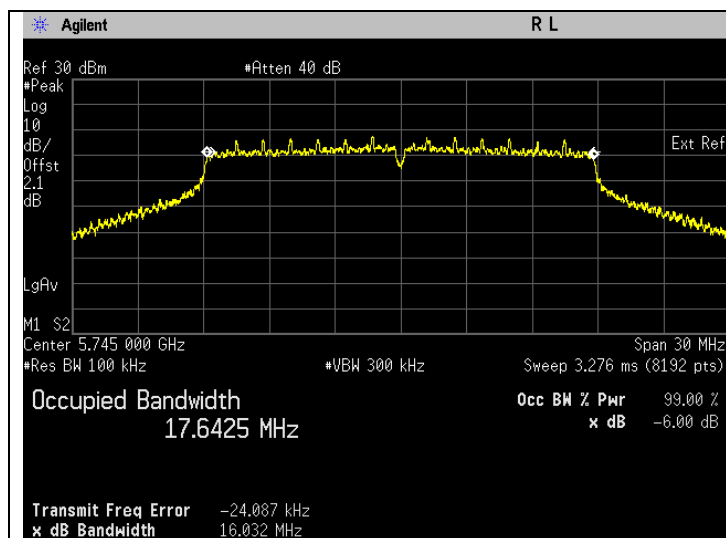
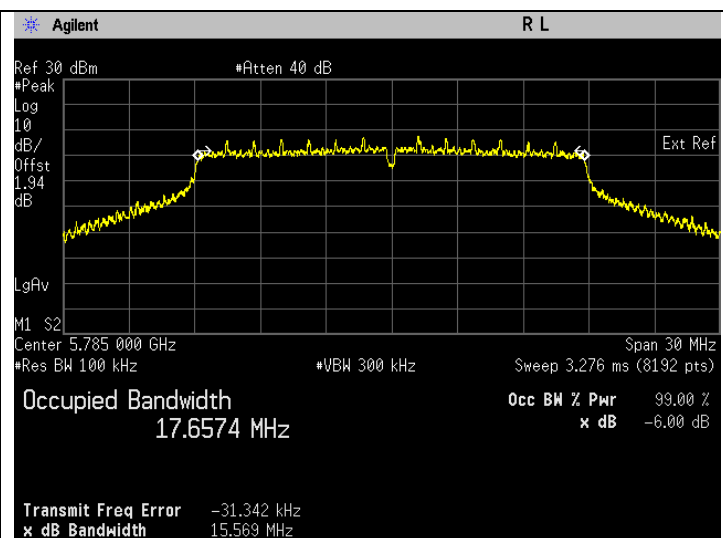


802.11n (HT20)

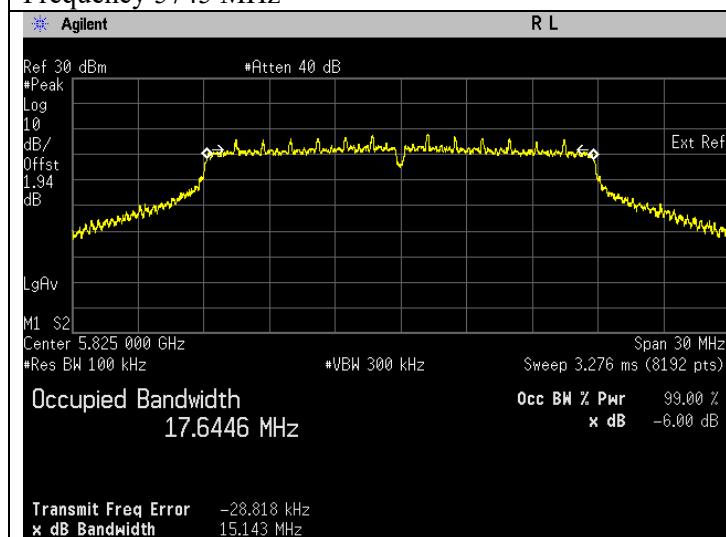
Freq. (MHz)	Test Configuration	Results	
		Bandwidth(MHz)	Status
5745	Mod Type: BPSK, Data Rate: MCS0 (6.5)	16.032	Pass
5785	Mod Type: BPSK, Data Rate: MCS0 (6.5)	15.569	Pass
5825	Mod Type: BPSK, Data Rate: MCS0 (6.5)	15.143	Pass



Frequency 5745 MHz



Frequency 5785 MHz

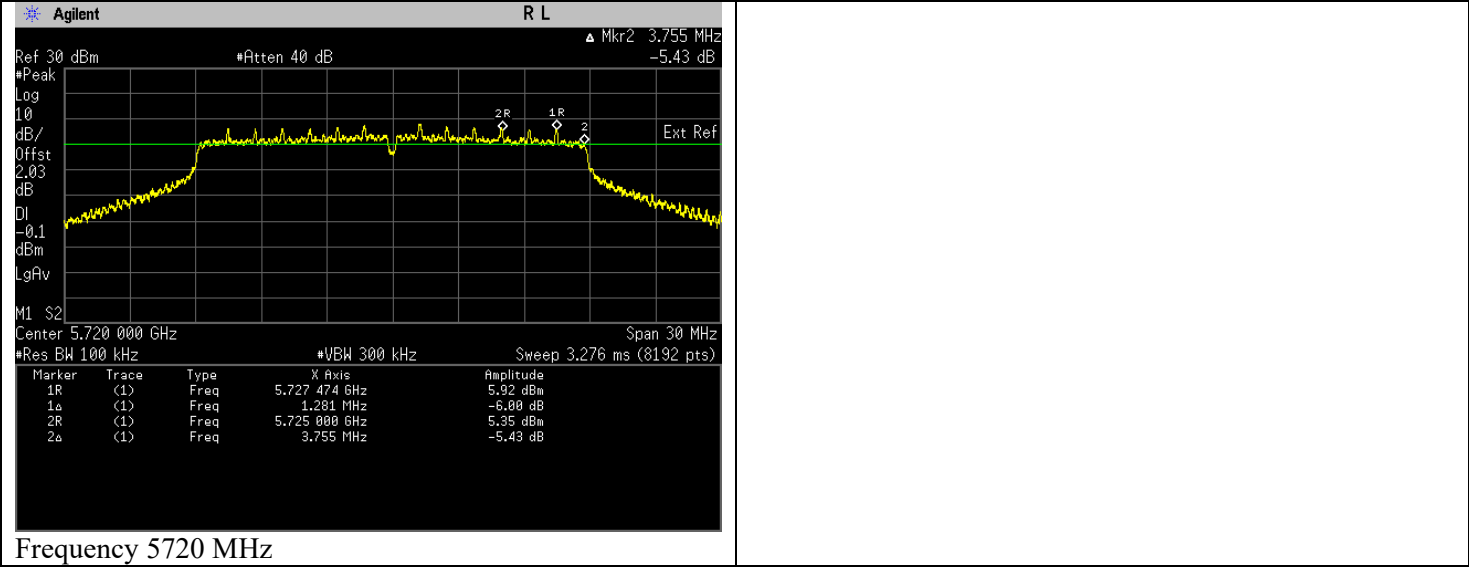


Frequency 5825 MHz

Straddle Frequency for 802.11n (HT20)

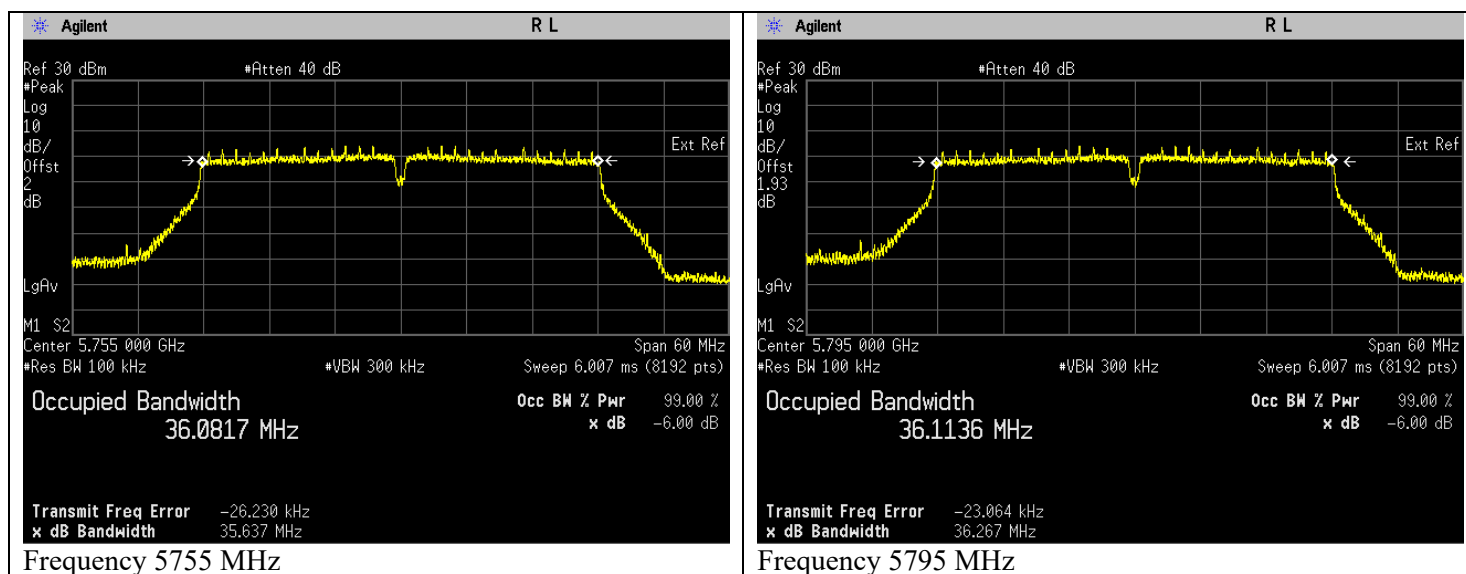
Freq. (MHz)	Test Conditions	Results	
		Power/Freq. (dBm/MHz)	Status
		U-NII- 3	
5720	Mod Type: BPSK, Data Rate: MCS0 (6.5)	3.755	Pass

Plots for 802.11n (HT20) Straddle Frequency



802.11n (HT40)

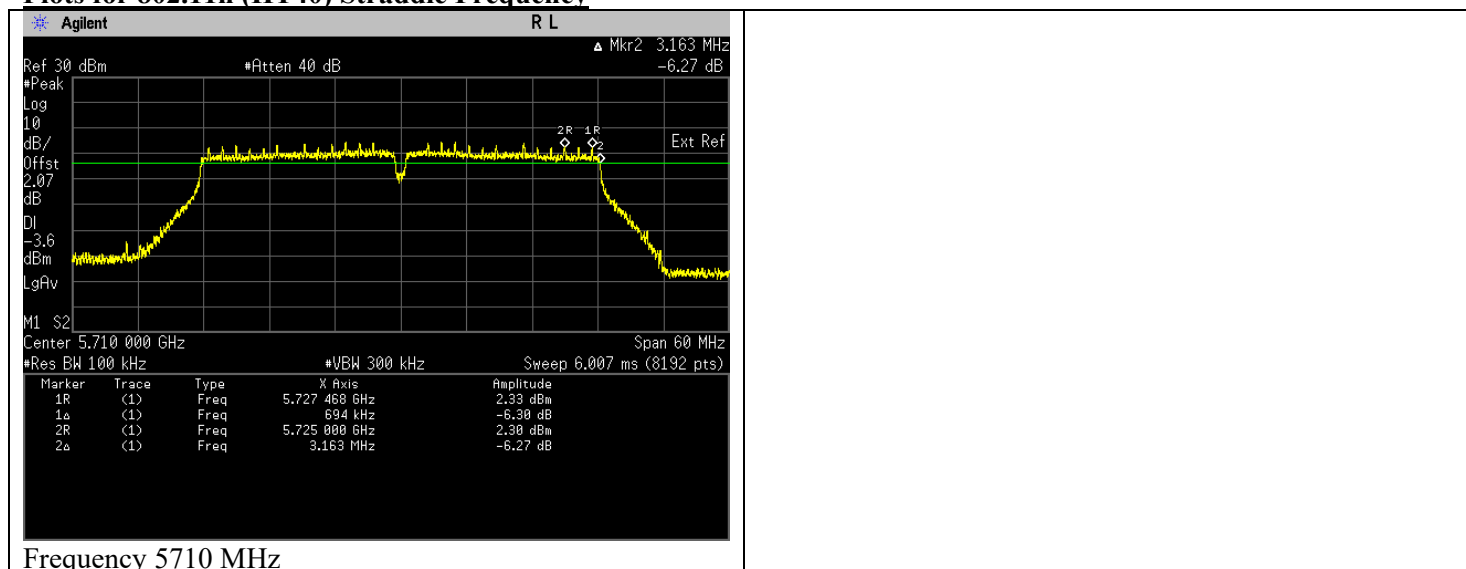
Freq. (MHz)	Test Configuration	Results	
		Bandwidth(MHz)	Status
5755	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	35.637	Pass
5795	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	36.267	Pass



Straddle Frequency for 802.11n (HT40)

