

## 11.8 Occupied bandwidth / 99% emission bandwidth

### Description:

Measurement of the 99% bandwidth of the modulated signal acc. RSS-GEN.

### Measurement:

Measurement parameter	
Detector:	Peak
Sweep time:	Auto
Resolution bandwidth:	300 kHz / 500 kHz
Video bandwidth:	1 MHz / 3 MHz
Span:	50 MHz / 100 MHz
Measurement procedure:	Measurement of the 99% bandwidth using the integration function of the analyzer
Trace mode:	Max hold (allow trace to stabilize)
Test setup:	See chapter 6.5 – A
Measurement uncertainty:	See chapter 8

### Usage:

-/-	<b>IC</b>
OBW is necessary for Emission Designator	

**Results:**

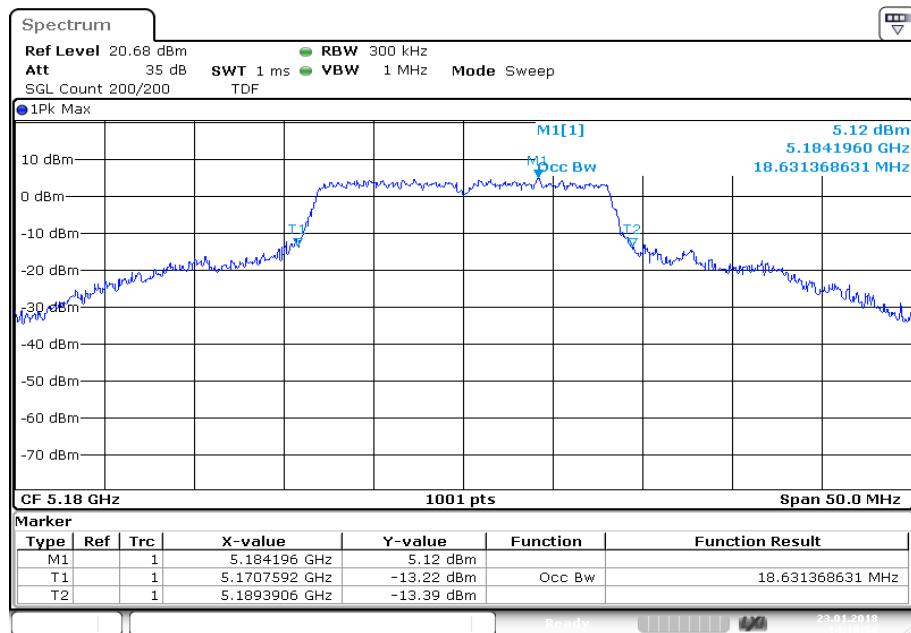
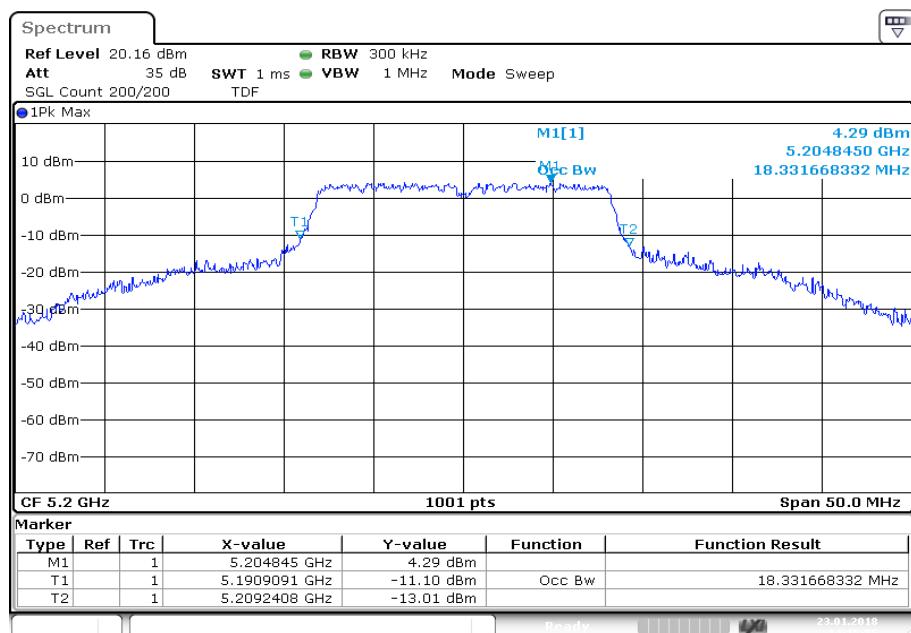
a	99% bandwidth (kHz)		
	U-NII-1 (5150 MHz to 5250 MHz)		
	Lowest channel	Middle channel	Highest channel
	18631	18332	17582
	U-NII-2A (5250 MHz to 5350 MHz)		
	Lowest channel	Middle channel	Highest channel
	17233	17283	17433
	U-NII-2C (5470 MHz to 5725 MHz)		
	Lowest channel	Middle channel	Highest channel
	17083	17033	16983
U-NII-3 (5725 MHz to 5850 MHz)			
n HT20	Lowest channel	Middle channel	Highest channel
	19930	18681	20779

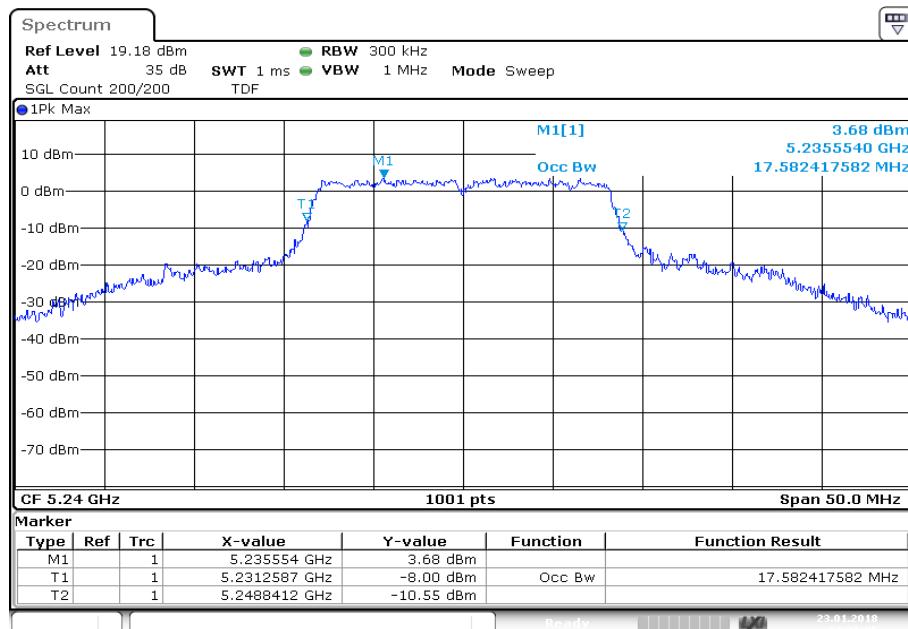
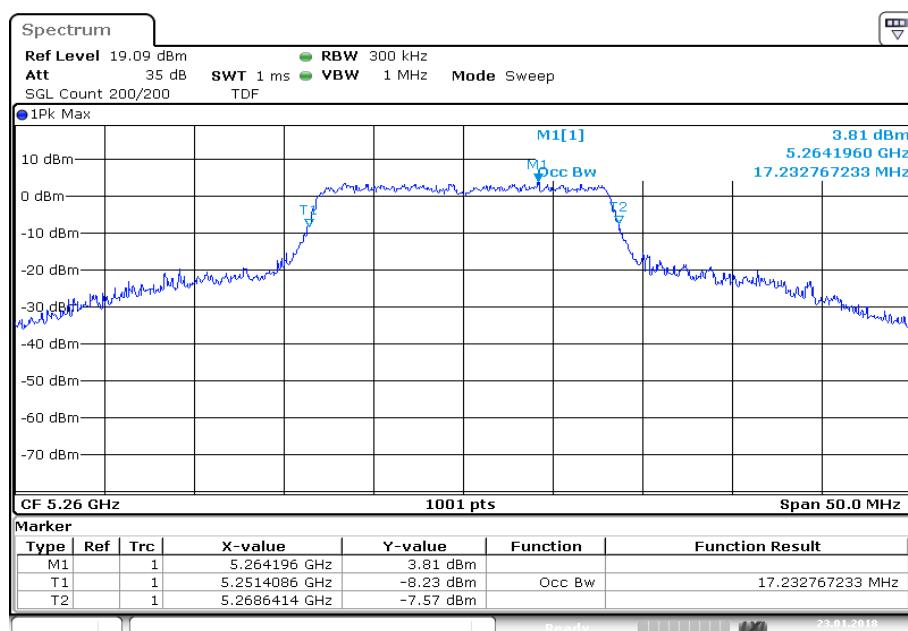
**Results:**

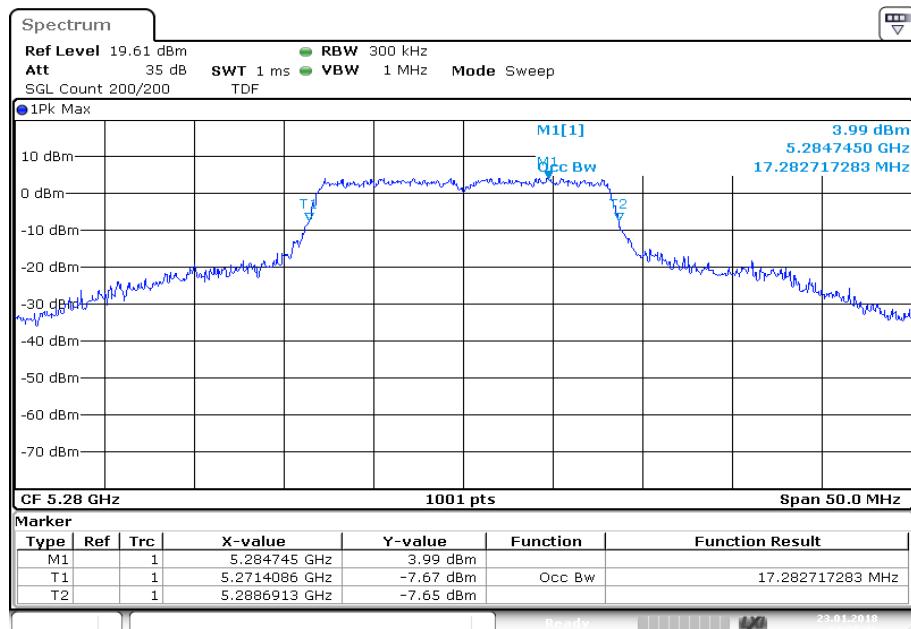
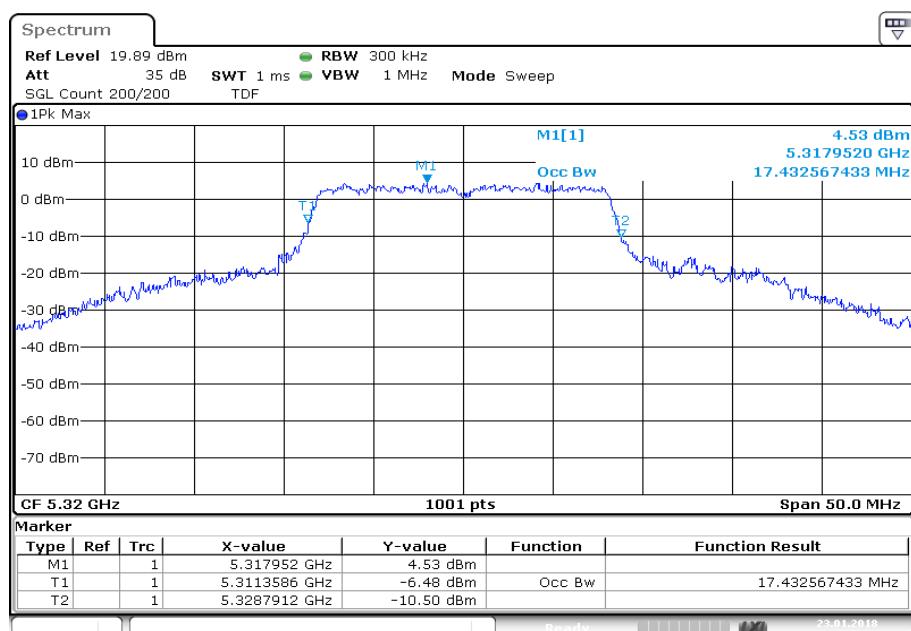
n HT20	99% bandwidth (kHz)		
	U-NII-1 (5150 MHz to 5250 MHz)		
	Lowest channel	Middle channel	Highest channel
	18332	18282	18432
	U-NII-2A (5250 MHz to 5350 MHz)		
	Lowest channel	Middle channel	Highest channel
	18282	18282	18332
	U-NII-2C (5470 MHz to 5725 MHz)		
	Lowest channel	Middle channel	Highest channel
	20330	19780	18631
U-NII-3 (5725 MHz to 5850 MHz)			
n HT20	Lowest channel	Middle channel	Highest channel
	18531	18382	18781

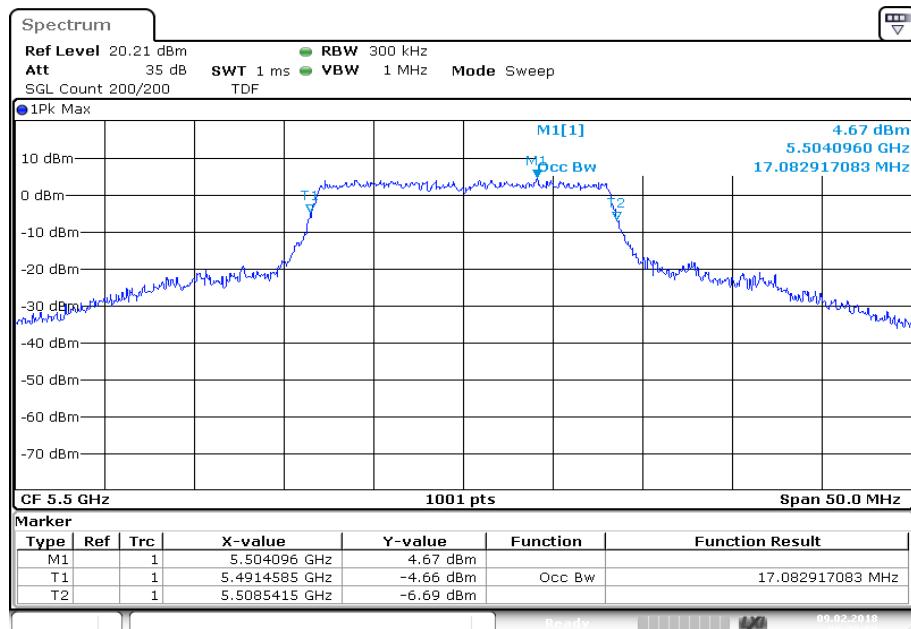
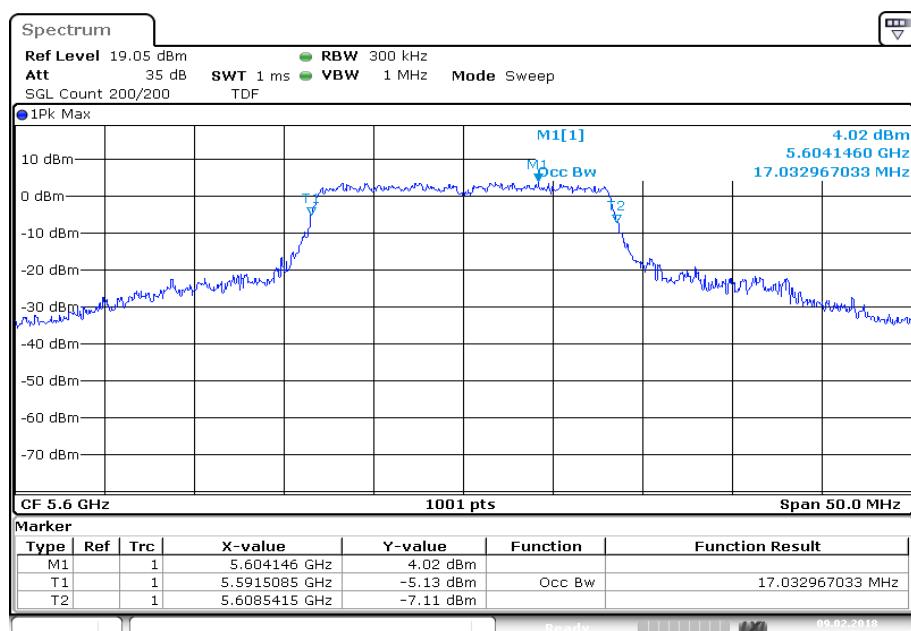
**Results:**

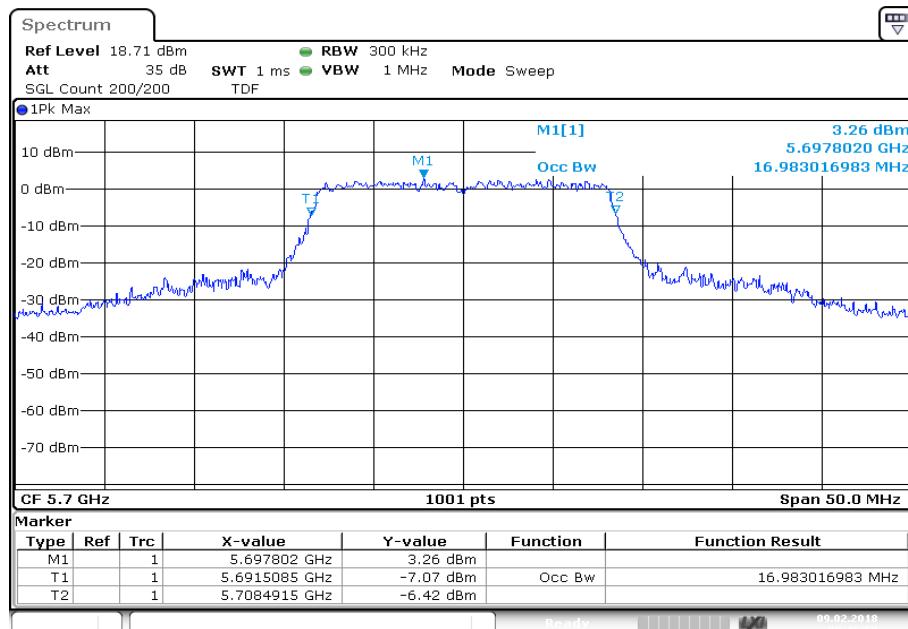
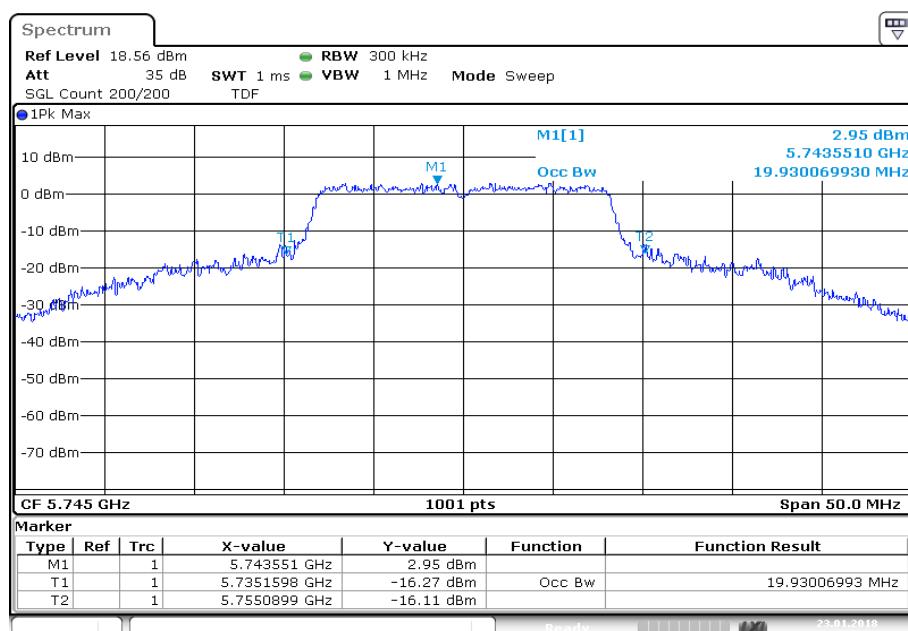
n HT40	99% bandwidth (kHz)		
	<b>U-NII-1 (5150 MHz to 5250 MHz)</b>		
	Lowest channel		Highest channel
	36663		36763
	<b>U-NII-2A (5250 MHz to 5350 MHz)</b>		
	Lowest channel		Highest channel
	36763		36763
	<b>U-NII-2C (5470 MHz to 5725 MHz)</b>		
	Lowest channel	Middle channel	Highest channel
	36863	36663	36663
<b>U-NII-3 (5725 MHz to 5850 MHz)</b>			
Lowest channel		Highest channel	
36763		36763	

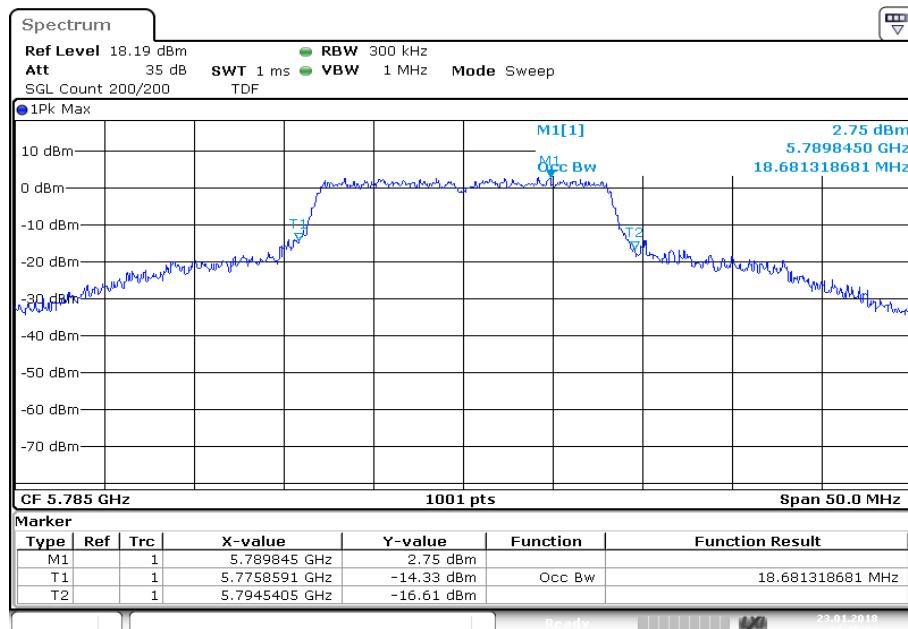
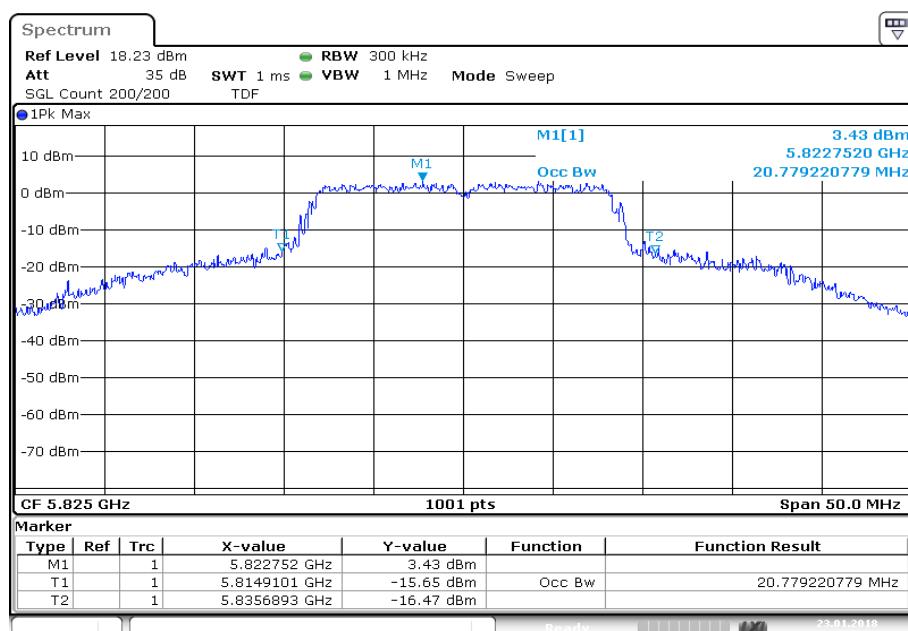
**Plots:** a – mode**Plot 1:** U-NII-1; lowest channel**Plot 2:** U-NII-1; middle channel

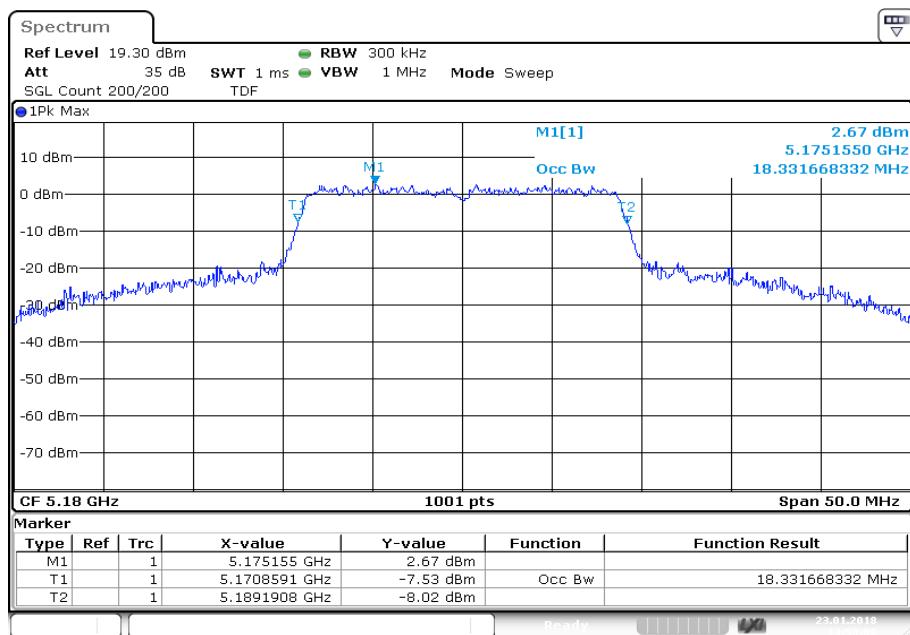
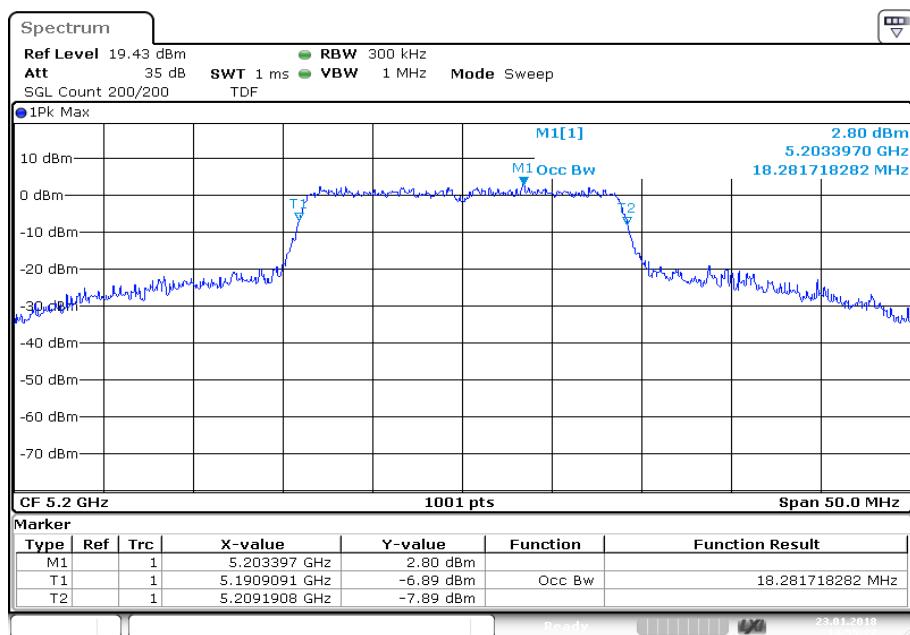
**Plot 3:** U-NII-1; highest channel**Plot 4:** U-NII-2A; lowest channel

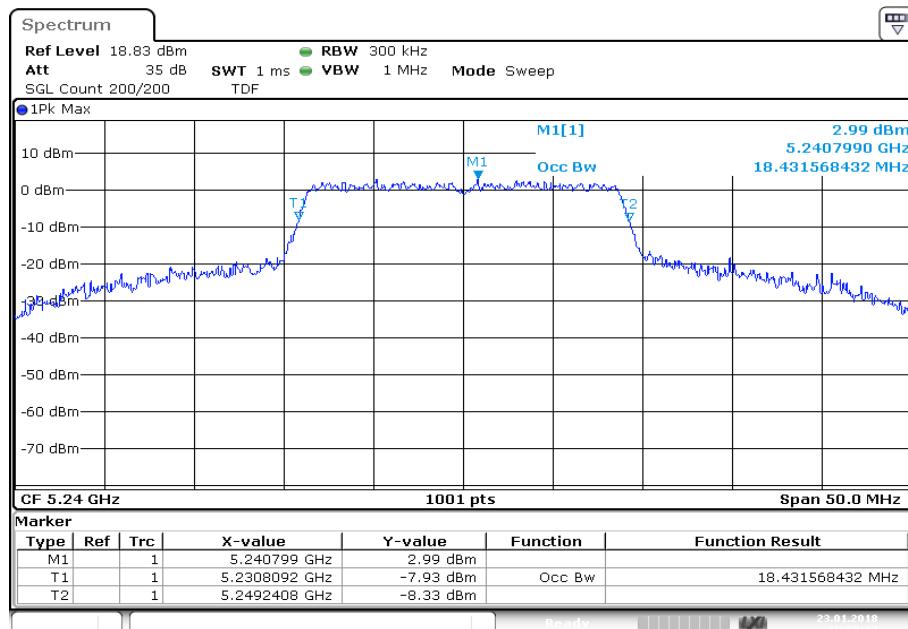
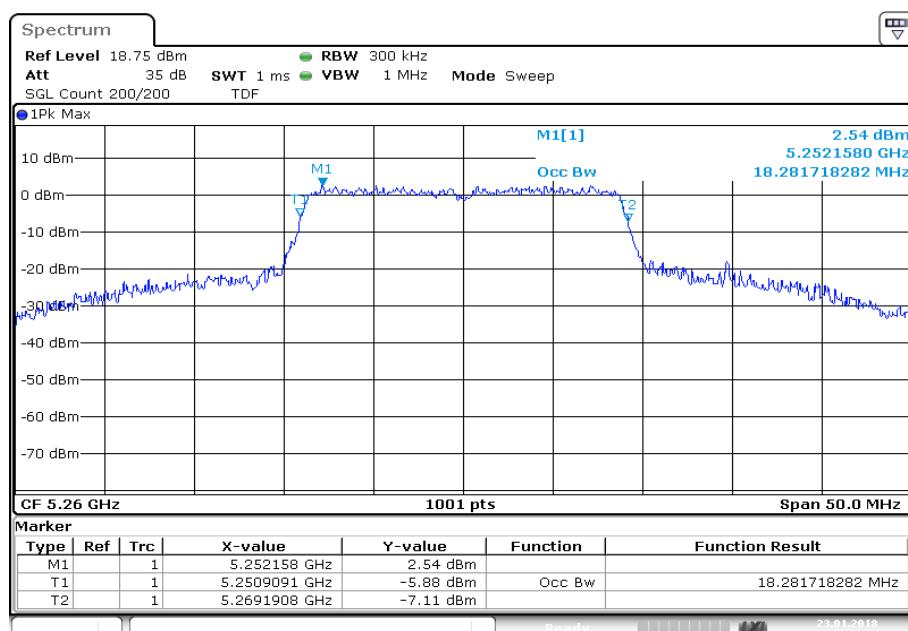
**Plot 5:** U-NII-2A; middle channel**Plot 6:** U-NII-2A; highest channel

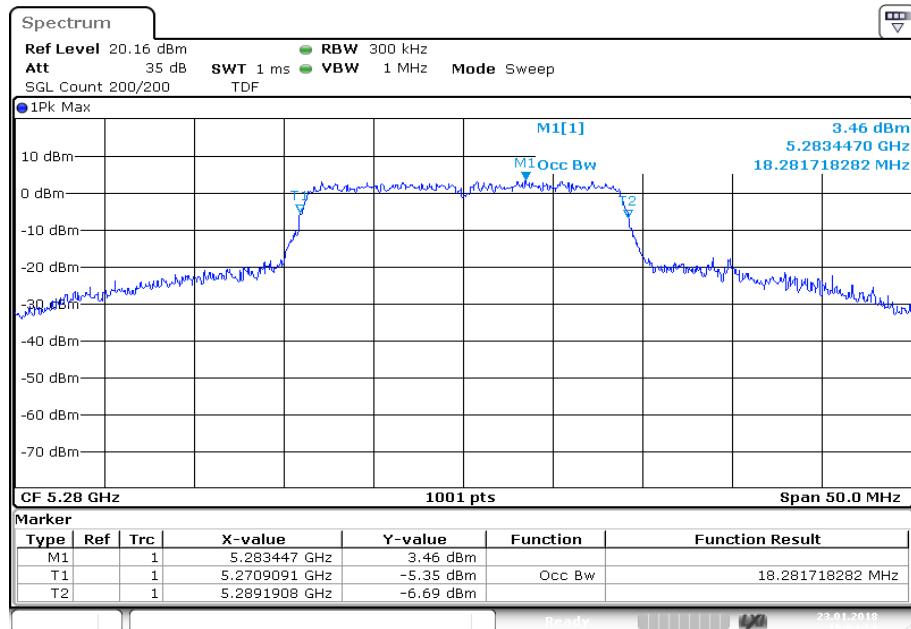
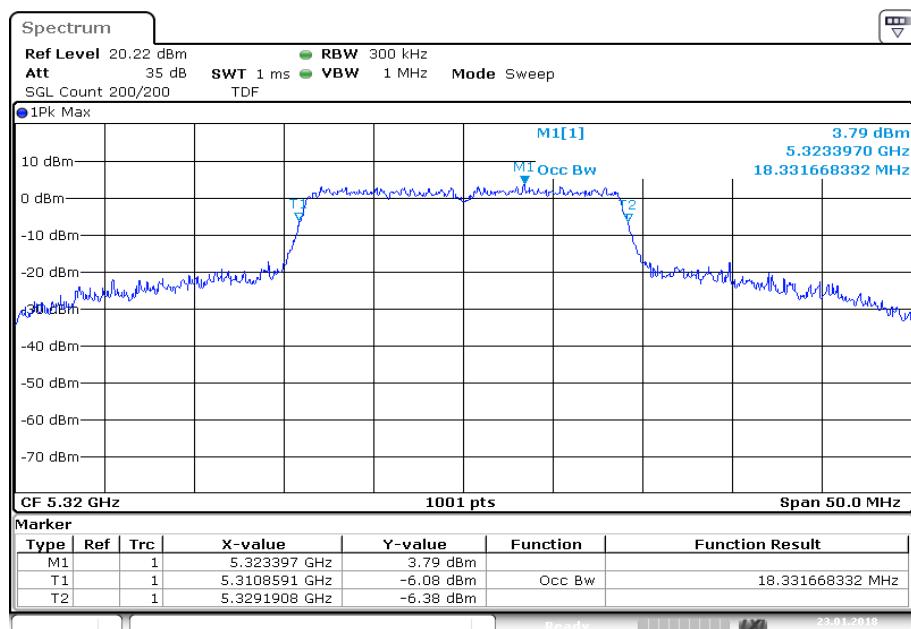
**Plot 7:** U-NII-2C; lowest channel**Plot 8:** U-NII-2C; middle channel

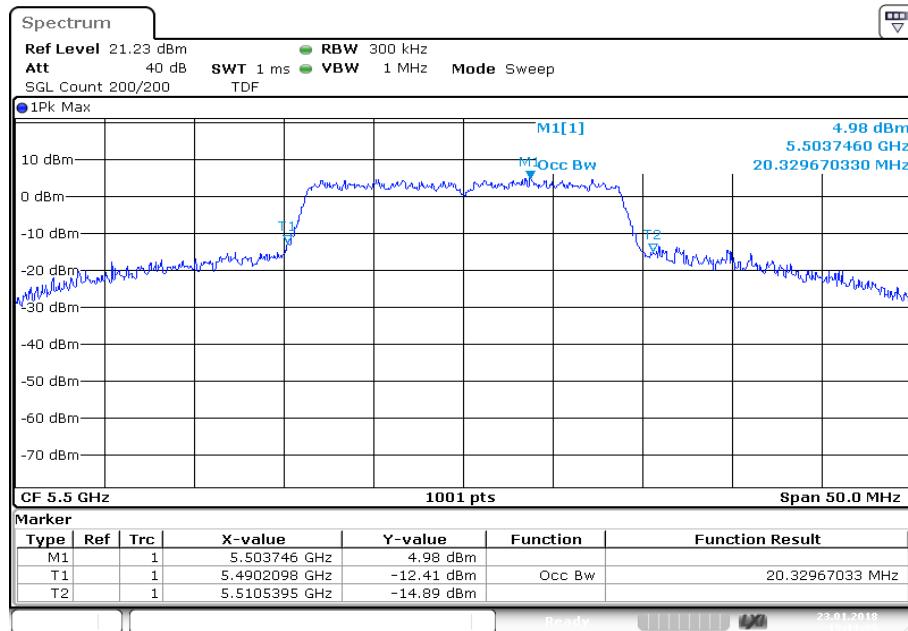
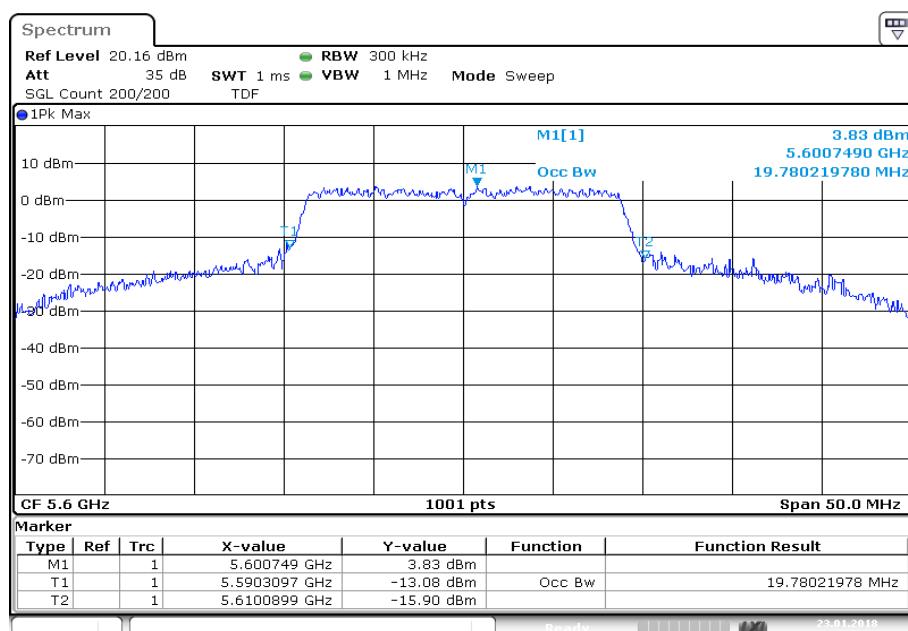
**Plot 9:** U-NII-2C; highest channel**Plot 10:** U-NII-3; lowest channel

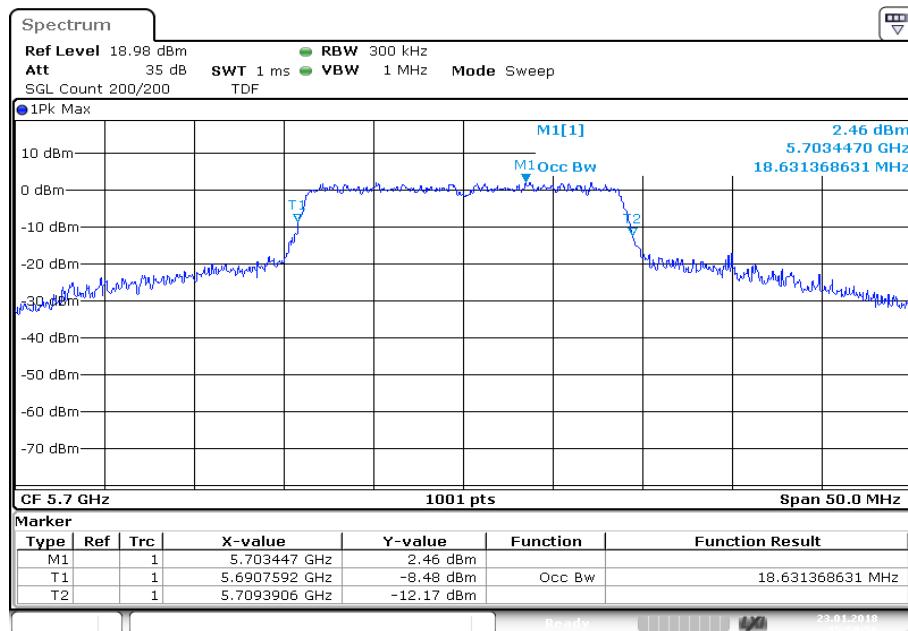
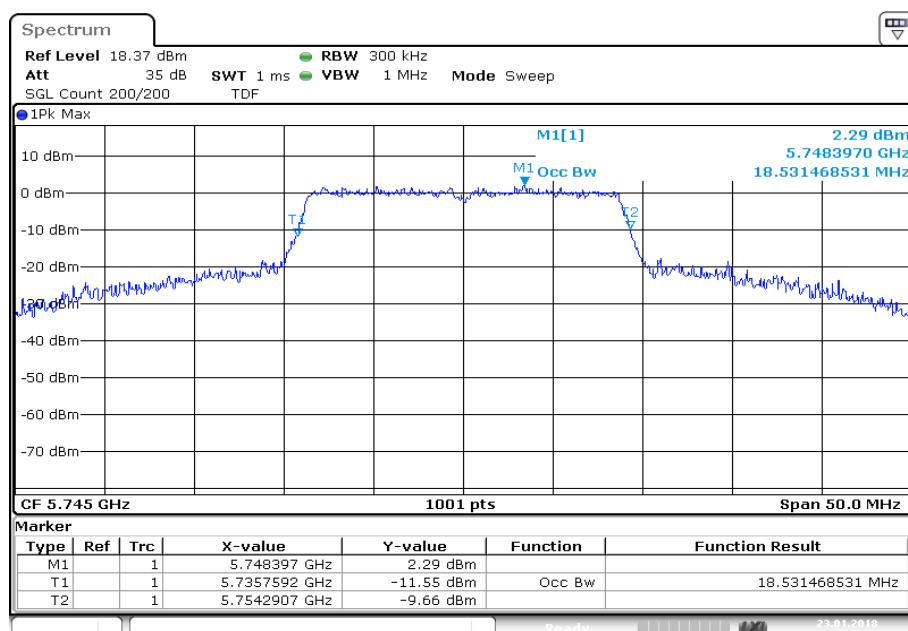
**Plot 11:** U-NII-3; middle channel**Plot 12:** U-NII-3; highest channel

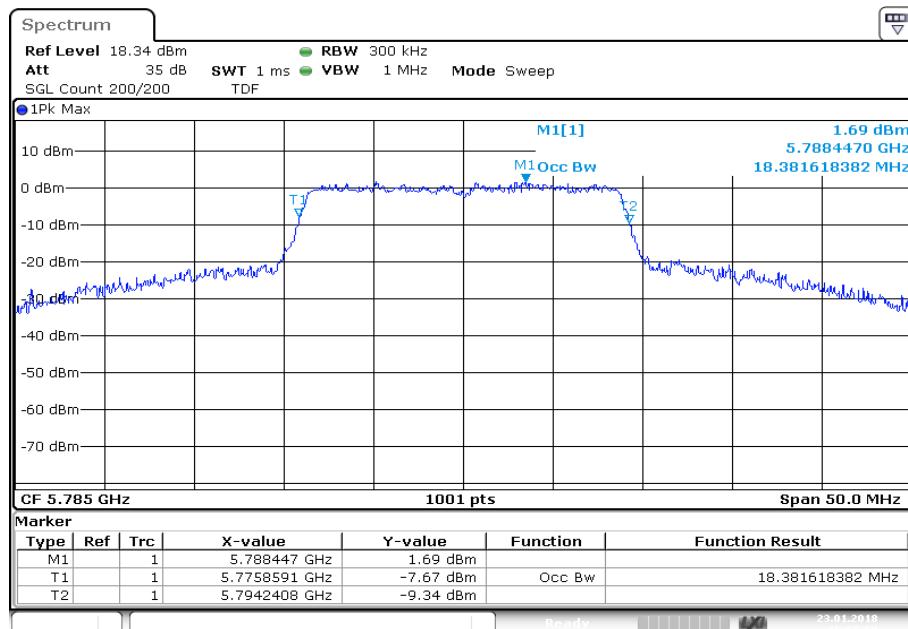
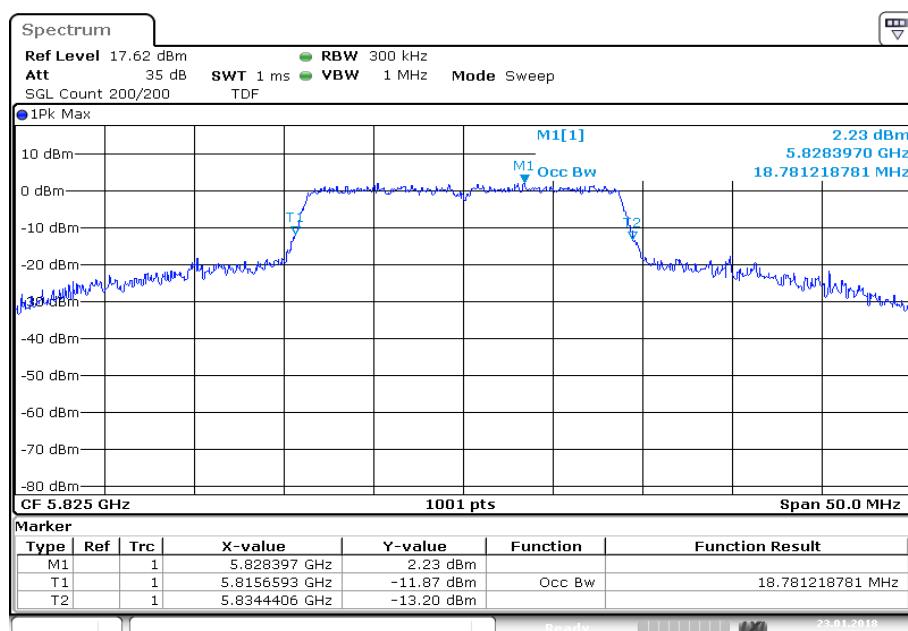
**Plots:** n HT20 – mode**Plot 1:** U-NII-1; lowest channel**Plot 2:** U-NII-1; middle channel

