F2 Labs
16740 Peters Road
Middlefield, Ohio 44062
United States of America
www.f2labs.com

CERTIFICATION TEST REPORT

Manufacturer:	**Avnet Inc.** **2211 South 47th Street** **Phoenix, Arizona 85034 USA**
Applicant:	**Same as Above**
Product Name:	**Azure Sphere MT3620 Modules**
Product Description:	Microsoft Azure Sphere certified Wi-Fi SoC module for highly-secured IoT applications (Dual UFL connector version for external antennas, RX and TX diversity and Industrial temperature operating range)
Operating Voltage/Frequency:	**3.3V DC**
Modular Radio Model:	**AES-MS-MT3620-M-G**
Radio Module FCC ID:	**2AF62-AVT3620C**
Testing Commenced:	Jan. 24, 2020
Testing Ended:	Aug. 25, 2020
Summary of Test Results:	**In Compliance** The EUT complies with the EMC requirements when manufactured identically as the unit tested in this report, including any required modifications. Any changes to the design or build of this unit subsequent to this testing may deem it non-compliant.

Rule(s):

- **FCC Part 15 Subpart E – Unlicensed National Information Infrastructure Devices, Section 15.407 General technical requirements**
- **FCC15.207 - Conducted Limits**

Evaluation Conducted by:

Julius Chiller, EMC/Wireless Engineer

Report Reviewed by:

Ken Littell, Director of EMC & Wireless Operations

F2 Labs
26501 Ridge Road
Damascus, MD 20872
Ph 301.253.4500

F2 Labs
16740 Peters Road
Middlefield, OH 44062
Ph 440.632.5541

F2 Labs
8583 Zionsville Road
Indianapolis, IN 46268
Ph 317.610.0611

TABLE OF CONTENTS

1 ADMINISTRATIVE INFORMATION

1.1 Measurement Location:

F2 Labs in Middlefield, Ohio. Site description and attenuation data are on file with the FCC's Sampling and Measurement Branch at the FCC Laboratory in Columbia, MD.

1.2 Measurement Procedure:

All measurements were performed according to ANSI C63.10:2013 and recommended FCC procedure of measurement of DTS operating under Section 15.407 and in KDB789033 v2r01. A list of the measurement equipment can be found in Section 6.

1.3 Uncertainty Budget:

The uncertainty in EMC measurements arises from several factors which affect the results, some associated with environmental conditions in the measurement room, the test equipment being used, and the measurement techniques adopted.

The measurement uncertainty budgets detailed below are calculated from the test and calibration data and are expressed with a 95% confidence factor using a coverage factor of k=2. The Uncertainty for a laboratory is referred to as *U*lab. For Radiated and Conducted Emissions, the Expanded Uncertainty is compared to the *U*cispr values to determine if a specific margin is required to deem compliance.

*U*lab

Measurement Range	Combined Uncertainty	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	2.54	5.07dB
Radiated Emissions <1 GHz @ 10m	2.55	5.09dB
Radiated Emissions 1 GHz to 2.7 GHz	1.81	3.62dB
Radiated Emissions 2.7 GHz to 18 GHz	1.55	3.10dB
AC Power Line Conducted Emissions, 150kHz to 30 MHz	1.38	2.76dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	1.66	3.32dB

*U*cispr

Measurement Range	Expanded Uncertainty
Radiated Emissions <1 GHz @ 3m	5.2dB
Radiated Emissions <1 GHz @ 10m	5.2dB
Radiated Emissions 1 GHz to 2.7 GHz	Under Consideration
Radiated Emissions 2.7 GHz to 18 GHz	Under Consideration
AC Power Line Conducted Emissions, 150kHz to 30 MHz	3.6dB
AC Power Line Conducted Emissions, 9kHz to 150kHz	4.0dB

If *U*lab is less than or equal to *U*cispr, then:
- compliance is deemed to occur if no measured disturbance exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance exceeds the disturbance limit.

If *U*lab is greater than *U*cispr in table 1, then:
- compliance is deemed to occur if no measured disturbance, increased by (*U*lab – *U*cispr), exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance, increased by (*U*lab – *U*cispr), exceeds the disturbance limit.

Note: Only measurements listed in the tables above that relate to tests included in this Test Report are applicable.

1.4 Document History

Document Number	Description	Issue Date	Approved By
F2P20567A-R1-01E	First Issue	Aug. 25, 2020	K. Littell

2 SUMMARY OF TEST RESULTS

Test Name	Standard(s)	Results
Radiated Spurious Emissions: 5.25-5.35 & 5.47-5.725 GHz	CFR 47 Part 15.407/ KDB789033	Complies
Occupied Bandwidth	CFR 47 Part 15.407(e) / Part 15.209 / KDB789033	Complies
Output Power	CFR 47 Part 15.407(a)(1)(iv) / Part 15.407(a)(3) / KDB789033	Complies
Power Spectral Density	CFR 47 Part 15.407(a)(1)(iv) / Part 15.407(a)(3) / KDB789033	Complies
Voltage Variations	CFR 47 Part 15.31(e)	Complies
Conducted Emissions	CFR 47 Part 15.207(a)	Complies

Modifications Made to the Equipment
No modifications were made to the EUT.

3 TABLE OF MEASURED RESULTS

For the UNI II band, 5260 MHz was the low channel, 5300 MHz was the mid channel, and 5320 MHz was the high channel.

For the U-NII-2C band, 5500 MHz was the low channel, 5600 MHz was the mid channel, and 5700 MHz was the high channel.

Test			Low Channel (5260 MHz) (5500 MHz)	Mid Channel (5300 MHz) (5600 MHz)	High Channel (5320 MHz) (5700 MHz)
Output Power	U-NII-2A	CCK	15.56mW, 11.92dBm	17.06mW, 12.32dBm	17.70mW, 12.48dBm
		OFDM	23.34mW, 13.68dBm	25.12mW, 14.00dBm	26.18mW, 14.18dBm
		MCS7	22.64mW, 13.55dBm	25.3mW, 14.03dBm	26.0mW, 14.15dBm
	U-NII-2C	CCK	13.52mW, 11.31dBm	17.58mW, 12.45dBm	17.3mW, 12.38dBm
		OFDM	23.12mW, 13.64dBm	23.33mW, 13.68dBm	23.28mW, 13.67dBm
		MCS7	21.28mW, 13.28dBm	23.28mW, 13.67dBm	23.33mW, 13.68dBm
Output Power Limits	5.25-5.35 GHz & 5.47-5.725 GHz		250mW, 24dBm	250mW, 24dBm	250mW, 24dBm
Peak Power Spectral Density	U-NII-2A, CCK		4.11dBm	4.35dBm	4.30dBm
	U-NII-2A, OFDM		3.58dBm	3.39dBm	3.71dBm
	U-NII-2A, MCS7		3.64dBm	3.61dBm	5.30dBm
	U-NII-2C, CCK		3.72dBm	4.29dBm	3.96dBm
	U-NII-2C, OFDM		3.33dBm	3.44dBm	3.60dBm
	U-NII-2C, MCS7		3.35dBm	3.65dBm	3.78dBm
	Limit:		11dBm/1 MHz	11dBm/1 MHz	11dBm/1 MHz
-26dB Occupied Bandwidth (MHz)	UNI	CCK	17.051	16.973	16.959
		OFDM	19.683	19.832	19.607
		MCS7	19.636	19.68	19.774
	U-NII-2C	CCK	16.968	16.956	17.001
		OFDM	19.674	19.925	19.685
		HT20	19.785	19.682	19.718

Test			Low Channel (5260 MHz)	Mid Channel (5300 MHz)	High Channel (5320 MHz)
*Voltage Variations UNII IIA	CCK	3.3V	11.92dBm	12.32dBm	12.48dBm
		@ 85%	11.43dBm	10.60dBm	12.06dBm
		@ 115%	10.58dBm	10.38dBm	11.53dBm
	OFDM	3.3V	13.68dBm	14.00dBm	14.18dBm
		@ 85%	13.69dBm	13.72dBm	14.28dBm
		@ 115%	13.49dBm	13.92dBm	14.18dBm
	MCS7	3.3V	13.55dBm	1.03dBm	14.15dBm
		@ 85%	13.41dBm	13.80dBm	13.93dBm
		@ 115%	13.38dBm	13.92dBm	14.10dBm
Test			**Low Channel (5500 MHz)**	**Mid Channel (5600 MHz)**	**High Channel (5700 MHz)**
*Voltage Variations UNII IIC	CCK	3.3V	11.31dBm	12.45dBm	12.38dBm
		@ 85%	10.85dBm	12.09dBm	12.16dBm
		@ 115%	10.45dBm	11.80dBm	12.12dBm
	OFDM	3.3V	13.64dBm	13.68dBm	13.67dBm
		@ 85%	13.45dBm	13.47dBm	13.33dBm
		@ 115%	12.60dBm	13.84dBm	13.76dBm
	MCS7	3.3V	13.28dBm	13.67dBm	13.68dBm
		@ 85%	12.98dBm	13.47dBm	13.37dBm
		@ 115%	12.16dBm	12.58dBm	13.81dBm

4 ENGINEERING STATEMENT

This report has been prepared on behalf of Avnet Inc. to provide documentation for the testing described herein. This equipment has been tested and found to comply with Part 15.407 of the FCC Rules using ANSI C63.10 and KDB789033 standards. The test results found in this test report relate only to the items tested.

5 EUT INFORMATION AND DATA

5.1 Equipment Under Test:

Product: Azure Sphere MT3620 Modules
Model: AES-MS-MT360-M-G
Serial No.: 0002B501E625
Firmware: Azure Sphere Client API Ver. 19.02.4.2632
FCC ID: 2AF62-AVT3620C

5.2 Trade Name:

Avnet Inc.

5.3 Power Supply:

3.3V DC

5.4 Applicable Rules:

CFR 47, Part 15.407, subpart E

5.5 Equipment Category:

Radio Transmitter-UNII

5.6 Antenna:

5.2dBi Integral Antenna

5.7 Accessories:

PC: Dell 15-3000, Ser. No. 8486780294
Charger: Dell OKXITW

5.8 Test Item Condition:

The equipment to be tested was received in good condition.

5.9 Testing Algorithm:

The EUT was set up in a test mode to continuously transmit at low, mid and high frequencies of the 5.25-5.35 GHz and 5.47- 5.725 GHz spectrum.

For the 5.25-5.35 GHz band, 5.26 GHz was the Center frequency for the low channel, 5.30 GHz was the Center frequency for the mid channel, and 5.32 GHz was the Center frequency for the high channel.

For the 5.47-5.725 band, 5.50 GHz was the Center frequency for the low channel, 5.60 GHz was the Center frequency for the mid channel, and 5.70 GHz was the Center frequency for the high channel.

No channel used a channel bandwidth greater than 20 MHz.

EUT was powered with 3.3V DC from the client supplied development PCB. Power and Voltage Variations measurements were made using an F2 Labs variable DC power supply. The highest emissions were recorded in the data tables.

6 LIST OF MEASUREMENT INSTRUMENTATION

Equipment Type	Asset Number	Manufacturer	Model	Serial Number	Calibration Due Date
Shielded Chamber 2014	CL166-E	AlbatrossProjects	B83117-DF435-T261	US140023	Jan. 2, 2021
Temp/Hum. Recorder	CL261	Extech	445814	04	Feb. 12, 2021
Receiver	CL151	Rohde & Schwarz	ESU40	100319	Oct. 21, 2020
Receiver	CL204	Rohde & Schwarz	ESR7	101714	Oct. 16, 2020
Antenna, Bilog	CL211	Sunol Sciences	JB1	A021017	Oct. 3, 2021
Low Loss Cable Set	--	Pasternack	PE3C0666-252 / PE3C066-50CM	None Spec.	July 16, 2020
Horn Antenna	CL098	Emco	3115	9809-5580	Jan. 31, 2021
Antenna, Horn	CL114	A. H. Systems, Inc.	SAS-572	237	Feb. 4, 2021
Pre-Amplifier	CL153	Agilent	83006-69007	MY39500791	Aug. 5, 2020
Amplifier w/Monopole & 18" Loop	CL163-Loop	AH Systems, Inc.	EHA-52B	100	July 24, 2020
Horn Antenna	CL188	Com-Power	AH-640	091065	July 23, 2021
Software:	Tile Version 3.4.B.3.		Software Verified: Jan. 24-Feb. 4, 2020		
Software:	EMC 32, Version 8.53.0		Software Verified: Jan. 24-Feb. 4, 2020		
LISN	CL181	Com-Power	LI-125A	191226	2020-09-06
LISN	CL182	Com-Power	LI-125A	191225	2020-09-06
Spectrum Analyzer	CL147	Agilent	E7402A	MY45101241	2021-01-06
Transient Limiter	CL102	Hewlett Packard	11947A	3107A03325	2021-02-17

7 OCCUPIED BANDWIDTH

7.1 Requirements:

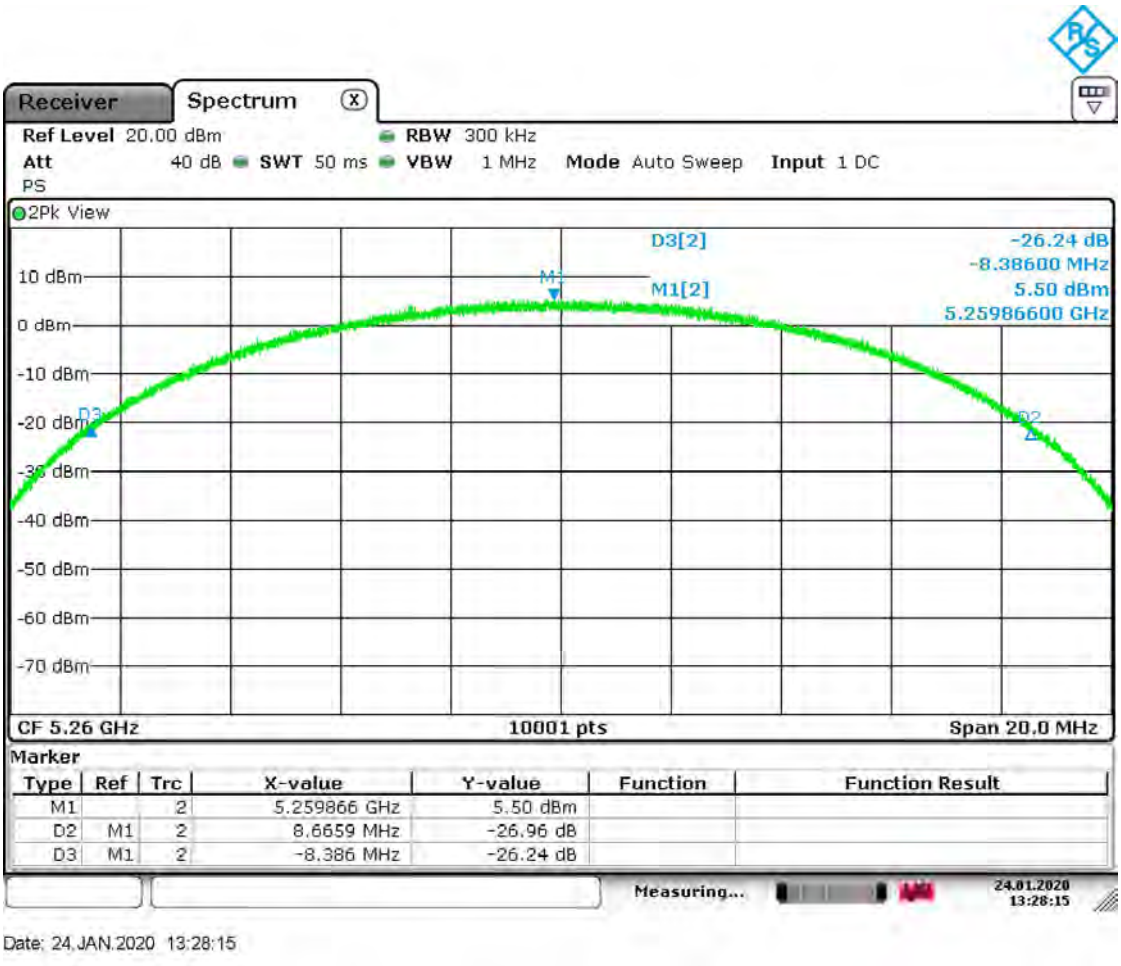
Intentional radiators operating under the alternative provisions to the general emission limits, as contained in §§15.217 through 15.257 and in Subpart E of this part, must be designed to ensure that the -26dB bandwidth of the emission, or whatever bandwidth may otherwise be specified in the specific rule section under which the equipment operates, is contained within the frequency band designated in the rule section under which the equipment is operated. The requirement to contain the designated bandwidth of the emission within the specified frequency band includes the effects from frequency sweeping, frequency hopping and other modulation techniques that may be employed as well as the frequency stability of the transmitter over expected variations in temperature and supply voltage.

Bandwidth measurements were made at the low, mid and high frequencies. The bandwidth was measured using the analyzer's marker function.

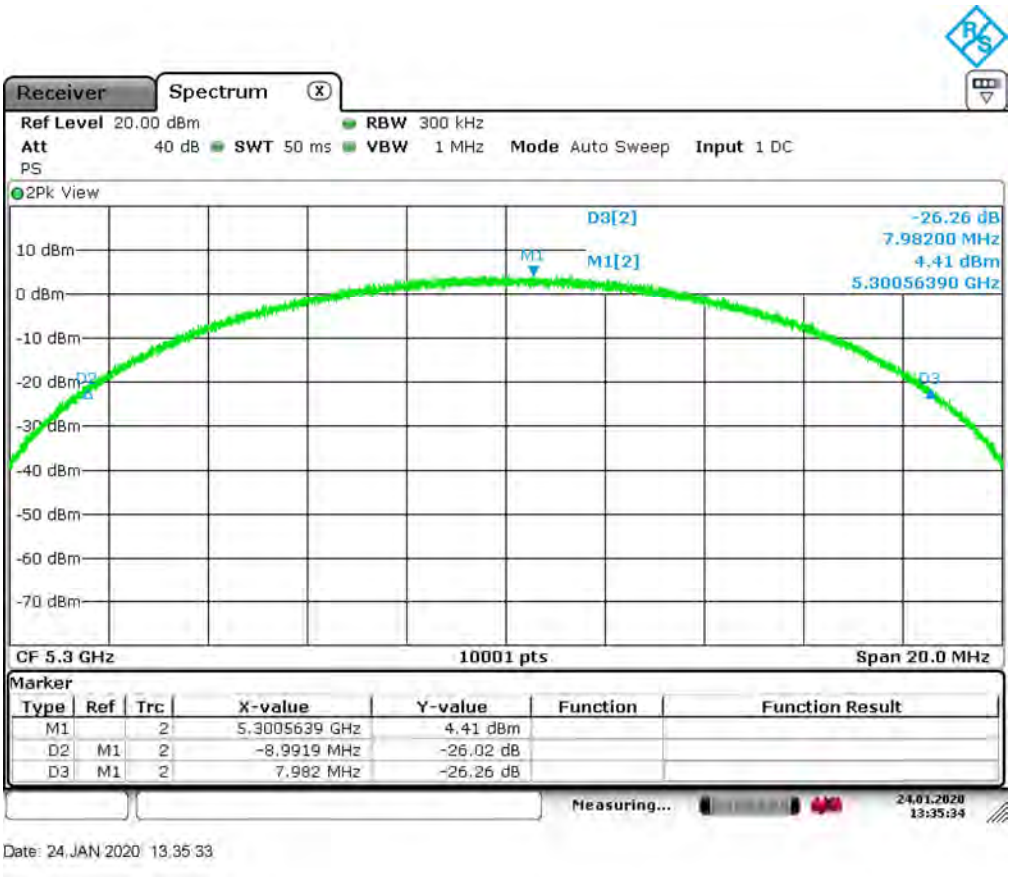
7.2 Occupied Bandwidth Test Data

Test Date(s):	Jan. 24, 2020	Test Engineer(s):	J. Chiller
Standards:	CFR 47 Part 15.215(c)	Air Temperature:	22.9ºC
		Relative Humidity:	23%