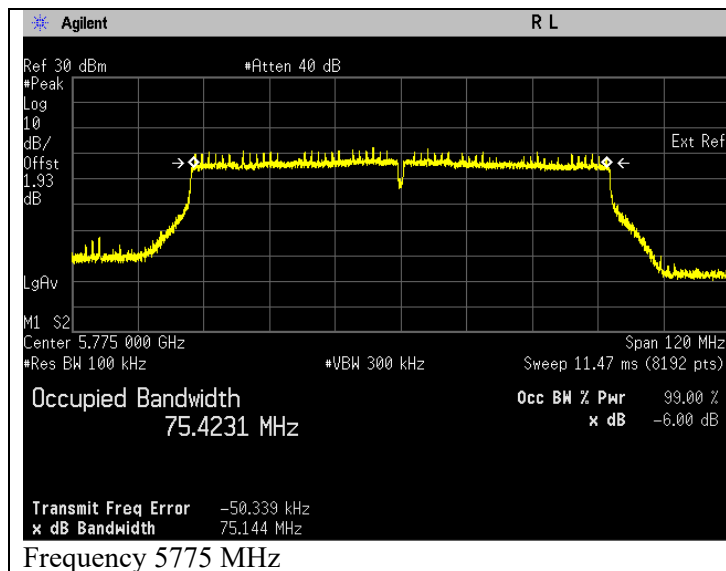
Freq. (MHz)	Test Conditions	Results	
		Power/Freq. (dBm/MHz)	Status
		U-NII- 3	
5710	Mod Mod Type: BPSK, Data Rate: MCS0 (13.5)	3.163	Pass

Plots for 802.11n (HT40) Straddle Frequency



802.11ac (VHT80)

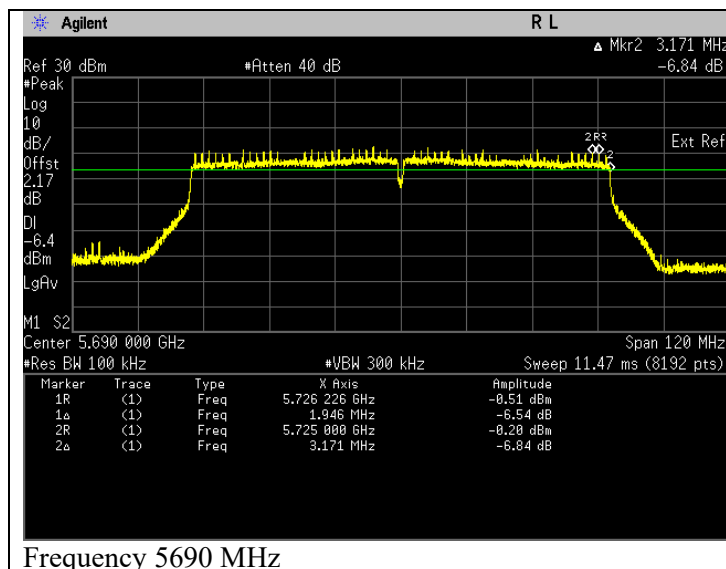
Freq. (MHz)	Test Configuration	Results	
		Bandwidth(MHz)	Status
5775	Mod Type: BPSK, Data Rate: MCS0(29.3)	75.144	Pass



Straddle Frequency for 802.11ac (HT80)

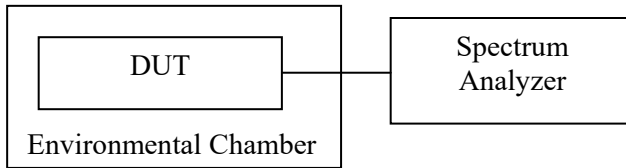
Freq. (MHz)	Test Conditions	Results	
		Power/Freq. (dBm/MHz)	Status
		U-NII- 3	
5690	Mod Type: BPSK, Data Rate: MCS0(29.3)	3.171	Pass

Plots for 802.11ac (HT80) Straddle Frequency



7.5. Frequency Stability

7.5.1. Test Setup



- a) Test setup as per illustrated above.
- b) Set DUT to transmit un-modulated signal at desire transmit frequency.
- c) Connect DUT's antenna terminal to spectrum analyzer with a low loss cable.
- d) The DUT was operated at the maximum output power, and spectrum which is set to maximum hold function and peak detector.
- e) The peak value of the power envelope was measured and noted.
- f) Test was conducted from temperature range from -30⁰C to 50⁰C with step size of 10⁰C on manufacturer's rated supply voltage.
- g) At temperature of 20⁰C, +/-15% of manufacturer's rated voltage are to be applied.
- h) The frequency stability is measured and recorded of frequency deviation due to temperature and supply voltage variations as mentioned at condition f) & g) above.

7.5.2. Test Limits

FCC 15.407(g)

Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.

RSS-GEN 6.11

7.5.3. Test Data

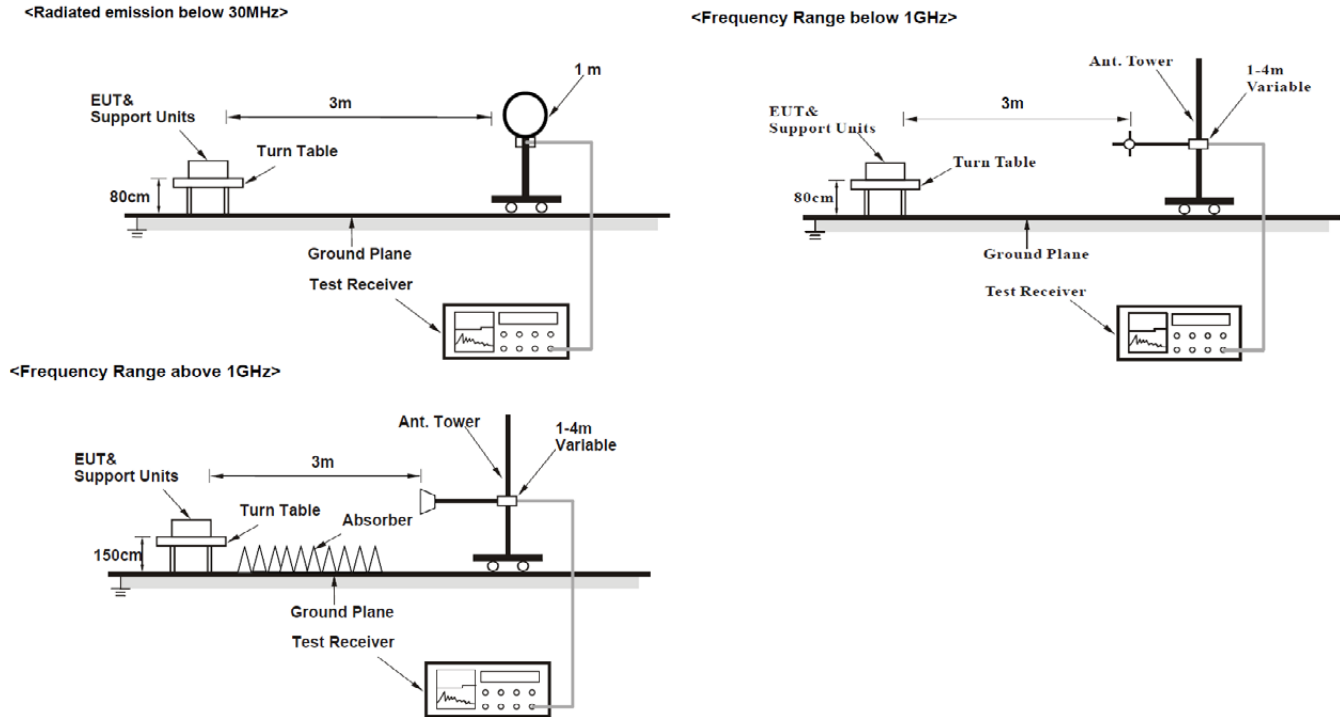
802.11a

Test Configuration	Test Frequency
	Tx (MHz)
Mod Type: OFDM, Mod Tech: BPSK, Data Rate: 6	5180

Temperature(°C)	Voltage	Results			
		Measured Frequency(MHz)	Frequency Error(kHz)	Frequency Error(%)	Status
20	+15%	5180.035436	35.436000	0.000684	Pass
	±0%	5180.034597	34.597000	0.000668	Pass
	-15%	5180.029421	29.421000	0.000568	Pass
-30		5180.019319	19.319000	0.000373	Pass
-20		5180.006390	6.390000	0.000123	Pass
-10		5179.982681	17.319000	0.000334	Pass
0		5179.970767	29.233000	0.000564	Pass
10		5179.968791	31.209000	0.000602	Pass
30		5179.978127	21.873000	0.000422	Pass
40		5179.978808	21.192000	0.000409	Pass
50		5179.979142	20.858000	0.000403	Pass

7.6. Band Edge Radiated Spurious Emission Measurement

7.6.1. Test Setup



1. The EUT is placed on the top of a rotating table 0.8m/1.5m above the ground at a 3m semi-anechoic chamber. The table is rotated 360 degrees to determine the position of the highest radiation.
2. The EUT is set 3m away from the interference-receiving antenna, which is mounted on the top of a variable-height antenna tower.
3. The antenna is Bilog/Horn antenna depend on which frequency range uses, and its height 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.
4. For each suspected emission, the EUT is arranged to its worst case and then the antenna is tuned to heights from 1m to 4m and the rotatable table is turned from 0 degrees to 360 degrees to find the maximum reading.
5. The test-receiver system is set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
6. If the emission level of the EUT in peak mode is fall within the range of 10dB from the limit specified, the emissions would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet. Otherwise, the testing could be stopped and the peak values of the EUT would be reported.

NOTE:

- The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-peak detection at frequency below 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1 MHz and video bandwidth is 3 MHz for Peak detection at frequency above 1 GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is 10Hz for Average detection using reduced video bandwidth (Duty cycle $\geq 98\%$) at frequency above 1GHz.
- The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and the video bandwidth is $1/\tau$ Hz, where τ is minimum transmitter on time (Duty cycle $< 98\%$) for Average detection using reduced video bandwidth at frequency above 1GHz.
- All modes of operation were investigated and the worst-case emissions are reported.

7.6.2. Test Limits

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

Frequency (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 1000 MHz, 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.

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

Applicable To		Limit	
789033 D02 General UNII Test Procedures New Rules v01r03		Field Strength at 3 m	
		PK: 74 (dBµV/m)	AV: 54 (dBµV/m)
Frequency Band	Applicable To	EIRP Limit	Equivalent Field Strength at 3 m
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:

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

802.11a

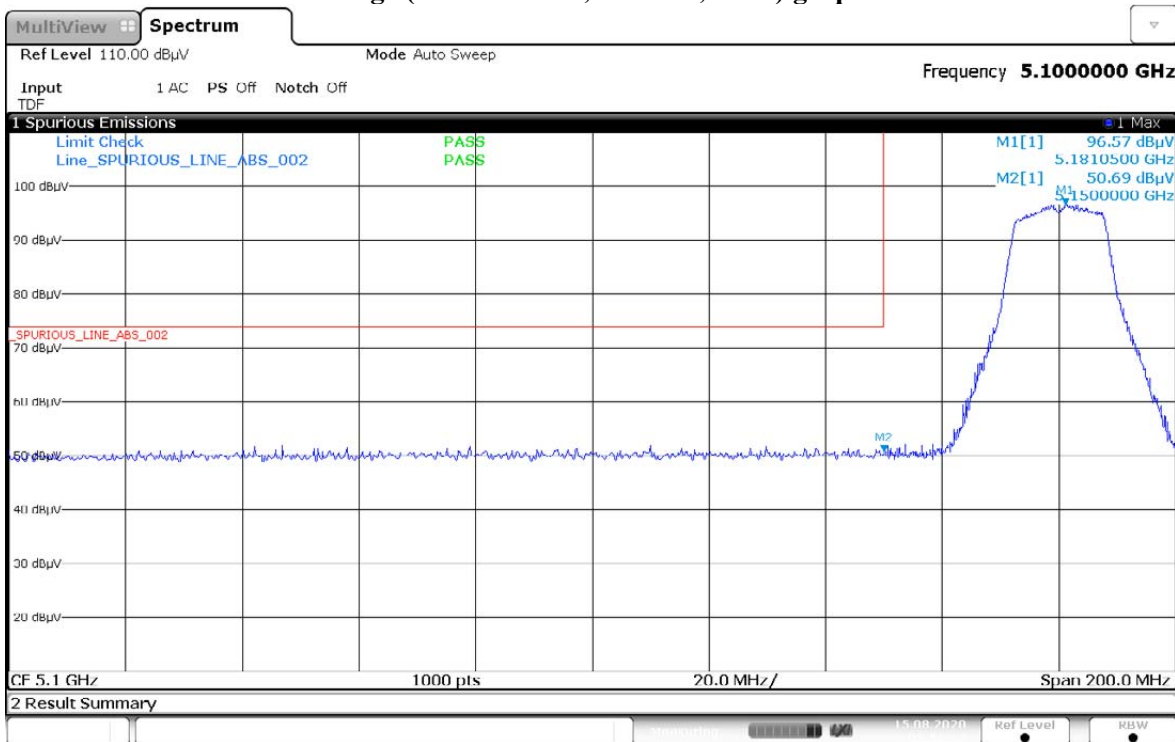
Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 EMC SR ID#: 18058-EMC-00040
Battery: PMNN4804A Accessory: AN000348A01
Test Channel: Low Test Frequency: 5180.0000 MHz Test Standard: ANSI C63.10-2013
Worst Case Plane: Z-Plane (802.11a 20MHz)

