RF TEST REPORT for Intentional Radiator
No. 150501932SSHA-001

Applicant	:	Hansong(Nanjing) Technology Ltd 8th Kangping Road, Jiangning Economy&Technology Development Zone, Nanjing, 211106, China
Manufacturer	:	Hansong(Nanjing) Technology Ltd 8th Kangping Road, Jiangning Economy&Technology Development Zone, Nanjing, 211106, China
Product Name	:	Network Media Module
Type/Model	:	LS6-N22S-M

SUMMARY

The equipment complies with the requirements according to the following standard(s):

47CFR Part 15 (2014): Radio Frequency Devices

ANSI C63.10 (2013): American National Standard for Testing Unlicensed Wireless Devices

RSS-247 Issue 1 (May 2015): Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

RSS-Gen Issue 4 (December 2014): General Requirements for Compliance of Radio Apparatus

Date of issue: Aug 04, 2015

Prepared by:

Wade Zhang

Wade Zhang (*Project Engineer*)

Reviewed by:

Daniel . Zhao

Daniel Zhao (*Reviewer*)

Description of Test Facility

Name:	Intertek Testing Services Limited Shanghai
Address:	Building No.86, 1198 Qinzhou Road(North), Shanghai 200233, P.R. China
FCC Registration Number:	236597
IC Assigned Code:	2042B-1
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Content

1. Test Summary

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Test Items	FCC Reference	Result
Minimum 6dB Bandwidth	15.247(a)(2)	Pass
Output power	15.247(b)	Pass
Power spectrum density	15.247(e)	Pass
Emissions in non-restricted frequency bands	15.247(d)	Pass
Emissions in restricted frequency bands	15.247(d) & 15.205 & 15.209	Pass
Power line conducted emission	15.207	NA

Note: NA =Not Applicable

2. General Information

2.1 Applicant Information

Applicant	:	Hansong(Nanjing) Technology Ltd 8th Kangping Road, Jiangning Economy&Technology Development Zone, Nanjing, 211106, China
Name of contact	:	Anya Sun
Tel	:	0086-025-66604242
Fax	:	0086-025-66612098
Manufacturer	:	Hansong(Nanjing) Technology Ltd 8th Kangping Road, Jiangning Economy&Technology Development Zone, Nanjing, 211106, China

2.2 Identification of the EUT

Equipment	:	Network Media Module
Type/model	:	LS6-N22S-M
FCC ID	:	XCO-LS6
IC	:	7756A-LS6

2.3 Technical specification

Operation Frequency Band	:	2412~2462 MHz
Type of Modulation	:	DBPSK, DQPSK, CCK, BPSK, QPSK, 16-QAM
Transfer Rate	:	802.11b: 11.0/5.5/2.0/1.0Mbps 802.11g: 54.0/48.0/36.0/24.0/18.0/12.0/9.0/6.0Mbps 802.11n: up to 130Mbps
EUT Modes of Modulation	:	802.11b/g; 802.11n(H20);
Channel Number	:	11Channel for 2412MHz~2462MHz for 11b,11g,11n(H20);
Description of EUT	:	The EUT is a Wi-Fi network media module, the device is a MIMO (2X2) product. It has two antennas, but the antennas are completely uncorrelated.
Antenna	:	1: RC1WFI0779A (3.0dBi Gain, FPCB antenna) 2: RC8WFI0063A (2.0dBi Gain, Dipole antenna)
Rating	:	7.4V DC Battery
Declared Temperature range	:	-20°C ~ 55°C
Category of EUT	:	Class B
EUT type	:	☒ Table top☐ Floor standing
Sample received date	:	2015.06.26
Sample Identification No	:	/
Date of test	:	2015.06.26 ~ 2015.08.04

3. Test Specification

3.1 Instrument list

Equipment	Type	Manu.	Internal no.	Cal. Date	Due date
Test Receiver	ESCS 30	R&S	EC 2107	2014-10-20	2015-10-19
Test Receiver	ESIB 26	R&S	EC 3045	2014-10-19	2015-10-18
Test Receiver	ESCI 7	R&S	EC4501	2014-12-24	2015-12-23
Spectrum Analyzer	N9030	Agilent	EC4890	2014-10-20	2015-10-19
A.M.N.	ESH2-Z5	R&S	EC 3119	2015-1-8	2016-1-7
Bilog Antenna	CBL 6112D	TESEQ	EC 4206	2015-4-26	2016-4-25
Horn antenna	HF 906	R&S	EC 3049	2015-4-26	2016-4-25
Horn antenna	3117	ETS	EC 4792-1	2015-4-16	2016-4-15
Horn antenna	HAP18-26W		EC 4792-3	2015-4-8	2016-4-7
Pre-amplifier	Pre-amp 18	R&S	EC 3222	2015-4-11	2016-4-10
Pre-amplifier	Tpa0118-40	R&S	EC 4792-2	2015-4-10	2016-4-9
Semi-anechoic chamber	-	Albatross project	EC 3048	2015-5-10	2016-5-9
Therom-Hygrograph	ZJ1-2A	S.M.I.F.	EC 3323	2015-4-13	2016-4-12
Pressure meter	YM3	Shanghai Mengde	EC 3320	2015-6-12	2016-6-11
Shielded room	-	Zhongyu	EC 2838	2015-1-11	2016-1-9
High Pass Filter	WHKX 1.0/15G-10SS	Wainwright	EC4297-1	2015-1-7	2016-1-6
High Pass Filter	WHKX 2.8/18G-12SS	Wainwright	EC4297-2	2015-1-7	2016-1-6
High Pass Filter	WHKX 7.0/1.8G-8SS	Wainwright	EC4297-3	2015-1-7	2016-1-6
Band Reject Filter	WRCGV 2400/2483-2390/2493-35/10SS	Wainwright	EC4297-4	2015-1-7	2016-1-6
Power sensor / Power meter	N1911A/N1921A	Agilent	EC4318	2015-4-8	2016-4-7

3.2 Test Standard

47CFR Part 15 (2014): Radio Frequency Devices

ANSI C63.10 (2013): American National Standard for Testing Unlicensed Wireless Devices

RSS-247 Issue 1 (May 2015): Digital Transmission Systems (DTSs), Frequency Hopping Systems (FHSs) and Licence-Exempt Local Area Network (LE-LAN) Devices

RSS-Gen Issue 4 (December 2014): General Requirements for Compliance of Radio Apparatus

3.3 Mode of operation during the test / Test peripherals used

Operation Frequency each of channel For 802.11b/g/n(H20)							
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 as representatives, and the selected channel see below:

Modulation	Lowest(MHz)	Middle(MHz)	Highest(MHz)
802.11b	2412	2437	2462
802.11g	2412	2437	2462
802.11n(H20)	2412	2437	2462

While testing transmitting mode of EUT, the internal modulation and continuously transmission was applied.

The test setting software and command is offered by the manufactory.

We have verified the construction and function in typical operation. All the test modes were carried out with the EUT in transmitting operation, the pre-scan for all data rates in each modulation and bands was tested, and the worst case was found and used in all test cases.

After this pre-scan, we choose the following table of the data rata as the final test mode.

Modulation	Data rate
802.11b	1Mbps
802.11g	6Mbps
802.11n20	6.5Mbps
Duty cycle setting during the transmission is 100% with maximum power setting for all modulations.	

Radiated test construction:
Mode 1: EUT with antenna 1;
Mode 2: EUT with antenna 2;

Conducted test construction:
Mode 3: EUT RF port connected to SPA directly;

Test peripherals used:

Item No	Description	Band and Model	S/No
1	Laptop computer	HP ProBook 6470b	NA
2	RS-232 cable	1.8m Unshieling	NA
Note: The accessories are used for configuration only and not used during test.			

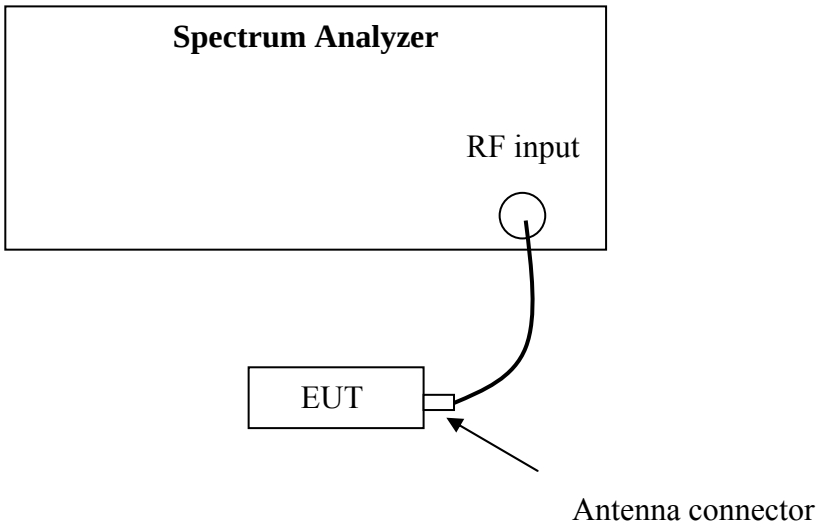
4. Minimum 6dB Bandwidth

Test result: PASS

4.1 Limit

For systems using digital modulation techniques that 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.

4.2 Test Configuration



4.3 Test Procedure and test setup

The minimum 6dB bandwidth per FCC §15.247(a)(2) is measured using the Spectrum Analyzer according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" for compliance to FCC 47CFR 15.247 requirements(clause 8.2).

a) Set RBW = 100 kHz.
b) Set the video bandwidth (VBW) ≥ 3RBW.
c) Detector = Peak.
d) Trace mode = max hold.
e) Sweep = auto couple.
f) Allow the trace to stabilize.
g) 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.

4.4 Test Protocol

Temperature: 22°C
Relative Humidity: 53%

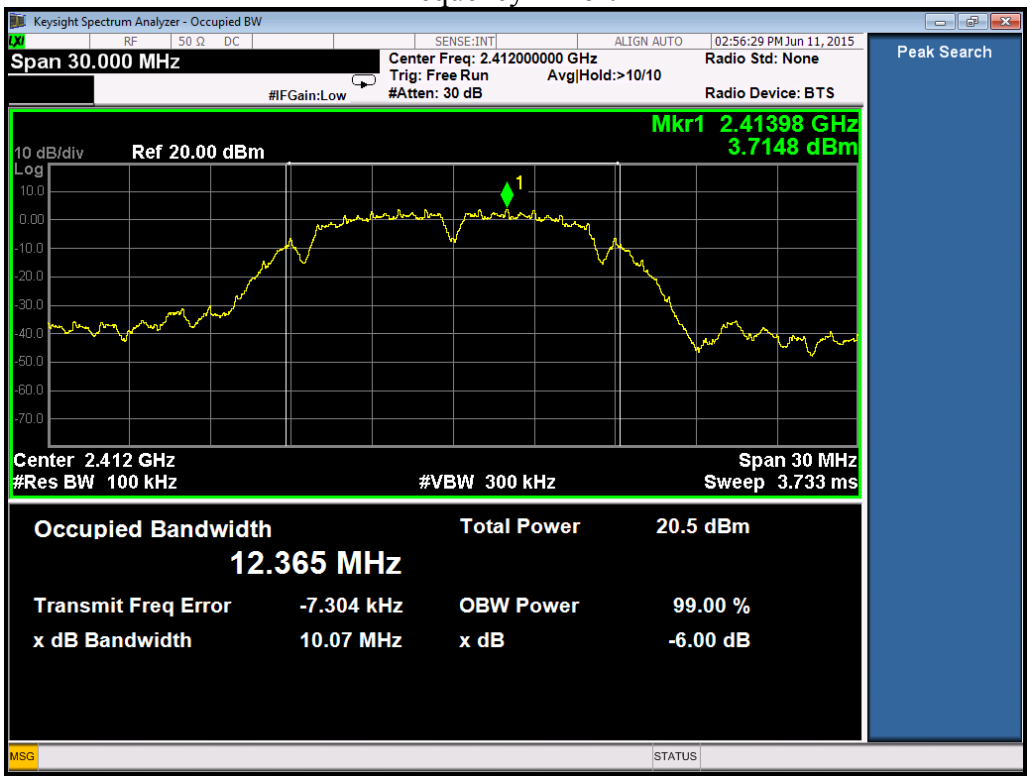
Mode	CH	6dB Emission Bandwidth (MHz)		Limit (MHz)
		Port 1	Port 2	
802.11b	L	10.07	10.06	⩾0.5
	M	10.06	10.07	
	H	10.07	10.07	
802.11g	L	16.59	16.56	
	M	16.57	16.58	
	H	16.59	16.58	
802.11n(H20)	L	17.72	17.66	
	M	17.70	17.70	
	H	17.71	17.69	

Mode	CH	99% Occupy Bandwidth (MHz)		Limit (MHz)
		Port 1	Port 2	
802.11b	L	12.365	12.258	NA
	M	12.313	12.248	
	H	12.294	12.255	
802.11g	L	16.536	16.503	
	M	16.533	16.493	
	H	16.528	16.512	
802.11n(H20)	L	17.631	17.602	
	M	17.608	17.599	
	H	17.609	17.606	

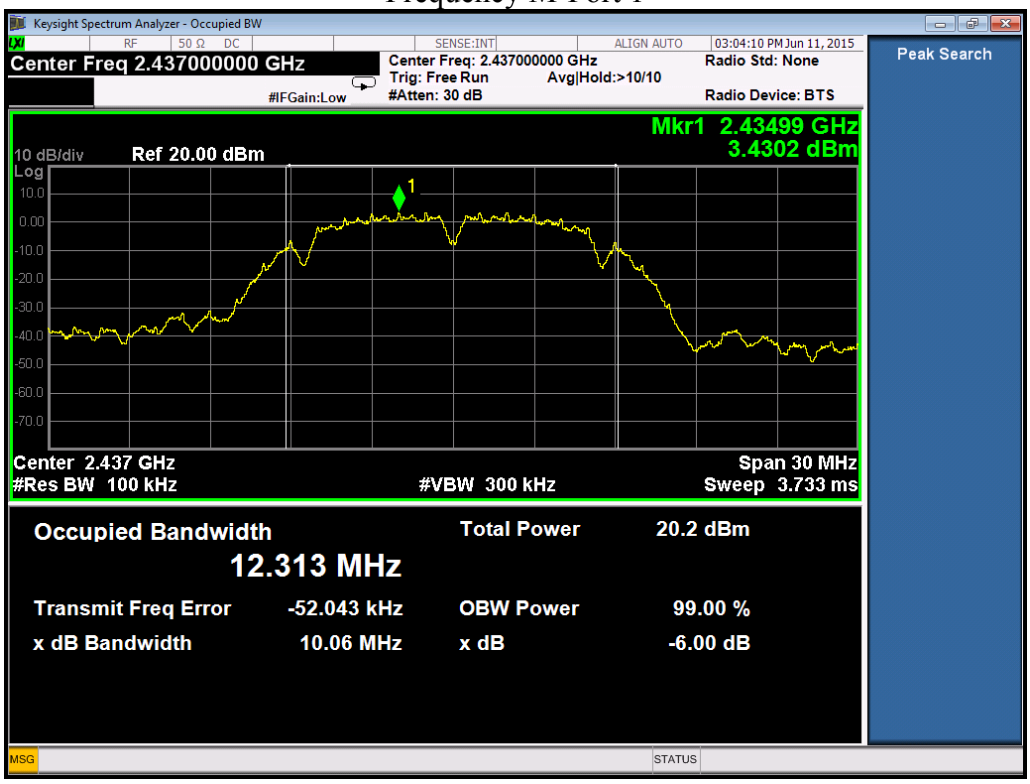
Test plot as follows:

