

RF Test Report

Project Number: 5387191**Offer Number:** SUW-202508008725**Report Number:** SUW5387191EMC09R1**Revision Level:** 1**Client:** UTEC, Inc. (c/o Carrier Corporation)

111 E. Wayne St., Suite 800

Fort Wayne, Indiana 46802, USA

UTEC, Inc. and Carrier Corporation are affiliated to Carrier Global Corporation

Equipment Under Test: Refrigerated Shipping Container Controller
(Carrier Container Refrigeration Unit Controller)**Product Name:** Micro-Link 5 Controller**Model:** ML5**FCC ID:** 2AK6N-MICROLINK5**IC:** 703A-MICROLINK5**Applicable Standards:** FCC Part 15 Subpart C, § 15.247

RSS-247 Issue 4; RSS-GEN Issue 5

ANSI C63.10-2020

ANSI C63.10-2020+Cor.1-2023+C63.10a-2024 + Errata to C63.10a-2024

Report issued on: 05 May 2026**Test Result:** Compliant

FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER: 3212.01

Report must not be used by the client to claim product certification, approval, or endorsement by A2LA, NIST, or any agency of the Federal Government.

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1 Summary of Test Results

Test Description	Test Specification		Test Result
Bandwidth	15.247(a)(2)	RSS-247 S6.3.1(a) RSS-GEN S6.7	Compliant
Output Power	15.247(b)(3)	RSS-247 S6.3.2	Compliant
Power Spectral Density	15.247(e)	RSS-247 S6.3.1(b)	Compliant
Conducted Spurious Emissions / Band Edge	15.247(d)	RSS-247 S6.6	Compliant
Field Strength of Spurious Radiation (Restricted Bands)	15.247(d) 15.205, 15.209	RSS-GEN S8.9, S8.10	Compliant
Band Edge Emissions in Restricted Frequency Bands	15.205, 15.209	RSS-GEN S8.9, S8.10	Compliant
AC Powerline Conducted Emissions	15.207	RSS-GEN S8.8	Compliant
Antenna Requirement	15.203	RSS-GEN S6.8	Compliant ⁽¹⁾

(1) The device uses a PCB trace PIFA antenna which cannot be replaced by the end user.

1.1 Modifications Required for Compliance

None

2 General Information

2.1 Client Information

Name: UTEC, Inc. (c/o Carrier Corporation)
 Address: 111 E. Wayne Street, Suite 800
 City, State, Zip, Country: Fort Wayne, Indiana 46802, USA
 UTEC, Inc. and Carrier Corporation are affiliated to Carrier Global Corporation

2.2 Test Laboratory

Name: SGS North America, Inc.
 Address: 620 Old Peachtree Road NW, Suite 100
 City, State, Zip, Country: Suwanee, GA 30024, USA

Accrediting Body: A2LA
 Type of lab: Testing Laboratory
 Certificate Number: 3212.01
 Designation Number: US1126
 CAB Identifier: US0186

2.3 General Information of EUT

Equipment Under Test: Refrigerated Shipping Container Controller
 (Carrier Container Refrigeration Unit Controller)
 Product Name: Micro-Link 5 Controller
 Model (HVIN): ML5
 Firmware Version (FVIN): 8.9.0.0.79
 Serial Numbers: 3525W280730 (Conducted Sample for Bandwidth, Output Power and PSD)
 4120W008381 (Conducted Sample for remaining conducted tests)
 3821W039479 (Radiated Sample for AC Powerline Conducted Emissions)
 3525W280709 (Radiated Sample for Radiated Spurious Emissions)
 FCC ID: 2AK6N-MICROLINK5
 IC: 703A-MICROLINK5
 Frequency Range: 2412 – 2462 MHz
 Data Modes: WLAN 802.11b, 802.11g, 802.11nHT20, 802.11nHT40
 Antenna Gain*: ANT1: PCB Trace PIFA Antenna (WLAN & Bluetooth); 4.54dBi
 ANT2: PCB Trace PIFA Antenna (WLAN MIMO only); 4.54dBi
 Rated Voltage: 5V_{DC} to Micro Board USB port or
 Dual phase 18V_{AC} to IO Board
 Test Voltage: 5V_{DC} to Micro Board USB port (for Conducted Measurements)
 Dual phase 18V_{AC} to IO Board (for Radiated Measurements)
 Sample Received Date: 03 February 2023
 17 March 2026 (S/N: 3525W280709)
 24 March 2026 (S/N: 3525W280730)
 Dates of testing: 4-13 April 2023 and 11-26 March 2026

*Data was not measured by SGS laboratory and therefore SGS is not responsible for accuracy. Data obtained via customer, specification sheet, previous filing or other.

2.4 Operating Modes and Conditions

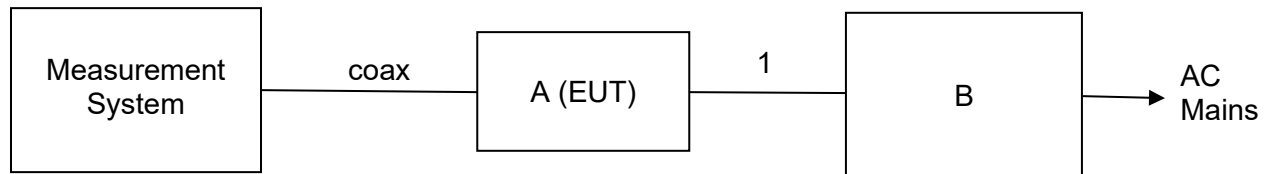
The EUT was running test mode firmware with TI tools which allowed commands to be sent to transmit on low, middle and high channels in all necessary modulation and modes of operation. The worst-case data rates were determined to be:

- 802.11b, 5Mbps
- 802.11g, 6Mbps
- 802.11nHT20, MCS6
- 802.11nHT40, MCS4

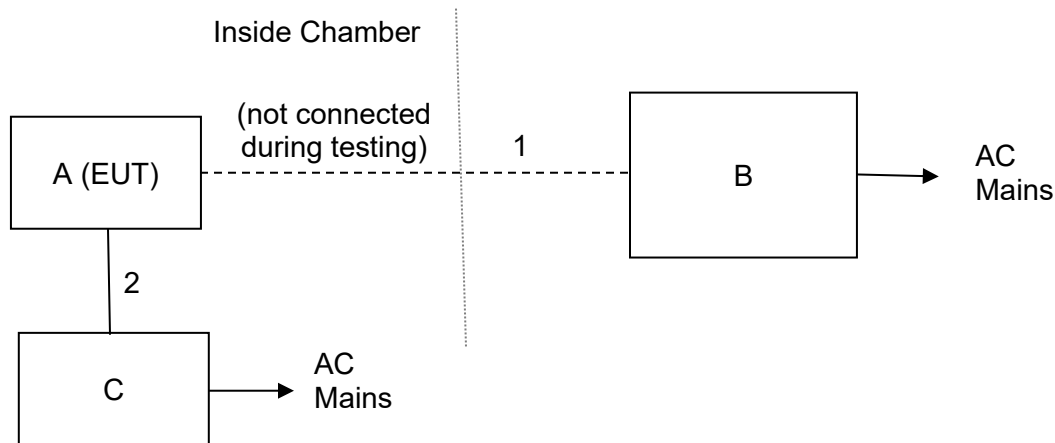
The commanded power setting for all testing was 20000.

Please note that for this EUT the only data mode that supports MIMO (ANT1+ANT2) is 802.11n_HT20.

2.5 EUT Connection Block Diagram – Conducted Measurements



2.6 EUT Connection Block Diagram – Radiated Measurements



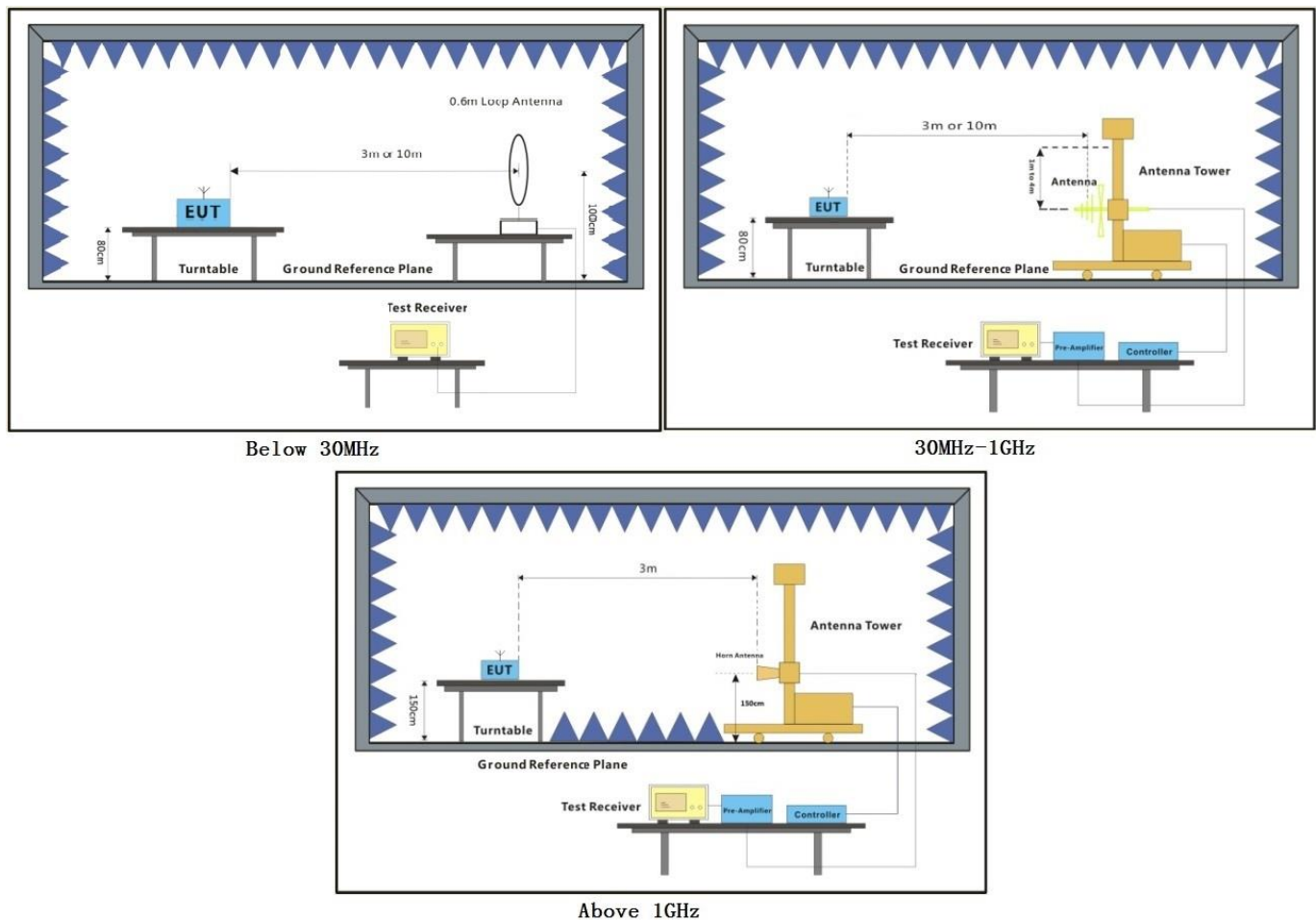
2.7 System Configurations

Device Reference	Manufacturer	Description	Model Number	Serial Number
A	UTEC, Inc.	Micro-Link 5 Controller (EUT)	ML5	4120W008381 3821W039479 3525W280709 3525W280730
B	Lenovo	Laptop Computer	T420	R8-X9XFV
C	UTEC, Inc.	Transformer Box	(none)	(none)

2.8 Cable List

Cable reference	Port Name	Start	End	Cable Length (m)	Ferrite installed?	Shielded?
1	USB	EUT	Laptop Computer	1.0	N	N
2	AC Power (5-wire harness)	EUT	Transformer Box	0.7	N	N

2.9 Test Setup Diagrams (Radiated)



3 Bandwidth

3.1 Test Result

Test Description	Test Specification		Test Result
6 dB Bandwidth 99% Occupied Bandwidth	15.247(a)(2)	RSS-247 S6.3.1(a) RSS-GEN S6.7	Compliant

3.2 Test Method

The procedures from ANSI C63.10-2020 clause 11.8 and 558074 D01 DTS Meas Guidance v05r02 were used to determine the 6 dB bandwidth.

The procedures from ANSI C63.10-2020 clause 6.9.3 were used to measure the 99% Occupied Bandwidth.

3.3 Test Site

EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 22.7 °C

Relative Humidity: 43.7 %

Atmospheric Pressure: 98.4 kPa

3.4 Test Equipment

Test End Date: 26-Mar-2026

Tester: SGM

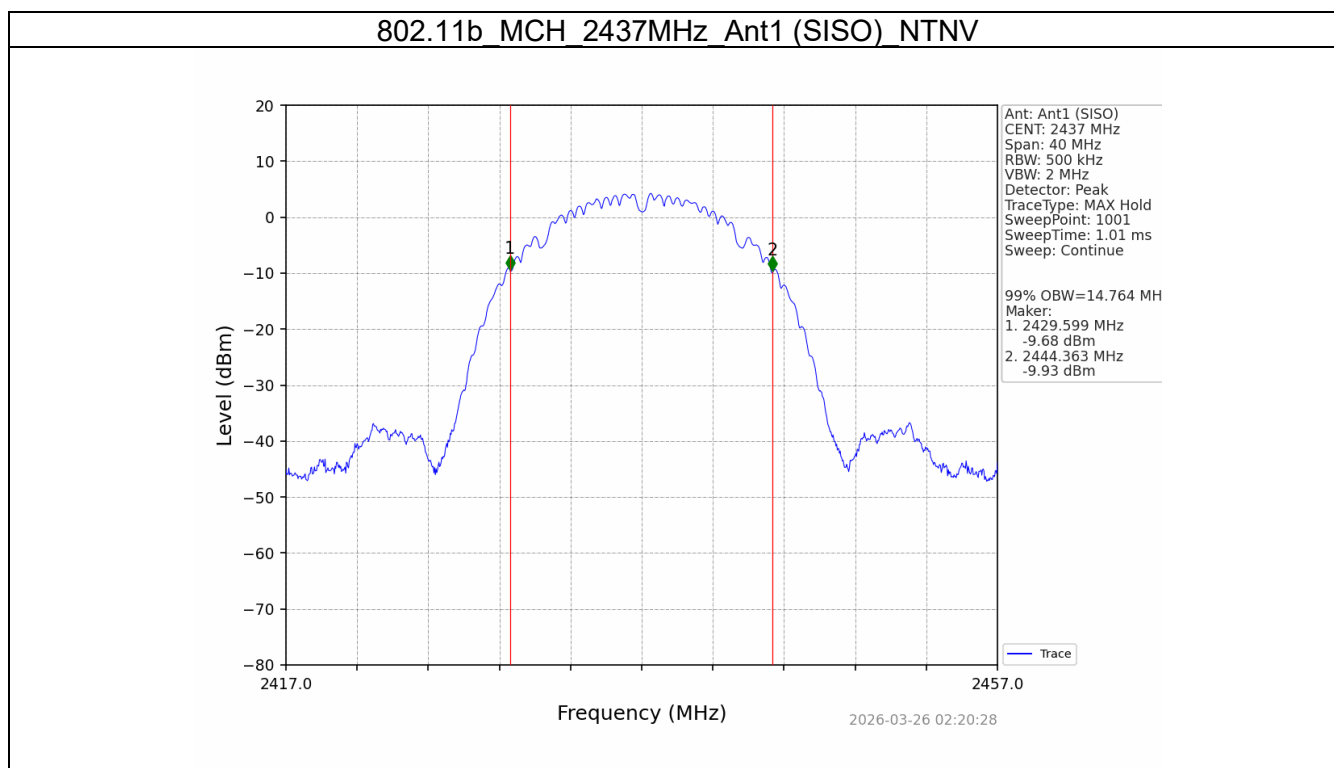
Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-059	TELEDYNE STORM MICROWAVE	20109	3-Apr-2025	3-Apr-2026
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-138	TELEDYNE STORM MICROWAVE	20111	3-Apr-2025	3-Apr-2026
TSTPASS SWITCHBOX	SB2	TSTPASS	23009	4-Apr-2025	4-Apr-2026
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	123990	26-Jan-2026	26-Jan-2027

