

July 15, 2023

Actineon, Inc.
2530 Zanker Road
San Jose, California 95131

Dear Michael Kelsey,

Enclosed is the EMC Wireless test report for compliance testing of the Actineon, Inc., IOT EDGE HUB / Splunk SPLKEH201GL as tested to the requirements of Title 47 of the CFR, Part 15 Subpart E/ RSS-247 Issue 2 (2017-02) for Intentional Radiators.

Thank you for using the services of Eurofins Electrical and Electronic Testing NA, Inc. If you have any questions regarding these results or if Eurofins Electrical and Electronic Testing NA, Inc. can be of further service to you, please feel free to contact me.

Gary Chou

Documentation Department
Eurofins Electrical and Electronic Testing NA, Inc.

Reference: WIR125986-ACT_FCC_ISED-WLAN_5GHz_Rev 1.0



FCC Test Site(s) Reg #:US1123

IC Test Site(s) Reg. #: 2043C

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Report: WIR125986-ACT_FCC_ISED-WLAN_5GHz_Rev 1.0© 2023, Eurofins Electrical and Electronic Testing NA, Inc. Page i of 226

FCC/ ISED Test Report

Applicant name: Actineon, Inc

Product: IOT EDGE HUB

Report: WIR125986-ACT-FCC-ISED_FCC_ISED-WLAN_5GHz_Rev 1.0

Applicant Address:

**12530 Zanker Road
San Jose, California 95131**

Manufacturer Address:

**2530 Zanker Road
San Jose, California 95131**

Prepared By:
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Santa Clara CA, 95054

FCC/ ISED Test Report

Applicant name: Actineon, Inc.

Product: IOT EDGE HUB

Standard
47 CFR FCC Part 15, Subpart E (Section 15.407)
RSS-247 Issue 2 (2017-02)
RSS-Gen Issue 5 (2019-03)
789033 D02 General UNII Test Procedures New Rules v02r01
ANSI C63.10:2013

Richard Dollente
Richard Dollente Test Engineer, Wireless Laboratory

Engineering Statement: The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements FCC Rules under normal use and maintenance.

Gary Chou
Gary Chou
Wireless Engineering Manager, Wireless Laboratory

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Release Control Record

Issue No.	Description	Date Issued
WIR125986-ACT-FCC-ISED_FCC_ISED-WLAN_5GHz	Original release	07/ 15/ 2023
WIR125986-ACT-FCC-ISED_FCC_ISED-WLAN_5GHz_Rev 1.0	Update EUT/ Test software information	08/ 15/ 2023

1 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407)				
Standard Section		Test Item	Result	Remarks
FCC	ISED			
15.203	-	Antenna Requirement	Pass	Meet the requirement of limit.
15.407 (b)(6)	RSS-Gen 8.8	AC Power Conducted Emissions	Pass	Meet the requirement of limit.
15.407 (b)(1/2/3/4(i/ii)/6)	RSS-247	Radiated Emissions & Band Edge Measurement	Pass	Meet the requirement of limit.
15.407 (a)(1/2/3)	RSS-247	Max Average Transmit Power	Pass	Note 1
-	RSS-Gen 6.6	Occupied Bandwidth	Pass	Note 1
15.407 (e)	RSS-247	6 dB Emission Bandwidth	Pass	Note 1
15.407 (a)(1/2/3)	RSS-247	Peak Power Spectral Density	Pass	Note 1
15.407(g)	-	Frequency Stability	Pass	Note 1

Note:

- Other test item please refer to FCC Module Report: TLZ-CM276NF, ISED Module Report: 6100A-CM276NF
- Determining compliance based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.

1.1 Measurement Uncertainty

Where relevant, the following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2:

Test Method	Typical Expanded Uncertainty	K	Confidence Level
RF Frequencies	±4.52 Hz	2	95%
RF Power Conducted Emissions	±2.32 dB	2	95%
RF Power Conducted Spurious Emissions	±2.25 dB	2	95%
RF Power Radiated Emissions	±3.01 dB	2	95%

1.2 Modification Record

There were no modifications required for compliance.

2 General Information

2.1 General Description of EUT

Product:	IOT EDGE HUB		
Brand:	Actineon		
Model(s) Tested:	Splunk SPLKEH201GL		
Firmware:	TEZI 5.7.0 v1.3.2		
Series Model:	N/A		
Sample Status:	Original		
Series Number:	ACT-076-4422-0135		
EUT Specifications:	Primary Power:		POE 48 Vdc/ 0.625A, Power adaptor: 15Vdc/ 2A
	Voltage Frequency:		N/A
	Technology / Type of Modulations:		256QAM, 64QAM, 16QAM, QPSK, BPSK for OFDM
	Operating Frequency :		5180 MHz~5240MHz, 5260 MHz~5320 MHz 5500 MHz~5725 MHz 5745 MHz~5825MHz
	FCC ID:		2BBHWSPLKEH201GL
	ISED ID:		30709SPLKEH201GL
	Maximum EIRP		TBD
	Antenna Type:	PCB Antenna	5 dBi
	Antenna connector:		IPEX MHF I
Analysis:	The results obtained relate only to the item(s) tested.		
Environmental Test Conditions:	Temperature: 20.3° C		
	Relative Humidity: 47.5%		
	Barometric Pressure: 860-1060 mbar		
Evaluated by:	Richard Dollente		
Issue Date(s):	August 15, 2023		

NOTE: The following modules can be chosen to be configured in the EUT.

	Model No.	FCC ID	Note
-	-	-	-
-	-	-	-

FCC/IC/ CE RF Testing Units Setting

Model	Hardware (FW) Rev.	Firmware (FW) Rev.	FW operation verification and Instruction
Splunk SPLKEH201GL	SPLKEH201GL	TEZI 5.7.0 v1.3.2	Verify by Spectrum Analyzer & Laptop

2.2 Description of Operation Modes

Control software: Putty V0.78

FOR 5180 ~ 5240MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	44	5220 MHz
40	5200 MHz	48	5240 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	46	5230 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
42	5210MHz

FOR 5260 ~ 5320MHz

4 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
52	5260 MHz	60	5300 MHz
56	5280 MHz	64	5320 MHz

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
54	5270 MHz	62	5310 MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
58	5290MHz

FOR 5500 ~ 5700MHz

11 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
100	5500 MHz	124	5620 MHz
104	5520 MHz	128	5640 MHz
108	5540 MHz	132	5660 MHz
112	5560 MHz	136	5680 MHz
116	5580 MHz	140	5700 MHz
120	5600 MHz		

5 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
102	5510 MHz	126	5630 MHz
110	5550 MHz	134	5670 MHz
118	5590 MHz		

2 channels are provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
106	5530MHz	122	5610 MHz

FOR 5745 ~ 5825MHz:

5 channels are provided for 802.11a, 802.11n (HT20), 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
149	5745MHz	161	5805MHz
153	5765MHz	165	5825MHz
157	5785MHz		

2 channels are provided for 802.11n (HT40), 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
151	5755MHz	159	5795MHz

1 channel is provided for 802.11ac (VHT80):

Channel	Frequency
155	5775MHz

Power setting: Default

1. The above EUT information is declared by manufacturer and for more detailed features description, please refer to the manufacturer's specifications or user's manual.

2.3 General Description of Applied Standard

The EUT is a RF Product. According to the specifications of the manufacturer, it must comply with the requirements of the following standards:

47 CFR FCC Part 15, Subpart E (Section 15.407)

Canada RSS-247 Issue 2 (2017-02)

Canada RSS-Gen Issue 5 (2019-03)

789033 D02 General UNII Test Procedures New Rules v02r01

ANSI C63.10:2013

All test items have been performed and recorded as per the above standards.

3 Test Types and Results

3.1 Antenna Requirement

Spec	Requirement	Applicable
15.203	An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. Antenna requirement must meet at least one of the following: a) Antenna must be permanently attached to the device. b) The antenna must use a unique type of connector to attach to the device. c) Device must be professionally installed. The installer shall be responsible for ensuring that the correct antenna is employed by the device.	☒
Remark	The EUT uses a PCB Antenna antenna attach to the device via IPEX MHF I connector.	
Result	☒ PASS ☐ FAIL	

3.2 Radiated Emission and Bandedge Measurement

3.2.1 Limits of Radiated Emission Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table.

Frequencies (MHz)	Field Strength (microvolts/meter)	Measurement Distance (meters)
0.009 ~ 0.490	2400/F(kHz)	300
0.490 ~ 1.705	24000/F(kHz)	30
1.705 ~ 30.0	30	30
30 ~ 88	100	3
88 ~ 216	150	3
216 ~ 960	200	3
Above 960	500	3

NOTE:

- The lower limit shall apply at the transition frequencies.
- Emission level (dBuV/m) = 20 log Emission level (uV/m).
- For frequencies above 1000MHz, the field strength limits are based on average detector, however, the peak field strength of any emission shall not exceed the maximum permitted average limits, specified above by more than 20dB under any condition of modulation.

Limits of unwanted emission out of the restricted bands

Applicable To			Limit	
789033 D02 General UNII Test Procedure New Rules v02r01			Field Strength at 3m	
			PK:74 (dBμV/m)	AV:54 (dBμV/m)
Frequency Band	Applicable To		EIRP Limit	Equivalent Field Strength at 3m
5150~5250 MHz	15.407(b)(1)		PK:-27 (dBm/MHz)	PK:68.2(dBμV/m)
5250~5350 MHz	15.407(b)(2)			
5470~5725 MHz	15.407(b)(3)			
5725~5850 MHz	☒	15.407(b)(4)(i)	PK:-27 (dBm/MHz) *1 PK:10 (dBm/MHz) *2 PK:15.6 (dBm/MHz) *3 PK:27 (dBm/MHz) *4	PK: 68.2(dBμV/m) *1 PK:105.2 (dBμV/m) *2 PK: 110.8(dBμV/m) *3 PK:122.2 (dBμV/m) *4
	☐	15.407(b)(4)(ii)	Emission limits in section 15.247(d)	
*1 beyond 75 MHz or more above of the band edge.			*2 below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above.	
*3 below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above.			*4 from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.	

Note:

The following formula is used to convert the equipment isotropic radiated power (eirp) to field strength:

$$E = \frac{1000000\sqrt{30P}}{3} \text{ } \mu\text{V/m, where P is the eirp (Watts).}$$

3.2.2 Test Instruments

Asset #	Equipment	Manufacturer	Model	Last Cal Date	Cal Due Date
1S2003	EMI Test Receiver	Keysight	N9030B	11/01/2022	11/01/2023
1S2399	Turntable Controller	SUNOL SCIENCE	SC99V	Not Required	Not Required
1S2486	5 Meter Chamber Control Room	Panashield	5 Meter Control Room	Not Required	Not Required
1S3826	Horn Antenna	ETS-LINDGREN	3117	04/06/2023	04/06/2025
1S4802	Preamplifier	EMC Instrument	EMC118A45SE	Note 1	Note 1
1S2668	Preamplifier	Sonoma Instrument	310N	Note 1	Note 1
1S2600	Antenna	Sunol Sciences Corp	JB3	04/ 11/ 2023	04/ 11/ 2025
1S3983	Loop Antenna	ETS-LINDGREN	6512	10/ 14 /2021	10/ 14 /2023

Note 1: Verified by calibrated instrumentation at the time of testing

3.2.3 Test Procedure

For Radiated emission below 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter chamber room. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. Parallel, perpendicular, and ground-parallel orientations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Quasi-Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

NOTE:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 9kHz at frequency below 30MHz.

For Radiated emission above 30MHz

- a. The EUT was placed on the top of a rotating table 0.8 meters (for 30MHz ~ 1GHz) / 1.5 meters (for above 1GHz) above the ground at 3 meter chamber room for test. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The height of antenna is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to quasi-peak detect function and specified bandwidth with maximum hold mode when the test frequency is below 1 GHz.
- f. The test-receiver system was set to peak and average detects function and specified bandwidth with maximum hold mode when the test frequency is above 1 GHz. If the peak reading value also meets average limit, measurement with the average detector is unnecessary.

