7	9848.008M	46.7	+0.0	46.7	86.0	-39.3	Anten
8	118.275k	45.0	+0.0	45.0	86.0	-41.0	Anten
9	1.006M	44.9	+0.0	44.9	86.0	-41.1	Anten
10	23499.546 M	43.4	+0.0	43.4	86.0	-42.6	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	12:21:09
Tested By:	Matthew Harrison	Sequence#:	61
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

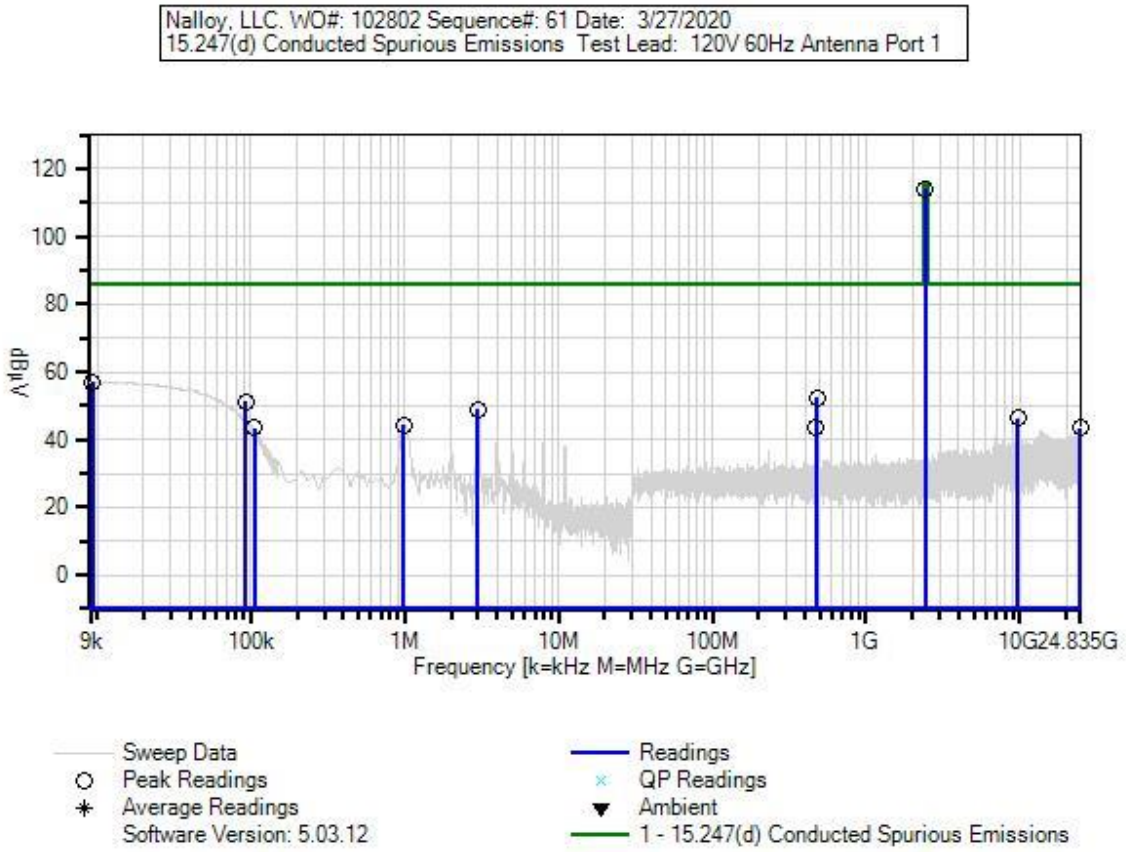
Frequency Range: 9kHz-25GHz
Frequency tested: 2437
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11b, 1mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2435.990M	114.0					+0.0	114.0	116.0	-2.0	Anten
2	9.282k	57.1					+0.0	57.1	86.0	-28.9	Anten
3	476.246M	52.3					+0.0	52.3	86.0	-33.7	Anten
4	92.613k	51.1					+0.0	51.1	86.0	-34.9	Anten
5	2.991M	48.8					+0.0	48.8	86.0	-37.2	Anten
6	9747.908M	46.4					+0.0	46.4	86.0	-39.6	Anten

7	985.573k	44.4	+0.0	44.4	86.0	-41.6	Anten
8	474.744M	43.5	+0.0	43.5	86.0	-42.5	Anten
9	24813.078 M	43.3	+0.0	43.3	86.0	-42.7	Anten
10	105.021k	43.3	+0.0	43.3	86.0	-42.7	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	12:29:39
Tested By:	Matthew Harrison	Sequence#:	62
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

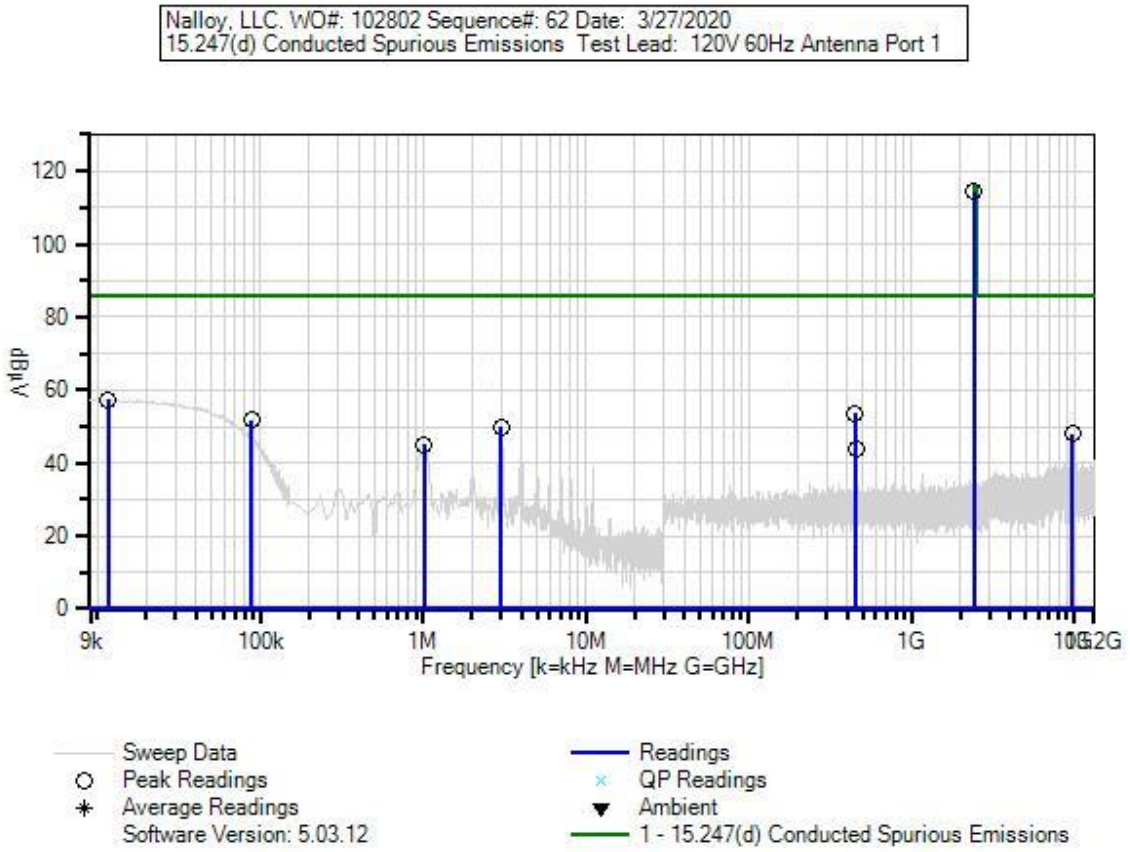
Frequency Range: 9kHz-25GHz
Frequency tested: 2412
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11b, 1mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2412.480M	114.3					+0.0	114.3	116.0	-1.7	Anten
2	11.679k	57.4					+0.0	57.4	86.0	-28.6	Anten
3	451.321M	53.7					+0.0	53.7	86.0	-32.3	Anten
4	88.665k	51.7					+0.0	51.7	86.0	-34.3	Anten

5	2.991M	49.8	+0.0	49.8	86.0	-36.2	Anten
6	9647.908M	47.9	+0.0	47.9	86.0	-38.1	Anten
7	1.006M	45.1	+0.0	45.1	86.0	-40.9	Anten
8	452.822M	44.1	+0.0	44.1	86.0	-41.9	Anten

802.11g Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	12:51:24
Tested By:	Matthew Harrison	Sequence#:	63
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

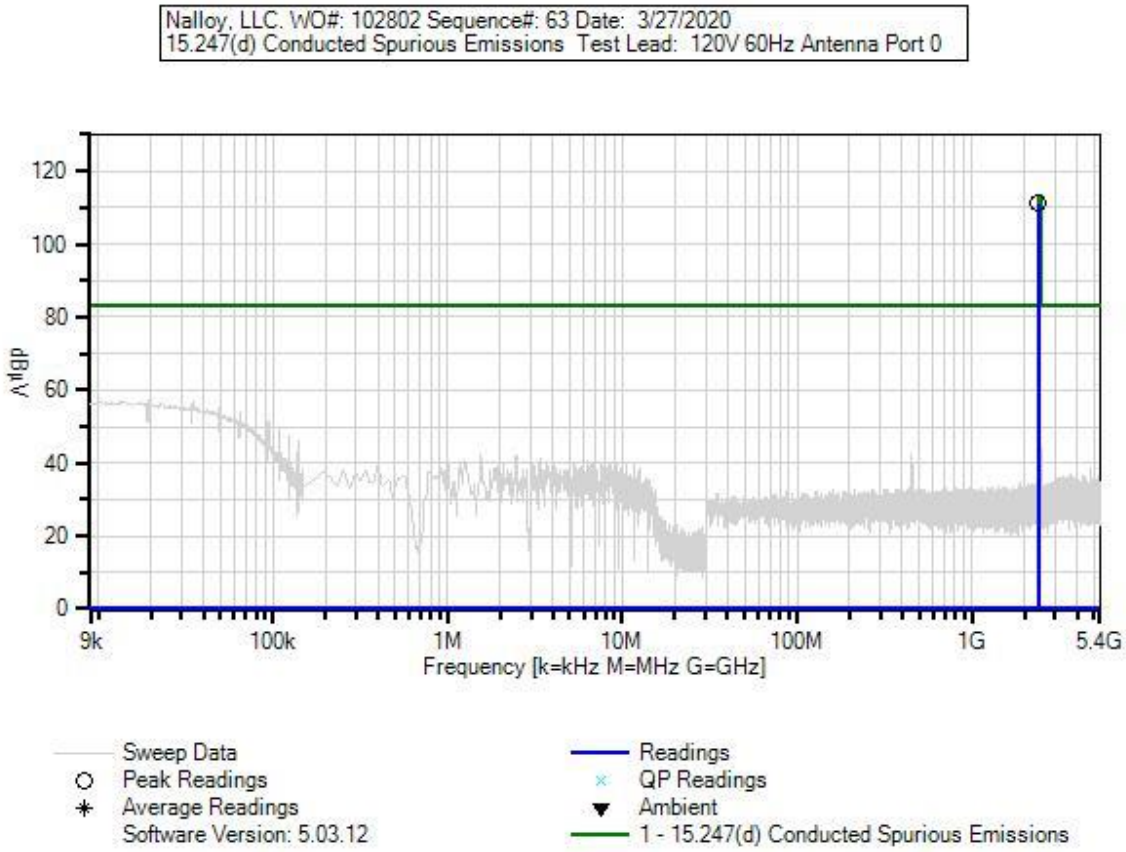
Frequency Range: 9kHz-25GHz
Frequency tested: 2412
Firmware power setting: 13 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11g, 6 mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2413.250M	111.2					+0.0	111.2	113.2	-2.0	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	13:01:23
Tested By:	Matthew Harrison	Sequence#:	64
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

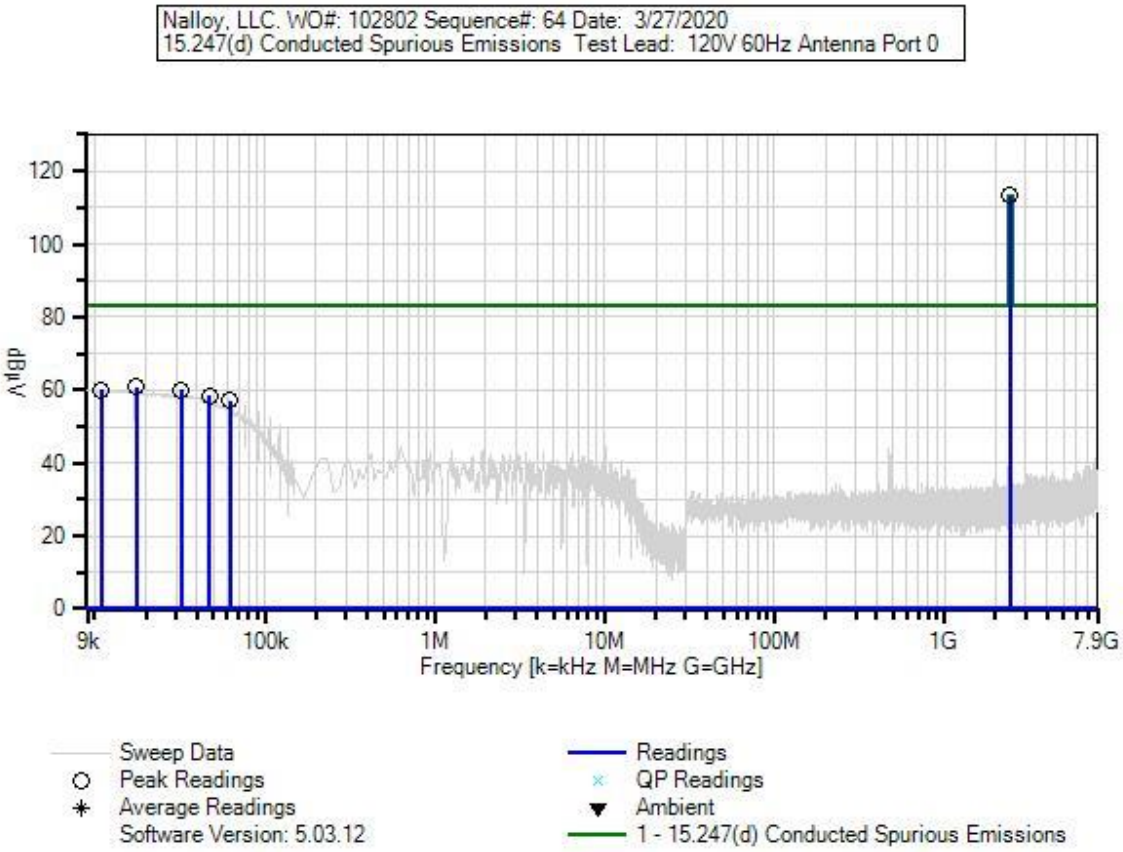
Frequency Range: 9kHz-25GHz
Frequency tested: 2437
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11g, 6 mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2435.710M	113.2					+0.0	113.2	113.2	+0.0	Anten
2	17.460k	60.8					+0.0	60.8	83.2	-22.4	Anten
3	32.406k	60.1					+0.0	60.1	83.2	-23.1	Anten
4	10.833k	60.0					+0.0	60.0	83.2	-23.2	Anten
5	47.352k	58.5					+0.0	58.5	83.2	-24.7	Anten
6	62.439k	57.2					+0.0	57.2	83.2	-26.0	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	13:11:36
Tested By:	Matthew Harrison	Sequence#:	65
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

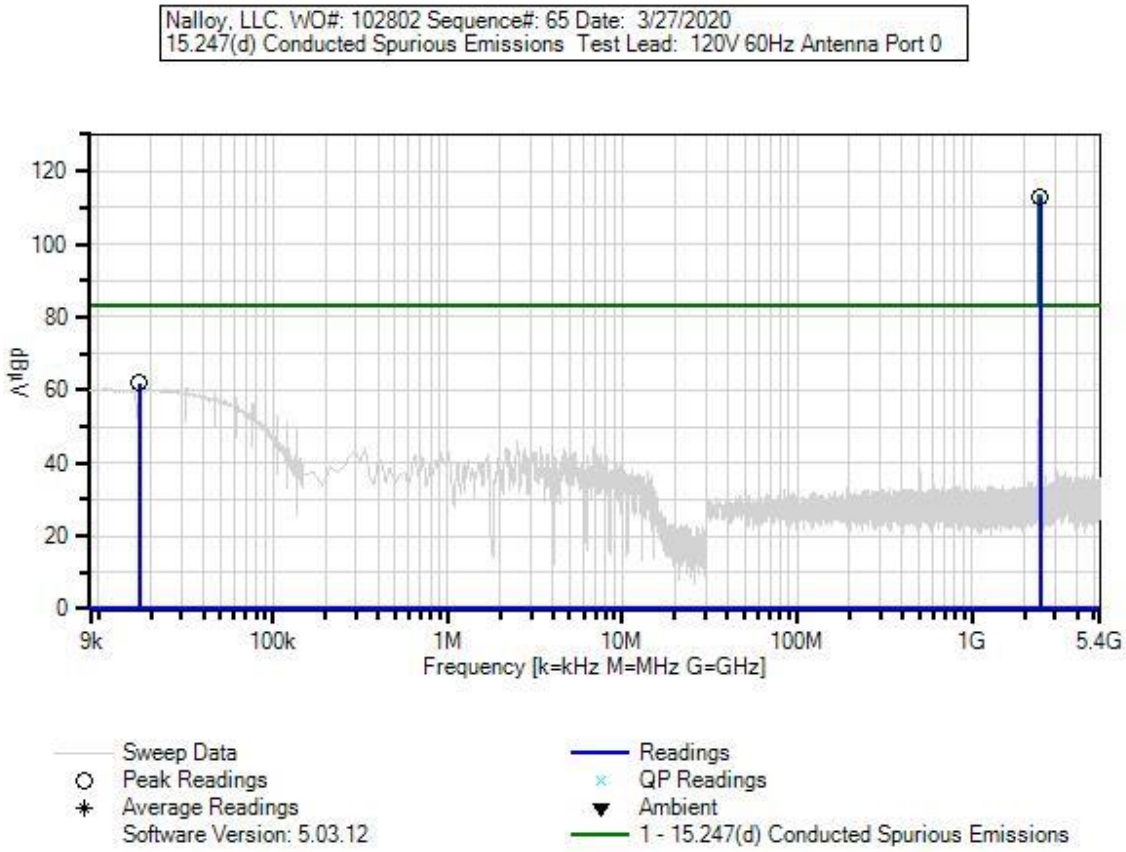
Frequency Range: 9kHz-25GHz
Frequency tested: 2462
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11g, 6 mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2463.240M	112.9					+0.0	112.9	113.2	-0.3	Anten
2	17.178k	61.8					+0.0	61.8	83.2	-21.4	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	13:22:11
Tested By:	Matthew Harrison	Sequence#:	66
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

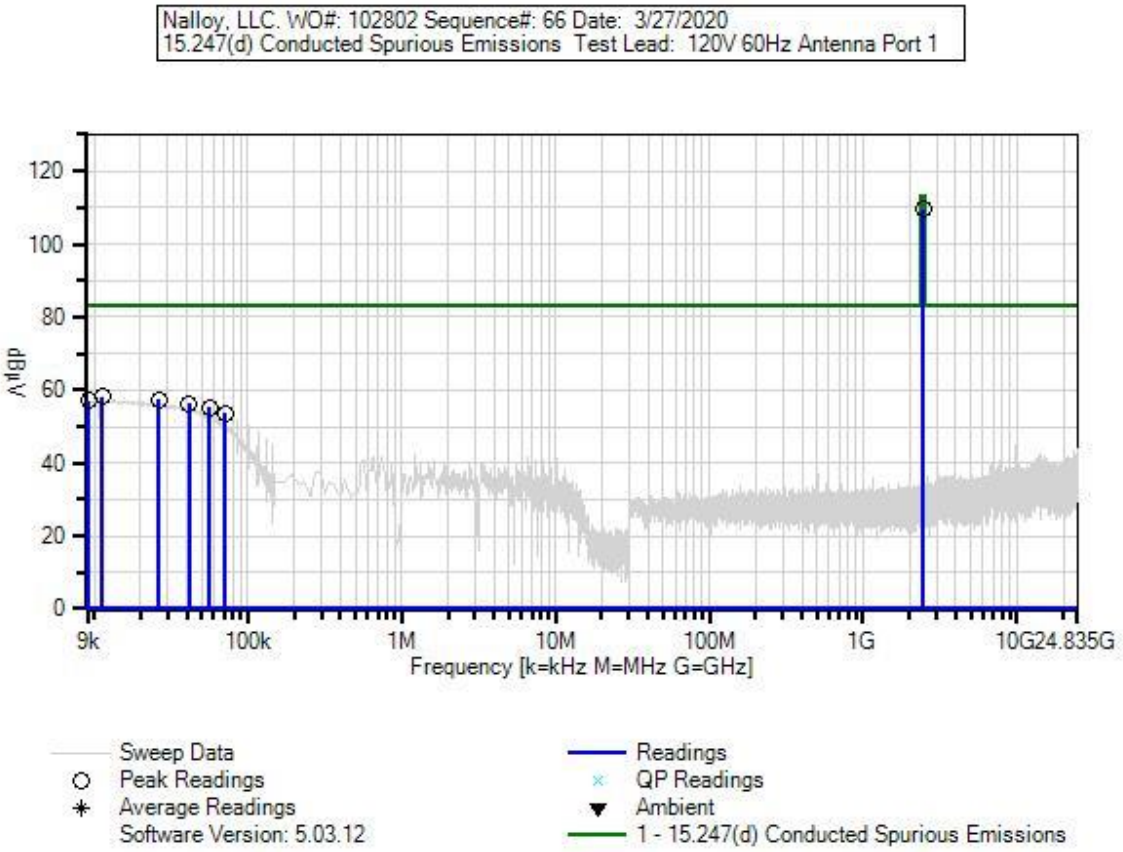
Frequency Range: 9kHz-25GHz
Frequency tested: 2462
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11g, 6 mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2456.990M	109.4					+0.0	109.4	113.2	-3.8	Anten
2	11.256k	58.3					+0.0	58.3	83.2	-24.9	Anten
3	26.202k	57.4					+0.0	57.4	83.2	-25.8	Anten

4	9.141k	57.1	+0.0	57.1	83.2	-26.1	Anten
5	41.148k	56.4	+0.0	56.4	83.2	-26.8	Anten
6	56.094k	55.2	+0.0	55.2	83.2	-28.0	Anten
7	71.040k	53.7	+0.0	53.7	83.2	-29.5	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	13:30:48
Tested By:	Matthew Harrison	Sequence#:	67
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

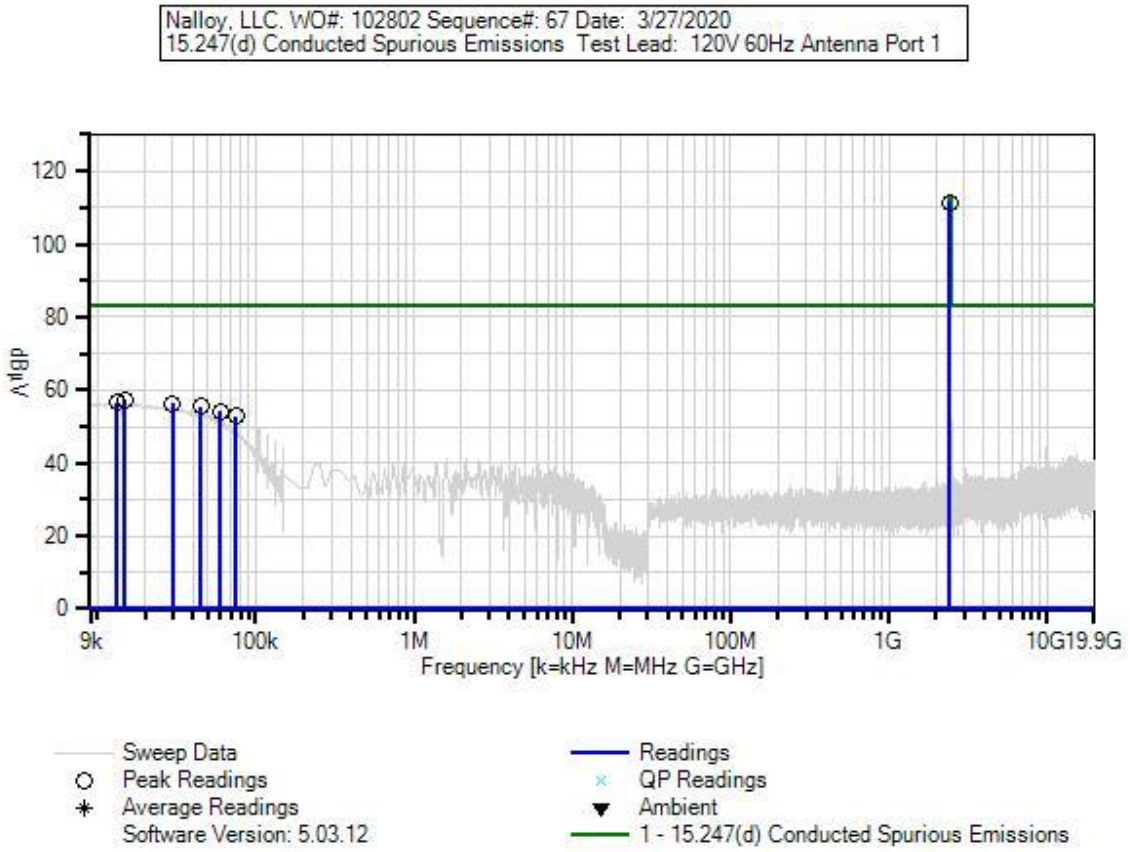
Frequency Range: 9kHz-25GHz
Frequency tested: 2437
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11g, 6 mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2435.720M	111.4					+0.0	111.4	113.2	-1.8	Anten
2	14.922k	57.5					+0.0	57.5	83.2	-25.7	Anten
3	13.230k	56.5					+0.0	56.5	83.2	-26.7	Anten