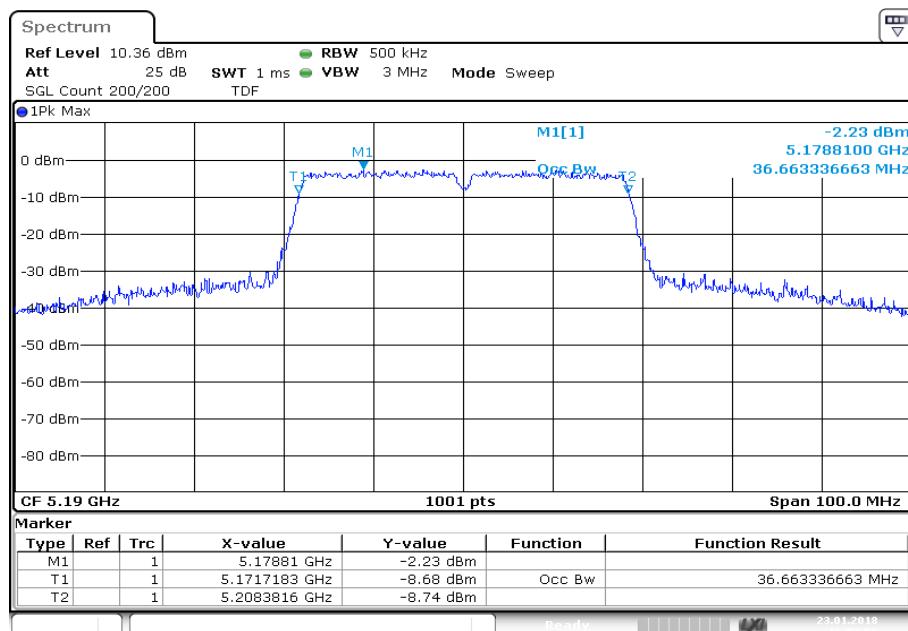
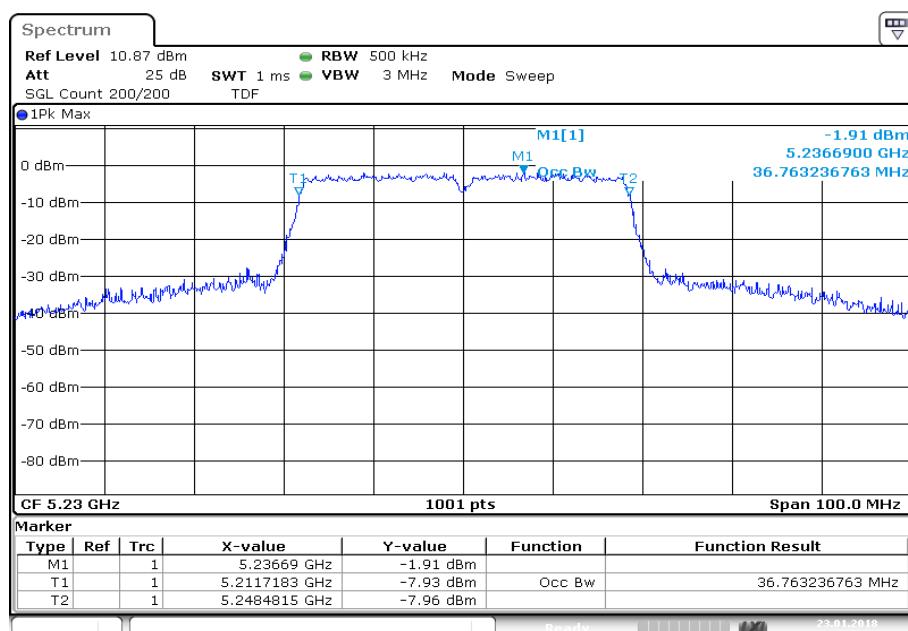
**Plot 3:** U-NII-1; highest channel**Plot 4:** U-NII-2A; lowest channel

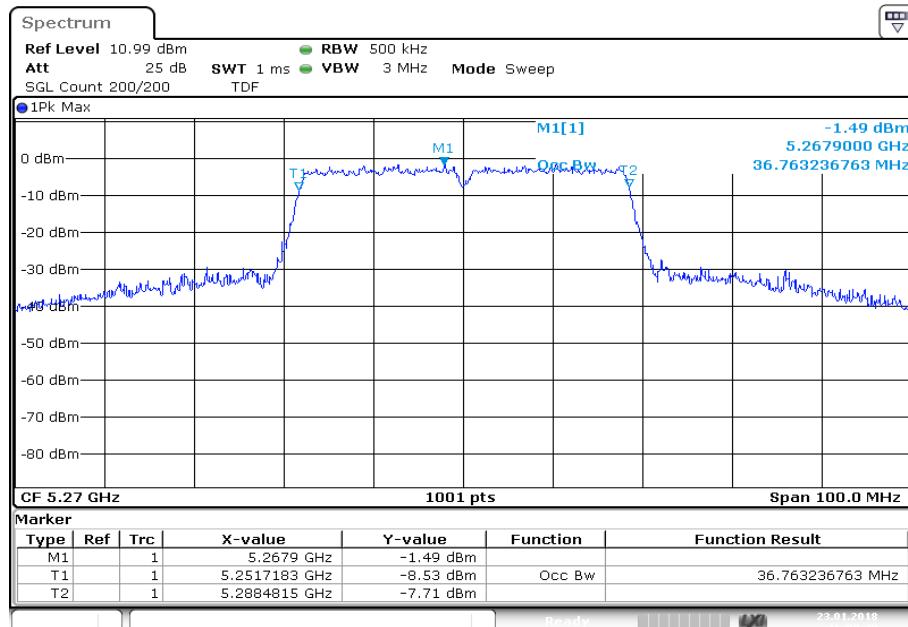
**Plot 5:** U-NII-2A; middle channel**Plot 6:** U-NII-2A; highest channel

**Plot 7:** U-NII-2C; lowest channel**Plot 8:** U-NII-2C; middle channel

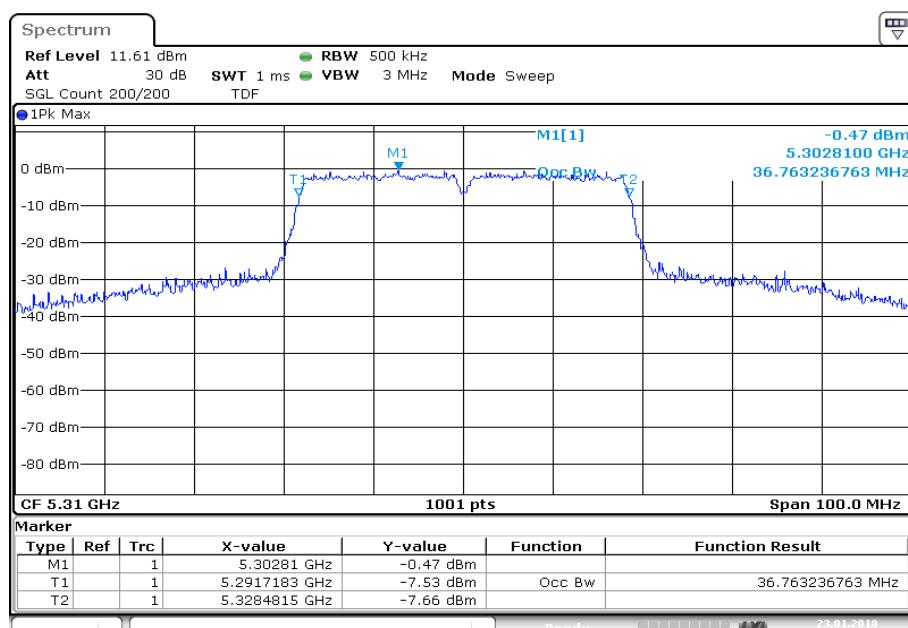
**Plot 9:** U-NII-2C; highest channel**Plot 10:** U-NII-3; lowest channel

**Plot 11:** U-NII-3; middle channel**Plot 12:** U-NII-3; highest channel

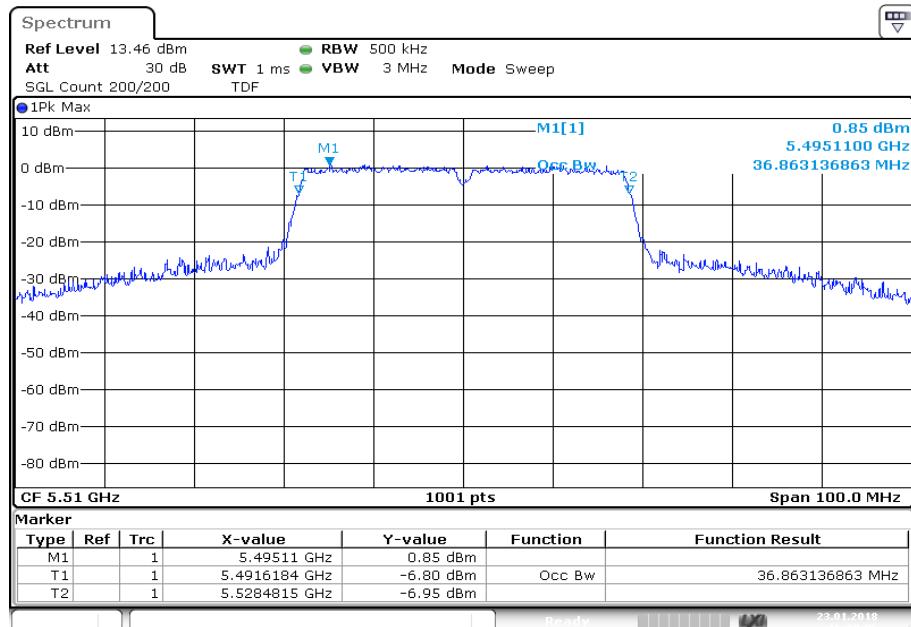
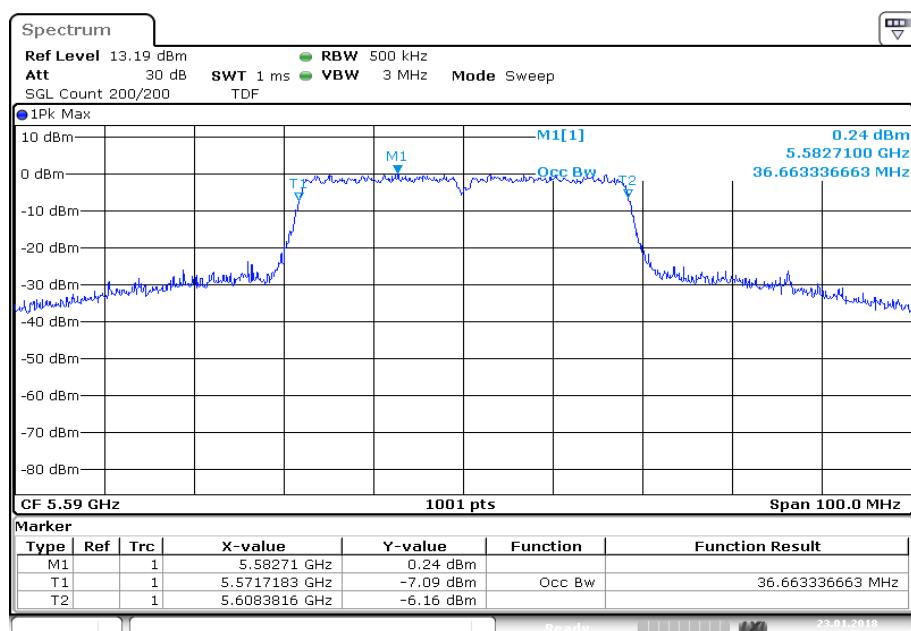
**Plots:** n HT40 – mode**Plot 1:** U-NII-1; lowest channel**Plot 2:** U-NII-1; highest channel

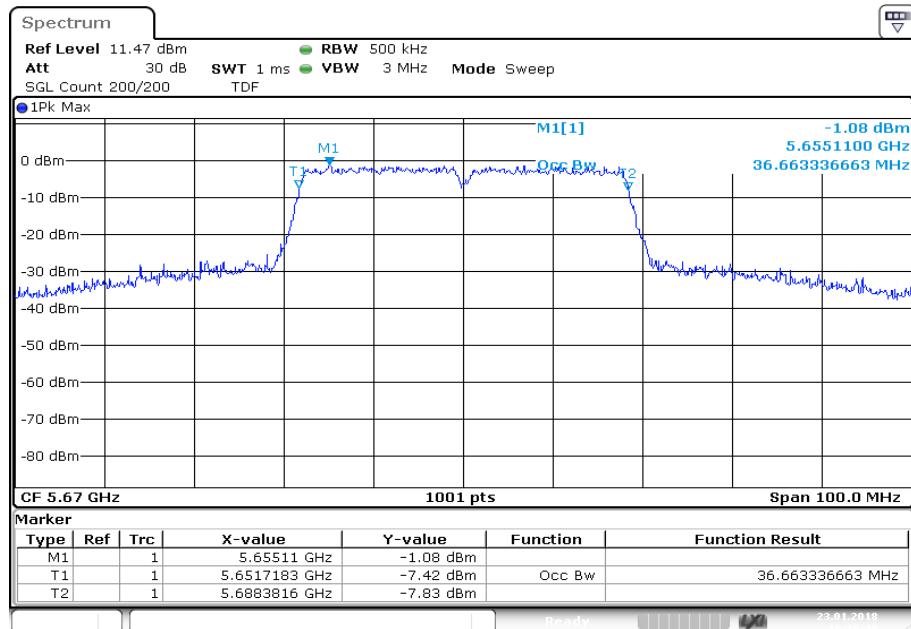
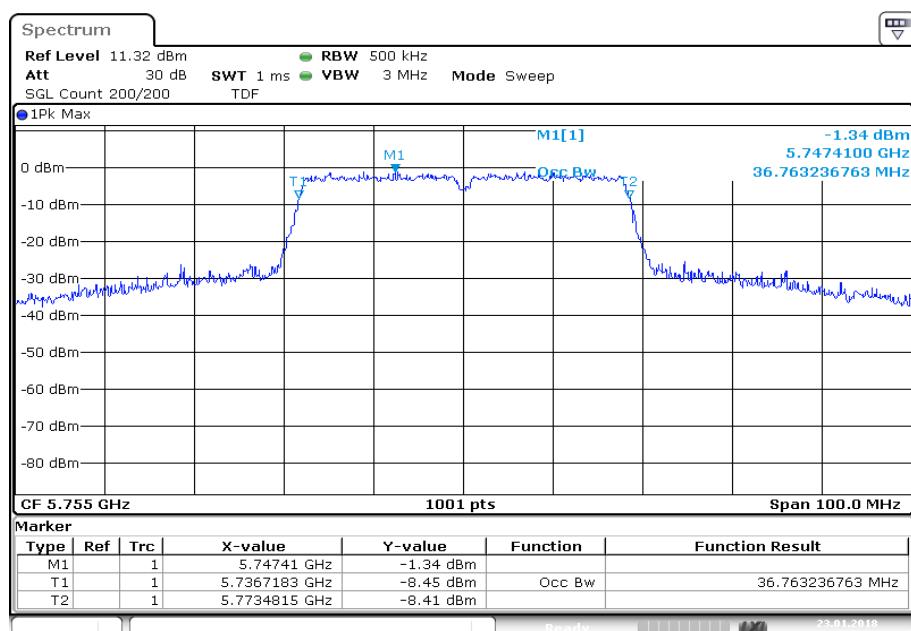
**Plot 3:** U-NII-2A; lowest channel

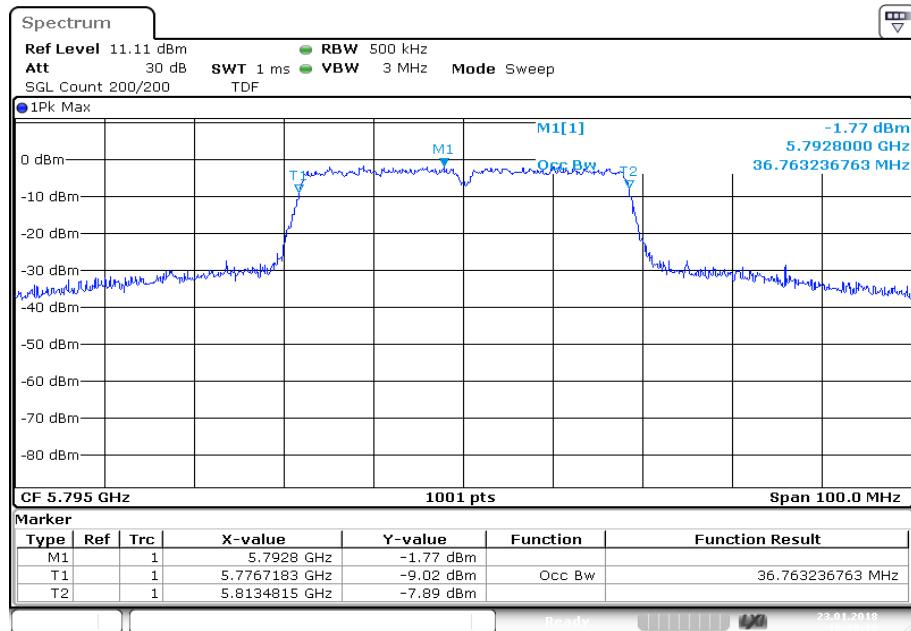
Date: 23.JAN.2018 16:08:31

**Plot 4:** U-NII-2A; highest channel

Date: 23.JAN.2018 16:17:58

**Plot 5:** U-NII-2C; lowest channel**Plot 6:** U-NII-2C; middle channel

**Plot 7:** U-NII-2C; highest channel**Plot 8:** U-NII-3; lowest channel

**Plot 9:** U-NII-3; highest channel

## 11.9 Band edge compliance radiated

### Description:

Measurement of the radiated band edge compliance. The EUT is turned in the position that results in the maximum level at the band edge. Then a sweep over the corresponding restricted band is performed. The EUT is set to the lowest channel for the lower restricted band and to the highest channel for the upper restricted band. Measurement distance is 3m.

### Measurement:

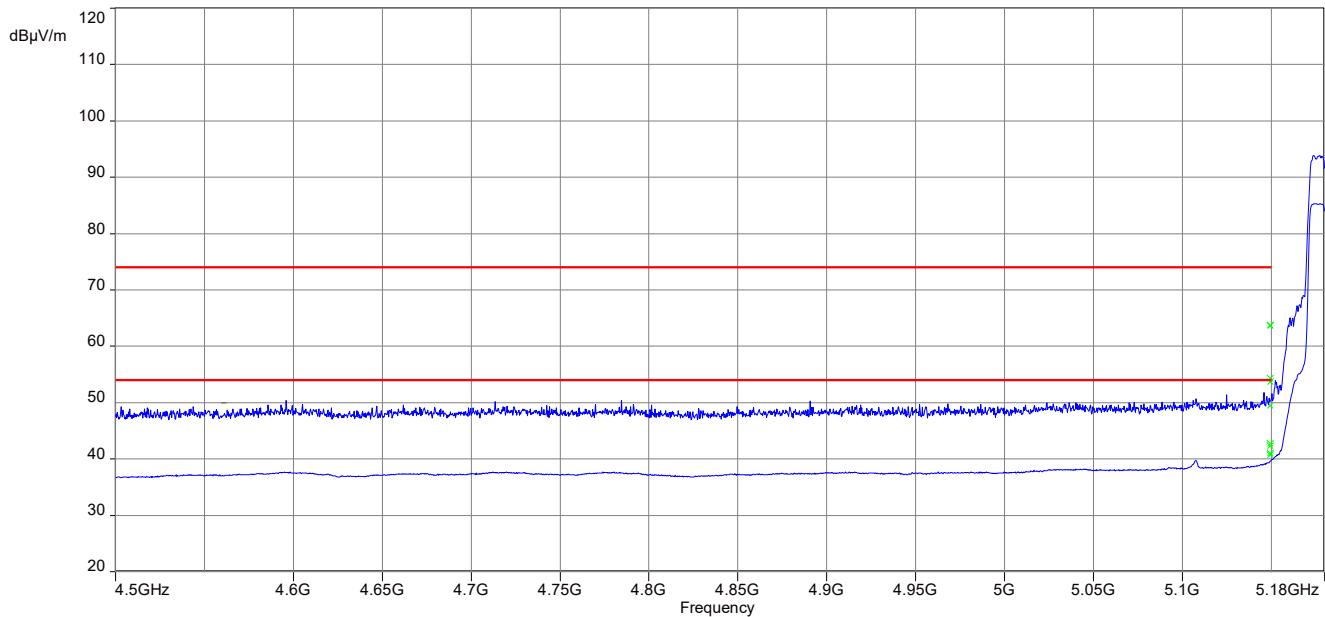
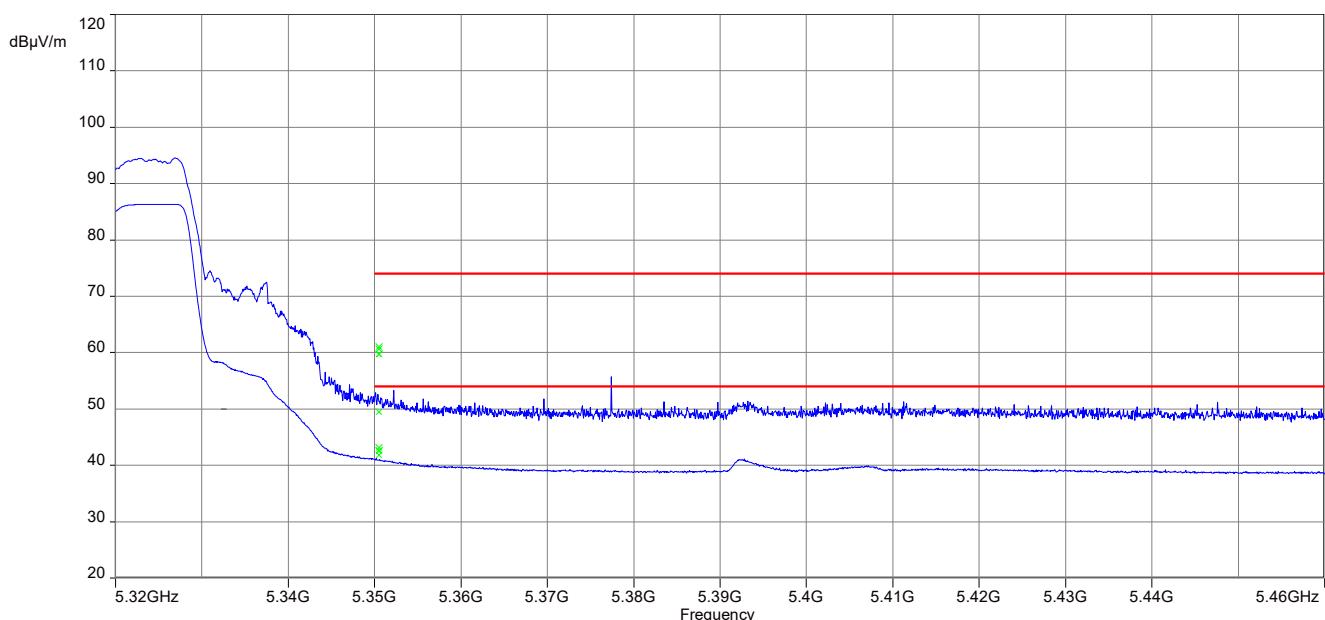
Measurement parameter	
Detector:	Peak / RMS
Sweep time:	Auto
Resolution bandwidth:	1 MHz
Video bandwidth:	$\geq 3 \times$ RBW
Span:	See plots!
Trace mode:	Max Hold
Test setup:	See sub clause 6.2 – B
Measurement uncertainty:	See sub clause 8

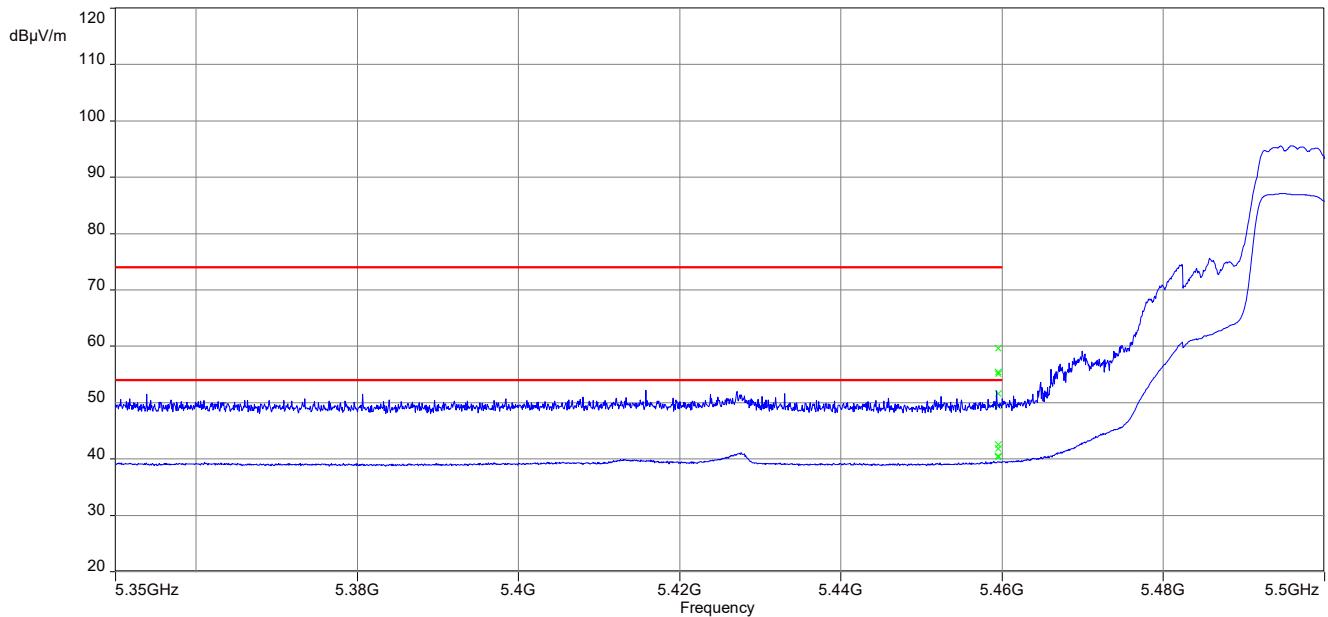
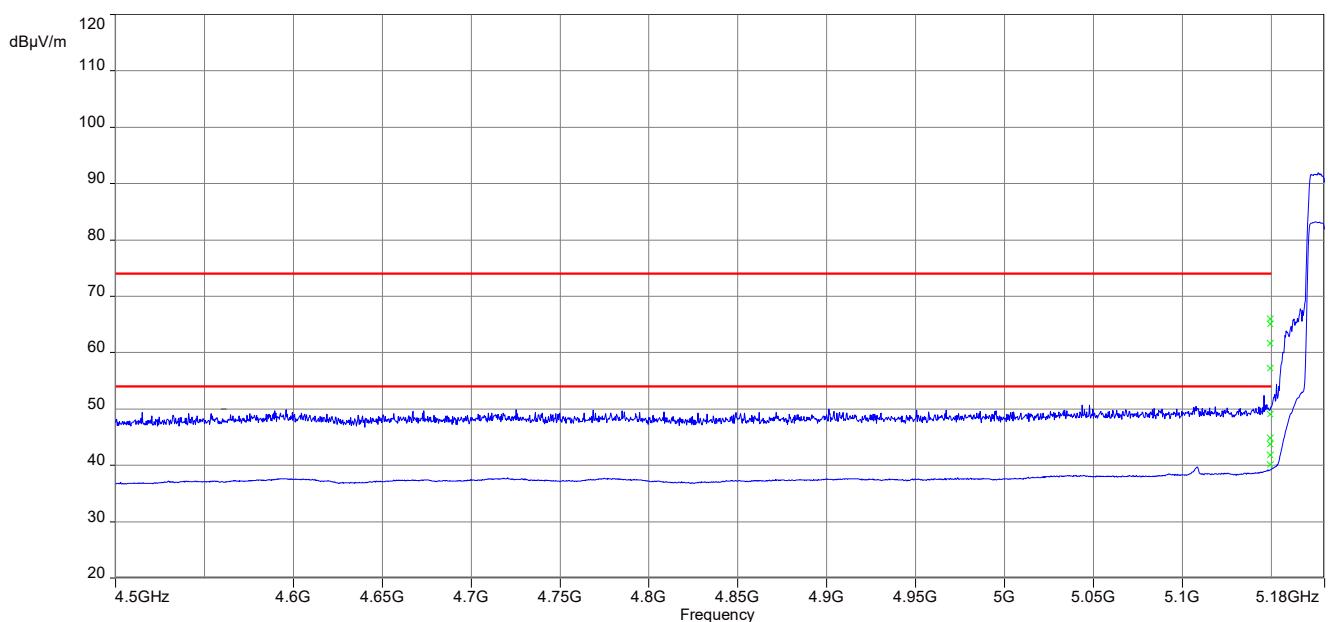
### Limits:

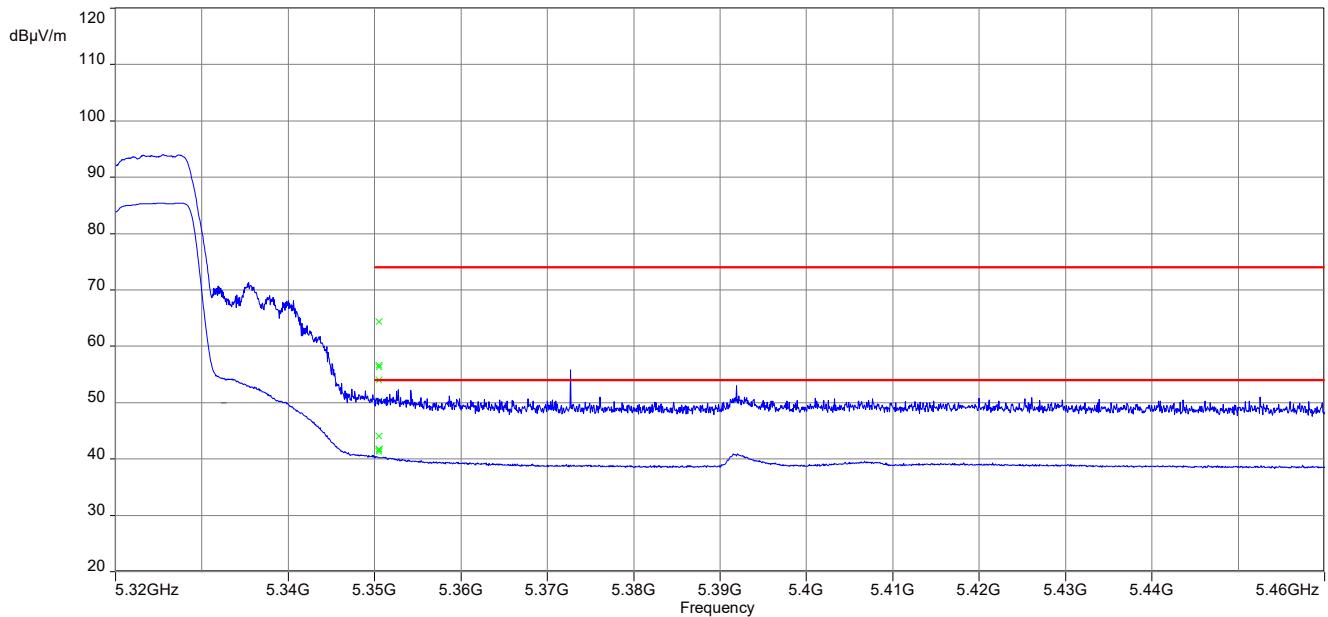
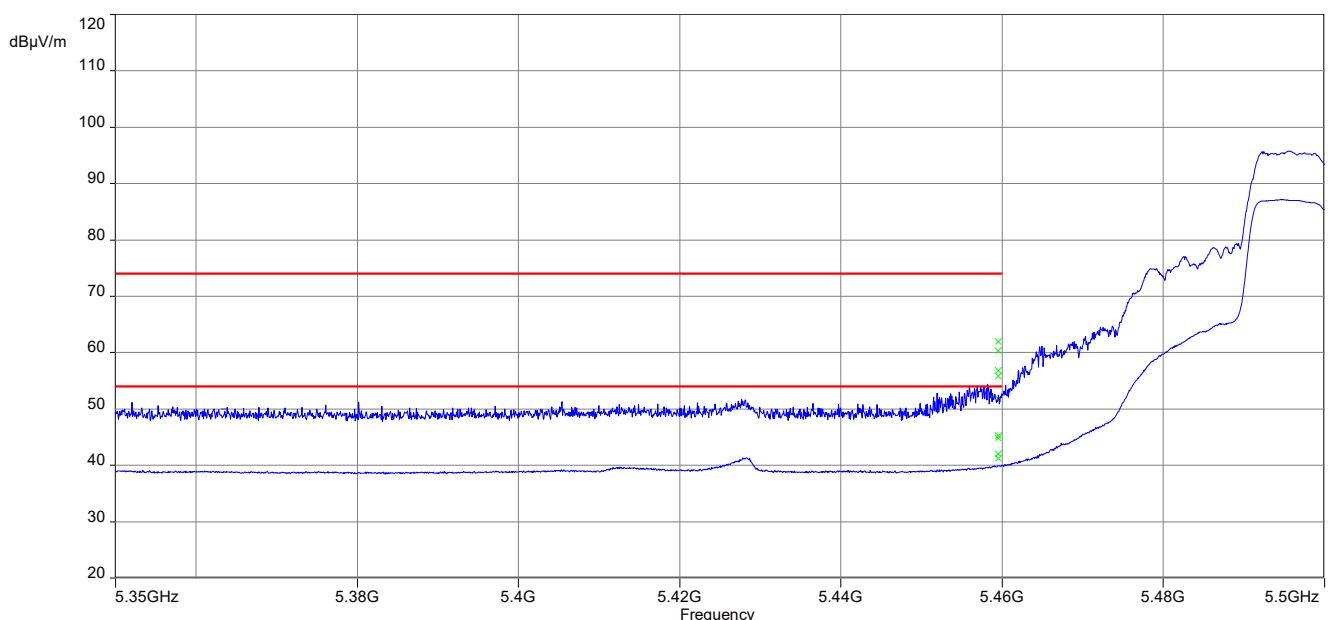
Band Edge Compliance Radiated	
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement. Attenuation below the general limits specified in Section 15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 5.205(c)).	
74 dB $\mu$ V/m (peak)	54 dB $\mu$ V/m (average)

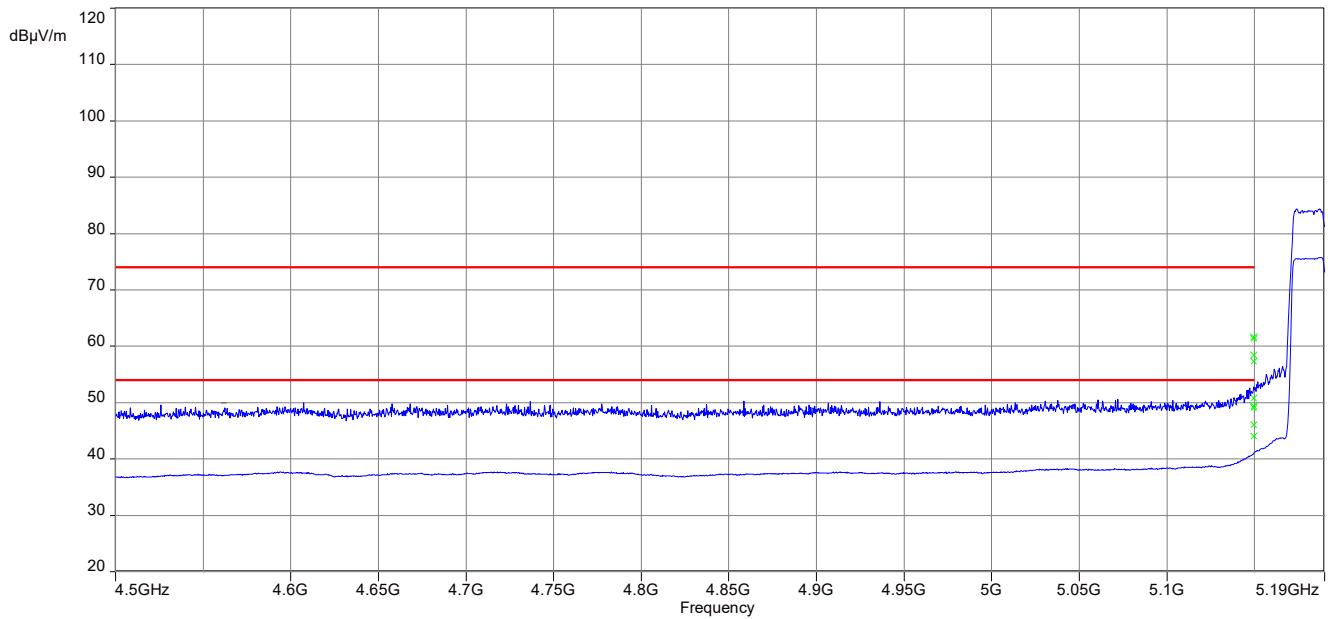
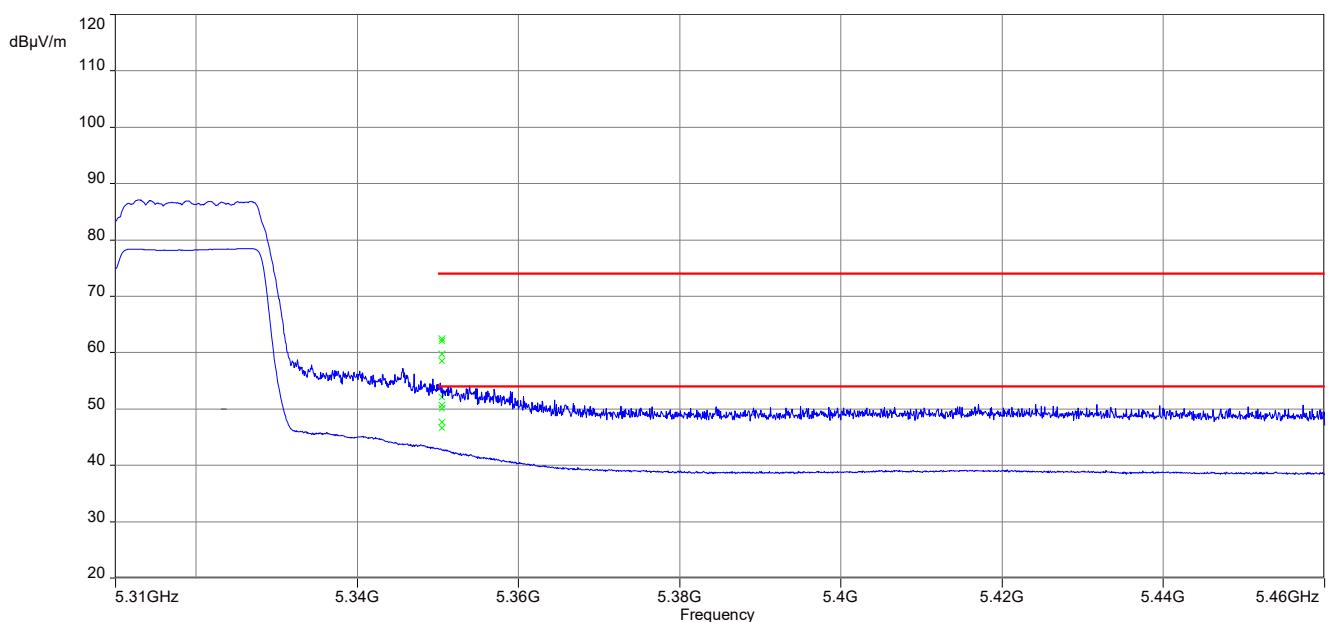
### Result:

Scenario	Band Edge Compliance Radiated [dB $\mu$ V/m]
band edge	< 74 dB $\mu$ V/m (peak) < 54 dB $\mu$ V/m (average)

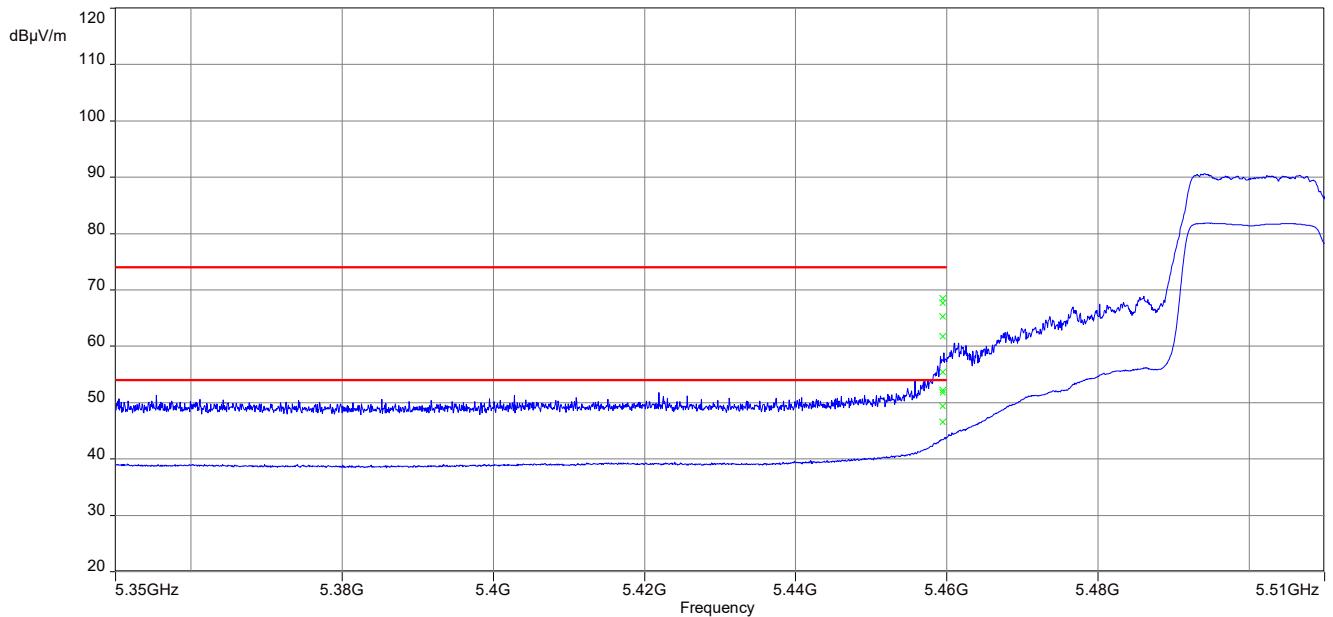
**Plots:****Plot 1:** lower band edge; U-NII-1; lowest channel; a-mode**Plot 2:** upper band edge; U-NII-2A; highest channel; a-mode

**Plot 3:** lower band edge; U-NII-2C; lowest channel; a-mode**Plot 4:** lower band edge; U-NII-1; lowest channel; n HT20 – mode

**Plot 5:** upper band edge; U-NII-2A; highest channel; n HT20 – mode**Plot 6:** lower band edge; U-NII-2C; lowest channel; n HT20 – mode

**Plot 7:** lower band edge; U-NII-1; lowest channel; n HT40 – mode**Plot 8:** upper band edge; U-NII-2A; highest channel; n HT40 – mode

**Plot 9:** lower band edge; U-NII-2C; lowest channel; n HT40 – mode



## 11.10 Spurious emissions radiated < 30 MHz

### Description:

Measurement of the radiated spurious emissions in transmit mode and receive mode below 30 MHz. The EUT is set first to middle channel. This measurement is representative for all channels and modes. If critical peaks are found the lowest channel and the highest channel will be measured too. Then the EUT is set to receive or idle mode. The limits are recalculated to a measurement distance of 3 m with 40 dB/decade according CFR Part 2.

### Measurement:

Measurement parameter	
Detector:	Peak / Quasi Peak
Sweep time:	Auto
Video bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Resolution bandwidth:	F < 150 kHz: 1 kHz F > 150 kHz: 100 kHz
Span:	9 kHz to 30 MHz
Trace mode:	Max Hold
Test setup:	See sub clause 6.2 – A
Measurement uncertainty:	See sub clause 8

### Limits:

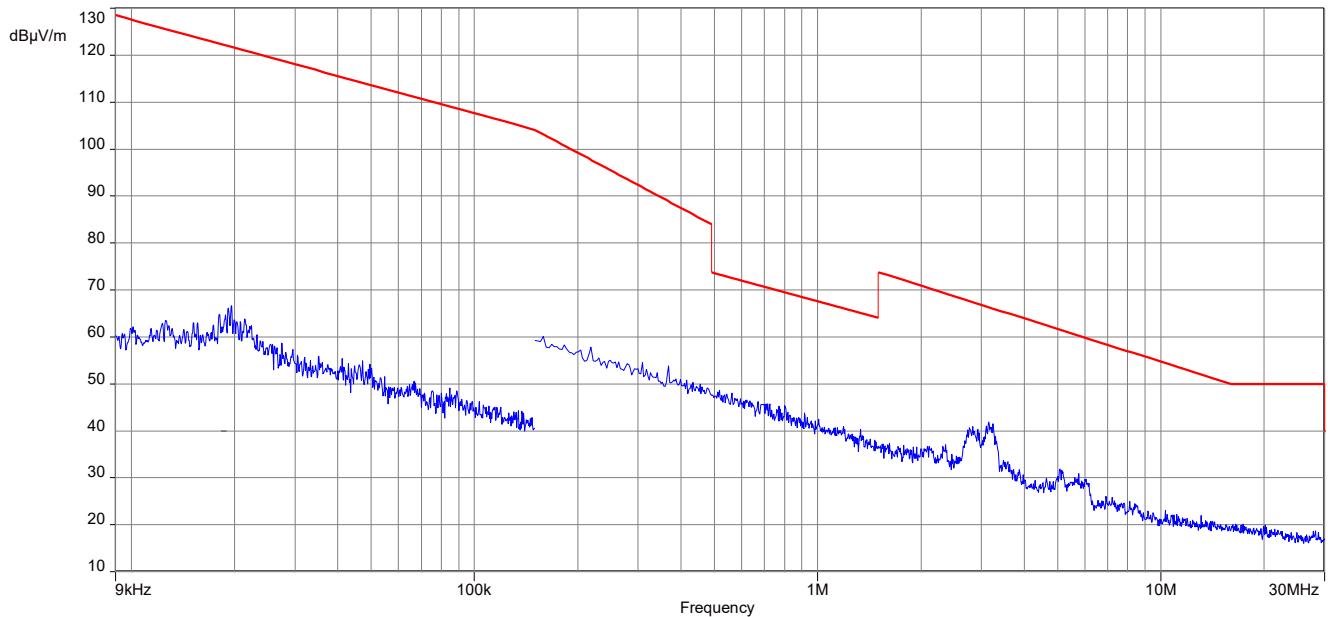
Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

### Results:

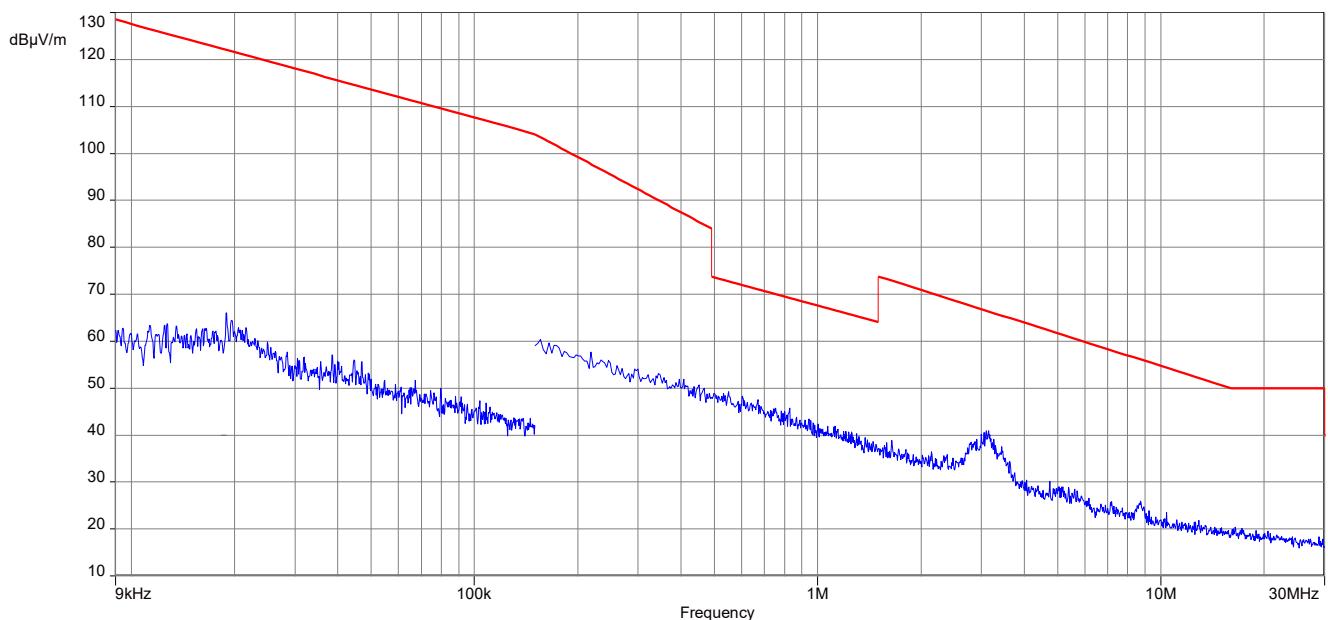
Spurious Emissions Radiated < 30 MHz [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
All detected emissions are more than 20 dB below the limit.		

