

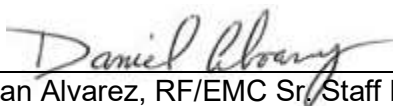
RF Test Report

Project Number: 5214055**Offer Number: SUW-202408006976****Report Number: 5214055EMC04****Revision Level: 5****Client: Alarm.com Incorporated****Equipment Under Test: Alarm.com 4MP Indoor/Outdoor Spotlight Battery Camera****Model Number: ADC-V731B****FCC ID: YL6-143V731B****IC ID: 9111A-143V731B****Applicable Standards: ANSI C63.10: 2020 (FCC Part 15 Subpart C, § 15.407)****RSS-247, Issue 3****RSS-GEN Issue 5****Report issued on: 29 May 2025****Report revised on: 21 July 2025****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.

Prepared by:


Dan Alvarez, RF/EMC Sr. Staff Engineer

Reviewed by:


Martin Taylor, Project Engineer

Remarks: This document is issued by the Company subject to its General Conditions of Service printed overleaf, available on request or accessible at <http://www.sgs.com/en/Terms-and-Conditions.aspx>. And for electronic format documents, subject to Terms and Conditions for Electronic Documents at <http://www.sgs.com/en/Terms-and-Conditions/terms-e-document.aspx>.

Attention is drawn to the limitation of liability, indemnification and jurisdiction issues defined therein. Any holder of this document is advised that information contained hereon reflects the Company's findings at the time of its intervention only and within the limits of Client's instructions, if any. The Company's sole responsibility is to its Client and this document does not exonerate parties to a transaction from exercising all their rights and obligations under the transaction documents. This document cannot be reproduced except in full, without prior written approval of the Company. Any unauthorized alteration, forgery or falsification of the content or appearance of this document is unlawful and offenders may be prosecuted to the fullest extent of the law. Unless otherwise stated the results shown in this test report refer only to the sample(s) tested and such sample(s) are retained for a maximum of 30 days only.

Table of Contents

1	SUMMARY OF TEST RESULTS	4
1.1	MODIFICATIONS REQUIRED FOR COMPLIANCE	4
2	GENERAL INFORMATION.....	5
2.1	CLIENT INFORMATION	5
2.2	TEST LABORATORY	5
2.3	GENERAL INFORMATION OF EUT	5
2.4	OPERATING MODES AND CONDITIONS	6
2.5	EUT CONNECTION BLOCK DIAGRAM – CONDUCTED MEASUREMENTS.....	6
2.6	EUT CONNECTION BLOCK DIAGRAM – RADIATED MEASUREMENTS	6
2.7	SYSTEM CONFIGURATIONS	6
2.8	CABLE LIST	6
3	DUTY CYCLE.....	7
3.1	TEST RESULT.....	7
3.2	TEST METHOD.....	7
3.3	TEST SITE.....	7
3.4	TEST EQUIPMENT	7
3.5	TEST DATA.....	8
4	BANDWIDTH	10
4.1	TEST RESULT.....	10
4.2	TEST METHOD.....	10
4.3	TEST SITE.....	10
4.4	TEST EQUIPMENT	10
4.5	TEST DATA - 99%OBW	11
5	PEAK OUTPUT POWER	20
5.1	TEST RESULT.....	20
5.2	TEST METHOD.....	20
5.3	TEST SITE.....	20
5.4	TEST EQUIPMENT	20
5.5	TEST DATA.....	21
6	POWER SPECTRAL DENSITY	25
6.1	TEST RESULT.....	25
6.2	TEST METHOD.....	25
6.3	TEST SITE.....	26
6.4	TEST EQUIPMENT	26
6.5	TEST DATA.....	26
6.6	UNDESIRABLE EMISSIONS	29
6.7	TEST RESULT.....	29
6.8	TEST METHOD.....	29
6.9	TEST SITE.....	30
6.10	TEST EQUIPMENT	31
6.11	TEST DATA.....	33
7	EMISSIONS IN RESTRICTED FREQUENCY BANDS AND UNWANTED EMISSIONS.....	92
7.1	TEST RESULT.....	92
7.2	TEST METHOD.....	92
7.3	TEST SITE.....	92
7.4	TEST EQUIPMENT	92
7.5	TEST DATA – BAND EDGE	93

8	DYNAMIC FREQUENCY SELECTION TECHNICAL REQUIREMENTS	123
8.1	APPLICABILITY	123
8.2	TEST REQUIREMENTS FOR CLIENT DEVICES.....	124
8.3	RADAR TEST WAVEFORMS.....	125
8.4	TEST PROCEDURES	126
8.5	TEST EQUIPMENT	127
8.6	TEST SITE	127
8.7	DFS SETUP DIAGRAM	128
8.8	DFS CAL LEVEL.....	129
8.9	MOVE TIME AND AGGREGATE TIME	140
9	ANTENNA REQUIREMENT.....	142
9.1	RESULT.....	142
9.2	REQUIREMENT.....	142
9.3	CONCLUSION	142
10	MEASUREMENT UNCERTAINTY	143
11	REVISION HISTORY.....	143

1 Summary of Test Results

Test Description	FCC	ISED	Test Result
Duty Cycle	ANSI C63.10	RSS-247	Reported
Bandwidth	15.407 (a) (1) (2) (3)	RSS-247 S5.2 (a) RSS-GEN S6.6	Compliant
Peak Output Power	15.407 (a) (1) (2) (3)	RSS-247 S5.4 (c) / S6.2	Compliant
Power Spectral Density	15.407 (a) (1) (2) (3)	RSS-247 S5.2 (b)	Compliant
Conducted Spurious Emissions / Band Edge	15.407 (e)	RSS-247 S5.5 / S6.2	Compliant
Field Strength of Spurious Radiation	15.407 (b) / 15.209	RSS-247 S5.5 / S6.2	Compliant
Emissions in Restricted Frequency Bands & Unwanted Bands	15.407 (b) / 15.205, 15.209	RSS-GEN S8.9, S8.10 / RSS-247 S6.2	Compliant
Dynamic Frequency Selection	15.407; 905462 D02 UNII DFS Compliance Procedures New Rules v02	RSS-247 S6.3; FCC KDB Procedure 905462 or the DFS test procedure in the ETSI EN 301 893	Compliant
Antenna Requirement	15.203	RSS-GEN S8.3	Compliant
AC Powerline Conducted Emissions	15.407 (b) (9) / 15.207	RSS-GEN S8.8	N/A ⁽¹⁾

1) Product is battery powered. Conducted Emissions is not applicable.

1.1 Modifications Required for Compliance

None

2 General Information

2.1 Client Information

Name: Alarm.com Incorporated
Address: 8281 Greensboro Drive, Suite 100
City, State, Zip, Country: Tysons, VA 22102, USA

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

2.3 General Information of EUT

Product Marketing Name (PMN): Alarm.com 4MP Indoor/Outdoor Spotlight Battery Camera
Model Number (HVIN): ADC-V731B
Firmware Version ID (FVIN): v0.0.22-v731b-20240927-dev
Serial Number: 50407410F2F1 (Conducted Sample); 50407410F2B2 (Radiated Sample)

Frequency Range: 5180 – 5825 MHz

Data Modes: **Supported standards and data rate**

		5GHz
Standards	PHY	20MHz
802.11b	DSSS/CCK	x
802.11a	OFDM	6Mbps ~ 54Mbps
802.11g	OFDM	x
802.11n	HT	MCS0 ~ MCS7
802.11ac	VHT	MCS0 ~ MCS8

****Only supports 20MHz**

Antenna:

5GHz	Frequency(MHz)	5150	5550	5850
Ant.1	Peak Gain(dBi)	3.2	2.3	4.0
	Efficiency(%)	60	59	63
Ant.2	Peak Gain(dBi)	3.8	2.9	3.8
	Efficiency(%)	61	59	65

Rated Voltage: Battery (3.6 VDC)

Test Voltage: Battery (3.6 VDC)

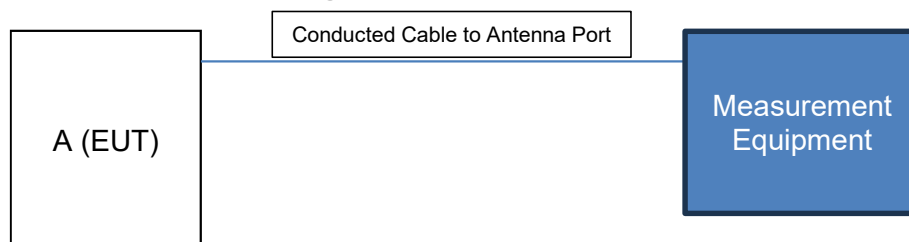
Sample Received Date: 21 October 2024

Dates of testing: 28 October 2024 – 21 July 2025

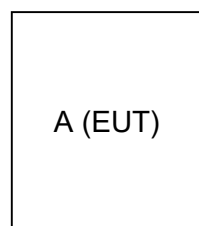
2.4 Operating Modes and Conditions

The EUT was programmed by the manufacturer to transmit on low, mid and high channels in all necessary modulation and modes of operation.

2.5 EUT Connection Block Diagram – Conducted Measurements



2.6 EUT Connection Block Diagram – Radiated Measurements



Inside Chamber

Outside Chamber

2.7 System Configurations

Device Reference	Manufacturer	Description	Model Number	Serial Number
A	Alarm.com Incorporated	Alarm.com 4MP Indoor/Outdoor Spotlight Battery Camera (Conducted Sample)	ADC-V731B	50407410F2F1
A	Alarm.com Incorporated	Alarm.com 4MP Indoor/Outdoor Spotlight Battery Camera (Radiated Sample)	ADC-V731B	50407410F2B2

2.8 Cable List

Cable reference	Port Name	Start	End	Cable Length (m)	Ferrite installed?	Shielded?
1	None					

3 Duty Cycle

3.1 Test Result

Test Description	Test Specification		Test Result
Duty Cycle	ANS C63.10	Section 12.2	Reported

3.2 Test Method

Measurements of duty cycle and transmission duration shall be performed using one of the following techniques:

- A diode detector and an oscilloscope that together have a sufficiently short response time to permit accurate measurements of the ON and OFF times of the transmitted signal.
- The zero-span mode on a spectrum analyzer or EMI receiver if the response time and spacing between bins on the sweep are sufficient to permit accurate measurements of the ON and OFF times of the transmitted signal:
 - Set the center frequency of the instrument to the center frequency of the transmission.
 - Set RBW $\geq$ OBW if possible; otherwise, set RBW to the largest available value.
 - Set VBW $\geq$ RBW. Set detector = peak or average.
- The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$ and the number of sweep points across duration T exceeds 100. (For example, if VBW and/or RBW are limited to 3 MHz, then the zero-span method of measuring the duty cycle shall not be used if $T \leq 16.7 \mu s$.)

3.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.02 °C

Relative Humidity: 52.5 %

Atmospheric Pressure: 98.13 kPa

3.4 Test Equipment

Test End Date: 2-May-2025

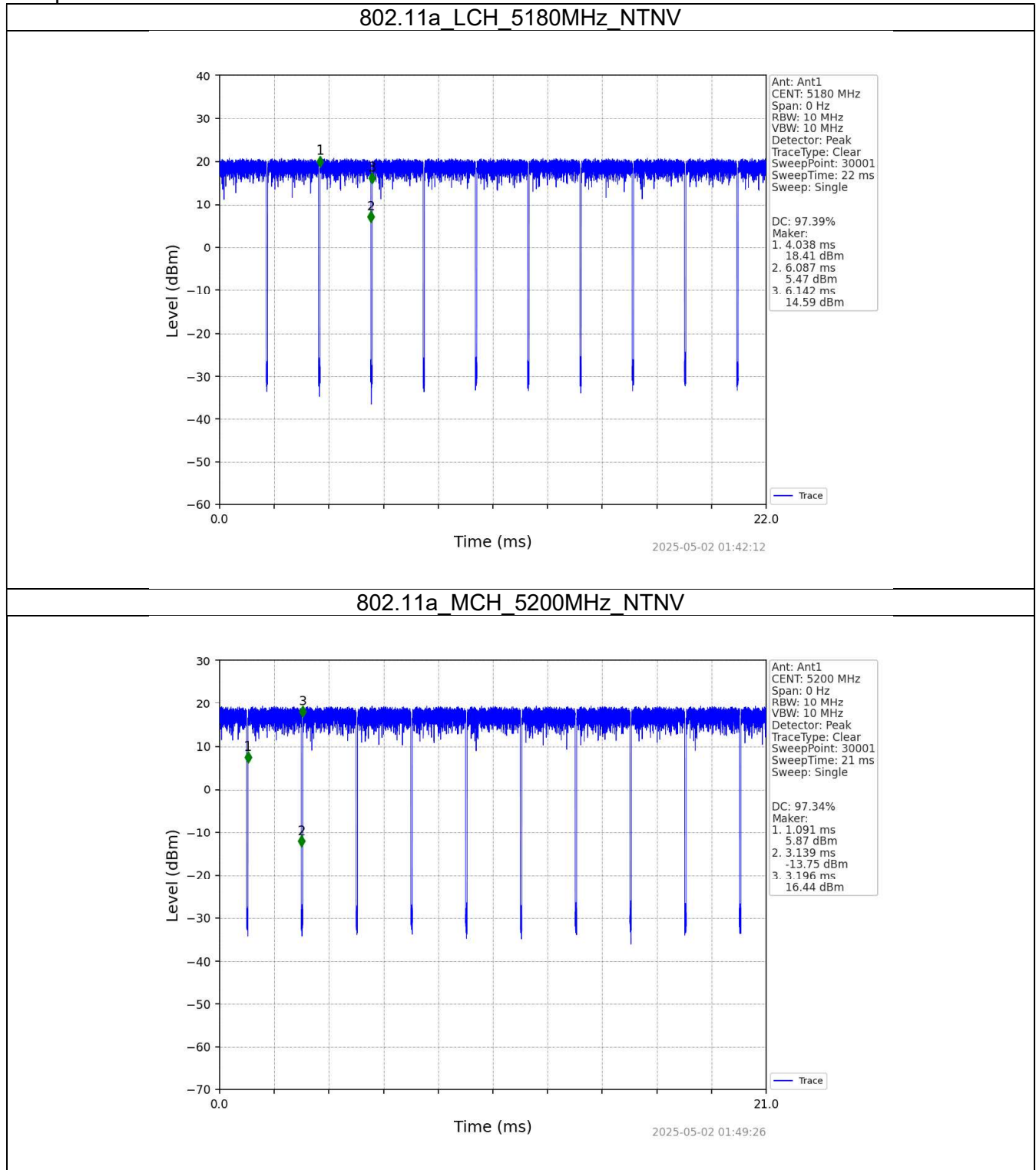
Tester: SGM

Equipment	Manufacturer	Model	Asset Number	Cal Date	Cal Due Date
RF CABLE SMA TO SMA, 0.01-40GHZ	TELEDYNE STORM MICROWAVE	084-0505-059	20108	3-Apr-2025	3-Apr-2026
TSTPASS SWITCHBOX	TSTPASS	SB2	23009	4-Apr-2025	4-Apr-2026
SIGNAL ANALYZER (TS8997)	ROHDE & SCHWARZ	FSV30	B085749	4-Mar-2025	4-Mar-2026

3.5 Test Data

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5180	2.049	2.105	97.34	0.12	0.03
		5200	2.049	2.105	97.34	0.12	0.03
		5240	2.049	2.105	97.34	0.12	0.03
		5260	2.049	2.105	97.34	0.12	0.03
		5300	2.049	2.104	97.39	0.12	0.03
		5320	2.049	2.105	97.34	0.12	0.03
		5500	2.049	2.105	97.34	0.12	0.03
		5580	2.048	2.104	97.34	0.12	0.03
		5700	2.049	2.105	97.34	0.12	0.06
		5745	2.048	2.104	97.34	0.12	0.03
		5785	2.049	2.105	97.34	0.12	0.03
		5825	2.048	2.104	97.34	0.12	0.03
		5720	2.049	2.105	97.34	0.12	0.03
802.11n (HT20)	SISO	5180	2.176	2.233	97.45	0.11	0.03
		5200	2.176	2.233	97.45	0.11	0.03
		5240	2.177	2.233	97.49	0.11	0.07
		5260	2.176	2.233	97.45	0.11	0.03
		5300	2.177	2.233	97.49	0.11	0.03
		5320	2.177	2.233	97.49	0.11	0.03
		5500	2.176	2.233	97.45	0.11	0.03
		5580	2.177	2.233	97.49	0.11	0.00
		5700	2.176	2.233	97.45	0.11	0.03
		5745	2.176	2.233	97.45	0.11	0.03
		5785	2.177	2.234	97.45	0.11	0.03
		5825	2.176	2.233	97.45	0.11	0.03
		5720	2.176	2.233	97.45	0.11	0.04
802.11ac (VHT20)	SISO	5180	2.180	2.237	97.45	0.11	0.03
		5200	2.180	2.237	97.45	0.11	0.07
		5240	2.180	2.237	97.45	0.11	0.07
		5260	2.180	2.237	97.45	0.11	0.03
		5300	2.180	2.237	97.45	0.11	0.03
		5320	2.180	2.237	97.45	0.11	0.03
		5500	2.181	2.238	97.45	0.11	0.03
		5580	2.180	2.237	97.45	0.11	0.03
		5700	2.181	2.238	97.45	0.11	0.03
		5745	2.181	2.237	97.50	0.11	0.03
		5785	2.180	2.237	97.45	0.11	0.03
		5825	2.180	2.237	97.45	0.11	0.03
		5720	2.608	2.665	97.86	0.09	0.04

Example Plot:



4 Bandwidth

4.1 Test Result

Test Description	Test Specification		Test Result
Bandwidth	15.407(a)(1)(2)(3)	RSS-247 S5.2 (a) RSS-GEN S6.6	Compliant

4.2 Test Method

The procedures from ANSI C63.10: 2020 clause 12.6 and KDB 789033 D02 General UNII Test Procedures New Rules v02r01 were used to determine the 26 dB bandwidth.