802.11b

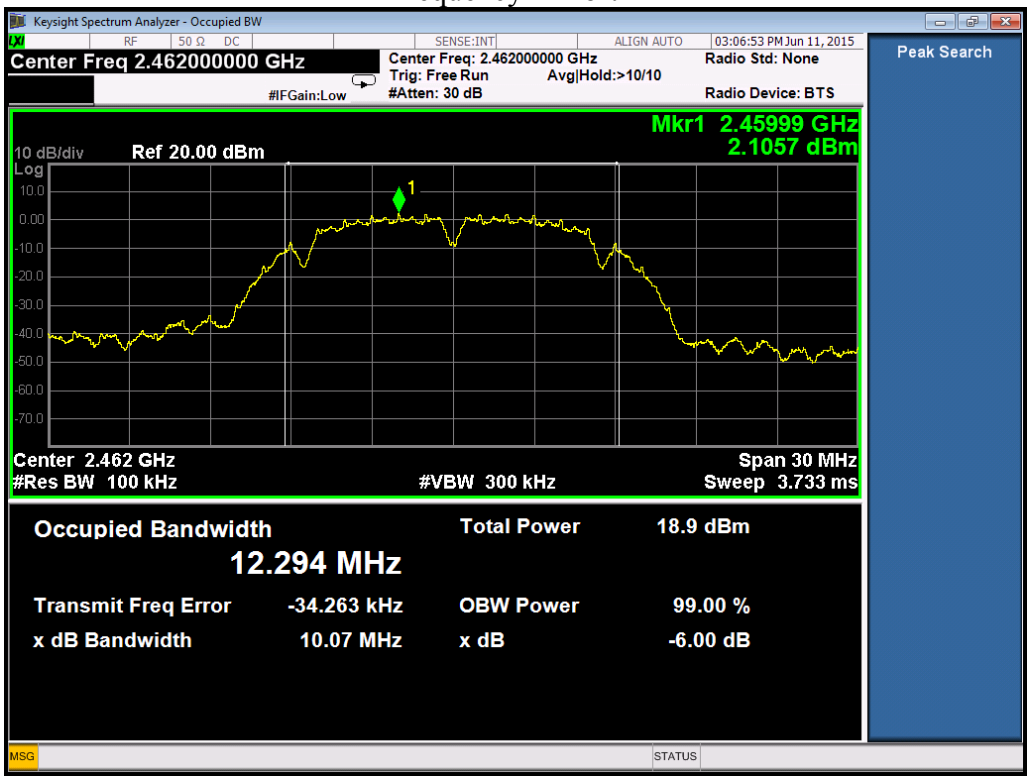
Frequency L-Port 1



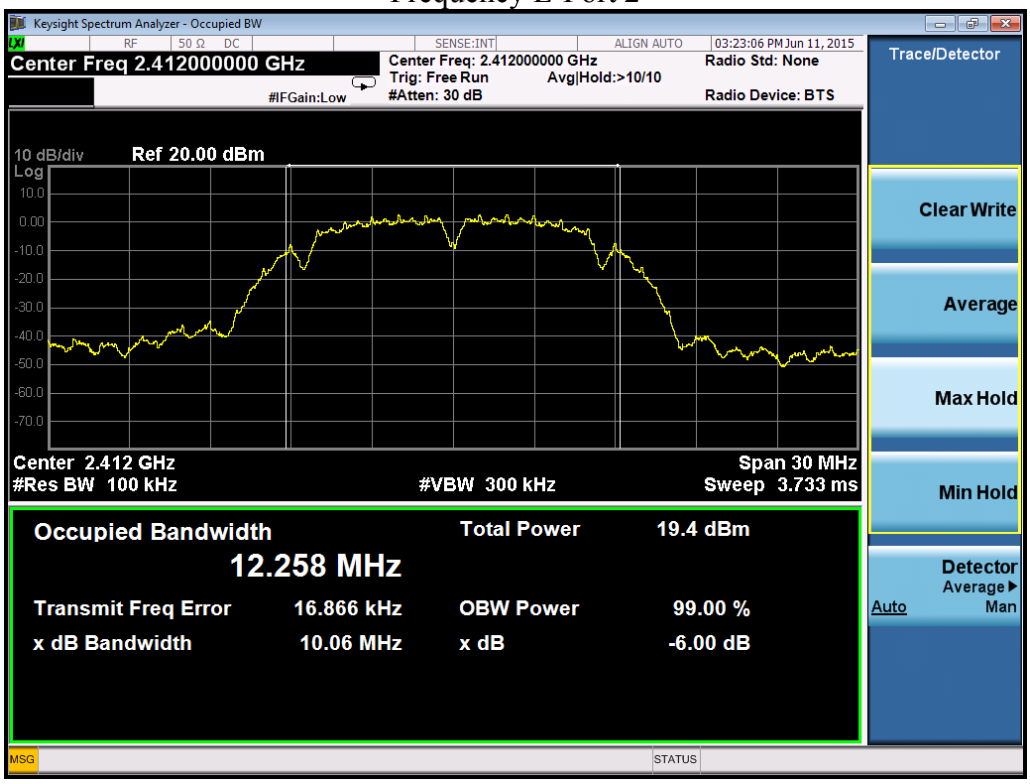
Frequency M-Port 1



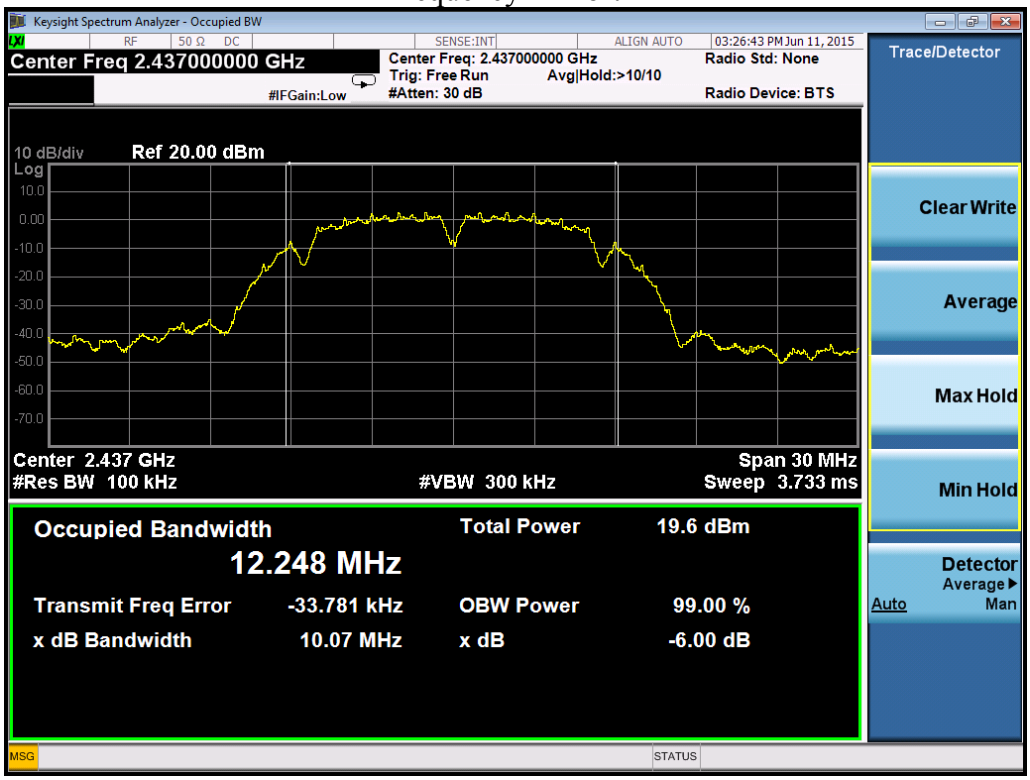
Frequency H-Port 1



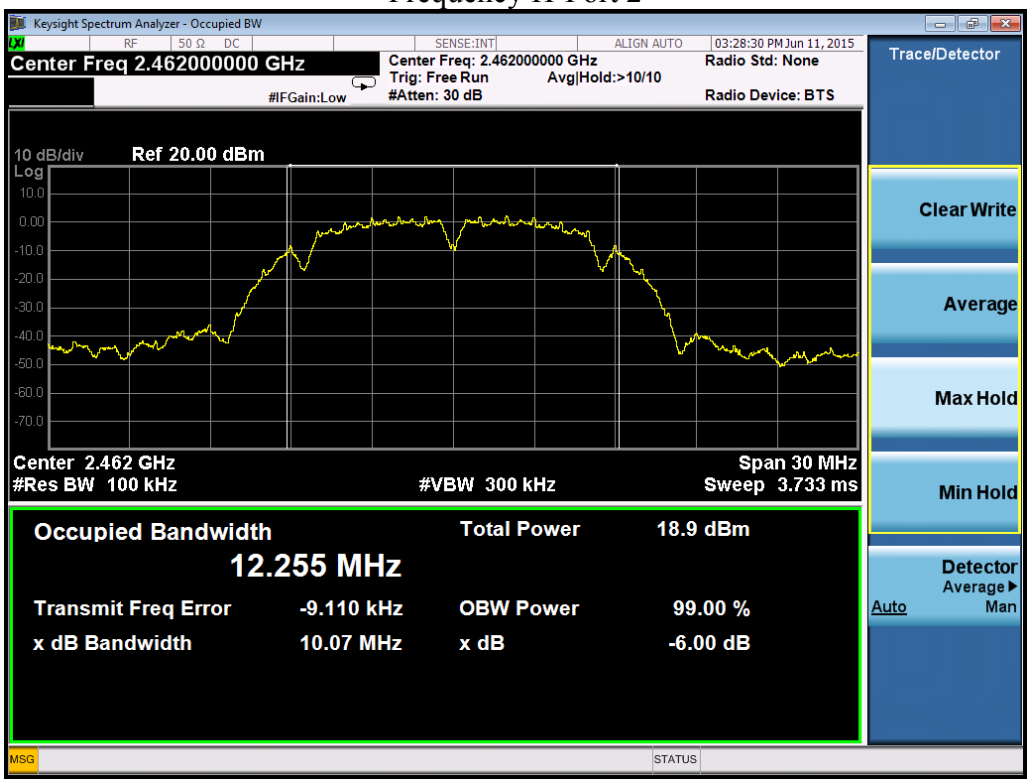
Frequency L-Port 2



Frequency M-Port 2

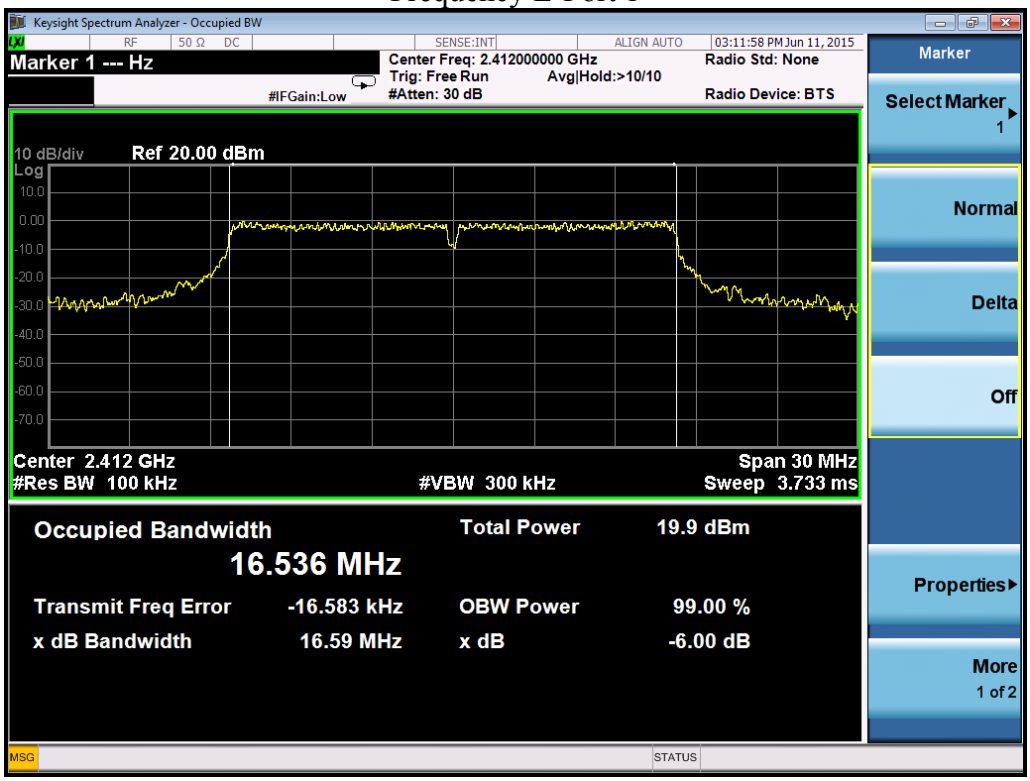


Frequency H-Port 2

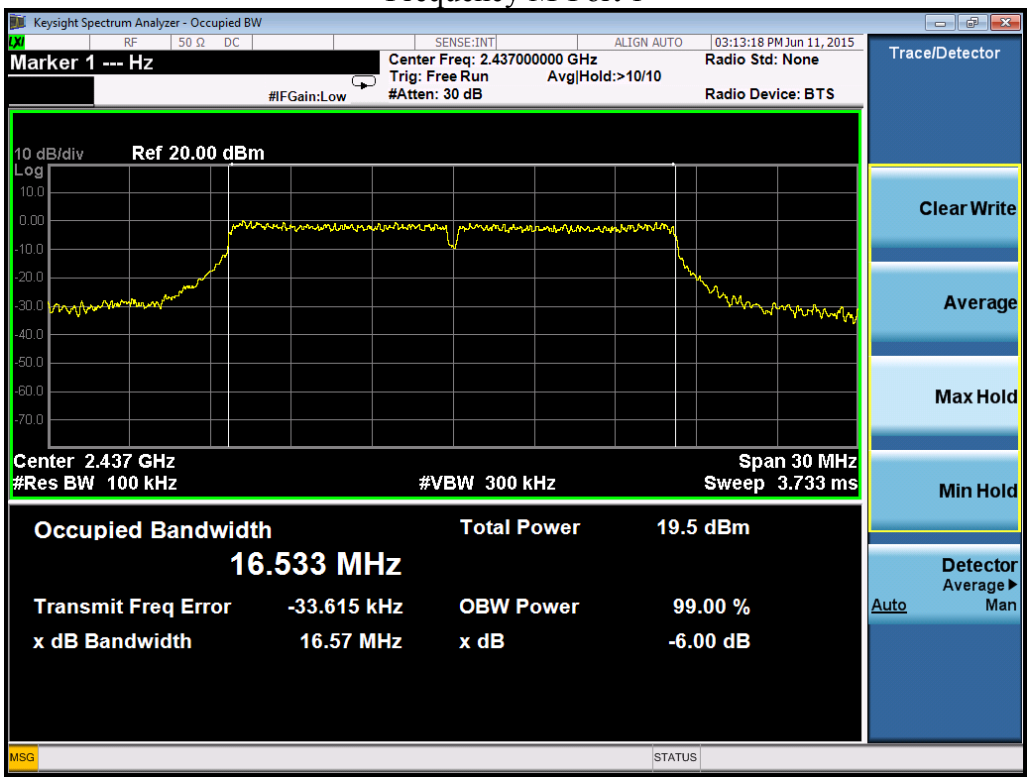


802.11g

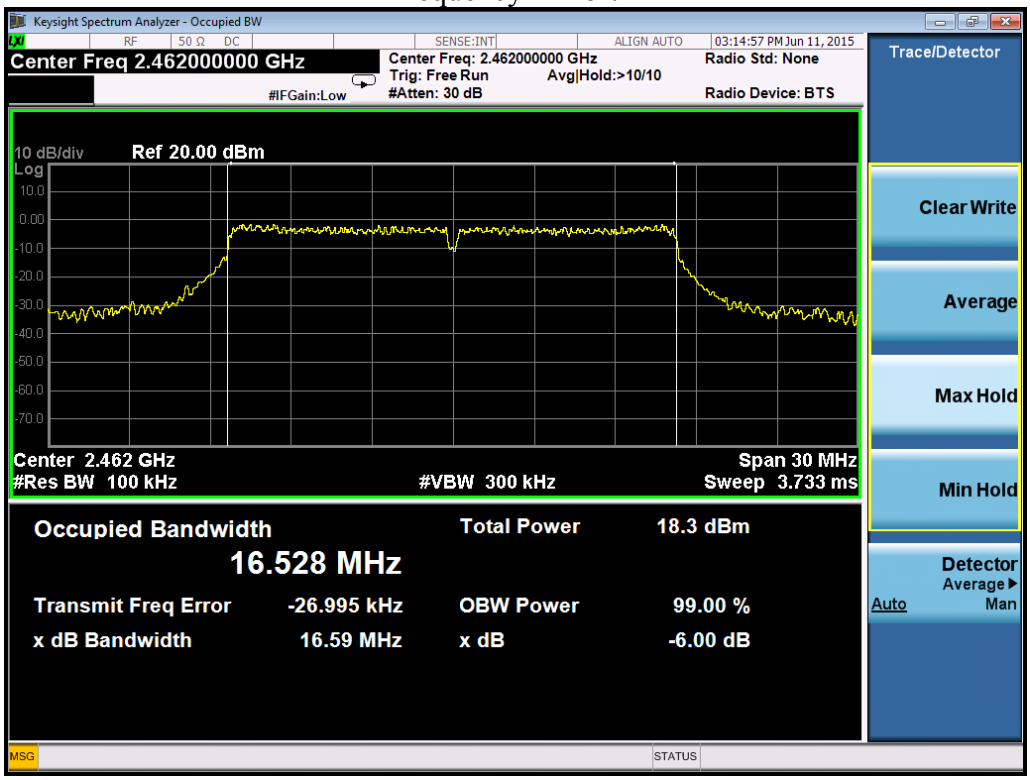
Frequency L-Port 1



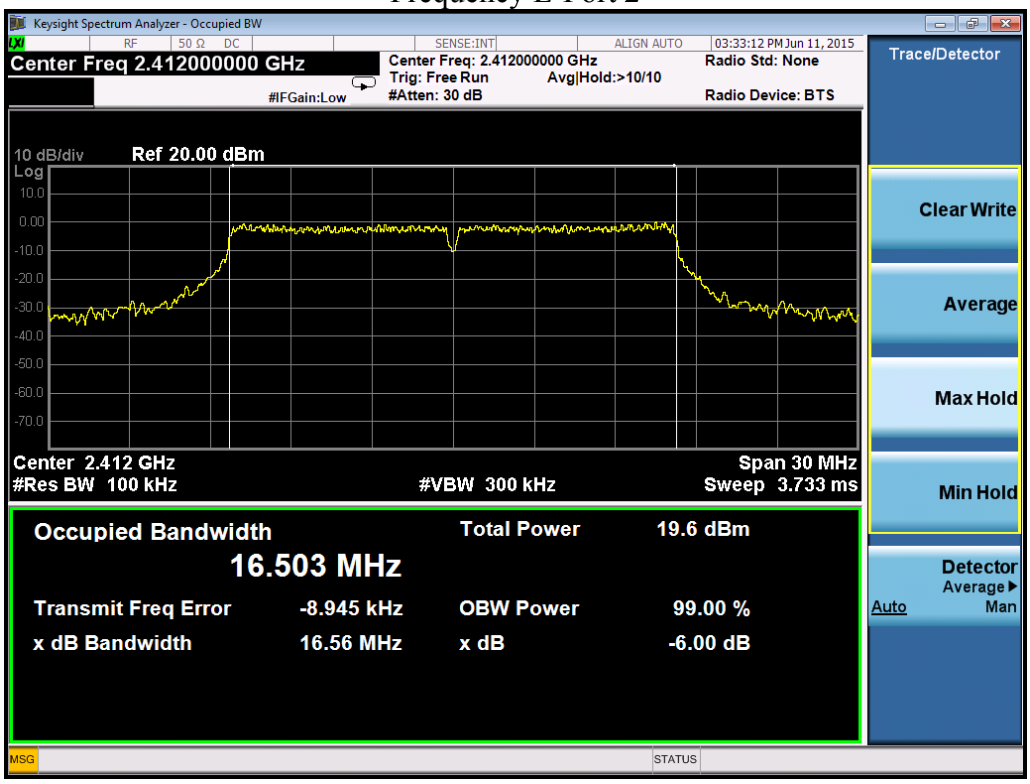
Frequency M-Port 1



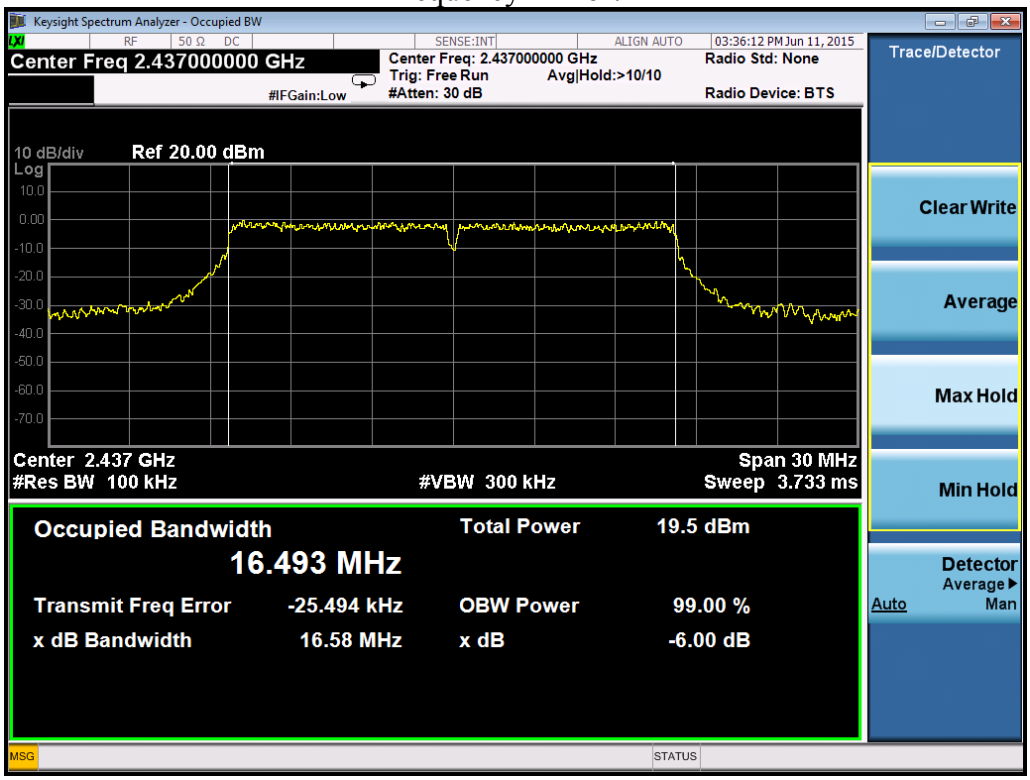
Frequency H-Port 1



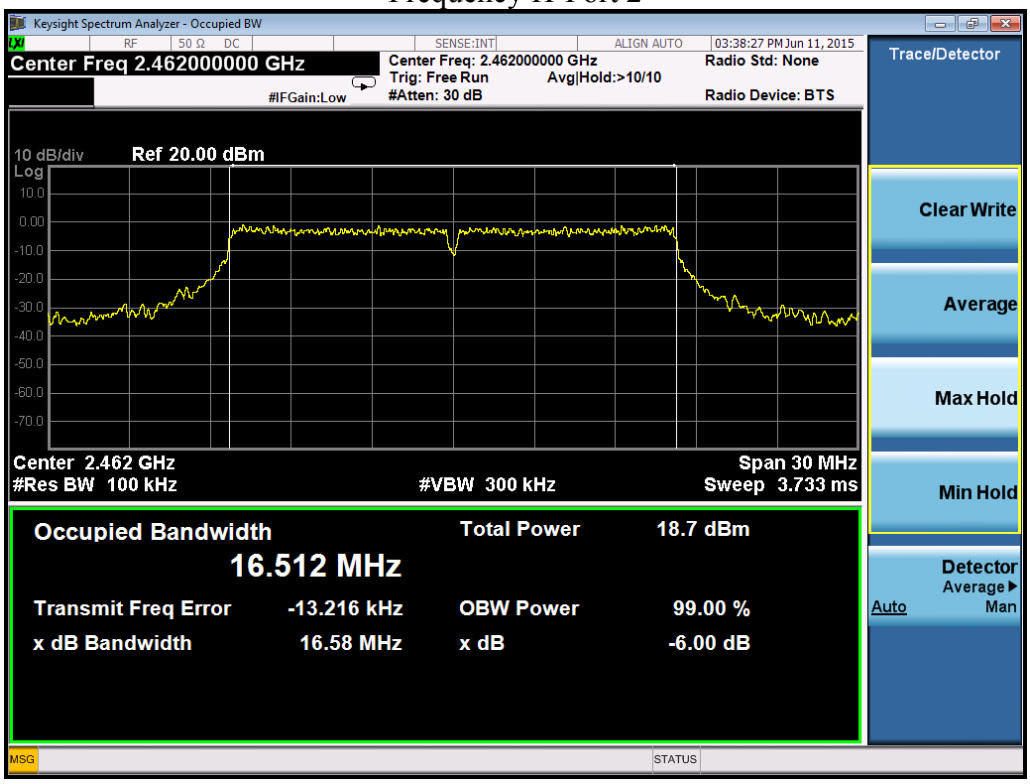
Frequency L-Port 2



Frequency M-Port 2

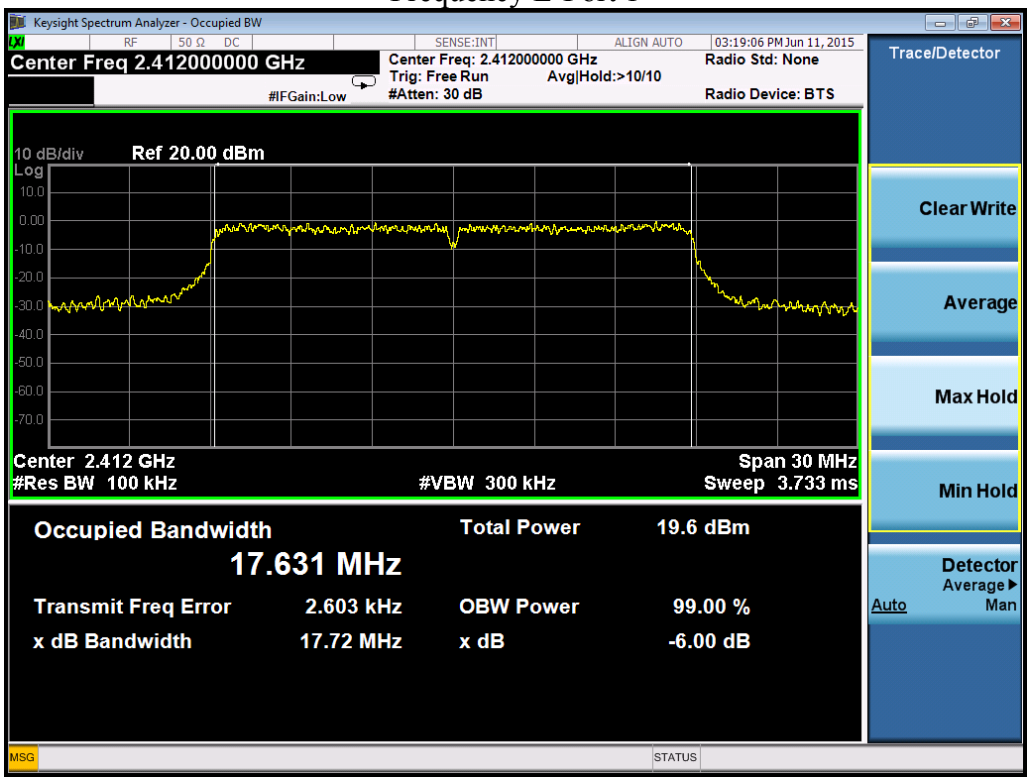


Frequency H-Port 2

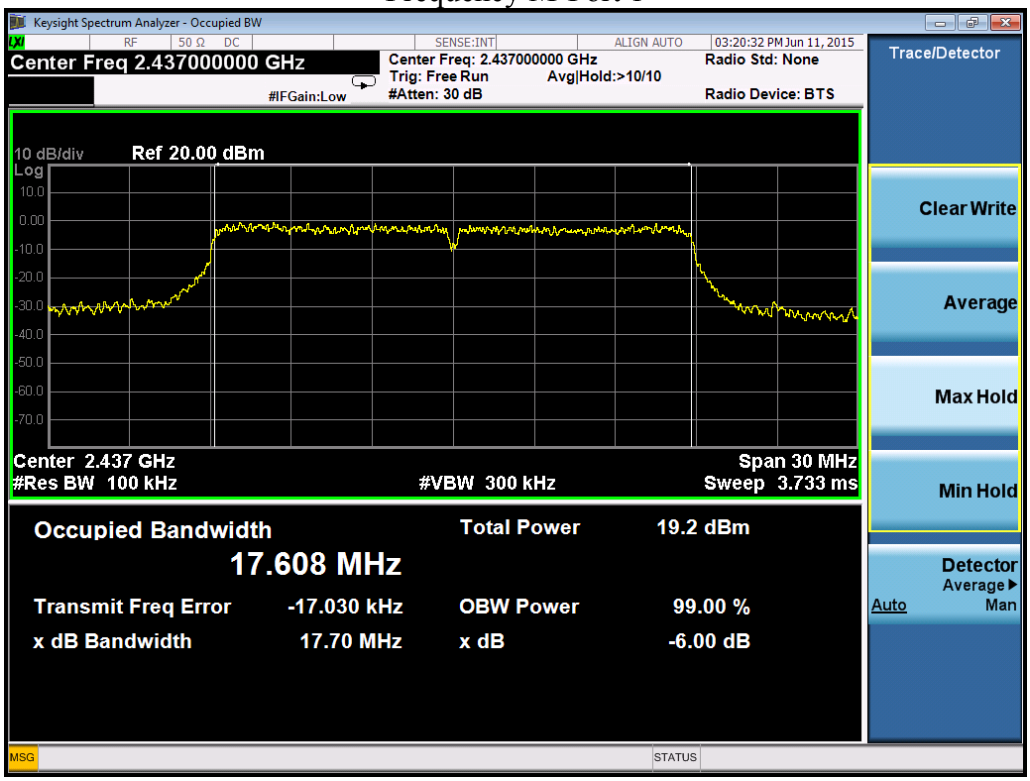


802.11n(H20)

