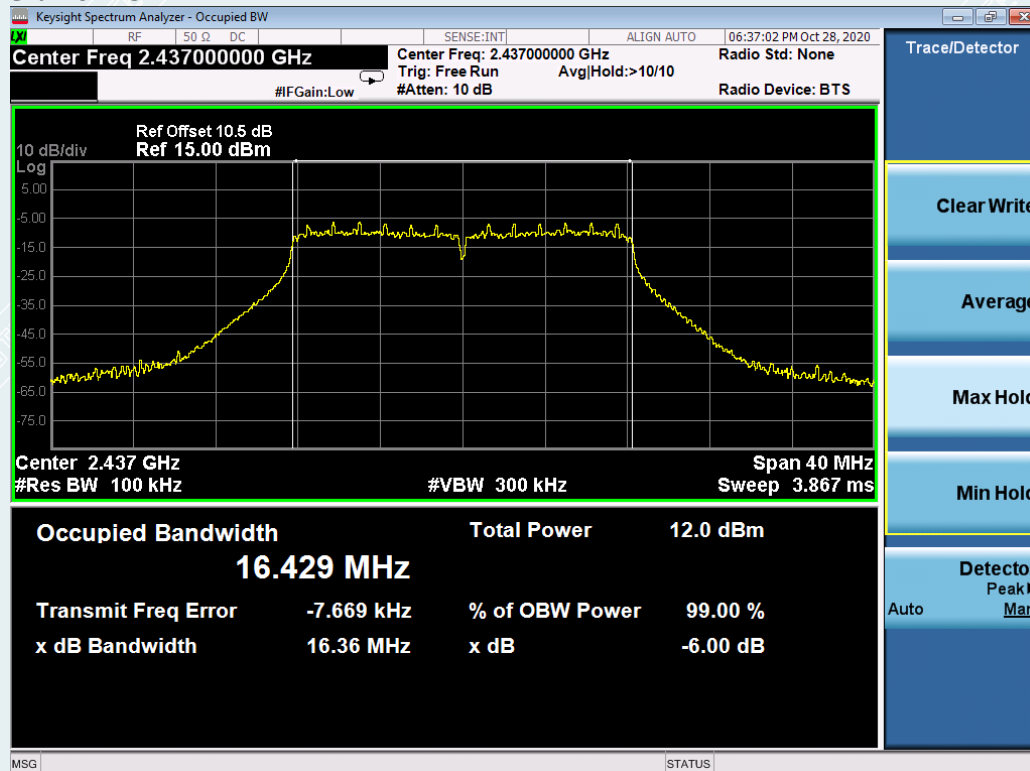


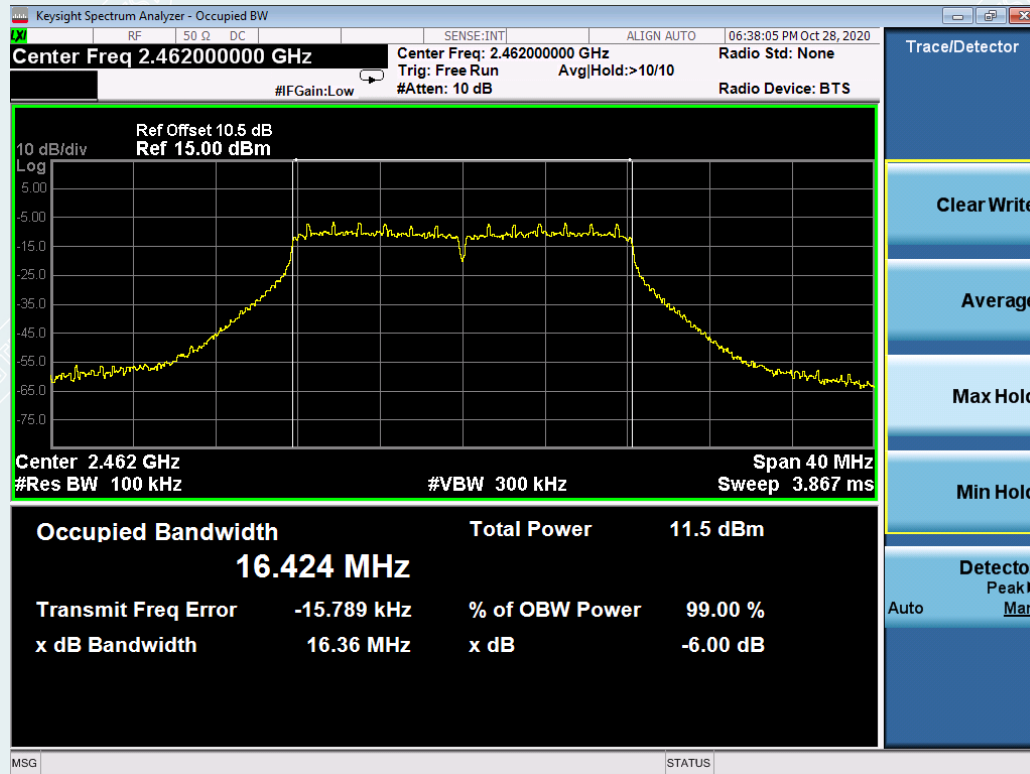
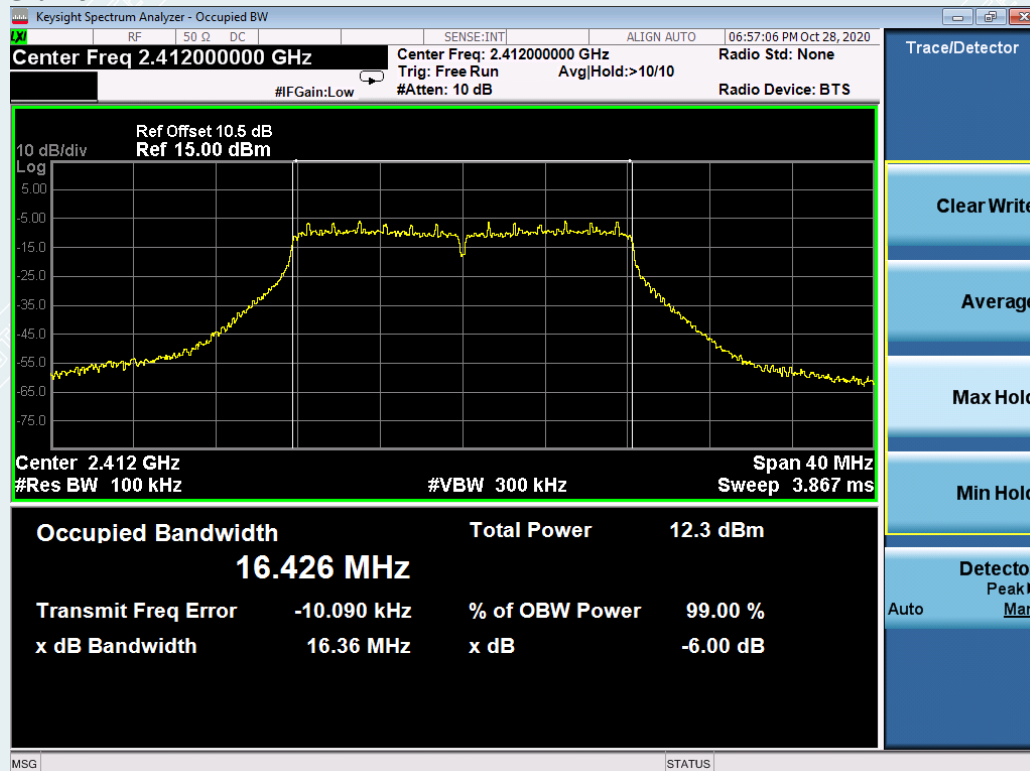
802.11b mode (antenna 2):
Channel 2437MHz802.11b mode (antenna 2):
Channel 2462MHz