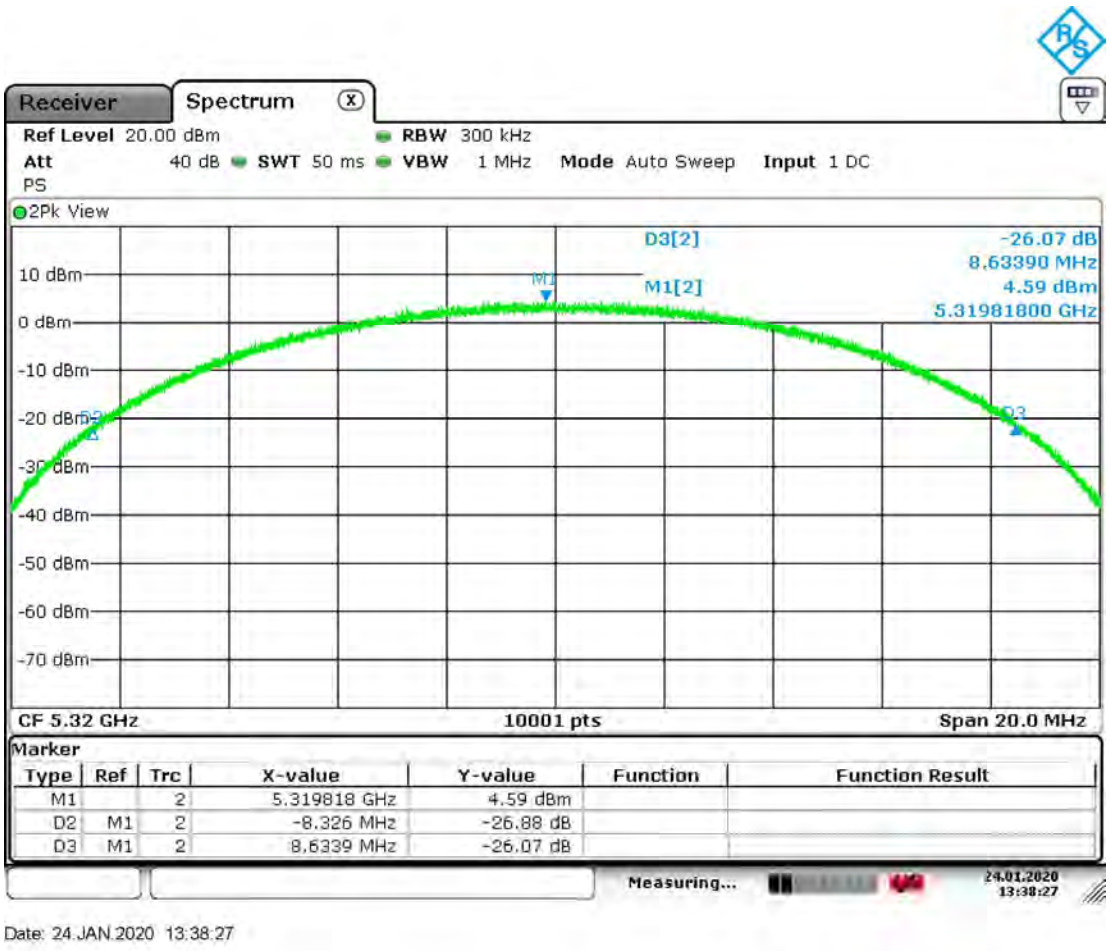
UNI II: CCK, -26dB OBW, Low Channel



UNI II: CCK, -26dB OBW, Mid Channel

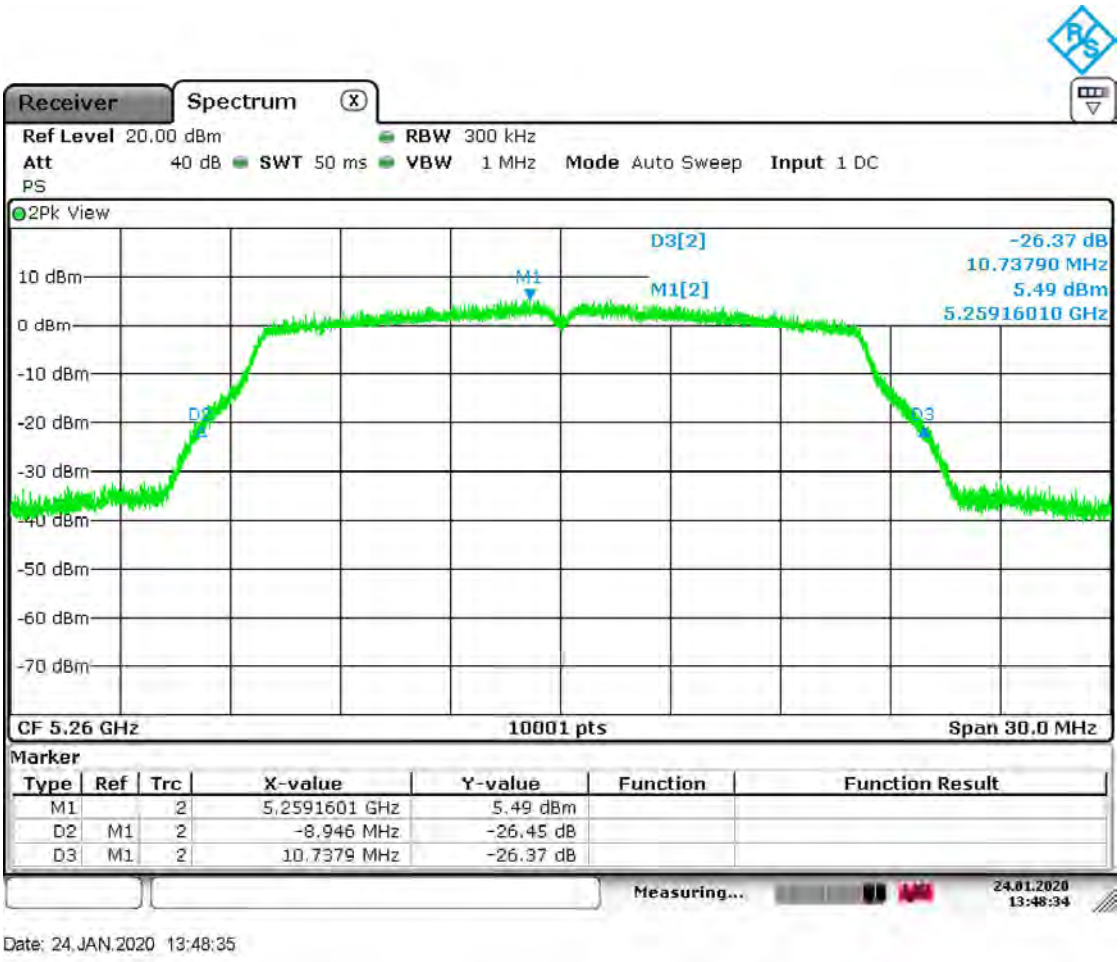


UNI II: CCK, -26dB OBW, High Channel

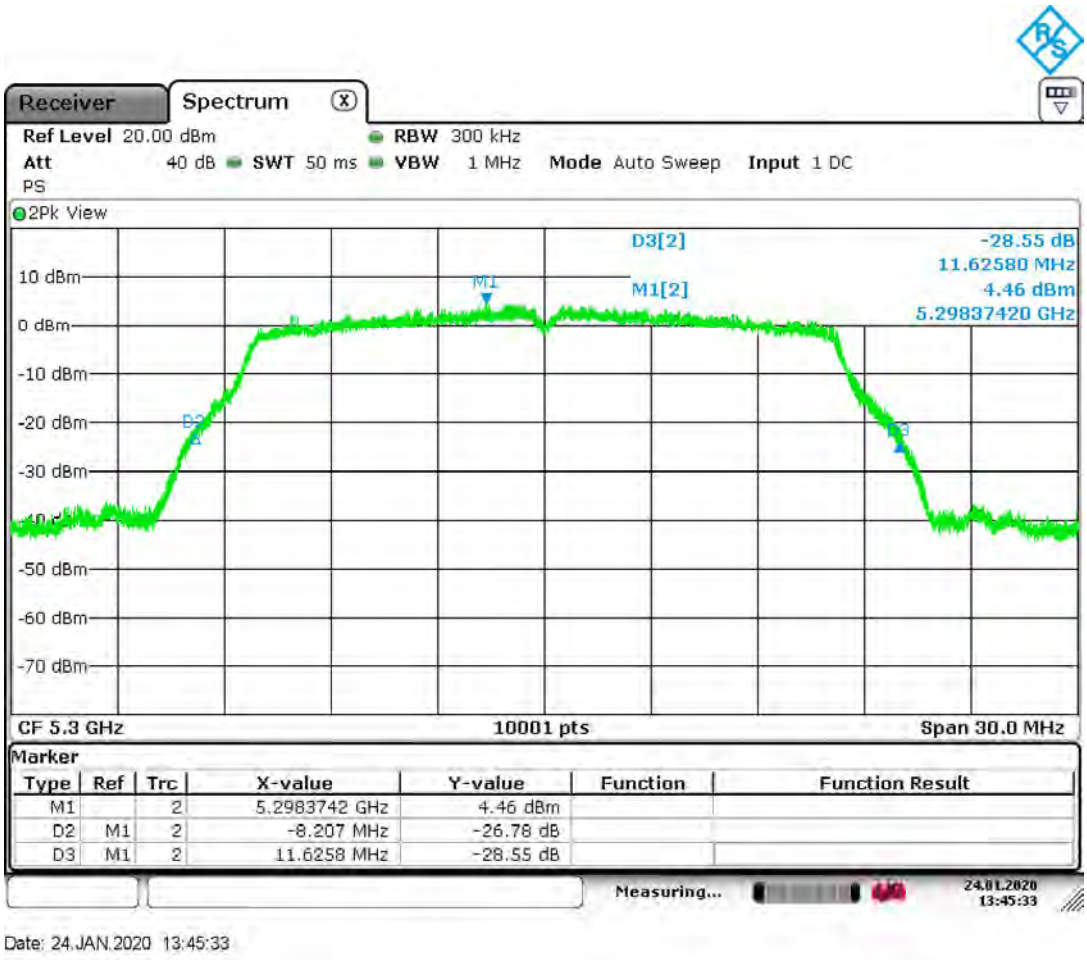


Date: 24.JAN.2020 13:38:27

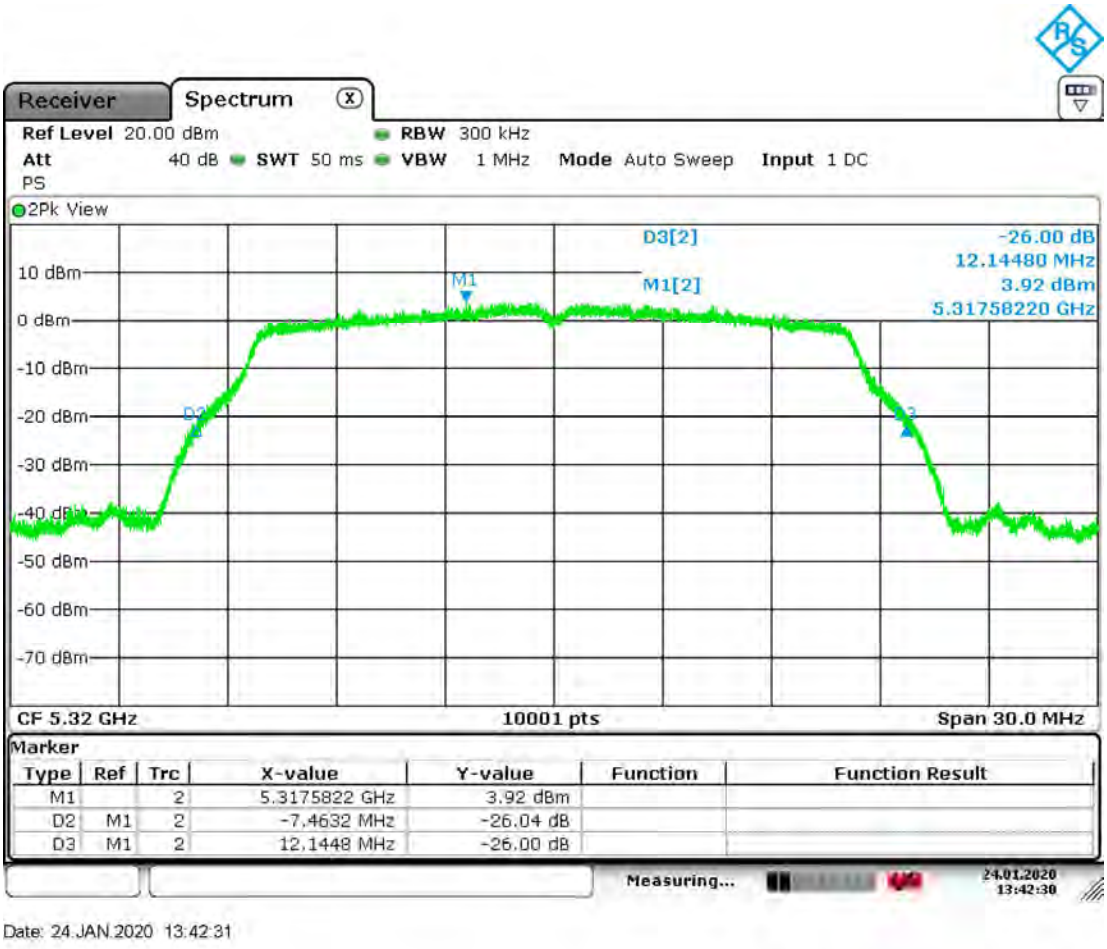
UNI II: OFDM, -26dB OBW, Low Channel



UNI II: OFDM, -26dB OBW, Mid Channel

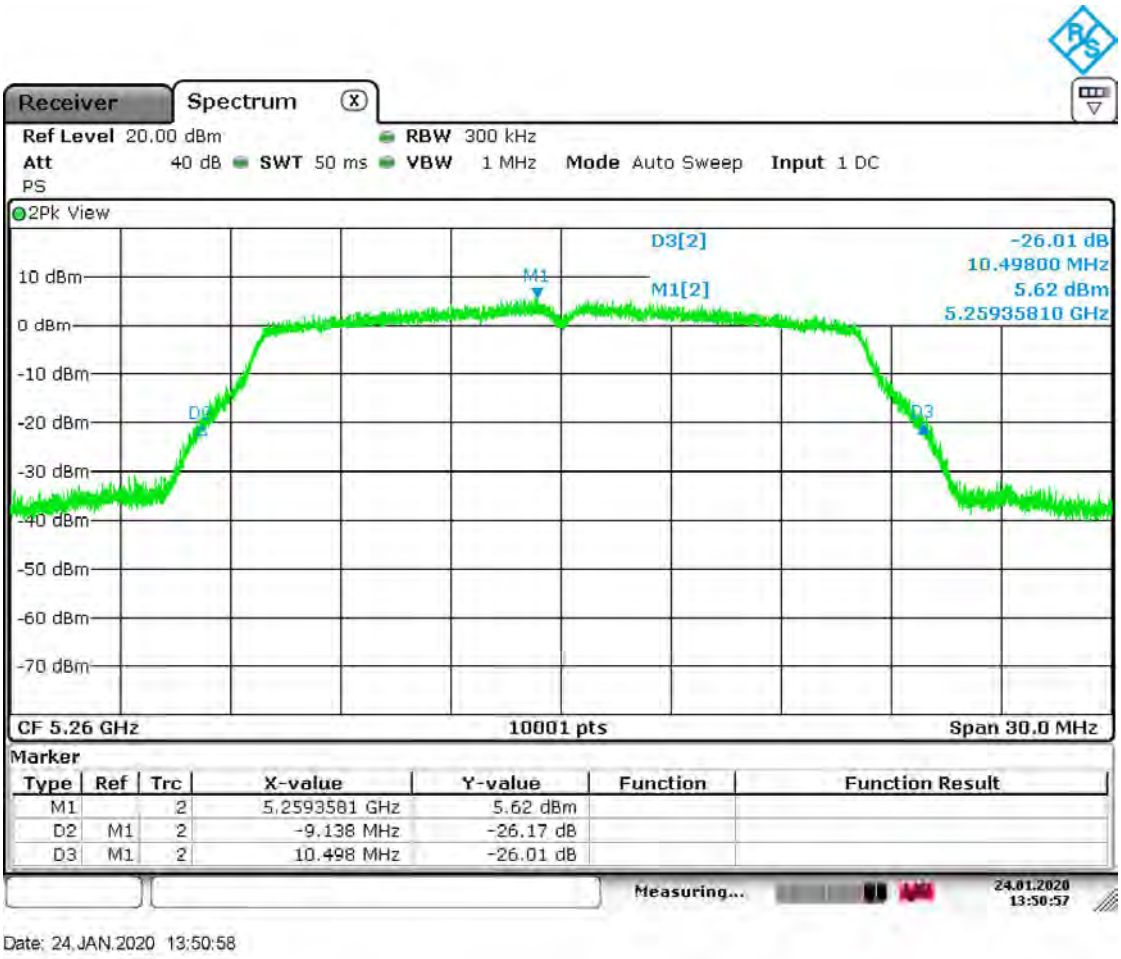


UNI II: OFDM, -26dB OBW, High Channel



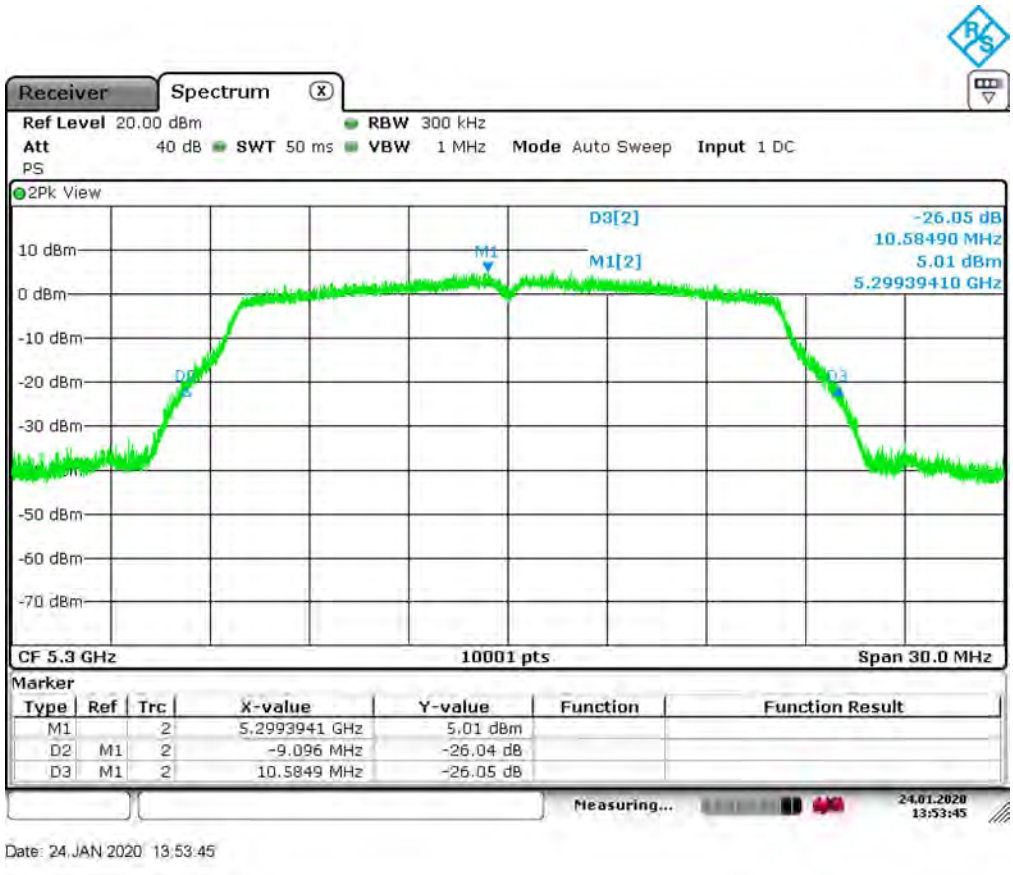
Date: 24.JAN.2020 13:42:31

UNI II: MCS7, -26dB OBW, Low Channel

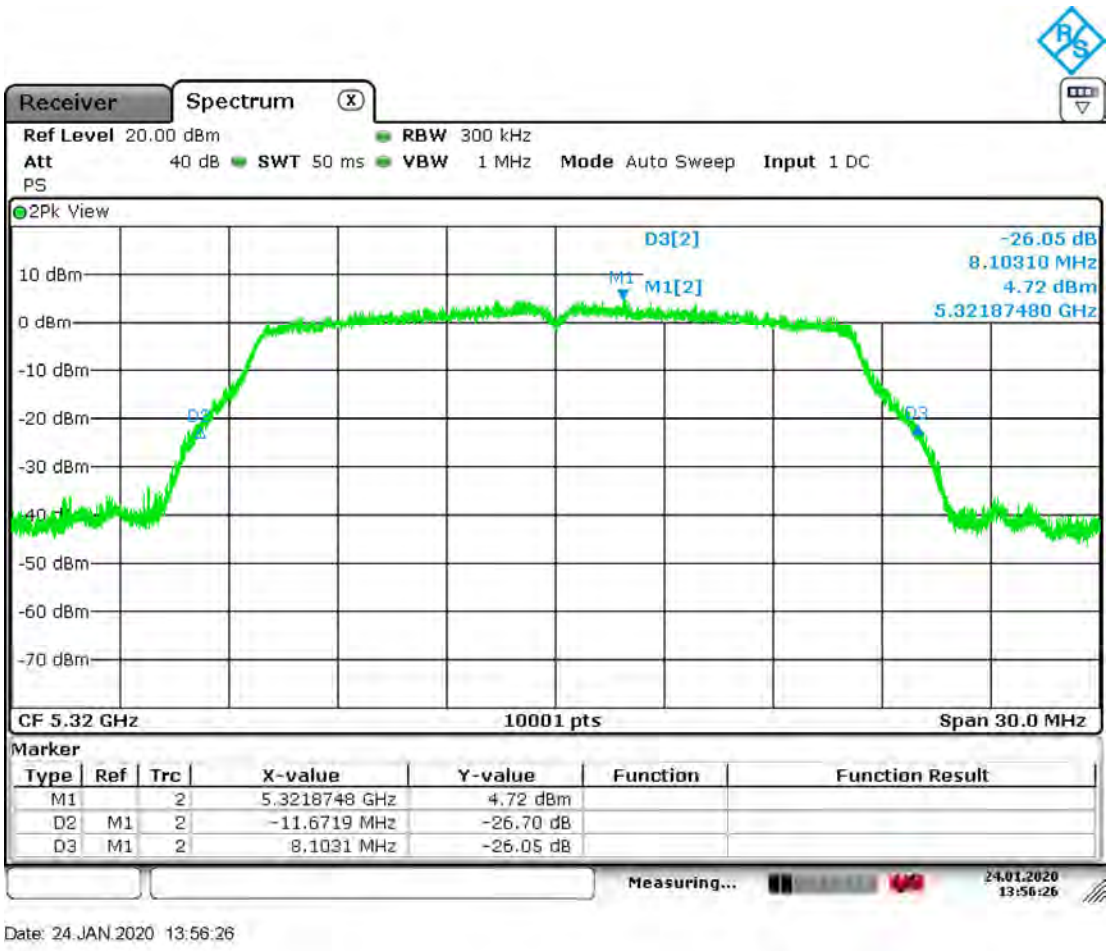


Date: 24.JAN.2020 13:50:58

UNI II: MCS7, -26dB OBW, Mid Channel

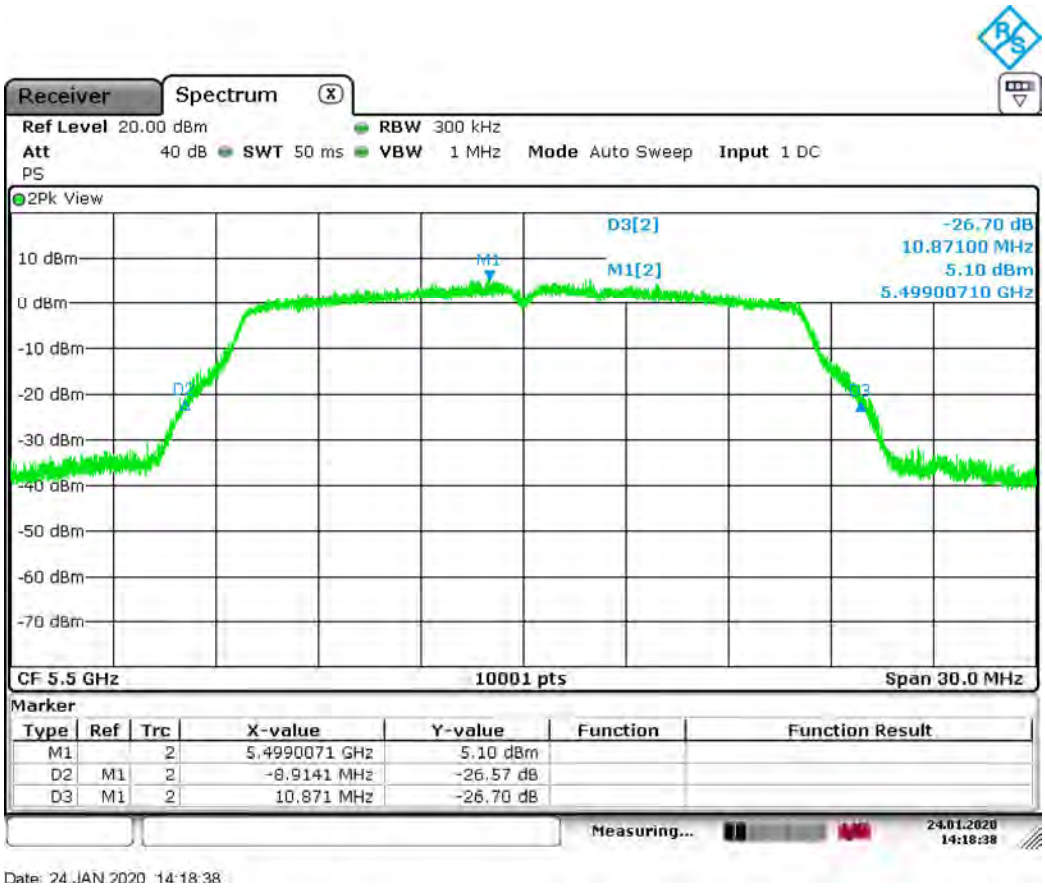


UNI II: MCS7, -26dB OBW, High Channel

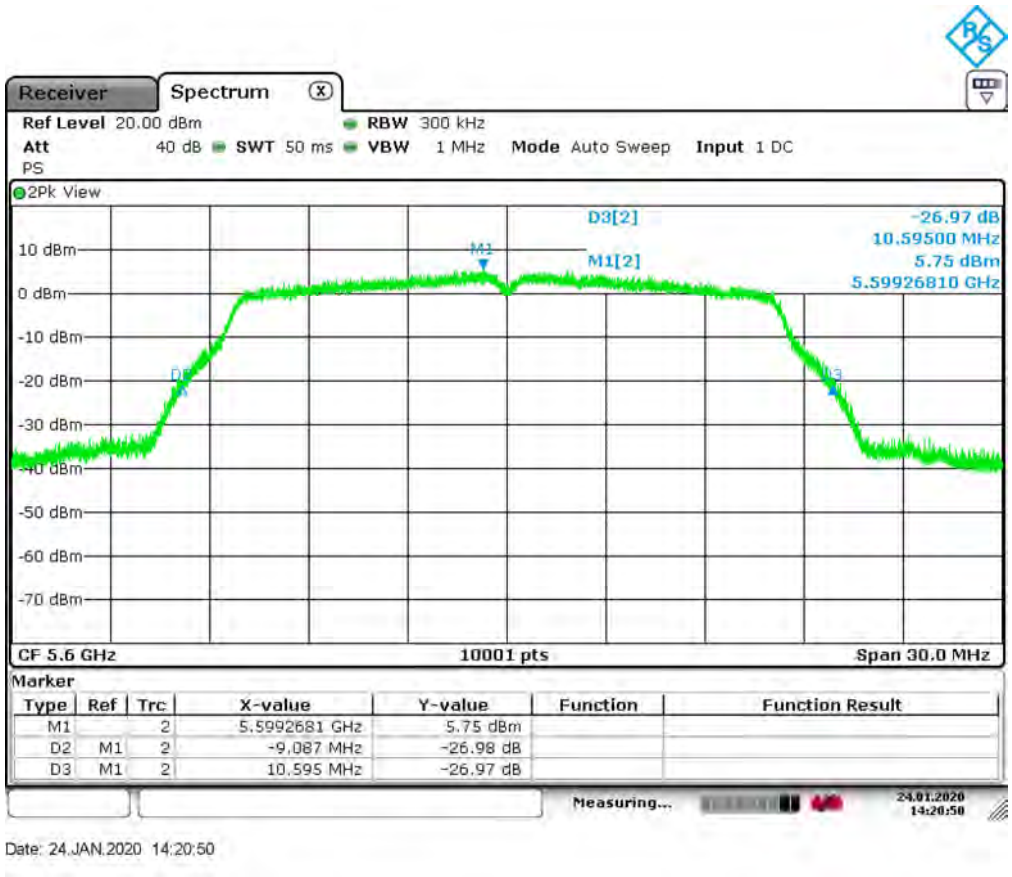


Date: 24.JAN.2020 13:56:26

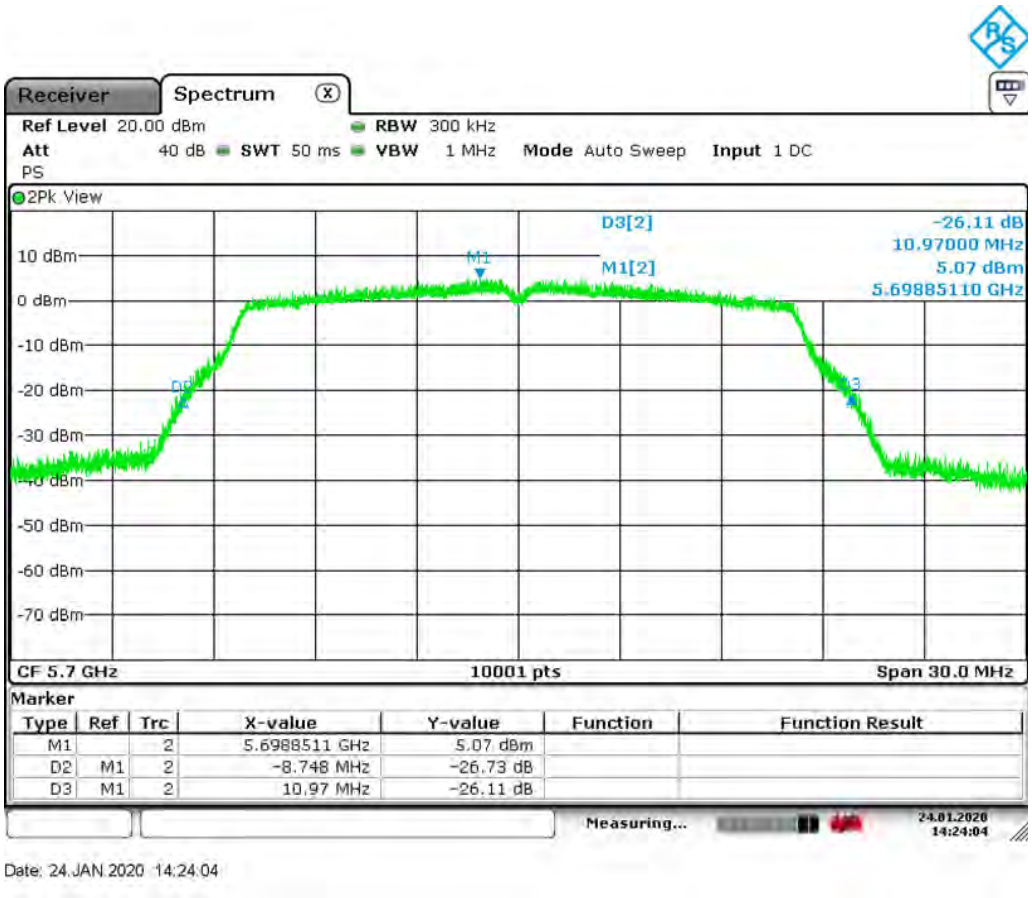
U-NII-2C: CCK, -26dB OBW, Low Channel



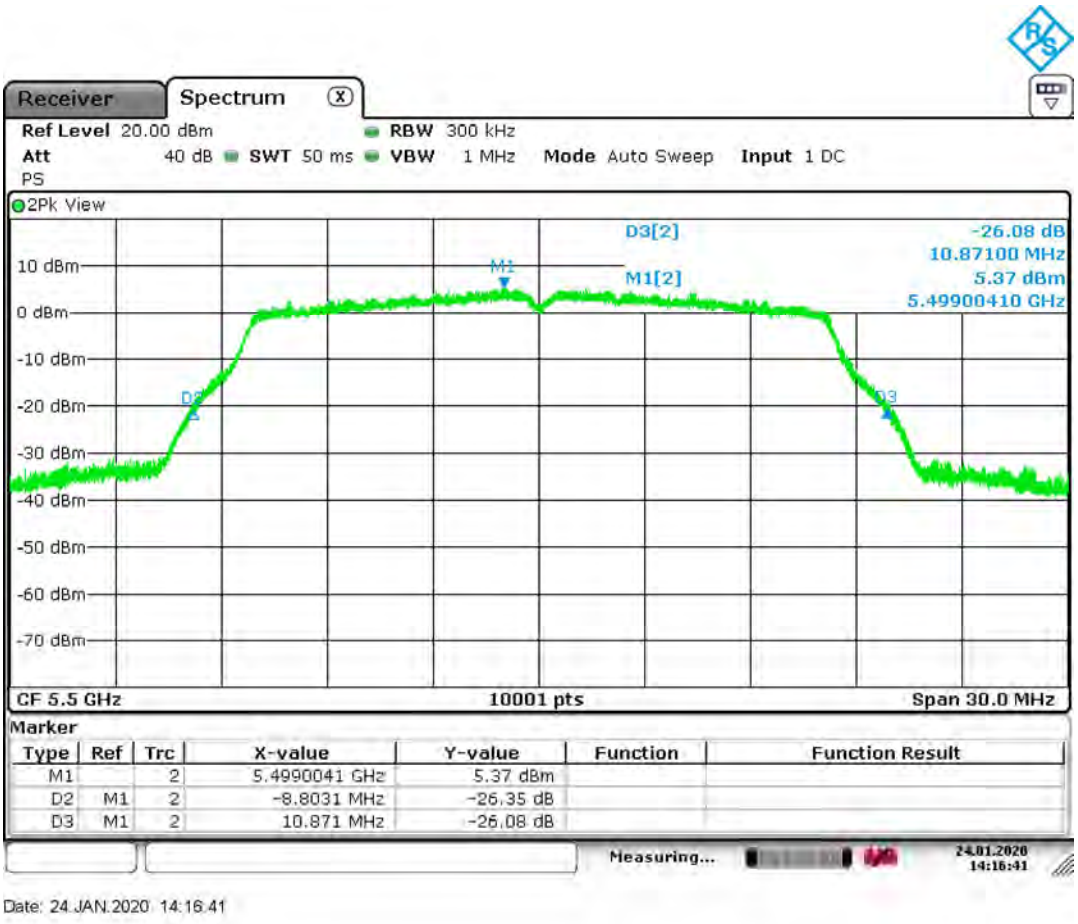
5 U-NII-2C: CCK, -26dB OBW, Mid Channel



U-NII-2C: CCK, -26dB OBW, High Channel

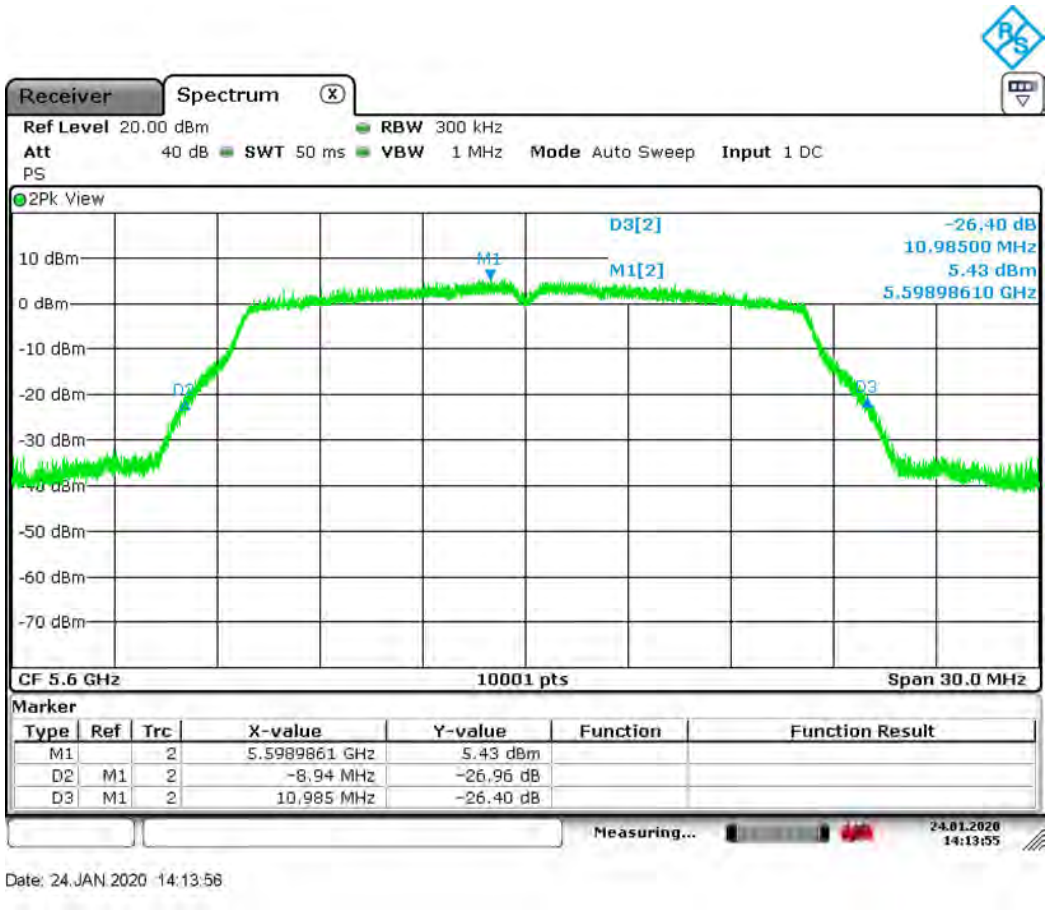


U-NII-2C: OFDM, -26dB OBW, Low Channel

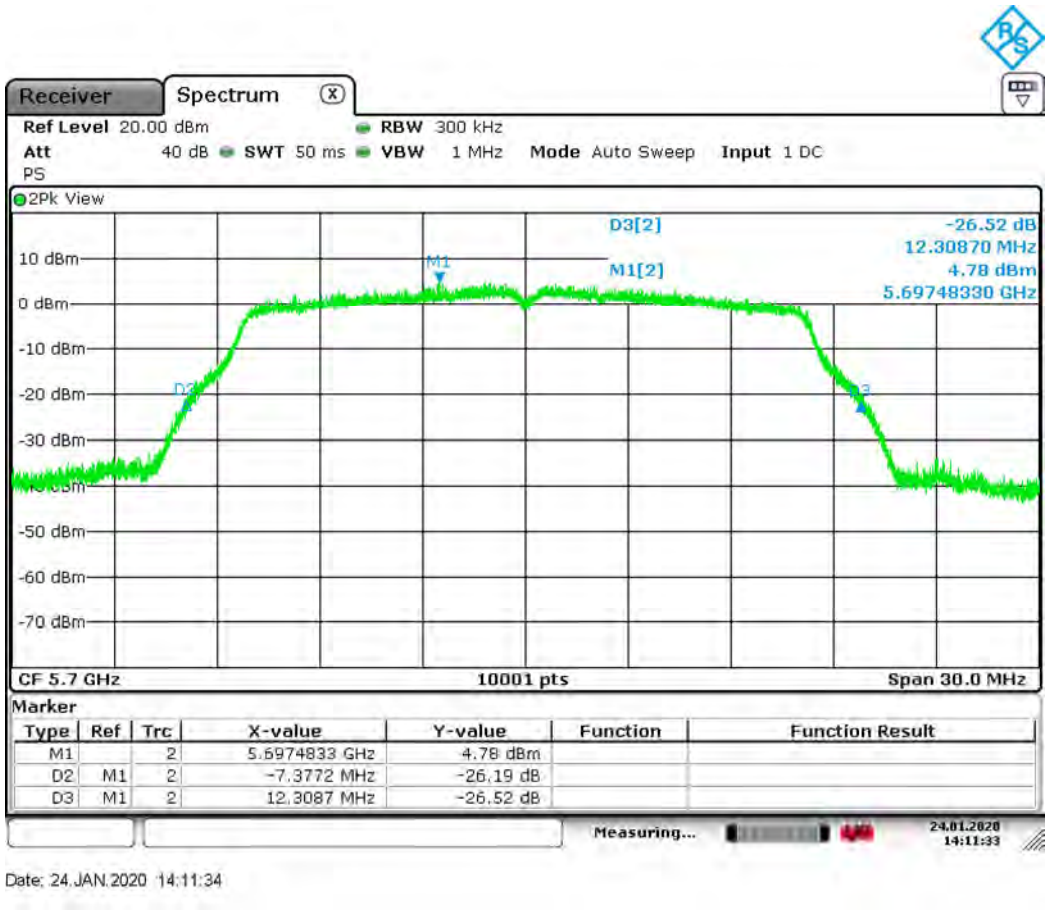


Date: 24.JAN.2020 14:16:41

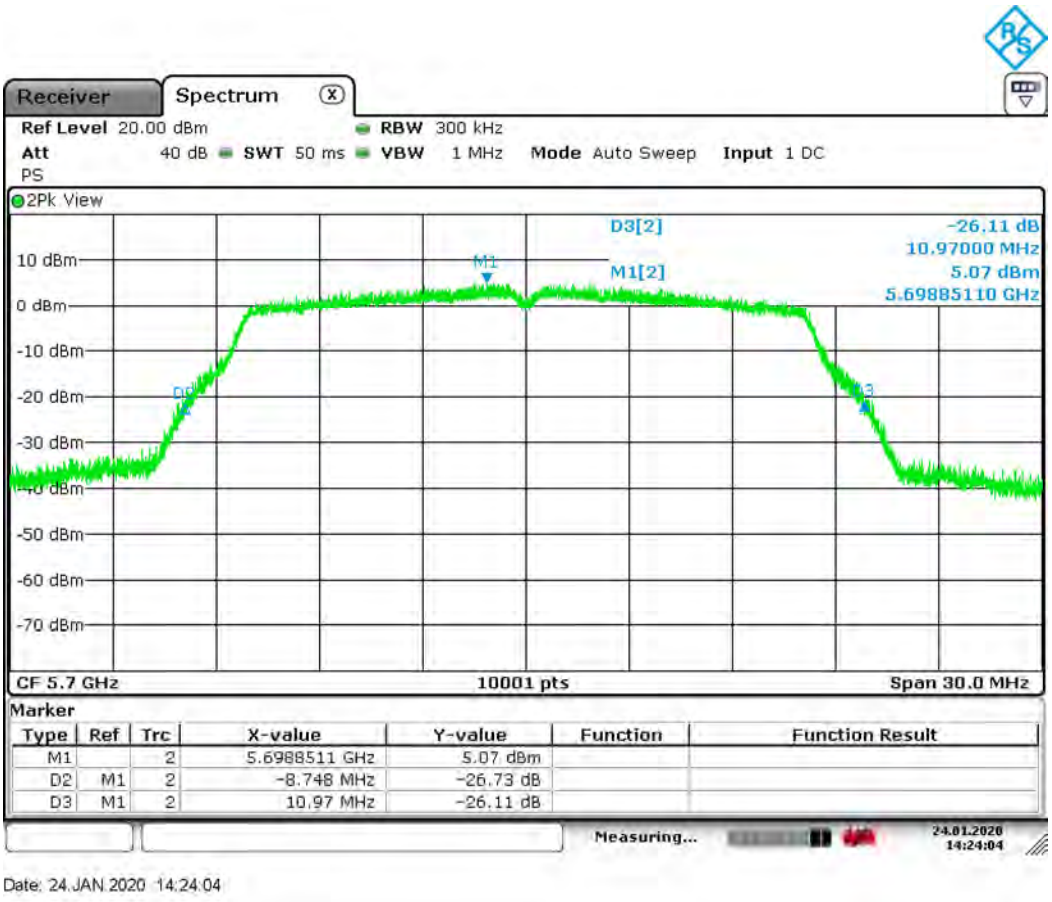
U-NII-2C: OFDM, -26dB OBW, Mid Channel



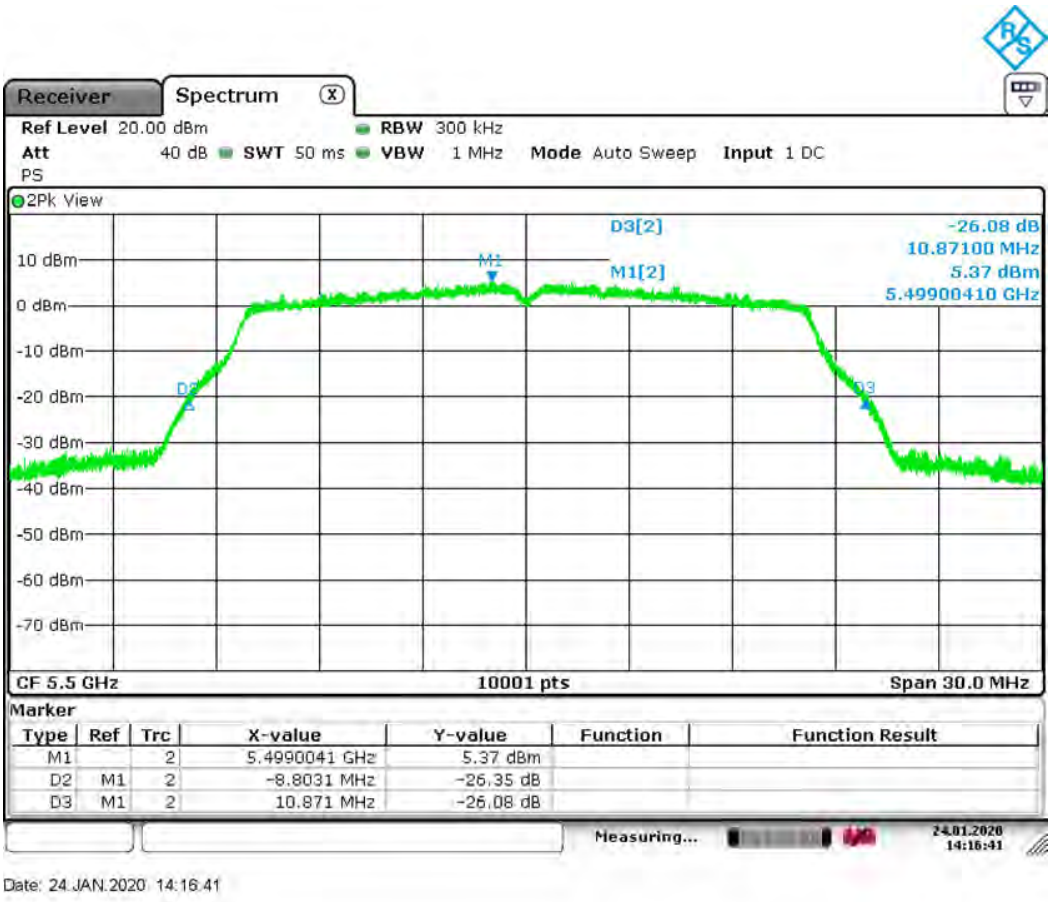
U-NII-2C: OFDM, -26dB OBW, High Channel



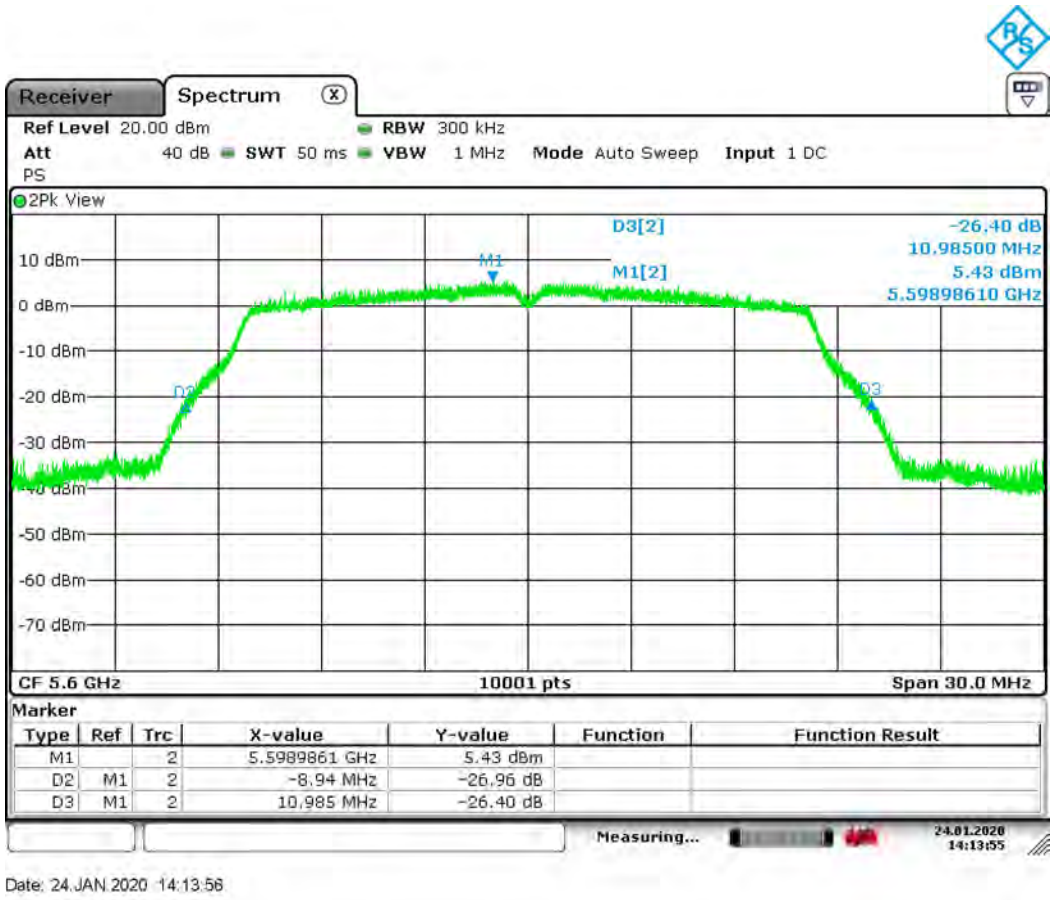
U-NII-2C: MCS7, -26dB OBW, Low Channel



U-NII-2C: MCS7, -26dB OBW, Mid Channel



U-NII-2C: MCS7, -26dB OBW, High Channel



8 OUTPUT POWER

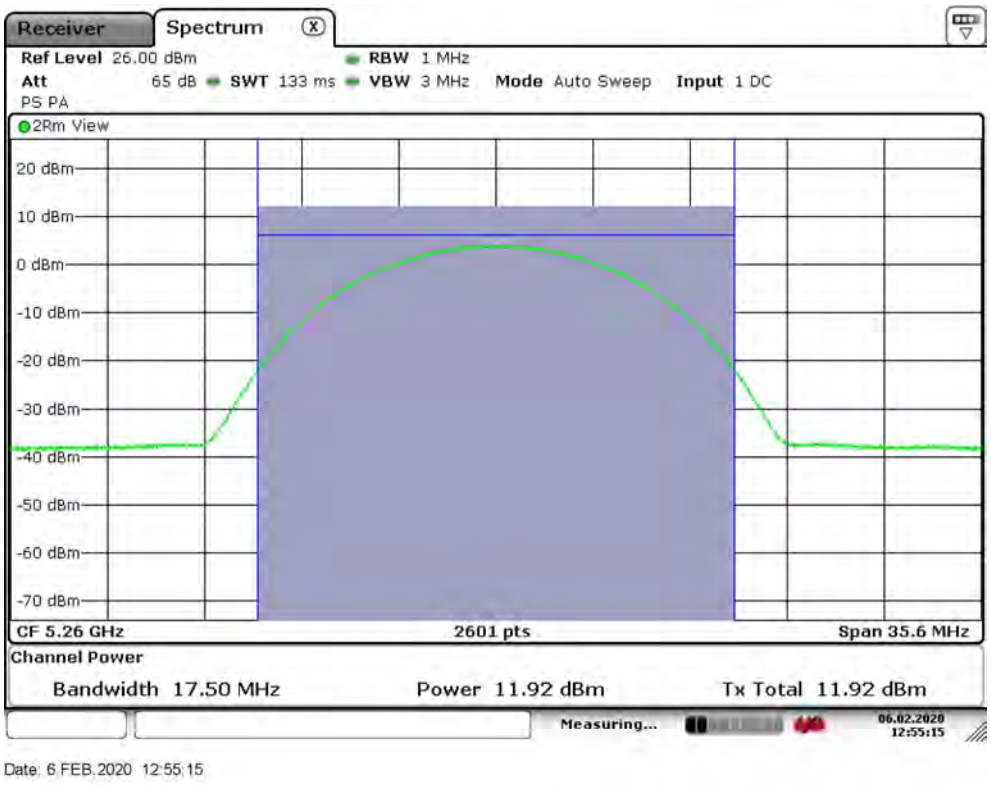
The EUT antenna port was fitted with an SMA connector and directly connected to the input of the receiver.

