EMITECH GROUPE

RR051-18-101779-1-A Ed. 0

Certification Radio test report

According to the standard:
CFR 47 FCC PART 15

Equipment under test:
PARROT SKYCONTROLLER 3

FCC ID: 2AG6IMPP3

Company:
PARROT DRONES

Distribution: Mr COLARD **(Company:** PARROT DRONE**)**

Number of pages: 150 with 5 appendixes

Ed.	Date	Modified Page(s)	Technical Verification and Quality Approval Name and Function	Visa
0	4-Jun-18	Creation	M. DUMESNIL, Radio Technical Manager	

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This document is the result of testing a specimen or a sample of the product submitted. It does not imply an assessment of the conformity of the whole manufactured products of the tested sample.

S51 RTY 000 INT 00006 [01]

DESIGNATION OF PRODUCT:	**PARROT SKYCONTROLLER 3**
Serial number (S/N):	PS040443AA8D001334
Reference / model (P/N):	MPP3
Software version:	*Hw/Sw Version* = 0 41078
MANUFACTURER:	PARROT DRONE

COMPANY SUBMITTING THE PRODUCT:

Company:	PARROT DRONE
Address:	174 QUAI DE JEMMAPES 75010 - PARIS FRANCE
Responsible:	Mr COLARD
Persons present during the tests:	Mr COLARD (first day)
DATE OF TEST:	From 16-Apr-18 to 30-May-18
TESTING LOCATION:	EMITECH ANGERS laboratory at JUIGNE SUR LOIRE (49) FRANCE FCC Accredited under US-EU MRA Designation Number: FR0009 Test Firm Registration Number: 873677
TESTED BY:	T. LEDRESSEUR ***VISA:*** 
WRITTEN BY:	T. LEDRESSEUR

CONTENTS

1. INTRODUCTION

This report presents the results of radio test carried out on the following radio equipment: **PARROT SKYCONTROLLER 3**, in accordance with normative reference.

The product integrates a Wi-Fi radio part.
See test report RR051-18-101779-2-A for test on 2.4GHz band and RR051-18-101779-3-A for test on non-radio part.

2. PRODUCT DESCRIPTION

Class:	B
Utilization:	Residential
Antenna type and gain:	2 integral identical antennas 3.3 dBi for U-NII-1 band and 3.8 dBi for U-NII-3 band (MIMO)
Directionnal gain:	Band U-NII-1: for power measurements: 3.3 dBi For PSD measurements: 6.3 dBi Band U-NII-3: for power measurements: 3.8 dBi For PSD measurements: 6.8 dBi
Operating frequency range:	From 5150 MHz to 5250 MHz band U-NII-1 From 5725 MHz to 5850 MHz band U-NII-3
Number of channels:	4 for band 5150MHz to 5250 MHz 5 for band 5725MHz to 5850 MHz
Channel spacing:	20 MHz
Channel bandwidth:	10 MHz and 20 MHz
Power setting	U-NII-1: 16 dBm for 10MHz bandwidth and 19 dBm for 20 MHz bandwidth U-NII-3: 23 dBm
Modulation:	OFDM: BPSK OFDM: 64-QAM
Mode tested:	802.11 a 802.11 n
Data rate tested:	For 802.11a: 6Mbit/s For 802.11n: MCS0

Channel tested:

Band U-NII-1:	Chanel 36, 5180 MHz Chanel 40, 5200 MHz Chanel 48, 5240 MHz
Band U-NII-3:	Chanel 149, 5745 MHz Chanel 157, 5785 MHz Chanel 165, 5825 MHz
Double radio function:	No. The product can't emit simultaneously in bands 2.4GHz and 5GHz or on different channels.
Correlated signal:	For mode g/n/a the signals are considered as correlated, the mode cyclic delay diversity (CDD) is used. (IEEE 802.11) The product is not using spatial multiplexing or intentional beamforming.
Power source:	3.3Vdc by internal battery During the charge of the battery the product is not functional.

Power level, frequency range and channels characteristics are not user adjustable.
The details pictures of the product and the circuit boards are joined with this file.*

3. NORMATIVE REFERENCE

The standards and testing methods related throughout this report are those listed below.
They are applied on the whole test report even though the extensions (version, date and amendment) are not repeated.

CFR 47 FCC Part 15 (2018)	Radio Frequency Devices
ANSI C63.10	2013 Procedures for ComplianceTesting of Unlicensed Wireless Devices.
789033 D02 General UNII Test Procedures New Rules V02r01	Guidelines for compliances testing of unlicensed national information infrastructure (U-NII) devices pat 15, subpart E
662911 D01 Multiple Transmitter Output V02r01	Emissions Testing of Transmitters with Multiple Outputs in the Same Band
447498 D01 General RF Exposure Guidance v06	RF Exposure procedures and equipment authorization policies for mobile and portable equipment

4. TEST METHODOLOGY

Radio performance tests procedures given in CFR 47 part 15:

Subpart C – Intentional Radiators

Paragraph 203: Antenna requirement
Paragraph 205: Restricted bands of operation
Paragraph 207: Conducted limits
Paragraph 209: Radiated emission limits; general requirements

Subpart E – Unlicensed national information infrastructure devices

Paragraph 407: General technical requirements

5. TEST EQUIPMENT CALIBRATION DATES

Emitech Number	Model	Type	Last calibration	Calibration interval (years)	Next calibration due (1)
0	BAT-EMC V3.16.0.64	Software	/	/	/
4087	Filtek LP03/1000-7GH	Low Pass Filter	29/03/2018	2	29/03/2020
4088	R&S FSP40	Spectrum Analyzer	21/02/2018	2	21/02/2020
4353	ATM WR28	Antenna	16/05/2016	3	16/05/2019
4354	ALC ALS2640-30-10	Low-noise amplifier	14/02/2018	1	14/02/2019
6606	Microtronics LPM 15601	Low Pass Filter	04/08/2017	2	04/08/2019
6607	Microtronics HPM 15600	High Pass Filter	04/08/2017	2	04/08/2019
6884	Suhner 1.5m	Cable	01/06/2016	2	01/06/2018
7190	R&S HL223	Antenna	15/03/2016	3	15/03/2019
7240	Emco 3110	Biconical antenna	15/03/2016	3	15/03/2019
8511	HP 8447D	Low-noise amplifier	01/02/2018	1	01/02/2019
8526	Schwarzbeck VHBB 9124	Biconical antenna	12/06/2015	3	12/06/2018
8535	EMCO 3115	Antenna	10/02/2016	4	10/02/2020
8543	Schwarzbeck UHALP 9108A	Log periodic antenna	12/06/2015	3	12/06/2018
8548	Midwest Microwave 10dB	Attenuator	05/04/2018	2	05/04/2020
8549	Midwest Microwave 20dB	Attenuator	09/06/2016	2	09/06/2018
8593	SIDT Cage 2	Anechoic chamber	/	/	/
8704	LUCIX Corp S180265L3201 LNA	Low-noise amplifier	02/06/2017	1	02/06/2018
8750	La Crosse Technology WS-9232	Meteo station	23/09/2016	2	23/09/2018
8786	ETS Lindgren 3160-09	Antenna	16/05/2016	3	16/05/2019
8896	ACQUISYS GPS8	Satellite synchronized frequency standard	/	/	/
8958	1060C	turntable	/	/	/
8974	STORM MICROWAE k-20cm	cable	19/11/2017	2	19/11/2019
8975	STORM MICROWAE k-20cm	cable	19/11/2017	2	19/11/2019
9398	N-1.5m	cable	29/03/2018	2	29/03/2020
9403	R&S ESU8	Spectrum Analyzer	11/08/2016	2	11/08/2018
10730	Mini-circuit ZFL-1000LN	Low-noise amplifier	12/02/2018	1	12/02/2019
10739	LUCIX Corp S005180M3201	Low-noise amplifier	29/03/2018	1	29/03/2019
10759	SIDT Cage 3	Anechoic chamber	/	/	/
10771	EMCO 3117	Antenna	23/11/2016	3	23/11/2019
10789	MATURO	Turntable and mat controller NCD	/	/	/
11592	R&S NRV-Z86	Power Sensor	02/06/2017	1	02/06/2018
12590	LUCIX Corp S005180M3201	Low-noise amplifier	22/08/2017	1	22/08/2018
12911	Huber + Suhner N-2m	cable	29/03/2018	2	29/03/2020

14302	SUCOFLEX N-1m	cable	28/11/2016	2	28/11/2018
14303	SUCOFLEX N-2m	cable	28/11/2016	2	28/11/2018
14304	SUCOFLEX N-2.5m	cable	28/11/2016	2	28/11/2018
14305	SUCOFLEX N-4m	cable	28/11/2016	2	28/11/2018
14831	Fluke 177	Multimeter	12/01/2018	2	12/01/2020

(1) With a tolerance of 2 months for all equipments.

6. TESTS RESULTS SUMMARY

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAp	NAs	
FCC Part 15.203	ANTENNA REQUIREMENT	X				*Note 1*
FCC Part 15.205	RESTRICTED BANDS OF OPERATION	X				
FCC Part 15.207	CONDUCTED LIMITS			X		
FCC Part 15.209	RADIATED EMISSION LIMITS; general requirements	X				*Note 2*

NAp: Not Applicable NAs: Not Asked

Note 1: Integral antenna with standard connector.

Note 2: See FCC part 15.407.

6.2 unlicensed national information infrastructure device (subpart E)

Test procedure	Description of test	Respected criteria?				Comment
		Yes	No	NAp	NAs	
FCC Part 15.407	GENERAL TECHNICAL REQUIREMETS					
	a) Power limits					*Note 1, Note 2*
	a) (1) in the bands 5150–5250 MHz	X				
	a) (2) in the bands 5250–5350 MHz and 5470-5725 MHz			X		
	a) (3) in the bands 5725–5825 MHz	X				
	a) (4) maximum conducted output power	X				
	a) 5) peak power spectral density	X				*Note 1, Note 2*
	b) Undesirable emission limits					
	b) (1) outside of the bands 5150–5250 MHz	X				
	b) (2) outside of the bands 5250–5350 MHz			X		
	b) (3) outside of the bands 5470-5725 MHz			X		
	b) (4) outside of the bands 5725–5825 MHz	X				

NAp: Not Applicable NAs: Not Asked

Note 1: the product is a remote so the limits applicable are a client limit

Note 2: The bandwidth plots are on appendixes.

7. MEASUREMENT UNCERTAINTY

To declare, or not, the compliance with the specifications, it was not explicitly taken into account of uncertainty associated with the result(s)

The reported expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for normal distribution corresponds to a coverage probability of approximately 95%.

Parameter	Emitech Uncertainty
RF power, conducted	± 0.75dB
Radiated emission valid to 26 GHz F < 62.5 MHz: 62.5 MHz < F < 1 GHz: 1 GHz < F < 26 GHz:	 ± 5.14 dB ± 5.13 dB ± 5.16 dB
AC Power Lines conducted emissions	± 3.38 dB
Temperature	± 1 °C
Humidity	± 5 %

8. ADDITIONAL PROVISIONS TO THE GENERAL RADIATED EMISSION LIMITATIONS

Temperature (°C) : 22 **Humidity (%HR):** 40 **Date :** May 29, 2018

Technician : T. LEDRESSEUR

Standard: FCC Part 15

Test procedure: Paragraph 15.215

Test set up:

Then the measurement is realized with the product on the most critical orientation.
The measure is realized in anechoic chamber.

The EUT is placed on a rotating table at 1.65 m from a ground plane.

Distance of antenna: 3 m

Antenna height: 1.65 meter (in anechoic room)

Test operating condition of the equipment:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

We used for power source the internal fully charged battery

Results:

Band U-NII-1 – mode 802.11a – Bandwidth: 10 MHz

According to part 15.407 the authorized band is 5150 MHz to 5350 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
5180	116.35	Peak	5147	53.9	62.45	74	11.55
5180	116.35	Average	5144	63.05	53.3	54	0.7
5240	115.39	Peak	5370	60.2	55.19	74	18.81
5240	115.39	Average	5351	69.65	45.74	54	8.26

(1) Marker-Delta method

Band U-NII-1 – mode 802.11n – Bandwidth: 10 MHz

According to part 15.407 the authorized band is 5150 MHz to 5350 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
5180	116.68	Peak	5134	54.11	62.57	74	11.43
5180	116.68	Average	5148	64.76	51.92	54	2.08
5240	117.34	Peak	5359	61.66	55.68	74	18.32
5240	117.34	Average	5356	71.72	45.62	54	8.38

(1) Marker-Delta method

Band U-NII-1 – mode 802.11a – Bandwidth: 20 MHz

According to part 15.407 the authorized band is 5150 MHz to 5350 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
5180	118.23	Peak	5141	53.19	65.04	74	8.96
5180	118.23	Average	5147	65.58	52.65	54	1.35
5240	117.29	Peak	5370	60.79	56.5	74	17.5
5240	117.29	Average	5360	71.06	46.23	54	7.77

(1) Marker-Delta method

Band U-NII-1 – mode 802.11n – Bandwidth: 20 MHz

According to part 15.407 the authorized band is 5150 MHz to 5350 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Limit (dBµV/m)	Margin (dB)
5180	117.85	Peak	5142	53.36	64.49	74	9.51
5180	117.85	Average	5146	64.26	53.59	54	0.41
5240	117.85	Peak	5370	60.99	56.86	74	17.14
5240	117.85	Average	5370	71.99	45.86	54	8.14

(1) Marker-Delta method

Band U-NII-3 – mode 802.11a – Bandwidth: 10 MHz

According to part 15.407 the authorized band is 5725 MHz to 5850 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Calculated Max Out-of-Band Emission Level EIRP (dBm/MHz) (2)	Limit EIRP (dBm/MHz)	Margin (dB)
5745	120.52	Peak	5724.8	56.19	64.33	-30.90	15.6	46.50
5825	121.2	Peak	5850.8	56.77	64.43	-30.80	15.6	46.40

(1) Marker-Delta method
(2) According KDB 412172: EIRP = $(E \times d)^2 / 30$

Band U-NII-3 – mode 802.11n – Bandwidth: 10 MHz

According to part 15.407 the authorized band is 5725 MHz to 5850 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (3)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Calculated Max Out-of-Band Emission Level EIRP (dBm/MHz) (4)	Limit EIRP (dBm/MHz)	Margin (dB)
5745	122.4	Peak	5724	57.82	64.58	-30.65	15.6	46.25
5825	121.61	Peak	5852	57.85	63.76	-31.47	15.6	47.07

(1) Marker-Delta method
(2) According KDB 412172: EIRP = $(E \times d)^2 / 30$

Band U-NII-3 – mode 802.11a – Bandwidth: 20 MHz

According to part 15.407 the authorized band is 5725 MHz to 5850 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (1)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Calculated Max Out-of-Band Emission Level EIRP (dBm/MHz) (2)	Limit EIRP (dBm/MHz)	Margin (dB)
5745	118.65	Peak	5725	48.34	70.31	-24.92	15.6	40.52
5825	118.98	Peak	5851	50.7	68.28	-26.95	15.6	42.55

(1) Marker-Delta method
(2) According KDB 412172: EIRP = $(E \times d)^2 / 30$

Band U-NII-3 – mode 802.11n – Bandwidth: 20 MHz

According to part 15.407 the authorized band is 5725 MHz to 5850 MHz

Sample N° 1:

Fundamental frequency (MHz)	Field Strength Level of fundamental (dBµV/m)	Detector (Peak or Average)	Frequency of maximum Band-edges Emission (MHz)	Delta Marker (dB) (3)	Calculated Max Out-of-Band Emission Level (dBµV/m)	Calculated Max Out-of-Band Emission Level EIRP (dBm/MHz) (4)	Limit EIRP (dBm/MHz)	Margin (dB)
5745	119.35	Peak	5724	51.39	67.96	-27.27	15.6	42.87
5825	119.51	Peak	5850	49.64	69.87	-25.36	15.6	40.96

(1) Marker-Delta method
(2) According KDB 412172: EIRP = $(E \times d)^2 / 30$

Test conclusion:

RESPECTED STANDARD

9. POWER LIMITS

Temperature (°C) : 23 **Humidity (%HR):** 41 **Date :** April 16, 2018 to April 18, 2018

Technician : T. LEDRESSEUR

Standard: FCC Part 15

Test procedure: paragraph 15.407 a (1.iv) and a (3)

Method: PM-G paragraph II.E.3.b of KDB 789033

Test set up:

A wideband power sensor was connected on the RF output port of the EUT.
The response of the power sensor is then read by software on a computer and the gate function is used in order to determine the output power during ON time only.

This measure is repeated for each port of the EUT and then the results were summed in linear power unit.

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate (see §2).

We used for power source the internal fully charged battery

Results:

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
14.88	14.59	30.76	28.77	0.059	0.250

(1) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
14.73	14.54	29.72	28.44	0.058	0.250

(2) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
14.68	14.06	29.38	25.47	0.055	0.250

(1) For 2 antennas with 3.3 dBi

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
14.72	14.42	29.65	27.67	0.057	0.250

(1) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
14.51	14.12	28.25	25.82	0.054	0.250

(1) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
14.41	13.84	27.61	24.21	0.052	0.250

(1) For 2 antennas with 3.3 dBi

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
18.16	17.77	65.46	59.84	0.125	0.250

(3) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
18.03	17.51	63.53	56.36	0.120	0.250

(4) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
17.97	17.3	62.66	53.7	0.116	0.250

(2) For 2 antennas with 3.3 dBi

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
17.84	17.58	60.81	57.28	0.118	0.250

(2) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
17.56	17.24	57.02	52.97	0.110	0.250

(2) For 2 antennas with 3.3 dBi

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
17.74	16.91	59.43	49.09	0.109	0.250

(2) For 2 antennas with 3.3 dBi

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
20.83	20.73	121.06	118.3	0.239	1

(1) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
21.18	20.77	131.22	119.4	0.251	1

(1) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
21.25	20.83	133.35	121.06	0.254	1

(1) For 2 antennas with 3.8 dBi

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
20.5	20.72	112.2	118.03	0.230	1

(1) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
21	20.77	125.89	119.4	0.245	1

(1) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
20.63	20.79	115.61	119.95	0.236	1

(1) For 2 antennas with 3.8 dBi

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
20.89	21.1	122.74	128.82	0.252	1

(2) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
21.32	21.21	135.52	132.13	0.268	1

(2) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
21.49	21.25	140.93	133.35	0.274	1

(2) For 2 antennas with 3.8 dBi

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
20.77	20.96	119.4	124.74	0.244	1

(2) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
21.21	20.99	133.05	125.6	0.259	1

(2) For 2 antennas with 3.8 dBi

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Conducted Power (dBm):		Conducted Power (mW):		Total Conducted power (W)	Limit (W) (1)
Chain 1	Chain 2	Chain 1	Chain 2		
21.33	21.05	135.83	127.35	0.263	1

(2) For 2 antennas with 3.8 dBi

Test conclusion:

RESPECTED STANDARD

10. INTENTIONAL RADIATOR

Temperature (°C) : 20 to 24 **Humidity (%HR):** 55 **Date :** May 28, 2018 and May 30, 2018

Technician : T. LEDRESSEUR

Standard: FCC Part 15

Test procedure: paragraph 15.205, paragraph 15.209, paragraph 15.407 (b)

Method: paragraph II.G.2 of KDB 789033
paragraph II.G.4 of KDB 789033
paragraph II.G.5 of KDB 789033
paragraph II.G.6 of KDB 789033 (method AD)

Test set up:

First an exploratory radiated measurement was performed. During this phase the product is oriented in three orthogonal planes.
Then the final measurement is realized with the product on the most critical orientation.
The measure is realized on open area test site under 1 GHz and in anechoic chamber above 1 GHz.

When the system is tested in an open area test site (OATS), the EUT is placed on a rotating table, 0.8m from a ground plane.

When the system is tested in anechoic chamber, the EUT is placed on a rotating table, 1.65 m or 1.5 m from a ground plane.

Zero degree azimuths correspond to the front of the device under test.

Frequency range: From 9 kHz to 40 GHz

Detection mode: Quasi-peak (F < 1 GHz) Peak / Average (F > 1 GHz)

Bandwidth: 200Hz (9 kHz < F < 150kHz)
9 kHz (150 kHz < F < 30MHz)
120 kHz (30 MHz < F < 1 GHz)
1 MHz (F > 1 GHz)

Distance of antenna: 10 m below 1 GHz
3 m between 1 GHz and 18 GHz
1 m between 18 GHz and 26 GHz
60 cm between 26 GHz and 40 GHz

Antenna height: 1 to 4 meters (in open area test site) /1.65 or 1.5 meter (in anechoic room)

Antenna polarization: vertical and horizontal (only the highest level is recorded)

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

We used for power source the internal fully charged battery

Duty cycle factor for average measurement is then added.
This factor is already included on the results (tables and graphs)

On the graph the blue curve represent measure and limit with a peak detector and red curve with average detector.

For results at ±20 MHz of the edge of the band see §8.

Results:

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (1)	AV	150	1000	44.18	54	9.82
4828 (1)	AV	150	1000	48.29	54	5.71

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted band

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (2)	AV	150	1000	44.26	54	9.74

P= Peak, QP=Quasi-peak, Av=Average
(2) Restricted band

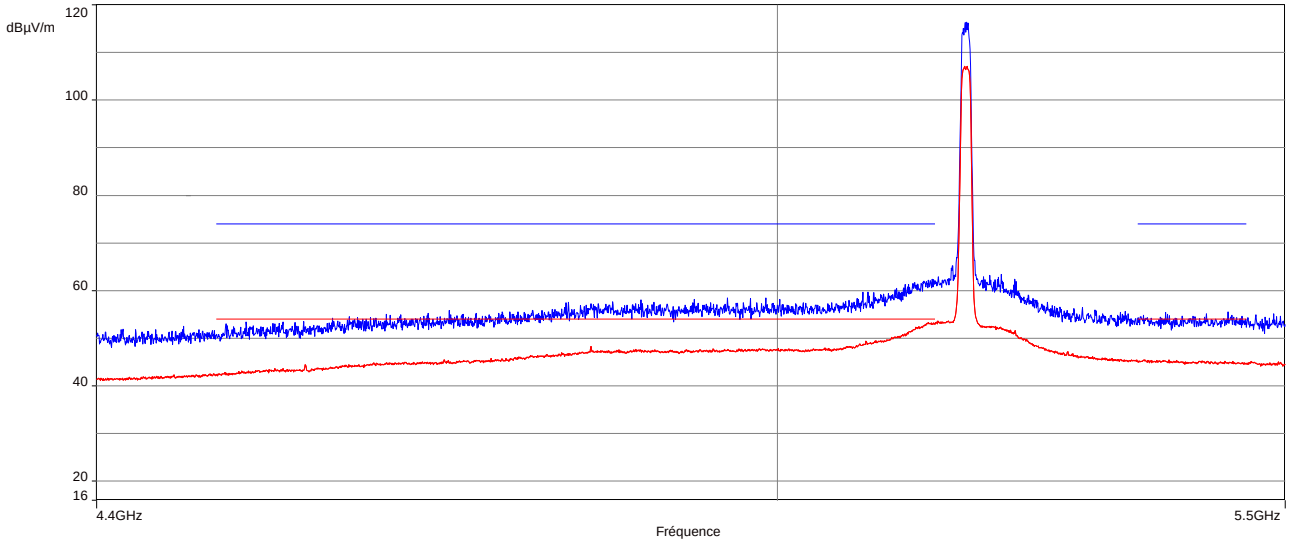
Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (3)	AV	150	1000	44.9	54	9.1

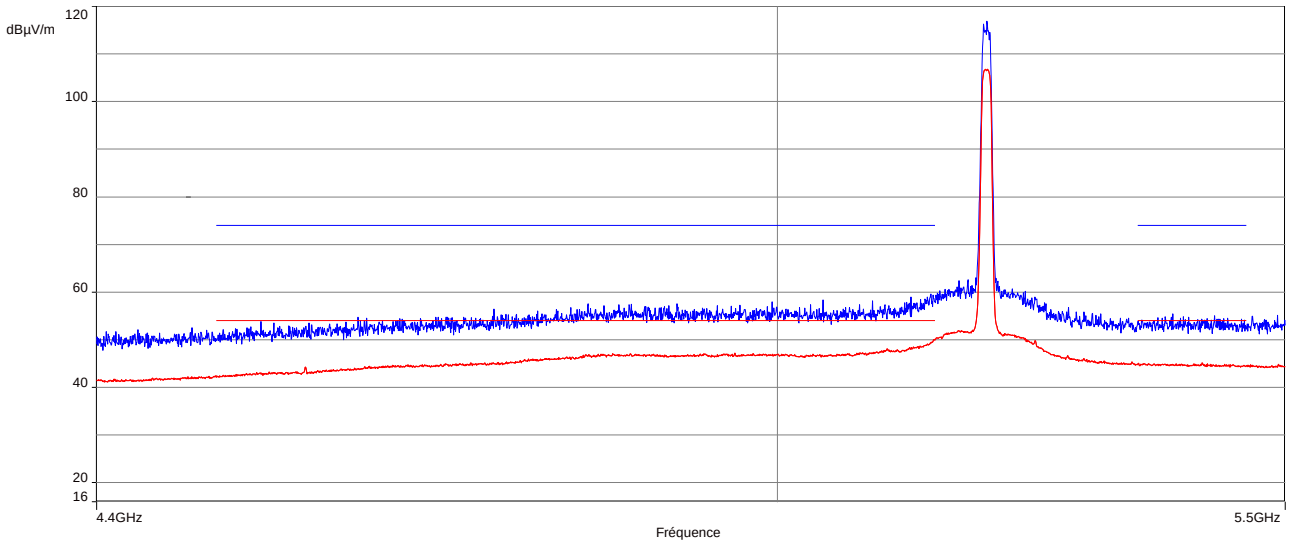
P= Peak, QP=Quasi-peak, Av=Average
(3) Restricted band

Band edge realized on worst critical positions.

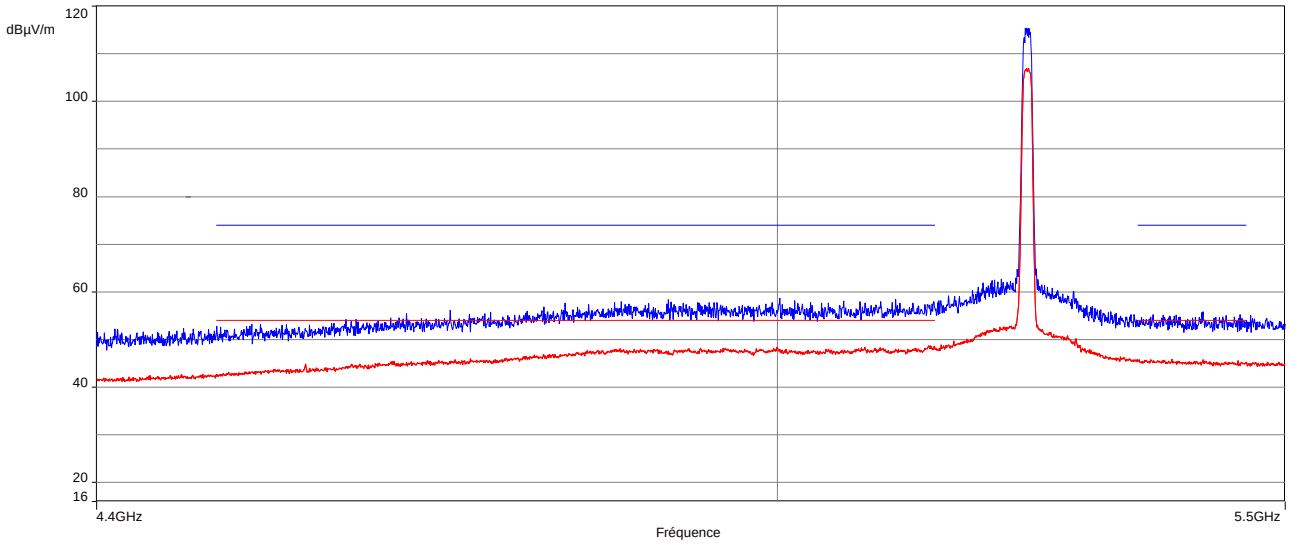
Low Channel



Central Channel



High channel



Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m))	Margin (dB)
4576 (1)	AV	150	1000	44.41	54	9.59

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted band

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (2)	AV	150	1000	44.5	54	9.5

P= Peak, QP=Quasi-peak, Av=Average
(2) Restricted band

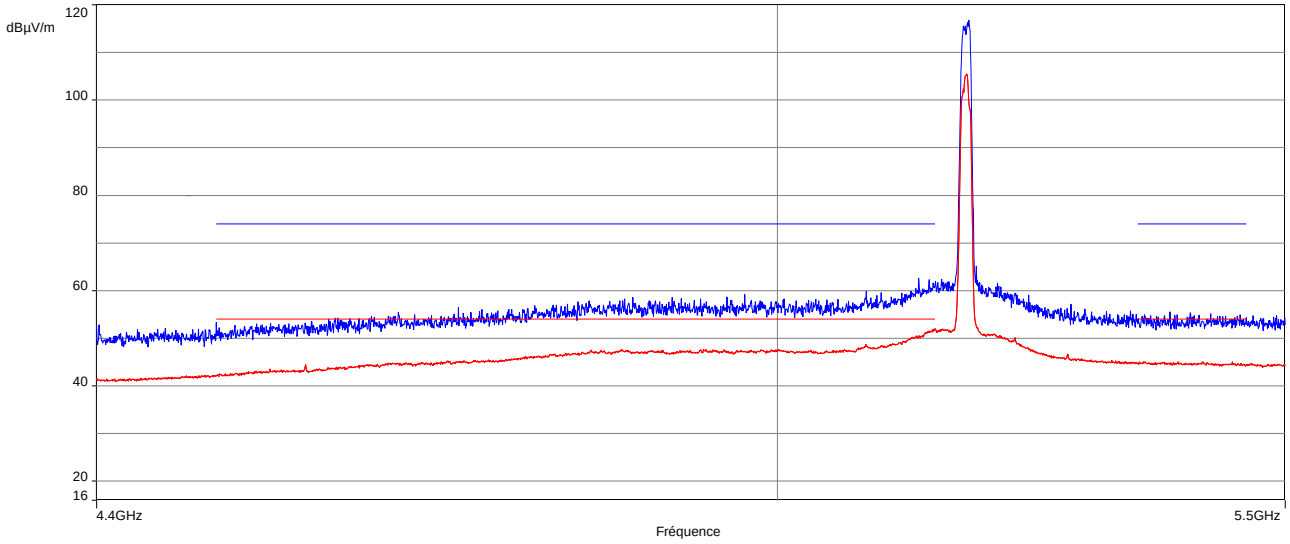
Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m))	Margin (dB)
4576 (3)	AV	150	1000	44.87	54	9.13

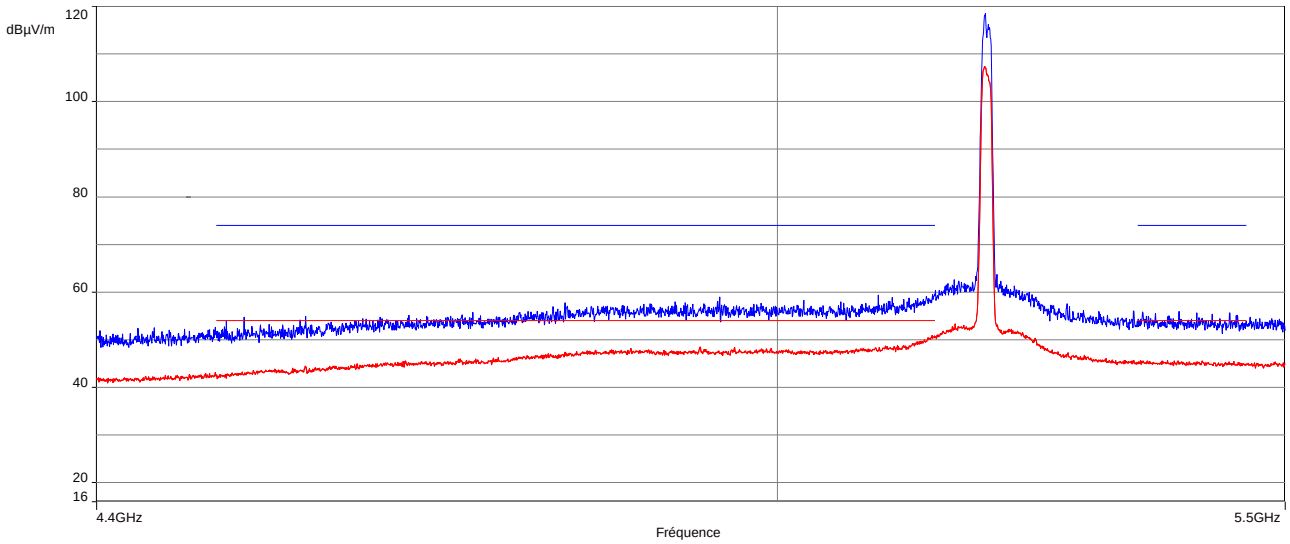
P= Peak, QP=Quasi-peak, Av=Average
(3) Restricted band

Band edge realized on worst critical positions.

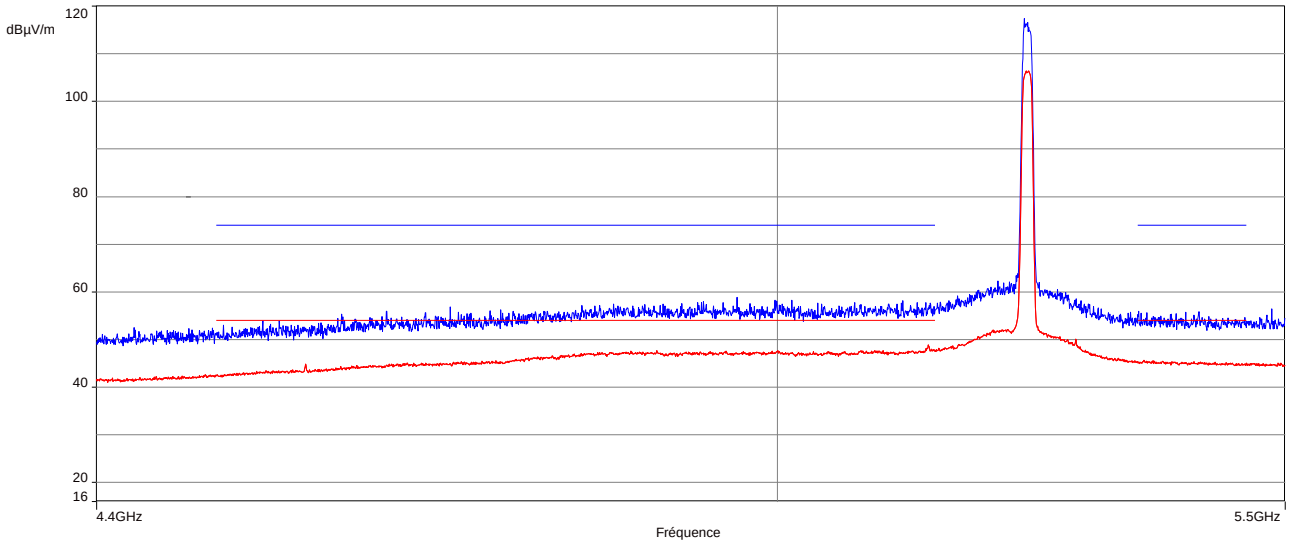
Low Channel



Central Channel



High channel



Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (1)	AV	150	1000	44.62	54	9.38
4928 (1)	AV	150	1000	48.74	54	5.26

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted band

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (2)	AV	150	1000	44.43	54	9.57
4848 (2)	AV	150	1000	49.11	54	4.89
5104 (2)	AV	150	1000	50.85	54	3.15

P= Peak, QP=Quasi-peak, Av=Average
(2) Restricted band

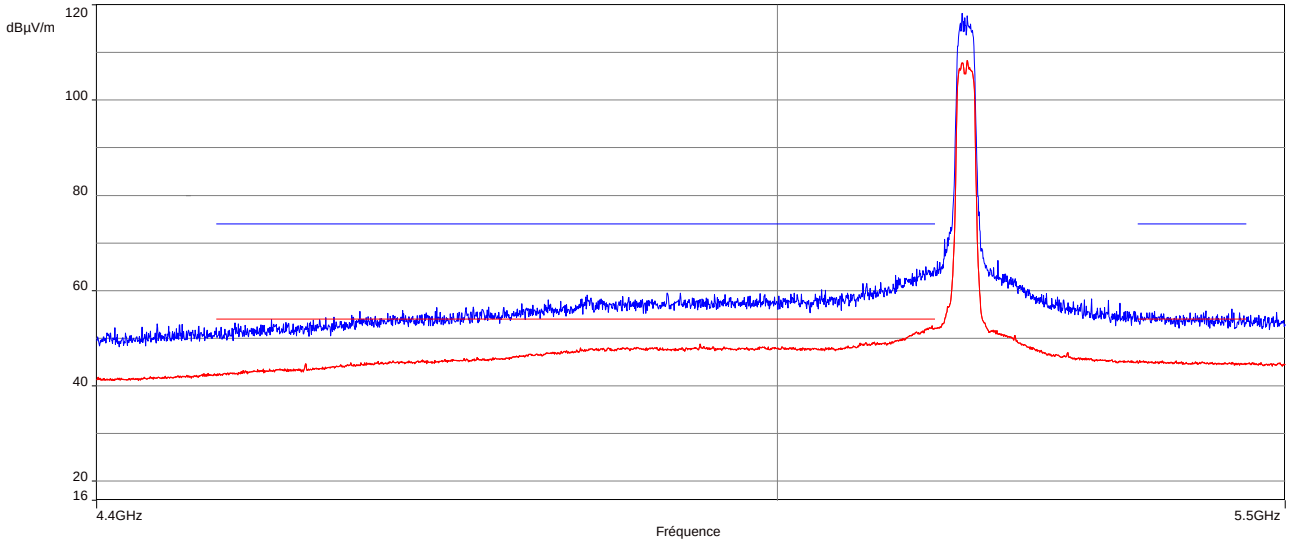
Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4888 (3)	AV	150	1000	49.3	54	4.7

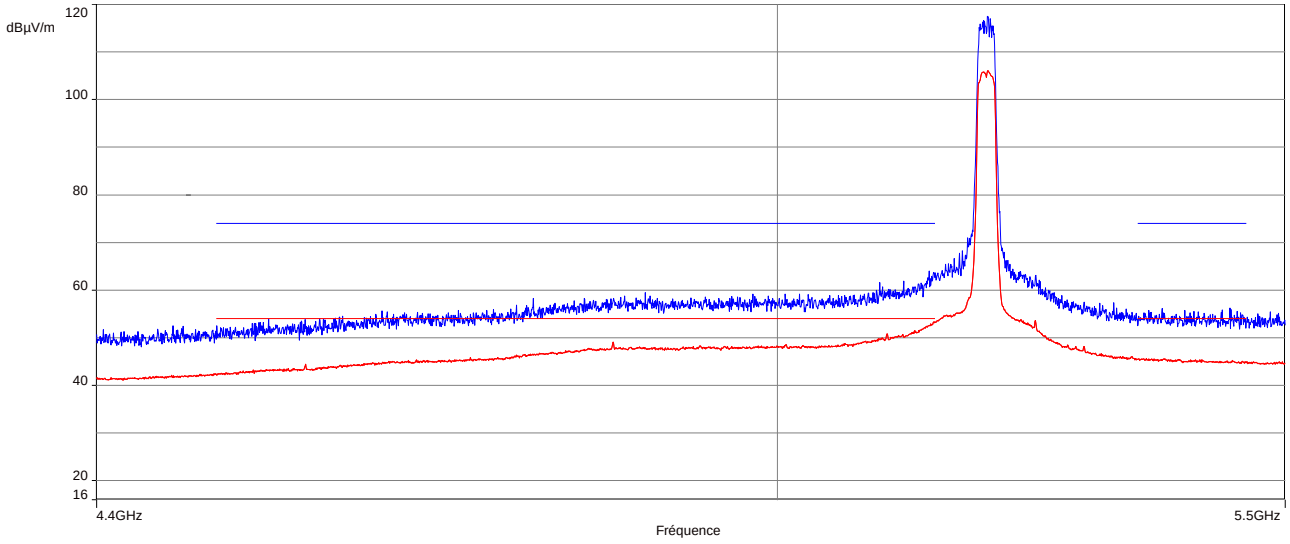
P= Peak, QP=Quasi-peak, Av=Average
(3) Restricted band

Band edge realized on worst critical positions.

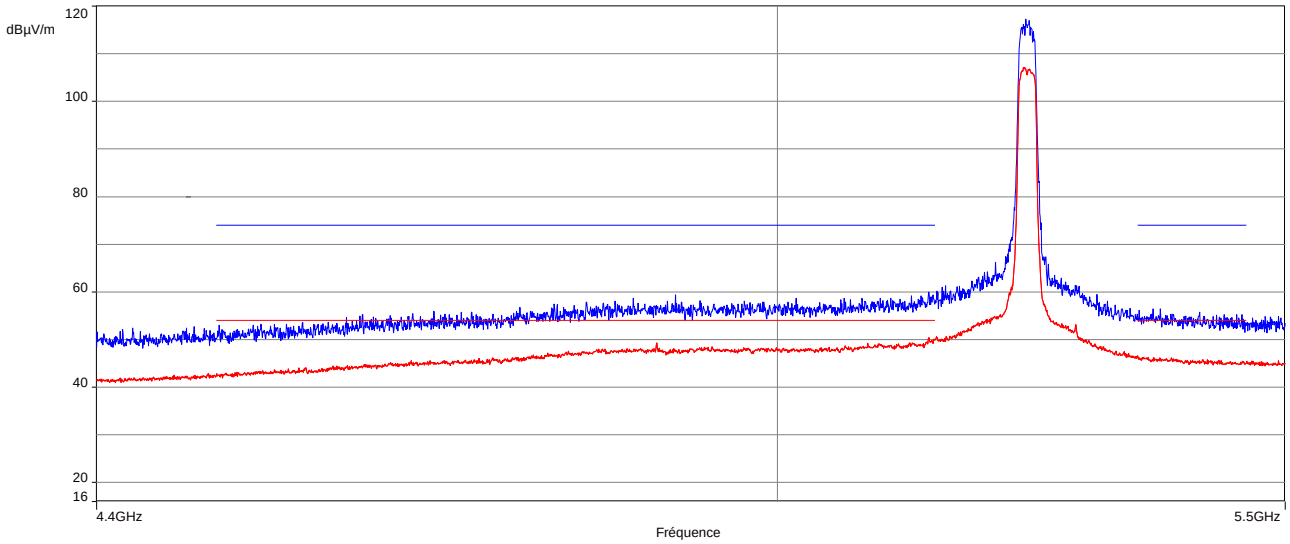
Low Channel



Central Channel



High channel



Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (1)	AV	150	1000	44.08	54	9.92
4828 (1)	AV	150	1000	48.04	54	5.96
5084 (1)	AV	150	1000	50.77	54	3.23

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted band

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (2)	AV	150	1000	43.94	54	10.06
4848 (2)	AV	150	1000	48.54	54	5.46
5104 (2)	AV	150	1000	50.46	54	3.54

P= Peak, QP=Quasi-peak, Av=Average
(2) Restricted band

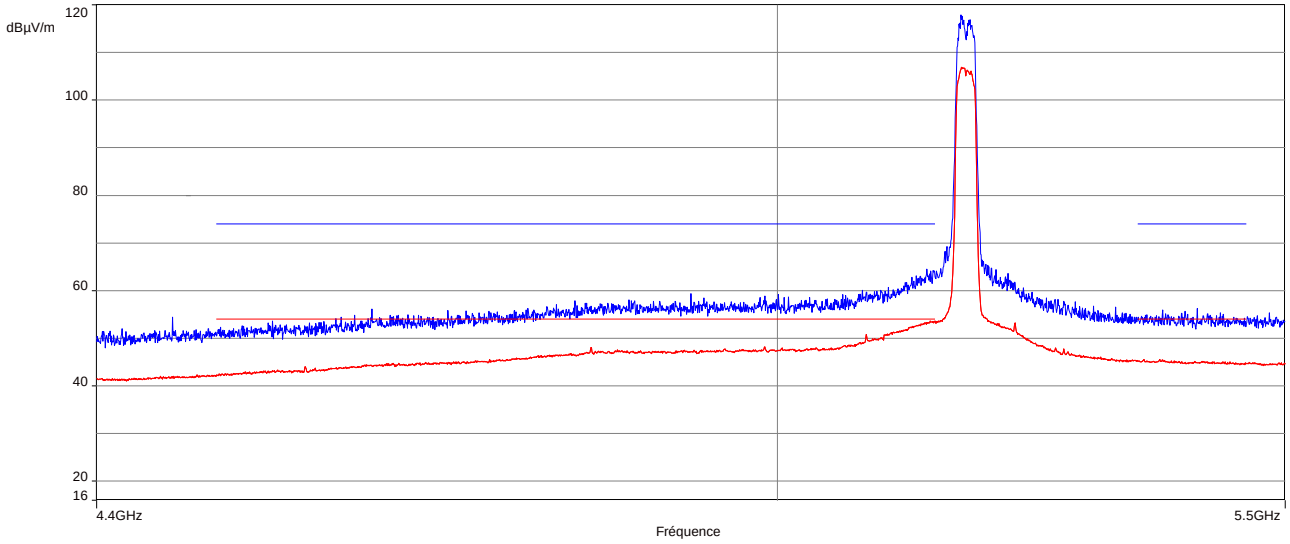
Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
4576 (3)	AV	150	1000	43.81	54	10.19
4888 (3)	AV	150	1000	48.17	54	5.83

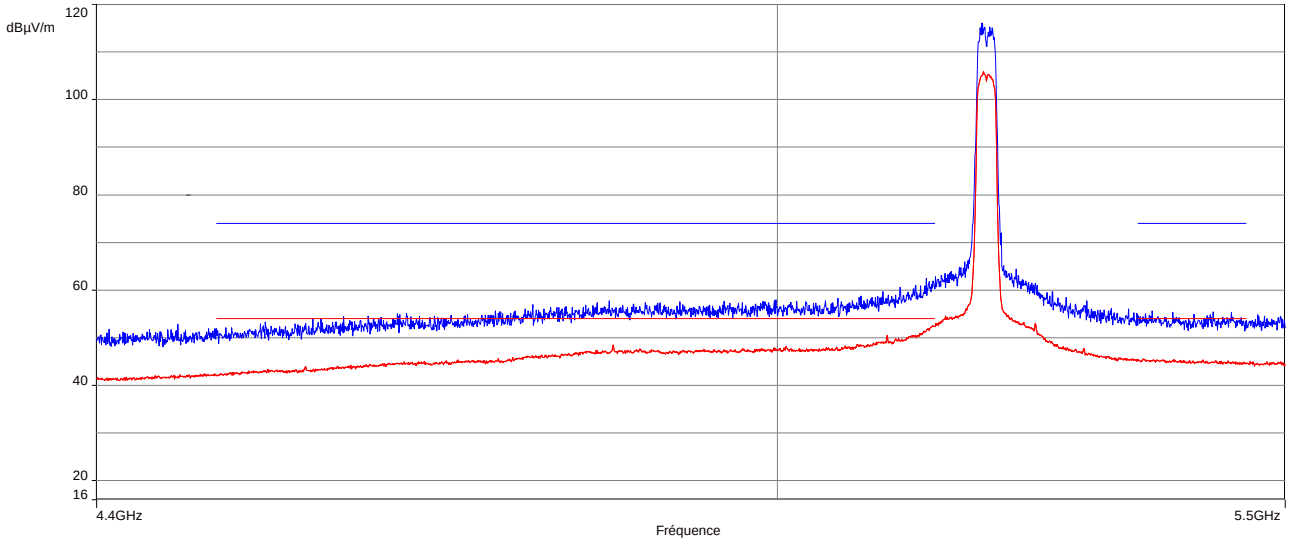
P= Peak, QP=Quasi-peak, Av=Average
(3) Restricted band

Band edge realized on worst critical positions.

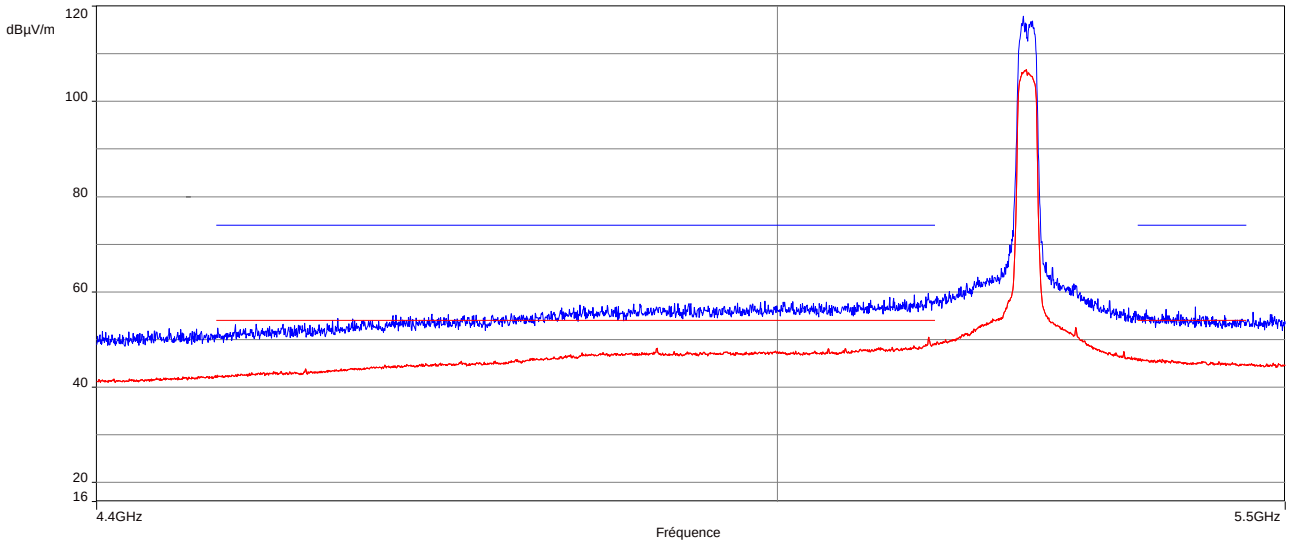
Low Channel



Central Channel



High channel



Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11490 (1)	P	150	1000	61.07	74	12.93
11490 (1)	Av	150	1000	48.79	54	5.21
22980 (1)	P	150	1000	47.4 (2)	74	26.6

P= Peak, QP=Quasi-peak, Av=Average

(1) Restricted band

(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11570 (3)	P	150	1000	60.92	74	13.08
11570 (3)	Av	150	1000	48.54	54	5.46
23140 (3)	P	150	1000	46.26 (4)	74	27.74

P= Peak, QP=Quasi-peak, Av=Average

(3) Restricted band

(4) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11650 (5)	P	150	1000	59.58	74	14.42
11650 (5)	Av	150	1000	49.5	54	4.5
23300 (5)	P	150	1000	47.77 (6)	74	26.23

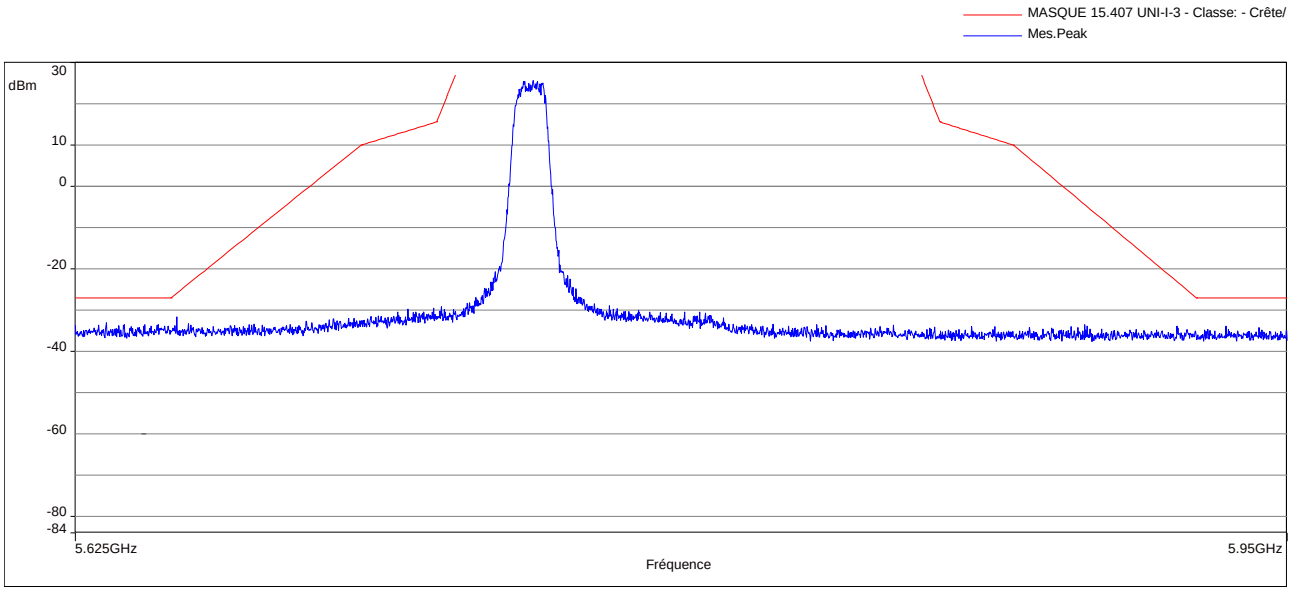
P= Peak, QP=Quasi-peak, Av=Average

(5) Restricted band

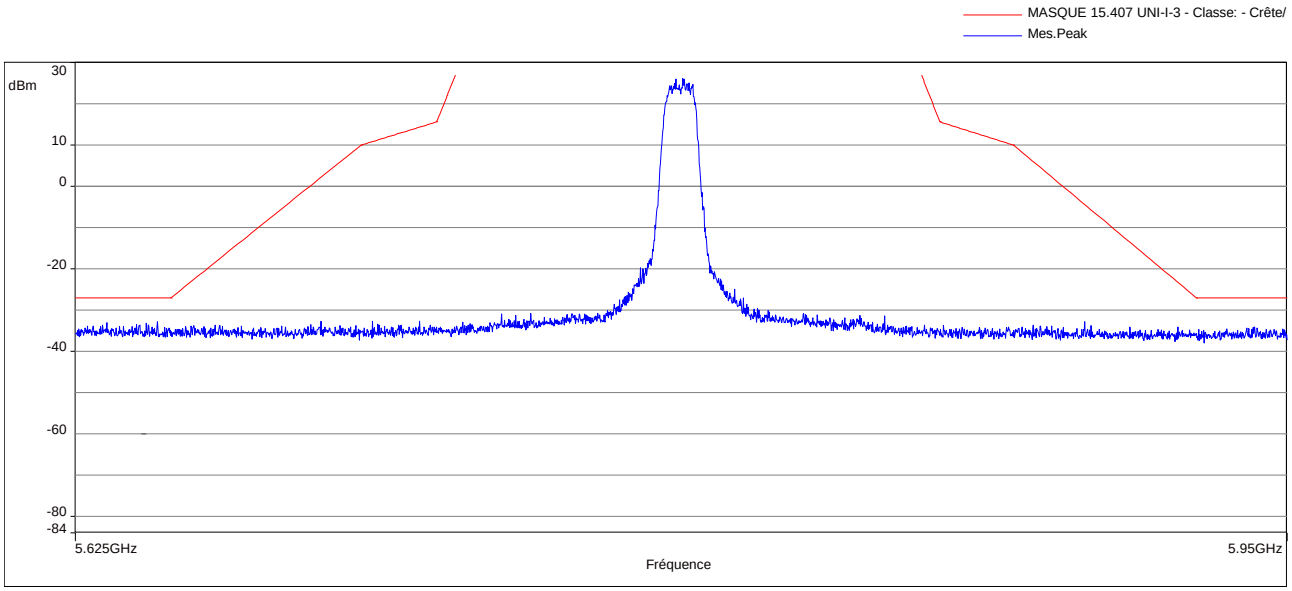
(6) The peak level is lower than the average limit (54 dBµV/m)

Spectrum mask realized on worst critical position

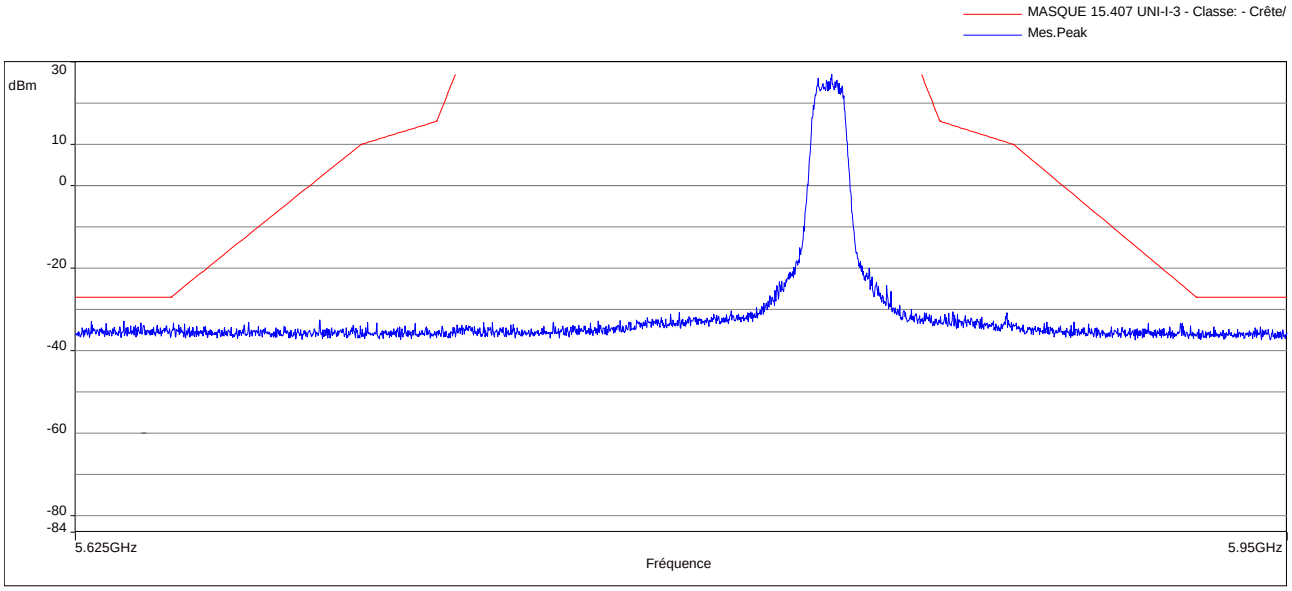
Low Channel



Central Channel

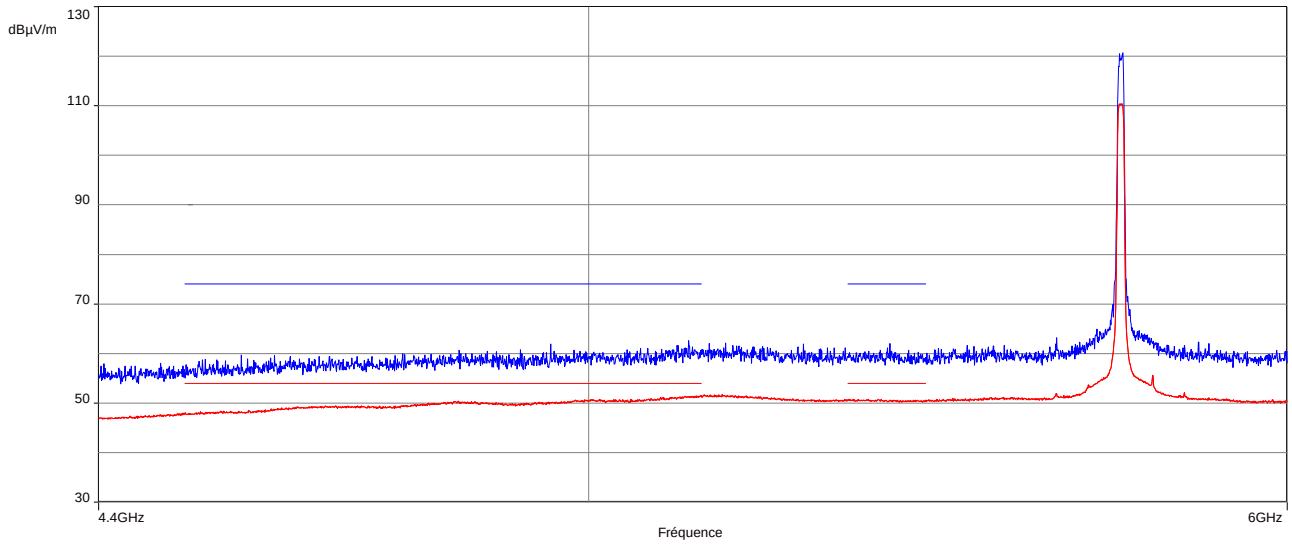


High Channel

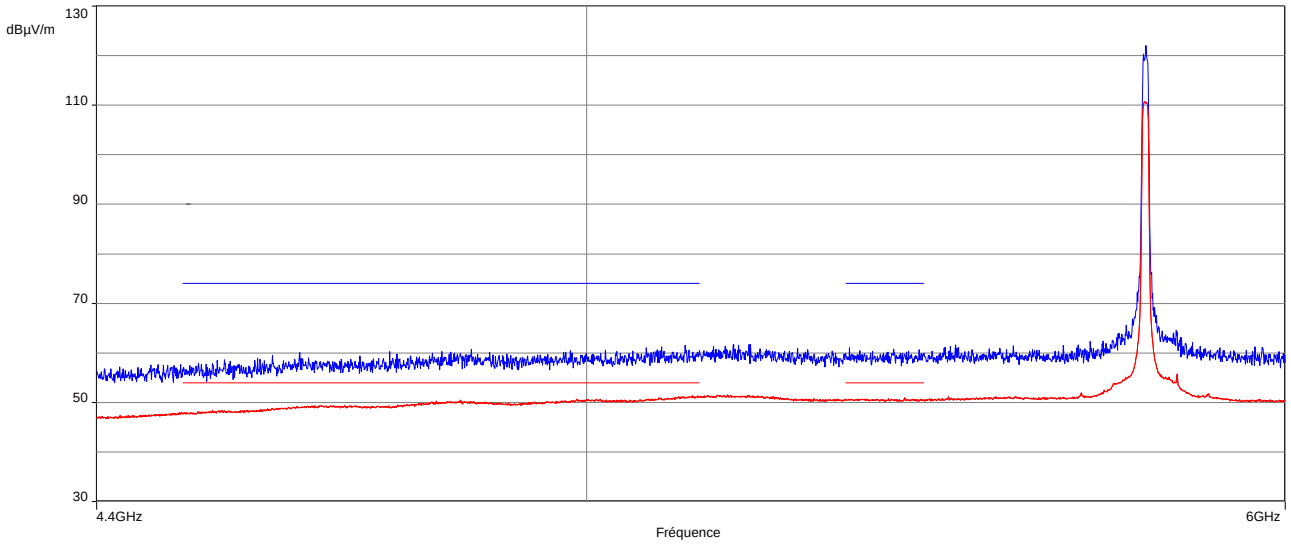


Band edge realized on worst critical positions.

