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 sub clause 6.4 – A
Measurement uncertainty:	See sub clause 8

Usage:

-/-	IC
OBW is necessary for Emission Designator	

Results:

a	**99% bandwidth (kHz)**		
	U-NII-1 (5150 MHz to 5250 MHz)		
	Lowest channel	-/-	Highest channel
	16683	-/-	16783
	U-NII-2A (5250 MHz to 5350 MHz)		
	Lowest channel	-/-	Highest channel
	16683	-/-	16733
	U-NII-2C (5470 MHz to 5725 MHz)		
	Lowest channel	Middle channel	Highest channel
	16833	16733	16783
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	16733	16733	16783

Results:

n/ac HT20	**99% bandwidth (kHz)**		
	U-NII-1 (5150 MHz to 5250 MHz)		
	Lowest channel	-/-	Highest channel
	17732	-/-	17732
	U-NII-2A (5250 MHz to 5350 MHz)		
	Lowest channel	-/-	Highest channel
	17732	-/-	17682
	U-NII-2C (5470 MHz to 5725 MHz)		
	Lowest channel	Middle channel	Highest channel
	17732	17682	17732
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel	Middle channel	Highest channel
	17732	17682	17682

Results:

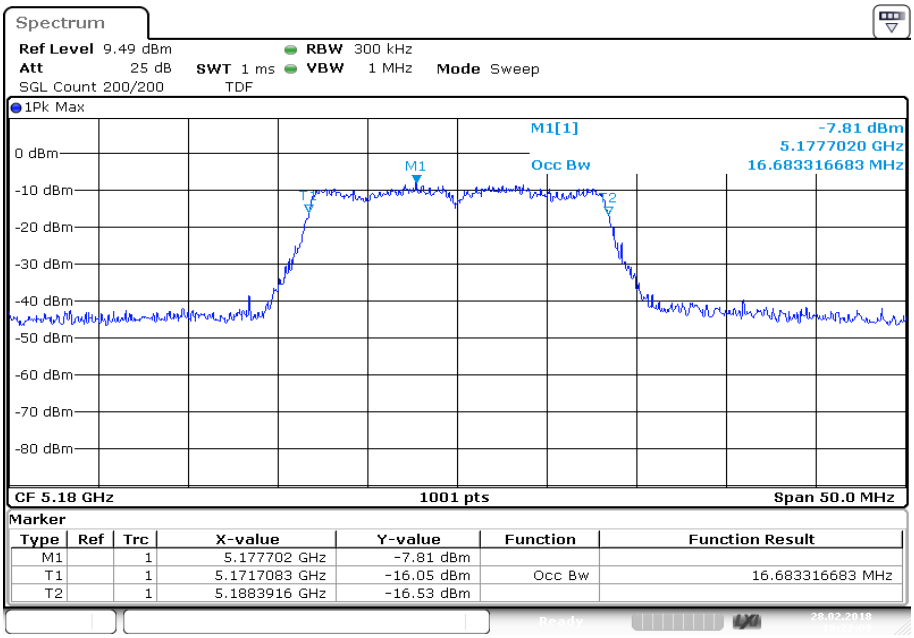
n/ac HT40	**99% bandwidth (kHz)**		
	U-NII-1 (5150 MHz to 5250 MHz)		
	Lowest channel		Highest channel
	36164		36164
	U-NII-2A (5250 MHz to 5350 MHz)		
	Lowest channel		Highest channel
	36164		36264
	U-NII-2C (5470 MHz to 5725 MHz)		
	Lowest channel	Middle channel	Highest channel
	36264	36064	36164
	U-NII-3 (5725 MHz to 5850 MHz)		
	Lowest channel		Highest channel
	36164		36264

Results:

ac H80	**99% bandwidth (kHz)**	
	U-NII-1 (5150 MHz to 5250 MHz)	
	Middle channel	
	76124	
	U-NII-2A (5250 MHz to 5350 MHz)	
	Middle channel	
	76124	
	U-NII-2C (5470 MHz to 5725 MHz)	
	Lowest channel	Highest channel
	75924	76124
	U-NII-3 (5725 MHz to 5850 MHz)	
	Middle channel	
	76124	

