FCC TEST REPORT
FCC ID: 2A3KR-KST102SA

Report Number.....:	ZKT-221027L7940-03
Date of Test.....:	Oct. 18, 2023 -- Oct. 31, 2023
Date of issue.....:	Oct. 31, 2023
Total number of pages..... :	77
Test Result..... :	PASS
Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address .....:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Applicant's name .....:	SHENZHEN KINSTONE D&T DEVELOP CO. LTD.
Address .....:	5th Floor, Building A2, Xinjianxing Technology Industrial Park, Fengxin Road, Guangming District
Manufacturer's name .....:	SHENZHEN KINSTONE D&T DEVELOP CO. LTD.
Address .....:	5th Floor, Building A2, Xinjianxing Technology Industrial Park, Fengxin Road, Guangming District
Test specification:	
Standard.....:	FCC CFR Title 47 Part 15 Subpart C Section 15.247 ANSI C63.10:2013 KDB558074 D0115.247 Meas Guidance v 05r02
Test procedure..... :	/
Non-standard test method .....:	N/A
Test Report Form No..... :	TRF-EL-110_V0
Test Report Form(s) Originator..... :	ZKT Testing
Master TRF .....:	Dated: 2020-01-06

This device described above has been tested by ZKT, and the test results show that the equipment under test (EUT) is in compliance with the FCC requirements. And it is applicable only to the tested sample identified in the report.
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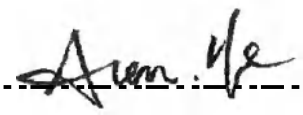
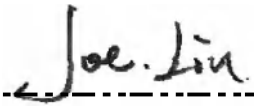
Product name..... :	Tablet
Trademark .....:	kinstone
Model/Type reference..... :	KST102SA_ROW
Ratings..... :	DC 5V/2.4A from adapter

Testing procedure and testing location:

Testing Laboratory.....:	**Shenzhen ZKT Technology Co., Ltd.**
Address.....:	1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China
Tested by (name + signature).....:	Alen He 
Reviewer (name + signature).....:	Joe Liu 
Approved (name + signature).....:	Lake Xie 

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1. VERSION

Report No.	Version	Description	Approved
ZKT-221027L7940-03	Rev.01	Initial issue of report	Oct. 31, 2023

2. SUMMARY OF TEST RESULTS

Test procedures according to the technical standards:

FCC Part15 (15.247) , Subpart C			
Standard Section	Test Item	Result	Remark
FCC part 15.203/15.247 (c)	Antenna requirement	PASS	
FCC part 15.207	AC Power Line Conducted Emission	PASS	
FCC part 15.247 (b)(3)	Conducted Peak Output Power	PASS	
FCC part 15.247 (a)(2)	Channel Bandwidth& 99% OCB	PASS	
FCC part 15.247 (e)	Power Spectral Density	PASS	
FCC part 15.247(d)	Band Edge	PASS	
FCC part 15.205/15.209	Spurious Emission	PASS	

NOTE:

(1)" N/A" denotes test is not applicable in this Test Report

2.1 TEST FACILITY

Shenzhen ZKT Technology Co., Ltd.
Add. : 1/F, No. 101, Building B, No. 6, Tangwei Community Industrial Avenue, Fuhai Street, Bao'an District, Shenzhen, China

FCC Test Firm Registration Number: 692225
Designation Number: CN1299
IC Registered No.: 27033

2.2 MEASUREMENT UNCERTAINTY

The reported uncertainty of measurement y ± U, where expended uncertainty U is based on a standard uncertainty multiplied by a coverage factor of k=2, providing a level of confidence of approximately 95 %。

No.	Item	Uncertainty
1	Conducted Emission Test	±1.38dB
2	RF power conducted	±0.16dB
3	Spurious emissions conducted	±0.21dB
4	All emissions radiated(<1G)	±4.68dB
5	All emissions radiated(>1G)	±4.89dB
6	Temperature	±0.5°C
7	Humidity	±2%

3. GENERAL INFORMATION

3.1 GENERAL DESCRIPTION OF EUT

Product Name:	Tablet
Model No.:	KST102SA_ROW
Serial No.:	N/A
Model difference:	N/A
Hardware Version:	V0.1
Software Version:	V1.0
Sample(s) Status:	Engineer sample
Frequency range:	802.11b/802.11g /802.11n(HT20): 2412MHz -2462MHz 802.11n(HT40): 2422MHz -2452MHz
Channel numbers:	802.11b/802.11g /802.11n(HT20):11 802.11n(HT40):7
Channel separation:	5MHz
Modulation technology:	802.11b: Direct Sequence Spread Spectrum(DSSS) 802.11g/802.11n(H20)/802.11n(HT40): Orthogonal Frequency Division Multiplexing(OFDM)
Antenna Type:	PIFA antenna
Antenna gain:	-1.76 dBi
Power supply:	DC 5V/2.4A from adapter

Operation Frequency each of channel							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
1	2412MHz	4	2427MHz	7	2442MHz	10	2457MHz
2	2417MHz	5	2432MHz	8	2447MHz	11	2462MHz
3	2422MHz	6	2437MHz	9	2452MHz		

Note:
In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	**Frequency (MHz)**
	802.11b/802.11g /802.11n(HT20)
Lowest channel	2412MHz
Middle channel	2437MHz
Highest channel	2462MHz

Test channel	**Frequency (MHz)**

	802.11n(HT40)
Lowest channel	2422MHz
Middle channel	2437MHz
Highest channel	2452MHz

Worst Case Configuration

Description	MIMO (802.11N-HT20)
Antenna	MIMO
Channel	1
Data Rate (Mbps)	MCS7

3.2 DESCRIPTION OF TEST MODES

Transmitting mode	Keep the EUT in continuously transmitting mode
Remark: During the test, the duty cycle >98%, the test voltage was tuned from 85% to 115% of the nominal rated supply voltage, and found that the worst case was under the nominal rated supply condition. So the report just shows that condition's data.	

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, which was shown in this test report and defined as follows:

Pre-scan all kind of data rate in lowest channel, and found the follow list which it was worst case.

Mode	802.11b	802.11g	802.11n (HT20)	802.11n (HT40)
Data rate	11Mbps	54Mbps	MCS7	MCS7

Test Software	BT Test Tool 
Power level setup	<10dBm

3.3 BLOCK DIGRAM SHOWING THE CONFIGURATION OF SYSTEM TESTED

Conducted Emission

adapter EUT

Radiated Emission

EUT

Conducted Spurious

EUT

3.4 DESCRIPTION OF SUPPORT UNITS(CONDUCTED MODE)

The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

Item	Equipment	Mfr/Brand	Model/Type No.	Series No.	Note
1	adapter	SHENZHEN FUJIA APPLIANCE CO.,LTD.	FJ-SW126G1501500N	/	SDOC
2					

Item	Shielded Type	Ferrite Core	Length	Note

Note:

(1) The support equipment was authorized by Declaration of Confirmation.

(2) For detachable type I/O cable should be specified the length in cm in『Length』column.

3.5EQUIPMENTS LIST FOR ALL TEST ITEMS

Radiation Test equipment

Item	Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	Spectrum Analyzer (9kHz-26.5GHz)	KEYSIGHT	9020A	MY55370835	Oct. 18, 2022	Oct. 17, 2023
2	Spectrum Analyzer (1GHz-40GHz)	R&S	FSQ	100363	Oct. 17, 2022	Oct. 16, 2023
3	EMI Test Receiver (9kHz-7GHz)	R&S	ESCI7	101169	Oct. 18, 2022	Oct. 17, 2023
4	Bilog Antenna (30MHz-1500MHz)	Schwarzbeck	VULB9168	N/A	Oct. 17, 2022	Oct. 16, 2023
5	Horn Antenna (1GHz-18GHz)	Agilent	AH-118	071145	Oct. 17, 2022	Oct. 16, 2023
6	Loop Antenna	TESEQ	HLA6121	58357	Oct. 17, 2022	Oct. 16, 2023
7	Amplifier (30-1000MHz)	EM Electronics	EM330 Amplifier	060747	Oct. 17, 2022	Oct. 16, 2023
8	Amplifier (1GHz-26.5GHz)	Agilent	8449B	3008A00315	Oct. 18, 2022	Oct. 17, 2023
9	RF cables1 (9kHz-30MHz)	N/A	9kHz-30MHz	N/A	Oct. 18, 2022	Oct. 17, 2023
10	RF cables2 (30MHz-1GHz)	N/A	30MHz-1GHz	N/A	Oct. 18, 2022	Oct. 17, 2023
11	RF cables3 (1GHz-40GHz)	N/A	1GHz-40GHz	N/A	Oct. 18, 2022	Oct. 17, 2023
12	ESG Signal Generator	Agilent	E4421B	N/A	Oct. 18, 2022	Oct. 17, 2023
13	Signal Generator	Agilent	N5182A	N/A	Oct. 22, 2022	Oct. 21, 2023
14	Magnetic Field Probe Tester	Narda	ELT-400	0-0344	Oct. 17, 2022	Oct. 16, 2023
15	MWRF Power Meter Test system	MW	MW100-RPCB	N/A	Oct. 22, 2022	Oct. 21, 2023
16	D.C. Power Supply	LongWei	TPR-6405D	N/A	\	\
17	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	\	\
18	RF Software	MW	MTS8310	V2.0.0.0	\	\
19	Turntable	MF	MF-7802BS	N/A	\	\
20	Antenna tower	MF	MF-7802BS	N/A	\	\

Conduction Test equipment

Item	Kind of Equipment	Manufacturer	Type No.	Serial No.	Last calibration	Calibrated until
1	LISN	R&S	ENV216	101471	Oct. 22, 2022	Oct. 21, 2023
2	LISN	CYBERTEK	EM5040A	E1850400149	Oct. 22, 2022	Oct. 21, 2023
3	Test Cable	N/A	C01	N/A	Oct. 18, 2022	Oct. 17, 2023
4	Test Cable	N/A	C02	N/A	Oct. 18, 2022	Oct. 17, 2023
5	EMI Test Receiver	R&S	ESCI3	101393	Oct. 17, 2022	Oct. 16, 2023
6	EMC Software	Frad	EZ-EMC	Ver.EMC-CON 3A1.1	\	\

4. EMC EMISSION TEST

4.1 CONDUCTED EMISSION MEASUREMENT

Test Requirement:	FCC Part15 C Section 15.207
Test Method:	ANSI C63.10:2013
Test Frequency Range:	150KHz to 30MHz
Receiver setup:	RBW=9KHz, VBW=30KHz, Sweep time=auto

4.1.1 POWER LINE CONDUCTED EMISSION LIMITS

FREQUENCY (MHz)	Limit (dBuV)		Standard
	Quasi-peak	Average	
0.15 -0.5	66 - 56 *	56 - 46 *	FCC
0.50 -5.0	56.00	46.00	FCC
5.0 -30.0	60.00	50.00	FCC

Note:
(1) *Decreases with the logarithm of the frequency.

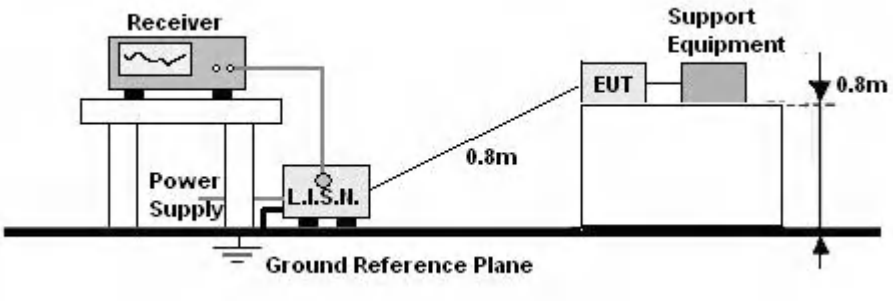
4.1.2 TEST PROCEDURE

1. The equipment was set up as per the test configuration to simulate typical actual usage per the user's manual. The EUT is a tabletop system; a wooden table with a height of 0.8 meters is used and is placed on the ground plane as per ANSI C63.10:2013.
2. Support equipment, if needed, was placed as per ANSI C63.10:2013
3. All I/O cables were positioned to simulate typical actual usage as per ANSI C63.10:2013.
4. The adapter received AC120V/60Hz power through a Line Impedance Stabilization Network (LISN) which supplied power source and was grounded to the ground plane.
5. All support equipments received AC power from a second LISN, if any.
6. The EUT test program was started. Emissions were measured on each current carrying line of the EUT using a spectrum Analyzer / Receiver connected to the LISN powering the EUT. The LISN has two monitoring points: Line 1 (Hot Side) and Line 2 (Neutral Side). Two scans were taken: one with Line 1 connected to Analyzer / Receiver and Line 2 connected to a 50 ohm load; the second scan had Line 1 connected to a 50 ohm load and Line 2 connected to the Analyzer / Receiver.
7. Analyzer / Receiver scanned from 150 KHz to 30MHz for emissions in each of the test modes.e.
8 For the actual test configuration, please refer to the related Item –EUT Test Photos.

4.1.3 DEVIATION FROM TEST STANDARD

No deviation

4.1.4 TEST SETUP



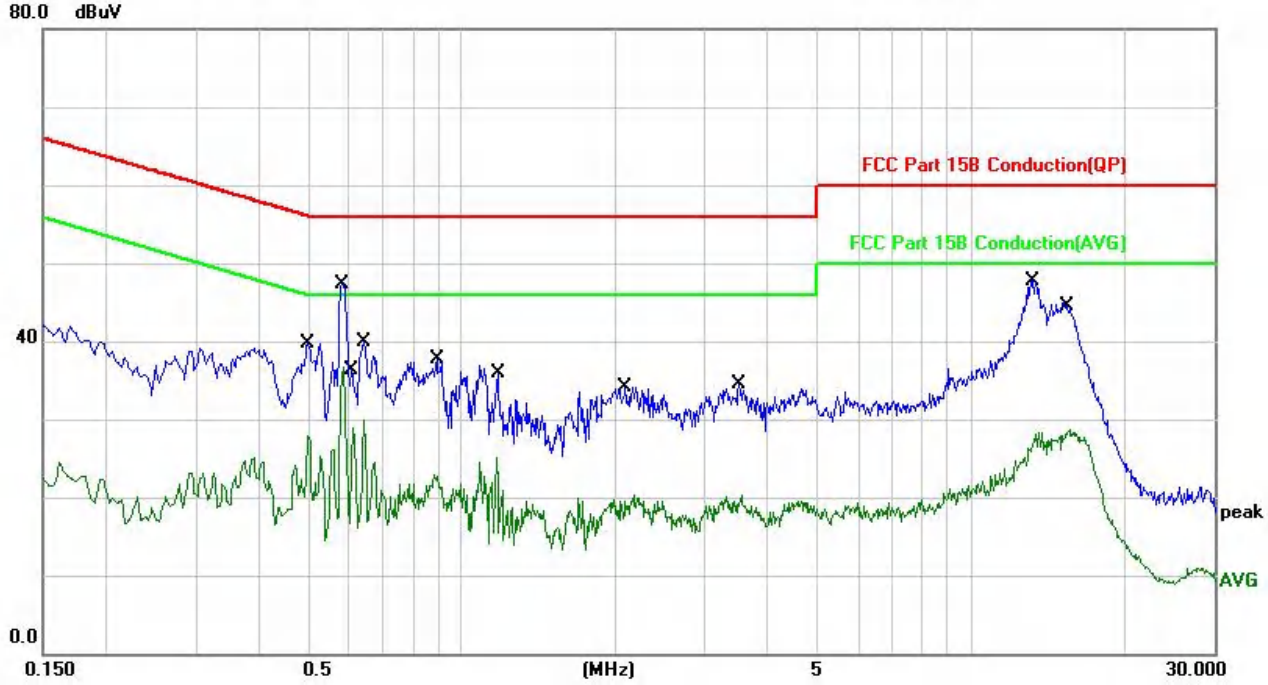
4.1.5 EUT OPERATING CONDITIONS

The EUT was configured for testing in a typical fashion (as a customer would normally use it). The EUT has been programmed to continuously transmit during test. This operating condition was tested and used to collect the included data.

We pretest AC 120V and AC 240V, the worst voltage was AC 120V and the data recording in the report.

4.1.6 TEST RESULT

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase	L
Test Voltage ：	AC 120V/60Hz		

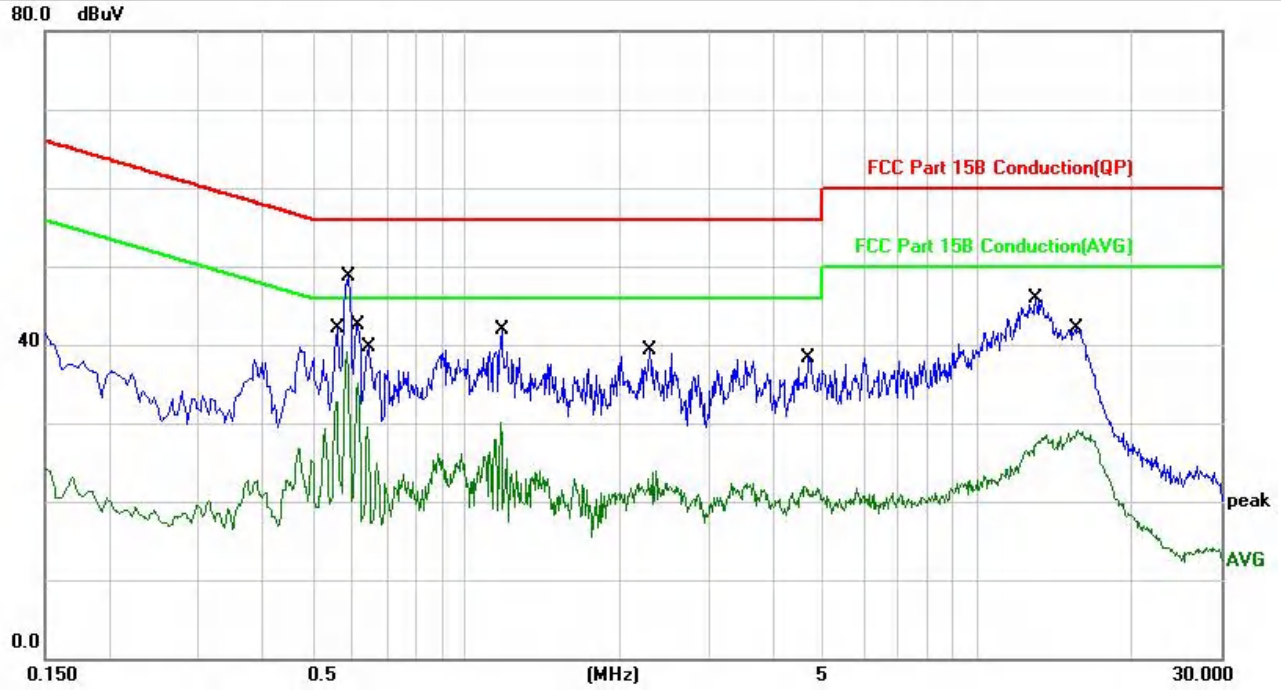


No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.4980	18.12	9.85	27.97	46.03	-18.06	AVG	
2	*	0.5820	37.54	9.84	47.38	56.00	-8.62	QP	
3		0.5860	26.79	9.84	36.63	46.00	-9.37	AVG	
4		0.6100	19.08	9.84	28.92	46.00	-17.08	AVG	
5		0.6419	19.99	9.83	29.82	46.00	-16.18	AVG	
6		0.8940	28.01	9.78	37.79	56.00	-18.21	QP	
7		1.1700	15.31	9.73	25.04	46.00	-20.96	AVG	
8		2.0900	24.51	9.64	34.15	56.00	-21.85	QP	
9		3.5060	24.74	9.69	34.43	56.00	-21.57	QP	
10		13.1980	38.04	9.75	47.79	60.00	-12.21	QP	
11		15.4060	34.82	9.65	44.47	60.00	-15.53	QP	
12		15.6020	19.06	9.64	28.70	50.00	-21.30	AVG	

*:Maximum data x:Over limit !:over margin

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor

Temperature：	26℃	Relative Humidity：	54%
Pressure：	101kPa	Phase：	N
Test Voltage ：	AC 120V/60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		
		MHz	dBuV	dB	dBuV	dBuV	dB	Detector	Comment
1		0.5580	22.91	9.84	32.75	46.00	-13.25	AVG	
2	*	0.5860	29.16	9.84	39.00	46.00	-7.00	AVG	
3		0.5899	38.95	9.84	48.79	56.00	-7.21	QP	
4		0.6140	25.26	9.84	35.10	46.00	-10.90	AVG	
5		0.6419	19.77	9.83	29.60	46.00	-16.40	AVG	
6		1.1700	20.28	9.73	30.01	46.00	-15.99	AVG	
7		1.1740	32.11	9.73	41.84	56.00	-14.16	QP	
8		2.2860	29.76	9.63	39.39	56.00	-16.61	QP	
9		4.6700	28.72	9.67	38.39	56.00	-17.61	QP	
10		13.0180	36.12	9.76	45.88	60.00	-14.12	QP	
11		15.6500	32.46	9.64	42.10	60.00	-17.90	QP	
12		15.7460	19.50	9.64	29.14	50.00	-20.86	AVG	

*:Maximum data x:Over limit !:over margin

Notes:
1.An initial pre-scan was performed on the line and neutral lines with peak detector.
2.Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3.Mesurement Level = Reading level + Correct Factor

4.2 RADIATED EMISSION MEASUREMENT

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10:2013</td></tr>
<tr><td>Test Frequency Range:</td><td>9kHz to 25GHz</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Value</th></tr>
<tr><td>9KHz-150KHz</td><td>Quasi-peak</td><td>200Hz</td><td>600Hz</td><td>Quasi-peak</td></tr>
<tr><td>150KHz-30MHz</td><td>Quasi-peak</td><td>9KHz</td><td>30KHz</td><td>Quasi-peak</td></tr>
<tr><td>30MHz-1GHz</td><td>Quasi-peak</td><td>120KHz</td><td>300KHz</td><td>Quasi-peak</td></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr>
<tr><td>Peak</td><td>1MHz</td><td>10Hz</td><td>Average</td></tr>
</table>
</td></tr>
</table>

4.2.1 RADIATED EMISSION LIMITS

Frequencies (MHz)	Field Strength (micorvolts/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

LIMITS OF RADIATED EMISSION MEASUREMENT

FREQUENCY (MHz)	Limit (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

4.2.2 TEST PROCEDURE

Below 1GHz test procedure as below:

a. The EUT was placed on the top of a rotating table 0.1 meters above the ground at a 3 meter semi-anechoiccamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of avariable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum valueof the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned toheights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could bestopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reportedin a data sheet.