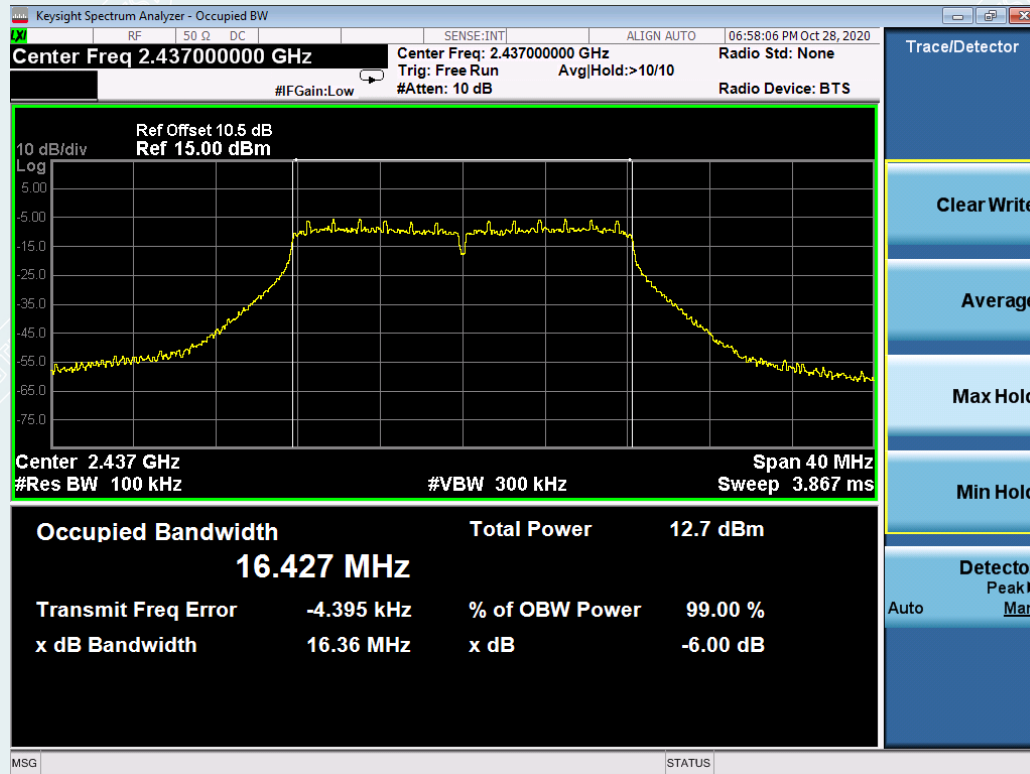
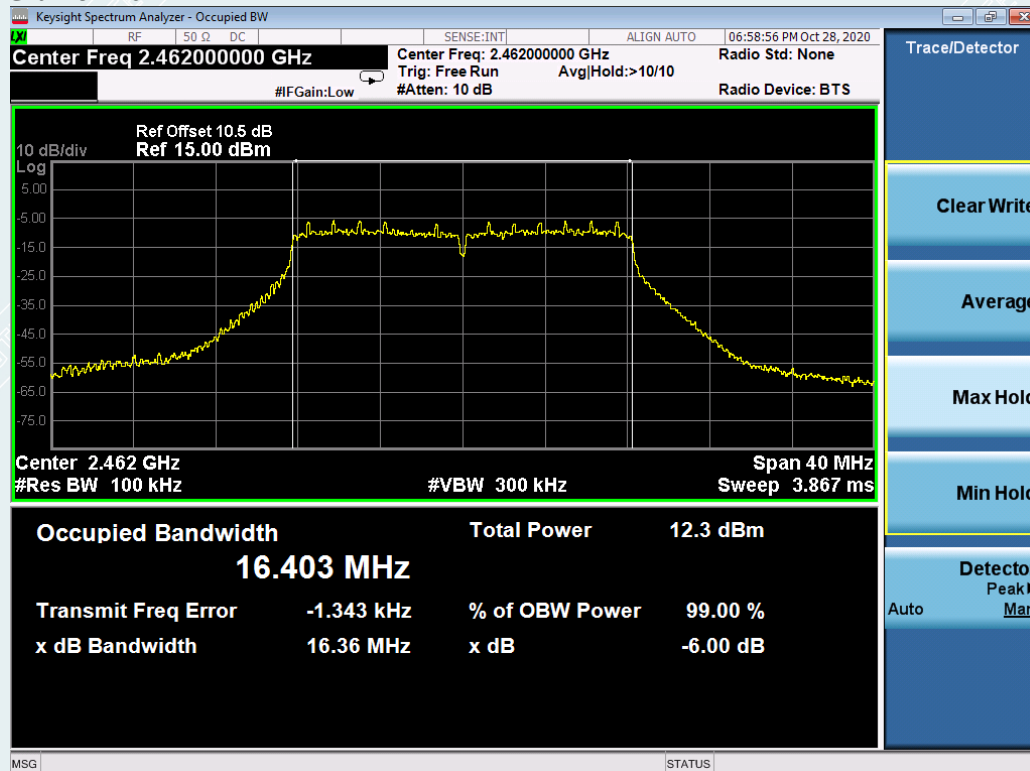
802.11g mode (antenna 1):
Channel 2412MHz



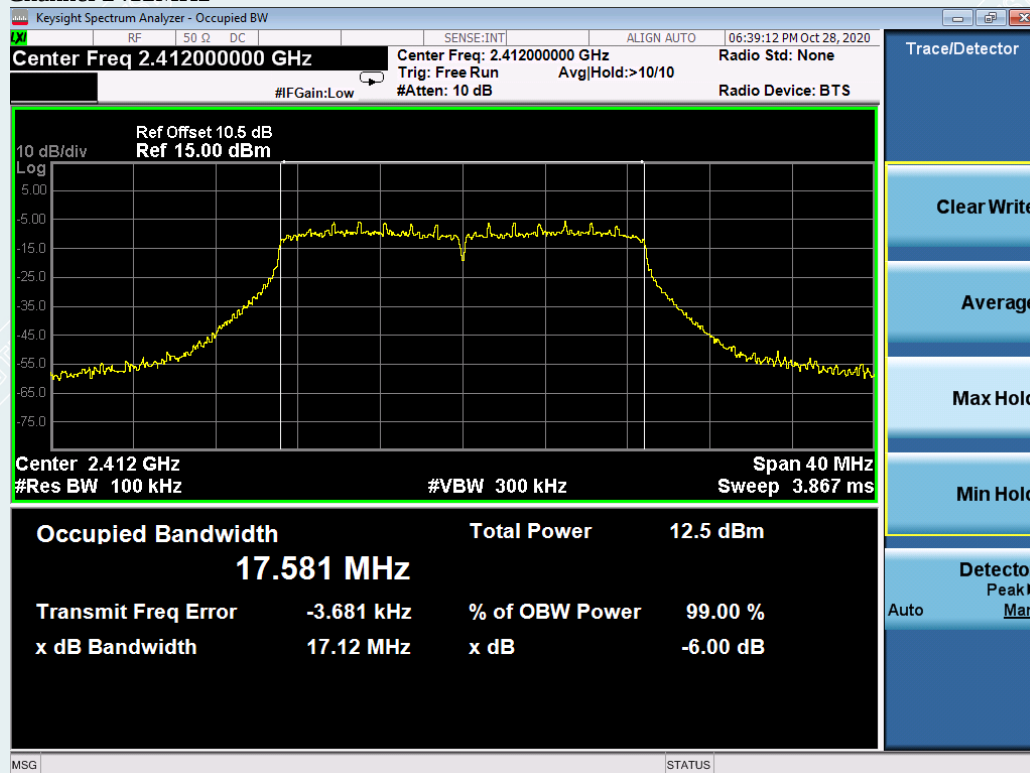
802.11g mode (antenna 1):
Channel 2437MHz



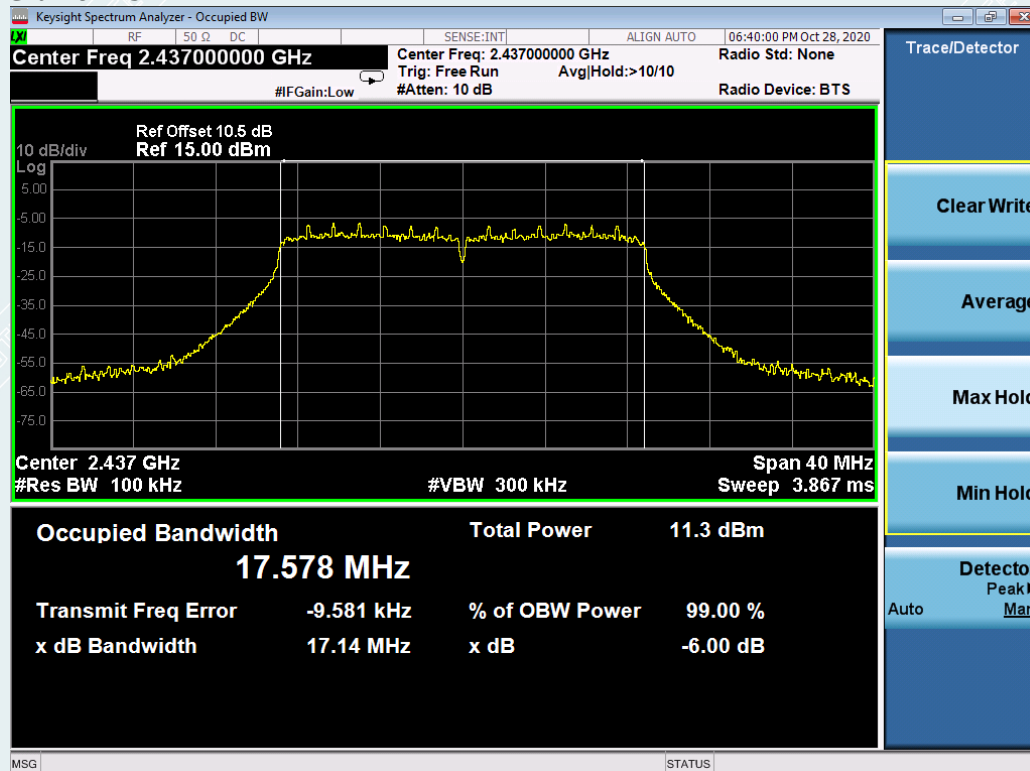
802.11g mode (antenna 1):
Channel 2462MHz802.11g mode (antenna 2):
Channel 2412MHz

802.11g mode (antenna 2):
Channel 2437MHz802.11g mode (antenna 2):
Channel 2462MHz