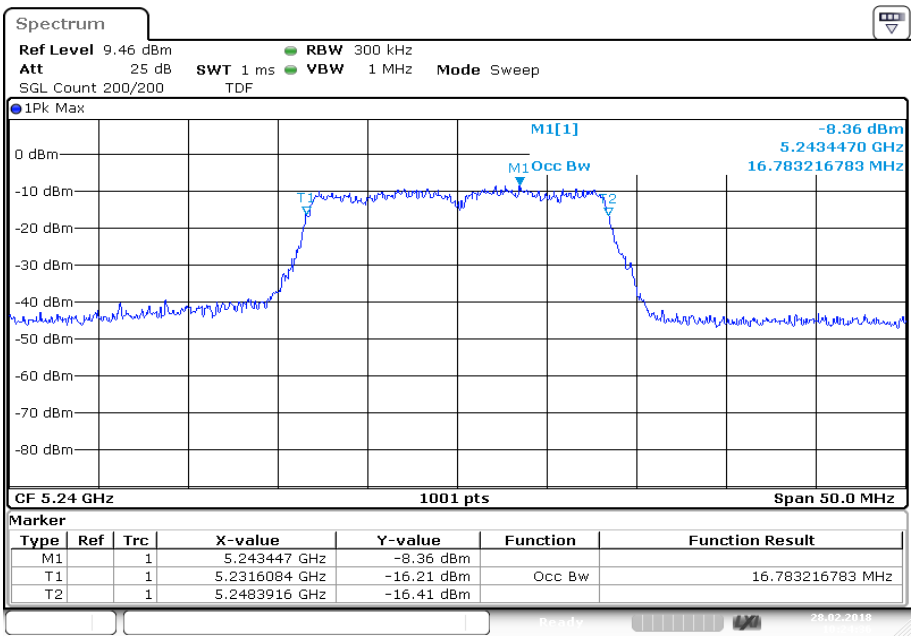
Plots: a – mode

Plot 1: U-NII-1; lowest channel



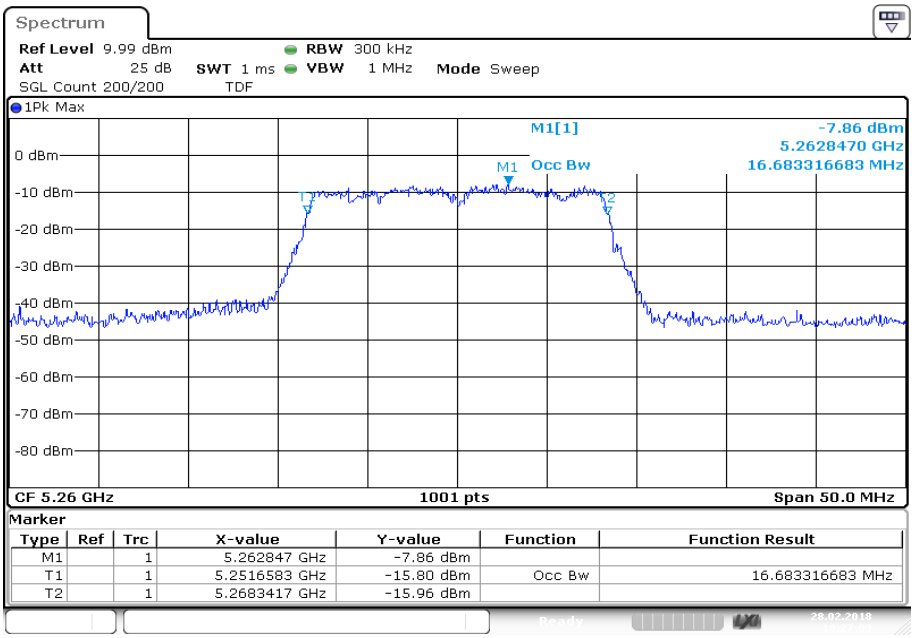
Date: 28.FEB.2018 10:22:09

Plot 2: U-NII-1; highest channel



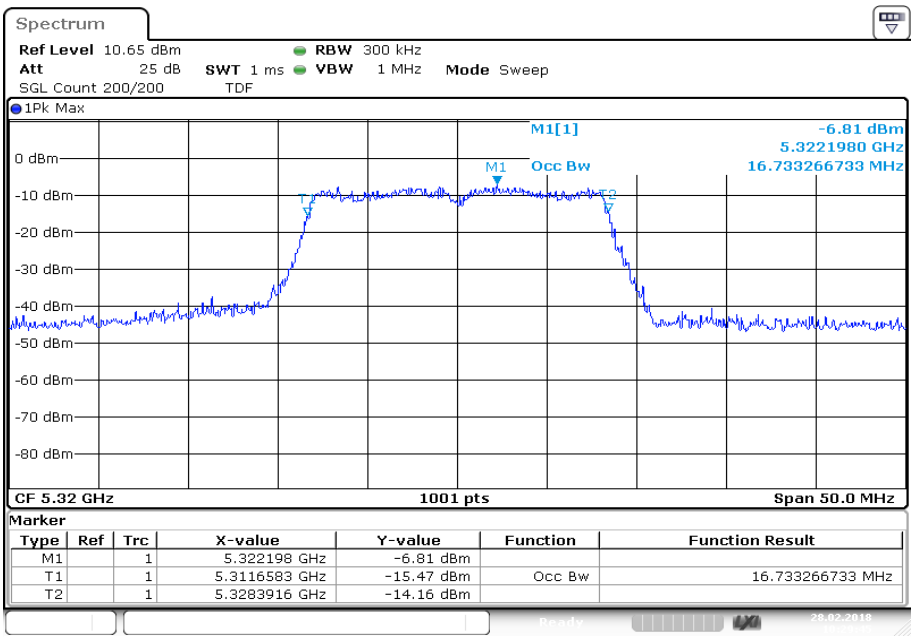
Date: 28.FEB.2018 10:24:36

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



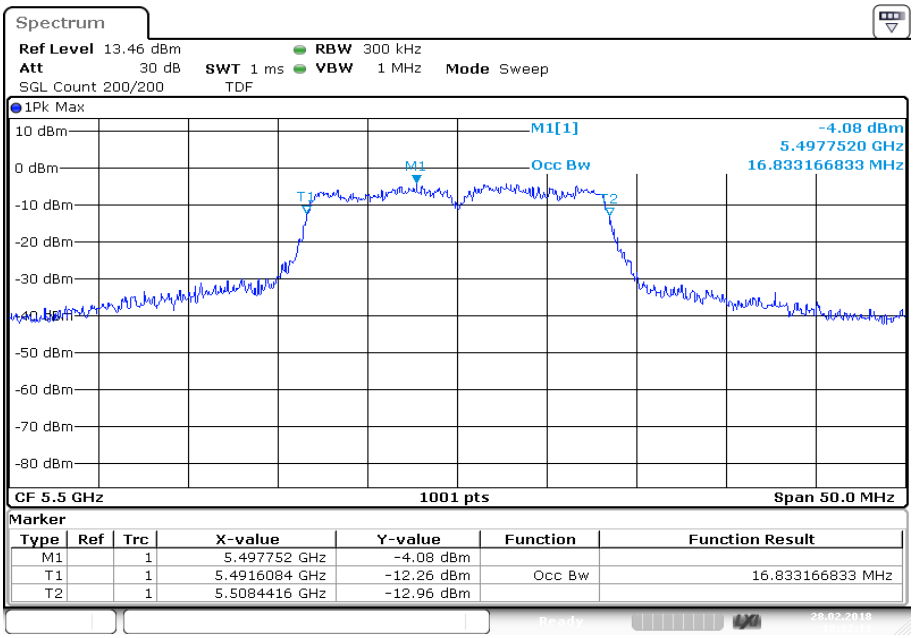
Date: 28.FEB.2018 10:27:09

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



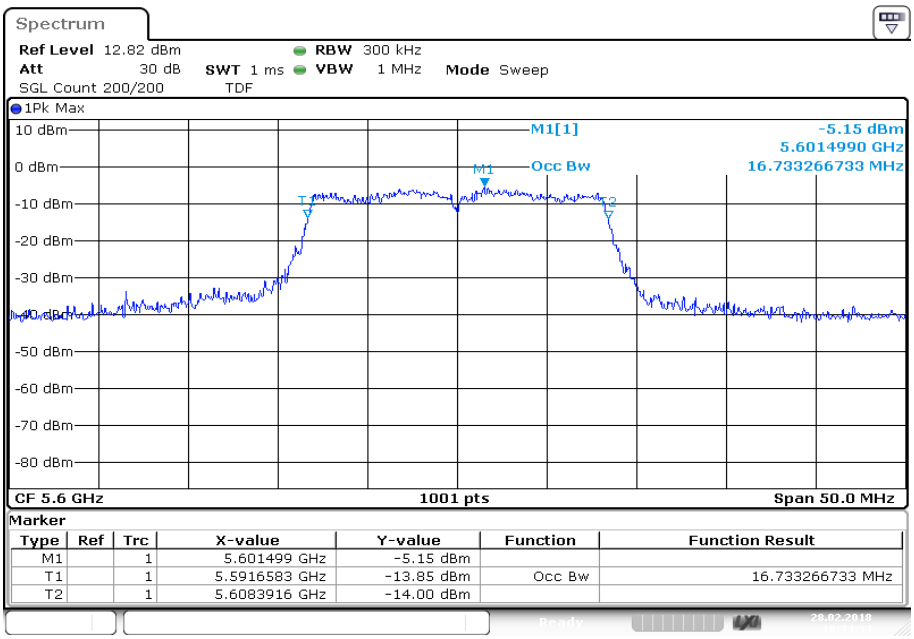
Date: 28.FEB.2018 10:29:46

Plot 5: U-NII-2C; lowest channel



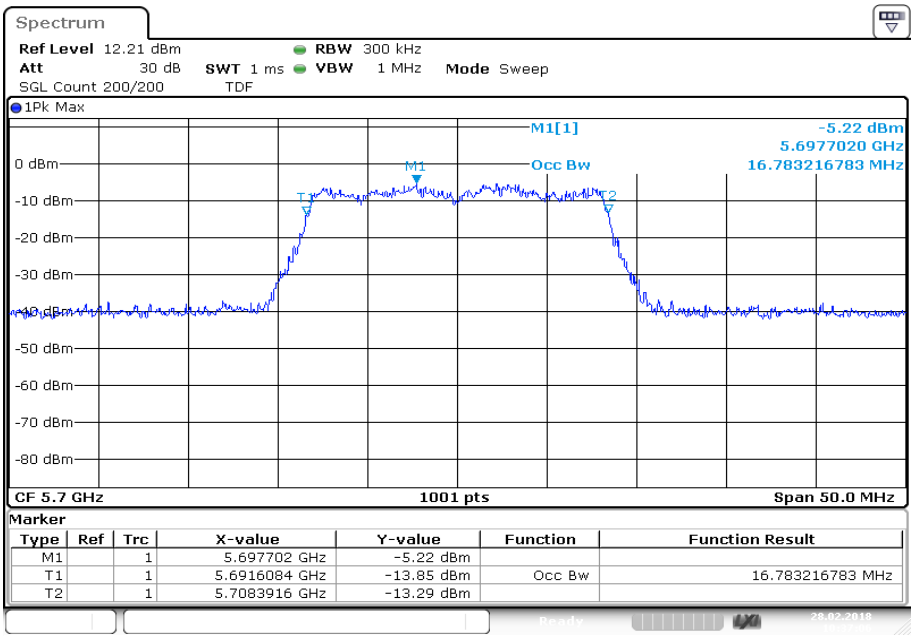
Date: 28.FEB.2018 10:32:13

Plot 6: U-NII-2C; middle channel



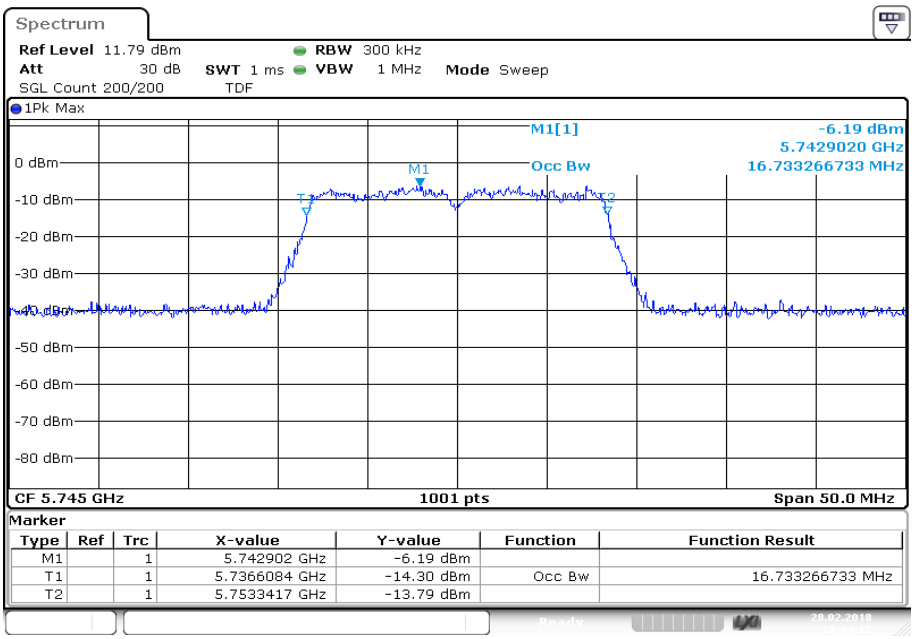
Date: 28.FEB.2018 10:34:34

Plot 7: U-NII-2C; highest channel



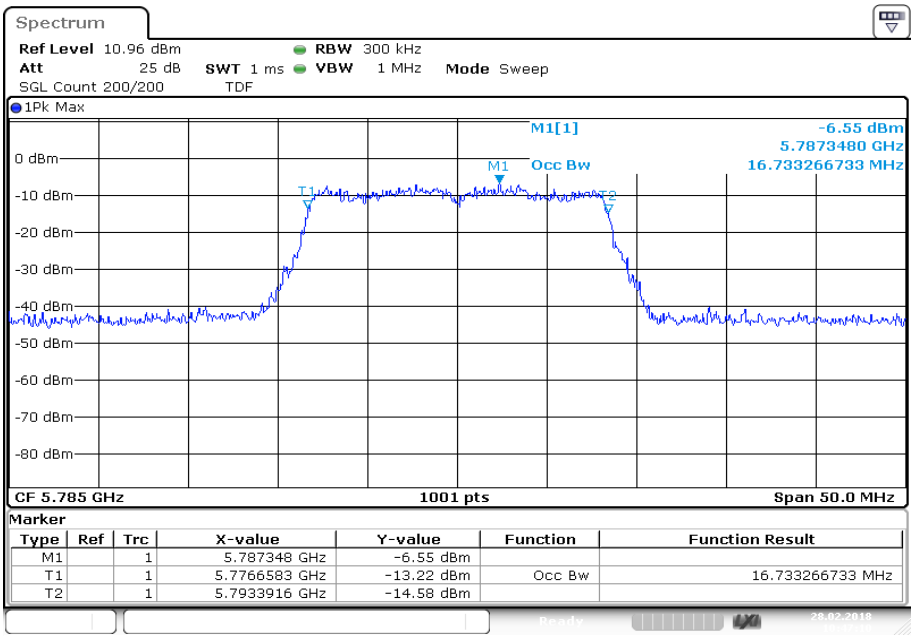
Date: 28.FEB.2018 10:37:07

Plot 8: U-NII-3; lowest channel



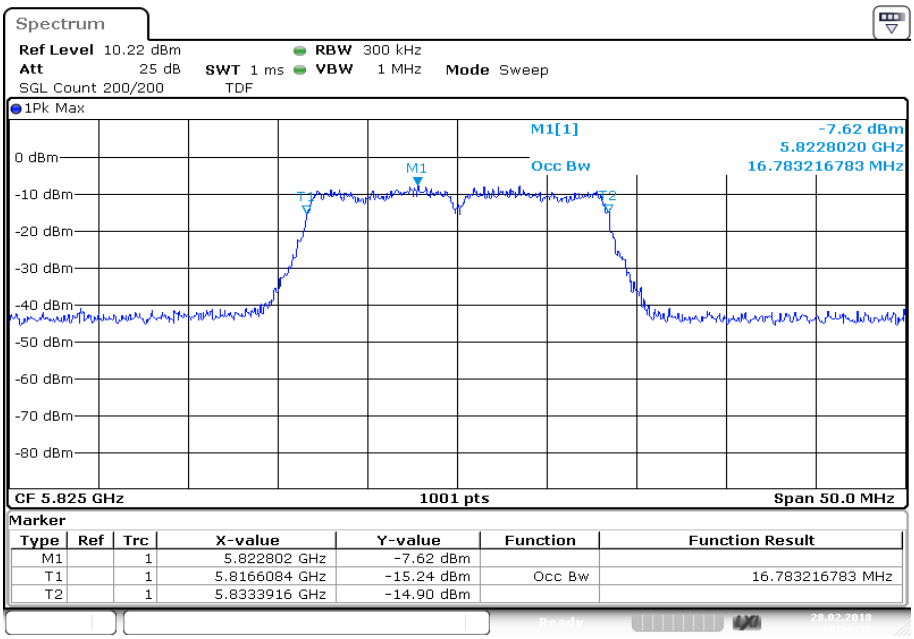
Date: 28.FEB.2018 10:44:12

Plot 9: U-NII-3; middle channel



Date: 28.FEB.2018 10:47:10

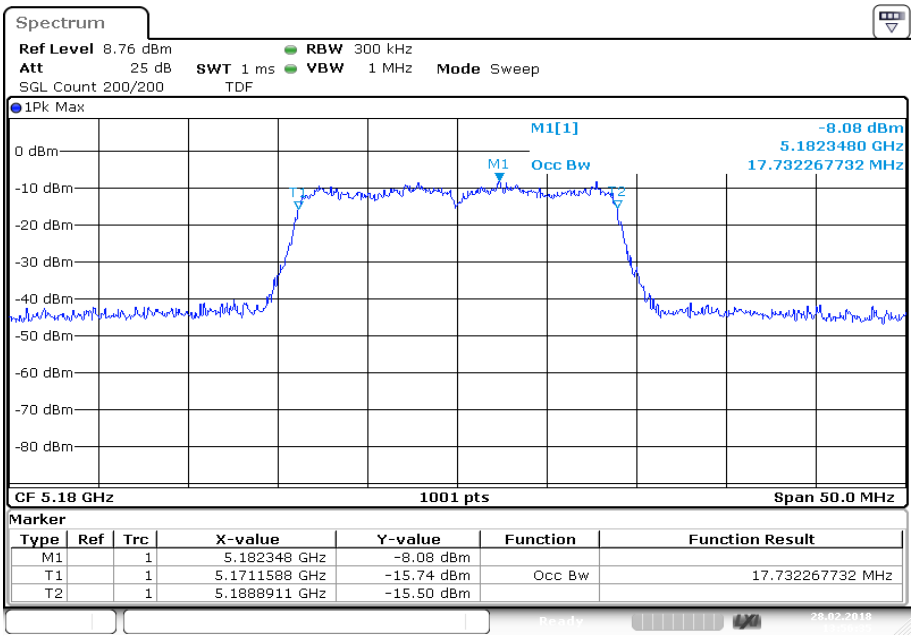
Plot 10: U-NII-3; highest channel



Date: 28.FEB.2018 10:50:11

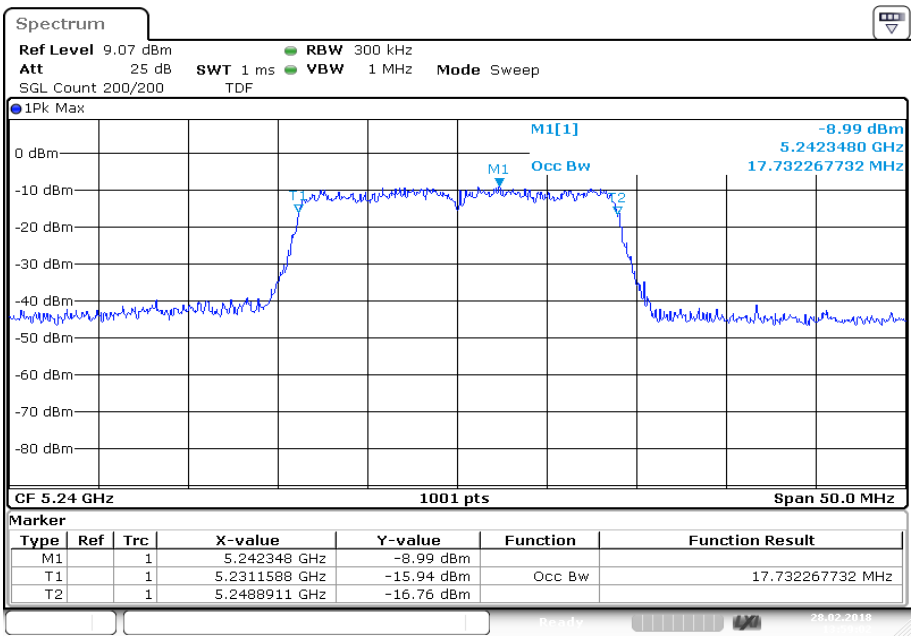
Plots: n/ac HT20 – mode

Plot 1: U-NII-1; lowest channel



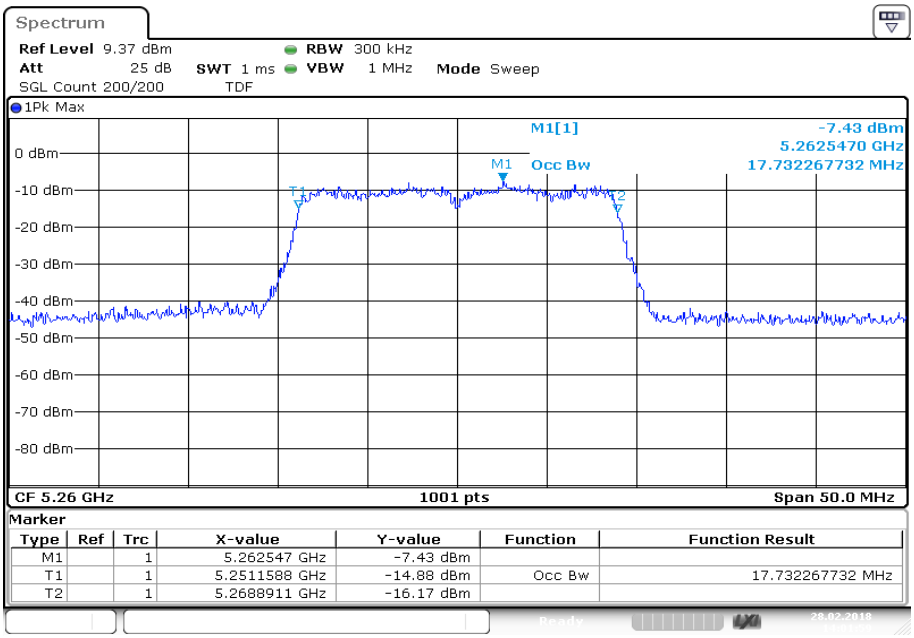
Date: 28.FEB.2018 13:56:35

Plot 2: U-NII-1; highest channel



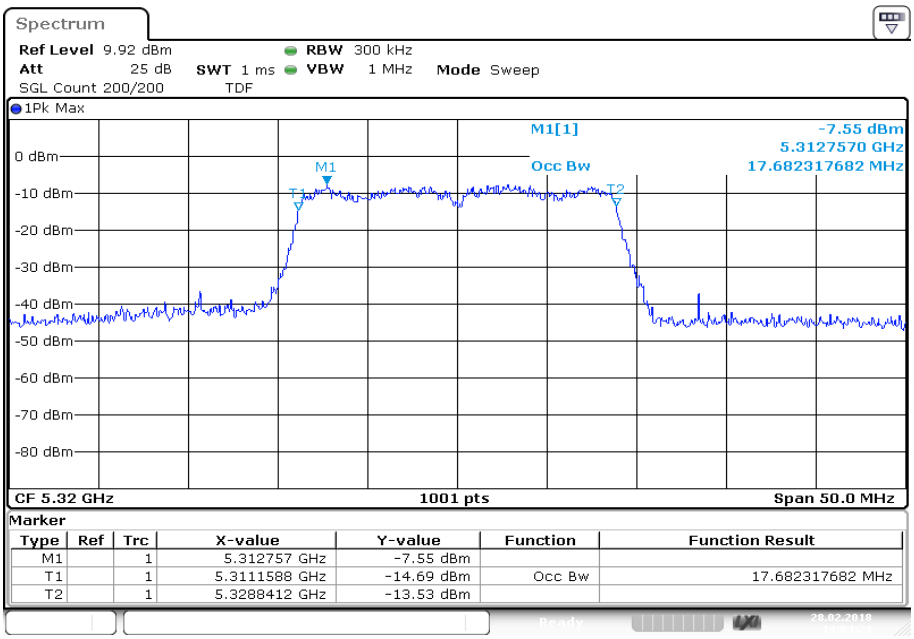
Date: 28.FEB.2018 13:59:02

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



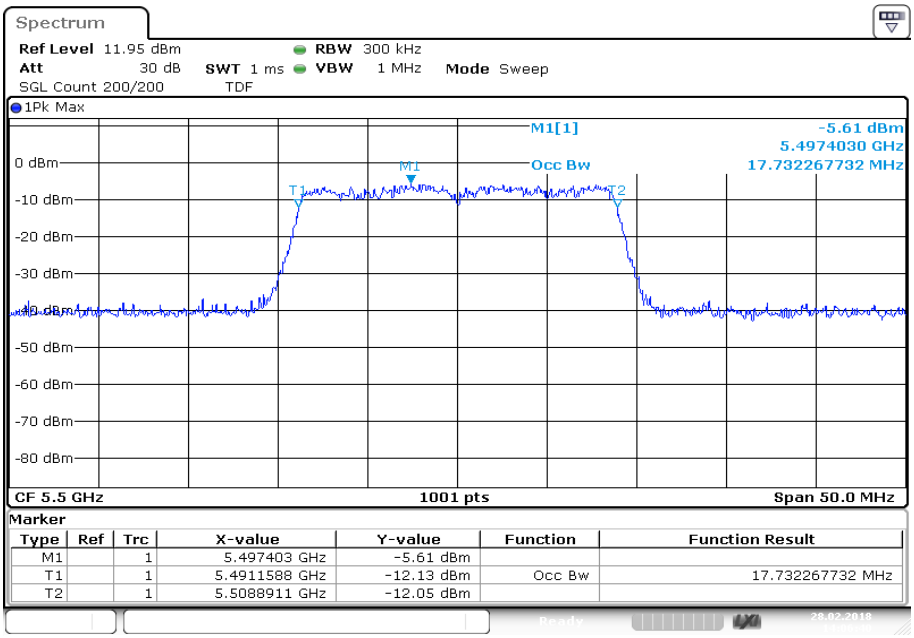
Date: 28.FEB.2018 14:01:59

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



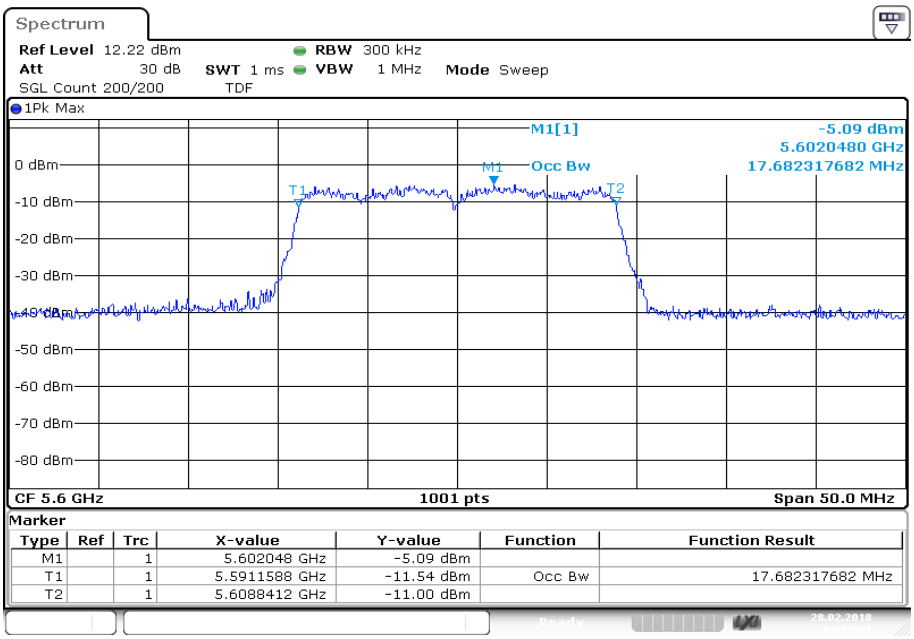
Date: 28.FEB.2018 14:04:23

Plot 5: U-NII-2C; lowest channel



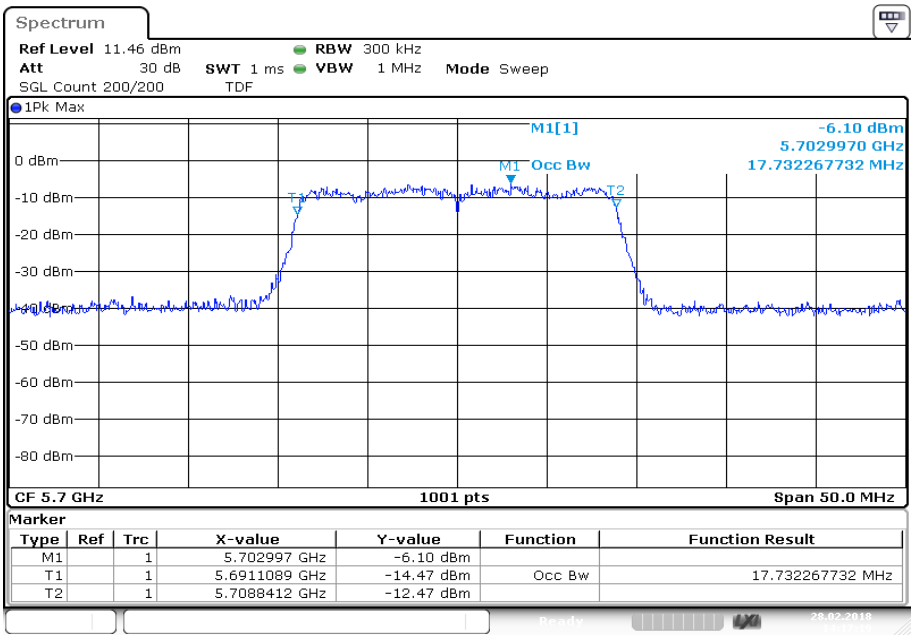
Date: 28.FEB.2018 14:06:41

Plot 6: U-NII-2C; middle channel



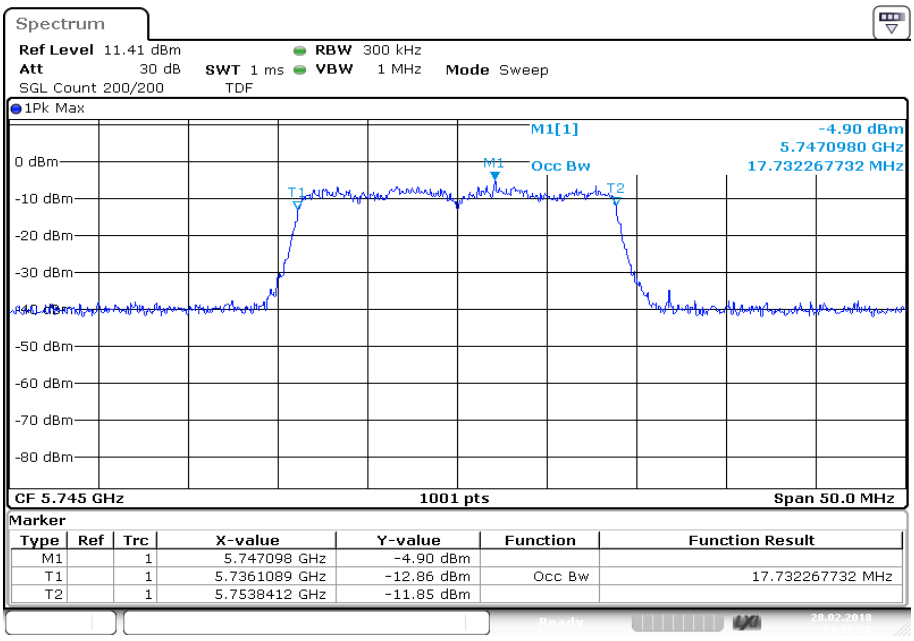
Date: 28.FEB.2018 14:15:02

Plot 7: U-NII-2C; highest channel



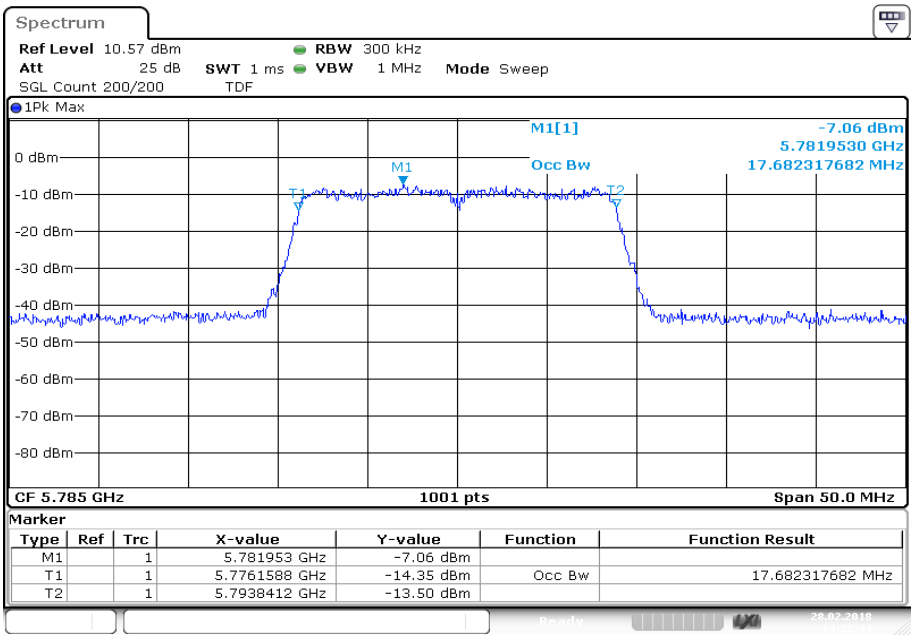
Date: 28.FEB.2018 14:17:19

Plot 8: U-NII-3; lowest channel



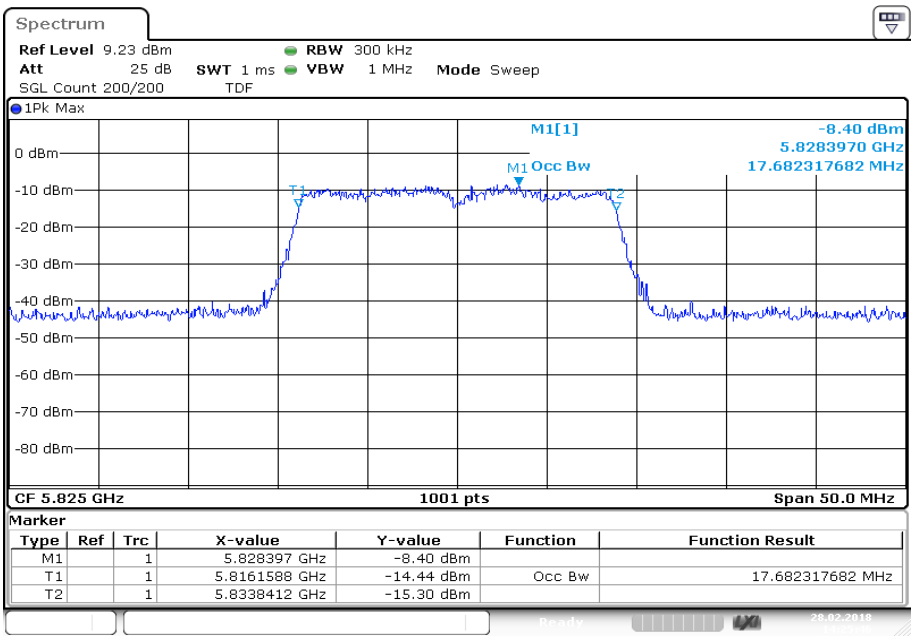
Date: 28.FEB.2018 14:19:38

Plot 9: U-NII-3; middle channel



Date: 28.FEB.2018 14:22:44

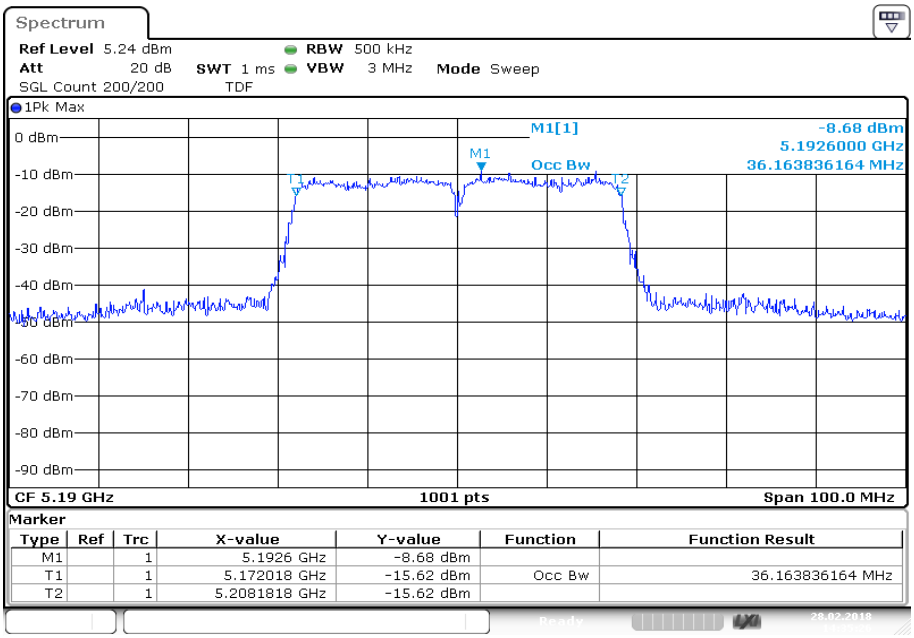
Plot 10: U-NII-3; highest channel



Date: 28.FEB.2018 14:25:46

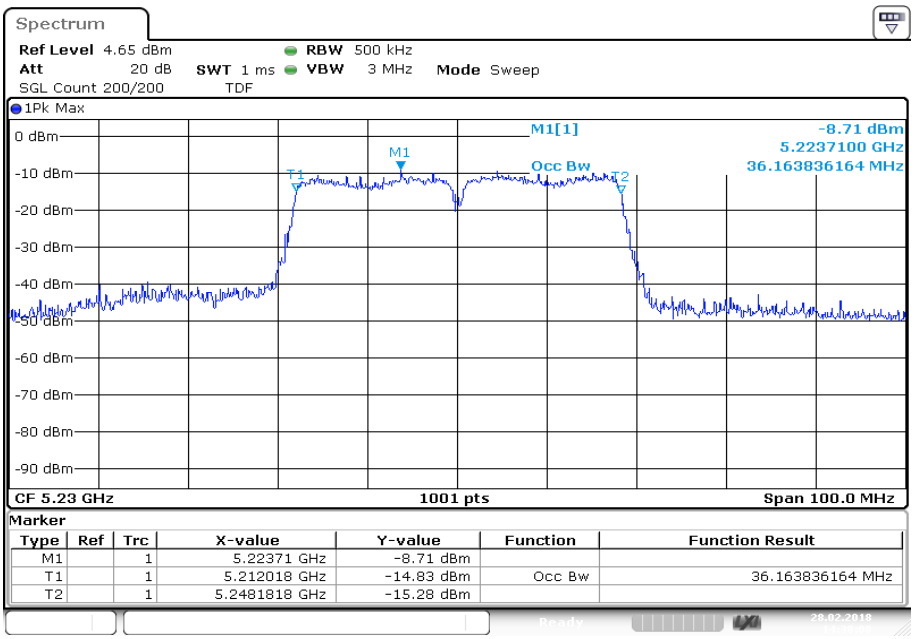
Plots: n/ac HT40 – mode

Plot 1: U-NII-1; lowest channel



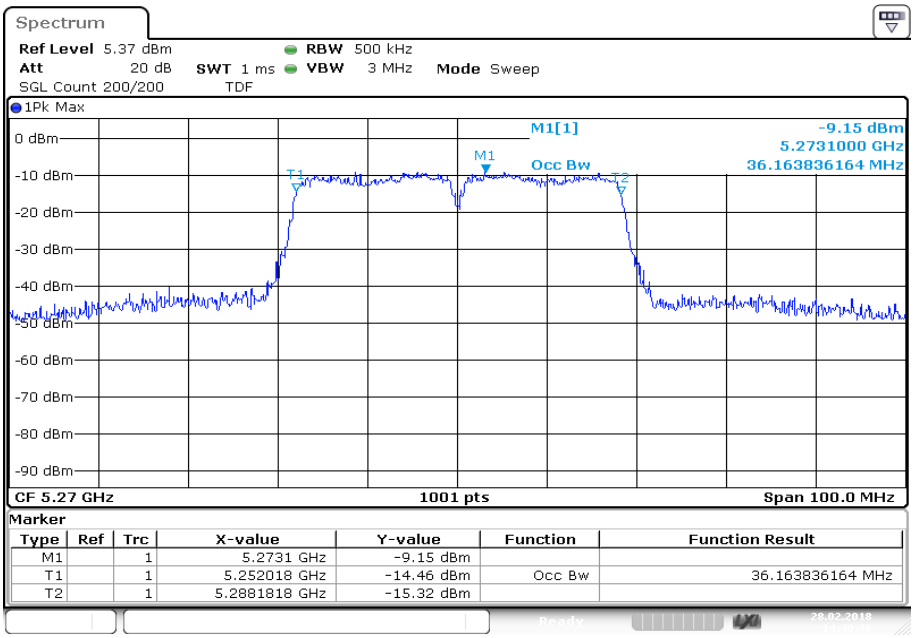
Date: 28.FEB.2018 14:35:26

Plot 2: U-NII-1; highest channel



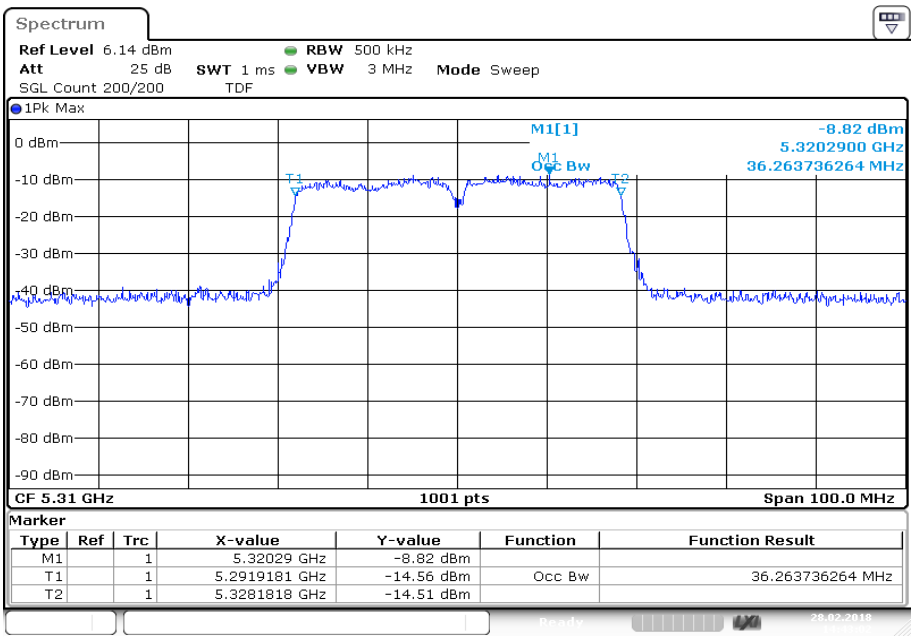
Date: 28.FEB.2018 14:38:08

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



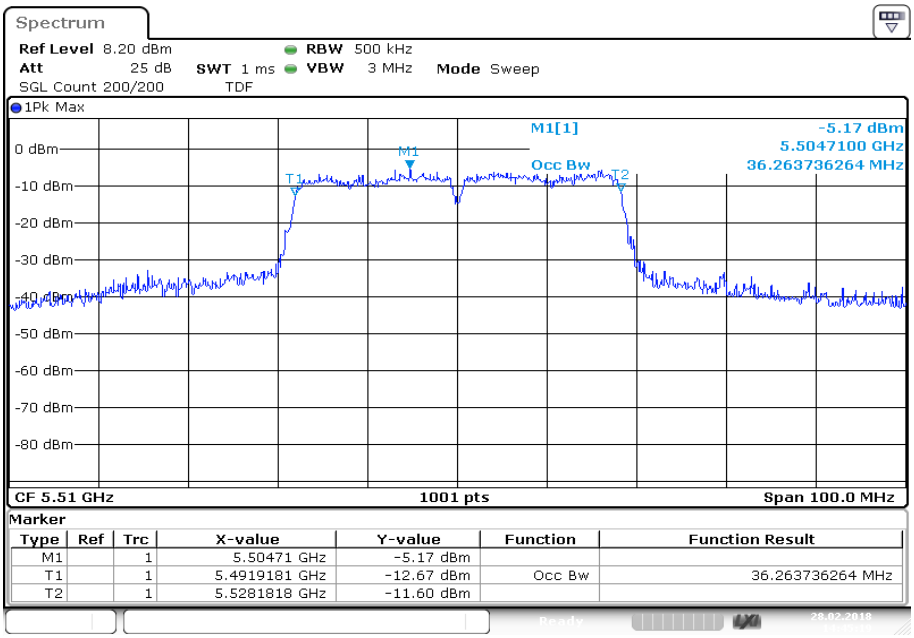
Date: 28.FEB.2018 14:40:36

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



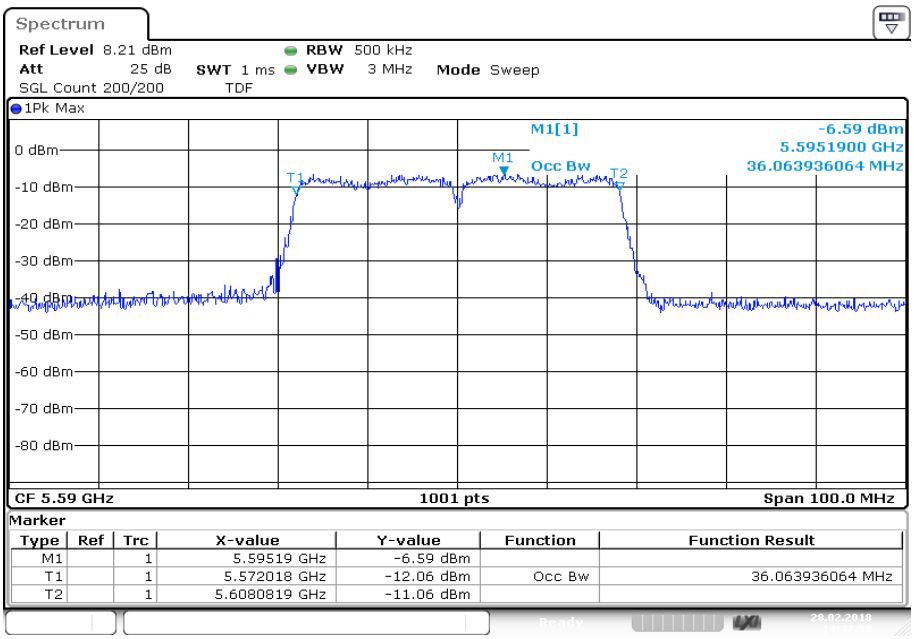
Date: 28.FEB.2018 14:43:02

Plot 5: U-NII-2C; lowest channel



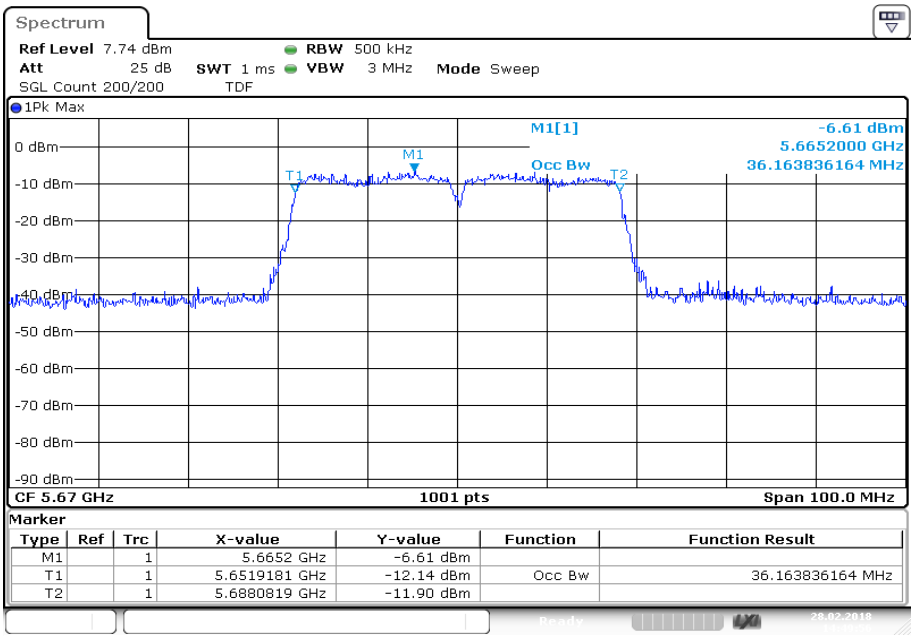
Date: 28.FEB.2018 14:45:19

Plot 6: U-NII-2C; middle channel



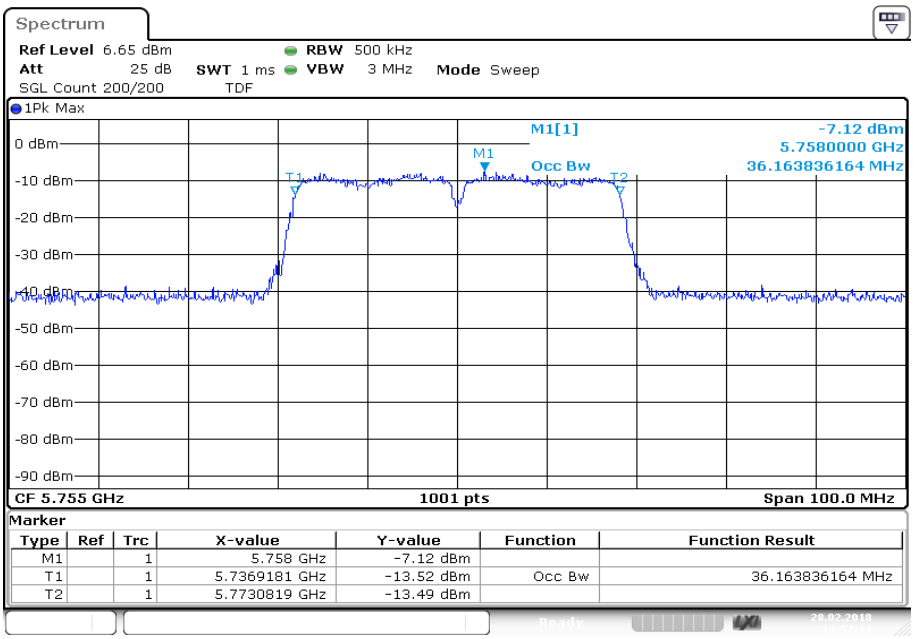
Date: 28.FEB.2018 14:47:39

Plot 7: U-NII-2C; highest channel



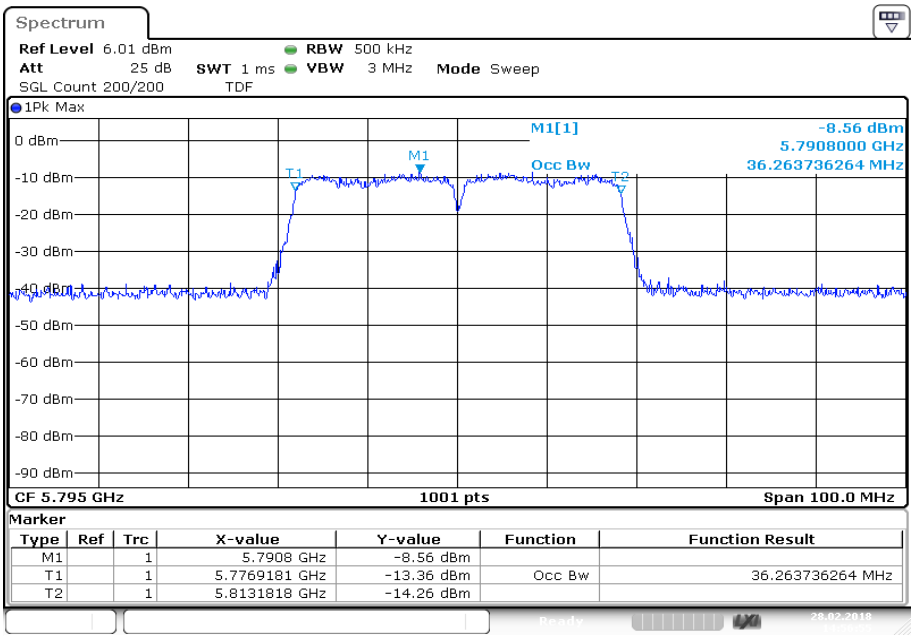
Date: 28.FEB.2018 14:49:56

Plot 8: U-NII-3; lowest channel



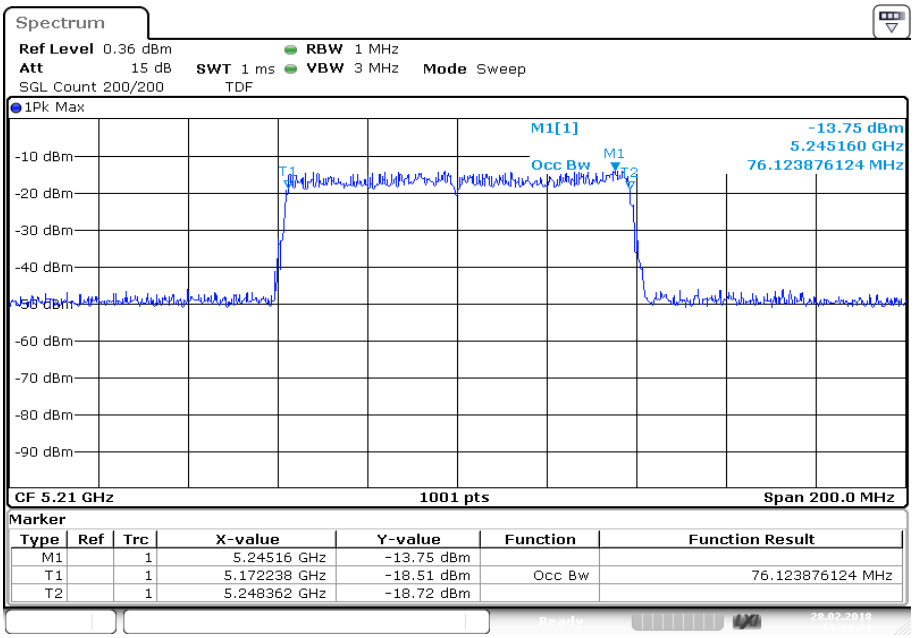
Date: 28.FEB.2018 14:52:12

Plot 9: U-NII-3; highest channel



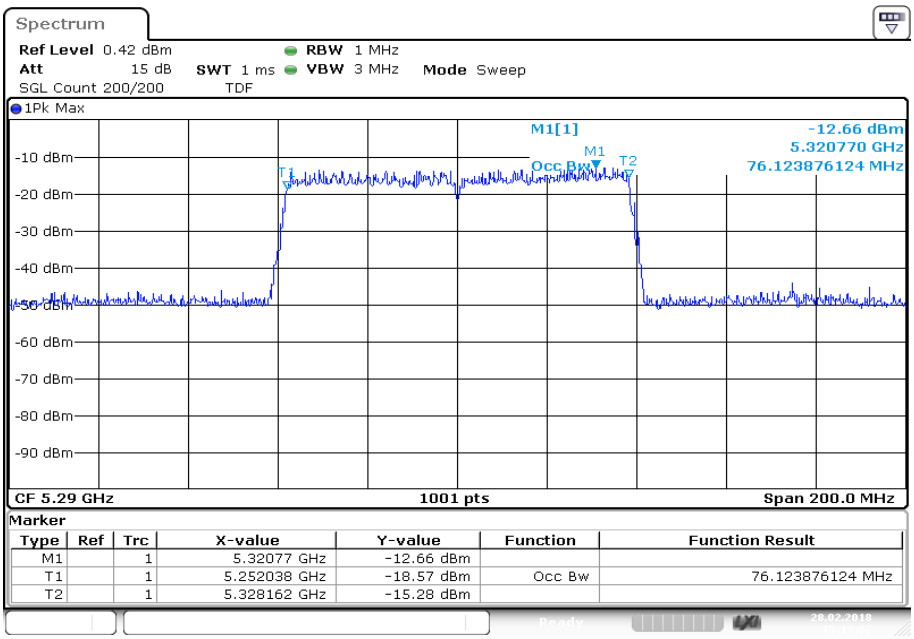
Plots: ac HT80 – mode

Plot 1: U-NII-1; middle channel



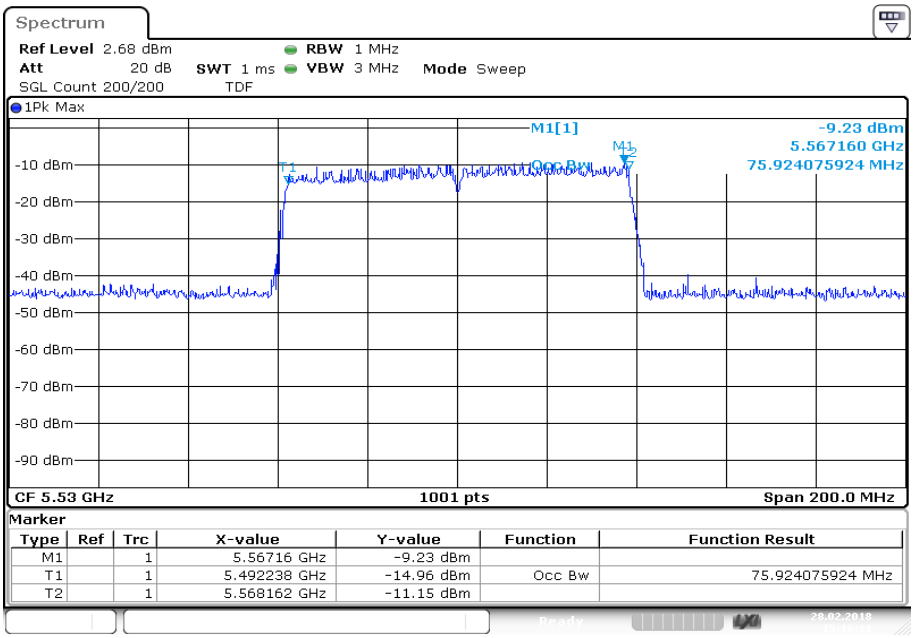
Date: 28.FEB.2018 15:09:21

Plot 2: U-NII-2A; middle channel



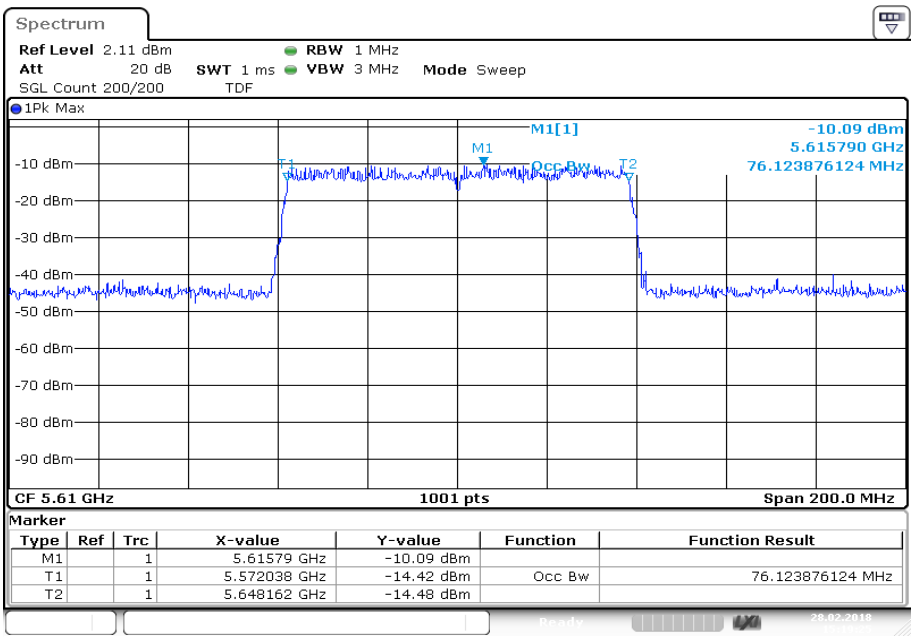
Date: 28.FEB.2018 15:13:02

Plot 3: U-NII-2C; lowest channel



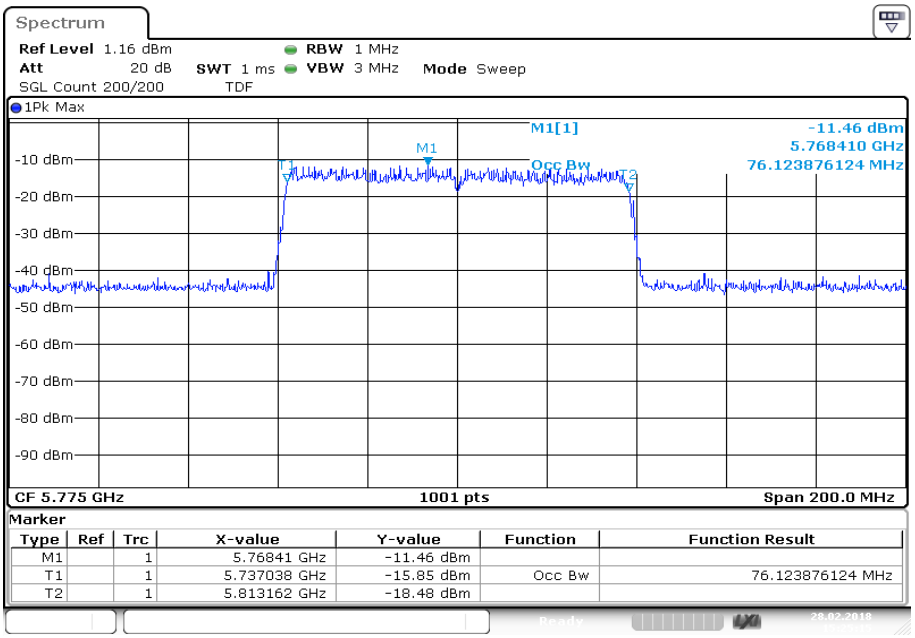
Date: 28.FEB.2018 15:16:12

Plot 4: U-NII-2C; highest channel



Date: 28.FEB.2018 15:19:26

Plot 5: U-NII-3; middle channel



Date: 28.FEB.2018 15:25:16

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:	≥ 3 x RBW
Span:	See plots!
Trace mode:	Max Hold
Test setup:	See sub clause 6.2 – B
Measurement uncertainty:	See sub clause 8

Limits:

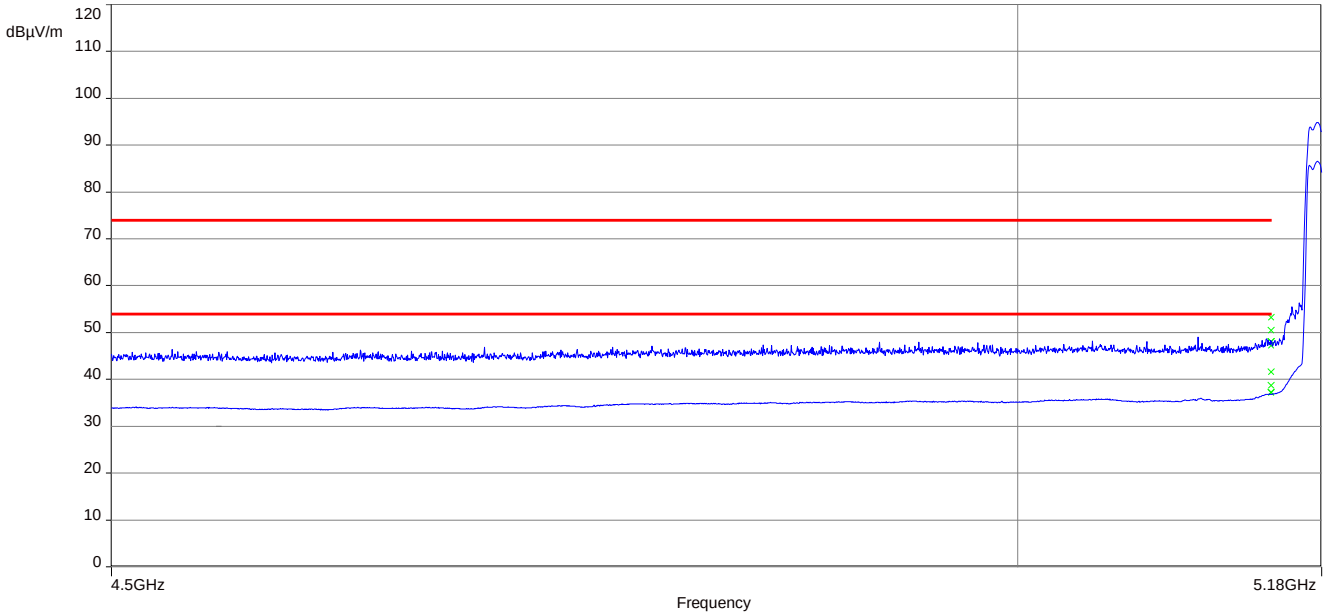
Band Edge Compliance Radiated
In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within 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 dBµV/m (peak) 54 dBµV/m (average)

Result:

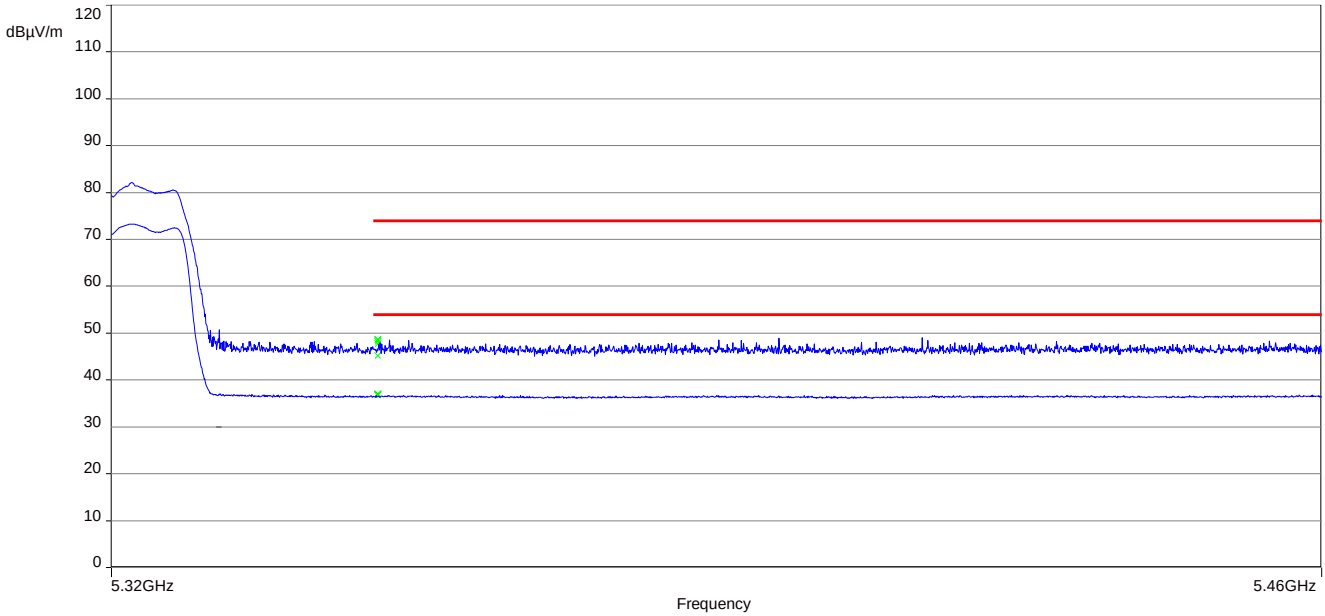
Scenario	Band Edge Compliance Radiated [dBµV/m]
band edge	< 74 dBµV/m (peak) < 54 dBµV/m (average)

Plots:

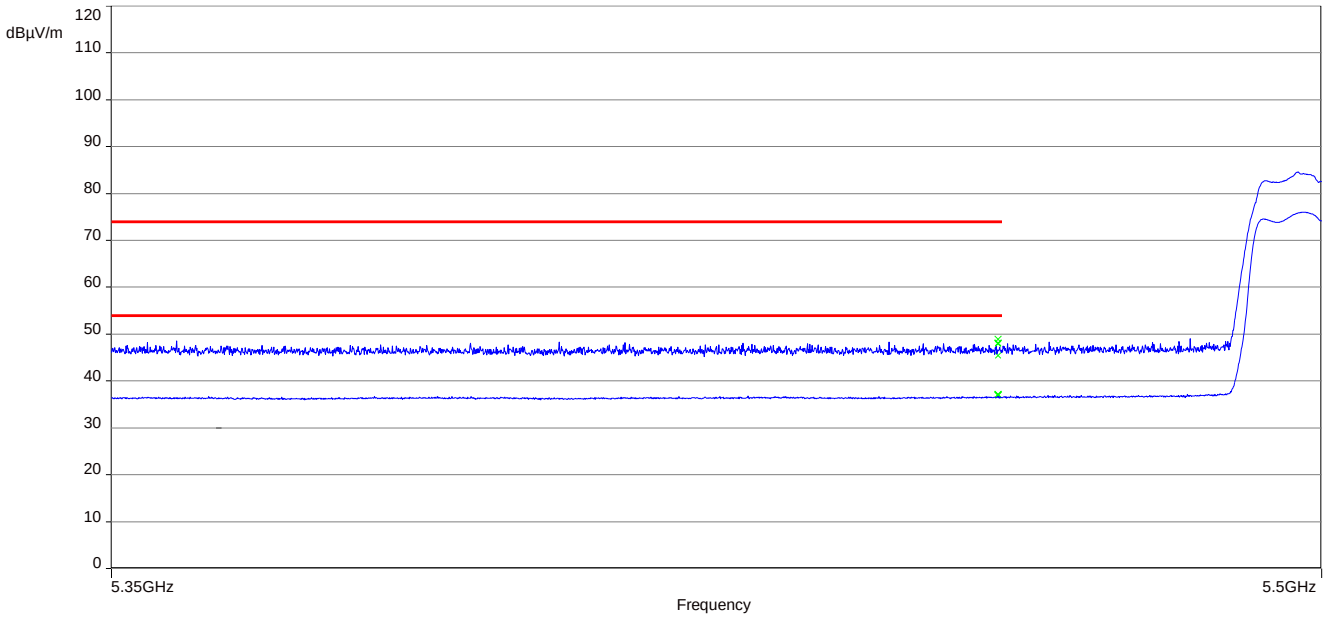
Plot 1: lower band edge; U-NII-1; lowest channel; 20 MHz channel bandwidth



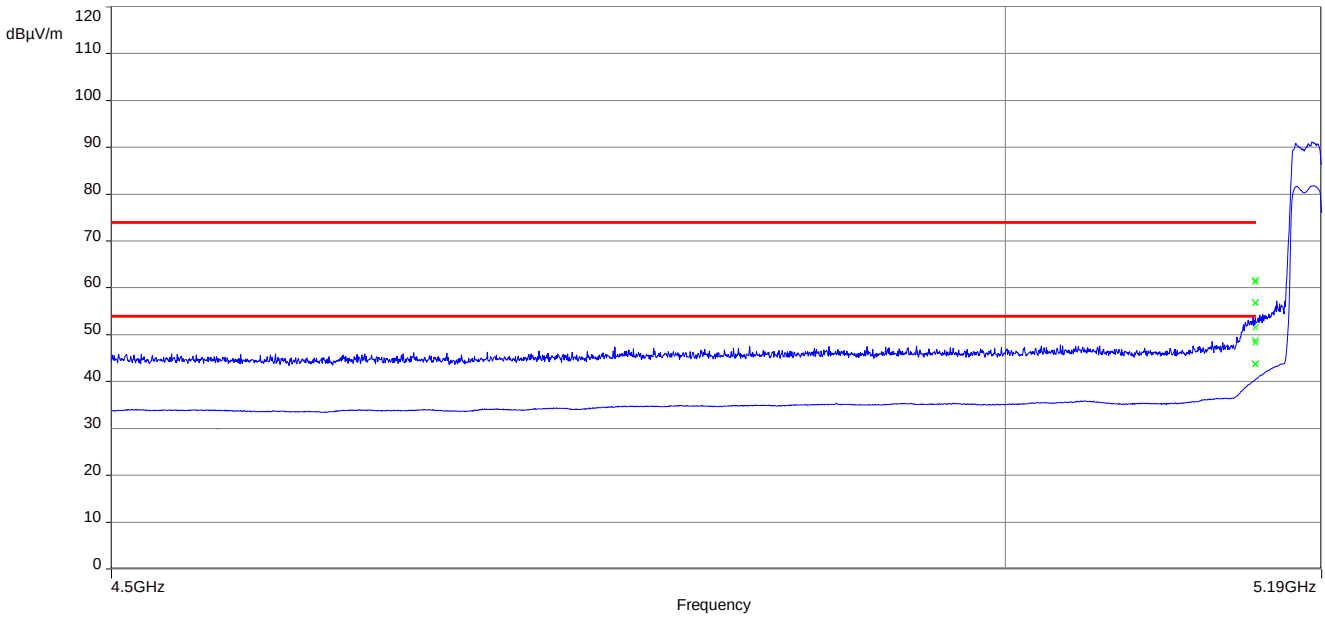
Plot 2: upper band edge; U-NII-2A; highest channel; 20 MHz channel bandwidth



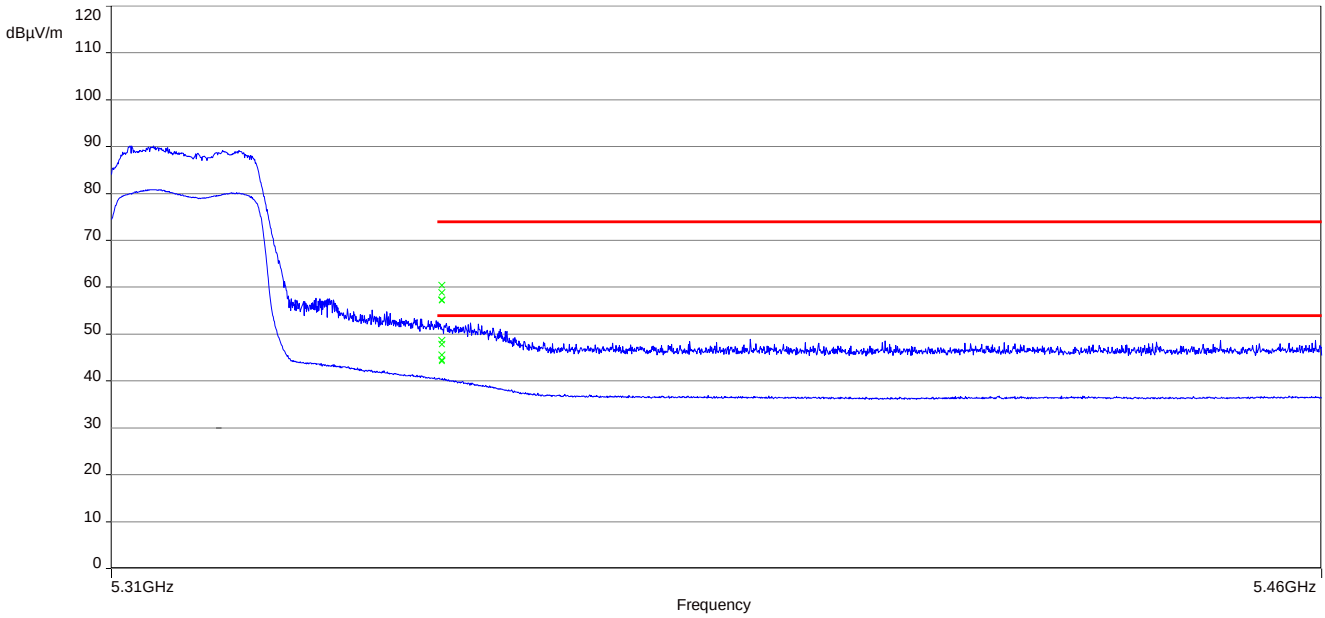
Plot 3: lower band edge; U-NII-2C; lowest channel; 20 MHz channel bandwidth



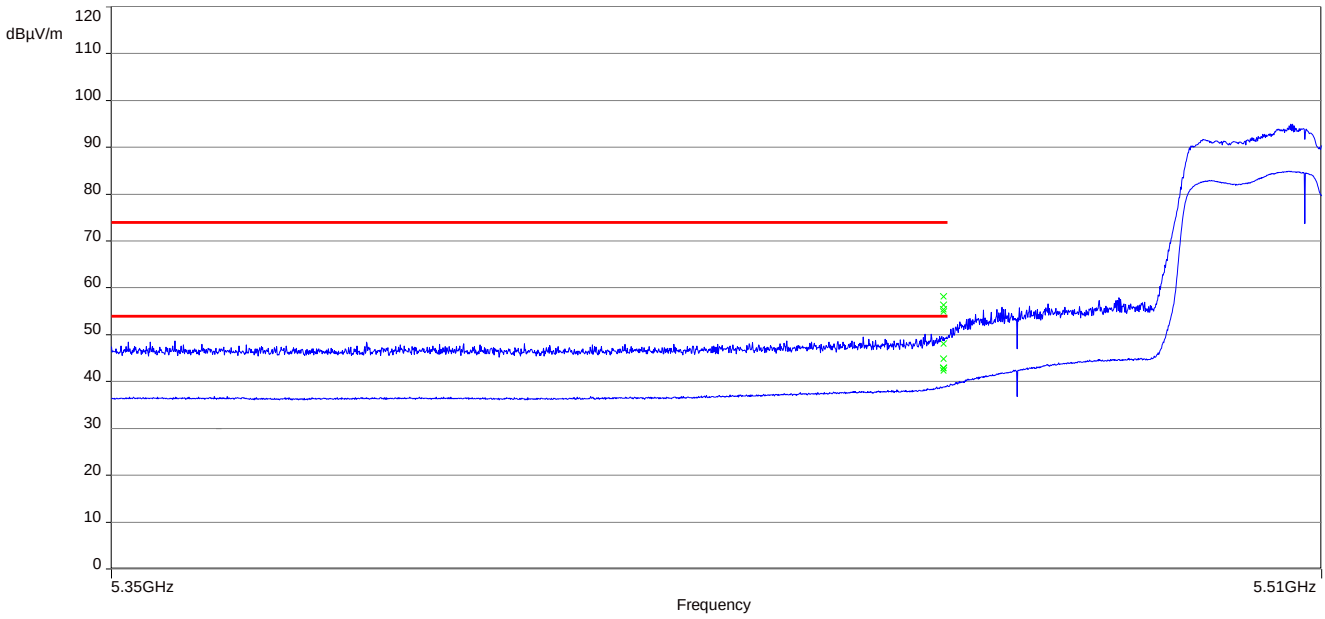
Plot 4: lower band edge; U-NII-1; lowest channel; 40 MHz channel bandwidth



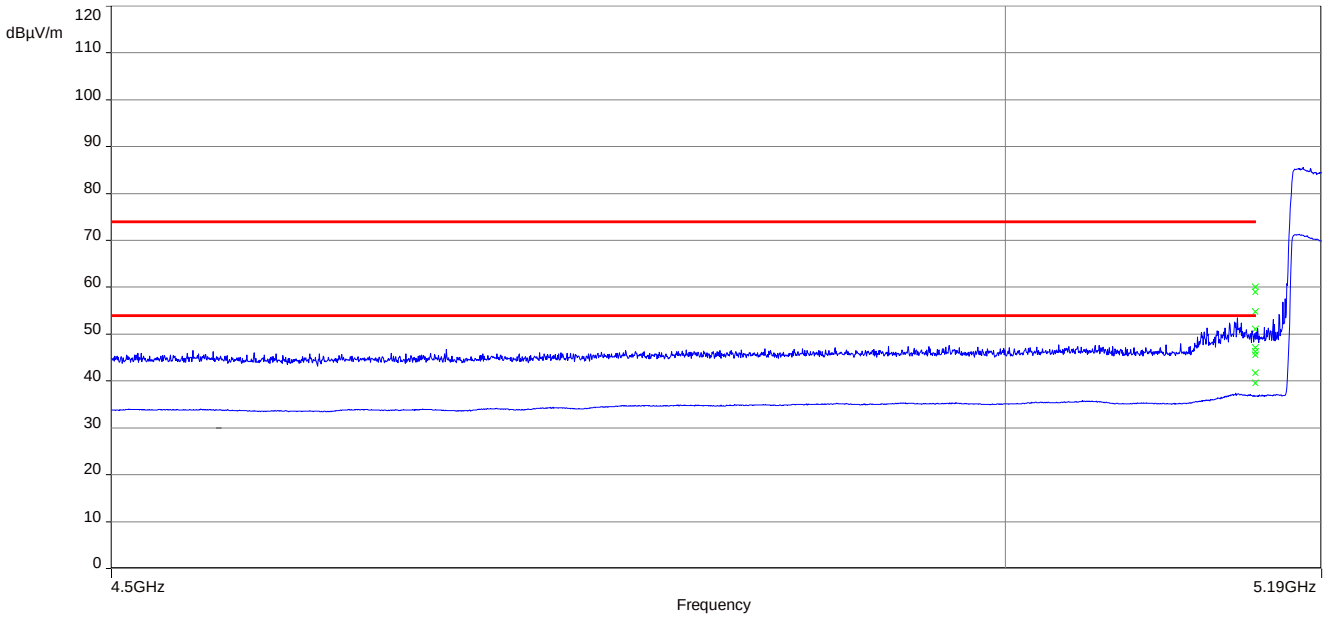
Plot 5: upper band edge; U-NII-2A; highest channel; 40 MHz channel bandwidth



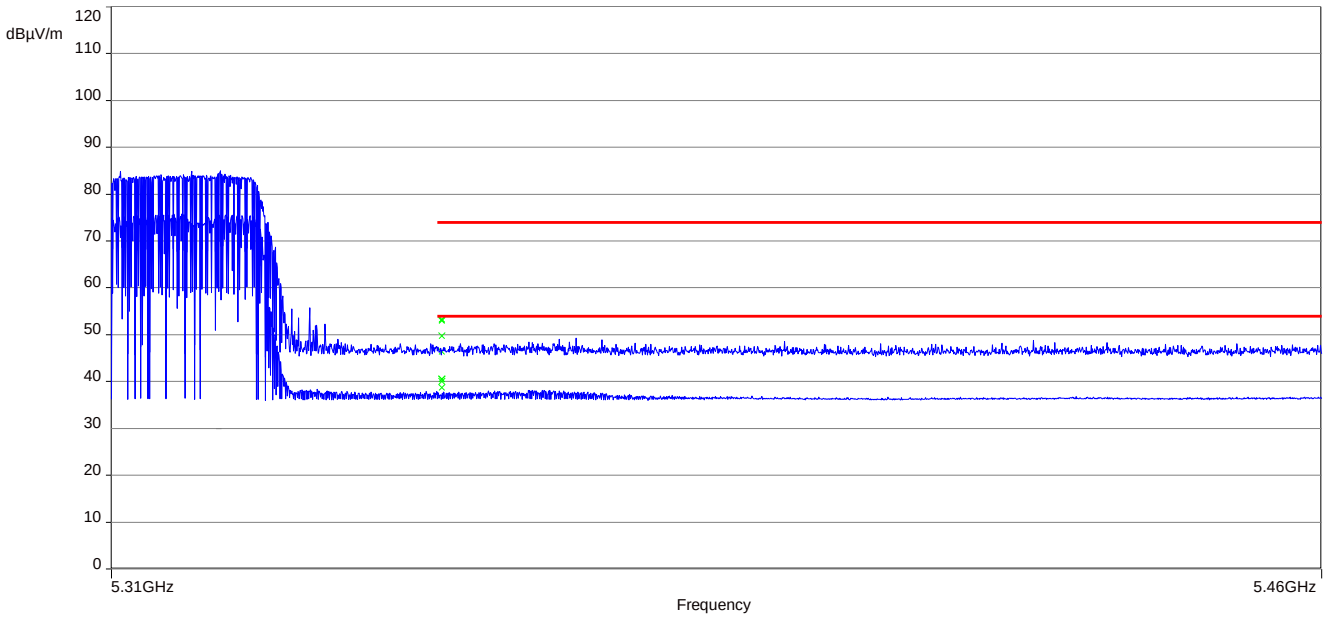
Plot 6: lower band edge; U-NII-2C; lowest channel; 40 MHz channel bandwidth



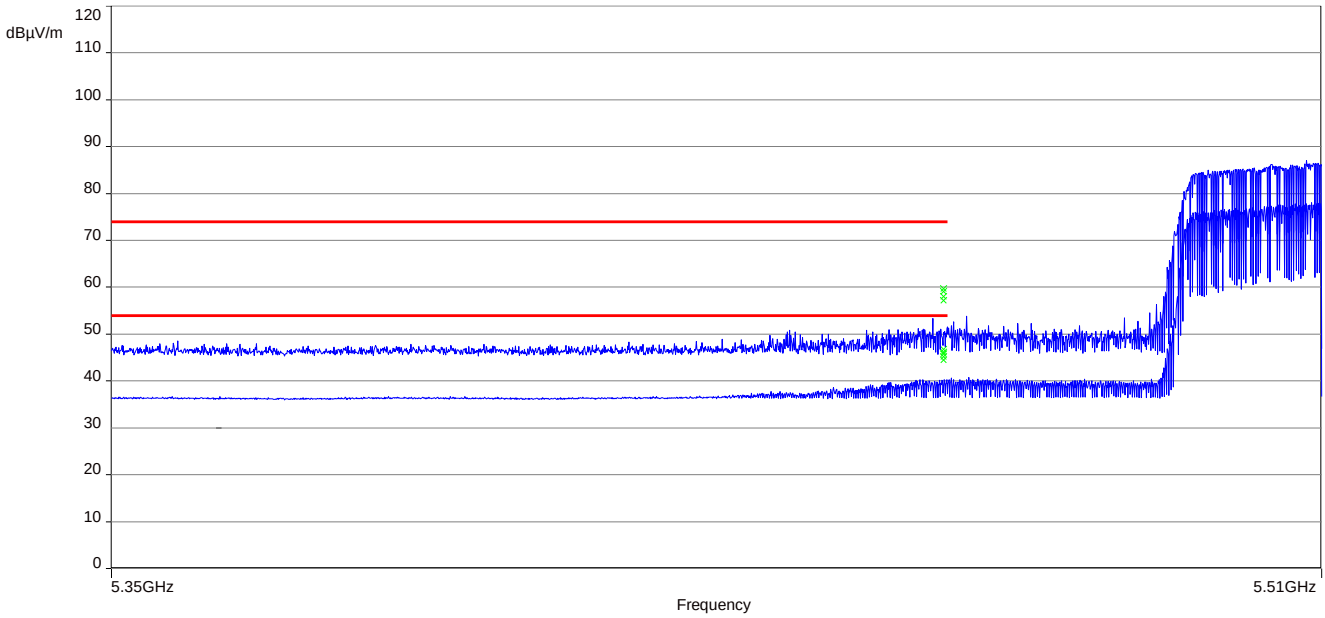
Plot 7: lower band edge; U-NII-1; middle channel; 80 MHz channel bandwidth



Plot 8: upper band edge; U-NII-2A; middle channel; 80 MHz channel bandwidth



Plot 9: lower band edge; U-NII-2C; lowest channel; 80 MHz channel bandwidth



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
Resolution bandwidth:	F < 150 kHz: 200 Hz F > 150 kHz: 9 kHz
Video 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:

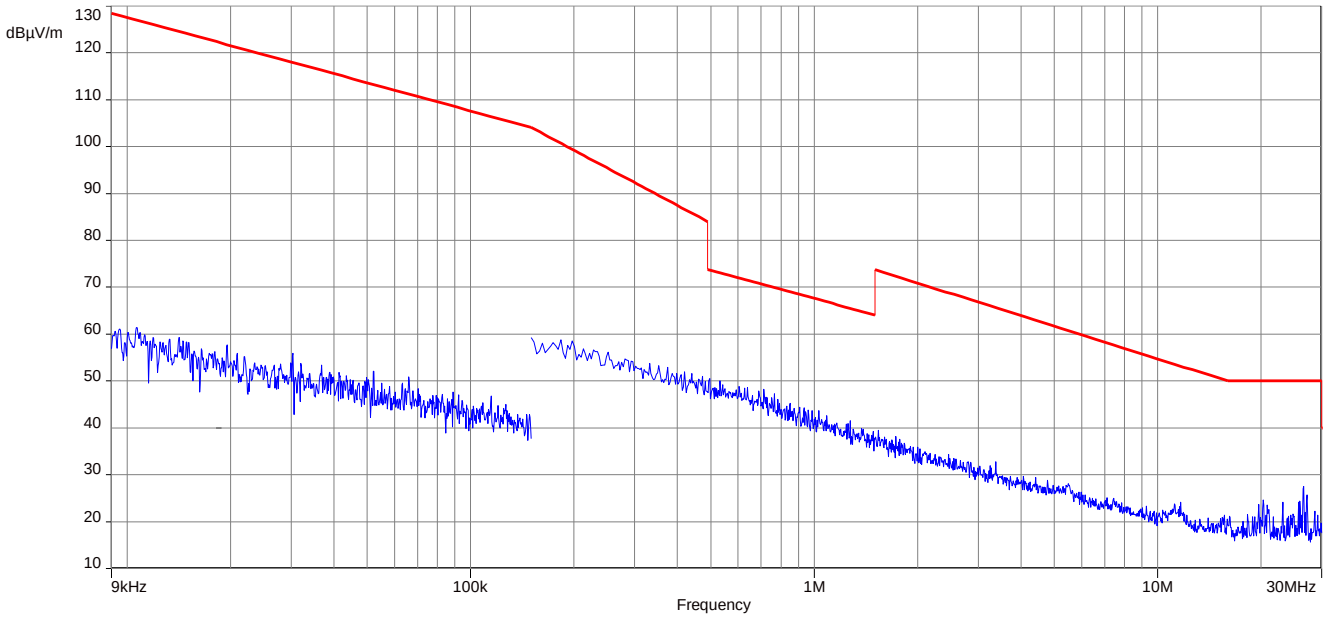
Spurious Emissions Radiated < 30 MHz		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30.0	30	30

Results:

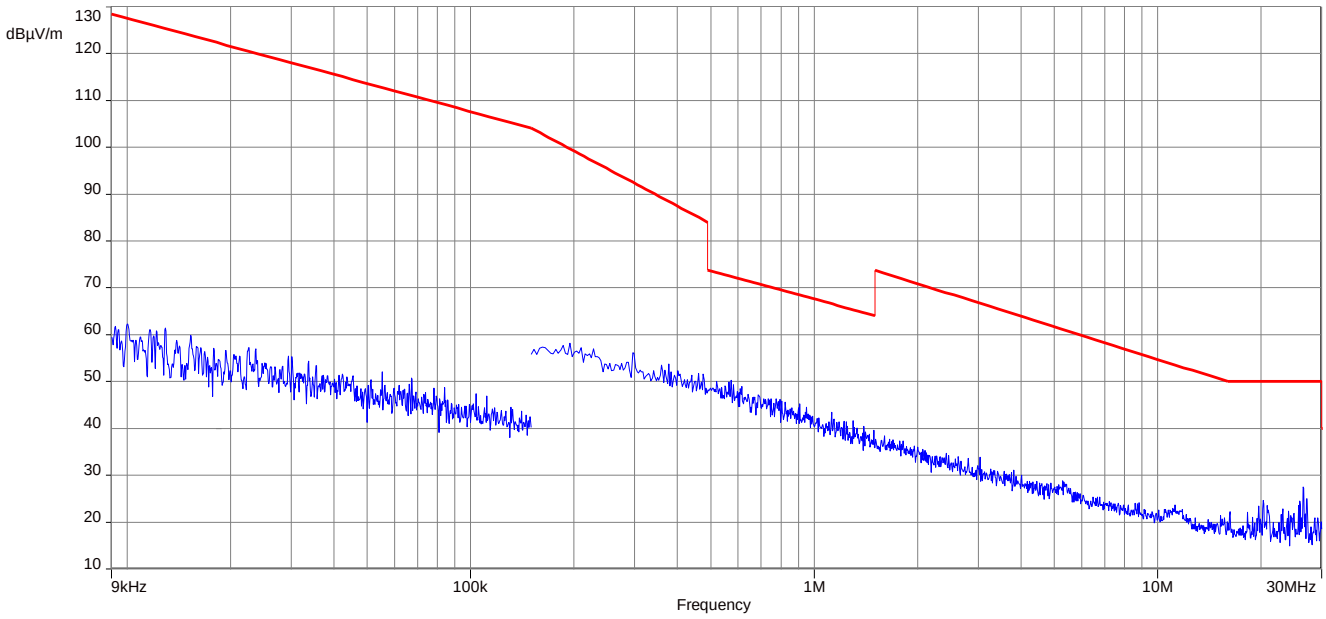
Spurious Emissions Radiated < 30 MHz [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
All detected emissions are more than 20 dB below the limit.		

