

3.5 Unwanted Emissions

FCC 15.407 (b)

ISED RSS-247, Issue 2, clause 6.2

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Band Edge Emissions:

Ch. No.	Carrier Frequency (MHz)	Band Edge Frequency (MHz)	Measured Values (dBm/MHz e.i.r.p.)	
			802.11a 6Mb	802.11n HT20
36	5180	5150	-28.7	-28.4
64	5320	5350	-28.3	-29.1
100	5500	5470	-29.3	-29.0
140	5700	5725	-27.5	-27.6
149	5745	5650	< -40	< -40
149	5745	5700	< -20	< -20
165	5825	5875	< -20	< -20
165	5825	5925	< -40	< -40

The measurement was performed radiated.

The results in the table above are from measurements performed on the polarization (HP or VP) and antenna (1 or 2) providing the highest e.i.r.p. on the respective frequency – see plots on the following pages.

EIRP values were calculated from field strength using the method in KDB 412172 D01.

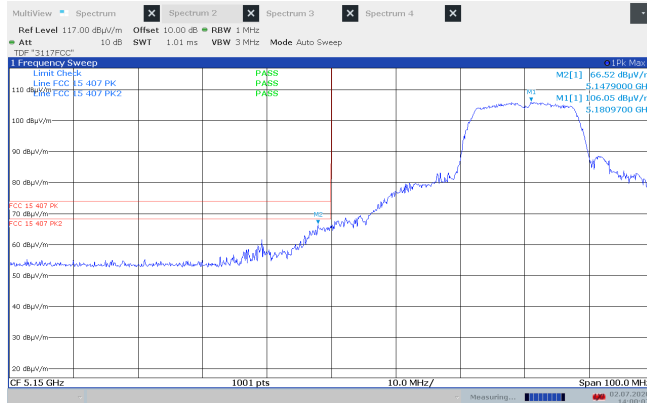
The tested equipment is for indoor use only, no band-edge requirements apply at 5250 MHz.

Limits:

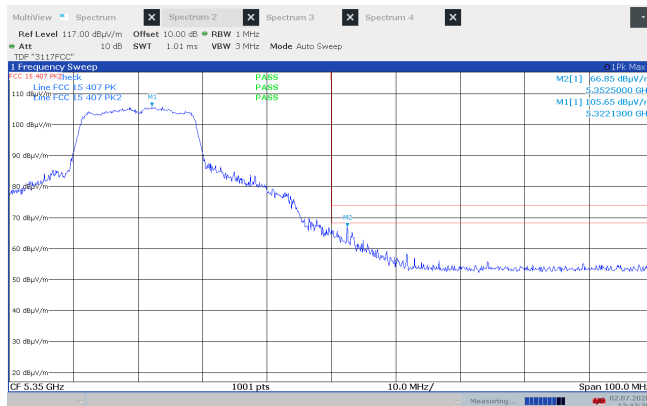
Operating Frequency band	Limit for Emissions Outside Operating Frequency Band
5150 – 5250 MHz	-27 dBm/MHz e.i.r.p.
5250 – 5350 MHz	-27 dBm/MHz e.i.r.p.
5470 – 5725 MHz	-27 dBm/MHz e.i.r.p.
5725 – 5825 MHz	See FCC 15.407(b)(4)(i) or 15.407(b)(4)(ii)

Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.

Band Edge emissions – Peak Detector



Band Edge 5150 MHz, ch036, 802.11a 6Mb, EUT V, VP, Ant 2, Max



Band Edge 5350 MHz, ch064, 802.11a 6Mb, EUT V, VP, Ant 1, Max



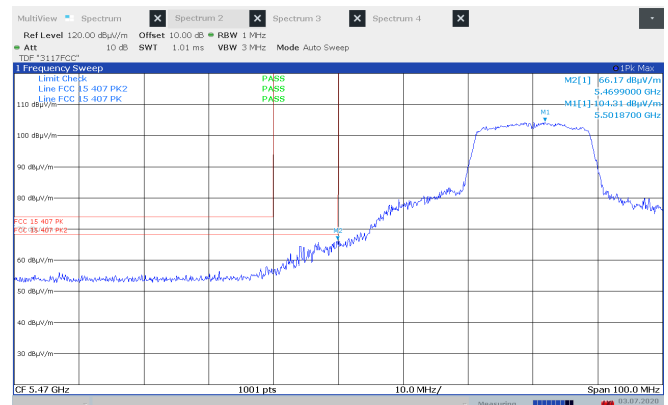
Band Edge 5470 MHz, ch100, 802.11a 6Mb, EUT V, VP, Ant 1, Max



Band Edge 5150 MHz, ch036, 802.11n HT20, EUT V, VP, Ant 2, Max



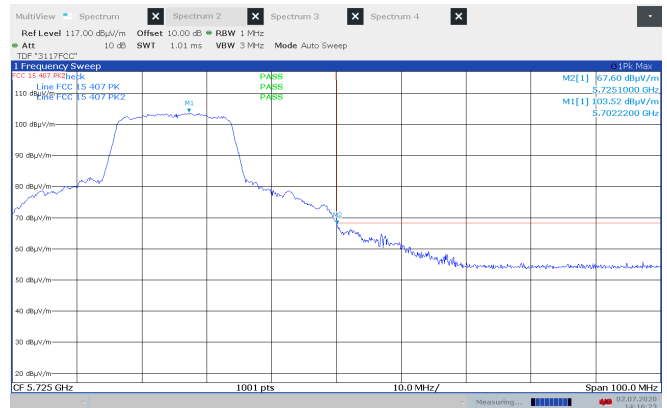
Band Edge 5350 MHz, ch064, 802.11n HT20, EUT V, VP, Ant 1, Max



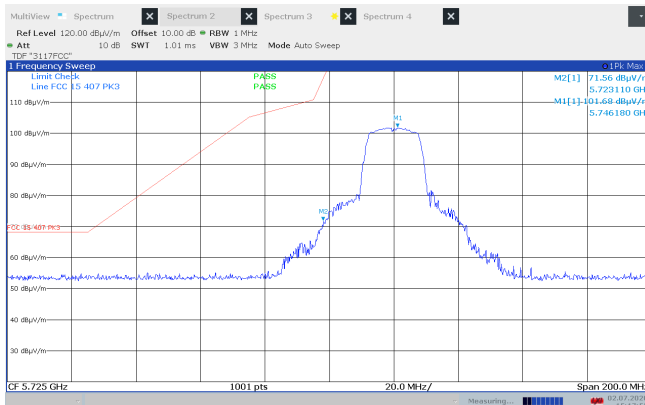
Band Edge 5470 MHz, ch100, 802.11n HT20, EUT V, VP, Ant 1, Max



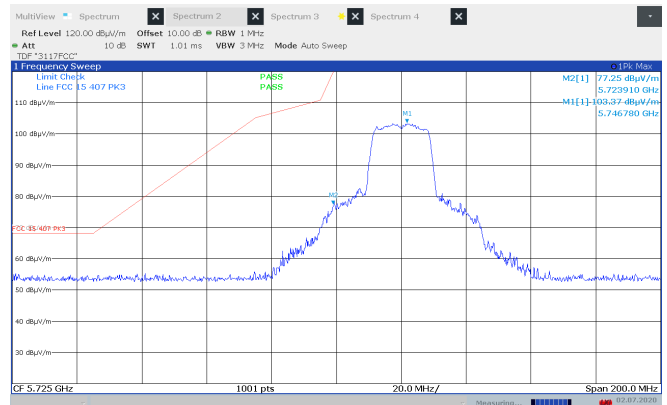
Band Edge 5725 MHz, ch140, 802.11a 6Mb, EUT V, VP, Ant 2, Max



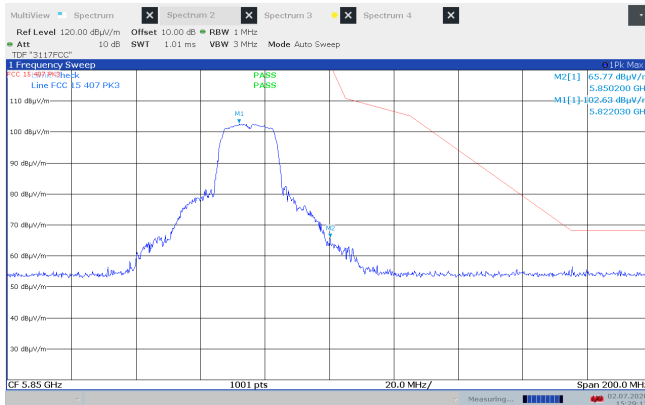
Band Edge 5725 MHz, ch140, 802.11n HT20, EUT V, VP, Ant 2, Max



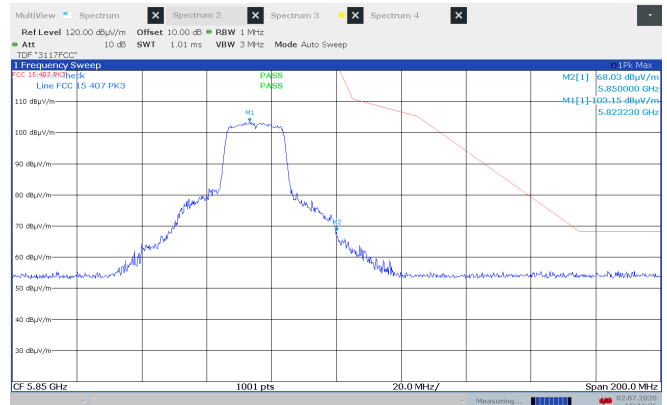
Band Edge 5725 MHz, ch149, 802.11a 6Mb, EUT V, VP, Ant 1, Max



Band Edge 5725 MHz, ch149, 802.11n HT20, EUT V, VP, Ant 1, Max



Band Edge 5850 MHz, ch165, 802.11a 6Mb, EUT V, VP, Ant 2, Max



Band Edge 5850 MHz, ch165, 802.11n HT20, EUT V, VP, Ant 2, Max

For unwanted emissions measurements in the range 1-40 GHz and plots with Peak Detector see clause 3.8

3.6 Restricted Bands of operation

Restricted Bands of operation for FCC and ISSED are defined in FCC Part 15.205 and ISSED RSS-GEN, Issue 5 clause 8.10.

Generally, no fundamentals are allowed in the restricted bands and all emissions must comply with the limits in FCC 15.209 or RSS-GEN, Issue 5, clause 8.9.

FCC (MHz)	ISED (MHz)	FCC (GHz)	ISED (GHz)
0.090-0.110		0.96-1.24 1.3-1.427	0.96-1.427
0.495-0.505		1.435-1.6265	
2.1735-2.1905		1.6455-1.6465	
	3.020-3.026	1.660-1.710	
4.125-4.128		1.7188-1.7222	
4.17725-4.17775		2.2-2.3	
4.20725-4.20775		2.31-2.39	
	5.677-5.683	2.4835-2.5	
6.215-6.218		2.69-2.9	2.655-2.9
6.26775-6.26825		3.26-3.267	
6.31175-6.31225		3.332-3.339	
8.291-8.294		3.3458-3.358	
8.362-8.366		3.6-4.4	3.5-4.4
8.37625-8.38675		4.5-5.15	
8.41425-8.41475		5.35-5.46	
12.29-12.293		7.25-7.75	
12.51975-12.52025		8.025-8.5	
12.57675-12.57725		9.0-9.2	
13.36-13.41		9.3-9.5	
16.42-16.423		10.6-12.7	
16.69475-16.69525		13.25-13.4	
16.80425-16.80475		14.47-14.5	
25.5-25.67		15.35-16.2	
37.5-38.25		17.7-21.4	
73-74.6		22.01-23.12	
74.8-75.2		23.6-24.0	
108-121.94 123-138	108-138	31.2-31.8	
149.9-150.05		36.43-36.5	
156.52475-156.52525		Above 38.6	
156.7-156.9			
162.0125-167.17			
167.72-173.2			
240-285			
322-335.4			
399.9-410			
608-614			

Frequencies in **Bold** text are specific for FCC or ISSED, all other frequencies are common.

3.7 Radiated Emissions, 30 – 1000 MHz

FCC 15.205, 15.209, 15.407

ISED RSS-GEN, Issue 5, Clause 8.9

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Detector: Peak

Measuring distance 3 m

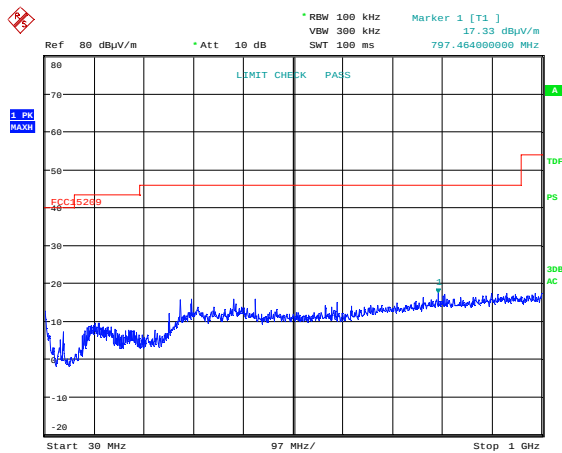
Tested in test mode with EUT transmitting on ch36, ch64, ch100, ch140, ch149, and ch165, on antenna1 and antenna2

Frequency (MHz)	Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Bandwidth (kHz)	Pol
30-1000	< 20	See below	> 20	120.000	V/H

See attached plots.

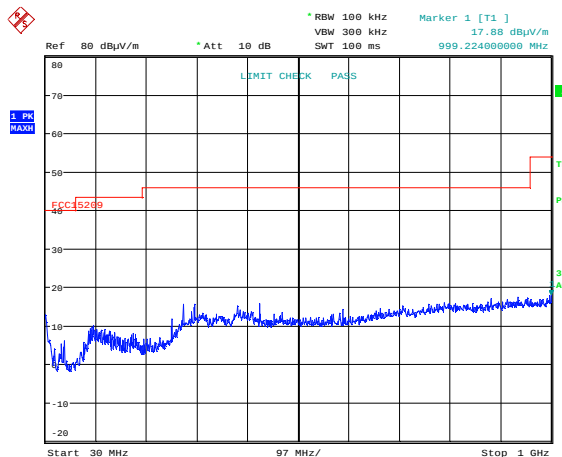
Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
Frequency	Radiated emission limit @3 meters	
30 – 88 MHz	100 μV/m	40.0 dBμV/m
88 – 216 MHz	150 μV/m	43.5 dBμV/m
216 – 960 MHz	200 μV/m	46.0 dBμV/m
960 – 1000 MHz	500 μV/m	54.0 dBμV/m
	Limits above are with Quasi Peak Detector	



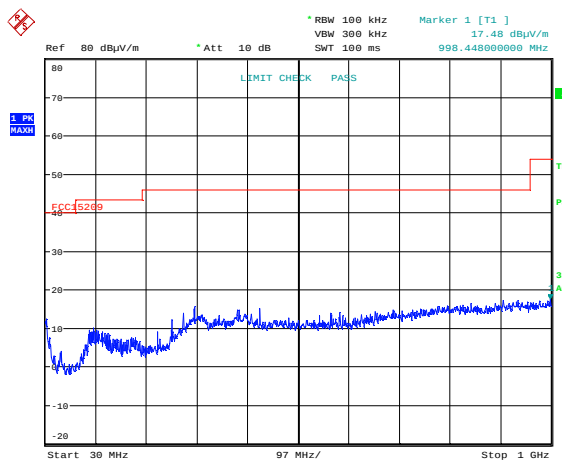
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Radiated Emissions 30-1000 MHz, Ch036, 802.11a 6M, EUT V, VP



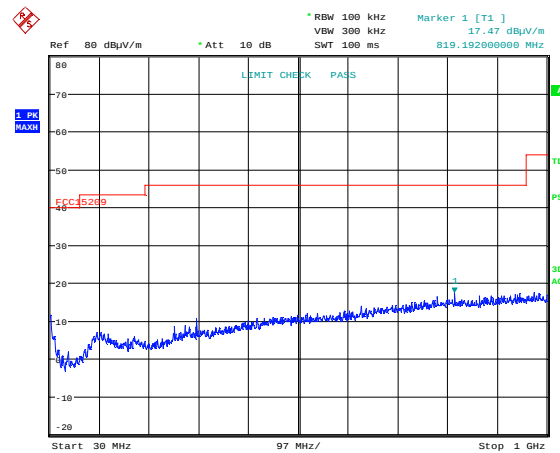
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Radiated Emissions 30-1000 MHz, Ch036, 802.11n HT20, EUT V, VP



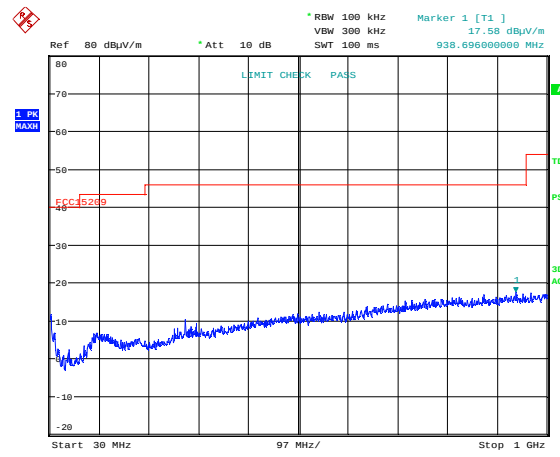
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Radiated Emissions 30-1000 MHz, Ch064, 802.11a 6M, EUT V, VP



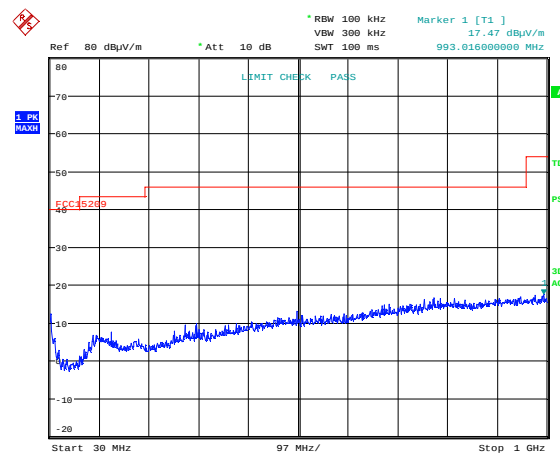
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Radiated Emissions 30-1000 MHz, Ch036, 802.11a 6M, EUT V, HP



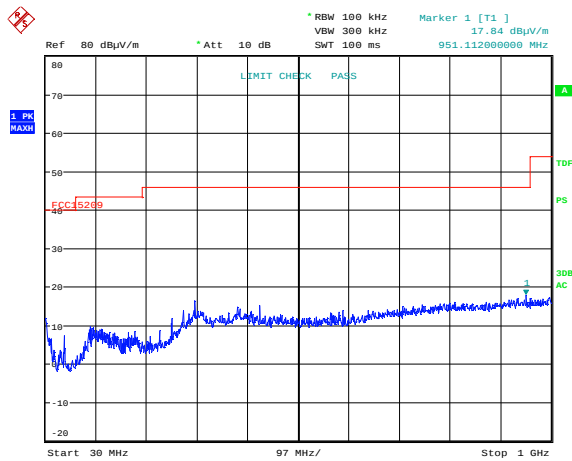
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Radiated Emissions 30-1000 MHz, 802.11n HT20, EUT V, HP



