

FCC IC Test Report

(Class II permissive change report for change of internal antenna)

Report No.: FCC_IC_RF_SL21050301-SLX-014_5G Rev.4

FCC ID: STJ-SDMAC

IC ID: 5627A-SDMAC

Test Model: Plum WiFi

HMN: Plum Duo

Received Date: 08/16/2021

Test Date: 08/23/2021-11/17/2021

Issued Date: 04/14/2022

Applicant: ICU Medical Inc.

Address: 951 Calle Amanecer, San Clemente, CA 92673

Issued By: Bureau Veritas Consumer Products Services, Inc.

Lab Address: 775 Montague Expressway, Milpitas, CA 95035, USA

Test Location (1): 775 Montague Expressway, Milpitas, CA 95035, USA

**FCC Registration /
Designation Number:** 540430

ISED# / CAB identifier: 4842D



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Release Control Record

Issue No.	Description	Date Issued
FCC_IC_RF_SL21050301-SLX-014_5G	Original release	3/18/2021
FCC_IC_RF_SL21050301-SLX-014_5G Rev.1	Added Band Edge measurements.	12/27/21
FCC_IC_RF_SL21050301-SLX-014_5G Rev.2	Updated in formation on Section 3.1	04/11/2022
FCC_IC_RF_SL21050301-SLX-014_5G Rev.3	Change limit from 15.209 to 15.407(b)(1-3)	04/14/22
FCC_IC_RF_SL21050301-SLX-014_5G Rev.4	Updated Model	04/14/22

1 Certificate of Conformity

Product: Plum Duo (with embedded radio module)

Brand: Plum

HMN: Plum Duo

Test Model: Plum WiFi

Sample Status: Production Sample

Purpose of the testing: Change of internal antenna

Applicant: ICU Medical Inc.

Test Date: 08/23/2021-11/17/2021

Standards: 47 CFR FCC Part 15, Subpart C (Section 15.247)

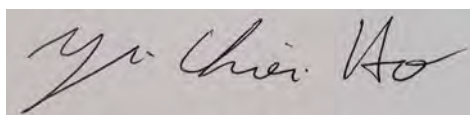
RSS 247 Issue2, February 2017

ANSI C63.10: 2013

RSS Gen Issue5, March 2019

The above equipment has been tested by **Bureau Veritas Consumer Products Services, Inc. Milpitas Branch**, and found compliance with the requirement of the above standards. The test record, data evaluation & Equipment Under Test (EUT) configurations represented herein are true and accurate accounts of the measurements of the sample's EMC characteristics under the conditions specified in this report.

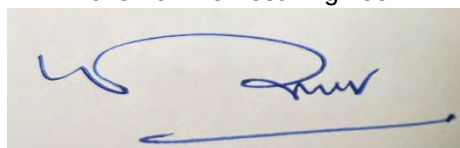
Prepared by :



, Date: 04/14/2022

Yu-Chien Ho Test Engineer

Approved by :



, Date: 04/14/2022

Suresh Kondapalli Engineer Reviewer

2 Summary of Test Results

47 CFR FCC Part 15, Subpart E (Section 15.407) RSS 247 Issue 2			
FCC/ISED Clause	Test Item	Result	Remarks
15.407(b)(6)	AC Power Conducted Emissions	N/A	N/A
15.407 (b)(1/2/3/4(i/ii)/6) RSS 247 (6.2)	Radiated Emissions Measurement* and Band Edge Measurement	Pass	Meet the requirement of limit.
15.407/RSS 247	Max Average Transmit Power	NA	N/A
---	Occupied Bandwidth Measurement	N/A	N/A
15.407/RSS 247	Peak Power Spectral Density	N/A	N/A
15.407/RSS 247	6dB bandwidth	N/A	N/A
15.407/RSS 247	Frequency Stability	N/A	N/A
15.203	Antenna Requirement	Pass	Internal to the device

Note: N/A: Please refer to FCC ID: N6C-PMACS and IC: 4908A-PMACS test report no. ER/2017/70043.

2.1 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:

Measurement	Frequency	Expanded Uncertainty (k=2) (±)
Conducted Emissions at mains ports	150kHz ~ 30MHz	3.51dB
Radiated Emissions up to 1 GHz	30MHz ~ 1GHz	3.73dB
Radiated Emissions above 1 GHz	1GHz ~ 6GHz	4.64dB
	6GHz ~ 18GHz	4.82dB
	18GHz ~ 40GHz	4.91dB

2.2 Modification Record

There were no modifications required for compliance.

3 General Information

3.1 General Description of EUT

Product	Plum Duo (with embedded radio module)
Brand	Plum
HMN	
Test Model	40002
Series Model	N/A
Status of EUT	Production Sample
Power Supply Rating	The EUT consumes power from host, which is designed with AC power supply rating of 100-240Vac, 50/60Hz
Modulation Type	CCK, DQPSK, DBPSK for DSSS 64QAM, 16QAM, QPSK, BPSK, 256QAM for OFDM
Modulation Technology	DSSS, OFDM
Transfer Rate	802.11a: 6/9/12/18/24/36/48/54 Mbps 802.11n: MCS 0/1/2/3/4/5/6/7 802.11ac: MCS 0/1/2/3/4/5/6/7/8/9
Operating Frequency	5150 ~ 5350MHz and 5470 ~ 5725MHz
Number of Channel	12 for 802.11a, 12 for 802.11n (HT20) 12 for 802.11ac (VHT20) 12 for 802.11n (HT40) 9 for 802.11ac (VHT40) 5 for 802.11ac (VHT80)
Antenna Type	High efficiency FPC antenna for low band and high band Wi-Fi
Antenna Gain	5.18 – 5.8 GHz, Peak Gain (dBi) 4.45
Antenna Connection	Internal to the device

Note:

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

3.2 Description of Test Modes

12 channels are provided for 802.11a:

Channel	Frequency	Channel	Frequency
36	5180 MHz	100	5550 MHz
44	5220 MHz	116	5580 MHz
48	5240 MHz	140	5700 MHz
52	5260 MHz	149	5745 MHz
60	5300 MHz	157	5785 MHz
64	5320 MHz	165	5825 MHz

12 channels are provided for 802.11n (HT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	100	5550 MHz
44	5220 MHz	116	5580 MHz
48	5240 MHz	140	5700 MHz
52	5260 MHz	149	5745 MHz
60	5300 MHz	157	5785 MHz
64	5320 MHz	165	5825 MHz

9 channel is provided for 802.11n (HT40):20

Channel	Frequency	Channel	Frequency
38	5190 MHz	110	5550 MHz
46	5230 MHz	134	5670 MHz
54	5270 MHz	151	5755 MHz
62	5310 MHz	159	5795 MHz
102	5510 MHz		

12 channels are provided for 802.11ac (VHT20):

Channel	Frequency	Channel	Frequency
36	5180 MHz	100	5500 MHz
44	5220 MHz	116	5580 MHz
48	5240 MHz	140	5700 MHz
52	5260 MHz	149	5745 MHz
60	5300 MHz	157	5785 MHz
64	5320 MHz	165	5825 MHz

9 channels are provided for 802.11ac (VHT40):

Channel	Frequency	Channel	Frequency
38	5190 MHz	110	5550 MHz
46	5230 MHz	134	5670 MHz
54	5270 MHz	151	5755 MHz
62	5310 MHz	159	5795 MHz
102	5510 MHz		

5 channel is provided for 802.11ac (VHT80):

Channel	Frequency	Channel	Frequency
42	5210 MHz	122	5610 MHz
58	5290 MHz	155	5775 MHz
106	5530 MHz		

3.2.1 Test Mode Applicability and Tested Channel Detail

EUT Configure Mode	Applicable To				Description
	RE≥1G	RE<1G	PLC	APCM	
-	√	√	-	-	-

Where **RE≥1G**: Radiated Emission above 1GHz

RE<1G: Radiated Emission below 1GHz

PLC: Power Line Conducted Emission

APCM: Antenna Port Conducted Measurement

NOTE:

1. The EUT was positioned as normally used.
2. "-" means no effect.

Radiated Emission Test (Above 1GHz):

- ☐ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5825	36 to 165	36, 100, 165	OFDM	BPSK	6
-	802.11n (HT20)		36 to 165	36, 100, 165	OFDM	BPSK	6.5
-	802.11n (HT40)		38 to 159	38, 102, 159	OFDM	BPSK	13.5
	802.11ac (VHT20)		36 to 165	36, 100, 165	OFDM	BPSK	
	802.11ac (VHT40)		36 to 159	38, 102, 159	OFDM	BPSK	
-	802.11ac (VHT80)		42 to 155	42, 106, 155	OFDM	BPSK	29.3

Radiated Emission Test (Below 1GHz):

- ☐ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT Configure Mode	Mode	FREQ. Band (MHz)	Available Channel	Tested Channel	Modulation Technology	Modulation Type	Data Rate (Mbps)
-	802.11a	5180-5825	36 to 165	36, 100, 165	OFDM	BPSK	6
-	802.11n (HT20)	5180-5825	36 to 165	36, 100, 165	OFDM	BPSK	6
-	802.11n (HT40)	5190-5825	36 to 159	38, 102, 159	OFDM	BPSK	6
-	802.11ac (VHT20)	5180-5825	36 to 165	36, 100, 165	OFDM	BPSK	6
-	802.11ac (VHT40)	5190-5825	38 to 159	38, 102, 159	OFDM	BPSK	6
-	802.11ac (VHT80)	5210-5825	42 to 155	42, 106, 155	OFDM	BPSK	6

Radiated Emission Test (Below 30MHz):

- ☐ Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture).
- ☒ Following channel(s) was (were) selected for the final test as listed below.

EUT CONFIGURE MODE	MODE	AVAILABLE CHANNEL	TESTED CHANNEL	MODULATION TECHNOLOGY	MODULATION TYPE	DATA RATE (Mbps)
-	802.11a	36 to 165	100	DSSS	BPSK	6.5

Test Condition:

Applicable To	Environmental Conditions	Input Power	Tested By
RE $\geq$ 1G	25deg. C, 65%RH	120Vac, 60Hz	Tony Evers
RE<1G	25deg. C, 65%RH	120Vac, 60Hz	Tony Evers

3.3 Description of Support Units

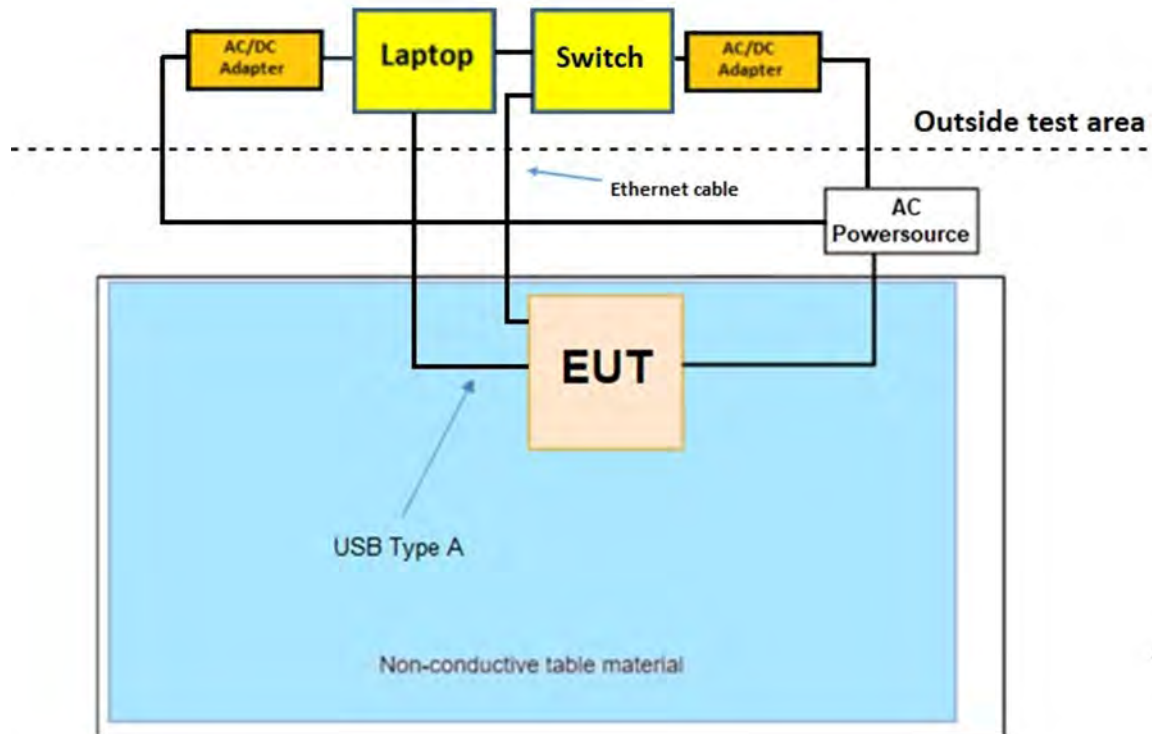
The EUT has been tested as an independent unit together with other necessary accessories or support units. The following support units or accessories were used to form a representative test configuration during the tests.

ID	Product	Brand	Model No.	Serial No.	FCC ID	Remarks
A.	Laptop	Dell	Latitude E6420	56CK3R1	N/A	N/A
B.	Power Supply (Laptop)	Dell	DA130PEI-00	JU012	N/A	N/A
C.	Switch	Silex				
D.	Power supply (switch)					

Note:

1. All power cords of the above support units are non-shielded (1.8m).
2. EUT is connected to switch via an USB to Ethernet adapter.

3.3.1 Configuration of System under Test



3.4 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 C (Section 15.247)
 RSS-247 Issue2, February 2017
 RSS-Gen Issue5, March 2021
 KDB 558074 D01 15.247 Meas Guidance v05r02
 KDB 662911 D01 Multiple Transmitter Output v02r01
 ANSI C63.10-2013

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

4 Test Types and Results

Radiated Emission Measurement

Limits of Radiated Emission Measurement

Radiated emissions which fall in the restricted bands must comply with the radiated emission limits specified as below table. Other emissions shall be at least 20dB (power peak measurement) or 30dB (power Avg. measurement) below the highest level of the desired power:

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:

1. The lower limit shall apply at the transition frequencies.
2. Emission level (dBuV/m) = 20 log Emission level (uV/m).
3. 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.	

4.1.1 Test Instruments

DESCRIPTION & MANUFACTURER	MODEL NO.	SERIAL NO.	DATE OF CALIBRATION	DUE DATE OF CALIBRATION
EMI Receiver Rohde and Schwarz	ESW44	1328.4100K-101662-MH	10/23/2020	10/23/2021
Biconilog Antenna Sunol	JB1	A111717	09/04/2020	09/04/2022
Horn Antenna ETS-Lindgren	3117	218554	04/21/2021	04/21/2022
DRG Horn Antenna ETS LINDGREN	3117	214309	08/05/2020	08/05/2022
Pre-Amplifier RF-Lambda	RAMP00M50GA	18040300055	05/07/2021	05/07/2022
Loop Antenna	N/A	00049120	11/25/2020	11/25/2021
FSB Antenna Cable, 0.5m (Microwave Town)	FSB360PK-KMKM-00.50M	201906110002	10/1/2020	10/1/2021
FSB Antenna Cable, 4m (Microwave Town)	FSB360PK-KMKM-400M	21030447-002	10/1/2020	10/1/2021
10m Semi-Anechoic Chambe (ETS-Lindgren)	S2010BL8X8	1462	07/21/2020	07/21/2022

4.1.2 Test Procedure

For Radiated emission below 30MHz

- 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.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- 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.
- f. The FCC limit were converted to the test distance with a distance correction factor.

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:

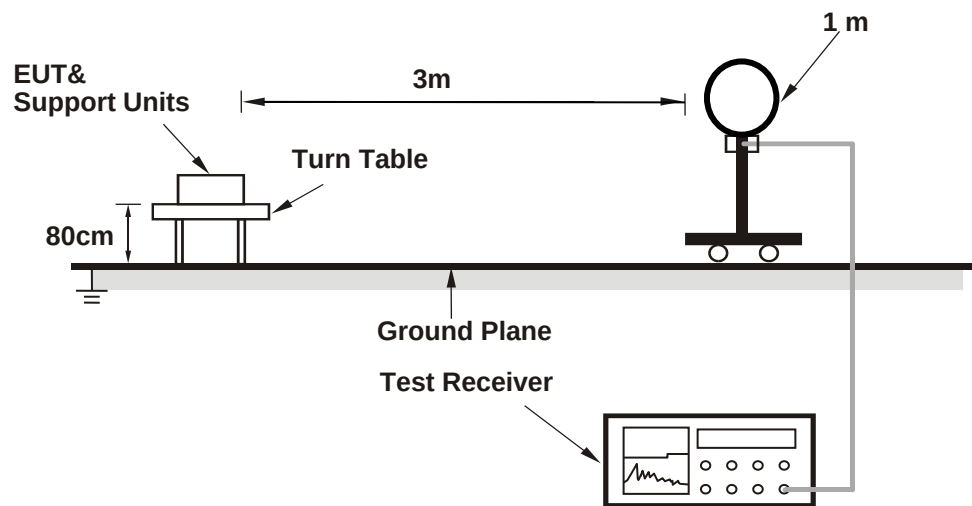
- 1. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120kHz for Quasi-peak detection (QP) at frequency below 1GHz.
- 2. The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and the video bandwidth is 3 MHz for Peak detection (PK) at frequency above 1GHz.
- 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.

4.1.3 Deviation from Test Standard

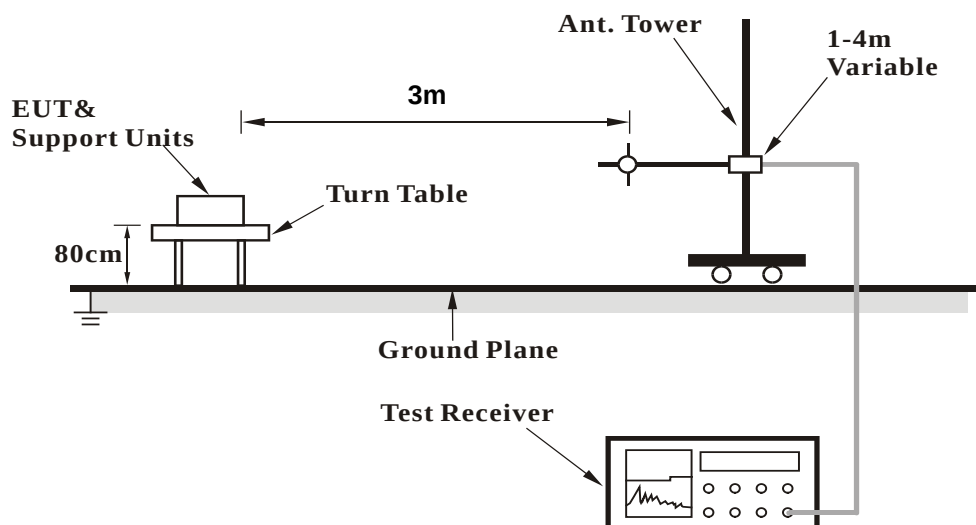
No deviation.

4.1.4 Test Setup

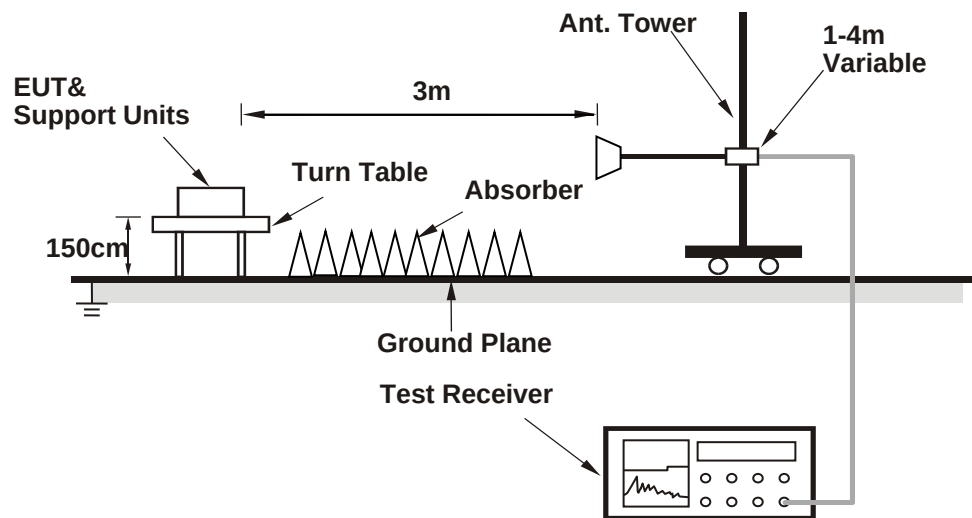
For Radiated emission below 30MHz



For Radiated emission 30MHz to 1GHz



For Radiated emission above 1GHz



For the actual test configuration, please refer to Test Setup Photos.

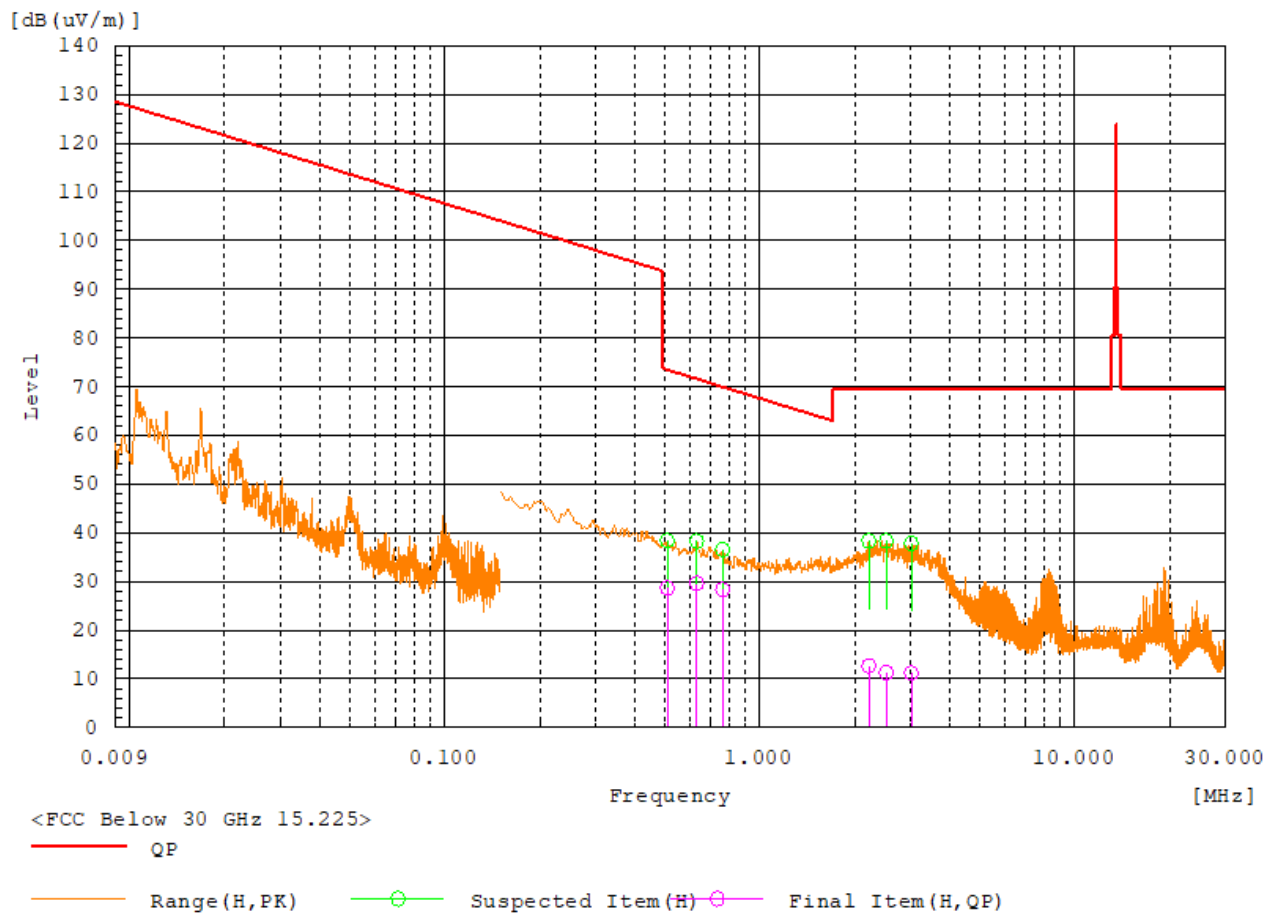
4.1.5 EUT Operating Condition

- 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.