Note:

1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
3. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $\geq 1/T$ (Duty cycle < 98%) or 10Hz (Duty cycle $\geq 98\%$) for Average detection (AV) at frequency above 1GHz.
4. All modes of operation were investigated and the worst-case emissions are reported.

For Band edge Measurement

789033 D02 General U-NII Test Procedures New Rules v02r01, II.F. Method SA-1

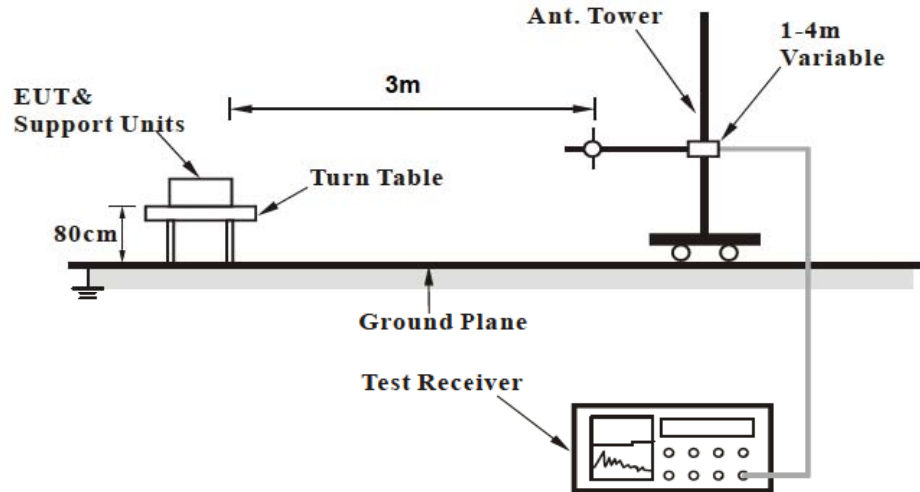
1. For average emissions measurements, follow the procedures described in section II.G.6., "Procedures for Average Unwanted Emissions Measurements above 1000 MHz", except for the following changes:
2. Set RBW=100 kHz
3. Set VBW=300 kHz
4. Perform a band-power integration across the 1 MHz bandwidth in which the band-edge emission level is to be measured.

3.2.4 Deviation from Test Standard

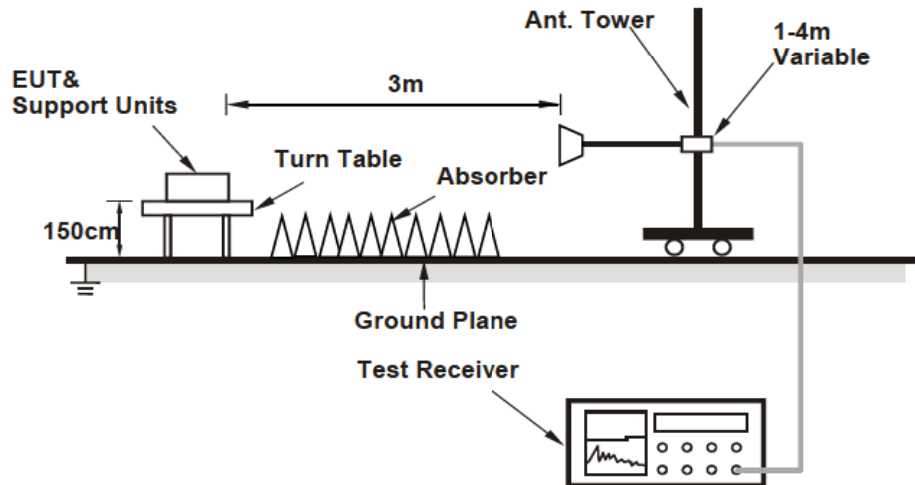
No deviation.

3.2.5 Test Setup

For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



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

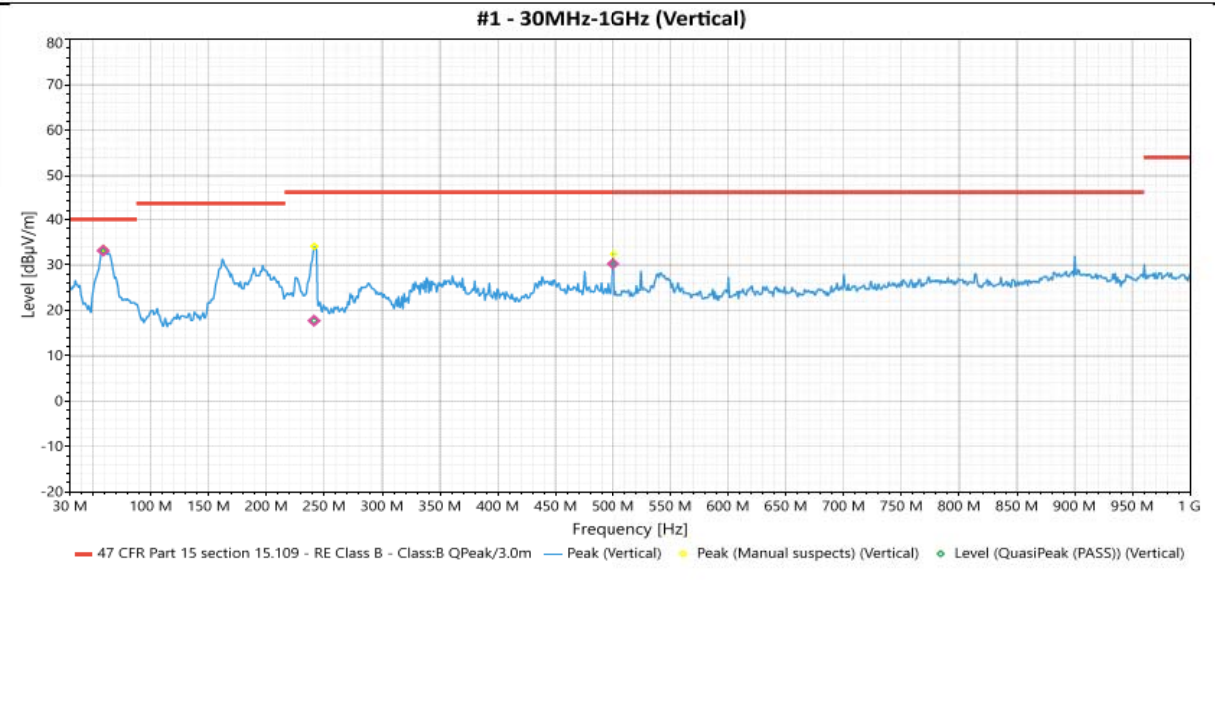
3.2.6 EUT Operating Condition

- Placed the EUT on the testing table.
- Prepared notebooks to act as communication partner and placed it outside of testing area.
- The communication partner connected with EUT via a USB cable and ran a test program (provided by manufacturer) to enable EUT under transmission condition continuously at specific channel frequency.
- The necessary accessories enable the system in full functions.

3.2.7 Test Results

Below 1GHz Worst-Case Data:

CHANNEL	802.11n Channel 52	DETECTOR FUNCTION	Quasi Peak
FREQUENCY RANGE	30MHz – 1GHz		



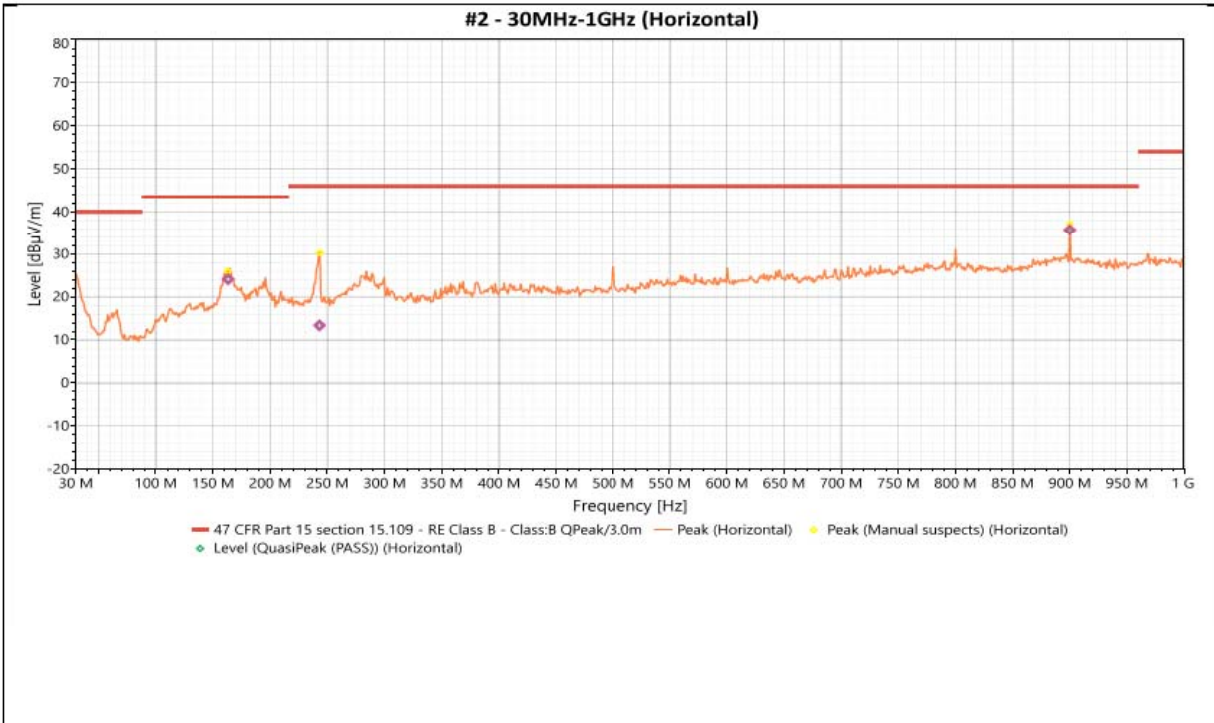
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level Peak[dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	59.01	Vertical	33.137	40	-6.863	1.25	262	-13.18	Pass
2	241.25	Vertical	17.713	46	-28.287	1.01	330	-8.15	Pass
3	500.03	Vertical	30.218	46	-15.782	1.01	9	-2.55	Pass

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Cable Loss (dB) + AF (dB)
2. AF (dB/m) = Antenna Factor (dB/m) – Preamplifier Gain (dB).
3. Margin = Level (dBuV/m) - Limit value(dBuV/m)

Below 1GHz Worst-Case Data:

CHANNEL	802.11n Channel 52	DETECTOR FUNCTION	Quasi Peak
FREQUENCY RANGE	30MHz – 1GHz		