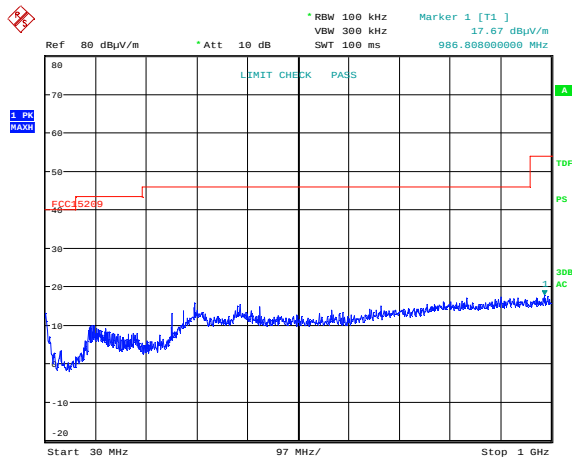
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Radiated Emissions 30-1000 MHz, Ch064, 802.11a 6M, EUT V, HP



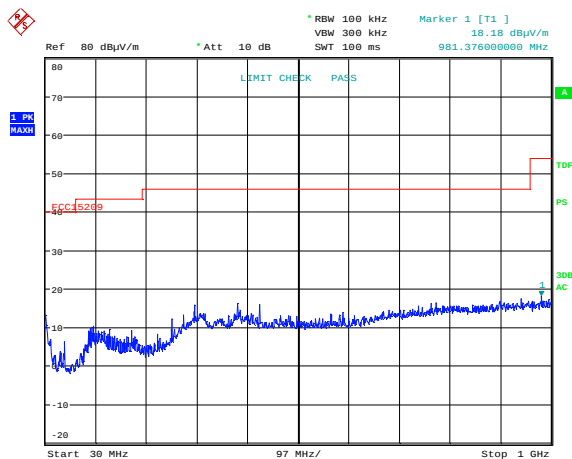
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Radiated Emissions 30-1000 MHz, Ch064, 802.11n HT20, EUT V, VP



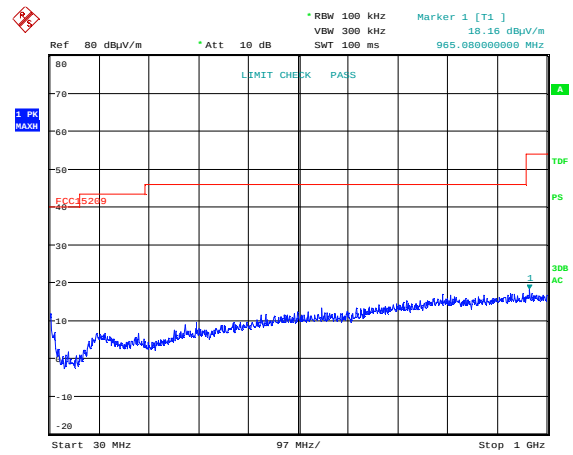
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Radiated Emissions 30-1000 MHz, Ch100, 802.11a 6M, EUT V, VP



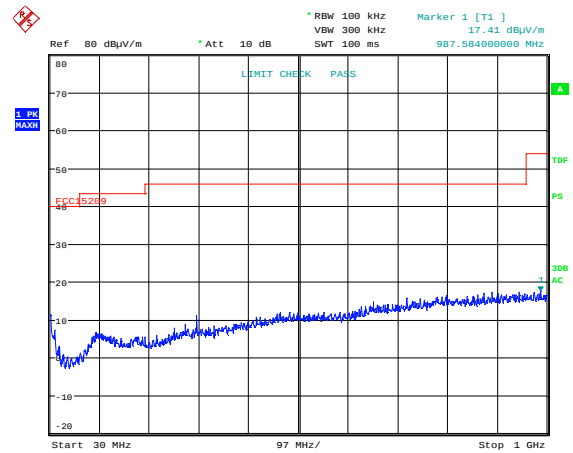
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Radiated Emissions 30-1000 MHz, Ch100, 802.11n HT20, EUT V, VP



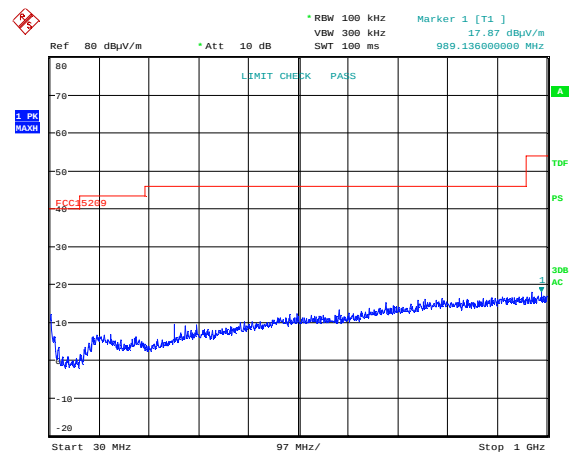
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Radiated Emissions 30-1000 MHz, Ch064, 802.11n HT20, EUT V, HP



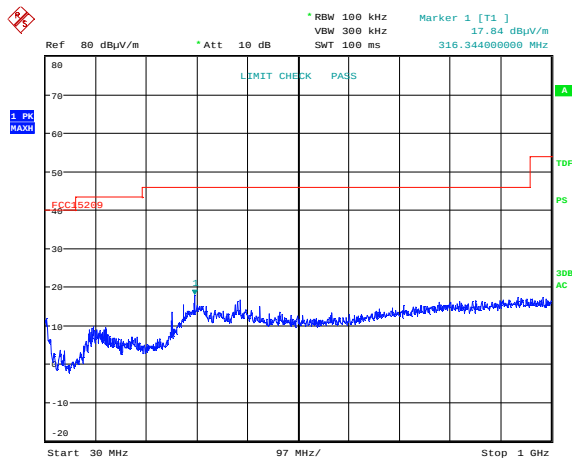
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Radiated Emissions 30-1000 MHz, Ch100, 802.11a 6M, EUT V, HP



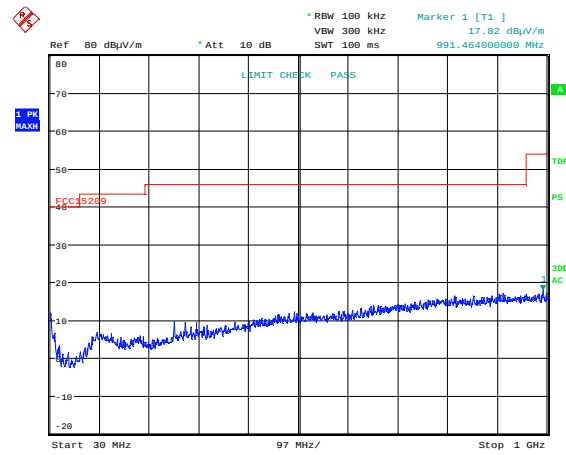
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Radiated Emissions 30-1000 MHz, Ch100, 802.11n HT20, EUT V, HP



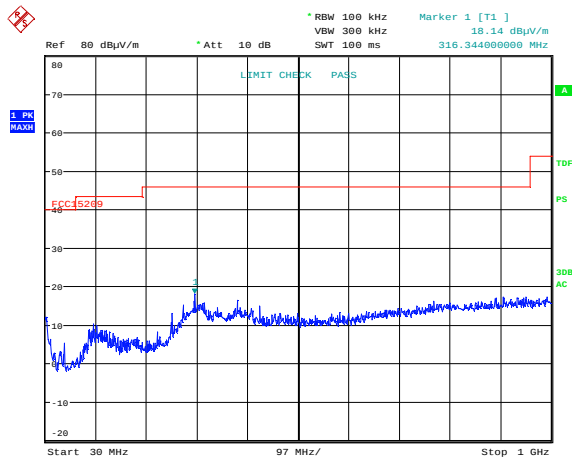
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Radiated Emissions 30-1000 MHz, Ch140, 802.11a 6M, EUT V, VP



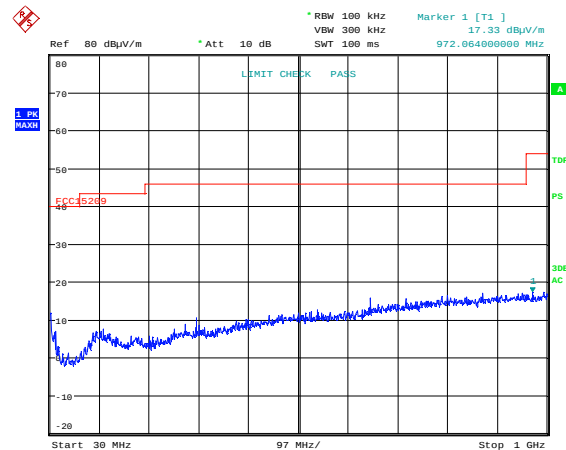
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Radiated Emissions 30-1000 MHz, Ch140, 802.11a 6M, EUT V, HP



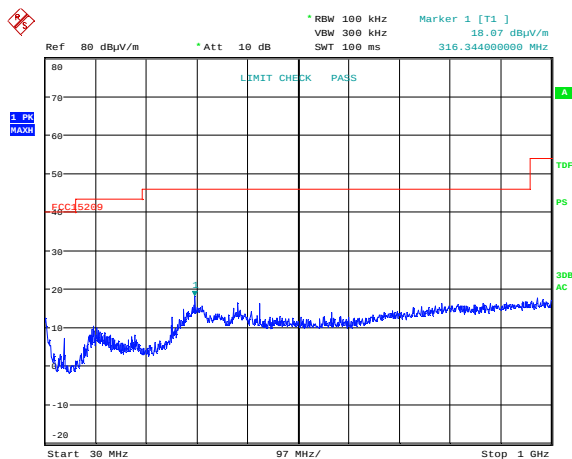
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Radiated Emissions 30-1000 MHz, Ch140, 802.11n HT20, EUT V, VP



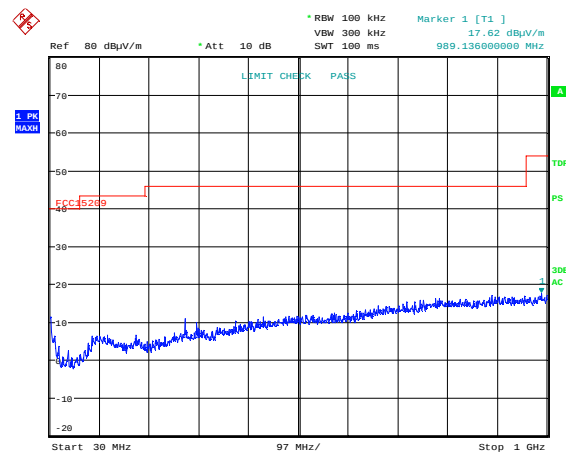
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Radiated Emissions 30-1000 MHz, Ch140, 802.11n HT20, EUT V, HP



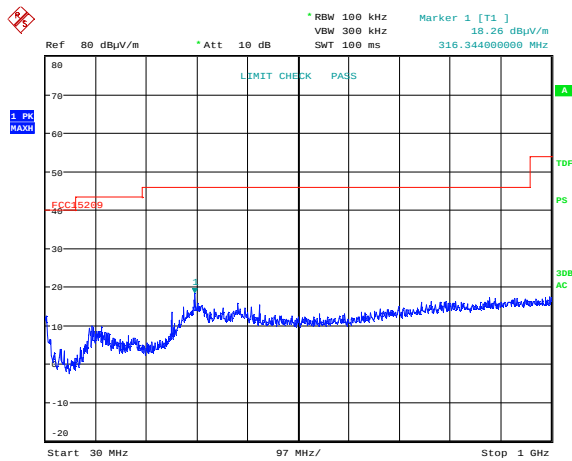
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Radiated Emissions 30-1000 MHz, Ch165, 802.11a 6M, EUT V, VP



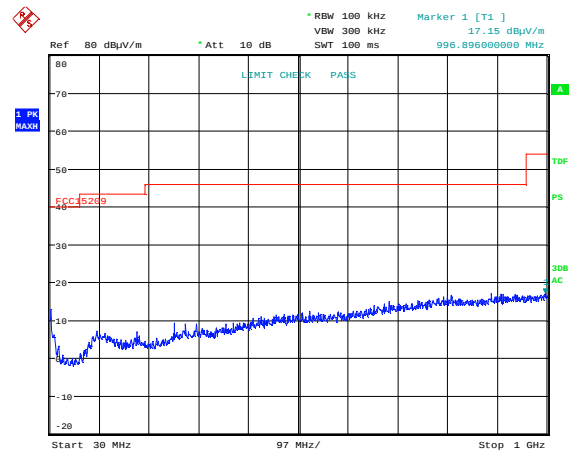
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Radiated Emissions 30-1000 MHz, Ch165, 802.11a 6M, EUT V, HP



Date: 26.AUG.2020 10:53:35

Radiated Emissions 30-1000 MHz, Ch165, 802.11n HT20, EUT V, VP



Date: 26.AUG.2020 10:55:29

Radiated Emissions 30-1000 MHz, , Ch165, 802.11n HT20, EUT V, HP

3.8 Radiated Emissions, 1 – 40 GHz

FCC 15.205, 15.209, 15.407

ISED RSS-GEN, Issue 5, Clause 8.9

Measurement procedure: ANSI C63.10-2013 Clause 12.7

Test Results: Complies

Measurement Data:

Measuring distance 3m up to 18 GHz, prescan (20 cm) above 18 GHz.

Peak Detector, RBW=1 MHz

Band Edge values with Peak Detector are reported in clause 3.5

Band Edge values - Average Detector, RBW=1 MHz

Carrier freq. (MHz)	Measured Frequency (MHz)	Modulation	Measured Emission (dBμV/m)	Limit (dBμV/m)	Margin (dB)
5180	5150	802.11a 6M	41.6	54	12.4
5180	5150	802.11n HT20	42.7	54	11.3
5320	5350	802.11a 6M	41.6	54	12.4
5320	5350	802.11n HT20	41.6	54	12.6
5500	5460	802.11a 6M	40.8	54	13.2
5500	5460	802.11n HT20	40.9	54	13.1

Spruious values - Average Detector and Peak Detector, RBW=1 MHz

Carrier freq. (MHz)	Measured Frequency (MHz)	Modulation	Measured Emission (dBμV/m)		Limit (dBμV/m)		Margin (dB)	
5180, 5320, 5500, 5700, 5745, 5825	1000-5150 5350-5460	802.11a 6M 802.11n HT20	< 50	< 60	54	74	> 4	> 14
	6500-15000		< 40	< 50	54	74	> 4	> 14
	15000-18000		< 45	< 55	54	74	> 9	> 19
	18000-26000		< 52 *	< 63 *	54	74	> 2 *	> 11 *
	26000-40000		< 52 *	< 63 *	54	74	> 2 *	> 11 *

Note: In the range 18-40 GHz measurements have been performed as prescan at approx. 10-20 cms distance – and not spurious components were observed.

Measured results are for 802.11a 6Mbps and 802.11n MCS0, it was checked that other modulations and/or bitrates did not produce higher emissions

All values except Band Edge values are measured with Maximum Output Power (Setting Level 127)

A High Pass Filter was used for all measurements from 6.5 to 18 GHz

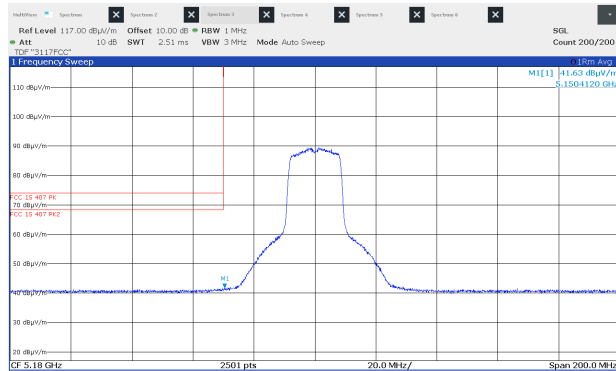
Antenna factor, amplifier gain and cable loss are included in Spectrum Analyzer "Transducer factor"

See attached plots

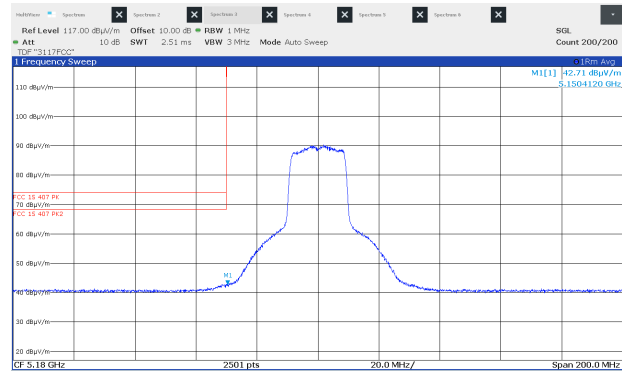
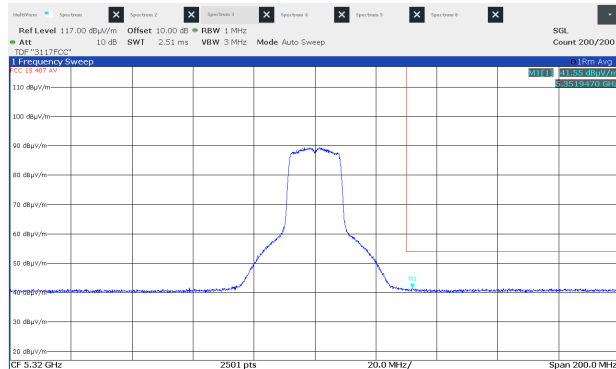
Requirements/Limit

FCC	Part 15.209 @ frequencies defined in §15.205	
ISED	RSS-GEN Issue 5, Clause 8.9 @ frequencies defined in clause 8.10	
	Radiated emission limit @3 meters	
Frequency	Average Detector (dBμV/m)	Peak Detector (dBμV/m)
1 – 40 GHz	54.0	74.0