Software Profile: TSTPASS Version: 2.0.1

3.5 Test Data – 6dB Bandwidth

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	10.368	≥ 0.5	Pass
		2437	1	10.357	≥ 0.5	Pass
		2462	1	10.347	≥ 0.5	Pass
802.11g	SISO	2412	1	15.314	≥ 0.5	Pass
		2437	1	15.738	≥ 0.5	Pass
		2462	1	15.281	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	16.313	≥ 0.5	Pass
		2437	1	16.815	≥ 0.5	Pass
		2462	1	16.388	≥ 0.5	Pass
	MIMO	2412	1	16.351	≥ 0.5	Pass
		2437	1	16.555	≥ 0.5	Pass
		2462	1	16.440	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	34.419	≥ 0.5	Pass
		2437	1	34.288	≥ 0.5	Pass
		2452	1	34.403	≥ 0.5	Pass

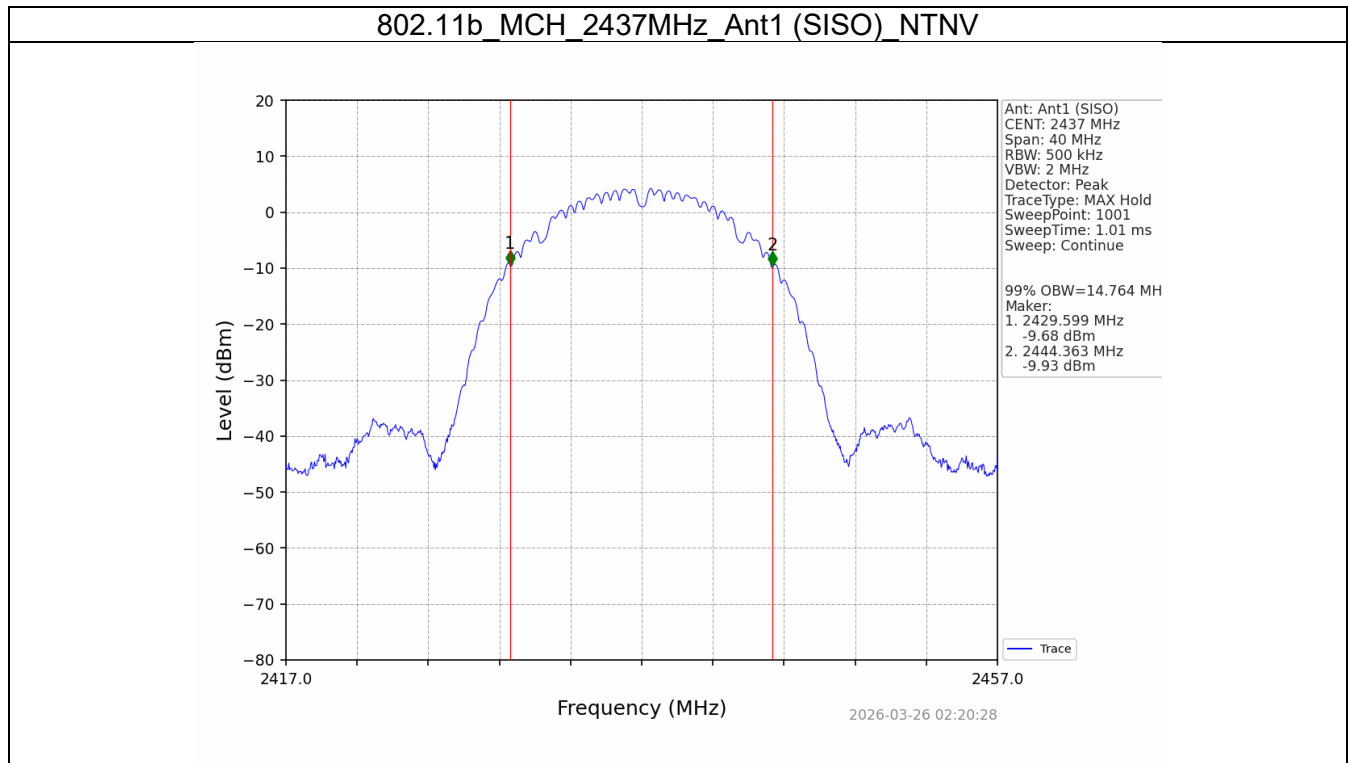
Sample Plot



3.6 Test Data – 99% Bandwidth

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	14.798	/	Pass
		2437	1	14.764	/	Pass
		2462	1	14.739	/	Pass
802.11g	SISO	2412	1	16.785	/	Pass
		2437	1	18.739	/	Pass
		2462	1	16.777	/	Pass
802.11n (HT20)	SISO	2412	1	17.789	/	Pass
		2437	1	18.206	/	Pass
		2462	1	17.767	/	Pass
	MIMO	2412	1	17.892	/	Pass
		2437	1	18.213	/	Pass
		2462	1	17.832	/	Pass
802.11n (HT40)	SISO	2422	1	36.136	/	Pass
		2437	1	36.489	/	Pass
		2452	1	36.022	/	Pass

Sample Plot



4 Output Power

4.1 Test Result

Test Description	Test Specification		Test Result
Output Power	15.247(b)(3)	RSS-247 S6.3.2	Compliant

4.2 Test Method

Fundamental maximum average conducted output power measurements were recorded using the procedures of method AVGSA-2 from ANSI C63.10-2020 clause 11.9.2.2.4 and KDB 558074 D01 Measurement Guidance v05r02. If the duty cycle was <98%, a duty cycle correction factor was added to the average (RMS) measurement.

Limit

(3) For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. For using antennas with greater than 6dBi of gain, the limit is reduced in dB by the amount the gain exceeds 6dBi (e.g. for a 7.4dBi antenna, the limit is reduced from 30dBm to 28.6dBm)

4.3 Test Site

EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 22.7 °C

Relative Humidity: 43.7 %

Atmospheric Pressure: 98.4 kPa

4.4 Test Equipment

Test End Date: 26-Mar-2026

Tester: SGM

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-059	TELEDYNE STORM MICROWAVE	20109	3-Apr-2025	3-Apr-2026
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-138	TELEDYNE STORM MICROWAVE	20111	3-Apr-2025	3-Apr-2026
TSTPASS SWITCHBOX	SB2	TSTPASS	23009	4-Apr-2025	4-Apr-2026
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	123990	26-Jan-2026	26-Jan-2027

Software Profile: TSTPASS Version: 2.0.1

4.5 Test Data – 20MHz BW

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11b	SISO	2412	11.52	12.59	/	<=30	Pass
		2437	12.26	12.73	/	<=30	Pass
		2462	12.56	12.59	/	<=30	Pass
802.11g	SISO	2412	8.82	9.37	/	<=30	Pass
		2437	12.82	13.34	/	<=30	Pass
		2462	9.67	8.69	/	<=30	Pass
802.11n (HT20)	SISO	2412	9.11	9.56	/	<=30	Pass
		2437	9.33	10.53	/	<=30	Pass
		2462	9.95	9.70	/	<=30	Pass
	MIMO	2412	8.75	7.63	11.24	<=30	Pass
		2437	9.77	11.68	13.84	<=30	Pass
		2462	8.76	9.76	12.30	<=30	Pass

Note1: Antenna Gain: Ant1: 4.54dBi; Ant2: 4.54dBi;
 Note2: Directional Gain: Uncorrelated (Directional Gain = Ant Gain)

4.6 Test Data – 40MHz BW

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11n (HT40)	SISO	2422	7.71	<=30	Pass
		2437	8.89	<=30	Pass
		2452	7.67	<=30	Pass

Note1: Antenna Gain: Ant1: 4.54dBi;

Directional gain for ANT1 and ANT2 is 4.54 dBi (Uncorrelated)

Formulas below are referenced from ANSI C63.10-2020+Cor. 1-2023+C63.10a-2024 + Errata to C63.10a-2024:

(i) If transmit signals are *correlated*, then

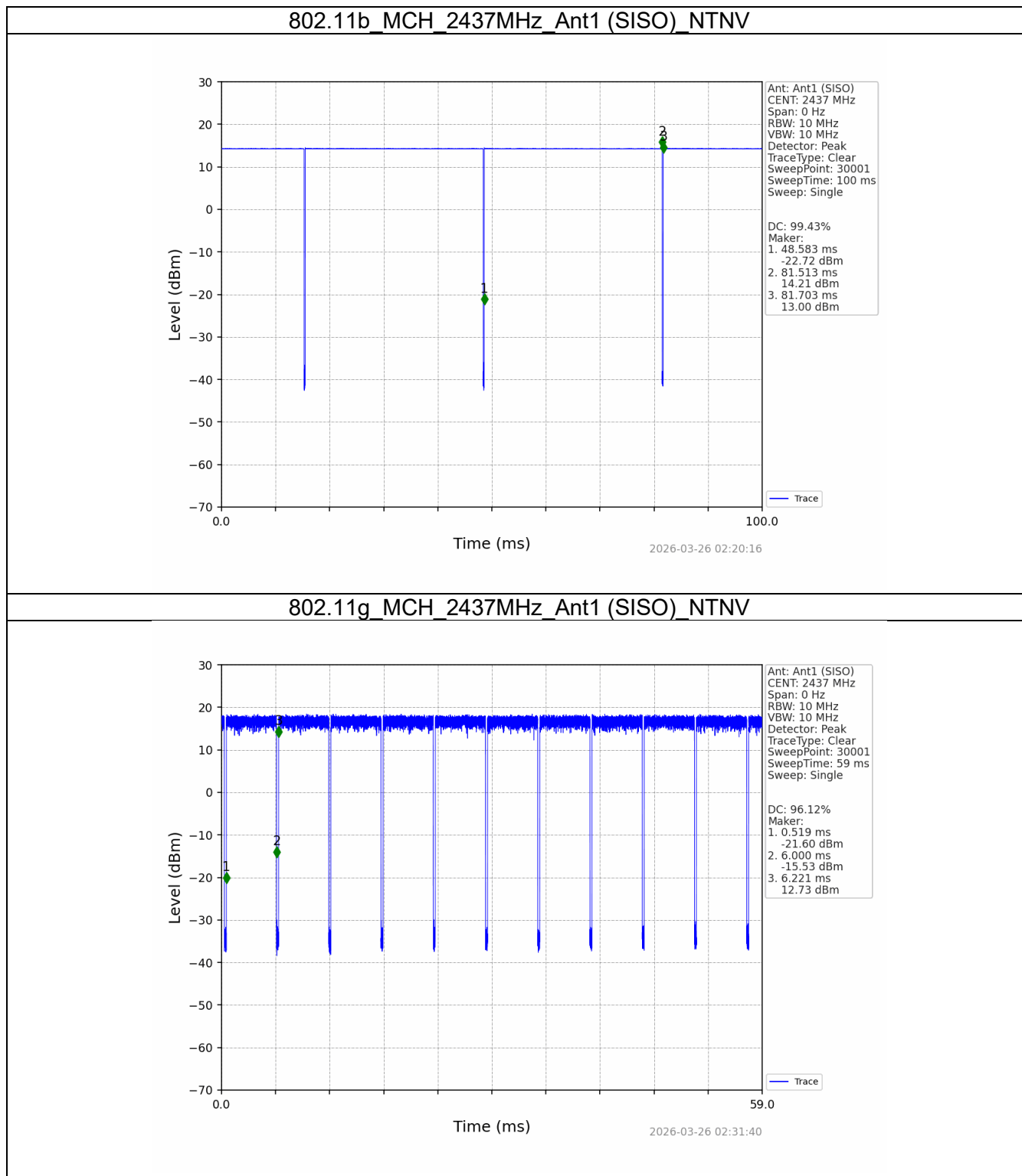
Directional gain = $10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{ANT}]$ dBi [Note the “20”s in the denominator of each exponent and the square of the sum of terms; the object is to combine the signal levels coherently.]

(ii) If all transmit signals are *completely uncorrelated*, then

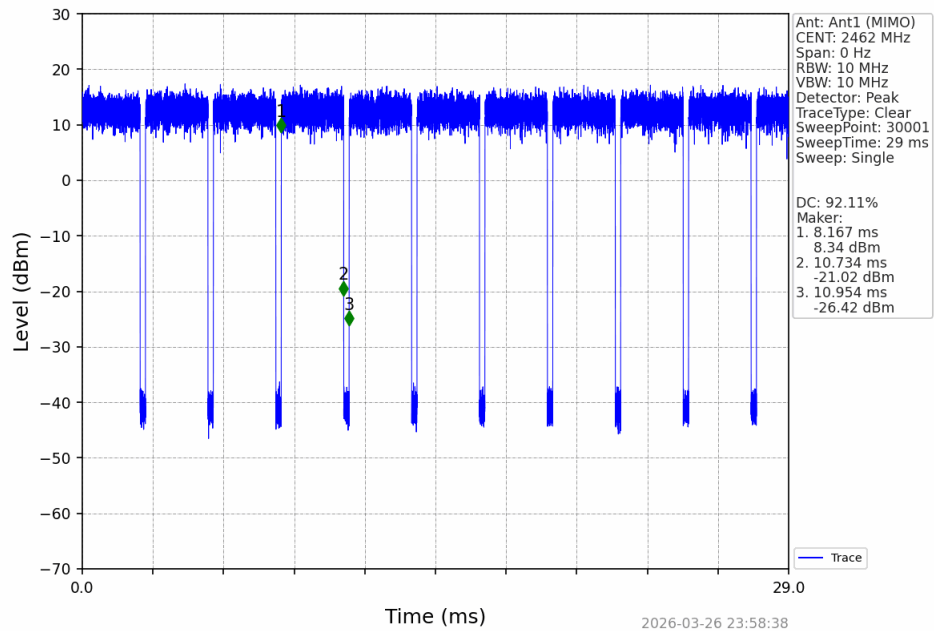
Directional gain = $10 \log[(10^{G_1/10} + 10^{G_2/10} + \dots + 10^{G_N/10}) / N_{ANT}]$ dBi