Vertical Radiated Emission Result

Remarks: Pass Result	Marginal Result	Fail Result
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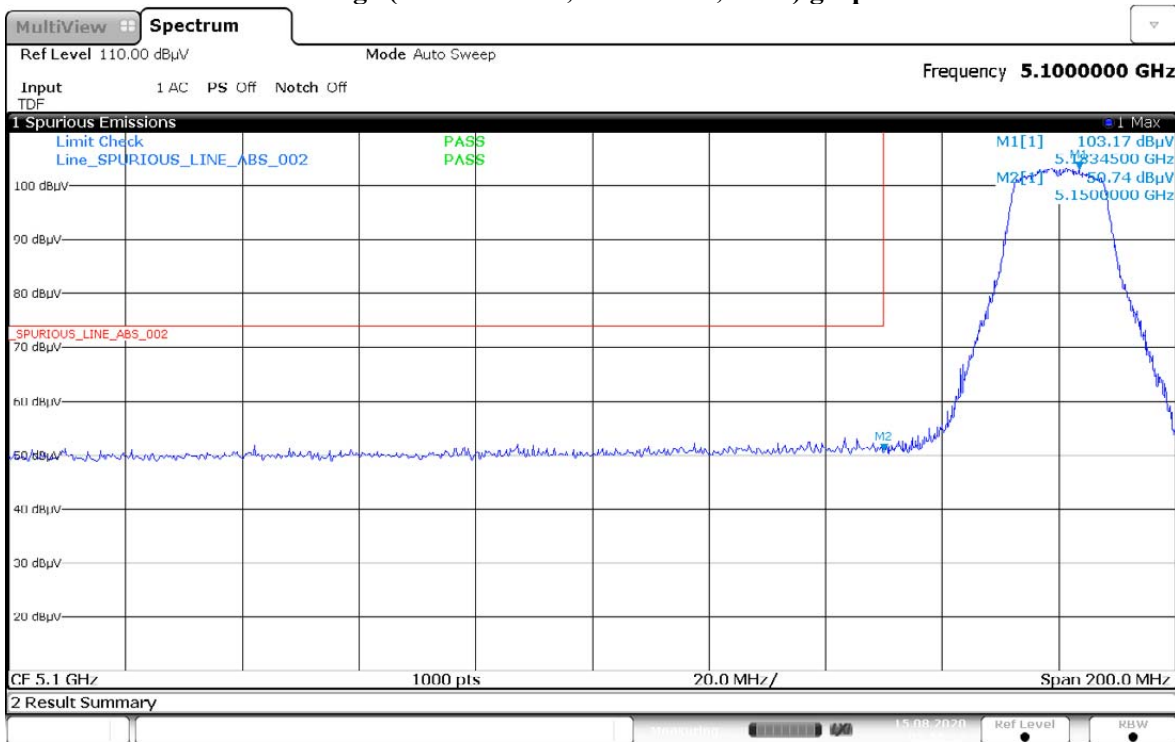
Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



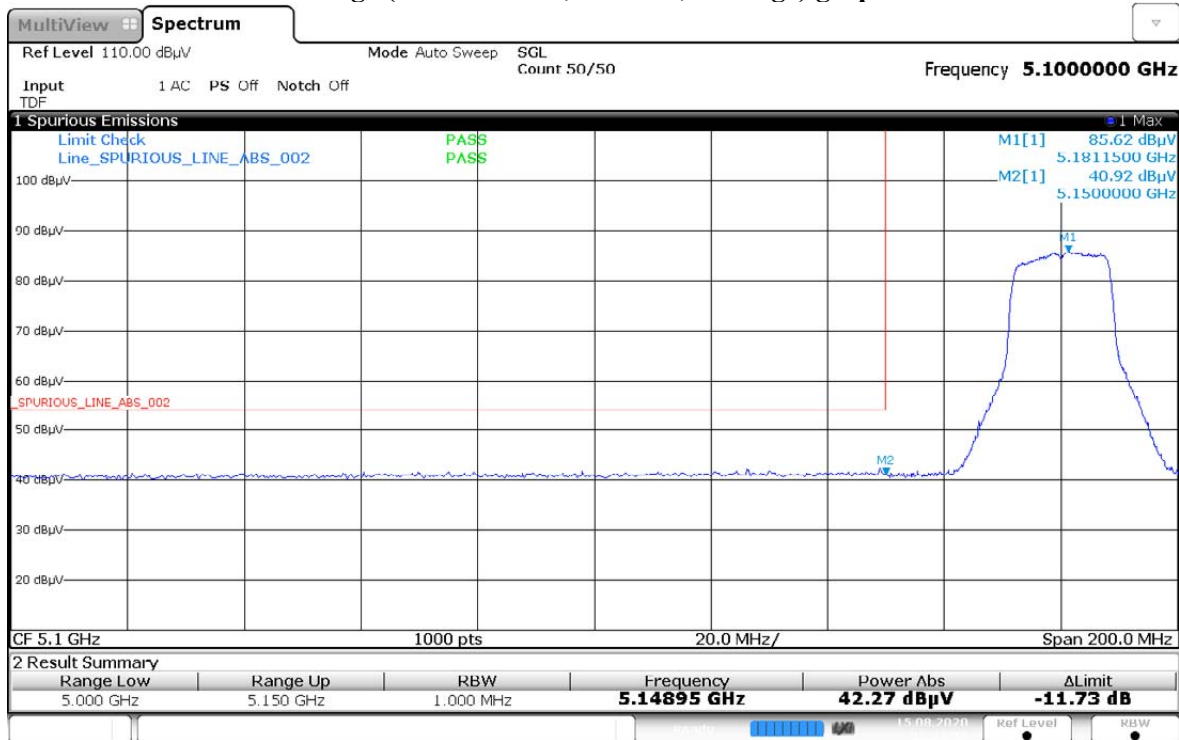
02:51:34 15.08.2020

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot

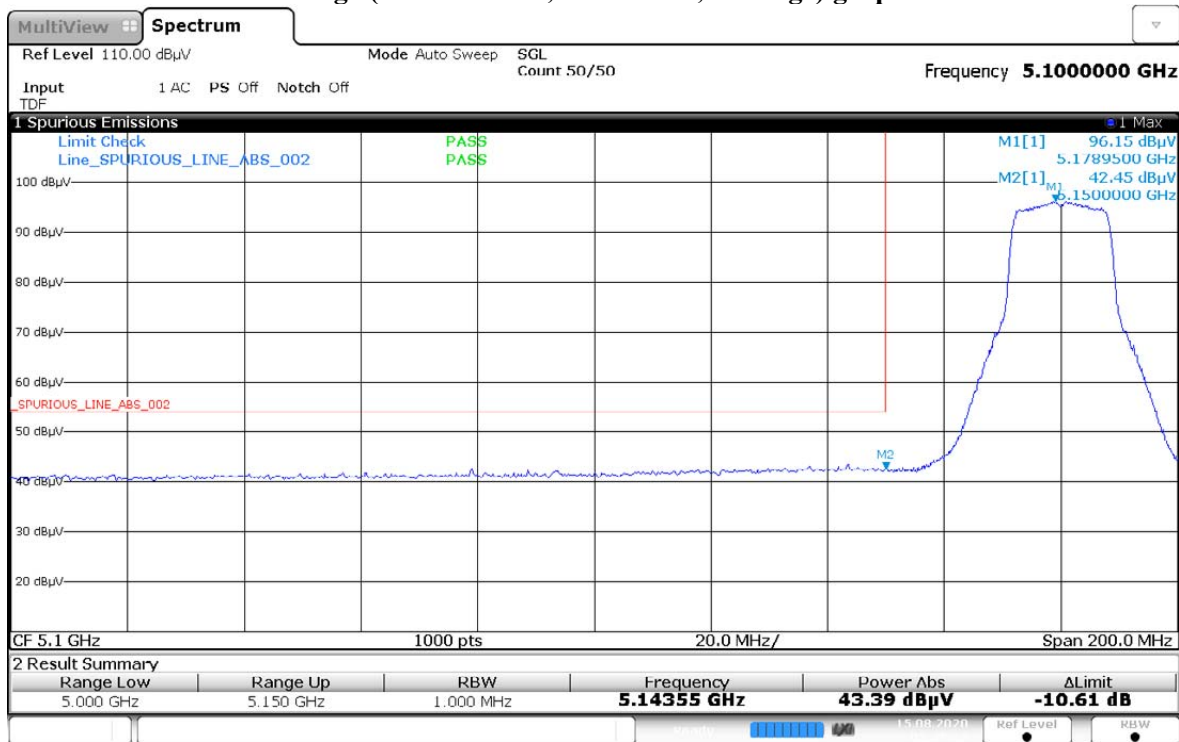


02:55:13 15.08.2020

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



Test: WIFI SAC Restricted Band Edge

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 EMC SR ID#: 18058-EMC-00040

Battery: PMNN4804A Accessory: AN000348A01

Test Channel: High Test Frequency: 5320.0000 MHz Test Standard: ANSI C63.10-2013

Worst Case Plane: Z-Plane (802.11a 20MHz)

Restricted Band Edge (High Channel) tabular data

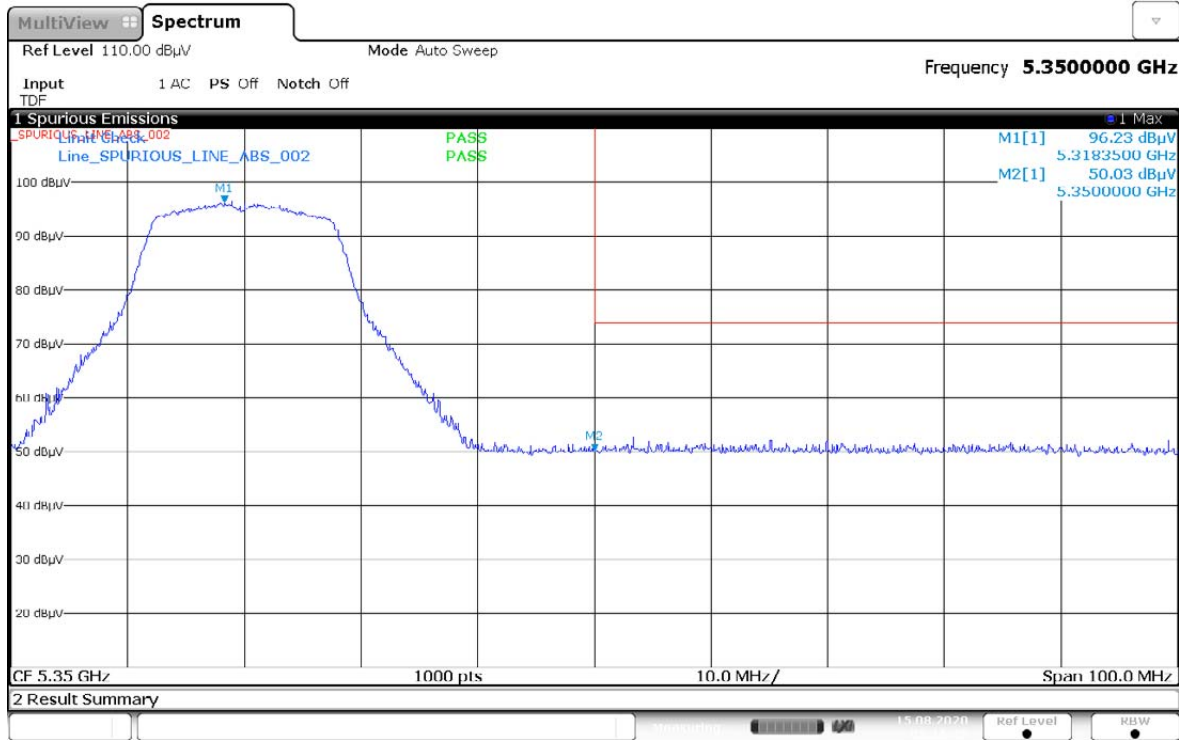
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 24.5
Test Performed by: Nazrin&Fendi
System MU: 4.03dB

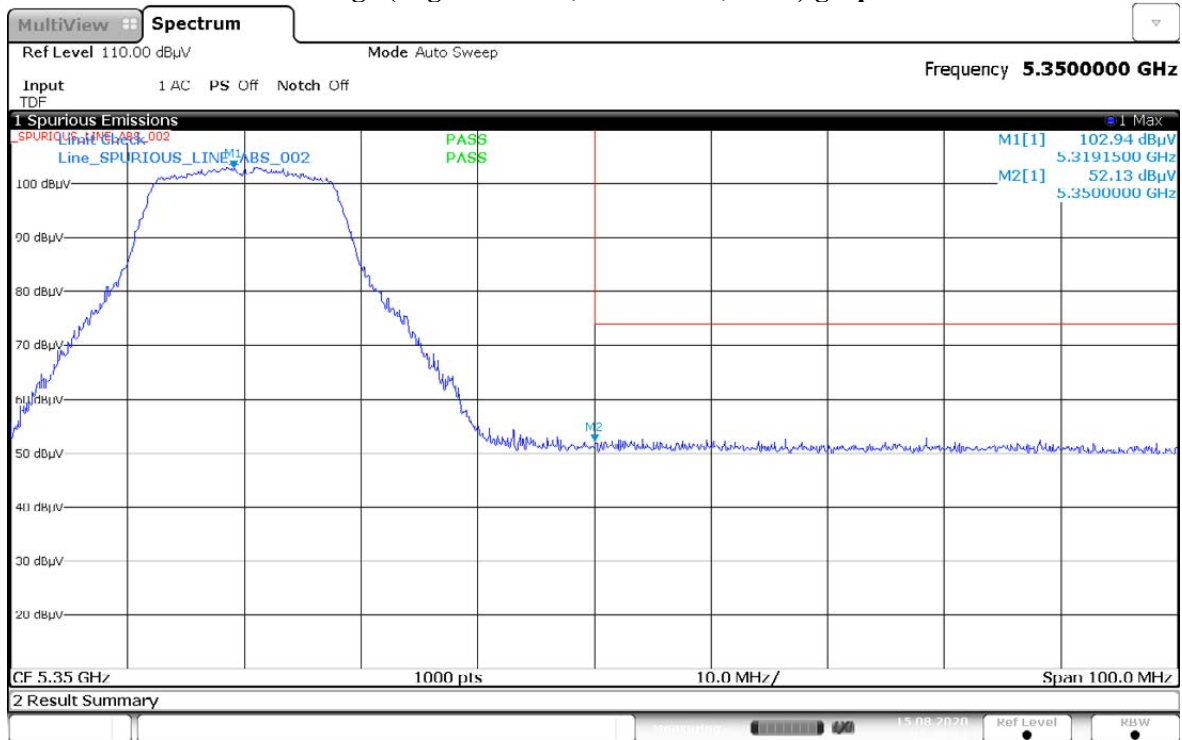
Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