802.11n HT20 mode (antenna 1):
Channel 2412MHz

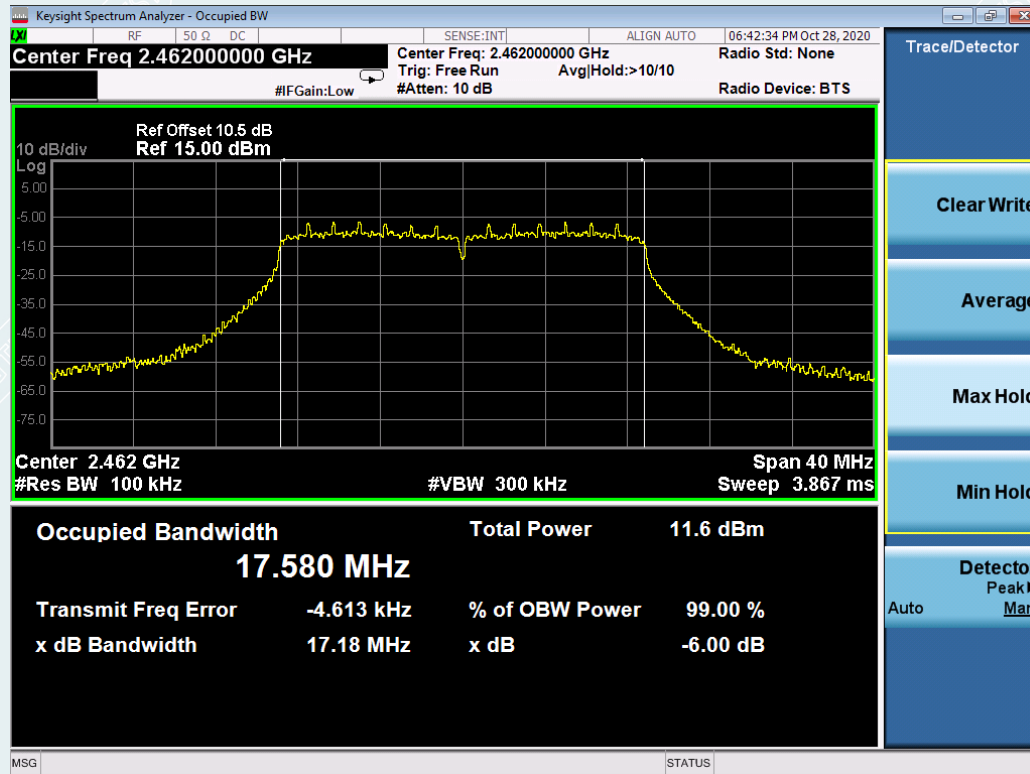


802.11n HT20 mode (antenna 1):
Channel 2437MHz



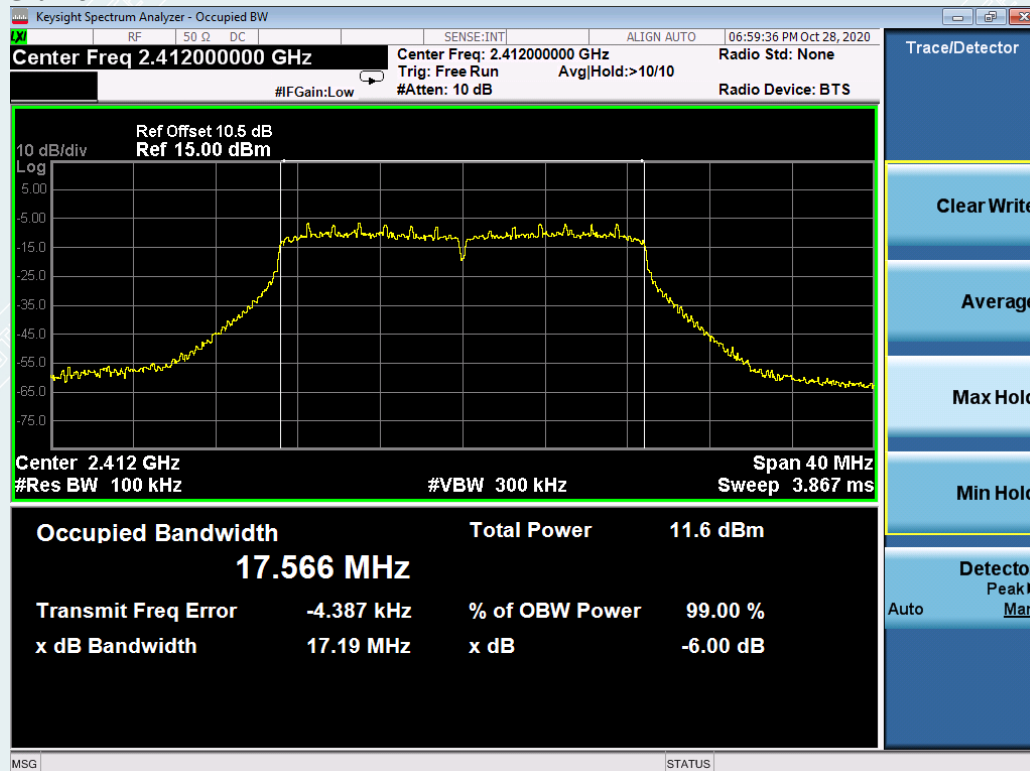
802.11n HT20 mode (antenna 1):

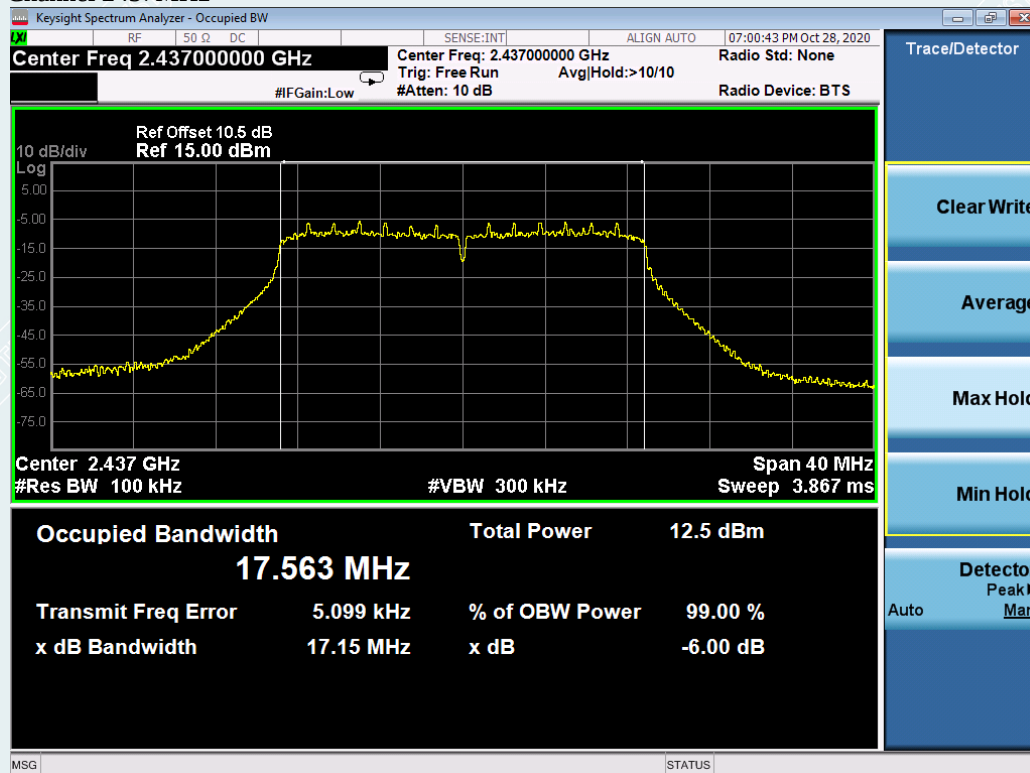
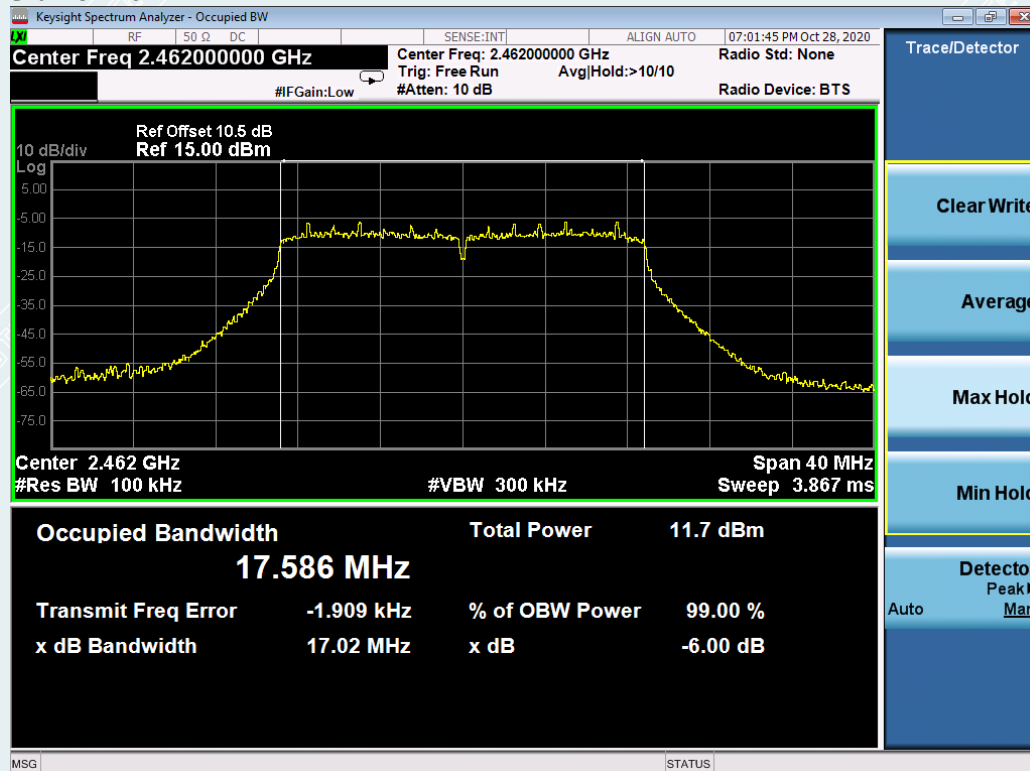
Channel 2462MHz



802.11n HT20 mode (antenna 2):