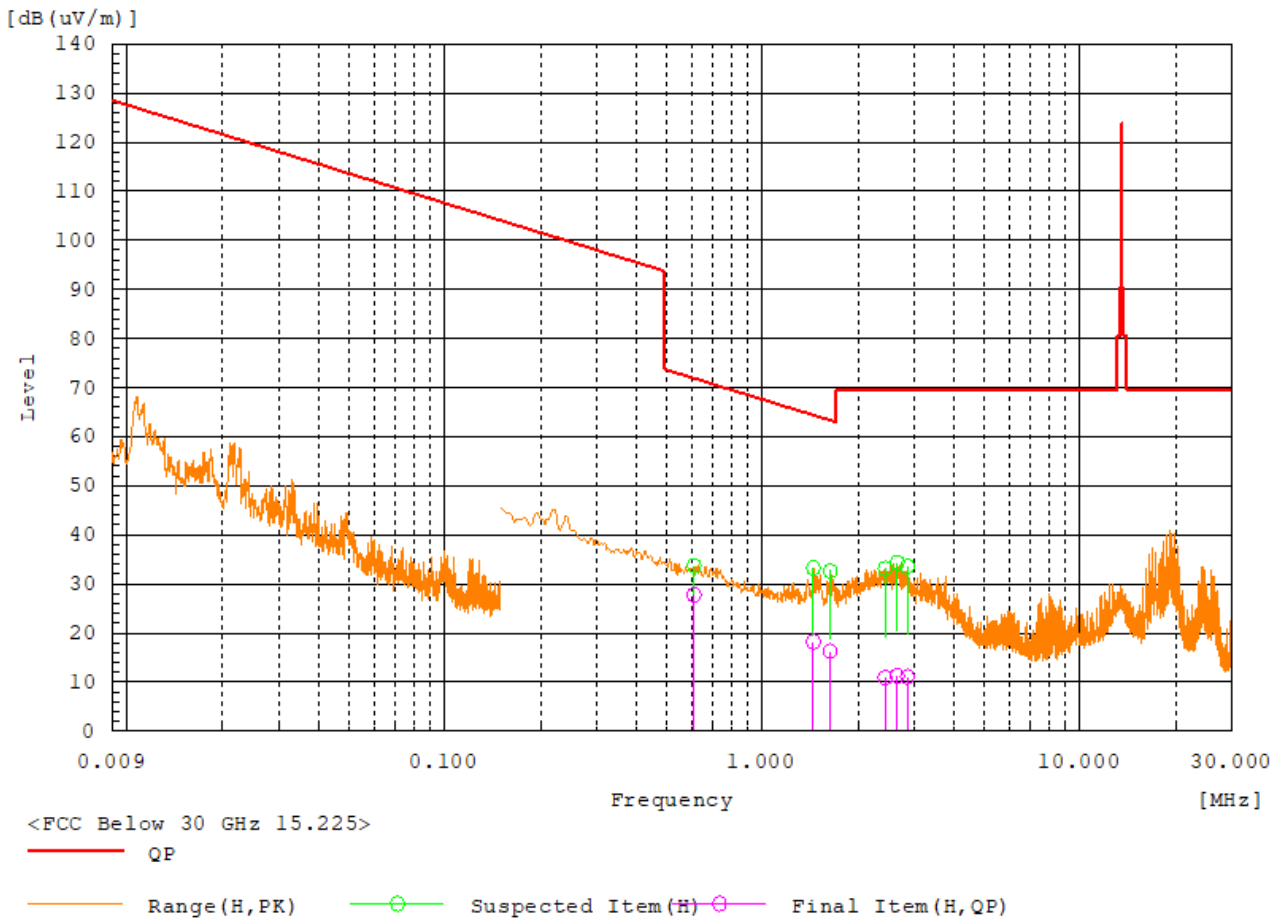
4.1.6 Test Results

Below 30MHz Worst-Case Data:

CHANNEL		802.11a Channel 100			DETECTOR FUNCTION		Quasi Peak			
FREQUENCY RANGE		9KHz – 30MHz			ANTENNA POLARITY		90°			
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	0.508	90°	10.3	18.3	28.6	73.5	-44.9	100	241	Pass
2	0.631	90°	13.1	16.5	29.6	71.6	-42	100	2.6	Pass
3	0.762	90°	13.3	15.1	28.4	70	-41.6	100	102	Pass
4	2.219	90°	5.6	7.1	12.7	69.5	-56.8	100	46.2	Pass
5	2.52	90°	5.1	6.2	11.3	69.5	-58.2	100	350	Pass
6	3.028	90°	6.2	5	11.2	69.5	-58.3	100	266	Pass



CHANNEL		802.11a Channel 100			DETECTOR FUNCTION		Quasi Peak			
FREQUENCY RANGE		9KHz – 30MHz			ANTENNA POLARITY		0°			
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	0.61	0°	11	16.8	27.8	71.9	-44.1	100	67.4	Pass
2	1.445	0°	8.1	10.2	18.3	64.4	-46.1	100	11.6	Pass
3	1.634	0°	7	9.3	16.3	63.3	-47	100	0.1	Pass
4	2.434	0°	4.4	6.5	10.9	69.5	-58.6	100	0.1	Pass
5	2.66	0°	5.3	5.9	11.2	69.5	-58.3	100	93.7	Pass
6	2.86	0°	5.7	5.3	11	69.5	-58.5	100	139.8	Pass

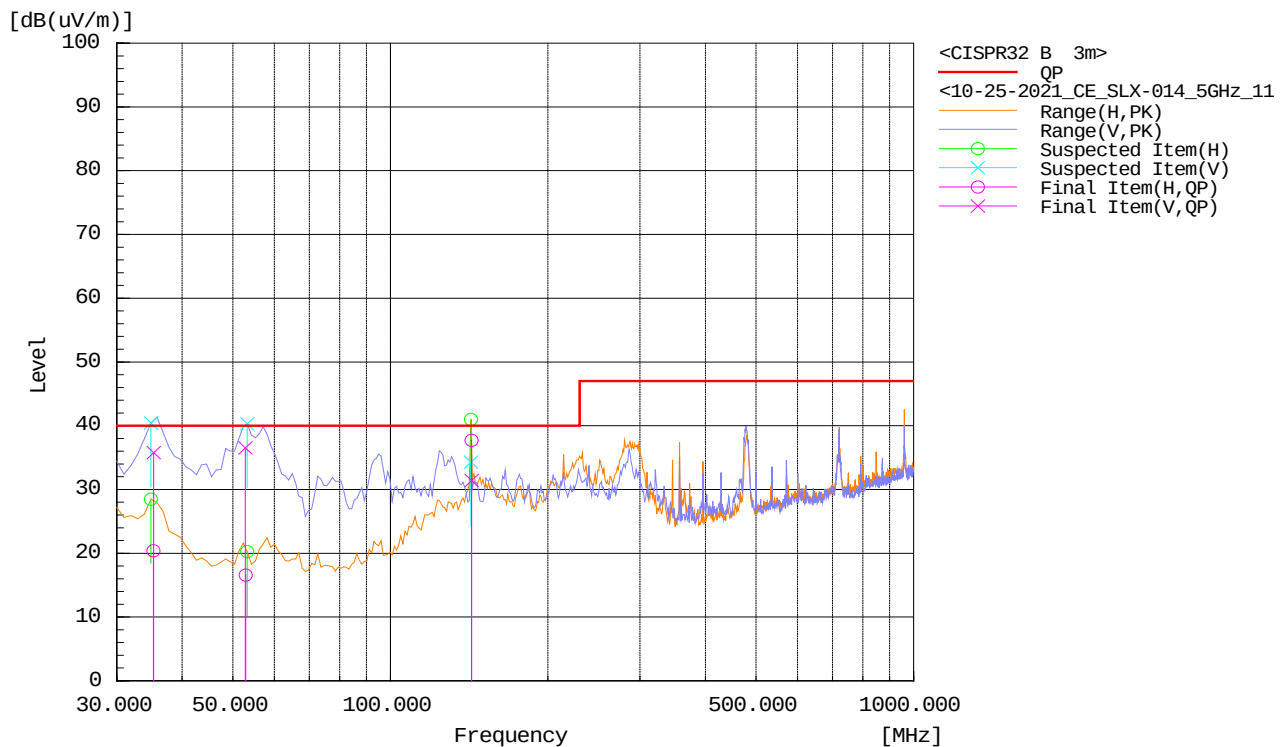


30MHz - 1GHz, 802.11a, Ch:36, 5180MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	35.255	H	-2.7	23.1	20.4	40	-19.6	209	240.8	Pass
2	35.299	V	14.1	21.7	35.8	40	-4.2	106	349.6	Pass
3	52.837	V	23.9	12.6	36.5	40	-3.5	106	338.3	Pass
4	52.915	H	3.7	12.9	16.6	40	-23.4	205	307.7	Pass
5	142.914	H	18.7	19	37.7	40	-2.3	209	305.8	Pass
6	142.926	V	12.1	19.3	31.4	40	-8.6	228	40.3	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

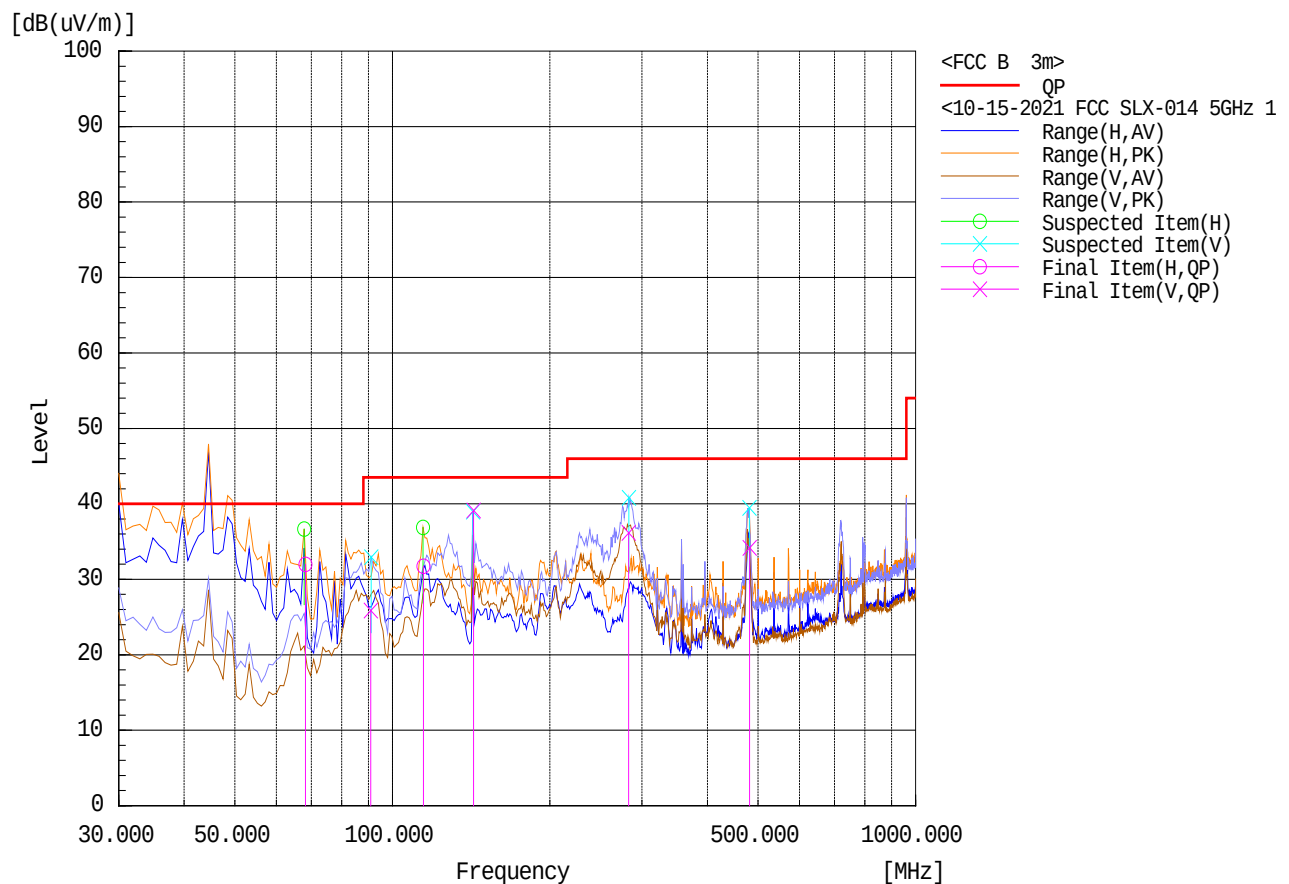


30MHz - 1GHz, 802.11a, Ch:100, 5500MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	68.221	H	18.6	13.4	32	40	-8	100	201	Pass
2	90.934	V	11.5	14.4	25.9	43.5	-17.6	199	62.4	Pass
3	114.696	H	12.9	18.8	31.7	43.5	-11.8	106	145.2	Pass
4	142.919	V	19.9	19.3	39.2	43.5	-4.3	181	285.6	Pass
5	282.866	V	16.1	20	36.1	46	-9.9	100	141.3	Pass
6	481.482	V	9.8	24.4	34.2	46	-11.8	100	48.2	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

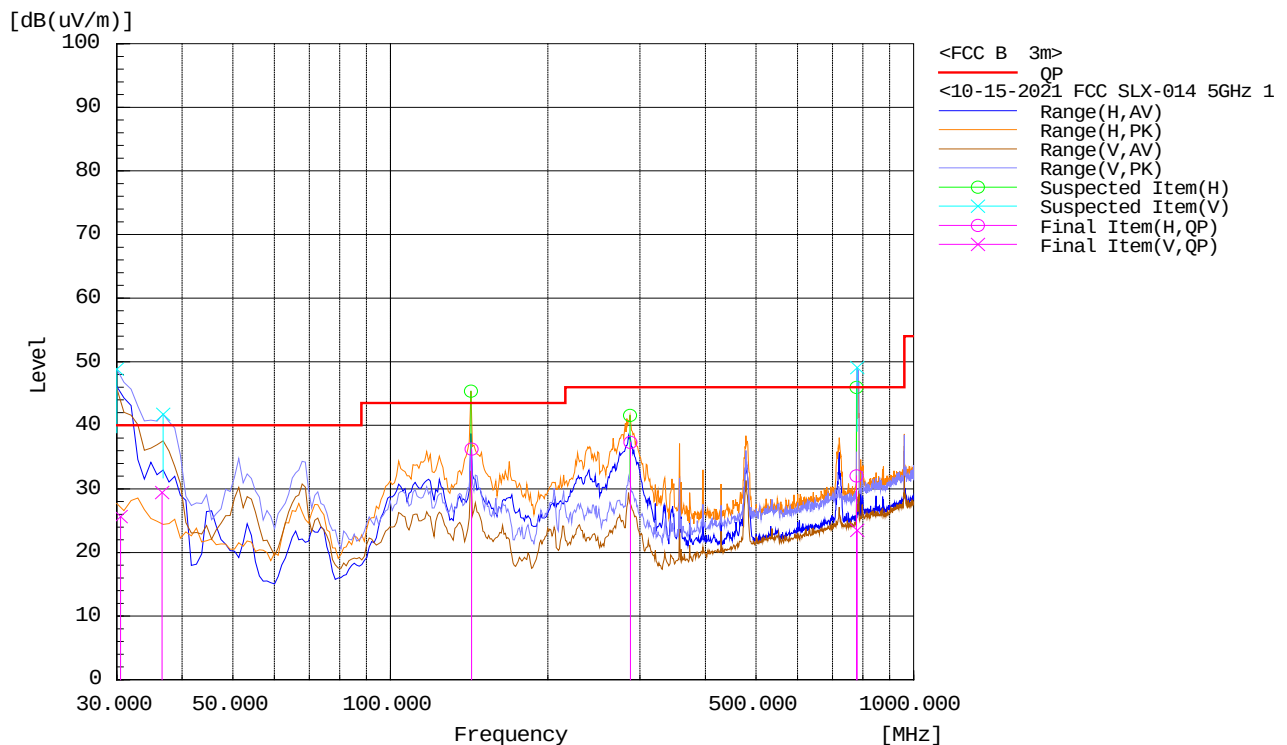


30MHz - 1GHz, 802.11a, Ch:165, 5825MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	36.613	V	8.6	20.8	29.4	40	-10.6	190	152.1	Pass
2	287.542	H	17	20.3	37.3	46	-8.7	100	260.5	Pass
3	30.5	V	0.6	25.1	25.7	40	-14.3	294	284.6	Pass
4	142.923	H	17.2	19	36.2	43.5	-7.3	224	334.7	Pass
5	777.808	H	2.8	29.2	32	46	-14	196	0	Pass
6	780.017	V	-5.2	28.7	23.5	46	-22.5	115	210.6	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

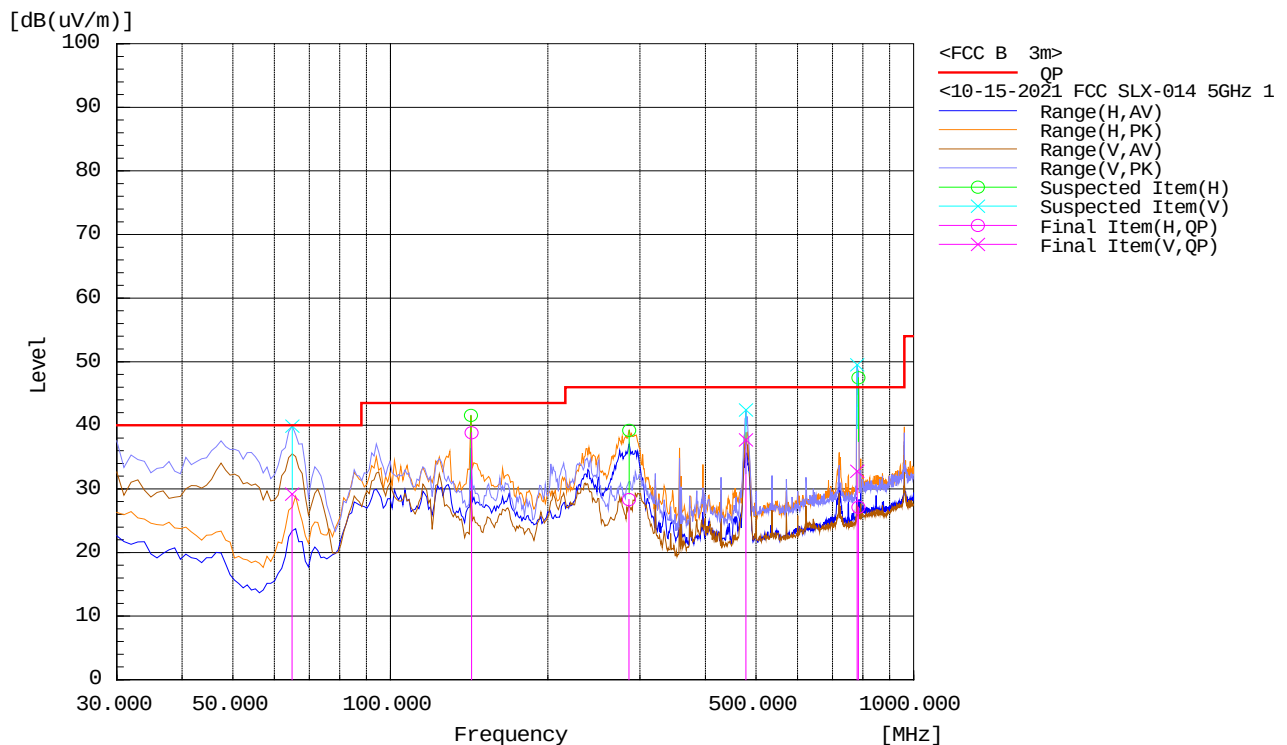


30MHz - 1GHz, 802.11n (HT20), Ch:36, 5180MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	64.893	V	16.1	13.1	29.2	40	-10.8	388	179.5	Pass
2	142.91	H	19.8	19	38.8	43.5	-4.7	286	249.5	Pass
3	285.815	H	8	20.3	28.3	46	-17.7	100	280.4	Pass
4	478.113	V	13.3	24.4	37.7	46	-8.3	182	161	Pass
5	780.128	V	4.1	28.7	32.8	46	-13.2	99	170.6	Pass
6	784.252	H	-2.3	29.4	27.1	46	-18.9	400	245.9	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

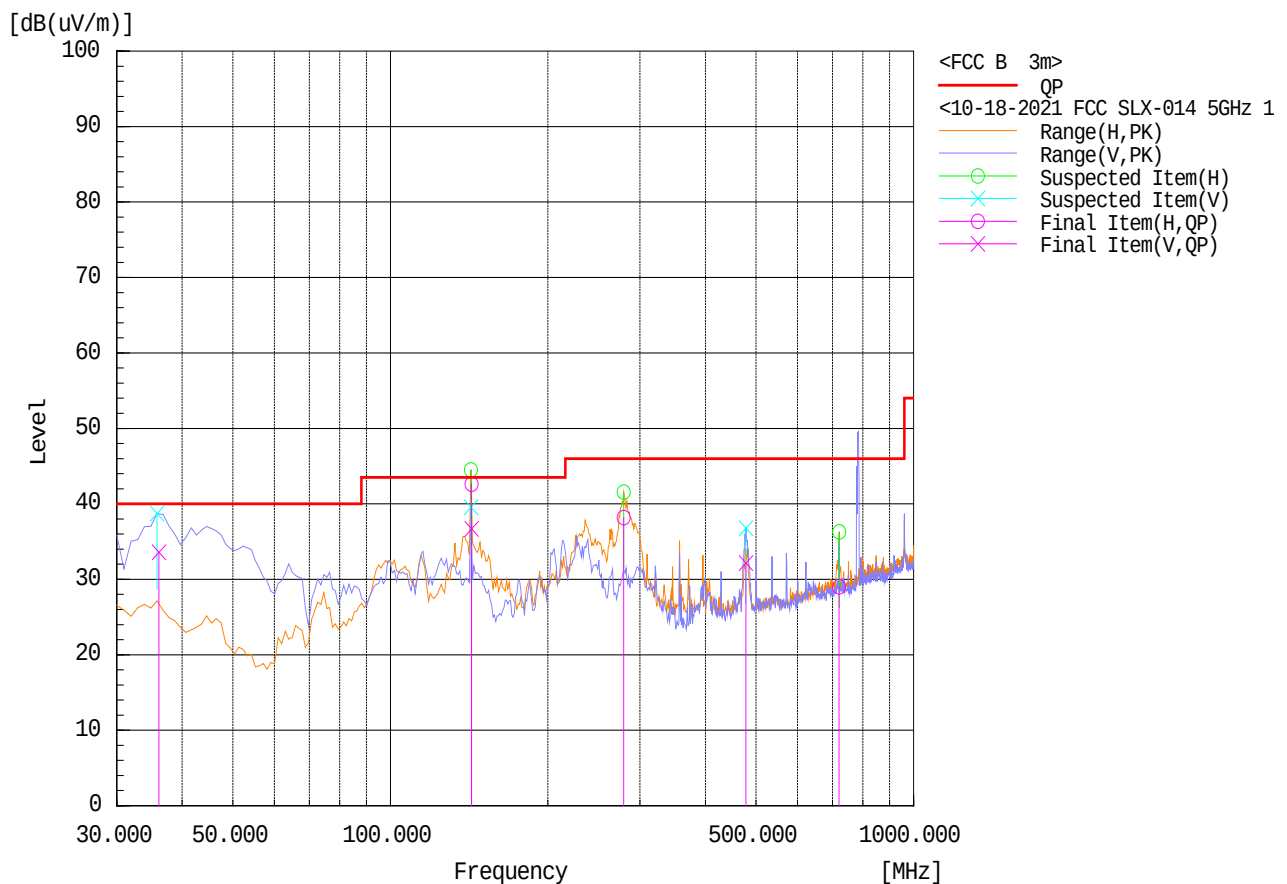


30MHz - 1GHz, 802.11n (HT20), Ch:100, 5500MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	36.108	V	12.4	21.2	33.6	40	-6.4	100	68	Pass
2	142.907	H	23.6	19	42.6	43.5	-0.9	296	273.1	Pass
3	142.921	V	17.4	19.3	36.7	43.5	-6.8	209	42.8	Pass
4	279.319	H	18	20.2	38.2	46	-7.8	100	136.3	Pass
5	478.111	V	7.8	24.4	32.2	46	-13.8	134	288.9	Pass
6	720.504	H	0.4	28.6	29	46	-17	100	244.9	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

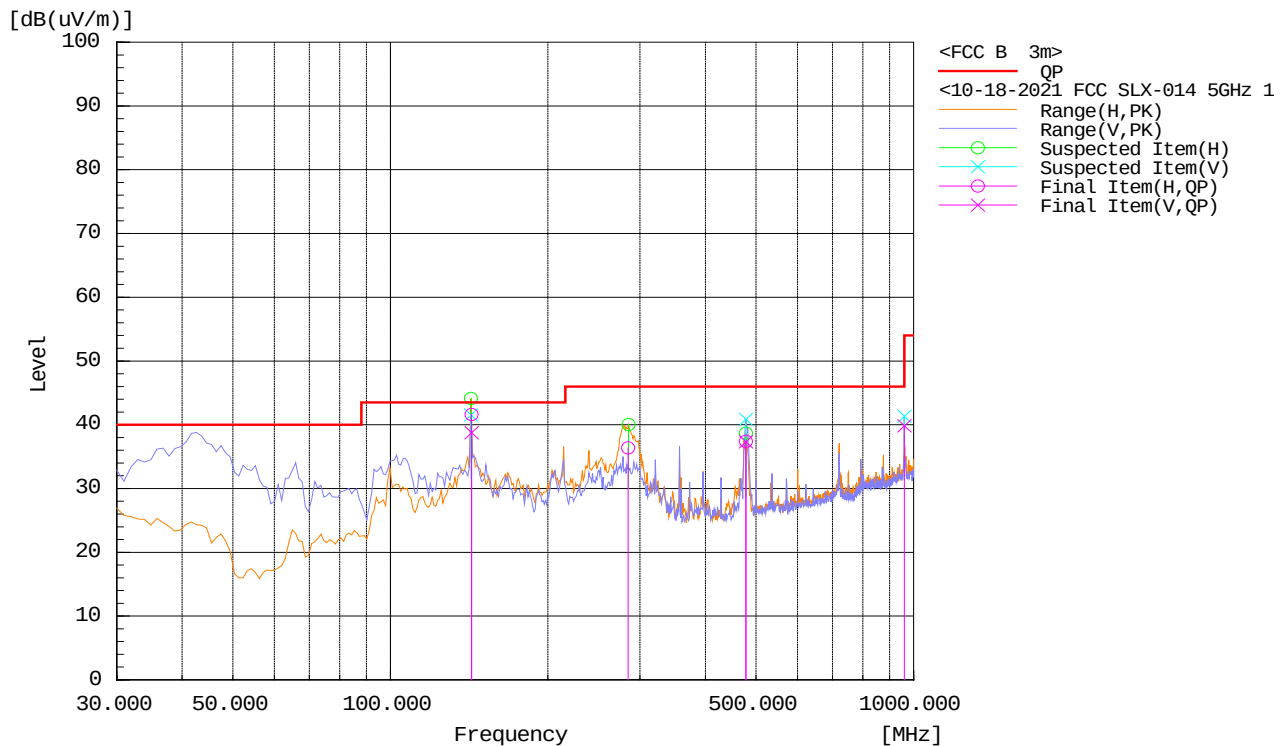


30MHz - 1GHz, 802.11n (HT20), Ch:165, 5825MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	142.919	H	22.6	19	41.6	43.5	-1.9	190	310.1	Pass
2	142.899	V	19.5	19.3	38.8	43.5	-4.7	143	0	Pass
3	478.103	H	12.7	24.7	37.4	46	-8.6	190	241.9	Pass
4	478.097	V	12.9	24.4	37.3	46	-8.7	100	197.9	Pass
5	284.809	H	16.1	20.3	36.4	46	-9.6	100	297.7	Pass
6	960.005	V	9.2	30.7	39.9	54	-14.1	106	213.2	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