4.7 Sample Plots

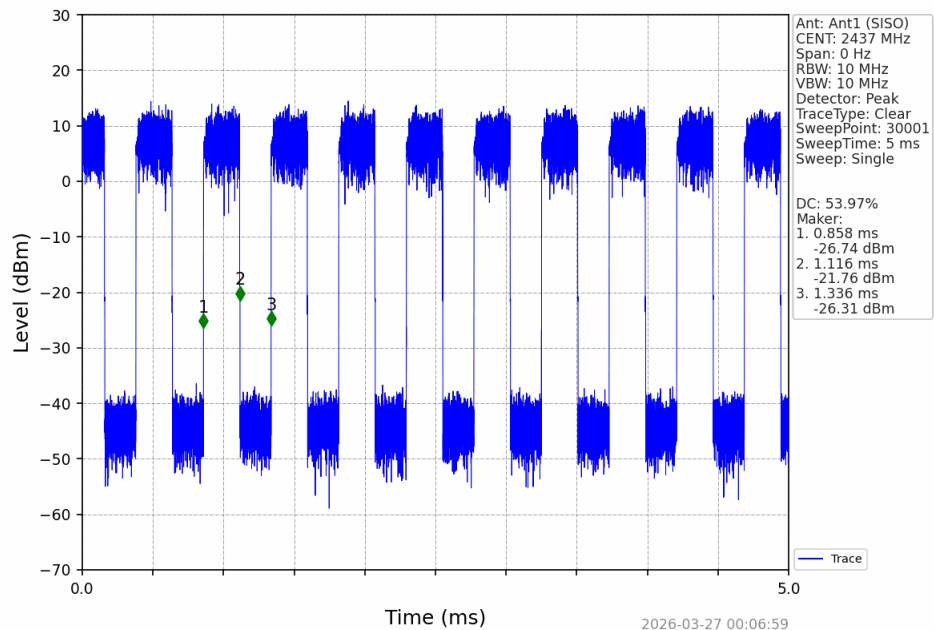
Duty Cycle:



802.11n(HT20)_HCH_2462MHz_Ant1 (MIMO)_NTNV

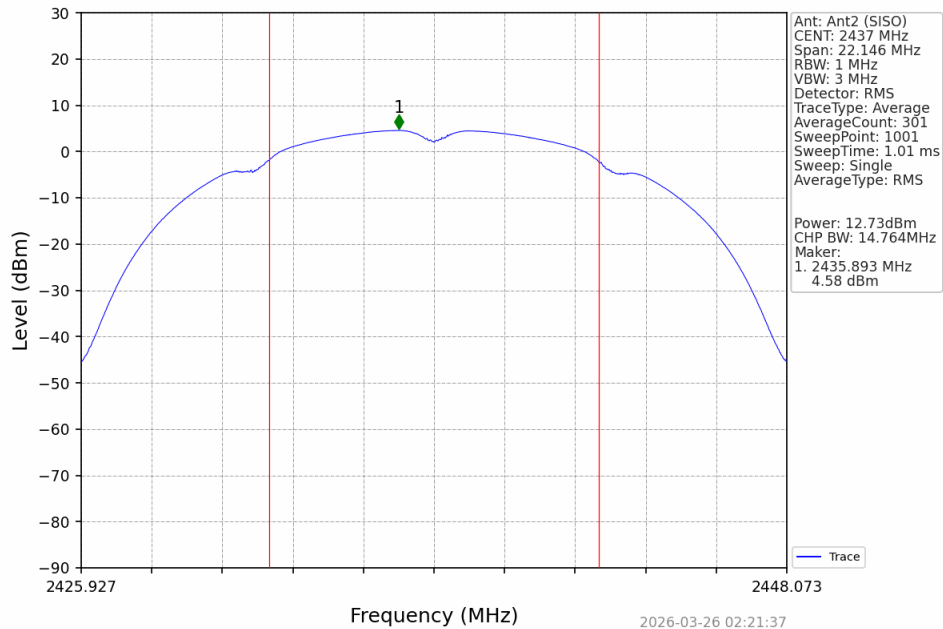


802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV

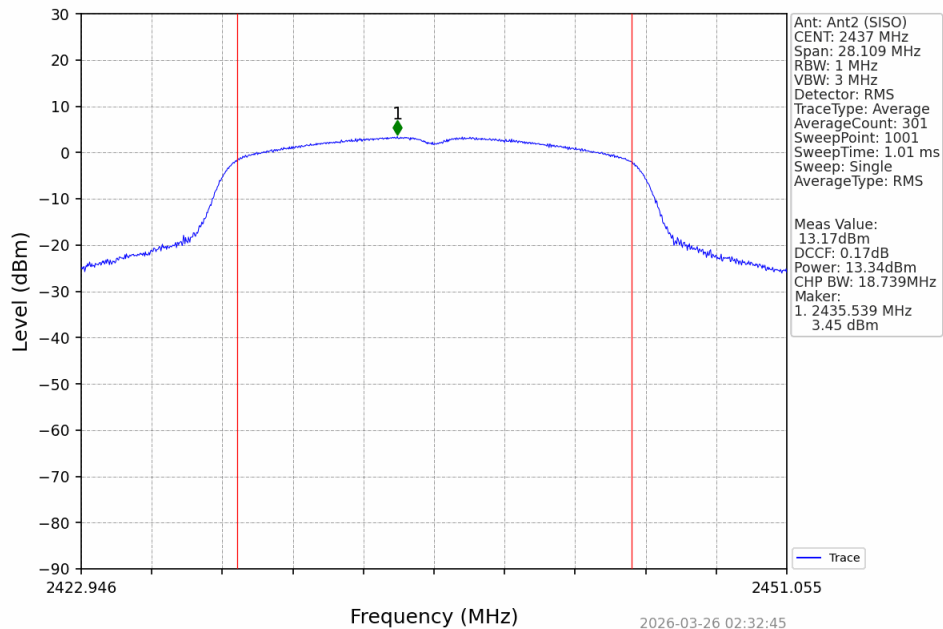


Output Power:

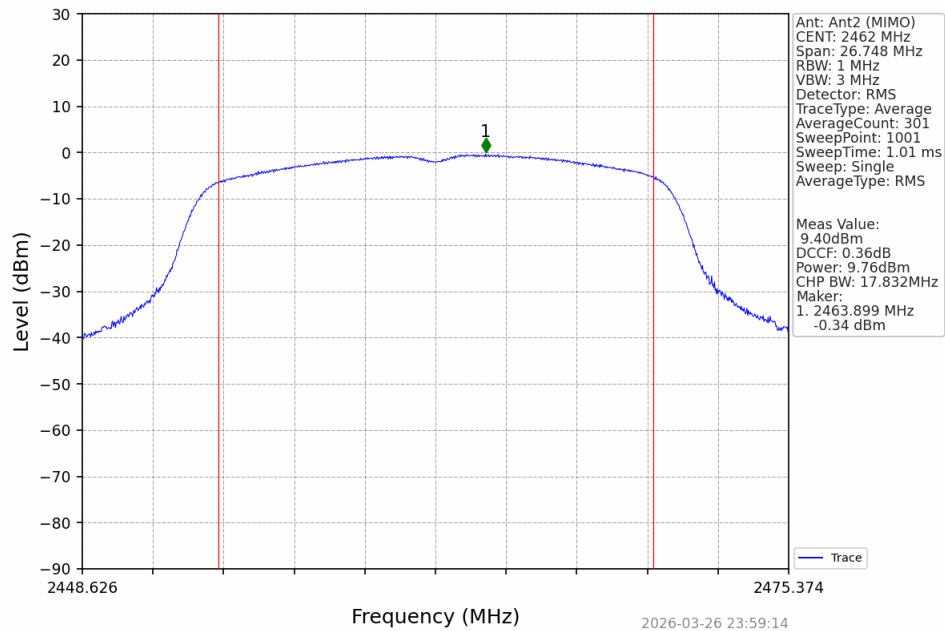
802.11b_MCH_2437MHz_Ant2 (SISO)_NTNV



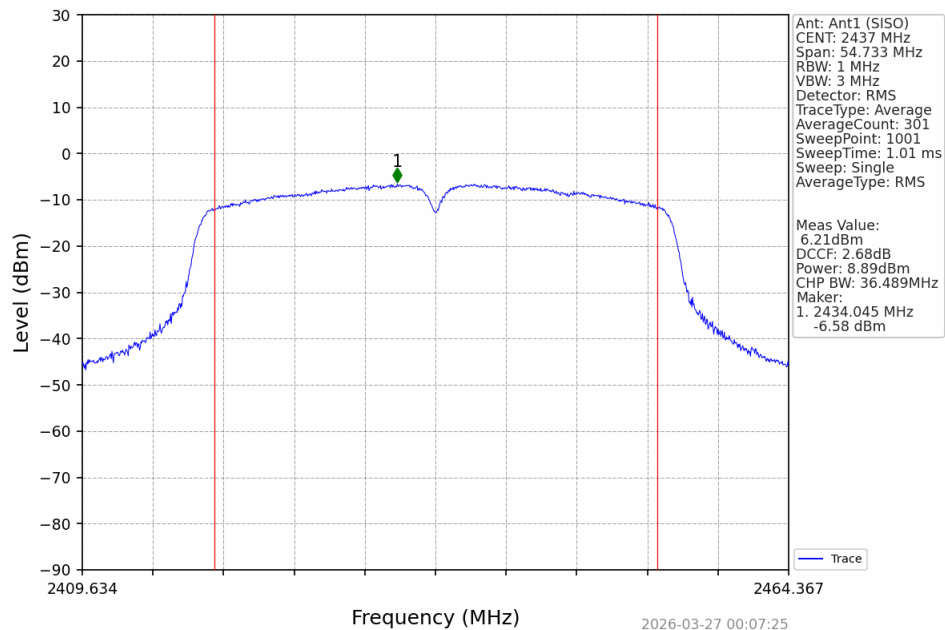
802.11g_MCH_2437MHz_Ant2 (SISO)_NTNV



802.11n(HT20)_HCH_2462MHz_Ant2 (MIMO)_NTNV



802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



5 Power Spectral Density

5.1 Test Result

Test Description	Test Specification		Test Result
Power Spectral Density	15.247(e)	RSS-247 S6.3.1(b)	Compliant

5.2 Test Method

Power spectral density measurements were recorded using the procedures from ANSI C63.10-2020 clause 11.10.5 (method AVGPSD-2) and KDB 558074 D01 Measurement Guidance v05r02.

Limit

The limit is 8 dBm.

5.3 Test Site

EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 22.7 °C

Relative Humidity: 43.7 %

Atmospheric Pressure: 98.4 kPa

5.4 Test Equipment

Test End Date: 26-Mar-2026

Tester: SGM

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-059	TELEDYNE STORM MICROWAVE	20109	3-Apr-2025	3-Apr-2026
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-138	TELEDYNE STORM MICROWAVE	20111	3-Apr-2025	3-Apr-2026
TSTPASS SWITCHBOX	SB2	TSTPASS	23009	4-Apr-2025	4-Apr-2026
SIGNAL ANALYZER	FSV30	ROHDE & SCHWARZ	123990	26-Jan-2026	26-Jan-2027

Software Profile: TSTPASS Version: 2.0.1

5.5 Test Data – 20MHz BW

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)				Verdict
			ANT1	ANT2	MIMO	Limit	
802.11b	SISO	2412	-5.48	-4.55	/	<=8	Pass
		2437	-4.97	-4.47	/	<=8	Pass
		2462	-4.53	-4.66	/	<=8	Pass
802.11g	SISO	2412	-9.91	-9.27	/	<=8	Pass
		2437	-5.90	-5.40	/	<=8	Pass
		2462	-9.22	-10.01	/	<=8	Pass
802.11n (HT20)	SISO	2412	-9.59	-9.05	/	<=8	Pass
		2437	-8.99	-8.12	/	<=8	Pass
		2462	-9.04	-9.17	/	<=8	Pass
	MIMO	2412	-10.14	-11.13	-7.61	<=8	Pass
		2437	-8.55	-6.84	-4.82	<=8	Pass
		2462	-10.13	-9.03	-6.67	<=8	Pass

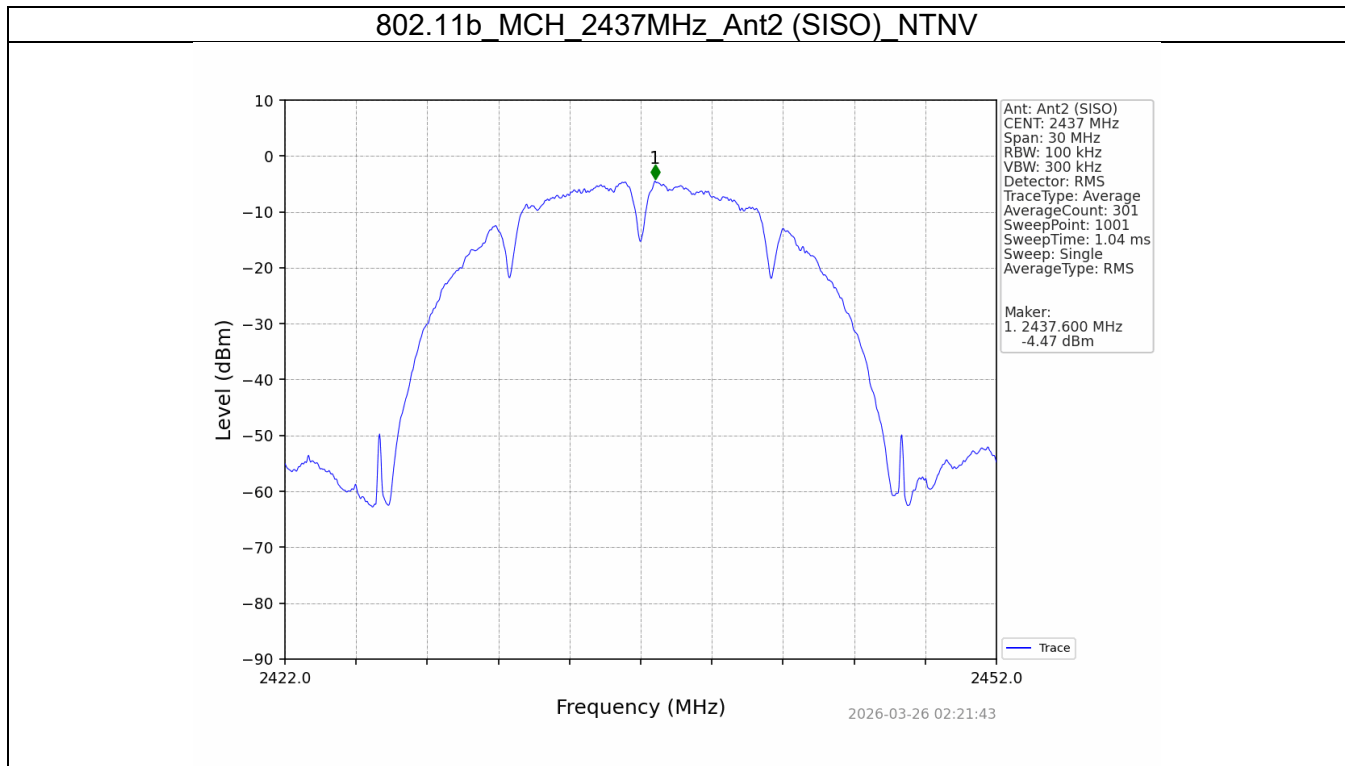
Note1: Antenna Gain: Ant1: 4.54dBi; Ant2: 4.54dBi;
 Note2: Directional Gain: Uncorrelated(Directional Gain = Ant Gain)

5.6 Test Data – 40MHz BW

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm)		Verdict
			ANT1	Limit	
802.11n (HT40)	SISO	2422	-13.18	<=8	Pass
		2437	-11.77	<=8	Pass
		2452	-13.55	<=8	Pass

Note1: Antenna Gain: Ant1: 4.54dBi;

Sample Plot



6 Conducted Spurious Emissions / Band Edge

6.1 Test Result

Test Description	Test Specification		Test Result
Conducted Spurious Emissions / Band Edge	15.247(d)	RSS-247 S6.6	Compliant

6.2 Test Method

Spurious emissions in non-restricted frequency bands were recorded using the methods defined in ANSI C63.10-2020 clause 11.11 and KDB 558074 D01 Measurement Guidance v05r02.