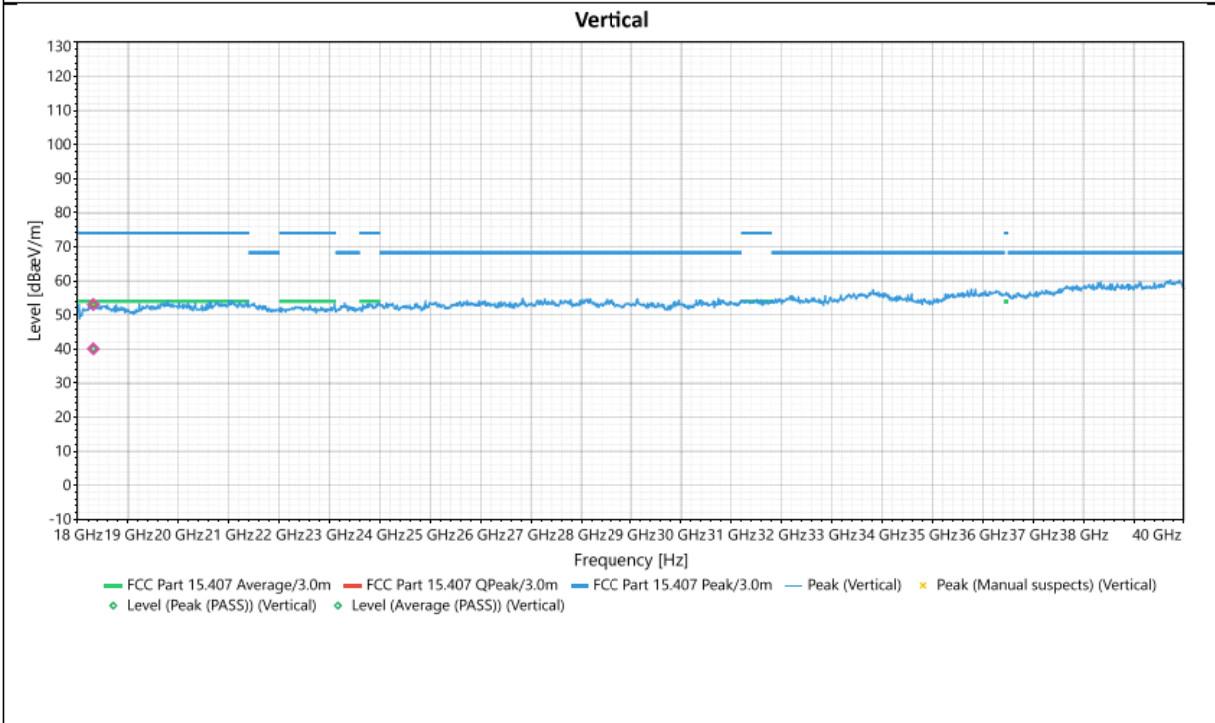
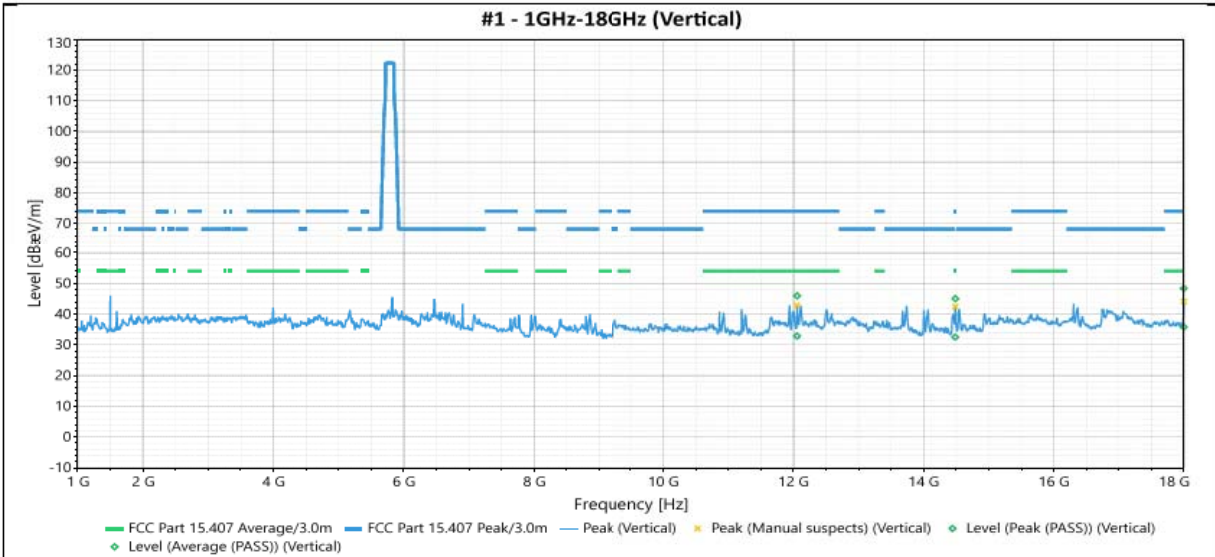
Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level Peak[dB(uV/m)]	Limit Peak dB(uV/m)	Margin Peak [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Pass/Fail
1	163.19	Horizontal	24.062	43.5	-19.438	1.26	255	-9.2	Pass
2	243.15	Horizontal	13.353	46	-32.647	1.14	353	-7.97	Pass
3	900.04	Horizontal	35.743	46	-10.257	1	351	4.91	Pass

REMARKS:

1. Emission level (dBuV/m) = Raw Value (dBuV) + Cable Loss (dB) + AF (dB)
2. AF (dB/m) = Antenna Factor (dB/m) – Preamplifier Gain (dB).
3. Margin = Level (dBuV/m) - Limit value(dBuV/m)

Above 1GHz Test Data:

CHANNEL	802.11a 5180 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

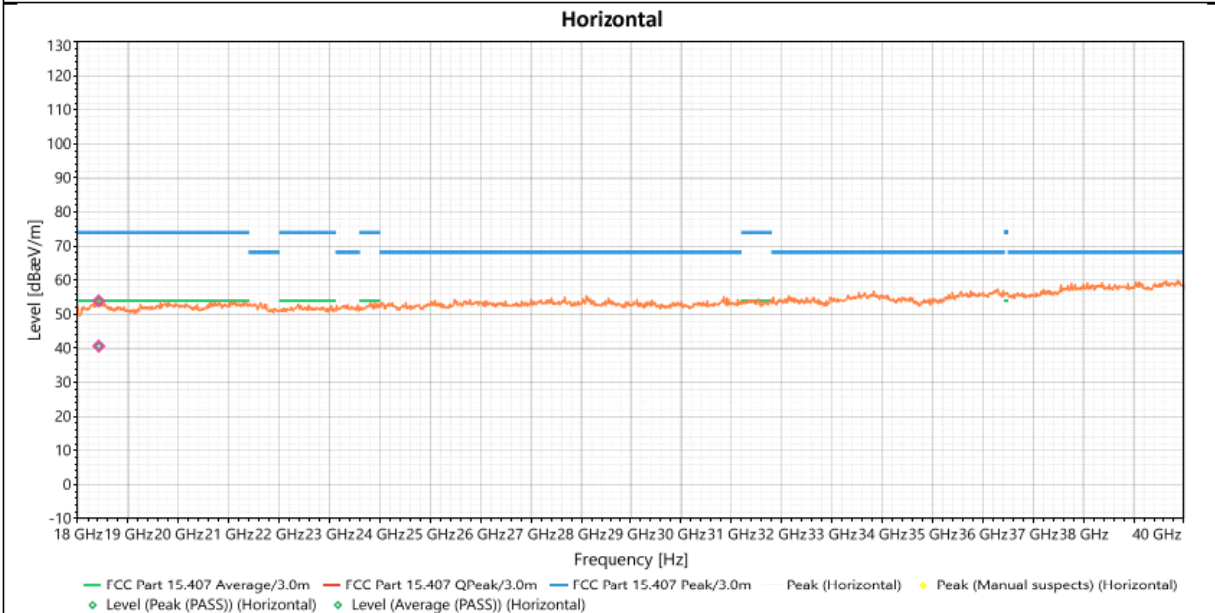
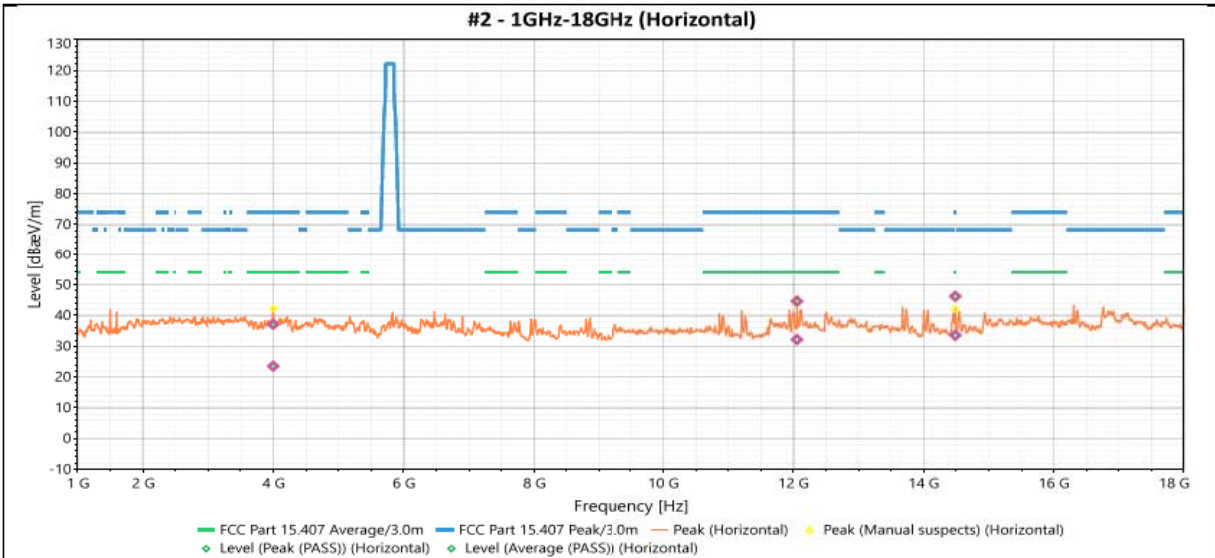


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	12055	Vertical	45.963	74	-28.037	3.22	282	7.48	Peak (PASS)
2	12055	Vertical	32.85	54	-21.15	3.22	282	7.48	Average (PASS)
3	14486	Vertical	45.029	74	-28.971	1.53	236	6.7	Peak (PASS)
4	14486	Vertical	32.502	54	-21.498	1.53	236	6.7	Average (PASS)
5	17996.5	Vertical	48.353	74	-25.647	1.42	345	6.82	Peak (PASS)
6	17996.5	Vertical	35.805	54	-18.195	1.42	345	6.82	Average (PASS)
7	18310.19	Vertical	53.03	74	-20.97	1	328	6.69	Peak (PASS)
8	18310.19	Vertical	40.039	54	-13.961	1	328	6.69	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

Frequency	802.11a 5180 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

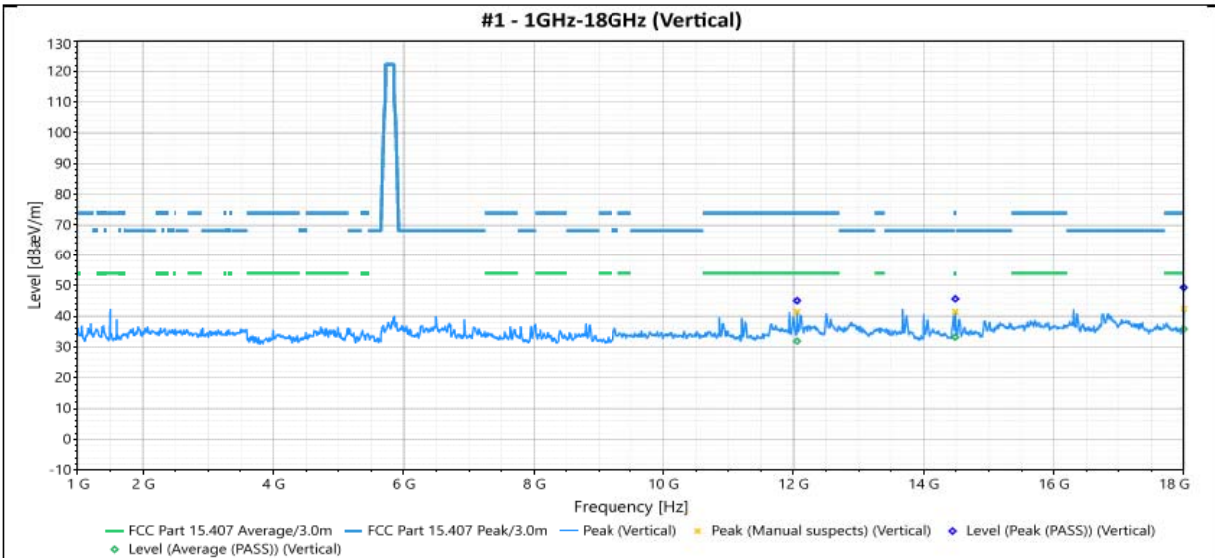


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	3998.7	Horizontal	37.108	74	-36.892	2.31	328	3.27	Peak (PASS)
2	3998.7	Horizontal	23.498	54	-30.502	2.31	328	3.27	Average (PASS)
3	12053.3	Horizontal	44.599	74	-29.401	2.42	214	7.51	Peak (PASS)
4	12053.3	Horizontal	32.14	54	-21.86	2.42	214	7.51	Average (PASS)
5	14486	Horizontal	46.189	74	-27.811	3.12	290	6.83	Peak (PASS)
6	14486	Horizontal	33.529	54	-20.471	3.12	290	6.83	Average (PASS)
7	18417.9	Horizontal	53.921	74	-20.079	1.44	127	6.46	Peak (PASS)
8	18417.9	Horizontal	40.663	54	-13.337	1.44	127	6.46	Average (PASS)