4.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 24.10 °C

Relative Humidity: 19.9 %

Atmospheric Pressure: 98.58 kPa

4.4 Test Equipment

Test End Date: 2-May-2025

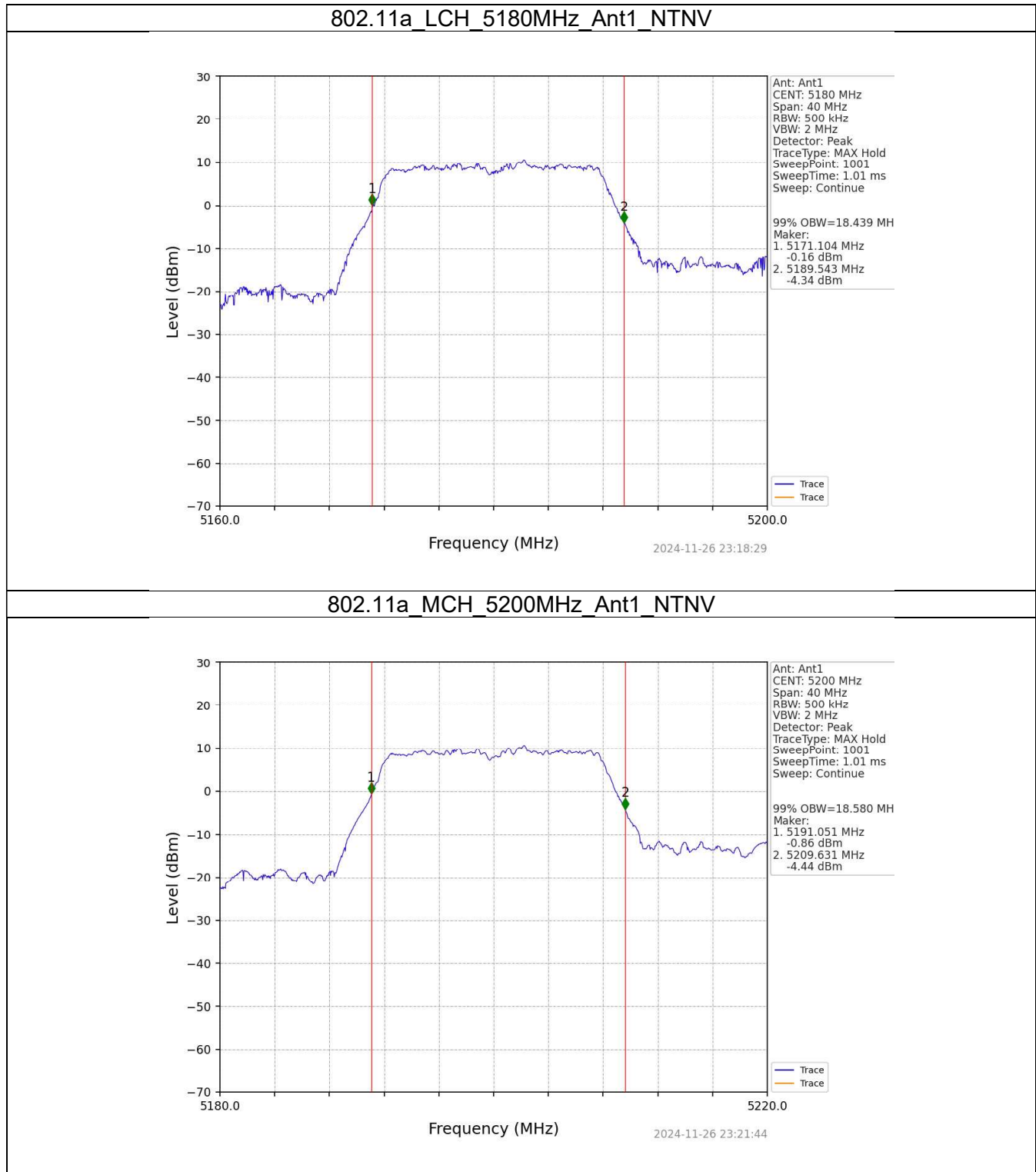
Tester: SGM

Equipment	Manufacturer	Model	Asset Number	Cal Date	Cal Due Date
RF CABLE SMA TO SMA, 0.01-40GHZ	TELEDYNE STORM MICROWAVE	084-0505-059	20108	3-Apr-2025	3-Apr-2026
TSTPASS SWITCHBOX	TSTPASS	SB2	23009	4-Apr-2025	4-Apr-2026
SIGNAL ANALYZER (TS8997)	ROHDE & SCHWARZ	FSV30	B085749	4-Mar-2025	4-Mar-2026

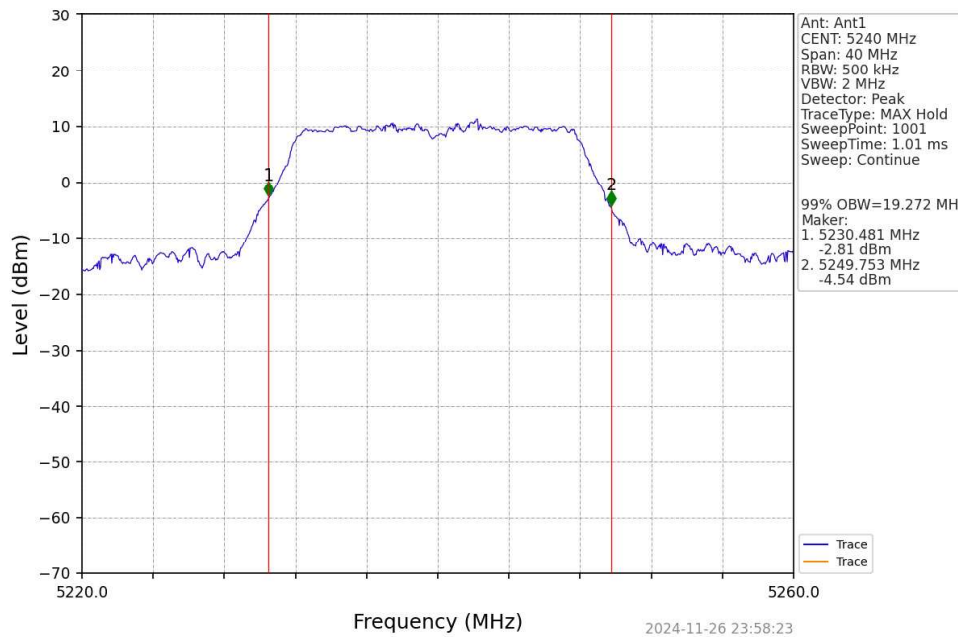
4.5 Test Data - 99%OBW

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	18.889	/	Pass
		5200	1	17.929	/	Pass
		5240	1	18.012	/	Pass
		5260	1	18.929	/	Pass
		5300	1	18.487	/	Pass
		5320	1	17.863	/	Pass
		5500	1	18.033	/	Pass
		5580	1	18.647	/	Pass
		5700	1	17.845	/	Pass
		5745	1	18.227	/	Pass
		5785	1	18.293	/	Pass
		5825	1	18.318	/	Pass
		5720	1	18.620	/	Pass
		5180	1	18.559	/	Pass
802.11n (HT20)	SISO	5200	1	18.608	/	Pass
		5240	1	18.703	/	Pass
		5260	1	18.651	/	Pass
		5300	1	18.715	/	Pass
		5320	1	18.600	/	Pass
		5500	1	18.458	/	Pass
		5580	1	18.646	/	Pass
		5700	1	19.196	/	Pass
		5745	1	18.619	/	Pass
		5785	1	18.522	/	Pass
		5825	1	18.633	/	Pass
		5720	1	19.208	/	Pass
		5180	1	18.356	/	Pass
		5200	1	18.645	/	Pass
802.11ac (VHT20)	SISO	5240	1	18.721	/	Pass
		5260	1	18.708	/	Pass
		5300	1	18.715	/	Pass
		5320	1	18.543	/	Pass
		5500	1	18.575	/	Pass
		5580	1	18.619	/	Pass
		5700	1	18.645	/	Pass
		5745	1	19.268	/	Pass
		5785	1	18.574	/	Pass
		5825	1	18.524	/	Pass
		5720	1	19.677	/	Pass

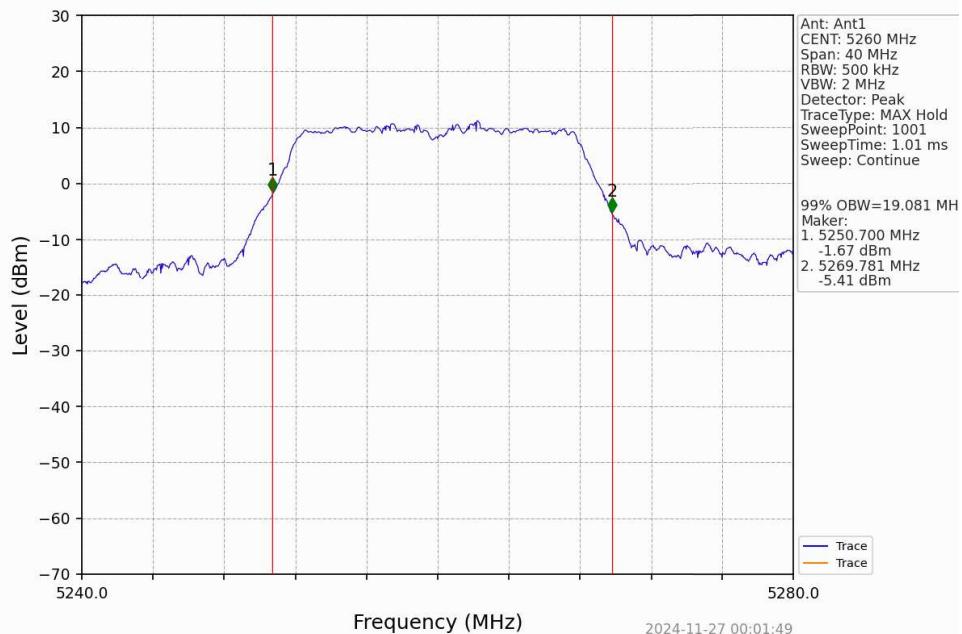
4.5.1 Example Plots



802.11a_HCH_5240MHz_Ant1_NTNV



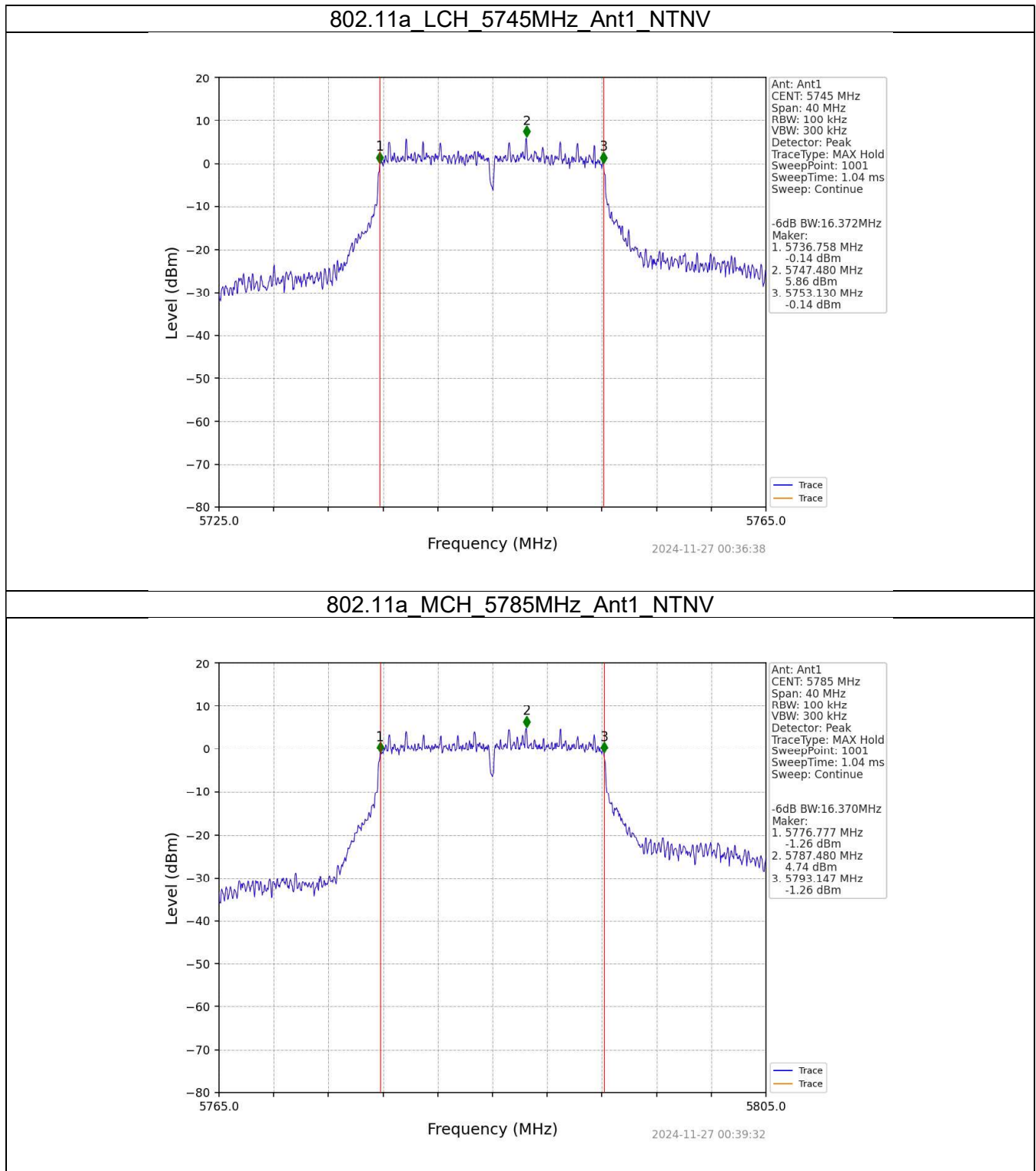
802.11a_LCH_5260MHz_Ant1_NTNV



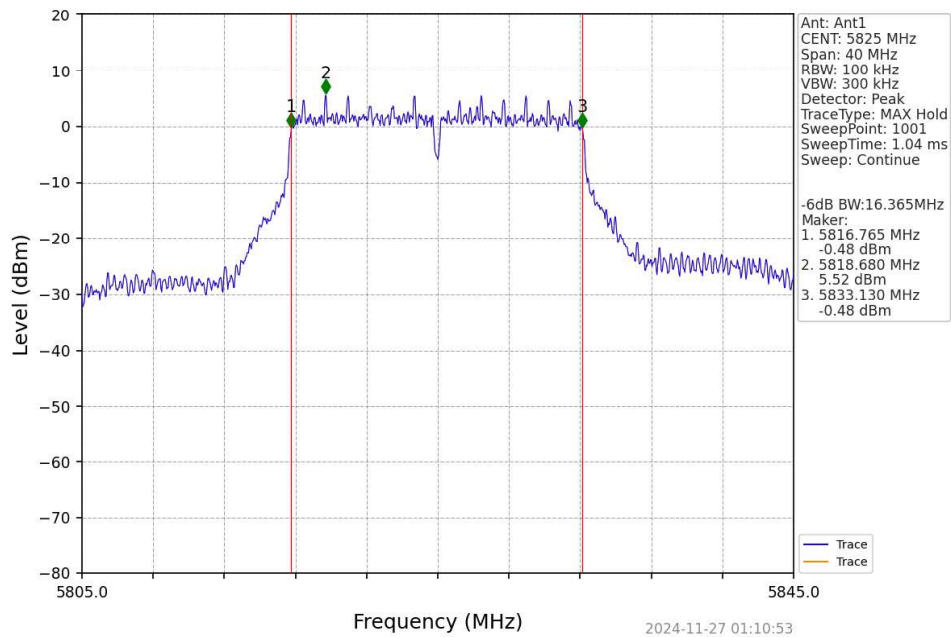
4.5.2 Test Data - 6dB down

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5745	1	16.372	≥ 0.5	Pass
		5785	1	16.370	≥ 0.5	Pass
		5825	1	16.365	≥ 0.5	Pass
802.11n (HT20)	SISO	5745	1	17.749	≥ 0.5	Pass
		5785	1	17.768	≥ 0.5	Pass
		5825	1	17.789	≥ 0.5	Pass
802.11ac (VHT20)	SISO	5745	1	17.759	≥ 0.5	Pass
		5785	1	17.783	≥ 0.5	Pass
		5825	1	17.752	≥ 0.5	Pass