Lowest, middle, and highest channels were investigated.

Because the maximum conducted peak output power was used to determine compliance with the output power limits, the limit in any 100 kHz band outside of the authorized band is 20 dB below the maximum in-band peak level.

6.3 Test Site

Environmental Conditions

Temperature: 20.3 °C
 Relative Humidity: 33.6 %
 Atmospheric Pressure: 98.2 kPa

6.4 Test Equipment

Test End Date: 11-Apr-2023

Tester: DA

Equipment	Model	Manufacturer	Asset	Cal Date	Cal Due Date
SIGNAL ANALYZER (TS8997)	FSV30	ROHDE & SCHWARZ	B085749	7-Dec-2022	7-Dec-2023
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-059	TELEDYNE STORM MICROWAVE	20108	13-Mar-2023	13-Mar-2024
RF CABLE SMA TO SMA, 0.01-40GHZ	084-0505-059	TELEDYNE STORM MICROWAVE	20109	13-Mar-2023	13-Mar-2024
TSTPASS SWITCHBOX	SB2	TSTPASS	23009	CNR	CNR

Software Profile:

TSTPASS Version: 2.0

6.5 Test Data - SISO

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11b	SISO	2412	1	2.97	-17.03	Pass
		2437	1	2.97	-17.03	Pass
		2462	1	2.97	-17.03	Pass
802.11g	SISO	2412	1	0.92	-19.08	Pass
		2437	1	0.92	-19.08	Pass
		2462	1	0.92	-19.08	Pass
802.11n (HT20)	SISO	2412	1	-1.87	-21.87	Pass
		2437	1	-1.87	-21.87	Pass
		2462	1	-1.87	-21.87	Pass
802.11n (HT40)	SISO	2422	1	-5.13	-25.13	Pass
		2437	1	-5.13	-25.13	Pass
		2452	1	-5.13	-25.13	Pass

Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

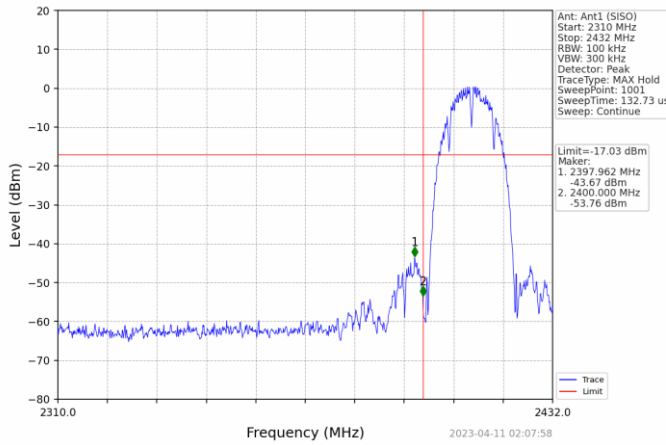
6.6 Test Data - MIMO

Mode	TX Type	Frequency (MHz)	ANT	Level of Reference (dBm)	Limit (dBm)	Verdict
802.11n (HT20)	MIMO	2412	1	-0.82	-20.82	Pass
			2	2.46	-17.54	Pass
		2437	1	-0.82	-20.82	Pass
			2	2.46	-17.54	Pass
		2462	1	-0.82	-20.82	Pass
			2	2.46	-17.54	Pass

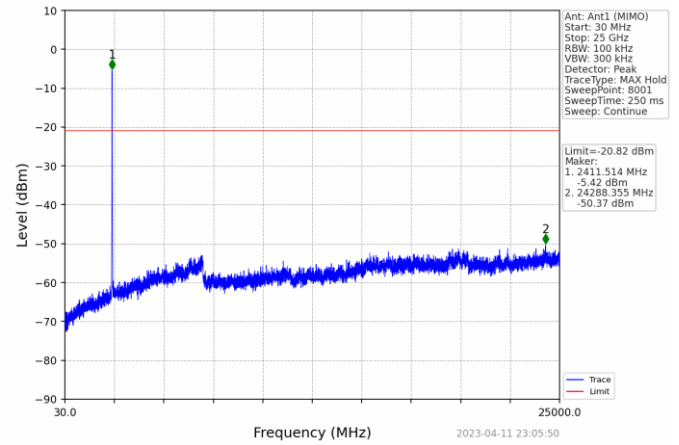
Note1: Refer to FCC Part 15.247 (d) and ANSI C63.10-2020, the channel contains the maximum PSD level was used to establish the reference level.

802.11b – (ANT1)

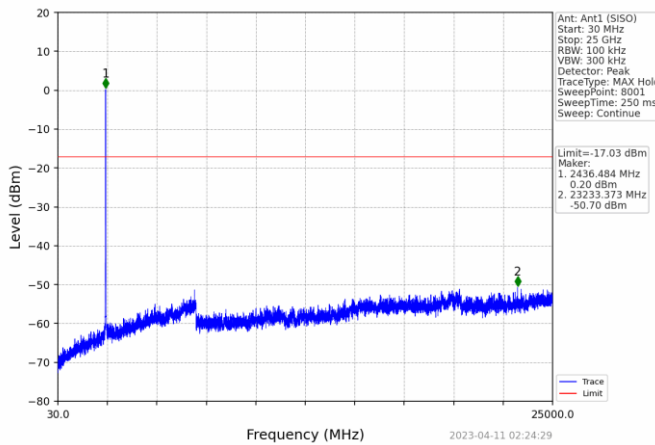
Lower Band Edge - Low Channel (2412MHz)



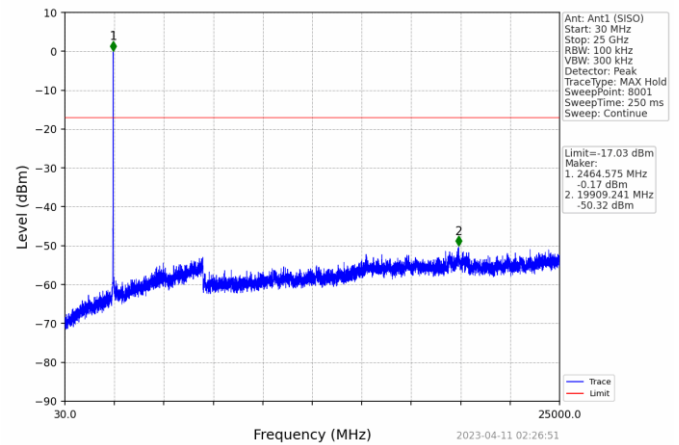
Full Spectrum - Low Channel (2412MHz)



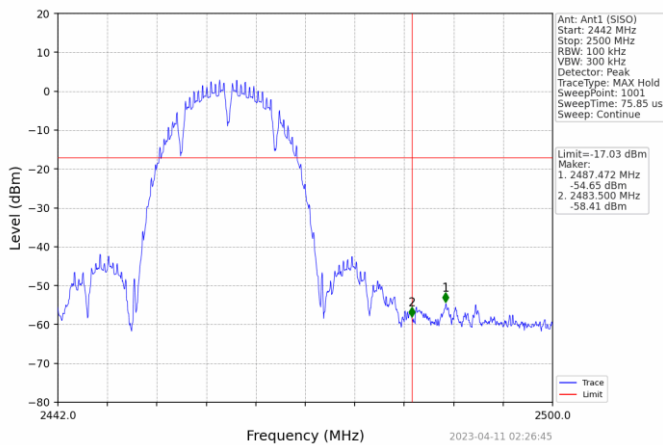
Full Spectrum - Mid Channel (2437MHz)



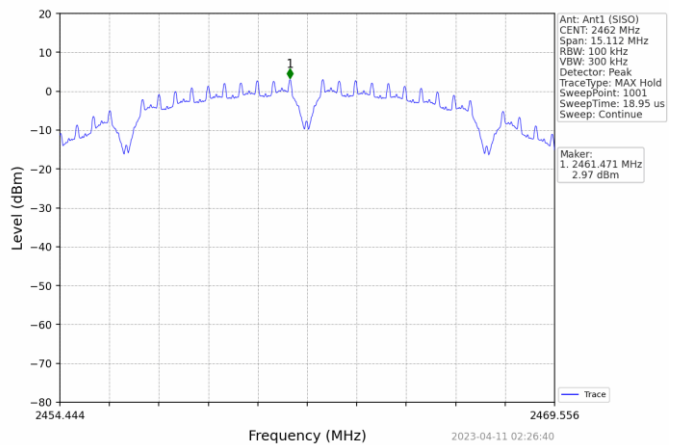
Full Spectrum - High Channel (2462MHz)



Upper Band Edge – High Channel (2462MHz)

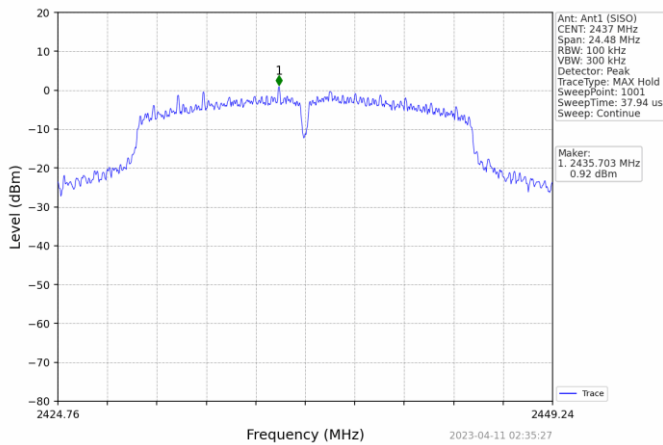


In-Band Reference – 2462MHz

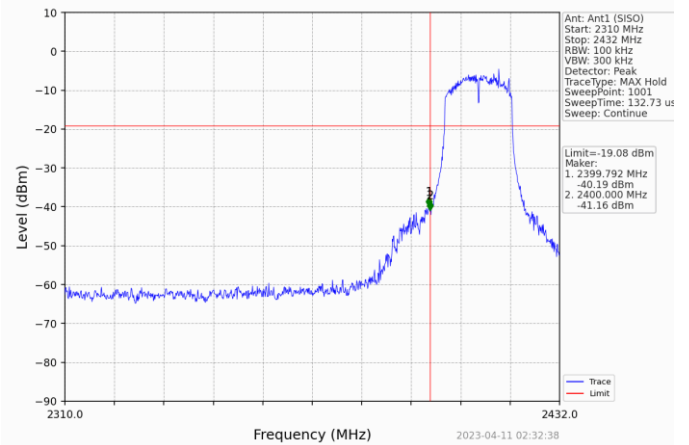


802.11g – (ANT1)

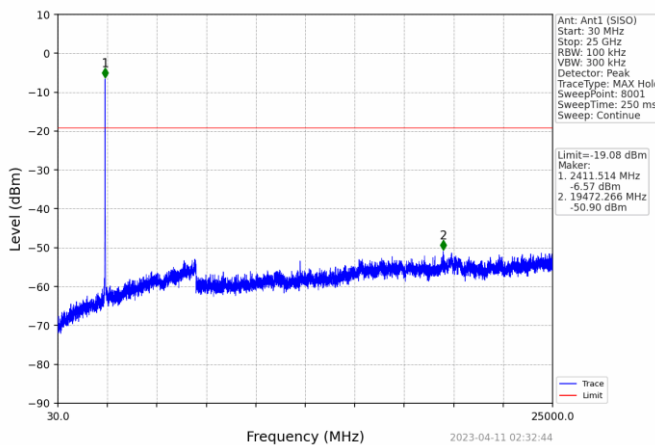
In-Band Reference – 2437MHz



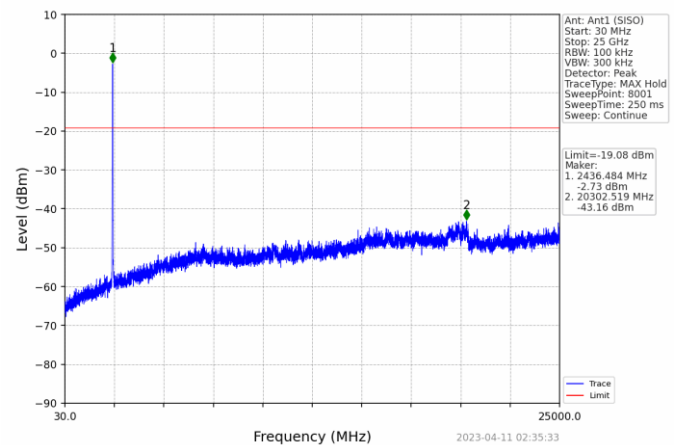
Lower Band Edge - Low Channel (2412MHz)



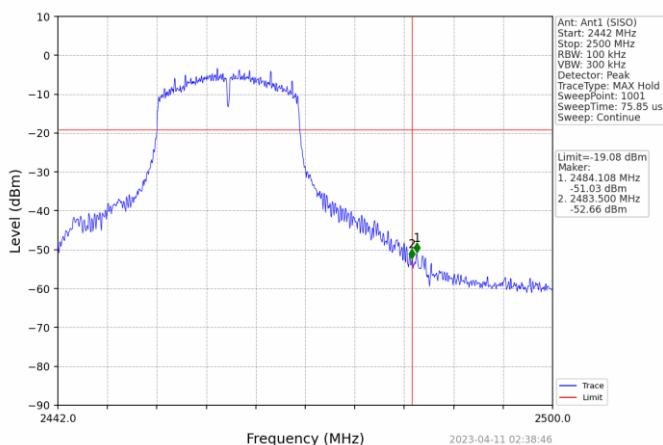
Full Spectrum - Low Channel (2412MHz)



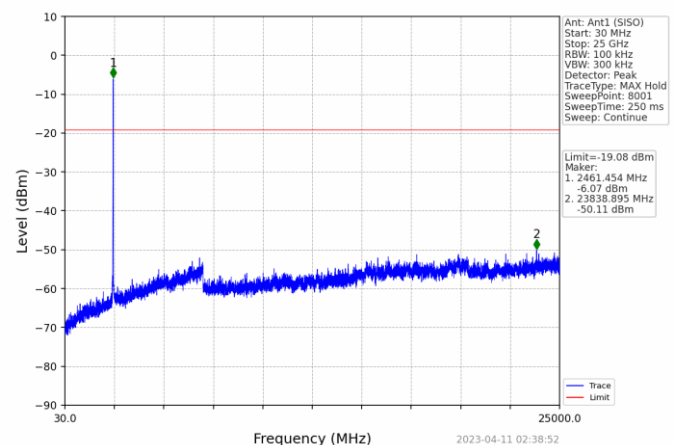
Full Spectrum - Mid Channel (2437MHz)



Upper Band Edge – High Channel (2462MHz)