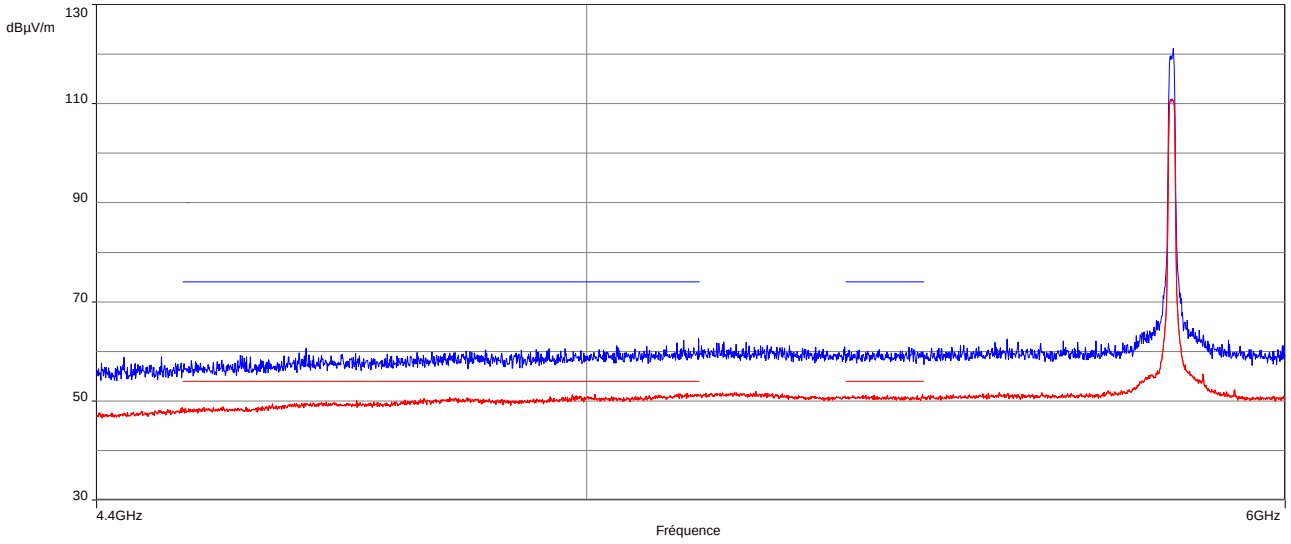
Low Channel



Central Channel



High Channel



Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11490 (1)	P	150	1000	60.68	74	13.32
11490 (1)	Av	150	1000	48.42	54	5.58
22980 (1)	P	150	1000	46.09 (2)	74	27.91

P= Peak, QP=Quasi-peak, Av=Average

(1) Restricted band

(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11570 (3)	P	150	1000	60.34	74	13.66
11570 (3)	Av	150	1000	48.04	54	5.96
23140 (3)	P	150	1000	48.33 (4)	74	25.67

P= Peak, QP=Quasi-peak, Av=Average

(3) Restricted band

(4) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11650 (5)	P	150	1000	60.87	74	13.13
11650 (5)	Av	150	1000	47.82	54	6.18
23300 (5)	P	150	1000	48.22 (6)	74	25.78

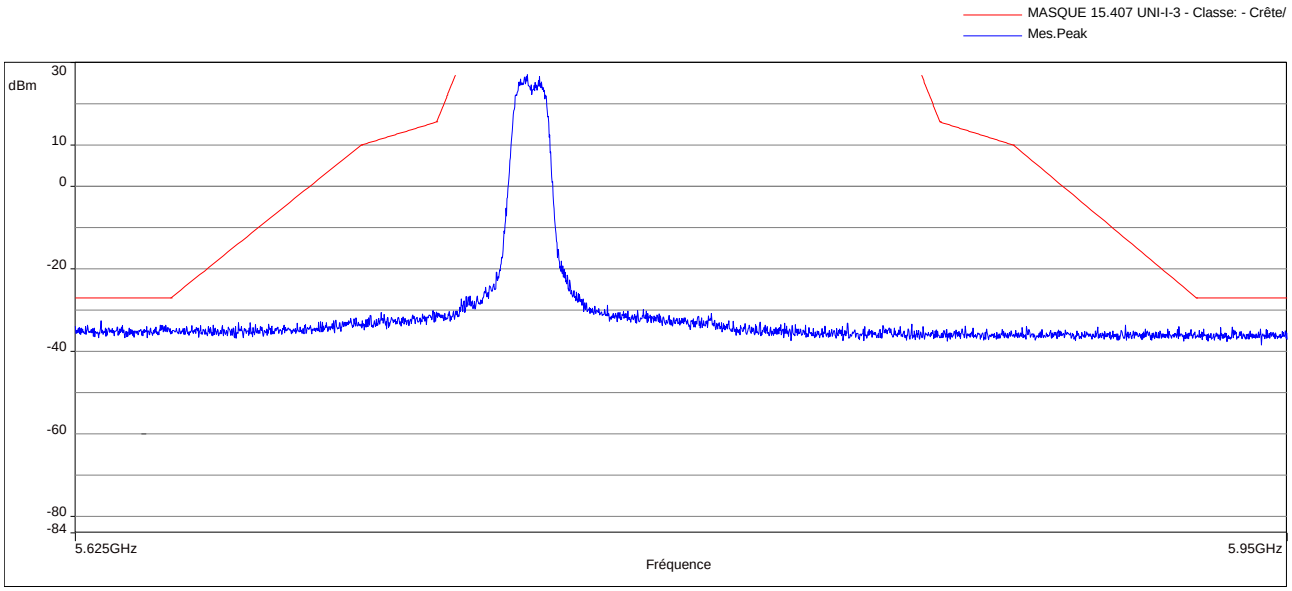
P= Peak, QP=Quasi-peak, Av=Average

(5) Restricted band

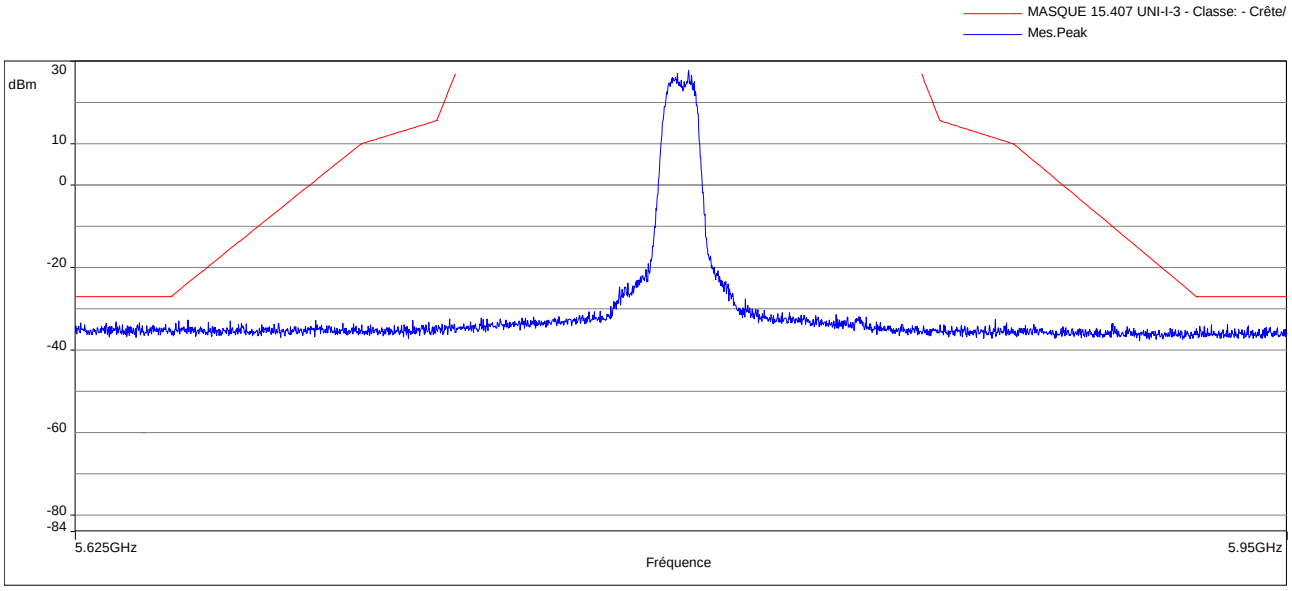
(6) The peak level is lower than the average limit (54 dBµV/m)

Spectrum mask realized on worst critical position

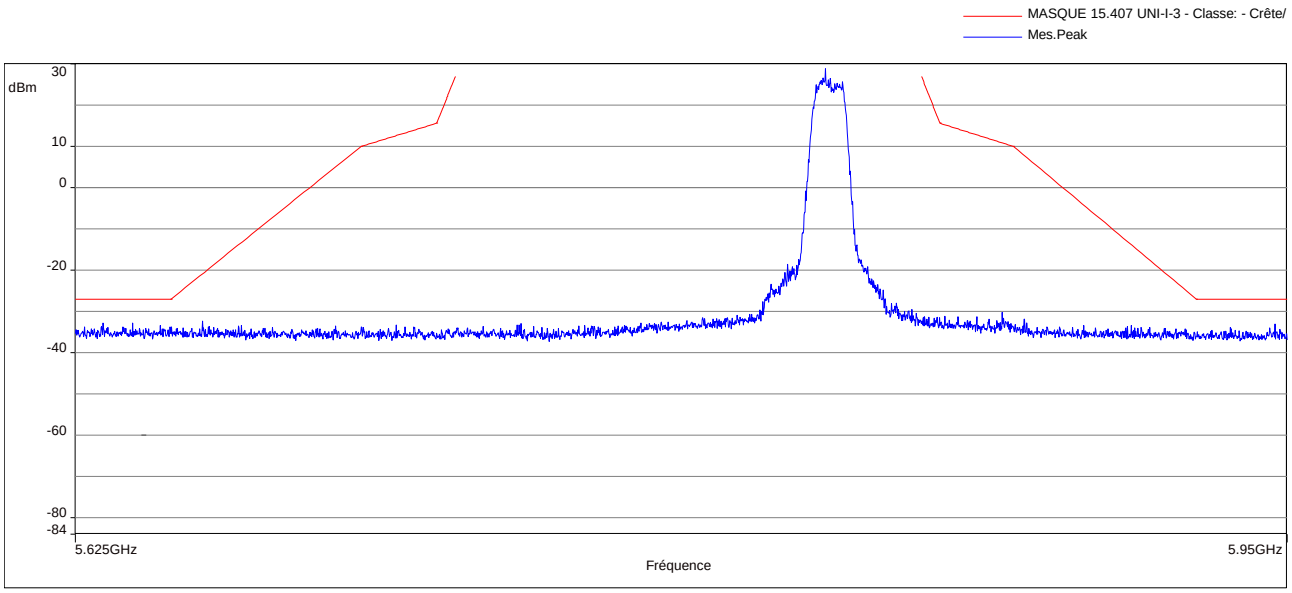
Low Channel



Central Channel

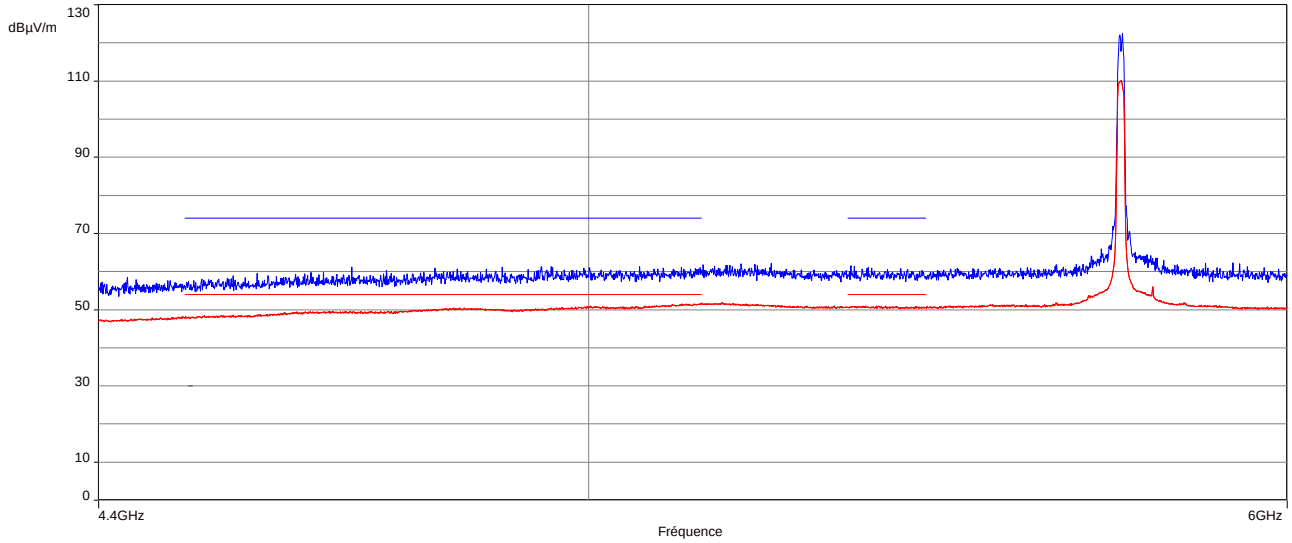


High Channel

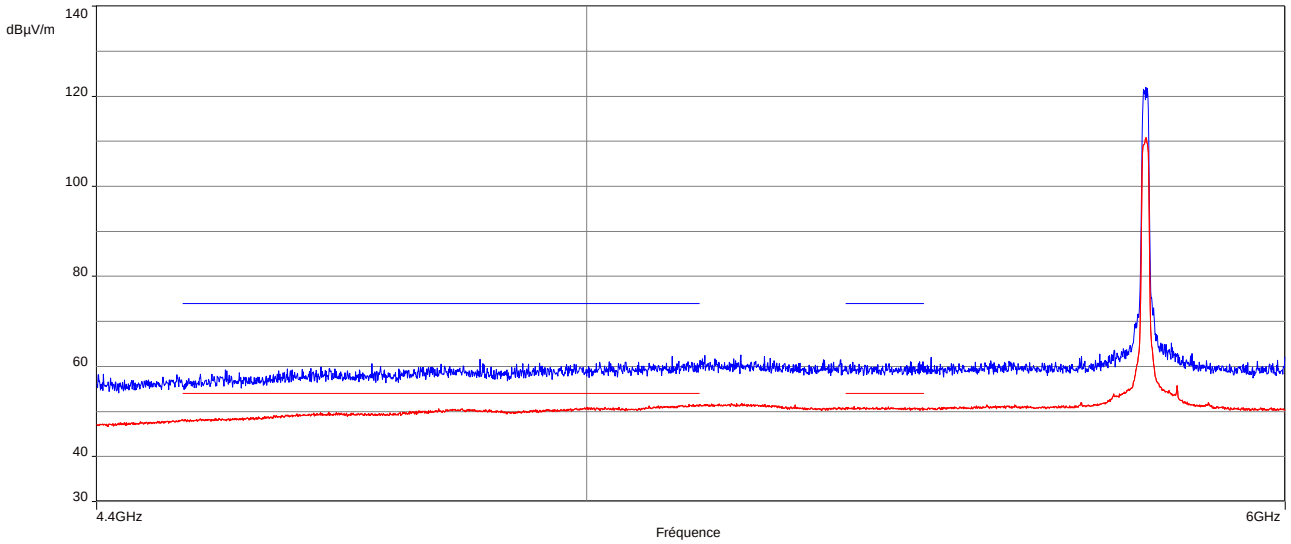


Band edge realized on worst critical positions.

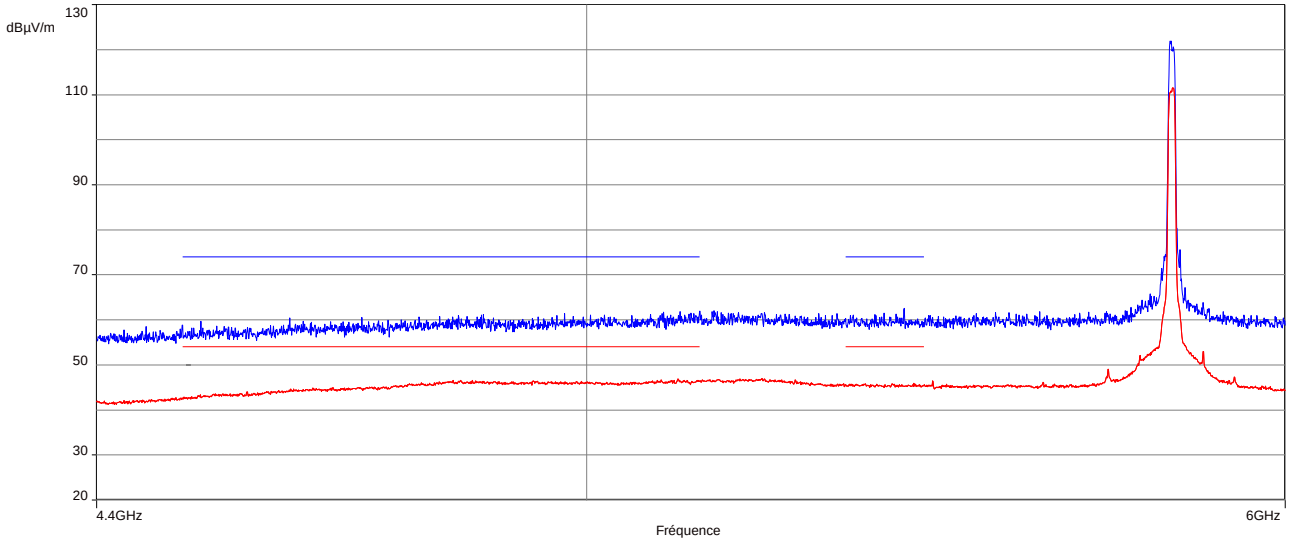
Low Channel



Central Channel



High Channel



Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11490 (1)	P	150	1000	58.81	74	15.19
11490 (1)	Av	150	1000	47.17	54	6.83
22980 (1)	P	150	1000	44.73 (2)	74	29.27

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted band
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11570 (3)	P	150	1000	59.59	74	14.41
11570 (3)	Av	150	1000	47.43	54	6.57
23140 (3)	P	150	1000	45.89 (4)	74	28.11

P= Peak, QP=Quasi-peak, Av=Average
(3) Restricted band
(4) The peak level is lower than the average limit (54 dBµV/m)

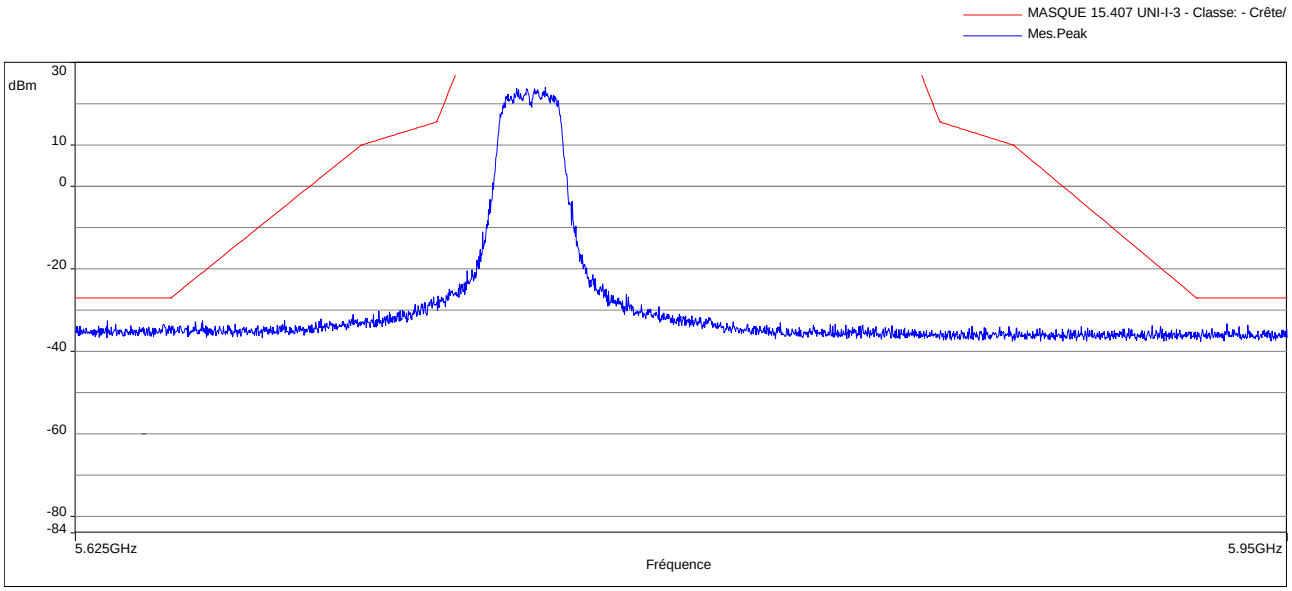
Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11650 (5)	P	150	1000	59.29	74	14.71
11650 (5)	Av	150	1000	47.39	54	6.61
23300 (5)	P	150	1000	45.51 (6)	74	28.49

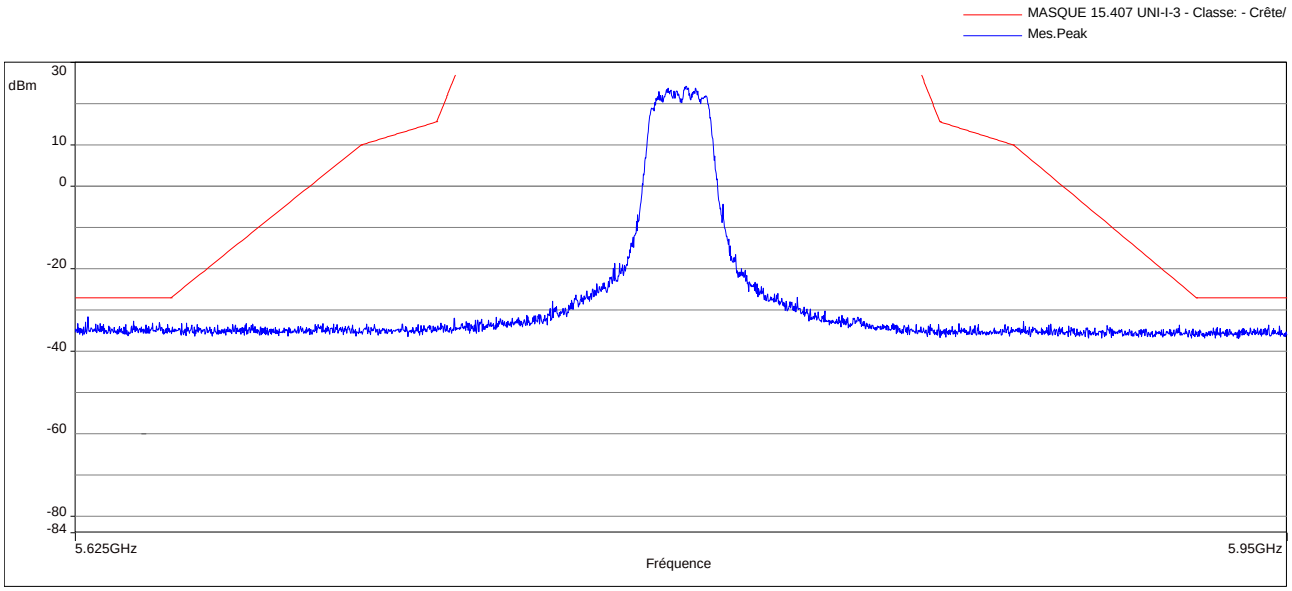
P= Peak, QP=Quasi-peak, Av=Average
(5) Restricted band
(6) The peak level is lower than the average limit (54 dBµV/m)

Spectrum mask realized on worst critical position

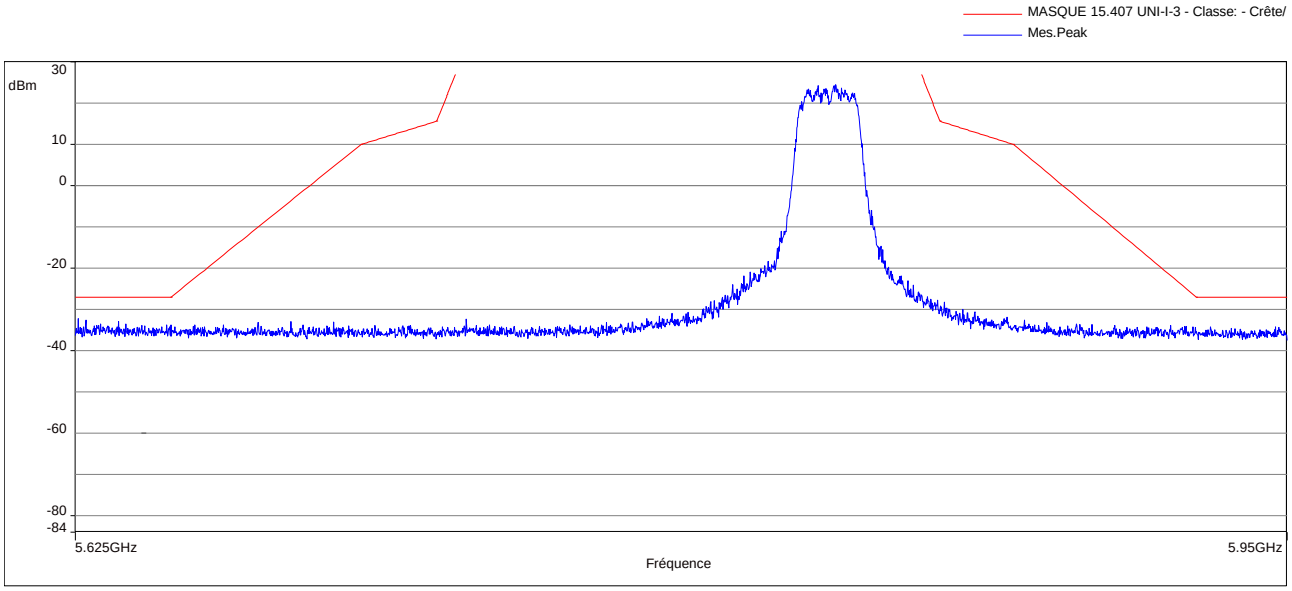
Low Channel



Central Channel

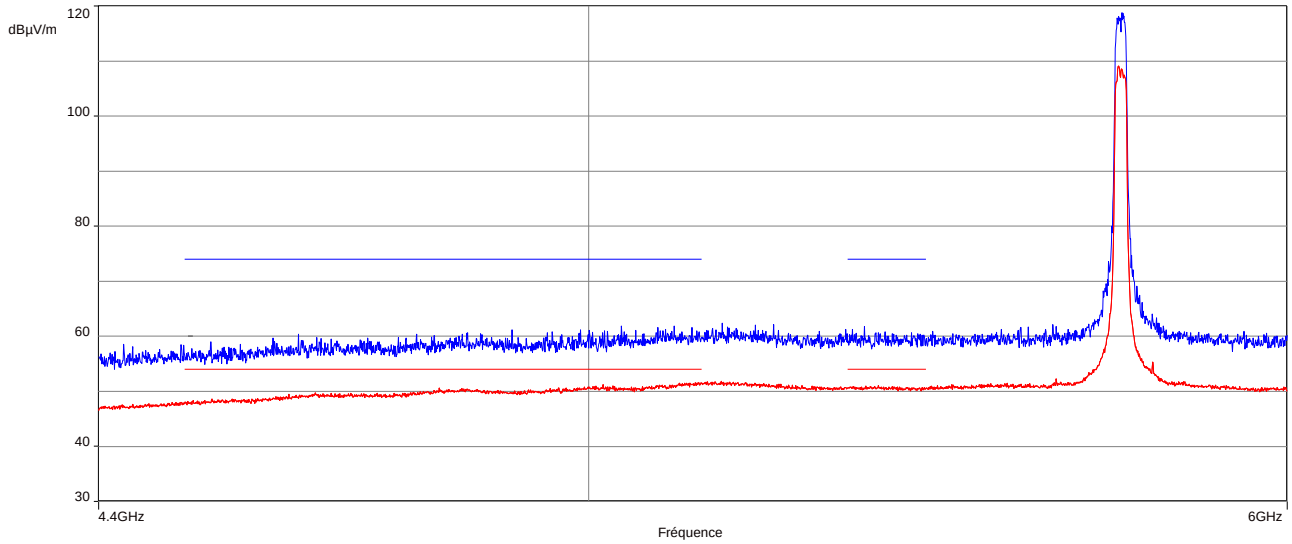


High Channel

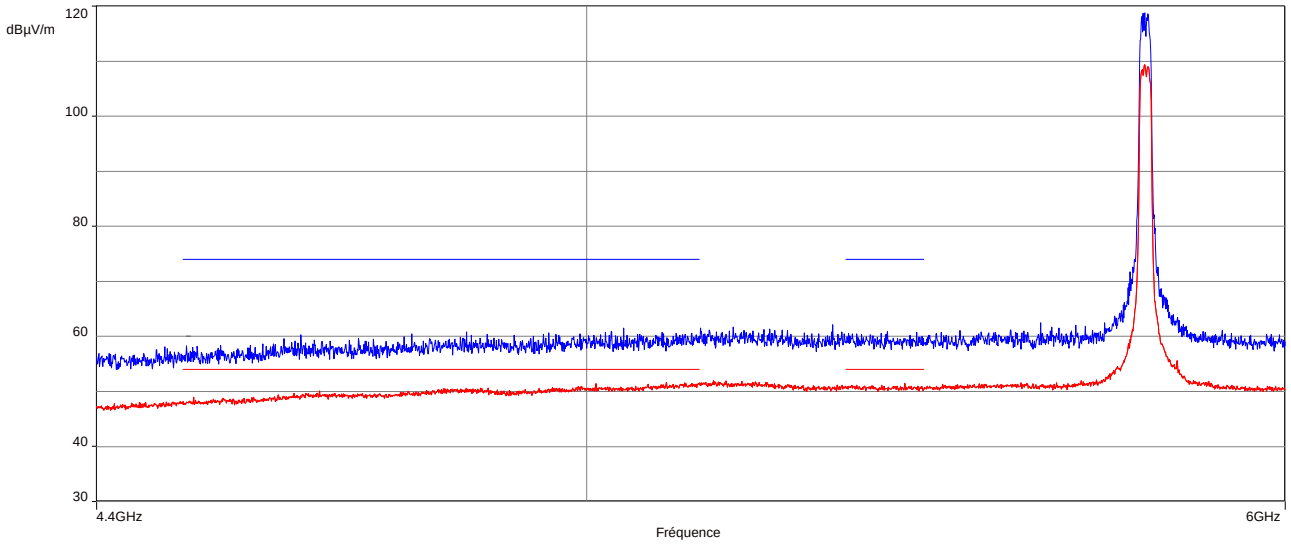


Band edge realized on worst critical positions.

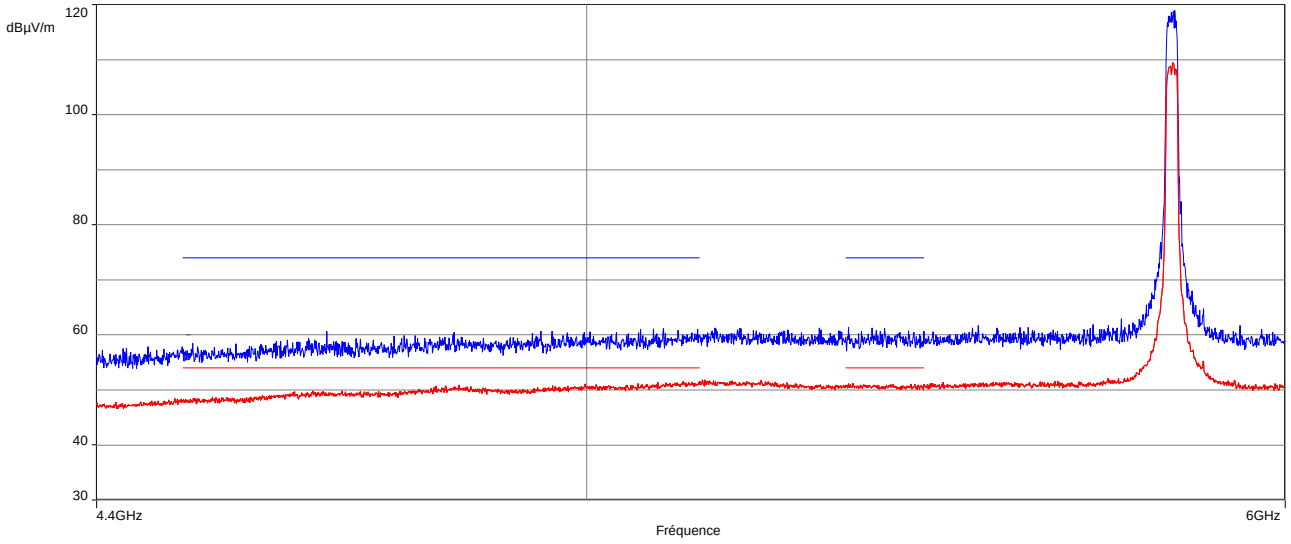
Low Channel



Central Channel



High Channel



Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11490 (1)	P	150	1000	58.5	74	15.5
11490 (1)	Av	150	1000	46.34	54	7.66
22980 (1)	P	150	1000	45.16 (2)	74	28.84

P= Peak, QP=Quasi-peak, Av=Average
(1) Restricted band
(2) The peak level is lower than the average limit (54 dBµV/m)

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11570 (3)	P	150	1000	59.24	74	14.76
11570 (3)	Av	150	1000	45.94	54	8.06
23140 (3)	P	150	1000	45.75 (4)	74	28.25

P= Peak, QP=Quasi-peak, Av=Average
(3) Restricted band
(4) The peak level is lower than the average limit (54 dBµV/m)

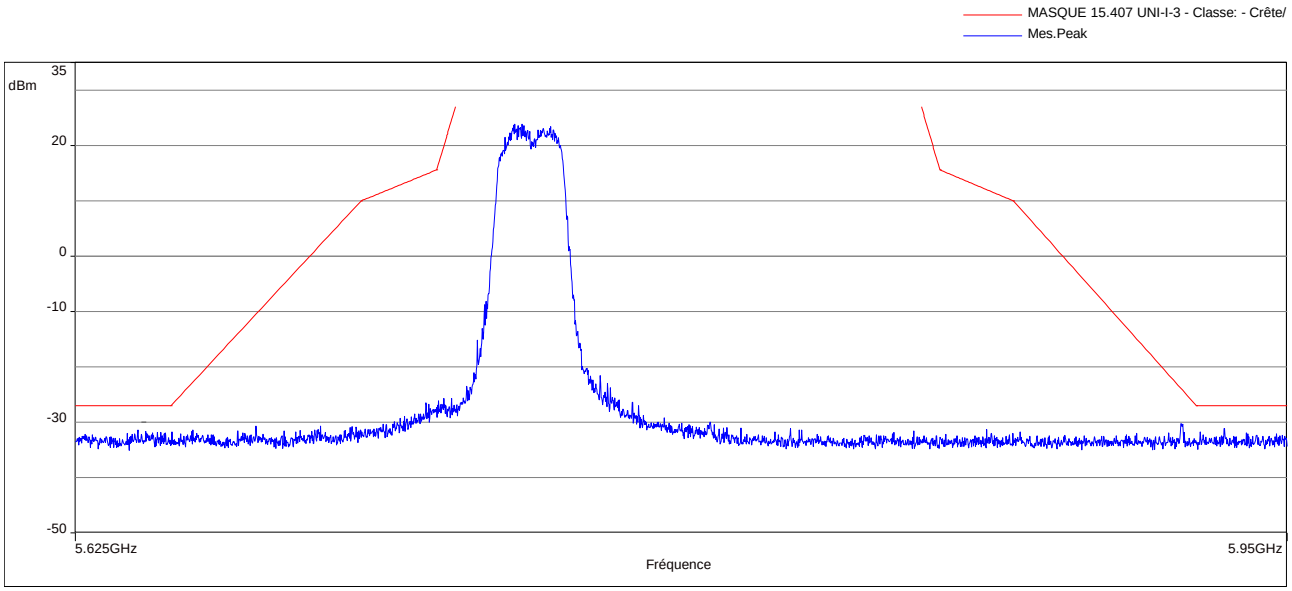
Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Frequencies (MHz)	Detector P QP Av	Antenna height (cm)	RBW (kHz)	Field strength Measured at 3 m (dBµV/m)	Limits (dBµV/m)	Margin (dB)
11650 (5)	P	150	1000	58.77	74	15.23
11650 (5)	Av	150	1000	45.56	54	8.44
23300 (5)	P	150	1000	46.07 (6)	74	27.93

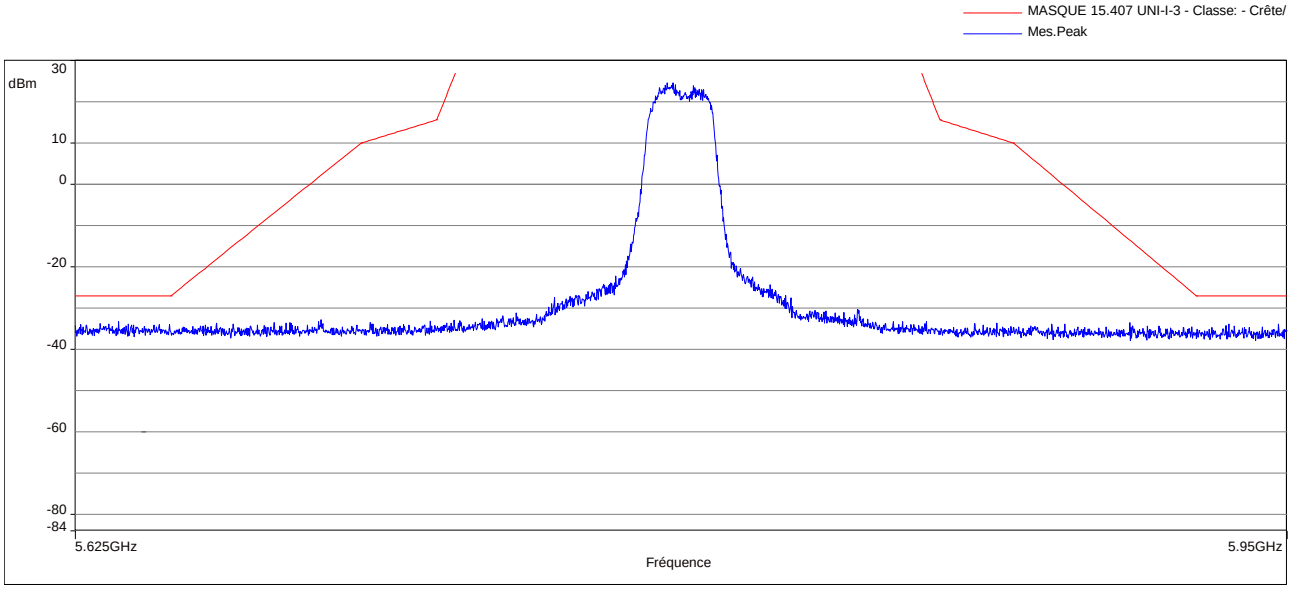
P= Peak, QP=Quasi-peak, Av=Average
(5) Restricted band
(6) The peak level is lower than the average limit (54 dBµV/m)

Spectrum mask realized on worst critical position

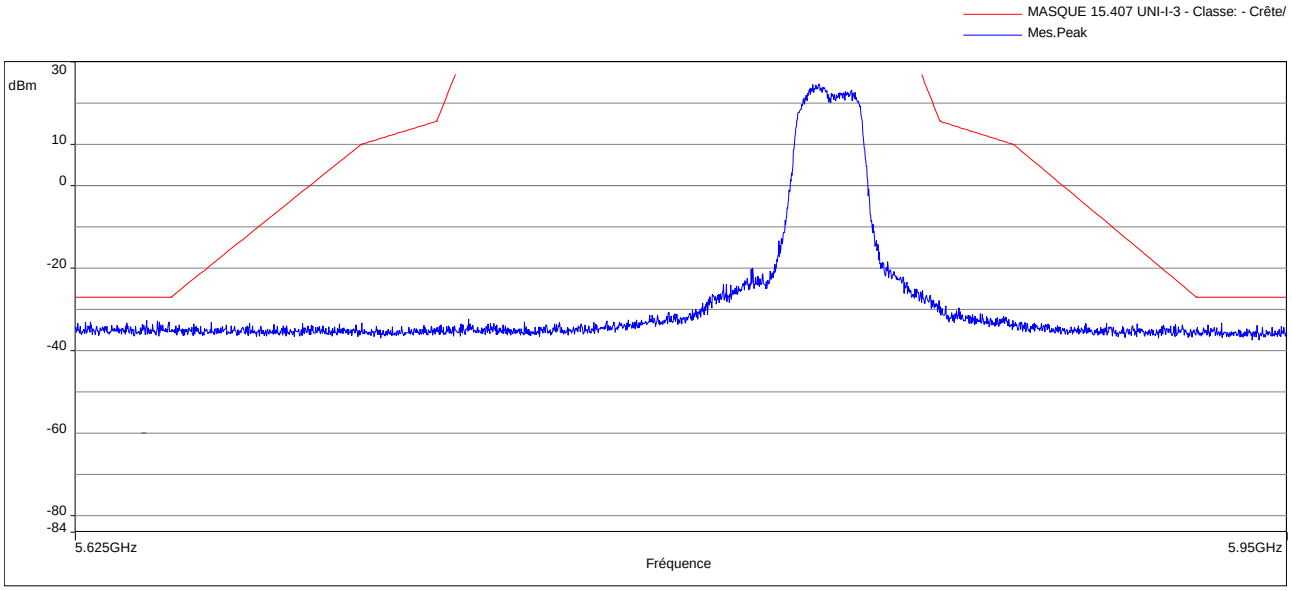
Low Channel



Central Channel

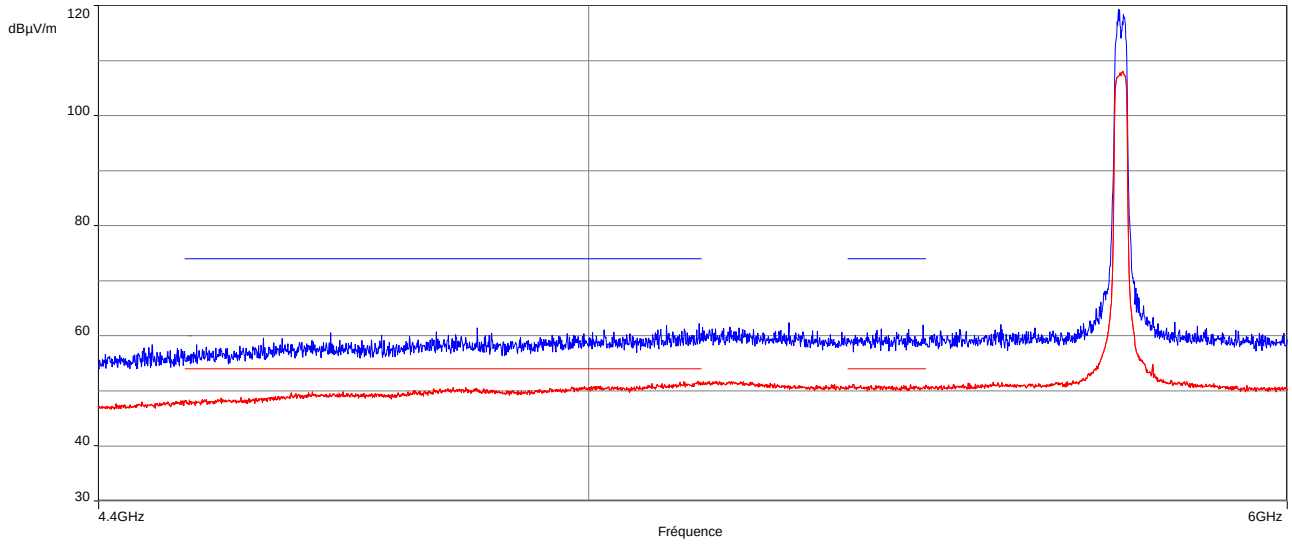


High Channel

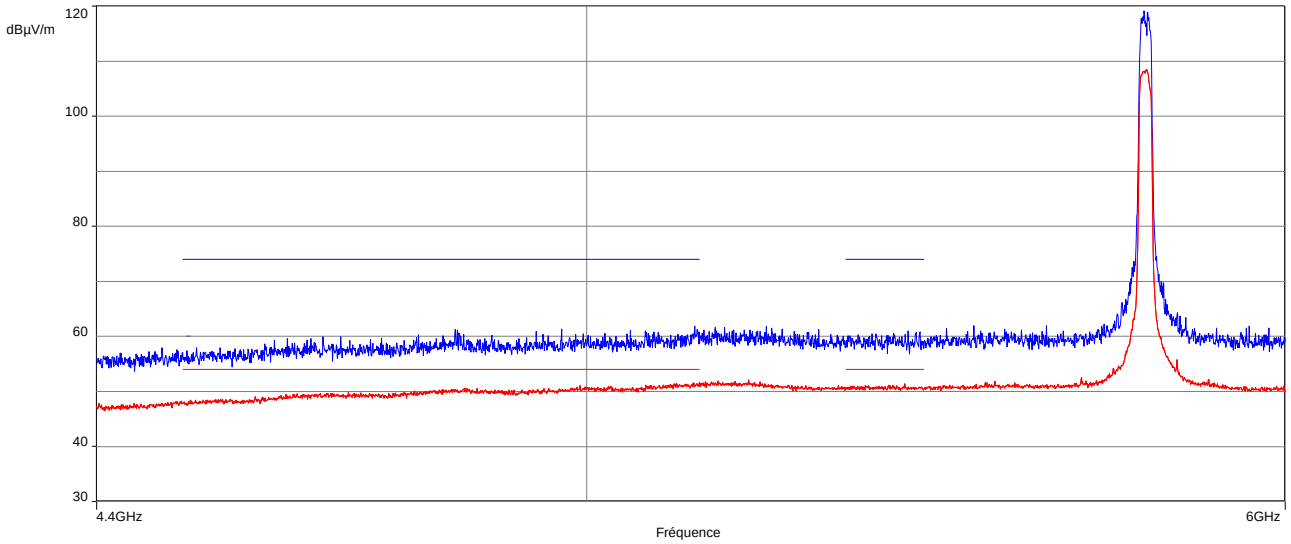


Band edge realized on worst critical positions.

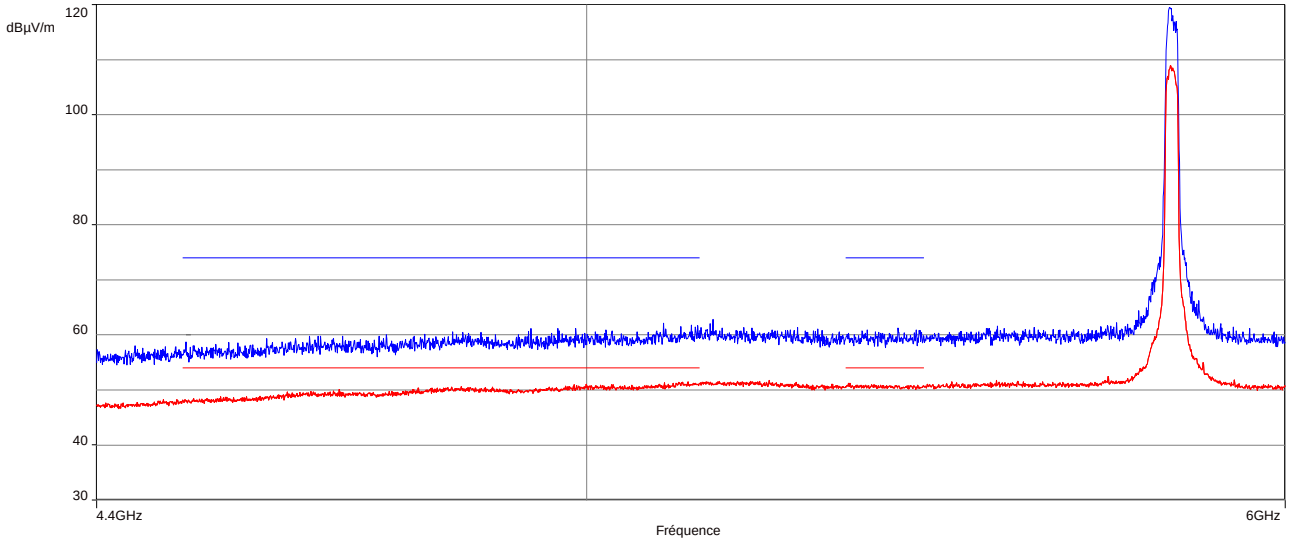
Low Channel



Central Channel



High Channel



Applicable limits in the restricted band:

for 9 kHz ≤ F ≤ 490 kHz : 2400/F(kHz) at 300 meters
for 490 kHz < F ≤ 1.705 MHz : 24000/F(kHz) at 30 meters
for 1.705 MHz < F ≤ 30 MHz : 29.5 dBµV/m at 30 meters
for 30 MHz < F ≤ 88 MHz : 40 dBµV/m at 3 meters
for 88 MHz < F ≤ 216 MHz : 43.5 dBµV/m at 3 meters
for 216 MHz < F ≤ 960 MHz : 46 dBµV/m at 3 meters
Above 960 MHz : 54 dBµV/m at 3 meters

Applicable limits in non the restricted band:

UNII-1 and 2: - 27dBm/MHz / MHz
UNII-3 : -27dBm/MHz / MHz or see spectrum mask

Test conclusion:

RESPECTED STANDARD

11. PEAK POWER DENSITY

Temperature (°C) : 23 **Humidity (%HR):** 41 **Date :** April 16, 2018 to April 18, 2018

Technician : T. LEDRESSEUR

Standard: FCC Part 15

Test procedure: paragraph 15.407 a (1.iv) and (3)

Method: SA-2 paragraph II.F of KDB 789033 and II.E.2.d of KDB 789033

Test set up:

The measure is realized in conducted mode with an analyser and the following settings are used.

Bandwidth selected	**10 MHz**		**20 MHz**	
U-NII band	**U-NII-1**	**U-NII-3**	**U-NII-1**	**U-NII-3**
Span	20 MHz		40 MHz	
RBW	1 MHz	500 kHz	1 MHz	500 kHz
VBW	3 MHz	3 MHz	3 MHz	3 MHz
detector	RMS		RMS	
Points	5001		10001	
Trace mode	Avg power		Avg power	
Number of traces	100		100	

The measure is repeated on each output port of the EUT. Then the results were summed in linear power unit

Equipment under test operating condition:

The equipment under test is blocked in continuous modulated transmission mode, at the highest output power level at which the transmitter is intended to operate.

We used for power source the internal fully charged battery

- According with KDB 662911 the antenna gain is calculated as follow:

Total gain = antenna gain (dBi) + array gain
With Array Gain = 10 log(NANT/NSS) dB = 3 and with NANT=2 and NSS=1

Total gain = 3.3 +3 = 6.3 dBi for U-NII-1 band
Total gain = 3.8 +3 = 6.8 dBi for U-NII-3 band

The limit is so reduced by 0..3 dBm or 0.8 dBm in order to taken in account the amount in dB that the directional gain of the antenna exceeds 6 dBi for U-NII-1 and U-NII-3 bands.

- See appendix for plot

- In addition during the measure the duty cycle for all mode is adjusted as follow:

Dutyc cycle factor = 10 log(1/x)

Results:

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.34	7.04	5.42	5.06	10.48	10.22	0.18	10.38	10.7

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.13	6.77	5.16	4.75	9.92	9.96	0.18	10.14	10.7

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
6.75	6.15	4.73	4.12	8.85	9.47	0.18	9.65	10.7

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
6.87	6.62	4.86	4.59	9.46	9.76	0.25	10.01	10.7

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
6.71	6.27	6.71	6.27	8.92	9.51	0.25	9.76	10.7

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
6.4	5.69	4.37	3.71	8.07	9.07	0.25	9.32	10.7

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.45	7.1	5.56	5.13	10.69	10.29	0.25	10.54	10.7

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.18	6.84	5.22	4.83	10.05	10.02	0.25	10.27	10.7

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.05	6.28	5.07	4.25	9.32	9.69	0.25	9.94	10.7

Band U-NII-1

Sample N° 1 Channel 36 (F = 5180 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.27	6.71	5.33	4.69	10.02	10.01	0.44	10.45	10.7

Sample N° 1 Channel 40 (F = 5200 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.05	6.49	5.07	4.46	9.53	9.79	0.44	10.23	10.7

Sample N° 1 Channel 48 (F = 5240 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Power Spectral Density (dBm/MHz):		Power Spectral Density (mW/MHz):		Sum of PSD (mW/MHz)	Sum of PSD (dBm/MHz)	Duty cycle factor (dB)	PSD (dBm/MHz)	Limit (dBm/MHz)
Chain 1	Chain 2	Chain 1	Chain 2					
6.49	5.97	4.46	3.95	8.41	9.25	0.44	9.69	10.7

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
10.23	10.02	10.54	10.05	20.59	13.14	0.27	13.41	29.2

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
10.53	10.03	11.3	10.07	21.37	13.3	0.27	13.57	29.2

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.a – Bandwidth 10 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
10.91	10.38	12.33	10.91	23.25	13.66	0.27	13.93	29.2

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
10.08	9.74	10.19	9.42	19.6	12.91	0.17	13.09	29.2

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
10.19	9.78	10.45	9.51	19.95	13	0.17	13.13	29.2

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.n – Bandwidth 10 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
10.32	10.32	10.76	10.76	21.53	13.33	0.17	13.50	29.2

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.04	7.06	5.06	5.08	10.14	10.06	0.25	10.31	29.2

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.49	7.16	5.61	5.20	10.81	10.34	0.25	10.59	29.2

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.a – Bandwidth 20 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
8.03	7.8	6.35	6.03	12.38	10.93	0.25	11.18	29.2

Band U-NII-3

Sample N° 1 Channel 149 (F = 5745 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
6.79	6.85	4.78	4.84	9.62	9.83	0.24	10.07	29.2

Sample N° 1 Channel 157 (F = 5785 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.33	6.8	5.41	4.79	10.19	10.08	0.24	10.32	29.2

Sample N° 1 Channel 165 (F = 5825 MHz) – Mode 802.11.n – Bandwidth 20 MHz

Power Spectral Density (dBm/500kHz):		Power Spectral Density (mW/500kHz):		Sum of PSD (mW/500kHz)	Sum of PSD (dBm/500kHz)	Duty cycle factor (dB)	PSD (dBm/500kHz)	Limit (dBm/500kHz)
Chain 1	Chain 2	Chain 1	Chain 2					
7.91	7.18	6.18	5.22	11.4	10.57	0.24	10.81	29.2

Test conclusion:

RESPECTED STANDARD

□□□ End of report, (5) appendixes to be forwarded □□□

APPENDIX 1: Test equipment list

Additional provisions to the general radiated emission limitations

TYPE	MANUFACTURER	EMITECH NUMBER
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Full anechoic chamber	EMITECH	10759
Turntable and mat controller NCD	MATURO	10789
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Antenna 3115	EMCO	8535
Cable N-1m	SUCOFLEX	14302
Cable N-2m	SUCOFLEX	14303
Cable N-2.5m	SUCOFLEX	14304
Cable N-4m	SUCOFLEX	14305
Cable N-1.5m	-	9398
Antenna 3117	ETS-Lindgren	10771
Low-noise amplifier S005180M3201	LUCIX Corp.	12590
Attenuator 10 dB DC-18GHz 10dB	Midwest Microwave	8548
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.16.0.64	0000

Power limits

TYPE	MANUFACTURER	EMITECH NUMBER
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer ESU 8	Rohde & Schwarz	9403
Wideband sensor Z86	Rohde & Schwarz	11592
Attenuator 20 dB DC-18GHz 20dB	Midwest Microwave	8549
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750

Intentional radiator

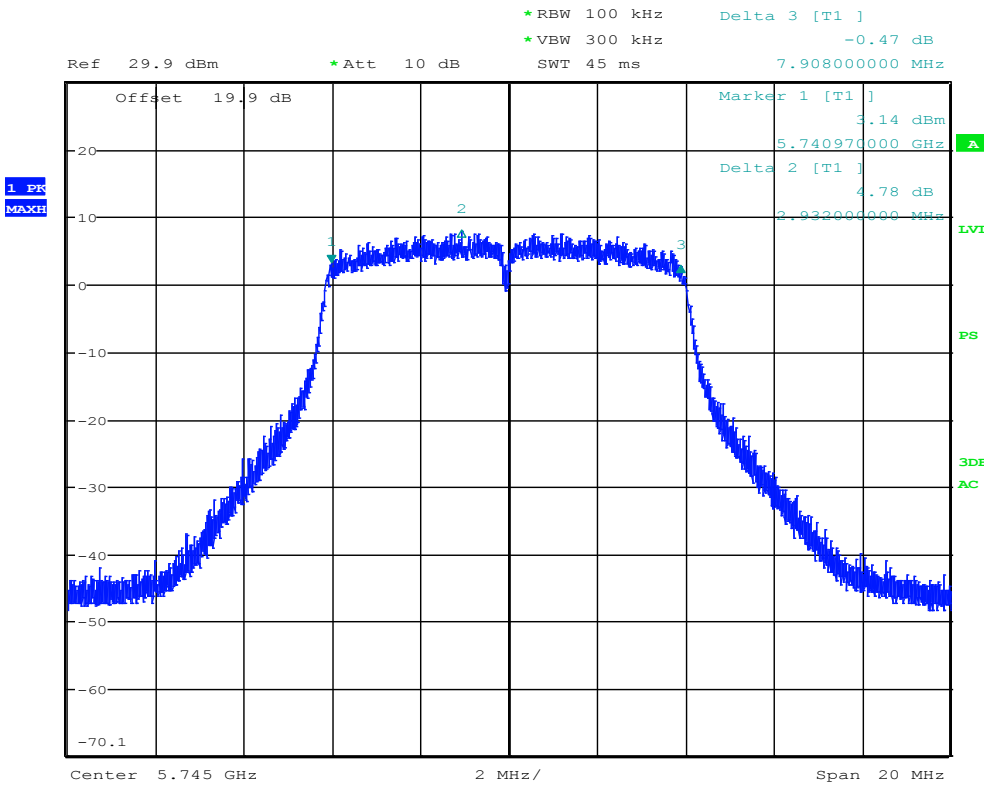
TYPE	MANUFACTURER	EMITECH NUMBER
Anechoic Chamber	EMITECH	8593
Turntable controller 1060C	EMCO	8958
Full anechoic chamber	EMITECH	10759
Turntable and mat controller NCD	MATURO	10789
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Cable N-5m	Huber + Suhner	12911
Cable N-1m	Huber + Suhner	12912
Cable N-1.5m	Suhner	6884
Cable N-1m	SUCOFLEX	14302
Cable N-2m	SUCOFLEX	14303
Cable N-2.5m	SUCOFLEX	14304
Cable N-4m	SUCOFLEX	14305
Cable N-1.5m	-	9398
Cable k-20cm	STORM MICROWAE	8974
Cable k-20cm	STORM MICROWAE	8975
Spectrum Analyzer FSP40	Rohde & Schwarz	4088
Biconical antenna VHBB 9124	Schwarzbeck	8526
Biconical antenna 3110	Emco	7240
Log periodic antenna UHALP 9108A	Schwarzbeck	8543
Log periodic antenna HL223	Rohde & Schwarz	7190
Antenna 3115	EMCO	8535
Antenna 3117	ETS-Lindgren	10771
Antenna M3160-09	ETS-Lindgren	8786
Antenna ATM WR28	Elhyte	4353
Low-noise amplifier 8447D	Hewlett Packard	8511
Low-noise amplifier ZFL-1000LN	Mini-circuit	10730
Low-noise amplifier S005180M3201	LUCIX Corp.	10739
Low-noise amplifier S005180M3201	LUCIX Corp.	12590
Low-noise amplifier S180265L3201 LNA	LUCIX Corp.	8704
Low-noise amplifier ALC ALS2640-30-10	Elhyte	4354
Low pass filter LP03/1000-7GH	Filtek	4087
Low Pass Filter LPM15601	Microtronics	6606
High Pass Filter LPM15600	Microtronics	6607
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750
Software	BAT-EMC V3.16.0.64	0000

Peak power density

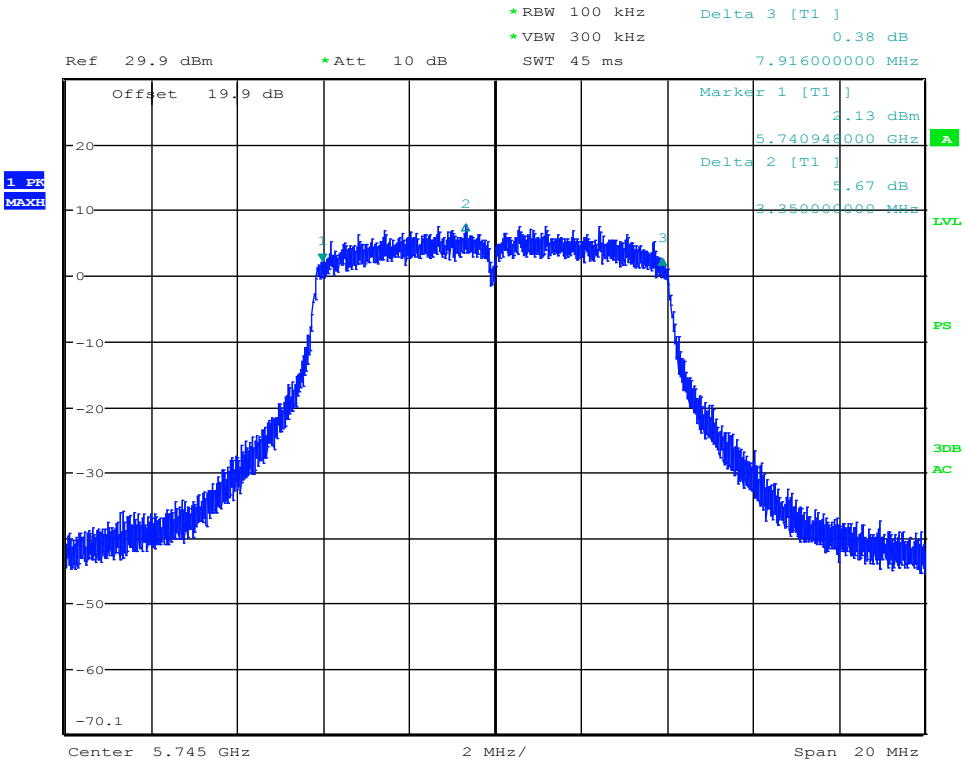
TYPE	MANUFACTURER	EMITECH NUMBER
Satellite synchronized frequency standard GPS8	ACQUISYS	8896
Spectrum Analyzer ESU 8	Rohde & Schwarz	9403
Attenuator 20 dB DC-18GHz 20dB	Midwest Microwave	8549
Multimeter 177	Fluke	14831
Meteo station WS-9232	La Crosse Technology	8750

APPENDIX 2: 6 dB bandwidth

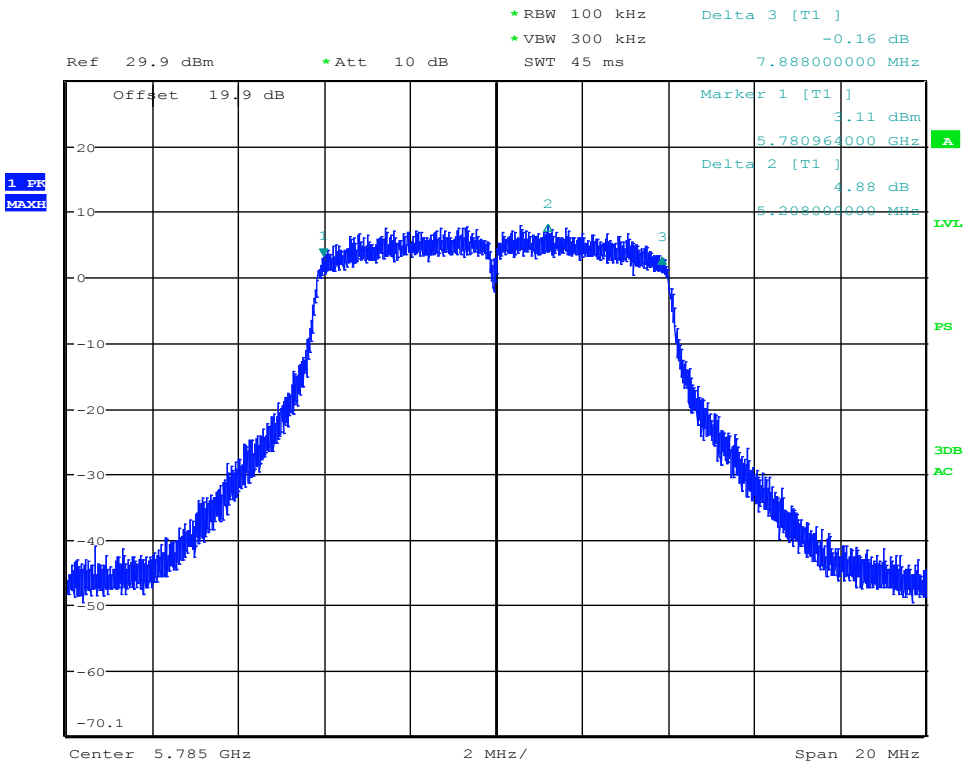
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



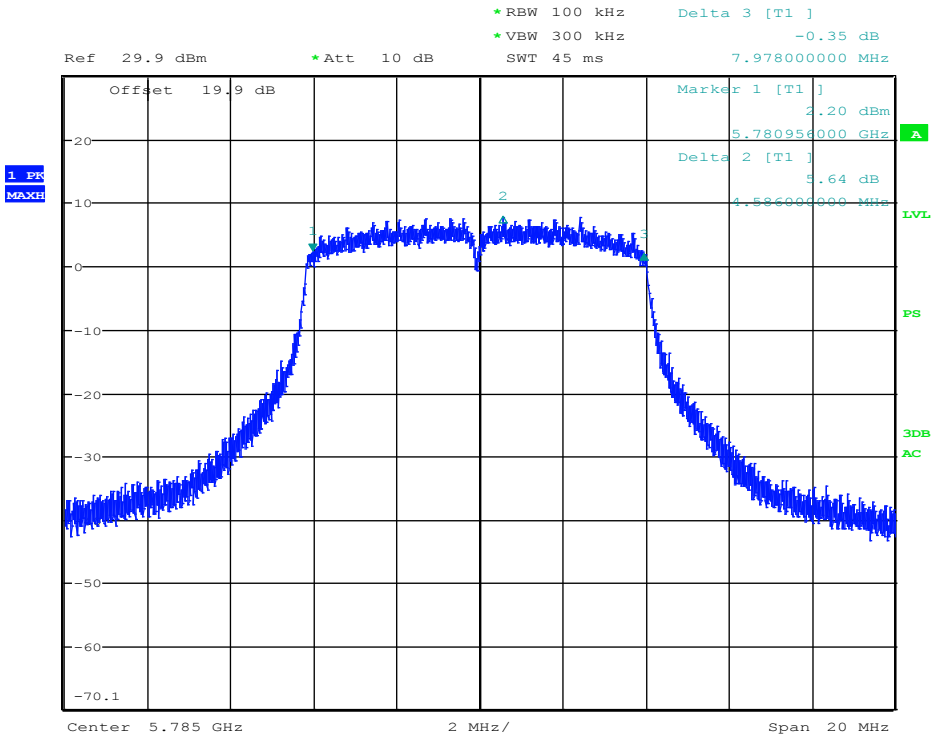
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