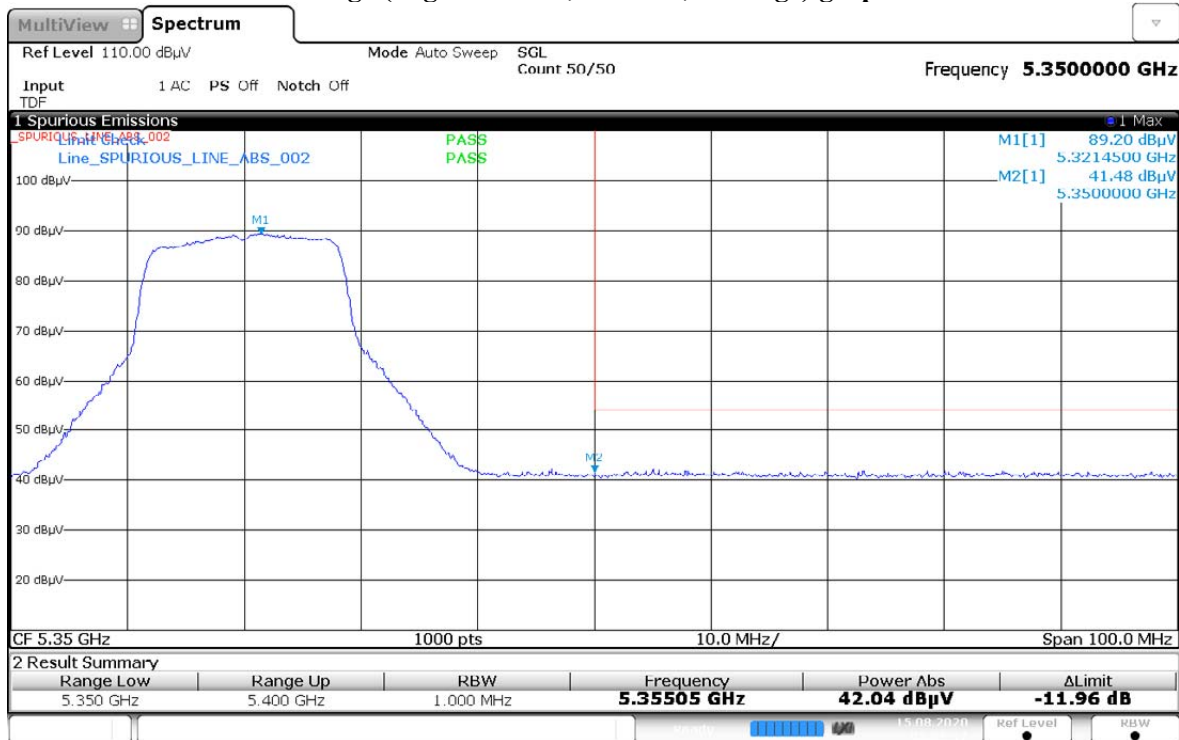
03:16:46 15.08.2020

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot

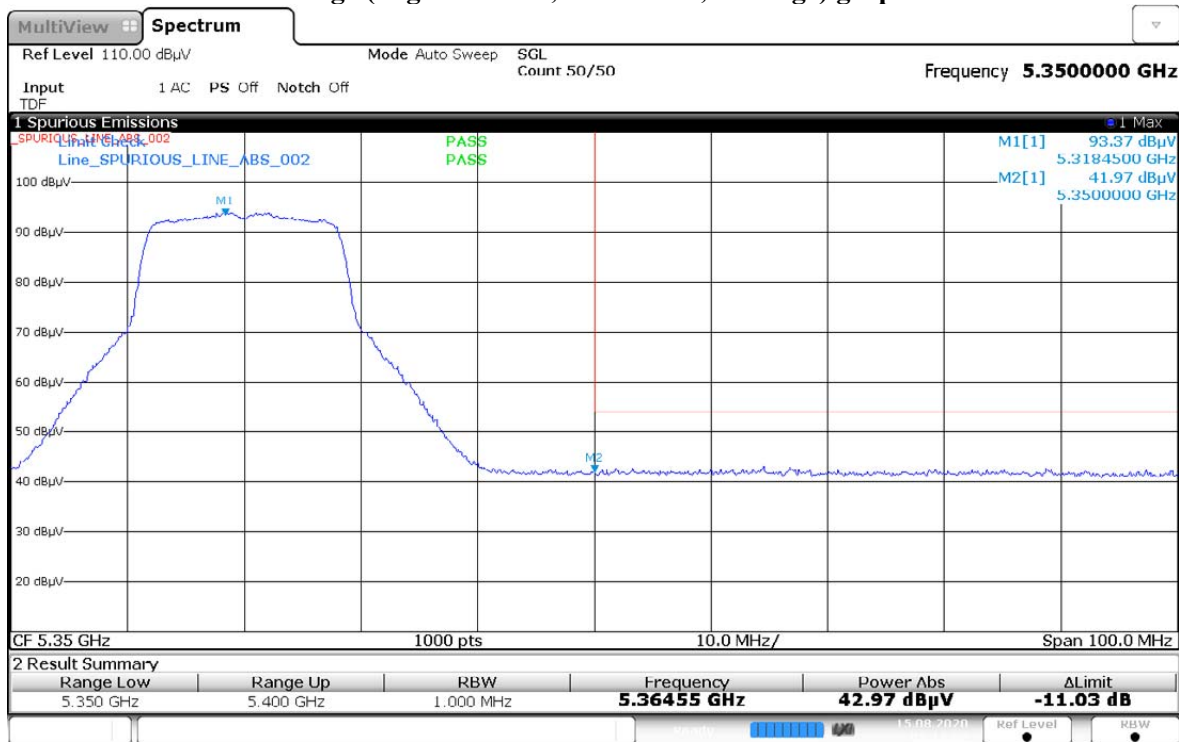


03:20:15 15.08.2020

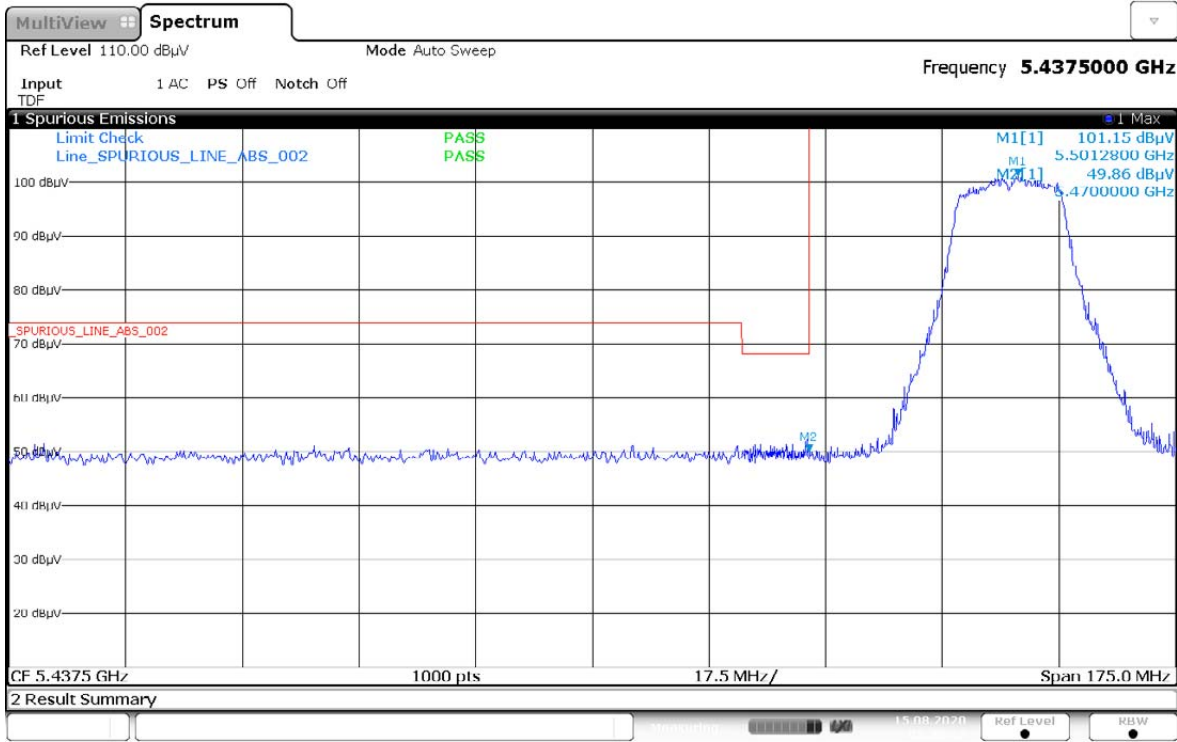
Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



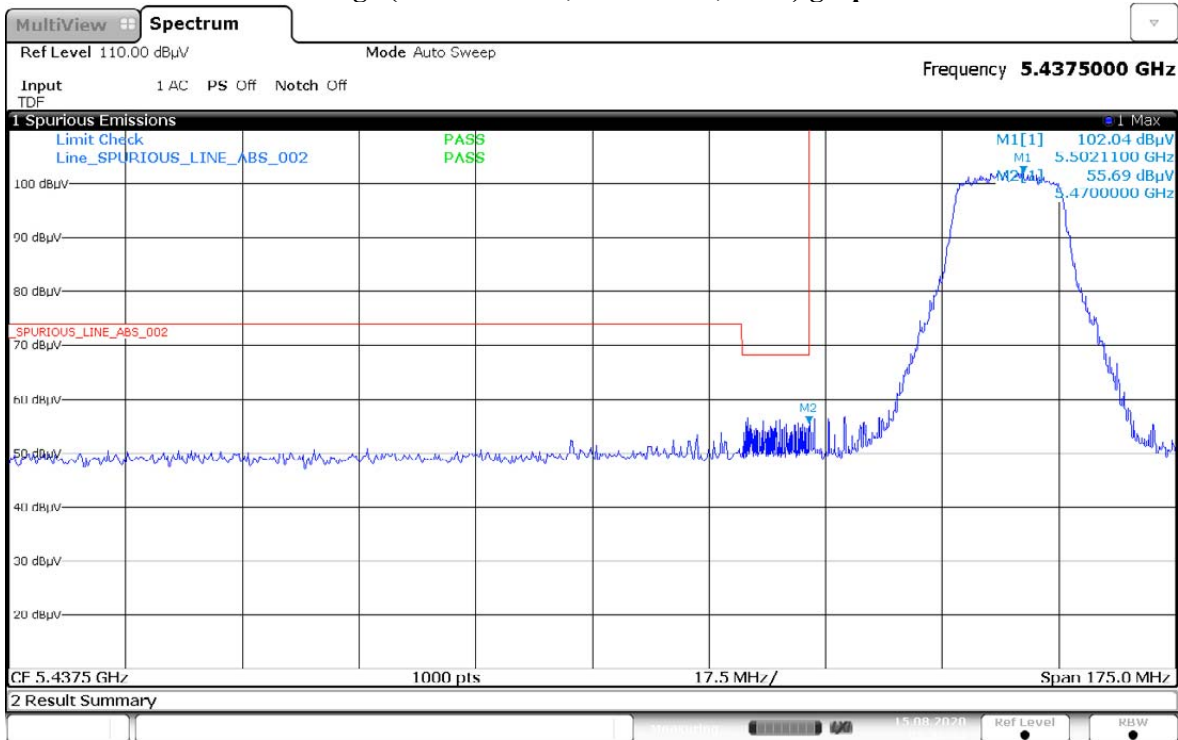
Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



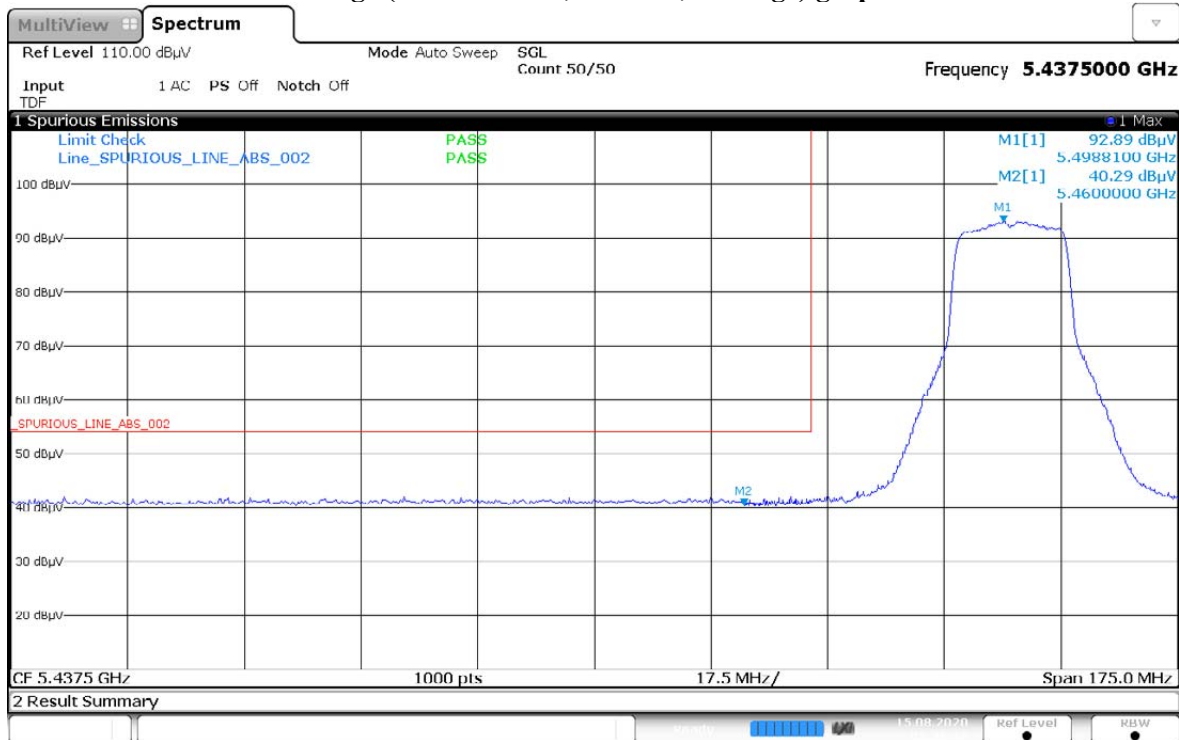
Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot

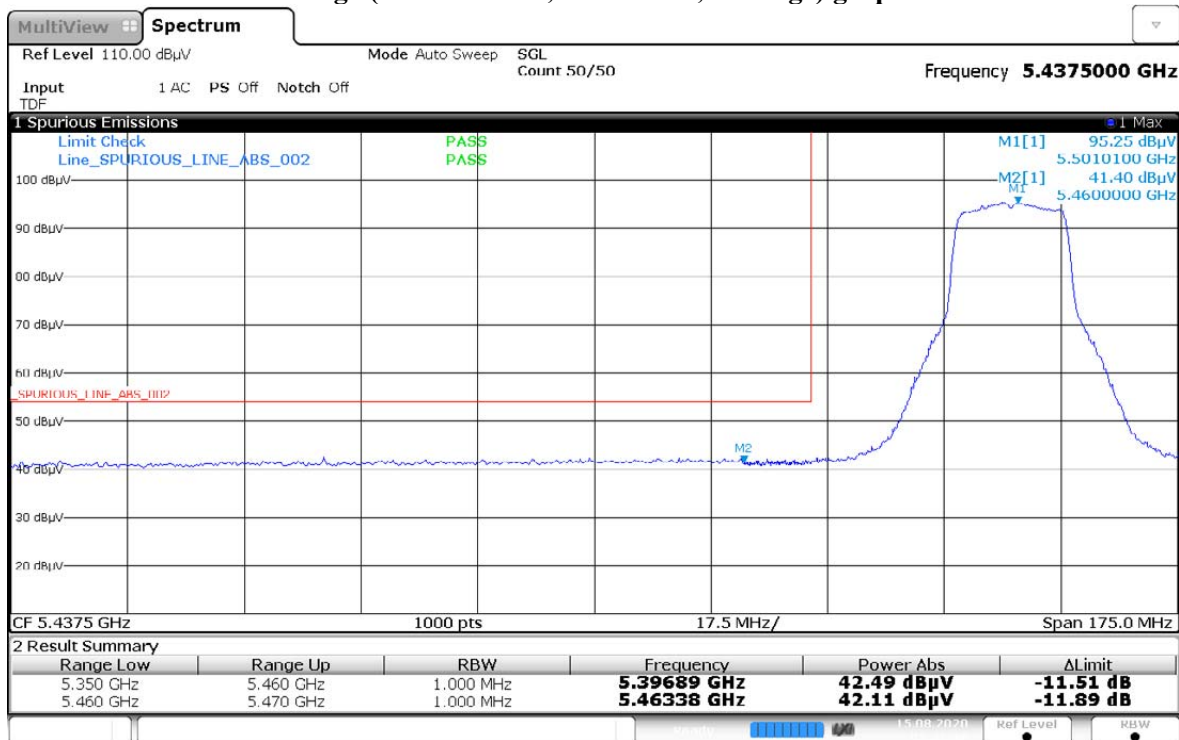


Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



03:38:49 15.08.2020

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



03:42:46 15.08.2020

Test: WIFI SAC Restricted Band Edge

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 EMC SR ID#: 18058-EMC-00040

Battery: PMNN4804A **Accessory: AN000348A01**

Test Channel: High Test Frequency: 5700.0000 MHz Test Standard: ANSI C63.10-2013

Worst Case Plane: Z-Plane (802.11a 20MHz)

Restricted Band Edge (High Channel) tabular data

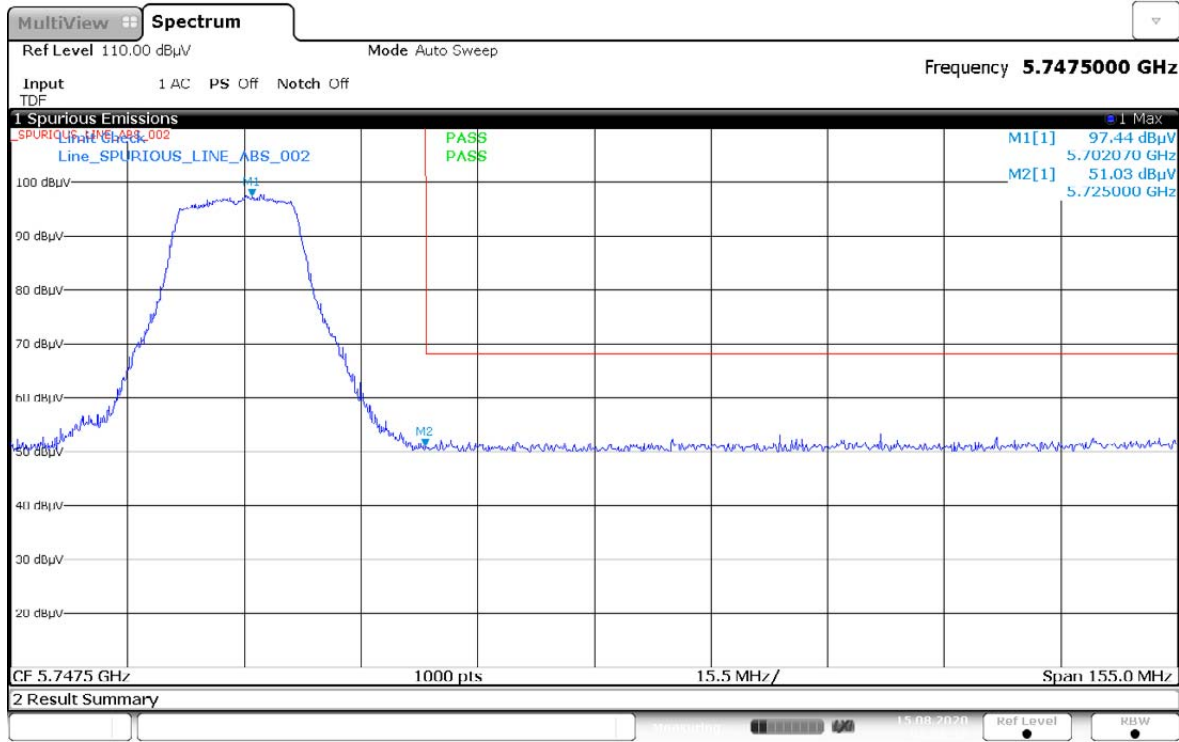
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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Temperature (degC): 24.5
Test Performed by: Nazrin&Fendi
System MU: 4.03dB

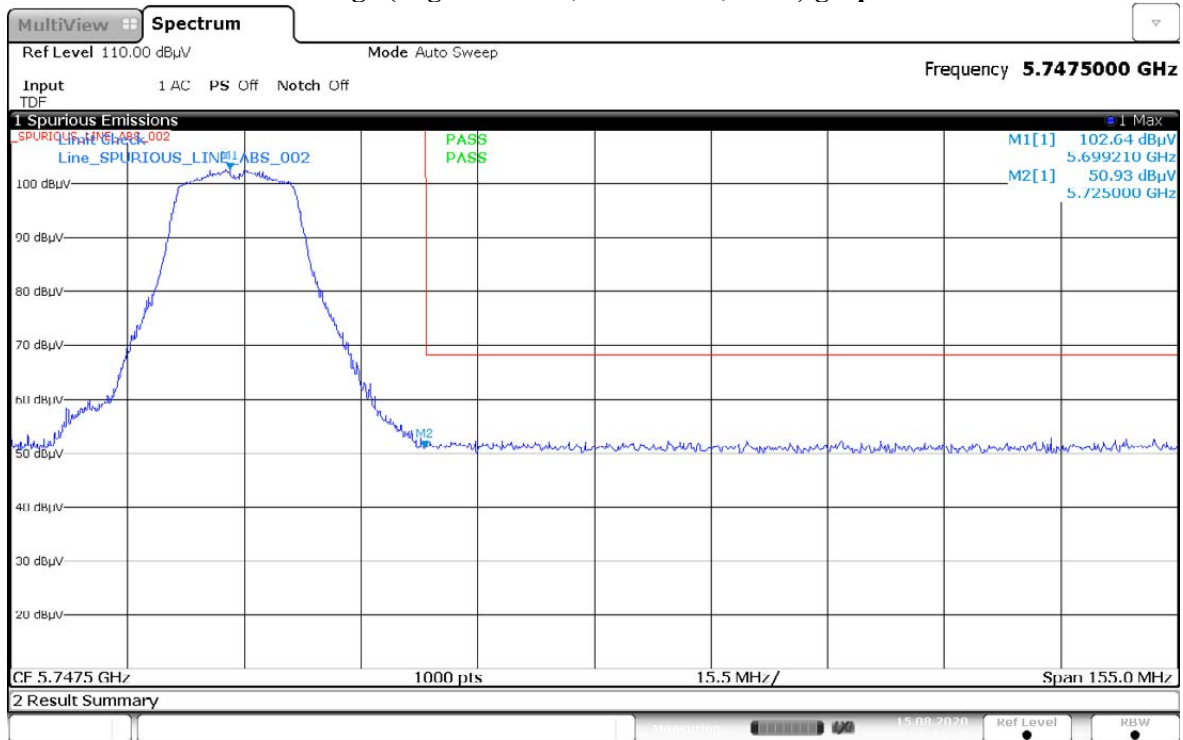
Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



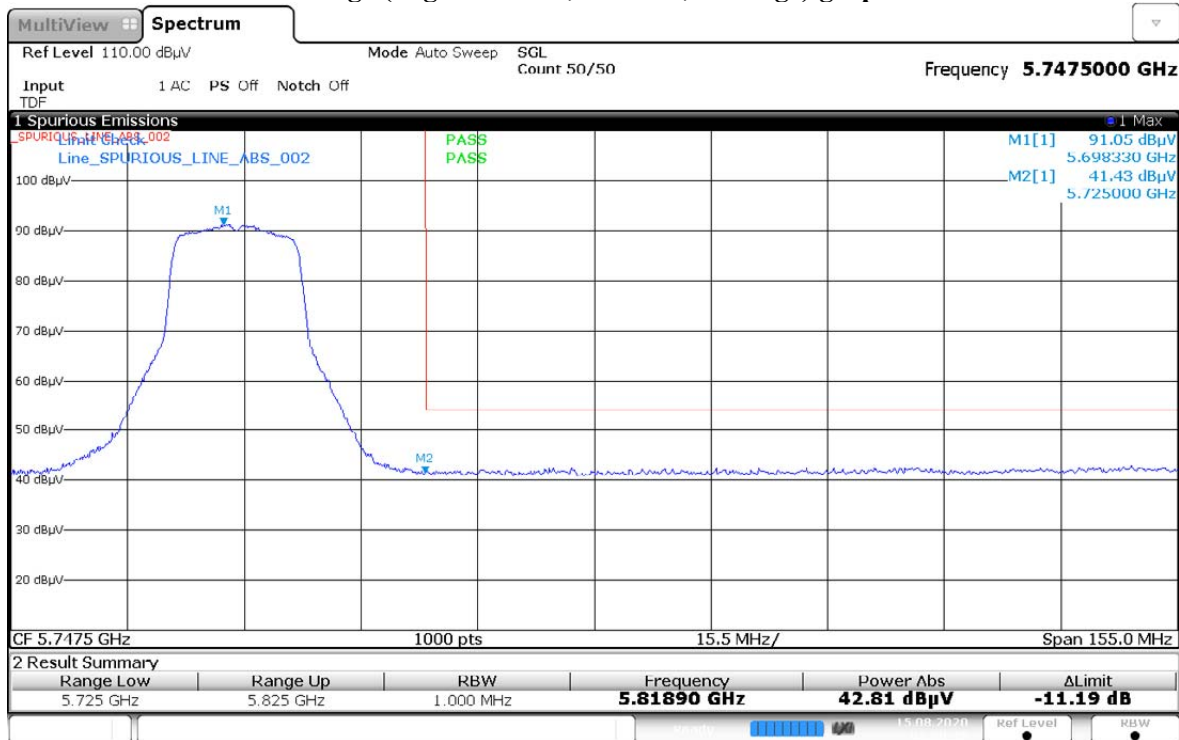
04:08:20 15.08.2020

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot

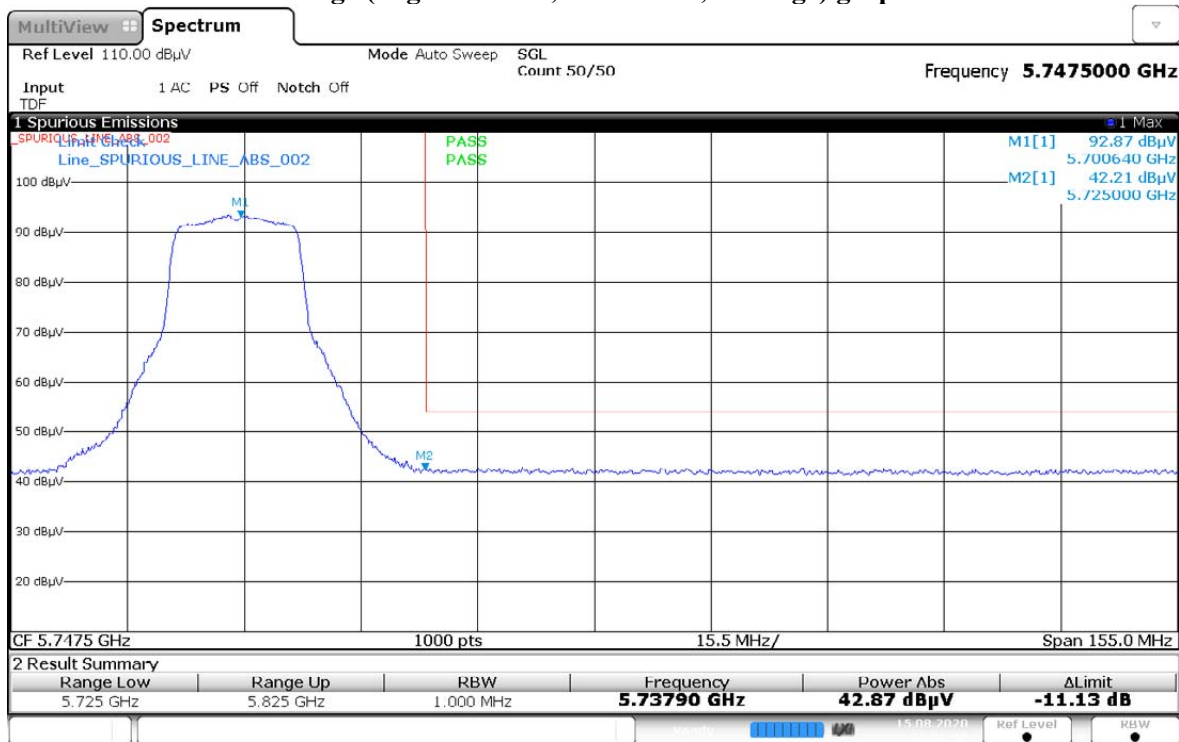


04:11:43 15.08.2020

Restricted Band Edge (High Channel, Vertical, Average) graphical screen shot



Restricted Band Edge (High Channel, Horizontal, Average) graphical screen shot



Test: WIFI SAC Restricted Band Edge

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 EMC SR ID#: 18058-EMC-00040