Requirements:
For the 5.25-5.35 GHz and 5.47-5.725 GHz bands, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW (24 dBm) provided the maximum antenna gain does not exceed 6 dBi.

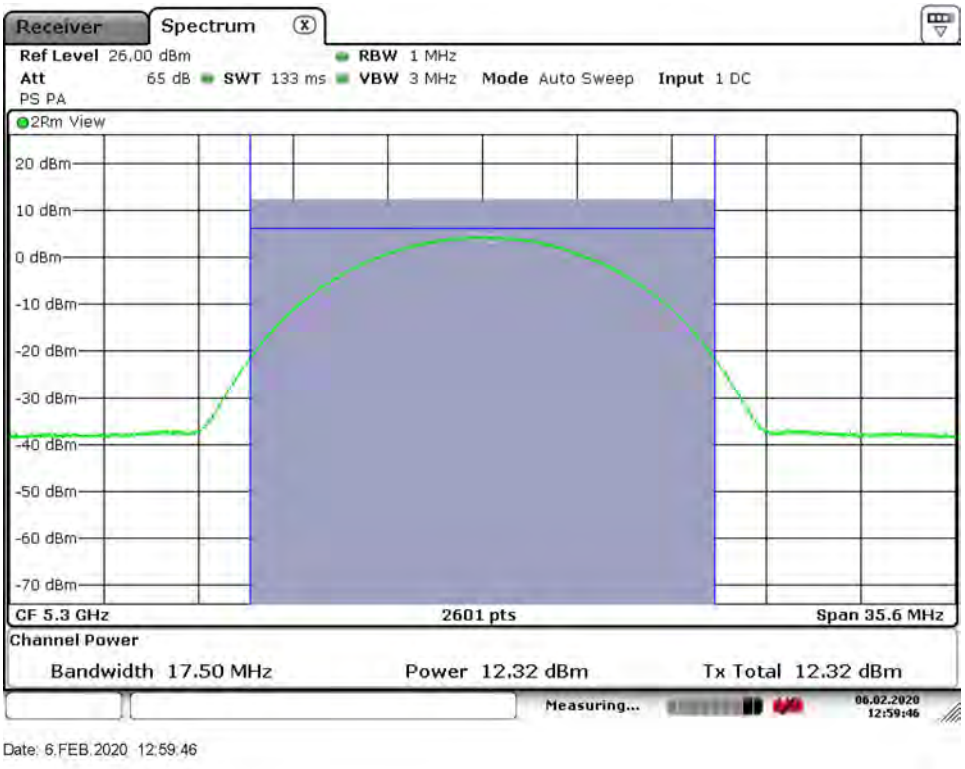
8.2 Output Power Test Data

Test Date:	Feb. 6, 2020	Test Engineer:	J. Chiller
Standards:	CFR 47 Part 15.407(a)(1,3); KDB789033	Air Temperature:	21.9ºC
		Relative Humidity:	33%

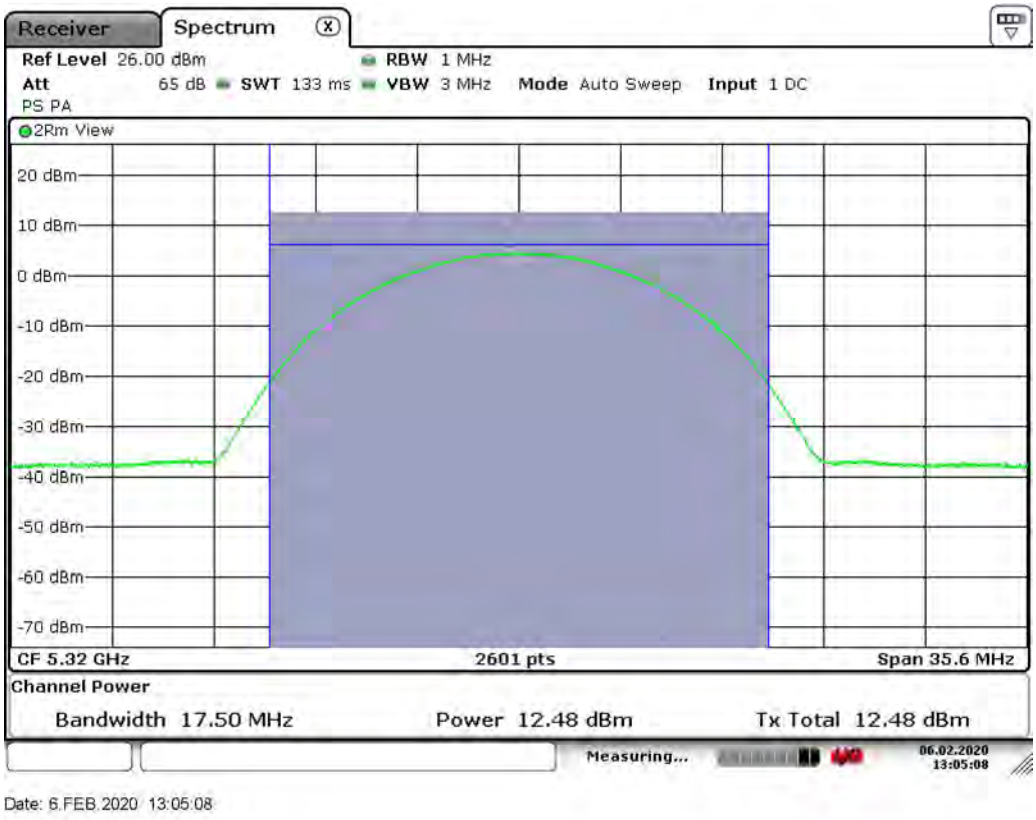
U-NII-2A, CCK, Low Channel



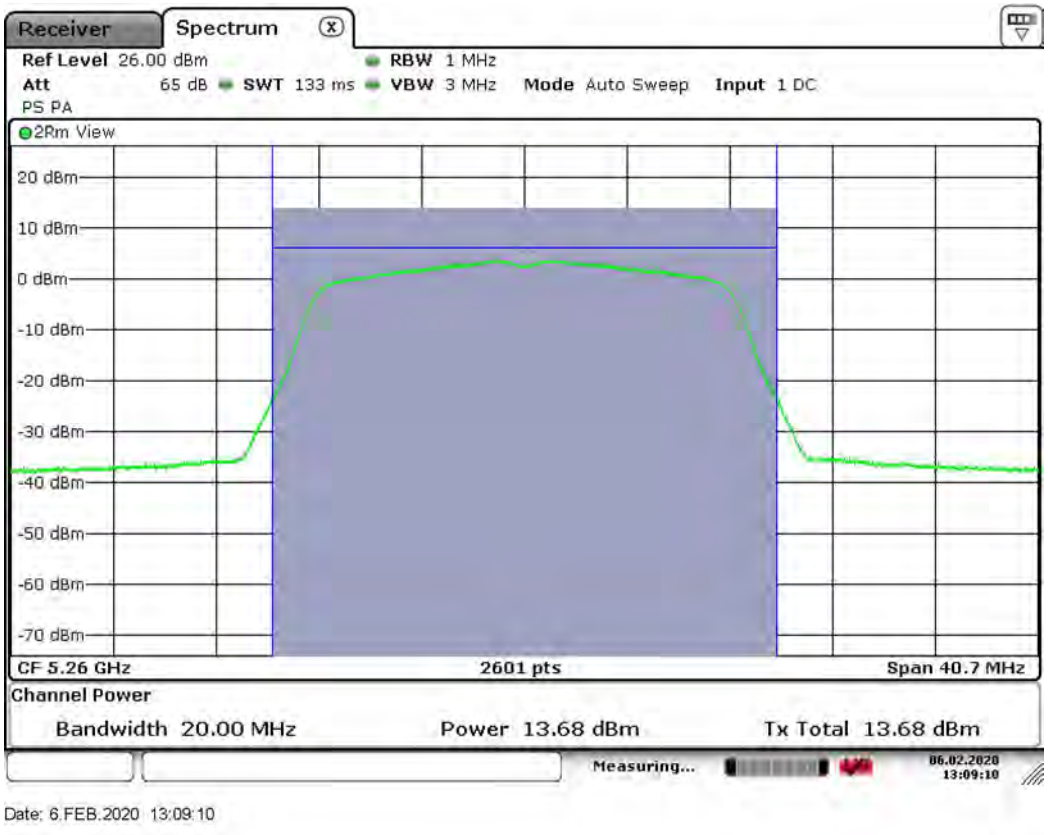
U-NII-2A, CCK, Mid Channel



U-NII-2A, CCK, High Channel

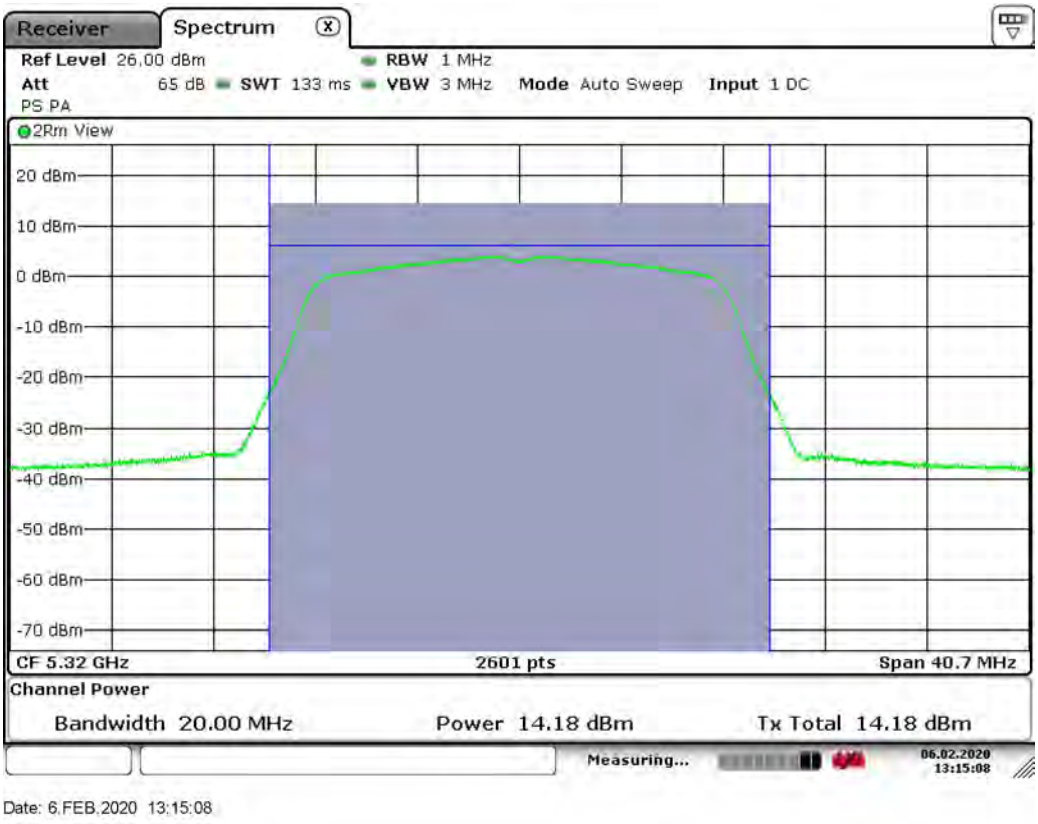


U-NII-2A, OFDM, Low Channel



U-NII-2A, OFDM, Mid Channel

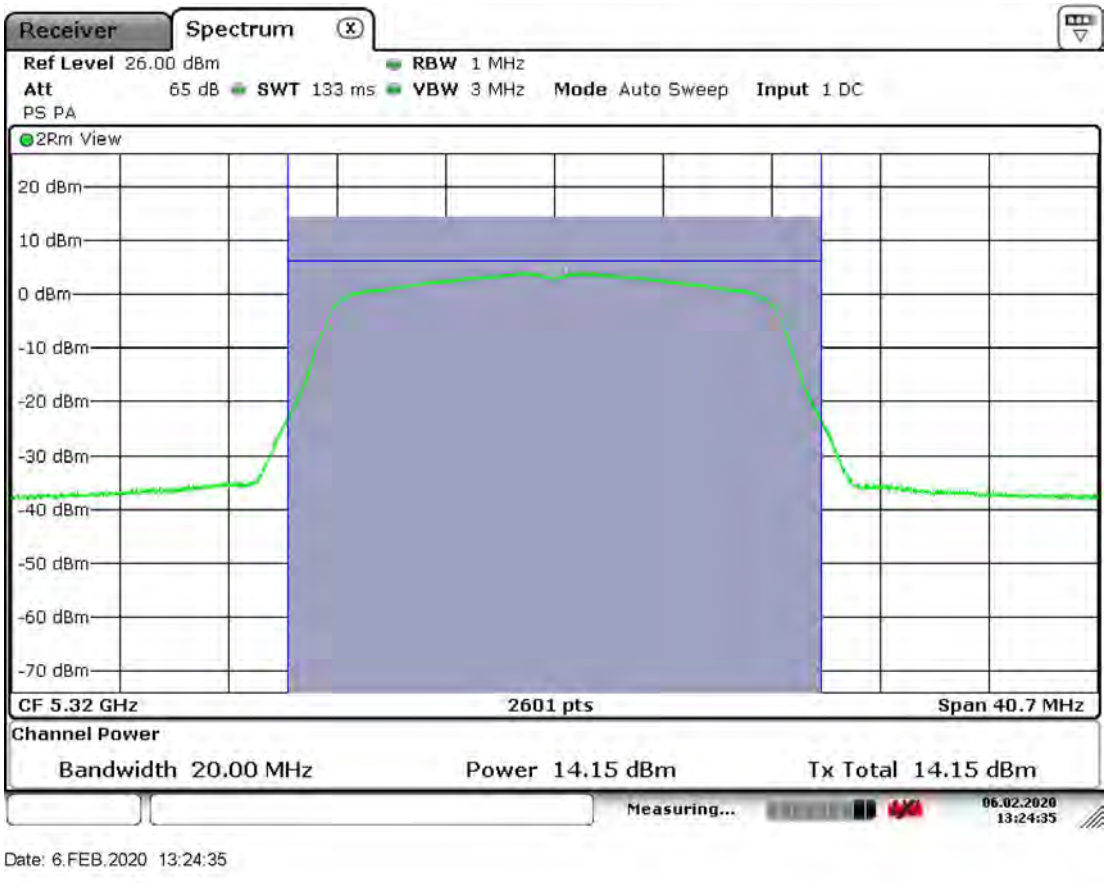
U-NII-2A, OFDM, High Channel



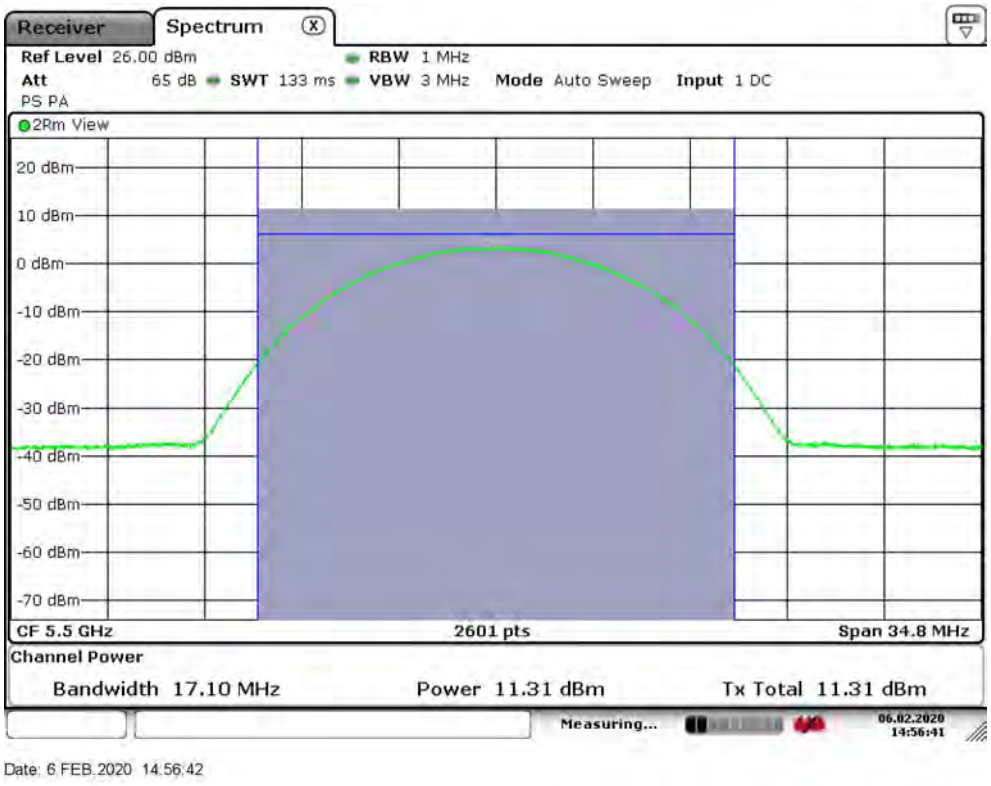
U-NII-2A, MCS7, Low Channel

U-NII-2A, MCS7, Mid Channel

U-NII-2A, MCS7, High Channel

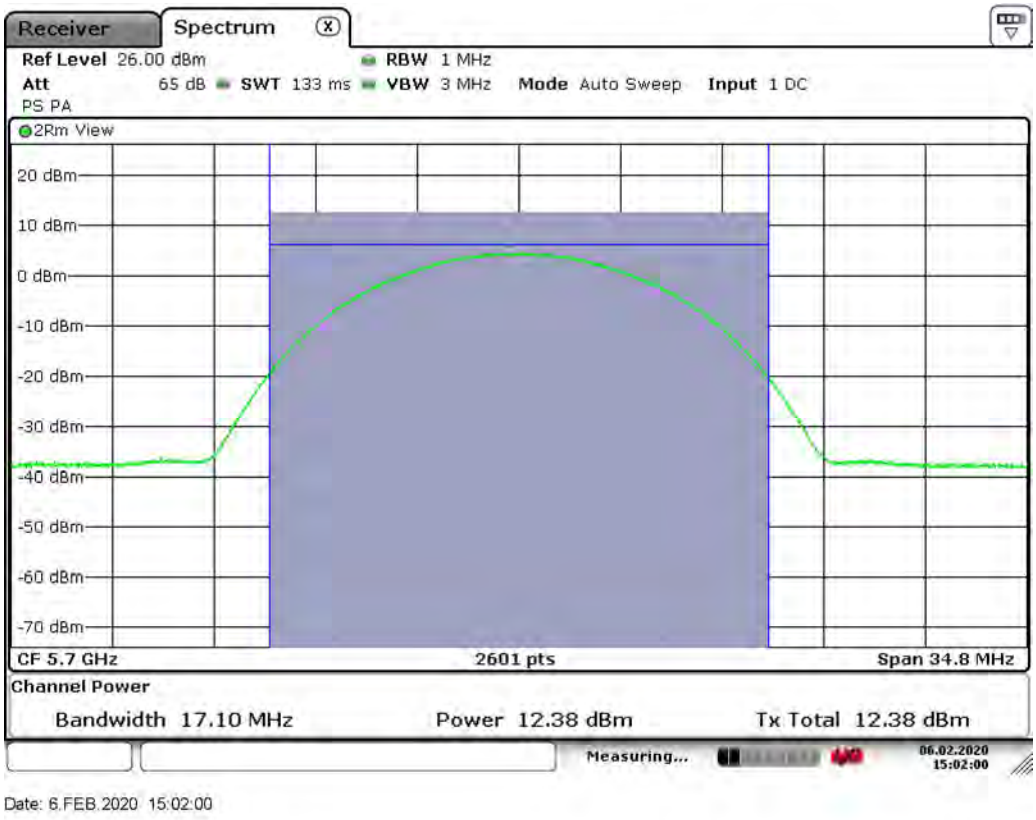


U-NII-2C, CCK, Low Channel



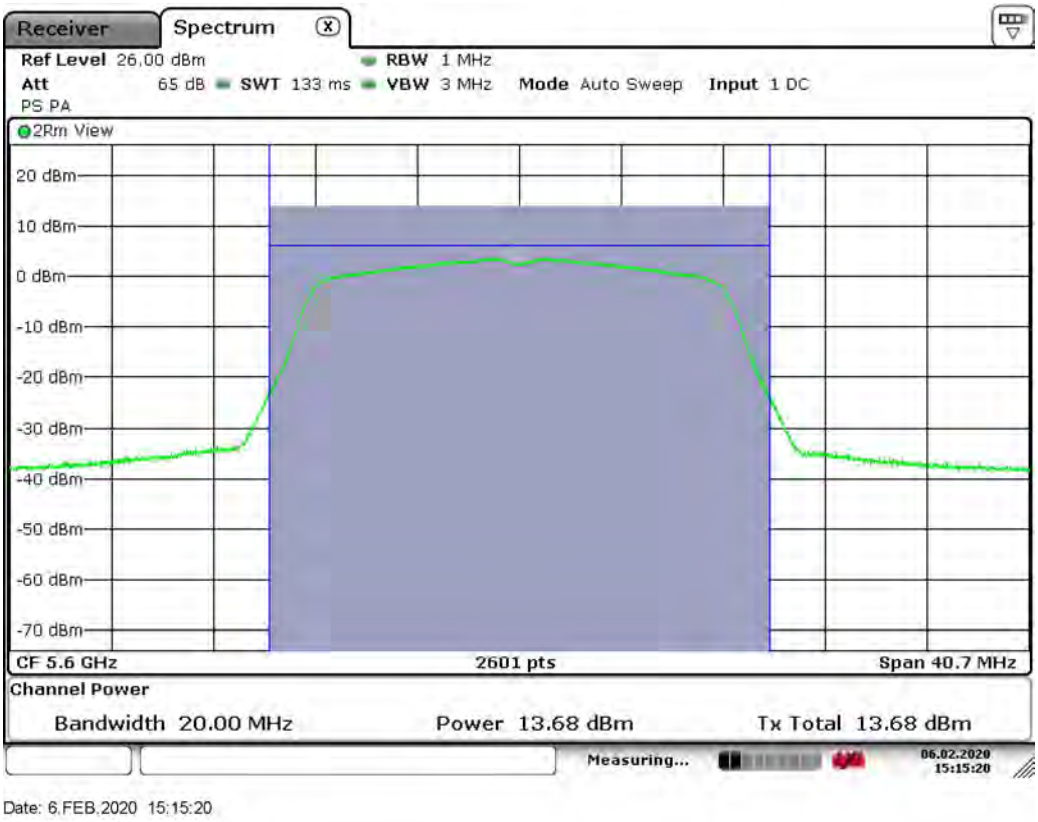
U-NII-2C, CCK, Mid Channel

U-NII-2C, CCK, High Channel

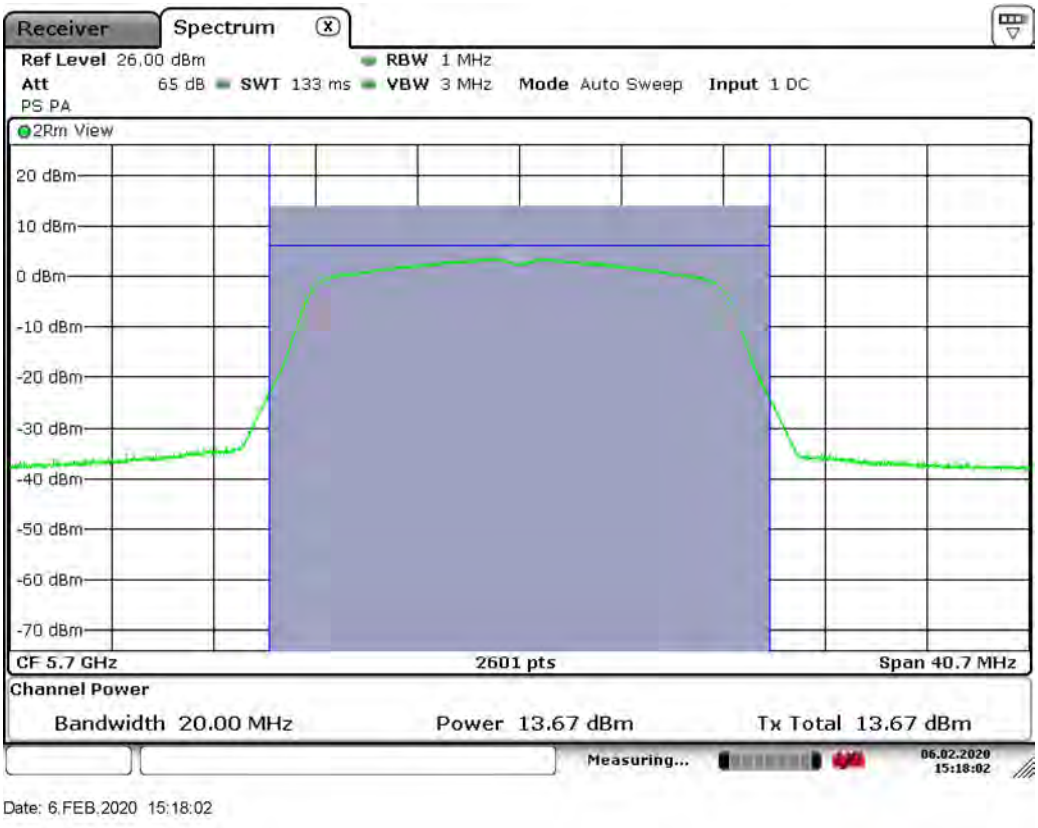


U-NII-2C, OFDM, Low Channel

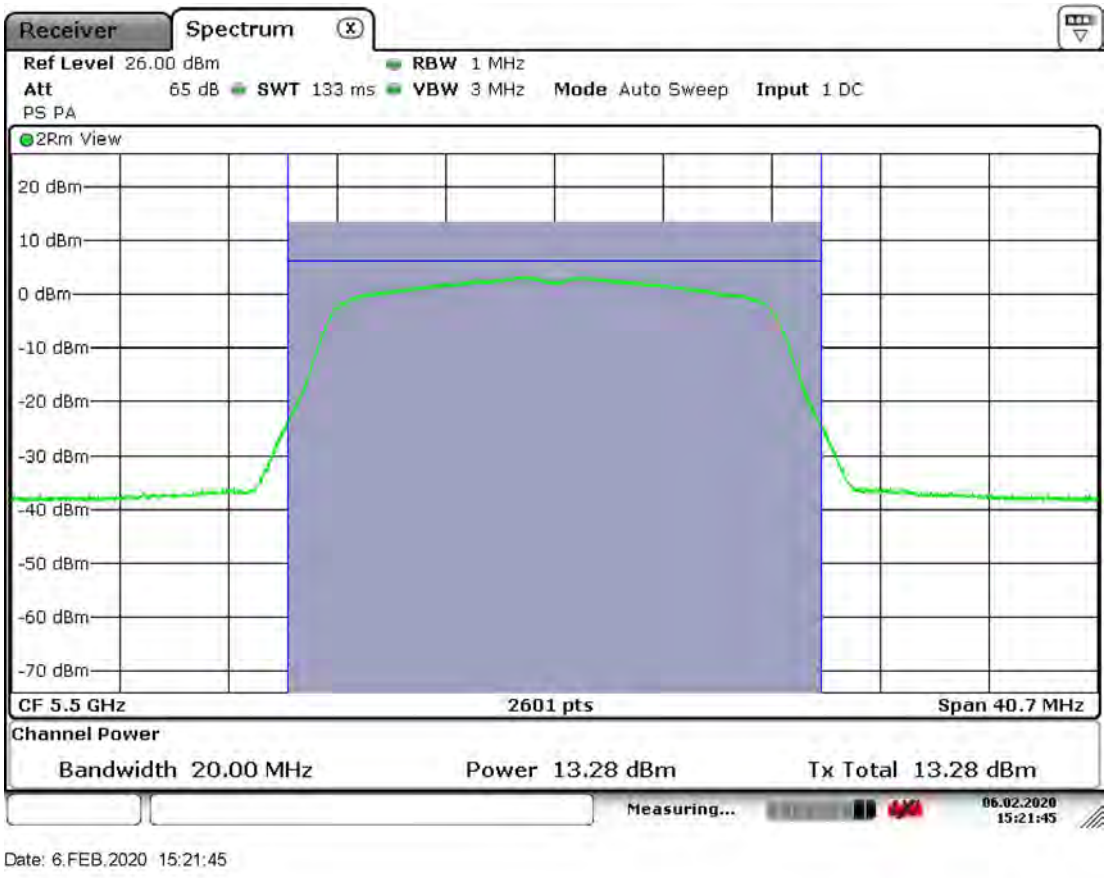
U-NII-2C, OFDM, Mid Channel



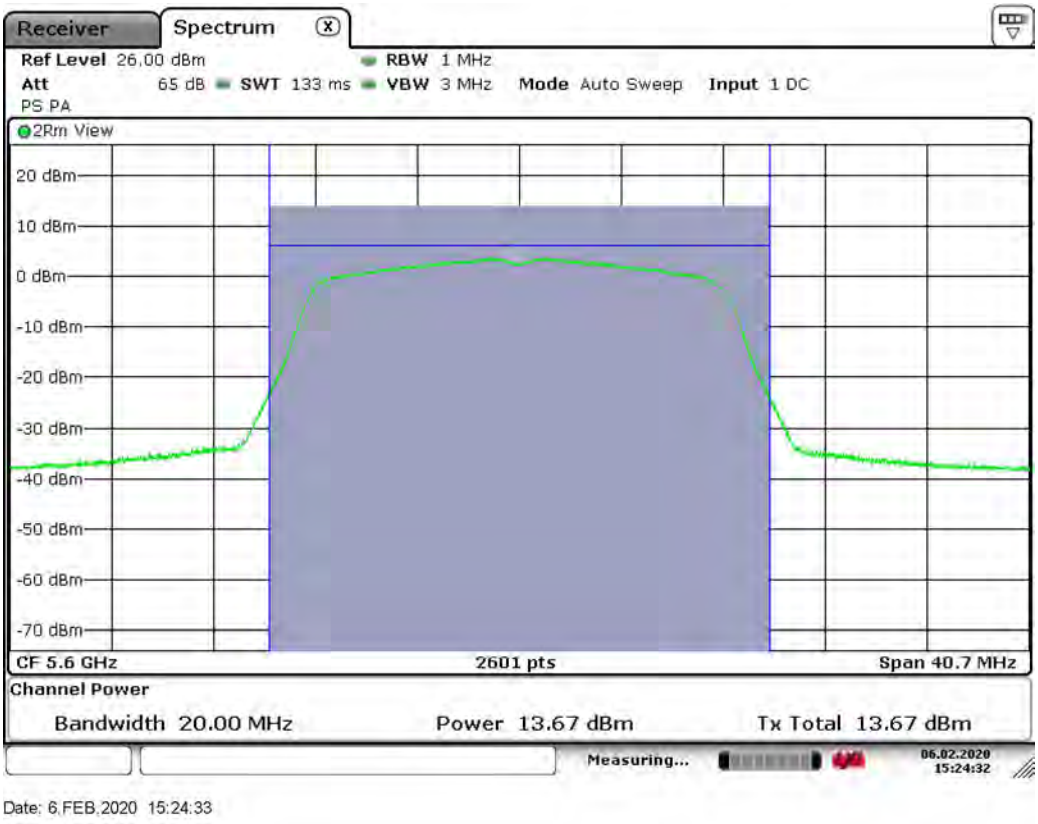
U-NII-2C, OFDM, High Channel



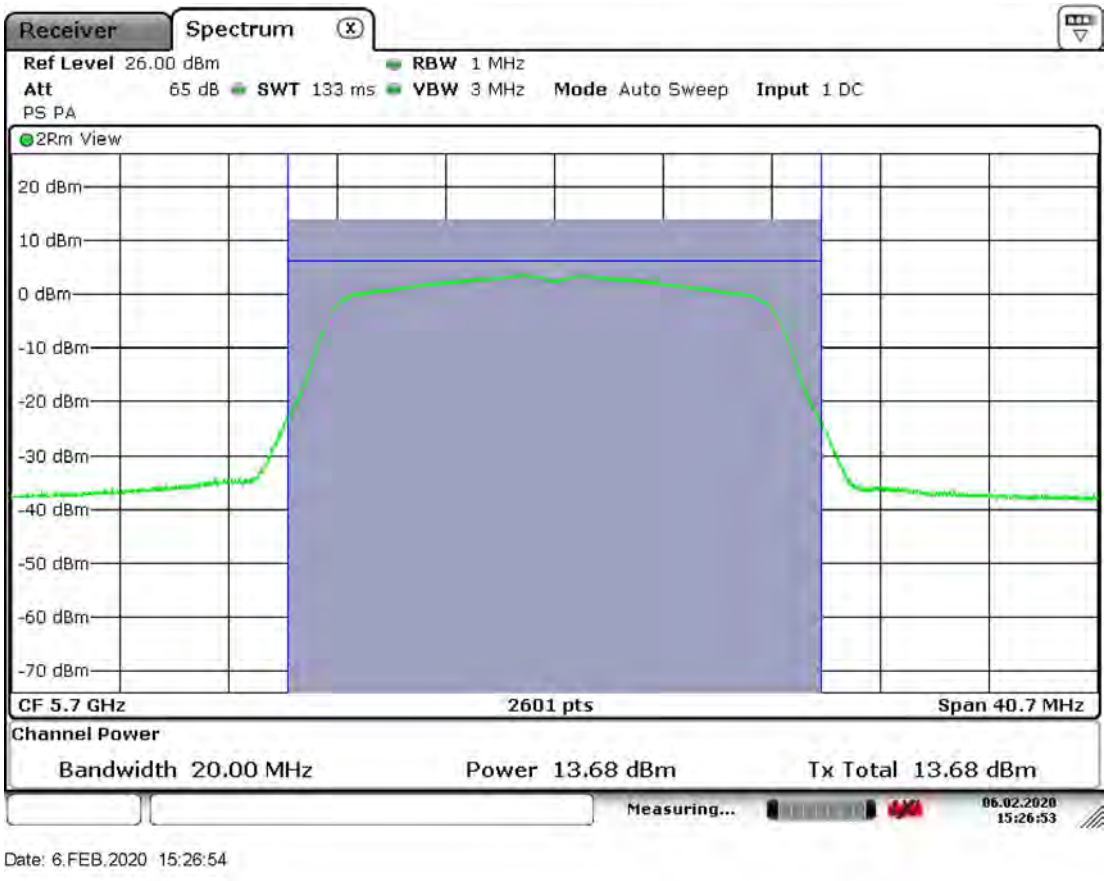
U-NII-2C, MCS7, Low Channel



U-NII-2C, MCS7, Mid Channel



U-NII-2C, MCS7, High Channel



9 PEAK POWER SPECTRAL DENSITY (PSD)

Peak power spectral density measurements were performed.