4	29.868k	56.2	+0.0	56.2	83.2	-27.0	Anten
5	44.814k	55.4	+0.0	55.4	83.2	-27.8	Anten
6	59.760k	54.1	+0.0	54.1	83.2	-29.1	Anten
7	74.847k	52.7	+0.0	52.7	83.2	-30.5	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	13:37:20
Tested By:	Matthew Harrison	Sequence#:	68
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

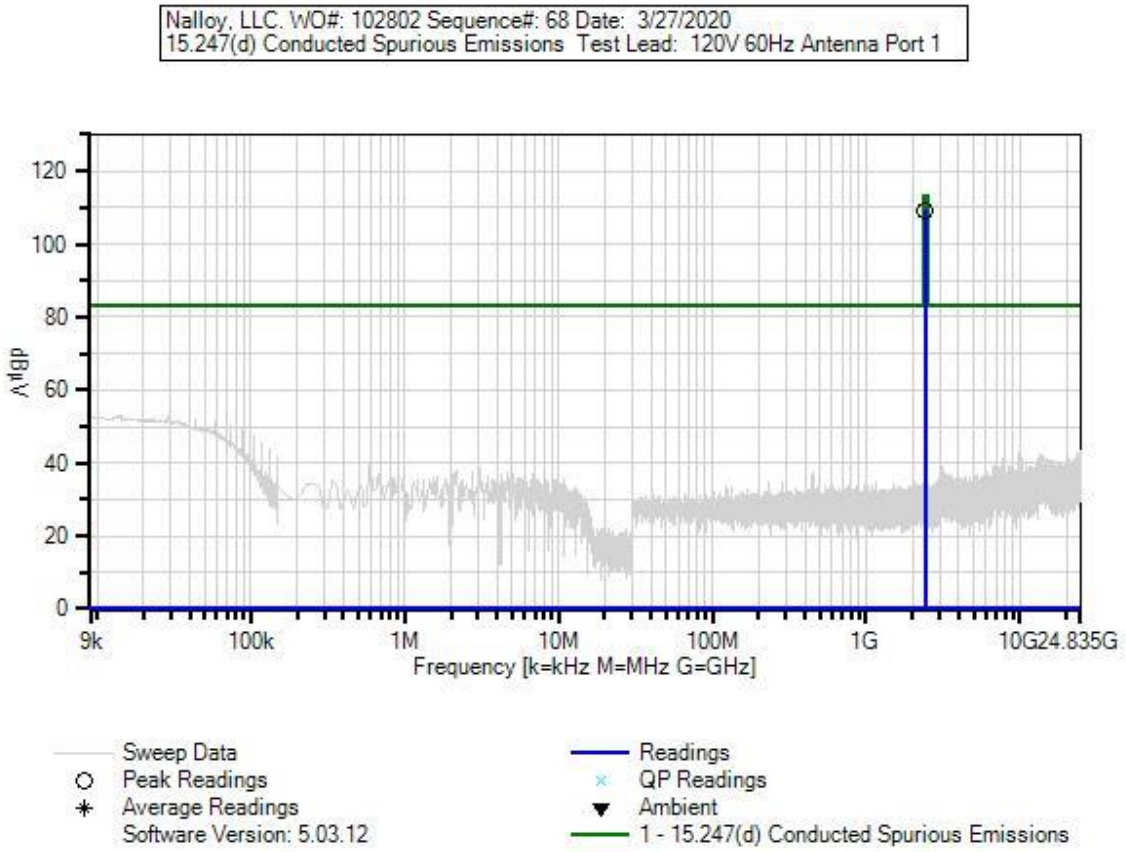
Frequency Range: 9kHz-25GHz
Frequency tested: 2412
Firmware power setting: 13 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11g, 6 mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2413.240M	109.1					+0.0	109.1	113.2	-4.1	Anten

802.11n20 Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	13:55:25
Tested By:	Matthew Harrison	Sequence#:	69
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

Frequency Range: 9kHz-25GHz
Frequency tested: 2412
Firmware power setting: 12 dBm for Low Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 20MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2413.240M	110.2					+0.0	110.2	112.2	-2.0	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	14:01:09
Tested By:	Matthew Harrison	Sequence#:	70
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

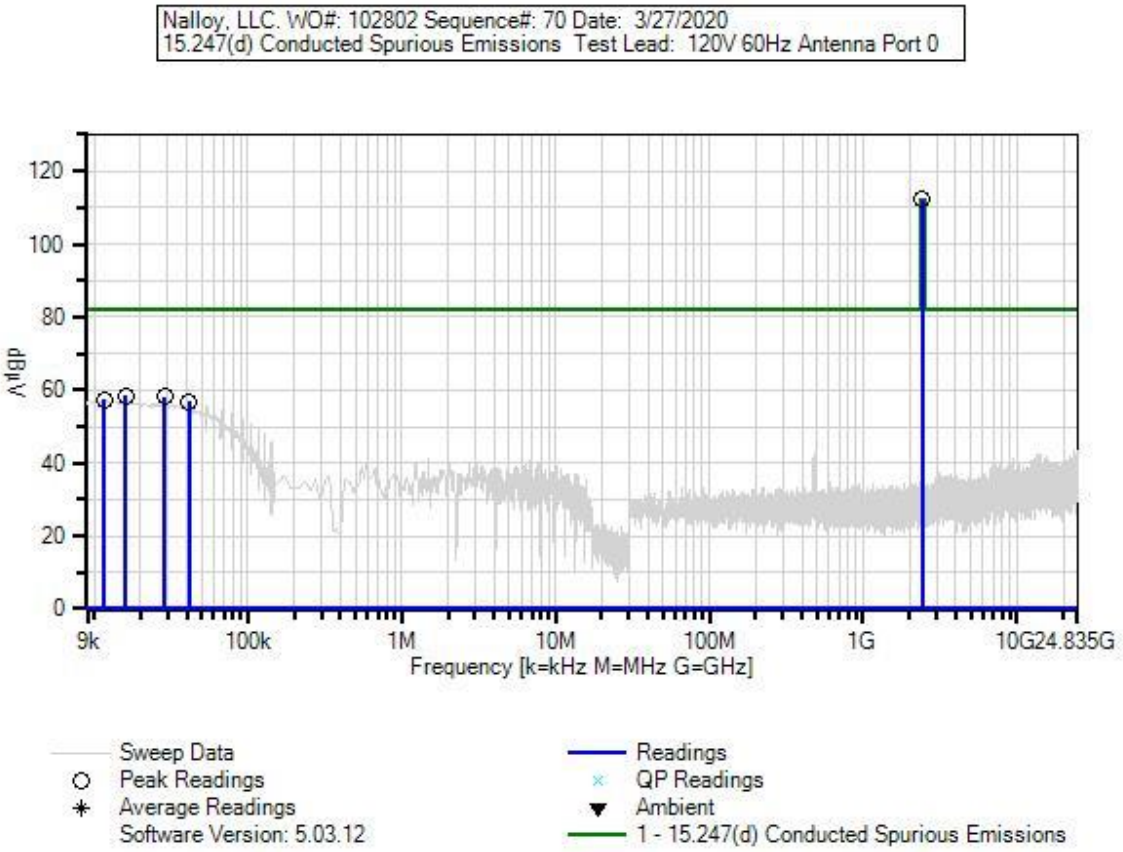
Frequency Range: 9kHz-25GHz
Frequency tested: 2437
Firmware power setting: 14 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 20MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2435.720M	112.1					+0.0	112.1	112.2	-0.1	Anten
2	16.050k	58.4					+0.0	58.4	82.2	-23.8	Anten
3	28.740k	58.1					+0.0	58.1	82.2	-24.1	Anten
4	11.538k	57.4					+0.0	57.4	82.2	-24.8	Anten
5	41.289k	56.8					+0.0	56.8	82.2	-25.4	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	14:09:27
Tested By:	Matthew Harrison	Sequence#:	71
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

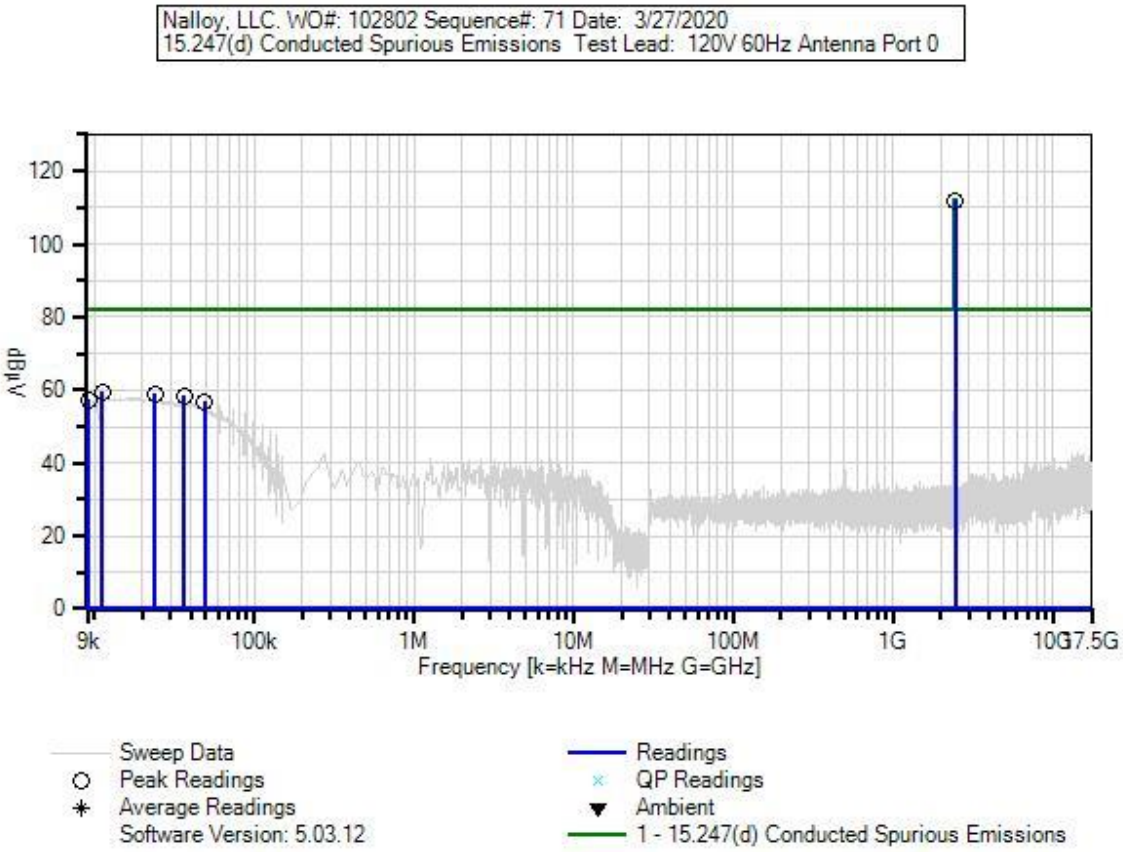
Frequency Range: 9kHz-25GHz
Frequency tested: 2462
Firmware power setting: 14 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 20MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2460.730M	111.9					+0.0	111.9	112.2	-0.3	Anten
2	11.115k	59.6					+0.0	59.6	82.2	-22.6	Anten
3	23.805k	59.0					+0.0	59.0	82.2	-23.2	Anten
4	36.495k	58.5					+0.0	58.5	82.2	-23.7	Anten
5	9.141k	57.4					+0.0	57.4	82.2	-24.8	Anten
6	49.044k	56.8					+0.0	56.8	82.2	-25.4	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	14:21:58
Tested By:	Matthew Harrison	Sequence#:	72
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

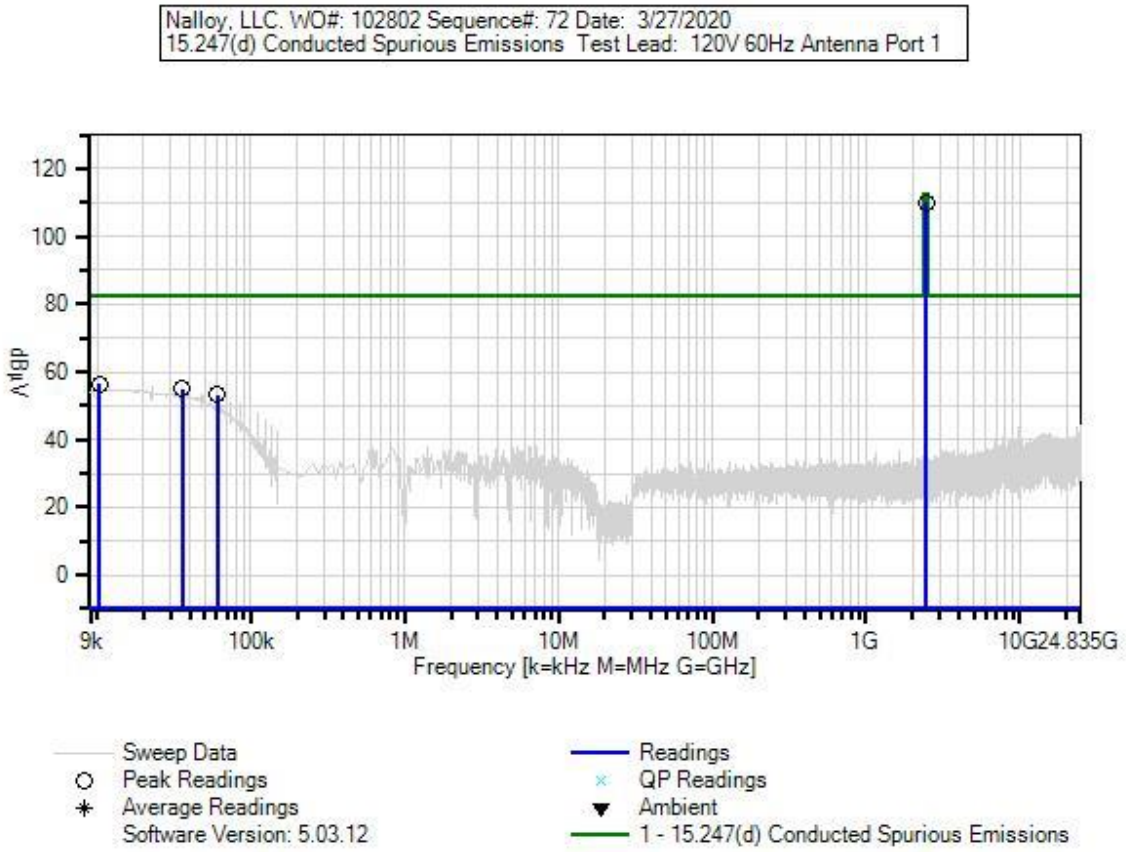
Frequency Range: 9kHz-25GHz
Frequency tested: 2462
Firmware power setting: 14 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 20MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2463.250M	110.0					+0.0	110.0	112.2	-2.2	Anten
2	10.269k	56.4					+0.0	56.4	82.2	-25.8	Anten
3	35.508k	55.1					+0.0	55.1	82.2	-27.1	Anten
4	60.747k	53.2					+0.0	53.2	82.2	-29.0	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	14:30:55
Tested By:	Matthew Harrison	Sequence#:	73
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

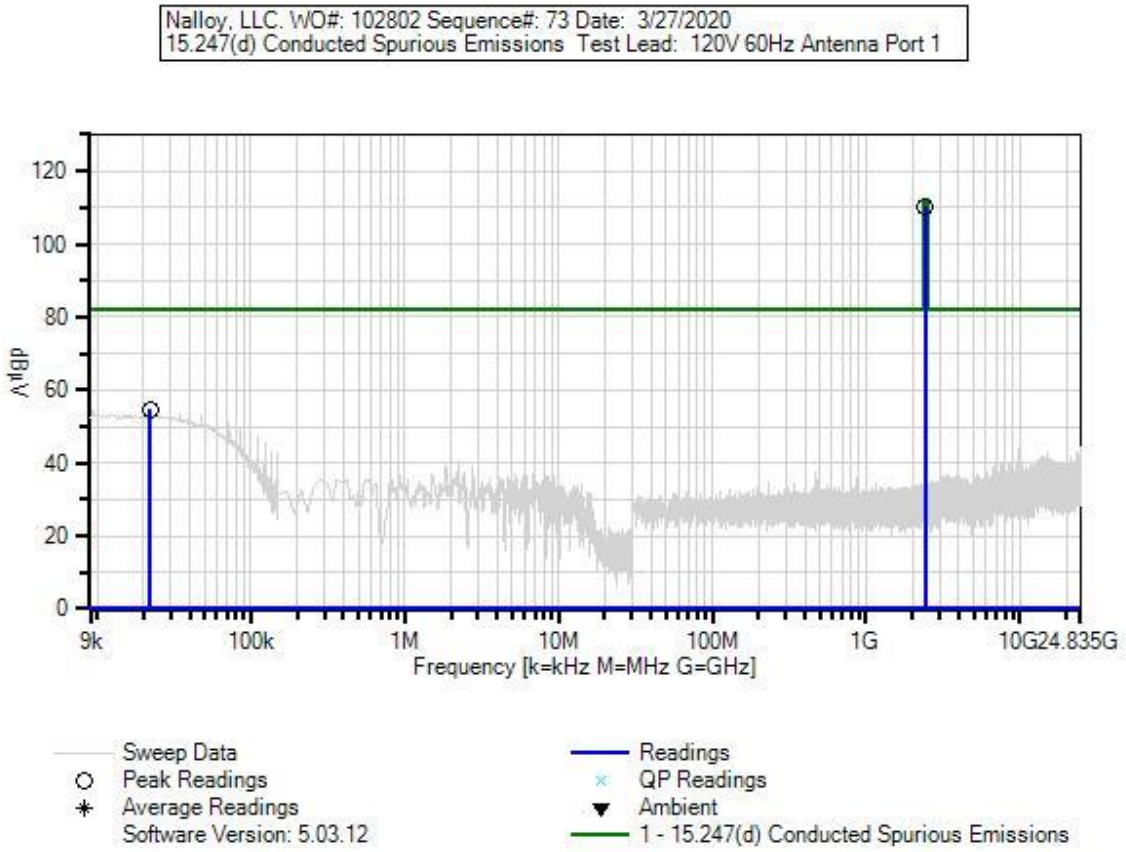
Frequency Range: 9kHz-25GHz
Frequency tested: 2437
Firmware power setting: 14 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 20MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2435.730M	110.3					+0.0	110.3	112.2	-1.9	Anten
2	21.972k	54.7					+0.0	54.7	82.2	-27.5	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	14:45:54
Tested By:	Matthew Harrison	Sequence#:	74
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

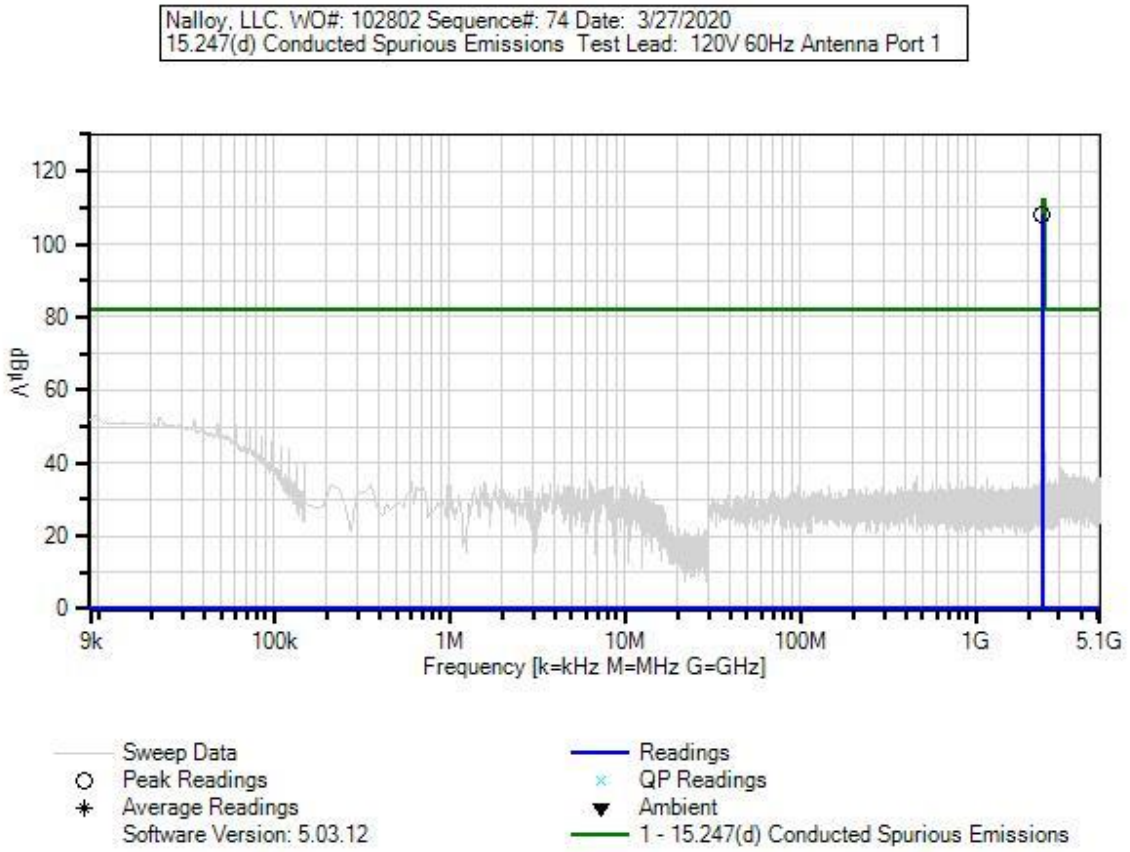
Frequency Range: 9kHz-25GHz
Frequency tested: 2412
Firmware power setting: 12 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 20MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2413.250M	108.1					+0.0	108.1	112.2	-4.1	Anten

802.11n40 Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	14:58:30
Tested By:	Matthew Harrison	Sequence#:	75
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