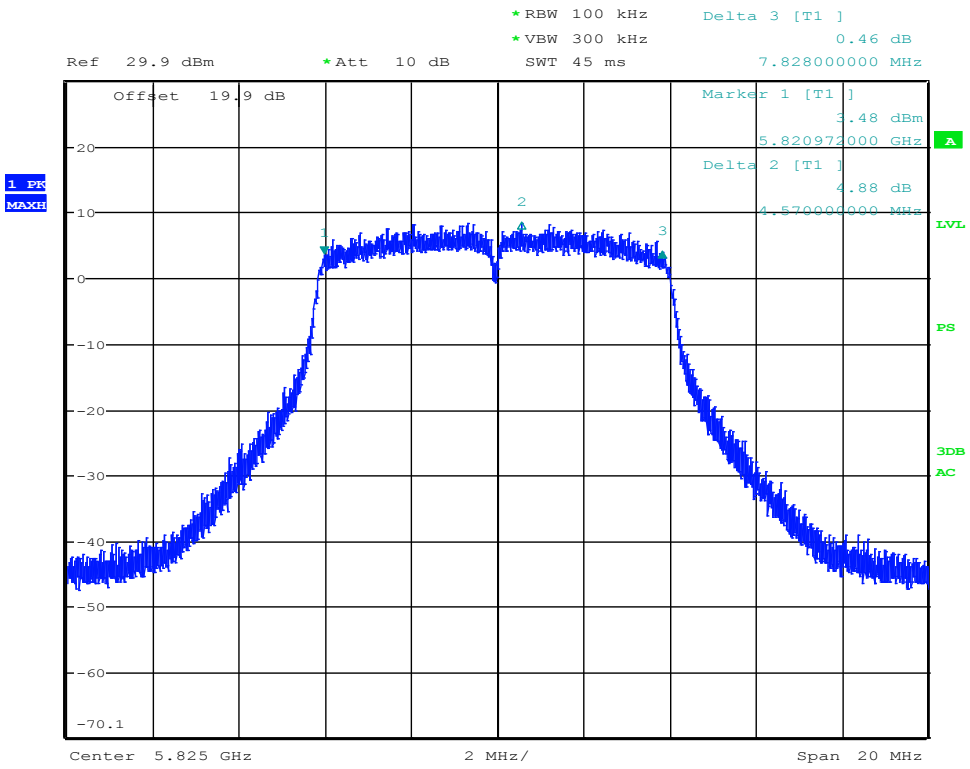
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



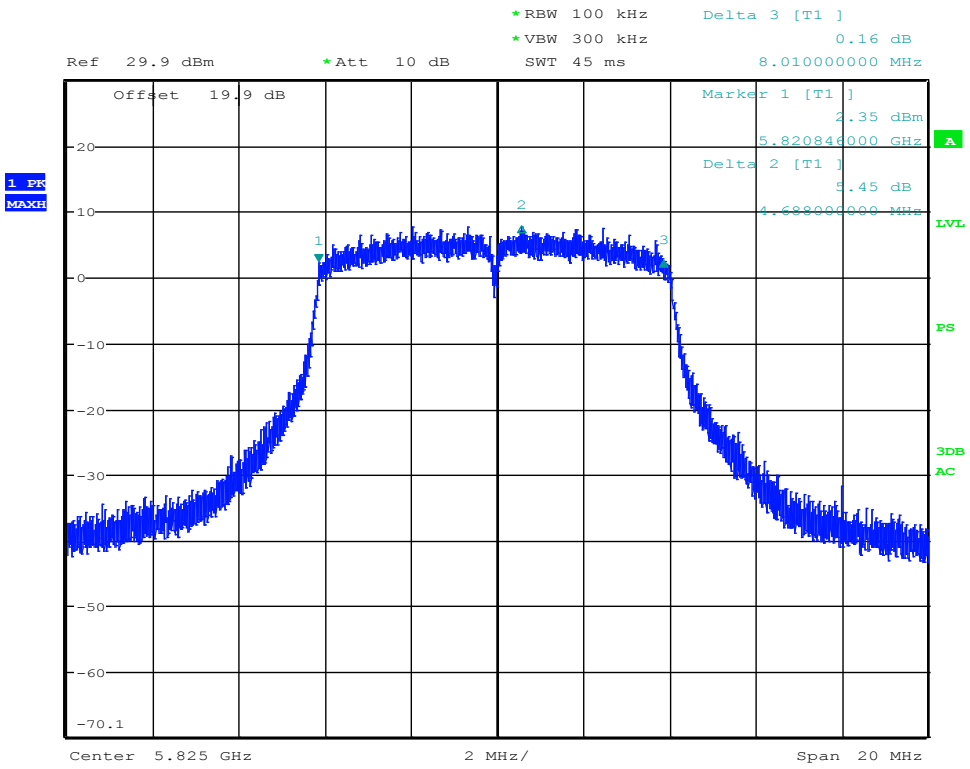
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



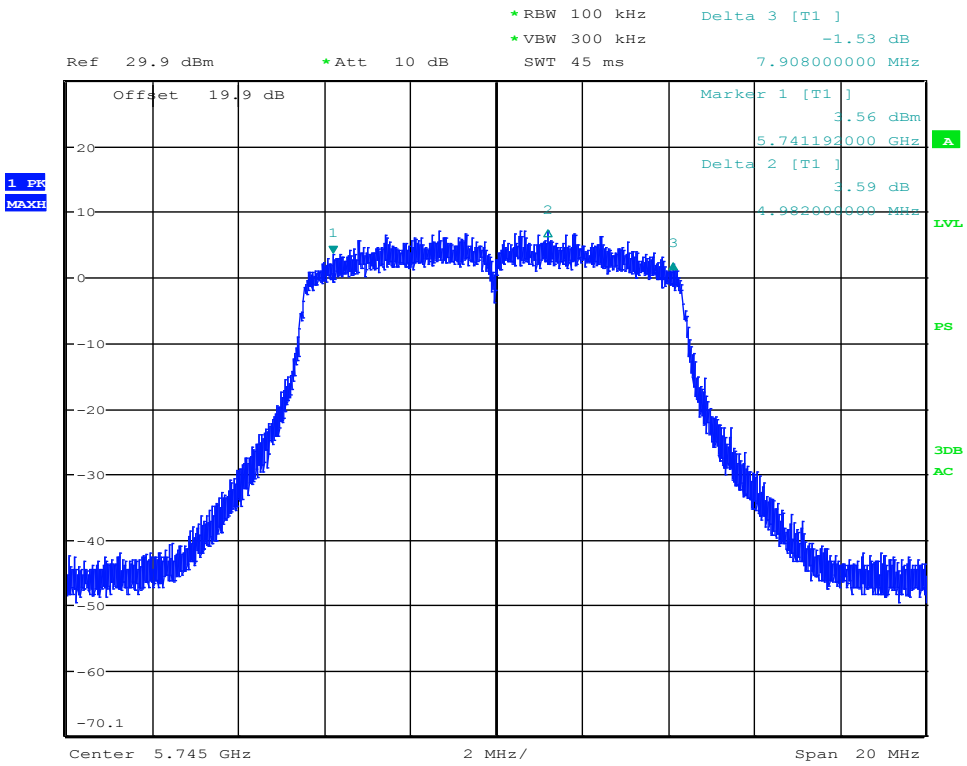
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 10 MHz



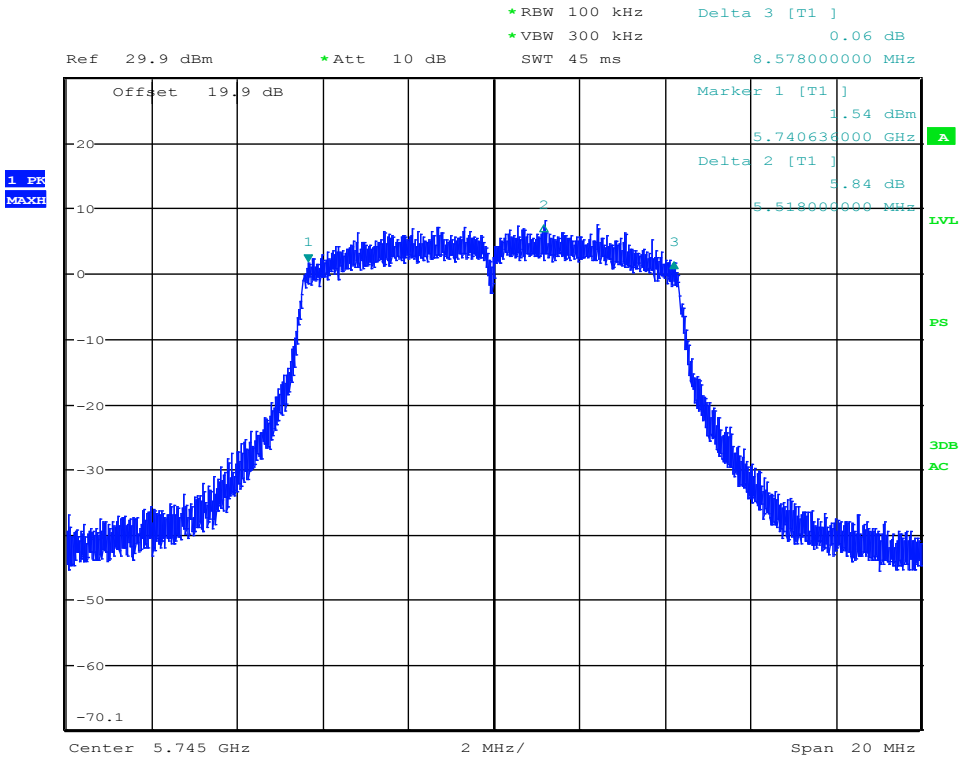
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 10 MHz



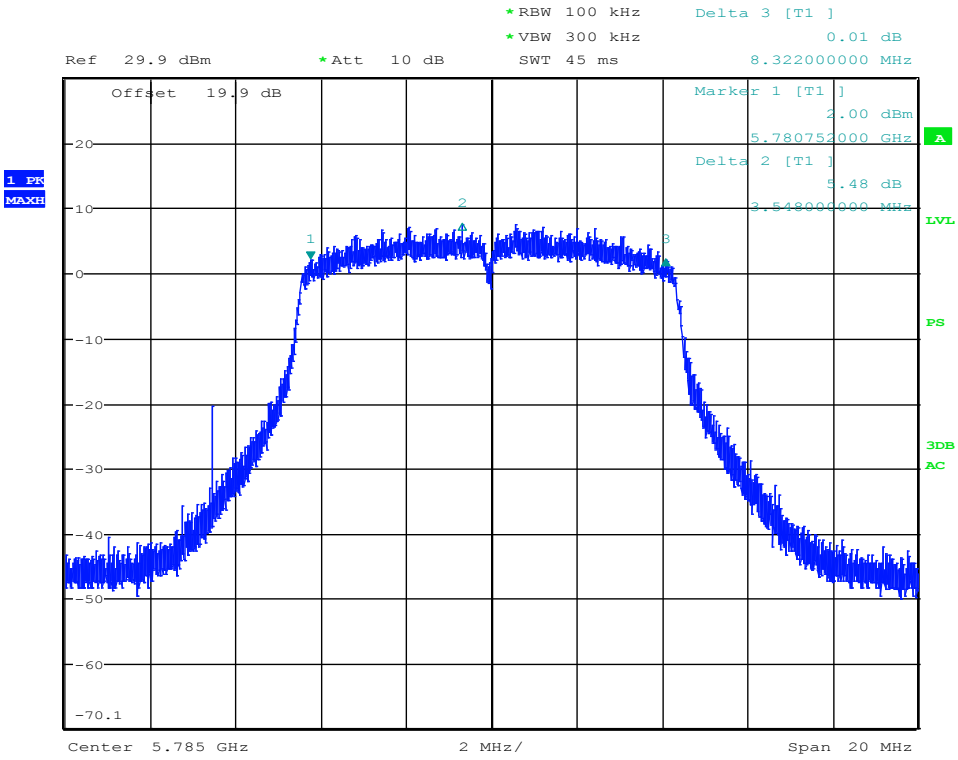
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



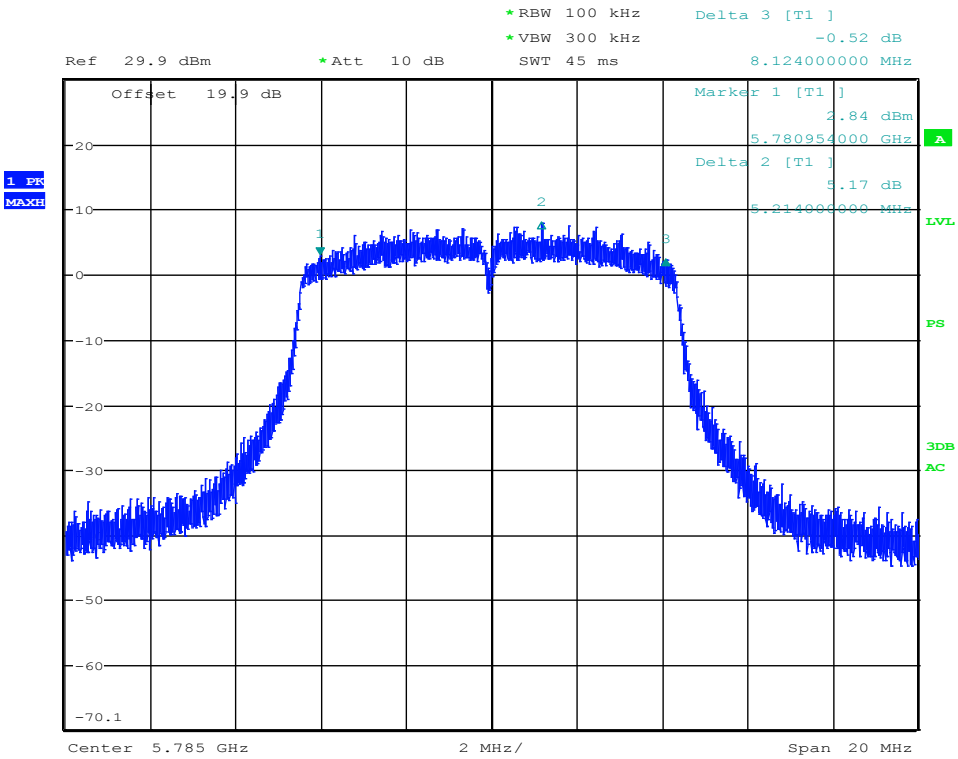
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



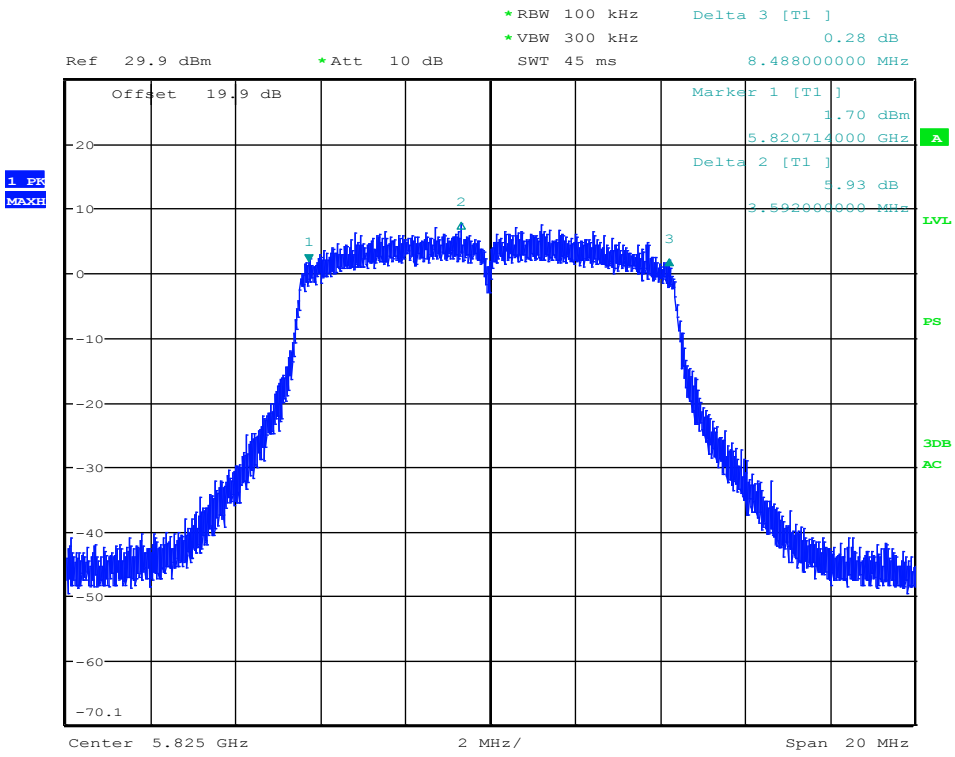
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



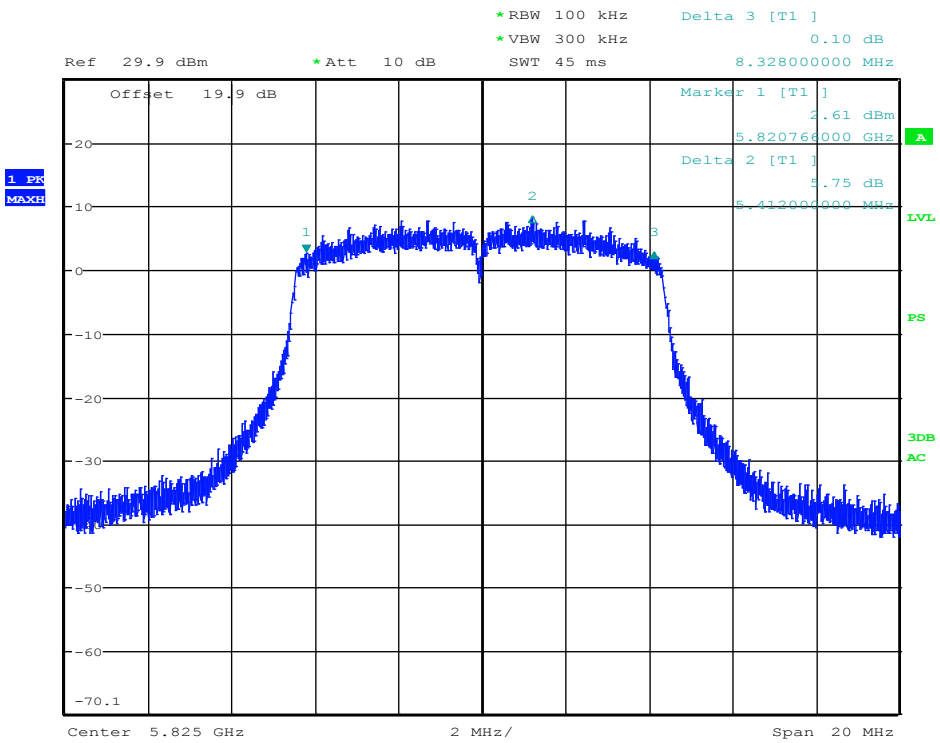
U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



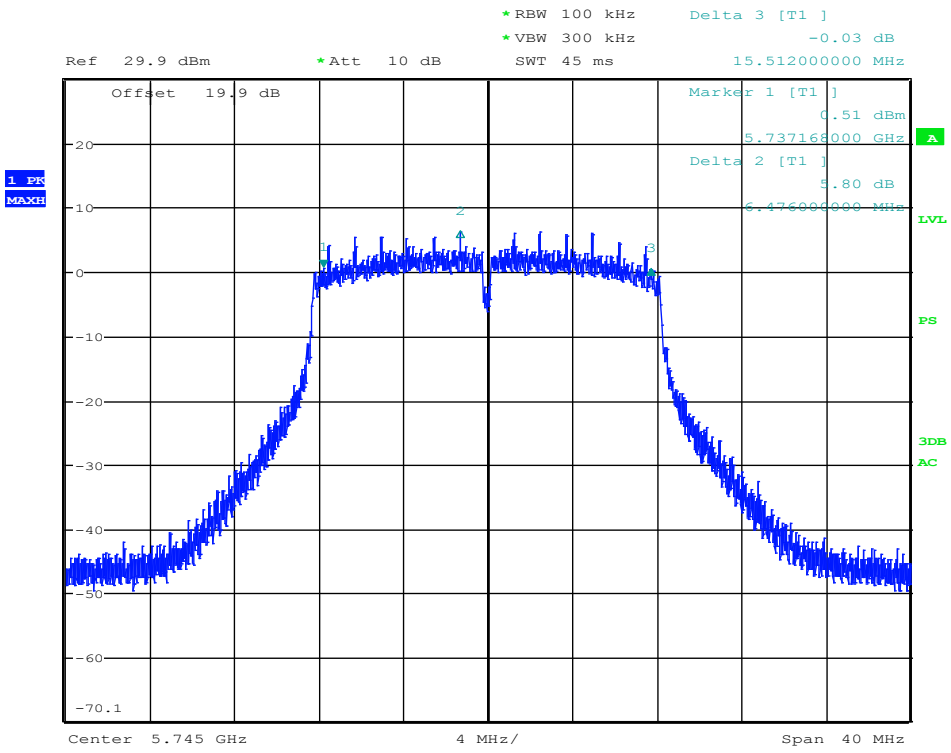
U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 10 MHz



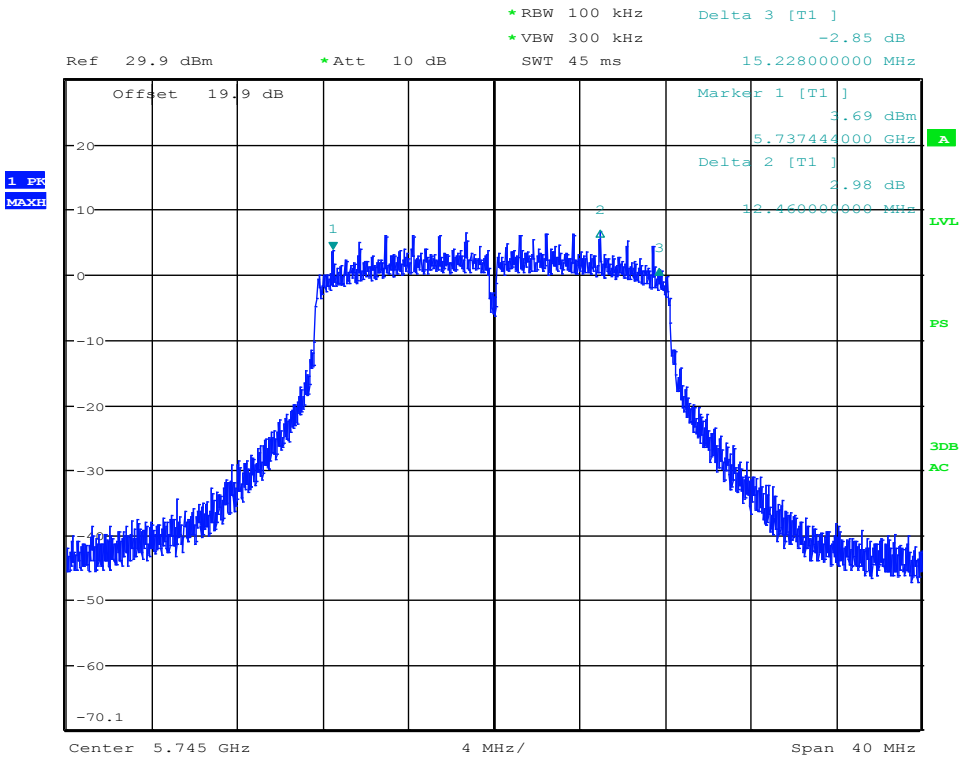
U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 10 MHz



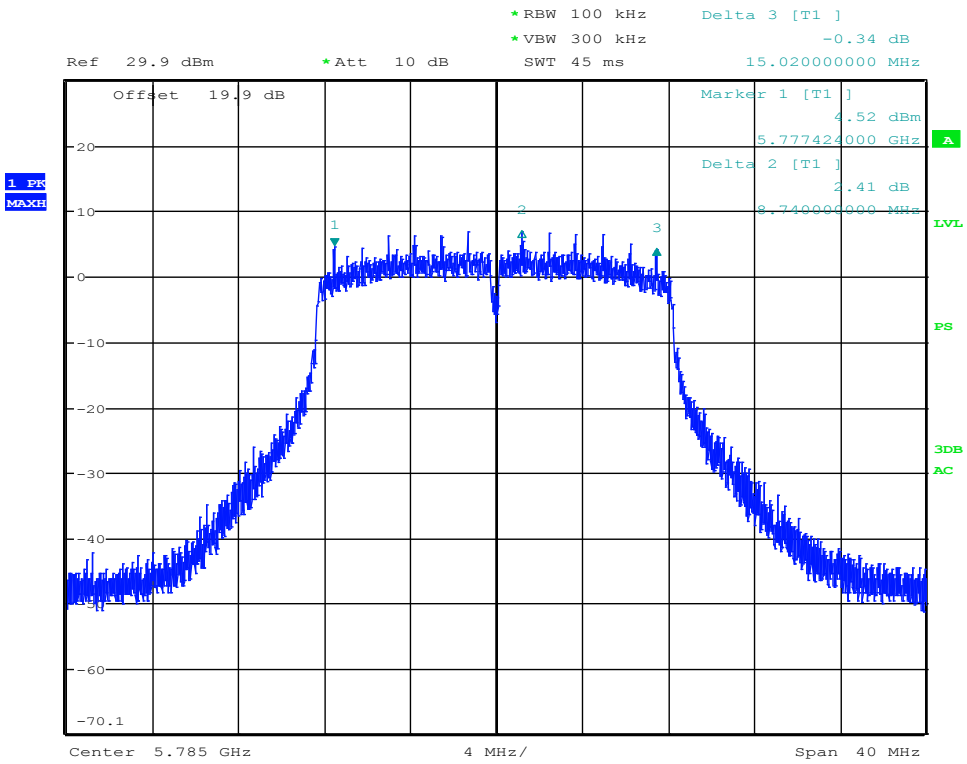
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



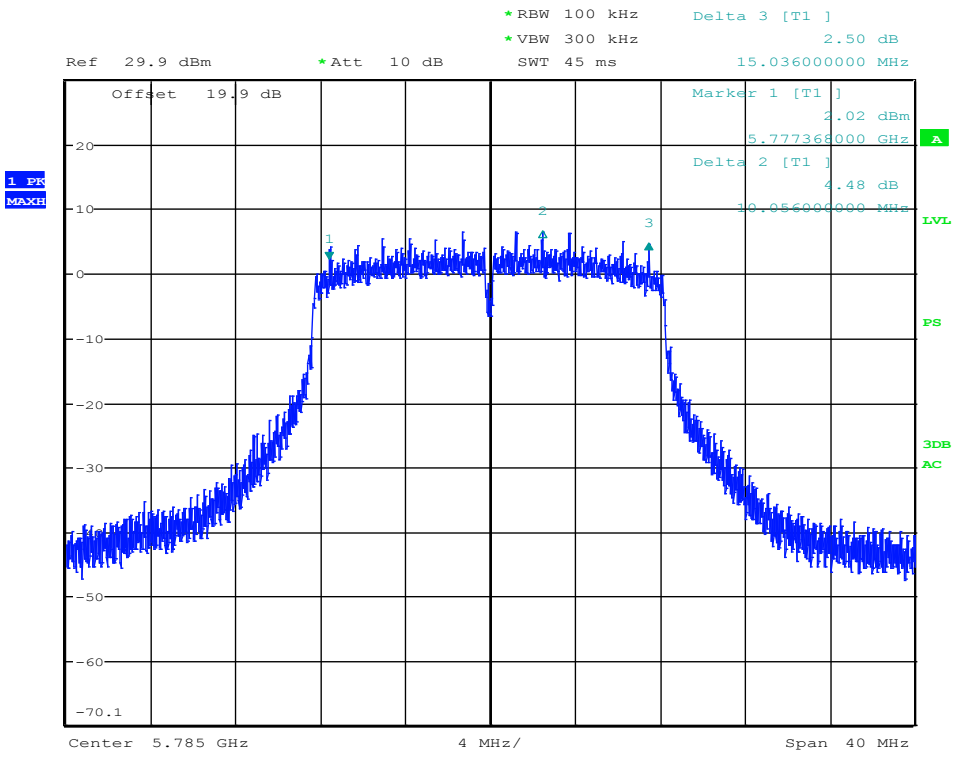
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



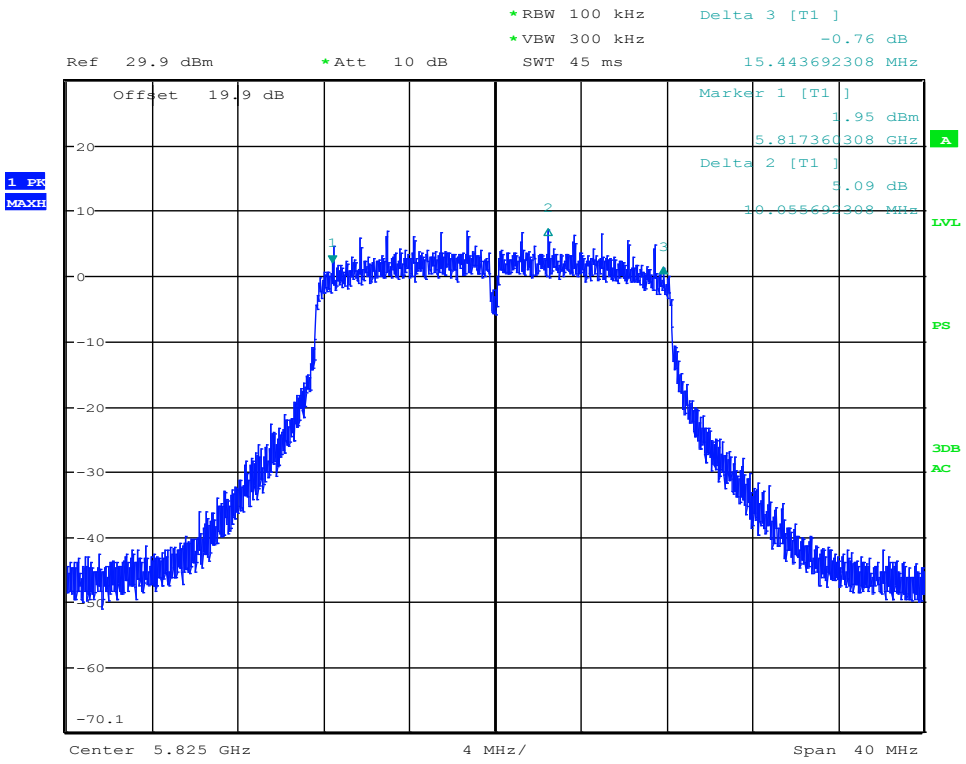
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



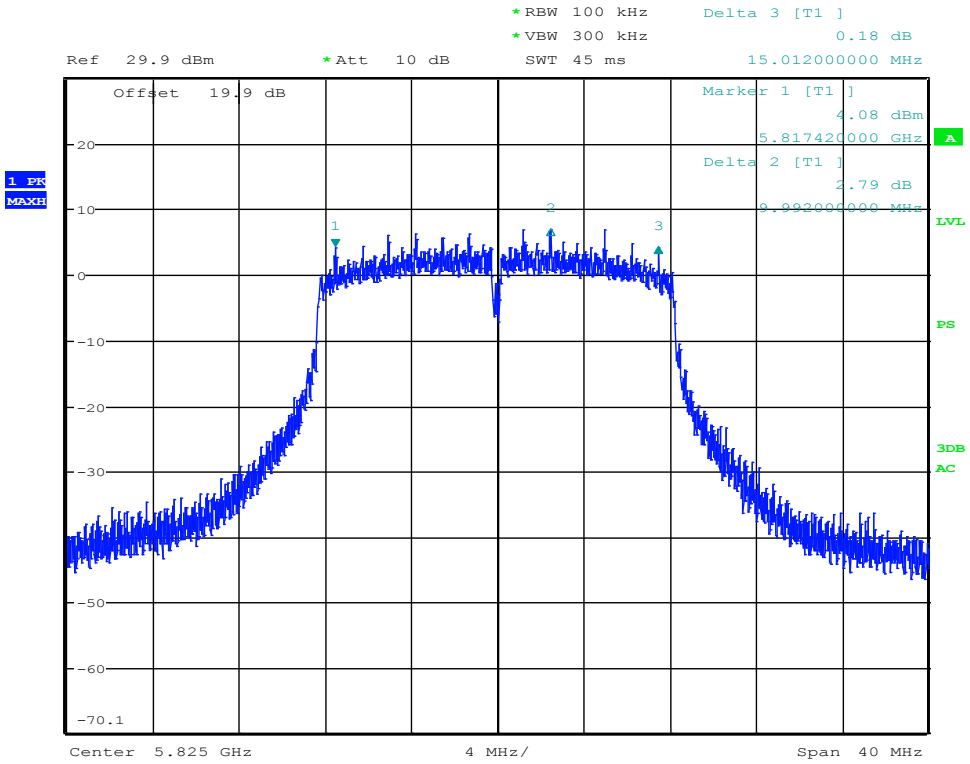
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



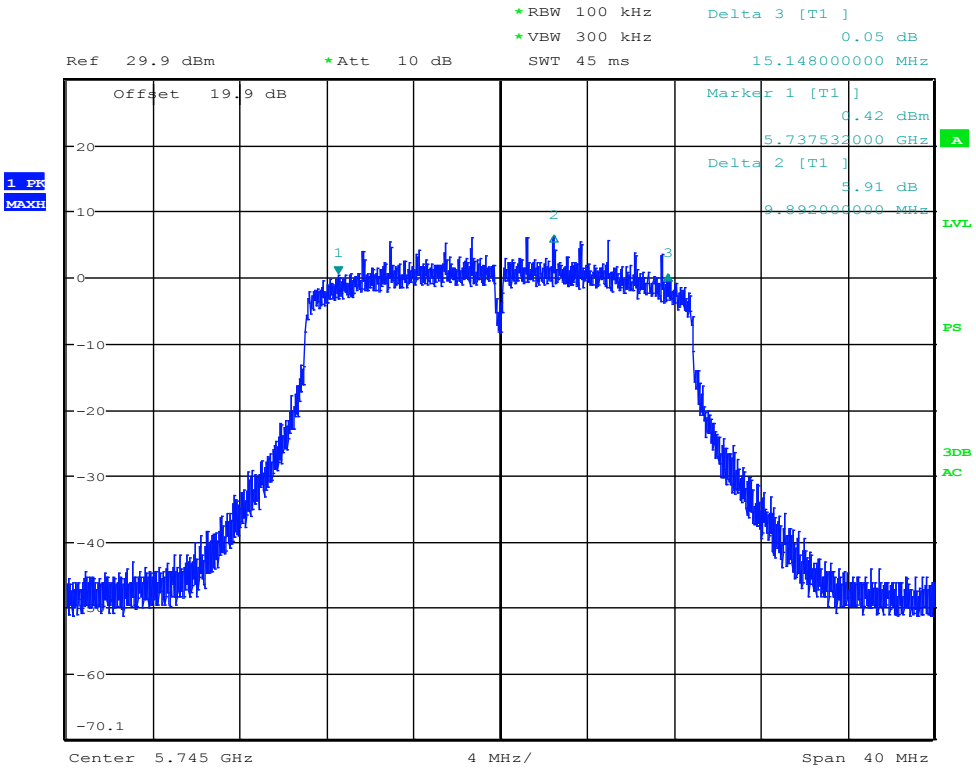
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 20 MHz



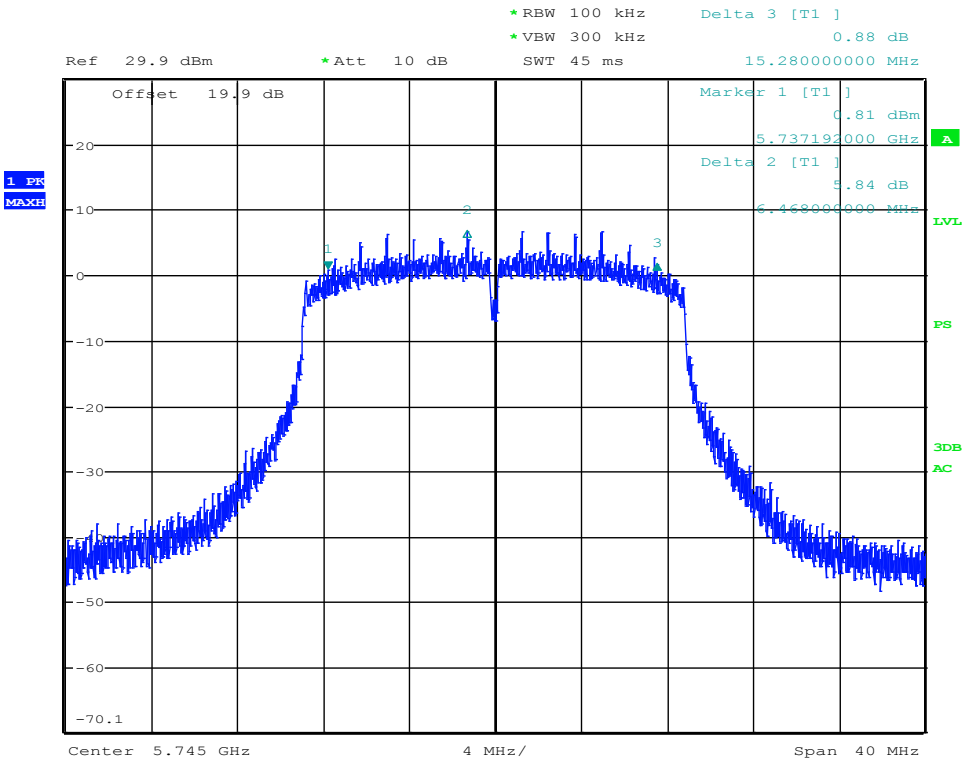
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 20 MHz



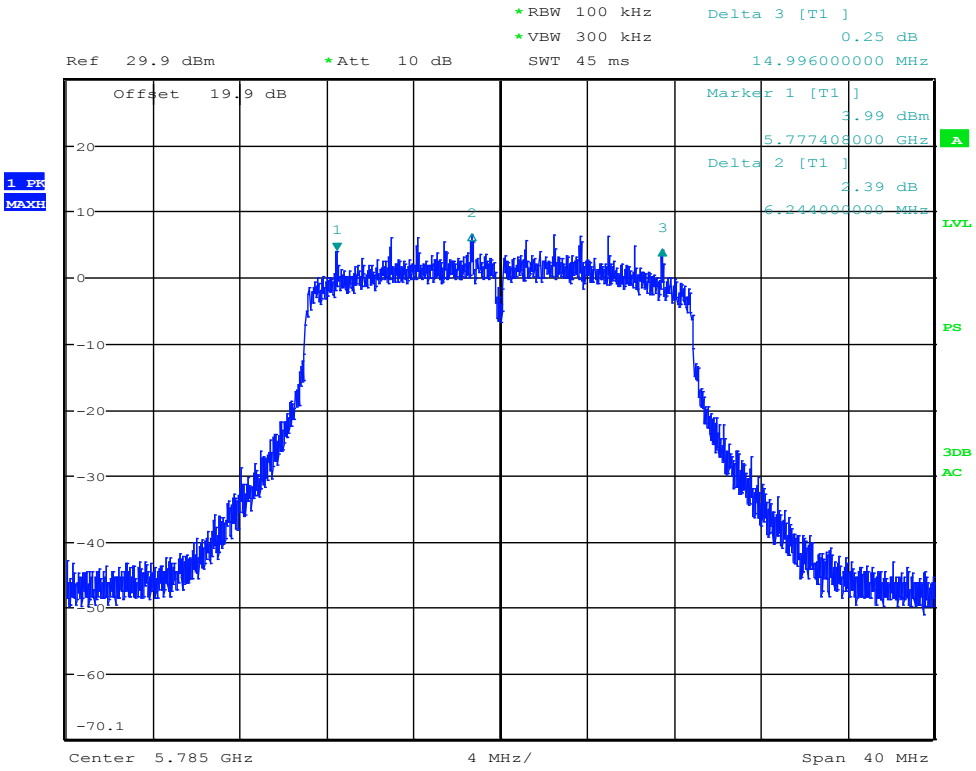
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



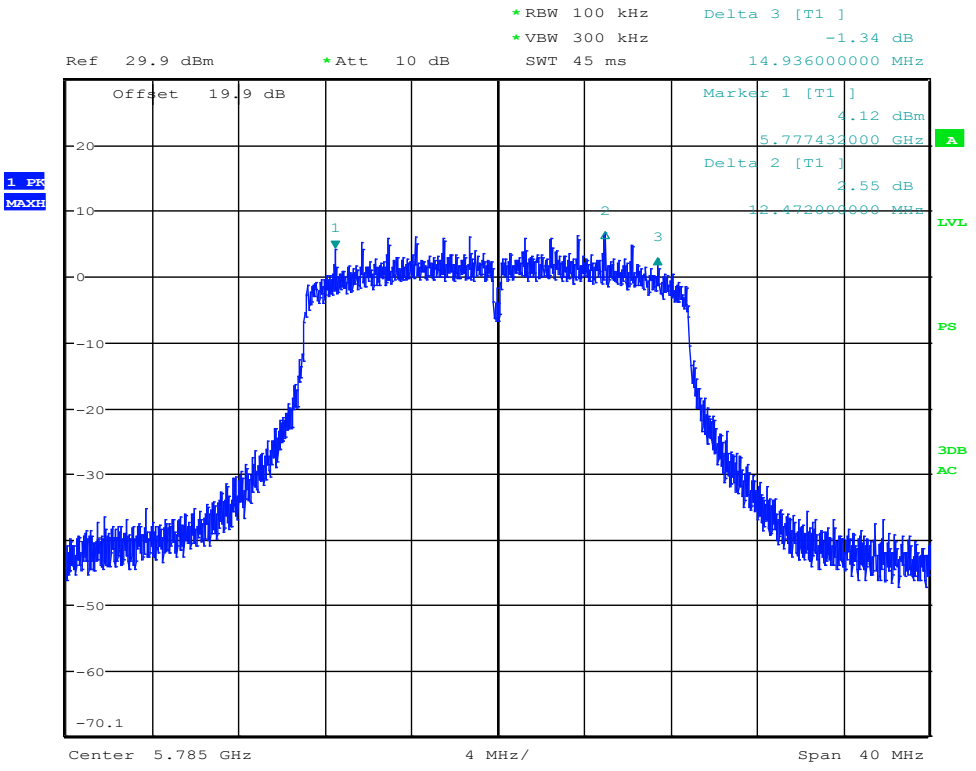
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



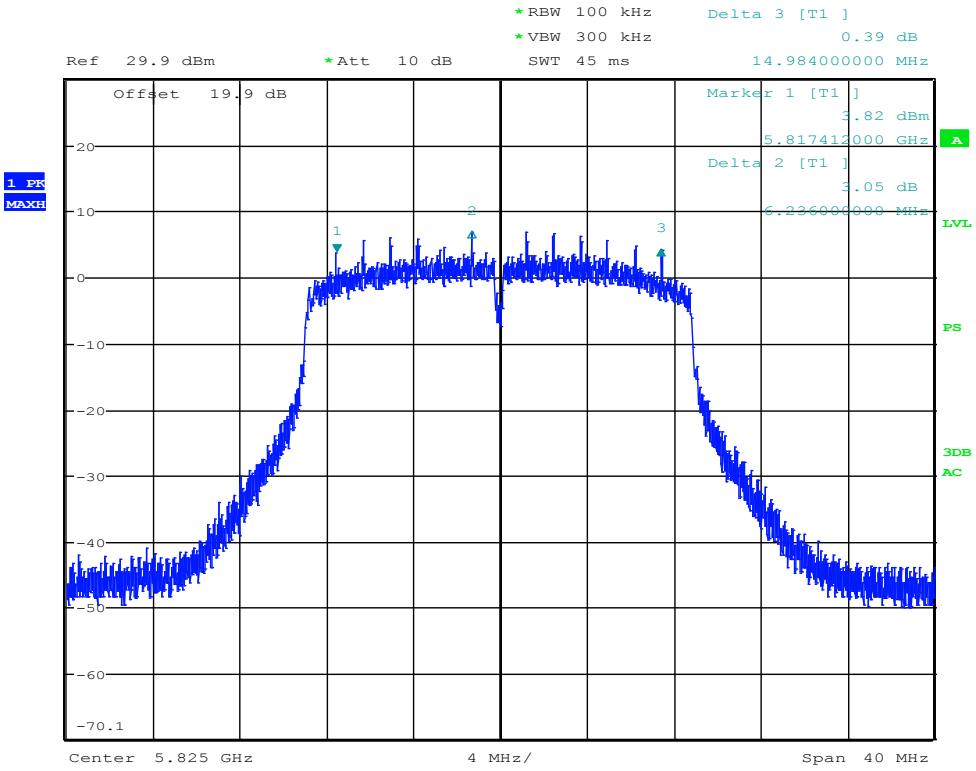
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



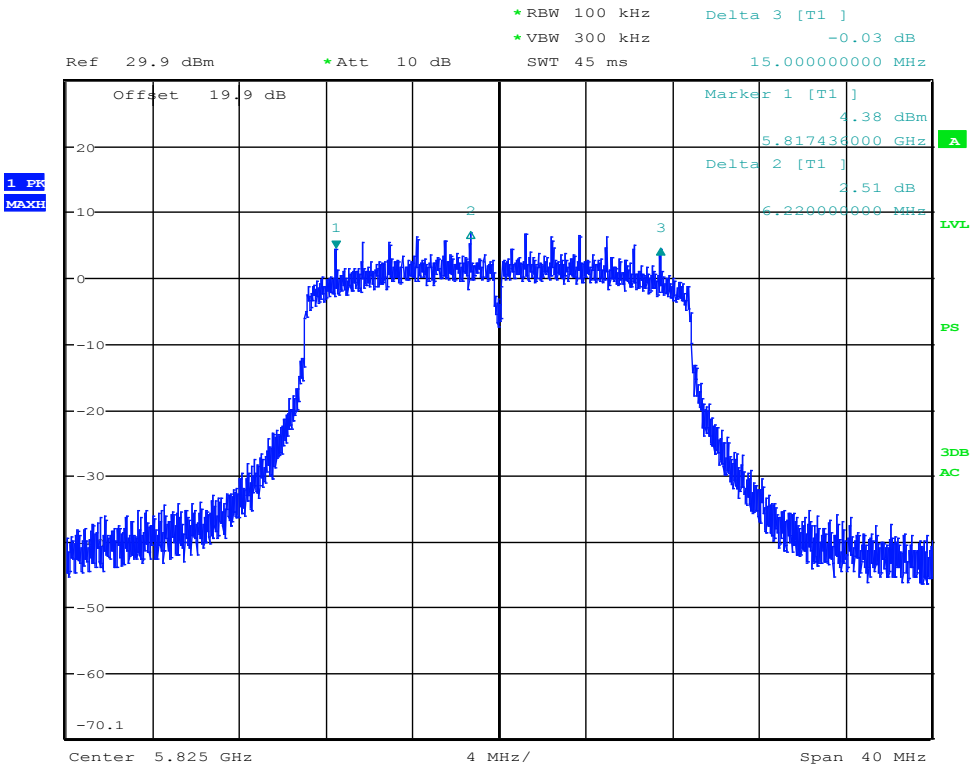
U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 20 MHz

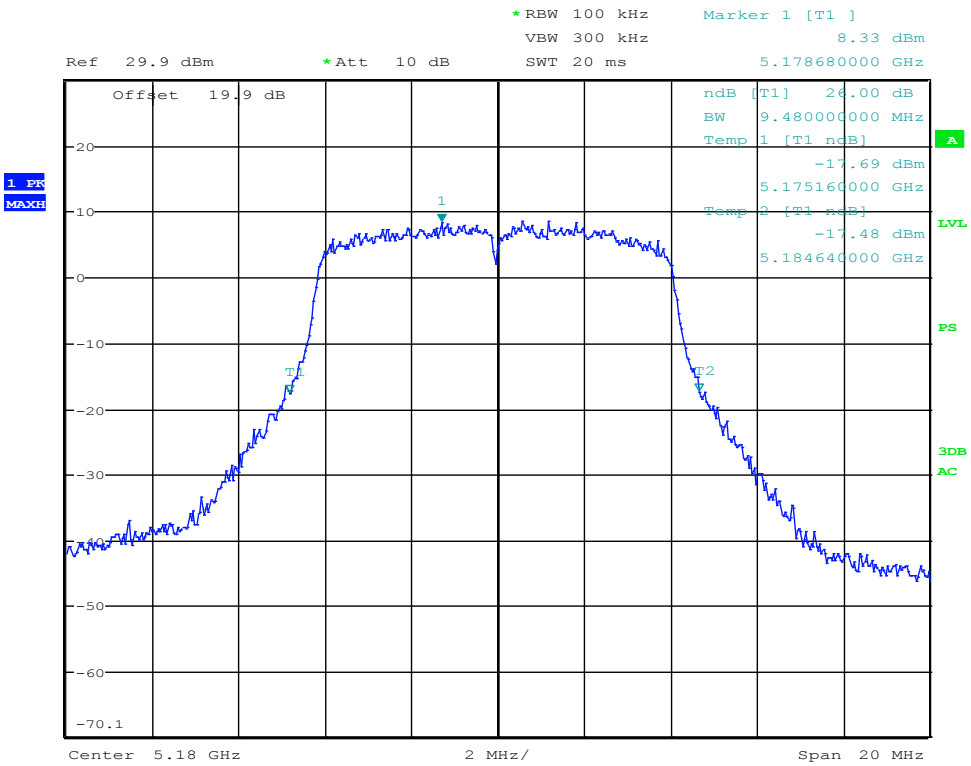


U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 20 MHz

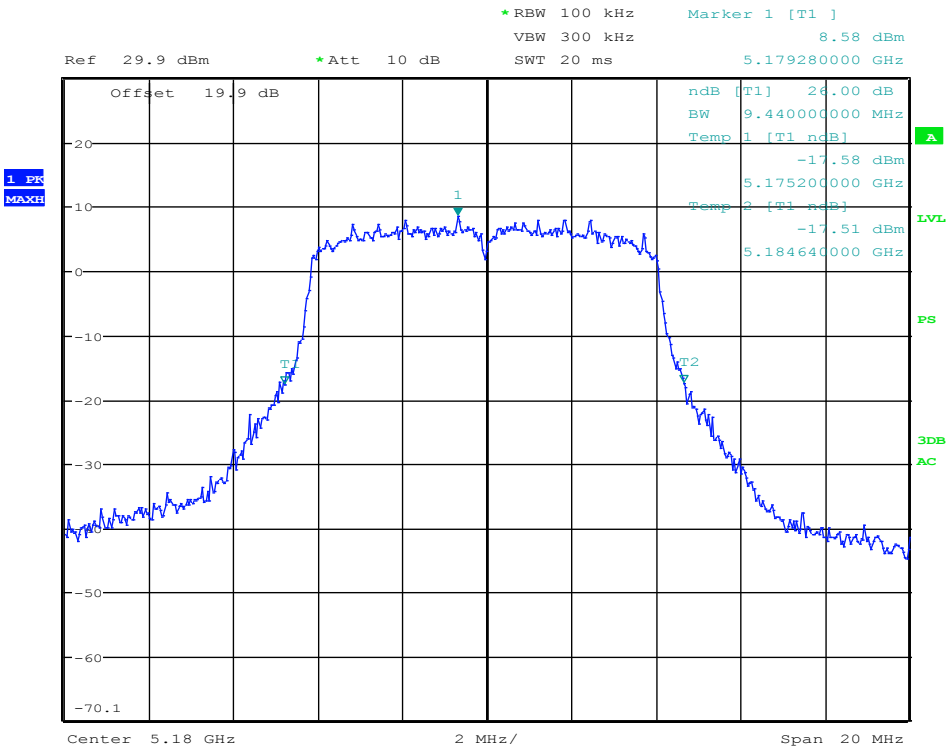


APPENDIX 3: 26 dB bandwidth

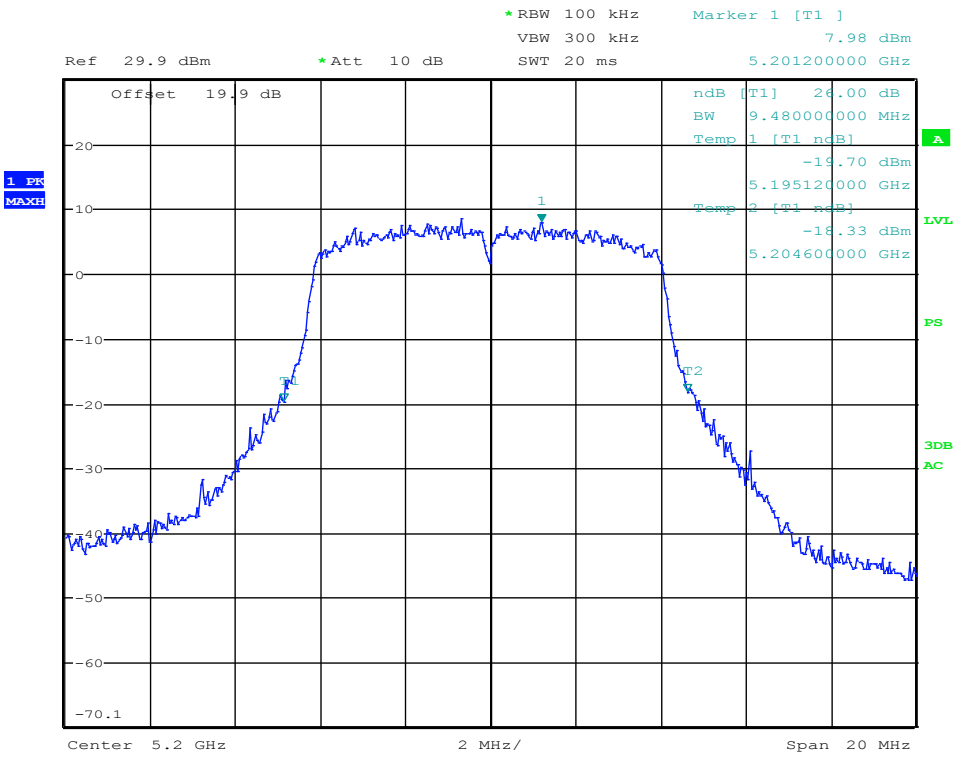
U-NII-1 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



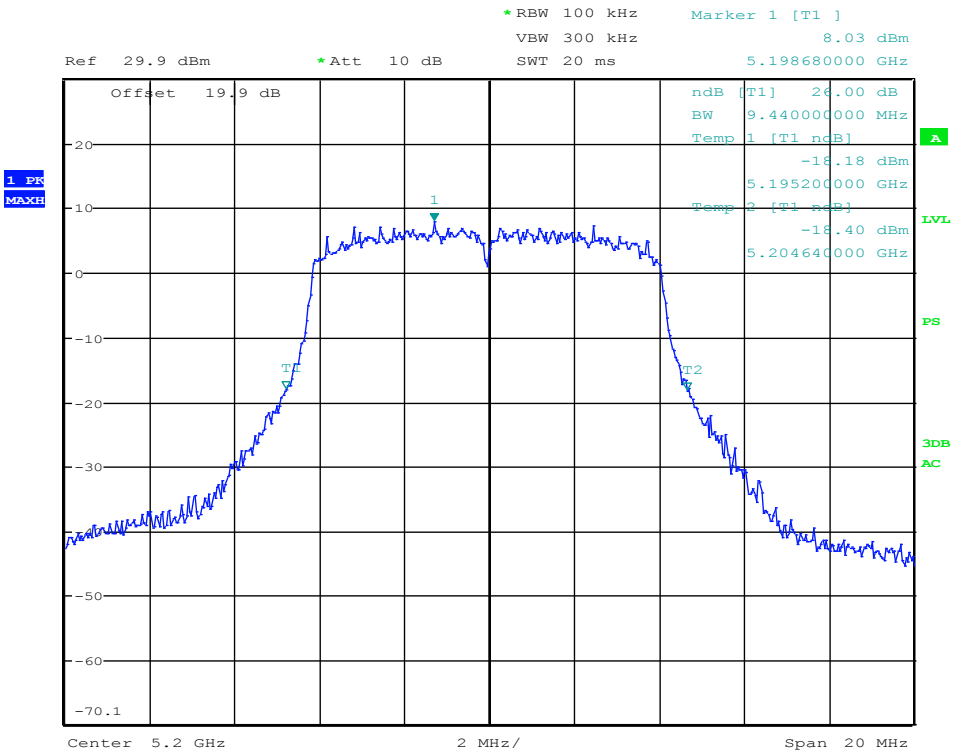
U-NII-1 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



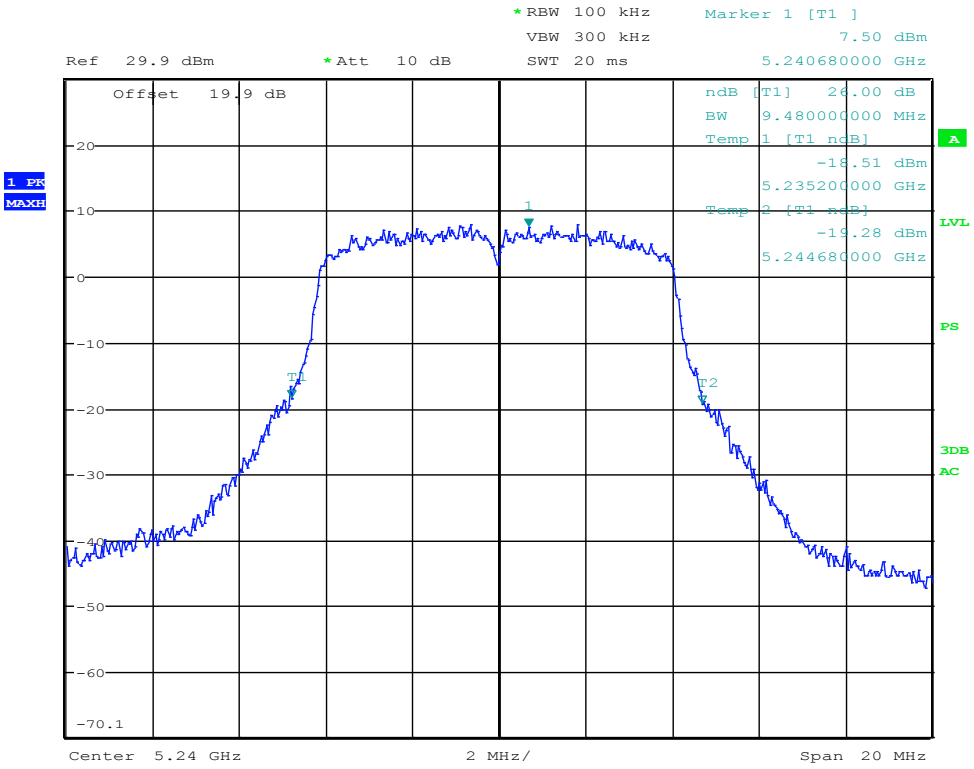
U-NII-1 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



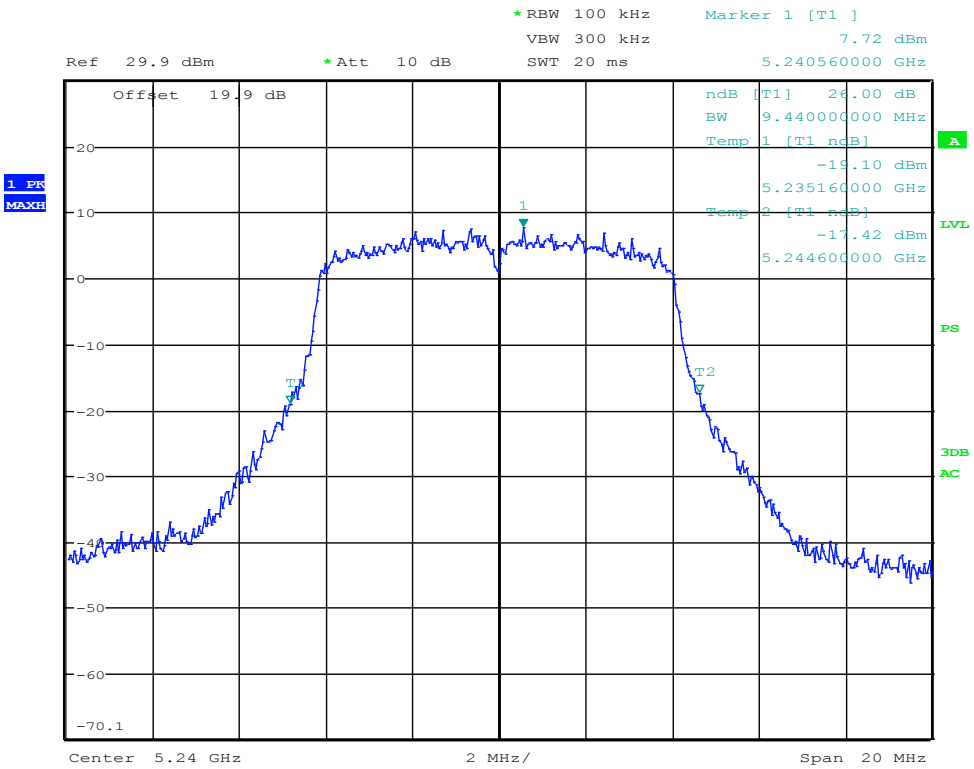
U-NII-1 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



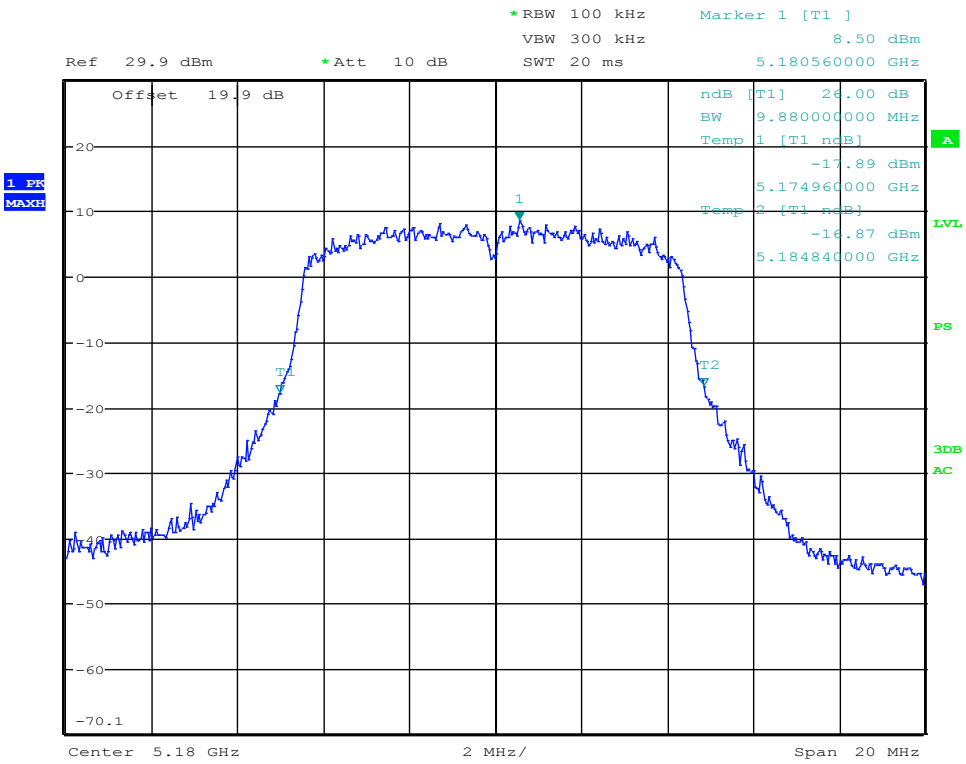
U-NII-1 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 10 MHz