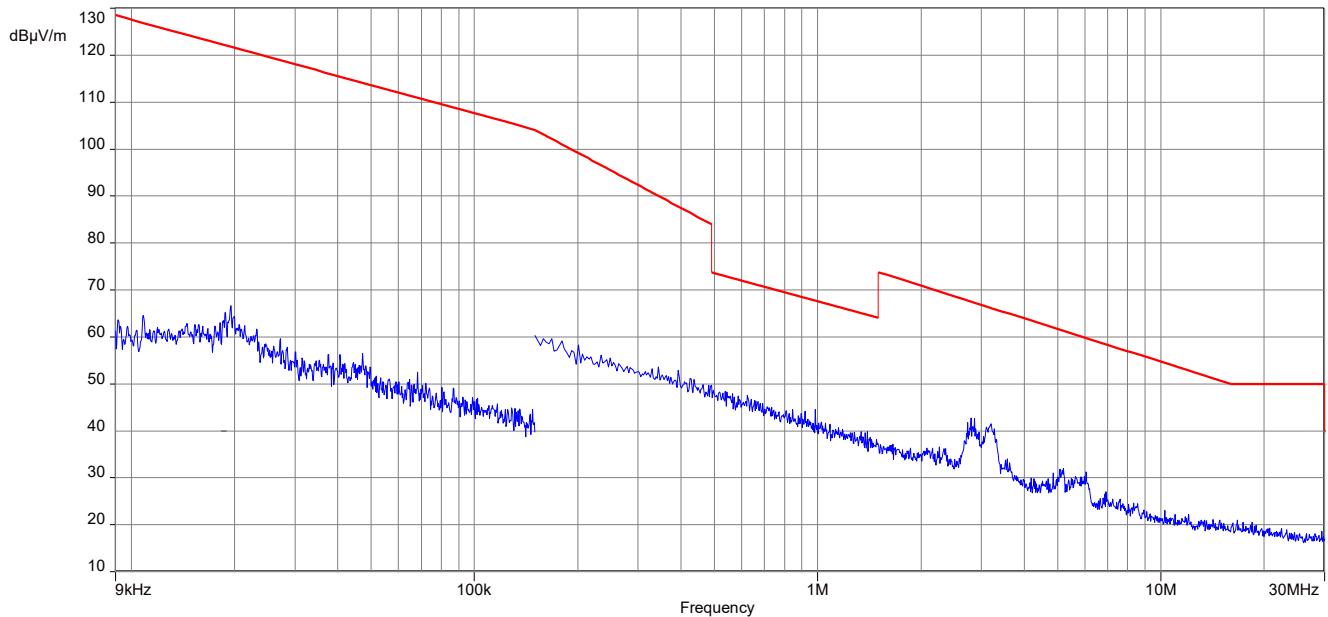
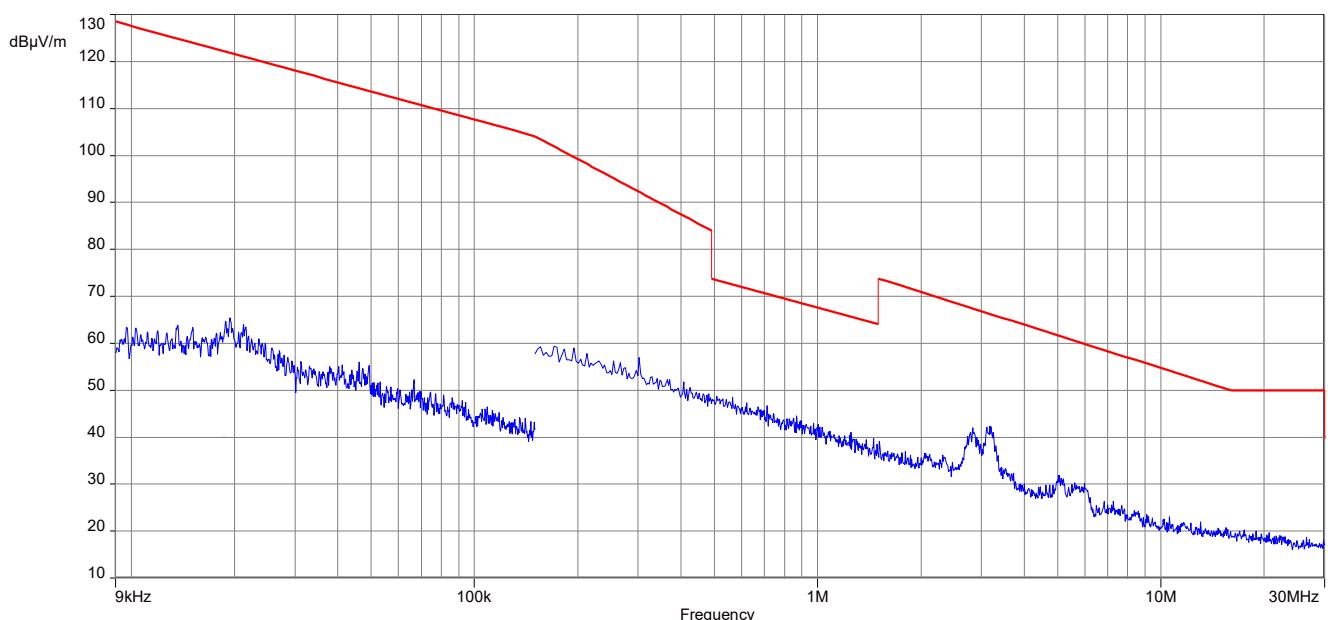
**Plots:** 20 MHz channel bandwidth, a-mode

**Plot 1:** 9 kHz to 30 MHz, U-NII-1; lowest channel

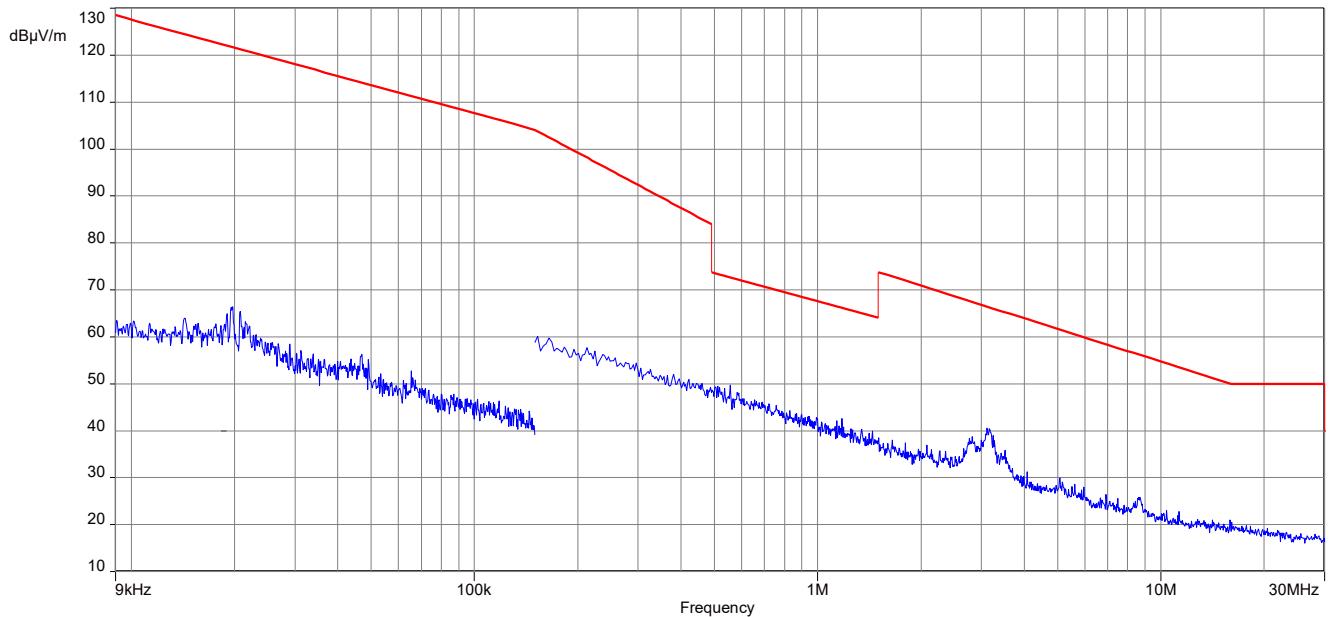


**Plot 2:** 9 kHz to 30 MHz, U-NII-1; middle channel

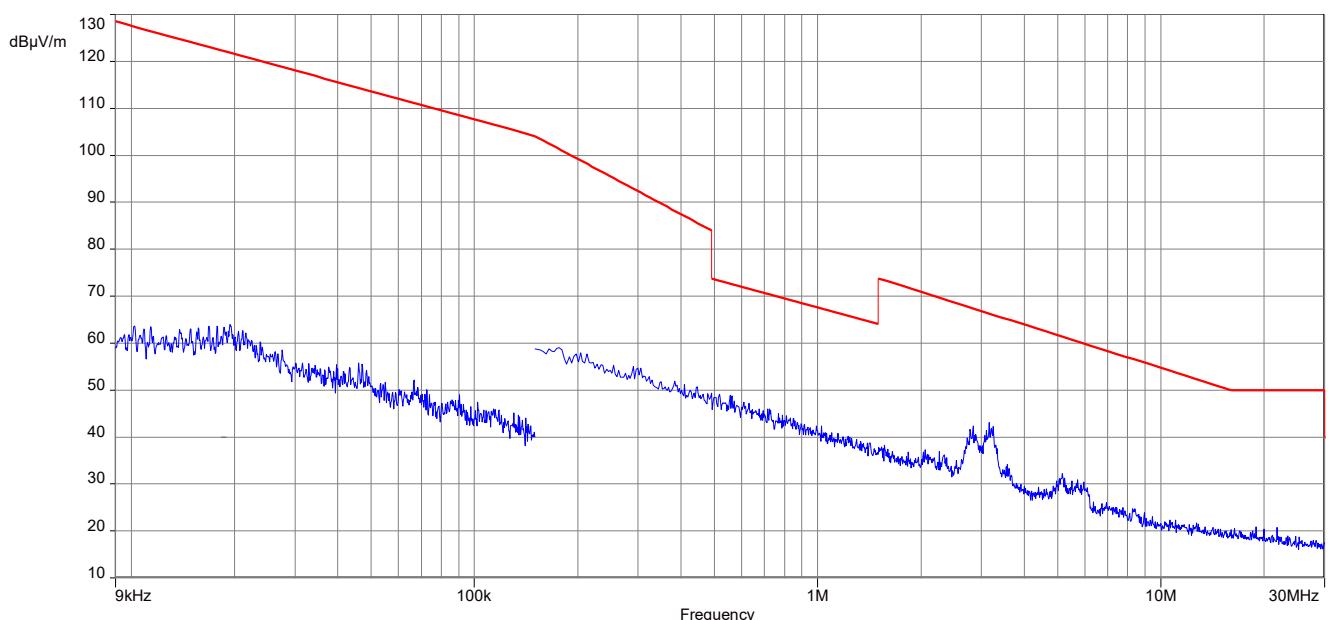


**Plot 3:** 9 kHz to 30 MHz, U-NII-1; highest channel**Plot 4:** 9 kHz to 30 MHz, U-NII-2A; lowest channel

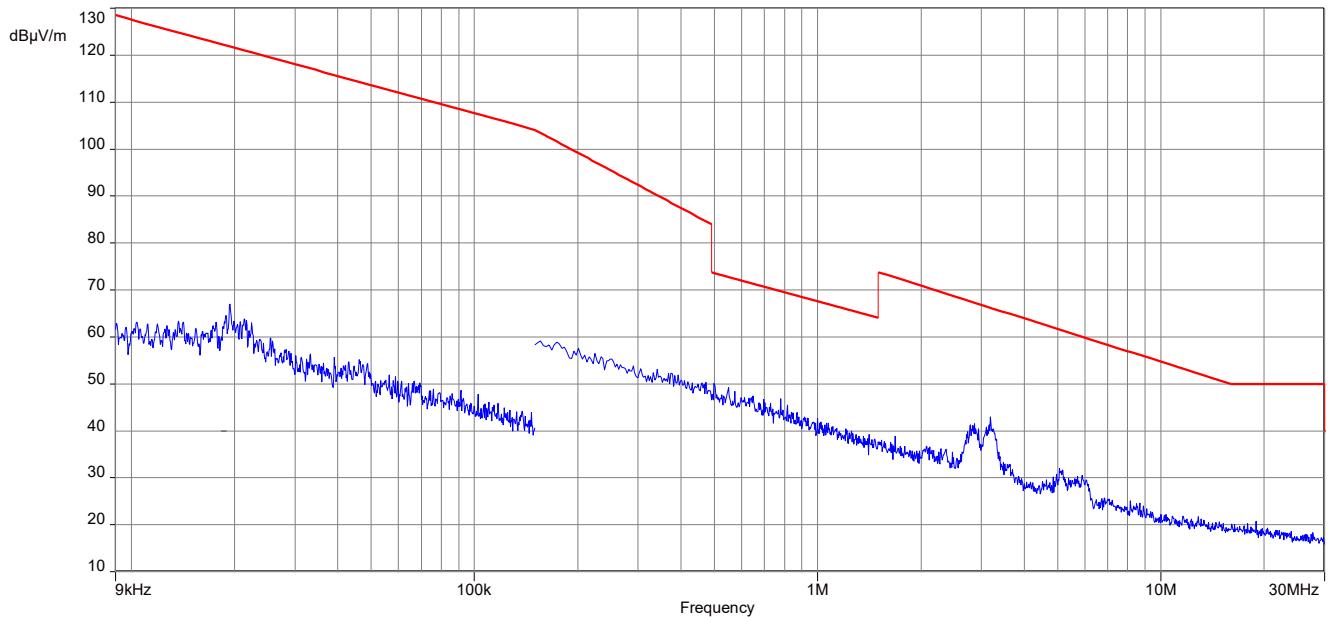
**Plot 5:** 9 kHz to 30 MHz, U-NII-2A; middle channel



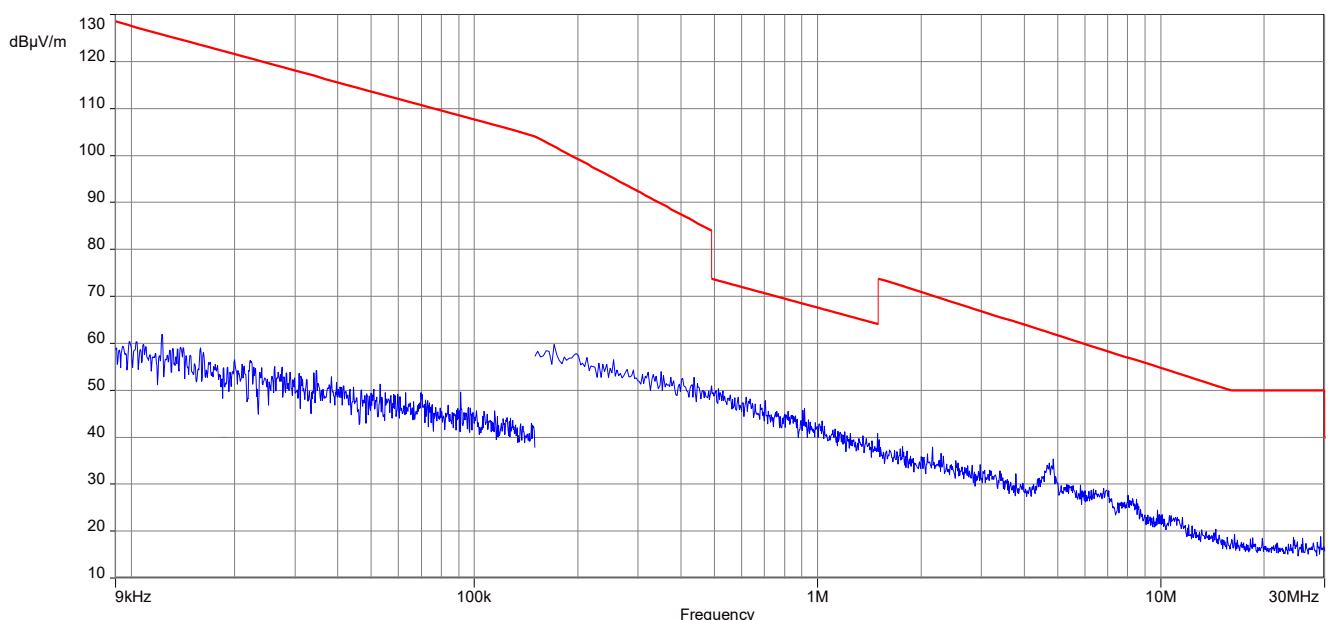
**Plot 6:** 9 kHz to 30 MHz, U-NII-2A; highest channel

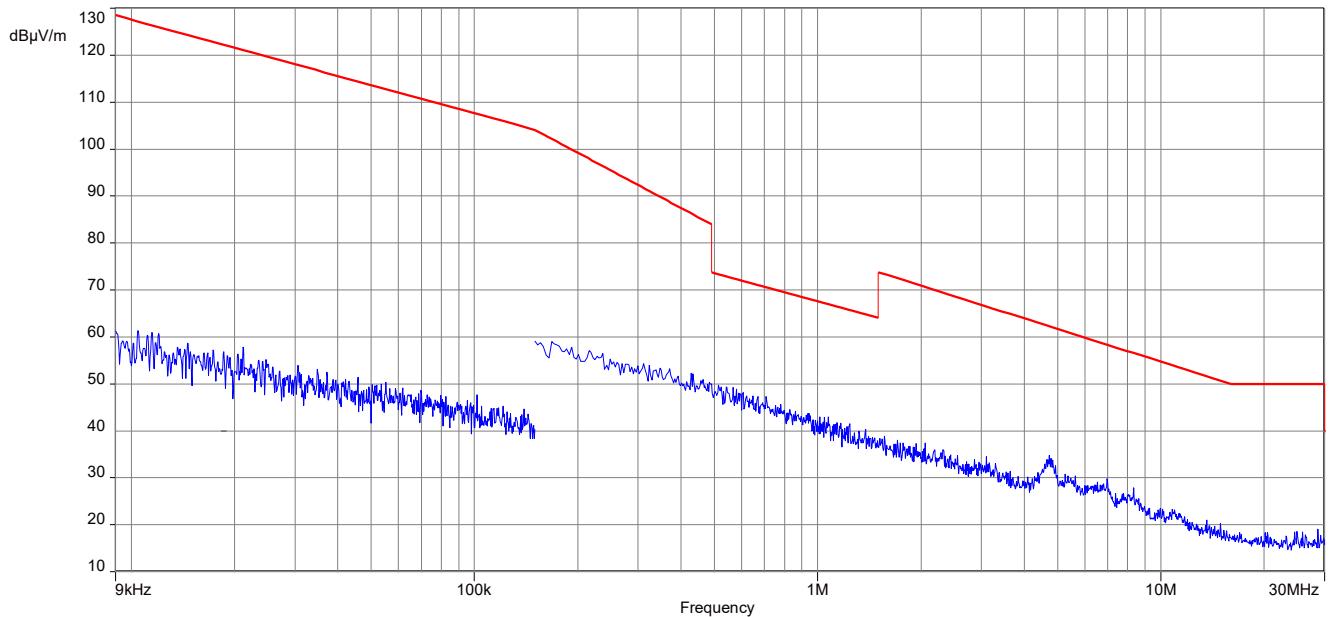
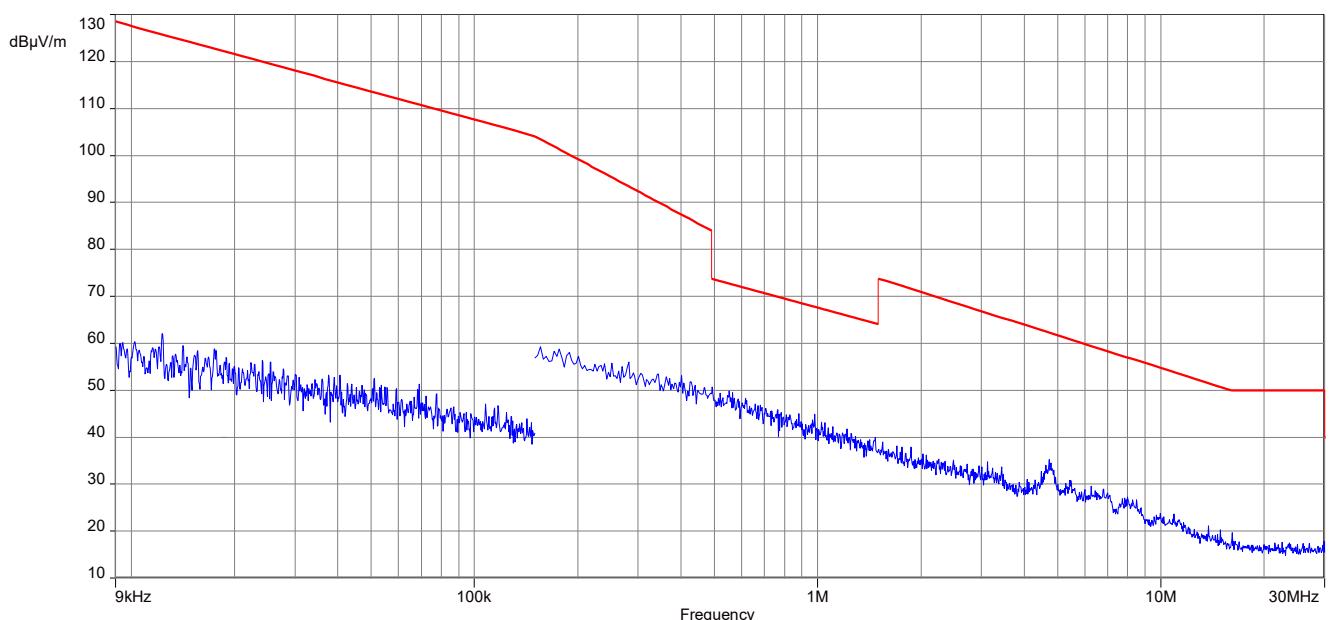


**Plot 7:** 9 kHz to 30 MHz, U-NII-2C; lowest channel

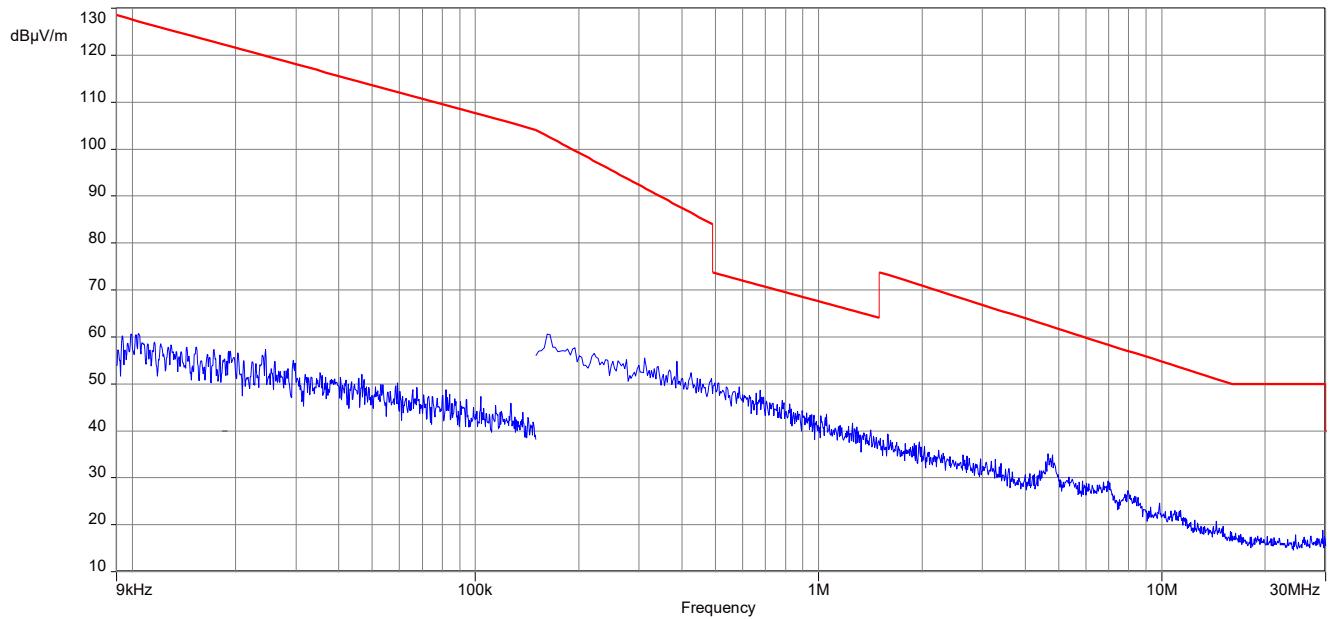


**Plot 8:** 9 kHz to 30 MHz, U-NII-2C; middle channel

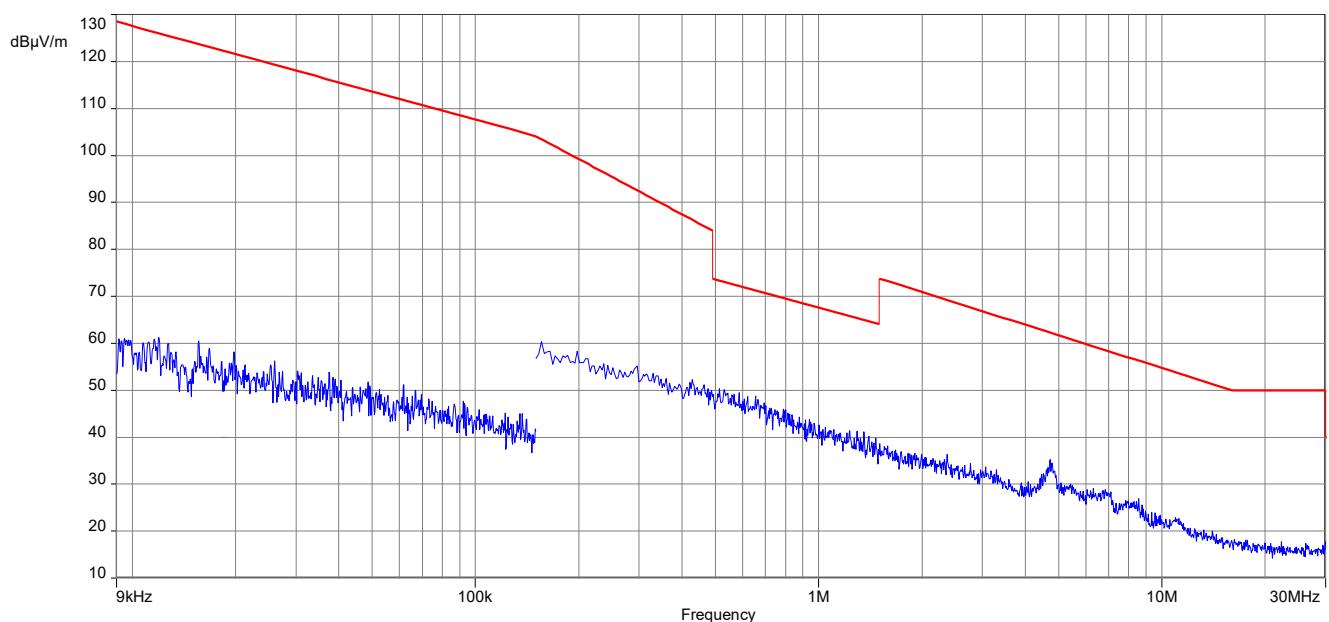


**Plot 9:** 9 kHz to 30 MHz, U-NII-2C; highest channel**Plot 10:** 9 kHz to 30 MHz, U-NII-3; lowest channel

**Plot 11:** 9 kHz to 30 MHz, U-NII-3; middle channel

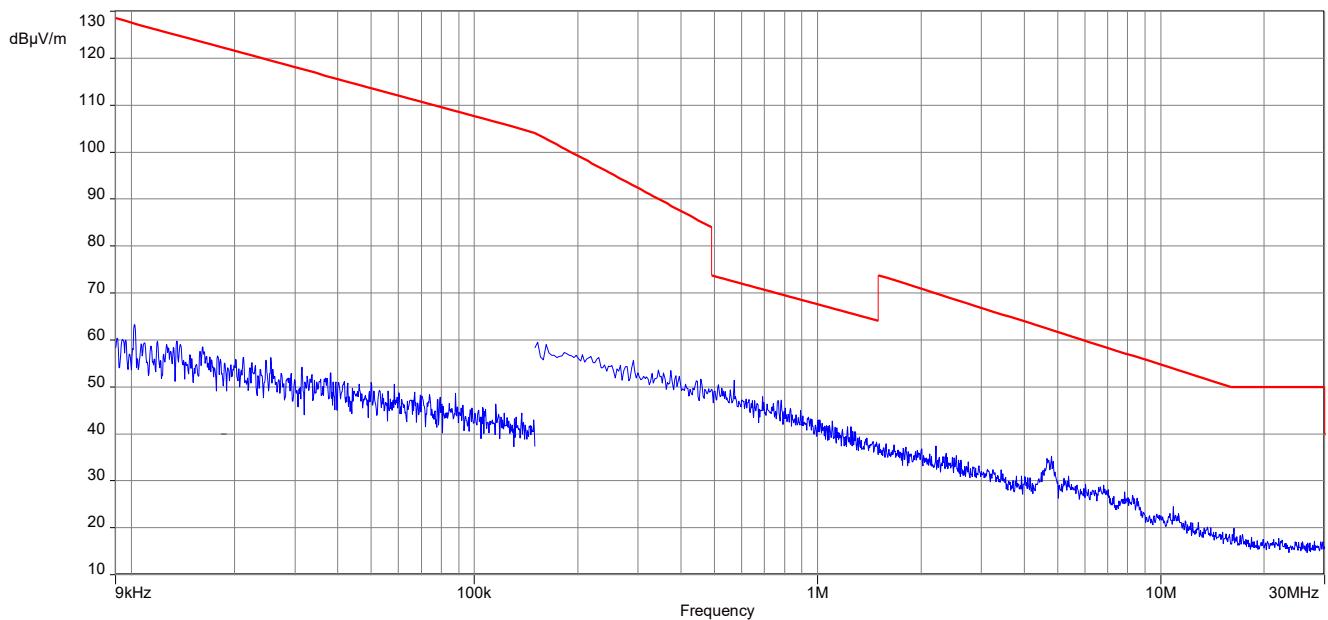


**Plot 12:** 9 kHz to 30 MHz, U-NII-3; highest channel

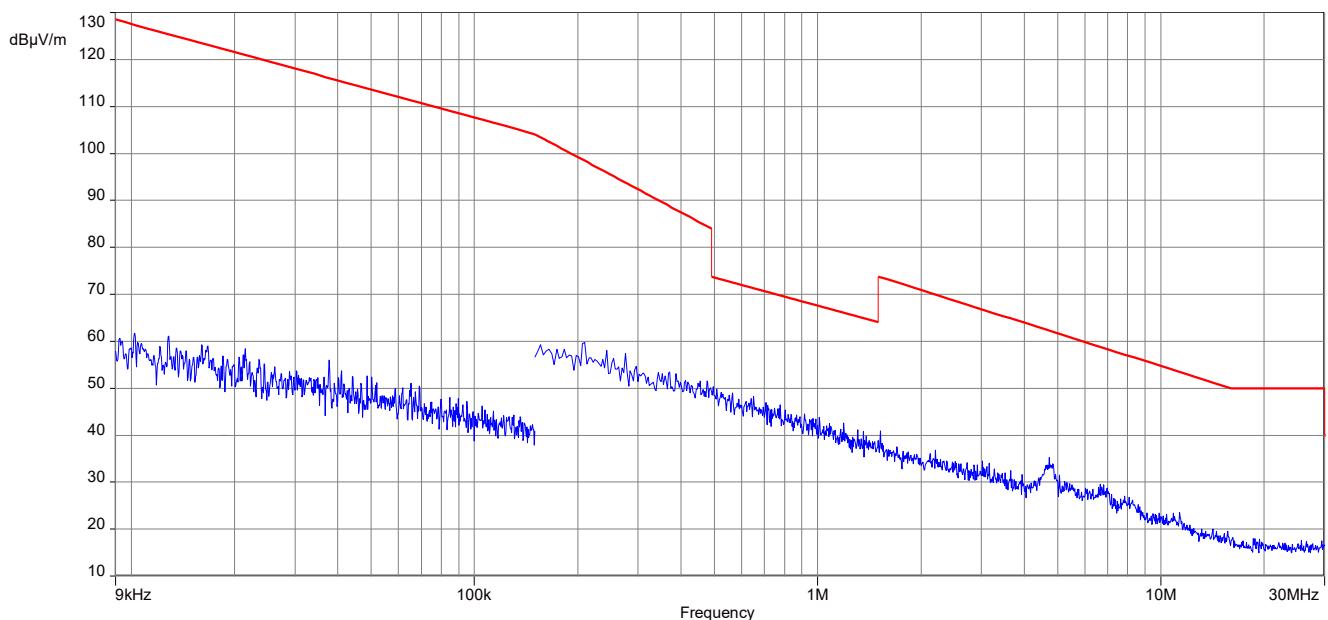


**Plots:** 40 MHz channel bandwidth, n HT40 – mode

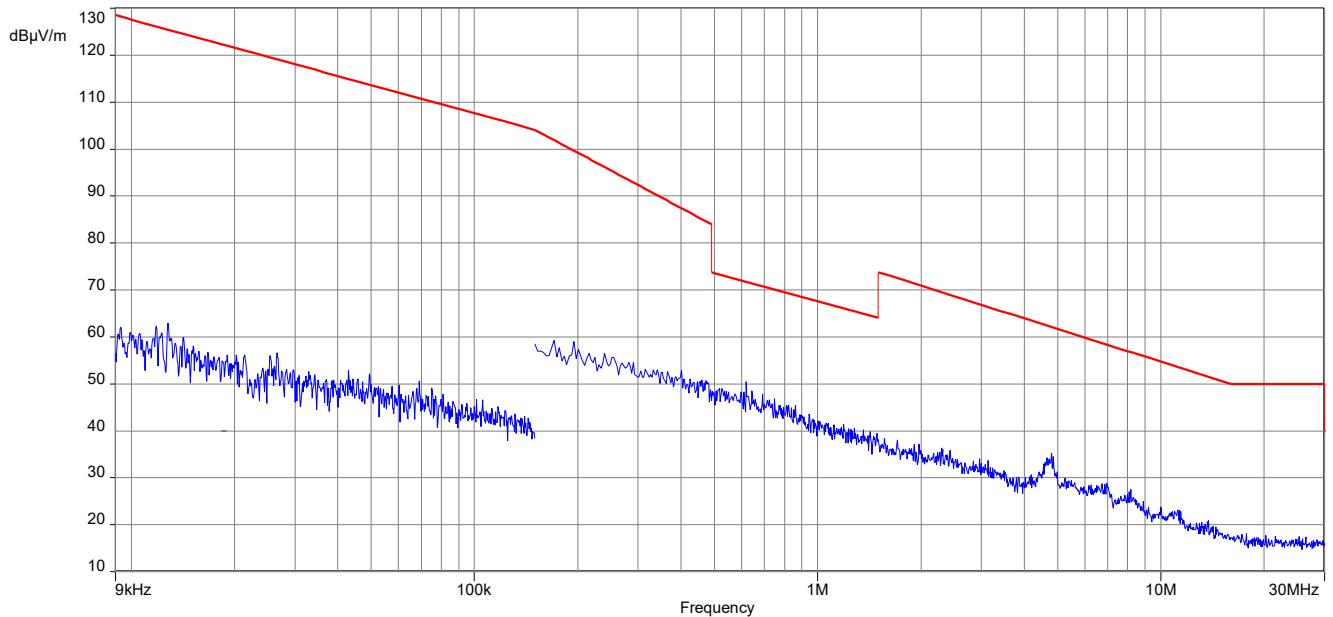
**Plot 1:** 9 kHz to 30 MHz, U-NII-1; lowest channel



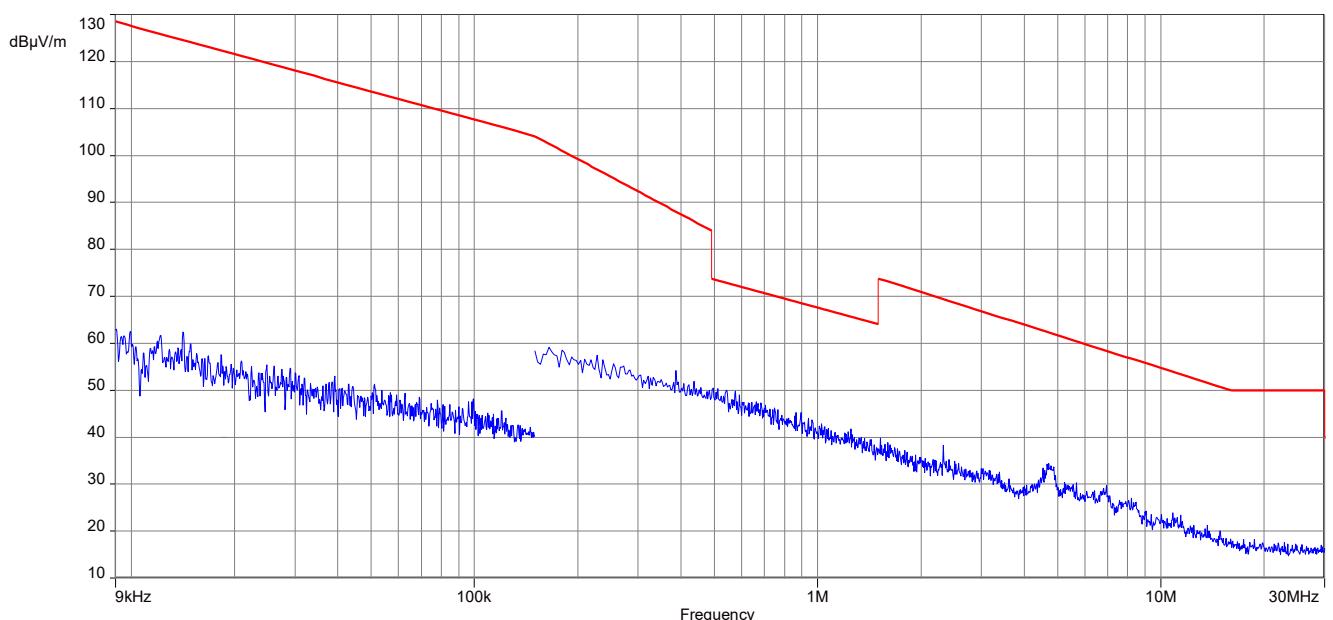
**Plot 2:** 9 kHz to 30 MHz, U-NII-1; highest channel



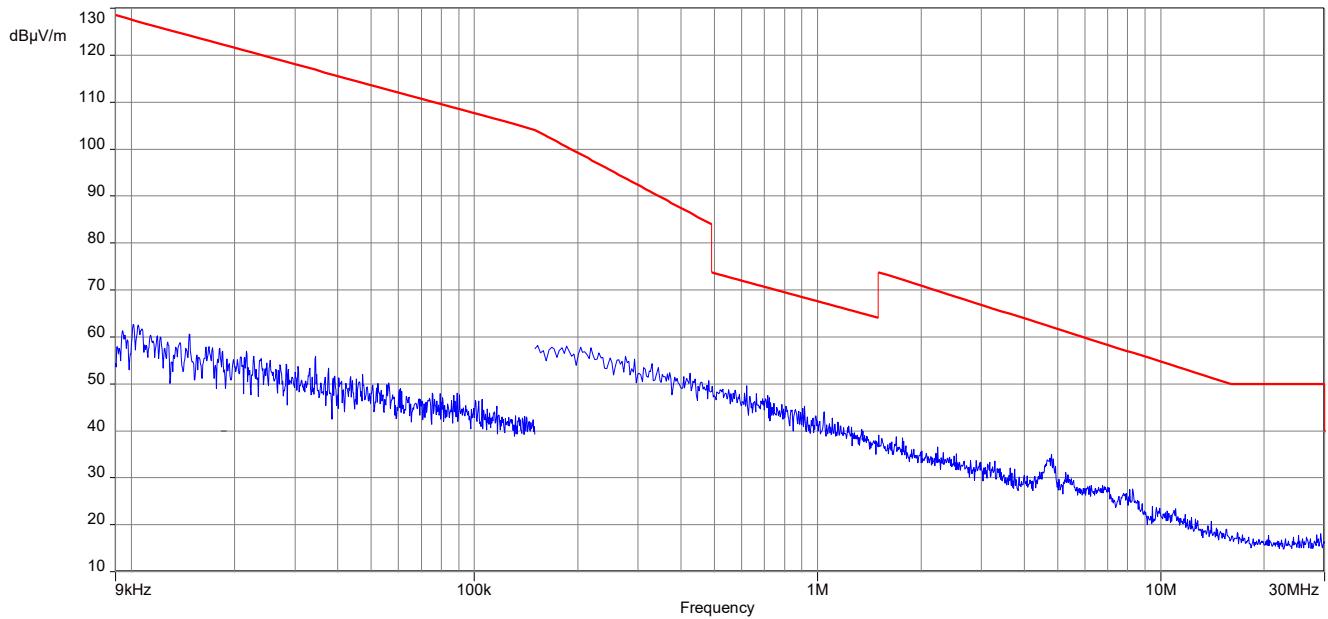
**Plot 3:** 9 kHz to 30 MHz, U-NII-2A; lowest channel



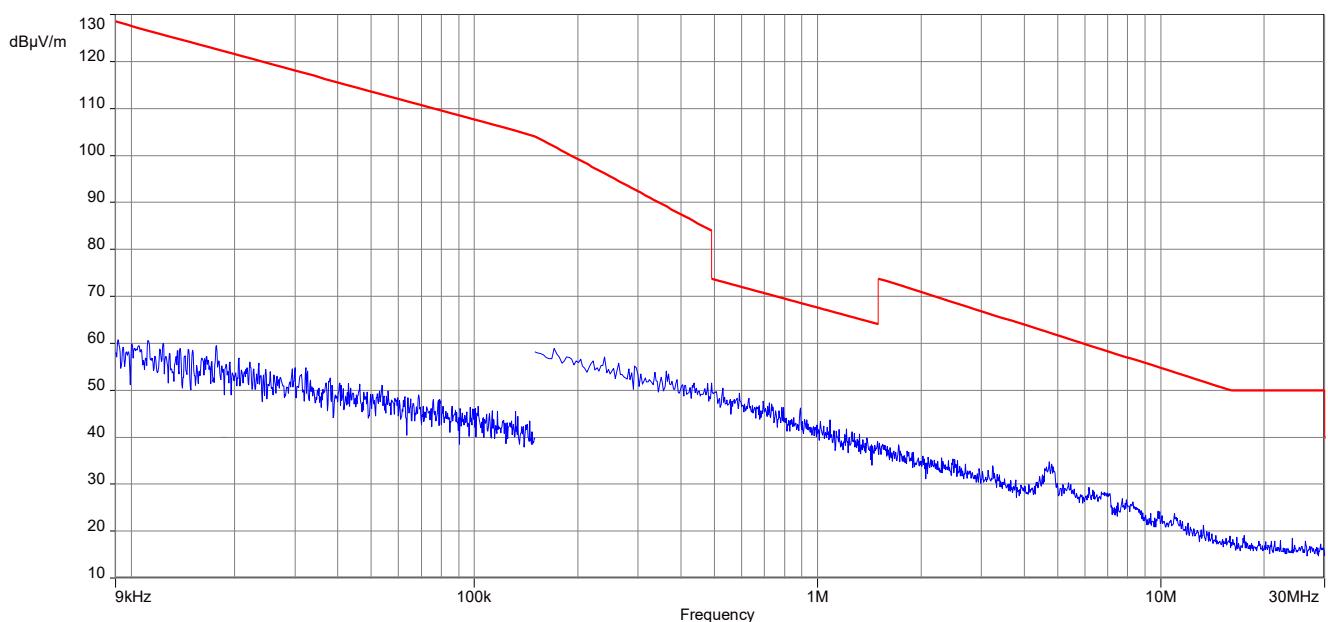
**Plot 4:** 9 kHz to 30 MHz, U-NII-2A; highest channel

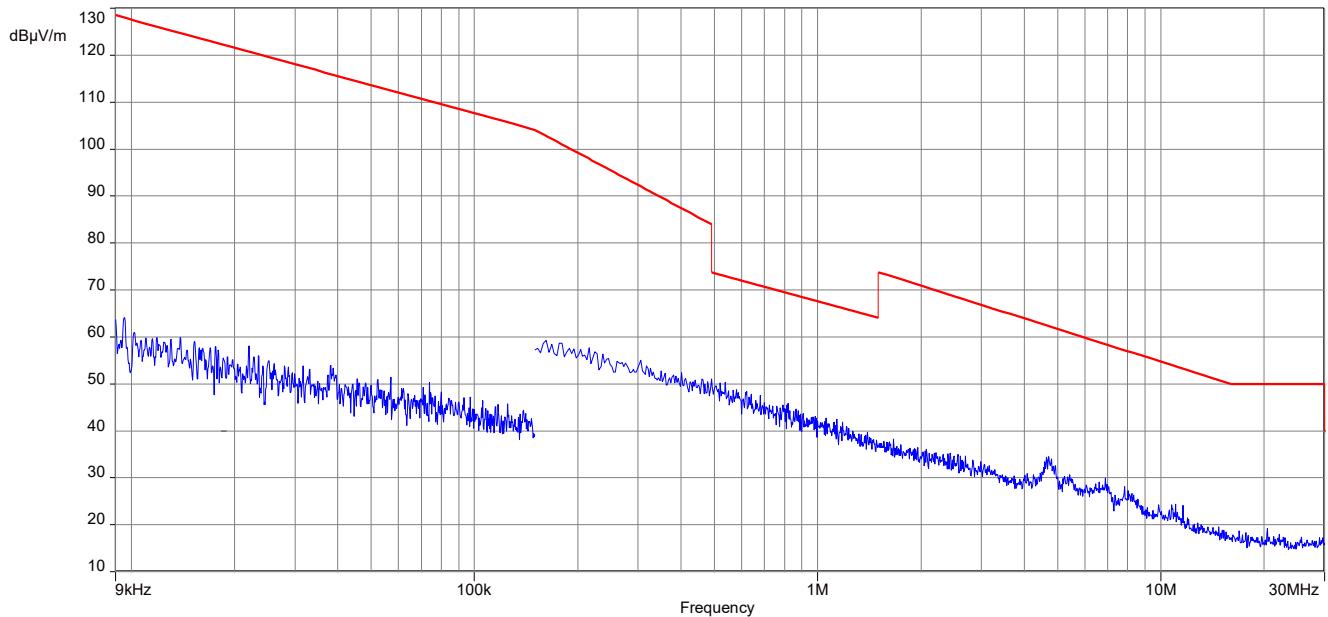
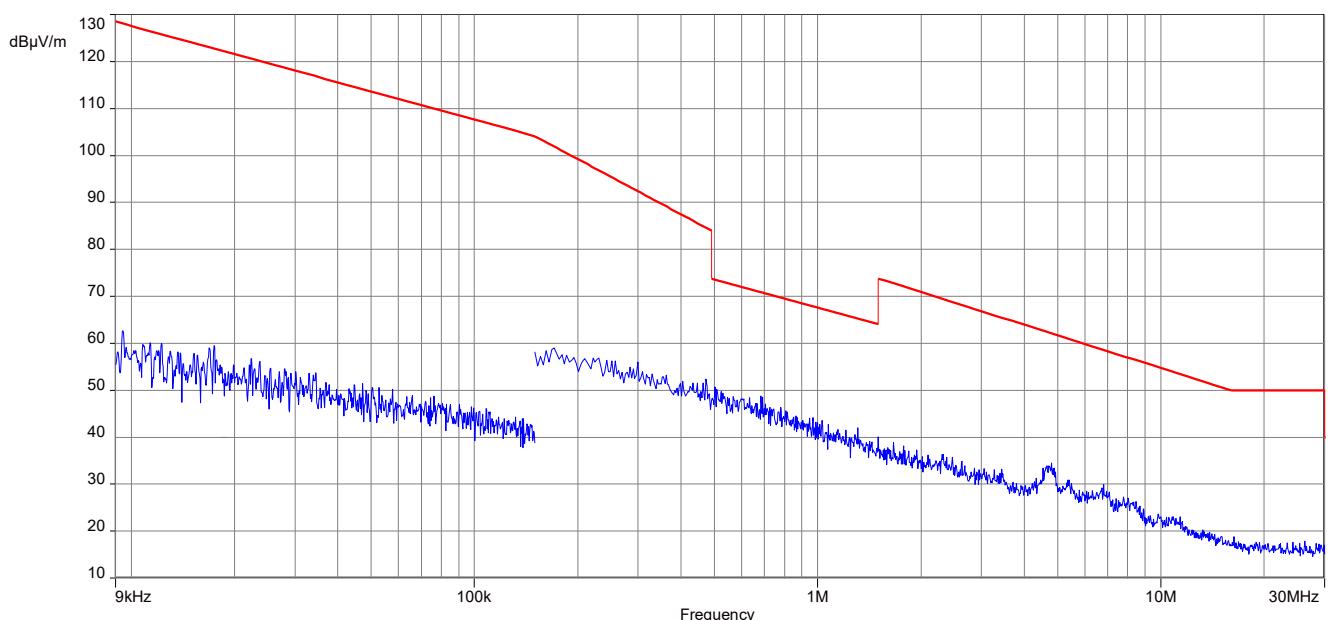


**Plot 5:** 9 kHz to 30 MHz, U-NII-2C; lowest channel

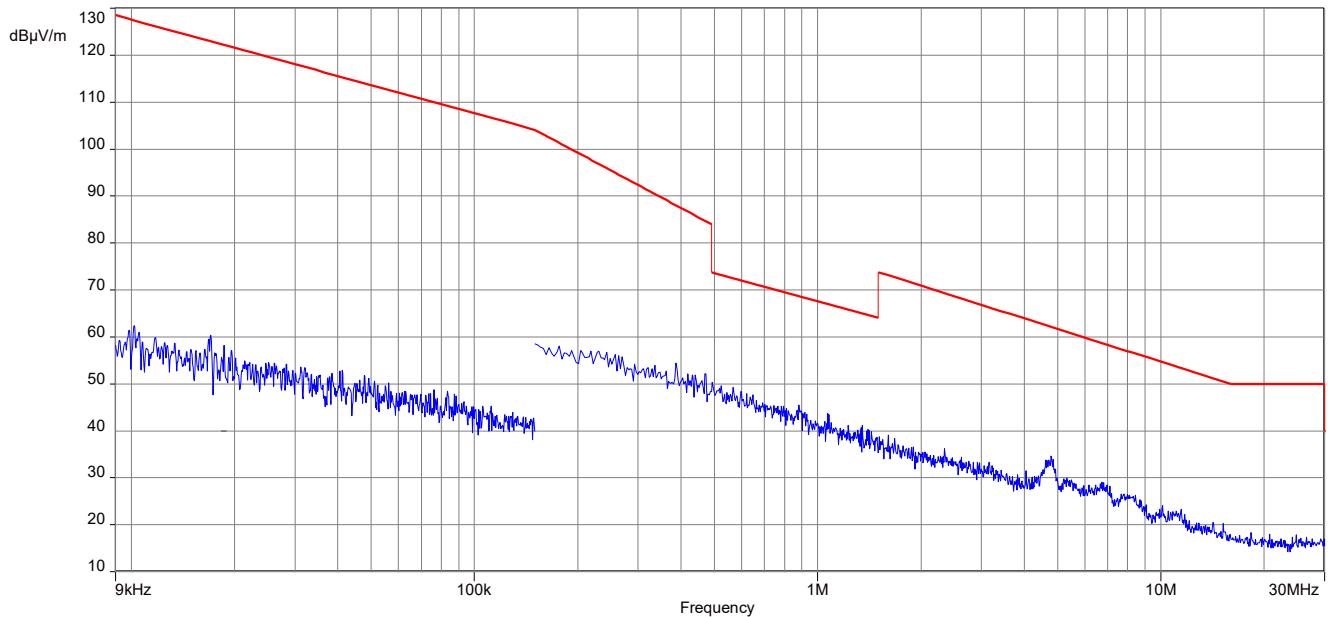


**Plot 6:** 9 kHz to 30 MHz, U-NII-2C; middle channel



**Plot 7:** 9 kHz to 30 MHz, U-NII-2C; highest channel**Plot 8:** 9 kHz to 30 MHz, U-NII-3; lowest channel

**Plot 9:** 9 kHz to 30 MHz, U-NII-3; highest channel



## 11.11 TX spurious emissions radiated

### Description:

Measurement of the radiated spurious emissions in transmit mode. The measurement is performed at lowest, middle and highest channel.