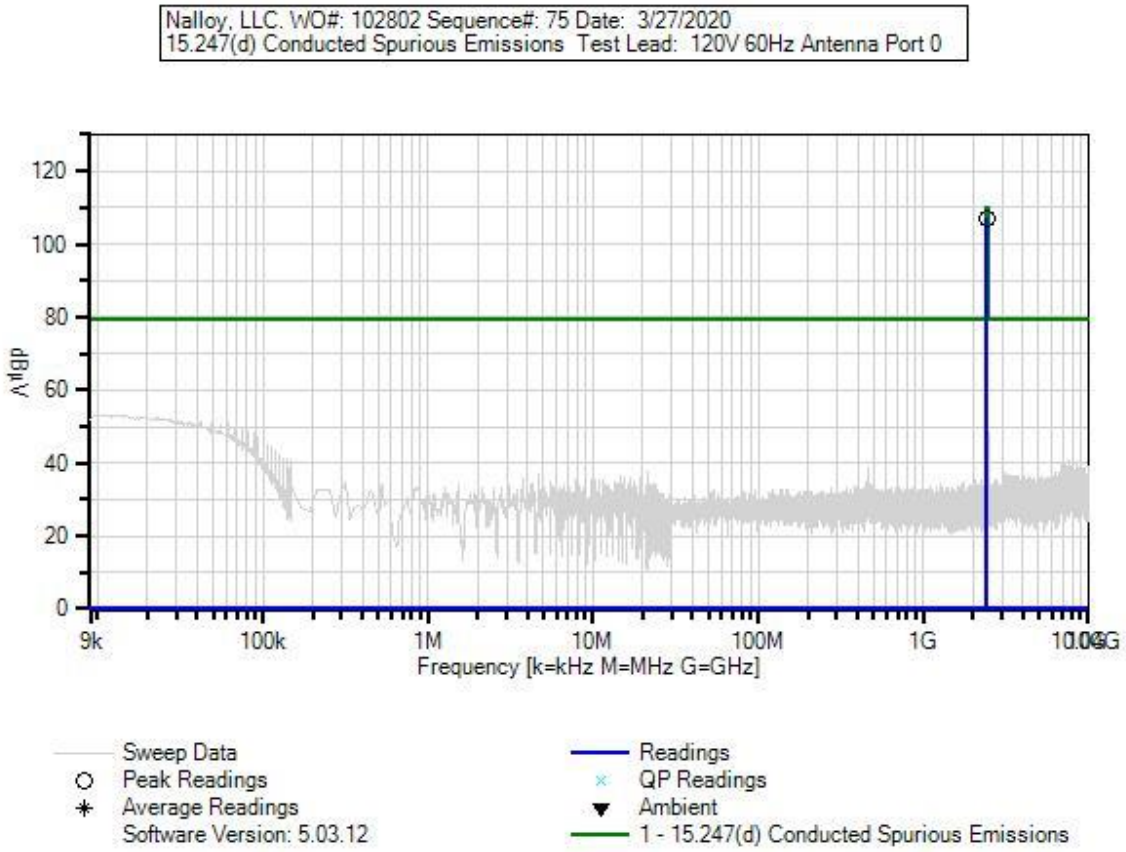
Frequency Range: 9kHz-25GHz
Frequency tested: 2422
Firmware power setting: 11 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 40MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2425.750M	107.2					+0.0	107.2	109.7	-2.5	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	15:06:37
Tested By:	Matthew Harrison	Sequence#:	76
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

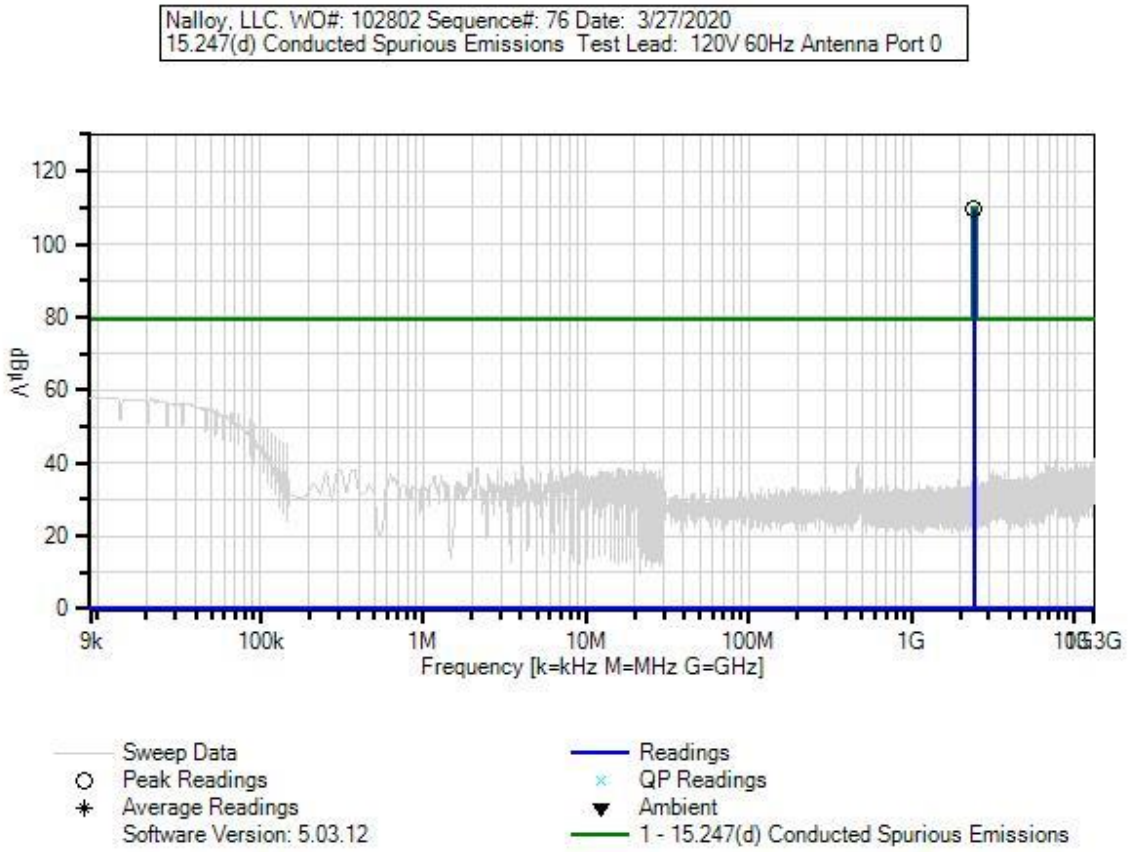
Frequency Range: 9kHz-25GHz
Frequency tested: 2437
Firmware power setting: 14 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 40MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2432.000M	109.5					+0.0	109.5	109.7	-0.2	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	15:15:51
Tested By:	Matthew Harrison	Sequence#:	77
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

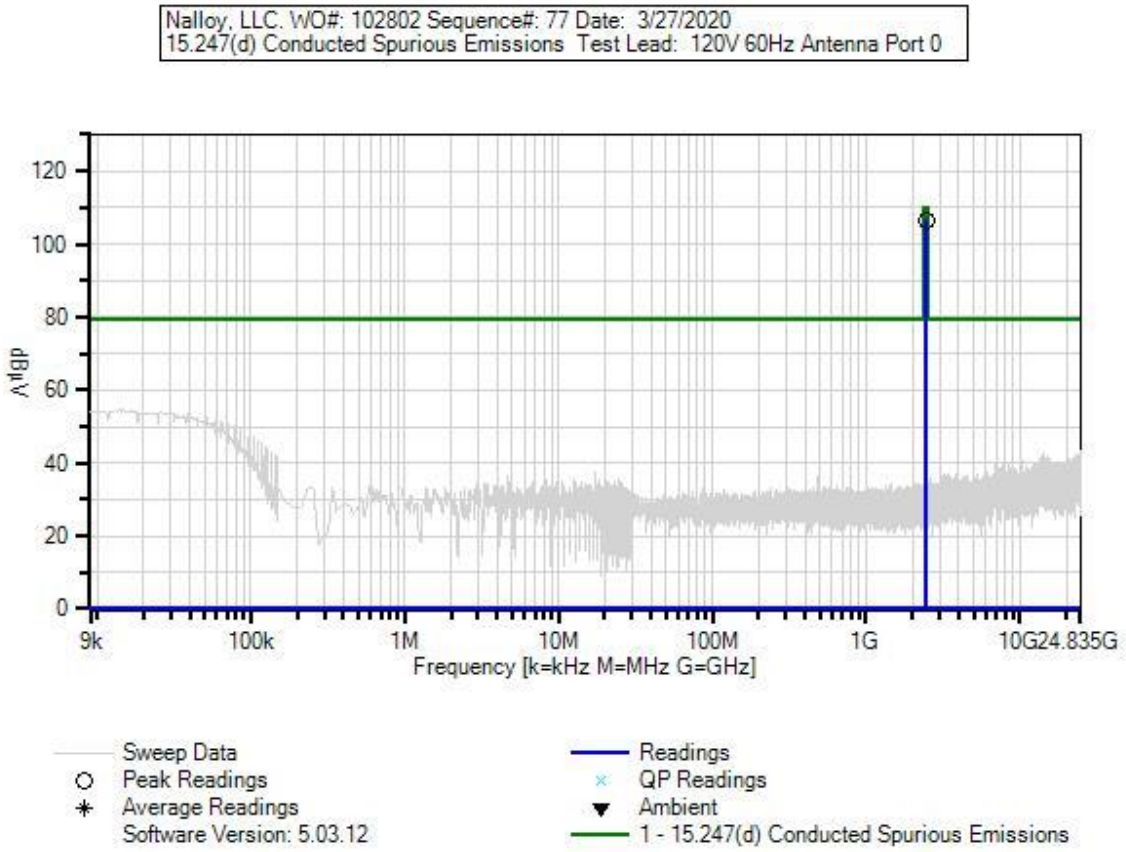
Frequency Range: 9kHz-25GHz
Frequency tested: 2452
Firmware power setting: 12 dBm
EUT Firmware:
Protocol /MCS/Modulation**: 802.11n, 40MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2455.730M	106.6					+0.0	106.6	109.7	-3.1	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	15:21:34
Tested By:	Matthew Harrison	Sequence#:	78
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

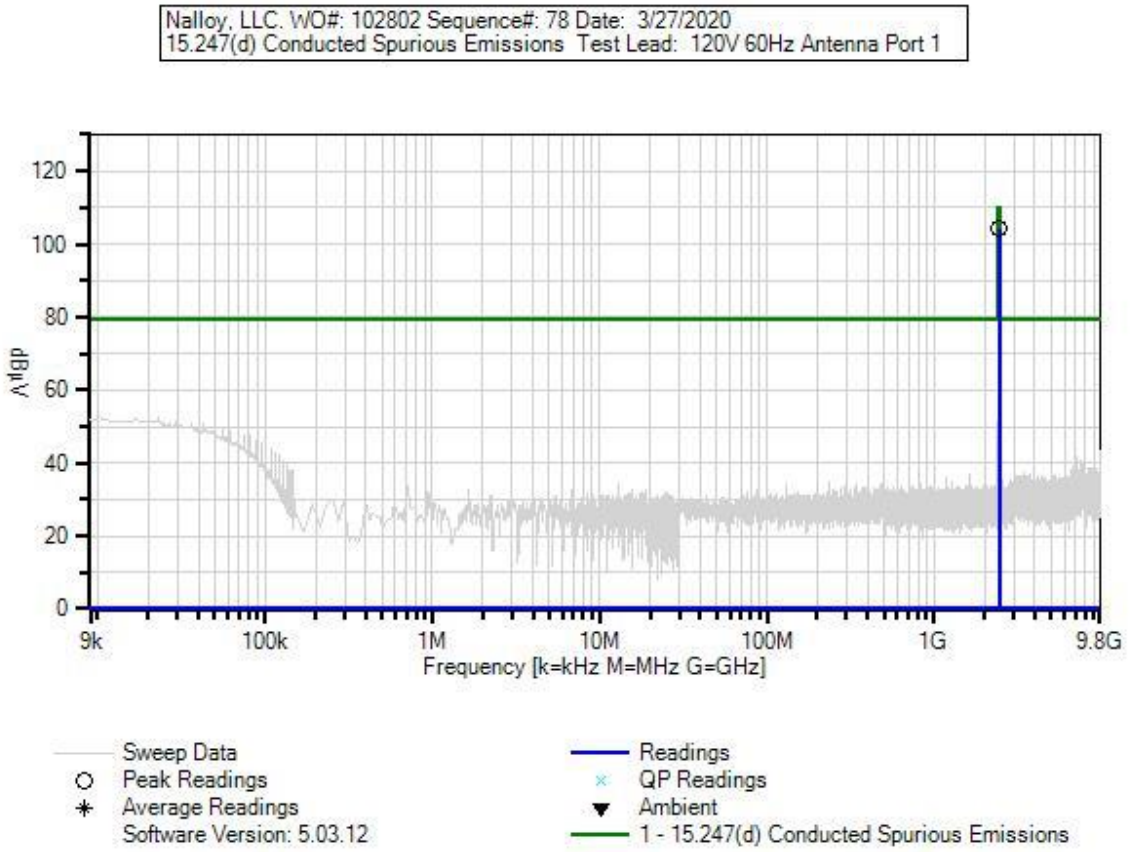
Frequency Range: 9kHz-25GHz
Frequency tested: 2452
Firmware power setting: 12 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 40MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2456.950M	104.1					+0.0	104.1	109.7	-5.6	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	15:29:59
Tested By:	Matthew Harrison	Sequence#:	79
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

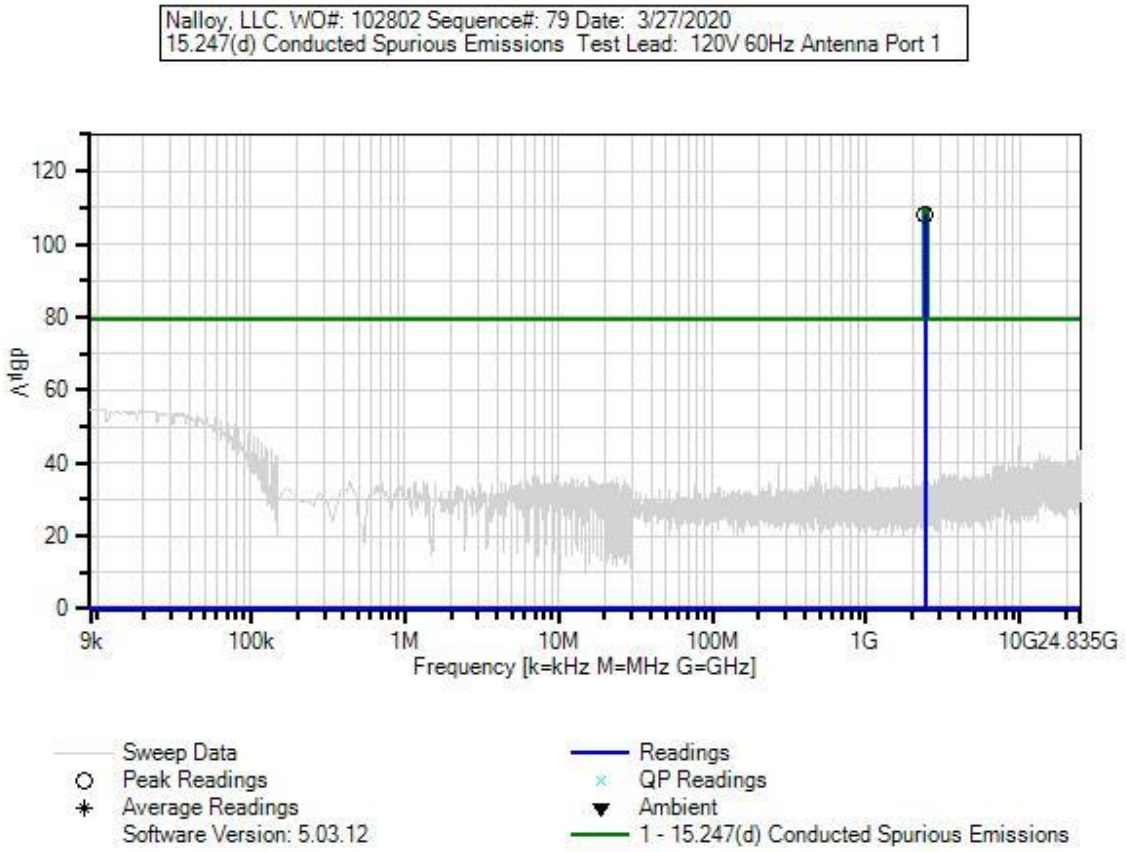
Frequency Range: 9kHz-25GHz
Frequency tested: 2437
Firmware power setting: 14 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 40MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2431.970M	108.2					+0.0	108.2	109.7	-1.5	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	3/27/2020
Test Type:	**Conducted Emissions**	Time:	15:37:43
Tested By:	Matthew Harrison	Sequence#:	80
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

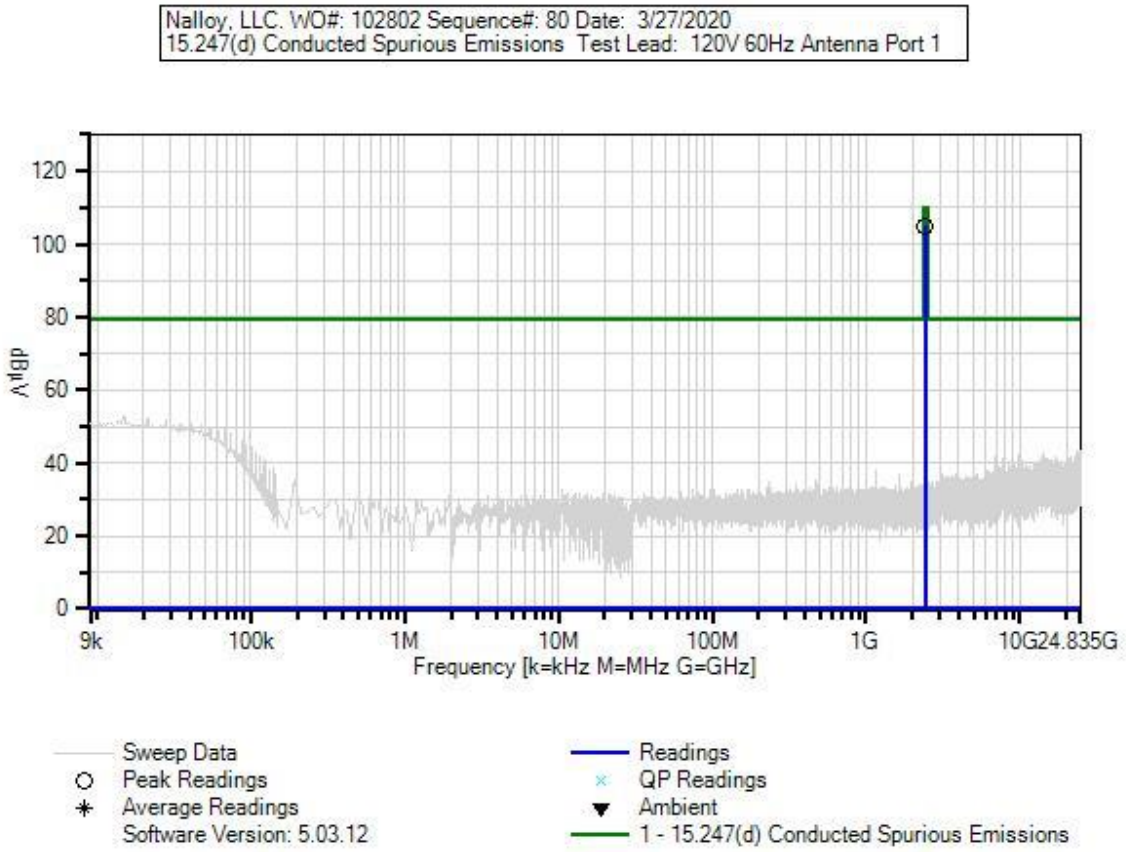
Frequency Range: 9kHz-25GHz
Frequency tested: 2422
Firmware power setting: 11 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 40MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided.



Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

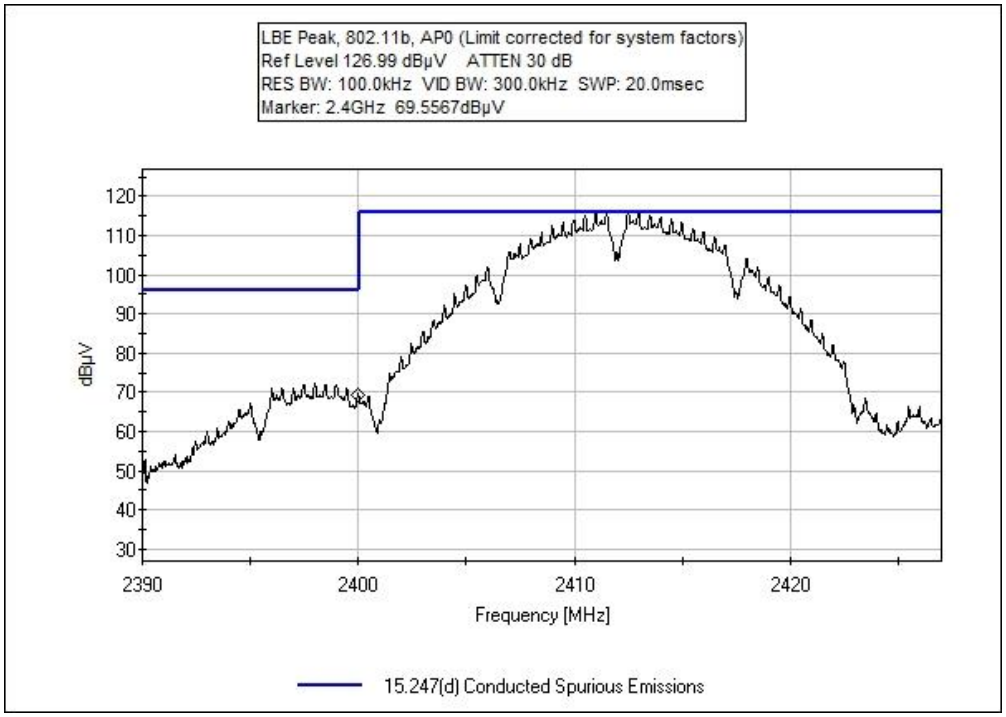
Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

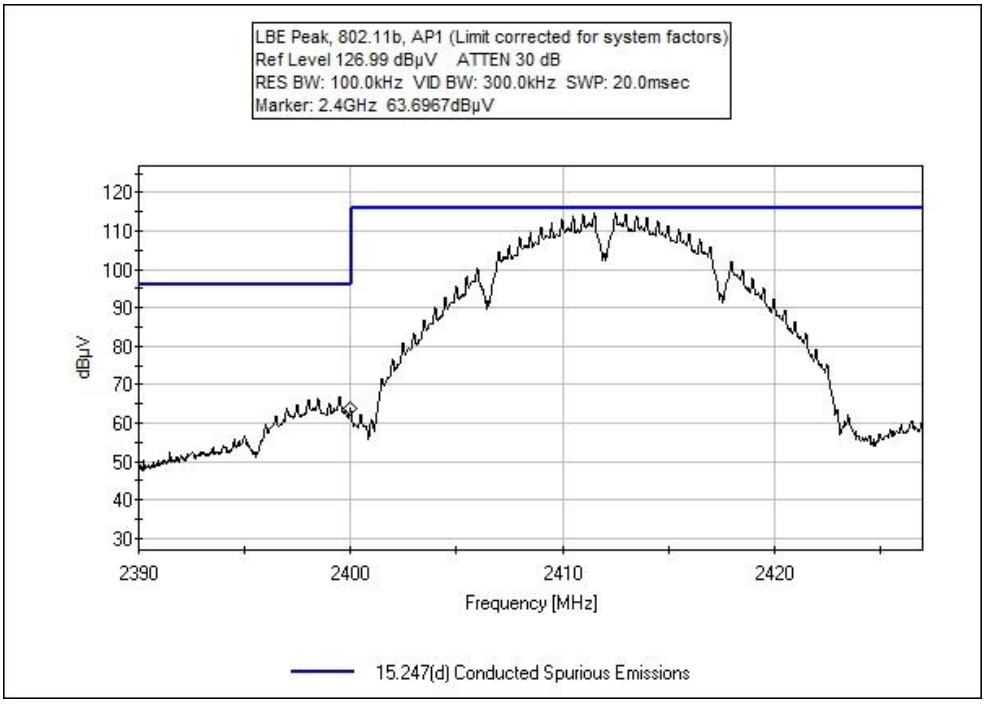
#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2426.990M	105.0					+0.0	105.0	109.7	-4.7	Anten