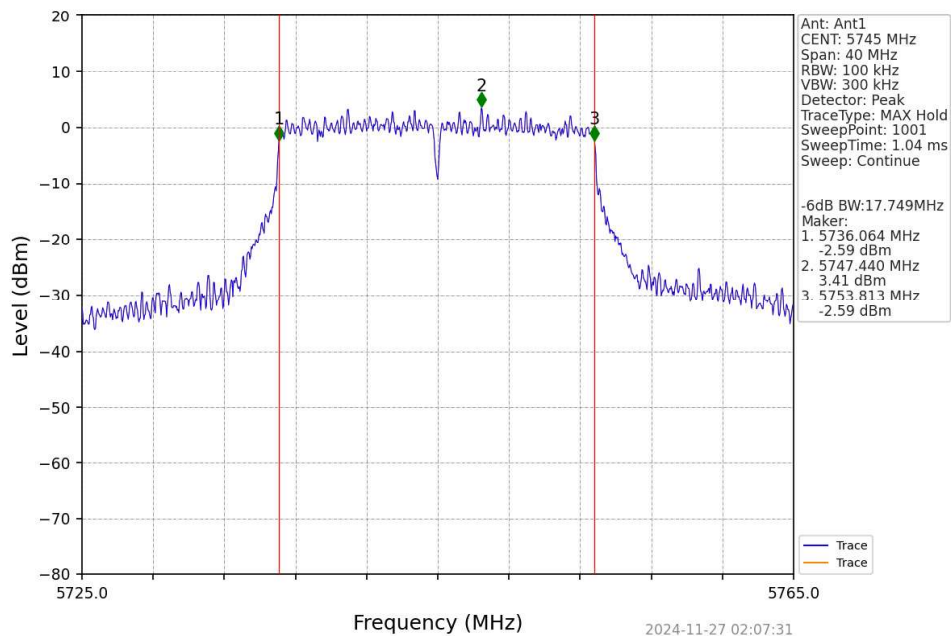
4.5.3 Example Plots



802.11a_HCH_5825MHz_Ant1_NTNV



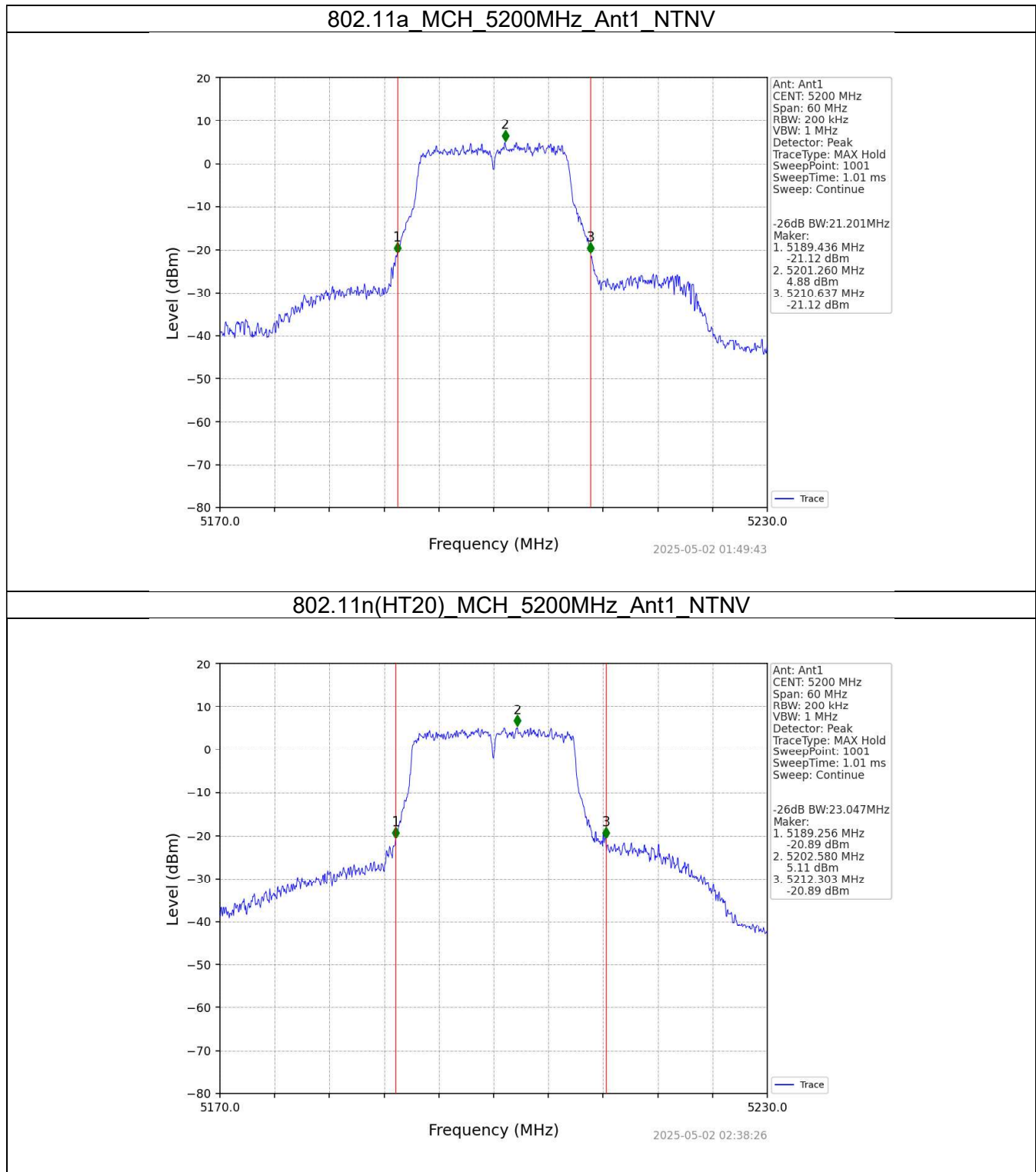
802.11n(HT20)_LCH_5745MHz_Ant1_NTNV



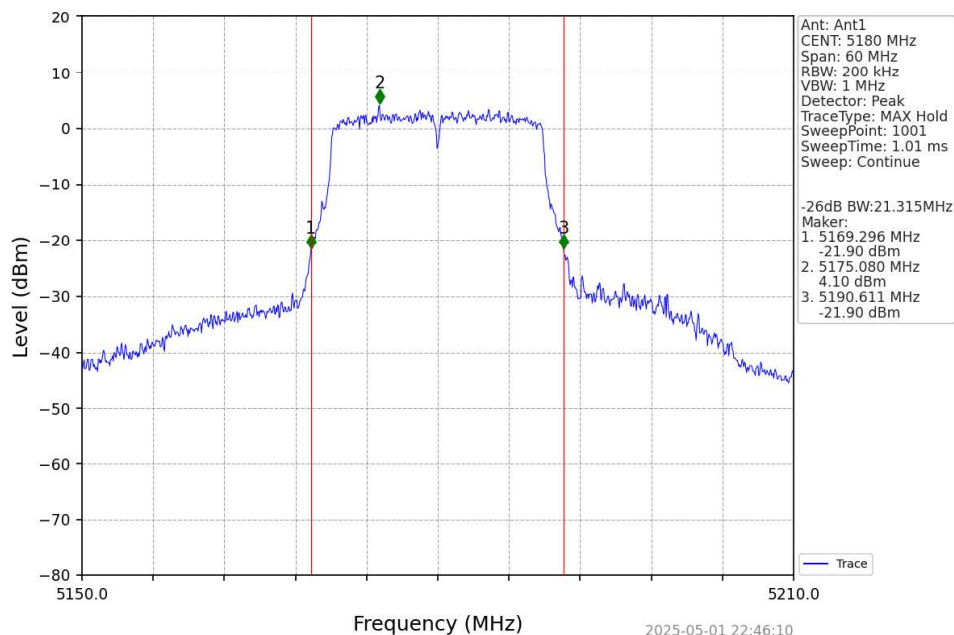
4.5.4 Test Data – 26dB Down

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11a	SISO	5180	1	29.447	/	Pass
		5200	1	21.201	/	Pass
		5240	1	21.366	/	Pass
		5260	1	31.665	/	Pass
		5300	1	28.607	/	Pass
		5320	1	21.187	/	Pass
		5500	1	21.346	/	Pass
		5580	1	28.709	/	Pass
		5700	1	21.243	/	Pass
		5720	1	28.247	/	Pass
802.11n (HT20)	SISO	5180	1	23.361	/	Pass
		5200	1	23.047	/	Pass
		5240	1	25.165	/	Pass
		5260	1	23.801	/	Pass
		5300	1	23.372	/	Pass
		5320	1	23.759	/	Pass
		5500	1	21.381	/	Pass
		5580	1	24.387	/	Pass
		5700	1	35.137	/	Pass
		5720	1	33.089	/	Pass
802.11ac (VHT20)	SISO	5180	1	21.315	/	Pass
		5200	1	26.669	/	Pass
		5240	1	27.469	/	Pass
		5260	1	25.413	/	Pass
		5300	1	23.619	/	Pass
		5320	1	23.937	/	Pass
		5500	1	22.043	/	Pass
		5580	1	23.905	/	Pass
		5700	1	21.755	/	Pass
		5720	1	34.153	/	Pass

4.5.5 Example Plots



802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



5 Peak Output Power

5.1 Test Result

Test Description	Test Specification		Test Result
Peak Output Power	15.407(a)(1)(2)(3)	RSS-247 S5.4 (d) / 6.2	Compliant

5.2 Test Method

Fundamental peak power measurements were recorded using the procedures from ANSI C63.10: 2020 clause 11.9 and KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Limit

(a)(1)(I) / (II) / (III): For an indoor/outdoor/fixed point-to-point access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W provided the maximum antenna gain does not exceed 6 dBi.

(IV): For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi.

(a)(2): For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm + 10 log B, where B is the 26 dB emission bandwidth in megahertz.

(a)(3)(I): For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band.

5.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.02 °C

Relative Humidity: 52.5 %

Atmospheric Pressure: 98.13 kPa

5.4 Test Equipment

Test End Date: 2-May-2025

Tester: SGM

Equipment	Manufacturer	Model	Asset Number	Cal Date	Cal Due Date
RF CABLE SMA TO SMA, 0.01-40GHZ	TELEDYNE STORM MICROWAVE	084-0505-059	20108	3-Apr-2025	3-Apr-2026
TSTPASS SWITCHBOX	TSTPASS	SB2	23009	4-Apr-2025	4-Apr-2026
SIGNAL ANALYZER (TS8997)	ROHDE & SCHWARZ	FSV30	B085749	4-Mar-2025	4-Mar-2026

5.5 Test Data

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)			Verdict
			ANT1	ANT2	Limit	
802.11a	SISO	5180	13.23	12.43	/	Pass
		5200	14.61	15.00	/	Pass
		5240	15.20	14.76	/	Pass
		5260	16.21	15.69	<=23.77	Pass
		5300	16.16	16.74	<=23.67	Pass
		5320	13.59	13.88	<=23.52	Pass
		5500	15.59	15.40	<=23.56	Pass
		5580	16.70	15.15	<=23.71	Pass
		5700	11.53	10.80	<=23.52	Pass
		5745	16.33	14.83	<=30	Pass
		5785	15.54	14.58	<=30	Pass
		5825	16.16	14.41	<=30	Pass
		5720	16.36	15.98	<=23.7	Pass
802.11n (HT20)	SISO	5180	12.98	12.11	/	Pass
		5200	14.69	14.91	/	Pass
		5240	15.34	15.09	/	Pass
		5260	15.36	15.13	<=23.71	Pass
		5300	14.53	14.82	<=23.72	Pass
		5320	14.87	15.02	<=23.7	Pass
		5500	14.55	14.58	<=23.66	Pass
		5580	15.04	13.61	<=23.71	Pass
		5700	11.63	11.02	<=23.83	Pass
		5745	14.94	13.27	<=30	Pass
		5785	14.02	13.07	<=30	Pass
		5825	14.77	12.54	<=30	Pass
		5720	16.57	16.03	<=23.83	Pass
802.11ac (VHT20)	SISO	5180	12.82	13.20	/	Pass
		5200	14.73	14.96	/	Pass
		5240	15.28	15.15	/	Pass
		5260	15.42	15.07	<=23.72	Pass
		5300	14.47	14.74	<=23.72	Pass
		5320	13.05	13.31	<=23.68	Pass
		5500	15.55	15.36	<=23.69	Pass
		5580	15.00	13.60	<=23.7	Pass
		5700	10.80	10.31	<=23.71	Pass
		5745	14.72	13.09	<=30	Pass
		5785	13.61	13.12	<=30	Pass
		5825	14.34	12.52	<=30	Pass
		5720	16.69	16.00	<=23.94	Pass

Note1: Antenna Gain:

- Band: 1 Ant1: 3.20dBi;
- Band: 3 Ant1: 4.00dBi;
- Band: 2A Ant1: 3.20dBi;
- Band: 2C Ant1: 2.30dBi;
- Band: 2C+3 Ant1: 4.00dBi;

- Band: 1 Ant2: 3.80dBi;
- Band: 3 Ant2: 3.80dBi;
- Band: 2A Ant2: 3.80dBi;
- Band: 2C Ant2: 2.90dBi;
- Band: 2C+3 Ant2: 3.80dBi;

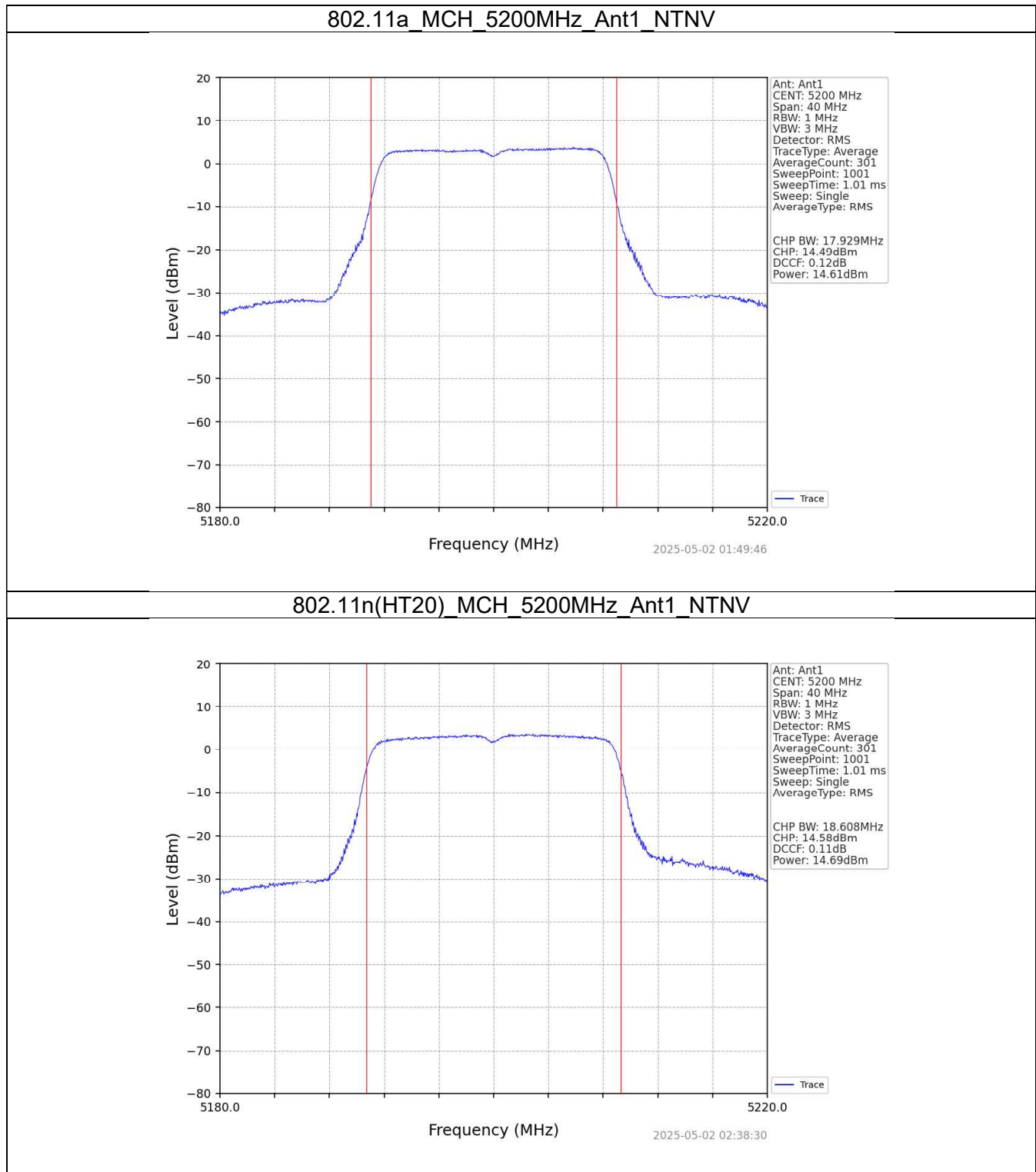
Mode	TX Type	Frequency (MHz)	E.I.R.P (dBm)			Verdict
			ANT1	ANT2	Limit	
802.11a	SISO	5180	16.43	16.23	<=22.76	Pass
		5200	17.81	18.80	<=22.54	Pass
		5240	18.40	18.56	<=22.56	Pass
		5260	19.41	19.49	<=29.77	Pass
		5300	19.36	20.54	<=29.67	Pass
		5320	16.79	17.68	<=29.52	Pass
		5500	17.89	18.30	<=27	Pass
		5580	19.00	18.05	<=27	Pass
		5700	13.83	13.70	<=27	Pass
		5745	20.33	18.63	/	Pass
		5785	19.54	18.38	/	Pass
		5825	20.16	18.21	/	Pass
		5720	20.36	19.78	<=27	Pass
		5180	16.18	15.91	<=22.69	Pass
802.11n (HT20)	SISO	5200	17.89	18.71	<=22.7	Pass
		5240	18.54	18.89	<=22.72	Pass
		5260	18.56	18.93	<=29.71	Pass
		5300	17.73	18.62	<=29.72	Pass
		5320	18.07	18.82	<=29.7	Pass
		5500	16.85	17.48	<=27	Pass
		5580	17.34	16.51	<=27	Pass
		5700	13.93	13.92	<=27	Pass
		5745	18.94	17.07	/	Pass
		5785	18.02	16.87	/	Pass
		5825	18.77	16.34	/	Pass
		5720	20.57	19.83	<=27	Pass
		5180	16.02	17.00	<=22.64	Pass
		5200	17.93	18.76	<=22.71	Pass
802.11ac (VHT20)	SISO	5240	18.48	18.95	<=22.72	Pass
		5260	18.62	18.87	<=29.72	Pass
		5300	17.67	18.54	<=29.72	Pass
		5320	16.25	17.11	<=29.68	Pass
		5500	17.85	18.26	<=27	Pass
		5580	17.30	16.50	<=27	Pass
		5700	13.10	13.21	<=27	Pass
		5745	18.72	16.89	/	Pass
		5785	17.61	16.92	/	Pass
		5825	18.34	16.32	/	Pass
		5720	20.69	19.80	<=27	Pass

Note1: Antenna Gain:

- Band: 2C+3 Ant1: 4.00dBi;
- Band: 1 Ant1: 3.20dBi;
- Band: 3 Ant1: 4.00dBi;
- Band: 2A Ant1: 3.20dBi;
- Band: 2C Ant1: 2.30dBi;
- Band: 2C Ant2: 2.90dBi;
- Band: 2C+3 Ant2: 3.80dBi;
- Band: 1 Ant2: 3.80dBi;
- Band: 3 Ant2: 3.80dBi;
- Band: 2A Ant2: 3.80dBi;

Note2: E.I.R.P = Measured Power + Antenna Gain

5.5.1 Example Plots



6 Power Spectral Density

6.1 Test Result

Test Description	Test Specification		Test Result
Power Spectral Density	15.407(a)(1)(2)(3)	RSS-247 S5.2 (b)	Compliant

6.2 Test Method

Power spectral density measurements were recorded using the procedures from ANSI C63.10: 2020 clause 11.10 and KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Limit

(a)(1)(I) / (II) / (III): For an indoor/outdoor/fixed point-to-point access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(a)(1)(I): The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm).

