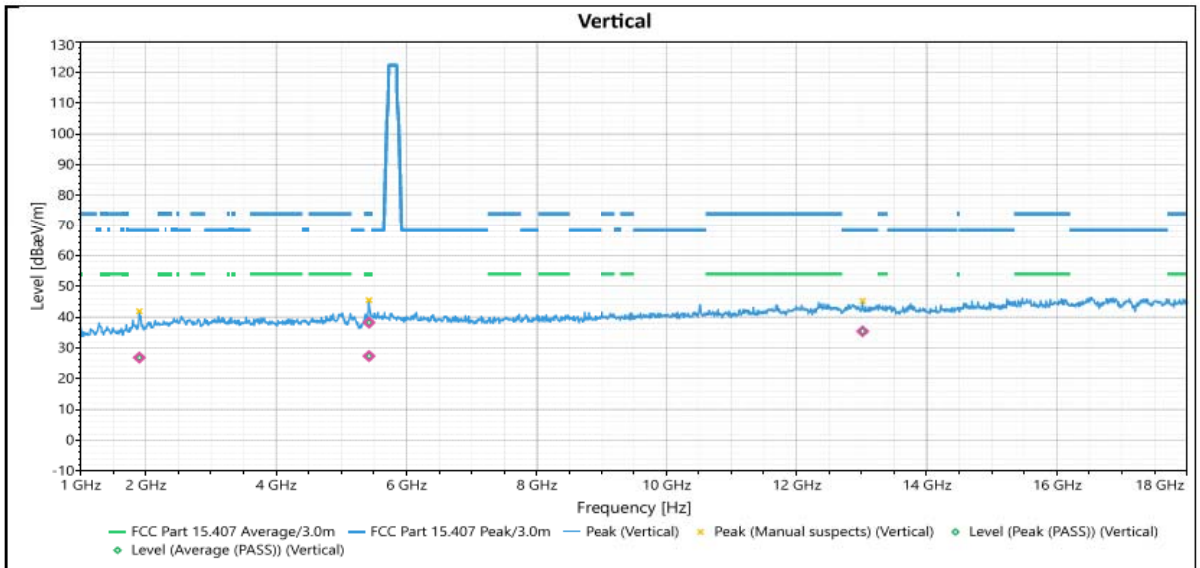
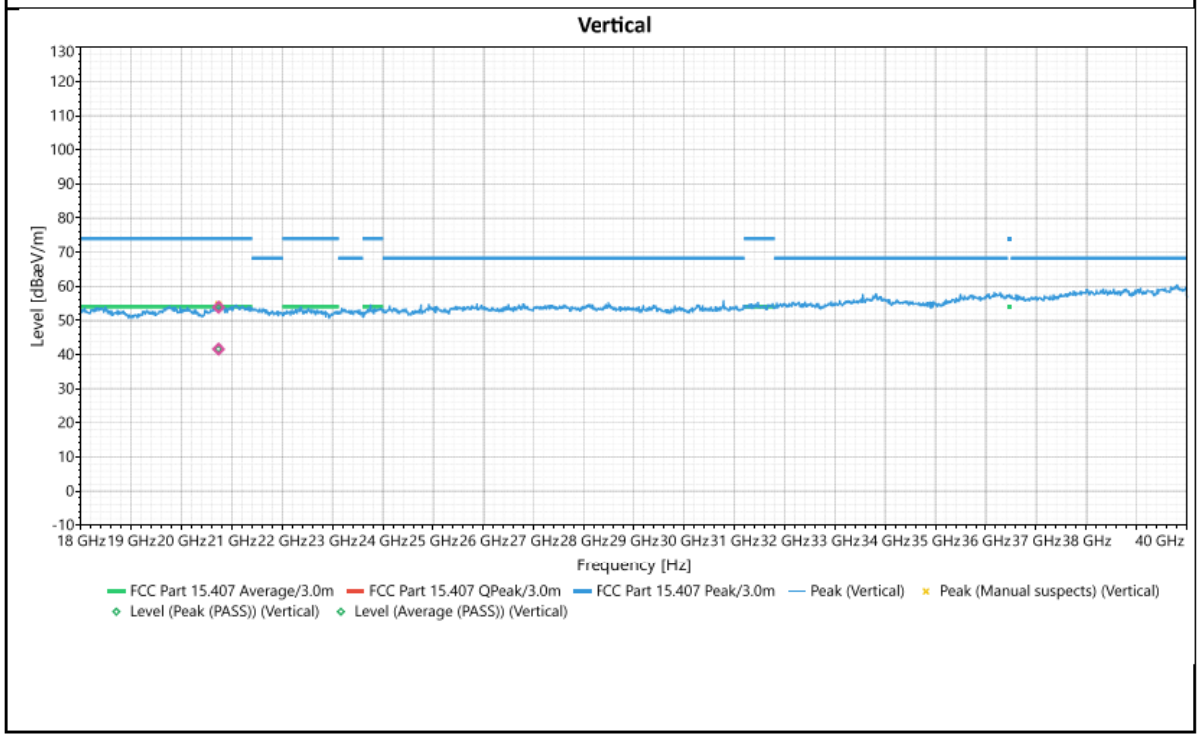
CHANNEL	802.11N HT20 5260 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



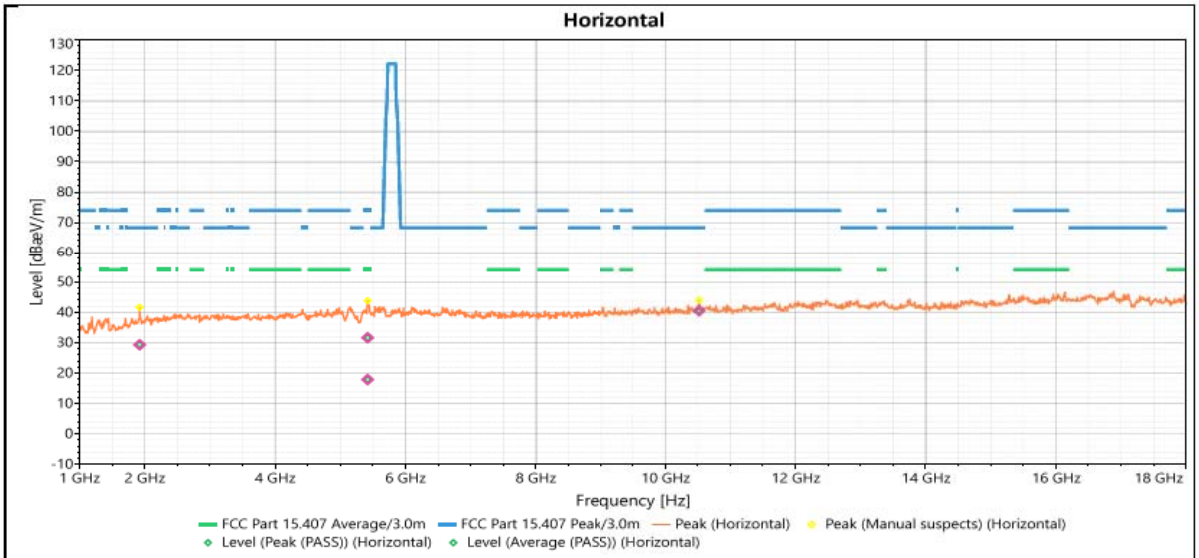


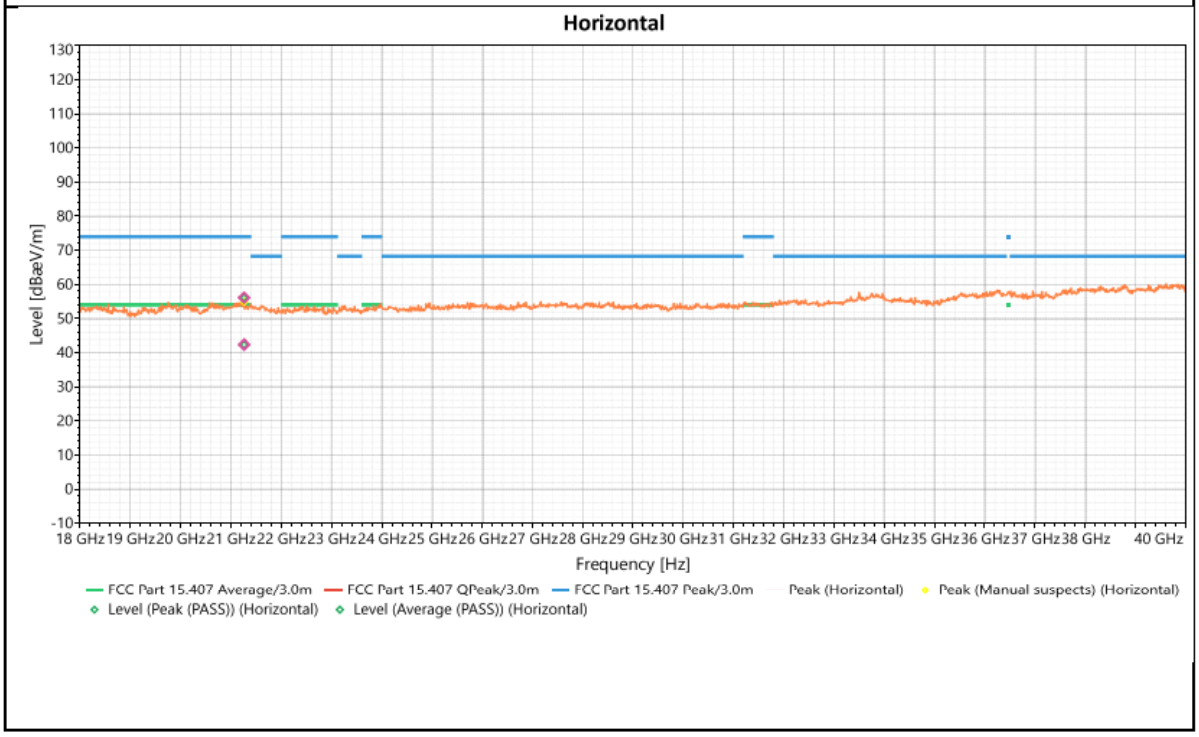
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5423.4	Vertical	38.191	74	-35.809	1	357	1.05	Peak (PASS)
2	5423.4	Vertical	27.306	54	-26.694	1	357	1.05	Average (PASS)
3	20736.81	Vertical	53.89	74	-20.11	1.82	4	8.51	Peak (PASS)
4	20736.81	Vertical	41.618	54	-12.382	1.82	4	8.51	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

Frequency	802.11N HT20 5260 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