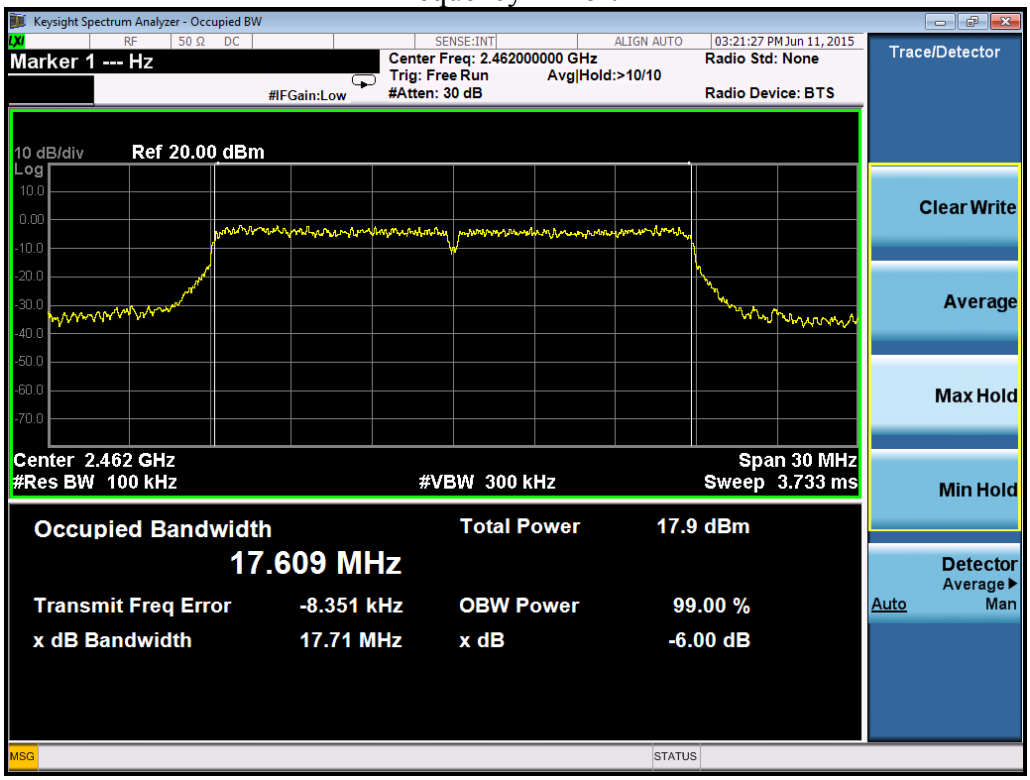
Frequency L-Port 1



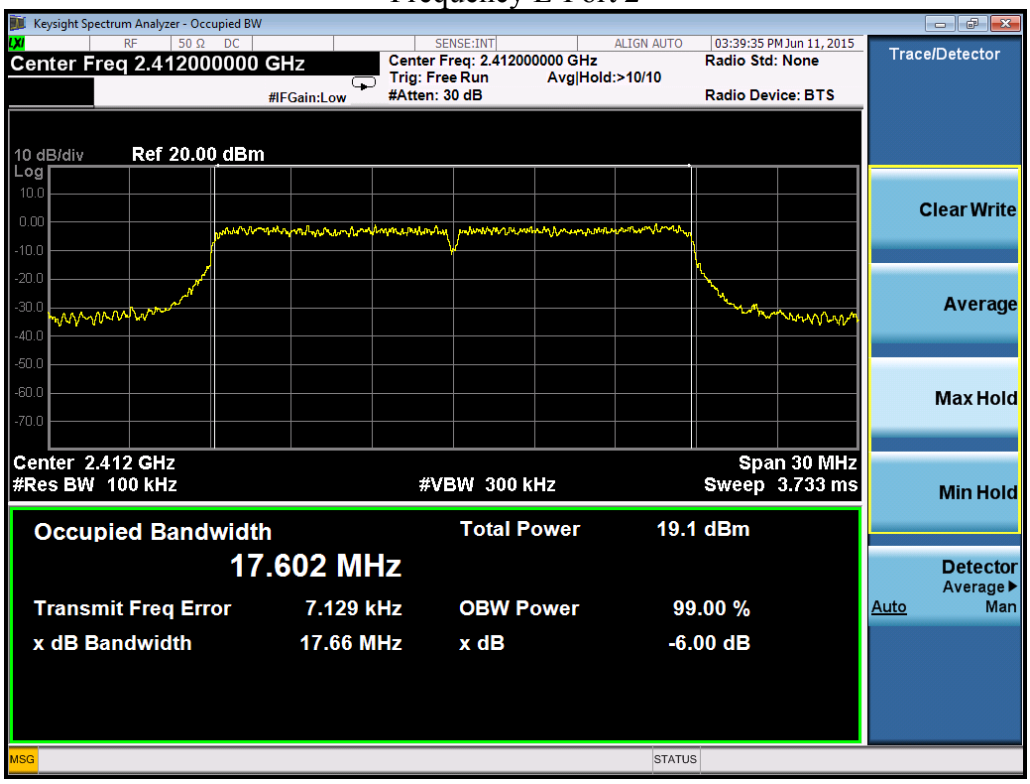
Frequency M-Port 1



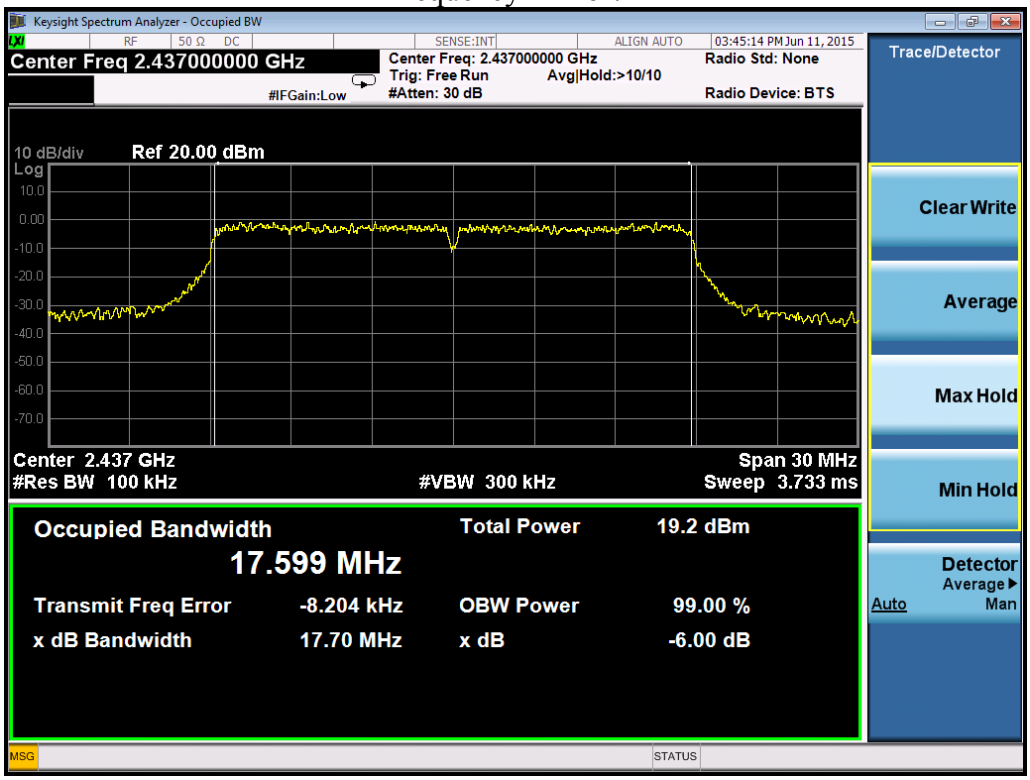
Frequency H-Port 1



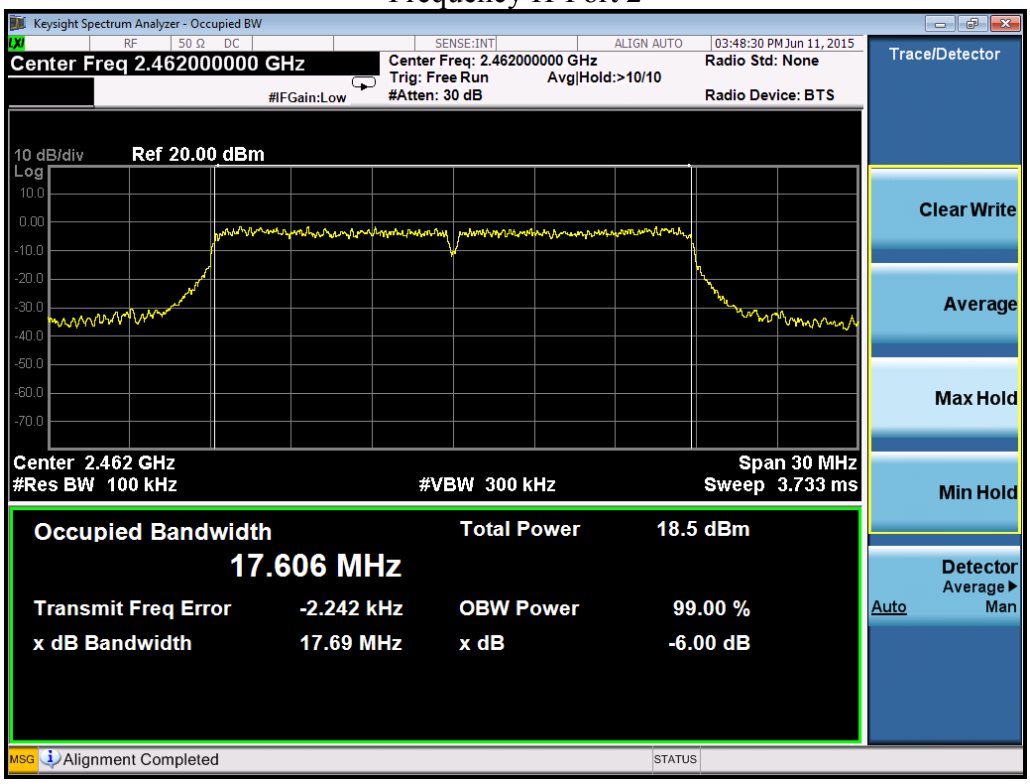
Frequency L-Port 2



Frequency M-Port 2



Frequency H-Port 2



5. Maximum Conducted Output power

Test result: Pass

5.1 Test limit

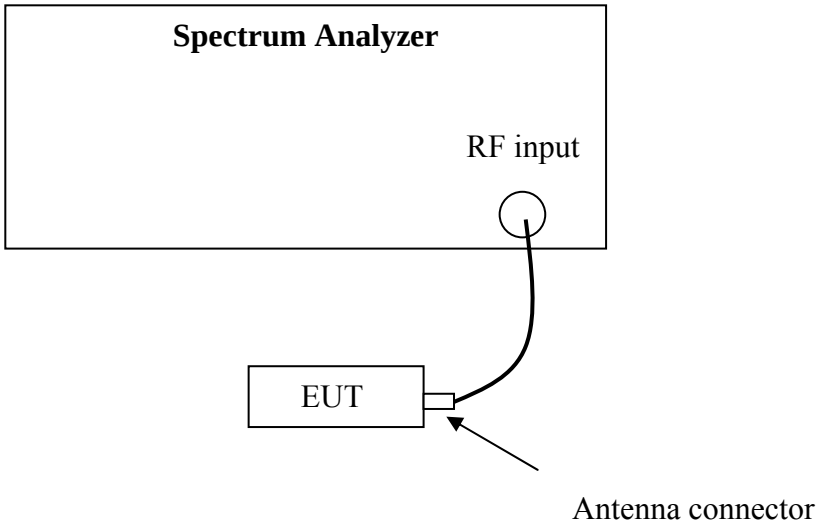
☐ For frequency hopping systems operating in the 2400-2483.5 MHz band employing at least 75 non-overlapping hopping channels, and all frequency hopping systems in the 5725-5850 MHz band: 1 watt

☐ For all other frequency hopping systems in the 2400-2483.5 MHz band: 0.125 watts

☒ For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt.

If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. If there have a beam forming type, the limit should be the minimum of 30dBm and 30+ (6 –antenna gain-beam forming gain).

5.2 Test Configuration



5.3 Test procedure and test setup

The EUT was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" for compliance to FCC 47CFR 15.247 requirements (clause 9.1.2).

5.4 Test protocol

Temperature: 22 °C
Relative Humidity: 53 %

Mode	Frequency (MHz)	Reading (dBm)		Total Power (mw)	Total Power (dBm)	Limit (dBm)	Margin (dB)
		Port0	Port 1				
802.11b	2412	21.29	20.15	238.10	23.77	30.00	6.23
	2437	20.66	20.01	216.64	23.36	30.00	6.64
	2462	20.01	19.96	199.31	23.00	30.00	7.00
802.11g	2412	24.43	24.94	589.22	27.70	30.00	2.30
	2437	24.25	24.49	547.26	27.38	30.00	2.62
	2462	23.95	24.53	532.11	27.26	30.00	2.74
802.11n20	2412	24.19	24.28	530.34	27.25	30.00	2.75
	2437	23.59	24.24	494.02	26.94	30.00	3.06
	2462	23.32	24.07	470.05	26.72	30.00	3.28

6. Power spectrum density

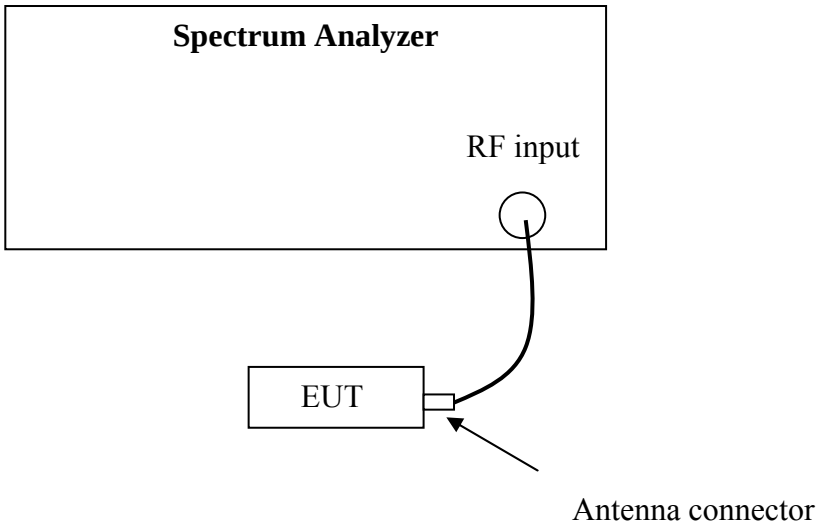
Test result: **Pass**

6.1 Test limit

For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8dBm in any 3 kHz band during any time interval of continuous transmission.

If the transmitting antenna of directional gain greater than 6dBi is used, the power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6dBi. If there have a beam forming type, the limit should be the minimum of 8dBm/MHz and 8+ (6 – antenna gain-beam forming gain).

6.2 Test Configuration



6.3 Test procedure and test setup

The power output per FCC §15.247(e) was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" (clause 10.2 Method PKPSD) for compliance to FCC 47CFR 15.247 requirements.

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 × 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.

6.4 Test Protocol

Temperature: 22 °C
Relative Humidity: 53 %

Mode	Frequency (MHz)	Reading (dBm/100KHz)		Total PSD (mw/100KHz)	Total PSD (dBm/100KHz)	Limit (dBm/3KHz)	Margin (dB)
		Port0	Port 1				
802.11b	2412	5.054	4.519	6.03	7.81	8.00	0.19
	2437	4.846	4.607	5.94	7.74	8.00	0.26
	2462	3.988	3.872	4.94	6.94	8.00	1.06
802.11g	2412	2.312	1.343	3.07	4.86	8.00	3.14
	2437	1.682	1.437	2.87	4.57	8.00	3.43
	2462	0.498	0.645	2.28	3.58	8.00	4.42
802.11n20	2412	1.280	1.265	2.68	4.28	8.00	3.72
	2437	1.111	1.560	2.72	4.35	8.00	3.65
	2462	-0.198	0.890	2.18	3.39	8.00	4.61

Test plot as follows:

802.11b

Frequency L-Port 1

Frequency M-Port 1

Frequency H-Port 1

Frequency L-Port 2

Frequency M-Port 2

Frequency H-Port 2

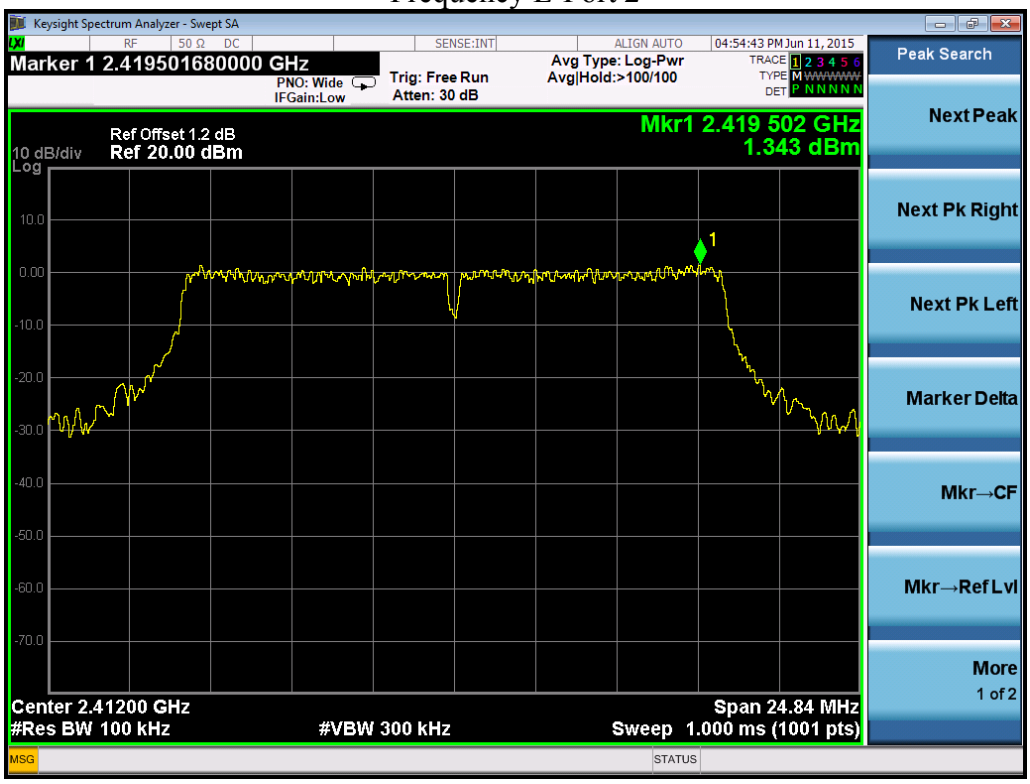
802.11g

Frequency L-Port 1

Frequency M-Port 1

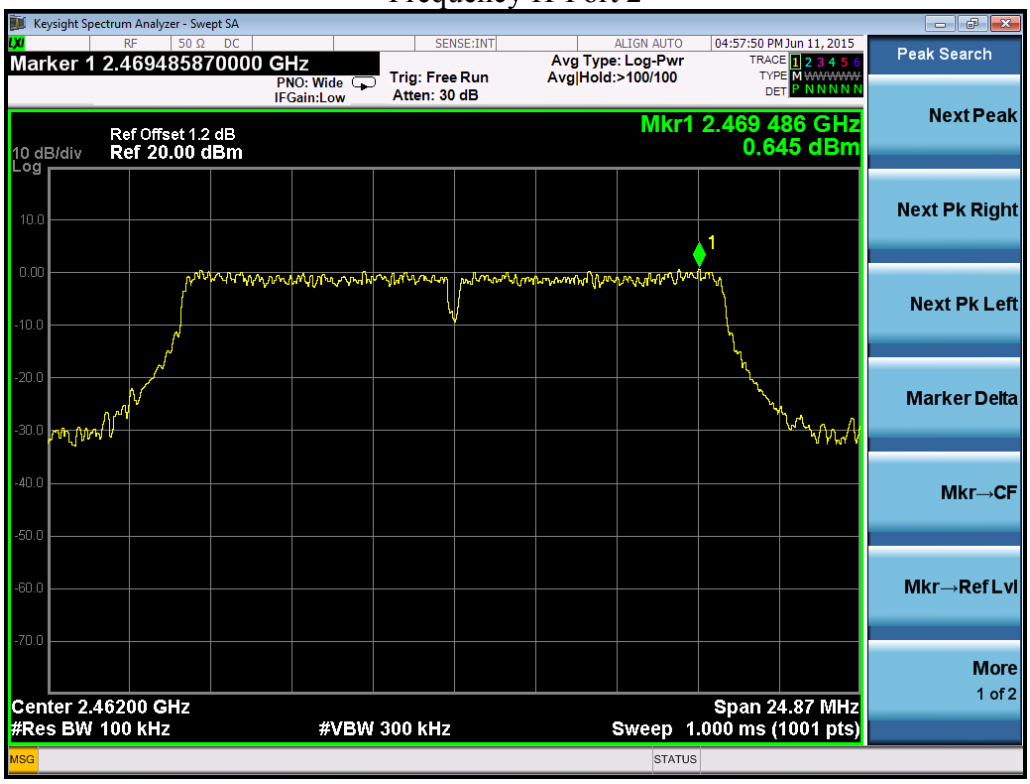
Frequency H-Port 1

Frequency L-Port 2



Frequency M-Port 2

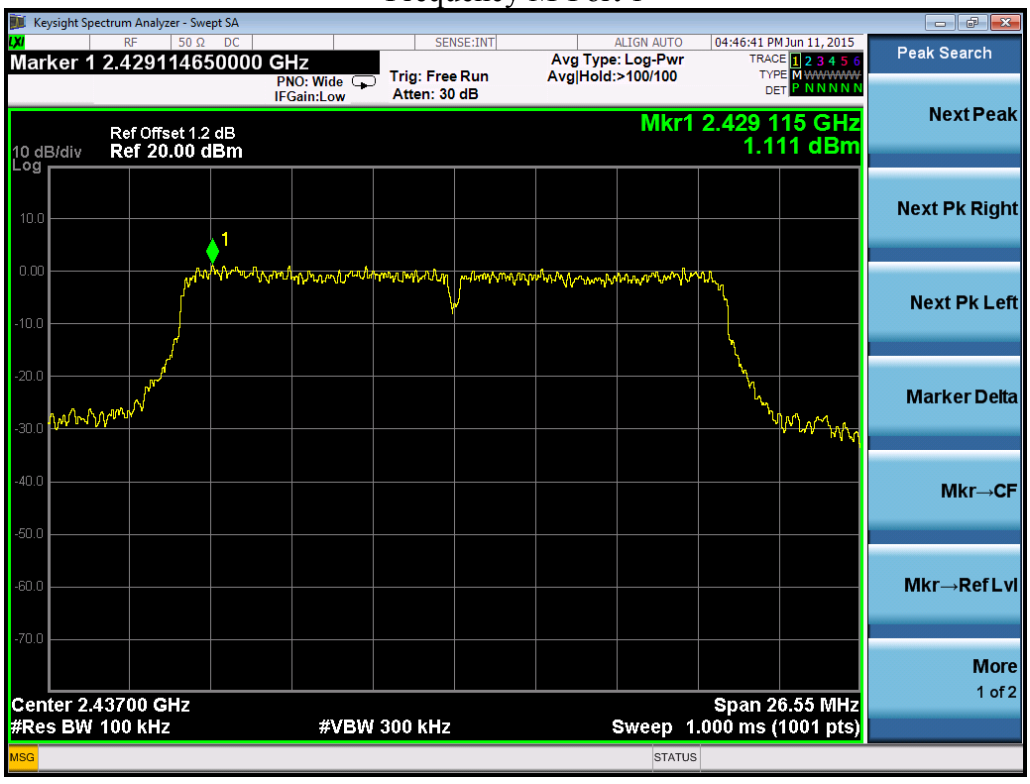
Frequency H-Port 2



802.11n(H20)

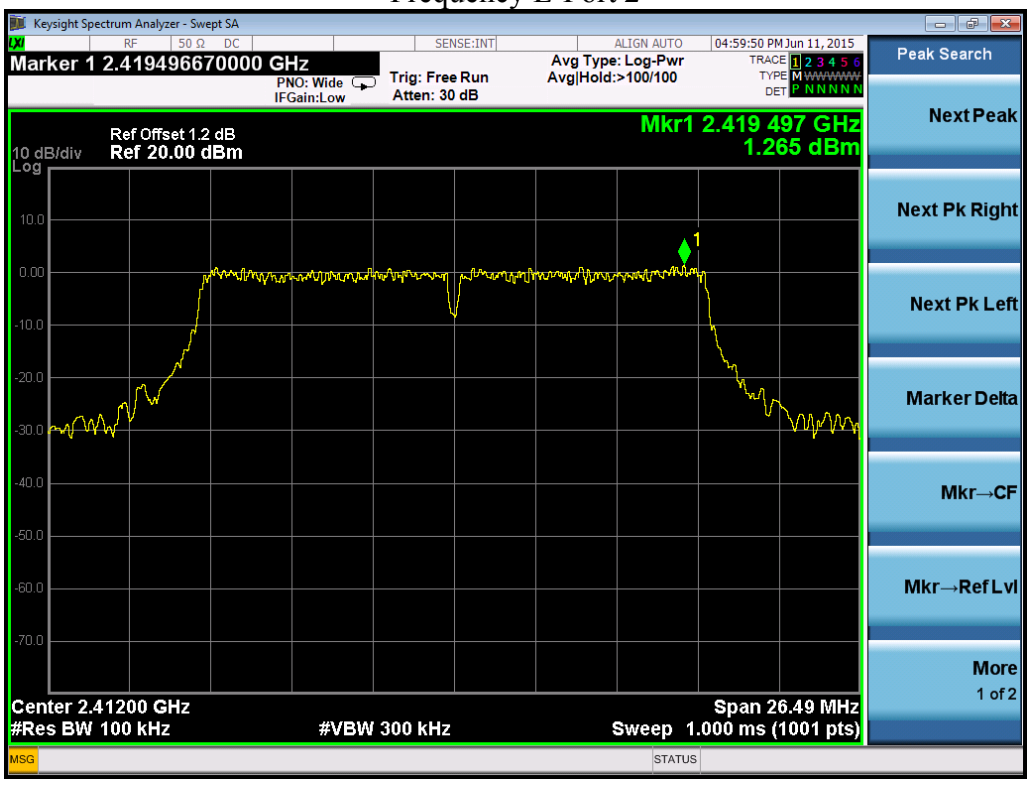
Frequency L-Port 1

Frequency M-Port 1



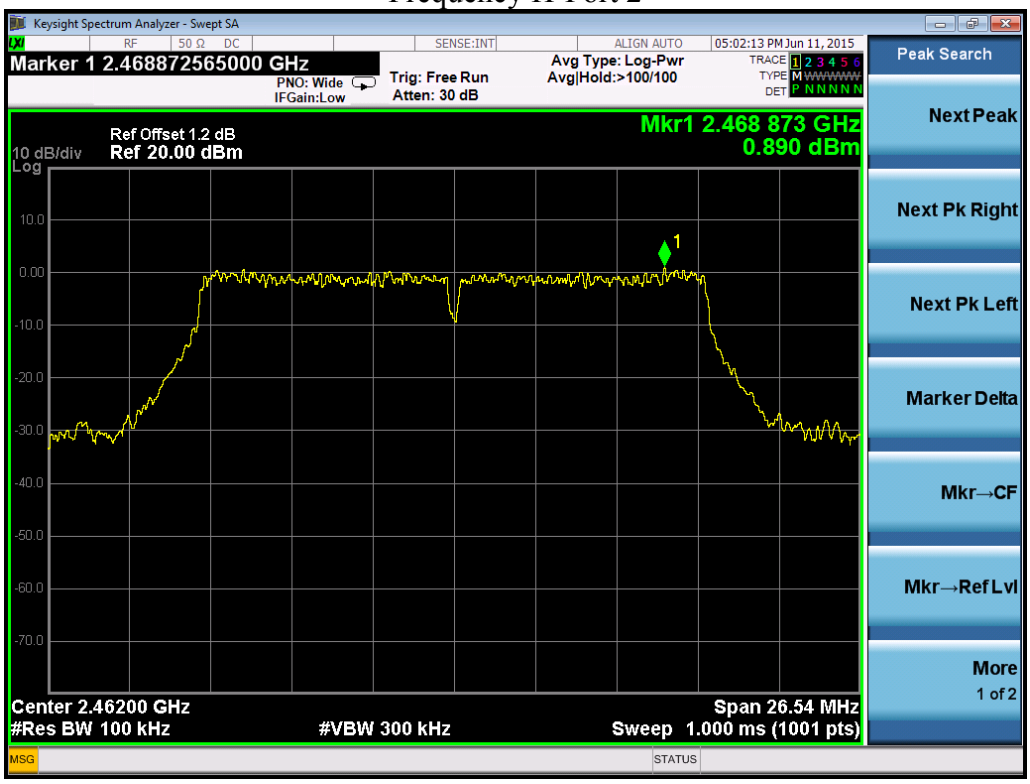
Frequency H-Port 1

Frequency L-Port 2



Frequency M-Port 2

Frequency H-Port 2



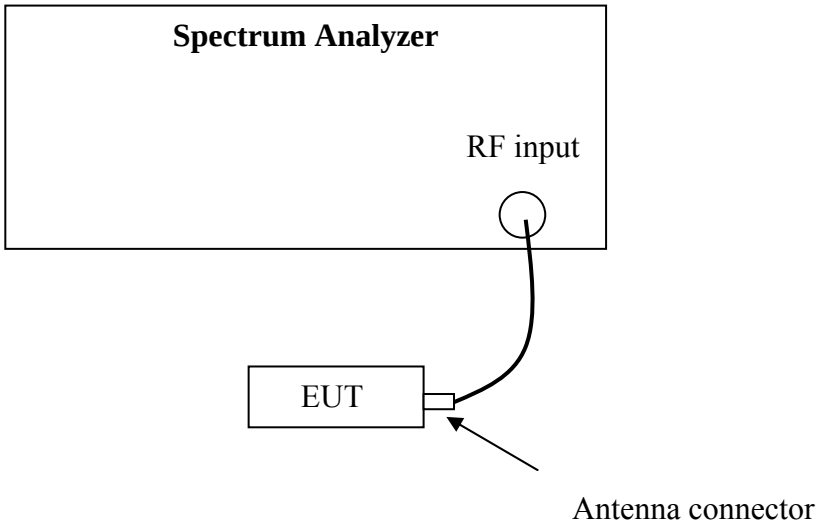
7. Emissions in non-restricted frequency bands

Test result: **Pass**

7.1 Test limit

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum 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.