(a)(1)(III): Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power or maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power and maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

(a)(1)(IV): For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dB.

(a)(2): For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

(a)(3): For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.

6.3 Test Site

SGS EMC Laboratory, Suwanee, GA

Environmental Conditions

Temperature: 23.02 °C

Relative Humidity: 52.5 %

Atmospheric Pressure: 98.13 kPa

6.4 Test Equipment

Test End Date: 2-May-2025

Tester: SGM

Equipment	Manufacturer	Model	Asset Number	Cal Date	Cal Due Date
RF CABLE SMA TO SMA, 0.01-40GHZ	TELEDYNE STORM MICROWAVE	084-0505-059	20108	3-Apr-2025	3-Apr-2026
TSTPASS SWITCHBOX	TSTPASS	SB2	23009	4-Apr-2025	4-Apr-2026
SIGNAL ANALYZER (TS8997)	ROHDE & SCHWARZ	FSV30	B085749	4-Mar-2025	4-Mar-2026

6.5 Test Data

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)			Verdict
			ANT1	ANT2	Limit	
802.11a	SISO	5260	5.26	5.01	<=11	Pass
		5300	5.48	5.97	<=11	Pass
		5320	2.73	2.94	<=11	Pass
		5500	4.86	4.57	<=11	Pass
		5580	5.92	4.54	<=11	Pass
		5700	0.71	-0.04	<=11	Pass
		5720	5.45	5.01	<=11	Pass
802.11n (HT20)	SISO	5260	4.53	4.09	<=11	Pass
		5300	3.49	3.89	<=11	Pass
		5320	3.91	4.02	<=11	Pass
		5500	3.42	3.59	<=11	Pass
		5580	4.00	2.61	<=11	Pass
		5700	0.48	-0.02	<=11	Pass
		5720	5.69	4.85	<=11	Pass
802.11ac (VHT20)	SISO	5260	4.40	3.90	<=11	Pass
		5300	3.57	4.06	<=11	Pass
		5320	2.07	2.49	<=11	Pass
		5500	4.58	4.52	<=11	Pass
		5580	3.93	2.59	<=11	Pass
		5700	-0.21	-0.62	<=11	Pass
		5720	5.67	4.98	<=11	Pass

Note1: Antenna Gain:

- Band: 3 Ant1: 4.00dBi;
- Band: 2A Ant1: 3.20dBi;
- Band: 2C Ant1: 2.30dBi;
- Band: 2C+3 Ant1: 4.00dBi;
- Band: 1 Ant1: 3.20dBi;
- Band: 3 Ant2: 3.80dBi;
- Band: 2A Ant2: 3.80dBi;
- Band: 2C Ant2: 2.90dBi;

- Band: 2C+3 Ant2: 3.80dBi;
- Band: 1 Ant2: 3.80dBi;

Mode	TX Type	Frequency (MHz)	Maximum E.I.R.PSD (dBm/MHz)			Verdict
			ANT1	ANT2	Limit	
802.11a	SISO	5180	5.47	6.10	<=10	Pass
		5200	7.02	8.09	<=10	Pass
		5240	7.44	8.15	<=10	Pass
802.11n (HT20)	SISO	5180	5.26	4.95	<=10	Pass
		5200	6.96	7.69	<=10	Pass
		5240	7.50	8.01	<=10	Pass
802.11ac (VHT20)	SISO	5180	5.09	5.90	<=10	Pass
		5200	6.94	7.70	<=10	Pass
		5240	7.50	8.16	<=10	Pass

Note1: Antenna Gain:

- Band: 2C Ant1: 2.30dBi;
- Band: 2C+3 Ant1: 4.00dBi;
- Band: 1 Ant1: 3.20dBi;
- Band: 3 Ant1: 4.00dBi;
- Band: 2A Ant1: 3.20dBi;
- Band: 3 Ant2: 3.80dBi;
- Band: 2A Ant2: 3.80dBi;
- Band: 2C Ant2: 2.90dBi;
- Band: 2C+3 Ant2: 3.80dBi;
- Band: 1 Ant2: 3.80dBi;

Note2: E.I.R.PSD = Measured PSD + Antenna Gain

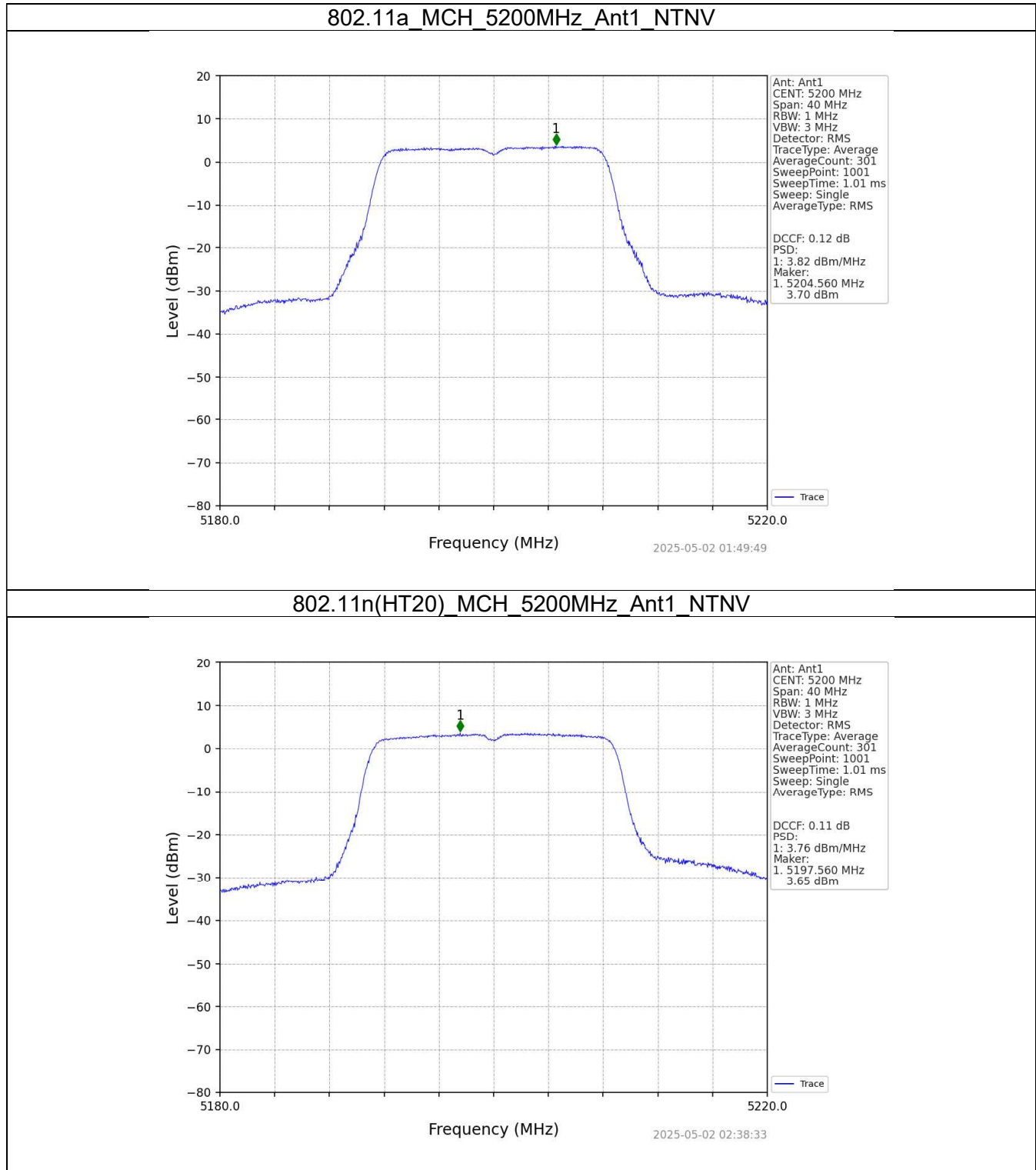
Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/500kHz)			Verdict
			ANT1	ANT2	Limit	
802.11a	SISO	5745	2.68	1.15	<=30	Pass
		5785	1.83	0.92	<=30	Pass
		5825	2.42	0.56	<=30	Pass
		5720	2.64	1.85	<=30	Pass
802.11n (HT20)	SISO	5745	0.95	-0.75	<=30	Pass
		5785	0.12	-0.94	<=30	Pass
		5825	0.78	-1.27	<=30	Pass
		5720	2.01	1.49	<=30	Pass
802.11ac (VHT20)	SISO	5745	0.66	-0.72	<=30	Pass
		5785	-0.35	-0.91	<=30	Pass
		5825	0.34	-1.22	<=30	Pass
		5720	1.72	1.50	<=30	Pass

Note1: Antenna Gain:

- Band: 1 Ant1: 3.20dBi;
- Band: 3 Ant1: 4.00dBi;
- Band: 2A Ant1: 3.20dBi;
- Band: 2C Ant1: 2.30dBi;
- Band: 2C+3 Ant1: 4.00dBi;
- Band: 3 Ant2: 3.80dBi;
- Band: 2A Ant2: 3.80dBi;
- Band: 2C Ant2: 2.90dBi;

- Band: 2C+3 Ant2: 3.80dBi;
- Band: 1 Ant2: 3.80dBi;

6.5.1 Example Plots



6.6 Undesirable Emissions

6.7 Test Result

Test Description	Test Specification		Test Result
Radiated Spurious Emissions	15.407(b) and 15.209	RSS-247 S5.5 / S6.2	Compliant

6.8 Test Method

The measurement methods defined in ANSI C63.10: 2020 were used.

The device was commanded to continuously transmit on channels low, middle, and high channels.

A modulation & data rate analysis was performed, and the following modes were determined to be the worst-case modulation and data rates: WLAN 802.11a – 18Mbps (OFDM) / WLAN 802.11ac – MCS7 (OFDM). Data tables provided for all measurements. Worst case example plots were provided.

Test distance:

9k to 30 MHz – Near field prescan to determine if there were any emissions.

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 40 GHz - The EUT to measurement antenna distance was 1 m / 10cm.

Limits within restricted bands of operation:

FCC

FCC Part 15 Subpart E, §15.407 (b)(1)

For transmitters operating in the 5150–5250 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(2)

For transmitters operating in the 5250–5350 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5350 MHz.

FCC Part 15 Subpart E, §15.407 (b)(3)

For transmitters operating in the 5470–5725 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5470–5725 MHz.

FCC Part 15 Subpart E, §15.407 (b)(4)

For transmitters operating in the 5725–5850 MHz band:

Limit: –27 dBm/MHz EIRP outside of the band 5715–5860 MHz and additionally

Limit: –17 dBm/MHz EIRP within the frequency ranges 5715–5725 and 5850–5860 MHz.

IC

Different frequency bands and limits apply, as compared to the FCC requirements.

RSS-247, 6.2.1 (2), Emissions outside the band 5150-5250 MHz, indoor operation only:

Limit: –27 dBm/MHz EIRP outside of the band 5150–5250 MHz.

RSS-247, 6.2.2 (2), Emissions outside the band 5250-5350 MHz:

Limit: -27 dBm/MHz EIRP outside of the band 5250–5350 MHz.

RSS-247, 6.2.3 (2), Emissions outside the bands 5470-5600 MHz and 5650-5725 MHz:

Limit: -27 dBm/MHz EIRP outside of the band 5470–5725 MHz.

Note: No operation is permitted for the frequency range 5600–5650 MHz.

RSS-247, 6.2.4 (2), Emissions outside the band 5725-5825 MHz:

Limit: -27 dBm/MHz EIRP outside of the band 5715–5835 MHz and additionally

Limit: -17 dBm/MHz EIRP within the frequency ranges 5715–5725 and 5825–5835 MHz.

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	-27 dBm		68.2

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

(2) Quasi-peak limit

(3) Average limit

FCC & IC

FCC Part 15 Subpart E, §15.405

The provisions of §§ 15.203 and 15.205 are included.

§15.407 (b)(6)

Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209.

§15.407 (b)(7)

The provisions of §15.205 apply to intentional radiators operating under this section

Below 1 GHz the limits of §15.209 are applied for all frequencies.

6.9 Test Site

10m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA & 3m Absorber Lined Shielded Enclosure (ALSE), Suwanee, GA

Environmental Conditions	6-Dec-2024	9-Dec-2024	10-Dec-2024	17-Dec-2024	18-Dec-2024
Temperature:	22.54°C	22.27°C	22.51°C	24.35°C	22.9°C
Relative Humidity:	16.6%	34.8%	52.6%	38.6%	44.2%
Atmospheric Pressure:	99.1kPa	98.3kPa	97.9kPa	98.9kPa	98.8kPa

6.10 Test Equipment

9kHz-30MHz

Test End Date: 18-Dec-2024

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	15-Nov-2024	15-Nov-2025
N-FEMALE TO N-MALE RF CABLE	EM-B810NMNF-118	ECHOLON	23010	17-Apr-2024	17-Apr-2025
RF CABLE NM TO NM, 0.01-18GHZ	90-195-079	TELEDYNE STORM MICROWAVE	20123	6-Feb-2024	6-Feb-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22027	14-Nov-2024	14-Nov-2025

30-1000MHz

Test End Date: 17-Dec-2024

Tester: PL, ZH

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
ANTENNA, BILOG	JB6	SUNOL	B079689	16-May-2024	16-May-2026
N to N RF Cable	EM-B810NM-276	ECHOLON	24022	15-Nov-2024	15-Nov-2025
N-FEMALE TO N-MALE RF CABLE	EM-B810NMNF-118	ECHOLON	23010	17-Apr-2024	17-Apr-2025
RF CABLE NM TO NM, 0.01-18GHZ	90-195-079	TELEDYNE STORM MICROWAVE	20123	6-Feb-2024	6-Feb-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22027	14-Nov-2024	14-Nov-2025
ROTARY NM TO NF CONNECTOR	18-2120-0	DIAMOND ANTENNA AND MICROWAVE CORP	22008	19-Mar-2024	19-Mar-2025
RF CABLE	SF106	HUBER & SUHNER	B085888	7-Aug-2024	7-Aug-2025

1-18GHz

Test Start Date: 6-Dec-2024

Tester: PL, ZH

Test End Date: 9-Dec-2024

Tester: PL

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-276	ECHOLON	24022	15-Nov-2024	15-Nov-2025
N to N RF Cable	90-076-020	TELEDYNE STORM MICROWAVE	22037	11-Dec-2024	11-Dec-2025
LOW NOISE AMPLIFIER	TS-PR18	ROHDE & SCHWARZ	B094463	5-Jul-2024	5-Jul-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22032	15-Nov-2023	18-Dec-2025
FILTER, HIGH PASS, >6250MHZ	HPM50112	MICRO-TRONICS	B093647	5-Jul-2024	5-Jul-2025

18-40GHz

Test End Date: 9-Dec-2024

Tester: ZH

Test End Date: 10-Dec-2024

Tester: PL

Equipment	Model	Manufacturer	Asset Number	Cal Date	Cal Due Date
ANTENNA, DRG HORN (SMALL)	3116B	ETS LINDGREN	B079695	2-Aug-2024	2-Aug-2026
SMA to SMA RF Cable	NC12-K1K1-138	MEGAPHASE	22002	6-Feb-2024	6-Feb-2025
2.92MM MALE TO 2.92MM MALE RF CABLE	HULL140A-29P-29P-60	HASCO COMPONENTS	18033	20-Mar-2024	20-Mar-2025
LOW NOISE AMPLIFIER	NSP1840-HG	MITEQ	B087572	21-Oct-2024	21-Oct-2025
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22027	14-Nov-2024	14-Nov-2025