### Measurement:

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak) Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: ≥ 3 MHz / 1 MHz
Span:	30 MHz to 40 GHz
Trace mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %
Test setup:	See sub clause 6.1 – A See sub clause 6.2 – C See sub clause 6.3 – A
Measurement uncertainty:	See sub clause 8

### Limits:

TX Spurious Emissions Radiated		
§15.209		
Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3
§15.407		
Outside the restricted bands!	-27 dBm / MHz	

**Results:** 20 MHz channel bandwidth, a-mode

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-1 (5150 MHz to 5250 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1000	Peak	41.4	1000	Peak	41.4	1000	Peak	41.4
	AVG	35.9		AVG	35.9		AVG	35.9
1440	Peak	43.1	1440	Peak	43.1	1440	Peak	43.1
	AVG	42.1		AVG	42.1		AVG	42.1
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-2A (5250 MHz to 5350 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1000	Peak	41.4	1000	Peak	41.4	1000	Peak	41.4
	AVG	35.9		AVG	35.9		AVG	35.9
1440	Peak	43.1	1440	Peak	43.1	1440	Peak	43.1
	AVG	42.1		AVG	42.1		AVG	42.1
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-2C (5470 MHz to 5725 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1440	Peak	43.1	1440	Peak	43.1	1440	Peak	43.1
	AVG	42.1		AVG	42.1		AVG	42.1
11400	Peak	64.6	11200	Peak	64.8	11400	Peak	61.5
	AVG	53.9		AVG	53.98		AVG	51.1
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-3 (5725 MHz to 5850 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1440	Peak	43.1	1440	Peak	43.1	1440	Peak	43.1
	AVG	42.1		AVG	42.1		AVG	42.1
11646	Peak	63.0	11566	Peak	62.6	11646	Peak	61.8
	AVG	52.3		AVG	52.0		AVG	52.0
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

**Results:** 40 MHz channel bandwidth, n HT40 – mode

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-1 (5150 MHz to 5250 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1000	Peak	41.4		Peak		1000	Peak	41.4
	AVG	35.9		AVG			AVG	35.9
1440	Peak	43.1		Peak		1440	Peak	43.1
	AVG	42.1		AVG			AVG	42.1
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

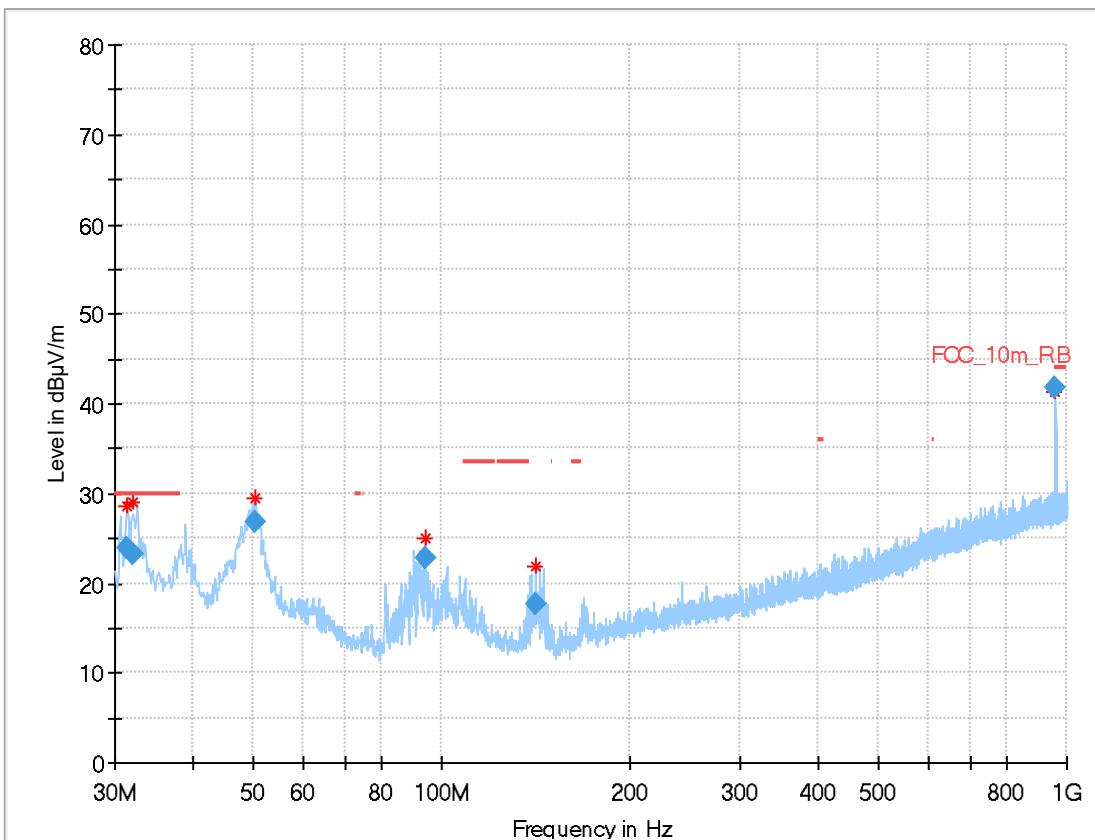
TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-2A (5250 MHz to 5350 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1000	Peak	41.4		Peak		1000	Peak	41.4
	AVG	35.9		AVG			AVG	35.9
1440	Peak	43.1		Peak		1440	Peak	43.1
	AVG	42.1		AVG			AVG	42.1
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-2C (5470 MHz to 5725 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1440	Peak	43.1	1440	Peak	43.1	1000	Peak	41.4
	AVG	42.1		AVG	42.1		AVG	35.9
11020	Peak	60.1	11180	Peak	61.1	1440	Peak	43.1
	AVG	48.9		AVG	49.9		AVG	42.1
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

TX Spurious Emissions Radiated [dB $\mu$ V/m] / dBm								
U-NII-3 (5725 MHz to 5850 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]	F [MHz]	Detector	Level [dB $\mu$ V/m]
1000	Peak	41.4	1000	Peak	41.4	1000	Peak	41.4
	AVG	35.9		AVG	35.9		AVG	35.9
1440	Peak	43.1	1440	Peak	43.1	1440	Peak	43.1
	AVG	42.1		AVG	42.1		AVG	42.1
For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.			For emissions above 18 GHz please take look at the plots.		

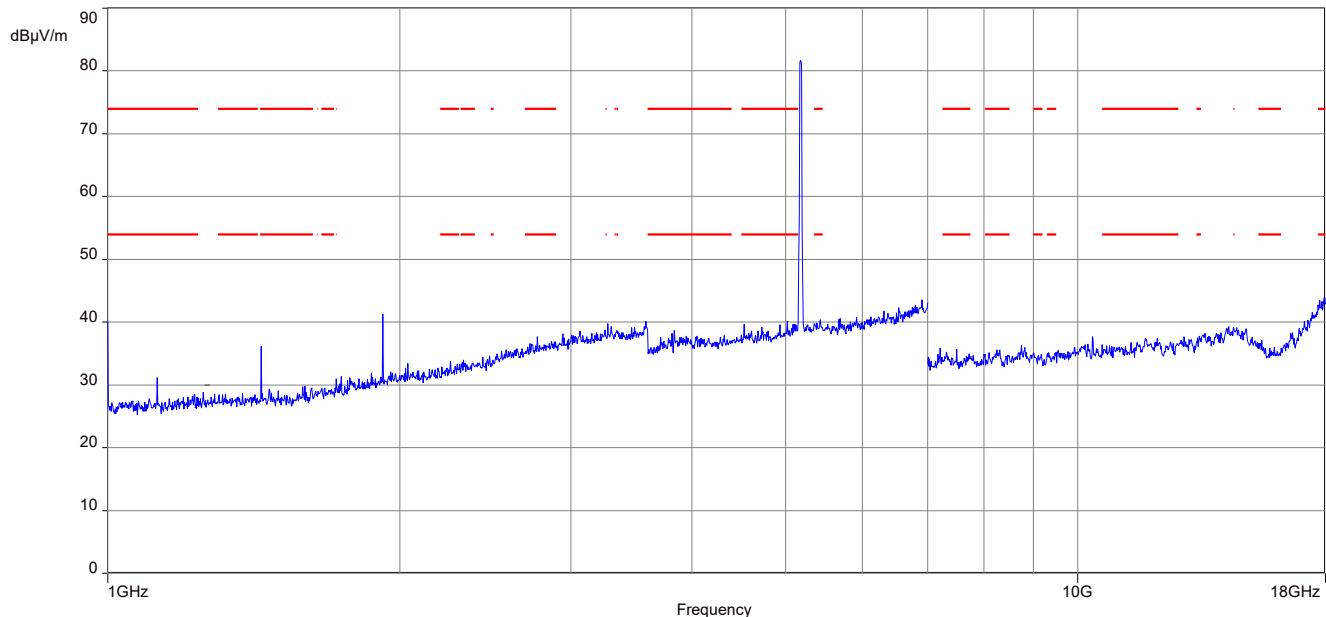
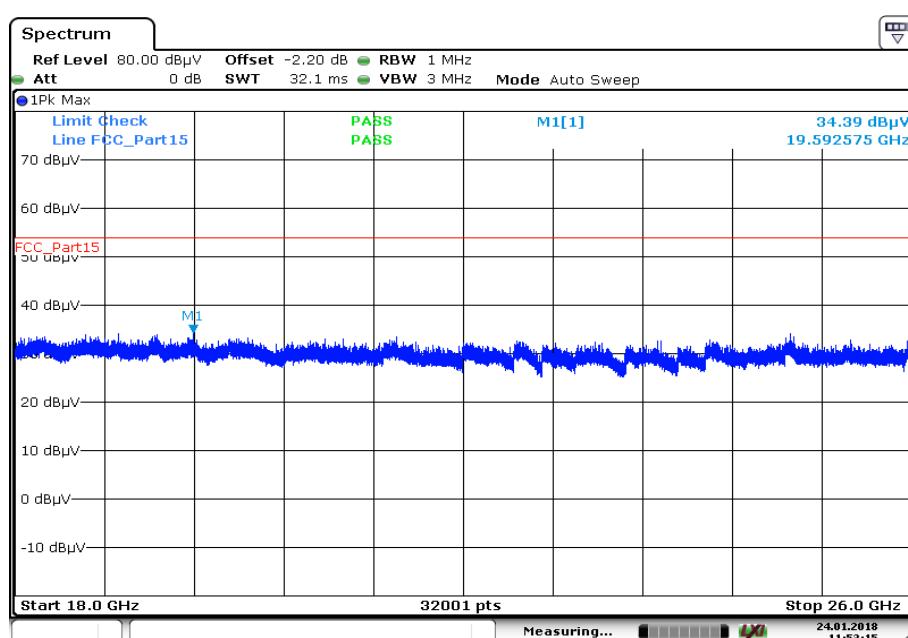
**Plots:** 20 MHz channel bandwidth

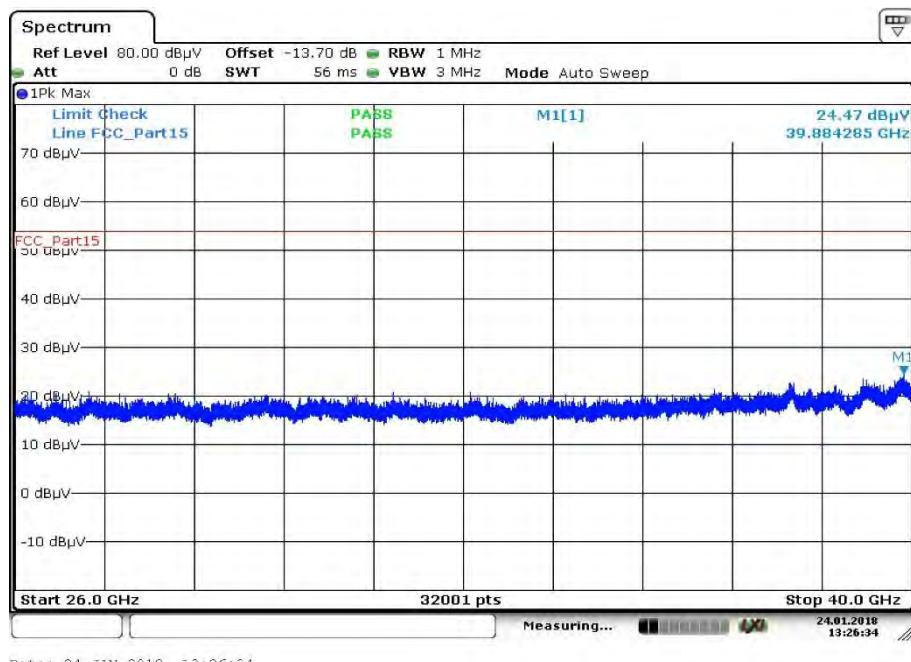
**Plot 1:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-1; lowest channel

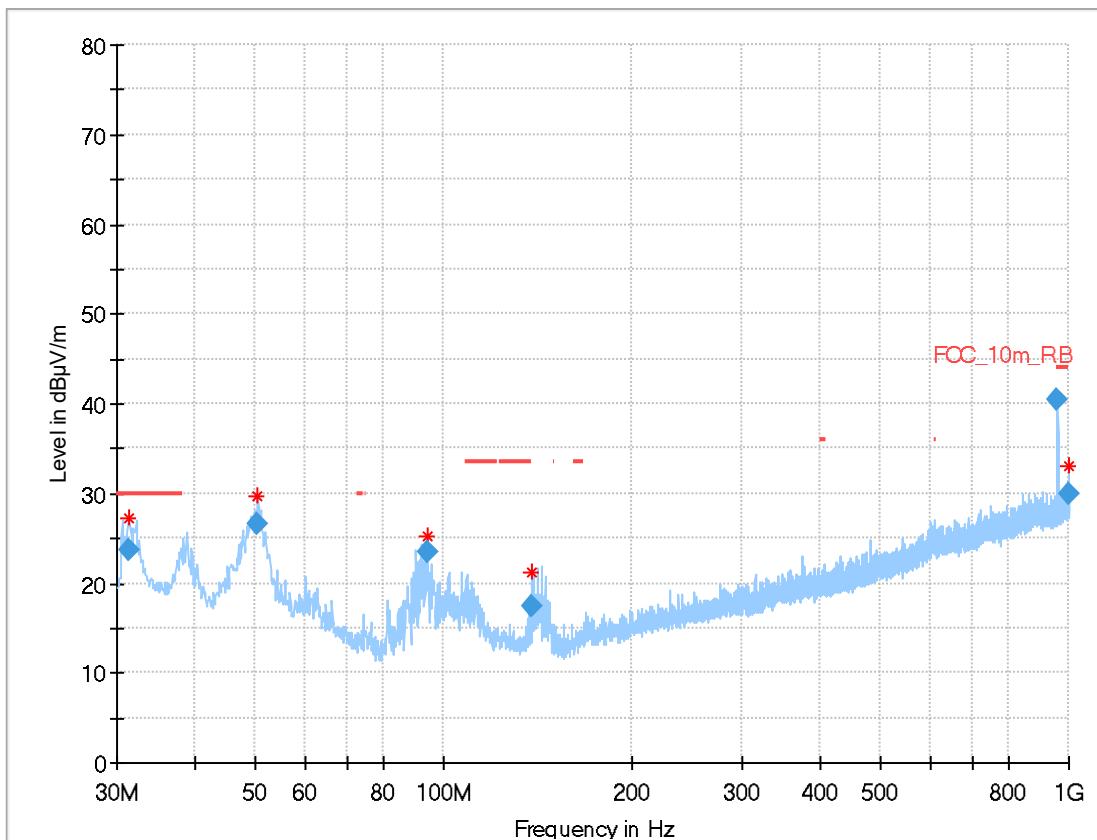


#### Final results:

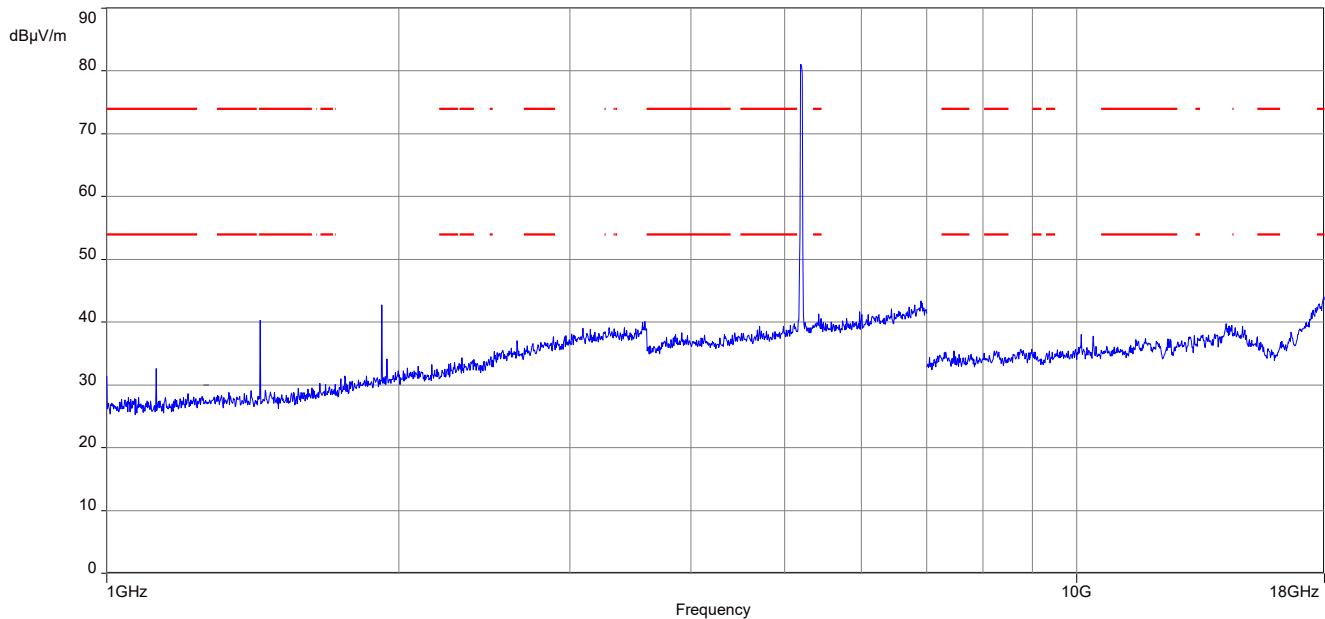
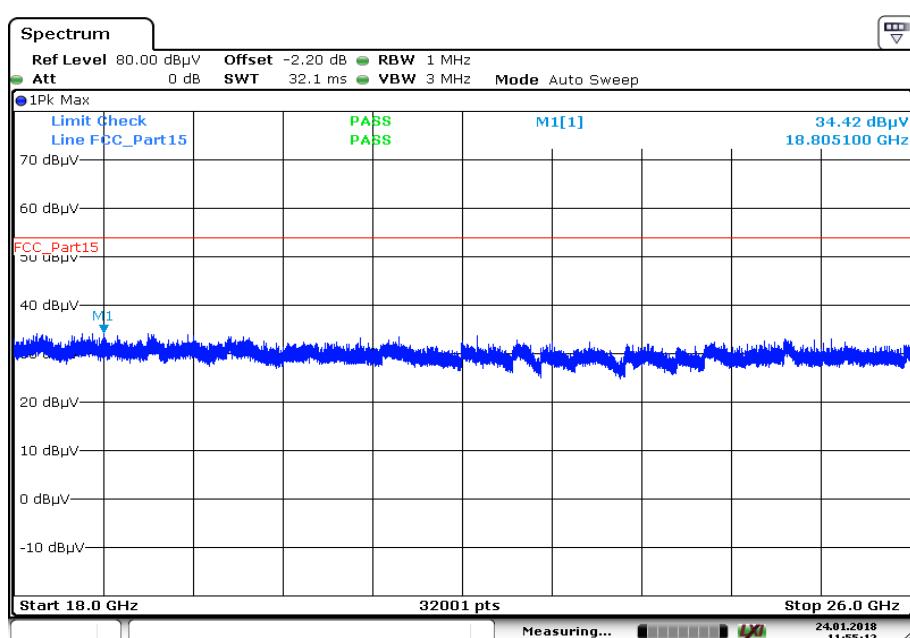
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.426	23.82	30.0	6.18	1000	120	105.0	V	233.0	12.1
32.048	23.35	30.0	6.65	1000	120	170.0	V	101.0	12.2
50.457	26.80	---	---	1000	120	98.0	V	34.0	13.7
94.377	22.87	---	---	1000	120	98.0	V	0.0	10.6
141.201	17.64	---	---	1000	120	98.0	V	109.0	8.9
959.998	41.81	---	---	1000	120	98.0	H	168.0	24.5

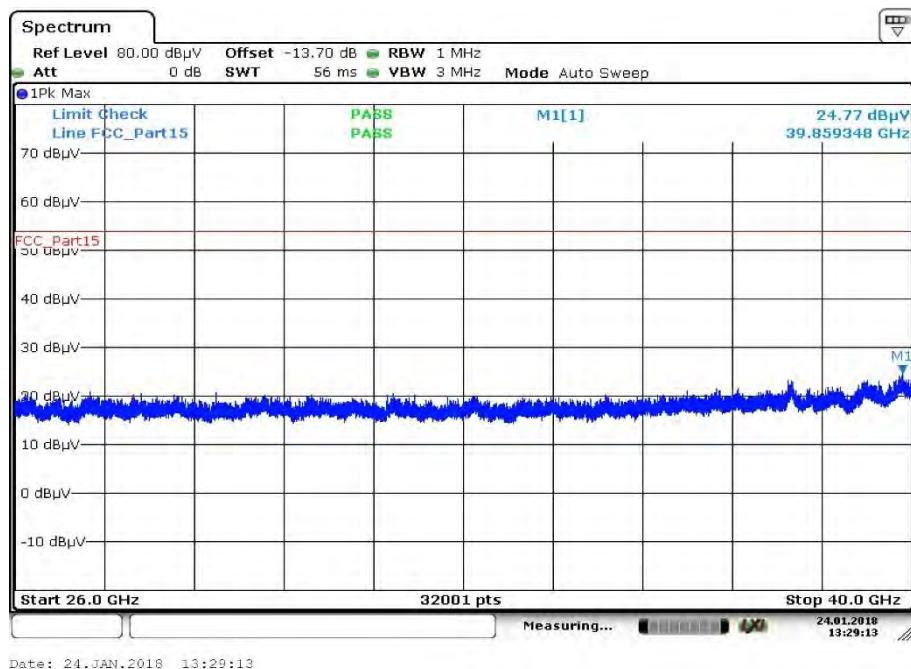
**Plot 2:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; lowest channel**Plot 3:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; lowest channel

**Plot 4:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-1; lowest channel

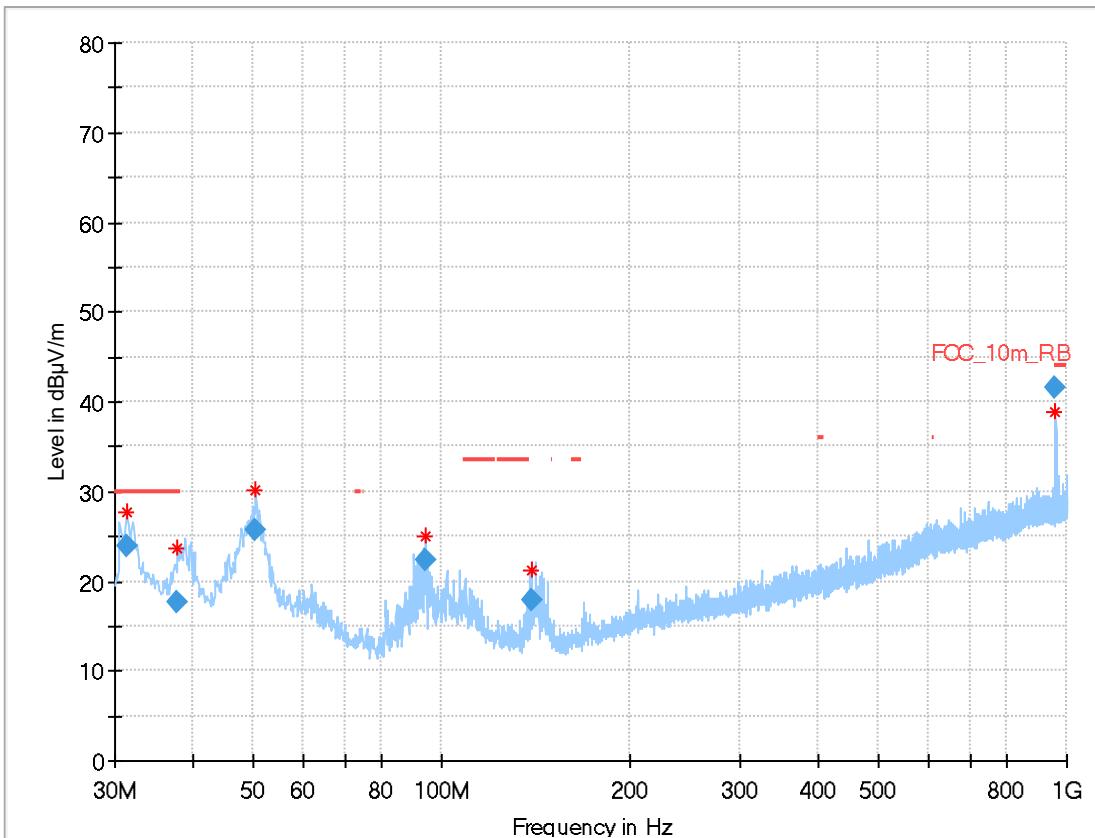
**Plot 5:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-1; middle channel**Final results:**

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.376	23.59	30.0	6.41	1000	120	101.0	V	23.0	12.1
50.424	26.70	---	---	1000	120	98.0	V	53.0	13.7
94.370	23.45	---	---	1000	120	101.0	V	228.0	10.6
138.443	17.40	---	---	1000	120	101.0	V	196.0	9.0
959.997	40.38	---	---	1000	120	98.0	H	242.0	24.5
999.957	29.97	44.0	14.03	1000	120	98.0	H	217.0	24.9

**Plot 6:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; middle channel**Plot 7:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; middle channel

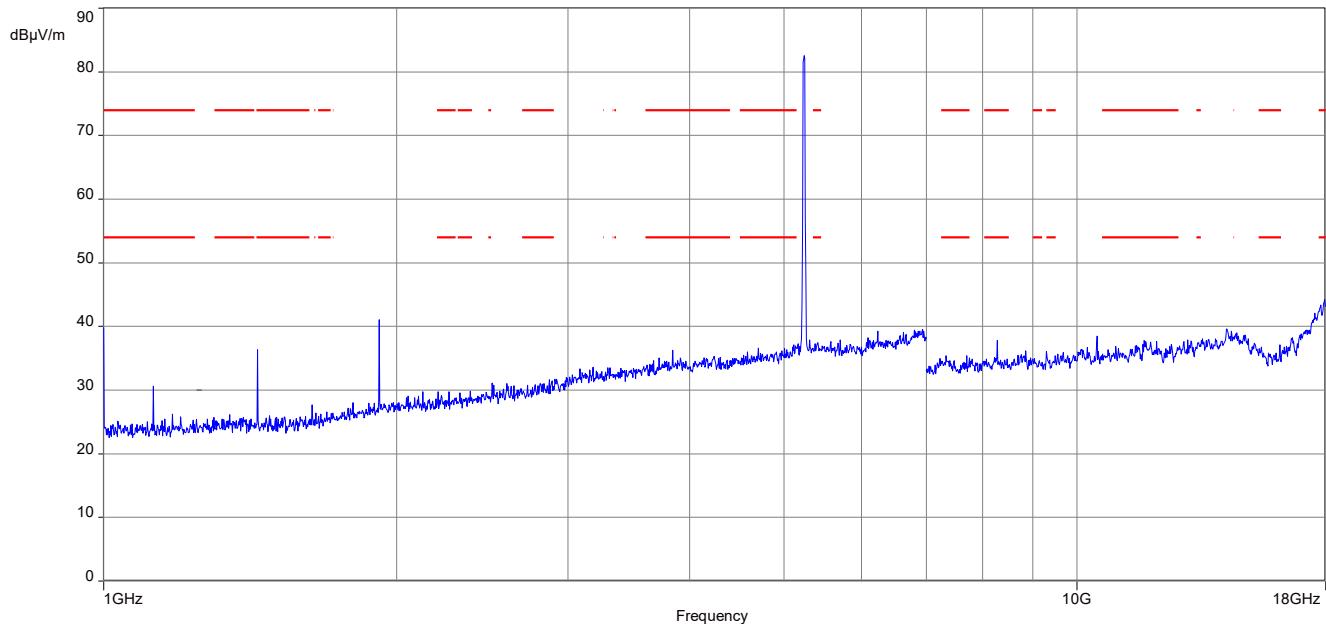
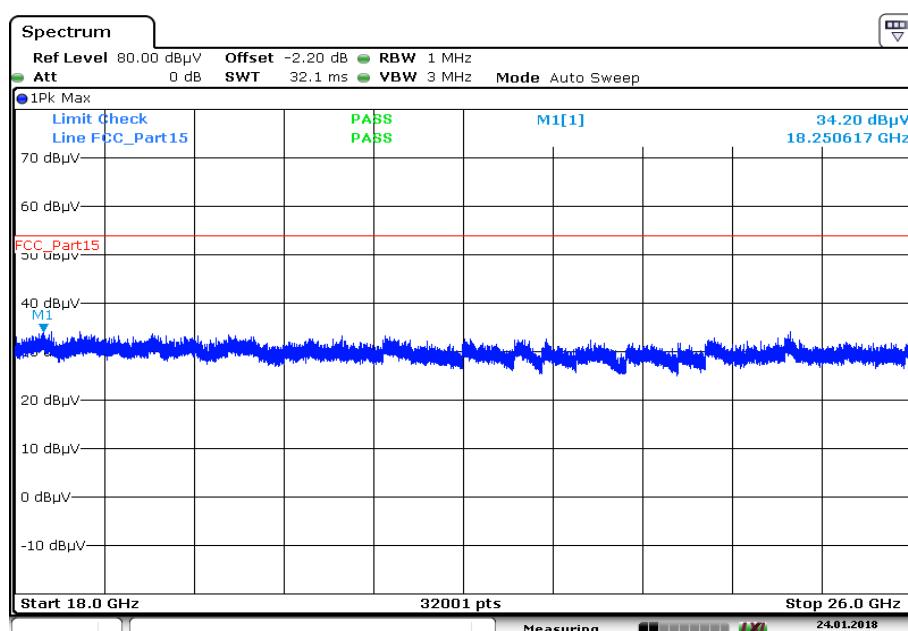
**Plot 8:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-1; middle channel

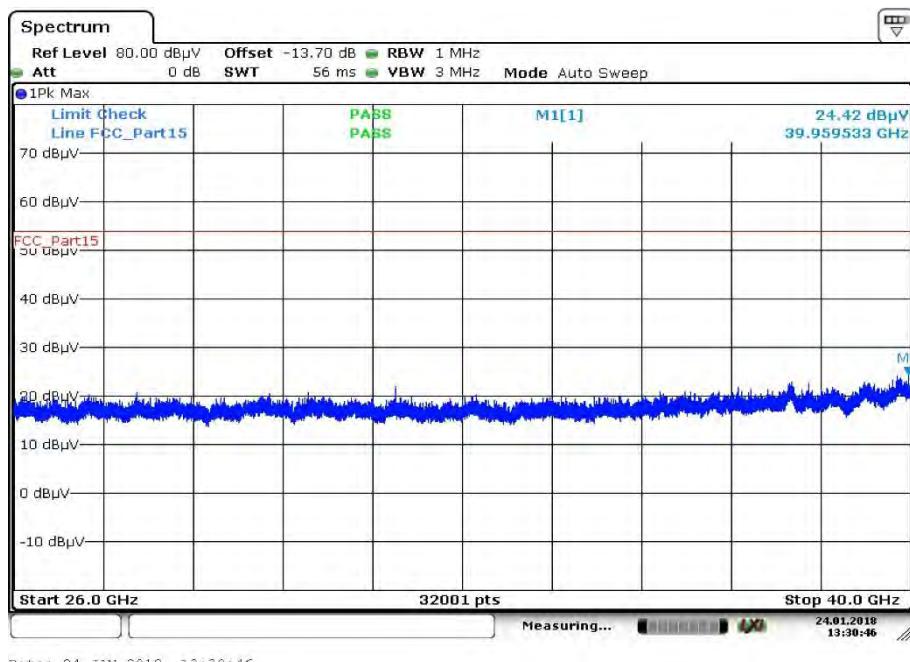
**Plot 9:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-1; highest channel



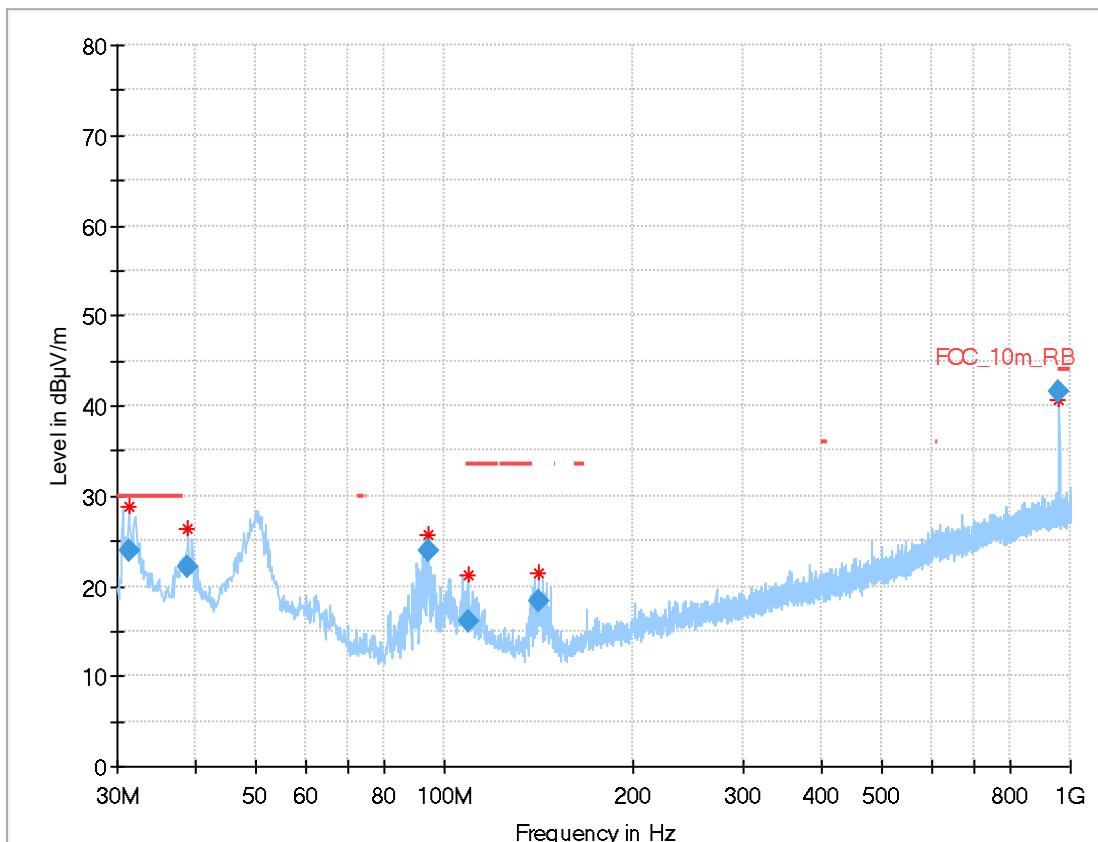
#### Final results:

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.431	23.82	30.0	6.18	1000	120	101.0	V	172.0	12.1
37.762	17.75	30.0	12.25	1000	120	101.0	V	42.0	13.0
50.448	25.62	---	---	1000	120	170.0	V	0.0	13.7
94.394	22.25	---	---	1000	120	100.0	V	94.0	10.6
139.207	17.85	---	---	1000	120	170.0	V	142.0	8.9
960.006	41.52	44.0	2.48	1000	120	98.0	H	168.0	24.5

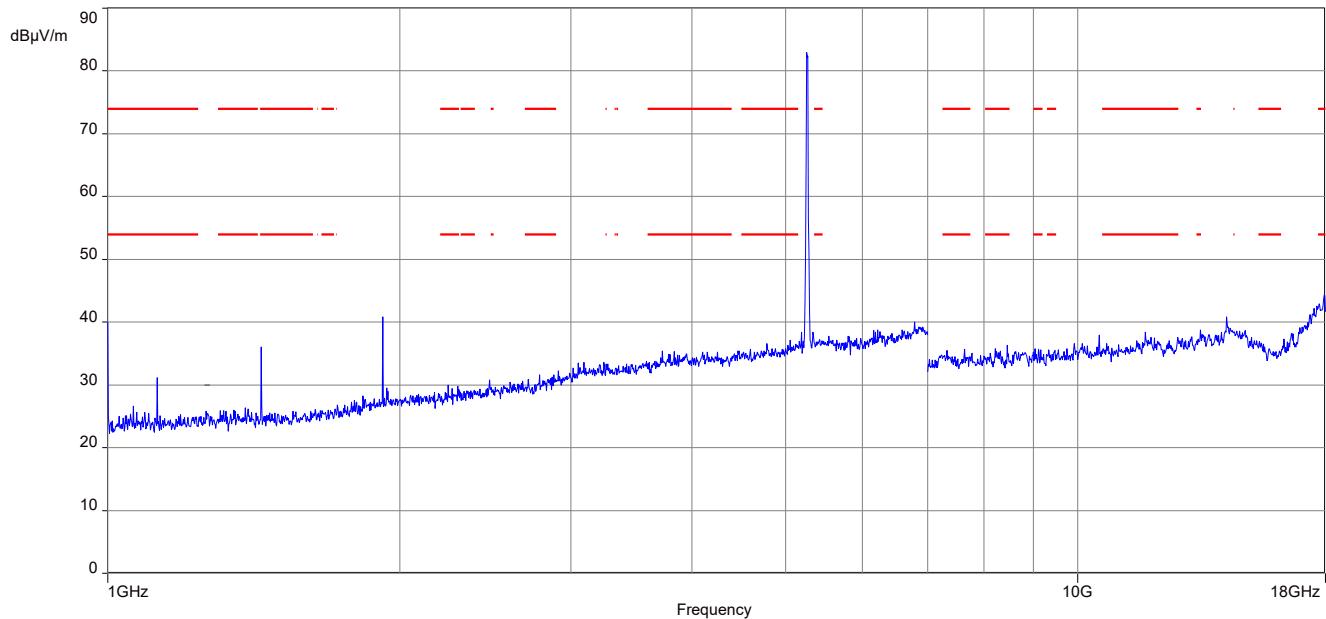
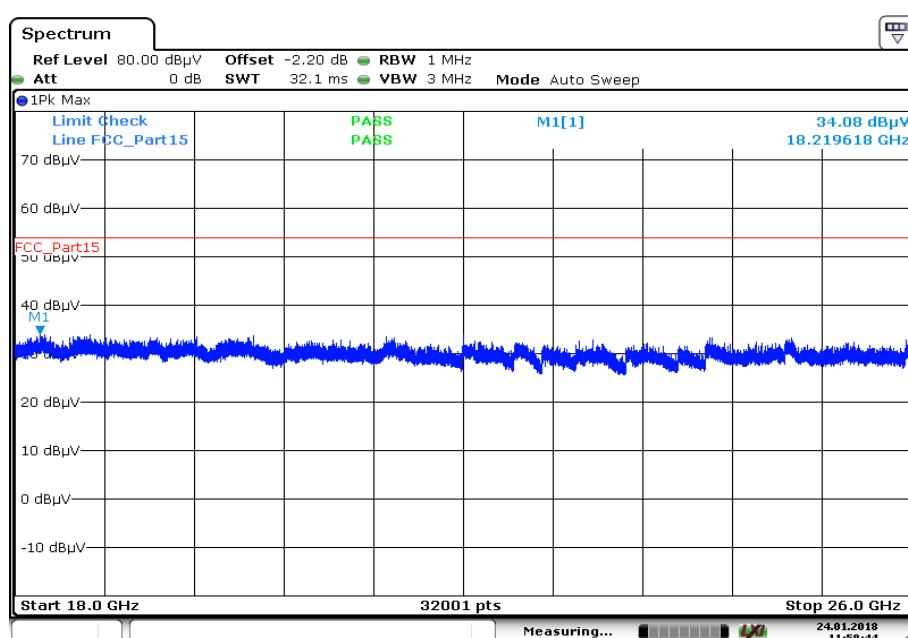
**Plot 10:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; highest channel**Plot 11:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; highest channel

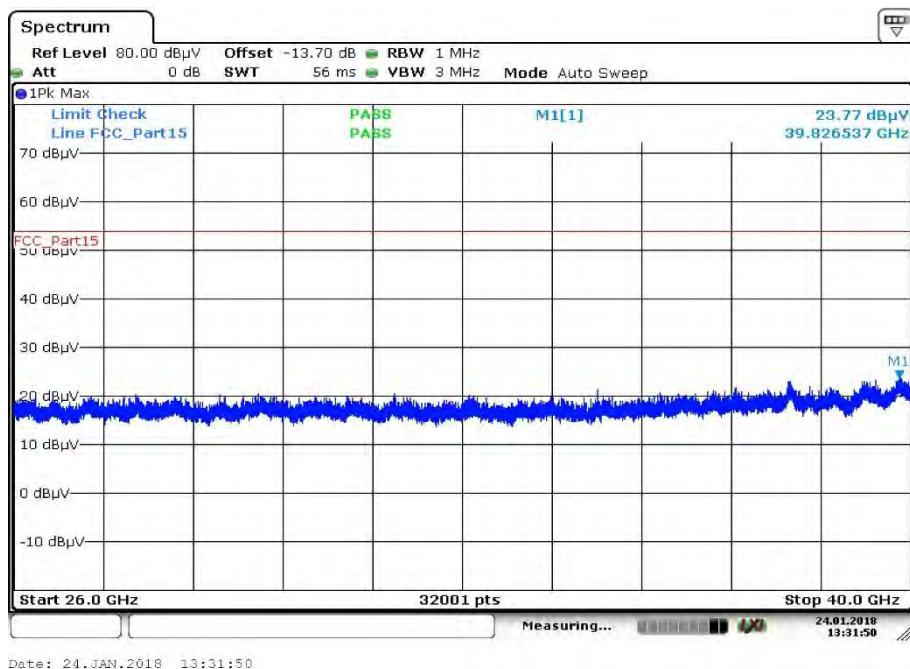
**Plot 12:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-1; highest channel