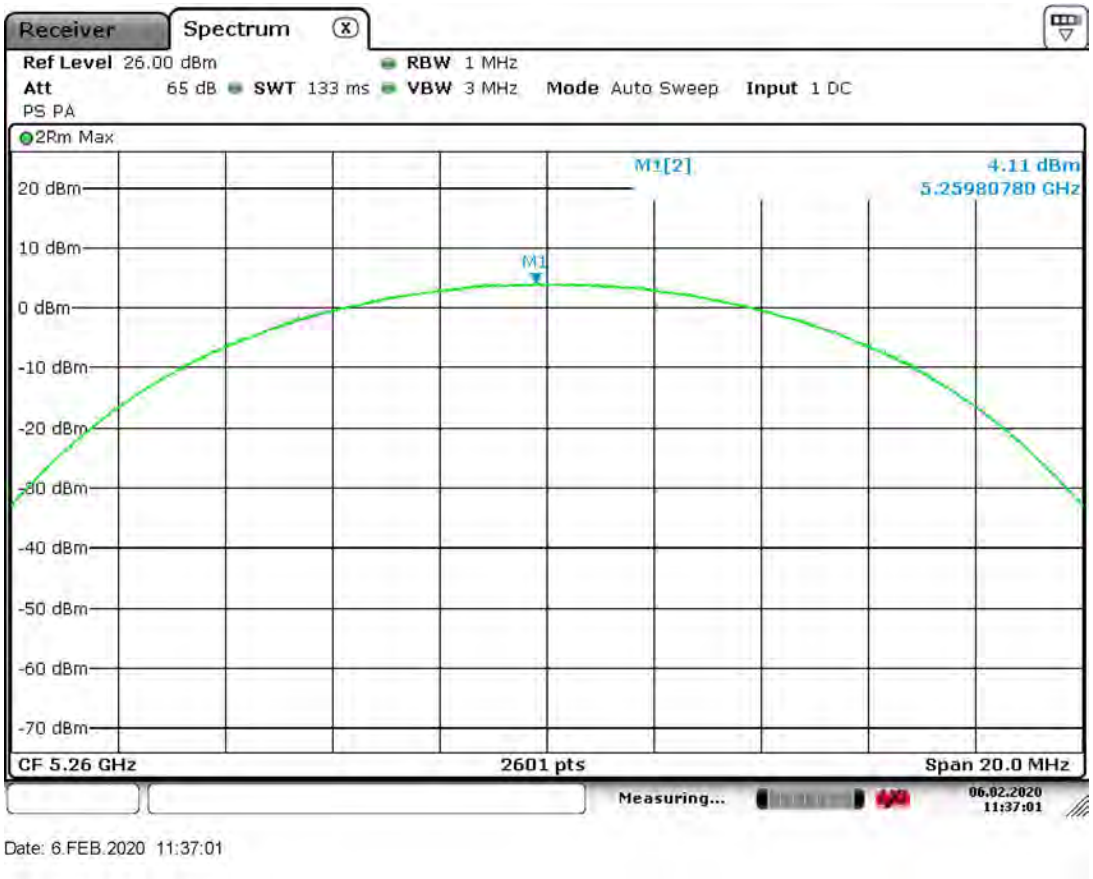
9.1 Requirements:

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 Bm + 10 log B, where B is the 26 dB emission bandwidth in megahertz. In addition, the maximum power spectral density shall not exceed 11dBm 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 6dBi.

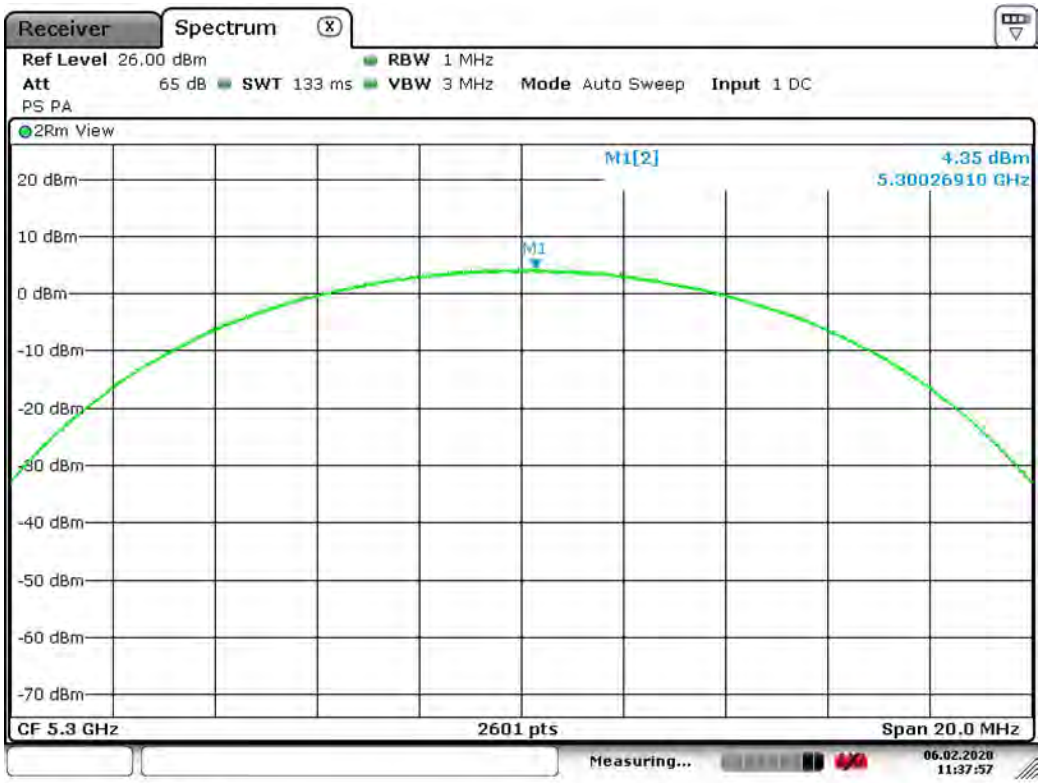
9.2 Peak Power Spectral Density Test Data

Test Date(s):	Feb. 6, 2020	Test Engineer:	J. Chiller
Standards:	CFR 47 Part 15.407(a)(1,3); KDB789033	Air Temperature:	22.9ºC
		Relative Humidity:	33%