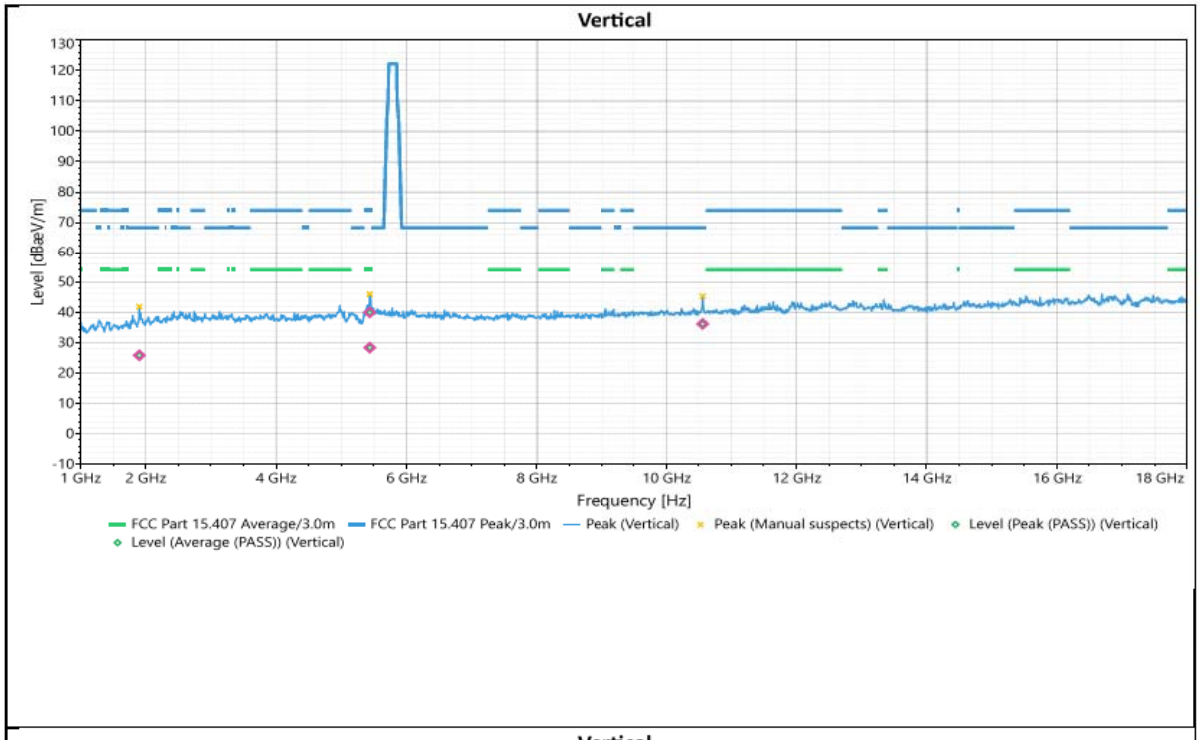


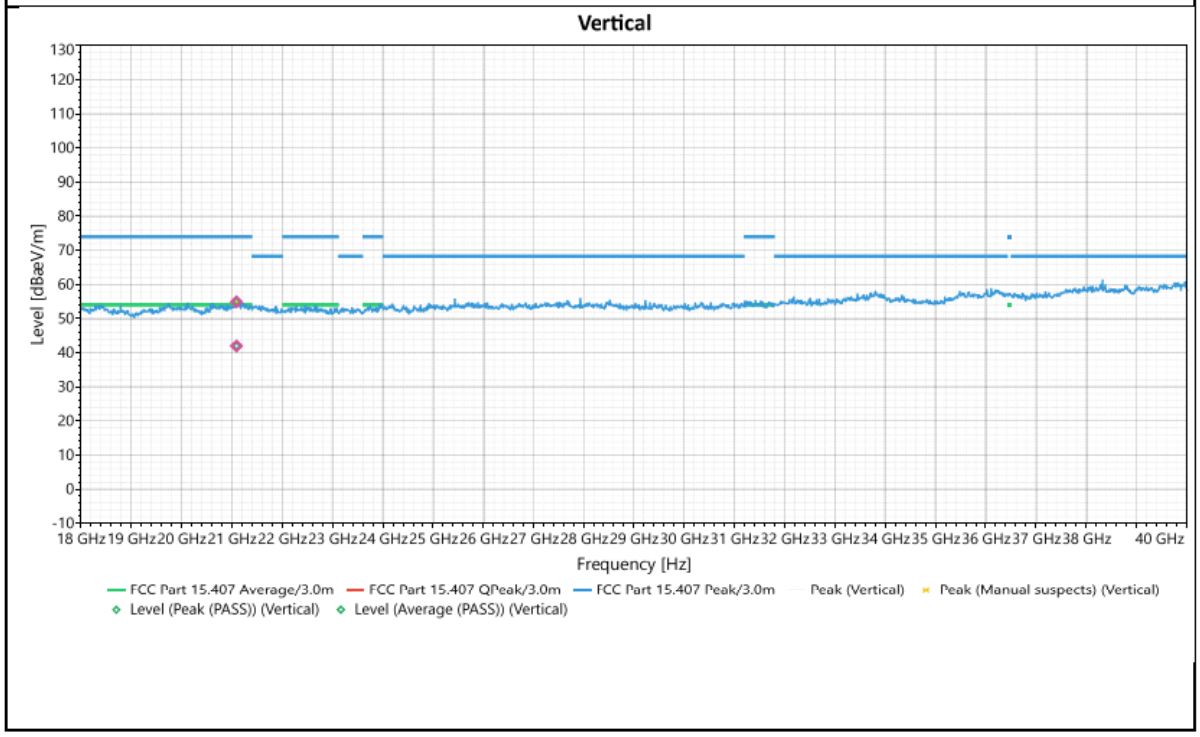
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5418.3	Horizontal	31.65	74	-42.35	1	307	0.96	Peak (PASS)
2	5418.3	Horizontal	17.891	54	-36.109	1	307	0.96	Average (PASS)
3	21264.7	Horizontal	56.103	74	-17.897	1.4	66	8.29	Peak (PASS)
4	21264.7	Horizontal	42.363	54	-11.637	1.4	66	8.29	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

CHANNEL	802.11N HT20 5280 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



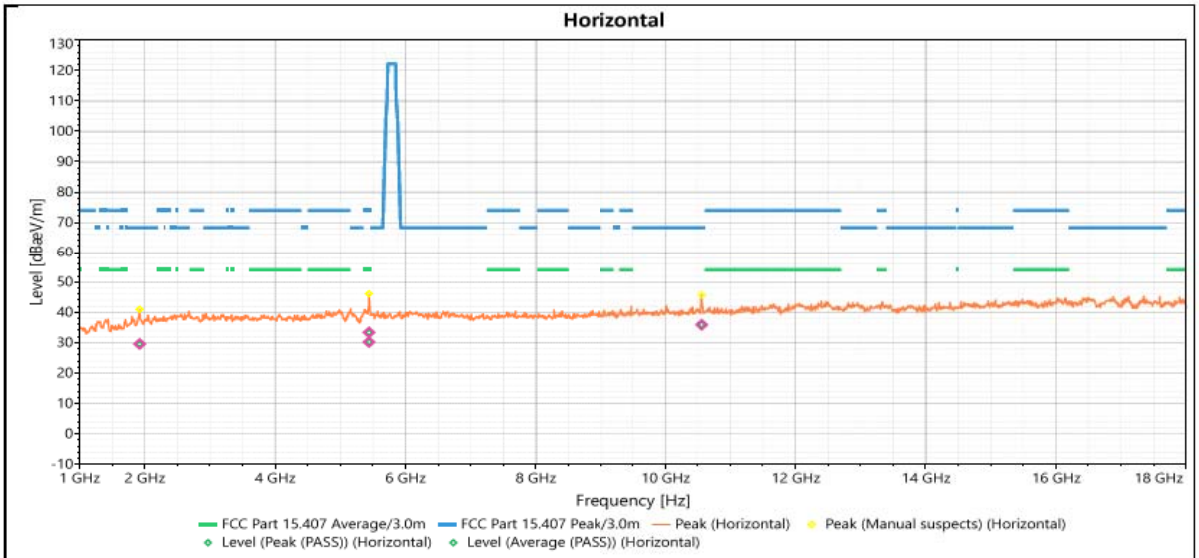


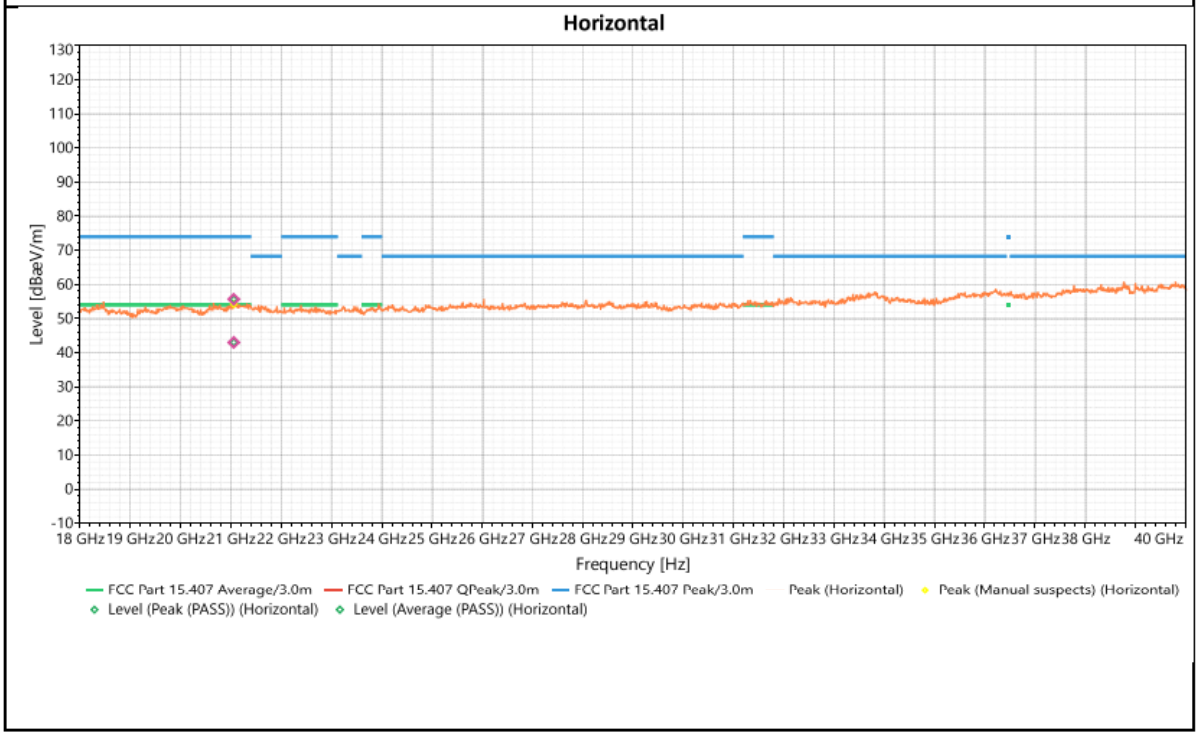
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5435.3	Vertical	39.964	74	-34.036	1	351	1.1	Peak (PASS)
2	5435.3	Vertical	28.384	54	-25.616	1	351	1.1	Average (PASS)
3	21093.18	Vertical	54.897	74	-19.103	1.97	74	8.63	Peak (PASS)
4	21093.18	Vertical	41.954	54	-12.046	1.97	74	8.63	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

Frequency	802.11N HT20 5280 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



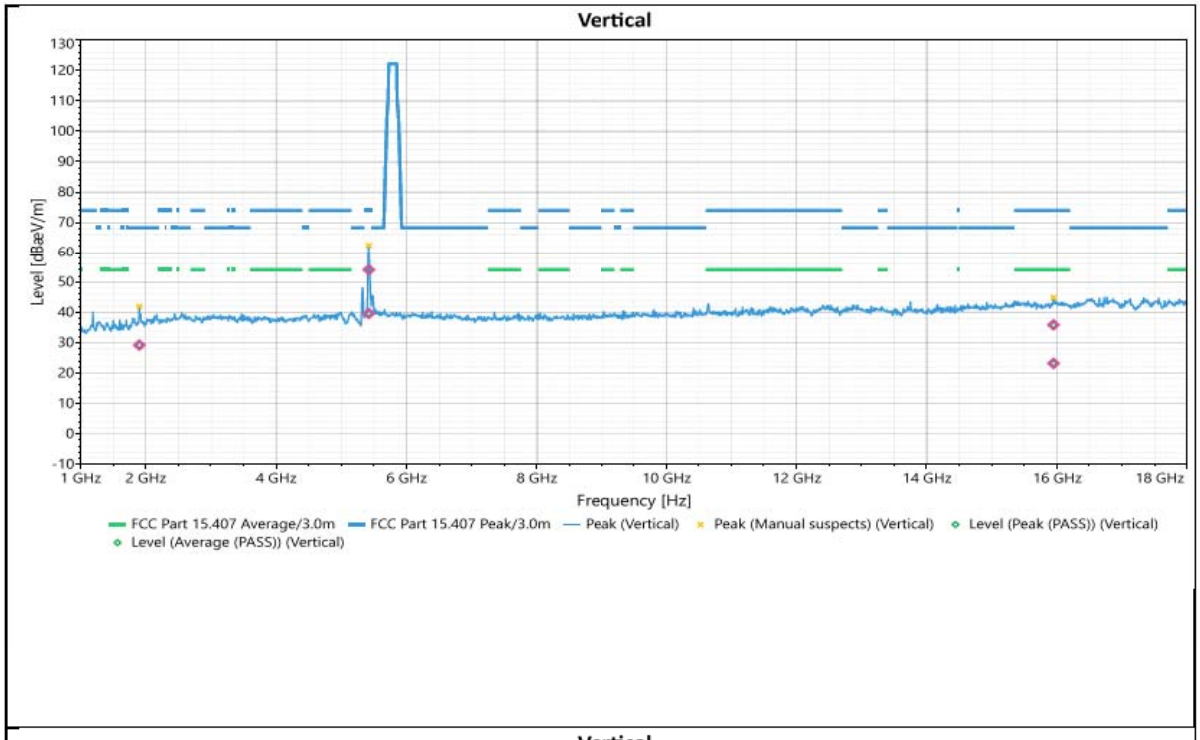


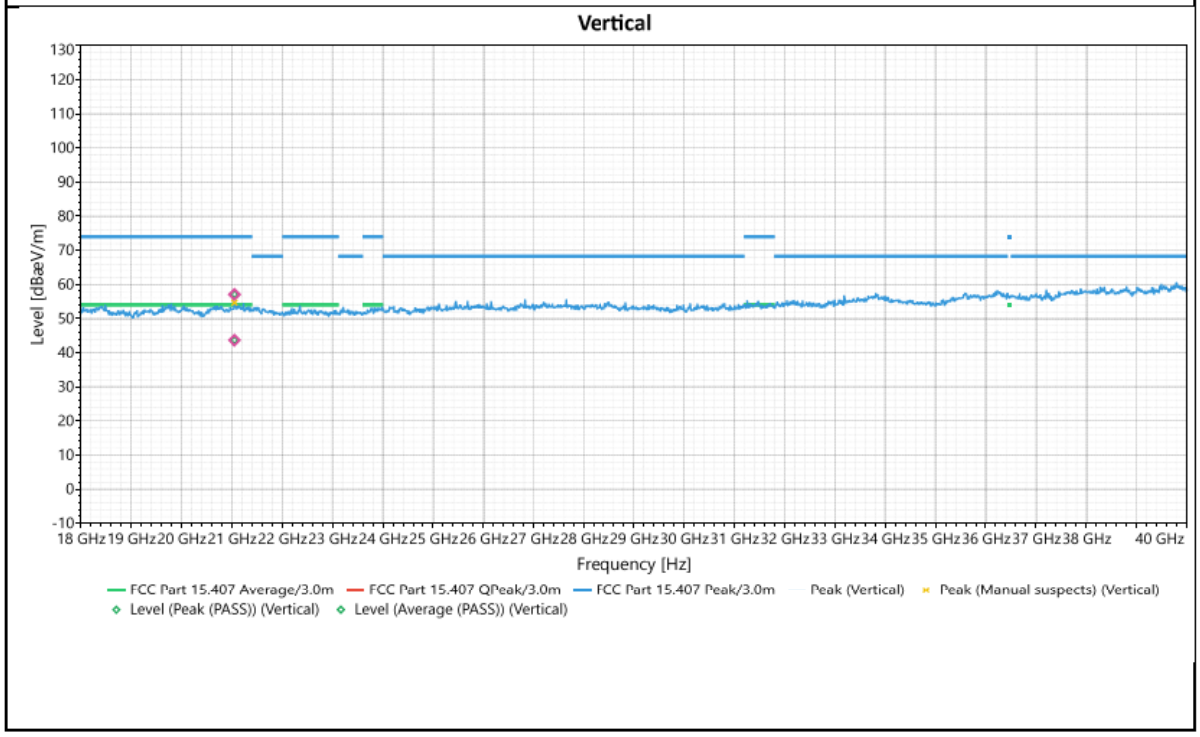
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5438.7	Horizontal	33.368	74	-40.632	1.01	111	0.94	Peak (PASS)
2	5438.7	Horizontal	30.175	54	-23.825	1.01	111	0.94	Average (PASS)
3	21060.1	Horizontal	55.637	74	-18.363	1.79	172	8.5	Peak (PASS)
4	21060.1	Horizontal	43.007	54	-10.993	1.79	172	8.5	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