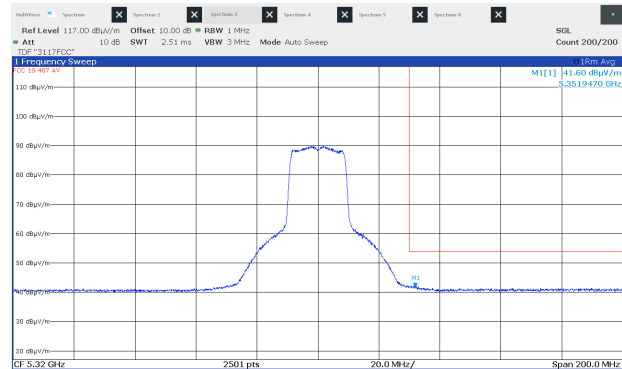
Band Edge – Average Detector



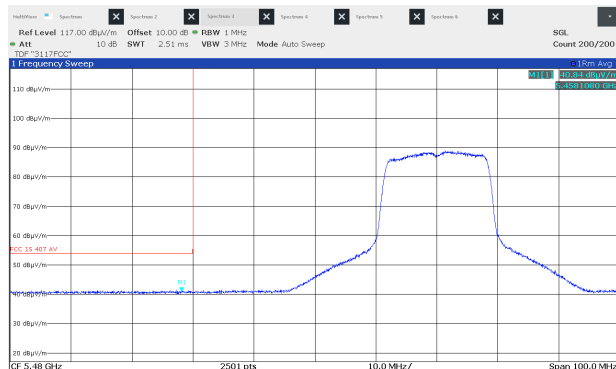
Band Edge, 5150 MHz, Ch036, 802.11a 6M, EUT V, VP, Av, Max



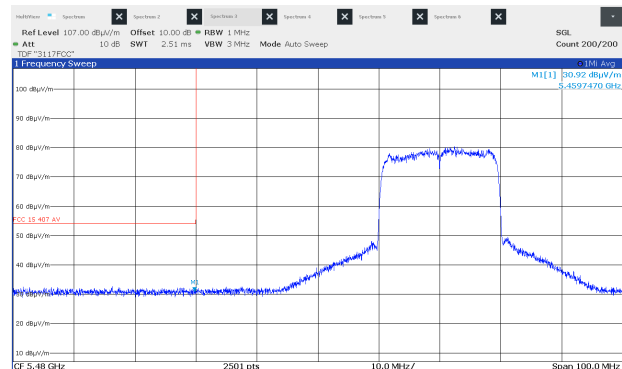
Band Edge, 5150 MHz, Ch036, 802.11n HT20, EUT V, VP, Av, Max



Band Edge, 5350 MHz, Ch064, 802.11a 6M, EUT V, VP, Av, Max



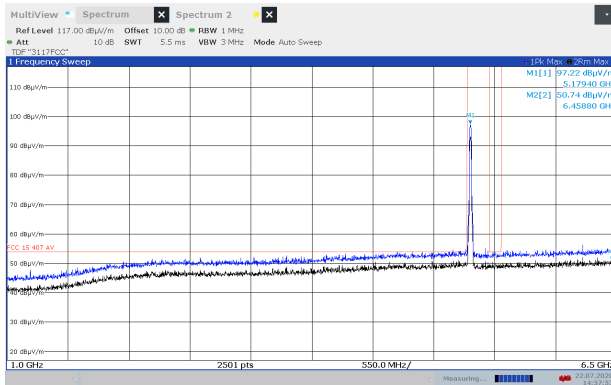
Band Edge, 5350 MHz, Ch064, 802.11n HT20, EUT V, VP, Av, Max



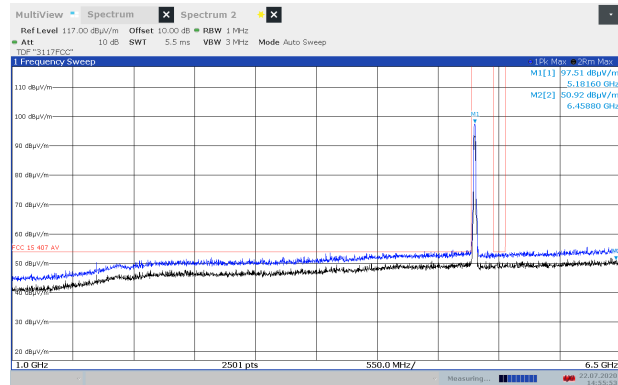
Band Edge, 5460 MHz, Ch100, 802.11a 6M, EUT V, VP, Av, Max

Band Edge, 5460 MHz, Ch100, 802.11n HT20, EUT V, VP, Av, Max

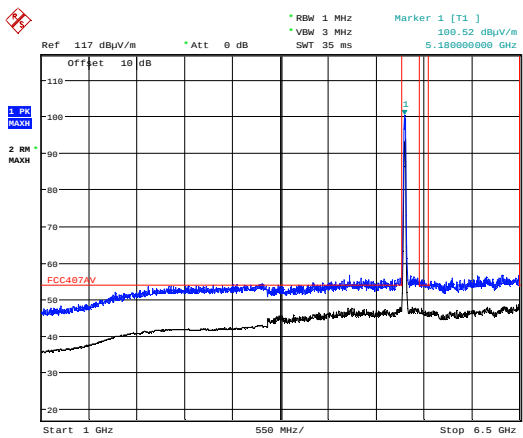
Radiated spurious emissions 1-40 GHz – Average and Peak Detector



Radiated Emissions 1-6.5 GHz, Ch036, 802.11a 6M, EUT V, Ant 1, HP

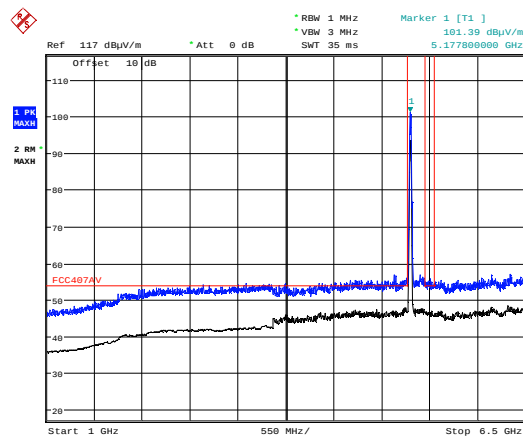


Radiated Emissions 1-6.5 GHz, Ch036, 802.11a 6M, EUT V, Ant 1, VP



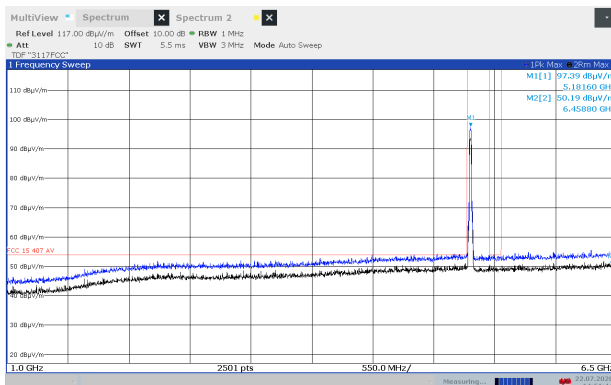
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Radiated Emissions 1-6.5 GHz, Ch036, 802.11n HT20, EUT V, Ant 1, HP

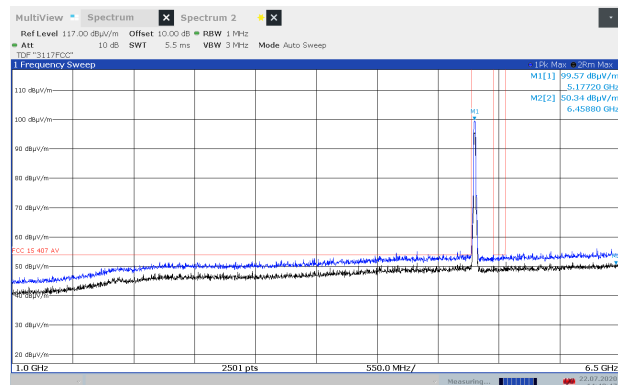


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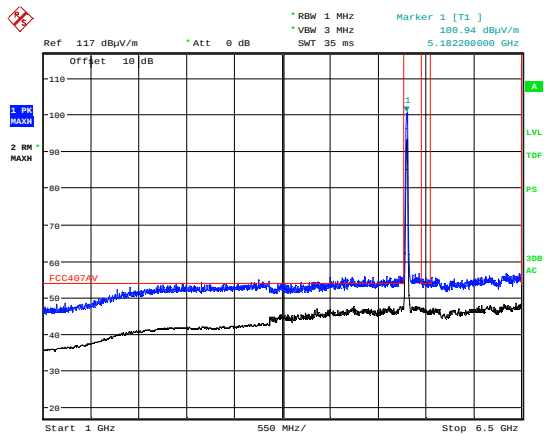
Radiated Emissions 1-6.5 GHz, Ch036, 802.11n HT20, EUT V, Ant 1, VP



Radiated Emissions 1-6.5 GHz, Ch036, 802.11a 6M, EUT V, Ant 2, HP

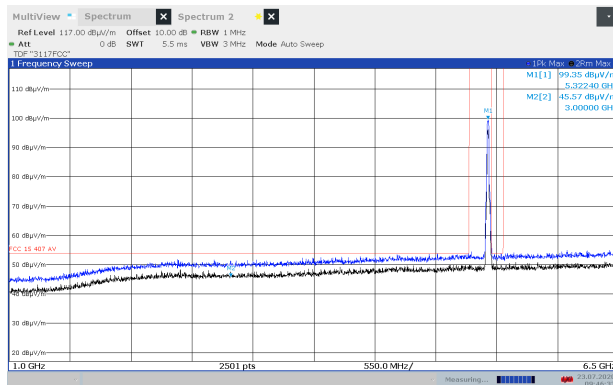


Radiated Emissions 1-6.5 GHz, Ch036, 802.11a 6M, EUT V, Ant 2, VP

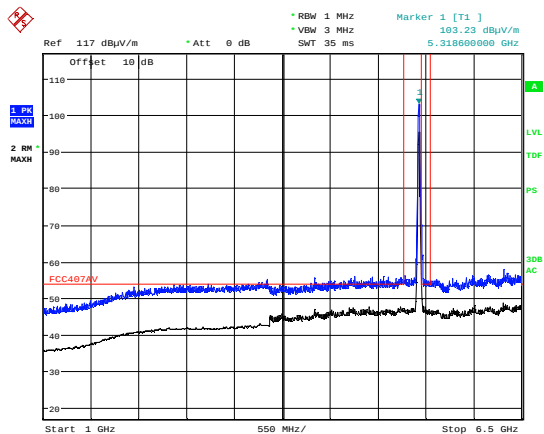


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Radiated Emissions 1-6.5 GHz, Ch036, 802.11n HT20, EUT V, Ant 2, HP

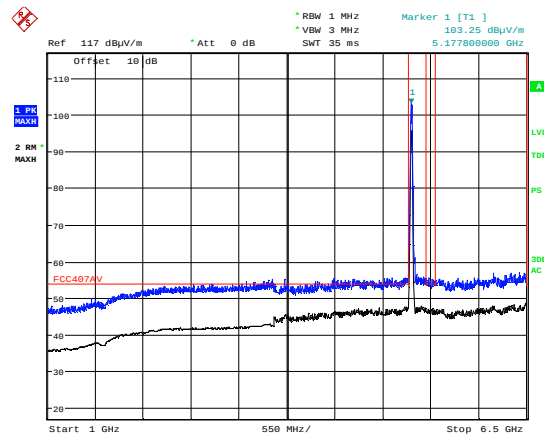


Radiated Emissions 1-6.5 GHz, Ch064, 802.11a 6M, EUT V, Ant 1, HP



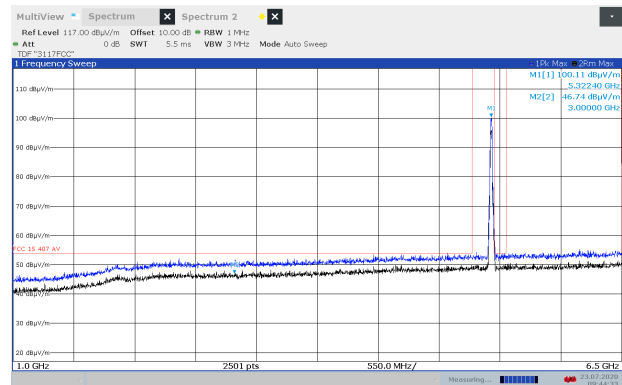
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Radiated Emissions 1-6.5 GHz, Ch064, 802.11n HT20, EUT V, Ant 1, HP

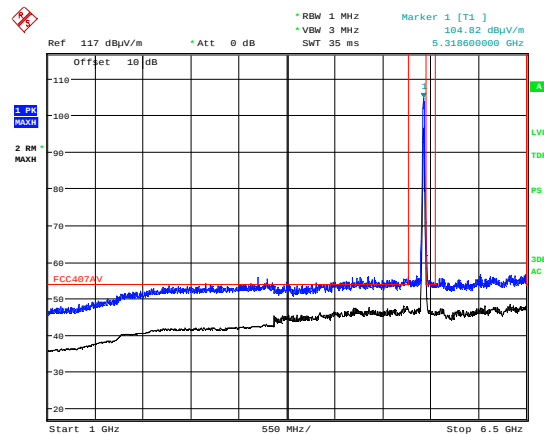


Date: 16.SEP.2020 15:59:33

Radiated Emissions 1-6.5 GHz, Ch036, 802.11n HT20, EUT V, Ant 2, VP

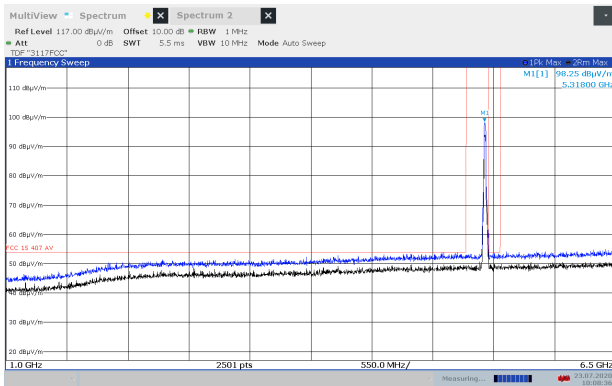


Radiated Emissions 1-6.5 GHz, Ch064, 802.11a 6M, EUT V, Ant 1, VP

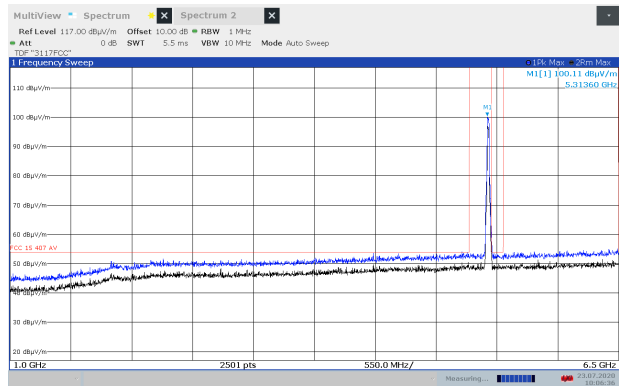


Date: 16.SEP.2020 15:13:56

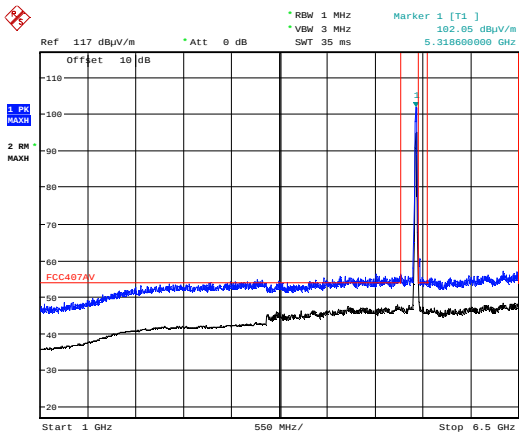
Radiated Emissions 1-6.5 GHz, Ch064, 802.11n HT20, EUT V, Ant 1, VP



Radiated Emissions 1-6.5 GHz, Ch064, 802.11a 6M, EUT V, Ant 2, HP

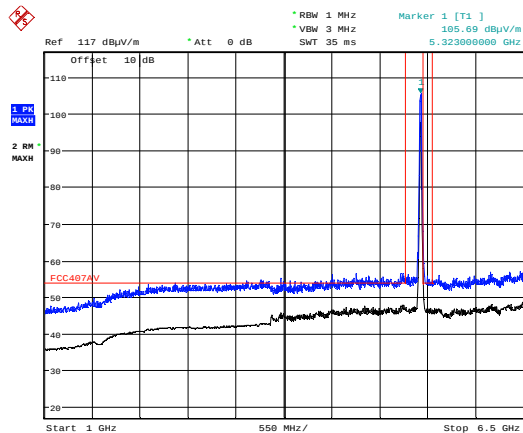


Radiated Emissions 1-6.5 GHz, Ch064, 802.11a 6M, EUT V, Ant 2, VP



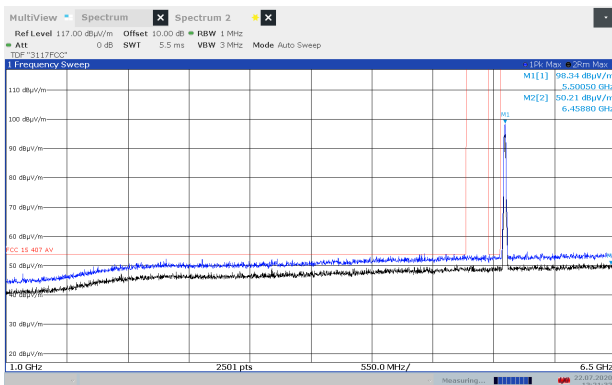
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Radiated Emissions 1-6.5 GHz, Ch064, 802.11n HT20, EUT V, Ant 2, HP

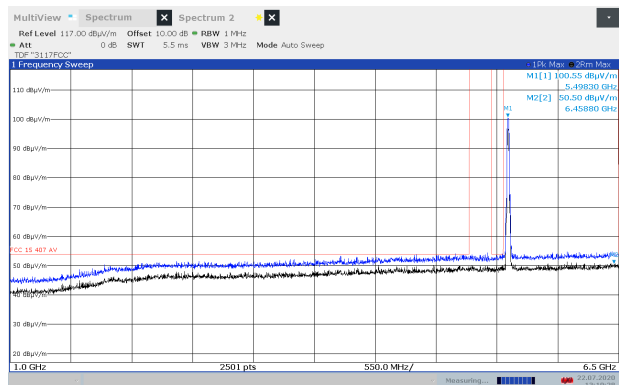


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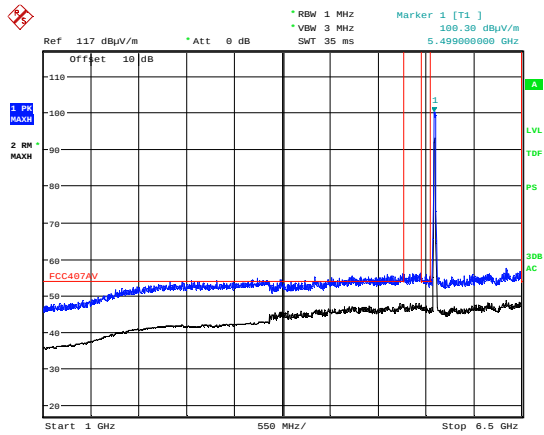
Radiated Emissions 1-6.5 GHz, Ch064, 802.11n HT20, EUT V, Ant 2, VP