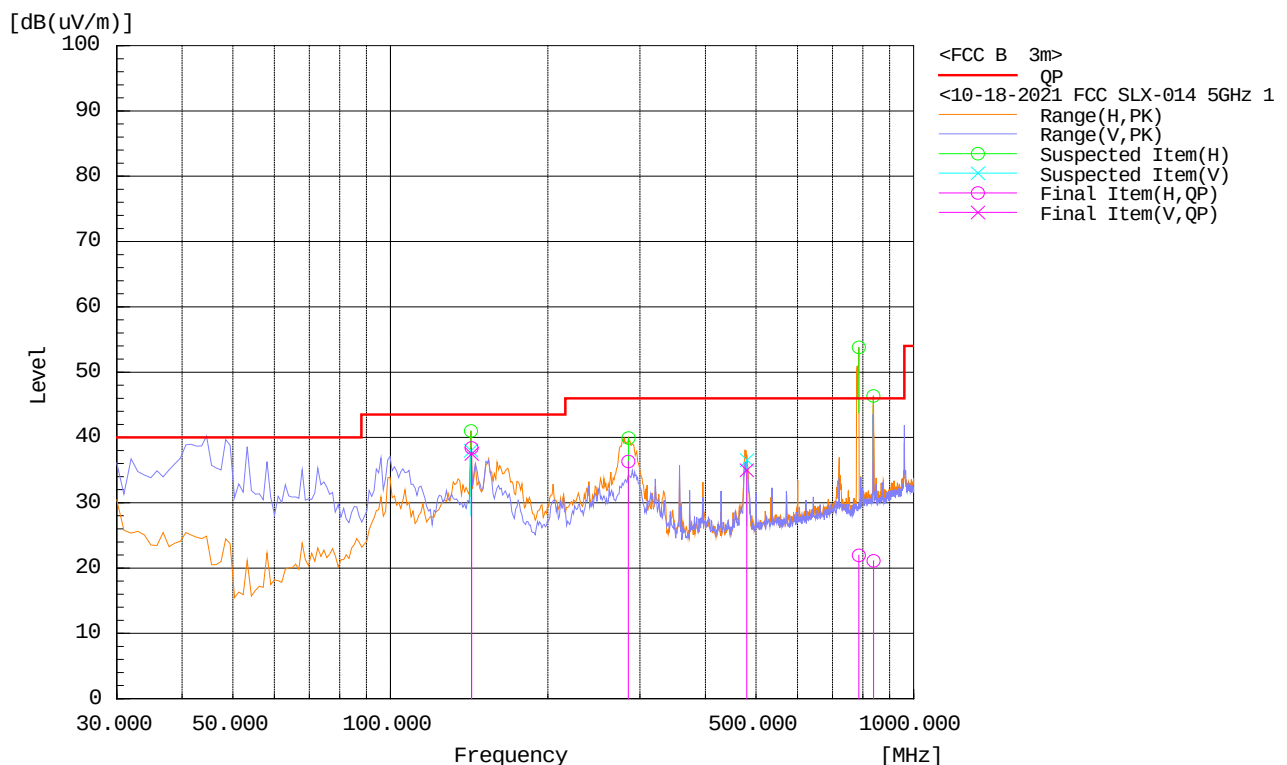


30MHz - 1GHz, 802.11n (HT40), Ch:38, 5190MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	142.92	H	19.4	19	38.4	43.5	-5.1	314	301.9	Pass
2	142.916	V	18.2	19.3	37.5	43.5	-6	162	21.6	Pass
3	284.971	H	16	20.3	36.3	46	-9.7	100	312.9	Pass
4	480.029	V	10.6	24.4	35	46	-11	100	205.1	Pass
5	785.555	H	-7.5	29.4	21.9	46	-24.1	106	147.1	Pass
6	838.376	H	-8.9	30	21.1	46	-24.9	256	334.9	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

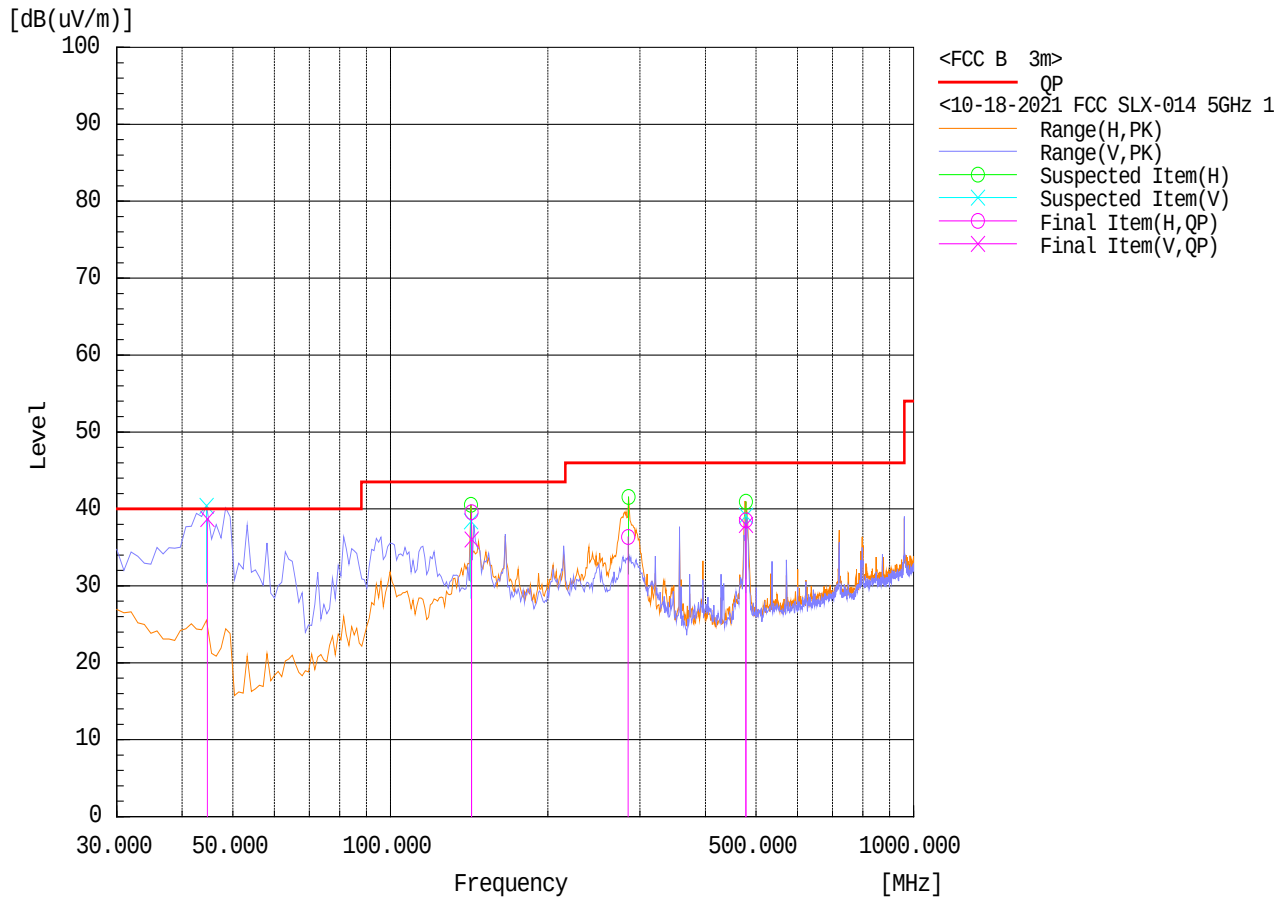


30MHz - 1GHz, 802.11n (HT40), Ch:102, 5510MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	44.689	V	23.2	15.5	38.7	40	-1.3	100	197.2	Pass
2	142.927	H	20.6	19	39.6	43.5	-3.9	171	308.2	Pass
3	142.933	V	16.7	19.3	36	43.5	-7.5	100	58.2	Pass
4	478.102	H	13.8	24.7	38.5	46	-7.5	181	248.2	Pass
5	478.096	V	13.5	24.4	37.9	46	-8.1	100	187.1	Pass
6	284.624	H	16.1	20.3	36.4	46	-9.6	100	309.9	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

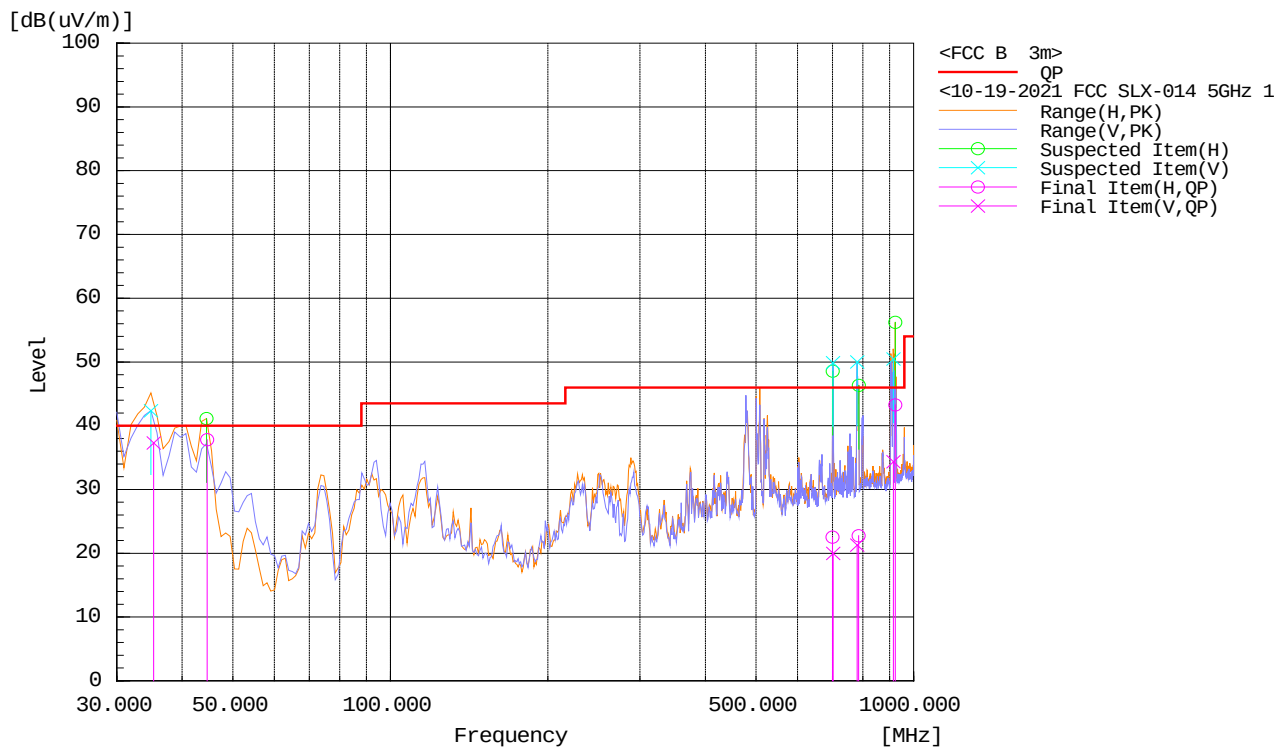


30MHz - 1GHz, 802.11n (HT40), Ch:159, 5795MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	35.274	H	14.8	23.2	38	40	-2	393	234.4	Pass
2	44.656	H	21.2	16.5	37.7	40	-2.3	162	20	Pass
3	35.254	V	13.9	21.8	35.7	40	-4.3	393	148.6	Pass
4	905.881	H	-7.4	30.7	23.3	46	-22.7	275	152	Pass
5	922.778	V	-7.5	30.3	22.8	46	-23.2	388	196.7	Pass
6	783.429	V	-8.9	28.8	19.9	46	-26.1	284	36.1	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

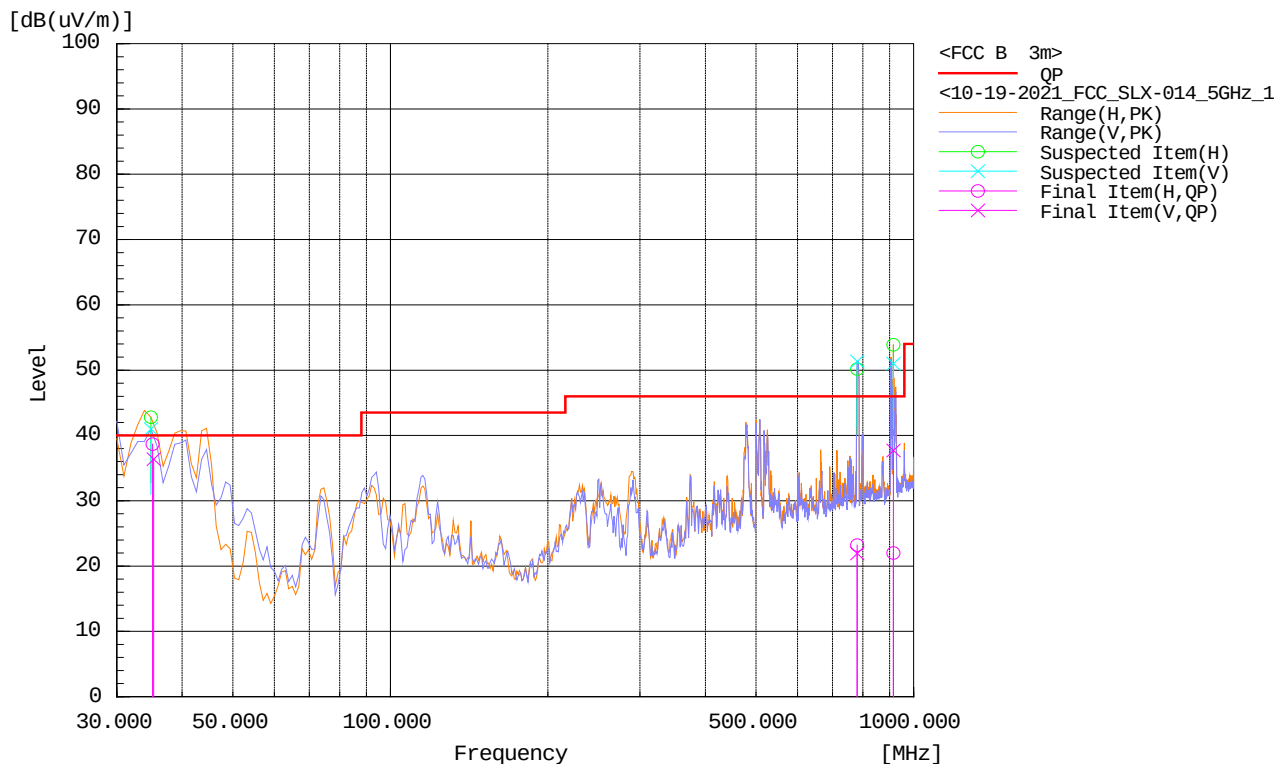


30MHz - 1GHz, 802.11ac (VHT20), Ch:36, 5180MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	39.994	V	20.2	18.5	38.7	40	-1.3	100	170	Pass
2	142.903	H	21.8	19	40.8	43.5	-2.7	277	264.3	Pass
3	478.099	H	13.5	24.7	38.2	46	-7.8	200	226.5	Pass
4	478.102	V	13.3	24.4	37.7	46	-8.3	100	198.1	Pass
5	142.907	V	15.2	19.3	34.5	43.5	-9	191	49.1	Pass
6	29.804	V	-16.7	0.7	-16	0	-16	100	277.8	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

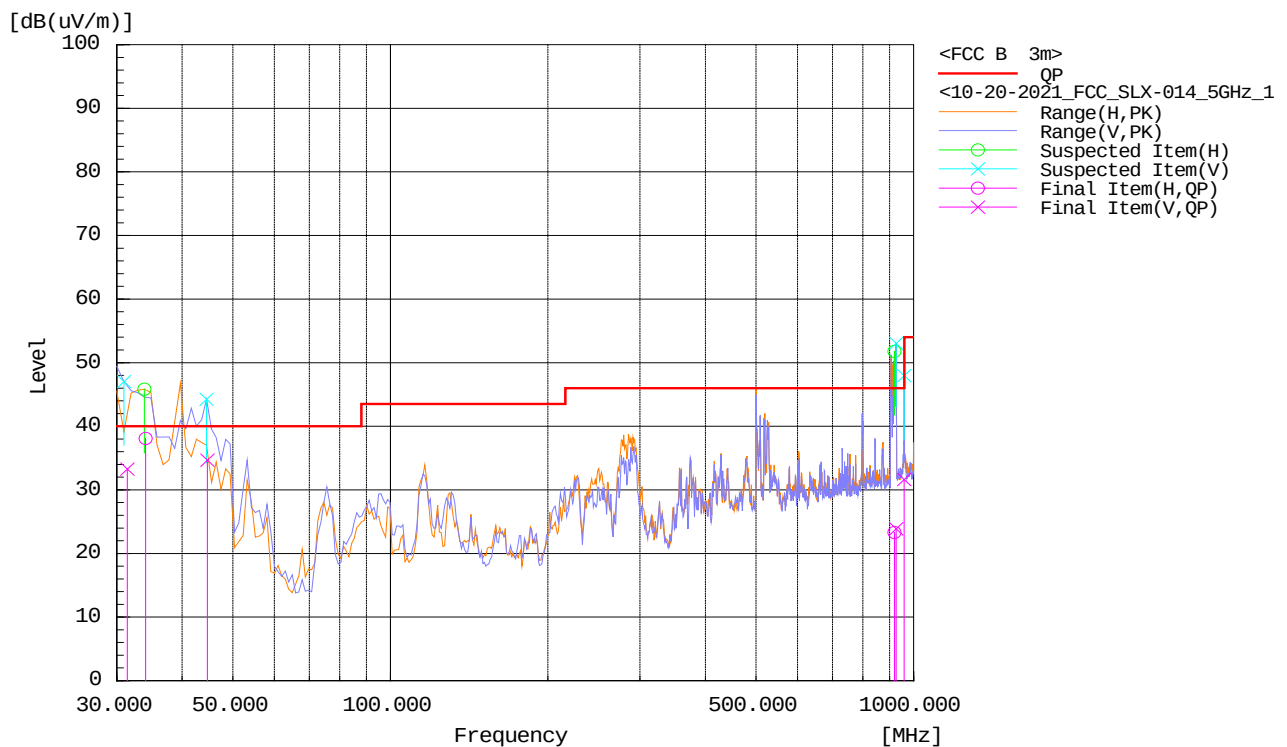


30MHz - 1GHz, 802.11ac (VHT20), Ch:100, 5500MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	31.411	V	8.8	24.5	33.3	40	-6.7	378	148	Pass
2	34.075	H	14.1	24	38.1	40	-1.9	400	12.9	Pass
3	44.68	V	19.2	15.5	34.7	40	-5.3	294	154.9	Pass
4	919.133	H	-7.5	30.8	23.3	46	-22.7	162	18.1	Pass
5	925.98	V	-6.4	30.3	23.9	46	-22.1	143	1.3	Pass
6	959.055	V	0.9	30.7	31.6	46	-14.4	100	358	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

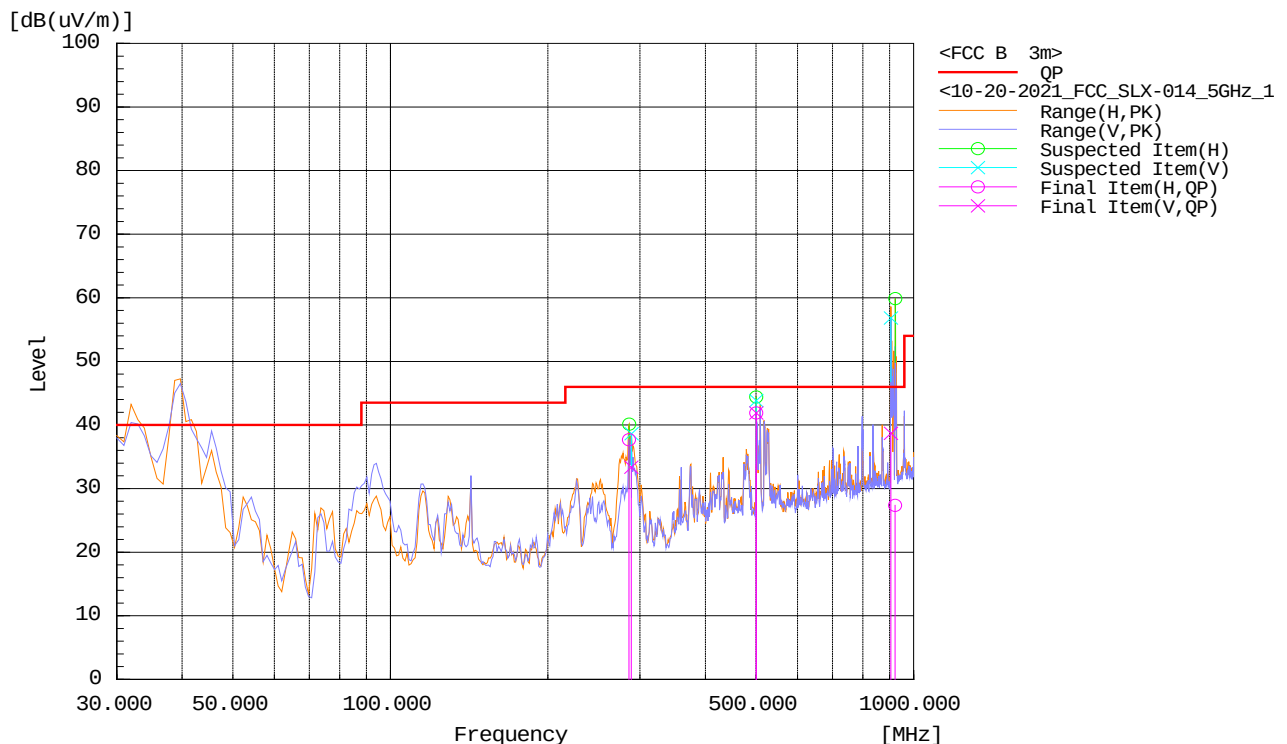


30MHz - 1GHz, 802.11ac (VHT20), Ch:165, 5825MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	285.868	H	17.4	20.3	37.7	46	-8.3	100	358.9	Pass
2	288.571	V	13.3	20.1	33.4	46	-12.6	153	252.8	Pass
3	500.302	H	17	24.9	41.9	46	-4.1	143	125.8	Pass
4	500.304	V	17.1	24.8	41.9	46	-4.1	252	348	Pass
5	904.679	V	8.7	30	38.7	46	-7.3	234	96.7	Pass
6	922.06	H	-3.4	30.8	27.4	46	-18.6	331	4.3	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