Plots: 20 MHz channel bandwidth

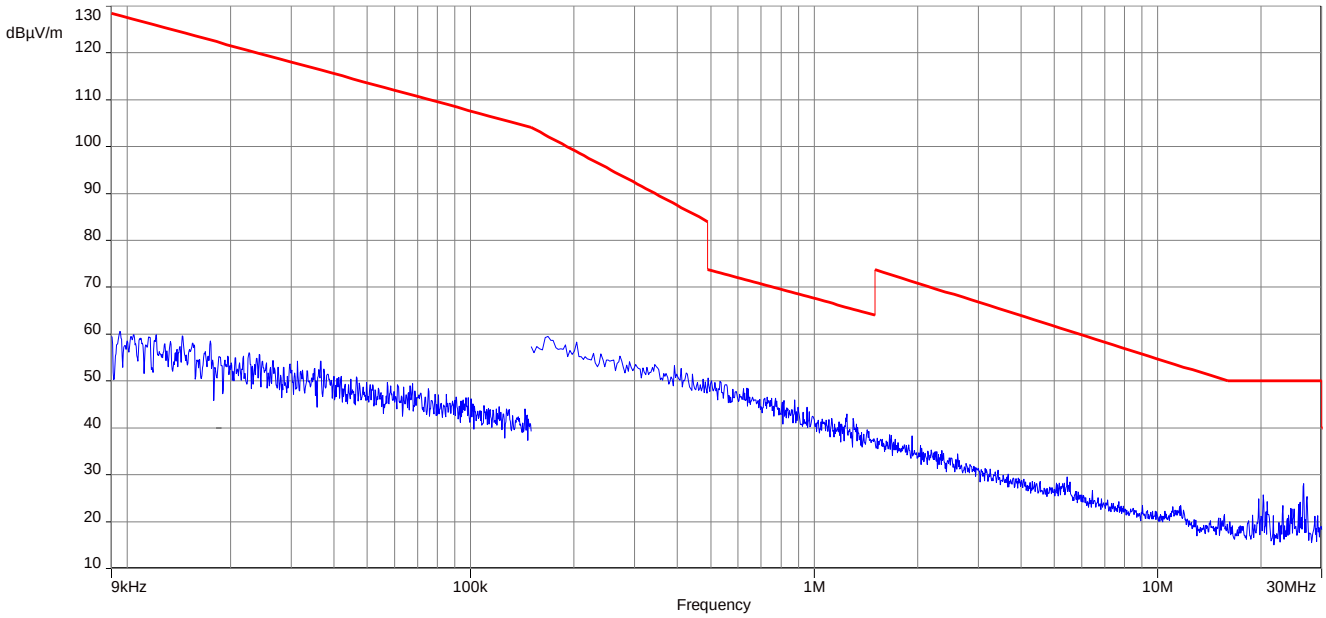
Plot 1: 9 kHz to 30 MHz, U-NII-1; lowest channel



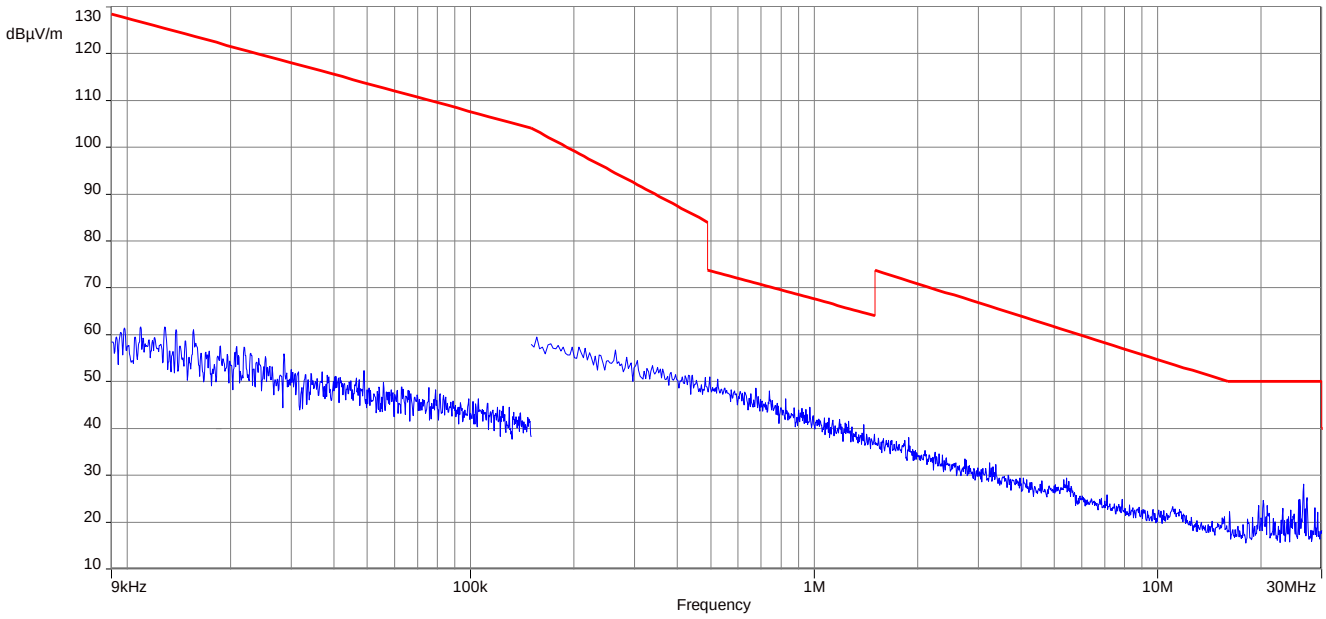
Plot 2: 9 kHz to 30 MHz, U-NII-1; highest channel



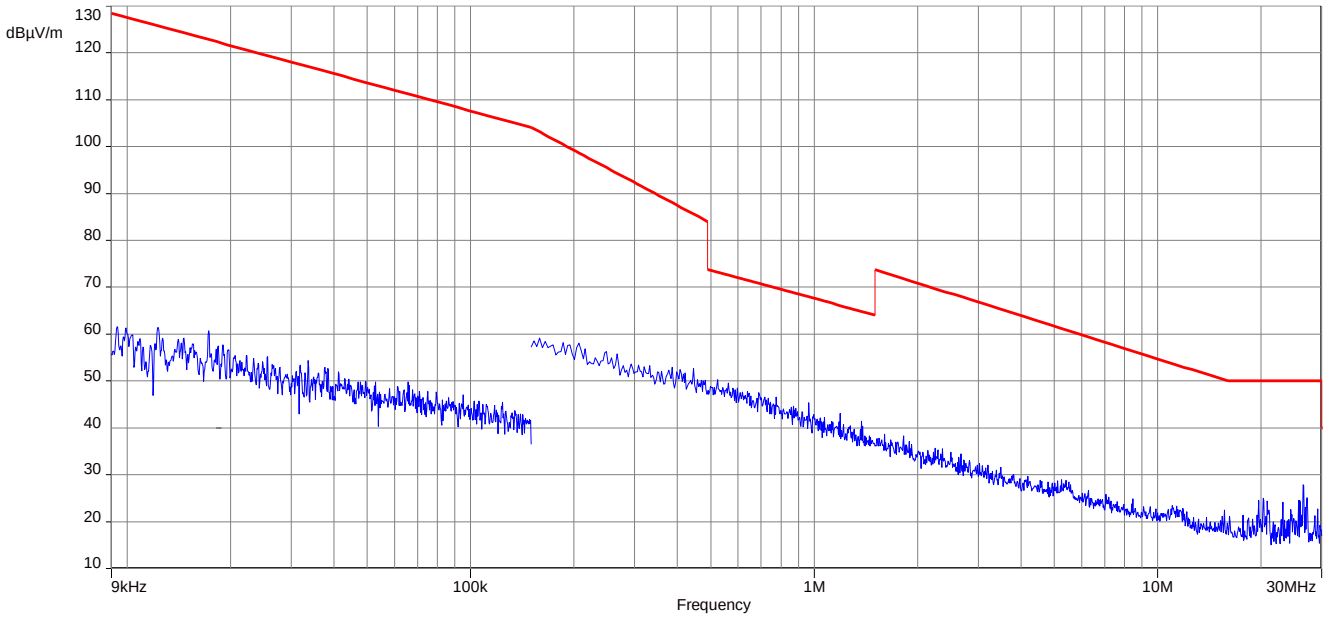
Plot 3: 9 kHz to 30 MHz, U-NII-2A; lowest channel



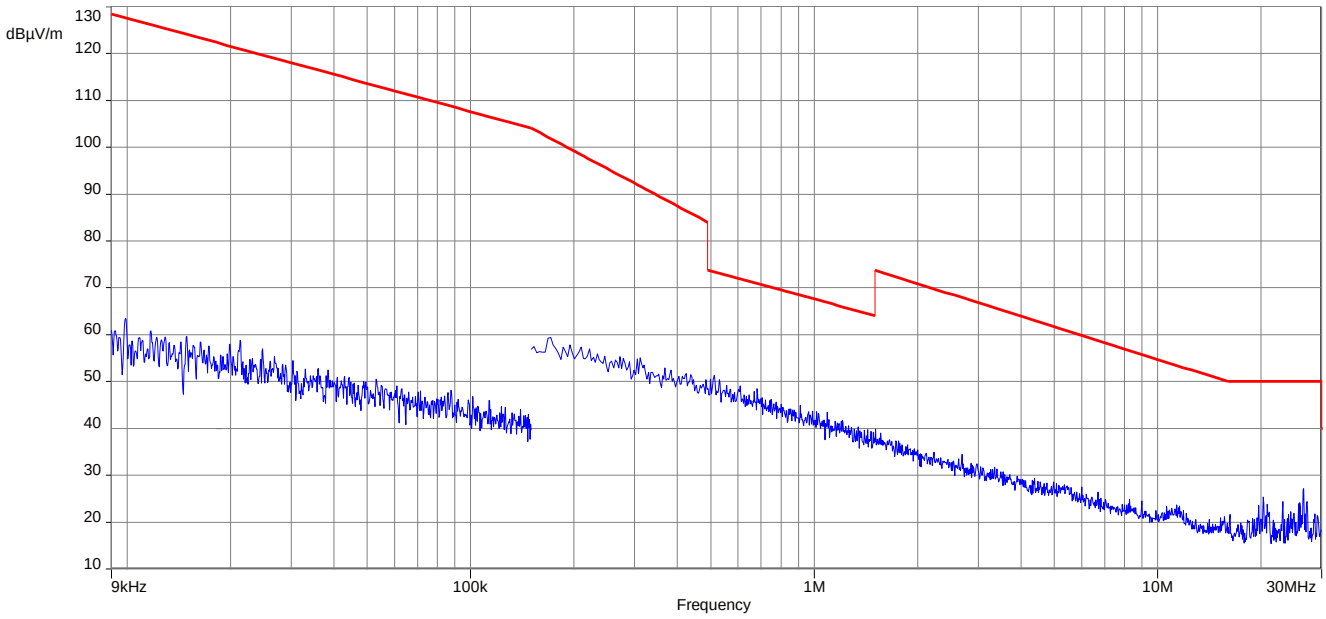
Plot 4: 9 kHz to 30 MHz, U-NII-2A; highest channel



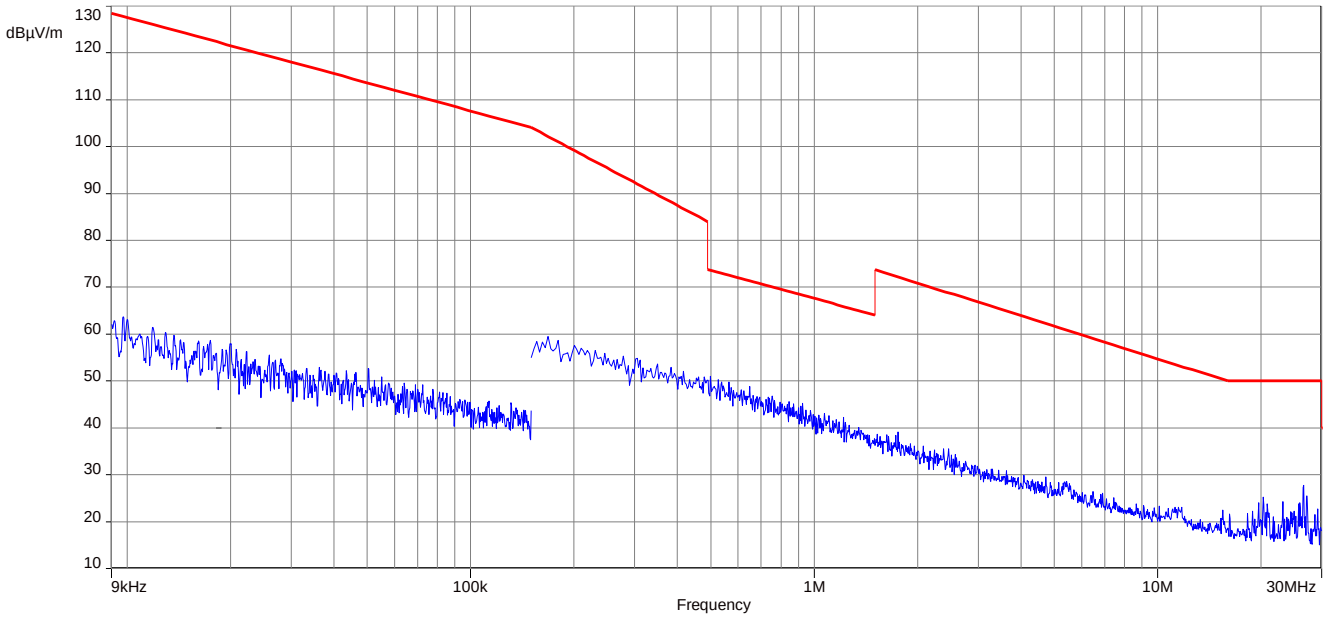
Plot 5: 9 kHz to 30 MHz, U-NII-2C; lowest channel



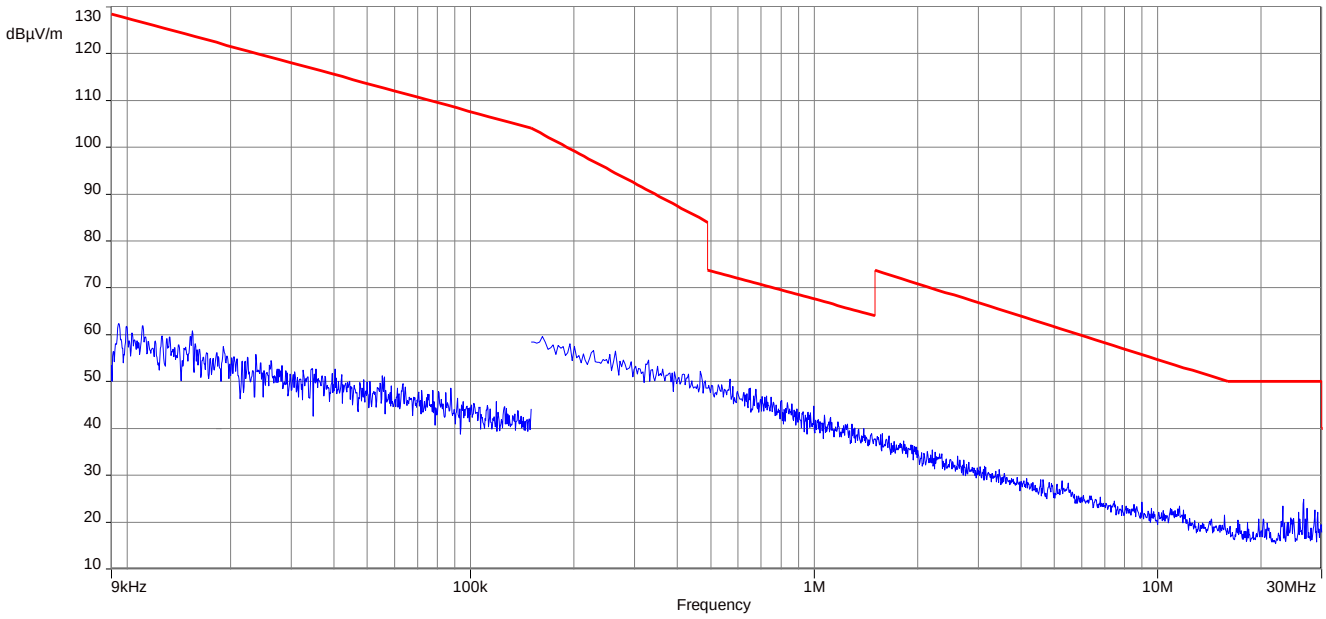
Plot 6: 9 kHz to 30 MHz, U-NII-2C; middle channel



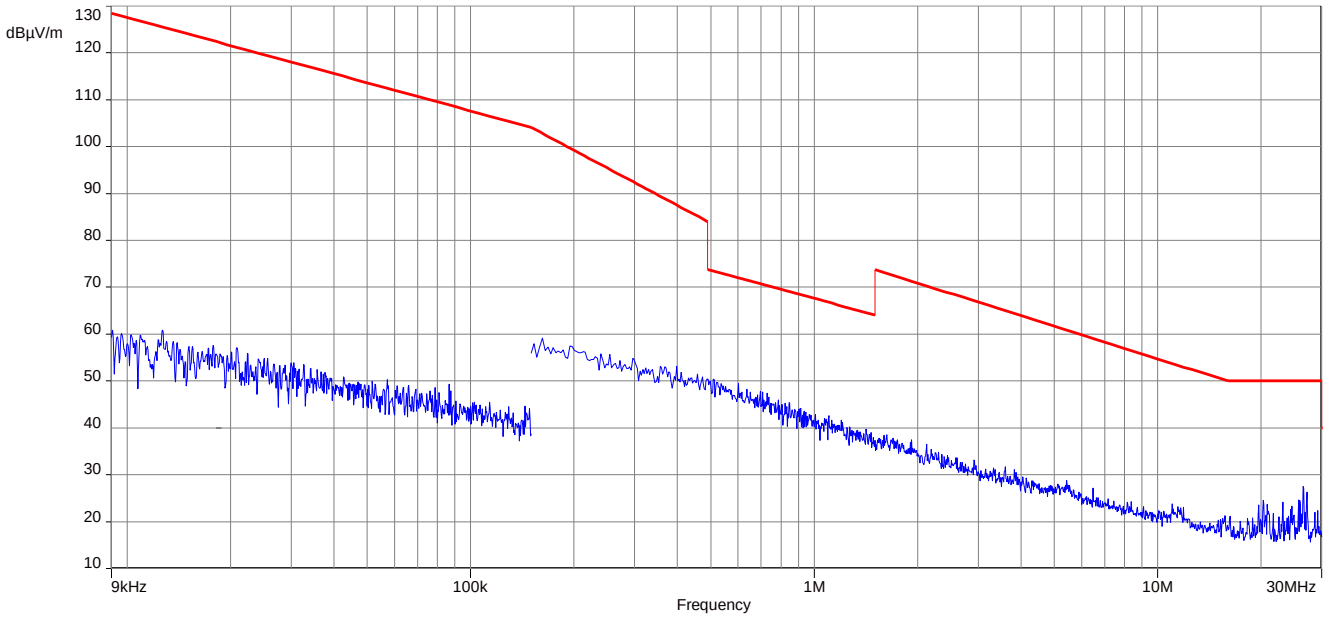
Plot 7: 9 kHz to 30 MHz, U-NII-2C; highest channel



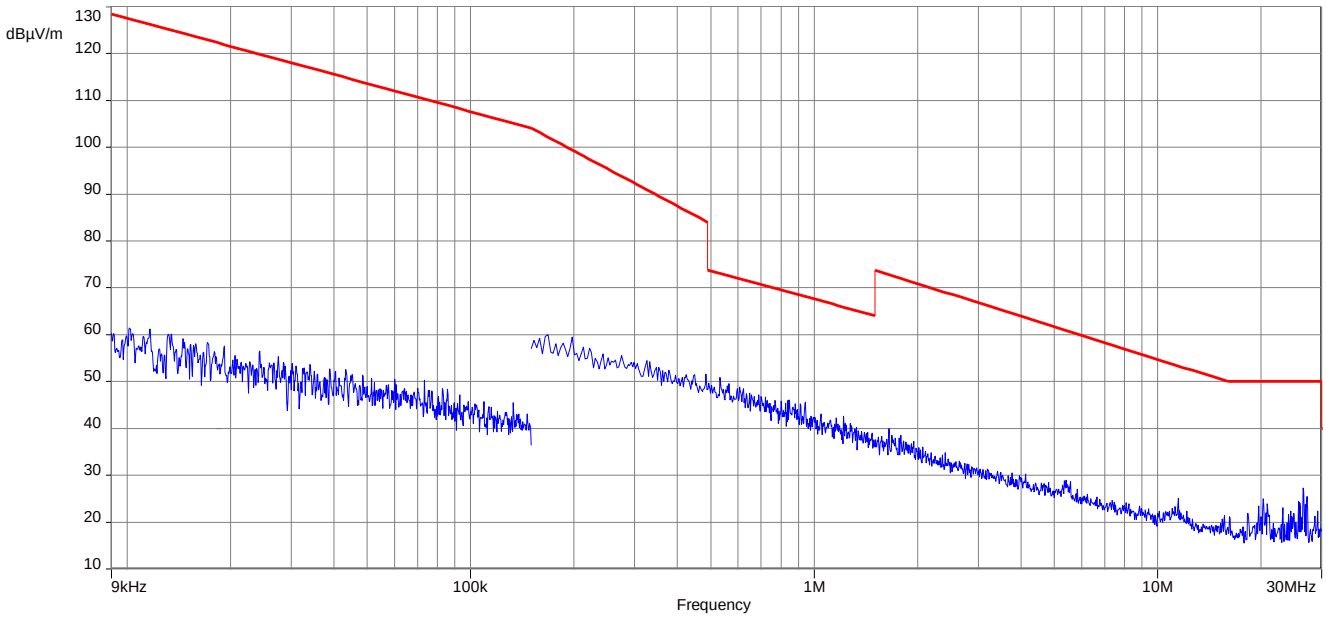
Plot 8: 9 kHz to 30 MHz, U-NII-3; lowest channel



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

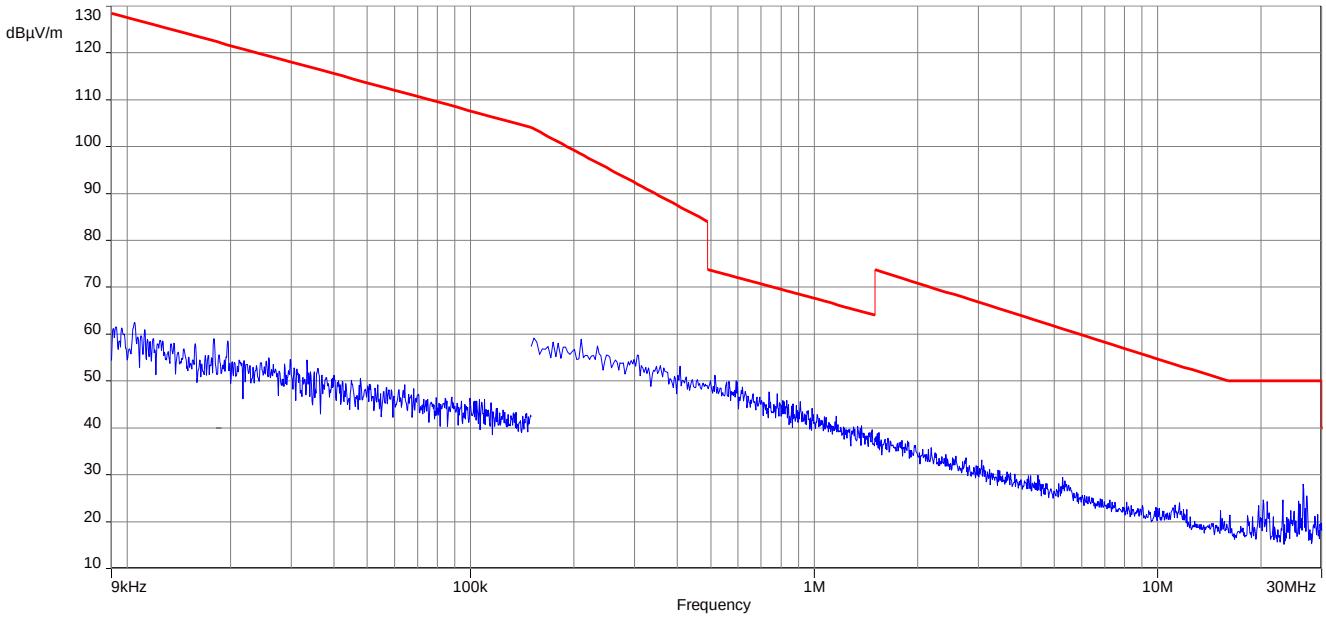


Plot 10: 9 kHz to 30 MHz, U-NII-3; highest channel

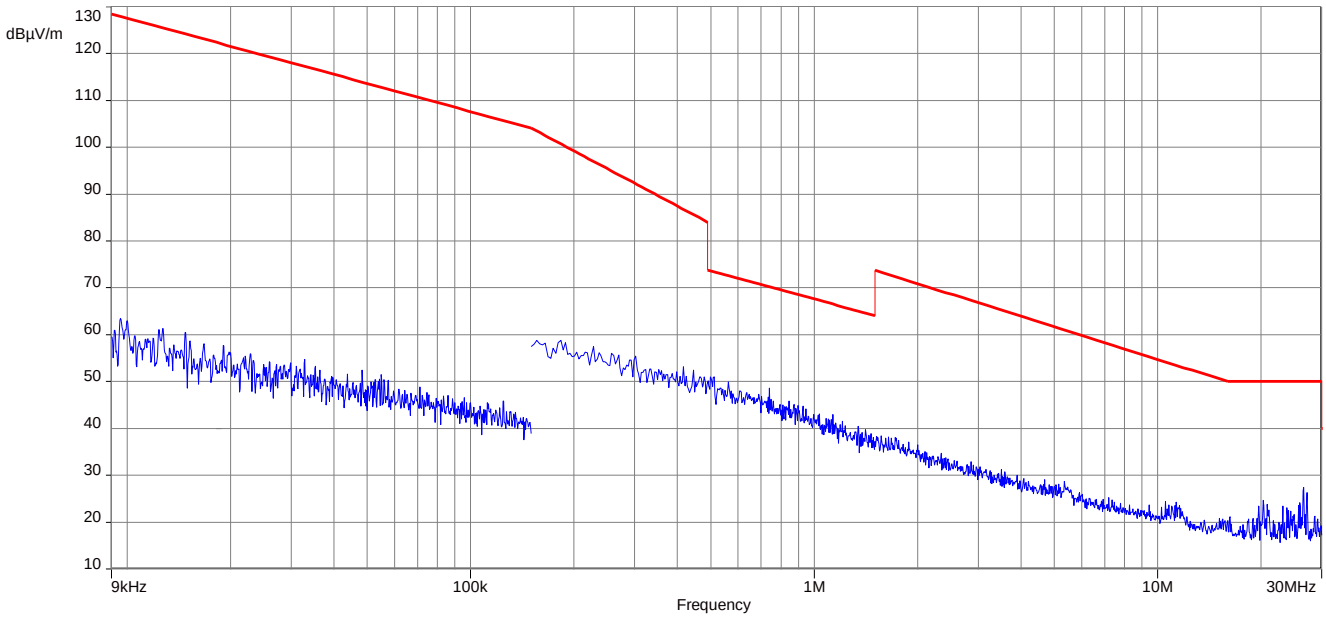


Plots: 40 MHz channel bandwidth

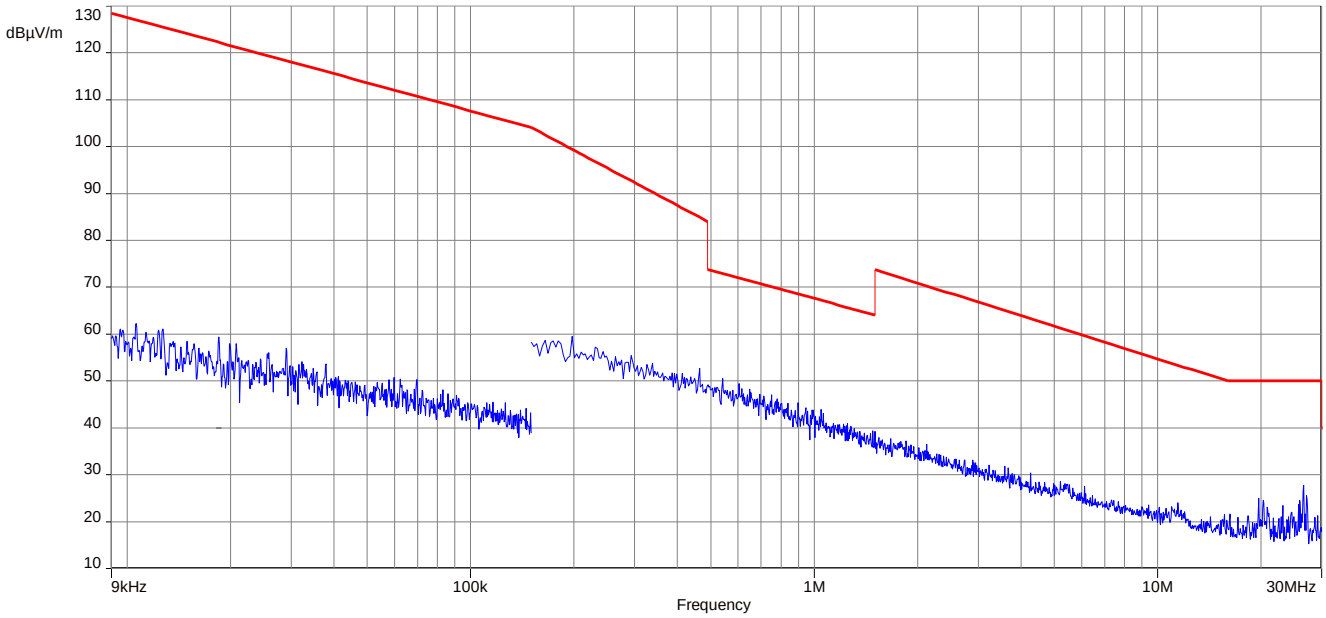
Plot 1: 9 kHz to 30 MHz, U-NII-1; lowest channel



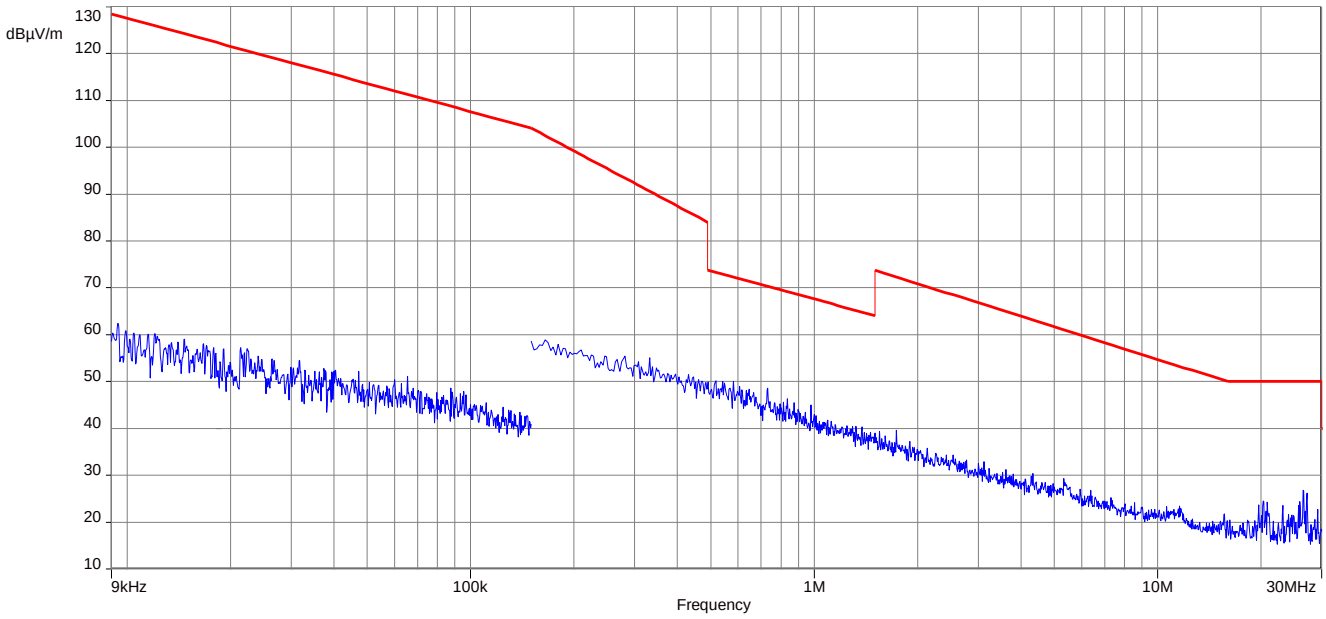
Plot 2: 9 kHz to 30 MHz, U-NII-1; highest channel



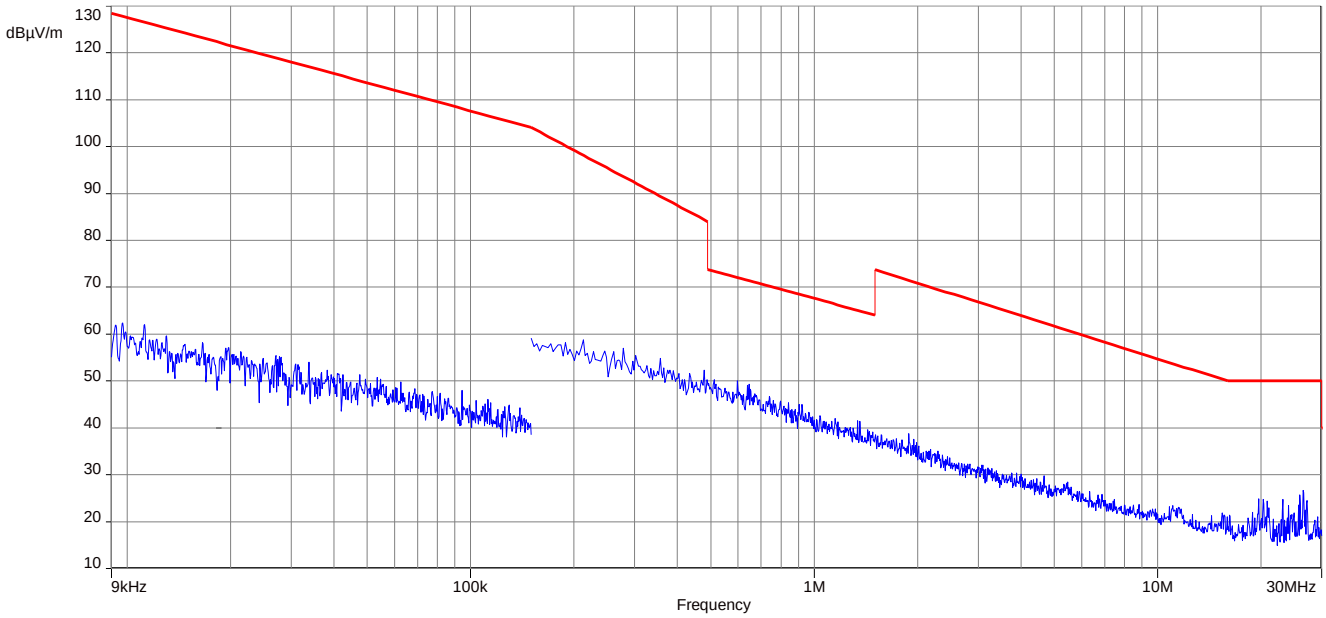
Plot 3: 9 kHz to 30 MHz, U-NII-2A; lowest channel



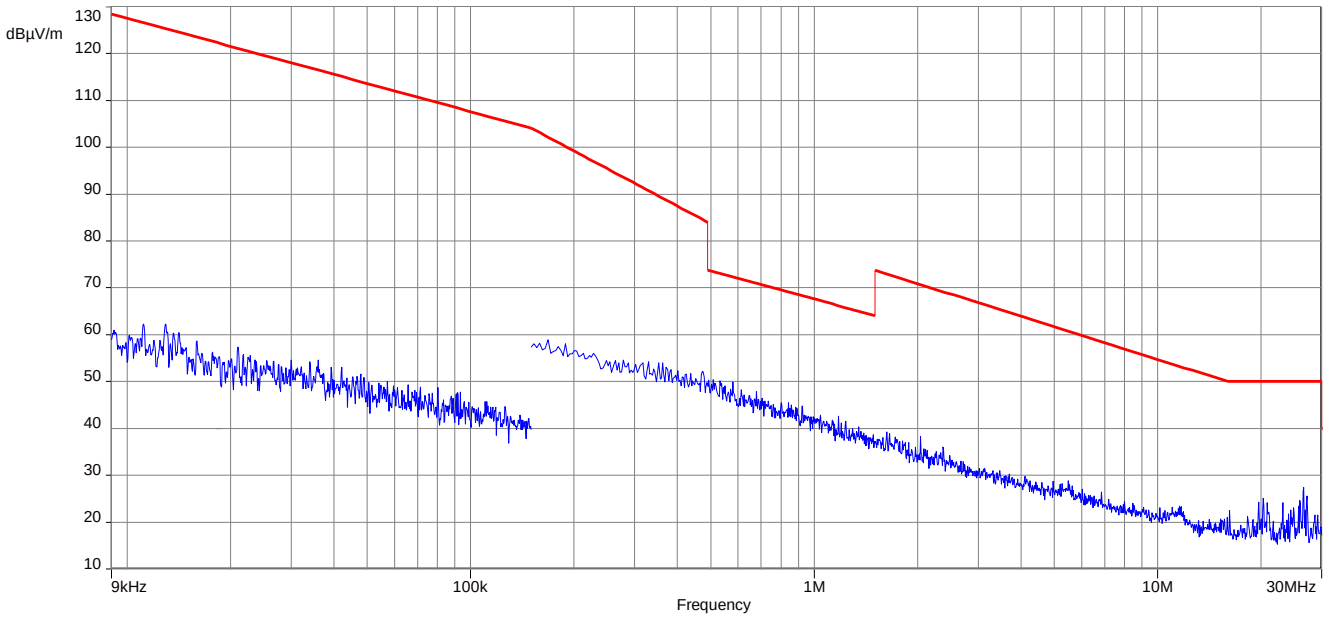
Plot 4: 9 kHz to 30 MHz, U-NII-2A; highest channel



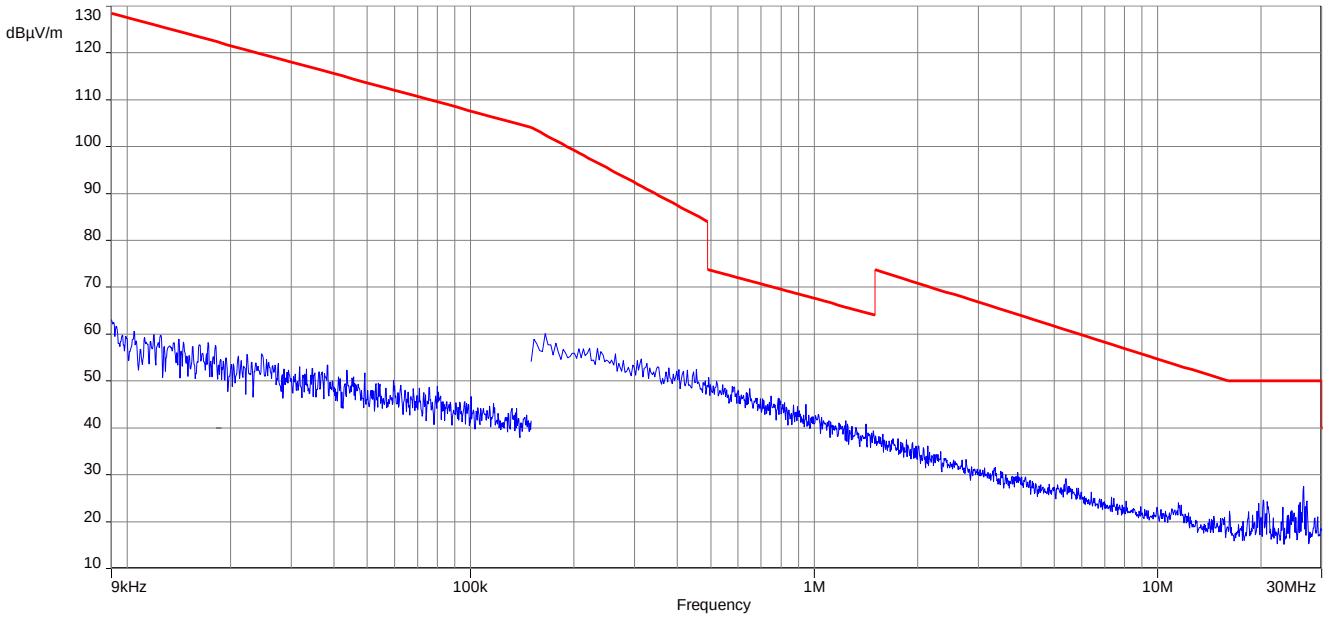
Plot 5: 9 kHz to 30 MHz, U-NII-2C; lowest channel



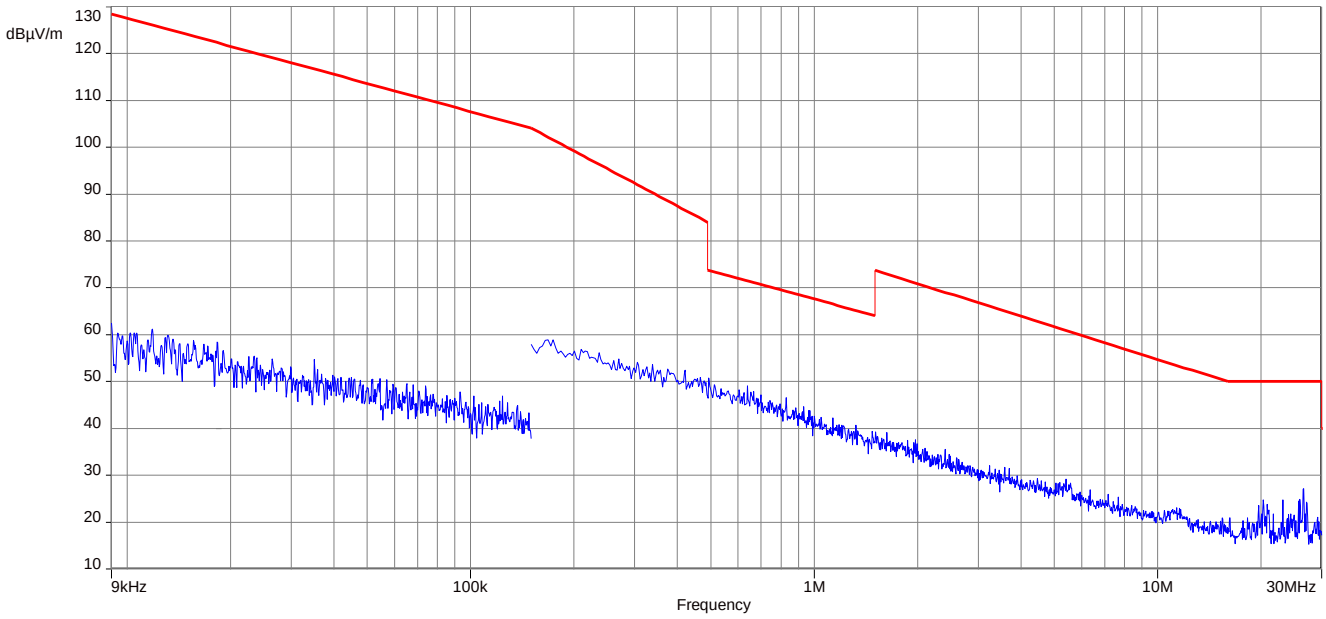
Plot 6: 9 kHz to 30 MHz, U-NII-2C; middle channel



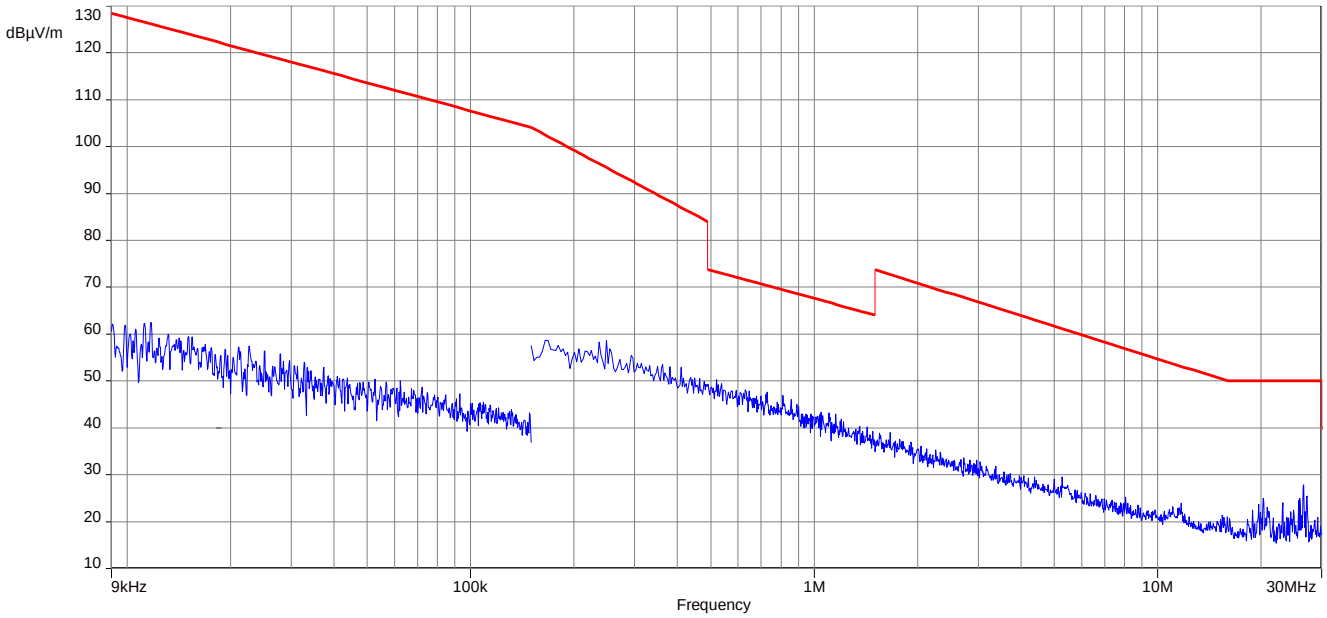
Plot 7: 9 kHz to 30 MHz, U-NII-2C; highest channel



Plot 8: 9 kHz to 30 MHz, U-NII-3; lowest channel

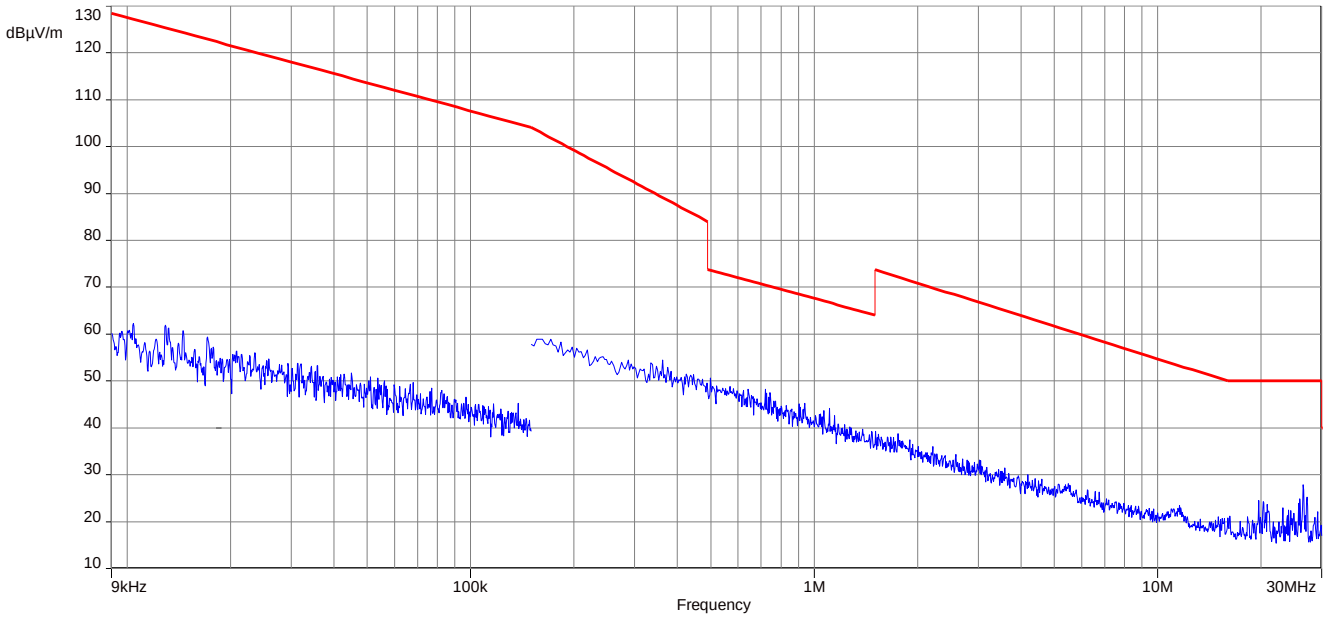


Plot 9: 9 kHz to 30 MHz, U-NII-3; highest channel

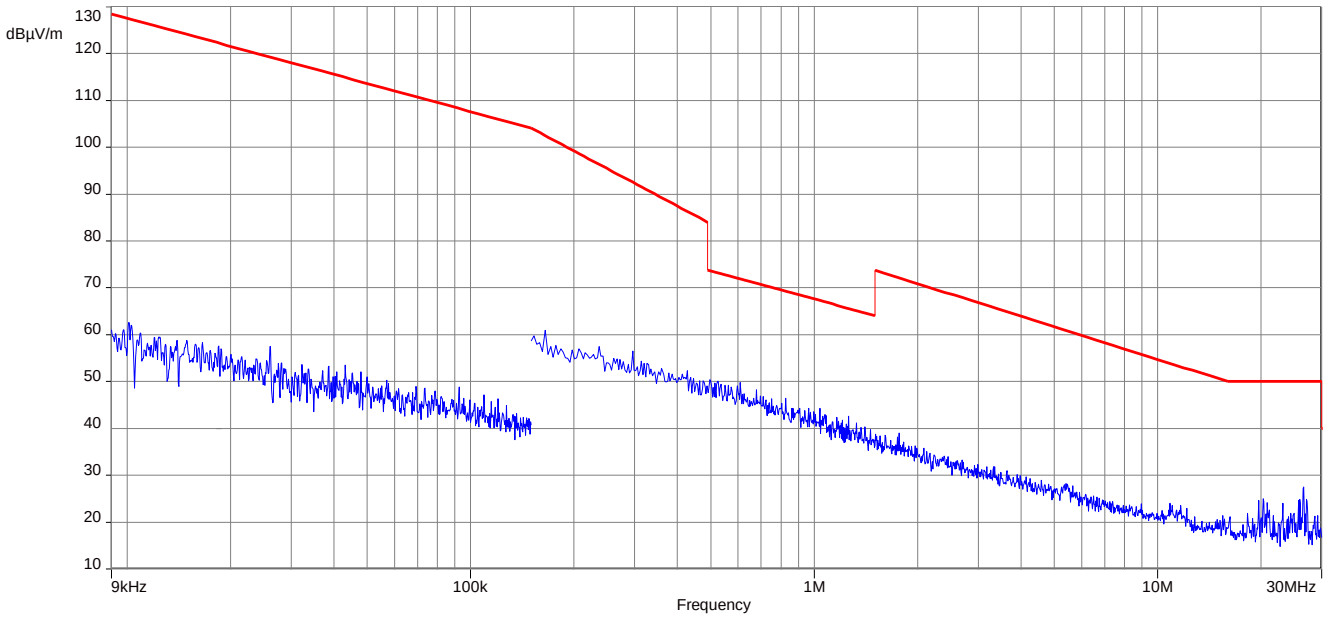


Plots: 80 MHz channel bandwidth

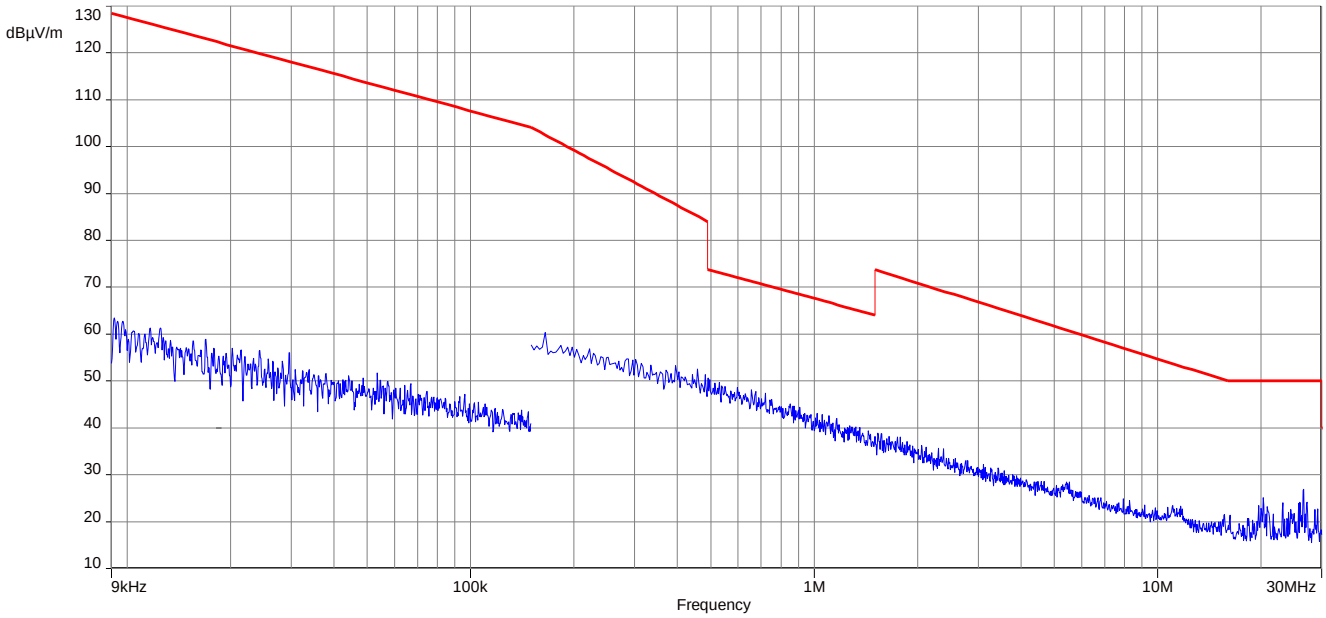
Plot 1: 9 kHz to 30 MHz, U-NII-1; middle channel



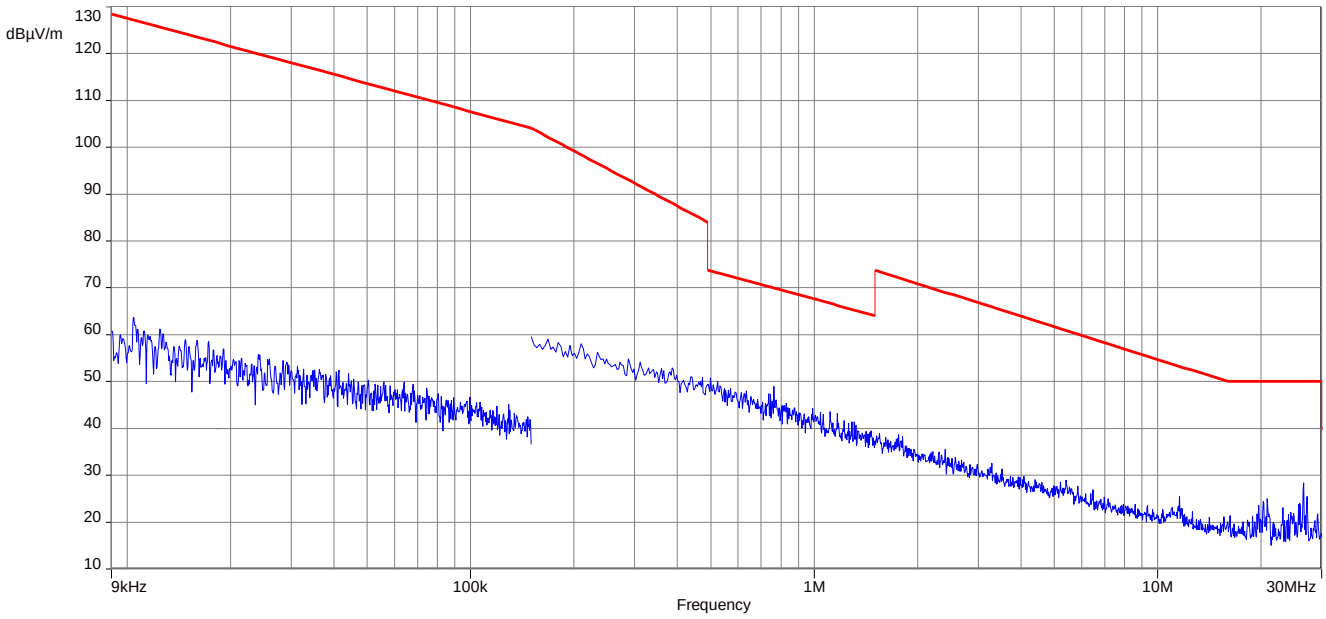
Plot 2: 9 kHz to 30 MHz, U-NII-2A; middle channel



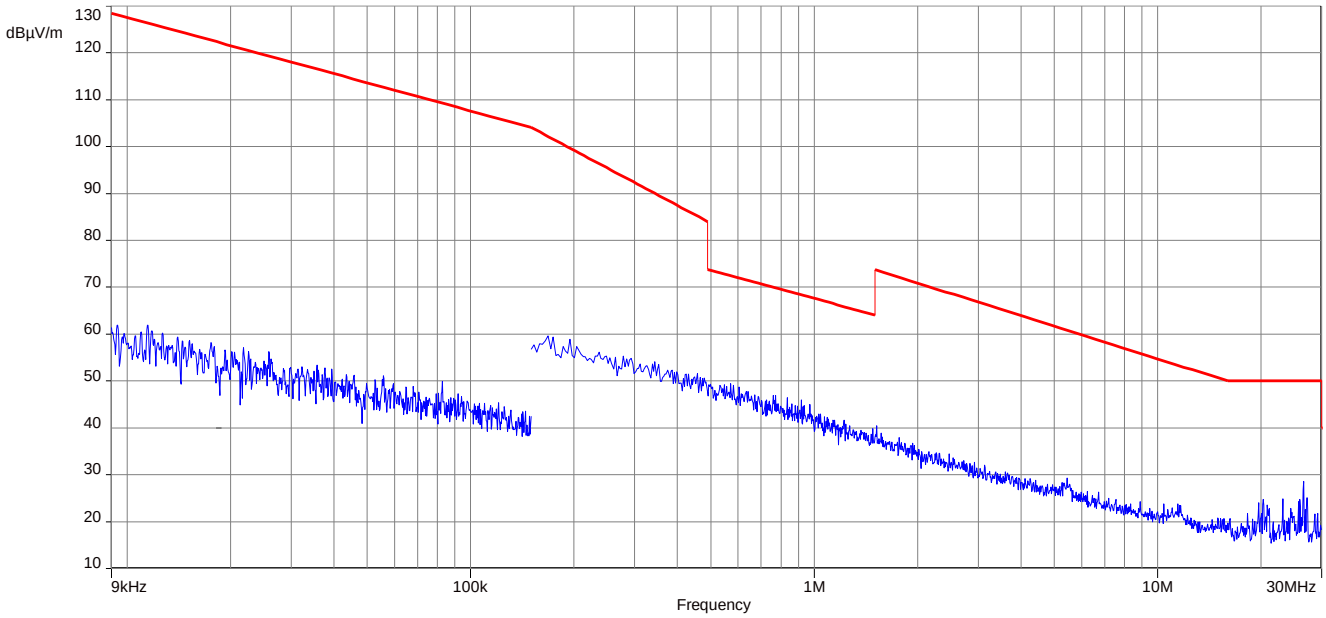
Plot 3: 9 kHz to 30 MHz, U-NII-2C; lowest channel



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



Plot 5: 9 kHz to 30 MHz, U-NII-3; middle 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 (dBµV/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

TX Spurious Emissions Radiated [dBµV/m] / dBm								
U-NII-1 (5150 MHz to 5250 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
1583	Peak	52.1	-/-	Peak	-/-	1584	Peak	51.7
	AVG	50.6		AVG	-/-		AVG	49.7
2496	Peak	46.8	-/-	Peak	-/-	2407	Peak	46.1
	AVG	43.8		AVG	-/-		AVG	44.5
3024	Peak	49.3	-/-	Peak	-/-	2789	Peak	54.5
	AVG	32.0		AVG	-/-		AVG	45.2
-/-			-/-			-/-		
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.		