Test End Date: 21-July-2024

Tester: PL

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-276	ECHELON	24022	15-Nov-2024	15-Nov-2025
N to N RF Cable	90-076-020	TELEDYNE STORM MICROWAVE	22037	11-Dec-2024	11-Dec-2025
LOW NOISE AMPLIFIER	TS-PR18	ROHDE & SCHWARZ	B094463	3-Jul-2025	3-Jul-2026
EMI TEST RECEIVER	ESW44	ROHDE & SCHWARZ	22032	2-Jan-2025	2-Jan-2026
FILTER, HIGH PASS, >6250MHZ	HPM50112	MICRO-TRONICS	B093647	3-Jul-2025	3-Jul-2026

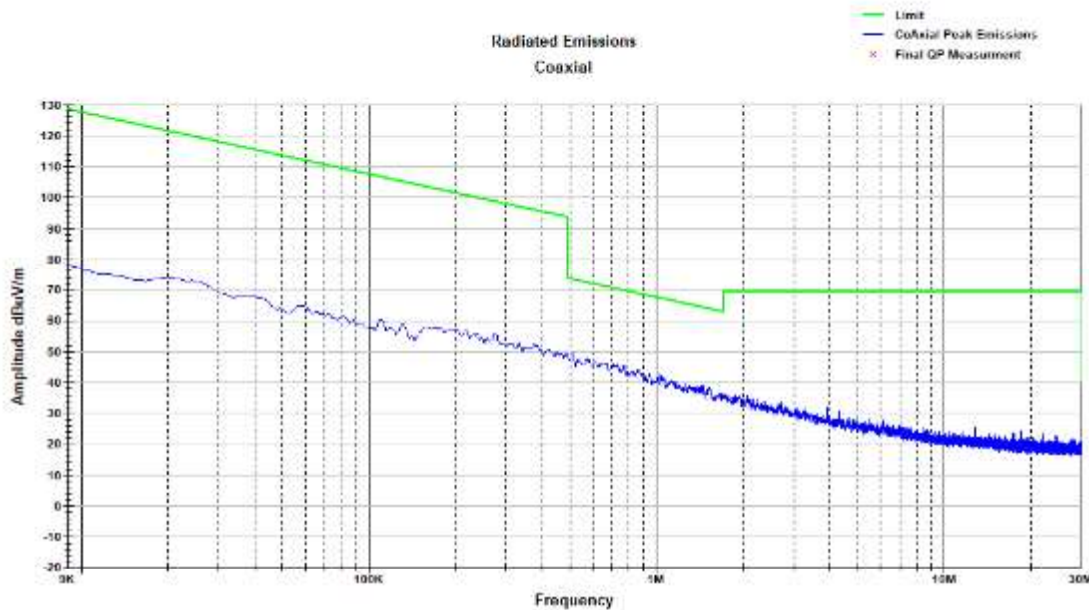
6.11 Test Data

6.11.1 WLAN 802.11a – 18 Mbps - OFDM - Antenna 2 – Channel 36

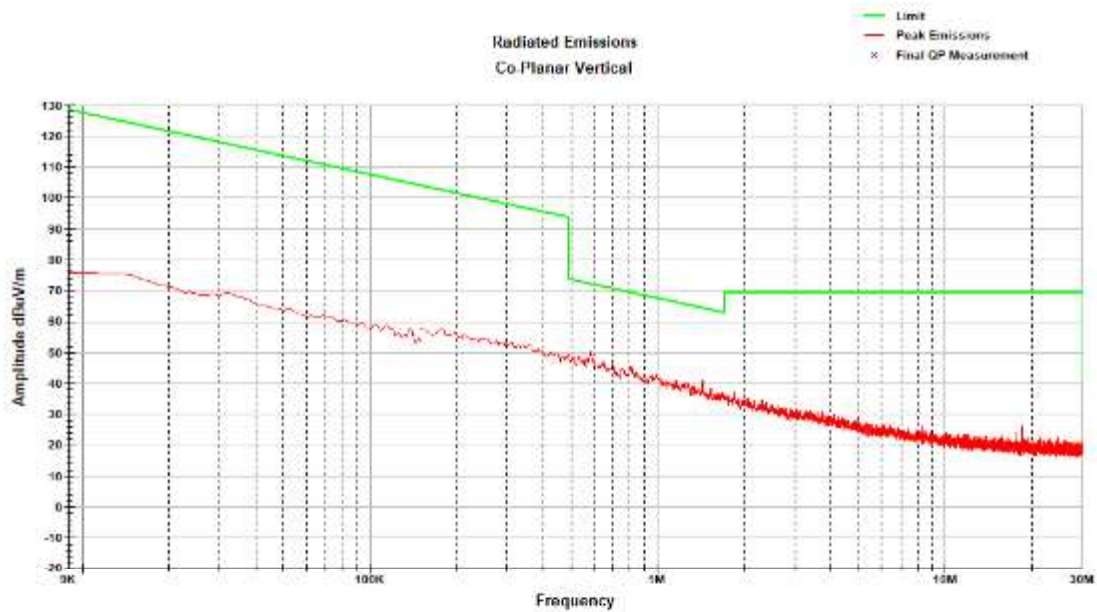
9kHz-30MHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation. No unwanted emissions within 20db of the limit. Unintentional emissions are not a part of this evaluation.

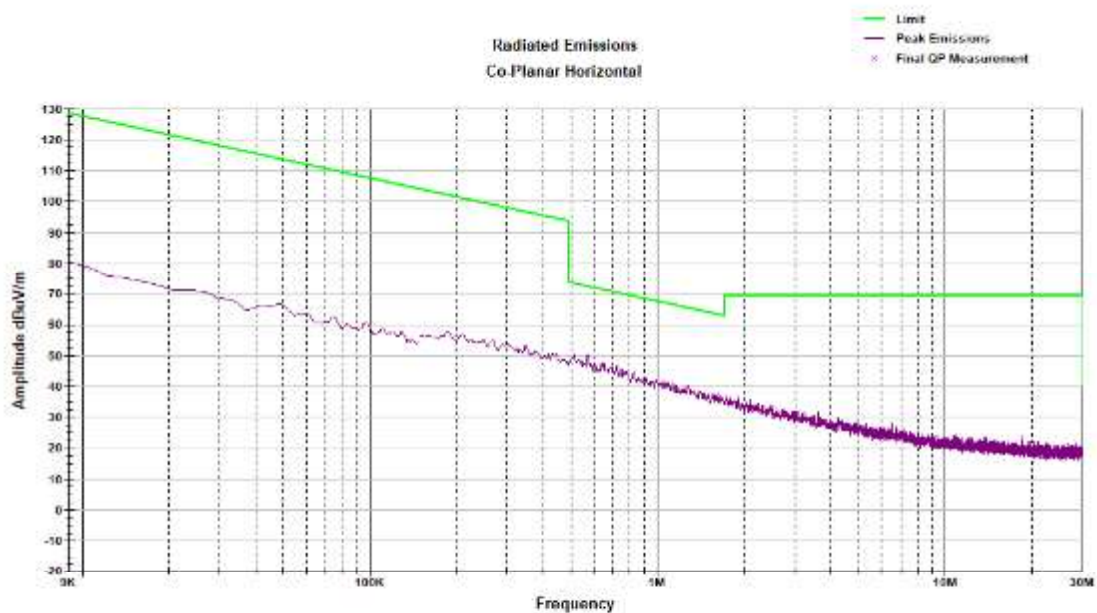
9kHz-30MHz – Vertical – CH36 X-axis



9kHz-30MHz – Co-planar Vertical – CH36 X-axis



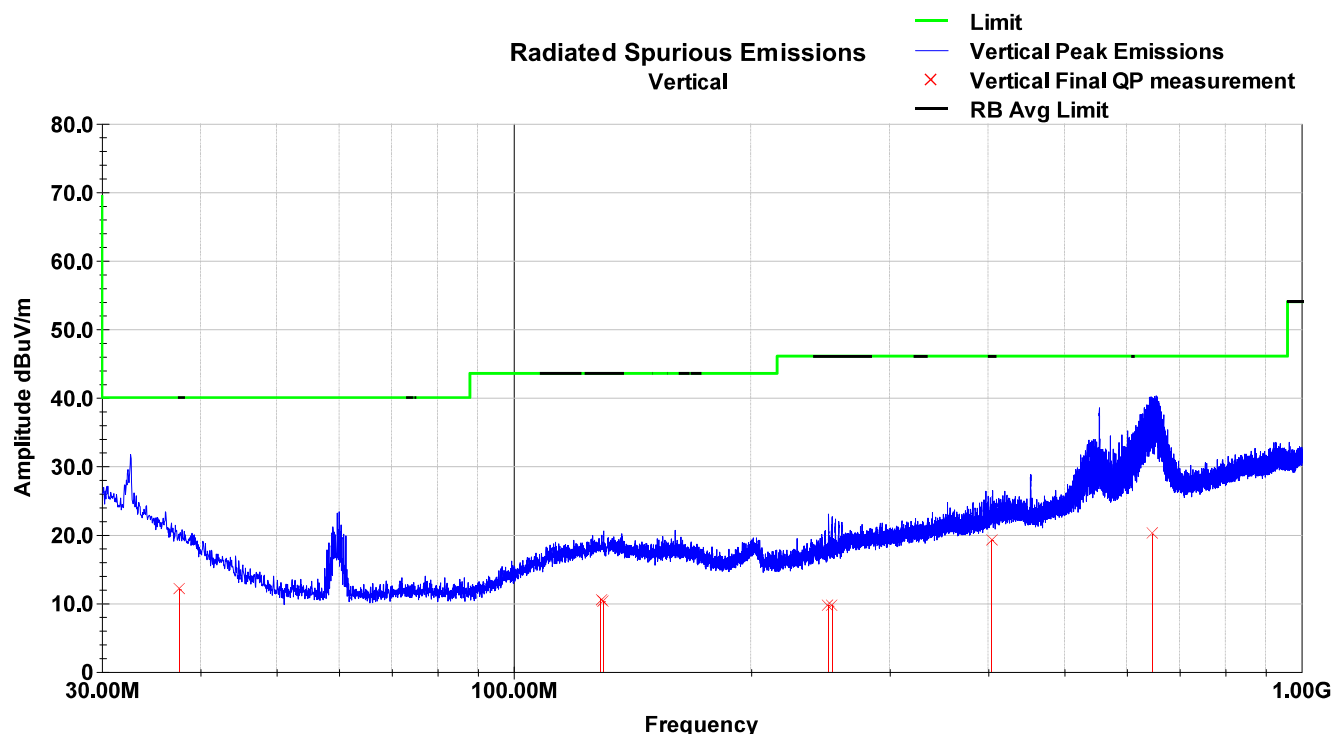
9kHz-30MHz – Co-planar Horizontal – CH36 X-axis



30-1000MHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation. No unwanted emissions within 20db of the limit. Unintentional emissions are not a part of this evaluation.

30-1000MHz – Vertical – CH36 - X-axis



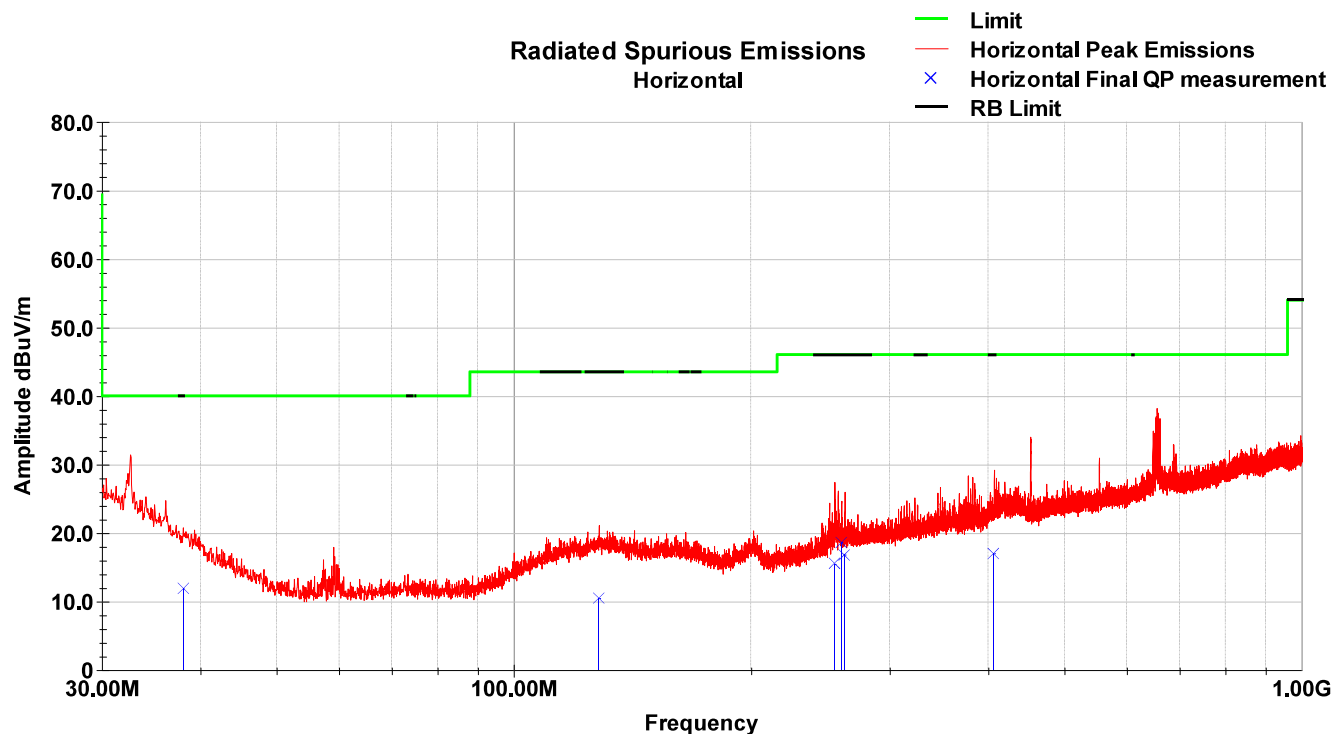
Quasi Peak

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
37.68	23.1	V	141.0	189.0	20.3	0.6	32.0	12.0	40.0	-28.0
129.08	23.1	V	122.0	115.0	17.8	1.4	31.8	10.6	43.5	-32.9
130.08	22.8	V	199.0	174.0	17.8	1.4	31.8	10.3	43.5	-33.2
250.63	23.0	V	32.0	280.0	16.3	2.1	31.7	9.7	46.0	-36.3
253.68	23.0	V	0.0	278.0	16.2	2.1	31.7	9.7	46.0	-36.4
404.63	27.4	V	278.0	247.0	20.4	2.7	31.4	19.2	46.0	-26.8
647.48	23.5	V	197.0	191.0	24.3	3.5	31.2	20.2	46.0	-25.9

QP Value = Raw QP + AF + Loss - Amp

Margin = QP Value - Limit

30-1000MHz – Horizontal – CH36 - X-axis



Quasi Peak

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
38.08	23.3	H	200.0	230.0	19.9	0.6	32.0	11.9	40.0	-28.1
128.30	23.0	H	150.0	129.0	17.9	1.4	31.8	10.5	43.5	-33.0
255.27	28.7	H	355.0	144.0	16.3	2.1	31.7	15.5	46.0	-30.5
260.50	31.2	H	169.0	159.0	16.9	2.2	31.7	18.7	46.0	-27.4
262.84	29.0	H	359.0	100.0	17.3	2.2	31.7	16.9	46.0	-29.1
406.80	25.2	H	3.0	235.0	20.5	2.7	31.4	17.1	46.0	-29.0

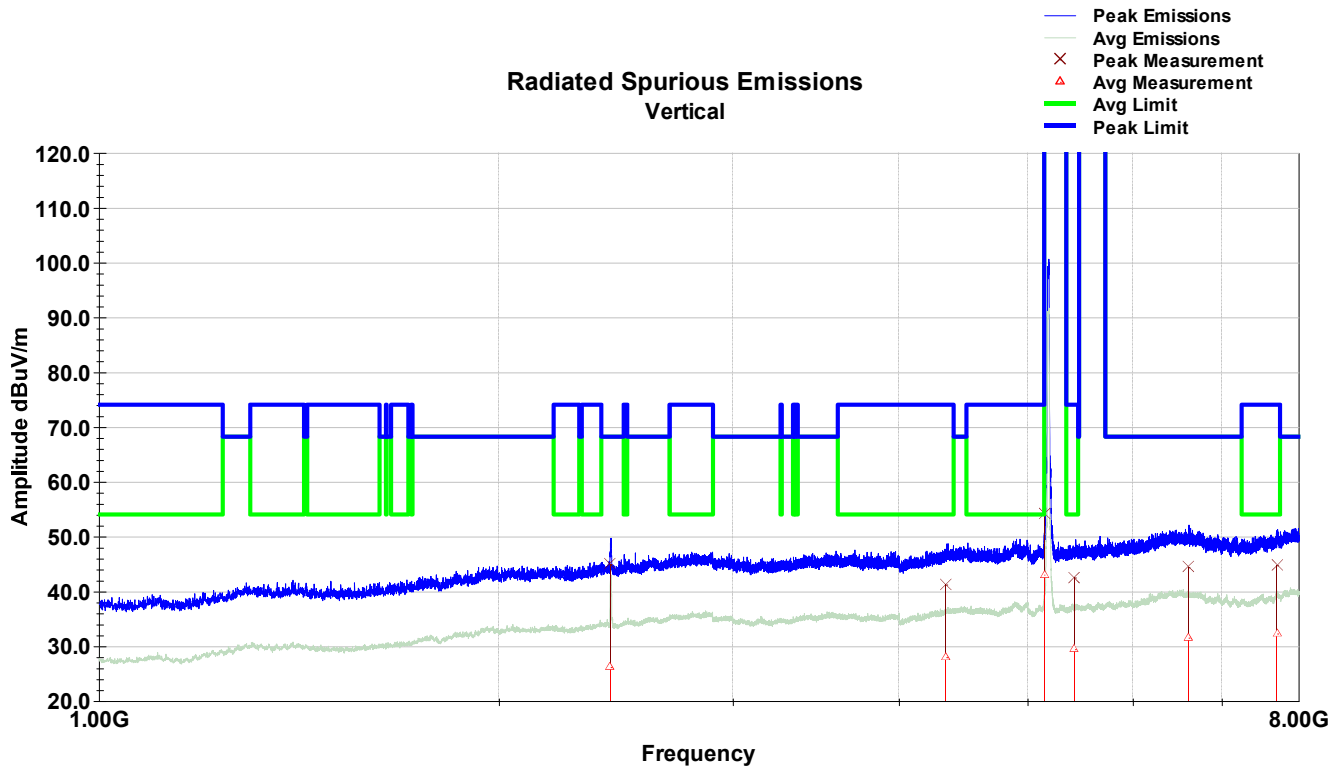
QP Value = Raw QP + AF + Loss - Amp

Margin = QP Value - Limit

1-8 GHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation. Worst case plots shown. Only fundamental frequency is present.