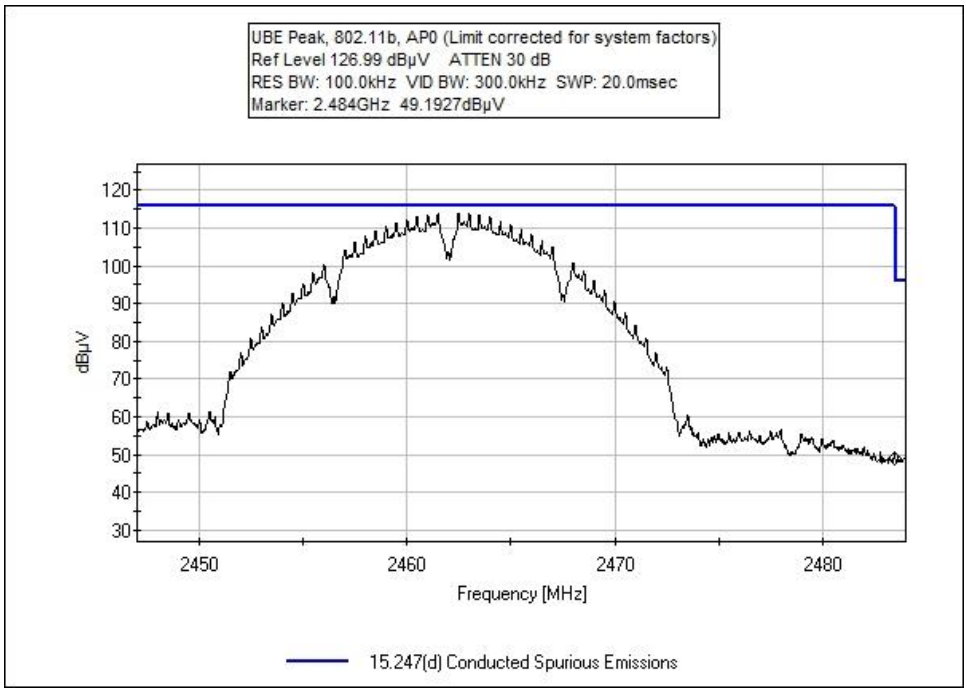
Band Edge

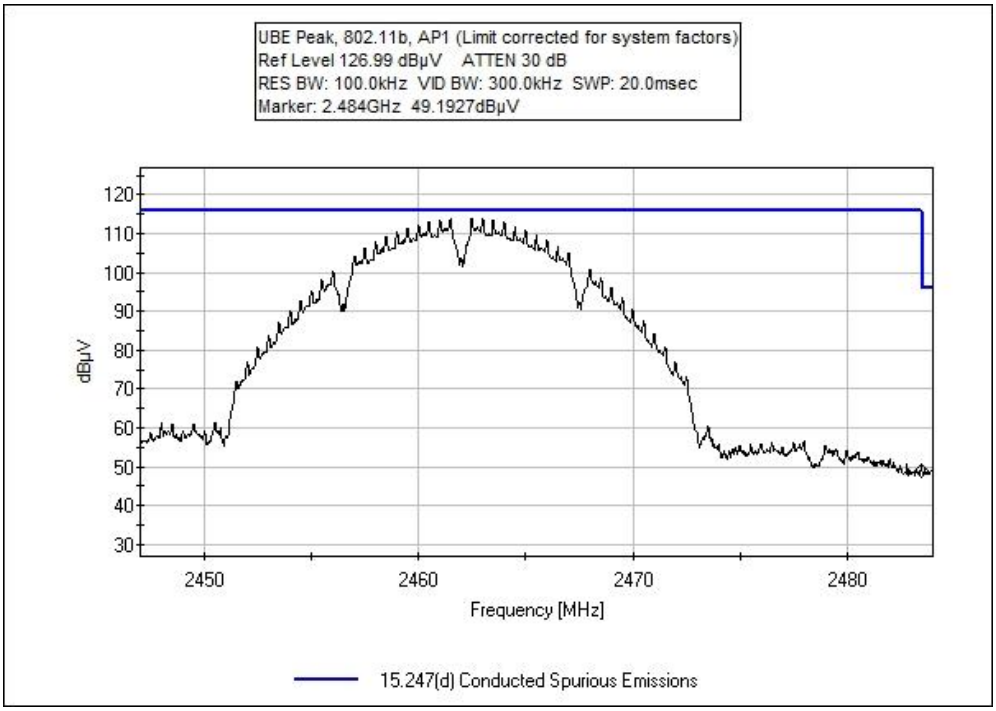
Band Edge Summary				
Limit applied: Max Power/100kHz - 20dB. For 802.11n MIMO KDB662911 (E)(3)(b) When testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding.				
Frequency (MHz)	**Modulation**	**Measured (dBµV)**	**Limit (dBµV)**	**Results**
2400.0	CCK, AP0	69.6	<96	Pass
2483.5	CCK, AP0	51.2	<96	Pass
2400.0	CCK, AP1	63.6	<96	Pass
2483.5	CCK, AP1	49.2	<96	Pass
2400.0	OFDM, AP0	82.7	<93.2	Pass
2483.5	OFDM, AP0	61.9	<93.2	Pass
2400.0	OFDM, AP1	79.8	<93.2	Pass
2483.5	OFDM, AP1	55.5	<93.2	Pass
2400.0	MCS 20M, AP0	82.2	<93.2	Pass
2483.5	MCS 20M, AP0	62.8	<93.2	Pass
2400.0	MCS 20M, AP1	79.8	<93.2	Pass
2483.5	MCS 20M, AP1	55.5	<93.2	Pass
2400.0	MCS 40M, AP0	69.1	<89.7	Pass
2483.5	MCS 40M, AP0	60.8	<89.7	Pass
2400.0	MCS 40M, AP1	67.3	<89.7	Pass
2483.5	MCS 40M, AP1	54.3	<89.7	Pass

802.11b Band Edge Plots

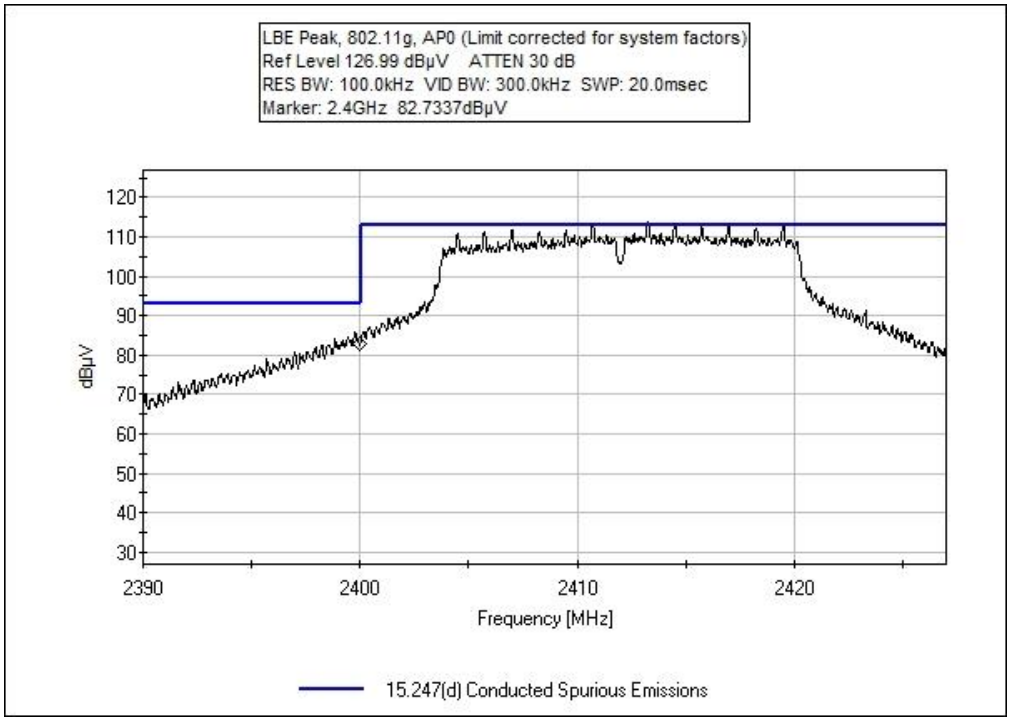


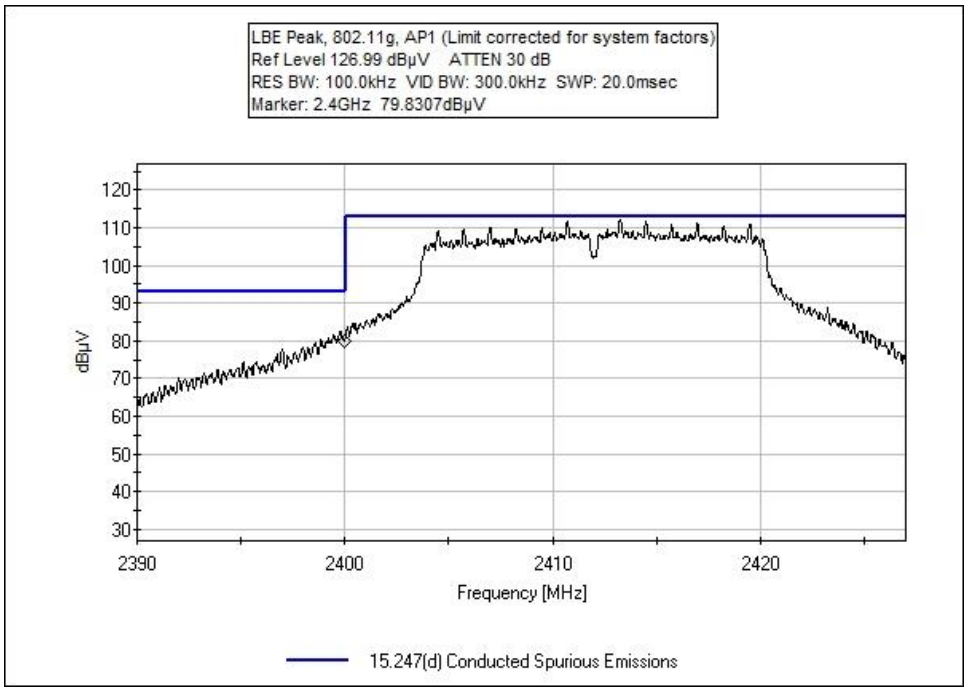


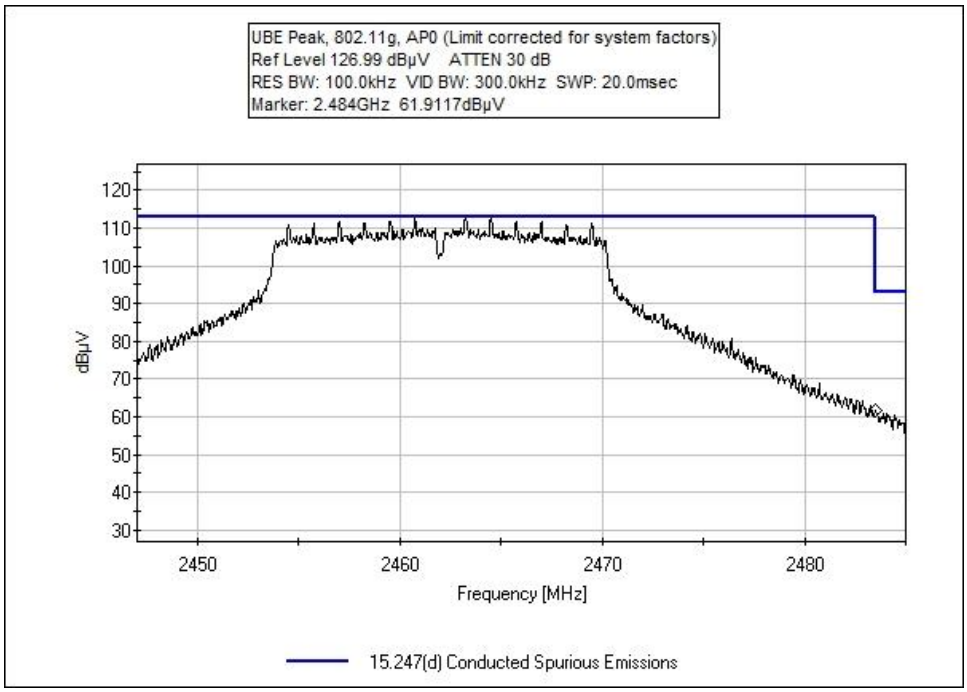

UBE Peak, 802.11b, AP0 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 49.1927dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

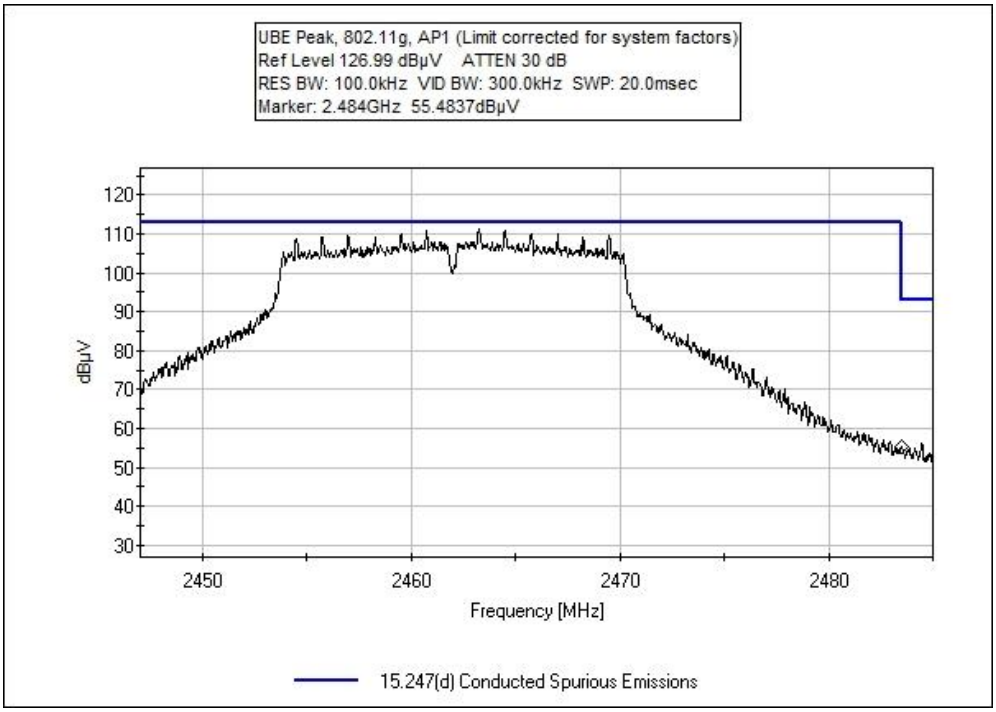

UBE Peak, 802.11b, AP1 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 49.1927dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

802.11g Band Edge Plots

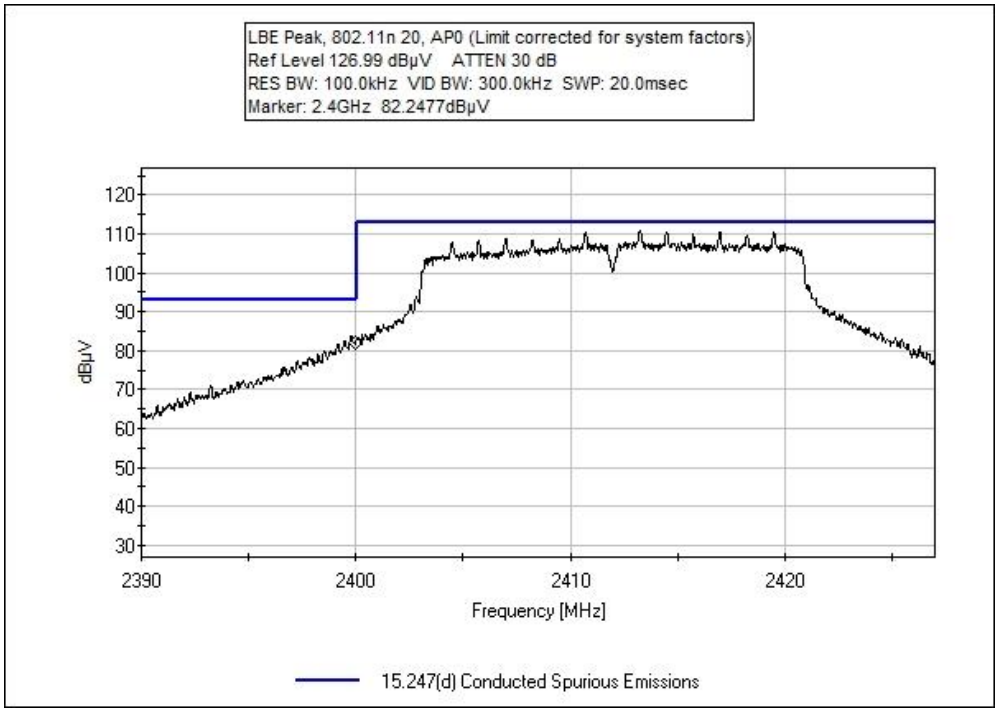


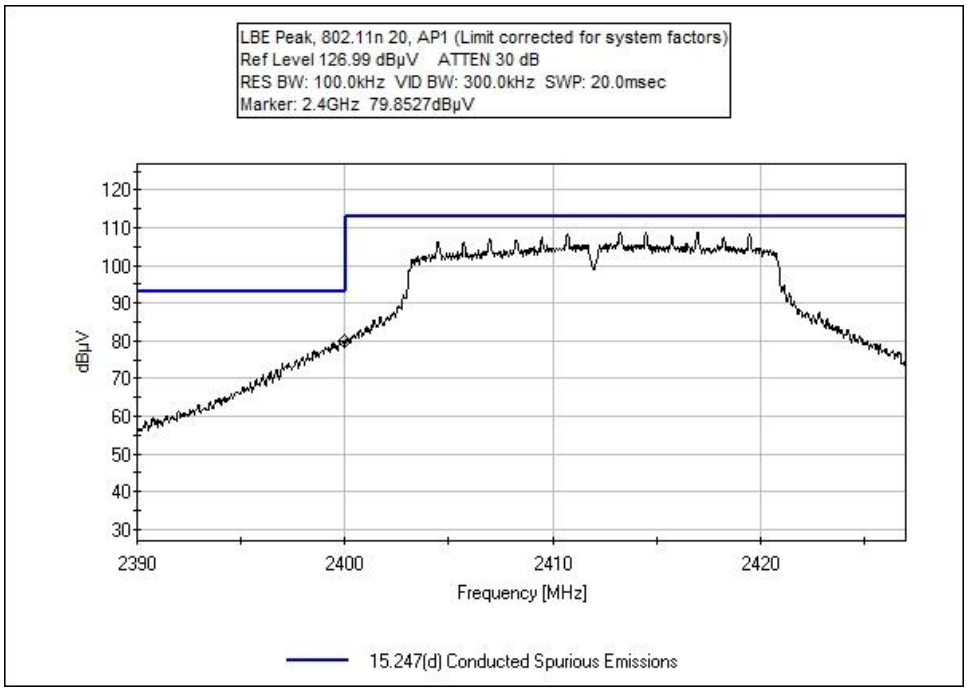


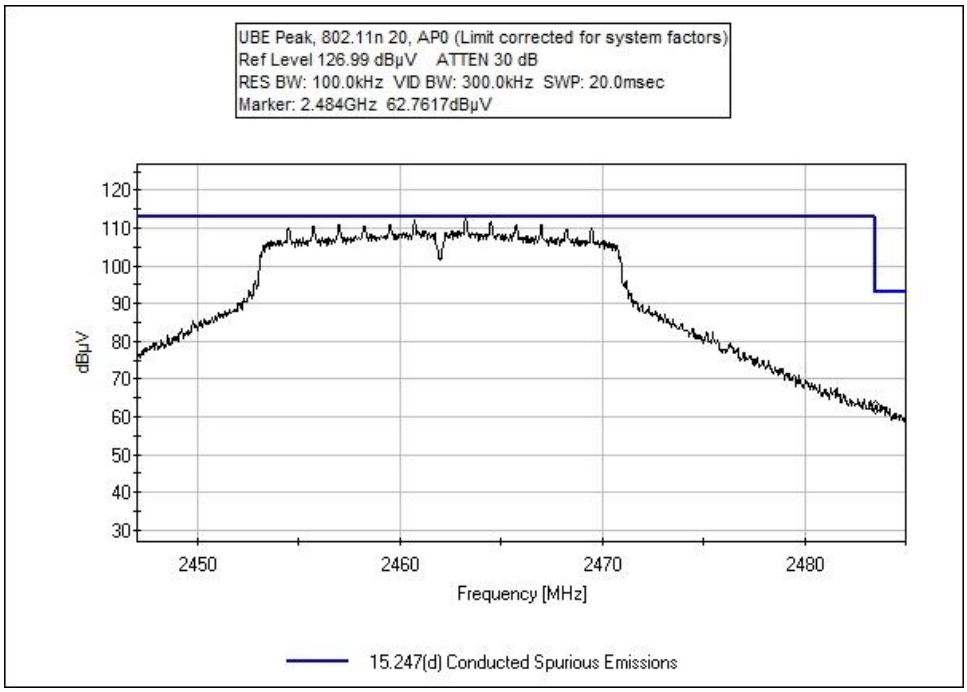

UBE Peak, 802.11g, AP0 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 61.9117dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

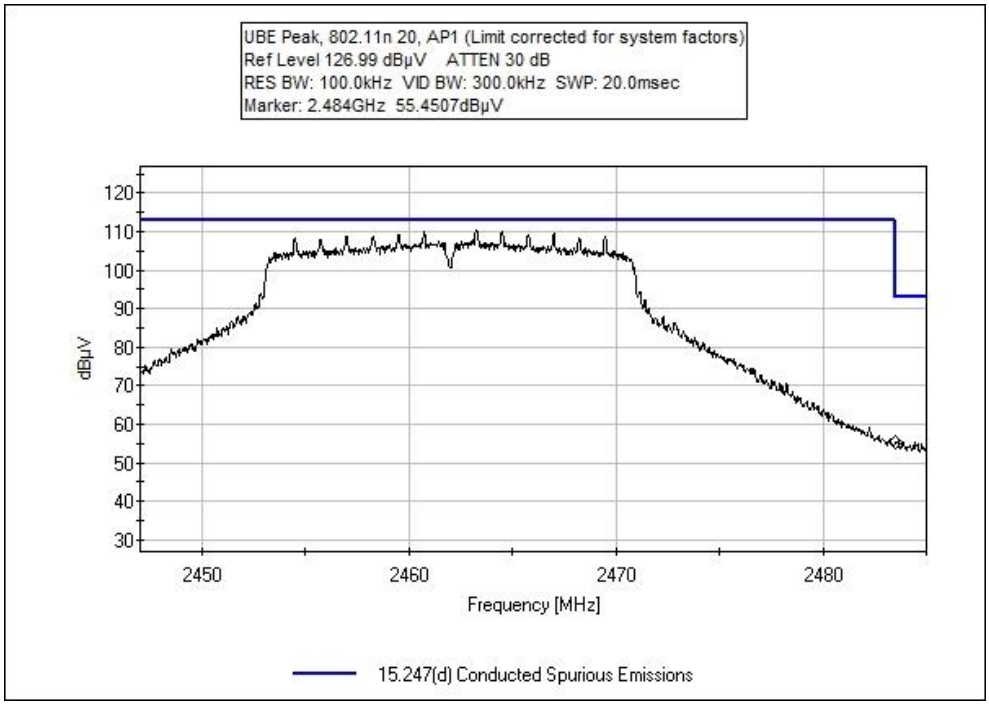

UBE Peak, 802.11g, AP1 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 55.4837dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