7.2 Test Configuration



7.3 Test procedure and test setup

The Emission outside the frequency Band per FCC § 15.247(d) is measured using the Spectrum Analyzer with the resolutions bandwidth set at 100kHz, the video bandwidth set at 300kHz, and the SPAN>>RBW.

The EUT was tested according to DTS test procedure of "KDB558074 D01 DTS Meas Guidance v03r02" (clause 11.0) for compliance to FCC 47CFR 15.247 requirements.

7.4 Test Protocol

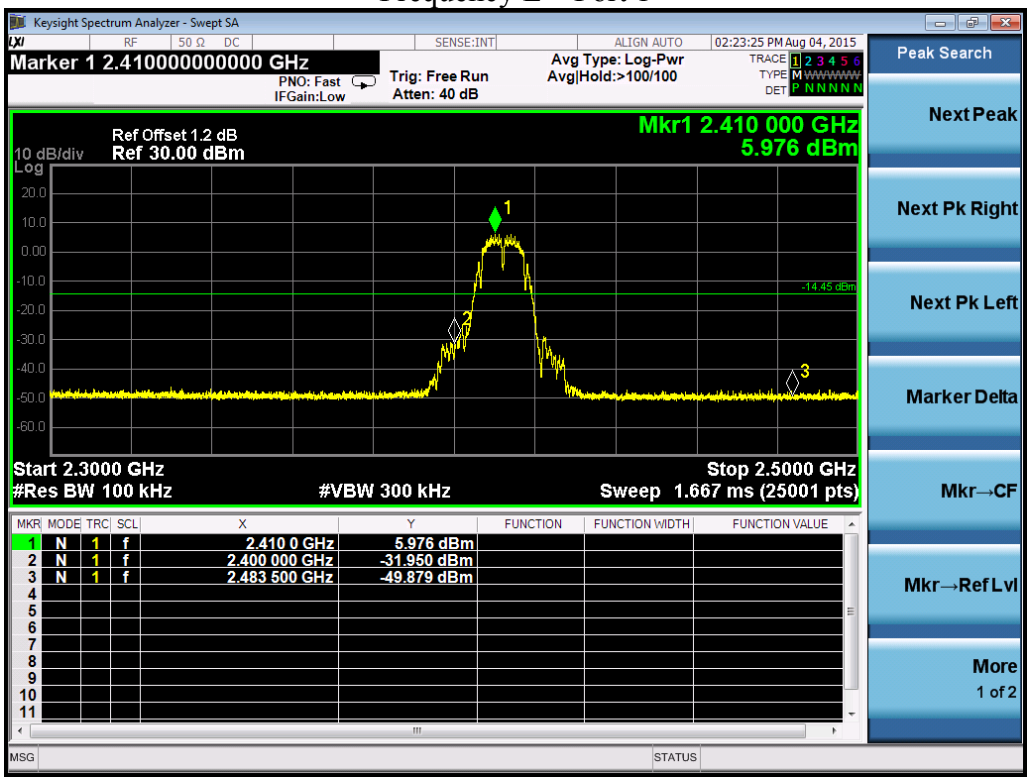
Temperature: 22 °C
Relative Humidity: 53 %

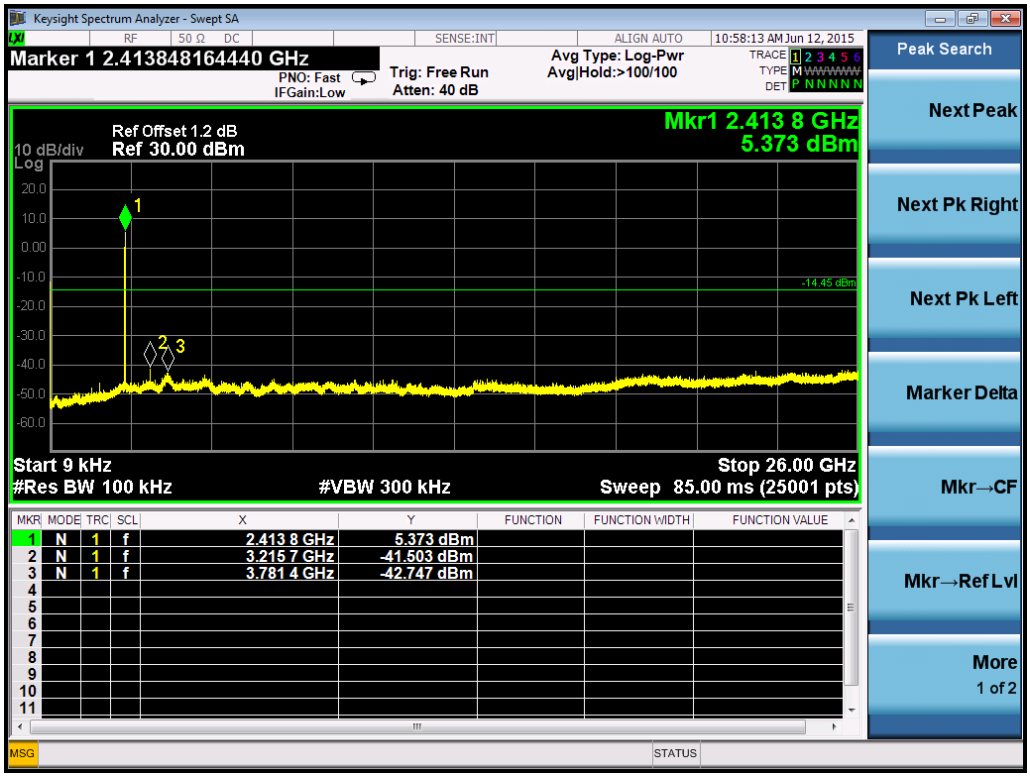
Test Mode	Frequency (MHz)	Results		Limit
		Port 1	Port 2	
802.11b	2412	Pass	Pass	>20dB
	2437	Pass	Pass	
	2462	Pass	Pass	
802.11g	2412	Pass	Pass	
	2437	Pass	Pass	
	2462	Pass	Pass	
802.11n20	2412	Pass	Pass	
	2437	Pass	Pass	
	2462	Pass	Pass	

Test plot as follows:

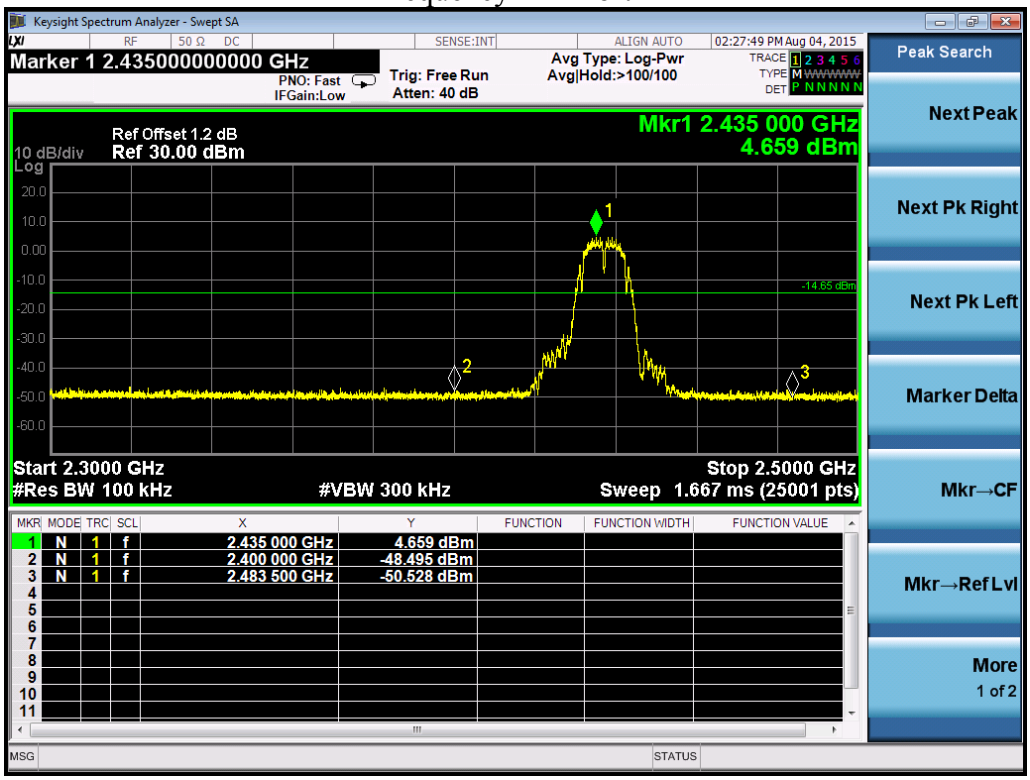
802.11b

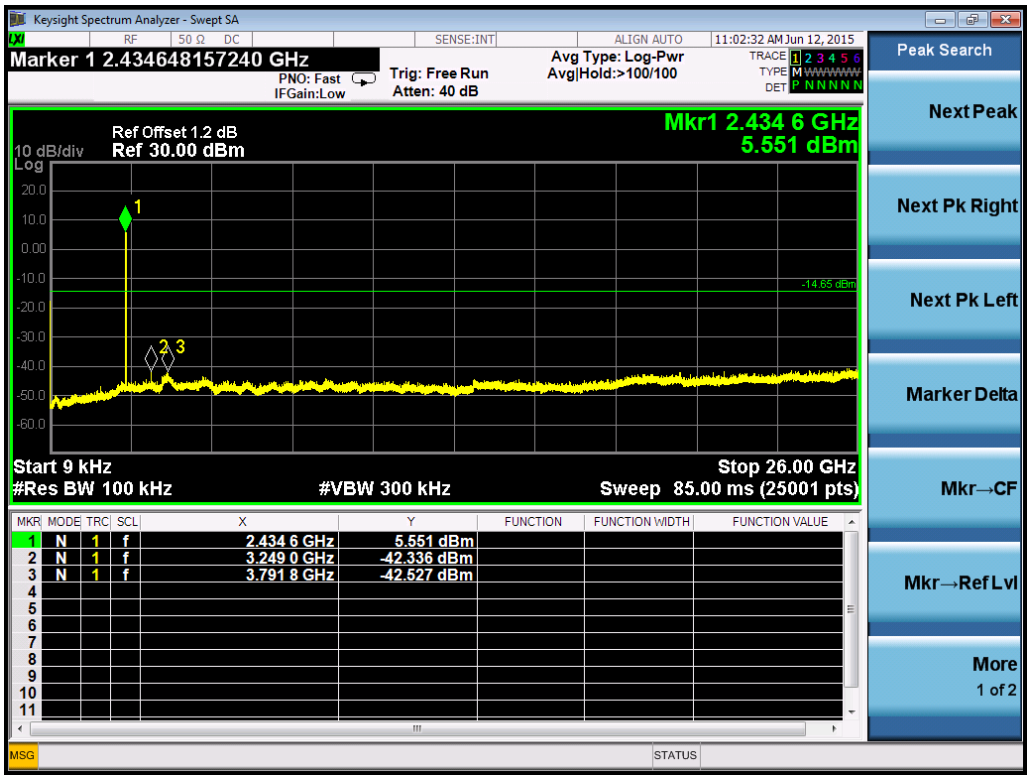
Frequency L – Port 1



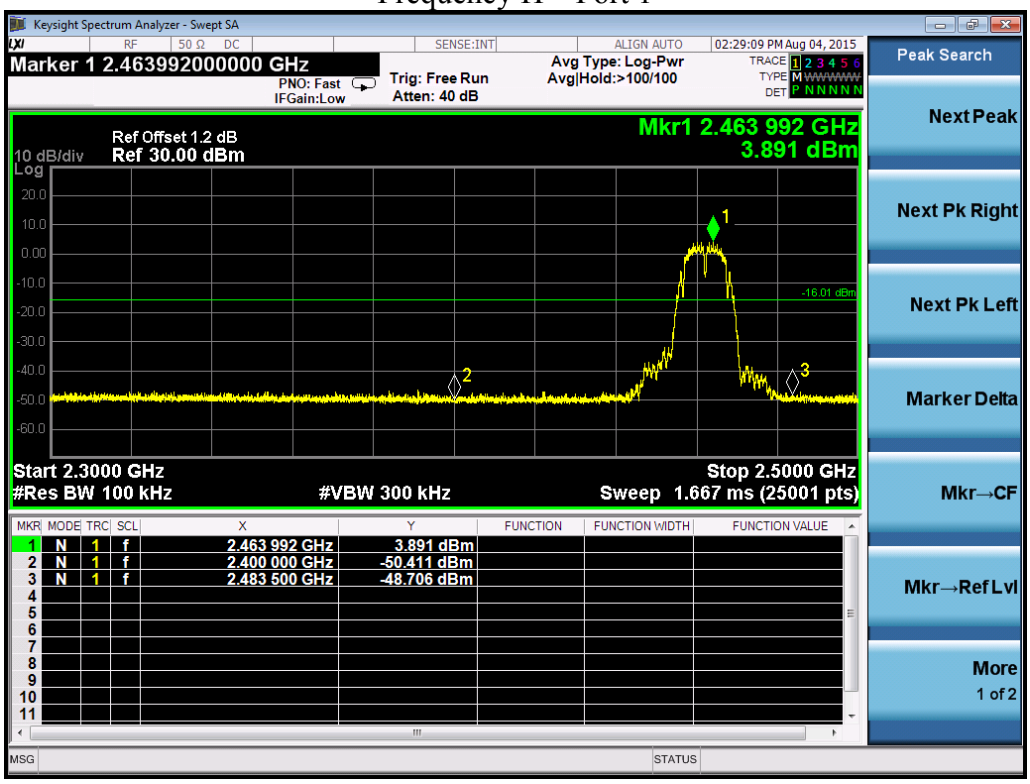


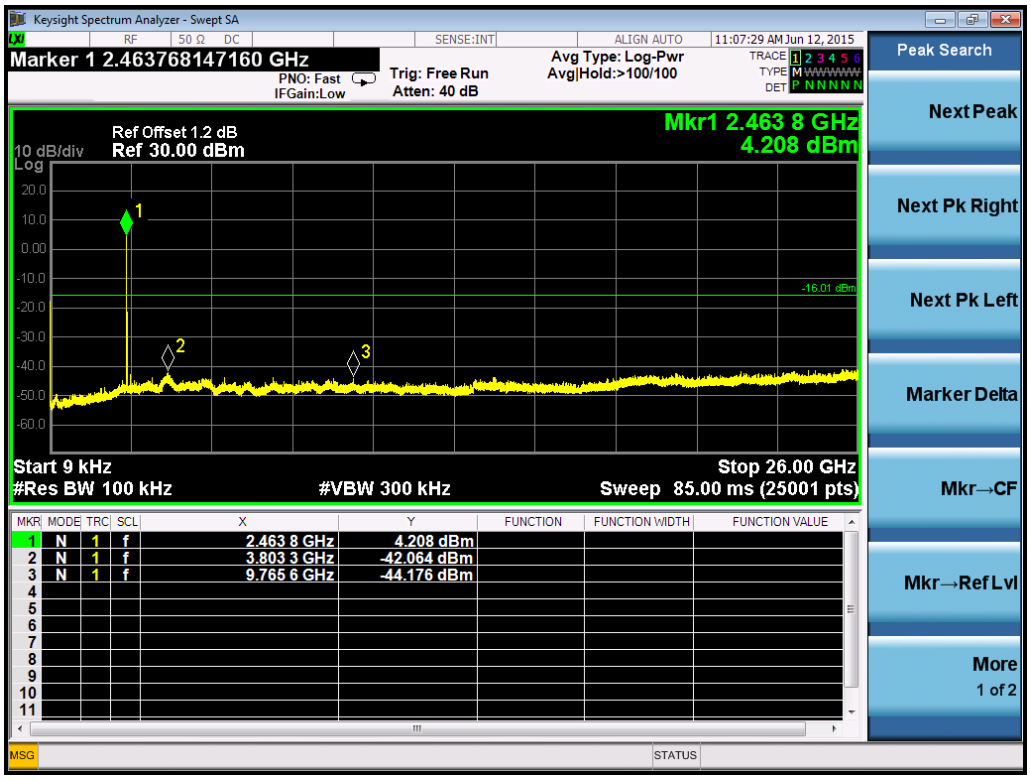
Frequency M – Port 1



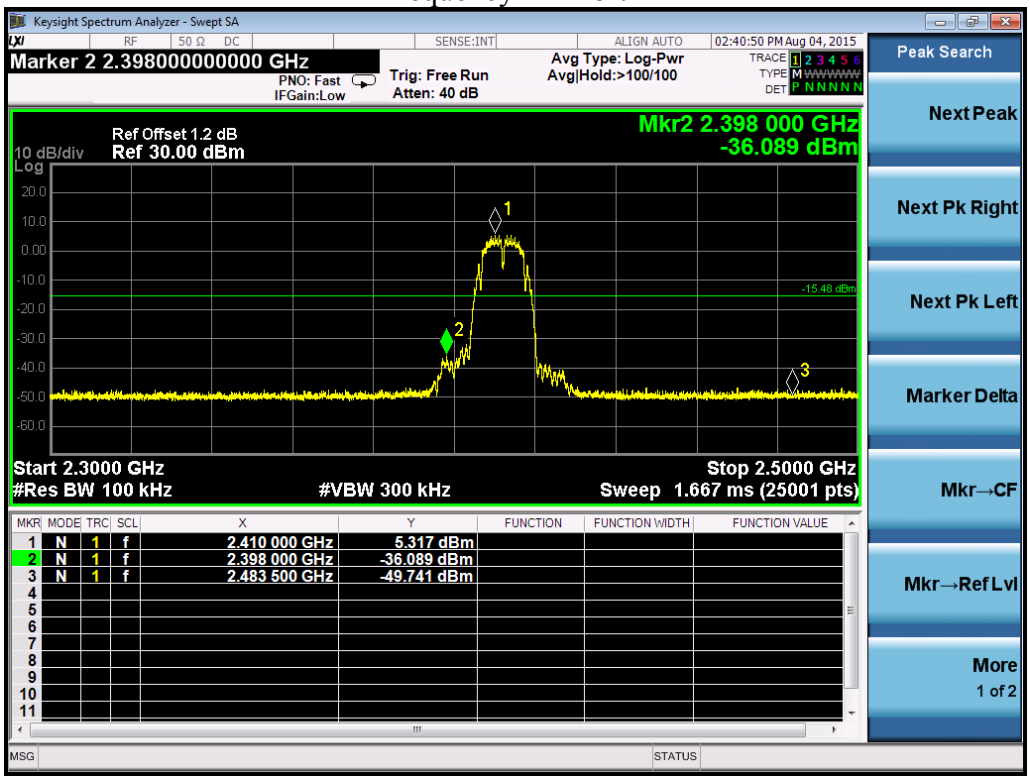


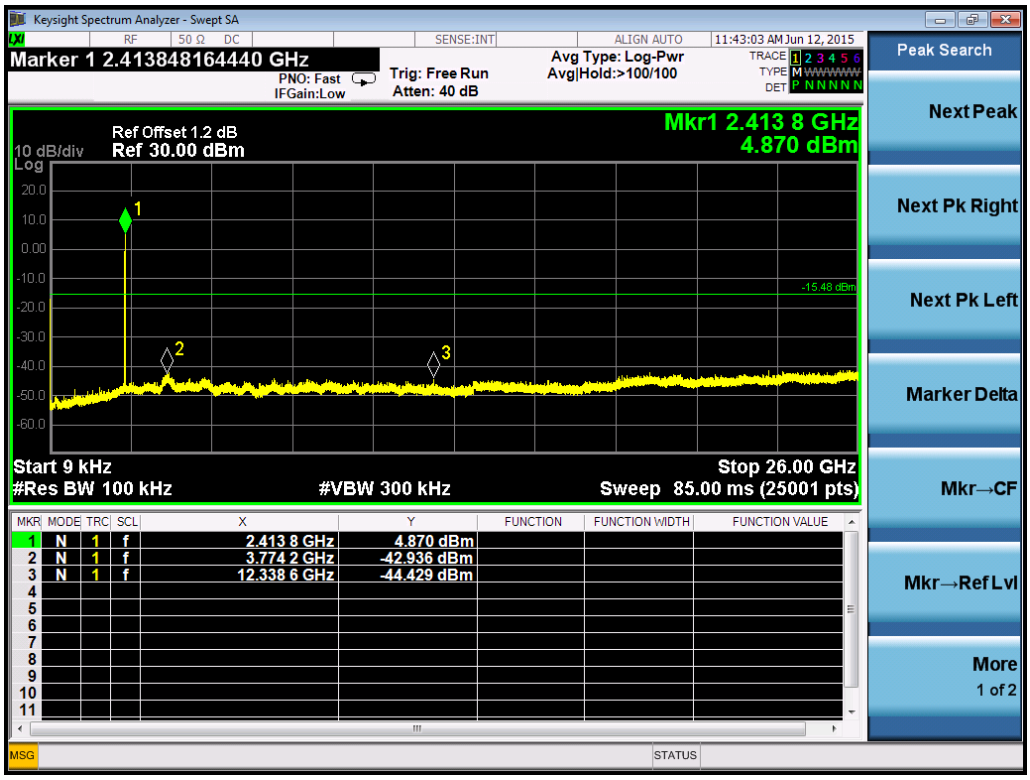
Frequency H – Port 1



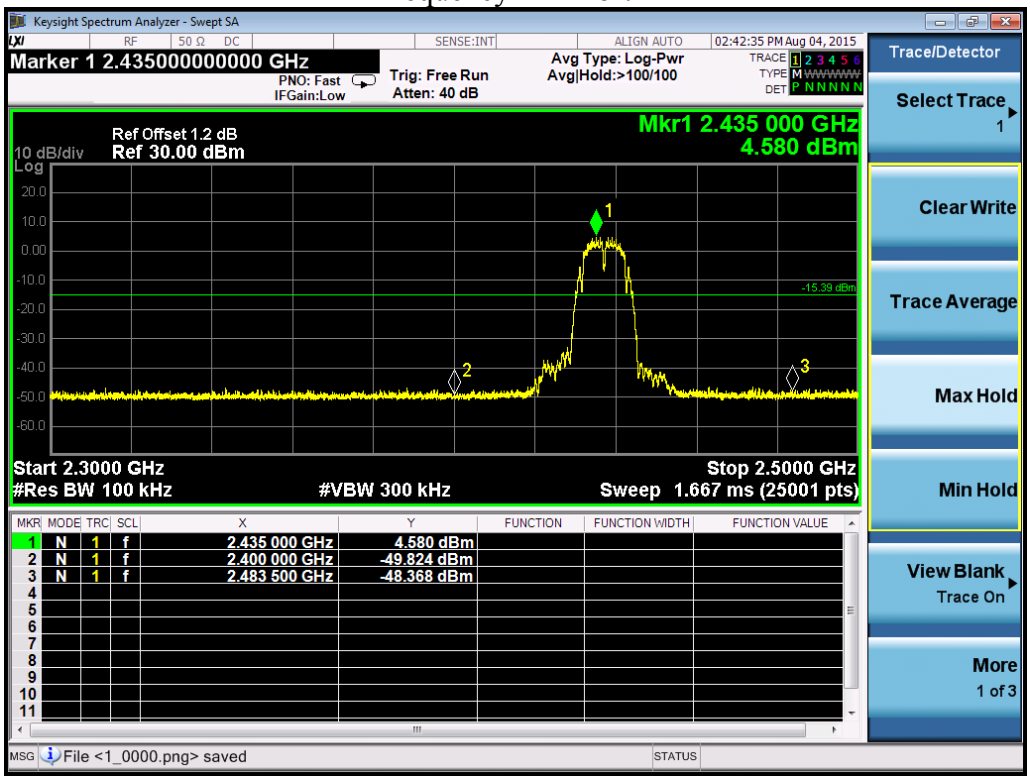


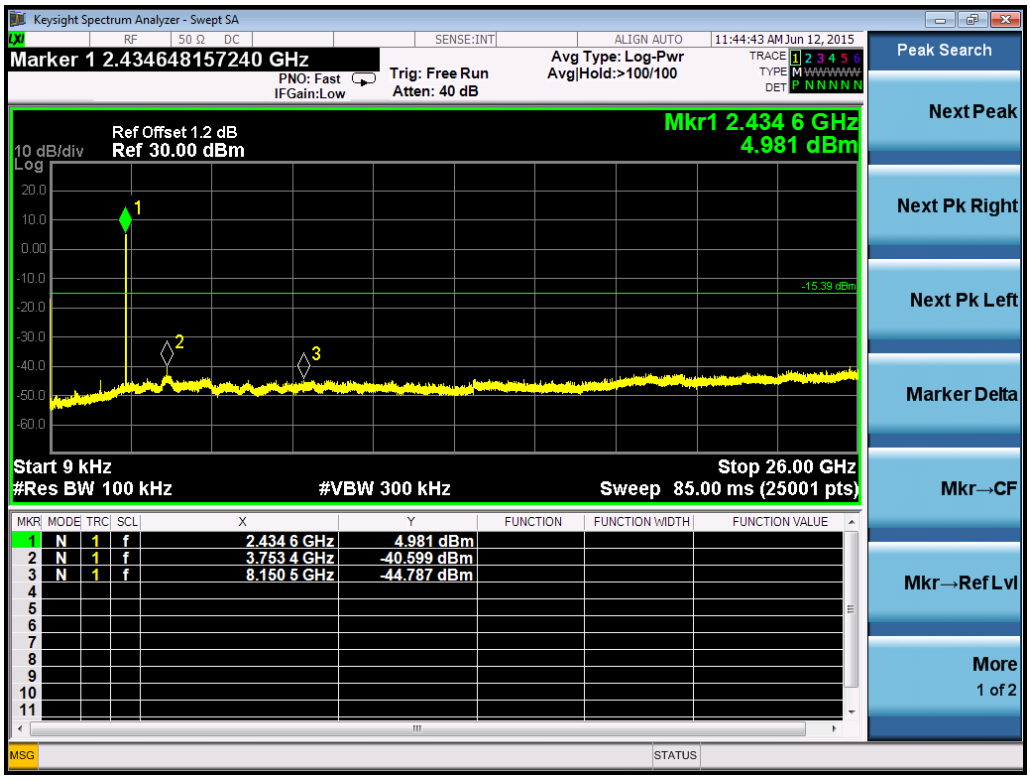
Frequency L – Port 2



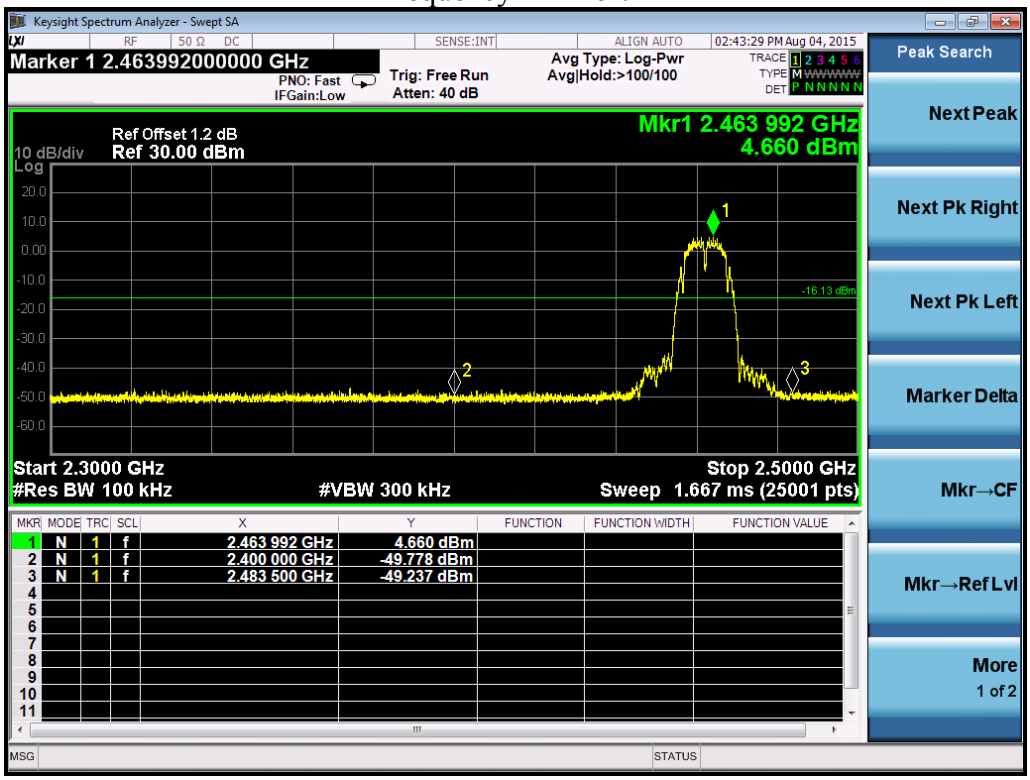


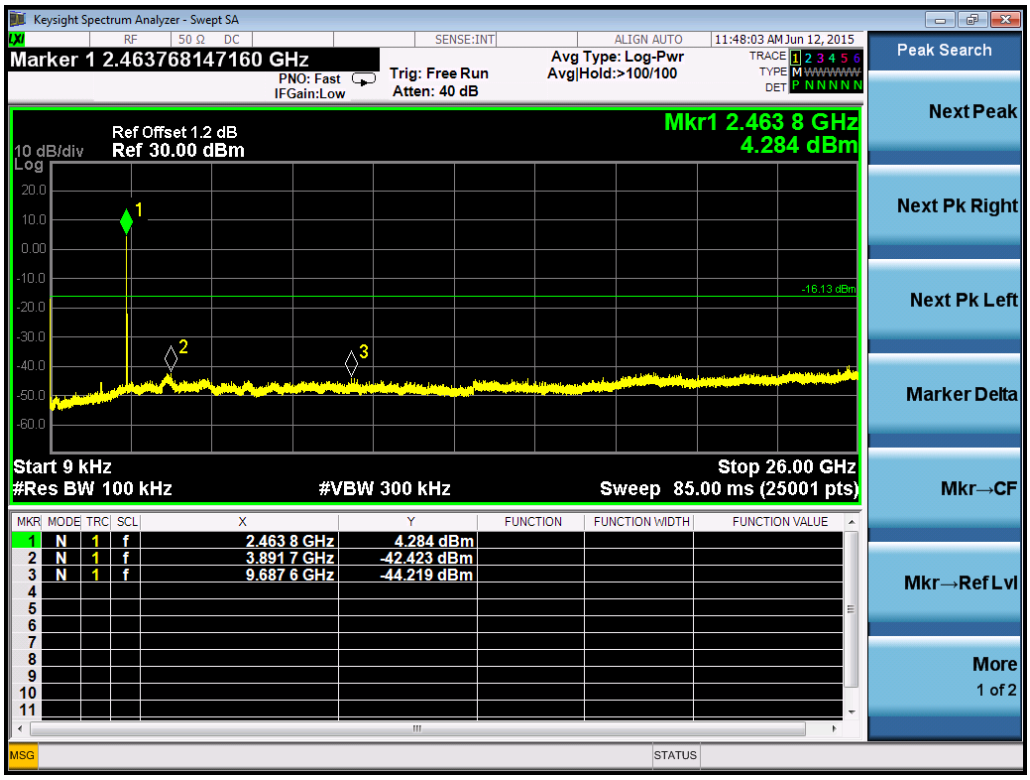
Frequency M – Port 2





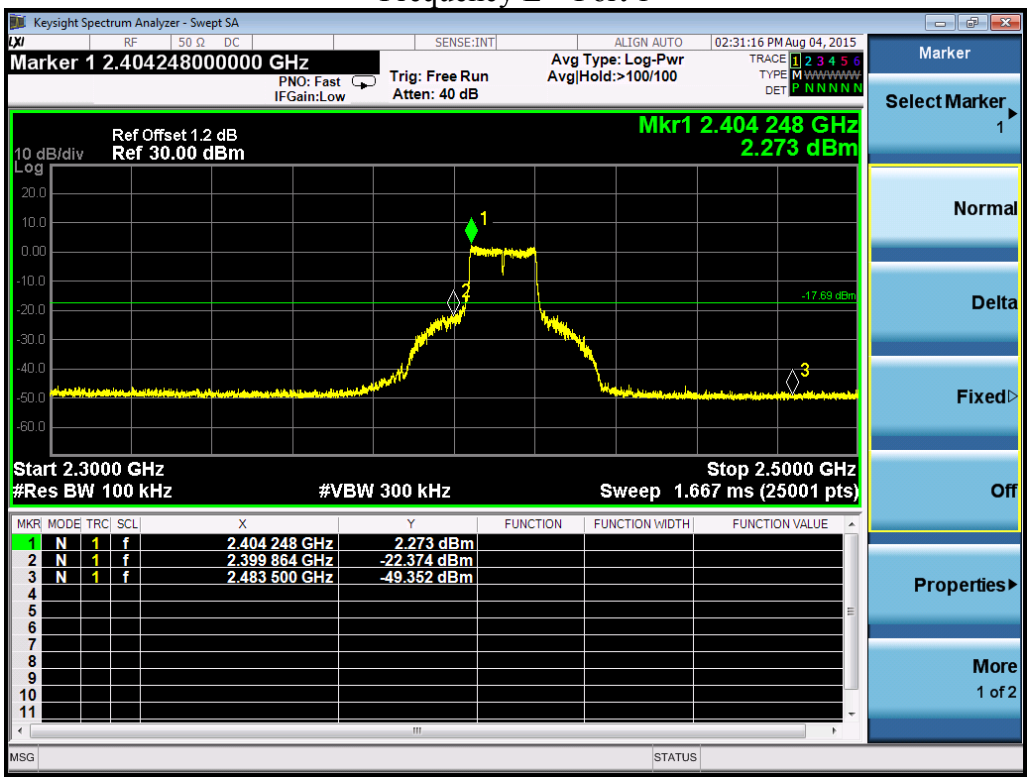
Frequency H – Port 2

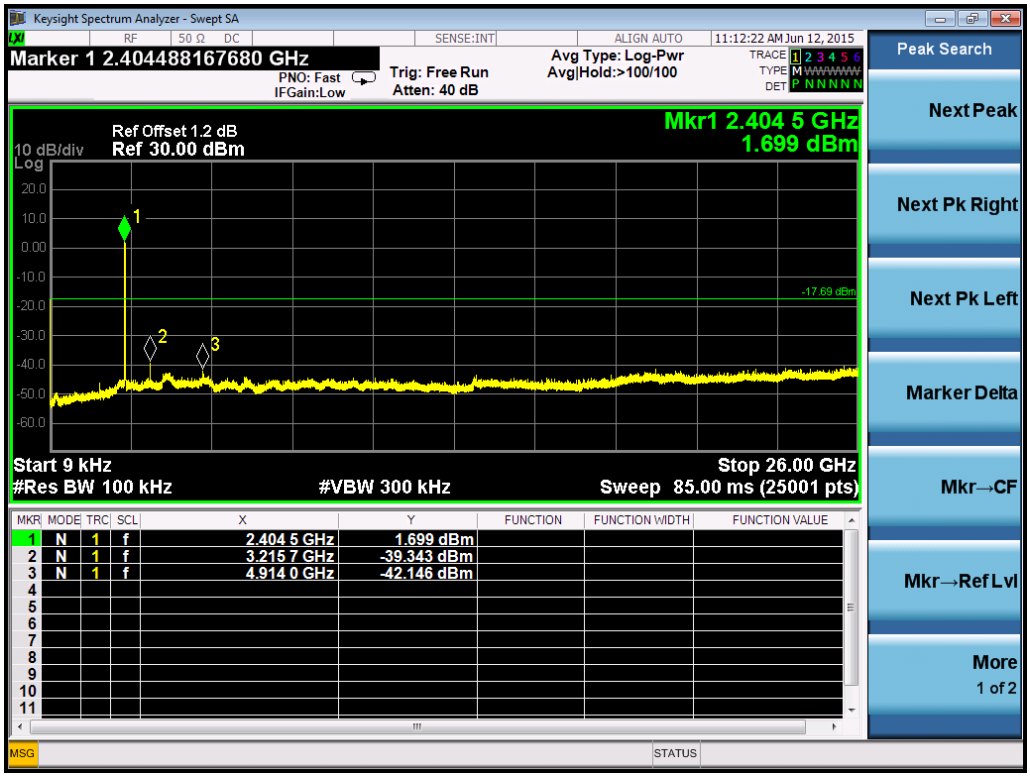




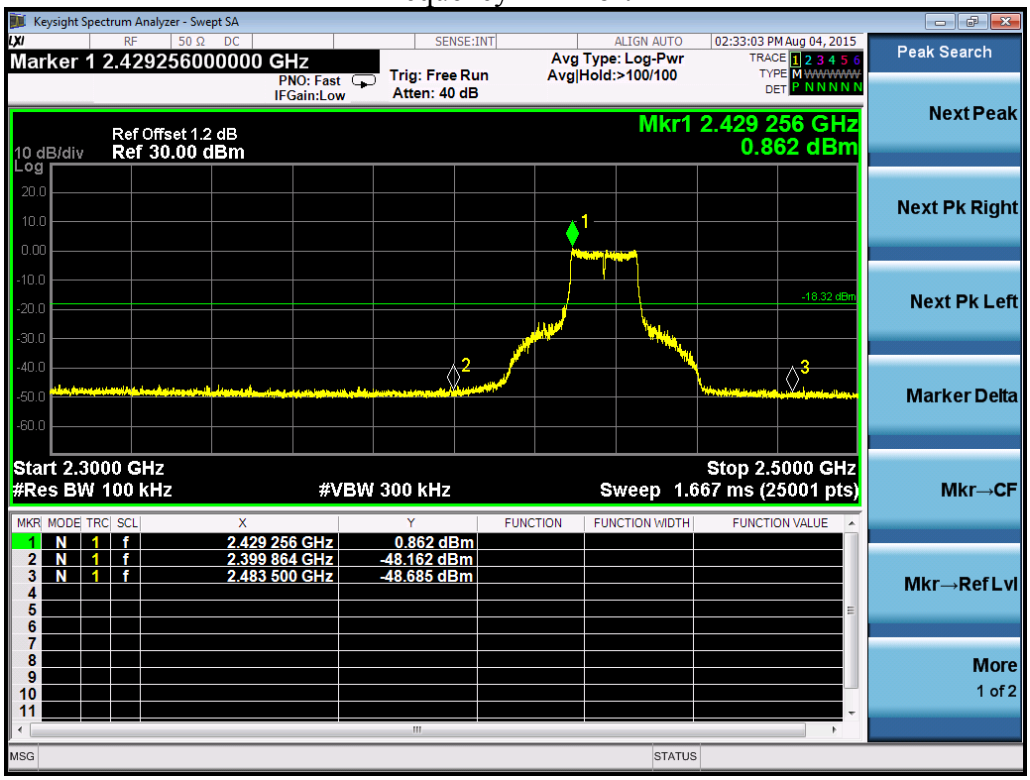