Above 1GHz test procedure as below:

g. Different between above is the test site, change from Semi- Anechoic Chamber to fully Anechoic Chamber andchange form table 0.8 metre to 1.5 metre(Above 18GHz the distance is 1 meter and table is 1.5 metre).
h. Test the EUT in the lowest channel ,the middle channel ,the Highest channel

Note:

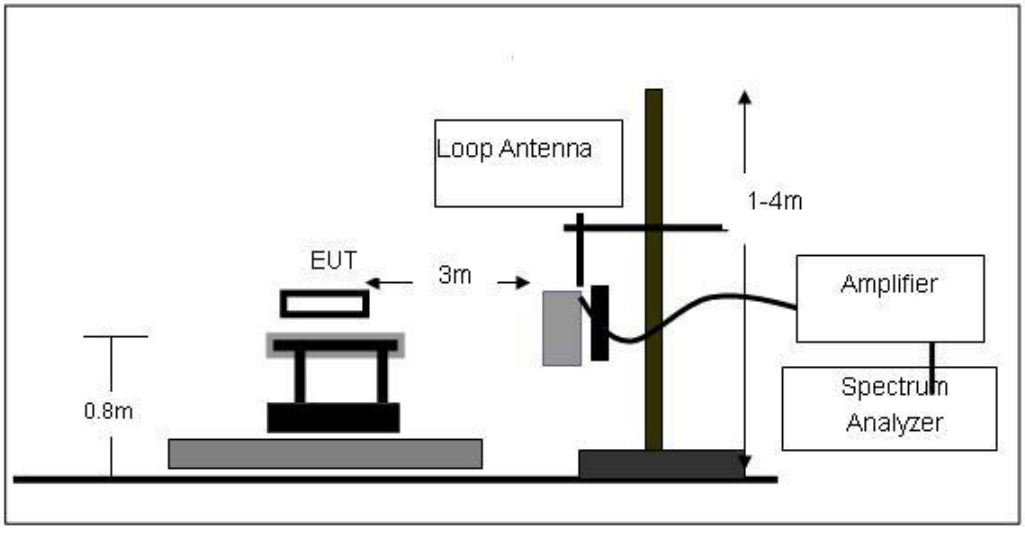
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

4.2.3 DEVIATION FROM TEST STANDARD

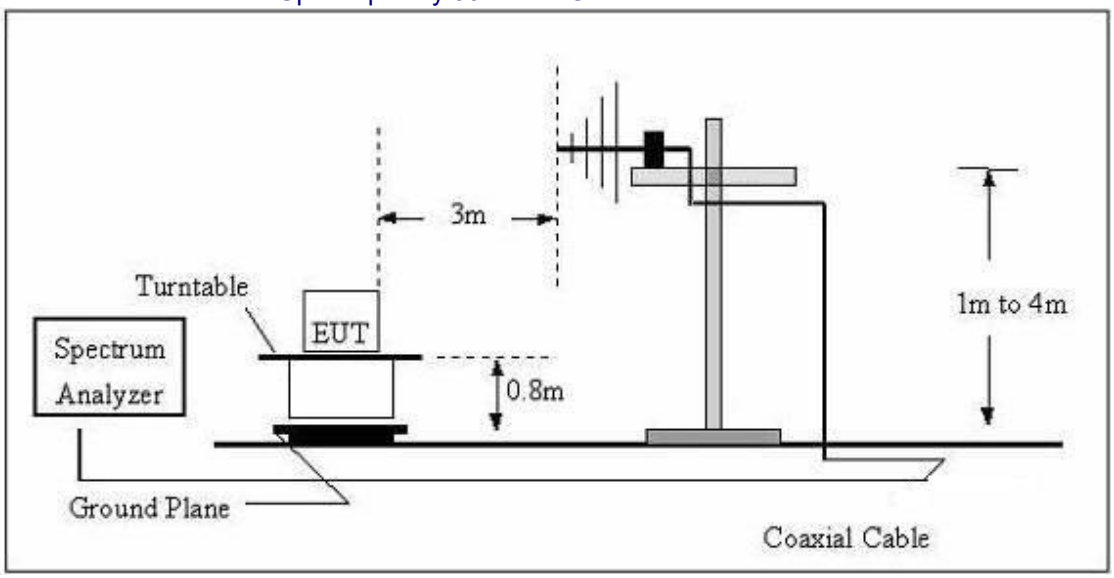
No deviation

4.2.4 TEST SETUP

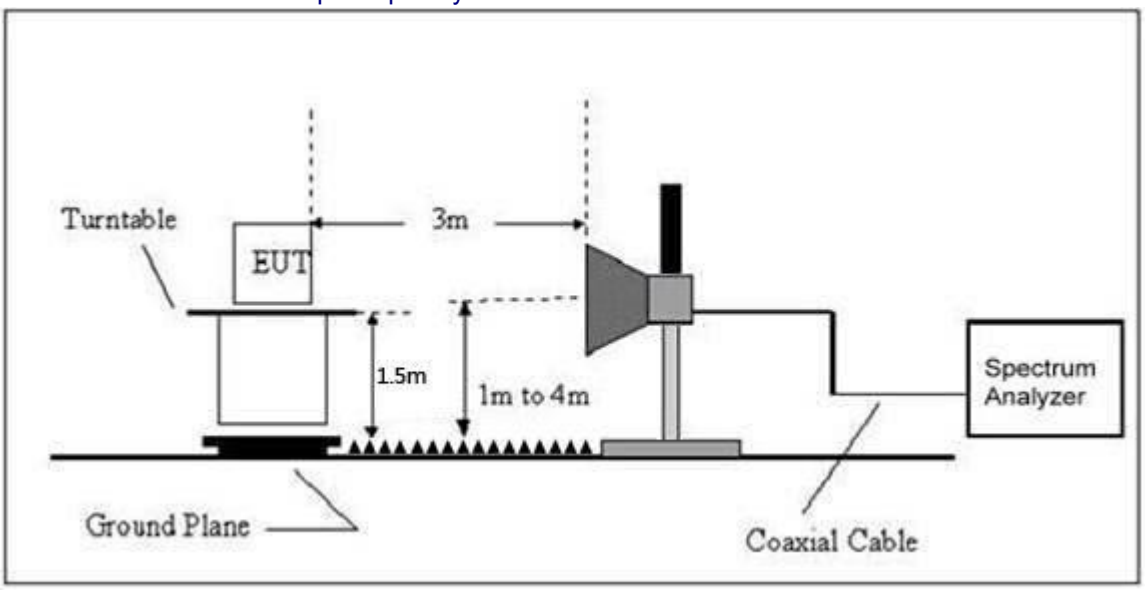
（A）Radiated Emission Test-Up Frequency Below 30MHz



（B）Radiated Emission Test-Up Frequency 30MHz~1GHz



（C）Radiated Emission Test-Up Frequency Above 1GHz



4.2.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

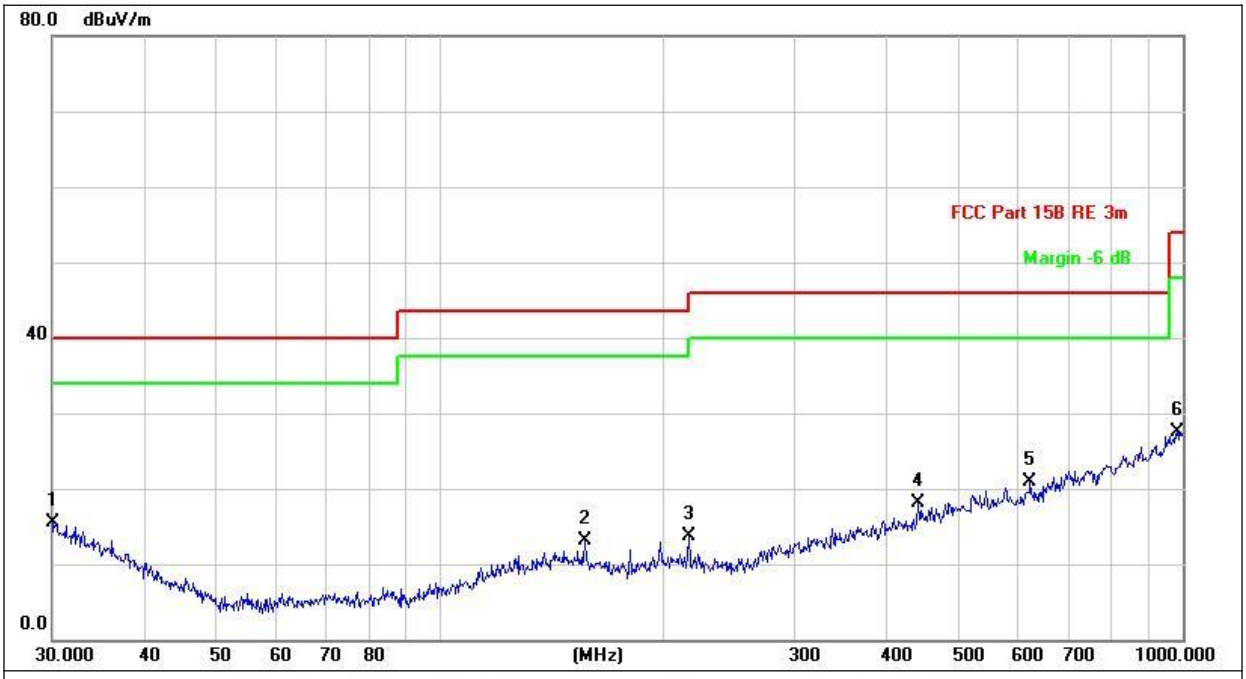
4.2.6 TEST RESULTS

Between 9KHz – 30MHz

The emission from 9 kHz to 30MHz was pre-tested and found the result was 20dB lower than the limit, and according to 15.31(o) & RSS-Gen 6.13, the test result no need to reported.

Between 30MHz – 1GHz

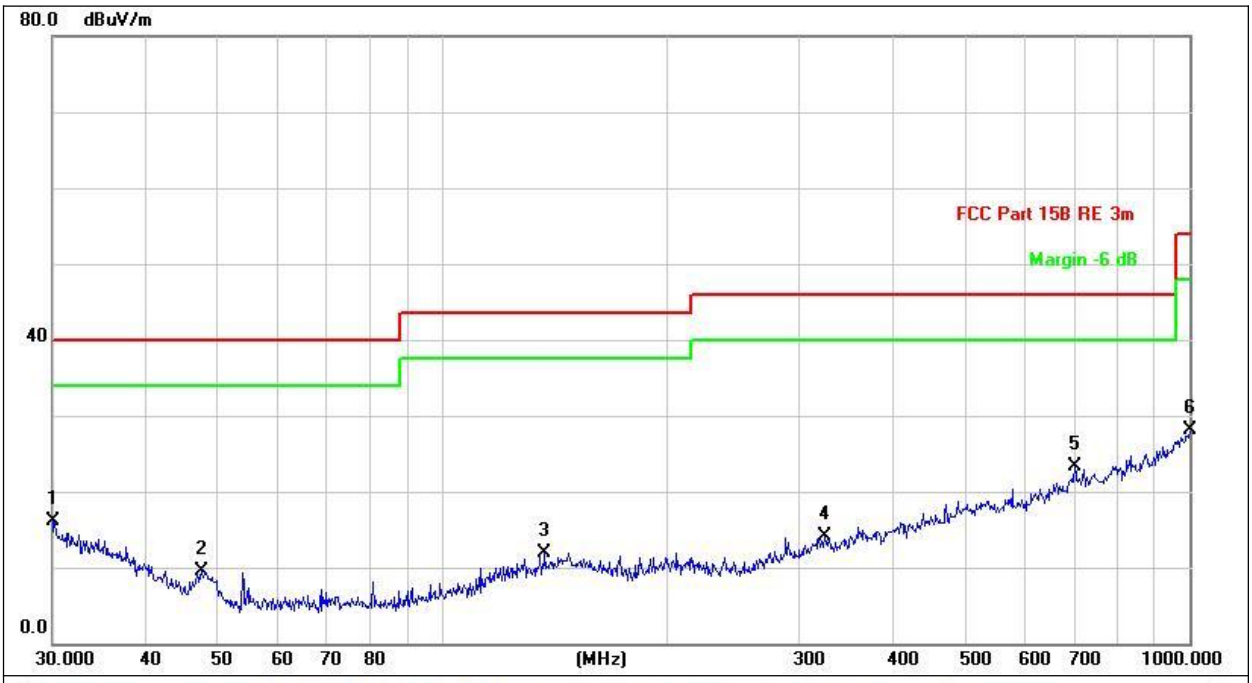
Temperature:	26℃	Relative Humidity:	54%
Pressure:	101 kPa	Polarization:	Horizontal
Test Voltage:	AC 120V/60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1	*	30.1054	20.12	-4.65	15.47	40.00	-24.53	QP	100	0	
2		156.4578	22.88	-9.81	13.07	43.50	-30.43	QP	100	0	
3		216.0240	23.89	-10.24	13.65	46.00	-32.35	QP	100	0	
4		440.1963	22.86	-4.73	18.13	46.00	-27.87	QP	100	0	
5		622.8900	22.49	-1.57	20.92	46.00	-25.08	QP	100	0	
6		982.6200	21.79	5.77	27.56	54.00	-26.44	QP	100	0	

*:Maximum data x:Over limit !:over margin

Temperature:	26℃	Relative Humidity:	54%
Pressure:	101kPa	Polarization:	Vertical
Test Voltage:	AC 120V/60Hz		



No.	Mk.	Freq.	Reading Level	Correct Factor	Measure-ment	Limit	Over		Antenna Height	Table Degree	
		MHz	dBuV	dB/m	dBuV/m	dBuV/m	dB	Detector	cm	degree	Comment
1		30.1054	20.79	-4.65	16.14	40.00	-23.86	QP	100	360	
2		47.4918	23.74	-14.18	9.56	40.00	-30.44	QP	100	360	
3		136.9391	21.91	-10.01	11.90	43.50	-31.60	QP	100	360	
4		324.4561	21.66	-7.49	14.17	46.00	-31.83	QP	100	360	
5	*	701.7610	22.99	0.36	23.35	46.00	-22.65	QP	100	360	
6		1000.0000	21.83	6.26	28.09	54.00	-25.91	QP	100	360	

*:Maximum data x:Over limit !:over margin

Remarks:
1.Final Level =Receiver Read level + Antenna Factor + Cable Loss – Preamplifier Factor
2.The emission levels of other frequencies are very lower than the limit and not show in test report.
3.The test data shows only the worst case- MIMO (802.11N-HT20 low channel)

1GHz~25GHz

802.11b-ANT1

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4824	46.55	30.55	5.77	24.66	46.43	74.00	-27.57	PK
V	4824	37.57	30.55	5.77	24.66	37.45	54.00	-16.55	AV
V	7236	46.96	30.33	6.32	24.55	47.50	74.00	-26.50	PK
V	7236	34.88	30.33	6.32	24.55	35.42	54.00	-18.58	AV
V	9648	44.98	30.85	7.45	24.69	46.27	74.00	-27.73	PK
V	9648	35.14	30.85	7.45	24.69	36.43	54.00	-17.57	AV
H	4824	46.69	30.55	5.77	24.66	46.57	74.00	-27.43	PK
H	4824	36.13	30.55	5.77	24.66	36.01	54.00	-17.99	AV
H	7236	45.79	30.33	6.32	24.55	46.33	74.00	-27.67	PK
H	7236	34.47	30.33	6.32	24.55	35.01	54.00	-18.99	AV
H	9648	47.45	30.85	7.45	24.69	48.74	74.00	-25.26	PK
H	9648	32.59	30.85	7.45	24.69	33.88	54.00	-20.12	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874	48.58	30.55	5.77	24.66	48.46	74.00	-25.54	PK
V	4874	36.57	30.55	5.77	24.66	36.45	54.00	-17.55	AV
V	7311	46.69	30.33	6.32	24.55	47.23	74.00	-26.77	PK
V	7311	34.27	30.33	6.32	24.55	34.81	54.00	-19.19	AV
V	9748	45.00	30.85	7.45	24.69	46.29	74.00	-27.71	PK
V	9748	32.55	30.85	7.45	24.69	33.84	54.00	-20.16	AV
H	4874	46.59	30.55	5.77	24.66	46.47	74.00	-27.53	PK
H	4874	37.47	30.55	5.77	24.66	37.35	54.00	-16.65	AV
H	7311	47.23	30.33	6.32	24.55	47.77	74.00	-26.23	PK
H	7311	33.17	30.33	6.32	24.55	33.71	54.00	-20.29	AV
H	9748	47.40	30.85	7.45	24.69	48.69	74.00	-25.31	PK
H	9748	32.46	30.85	7.45	24.69	33.75	54.00	-20.25	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924	48.24	30.55	5.77	24.66	48.12	74.00	-25.88	PK
V	4924	37.63	30.55	5.77	24.66	37.51	54.00	-16.49	AV
V	7386	45.91	30.33	6.32	24.55	46.45	74.00	-27.55	PK
V	7386	34.31	30.33	6.32	24.55	34.85	54.00	-19.15	AV
V	9848	45.44	30.85	7.45	24.69	46.73	74.00	-27.27	PK
V	9848	33.00	30.85	7.45	24.69	34.29	54.00	-19.71	AV
H	4924	48.55	30.55	5.77	24.66	48.43	74.00	-25.57	PK
H	4924	38.11	30.55	5.77	24.66	37.99	54.00	-16.01	AV
H	7386	47.63	30.33	6.32	24.55	48.17	74.00	-25.83	PK
H	7386	35.08	30.33	6.32	24.55	35.62	54.00	-18.38	AV
H	9848	47.05	30.85	7.45	24.69	48.34	74.00	-25.66	PK
H	9848	33.74	30.85	7.45	24.69	35.03	54.00	-18.97	AV

802.11g-ANT1

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4824	47.20	30.55	5.77	24.66	47.08	74.00	-26.92	PK
V	4824	36.41	30.55	5.77	24.66	36.29	54.00	-17.71	AV
V	7236	46.03	30.33	6.32	24.55	46.57	74.00	-27.43	PK
V	7236	34.91	30.33	6.32	24.55	35.45	54.00	-18.55	AV
V	9648	45.91	30.85	7.45	24.69	47.20	74.00	-26.80	PK
V	9648	34.65	30.85	7.45	24.69	35.94	54.00	-18.06	AV
H	4824	46.27	30.55	5.77	24.66	46.15	74.00	-27.85	PK
H	4824	37.42	30.55	5.77	24.66	37.30	54.00	-16.70	AV
H	7236	46.27	30.33	6.32	24.55	46.81	74.00	-27.19	PK
H	7236	32.88	30.33	6.32	24.55	33.42	54.00	-20.58	AV
H	9648	45.68	30.85	7.45	24.69	46.97	74.00	-27.03	PK
H	9648	34.89	30.85	7.45	24.69	36.18	54.00	-17.82	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874	48.75	30.55	5.77	24.66	48.63	74.00	-25.37	PK
V	4874	35.73	30.55	5.77	24.66	35.61	54.00	-18.39	AV
V	7311	46.75	30.33	6.32	24.55	47.29	74.00	-26.71	PK
V	7311	32.91	30.33	6.32	24.55	33.45	54.00	-20.55	AV
V	9748	46.52	30.85	7.45	24.69	47.81	74.00	-26.19	PK
V	9748	34.03	30.85	7.45	24.69	35.32	54.00	-18.68	AV
H	4874	47.24	30.55	5.77	24.66	47.12	74.00	-26.88	PK
H	4874	35.70	30.55	5.77	24.66	35.58	54.00	-18.42	AV
H	7311	46.29	30.33	6.32	24.55	46.83	74.00	-27.17	PK
H	7311	34.41	30.33	6.32	24.55	34.95	54.00	-19.05	AV
H	9748	46.82	30.85	7.45	24.69	48.11	74.00	-25.89	PK
H	9748	32.88	30.85	7.45	24.69	34.17	54.00	-19.83	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924	46.36	30.55	5.77	24.66	46.24	74.00	-27.76	PK
V	4924	37.05	30.55	5.77	24.66	36.93	54.00	-17.07	AV
V	7386	47.12	30.33	6.32	24.55	47.66	74.00	-26.34	PK
V	7386	35.52	30.33	6.32	24.55	36.06	54.00	-17.94	AV
V	9848	47.04	30.85	7.45	24.69	48.33	74.00	-25.67	PK
V	9848	35.16	30.85	7.45	24.69	36.45	54.00	-17.55	AV
H	4924	46.44	30.55	5.77	24.66	46.32	74.00	-27.68	PK
H	4924	38.22	30.55	5.77	24.66	38.10	54.00	-15.90	AV
H	7386	47.27	30.33	6.32	24.55	47.81	74.00	-26.19	PK
H	7386	35.31	30.33	6.32	24.55	35.85	54.00	-18.15	AV
H	9848	47.62	30.85	7.45	24.69	48.91	74.00	-25.09	PK
H	9848	34.13	30.85	7.45	24.69	35.42	54.00	-18.58	AV

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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2412MHz									
V	4824	45.84	30.55	5.77	24.66	45.72	74.00	-28.28	PK
V	4824	36.26	30.55	5.77	24.66	36.14	54.00	-17.86	AV
V	7236	47.11	30.33	6.32	24.55	47.65	74.00	-26.35	PK
V	7236	34.95	30.33	6.32	24.55	35.49	54.00	-18.51	AV
V	9648	45.13	30.85	7.45	24.69	46.42	74.00	-27.58	PK
V	9648	32.97	30.85	7.45	24.69	34.26	54.00	-19.74	AV
H	4824	46.96	30.55	5.77	24.66	46.84	74.00	-27.16	PK
H	4824	37.91	30.55	5.77	24.66	37.79	54.00	-16.21	AV
H	7236	46.43	30.33	6.32	24.55	46.97	74.00	-27.03	PK
H	7236	33.58	30.33	6.32	24.55	34.12	54.00	-19.88	AV
H	9648	45.06	30.85	7.45	24.69	46.35	74.00	-27.65	PK
H	9648	33.89	30.85	7.45	24.69	35.18	54.00	-18.82	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874	47.62	30.55	5.77	24.66	47.50	74.00	-26.50	PK
V	4874	35.68	30.55	5.77	24.66	35.56	54.00	-18.44	AV
V	7311	46.77	30.33	6.32	24.55	47.31	74.00	-26.69	PK
V	7311	33.02	30.33	6.32	24.55	33.56	54.00	-20.44	AV
V	9748	47.20	30.85	7.45	24.69	48.49	74.00	-25.51	PK
V	9748	32.99	30.85	7.45	24.69	34.28	54.00	-19.72	AV
H	4874	46.55	30.55	5.77	24.66	46.43	74.00	-27.57	PK
H	4874	36.42	30.55	5.77	24.66	36.30	54.00	-17.70	AV
H	7311	47.23	30.33	6.32	24.55	47.77	74.00	-26.23	PK
H	7311	32.84	30.33	6.32	24.55	33.38	54.00	-20.62	AV
H	9748	45.37	30.85	7.45	24.69	46.66	74.00	-27.34	PK
H	9748	33.77	30.85	7.45	24.69	35.06	54.00	-18.94	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2462MHz									
V	4924	45.86	30.55	5.77	24.66	45.74	74.00	-28.26	PK
V	4924	35.24	30.55	5.77	24.66	35.12	54.00	-18.88	AV
V	7386	46.21	30.33	6.32	24.55	46.75	74.00	-27.25	PK
V	7386	33.75	30.33	6.32	24.55	34.29	54.00	-19.71	AV
V	9848	47.51	30.85	7.45	24.69	48.80	74.00	-25.20	PK
V	9848	32.83	30.85	7.45	24.69	34.12	54.00	-19.88	AV
H	4924	45.79	30.55	5.77	24.66	45.67	74.00	-28.33	PK
H	4924	36.51	30.55	5.77	24.66	36.39	54.00	-17.61	AV
H	7386	45.81	30.33	6.32	24.55	46.35	74.00	-27.65	PK
H	7386	33.40	30.33	6.32	24.55	33.94	54.00	-20.06	AV
H	9848	45.43	30.85	7.45	24.69	46.72	74.00	-27.28	PK
H	9848	32.95	30.85	7.45	24.69	34.24	54.00	-19.76	AV

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Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Low Channel:2422MHz									
V	4844	45.86	30.55	5.77	24.66	45.74	74.00	-28.26	PK
V	4844	35.24	30.55	5.77	24.66	35.12	54.00	-18.88	AV
V	7266	46.21	30.33	6.32	24.55	46.75	74.00	-27.25	PK
V	7266	33.75	30.33	6.32	24.55	34.29	54.00	-19.71	AV
V	9688	47.51	30.85	7.45	24.69	48.80	74.00	-25.20	PK
V	9688	32.83	30.85	7.45	24.69	34.12	54.00	-19.88	AV
H	4844	45.79	30.55	5.77	24.66	45.67	74.00	-28.33	PK
H	4844	36.51	30.55	5.77	24.66	36.39	54.00	-17.61	AV
H	7266	45.81	30.33	6.32	24.55	46.35	74.00	-27.65	PK
H	7266	33.40	30.33	6.32	24.55	33.94	54.00	-20.06	AV
H	9688	45.43	30.85	7.45	24.69	46.72	74.00	-27.28	PK
H	9688	32.95	30.85	7.45	24.69	34.24	54.00	-19.76	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
Middle Channel:2437MHz									
V	4874	47.98	30.55	5.77	24.66	47.86	74.00	-26.14	PK
V	4874	37.93	30.55	5.77	24.66	37.81	54.00	-16.19	AV
V	7311	46.72	30.33	6.32	24.55	47.26	74.00	-26.74	PK
V	7311	34.23	30.33	6.32	24.55	34.77	54.00	-19.23	AV
V	9748	45.93	30.85	7.45	24.69	47.22	74.00	-26.78	PK
V	9748	34.35	30.85	7.45	24.69	35.64	54.00	-18.36	AV
H	4874	48.50	30.55	5.77	24.66	48.38	74.00	-25.62	PK
H	4874	35.23	30.55	5.77	24.66	35.11	54.00	-18.89	AV
H	7311	46.92	30.33	6.32	24.55	47.46	74.00	-26.54	PK
H	7311	33.33	30.33	6.32	24.55	33.87	54.00	-20.13	AV
H	9748	46.60	30.85	7.45	24.69	47.89	74.00	-26.11	PK
H	9748	33.61	30.85	7.45	24.69	34.90	54.00	-19.10	AV

Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB)	Emission Level (dBuV/m)	Limits (dBuV/m)	Margin (dB)	Detector Type
High Channel:2452MHz									
V	4904	48.23	30.55	5.77	24.66	48.11	74.00	-25.89	PK
V	4904	35.70	30.55	5.77	24.66	35.58	54.00	-18.42	AV
V	7356	46.21	30.33	6.32	24.55	46.75	74.00	-27.25	PK
V	7356	35.63	30.33	6.32	24.55	36.17	54.00	-17.83	AV
V	9808	46.14	30.85	7.45	24.69	47.43	74.00	-26.57	PK
V	9808	33.33	30.85	7.45	24.69	34.62	54.00	-19.38	AV
H	4904	46.34	30.55	5.77	24.66	46.22	74.00	-27.78	PK
H	4904	37.93	30.55	5.77	24.66	37.81	54.00	-16.19	AV
H	7356	47.26	30.33	6.32	24.55	47.80	74.00	-26.20	PK
H	7356	35.57	30.33	6.32	24.55	36.11	54.00	-17.89	AV
H	9808	47.45	30.85	7.45	24.69	48.74	74.00	-25.26	PK
H	9808	33.41	30.85	7.45	24.69	34.70	54.00	-19.30	AV

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier,
Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

5.RADIATED BAND EMISSIONMEASUREMENT

5.1 TEST REQUIREMENT:

<table>
<tr><td>Test Requirement:</td><td>FCC Part15 C Section 15.209 and 15.205</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10: 2013</td></tr>
<tr><td>Test Frequency Range:</td><td>All of the restrict bands were tested, only the worst band’s (2310MHz to 2500MHz) data was showed.</td></tr>
<tr><td>Test site:</td><td>Measurement Distance: 3m</td></tr>
<tr><td>Receiver setup:</td><td>
<table>
<tr><th>Frequency</th><th>Detector</th><th>RBW</th><th>VBW</th><th>Value</th></tr>
<tr><td rowspan="2">Above 1GHz</td><td>Peak</td><td>1MHz</td><td>3MHz</td><td>Peak</td></tr>
<tr><td>Average</td><td>1MHz</td><td>3MHz</td><td>Average</td></tr>
</table>
</td></tr>
</table>

LIMITS OF RADIATED EMISSION MEASUREMENT (Above 1000MHz)

FREQUENCY (MHz)	Class B (dBuV/m) (at 3M)	
	PEAK	AVERAGE
Above 1000	74	54

Notes:

(1) The limit for radiated test was performed according to FCC PART 15C.

(2) The tighter limit applies at the band edges.

(3) Emission level (dBuV/m)=20log Emission level (uV/m).