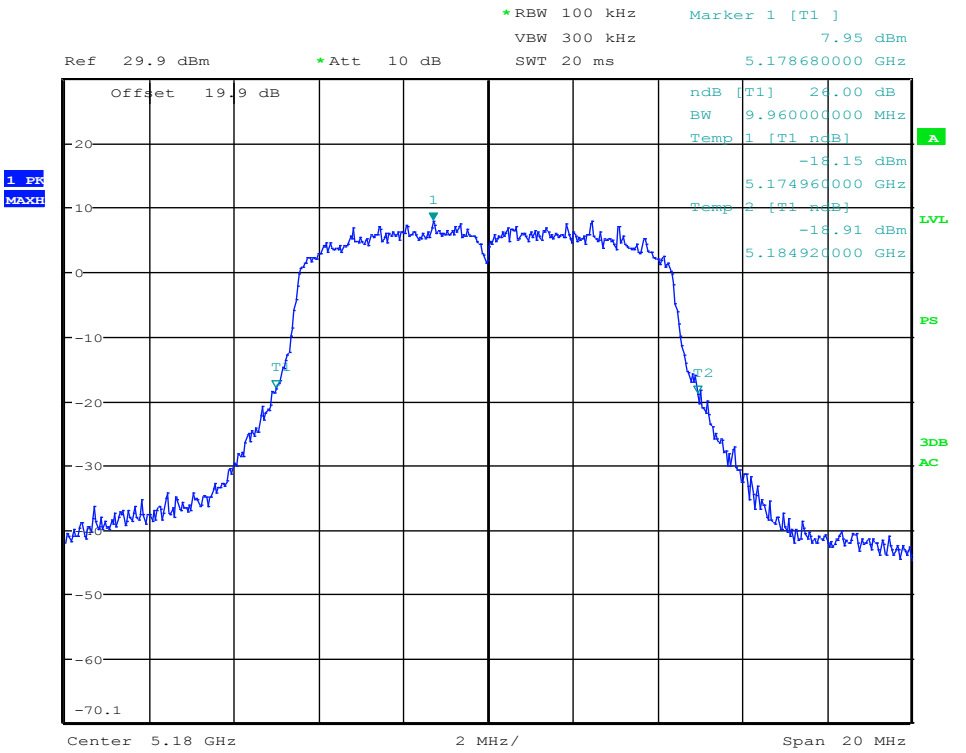
U-NII-1 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 10 MHz



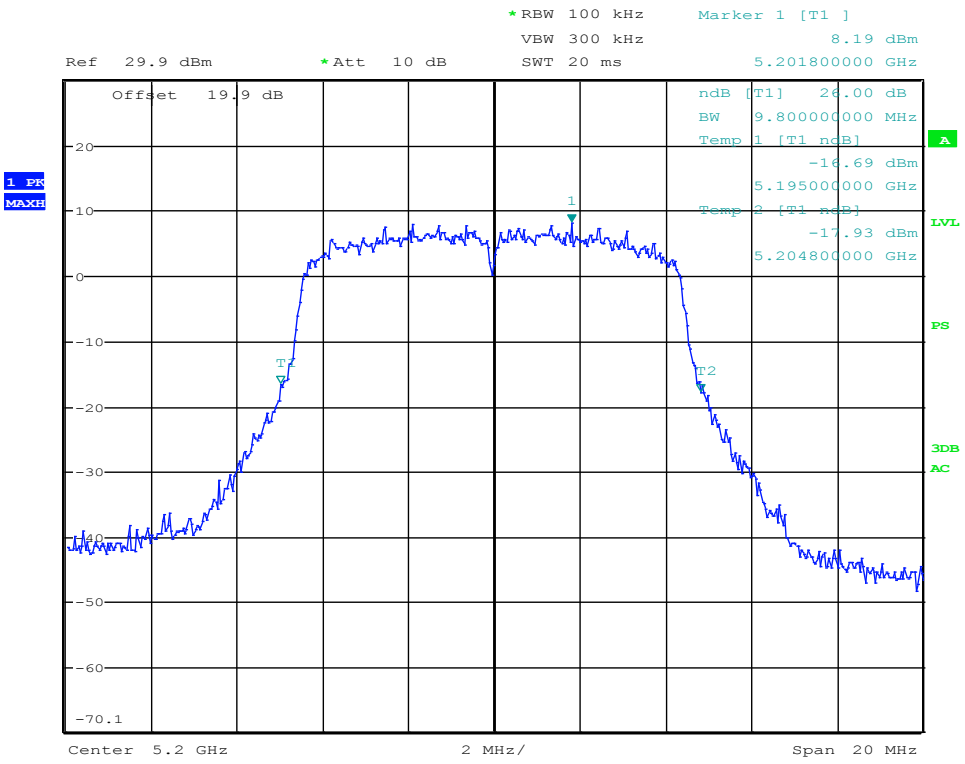
U-NII-1 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



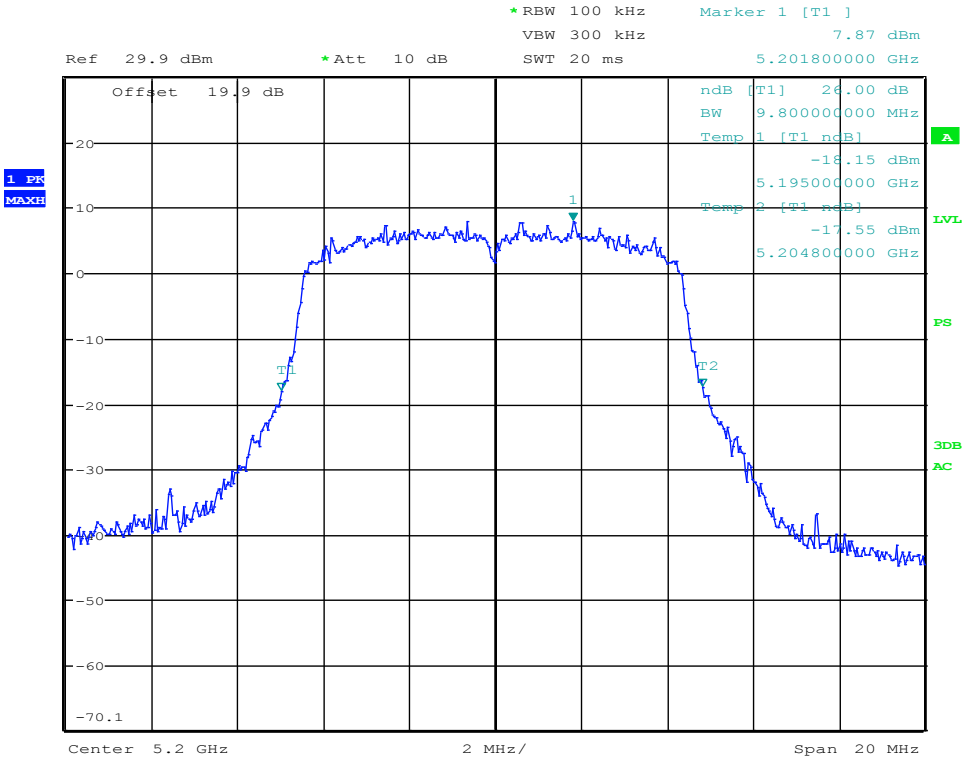
U-NII-1 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



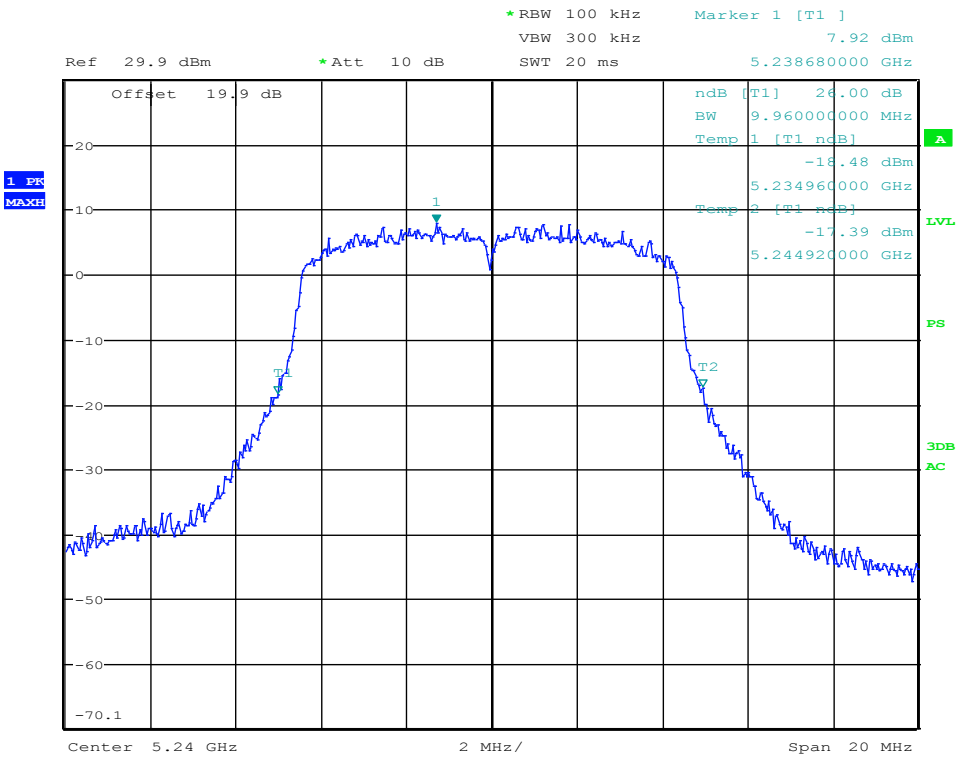
U-NII-1 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



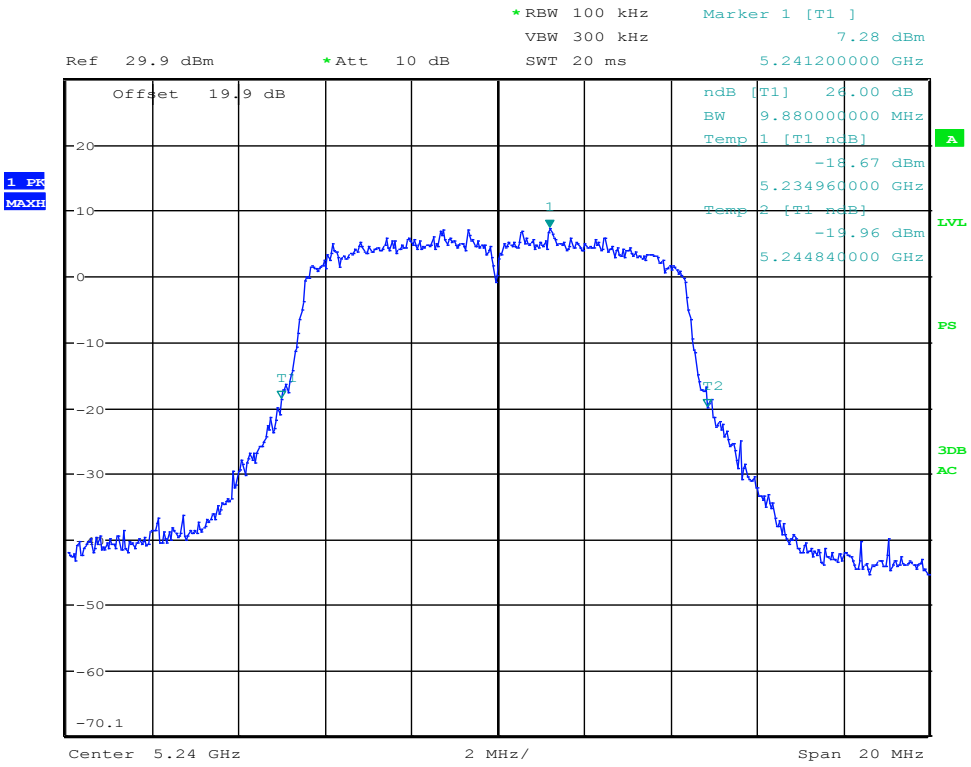
U-NII-1 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



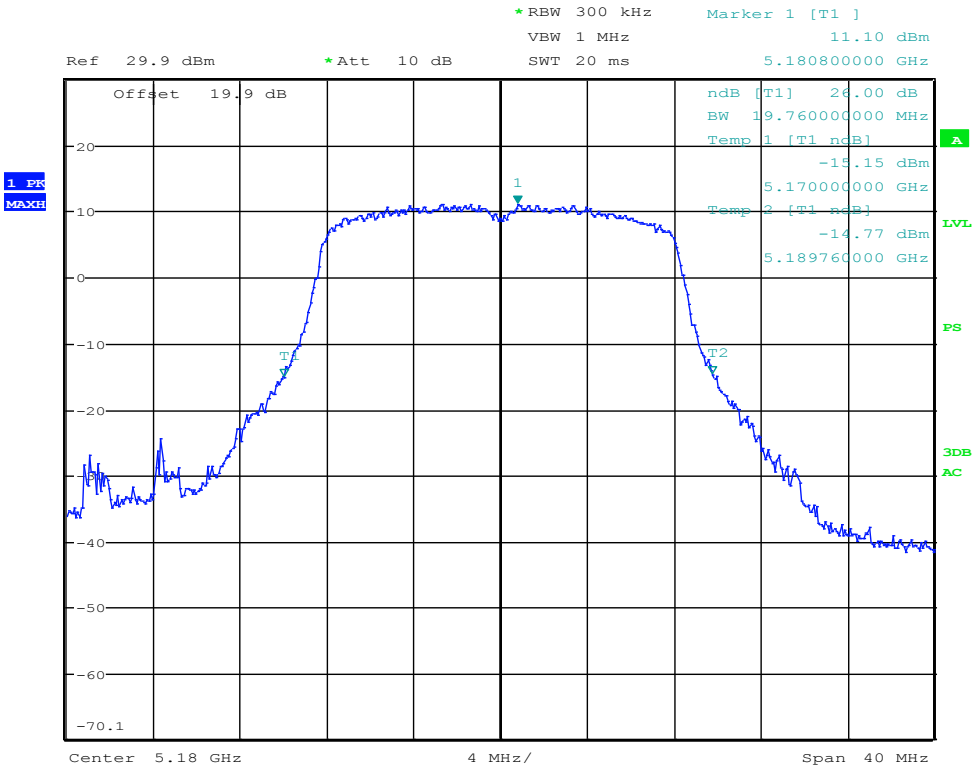
U-NII-1 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 10 MHz



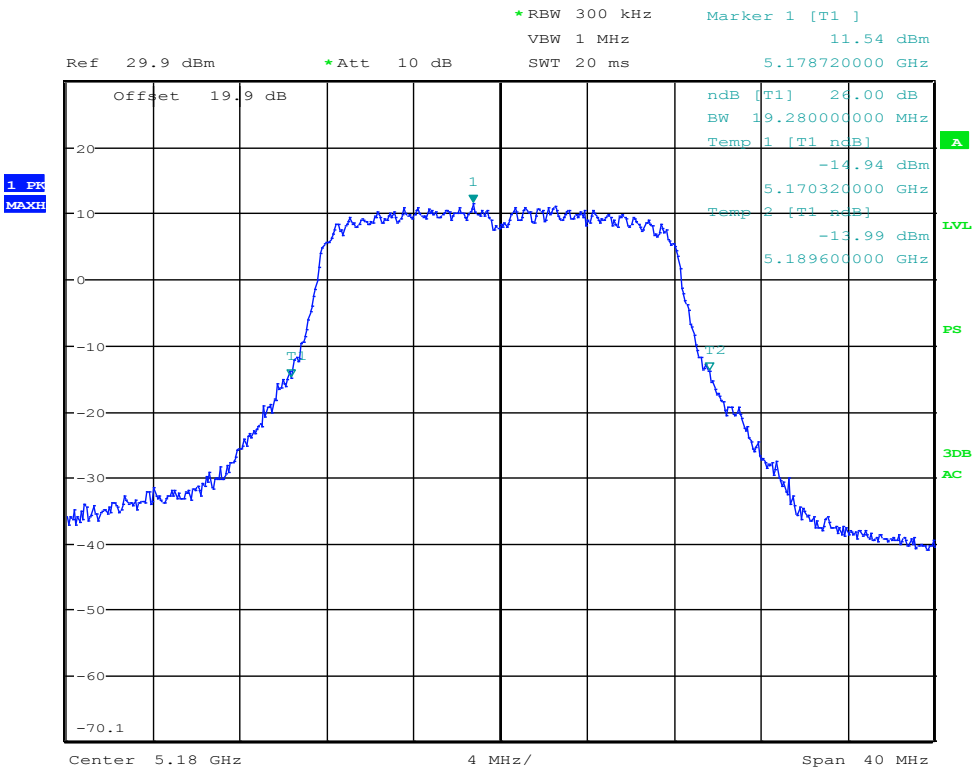
U-NII-1 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 10 MHz



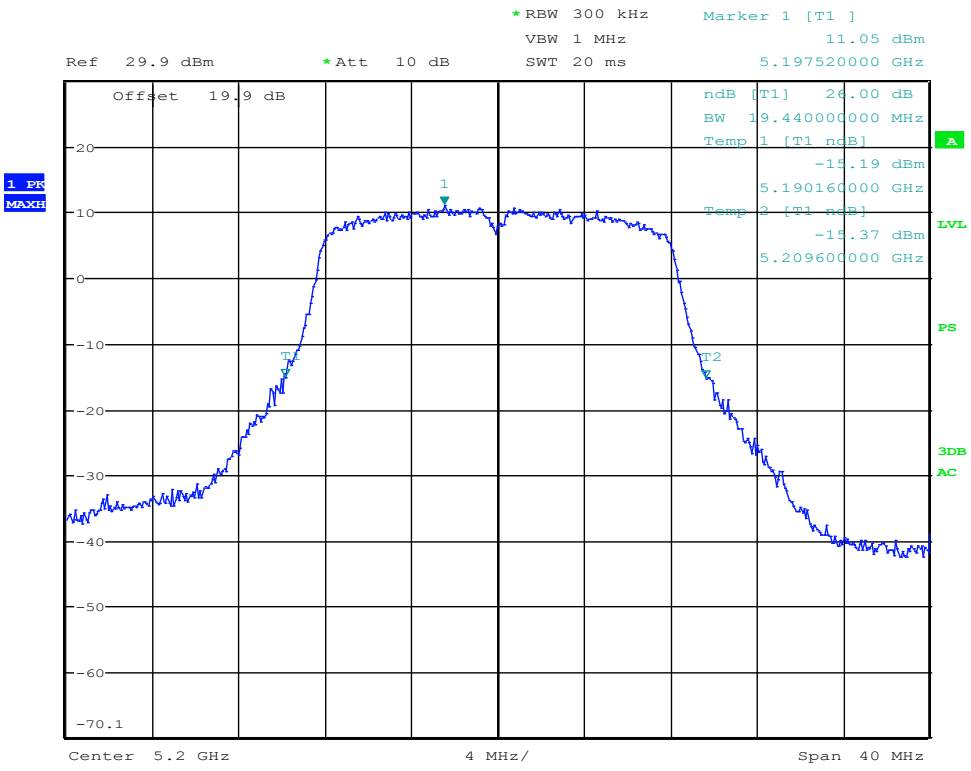
U-NII-1 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



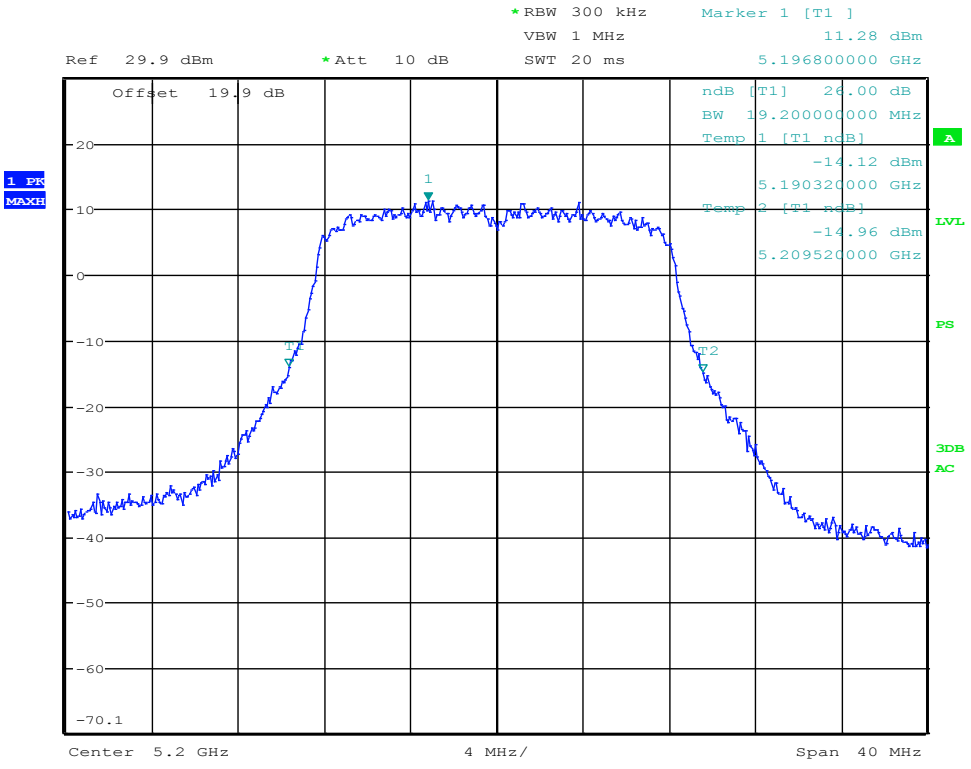
U-NII-1 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



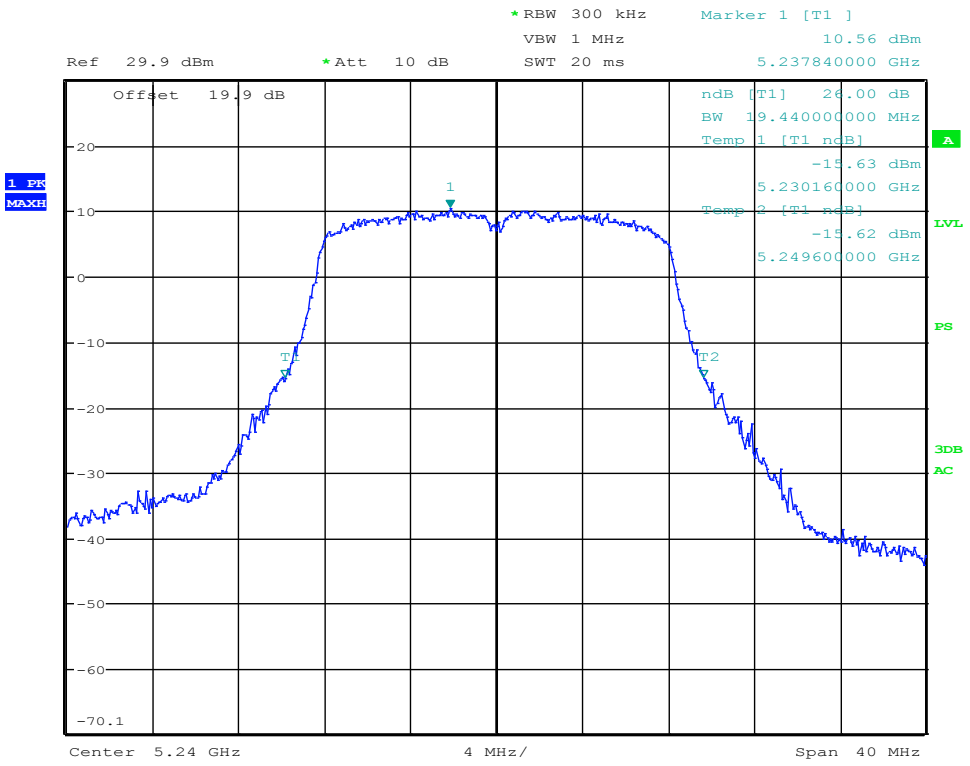
U-NII-1 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



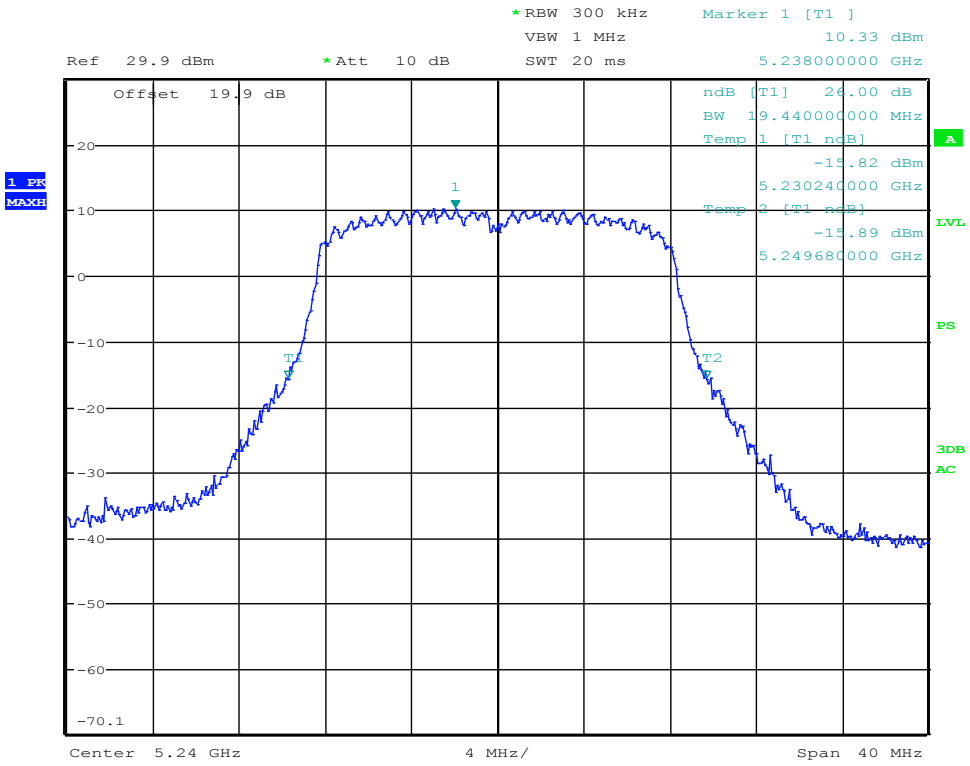
U-NII-1 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



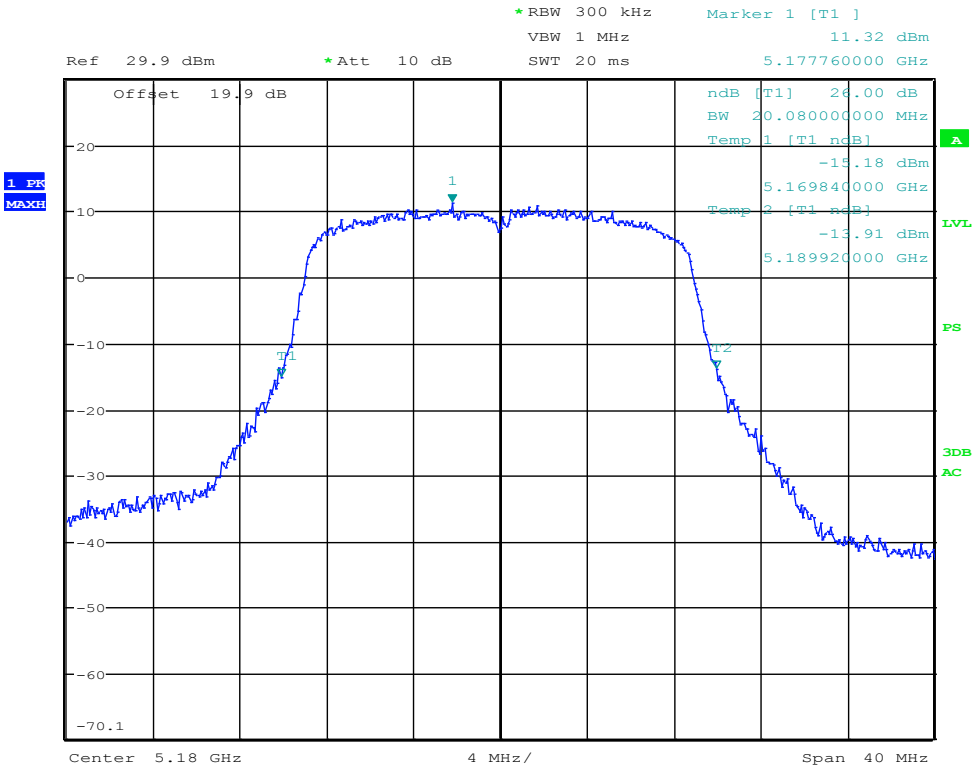
U-NII-1 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 20 MHz



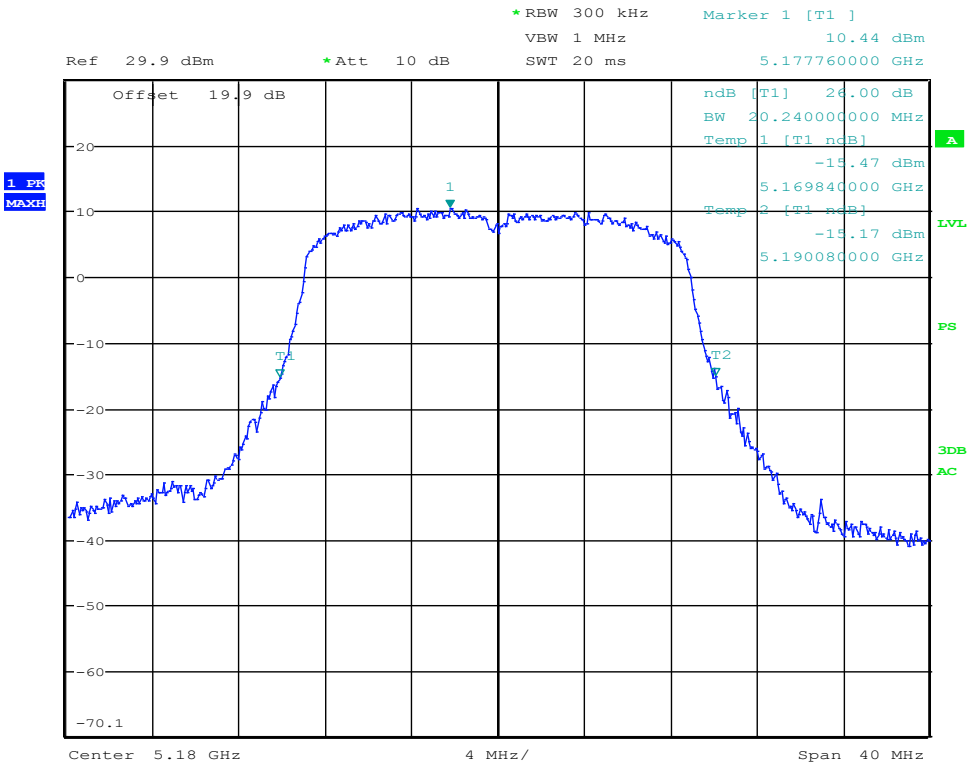
U-NII-1 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 20 MHz



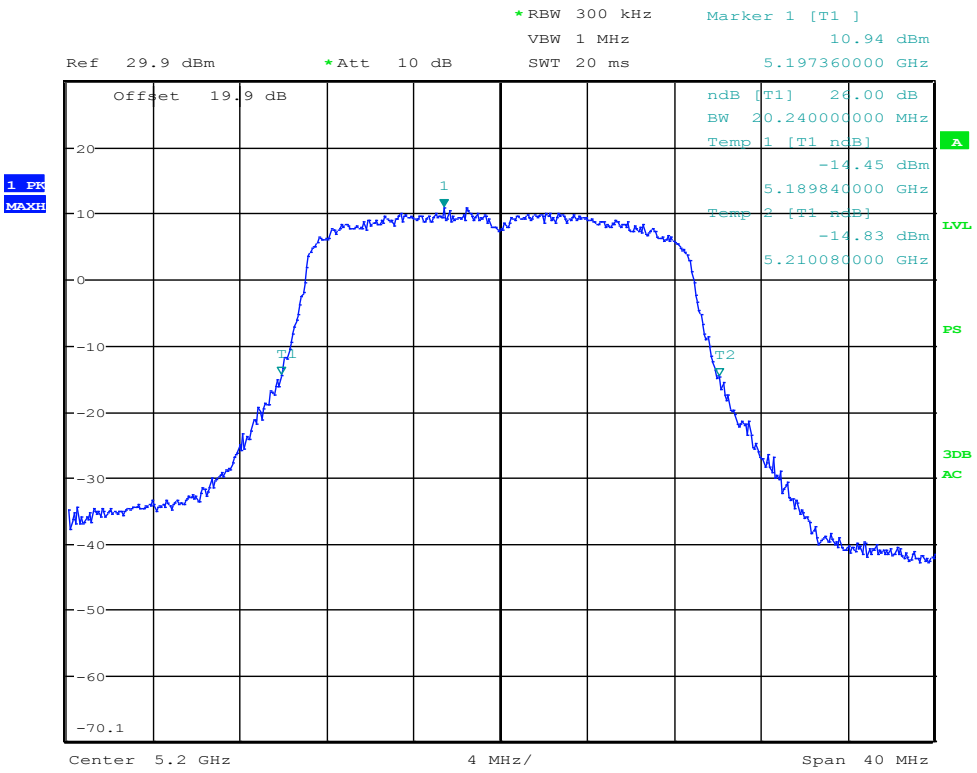
U-NII-1 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



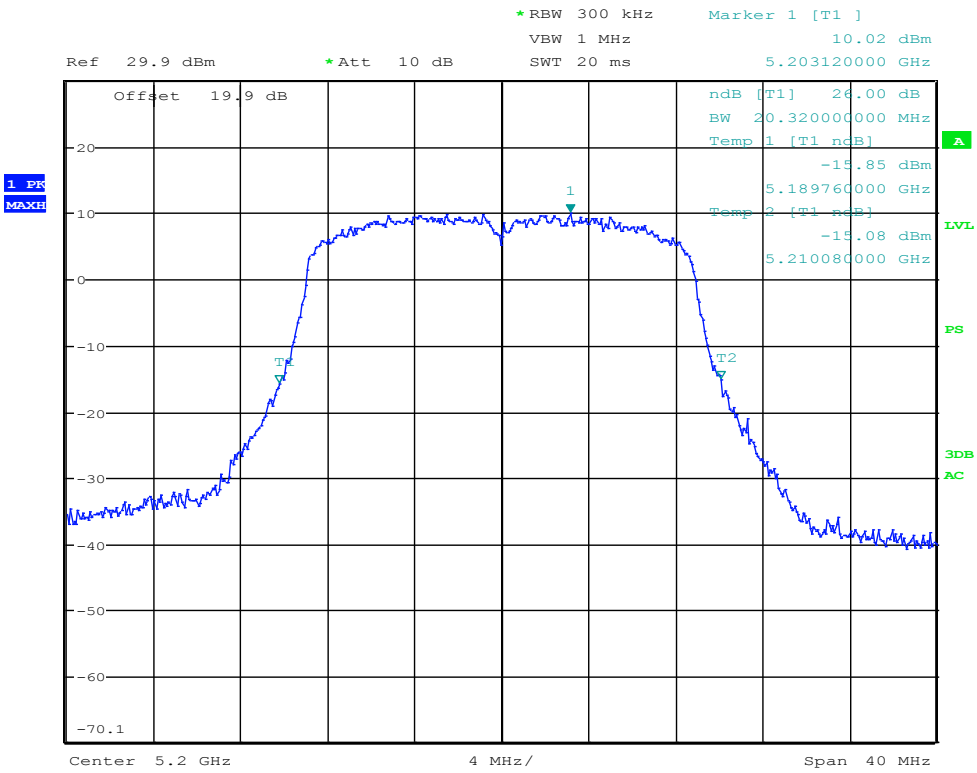
U-NII-1 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



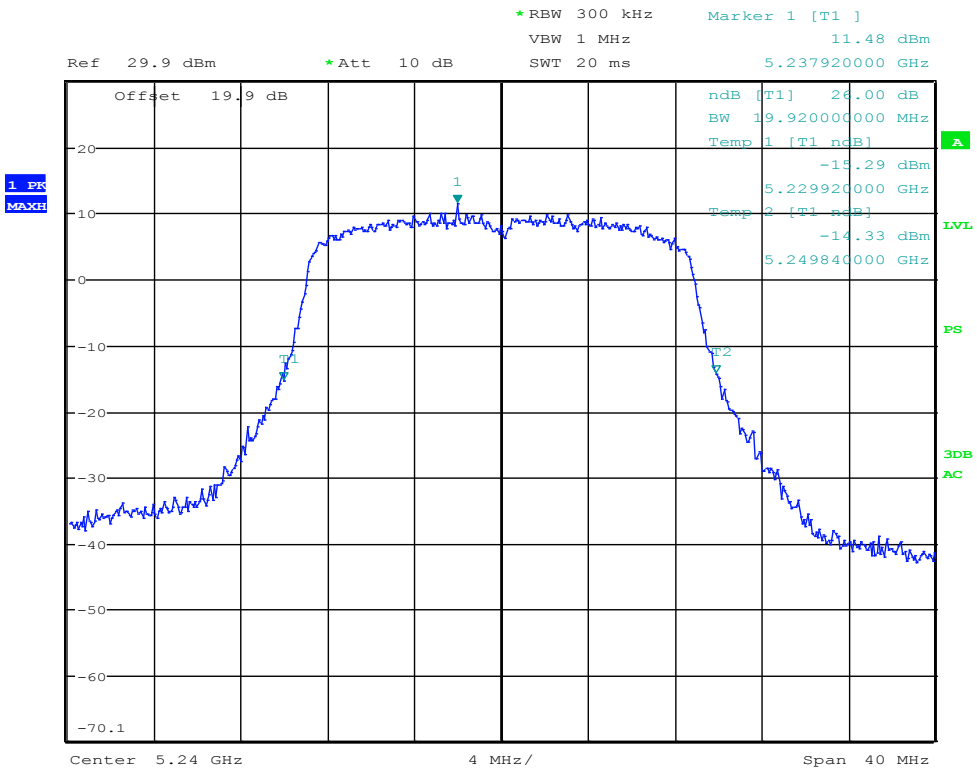
U-NII-1 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



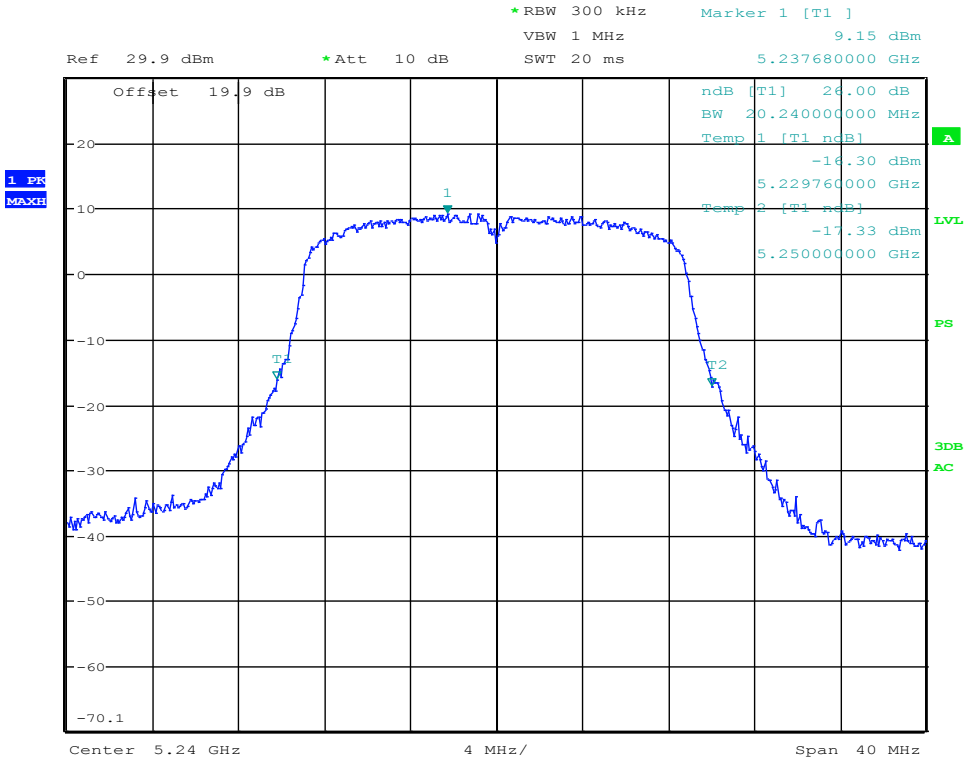
U-NII-1 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



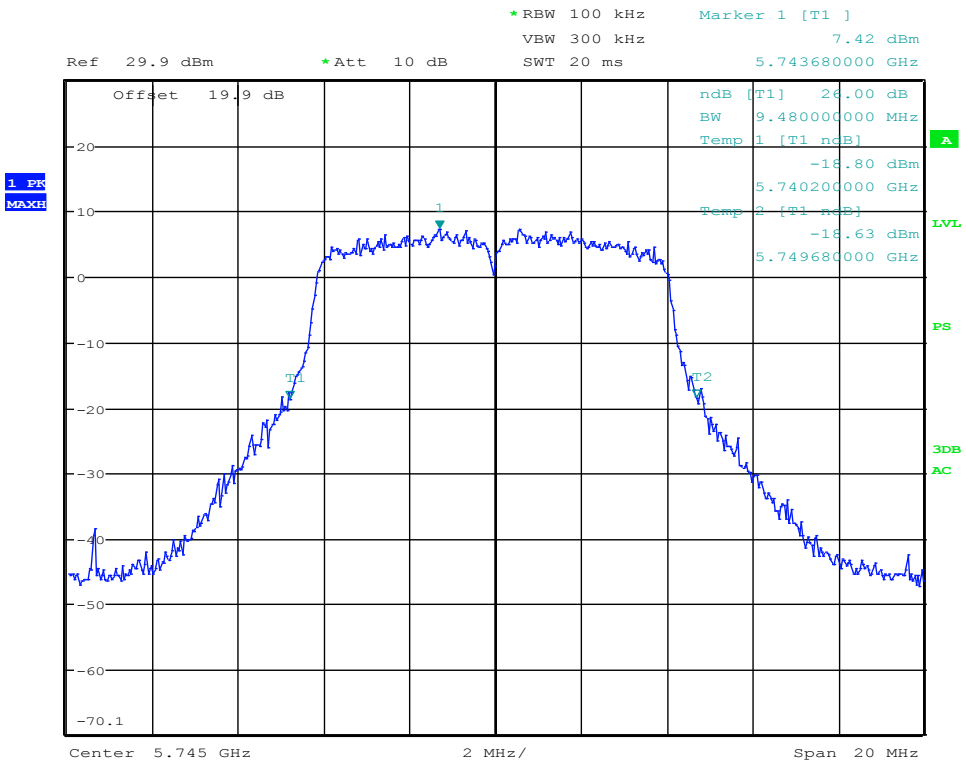
U-NII-1 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 20 MHz



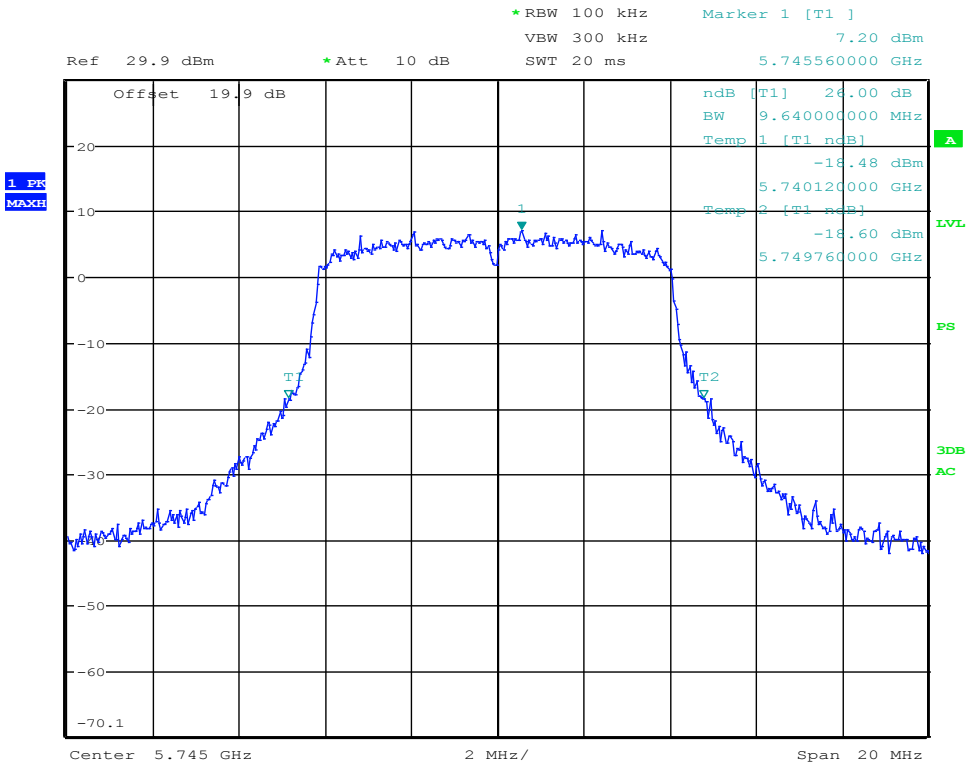
U-NII-1 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 20 MHz



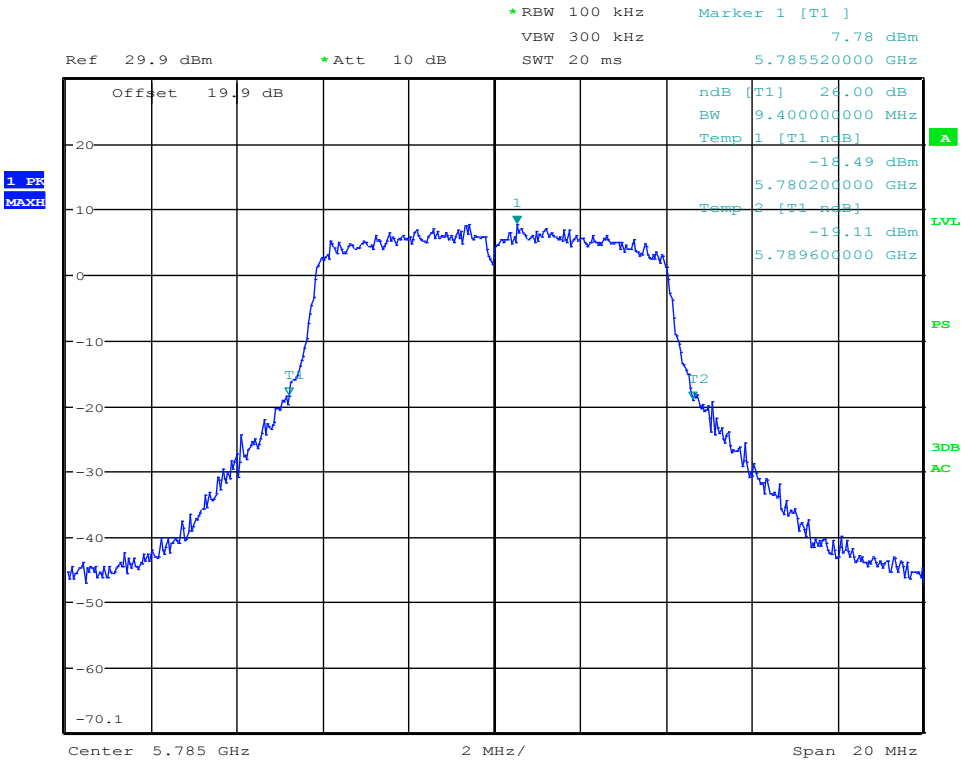
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



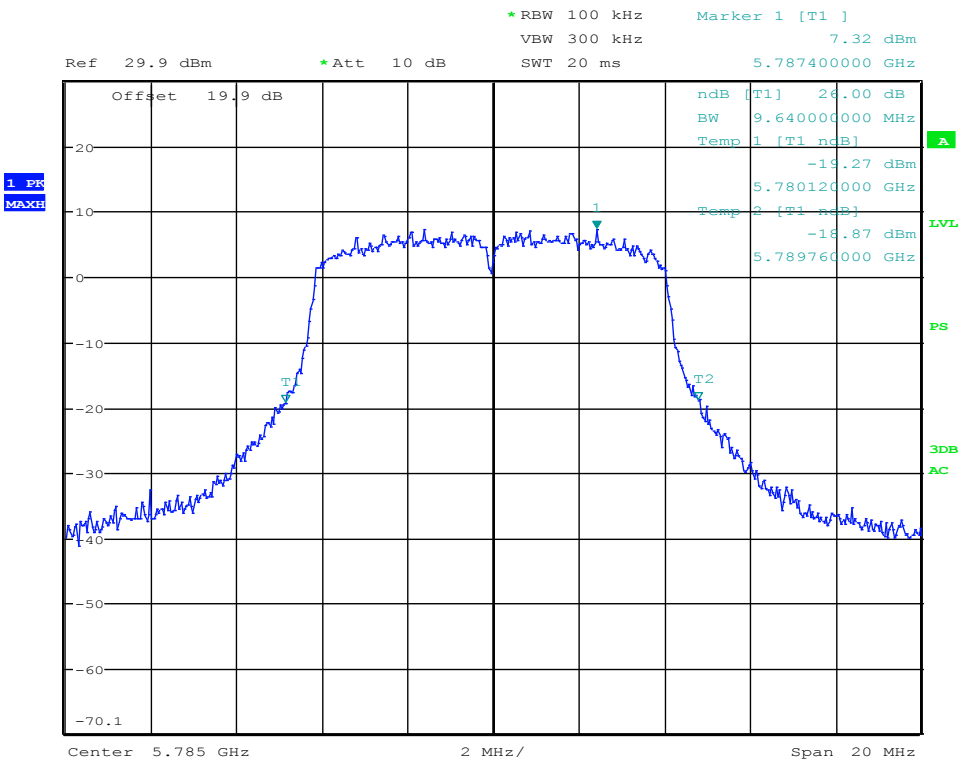
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



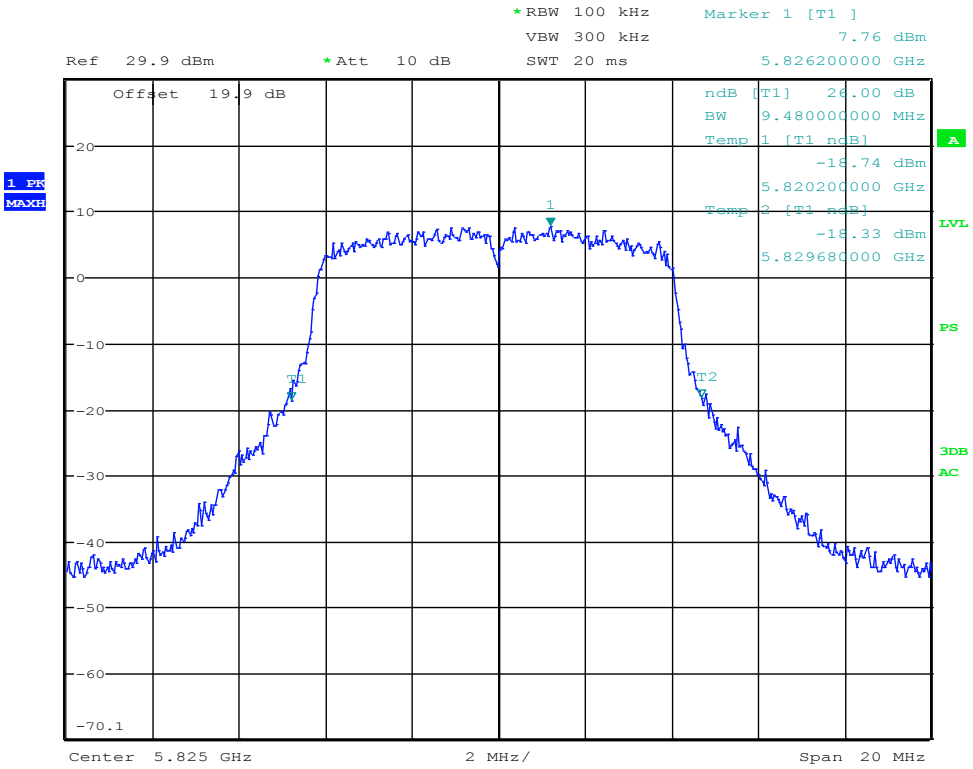
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



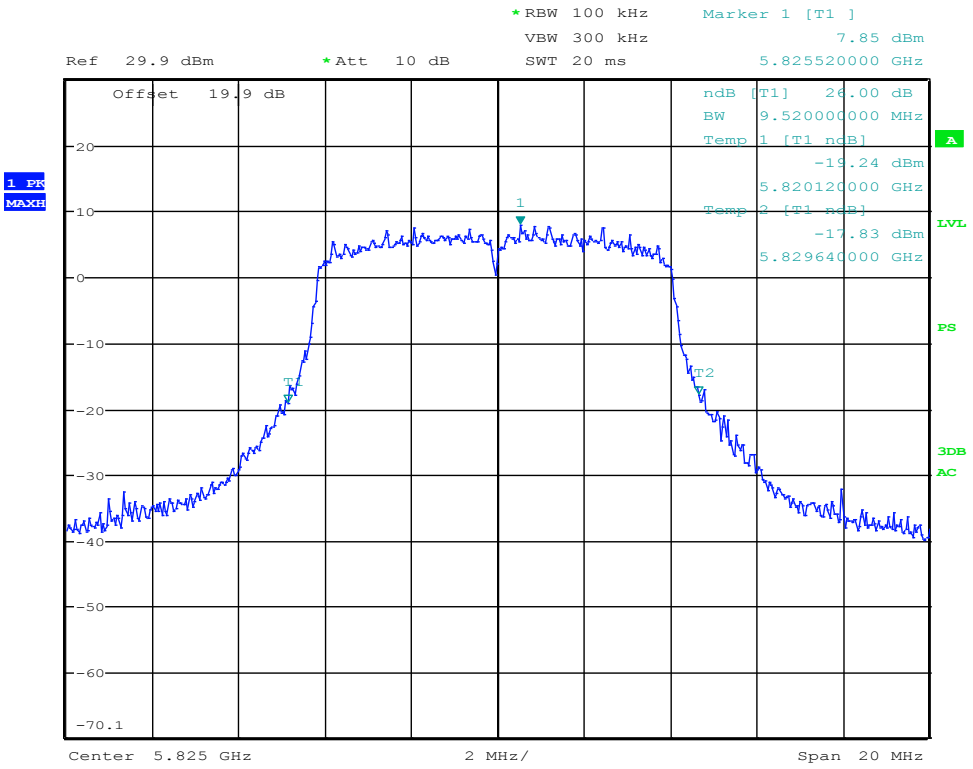
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



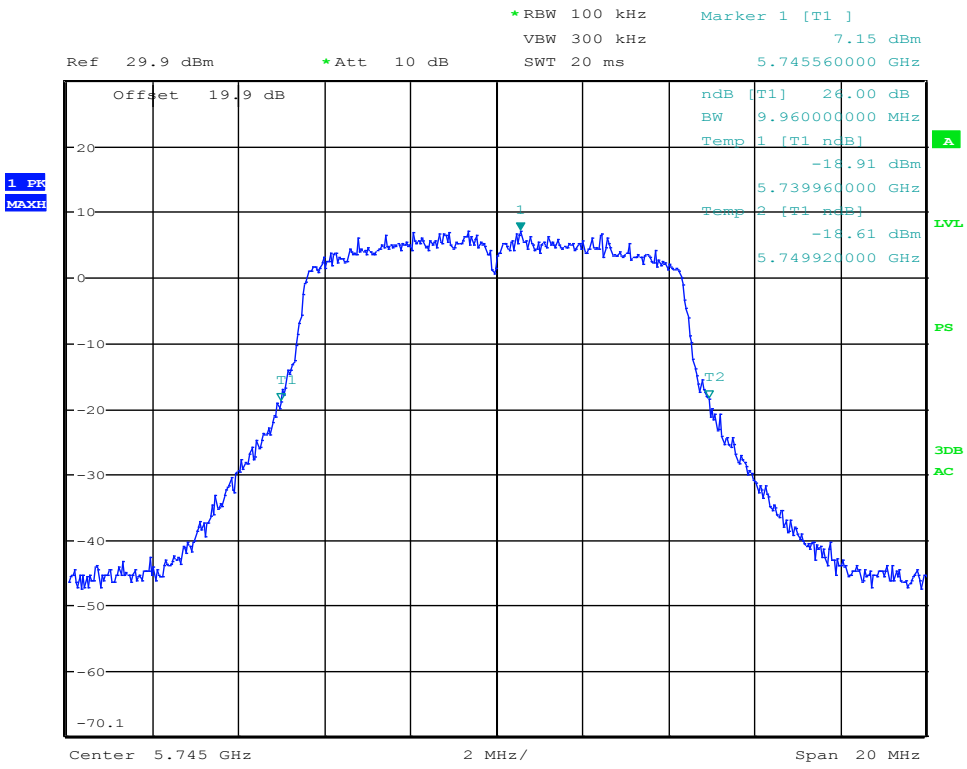
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 10 MHz



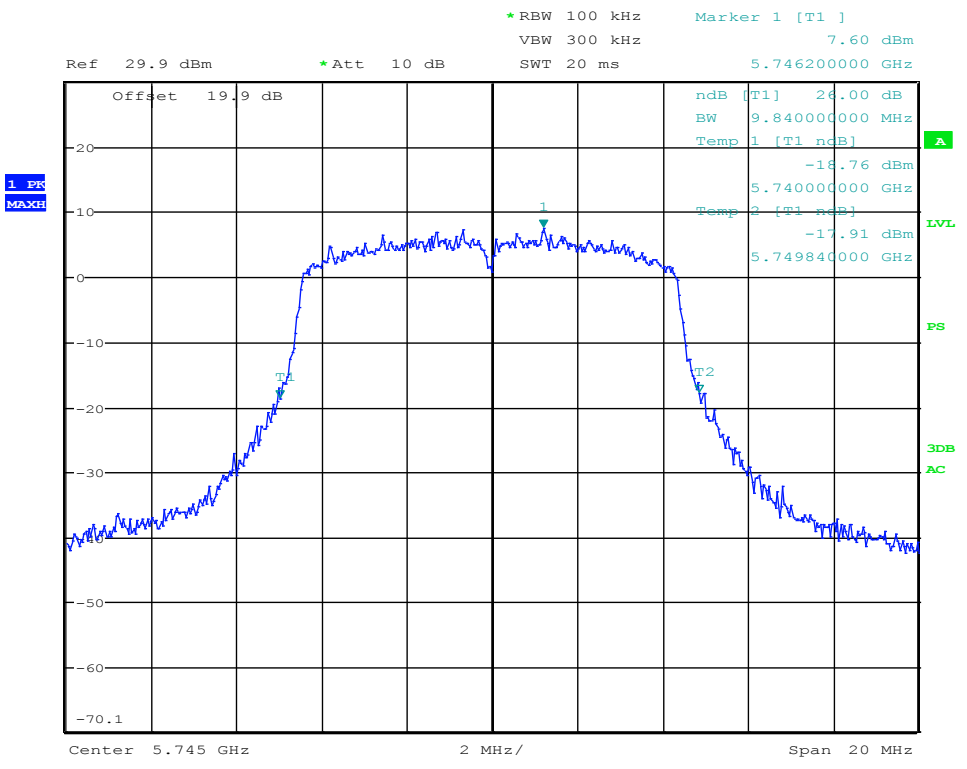
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 10 MHz



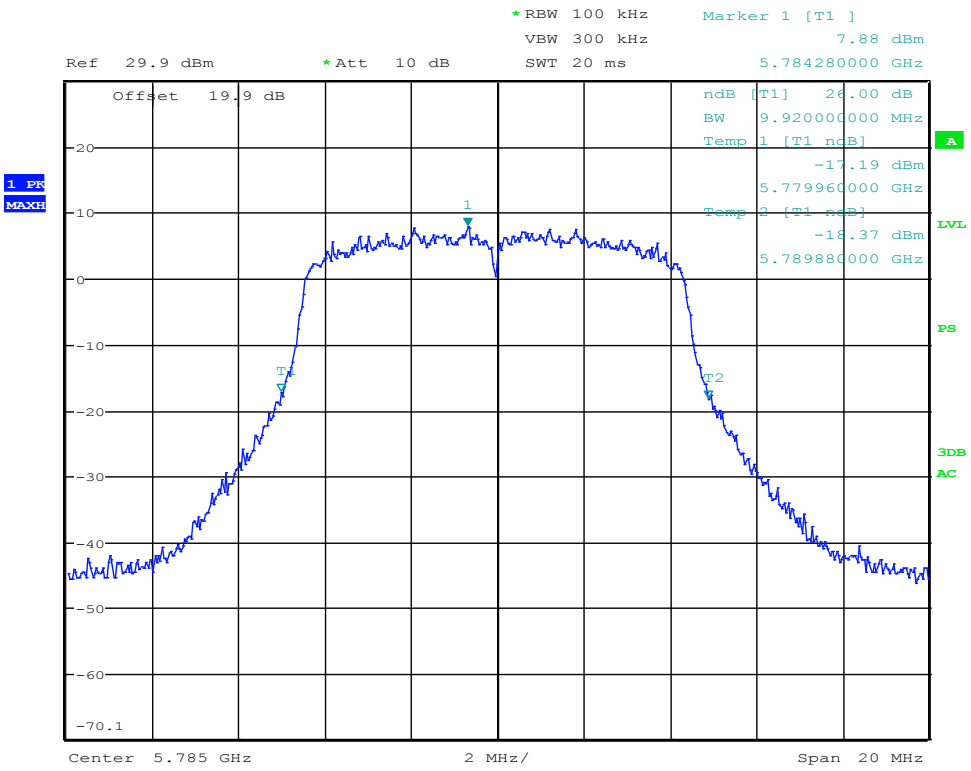
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



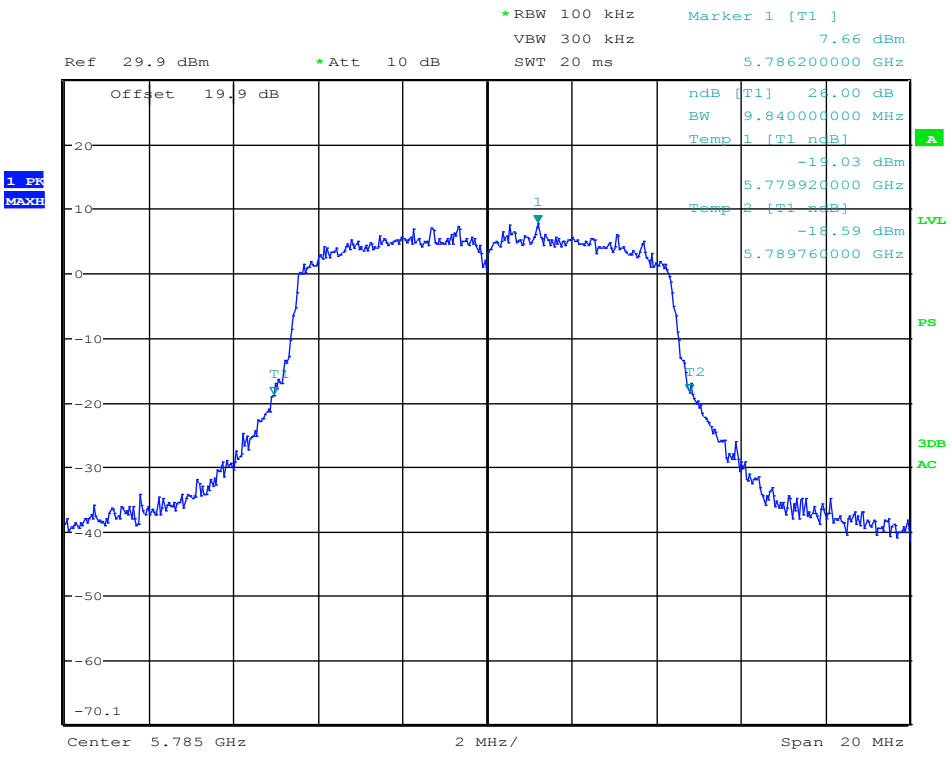
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