CHANNEL	802.11N HT20 5320 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



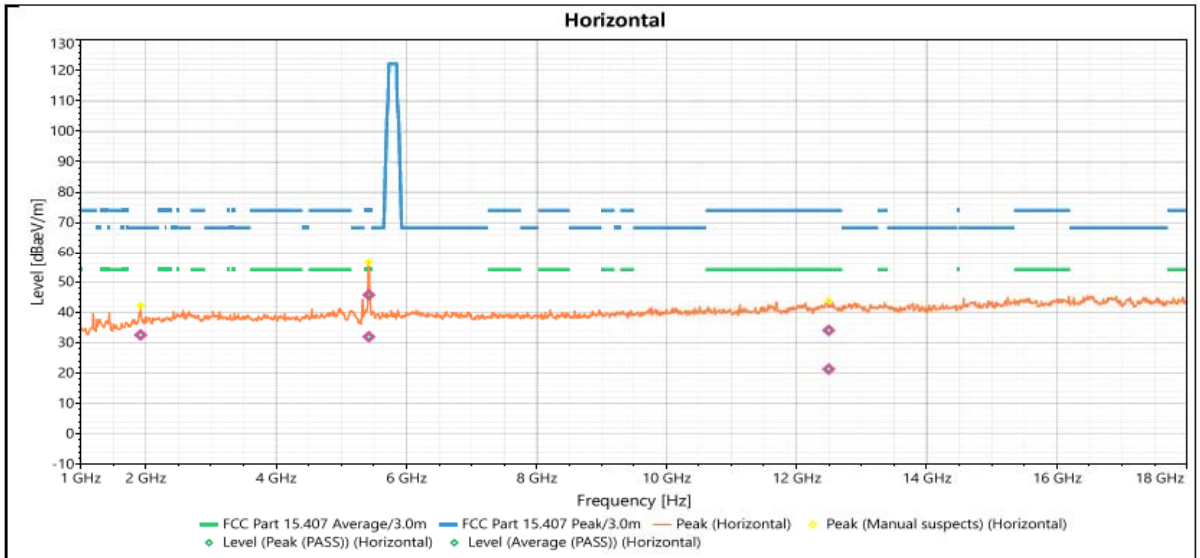


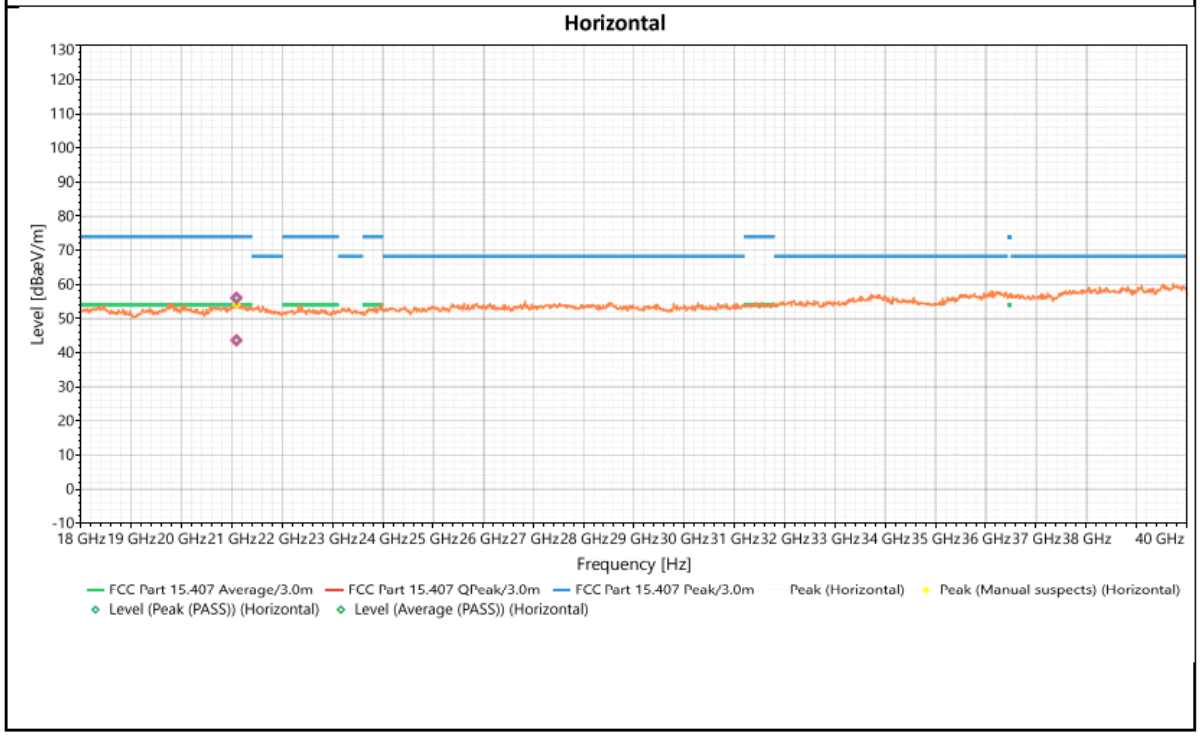
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5420	Vertical	53.974	74	-20.026	1.14	345	1.04	Peak (PASS)
2	5420	Vertical	39.579	54	-14.421	1.14	345	1.04	Average (PASS)
3	15950	Vertical	35.865	74	-38.135	3.31	226	4.62	Peak (PASS)
4	15950	Vertical	23.206	54	-30.794	3.31	226	4.62	Average (PASS)
5	21053.64	Vertical	57.078	74	-16.922	1.61	168	8.64	Peak (PASS)
6	21053.64	Vertical	43.637	54	-10.363	1.61	168	8.64	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

Frequency	802.11N HT20 5320 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



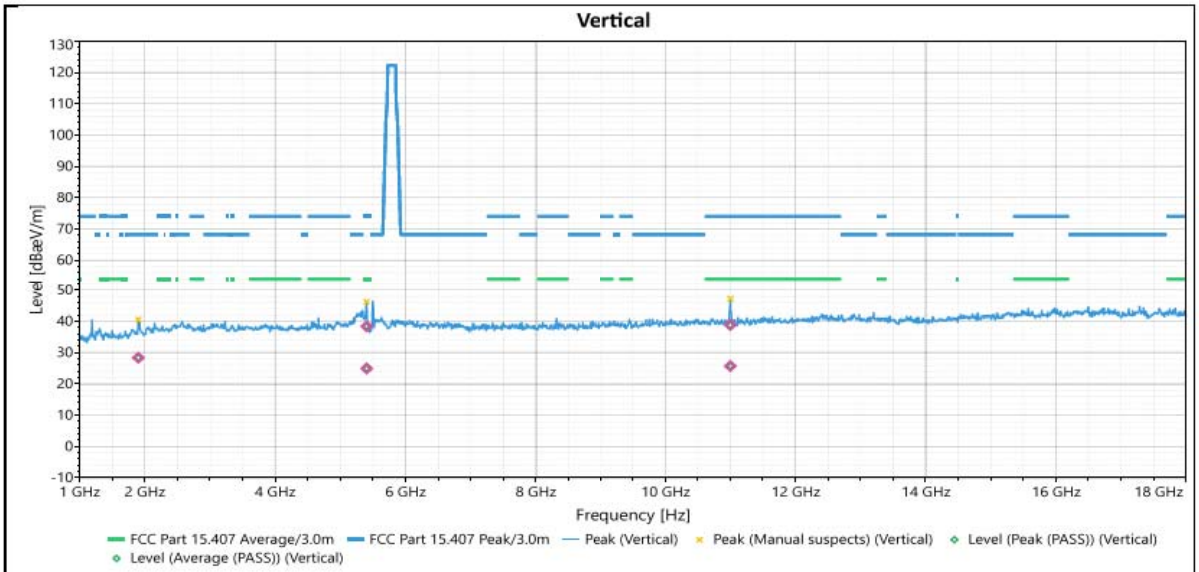


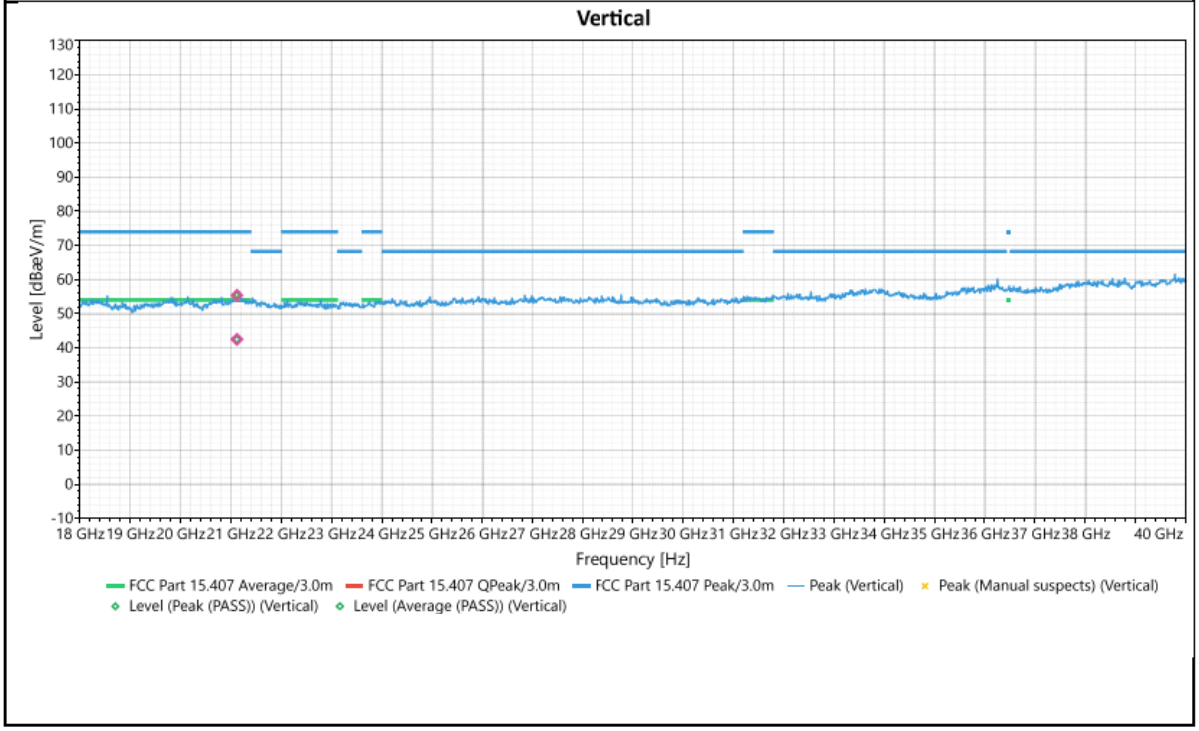
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5421.7	Horizontal	45.726	74	-28.274	1.69	245	0.96	Peak (PASS)
2	5421.7	Horizontal	31.928	54	-22.072	1.69	245	0.96	Average (PASS)
3	12497	Horizontal	34.045	74	-39.955	2.94	87	3.97	Peak (PASS)
4	12497	Horizontal	21.297	54	-32.703	2.94	87	3.97	Average (PASS)
5	21093.1	Horizontal	56.05	74	-17.95	1.6	270	8.49	Peak (PASS)
6	21093.1	Horizontal	43.617	54	-10.383	1.6	270	8.49	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