5.2 TEST PROCEDURE

Above 1GHz test procedure as below:

a. 1. The EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter camber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rota table was turned from 0 degrees to 360 degrees to find the maximum reading.

e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could bestopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dBmargin would be re-tested one by one using peak, quasi-peak or average method as specified and then reportedin a data sheet.

g. Test the EUT in the lowest channel,the Highest channel

Note:

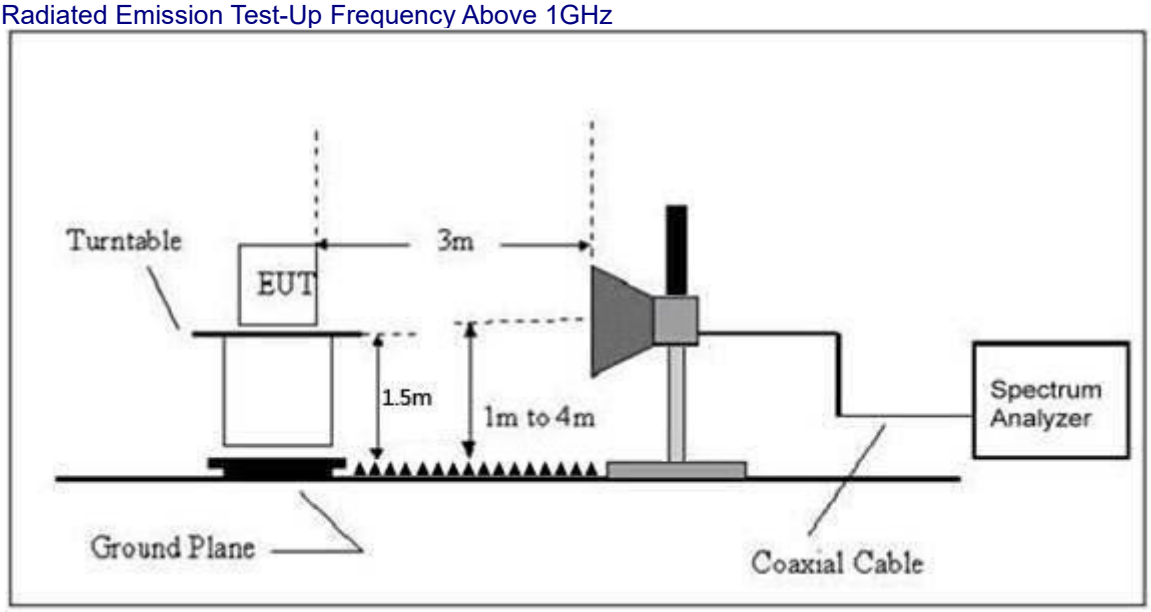
Both horizontal and vertical antenna polarities were tested
and performed pretest to three orthogonal axis. The worst case emissions were reported

5.3 DEVIATION FROM TEST STANDARD

No deviation

5.4 TEST SETUP

Radiated Emission Test-Up Frequency Above 1GHz



5.5 EUT OPERATING CONDITIONS

The EUT tested system was configured as the statements of 2.3 Unless otherwise a special operating condition is specified in the follows during the testing.

5.6 TEST RESULT

ANT1

	Polar (H/V)	Frequency (MHz)	Meter Reading (dBuV)	Pre-amplifier (dB)	Cable Loss (dB)	Antenna Factor (dB/m)	Emission level (dBuV/m)	Limit (dBuV/m)	Detector Type	Result
802.11b	Low Channel 2412MHz									
	H	2390.00	54.06	30.22	4.85	23.98	52.67	74	PK	PASS
	H	2390.00	38.45	30.22	4.85	23.98	37.06	54	AV	PASS
	H	2400.00	52.50	30.22	4.85	23.98	51.11	74	PK	PASS
	H	2400.00	40.36	30.22	4.85	23.98	38.97	54	AV	PASS
	V	2390.00	51.61	30.22	4.85	23.98	50.22	74	PK	PASS
	V	2390.00	40.61	30.22	4.85	23.98	39.22	54	AV	PASS
	V	2400.00	51.59	30.22	4.85	23.98	50.20	74	PK	PASS
	V	2400.00	39.66	30.22	4.85	23.98	38.27	54	AV	PASS
	High Channel 2462MHz									
	H	2483.50	49.48	30.22	4.85	23.98	48.09	74	PK	PASS
	H	2485.50	35.53	30.22	4.85	23.98	34.14	54	AV	PASS
	H	2500.00	48.75	30.22	4.85	23.98	47.36	74	PK	PASS
	H	2500.00	36.35	30.22	4.85	23.98	34.96	54	AV	PASS
	V	2483.50	54.62	30.22	4.85	23.98	53.23	74	PK	PASS
	V	2485.50	41.80	30.22	4.85	23.98	40.41	54	AV	PASS
	V	2500.00	56.54	30.22	4.85	23.98	55.15	74	PK	PASS
	V	2500.00	40.46	30.22	4.85	23.98	39.07	54	AV	PASS

802.11g	Low Channel 2412MHz									
	H	2390.00	53.80	30.22	4.85	23.98	52.41	74	PK	PASS
	H	2390.00	38.21	30.22	4.85	23.98	36.82	54	AV	PASS
	H	2400.00	52.70	30.22	4.85	23.98	51.31	74	PK	PASS
	H	2400.00	38.67	30.22	4.85	23.98	37.28	54	AV	PASS
	V	2390.00	50.44	30.22	4.85	23.98	49.05	74	PK	PASS
	V	2390.00	42.48	30.22	4.85	23.98	41.09	54	AV	PASS
	V	2400.00	53.05	30.22	4.85	23.98	51.66	74	PK	PASS
	V	2400.00	38.29	30.22	4.85	23.98	36.90	54	AV	PASS
	High Channel 2462MHz									
	H	2483.50	48.72	30.22	4.85	23.98	48.72	74	PK	PASS
	H	2485.50	40.21	30.22	4.85	23.98	40.21	54	AV	PASS
	H	2500.00	49.42	30.22	4.85	23.98	49.42	74	PK	PASS
	H	2500.00	40.64	30.22	4.85	23.98	40.64	54	AV	PASS
	V	2483.50	54.76	30.22	4.85	23.98	54.76	74	PK	PASS
	V	2485.50	41.19	30.22	4.85	23.98	41.19	54	AV	PASS
	V	2500.00	54.06	30.22	4.85	23.98	54.06	74	PK	PASS
	V	2500.00	41.04	30.22	4.85	23.98	41.04	54	AV	PASS

802.11n20	Low Channel 2412MHz									
	H	2390.00	49.69	30.22	4.85	23.98	48.30	74	PK	PASS
	H	2390.00	40.58	30.22	4.85	23.98	39.19	54	AV	PASS
	H	2400.00	53.53	30.22	4.85	23.98	52.14	74	PK	PASS
	H	2400.00	37.26	30.22	4.85	23.98	35.87	54	AV	PASS
	V	2390.00	54.56	30.22	4.85	23.98	53.17	74	PK	PASS
	V	2390.00	44.53	30.22	4.85	23.98	43.14	54	AV	PASS
	V	2400.00	54.95	30.22	4.85	23.98	53.56	74	PK	PASS
	V	2400.00	42.61	30.22	4.85	23.98	41.22	54	AV	PASS
	High Channel 2462MHz									
	H	2483.50	55.39	30.22	4.85	23.98	54.00	74	PK	PASS
	H	2485.50	36.96	30.22	4.85	23.98	35.57	54	AV	PASS
	H	2500.00	52.08	30.22	4.85	23.98	50.69	74	PK	PASS
	H	2500.00	40.08	30.22	4.85	23.98	38.69	54	AV	PASS

	V	2483.50	50.97	30.22	4.85	23.98	49.58	74	PK	PASS
	V	2485.50	41.91	30.22	4.85	23.98	40.52	54	AV	PASS
	V	2500.00	53.29	30.22	4.85	23.98	51.90	74	PK	PASS
	V	2500.00	37.46	30.22	4.85	23.98	36.07	54	AV	PASS
Remark:										
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit										

802.11n40	Low Channel 2422MHz									
	H	2390.00	55.39	30.22	4.85	23.98	54.00	74	PK	PASS
	H	2390.00	38.62	30.22	4.85	23.98	37.23	54	AV	PASS
	H	2400.00	52.72	30.22	4.85	23.98	51.33	74	PK	PASS
	H	2400.00	38.78	30.22	4.85	23.98	37.39	54	AV	PASS
	V	2390.00	51.13	30.22	4.85	23.98	49.74	74	PK	PASS
	V	2390.00	41.87	30.22	4.85	23.98	40.48	54	AV	PASS
	V	2400.00	51.45	30.22	4.85	23.98	50.06	74	PK	PASS
	V	2400.00	38.47	30.22	4.85	23.98	37.08	54	AV	PASS
	High Channel 2452MHz									
	H	2483.50	50.72	30.22	4.85	23.98	49.33	74	PK	PASS
	H	2485.50	36.47	30.22	4.85	23.98	35.08	54	AV	PASS
	H	2500.00	47.95	30.22	4.85	23.98	46.56	74	PK	PASS
	H	2500.00	36.44	30.22	4.85	23.98	35.05	54	AV	PASS
	V	2483.50	56.11	30.22	4.85	23.98	54.72	74	PK	PASS
	V	2485.50	44.43	30.22	4.85	23.98	43.04	54	AV	PASS
	V	2500.00	58.16	30.22	4.85	23.98	56.77	74	PK	PASS
	V	2500.00	43.62	30.22	4.85	23.98	42.23	54	AV	PASS
Remark:										
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit										

Remark:
1. Emission Level = Meter Reading + Antenna Factor + Cable Loss – Pre-amplifier, Margin= Emission Level - Limit
2. If peak below the average limit, the average emission was no test.
3. The amplitude of spurious emissions which are attenuated by more than 20dB below the permissible value has no need to be reported.

6.POWER SPECTRAL DENSITY TEST

Test Requirement:	FCC Part15 C Section 15.247 (e)
Test Method:	KDB558074 D0115.247 Meas Guidance v 05r02

6.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247	Power Spectral Density	8dBm/3kHz	2400-2483.5	PASS

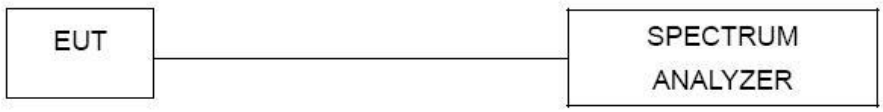
6.2 TEST PROCEDURE

1. Set analyzer center frequency to DTS channel center frequency.
2. Set the span to 1.5 times the DTS bandwidth.
3. Set the RBW to: 3 kHz ≤ RBW ≤ 100 kHz.
4. Set the VBW ≥ 3 x RBW.
5. Detector = peak.
6. Sweep time = auto couple.
7. Trace mode = max hold.
8. Allow trace to fully stabilize.
9. Use the peak marker function to determine the maximum amplitude level within the RBW.
10. If measured value exceeds limit, reduce RBW (no less than 3 kHz) and repeat.

6.3 DEVIATION FROM STANDARD

No deviation.

6.4 TEST SETUP



6.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.1 Unless otherwise a special operating condition is specified in the follows during the testing.

6.6 TEST RESULT

PASS: PLEASE REFER TO APPENDIX: APPENDIX1 FOR DETAILS

7. CHANNEL BANDWIDTH

Test Requirement:	FCC Part15 C Section 15.247 (a)(2)
Test Method:	KDB558074 D0115.247 Meas Guidance v05r02

7.1 APPLIED PROCEDURES / LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(a)(2)	Bandwidth	>= 500KHz (6dB bandwidth)	2400-2483.5	PASS

7.2 TEST PROCEDURE

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) ≥ 3 xRBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

7.3 DEVIATION FROM STANDARD

No deviation.

7.4 TEST SETUP

7.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

7.6 TEST RESULT

PASS: PLEASE REFER TO APPENDIX: APPENDIX1 FOR DETAILS

8. OUTPUT POWER TEST

Test Requirement:	FCC Part15 C Section 15.247 (b)(3)
Test Method:	KDB558074 D0115.247 Meas Guidance v05r02

8.1 APPLIED PROCEDURES/LIMIT

FCC Part15 (15.247) , Subpart C				
Section	Test Item	Limit	Frequency Range (MHz)	Result
15.247(b)(3)	Peak Output Power	1 watt or 30dBm	2400-2483.5	PASS

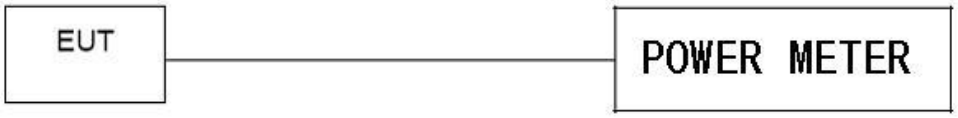
8.2 TEST PROCEDURE

a. The EUT was directly connected to the Power meter

8.3 DEVIATION FROM STANDARD

No deviation.

8.4 TEST SETUP



8.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

8.6 TEST RESULT

PASS: PLEASE REFER TO APPENDIX: APPENDIX1 FOR DETAILS

9. CONDUCTED BAND EDGE AND SPURIOUS EMISSION

Test Requirement:	FCC Part15 C Section 15.247 (d)
Test Method:	KDB558074 D0115.247 Meas Guidance v05r02

9.1 APPLICABLE STANDARD

in any 100 kHz bandwidth outside the frequency bands in which the spread spectrum intentional radiator in 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, In addition, radiated emissions which fall in the restricted bands, as defined in§15.205(a), must also comply with the radiated emission limits specified in15.209(a).

9.2 TEST PROCEDURE

Using the following spectrum analyzer setting:

A) Set the RBW = 100KHz.
B) Set the VBW = 300KHz.
C) Sweep time = auto couple.
D) Detector function = peak.
E) Trace mode = max hold.
F) Allow trace to fully stabilize.

9.3 DEVIATION FROM STANDARD

No deviation.

9.4 TEST SETUP

9.5 EUT OPERATION CONDITIONS

The EUT tested system was configured as the statements of 2.4 Unless otherwise a special operating condition is specified in the follows during the testing.

9.6 TEST RESULTS

PASS: PLEASE REFER TO APPENDIX: APPENDIX1 FOR DETAILS

10. ANTENNA REQUIREMENT

Standard requirement:	FCC Part15 C Section 15.203 /247(c)

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, 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.

Refer to statement below for compliance.

The manufacturer may design the unit so that the user can replace a broken antenna, but the use of a standard antenna jack or electrical connector is prohibited. Further, this requirement does not apply to intentional radiators that must be professionally installed.

Antenna Connected Construction

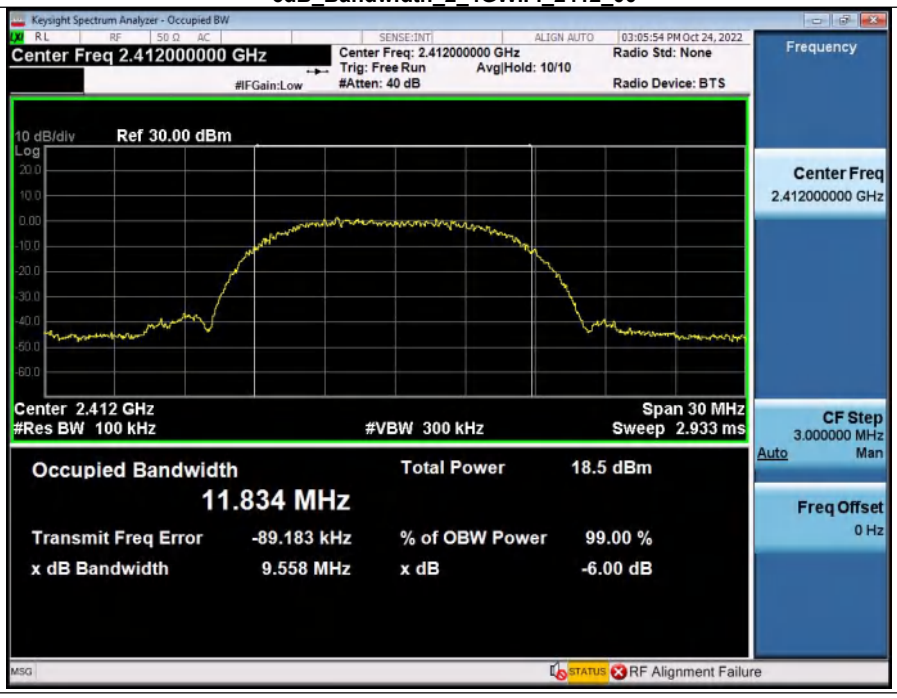
The antenna is PIFA antenna, the best case gain of the antennas are -1.76dBi, reference to the below photo for details ANT for 2.4G WIFI

11. **Appendix1**

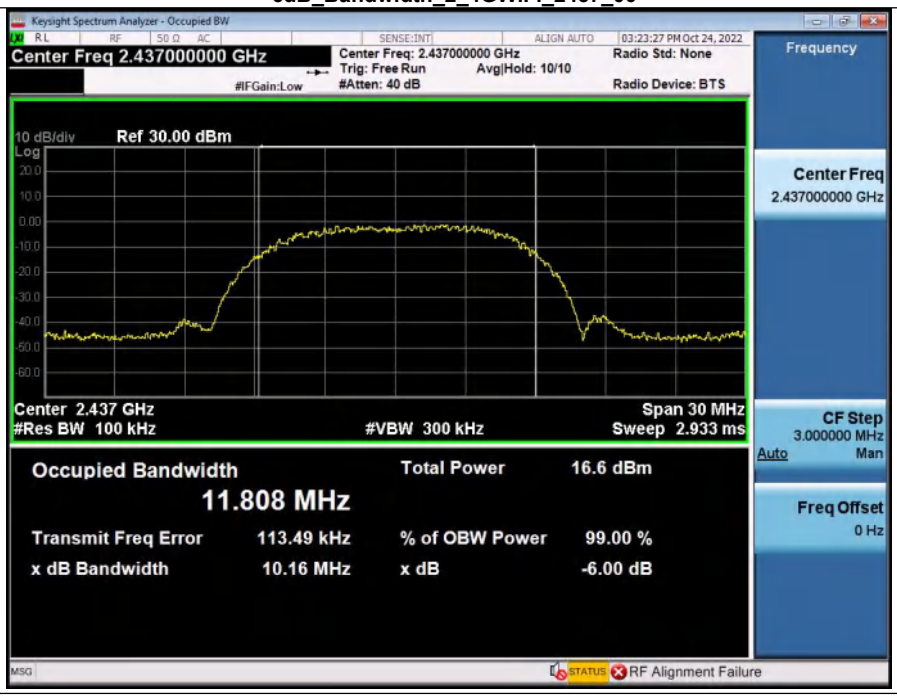
11.1. -6DB BANDWIDTH

Condition	Antenna	Modulation	Frequency (MHz)	-6dB BW(MHz)	limit(kHz)	Result
NVNT	ANT1	802.11b	2412.00	9.558	500	Pass
NVNT	ANT1	802.11b	2437.00	10.16	500	Pass
NVNT	ANT1	802.11b	2462.00	9.806	500	Pass
NVNT	ANT1	802.11g	2412.00	16.45	500	Pass
NVNT	ANT1	802.11g	2437.00	16.33	500	Pass
NVNT	ANT1	802.11g	2462.00	16.10	500	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	17.22	500	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	16.56	500	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	16.48	500	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	35.48	500	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	35.76	500	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	35.27	500	Pass