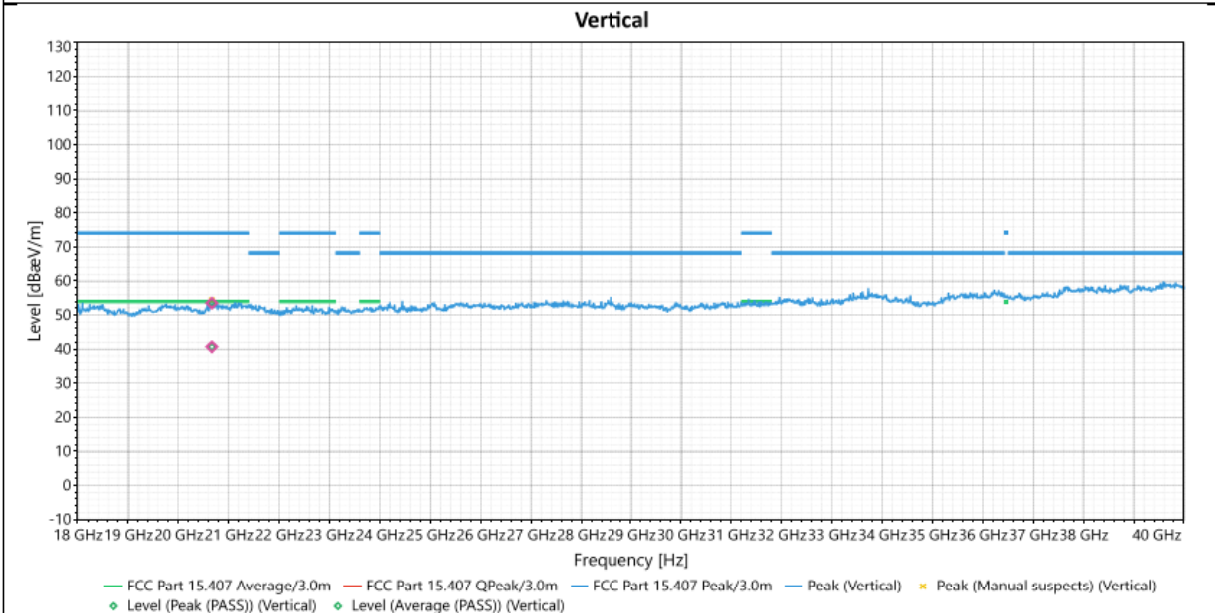
REMARKS:

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	802.11a 5200 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		



V

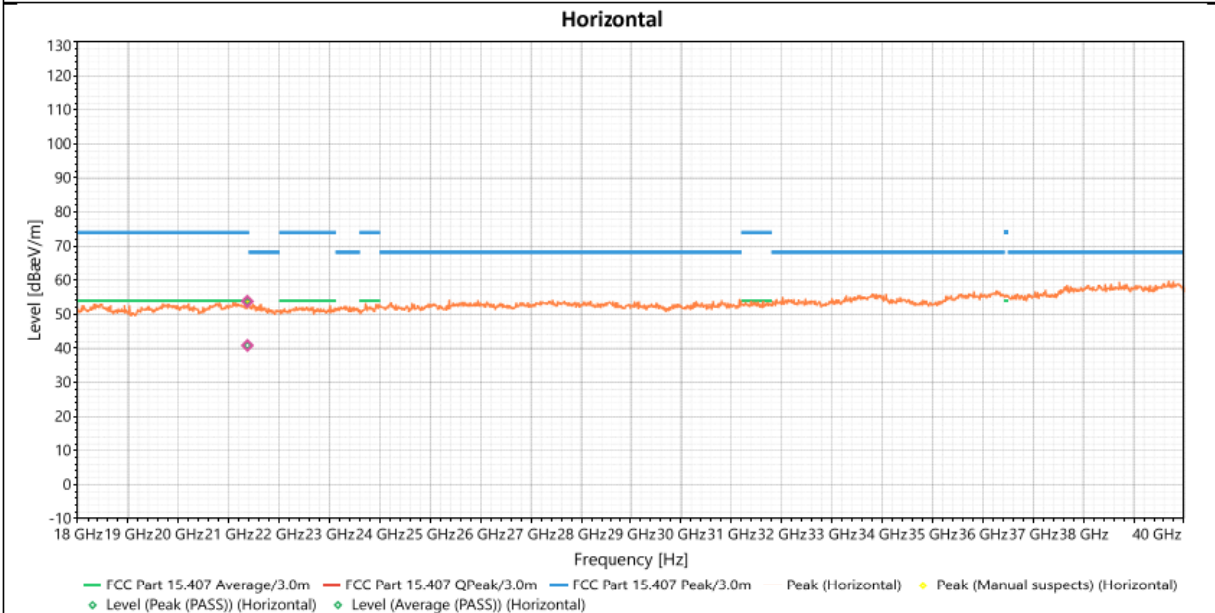
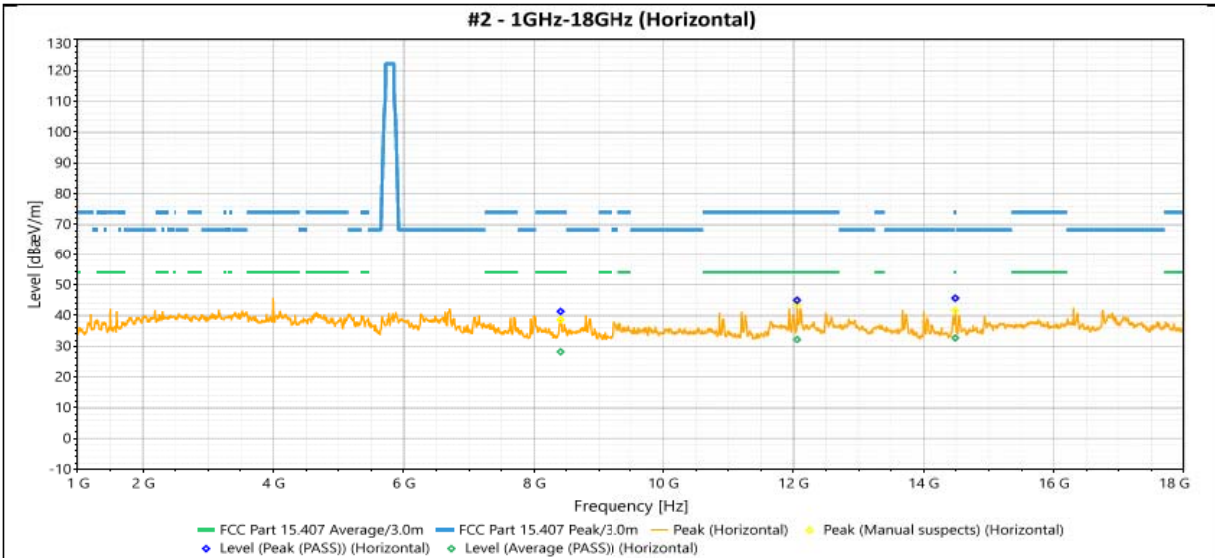


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	12055	Vertical	45.02	74	-28.98	1.17	220	7.48	Peak (PASS)
2	12055	Vertical	31.861	54	-22.139	1.17	220	7.48	Average (PASS)
3	14486	Vertical	45.612	74	-28.388	3.34	322	6.7	Peak (PASS)
4	14486	Vertical	33.149	54	-20.851	3.34	322	6.7	Average (PASS)
5	17996.5	Vertical	49.293	74	-24.707	3.5	274	6.82	Peak (PASS)
6	17996.5	Vertical	35.812	54	-18.188	3.5	274	6.82	Average (PASS)
7	21368.1	Vertical	53.803	74	-20.197	1.34	357	8.19	Peak (PASS)
8	21368.1	Vertical	40.865	54	-13.135	1.34	357	8.19	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	802.11a 5200 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

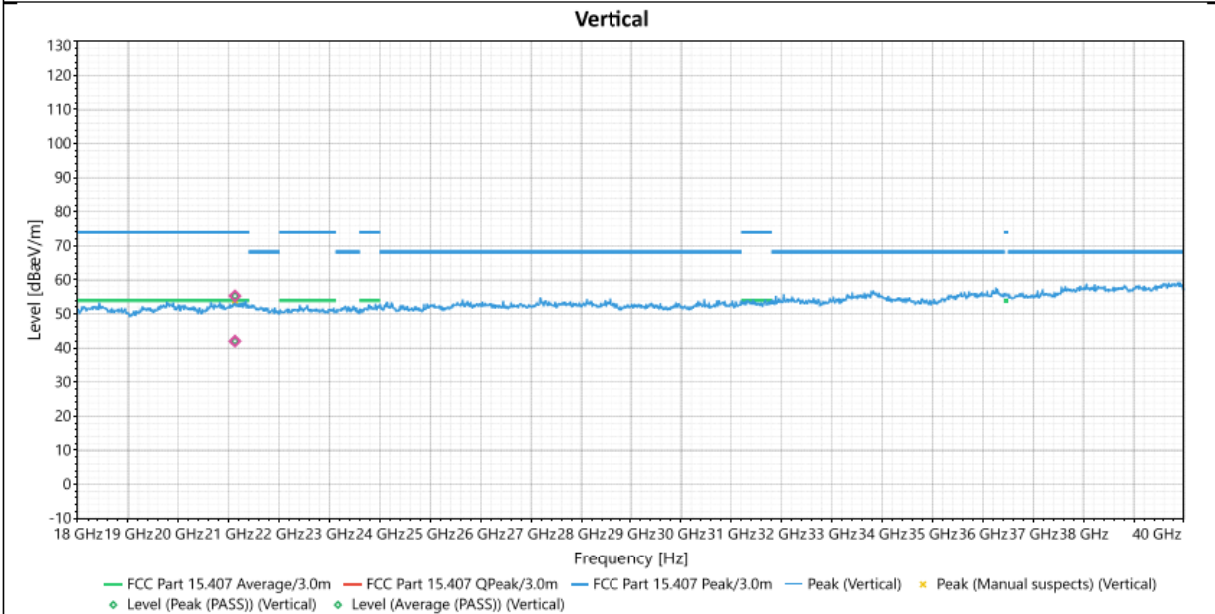
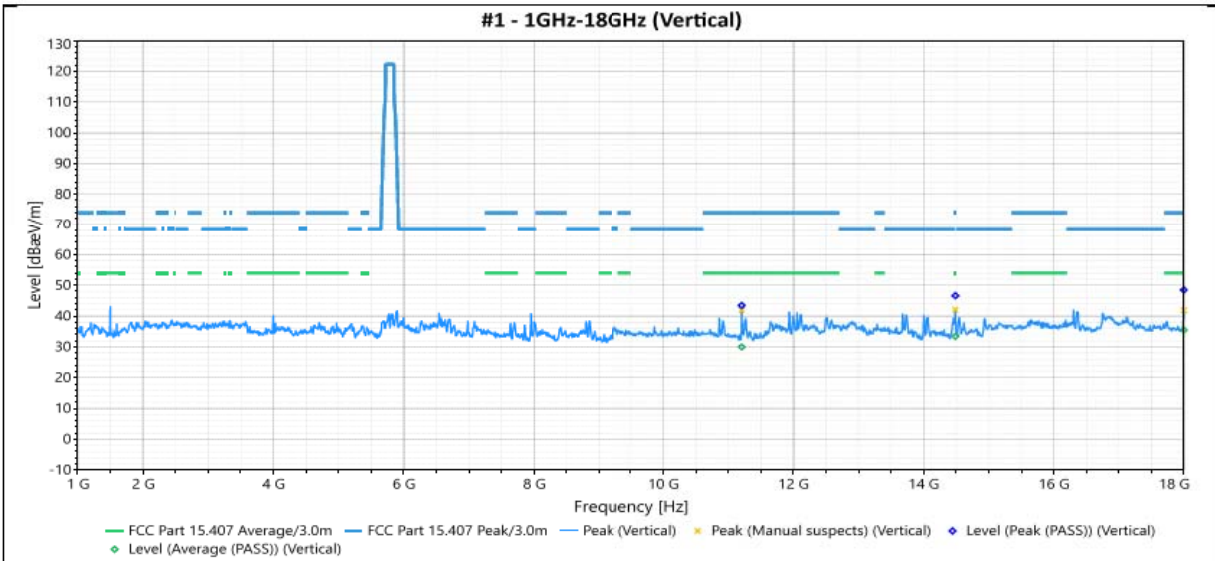