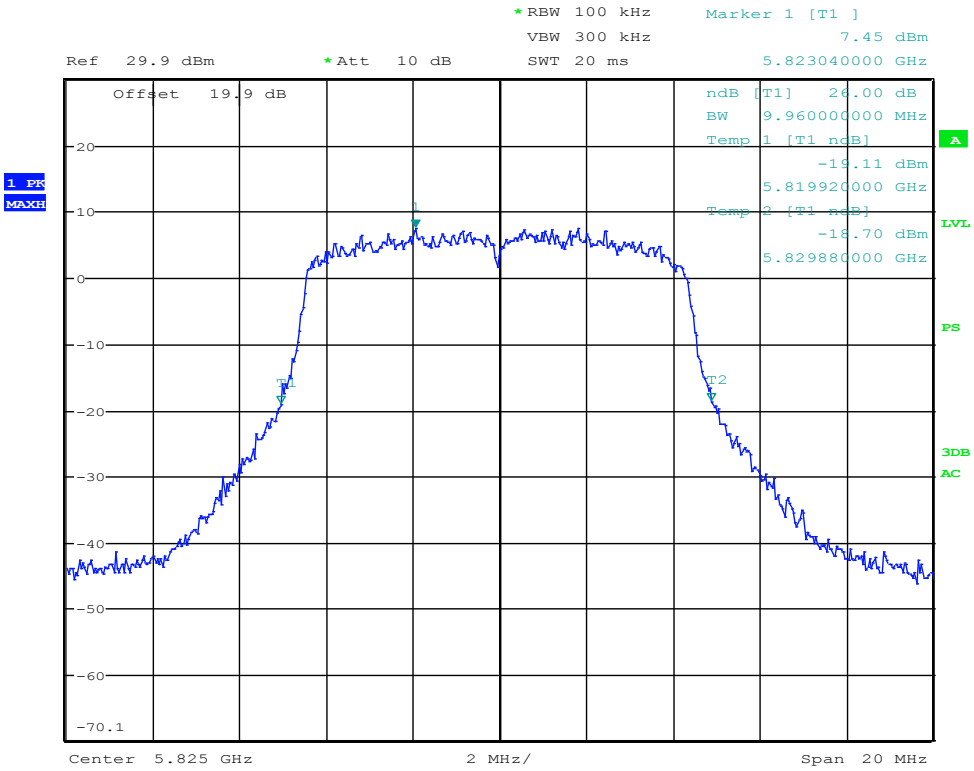
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



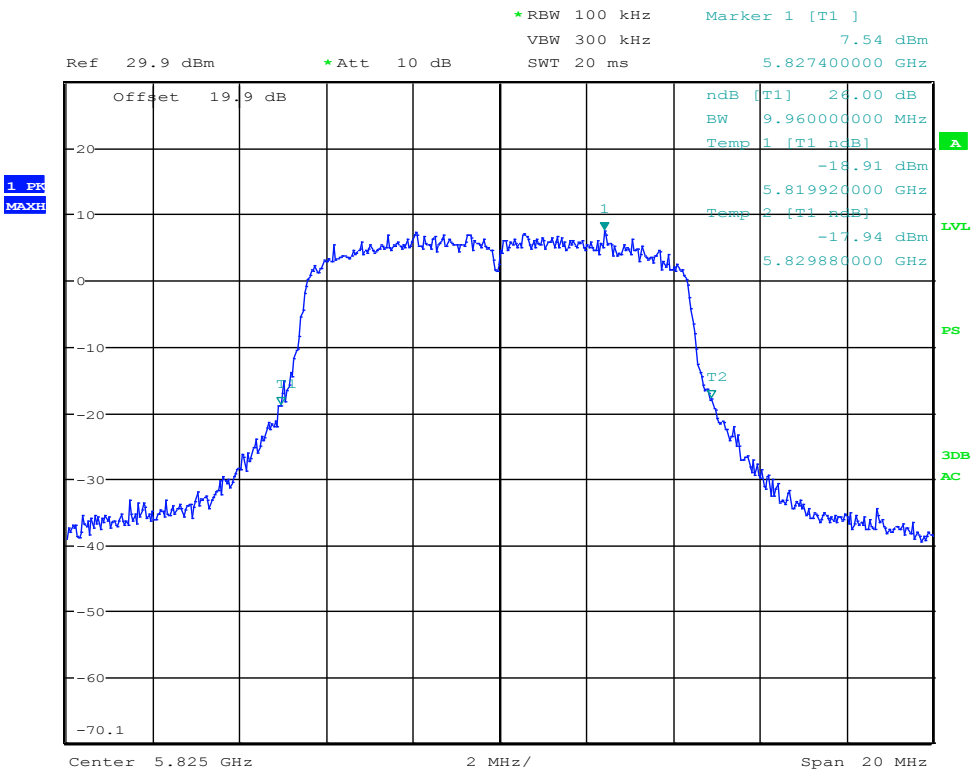
U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



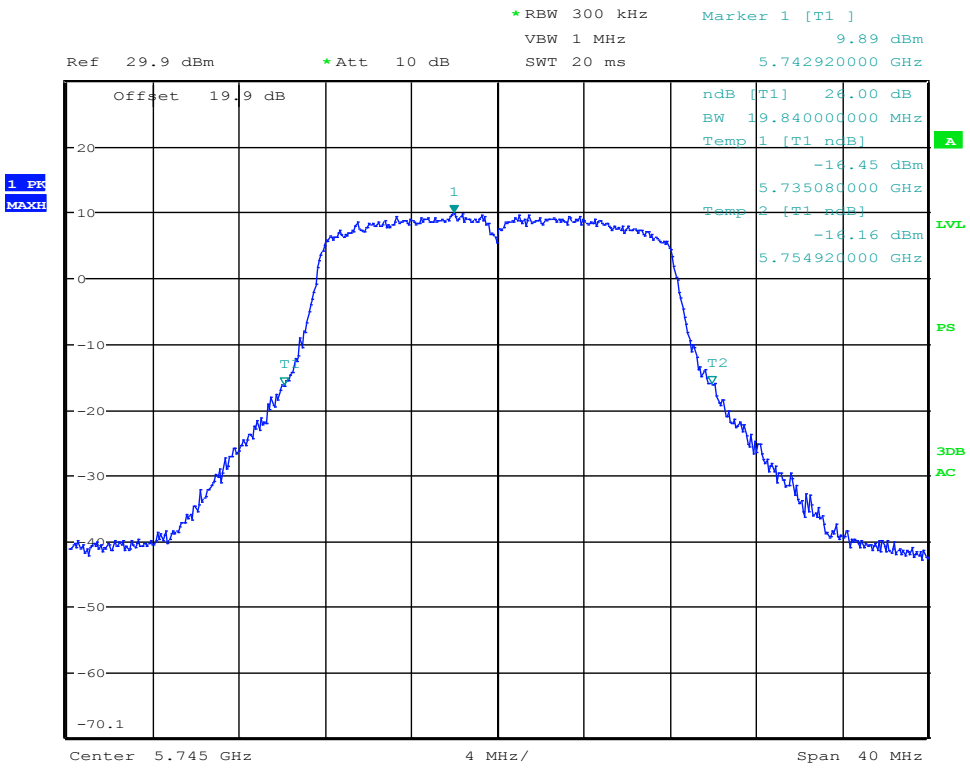
U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 10 MHz



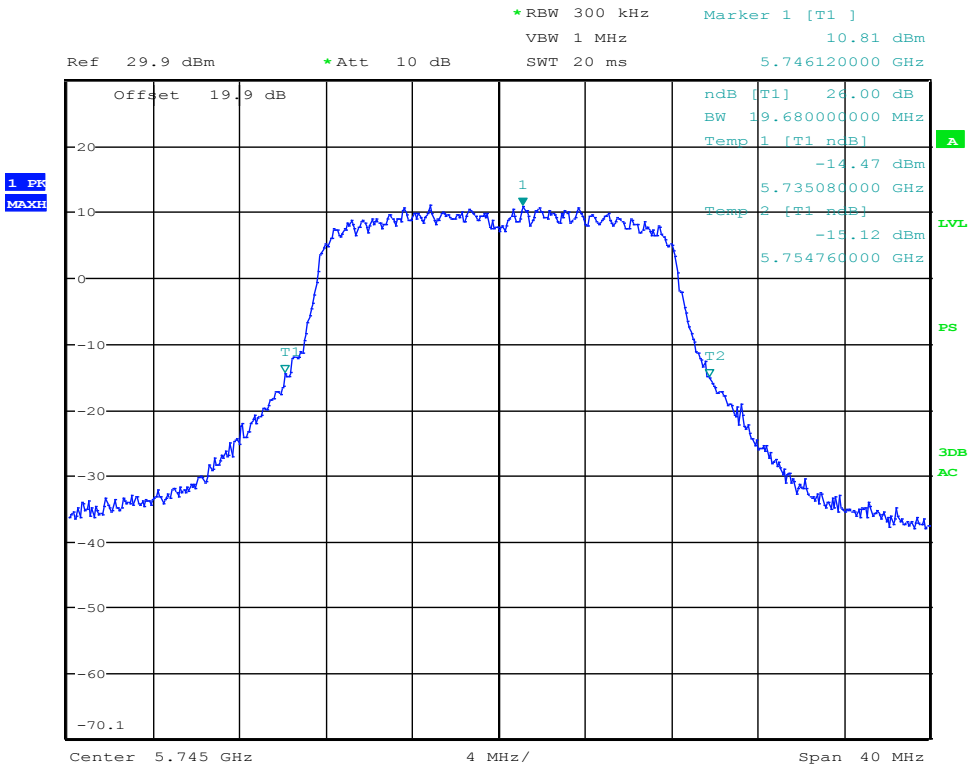
U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 10 MHz



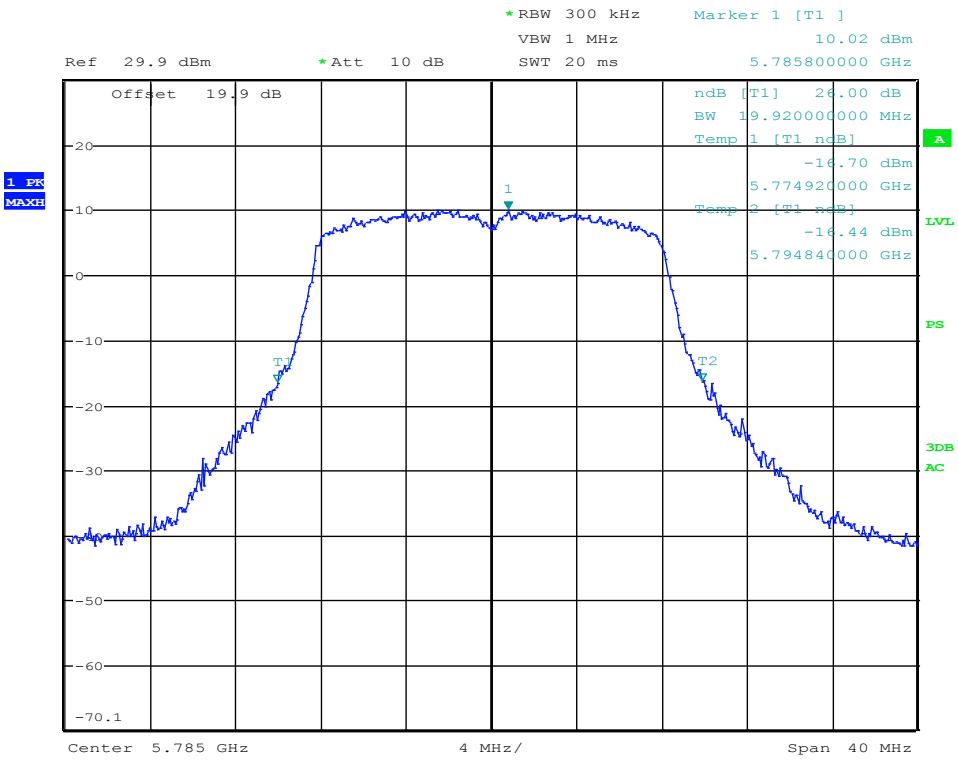
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



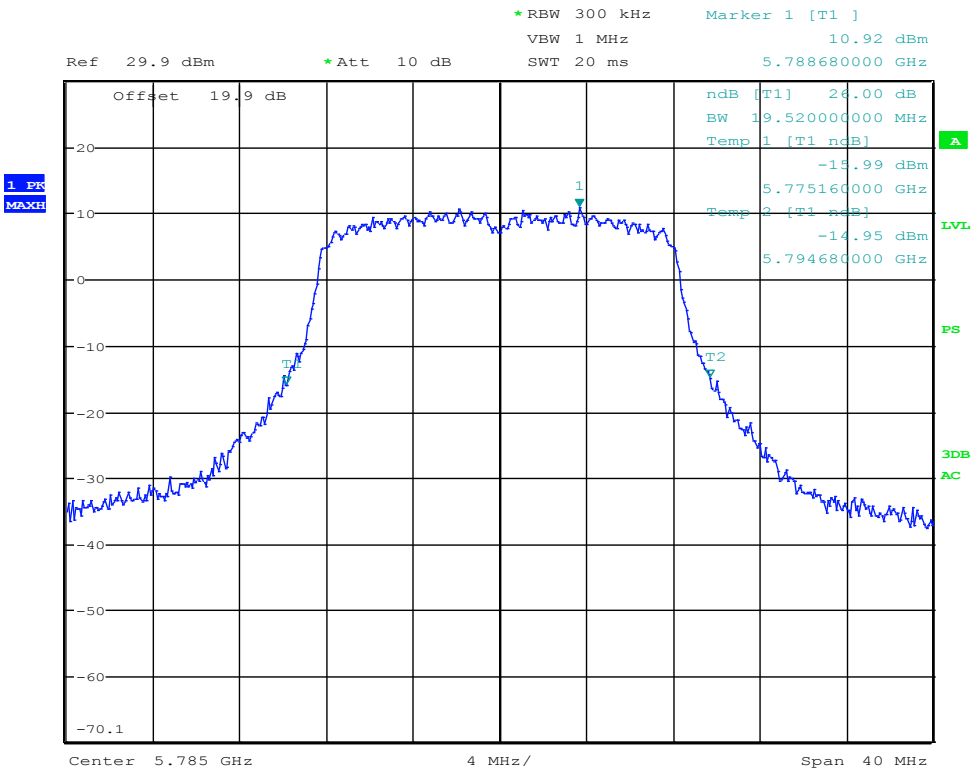
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



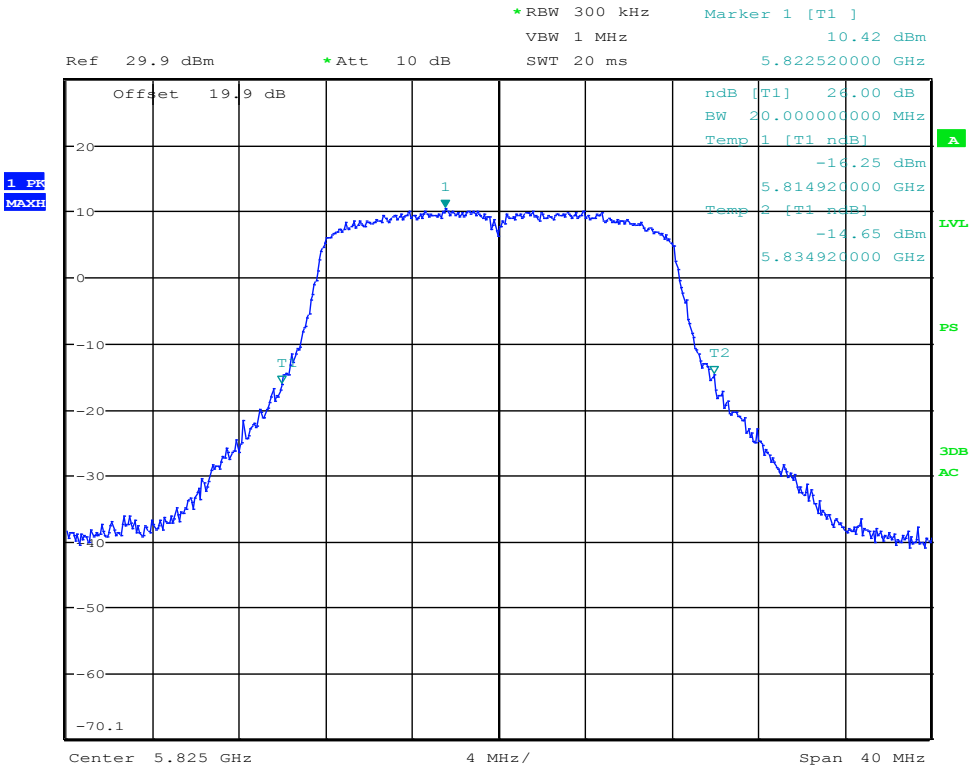
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



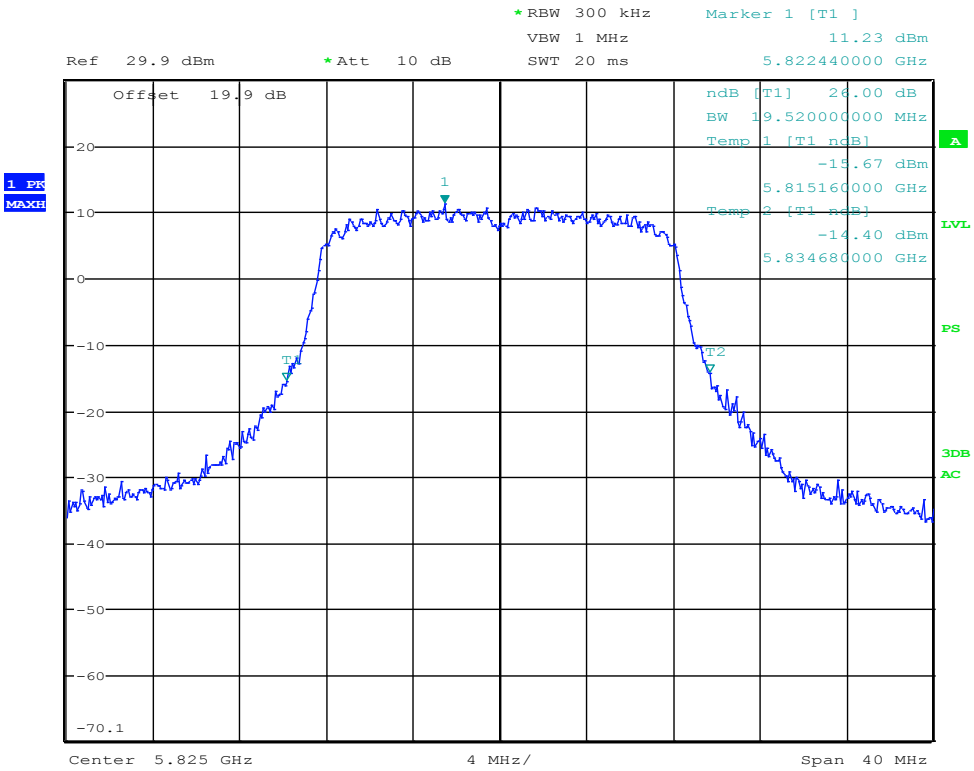
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



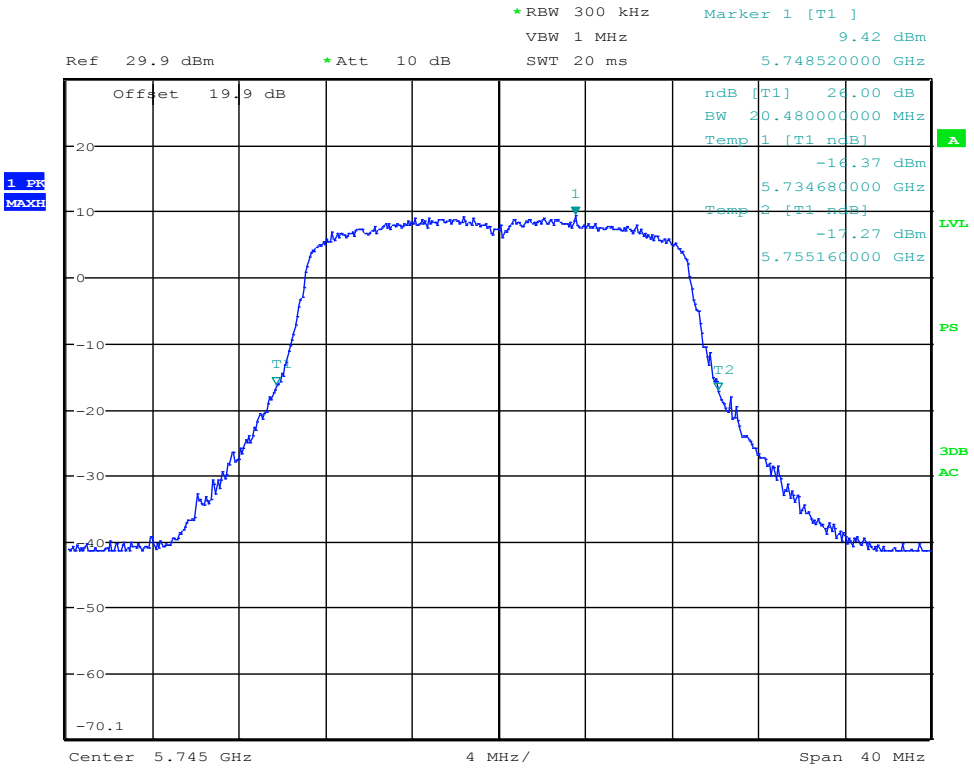
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 20 MHz



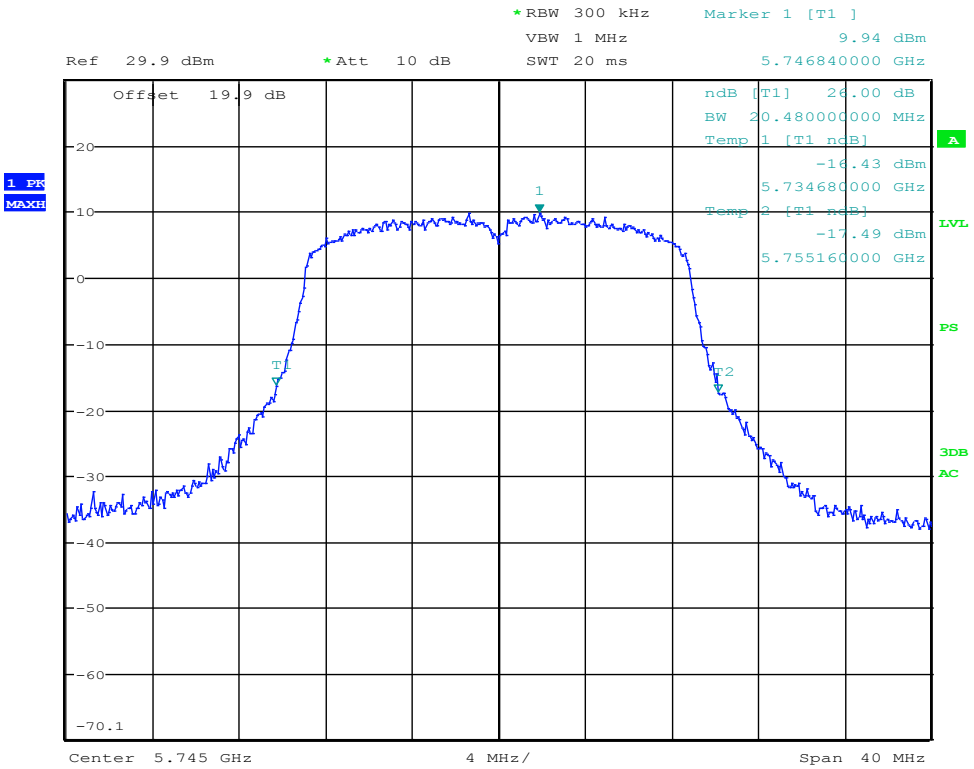
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 20 MHz



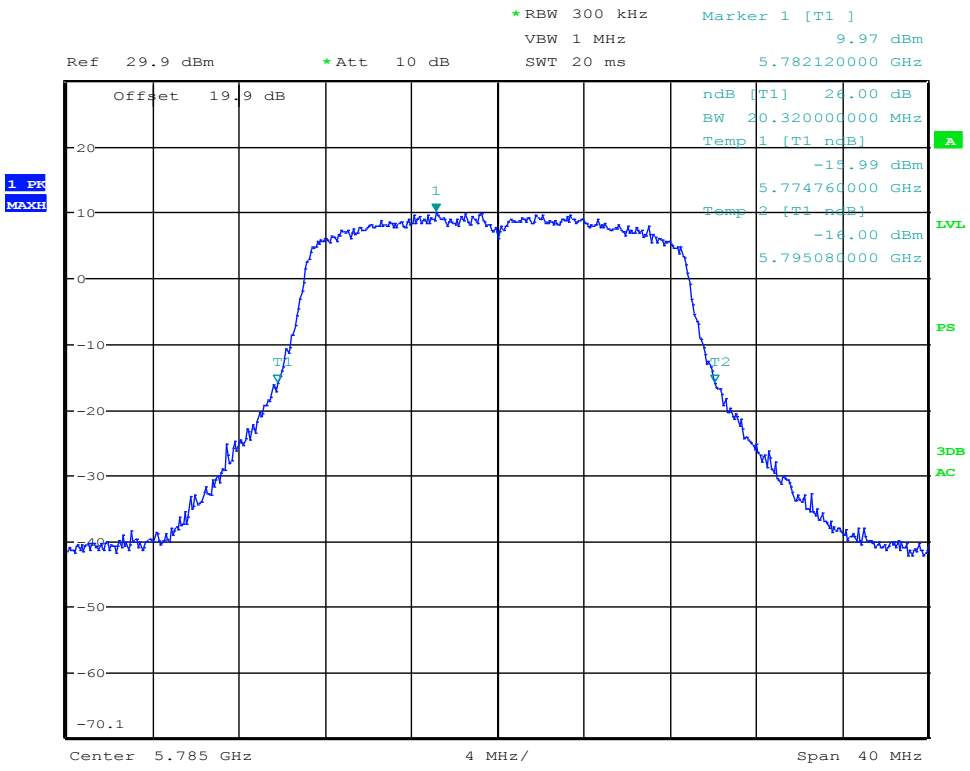
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



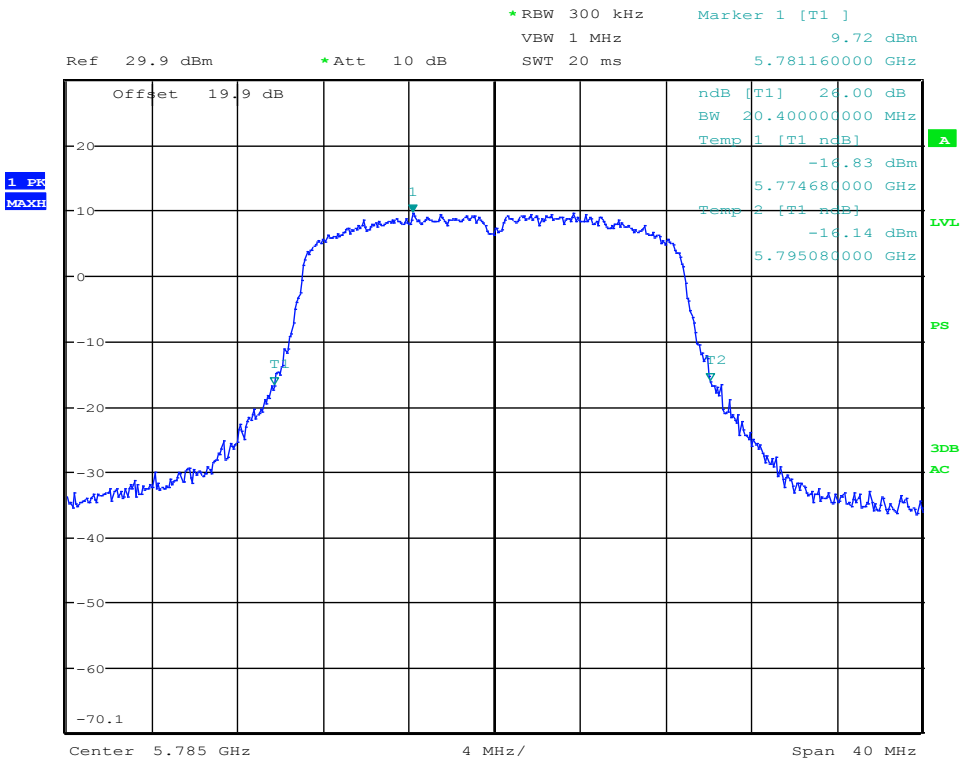
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



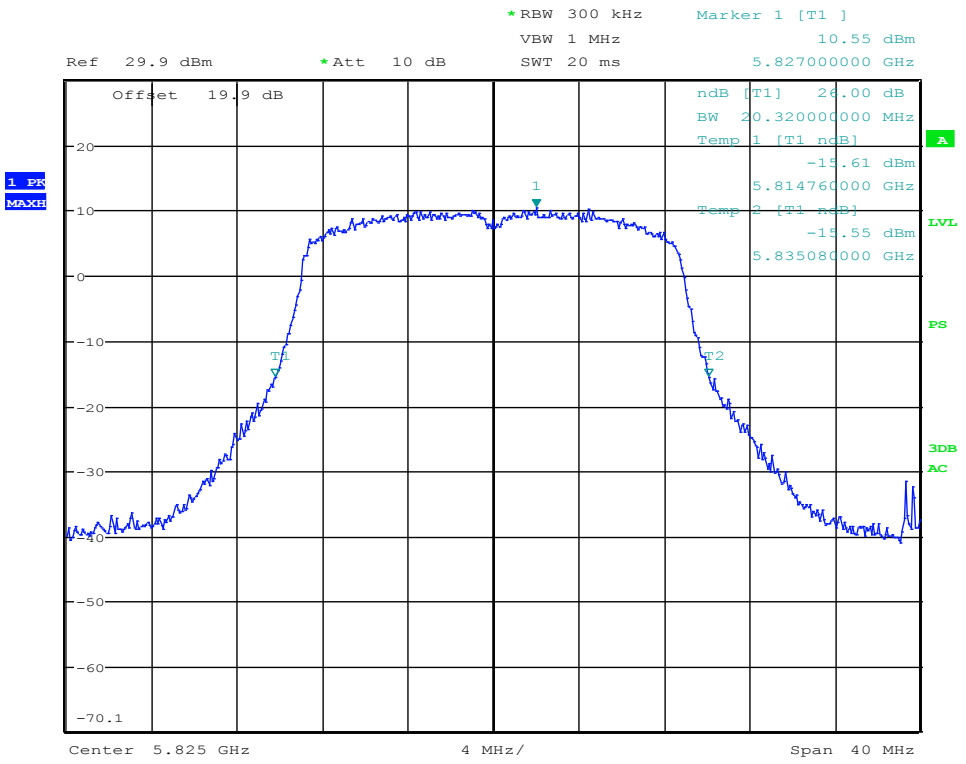
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



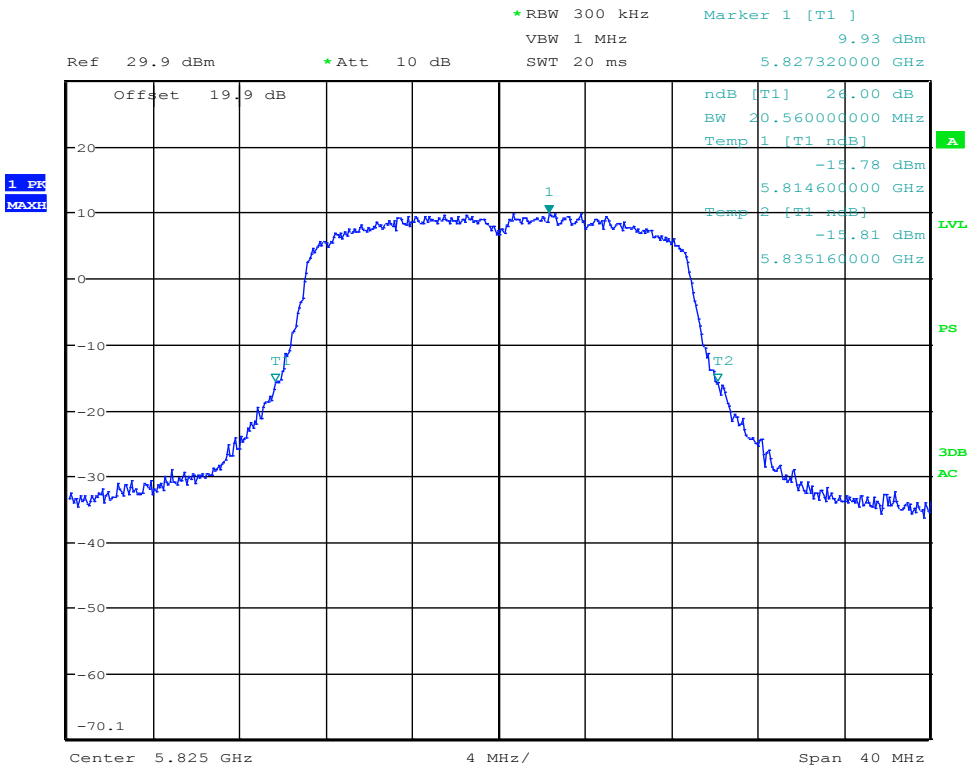
U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 20 MHz

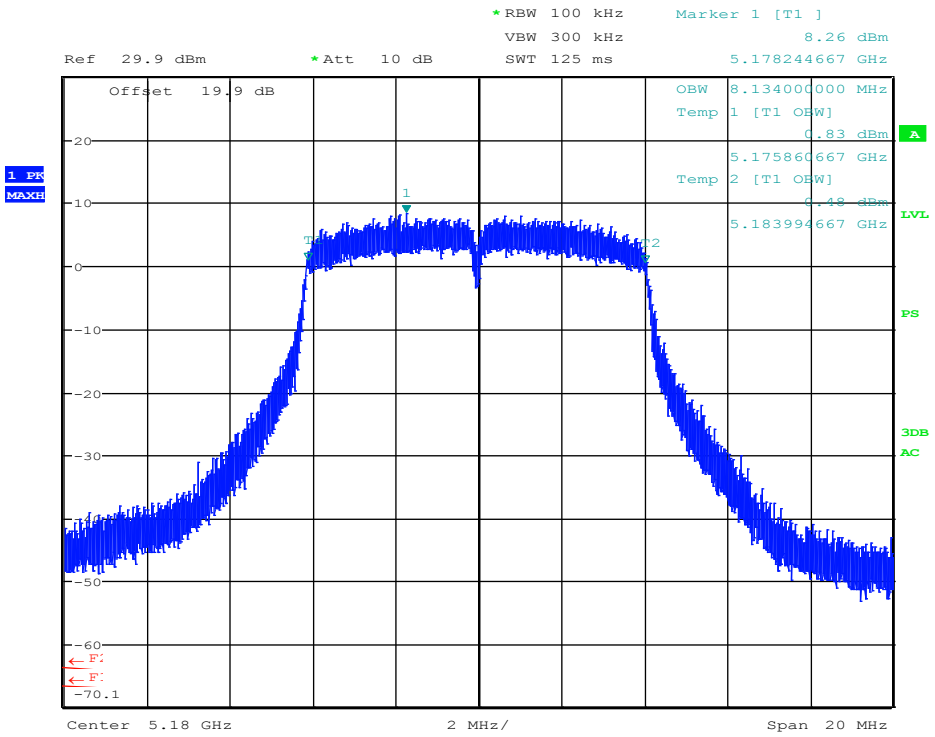


U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 20 MHz

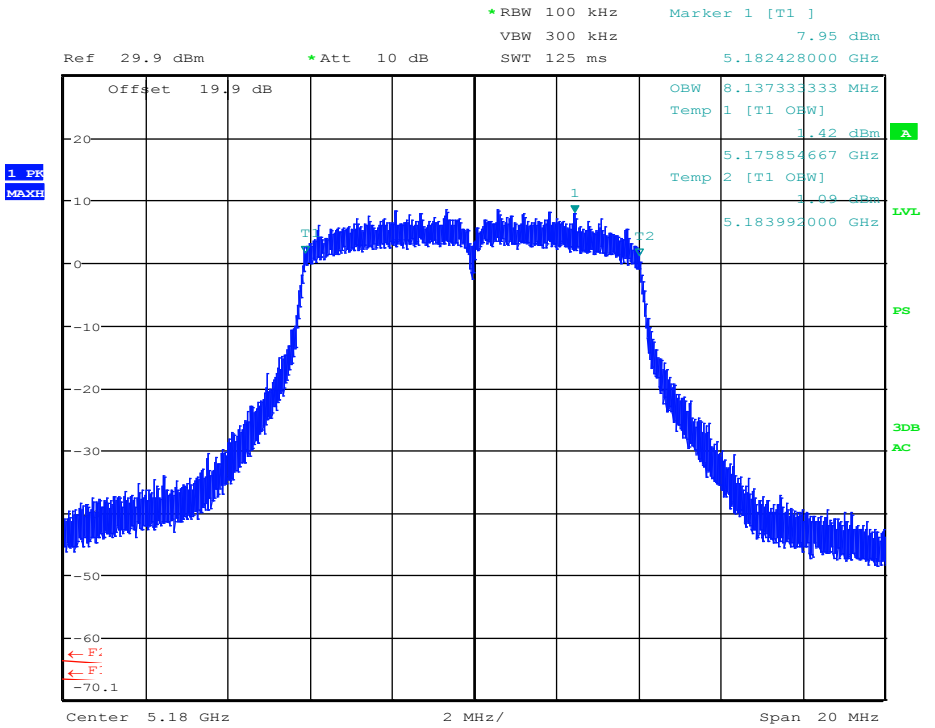


APPENDIX 4: 99% bandwidth

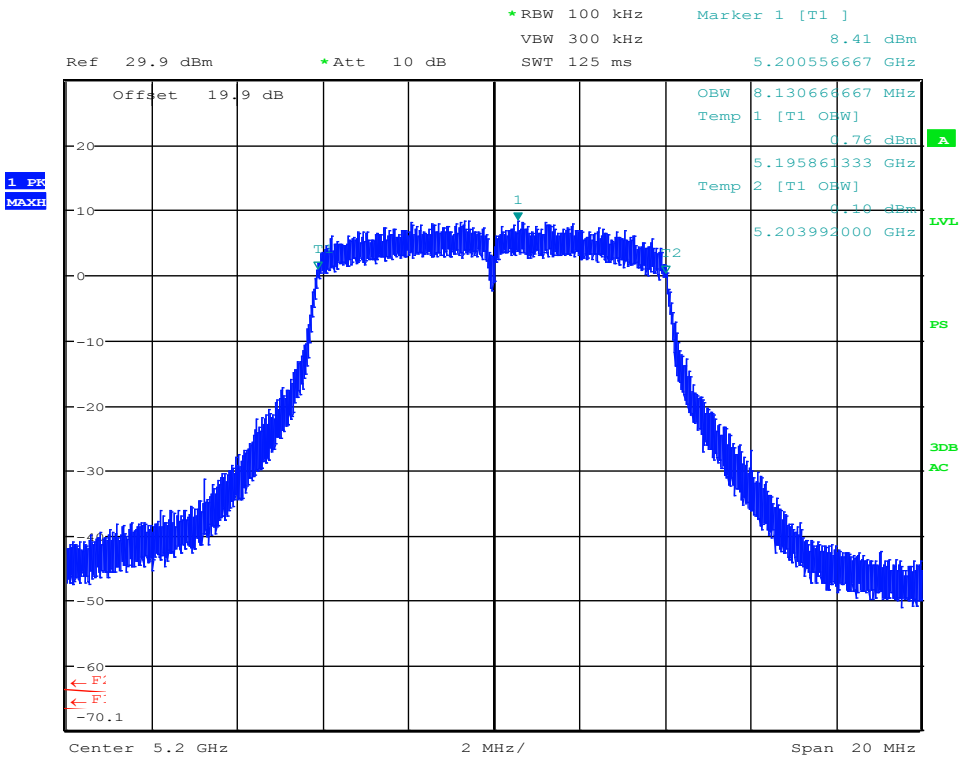
U-NII-1 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



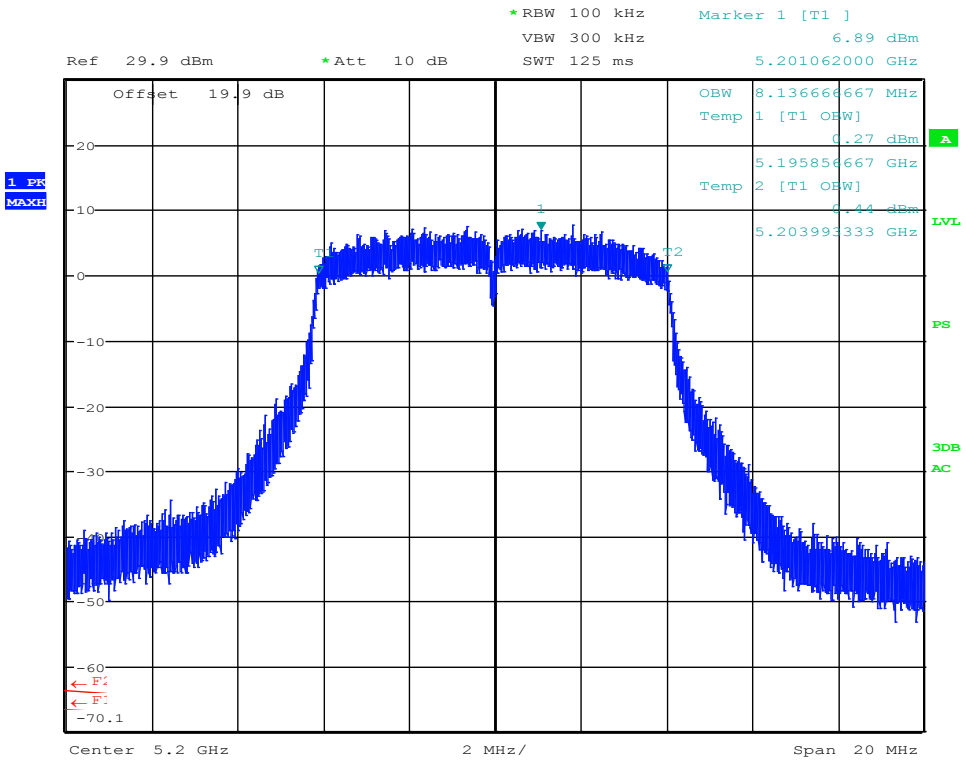
U-NII-1 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



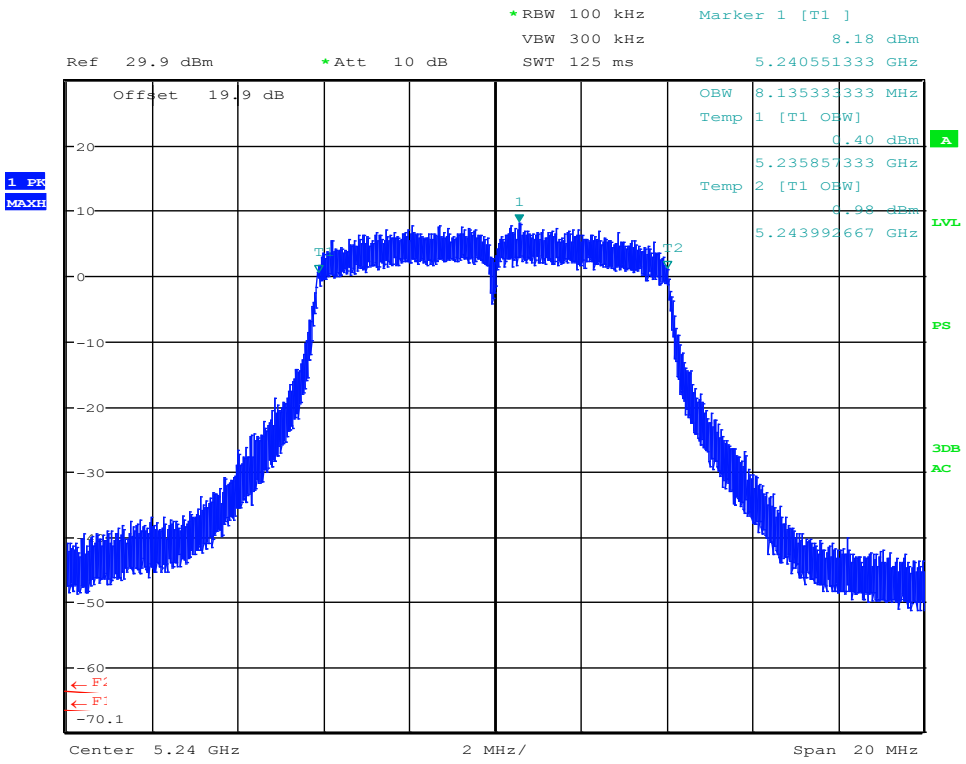
U-NII-1 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



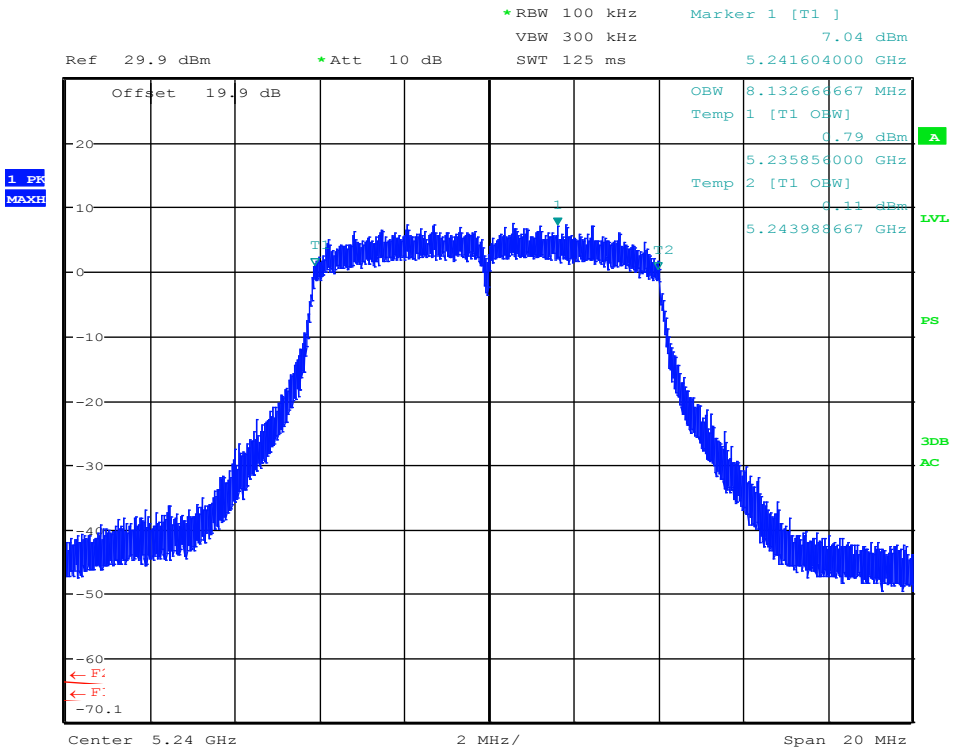
U-NII-1 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



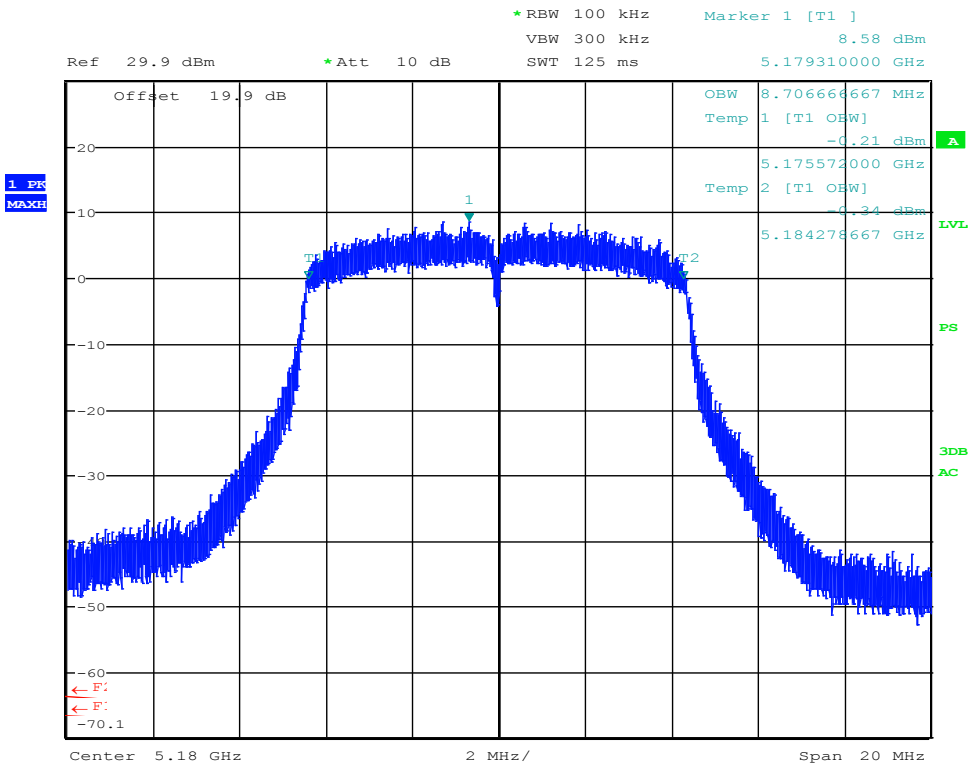
U-NII-1 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 10 MHz



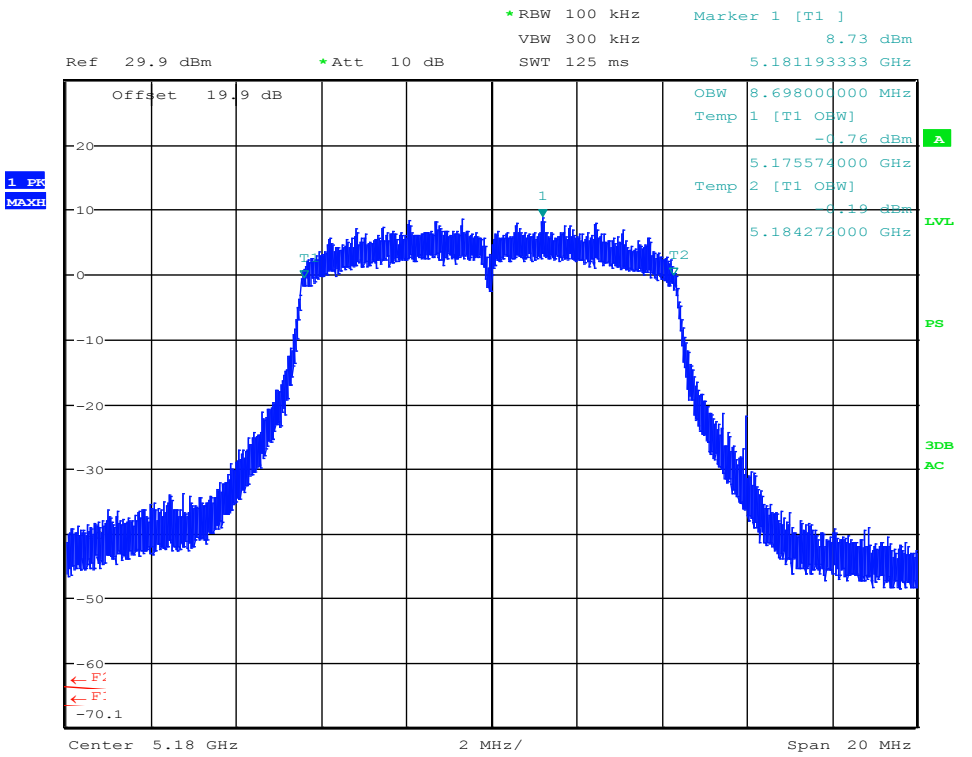
U-NII-1 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 10 MHz



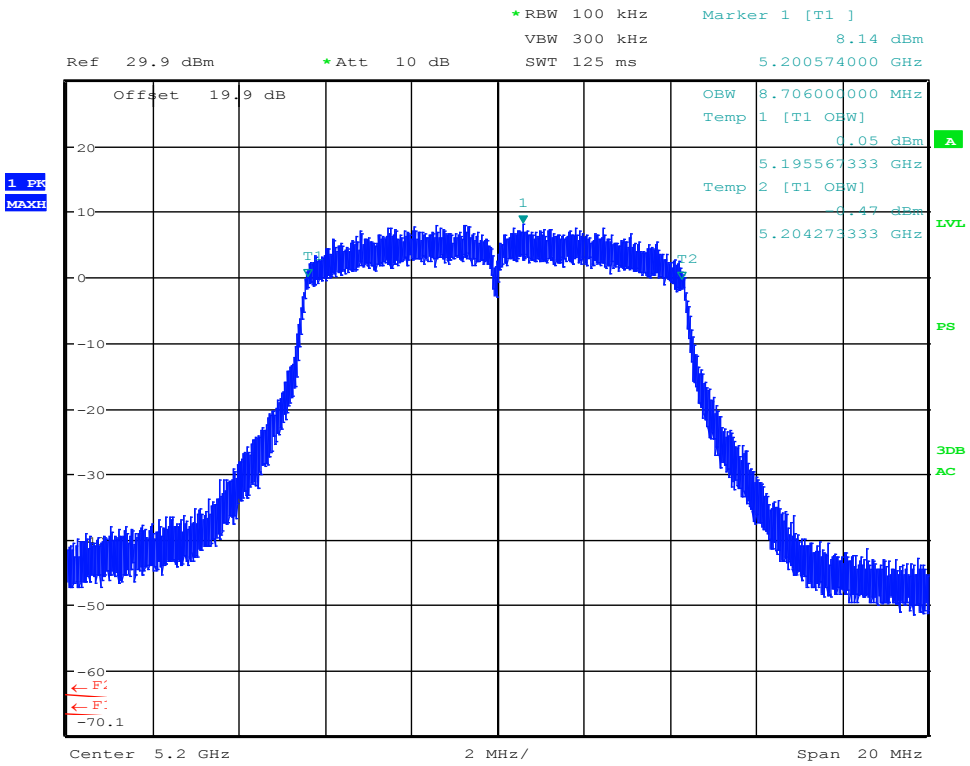
U-NII-1 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



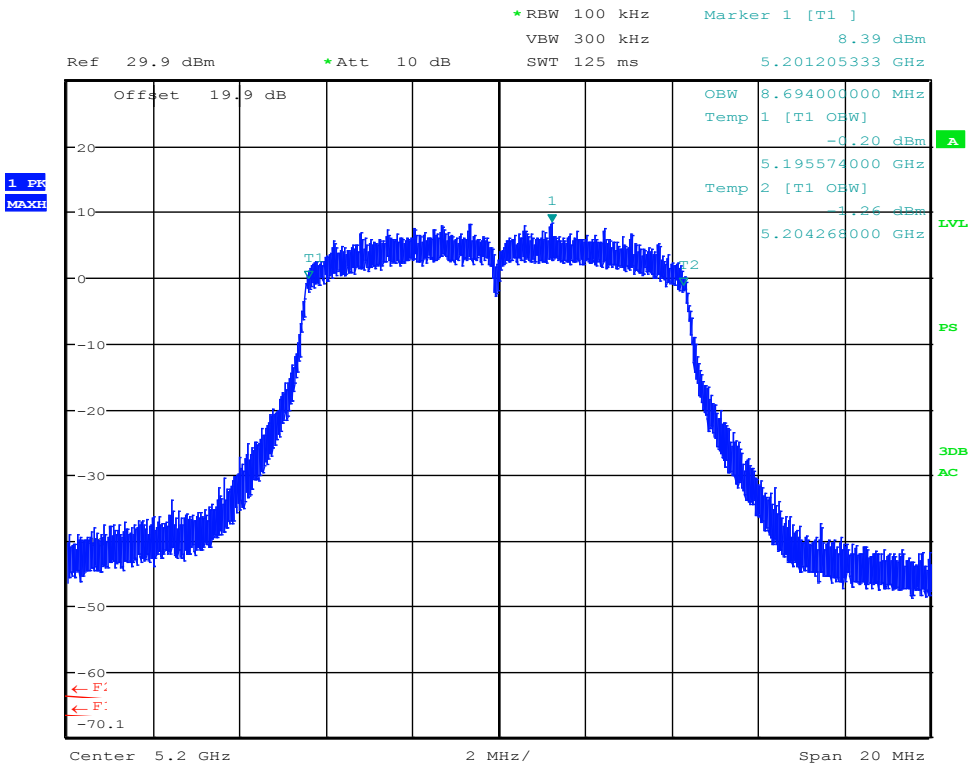
U-NII-1 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



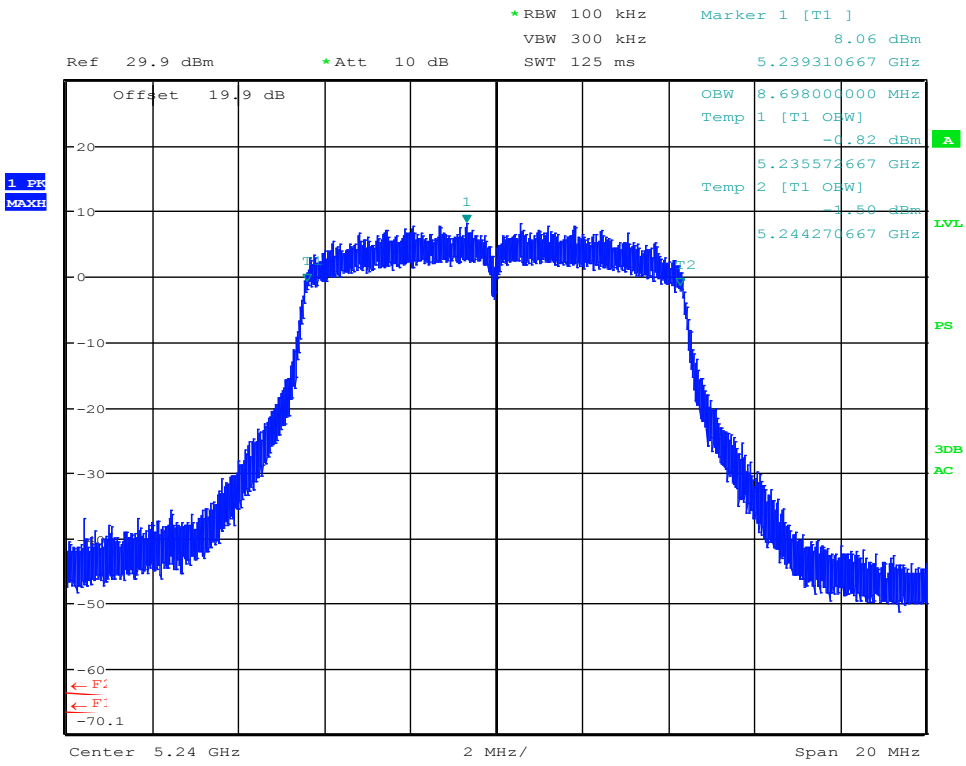
U-NII-1 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



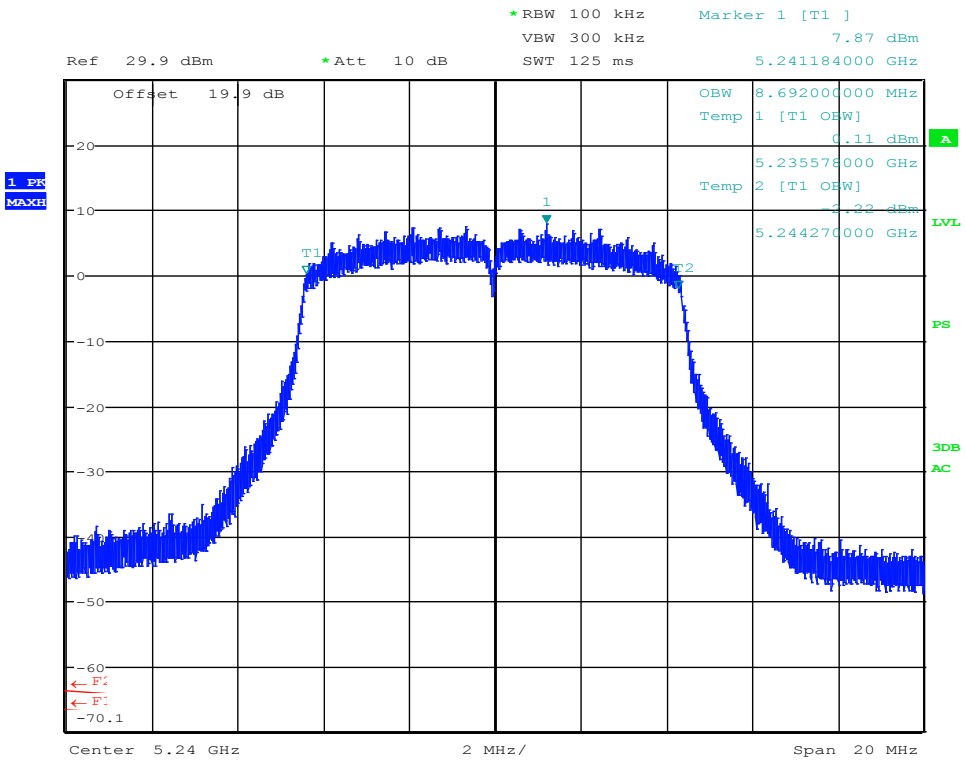
U-NII-1 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



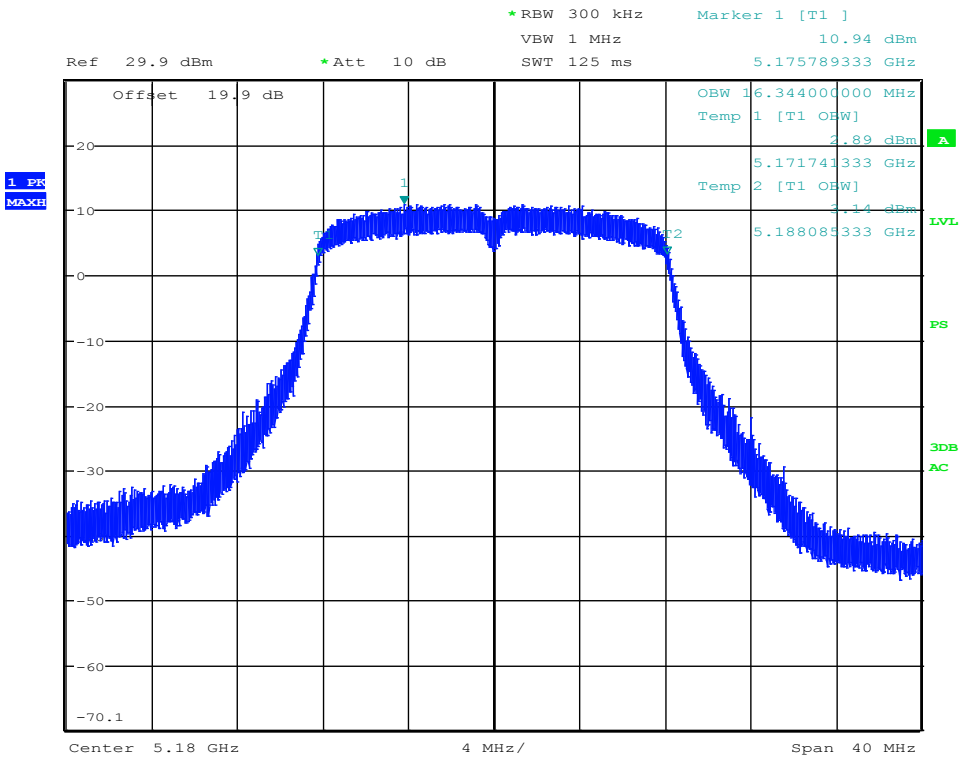
U-NII-1 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 10 MHz



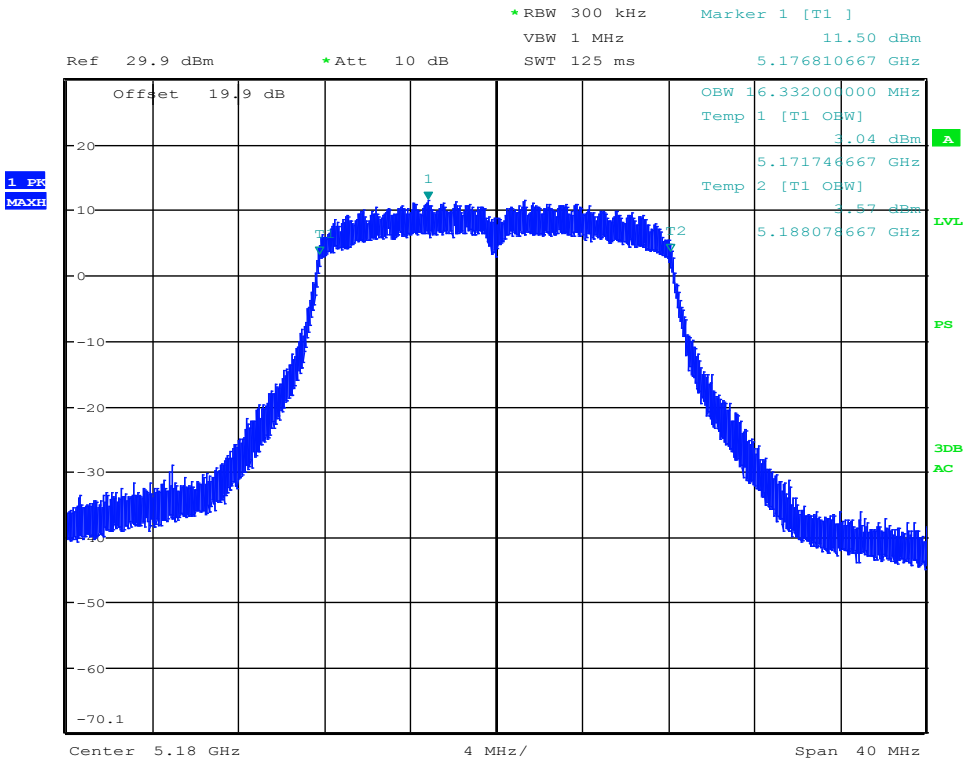
U-NII-1 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 10 MHz