CHANNEL	802.11N HT20 5500 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



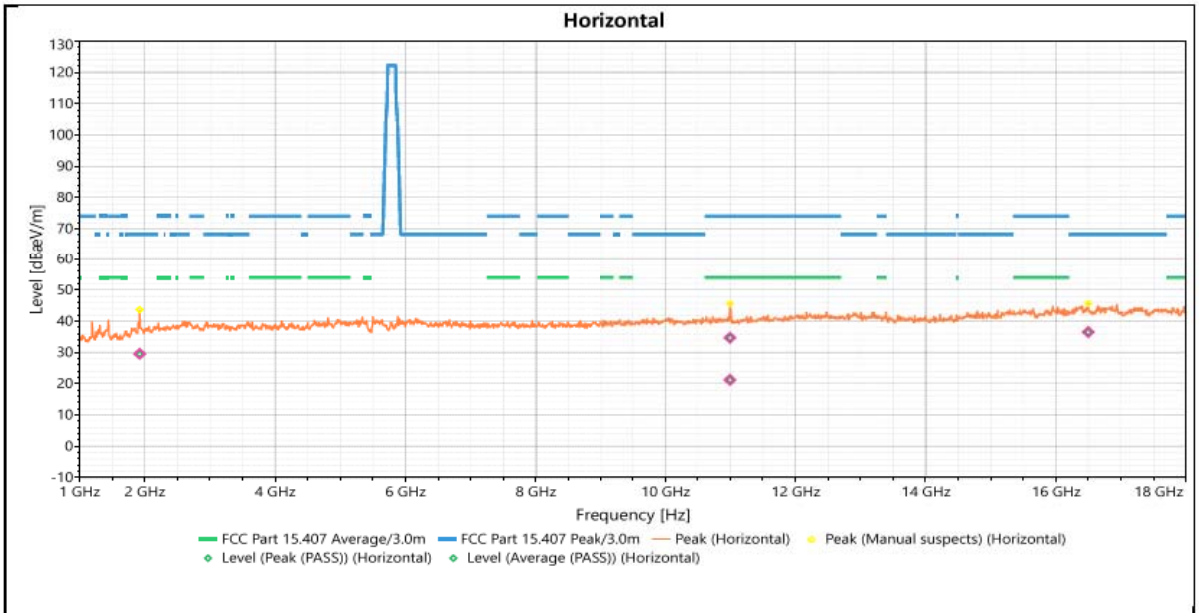


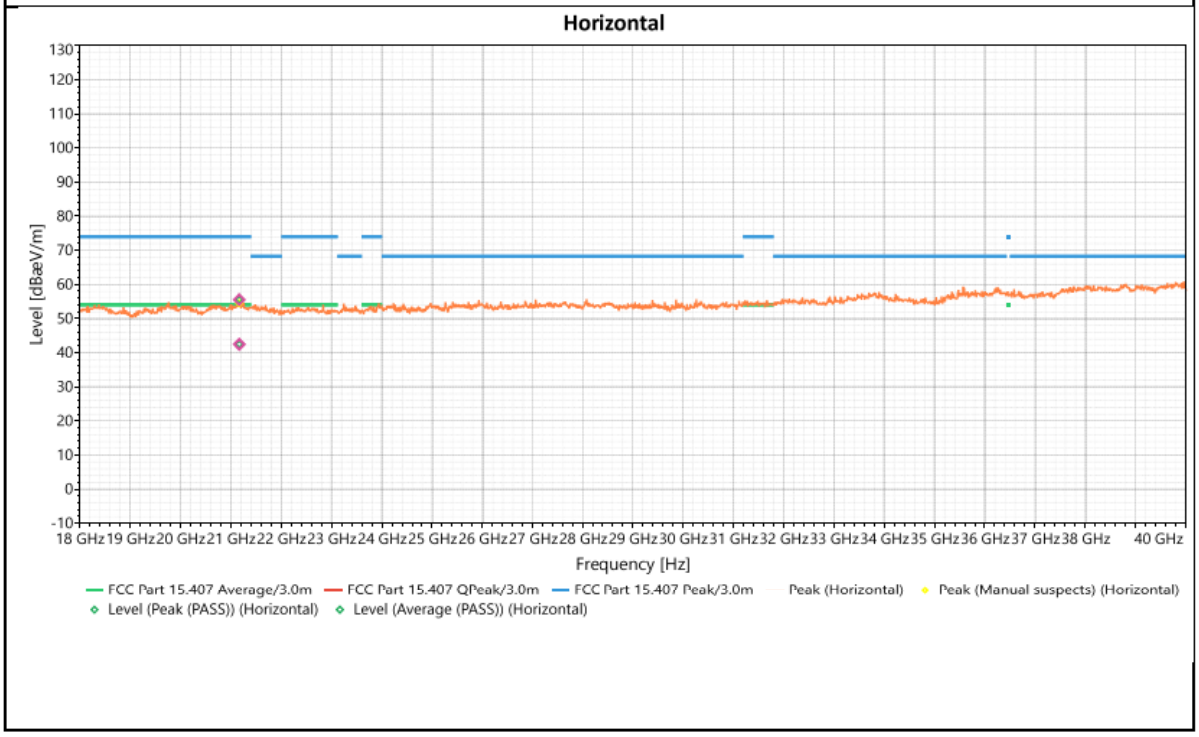
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5403	Vertical	38.384	74	-35.616	1.34	344	0.98	Peak (PASS)
2	5403	Vertical	24.911	54	-29.089	1.34	344	0.98	Average (PASS)
3	11001	Vertical	38.806	74	-35.194	1.29	305	2.81	Peak (PASS)
4	11001	Vertical	25.705	54	-28.295	1.29	305	2.81	Average (PASS)
5	21121.84	Vertical	55.369	74	-18.631	1.7	238	8.59	Peak (PASS)
6	21121.84	Vertical	42.454	54	-11.546	1.7	238	8.59	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

Frequency	802.11N HT20 5500 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



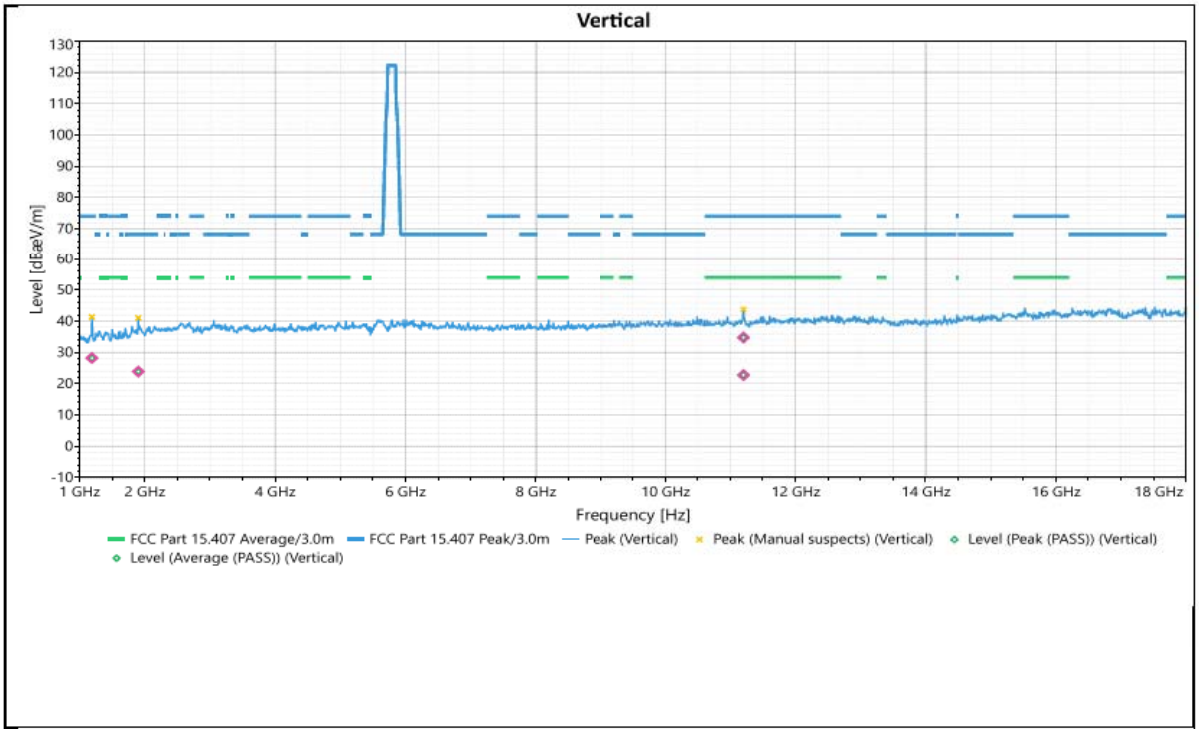


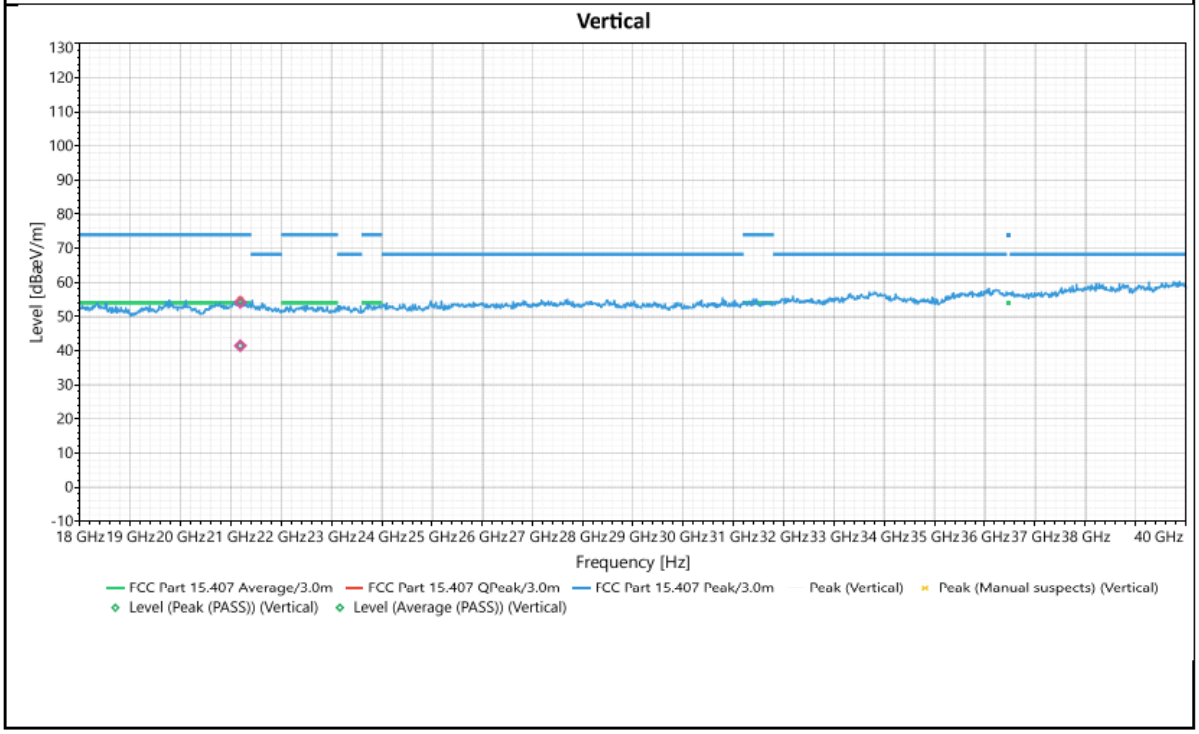
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	10994	Horizontal	34.683	74	-39.317	2.14	334	2.82	Peak (PASS)
2	10994	Horizontal	21.229	54	-32.771	2.14	334	2.82	Average (PASS)
3	21167.9	Horizontal	55.522	74	-18.478	1.63	356	8.4	Peak (PASS)
4	21167.9	Horizontal	42.469	54	-11.531	1.63	356	8.4	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

CHANNEL	802.11N HT20 5600 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



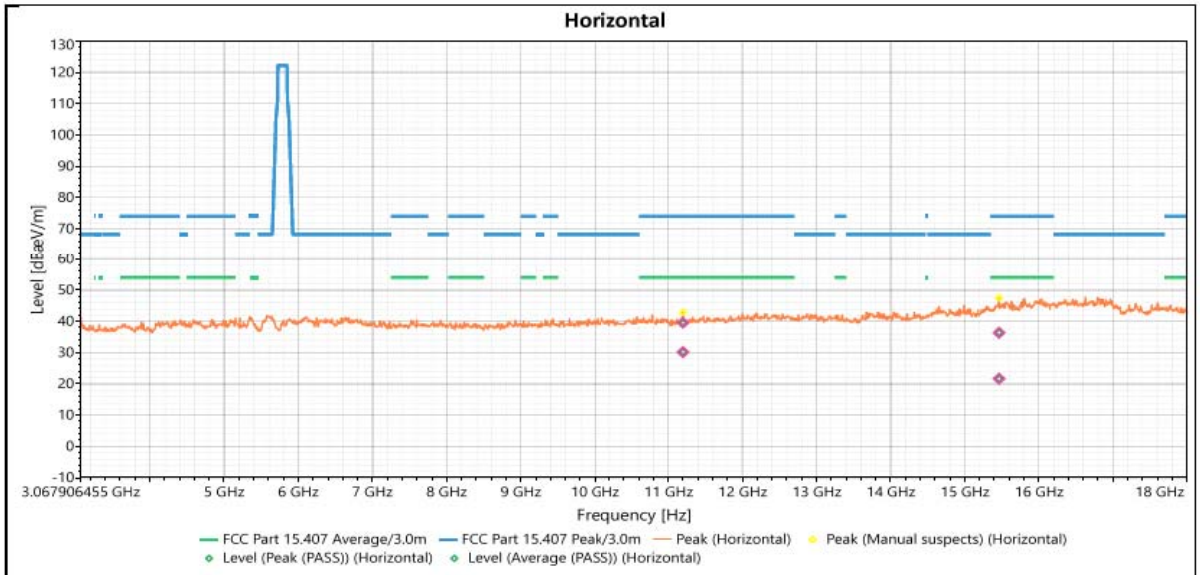


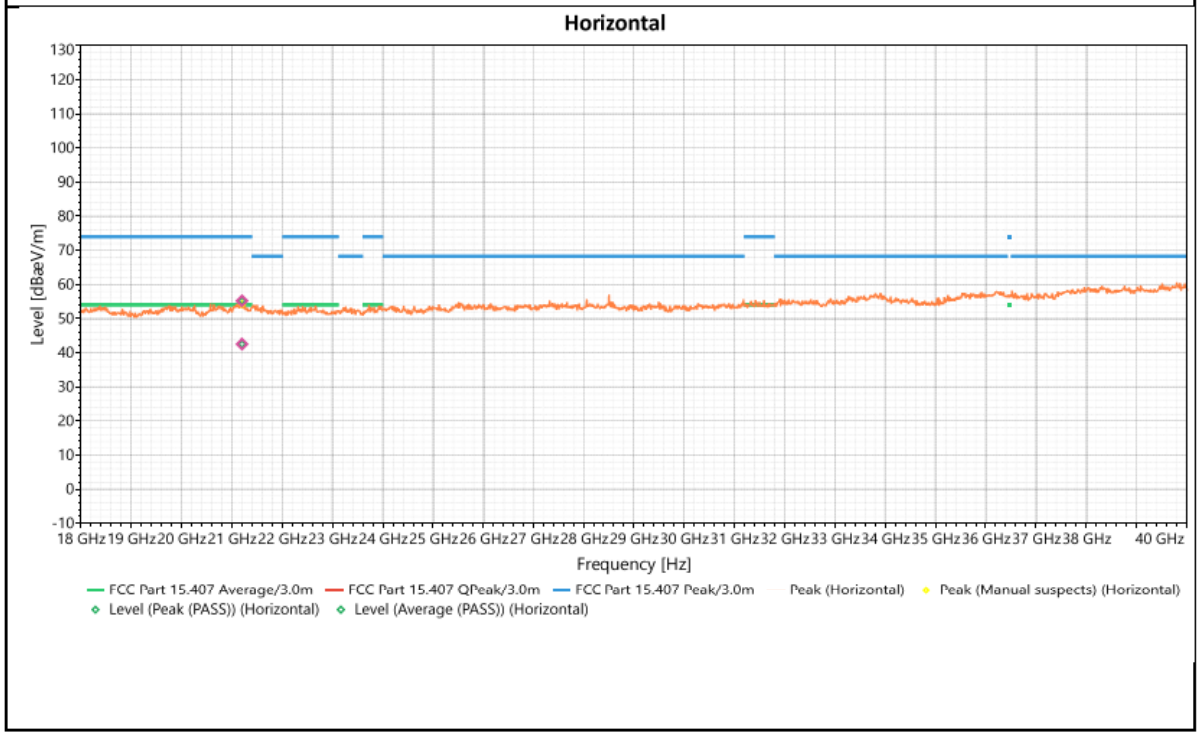
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	11202	Vertical	34.739	74	-39.261	2.13	298	2.9	Peak (PASS)
2	11202	Vertical	22.76	54	-31.24	2.13	298	2.9	Average (PASS)
3	21190.03	Vertical	54.225	74	-19.775	1	203	8.47	Peak (PASS)
4	21190.03	Vertical	41.452	54	-12.548	1	203	8.47	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