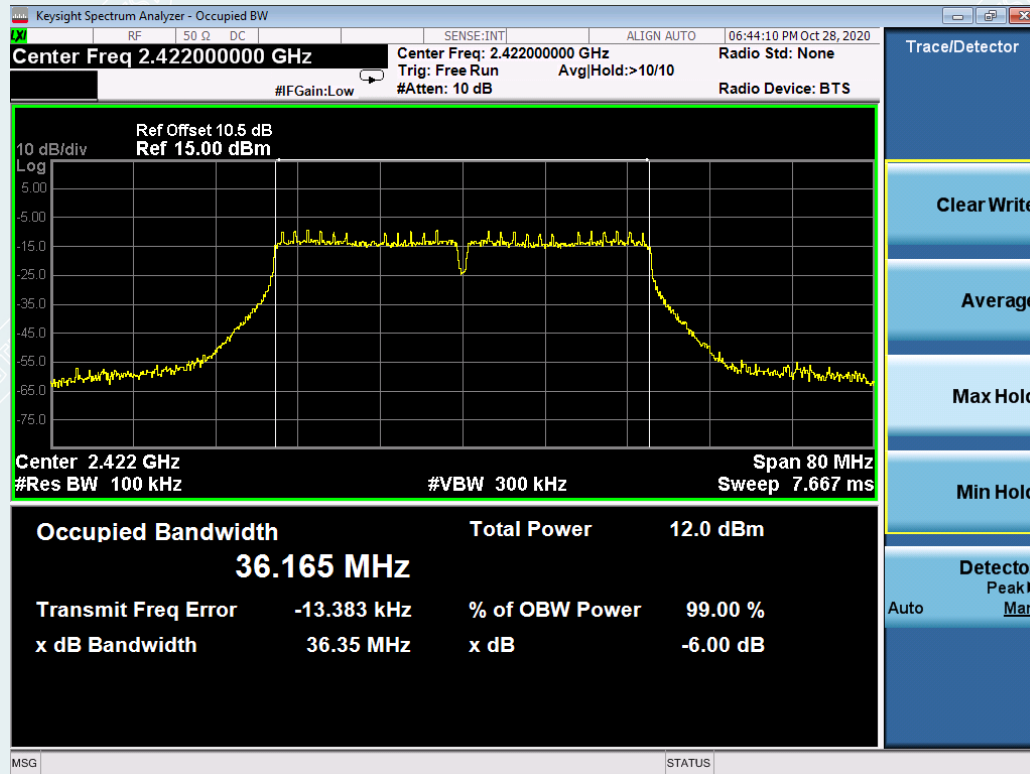
Channel 2412MHz



802.11n HT20 mode (antenna 2):
Channel 2437MHz802.11n HT20 mode (antenna 2):
Channel 2462MHz

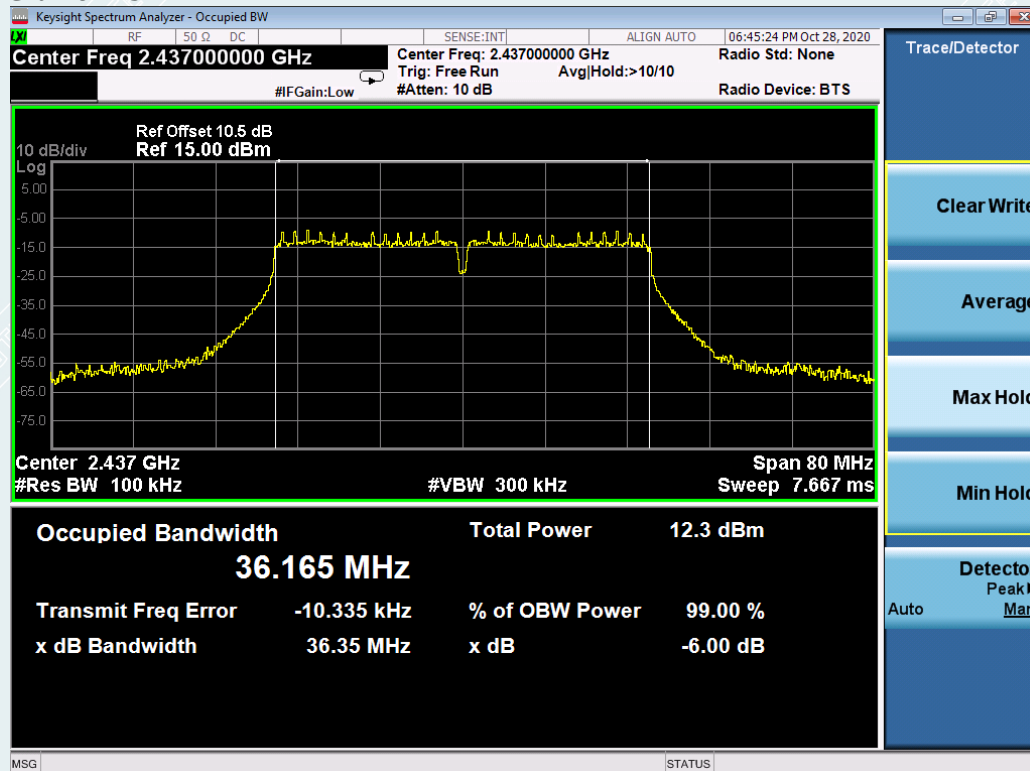
802.11n HT40 mode (antenna 1):

Channel 2422MHz



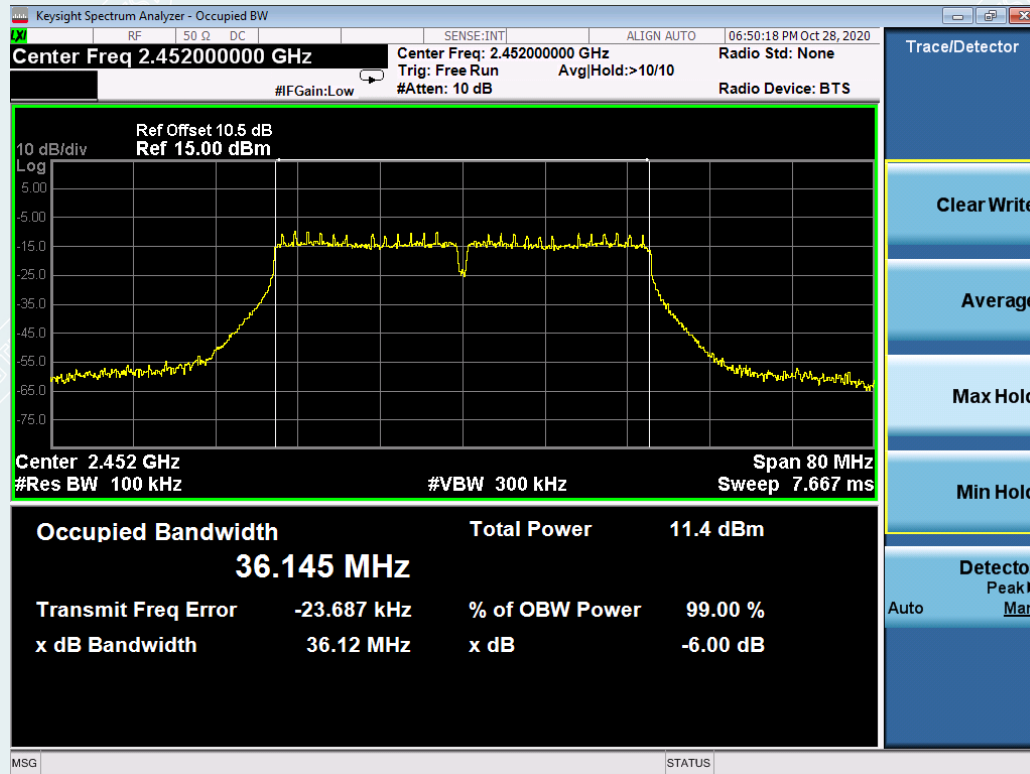
802.11n HT40 mode (antenna 1):

Channel 2437MHz



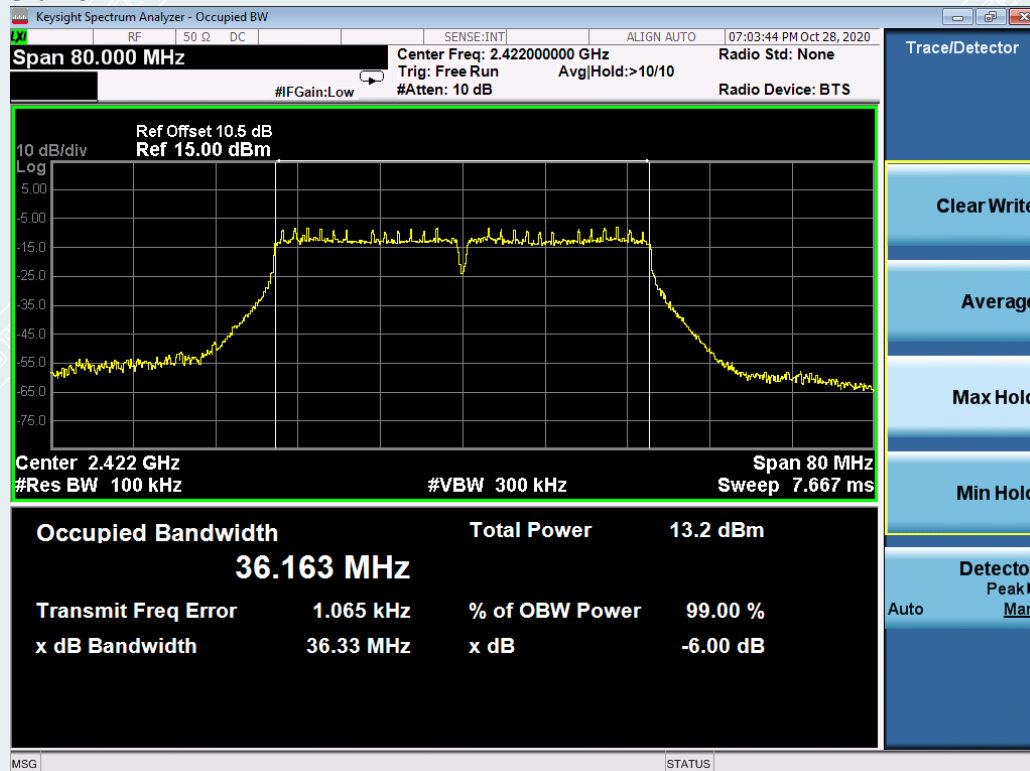
802.11n HT40 mode (antenna 1):