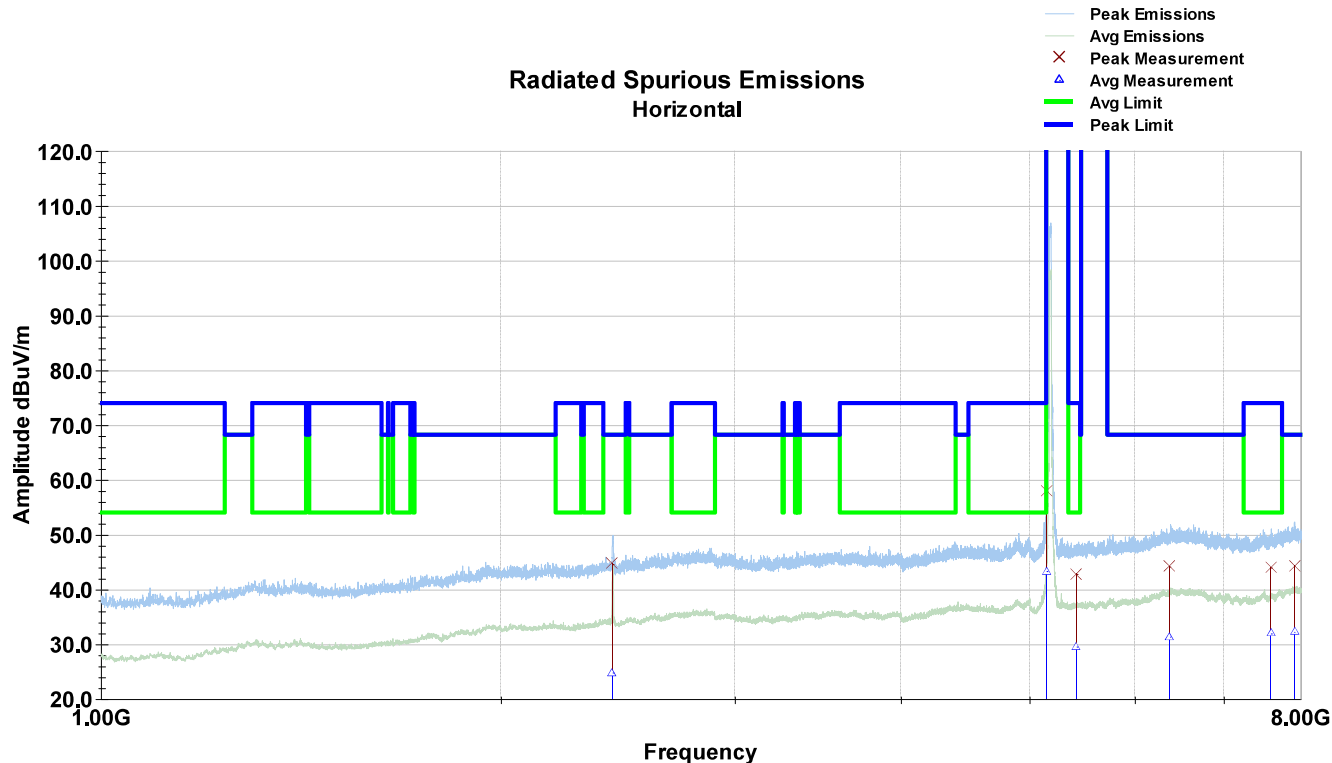
1-8GHz – Vertical – CH36 X-axis



Peak											
Frequency MHz	Raw Pk (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF (dB)	Amp (dB)	Final Pk (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2426.99	45.6	V	215.0	172.0	31.9	1.9	0.0	34.5	45.0	68.2	-23.2
4342.54	39.2	V	297.0	181.0	33.6	2.6	0.0	34.2	41.3	74.0	-32.7
5147.50	51.7	V	25.0	127.0	34.2	2.9	0.0	34.6	54.2	74.0	-19.8
5427.52	39.3	V	21.0	216.0	34.5	2.9	0.0	34.1	42.6	74.0	-31.4
6608.62	39.8	V	324.0	116.0	35.6	3.1	0.0	34.0	44.4	68.2	-23.8
7706.98	39.8	V	342.0	234.0	35.9	3.4	0.0	34.3	44.8	74.0	-29.2
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Average											
Frequency MHz	Raw Avg dBuV	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	DCF dB	Amp dB	Final Avg dBuV/m	Limit dBuV/m	Margin dB
2426.99	26.8	V	215.0	172.0	31.9	1.9	0.0	34.5	26.2	68.2	-42.0
4342.54	26.0	V	297.0	181.0	33.6	2.6	0.0	34.2	28.0	54.0	-26.0
5147.50	40.6	V	25.0	127.0	34.2	2.9	0.0	34.6	43.1	54.0	-13.4
5427.52	26.2	V	21.0	216.0	34.5	2.9	0.0	34.1	29.5	54.0	-24.5
6608.62	26.9	V	324.0	116.0	35.6	3.1	0.0	34.0	31.6	68.2	-36.6
7706.98	27.4	V	342.0	234.0	35.9	3.4	0.0	34.3	32.3	54.0	-21.7
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

1-8GHz – Horizontal – CH36 X-axis



Peak

Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
2426.95	45.3	H	304.0	216.0	31.9	1.9	0.0	34.5	44.7	68.2	-23.5
5149.95	55.5	H	21.0	100.0	34.2	2.8	0.0	34.7	57.9	74.0	-16.1
5425.40	39.6	H	52.0	217.0	34.5	2.9	0.0	34.1	42.8	74.0	-31.2
6380.55	39.5	H	102.0	190.0	35.8	3.0	0.0	34.2	44.2	68.2	-24.0
7597.15	39.4	H	354.0	236.0	35.8	3.3	0.0	34.4	44.0	74.0	-30.0
7912.85	39.2	H	100.0	224.0	36.0	3.5	0.0	34.4	44.3	68.2	-23.9
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

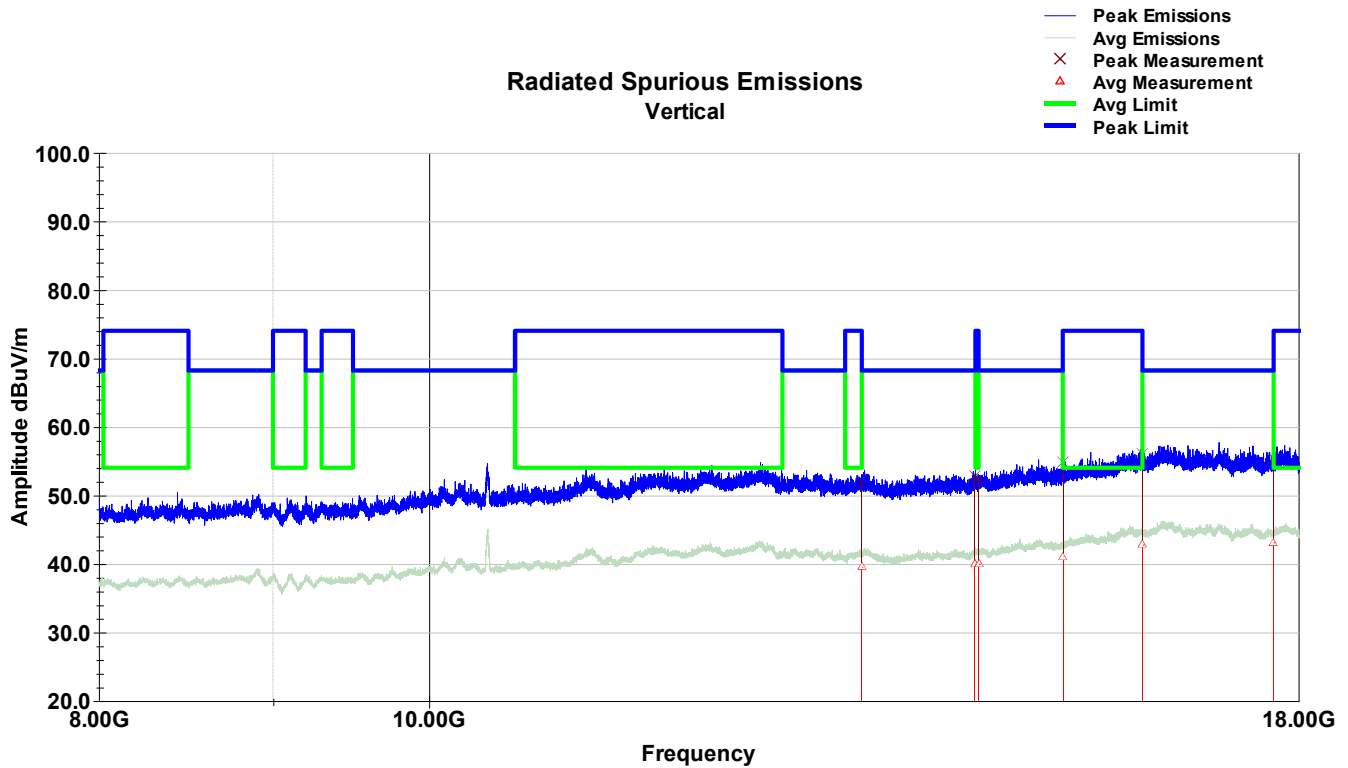
Average

Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Avg Value dBuV/m	Limit dBuV/m	Margin dB
2426.95	25.5	H	304.0	216.0	31.9	1.9	0.0	34.5	24.9	68.2	-43.3
5149.95	40.9	H	21.0	100.0	34.2	2.8	0.0	34.7	43.3	54.0	-10.7
5425.40	26.3	H	52.0	217.0	34.5	2.9	0.0	34.1	29.6	54.0	-24.4
6380.55	26.7	H	102.0	190.0	35.8	3.0	0.0	34.2	31.4	68.2	-36.8
7597.15	27.4	H	354.0	236.0	35.8	3.3	0.0	34.4	32.0	54.0	-22.0
7912.85	27.2	H	100.0	224.0	36.0	3.5	0.0	34.4	32.3	68.2	-35.9
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

8-18GHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation.

8-18GHz – Vertical – CH36 X-axis



Peak

Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
13400.52	43.8	V	207.0	179.0	39.2	5.1	NAN	36.2	52.0	68.2	-16.2
14465.00	44.2	V	243.0	169.0	39.7	5.1	NAN	36.2	52.8	68.2	-15.4
14500.76	43.8	V	301.0	200.0	39.8	5.4	NAN	36.6	52.4	68.2	-15.8
15354.96	45.2	V	123.0	158.0	40.2	5.6	NAN	36.2	54.8	74.0	-19.2
16198.60	45.3	V	4.0	182.0	40.8	5.9	NAN	36.0	56.1	74.0	-17.9
17695.72	44.8	V	43.0	221.0	40.9	6.2	NAN	36.5	55.5	68.2	-12.7

Final Pk = Raw Pk + AF + Loss - Amp

Margin = Final Pk - Limit

Average

Frequency MHz	Raw Avg dBuV	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	DCF dB	Amp dB	Final Avg dBuV/m	Limit dBuV/m	Margin dB
13400.52	31.4	V	207.0	179.0	39.2	5.1	NAN	36.2	39.6	68.2	-28.6
14465.00	31.5	V	243.0	169.0	39.7	5.1	NAN	36.2	40.1	68.2	-28.1
14500.76	31.4	V	301.0	200.0	39.8	5.4	NAN	36.6	40.0	68.2	-28.2
15354.96	31.5	V	123.0	158.0	40.2	5.6	NAN	36.2	41.1	54.0	-12.9
16198.60	32.1	V	4.0	182.0	40.8	5.9	NAN	36.0	42.8	54.0	-11.2
17695.72	32.6	V	43.0	221.0	40.9	6.2	NAN	36.5	43.2	68.2	-25.0

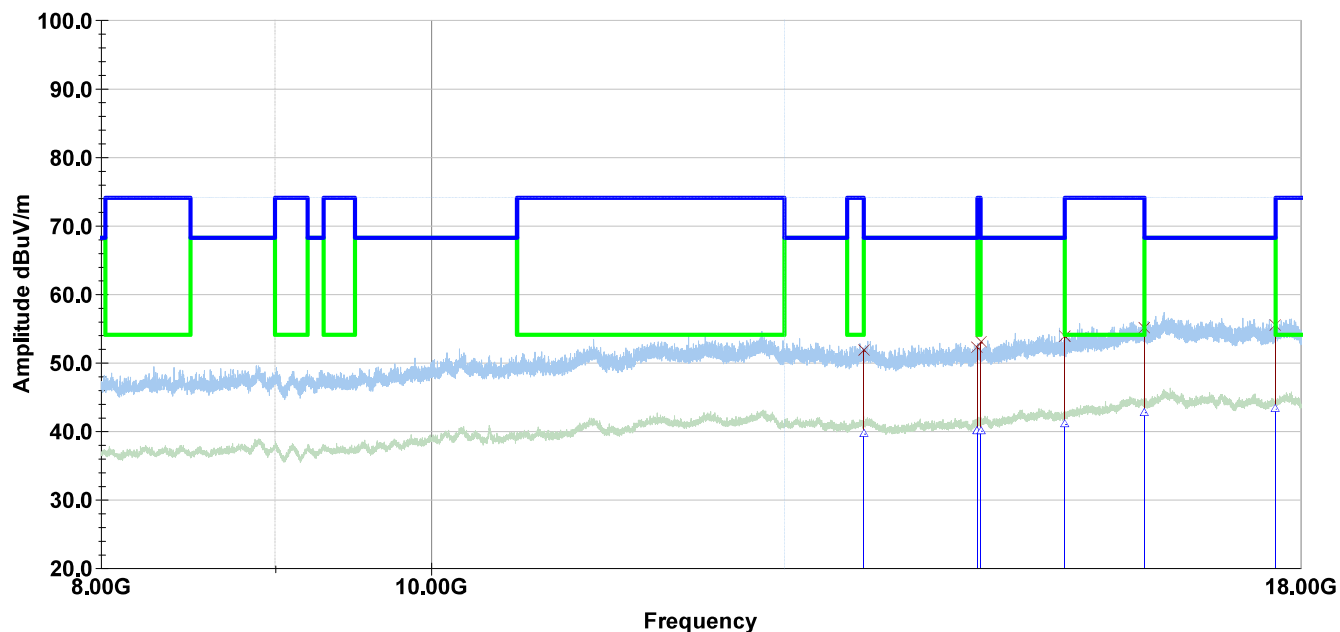
Final Avg = Raw Avg + AF + Loss - Amp

Margin = Final Avg - Limit

8-18GHz – Horizontal – CH36 X-axis

Radiated Spurious Emissions
Horizontal

— Peak Emissions
 — Avg Emissions
 × Peak Measurement
 △ Avg Measurement
 — Avg Limit
 — Peak Limit



Peak

Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
13400.00	43.5	H	60.0	196.0	39.2	5.1	NAN	36.2	51.7	68.2	-16.5
14470.00	43.5	H	34.0	226.0	39.7	5.2	NAN	36.3	52.1	68.2	-16.1
14500.00	44.4	H	296.0	169.0	39.8	5.4	NAN	36.6	52.9	68.2	-15.3
15350.00	44.1	H	344.0	248.0	40.2	5.6	NAN	36.2	53.7	68.2	-14.5
16200.00	44.2	H	227.0	179.0	40.8	5.9	NAN	36.0	55.0	68.2	-13.2
17700.00	44.7	H	119.0	100.0	40.9	6.2	NAN	36.5	55.4	68.2	-12.8

Final Pk = Raw Pk + AF + Loss - Amp

Margin = Final Pk - Limit

Average

Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Avg Value dBuV/m	Limit (dBuV/m)	Margin (dB)
13400.00	31.4	H	60.0	196.0	39.2	5.1	NAN	36.2	39.6	68.2	-28.6
14470.00	31.5	H	34.0	226.0	39.7	5.2	NAN	36.3	40.1	68.2	-28.1
14500.00	31.5	H	296.0	169.0	39.8	5.4	NAN	36.6	40.1	68.2	-28.1
15350.00	31.4	H	344.0	248.0	40.2	5.6	NAN	36.2	41.0	68.2	-27.2
16200.00	32.0	H	227.0	179.0	40.8	5.9	NAN	36.0	42.8	68.2	-25.4
17700.00	32.6	H	119.0	100.0	40.9	6.2	NAN	36.5	43.3	68.2	-24.9