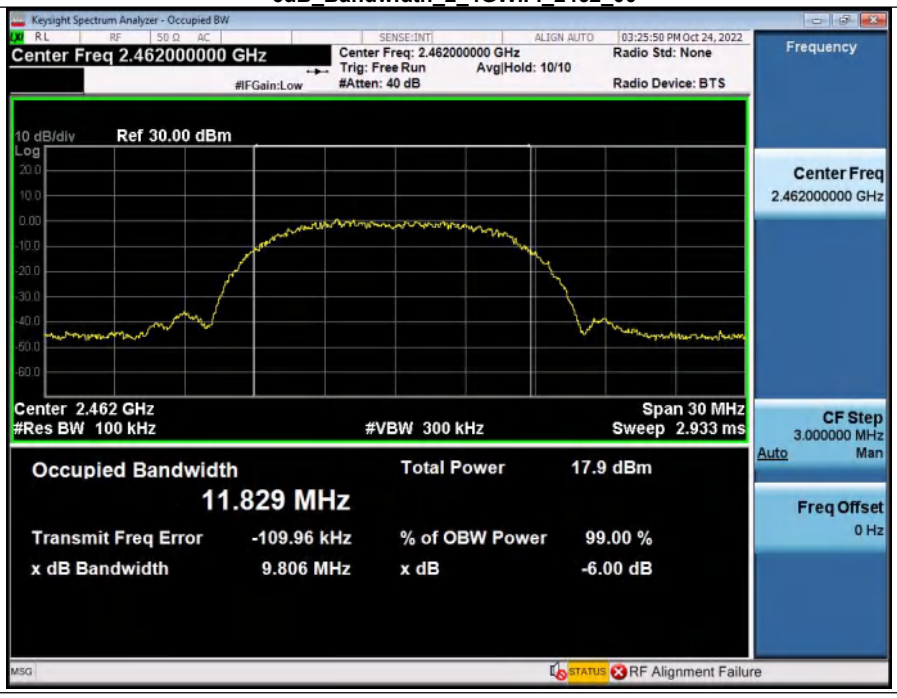
-6dB_Bandwidth_2_4GWiFi_2412_00



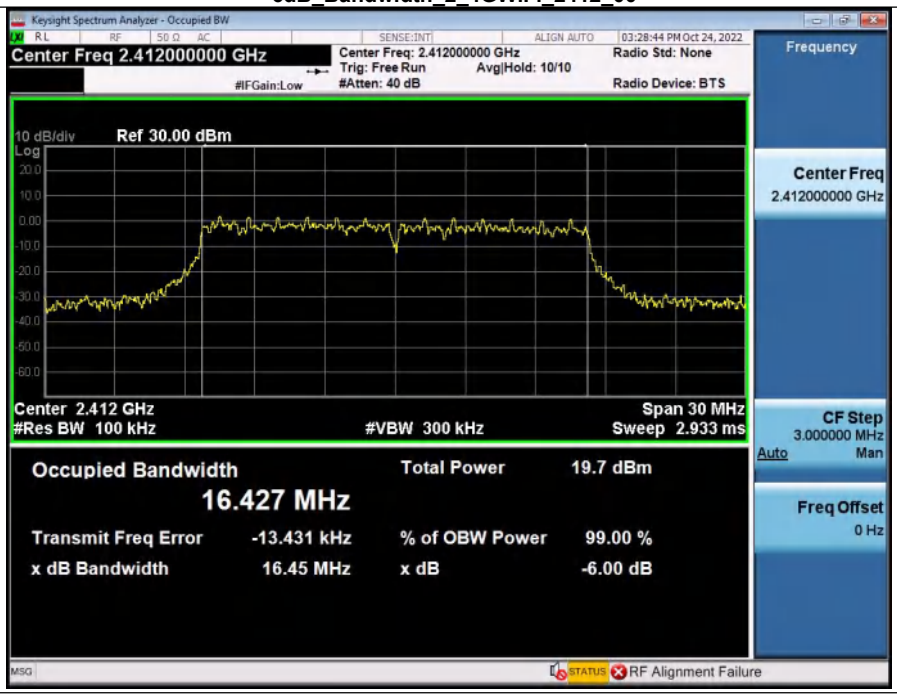
-6dB_Bandwidth_2_4GWiFi_2437_00



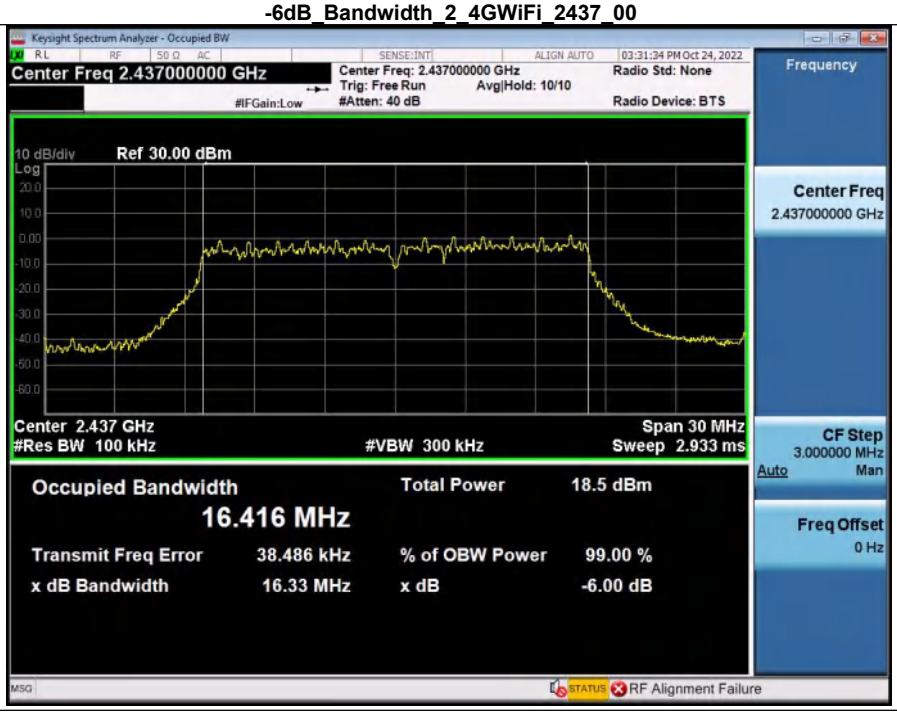
-6dB_Bandwidth_2_4GWiFi_2462_00



-6dB_Bandwidth_2_4GWiFi_2412_00



-6dB_Bandwidth_2_4GWiFi_2437_00



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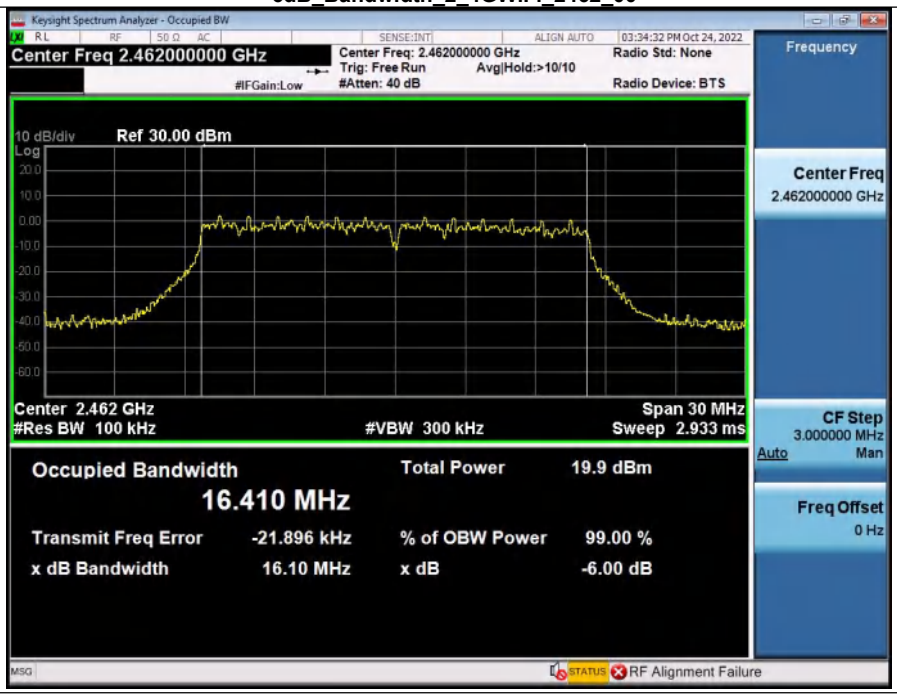
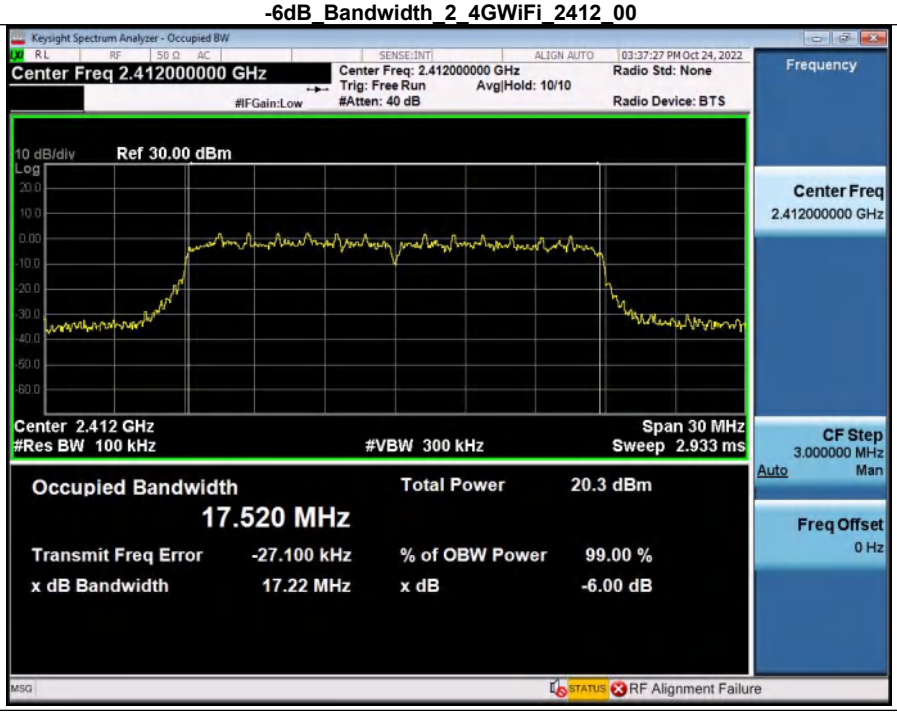
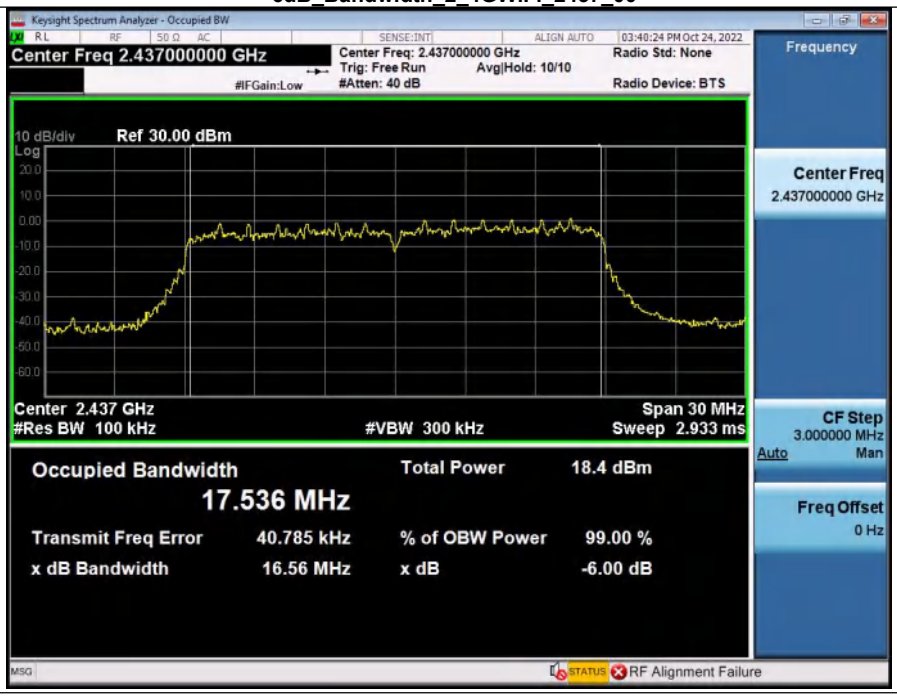


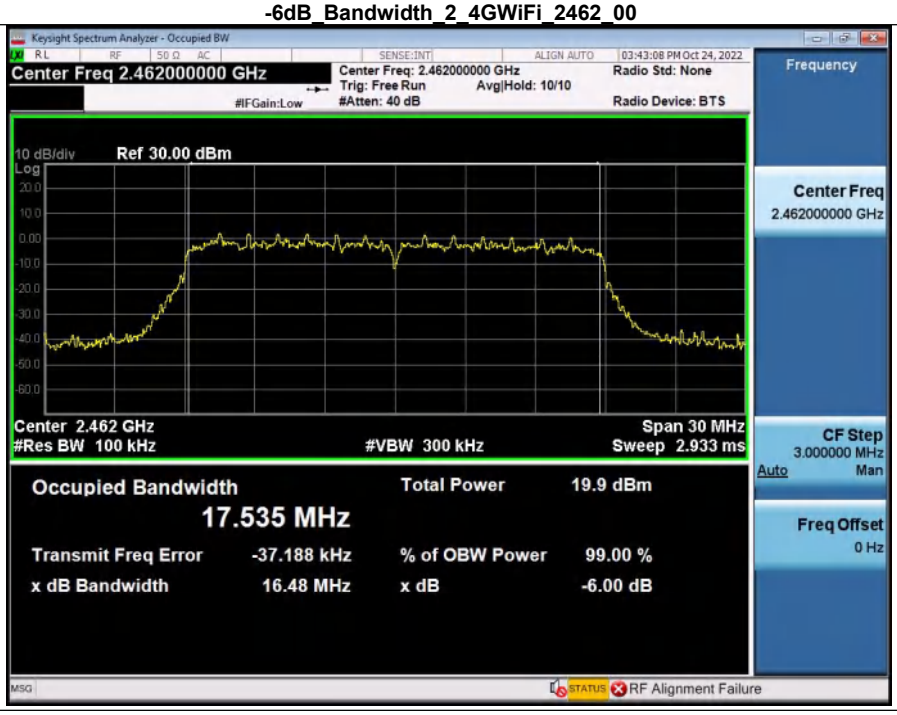
-6dB_Bandwidth_2_4GWiFi_2412_00



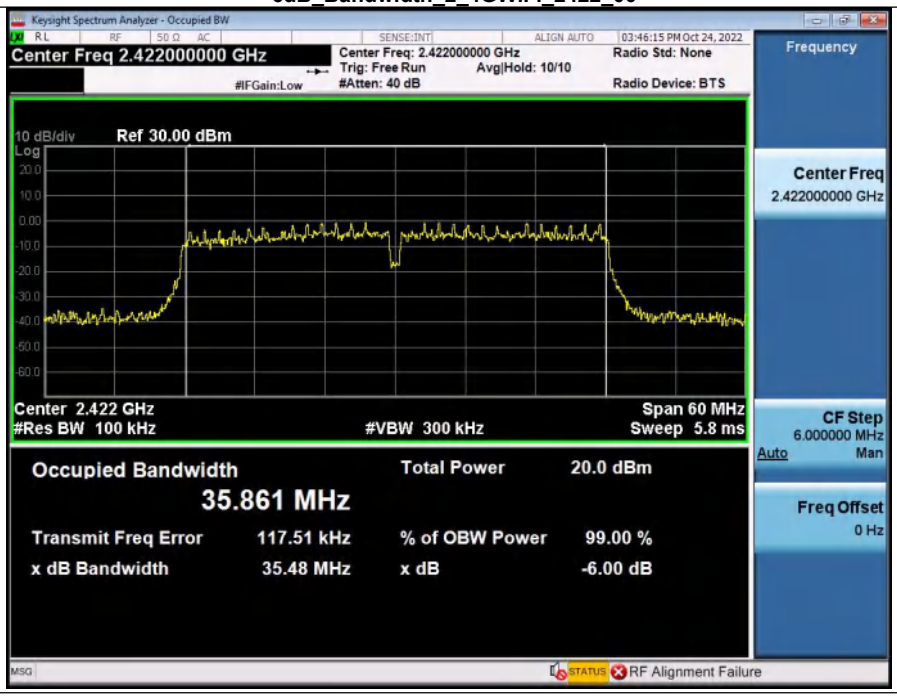
-6dB_Bandwidth_2_4GWiFi_2437_00



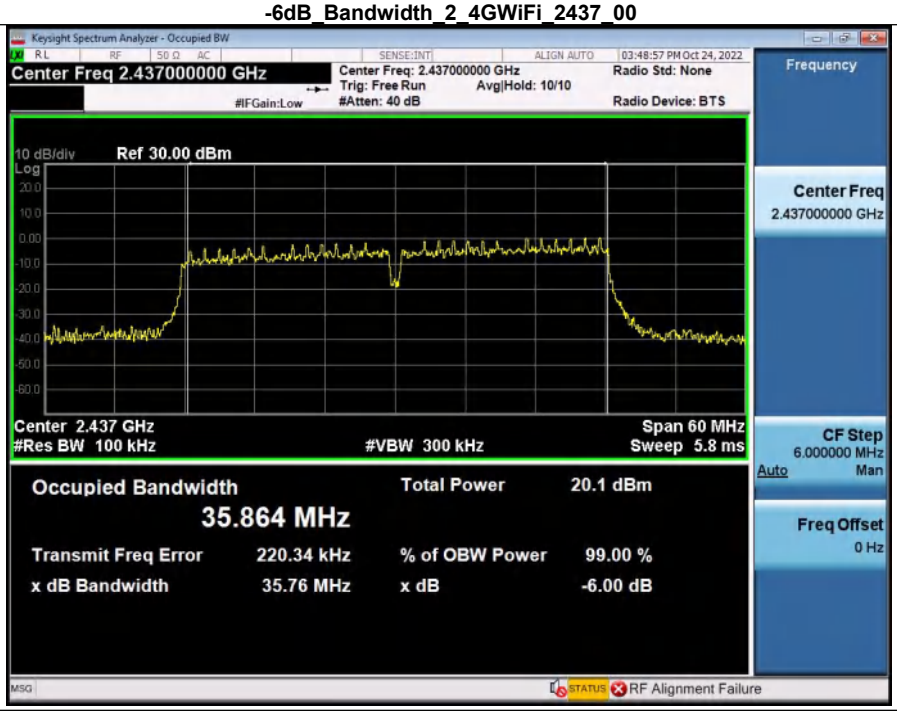
-6dB_Bandwidth_2_4GWiFi_2462_00

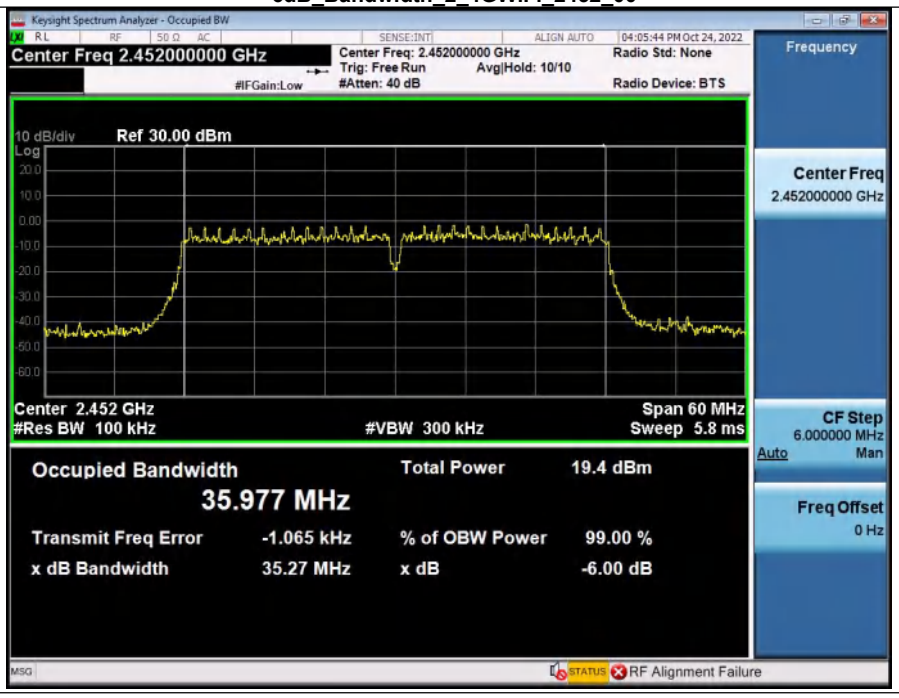


-6dB_Bandwidth_2_4GWiFi_2422_00



-6dB_Bandwidth_2_4GWiFi_2437_00

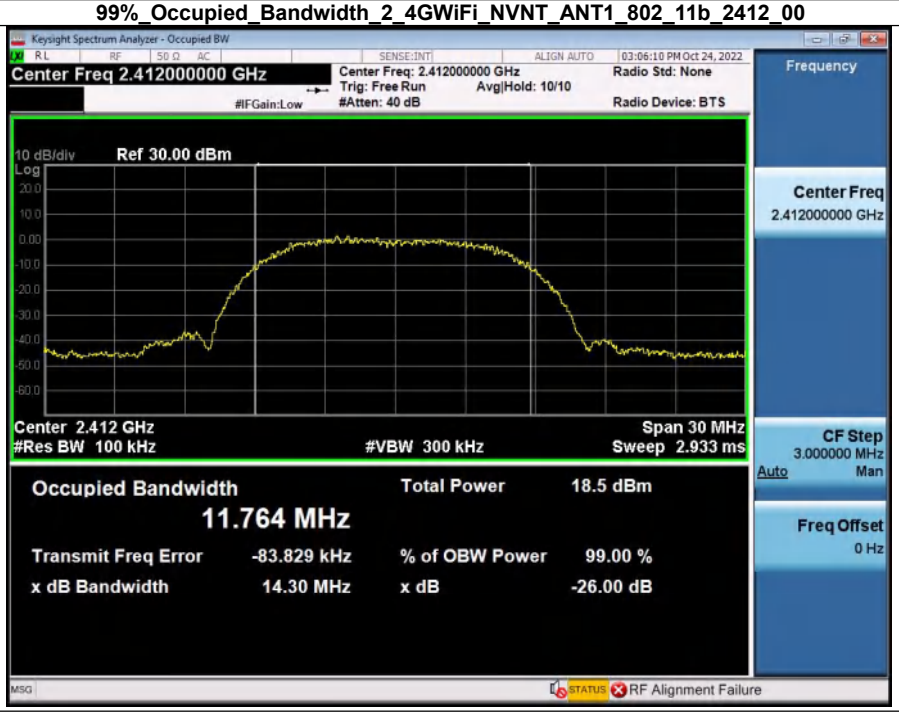


-6dB_Bandwidth_2_4GWiFi_2452_00


11.2. 99% OCCUPIED BANDWIDTH

Condition	Antenna	Modulation	Frequency (MHz)	99%%BW(MHz)
NVNT	ANT1	802.11b	2412.00	11.764
NVNT	ANT1	802.11b	2437.00	11.810
NVNT	ANT1	802.11b	2462.00	11.849
NVNT	ANT1	802.11g	2412.00	16.413
NVNT	ANT1	802.11g	2437.00	16.416
NVNT	ANT1	802.11g	2462.00	16.397
NVNT	ANT1	802.11n(HT20)	2412.00	17.550
NVNT	ANT1	802.11n(HT20)	2437.00	17.566
NVNT	ANT1	802.11n(HT20)	2462.00	17.503
NVNT	ANT1	802.11n(HT40)	2422.00	35.894
NVNT	ANT1	802.11n(HT40)	2437.00	35.901
NVNT	ANT1	802.11n(HT40)	2452.00	35.991

99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11b_2412_00



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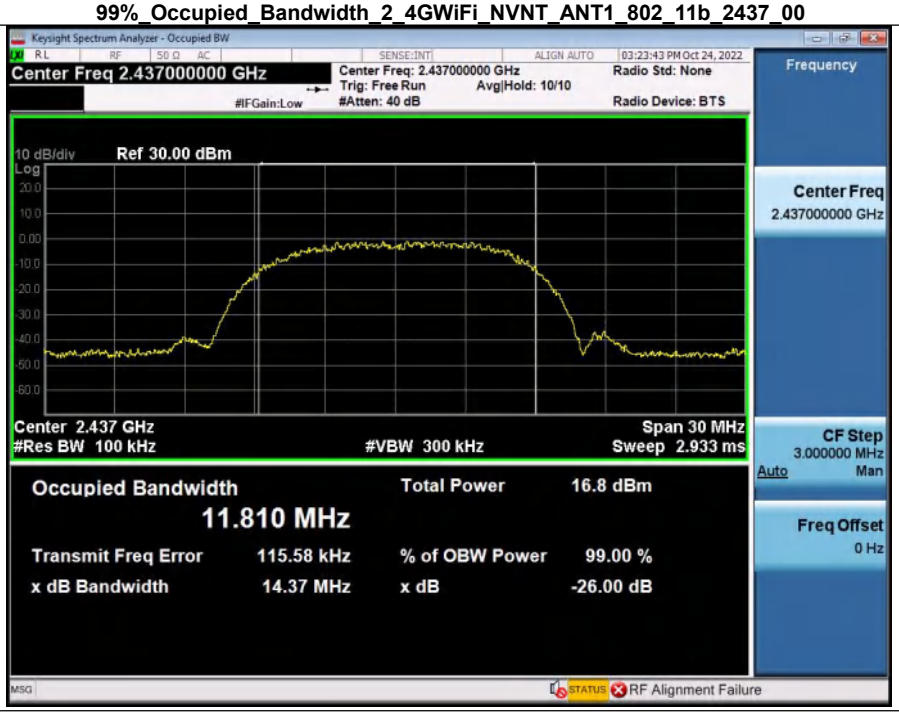
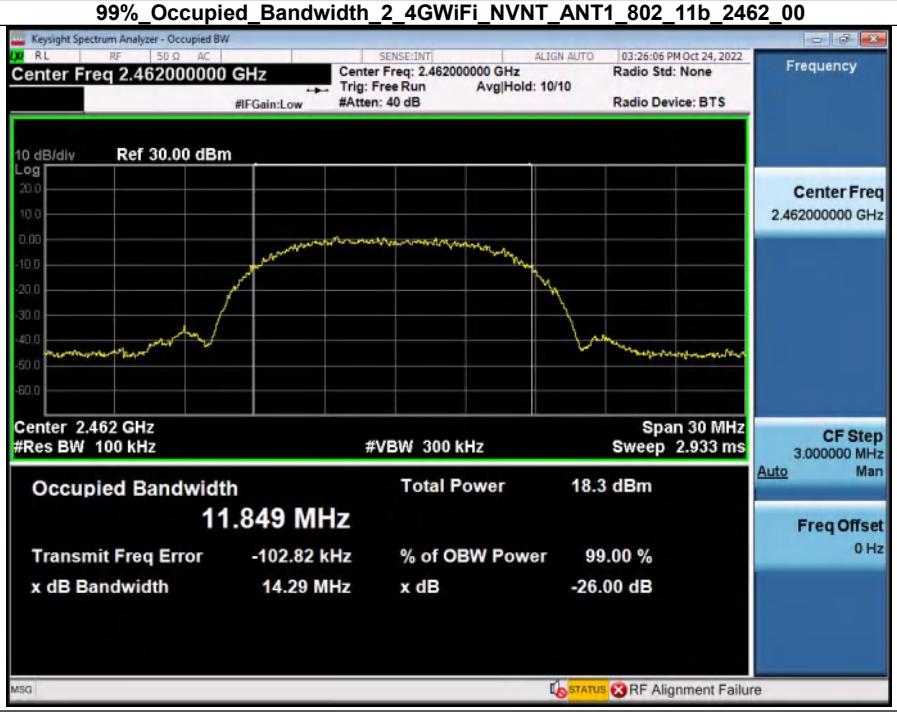
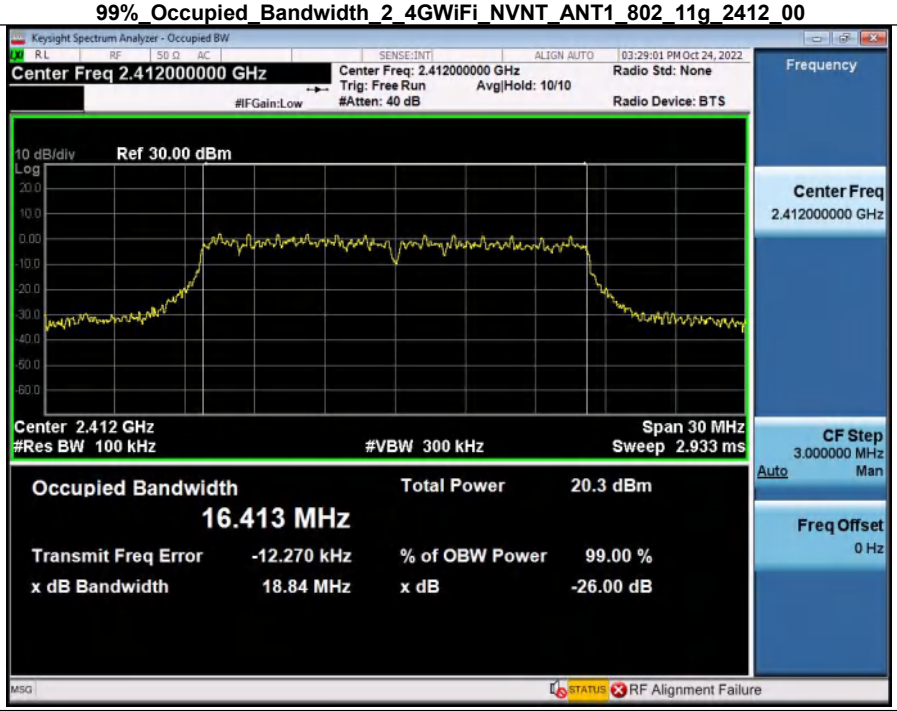


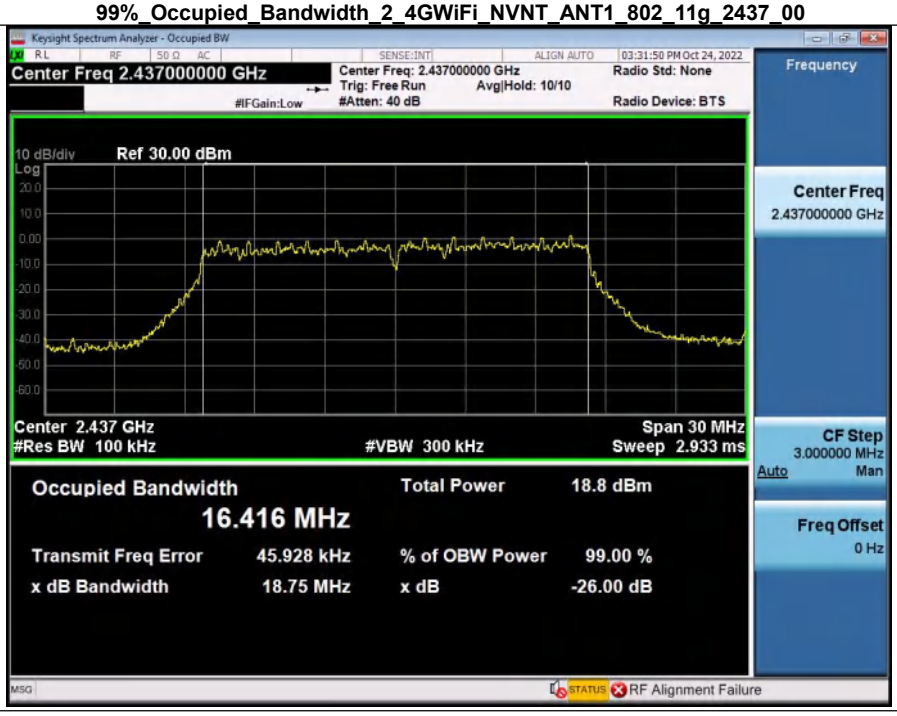
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11b_2462_00



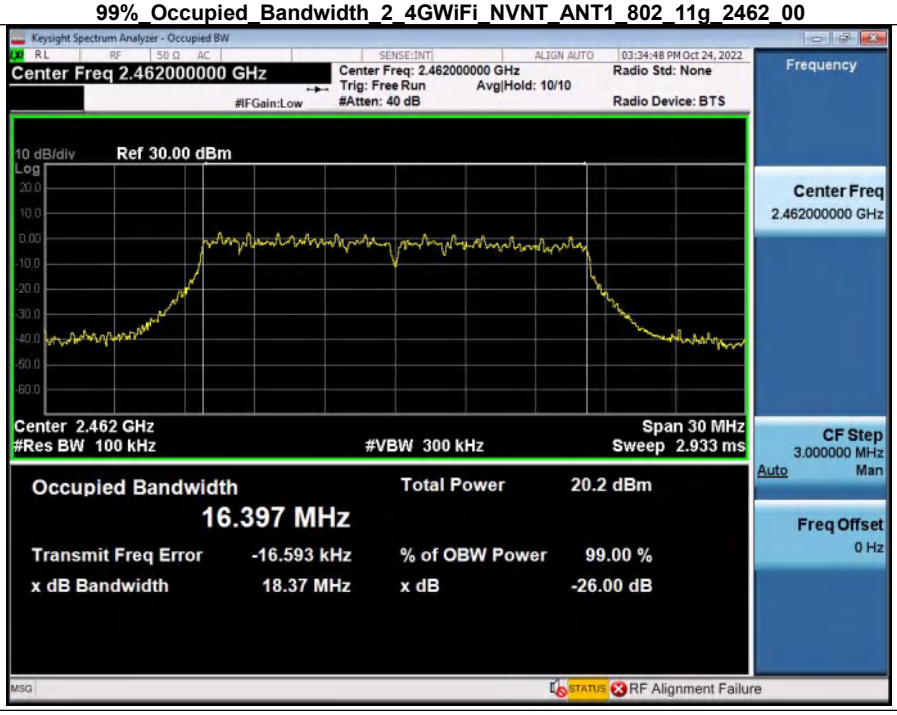
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11g_2412_00