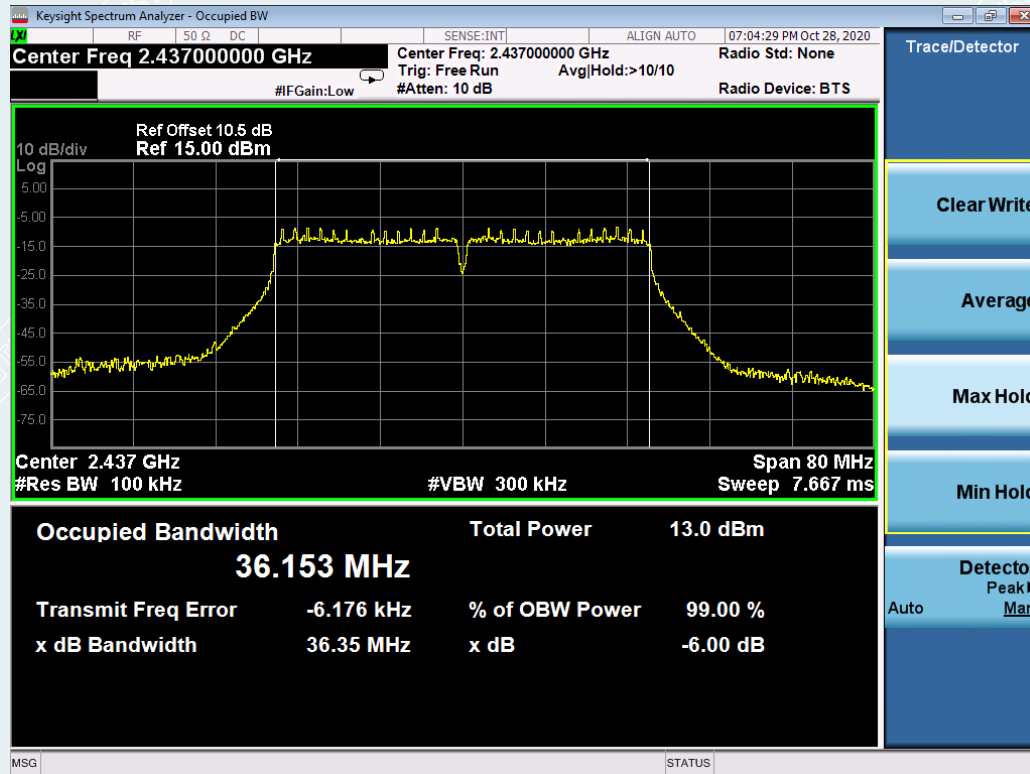
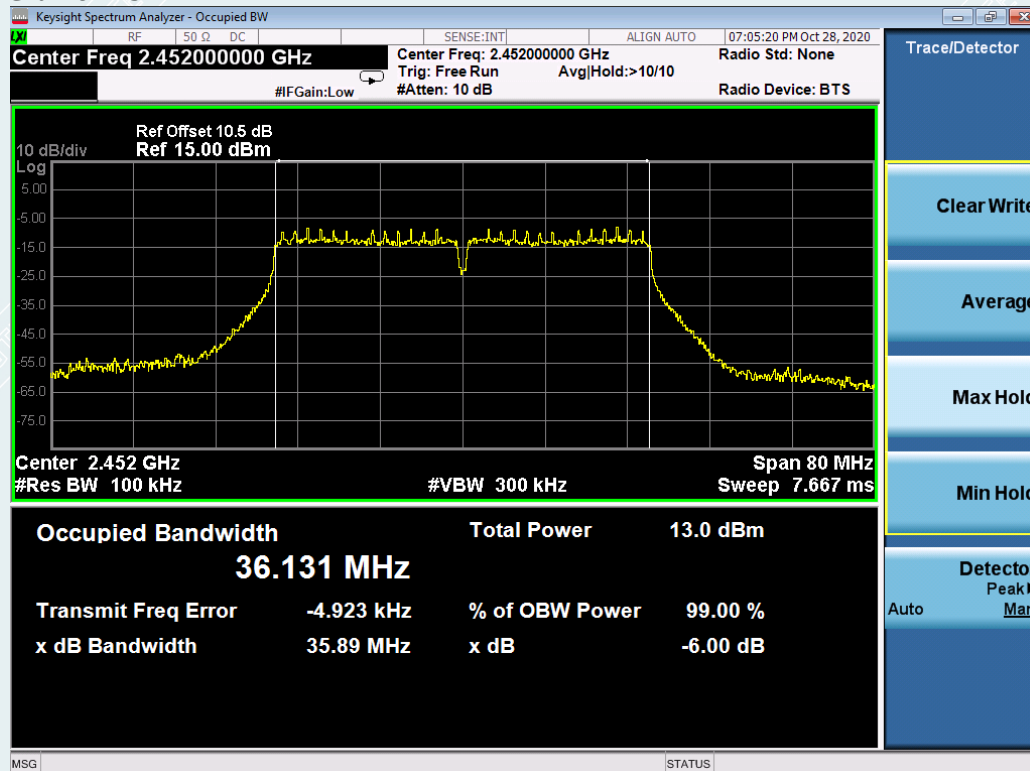
Channel 2452MHz



802.11n HT40 mode (antenna 2):

Channel 2422MHz



802.11n HT40 mode (antenna 2):
Channel 2437MHz802.11n HT40 mode (antenna 2):
Channel 2452MHz

8. MAXIMUM PEAK OUTPUT POWER

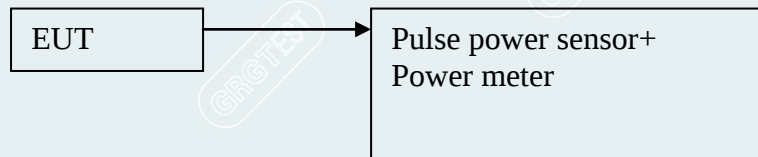
8.1. LIMITS

The maximum Peak output power measurement is 1W

8.2. TEST PROCEDURES

- 1) Place the EUT on a bench and set it in transmitting mode.
- 2) Remove the antenna from the EUT and then connect a low loss RF cable from the antenna port to an EMI Test Receiver.
- 3) The spectrum analyzer resolution bandwidth that is $\leq \text{EBW}$. So we test the Maximum Conducted Output Power — Integrated band power method.
- 4) Set the analyzer span $\geq 1.5 \times$ DTS bandwidth. Set the RBW = 1 MHz. Set the VBW ≥ 3 MHz. Sweep time = auto couple. Detector = peak. Allow trace to fully stabilize.

8.3. TEST SETUP



8.4. TEST RESULTS

802.11b Mode (antenna 1):

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Peak / AVG	Limit	Result
1	2412	14.42	Peak	1W (30dBm)	Pass
6	2437	13.95			Pass
11	2462	13.42			Pass

802.11b Mode (antenna 2):

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Peak / AVG	Limit	Result
1	2412	13.27	Peak	1W (30dBm)	Pass
6	2437	13.15			Pass
11	2462	13.07			Pass

802.11g Mode (antenna 1):

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Peak / AVG	Limit	Result
1	2412	15.12	Peak	1W (30dBm)	Pass
6	2437	15.26			Pass
11	2462	14.37			Pass

802.11g Mode (antenna 2):

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)	Peak / AVG	Limit	Result
1	2412	14.69	Peak	1W (30dBm)	Pass
6	2437	14.42			Pass
11	2462	15.72			Pass

802.11n HT20 Mode (MIMO):

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)			Peak/ AVG	Limit	Result
		antenna 1	antenna 2	total			
1	2412	14.97	14.20	17.81	Peak	1W (30dBm)	Pass
6	2437	14.27	14.15	17.42			Pass
11	2462	14.10	14.11	17.31			Pass

802.11n HT40 Mode (MIMO):

Channel No.	Frequency (MHz)	Measured Channel Power (dBm)			Peak/ AVG	Limit	Result
		antenna 1	antenna 2	total			
3	2422	15.26	13.87	18.03	Peak	1W (30dBm)	Pass
6	2437	14.81	14.31	17.98			Pass
9	2452	14.66	14.59	18.04			Pass

9. POWER SPECTRAL DENSITY

9.1. LIMITS

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.

9.2. TEST PROCEDURES

- 1) Remove the antenna from the EUT, and then connect a low loss RF cable from antenna port to the spectrum analyzer.
- 2) Position the EUT was set without connection to measurement instrument. Turn on the EUT and connect its antenna terminal to measurement instrument via a low loss cable. Then set it to any one measured frequency within its operating range, and make sure the instrument is operated in its linear range.
- 3) Set the analyzer span to 1.5 times the DTS bandwidth. Set the RBW = 3 kHz. Set the VBW ≥ 3 RBW. Detector = peak. Ensure that the number of measurement points in the sweep $\geq 2 \times$ span/RBW (use of a greater number of measurement points than this minimum requirement is recommended).
- 4) Repeat above procedures until all frequencies measured were complete.