Frequency	802.11N HT20 5600 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



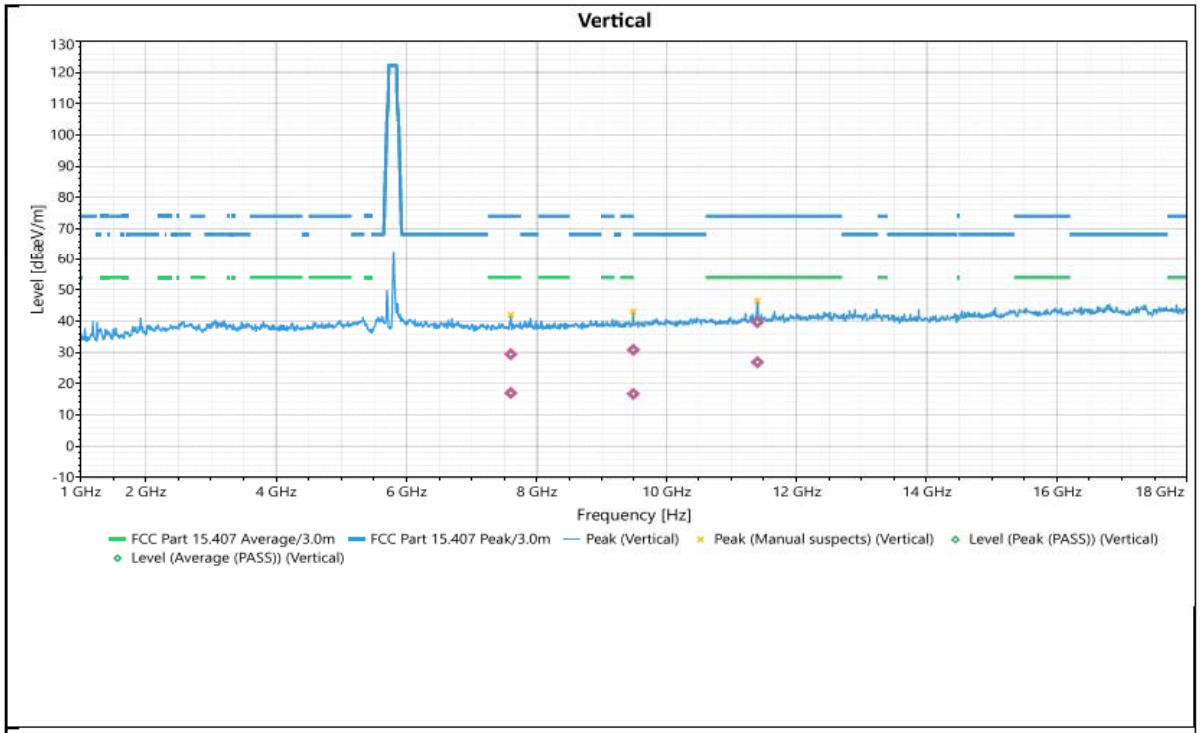


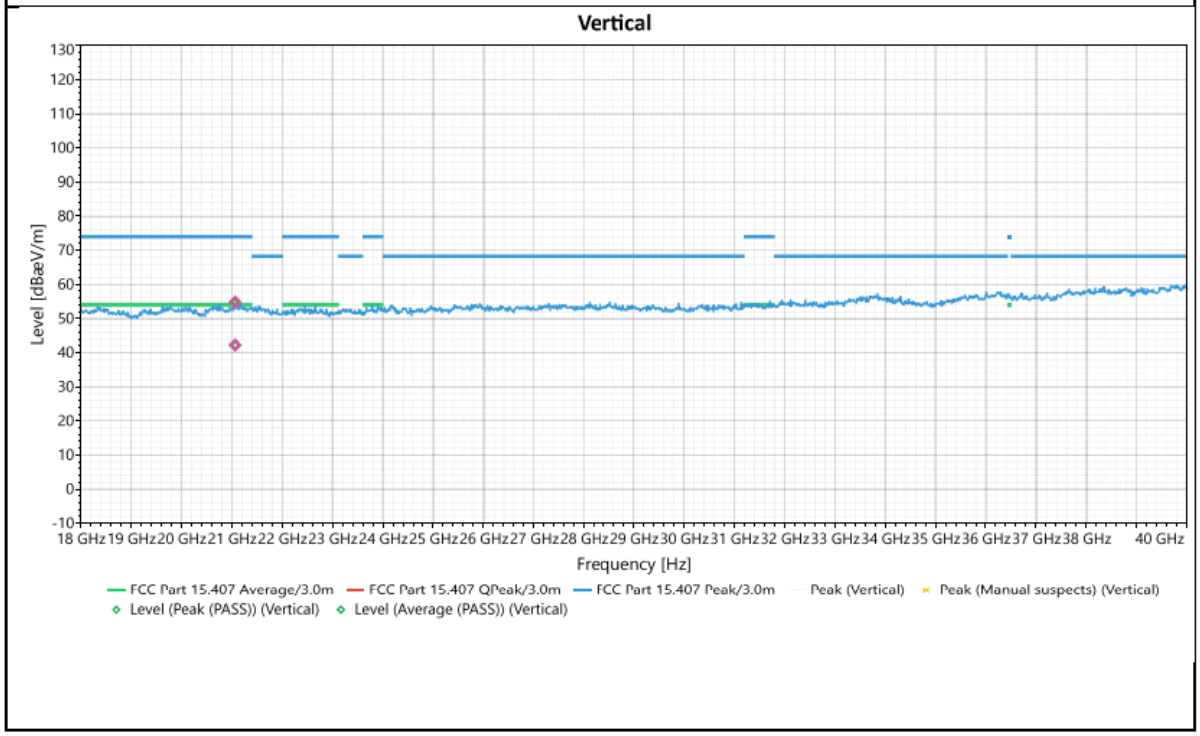
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	1435.2	Horizontal	26.061	74	-47.939	1.64	178	-3.97	Peak (PASS)
2	1435.2	Horizontal	12.589	54	-41.411	1.64	178	-3.97	Average (PASS)
3	11200	Horizontal	39.525	74	-34.475	2.19	342	2.87	Peak (PASS)
4	11200	Horizontal	30.121	54	-23.879	2.19	342	2.87	Average (PASS)
5	15464	Horizontal	36.3	74	-37.7	2.89	327	4.57	Peak (PASS)
6	15464	Horizontal	21.634	54	-32.366	2.89	327	4.57	Average (PASS)
7	21203.1	Horizontal	55.171	74	-18.829	2	116	8.36	Peak (PASS)
8	21203.1	Horizontal	42.509	54	-11.491	2	116	8.36	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

CHANNEL	802.11N HT20 5700 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



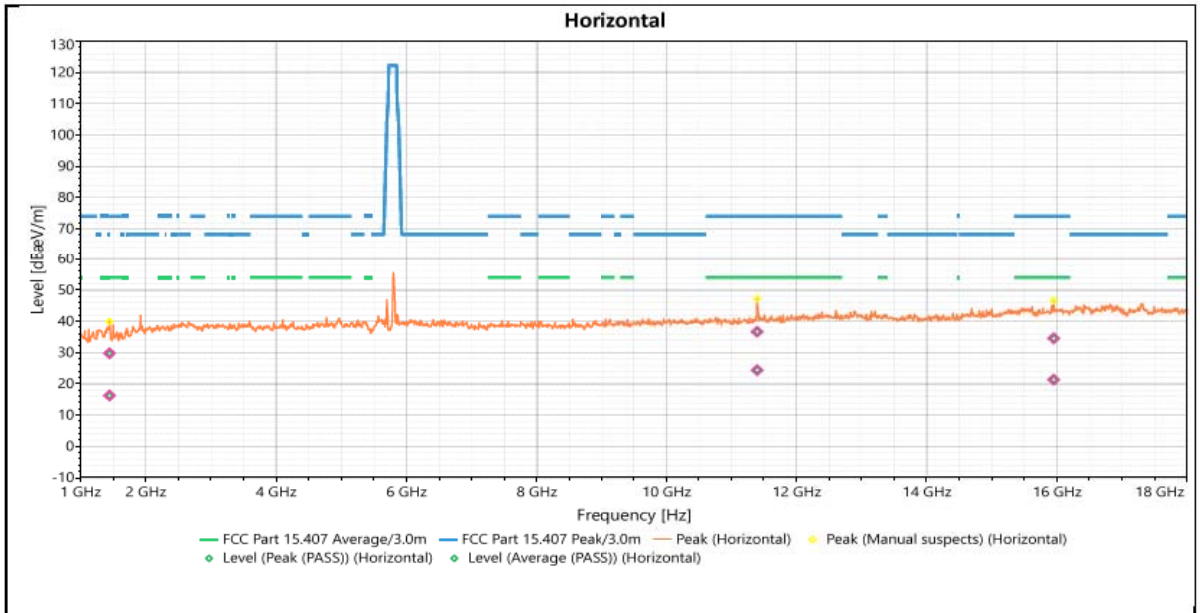


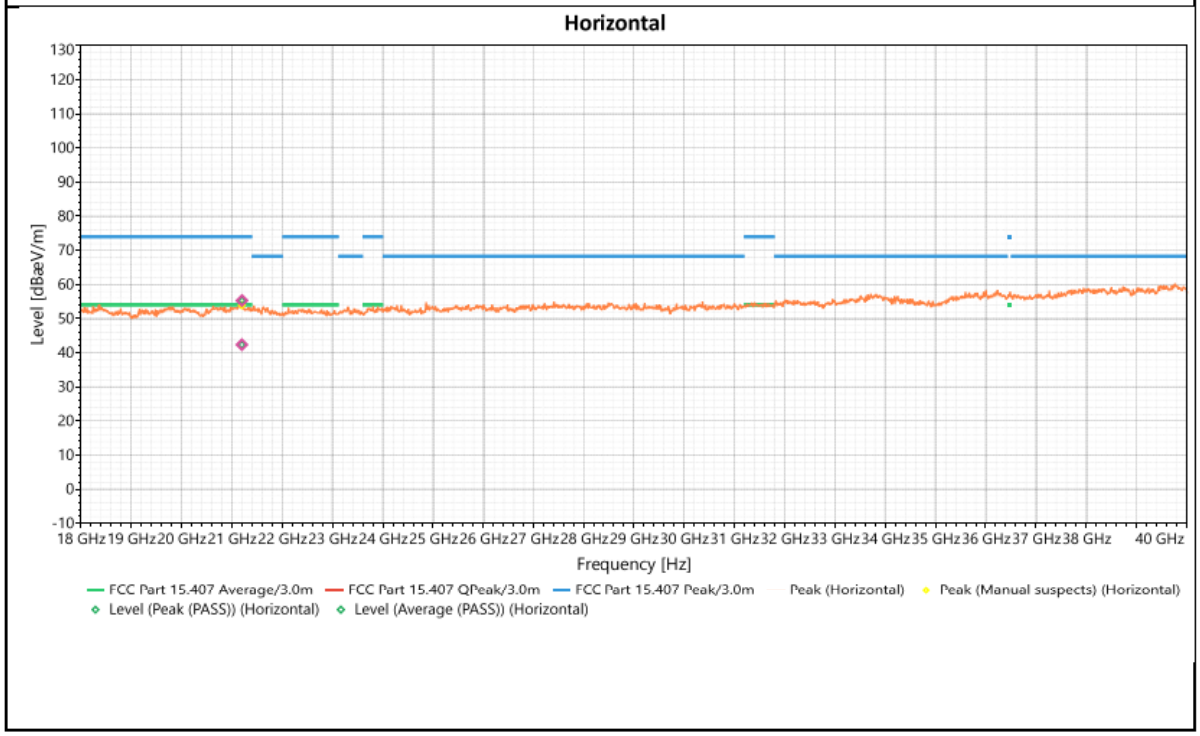
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	7599.4	Vertical	29.412	74	-44.588	1.02	360	2.13	Peak (PASS)
2	7599.4	Vertical	17.041	54	-36.959	1.02	360	2.13	Average (PASS)
3	9494.9	Vertical	30.807	74	-43.193	1.04	149	2.12	Peak (PASS)
4	9494.9	Vertical	16.739	54	-37.261	1.04	149	2.12	Average (PASS)
5	11401	Vertical	39.674	74	-34.326	1	80	3.13	Peak (PASS)
6	11401	Vertical	26.874	54	-27.126	1	80	3.13	Average (PASS)
7	21066.8	Vertical	54.824	74	-19.176	1.69	237	8.64	Peak (PASS)
8	21066.8	Vertical	42.207	54	-11.793	1.69	237	8.64	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

Frequency	802.11N HT20 5700 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