* Non restricted band

TX Spurious Emissions Radiated [dBµV/m] / dBm								
U-NII-2A (5250 MHz to 5350 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
1584	Peak	51.2	-/-	Peak	-/-	-/-	Peak	-/-
	AVG	49.6	-/-	AVG	-/-		AVG	-/-
-/-	Peak		-/-	Peak	-/-	-/-	Peak	-/-
	AVG		-/-	AVG	v		AVG	-/-
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 [dBµV/m] / dBm								
U-NII-2C (5470 MHz to 5725 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
1584	Peak	52.3	1584	Peak	52.2	1584	Peak	52.5
	AVG	50.8		AVG	50.8		AVG	50.9
-/-	Peak	-/-	11200	Peak	45.2	-/-	Peak	-/-
	AVG	-/-		AVG	54.8		AVG	-/-
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 [dBµV/m] / dBm								
U-NII-3 (5725 MHz to 5850 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
1584	Peak	52.5	1584	Peak	52.3	1584	Peak	52.2
	AVG	50.7		AVG	50.7		AVG	50.7
-/-	Peak	-/-	-/-	Peak	-/-	11649	Peak	50.6
	AVG	-/-		AVG			AVG	44.2
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

TX Spurious Emissions Radiated [dBµV/m] / dBm								
U-NII-1 (5150 MHz to 5250 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
-/-	Peak	-/-	-/-	Peak	-/-	1584	Peak	52.2
	AVG	-/-	-/-	AVG	-/-		AVG	50.6
-/-	Peak	-/-	-/-	Peak	-/-	-/-	Peak	
	AVG	-/-	-/-	AVG	-/-		AVG	
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 [dBµV/m] / dBm								
U-NII-2A (5250 MHz to 5350 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
1584	Peak	52.4	-/-	Peak	-/-	-/-	Peak	-/-
	AVG	50.7	-/-	AVG	-/-		AVG	-/-
-/-	Peak	-/-	-/-	Peak	-/-	-/-	Peak	-/-
	AVG	-/-	-/-	AVG	-/-		AVG	-/-
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 [dBµV/m] / dBm								
U-NII-2C (5470 MHz to 5725 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
-/-	Peak	-/-	1584	Peak	51.9	11399	Peak	48.7
	AVG	-/-		AVG	50.2		AVG	41.8
-/-	Peak	-/-	3726	Peak	48.4	-/-	Peak	-/-
	AVG	-/-		AVG	40.1		AVG	-/-
-/-			11180	Peak	50.8	-/-		
				AVG	45.7			
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 [dBµV/m] / dBm								
U-NII-3 (5725 MHz to 5850 MHz)								
Lowest channel			Middle channel			Highest channel		
F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]	F [MHz]	Detector	Level [dBµV/m]
-/-	Peak	-/-	-/-	Peak	-/-	-/-	Peak	-/-
	AVG	-/-	-/-	AVG	-/-		AVG	-/-
-/-	Peak	-/-	-/-	Peak	-/-	-/-	Peak	-/-
	AVG	-/-	-/-	AVG	-/-		AVG	-/-
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: 80 MHz channel bandwidth

TX Spurious Emissions Radiated [dBµV/m] / dBm		
U-NII-1 (5150 MHz to 5250 MHz)		
Middle channel		
F [MHz]	Detector	Level [dBµV/m]
-/-	Peak	-/-
	AVG	-/-
-/-	Peak	-/-
	AVG	-/-
For emissions above 18 GHz please take look at the plots.		

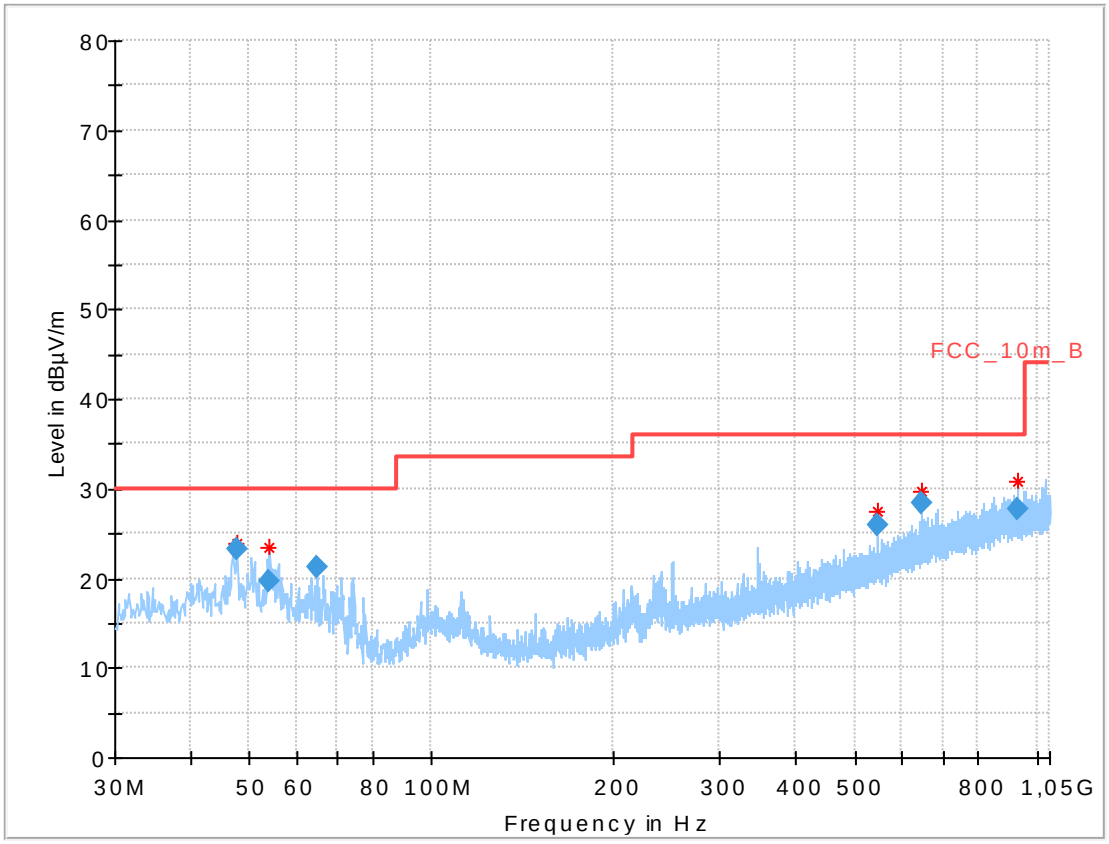
TX Spurious Emissions Radiated [dBµV/m] / dBm		
U-NII-2A (5250 MHz to 5350 MHz)		
Middle channel		
F [MHz]	Detector	Level [dBµV/m]
-/-	Peak	-/-
	AVG	-/-
-/-	Peak	-/-
	AVG	-/-
For emissions above 18 GHz please take look at the plots.		

TX Spurious Emissions Radiated [dBµV/m] / dBm					
U-NII-2C (5470 MHz to 5725 MHz)					
Lowest channel			Highest channel		
11060	Peak	50.5	11220	Peak	47.8
	AVG	47.8		AVG	40.0
-/-	Peak	-/-	-/-	Peak	-/-
	AVG	-/-		AVG	-/-
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 [dBµV/m] / dBm		
U-NII-3 (5725 MHz to 5850 MHz)		
Middle channel		
F [MHz]	Detector	Level [dBµV/m]
-/-	Peak	-/-
	AVG	-/-
-/-	Peak	-/-
	AVG	-/-
For emissions above 18 GHz please take look at the plots.		

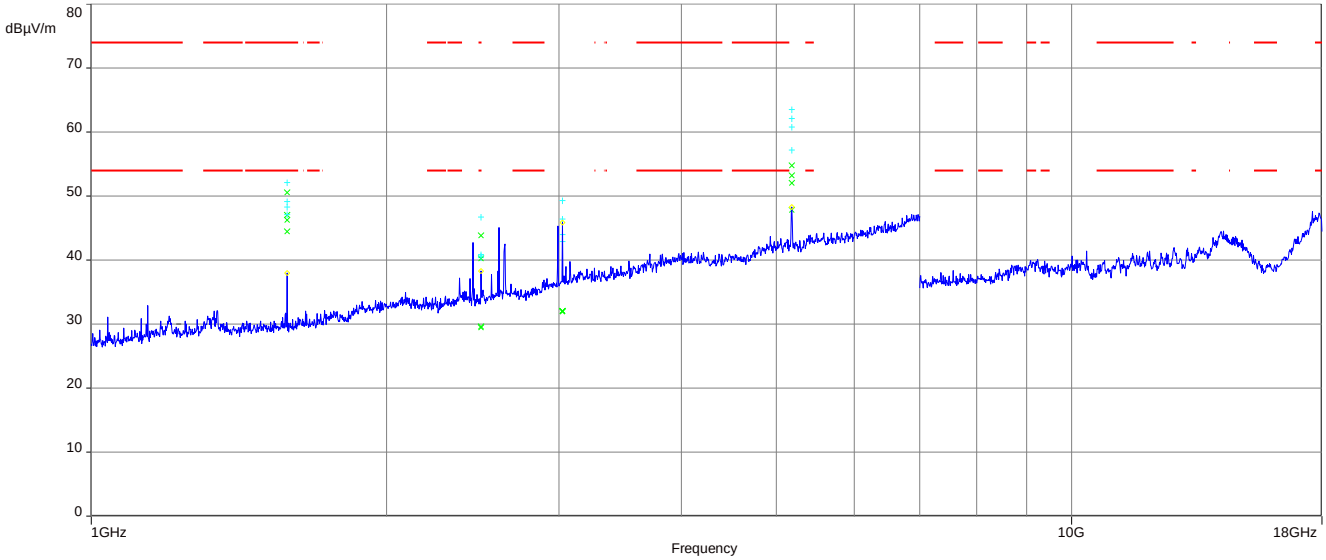
Plots: 20 MHz channel bandwidth

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

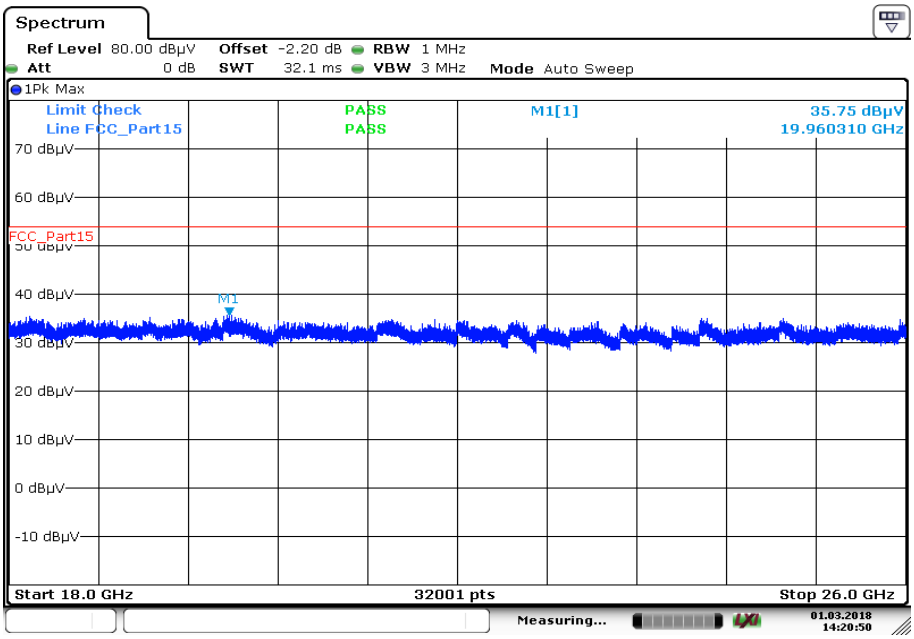


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.804	23.29	30.0	6.71	1000	120	101.0	V	90.0	13.7
53.873	19.68	30.0	10.32	1000	120	98.0	V	0.0	13.2
64.771	21.24	30.0	8.76	1000	120	101.0	V	270.0	10.8
544.508	25.91	36.0	10.09	1000	120	170.0	H	90.0	19.3
643.501	28.27	36.0	7.73	1000	120	98.0	H	270.0	21.1
927.466	27.63	36.0	8.37	1000	120	101.0	V	90.0	24.3

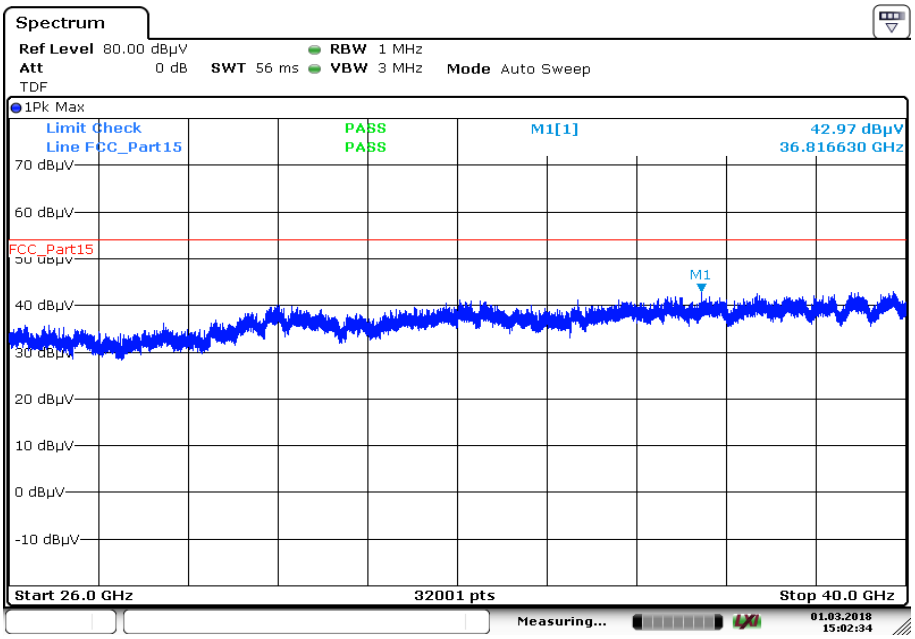
Plot 2: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; lowest channel



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



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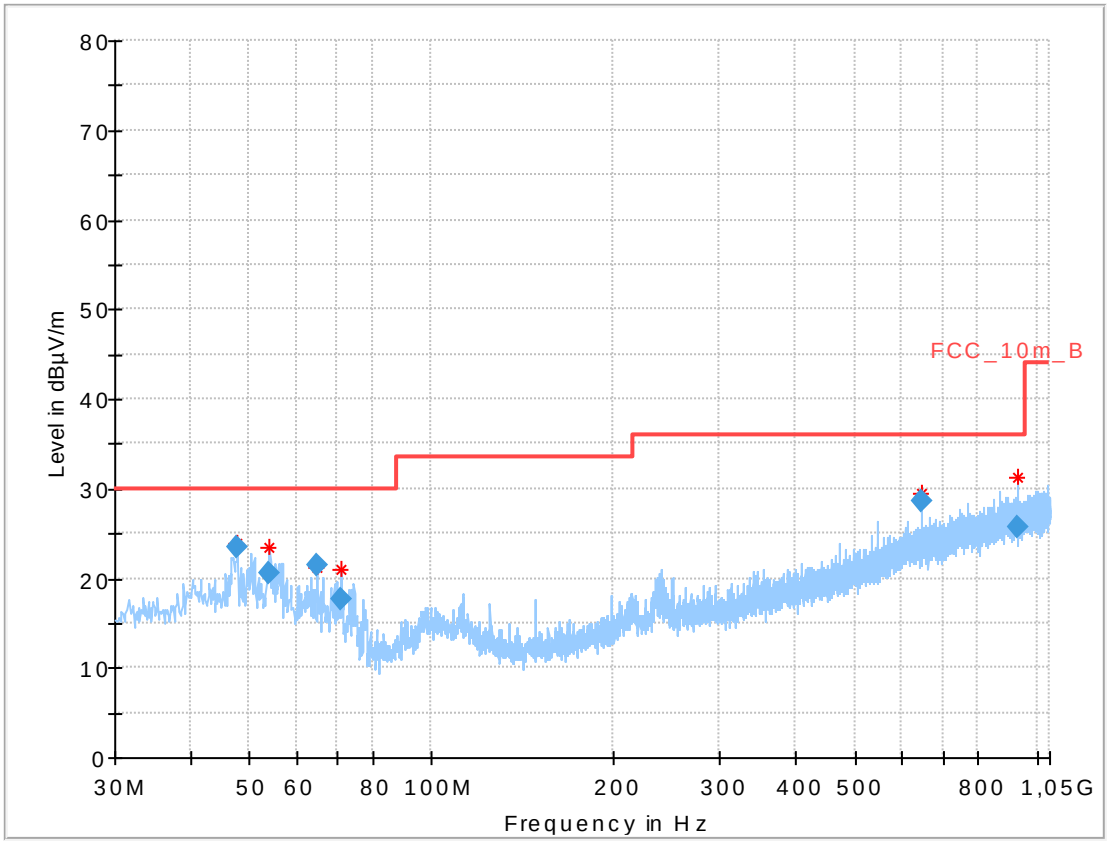
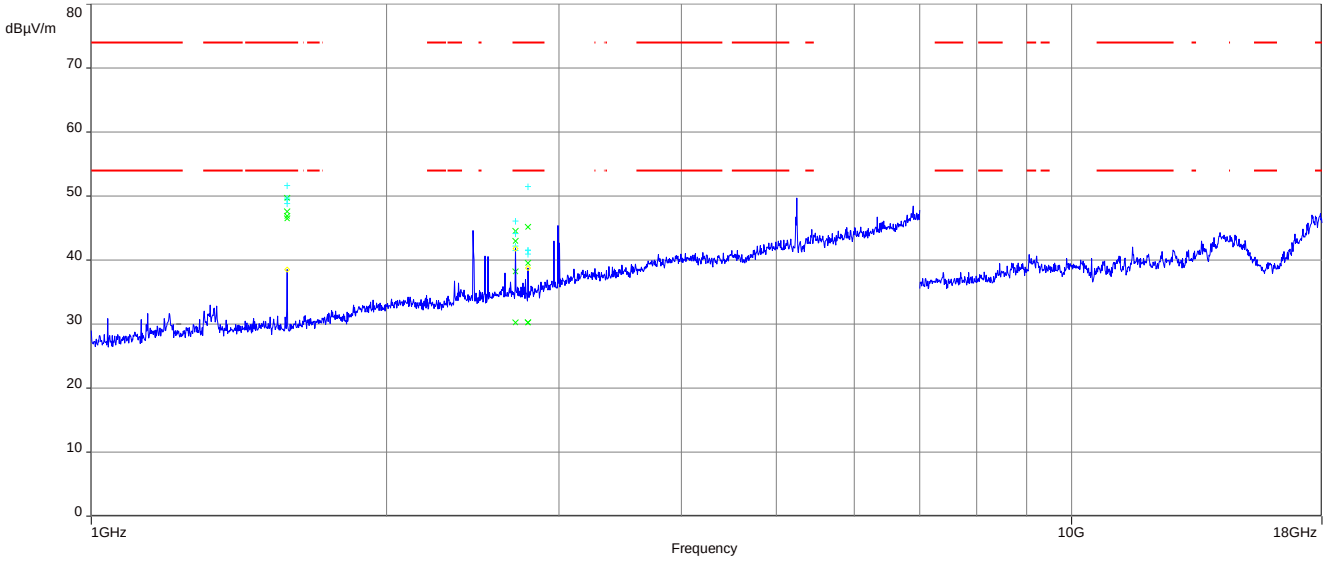
Plot 5: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-1; highest channel

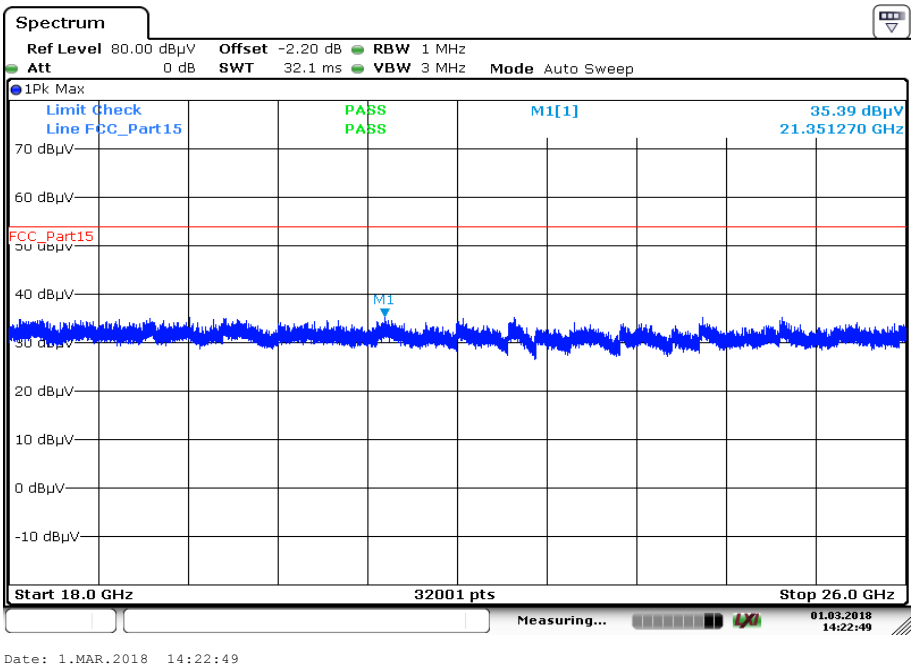


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.803	23.53	30.0	6.47	1000	120	98.0	V	90.0	13.7
53.920	20.55	30.0	9.45	1000	120	98.0	V	270.0	13.2
64.783	21.55	30.0	8.45	1000	120	101.0	V	270.0	10.8
71.038	17.72	30.0	12.28	1000	120	170.0	V	270.0	9.5
643.501	28.50	36.0	7.50	1000	120	101.0	H	270.0	21.1
927.495	25.59	36.0	10.41	1000	120	101.0	V	0.0	24.3

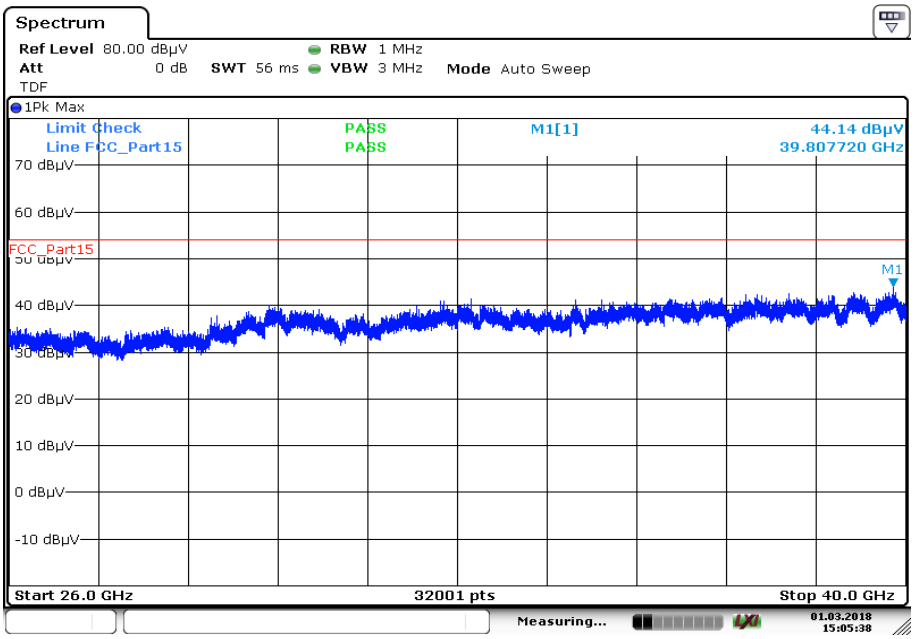
Plot 6: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; highest channel



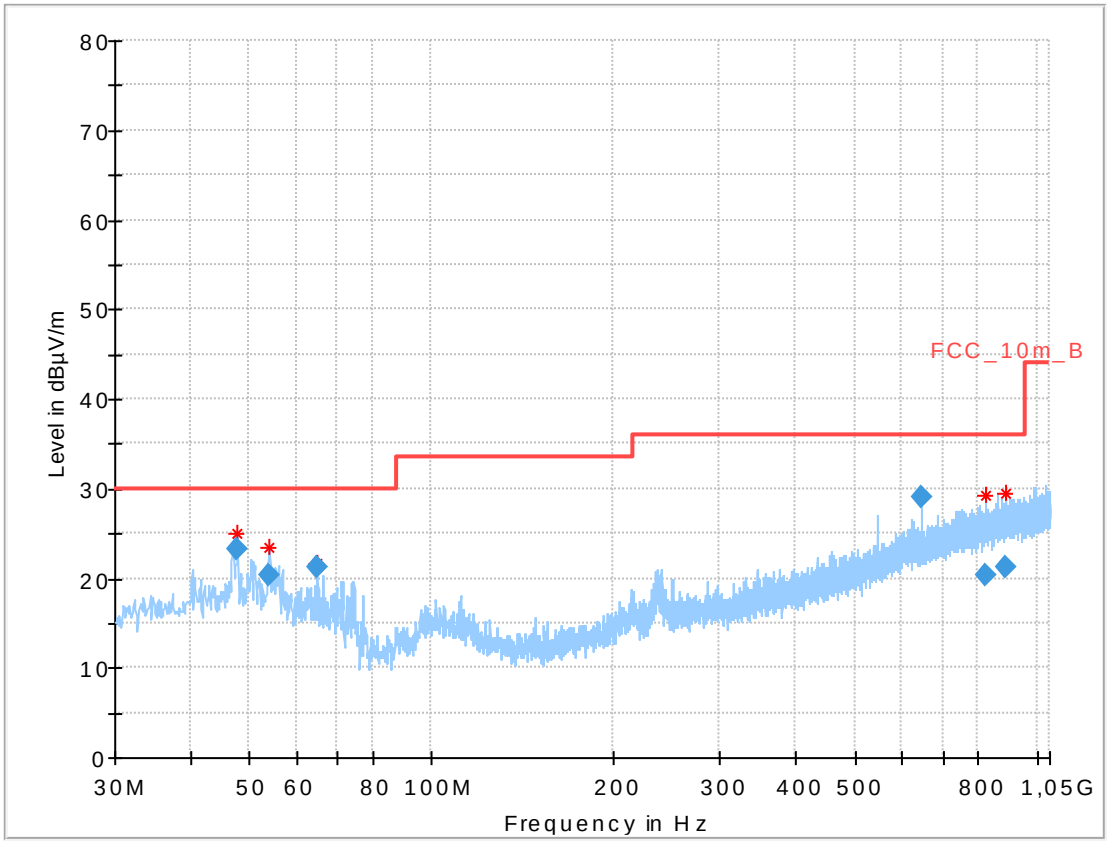
Plot 7: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; highest channel



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

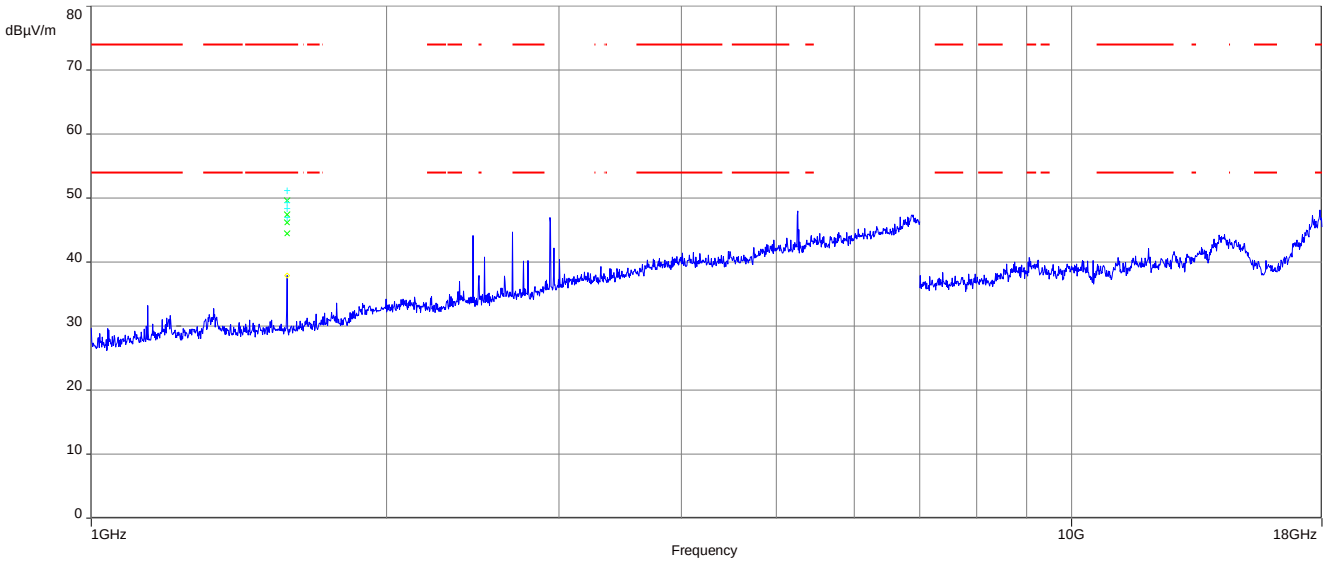


Plot 9: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

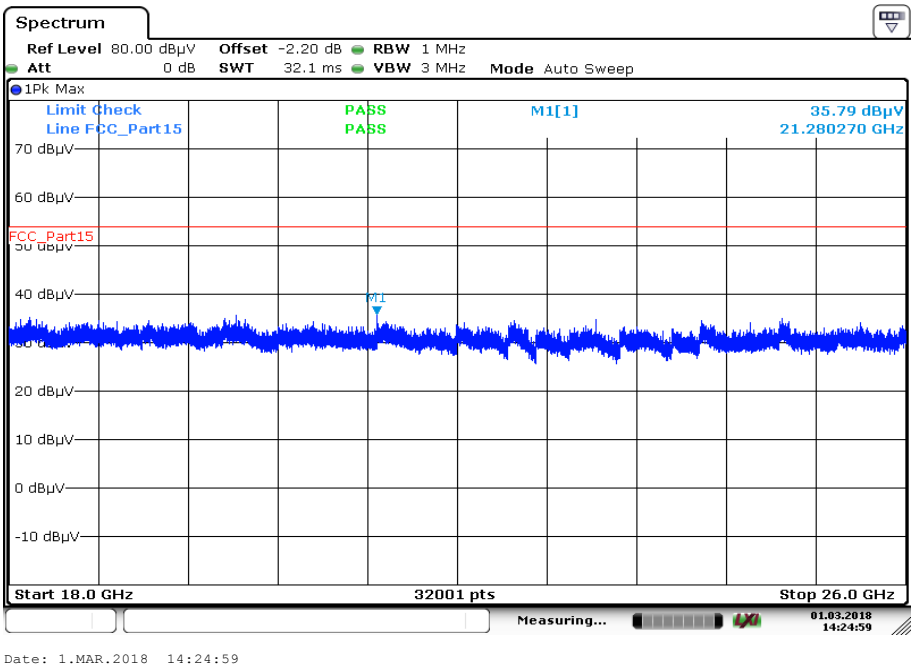


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.790	23.23	30.0	6.77	1000	120	101.0	V	90.0	13.7
53.915	20.31	30.0	9.69	1000	120	98.0	V	180.0	13.2
64.776	21.24	30.0	8.76	1000	120	101.0	V	180.0	10.8
643.487	29.05	36.0	6.95	1000	120	101.0	H	90.0	21.1
822.449	20.40	36.0	15.60	1000	120	170.0	H	180.0	23.1
887.501	21.33	36.0	14.67	1000	120	170.0	V	90.0	24.0

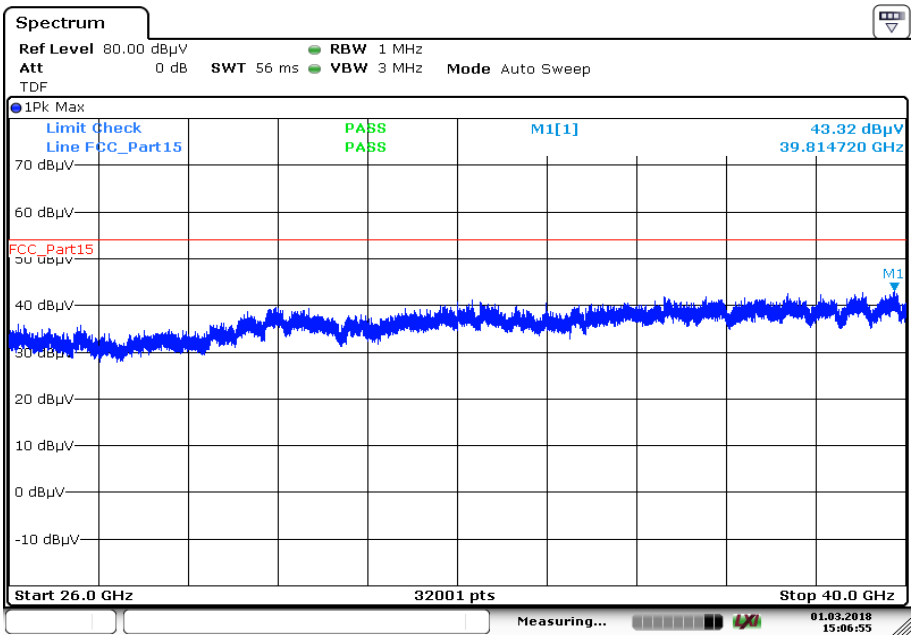
Plot 10: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel



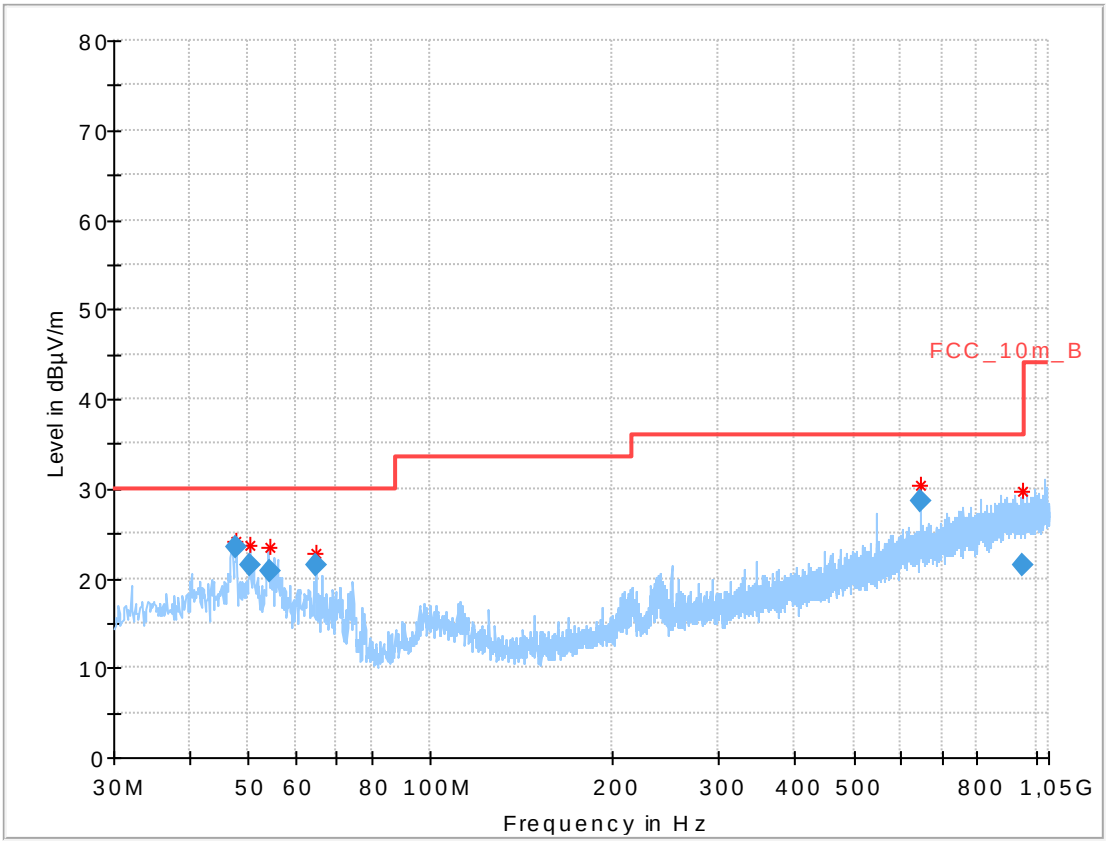
Plot 11: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel



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

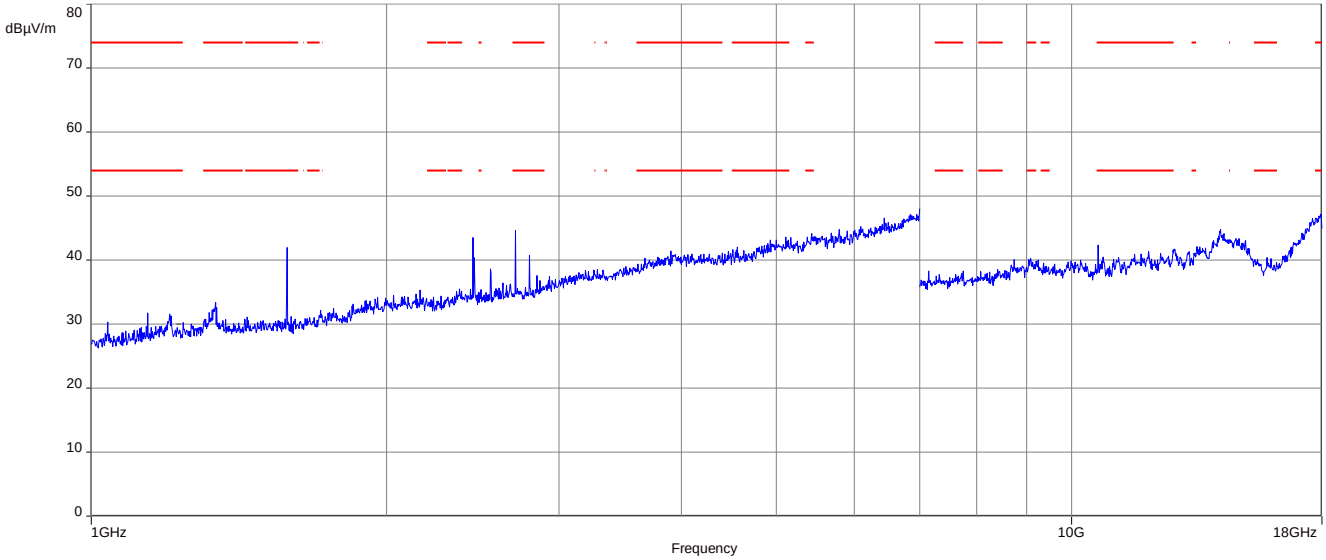


Plot 13: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; highest channel

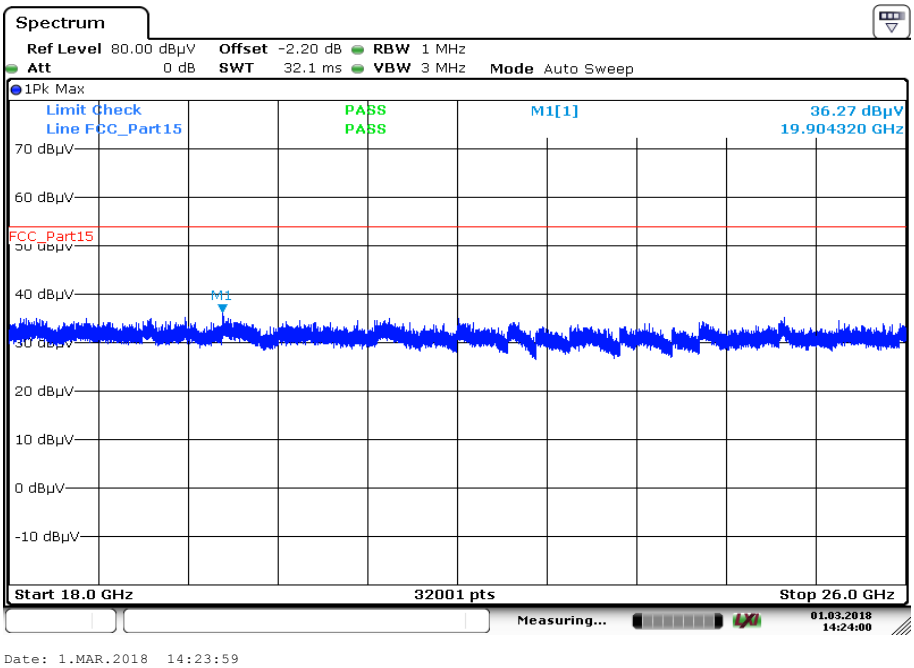


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.803	23.44	30.0	6.56	1000	120	98.0	V	90.0	13.7
50.446	21.36	30.0	8.64	1000	120	101.0	V	90.0	13.7
54.191	20.77	30.0	9.23	1000	120	98.0	V	270.0	13.2
64.792	21.40	30.0	8.60	1000	120	100.0	V	180.0	10.8
643.496	28.66	36.0	7.34	1000	120	101.0	H	270.0	21.1
951.722	21.43	36.0	14.57	1000	120	170.0	H	180.0	24.4

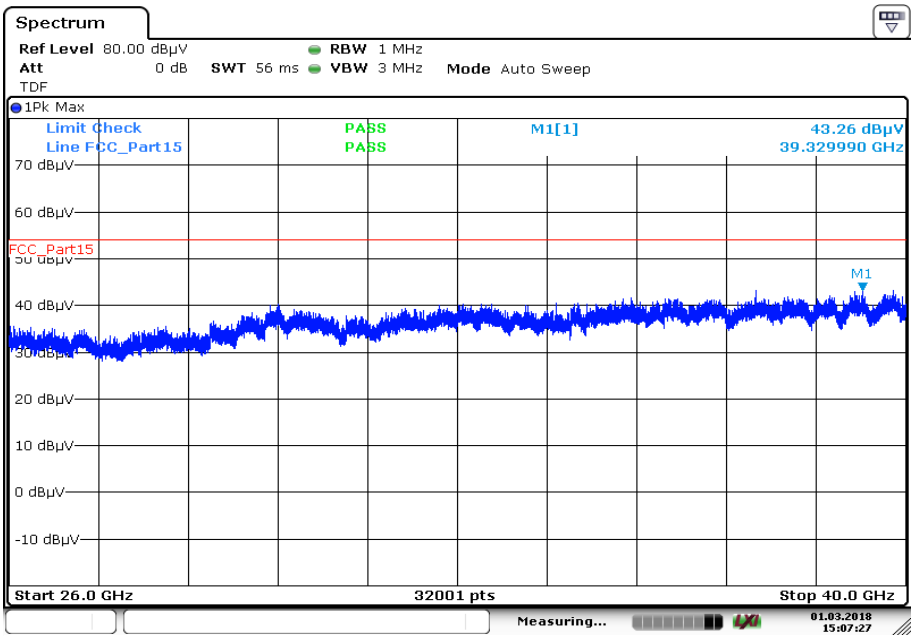
Plot 14: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; highest channel



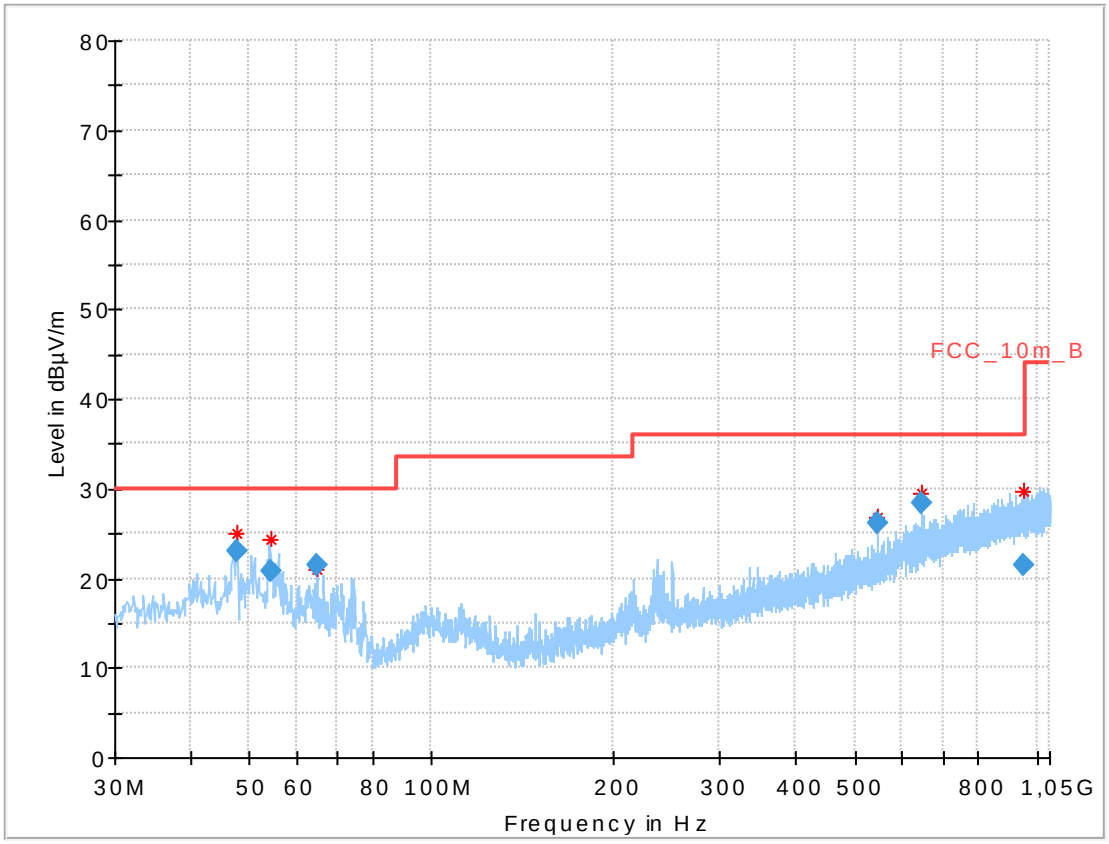
Plot 15: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; highest channel