9.3. TEST SETUP



9.4. TEST RESULTS

802.11b Mode:

Channel No.	Frequency (MHz)	PPSD (dBm)		Duty Factor	Total PSD with Duty Factor (dBm)		Limit (dBm)	Result
		antenna 1	antenna 2		antenna 1	antenna 2		
1	2412	-11.074	-10.948	0.00	-11.074	-10.948	8	Pass
6	2437	-13.040	-11.624	0.00	-13.040	-11.624	8	Pass
11	2462	-12.046	-11.751	0.00	-12.046	-11.751	8	Pass

802.11g Mode:

Channel No.	Frequency (MHz)	PPSD (dBm)		Duty Factor	Total PSD with Duty Factor (dBm)		Limit (dBm)	Result
		antenna 1	antenna 2		antenna 1	antenna 2		
1	2412	-19.338	-18.499	0.16	-19.178	-18.339	8	Pass
6	2437	-19.988	-19.248	0.16	-19.828	-19.088	8	Pass
11	2462	-20.262	-19.527	0.16	-20.102	-19.367	8	Pass

802.11n HT20 Mode:

Channel No.	Frequency (MHz)	PPSD (dBm)			Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Result
		antenna 1	antenna 2	total				
1	2412	-20.686	-19.825	-17.224	0.20	-17.024	8	Pass
6	2437	-19.762	-21.352	-17.474	0.20	-17.274	8	Pass
11	2462	-19.140	-20.102	-16.584	0.20	-16.384	8	Pass

802.11n HT40 Mode:

Channel No.	Frequency (MHz)	PPSD (dBm)			Duty Factor	Total PSD with Duty Factor (dBm)	Limit (dBm)	Result
		antenna 1	antenna 2	total				
3	2422	-23.536	-22.985	-20.241	0.40	-19.841	8	Pass
6	2437	-23.561	-22.507	-19.992	0.40	-19.592	8	Pass
9	2452	-24.226	-22.703	-20.388	0.40	-19.988	8	Pass

Note: 1. Directional gain (dBi)= 5.31

802.11b mode (antenna 1):
Channel 2412MHz



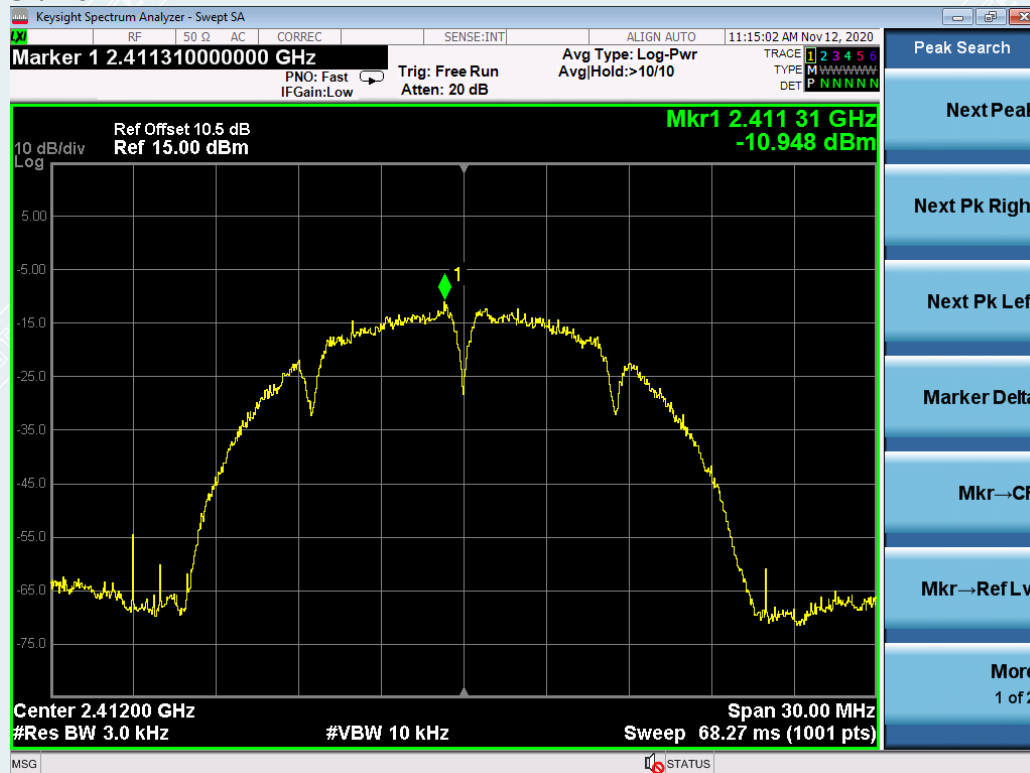
802.11b mode (antenna 1):
Channel 2437MHz



802.11b mode (antenna 1):
Channel 2462MHz



802.11b mode (antenna 2):
Channel 2412MHz



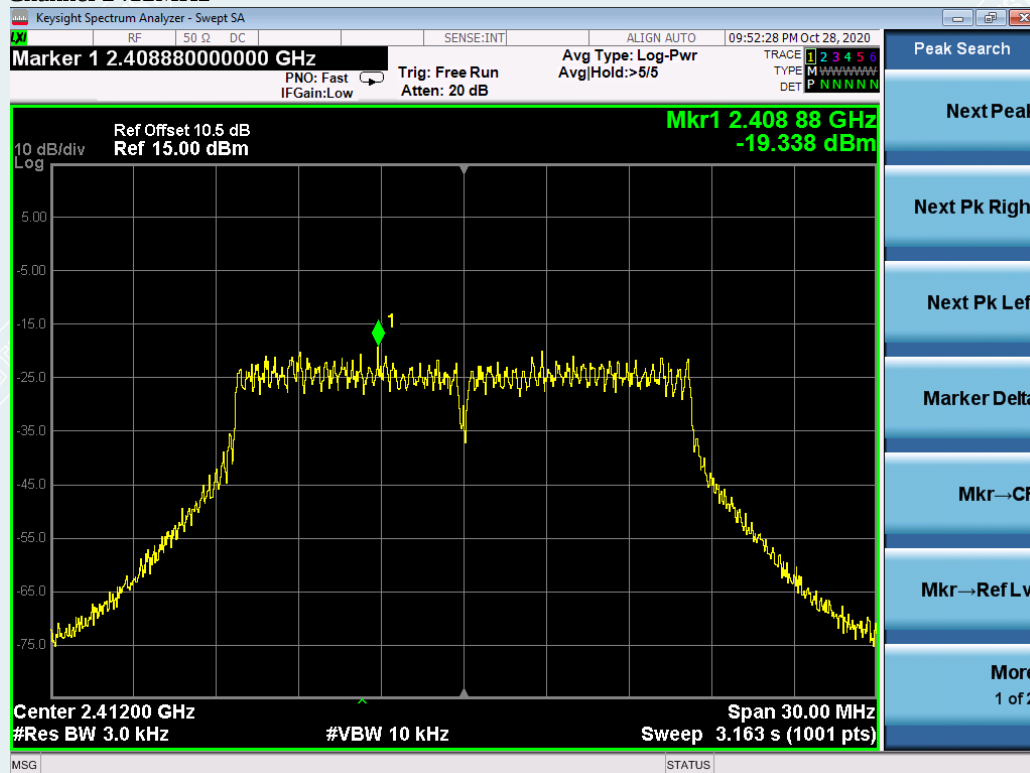
802.11b mode (antenna 2):
Channel 2437MHz



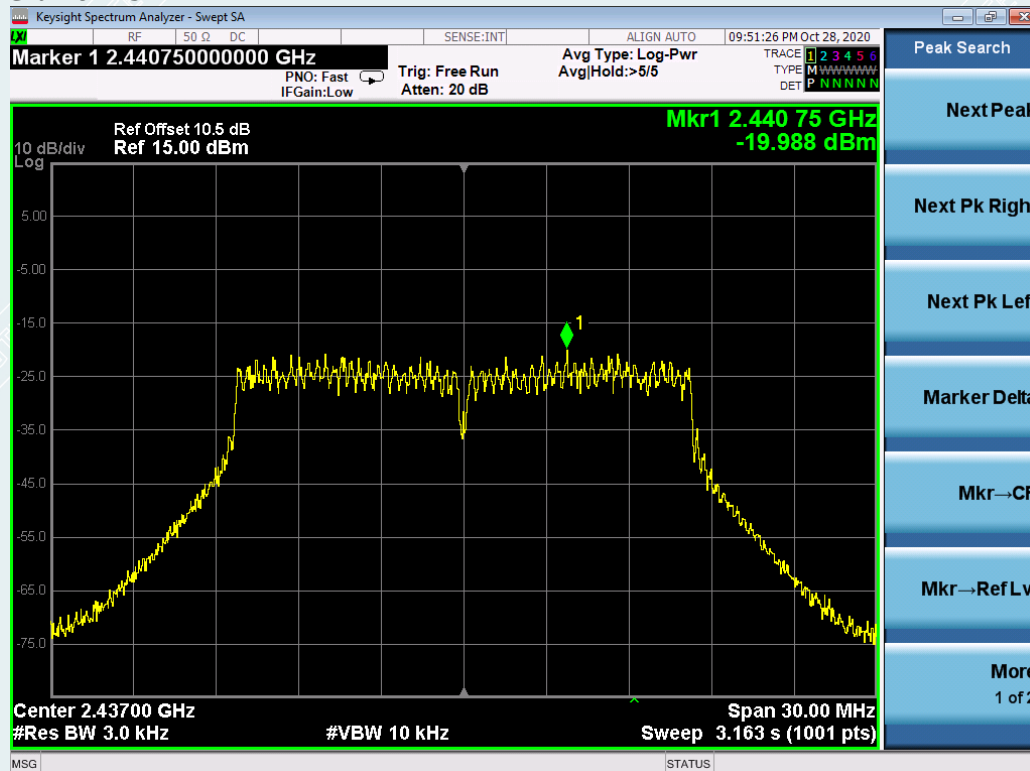
802.11b mode (antenna 2):
Channel 2462MHz