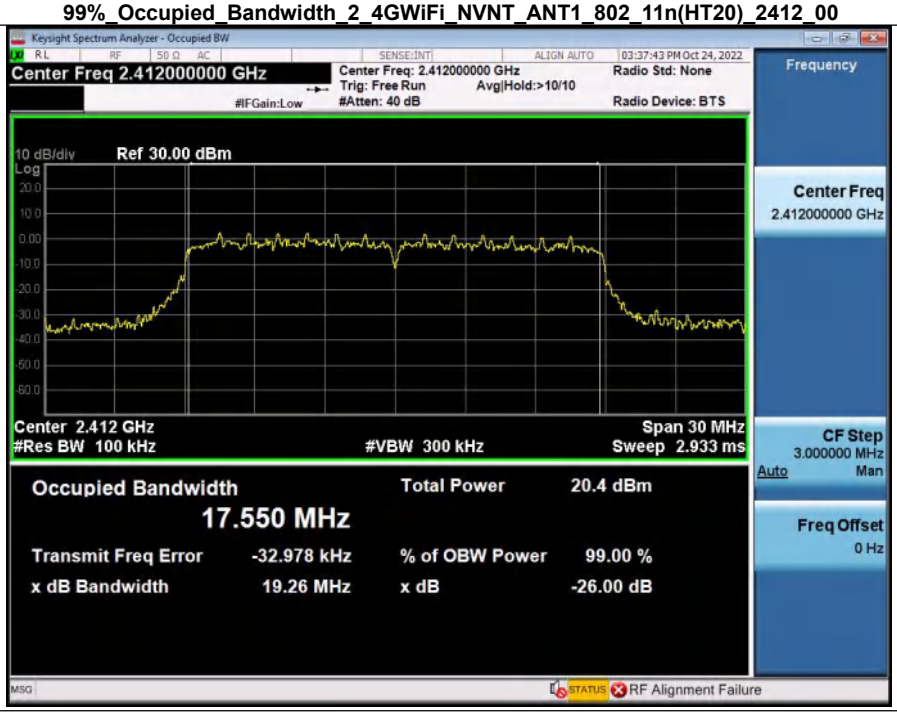
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11g_2437_00



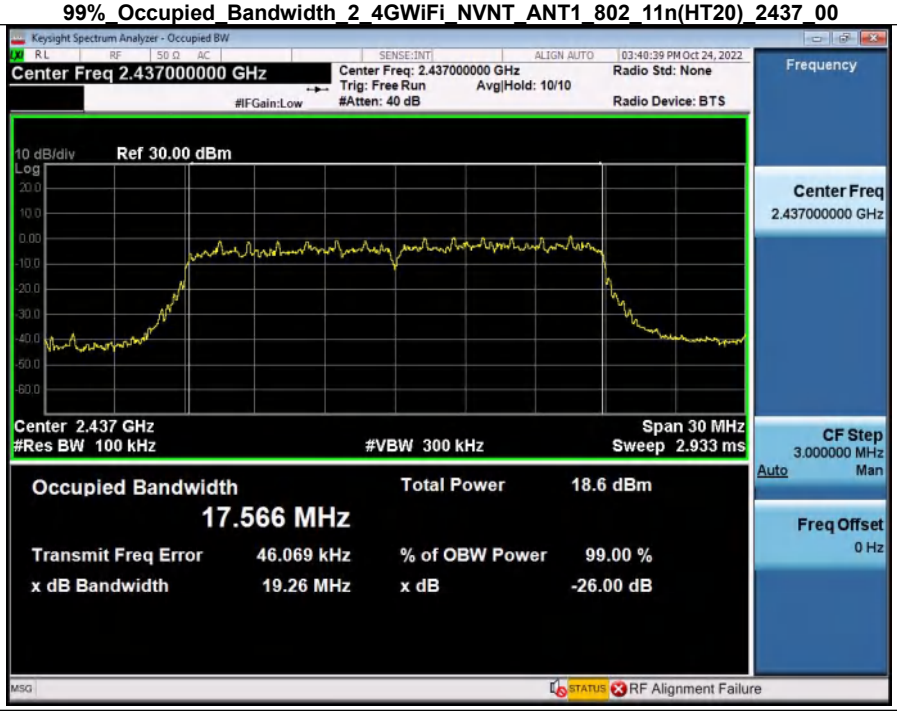
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11g_2462_00



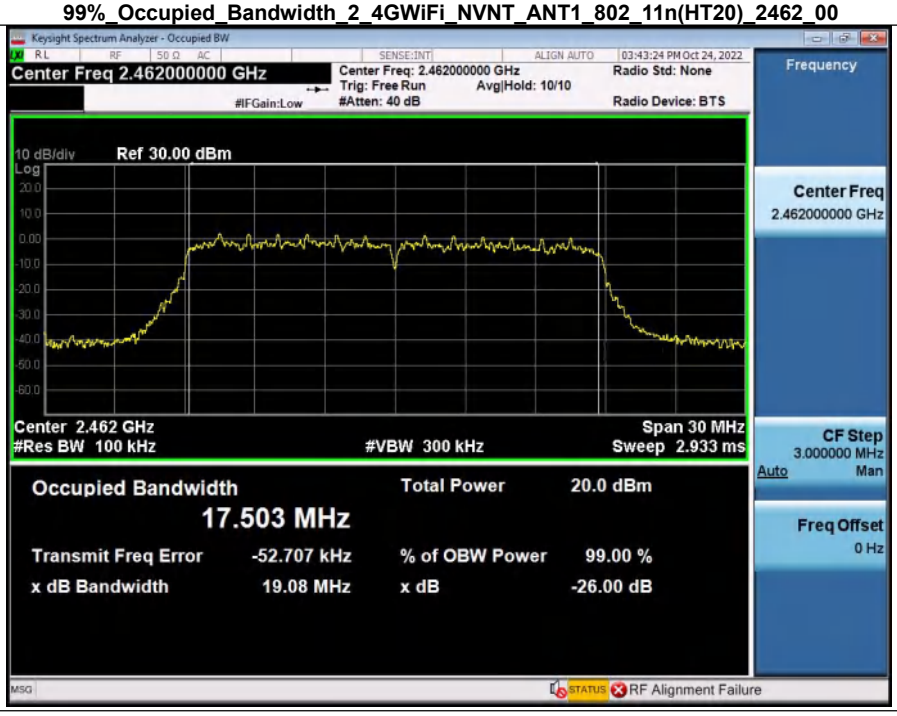
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2412_00



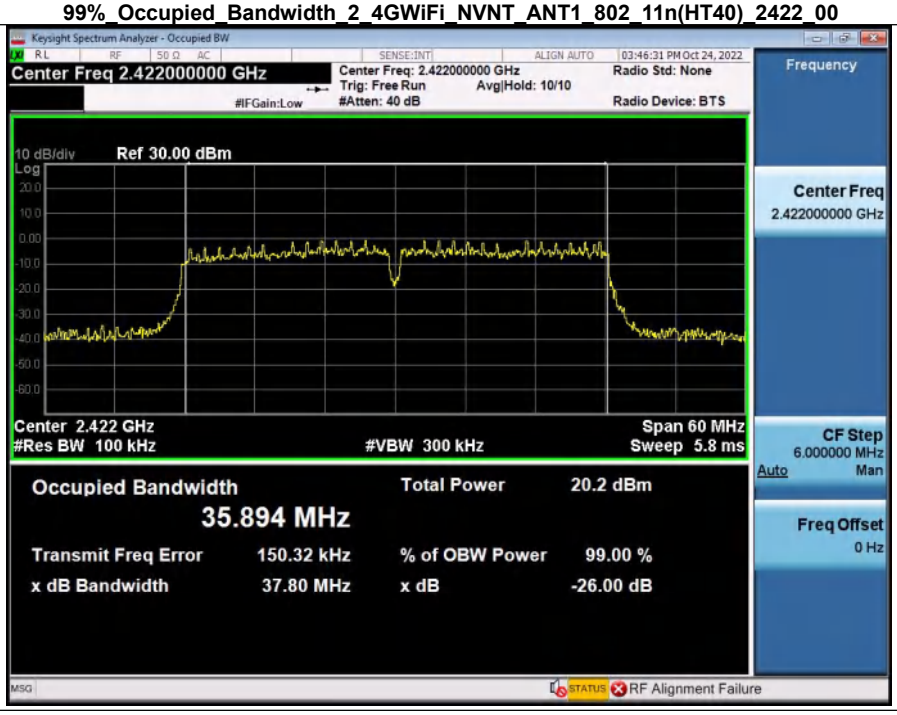
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2437_00



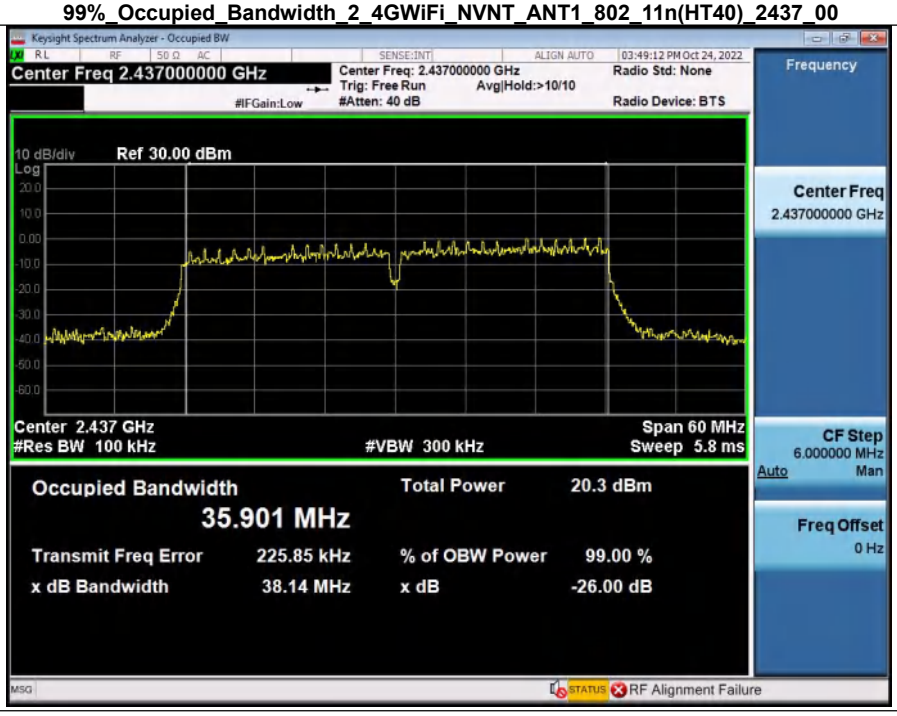
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2462_00



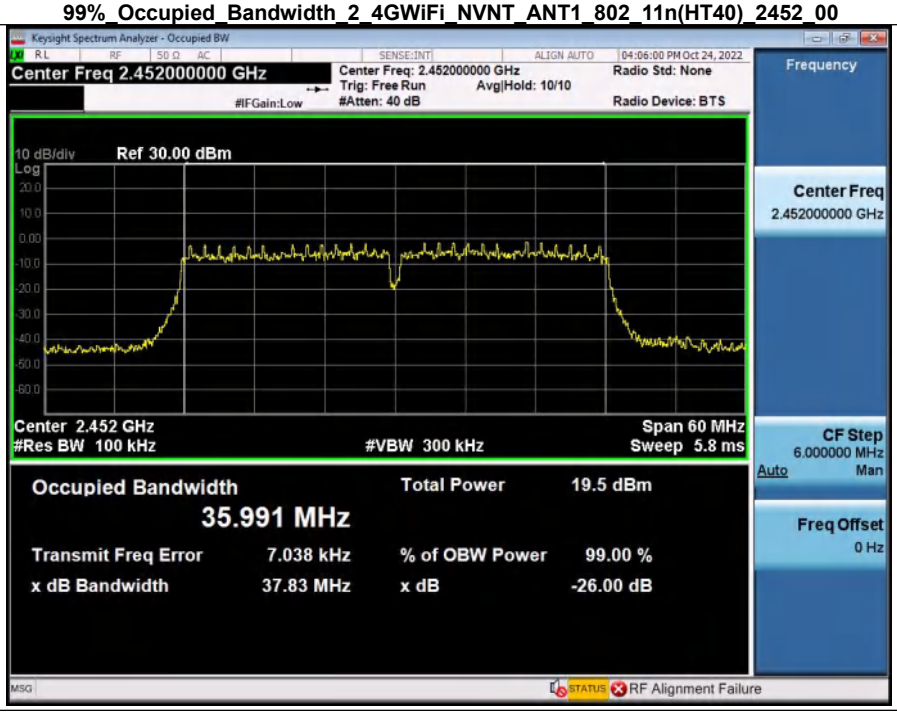
99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11n(HT40)_2422_00



99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11n(HT40)_2437_00



99%_Occupied_Bandwidth_2_4GWiFi_NVNT_ANT1_802_11n(HT40)_2452_00

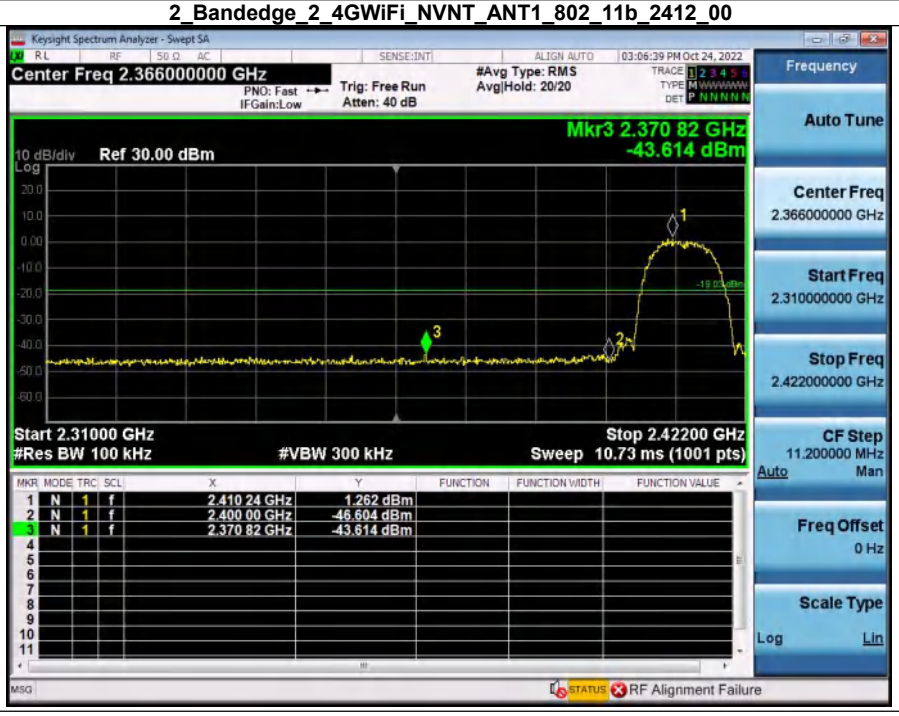


11.3. BANDEDGE

Condition	Antenna	Modulation	Start Frequency (MHz)	Stop Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2310	2422	2370.82	-43.61	-19.03	Pass
NVNT	ANT1	802.11b	2452	2500	2486.90	-43.85	-18.84	Pass
NVNT	ANT1	802.11g	2310	2422	2398.70	-29.96	-17.80	Pass
NVNT	ANT1	802.11g	2452	2500	2484.54	-42.50	-17.57	Pass
NVNT	ANT1	802.11n(HT20)	2310	2422	2399.49	-31.34	-17.71	Pass
NVNT	ANT1	802.11n(HT20)	2452	2500	2486.75	-42.62	-17.67	Pass
NVNT	ANT1	802.11n(HT40)	2310	2442	2396.99	-34.47	-20.51	Pass
NVNT	ANT1	802.11n(HT40)	2432	2500	2484.50	-40.10	-21.25	Pass

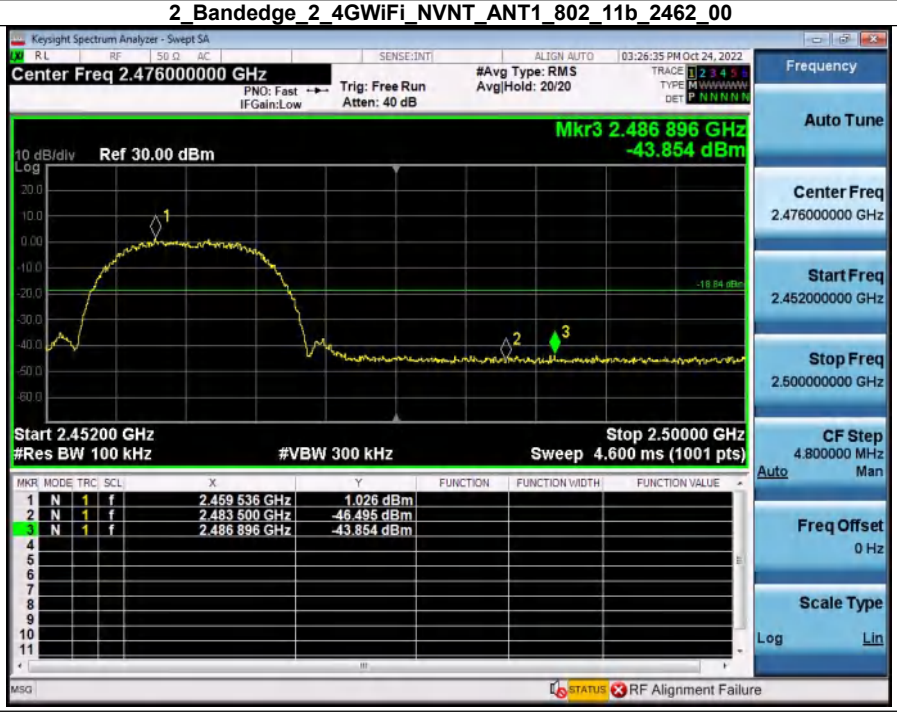
1_Reference_Level_2_4GWiFi_2412_00

2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11b_2412_00

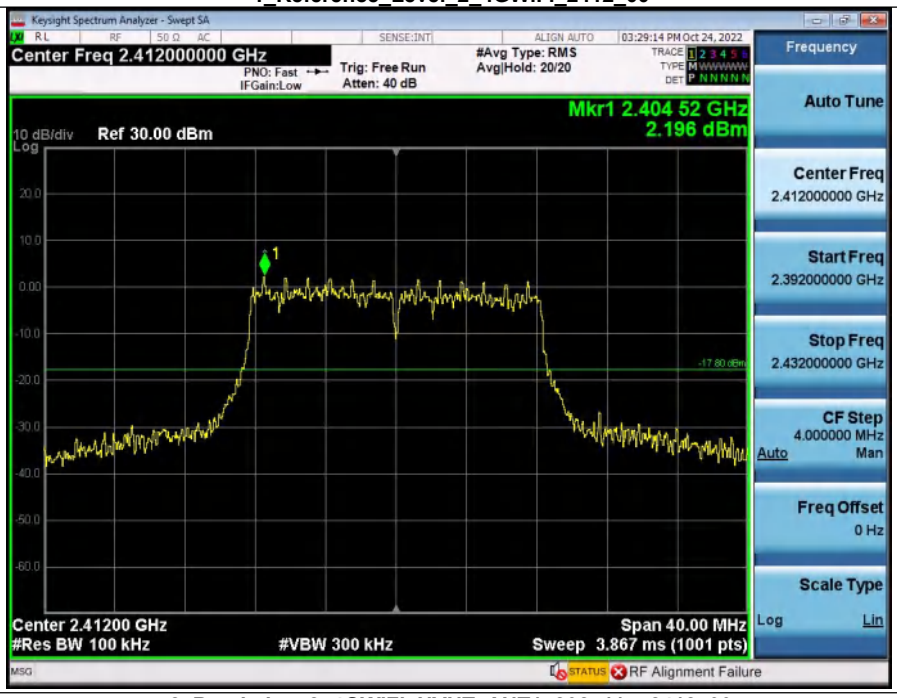


1_Reference_Level_2_4GWiFi_2462_00

2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11b_2462_00

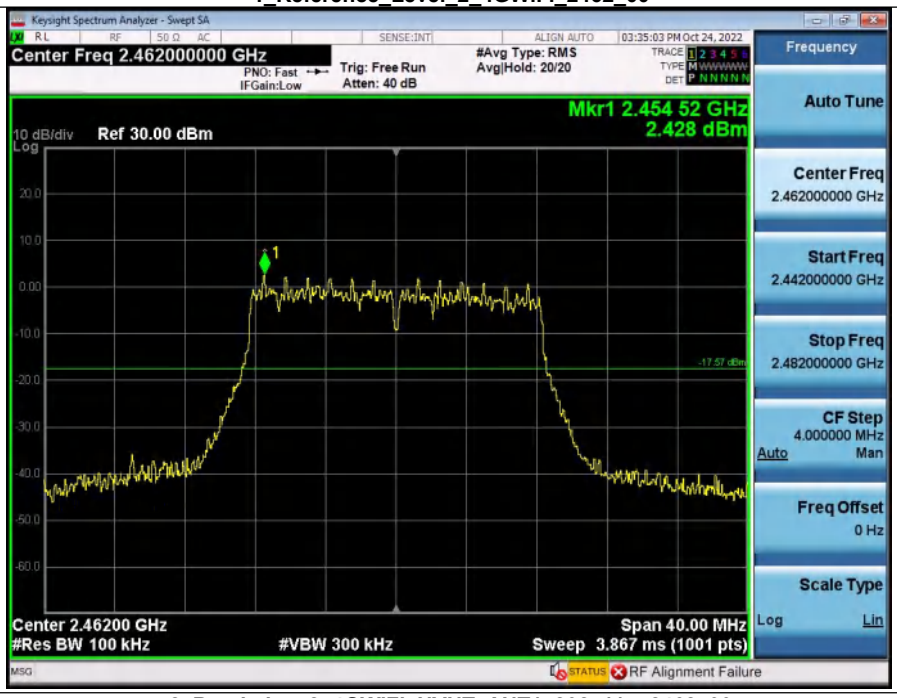


1_Reference_Level_2_4GWiFi_2412_00

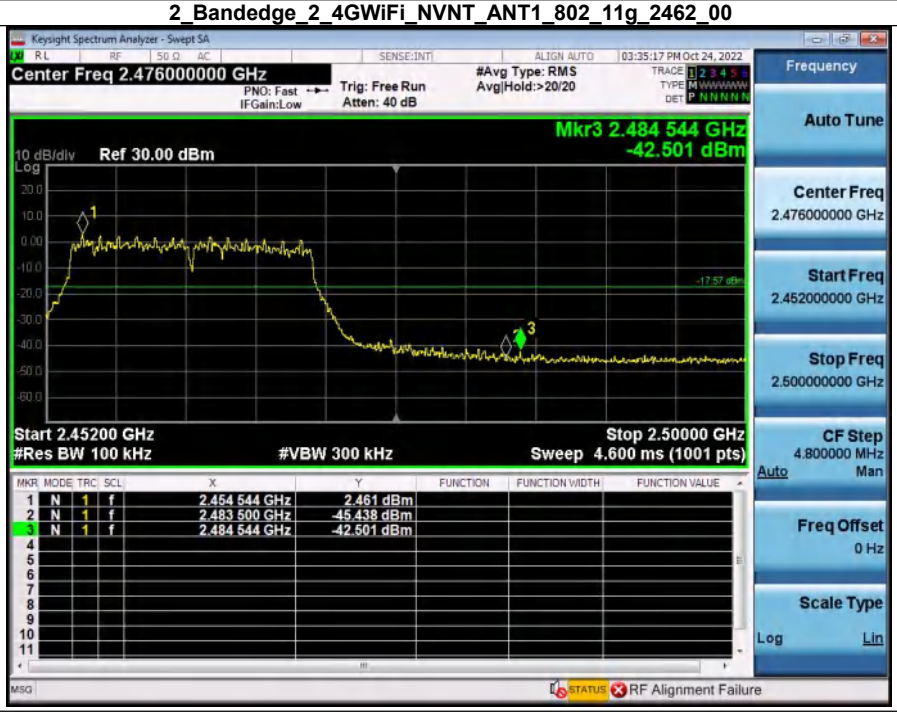


2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11g_2412_00

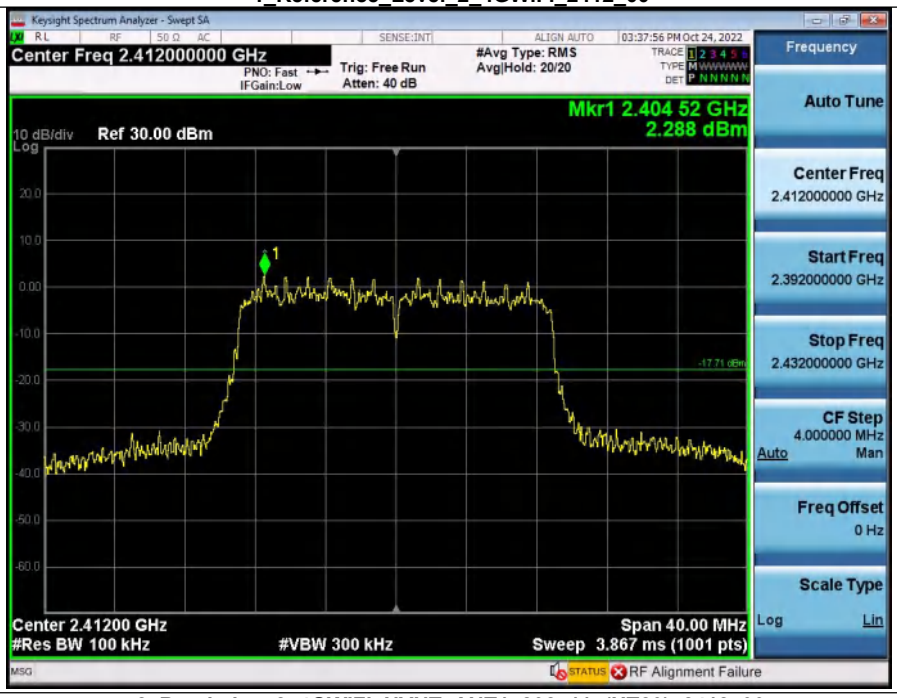
1_Reference_Level_2_4GWiFi_2462_00



2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11g_2462_00



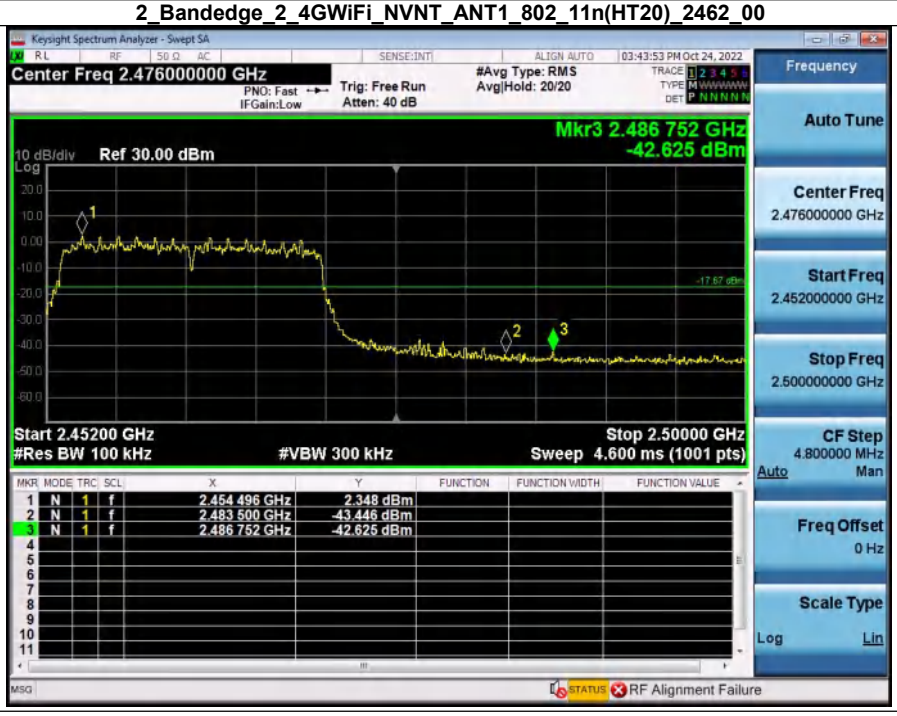
1_Reference_Level_2_4GWiFi_2412_00



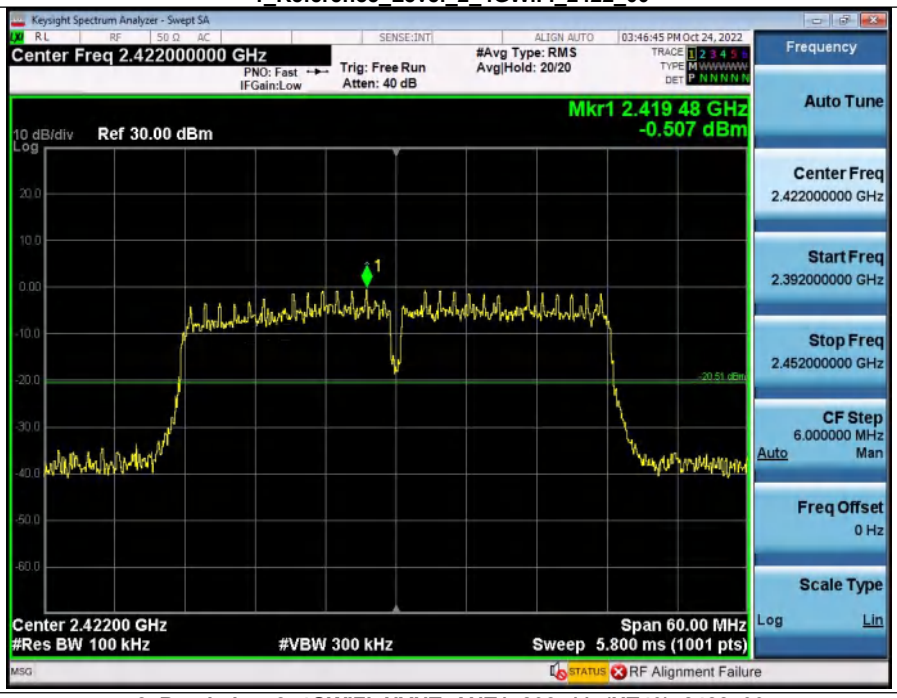
2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2412_00