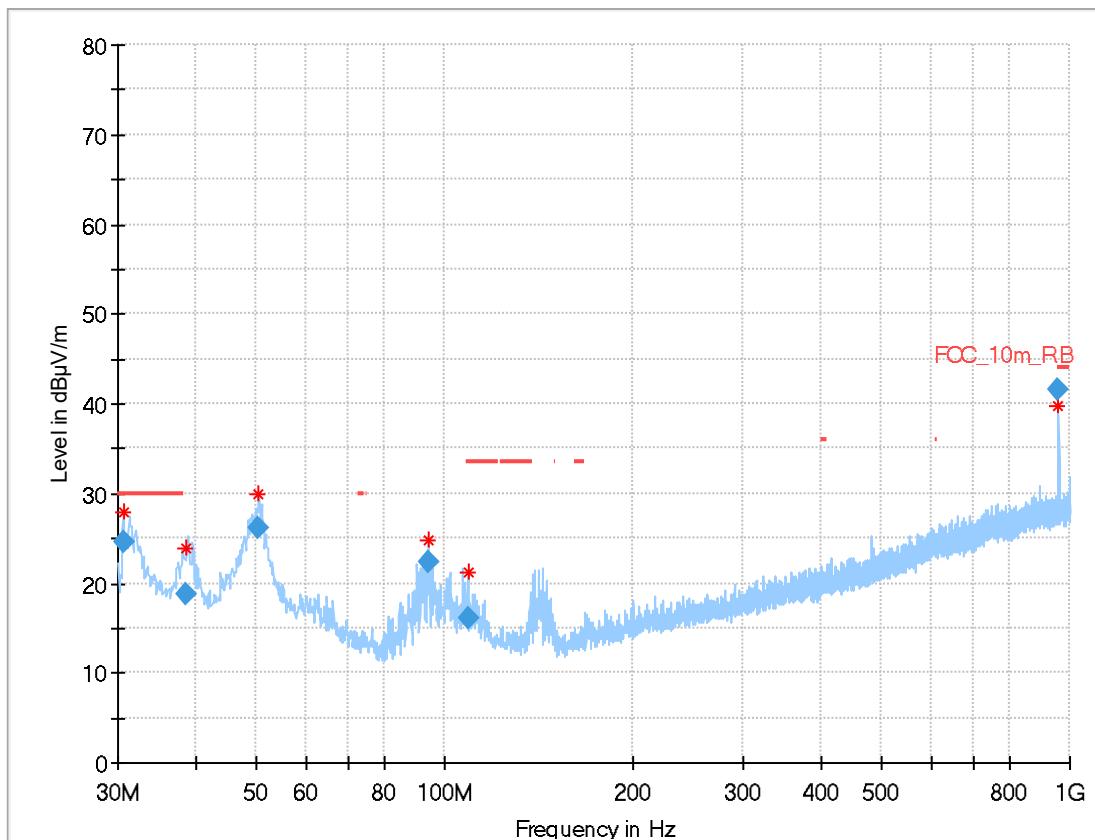
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**Plot 13:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel**Final results:**

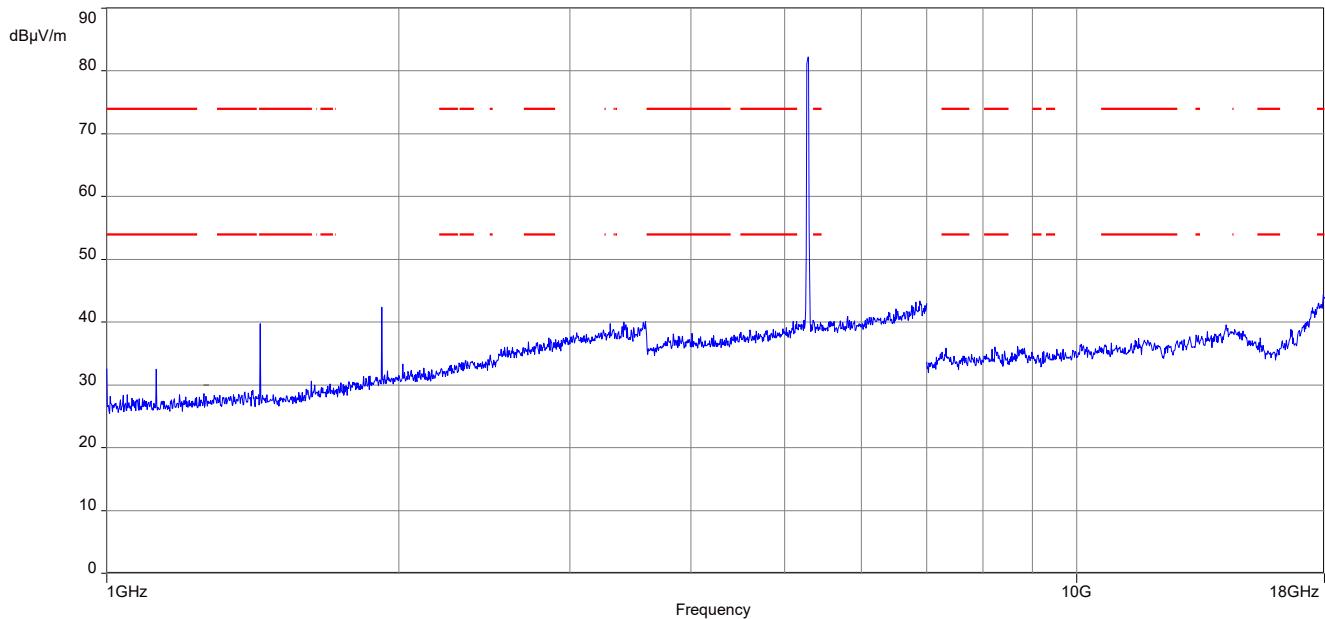
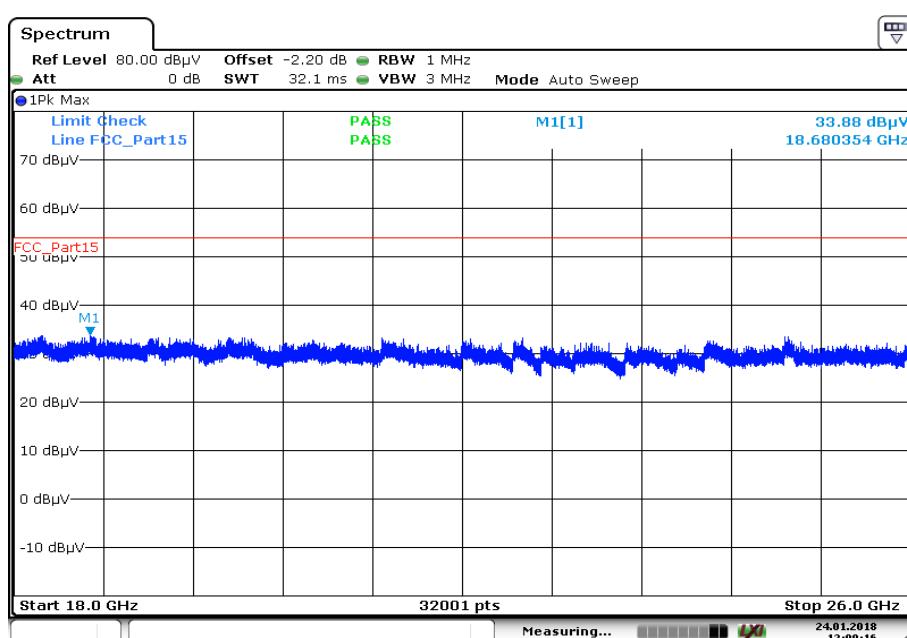
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.381	23.85	30.0	6.15	1000	120	101.0	V	304.0	12.1
38.963	22.23	---	---	1000	120	100.0	V	341.0	13.1
94.380	23.89	---	---	1000	120	98.0	V	209.0	10.6
108.813	16.17	33.5	17.33	1000	120	101.0	V	291.0	11.3
141.191	18.43	---	---	1000	120	170.0	V	174.0	8.9
960.006	41.57	44.0	2.43	1000	120	98.0	H	168.0	24.5

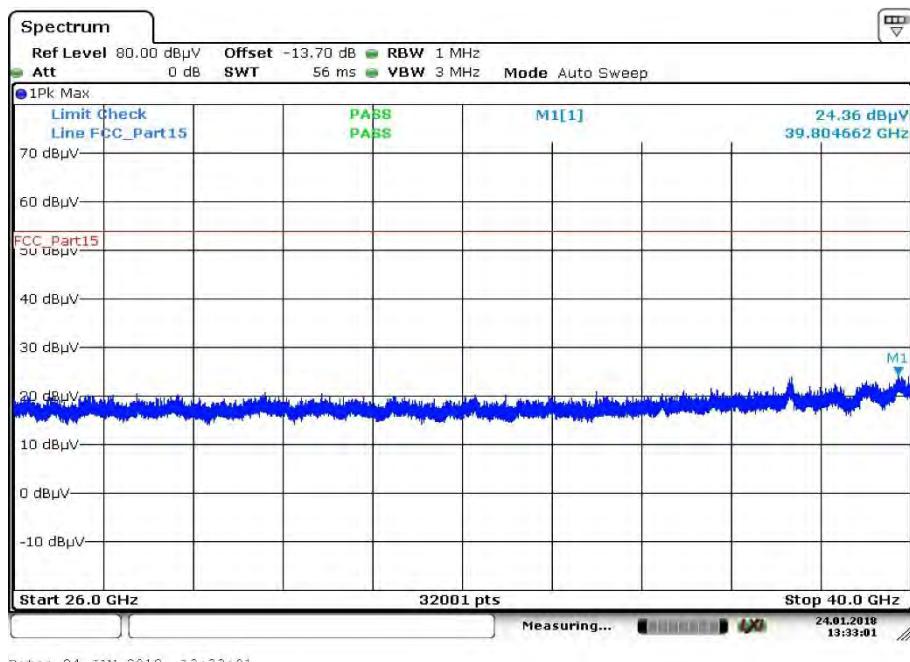
**Plot 14:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel**Plot 15:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

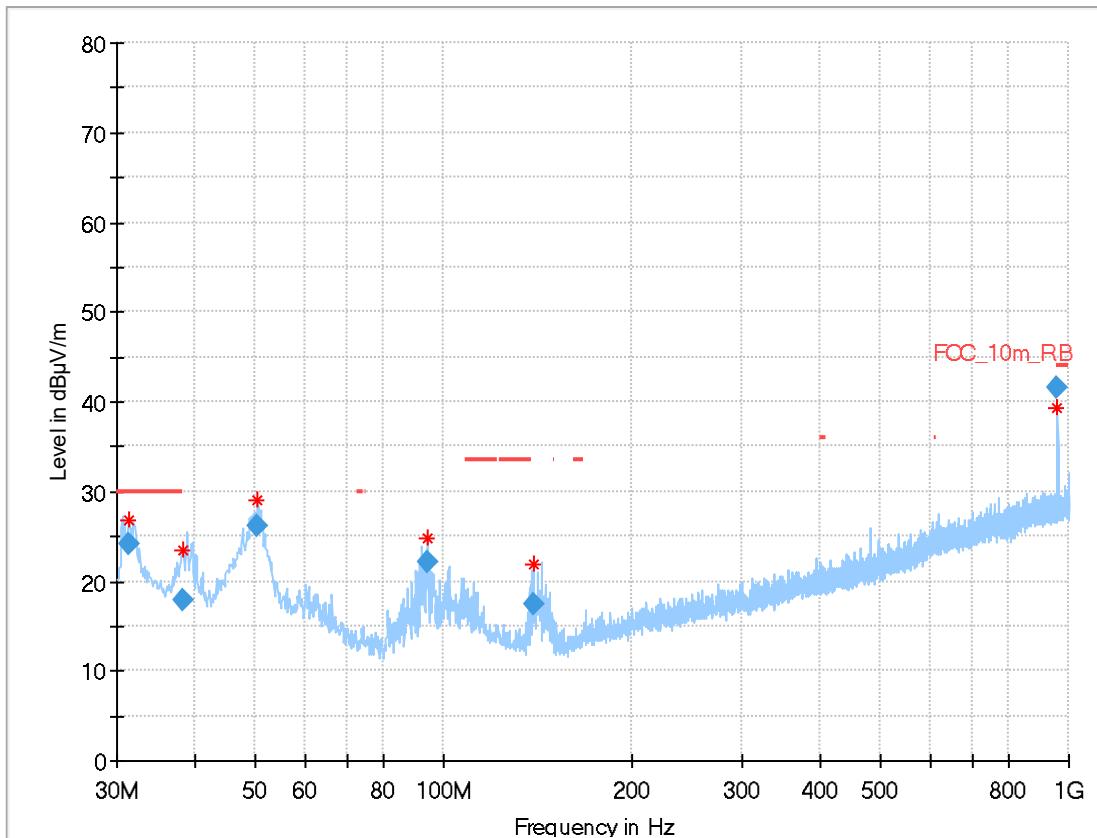
**Plot 16:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

**Plot 17:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; middle channel**Final results:**

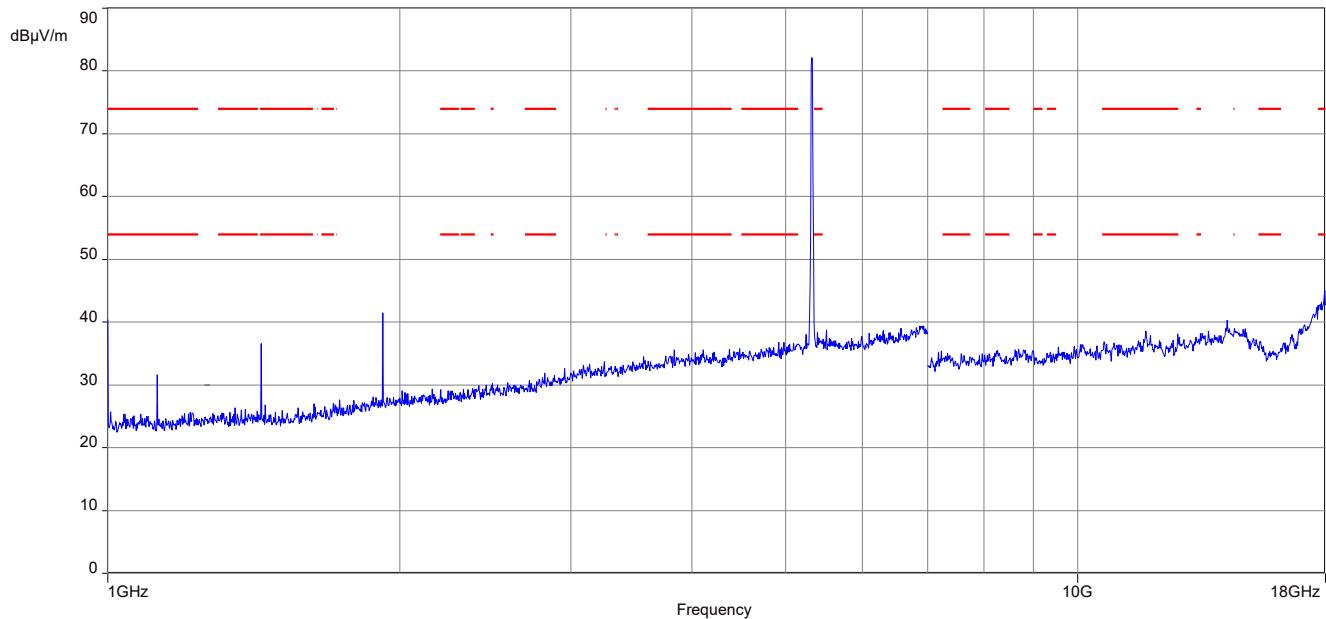
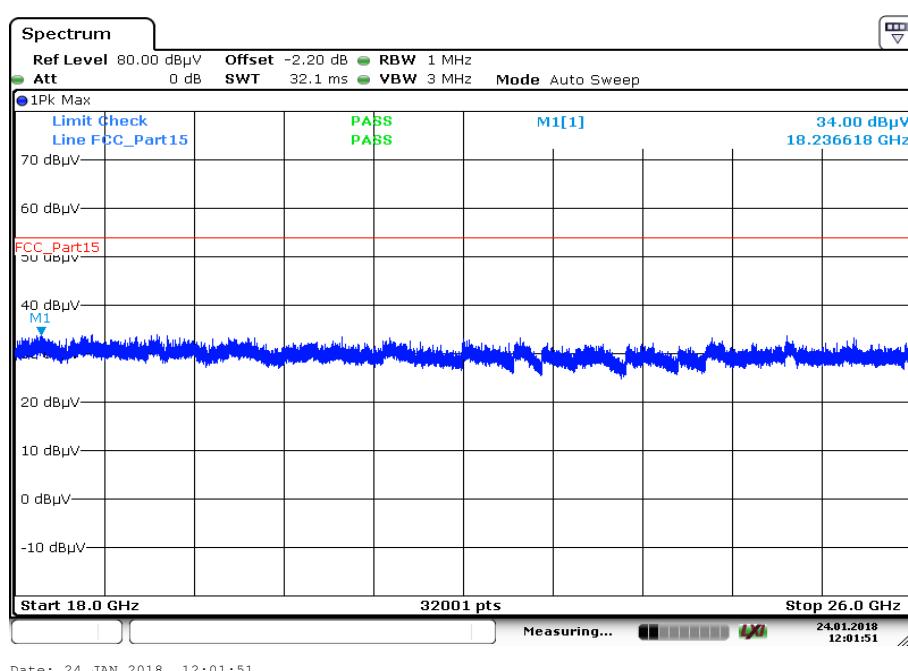
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.628	24.65	30.0	5.35	1000	120	101.0	V	23.0	11.9
38.635	18.84	---	---	1000	120	101.0	V	36.0	13.1
50.415	26.08	---	---	1000	120	98.0	V	181.0	13.7
94.374	22.33	---	---	1000	120	100.0	V	139.0	10.6
108.807	16.16	33.5	17.34	1000	120	170.0	V	259.0	11.3
960.011	41.65	44.0	2.35	1000	120	98.0	H	170.0	24.5

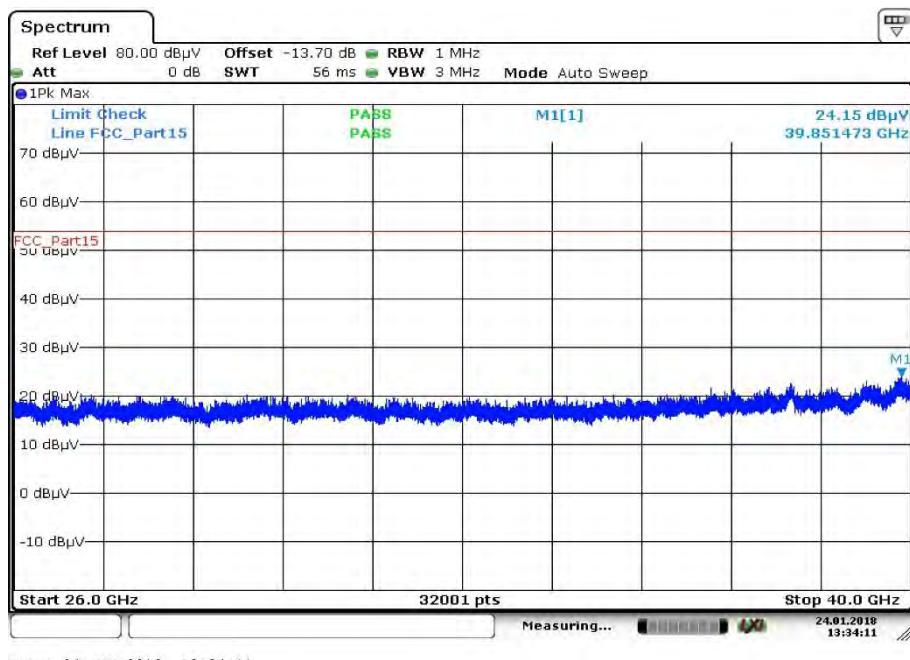
**Plot 18:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; middle channel**Plot 19:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; middle channel

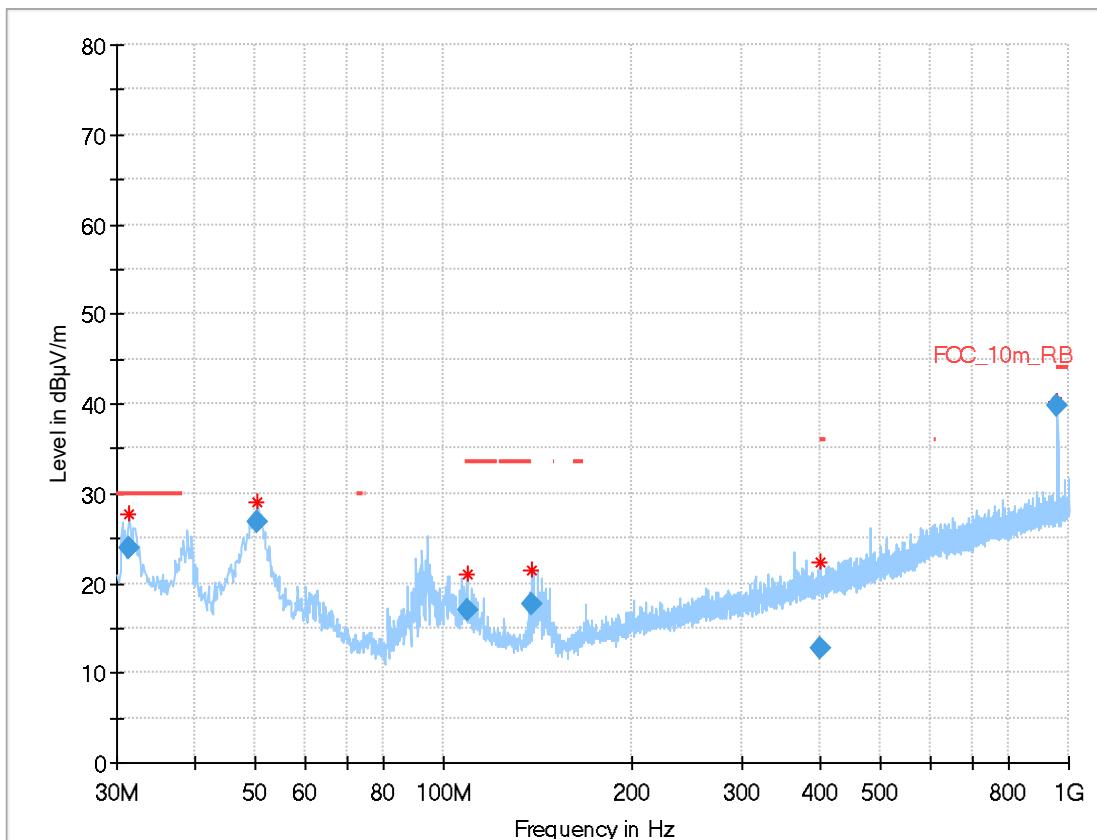
**Plot 20:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2A; middle channel

**Plot 21:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; highest channel**Final results:**

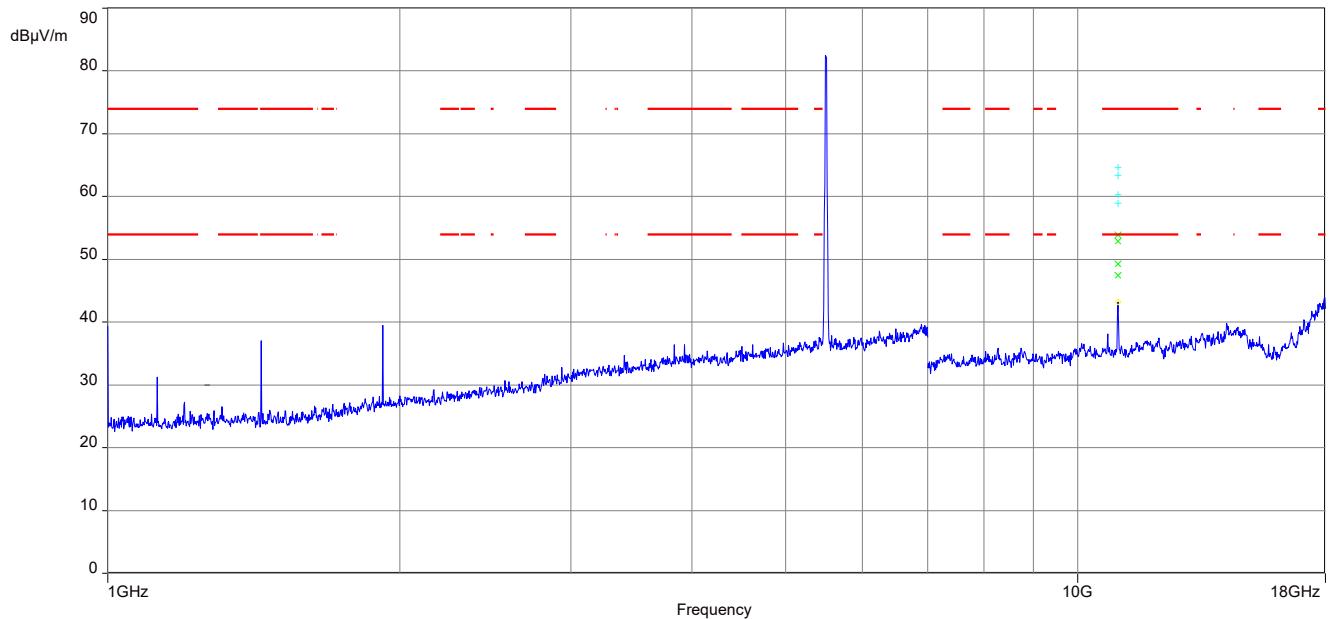
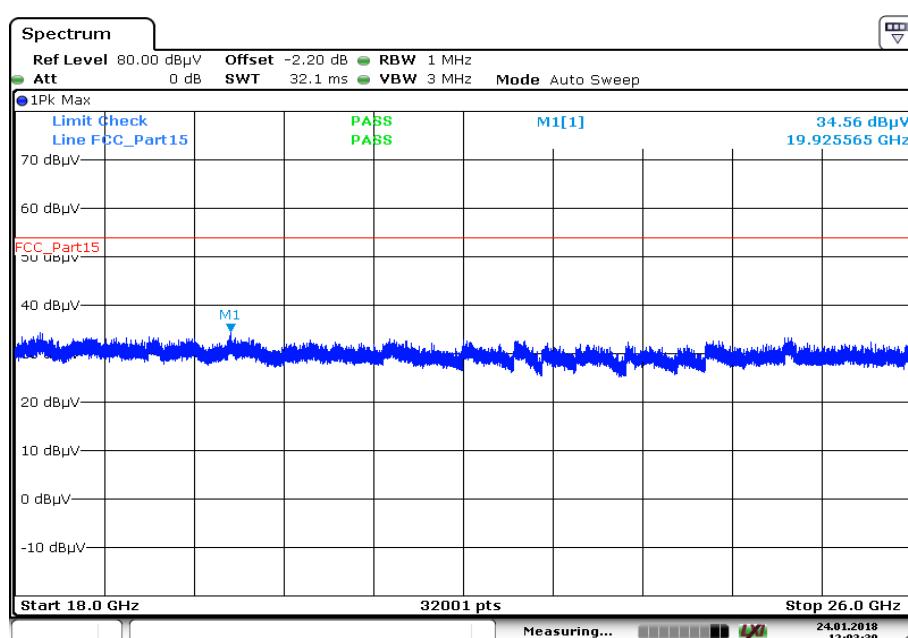
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.412	24.13	30.0	5.87	1000	120	101.0	V	154.0	12.1
38.289	17.87	---	---	1000	120	101.0	V	17.0	13.0
50.450	26.22	---	---	1000	120	101.0	V	306.0	13.7
94.364	22.12	---	---	1000	120	98.0	V	90.0	10.6
139.181	17.51	---	---	1000	120	170.0	V	131.0	8.9
959.988	41.49	---	---	1000	120	98.0	H	176.0	24.5

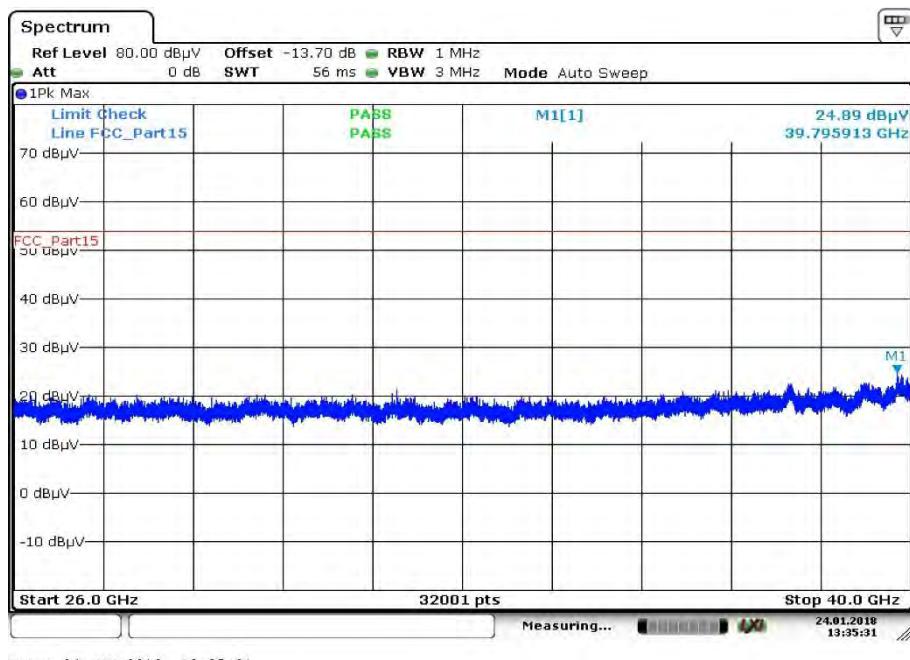
**Plot 22:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; highest channel**Plot 23:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; highest channel

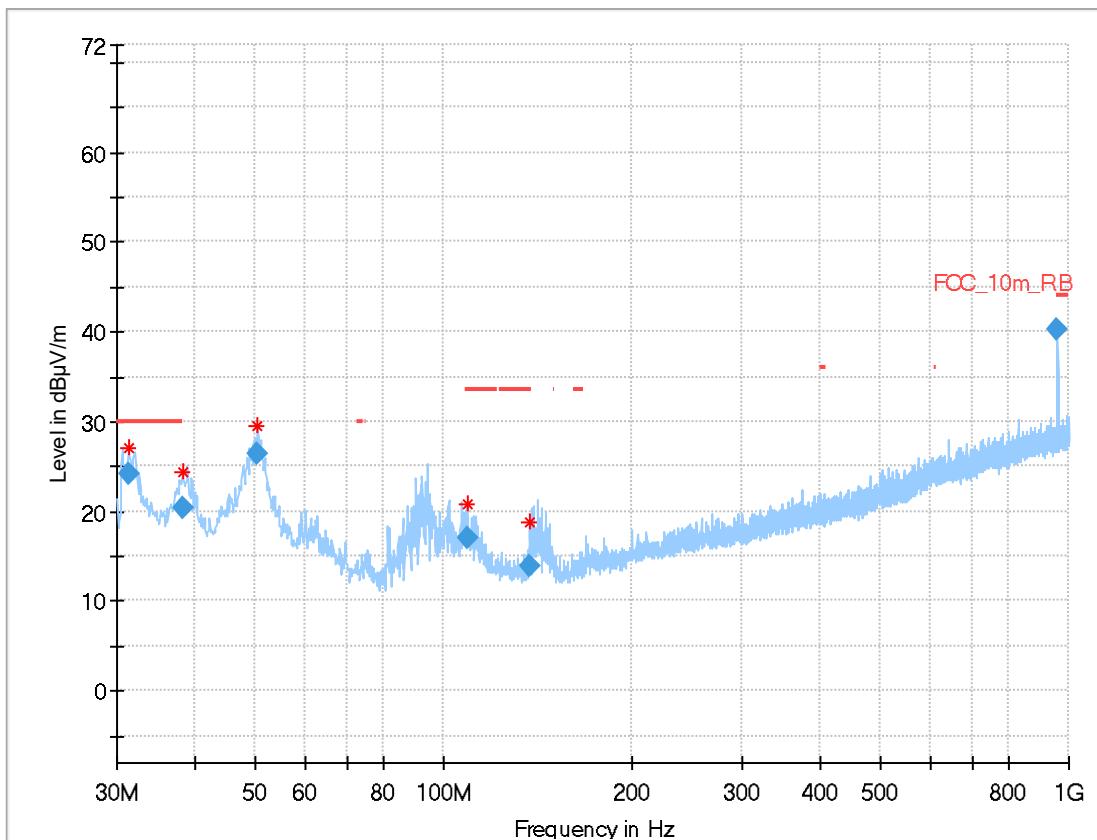
**Plot 24:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2A; highest channel

**Plot 25:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel**Final results:**

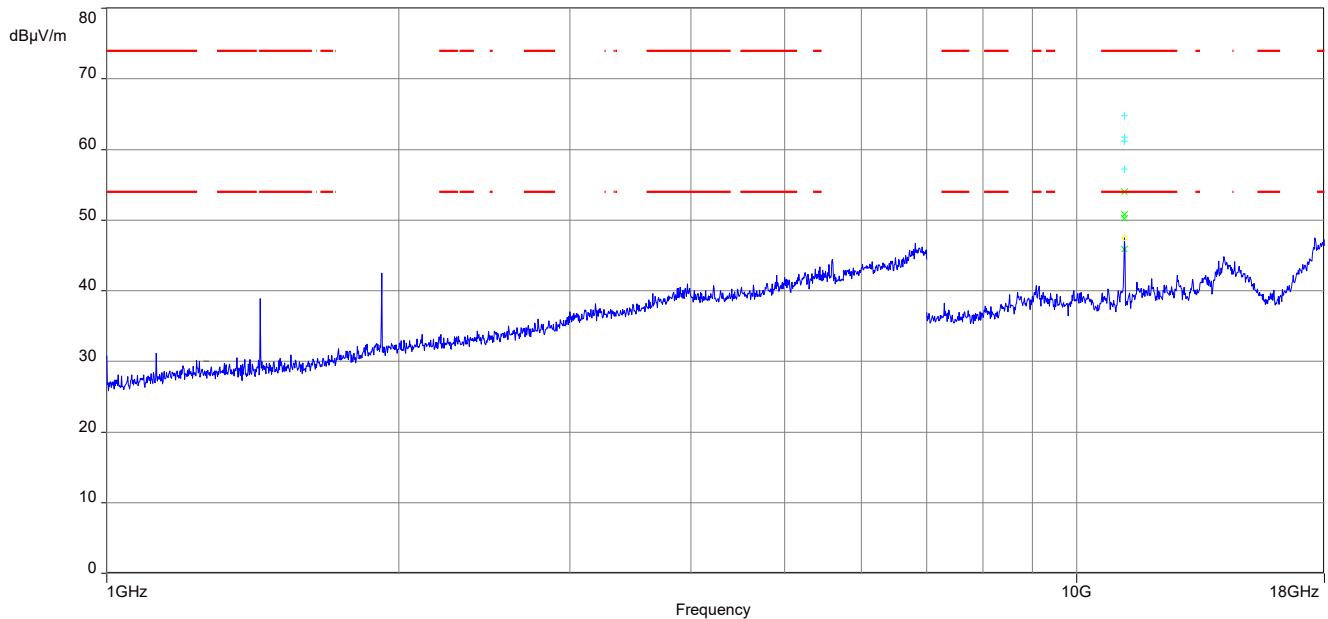
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.420	23.82	30.0	6.18	1000	120	101.0	V	167.0	12.1
50.448	26.77	---	---	1000	120	101.0	V	345.0	13.7
108.796	16.95	33.5	16.55	1000	120	100.0	V	123.0	11.3
138.379	17.72	---	---	1000	120	100.0	V	179.0	9.0
400.432	12.74	36.0	23.26	1000	120	170.0	V	0.0	16.9
960.023	39.82	44.0	4.18	1000	120	98.0	H	241.0	24.5

**Plot 26:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel**Plot 27:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel

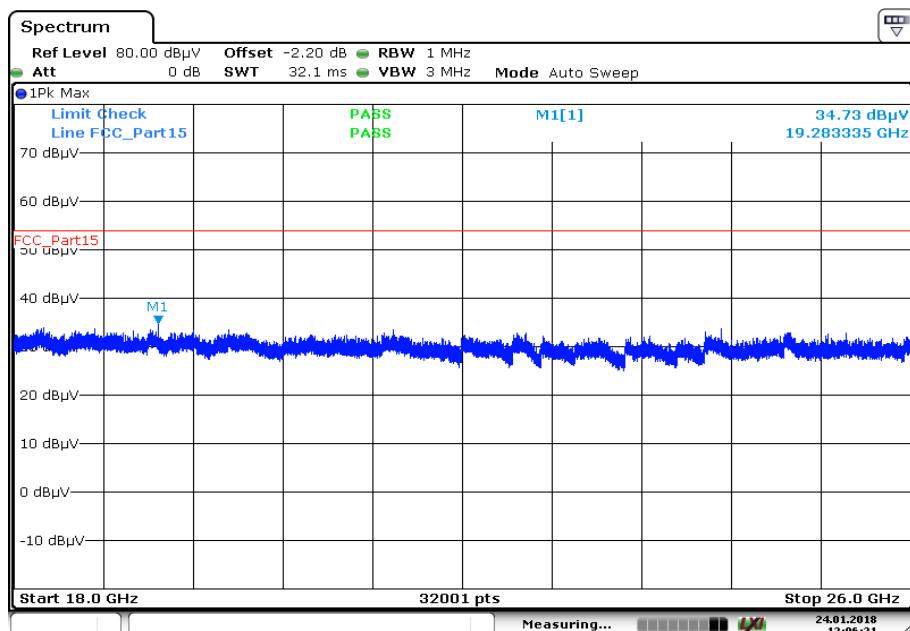
**Plot 28:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel

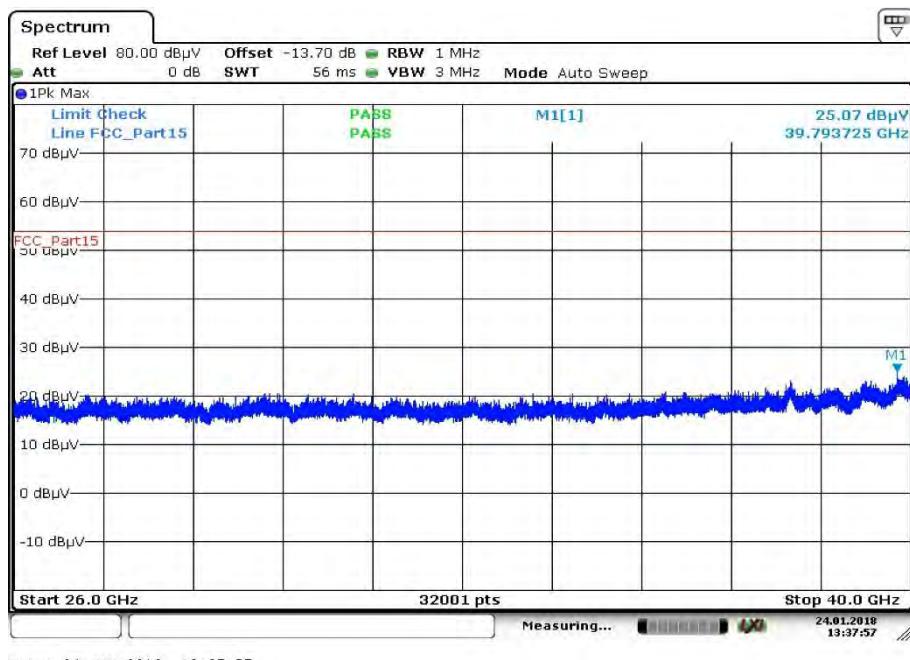
**Plot 29:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; middle channel**Final results:**

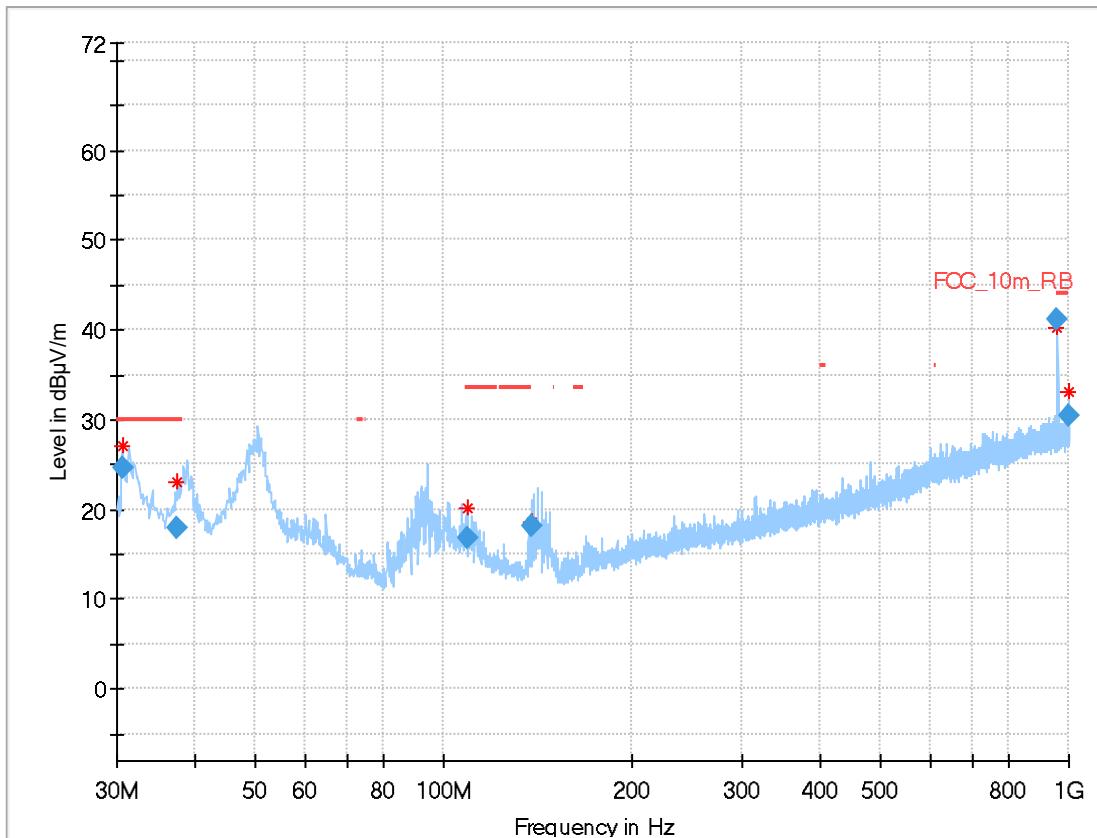
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.415	24.09	30.0	5.91	1000	120	101.0	V	159.0	12.1
38.348	20.37	---	---	1000	120	101.0	V	273.0	13.0
50.441	26.51	---	---	1000	120	98.0	V	282.0	13.7
108.836	17.07	33.5	16.43	1000	120	101.0	V	106.0	11.3
136.916	13.91	33.5	19.59	1000	120	101.0	V	148.0	9.1
959.999	40.32	---	---	1000	120	101.0	H	249.0	24.5

**Plot 30:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

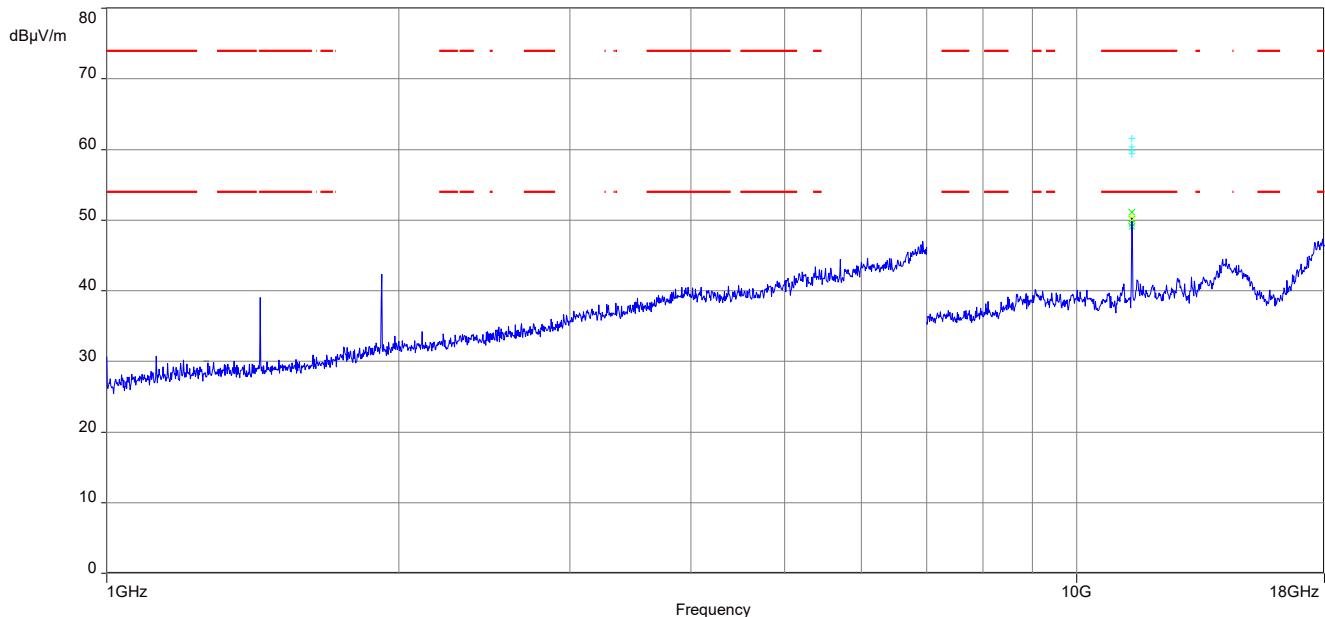
NOTE: The carrier signal is notched.