802.11g

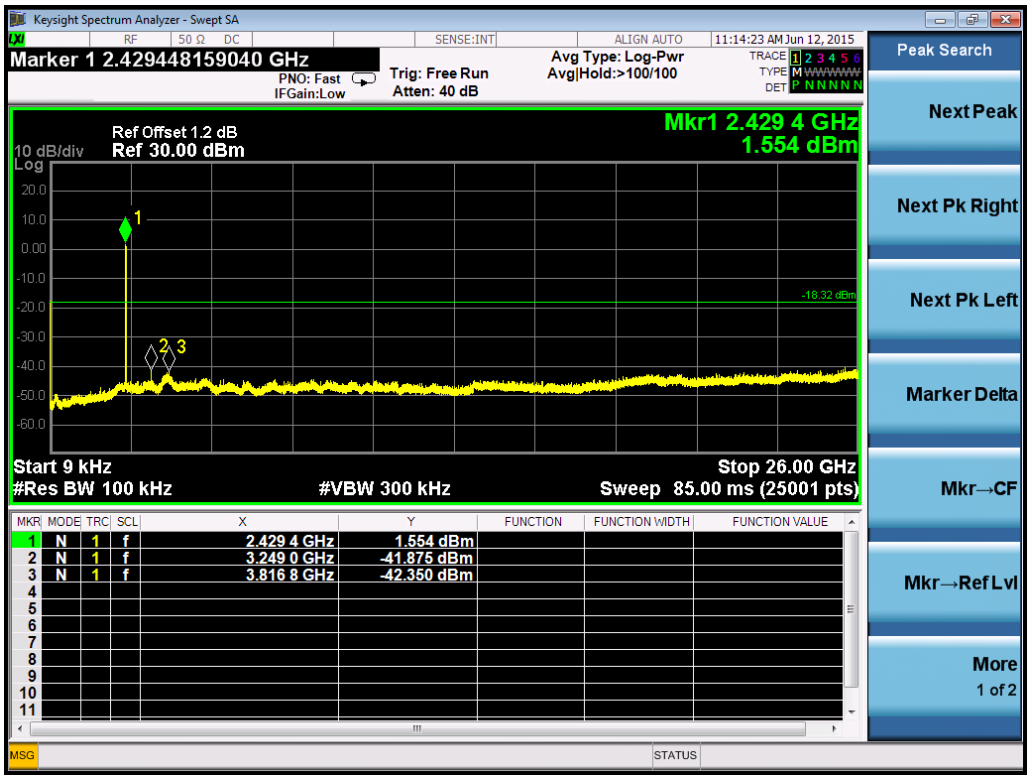
Frequency L – Port 1



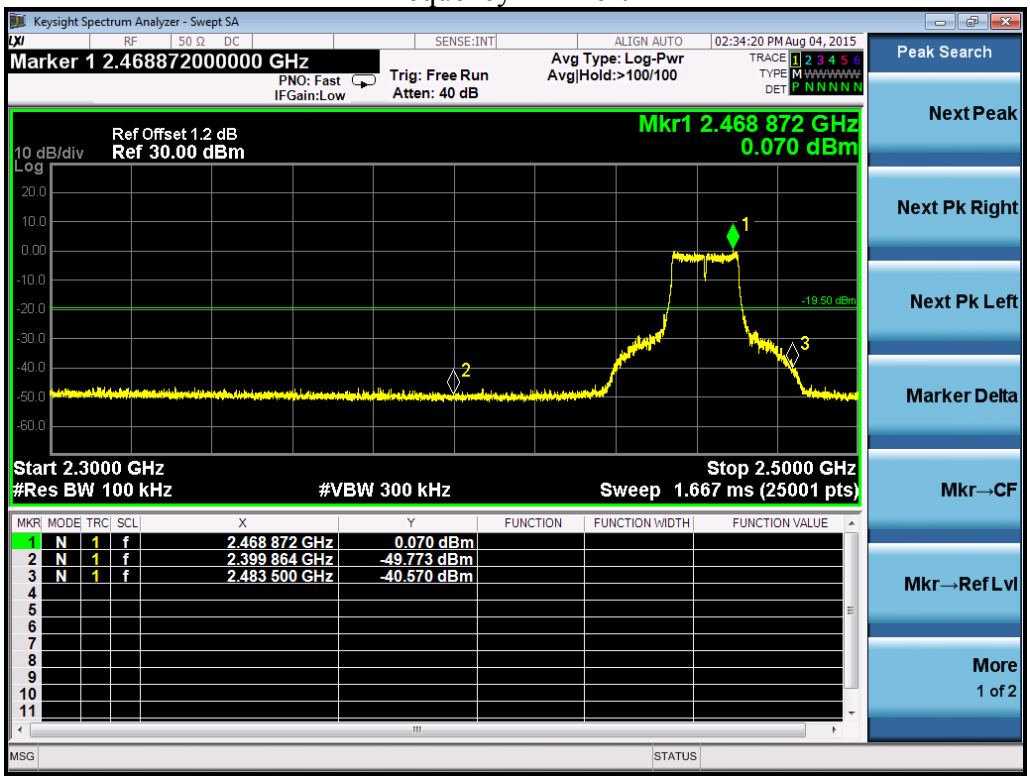


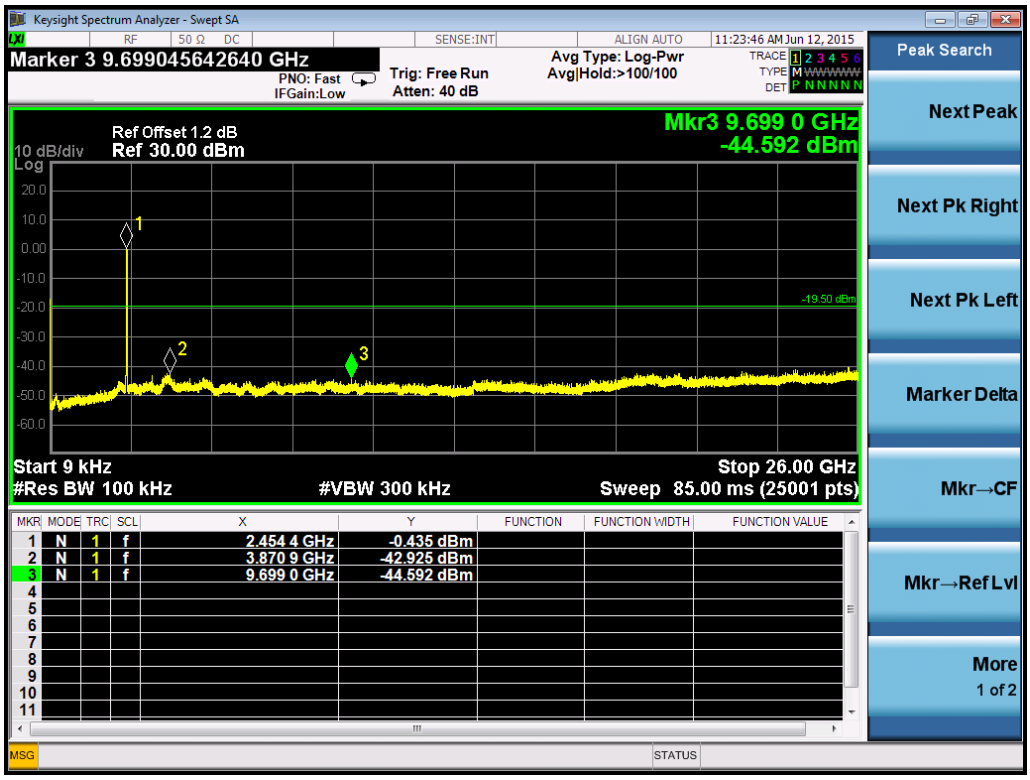
Frequency M – Port 1



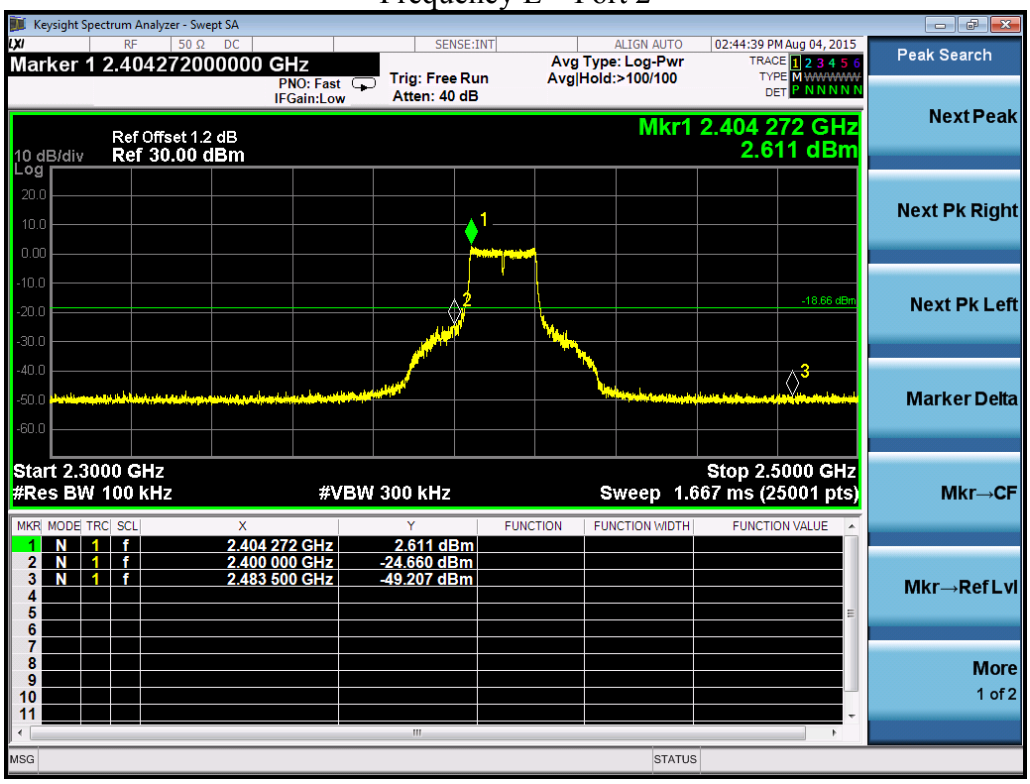


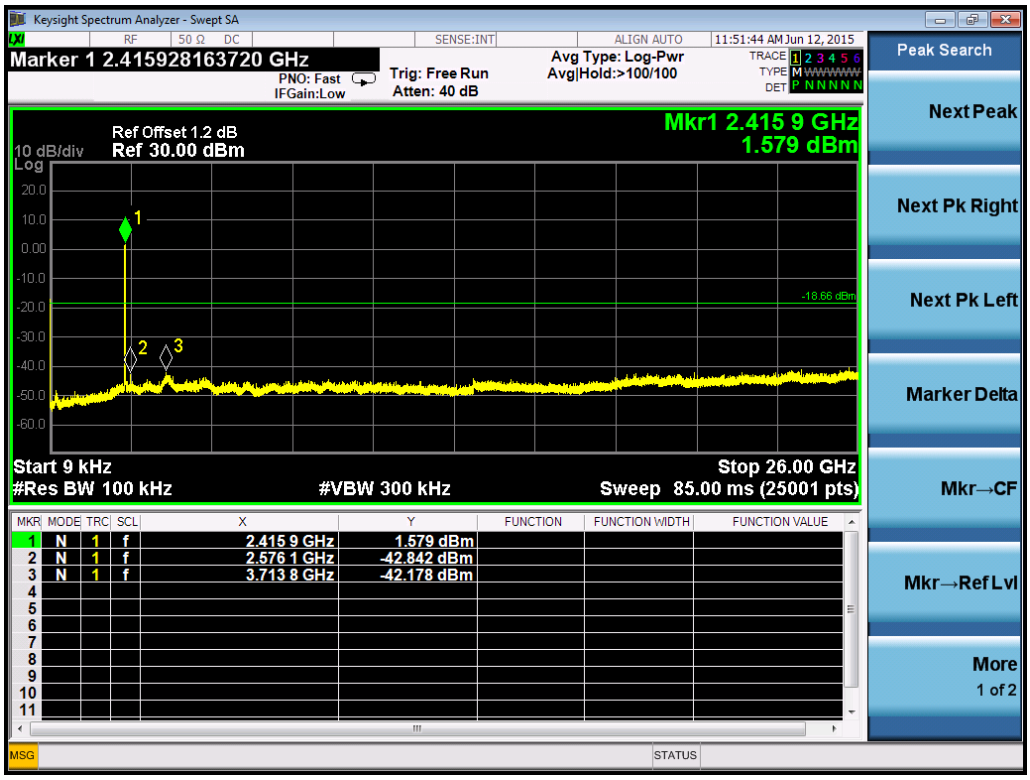
Frequency H – Port 1



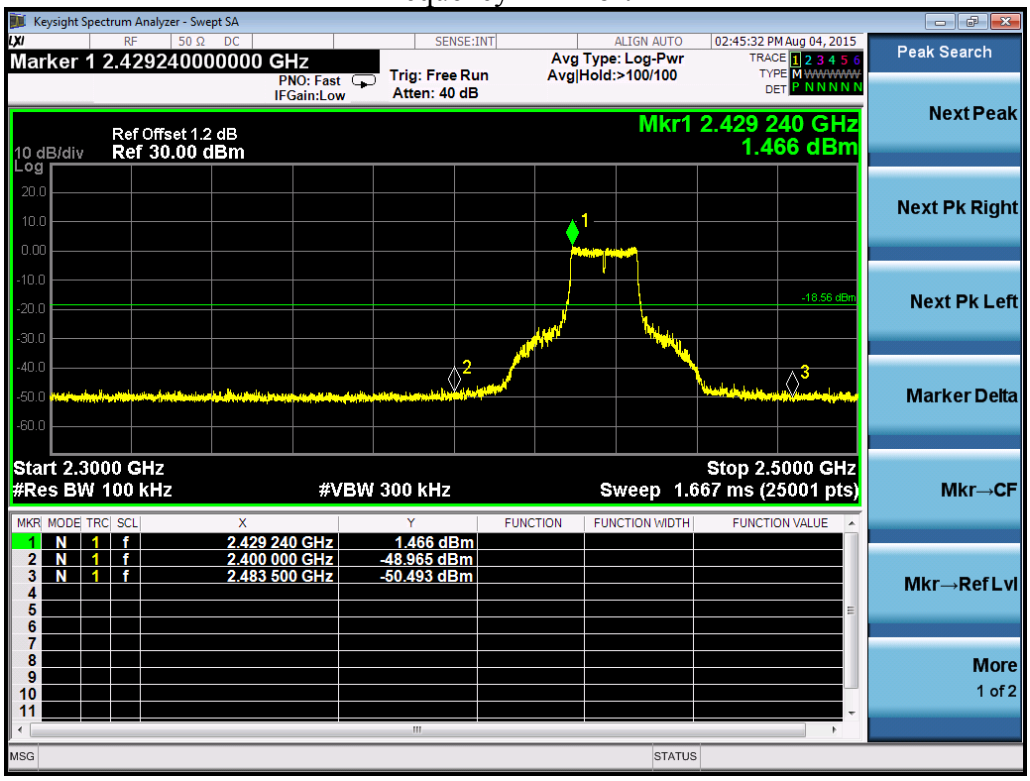


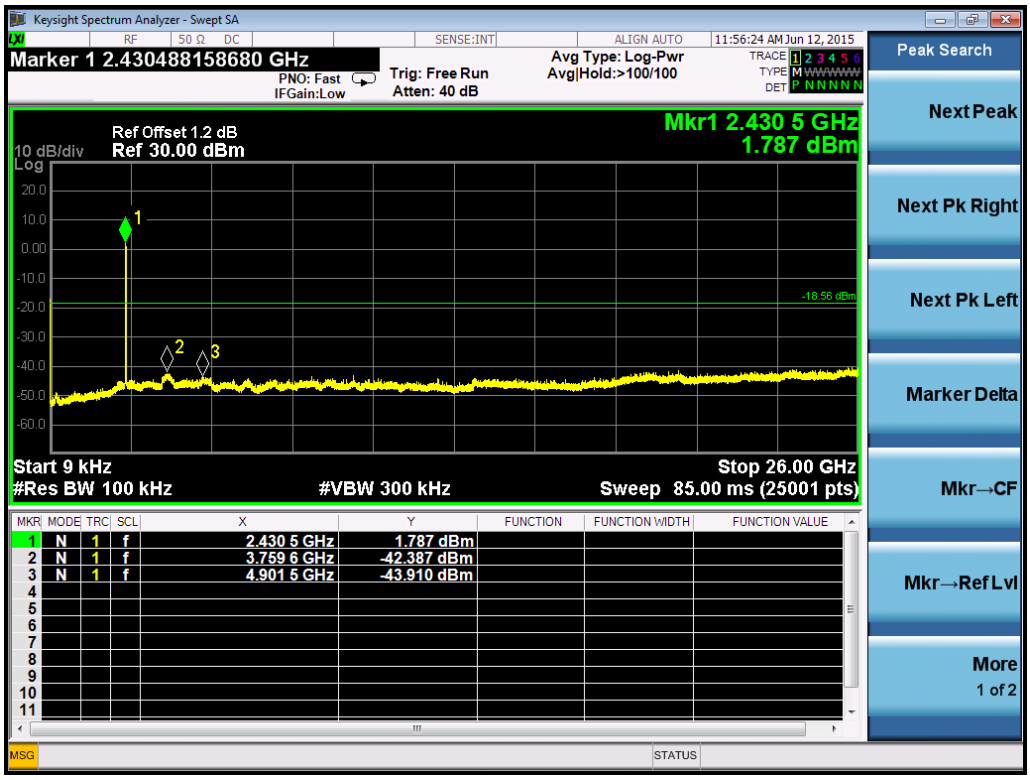
Frequency L – Port 2



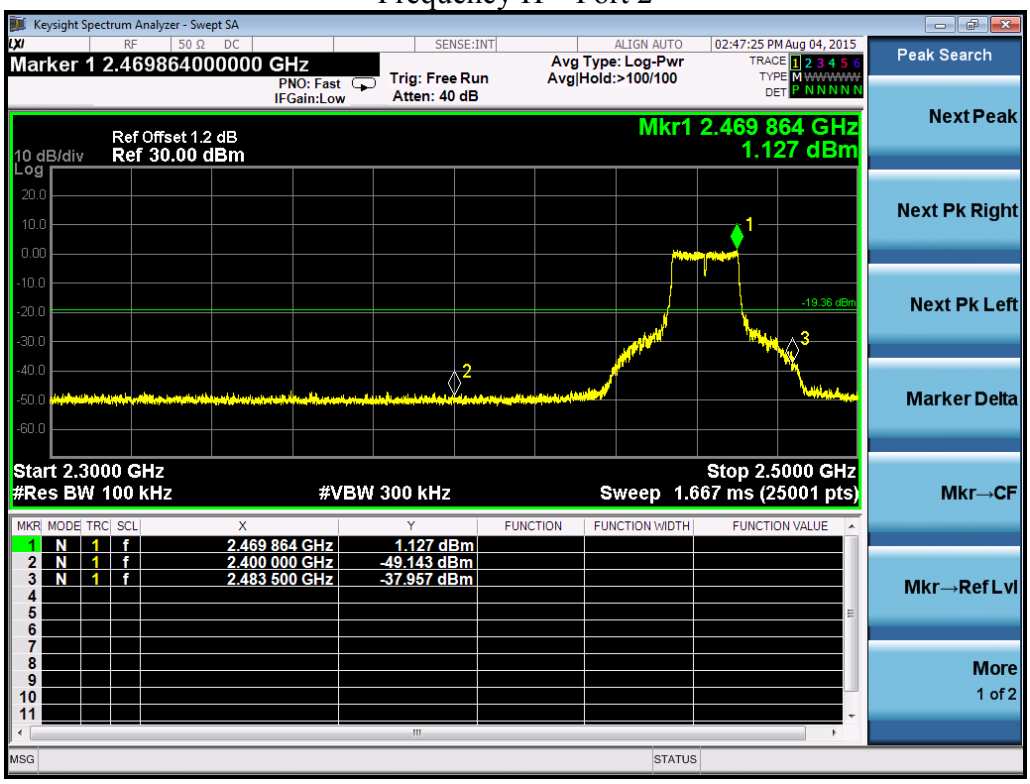


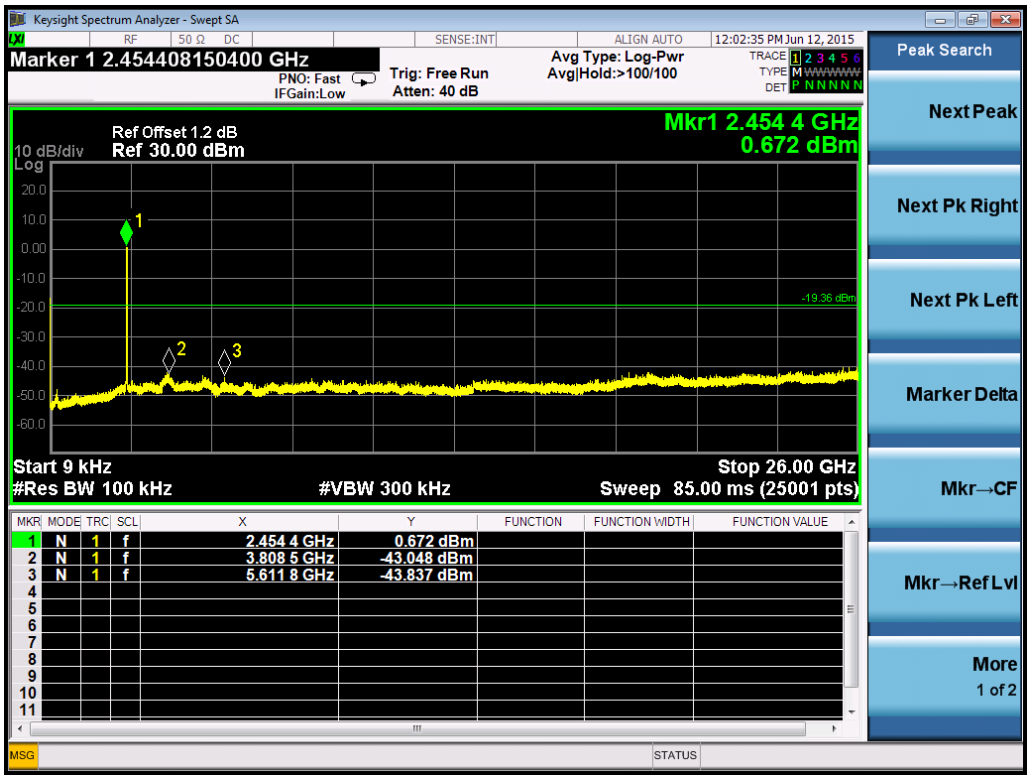
Frequency M – Port 2





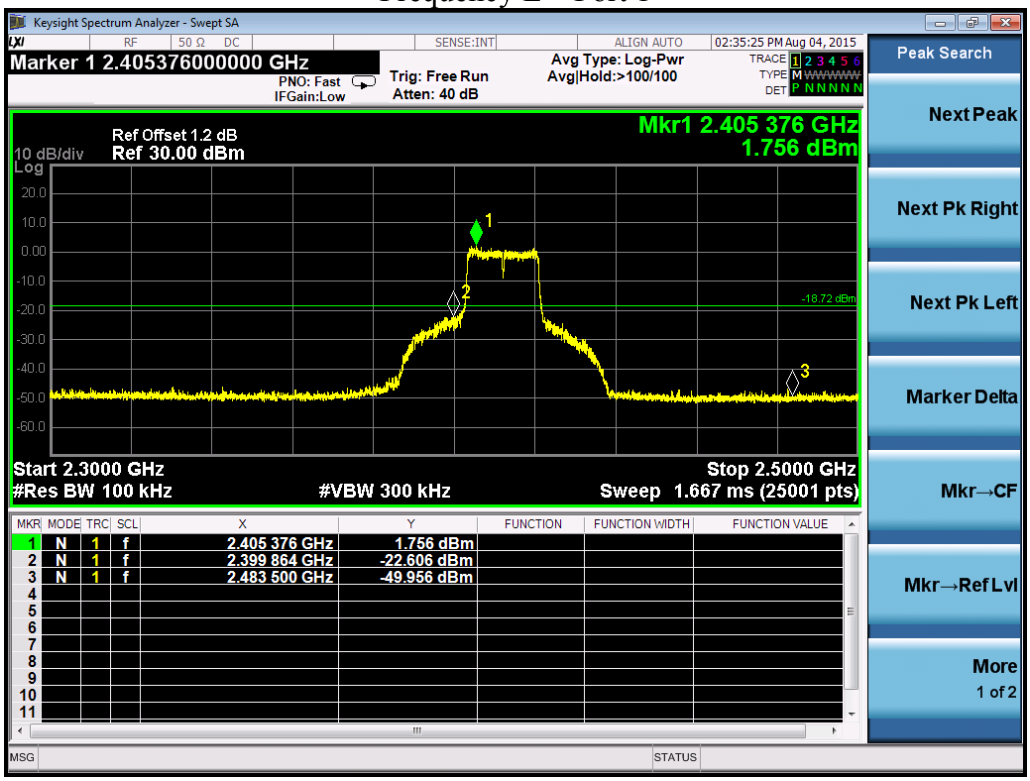
Frequency H – Port 2

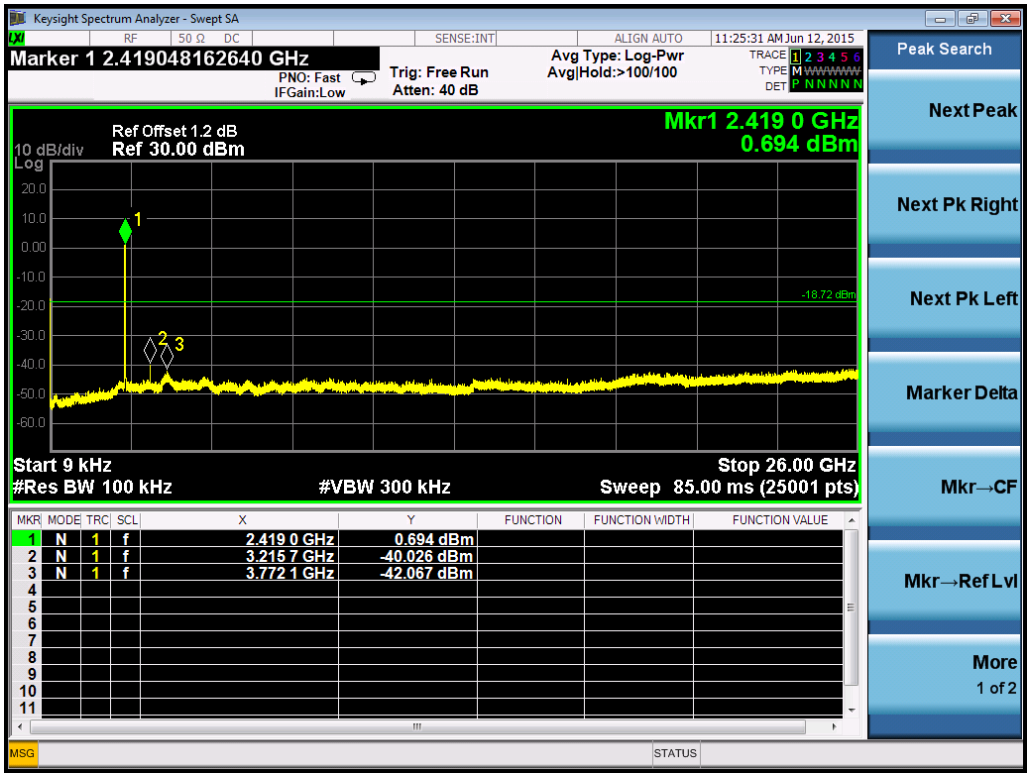




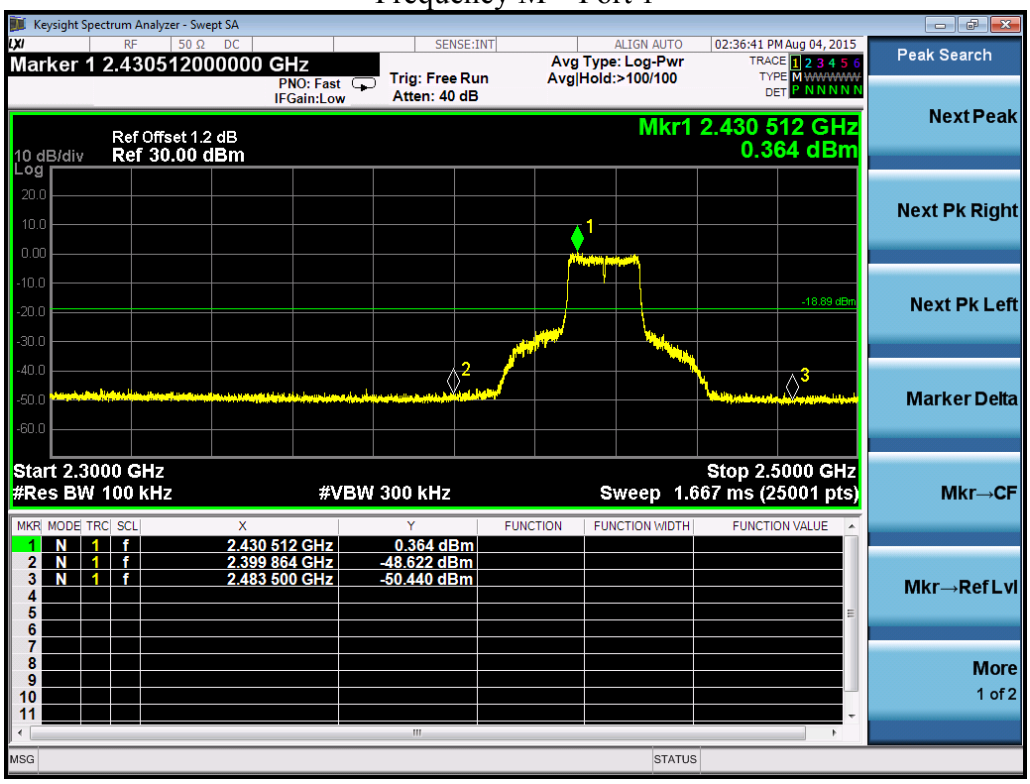
802.11n(H20)