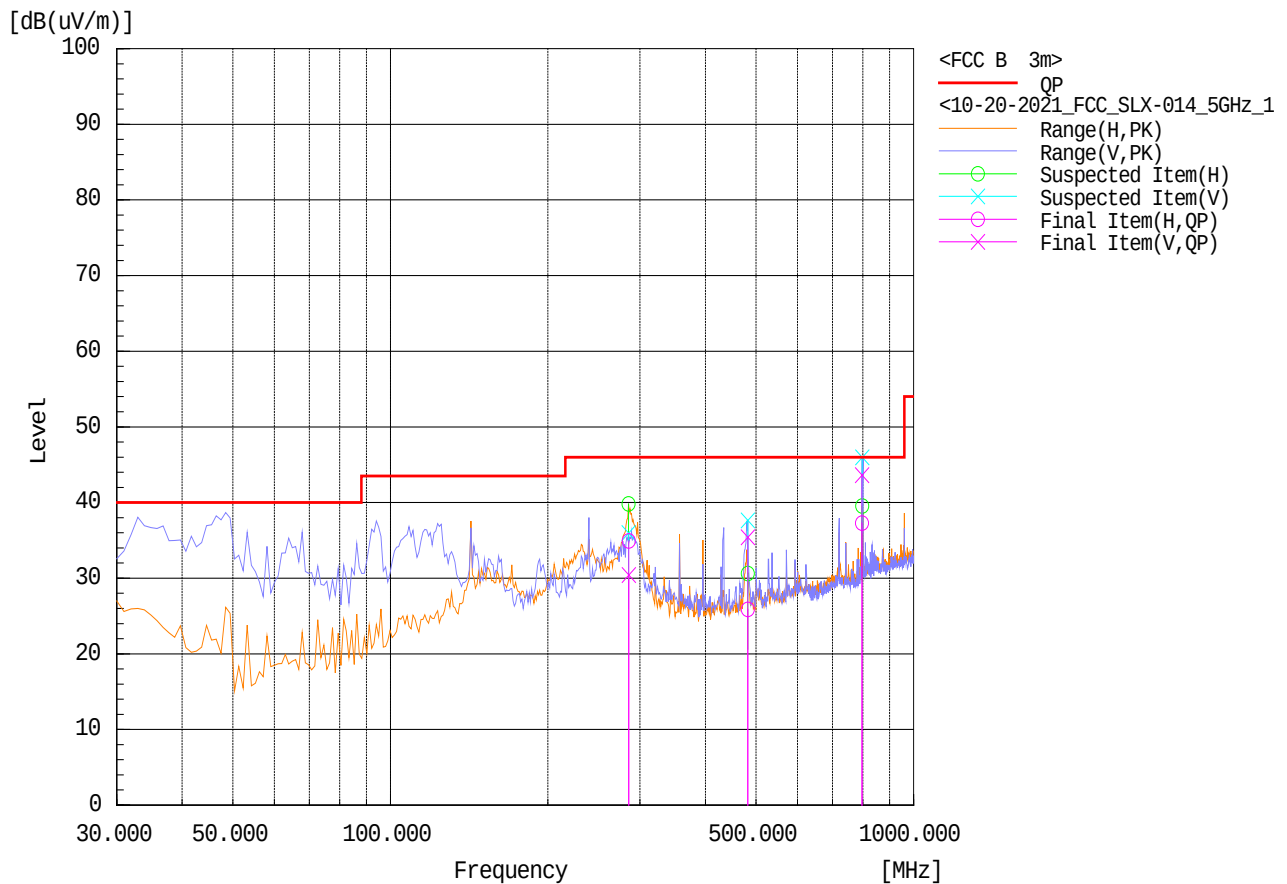


30MHz - 1GHz, 802.11ac (VHT40), Ch:38, 5190MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	796.953	V	14.2	29.4	43.6	46	-2.4	100	226.2	Pass
2	796.943	H	7.5	29.8	37.3	46	-8.7	134	168.4	Pass
3	481.946	V	10.8	24.6	35.4	46	-10.6	100	175.2	Pass
4	285.461	H	14.5	20.4	34.9	46	-11.1	106	334.8	Pass
5	285.604	V	10.2	20.2	30.4	46	-15.6	134	176.5	Pass
6	481.968	H	0.9	25	25.9	46	-20.1	143	335.1	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

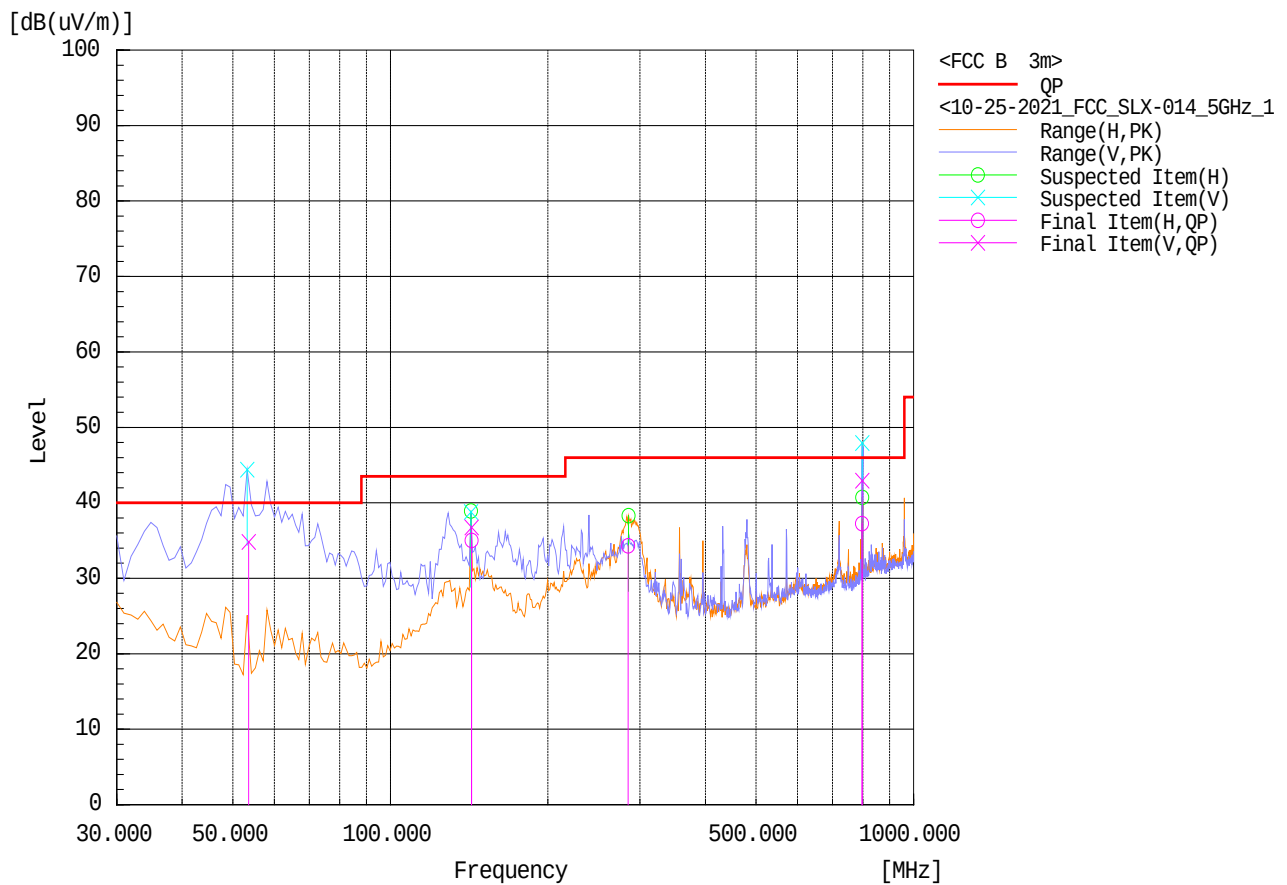


30MHz - 1GHz, 802.11ac (VHT40), Ch:102, 5510MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	799.796	V	16.3	29.4	45.7	46	-0.3	100	206.5	Pass
2	799.809	H	11.8	29.9	41.7	46	-4.3	162	169.3	Pass
3	47.933	V	21.3	13.8	35.1	40	-4.9	100	313.7	Pass
4	480.047	V	11	24.6	35.6	46	-10.4	106	197.2	Pass
5	480.005	H	7.7	24.9	32.6	46	-13.4	218	291.5	Pass
6	47.946	H	0	14.4	14.4	40	-25.6	280	154.9	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

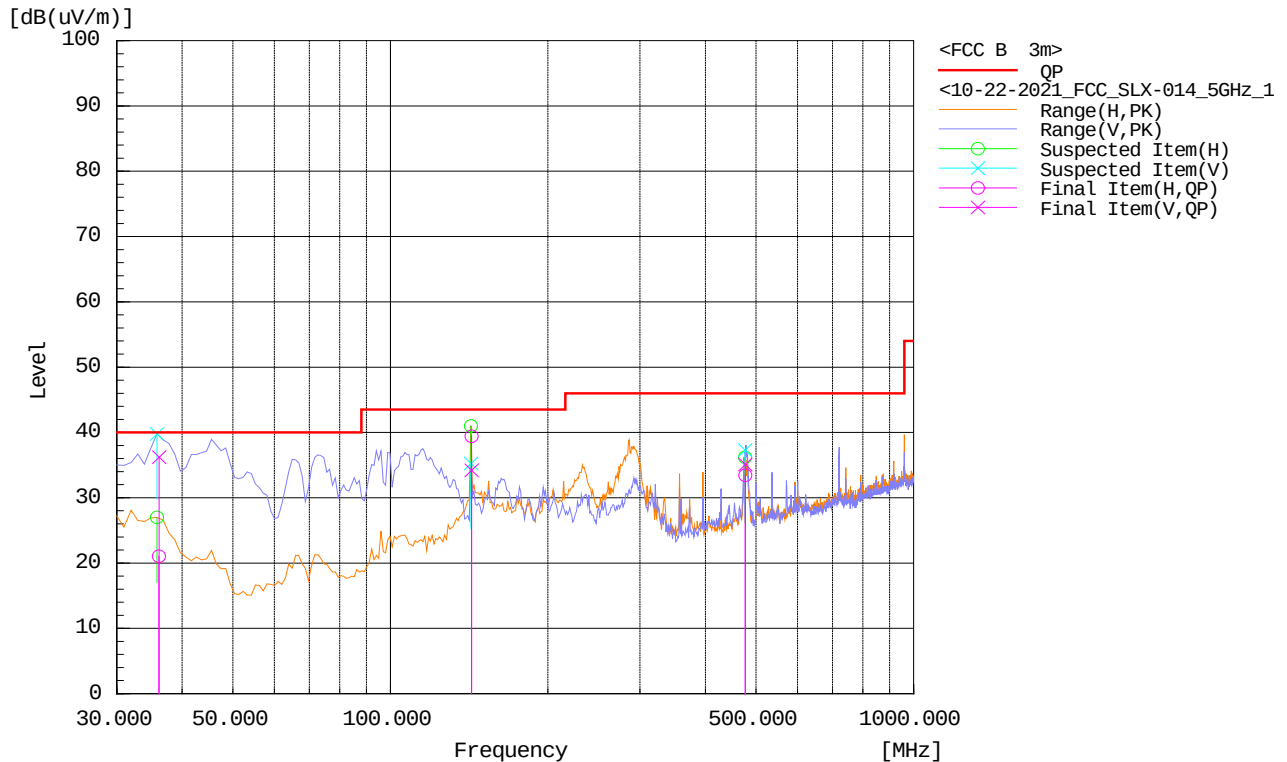


30MHz - 1GHz, 802.11ac (VHT40), Ch:159, 5795MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	36.161	V	15.1	21.1	36.2	40	-3.8	106	349	Pass
2	142.913	H	20.4	19	39.4	43.5	-4.1	181	313.8	Pass
3	142.921	V	14.9	19.3	34.2	43.5	-9.3	247	0.1	Pass
4	476.63	V	10.5	24.6	35.1	46	-10.9	181	19.5	Pass
5	476.606	H	8.5	24.9	33.4	46	-12.6	219	276.9	Pass
6	36.128	H	-1.3	22.4	21.1	40	-18.9	375	287.4	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

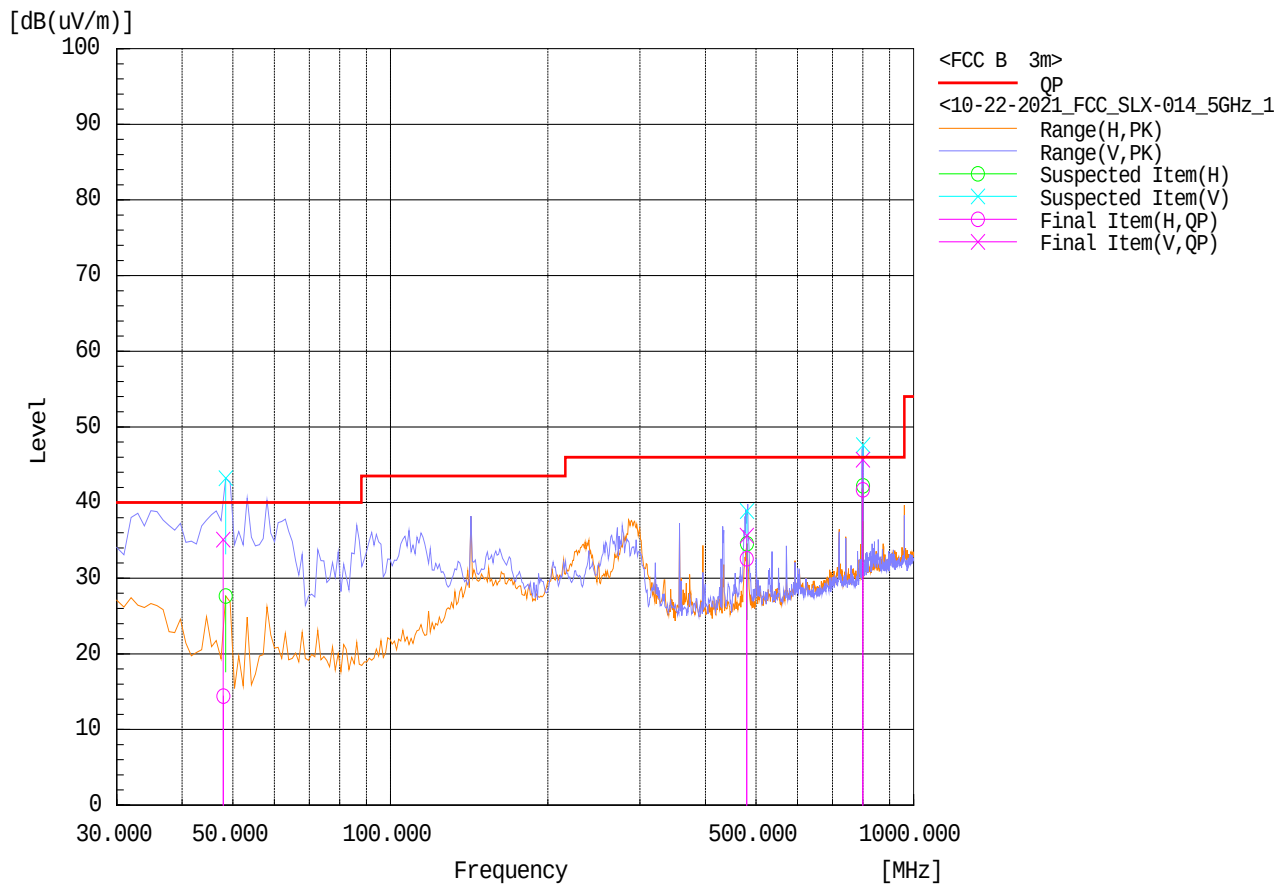


30MHz - 1GHz, 802.11ac (VHT80), Ch:42, 5210MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	36.089	V	7.9	21.2	29.1	40	-10.9	100	158.8	Pass
2	53.552	V	22.6	12.6	35.2	40	-4.8	115	154.9	Pass
3	68.221	V	24.2	13.2	37.4	40	-2.6	100	130.7	Pass
4	142.917	H	21.4	19	40.4	43.5	-3.1	200	342.9	Pass
5	142.917	V	15.8	19.3	35.1	43.5	-8.4	237	78.6	Pass
6	285.858	H	17.8	20.4	38.2	46	-7.8	100	294.8	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

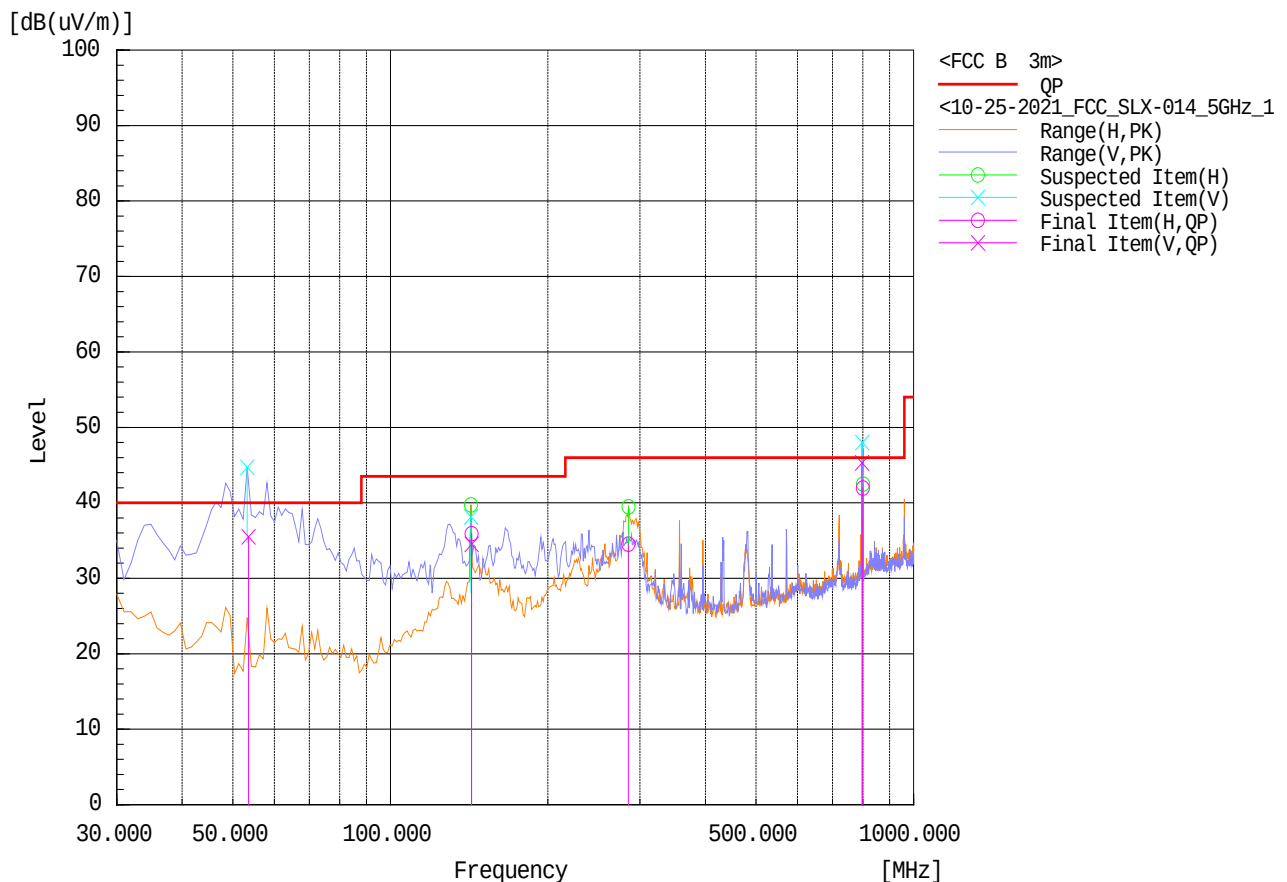


30MHz - 1GHz, 802.11ac (VHT80), Ch:106, 5530MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	53.573	V	22.9	12.6	35.5	40	-4.5	115	3	Pass
2	142.907	V	15.2	19.3	34.5	43.5	-9	209	57.5	Pass
3	142.905	H	16.9	19	35.9	43.5	-7.6	247	321.7	Pass
4	284.862	H	14.1	20.4	34.5	46	-11.5	100	317.6	Pass
5	796.948	V	15.9	29.4	45.3	46	-0.7	100	237	Pass
6	799.814	H	12.1	29.9	42	46	-4	100	154.8	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. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

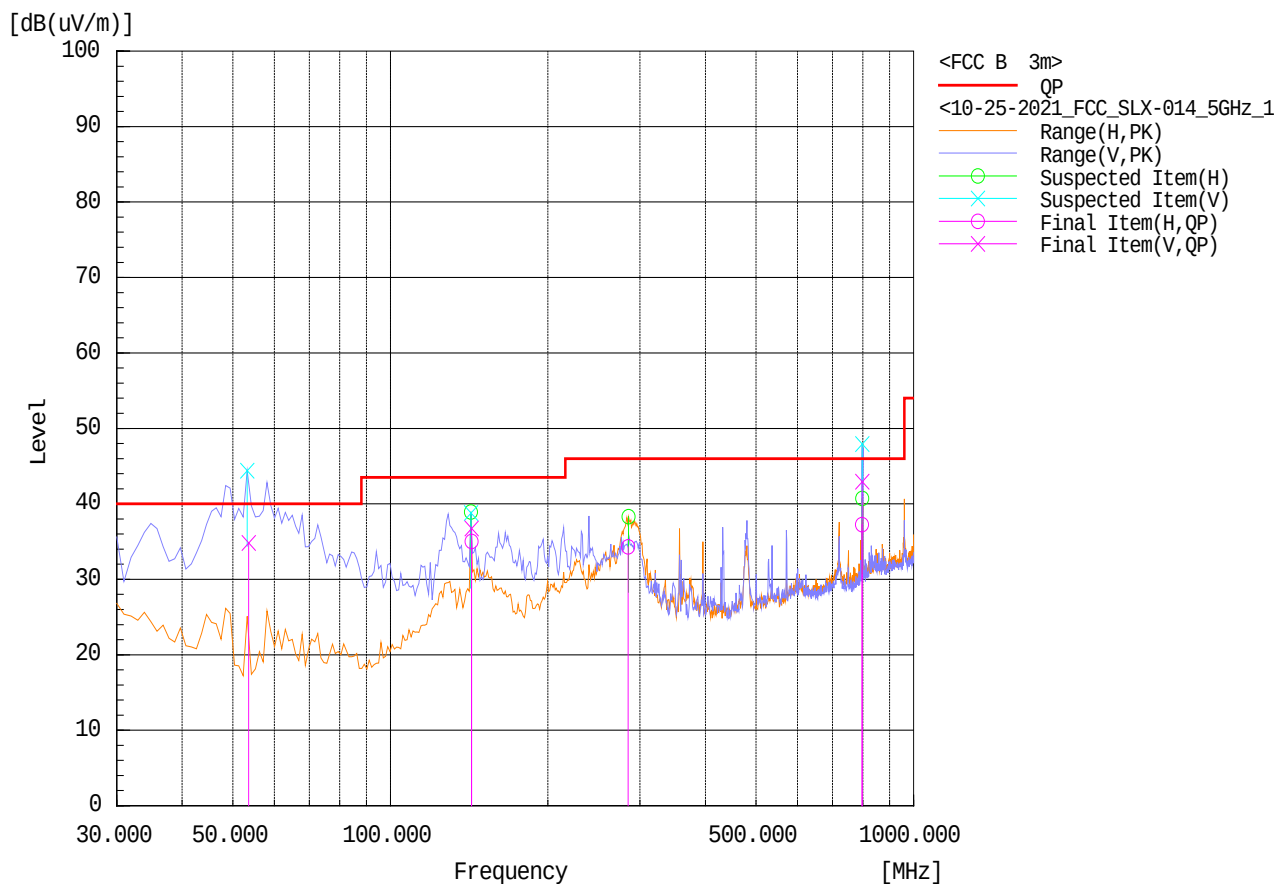


30MHz - 1GHz, 802.11ac (VHT80), Ch:155, 5775MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m										
	Frequency [MHz]	Pol	Reading QP [dB(uV)]	Factor [dB(1/m)]	Level QP [dB(uV/m)]	Limit\QP [dB(uV/m)]	Margin QP [dB]	Height [cm]	Angle [deg]	Pass/Fail
1	53.614	V	22.2	12.6	34.8	40	-5.2	100	34.7	Pass
2	142.905	H	16	19	35	43.5	-8.5	237	141.6	Pass
3	142.912	V	17.4	19.3	36.7	43.5	-6.8	100	122.3	Pass
4	284.797	H	14	20.3	34.3	46	-11.7	106	312.6	Pass
5	797.27	V	13.6	29.4	43	46	-3	100	234.3	Pass
6	796.929	H	7.4	29.8	37.2	46	-8.8	143	119.6	Pass

REMARKS:

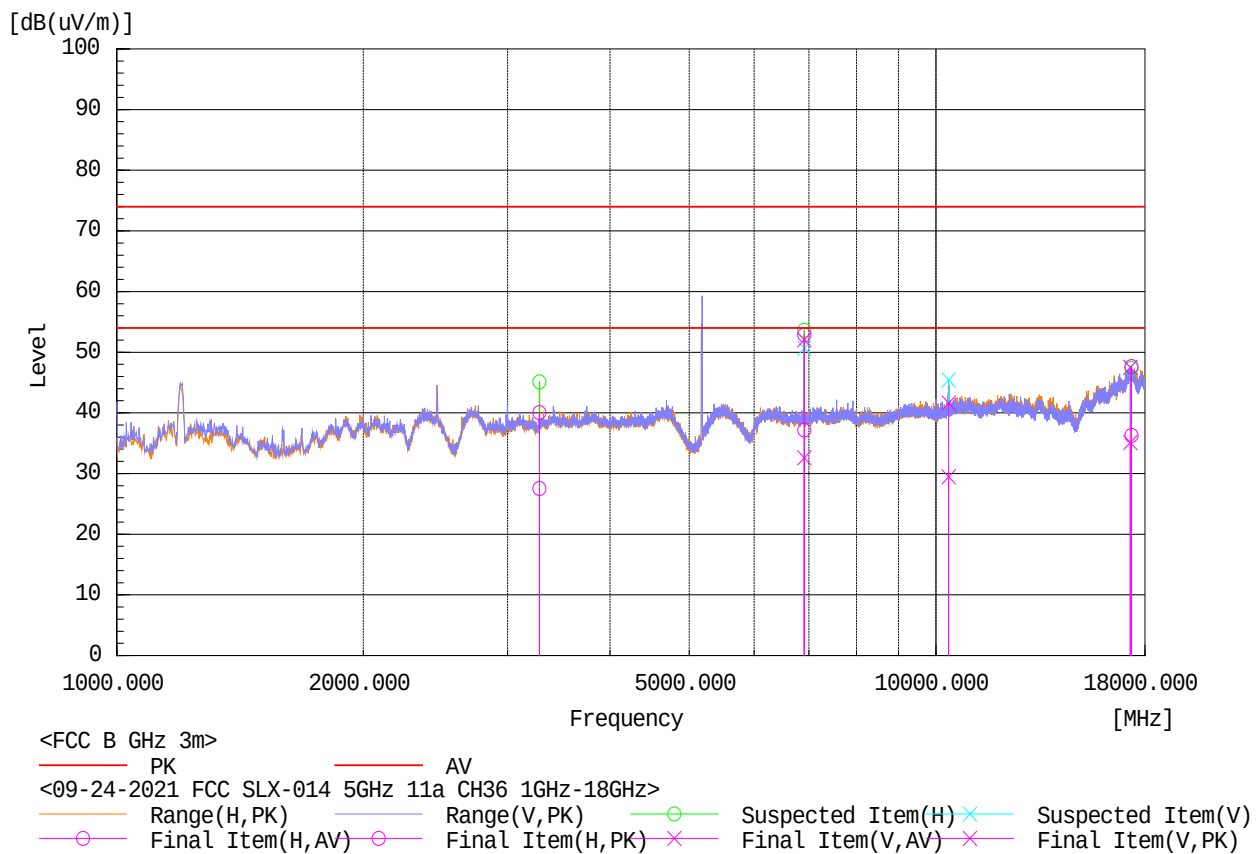
1. Emission level (dBuV/m) = Raw Value (dBuV) + Cable Loss (dB) + AF (dB)
2. AF (dB/m) = Antenna Factor (dB/m) – Preamplifier Gain (dB).
3. The emission levels of other frequencies were less than 20dB margin against the limit.
4. Margin value = Emission level – Limit value.