U-NII-2A, CCK, Low Channel

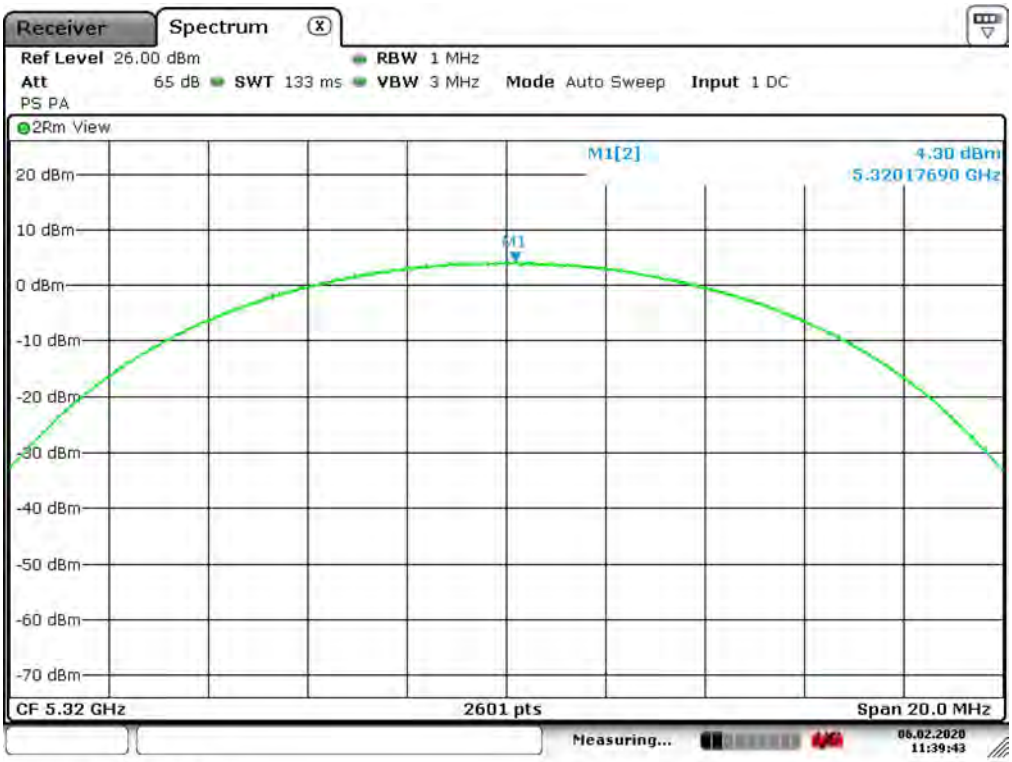


U-NII-2A, CCK, Mid Channel

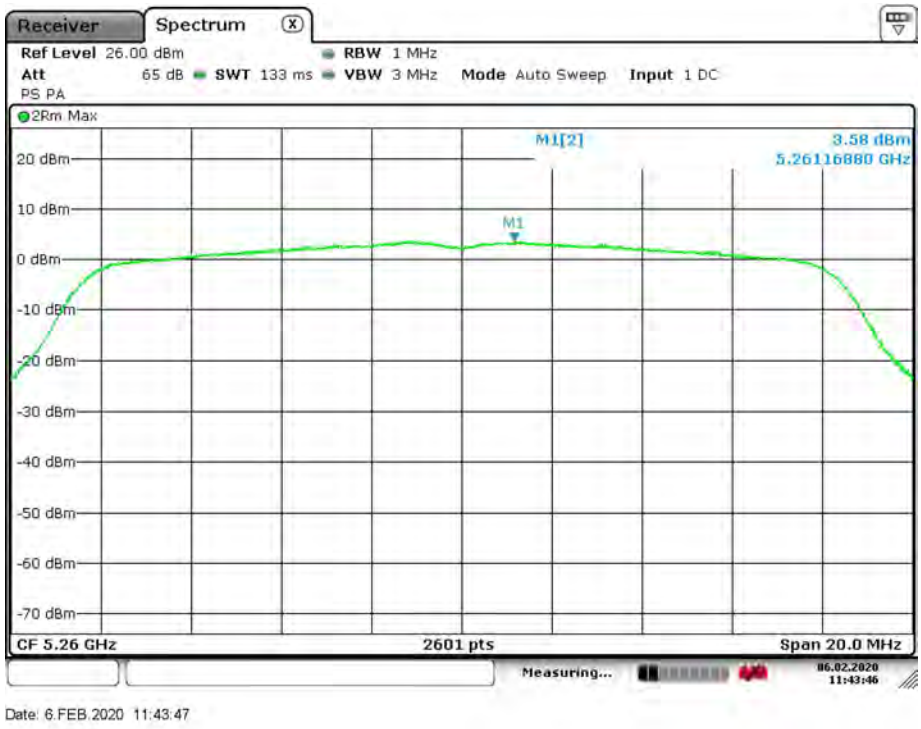


Date: 6.FEB.2020 11:37:57

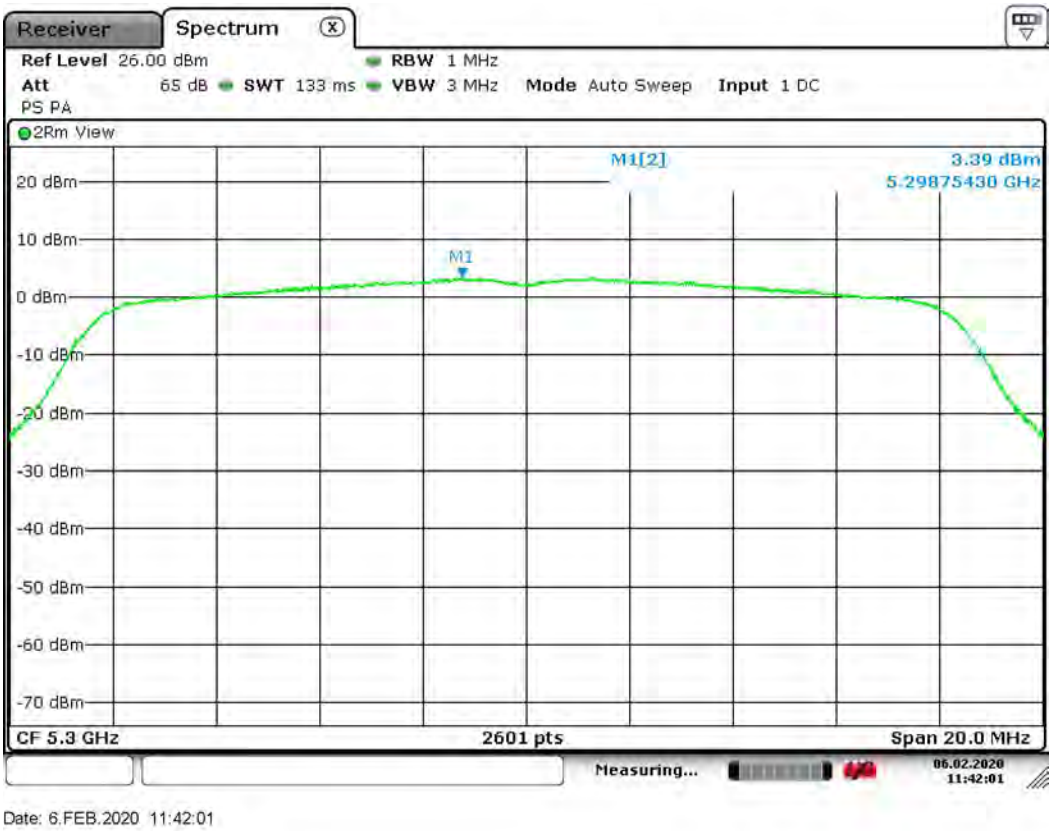
U-NII-2A, CCK, High Channel



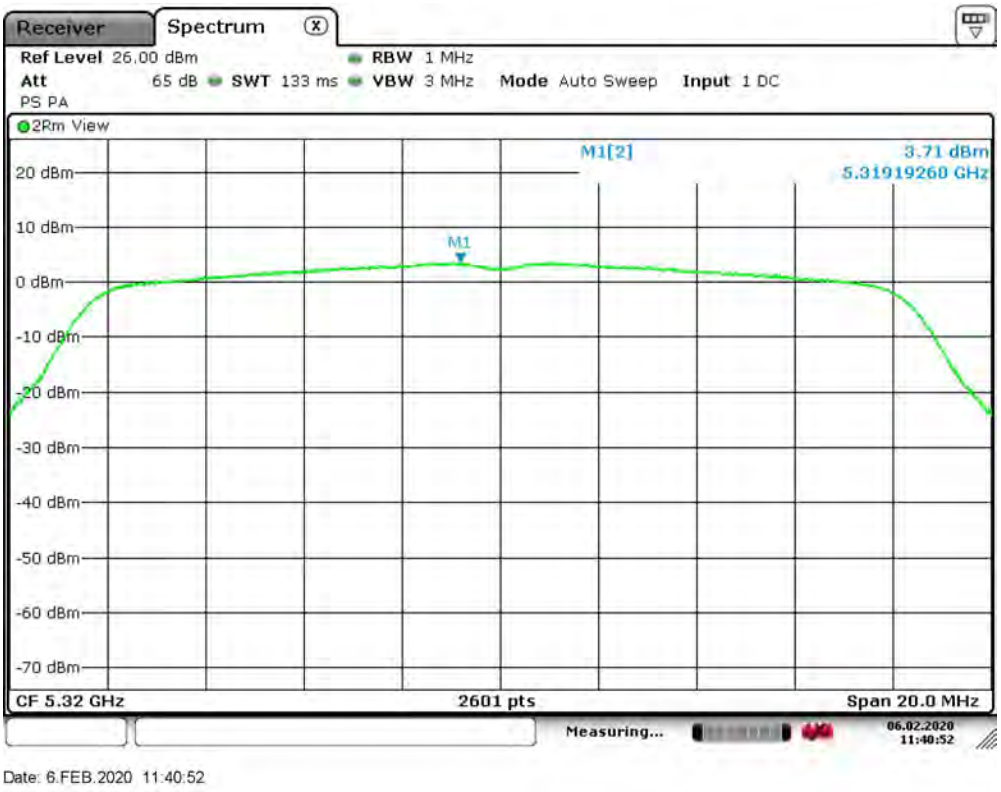
U-NII-2A, OFDM, Low Channel



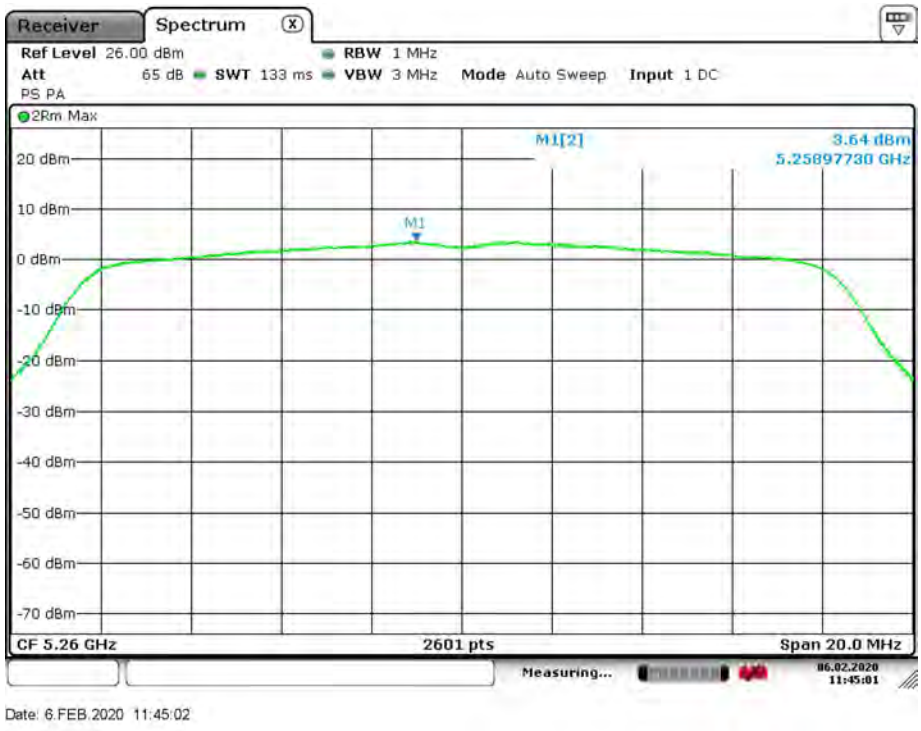
U-NII-2A, OFDM, Mid Channel



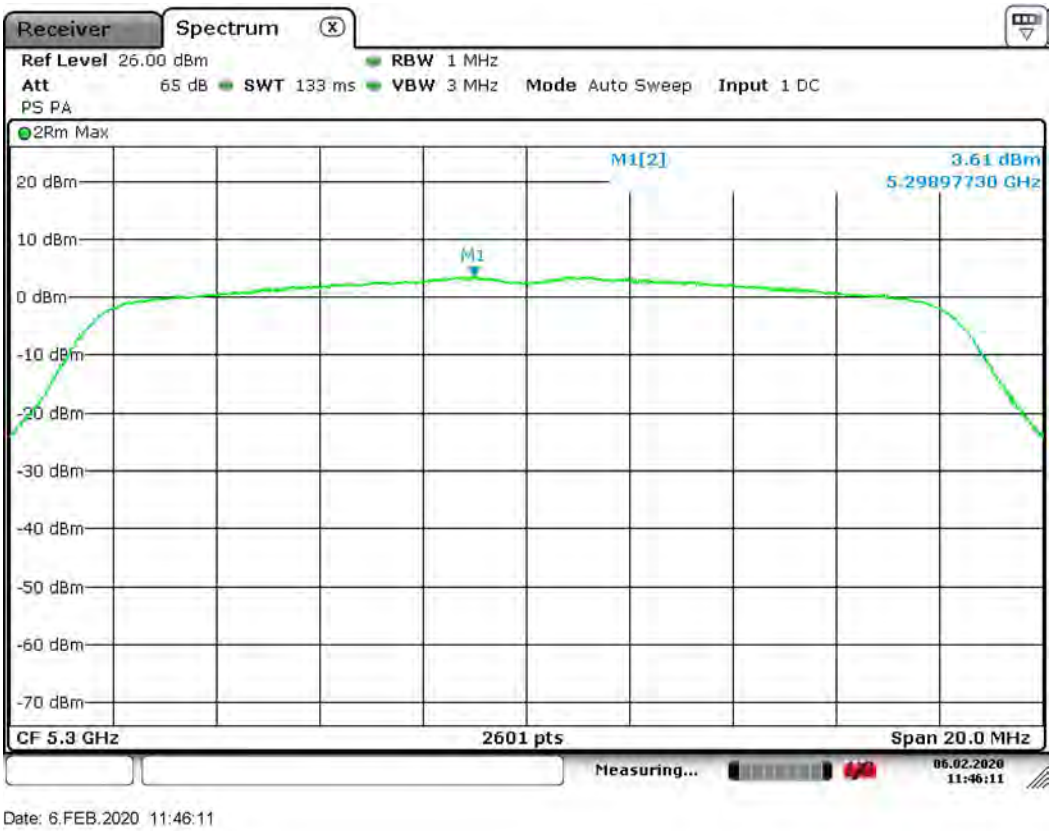
U-NII-2A, OFDM, High Channel



U-NII-2A, MCS7, Low Channel

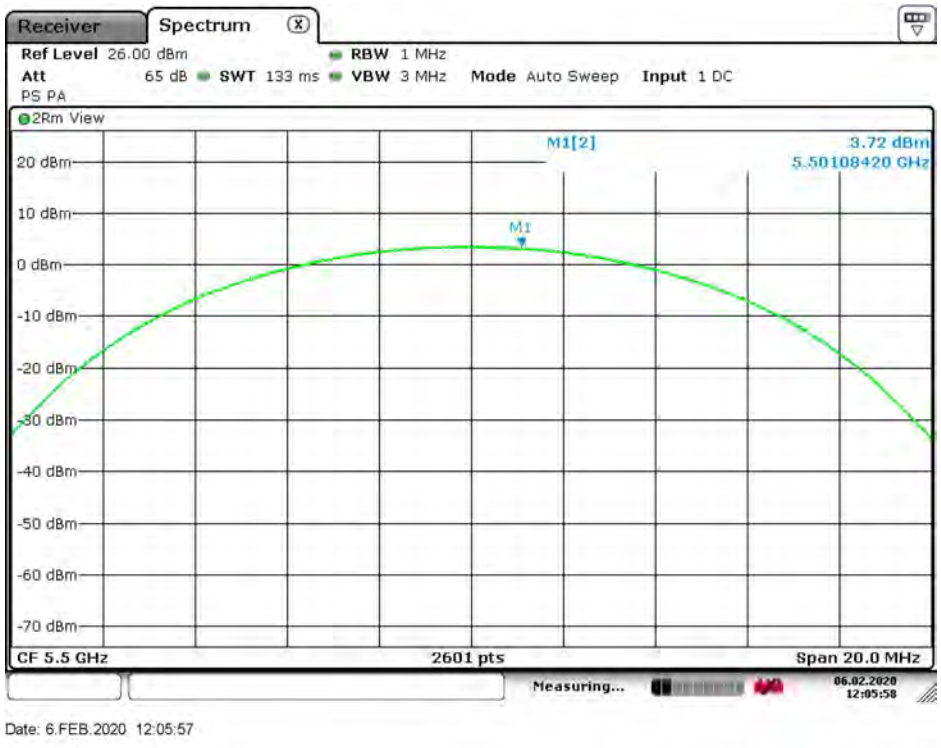


U-NII-2A, MCS7, Mid Channel

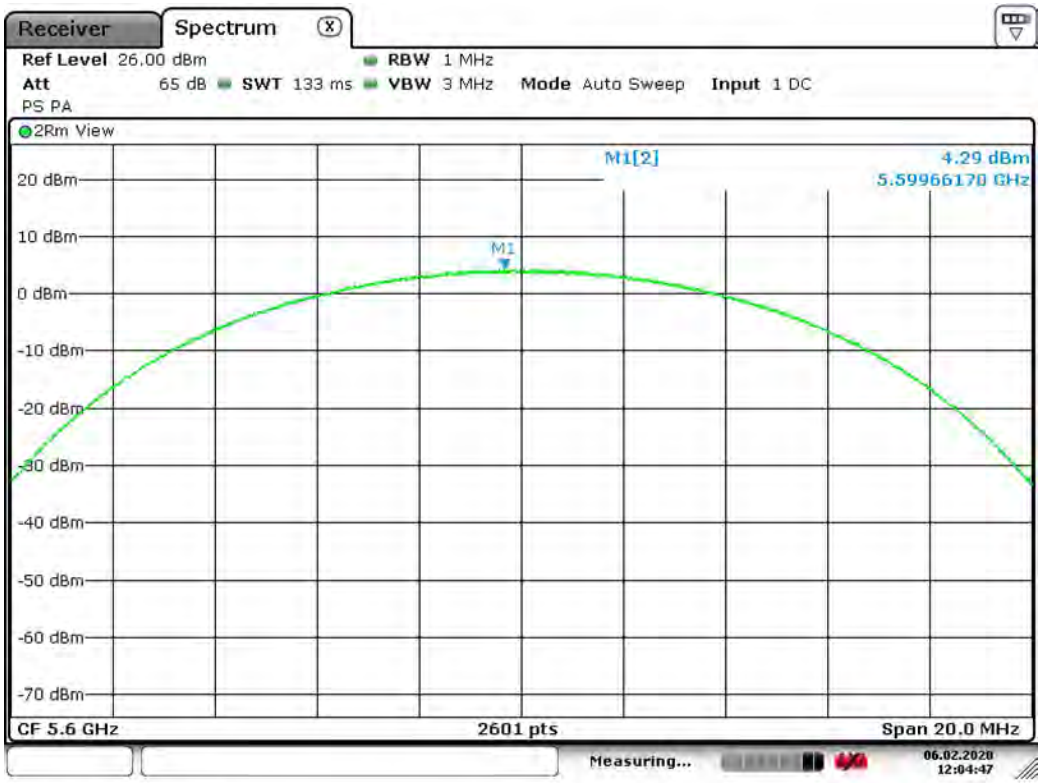


U-NII-2A, MCS7, High Channel

U-NII-2C, CCK, Low Channel

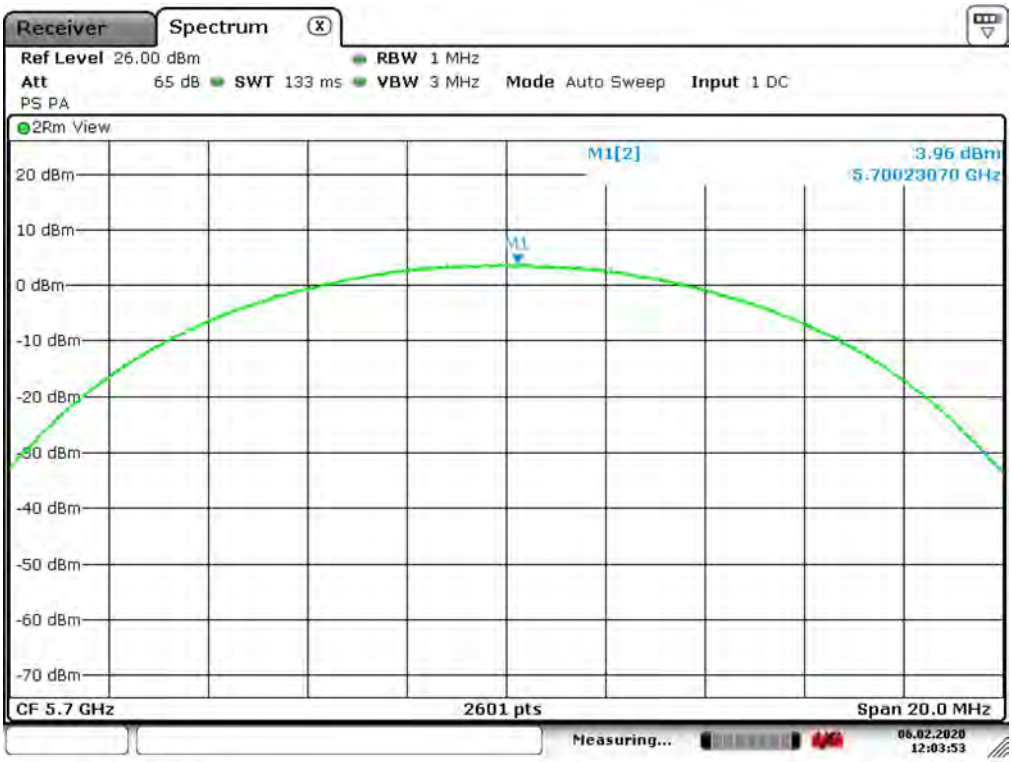


U-NII-2C, CCK, Mid Channel

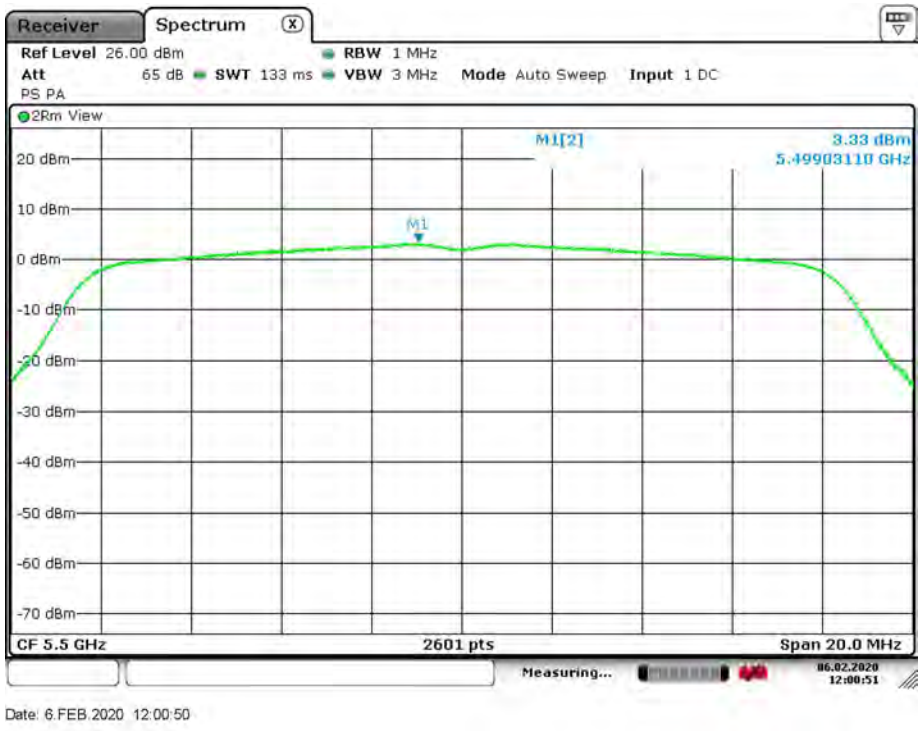


Date: 6.FEB.2020 12:04:47

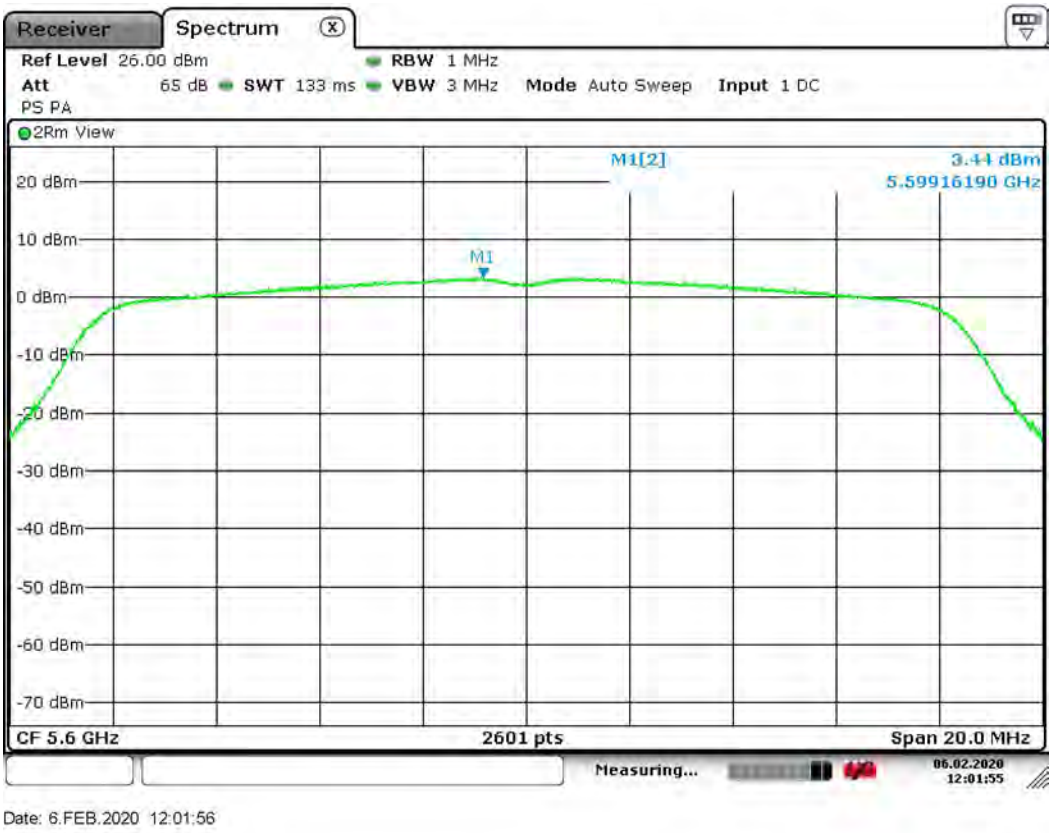
U-NII-2C, CCK, High Channel



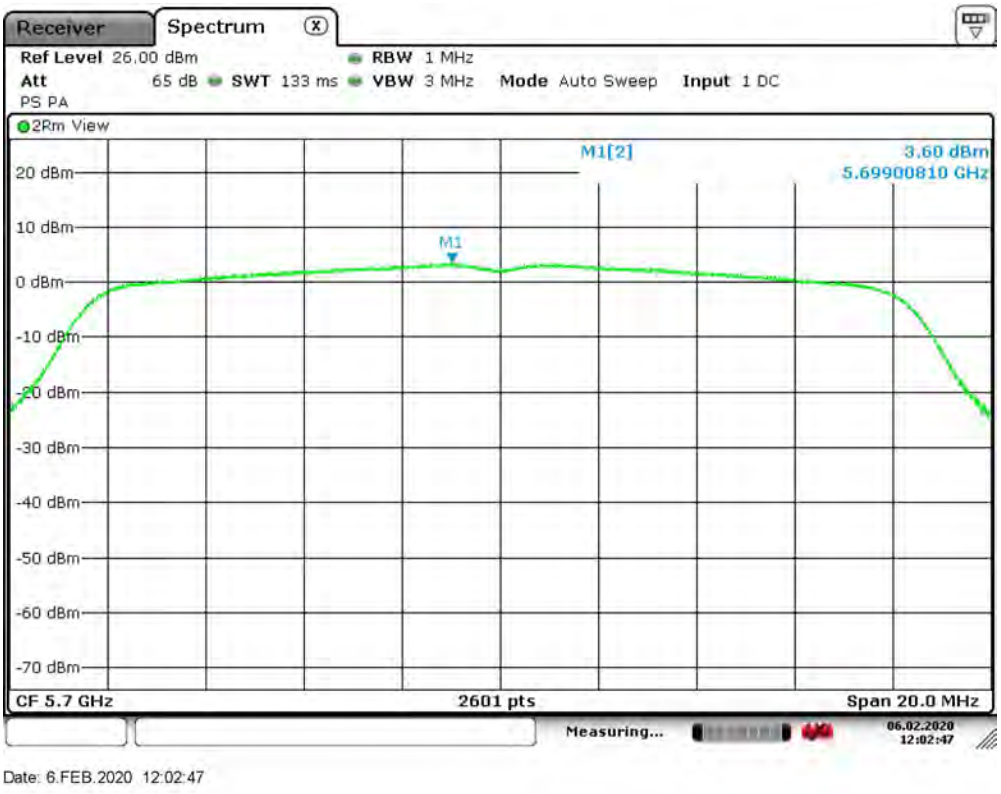
U-NII-2C, OFDM, Low Channel



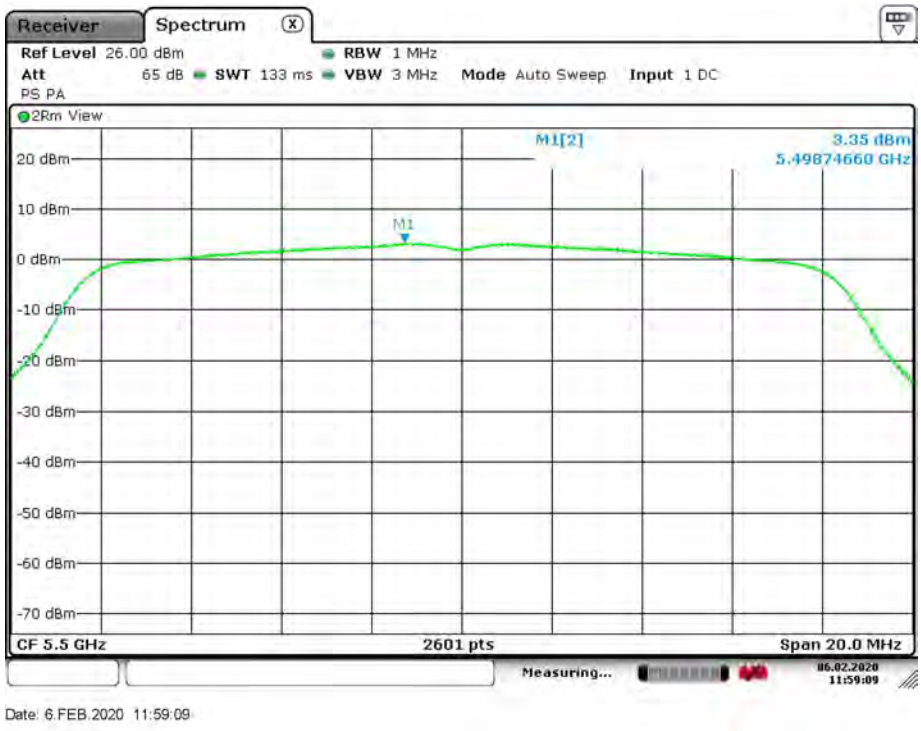
U-NII-2C, OFDM, Mid Channel



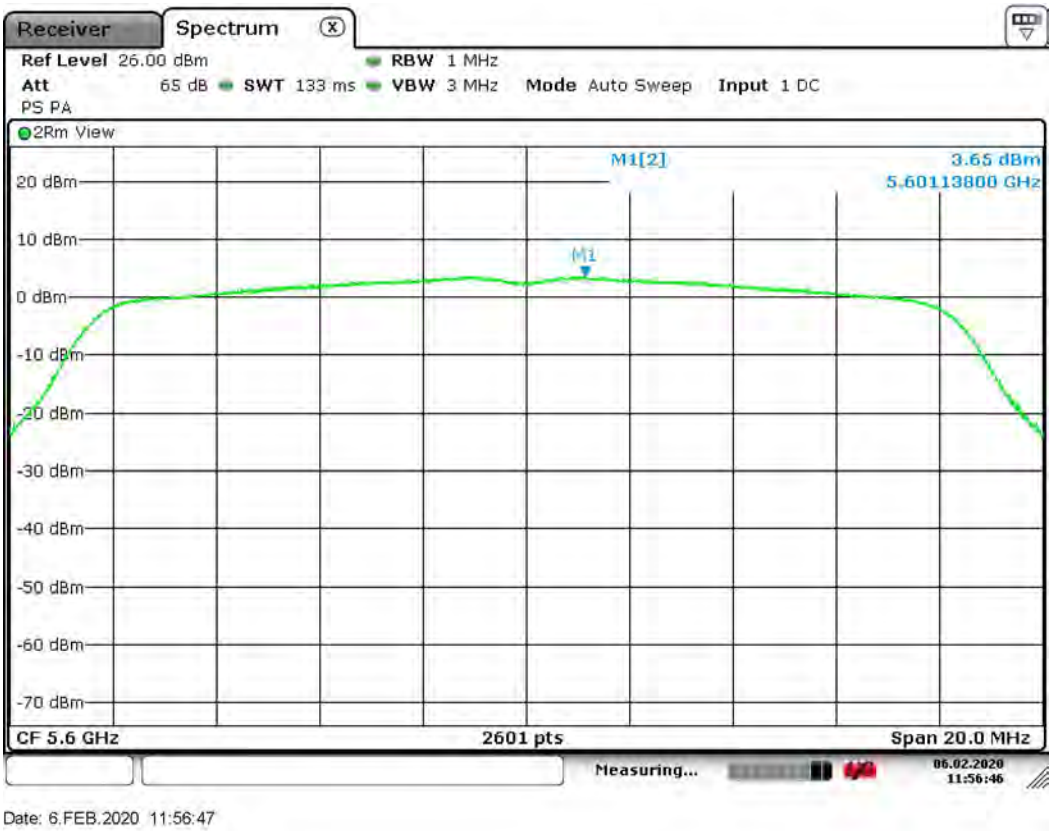
U-NII-2C, OFDM, High Channel



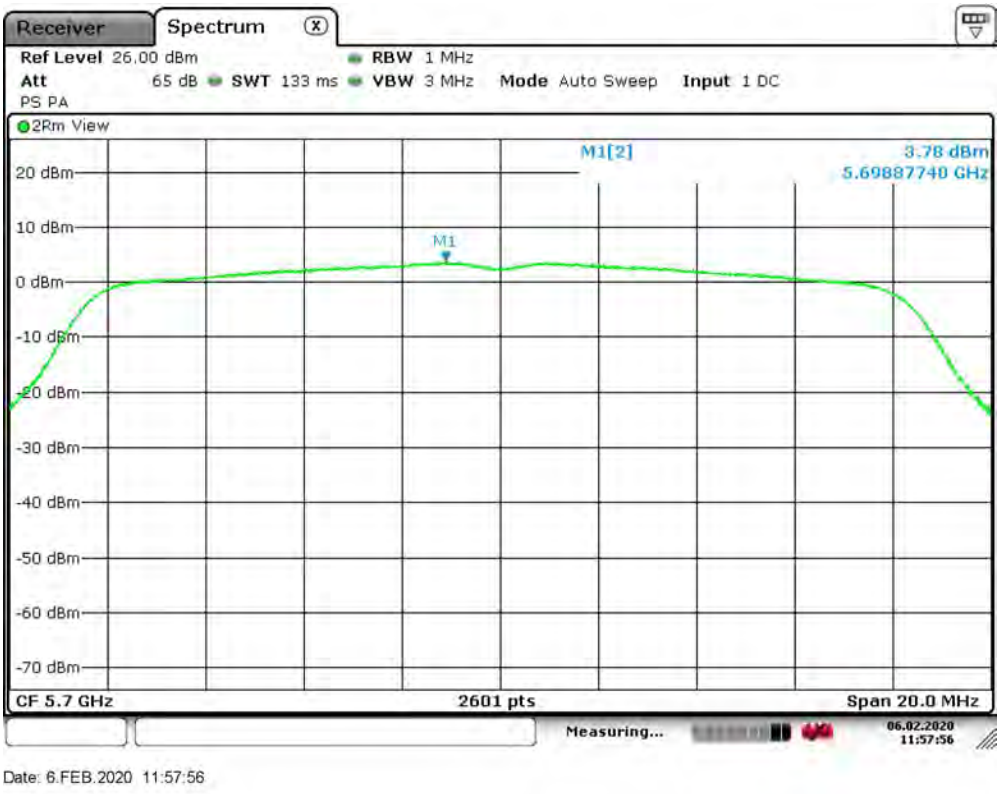
U-NII-2C, MCS7, Low Channel



U-NII-2C, MCS7, Mid Channel



U-NII-2C, MCS7, High Channel



10 RADIATED SPURIOUS EMISSION

The EUT antenna port was fitted with its integral/internal antenna. Radiated emissions were measured in a Semi-Anechoic Chamber. All emissions generated that fall in the restricted bands per FCC Part 15.205 were examined.

10.1 Requirements:

Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits:

For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of −27 dBm/MHz.

The -27 dBm/MHz limit was converted to 68.23 dBuV/m at 3 meters for radiated emissions testing. The data presented confirms all unwanted emissions do not exceed this limit.

10.2 Radiated Spurious Emission Test Data

Test Date(s):	Feb. 4, 2020; Aug. 25, 2020	**Test Engineer:**	J. Chiller
Standards:	CFR 47 Part 15.407; Part 15.209 / KDB789033	**Air Temperature:**	23.8ºC
		Relative Humidity:	23%

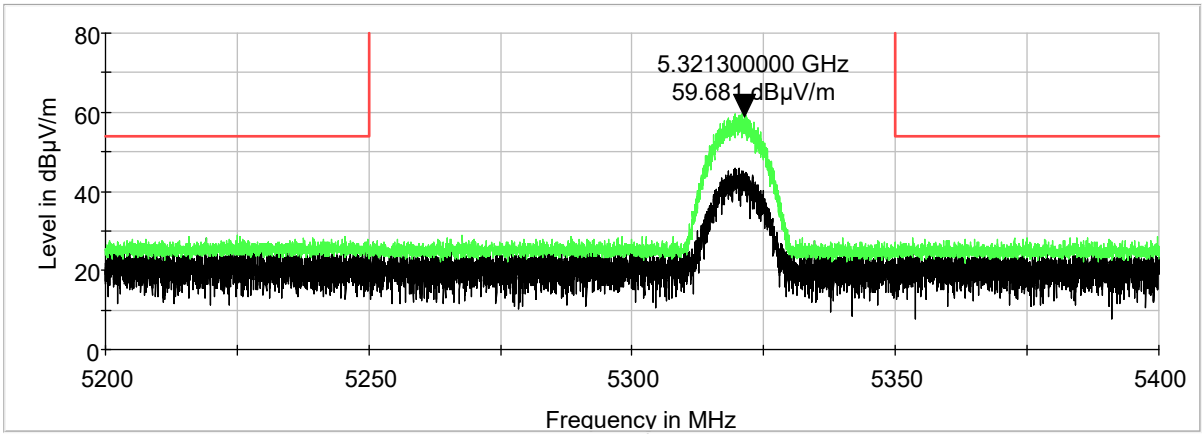
Notes: Plots are peak, max hold prescan data included only to determine what frequencies to investigate and measure. The EUT was initially placed in a semi-anechoic chamber, and rotated in all three orthogonal positions to maximize the emissions. The orthogonal position that showed the highest emissions was used. Characterization measurements were then performed to determine at which frequencies significant emissions occurred. These graphs are shown below.

The equipment was fully exercised with all cabling attached to the EUT and was positioned in a semi-anechoic chamber for maximum emissions. While the equipment was energized, the receiving antenna was scanned from 1.0 meter to 4.0 meters in both vertical and horizontal polarities while the turntable was adjusted 360 degrees to determine the maximum field strength. The tables of measured results can be found below.

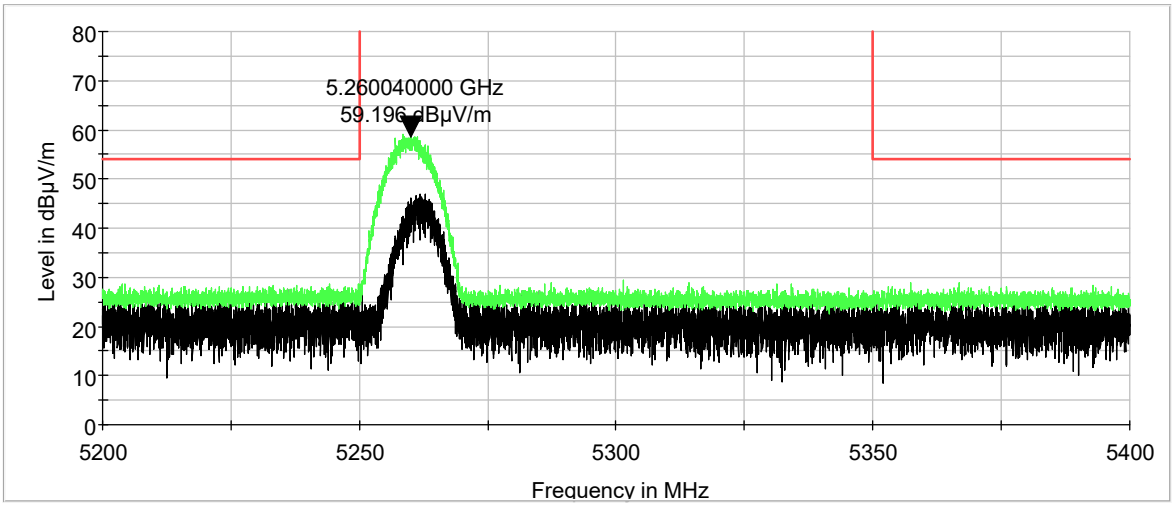
In the following plots, emissions to be found by the EUT were measured and listed in tables. The black lines are active scans while the green lines are the max peak scan of the unit during rotations. The plots are for reference only and the limit lines are not actual limit lines but merely a guide. Measurements from all channels are included in the data table.

Radiated Band Edge

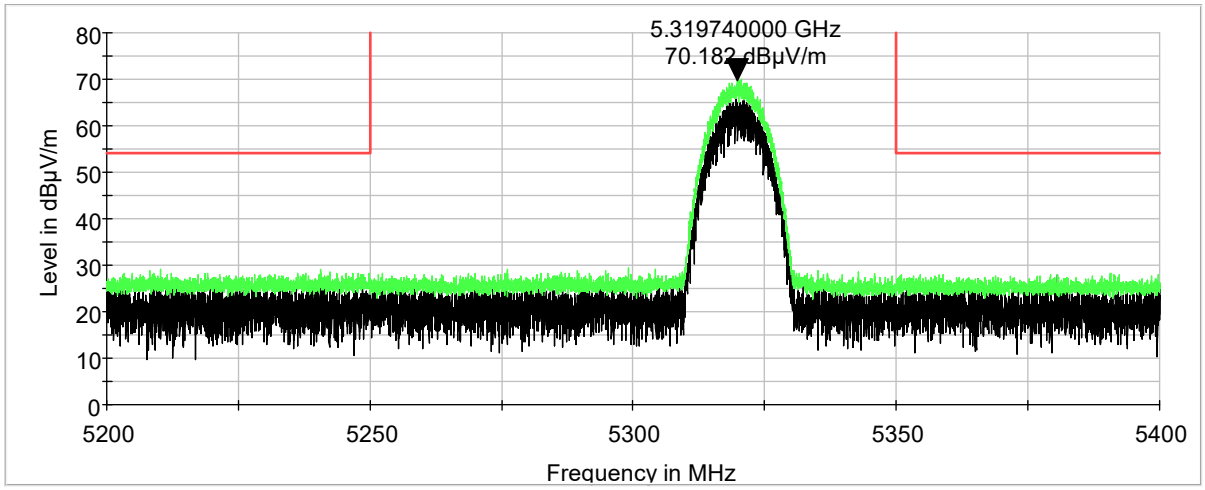
U-NII-2A, CCK – Low Band Edge, Vertical



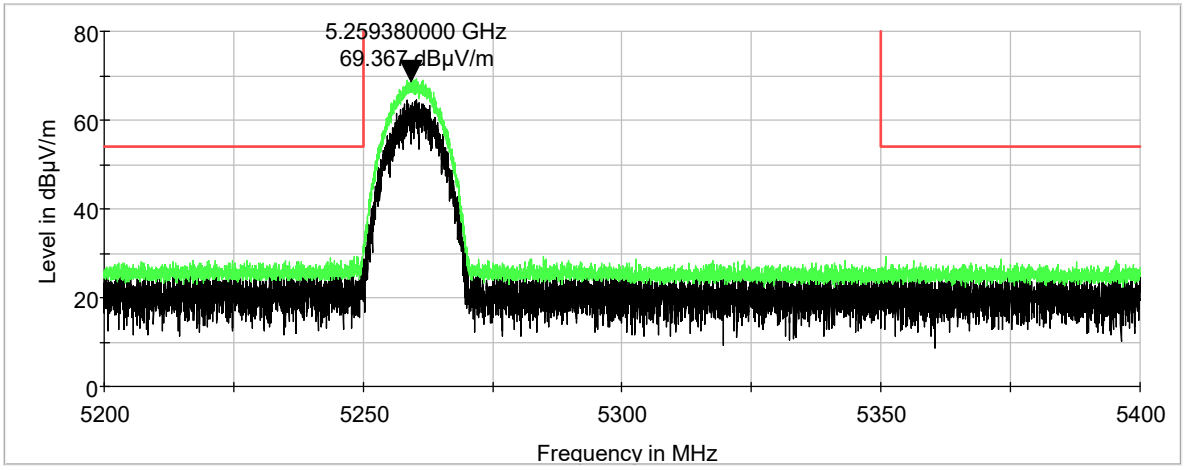
U-NII-2A, CCK – High Band Edge, Vertical



U-NII-2A, CCK – Low Band Edge, Horizontal



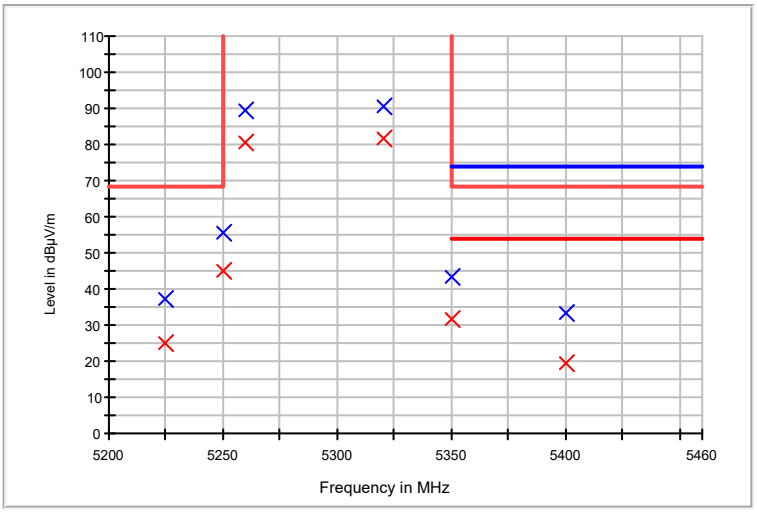
U-NII-2A, CCK – High Band Edge, Horizontal



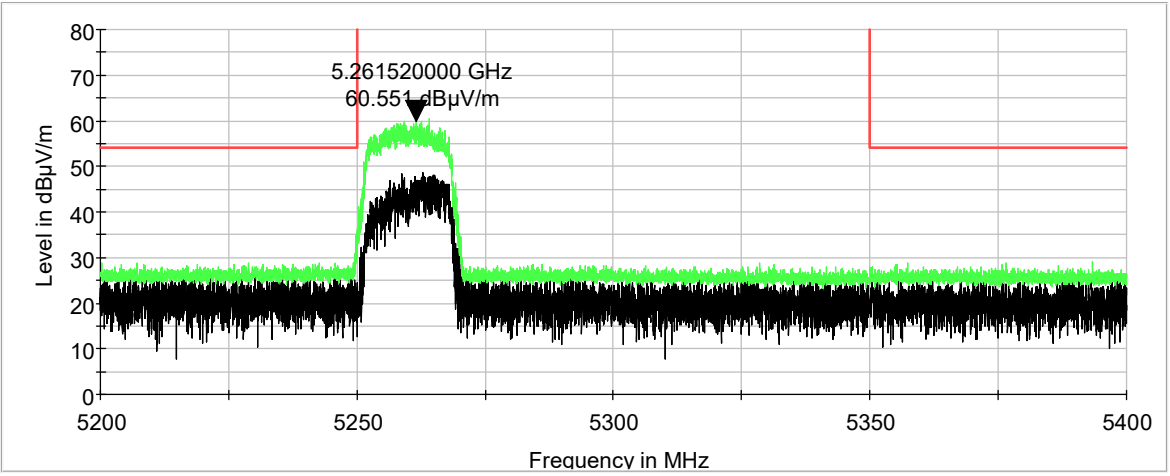
Radiated Band Edge

U-NII-2A, CCK - Measurements

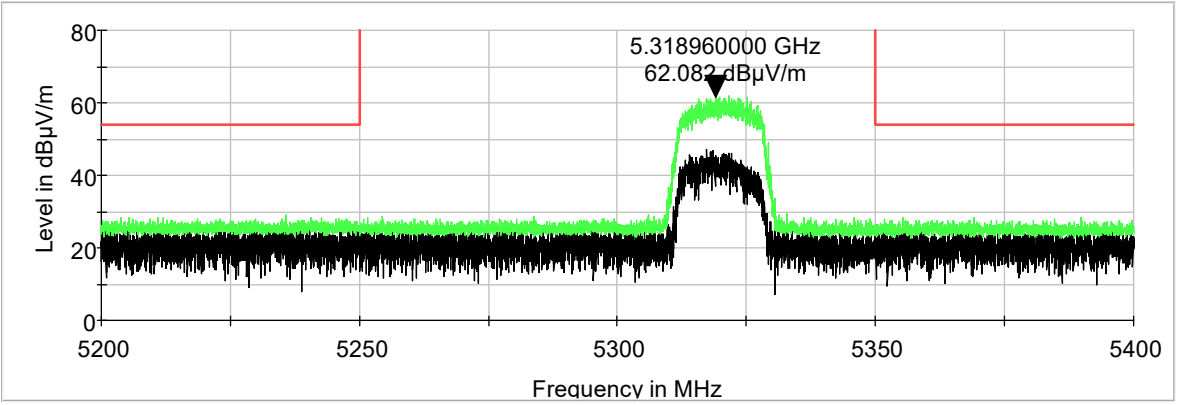
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
5225.000000	37.1	25.2	1000.000	150.0	H	336.0	-22.8	43.0	68.2
5250.000000	55.3	45.1	1000.000	150.0	H	336.0	-22.7	23.1	68.2
5260.000000	89.4	80.5	1000.000	150.0	H	338.0	-22.6	-----	-----
5320.000000	90.6	81.7	1000.000	150.0	H	328.0	-22.4	-----	-----
5350.000000	43.1	31.6	1000.000	150.0	H	328.0	-22.3	36.6	68.2
5400.000000	33.4	19.5	1000.000	150.0	H	328.0	-22.2	48.7	68.2



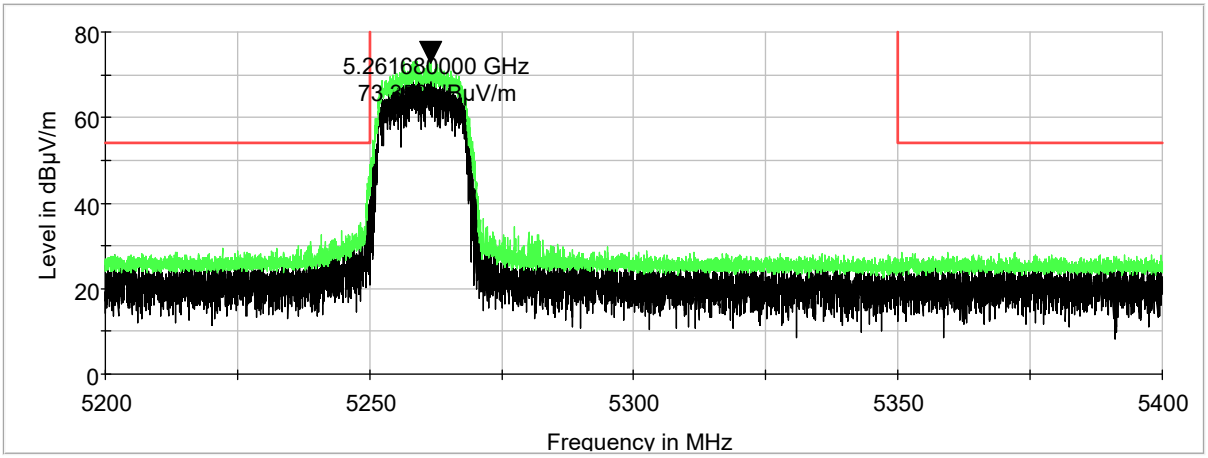
U-NII-2A, OFDM – Low Band Edge, Vertical



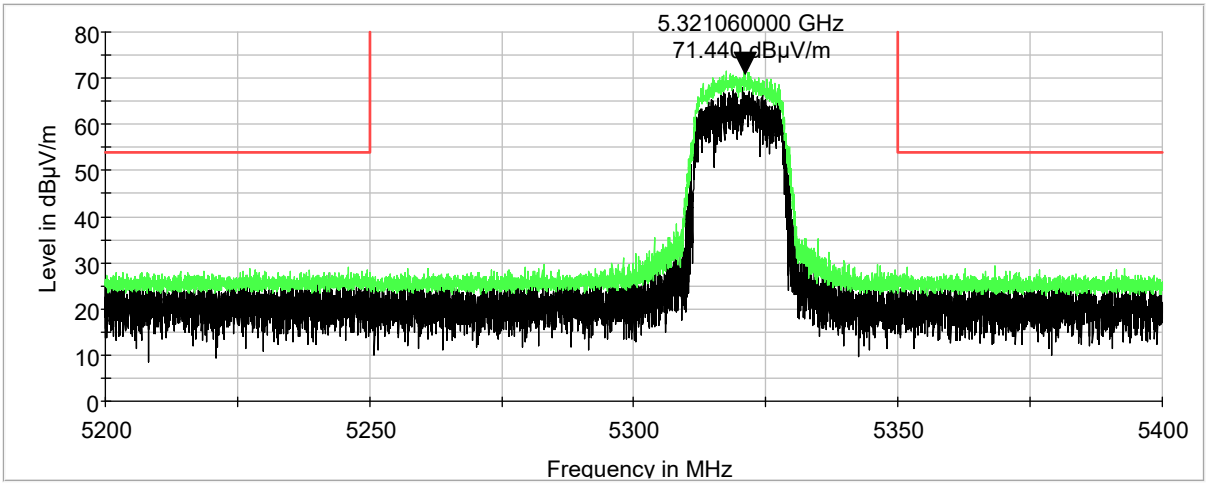
U-NII-2A, OFDM – High Band Edge, Vertical



U-NII-2A, OFDM – Low Band Edge, Horizontal



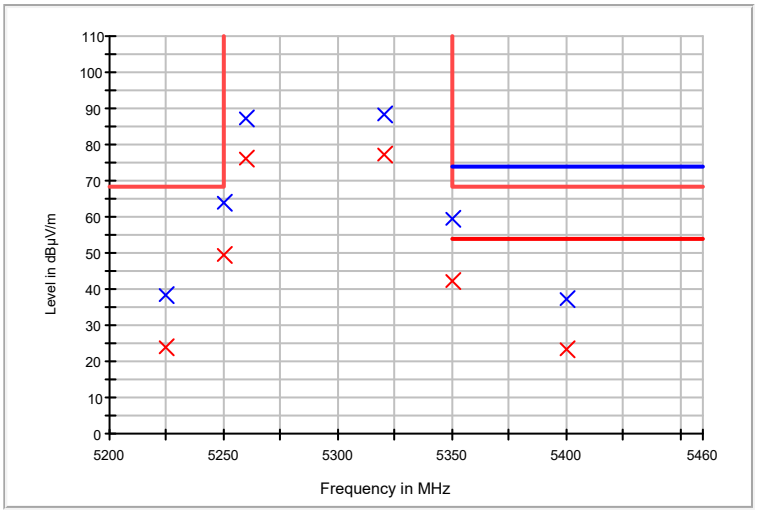
U-NII-2A, OFDM – High Band Edge, Horizontal



Radiated Band Edge

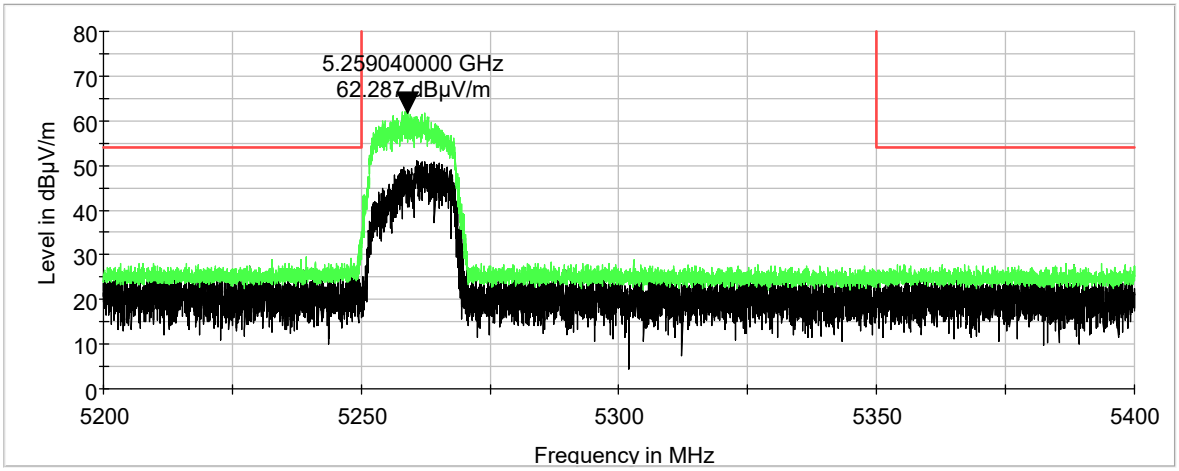
U-NII-2A, OFDM - Measurements

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
5225.000000	38.5	23.9	1000.000	150.0	H	181.0	-22.8	44.3	68.2
5250.000000	64.1	49.3	1000.000	150.0	H	161.0	-22.7	18.9	68.2
5260.000000	87.2	76.2	1000.000	150.0	H	42.0	-22.6	-----	-----
5320.000000	88.3	77.1	1000.000	150.0	H	42.0	-22.4	-----	-----
5350.000000	59.3	42.4	1000.000	150.0	H	42.0	-22.3	25.8	68.2
5400.000000	37.3	23.1	1000.000	150.0	H	42.0	-22.2	45.1	68.2

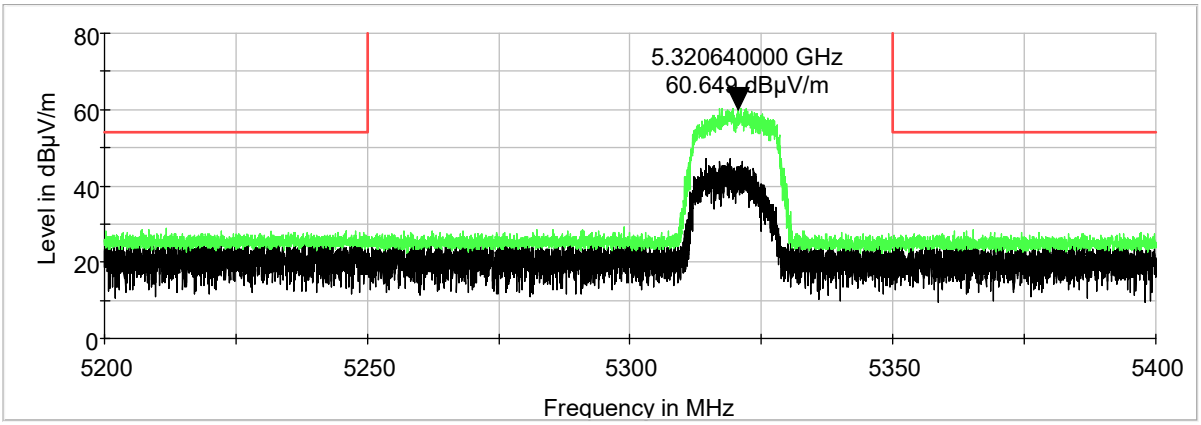


Radiated Band Edge

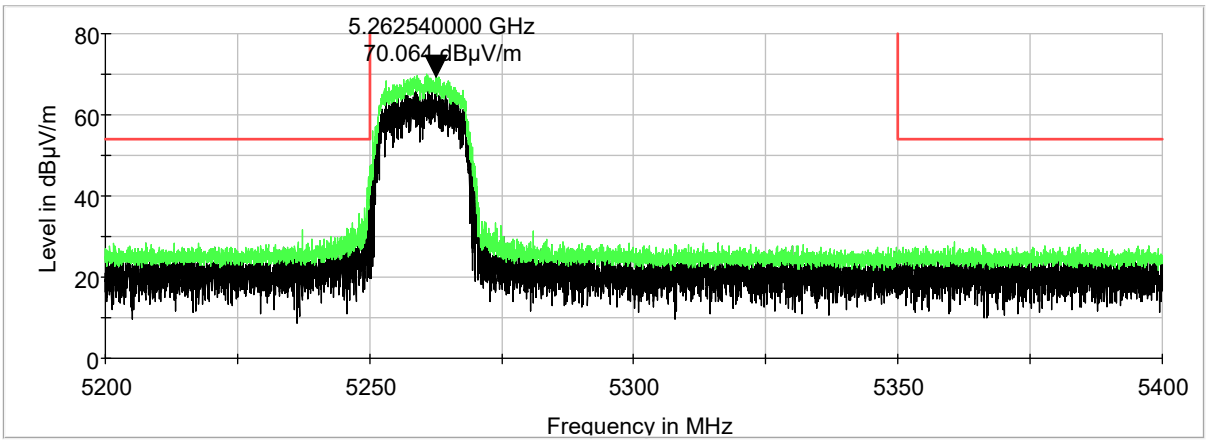
U-NII-2A, MCS7 – Low Band Edge, Vertical



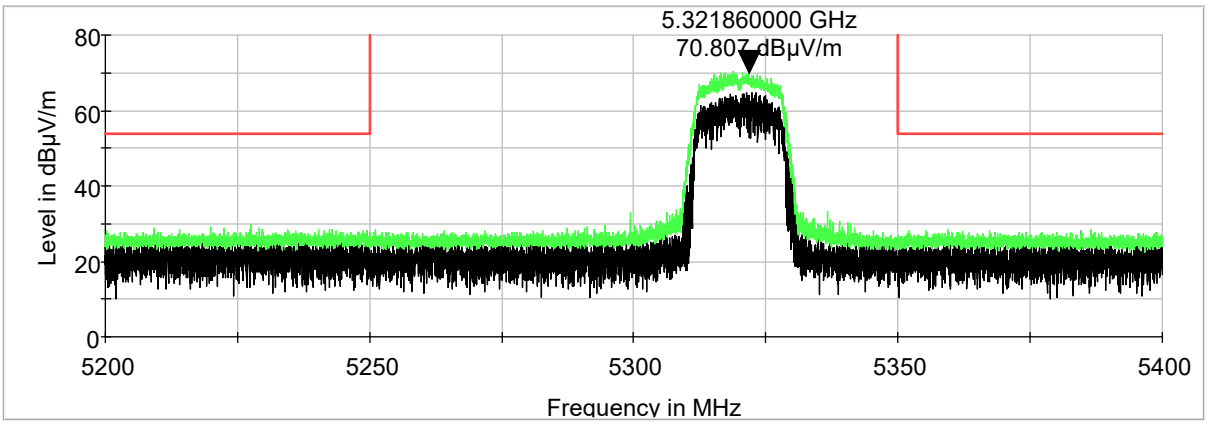
U-NII-2A, MCS7 – High Band Edge, Vertical



U-NII-2A, MCS7 – Low Band Edge, Horizontal



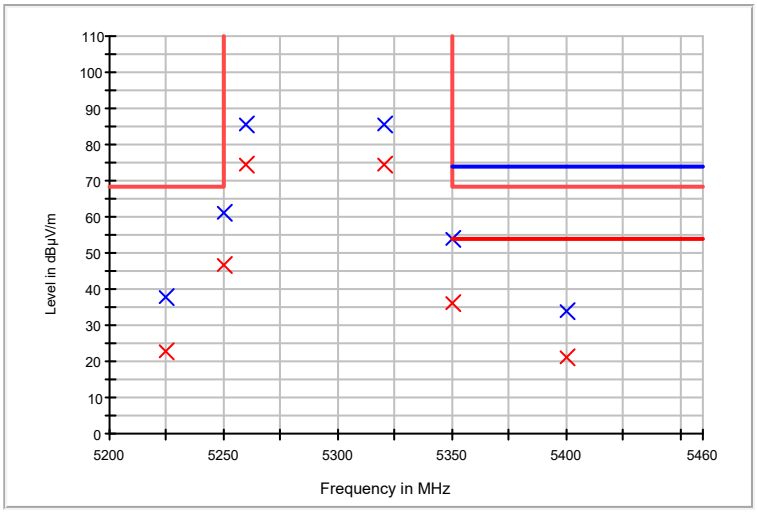
U-NII-2A, MCS7 – High Band Edge, Horizontal