802.11n20 Band Edge Plots

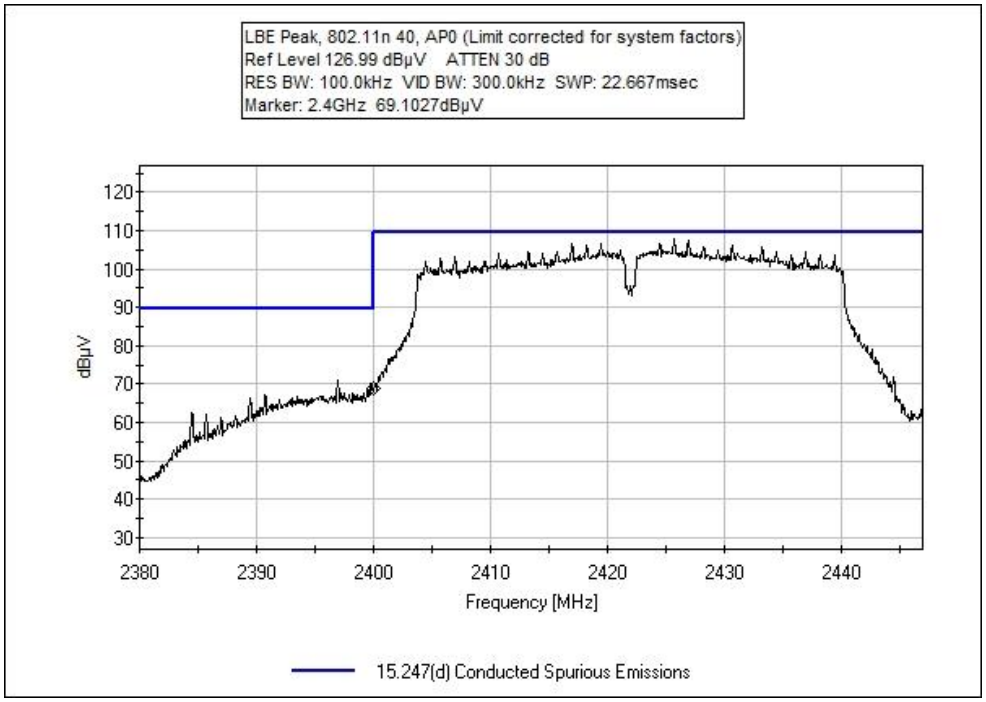


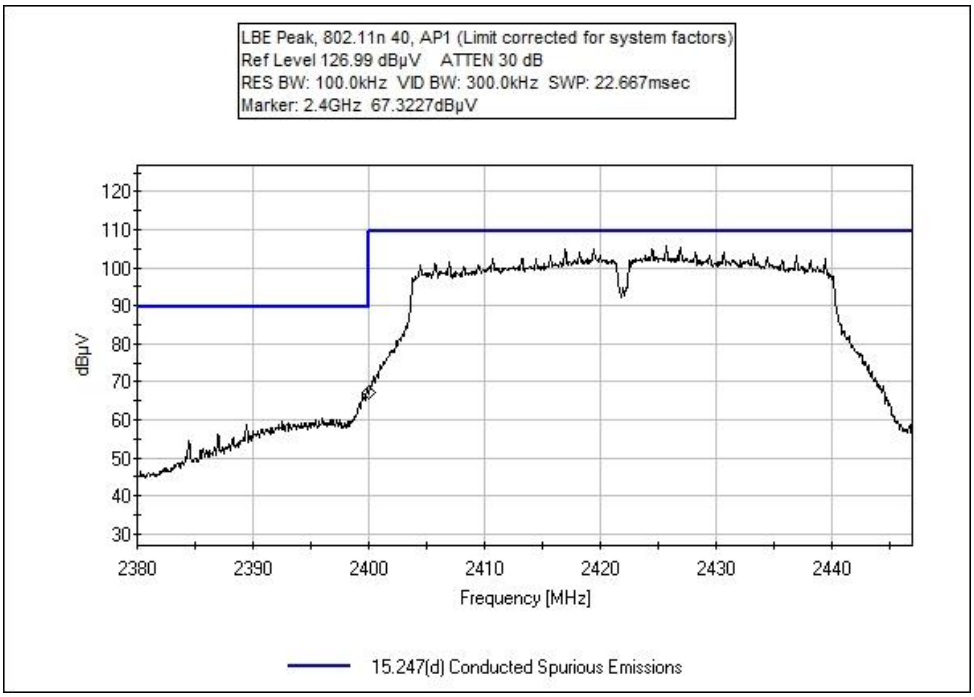


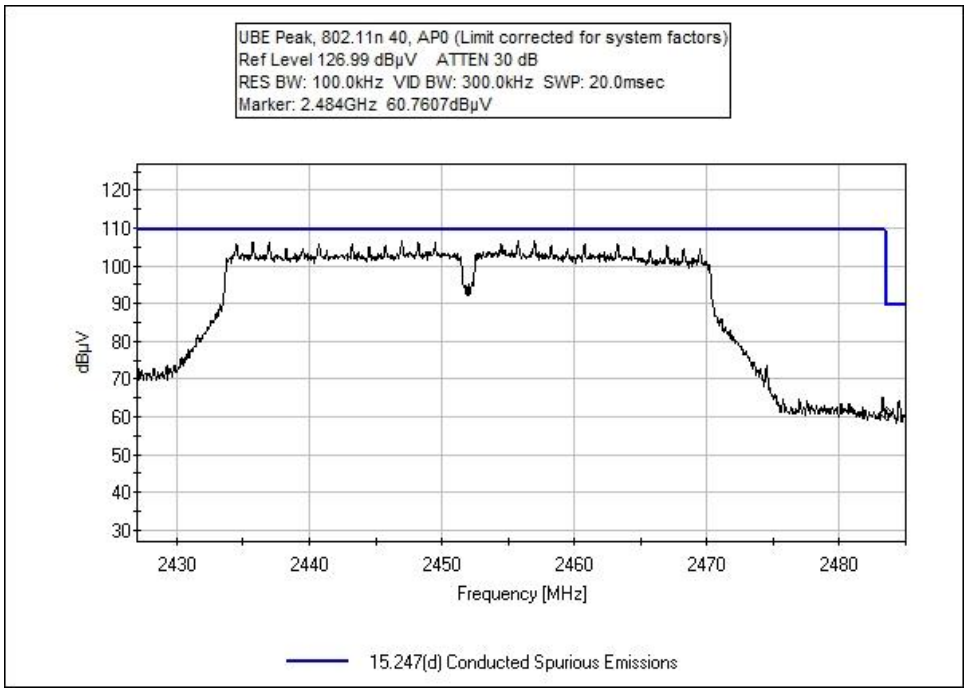

UBE Peak, 802.11n 20, AP0 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 62.7617dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

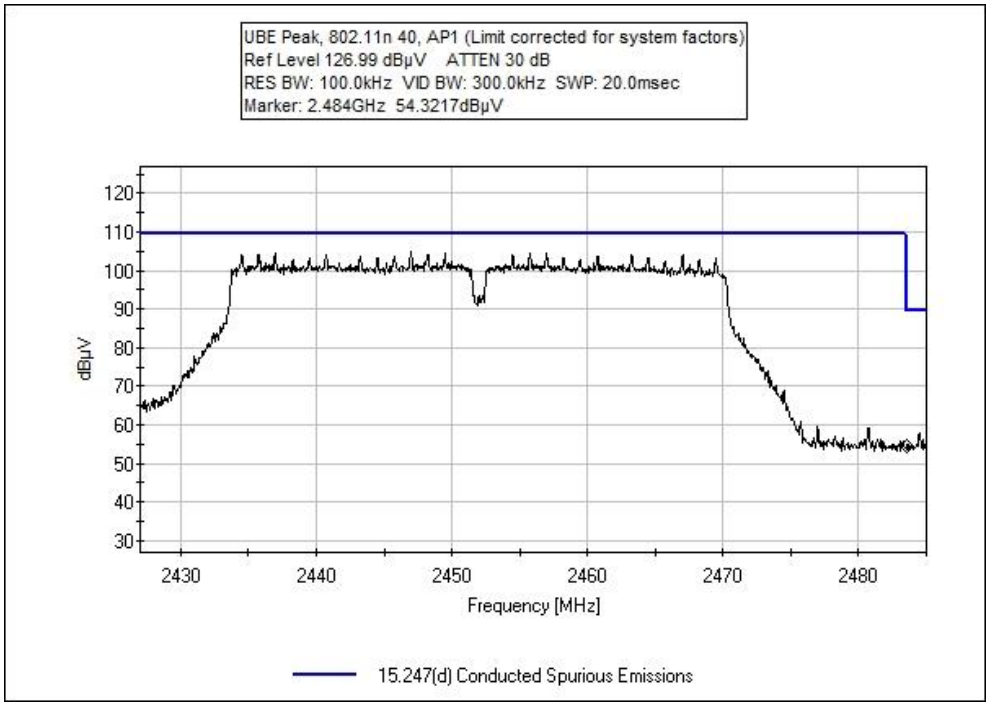

UBE Peak, 802.11n 20, AP1 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 55.4507dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

802.11n40 Band Edge Plots






UBE Peak, 802.11n 40, AP0 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 60.7607dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2430
2440
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions


UBE Peak, 802.11n 40, AP1 (Limit corrected for system factors)
Ref Level 126.99 dBµV ATTEN 30 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker: 2.484GHz 54.3217dBµV
dBµV
120
110
100
90
80
70
60
50
40
30
2430
2440
2450
2460
2470
2480
Frequency [MHz]
15.247(d) Conducted Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	4/3/2020
Test Type:	**Conducted Emissions**	Time:	09:37:07
Tested By:	Matthew Harrison	Sequence#:	112
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa
Frequency Range: 2.4-2483.5GHz
Frequency tested: 2412, 2462
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11b**, 1mbps (worst-case)
Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.
Duty Cycle: 100% Modulated
Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Setup: EUT is connected to a Laptop via USB and Audio cable.
All data rates investigated, worst-case provided.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2400.000M	69.6					+0.0	69.6	96.0	-26.4	Anten
2	2400.000M	63.6					+0.0	63.6	96.0	-32.4	Anten
3	2483.500M	51.1					+0.0	51.1	96.0	-44.9	Anten
4	2483.500M	49.2					+0.0	49.2	96.0	-46.8	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	4/3/2020
Test Type:	**Conducted Emissions**	Time:	10:10:52
Tested By:	Matthew Harrison	Sequence#:	113
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

Frequency Range: 9kHz-25GHz
Frequency tested: 2412, 2462
Firmware power setting: 13 dBm for Low Channel, 15 for High Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11g**, 6 mbps (worst-case)
Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.
Duty Cycle: 100% Modulated
Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Setup: EUT is connected to a Laptop via USB and Audio cable.
All data rates investigated, worst-case provided.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2400.000M	82.7	+0.0				+0.0	82.7	93.2	-10.5	Anten
2	2400.000M	79.8	+0.0				+0.0	79.8	93.2	-13.4	Anten
3	2483.500M	61.9	+0.0				+0.0	61.9	93.2	-31.3	Anten
4	2483.500M	55.5	+0.0				+0.0	55.5	93.2	-37.7	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	4/3/2020
Test Type:	**Conducted Emissions**	Time:	10:51:11
Tested By:	Matthew Harrison	Sequence#:	114
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

Frequency Range: 9kHz-25GHz
Frequency tested: 2412, 2462
Firmware power setting: 12 dBm for Low Channel, 14 dBm for High Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11n,** 20MHz BW, MCS8 (worst-case)

KDB662911 (E)(3)(b) When testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding.

Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.

Duty Cycle: 100% Modulated
Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Setup: EUT is connected to a Laptop via USB and Audio cable.
All data rates investigated, worst-case provided.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 0

#	Freq MHz	Rdng dBµV	dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2400.000M	82.2					+0.0	82.2	93.2	-11.0	Anten
2	2400.000M	79.9					+0.0	79.9	93.2	-13.3	Anten
3	2483.500M	62.8					+0.0	62.8	93.2	-30.4	Anten
4	2483.500M	55.5					+0.0	55.5	93.2	-37.7	Anten

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) Conducted Spurious Emissions**		
Work Order #:	**102802**	Date:	4/3/2020
Test Type:	**Conducted Emissions**	Time:	11:20:41
Tested By:	Matthew Harrison	Sequence#:	115
Software:	EMITest 5.03.12		120V 60Hz

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 28%
Pressure: 101.3 kPa

Frequency Range: 9kHz-25GHz
Frequency tested: 2422, 2452
Firmware power setting: 11 dBm for Low Channel, 12 dBm for High Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11n**, 40MHz BW, MCS8 (worst-case)

KDB662911 (E)(3)(b) When testing out-of-band and spurious emissions against relative emission limits, tests may be performed on each output individually without summing or adding.

Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.

Duty Cycle: 100% Modulated
Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup for conducted measurements.
Setup: EUT is connected to a Laptop via USB and Audio cable.
All data rates investigated, worst-case provided.

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021

Measurement Data: Reading listed by margin. Test Lead: Antenna Port 1

#	Freq MHz	Rdng dBµV	T1 dB	dB	dB	dB	Dist Table	Corr dBµV	Spec dBµV	Margin dB	Polar Ant
1	2400.000M	69.1	+0.0				+0.0	69.1	89.7	-20.6	Anten
2	2400.000M	67.3	+0.0				+0.0	67.3	89.7	-22.4	Anten
3	2483.500M	60.8	+0.0				+0.0	60.8	89.7	-28.9	Anten
4	2483.500M	54.3	+0.0				+0.0	54.3	89.7	-35.4	Anten

Test Setup Photo(s)

15.247(d) Radiated Emissions & Band Edge

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	4/2/2020
Test Type:	**Maximized Emissions**	Time:	15:10:06
Tested By:	Matthew Harrison	Sequence#:	5
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

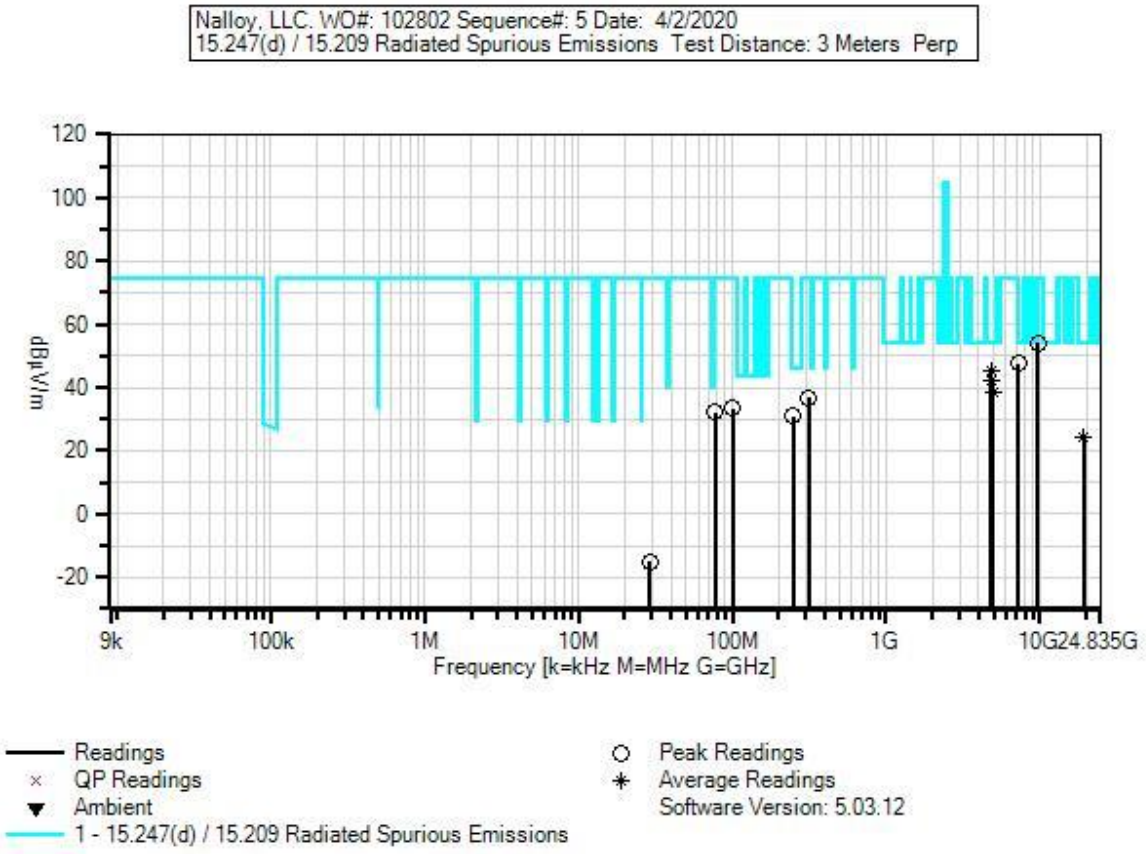
Frequency Range: 9kHz-25 GHz
Frequency tested: 2412, 2437, 2462 MHz
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11b, 1mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a styrofoam table.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

Low, Mid, and High channels along with all data rates investigated, worst-case provided.


Nalloy, LLC. WO#: 102802 Sequence#: 5 Date: 4/2/2020
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Perp
120
100
80
60
40
20
0
-20
dBµV/m
9k
100k
1M
10M
100M
1G
10G24.835G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
	AN02872	Spectrum Analyzer	E4440A	11/18/2019	11/18/2021
T4	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/17/2019	1/17/2021
T6	AN03116	High Pass Filter	11SH10-00313	1/22/2019	1/22/2021
T7	AN02742	Active Horn Antenna	AMFW-5F-18002650-20-10P	10/16/2018	10/16/2020
T8	AN02763-69	Waveguide	Multiple	4/23/2018	4/23/2020
T9	ANP06678	Cable	32026-29801-29801-144	2/20/2020	2/20/2022
T10	ANP07211	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
T11	ANP07212	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T12	AN02307	Preamp	8447D	1/10/2020	1/10/2022
T13	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T14	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T15	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T16	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T17	AN00052	Loop Antenna	6502	5/7/2018	5/7/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9 T13 T17	T2 T6 T10 T14	T3 T7 T11 T15	T4 T8 T12 T16	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	4823.820M Ave	40.3	+32.4 +0.5 +0.0 +0.0 +0.0	+4.1 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	45.2	54.0	-8.8	Horiz
^	4823.820M	46.6	+32.4 +0.5 +0.0 +0.0 +0.0	+4.1 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	51.5	54.0	-2.5	Horiz
3	4874.000M Ave	37.3	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	42.4	54.0	-11.6	Horiz
^	4874.000M	43.8	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	48.9	54.0	-5.1	Horiz

5	250.100M	37.9	+0.0 +0.0 +0.0 +12.2 +0.0	+0.0 +0.0 +0.0 +5.8	+0.2 +0.0 +0.0 +0.8	+0.0 +0.0 -27.0 +1.0	+0.0	30.9	46.0	-15.1	Horiz
6	4924.000M Ave	33.5	+32.6 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	38.6	54.0	-15.4	Horiz
^	4924.000M	41.3	+32.6 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	46.4	54.0	-7.6	Horiz
8	9648.280M	41.5	+37.6 +0.5 +0.0 +0.0 +0.0	+6.2 +0.9 +0.0 +0.0	+1.3 +0.0 +0.0 +0.0	-33.9 +0.0 +0.0 +0.0	+0.0	54.1	74.6	-20.5	Horiz
9	7236.000M	37.8	+36.6 +0.5 +0.0 +0.0 +0.0	+5.3 +0.7 +0.0 +0.0	+1.1 +0.0 +0.0 +0.0	-34.5 +0.0 +0.0 +0.0	+0.0	47.5	74.6	-27.1	Horiz
10	19296.000 M Ave	25.0	+0.0 +0.0 +8.9 +0.0 +0.0	+0.0 +0.0 +0.9 +0.0	+0.0 -13.0 +1.0 +0.0	+0.0 +1.8 +0.0 +0.0	+0.0	24.6	54.0	-29.4	Horiz
^	19296.000 M	38.4	+0.0 +0.0 +8.9 +0.0 +0.0	+0.0 +0.0 +0.9 +0.0	+0.0 -13.0 +1.0 +0.0	+0.0 +1.8 +0.0 +0.0	+0.0	38.0	54.0	-16.0	Horiz
12	315.700M	41.9	+0.0 +0.0 +0.0 +13.9 +0.0	+0.0 +0.0 +0.0 +5.8	+0.2 +0.0 +0.0 +0.9	+0.0 +0.0 -27.1 +1.1	+0.0	36.7	74.6	-37.9	Horiz
13	100.500M	46.0	+0.0 +0.0 +0.0 +8.1 +0.0	+0.0 +0.0 +0.0 +5.8	+0.1 +0.0 +0.0 +0.5	+0.0 +0.0 -27.7 +0.6	+0.0	33.4	74.6	-41.2	Horiz
14	77.300M	46.4	+0.0 +0.0 +0.0 +6.9 +0.0	+0.0 +0.0 +0.0 +5.8	+0.1 +0.0 +0.0 +0.4	+0.0 +0.0 -27.8 +0.5	+0.0	32.3	74.6	-42.3	Horiz

15	29.075M	18.6	+0.0 +0.0 +0.0 +0.0 +5.8	+0.3 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-40.0	-15.2	74.6	-89.8	Perp
16	75.130k	39.6	+0.0 +0.0 +0.0 +0.0 +9.7	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-30.7	74.6	-105.3	Perp

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	4/2/2020
Test Type:	**Maximized Emissions**	Time:	15:17:52
Tested By:	Matthew Harrison	Sequence#:	6
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

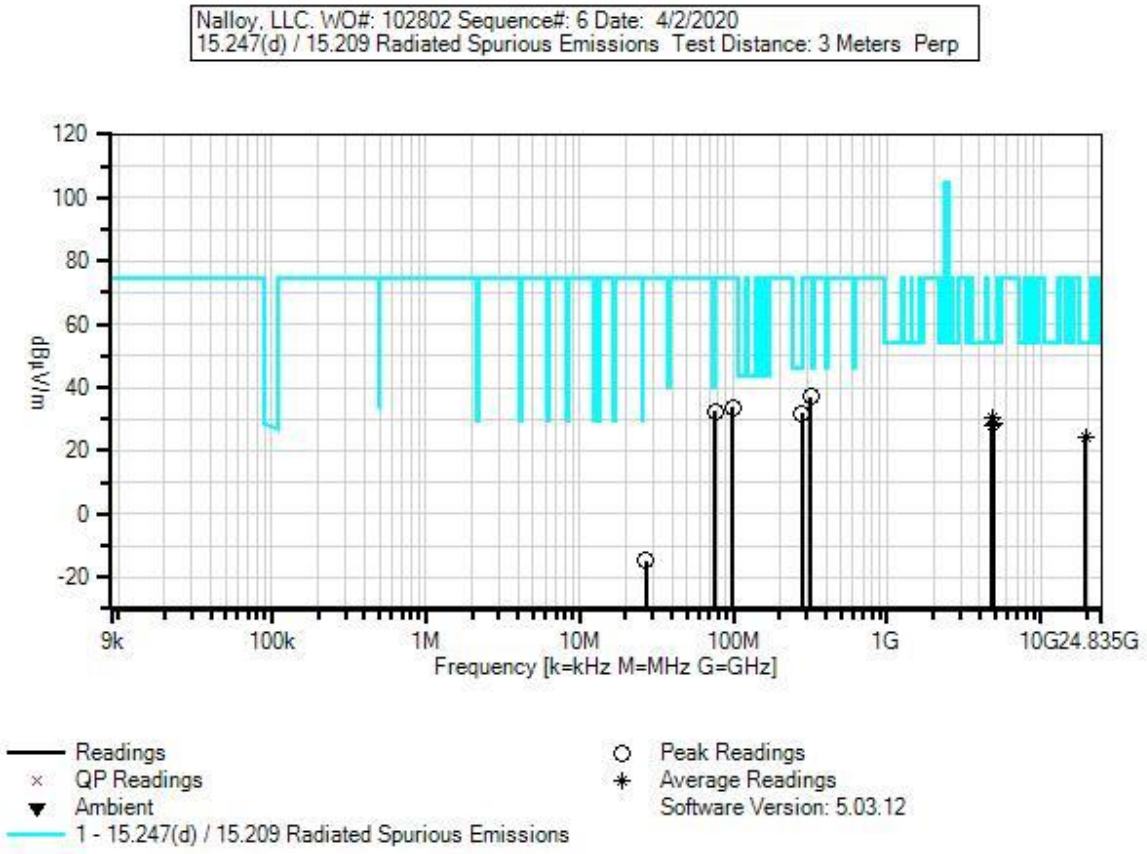
Frequency Range: 9kHz-25GHz
Frequency tested: 2412, 2437, 2462
Firmware power setting: 13 dBm for Low Chanel, 15 dBm for Mid and High Channels
EUT Firmware:
Protocol /MCS/Modulation: **802.11g, 6 mbps (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a styrofoam table.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

Low, Mid, and High channels along with all data rates investigated, worst-case provided.