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

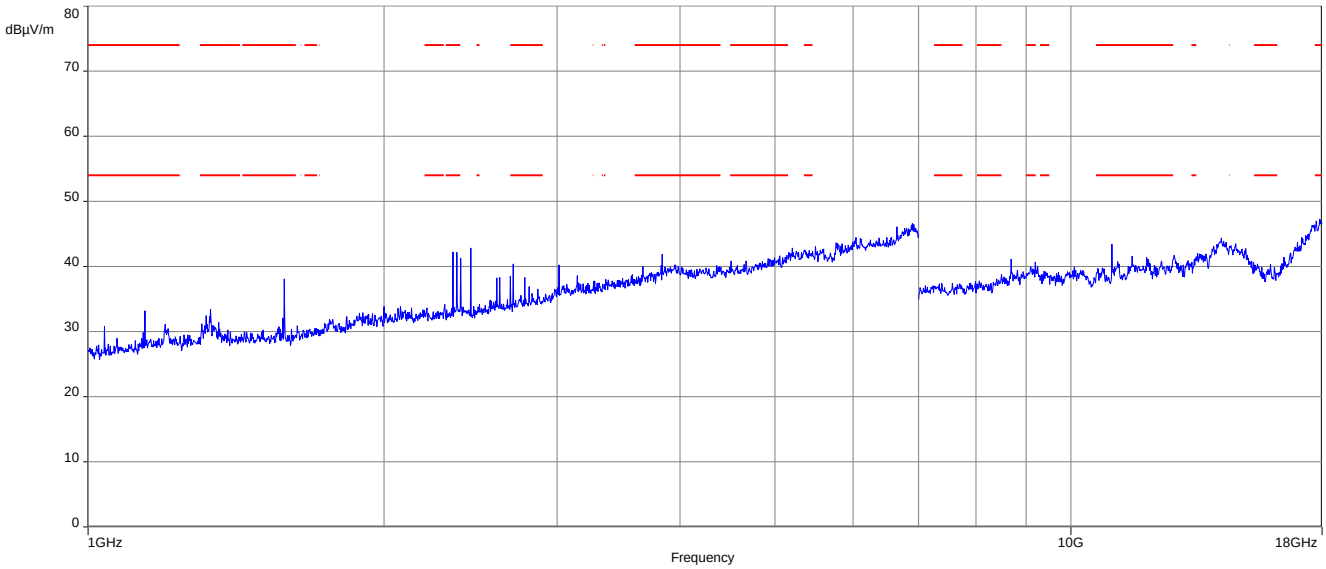


Plot 17: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel

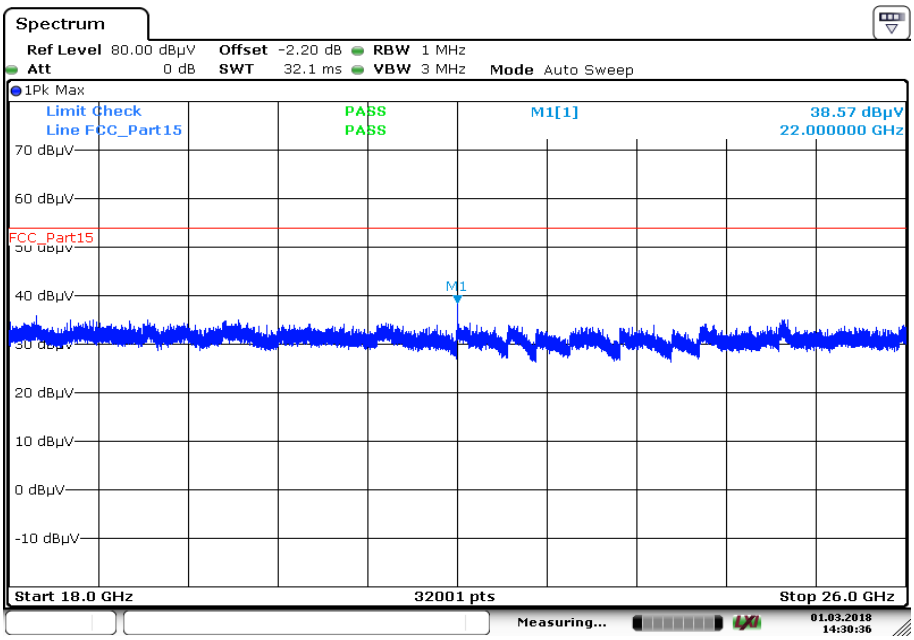


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.808	22.94	30.0	7.06	1000	120	98.0	V	270.0	13.7
54.173	20.81	30.0	9.19	1000	120	101.0	V	90.0	13.2
64.790	21.40	30.0	8.60	1000	120	101.0	V	90.0	10.8
544.491	26.23	36.0	9.77	1000	120	170.0	H	90.0	19.3
643.508	28.34	36.0	7.66	1000	120	101.0	H	270.0	21.1
952.653	21.43	36.0	14.57	1000	120	170.0	V	0.0	24.4

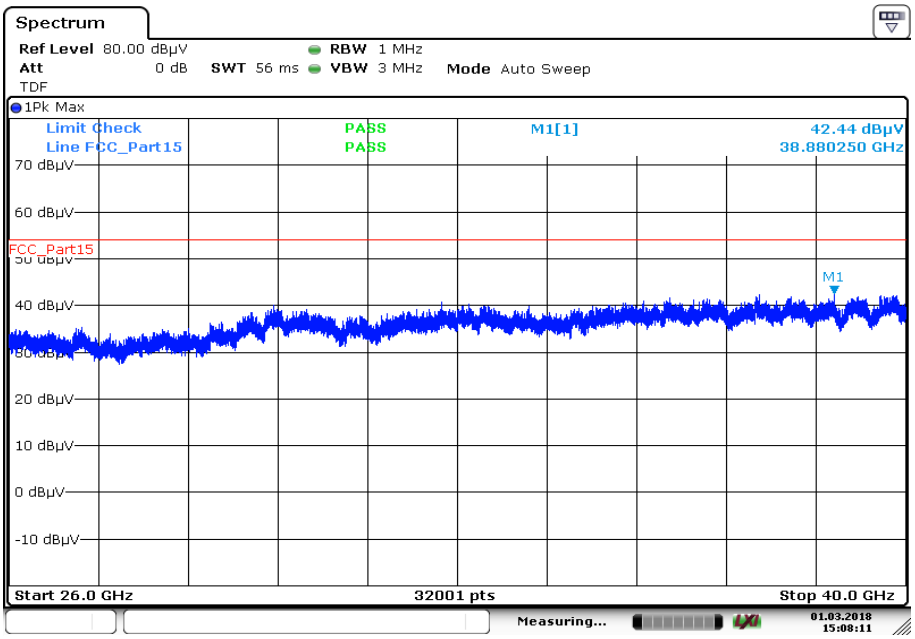
Plot 18: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



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



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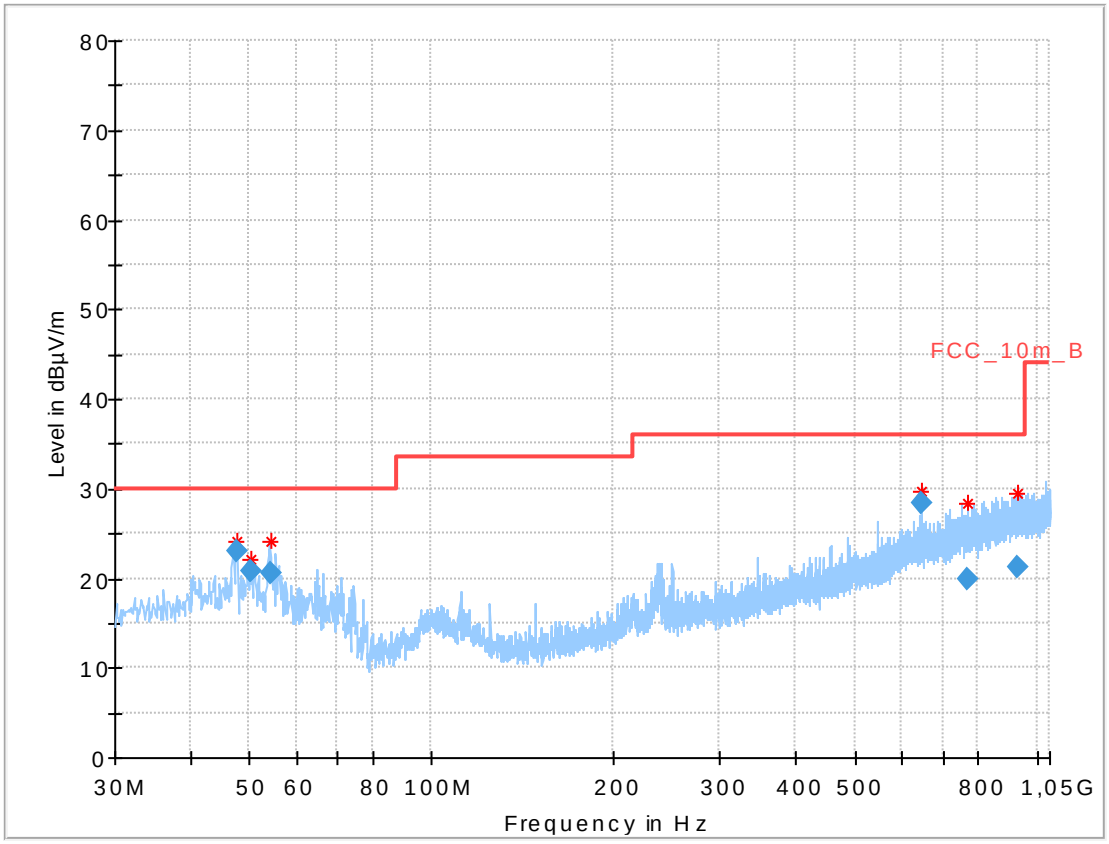
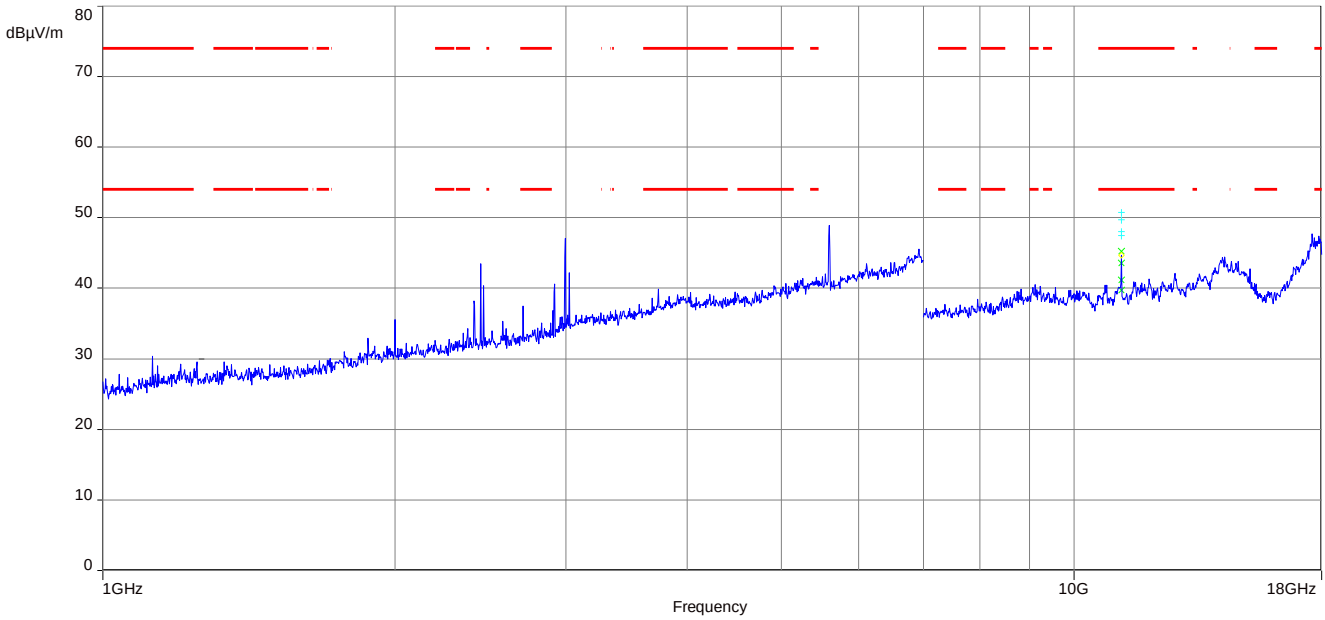
Plot 21: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

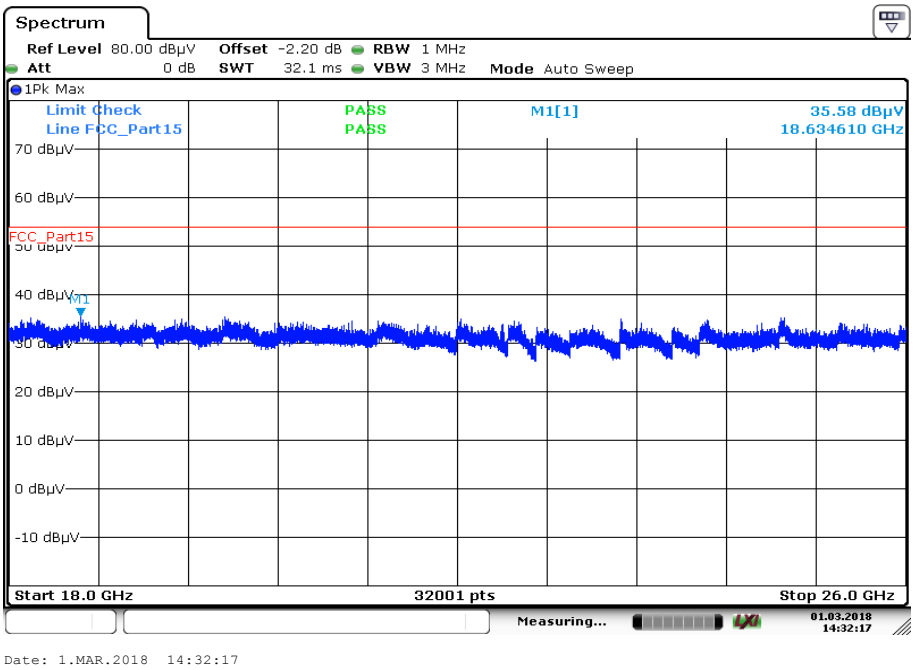


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.796	23.11	30.0	6.89	1000	120	101.0	V	180.0	13.7
50.426	20.88	30.0	9.12	1000	120	170.0	V	270.0	13.7
54.193	20.59	30.0	9.41	1000	120	170.0	V	270.0	13.2
643.506	28.41	36.0	7.59	1000	120	101.0	H	270.0	21.1
766.616	19.86	36.0	16.14	1000	120	98.0	H	270.0	22.7
930.605	21.33	36.0	14.67	1000	120	170.0	V	180.0	24.3

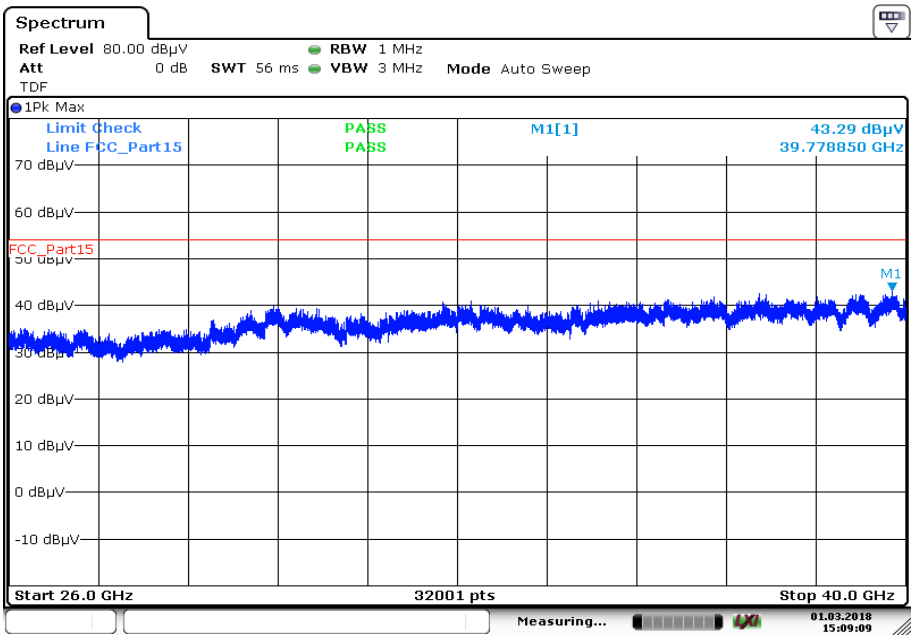
Plot 22: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; middle channel



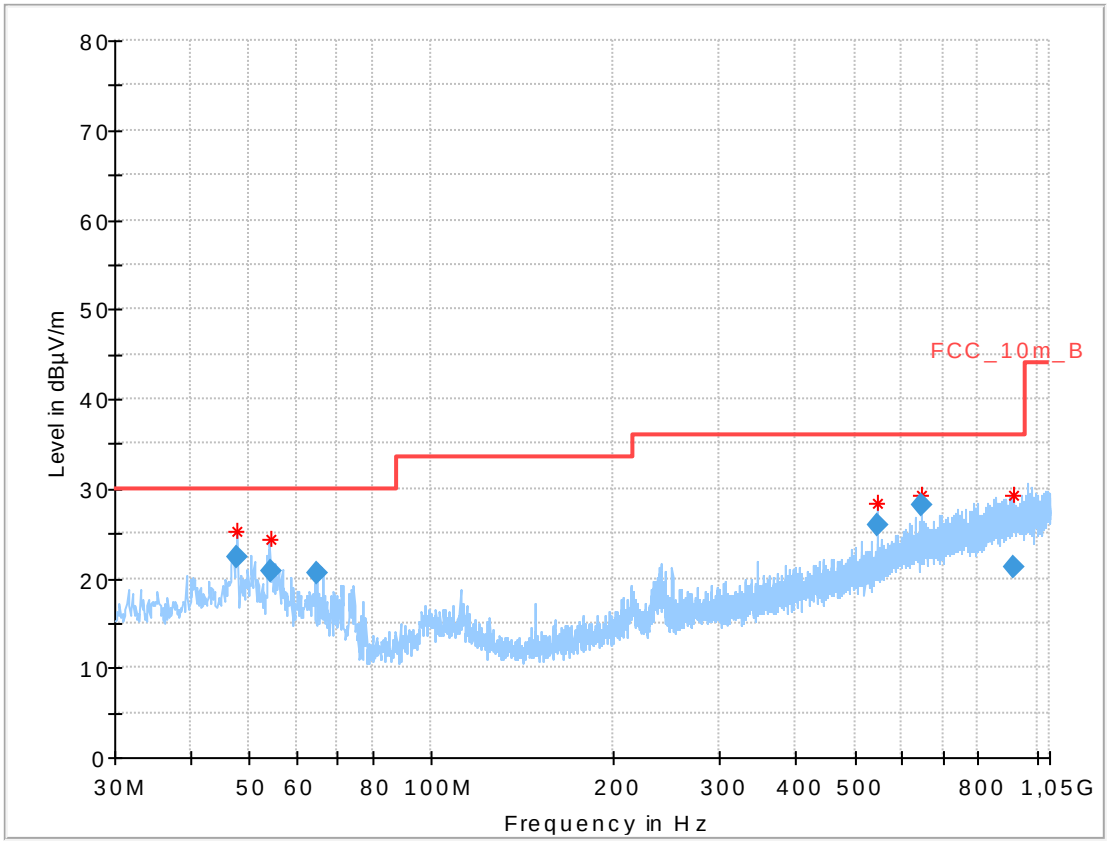
Plot 23: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; middle channel



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

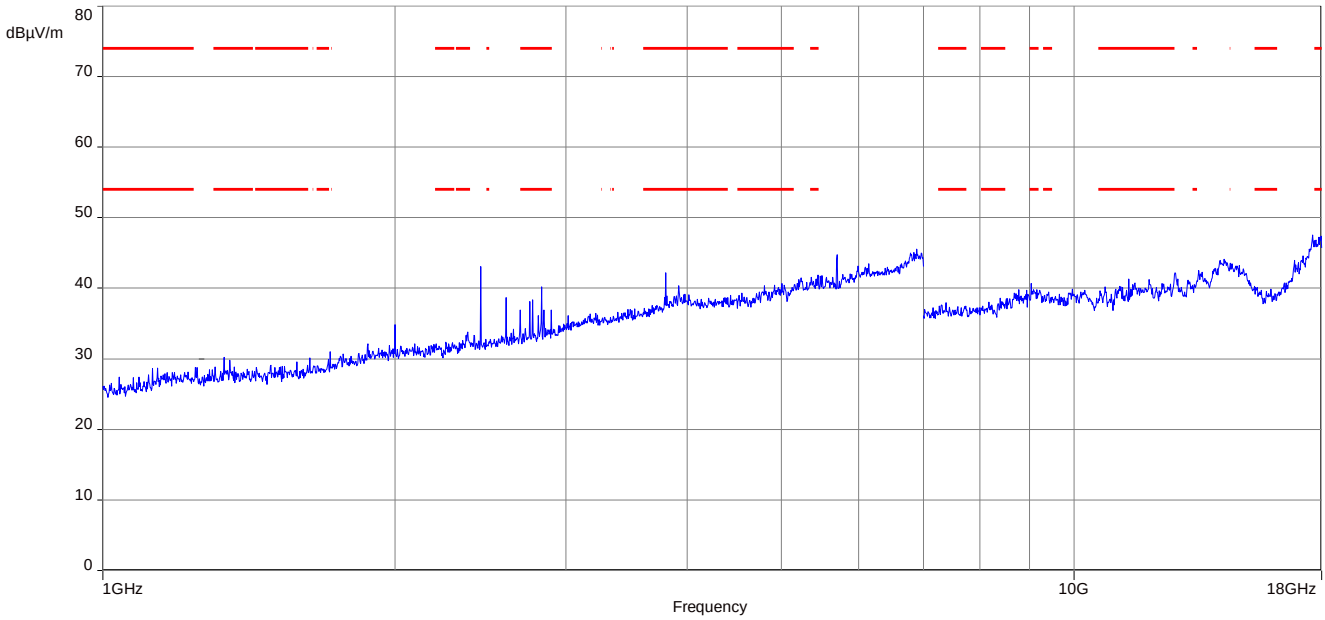


Plot 25: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

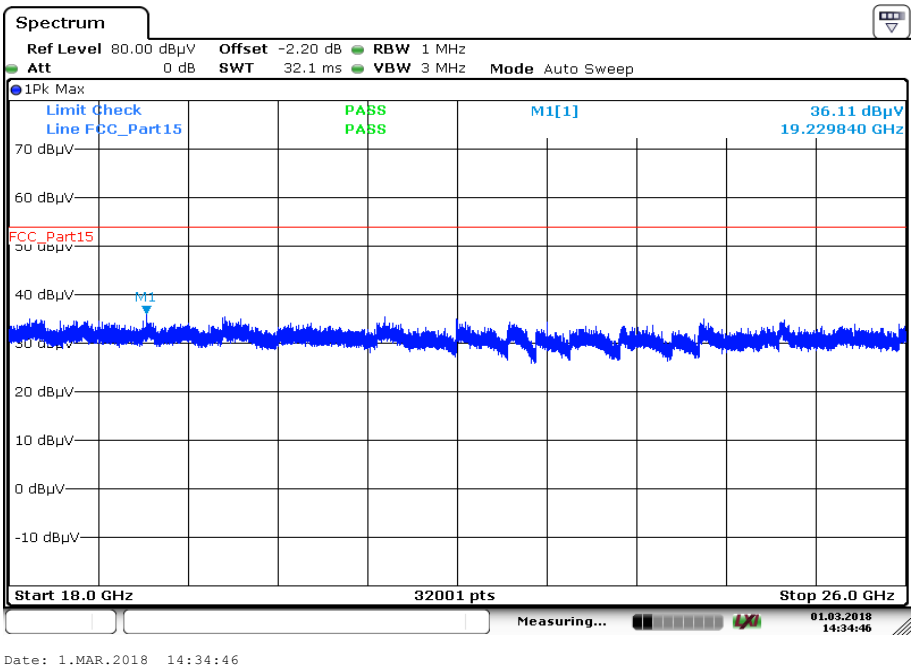


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.789	22.35	30.0	7.65	1000	120	170.0	V	90.0	13.7
54.173	20.70	30.0	9.30	1000	120	98.0	V	90.0	13.2
64.787	20.52	30.0	9.48	1000	120	170.0	V	180.0	10.8
544.488	25.85	36.0	10.15	1000	120	101.0	H	90.0	19.3
643.472	28.06	36.0	7.94	1000	120	101.0	H	270.0	21.1
913.663	21.32	36.0	14.68	1000	120	170.0	V	90.0	24.2

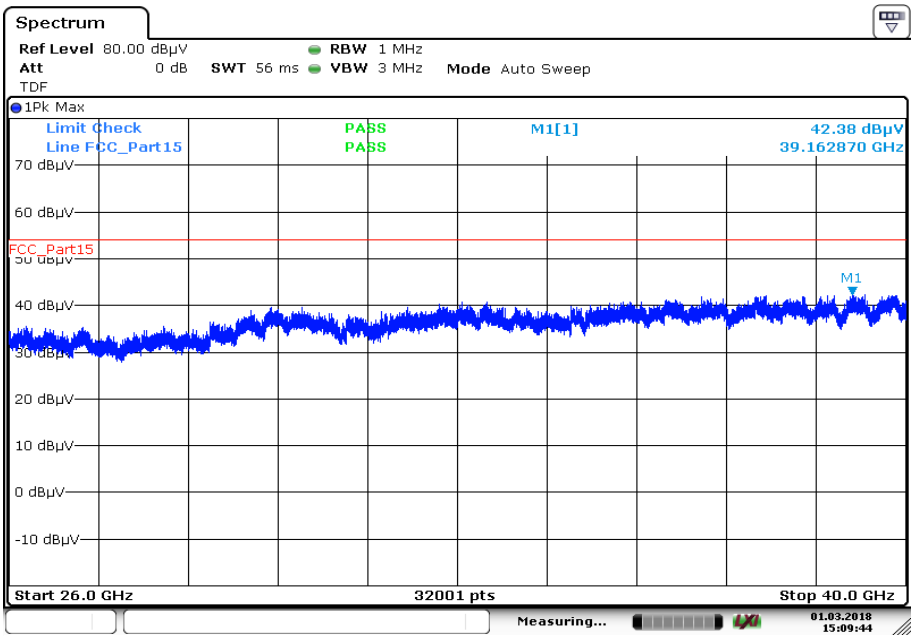
Plot 26: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



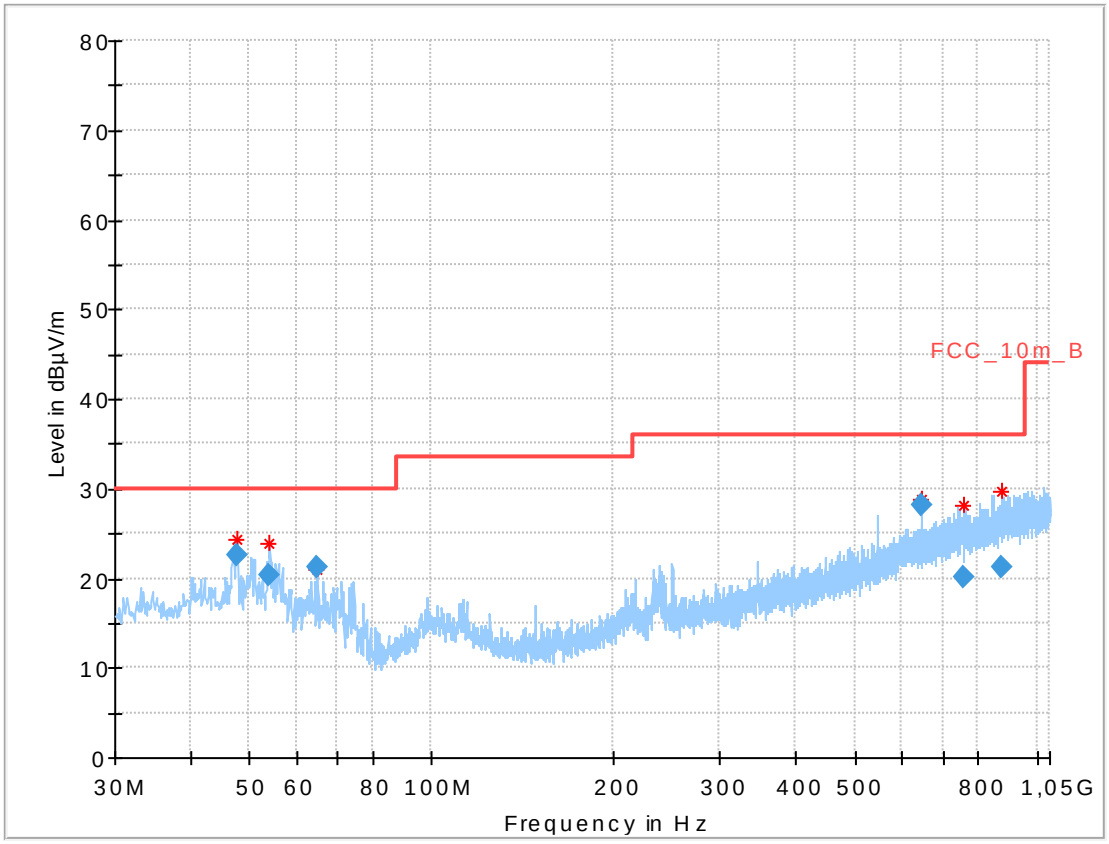
Plot 27: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



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

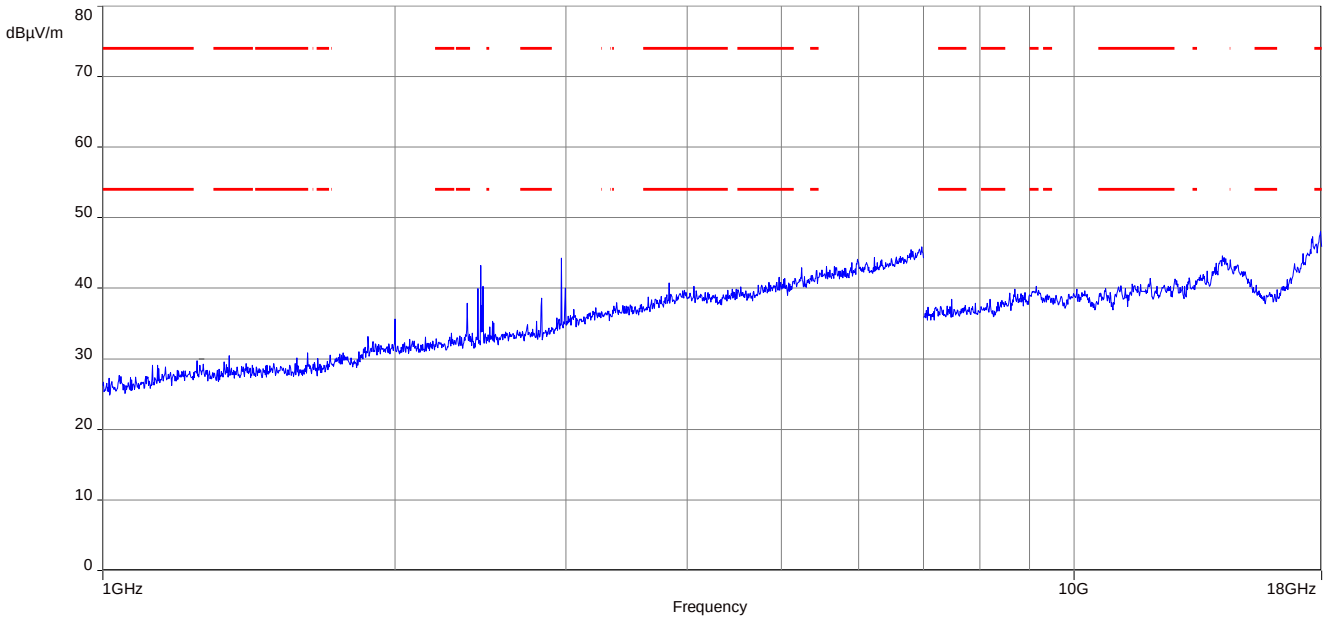


Plot 29: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

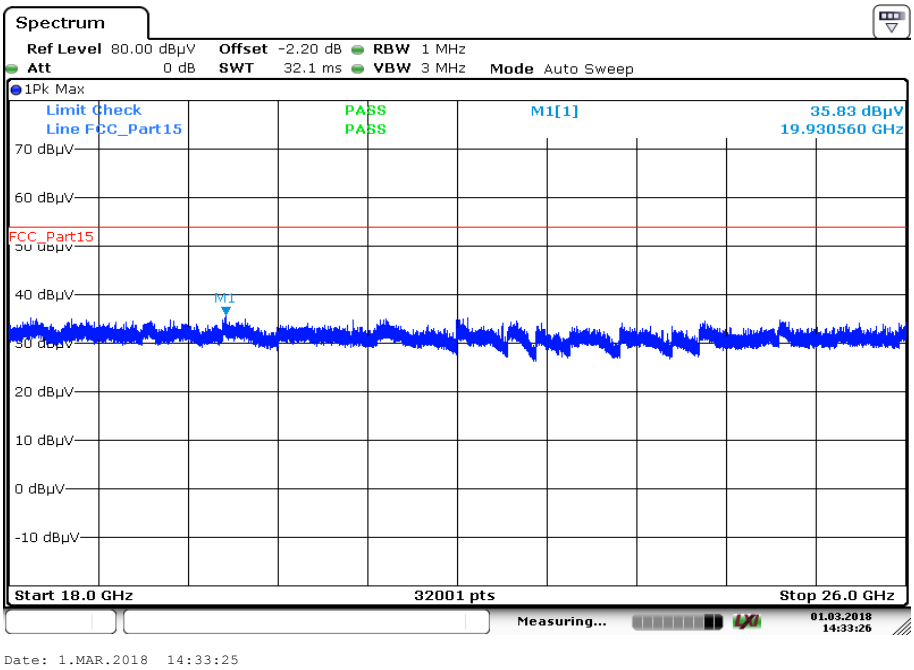


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.820	22.58	30.0	7.42	1000	120	100.0	V	270.0	13.7
53.902	20.23	30.0	9.77	1000	120	98.0	V	90.0	13.2
64.764	21.22	30.0	8.78	1000	120	98.0	V	90.0	10.8
643.467	28.17	36.0	7.83	1000	120	101.0	H	90.0	21.1
758.189	20.02	36.0	15.98	1000	120	98.0	H	180.0	22.7
876.924	21.31	36.0	14.69	1000	120	98.0	V	90.0	23.9

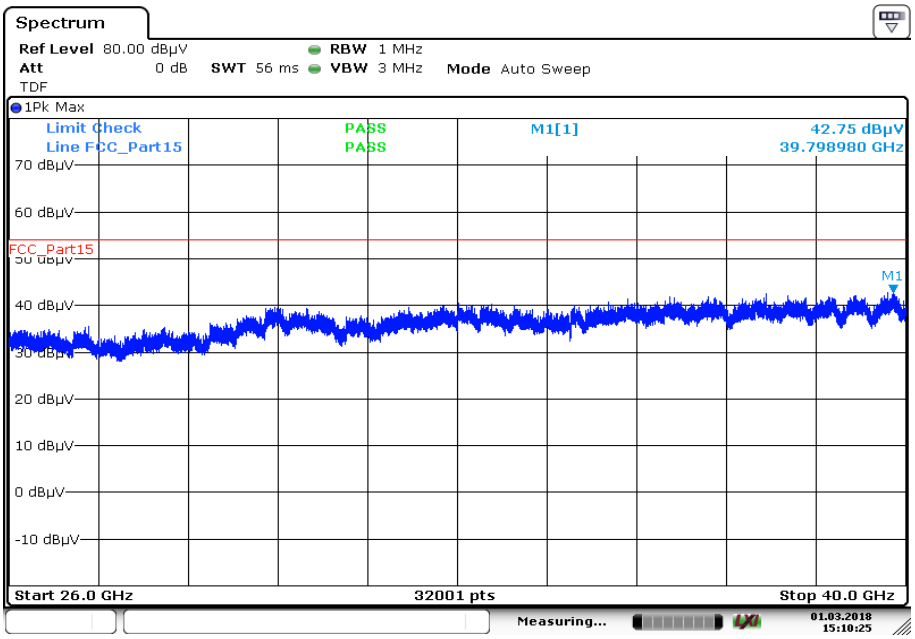
Plot 30: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; lowest channel



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



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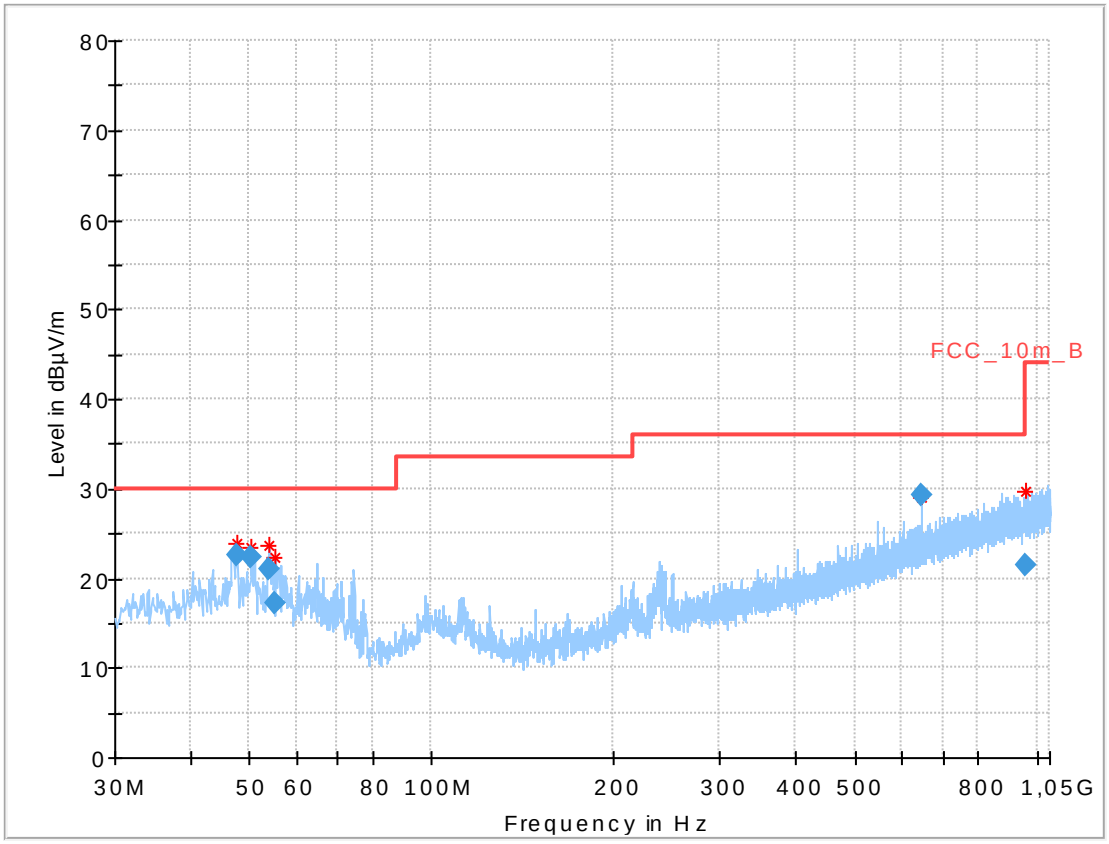
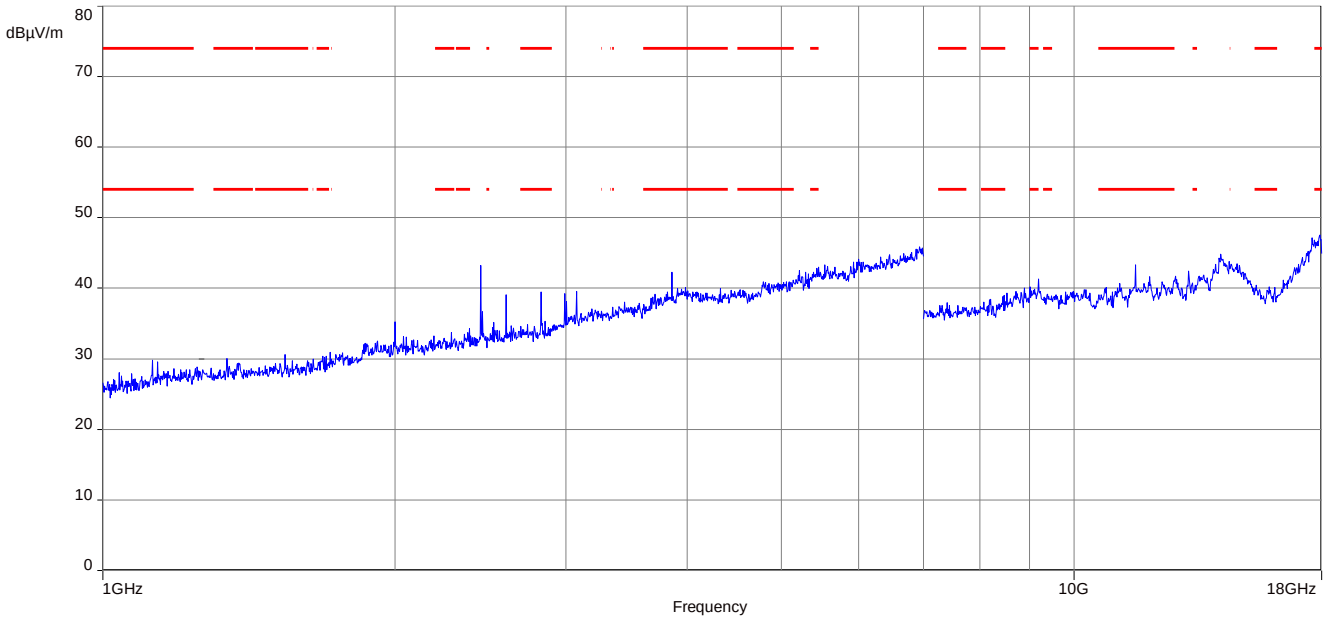
Plot 33: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; middle channel

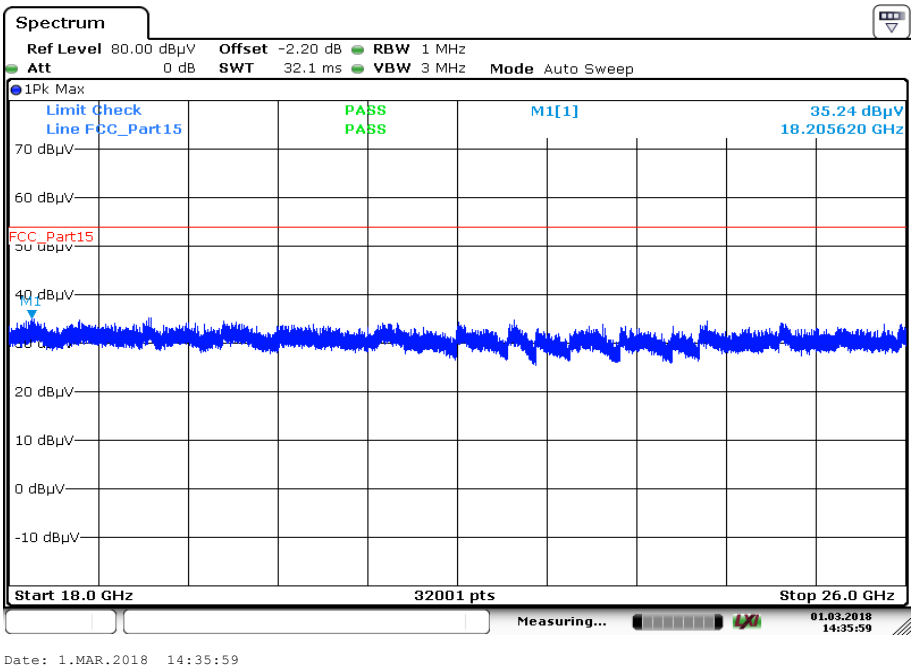


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.788	22.55	30.0	7.45	1000	120	98.0	V	0.0	13.7
50.439	22.39	30.0	7.61	1000	120	98.0	V	270.0	13.7
53.922	20.96	30.0	9.04	1000	120	101.0	V	270.0	13.2
55.343	17.18	30.0	12.82	1000	120	101.0	V	180.0	13.0
643.489	29.17	36.0	6.83	1000	120	101.0	H	90.0	21.1
957.007	21.45	36.0	14.55	1000	120	98.0	V	0.0	24.4

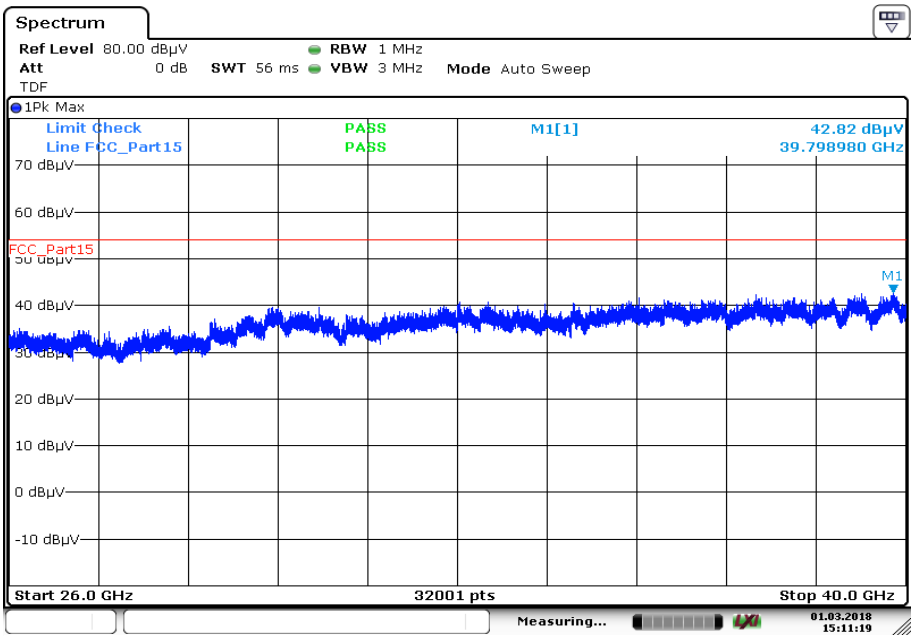
Plot 34: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; middle channel



Plot 35: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; middle channel



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



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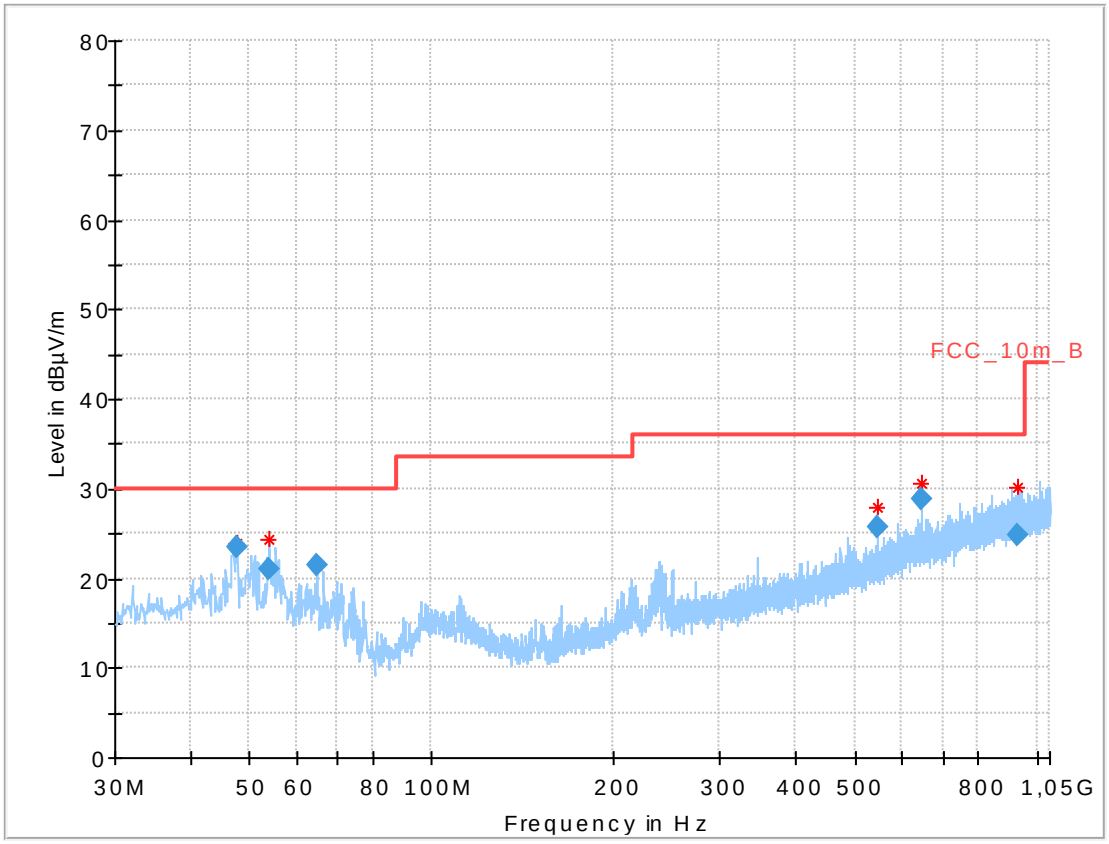
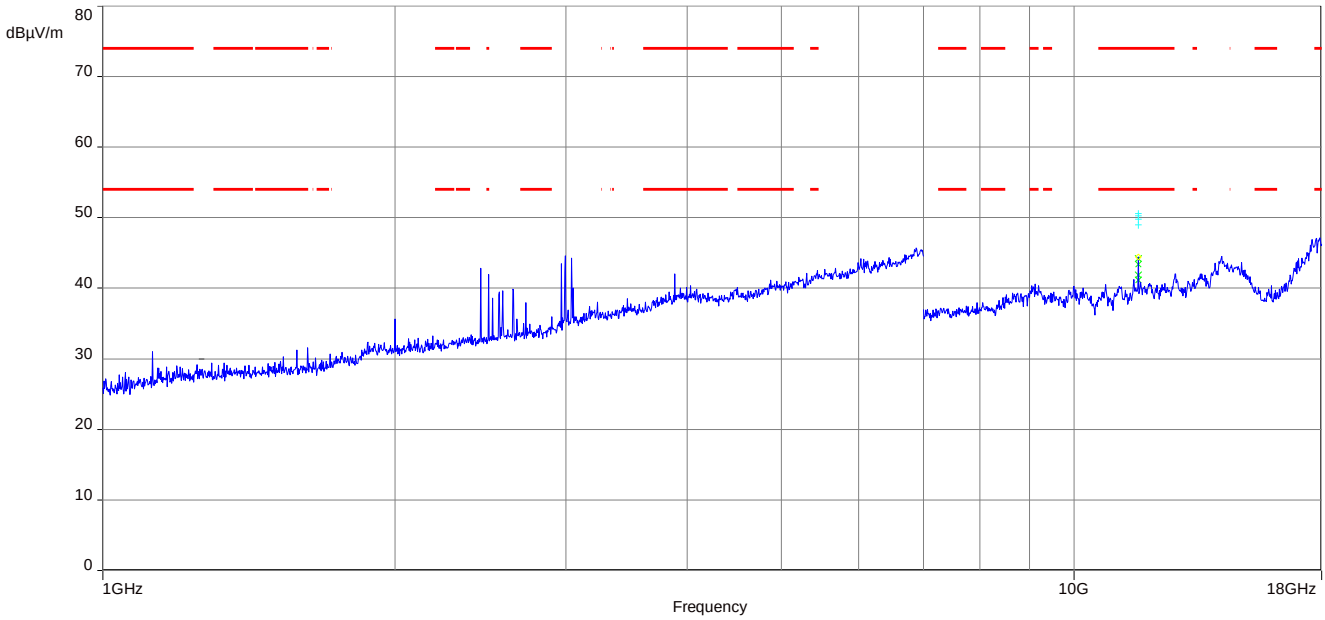
Plot 37: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; highest channel