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	8408.5	Horizontal	41.282	74	-32.718	1.09	143	5.74	Peak (PASS)
2	8408.5	Horizontal	28.173	54	-25.827	1.09	143	5.74	Average (PASS)
3	12055	Horizontal	44.906	74	-29.094	1.11	145	7.51	Peak (PASS)
4	12055	Horizontal	32.156	54	-21.844	1.11	145	7.51	Average (PASS)
5	14486	Horizontal	45.593	74	-28.407	1.9	165	6.83	Peak (PASS)
6	14486	Horizontal	32.641	54	-21.359	1.9	165	6.83	Average (PASS)
7	21368.1	Horizontal	53.803	74	-20.197	1.34	357	8.19	Peak (PASS)
8	21368.1	Horizontal	40.865	54	-13.135	1.34	357	8.19	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	802.11a 5240 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

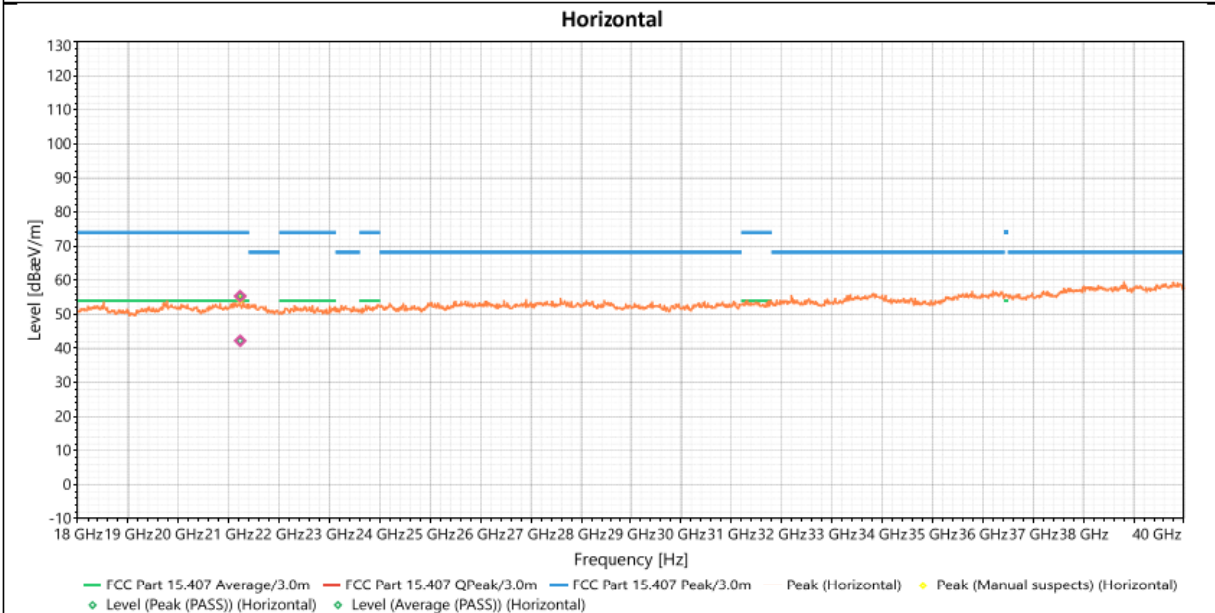
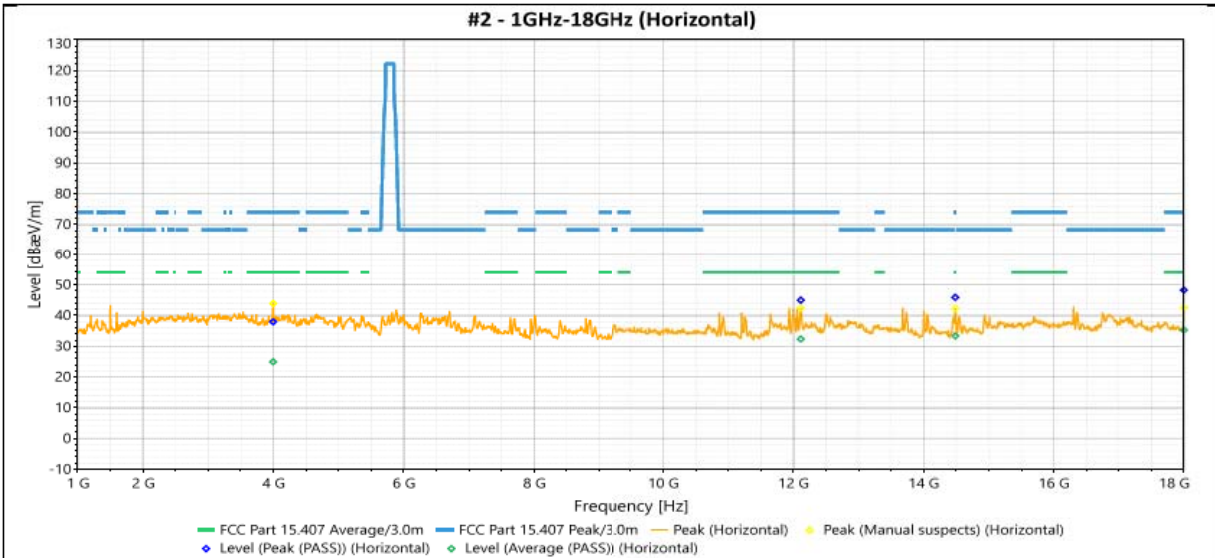


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	11205	Vertical	43.427	74	-30.573	2.09	22	6.52	Peak (PASS)
2	11205	Vertical	29.963	54	-24.037	2.09	22	6.52	Average (PASS)
3	14487.7	Vertical	46.609	74	-27.391	3.27	239	6.71	Peak (PASS)
4	14487.7	Vertical	33.397	54	-20.603	3.27	239	6.71	Average (PASS)
5	17996.5	Vertical	48.464	74	-25.536	2.63	7	6.82	Peak (PASS)
6	17996.5	Vertical	35.453	54	-18.547	2.63	7	6.82	Average (PASS)
7	21121.7	Vertical	55.278	74	-18.722	1.02	85	8.59	Peak (PASS)
8	21121.7	Vertical	42.022	54	-11.978	1.02	85	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 against

Frequency	802.11a 5240 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

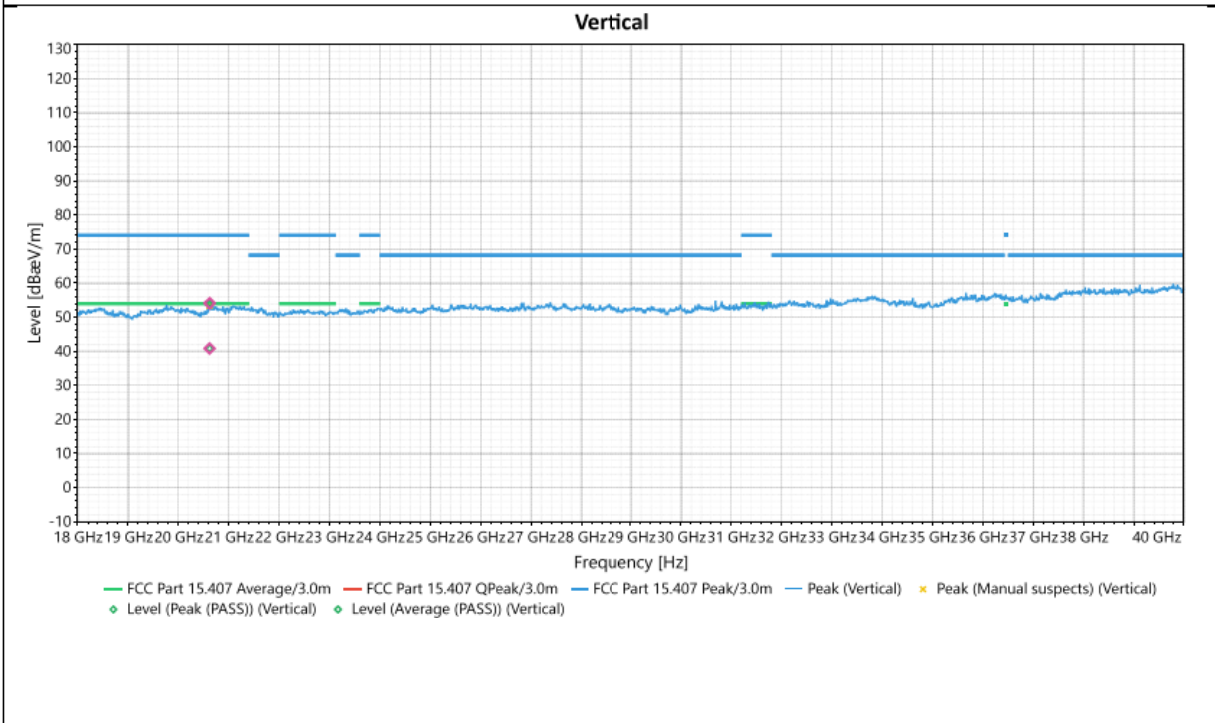
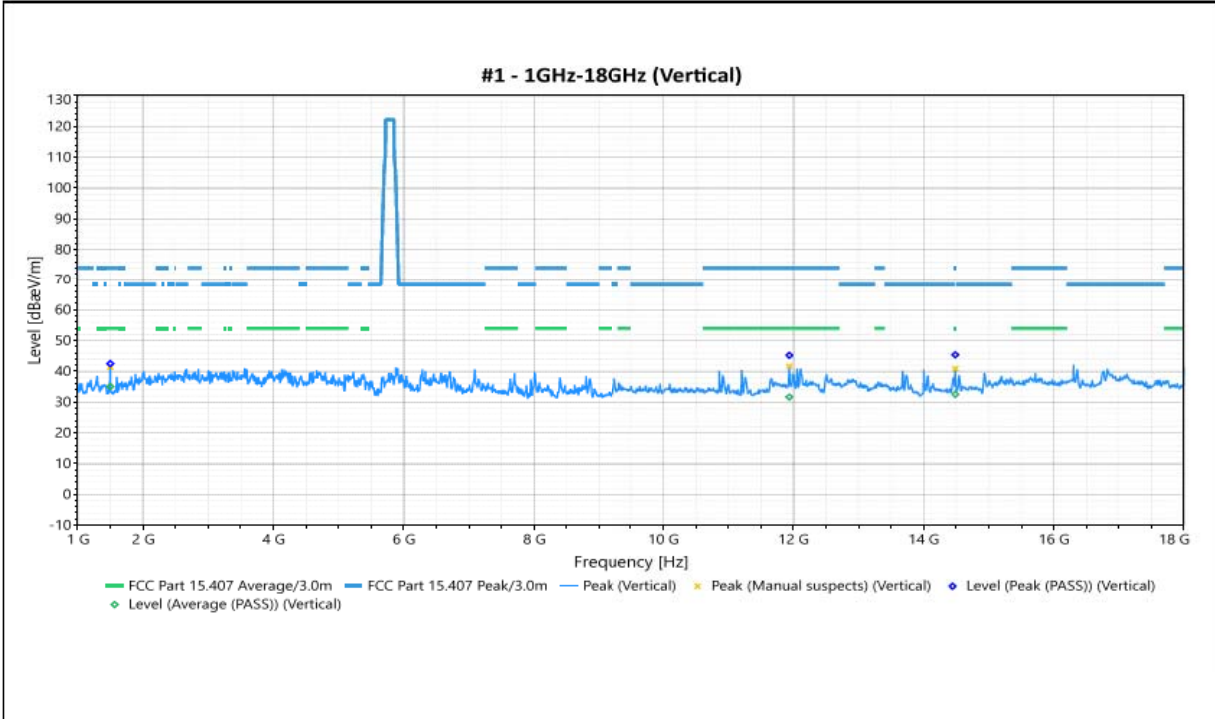