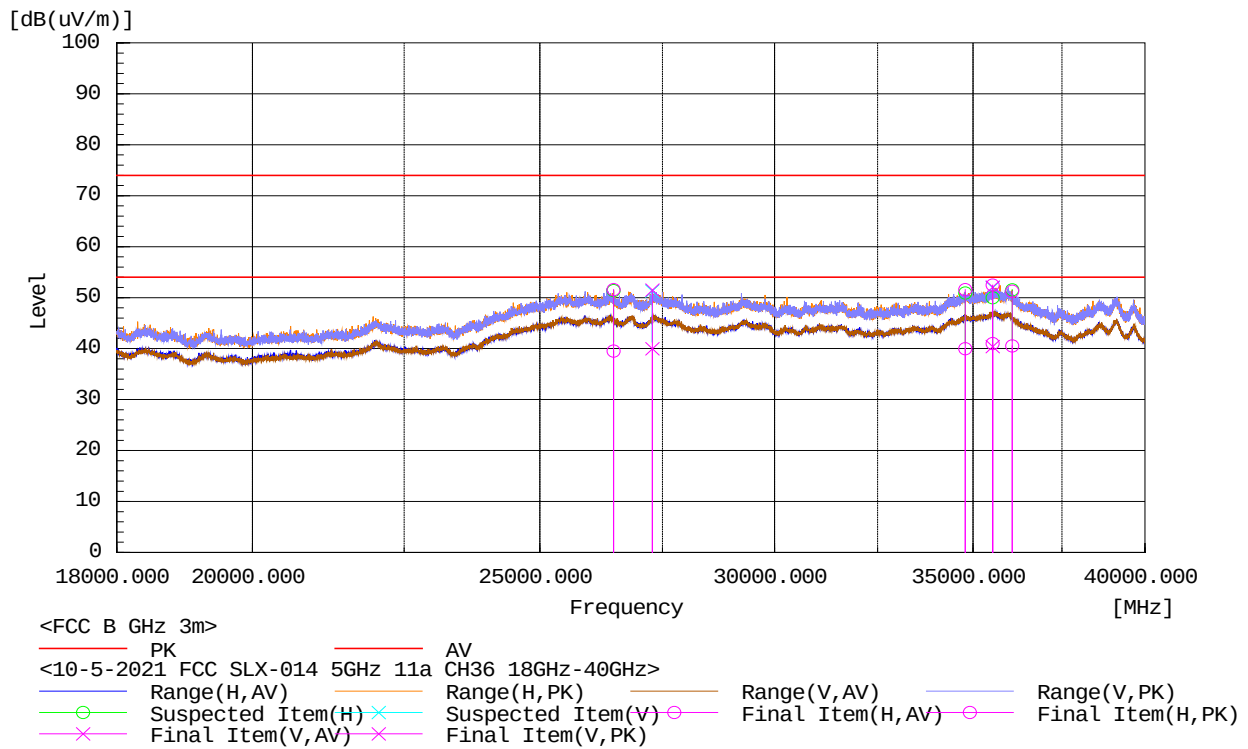


Above 1GHz Test Data:

1GHz - 40GHz, 802.11a, Ch:36, 5180MHz

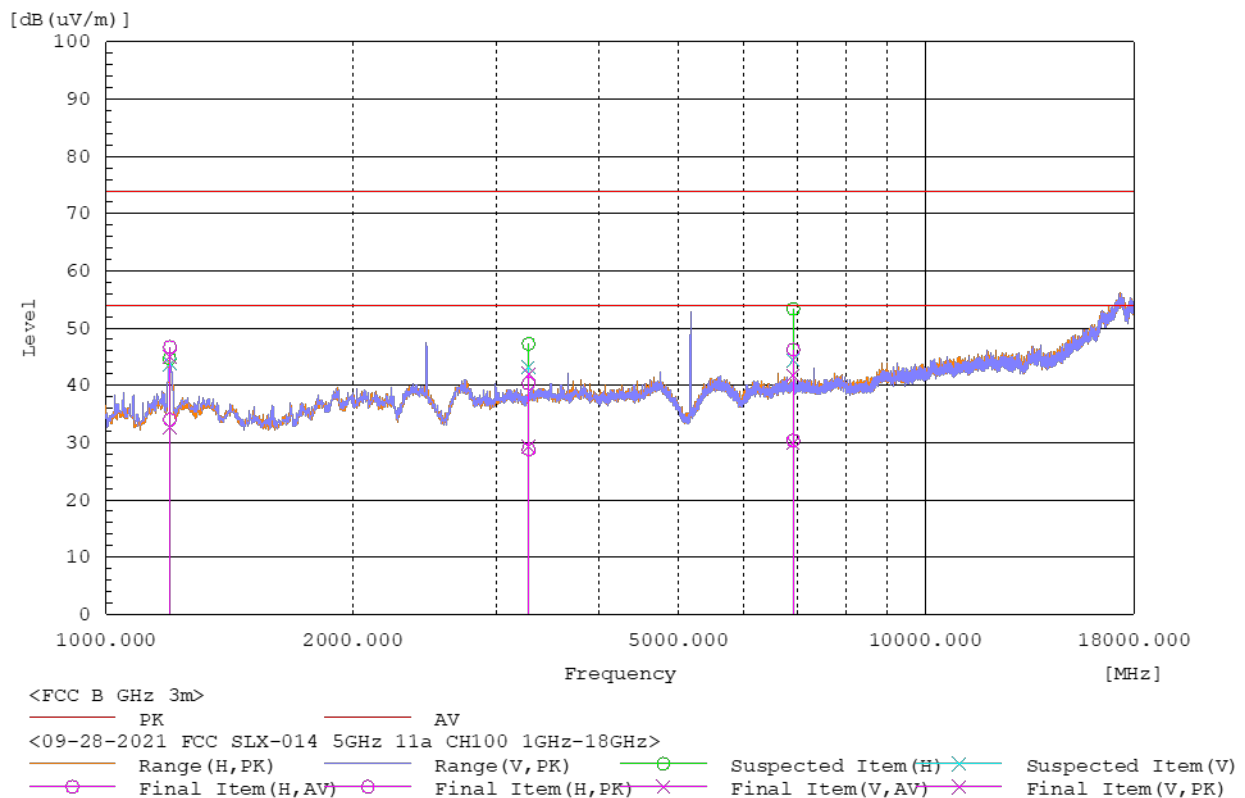
ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m														
No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	3280.06	H	36.5	48.9	-8.9	27.6	40	54	74	-26.4	-34	100	283.7	Pass
2	6906.649	H	38.5	54.1	-1.3	37.2	52.8	-	68.2	-	-15.4	147	32.9	Pass
3	6906.671	V	33.9	53.3	-1.3	32.6	52	-	68.2	-	-16.2	103	72.8	Pass
4	35537.01	H	23.1	34.6	17.9	41	52.5	-	68.2	-	-15.7	337	252.9	Pass
5	36084.12	H	23.7	34.5	16.8	40.5	51.3	-	68.2	-	-16.9	100	108	Pass
6	35536.38	V	22.5	34.2	17.9	40.4	52.1	-	68.2	-	-16.1	177	210.1	Pass

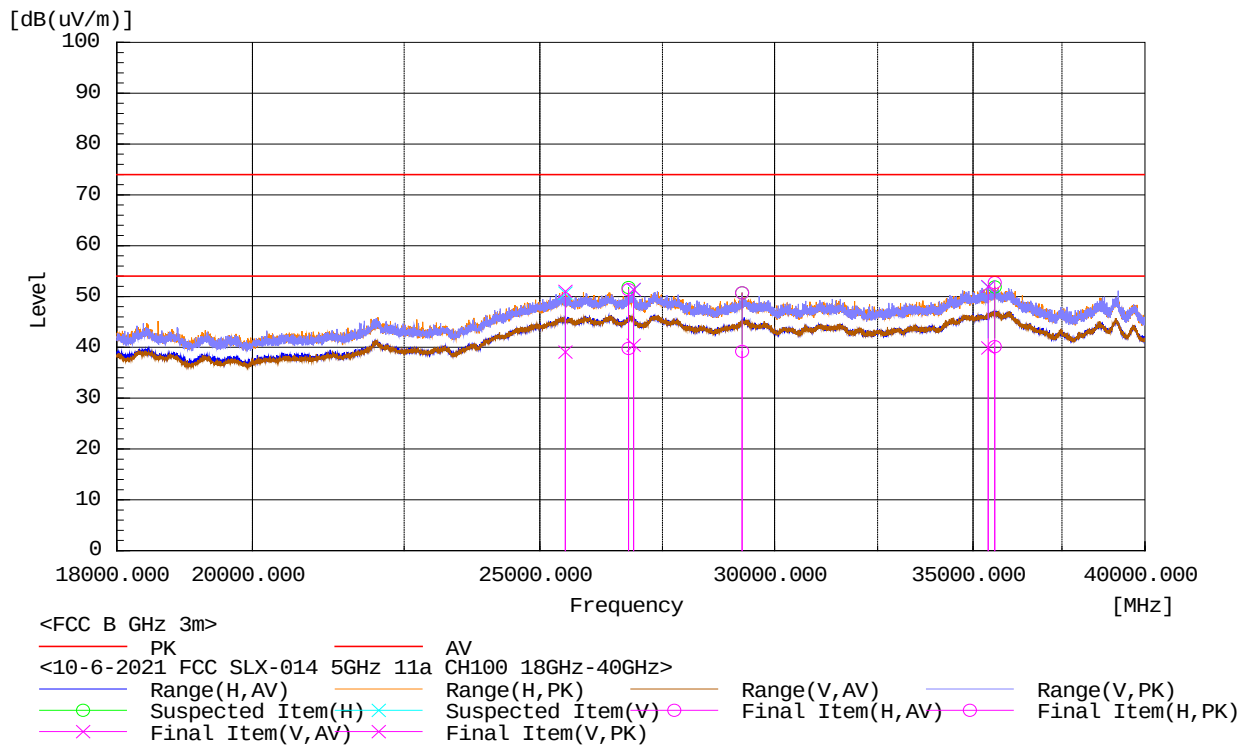




1GHz-40GHz, 802.11a, Ch:100, 5500MHz

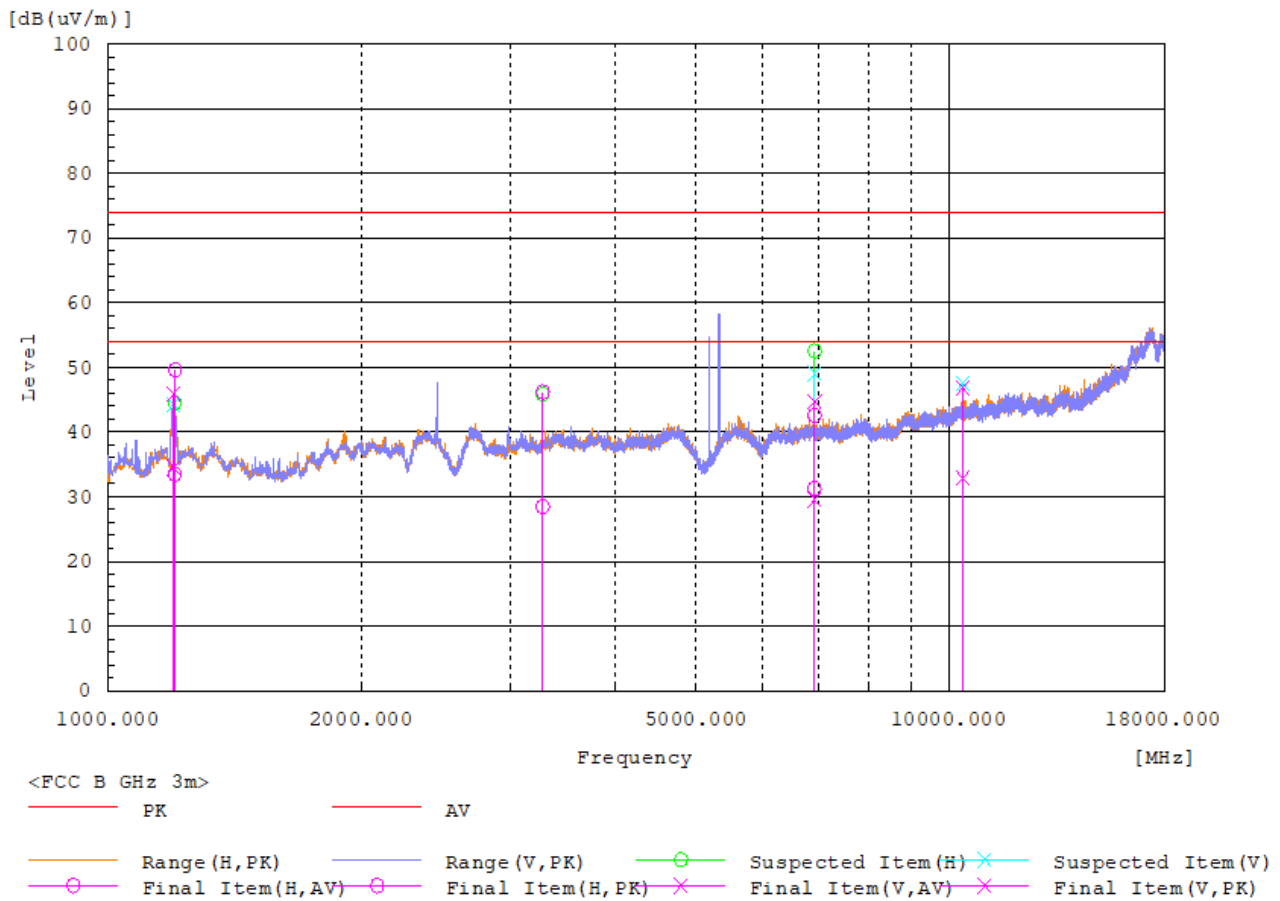
ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m														
No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	1196.259	H	51	63.7	-17	34	46.7	54	74	-20	-27.3	208	151.2	Pass
2	1196.856	V	49.7	62	-17	32.7	45	54	74	-21.3	-29	117	119	Pass
3	3281.485	H	37.7	49.3	-8.9	28.8	40.4	-	68.2	-	-27.8	117	239.5	Pass
4	25501.51	V	20.4	32.3	18.7	39.1	51	-	68.2	-	-17.2	117	334.6	Pass
5	26782.54	H	21	32.5	18.8	39.8	51.3	-	68.2	-	-16.9	201	0	Pass
6	26889.91	V	21.5	32.5	18.9	40.4	51.4	-	68.2	-	-16.8	374	312.2	Pass

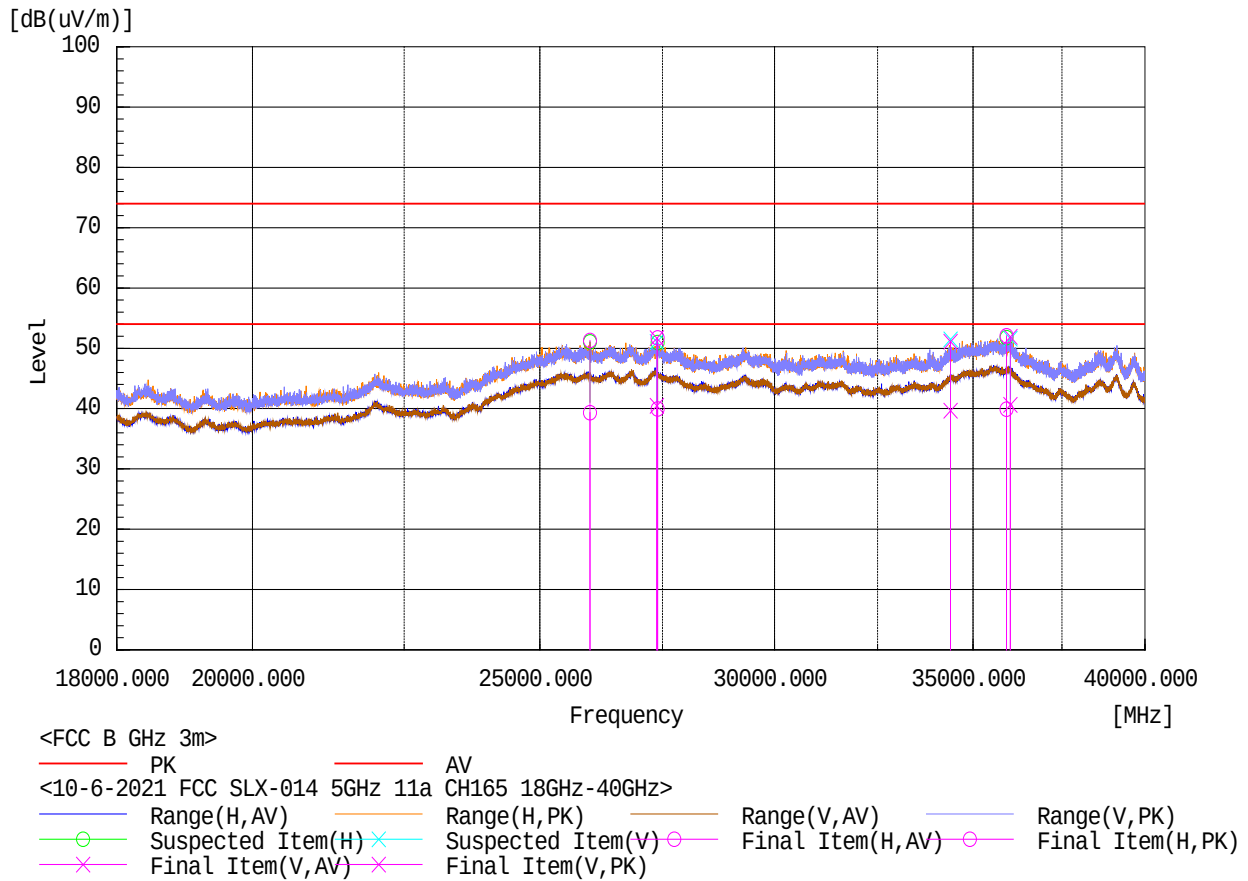




1GHz-40GHz, 802.11a, Ch:165, 5825MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m														
No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	1196.786	V	51.5	62.9	-17	34.5	45.9	54	74	-19.5	-28.1	132	112.3	Pass
2	1200.561	H	50.4	66.5	-16.9	33.5	49.6	54	74	-20.5	-24.4	193	165.8	Pass
3	3282.776	H	37.4	55.1	-8.9	28.5	46.2	-	68.2	-	-22	117	139.1	Pass
4	25995.31	H	20.7	32.7	18.6	39.3	51.3	-	68.2	-	-16.9	231	315.5	Pass
5	27379.5	V	20.9	32.1	19.6	40.5	51.7	-	68.2	-	-16.5	177	9.5	Pass
6	27396.3	H	20.3	32.1	19.6	39.9	51.7	-	68.2	-	-16.5	117	183.3	Pass

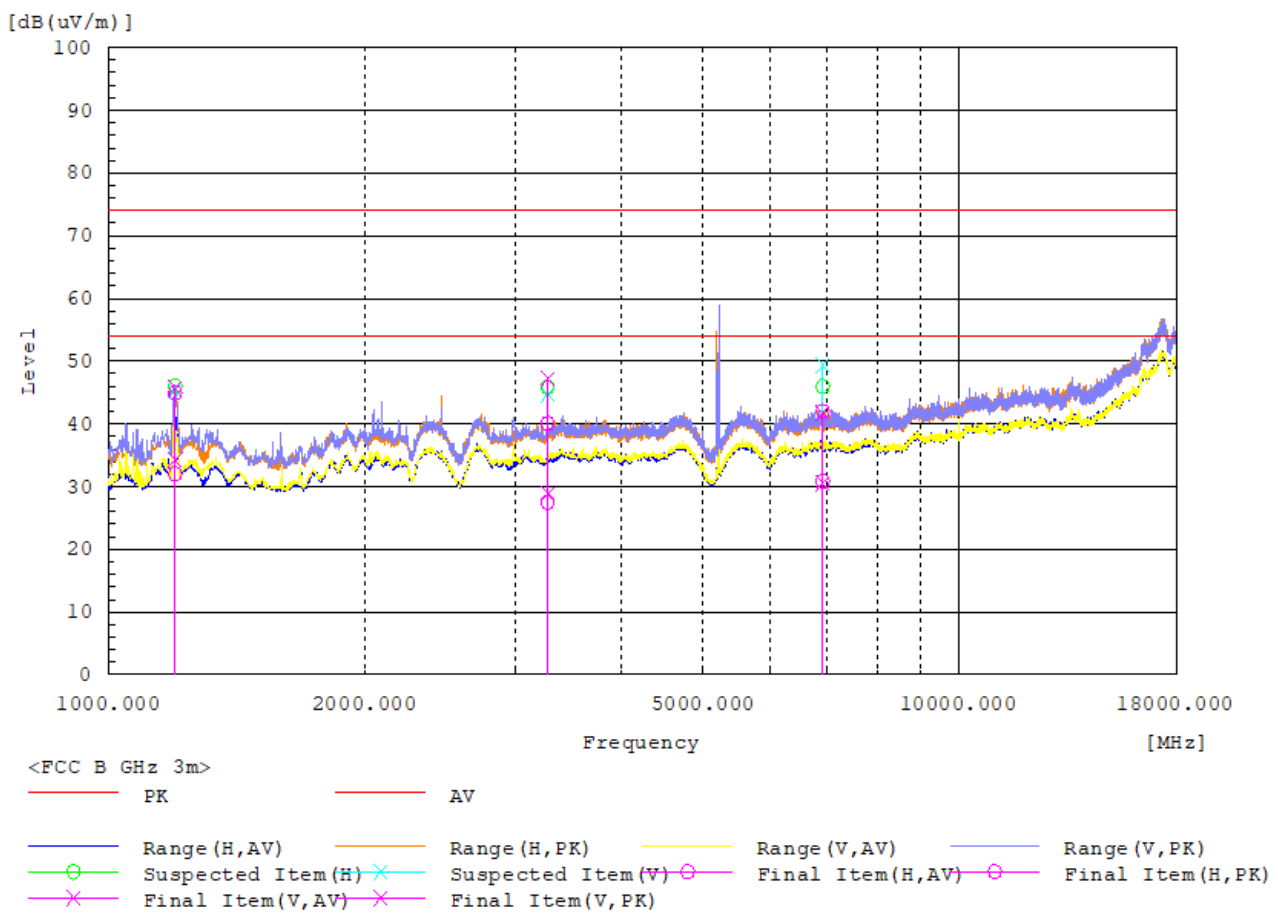


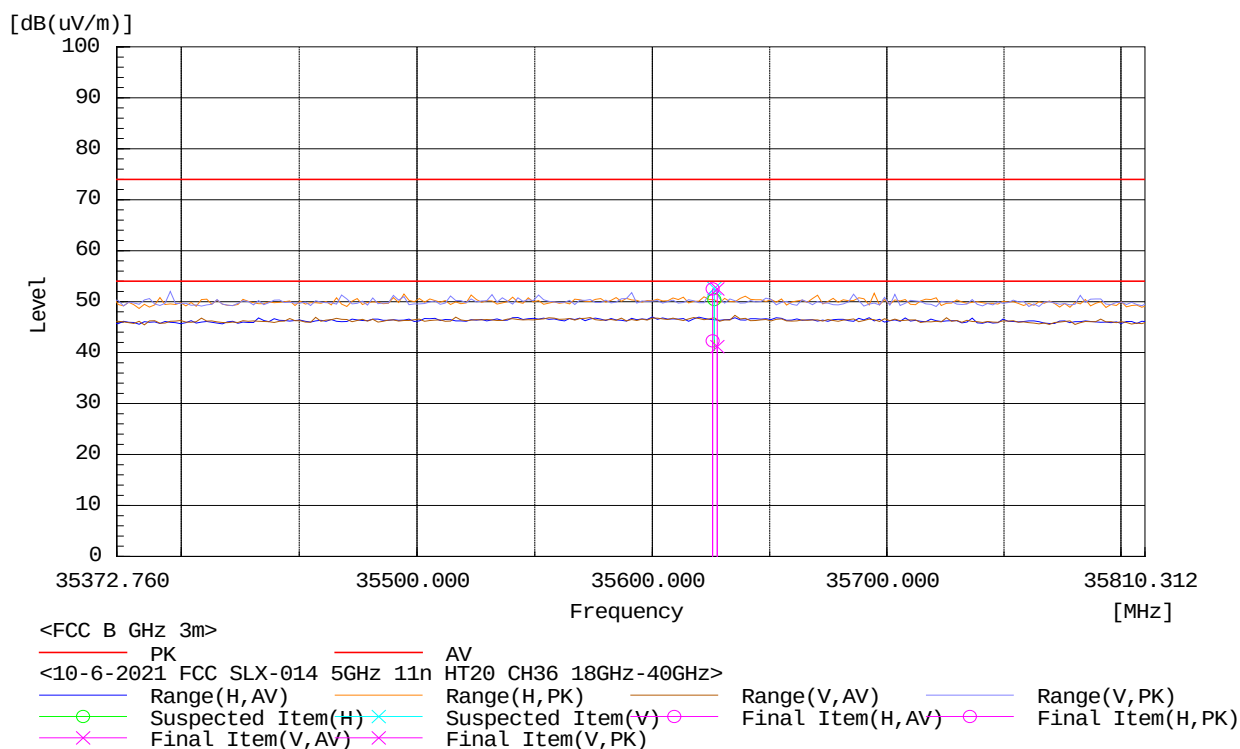


1GHz-40GHz, 802.11n (HT20), Ch:36, 5180MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	1196.878	V	51.2	62.7	-17	34.2	45.7	54	74	-19.8	-28.3	103	118.3	Pass
2	1197.501	H	49	61.9	-17	32	44.9	54	74	-22	-29.1	100	181.3	Pass
3	3282.664	V	37.7	56.1	-8.9	28.8	47.2	-	68.2	-	-21	322	128.1	Pass
4	35625.63	H	24.5	34.7	17.8	42.3	52.5	-	68.2	-	-15.7	328	64.1	Pass
5	35627.62	V	23.4	34.7	17.8	41.2	52.5	-	68.2	-	-15.7	216	259.9	Pass
6	27388.21	V	20.3	32.1	19.6	39.9	51.7	-	68.2	-	-16.5	261	177	Pass