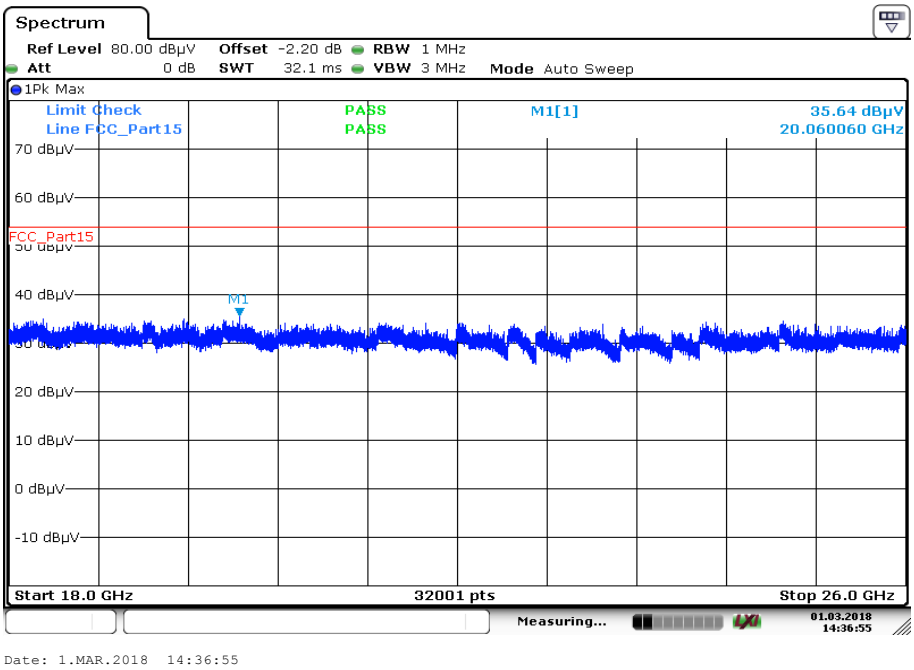


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.795	23.40	30.0	6.60	1000	120	98.0	V	180.0	13.7
53.936	20.93	30.0	9.07	1000	120	98.0	V	180.0	13.2
64.781	21.53	30.0	8.47	1000	120	98.0	V	270.0	10.8
544.485	25.71	36.0	10.29	1000	120	101.0	H	90.0	19.3
643.478	28.74	36.0	7.26	1000	120	98.0	H	90.0	21.1
927.434	24.90	36.0	11.10	1000	120	170.0	V	0.0	24.3

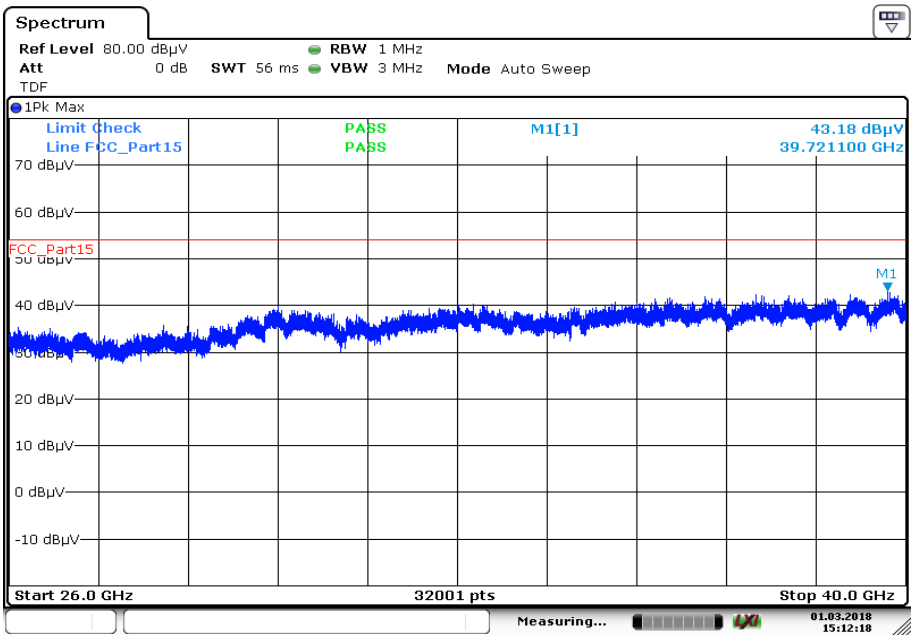
Plot 38: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel



Plot 39: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; highest channel

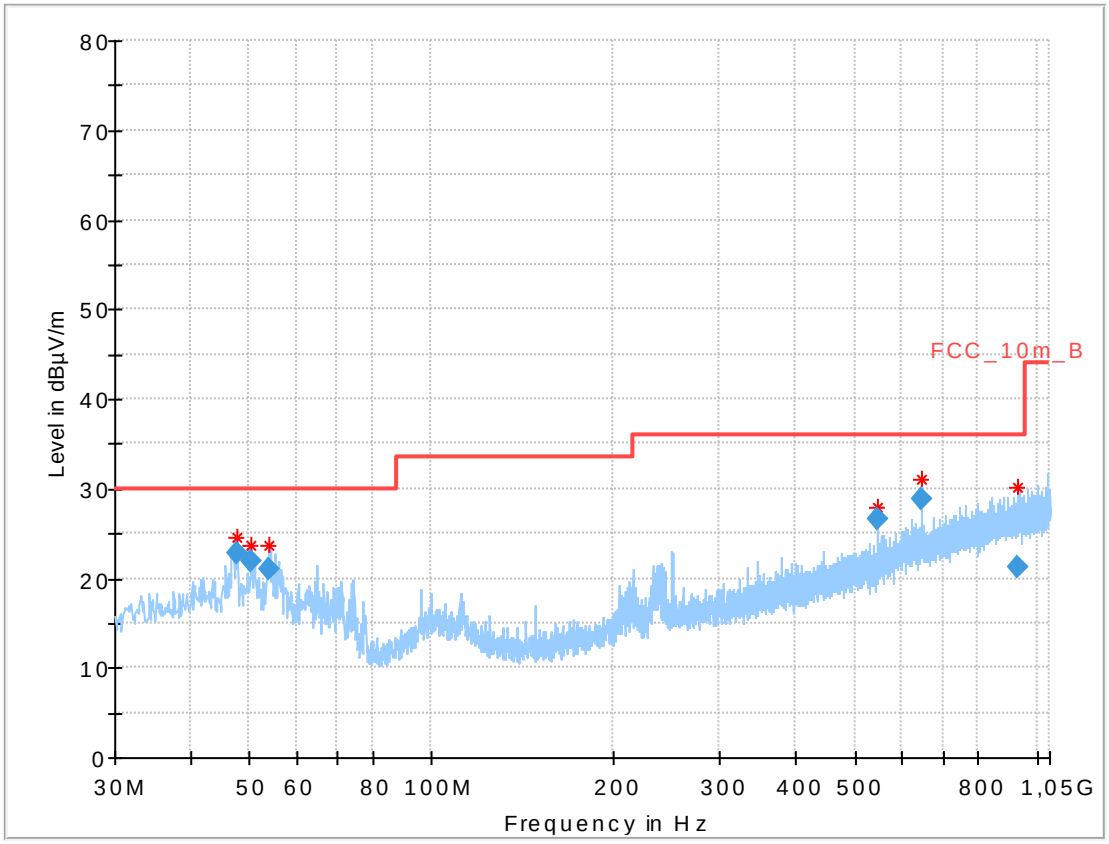


Plot 40: 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; highest channel



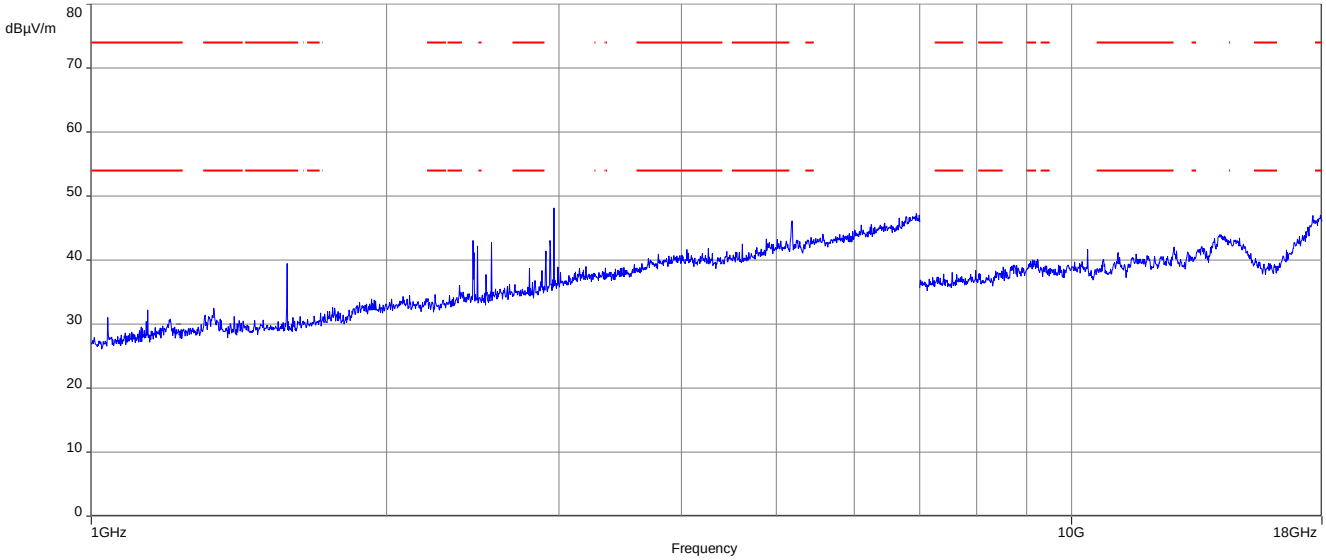
Plots: 40 MHz channel bandwidth

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

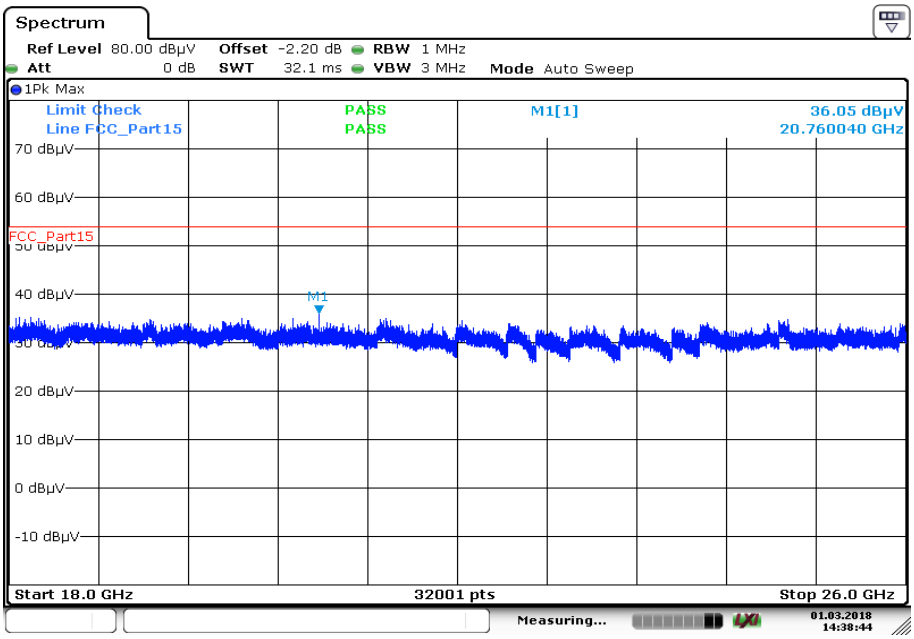


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.814	22.90	30.0	7.10	1000	120	101.0	V	90.0	13.7
50.425	21.91	30.0	8.09	1000	120	101.0	V	180.0	13.7
53.926	21.01	30.0	8.99	1000	120	98.0	V	180.0	13.2
544.505	26.50	36.0	9.50	1000	120	101.0	H	90.0	19.3
643.482	28.81	36.0	7.19	1000	120	98.0	H	90.0	21.1
928.681	21.32	36.0	14.68	1000	120	98.0	H	180.0	24.3

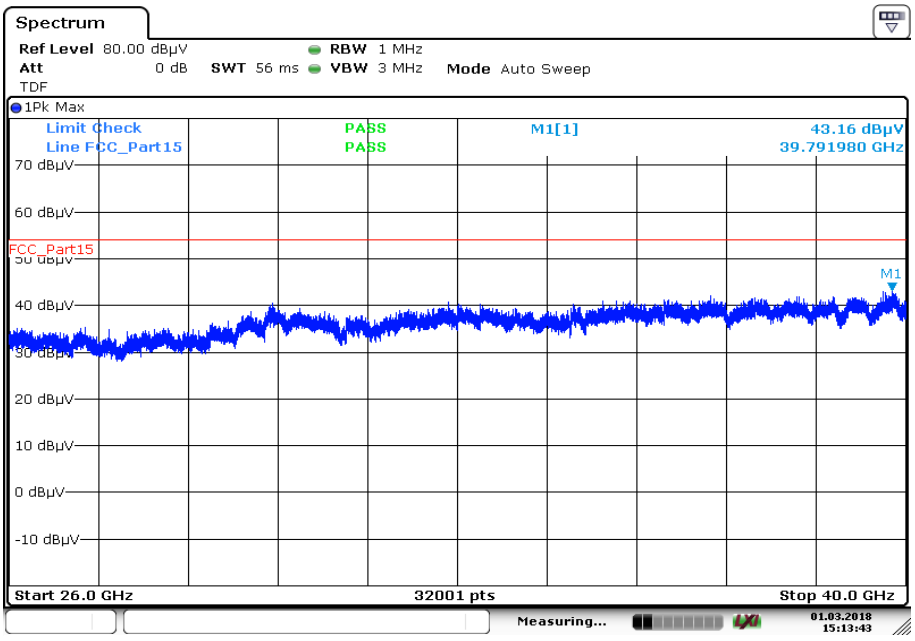
Plot 2: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; lowest channel



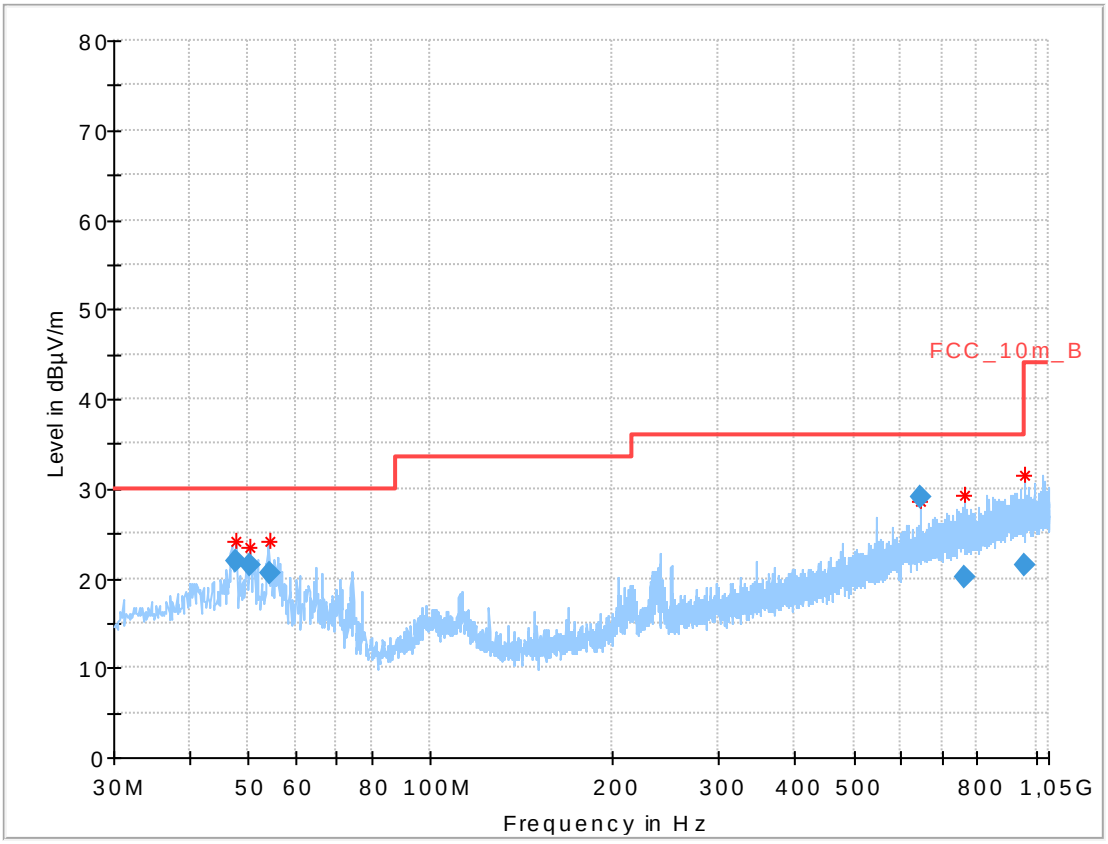
Plot 3: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; lowest channel



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

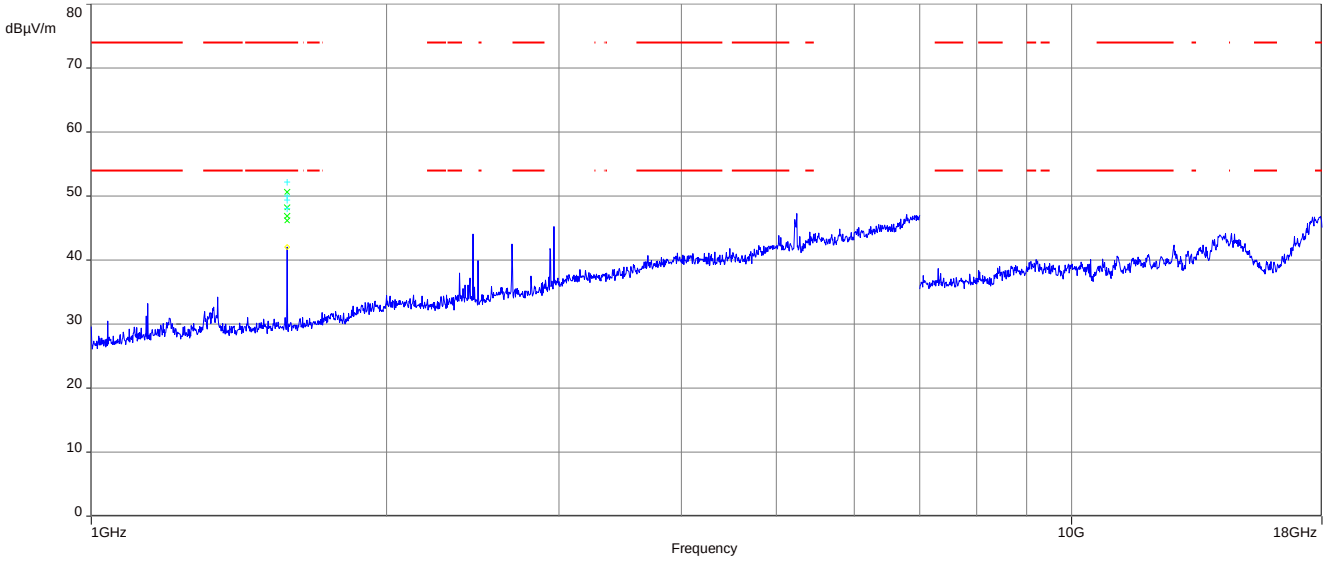


Plot 5: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-1; highest channel

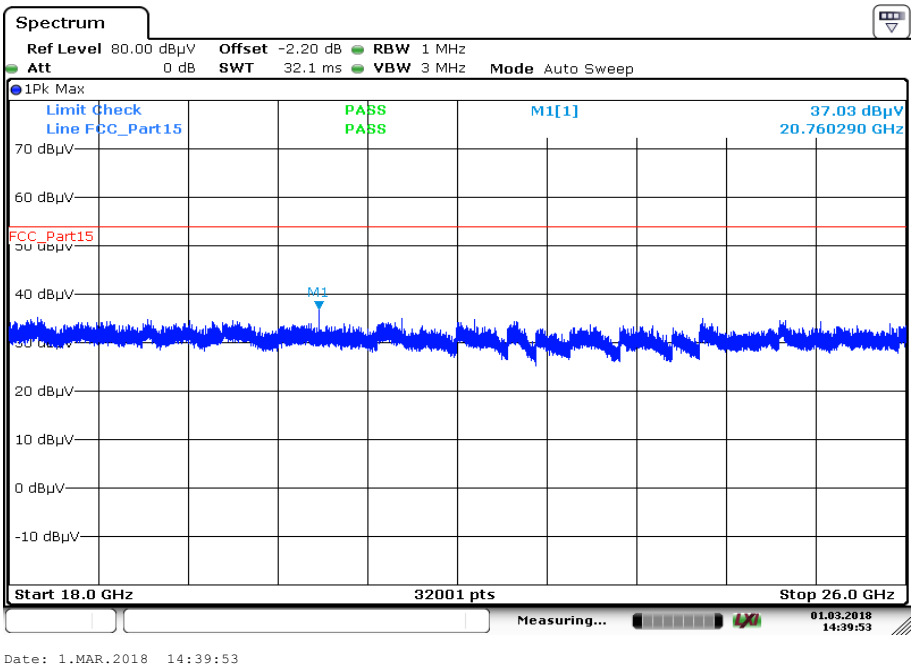


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.816	22.01	30.0	7.99	1000	120	170.0	V	180.0	13.7
50.423	21.46	30.0	8.54	1000	120	170.0	V	270.0	13.7
54.169	20.52	30.0	9.48	1000	120	170.0	V	0.0	13.2
643.491	29.08	36.0	6.92	1000	120	101.0	H	90.0	21.1
761.935	20.01	36.0	15.99	1000	120	98.0	H	270.0	22.7
960.223	21.56	44.0	22.44	1000	120	170.0	V	180.0	24.5

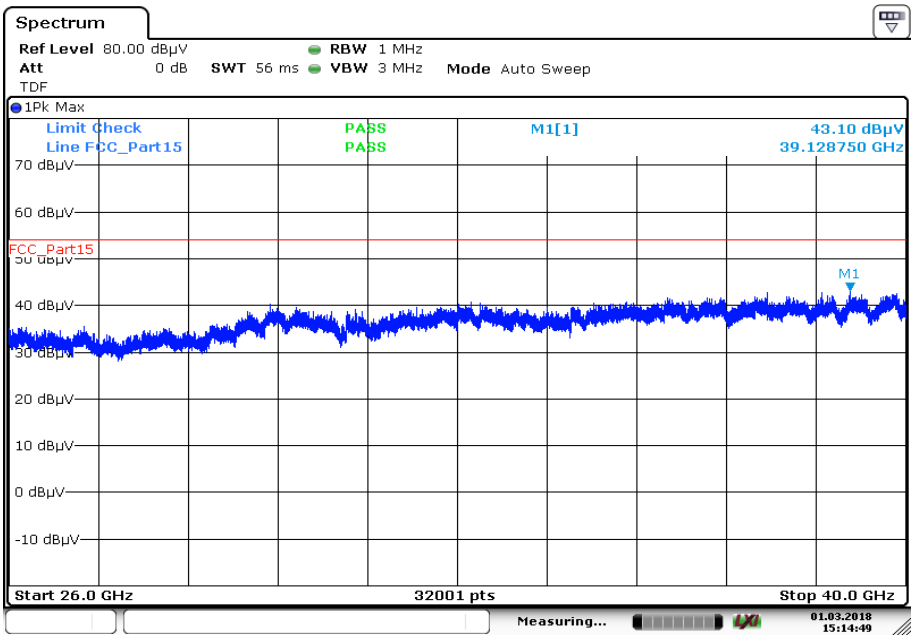
Plot 6: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; highest channel



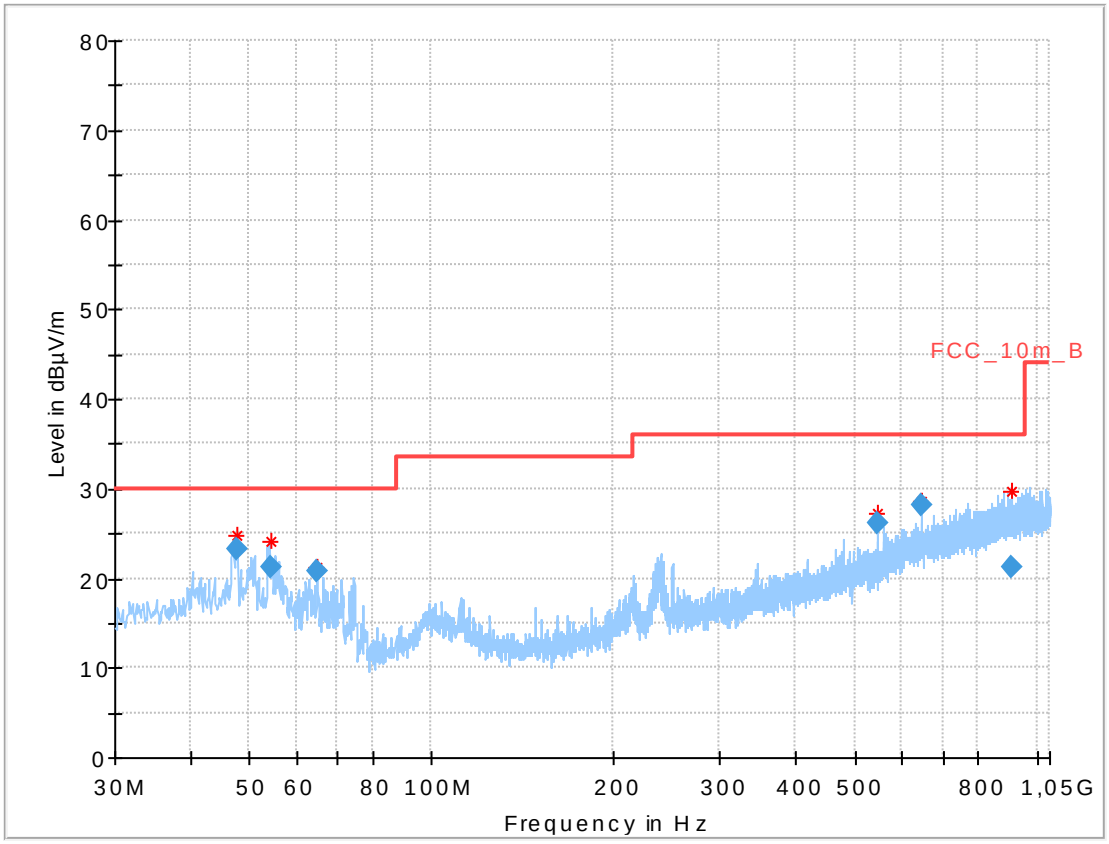
Plot 7: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; highest channel



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

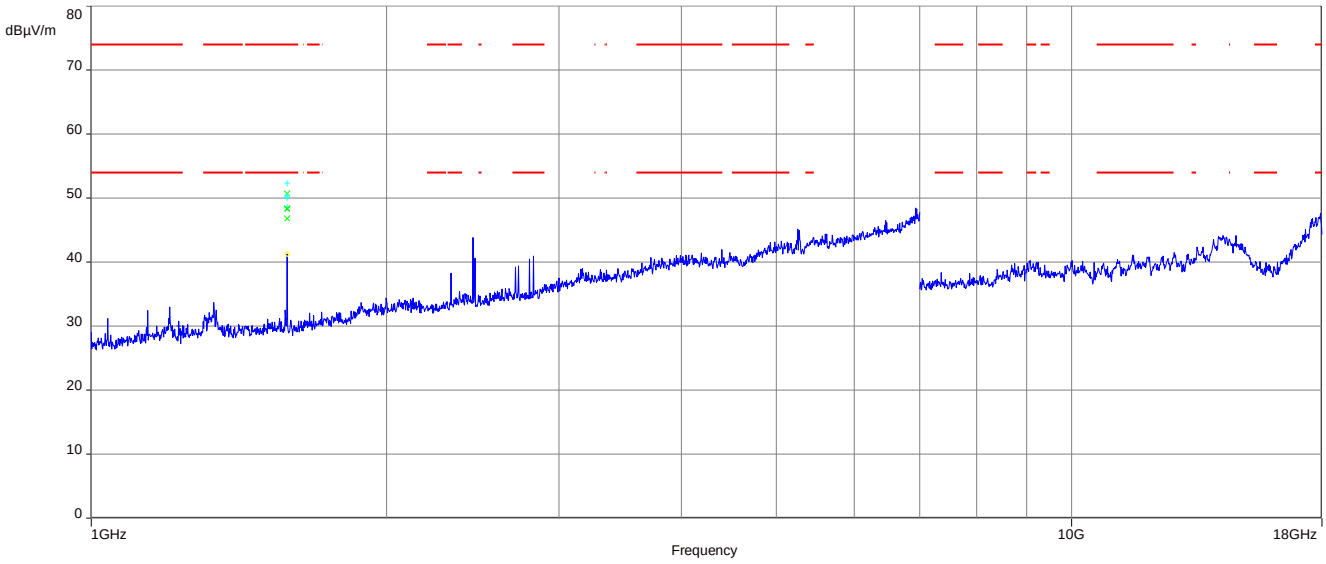


Plot 9: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel

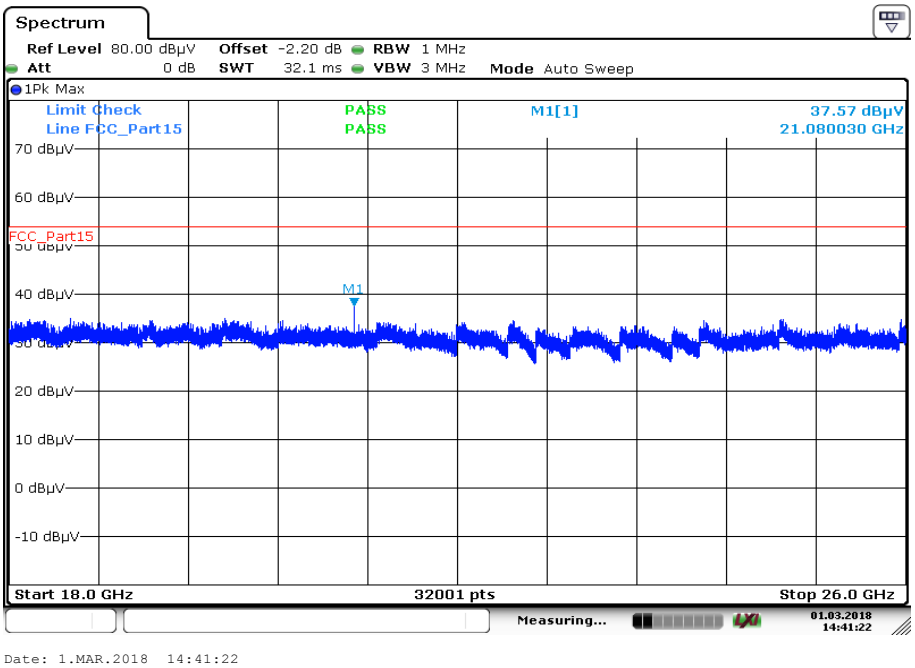


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.792	23.25	30.0	6.75	1000	120	98.0	V	90.0	13.7
54.191	21.12	30.0	8.88	1000	120	101.0	V	270.0	13.2
64.795	20.77	30.0	9.23	1000	120	170.0	V	90.0	10.8
544.486	26.17	36.0	9.83	1000	120	101.0	H	90.0	19.3
643.486	28.17	36.0	7.83	1000	120	98.0	H	270.0	21.1
911.306	21.28	36.0	14.72	1000	120	170.0	V	180.0	24.2

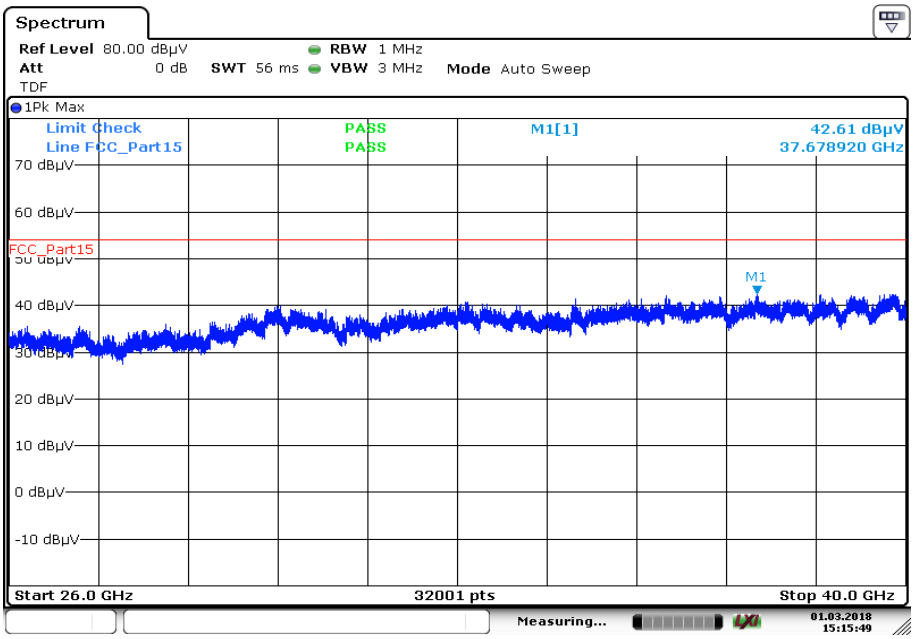
Plot 10: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel



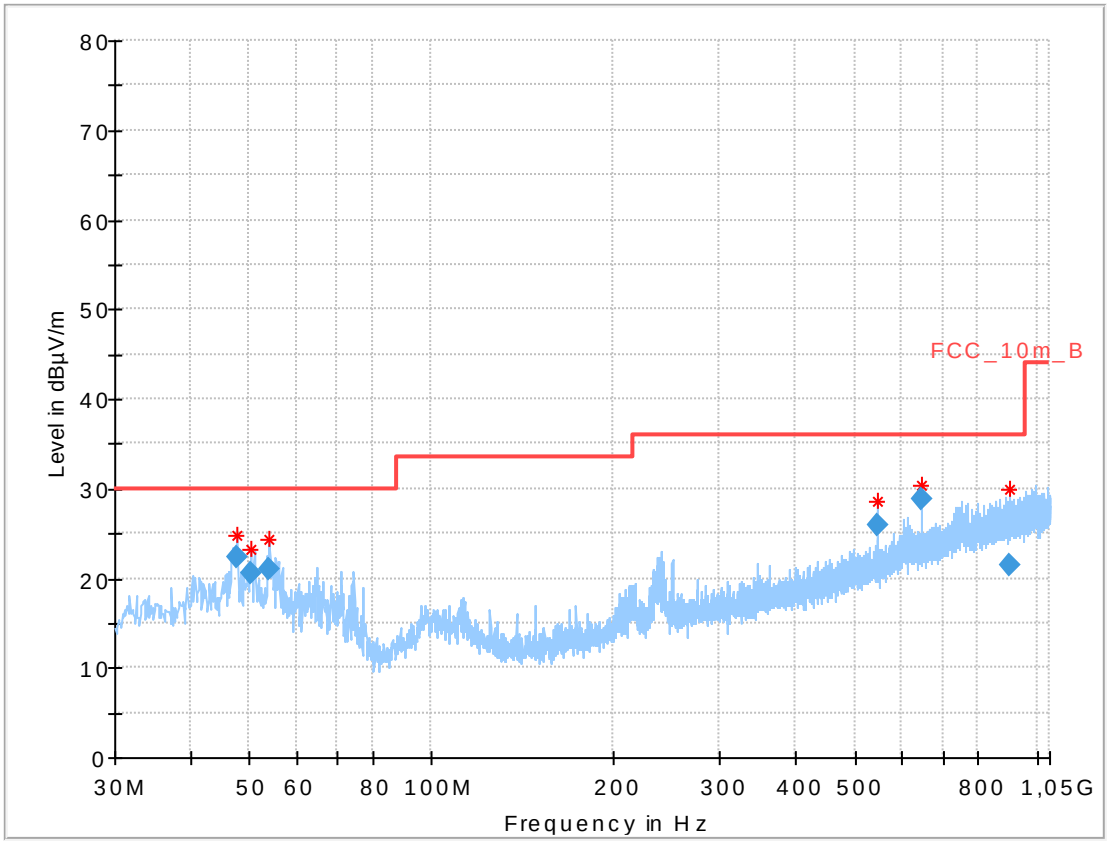
Plot 11: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; lowest channel



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

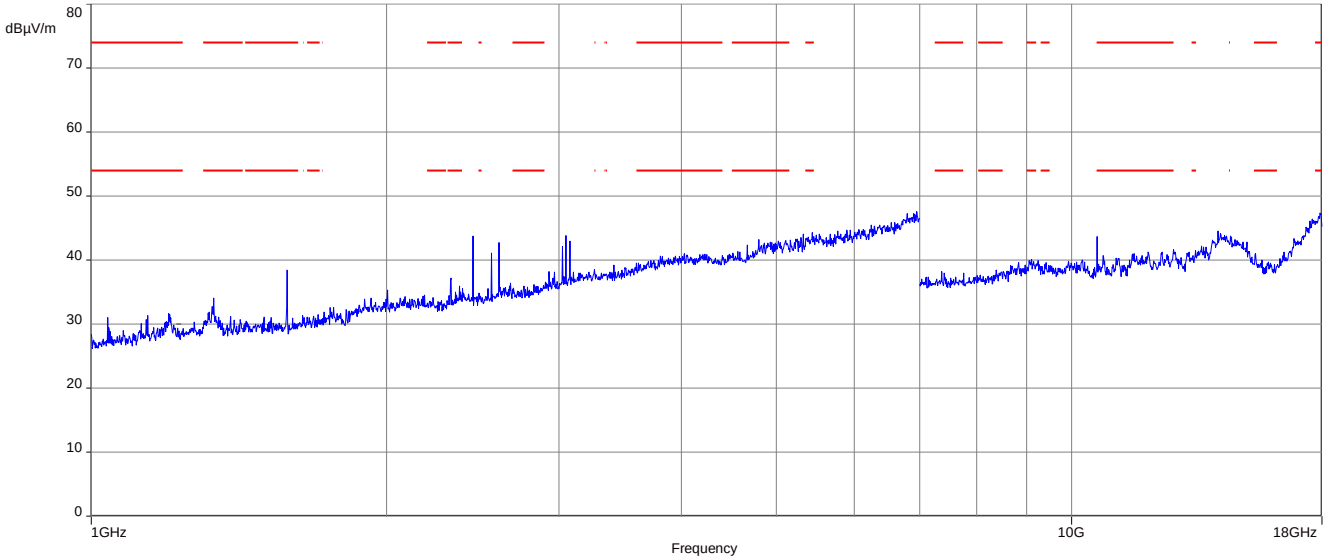


Plot 13: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; highest channel

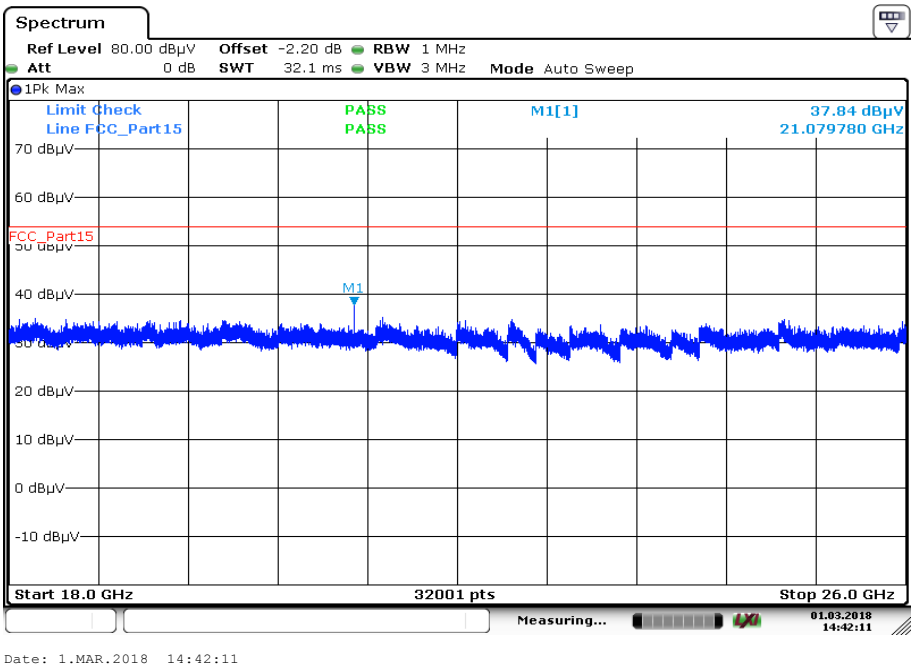


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.814	22.37	30.0	7.63	1000	120	170.0	V	90.0	13.7
50.439	20.63	30.0	9.37	1000	120	170.0	V	270.0	13.7
53.826	20.90	30.0	9.10	1000	120	98.0	V	180.0	13.2
544.477	25.92	36.0	10.08	1000	120	101.0	H	90.0	19.3
643.490	28.87	36.0	7.13	1000	120	98.0	H	90.0	21.1
903.270	21.39	36.0	14.61	1000	120	170.0	V	180.0	24.2

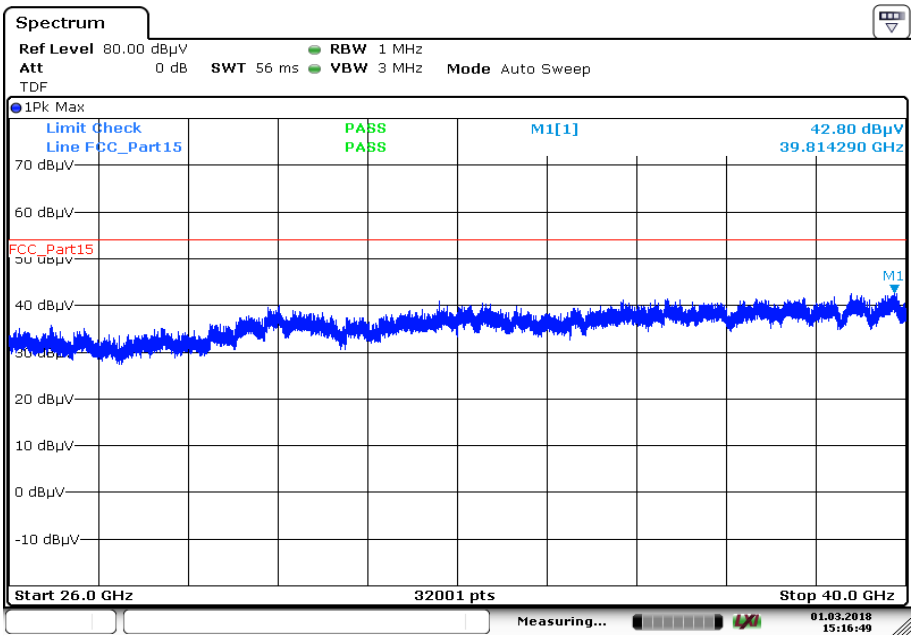
Plot 14: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; highest channel



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



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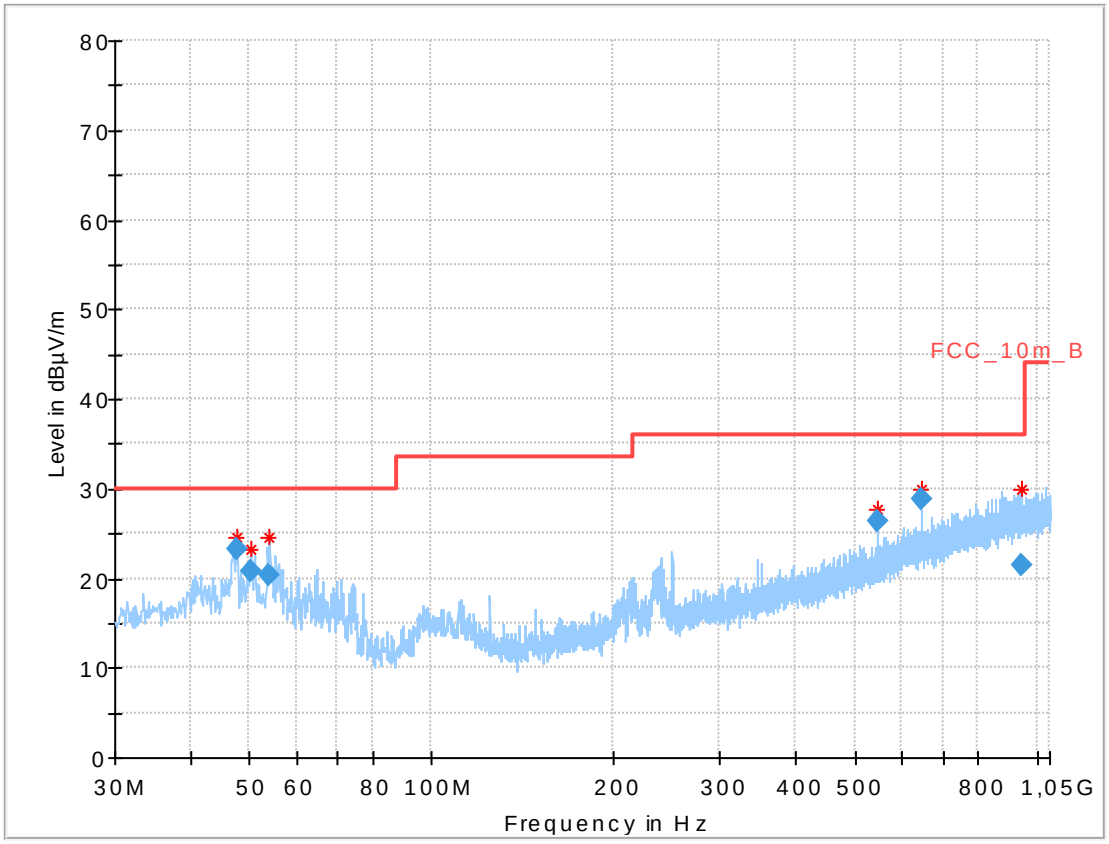
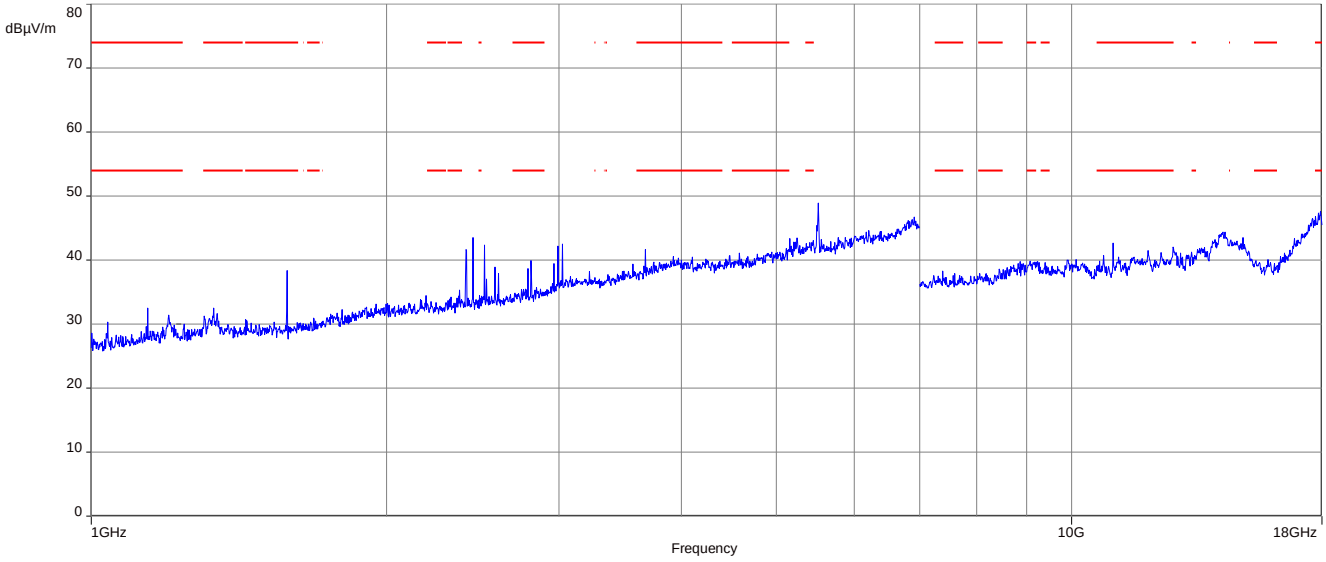
Plot 17: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel

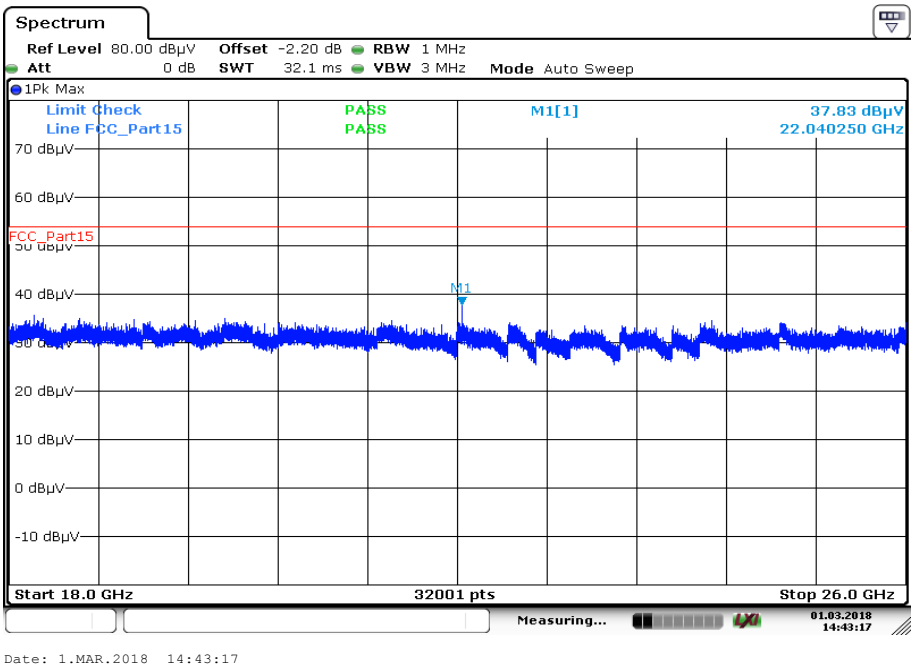


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.783	23.33	30.0	6.67	1000	120	101.0	V	0.0	13.7
50.458	20.82	30.0	9.18	1000	120	170.0	V	0.0	13.7
53.878	20.36	30.0	9.64	1000	120	170.0	V	90.0	13.2
544.495	26.30	36.0	9.70	1000	120	101.0	H	90.0	19.3
643.490	28.93	36.0	7.07	1000	120	98.0	H	90.0	21.1
945.893	21.36	36.0	14.64	1000	120	170.0	H	0.0	24.3

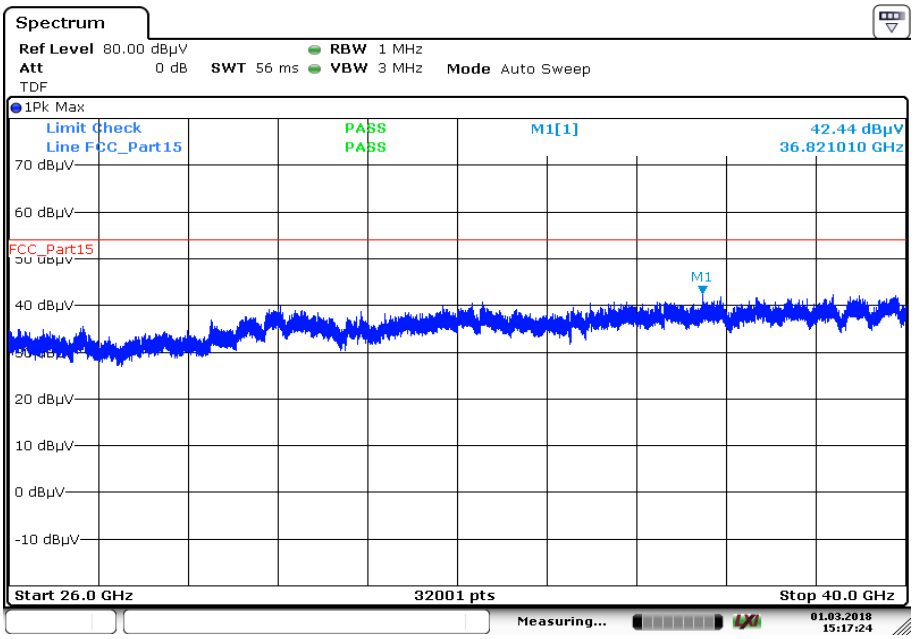
Plot 18: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