Radiated Band Edge

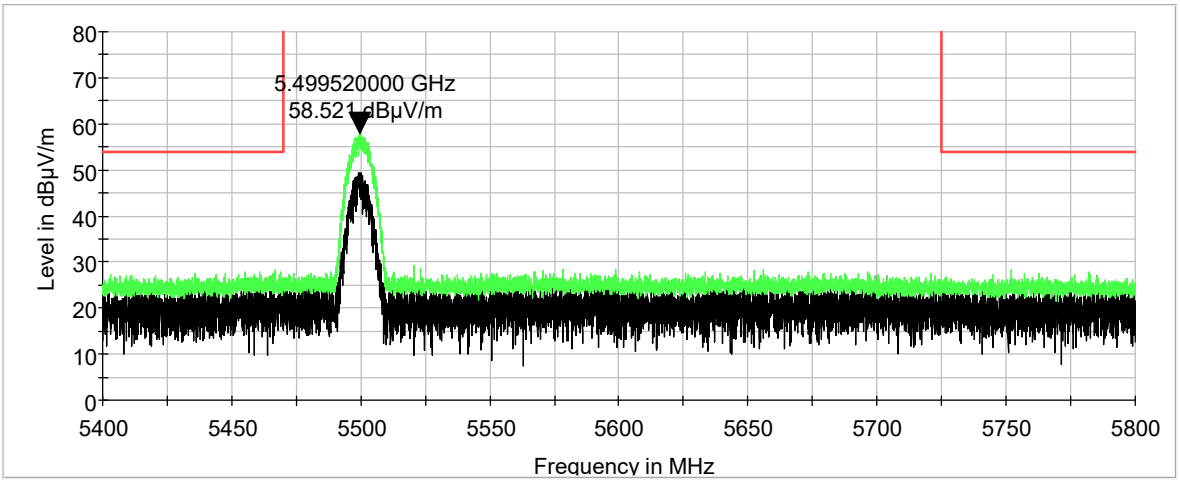
U-NII-2A, MCS7 - Measurements

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
5225.000000	37.9	22.7	1000.000	150.0	H	52.0	-22.8	45.5	68.2
5250.000000	61.2	46.6	1000.000	150.0	H	52.0	-22.7	21.6	68.2
5260.000000	85.5	74.7	1000.000	150.0	H	52.0	-22.6	-----	-----
5320.000000	85.5	74.7	1000.000	150.0	H	52.0	-22.4	-----	-----
5350.000000	53.7	36.0	1000.000	150.0	H	52.0	-22.3	32.2	68.2
5400.000000	34.0	21.3	1000.000	150.0	H	52.0	-22.2	46.9	68.2

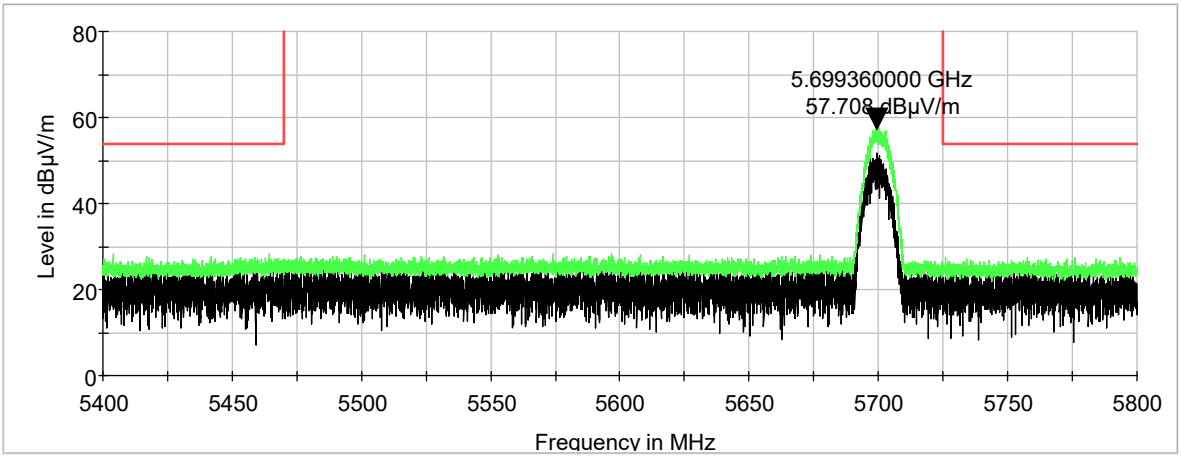


Radiated Band Edge

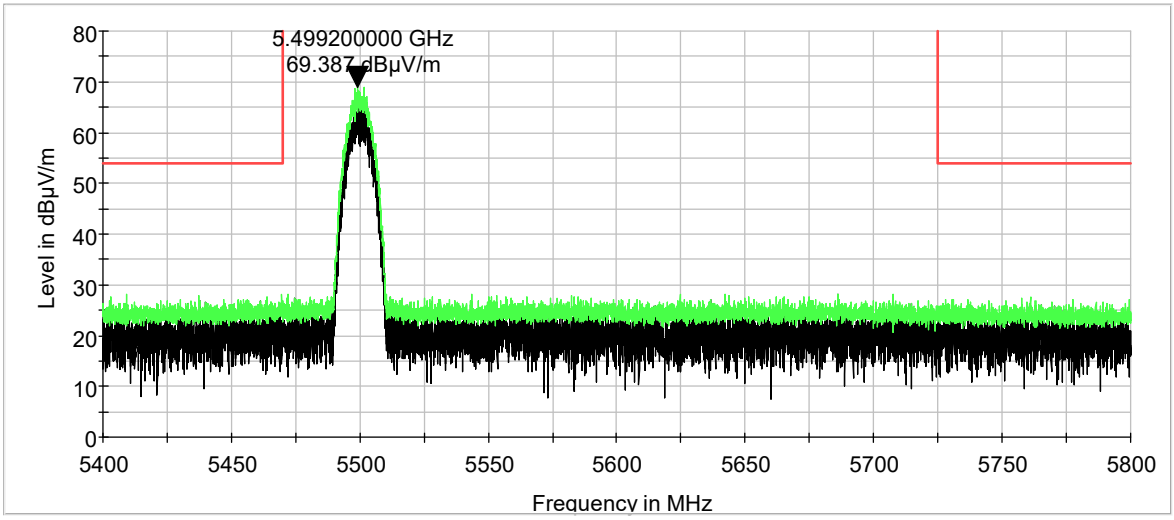
U-NII-2C, CCK – Low Band Edge, Vertical



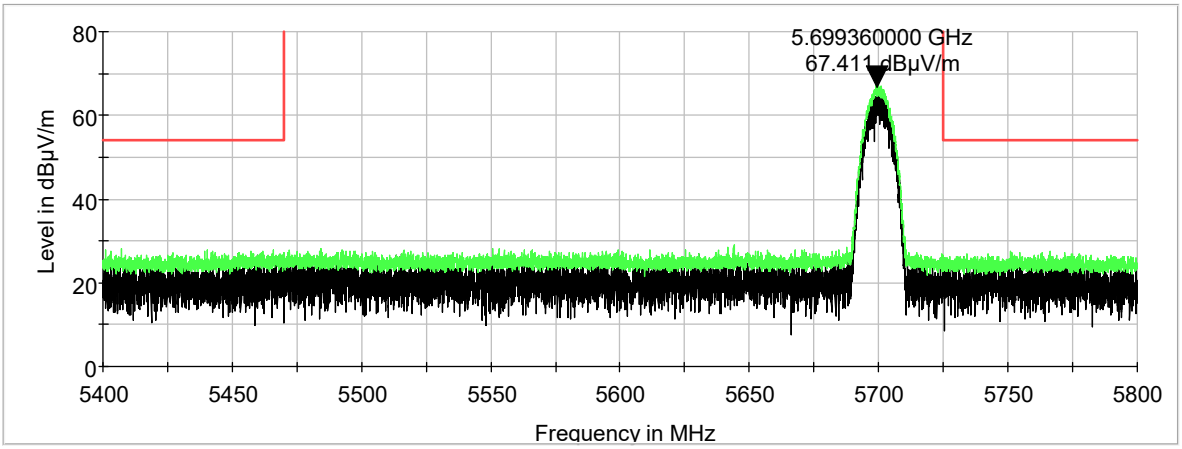
U-NII-2C, CCK – High Band Edge, Vertical



U-NII-2C, CCK – Low Band Edge, Horizontal



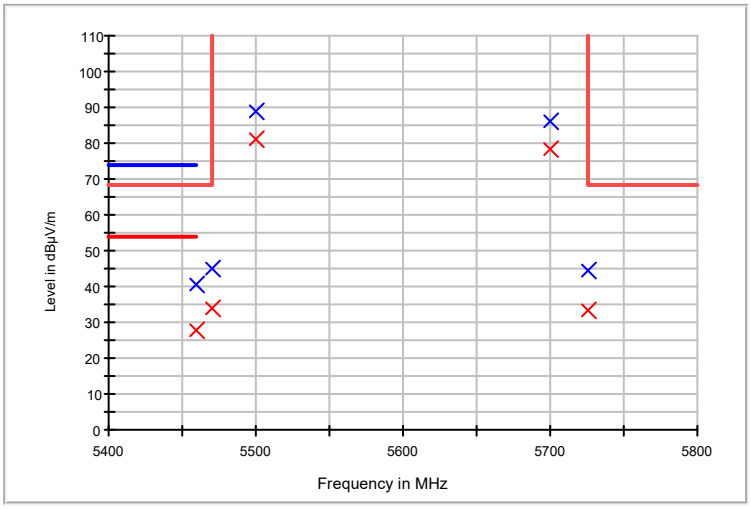
U-NII-2C, CCK – High Band Edge, Horizontal



Radiated Band Edge

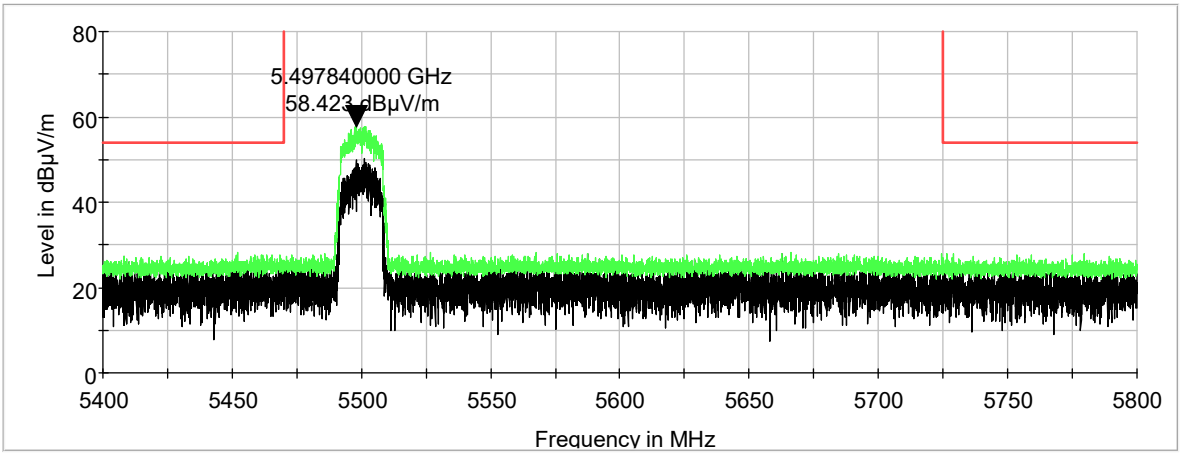
U-NII-2C, CCK - Measurements

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
5460.000000	40.4	27.7	1000.000	150.0	H	41.0	-22.0	26.3	54.0
5470.000000	45.2	33.8	1000.000	150.0	H	41.0	-21.9	34.4	68.2
5500.000000	88.9	81.2	1000.000	150.0	H	41.0	-21.8	-----	-----
5700.000000	85.9	78.1	1000.000	150.0	H	33.0	-21.5	-----	-----
5725.000000	44.3	33.6	1000.000	150.0	H	33.0	-21.5	34.6	68.2

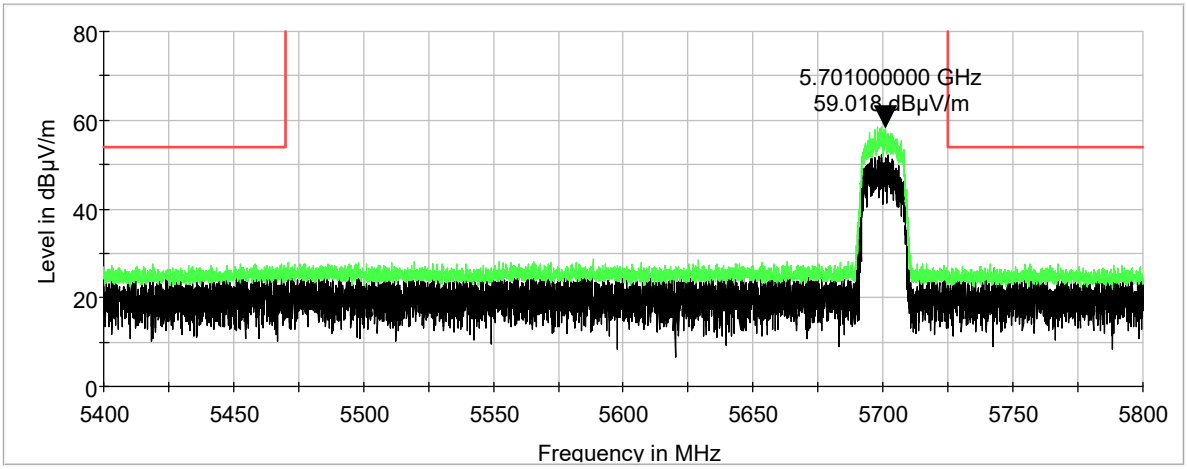


Radiated Band Edge

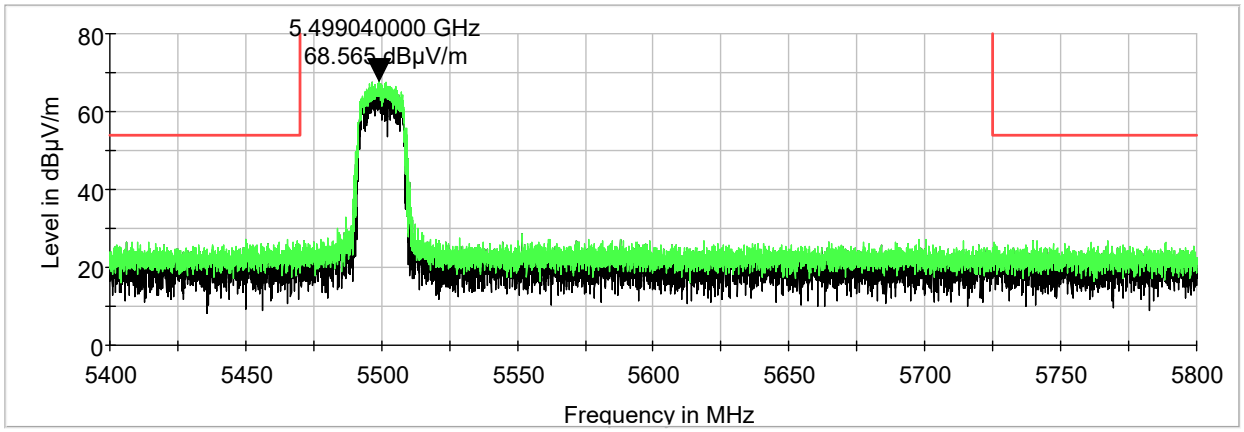
U-NII-2C, OFDM – Low Band Edge, Vertical



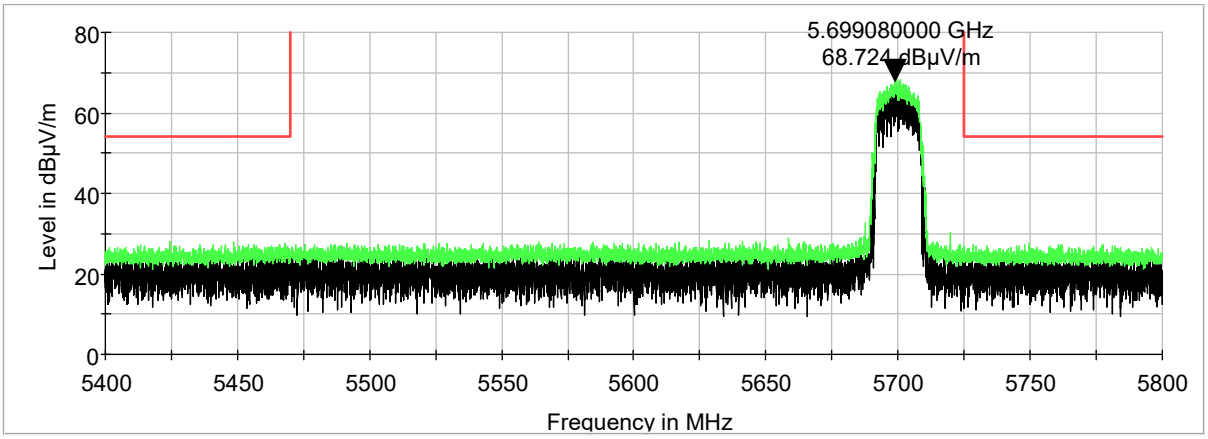
U-NII-2C, OFDM – High Band Edge, Vertical



U-NII-2C, OFDM – Low Band Edge, Horizontal



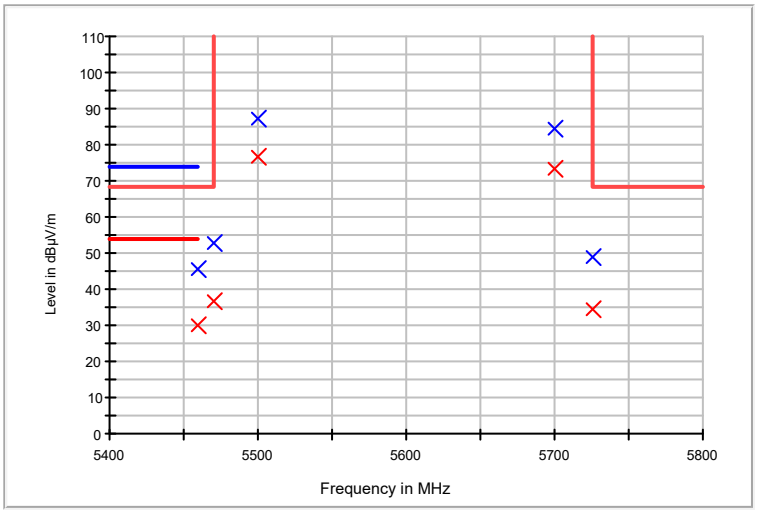
U-NII-2C, OFDM – High Band Edge, Horizontal



Radiated Band Edge

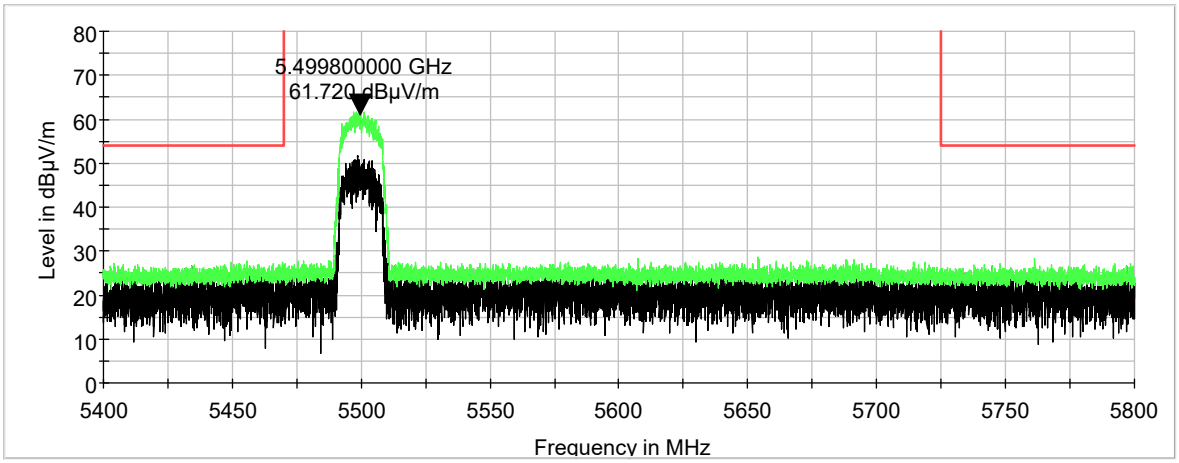
U-NII-2C, OFDM - Measurements

Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
5460.000000	45.8	30.2	1000.000	150.0	H	50.0	-22.0	23.8	54.0
5470.000000	52.5	36.6	1000.000	150.0	H	50.0	-21.9	31.6	68.2
5500.000000	87.5	76.5	1000.000	150.0	H	50.0	-21.8	-----	-----
5700.000000	84.4	73.1	1000.000	150.0	H	50.0	-21.5	-----	-----
5725.000000	48.8	34.7	1000.000	150.0	H	50.0	-21.5	33.5	68.2

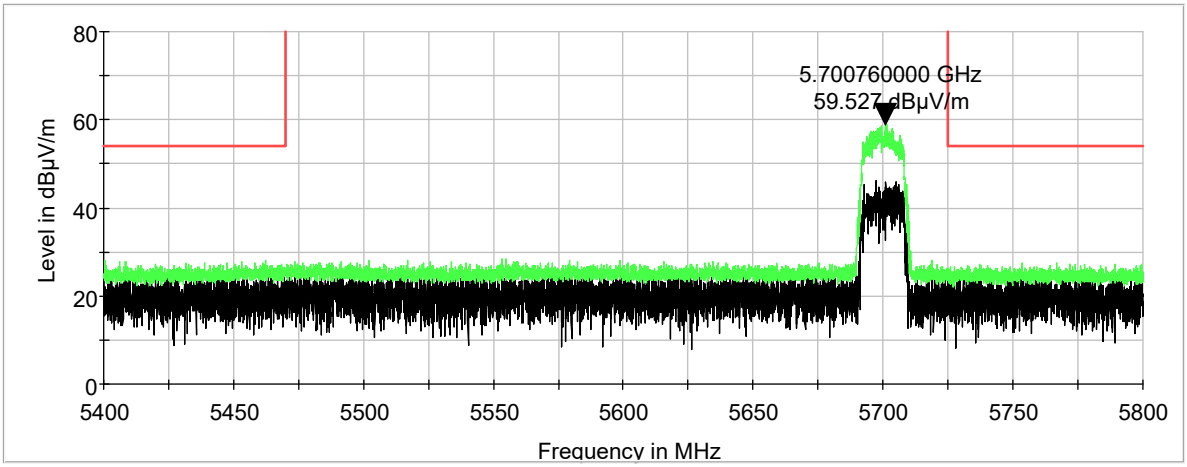


Radiated Band Edge

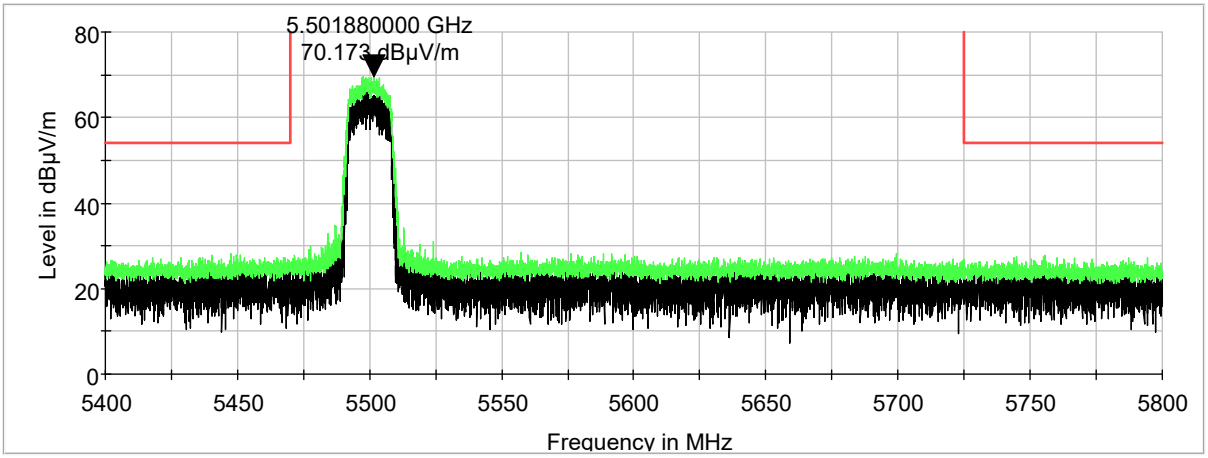
U-NII-2C, MCS7 – Low Band Edge, Vertical



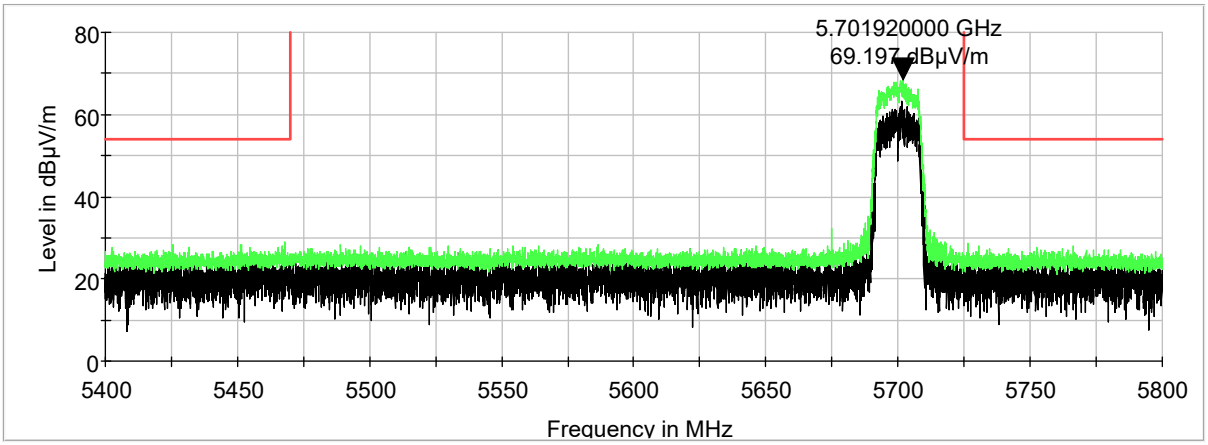
U-NII-2C, MCS7 – High Band Edge, Vertical



U-NII-2C, MCS7 – Low Band Edge, Horizontal



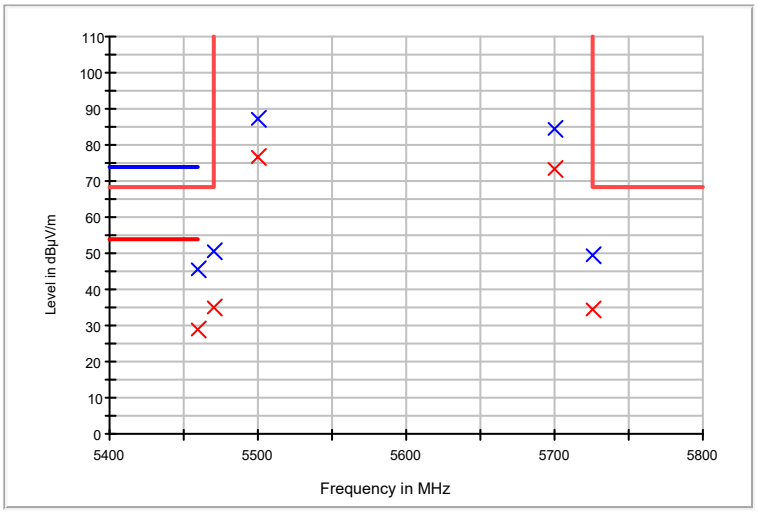
U-NII-2C, MCS7 – High Band Edge, Horizontal



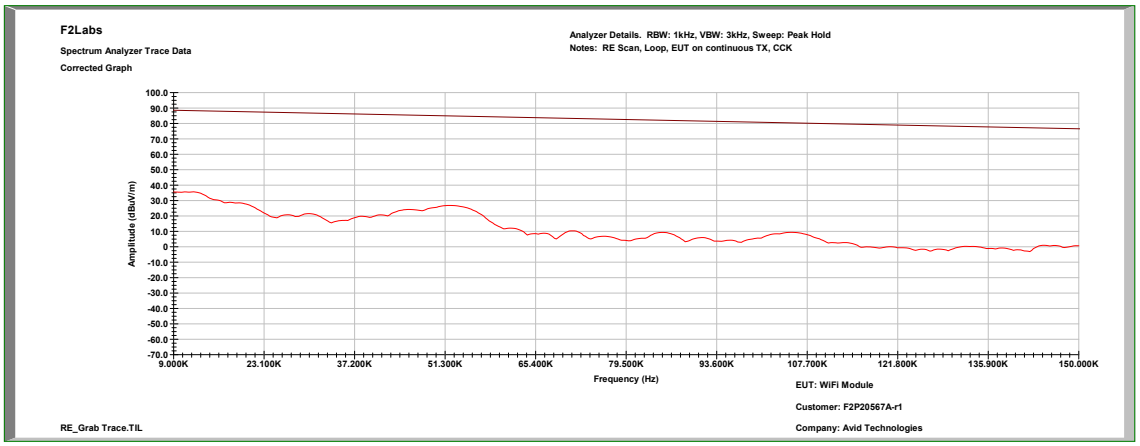
Radiated Band Edge

U-NII-2C, MCS7 - Measurements

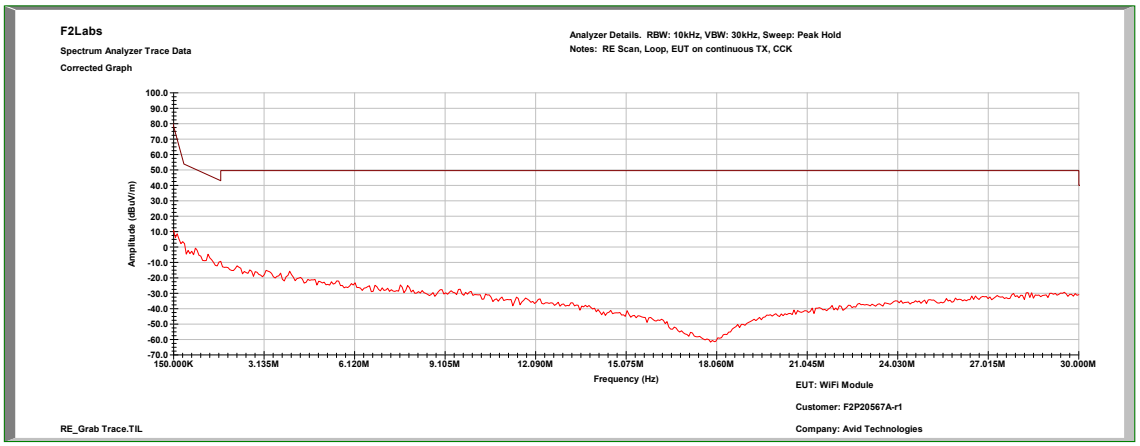
Frequency (MHz)	MaxPeak (dBµV/m)	Average (dBµV/m)	Bandwidth (kHz)	Height (cm)	Polarization	Azimuth (deg)	Corr. (dB)	Margin - AVG (dB)	Limit - AVG (dBµV/m)
5460.000000	45.5	28.8	1000.000	150.0	H	52.0	-22.0	25.2	54.0
5470.000000	50.6	35.1	1000.000	150.0	H	52.0	-21.9	33.1	68.2
5500.000000	87.4	76.5	1000.000	150.0	H	52.0	-21.8	-----	-----
5700.000000	84.4	73.1	1000.000	150.0	H	20.0	-21.5	-----	-----
5725.000000	49.6	34.4	1000.000	150.0	H	20.0	-21.5	33.8	68.2



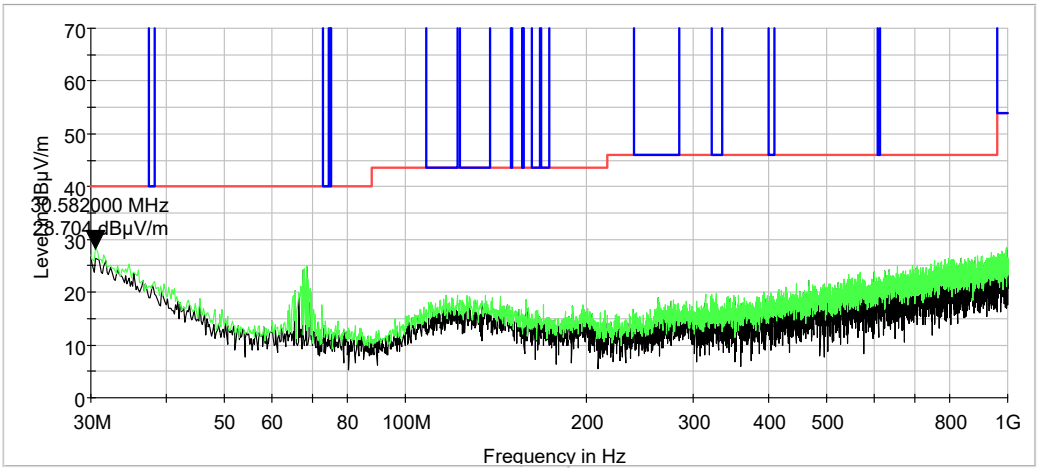
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 9k to 150k



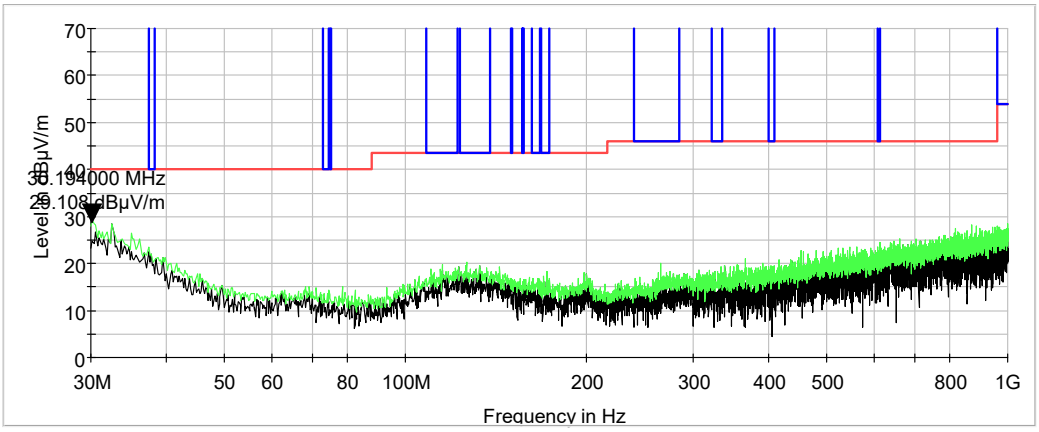
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 150k to 30 MHz



Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 30 MHz to 1 GHz, Vertical

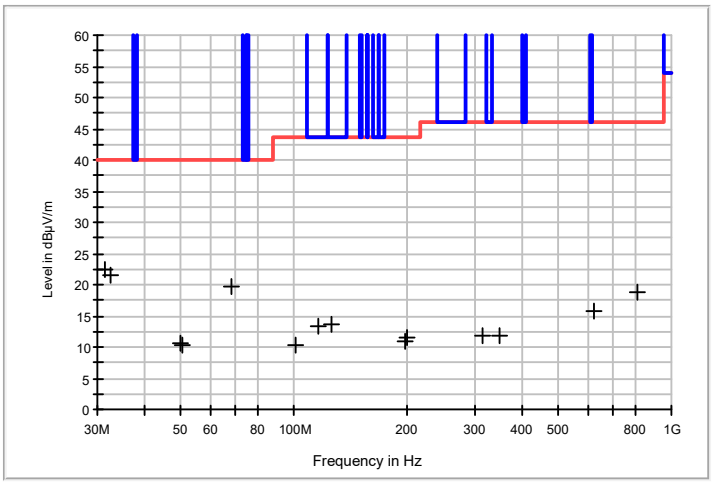


Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 30 MHz to 1 GHz, Horizontal