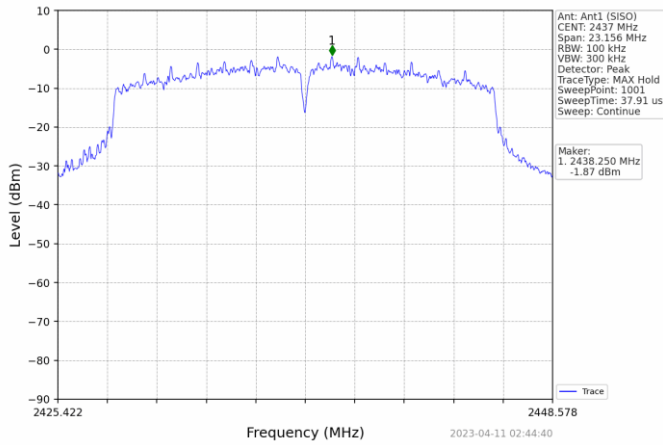


Full Spectrum - High Channel (2462MHz)

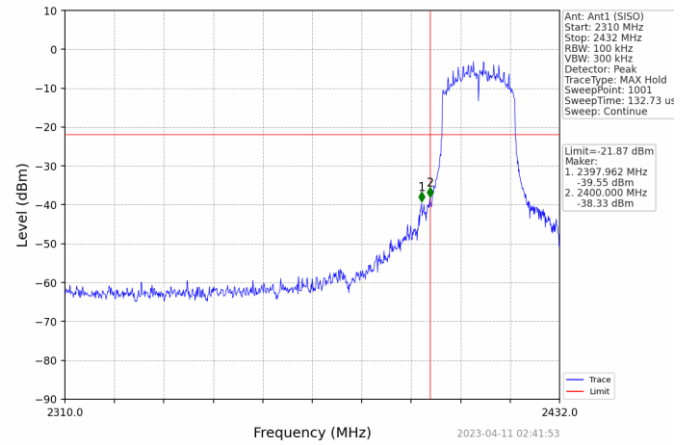


802.11n(HT20) – (ANT1)

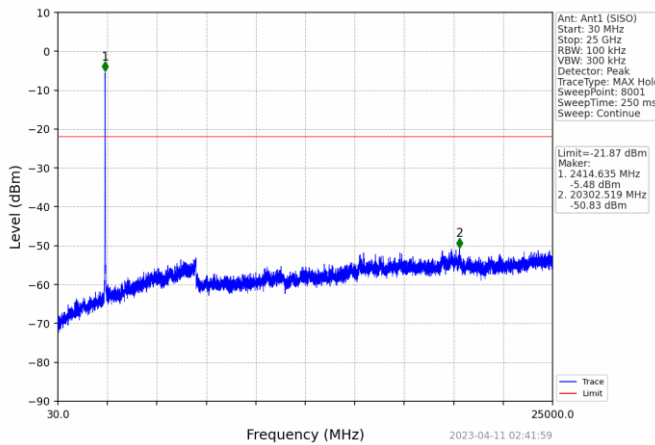
In-Band Reference – 2437MHz



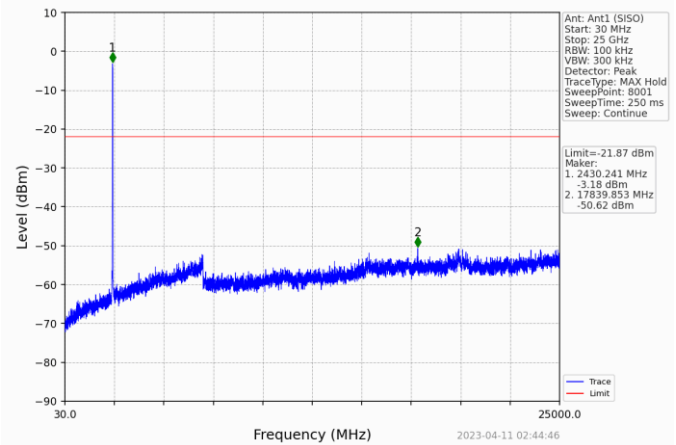
Lower Band Edge - Low Channel (2412MHz)



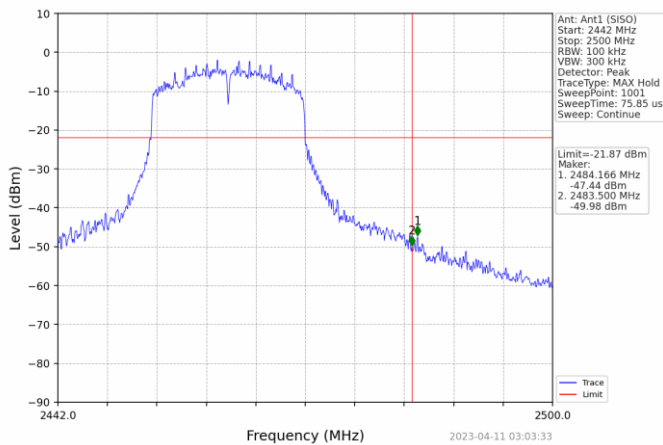
Full Spectrum - Low Channel (2412MHz)



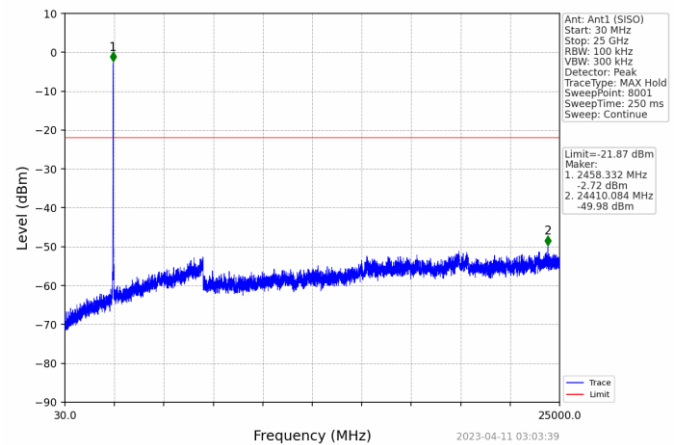
Full Spectrum - Mid Channel (2437MHz)



Upper Band Edge – High Channel (2462MHz)

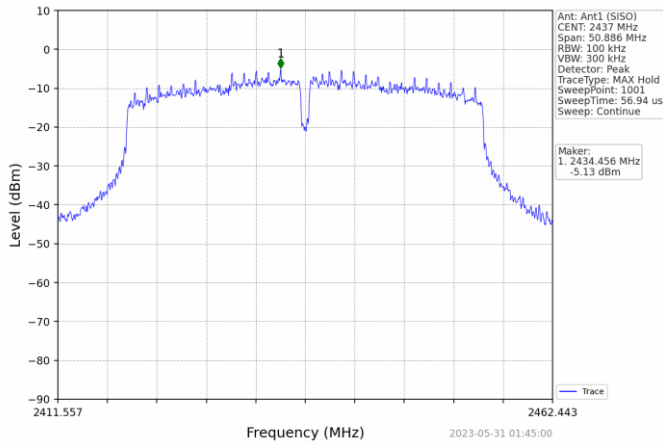


Full Spectrum - High Channel (2462MHz)

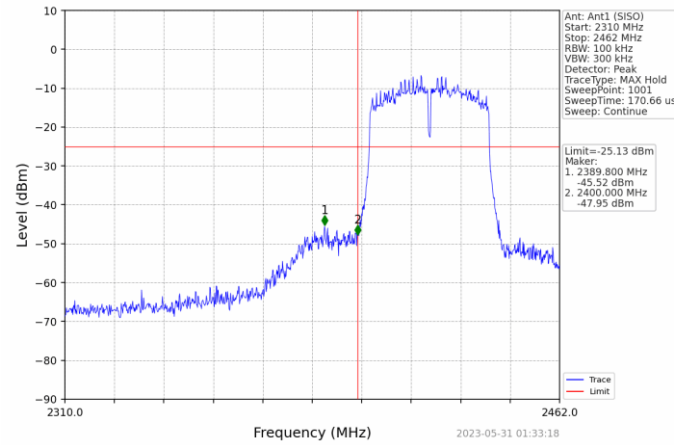


802.11n(HT40) – (ANT1)

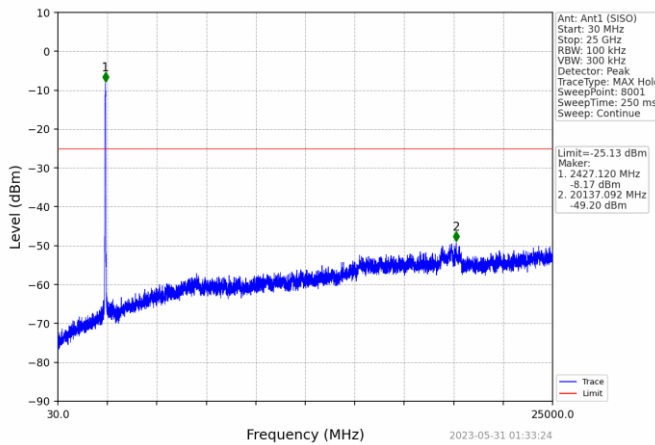
In-Band Reference – 2437MHz



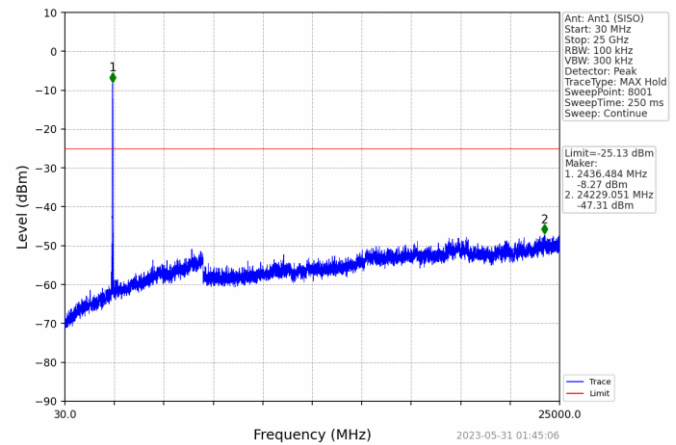
Lower Band Edge - Low Channel (2422MHz)



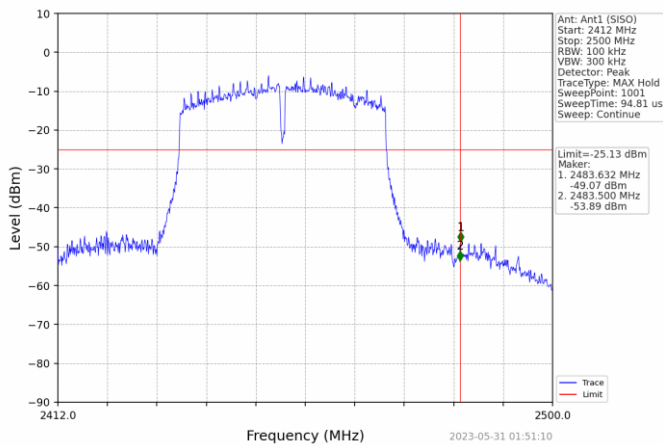
Full Spectrum - Low Channel (2422MHz)



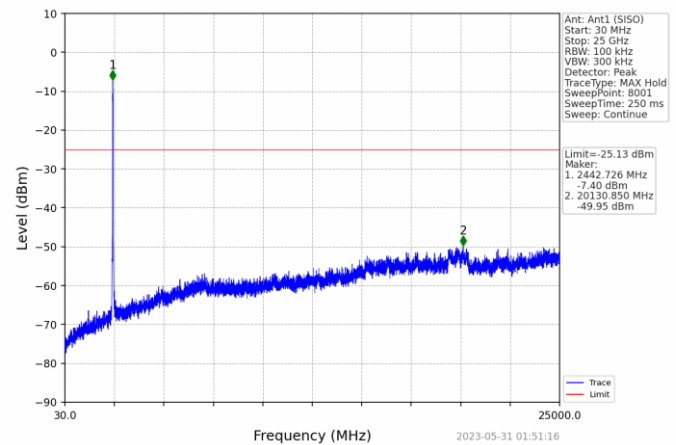
Full Spectrum - Mid Channel (2437MHz)



Upper Band Edge – High Channel (2452MHz)

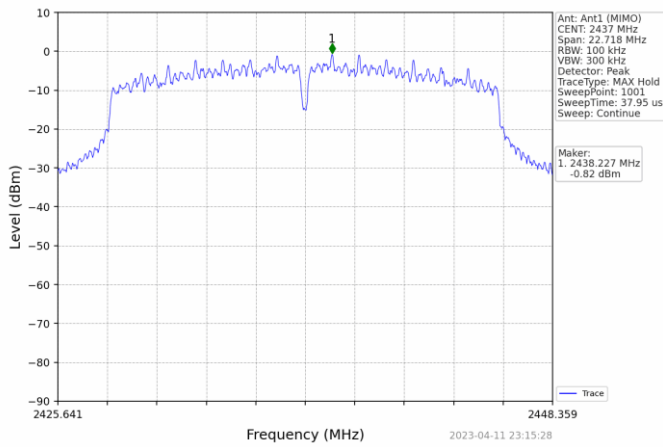


Full Spectrum - High Channel (2452MHz)

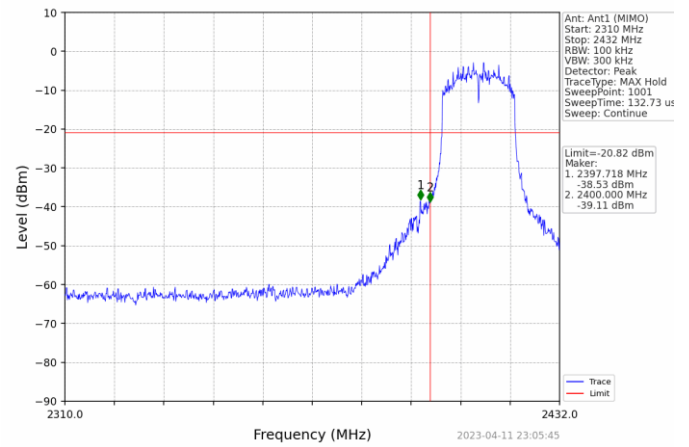


802.11n(HT20) – ANT1 + ANT2 (MIMO)