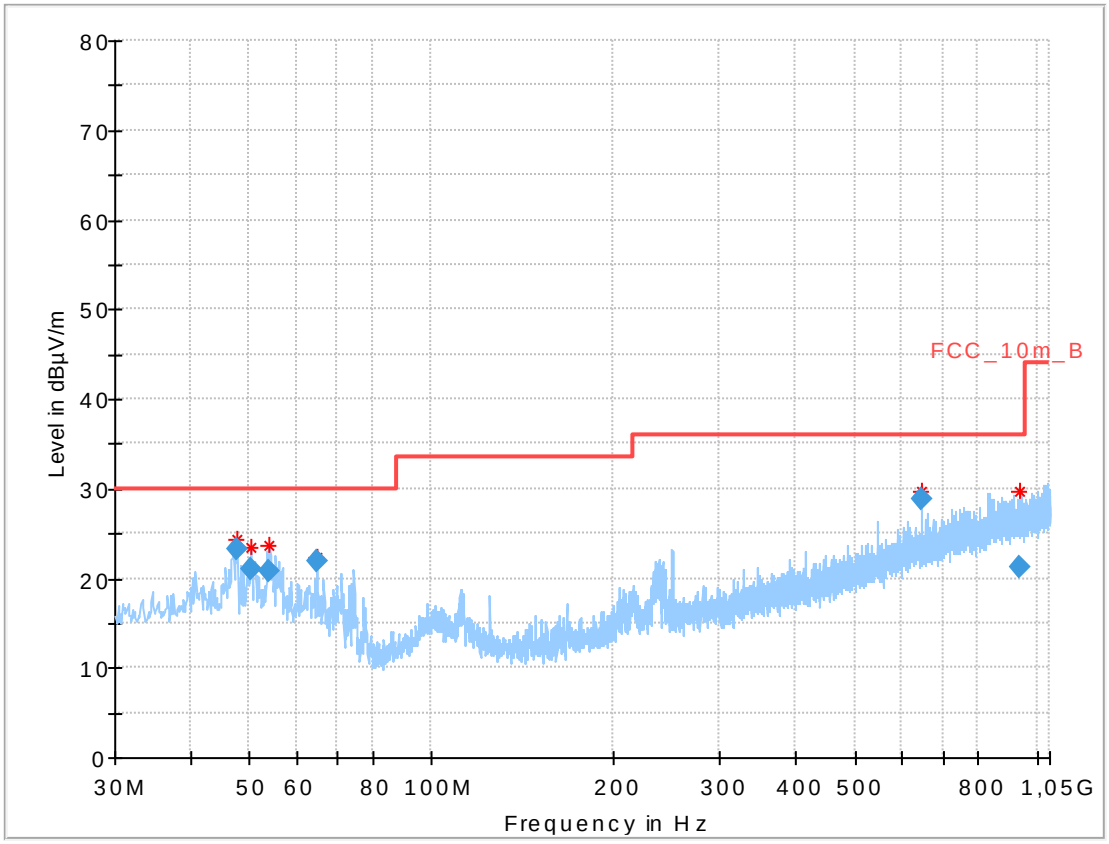
Plot 19: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



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

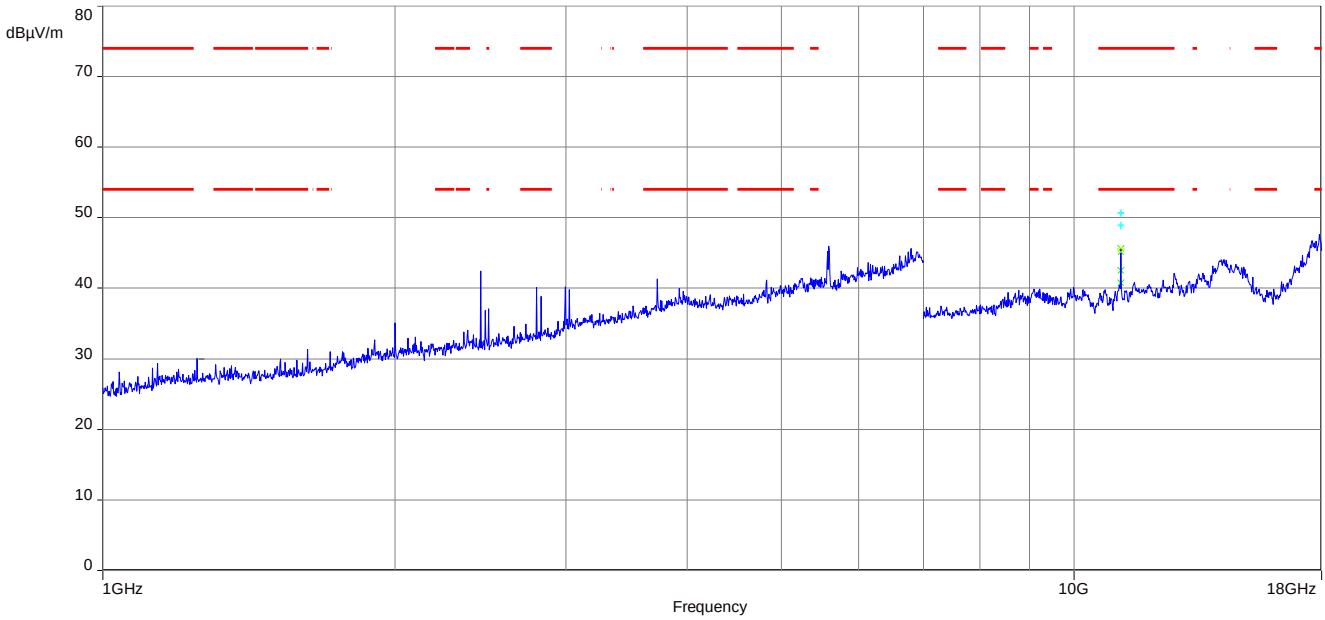


Plot 21: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; middle channel

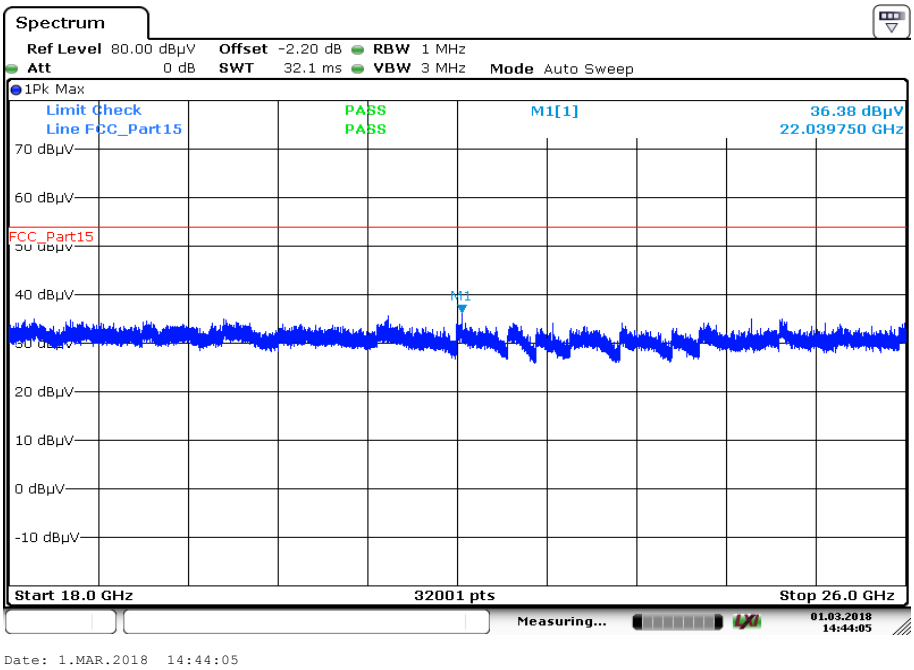


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.785	23.35	30.0	6.65	1000	120	98.0	V	90.0	13.7
50.426	20.92	30.0	9.08	1000	120	170.0	V	0.0	13.7
53.868	20.77	30.0	9.23	1000	120	98.0	V	0.0	13.2
64.773	21.87	30.0	8.13	1000	120	98.0	V	0.0	10.8
643.504	28.78	36.0	7.22	1000	120	98.0	H	90.0	21.1
934.814	21.34	36.0	14.66	1000	120	170.0	H	90.0	24.3

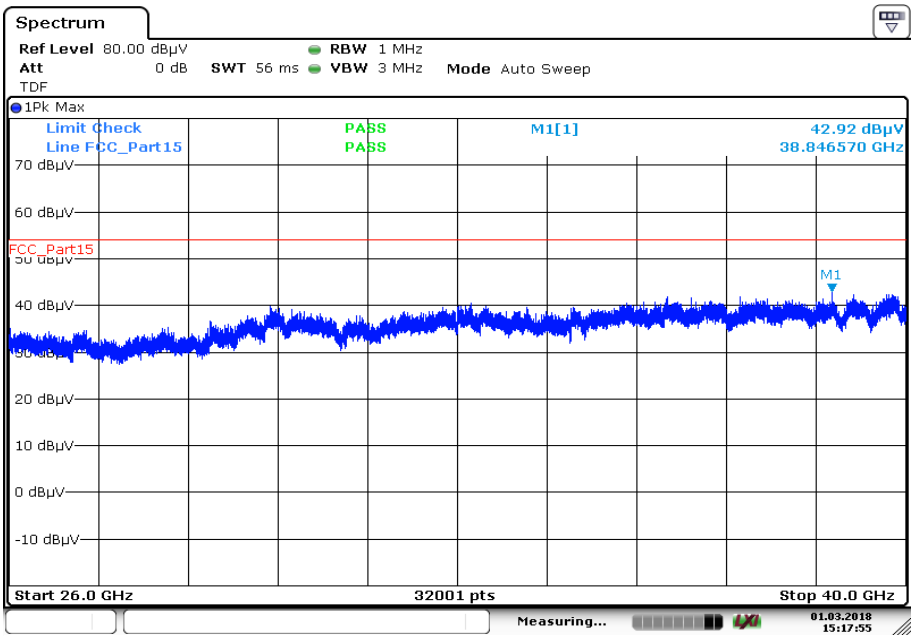
Plot 22: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; middle channel



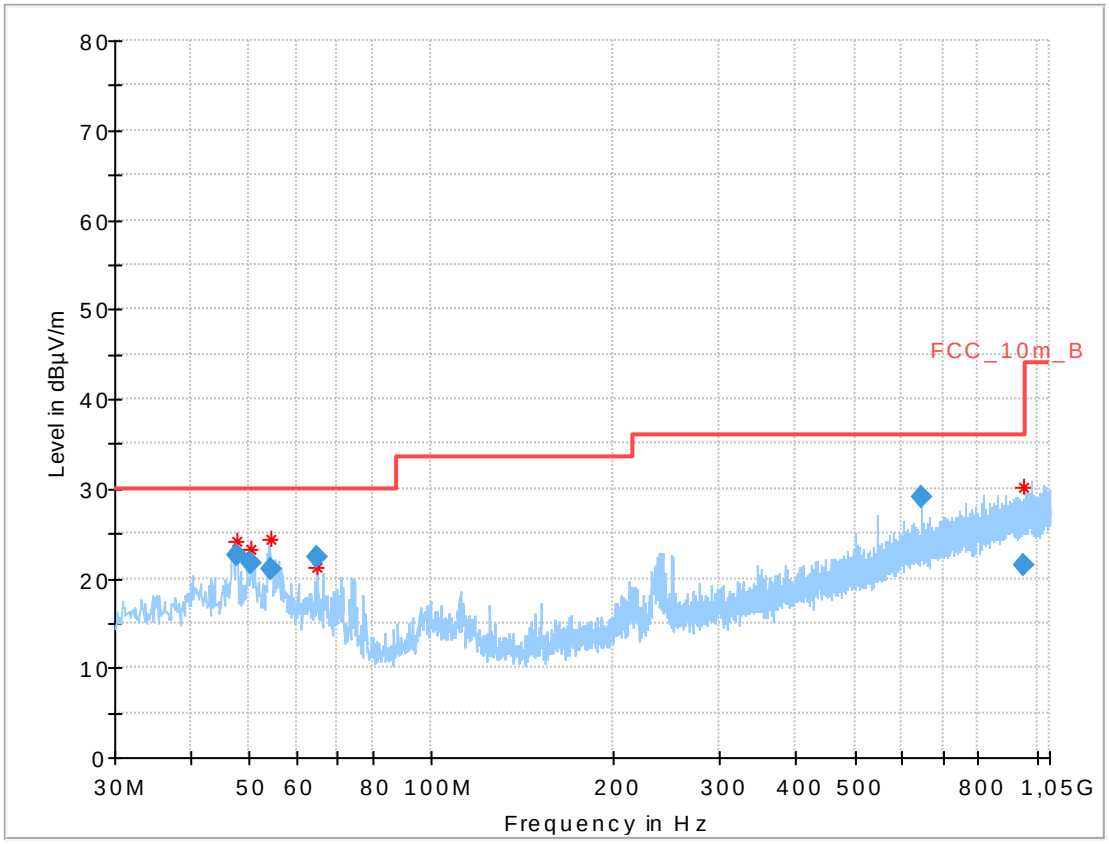
Plot 23: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; middle channel



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

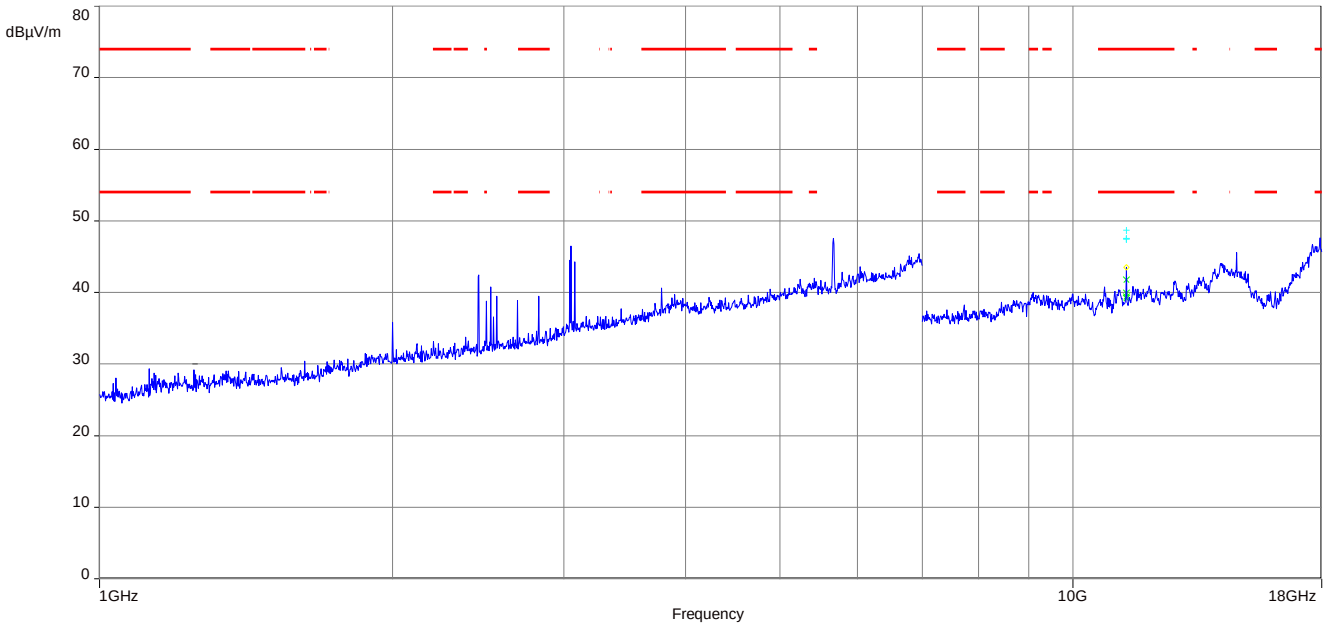


Plot 25: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

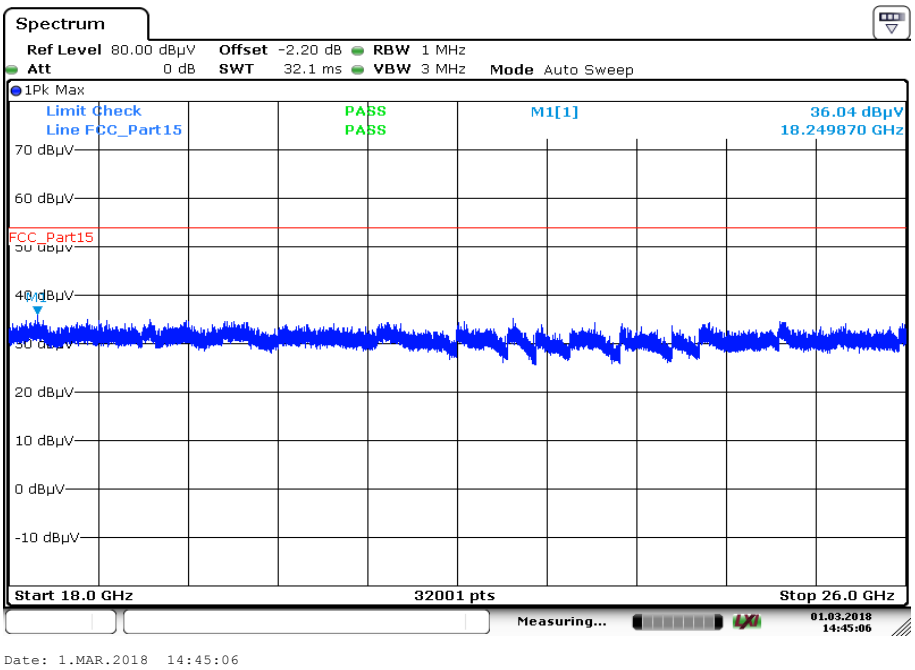


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.799	22.59	30.0	7.41	1000	120	170.0	V	0.0	13.7
50.452	21.74	30.0	8.26	1000	120	101.0	V	0.0	13.7
54.183	21.03	30.0	8.97	1000	120	170.0	V	0.0	13.2
64.788	22.38	30.0	7.62	1000	120	98.0	V	90.0	10.8
643.484	29.13	36.0	6.87	1000	120	101.0	H	90.0	21.1
954.420	21.45	36.0	14.55	1000	120	170.0	V	270.0	24.4

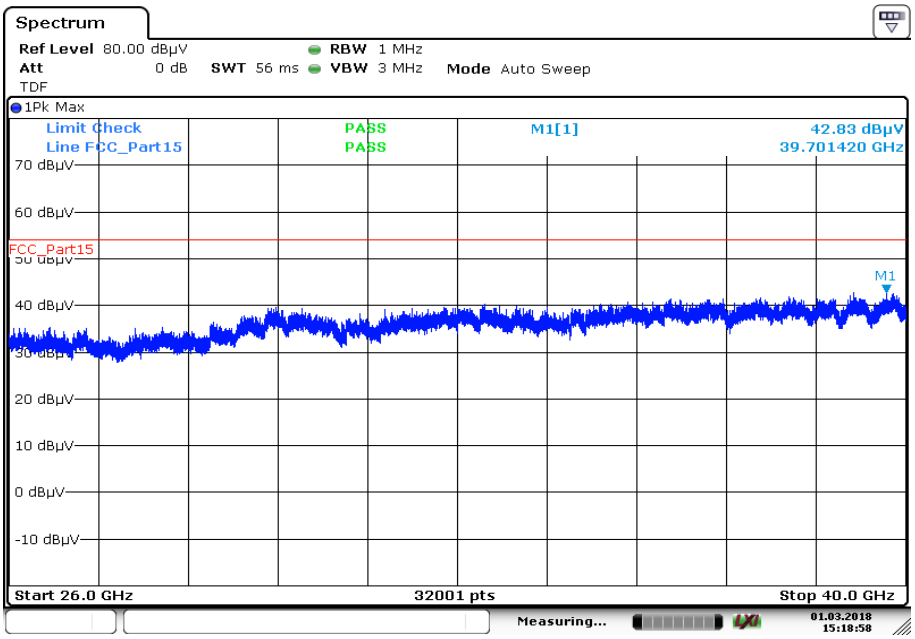
Plot 26: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



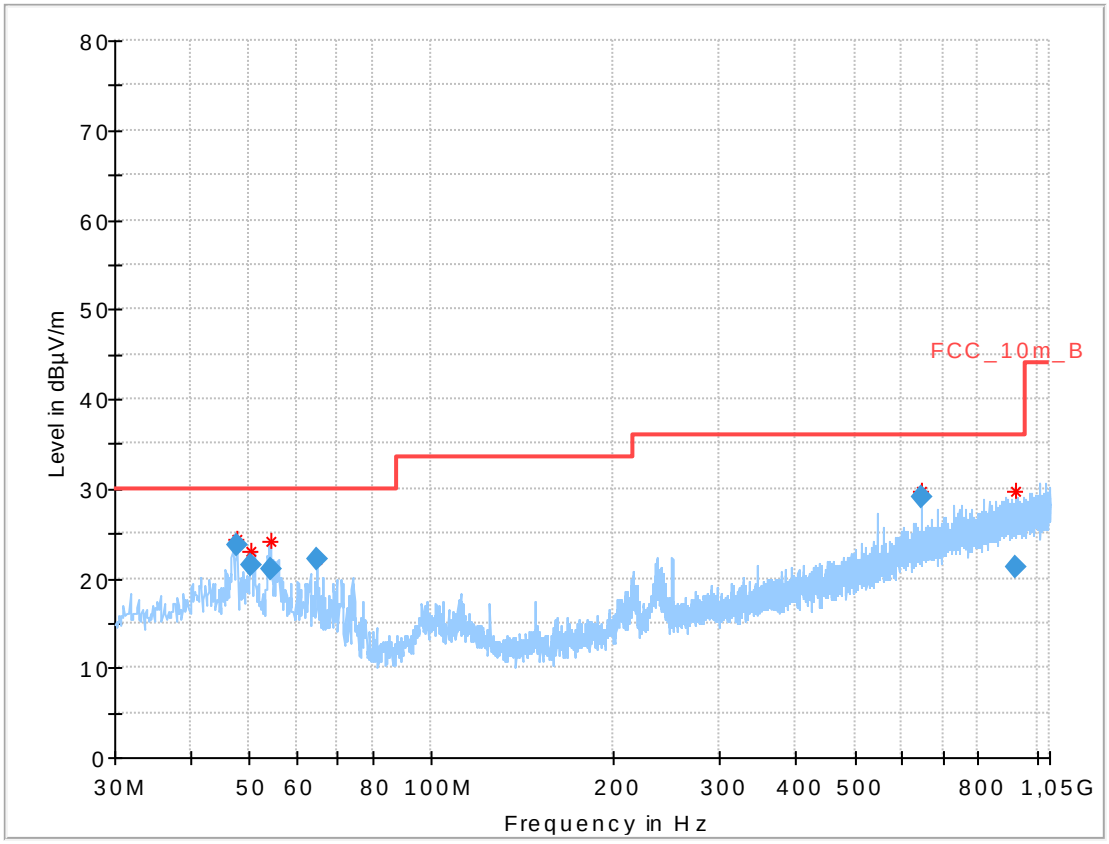
Plot 27: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



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

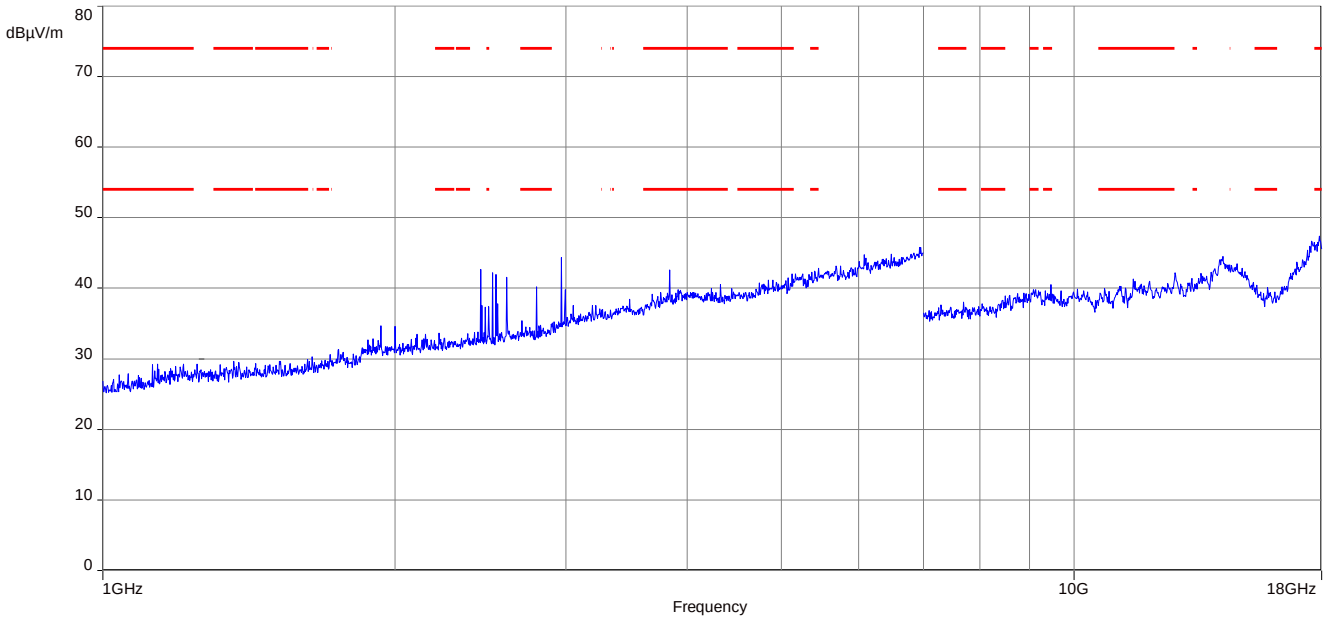


Plot 29: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; lowest channel

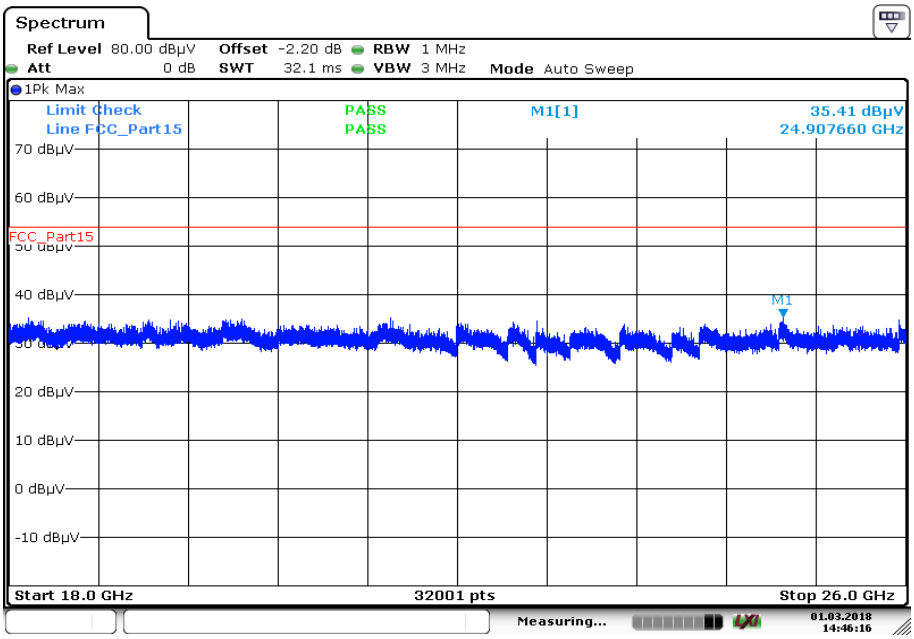


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.810	23.60	30.0	6.40	1000	120	98.0	V	0.0	13.7
50.438	21.39	30.0	8.61	1000	120	170.0	V	0.0	13.7
54.168	21.00	30.0	9.00	1000	120	101.0	V	180.0	13.2
64.778	22.08	30.0	7.92	1000	120	100.0	V	90.0	10.8
643.489	29.13	36.0	6.87	1000	120	101.0	H	90.0	21.1
923.202	21.25	36.0	14.75	1000	120	101.0	H	180.0	24.3

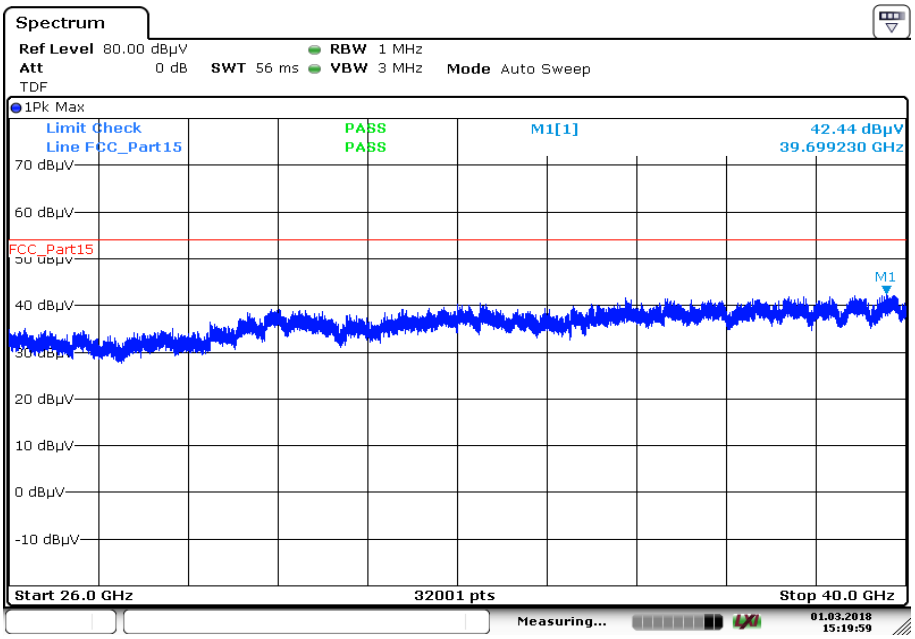
Plot 30: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; lowest channel



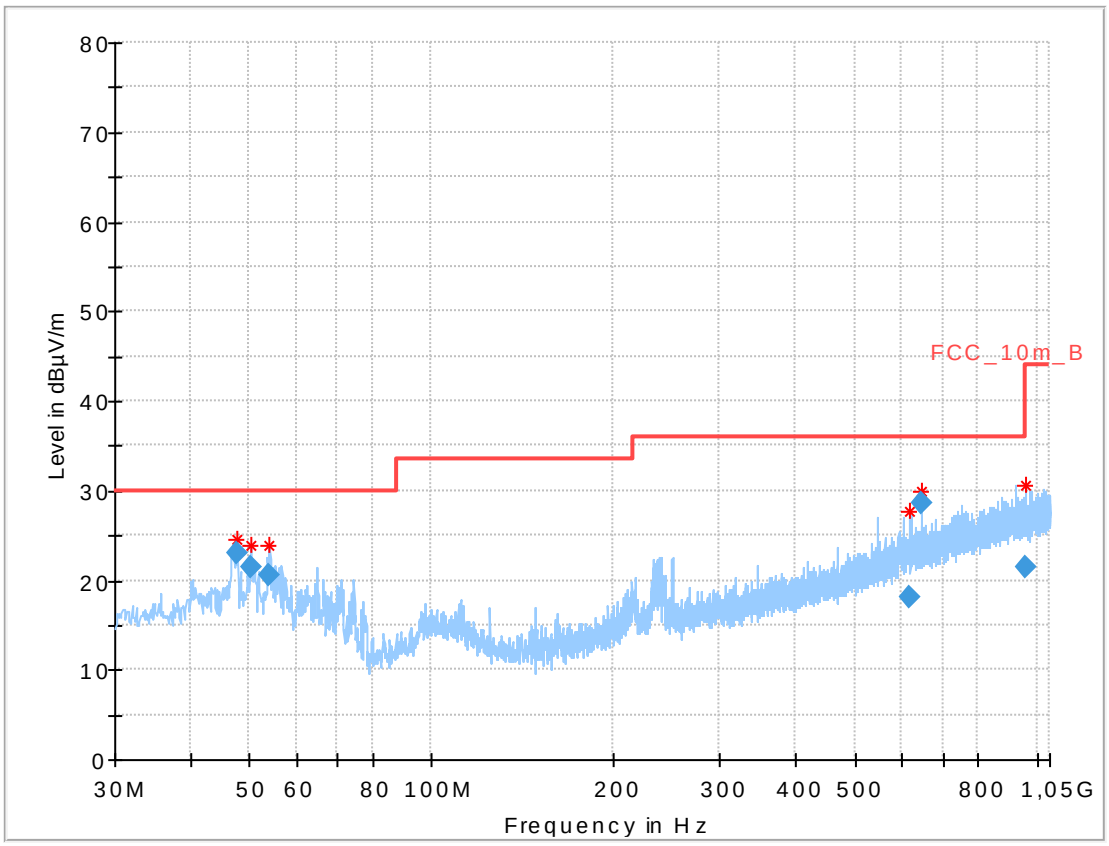
Plot 31: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; lowest channel



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

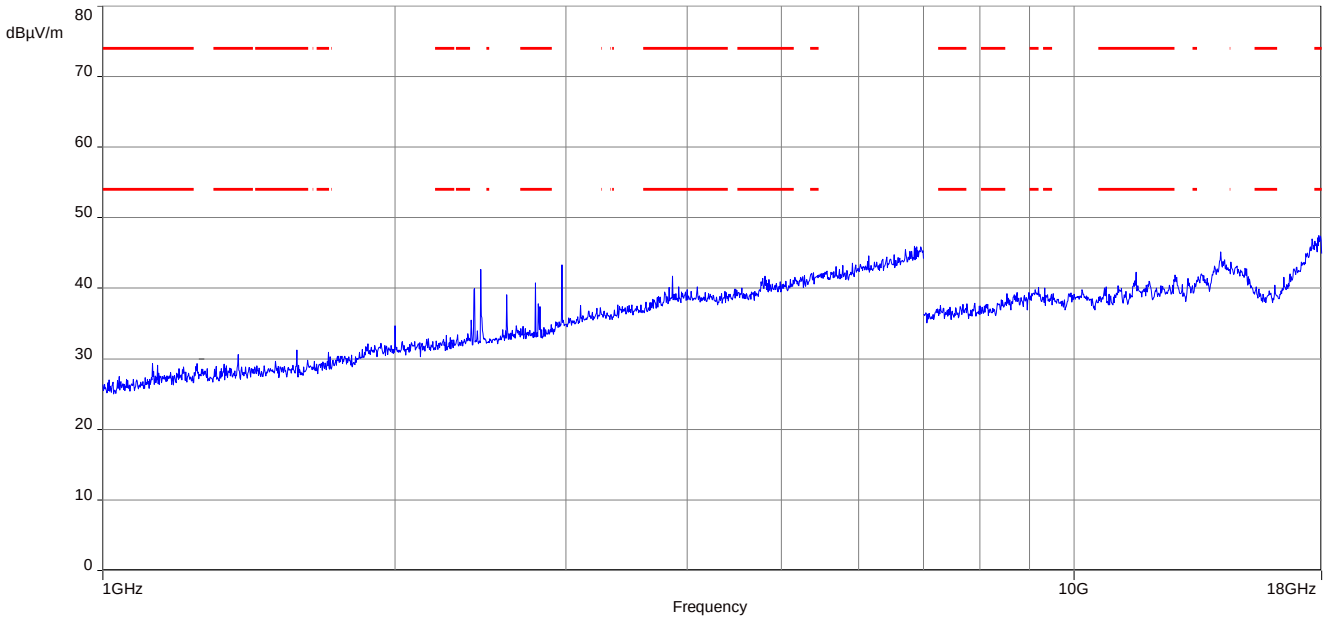


Plot 33: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; highest channel

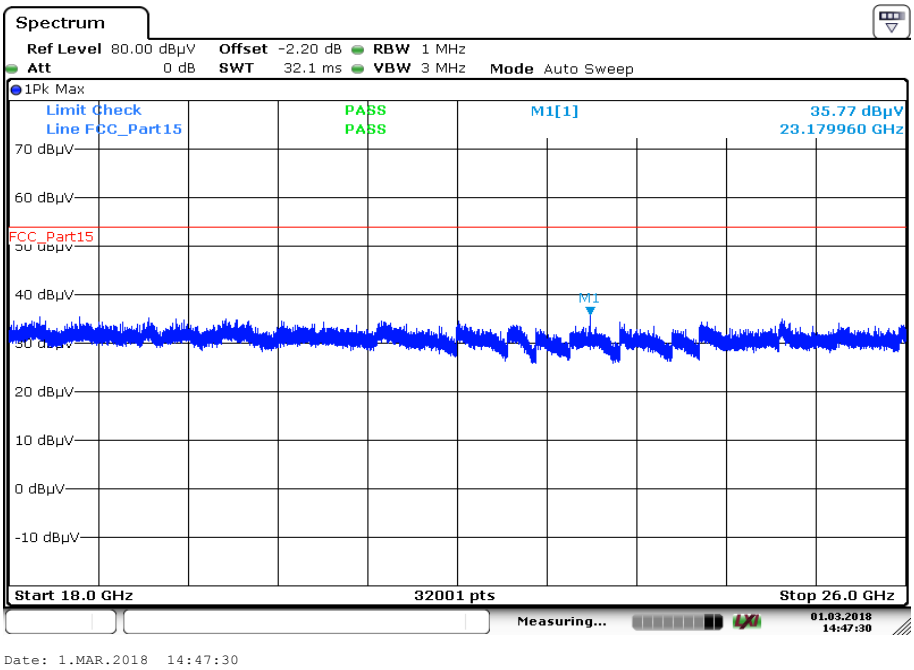


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.791	23.07	30.0	6.93	1000	120	101.0	V	180.0	13.7
50.438	21.45	30.0	8.55	1000	120	170.0	V	90.0	13.7
53.887	20.53	30.0	9.47	1000	120	101.0	V	180.0	13.2
614.365	18.18	36.0	17.82	1000	120	170.0	V	0.0	20.8
643.489	28.55	36.0	7.45	1000	120	101.0	H	270.0	21.1
956.106	21.45	36.0	14.55	1000	120	170.0	V	270.0	24.4

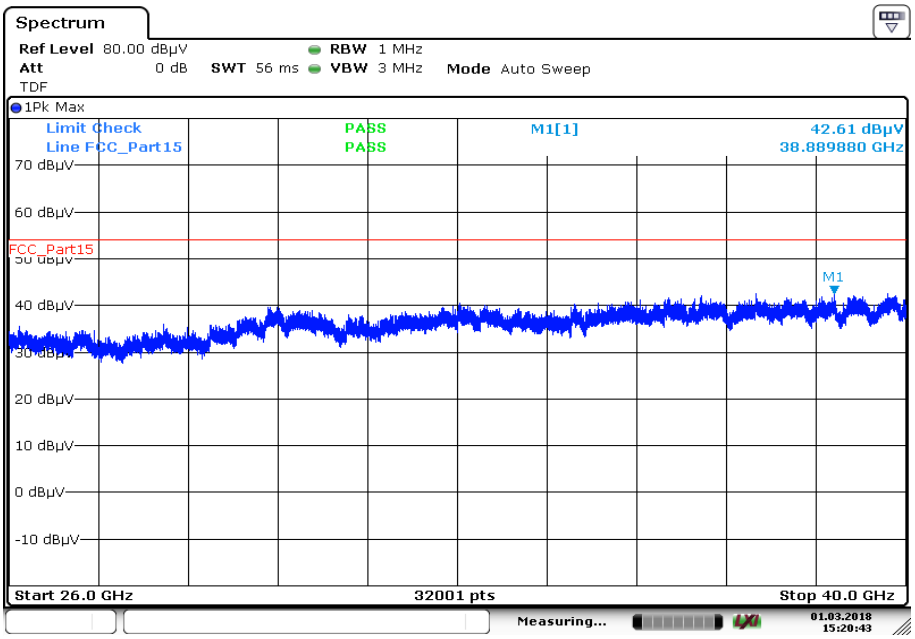
Plot 34: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; highest channel



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

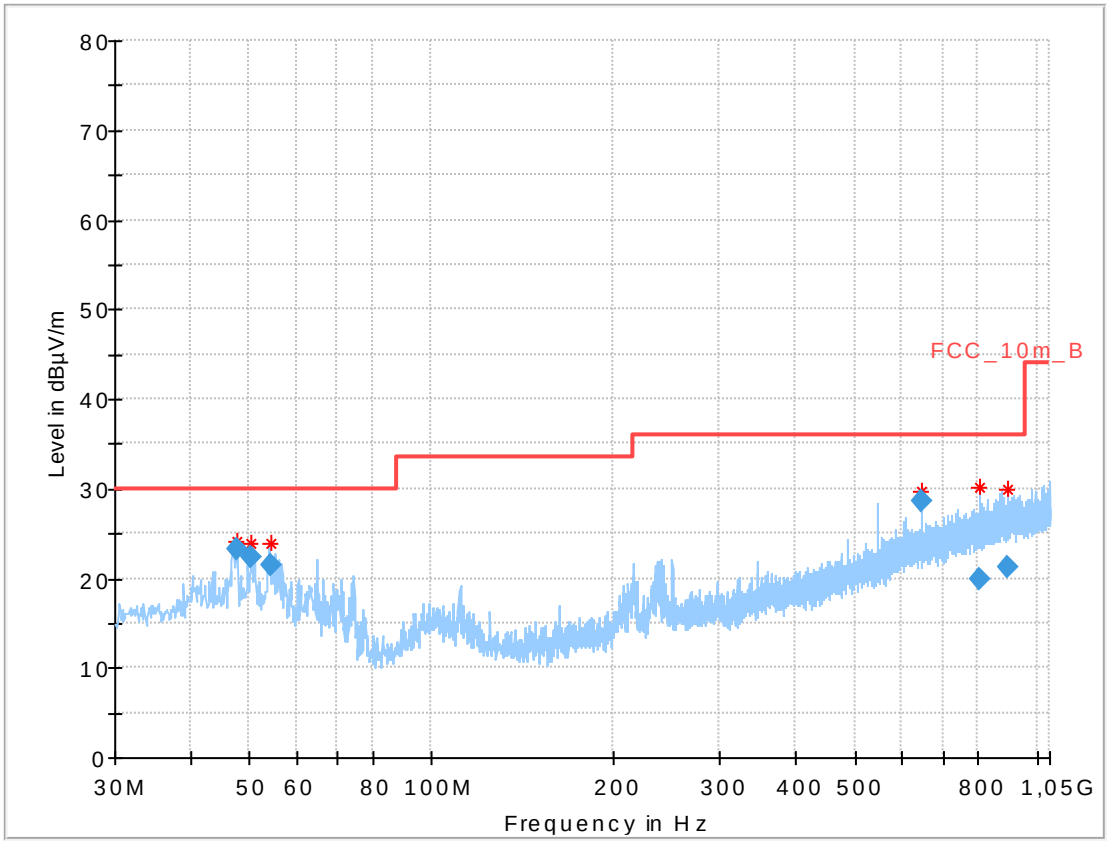


Plot 36: 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; highest channel



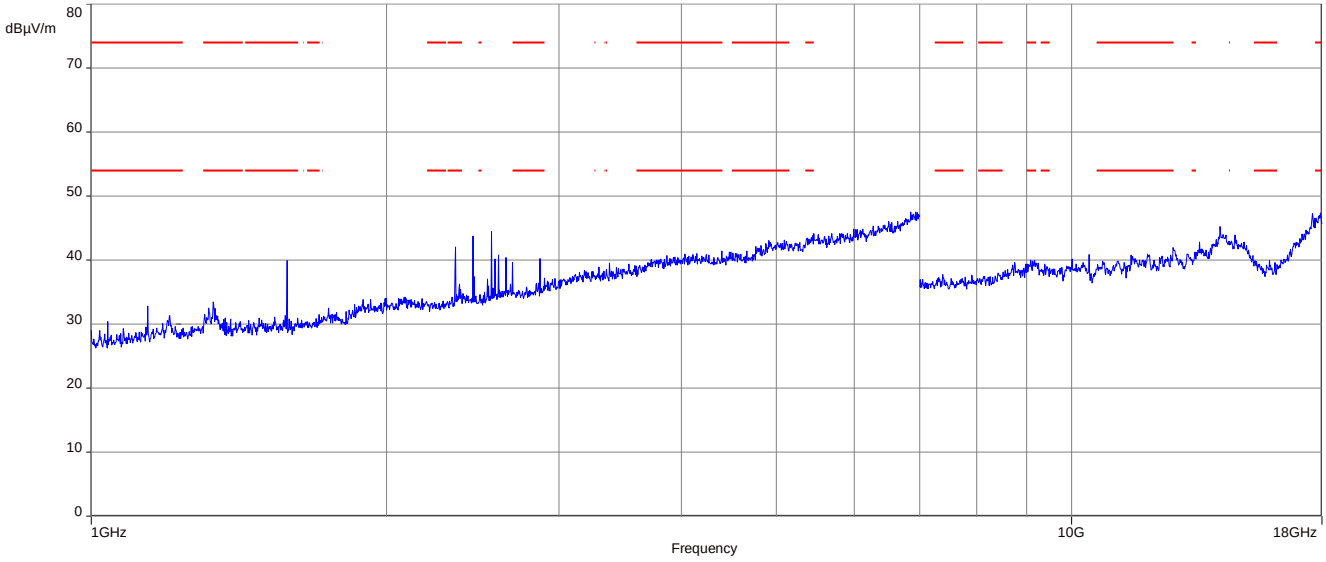
Plots: 80 MHz channel bandwidth

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

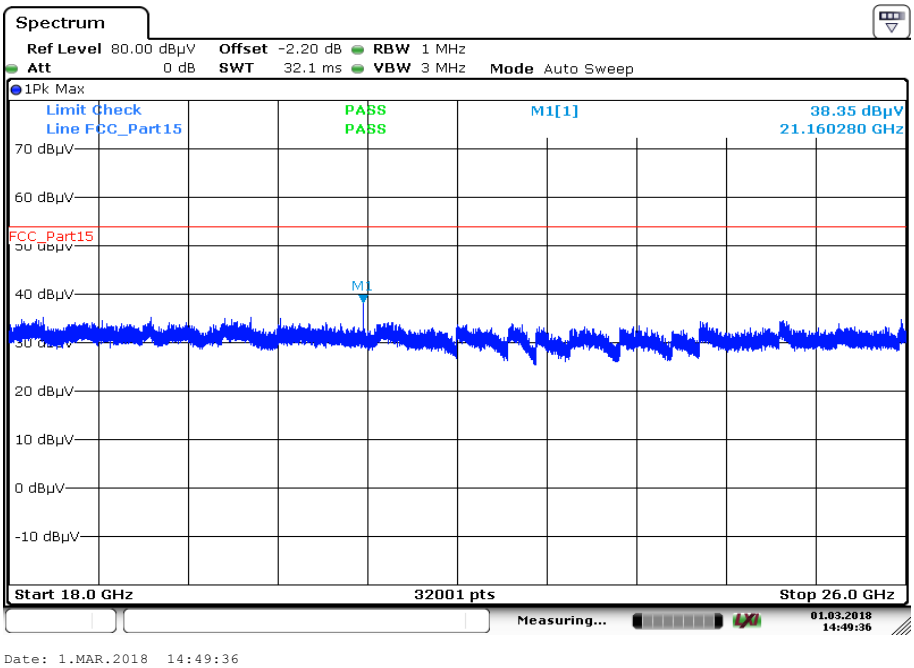


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.808	23.19	30.0	6.81	1000	120	100.0	V	180.0	13.7
50.453	22.25	30.0	7.75	1000	120	98.0	V	90.0	13.7
54.195	21.39	30.0	8.61	1000	120	101.0	V	0.0	13.2
643.493	28.61	36.0	7.39	1000	120	101.0	H	270.0	21.1
801.641	19.94	36.0	16.06	1000	120	170.0	V	0.0	22.8
892.802	21.31	36.0	14.69	1000	120	170.0	H	90.0	24.1

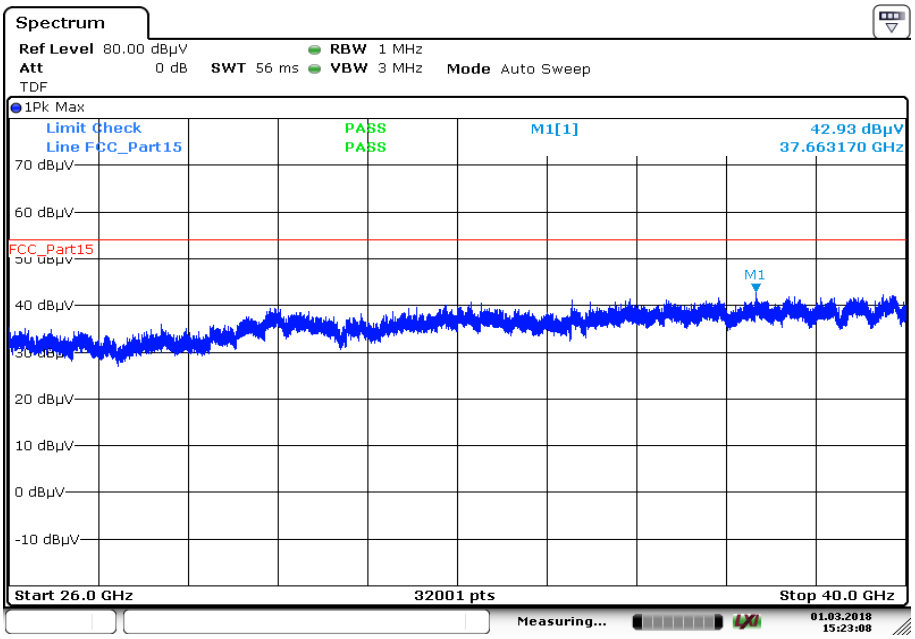
Plot 2: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-1; middle channel



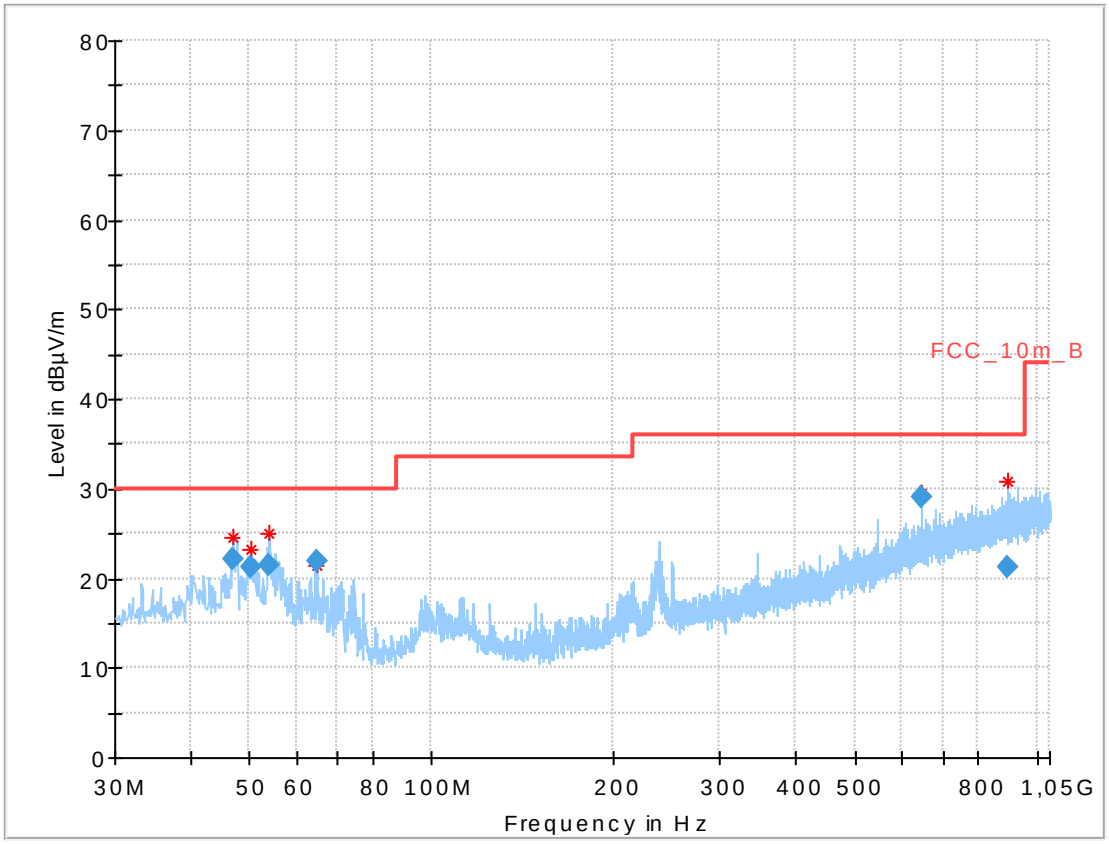
Plot 3: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-1; middle channel