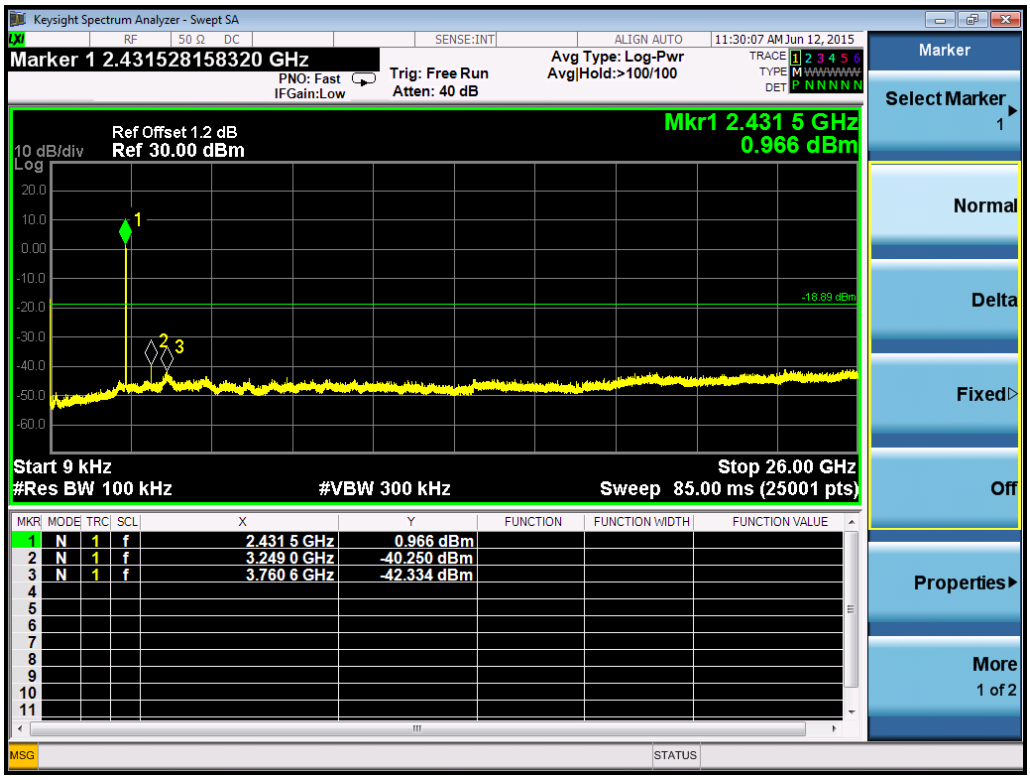
Frequency L – Port 1



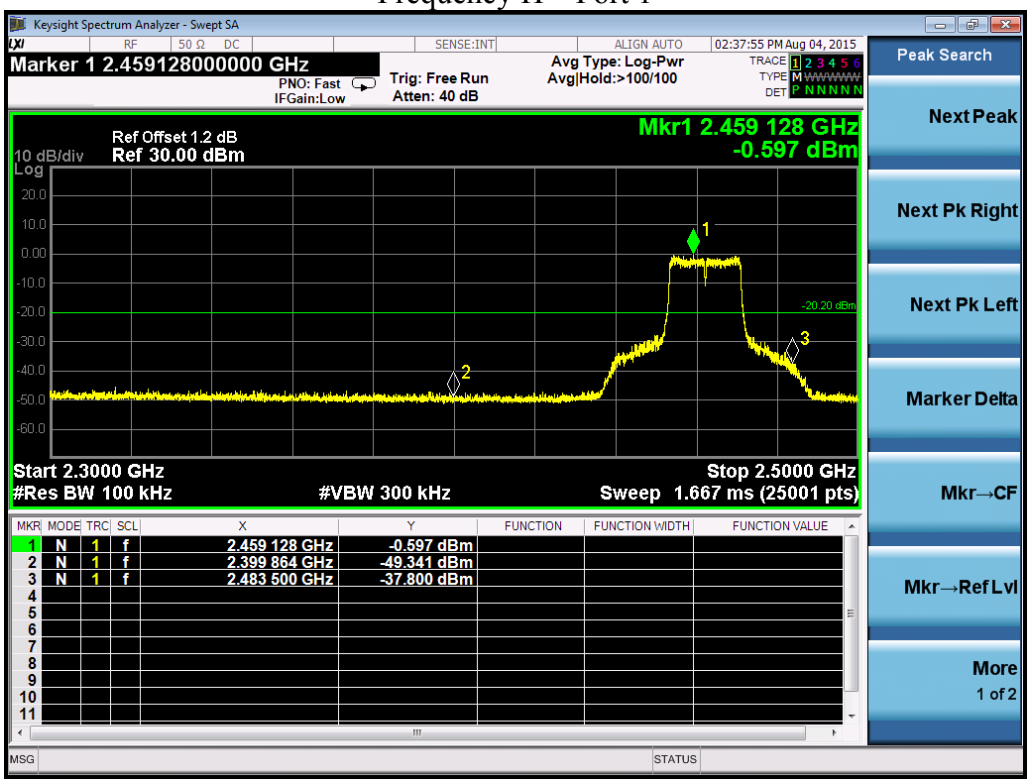


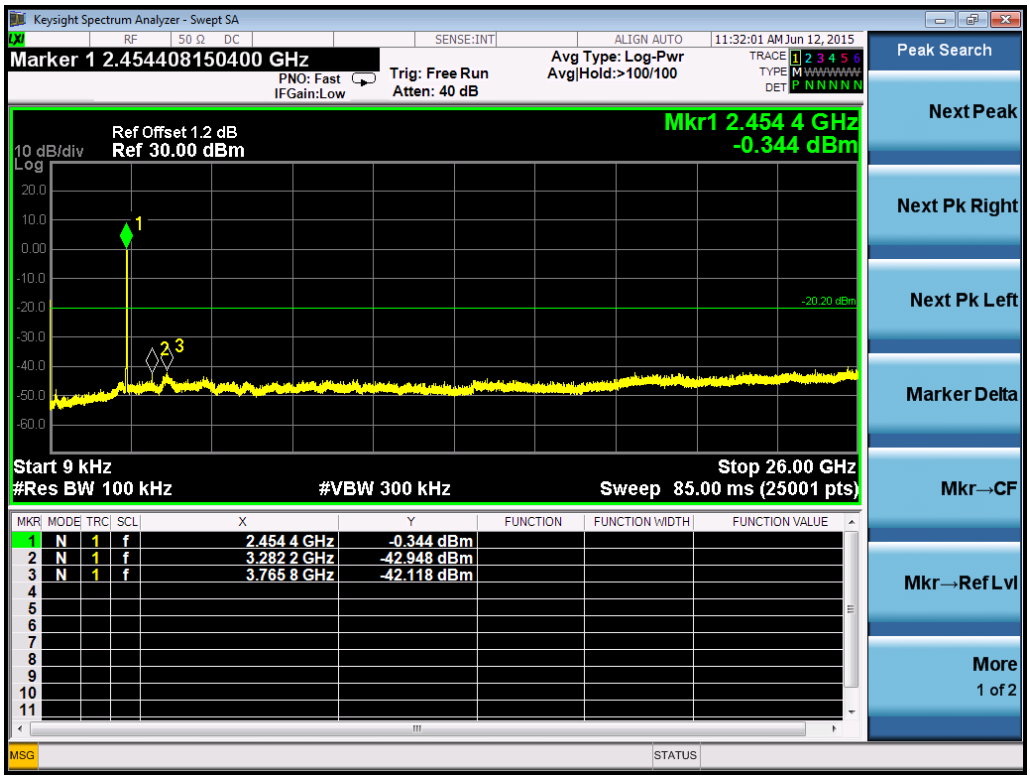
Frequency M – Port 1



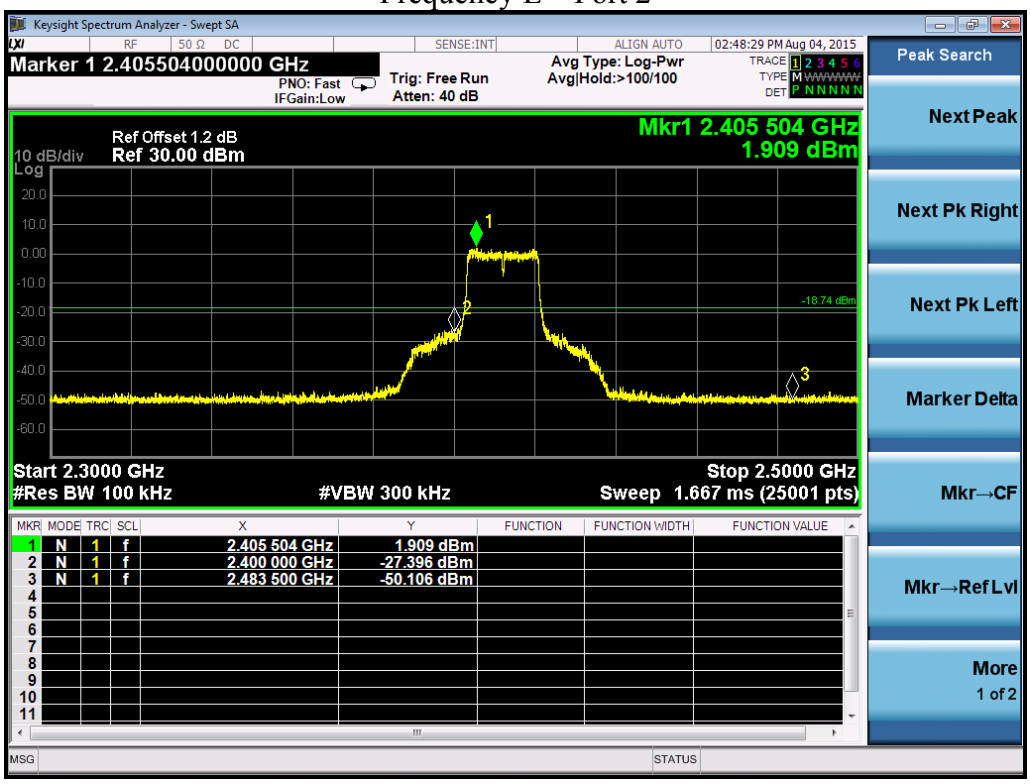


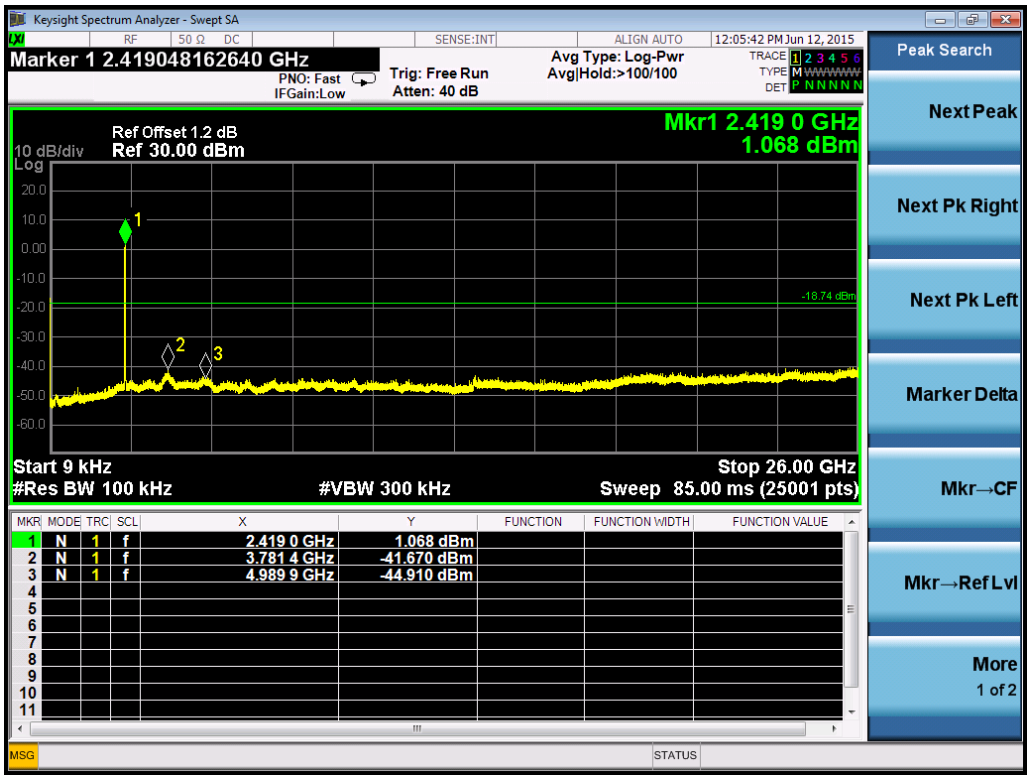
Frequency H – Port 1



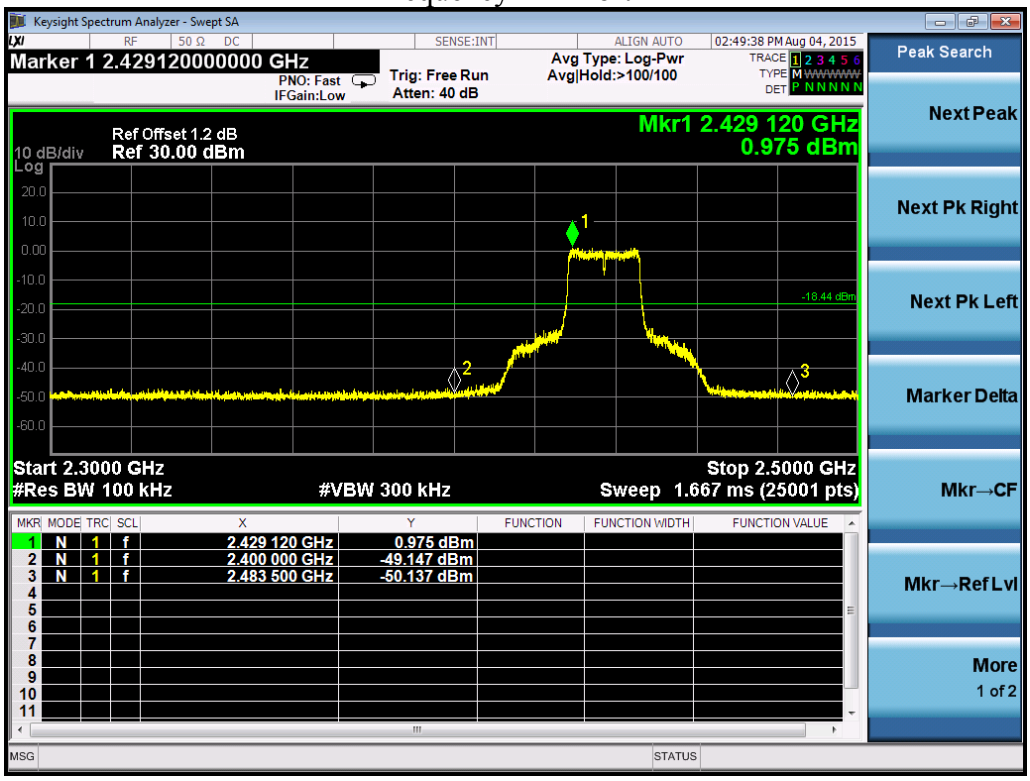


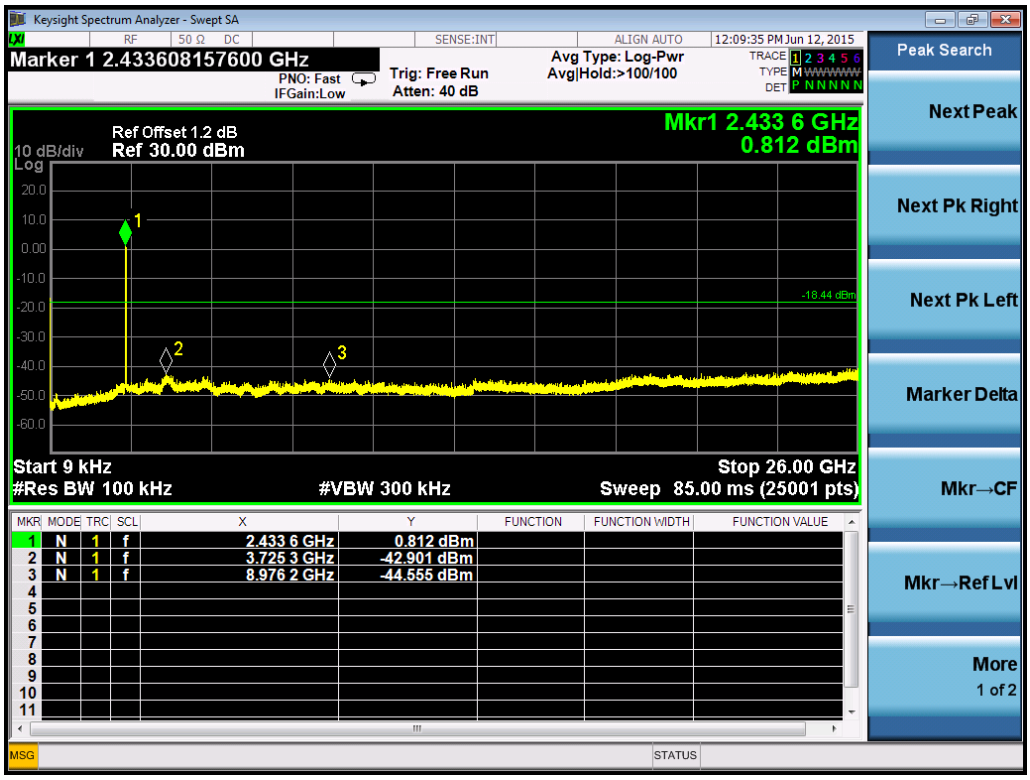
Frequency L – Port 2



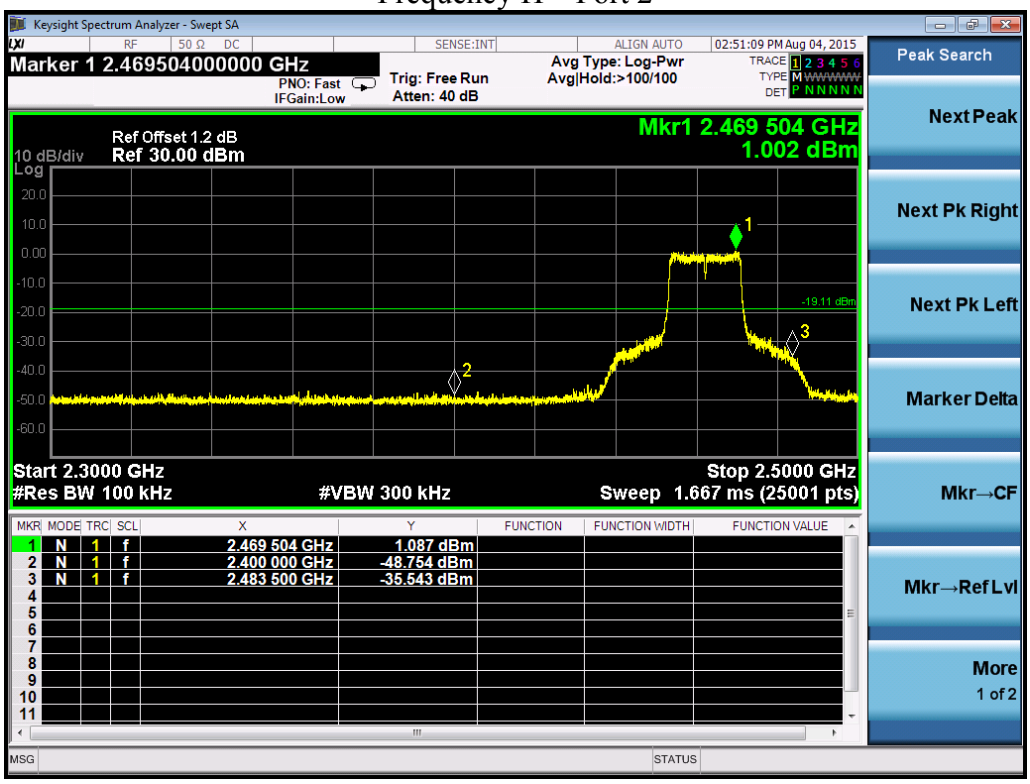


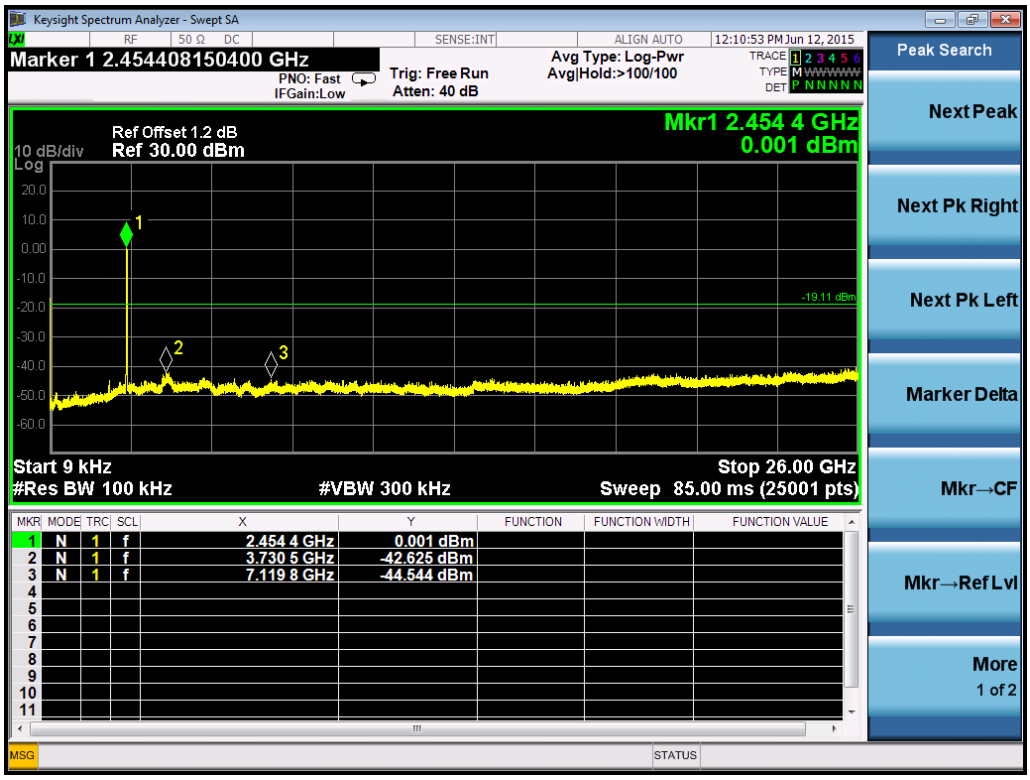
Frequency M – Port 2





Frequency H – Port 2





8. Radiated Emissions in restricted frequency bands

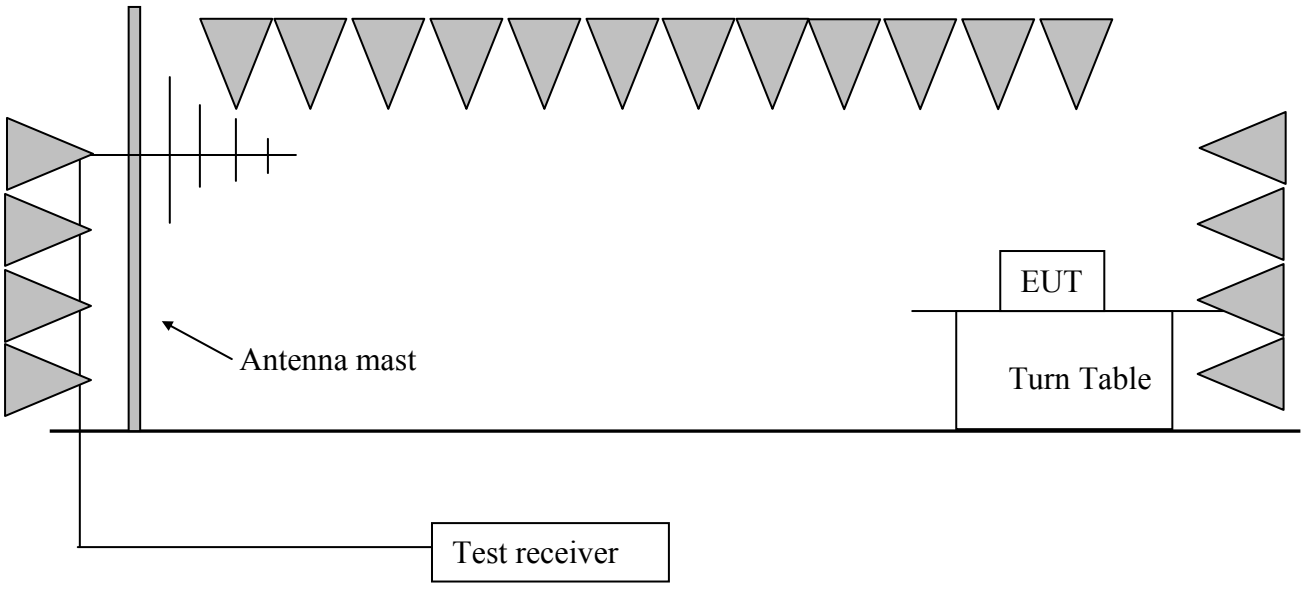
Test result: **Pass**

8.1 Test limit

The radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) showed as below:

Frequencies (MHz)	Field Strength (microvolts/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

8.2 Test Configuration



8.3 Test procedure and test setup

The measurement was applied in a semi-anechoic chamber. While testing for spurious emission higher than 1GHz, if applied, the pre-amplifier would be equipped just at the output terminal of the antenna.