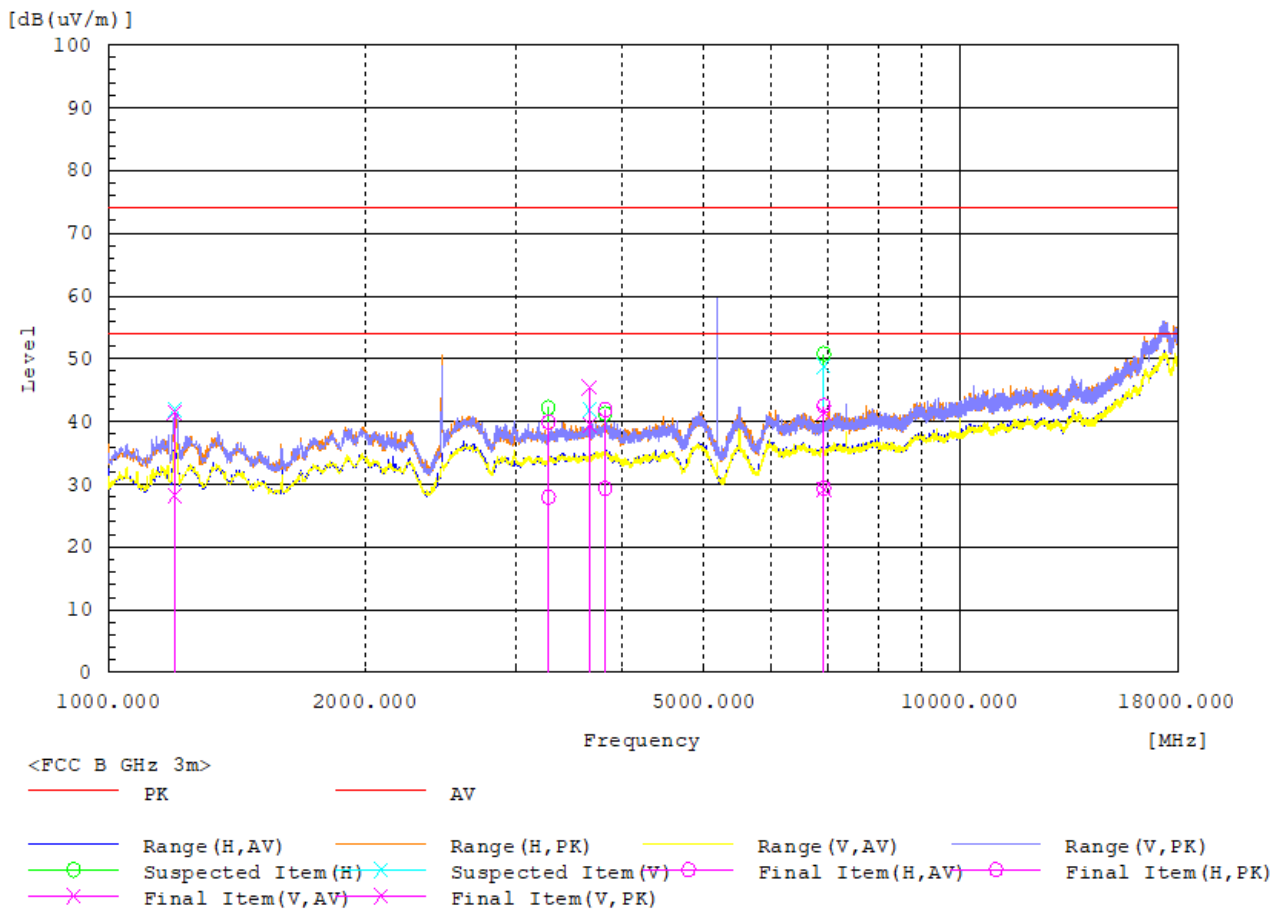


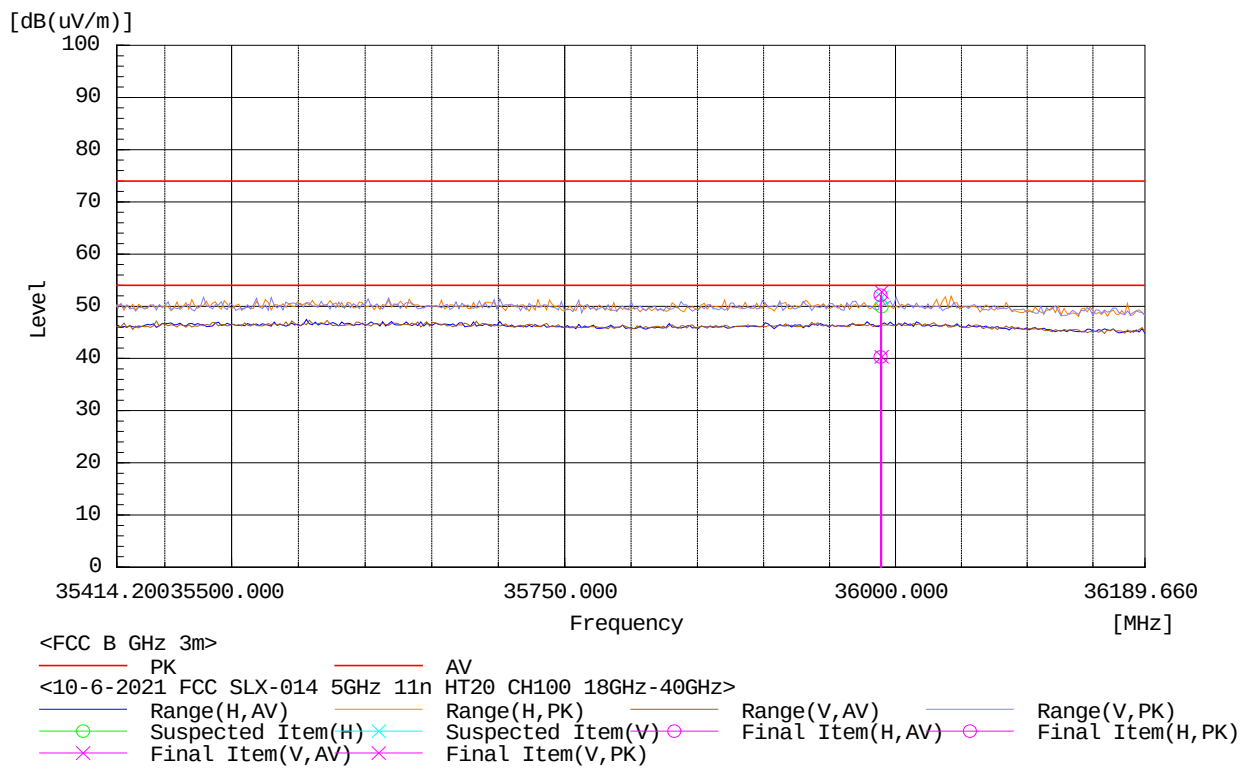


1GHz-40GHz, 802.11n (HT20), Ch:100, 5500MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	1194.578	V	45.2	58.5	-17	28.2	41.5	54	74	-25.8	-32.5	208	134.9	Pass
2	3282.199	H	36.9	48.8	-8.9	28	39.9	-	68.2	-	-28.3	322	75.9	Pass
3	3666.655	V	47.9	53.8	-8.4	39.5	45.4	54	74	-14.5	-28.6	223	111.9	Pass
4	27413.16	H	21.1	32	19.6	40.7	51.6	-	68.2	-	-16.6	291	126	Pass
5	35989.4	V	23.4	35.9	16.9	40.3	52.8	-	68.2	-	-15.4	99	188.3	Pass
6	35988.69	H	23.4	35.2	16.9	40.3	52.1	-	68.2	-	-16.1	322	3.4	Pass

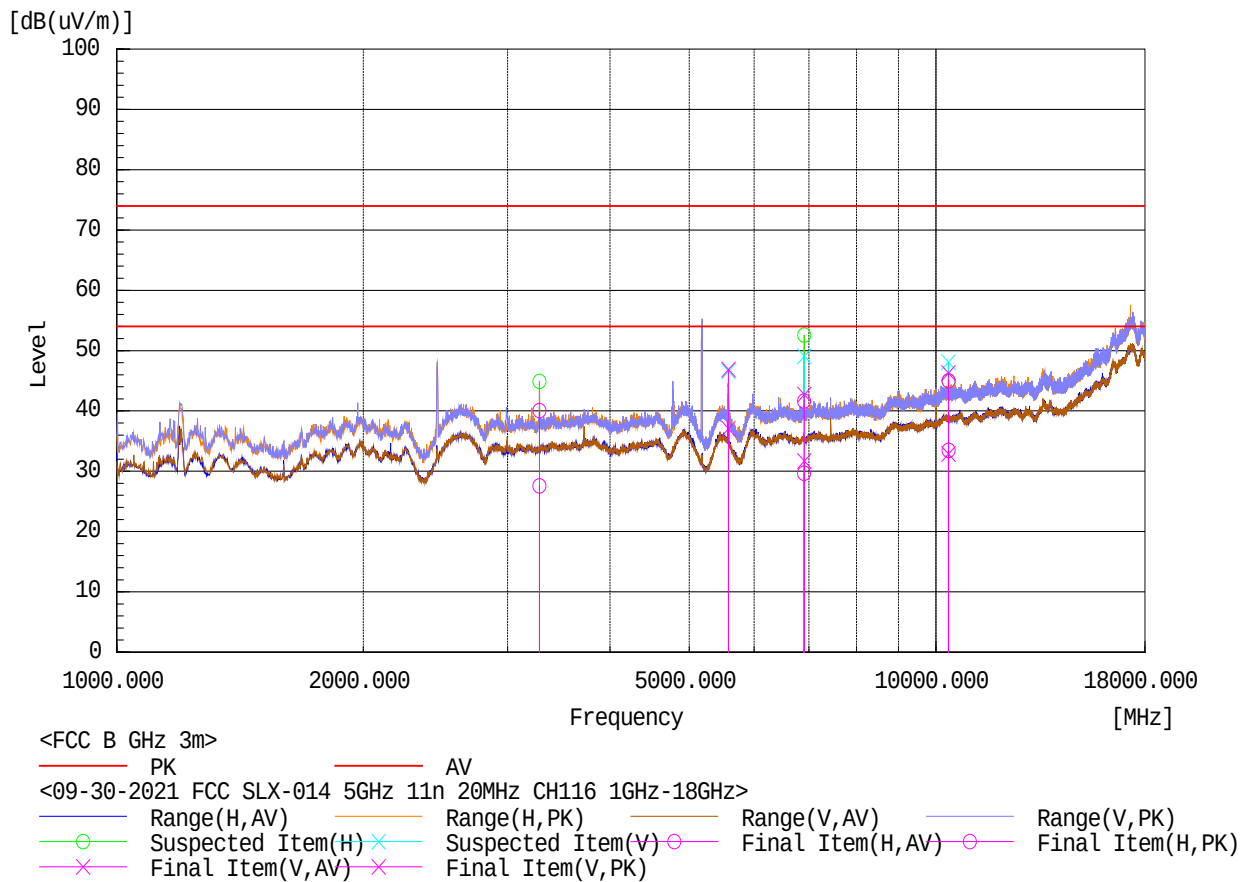


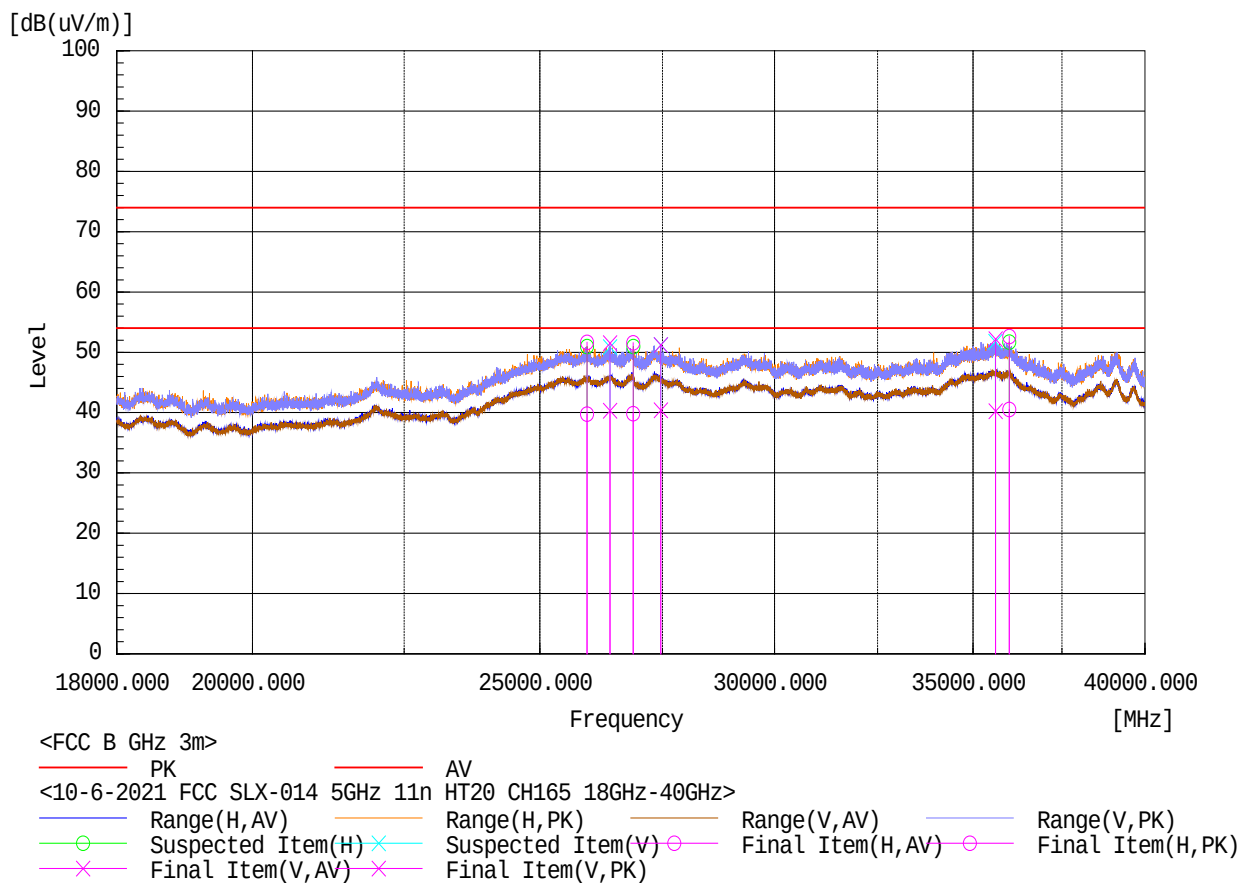


1GHz-40GHz, 802.11n (HT20), Ch:165, 5825MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	3280.197	H	36.5	49	-8.9	27.6	40.1	54	74	-26.4	-33.9	103	25.5	Pass
2	5581.184	V	41.9	51.7	-4.8	37.1	46.9	54	74	-16.9	-27.1	103	6	Pass
3	6904.961	H	31	42.9	-1.3	29.7	41.6	-	68.2	-	-26.6	253	74.5	Pass
4	25932.98	H	21.2	33	18.6	39.8	51.6	-	68.2	-	-16.6	352	341.7	Pass
5	26399.97	V	21.6	32.8	18.7	40.3	51.5	-	68.2	-	-16.7	367	0	Pass
6	26883.01	H	20.9	32.7	18.9	39.8	51.6	-	68.2	-	-16.6	400	260.8	Pass

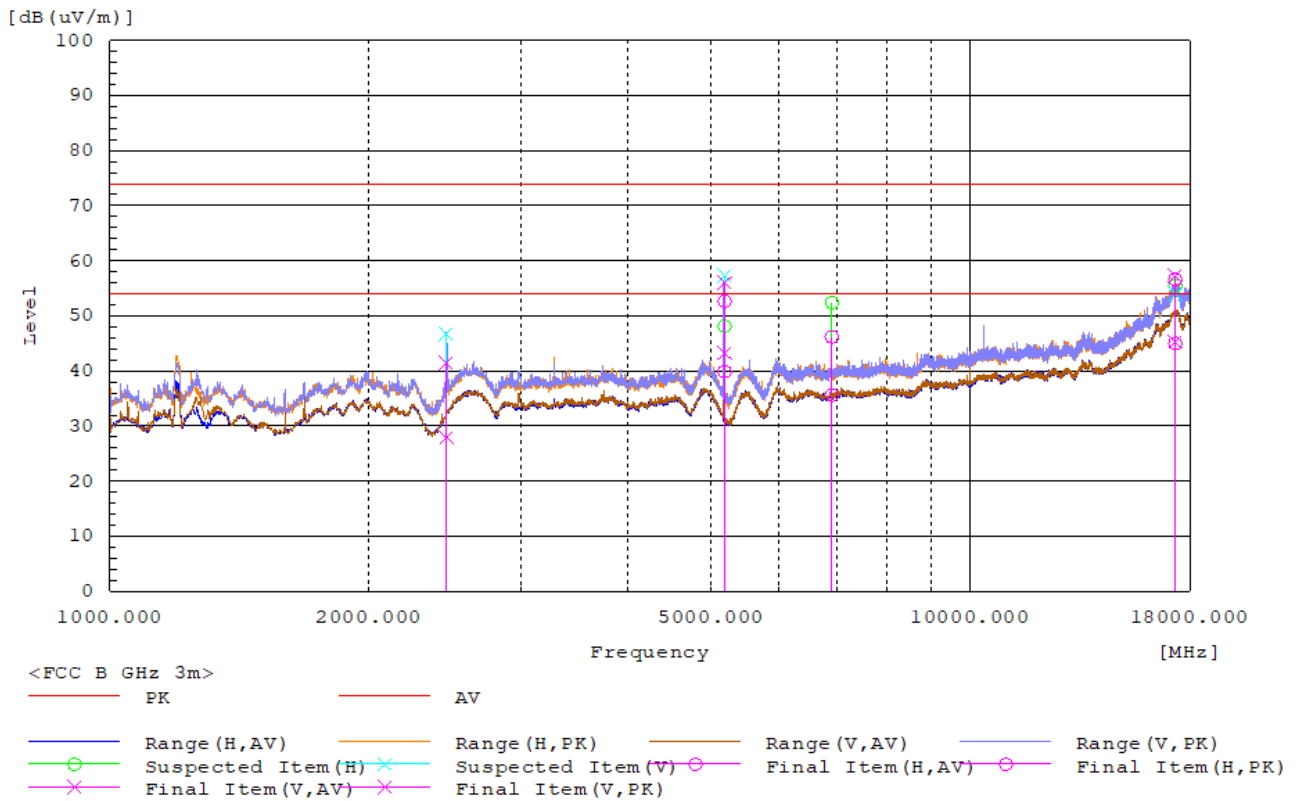


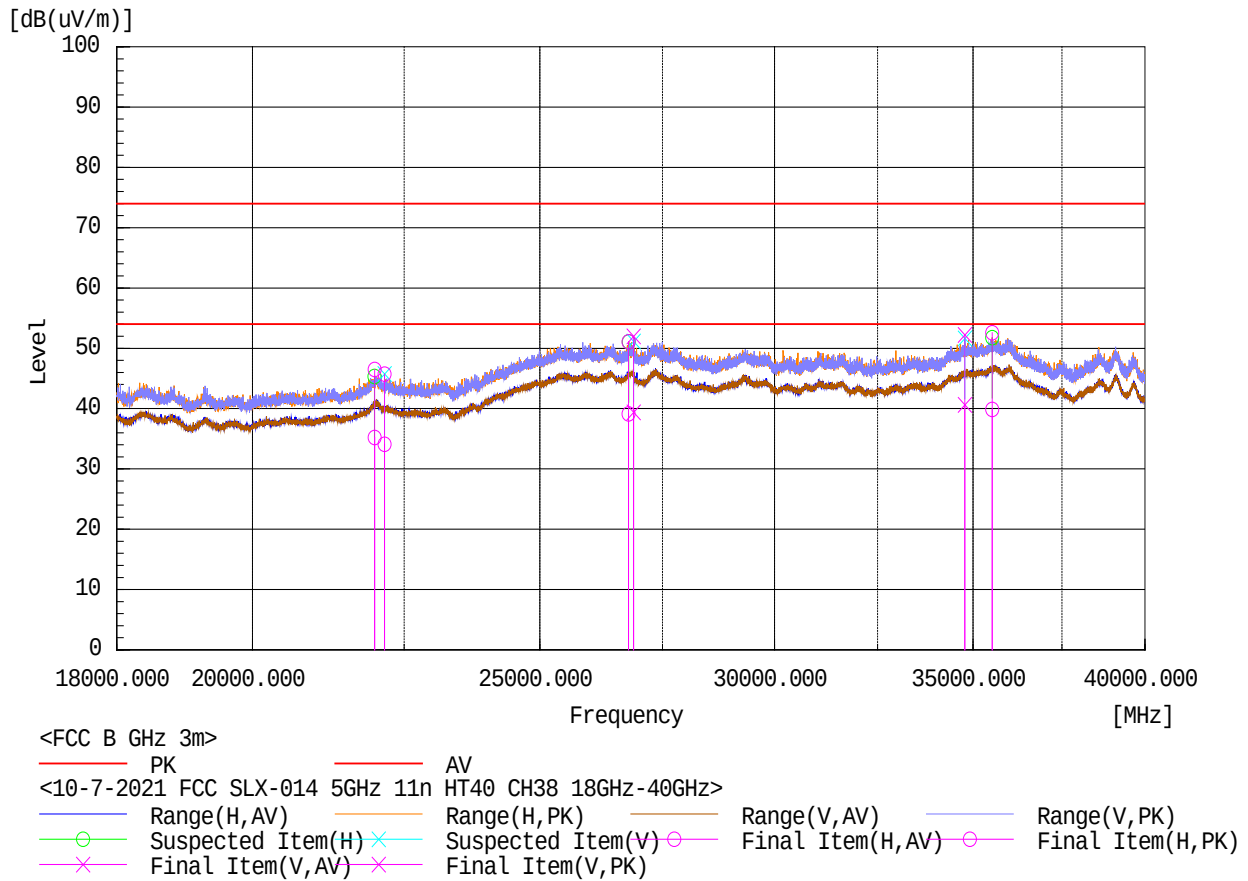


1GHz-40GHz, 802.11n (HT40), Ch:38, 5190MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	17316.64	V	30.1	42.1	15.2	45.3	57.3	54	74	-8.7	-16.7	400	225.2	Pass
2	17315.41	H	29.8	41.4	15.2	45	56.6	54	74	-9	-17.4	382	30.5	Pass
3	5183.013	V	48.9	61.6	-5.6	43.3	56	54	74	-10.7	-18	178	225.2	Pass
4	21989.64	H	20.3	31.6	14.9	35.2	46.5	-	68.2	-	-21.7	99	194.3	Pass
5	22160.29	H	19.2	30.8	14.9	34.1	45.7	54	74	-19.9	-28.3	344	328.5	Pass
6	26786.44	H	20.3	32.3	18.8	39.1	51.1	-	68.2	-	-17.1	201	201.4	Pass