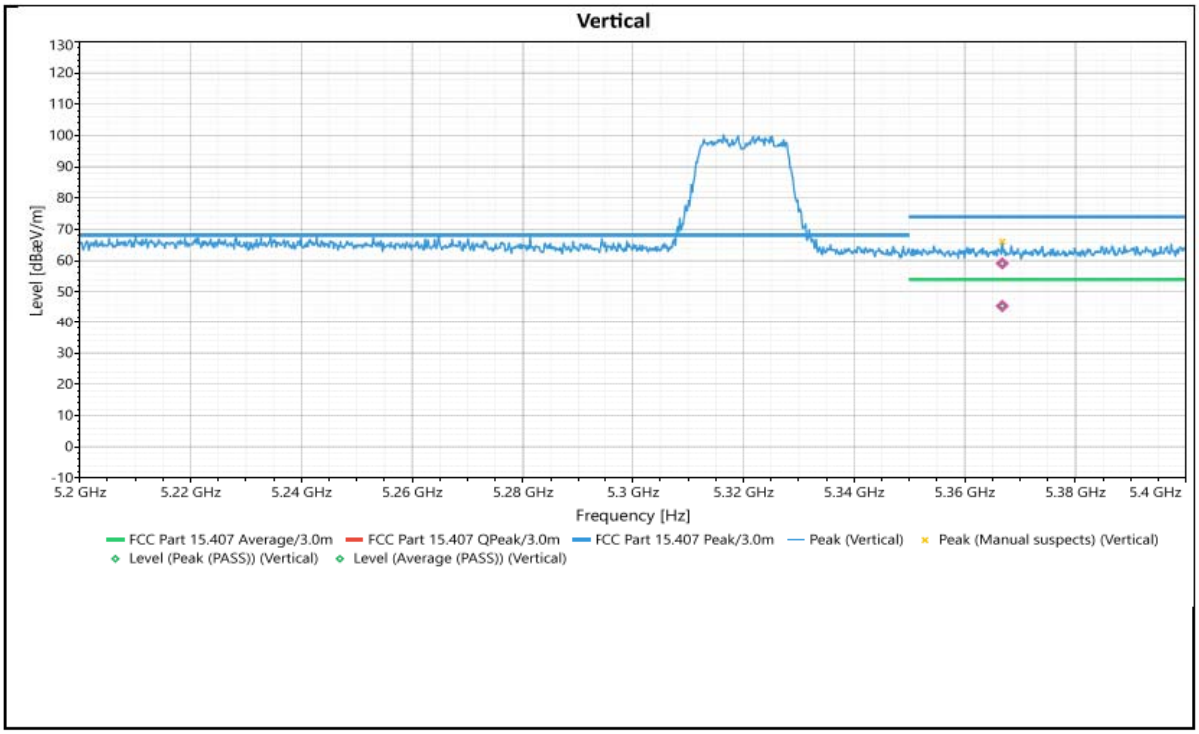


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	1442	Horizontal	29.725	74	-44.275	1.01	207	-4.15	Peak (PASS)
2	1442	Horizontal	16.24	54	-37.76	1.01	207	-4.15	Average (PASS)
3	11397	Horizontal	36.645	74	-37.355	2.1	345	3.23	Peak (PASS)
4	11397	Horizontal	24.355	54	-29.645	2.1	345	3.23	Average (PASS)
5	15953	Horizontal	34.534	74	-39.466	1	25	4.72	Peak (PASS)
6	15953	Horizontal	21.322	54	-32.678	1	25	4.72	Average (PASS)
7	21200.9	Horizontal	55.292	74	-18.708	1.25	263	8.36	Peak (PASS)
8	21200.9	Horizontal	42.351	54	-11.649	1.25	263	8.36	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11a – 5320MHz

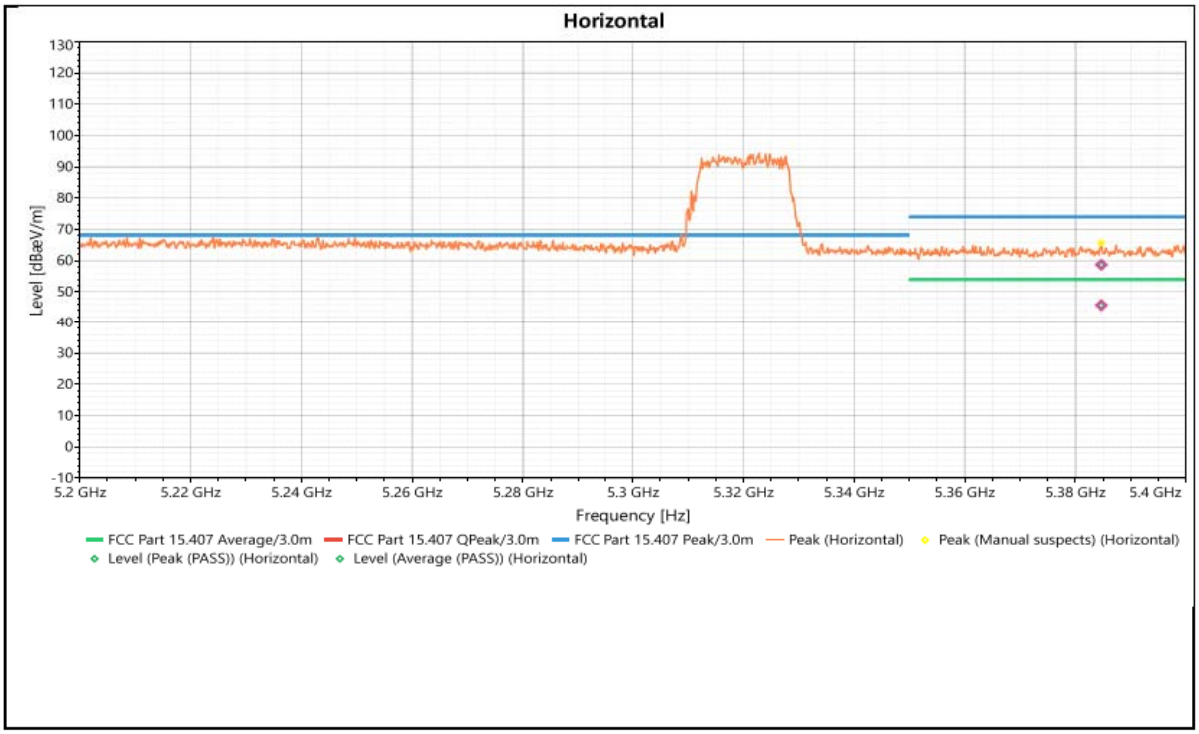


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5366.8	Vertical	59.1	74	-14.9	2.38	158	39.6	Peak (PASS)
2	5366.8	Vertical	45.496	54	-8.504	2.38	158	39.6	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11a – 5320MHz

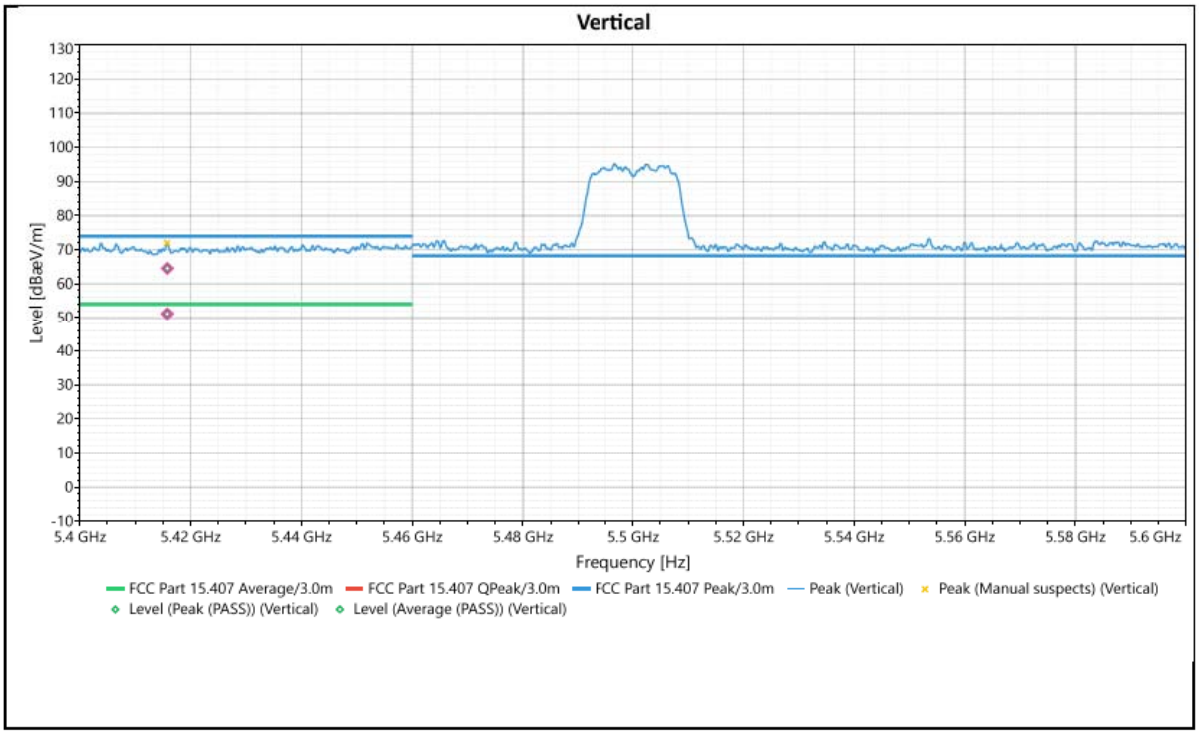


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5384.7	Horizontal	58.693	74	-15.307	3.41	284	39.69	Peak (PASS)
2	5384.7	Horizontal	45.71	54	-8.29	3.41	284	39.69	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11a – 5500MHz

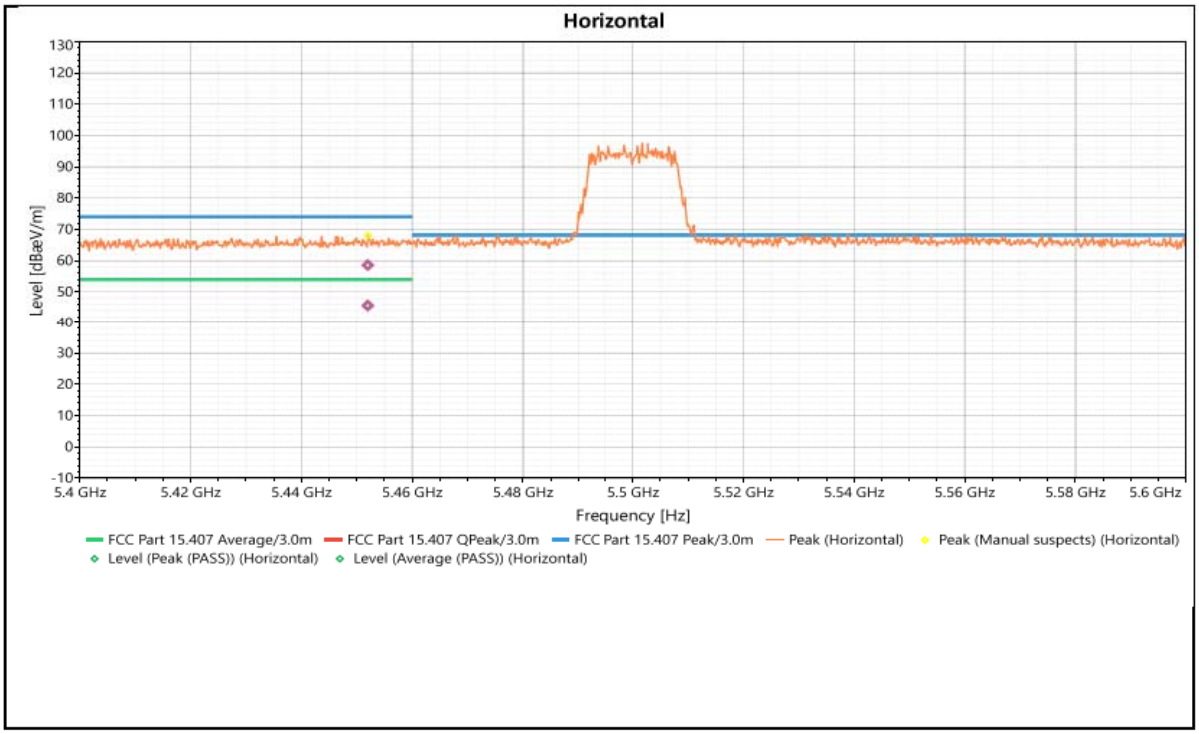


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5411.1	Vertical	60.06	74	-13.94	1.54	22	39.74	Peak (PASS)
2	5411.1	Vertical	45.286	54	-8.714	1.54	22	39.74	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11a – 5500MHz

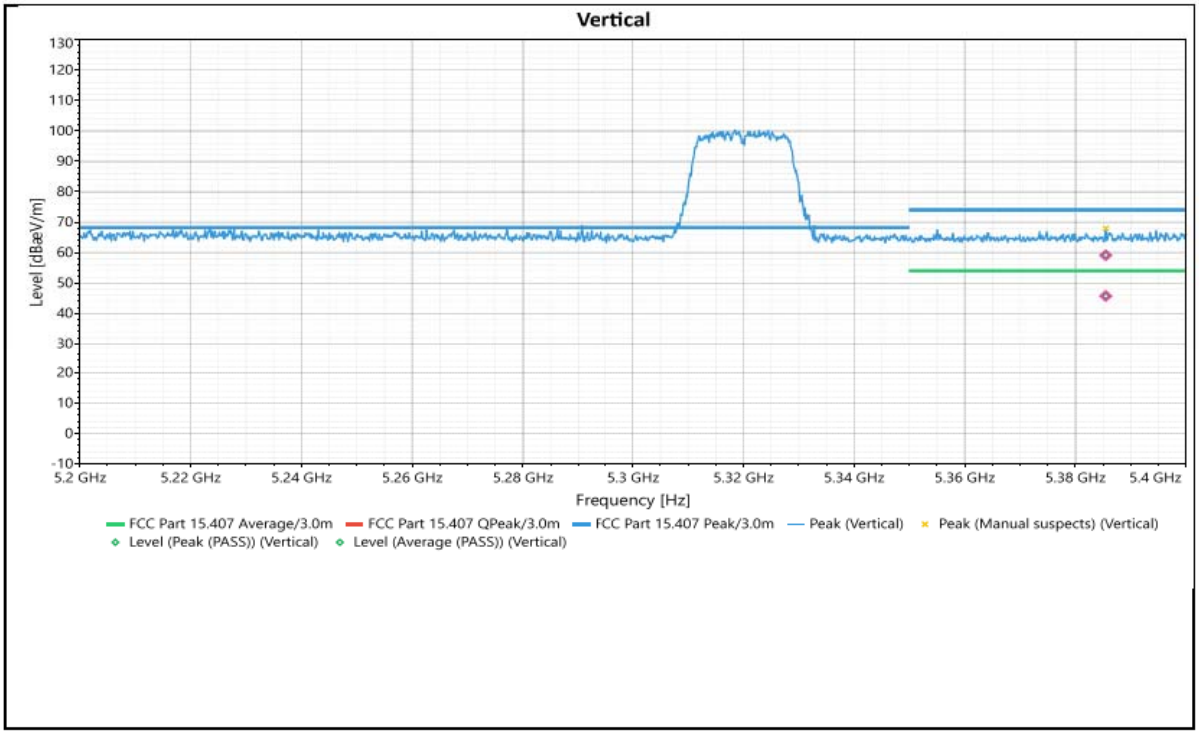


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5452	Horizontal	58.613	74	-15.387	3.06	325	39.66	Peak (PASS)
2	5452	Horizontal	45.674	54	-8.326	3.06	325	39.66	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11n HT20 – 5320MHz