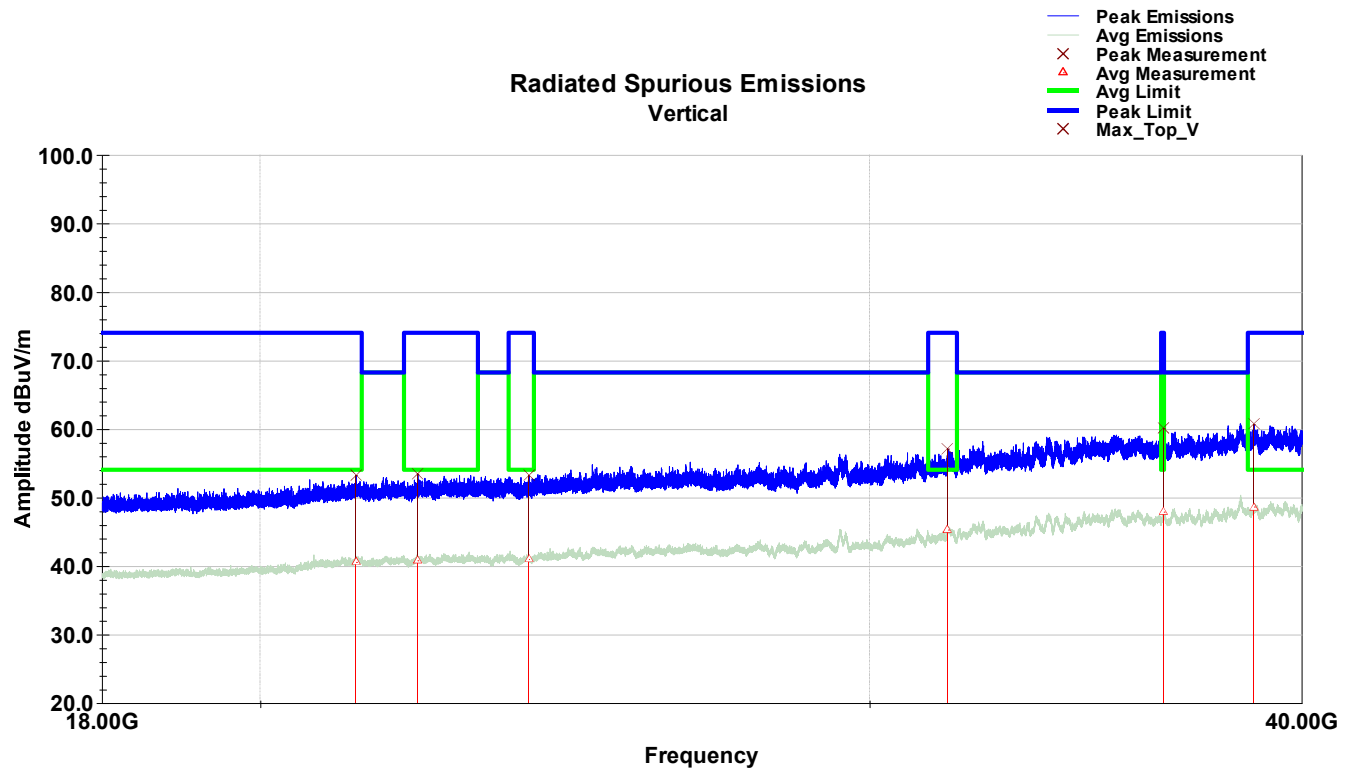
Final Avg = Raw Avg + AF + Loss - Amp

Margin = Final Avg - Limit

18-40 GHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation.

18-40GHz – Vertical – CH36 X-axis



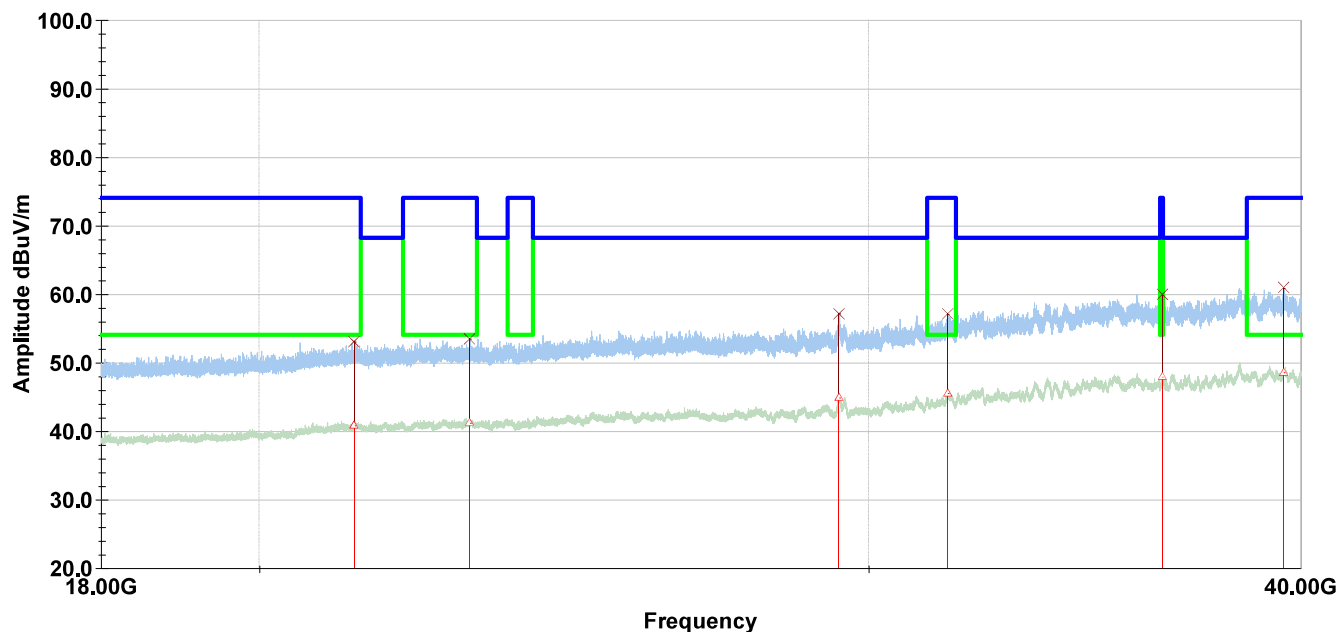
Peak											
Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
21314.96	57.3	V	318.0	248.0	45.6	9.7	-9.5	49.9	53.2	74.0	-20.8
22205.96	57.5	V	198.0	248.0	45.6	9.9	-9.5	50.1	53.5	74.0	-20.5
23914.92	56.8	V	55.0	200.0	45.7	10.3	-9.5	50.1	53.2	74.0	-20.8
31607.44	54.3	V	231.0	248.0	47.4	12.0	-9.5	47.1	57.1	74.0	-16.9
36489.24	57.7	V	211.0	100.0	48.8	13.3	-9.5	50.1	60.1	74.0	-13.9
38745.12	57.7	V	35.0	150.0	49.1	13.7	-9.5	50.3	60.7	74.0	-13.3
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Average											
Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
21314.96	44.7	V	318.0	248.0	45.6	9.7	-9.5	49.9	40.6	54.0	-13.4
22205.96	44.9	V	198.0	248.0	45.6	9.9	-9.5	50.1	40.9	54.0	-13.2
23914.92	44.6	V	55.0	200.0	45.7	10.3	-9.5	50.1	41.0	54.0	-13.0
31607.44	42.5	V	231.0	248.0	47.4	12.0	-9.5	47.1	45.3	54.0	-8.7
36489.24	45.5	V	211.0	100.0	48.8	13.3	-9.5	50.1	47.9	54.0	-6.1
38745.12	45.7	V	35.0	150.0	49.1	13.7	-9.5	50.3	48.7	54.0	-5.4
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

18-40GHz – Horizontal – CH36 X-axis

Radiated Spurious Emissions Horizontal

- Peak Emissions
- Avg Emissions
- × Peak Measurement
- △ Avg Measurement
- Avg Limit
- Peak Limit



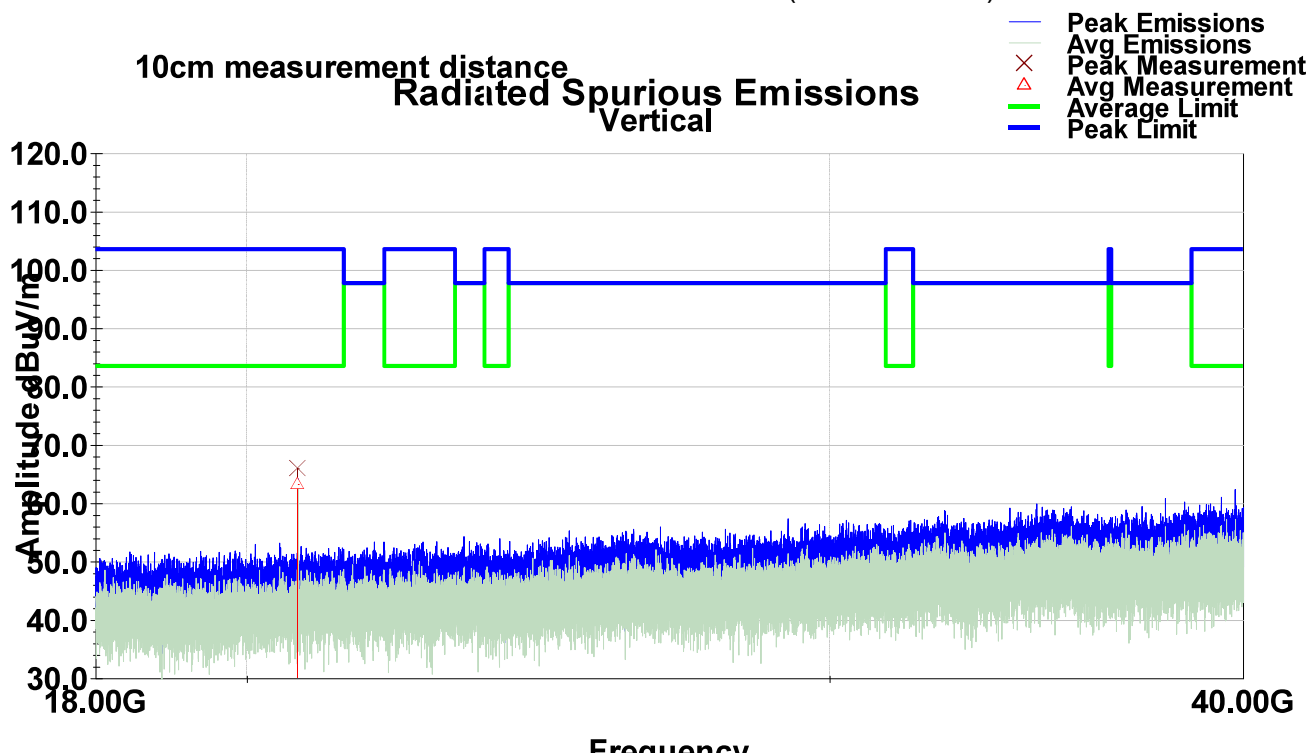
Peak

Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
21311.88	57.2	H	300.0	200.0	45.6	9.7	-9.5	49.9	53.1	74.0	-20.9
23009.40	57.1	H	201.0	247.0	45.7	10.2	-9.5	50.1	53.5	74.0	-20.5
29422.40	56.7	H	278.0	247.0	46.9	11.8	-9.5	48.6	57.2	68.2	-11.0
31622.84	54.1	H	213.0	247.0	47.4	12.0	-9.5	46.9	57.1	74.0	-16.9
36485.72	57.4	H	273.0	100.0	48.8	13.3	-9.5	50.1	59.9	74.0	-14.2
39546.36	56.8	H	354.0	200.0	49.1	14.0	-9.5	49.5	60.9	74.0	-13.1
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

Average

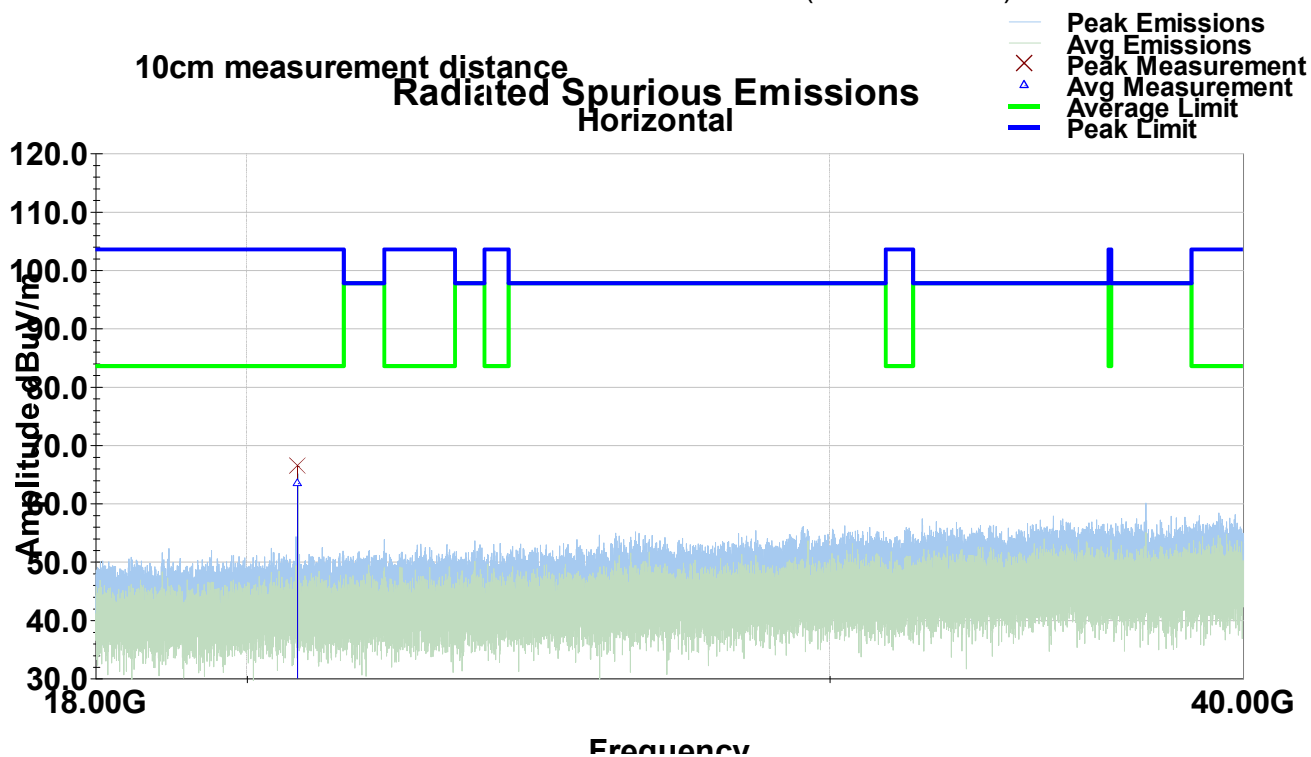
Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
21311.88	44.9	H	300.0	200.0	45.6	9.7	-9.5	49.9	40.8	54.0	-13.2
23009.40	44.8	H	201.0	247.0	45.7	10.2	-9.5	50.1	41.2	54.0	-12.8
29422.40	44.4	H	278.0	247.0	46.9	11.8	-9.5	48.6	44.9	68.2	-23.3
31622.84	42.5	H	213.0	247.0	47.4	12.0	-9.5	46.9	45.5	54.0	-8.5
36485.72	45.4	H	273.0	100.0	48.8	13.3	-9.5	50.1	47.9	54.0	-6.1
39546.36	44.5	H	354.0	200.0	49.1	14.0	-9.5	49.5	48.6	54.0	-5.4
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

18-40GHz – Vertical – CH36 X-axis (10cm distance)



Note: To verify compliance, measurements were performed at a 10cm distance.