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	3998.7	Horizontal	37.906	74	-36.094	1.02	319	3.27	Peak (PASS)
2	3998.7	Horizontal	24.915	54	-29.085	1.02	319	3.27	Average (PASS)
3	12112.8	Horizontal	44.956	74	-29.044	1.3	15	7.55	Peak (PASS)
4	12112.8	Horizontal	32.311	54	-21.689	1.3	15	7.55	Average (PASS)
5	14486	Horizontal	45.854	74	-28.146	3.15	167	6.83	Peak (PASS)
6	14486	Horizontal	33.32	54	-20.68	3.15	167	6.83	Average (PASS)
7	17996.5	Horizontal	48.215	74	-25.785	2.68	19	6.64	Peak (PASS)
8	17996.5	Horizontal	35.228	54	-18.772	2.68	19	6.64	Average (PASS)
9	21225.1	Horizontal	55.317	74	-18.683	1.46	343	8.34	Peak (PASS)
10	21225.1	Horizontal	42.229	54	-11.771	1.46	343	8.34	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	802.11a 5260 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

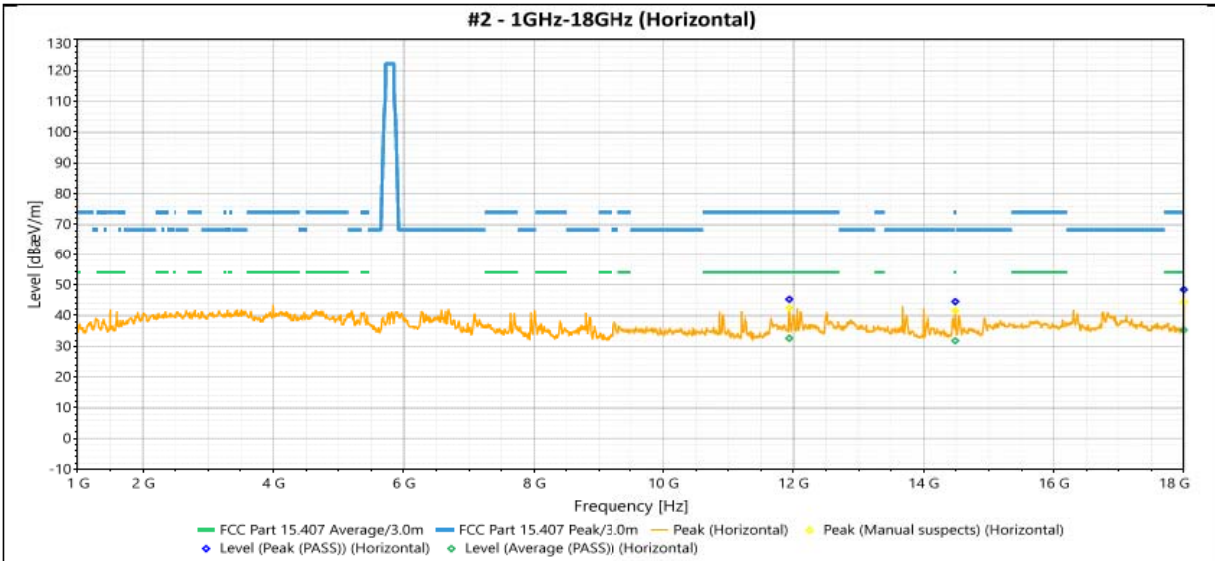


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	1499.7	Vertical	42.468	74	-31.532	1	357	-2.5	Peak (PASS)
2	1499.7	Vertical	35.035	54	-18.965	1	357	-2.5	Average (PASS)
3	11936	Vertical	45.166	74	-28.834	2.91	140	7.43	Peak (PASS)
4	11936	Vertical	31.606	54	-22.394	2.91	140	7.43	Average (PASS)
5	14486	Vertical	45.352	74	-28.648	3.21	191	6.7	Peak (PASS)
6	14486	Vertical	32.53	54	-21.47	3.21	191	6.7	Average (PASS)
7	20618.05	Vertical	54.072	74	-19.928	1.14	160	8.4	Peak (PASS)
8	20618.05	Vertical	40.807	54	-13.193	1.14	160	8.4	Average (PASS)

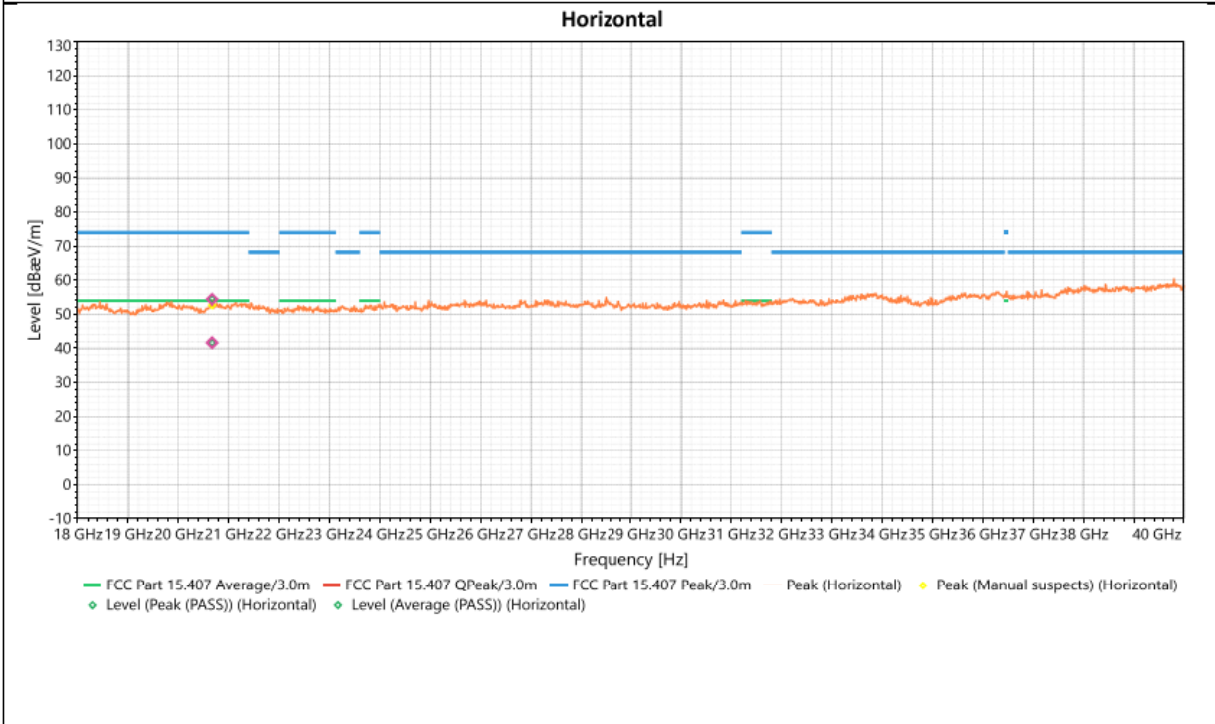
REMARKS:

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

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



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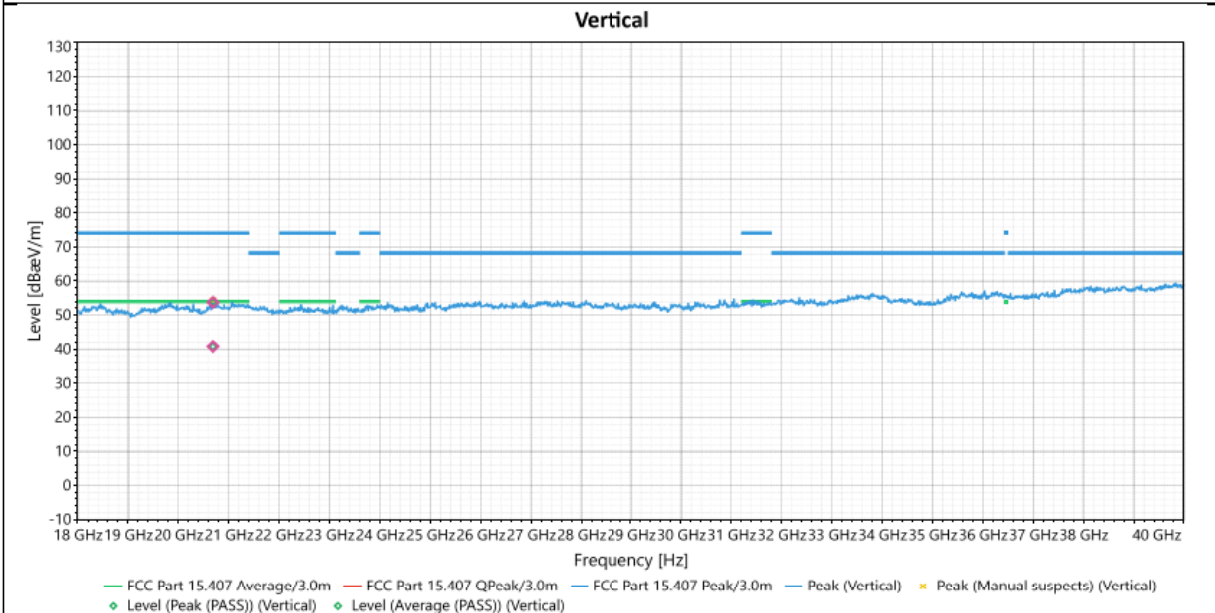
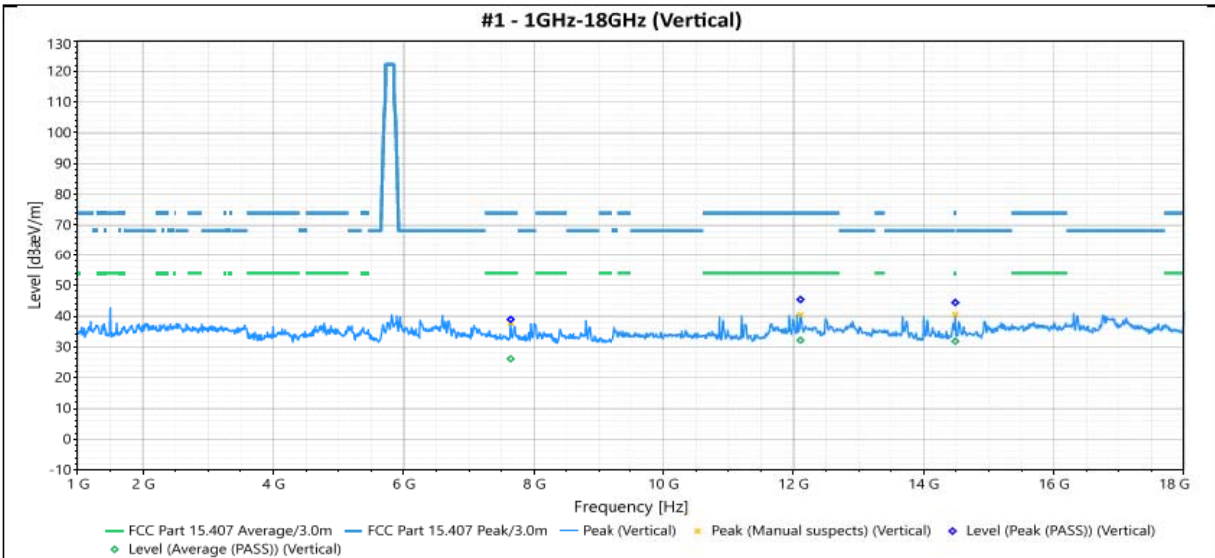