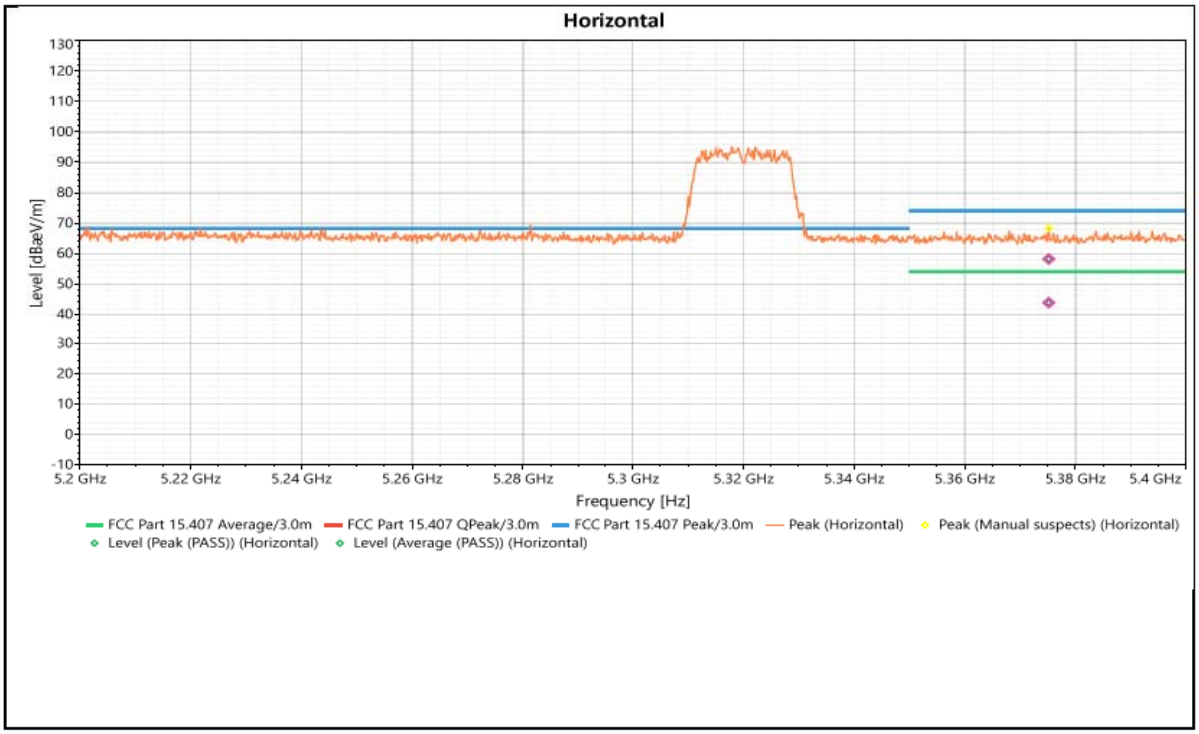


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5385.5	Vertical	59.1	74	-14.9	1.02	18	39.66	Peak (PASS)
2	5385.5	Vertical	45.74	54	-8.26	1.02	18	39.66	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11n HT20 – 5320MHz

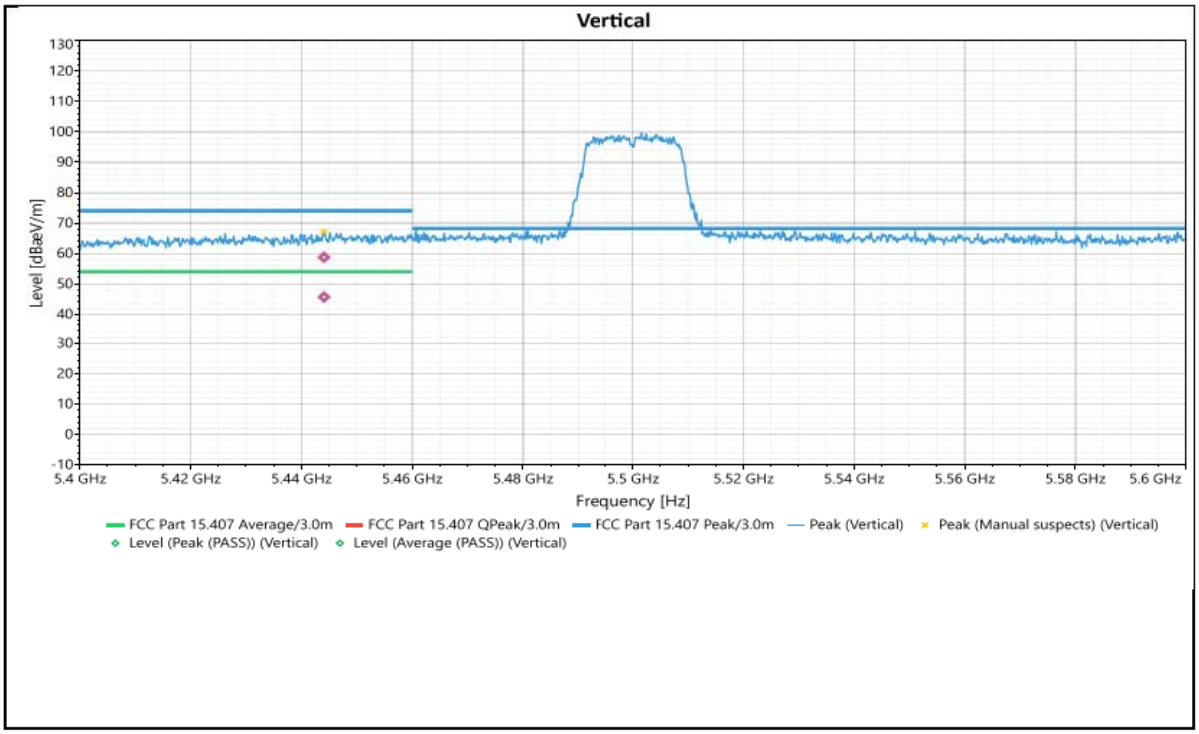


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5375.2	Horizontal	58.198	74	-15.802	2.4	272	39.68	Peak (PASS)
2	5375.2	Horizontal	43.843	54	-10.157	2.4	272	39.68	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11n HT20 – 5500MHz

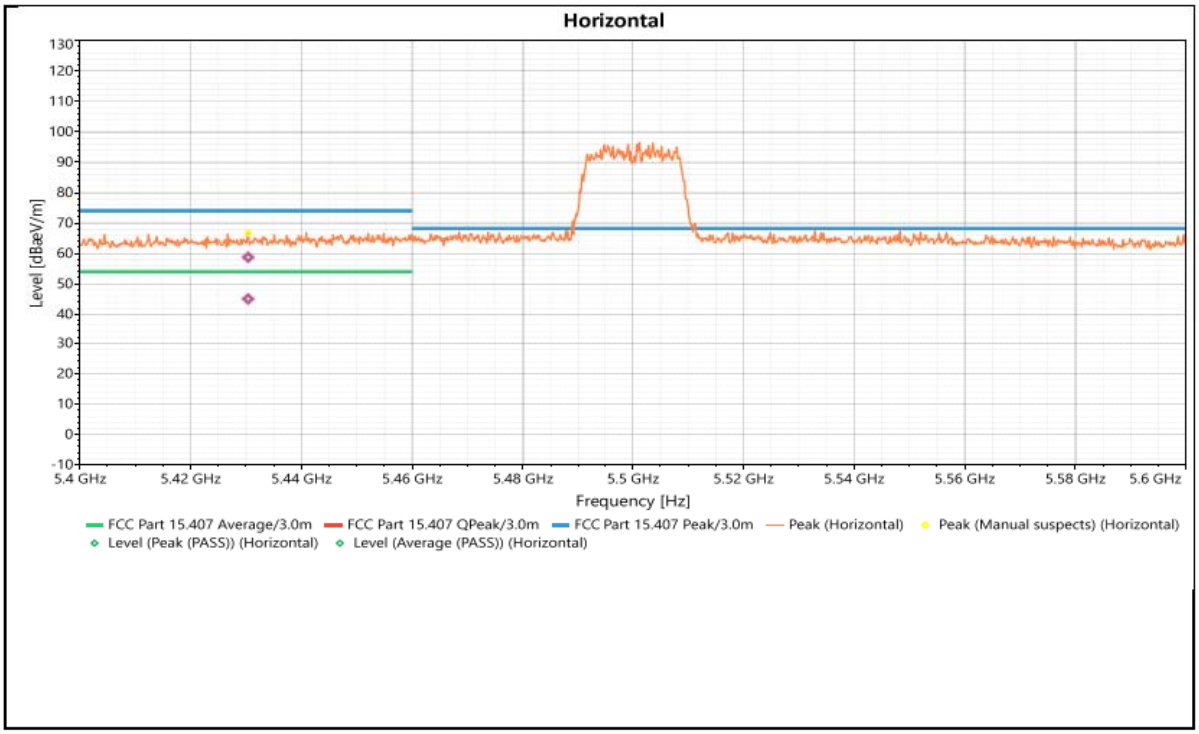


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5444.1	Vertical	58.781	74	-15.219	1.85	73	39.86	Peak (PASS)
2	5444.1	Vertical	45.702	54	-8.298	1.85	73	39.86	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

RESTRICTED BAND Test Plots
802.11n HT20 – 5500MHz



Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	5430.4	Horizontal	58.75	74	-15.25	2.04	236	39.68	Peak (PASS)
2	5430.4	Horizontal	45.075	54	-8.925	2.04	236	39.68	Average (PASS)

REMARKS:

1. Level (dBuV) = Reading (dBuV) + Factor (dB(1/m)).
2. Factor (dB(1/m)) = Antenna Factor(AF) (dB(1/m)) + Cable Loss (dB) +Preamplifier
3. Margin value = Emission level – Limit value.
4. The emission levels of other frequencies were less than 20dB margin agains

3.3 Conducted Emission Measurement

3.3.1 Limits of Conducted Emission Measurement

Frequency (MHz)	Conducted Limit (dBuV)	
	Quasi-peak	Average
0.15 - 0.5	66 - 56	56 - 46
0.50 - 5.0	56	46
5.0 - 30.0	60	50

Note: 1. The lower limit shall apply at the transition frequencies.
2. The limit decreases in line with the logarithm of the frequency in the range of 0.15 to 0.50MHz.

3.3.2 Test Instruments

Test Name: CE Voltage – AC Power Port			**Test Date(s):** N/A		
MET Asset #	**Equipment**	**Manufacturer**	**Model**	**Last Cal Date**	**Cal Due Date**
1U0337	LISN	Com-Power	LI-215A	10/12/2022	10/12/2023
1S2003	EMI Test Receiver	Keysight	N9030B	11/01/2022	11/01/2023
Note: Functionally tested equipment is verified using calibrated instrumentation at the time of testing.					

NOTE:

3.3.3 Test Procedure

a. The EUT was placed 0.4 meters from the conducting wall of the shielded room with EUT being connected to the power mains through a line impedance stabilization network (LISN). Other support units were connected to the power mains through another LISN. The two LISNs provide 50 ohm/ 50uH of coupling impedance for the measuring instrument.

b. Both lines of the power mains connected to the EUT were checked for maximum conducted interference.

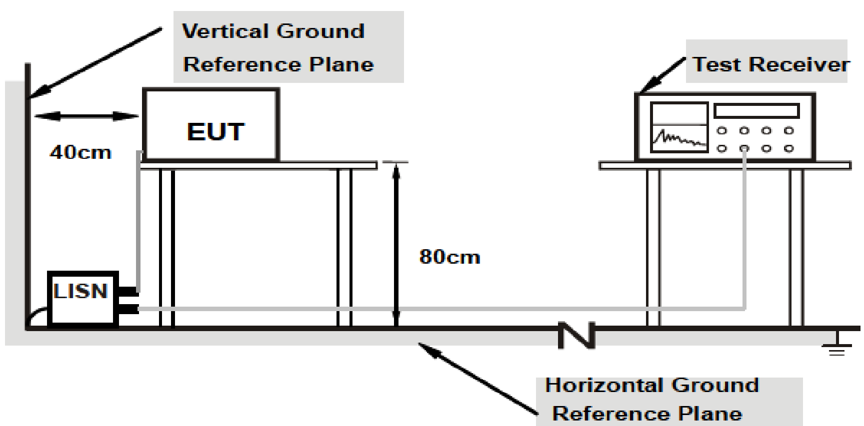
c. The frequency range from 150kHz to 30MHz was searched. Emission levels under (Limit - 20dB) was not recorded.

NOTE: All modes of operation were investigated and the worst-case emissions are reported.

3.3.4 Deviation from Test Standard

No deviation.