1_Reference_Level_2_4GWiFi_2462_00

2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2462_00

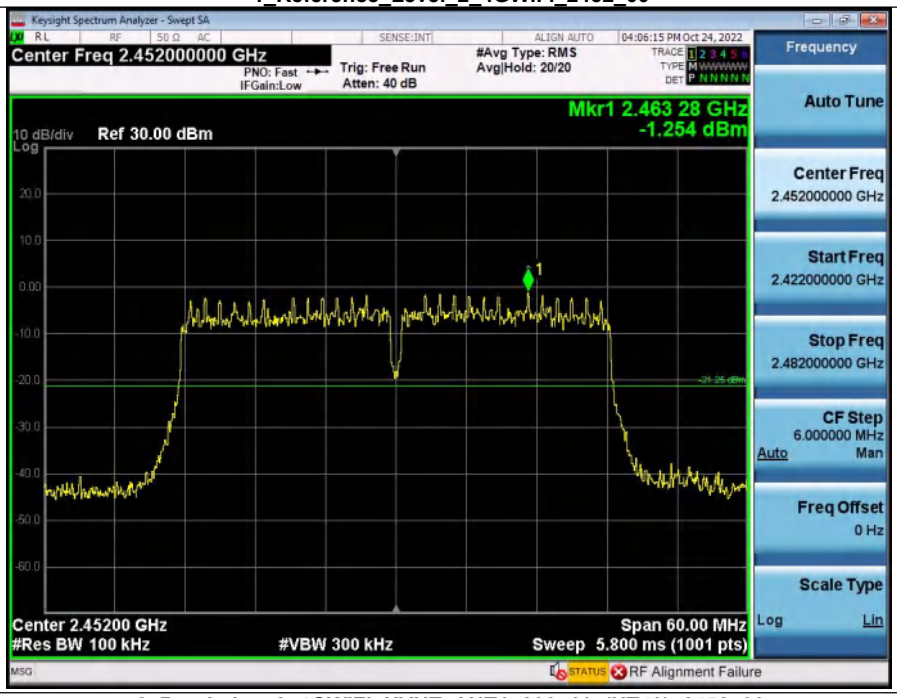


1_Reference_Level_2_4GWiFi_2422_00

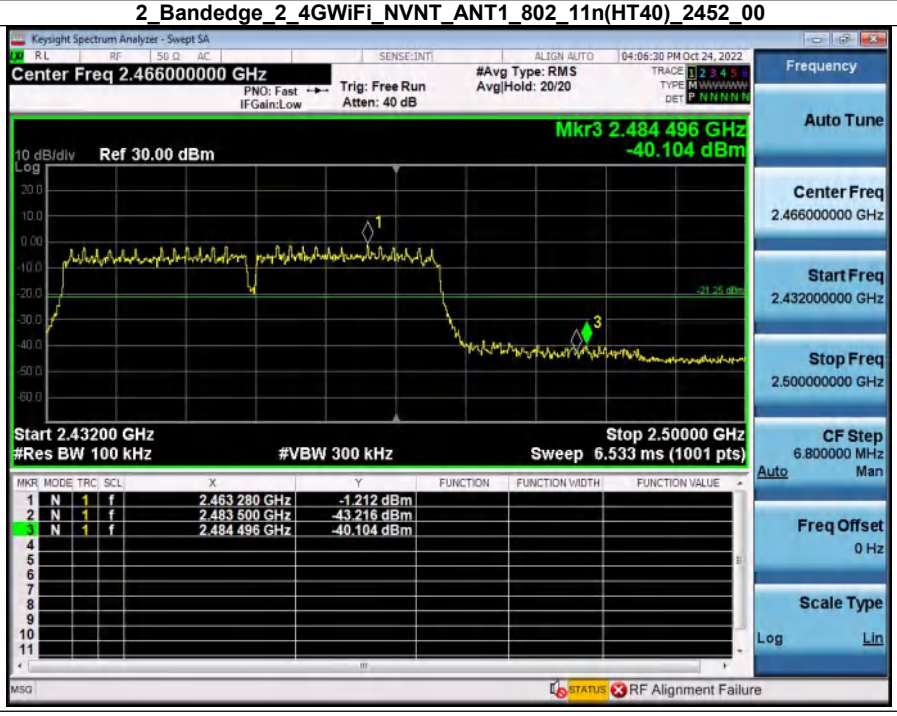


2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11n(HT40)_2422_00

1_Reference_Level_2_4GWiFi_2452_00



2_Bandedge_2_4GWiFi_NVNT_ANT1_802_11n(HT40)_2452_00



11.4. MAX. OUTPUT POWER

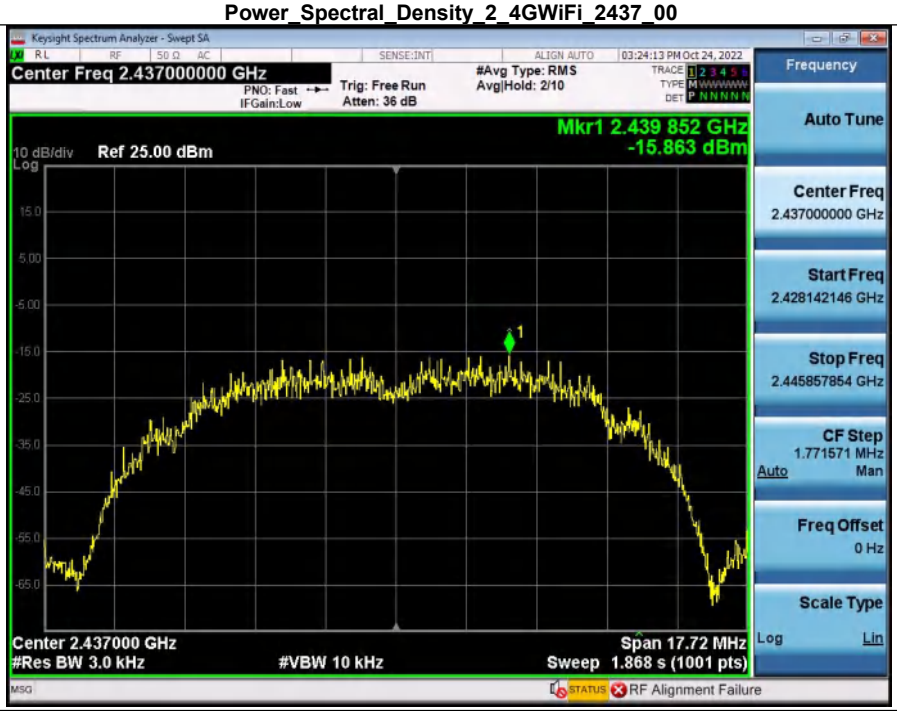
Condition	Antenna	Modulation	Frequency (MHz)	Conducted Power(dBm)	Duty factor(dB)	Total Power(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	2412.00	19.65	0.10	19.75	30	Pass
NVNT	ANT1	802.11b	2437.00	19.73	0.13	19.86	30	Pass
NVNT	ANT1	802.11b	2462.00	19.58	0.16	19.74	30	Pass
NVNT	ANT1	802.11g	2412.00	18.36	0.89	19.25	30	Pass
NVNT	ANT1	802.11g	2437.00	16.50	0.79	17.30	30	Pass
NVNT	ANT1	802.11g	2462.00	18.34	0.79	19.13	30	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	18.08	0.65	18.74	30	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	16.37	0.66	17.02	30	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	18.05	0.66	18.71	30	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	18.09	0.70	18.79	30	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	18.21	0.67	18.88	30	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	17.50	0.69	18.19	30	Pass

11.5. POWER SPECTRAL DENSITY

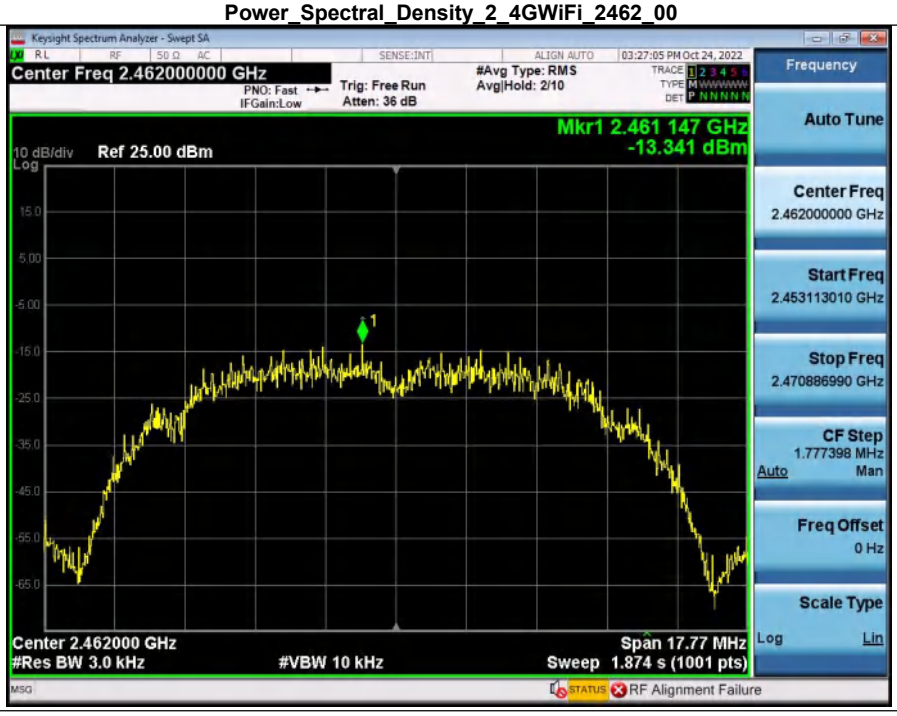
Condition	Antenna	Modulation	Frequency (MHz)	PSD(dBm/3kHz)	limit(dBm/3kHz)	Result
NVNT	ANT1	802.11b	2412.00	-13.85	8	Pass
NVNT	ANT1	802.11b	2437.00	-15.86	8	Pass
NVNT	ANT1	802.11b	2462.00	-13.34	8	Pass
NVNT	ANT1	802.11g	2412.00	-16.46	8	Pass
NVNT	ANT1	802.11g	2437.00	-17.13	8	Pass
NVNT	ANT1	802.11g	2462.00	-14.96	8	Pass
NVNT	ANT1	802.11n(HT20)	2412.00	-13.81	8	Pass
NVNT	ANT1	802.11n(HT20)	2437.00	-15.96	8	Pass
NVNT	ANT1	802.11n(HT20)	2462.00	-14.02	8	Pass
NVNT	ANT1	802.11n(HT40)	2422.00	-19.13	8	Pass
NVNT	ANT1	802.11n(HT40)	2437.00	-17.26	8	Pass
NVNT	ANT1	802.11n(HT40)	2452.00	-18.12	8	Pass