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	11936	Horizontal	45.187	74	-28.813	3.2	0	7.46	Peak (PASS)
2	11936	Horizontal	32.547	54	-21.453	3.2	0	7.46	Average (PASS)
3	14486	Horizontal	44.466	74	-29.534	1	8	6.83	Peak (PASS)
4	14486	Horizontal	31.748	54	-22.252	1	8	6.83	Average (PASS)
5	17996.5	Horizontal	48.361	74	-25.639	1.8	162	6.64	Peak (PASS)
6	17996.5	Horizontal	35.262	54	-18.738	1.8	162	6.64	Average (PASS)
7	20668.5	Horizontal	54.423	74	-19.577	1.89	50	8.33	Peak (PASS)
8	20668.5	Horizontal	41.655	54	-12.345	1.89	50	8.33	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	802.11a 5280 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

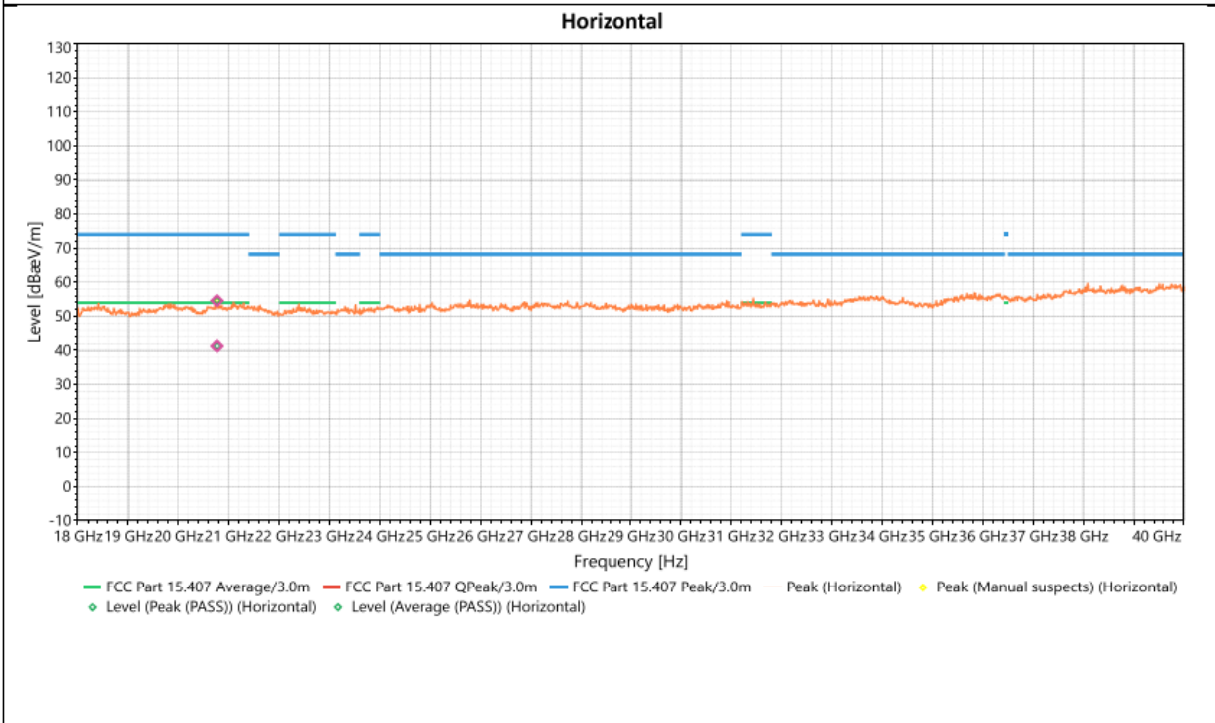
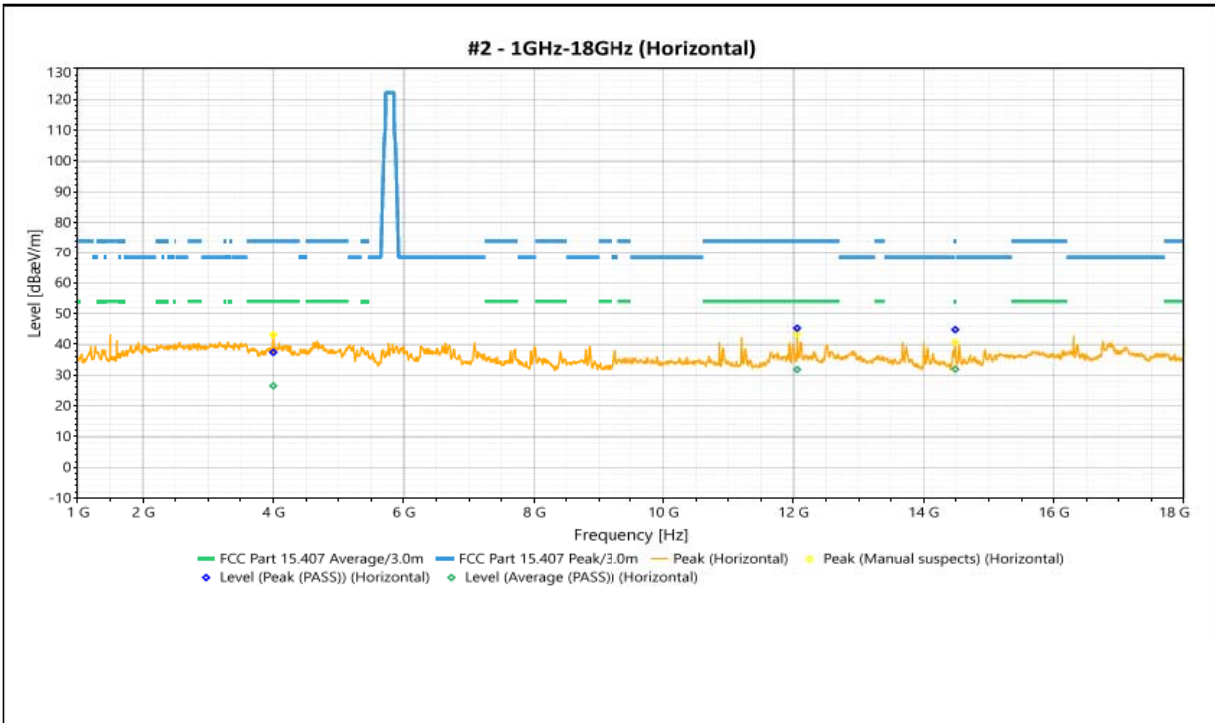


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	7641.8	Vertical	38.941	74	-35.059	1.28	82	5.84	Peak (PASS)
2	7641.8	Vertical	26.132	54	-27.868	1.28	82	5.84	Average (PASS)
3	12107.7	Vertical	45.376	74	-28.624	1.03	173	7.54	Peak (PASS)
4	12107.7	Vertical	32.168	54	-21.832	1.03	173	7.54	Average (PASS)
5	14486	Vertical	44.385	74	-29.615	2.04	14	6.7	Peak (PASS)
6	14486	Vertical	31.84	54	-22.16	2.04	14	6.7	Average (PASS)
7	20686.24	Vertical	53.707	74	-20.293	1.49	314	8.45	Peak (PASS)
8	20686.24	Vertical	40.773	54	-13.227	1.49	314	8.45	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	802.11a 5280 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

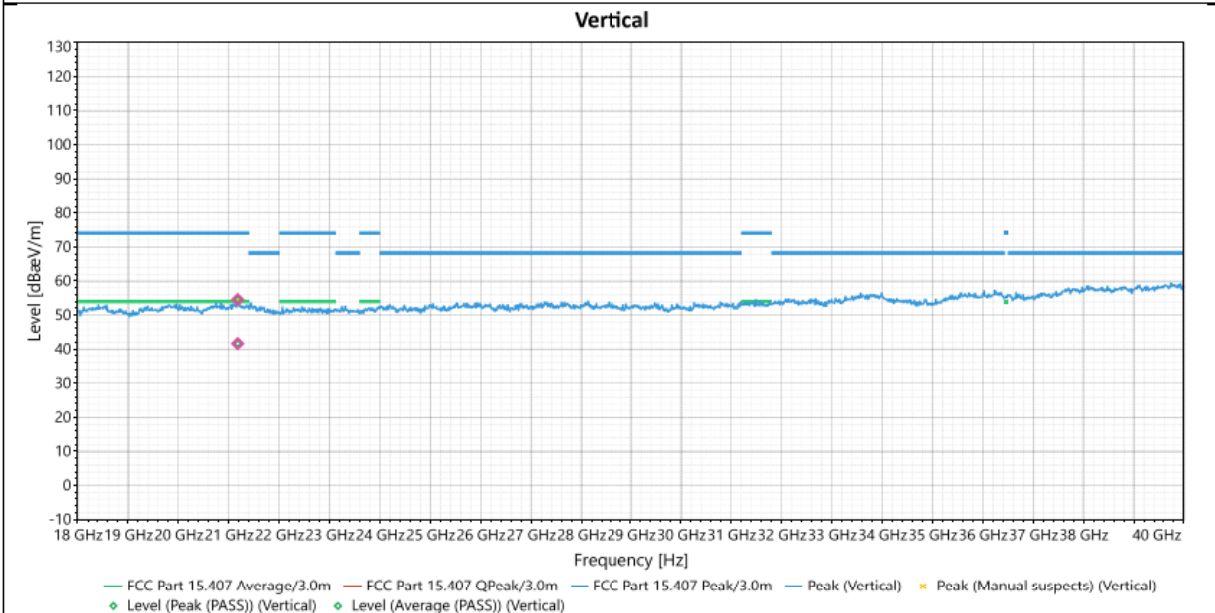
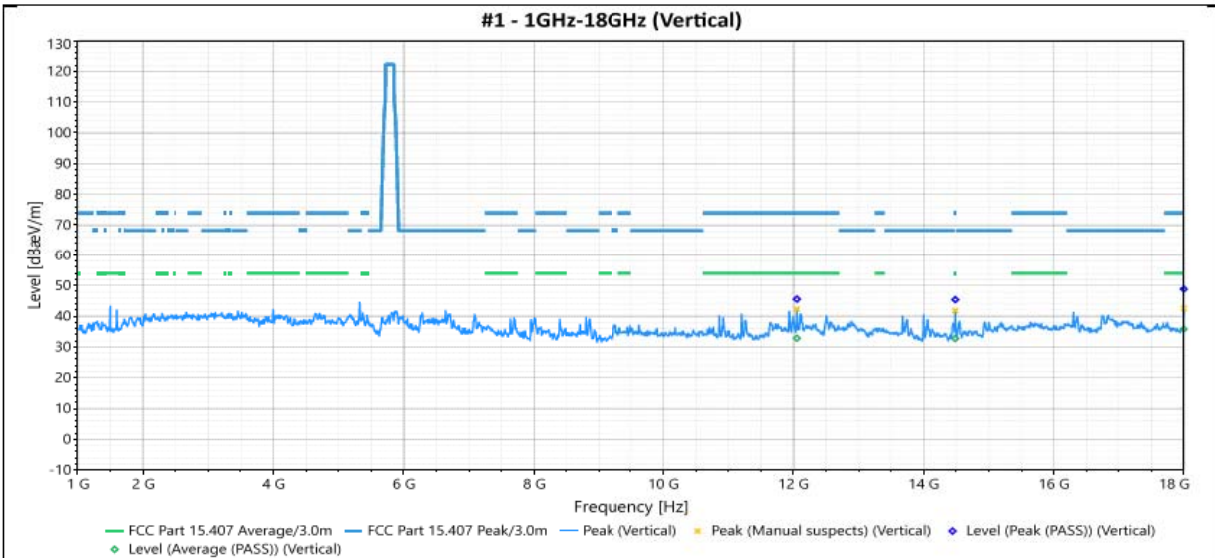


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	4000.4	Horizontal	37.357	74	-36.643	1	226	3.27	Peak (PASS)
2	4000.4	Horizontal	26.493	54	-27.507	1	226	3.27	Average (PASS)
3	12056.7	Horizontal	45.216	74	-28.784	1.04	142	7.51	Peak (PASS)
4	12056.7	Horizontal	31.807	54	-22.193	1.04	142	7.51	Average (PASS)
5	14486	Horizontal	44.741	74	-29.259	1.65	31	6.83	Peak (PASS)
6	14486	Horizontal	31.915	54	-22.085	1.65	31	6.83	Average (PASS)
7	20765.3	Horizontal	54.571	74	-19.429	1.55	262	8.44	Peak (PASS)
8	20765.3	Horizontal	41.306	54	-12.694	1.55	262	8.44	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	802.11a 5320 MHz	DETECTOR FUNCTION	Prak/Average
FREQUENCY RANGE	1GHz-40GHz		