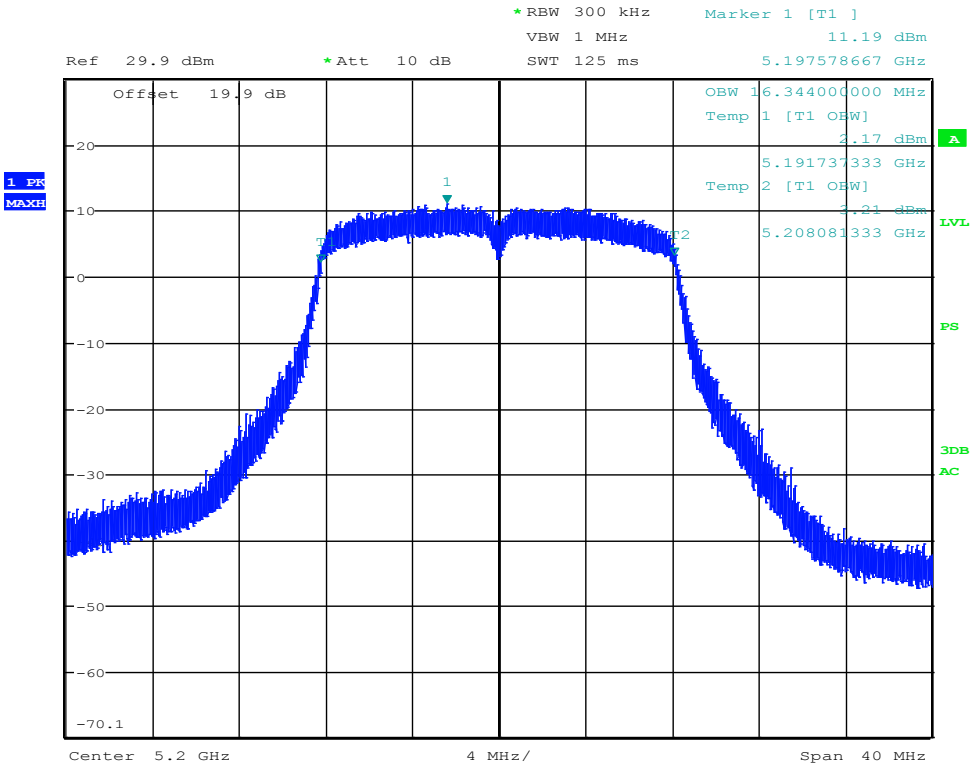
U-NII-1 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



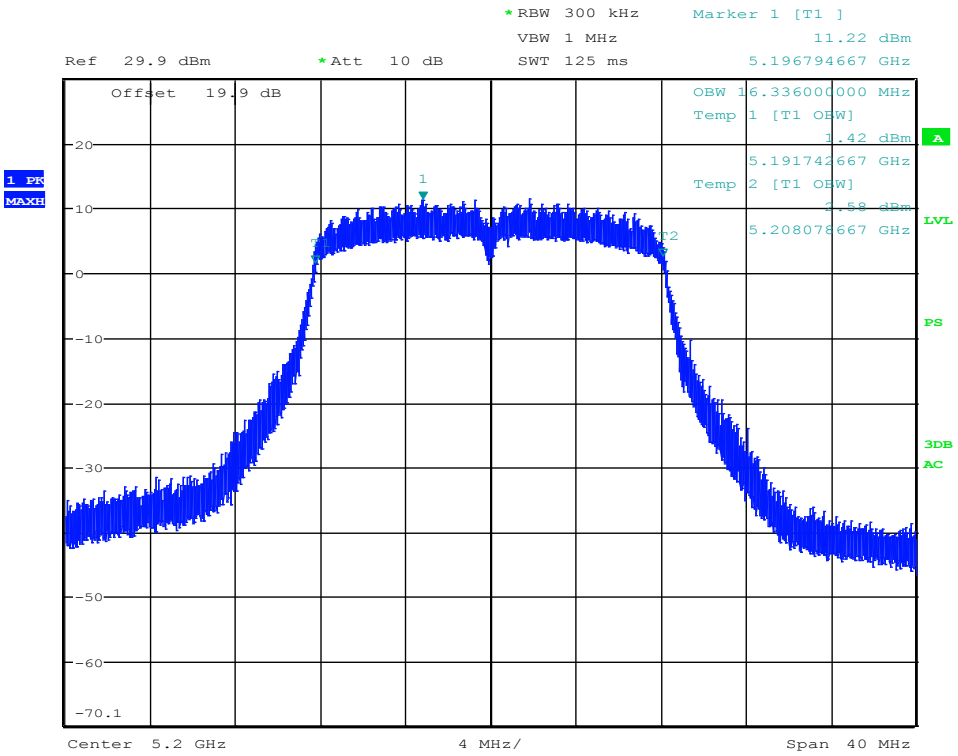
U-NII-1 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



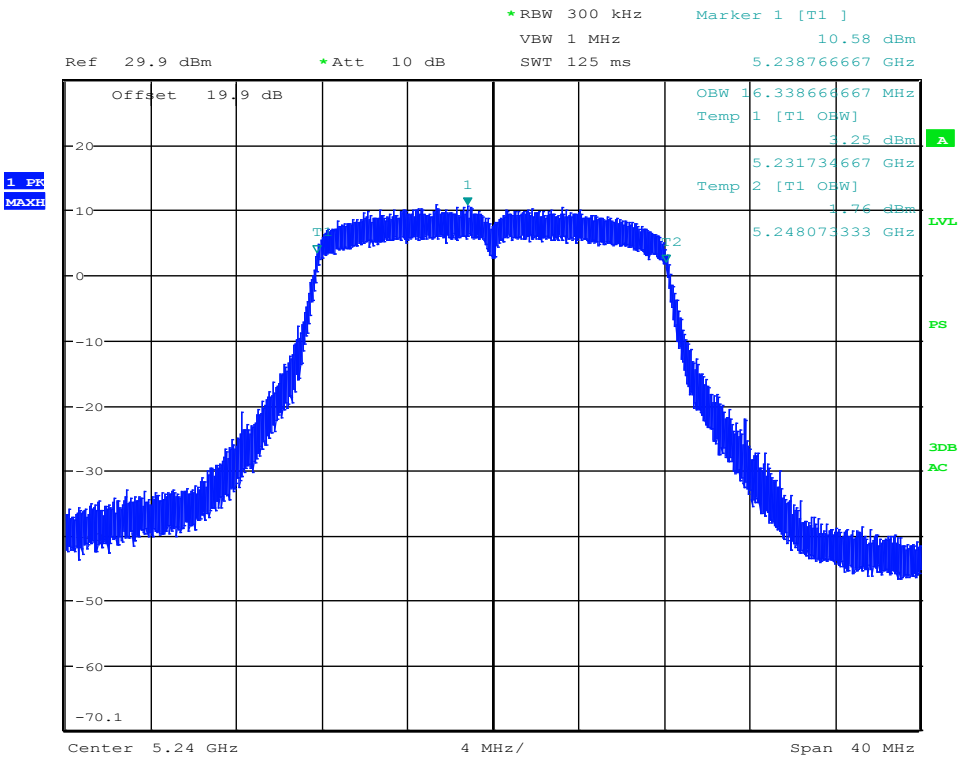
U-NII-1 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



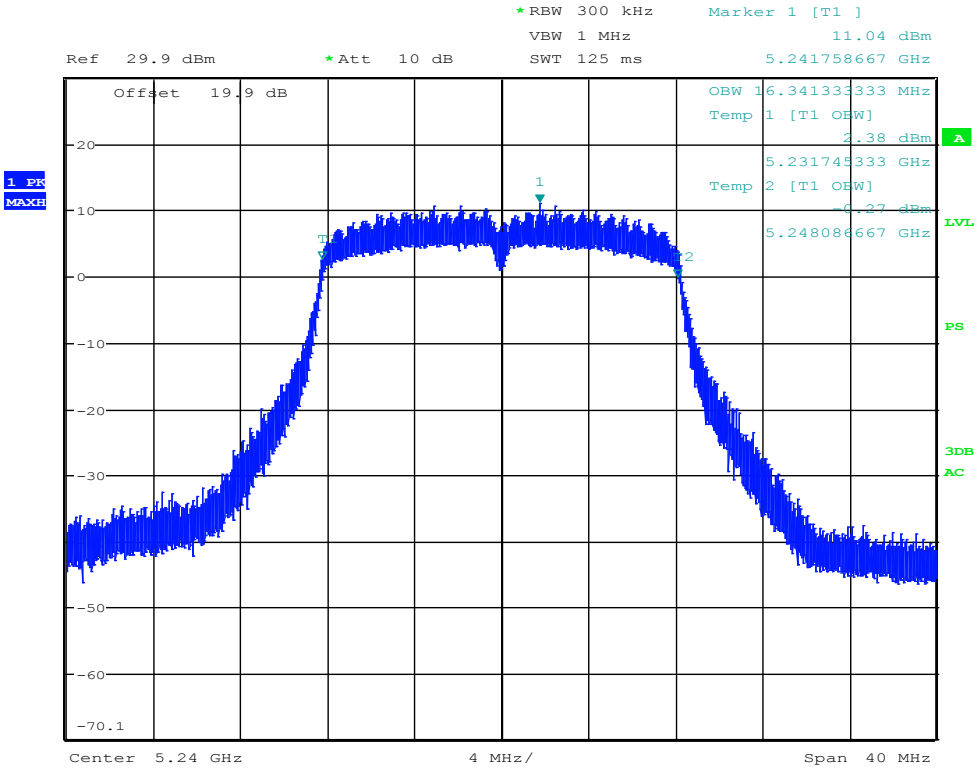
U-NII-1 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



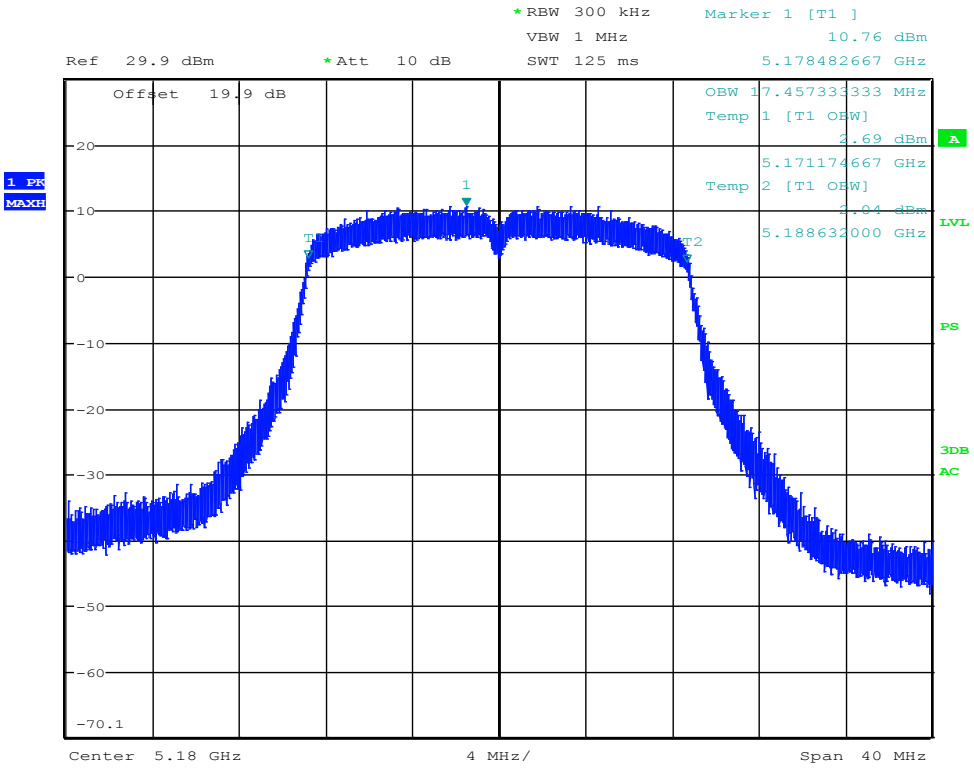
U-NII-1 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 20 MHz



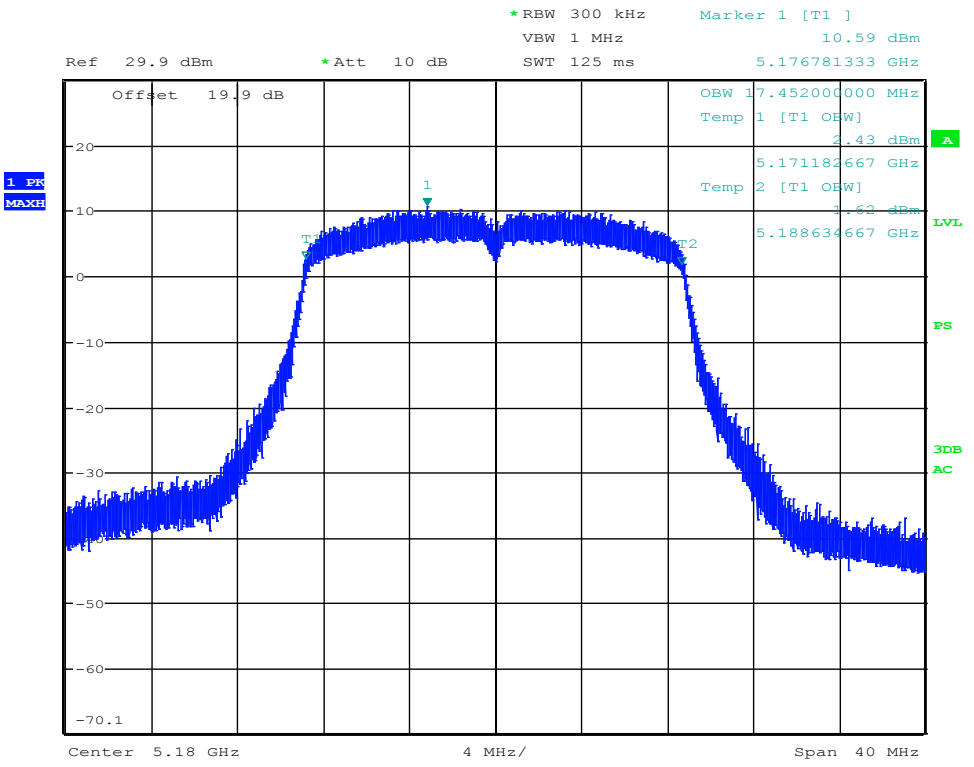
U-NII-1 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 20 MHz



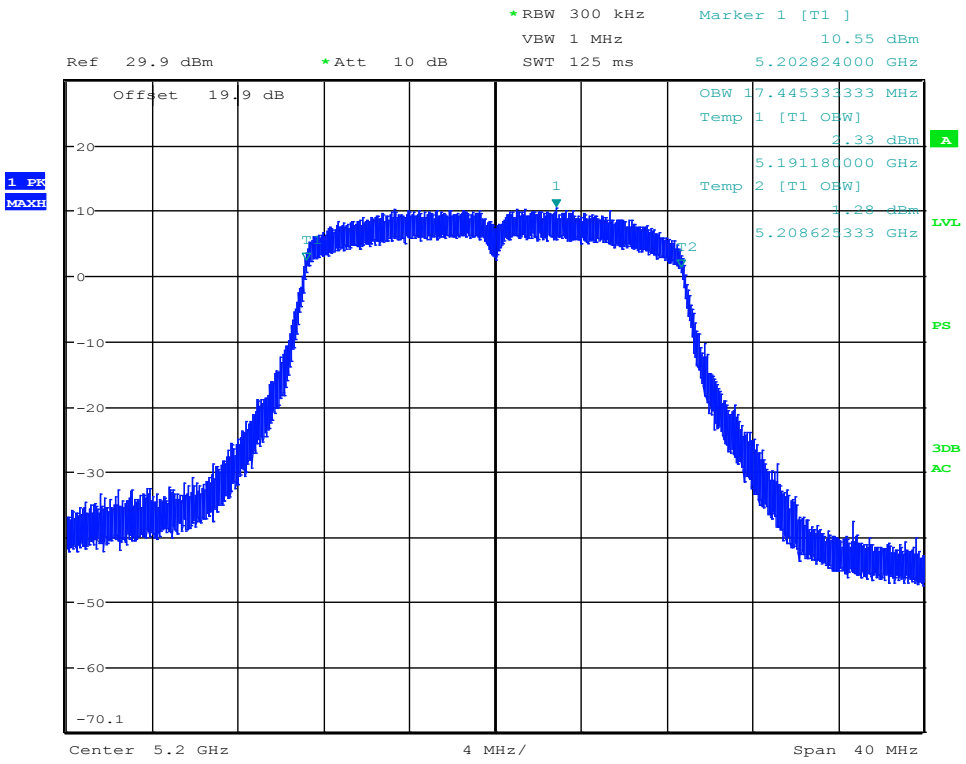
U-NII-1 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



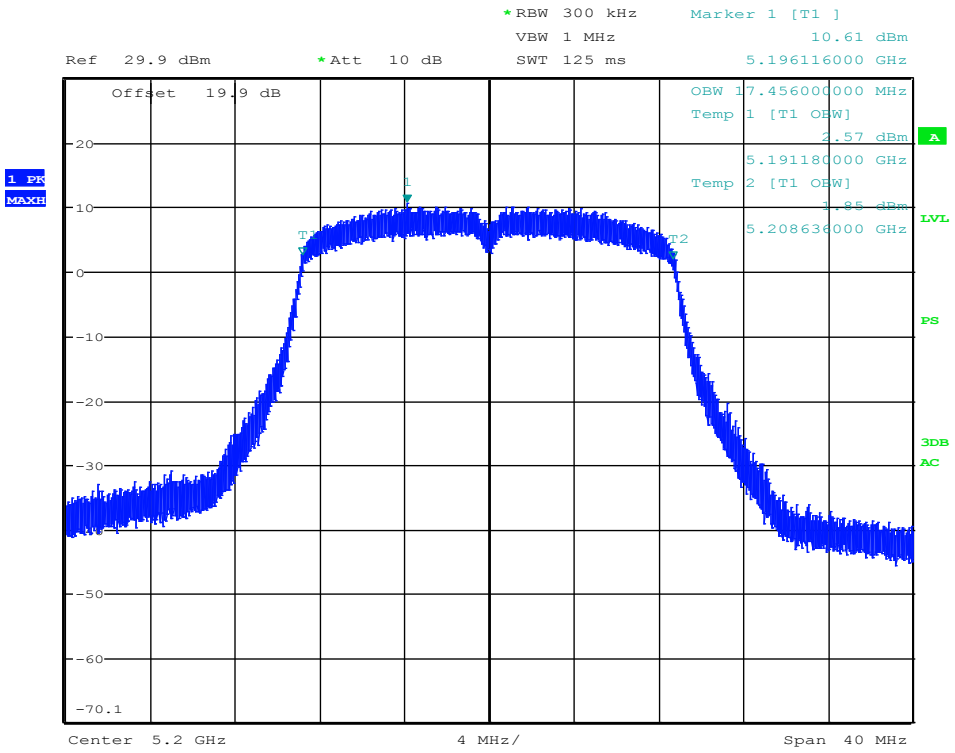
U-NII-1 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



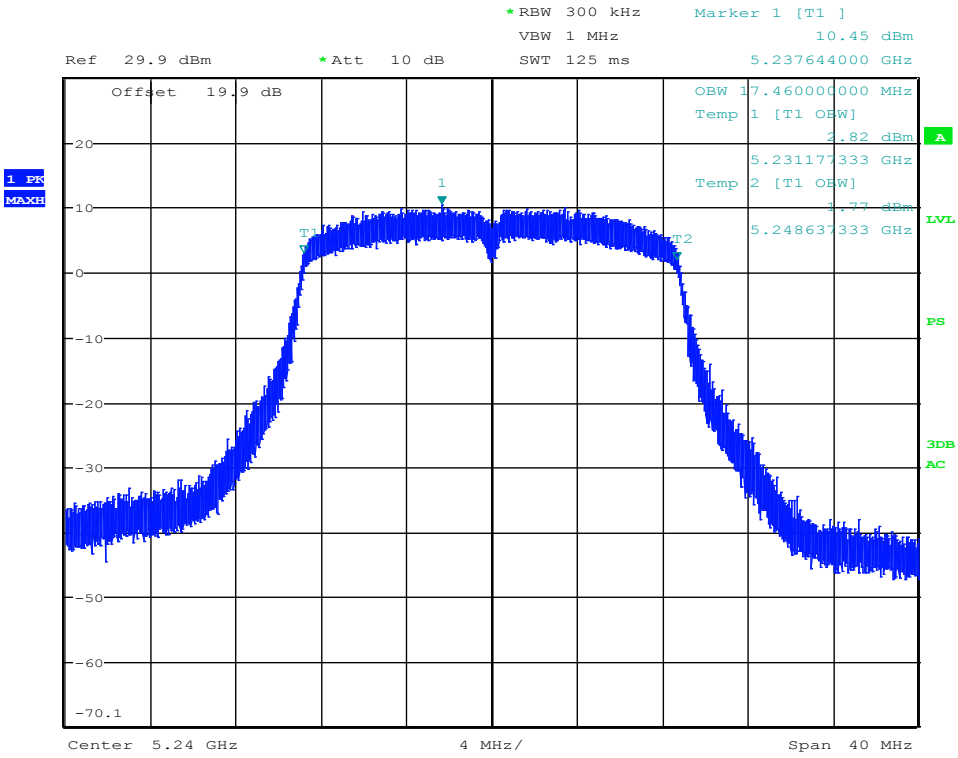
U-NII-1 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



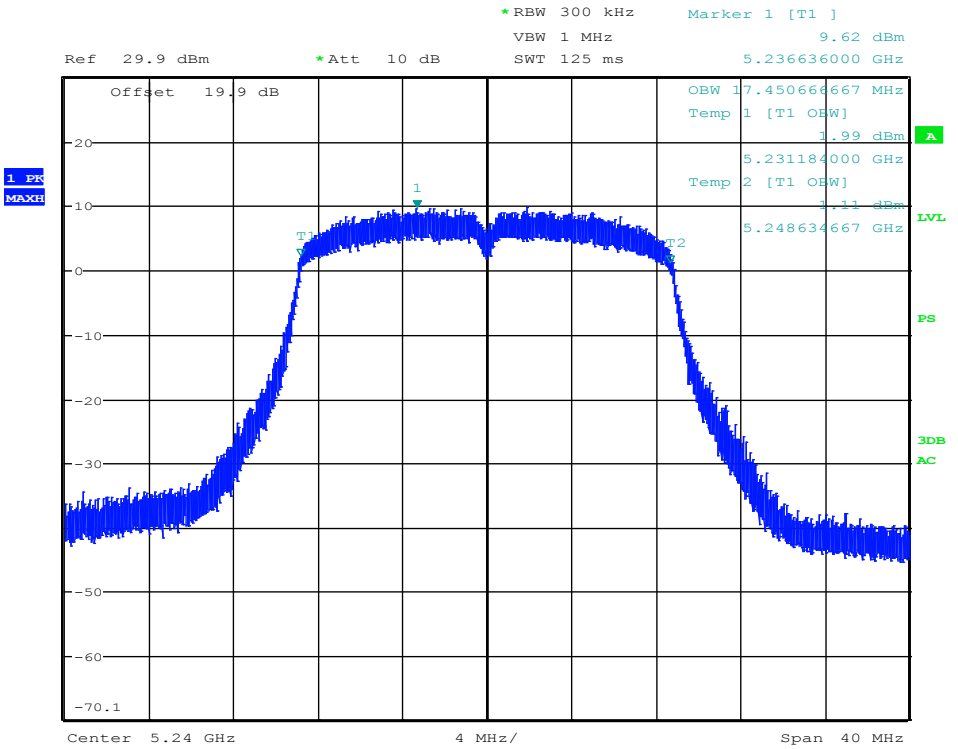
U-NII-1 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



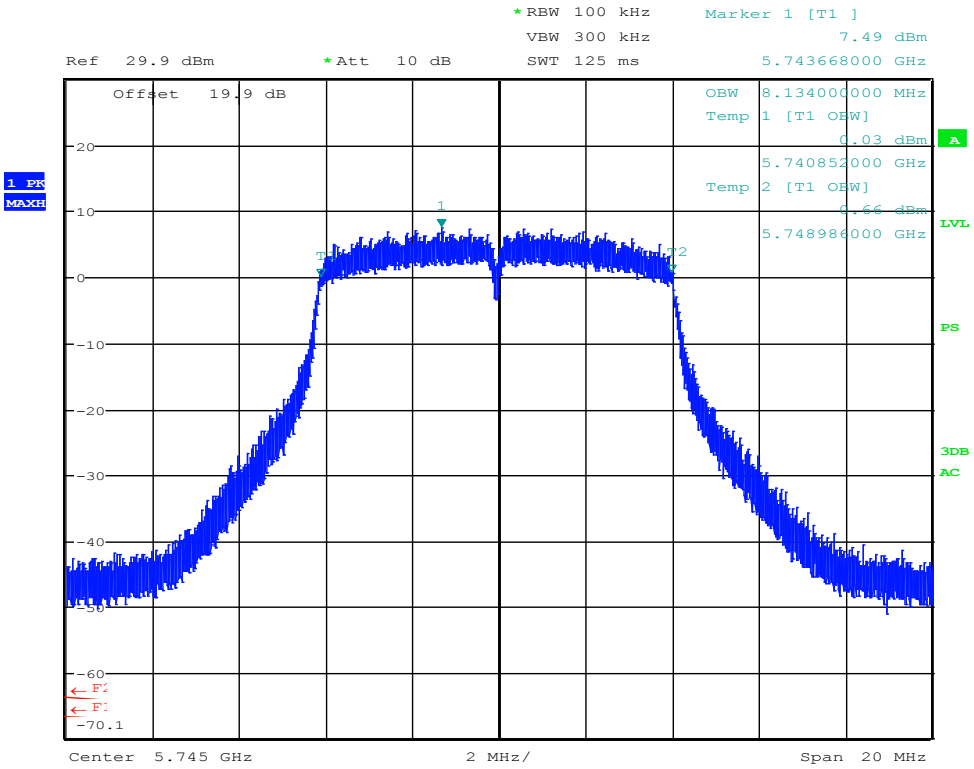
U-NII-1 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 20 MHz



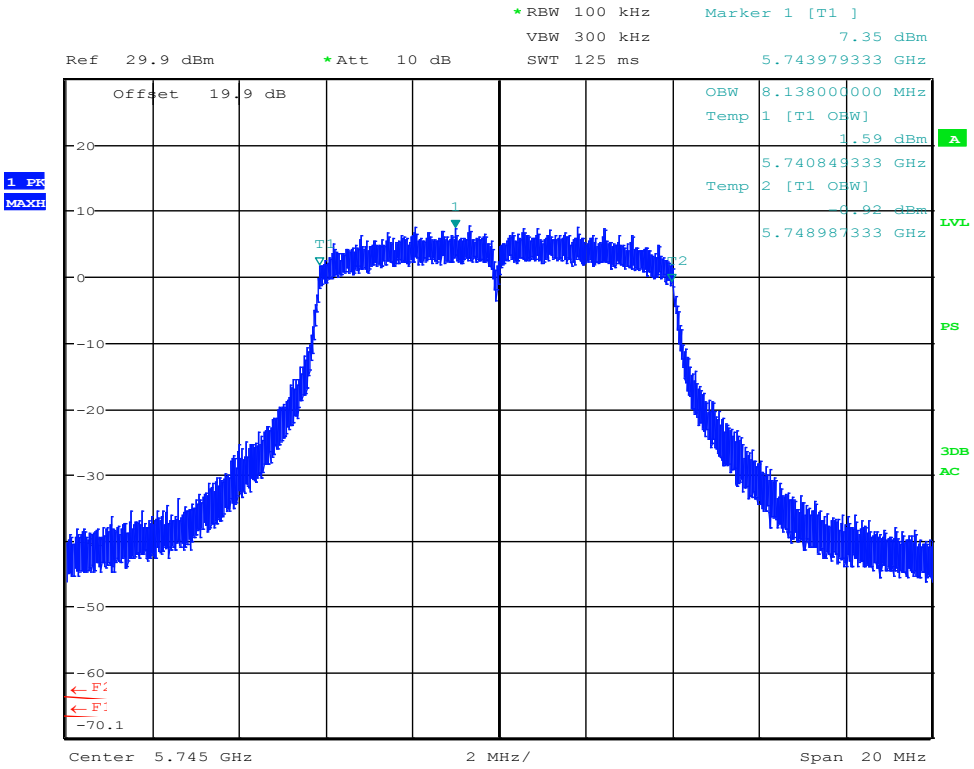
U-NII-1 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 20 MHz



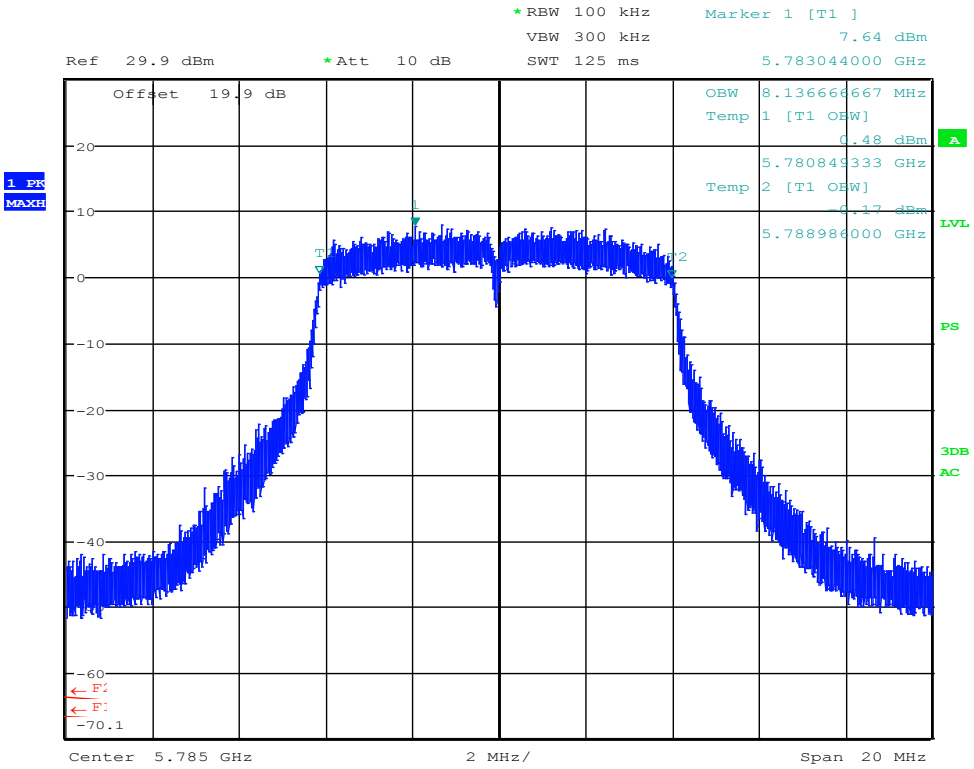
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



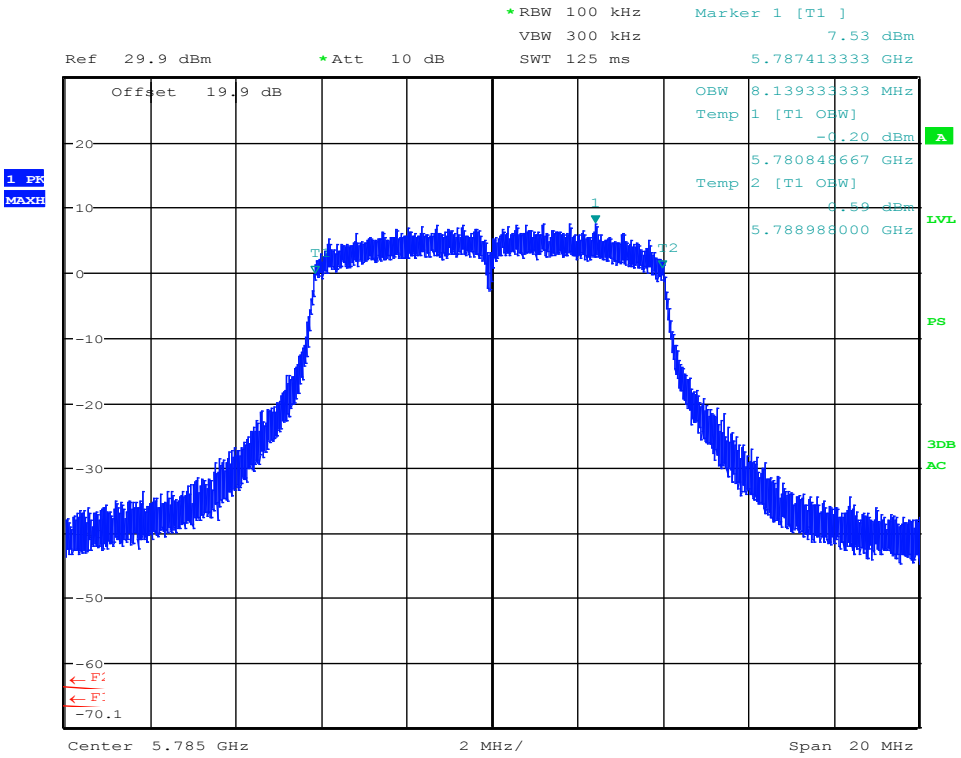
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



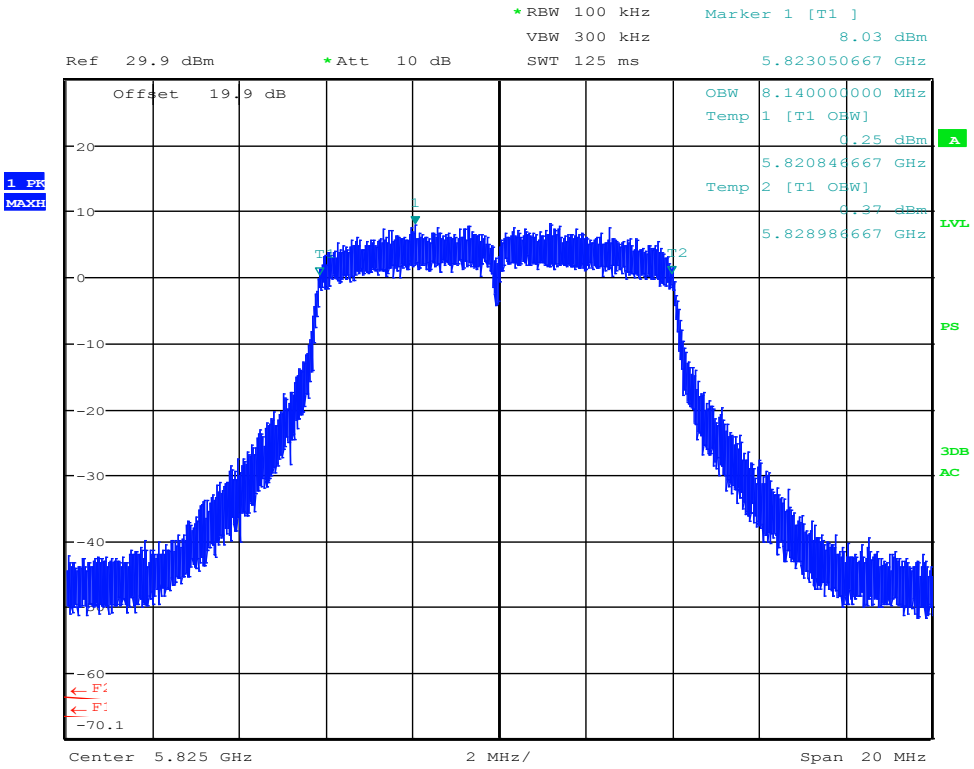
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



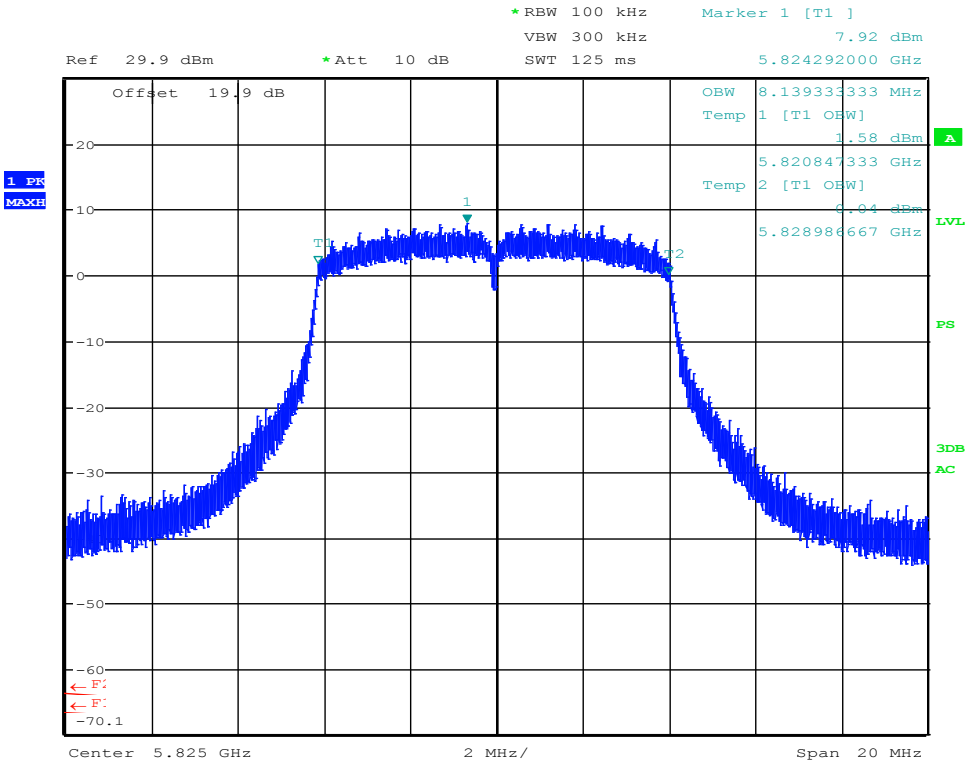
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



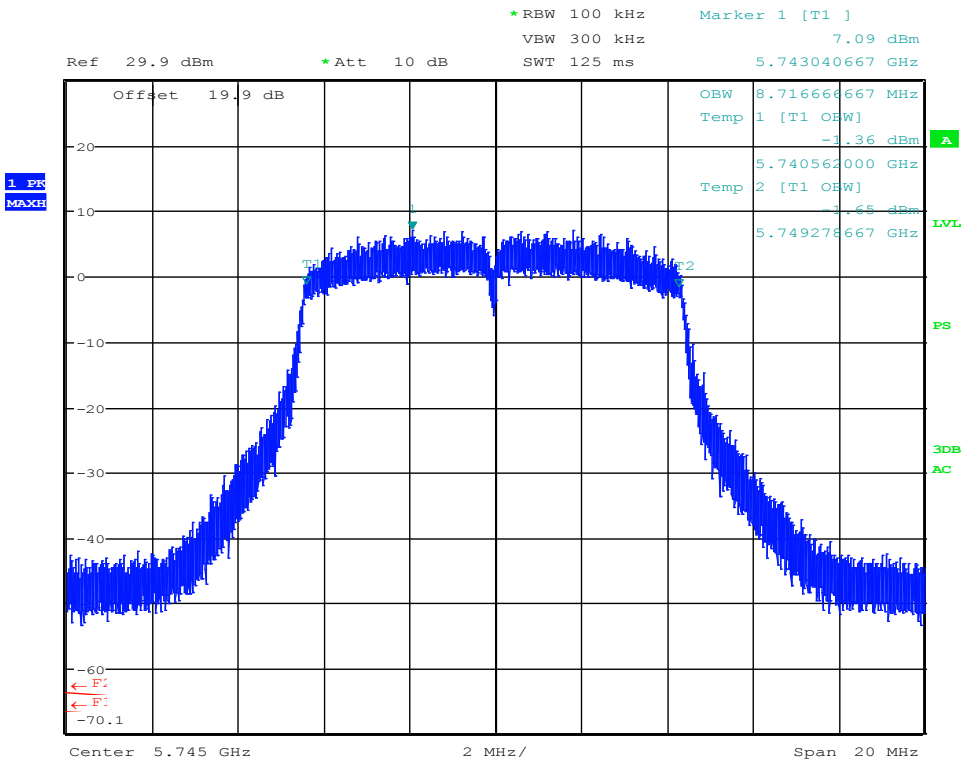
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 10 MHz



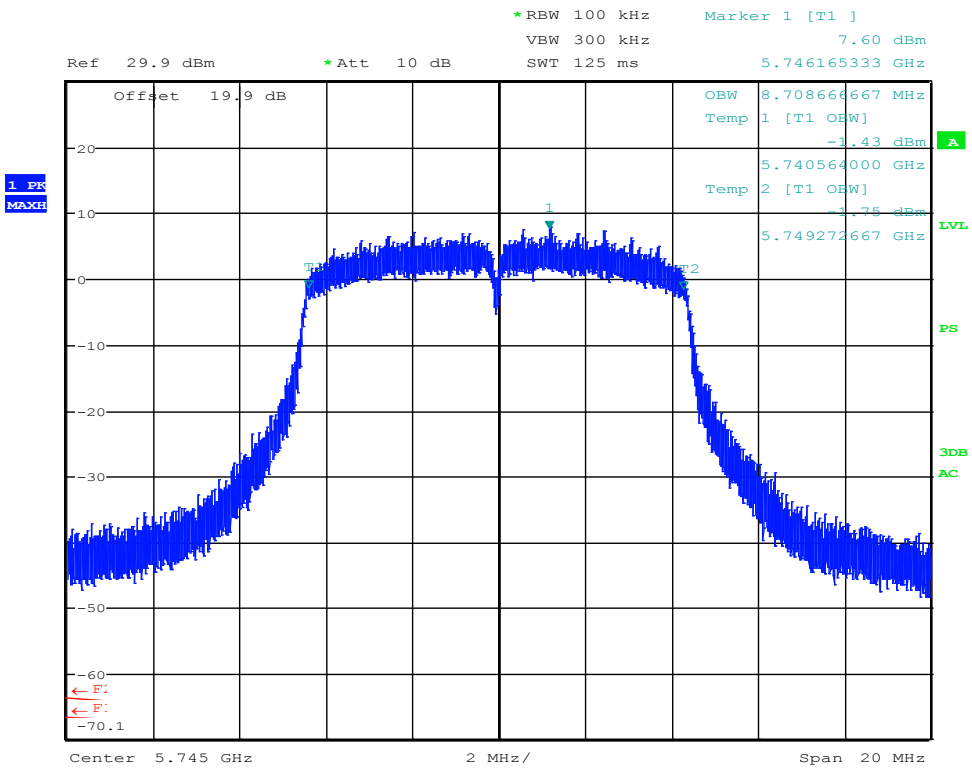
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 10 MHz



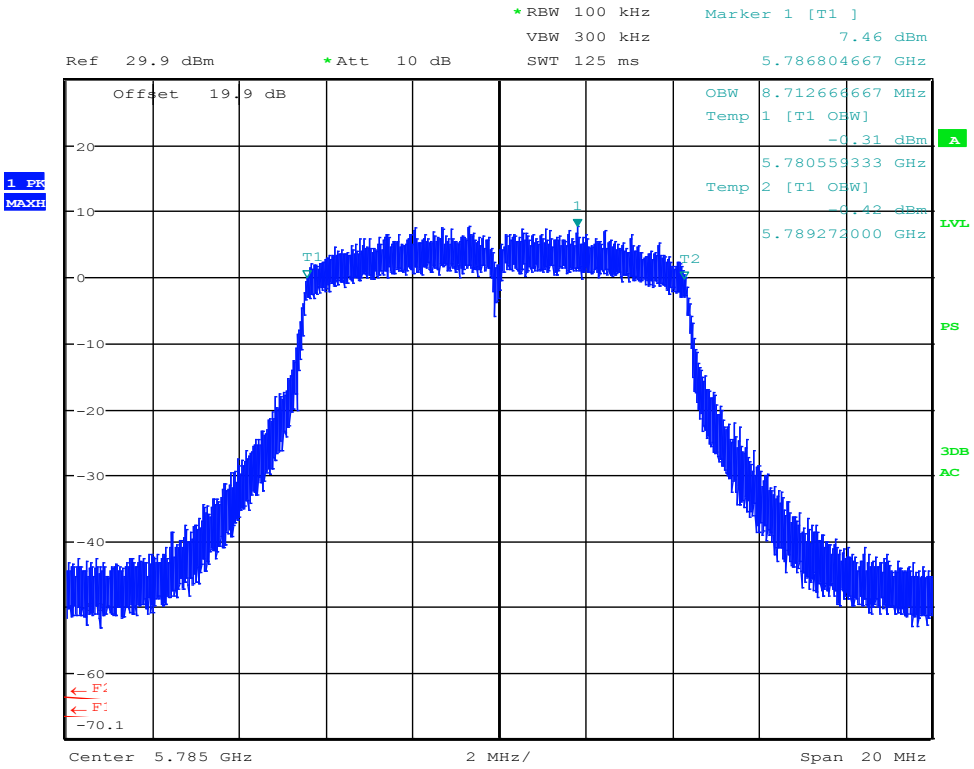
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



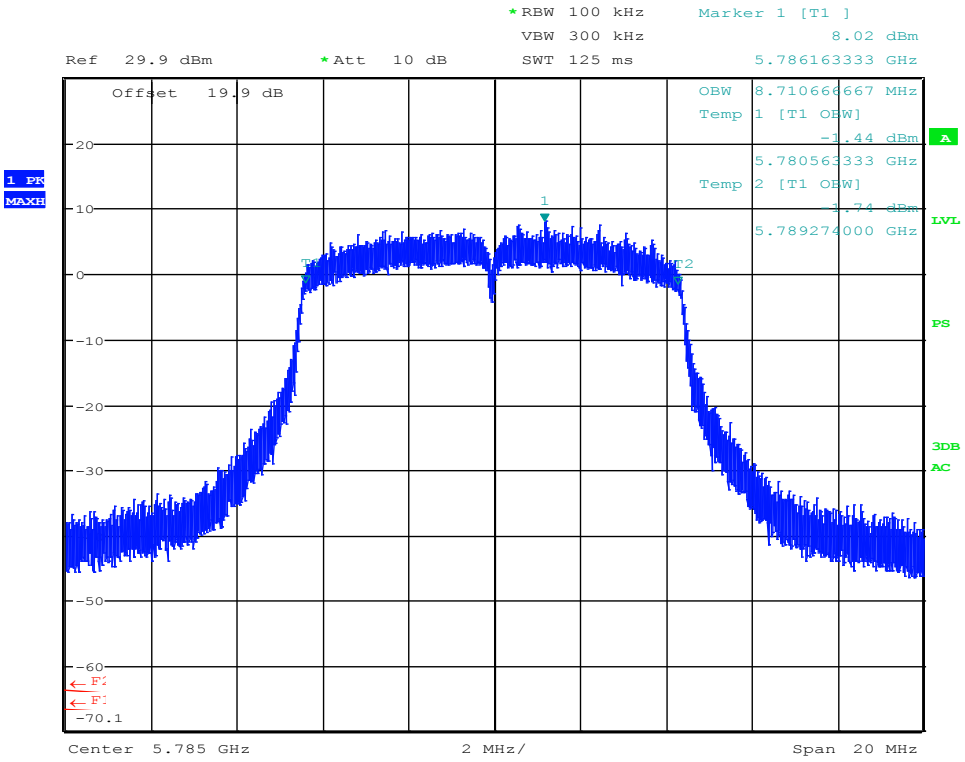
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



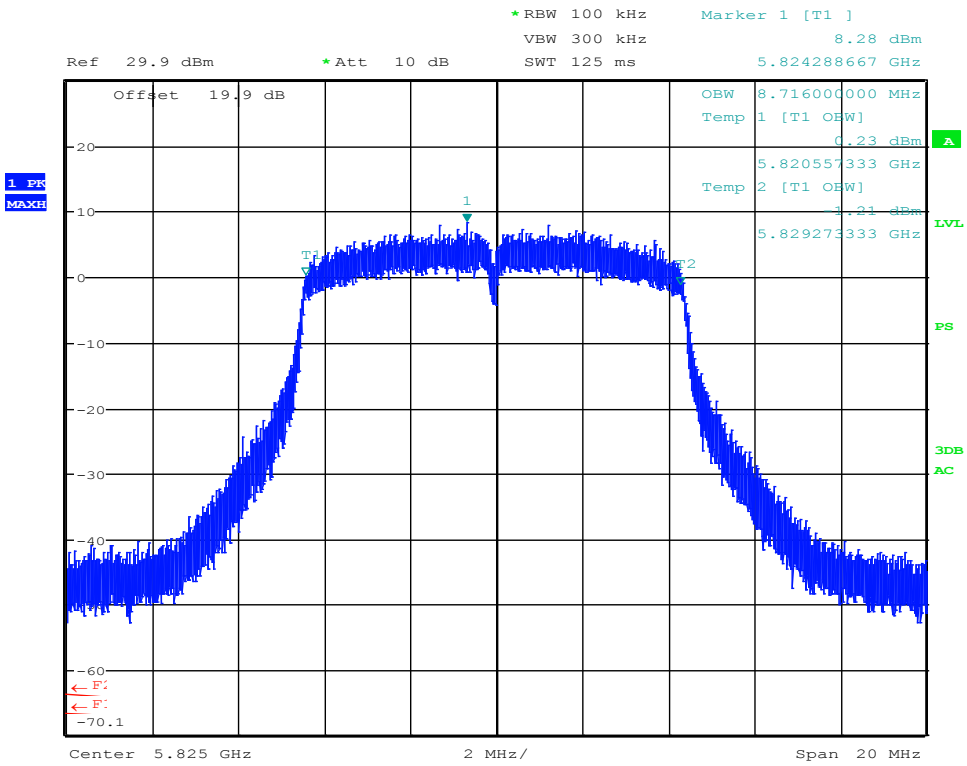
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



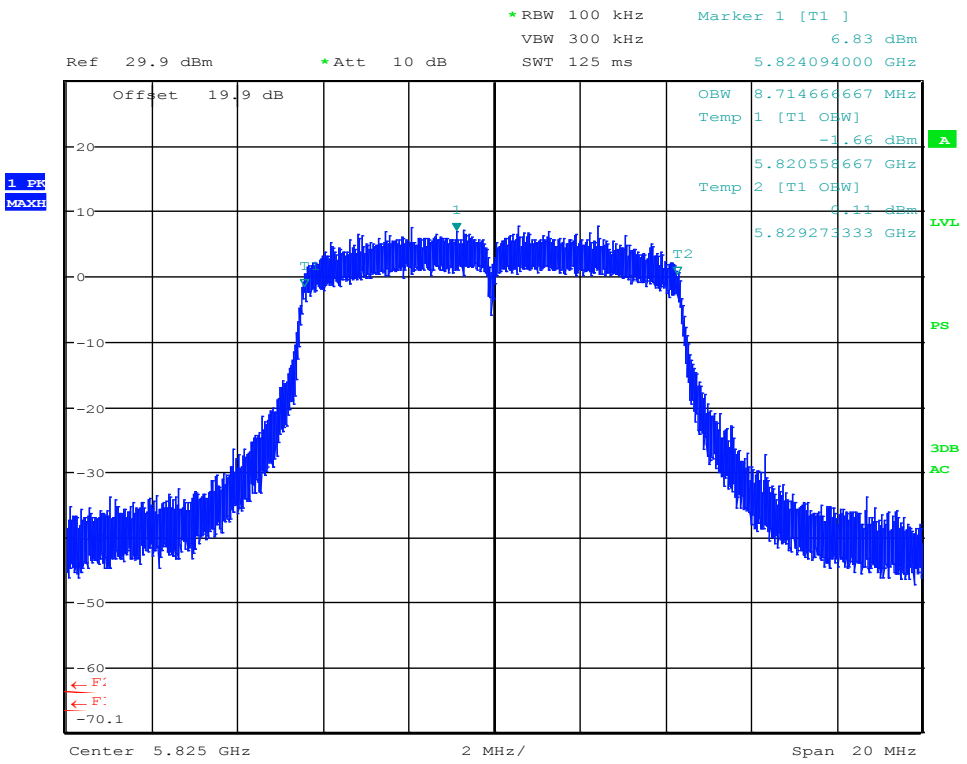
U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



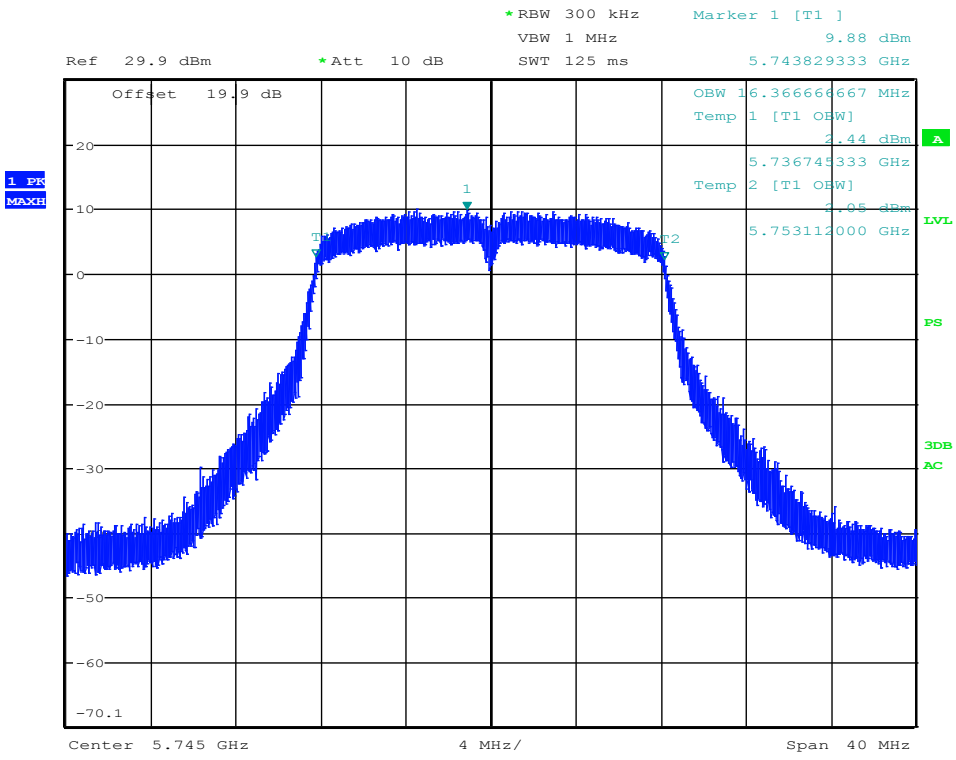
U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 10 MHz



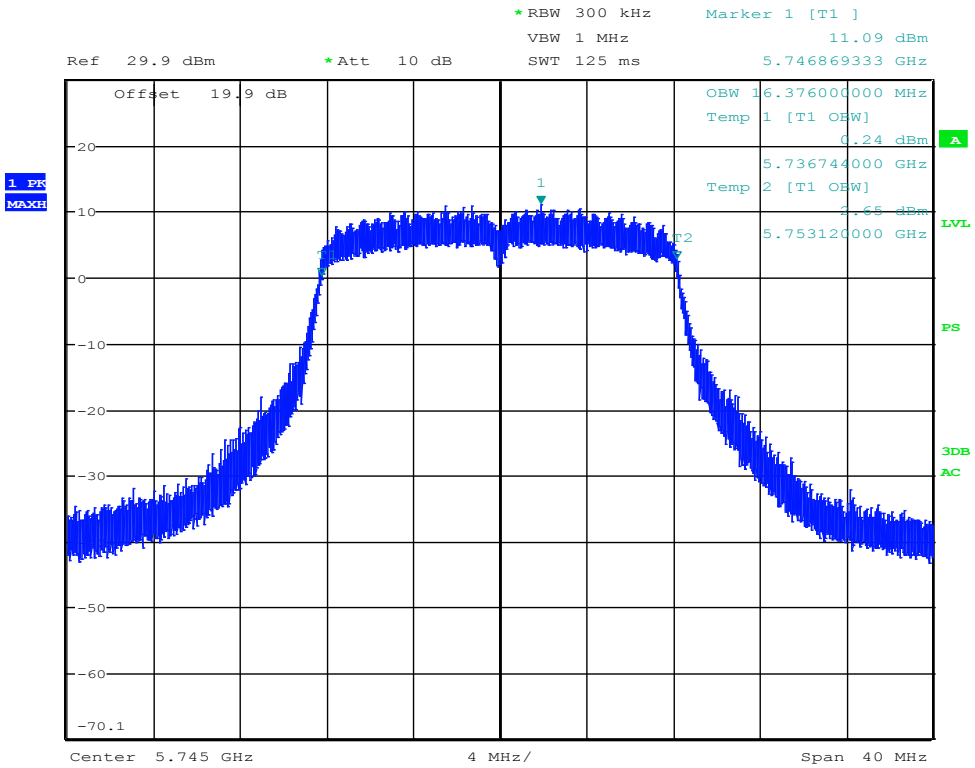
U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 10 MHz



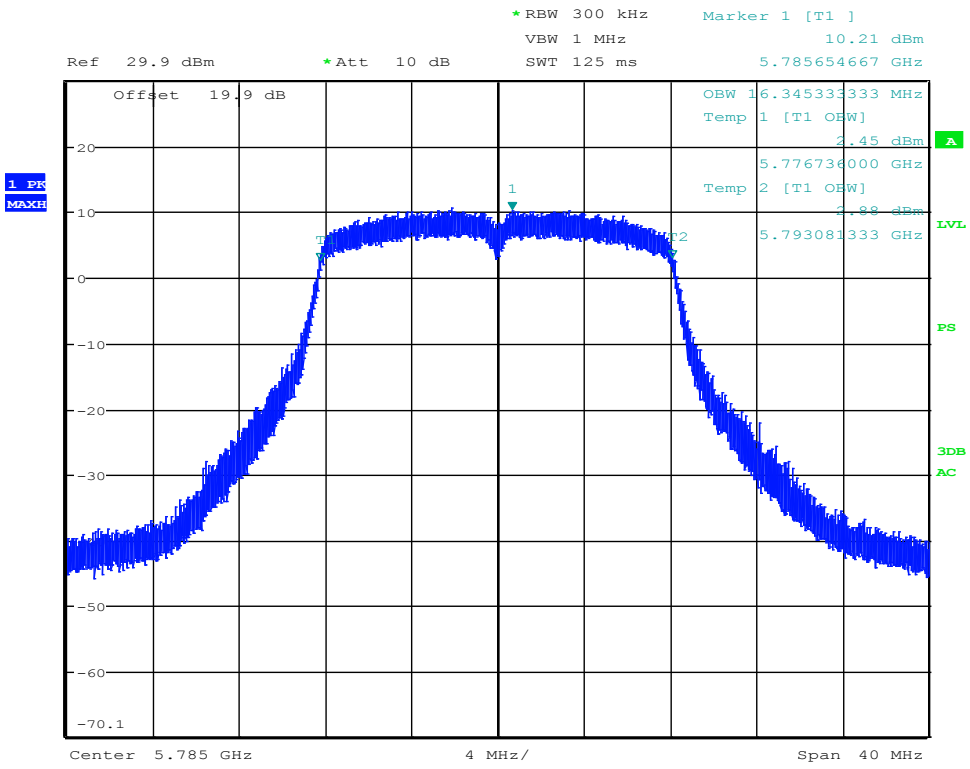
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



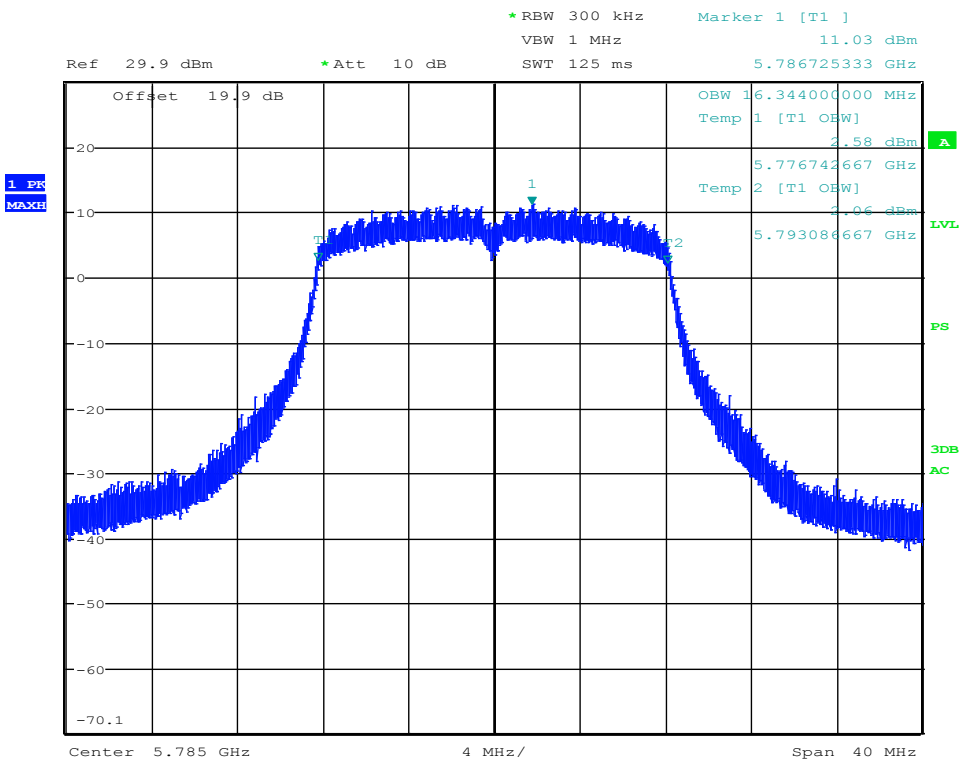
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



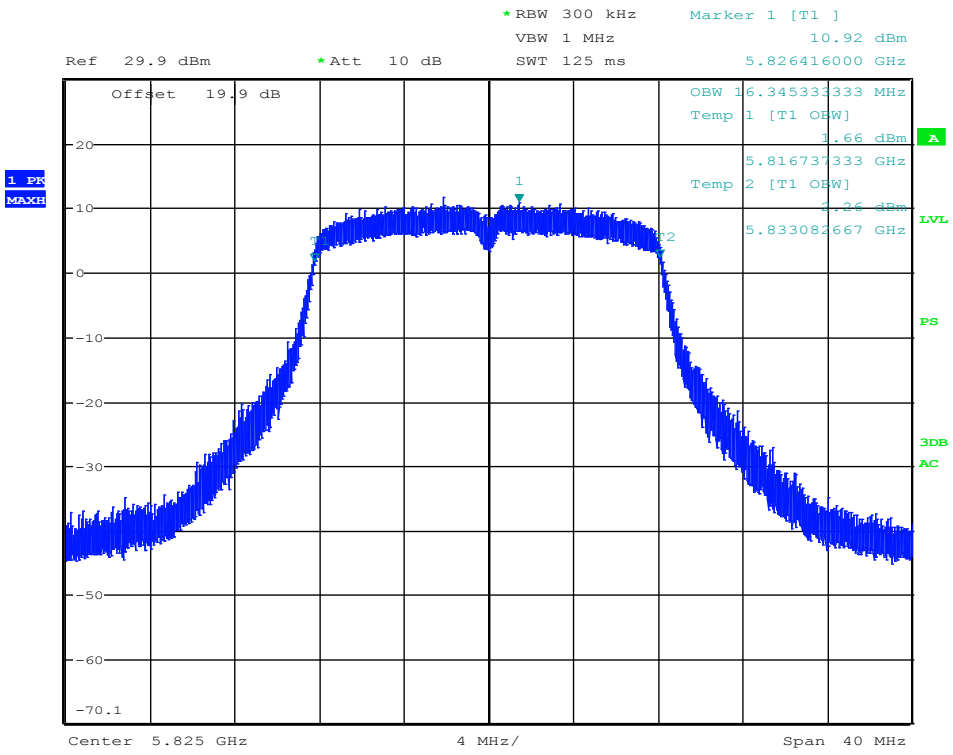
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