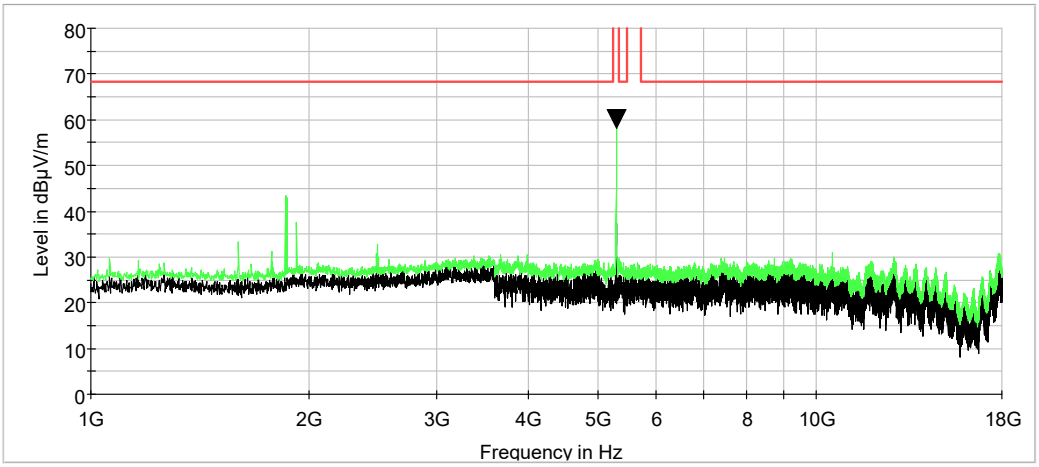


Radiated Spurious Emissions:
U-NII-2A, CCK, 30 MHz to 1000 MHz

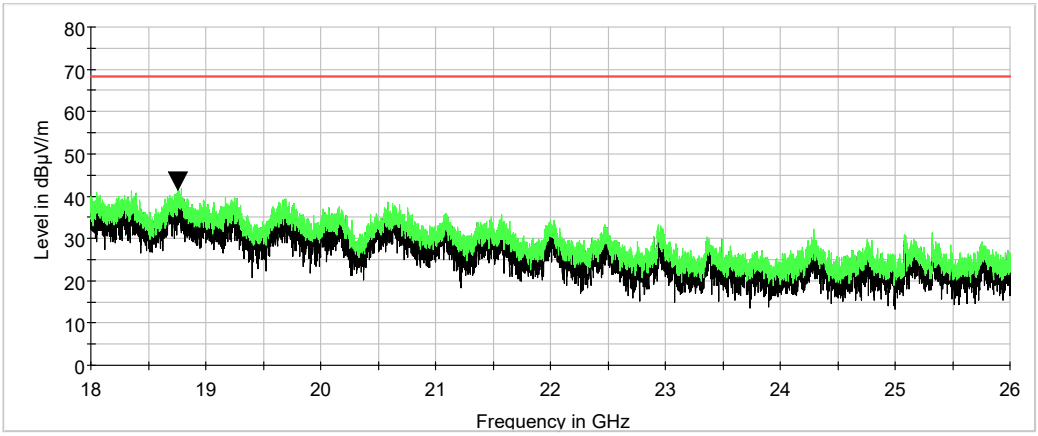
Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Azimuth (degrees)	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
31.560000	V	100.00	0.00	17.0	5.5	22.50	40.0	-17.5
32.520000	H	100.00	0.00	16.9	4.7	21.60	40.0	-18.4
49.600000	V	100.00	0.00	17.0	-6.4	10.60	40.0	-29.4
50.160000	H	100.00	0.00	17.0	-6.6	10.40	40.0	-29.6
68.400000	V	100.00	0.00	26.7	-7.1	19.60	40.0	-20.4
100.800000	H	100.00	0.00	15.7	-5.3	10.40	43.5	-33.1
115.760000	V	100.00	0.00	15.5	-2.1	13.40	43.5	-30.1
125.840000	H	100.00	0.00	15.3	-1.6	13.70	43.5	-29.8
196.240000	V	100.00	0.00	14.0	-3.0	11.00	43.5	-32.5
199.960000	H	100.00	0.00	13.9	-2.5	11.40	43.5	-32.1
314.800000	V	100.00	0.00	13.0	-1.2	11.80	46.0	-34.2
349.920000	H	100.00	0.00	12.3	-0.6	11.70	46.0	-34.3
624.800000	V	100.00	0.00	11.5	4.2	15.70	46.0	-30.3
814.360000	H	100.00	0.00	12.2	6.5	18.70	46.0	-27.3



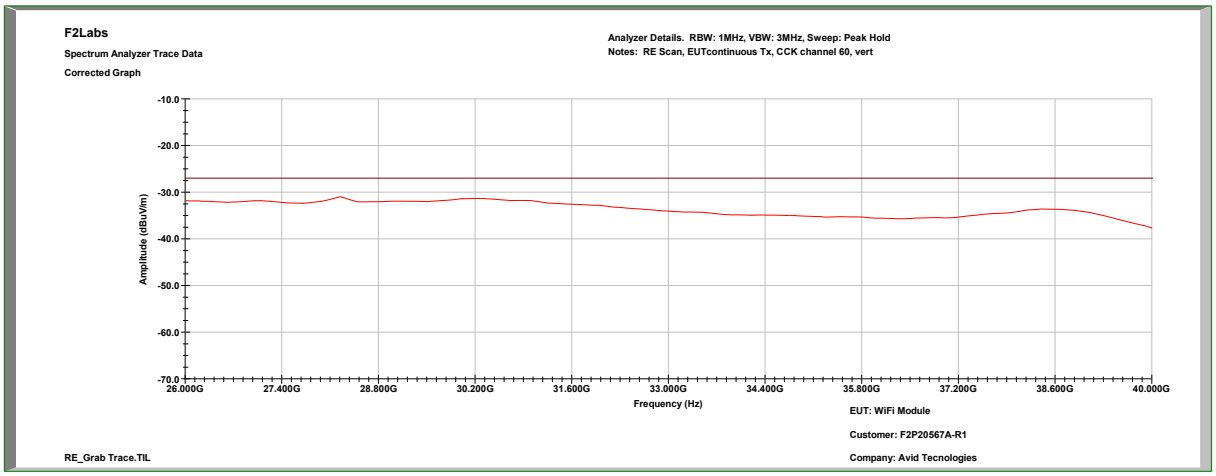
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 1 GHz to 18 GHz, Vertical



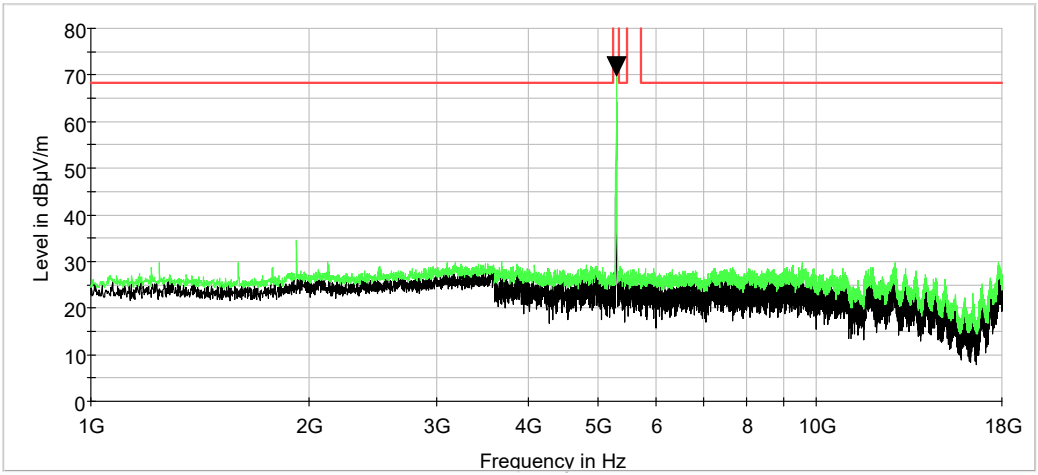
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 18 GHz to 26 GHz, Vertical



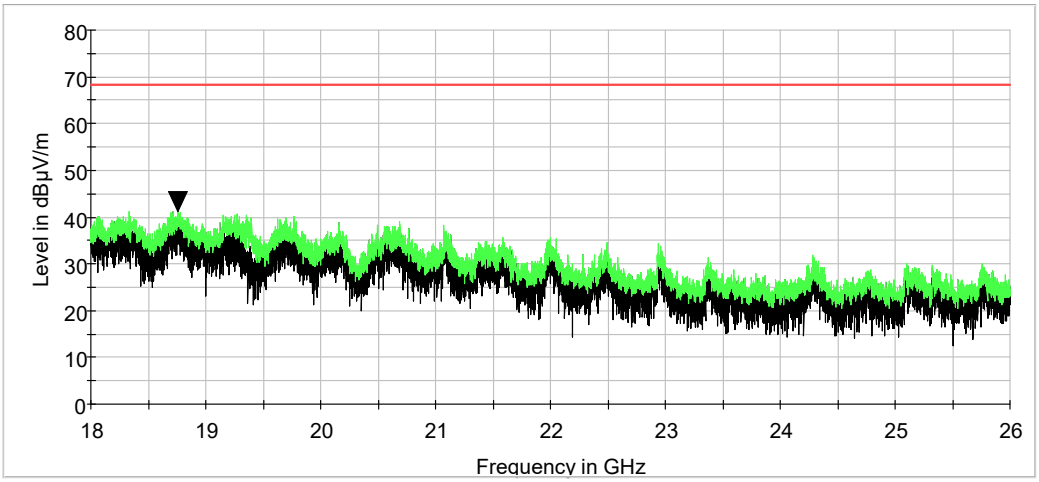
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 26 GHz to 40 GHz, Vertical



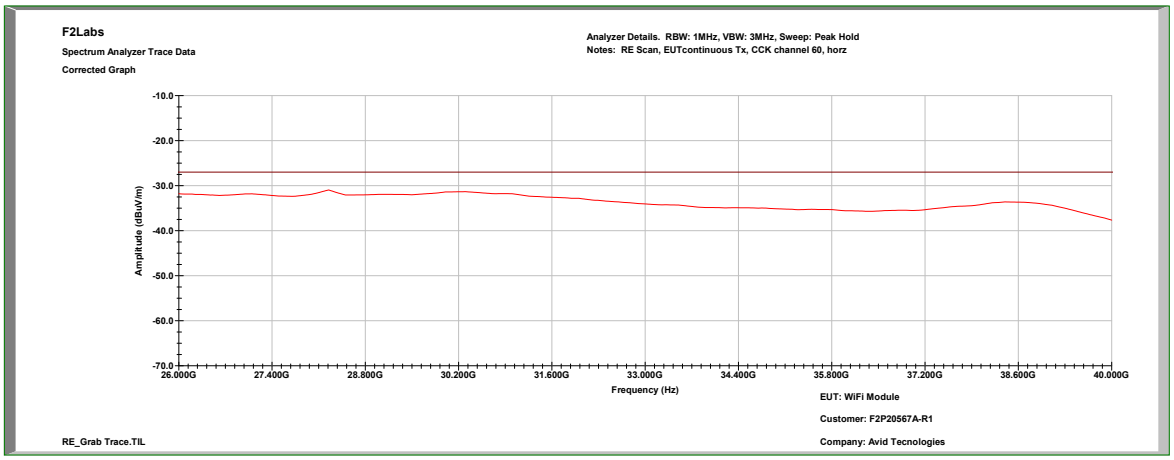
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 1 GHz to 18 GHz, Horizontal



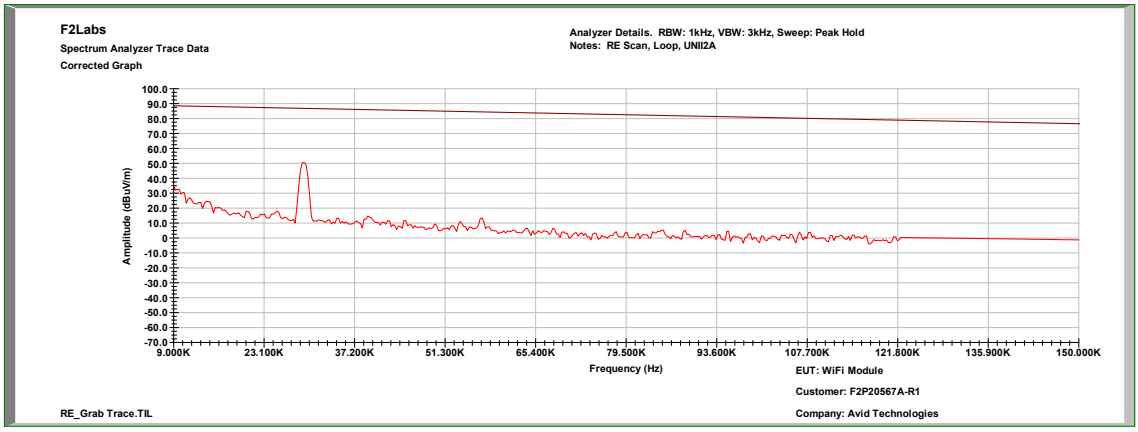
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 18 GHz to 26 GHz, Horizontal



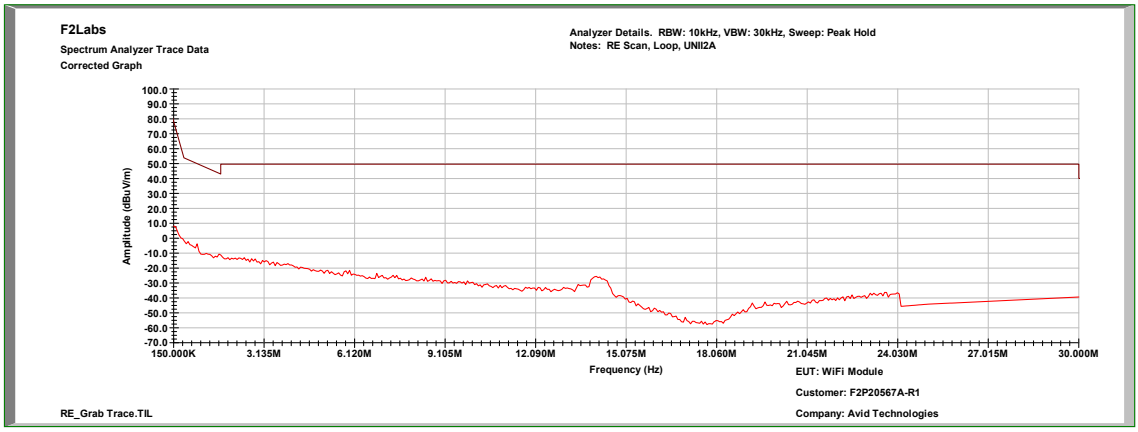
Radiated Spurious Emissions:
U-NII-2A, CCK, Mid Channel, 26 GHz to 40 GHz, Horizontal



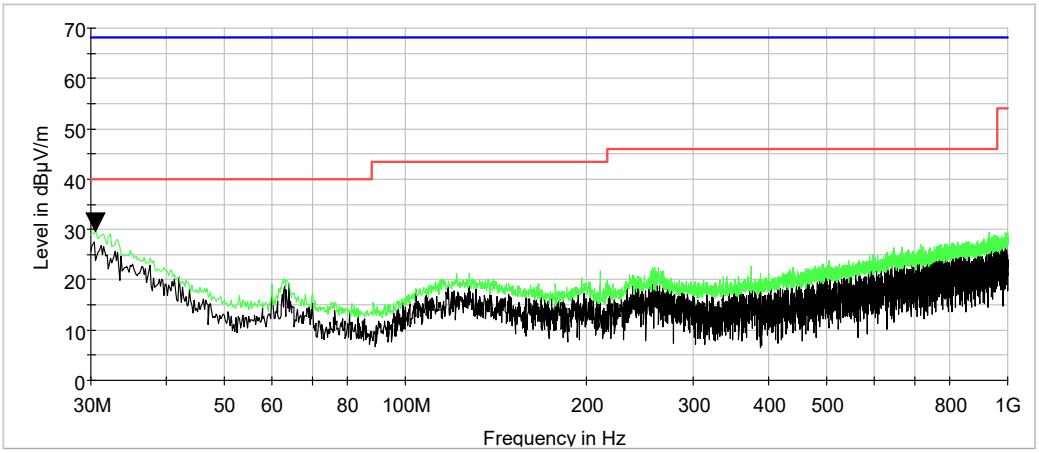
Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 9k to 150k



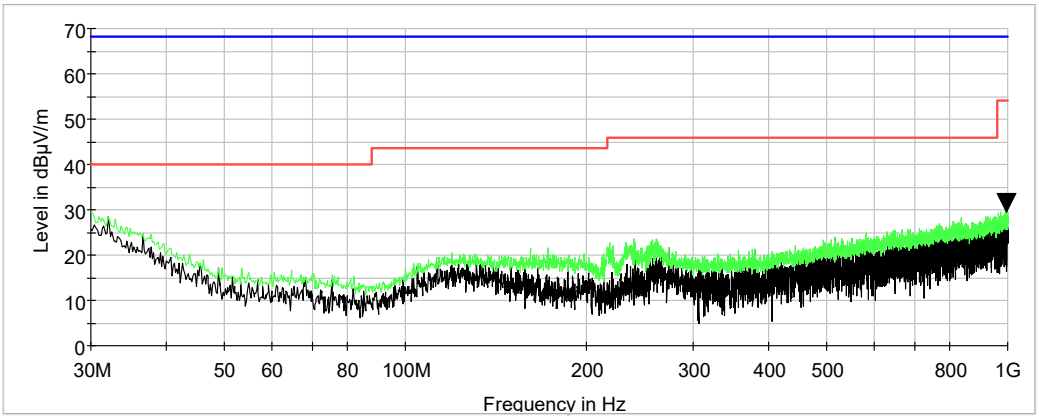
Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 150k to 30 MHz



Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 30 MHz to 1 GHz, Vertical

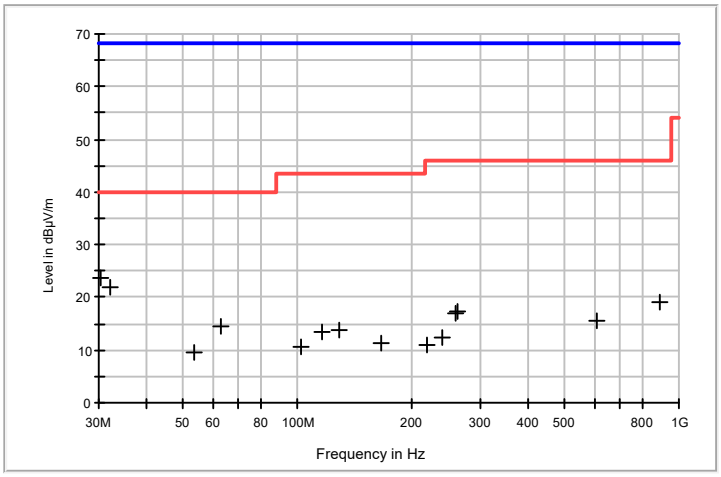


Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 30 MHz to 1 GHz, Horizontal

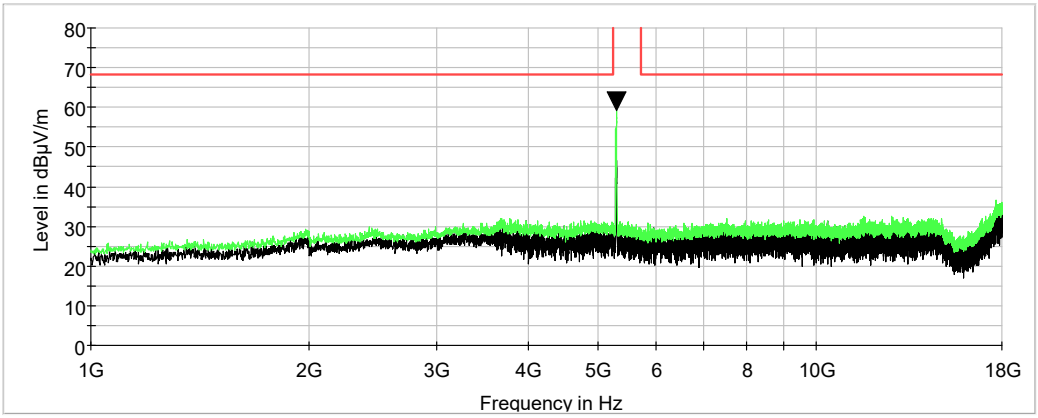


Radiated Spurious Emissions:
U-NII-2A, OFDM, 30 MHz to 1000 MHz

Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Azimuth (degrees)	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.400000	V	100.00	0.00	17.4	6.4	23.80	40.0	-16.2
32.120000	H	100.00	0.00	17.1	5.0	22.10	40.0	-17.9
53.480000	H	100.00	0.00	16.8	-7.3	9.50	40.0	-30.5
63.000000	V	100.00	0.00	21.7	-7.3	14.40	40.0	-25.6
101.400000	V	100.00	0.00	15.8	-5.1	10.70	43.5	-32.8
115.360000	H	100.00	0.00	15.6	-2.1	13.50	43.5	-30.0
127.760000	V	100.00	0.00	15.4	-1.6	13.80	43.5	-29.7
165.800000	V	100.00	0.00	14.7	-3.4	11.30	43.5	-32.2
218.360000	H	100.00	0.00	15.3	-4.4	10.90	46.0	-35.1
239.920000	H	100.00	0.00	16.0	-3.6	12.40	46.0	-33.6
258.920000	V	100.00	0.00	20.2	-3.1	17.10	46.0	-28.9
261.040000	H	100.00	0.00	20.3	-2.9	17.40	46.0	-28.6
607.360000	V	100.00	0.00	11.8	3.8	15.60	46.0	-30.4
892.720000	V	100.00	0.00	11.8	7.2	19.00	46.0	-27.0

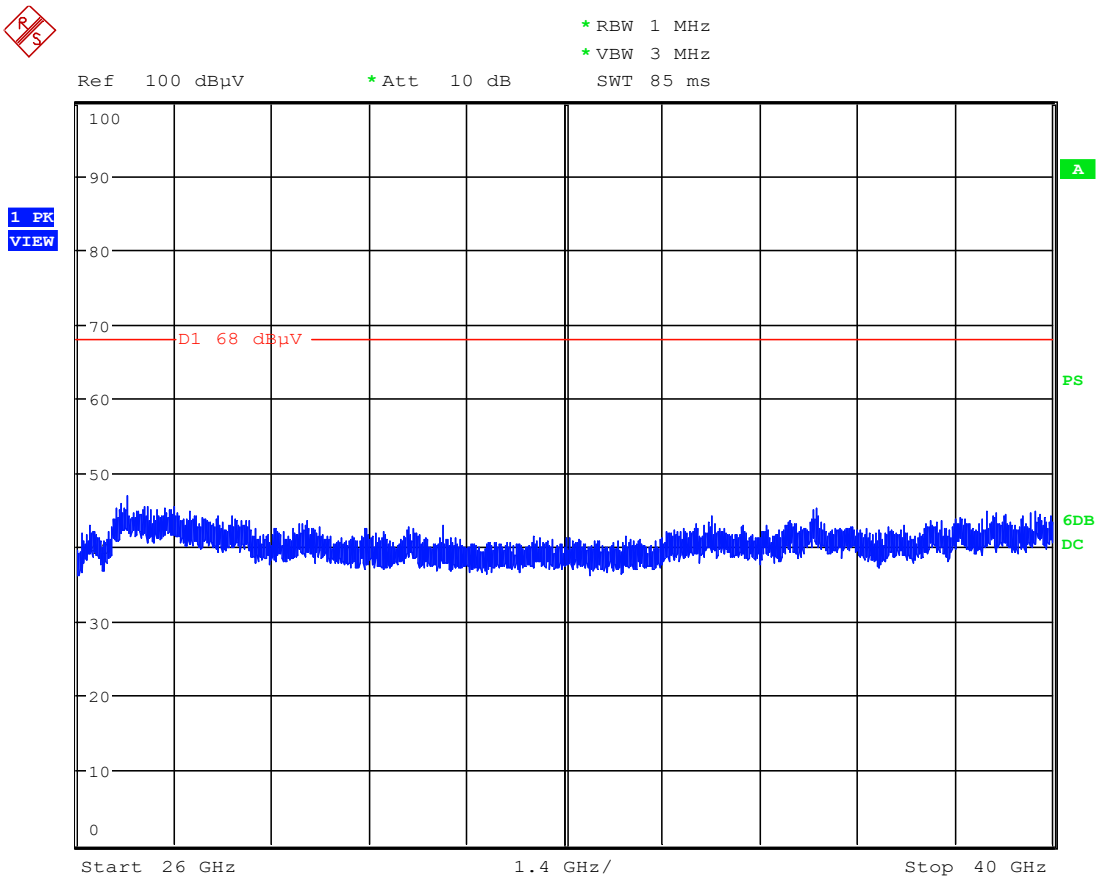


Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 1 GHz to 18 GHz, Vertical



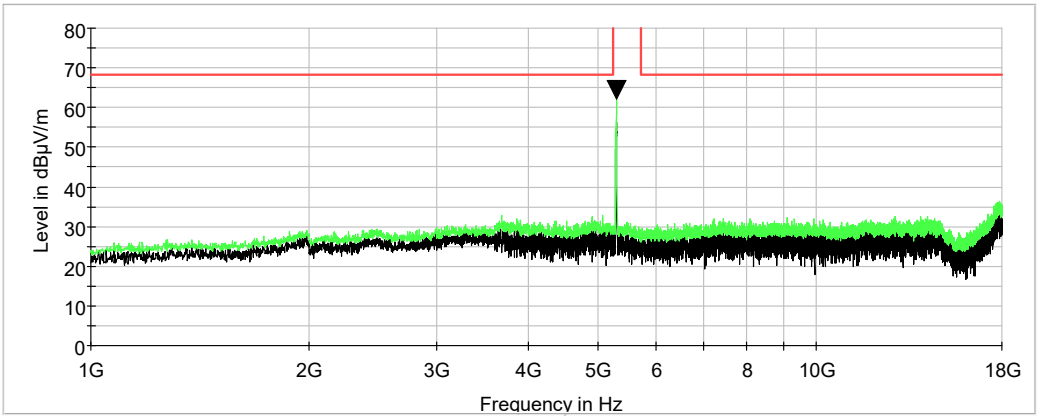
Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 18 GHz to 26 GHz, Vertical

Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 26 GHz to 40 GHz, Vertical



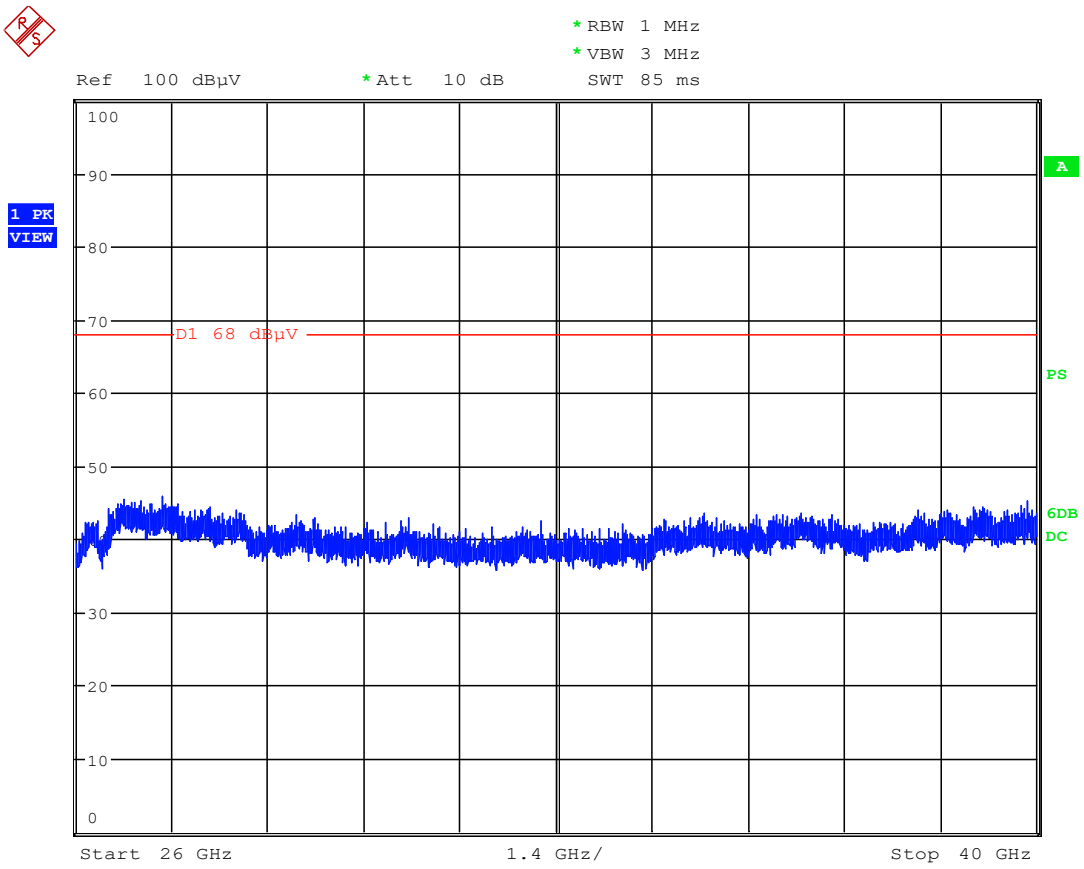
Date: 4.FEB.2020 14:41:35

Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 1 GHz to 18 GHz, Horizontal



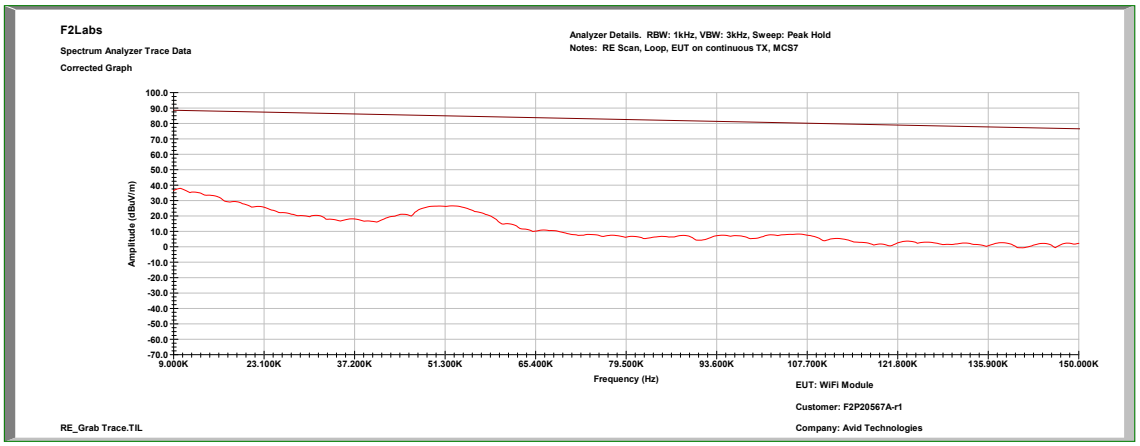
Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 18 GHz to 26 GHz, Horizontal

Radiated Spurious Emissions:
U-NII-2A, OFDM, Mid Channel, 26 GHz to 40 GHz, Horizontal

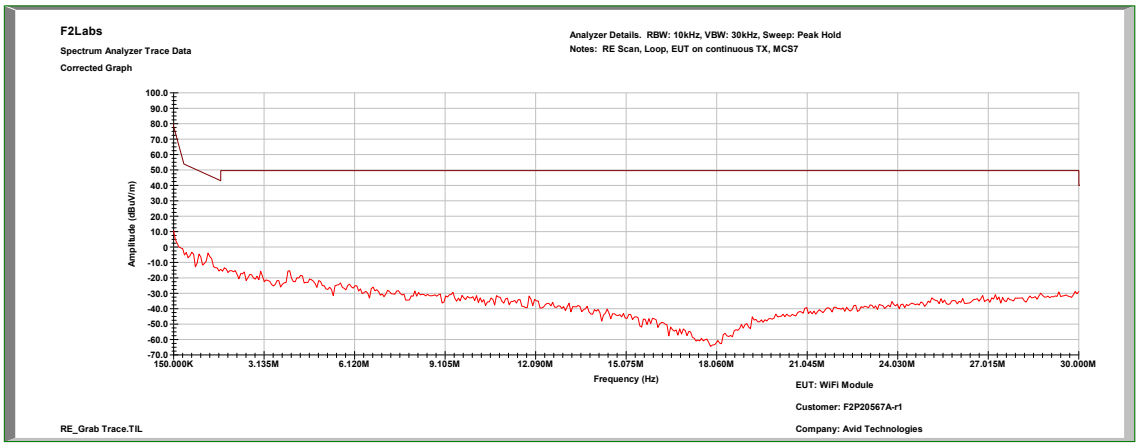


Date: 4.FEB.2020 14:42:51

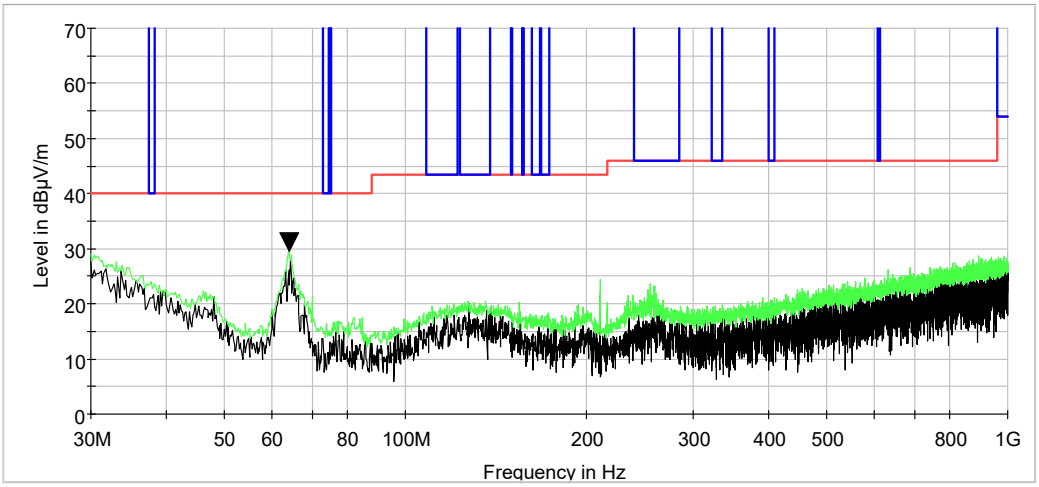
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 9k to 150k



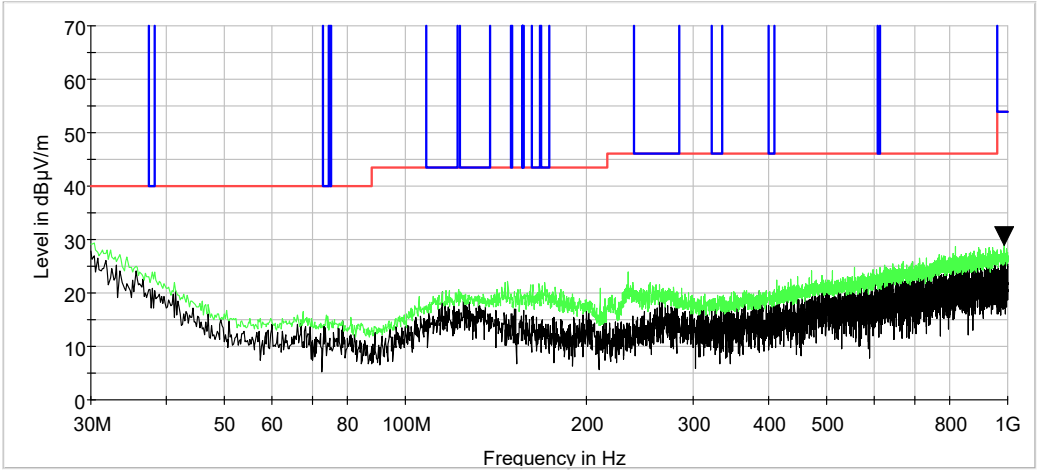
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 150k to 30 MHz



Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 30 MHz to 1 GHz, Vertical

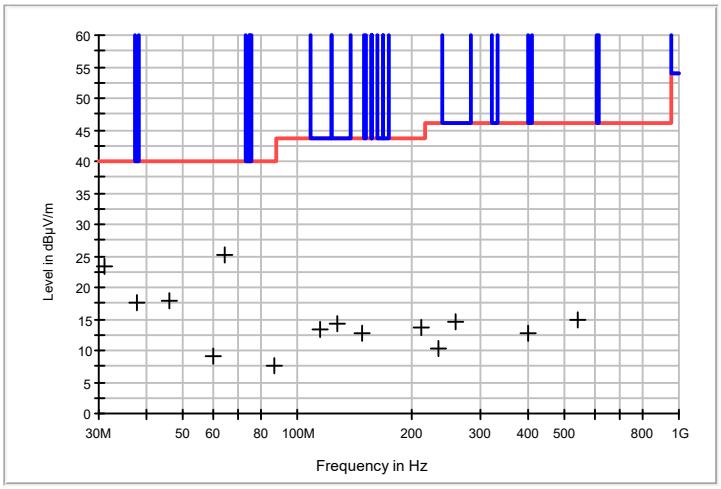


Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 30 MHz to 1 GHz, Horizontal