Nalloy, LLC. WO#: 102802 Sequence#: 6 Date: 4/2/2020
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Perp
120
100
80
60
40
20
0
-20
dBµV/m
9k
100k
1M
10M
100M
1G
10G24.835G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
	AN02872	Spectrum Analyzer	E4440A	11/18/2019	11/18/2021
T4	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/17/2019	1/17/2021
T6	AN03116	High Pass Filter	11SH10-00313	1/22/2019	1/22/2021
T7	AN02742	Active Horn Antenna	AMFW-5F-18002650-20-10P	10/16/2018	10/16/2020
T8	AN02763-69	Waveguide	Multiple	4/23/2018	4/23/2020
T9	ANP06678	Cable	32026-29801-29801-144	2/20/2020	2/20/2022
T10	ANP07211	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
T11	ANP07212	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T12	AN02307	Preamp	8447D	1/10/2020	1/10/2022
T13	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T14	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T15	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T16	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T17	AN00052	Loop Antenna	6502	5/7/2018	5/7/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9 T13 T17	T2 T6 T10 T14	T3 T7 T11 T15	T4 T8 T12 T16	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	277.100M	38.2	+0.0 +0.0 +0.0 +12.7 +0.0	+0.0 +0.0 +0.0 +5.8	+0.2 +0.0 +0.0 +0.8	+0.0 +0.0 -27.0 +1.0	+0.0	31.7	46.0	-14.3	Horiz
2	4824.000M Ave	25.9	+32.4 +0.5 +0.0 +0.0 +0.0	+4.1 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	30.8	54.0	-23.2	Horiz
^	4824.000M	41.4	+32.4 +0.5 +0.0 +0.0 +0.0	+4.1 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	46.3	54.0	-7.7	Horiz

4	4924.000M Ave	23.5	+32.6 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	28.6	54.0	-25.4	Horiz
^	4924.000M	39.7	+32.6 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	44.8	54.0	-9.2	Horiz
6	4874.000M Ave	23.1	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	28.2	54.0	-25.8	Horiz
^	4874.000M	37.5	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	42.6	54.0	-11.4	Horiz
8	19496.000 M Ave	24.4	+0.0 +0.0 +9.0 +0.0 +0.0	+0.0 +0.0 +1.0 +0.0	+0.0 -12.9 +0.8 +0.0	+0.0 +1.8 +0.0 +0.0	+0.0	24.1	54.0	-29.9	Horiz
^	19496.000 M	36.5	+0.0 +0.0 +9.0 +0.0 +0.0	+0.0 +0.0 +1.0 +0.0	+0.0 -12.9 +0.8 +0.0	+0.0 +1.8 +0.0 +0.0	+0.0	36.2	54.0	-17.8	Horiz
10	319.600M	42.2	+0.0 +0.0 +0.0 +14.1 +0.0	+0.0 +0.0 +0.0 +5.8	+0.2 +0.0 +0.0 +0.9	+0.0 +0.0 -27.1 +1.1	+0.0	37.2	74.6	-37.4	Horiz
11	98.500M	46.4	+0.0 +0.0 +0.0 +8.0 +0.0	+0.0 +0.0 +0.0 +5.8	+0.1 +0.0 +0.0 +0.5	+0.0 +0.0 -27.7 +0.6	+0.0	33.7	74.6	-40.9	Vert

12	76.400M	46.7	+0.0 +0.0 +0.0 +6.9 +0.0	+0.0 +0.0 +0.0 +5.8	+0.1 +0.0 +0.0 +0.4	+0.0 +0.0 -27.8 +0.5	+0.0	32.6	74.6	-42.0	Vert
13	27.015M	18.4	+0.0 +0.0 +0.0 +0.0 +6.4	+0.3 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-40.0	-14.8	74.6	-89.4	Perp
14	54.120k	39.2	+0.0 +0.0 +0.0 +0.0 +10.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-30.8	74.6	-105.4	Perp

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	4/2/2020
Test Type:	**Maximized Emissions**	Time:	15:24:41
Tested By:	Matthew Harrison	Sequence#:	7
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

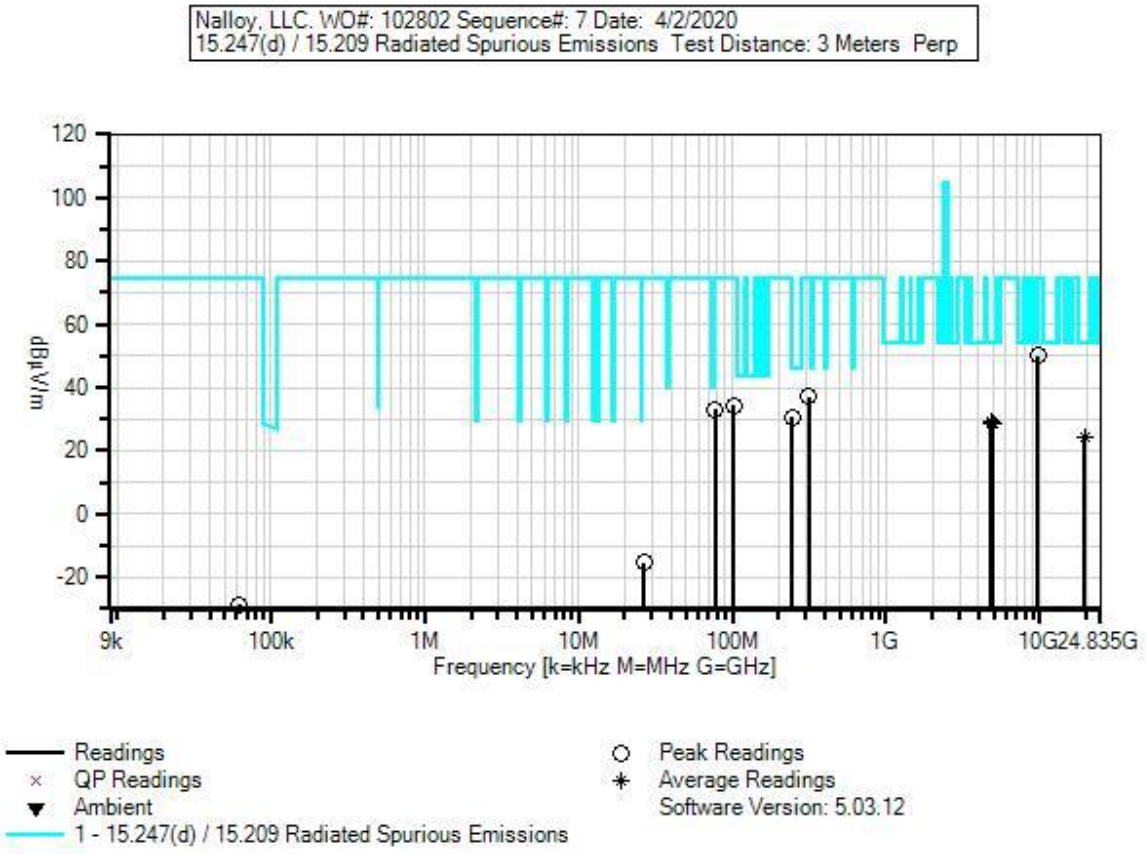
Frequency Range: 9kHz-25GHz
Frequency tested: 2412, 2437, 2462
Firmware power setting: 12 dBm for Low Channel, 14 dBm for Mid and High Channels
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 20MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a styrofoam table.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

Low, Mid, and High channels along with all data rates investigated, worst-case provided.


Nalloy, LLC. WO#: 102802 Sequence#: 7 Date: 4/2/2020
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Perp
120
100
80
60
40
20
0
-20
dBµV/m
9k
100k
1M
10M
100M
1G
10G24.835G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
	AN02872	Spectrum Analyzer	E4440A	11/18/2019	11/18/2021
T4	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/17/2019	1/17/2021
T6	AN03116	High Pass Filter	11SH10-00313	1/22/2019	1/22/2021
T7	AN02742	Active Horn Antenna	AMFW-5F-18002650-20-10P	10/16/2018	10/16/2020
T8	AN02763-69	Waveguide	Multiple	4/23/2018	4/23/2020
T9	ANP06678	Cable	32026-29801-29801-144	2/20/2020	2/20/2022
T10	ANP07211	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
T11	ANP07212	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T12	AN02307	Preamp	8447D	1/10/2020	1/10/2022
T13	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T14	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T15	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T16	ANP05360	Cable	RG214	2/3/2020	2/3/2022
T17	AN00052	Loop Antenna	6502	5/7/2018	5/7/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9 T13 T17	T2 T6 T10 T14	T3 T7 T11 T15	T4 T8 T12 T16	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	245.300M	38.1	+0.0 +0.0 +0.0 +12.0 +0.0	+0.0 +0.0 +0.0 +5.8	+0.2 +0.0 +0.0 +0.8	+0.0 +0.0 -27.1 +1.0	+0.0	30.8	46.0	-15.2	Horiz
2	9748.120M	37.7	+37.5 +0.4 +0.0 +0.0 +0.0	+6.3 +0.7 +0.0 +0.0	+1.3 +0.0 +0.0 +0.0	-33.9 +0.0 +0.0 +0.0	+0.0	50.0	74.6	-24.6	Horiz
3	4824.000M Ave	24.1	+32.4 +0.5 +0.0 +0.0 +0.0	+4.1 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	29.0	54.0	-25.0	Horiz
^	4824.000M	39.3	+32.4 +0.5 +0.0 +0.0 +0.0	+4.1 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	44.2	54.0	-9.8	Horiz

5	4924.000M Ave	23.5	+32.6 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	28.6	54.0	-25.4	Horiz
^	4924.000M	39.2	+32.6 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	44.3	54.0	-9.7	Horiz
7	4874.000M Ave	23.4	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	28.5	54.0	-25.5	Horiz
^	4874.000M	38.5	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	43.6	54.0	-10.4	Horiz
9	19496.000 M Ave	24.3	+0.0 +0.0 +9.0 +0.0 +0.0	+0.0 +0.0 +1.0 +0.0	+0.0 -12.9 +0.8 +0.0	+0.0 +1.8 +0.0 +0.0	+0.0	24.0	54.0	-30.0	Horiz
^	19496.000 M	36.1	+0.0 +0.0 +9.0 +0.0 +0.0	+0.0 +0.0 +1.0 +0.0	+0.0 -12.9 +0.8 +0.0	+0.0 +1.8 +0.0 +0.0	+0.0	35.8	54.0	-18.2	Horiz
11	314.700M	42.5	+0.0 +0.0 +0.0 +13.8 +0.0	+0.0 +0.0 +0.0 +5.8	+0.2 +0.0 +0.0 +0.9	+0.0 +0.0 -27.1 +1.1	+0.0	37.2	74.6	-37.4	Horiz
12	101.400M	47.0	+0.0 +0.0 +0.0 +8.1 +0.0	+0.0 +0.0 +0.0 +5.8	+0.1 +0.0 +0.0 +0.5	+0.0 +0.0 -27.7 +0.6	+0.0	34.4	74.6	-40.2	Vert

13	77.300M	47.2	+0.0 +0.0 +0.0 +6.9 +0.0	+0.0 +0.0 +0.0 +5.8	+0.1 +0.0 +0.0 +0.4	+0.0 +0.0 -27.8 +0.5	+0.0	33.1	74.6	-41.5	Vert
14	26.627M	17.7	+0.0 +0.0 +0.0 +0.0 +6.5	+0.3 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-40.0	-15.4	74.6	-90.0	Perp
15	62.580k	41.7	+0.0 +0.0 +0.0 +0.0 +9.7	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-28.6	74.6	-103.2	Perp

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	4/2/2020
Test Type:	**Maximized Emissions**	Time:	15:29:31
Tested By:	Matthew Harrison	Sequence#:	8
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

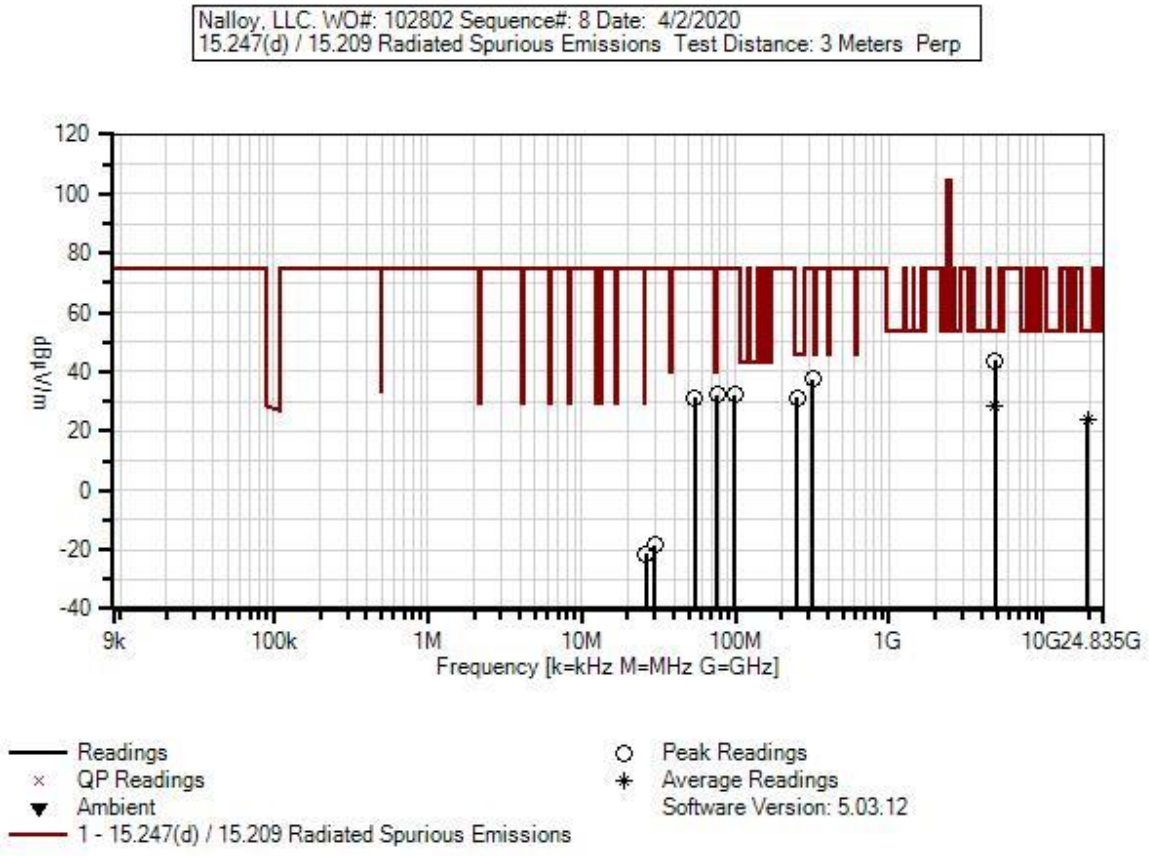
Frequency Range: 9kHz-25GHz
Frequency tested: 2422, 2437, 2452
Firmware power setting: 11 dBm for Low Channel, 14dBm for Mid Channel, 12 dBm for High Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11n, 40MHz BW, MCS8 (worst-case)**

Antenna type: Linear Polarized
Antenna Gain : 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a styrofoam table.
Modifications Added: None
Setup: EUT is connected to a Laptop via USB and Audio cable.

Low, Mid, and High channels along with all data rates investigated, worst-case provided.


Nalloy, LLC. WO#: 102802 Sequence#: 8 Date: 4/2/2020
15.247(d) / 15.209 Radiated Spurious Emissions Test Distance: 3 Meters Perp
120
100
80
60
40
20
0
-20
-40
dBµV/m
9k
100k
1M
10M
100M
1G
10G24.835G
Frequency [k=kHz M=MHz G=GHz]
Readings
QP Readings
Ambient
1 - 15.247(d) / 15.209 Radiated Spurious Emissions
Peak Readings
Average Readings
Software Version: 5.03.12

Test Equipment:

ID	Asset #	Description	Model	Cal Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
	AN02872	Spectrum Analyzer	E4440A	11/18/2019	11/18/2021
T4	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T5	ANP07504	Cable	CLU40-KMKM-02.00F	1/17/2019	1/17/2021
T6	AN03116	High Pass Filter	11SH10-00313	1/22/2019	1/22/2021
T7	AN02742	Active Horn Antenna	AMFW-5F-18002650-20-10P	10/16/2018	10/16/2020
T8	AN02763-69	Waveguide	Multiple	4/23/2018	4/23/2020
T9	ANP06678	Cable	32026-29801-29801-144	2/20/2020	2/20/2022
T10	ANP07211	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
T11	ANP07212	Cable	32026-29801-29801-18	8/7/2019	8/7/2021
T12	AN02673	Spectrum Analyzer	E4446A	2/22/2019	2/22/2021
T13	AN02307	Preamp	8447D	1/10/2020	1/10/2022
T14	AN03628	Biconilog Antenna	3142E	6/11/2019	6/11/2021
T15	ANP06123	Attenuator	18N-6	4/5/2019	4/5/2021
T16	ANP05305	Cable	ETSI-50T	9/6/2019	9/6/2021
T17	ANP05360	Cable	RG214	2/3/2020	2/3/2022
	AN00052	Loop Antenna	6502	5/7/2018	5/7/2020

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5 T9 T13 T17	T2 T6 T10 T14	T3 T7 T11 T15	T4 T8 T12 T16	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	4851.850M	38.8	+32.4 +0.5 +0.0 +0.0 +0.0	+4.1 +0.6 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	43.7	54.0	-10.3	Horiz
2	253.000M	38.2	+0.0 +0.0 +0.0 -27.0 +1.0	+0.0 +0.0 +0.0 +12.3	+0.2 +0.0 +0.0 +5.8	+0.0 +0.0 +0.0 +0.8	+0.0	31.3	46.0	-14.7	Horiz
3	4904.000M Ave	23.5	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	28.5	54.0	-25.5	Horiz
^	4904.000M	39.3	+32.5 +0.5 +0.0 +0.0 +0.0	+4.2 +0.5 +0.0 +0.0	+0.9 +0.0 +0.0 +0.0	-33.6 +0.0 +0.0 +0.0	+0.0	44.3	54.0	-9.7	Horiz

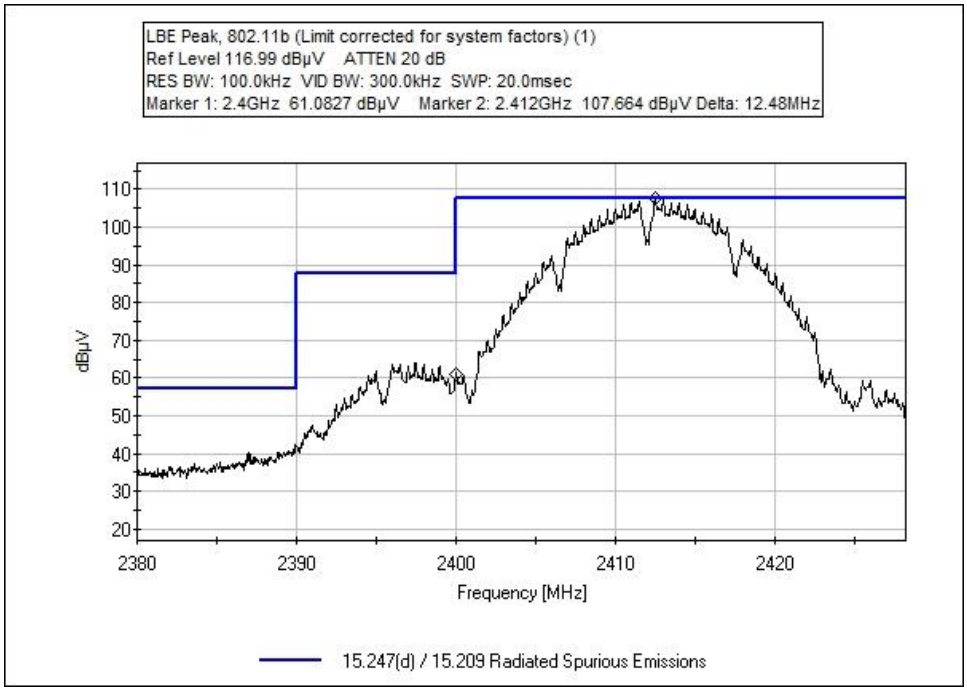
5	4874.000M	23.1	+32.5	+4.2	+0.9	-33.6	+0.0	28.2	54.0	-25.8	Horiz
	Ave		+0.5	+0.6	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0								
6	4844.000M	23.3	+32.4	+4.1	+0.9	-33.6	+0.0	28.2	54.0	-25.8	Horiz
	Ave		+0.5	+0.6	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0								
^	4844.000M	38.6	+32.4	+4.1	+0.9	-33.6	+0.0	43.5	54.0	-10.5	Horiz
			+0.5	+0.6	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0								
8	19496.000 M	24.3	+0.0	+0.0	+0.0	+0.0	+0.0	24.0	54.0	-30.0	Horiz
			+0.0	+0.0	-12.9	+1.8					
	Ave		+9.0	+1.0	+0.8	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0								
^	19496.000 M	36.0	+0.0	+0.0	+0.0	+0.0	+0.0	35.7	54.0	-18.3	Horiz
			+0.0	+0.0	-12.9	+1.8					
			+9.0	+1.0	+0.8	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0								
10	318.600M	42.7	+0.0	+0.0	+0.2	+0.0	+0.0	37.6	74.6	-37.0	Horiz
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			-27.1	+14.0	+5.8	+0.9					
			+1.1								
11	98.500M	45.1	+0.0	+0.0	+0.1	+0.0	+0.0	32.4	74.6	-42.2	Vert
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			-27.7	+8.0	+5.8	+0.5					
			+0.6								
12	76.400M	46.3	+0.0	+0.0	+0.1	+0.0	+0.0	32.2	74.6	-42.4	Vert
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			-27.8	+6.9	+5.8	+0.4					
			+0.5								
13	54.200M	44.8	+0.0	+0.0	+0.1	+0.0	+0.0	31.1	74.6	-43.5	Vert
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			-27.9	+7.5	+5.8	+0.4					
			+0.4								
14	29.881M	21.2	+0.0	+0.3	+0.1	+0.0	-40.0	-18.4	74.6	-93.0	Perp
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0	+0.0	+0.0	+0.0					
			+0.0								

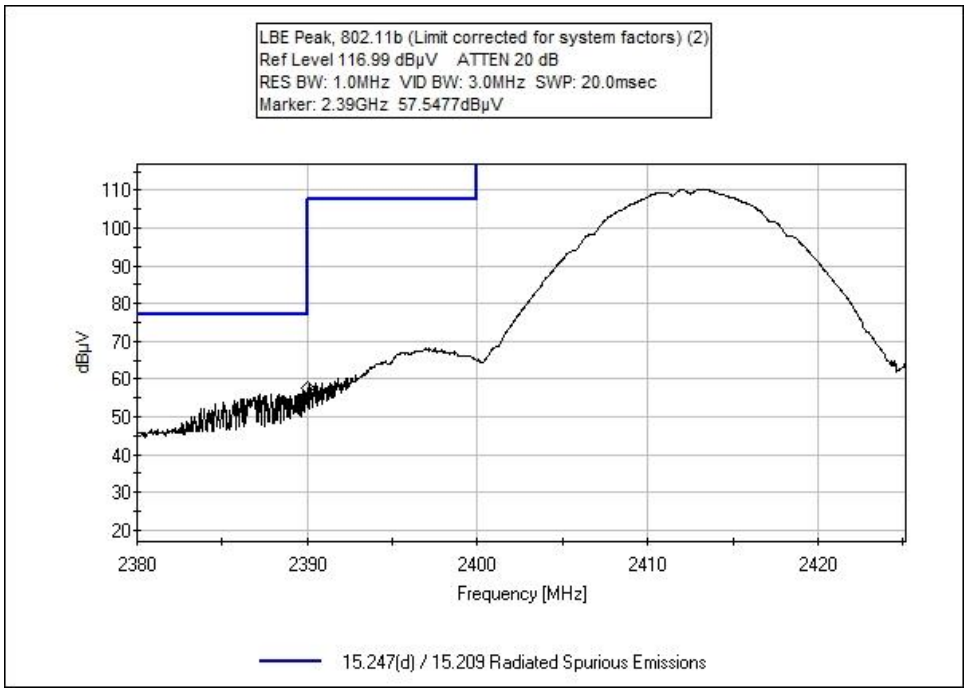
15	26.209M	18.2	+0.0 +0.0 +0.0 +0.0 +0.0	+0.3 +0.0 +0.0 +0.0	+0.1 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-40.0	-21.4	74.6	-96.0	Perp
16	62.580k	39.6	+0.0 +0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	+0.0 +0.0 +0.0 +0.0	-80.0	-40.4	74.6	-115.0	Perp