Radiated Emissions 1-6.5 GHz, Ch100, 802.11a 6M, EUT V, Ant 1, HP

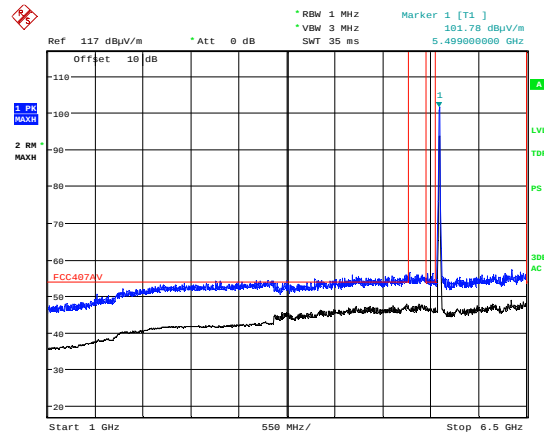


Radiated Emissions 1-6.5 GHz, Ch100, 802.11a 6M, EUT V, Ant 1, VP



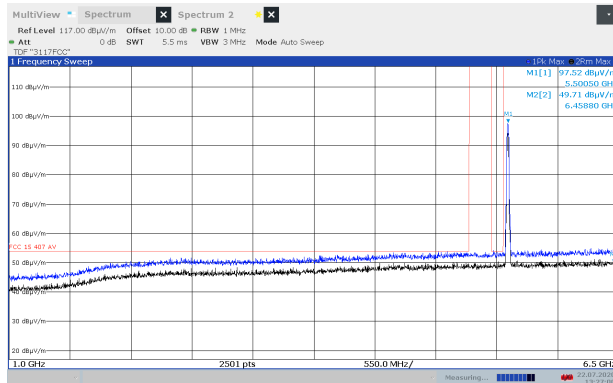
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Radiated Emissions 1-6.5 GHz, Ch100, 802.11n HT20, EUT V, Ant 1, HP

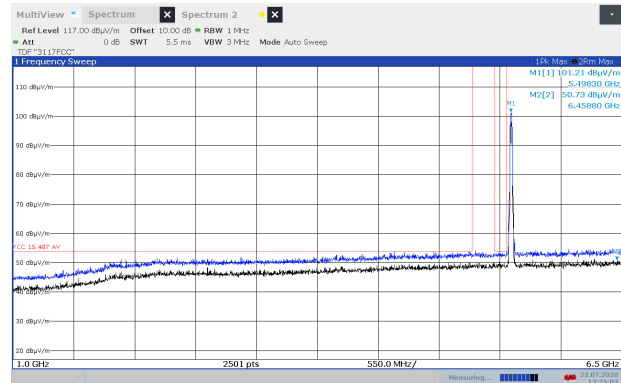


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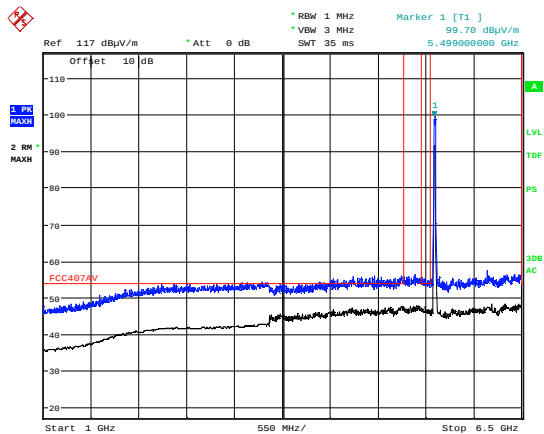
Radiated Emissions 1-6.5 GHz, Ch100, 802.11n HT20, EUT V, Ant 1, VP



Radiated Emissions 1-6.5 GHz, Ch100, 802.11a 6M, EUT V, Ant 2, HP

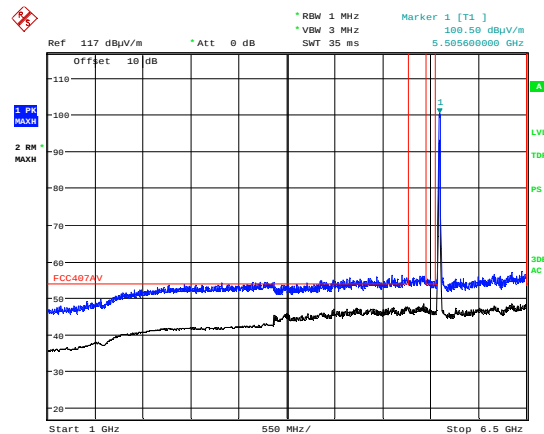


Radiated Emissions 1-6.5 GHz, Ch100, 802.11a 6M, EUT V, Ant 2, VP



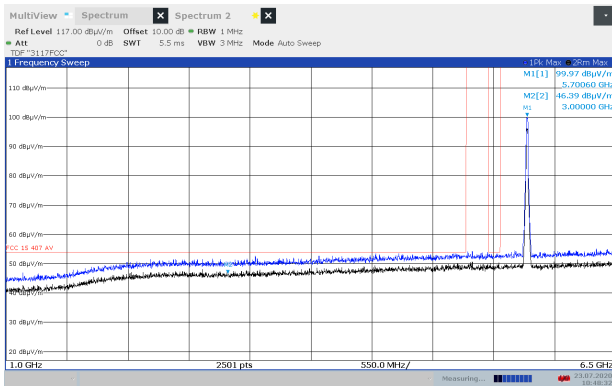
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Radiated Emissions 1-6.5 GHz, Ch100, 802.11n HT20, EUT V, Ant 2, HP

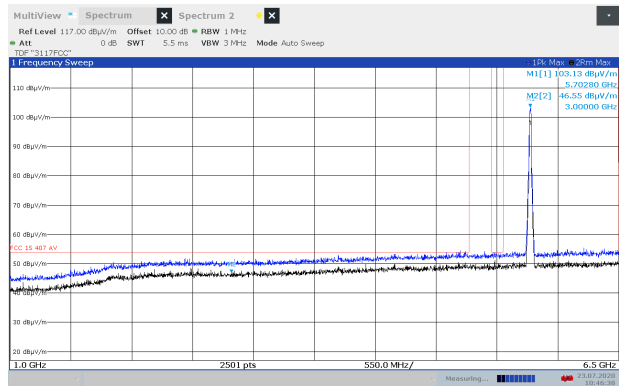


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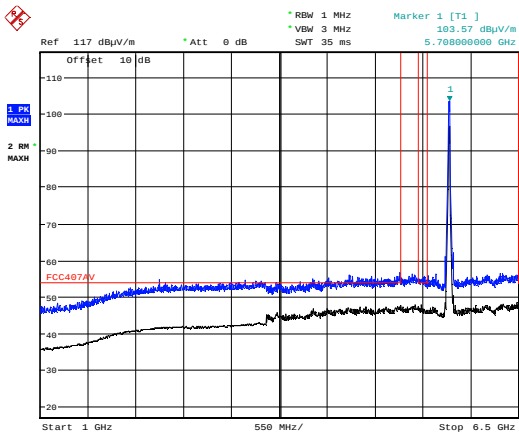
Radiated Emissions 1-6.5 GHz, Ch100, 802.11n HT20, EUT V, Ant 2, VP



Radiated Emissions 1-6.5 GHz, Ch140, 802.11a 6M, EUT V, Ant 1, HP

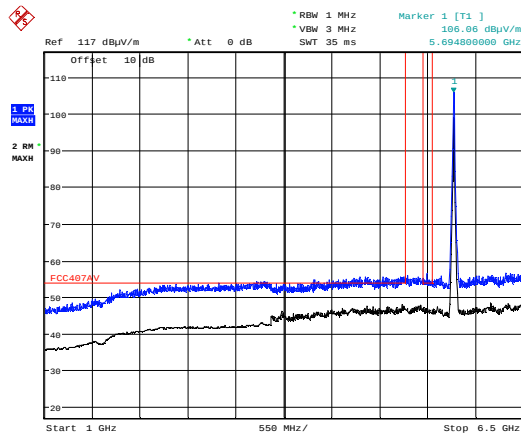


Radiated Emissions 1-6.5 GHz, Ch140, 802.11a 6M, EUT V, Ant 1, VP



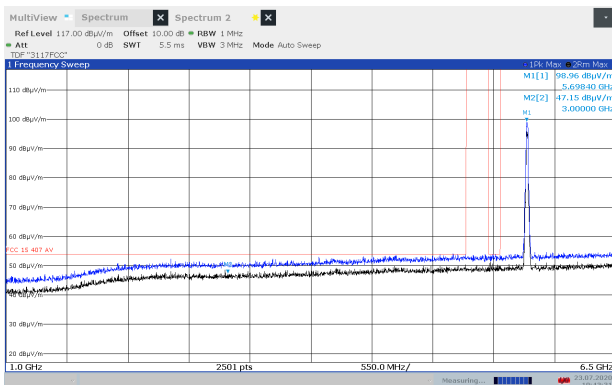
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Radiated Emissions 1-6.5 GHz, Ch140, 802.11n HT20, EUT V, Ant 1, HP

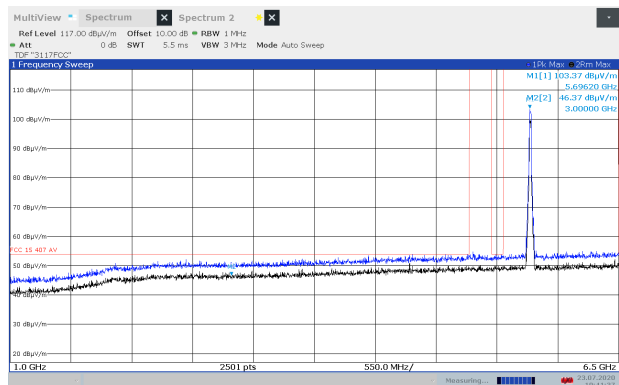


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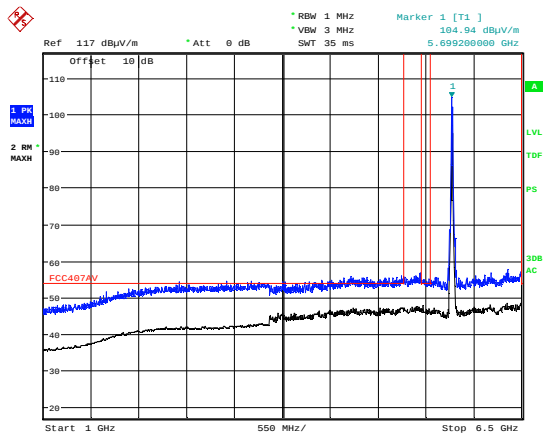
Radiated Emissions 1-6.5 GHz, Ch140, 802.11n HT20, EUT V, Ant 1, VP



Radiated Emissions 1-6.5 GHz, Ch140, 802.11a 6M, EUT V, Ant 2, HP

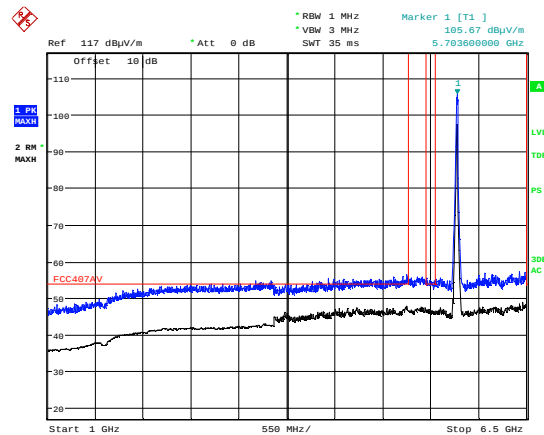


Radiated Emissions 1-6.5 GHz, Ch140, 802.11a 6M, EUT V, Ant 2, VP



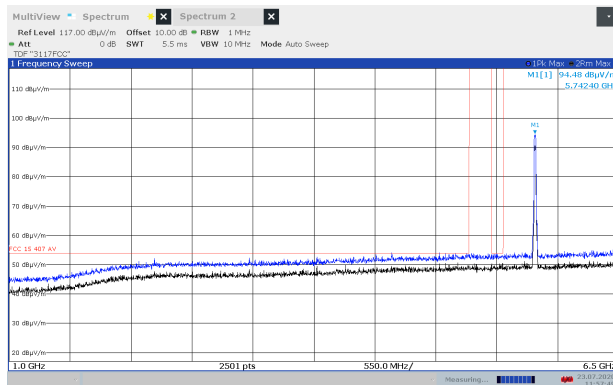
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Radiated Emissions 1-6.5 GHz, Ch140, 802.11n HT20, EUT V, Ant 2, HP

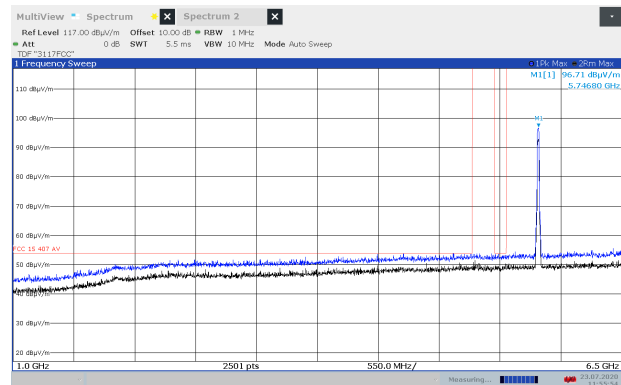


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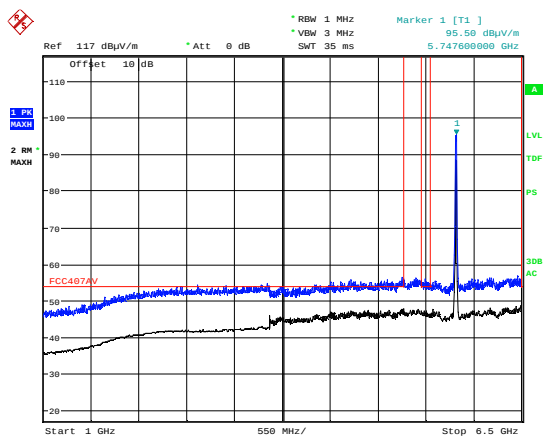
Radiated Emissions 1-6.5 GHz, Ch140, 802.11n HT20, EUT V, Ant 2, VP



Radiated Emissions 1-6.5 GHz, Ch149, 802.11a 6M, EUT V, Ant 1, HP

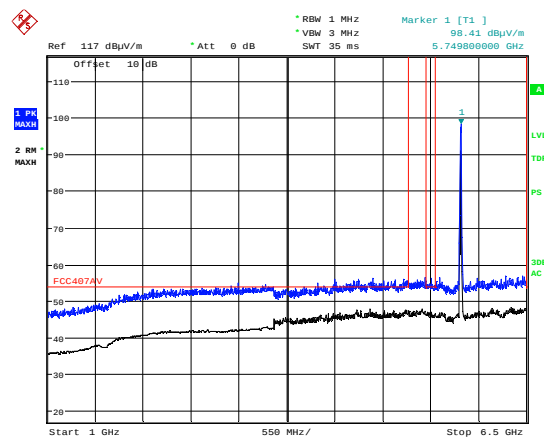


Radiated Emissions 1-6.5 GHz, Ch149, 802.11a 6M, EUT V, Ant 1, VP



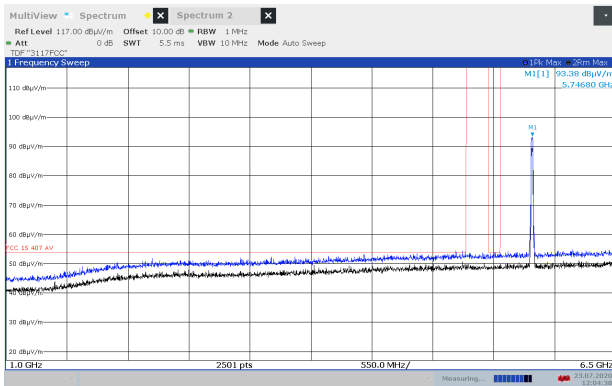
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Radiated Emissions 1-6.5 GHz, Ch149, 802.11n HT20, EUT V, Ant 1, HP

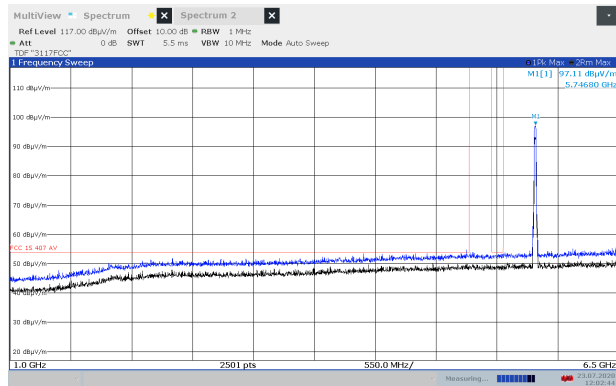


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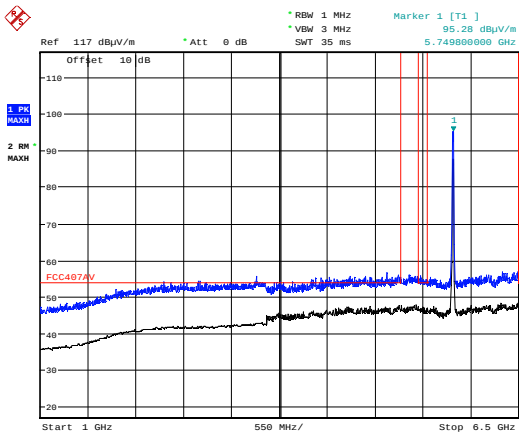
Radiated Emissions 1-6.5 GHz, Ch149, 802.11n HT20, EUT V, Ant 1, VP



Radiated Emissions 1-6.5 GHz, Ch149, 802.11a 6M, EUT V, Ant 2, HP

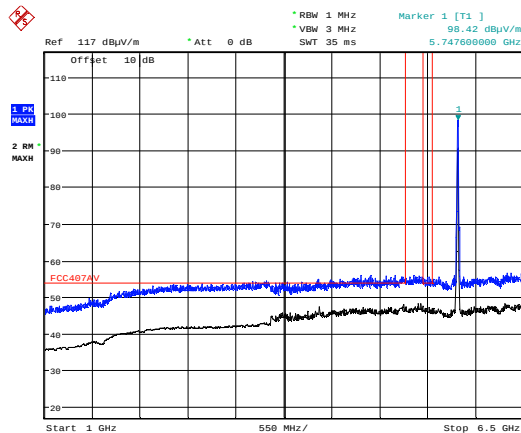


Radiated Emissions 1-6.5 GHz, Ch149, 802.11a 6M, EUT V, Ant 2, VP



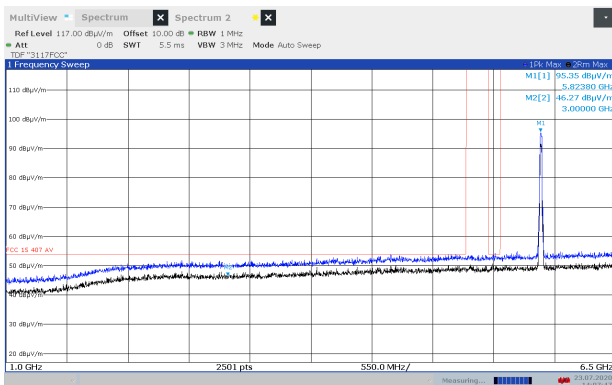
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Radiated Emissions 1-6.5 GHz, Ch149, 802.11n HT20, EUT V, Ant 2, HP