Power_Spectral_Density_2_4GWiFi_2412_00

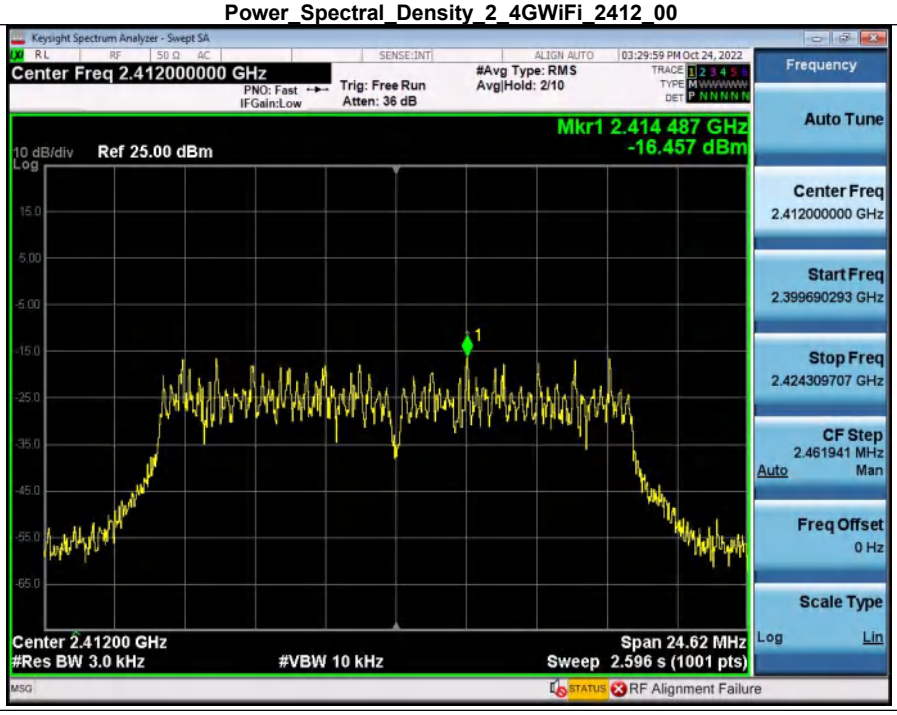
Power_Spectral_Density_2_4GWiFi_2437_00



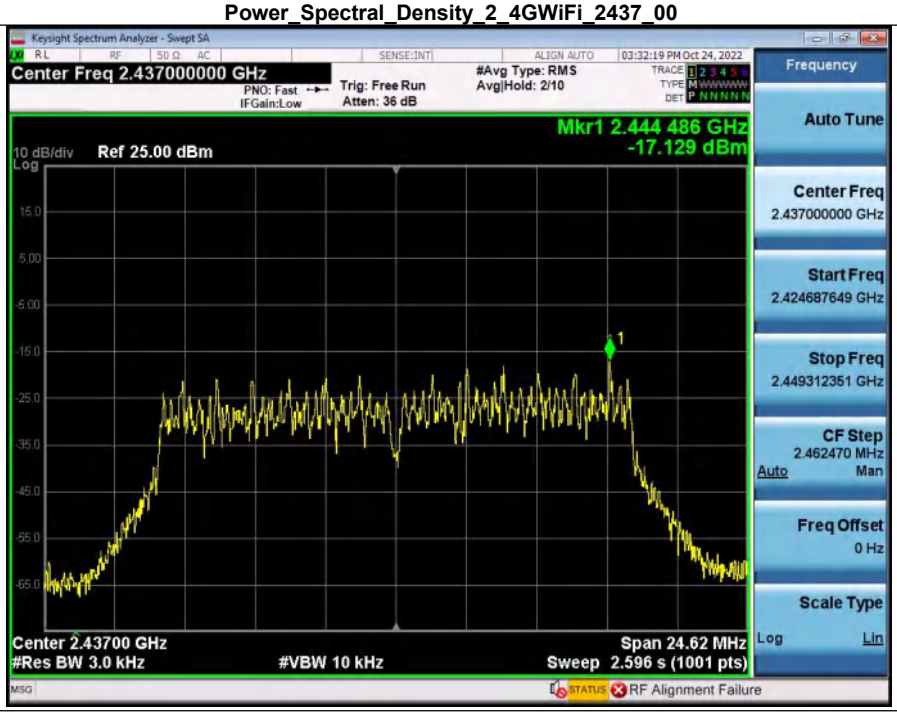
Power_Spectral_Density_2_4GWiFi_2462_00



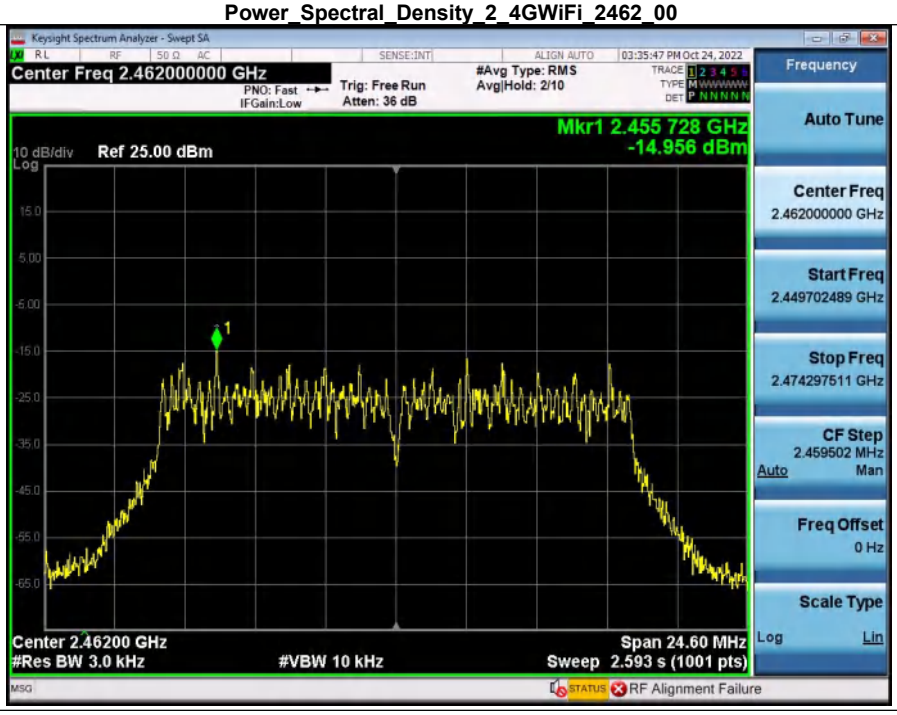
Power_Spectral_Density_2_4GWiFi_2412_00



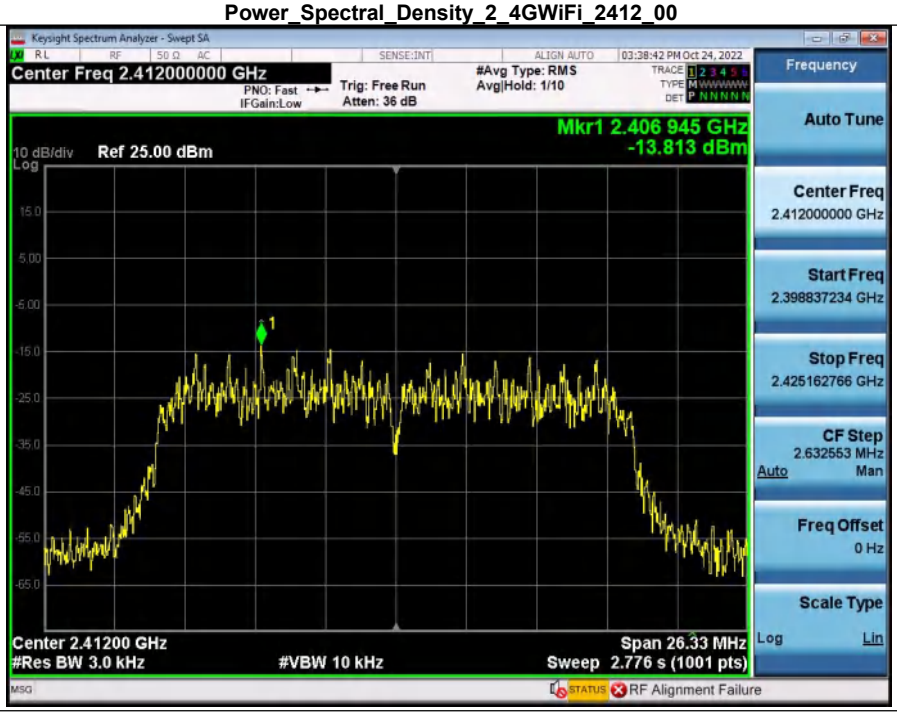
Power_Spectral_Density_2_4GWiFi_2437_00



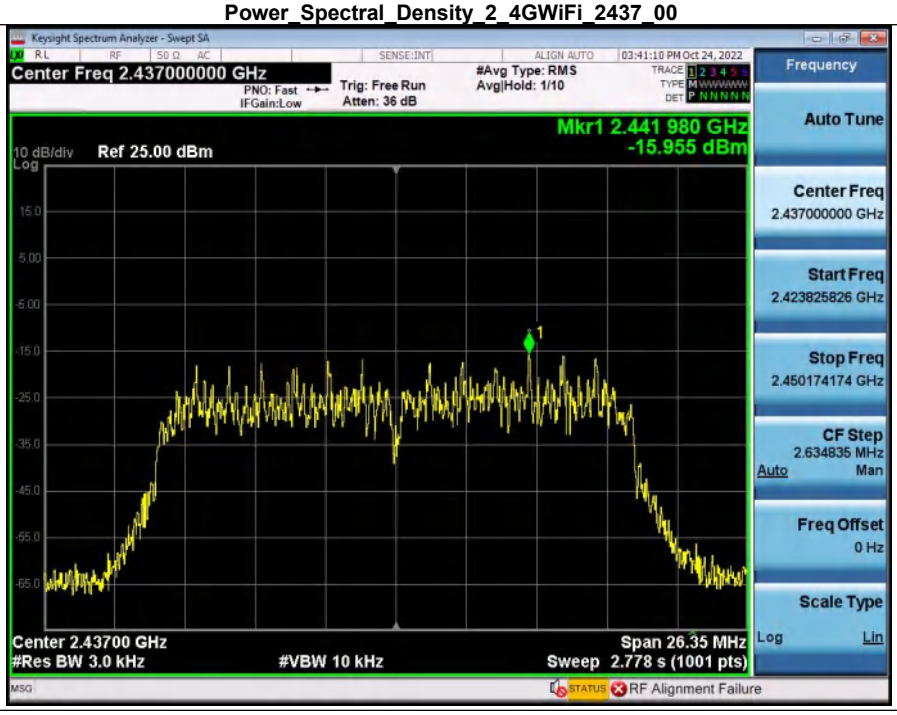
Power_Spectral_Density_2_4GWiFi_2462_00

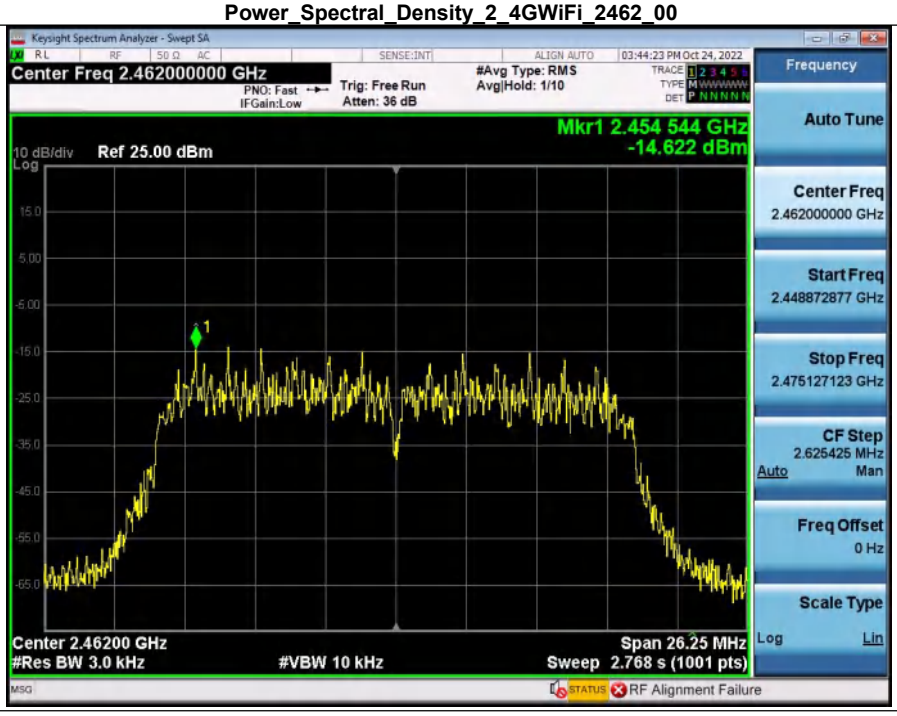


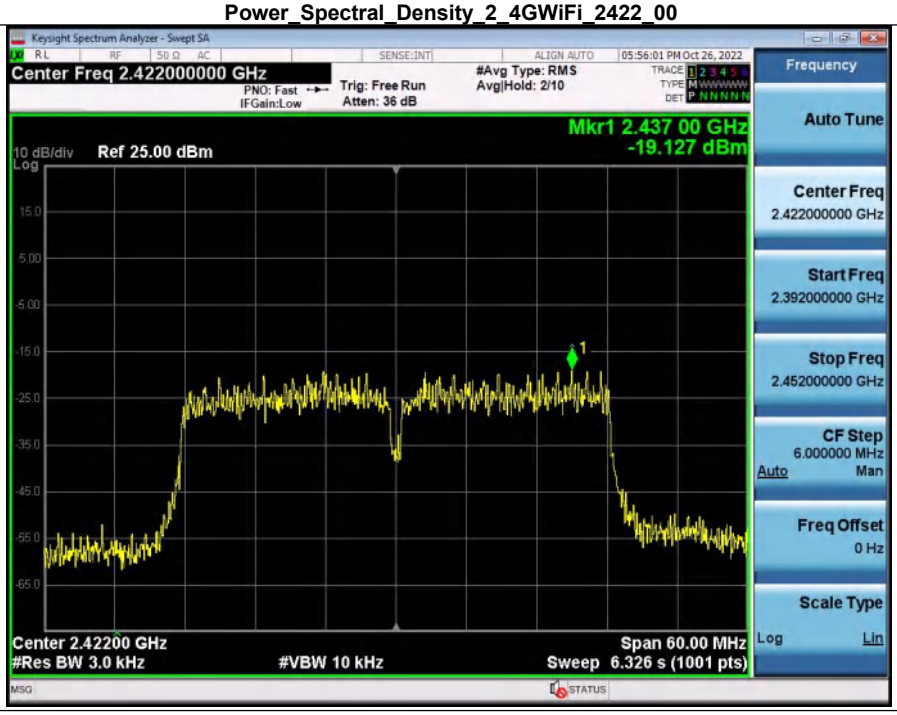
Power_Spectral_Density_2_4GWiFi_2412_00



Power_Spectral_Density_2_4GWiFi_2437_00



Power_Spectral_Density_2_4GWiFi_2462_00


Power_Spectral_Density_2_4GWiFi_2422_00


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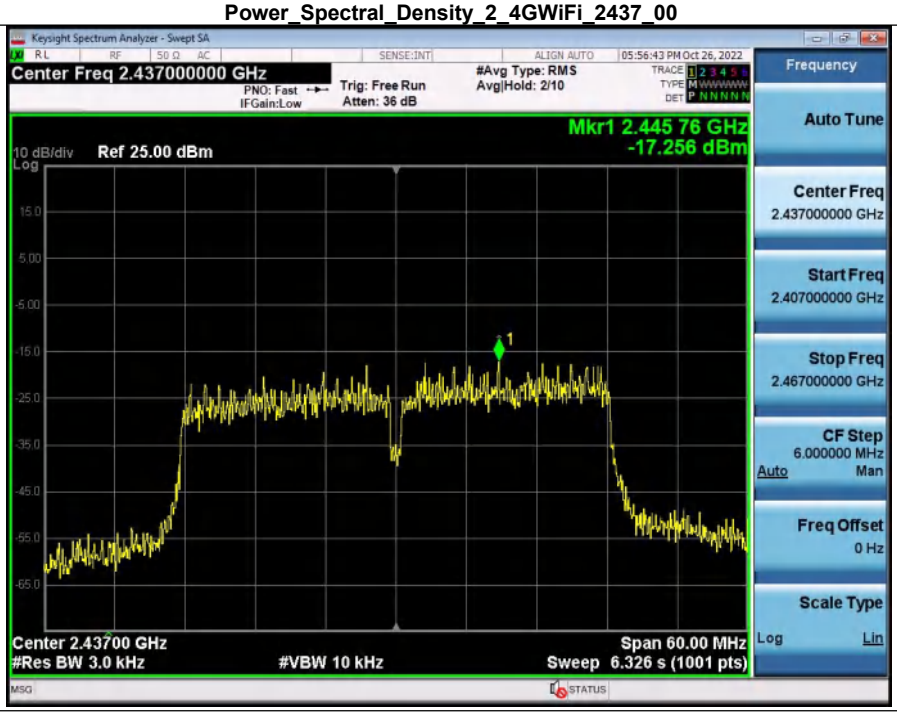
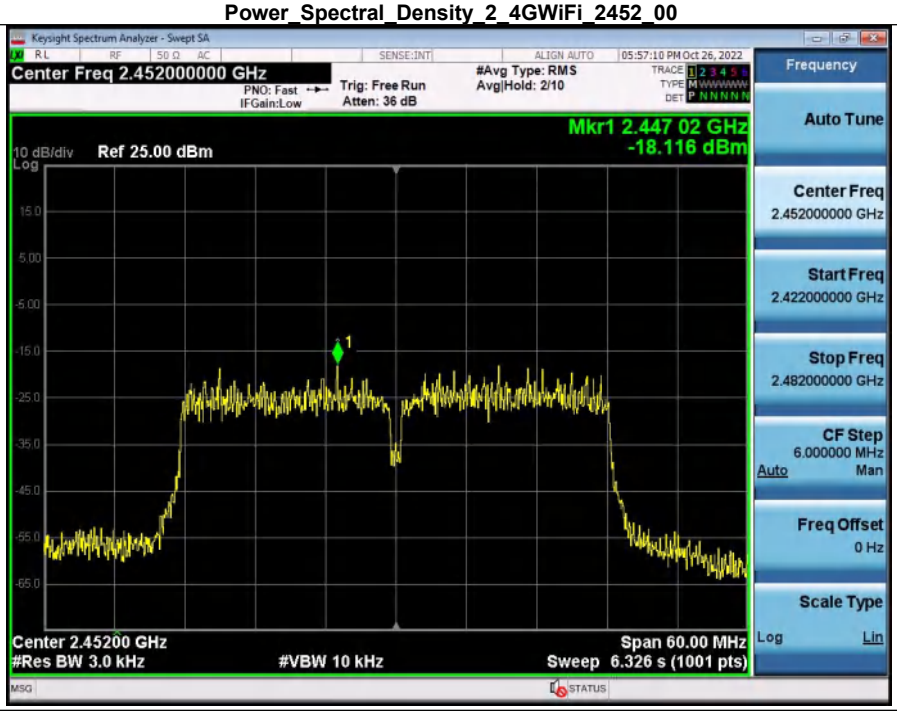


Power_Spectral_Density_2_4GWiFi_2452_00

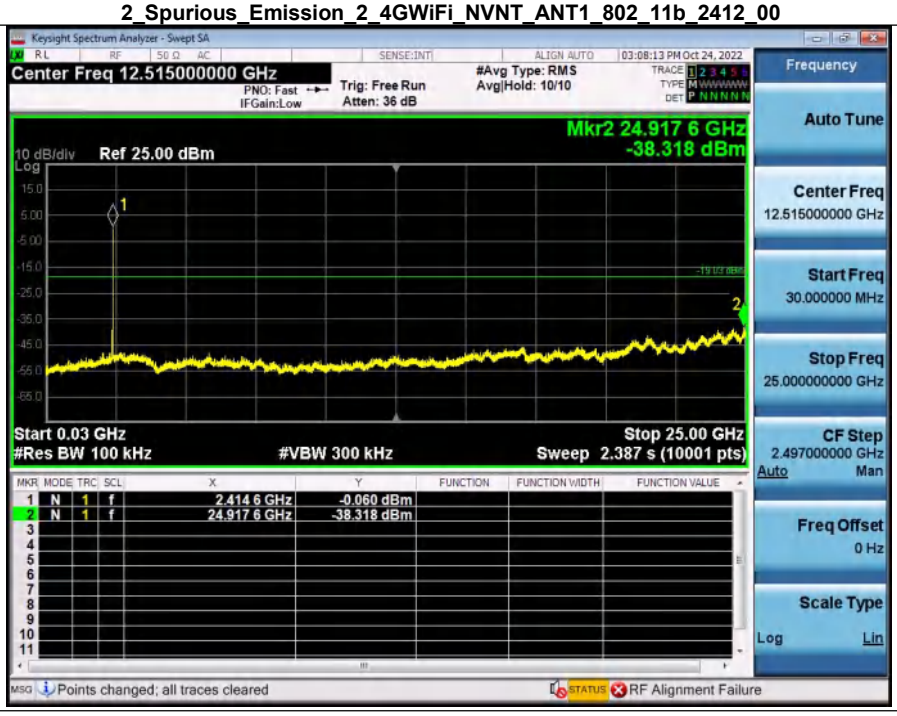


11.6. SPURIOUS EMISSION

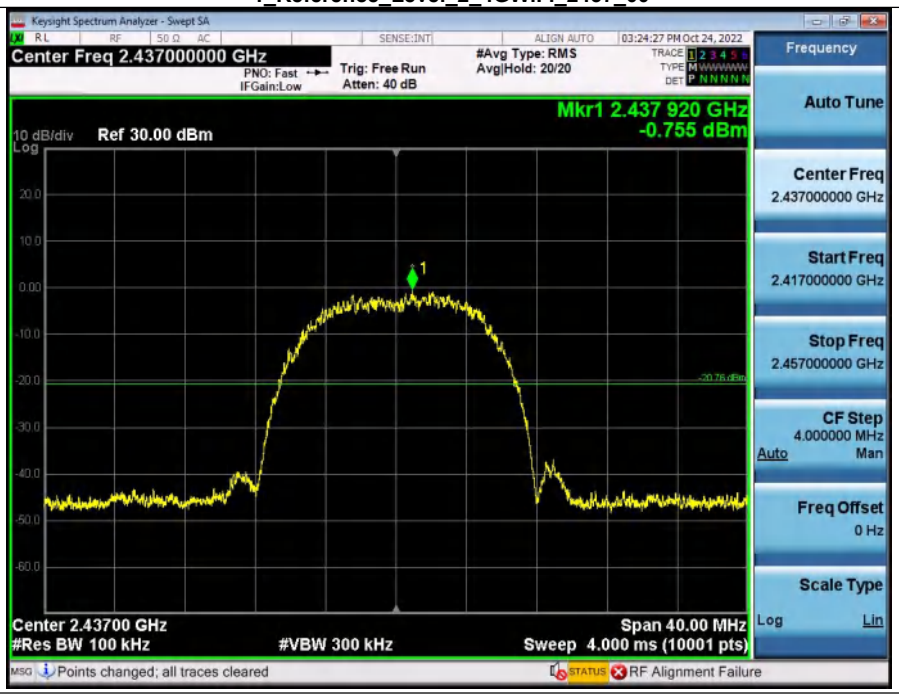
Condition	Antenna	Modulation	Start Frequency (MHz)	Stop Frequency (MHz)	Max. Mark_frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11b	30	25000	24917.60	-38.32	-19.03	Pass
NVNT	ANT1	802.11b	30	25000	24887.63	-34.59	-20.75	Pass
NVNT	ANT1	802.11b	30	25000	24902.62	-38.94	-18.84	Pass
NVNT	ANT1	802.11g	30	25000	23986.22	-38.77	-17.80	Pass
NVNT	ANT1	802.11g	30	25000	24900.12	-34.93	-18.67	Pass
NVNT	ANT1	802.11g	30	25000	24510.59	-39.46	-17.57	Pass
NVNT	ANT1	802.11n(HT20)	30	25000	24490.61	-38.74	-17.71	Pass
NVNT	ANT1	802.11n(HT20)	30	25000	24021.18	-35.27	-19.05	Pass
NVNT	ANT1	802.11n(HT20)	30	25000	24575.51	-38.95	-17.67	Pass
NVNT	ANT1	802.11n(HT40)	30	25000	24935.08	-38.50	-20.51	Pass
NVNT	ANT1	802.11n(HT40)	30	25000	24942.57	-34.63	-19.69	Pass
NVNT	ANT1	802.11n(HT40)	30	25000	24930.08	-38.84	-21.25	Pass

1_Reference_Level_2_4GWiFi_2412_00

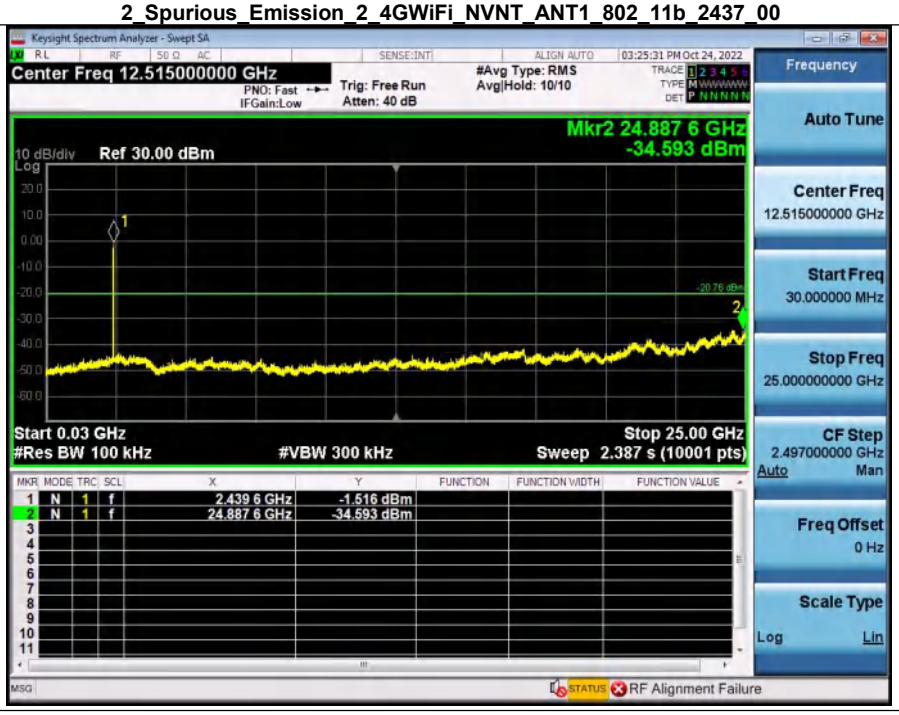
2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11b_2412_00



1_Reference_Level_2_4GWiFi_2437_00

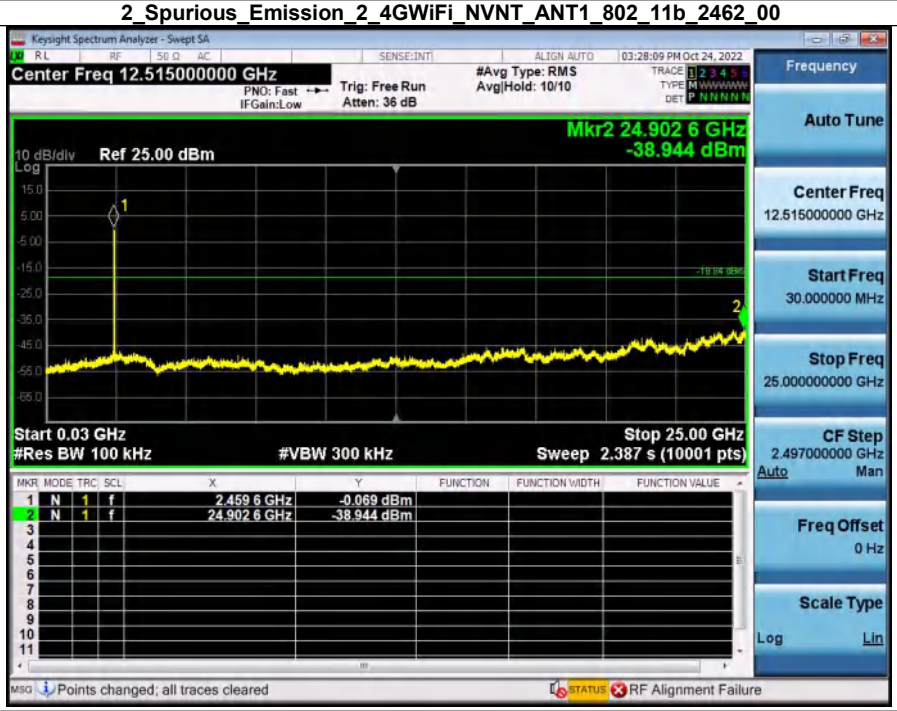


2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11b_2437_00

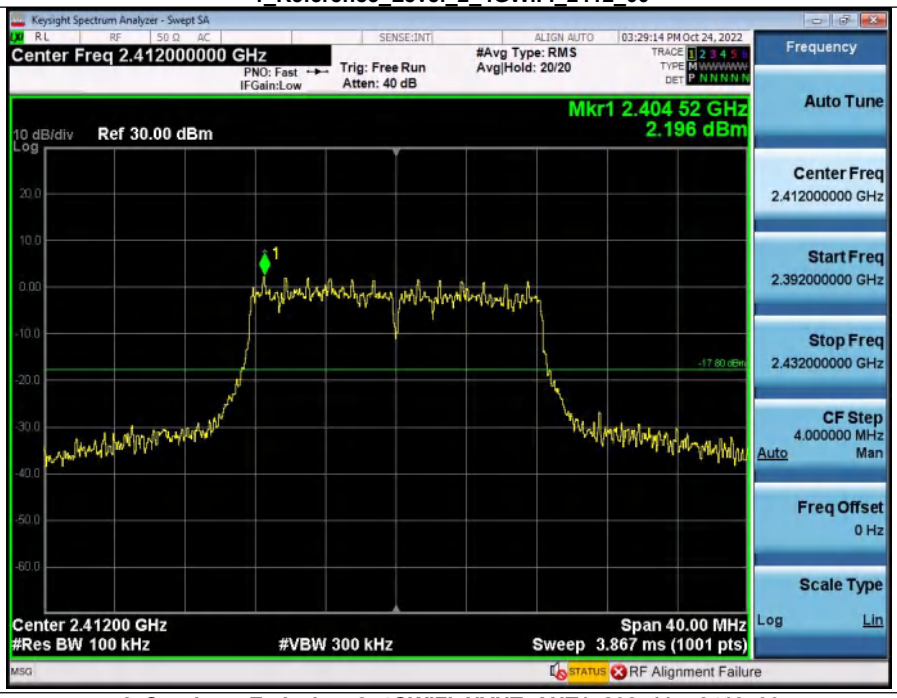


1_Reference_Level_2_4GWiFi_2462_00

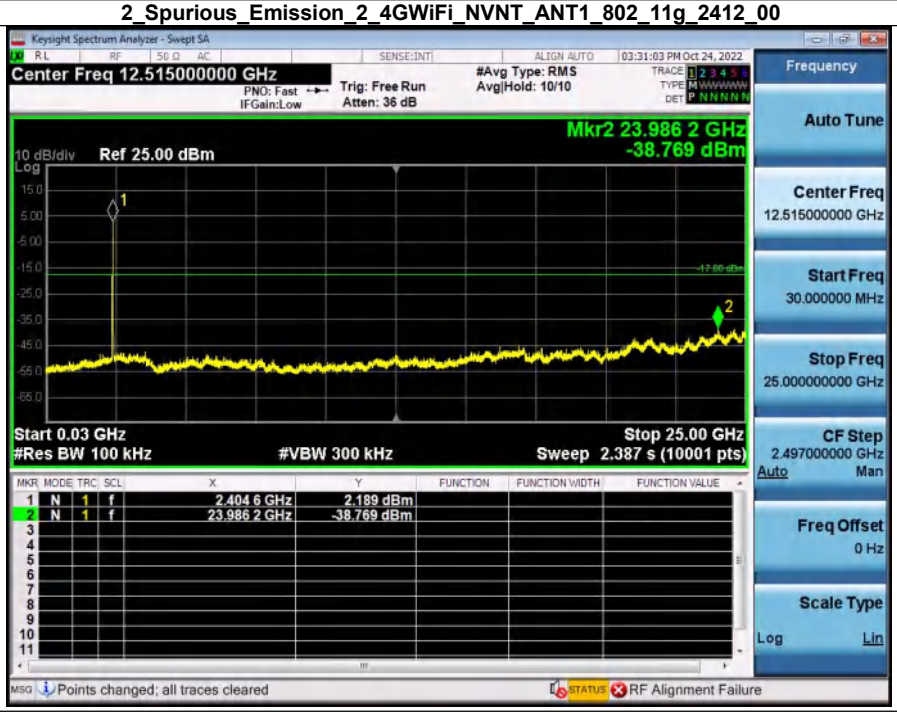
2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11b_2462_00



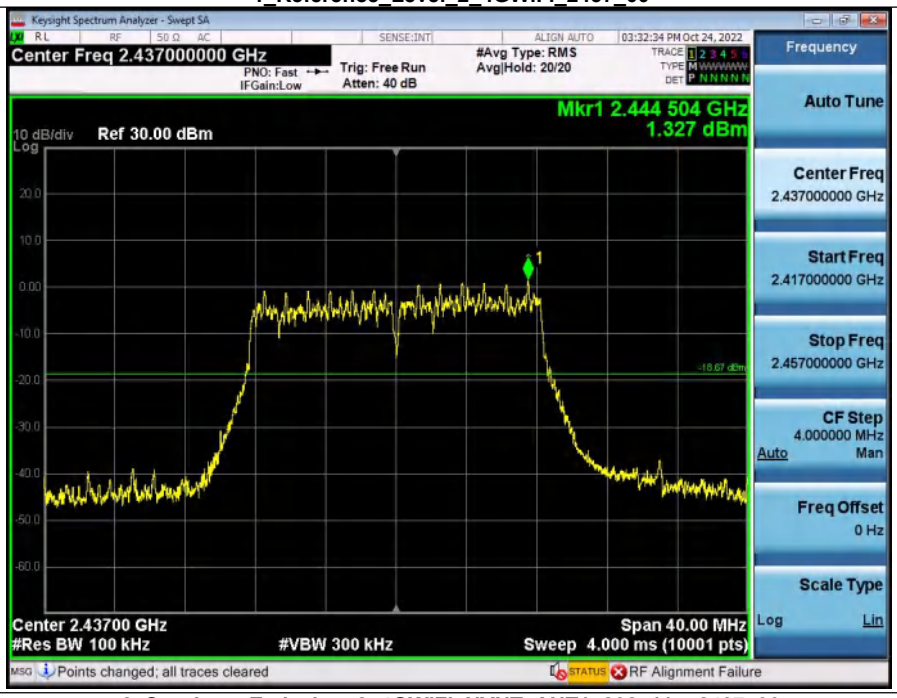
1_Reference_Level_2_4GWiFi_2412_00



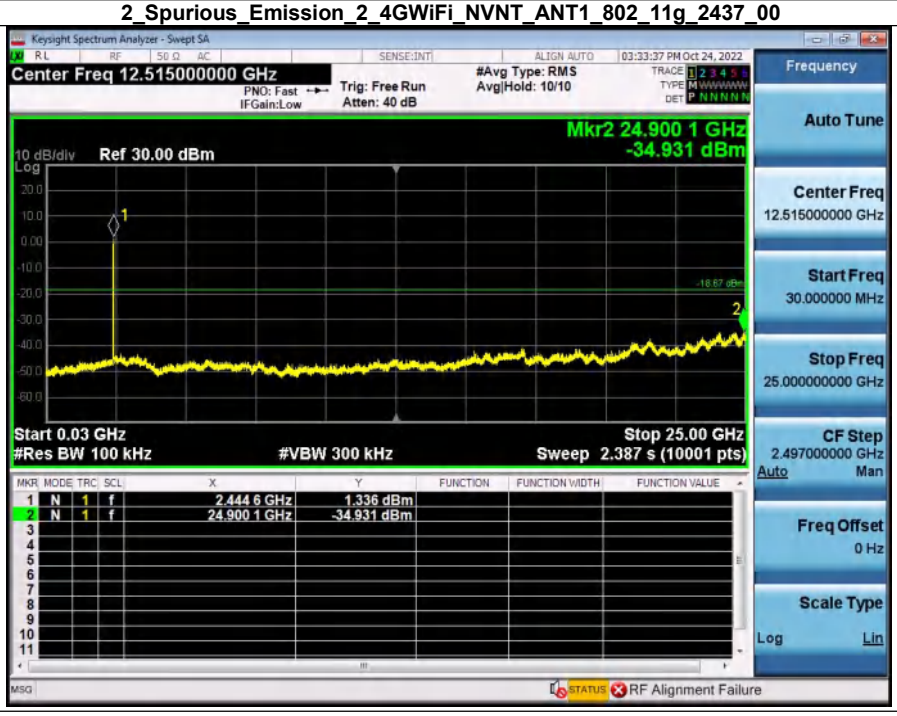
2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11g_2412_00