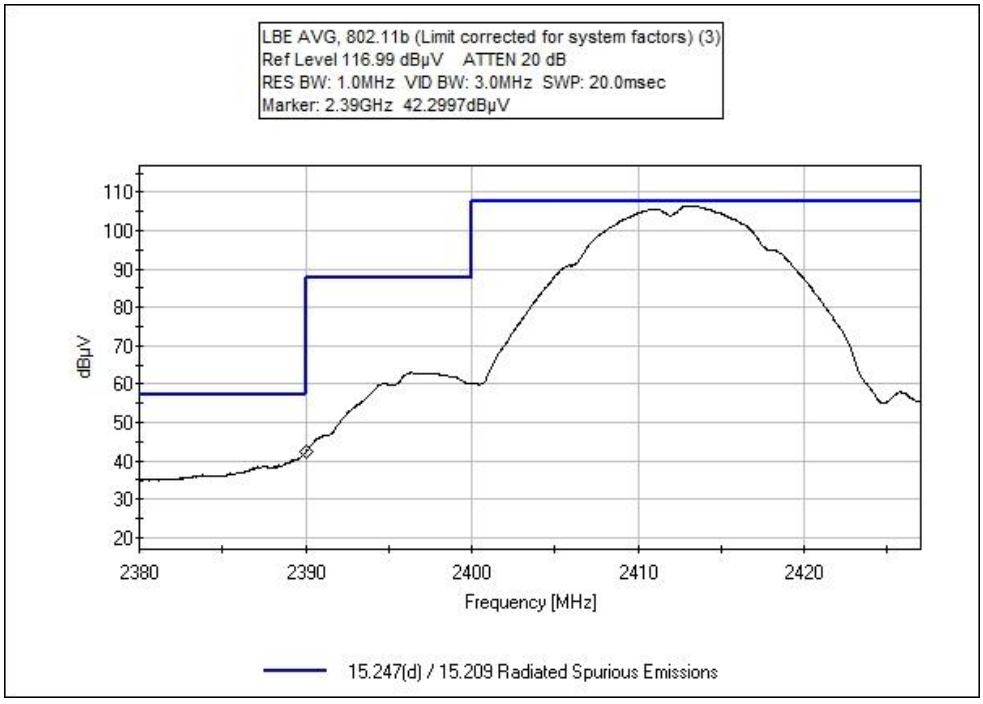
Band Edge

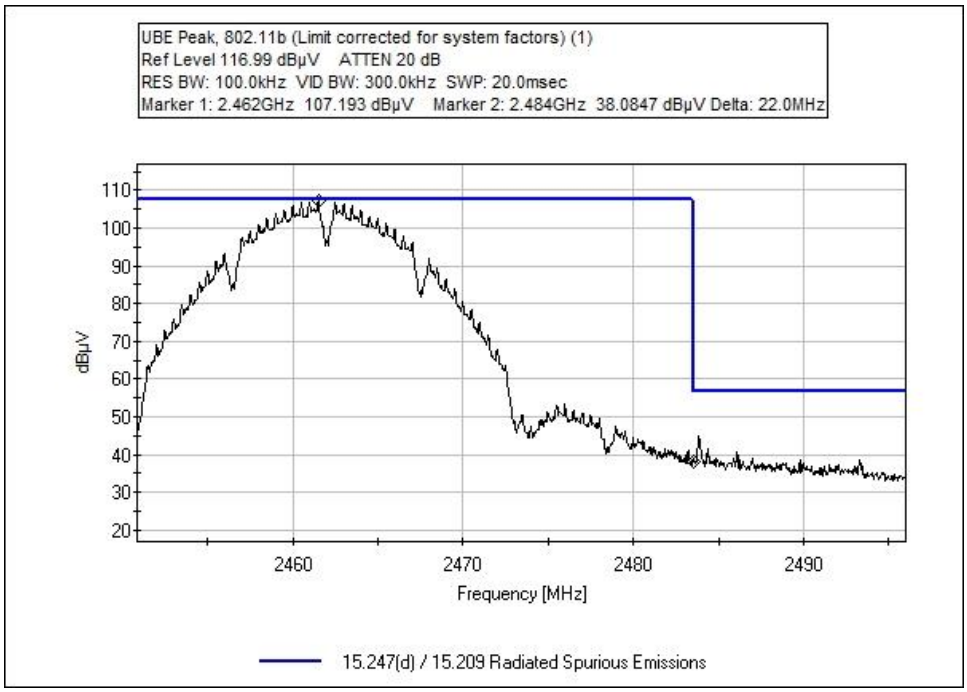
Band Edge Summary					
Frequency (MHz)	**Modulation**	**Ant. Type**	**Field Strength (dBuV/m @3m)**	**Limit (dBuV/m @3m)**	**Results**
2390.0	OOK	Linear Polarized	39.2	<54	Pass
2400.0	OOK	Linear Polarized	58	<84.6	Pass
2483.5	OOK	Linear Polarized	36.7	<54	Pass
2390.0	OFDM	Linear Polarized	50.2	<54	Pass
2400.0	OFDM	Linear Polarized	66.8	<82	Pass
2483.5	OFDM	Linear Polarized	48.2	<54	Pass
2390.0	MCS (20M)	Linear Polarized	49.2	<54	Pass
2400.0	MCS (20M)	Linear Polarized	70.6	<82.6	Pass
2483.5	MCS (20M)	Linear Polarized	48.9	<54	Pass
2390.0	MCS (40M)	Linear Polarized	49.7	<54	Pass
2400.0	MCS (40M)	Linear Polarized	66	<79.2	Pass
2483.5	MCS (40M)	Linear Polarized	49.4	<54	Pass

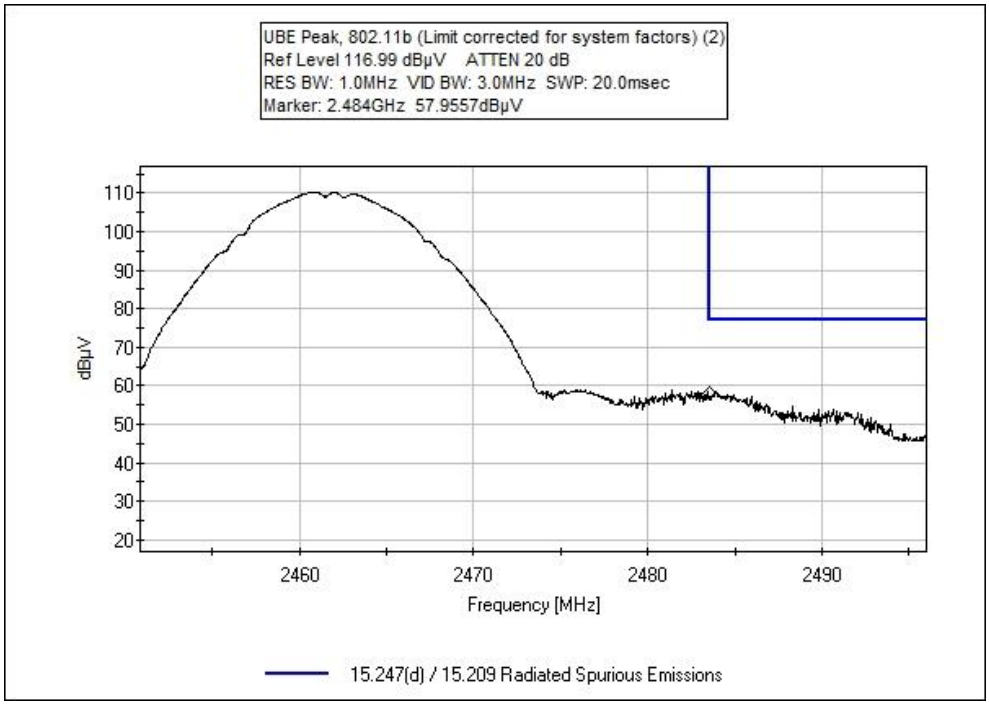
802.11b Band Edge Plots

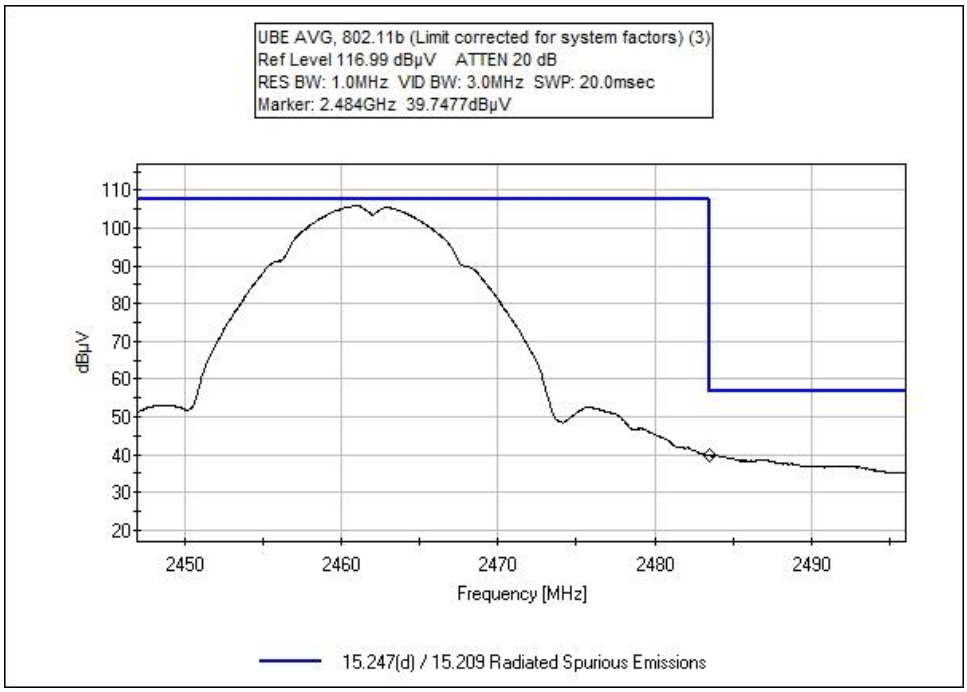



LBE Peak, 802.11b (Limit corrected for system factors) (2)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.39GHz 57.5477dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2380
2390
2400
2410
2420
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

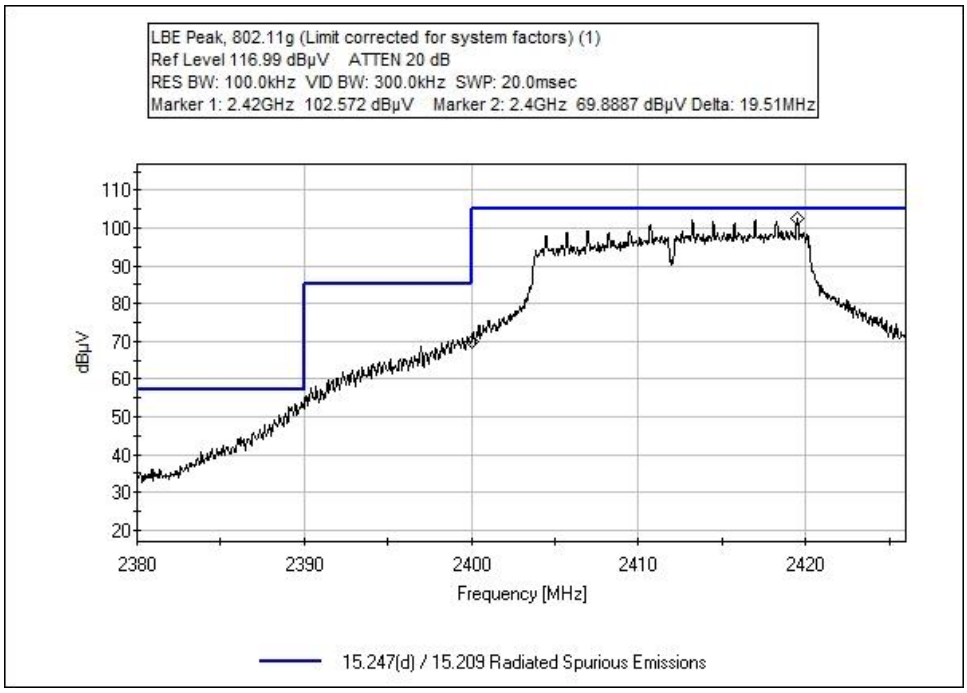

LBE AVG, 802.11b (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.39GHz 42.2997dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2380
2390
2400
2410
2420
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

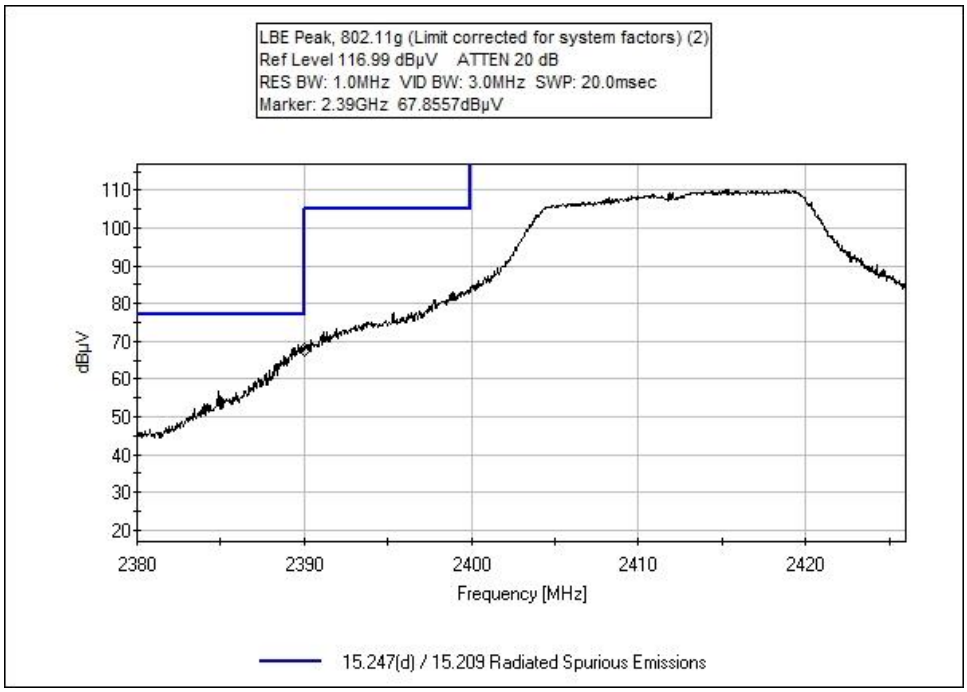

UBE Peak, 802.11b (Limit corrected for system factors) (1)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 100.0kHz VID BW: 300.0kHz SWP: 20.0msec
Marker 1: 2.462GHz 107.193 dBµV Marker 2: 2.484GHz 38.0847 dBµV Delta: 22.0MHz
dBµV
110
100
90
80
70
60
50
40
30
20
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

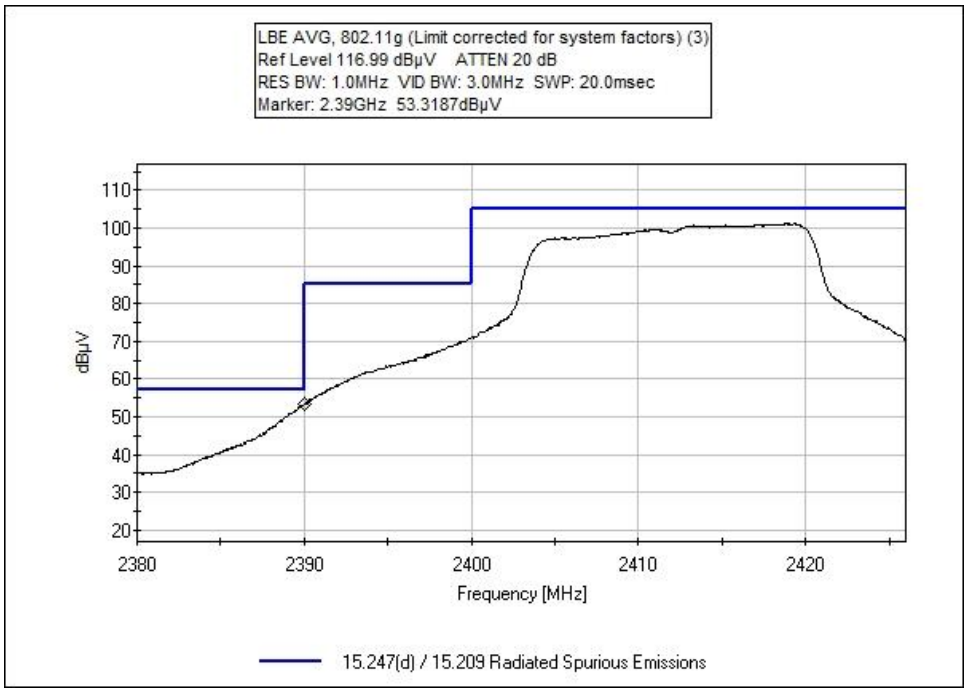

UBE Peak, 802.11b (Limit corrected for system factors) (2)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 57.9557dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

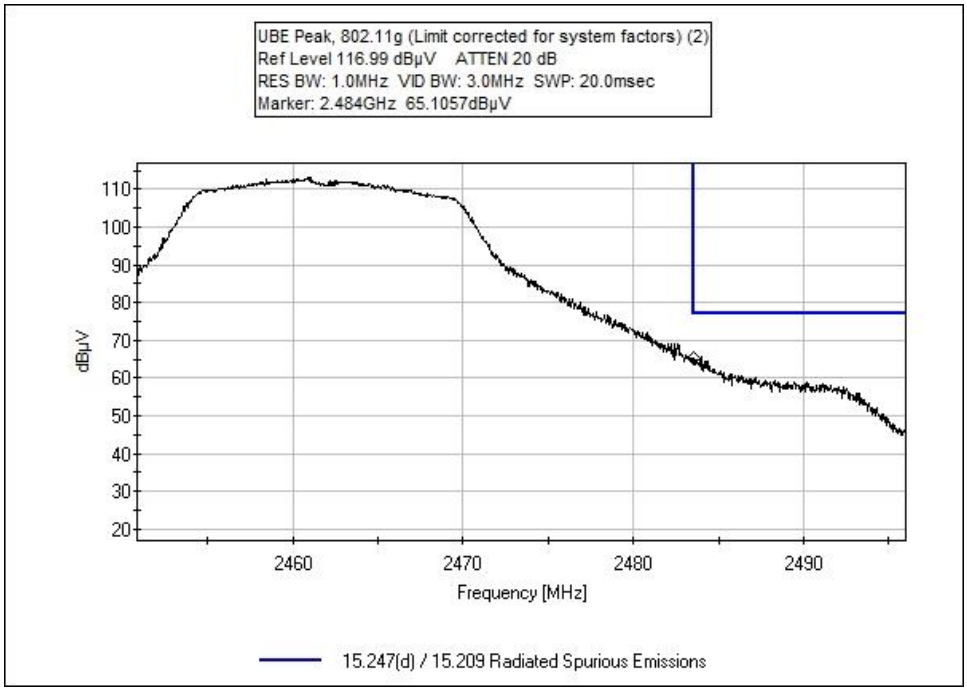

UBE AVG, 802.11b (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 39.7477dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2450
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

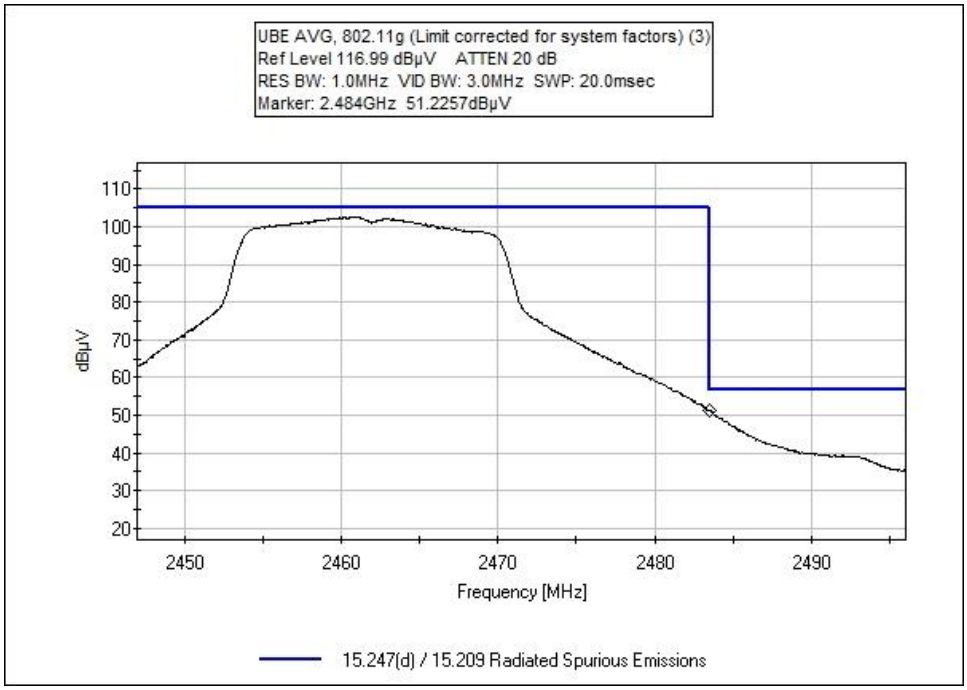
802.11g Band Edge Plots



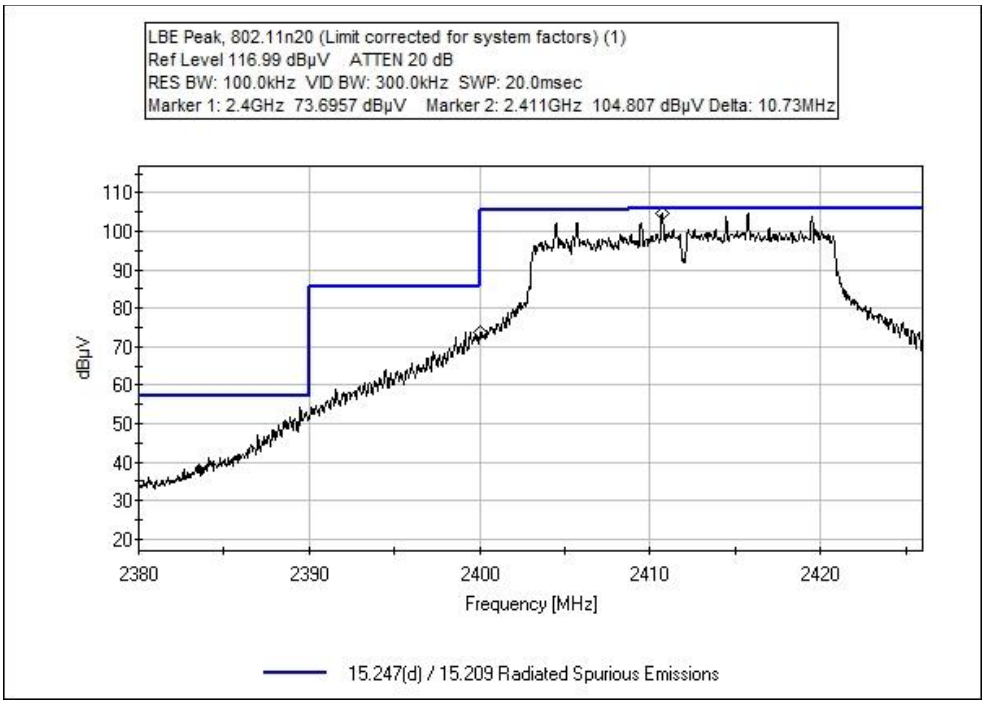


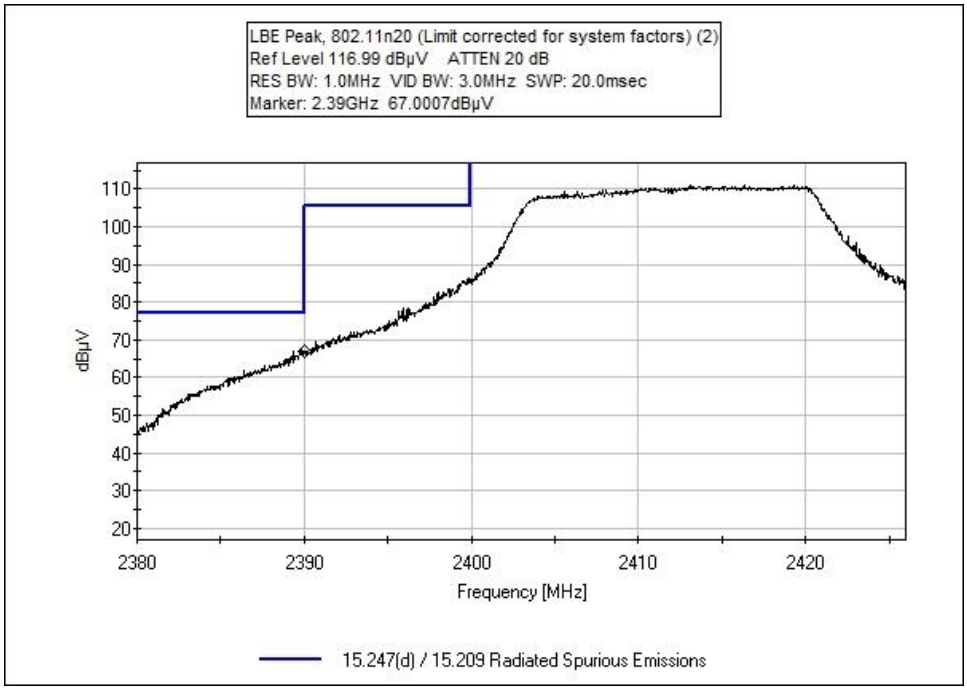

LBE AVG, 802.11g (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.39GHz 53.3187dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2380
2390
2400
2410
2420
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