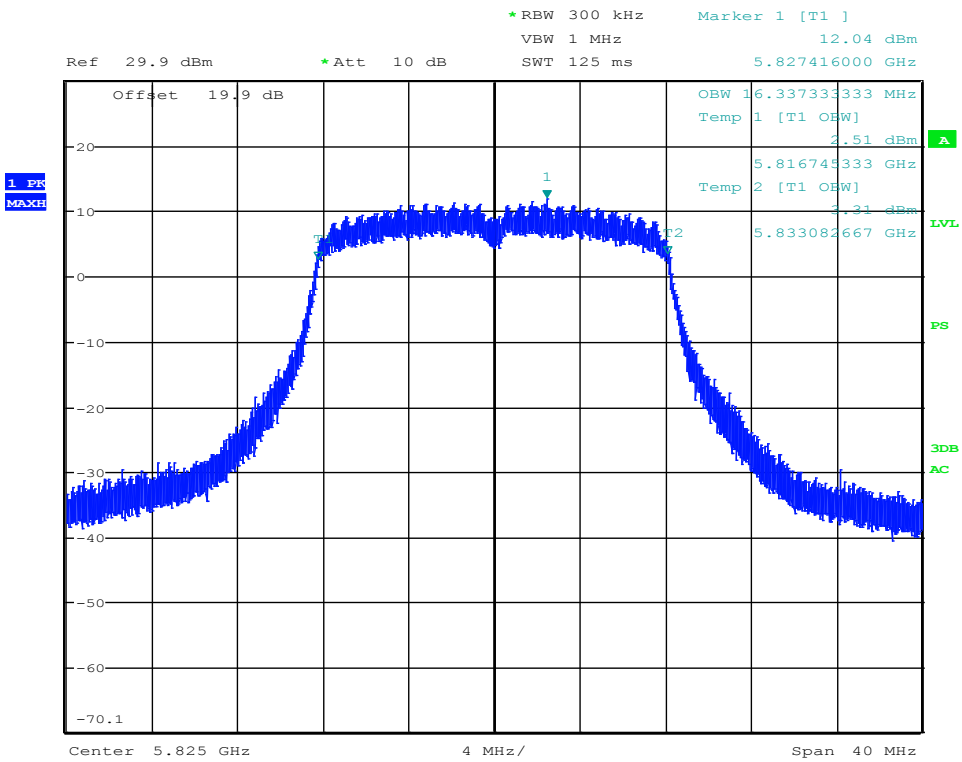
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



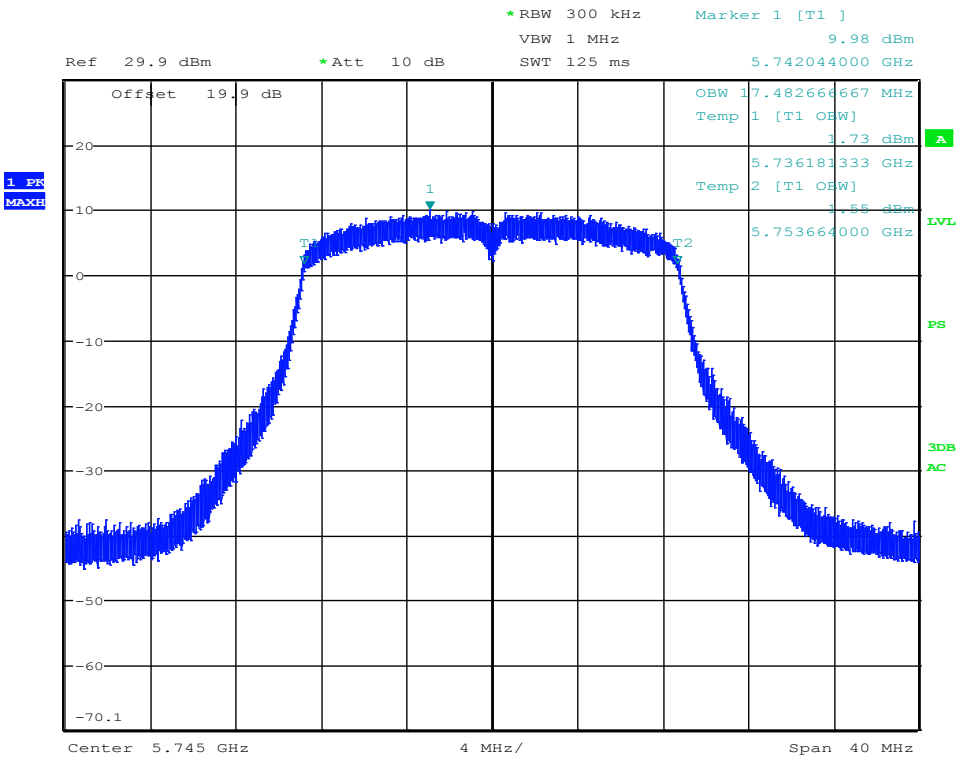
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 20 MHz



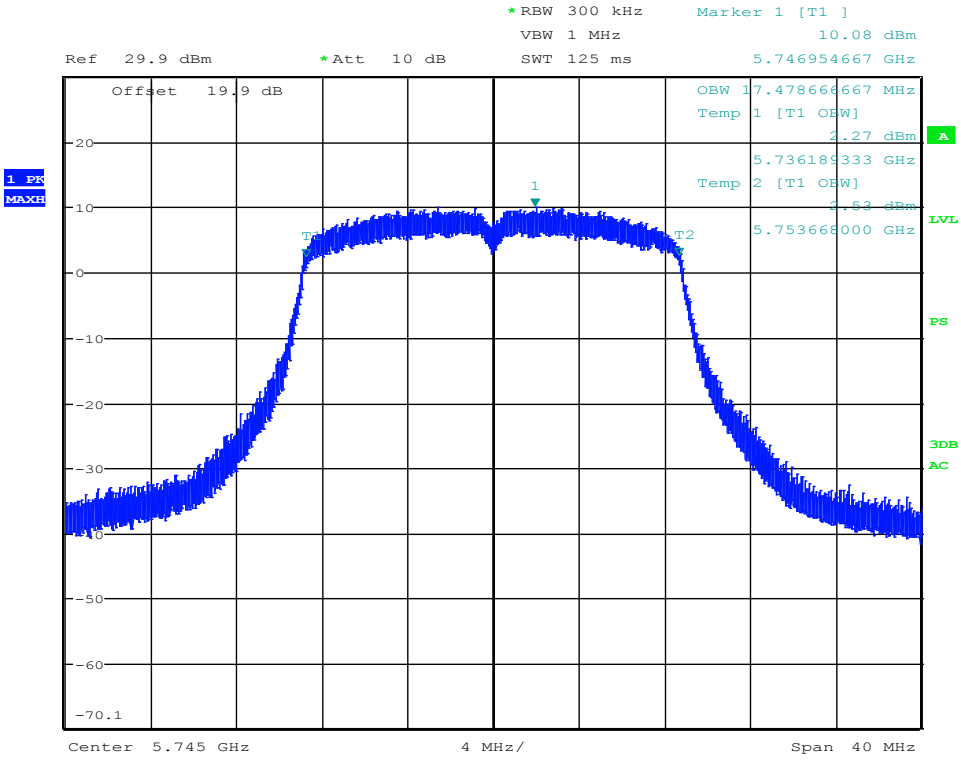
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 20 MHz



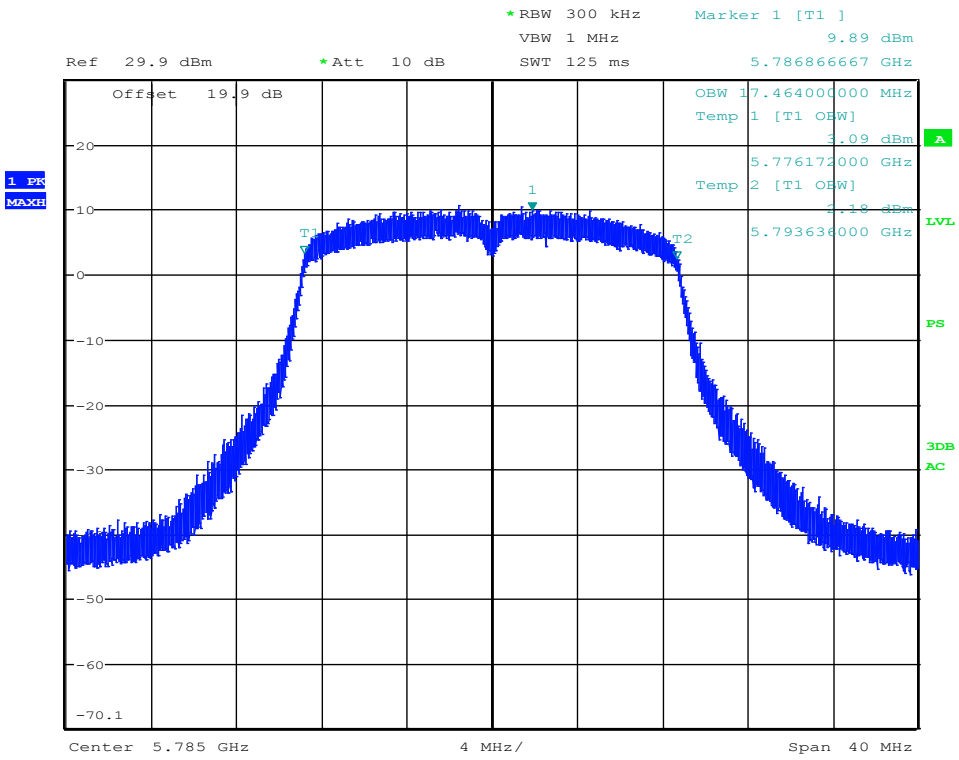
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



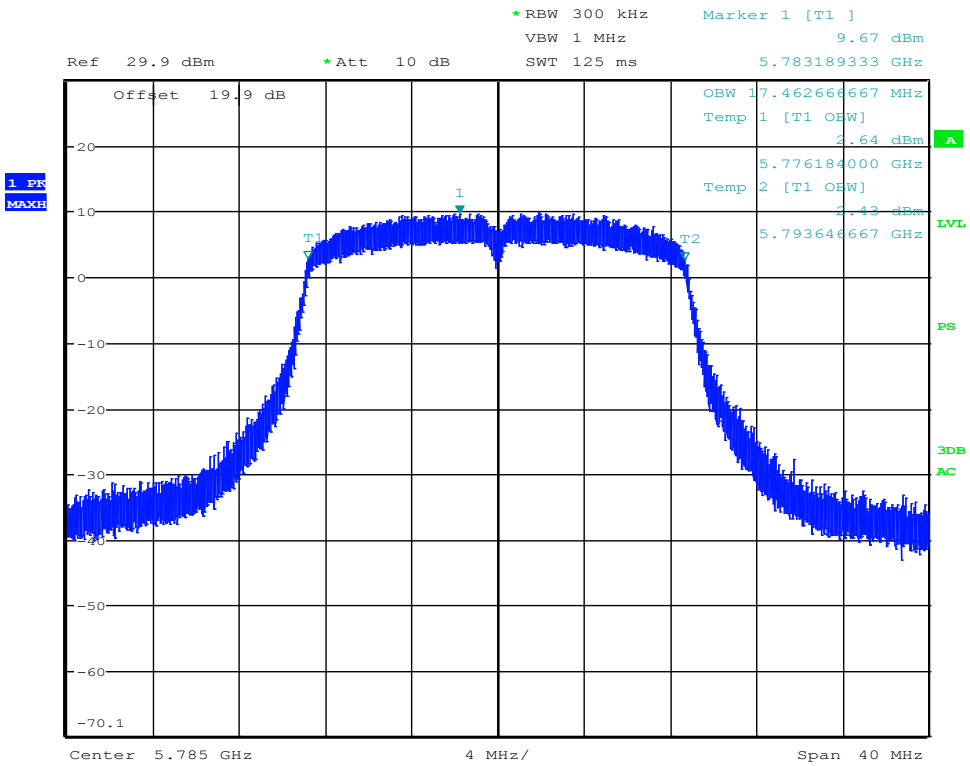
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



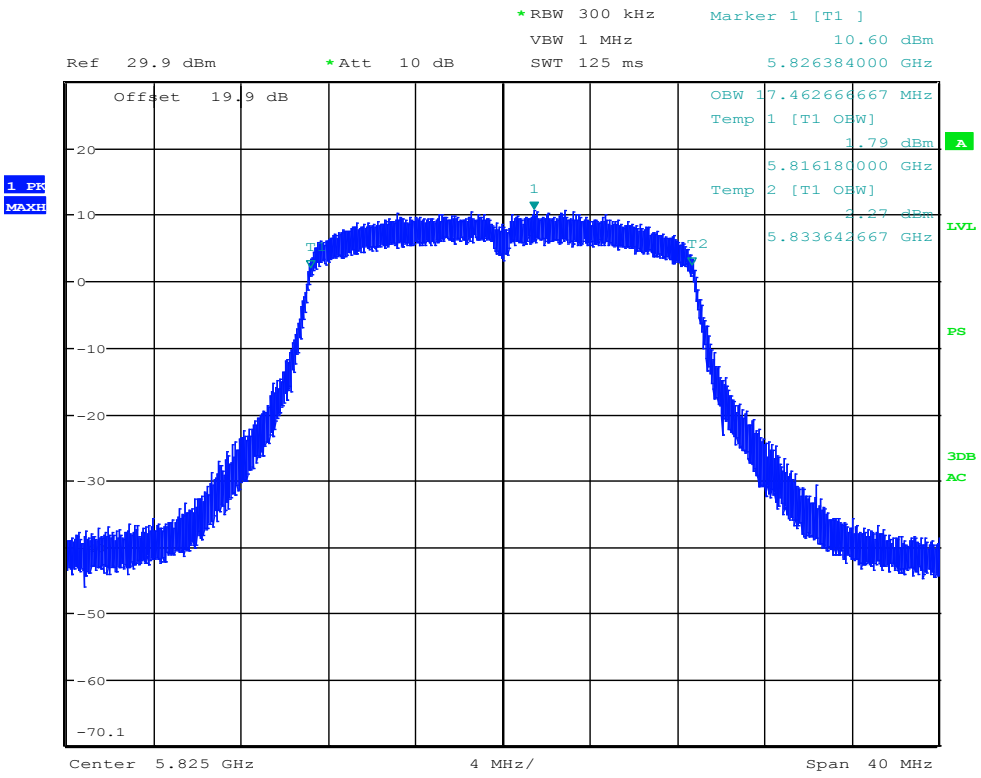
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



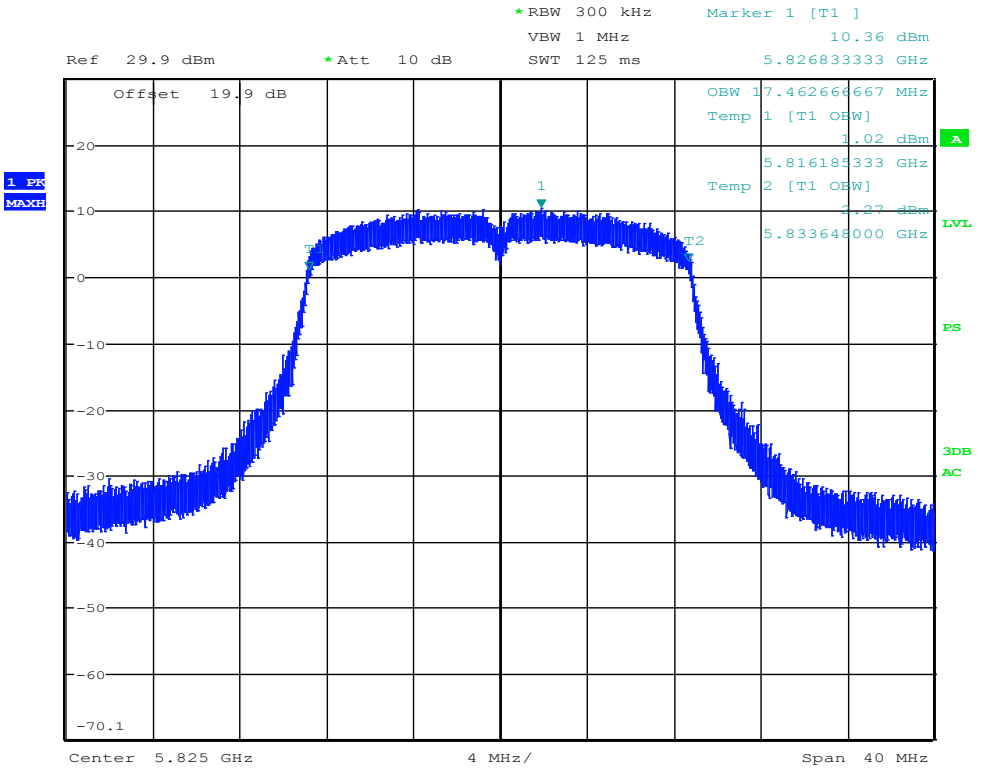
U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 20 MHz

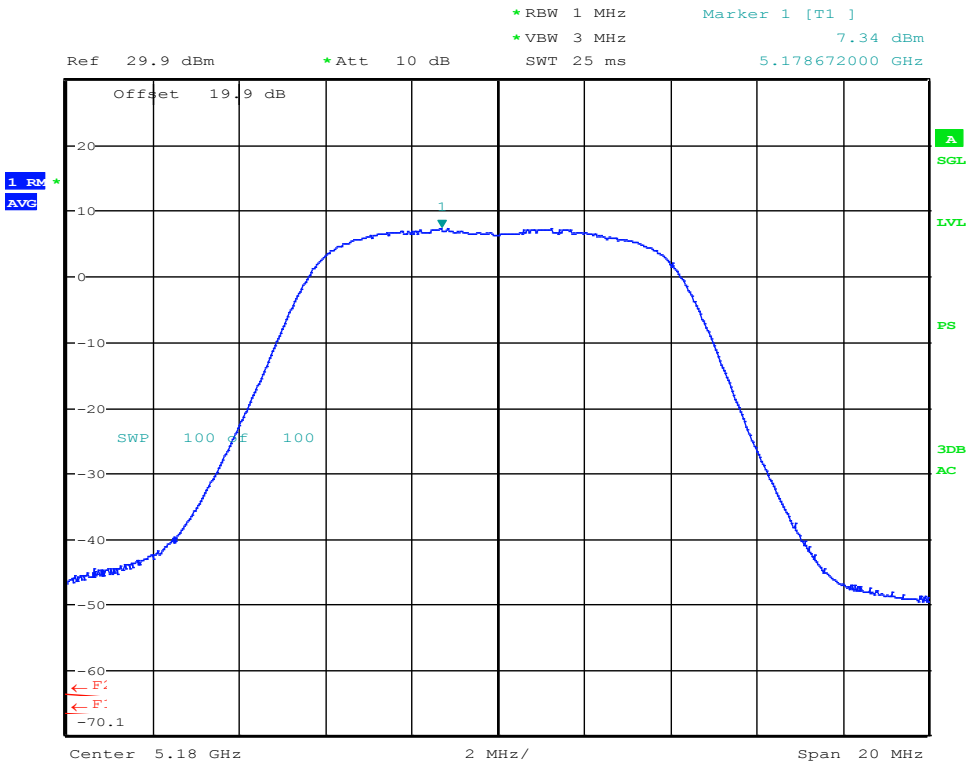


U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 20 MHz

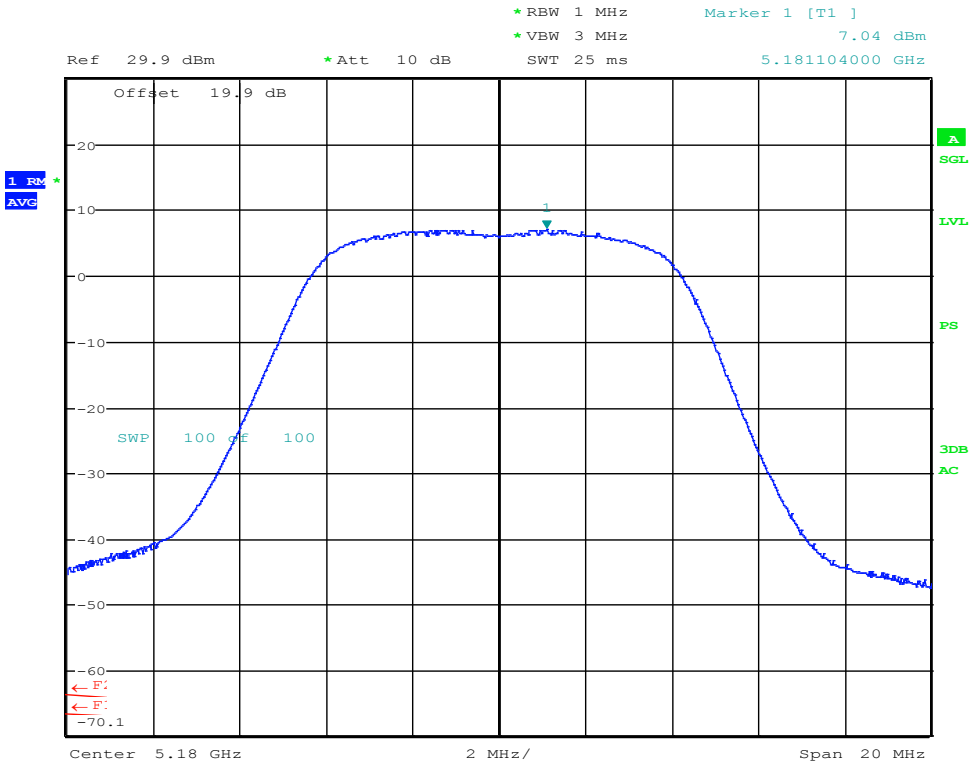


APPENDIX 5: Power Spectral Density

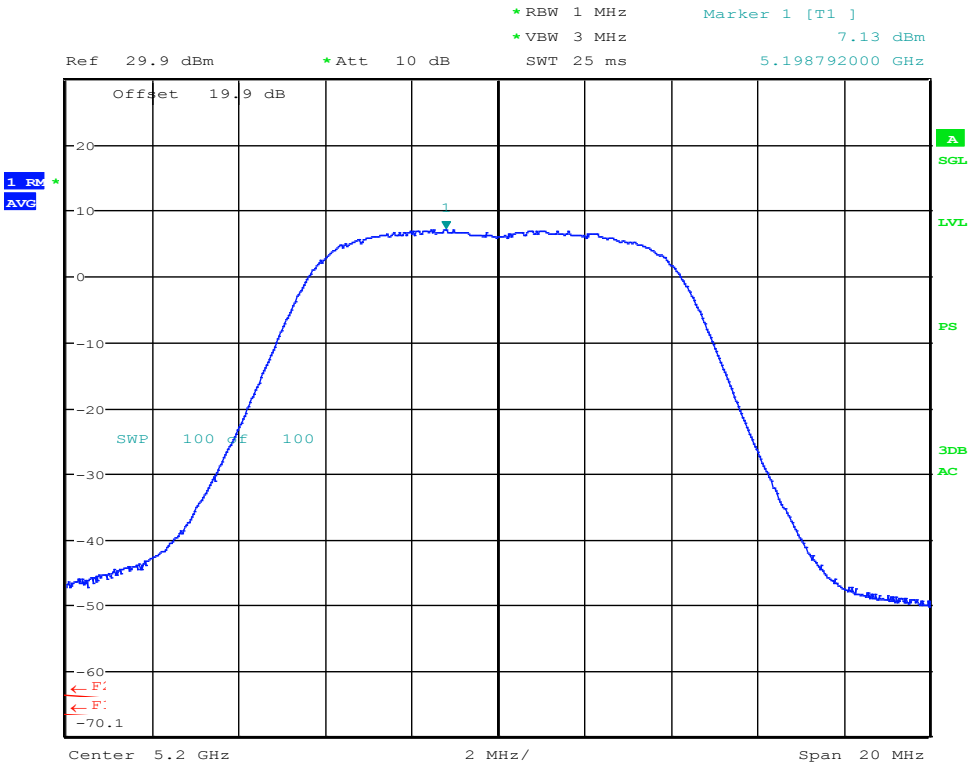
U-NII-1 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



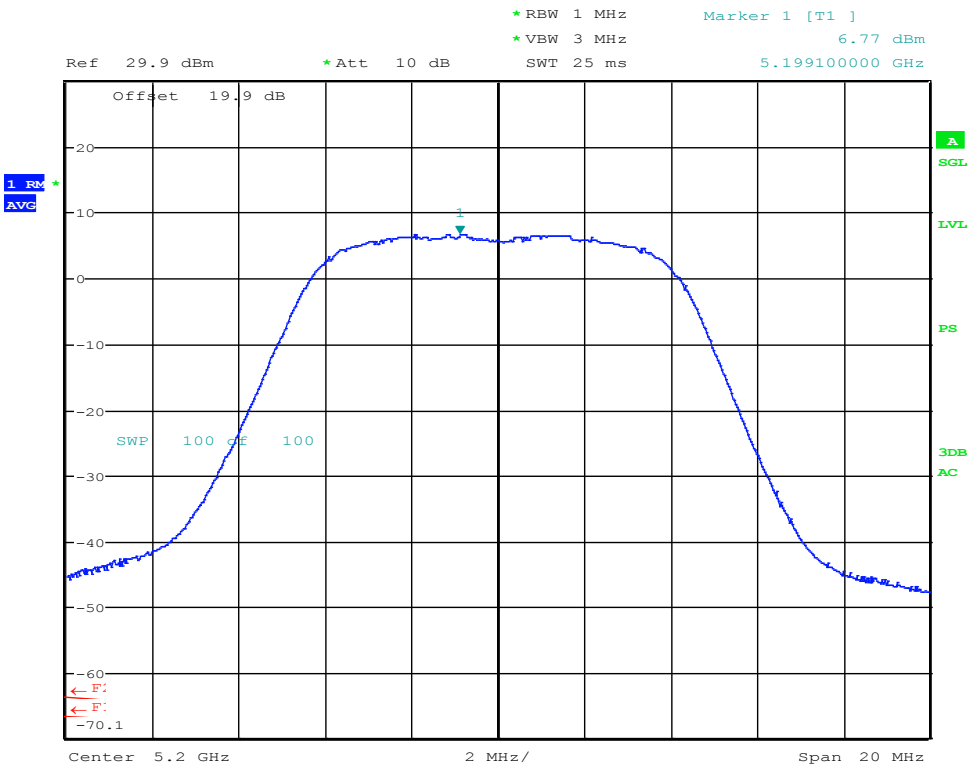
U-NII-1 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



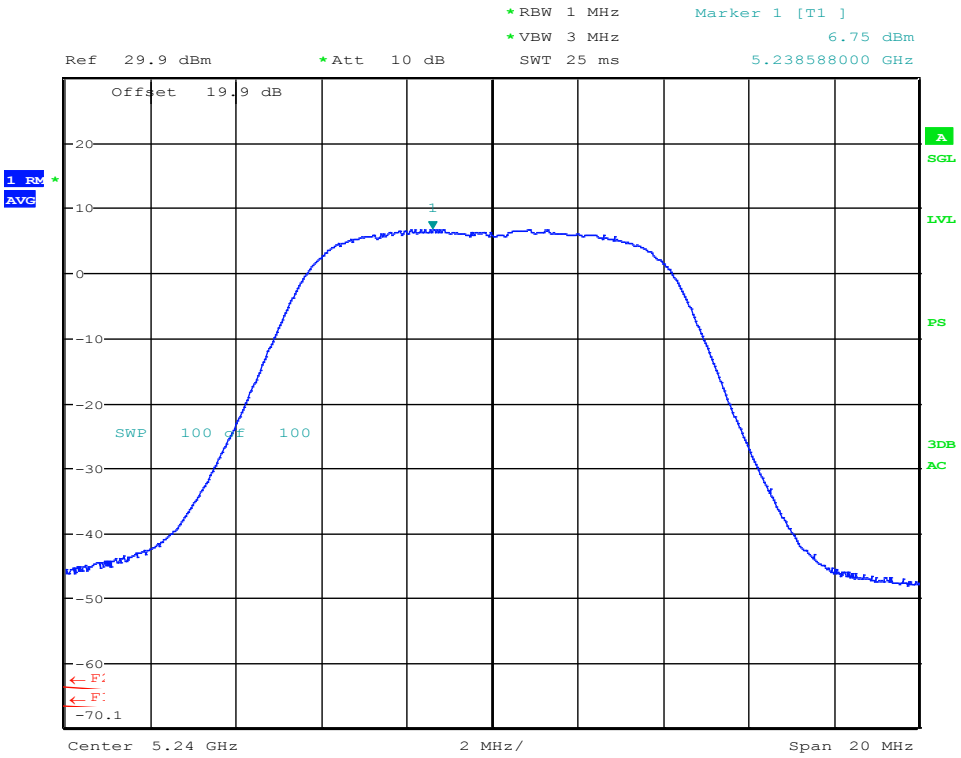
U-NII-1 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



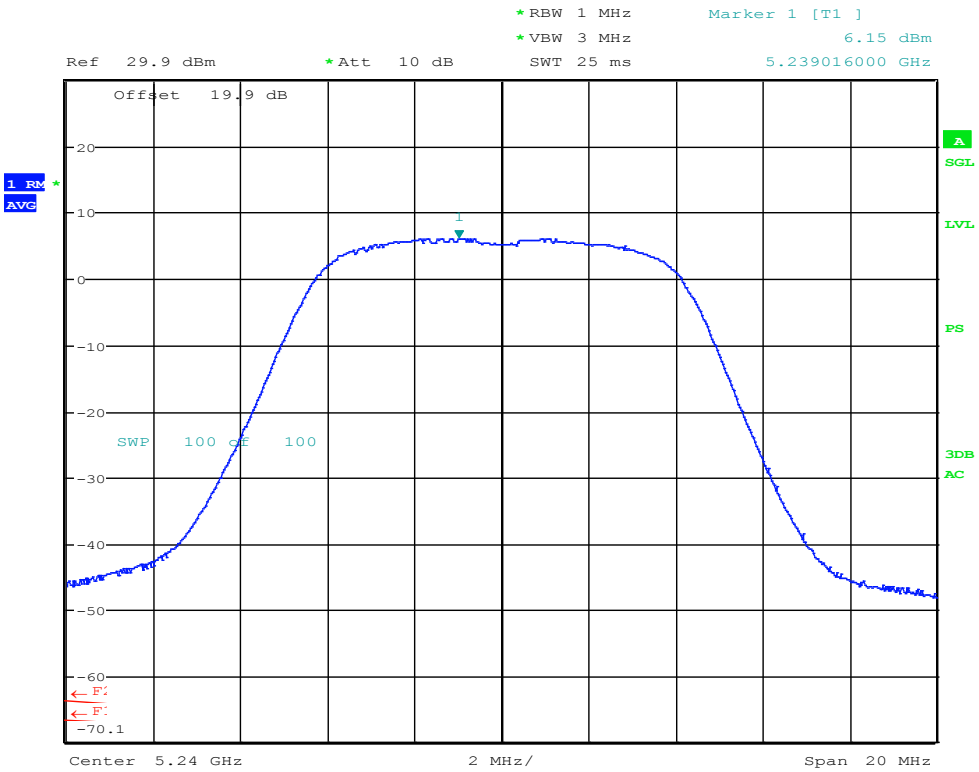
U-NII-1 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



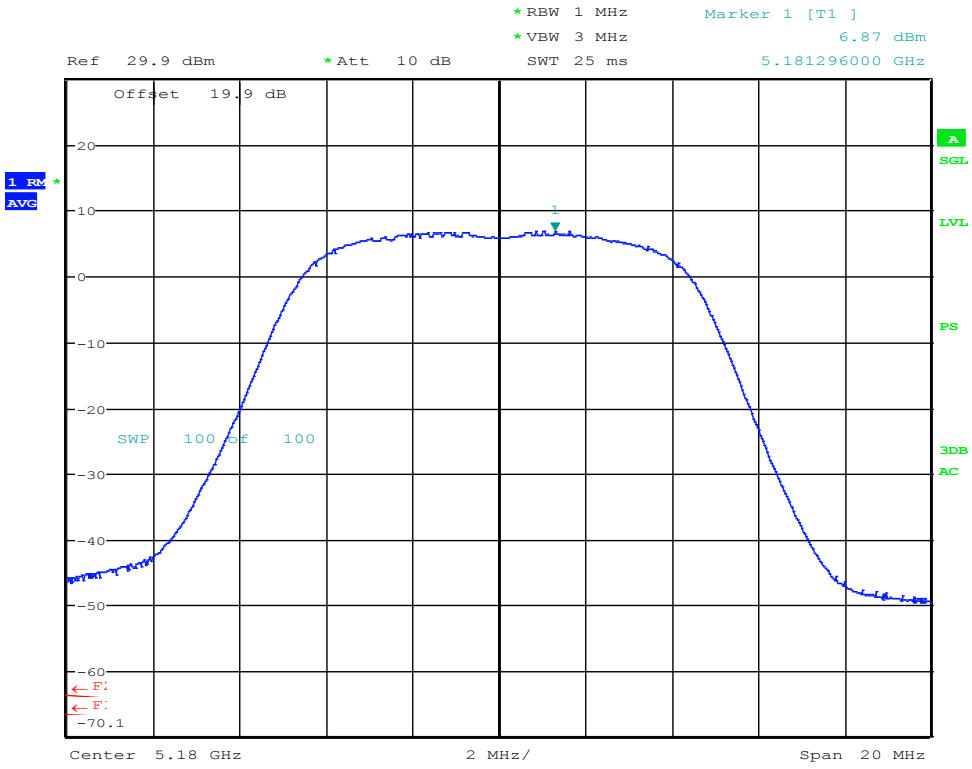
U-NII-1 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 10 MHz



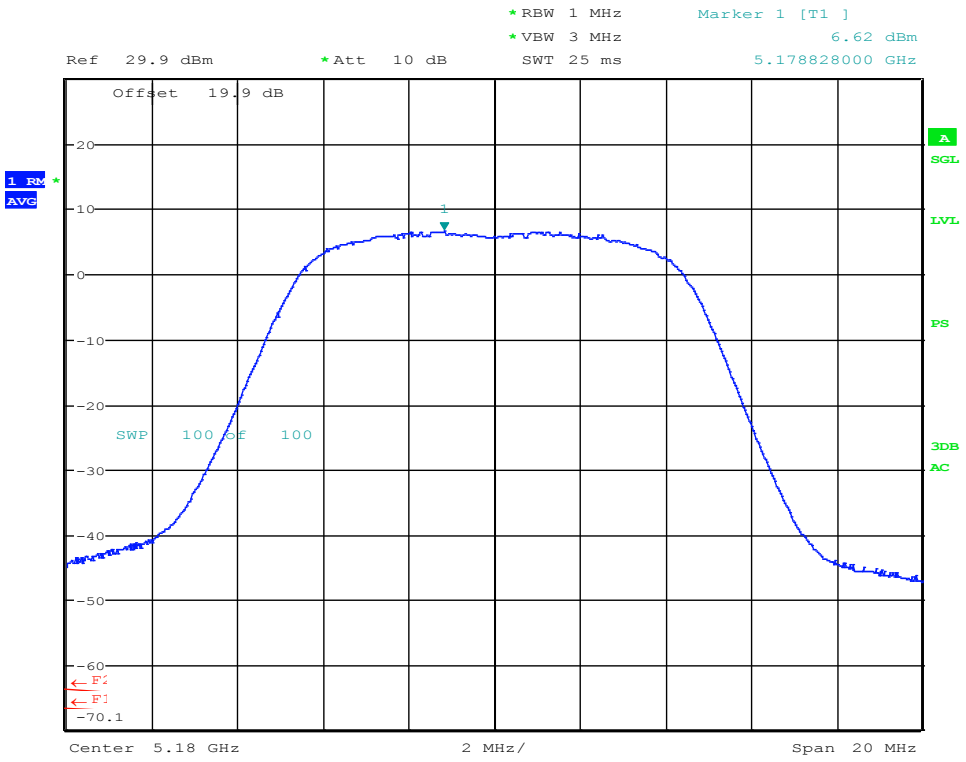
U-NII-1 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 10 MHz



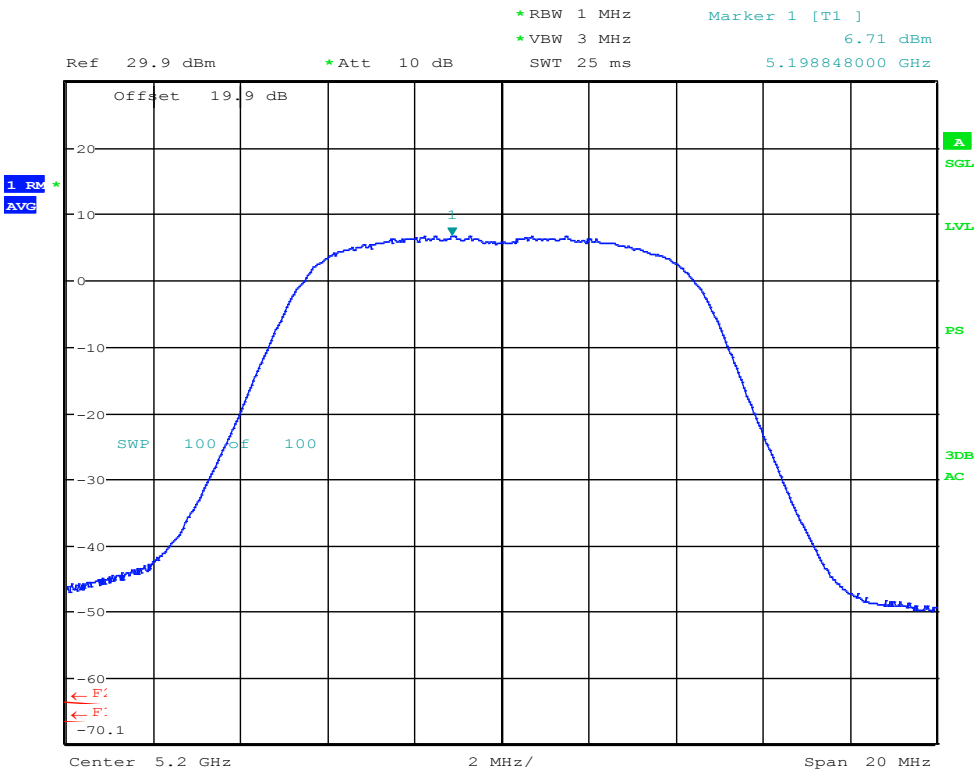
U-NII-1 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



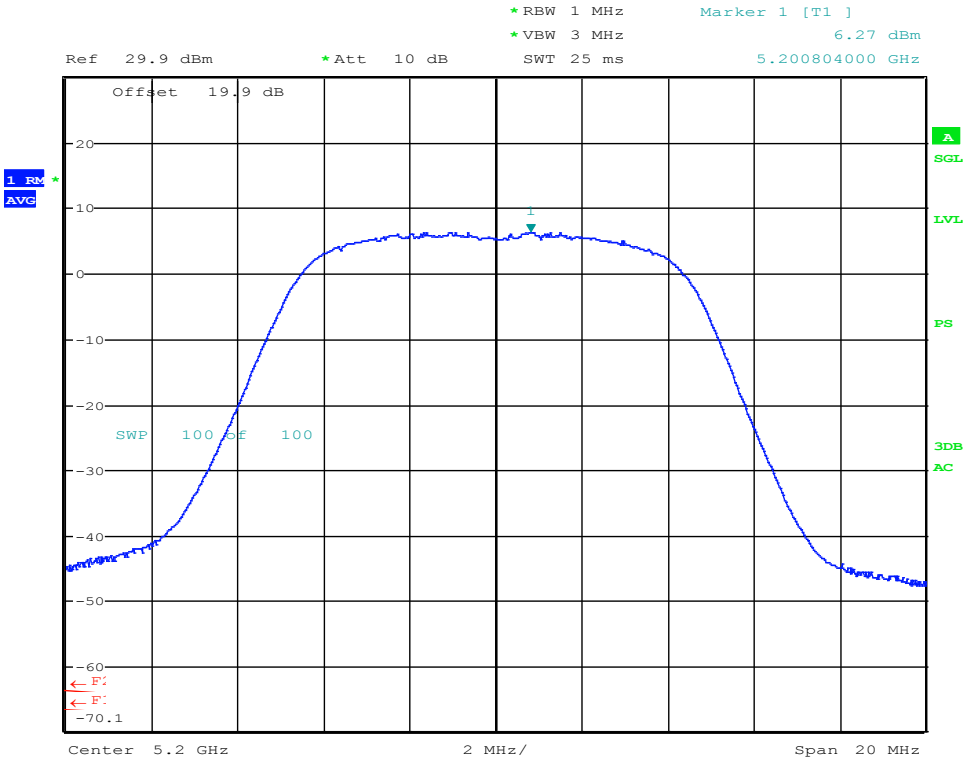
U-NII-1 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



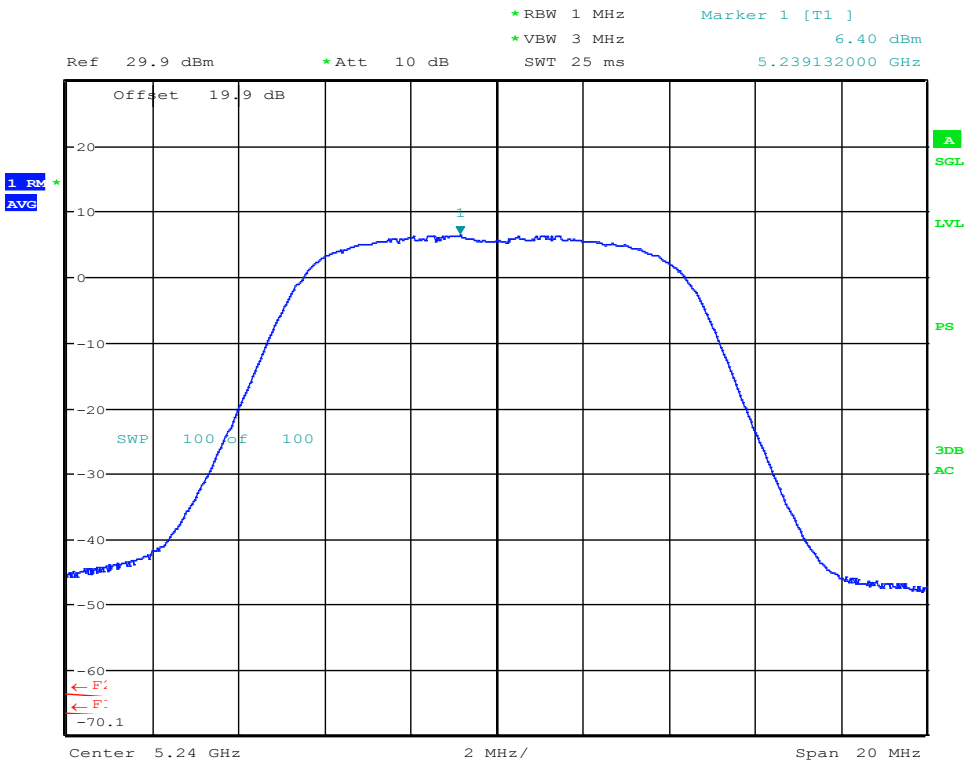
U-NII-1 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



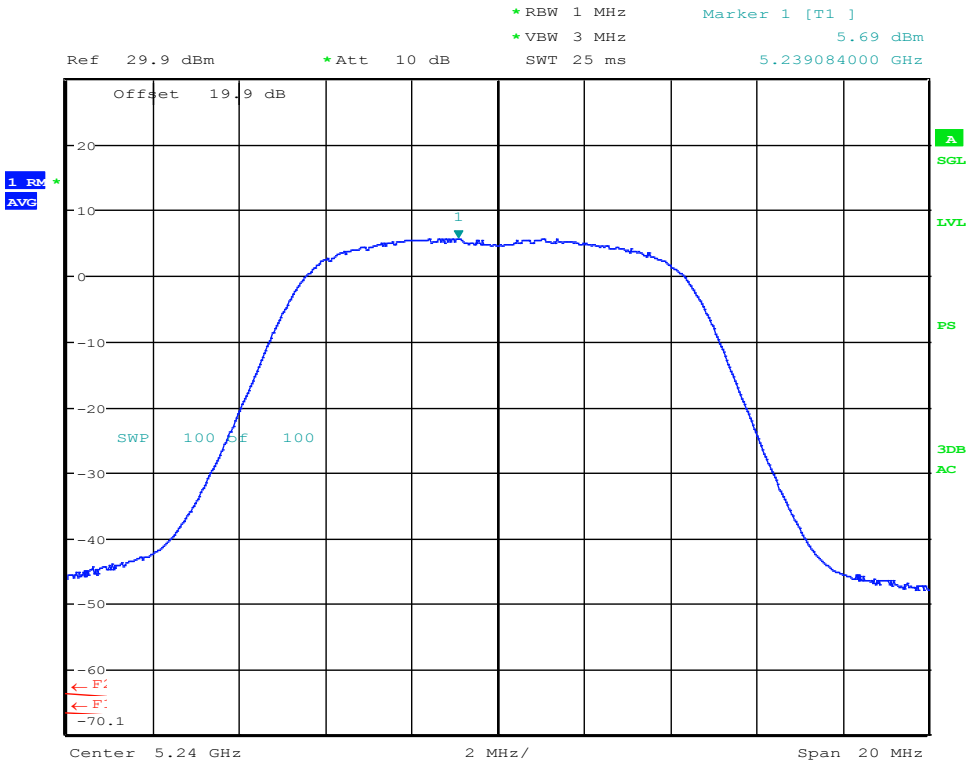
U-NII-1 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



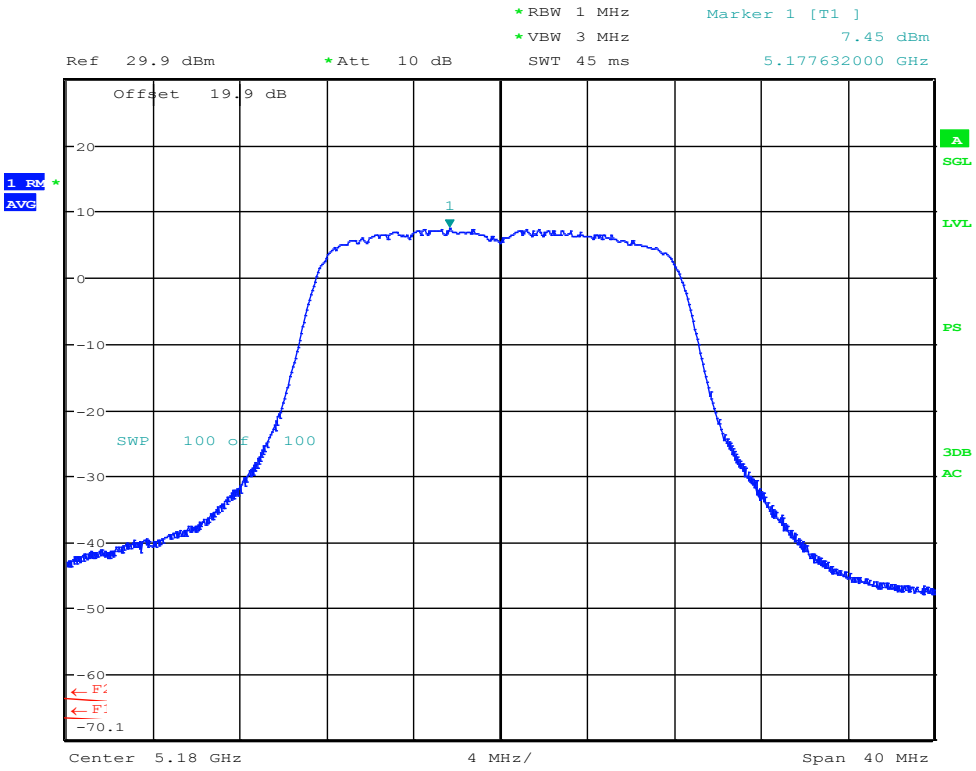
U-NII-1 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 10 MHz



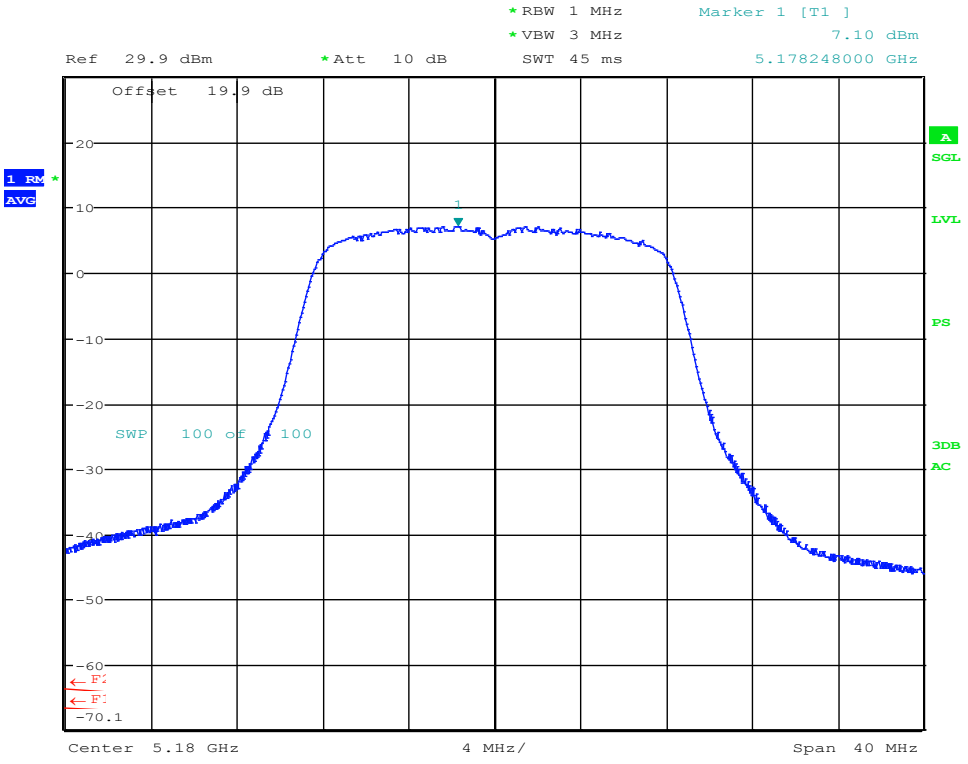
U-NII-1 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 10 MHz



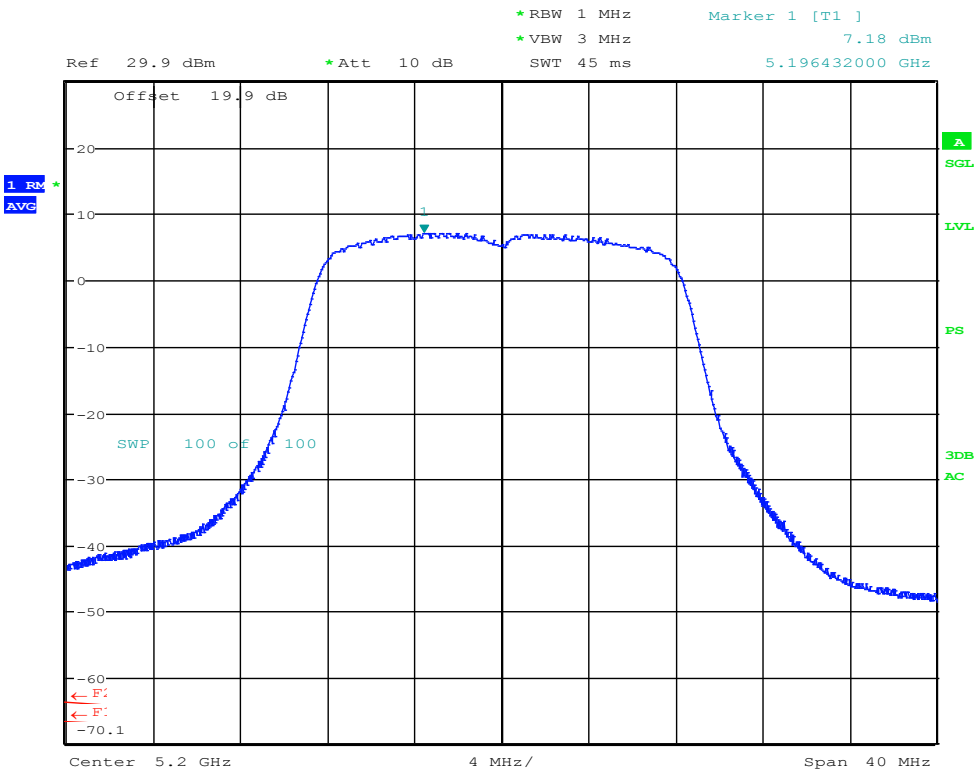
U-NII-1 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



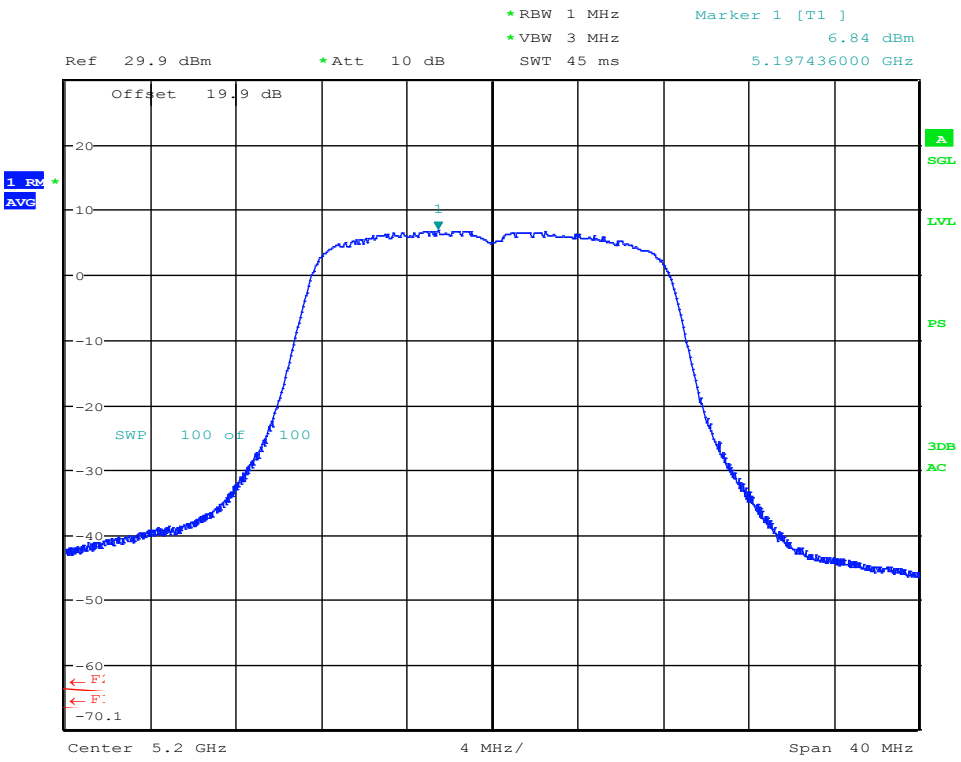
U-NII-1 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



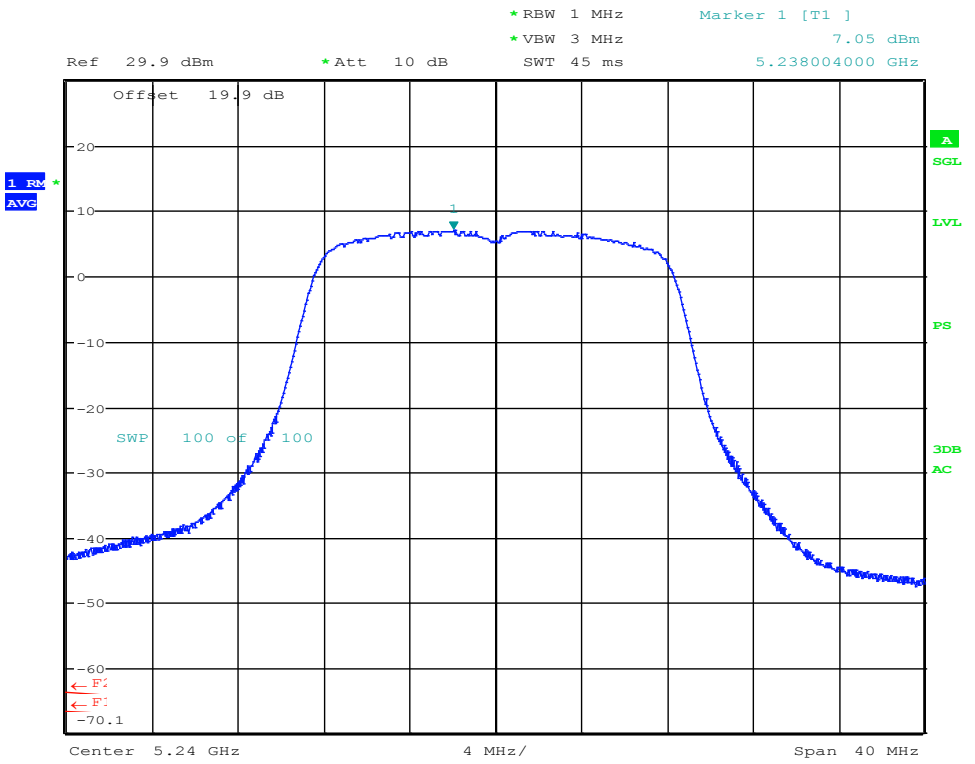
U-NII-1 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



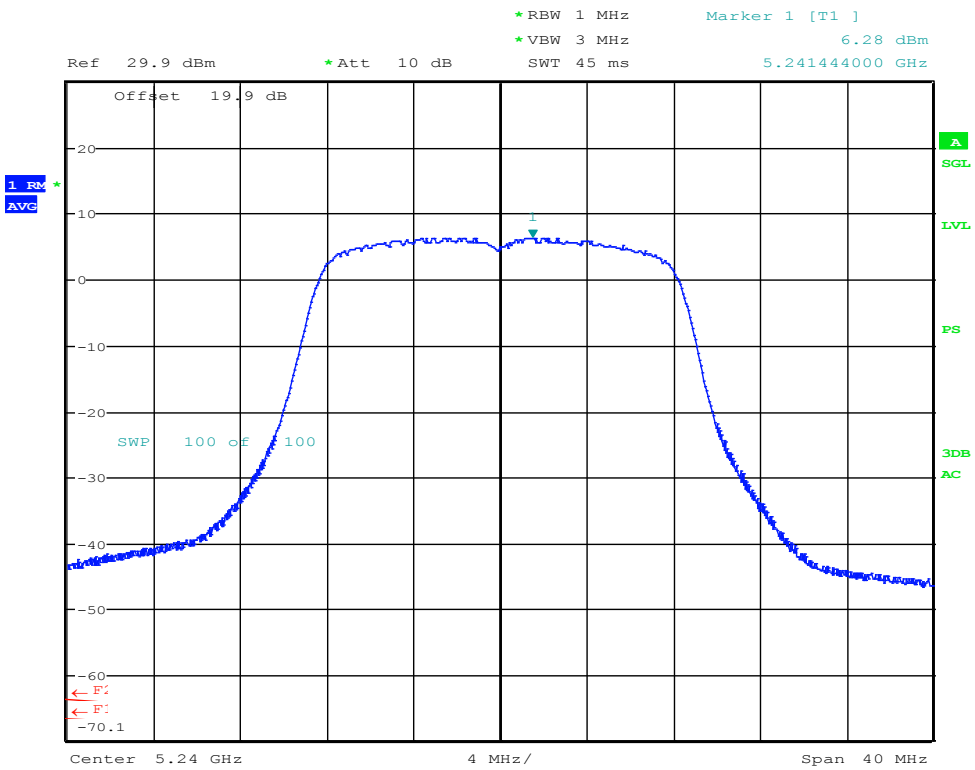
U-NII-1 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



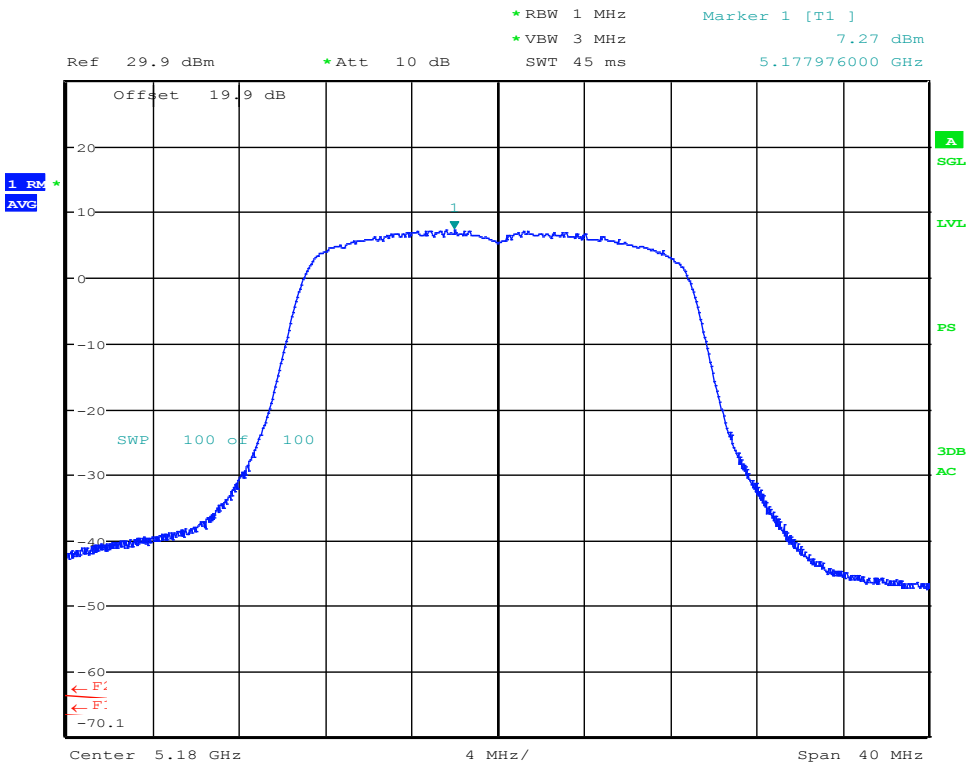
U-NII-1 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 20 MHz



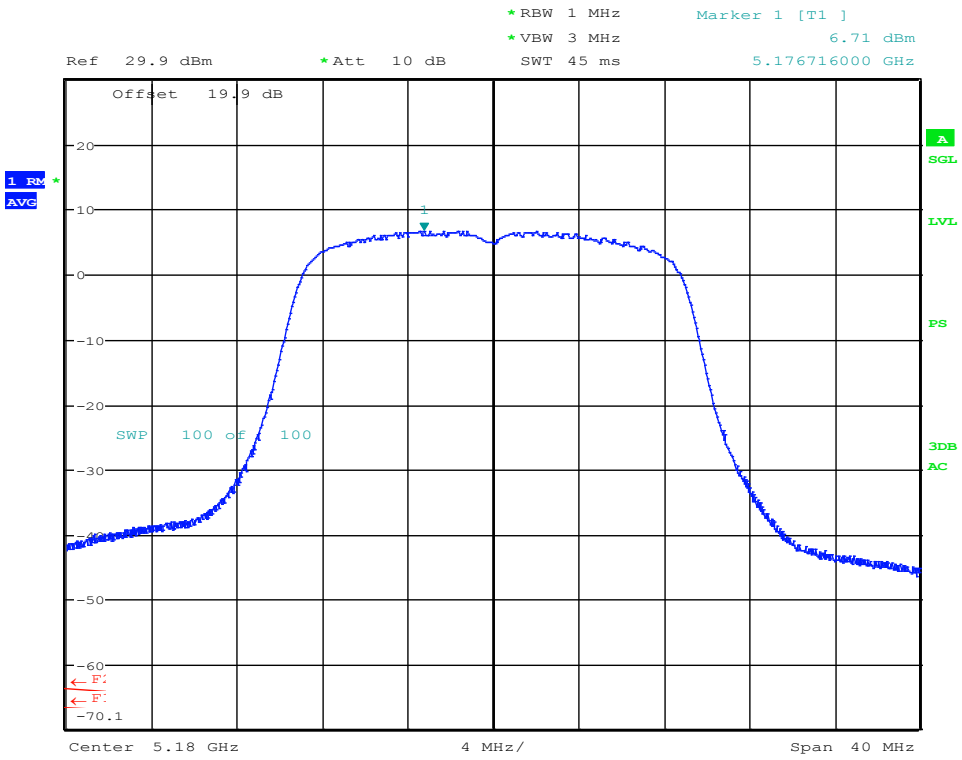
U-NII-1 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 20 MHz