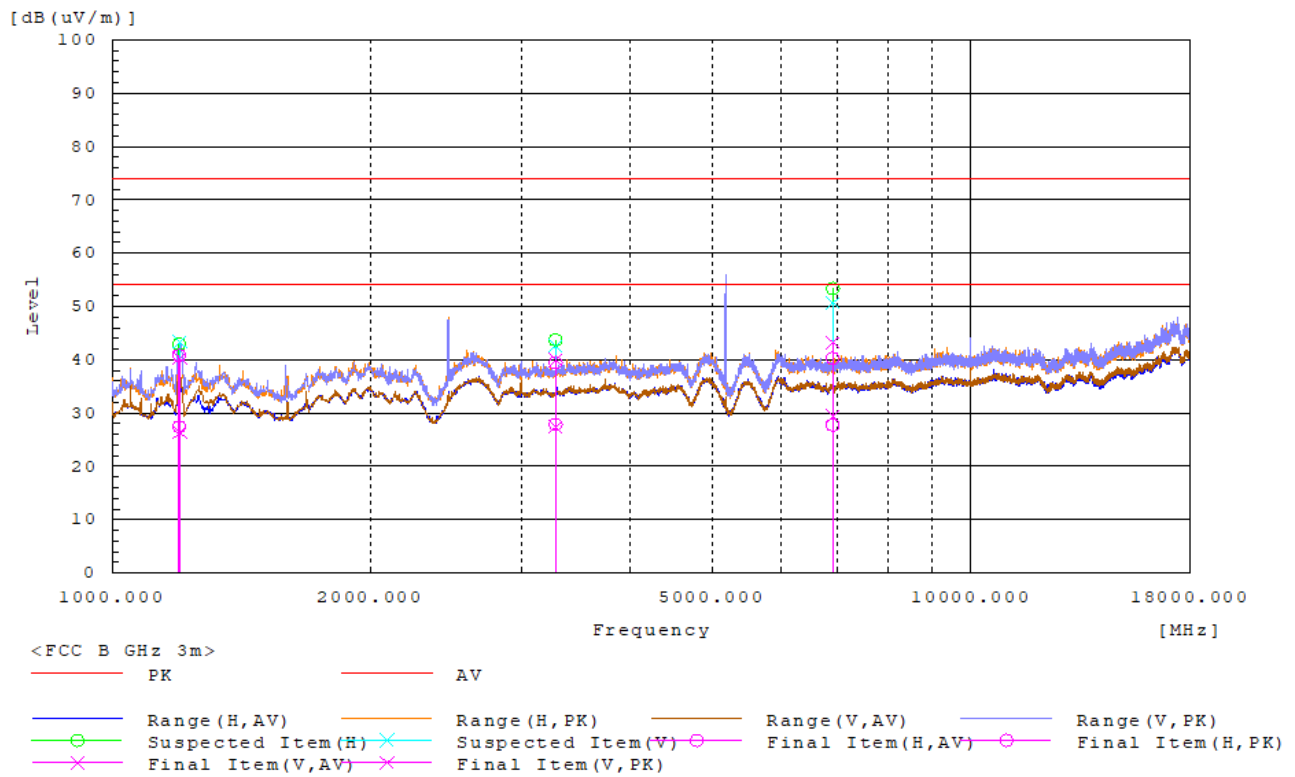


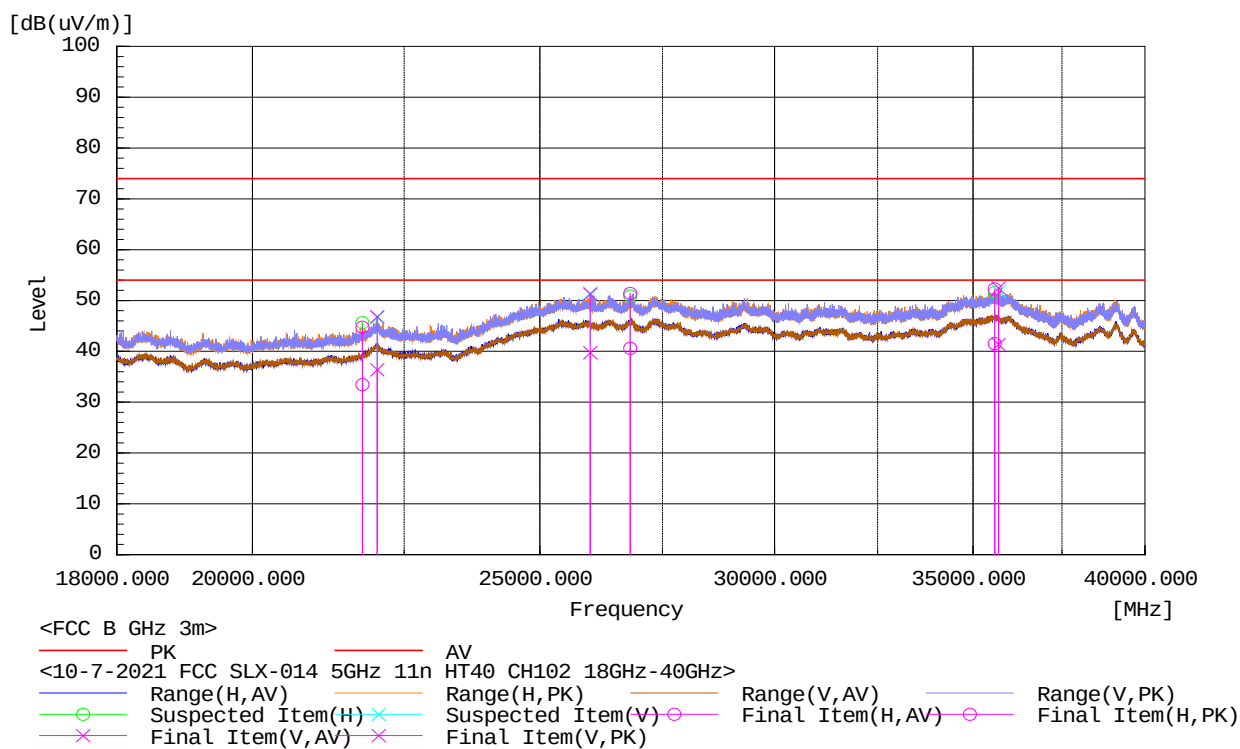


1GHz-40GHz, 802.11n (HT40), Ch:102, 5510MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	1195.466	H	44.4	57.8	-17	27.4	40.8	54	74	-26.6	-33.2	178	197.2	Pass
2	1197.266	V	43.4	57.3	-17	26.4	40.3	54	74	-27.6	-33.7	100	252.9	Pass
3	3281.469	V	36.3	48.9	-8.9	27.4	40	54	74	-26.6	-34	103	264.5	Pass
4	35596.65	H	23.7	34.5	17.8	41.5	52.3	-	68.2	-	-15.9	117	289.9	Pass
5	35702.28	V	23.7	34.8	17.7	41.4	52.5	-	68.2	-	-15.7	201	275	Pass
6	26817.53	H	21.8	32.6	18.8	40.6	51.4	-	68.2	-	-16.8	99	276.6	Pass

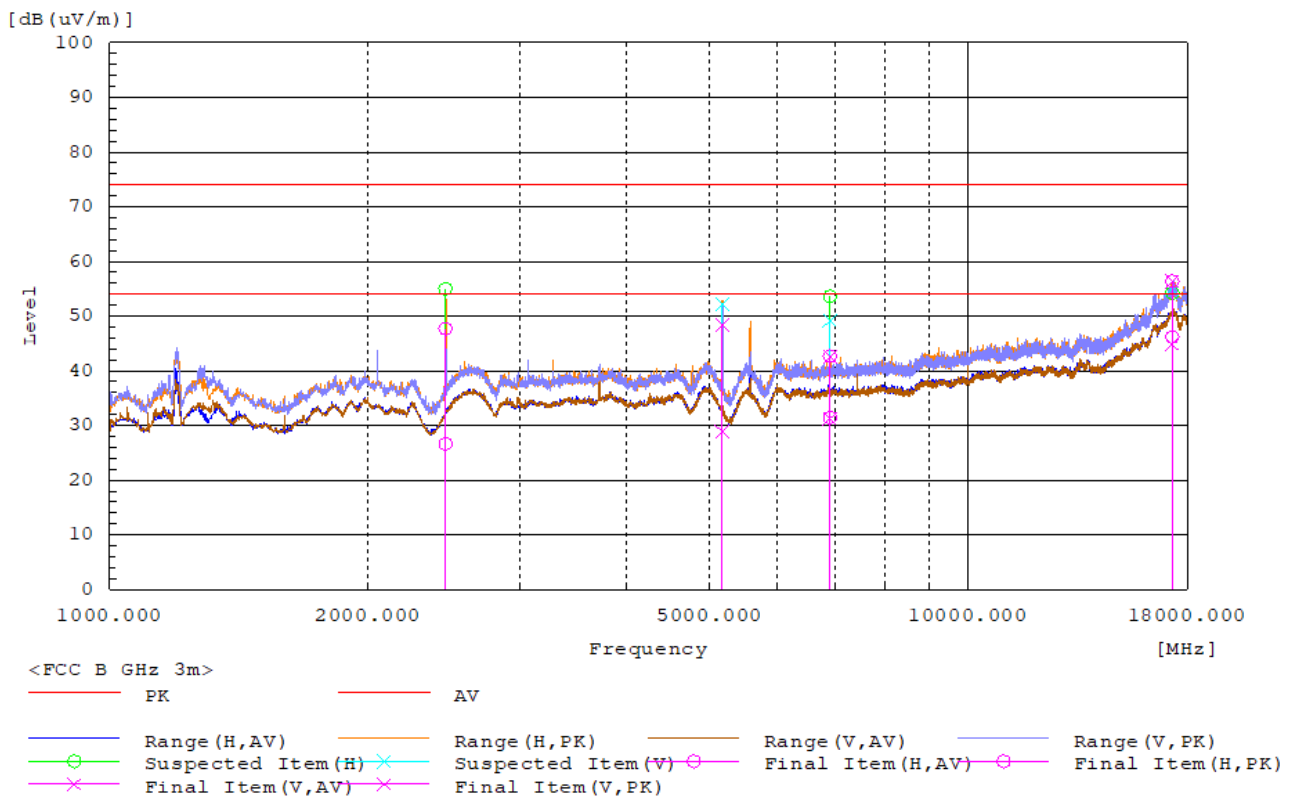


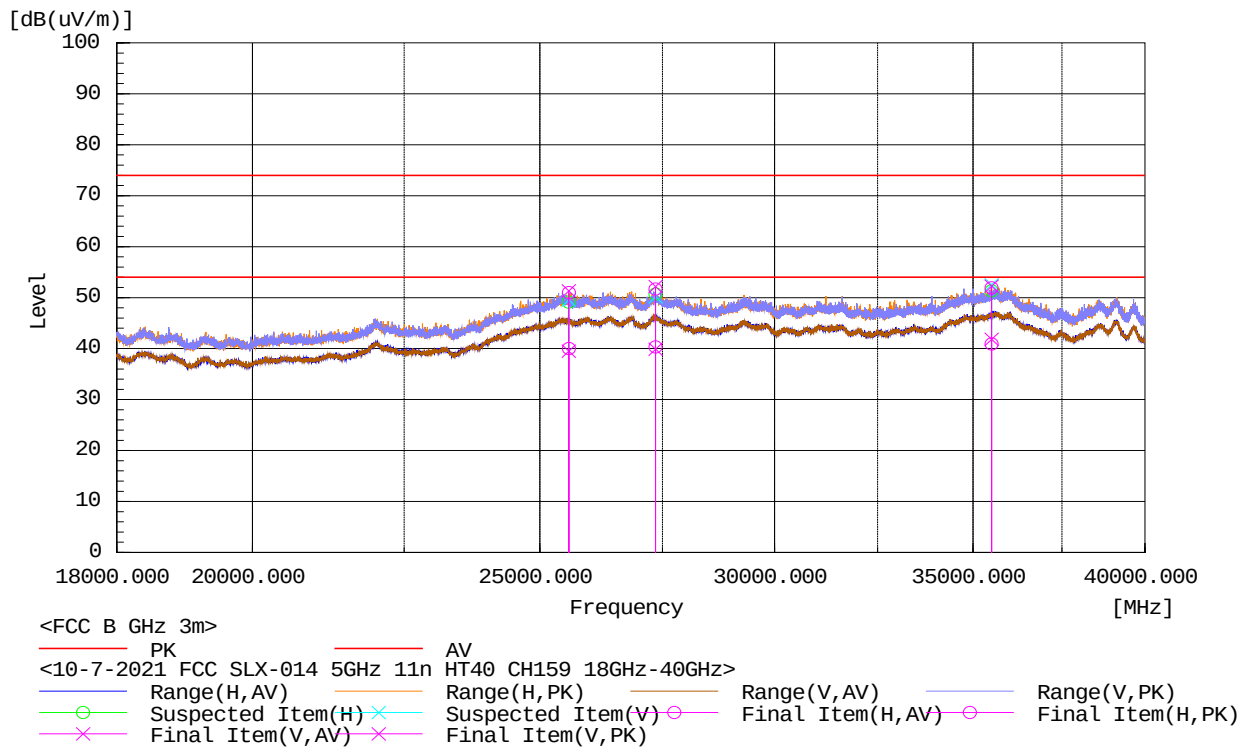


1GHz-40GHz, 802.11n (HT40), Ch:159, 5795MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	17287.67	H	31	41.2	15.2	46.2	56.4	54	74	-7.8	-17.6	216	279.4	Pass
2	17287.84	V	29.7	41.1	15.2	44.9	56.3	54	74	-9.1	-17.7	208	205.3	Pass
3	6905.333	H	32.7	44	-1.3	31.4	42.7	-	68.2	-	-25.5	100	97.2	Pass
4	35507.75	V	24	34.4	17.9	41.9	52.3	-	68.2	-	-15.9	103	258.6	Pass
5	35506.48	H	23	34	17.9	40.9	51.9	-	68.2	-	-16.3	100	0	Pass
6	27351.5	H	20.8	32.2	19.5	40.3	51.7	-	68.2	-	-16.5	344	258.1	Pass

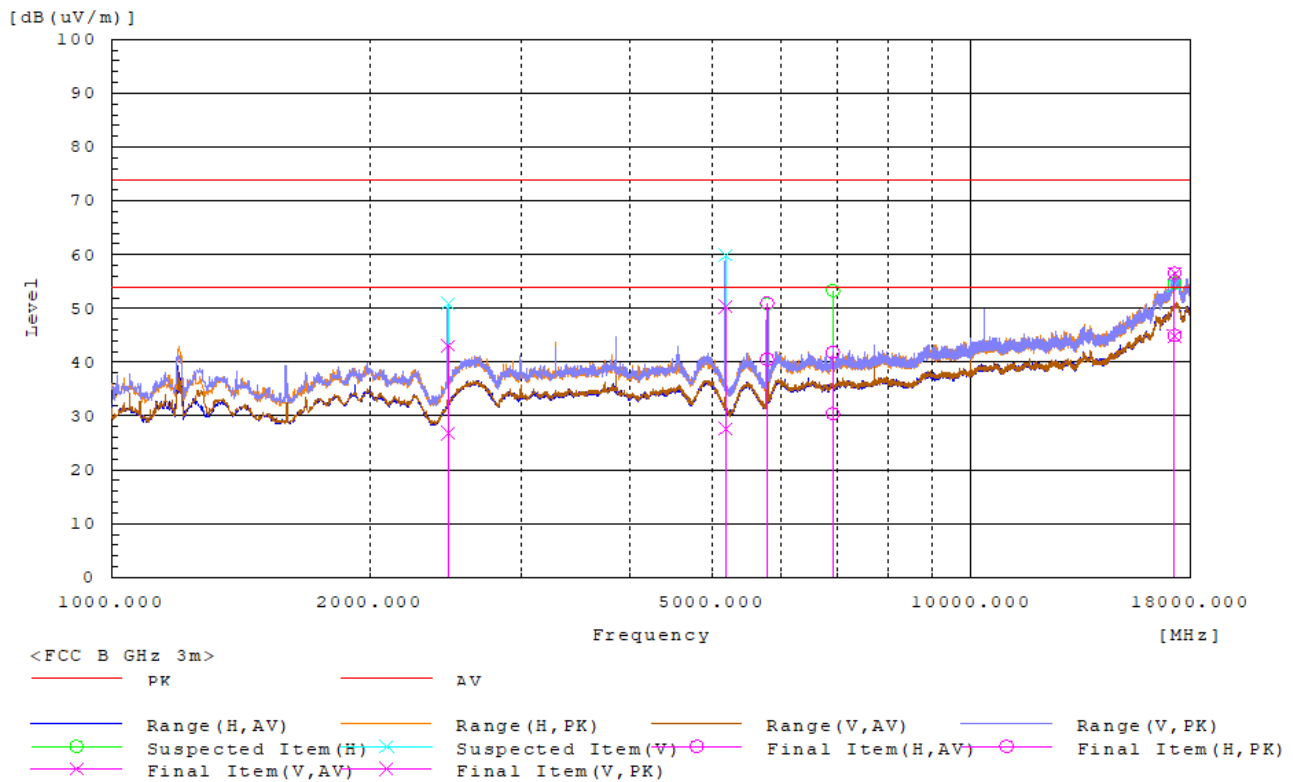


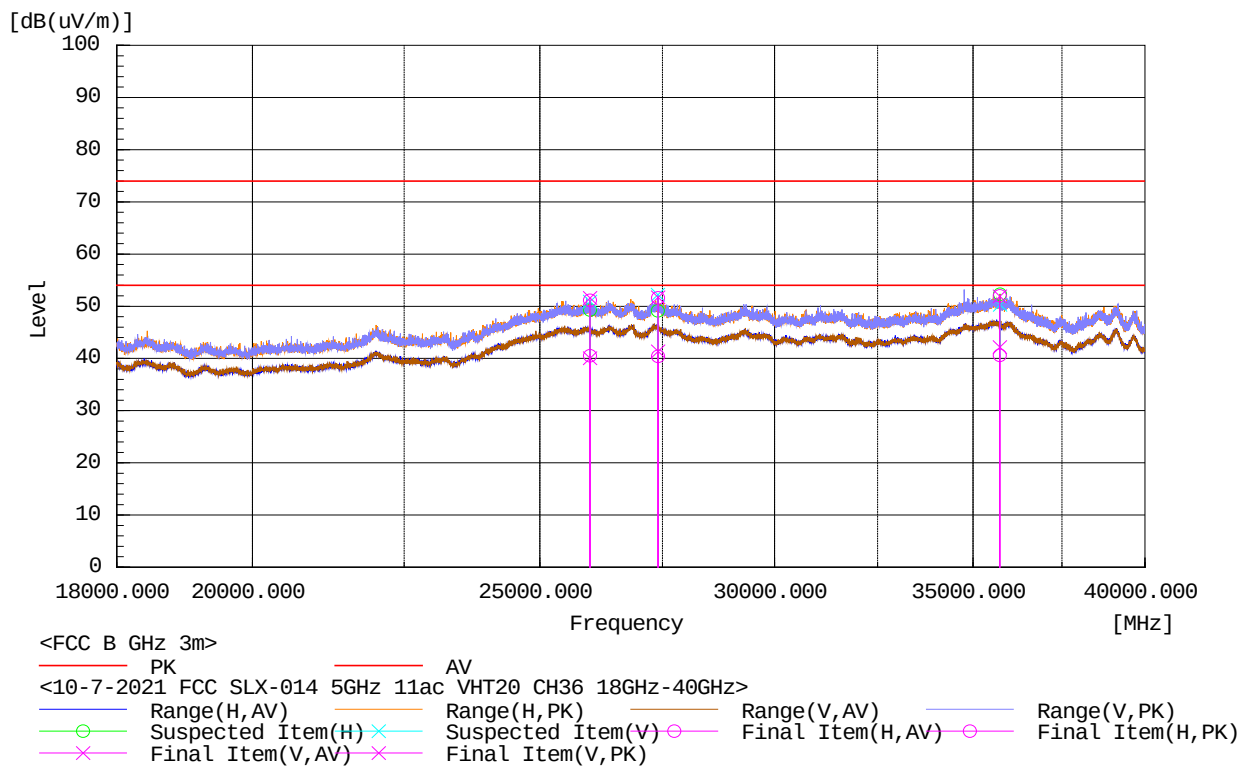


1GHz-40GHz, 802.11ac (VHT20), Ch:36, 5180MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	2462.749	V	38.1	54.4	-11.3	26.8	43.1	-	68.2	-	-25.1	344	88.8	Pass
2	5183.101	V	33.3	56	-5.6	27.7	50.4	-	68.2	-	-17.8	268	46.1	Pass
3	5790.66	H	44.7	55.1	-4.1	40.6	51	-	68.2	-	-17.2	193	34	Pass
4	35738.04	V	24.6	34.3	17.6	42.2	51.9	-	68.2	-	-16.3	382	358.6	Pass
5	27403.096	V	21.8	32.1	19.6	41.4	51.7	-	68.2	-	-16.5	314	256.4	Pass
6	35737.672	H	23	34.4	17.6	40.6	52	-	68.2	-	-16.2	253	127.1	Pass

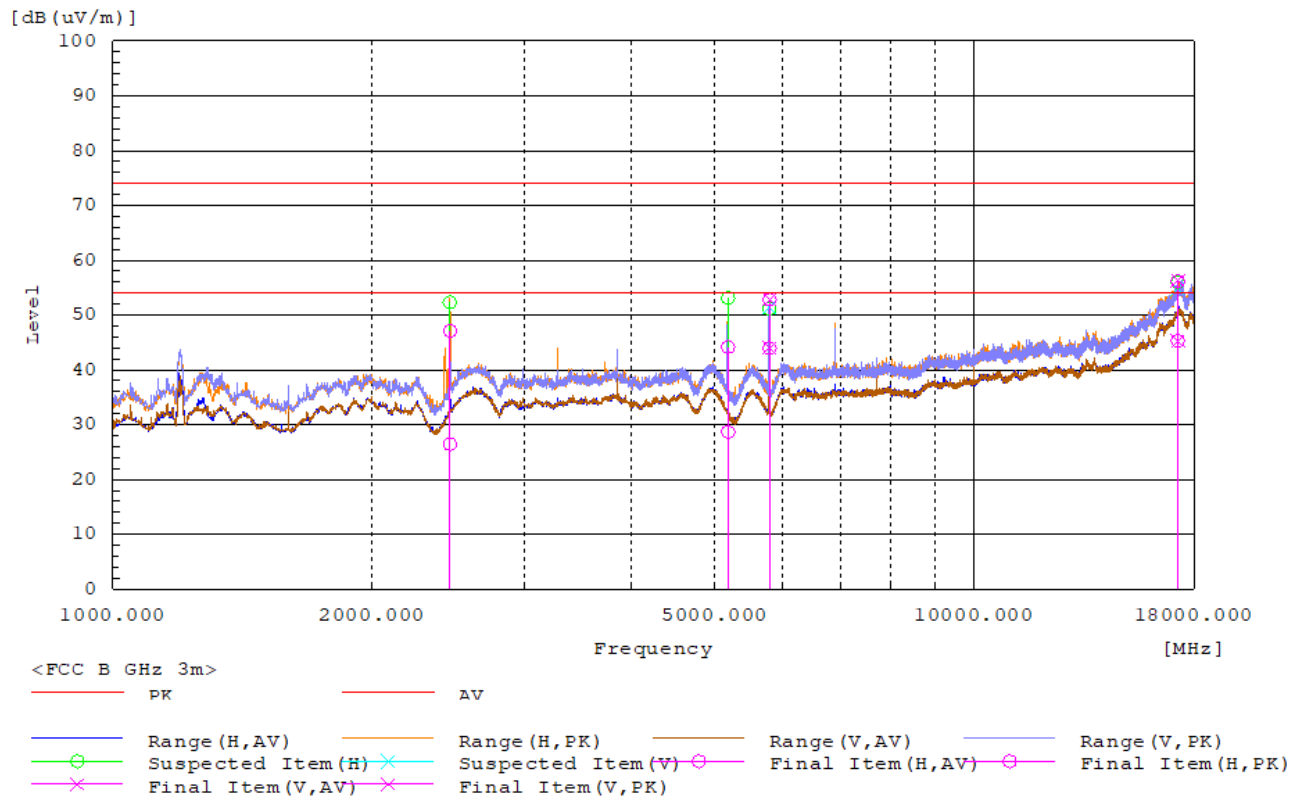


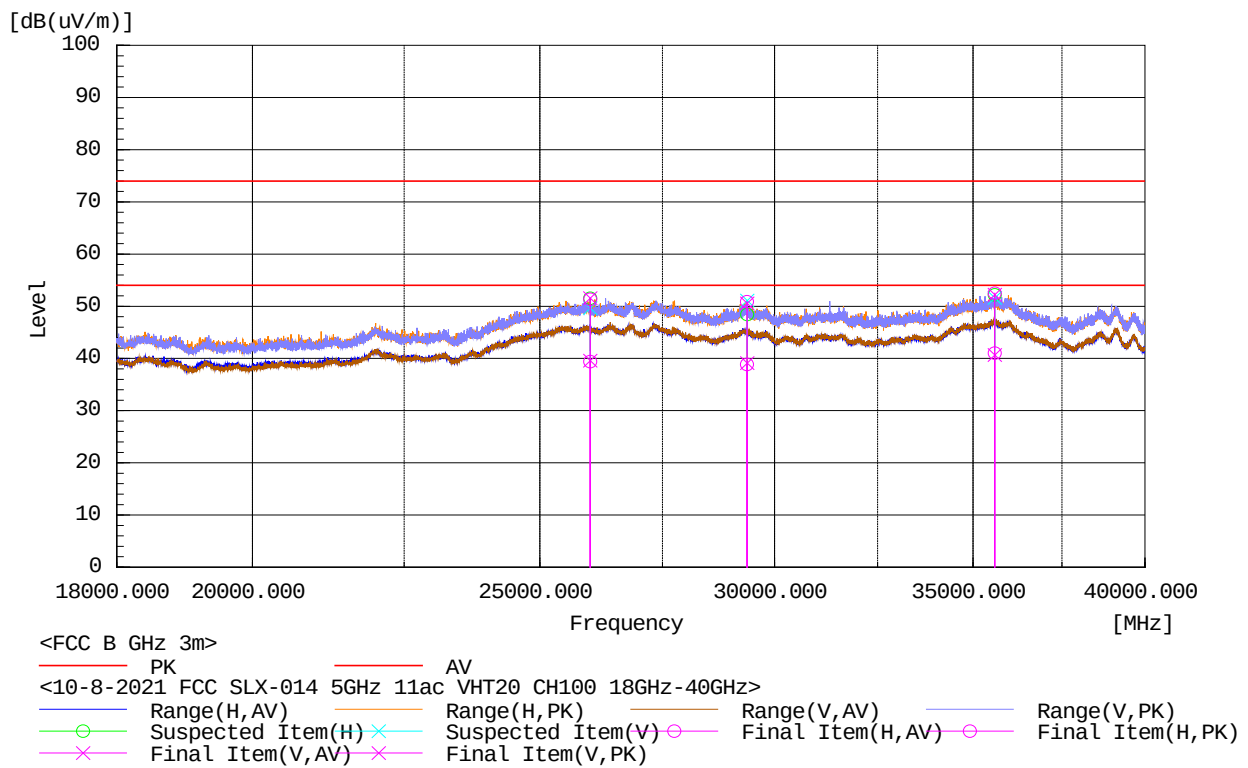


1GHz-40GHz, 802.11ac (VHT20), Ch:100, 5500MHz

ANTENNA POLARITY & test distance: HORIZONTAL& VERTICAL at 3 m														
No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	17244.48	V	30	41	15.3	45.3	56.3	54	74	-8.7	-17.7	216	174.2	Pass
2	17243.71	H	30	40.8	15.3	45.3	56.1	54	74	-8.7	-17.9	382	111	Pass
3	5786.279	V	48.1	57	-4.1	44	52.9	-	68.2	-	-15.3	238	151.4	Pass
4	35594.37	H	23.2	34.7	17.8	41	52.5	-	68.2	-	-15.7	155	4.1	Pass
5	35594.34	V	22.9	34.4	17.8	40.7	52.2	-	68.2	-	-16	103	358.2	Pass
6	26000.03	V	21	33	18.6	39.6	51.6	-	68.2	-	-16.6	313	135.9	Pass

Note: Lower of the FCC 15.205 Restricted Band limit/Undesirable Emissions limit of 15.407(b) limit was used.