The EUT and simulators were placed on a 0.8m high wooden turntable above the horizontal metal ground plane. The turntable rotated 360 degrees to determine the position of the maximum emission level. The EUT was set 3 meters away from the receiving antenna which was mounted on an antenna mast. The antenna moved up and down between from 1meter to 4 meters to find out the maximum emission level.

The EUT was tested according to DTS test procedure of KDB558074 D01 DTS "Meas Guidance v03r02" for compliance to FCC 47CFR 15.247 requirements.

The radiated emission was measured using the Spectrum Analyzer with the resolutions bandwidth set as:

RBW = 100 kHz, VBW = 300 kHz (30MHz-1GHz)
RBW = 1MHz, VBW = 3MHz (>1GHz for PK);
RBW = 1MHz, VBW = 10Hz (>1GHz for AV);

Remark:
1. Factor= Antenna Factor + Cable Loss (-Amplifier, is employed)
2. Measured level= Original Receiver Reading + Factor
3. Margin = limit – Measured level
4. If the PK measured level is lower than AV limit, the AV test can be elided.

Example:

Assuming Antenna Factor = 30.20dB/m, Cable Loss = 2.00dB,
Gain of Preamplifier = 32.00dB, Original Receiver Reading = 10dBuV.
Then Factor = 30.20 + 2.00 – 32.00 = 0.20dB/m;
Measured level = 10dBuV + 0.20dB/m = 10.20dBuV/m
Assuming limit = 54dBuV/m,
Measured level = 10.20dBuV/m, then Margin = 54 -10.20 = 43.80dBuV/m.

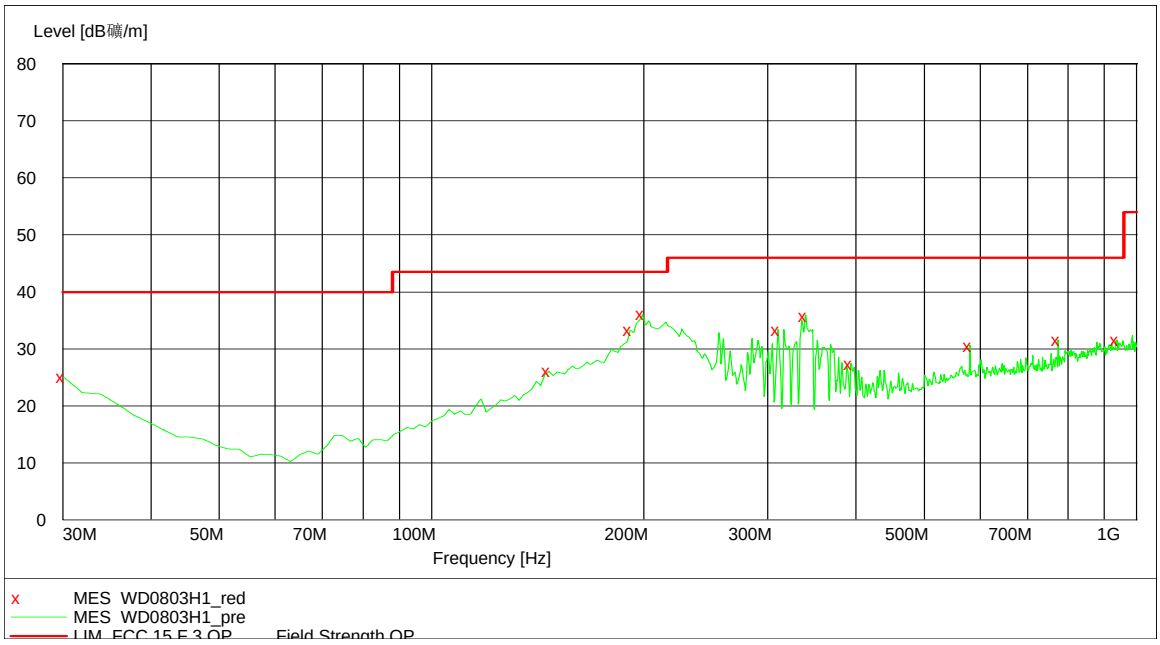
8.4 Test Protocol

Temperature: 25 °C
Relative Humidity: 55 %

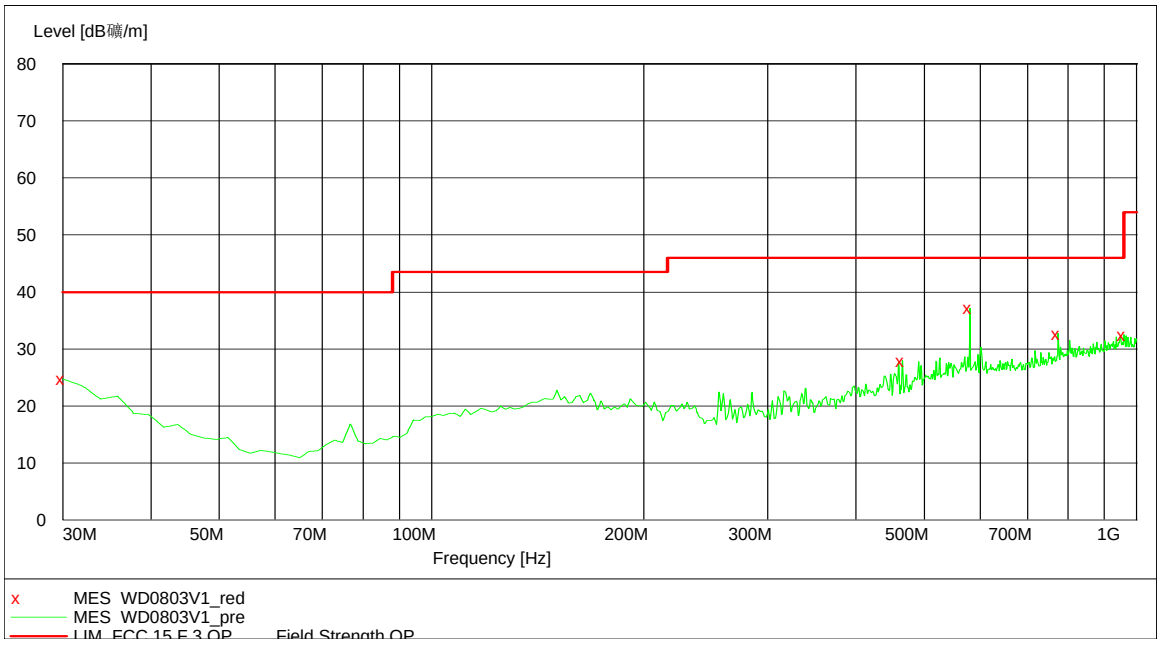
The low frequency, which started from 9 kHz to 30MHz, was pre-scanned and the result which was 20dB lower than the limit line per 15.31(o) was not reported.

Mode 1, 30MHz~1GHz,

Horizontal

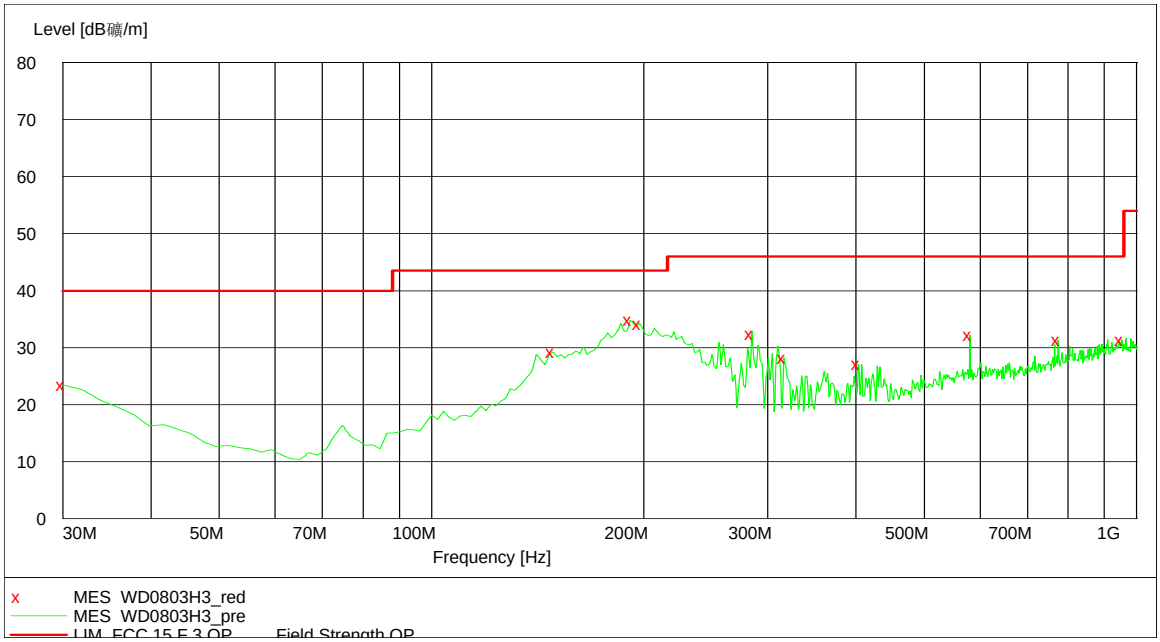


Vertical

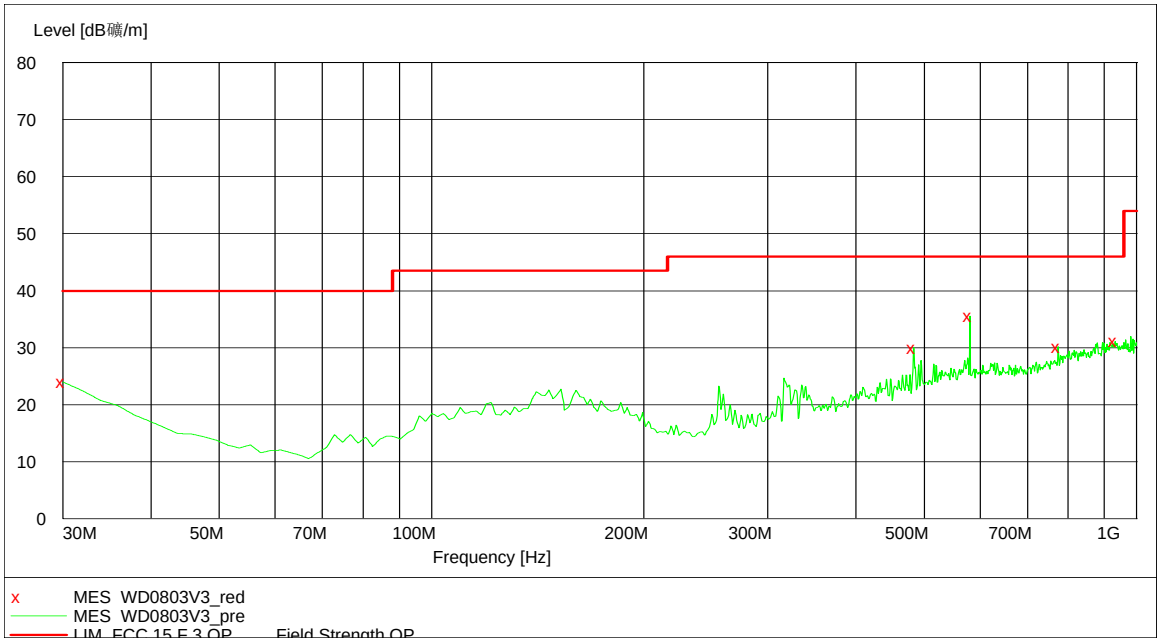


Mode 2, 30MHz~1GHz,

Horizontal



Vertical



Mode 1, 30MHz~1GHz, Test data:

Polarization	Frequency (MHz)	Measured level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
H	30.00	25.1	40.0	14.9	PK
	146.63	26.1	43.5	17.4	PK
	191.34	33.3	43.5	10.2	PK
	199.12	36.1	43.5	7.4	PK
	309.92	33.4	46.0	12.6	PK
	339.08	35.8	46.0	10.2	PK
	393.51	27.4	46.0	18.6	PK
	580.12	30.6	46.0	15.4	PK
	774.51	31.6	46.0	14.4	PK
	937.80	31.6	46.0	14.4	PK
V	30.00	24.7	40.0	15.3	PK
	465.43	27.9	46.0	18.1	PK
	580.12	37.2	46.0	8.8	PK
	774.51	32.7	46.0	13.3	PK
	959.18	32.5	46.0	13.5	PK

Mode 2, 30MHz~1GHz, Test data:

Polarization	Frequency (MHz)	Measured level (dBμV/m)	Limits (dBμV/m)	Margin (dB)	Detector
H	30.00	23.4	40.0	16.6	PK
	148.58	29.3	43.5	14.2	PK
	191.34	34.8	43.5	8.7	PK
	197.17	34.2	43.5	9.3	PK
	284.65	32.4	46.0	13.6	PK
	315.75	28.2	46.0	17.8	PK
	403.23	27.1	46.0	18.9	PK
	580.12	32.2	46.0	13.8	PK
	774.51	31.3	46.0	14.7	PK
	951.40	31.4	46.0	14.6	PK
V	30.00	24.0	40.0	16.0	PK
	482.93	30.0	46.0	16.0	PK
	580.12	35.6	46.0	10.4	PK
	774.51	30.2	46.0	15.8	PK
	931.96	31.1	46.0	14.9	PK

Test result above 1GHz:

The emission was conducted from 1GHz to 25GHz.

Mode 1:

1：2.4G band 802.11b

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	55.98	74	-7.80	100	190	18.02	PK
		44.23	54	-7.80	100	190	9.77	AV
	2412	112.18	-	-7.80	100	190	-	PK
		108.08	-	-7.80	100	190	-	AV
	4824	42.38	74	-2.10	100	190	31.62	PK
		31.38	54	-2.10	100	190	22.62	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	111.26	-	-7.80	100	190	-	PK
		107.78	-	-7.80	100	190	-	AV
	4874	45.18	74	-2.10	100	190	28.82	PK
		32.37	54	-2.10	100	190	21.63	AV
	7311	46.48	74	6.50	100	190	27.52	PK
		37.45	54	6.50	100	190	16.55	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	112.30	-	-7.80	100	190	-	PK
		109.24	-	-7.80	100	190	-	AV
	2483.5	57.48	74	-7.50	100	190	16.52	PK
		47.17	54	-7.50	100	190	6.83	AV
	4924	41.51	74	-2.10	100	190	32.49	PK
		31.81	54	-2.10	100	190	22.19	AV
	7386	46.01	74	6.50	100	190	27.99	PK
		36.54	54	6.50	100	190	17.46	AV
Note:	2462MHz is fundamental signal.							

2：2.4G band 802.11g

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	63.95	74	-7.80	100	190	10.05	PK
		49.80	54	-7.80	100	190	4.20	AV
	2412	114.98	-	-7.80	100	190	-	PK
		104.85	-	-7.80	100	190	-	AV
	4824	43.32	74	-2.10	100	190	30.68	PK
		31.77	54	-2.10	100	190	22.23	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	114.65	-	-7.80	100	190	-	PK
		105.58	-	-7.80	100	190	-	AV
	4874	43.48	74	-2.10	100	190	30.52	PK
		34.57	54	-2.10	100	190	19.43	AV
	7311	48.18	74	6.50	100	190	25.82	PK
		39.35	54	6.50	100	190	14.65	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	113.68	-	-7.80	100	190	-	PK
		105.12	-	-7.80	100	190	-	AV
	2483.5	67.11	74	-7.50	100	190	6.89	PK
		48.45	54	-7.50	100	190	5.55	AV
	4924	42.41	74	-2.10	100	190	31.59	PK
		32.91	54	-2.10	100	190	21.09	AV
	7386	45.51	74	6.50	100	190	28.49	PK
		36.54	54	6.50	100	190	17.46	AV
Note:	2462MHz is fundamental signal.							

3：2.4G band 802.11n20

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	65.83	74	-7.80	100	190	8.17	PK
		48.91	54	-7.80	100	190	5.09	AV
	2412	113.08	-	-7.80	100	190	-	PK
		102.65	-	-7.80	100	190	-	AV
	4824	41.32	74	-2.10	100	190	32.68	PK
		32.37	54	-2.10	100	190	21.63	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	113.12	-	-7.80	100	190	-	PK
		102.31	-	-7.80	100	190	-	AV
	4874	45.30	74	-2.10	100	190	28.70	PK
		37.10	54	-2.10	100	190	16.90	AV
	7311	48.20	74	6.50	100	190	25.80	PK
		36.40	54	6.50	100	190	17.60	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	113.36	-	-7.80	100	190	-	PK
		102.45	-	-7.80	100	190	-	AV
	2483.5	64.20	74	-7.50	100	190	9.80	PK
		46.83	54	-7.50	100	190	7.17	AV
	4924	43.91	74	-2.10	100	190	30.09	PK
		34.41	54	-2.10	100	190	19.59	AV
	7386	45.51	74	6.50	100	190	28.49	PK
		36.44	54	6.50	100	190	17.56	AV
Note:	2462MHz is fundamental signal.							

Mode 2:

1：2.4G band 802.11b

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	65.79	74	-7.80	100	190	8.21	PK
		47.86	54	-7.80	100	190	6.14	AV
	2412	110.18	-	-7.80	100	190	-	PK
		103.35	-	-7.80	100	190	-	AV
	4824	42.22	74	-2.10	100	190	31.78	PK
		31.97	54	-2.10	100	190	22.03	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	110.25	-	-7.80	100	190	-	PK
		102.48	-	-7.80	100	190	-	AV
	4874	41.98	74	-2.10	100	190	32.02	PK
		32.37	54	-2.10	100	190	21.63	AV
	7311	46.58	74	6.50	100	190	27.42	PK
		37.35	54	6.50	100	190	16.65	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	110.60	-	-7.80	100	190	-	PK
		102.73	-	-7.80	100	190	-	AV
	2483.5	64.09	74	-7.50	100	190	9.91	PK
		46.23	54	-7.50	100	190	7.77	AV
	4924	41.41	74	-2.10	100	190	32.59	PK
		32.01	54	-2.10	100	190	21.99	AV
	7386	45.71	74	6.50	100	190	28.29	PK
		36.64	54	6.50	100	190	17.36	AV
Note:	2462MHz is fundamental signal.							

2：2.4G band 802.11g

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	66.74	74	-7.80	100	190	7.26	PK
		49.90	54	-7.80	100	190	4.10	AV
	2412	112.88	-	-7.80	100	190	-	PK
		102.05	-	-7.80	100	190	-	AV
	4824	41.42	74	-2.10	100	190	32.58	PK
		31.77	54	-2.10	100	190	22.23	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	112.65	-	-7.80	100	190	-	PK
		102.58	-	-7.80	100	190	-	AV
	4874	43.18	74	-2.10	100	190	30.82	PK
		34.37	54	-2.10	100	190	19.63	AV
	7311	48.08	74	6.50	100	190	25.92	PK
		39.25	54	6.50	100	190	14.75	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	111.65	-	-7.80	100	190	-	PK
		104.58	-	-7.80	100	190	-	AV
	2483.5	67.13	74	-7.50	100	190	6.87	PK
		48.03	54	-7.50	100	190	5.97	AV
	4924	42.51	74	-2.10	100	190	31.49	PK
		32.71	54	-2.10	100	190	21.29	AV
	7386	45.41	74	6.50	100	190	28.59	PK
		36.64	54	6.50	100	190	17.36	AV
Note:	2462MHz is fundamental signal.							

3：2.4G band 802.11n20

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2390	66.83	74	-7.80	100	190	7.17	PK
		48.88	54	-7.80	100	190	5.12	AV
	2412	111.18	-	-7.80	100	190	-	PK
		98.65	-	-7.80	100	190	-	AV
	4824	41.32	74	-2.10	100	190	32.68	PK
		32.77	54	-2.10	100	190	21.23	AV
Note:	2412MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2437	111.65	-	-7.80	100	190	-	PK
		100.58	-	-7.80	100	190	-	AV
	4874	45.38	74	-2.10	100	190	28.62	PK
		37.37	54	-2.10	100	190	16.63	AV
	7311	48.28	74	6.50	100	190	25.72	PK
		36.45	54	6.50	100	190	17.55	AV
Note:	2437MHz is fundamental signal.							

Polarity	Frequency (MHz)	Measured level (dBuv/m)	Limit (dBuv/m)	Factor (dB)	Antenna (cm)	Turn table (deg)	Margin (dB)	Remark
Ver/Hor	2462	111.34	-	-7.80	100	190	-	PK
		98.29	-	-7.80	100	190	-	AV
	2483.5	67.09	74	-7.50	100	190	6.91	PK
		47.92	54	-7.50	100	190	6.08	AV
	4924	43.71	74	-2.10	100	190	30.29	PK
		34.81	54	-2.10	100	190	19.19	AV
	7386	45.61	74	6.50	100	190	28.39	PK
		36.34	54	6.50	100	190	17.66	AV
Note:	2462MHz is fundamental signal.							

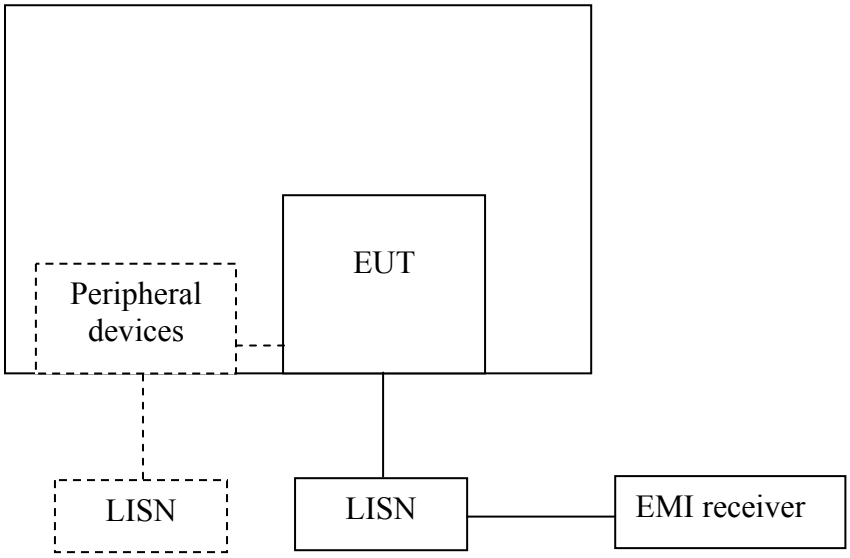
9. Power line conducted emission

Test result: **NA**

9.1 Limit

Frequency of Emission (MHz)	Conducted Limit (dBuV)	
	QP	AV
0.15-0.5	66 to 56*	56 to 46 *
0.5-5	56	46
5-30	60	50
* Decreases with the logarithm of the frequency.		

9.2 Test configuration



☐ For table top equipment, wooden support is 0.8m height table

☐ For floor standing equipment, wooden support is 0.1m height rack.

9.3 Test procedure and test set up

The EUT are connected to the main power through a line impedance stabilization network (LISN). This provides a 50Ω/50uH coupling impedance for the measuring equipment. The peripheral devices are also connected to the main power through a LISN that provides a 50Ω/50uH coupling impedance with 50Ω termination.
Both sides (Line and Neutral) of AC line are checked for maximum conducted interference. In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.4 on conducted measurement.
The bandwidth of the test receiver is set at 9 kHz.

9.4 Test protocol

Temperature	:	°C
Relative Humidity	:	%