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

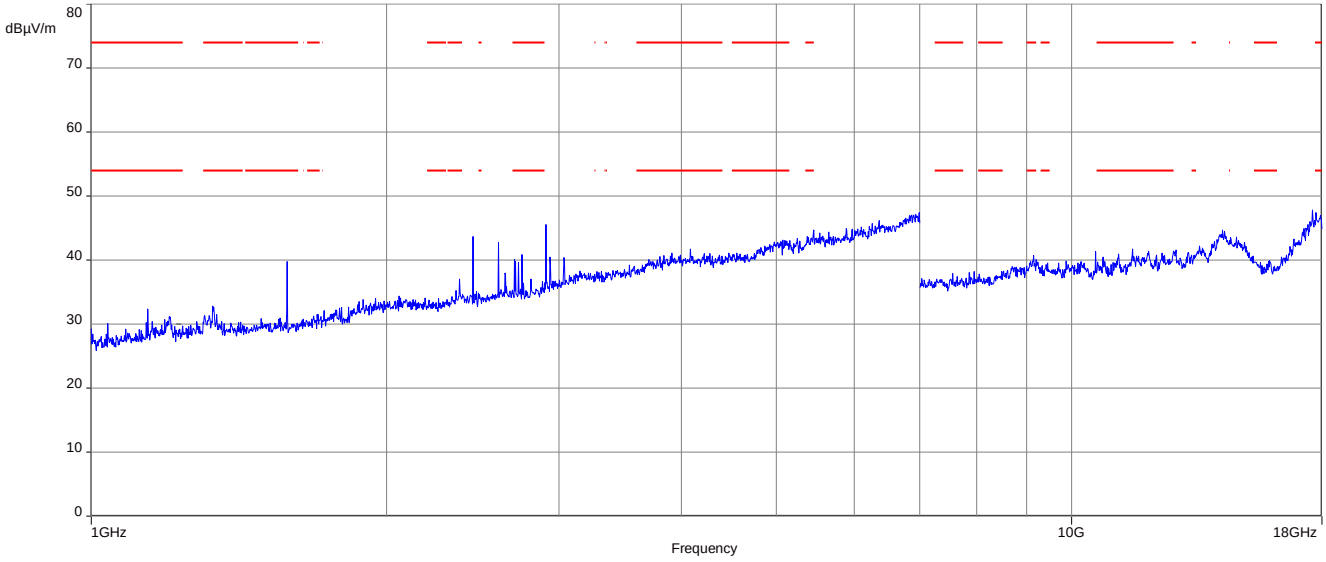


Plot 5: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2A; middle channel

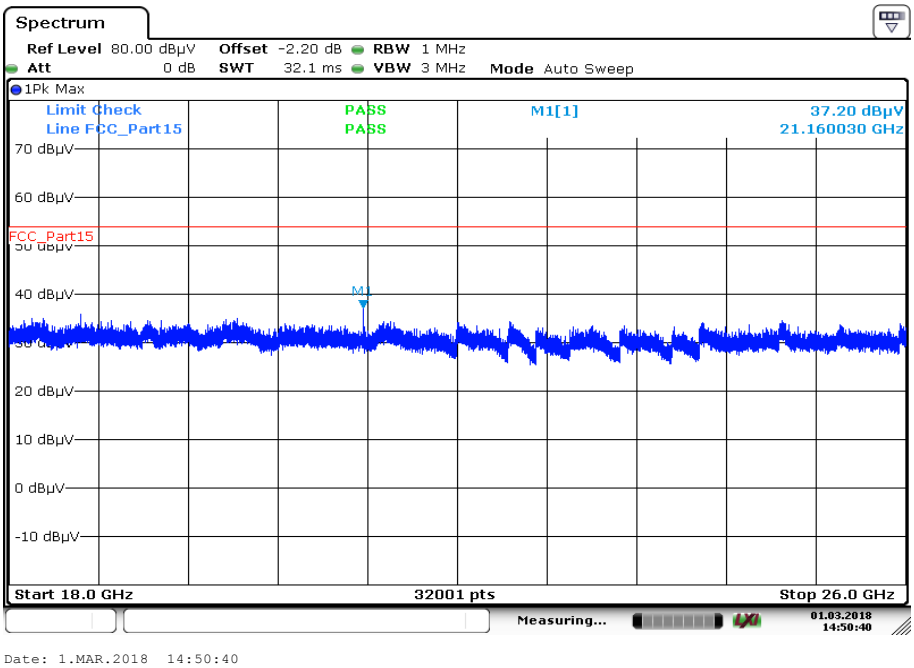


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.032	22.18	30.0	7.82	1000	120	98.0	V	90.0	13.7
50.449	21.21	30.0	8.79	1000	120	170.0	V	180.0	13.7
53.849	21.54	30.0	8.46	1000	120	98.0	V	90.0	13.2
64.774	21.83	30.0	8.17	1000	120	98.0	V	180.0	10.8
643.481	29.06	36.0	6.94	1000	120	101.0	H	90.0	21.1
896.944	21.32	36.0	14.68	1000	120	170.0	V	270.0	24.2

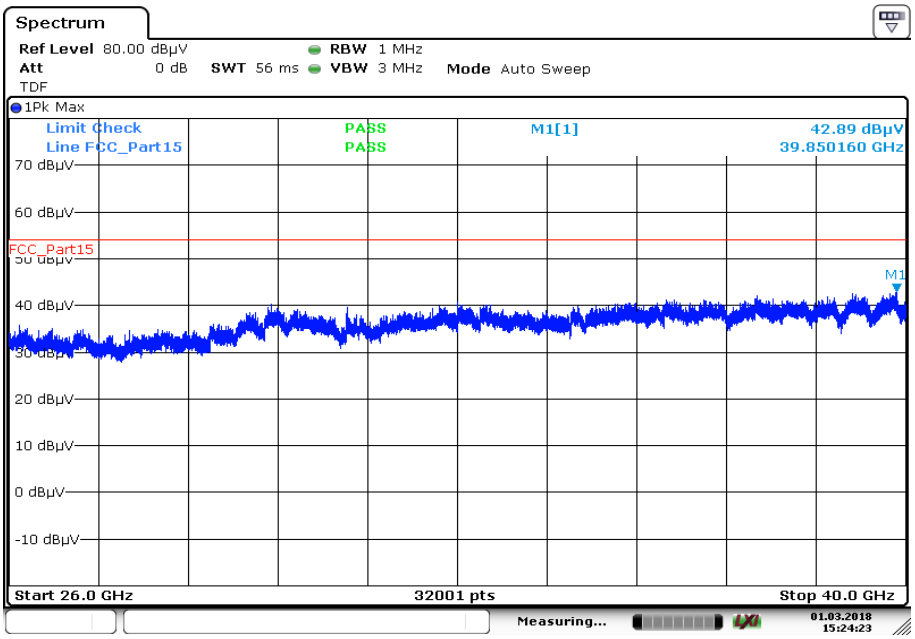
Plot 6: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2A; middle channel



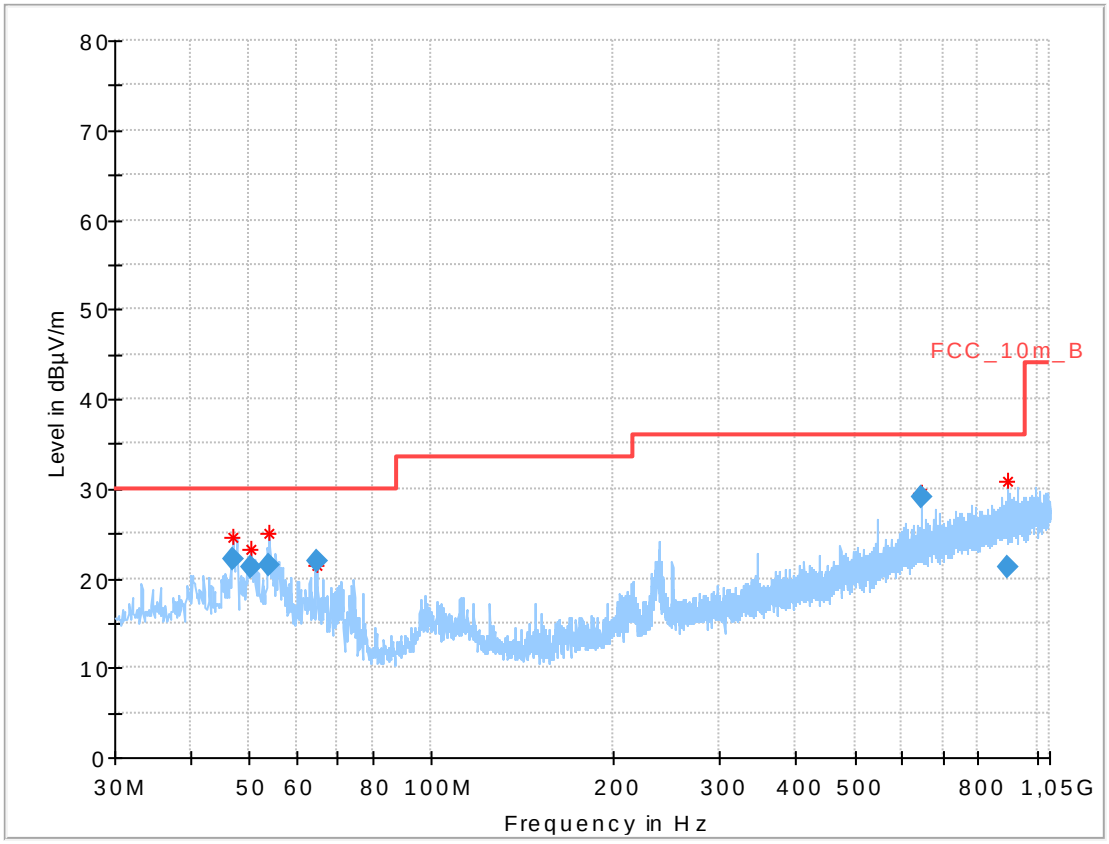
Plot 7: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2A; middle channel



Plot 8: 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-2A; middle channel

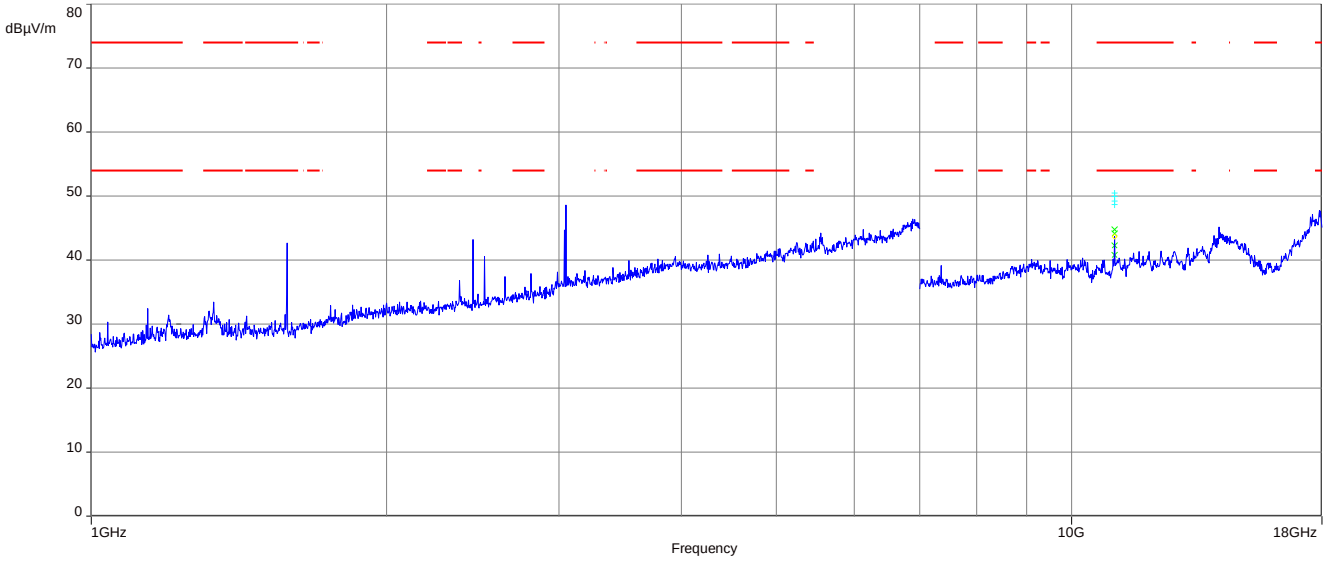


Plot 9: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel

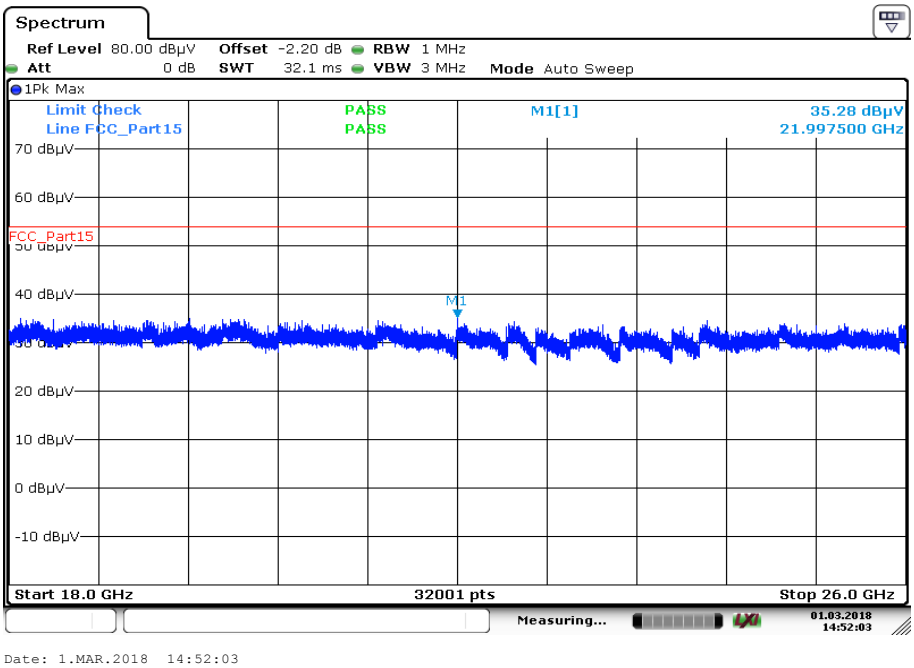


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.032	22.18	30.0	7.82	1000	120	98.0	V	90.0	13.7
50.449	21.21	30.0	8.79	1000	120	170.0	V	180.0	13.7
53.849	21.54	30.0	8.46	1000	120	98.0	V	90.0	13.2
64.774	21.83	30.0	8.17	1000	120	98.0	V	180.0	10.8
643.481	29.06	36.0	6.94	1000	120	101.0	H	90.0	21.1
896.944	21.32	36.0	14.68	1000	120	170.0	V	270.0	24.2

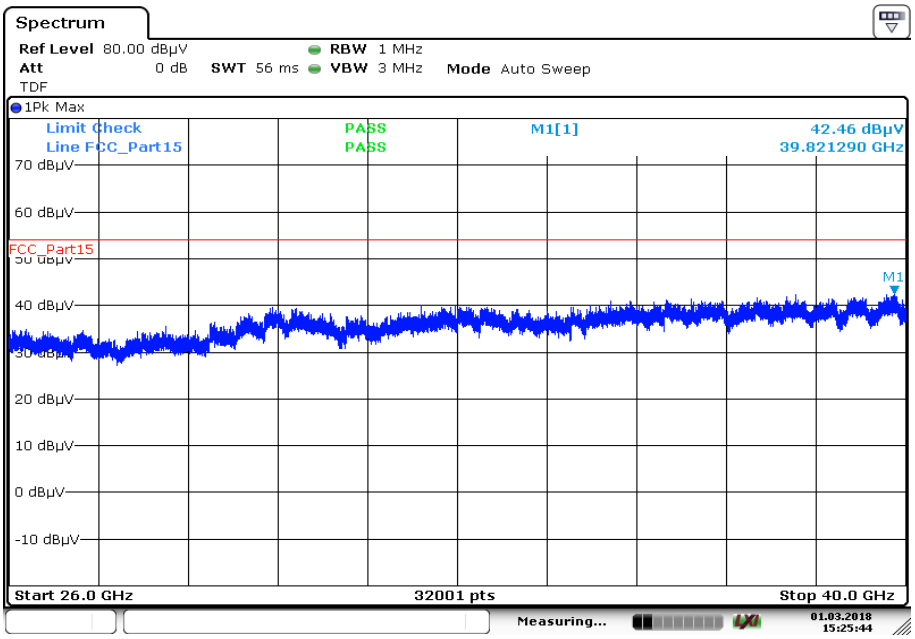
Plot 10: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



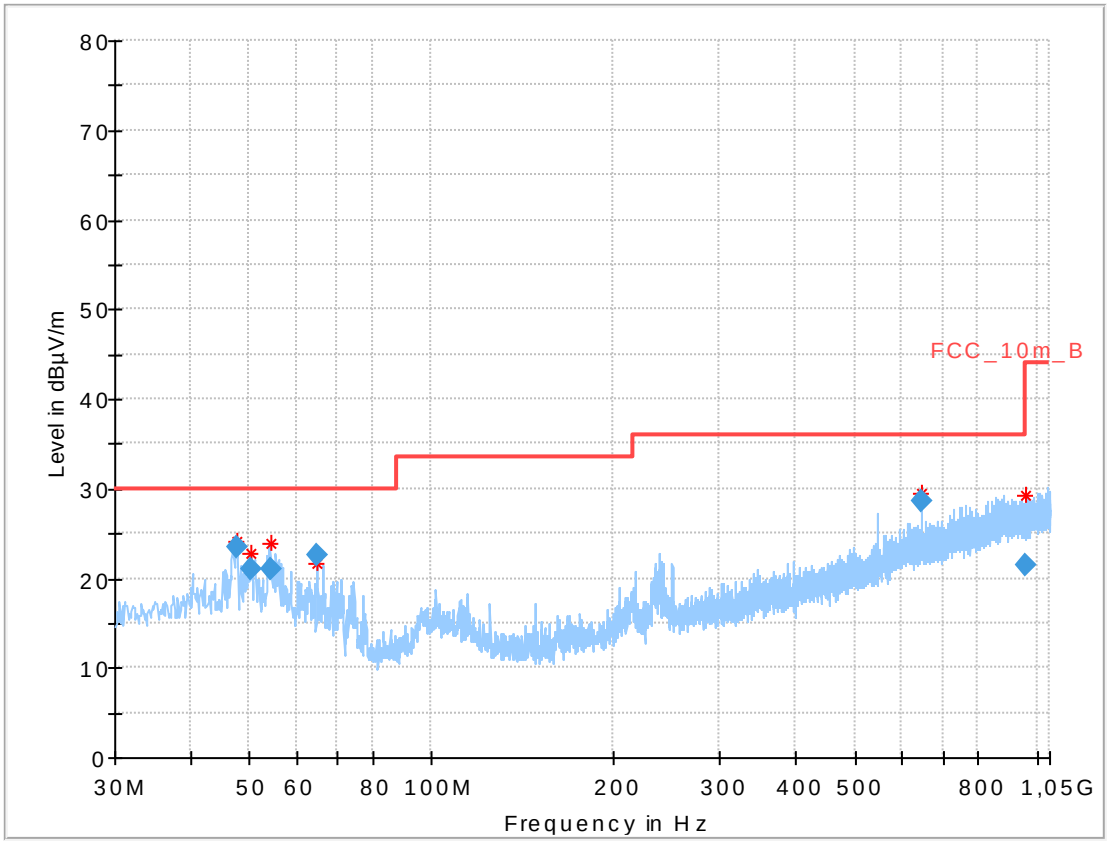
Plot 11: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; lowest channel



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

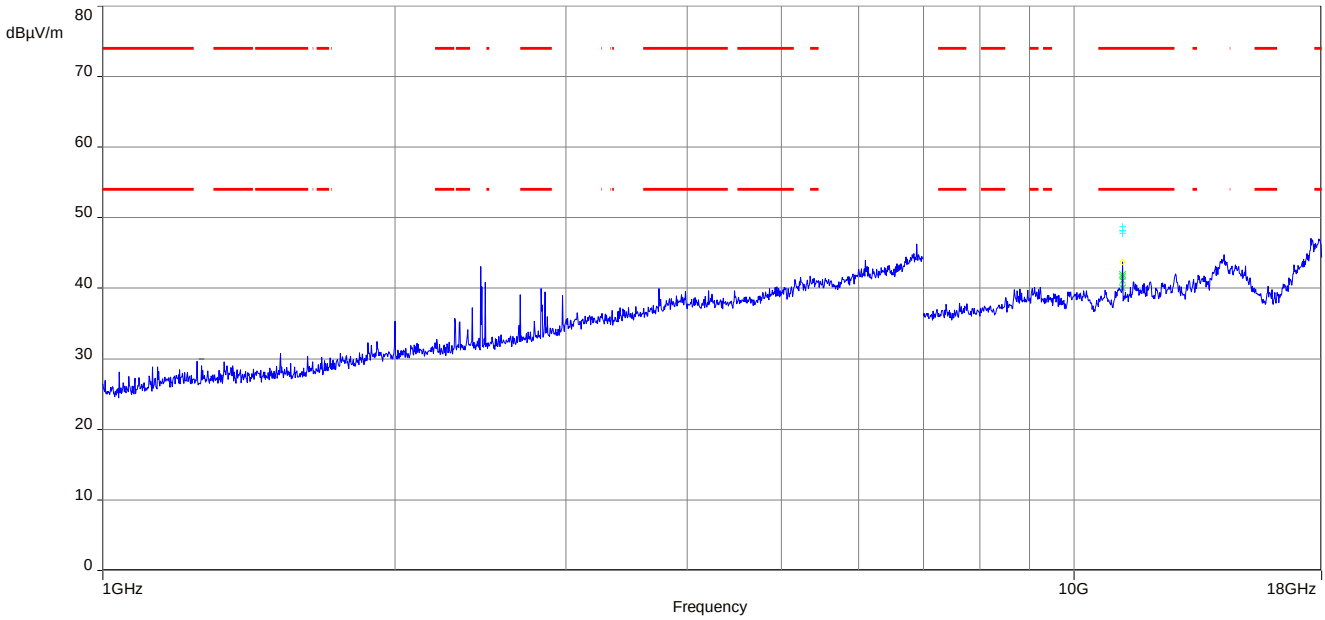


Plot 13: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-2C; highest channel

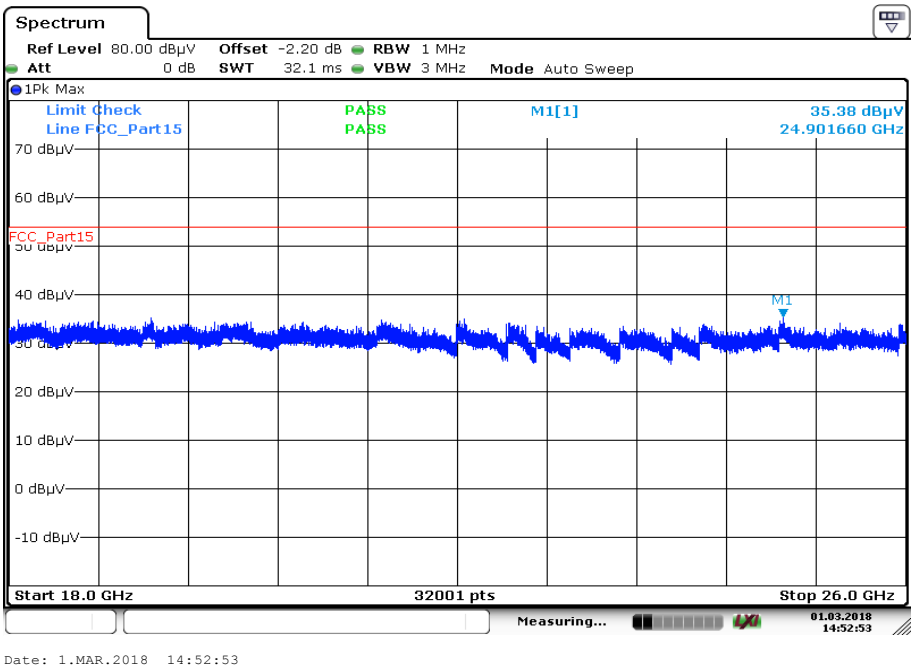


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.812	23.51	30.0	6.49	1000	120	98.0	V	90.0	13.7
50.421	21.03	30.0	8.97	1000	120	98.0	V	270.0	13.7
54.183	21.09	30.0	8.91	1000	120	170.0	V	180.0	13.2
64.783	22.51	30.0	7.49	1000	120	98.0	V	90.0	10.8
643.493	28.68	36.0	7.32	1000	120	101.0	H	270.0	21.1
959.688	21.49	36.0	14.51	1000	120	101.0	V	0.0	24.4

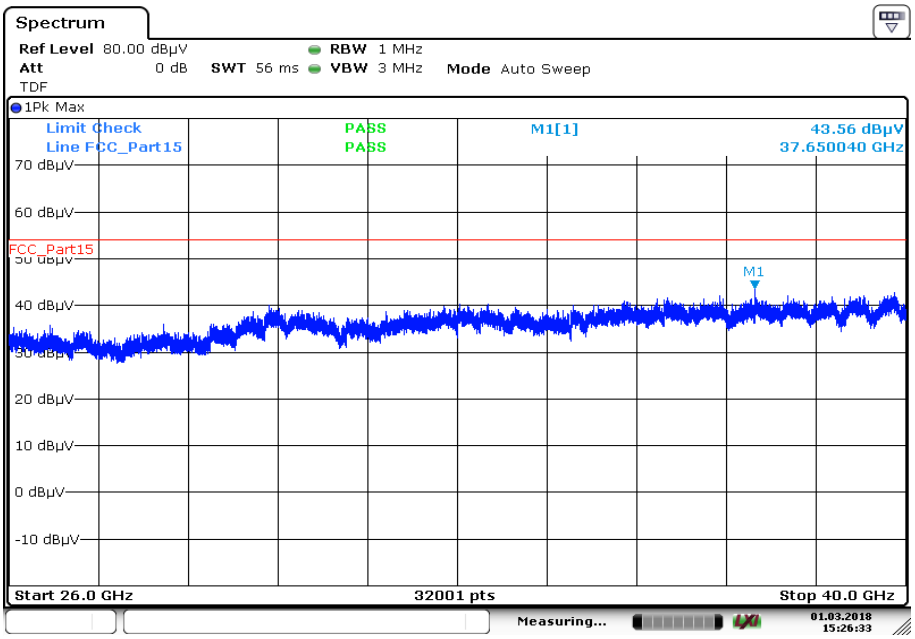
Plot 14: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



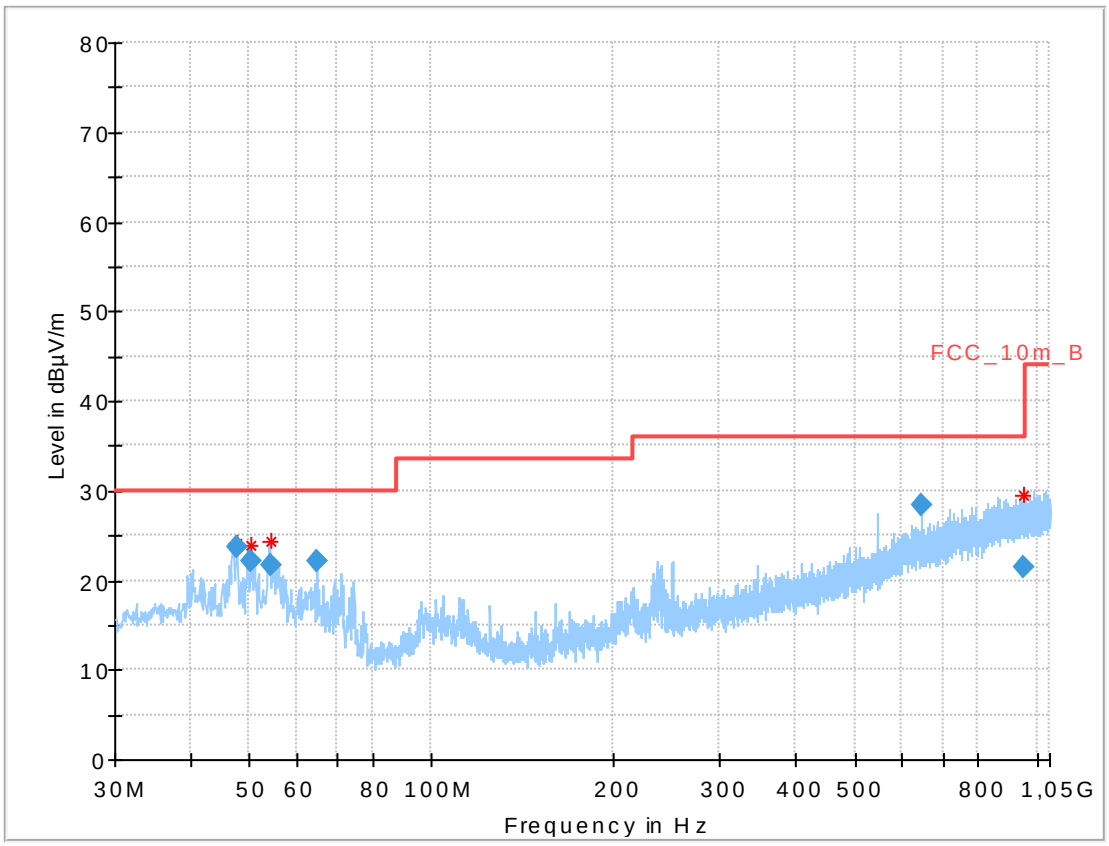
Plot 15: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-2C; highest channel



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

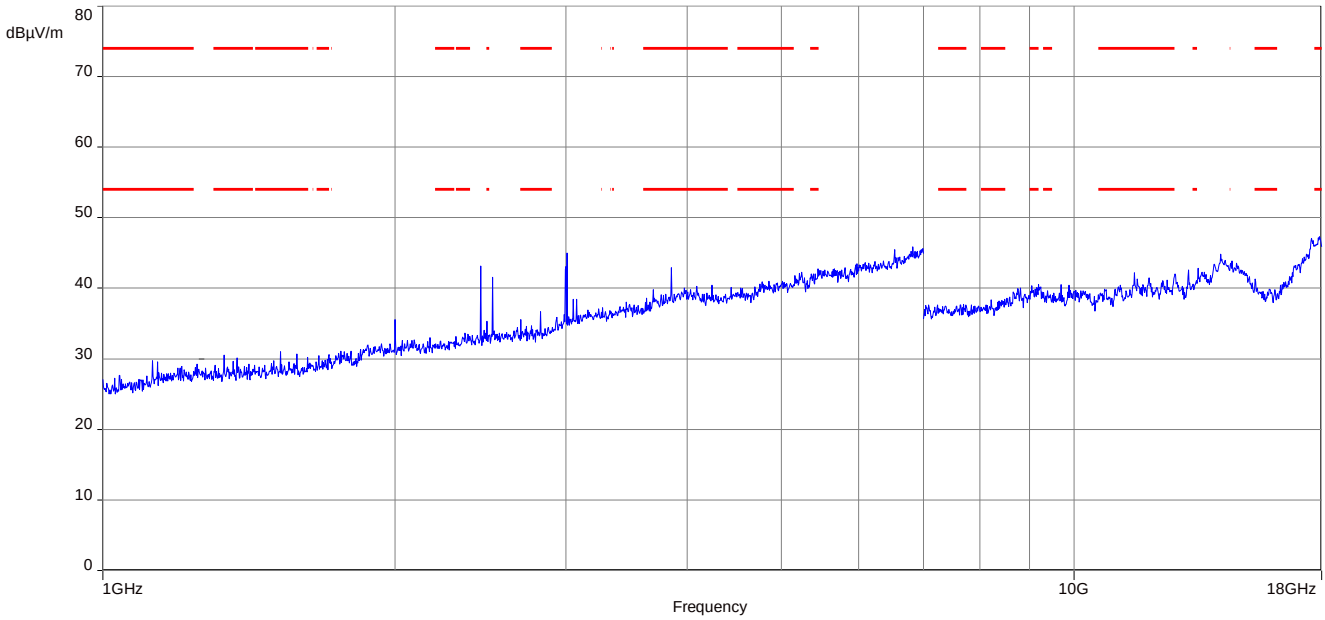


Plot 17: 30 MHz to 1 GHz; vertical & horizontal polarization; U-NII-3; middle channel

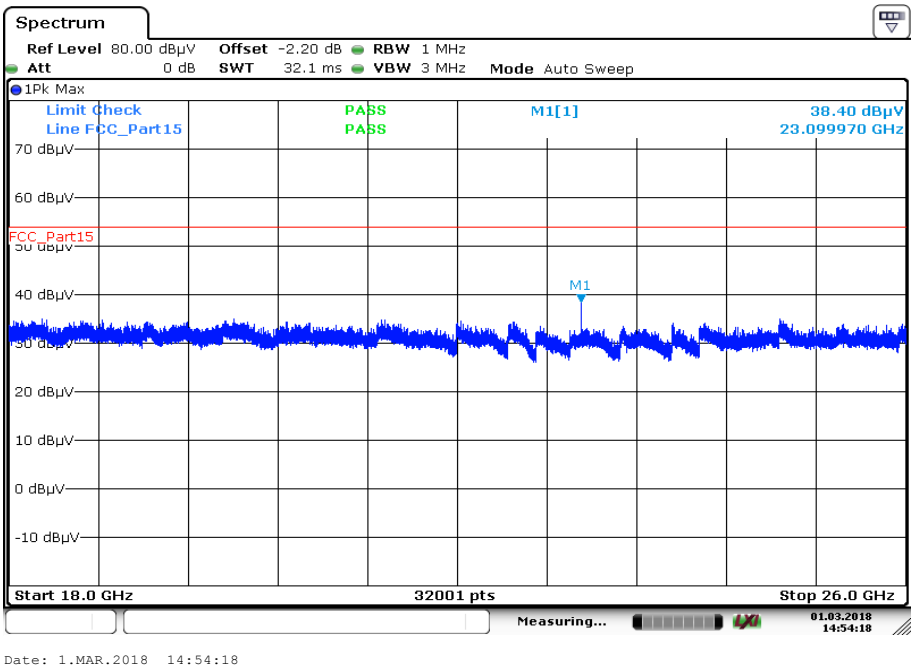


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.806	23.61	30.0	6.39	1000	120	98.0	V	90.0	13.7
50.428	22.20	30.0	7.80	1000	120	98.0	V	180.0	13.7
54.169	21.69	30.0	8.31	1000	120	102.0	V	90.0	13.2
64.780	22.12	30.0	7.88	1000	120	98.0	V	0.0	10.8
643.480	28.47	36.0	7.53	1000	120	101.0	H	270.0	21.1
952.039	21.41	36.0	14.59	1000	120	170.0	V	270.0	24.4

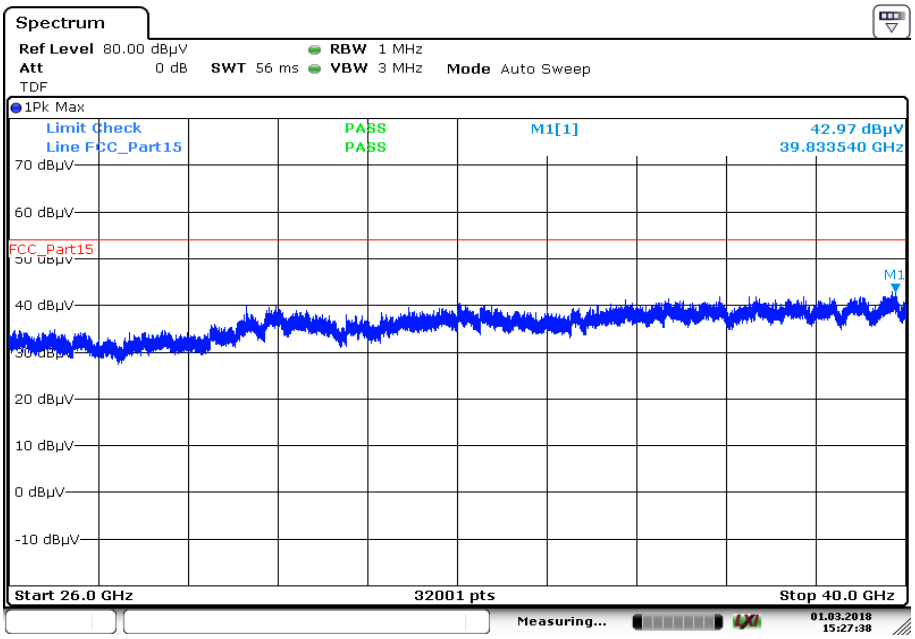
Plot 18: 1 GHz to 18 GHz; vertical & horizontal polarization; U-NII-3; middle channel



Plot 19: 18 GHz to 26 GHz; vertical & horizontal polarization; U-NII-3; middle channel



Plot 20: 26 GHz to 40 GHz; vertical & horizontal polarization; U-NII-3; middle channel



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:

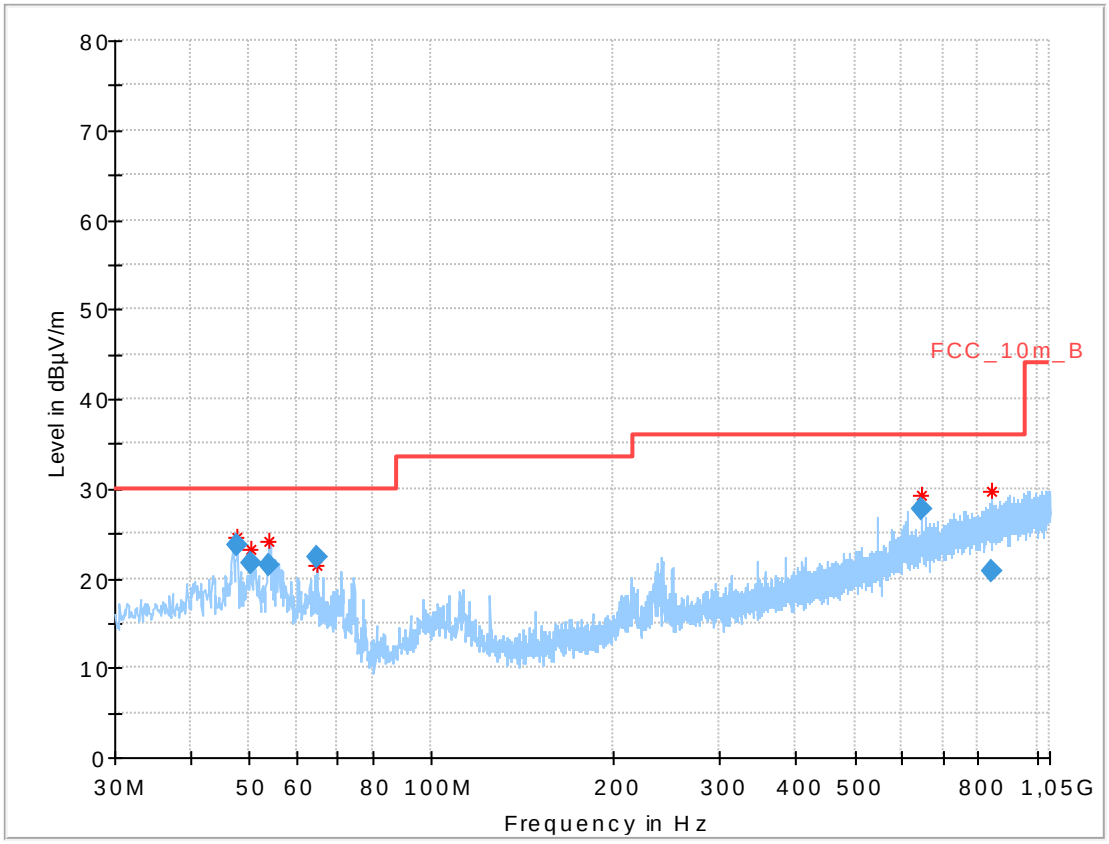
RX Spurious Emissions Radiated		
Frequency (MHz)	Field Strength (dBµV/m)	Measurement distance
30 - 88	30.0	10
88 – 216	33.5	10
216 – 960	36.0	10
Above 960	54.0	3

Results:

RX Spurious Emissions Radiated [dBµV/m]		
F [MHz]	Detector	Level [dBµV/m]
-/-	-/-	-/-
-/-	-/-	-/-

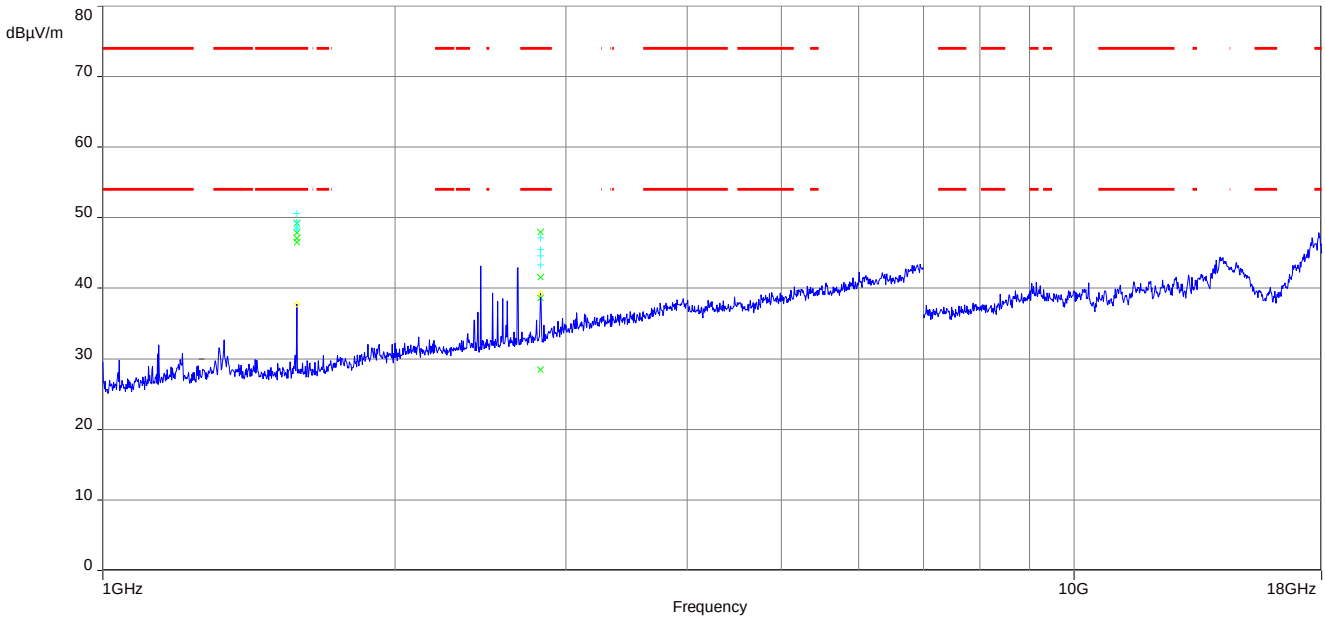
Plots:

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

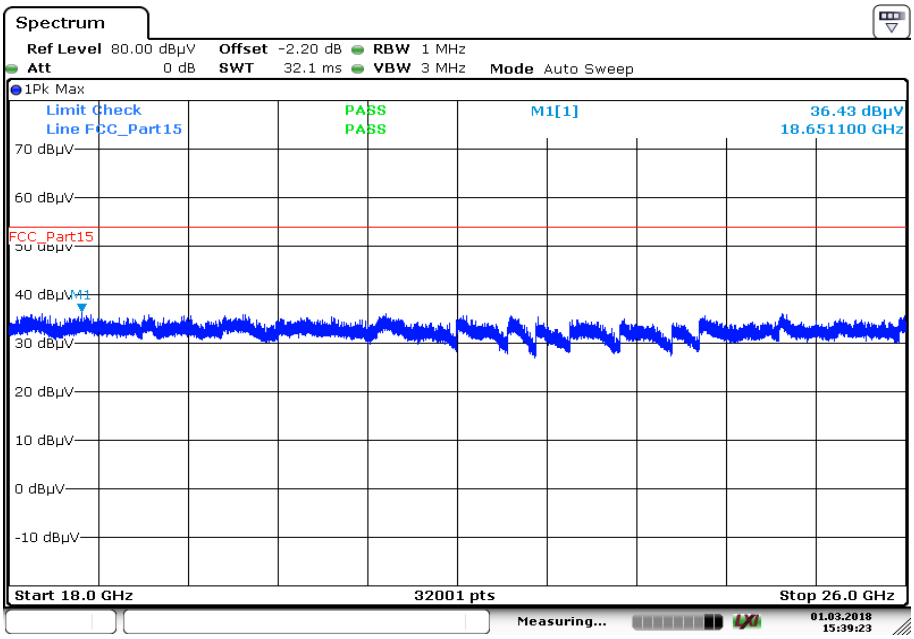


Frequency (MHz)	QuasiPeak (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Height (cm)	Pol	Azimuth (deg)	Corr. (dB)
47.808	23.67	30.0	6.33	1000	120	98.0	V	90.0	13.7
50.424	21.64	30.0	8.36	1000	120	98.0	V	0.0	13.7
53.910	21.38	30.0	8.62	1000	120	98.0	V	90.0	13.2
64.779	22.43	30.0	7.57	1000	120	98.0	V	90.0	10.8
643.518	27.79	36.0	8.21	1000	120	101.0	H	270.0	21.1
844.421	20.76	36.0	15.24	1000	120	170.0	H	270.0	23.4

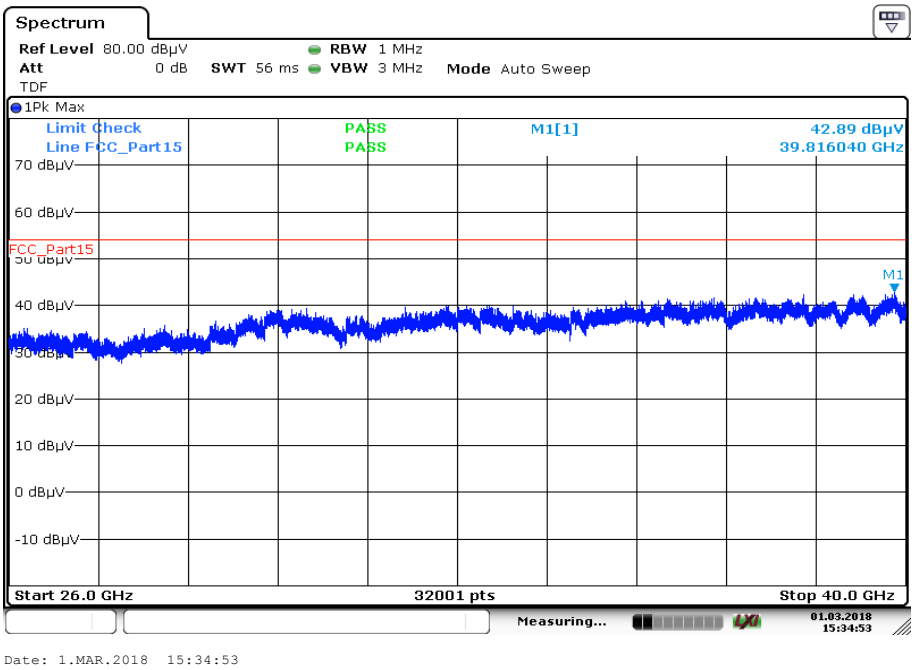
Plot 2: 1 GHz to 18 GHz, vertical & horizontal polarization



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



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



12 Observations

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

Annex A Glossary

EUT	Equipment under test
DUT	Device under test
UUT	Unit under test
GUE	GNSS User Equipment
ETSI	European Telecommunications Standards Institute
EN	European Standard
FCC	Federal Communications Commission
FCC ID	Company Identifier at FCC
IC	Industry Canada
PMN	Product marketing name
HMN	Host marketing name
HVIN	Hardware version identification number
FVIN	Firmware version identification number
EMC	Electromagnetic Compatibility
HW	Hardware
SW	Software
Inv. No.	Inventory number
S/N or SN	Serial number
C	Compliant
NC	Not compliant
NA	Not applicable
NP	Not performed
PP	Positive peak
QP	Quasi peak
AVG	Average
OC	Operating channel
OCW	Operating channel bandwidth
OBW	Occupied bandwidth
OOB	Out of band
DFS	Dynamic frequency selection
CAC	Channel availability check
OP	Occupancy period
NOP	Non occupancy period
DC	Duty cycle
PER	Packet error rate
CW	Clean wave
MC	Modulated carrier
WLAN	Wireless local area network
RLAN	Radio local area network
DSSS	Dynamic sequence spread spectrum
OFDM	Orthogonal frequency division multiplexing
FHSS	Frequency hopping spread spectrum
GNSS	Global Navigation Satellite System
C/N_0	Carrier to noise-density ratio, expressed in dB-Hz

Annex B Document history

Version	Applied changes	Date of release
-/-	Initial release	2018-03-12

Annex C Accreditation Certificate

first page	last page

DAkkS Deutsche Akkreditierungsstelle

Deutsche Akkreditierungsstelle GmbH

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

Accreditation

The Deutsche Akkreditierungsstelle GmbH attests that the testing laboratory

CTC advanced GmbH
Untertürkheimer Straße 6-10, 66117 Saarbrücken

is competent under the terms of DIN EN ISO/IEC 17025:2005 to carry out tests in the following fields:

Telecommunication

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.

Registration number of the certificate: **D-PL-12076-01-03**

Frankfurt, 02.06.2017

Dipl.-Ing. (FH) Ralf Egner
Head of Division

See notes overleaf.

Deutsche Akkreditierungsstelle GmbH

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Spittelmarkt 10
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Office Frankfurt am Main
Europa-Allee 52
60327 Frankfurt am Main

Office Braunschweig
Bundesallee 100
38116 Braunschweig

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.

No impression shall be made that the accreditation also extends to fields beyond the scope of accreditation attested by DAkkS.

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 Agreements for Mutual Recognition of the European co-operation for Accreditation (EA), International Accreditation Forum (IAF) and International Laboratory Accreditation Cooperation (ILAC). The signatories to these agreements recognise each other's accreditations.

The up-to-date state of membership can be retrieved from the following websites:
EA: www.european-accreditation.org
ILAC: www.ilac.org
IAF: www.iaf.nu

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