**Plot 31:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

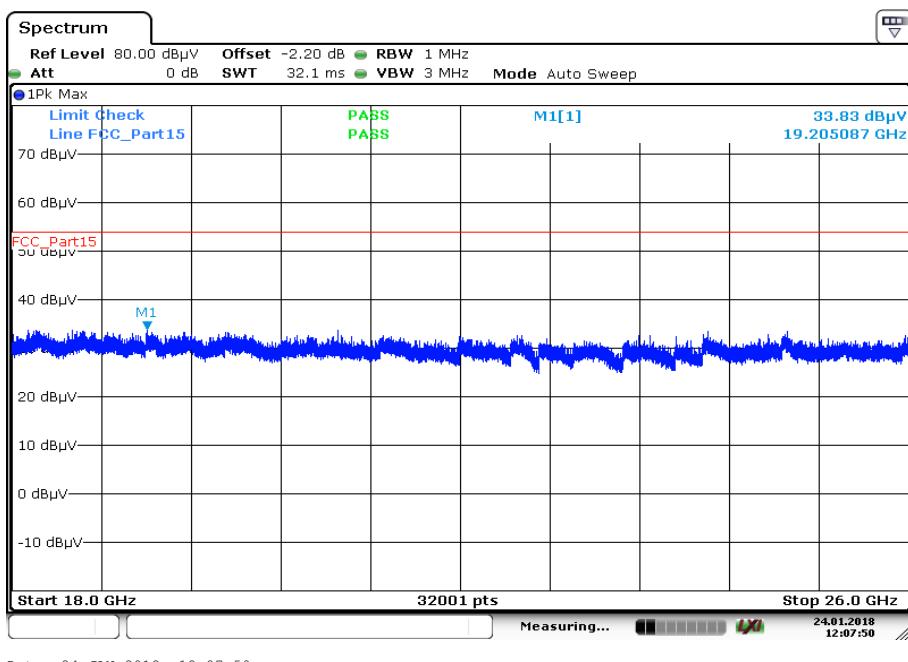
**Plot 32:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

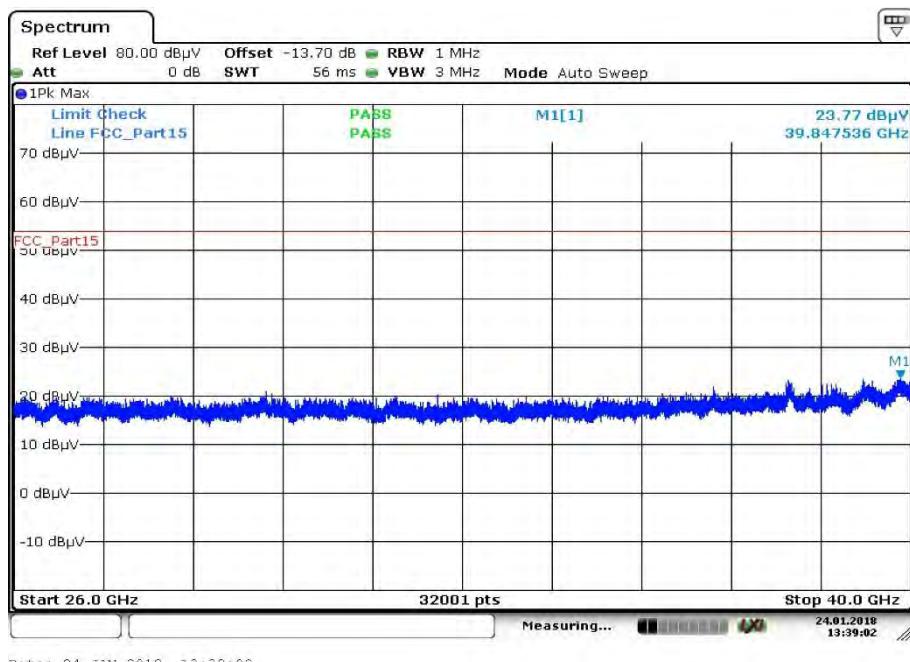
**Plot 33:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; highest channel**Final results:**

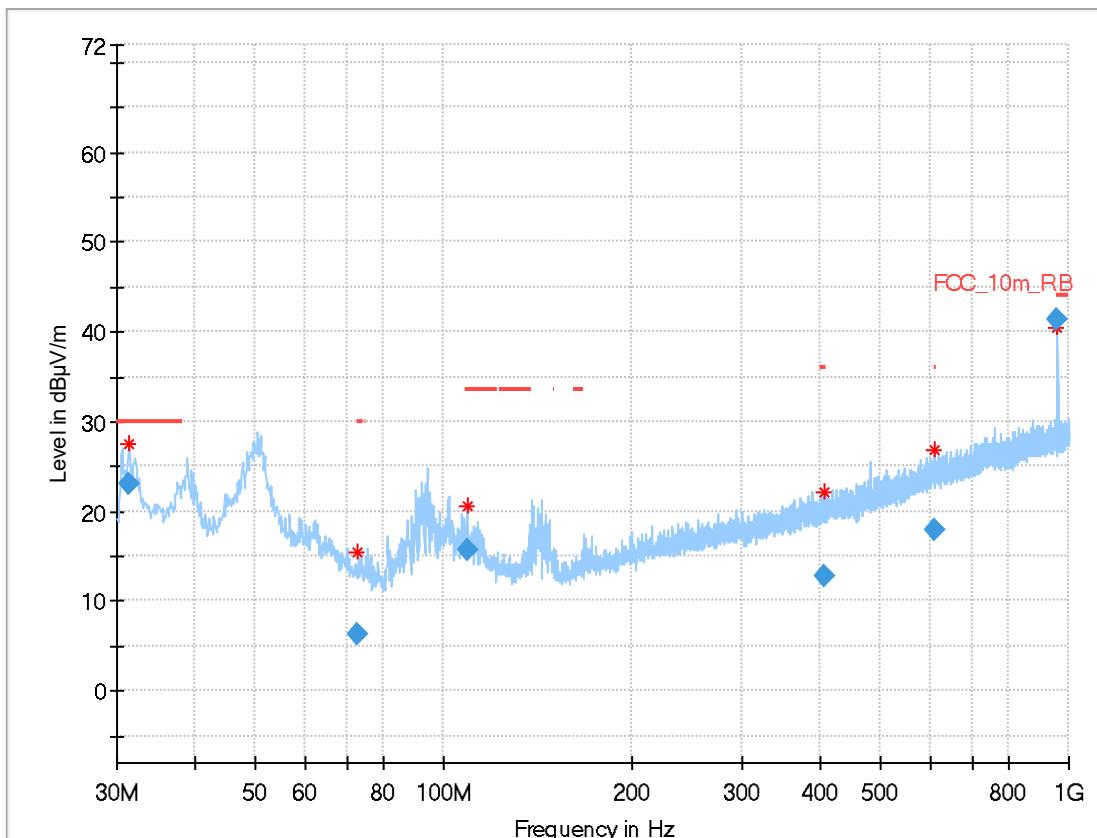
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.622	24.55	30.0	5.45	1000	120	101.0	V	185.0	11.9
37.569	17.94	30.0	12.06	1000	120	101.0	V	280.0	12.9
108.791	16.83	33.5	16.67	1000	120	101.0	V	111.0	11.3
138.381	18.25	---	---	1000	120	170.0	V	171.0	9.0
960.021	41.26	44.0	2.74	1000	120	101.0	H	170.0	24.5
999.985	30.50	44.0	13.50	1000	120	98.0	H	222.0	24.9

**Plot 34:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

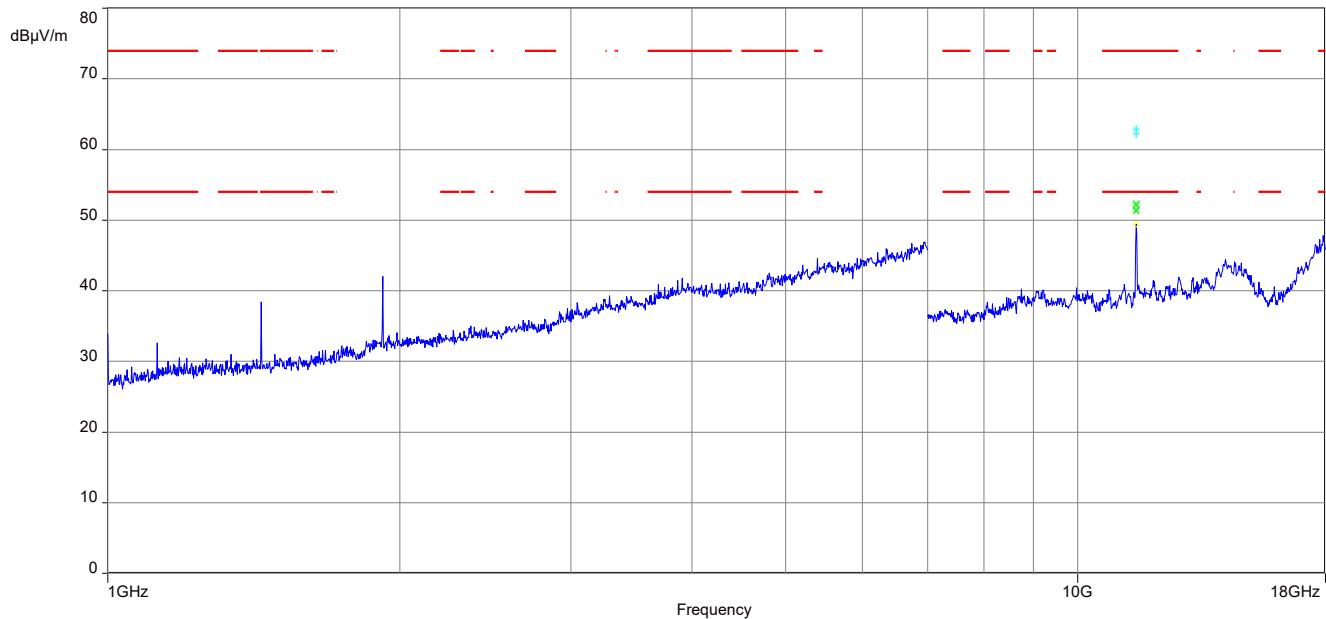
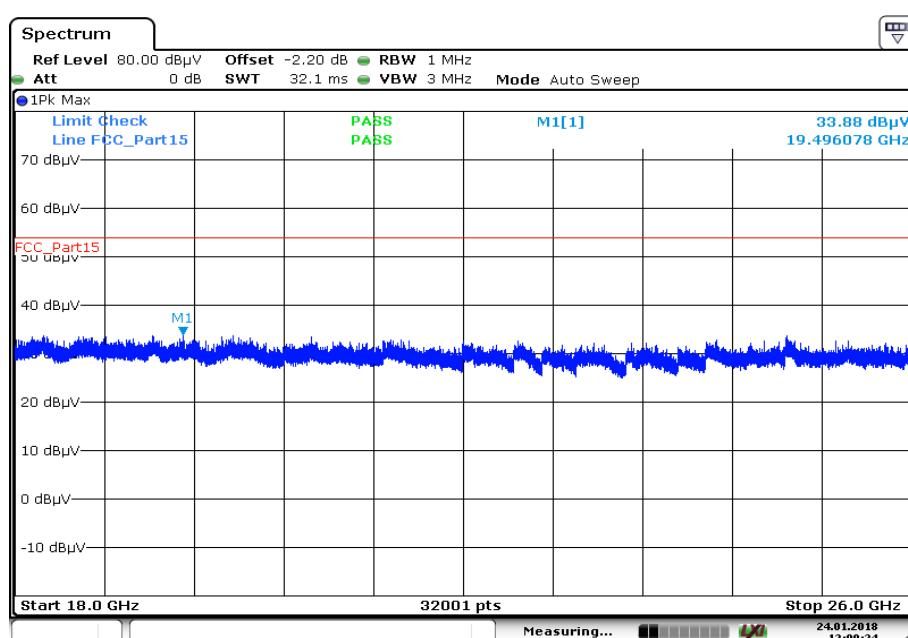
NOTE: The carrier signal is notched.

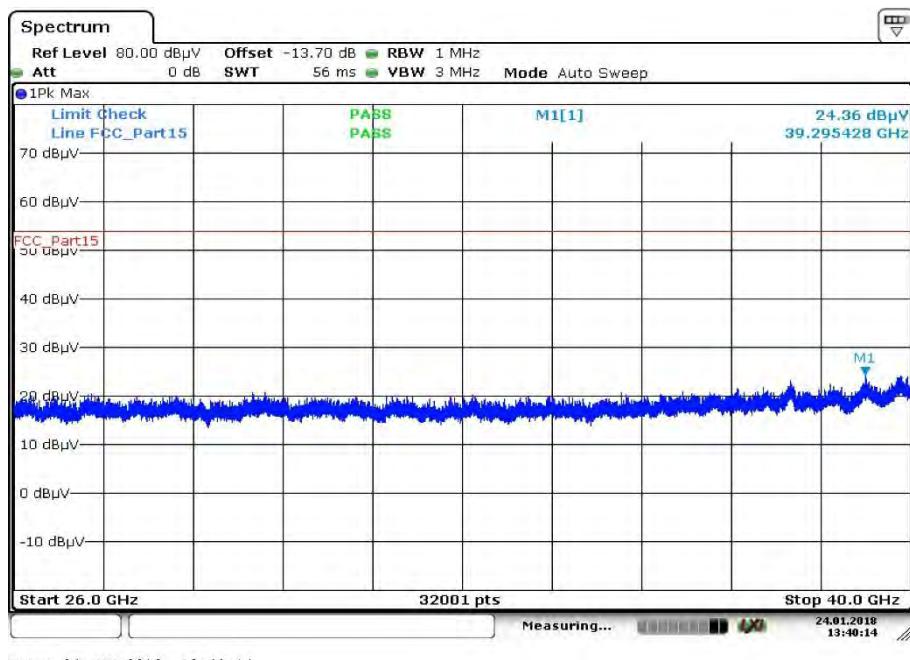
**Plot 35:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

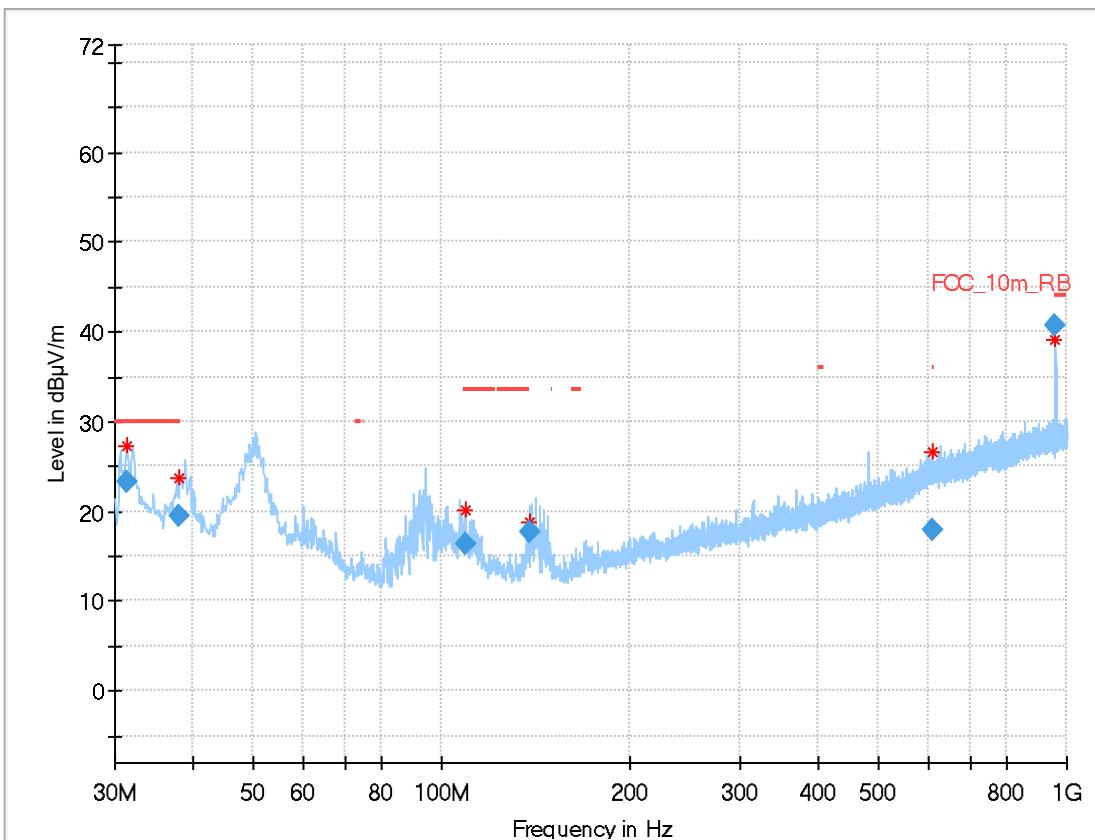
**Plot 36:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

**Plot 37:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; lowest channel**Final results:**

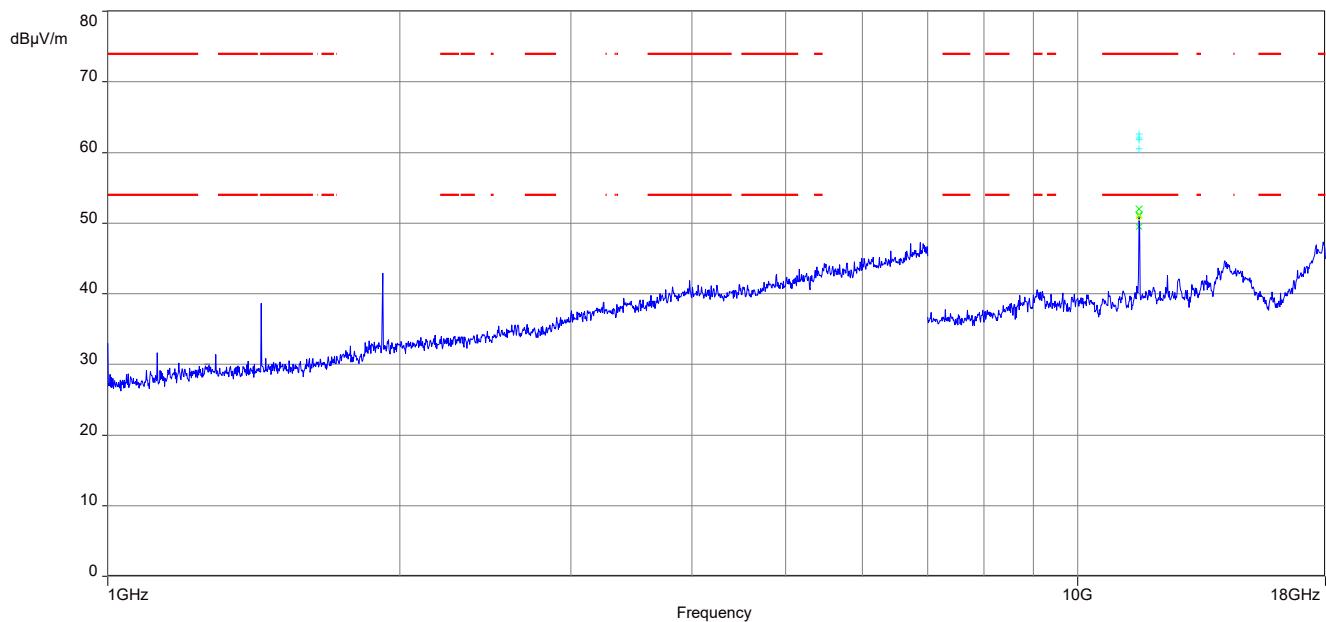
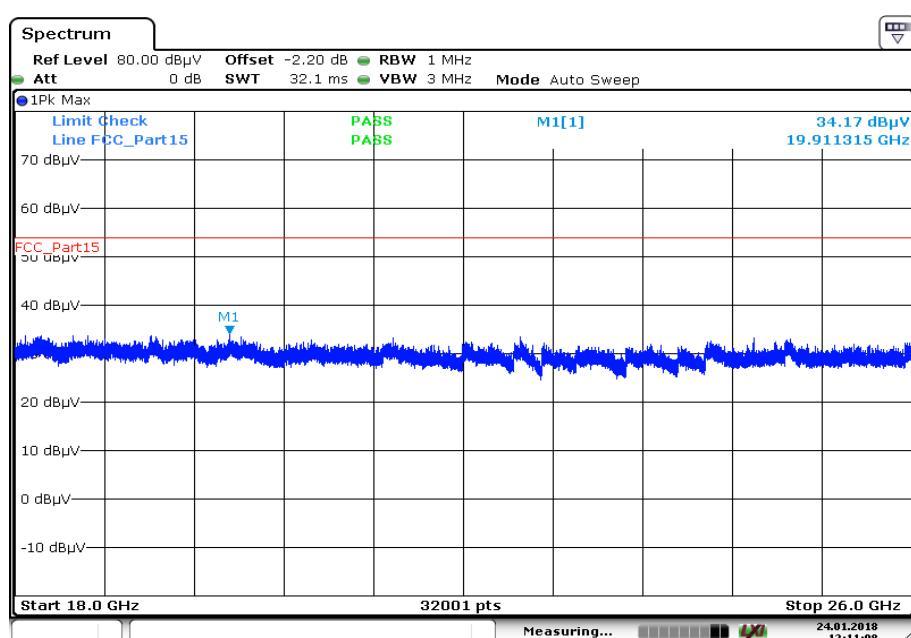
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.359	22.98	30.0	7.02	1000	120	100.0	V	108.0	12.1
72.910	6.23	---	---	1000	120	101.0	V	310.0	9.2
108.833	15.74	33.5	17.76	1000	120	98.0	V	292.0	11.3
407.768	12.87	36.0	23.13	1000	120	170.0	H	7.0	17.0
610.326	17.92	36.0	18.08	1000	120	101.0	V	324.0	20.8
960.003	41.47	44.0	2.53	1000	120	98.0	H	178.0	24.5

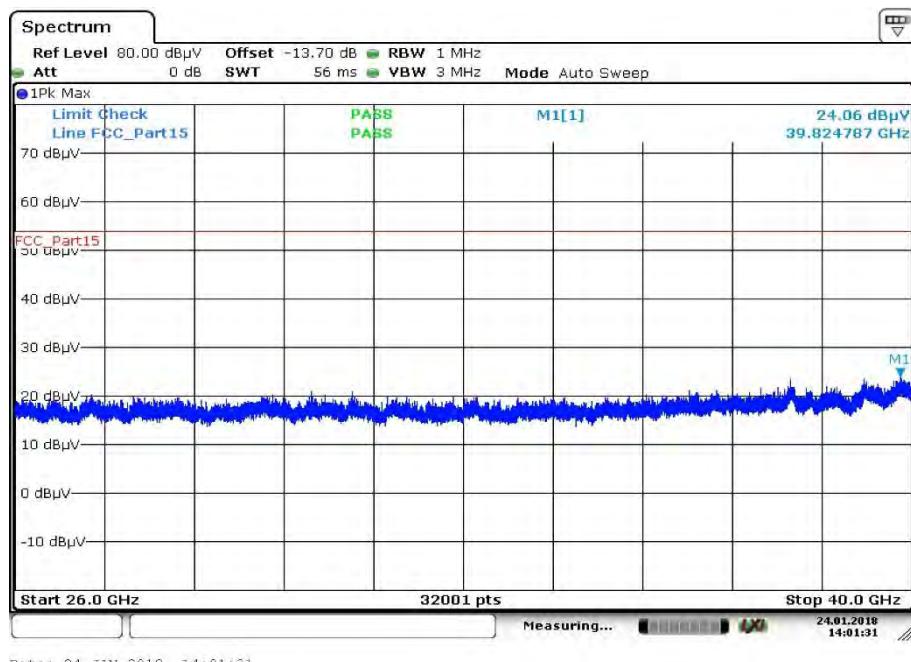
**Plot 38:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; lowest channel**Plot 39:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

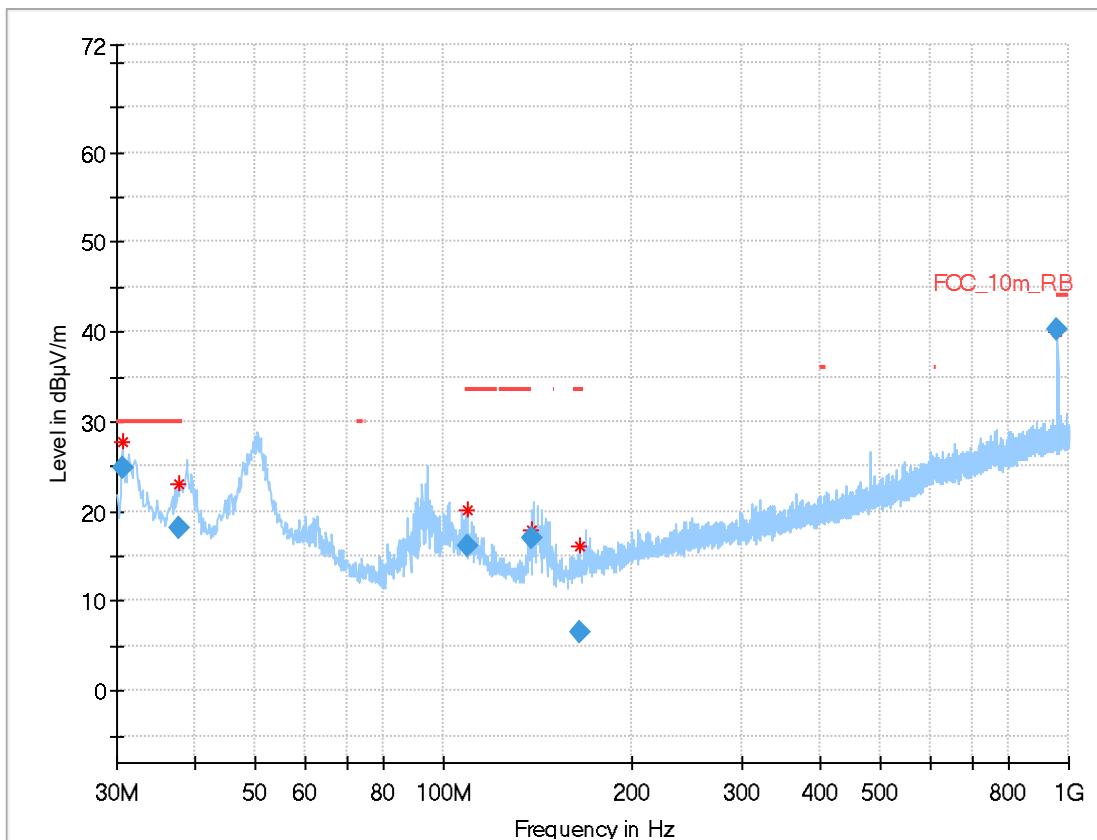
**Plot 40:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

**Plot 41:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; middle channel**Final results:**

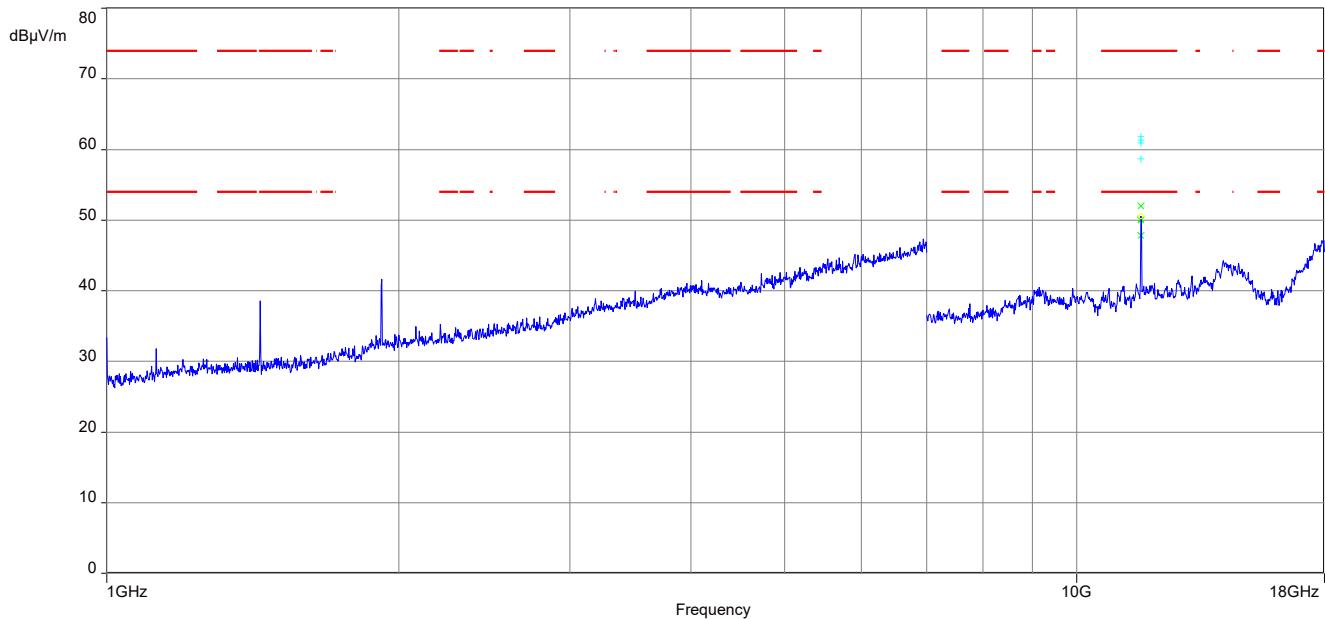
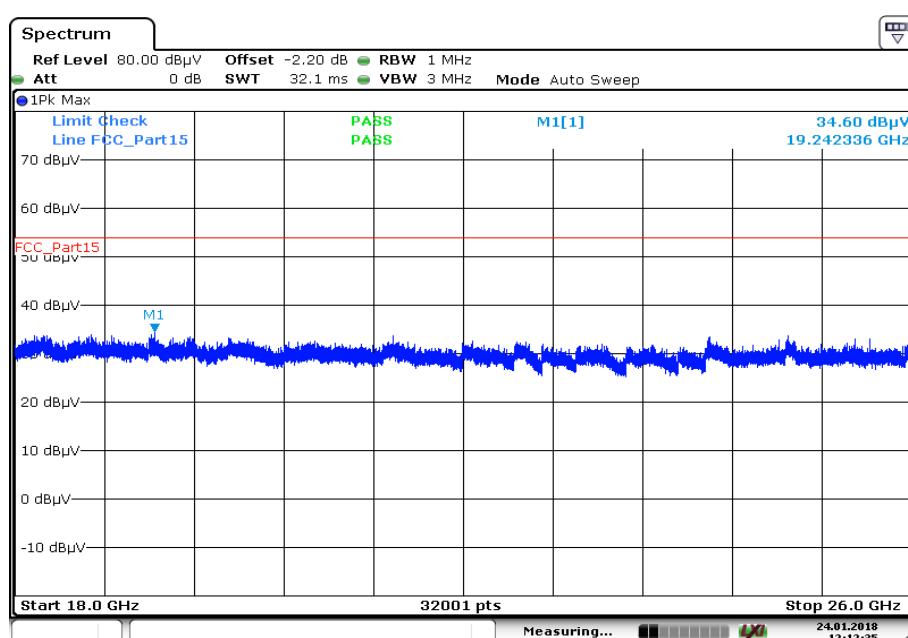
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
31.446	23.18	30.0	6.82	1000	120	101.0	V	169.0	12.1
38.093	19.45	30.0	10.55	1000	120	101.0	V	118.0	13.0
108.823	16.35	33.5	17.15	1000	120	101.0	V	250.0	11.3
138.381	17.68	---	---	1000	120	101.0	V	146.0	9.0
610.580	17.94	36.0	18.06	1000	120	170.0	H	205.0	20.8
960.004	40.69	44.0	3.31	1000	120	98.0	H	160.0	24.5

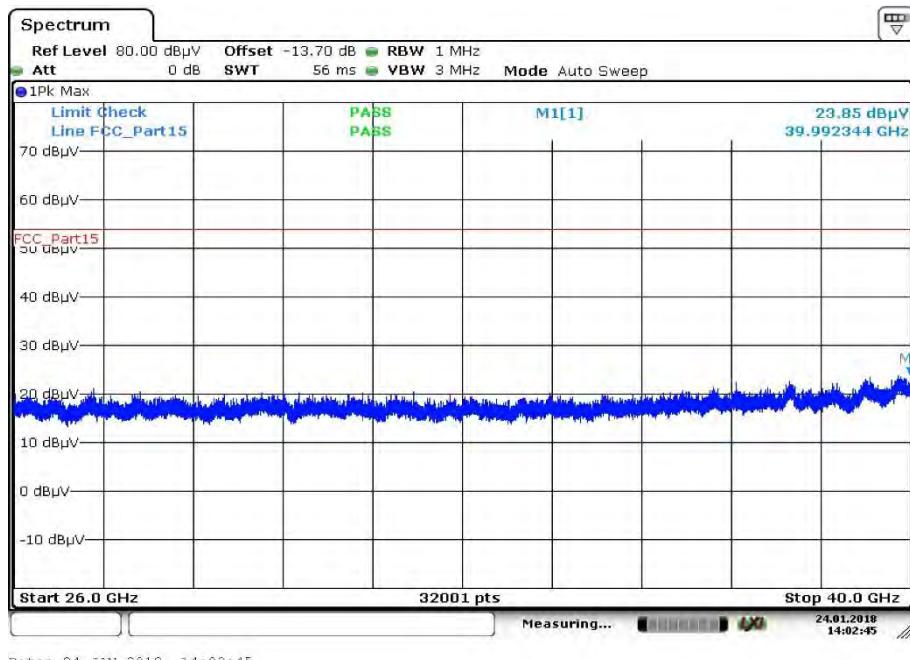
**Plot 42:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; middle channel**Plot 43:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; middle channel

**Plot 44:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; middle channel

**Plot 45:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; highest channel**Final results:**

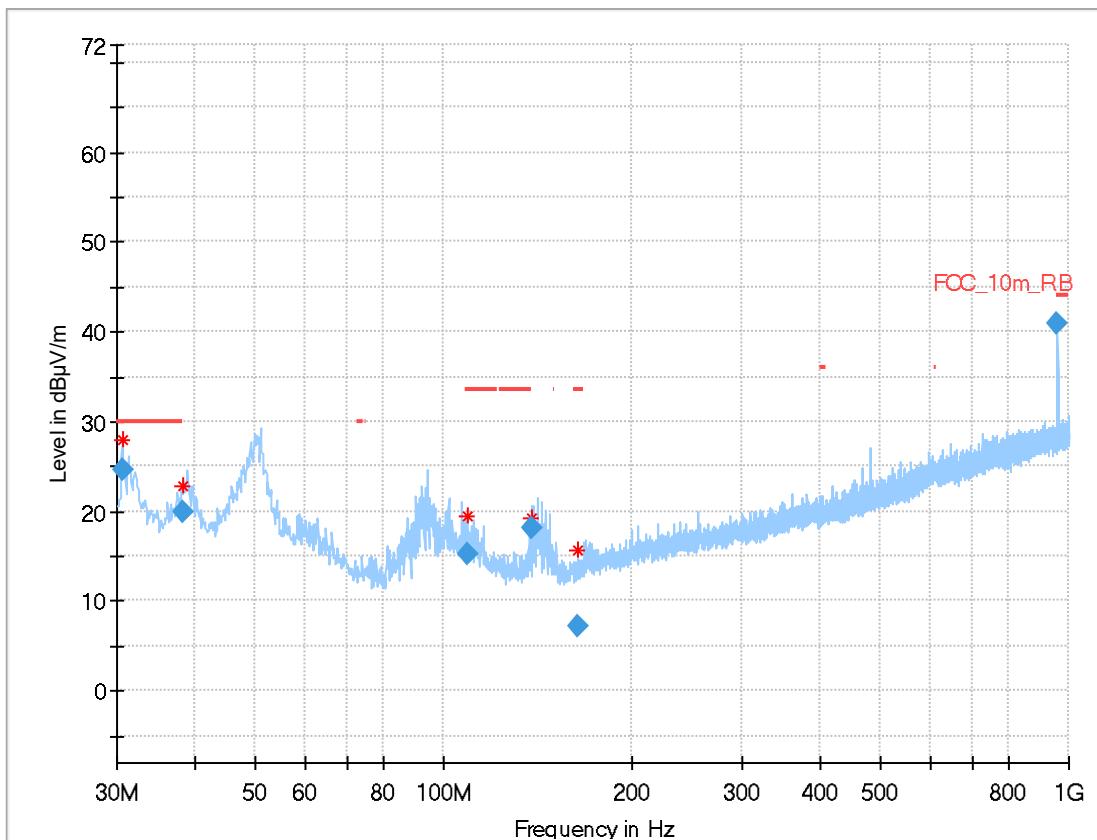
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.626	24.92	30.0	5.08	1000	120	101.0	V	198.0	11.9
37.836	18.23	30.0	11.77	1000	120	101.0	V	27.0	13.0
108.808	16.17	33.5	17.33	1000	120	101.0	V	267.0	11.3
138.364	17.08	---	---	1000	120	101.0	V	192.0	9.0
164.811	6.50	33.5	27.00	1000	120	170.0	V	335.0	10.0
960.002	40.26	44.0	3.74	1000	120	98.0	H	247.0	24.5

**Plot 46:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel**Plot 47:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; highest channel

**Plot 48:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; highest channel

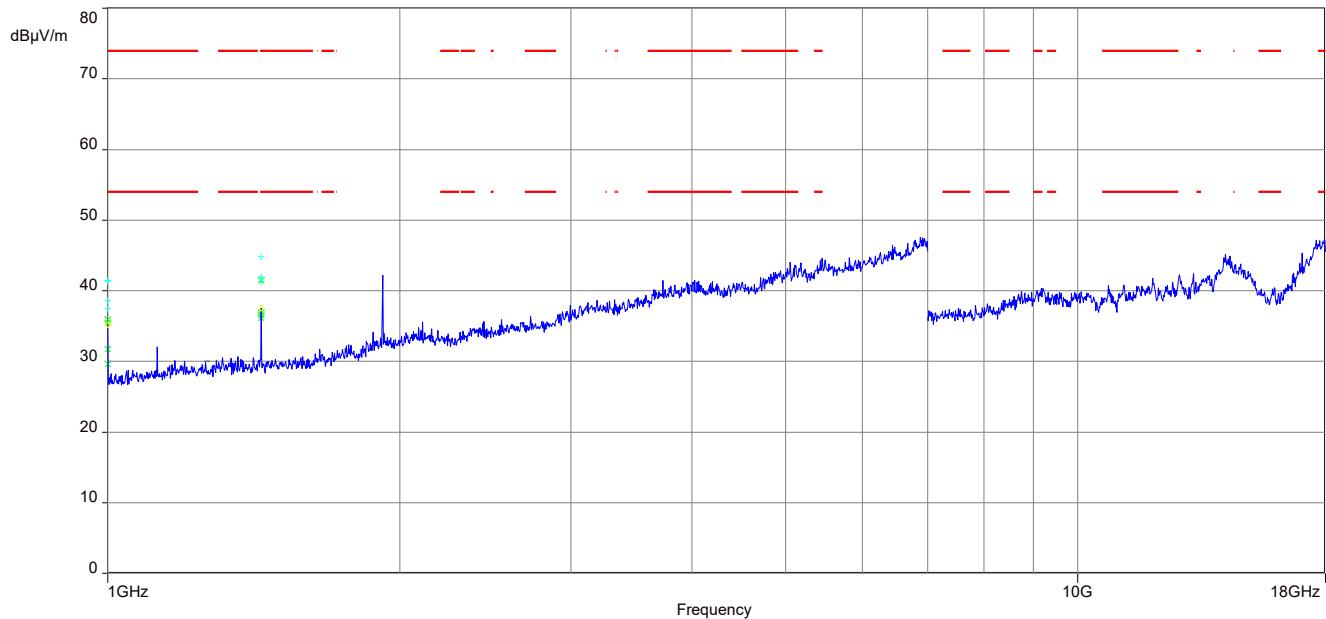
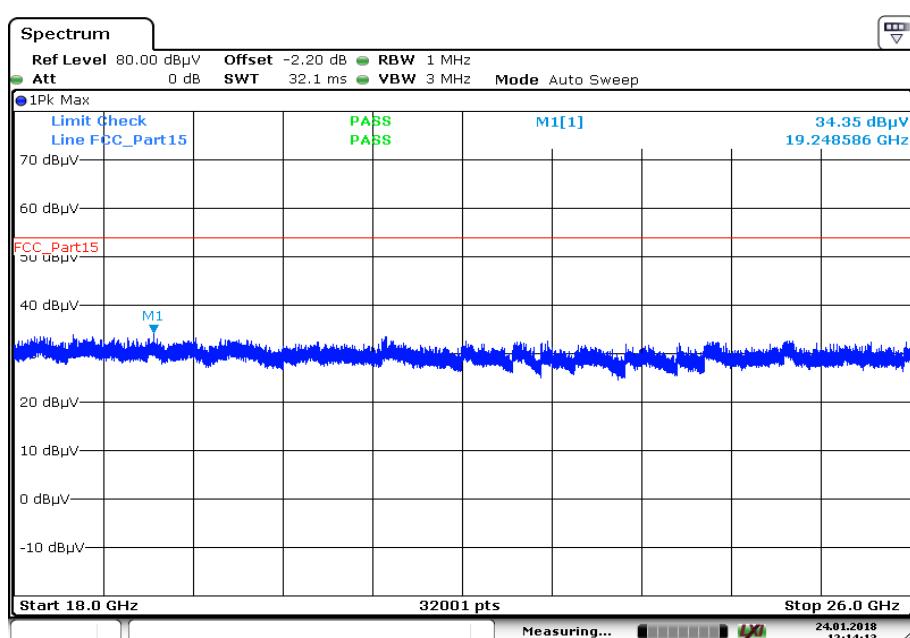
**Plots:** 40 MHz channel bandwidth

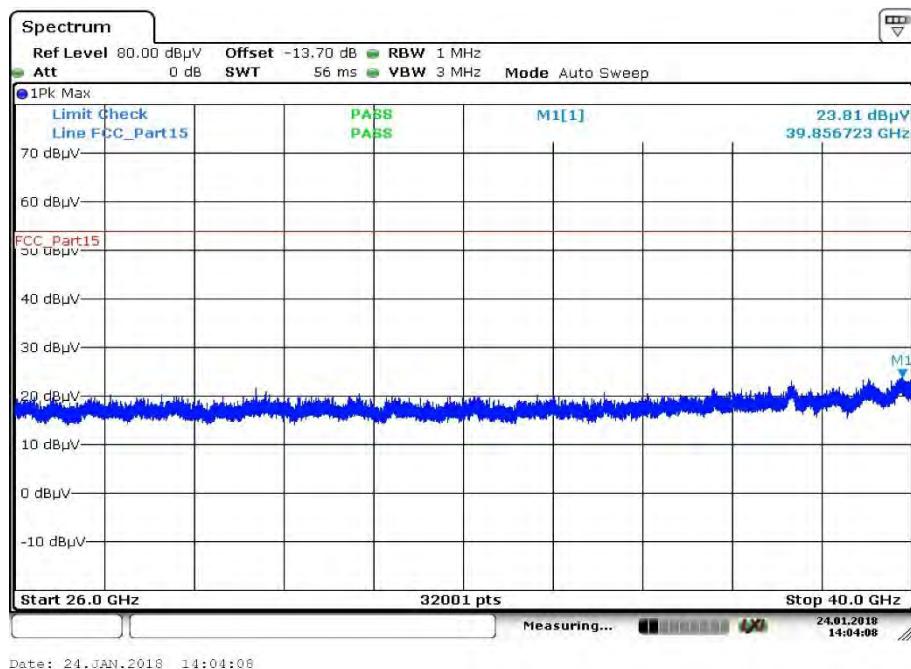
**Plot 1:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-1; lowest channel



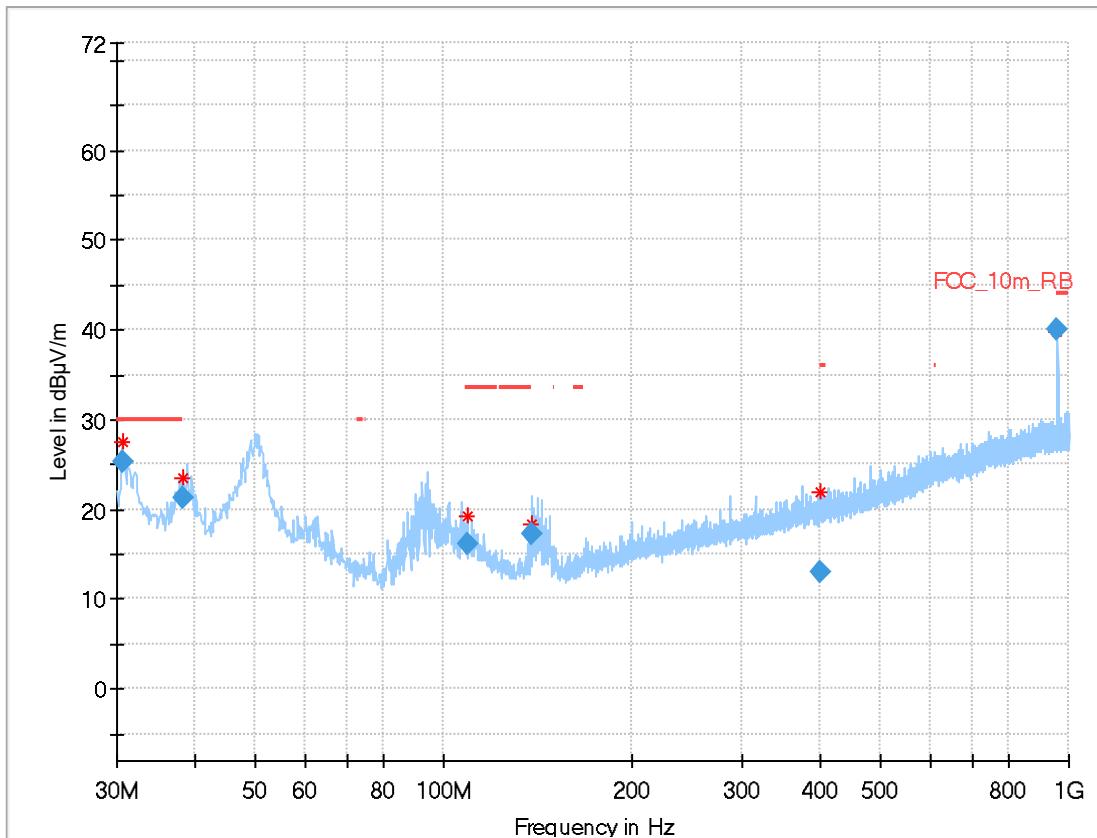
### Final results:

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.641	24.59	30.0	5.41	1000	120	100.0	V	247.0	11.9
38.329	20.00	---	---	1000	120	170.0	V	37.0	13.0
108.828	15.21	33.5	18.29	1000	120	170.0	V	292.0	11.3
138.387	18.23	---	---	1000	120	170.0	V	174.0	9.0
163.950	7.25	33.5	26.25	1000	120	170.0	V	339.0	9.9
959.992	40.93	---	---	1000	120	98.0	H	161.0	24.5

**Plot 2:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; lowest channel**Plot 3:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; lowest channel

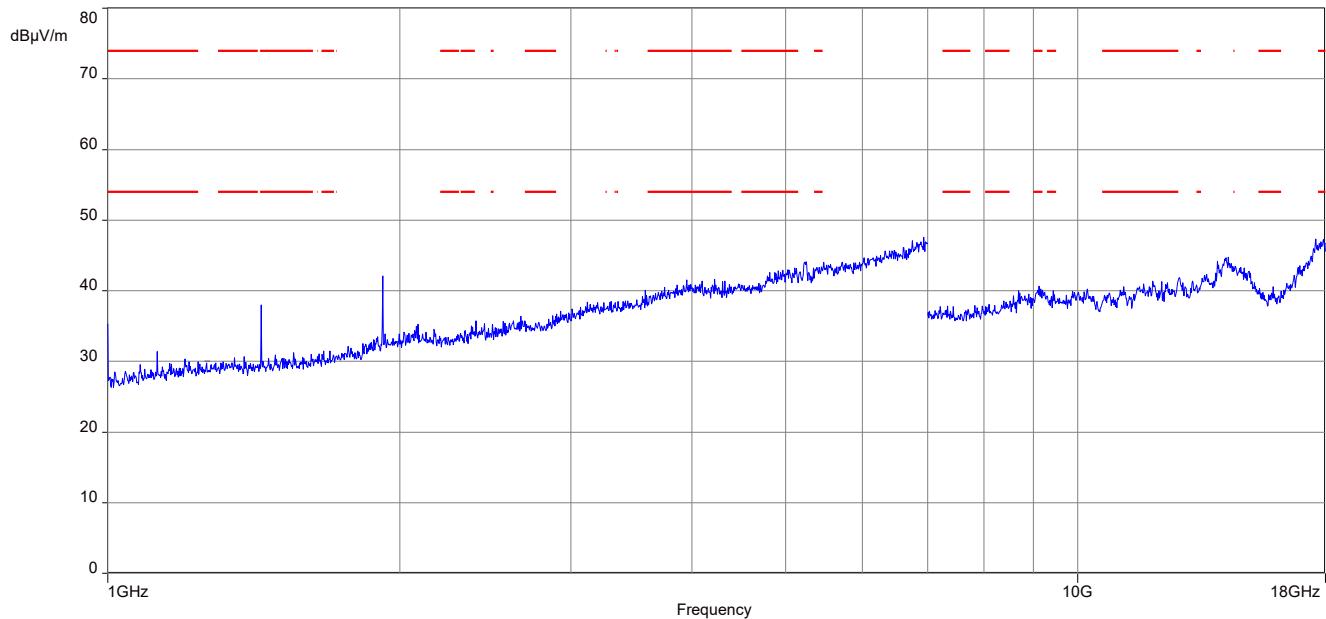
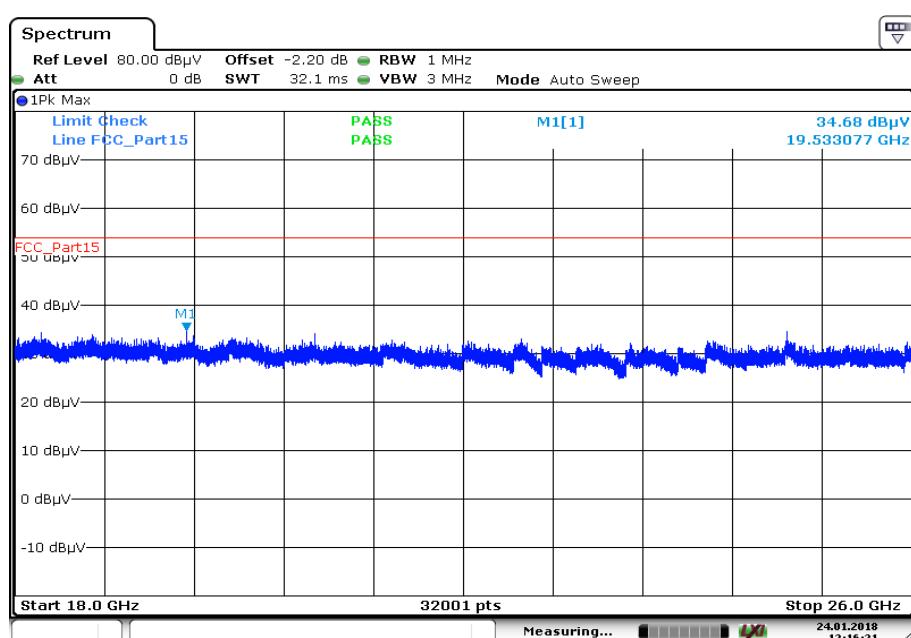
**Plot 4:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-1; lowest channel