3.3.5 Test Setup



Note: 1.Support units were connected to second LISN.
2.Both of LISNs (AMN) are 80 cm from EUT and at least 80 from other units and other metal planes

For the actual test configuration, please refer to the attached file (Test Setup Photo).

3.3.6 EUT Operating Condition

Same as 4.1.6.

3.3.7 Test Results
N/A

3.4 Transmit Power Measurement

3.4.1 Limits of Transmit Power Measurement

Operation Band	EUT Category		Limit
U-NII-1		Outdoor Access Point	1 Watt (30 dBm) (Max. e.i.r.p ≦ 125mW(21 dBm) at any elevation angle above 30 degrees as measured from the horizon)
		Fixed point-to-point Access Point	1 Watt (30 dBm)
		Indoor Access Point	1 Watt (30 dBm)
		Client device	250mW (24 dBm)
U-NII-2A	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-2C	√		250mW (24 dBm) or 11 dBm+10 log B*
U-NII-3			1 Watt (30 dBm)

*B is the 26 dB emission bandwidth in megahertz

Per KDB 662911 Method of conducted output power measurement on IEEE 802.11 devices,

Array Gain = 0 dB (i.e., no array gain) for $N_{ANT} \leq 4$;
Array Gain = 0 dB (i.e., no array gain) for channel widths ≥ 40 MHz for any N_{ANT};
Array Gain = 5 log(N_{ANT}/N_{SS}) dB or 3 dB, whichever is less for 20-MHz channel widths with $N_{ANT} \geq 5$.

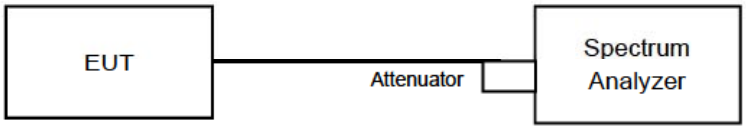
For power measurements on all other devices: Array Gain = 10 log(N_{ANT}/N_{SS}) dB.

3.4.2 Test Setup

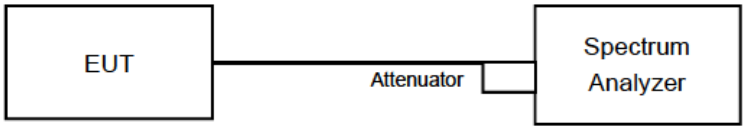
FOR POWER OUTPUT MEASUREMENT

◆ **Power Meter Measurement**

◆ **Spectrum Measurement**



FOR 26dB OCCUPIED BANDWIDTH



3.4.3 Test Instruments

Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S4775	Power Meter	ROHDE & SCHWARZ	NRQ6	06/23/2022	06/23/2023

3.4.4 Test Procedure

For Average Power Measurement

For 802.11a, 802.11n (HT20), 802.11n (HT40), 802.11ac (VHT20, 802.11ac (VHT40)

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst and set the detector to AVERAGE. Duty factor is not added to measured value.

For 802.11ac (VHT80)

1) Set span to encompass the entire 26 dB EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal.
2) Set sweep trigger to “free run”.
3) Set RBW = 1 MHz.
4) Set VBW ≥ 3 MHz
5) Number of points in sweep ≥ 2 Span / RBW.
6) Sweep time ≤ (number of points in sweep) * T
7) Using emission bandwidth to determine the frequency span for integration the channel bandwidth.
8) Detector = RMS.
9) Trace mode = max hold.
10) Allow max hold to run for at least 60 seconds, or longer as needed to allow the trace to stabilize.

◆ **Power Meter Measurement**

Method PM is used to perform output power measurement, trigger and gating function of wide band power meter is enabled to measure max output power of TX on burst. Duty factor is not added to measured value.

◆ **Spectrum Measurement**

Follow FCC KDB 789033 UNII test procedure:
Method SA-1

1. Set span to encompass the entire emission bandwidth (EBW) of the signal.
2. Set RBW =1MHz.
3. Set the VBW ≥ 3 x RBW.
4. Number of points in sweep ≥ 2 Span / RBW.
5. Sweep time = auto.
6. Set trigger to free run (duty cycle ≥ 98 percent)
7. Detector = RMS.
8. Trace average at least 100 traces in power averaging mode
9. Compute power by integrating the spectrum across the 26 dB EBW of the signal.

Follow FCC KDB 789033 UNII test procedure:
Method SA-2

1. Set span to encompass the emission bandwidth (EBW) of the signal.
2. Set RBW =1MHz.
3. Set the VBW ≥ 3 x RBW.
4. Number of points in sweep ≥ 2 Span / RBW.
5. Sweep time = auto.
6. Detector = RMS.
7. Trace average at least 100 traces in power averaging mode
8. Compute power by integrating the spectrum across the 26 dB EBW of the signal.
9. Duty factor need added to measured value (duty cycle < 98 percent).

FOR 26dB OCCUPIED BANDWIDTH

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the VBW > RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%.

3.4.5 Deviation from Test Standard

No deviation.

3.4.6 EUT Operating Condition

The software provided by client to enable the EUT under transmission condition continuously at lowest, middle and highest channel frequencies individually.

3.4.7 Test Results

Output Power measurement result for UNII-2 Band

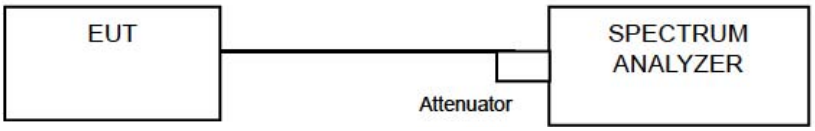
Type	Test mode	Freq (MHz)	CH	Conducted Power (dBm)	Limit (dBm)	Result
Output Power	802.11a	5260	Low	6.22	24	Pass
		5280	Mid	6.19	24	Pass
		5320	High	6.25	24	Pass
		5500	Low	6.16	24	Pass
		5600	Mid	6.19	24	Pass
		5700	High	6.32	24	Pass
	802.11n-HT20	5260	Low	6.17	24	Pass
		5280	Mid	6.19	24	Pass
		5320	High	6.27	24	Pass
		5500	Low	6.27	24	Pass
		5600	Mid	6.33	24	Pass
		5700	High	6.32	24	Pass

3.5 26dB Bandwidth & 6dB Bandwidth Measurement

3.5.1 Limits of 6 dB Bandwidth Measurement

The minimum of 6 dB Bandwidth Measurement is 0.5 MHz.

3.5.2 Test Setup



3.5.3 Test Instruments

MET Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2003	EMI Test Receiver	Keysight	N9030B	11/01/2022	11/01/2023

3.5.4 Test Procedure

26dB Emission bandwidth measurement procedure (Other than 5.725-5.85 GHz)

- Allow the trace to stabilize.
- Use the spectrum analyzer built-in measurement function to determine the 26dB BW.
  Set RBW = around 1% of emission bandwidth
  Set VBW > RBW
  Detector = Peak
  Trace mode = max hold
- Capture the plot.
- Repeat above steps for different test channel and other modulation type.

6 dB Minimum emission bandwidth measurement procedure

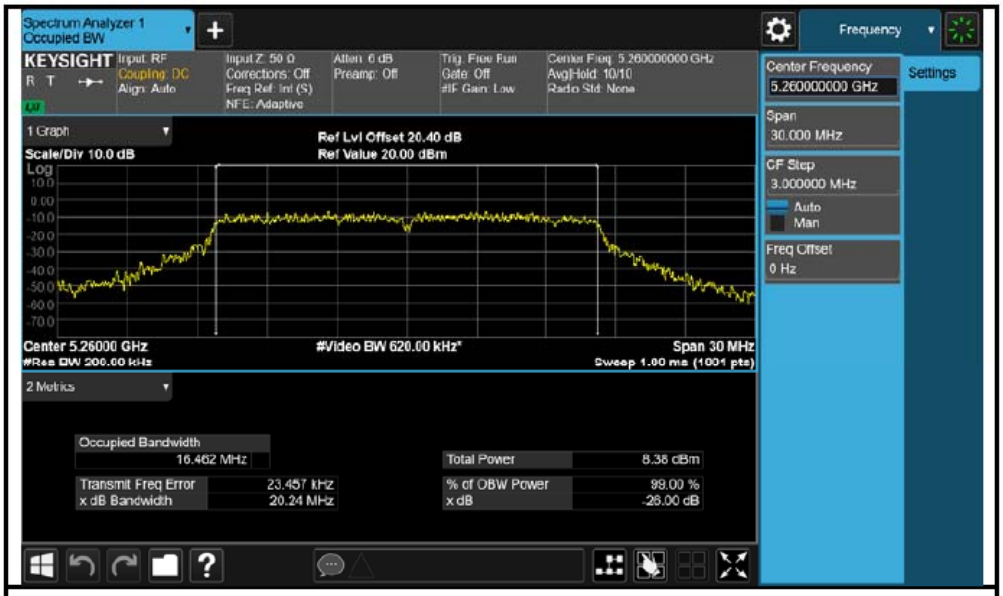
- Allow the trace to stabilize.
- Use the spectrum analyzer built-in measurement function to determine the 6dB BW.
  Set RBW = 100 KHz
  Set VBW ≥ 3 x RBW
  Detector = Peak
  Trace mode = max hold
  Sweep = auto couple
- Capture the plot.
- Repeat above steps for different test channel and other modulation type.

3.5.5 Test Results

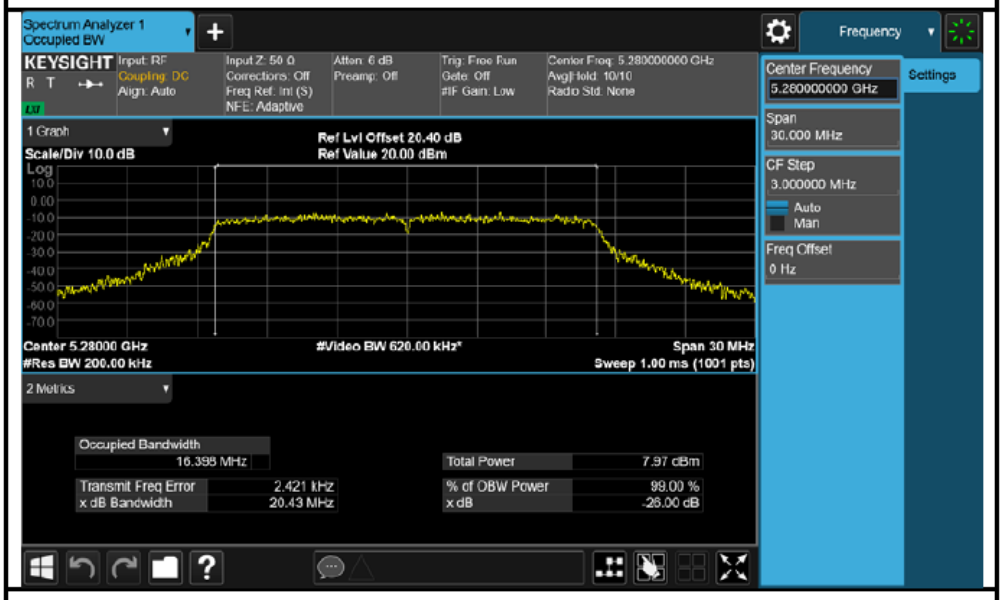
26dB Bandwidth measurement result for UNII-2 Band

Type	Test mode	Freq (MHz)	CH	99% OBW(MHz)	26 dB OBW(MHz)
26dB BW	802.11a	5260	Low	16.462	20.241
		5280	Mid	16.398	20.426
		5320	High	16.435	19.821
		5500	Low	16.443	20.144
		5580	Mid	16.472	19.760
		5700	High	16.434	20.247
	802.11n-HT20	5260	Low	17.622	20.464
		5280	Mid	17.629	20.208
		5320	High	17.614	20.642
		5500	Low	17.598	20.290
		5580	Mid	17.583	20.610
		5700	High	17.626	20.799

Occupied Bandwidth Test Plots
UNII-2 Band

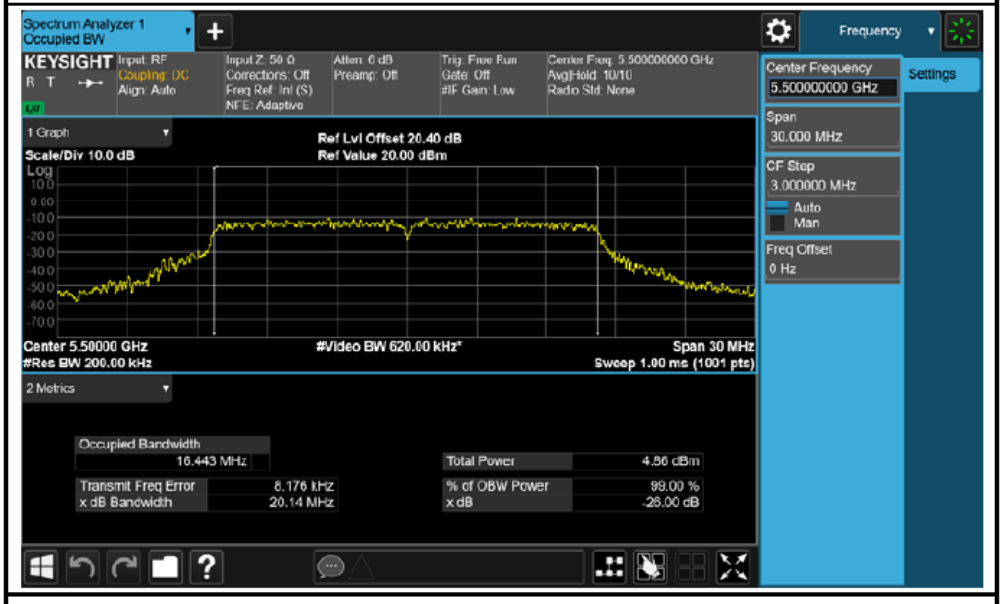


802.11a-5260MHz



802.11a-5280MHz

802.11a-5320MHz



802.11a-5500MHz