18-40GHz – Horizontal – CH36 X-axis (10cm distance)



6.11.2 WLAN 802.11a – 18 Mbps - OFDM - Antenna 1 – Channel 100

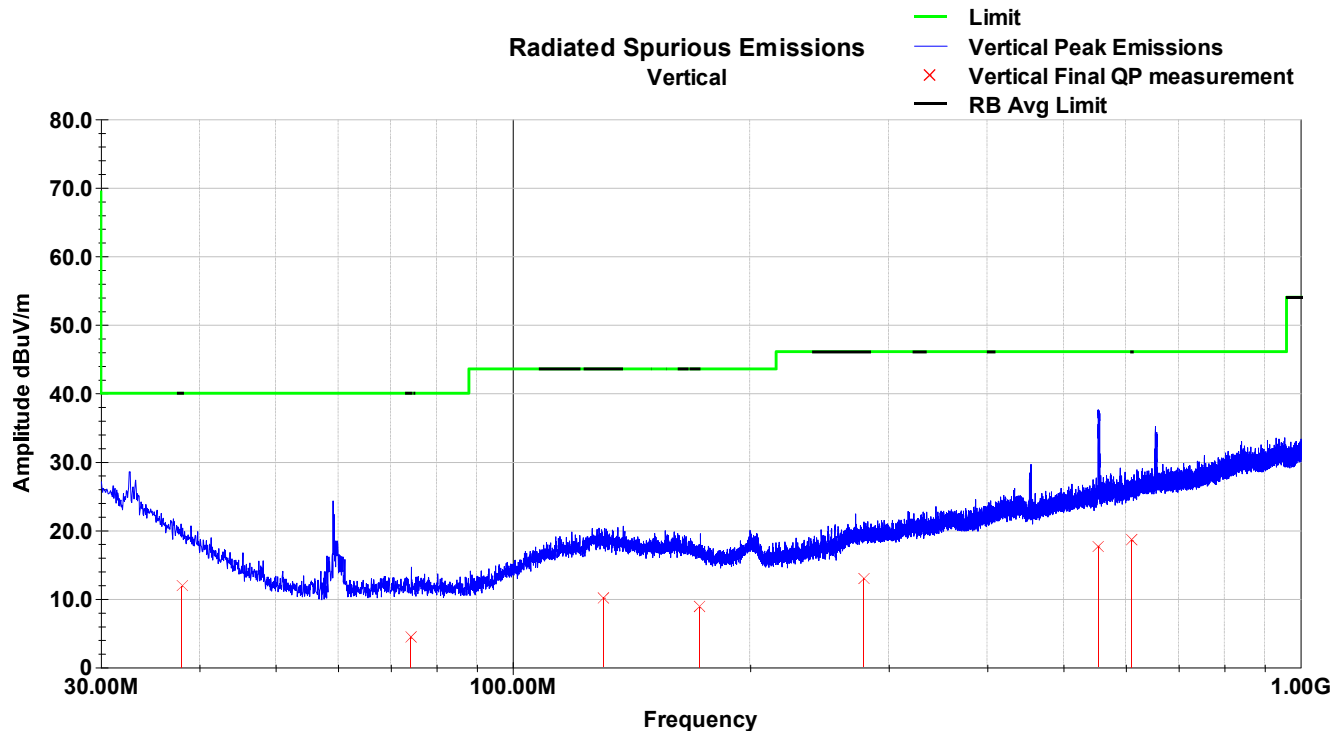
9kHz-30MHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation. Worst case shown on Channel 36.

30-1000MHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation.

30-1000MHz – Vertical– CH100 X-axis



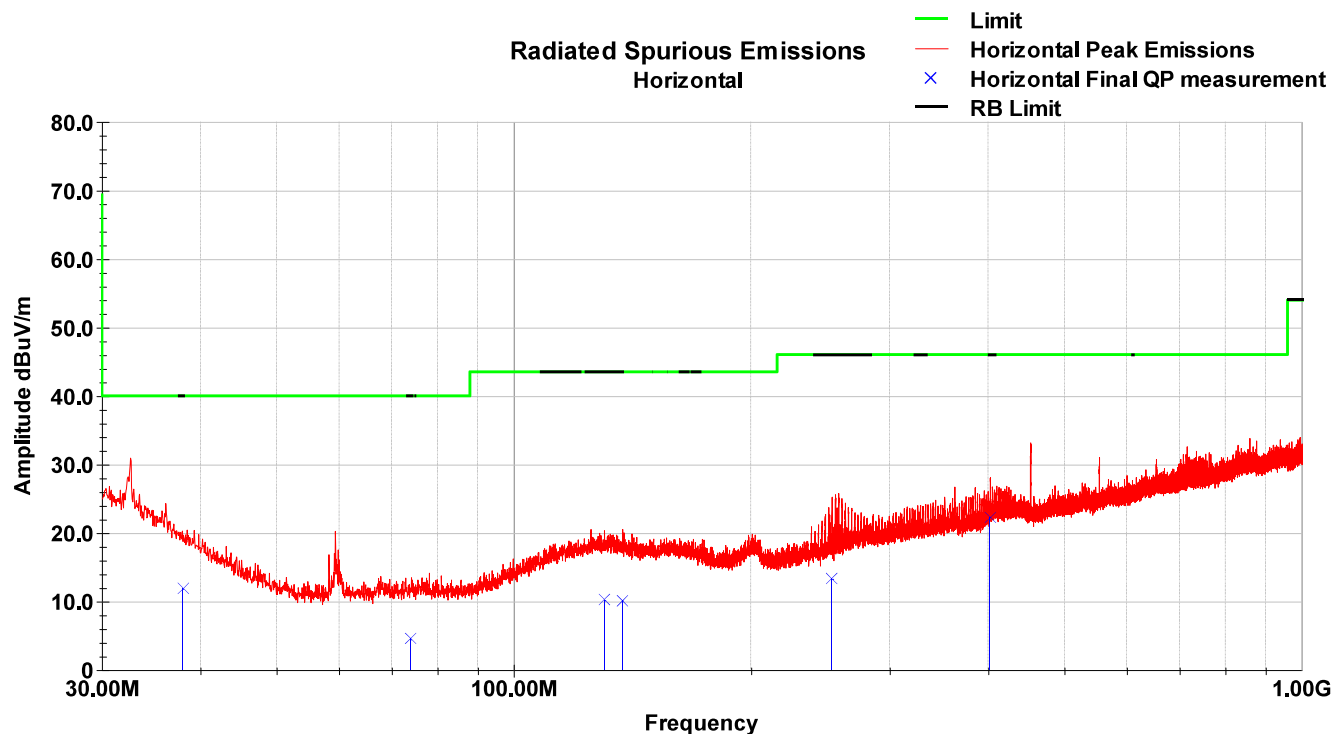
Quasi Peak

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
38.02	23.2	V	136.0	281.0	20.0	0.6	32.0	11.9	40.0	-28.1
74.28	23.0	V	161.0	261.0	12.2	1.0	31.9	4.3	40.0	-35.7
130.48	22.7	V	36.0	276.0	17.8	1.4	31.8	10.2	43.5	-33.4
172.83	23.1	V	35.0	276.0	15.7	1.6	31.8	8.8	43.5	-34.7
278.93	24.3	V	307.0	279.0	17.9	2.3	31.6	12.9	46.0	-33.1
554.78	22.8	V	14.0	171.0	22.8	3.3	31.4	17.6	46.0	-28.4
610.68	22.8	V	123.0	113.0	23.8	3.3	31.4	18.5	46.0	-27.5

QP Value = Raw QP + AF + Loss - Amp

Margin = QP Value - Limit

30-1000MHz – Horizontal– CH100 X-axis



Quasi Peak

Frequency MHz	Raw QP (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	Amp (dB)	QP Value (dBuV/m)	Limit (dBuV/m)	Margin (dB)
38.02	23.3	H	181.0	157.0	20.0	0.6	32.0	11.9	40.0	-28.1
73.98	23.2	H	284.0	175.0	12.2	1.0	31.9	4.5	40.0	-35.5
130.22	22.7	H	90.0	235.0	17.8	1.4	31.8	10.2	43.5	-33.3
137.29	23.1	H	7.0	219.0	17.4	1.4	31.8	10.2	43.5	-33.3
253.41	26.6	H	161.0	190.0	16.2	2.1	31.7	13.3	46.0	-32.7
402.22	30.6	H	191.0	100.0	20.3	2.7	31.4	22.3	46.0	-23.7

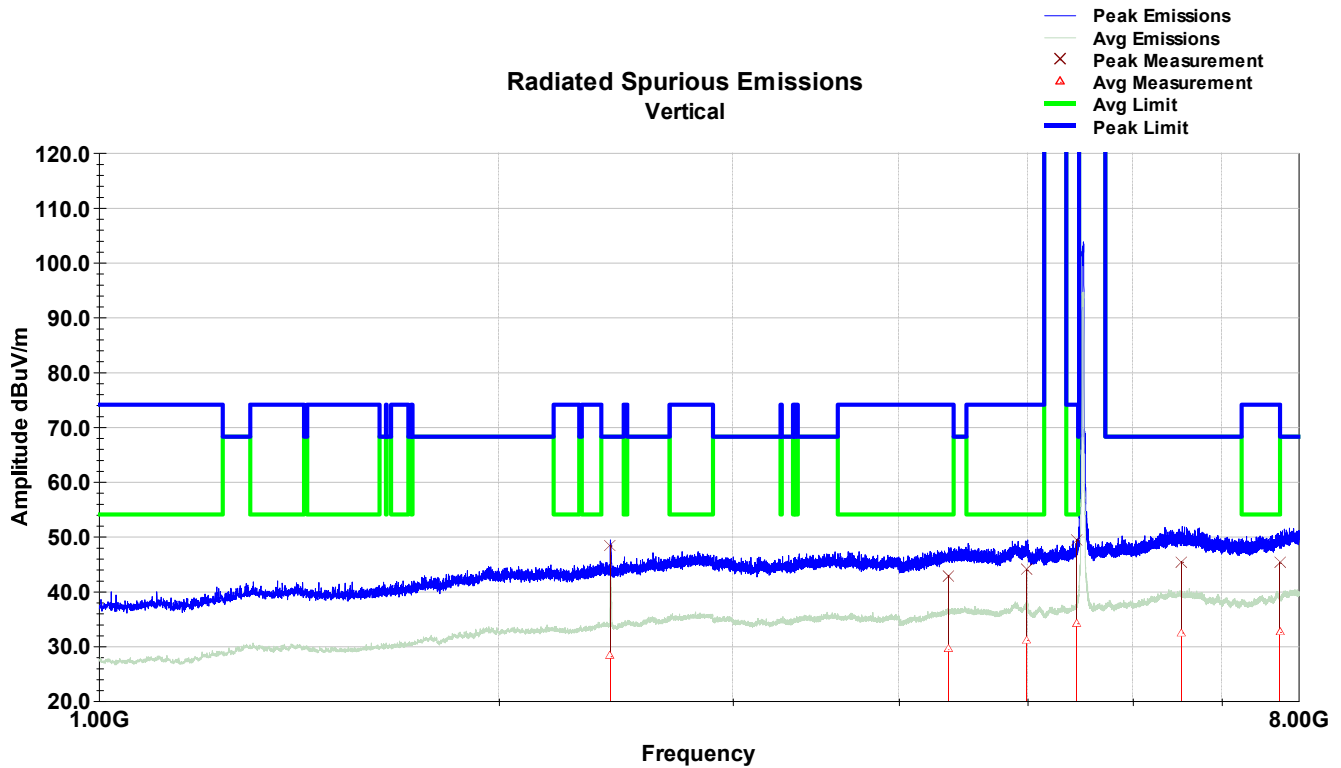
QP Value = Raw QP + AF + Loss - Amp

Margin = QP Value - Limit

1-8 GHz

- This frequency range does not show any significant difference between different chains, channels and/or orientation. Worst case plots shown. Only fundamental frequency is present.

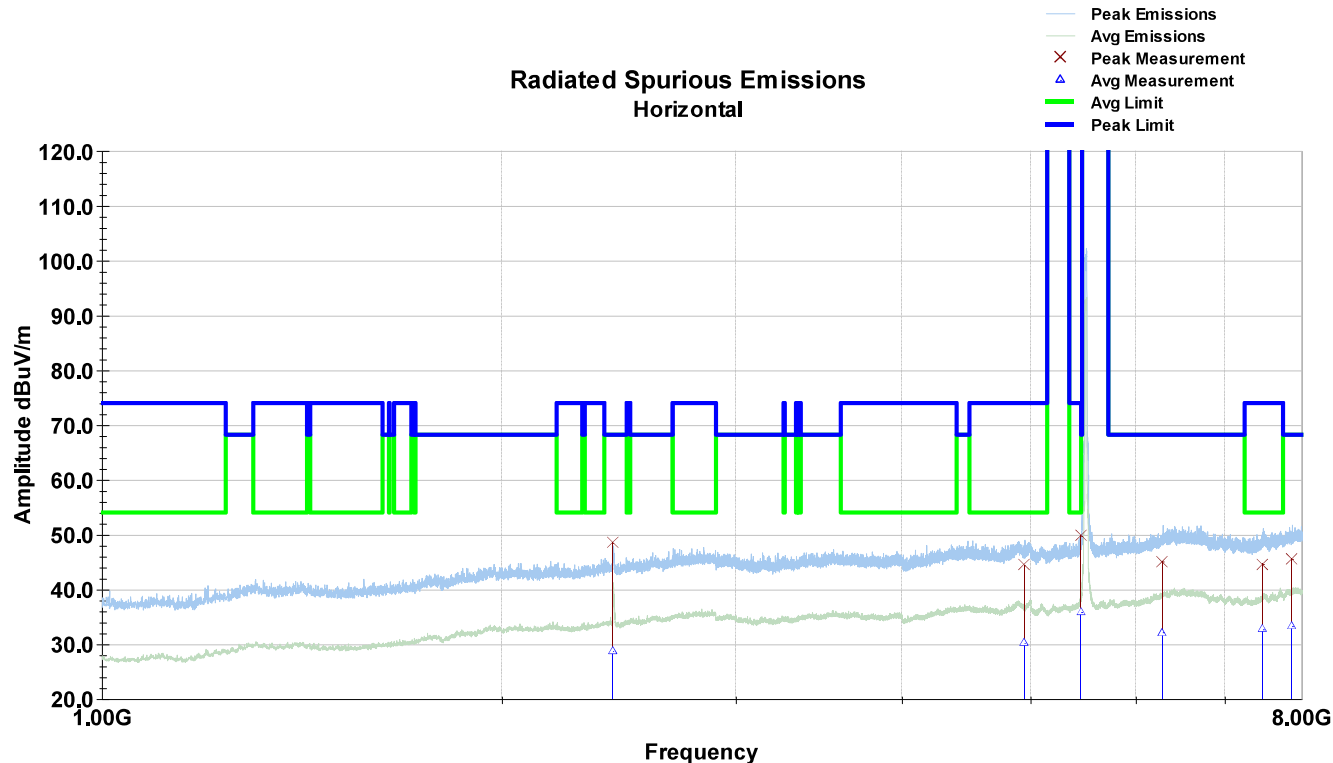
1-8GHz – Vertical – CH100 Z-axis



Peak											
Frequency MHz	Raw Pk (dBuV)	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF (dB)	Amp (dB)	Final Pk (dBuV/m)	Limit (dBuV/m)	Margin (dB)
2426.92	49.0	V	44.0	100.0	31.9	1.9	0.0	34.5	48.4	68.2	-19.8
4358.36	40.8	V	41.0	158.0	33.6	2.6	0.0	34.2	42.9	74.0	-31.1
4994.77	40.8	V	158.0	250.0	34.1	3.0	0.0	33.9	44.0	74.0	-30.0
5449.10	46.0	V	313.0	209.0	34.5	3.0	0.0	34.1	49.4	74.0	-24.6
6536.65	40.9	V	57.0	160.0	35.6	3.1	0.0	34.2	45.4	68.2	-22.8
7745.04	40.8	V	118.0	249.0	36.0	3.3	0.0	34.9	45.2	74.0	-28.8
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Average											
Frequency MHz	Raw Avg dBuV	Polarity V/H	Azimuth degrees	Height cm	AF dB/m	Loss dB	DCF dB	Amp dB	Final Avg dBuV/m	Limit dBuV/m	Margin dB
2426.92	28.8	V	44.0	100.0	31.9	1.9	0.0	34.5	28.2	68.2	-40.0
4358.36	27.4	V	41.0	158.0	33.6	2.6	0.0	34.2	29.5	54.0	-24.5
4994.77	28.0	V	158.0	250.0	34.1	3.0	0.0	33.9	31.1	54.0	-22.9
5449.10	30.8	V	313.0	209.0	34.5	3.0	0.0	34.1	34.2	54.0	-19.8
6536.65	27.9	V	57.0	160.0	35.6	3.1	0.0	34.2	32.5	68.2	-35.7
7745.04	28.2	V	118.0	249.0	36.0	3.3	0.0	34.9	32.6	54.0	-21.4
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											

1-8GHz – Horizontal – CH100 Z-axis



Peak

Frequency MHz	Raw Pk dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Final Pk dBuV/m	Limit dBuV/m	Margin dB
2425.20	49.1	H	331.0	233.0	31.9	1.9	0.0	34.5	48.5	68.2	-19.7
4948.70	42.0	H	331.0	232.0	34.0	2.8	0.0	34.4	44.4	74.0	-29.6
5457.60	46.4	H	89.0	100.0	34.5	3.0	0.0	34.2	49.8	74.0	-24.2
6287.10	40.5	H	297.0	249.0	35.8	3.1	0.0	34.2	45.1	68.2	-23.1
7477.80	40.3	H	218.0	119.0	35.8	3.2	0.0	34.7	44.6	74.0	-29.4
7865.25	40.8	H	16.0	218.0	36.0	3.4	0.0	34.6	45.6	68.2	-22.6
Final Pk = Raw Pk + AF + Loss + DCF - Amp											
Margin = Final Pk - Limit											

Average

Frequency MHz	Raw Avg dBuV	Polarity (V/H)	Azimuth (degrees)	Height (cm)	AF (dB/m)	Loss (dB)	DCF dB	Amp (dB)	Avg Value dBuV/m	Limit (dBuV/m)	Margin (dB)
2425.20	29.4	H	331.0	233.0	31.9	1.9	0.0	34.5	28.8	68.2	-39.4
4948.70	27.8	H	331.0	232.0	34.0	2.8	0.0	34.4	30.2	54.0	-23.8
5457.60	32.6	H	89.0	100.0	34.5	3.0	0.0	34.2	35.9	54.0	-18.1
6287.10	27.6	H	297.0	249.0	35.8	3.1	0.0	34.2	32.2	68.2	-36.0
7477.80	28.5	H	218.0	119.0	35.8	3.2	0.0	34.7	32.8	54.0	-21.2
7865.25	28.6	H	16.0	218.0	36.0	3.4	0.0	34.6	33.3	68.2	-34.9
Final Avg = Raw Avg + AF + Loss + DCF - Amp											
Margin = Final Avg - Limit											