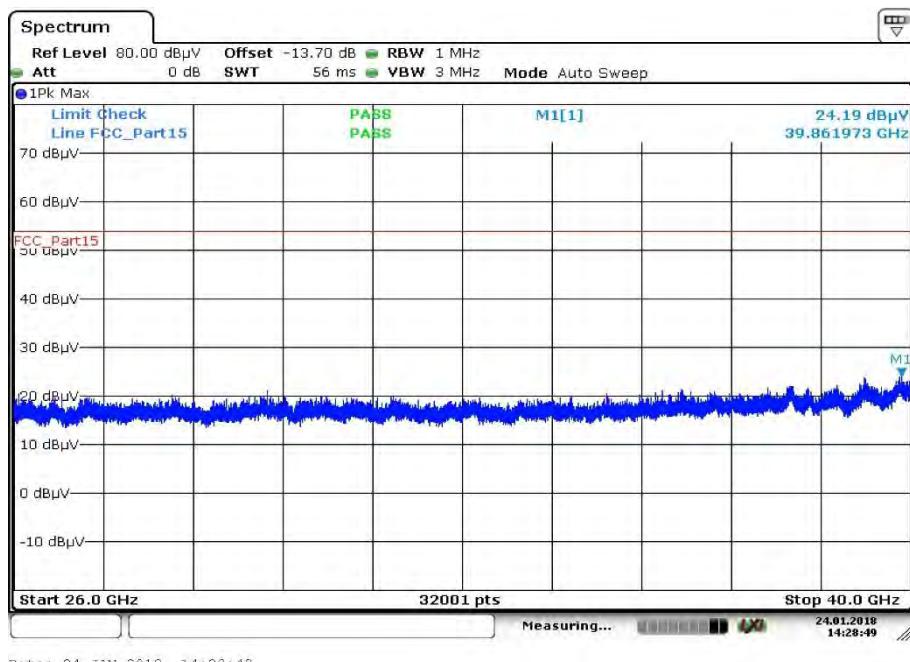
**Plot 5:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-1; highest channel



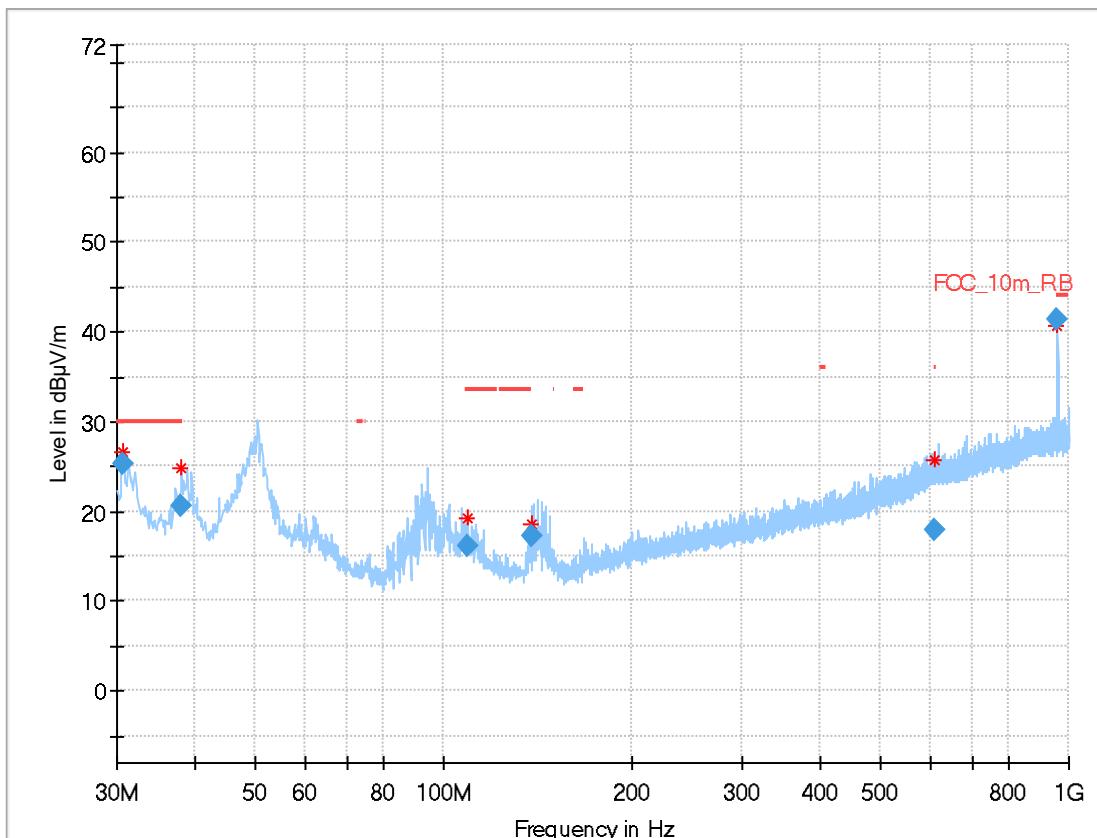
#### Final results:

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.633	25.29	30.0	4.71	1000	120	101.0	V	338.0	11.9
38.356	21.18	---	---	1000	120	101.0	V	79.0	13.0
108.803	16.04	33.5	17.46	1000	120	101.0	V	73.0	11.3
138.367	17.32	---	---	1000	120	101.0	V	166.0	9.0
400.879	12.95	36.0	23.05	1000	120	101.0	V	70.0	16.9
960.011	40.05	44.0	3.95	1000	120	98.0	H	238.0	24.5

**Plot 6:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; highest channel**Plot 7:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; highest channel

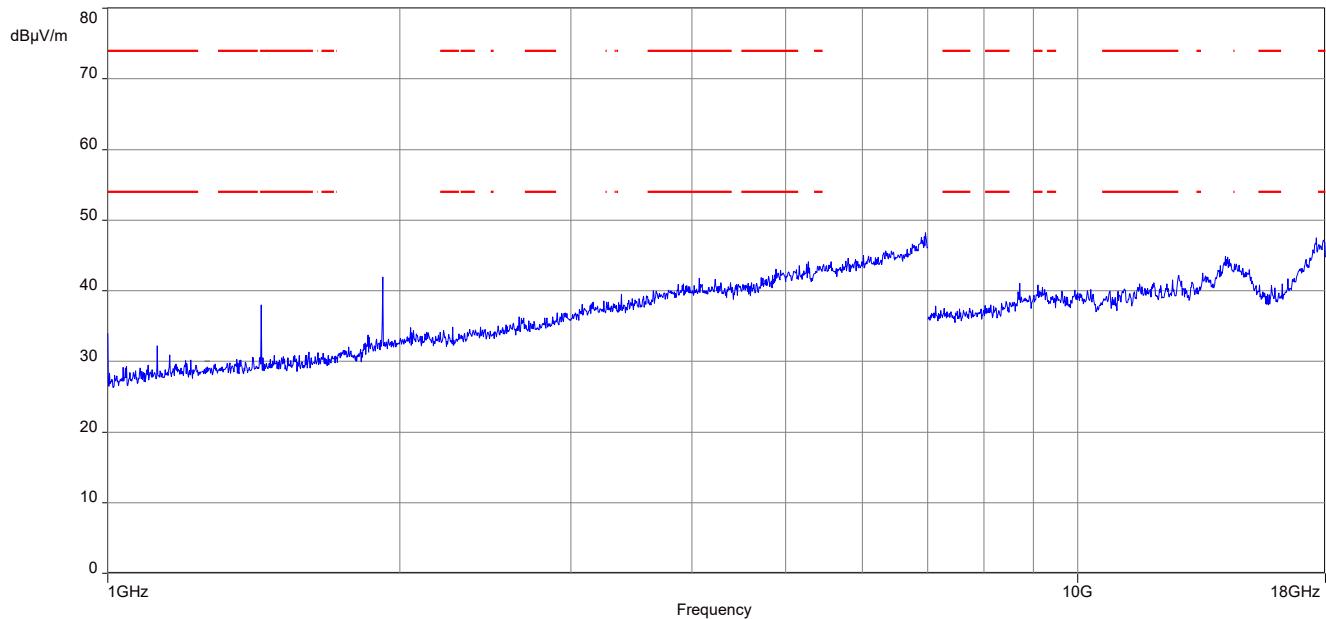
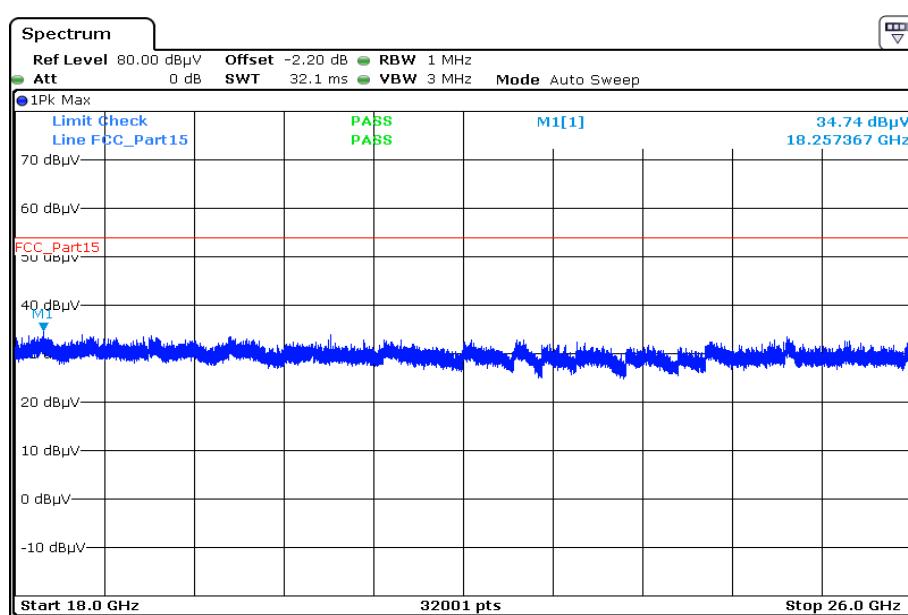
**Plot 8:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-1; highest channel

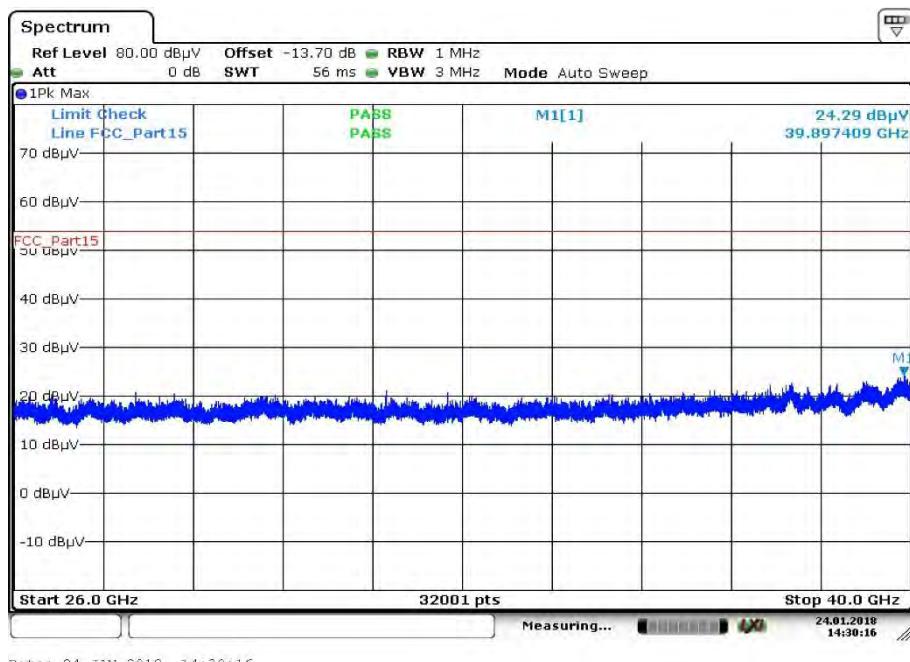
**Plot 9:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

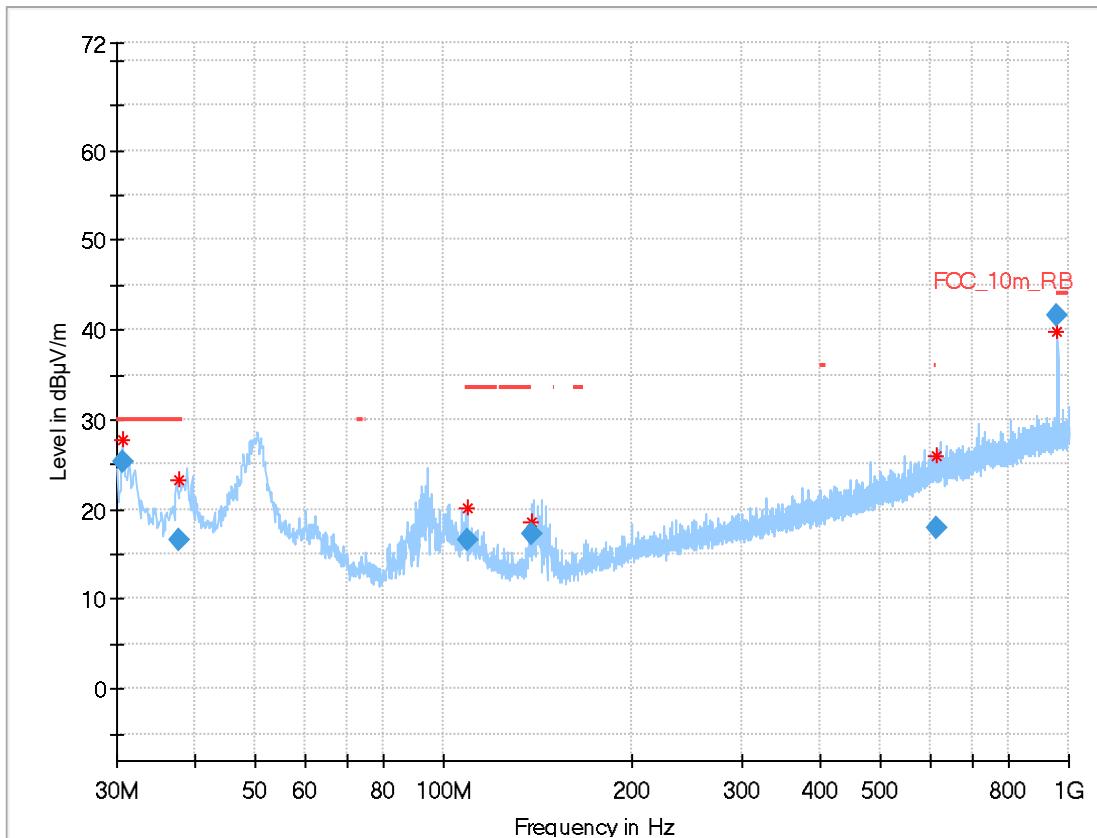


#### Final results:

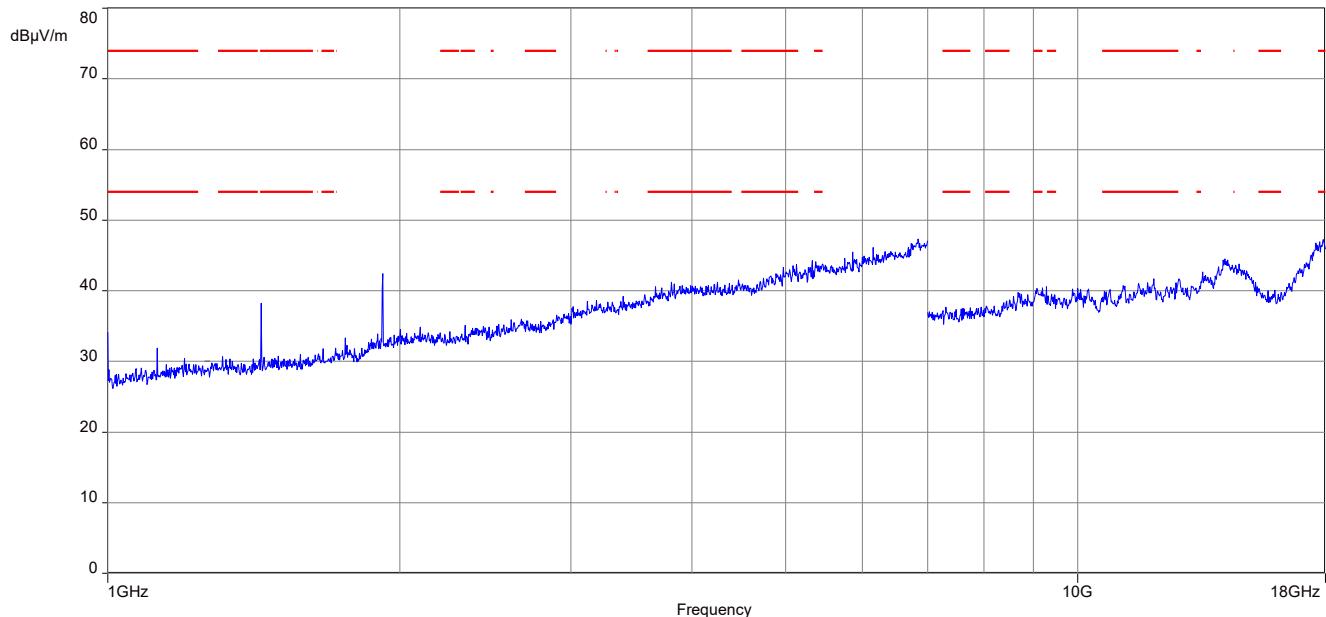
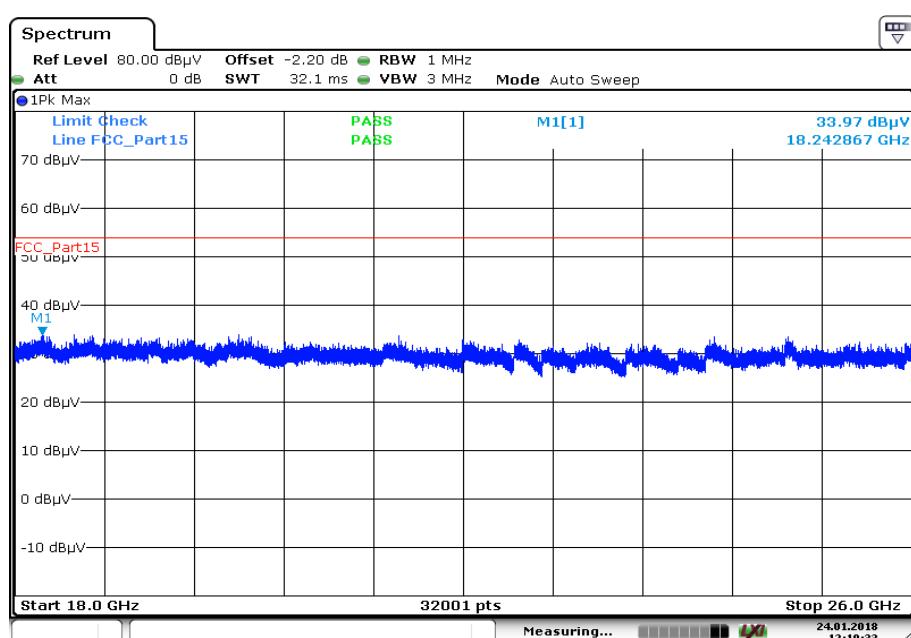
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.622	25.27	30.0	4.73	1000	120	101.0	V	38.0	11.9
38.101	20.57	30.0	9.43	1000	120	101.0	V	209.0	13.0
108.790	16.12	33.5	17.38	1000	120	98.0	V	314.0	11.3
138.391	17.31	---	---	1000	120	101.0	V	188.0	9.0
609.943	17.98	36.0	18.02	1000	120	170.0	V	297.0	20.8
960.000	41.39	44.0	2.61	1000	120	98.0	H	166.0	24.5

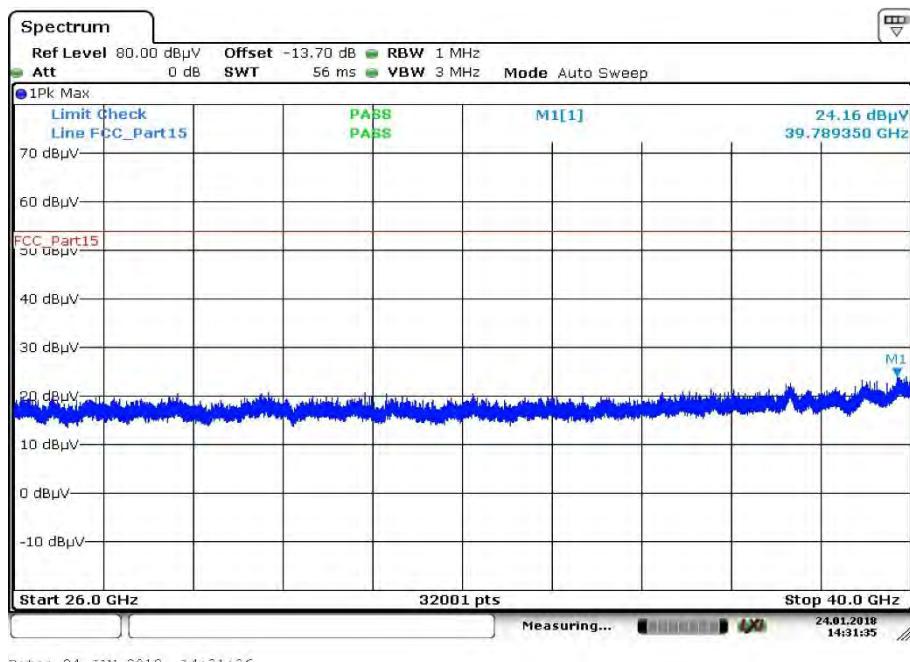
**Plot 10:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel**Plot 11:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

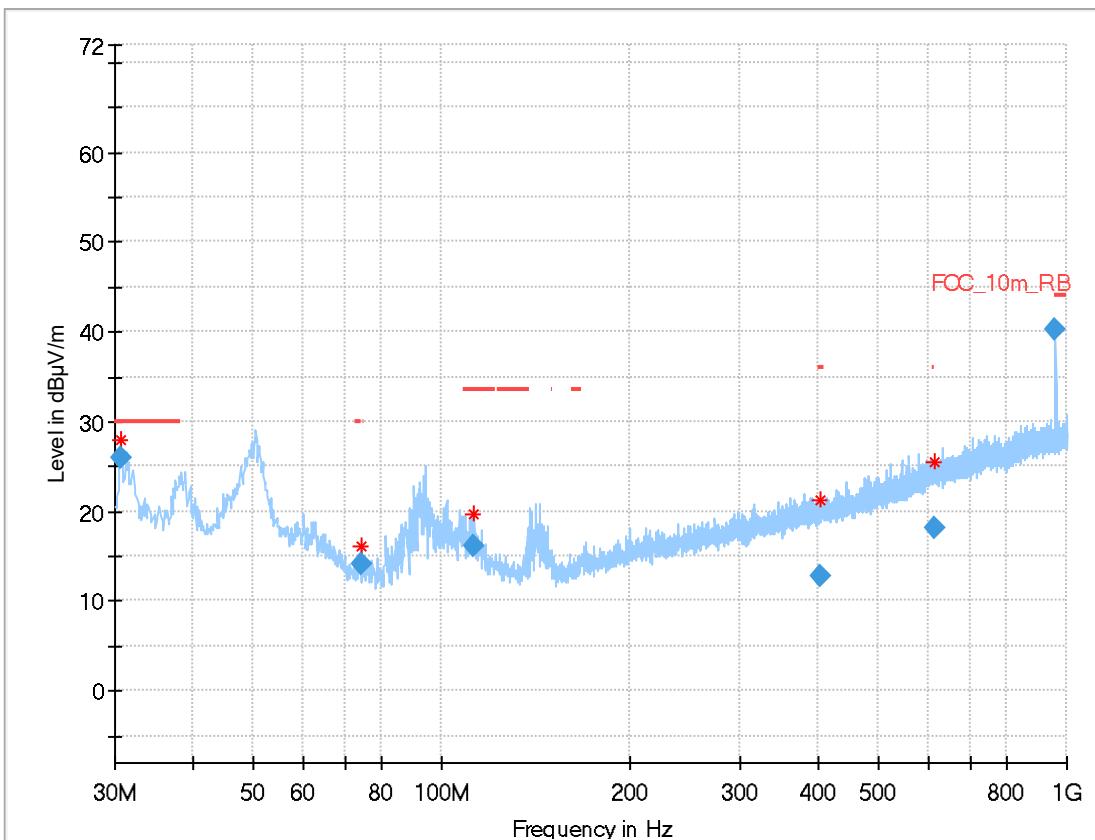
**Plot 12:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

**Plot 13:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; highest channel**Final results:**

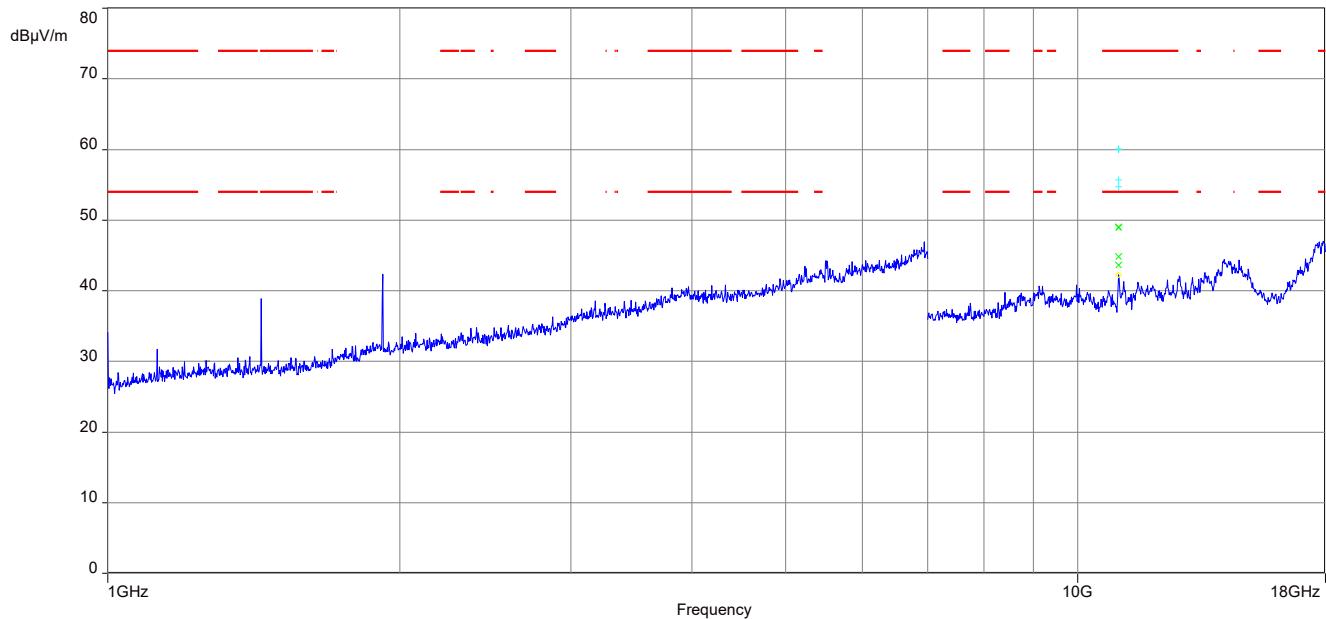
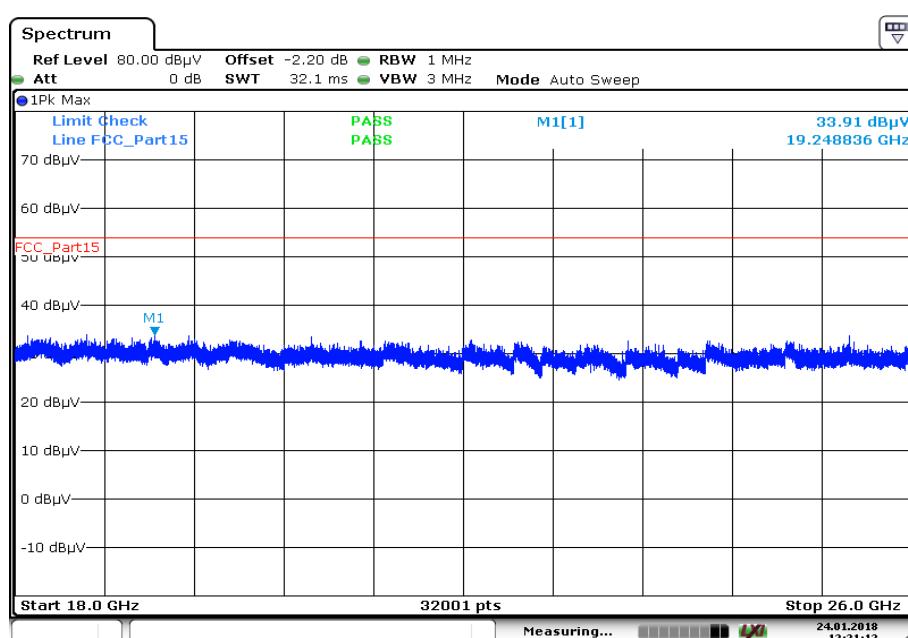
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.605	25.31	30.0	4.69	1000	120	101.0	V	1.0	11.9
37.577	16.62	30.0	13.38	1000	120	100.0	V	-9.0	12.9
108.796	16.59	33.5	16.91	1000	120	101.0	V	115.0	11.3
138.364	17.29	---	---	1000	120	170.0	V	158.0	9.0
612.586	17.96	36.0	18.04	1000	120	170.0	H	0.0	20.8
960.000	41.54	44.0	2.46	1000	120	98.0	H	175.0	24.5

**Plot 14:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; highest channel**Plot 15:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; highest channel

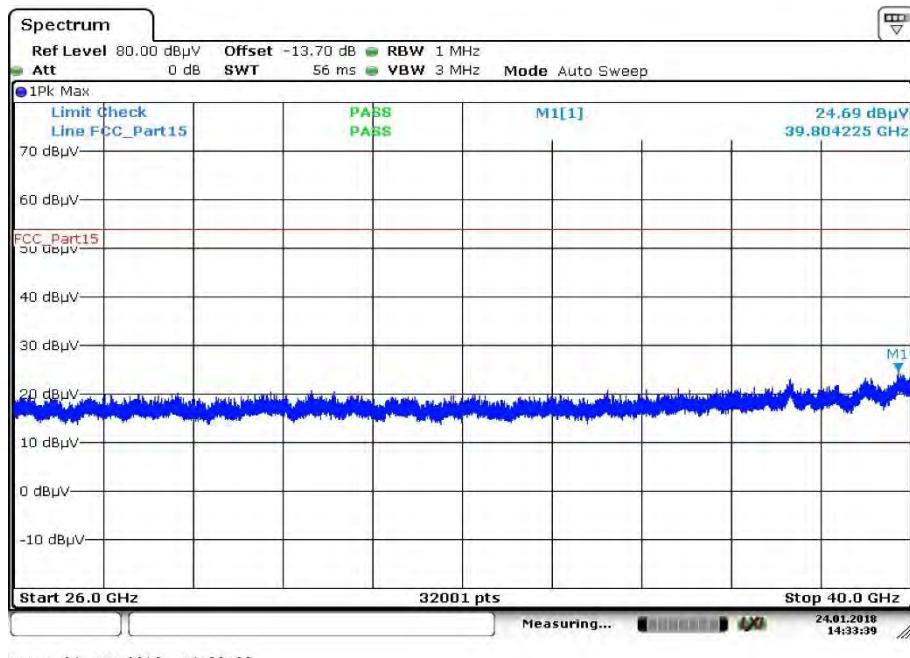
**Plot 16:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2A; highest channel

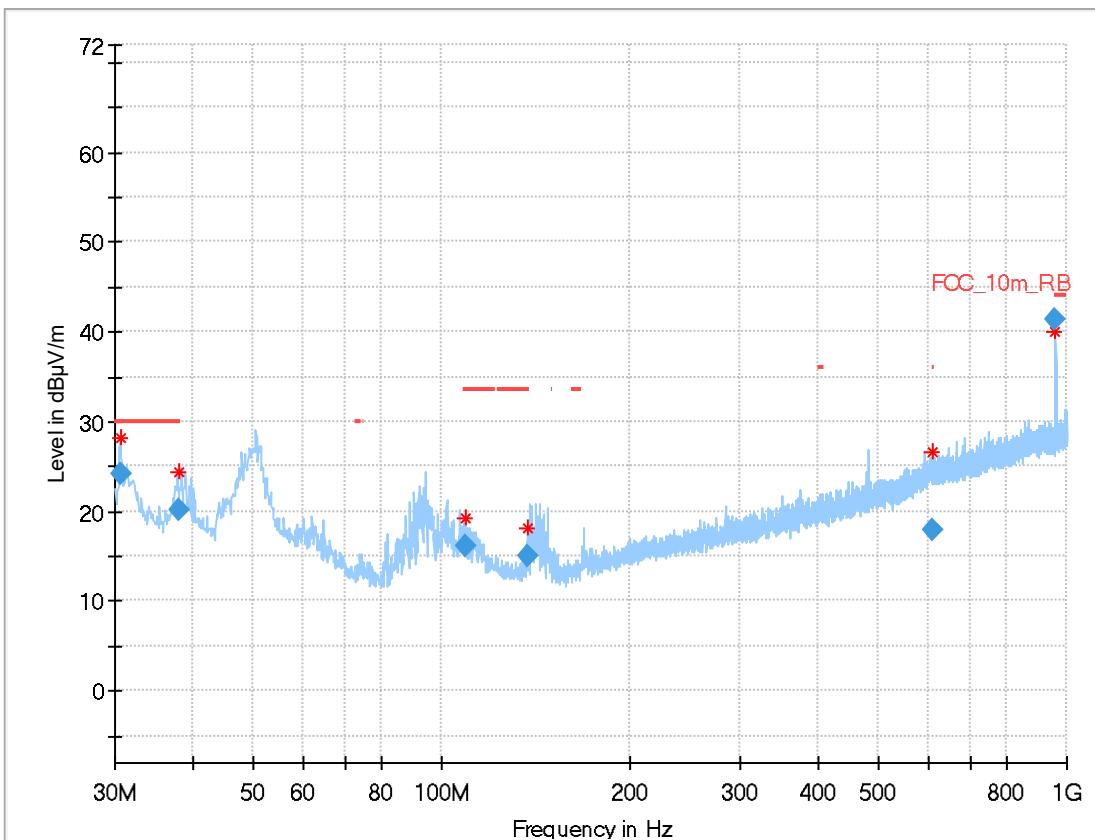
**Plot 17:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel**Final results:**

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.616	25.95	30.0	4.05	1000	120	101.0	V	129.0	11.9
74.589	14.03	30.0	15.97	1000	120	170.0	V	173.0	8.9
112.809	16.23	33.5	17.27	1000	120	100.0	V	106.0	10.9
402.484	12.85	36.0	23.15	1000	120	98.0	V	72.0	16.9
614.030	18.04	---	---	1000	120	98.0	H	334.0	20.8
960.004	40.24	44.0	3.76	1000	120	98.0	H	245.0	24.5

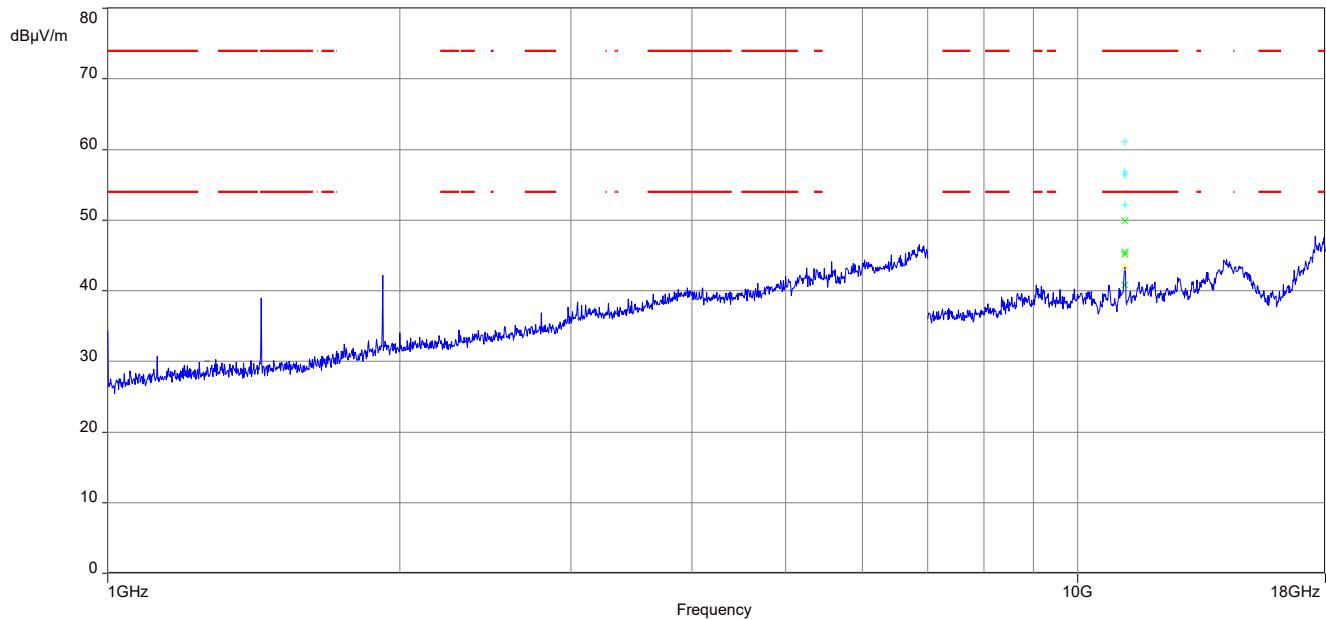
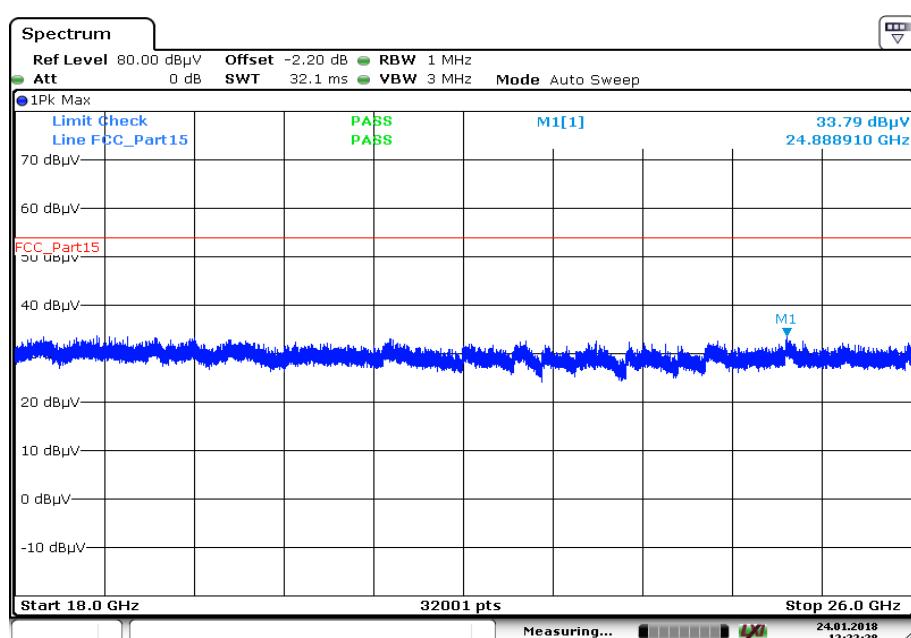
**Plot 18:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel**Plot 19:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel

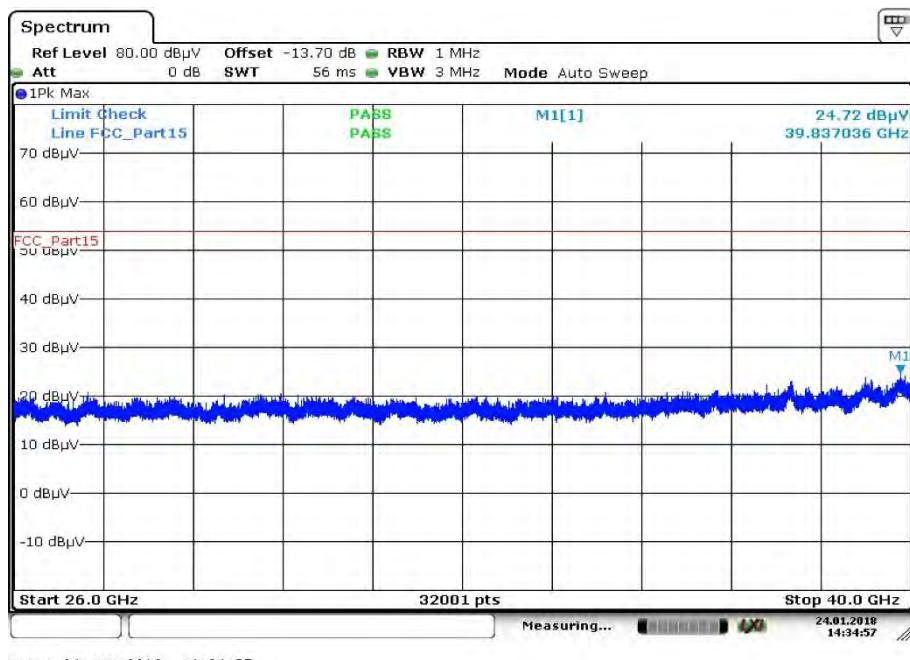
**Plot 20:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel

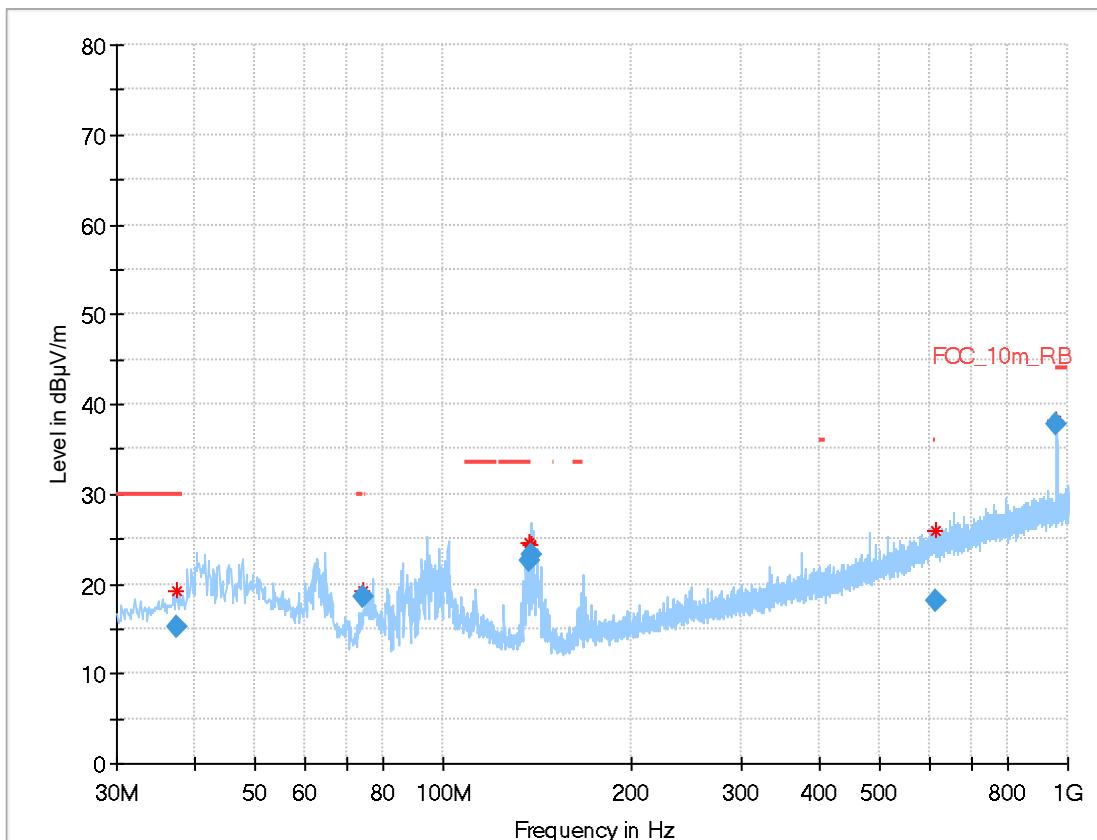


**Plot 21:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; middle channel**Final results:**

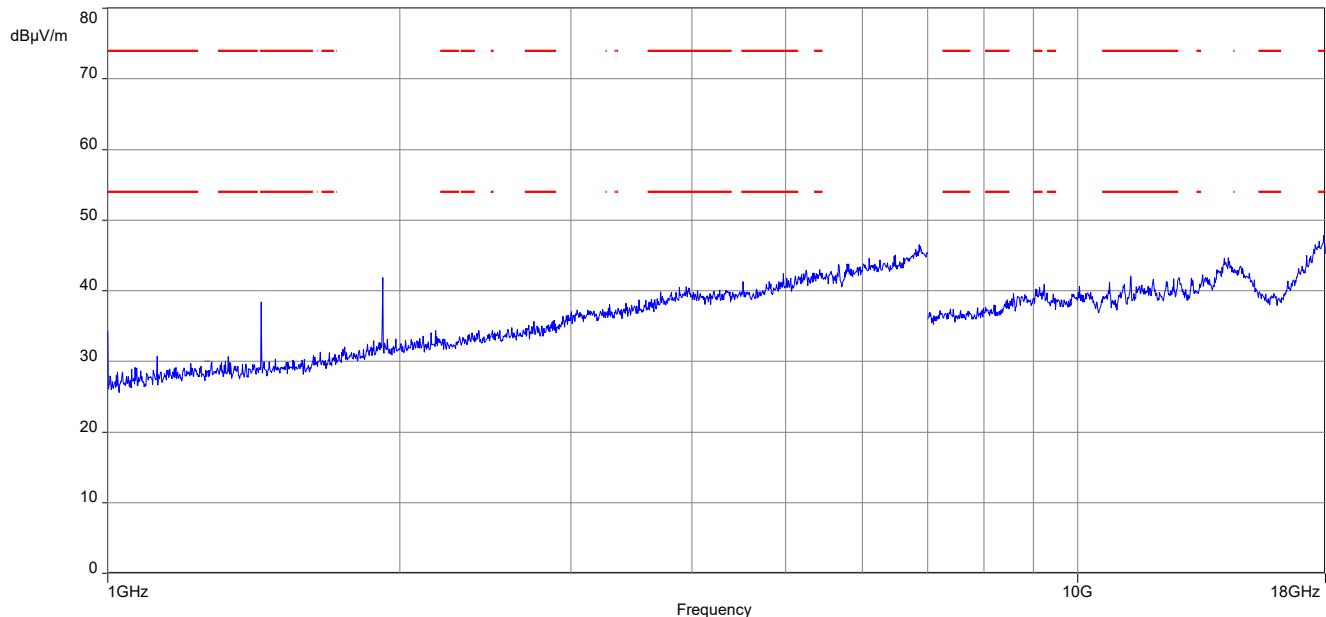
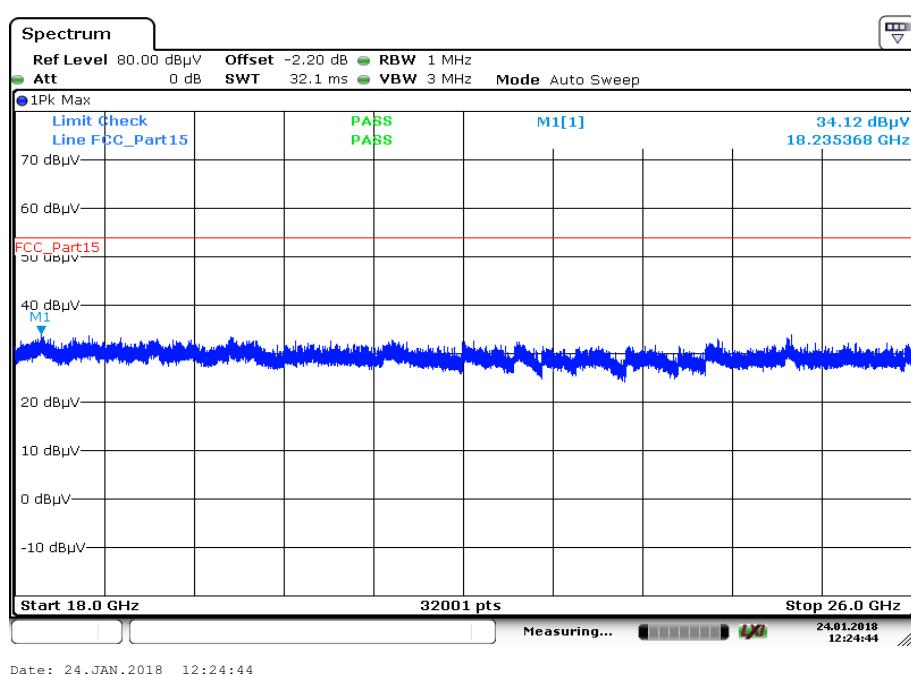
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
30.618	24.09	30.0	5.91	1000	120	101.0	V	244.0	11.9
38.075	20.18	30.0	9.82	1000	120	101.0	V	51.0	13.0
108.815	16.17	33.5	17.33	1000	120	170.0	V	106.0	11.3
137.167	14.91	33.5	18.59	1000	120	170.0	V	196.0	9.0
611.343	17.89	36.0	18.11	1000	120	170.0	V	334.0	20.8
959.997	41.39	---	---	1000	120	98.0	H	168.0	24.5