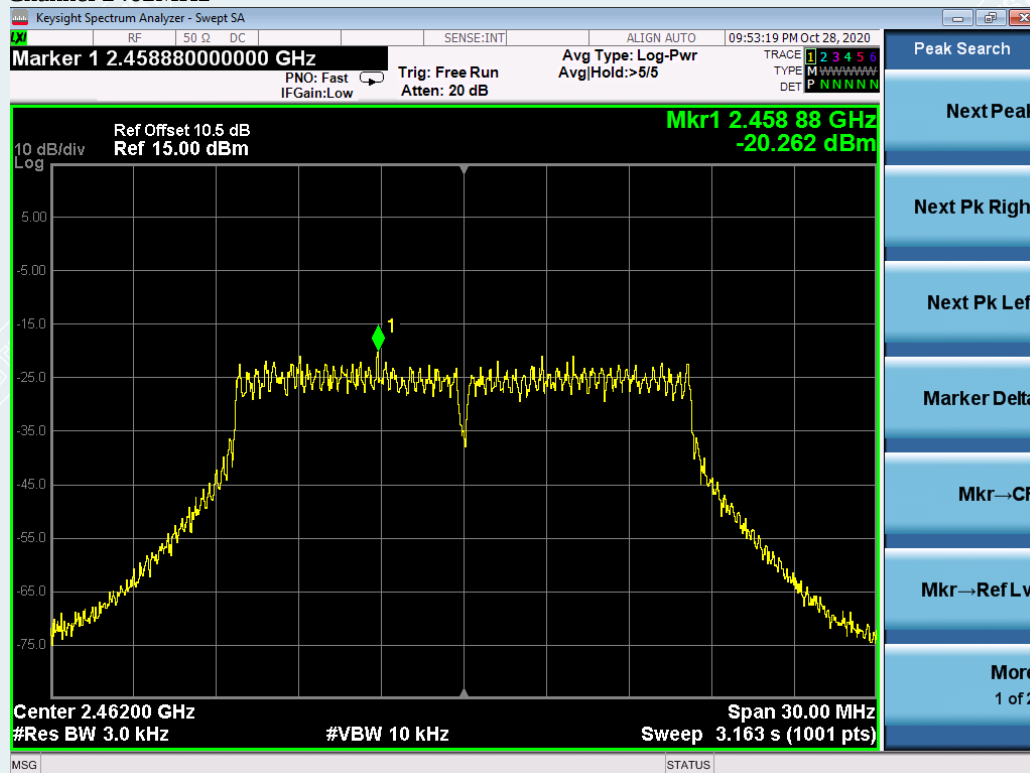
802.11g mode (antenna 1):
Channel 2412MHz



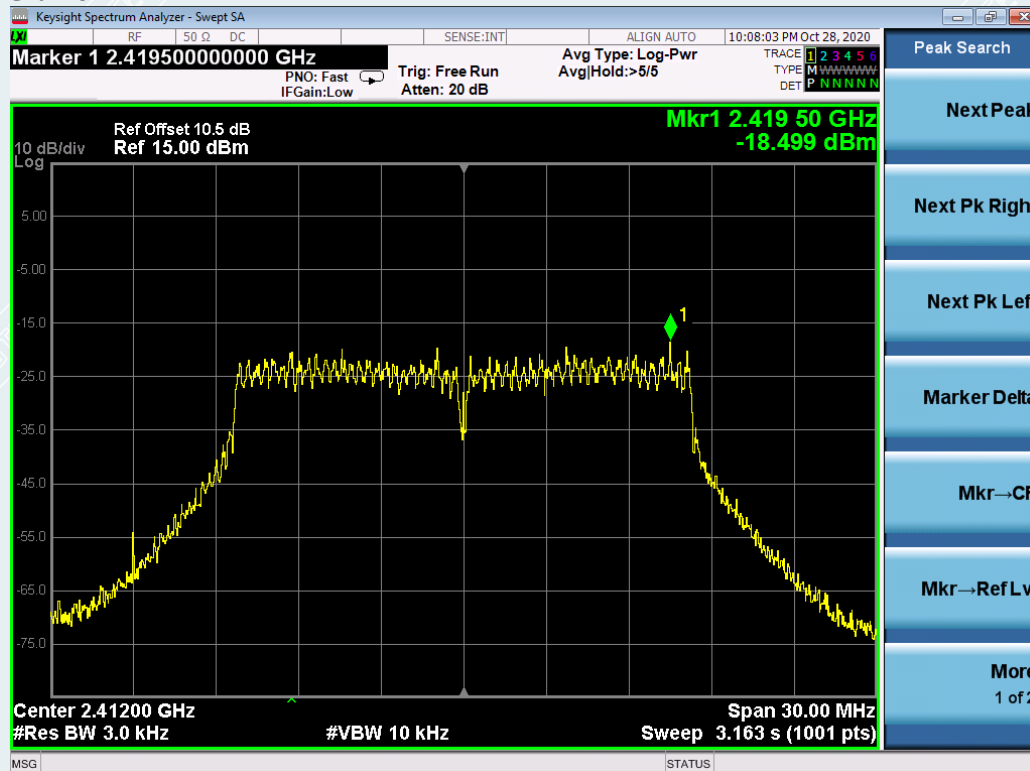
802.11g mode (antenna 1):
Channel 2437MHz



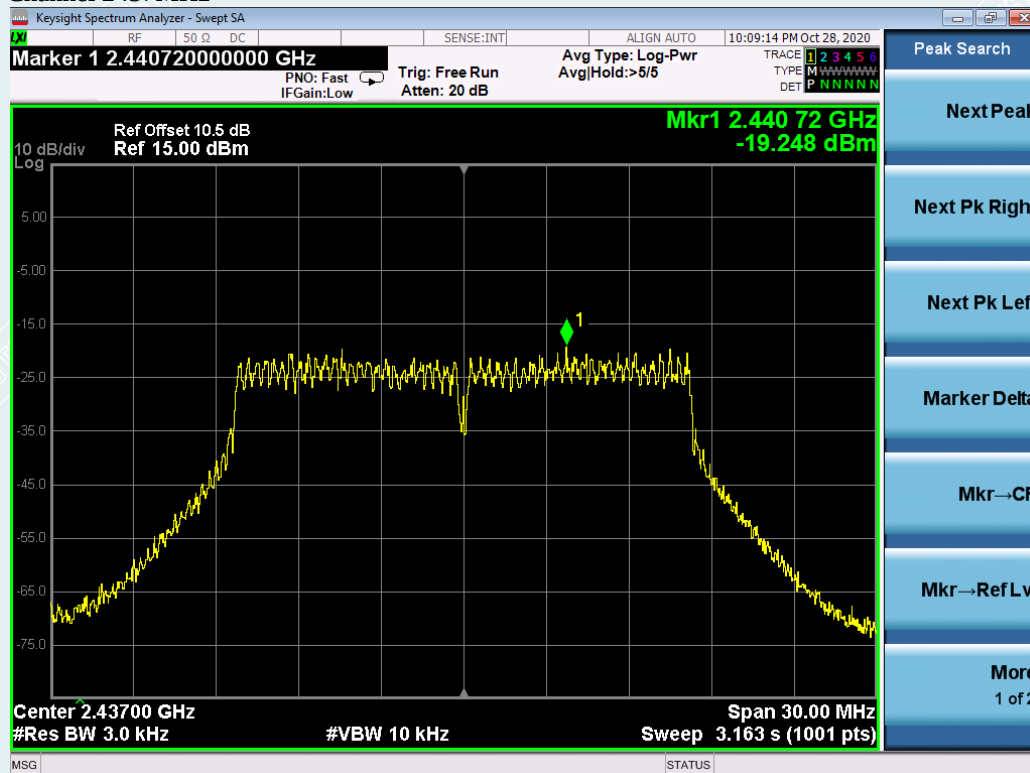
802.11g mode (antenna 1):
Channel 2462MHz