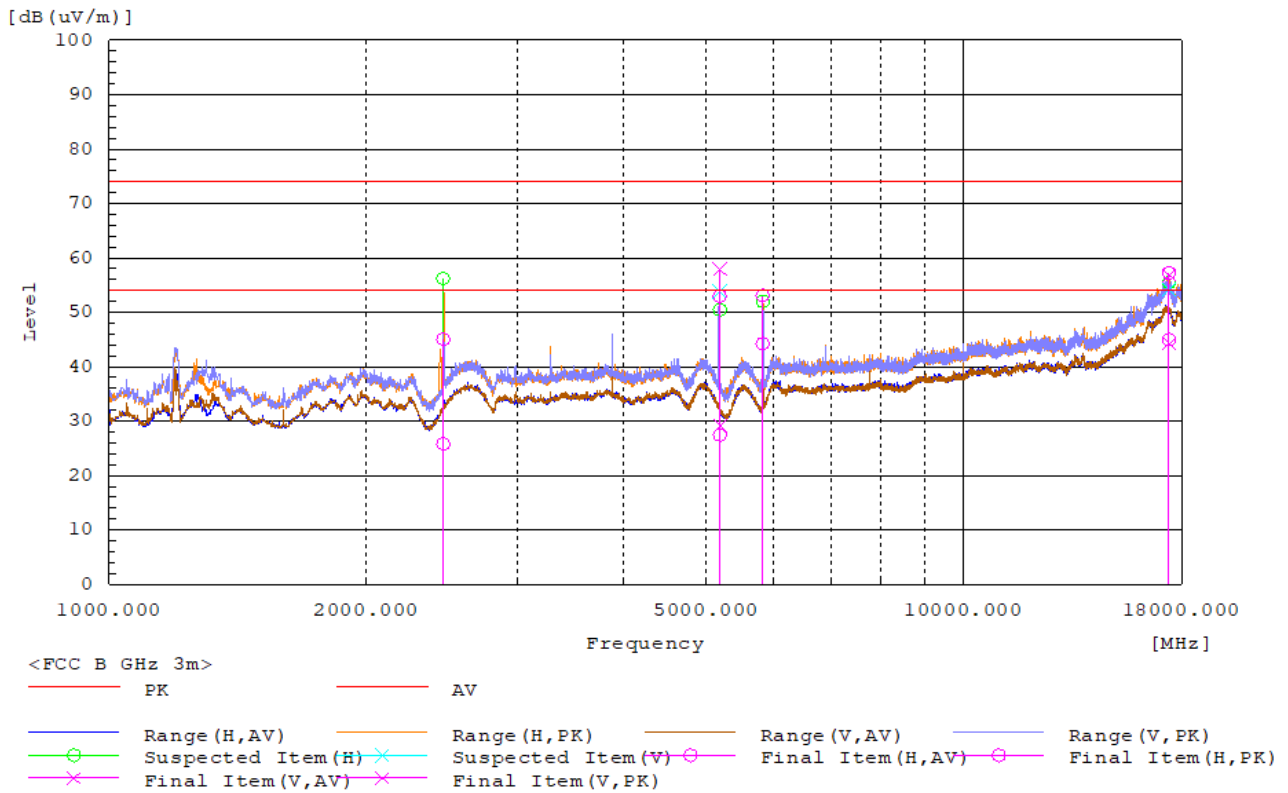


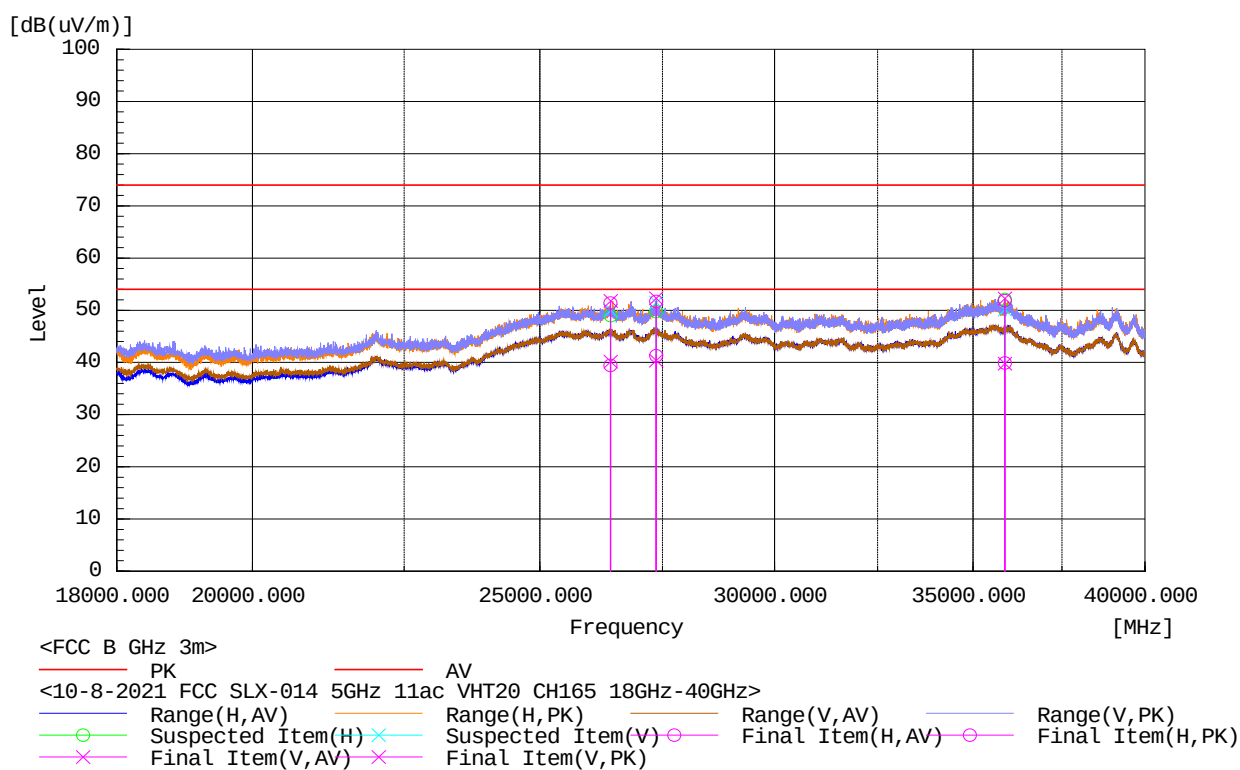


1GHz-40GHz, 802.11ac (VHT20), Ch:165, 5825MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

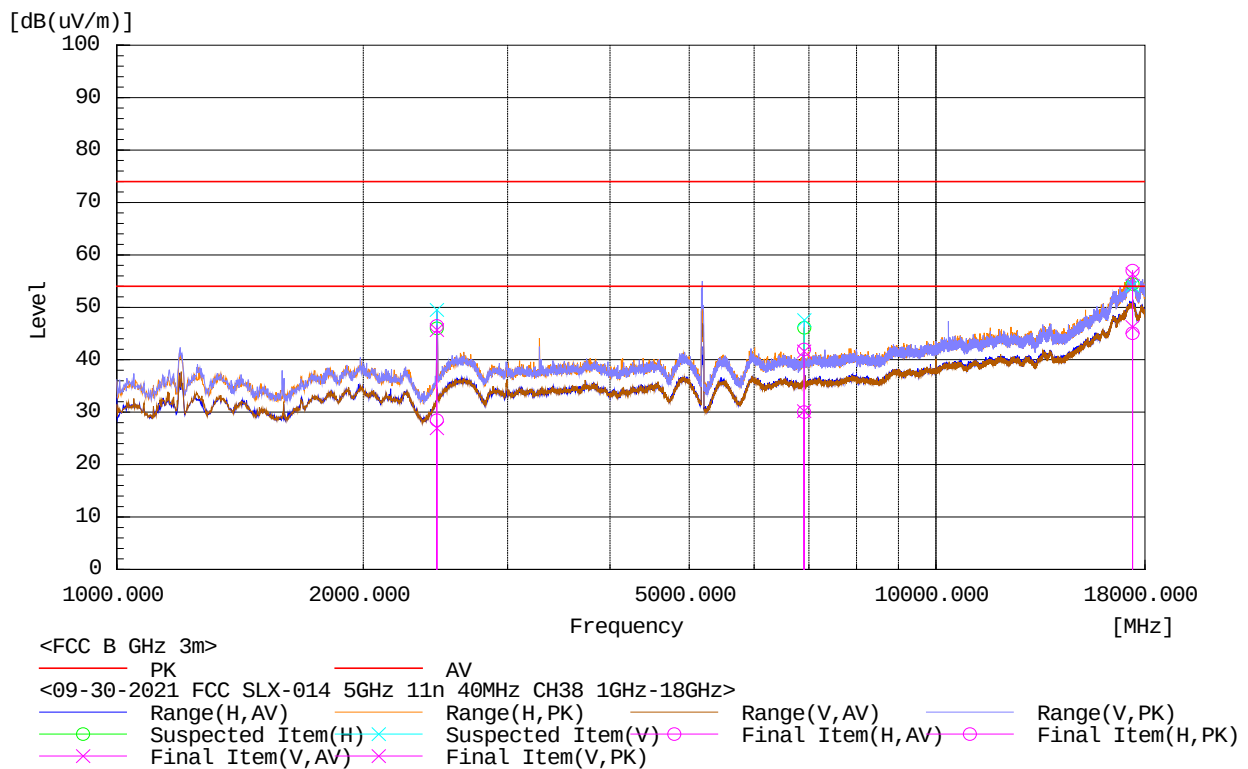
No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	17399.27	H	29.2	41.4	15.8	45	57.2	-	68.2	-	-11	100	0	Pass
2	5822.573	H	48.2	57.1	-4	44.2	53.1	-	68.2	-	-15.1	192	56.3	Pass
3	17398.71	V	28.4	41	15.8	44.2	56.8	-	68.2	-	-11.4	186	248.1	Pass
4	27364.13	H	21.7	32.1	19.6	41.3	51.7	-	68.2	-	-16.5	223	228.8	Pass
5	27366.88	V	20.8	32.7	19.6	40.4	52.3	-	68.2	-	-15.9	216	144.2	Pass
6	26412.92	V	21.5	33.1	18.7	40.2	51.8	-	68.2	-	-16.4	344	252.5	Pass

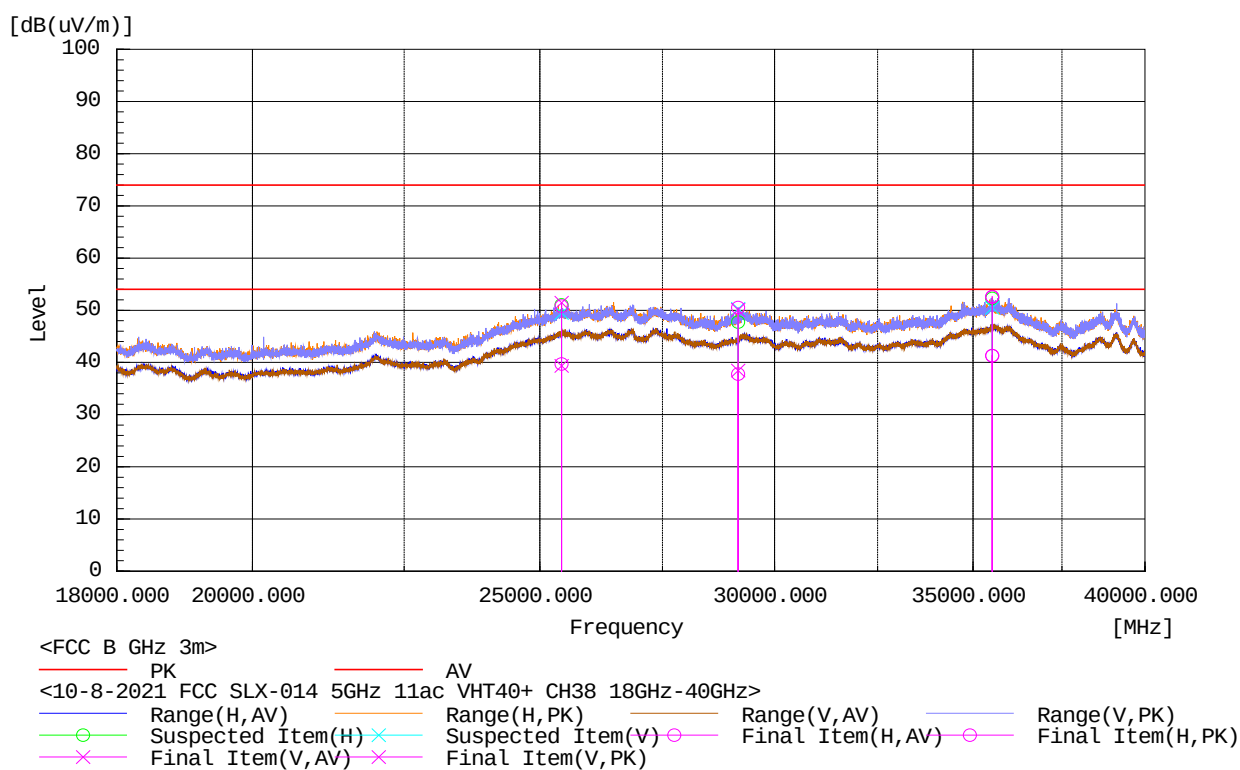




1GHz-40GHz, 802.11ac (VHT40), Ch:38, 5190MHz

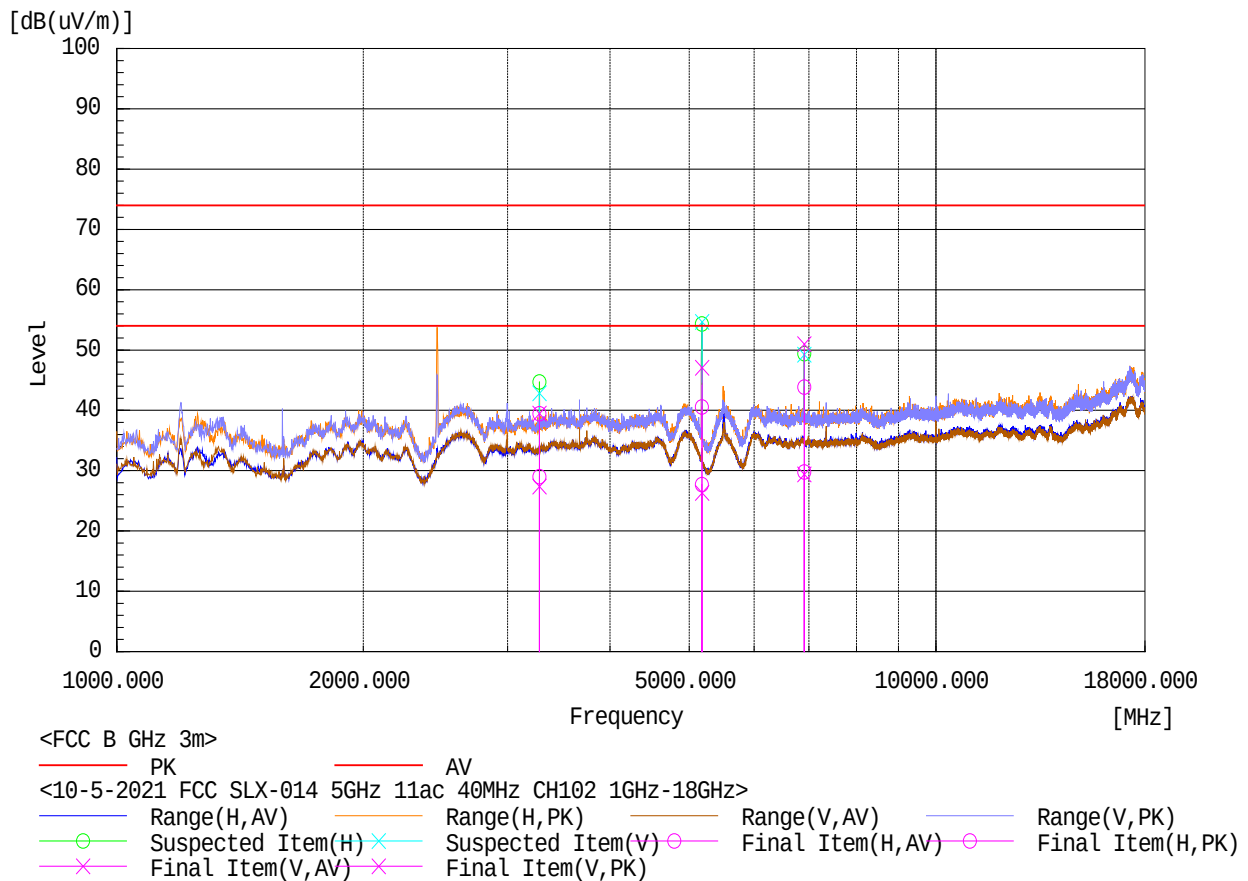
ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m														
No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	2458.796	V	38.3	57	-11.3	27	45.7	-	68.2	-	-22.5	147	0	Pass
2	2459.107	H	39.8	57.7	-11.3	28.5	46.4	-	68.2	-	-21.8	185	117.8	Pass
3	6904.897	H	31.3	43.3	-1.3	30	42	-	68.2	-	-26.2	389	321.8	Pass
4	35527.7	H	23.4	34.7	17.9	41.3	52.6	-	68.2	-	-15.6	99	314.5	Pass
5	35527.28	H	23.4	34.6	17.9	41.3	52.5	-	68.2	-	-15.7	99	287.1	Pass
6	25424.44	H	21	32.1	18.7	39.7	50.8	-	68.2	-	-17.4	367	130.7	Pass

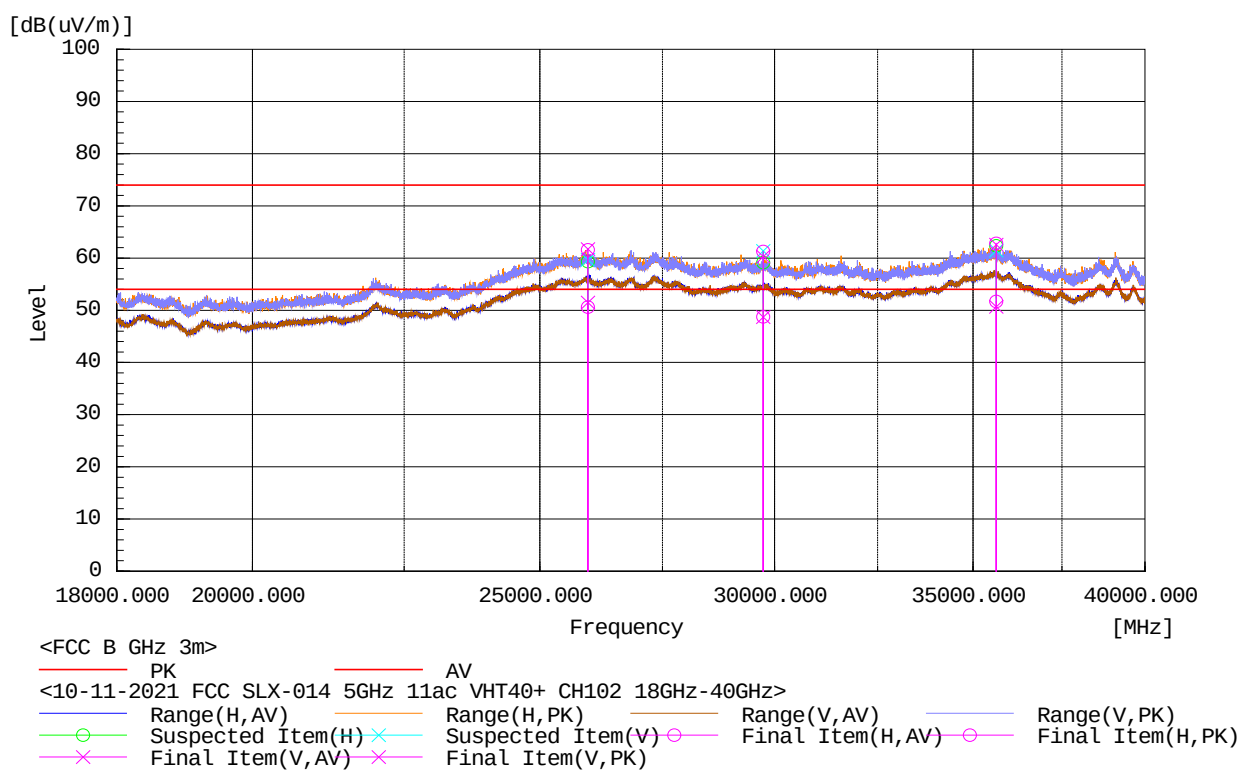




1GHz-40GHz, 802.11ac (VHT40), Ch:102, 5510MHz

ANTENNA POLARITY & test distance: HORIZONTAL& VERTICAL at 3 m														
No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	3280.874	H	37.9	48.3	-8.9	29	39.4	-	68.2	-	-28.8	231	64	Pass
2	3281.615	V	36.3	48.4	-8.9	27.4	39.5	-	68.2	-	-28.7	314	0.1	Pass
3	5180.573	H	33.3	46.1	-5.6	27.7	40.5	-	68.2	-	-27.7	396	331.1	Pass
4	35637.54	H	33.9	45	17.8	51.7	62.8	-	68.2	-	-5.4	192	311.2	Pass
5	25953.66	V	32.9	43.1	18.6	51.5	61.7	-	68.2	-	-6.5	140	0	Pass
6	35638.32	V	32.9	44.8	17.8	50.7	62.6	-	68.2	-	-5.6	268	239.7	Pass





1GHz-40GHz, 802.11ac (VHT40), Ch:159, 5795MHz

ANTENNA POLARITY & test distance: HORIZONTAL & VERTICAL at 3 m

No	Frequency [MHz]	Pol	Reading AV [dB(uV)]	Reading PK [dB(uV)]	Factor [dB(1/m)]	Level AV [dB(uV/m)]	Level PK [dB(uV/m)]	Limit\AV [dB(uV/m)]	Limit\PK [dB(uV/m)]	Margin AV [dB]	Margin PK [dB]	Height [cm]	Angle [deg]	Pass /Fail
1	4609.129	H	36	46.9	-6.3	29.7	40.6	54	74	-24.3	-33.4	367	274.1	Pass
2	5175.882	V	31.7	54.7	-5.7	26	49	-	68.2	-	-19.2	99	53.4	Pass
3	5184.412	H	32.4	61.8	-5.6	26.8	56.2	-	68.2	-	-12	207	249.8	Pass
4	35646.1	H	23.9	34.4	17.8	41.7	52.2	-	68.2	-	-16	389	1.5	Pass
5	35646.66	V	23.7	34.3	17.8	41.5	52.1	-	68.2	-	-16.1	246	127.3	Pass
6	27375.83	V	21.1	32	19.6	40.7	51.6	-	68.2	-	-16.6	223	270.9	Pass