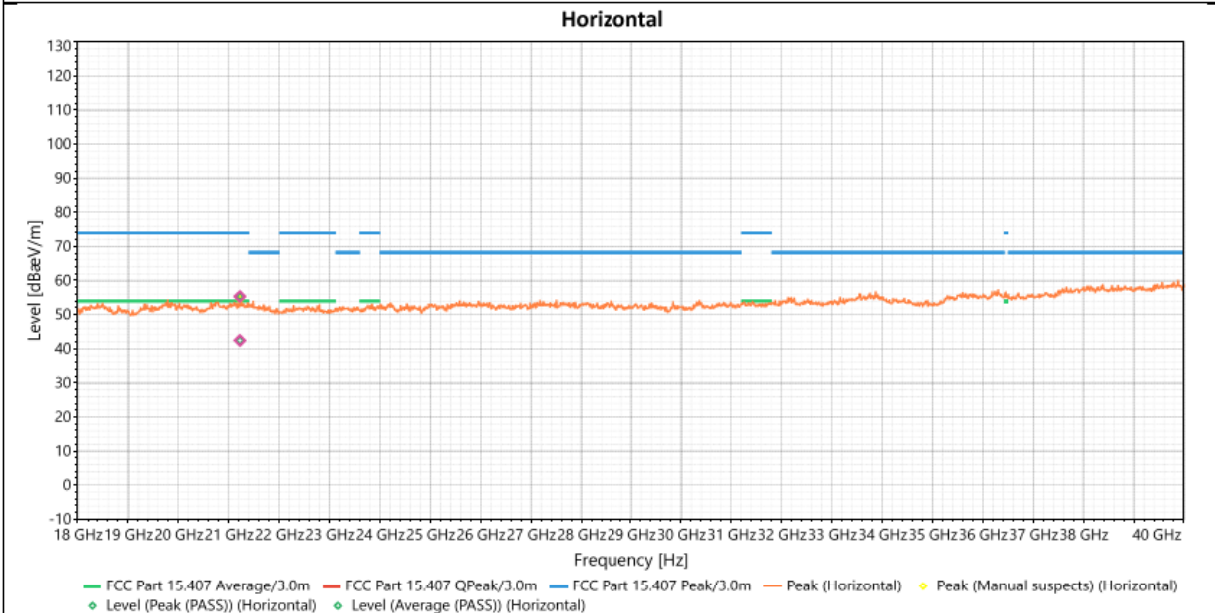
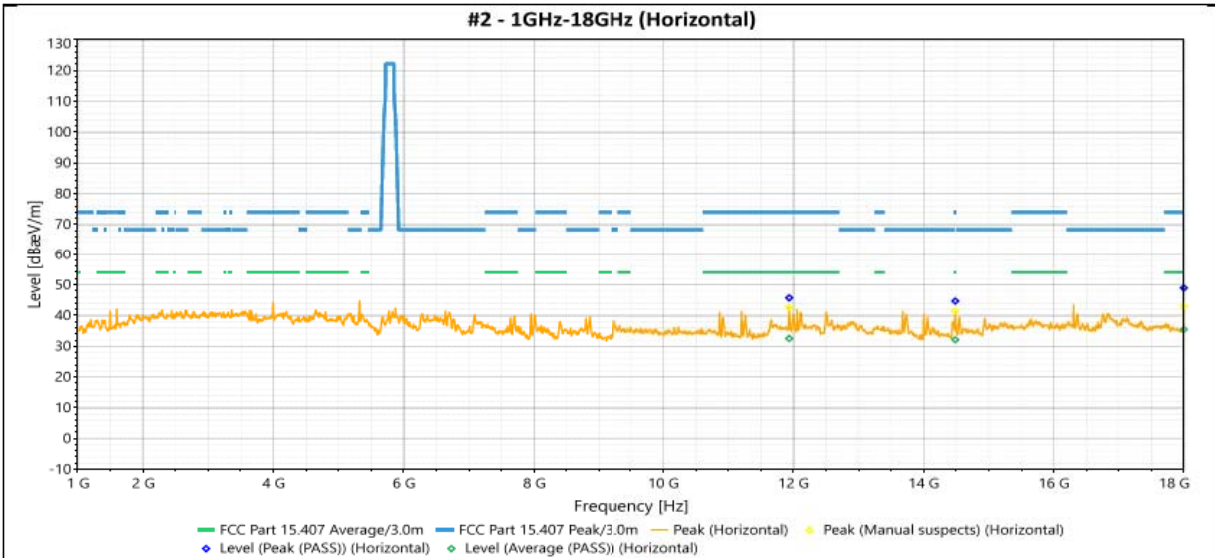


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	12053.3	Vertical	45.542	74	-28.458	3.09	231	7.48	Peak (PASS)
2	12053.3	Vertical	32.802	54	-21.198	3.09	231	7.48	Average (PASS)
3	14486	Vertical	45.348	74	-28.652	3.14	340	6.7	Peak (PASS)
4	14486	Vertical	32.723	54	-21.277	3.14	340	6.7	Average (PASS)
5	17996.5	Vertical	48.831	74	-25.169	3.17	285	6.82	Peak (PASS)
6	17996.5	Vertical	35.818	54	-18.182	3.17	285	6.82	Average (PASS)
7	21176.78	Vertical	54.549	74	-19.451	2	74	8.5	Peak (PASS)
8	21176.78	Vertical	41.622	54	-12.378	2	74	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

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

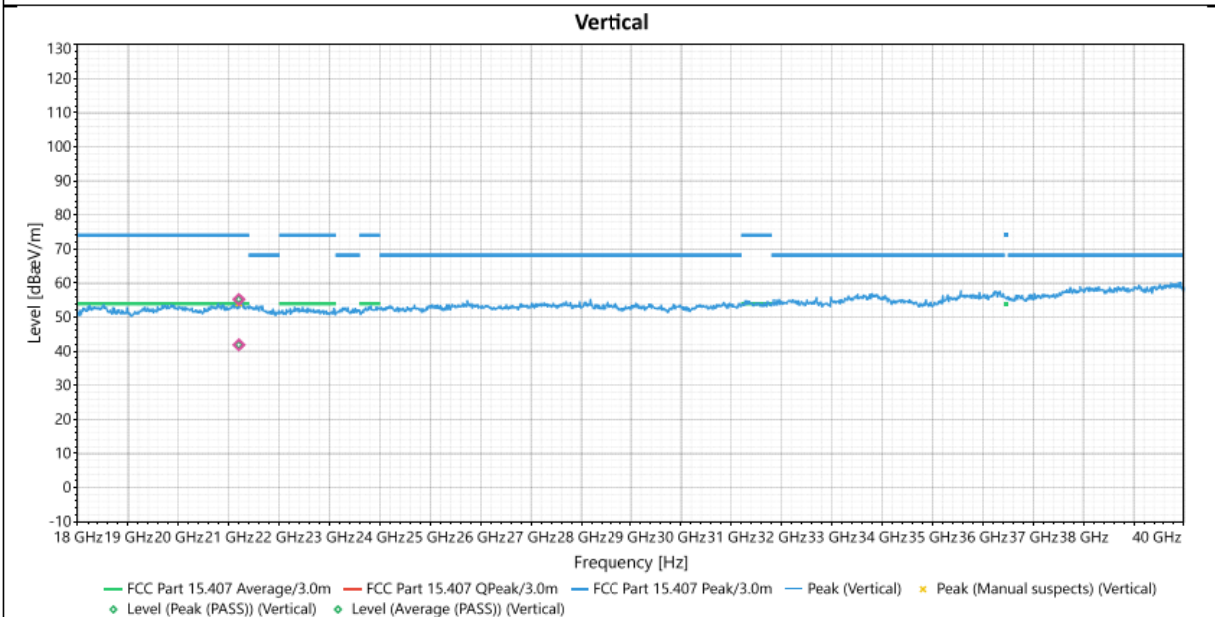
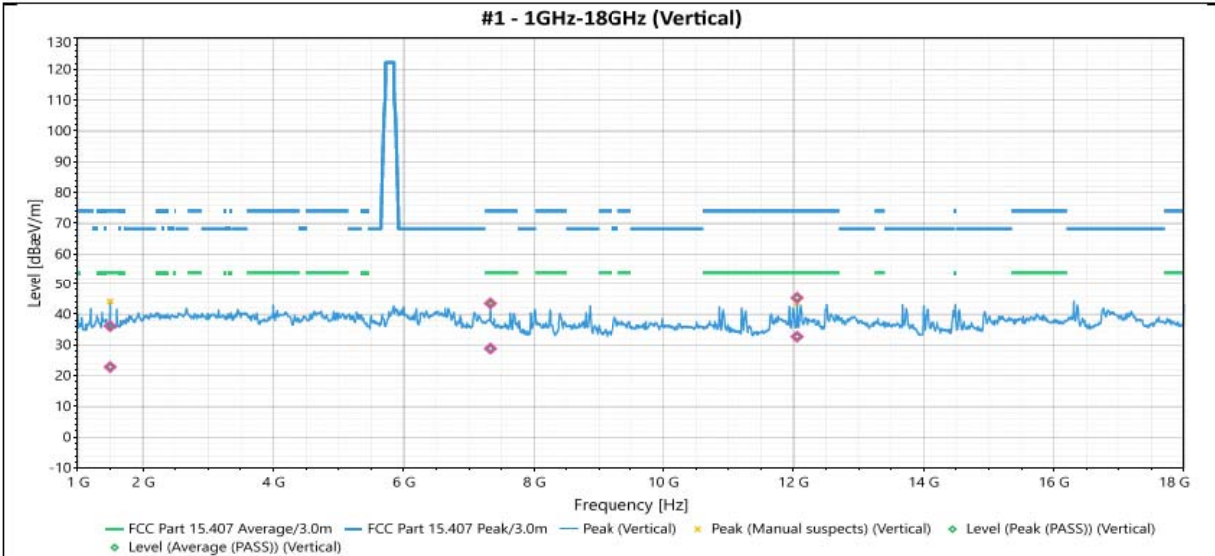


Antenna Polarity & Test Distance: Vertical at 3m									
No.	Frequency (MHz)	Polarization	Level [dB(uV/m)]	Limit dB(uV/m)	Margin [dB]	Height (m)	Angle (Deg)	Factor [dB(1/m)]	Measure Type/ Result
1	11934.3	Horizontal	45.687	74	-28.313	2.96	156	7.46	Peak (PASS)
2	11934.3	Horizontal	32.511	54	-21.489	2.96	156	7.46	Average (PASS)
3	14486	Horizontal	44.661	74	-29.339	2.6	99	6.83	Peak (PASS)
4	14486	Horizontal	32.095	54	-21.905	2.6	99	6.83	Average (PASS)
5	17996.5	Horizontal	48.912	74	-25.088	3	158	6.64	Peak (PASS)
6	17996.5	Horizontal	35.444	54	-18.556	3	158	6.64	Average (PASS)
7	21220.7	Horizontal	55.297	74	-18.703	1	119	8.34	Peak (PASS)
8	21220.7	Horizontal	42.416	54	-11.584	1	119	8.34	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	802.11a 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	1498	Vertical	36.126	74	-37.874	1.92	0	-2.49	Peak (PASS)
2	1498	Vertical	22.84	54	-31.16	1.92	0	-2.49	Average (PASS)
3	7332.4	Vertical	43.497	74	-30.503	1.33	0	5.88	Peak (PASS)
4	7332.4	Vertical	28.822	54	-25.178	1.33	0	5.88	Average (PASS)
5	12055	Vertical	45.326	74	-28.674	3.35	203	7.48	Peak (PASS)
6	12055	Vertical	32.692	54	-21.308	3.35	203	7.48	Average (PASS)
7	21198.8	Vertical	55.204	74	-18.796	1.64	188	8.46	Peak (PASS)
8	21198.8	Vertical	41.871	54	-12.129	1.64	188	8.46	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