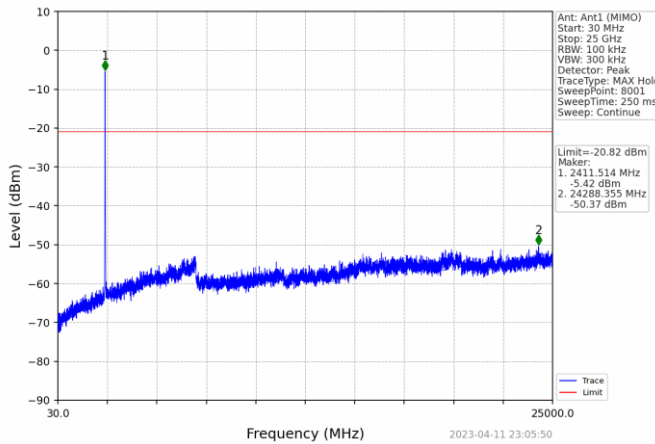
In-Band Reference – 2437MHz – Ant1



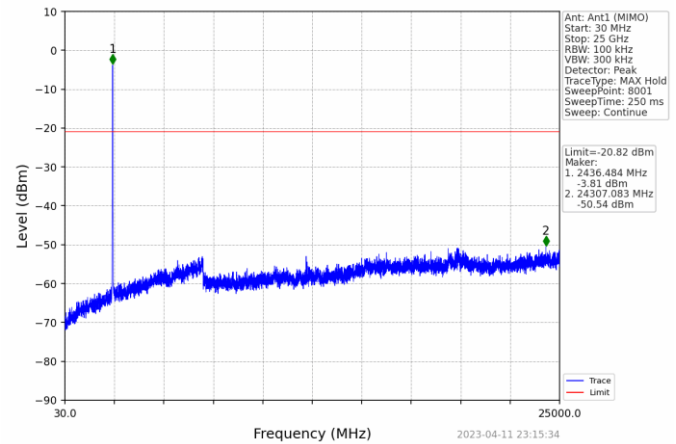
Lower Band Edge - LCH (2412MHz) – Ant1



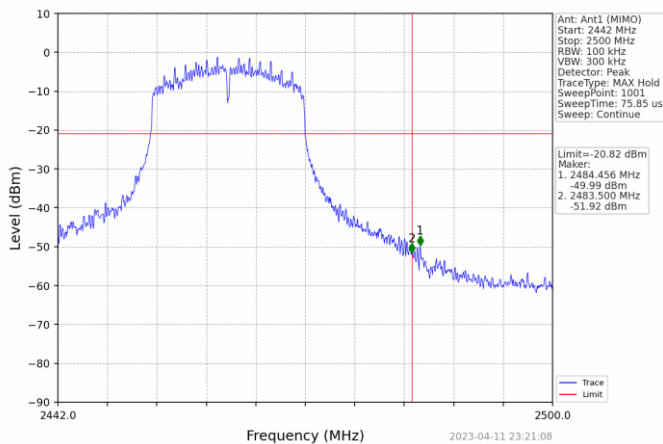
Full Spectrum - LCH (2412MHz) – Ant1



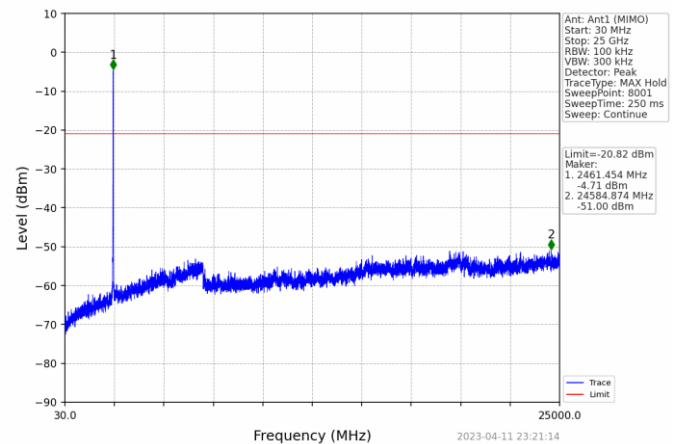
Full Spectrum – MCH (2437MHz) – Ant1



Upper Band Edge - HCH (2462MHz) – Ant1

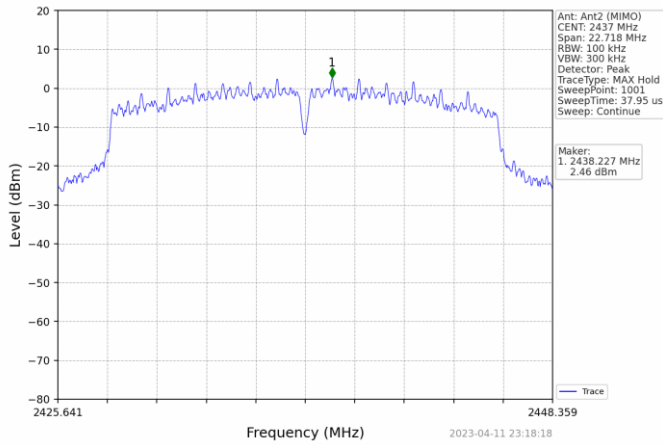


Full Spectrum – HCH (2462MHz) – Ant1

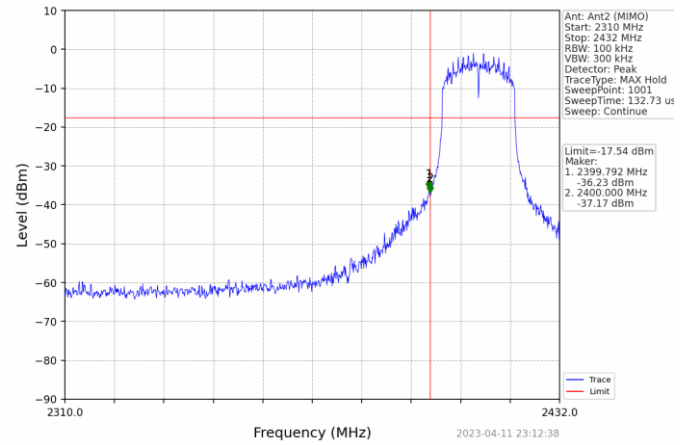


802.11n(HT20) – ANT2 + ANT1 (MIMO)

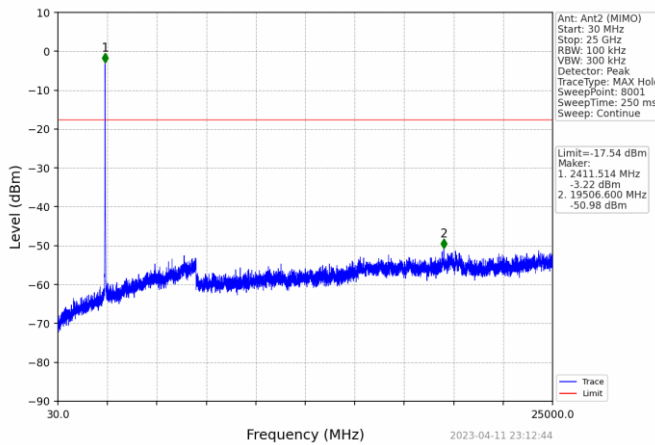
In-Band Reference - 2437MHz – Ant2



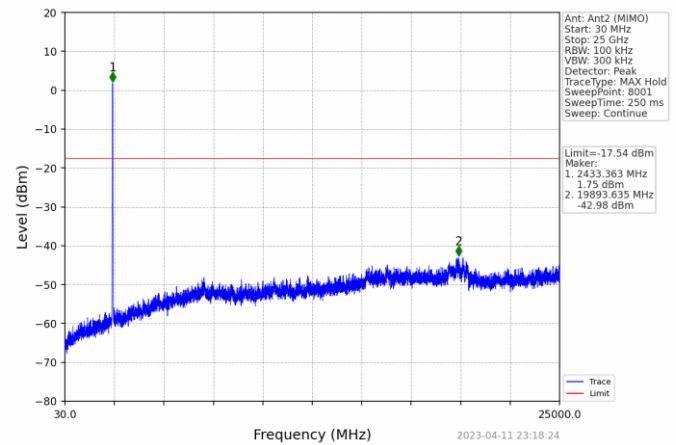
Lower Band Edge – LCH (2412MHz) – Ant2



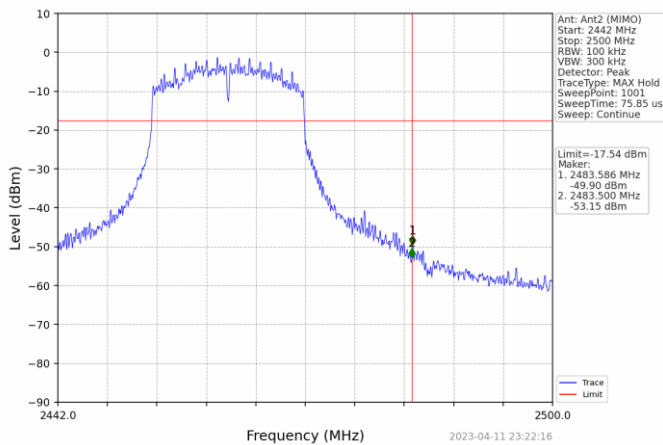
Full Spectrum - Low Channel (2412MHz) – Ant2



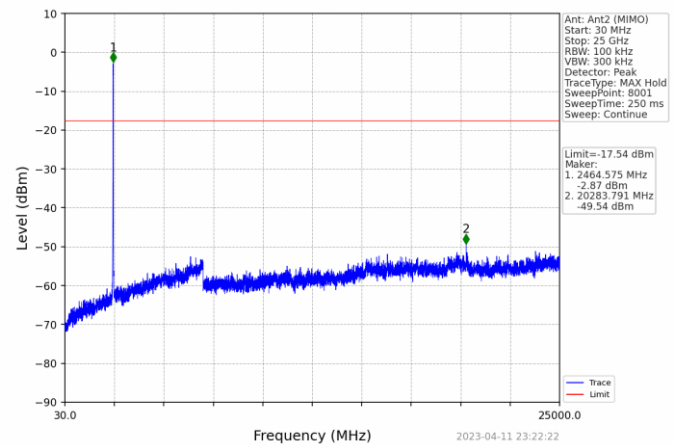
Full Spectrum - Mid Channel (2437MHz) – Ant2



Upper Band Edge – HCH (2462MHz) – Ant2



Full Spectrum - High Channel (2462MHz) – Ant2



7 Field Strength of Spurious Radiation (Restricted Bands)

7.1 Test Result

Test Description	Test Specification		Test Result
Radiated Spurious Emissions	15.247(d), 15.205, 15.209	RSS-GEN S8.9, S8.10	Compliant

7.2 Test Method

The measurement methods defined in ANSI C63.10-2020 clause 11.12 were used.

Lowest, middle, and highest channels were investigated – the device was commanded to continuously transmit on low, middle, and high channels.

Test distances for radiated tests:

9kHz to 30 MHz – The EUT to measurement antenna distance was 3 meters

30 to 1000 MHz – The EUT to measurement antenna distance was 3 meters

1 to 18 GHz – The EUT to measurement antenna distance was 3 meters

18 to 26 GHz – The EUT to measurement antenna distance was 1 meter

Limits within restricted bands of operation:

Frequency	Limits ⁽¹⁾		Peak Limits dBuV/m
	Microvolts/m	dBuV/m	
30 - 88 MHz	100	40 ⁽²⁾	--
88 - 216 MHz	150	43.5 ⁽²⁾	--
216 - 960 MHz	200	46 ⁽²⁾	--
960 - 1000 MHz	500	54 ⁽²⁾	--
1 - 40 GHz	500	54 ⁽³⁾	74

(1) These limits are applicable to emissions outside of the intentional transmit frequency band.

(2) Quasi-peak limit

(3) Average limit

7.3 Test Site

10m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions	9kHz-30MHz	30-1000MHz	1-18GHz	18-26GHz
Temperature:	22.51°C	24.48 °C	22.63 °C	24.16 °C
Relative Humidity:	25.3%	52.7 %	40.6 %	20.8 %
Atmospheric Pressure:	98.7kPa	98.1 kPa	98 kPa	98.9 kPa

7.4 Test Equipment

9kHz-30MHz

Test End Date: 17-Mar-2026

Tester: PL

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
ANTENNA, LOOP, ACTIVE	6502	ETS LINDGREN	B085752	24-Mar-2024	24-Mar-2026
N to N RF Cable	EM-B810NM-276	ECHOLON	24022	13-Nov-2025	13-Nov-2026
N-FEMALE TO N-MALE RF CABLE	EM-B810NMNF-118	ECHOLON	23010	4-Apr-2025	4-Apr-2026
RF CABLE NM TO NM, 0.01-18GHZ	90-195-118	TELEDYNE STORM MICROWAVE	20126	10-Feb-2026	10-Feb-2027
EMI TEST RECEIVER	ESU8	ROHDE & SCHWARZ	B085759	14-Nov-2025	14-Nov-2026

30-1000 MHz

Test End Date: 11-Mar-2026

Tester: SGM

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
ANTENNA, BILOG	JB6	SUNOL	B079690	19-Apr-2024	19-Apr-2026
N to N RF Cable	EM-B810NM-276PA	ECHOLON	25012	19-Sep-2025	19-Sep-2026
N to N RF Cable	EM-B810NM-276	ECHOLON	25013	19-Sep-2025	19-Sep-2026
RF CABLE	104PE	HUBER & SUHNER	B079793	8-Aug-2025	8-Aug-2026
N to N RF Cable	RF280-06SP-06SP-2000	SAMTEC	23013	5-May-2025	5-May-2026
LOW NOISE AMPLIFIER	ZKL-2+	MINI-CIRCUITS	B079817	6-Aug-2025	6-Aug-2026
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22032	18-Mar-2025	18-Mar-2026

1-18GHz

Test End Date: 12-Mar-2026

Tester: SGM

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
ANTENNA, DRG HORN (MEDIUM)	3117	ETS LINDGREN	B079699	23-Jul-2024	23-Jul-2026
N to N RF Cable	EM-B810NM-276PA	ECHOLON	25012	19-Sep-2025	19-Sep-2026
RF CABLE	SF106	HUBER & SUHNER	B085895	6-Aug-2025	6-Aug-2026
LOW NOISE AMPLIFIER	TS-PR18	ROHDE & SCHWARZ	B094463	3-Jul-2025	3-Jul-2026
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22032	18-Mar-2025	18-Mar-2026

18-26GHz

Test End Date: 18-Mar-2026

Tester: SGM

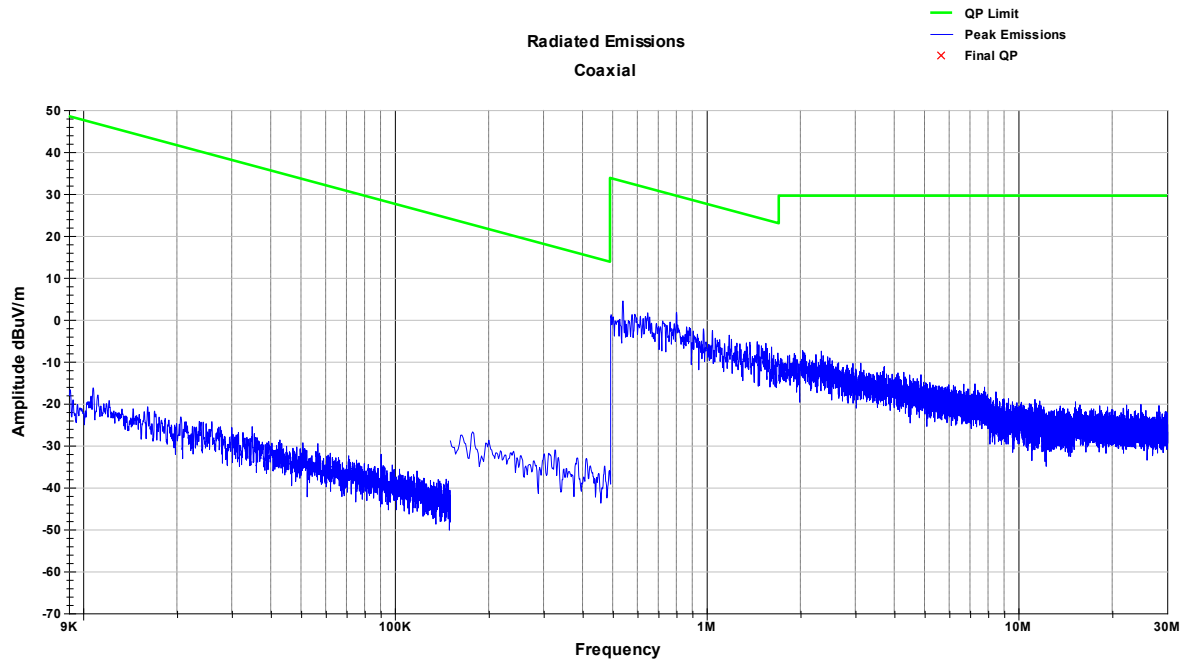
Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
ANTENNA, DRG HORN (SMALL)	3116B	ETS LINDGREN	B079697	2-Jul-2024	2-Jul-2026
SMA to SMA RF Cable	NC12-K1K1-138	MEGAPHASE	22002	3-Apr-2025	3-Apr-2026
RF CABLE SMA	HULL150A-29P-29P-36	HASCO COMPONENTS	19101	3-Apr-2025	3-Apr-2026
LOW NOISE AMPLIFIER	NSP1840-HG	MITEQ	B087572	10-Oct-2025	10-Oct-2026
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22032	18-Mar-2025	18-Mar-2026