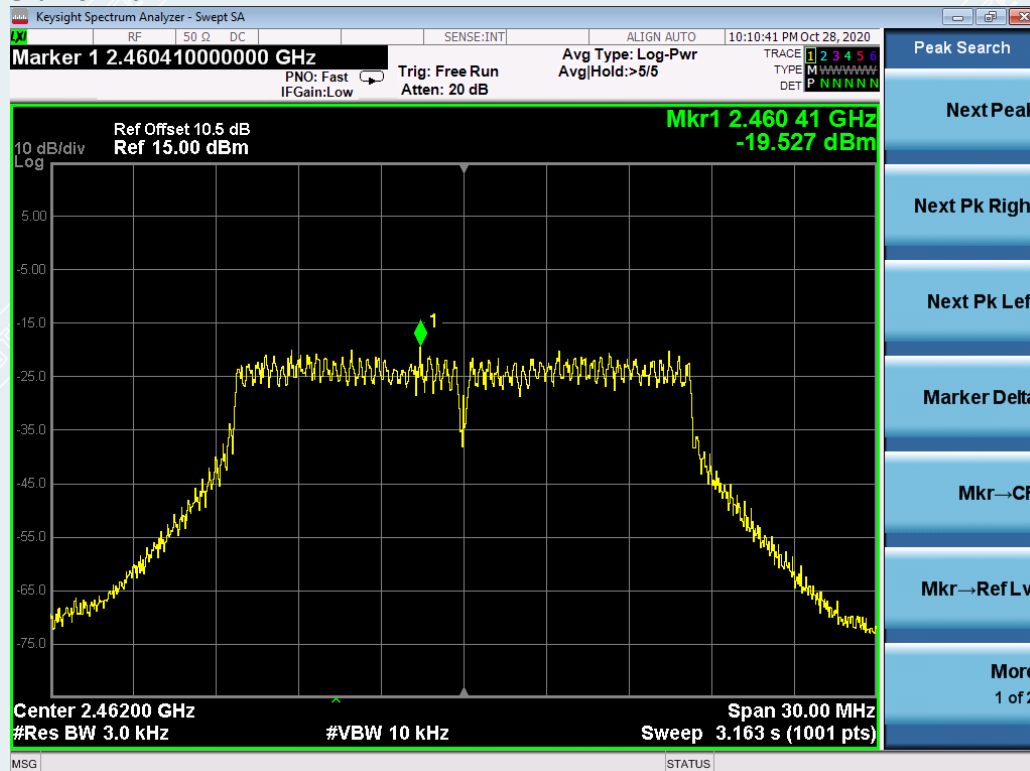
802.11g mode (antenna 2):
Channel 2412MHz

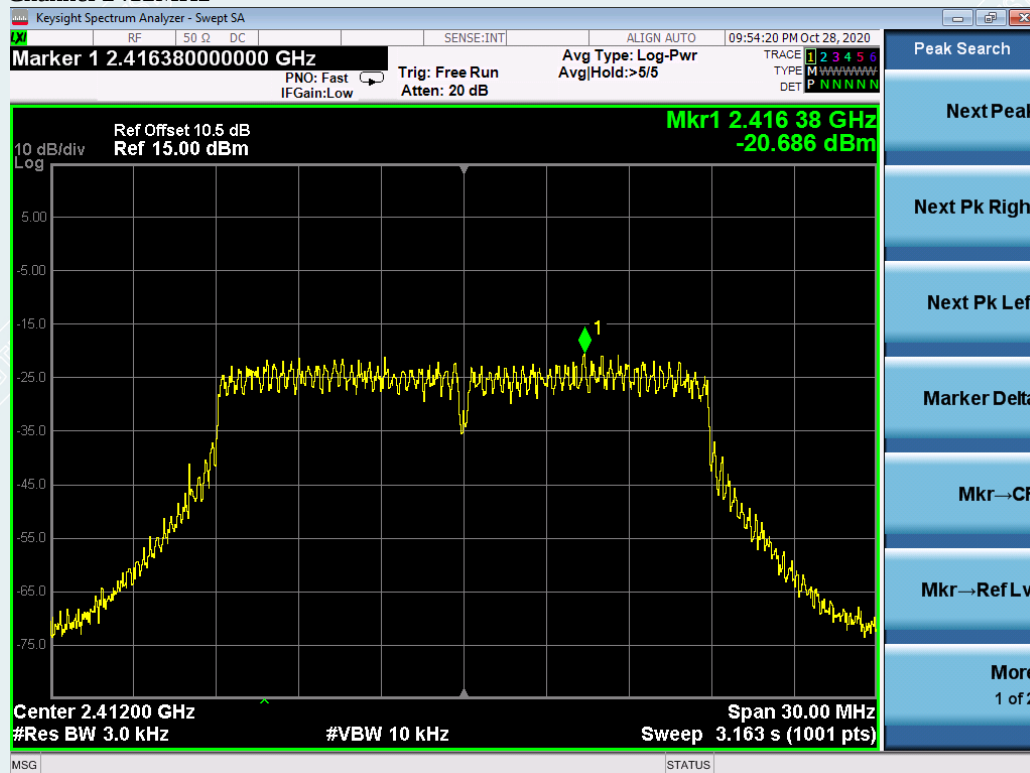
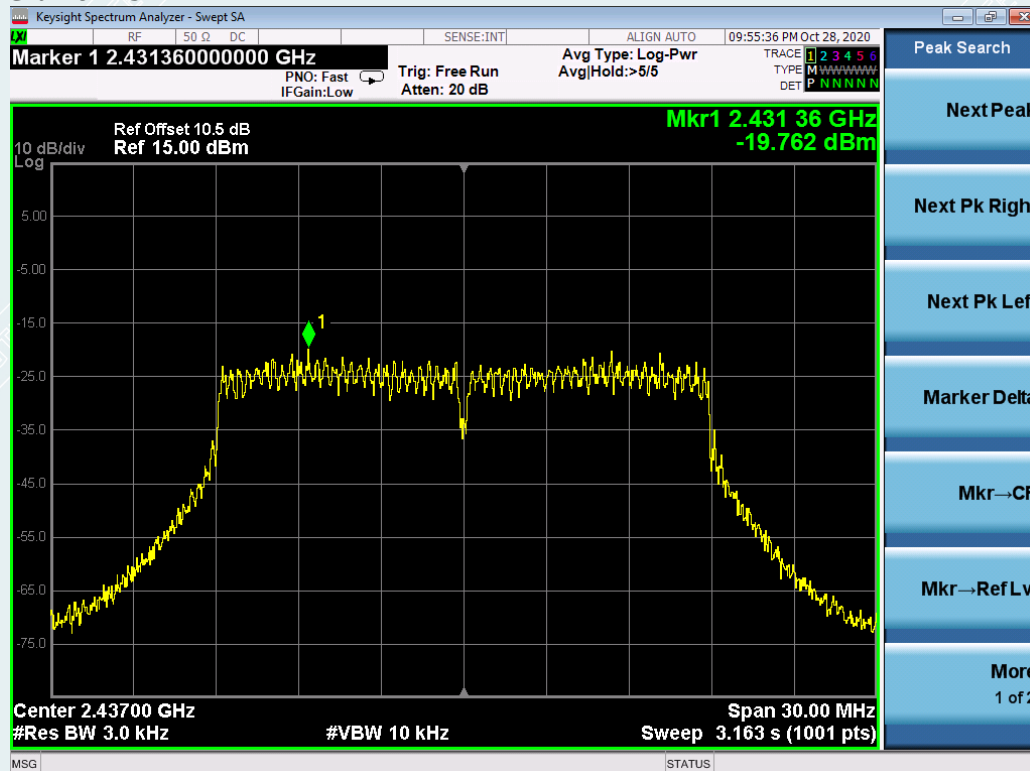


802.11g mode (antenna 2):
Channel 2437MHz

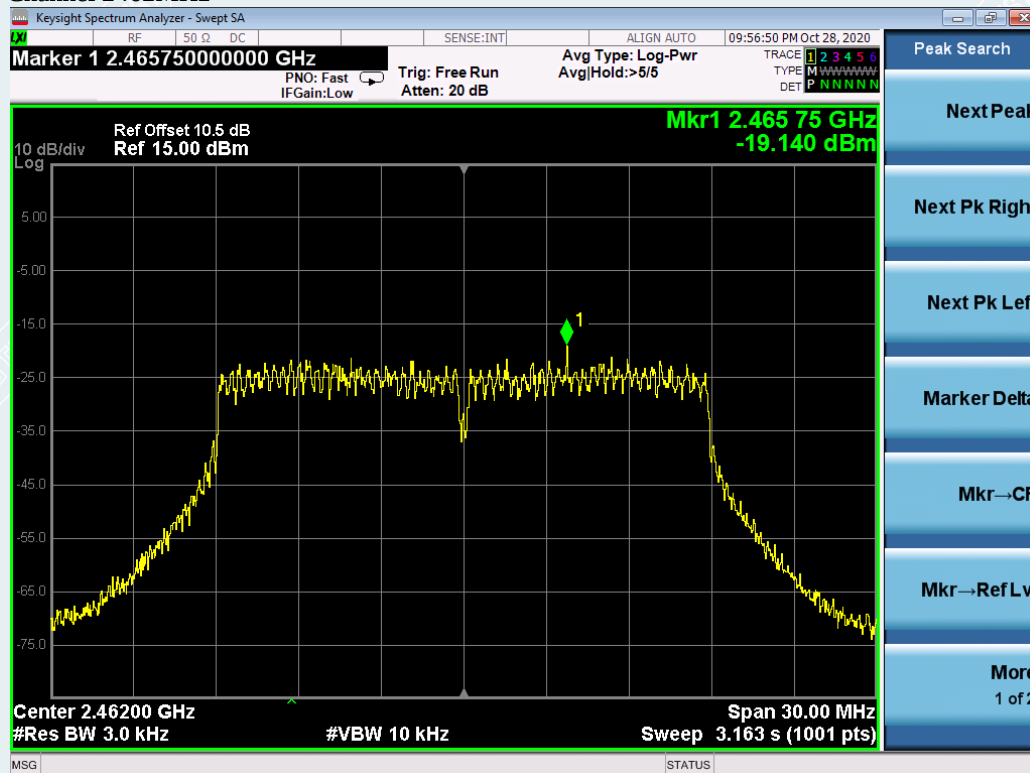


802.11g mode (antenna 2):
Channel 2462MHz



802.11n HT20 mode (antenna 1):
Channel 2412MHz802.11n HT20 mode (antenna 1):
Channel 2437MHz

802.11n HT20 mode (antenna 1):
Channel 2462MHz



802.11n HT20 mode (antenna 2):
Channel 2412MHz