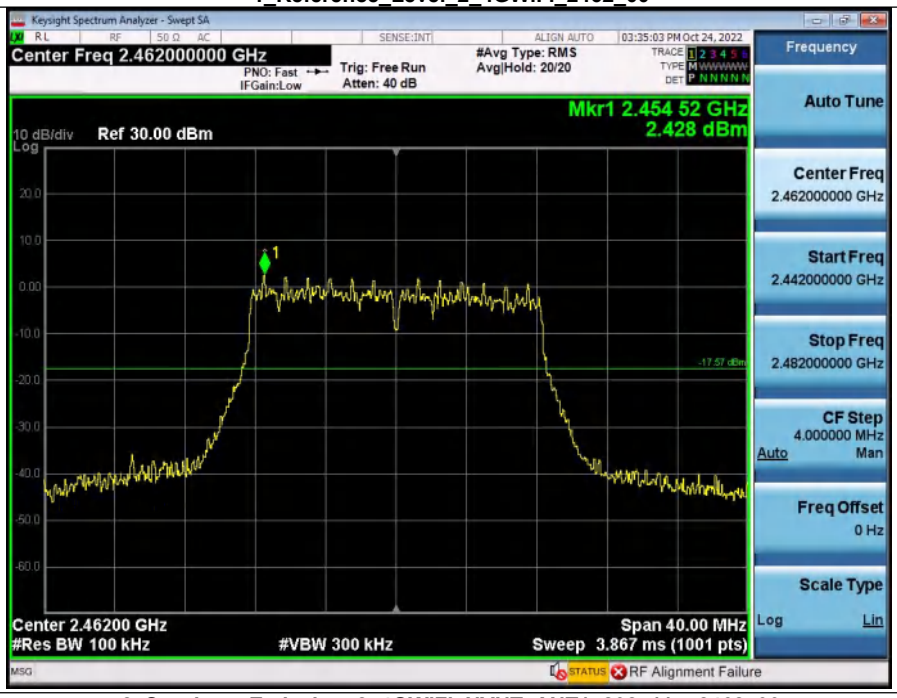
1_Reference_Level_2_4GWiFi_2437_00



2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11g_2437_00



1_Reference_Level_2_4GWiFi_2462_00



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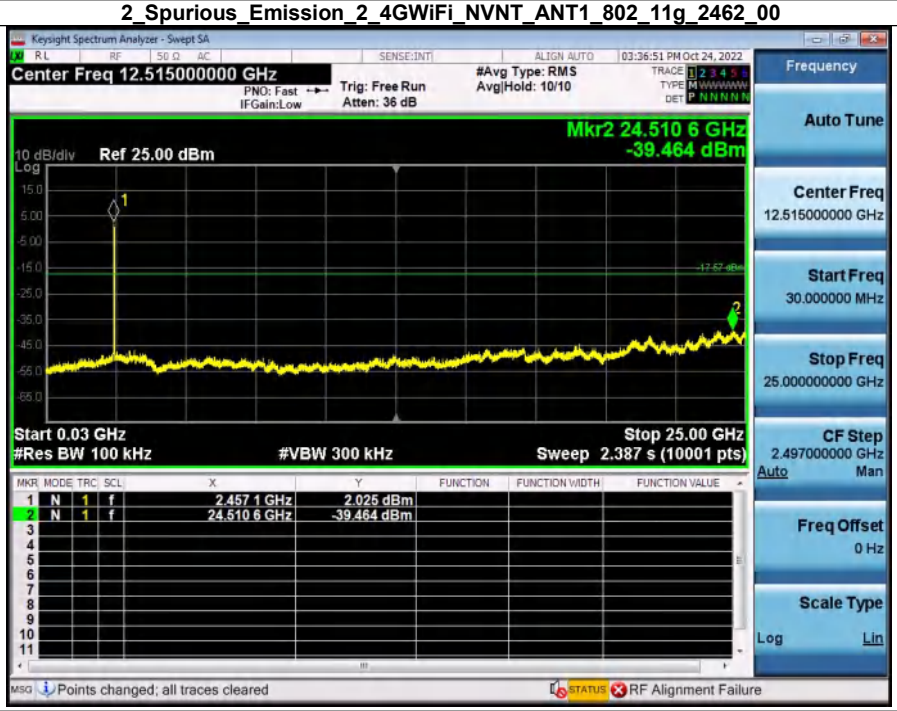
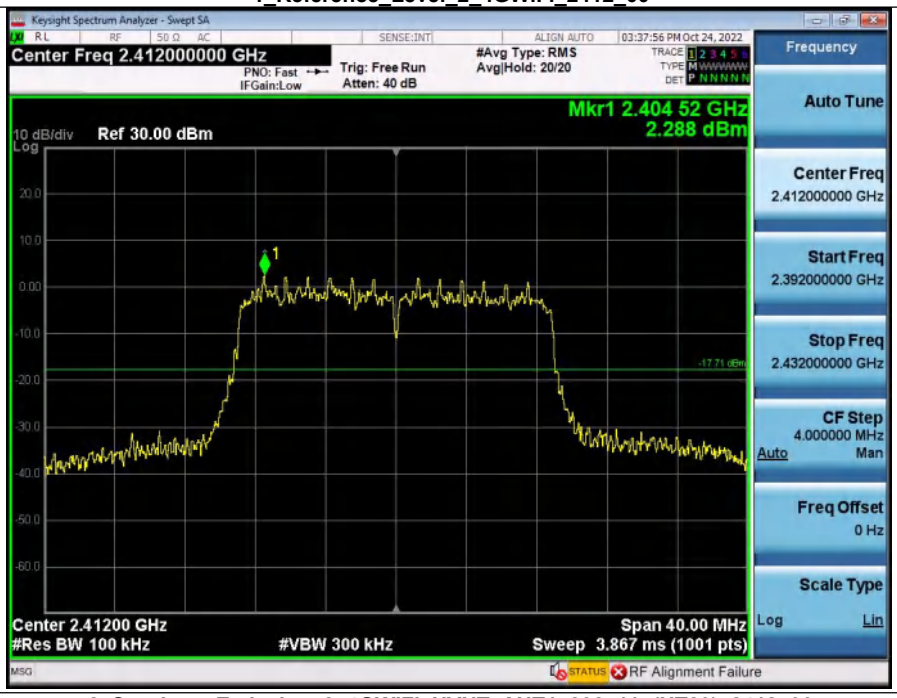
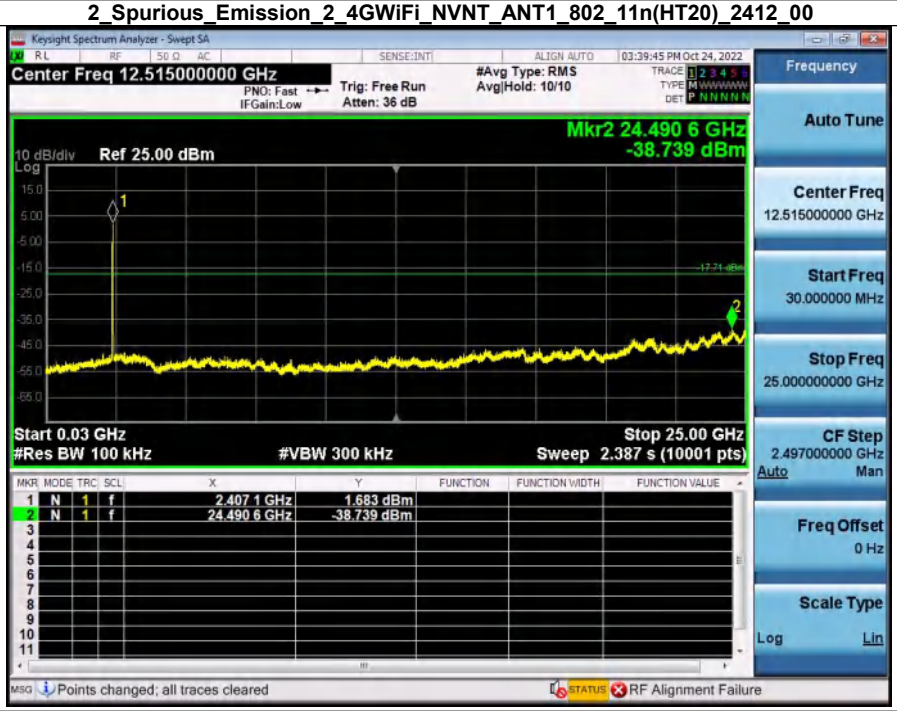


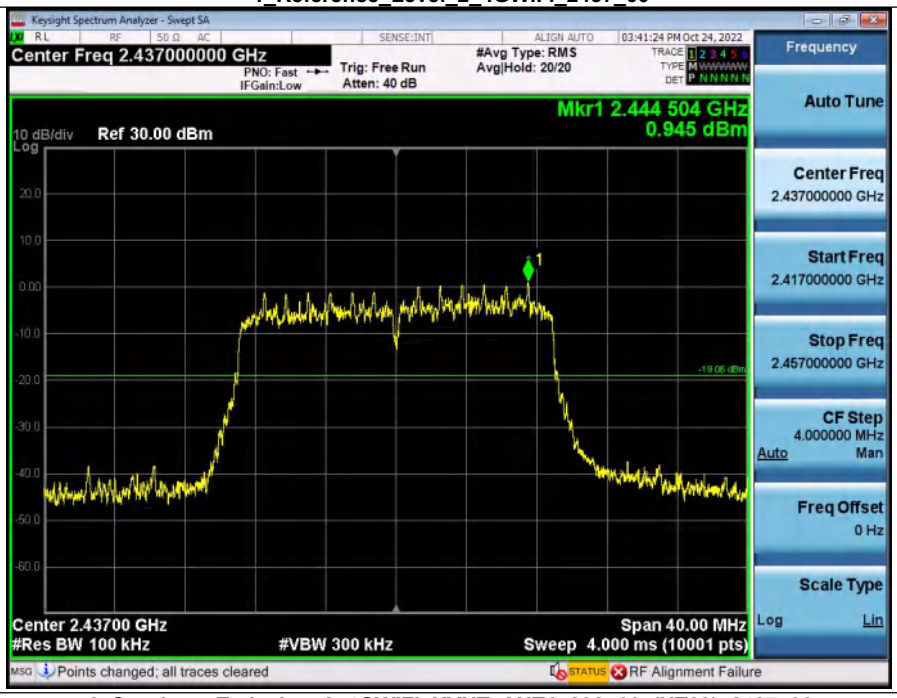
1_Reference_Level_2_4GWiFi_2412_00



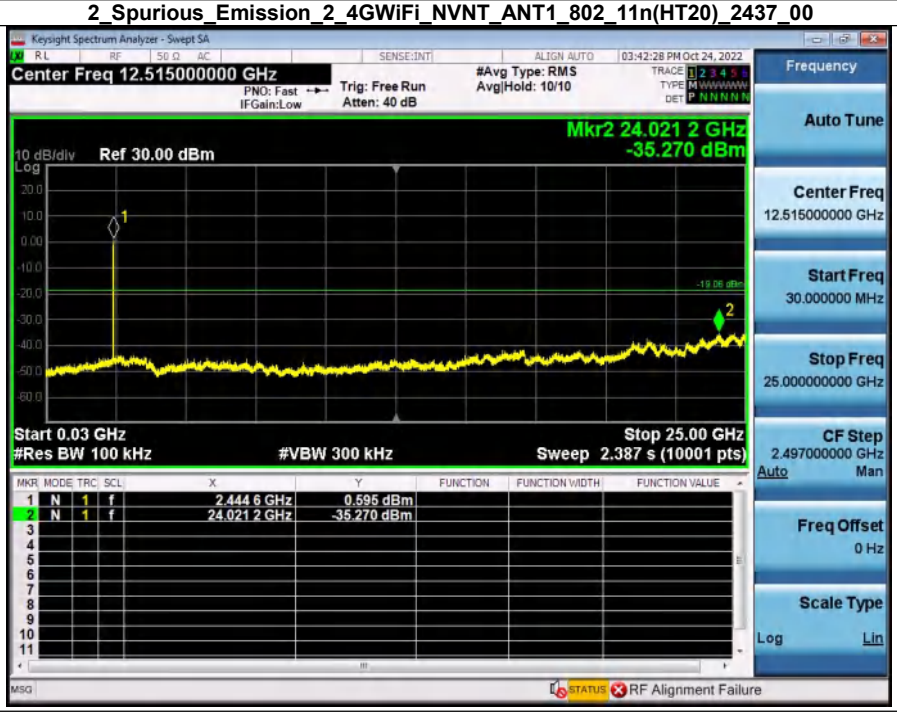
2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2412_00



1_Reference_Level_2_4GWiFi_2437_00

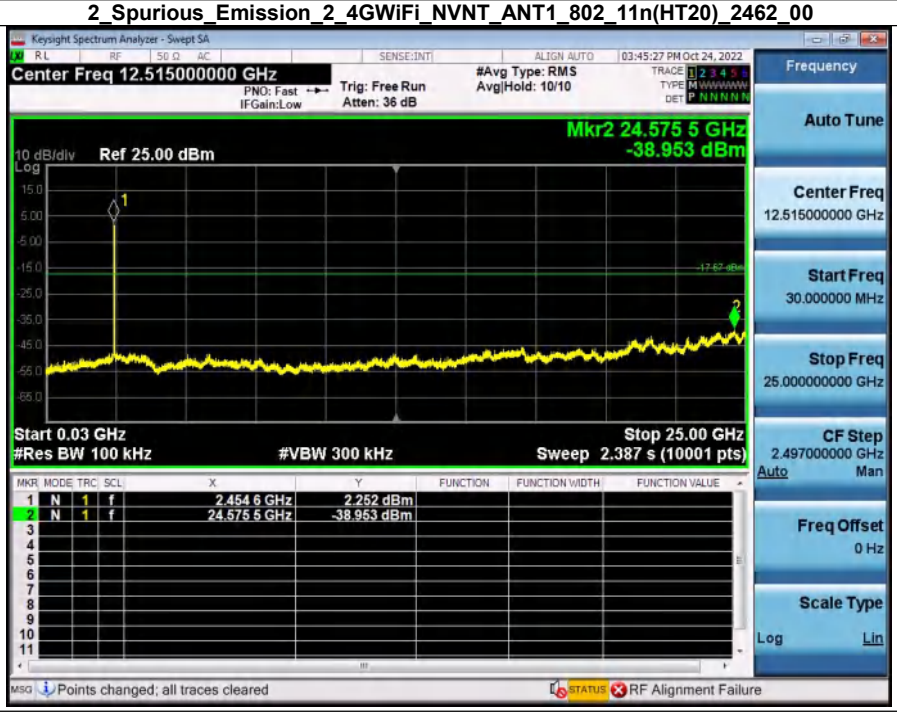


2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2437_00



1_Reference_Level_2_4GWiFi_2462_00

2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11n(HT20)_2462_00



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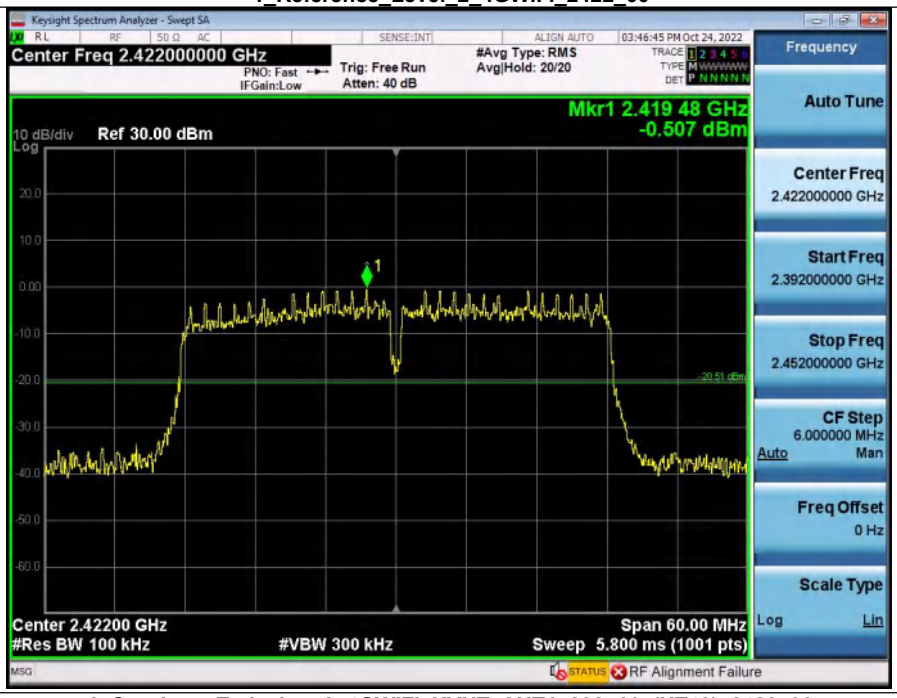
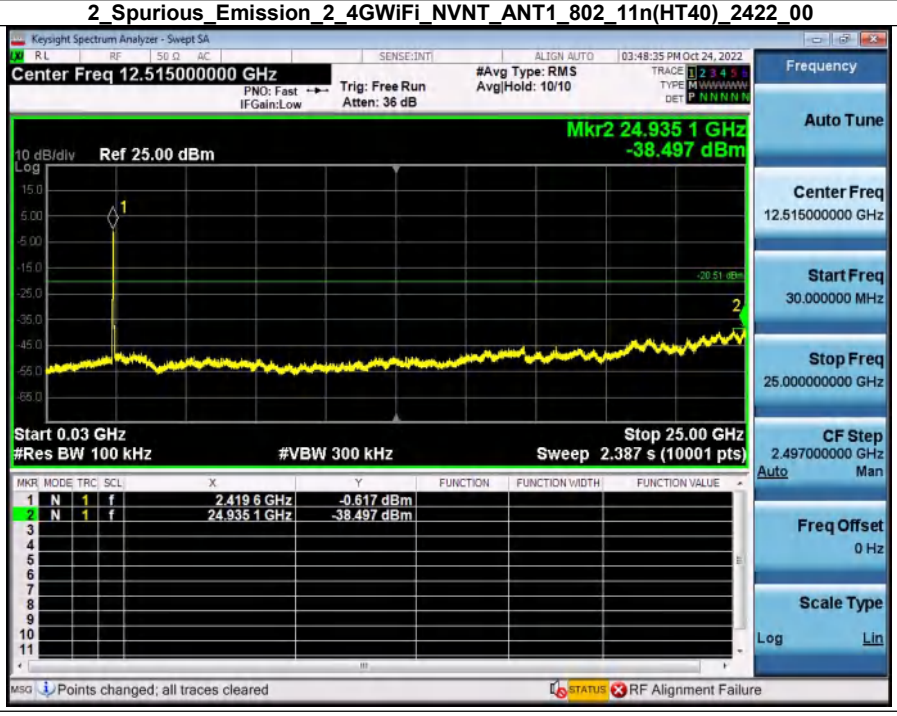


2_Spurious_Emission_2_4GWiFi_NVNT_ANT1_802_11n(HT40)_2422_00



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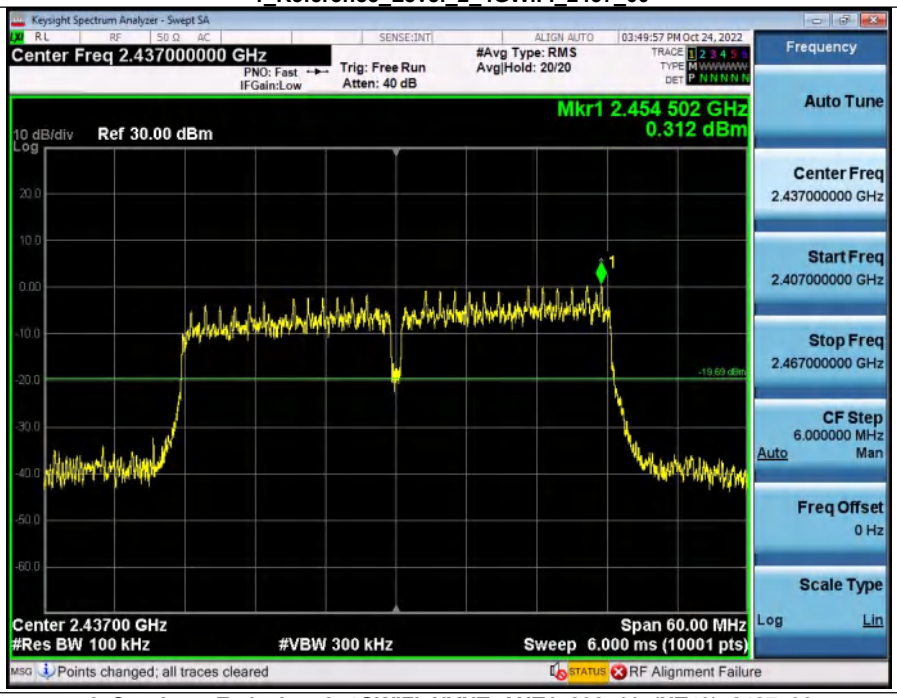

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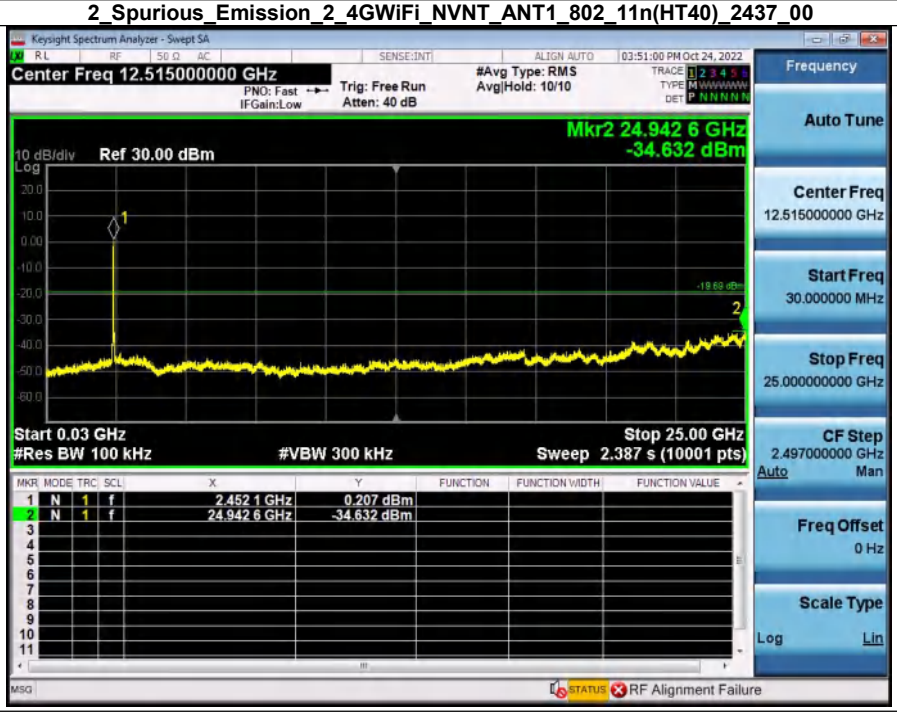
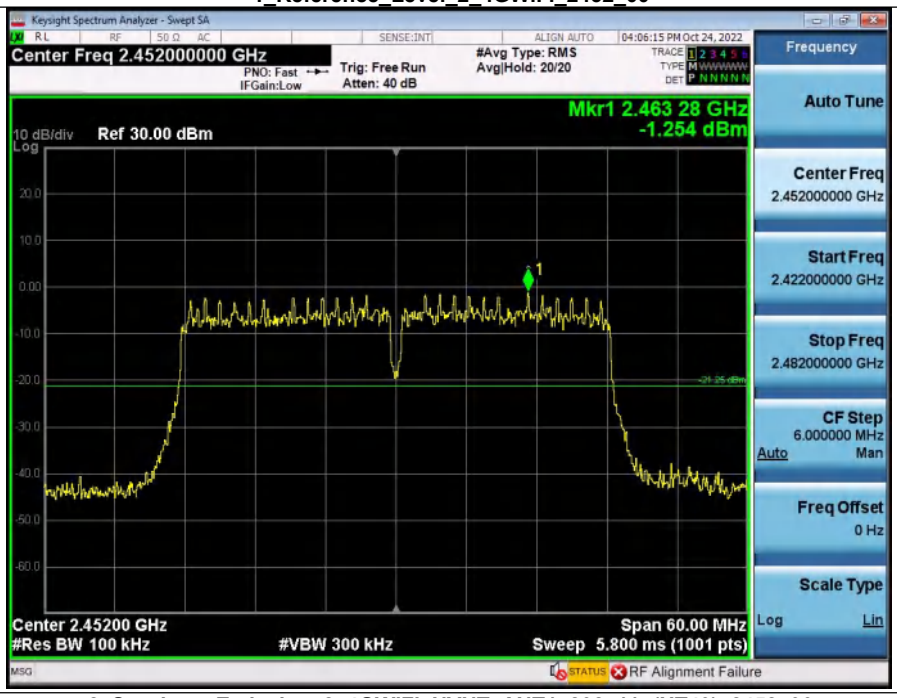


1_Reference_Level_2_4GWiFi_2452_00



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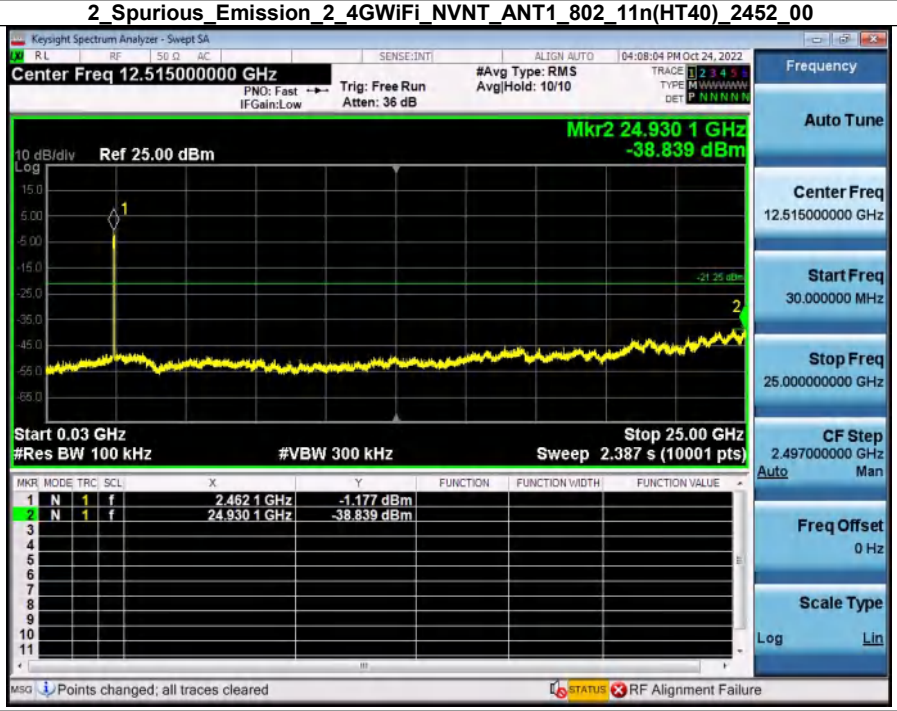

12. TEST SETUP PHOTO

Reference to the Test setup file for details.

13. EUT CONSTRUCTIONAL DETAILS

Reference to the external photos file and internal photos file for details.

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