Software Profile: "RSE 30-1000 MHz 260302 Maturo" TILE! profile dated 2 March 2022
 "RSE 1-26GHz 260302_Maturo" TILE! profile dated 2 March 2026

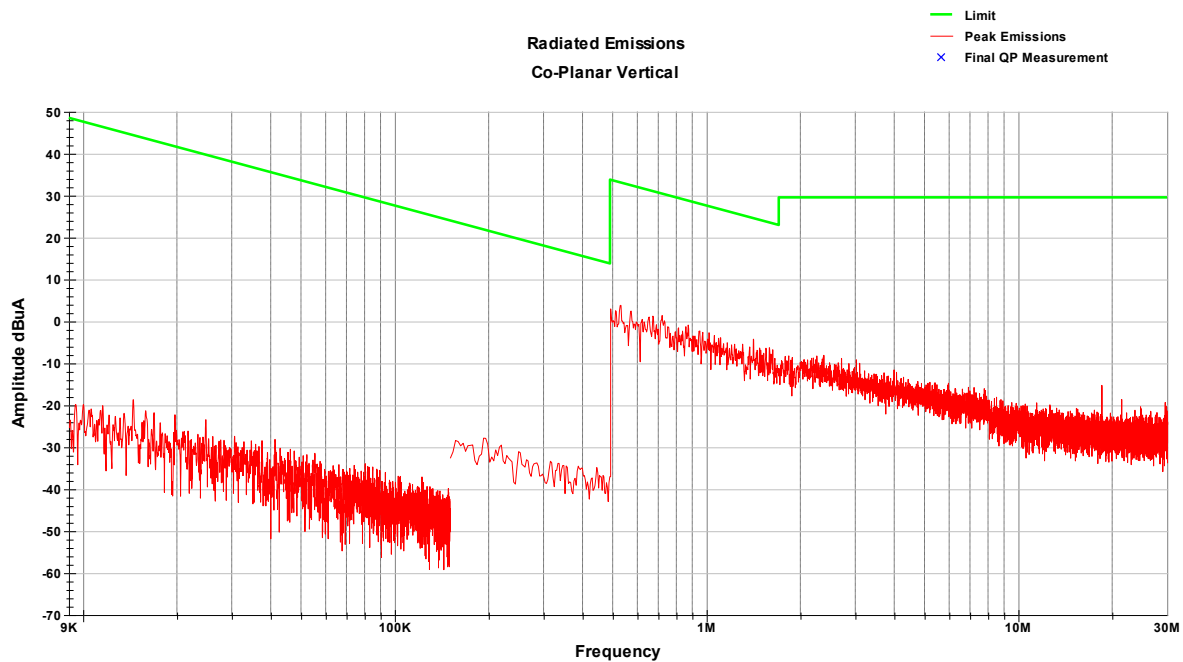
7.5 Test Data

In the 9kHz-30MHz range, there was little deviation with respect to axis, modulation or channel (worst case shown).

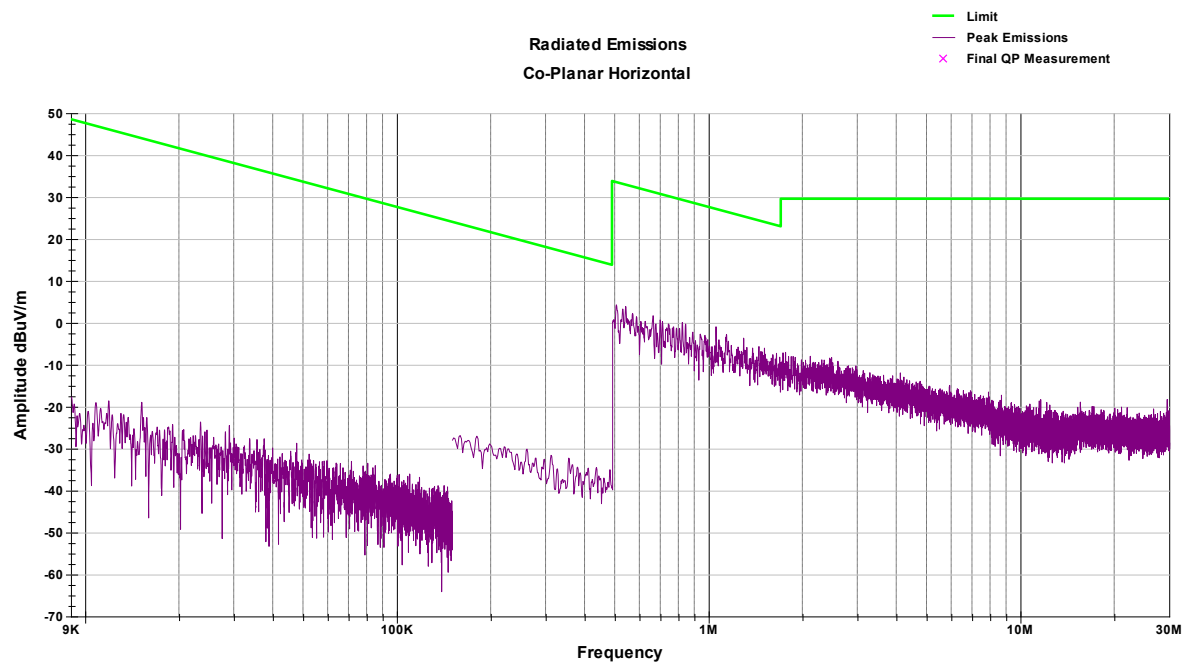
Coaxial Plot – 802.11n - Middle Channel (2442MHz)



Co-planar Vertical Plot – 802.11n - Middle Channel (2442MHz)



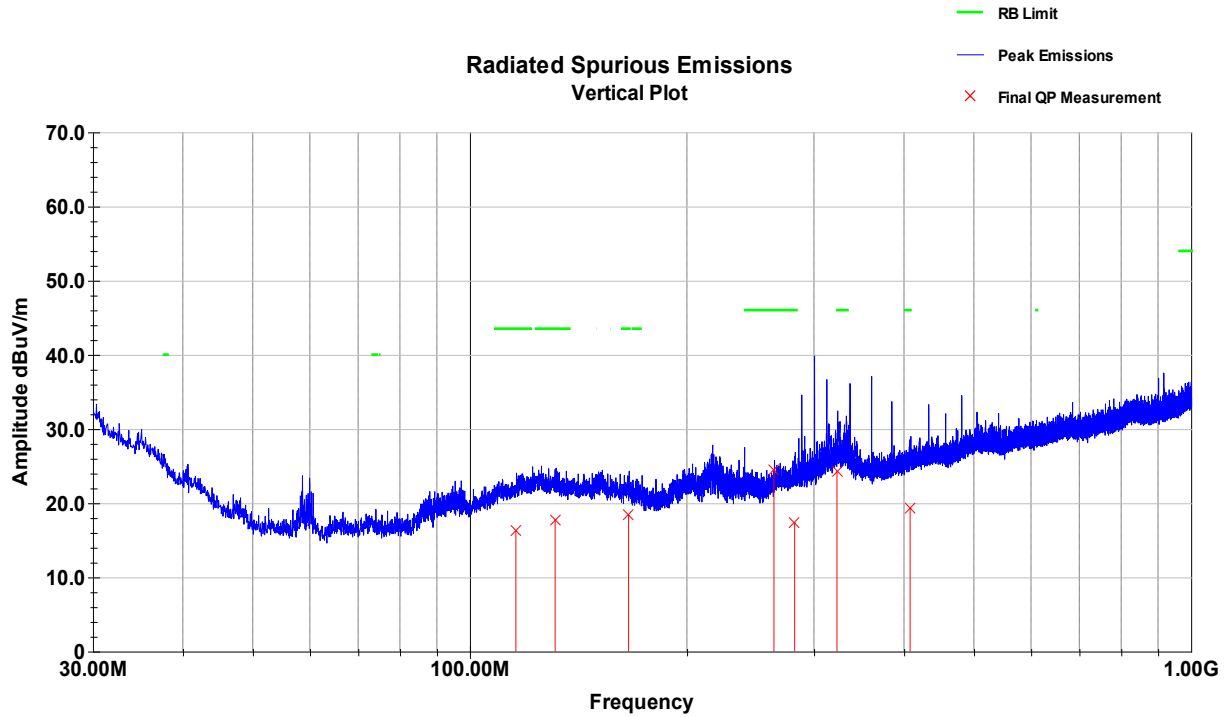
Co-planar Horizontal Plot – 802.11n - Middle Channel (2442MHz)



No emissions within 20dB of the limit

In the 30-1000MHz range there was little deviation with respect to axis, modulation or channel (worst case shown).

Vertical Polarity Plots – 802.11n - Middle Channel (2442MHz)

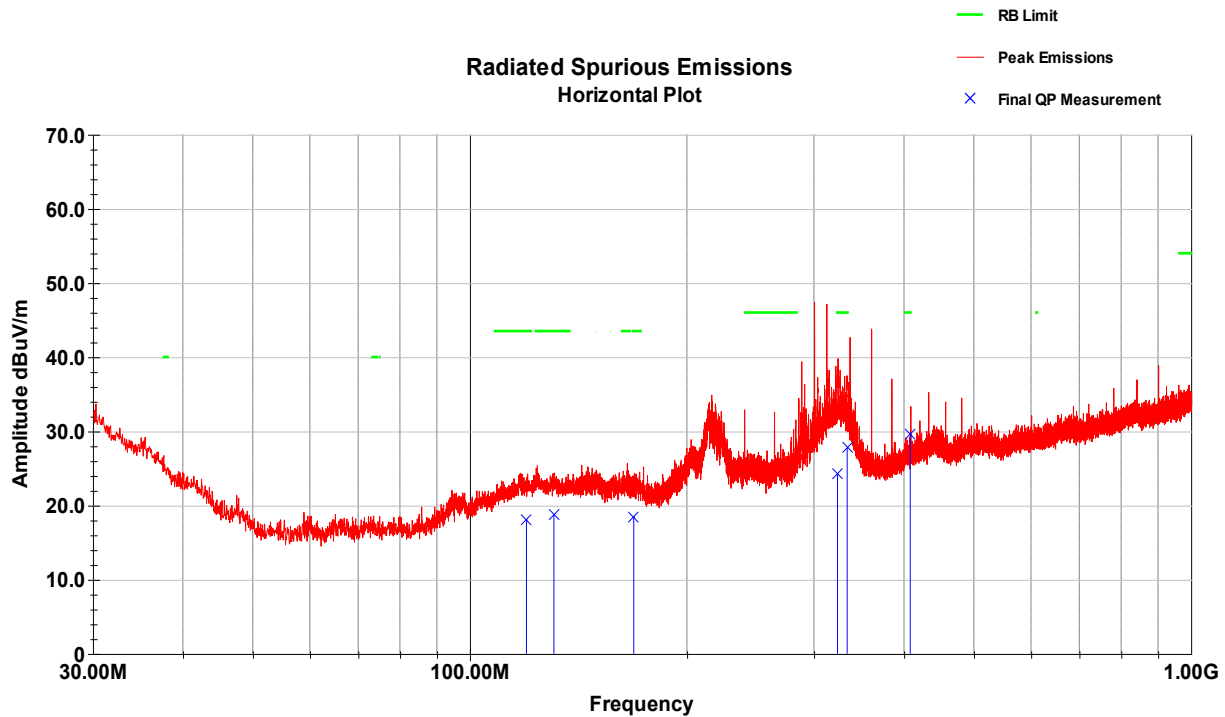


Vertical Polarity Data– 802.11n - Middle Channel (2442MHz)

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw QP dBuV/m	AF dB/m	Loss dB	DCF dB	Amp dB	Final QP dBuV/m	Limit dBuV/m	Margin dB
115.82	V	0.0	241.0	28.4	17.4	1.0	0.0	30.5	16.3	43.5	-27.2
131.32	V	87.0	127.0	29.5	17.8	1.0	0.0	30.5	17.8	43.5	-25.7
165.98	V	108.0	242.0	31.1	16.4	1.3	0.0	30.4	18.4	43.5	-25.1
264.01	V	207.0	218.0	35.6	17.4	1.6	0.0	30.3	24.4	46.0	-21.6
282.10	V	0.0	174.0	28.0	17.9	1.6	0.0	30.2	17.4	46.0	-28.7
322.93	V	256.0	129.0	34.0	18.7	1.7	0.0	30.2	24.3	46.0	-21.7
407.87	V	160.0	195.0	26.5	20.5	2.2	0.0	30.0	19.4	46.0	-26.7
Final Pk = Raw Pk + AF + Loss + DCF - Amp											

Margin = Final Pk - Limit

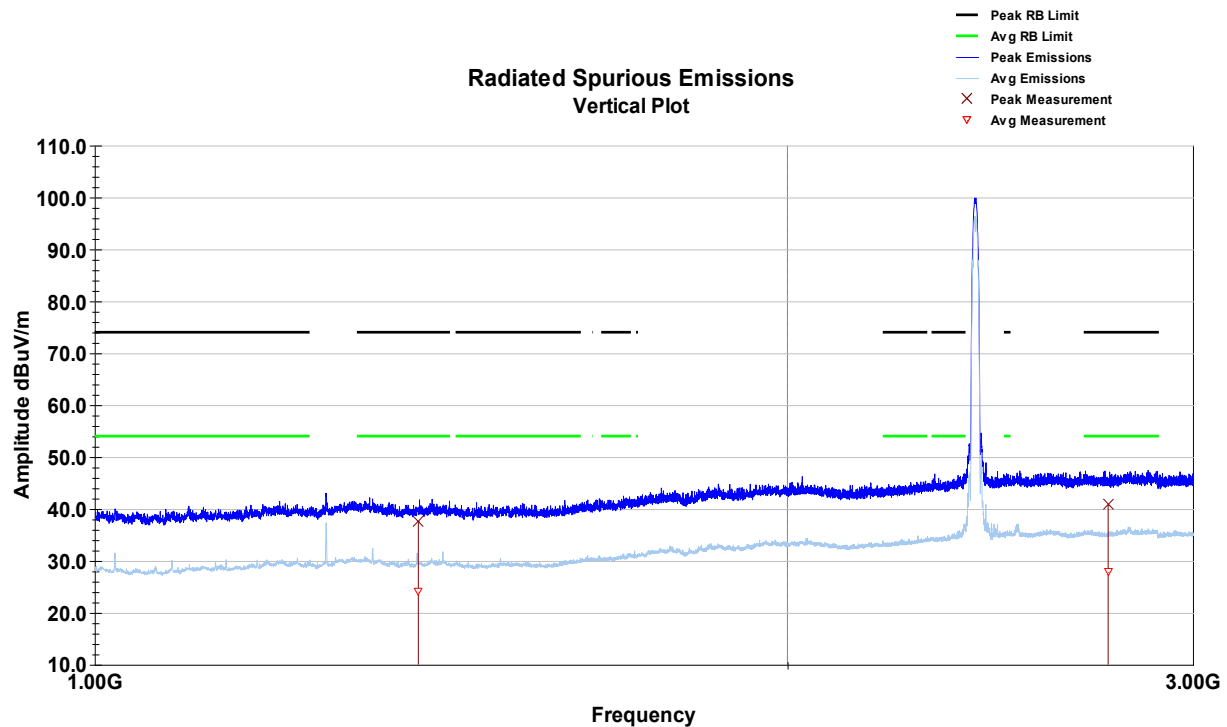
Horizontal Polarity Plot– 802.11n - Middle Channel (2442MHz)