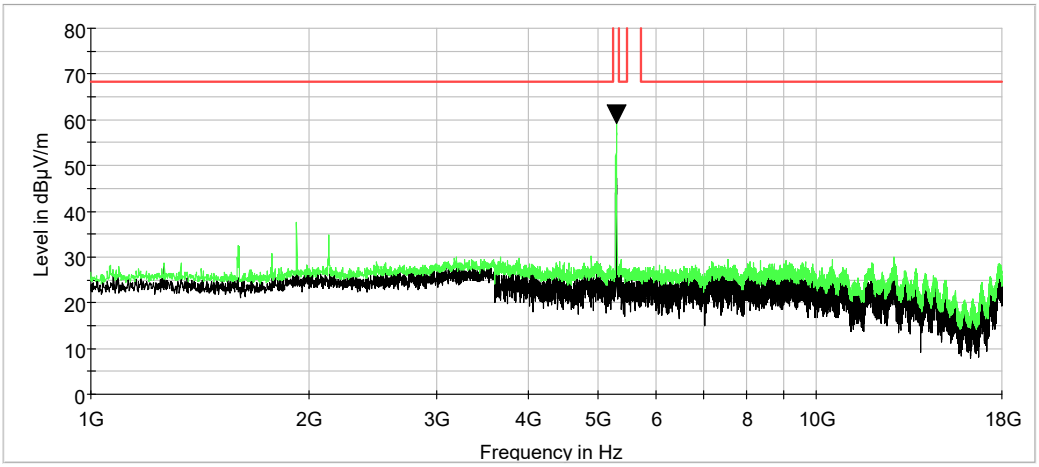


Radiated Spurious Emissions:
U-NII-2A, MCS7, 30 MHz to 1000 MHz

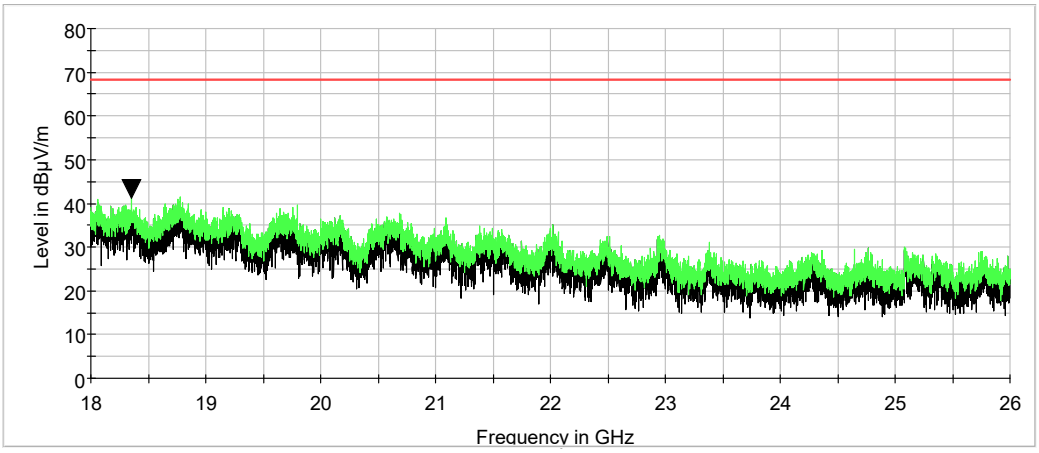
Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Azimuth (degrees)	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
30.960000	V	100.00	0.00	17.3	5.9	23.20	40.0	-16.8
37.960000	H	100.00	0.00	16.8	0.8	17.60	40.0	-22.4
46.120000	V	100.00	0.00	22.5	-4.8	17.70	40.0	-22.3
59.880000	H	100.00	0.00	16.5	-7.5	9.00	40.0	-31.0
63.960000	V	100.00	0.00	32.3	-7.2	25.10	40.0	-14.9
86.280000	H	100.00	0.00	15.6	-8.1	7.50	40.0	-32.5
114.960000	H	100.00	0.00	15.5	-2.2	13.30	43.5	-30.2
127.200000	V	100.00	0.00	15.7	-1.6	14.10	43.5	-29.4
147.960000	H	100.00	0.00	15.7	-2.9	12.80	43.5	-30.7
210.440000	V	100.00	0.00	18.4	-4.7	13.70	43.5	-29.8
234.480000	H	100.00	0.00	14.2	-3.8	10.40	46.0	-35.6
258.160000	V	100.00	0.00	17.7	-3.2	14.50	46.0	-31.5
401.320000	H	100.00	0.00	12.1	0.6	12.70	46.0	-33.3
543.120000	V	100.00	0.00	11.6	3.1	14.70	46.0	-31.3



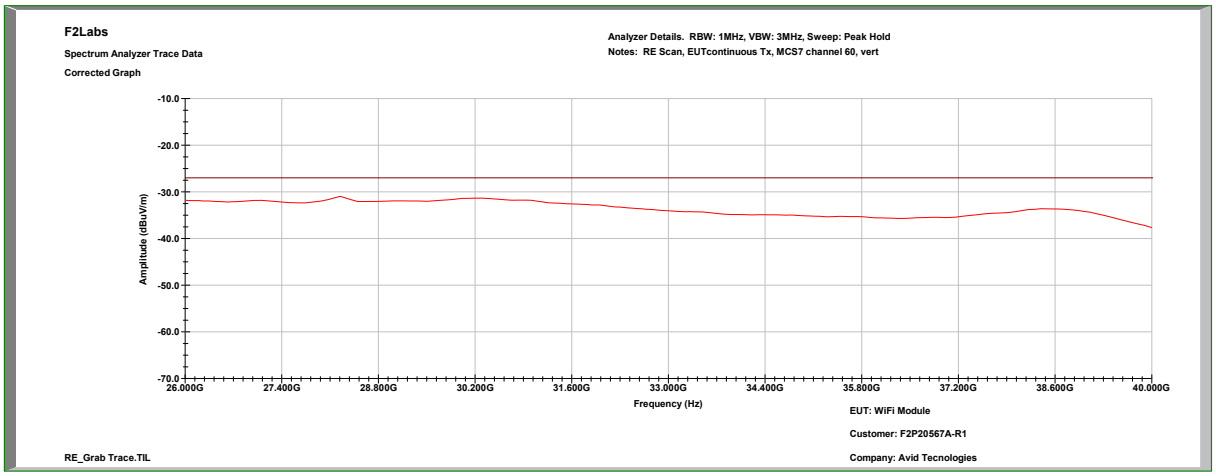
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 1 GHz to 18 GHz, Vertical



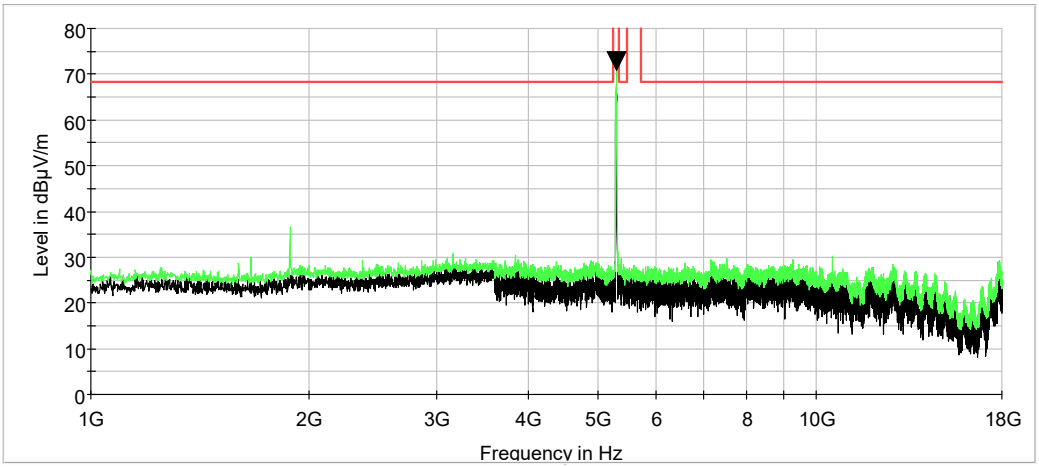
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 18 GHz to 26 GHz, Vertical



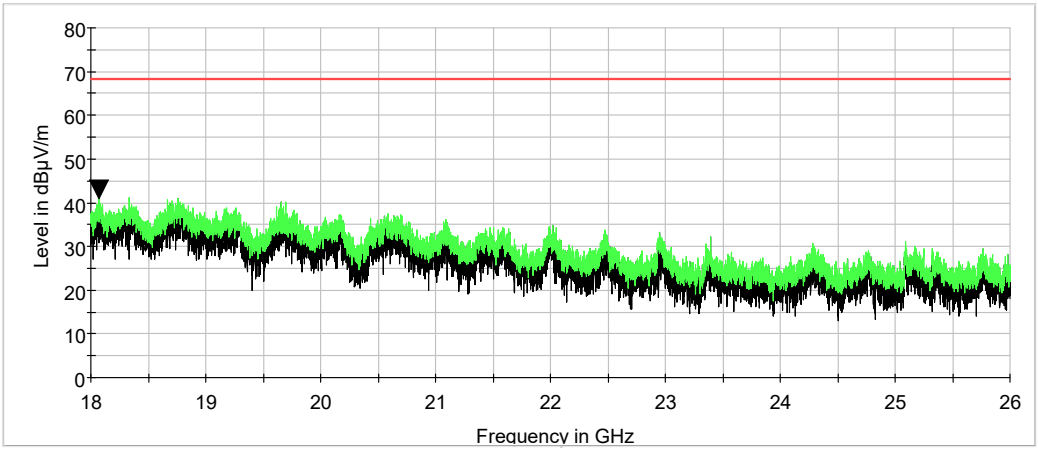
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 26 GHz to 40 GHz, Vertical



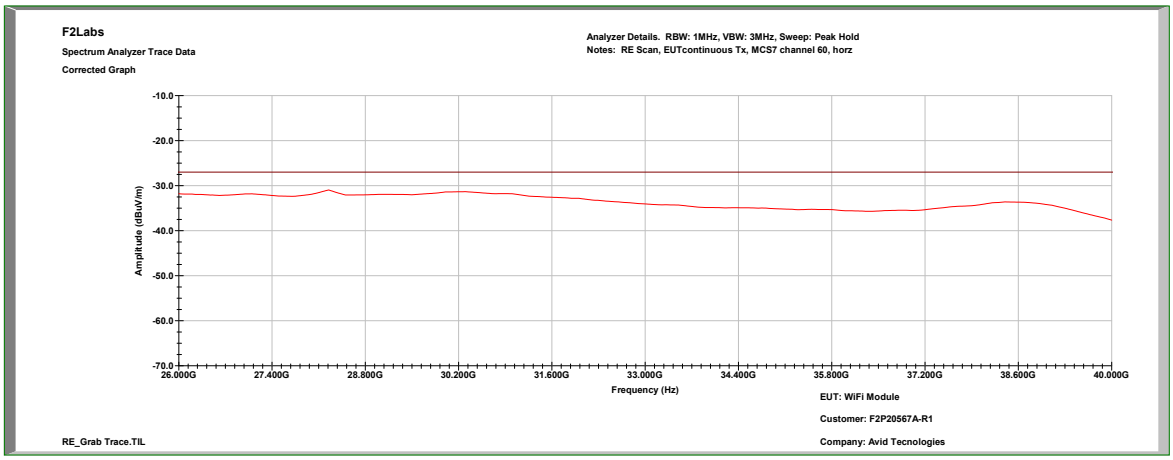
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 1 GHz to 18 GHz, Horizontal



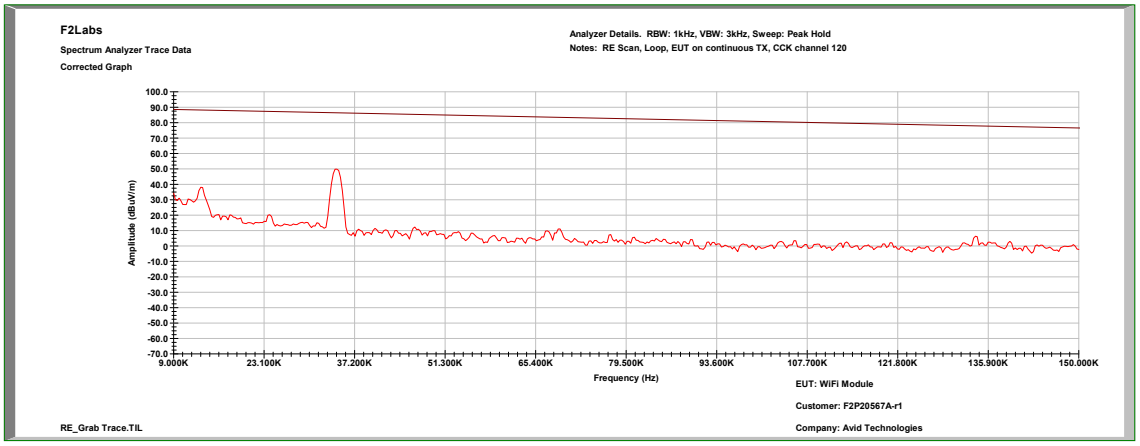
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 18 GHz to 26 GHz, Horizontal



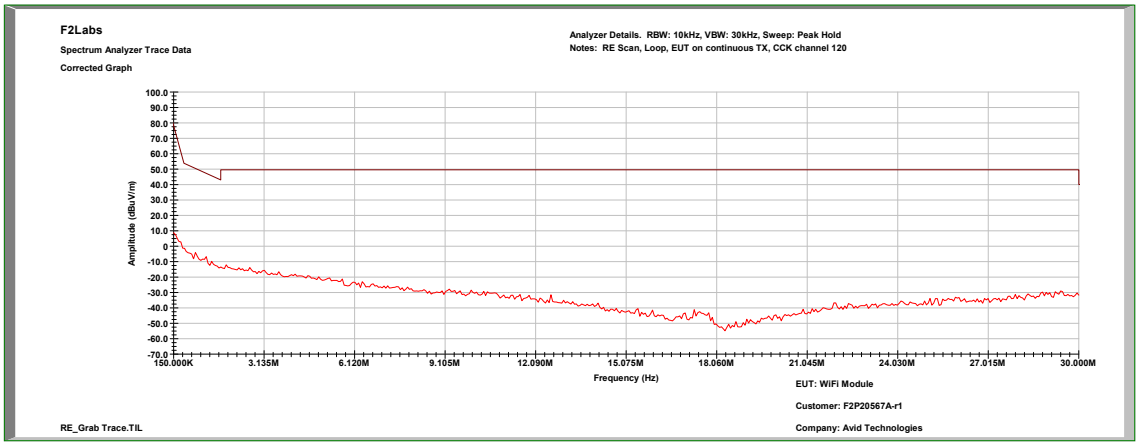
Radiated Spurious Emissions:
U-NII-2A, MCS7, Mid Channel, 26 GHz to 40 GHz, Horizontal



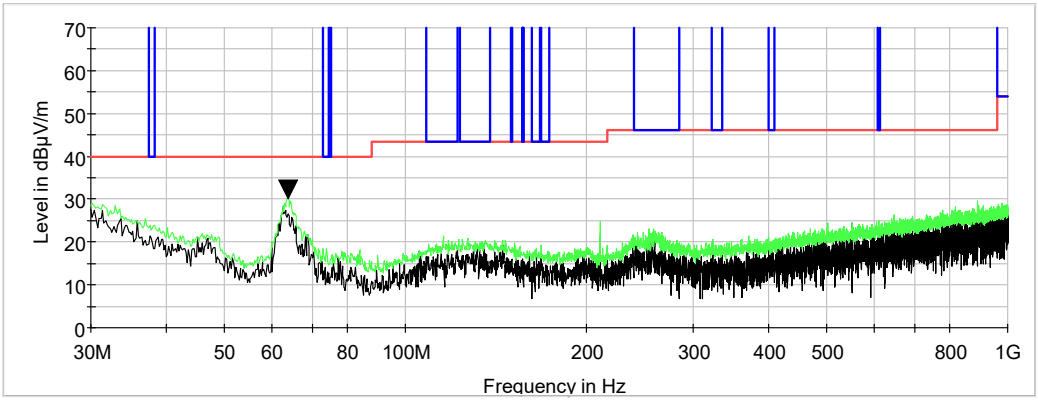
U-NII-2C, CCK, Mid Channel, 9k to 150k



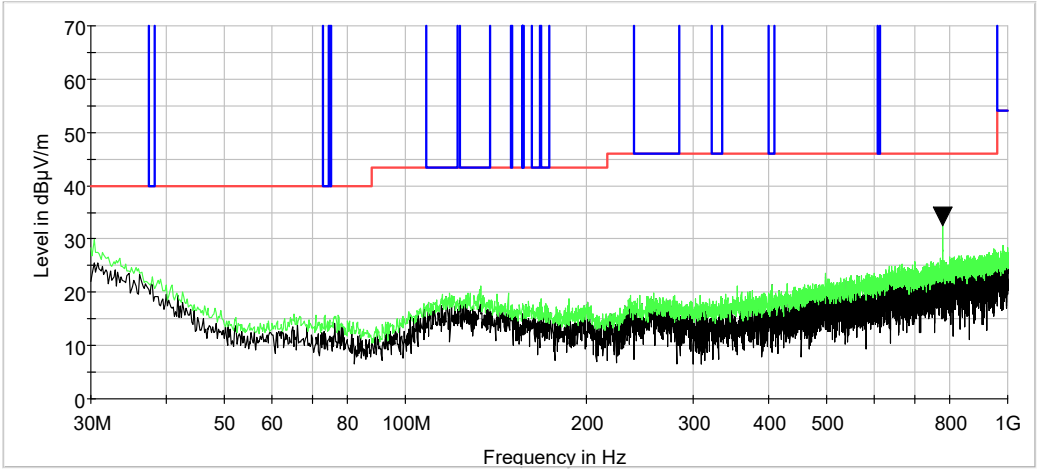
Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 150k to 30 MHz



Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 30 MHz to 1 GHz, Vertical

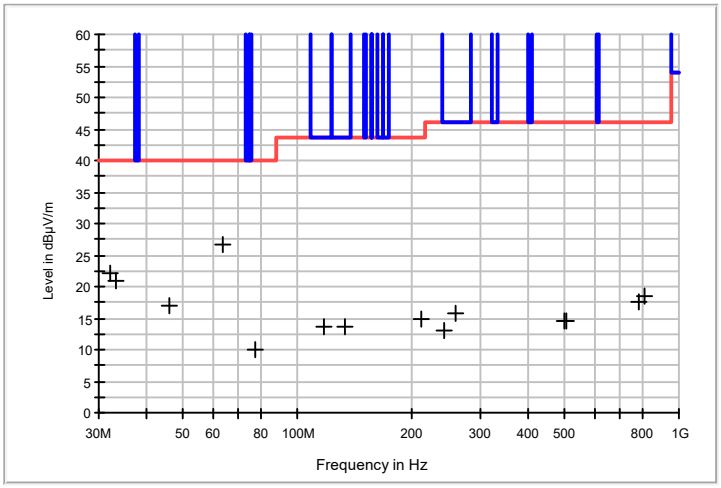


Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 30 MHz to 1 GHz, Horizontal

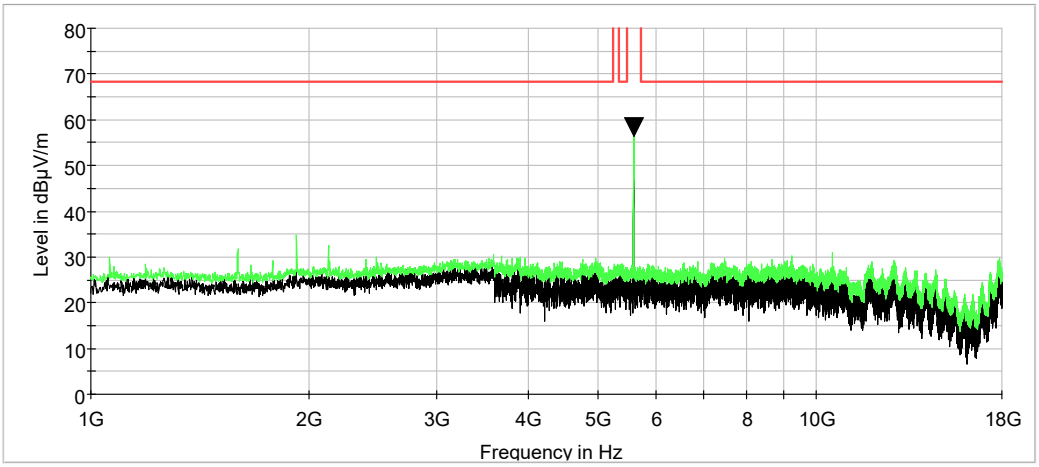


Radiated Spurious Emissions:
U-NII-2C, CCK, 30 MHz to 1000 MHz

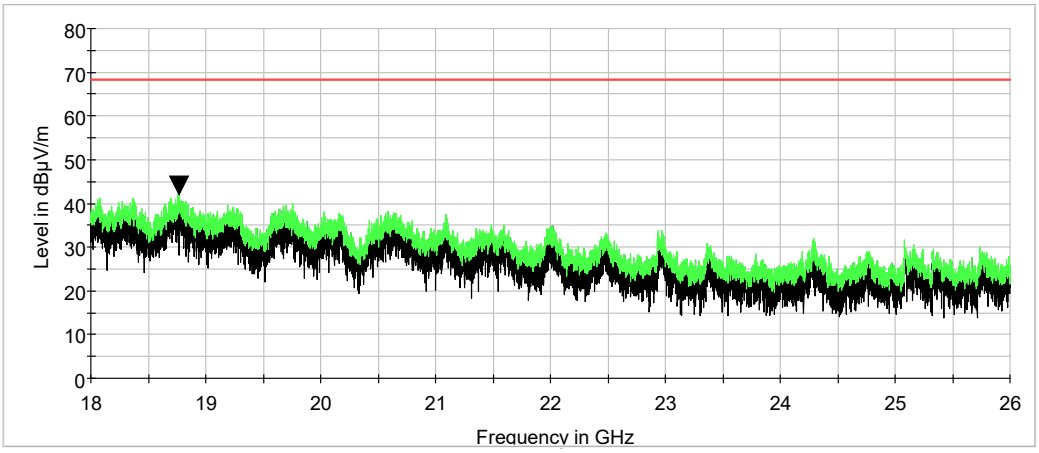
Frequency (MHz)	Antenna Polarization	Antenna Height (cm)	Azimuth (degrees)	Reading (dBµV)	Cable Loss & Antenna Factor (dB)	Emission (dBµV/m)	Limit (dBµV/m)	Margin (dB)
32.320000	V	100.00	0.00	17.3	4.9	22.20	40.0	-17.8
33.120000	H	100.00	0.00	16.7	4.3	21.00	40.0	-19.0
45.720000	V	100.00	340.00	21.7	-4.6	17.10	40.0	-22.9
63.560000	V	102.00	340.00	33.8	-7.3	26.50	40.0	-13.5
77.520000	H	100.00	0.00	17.4	-7.5	9.90	40.0	-30.1
116.720000	V	100.00	340.00	15.5	-2.0	13.50	43.5	-30.0
133.200000	H	100.00	0.00	15.2	-1.7	13.50	43.5	-30.0
210.440000	V	100.00	340.00	19.5	-4.7	14.80	43.5	-28.7
242.440000	H	100.00	0.00	16.5	-3.5	13.00	46.0	-33.0
259.120000	V	100.00	340.00	18.8	-3.1	15.70	46.0	-30.3
500.840000	V	100.00	340.00	11.9	2.7	14.60	46.0	-31.4
504.720000	H	100.00	0.00	12.0	2.7	14.70	46.0	-31.3
780.400000	H	100.00	0.00	11.5	6.1	17.60	46.0	-28.4
808.120000	V	100.00	340.00	12.1	6.3	18.40	46.0	-27.6



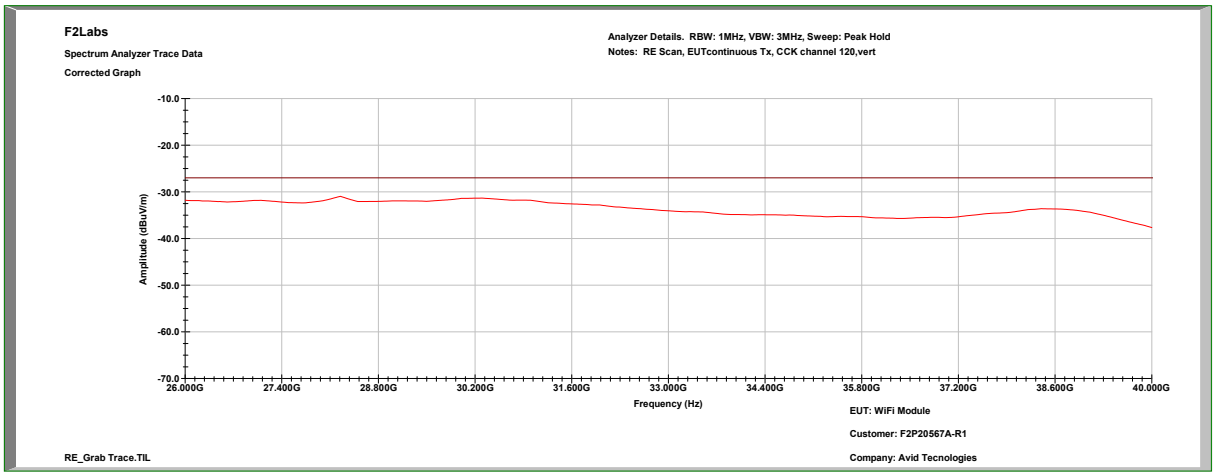
Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 1 GHz to 18 GHz, Vertical



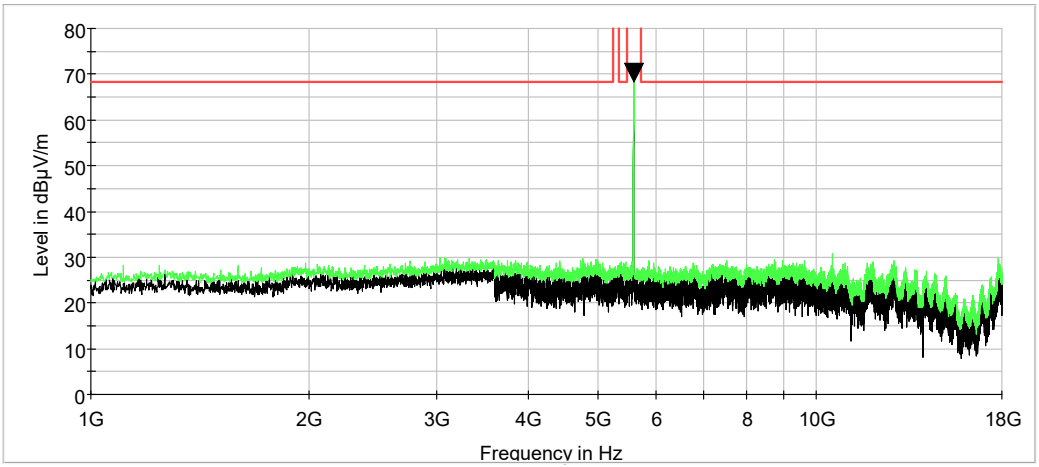
Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 18 GHz to 26 GHz, Vertical



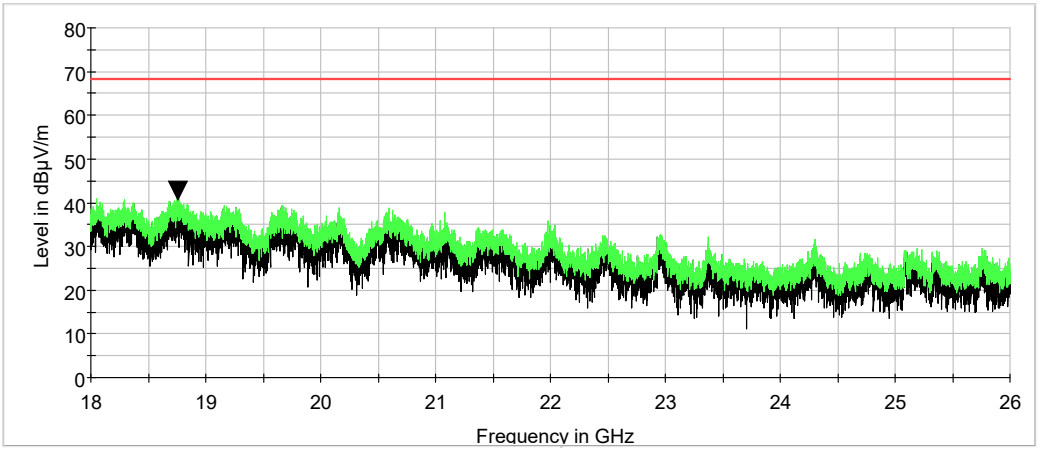
Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 26 GHz to 40 GHz, Vertical



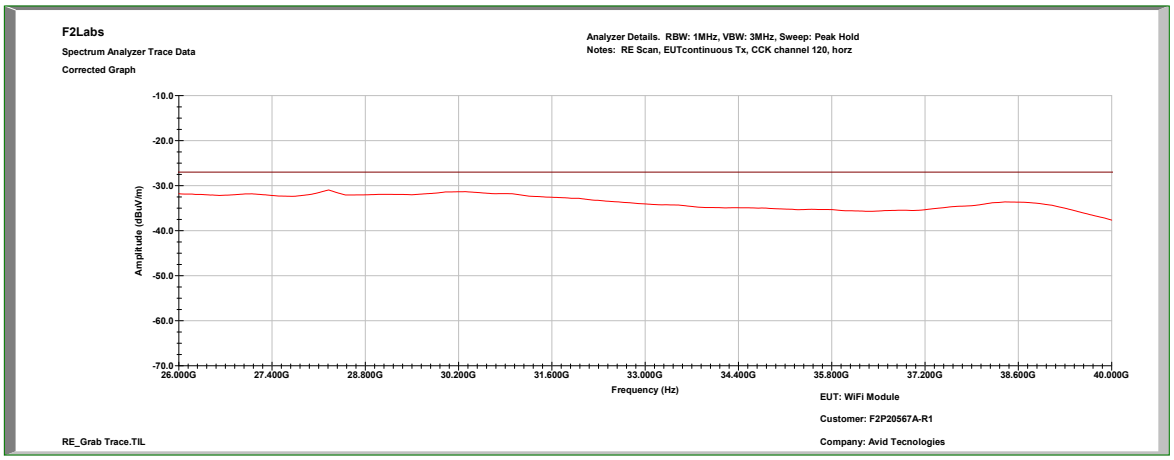
Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 1 GHz to 18 GHz, Horizontal



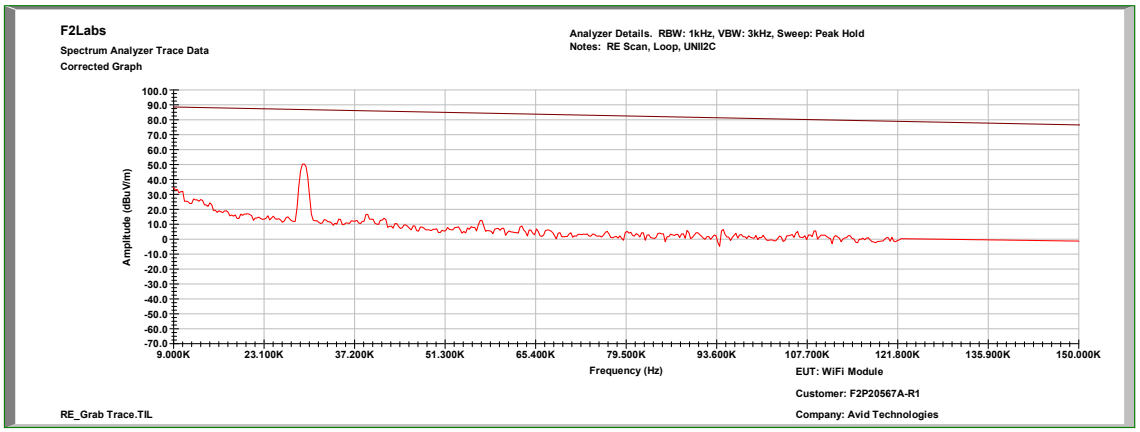
Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 18 GHz to 26 GHz, Horizontal



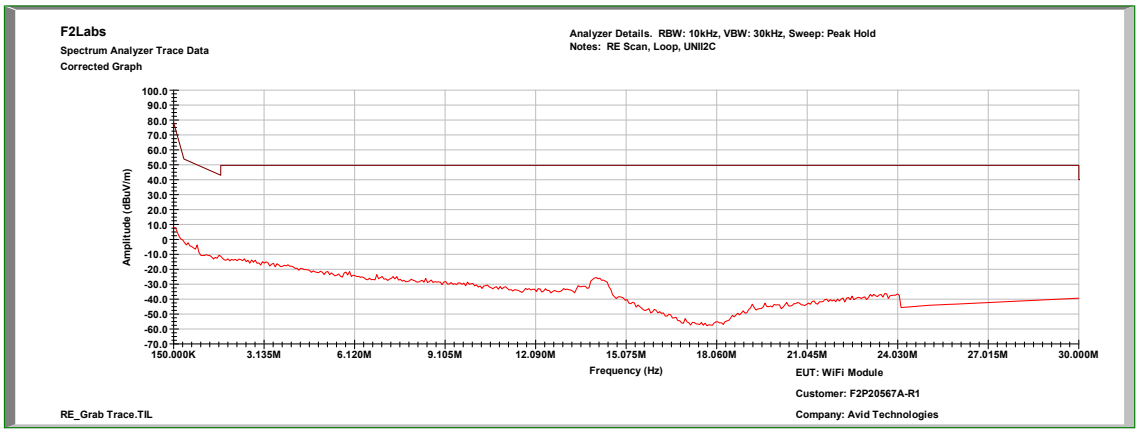
Radiated Spurious Emissions:
U-NII-2C, CCK, Mid Channel, 26 GHz to 40 GHz, Horizontal



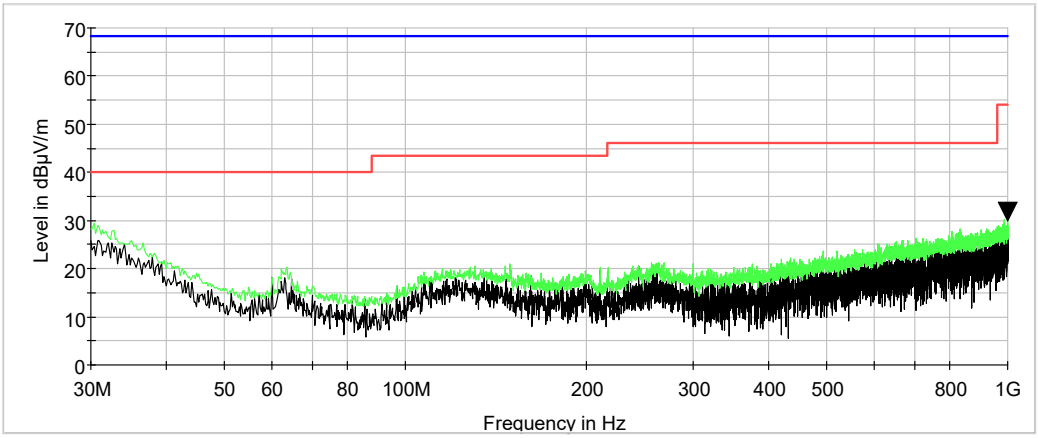
Radiated Spurious Emissions:
U-NII-2C, OFDM, Mid Channel, 9k to 150k



Radiated Spurious Emissions:
U-NII-2C, OFDM, Mid Channel, 150k to 30 MHz



Radiated Spurious Emissions:
U-NII-2C, OFDM, Mid Channel, 30 MHz to 1 GHz, Vertical



Radiated Spurious Emissions:
U-NII-2C, OFDM, Mid Channel, 30 MHz to 1 GHz, Horizontal