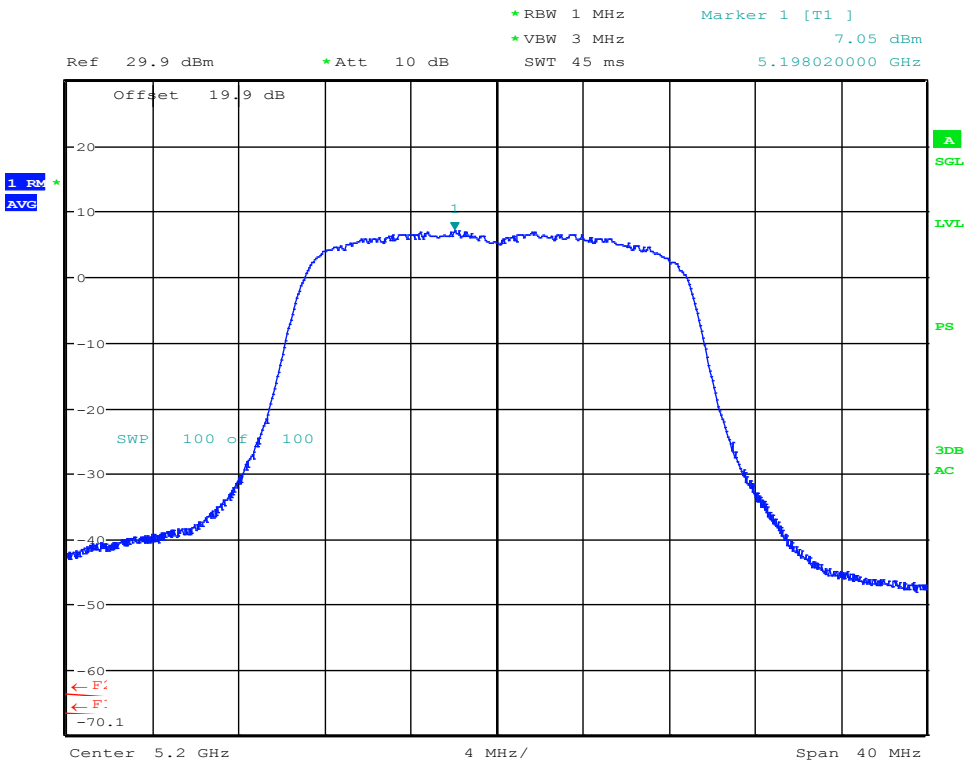
U-NII-1 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



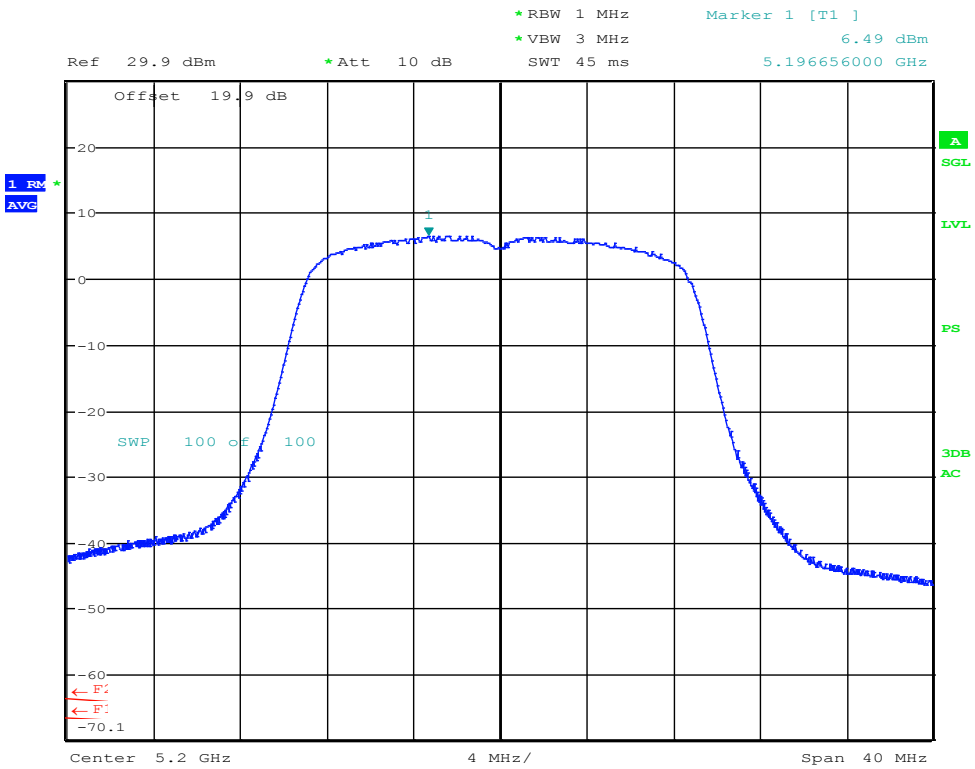
U-NII-1 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



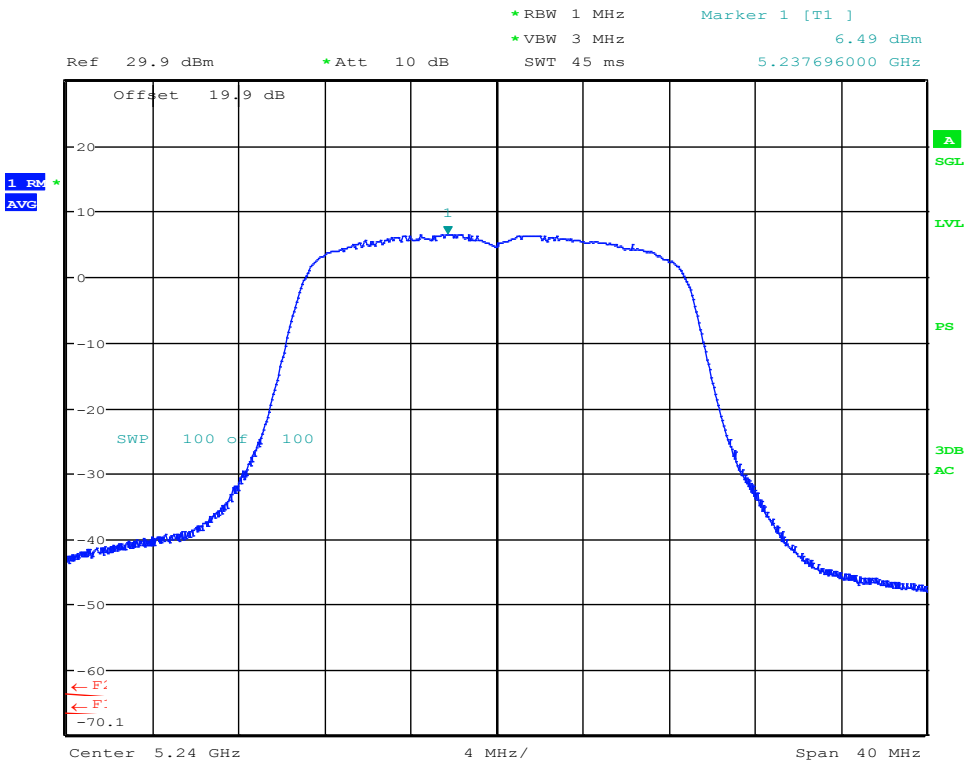
U-NII-1 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



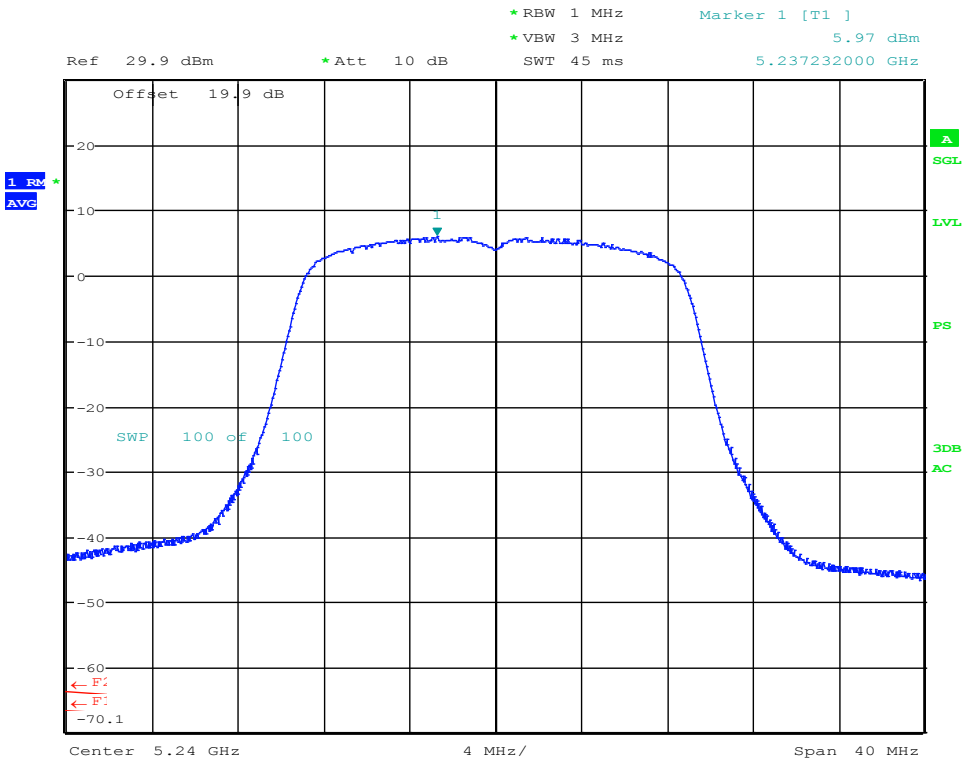
U-NII-1 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



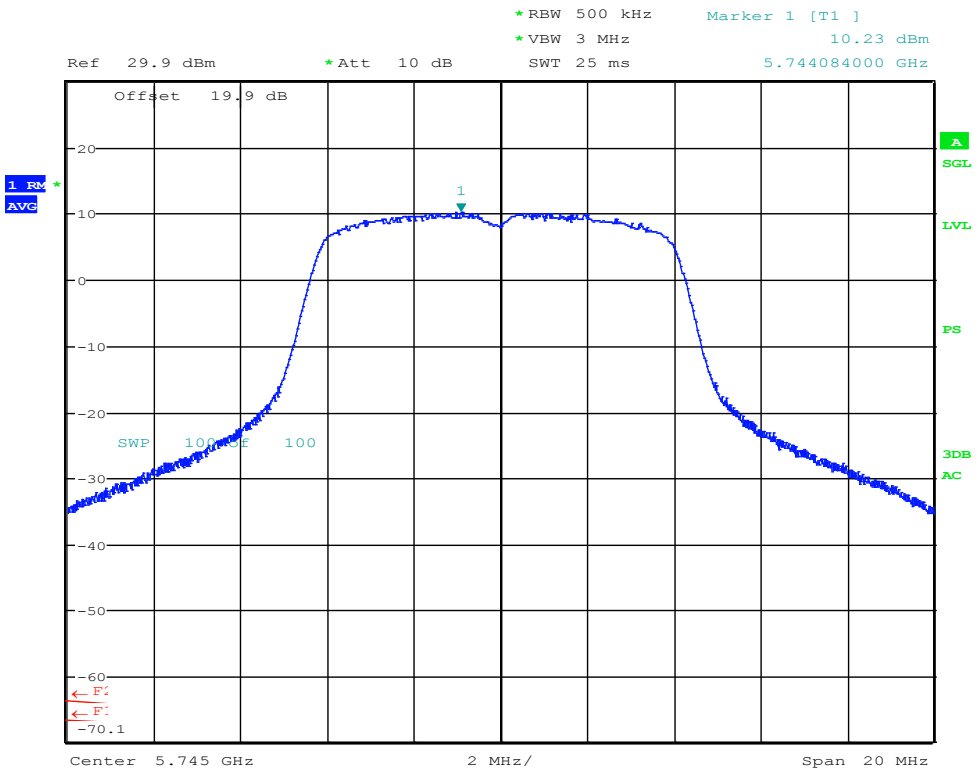
U-NII-1 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 20 MHz



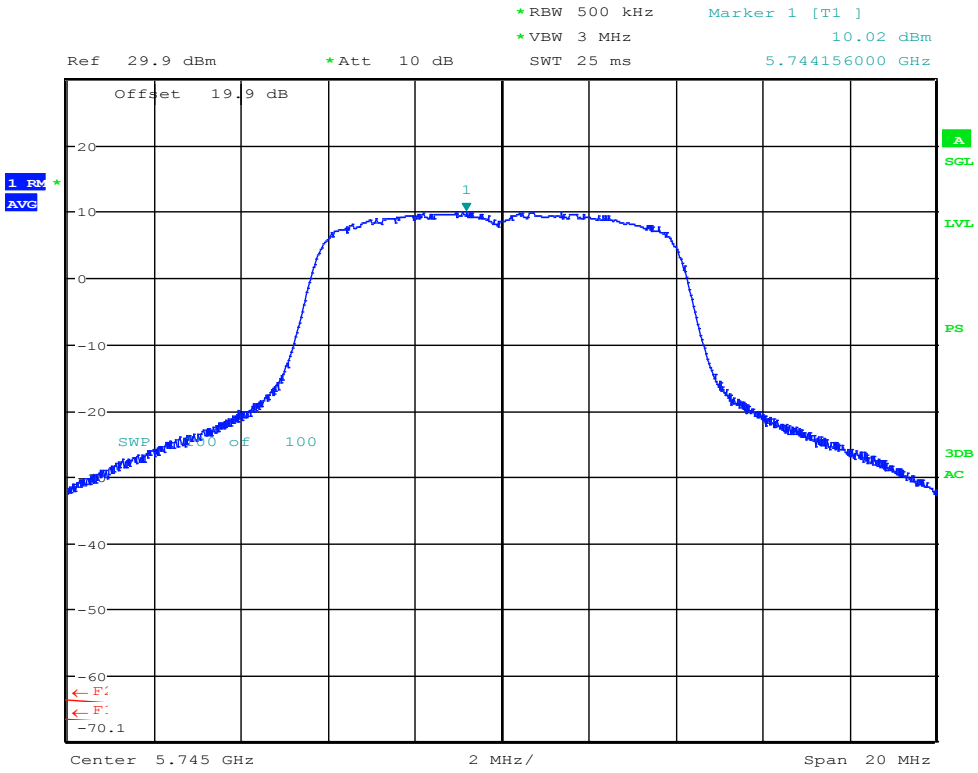
U-NII-1 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 20 MHz



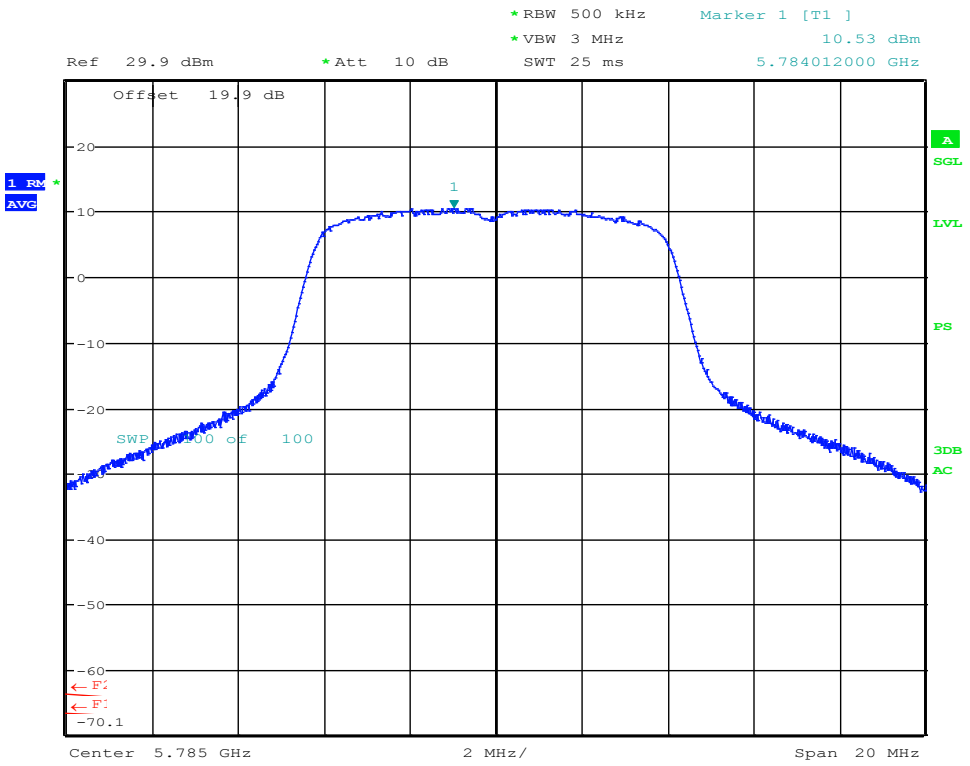
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



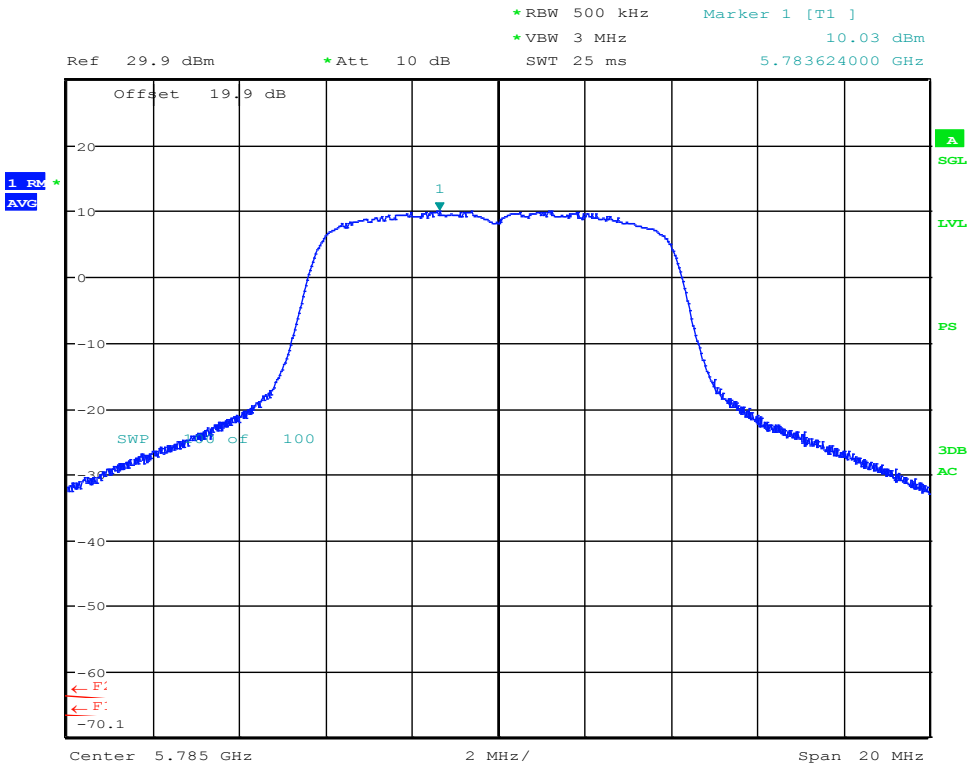
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



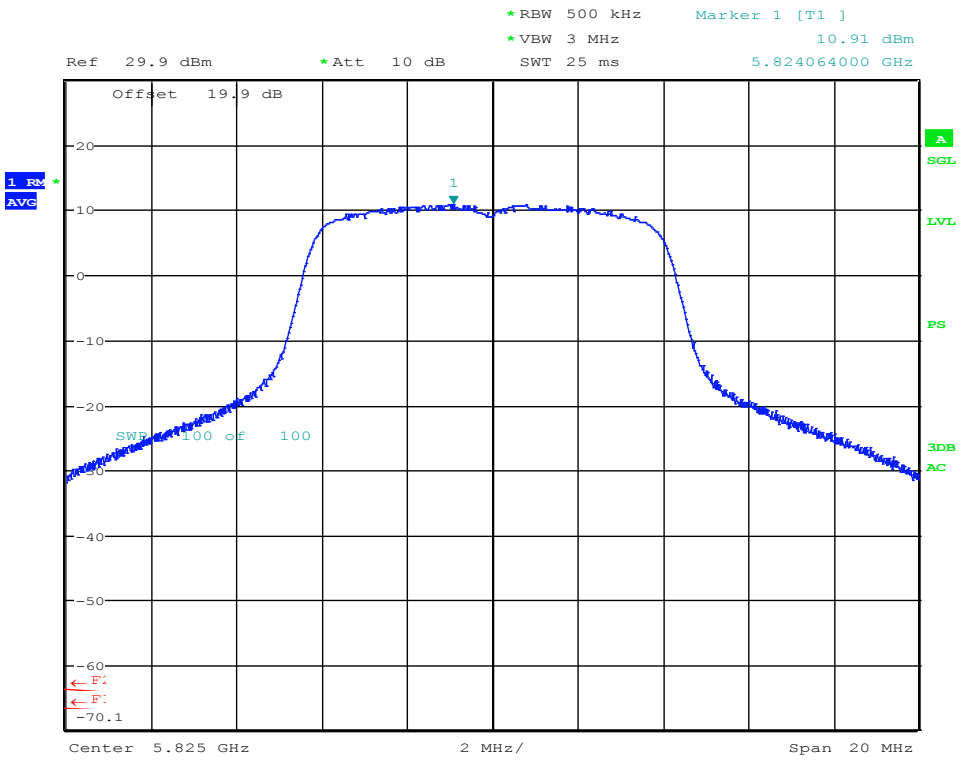
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 10 MHz



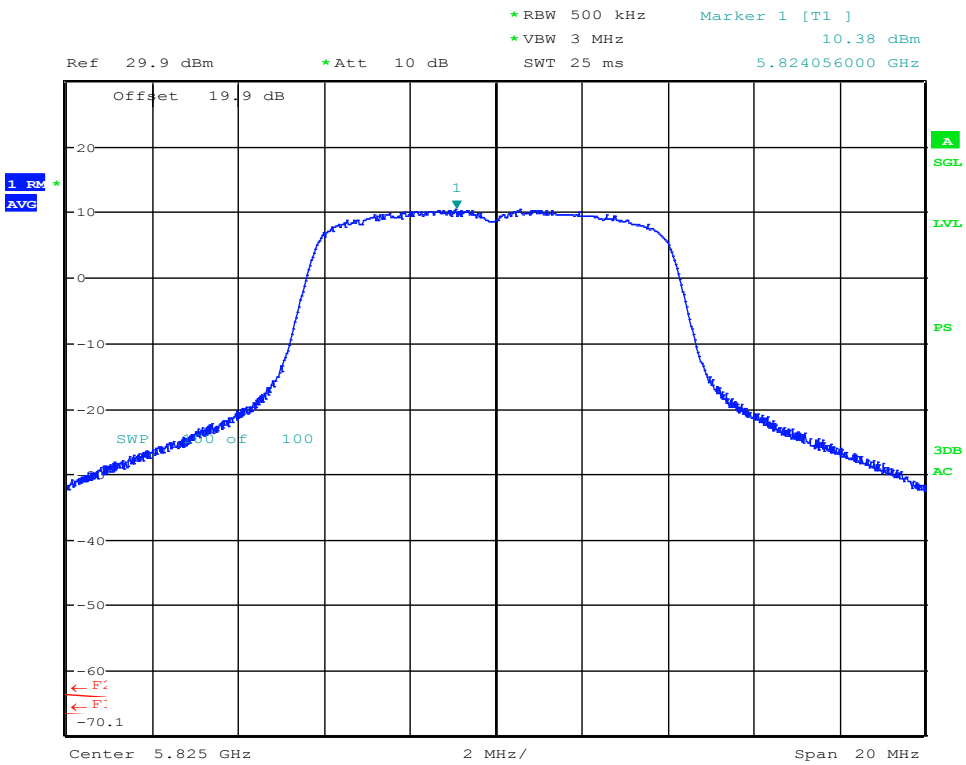
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 10 MHz



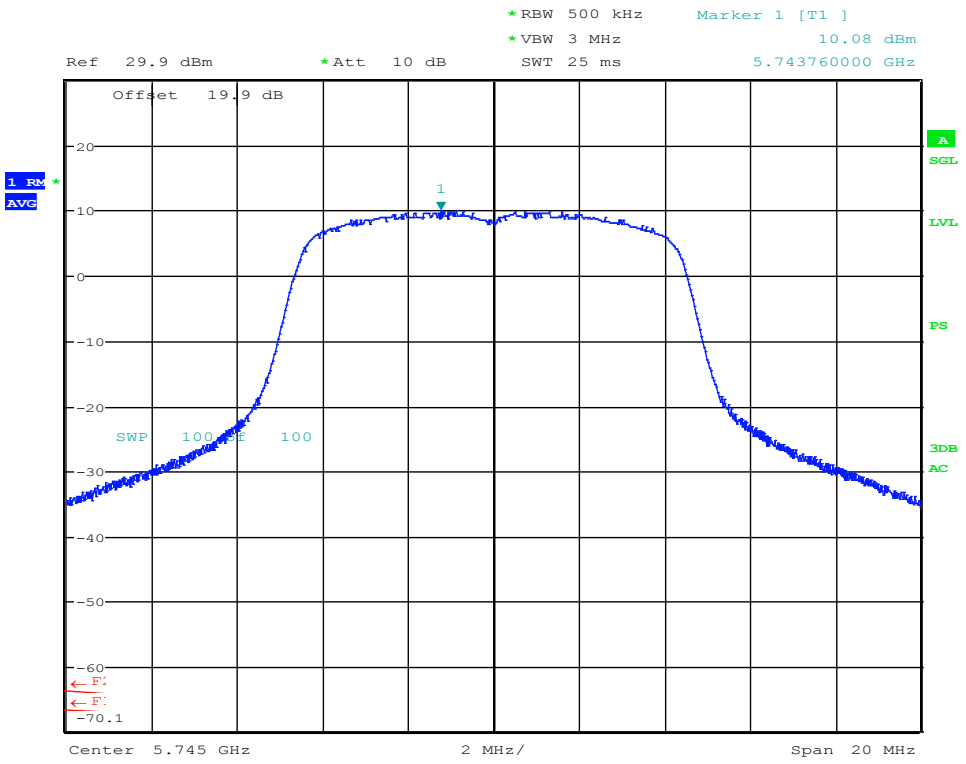
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 10 MHz



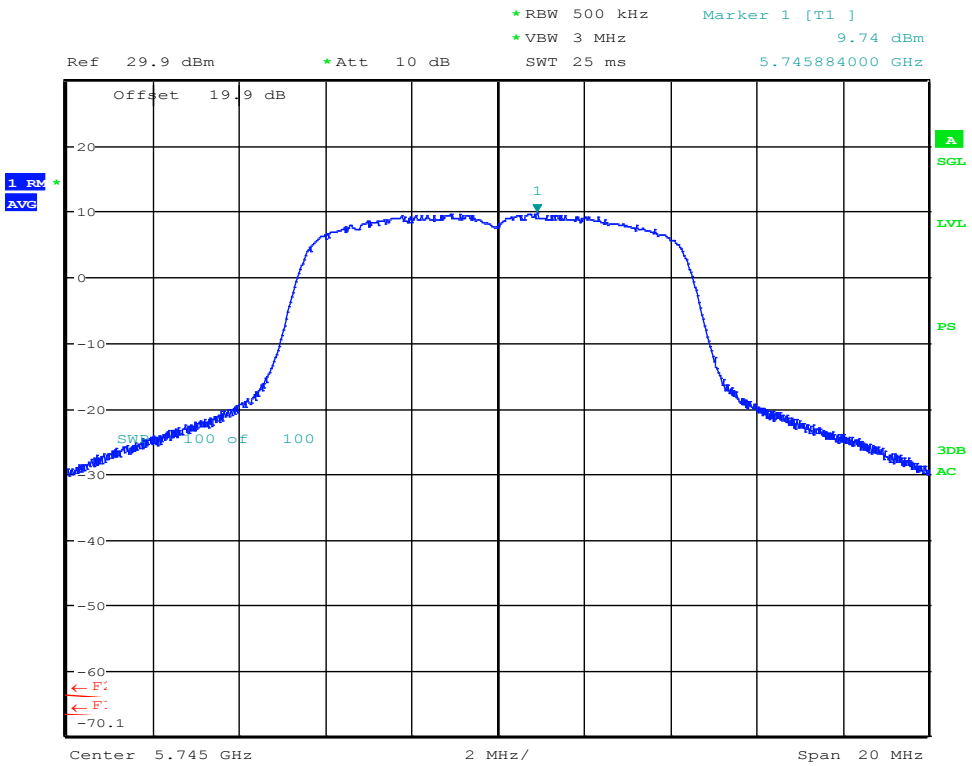
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 10 MHz



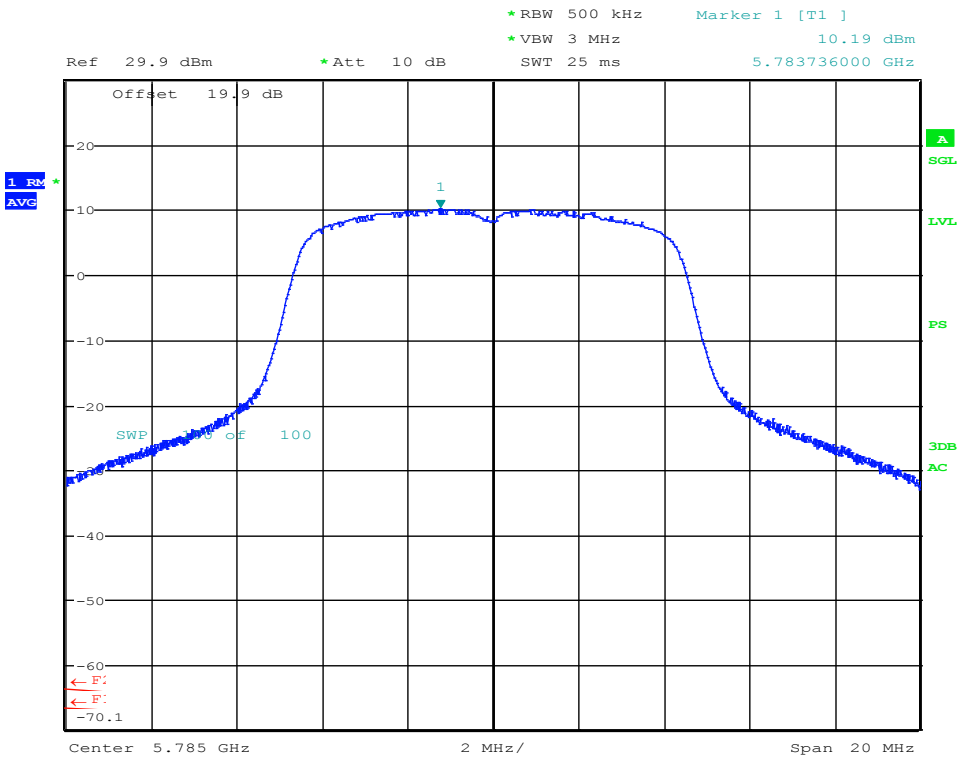
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



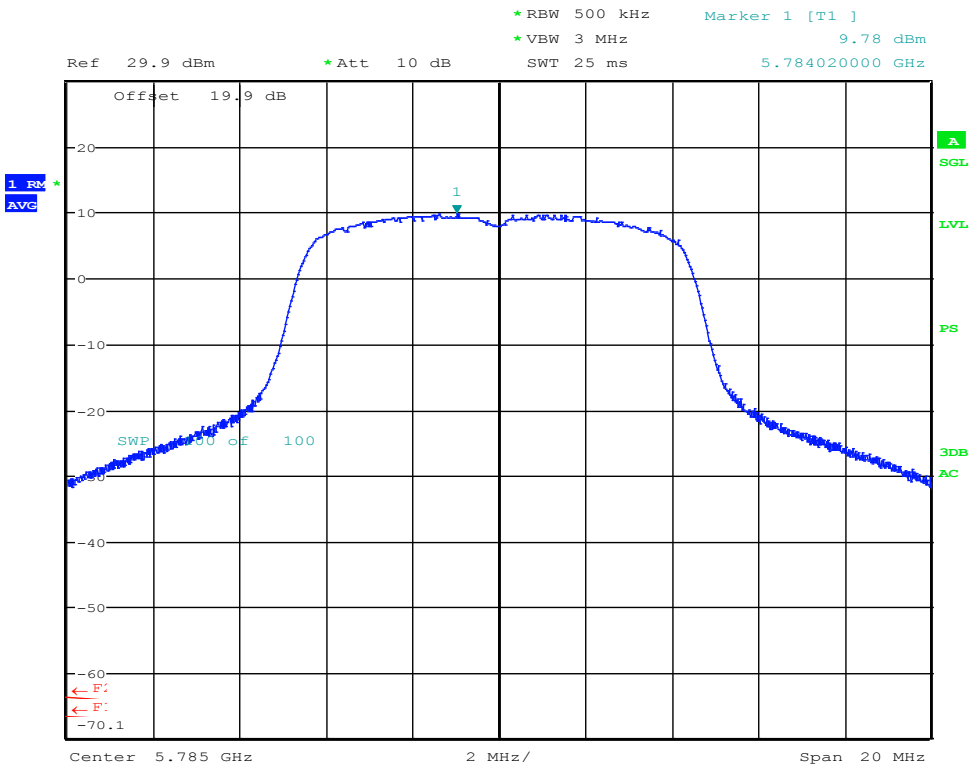
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



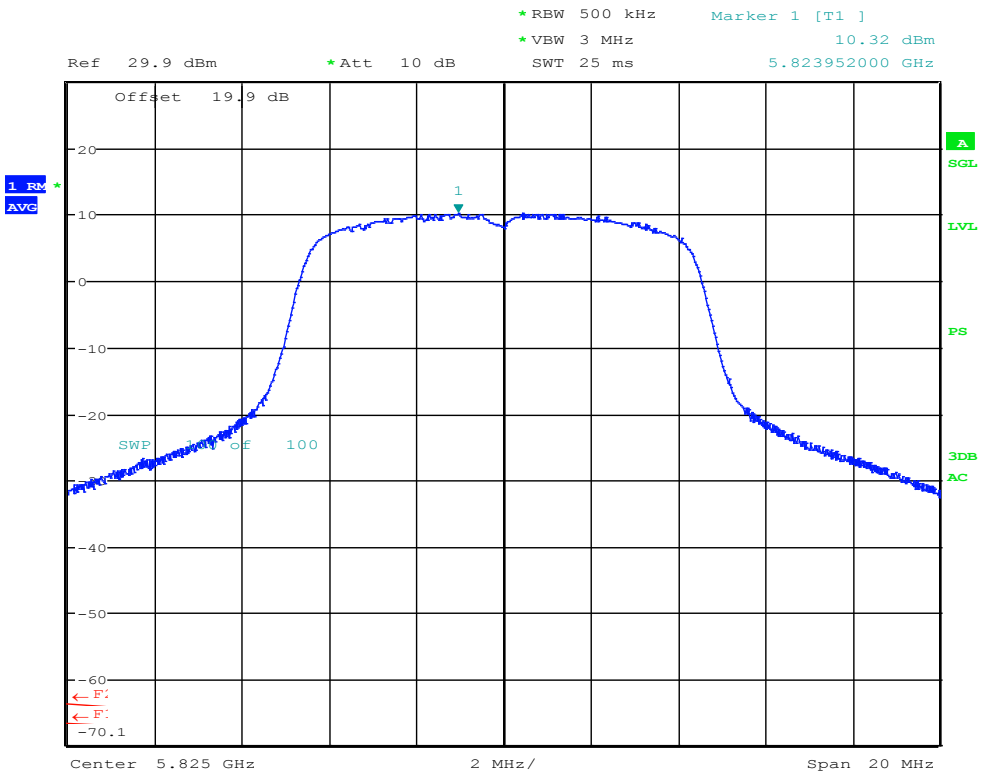
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 10 MHz



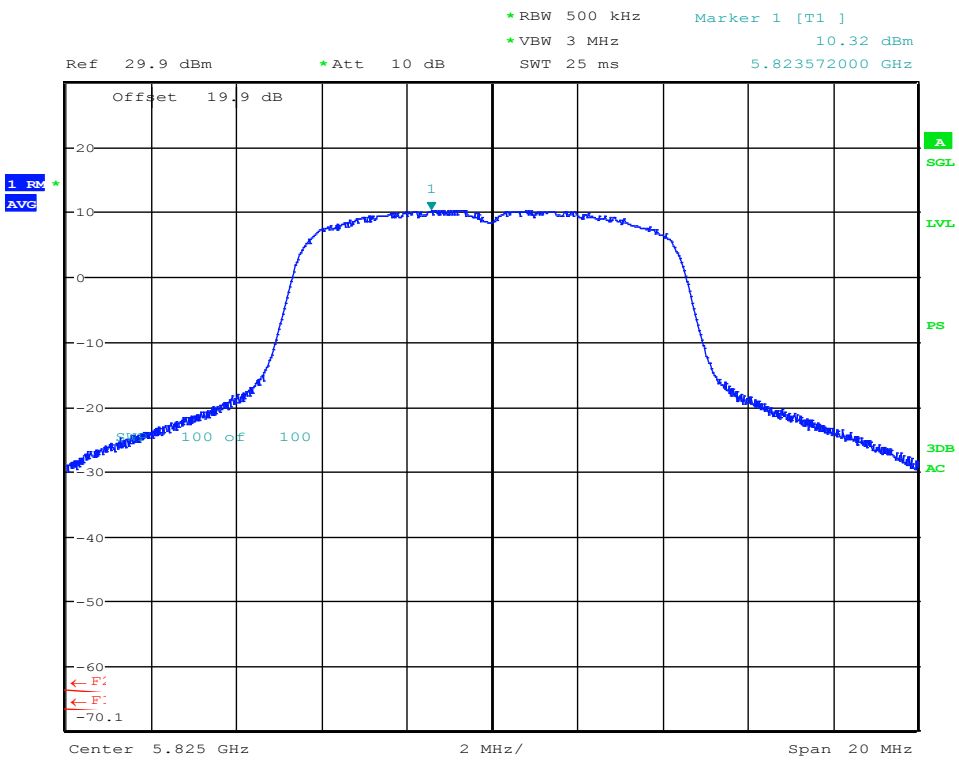
U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 10 MHz



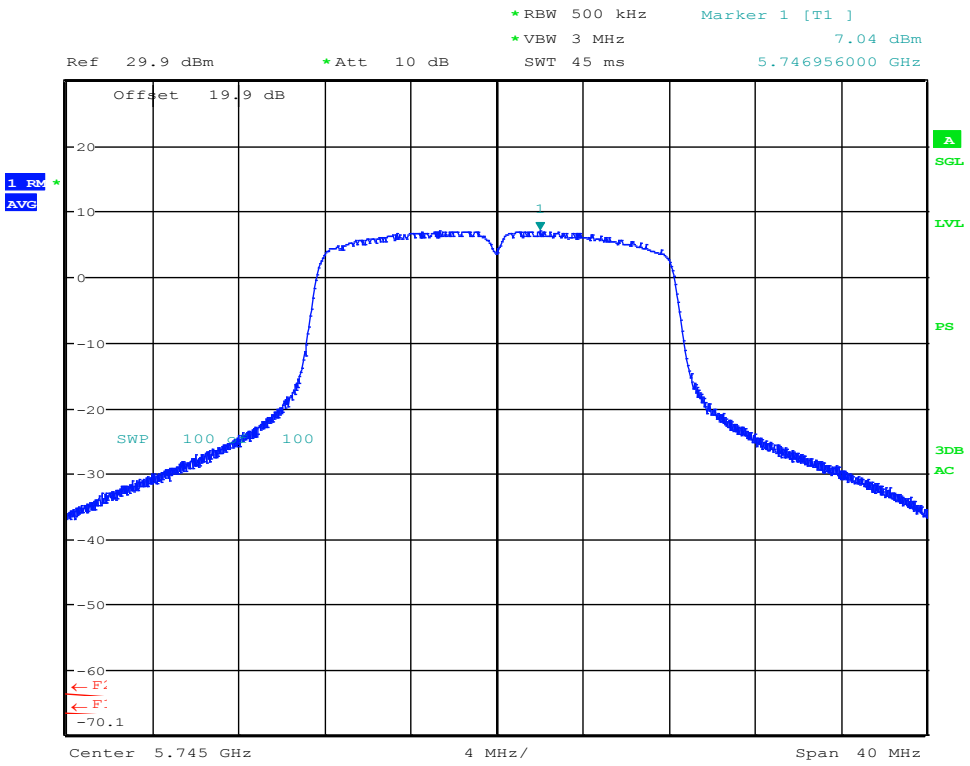
U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 10 MHz



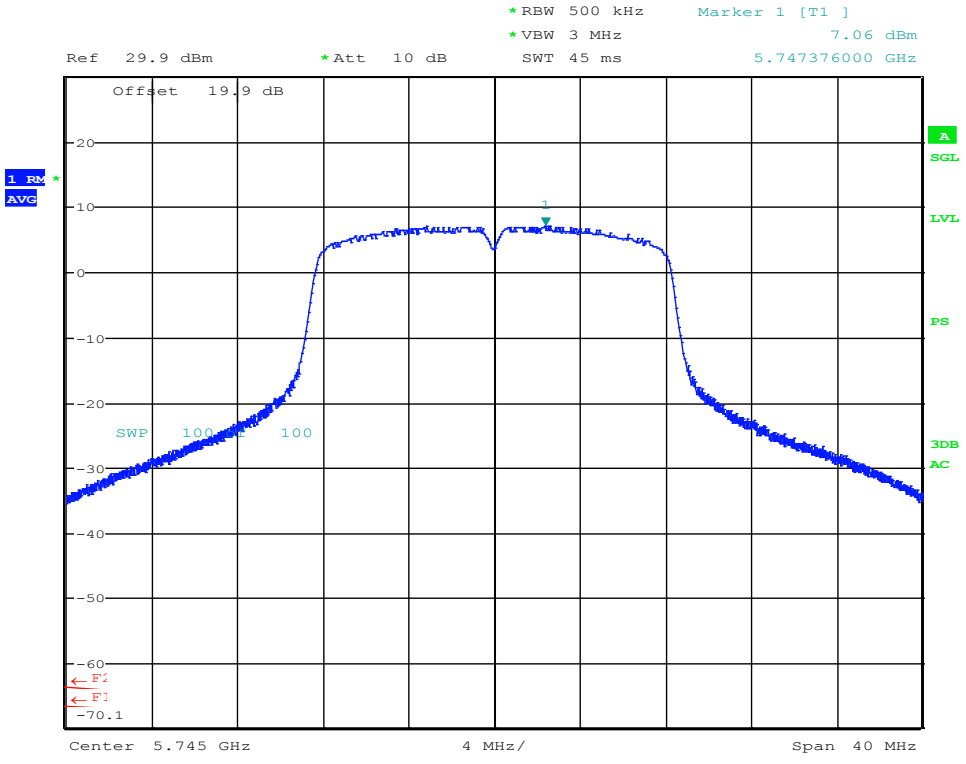
U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 10 MHz



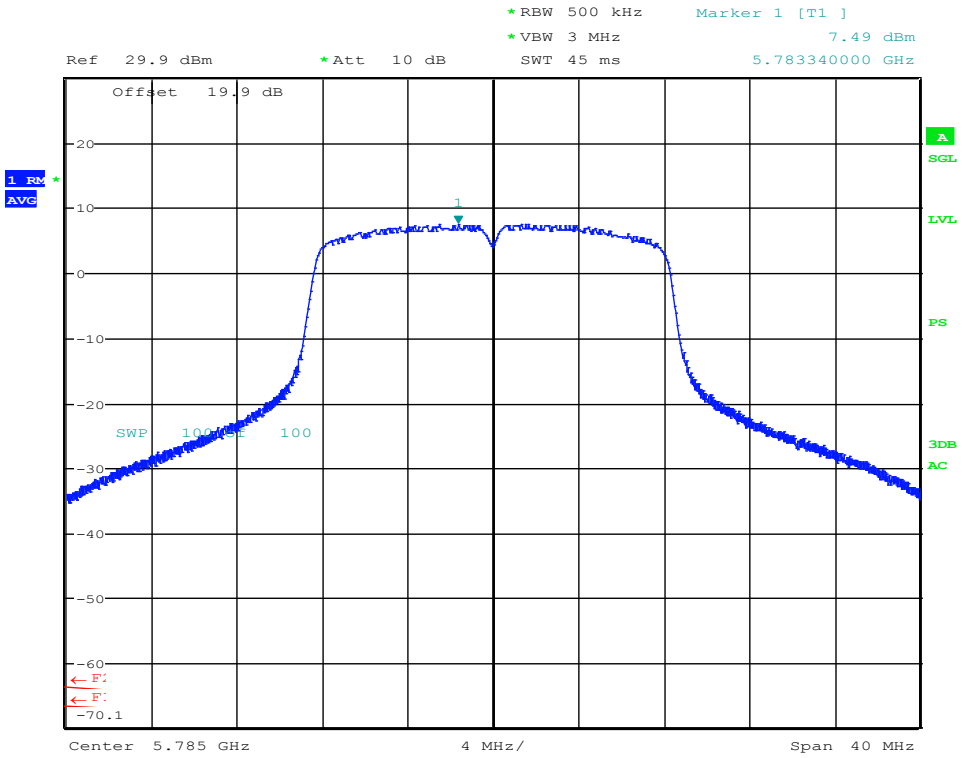
U-NII-3 band - Low Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



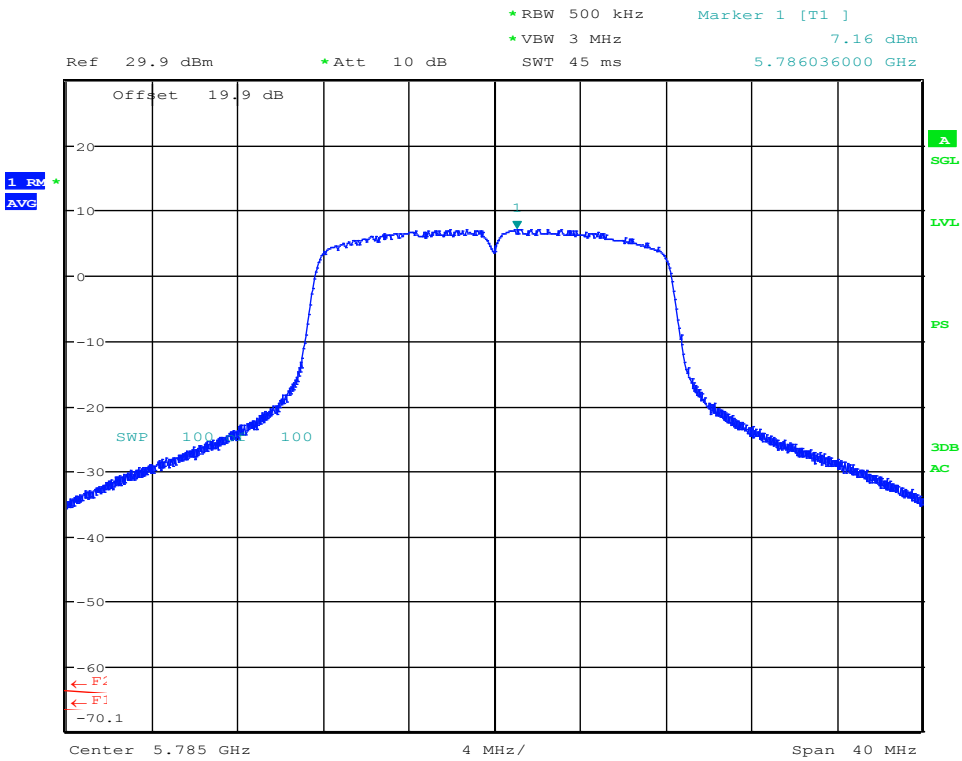
U-NII-3 band - Low Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



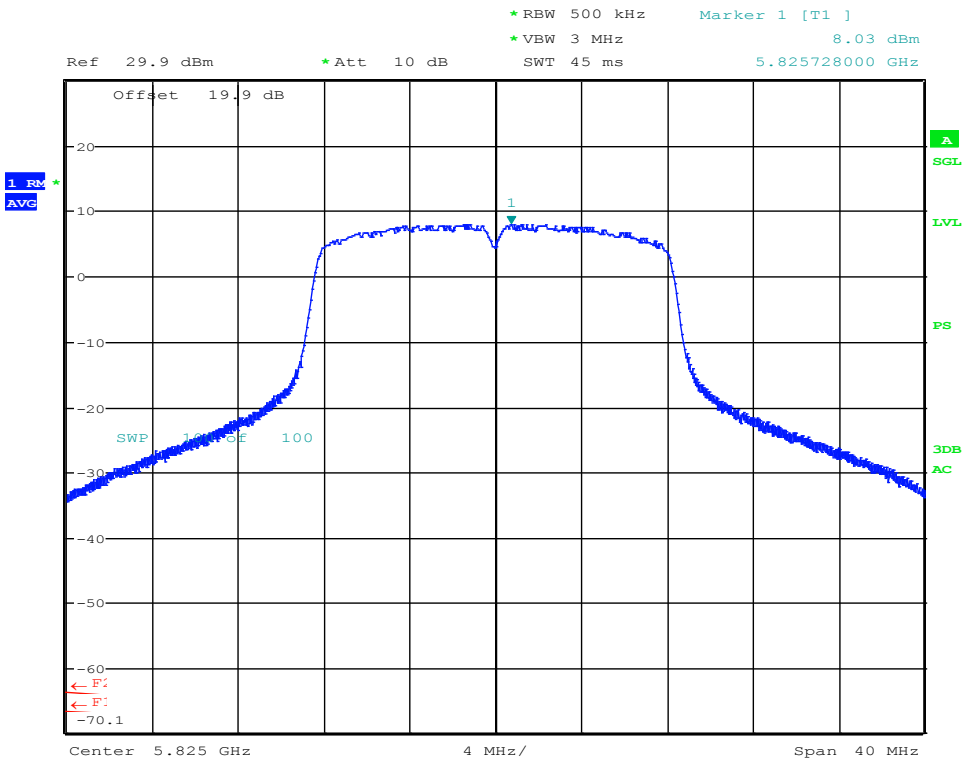
U-NII-3 band – Central Channel – Mode 802.11.a – RF 1 – Bandwidth 20 MHz



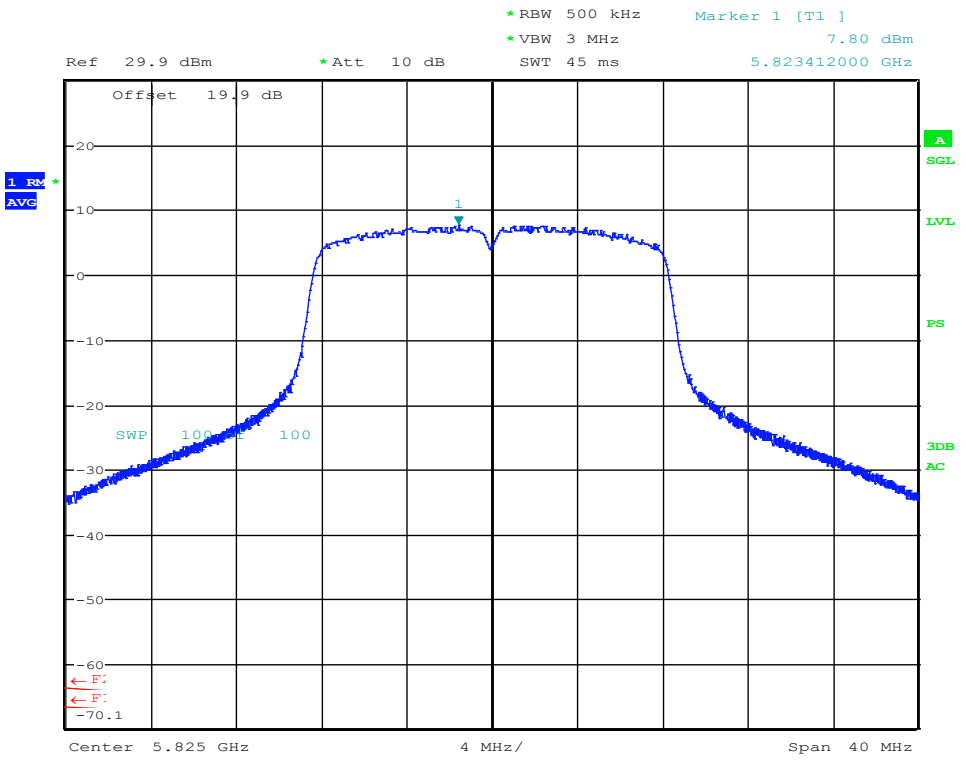
U-NII-3 band – Central Channel – Mode 802.11.a – RF 2 – Bandwidth 20 MHz



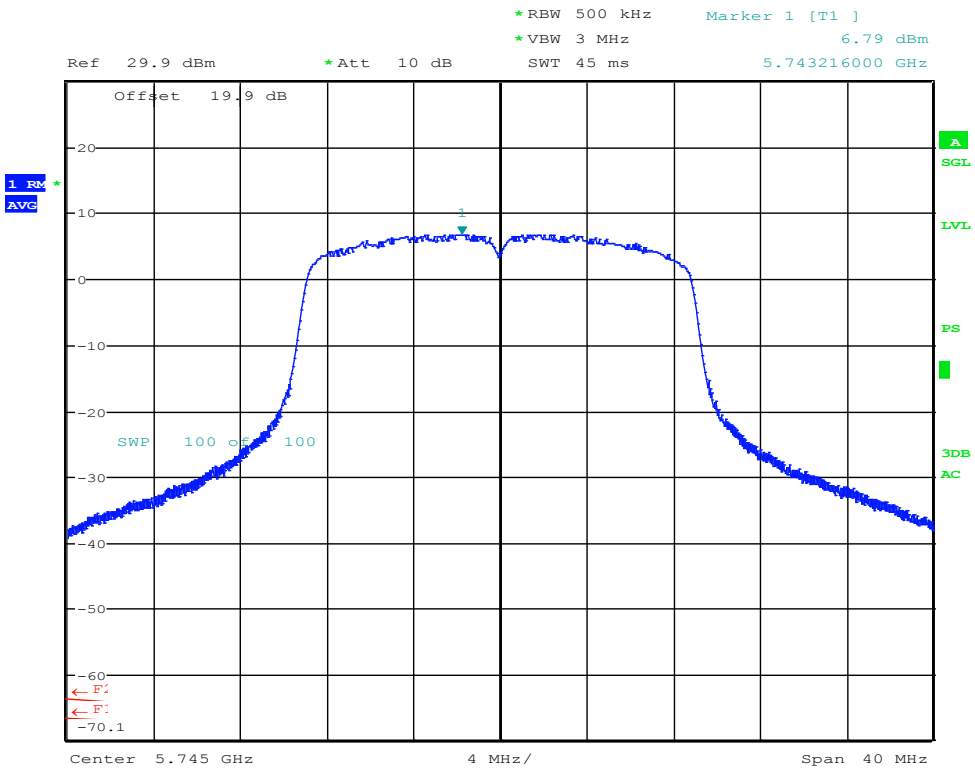
U-NII-3 band - High Channel – Mode 802.11.a – RF1 – Bandwidth 20 MHz



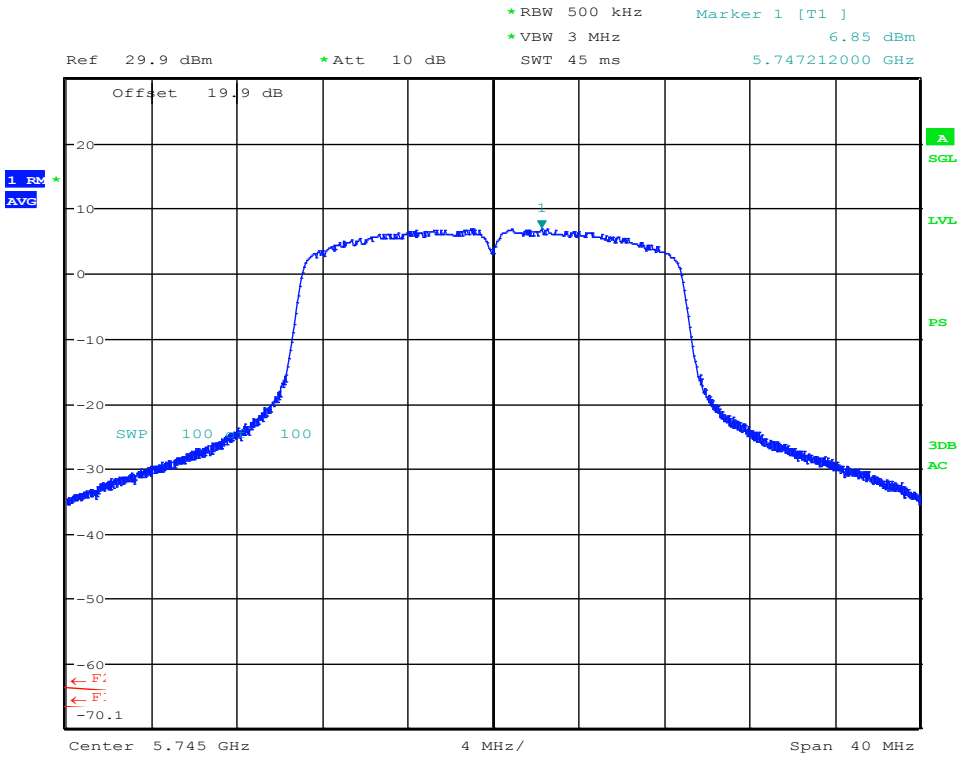
U-NII-3 band - High Channel – Mode 802.11.a – RF2 – Bandwidth 20 MHz



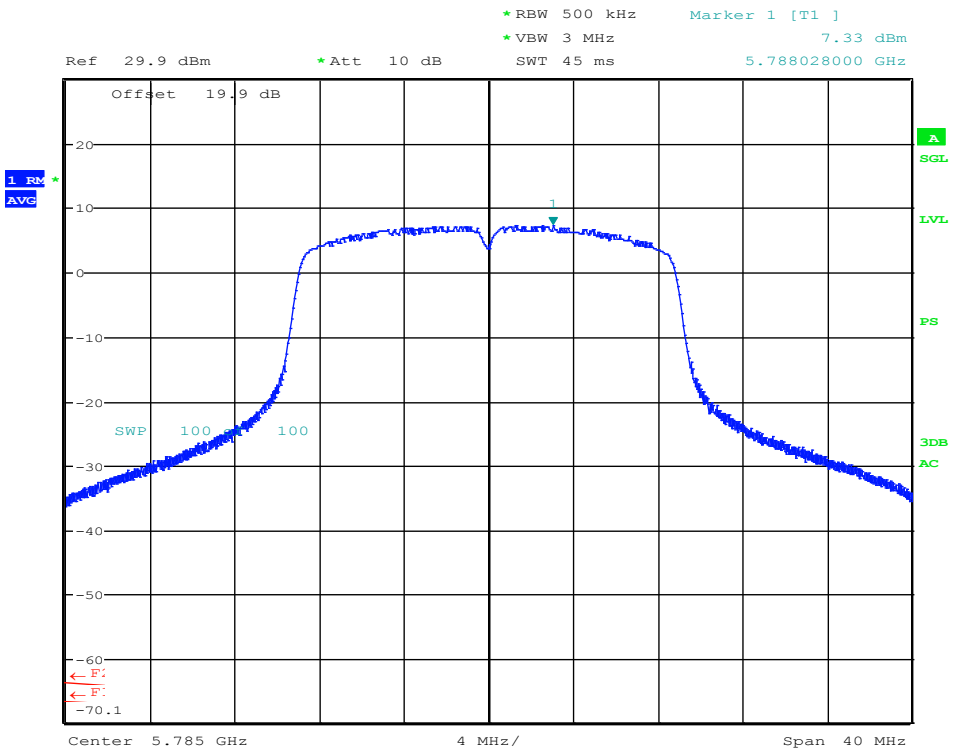
U-NII-3 band - Low Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



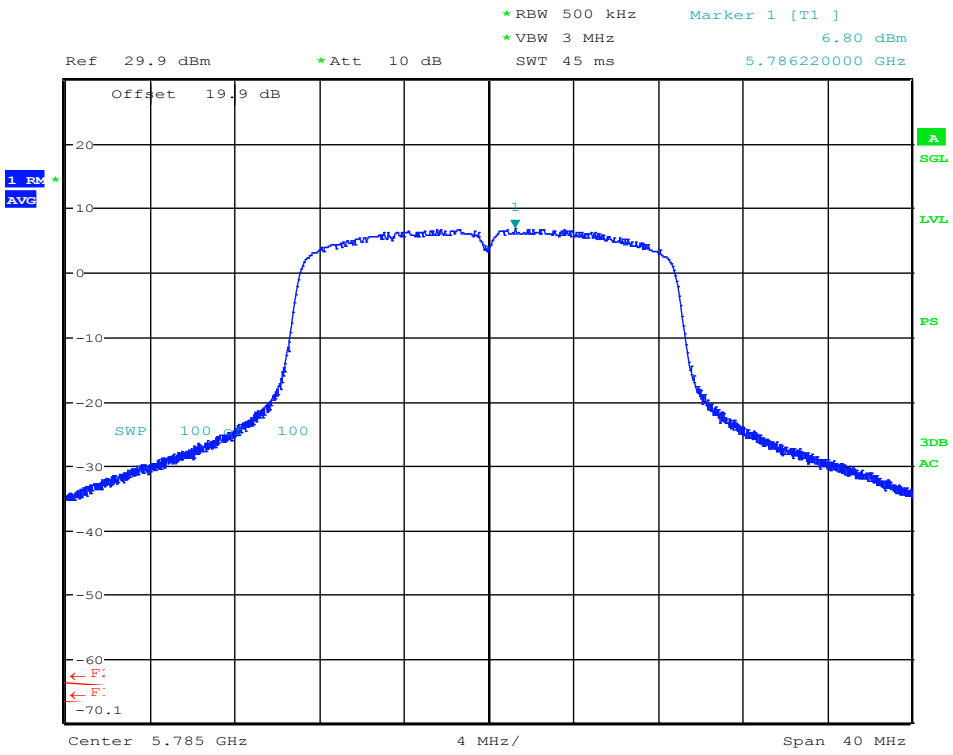
U-NII-3 band - Low Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



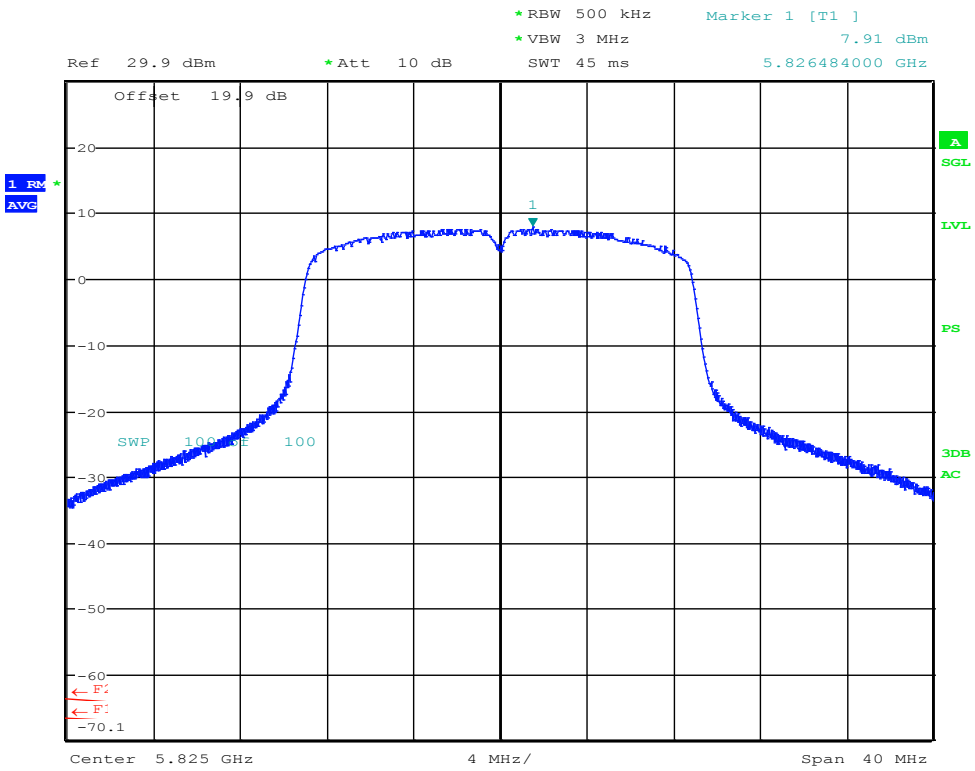
U-NII-3 band – Central Channel – Mode 802.11.n – RF 1 – Bandwidth 20 MHz



U-NII-3 band – Central Channel – Mode 802.11.n – RF 2 – Bandwidth 20 MHz



U-NII-3 band - High Channel – Mode 802.11.n – RF1 – Bandwidth 20 MHz



U-NII-3 band - High Channel – Mode 802.11.n – RF2 – Bandwidth 20 MHz