Horizontal Polarity Data– 802.11n - Middle Channel (2442MHz)

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw QP dBuV/m	AF dB/m	Loss dB	DCF dB	Amp dB	Final QP dBuV/m	Limit dBuV/m	Margin dB
119.82	H	359.0	373.0	29.9	17.7	1.0	0.0	30.5	18.1	43.5	-25.4
130.77	H	359.0	400.0	30.5	17.8	1.0	0.0	30.5	18.8	43.5	-24.7
168.77	H	359.0	305.0	31.4	16.2	1.3	0.0	30.4	18.5	43.5	-25.0
323.42	H	359.0	120.0	34.0	18.7	1.7	0.0	30.2	24.3	46.0	-21.7
333.58	H	359.0	100.0	37.3	18.8	1.8	0.0	30.2	27.8	46.0	-18.2
408.01	H	359.0	100.0	36.8	20.5	2.2	0.0	30.0	29.6	46.0	-16.4
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Vertical Radiated Spurious Emissions Plot – 1-3GHz (802.11b LCH)



Vertical Radiated Spurious Emissions Data – 1-3GHz (802.11b LCH)

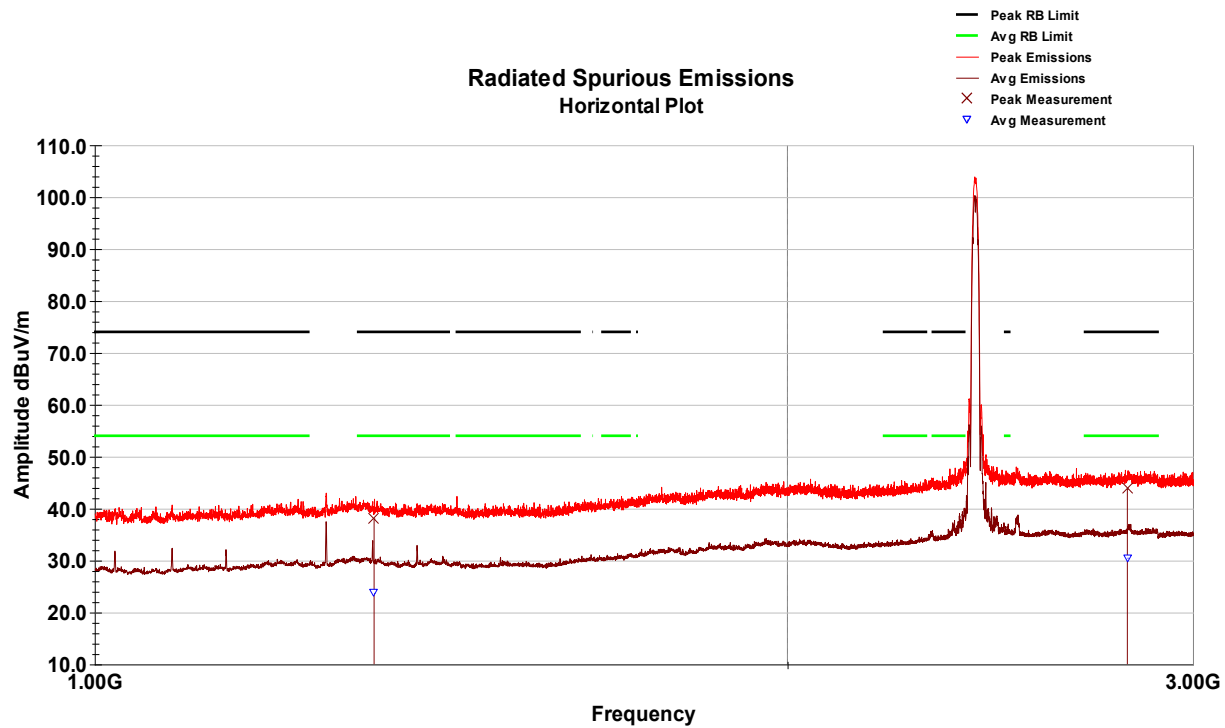
Peak

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Pk dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Pk dBuV/m	Limit dBuV/m	Margin dB
1382.48	V	358.0	273.0	42.6	28.3	1.3	0.0	34.5	37.7	74.0	-36.3
2756.44	V	108.0	113.0	41.3	32.1	1.9	0.0	34.5	40.8	74.0	-33.2
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Average

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Avg dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Avg dBuV/m	Limit dBuV/m	Margin dB
1382.48	V	358.0	273.0	29.0	28.3	1.3	0.0	34.5	24.0	54.0	-29.9
2756.44	V	108.0	113.0	28.3	32.1	1.9	0.0	34.5	27.8	54.0	-26.2
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

Horizontal Radiated Spurious Emissions Plot – 1-3GHz (802.11b LCH)



Horizontal Radiated Spurious Emissions Data – 1-3GHz (802.11b LCH)

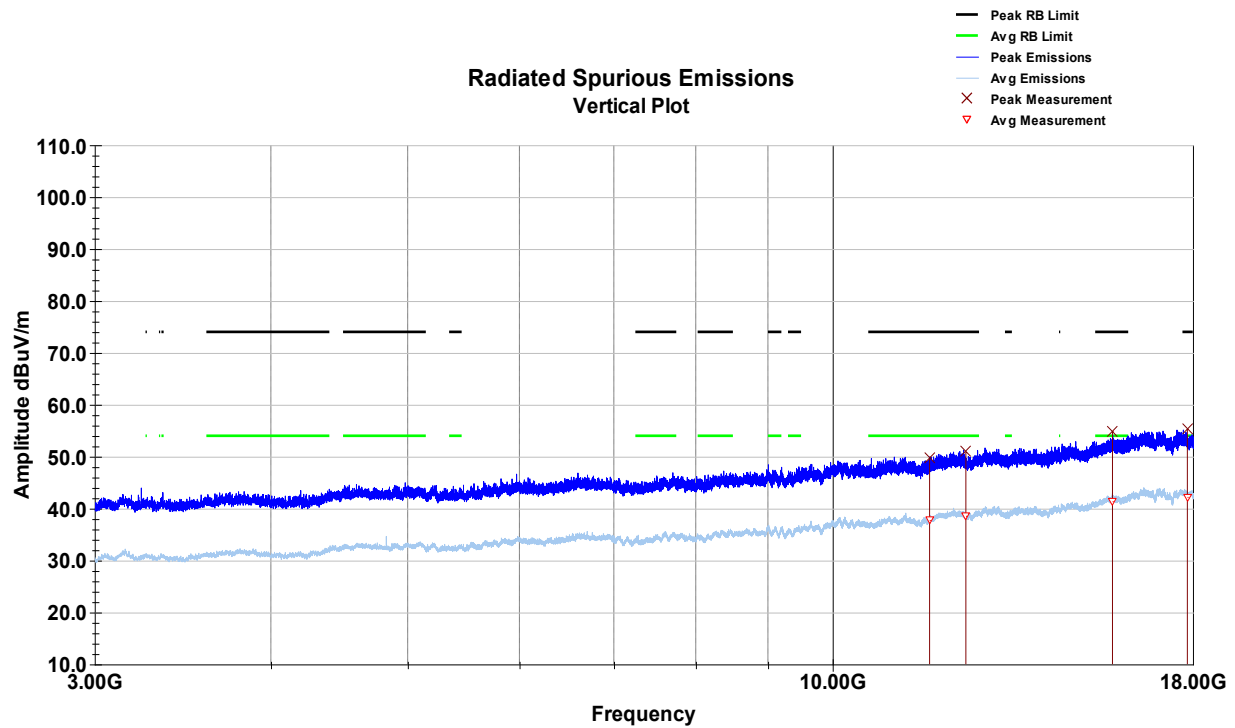
Peak

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Pk dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Pk dBuV/m	Limit dBuV/m	Margin dB
1322.58	H	0.0	105.0	42.5	28.9	1.3	0.0	34.6	38.1	74.0	-35.9
2809.92	H	0.0	150.0	43.9	32.2	1.9	0.0	34.2	43.8	74.0	-30.2
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Average

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Avg dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Avg dBuV/m	Limit dBuV/m	Margin dB
1322.58	H	0.0	105.0	28.2	28.9	1.3	0.0	34.6	23.8	54.0	-30.2
2809.92	H	0.0	150.0	30.6	32.2	1.9	0.0	34.2	30.5	54.0	-23.5
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b LCH)



Vertical Radiated Spurious Emissions Plot – 3-18GHz (802.11b LCH)

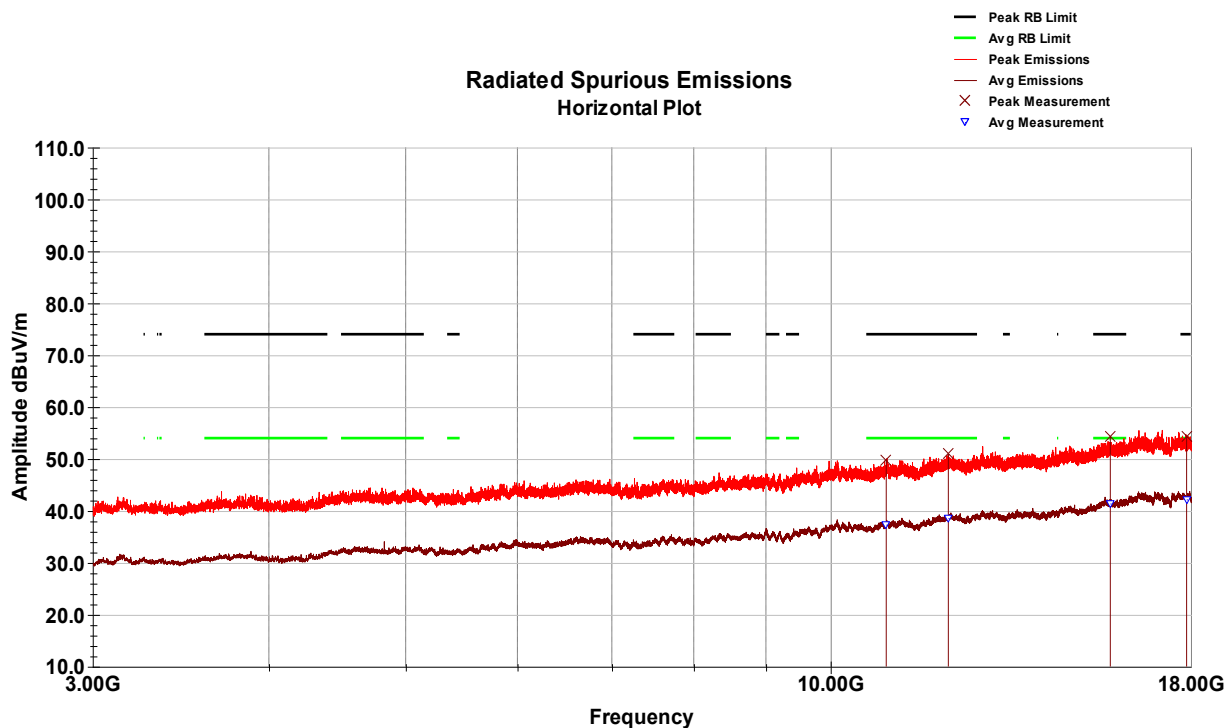
Peak

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Pk dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Pk dBuV/m	Limit dBuV/m	Margin dB
11717.05	V	180.0	135.0	43.3	38.7	3.4	0.0	35.7	49.8	74.0	-24.2
12431.69	V	177.0	125.0	43.9	39.1	3.7	0.0	35.8	50.9	74.0	-23.1
15790.82	V	244.0	205.0	45.9	40.7	4.4	0.0	36.1	54.9	74.0	-19.1
17842.31	V	41.0	326.0	45.9	41.3	4.8	0.0	36.7	55.3	74.0	-18.7
				Final Pk = Raw Pk + AF + Loss + DCF - Amp							
				Margin = Final Pk - Limit							

Average

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Avg dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Avg dBuV/m	Limit dBuV/m	Margin dB
11717.05	V	180.0	135.0	31.4	38.7	3.4	0.0	35.7	37.8	54.0	-16.2
12431.69	V	177.0	125.0	31.6	39.1	3.7	0.0	35.8	38.6	54.0	-15.4
15790.82	V	244.0	205.0	32.4	40.7	4.4	0.0	36.1	41.4	54.0	-12.5
17842.31	V	41.0	326.0	32.8	41.3	4.8	0.0	36.7	42.3	54.0	-11.7
				Final Avg = Raw Avg + AF + Loss + DCF - Amp							
				Margin = Final Avg - Limit							

Horizontal Radiated Spurious Emissions Plot – 3-18GHz (802.11b LCH)



Horizontal Radiated Spurious Emissions Data – 3-18GHz (802.11b LCH)

Peak

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Pk dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Pk dBuV/m	Limit dBuV/m	Margin dB
10952.45	H	313.0	400.0	43.3	38.0	3.7	0.0	35.1	49.8	74.0	-24.2
12119.80	H	62.0	174.0	44.1	39.0	3.7	0.0	35.9	50.9	74.0	-23.1
15783.80	H	0.0	235.0	45.3	40.7	4.4	0.0	36.1	54.3	74.0	-19.7
17877.24	H	0.0	115.0	44.9	41.3	4.8	0.0	36.8	54.3	74.0	-19.7
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Average

Frequency MHz	Polarity V/H	Azimuth degrees	Height cm	Raw Avg dBuV	AF dB/m	Loss dB	DCF dB	Amp dB	Final Avg dBuV/m	Limit dBuV/m	Margin dB
10952.45	H	313.0	400.0	30.8	38.0	3.7	0.0	35.1	37.4	54.0	-16.6
12119.80	H	62.0	174.0	31.8	39.0	3.7	0.0	35.9	38.6	54.0	-15.3
15783.80	H	0.0	235.0	32.4	40.7	4.4	0.0	36.1	41.4	54.0	-12.5
17877.24	H	0.0	115.0	32.9	41.3	4.8	0.0	36.8	42.2	54.0	-11.8
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											