Battery: PMNN4804A

Accessory: AN000348A01

Test Channel: Straddle Test Frequency: 5720.0000 MHz Test Standard: ANSI C63.10-2013

Worst Case Plane: Z-Plane (802.11a 20MHz)

Restricted Band Edge (Straddle Channel) tabular data

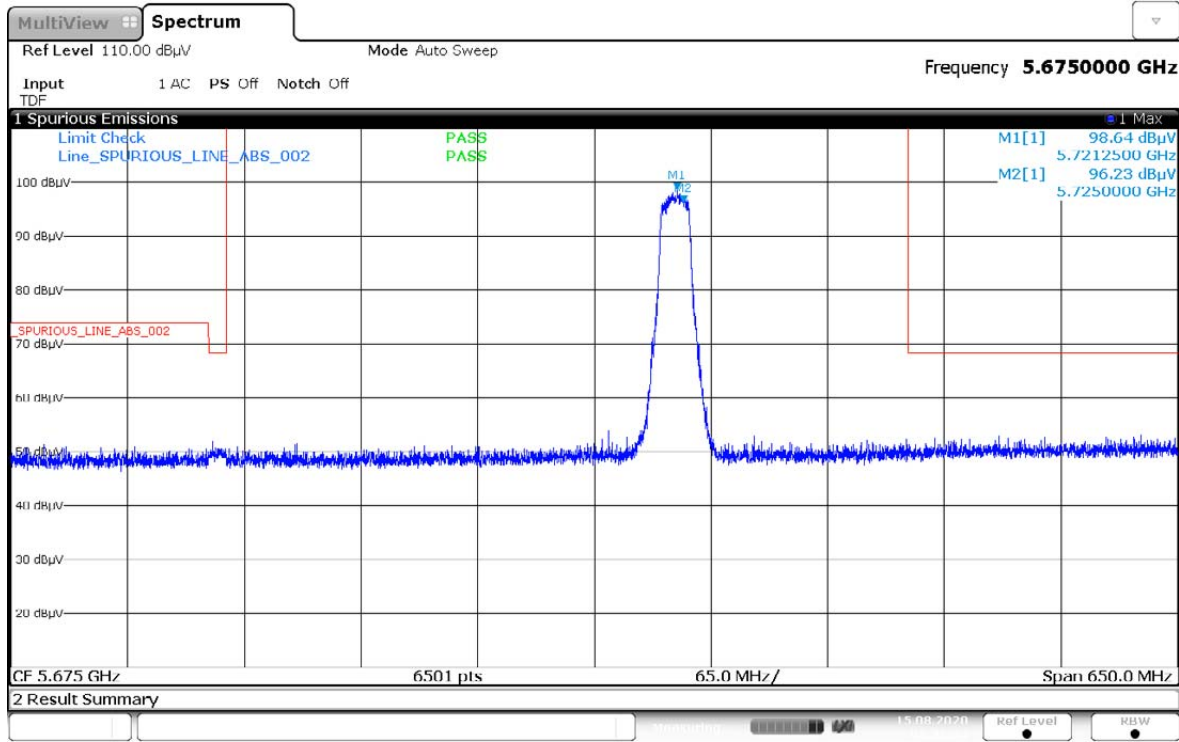
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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Temperature (degC): 24.5
Test Performed by: Nazrin&Fendi
System MU: 4.03dB

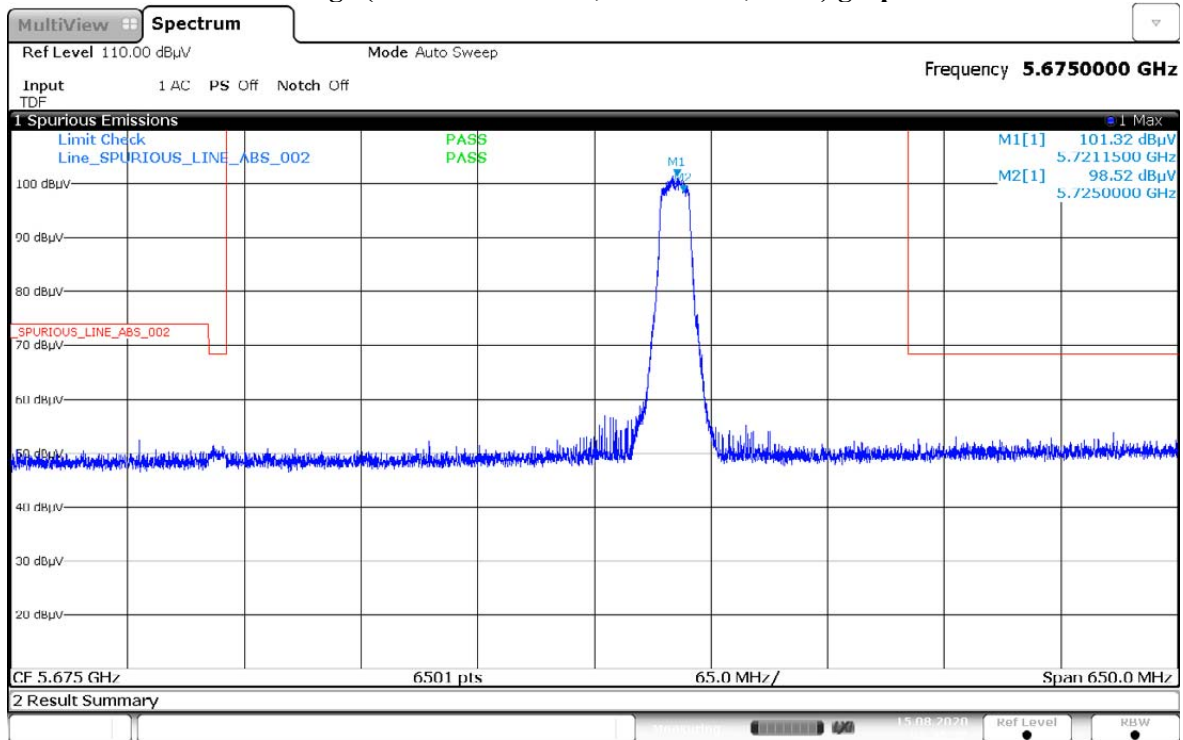
Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

Restricted Band Edge (Straddle Channel, Vertical, Peak) graphical screen shot



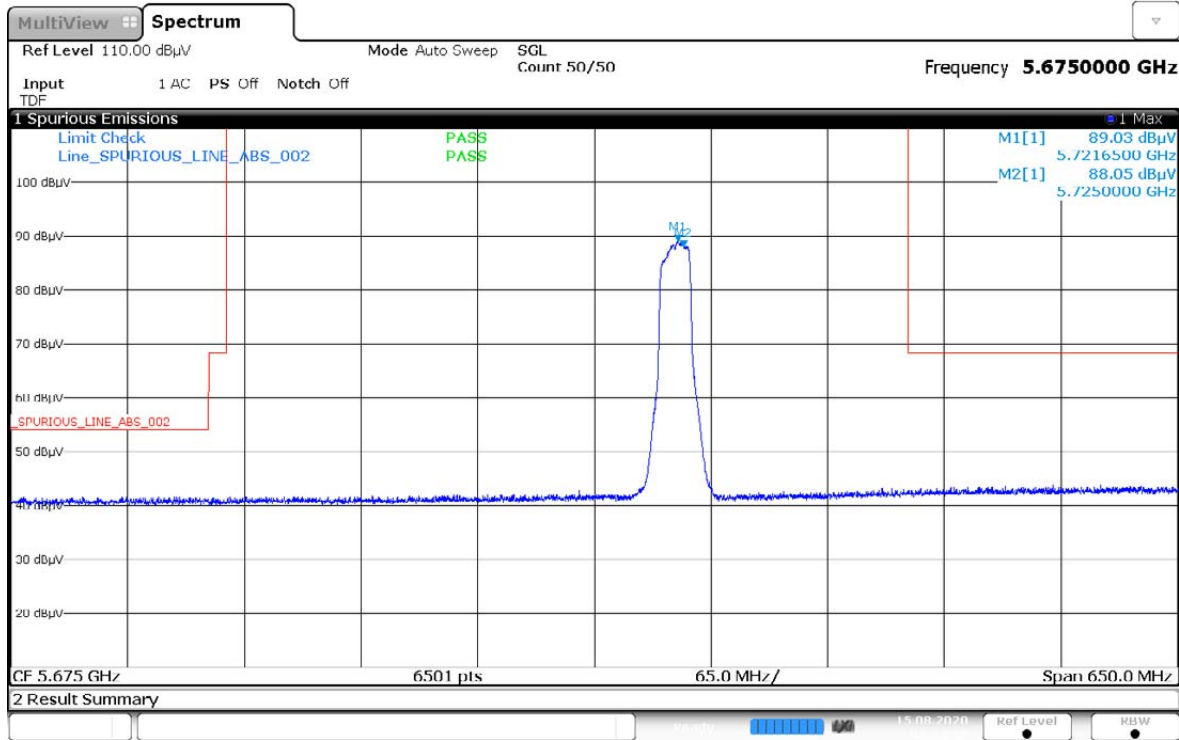
04:32:24 15.08.2020

Restricted Band Edge (Straddle Channel, Horizontal, Peak) graphical screen shot



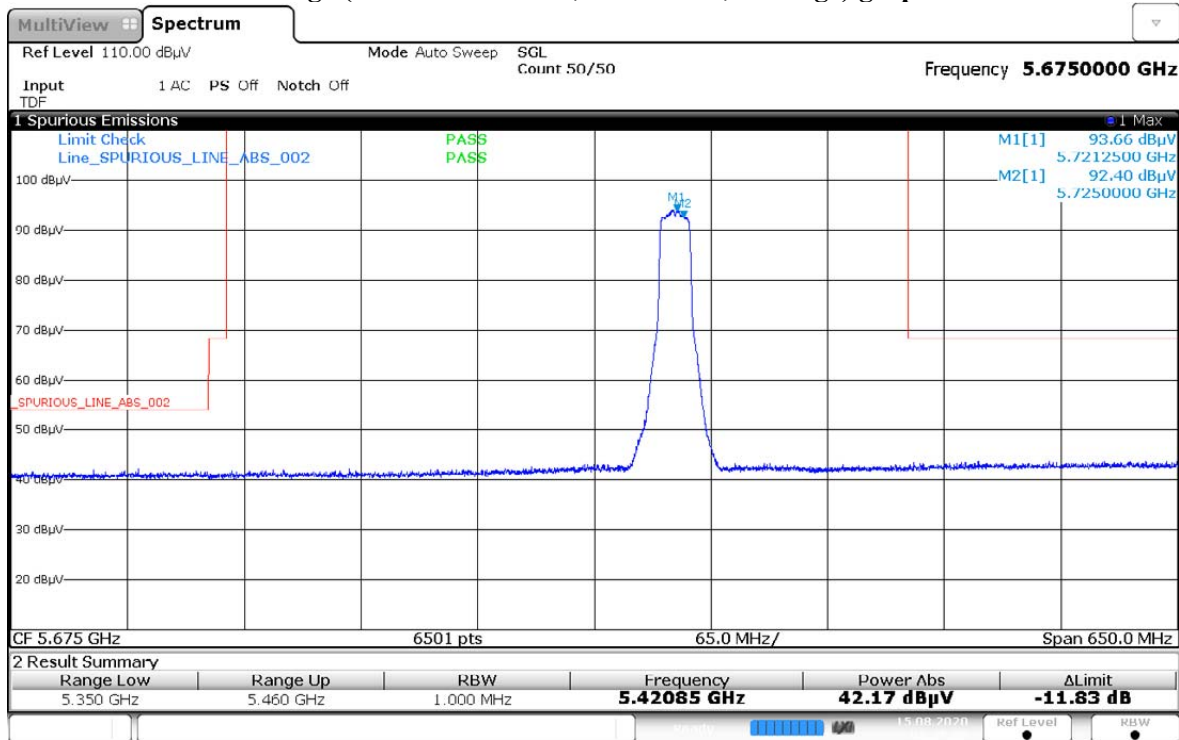
04:35:58 15.08.2020

Restricted Band Edge (Straddle Channel, Vertical, Average) graphical screen shot



04:23:19 15.08.2020

Restricted Band Edge (Straddle Channel, Horizontal, Average) graphical screen shot