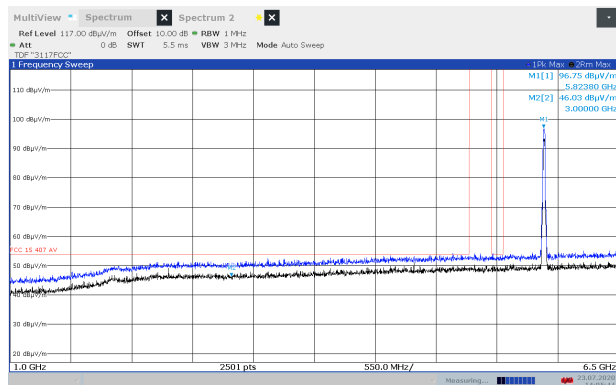


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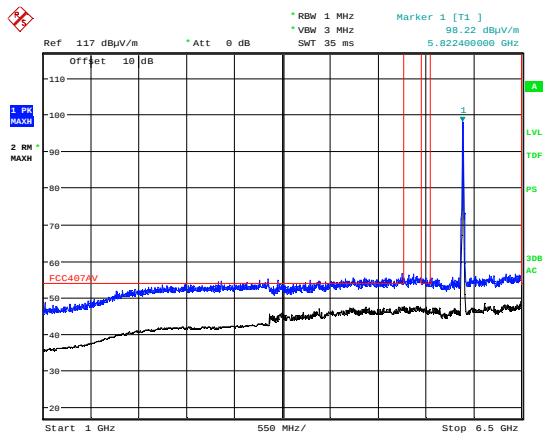
Radiated Emissions 1-6.5 GHz, Ch149, 802.11n HT20, EUT V, Ant 2, VP



Radiated Emissions 1-6.5 GHz, Ch165, 802.11a 6M, EUT V, Ant 1, HP

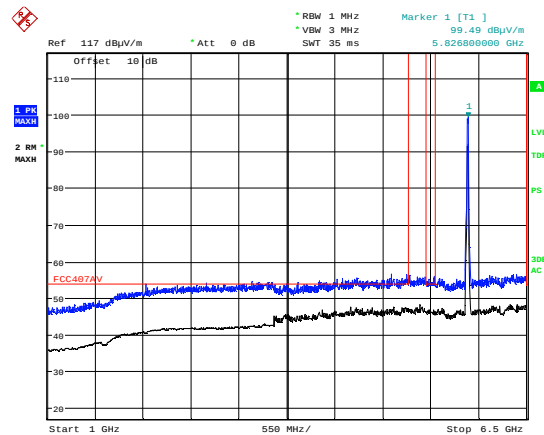


Radiated Emissions 1-6.5 GHz, Ch165, 802.11a 6M, EUT V, Ant 1, VP



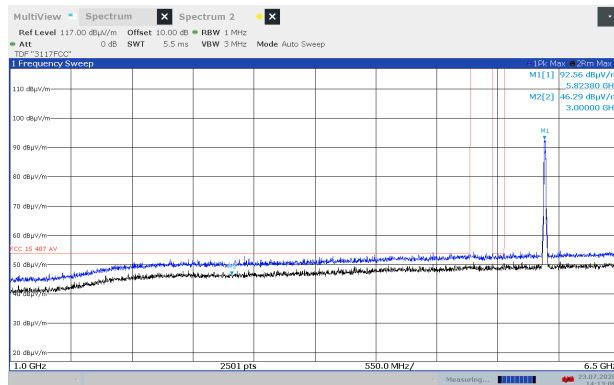
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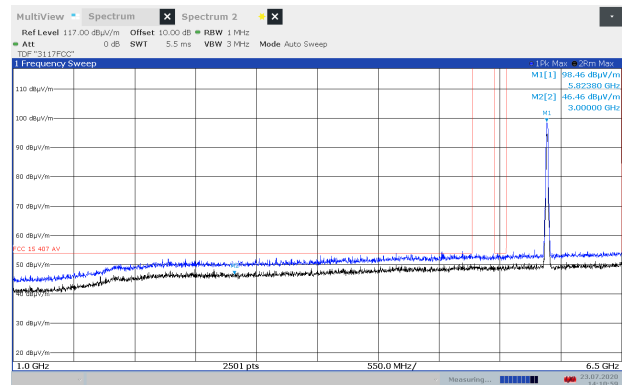


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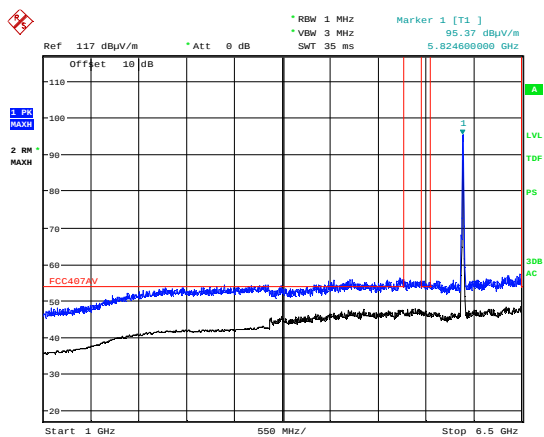
Radiated Emissions 1-6.5 GHz, Ch165, 802.11n HT20, EUT V, Ant 1, VP



Radiated Emissions 1-6.5 GHz, Ch165, 802.11a 6M, EUT V, Ant 2, HP

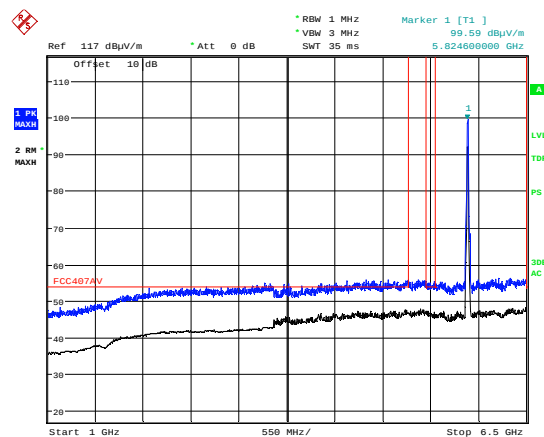


Radiated Emissions 1-6.5 GHz, Ch165, 802.11a 6M, EUT V, Ant 2, VP



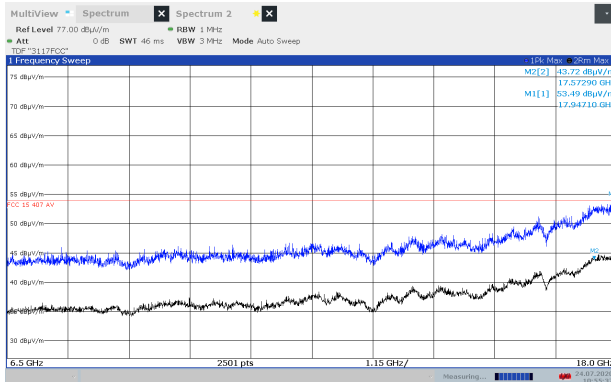
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Radiated Emissions 1-6.5 GHz, Ch165, 802.11n HT20, EUT V, Ant 2, HP

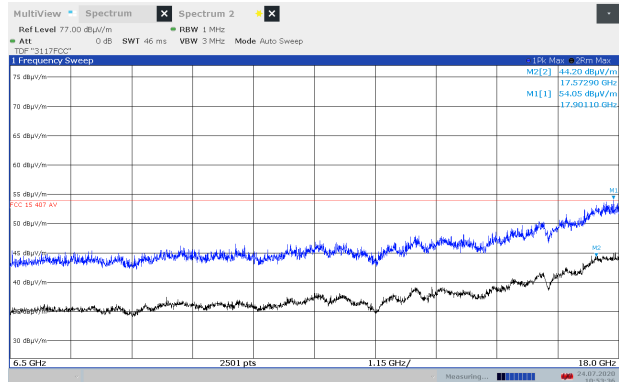


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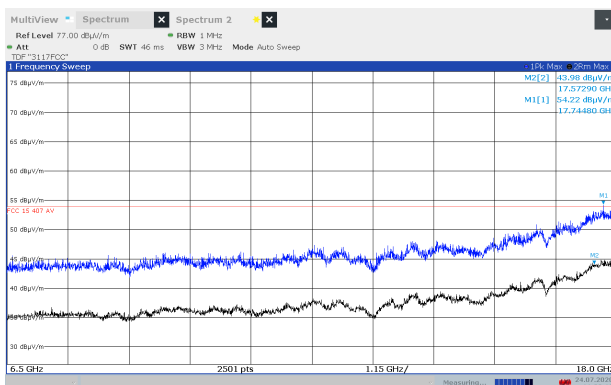
Radiated Emissions 1-6.5 GHz, Ch165, 802.11n HT20, EUT V, Ant 2, VP



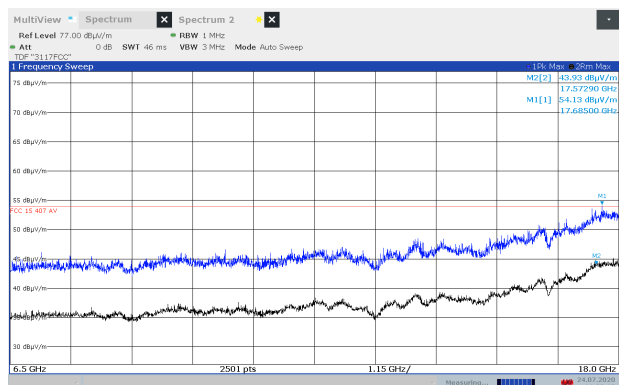
Radiated Emissions 6.5-18 GHz, Ch036, 802.11a 6M, EUT V, Ant 1, HP



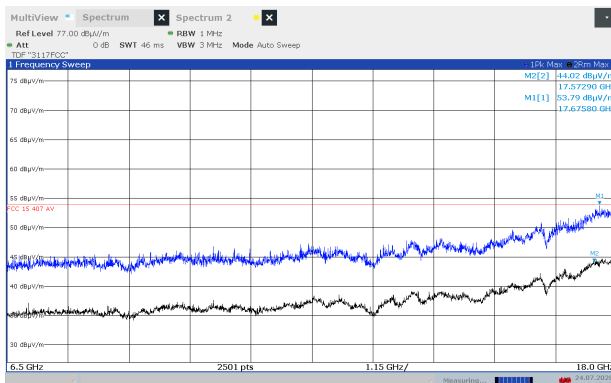
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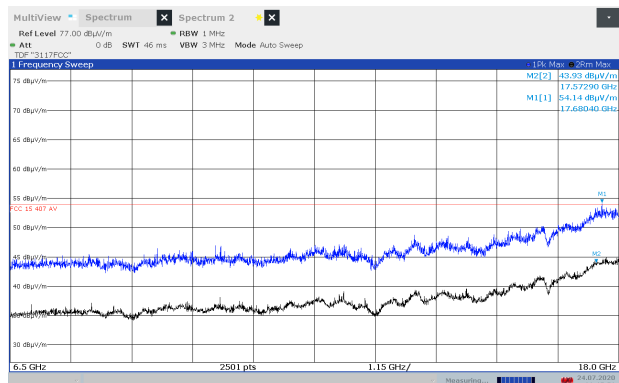
Radiated Emissions 6.5-18 GHz, Ch036, 802.11n HT20, EUT V, Ant 1, HP



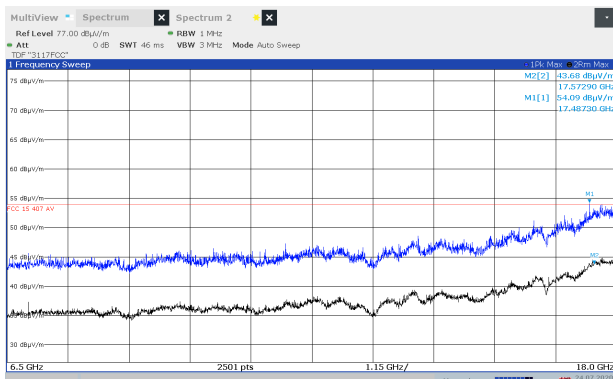
Radiated Emissions 6.5-18 GHz, Ch036, 802.11n HT20, EUT V, Ant 1, VP



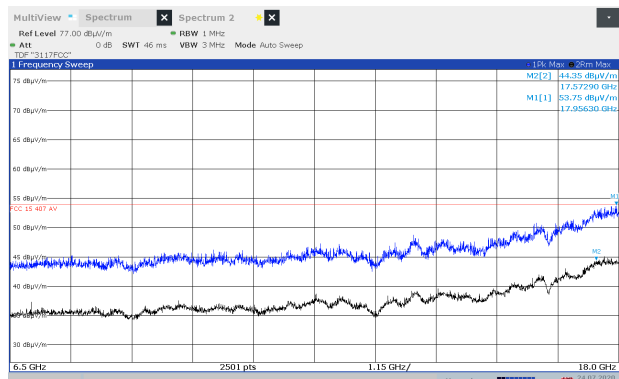
Radiated Emissions 6.5-18 GHz, Ch036, 802.11a 6M, EUT V, Ant 2, HP



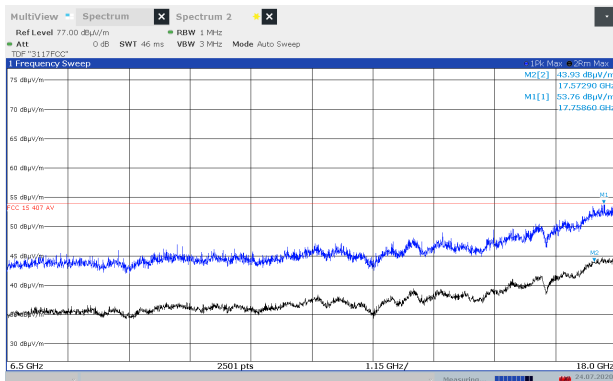
Radiated Emissions 6.5-18 GHz, Ch036, 802.11a 6M, EUT V, Ant 2, VP



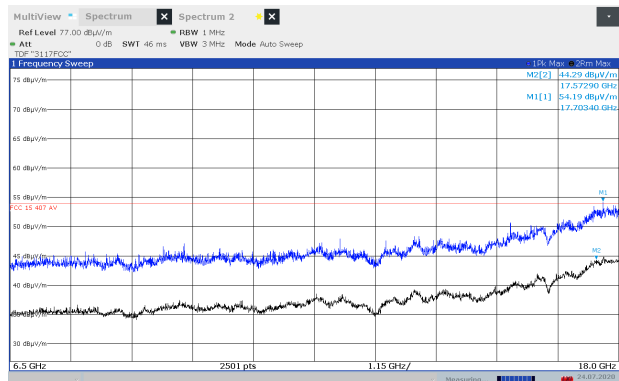
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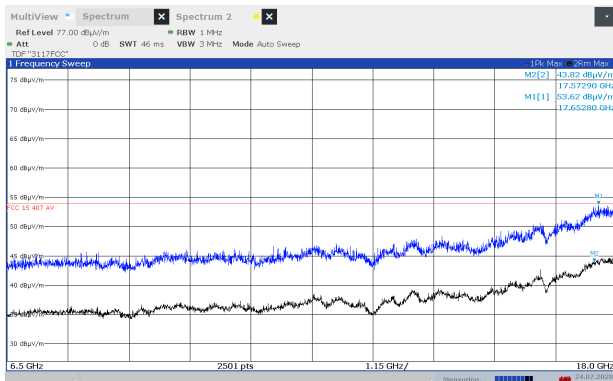
Radiated Emissions 6.5-18 GHz, Ch036, 802.11n HT20, EUT V, Ant 2, VP



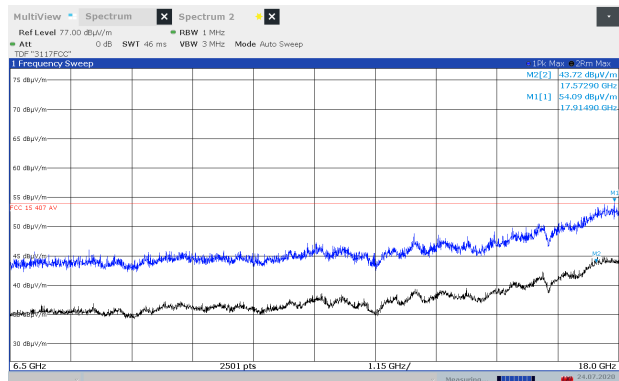
Radiated Emissions 6.5-18 GHz, Ch064, 802.11a 6M, EUT V, Ant 1, HP



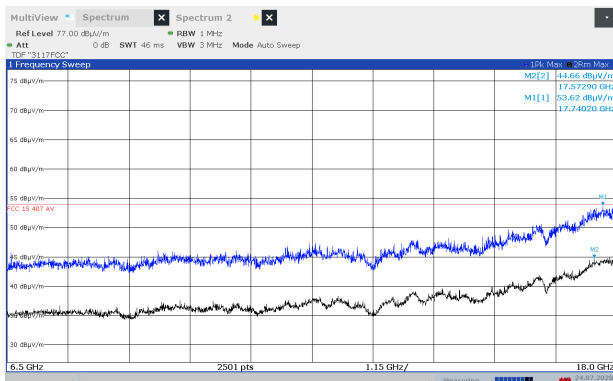
Radiated Emissions 6.5-18 GHz, Ch064, 802.11a 6M, EUT V, Ant 1, VP



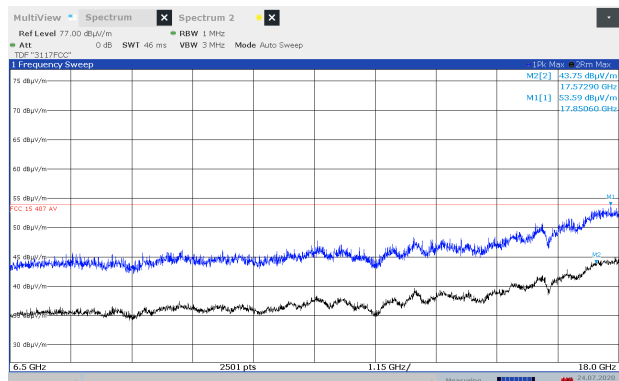
Radiated Emissions 6.5-18 GHz, Ch064, 802.11n HT20, EUT V, Ant 1, HP