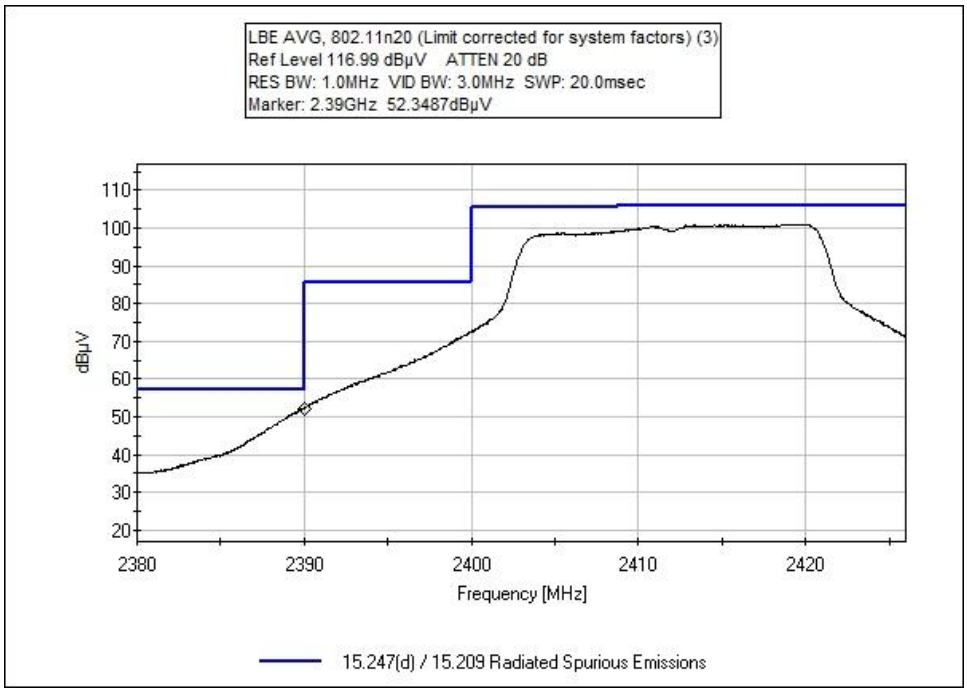

UBE Peak, 802.11g (Limit corrected for system factors) (2)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 65.1057dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

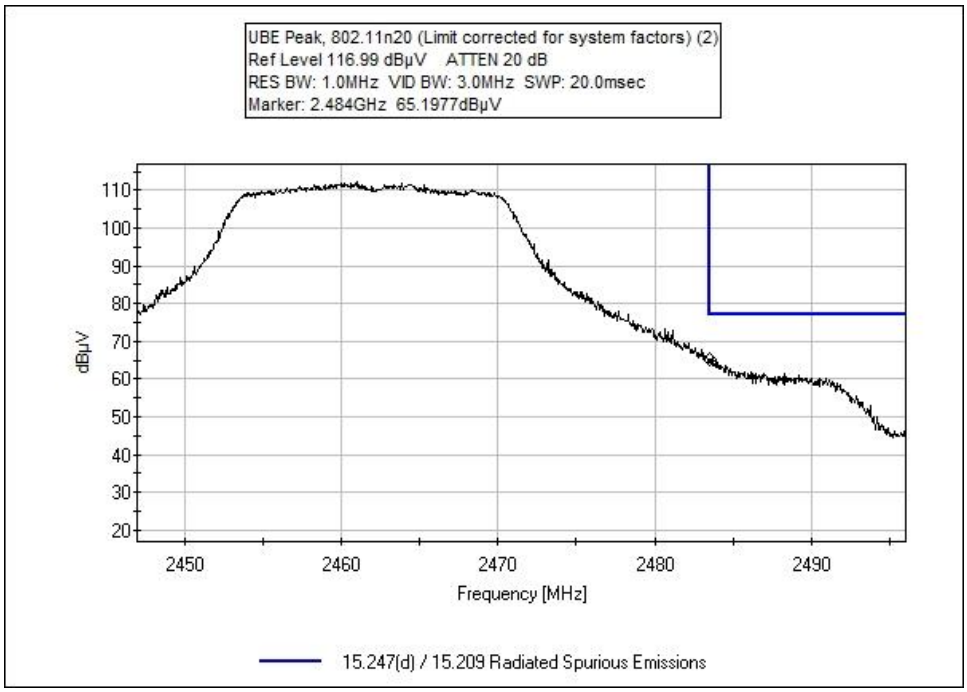

UBE AVG, 802.11g (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 51.2257dBµV
110
100
90
80
70
60
50
40
30
20
dBµV
2450
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

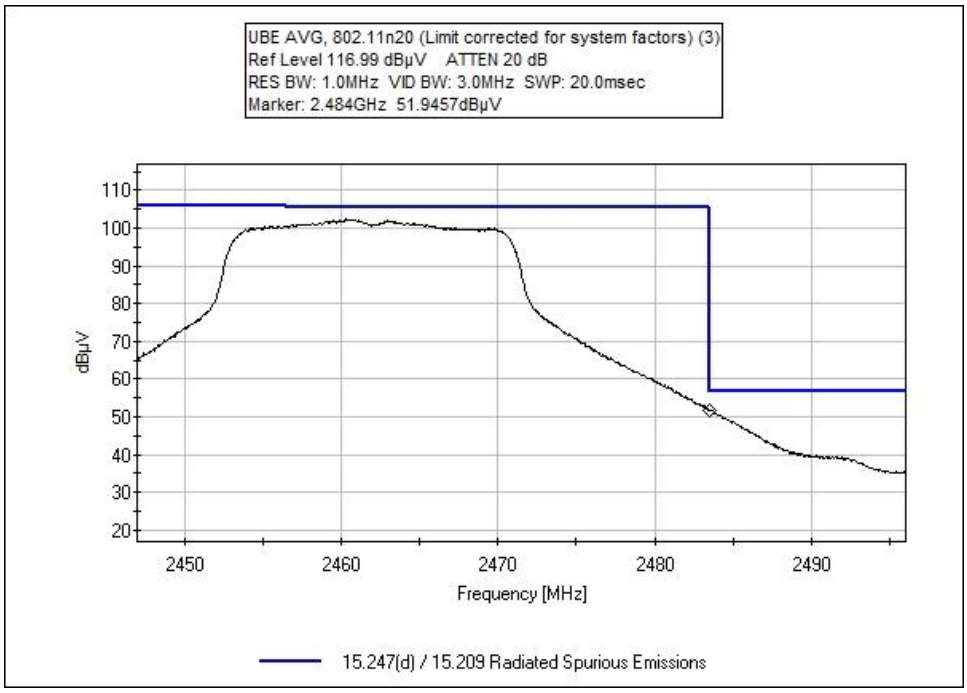
802.11n20 Band Edge Plots



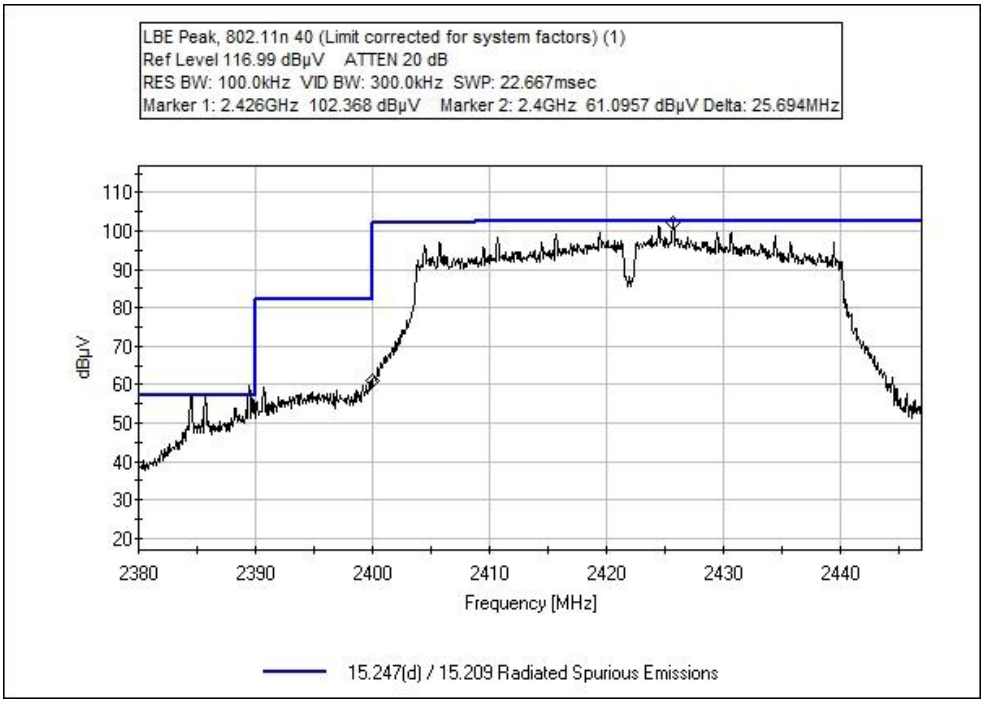


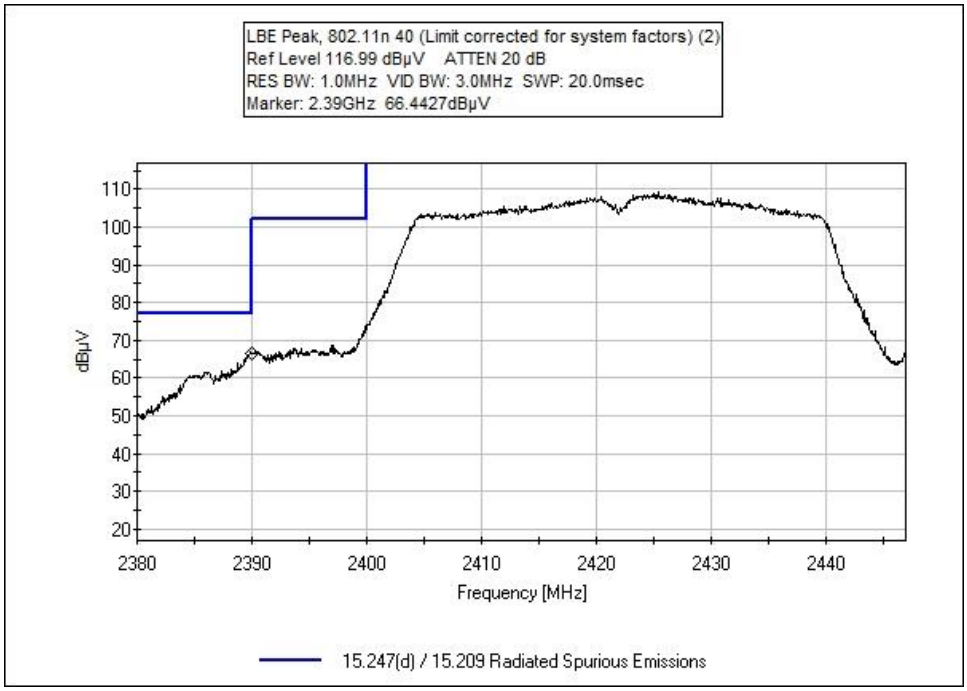

LBE AVG, 802.11n20 (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.39GHz 52.3487dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

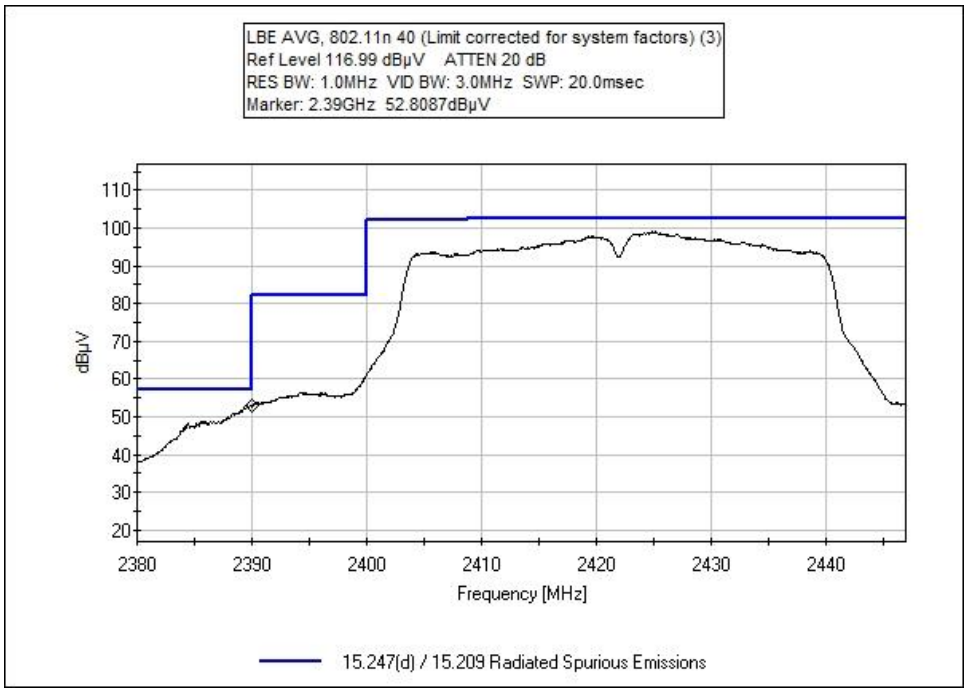

UBE Peak, 802.11n20 (Limit corrected for system factors) (2)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 65.1977dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

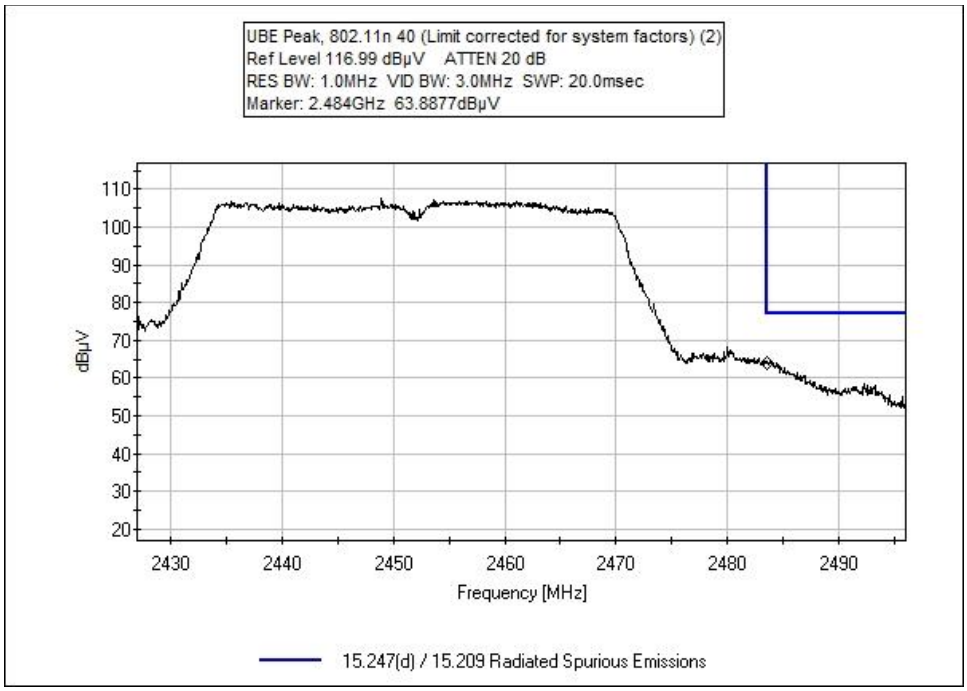

UBE AVG, 802.11n20 (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 51.9457dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2450
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

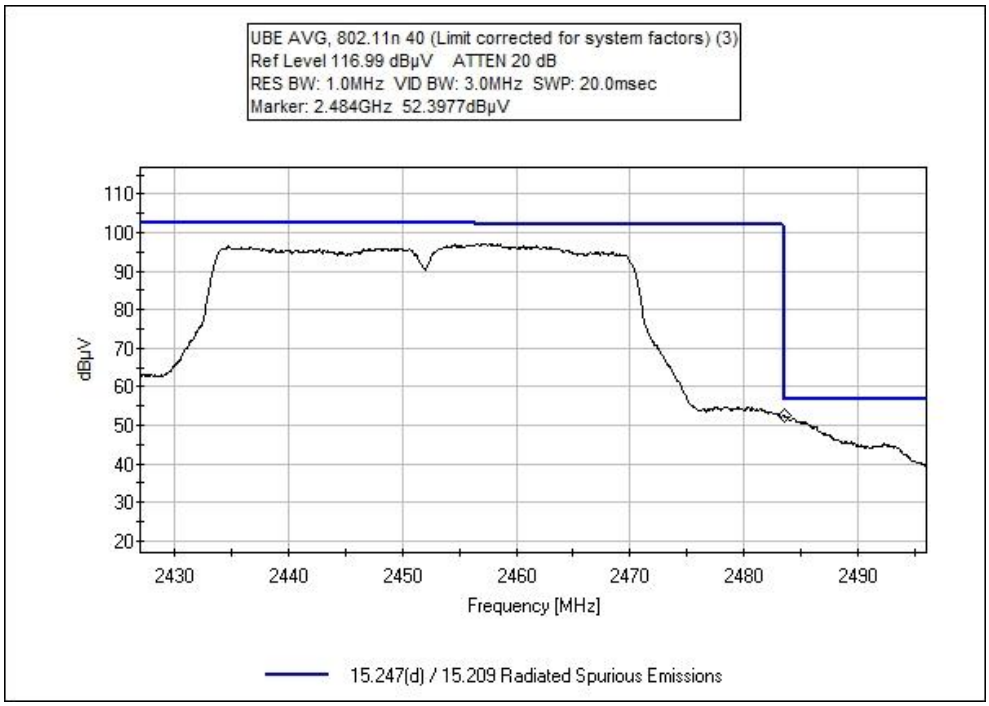
802.11n40 Band Edge Plots






LBE AVG, 802.11n 40 (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.39GHz 52.8087dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


UBE Peak, 802.11n 40 (Limit corrected for system factors) (2)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 63.8877dBµV
dBµV
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions


UBE AVG, 802.11n 40 (Limit corrected for system factors) (3)
Ref Level 116.99 dBµV ATTEN 20 dB
RES BW: 1.0MHz VID BW: 3.0MHz SWP: 20.0msec
Marker: 2.484GHz 52.3977dBµV
dBµV
110
100
90
80
70
60
50
40
30
20
2430
2440
2450
2460
2470
2480
2490
Frequency [MHz]
15.247(d) / 15.209 Radiated Spurious Emissions

Test Setup / Conditions / Data

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	3/18/2020
Test Type:	**Maximized Emissions**	Time:	14:21:04
Tested By:	Matthew Harrison	Sequence#:	1
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

Frequency Range: 2390-2483.5 MHz
Frequency tested: 2412, 2462
Firmware power setting: 15 dBm
EUT Firmware:
Protocol /MCS/Modulation: **802.11b**, 1mbps (worst-case)

Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a Styrofoam table.
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T4	AN02872	Spectrum Analyzer	E4440A	11/18/2019	11/18/2021
T5	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T6	ANP07504	Cable	CLU40-KMKM-02.00F	1/17/2019	1/17/2021

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2412.480M	107.7	+27.6 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	104.5	104.6	-0.1	Horiz 190
2	2461.500M	107.2	+27.6 -34.3	+2.7 +0.3	+0.6	+0.0	+0.0 350	104.1	104.6	-0.5	Horiz 210
3	2390.000M Ave	42.3	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	39.2	54.0 1MHz RBW	-14.8	Horiz
^	2390.000M	57.5	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	54.4	74.0 1MHz RBW	-19.6	Horiz
5	2483.500M Ave	39.7	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	36.7	54.0 1MHz RBW	-17.3	Horiz
^	2483.500M	58.0	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	55.0	74.0 1MHz RBW	-19.0	Horiz
7	2400.000M	61.1	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	58.0	84.6	-26.6	Horiz

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	3/18/2020
Test Type:	**Maximized Emissions**	Time:	14:13:07
Tested By:	Matthew Harrison	Sequence#:	2
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

Frequency Range: 2390-2483.5 MHz
Frequency tested: 2412, 2462
Firmware power setting: 13 dBm for Low Chanel, 15 dBm for High Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11g,** 6 mbps (worst-case)

Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a Styrofoam table.
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T4	AN02872	Spectrum Analyzer	E4440A	11/18/2019	11/18/2021
T5	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T6	ANP07504	Cable	CLU40-KMKM-02.00F	1/17/2019	1/17/2021

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2460.730M	105.1	+27.6 -34.3	+2.7 +0.3	+0.6	+0.0	+0.0 350	102.0	102.0	+0.0	Horiz 210
2	2419.510M	102.6	+27.6 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	99.4	102.0	-2.6	Horiz
3	2390.000M Ave	53.3	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	50.2	54.0 1MHz RBW	-3.8	Horiz
^	2390.000M	67.9	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	64.8	74.0 1MHz RBW	-9.2	Horiz
5	2483.500M Ave	51.2	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	48.2	54.0 1MHz RBW	-5.8	Horiz
^	2483.500M	50.6	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	47.6	54.0	-6.4	Horiz
^	2483.500M	65.1	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	62.1	74.0 1MHz RBW	-11.9	Horiz
8	2400.000M	69.9	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	66.8	82.0	-15.2	Horiz

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	3/18/2020
Test Type:	**Maximized Emissions**	Time:	14:41:46
Tested By:	Matthew Harrison	Sequence#:	3
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

Frequency Range: 2390-2483.5 MHz
Frequency tested: 2412, 2462
Firmware power setting: 12 dBm for Low Channel, 14 dBm for High Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11n**, 20MHz BW, MCS8 (worst-case)

Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a Styrofoam table.
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided

Test Equipment:

ID	Asset #	Description	Model	Calibration Date	Cal Due Date
T1	AN01467	Horn Antenna-ANSI C63.5 Calibration	3115	7/5/2019	7/5/2021
T2	ANP06515	Cable	Heliax	6/29/2018	6/29/2020
T3	ANP06540	Cable	Heliax	8/23/2019	8/23/2021
T4	AN02872	Spectrum Analyzer	E4440A	11/18/2019	11/18/2021
T5	AN03540	Preamp	83017A	5/13/2019	5/13/2021
T6	ANP07504	Cable	CLU40-KMKM-02.00F	1/17/2019	1/17/2021

Measurement Data: Reading listed by margin. Test Distance: 3 Meters

#	Freq	Rdng	T1 T5	T2 T6	T3	T4	Dist	Corr	Spec	Margin	Polar
	MHz	dBµV	dB	dB	dB	dB	Table	dBµV/m	dBµV/m	dB	Ant
1	2460.720M	105.7	+27.6 -34.3	+2.7 +0.3	+0.6	+0.0	+0.0 350	102.6	102.6	+0.0	Horiz 190
2	2410.730M	104.8	+27.6 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0 350	101.6	102.6	-1.0	Horiz 189
3	2390.000M Ave	52.3	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	49.2	54.0 1MHz RBW	-4.8	Horiz
^	2390.000M	67.0	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	63.9	74.0 1MHz RBW	-10.1	Horiz
5	2483.500M Ave	51.9	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	48.9	54.0 1MHz RBW	-5.1	Horiz
^	2483.500M	53.2	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	50.2	54.0	-3.8	Horiz
^	2483.500M	65.2	+27.6 -34.2	+2.7 +0.3	+0.6	+0.0	+0.0	62.2	74.0 1MHz RBW	-11.8	Horiz
8	2400.000M	73.7	+27.7 -34.3	+2.6 +0.3	+0.6	+0.0	+0.0	70.6	82.6	-12.0	Horiz

Test Location:	CKC Laboratories, Inc. • 22116 23rd Dr SE • Bothell, WA 98021 • 800-500-4362		
Customer:	**Nalloy, LLC.**		
Specification:	**15.247(d) / 15.209 Radiated Spurious Emissions**		
Work Order #:	**102802**	Date:	3/18/2020
Test Type:	**Maximized Emissions**	Time:	16:43:03
Tested By:	Matthew Harrison	Sequence#:	4
Software:	EMITest 5.03.12		

Equipment Tested:

Device	Manufacturer	Model #	S/N
Configuration 1			

Support Equipment:

Device	Manufacturer	Model #	S/N
Configuration 1			

Test Conditions / Notes:

Environmental Conditions:
Temperature: 22° C
Humidity: 45%
Pressure: 101.3 kPa

Frequency Range: 2390-2483.5 MHz
Frequency tested: 2422, 2452
Firmware power setting: 11 dBm for Low Channel, 12 dBm for High Channel
EUT Firmware:
Protocol /MCS/Modulation: **802.11n**, 40MHz BW, MCS8 (worst-case)

Antenna type: Linear Polarized
Antenna Gain: 3.7 dBi.

Duty Cycle: 100% Modulated

Test Method: ANSI C63.10: 2013
KDB 558074 (v05r02 APRIL 2, 2019)
KDB 662911 (v02r01 October 31, 2013)

Test Mode: Transmitting
Test Setup: EUT is setup 1.5m high on a Styrofoam table.
Setup: EUT is connected to a Laptop via USB and Audio cable.

All data rates investigated, worst-case provided