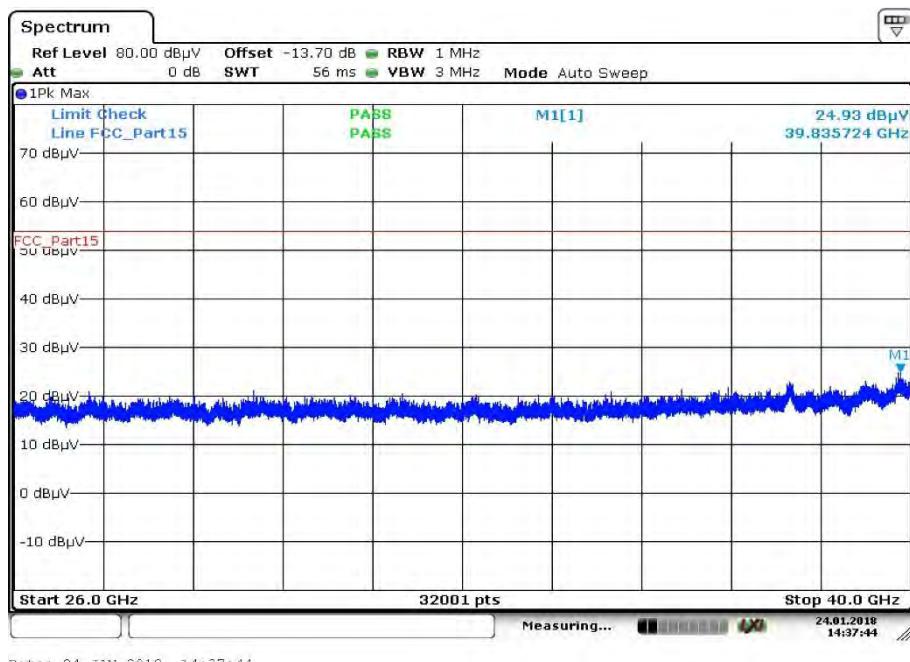
**Plot 22:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; middle channel**Plot 23:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

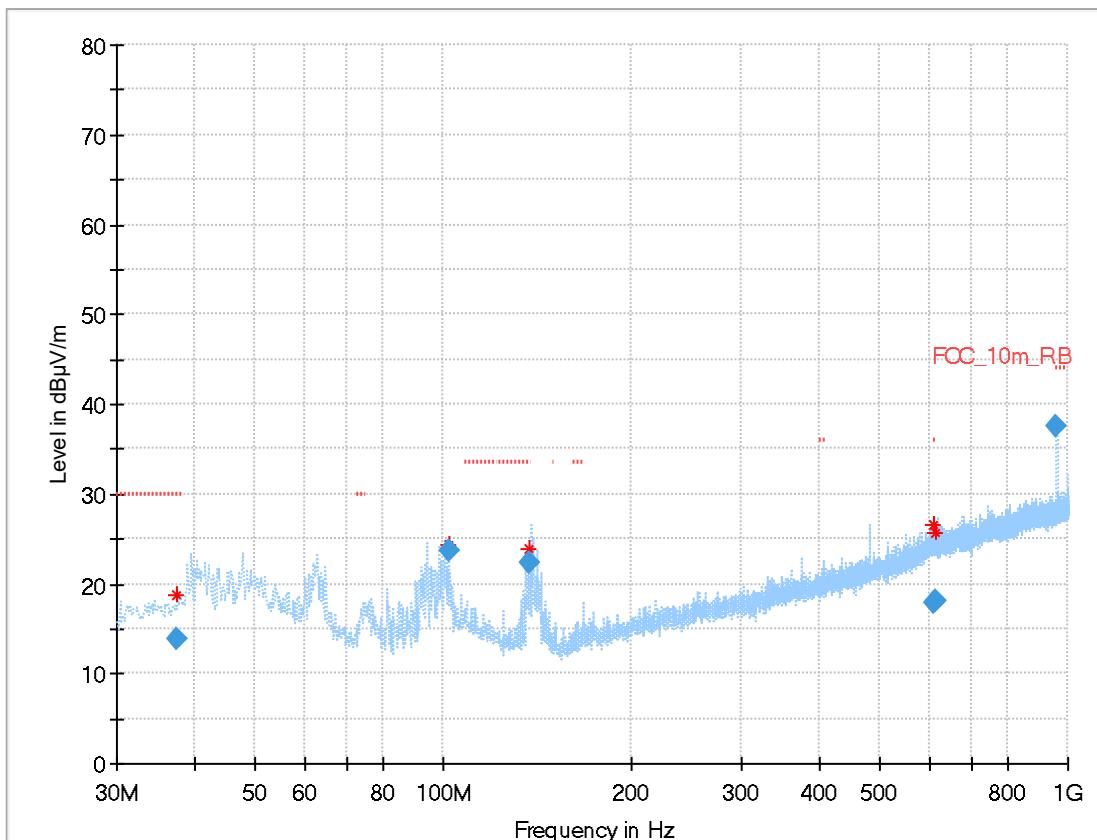
**Plot 24:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

**Plot 25:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; highest channel**Final results:**

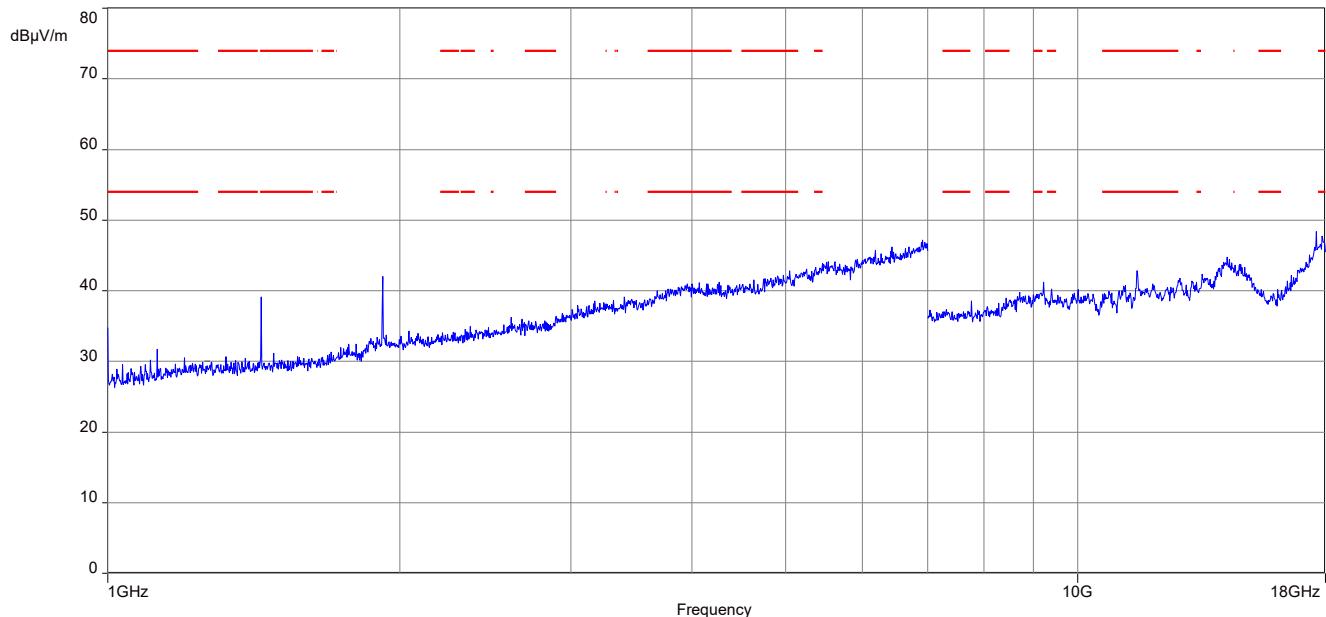
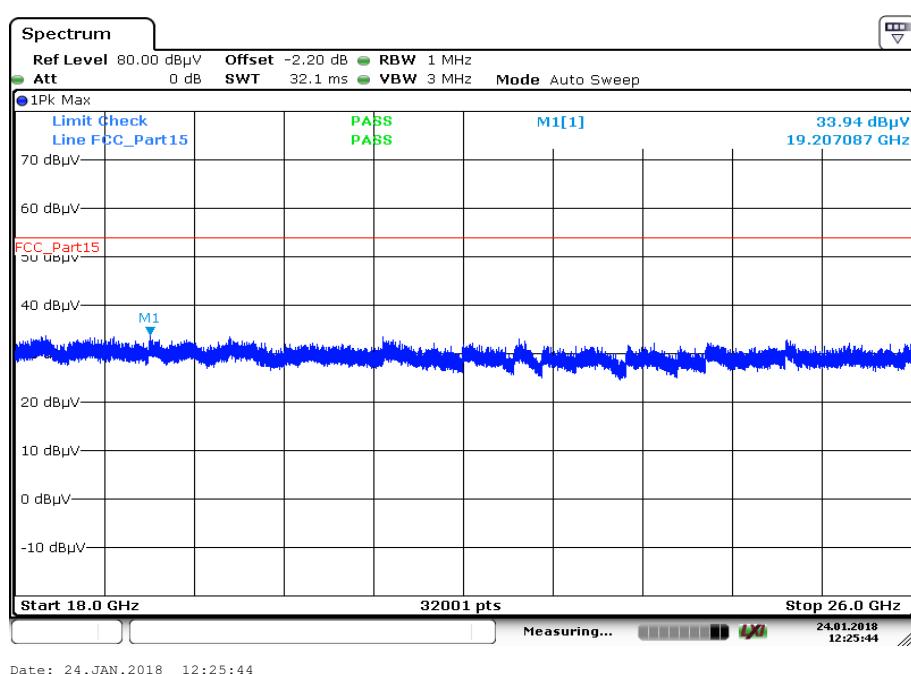
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.519	15.12	30.0	14.88	1000	120	100.0	V	-9.0	12.9
74.571	18.52	30.0	11.48	1000	120	170.0	V	347.0	8.9
137.166	22.49	33.5	11.01	1000	120	101.0	V	177.0	9.0
138.391	23.33	---	---	1000	120	101.0	V	254.0	9.0
614.327	18.08	---	---	1000	120	170.0	V	272.0	20.8
960.002	37.70	44.0	6.30	1000	120	98.0	H	324.0	24.5

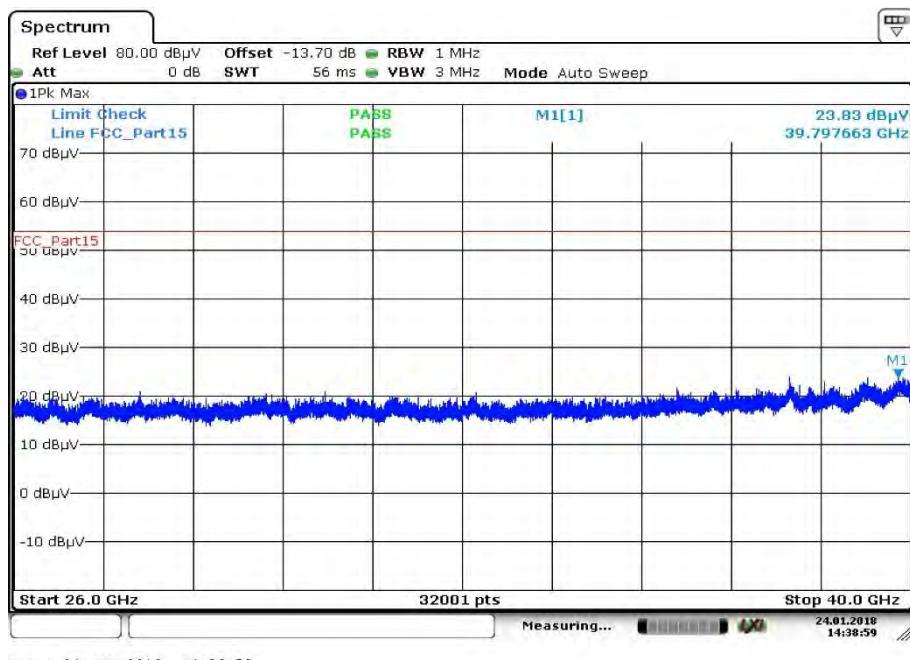
**Plot 26:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel**Plot 27:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

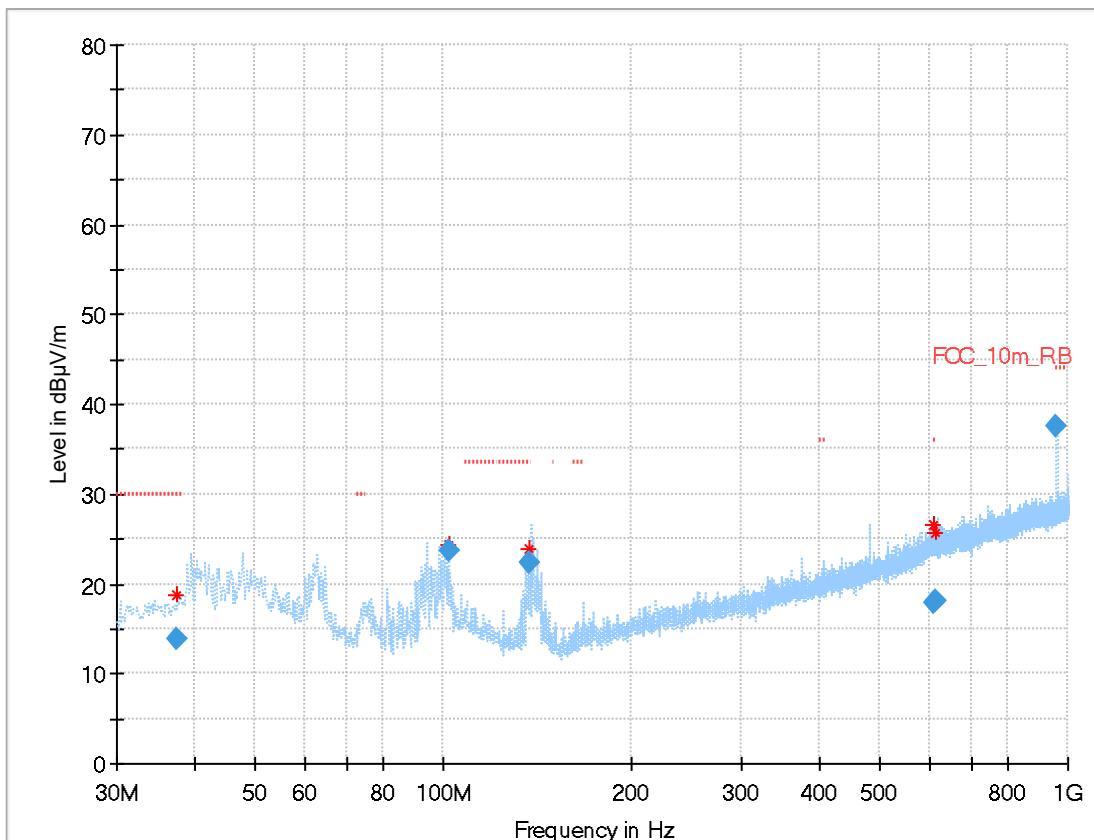
**Plot 28:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

**Plot 29:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; lowest channel**Final results:**

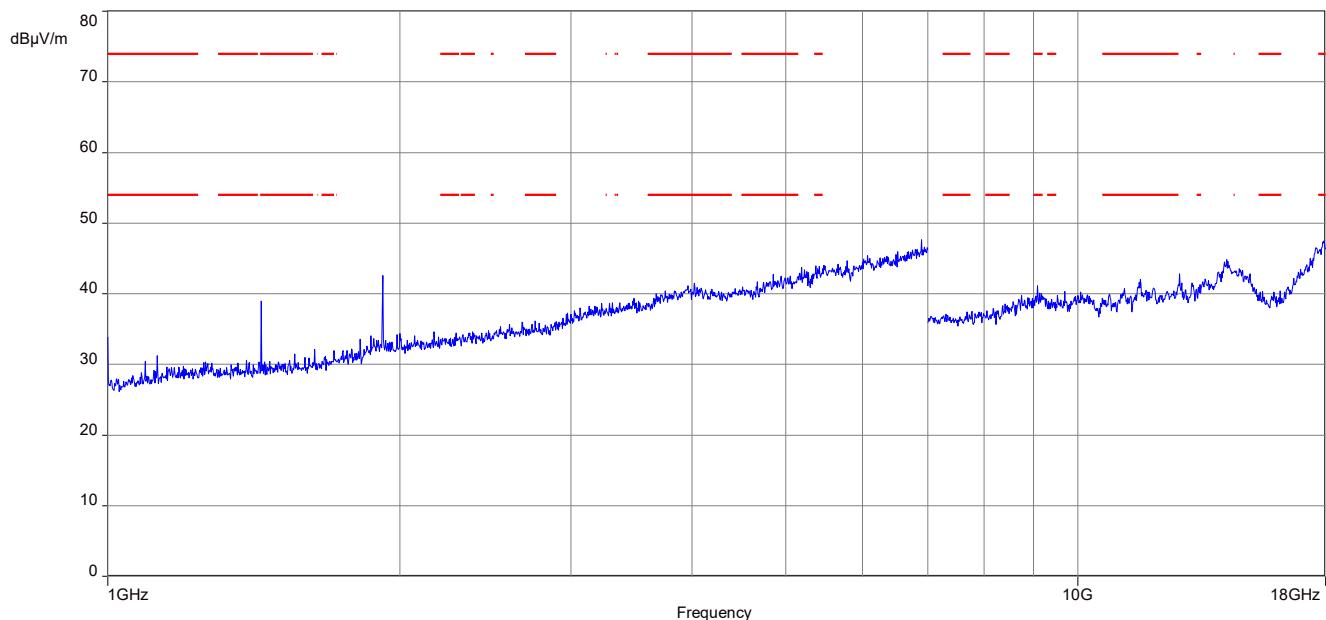
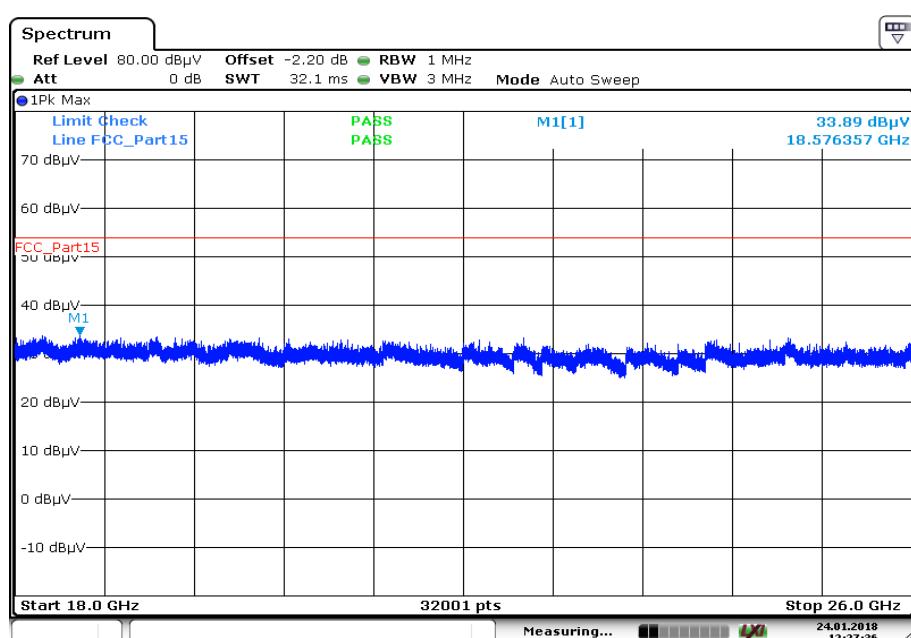
Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.514	13.83	30.0	16.17	1000	120	101.0	V	108.0	12.9
101.886	23.74	---	---	1000	120	101.0	V	265.0	11.9
137.158	22.29	33.5	11.21	1000	120	101.0	V	166.0	9.0
610.951	17.97	36.0	18.03	1000	120	170.0	H	117.0	20.8
612.761	18.06	36.0	17.94	1000	120	101.0	H	276.0	20.8
960.005	37.64	44.0	6.36	1000	120	101.0	H	200.0	24.5

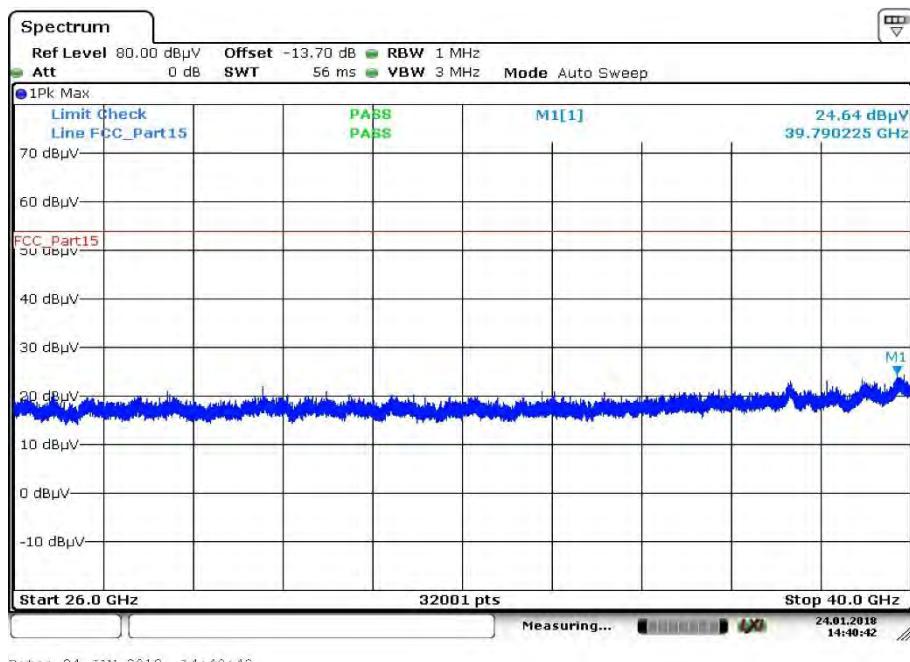
**Plot 30:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; lowest channel**Plot 31:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

**Plot 32:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

**Plot 33:** 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; highest channel**Final results:**

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
37.514	13.83	30.0	16.17	1000	120	101.0	V	108.0	12.9
101.886	23.74	---	---	1000	120	101.0	V	265.0	11.9
137.158	22.29	33.5	11.21	1000	120	101.0	V	166.0	9.0
610.951	17.97	36.0	18.03	1000	120	170.0	H	117.0	20.8
612.761	18.06	36.0	17.94	1000	120	101.0	H	276.0	20.8
960.005	37.64	44.0	6.36	1000	120	101.0	H	200.0	24.5

**Plot 34:** 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel**Plot 35:** 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; highest channel

**Plot 36:** 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; highest channel

Date: 24.JAN.2018 14:40:42

## 11.12 RX spurious emissions radiated

### Description:

Measurement of the radiated spurious emissions in idle/receive mode.

### Measurement:

Measurement parameter	
Detector:	Quasi Peak below 1 GHz (alternative Peak) Peak above 1 GHz / RMS
Sweep time:	Auto
Resolution bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: 1 MHz
Video bandwidth:	F < 1 GHz: 100 kHz F > 1 GHz: ≥ 3 MHz
Span:	30 MHz to 40 GHz
Trace mode:	Max Hold / Average with 100 counts + 20 log (1 / X) for duty cycle lower than 100 %
Test setup:	See sub clause 6.1 – A See sub clause 6.2 – C See sub clause 6.3 – A
Measurement uncertainty:	See sub clause 8

### Limits:

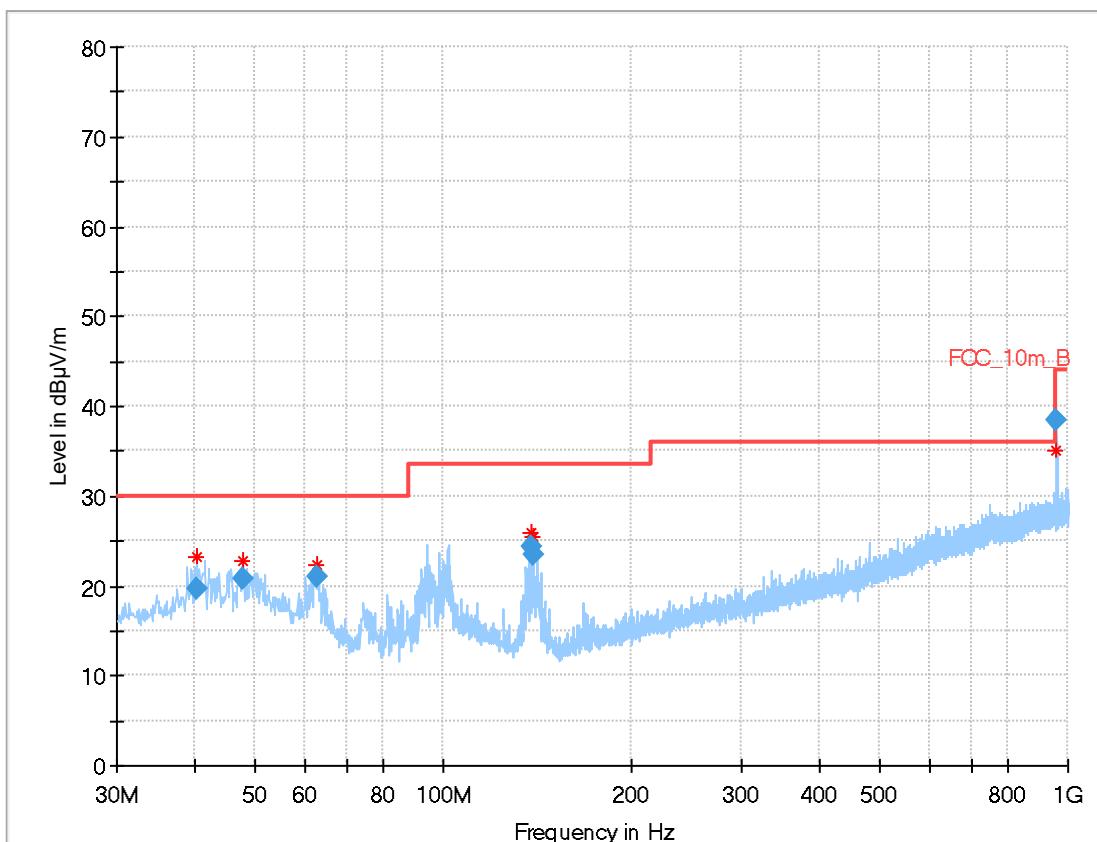
RX Spurious Emissions Radiated		
Frequency (MHz)	Field Strength (dB $\mu$ V/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

### Results:

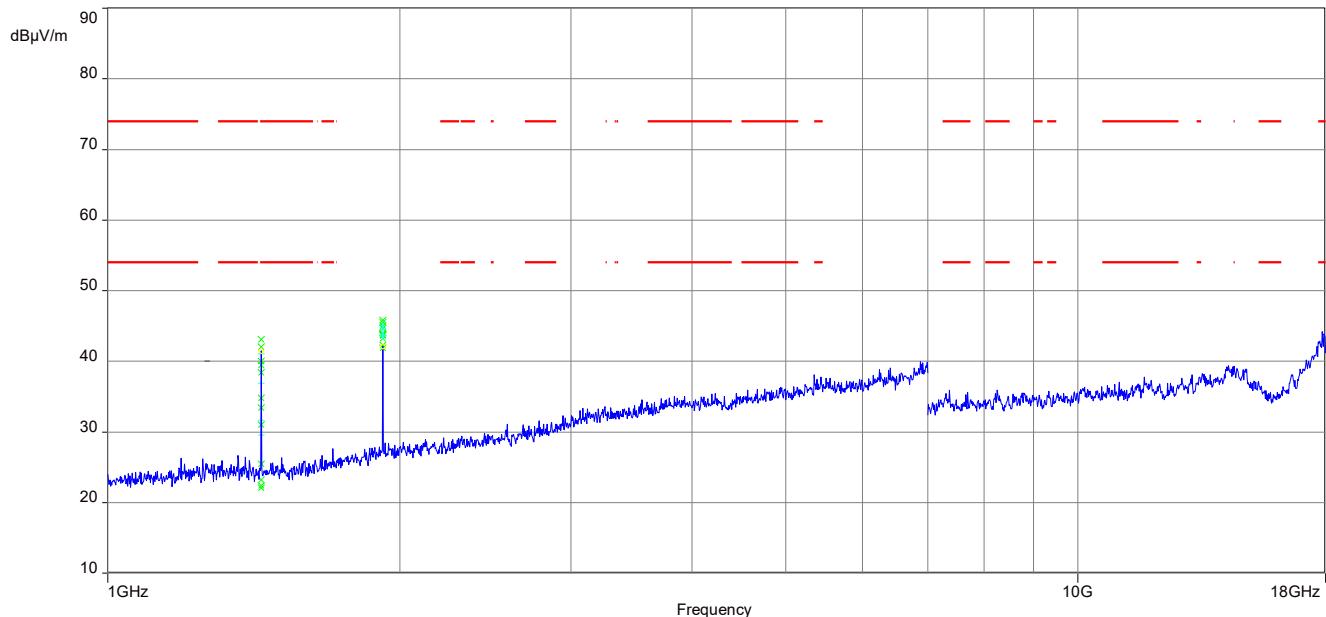
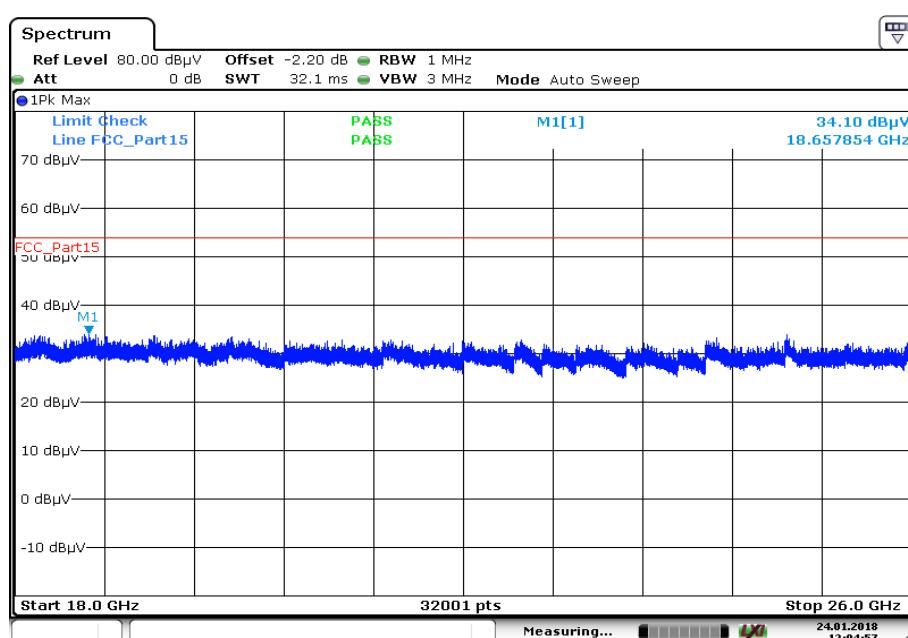
RX Spurious Emissions Radiated [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
1440	Peak	43.1
1440	RMS	42.1
1920	Peak	45.8
1920	RMS	44.7

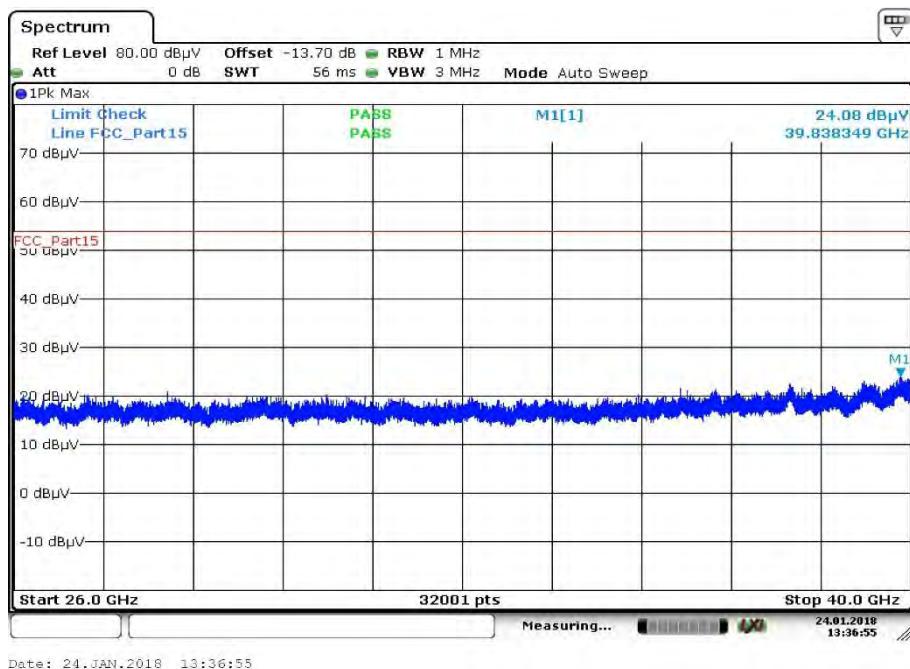
**Plots:**

**Plot 1:** 30 MHz to 1 GHz, vertical & horizontal polarization

**Final results:**

Frequency (MHz)	QuasiPeak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
40.322	19.77	30.0	10.23	1000	120	101.0	V	20.0	13.2
47.820	20.85	30.0	9.15	1000	120	101.0	V	31.0	13.7
62.772	21.01	30.0	8.99	1000	120	98.0	V	92.0	11.2
138.402	24.37	33.5	9.13	1000	120	170.0	V	195.0	9.0
139.199	23.53	33.5	9.97	1000	120	170.0	V	172.0	8.9
960.025	38.54	44.0	5.46	1000	120	101.0	H	327.0	24.5

**Plot 2:** 1 GHz to 18 GHz, vertical & horizontal polarization**Plot 3:** 18 GHz to 26 GHz, vertical & horizontal polarization

**Plot 4:** 26 GHz to 40 GHz, vertical & horizontal polarization

## 11.13 Spurious emissions conducted < 30 MHz

### Description:

Measurement of the conducted spurious emissions in transmit mode below 30 MHz. The EUT is set to middle channel. If critical peaks are found the lowest channel and the highest channel will be measured too. Both power lines, phase and neutral line, are measured. Found peaks are re-measured with average and quasi peak detection to show compliance to the limits.

### Measurement:

Measurement parameter	
Detector:	Peak - Quasi Peak / Average
Sweep time:	Auto
Video bandwidth:	9 kHz
Resolution bandwidth:	100 kHz
Span:	150 kHz to 30 MHz
Trace mode:	Max Hold
Test setup:	See sub clause 6.4 – A
Measurement uncertainty:	See sub clause 8

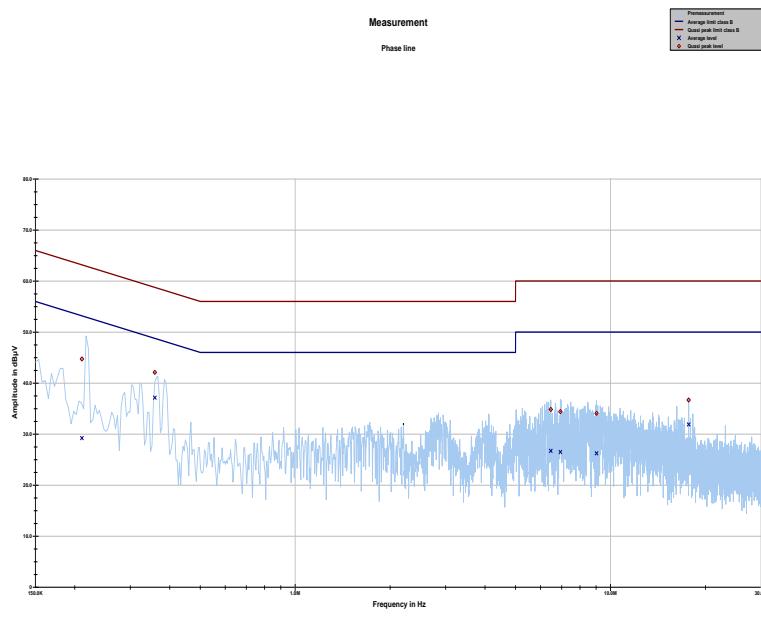
### Limits:

Spurious Emissions Conducted < 30 MHz		
Frequency (MHz)	Quasi-Peak (dB $\mu$ V/m)	Average (dB $\mu$ V/m)
0.15 – 0.5	66 to 56*	56 to 46*
0.5 – 5	56	46
5 – 30.0	60	50

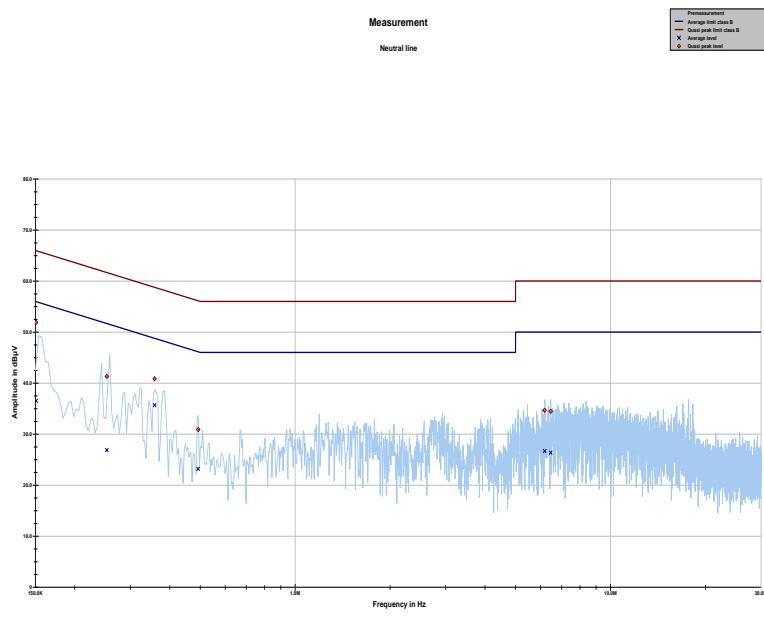
\*Decreases with the logarithm of the frequency

### Results:

Spurious Emissions Conducted < 30 MHz [dB $\mu$ V/m]		
F [MHz]	Detector	Level [dB $\mu$ V/m]
All detected emissions are more than 20 dB below the limit.		

**Plots:****Plot 1:** 150 kHz to 30 MHz, phase line**Final results:**

Frequency	Quasi peak level	Margin quasi peak	Limit QP	Average level	Margin average	Limit AV
MHz	dB $\mu$ V	dB	dB $\mu$ V	dB $\mu$ V	dB	dB $\mu$ V
<b>0.210773</b>	44.72	18.45	63.175	29.21	25.05	54.264
<b>0.358833</b>	42.11	16.65	58.755	37.15	12.89	50.033
<b>6.464232</b>	34.83	25.17	60.000	26.73	23.27	50.000
<b>6.936196</b>	34.40	25.60	60.000	26.48	23.52	50.000
<b>9.032072</b>	34.07	25.93	60.000	26.23	23.77	50.000
<b>17.694080</b>	36.68	23.32	60.000	31.90	18.10	50.000

**Plot 2:** 150 kHz to 30 MHz, neutral line**Final results:**

Frequency	Quasi peak level	Margin quasi peak	Limit QP	Average level	Margin average	Limit AV
MHz	dBµV	dB	dBµV	dBµV	dB	dBµV
<b>0.150914</b>	51.88	14.07	65.950	36.51	19.46	55.974
<b>0.252801</b>	41.31	20.36	61.665	26.87	26.19	53.063
<b>0.358300</b>	40.85	17.92	58.768	35.67	14.38	50.049
<b>0.492779</b>	30.89	25.23	56.121	23.19	23.02	46.206
<b>6.180900</b>	34.67	25.33	60.000	26.67	23.33	50.000
<b>6.462263</b>	34.47	25.53	60.000	26.36	23.64	50.000

## 12 Observations

No observations except those reported with the single test cases have been made.

## Annex A    Glossary

<b>EUT</b>	Equipment under test
<b>DUT</b>	Device under test
<b>UUT</b>	Unit under test
<b>GUE</b>	GNSS User Equipment
<b>ETSI</b>	European Telecommunications Standards Institute
<b>EN</b>	European Standard
<b>FCC</b>	Federal Communications Commission
<b>FCC ID</b>	Company Identifier at FCC
<b>IC</b>	Industry Canada
<b>PMN</b>	Product marketing name
<b>HMN</b>	Host marketing name
<b>HVIN</b>	Hardware version identification number
<b>FVIN</b>	Firmware version identification number
<b>EMC</b>	Electromagnetic Compatibility
<b>HW</b>	Hardware
<b>SW</b>	Software
<b>Inv. No.</b>	Inventory number
<b>S/N or SN</b>	Serial number
<b>C</b>	Compliant
<b>NC</b>	Not compliant
<b>NA</b>	Not applicable
<b>NP</b>	Not performed
<b>PP</b>	Positive peak
<b>QP</b>	Quasi peak
<b>AVG</b>	Average
<b>OC</b>	Operating channel
<b>OCW</b>	Operating channel bandwidth
<b>OBW</b>	Occupied bandwidth
<b>OOB</b>	Out of band
<b>DFS</b>	Dynamic frequency selection
<b>CAC</b>	Channel availability check
<b>OP</b>	Occupancy period
<b>NOP</b>	Non occupancy period
<b>DC</b>	Duty cycle
<b>PER</b>	Packet error rate
<b>CW</b>	Clean wave
<b>MC</b>	Modulated carrier
<b>WLAN</b>	Wireless local area network
<b>RLAN</b>	Radio local area network
<b>DSSS</b>	Dynamic sequence spread spectrum
<b>OFDM</b>	Orthogonal frequency division multiplexing
<b>FHSS</b>	Frequency hopping spread spectrum
<b>GNSS</b>	Global Navigation Satellite System
<b>C/N<sub>0</sub></b>	Carrier to noise-density ratio, expressed in dB-Hz

## Annex B Document history

Version	Applied changes	Date of release
-/-	Initial release	2018-02-21

## Annex C Accreditation Certificate

first page	last page
 <p>Deutsche Akkreditierungsstelle GmbH</p> <p>Entrusted according to Section 8 subsection 1 AkkStelleG in connection with Section 1 subsection 1 AkkStelleGBV Signatory to the Multilateral Agreements of EA, ILAC and IAF for Mutual Recognition</p> <p><b>Accreditation</b> </p> <p>The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory <b>CTC advanced GmbH</b> Untertürkheimer Straße 6-10, 66117 Saarbrücken</p> <p>is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields: Telecommunication</p> <p>The accreditation certificate shall only apply in connection with the notice of accreditation of 02.06.2017 with the accreditation number D-PL-12076-01 and is valid until 21.04.2021. It comprises the cover sheet, the reverse side of the cover sheet and the following annex with a total of 43 pages.</p> <p>Registration number of the certificate: D-PL-12076-01-03</p> <p>Frankfurt, 02.06.2017 Dirk M. (FH) Ritter Head of Division</p> <p>See notes on reverse!</p>	<p>Deutsche Akkreditierungsstelle GmbH</p> <p>Office Berlin Spittelmarkt 10 10117 Berlin</p> <p>Office Frankfurt am Main Europa-Allee 52 60327 Frankfurt am Main</p> <p>Office Braunschweig Bundesallee 100 38116 Braunschweig</p> <p>The publication of extracts of the accreditation certificate is subject to the prior written approval by Deutsche Akkreditierungsstelle GmbH (DAkkS). Exempted is the unchanged form of separate disseminations of the cover sheet by the conformity assessment body mentioned overleaf.</p> <p>No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkkS.</p> <p>The accreditation was granted pursuant to the Act on the Accreditation Body (AkkStelleG) of 31 July 2009 (Federal Law Gazette I p. 2625) and the Regulation (EC) No 765/2008 of the European Parliament and of the Council of 9 July 2008 setting out the requirements for accreditation and market surveillance relating to the marketing of products (Official Journal of the European Union L 218 of 9 July 2008, p. 30). DAkkS is a signatory to the Multilateral Agreement for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatures to these agreements recognise each other's accreditations.</p> <p>The up-to-date state of membership can be retrieved from the following websites: EA: <a href="http://www.european-accreditation.org">www.european-accreditation.org</a> ILAC: <a href="http://www.ilac.org">www.ilac.org</a> IAF: <a href="http://www.iaf.nu">www.iaf.nu</a></p>

**Note: The current certificate annex is published on the website (link see below) of the Accreditation Body DAkkS or may be received by CTC advanced GmbH on request**

<http://www.dakks.de/as/ast/d/D-PL-12076-01-03.pdf>