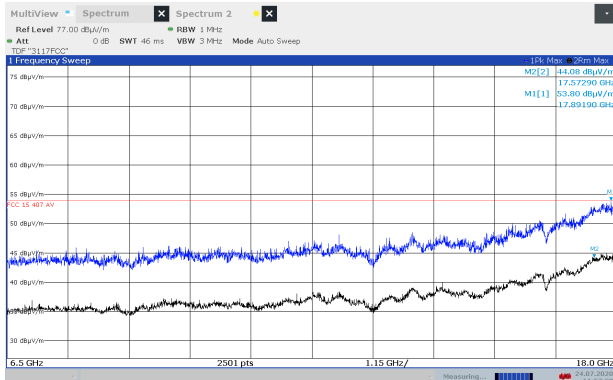
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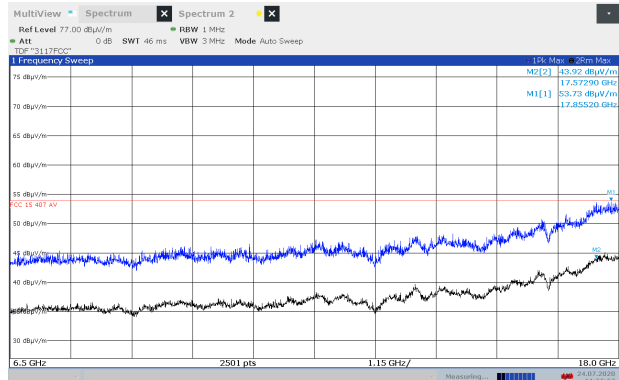
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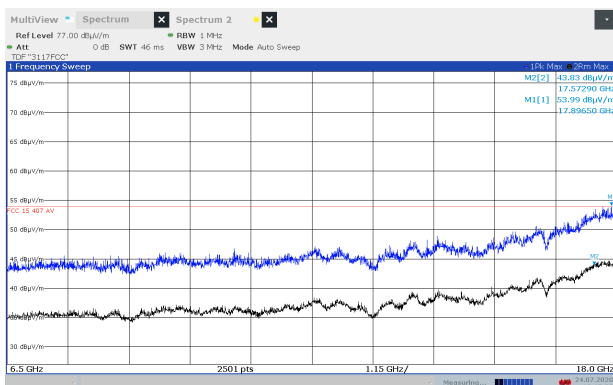
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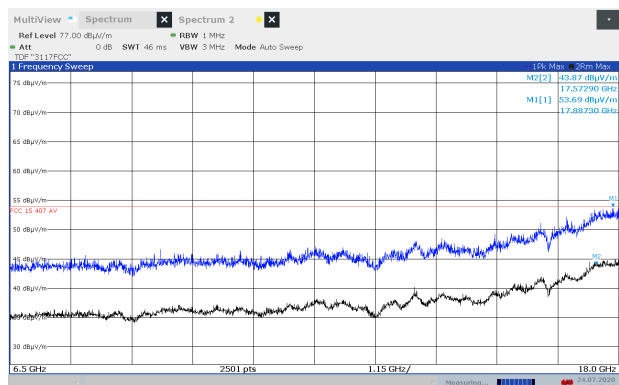
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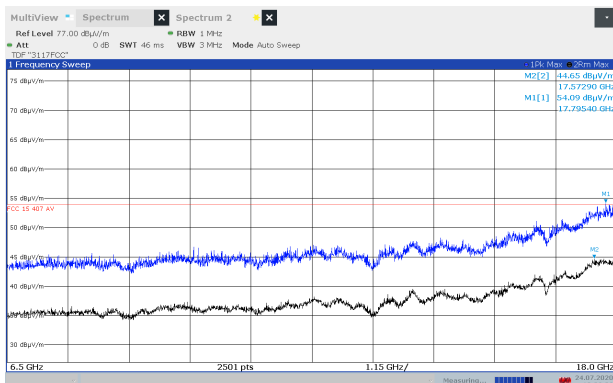
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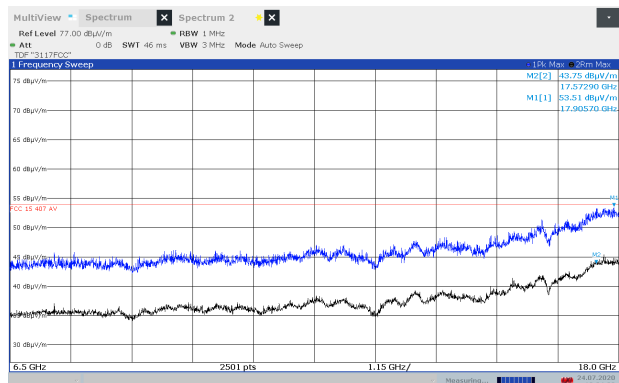
Radiated Emissions 6.5-18 GHz, Ch100, 802.11a 6M, EUT V, Ant 1, HP



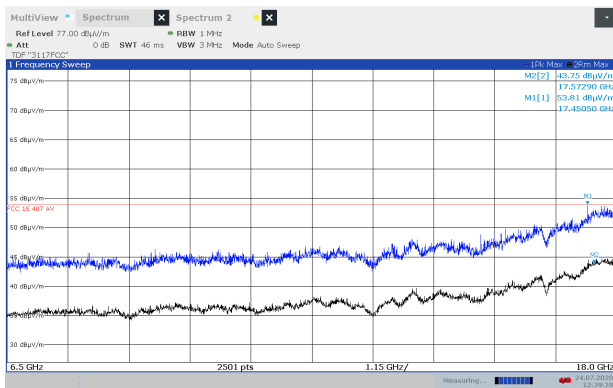
Radiated Emissions 6.5-18 GHz, Ch100, 802.11a 6M, EUT V, Ant 1, VP



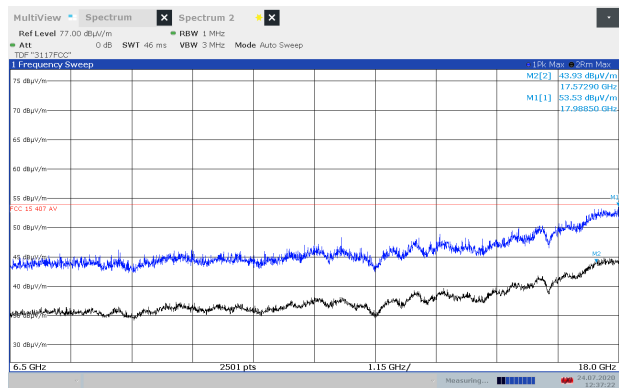
Radiated Emissions 6.5-18 GHz, Ch100, 802.11n HT20, EUT V, Ant 1, HP



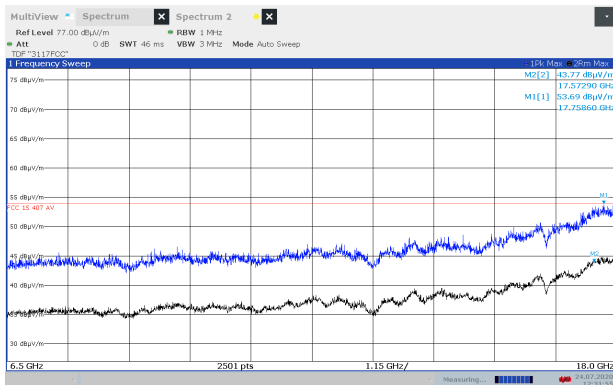
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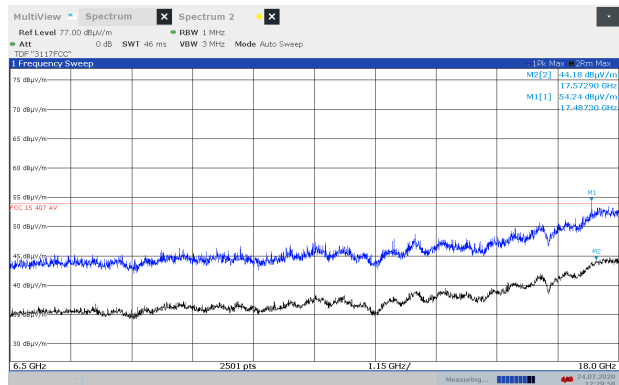
Radiated Emissions 6.5-18 GHz, Ch100, 802.11a 6M, EUT V, Ant 2, HP



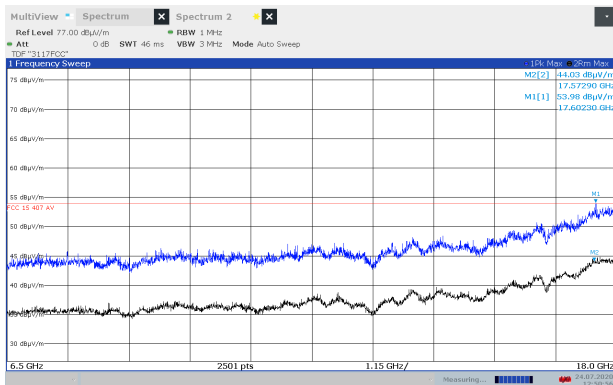
Radiated Emissions 6.5-18 GHz, Ch100, 802.11a 6M, EUT V, Ant 2, VP



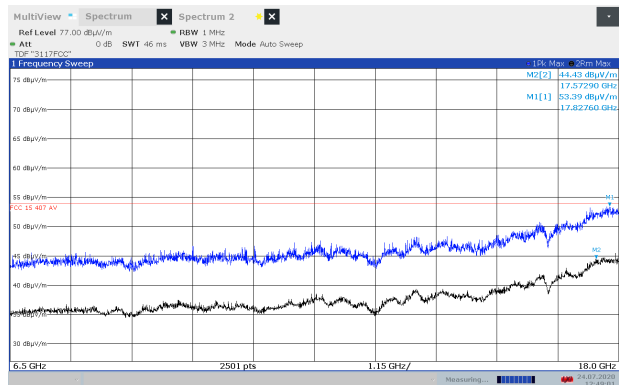
Radiated Emissions 6.5-18 GHz, Ch100, 802.11n HT20, EUT V, Ant 2, HP



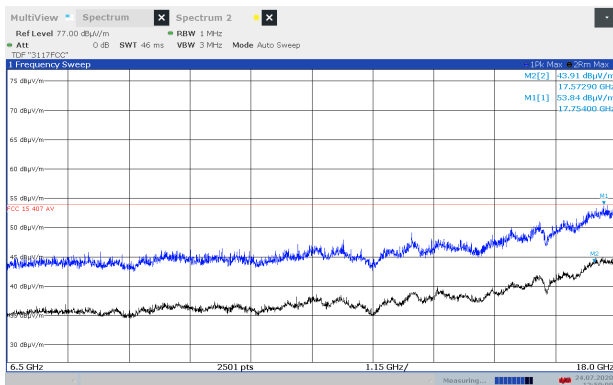
Radiated Emissions 6.5-18 GHz, Ch100, 802.11n HT20, EUT V, Ant 2, VP



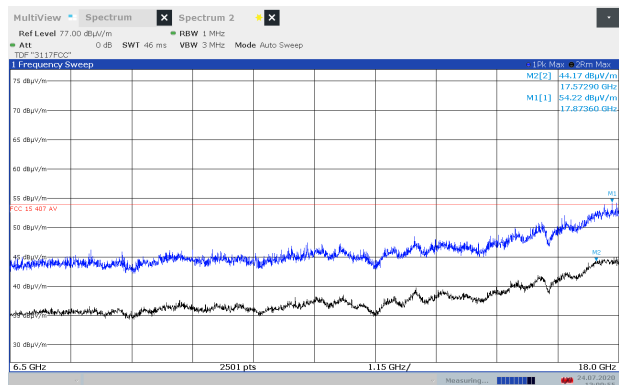
Radiated Emissions 6.5-18 GHz, Ch140, 802.11a 6M, EUT V, Ant 1, HP



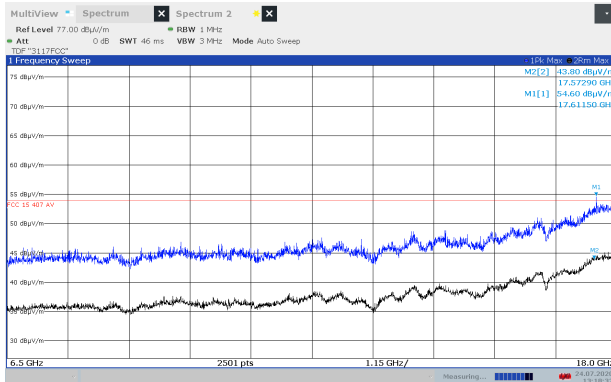
Radiated Emissions 6.5-18 GHz, Ch140, 802.11a 6M, EUT V, Ant 1, VP



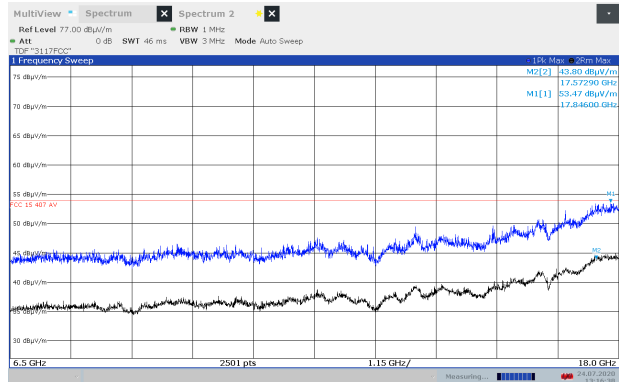
Radiated Emissions 6.5-18 GHz, Ch140, 802.11n HT20, EUT V, Ant 1, HP



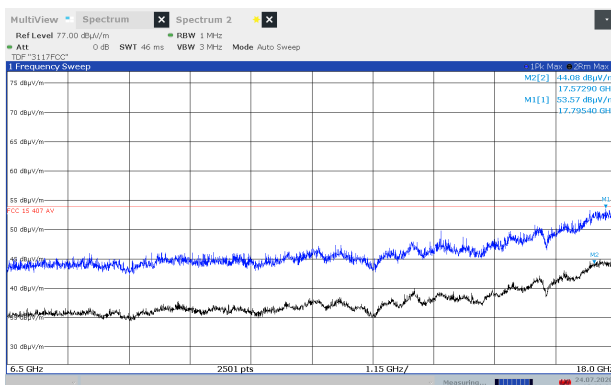
Radiated Emissions 6.5-18 GHz, Ch140, 802.11n HT20, EUT V, Ant 1, VP



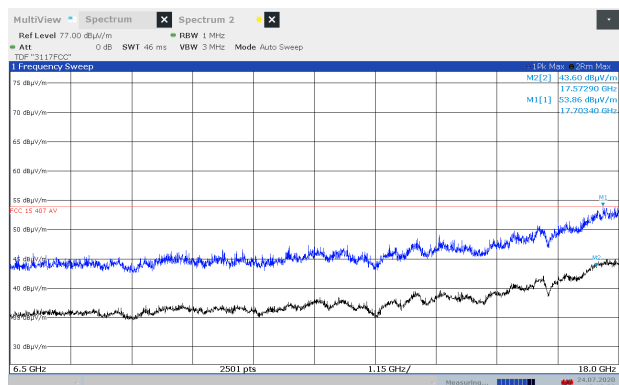
Radiated Emissions 6.5-18 GHz, Ch140, 802.11a 6M, EUT V, Ant 2, HP



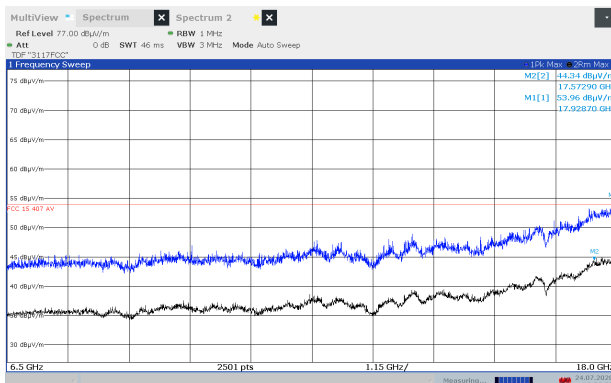
Radiated Emissions 6.5-18 GHz, Ch140, 802.11a 6M, EUT V, Ant 2, VP



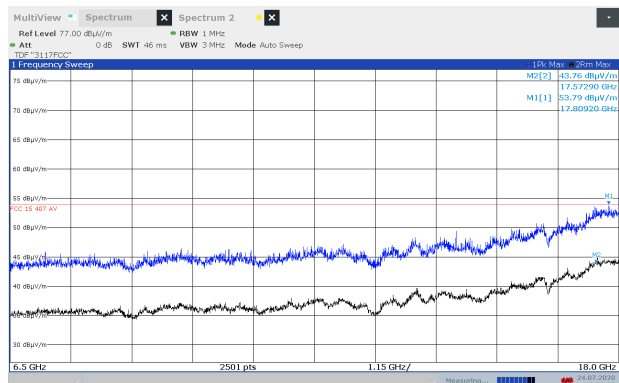
Radiated Emissions 6.5-18 GHz, Ch140, 802.11n HT20, EUT V, Ant 2, HP



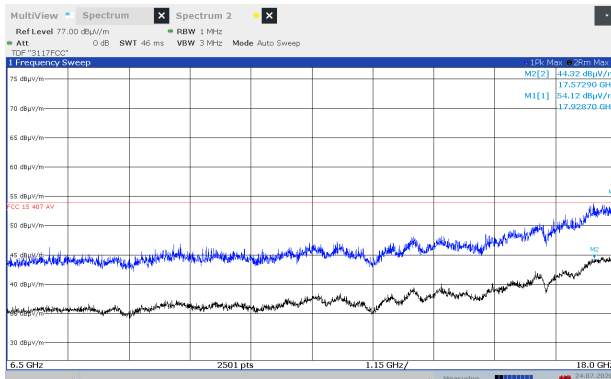
Radiated Emissions 6.5-18 GHz, Ch140, 802.11n HT20, EUT V, Ant 2, VP



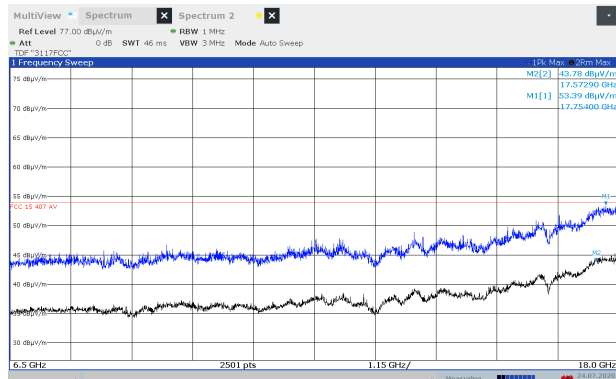
Radiated Emissions 6.5-18 GHz, Ch149, 802.11a 6M, EUT V, Ant 1, HP



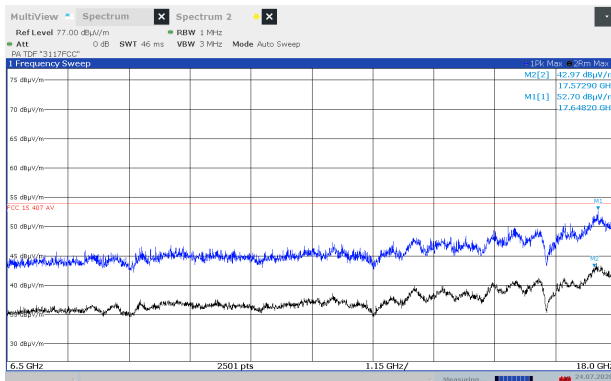
Radiated Emissions 6.5-18 GHz, Ch149, 802.11a 6M, EUT V, Ant 1, VP



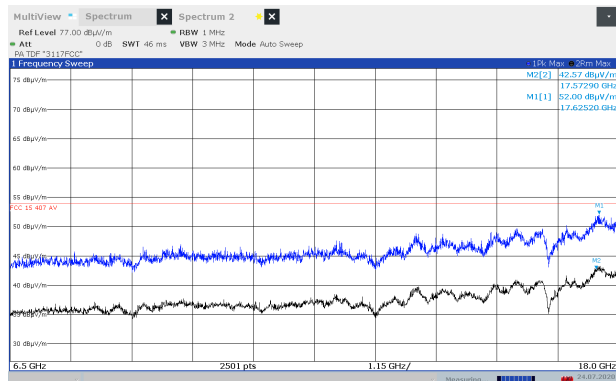
Radiated Emissions 6.5-18 GHz, Ch149, 802.11n HT20, EUT V, Ant 1, HP



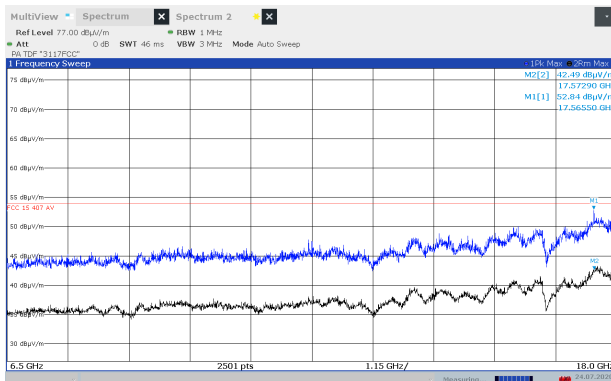
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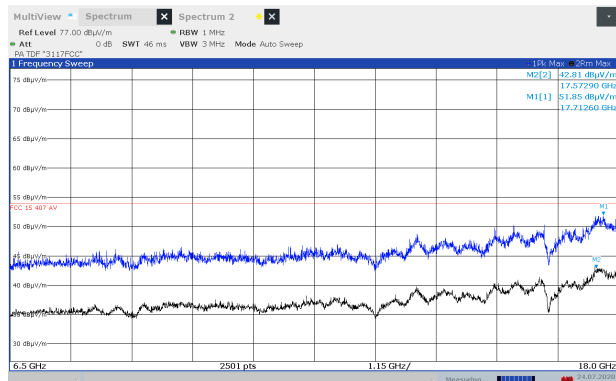
Radiated Emissions 6.5-18 GHz, Ch149, 802.11a 6M, EUT V, Ant 2, HP



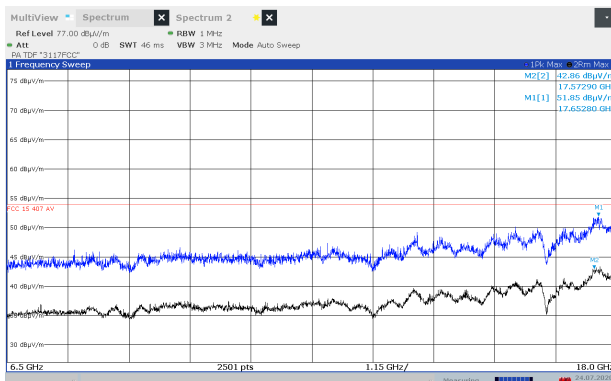
Radiated Emissions 6.5-18 GHz, Ch149, 802.11a 6M, EUT V, Ant 2, VP



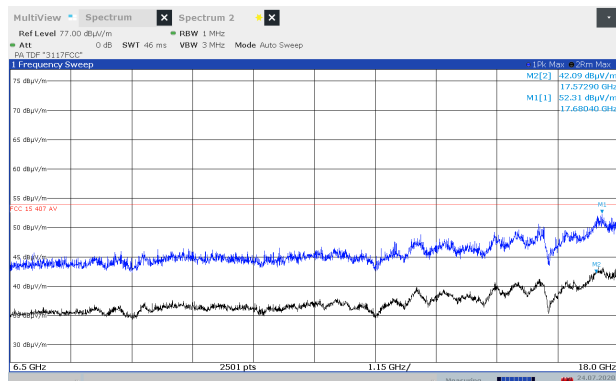
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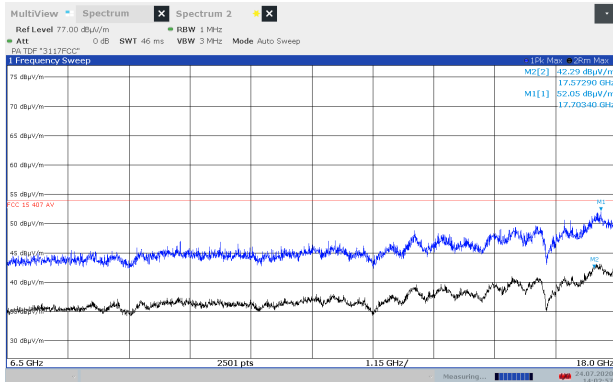
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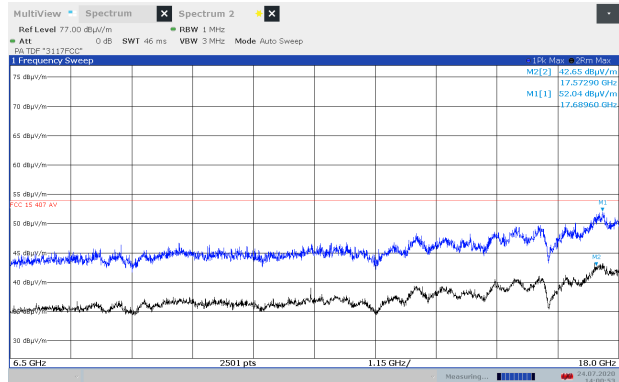
Radiated Emissions 6.5-18 GHz, Ch165, 802.11a 6M, EUT V, Ant 1, HP



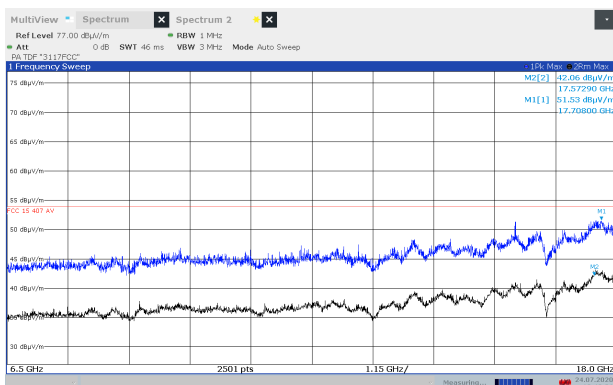
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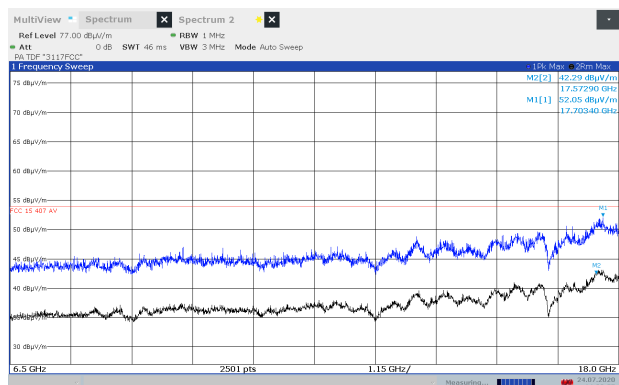
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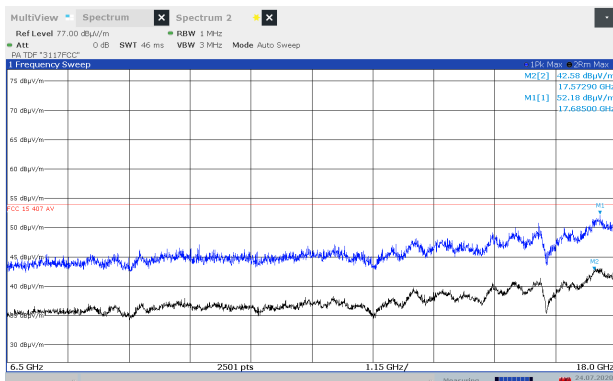
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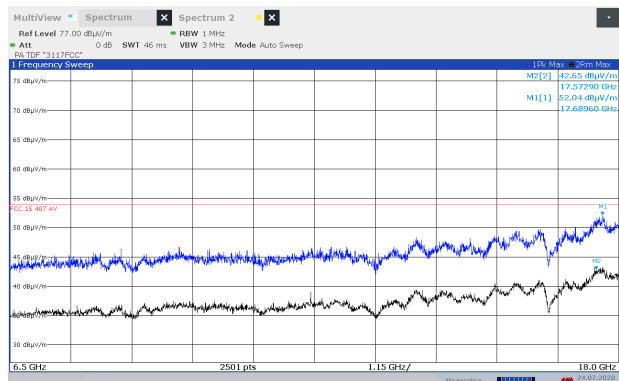
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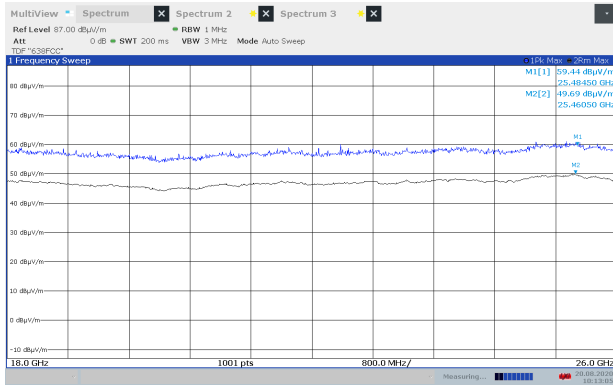
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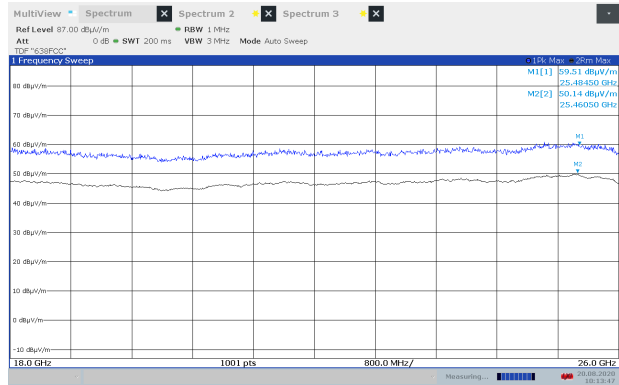
Radiated Emissions 6.5-18 GHz, Ch165, 802.11n HT20, EUT V, Ant 2, HP



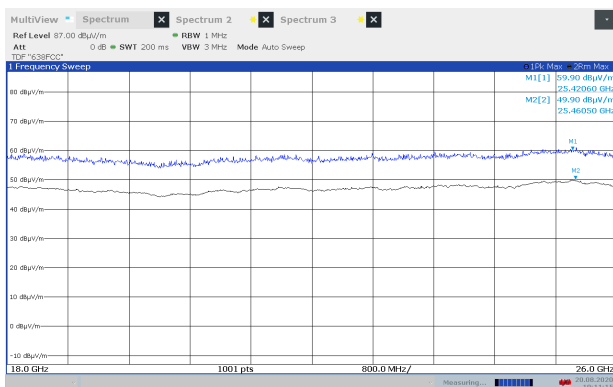
Radiated Emissions 6.5-18 GHz, Ch165, 802.11n HT20, EUT V, Ant 2, VP



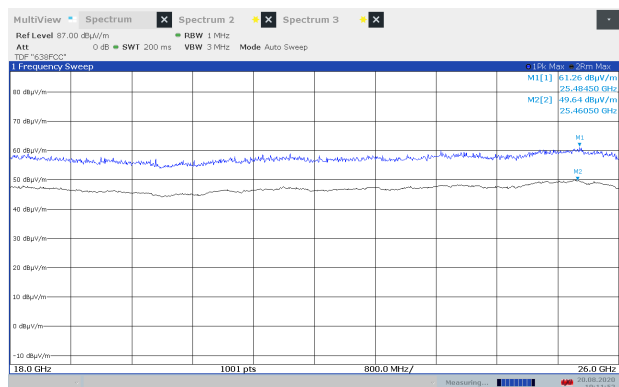
Emissions 18-26 GHz, Ch036, 802.11a 6M, Ant1, Prescan @0.2m



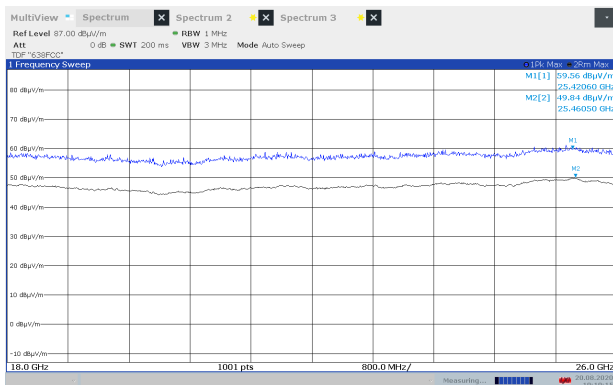
Emissions 18-26 GHz, Ch036, 802.11n HT20, Ant1, Prescan @0.2m



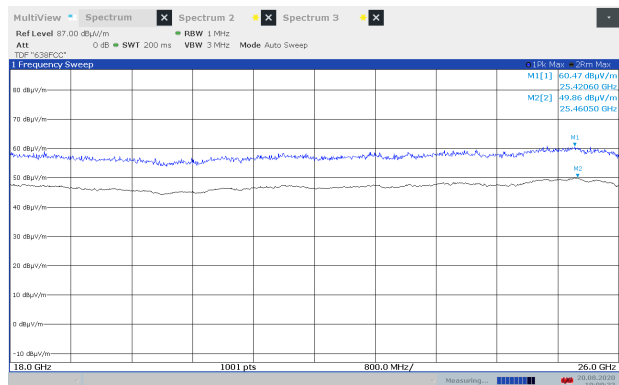
Emissions 18-26 GHz, Ch064, 802.11a 6M, Ant2, Prescan @0.2m



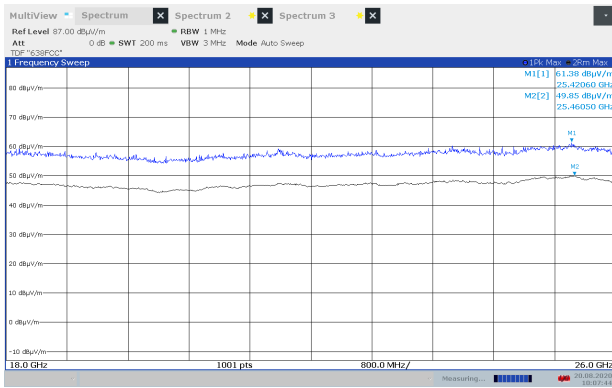
Emissions 18-26 GHz, Ch064, 802.11n HT20, Ant2, Prescan @0.2m



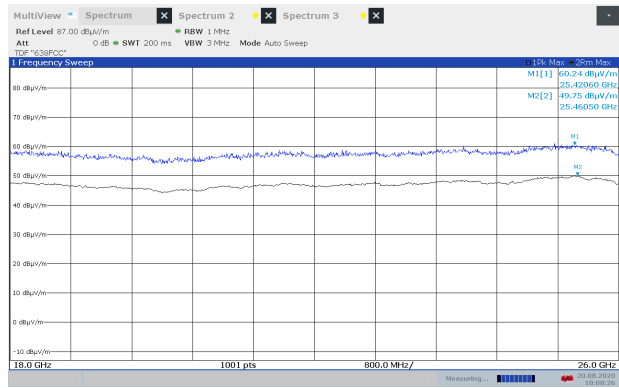
Emissions 18-26 GHz, Ch100, 802.11a 6M, Ant2, Prescan @0.2m



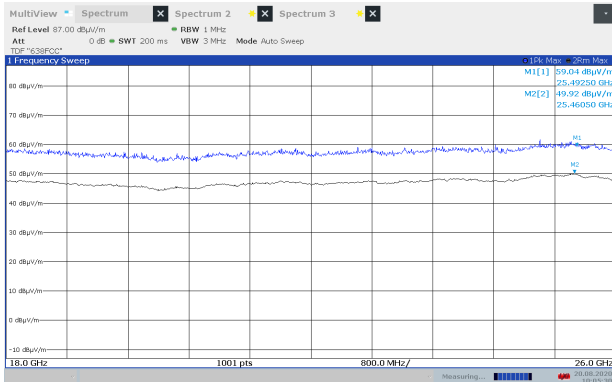
Emissions 18-26 GHz, Ch100, 802.11n HT20, Ant2, Prescan @0.2m



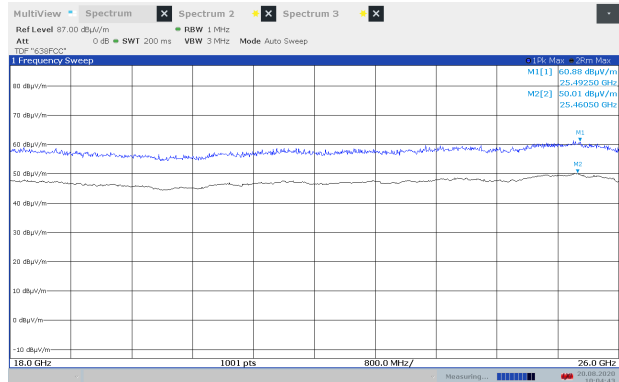
Emissions 18-26 GHz, Ch140, 802.11a 6M, Ant1, Prescan @0.2m



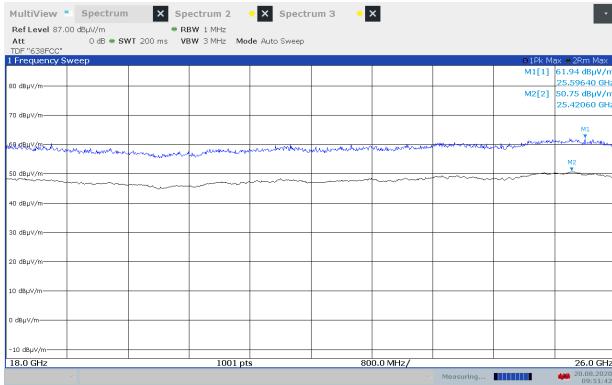
Emissions 18-26 GHz, Ch140, 802.11n HT20, Ant1, Prescan @0.2m



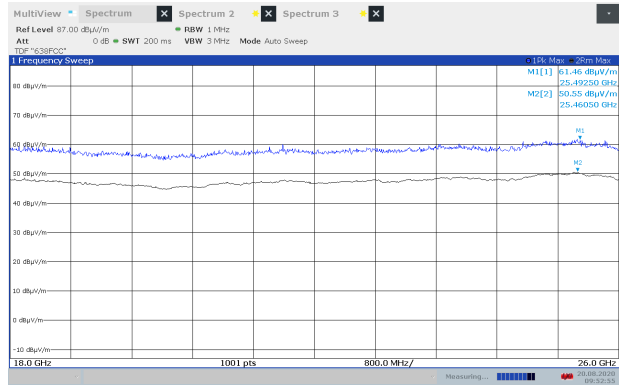
Emissions 18-26 GHz, Ch149, 802.11a 6M, Ant1, Prescan @0.2m



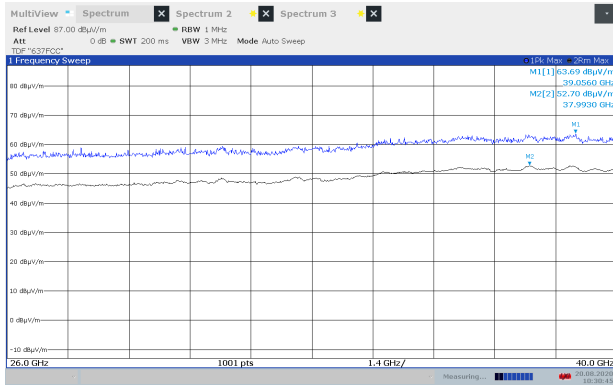
Emissions 18-26 GHz, Ch149, 802.11n HT20, Ant1, Prescan @0.2m



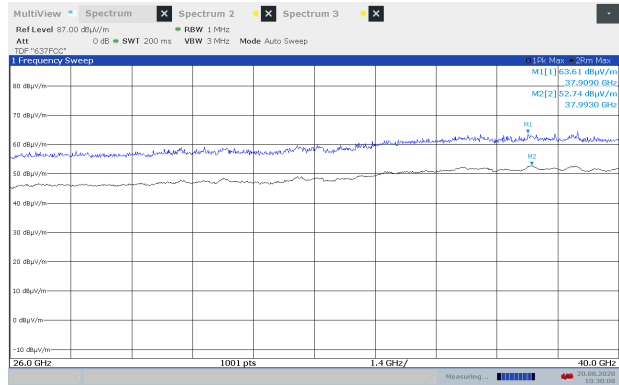
Emissions 18-26 GHz, Ch165, 802.11a 6M, Ant2, Prescan @0.2m



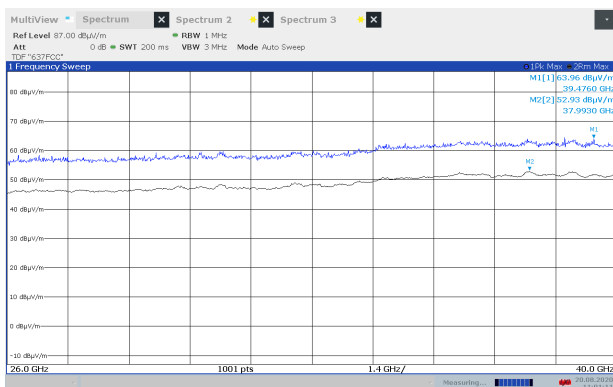
Emissions 18-26 GHz, Ch165, 802.11n HT20, Ant2, Prescan @0.2m



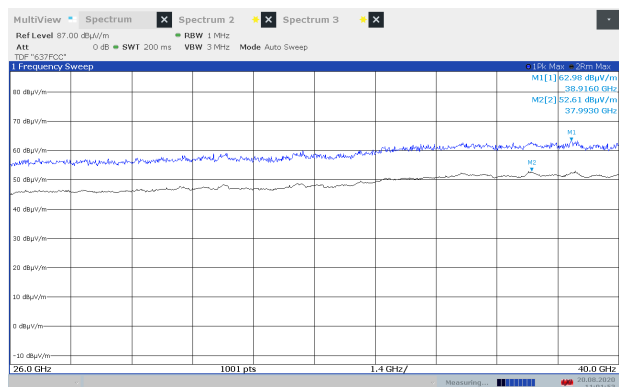
Emissions 26-40 GHz, Ch036, 802.11a 6M, Ant1, Prescan @0.2m



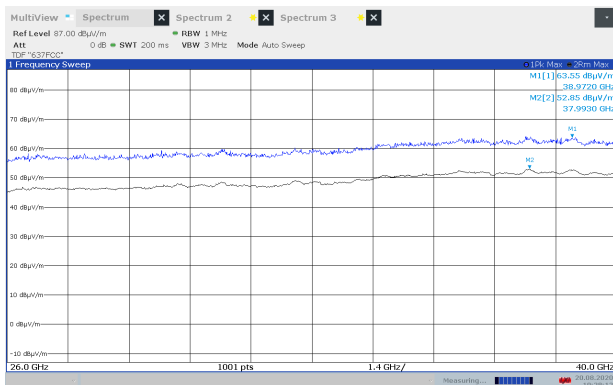
Emissions 26-40 GHz, Ch036, 802.11n HT20, Ant1, Prescan @0.2m



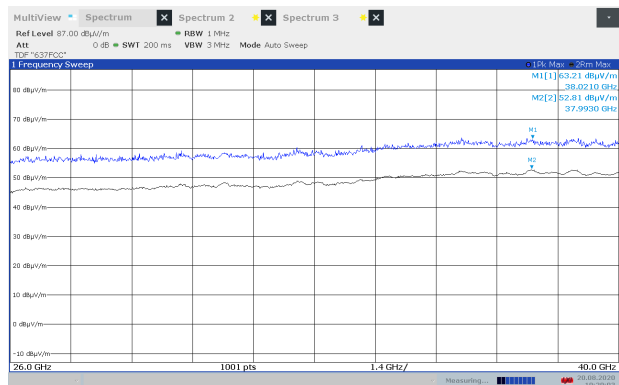
Emissions 26-40 GHz, Ch64, 802.11a 6M, Ant1, Prescan @0.2m



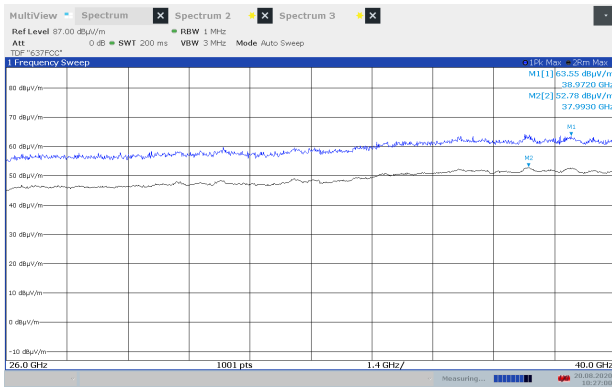
Emissions 26-40 GHz, Ch64, 802.11n HT20, Ant1, Prescan @0.2m



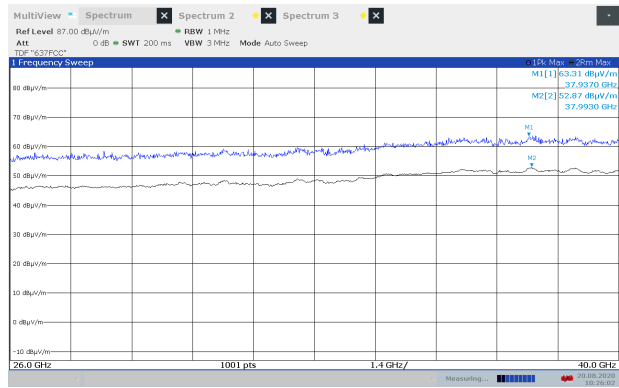
Emissions 26-40 GHz, Ch100, 802.11a 6M, Ant1, Prescan @0.2m



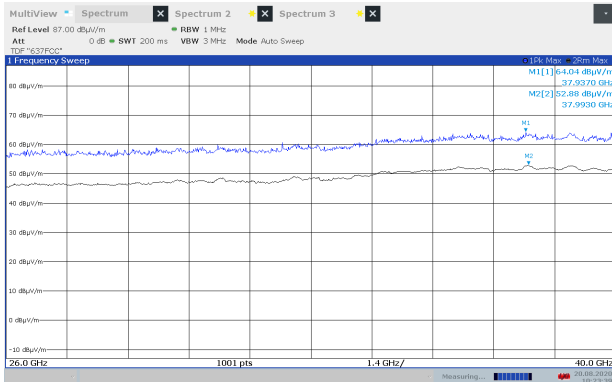
Emissions 26-40 GHz, Ch100, 802.11n HT20, Ant1, Prescan @0.2m



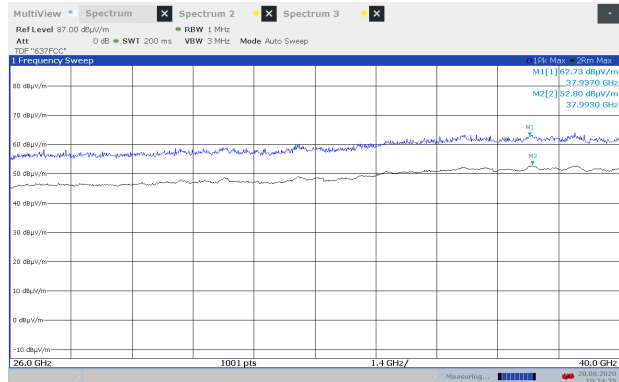
Emissions 26-40 GHz, Ch140, 802.11a 6M, Ant2, Prescan @0.2m



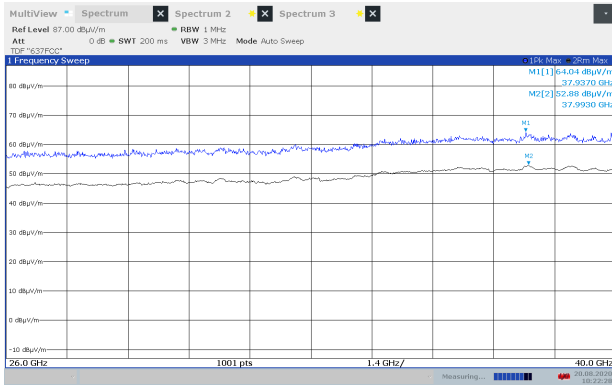
Emissions 26-40 GHz, Ch140, 802.11n HT20, Ant2, Prescan @0.2m



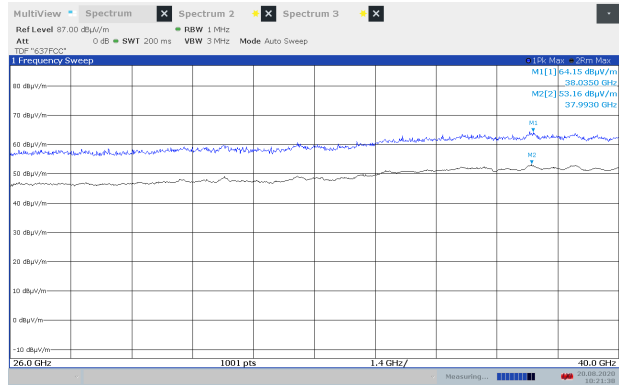
Emissions 26-40 GHz, Ch149, 802.11a 6M, Ant1, Prescan @0.2m



Emissions 26-40 GHz, Ch149, 802.11n HT20, Ant1, Prescan @0.2m



Emissions 26-40 GHz, Ch165, 802.11a 6M, Ant2, HP, @1m



Emissions 26-40 GHz, Ch165, 802.11n 20HT, Ant2, VP, @1m

4 Measurement Uncertainty

Measurement Uncertainty Values		
Test Item		Uncertainty
Output Power		±0.5 dB
Power Spectral Density		±0.5 dB
Out of Band Emissions, Conducted	< 3.6 GHz	±0.6 dB
	> 3.6 GHz	±0.9 dB
Spurious Emissions, Radiated	< 1 GHz	±2.5 dB
	> 1 GHz	±2.2 dB
Emission Bandwidth		±4 %
Power Line Conducted Emissions		+2.9 / -4.1 dB
Spectrum Mask Measurements	Frequency	±5 %
	Amplitude	±1.0 dB
Frequency Error		±0.6 ppm
Temperature Uncertainty		±1 °C

All uncertainty values are expanded standard uncertainty to give a confidence level of 95%, based on coverage factor k=2

5 LIST OF TEST EQUIPMENT

To facilitate inclusion on each page of the test equipment used for related tests, each item of test equipment and ancillaries are identified (numbered) by the Test Laboratory.

No.	Model number	Description	Manufacturer	Ref. no.	Cal. date	Cal. Due
1	FSW43	Spectrum Analyzer	Rohde & Schwarz	LR 1690	2020-01	2021-01
2	ESU40	Measuring Receiver	Rohde & Schwarz	LR 1639	2020-01	2021-01
3	6810.17B	Attenuator	Suhner	LR 1669	COU	
4	NO324415	Band Reject Filter	Microwave Circuits	LR 1760	COU	
5	VULB 9163	BiLog Antenna	Schwarzbech	LR 1616	2020-01	2023-01
6	317	Preamplifier	Sonoma Inst.	LR 1687	2019-07 2020-08	2020-07 2021-08
7	3117-PA	Horn Antenna +PreAmp	EMCO	LR 1717	2017-12	2020-12
8	WLK5-1100-1485-7000-40SS	Low Pass Filter	Wainwright Inst.	LR 1761	COU	
9	8449B	PreAmplifier	Hewlett Packard	LR 1322	2019-07 2020-08	2020-07 2021-08
10	JS4-26004000-27-8A	PreAmplifier	Miteq	LR 1591	2019-07 2020-08	2020-07 2021-08
11	V637	Horn Antenna	Narda	LR 099	N/A	
12	638	Horn Antenna	Narda	LR 1480	N/A	
13	4768-10	Microwave Attenuator	Narda	LR 1671	COU	
14	ST18/SMA/N/36	RF Cable	Suhner	LR 1627	COU	
15	Sucoflex 102	Microwave Cable (1m)	Suhner	S/N: 500111	COU	
16	Sucoflex 102	Microwave Cable (2m)	Suhner	S/N: 500100	COU	

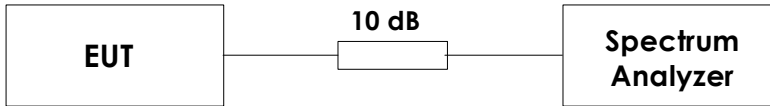
Note: COU – calibrate on use; N/A – Not Applicable

The software listed below has been used for one or more tests.

No.	Manufacturer	Name	Version	Comment
1	Rohde & Schwarz	EMC32	10.50.10	Radiated Emission test software
2	Rohde & Schwarz	GPBShot	2.7	Screenshots from R&S Spectrum Analyzers
3				

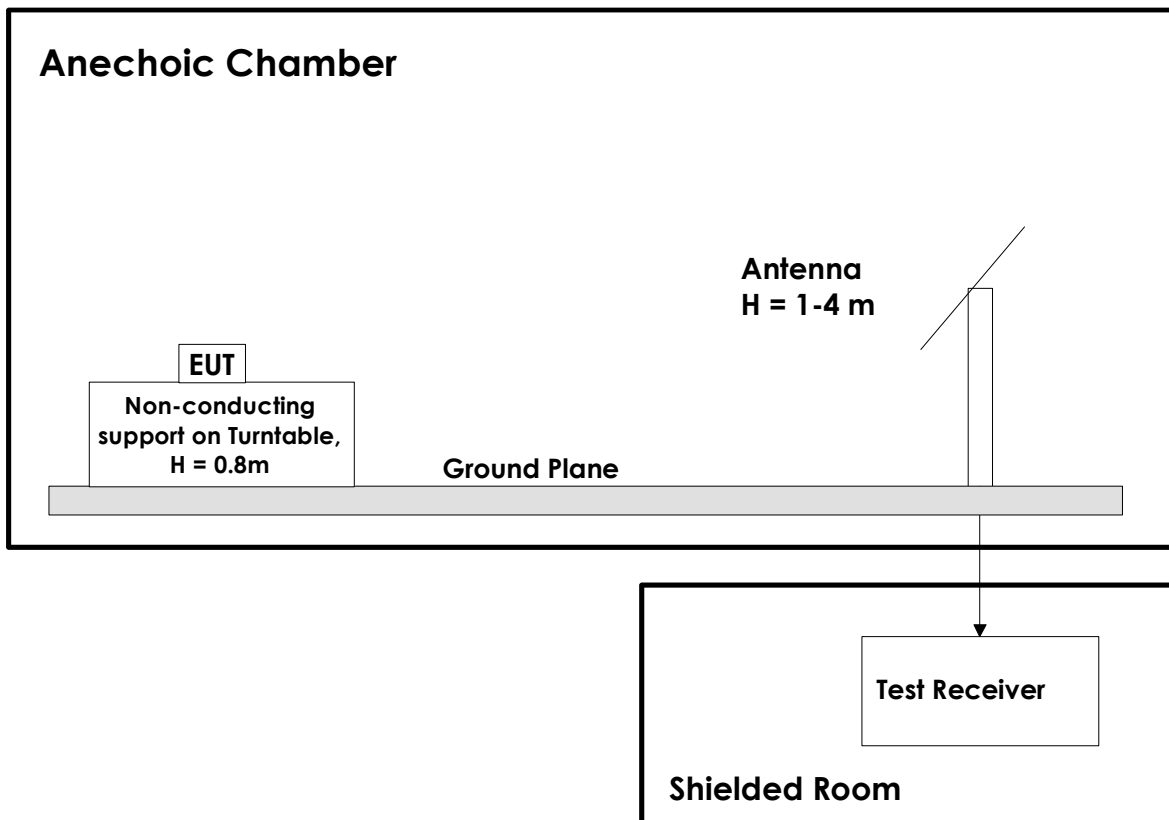
6 BLOCK DIAGRAM

6.1 Conducted Tests



This test set-up is used for all Conducted tests. For the Frequency Stability test the EUT was placed in a climatic chamber.

6.2 Test Site Radiated Emission



This test setup is used for all radiated emissions tests. Measuring distance is 3m for all frequencies.

Emissions above 1 GHz are measured with a Spectrum Analyzer and Horn Antenna.

All measurements at 1GHz and above were performed with turntable height 1.5m and with the ground plane covered by absorbers.

A pre-amplifier is used for all measurements, and High-Pass filter is used for all harmonics.