04:27:10 15.08.2020

Test: WIFI SAC Restricted Band Edge

Model Number: AAH90ZDU9RH1AN

S/N: 734TWP0311

EMC SR ID#: 18058-EMC-00040

Battery: PMNN4804A

Accessory: AN000348A01

Test Channel: Low**Test Frequency: 5745.0000 MHz**

Test Standard: ANSI C63.10-2013 Worst Case Plane: Z-

Plane (802.11a 20MHz)

Restricted Band Edge (Low Channel) tabular data

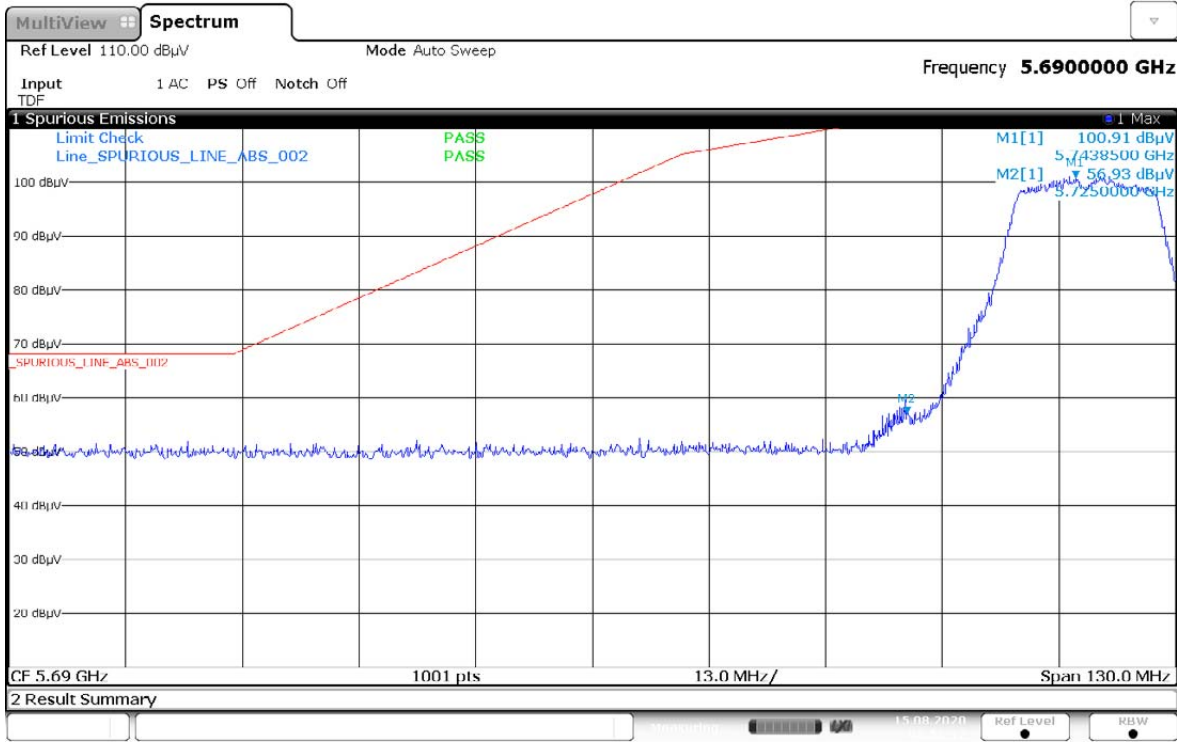
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

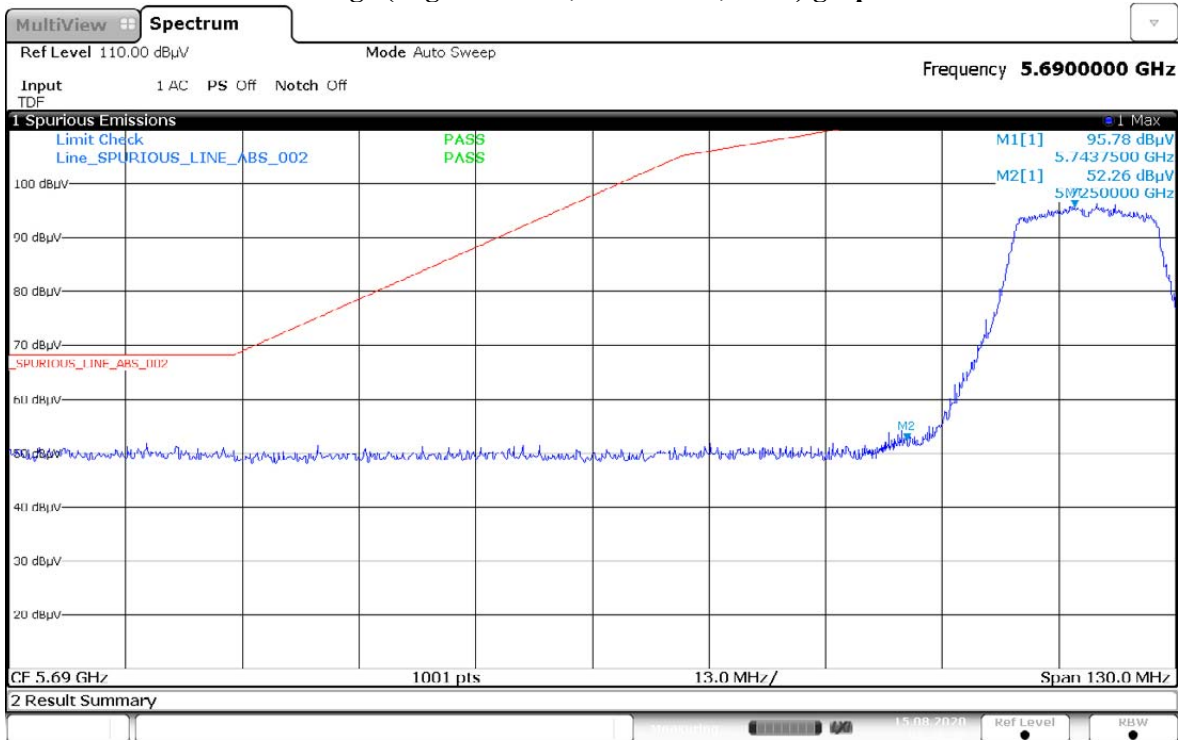
Temperature (degC):24.5
Test Performed by: Nazrin&Fendi
System MU: 4.03dB

Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot



Test: WIFI SAC Restricted Band Edge

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 EMC SR ID#: 18058-EMC-00040

Battery: PMNN4804A **Accessory: AN000348A01**

Test Channel: High Test Frequency: 5825.0000 MHz Test Standard: ANSI C63.10-2013

Worst Case Plane: Z-Plane (802.11a 20MHz)

Restricted Band Edge (High Channel) tabular data

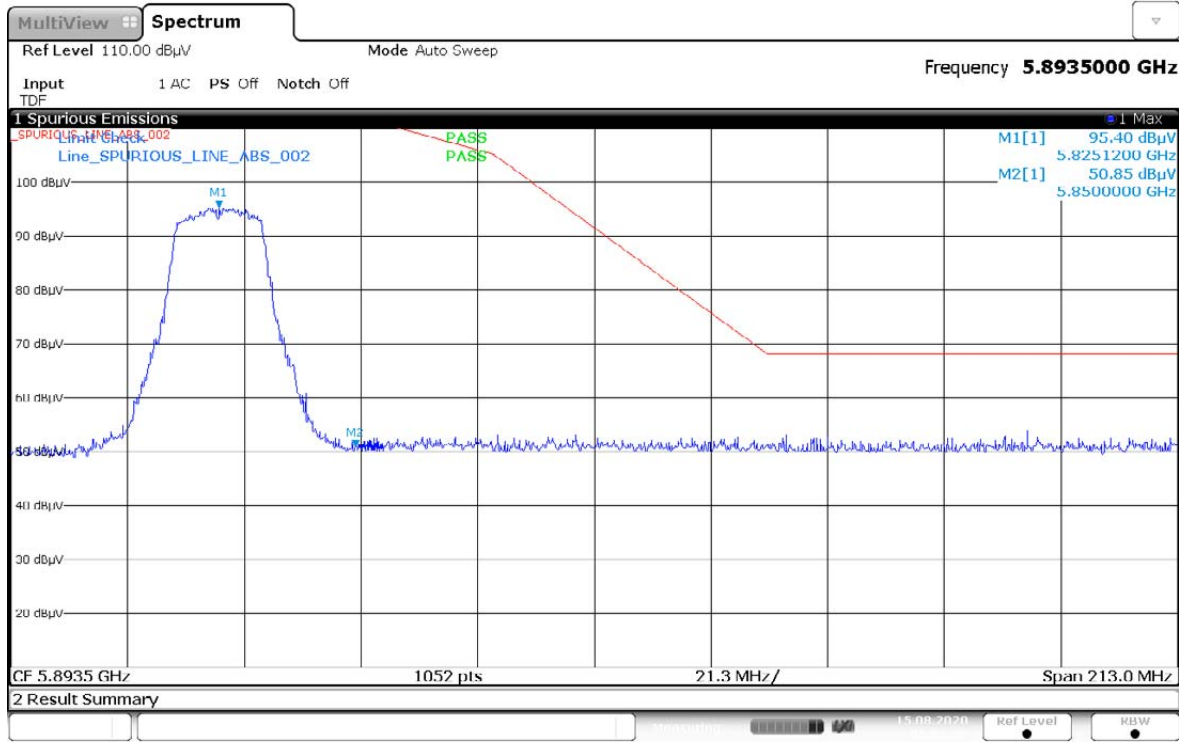
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
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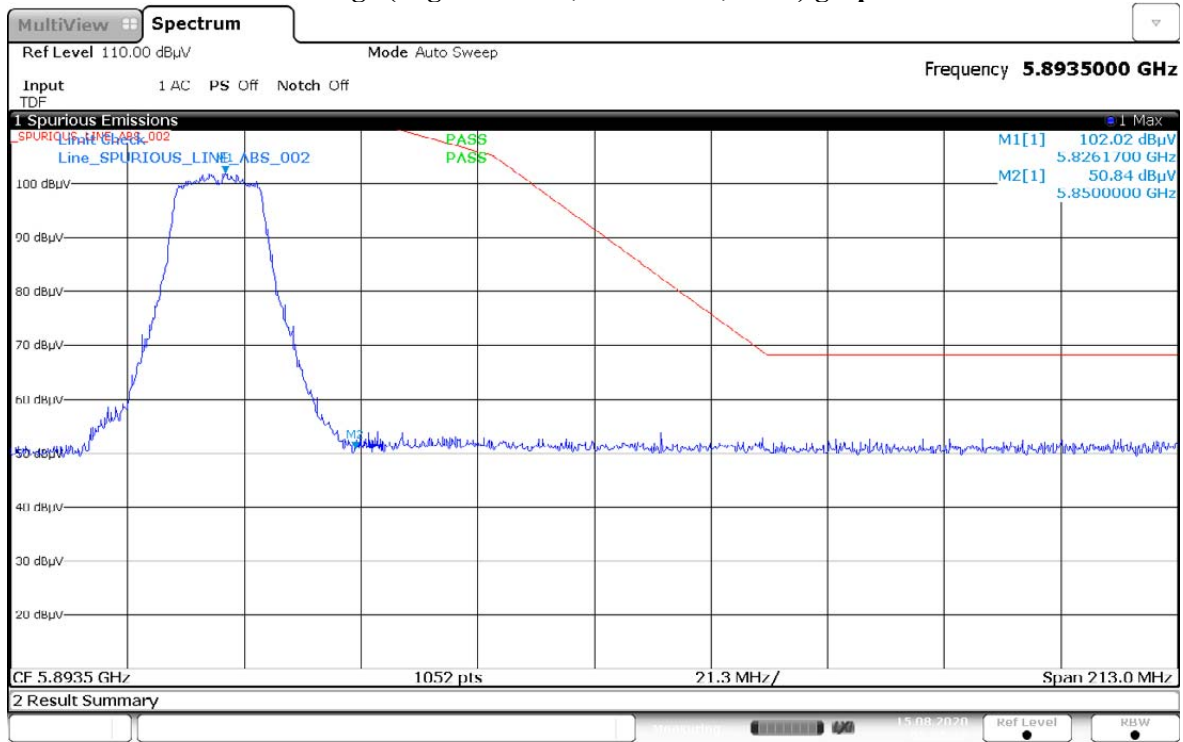
Temperature (degC): 24.5
Test Performed by: Nazrin&Fendi
System MU: 4.03dB

Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

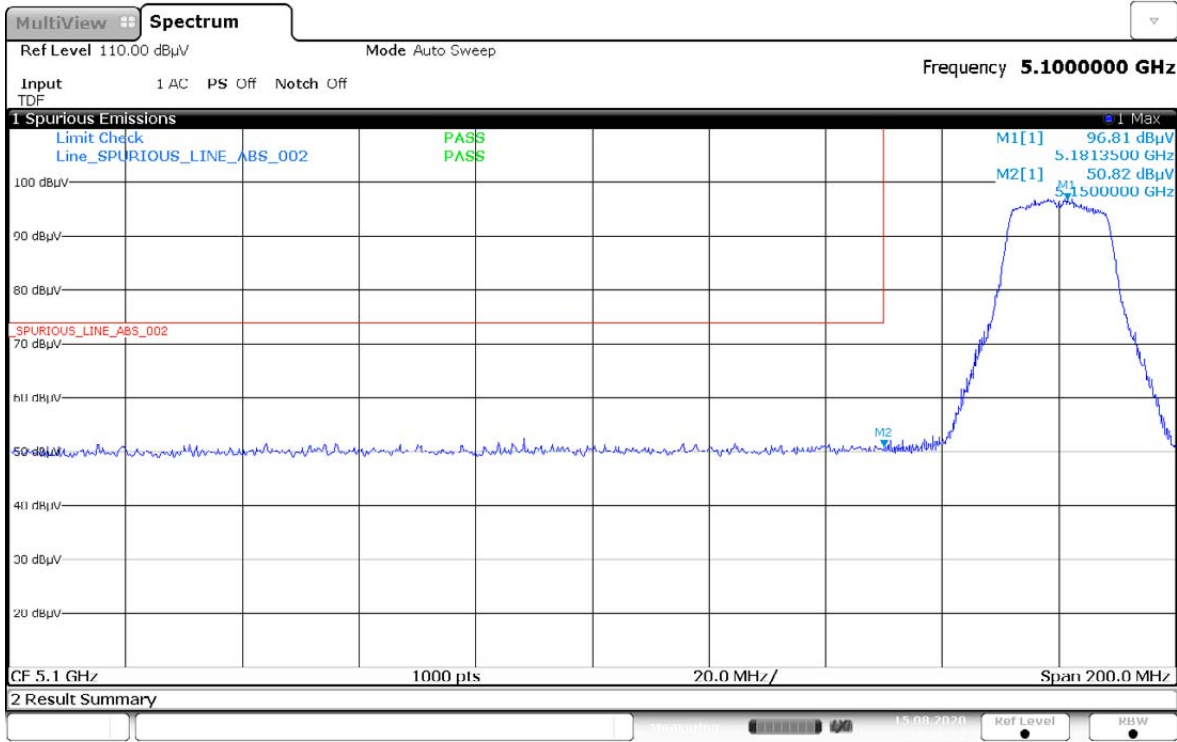
Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot

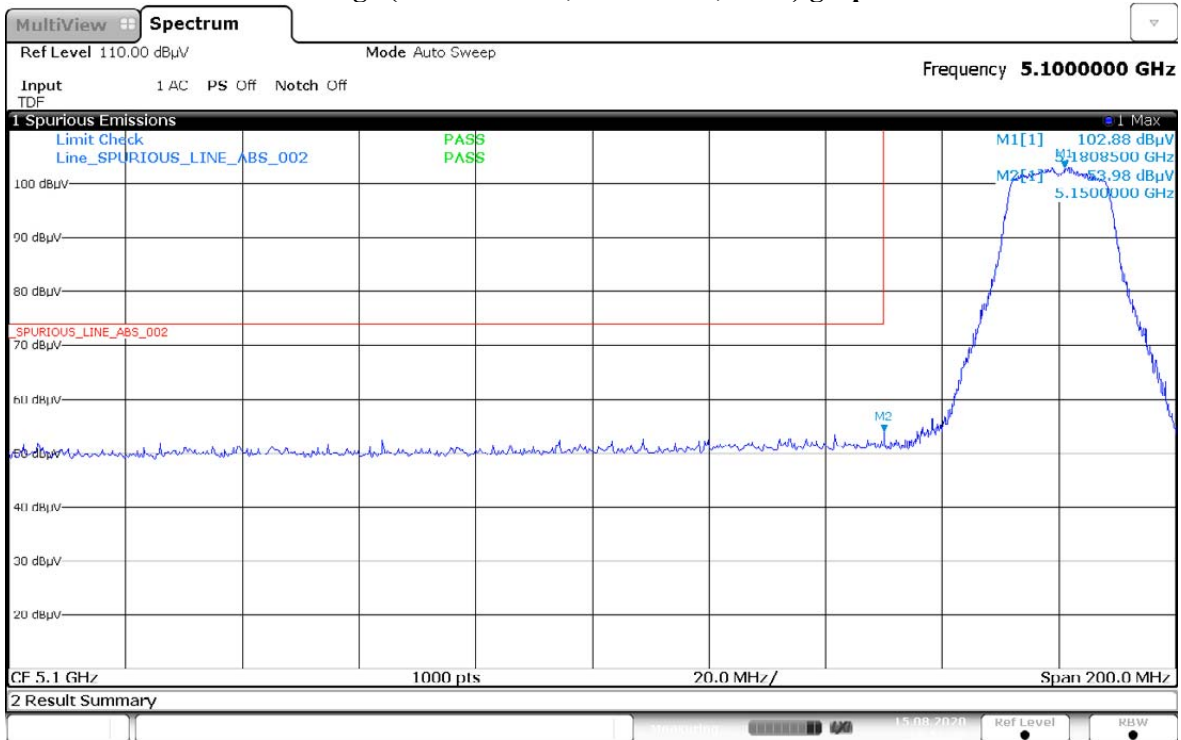


Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



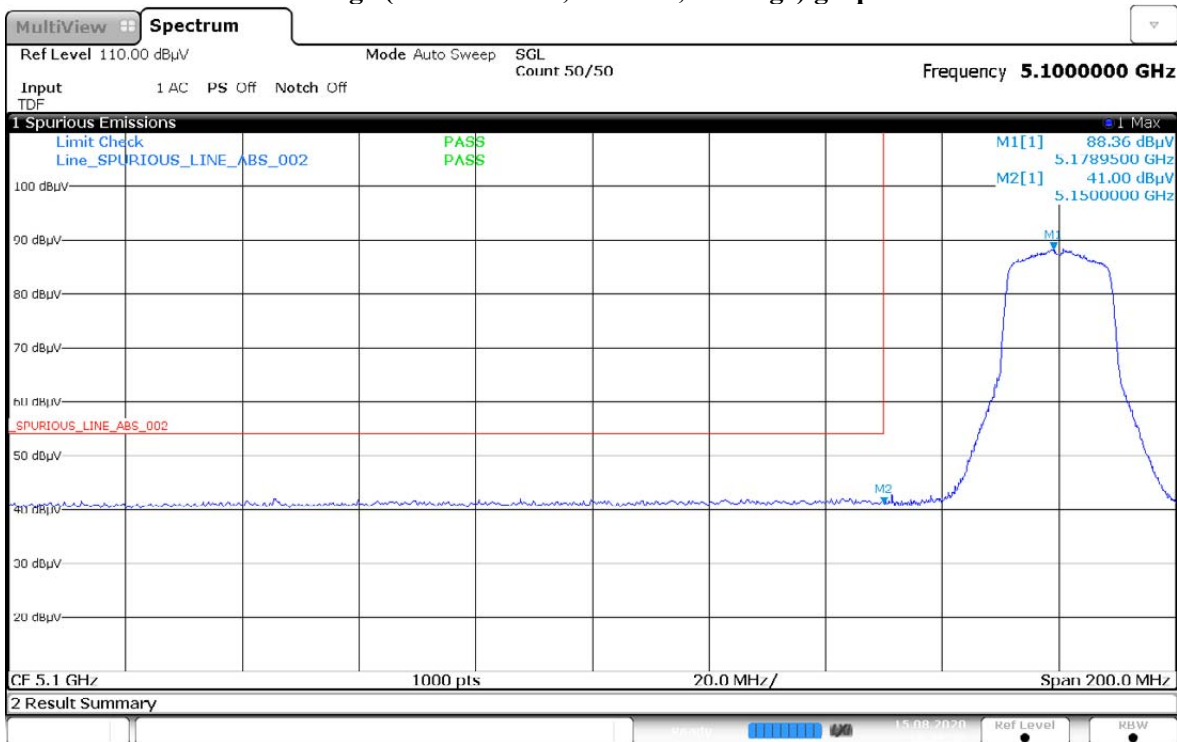
19:48:13 15.08.2020

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



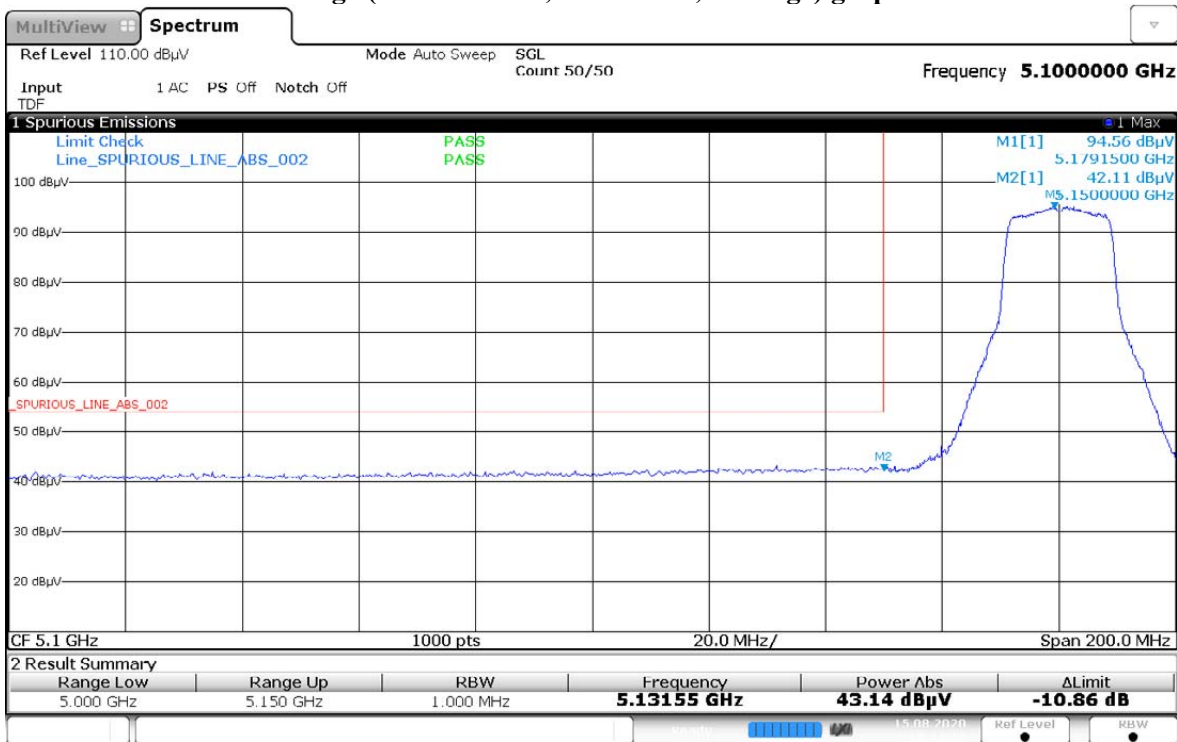
19:51:20 15.08.2020

Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



19:39:59 15.08.2020

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot



19:43:28 15.08.2020

Test: WIFI SAC Restricted Band Edge

Model Number: AAH90ZDU9RH1AN S/N: 734TWP0311 EMC SR ID#: 18058-EMC-00040

Battery: PMNN4804A **Accessory: AN000348A01**

Test Channel: High Test Frequency: 5320.0000 MHz Test Standard: ANSI C63.10-2013

Worst Case Plane: Z-Plane (802.11n 20MHz)

Restricted Band Edge (High Channel) tabular data

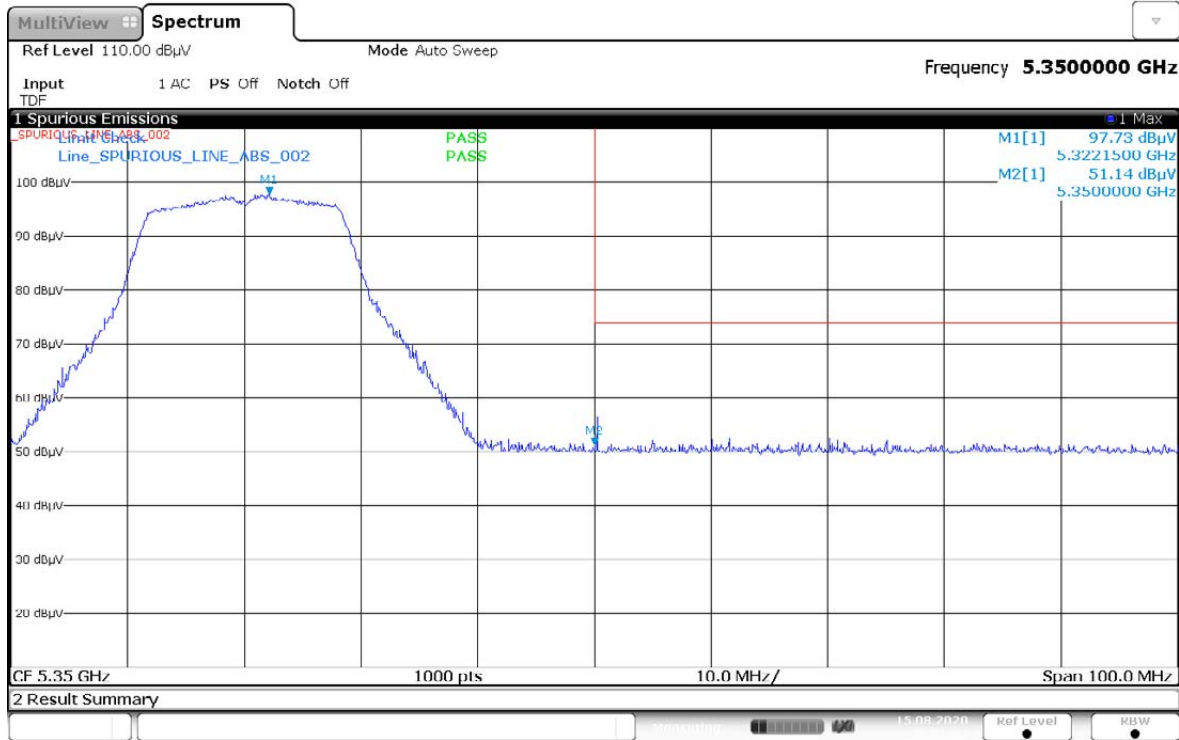
[illegible]

Remarks: Pass Result	Marginal Result	Fail Result
-------------------------	-----------------	-------------

Temperature (degC): 24.5
Test Performed by: Nazrin&Fendi
System MU: 4.03dB

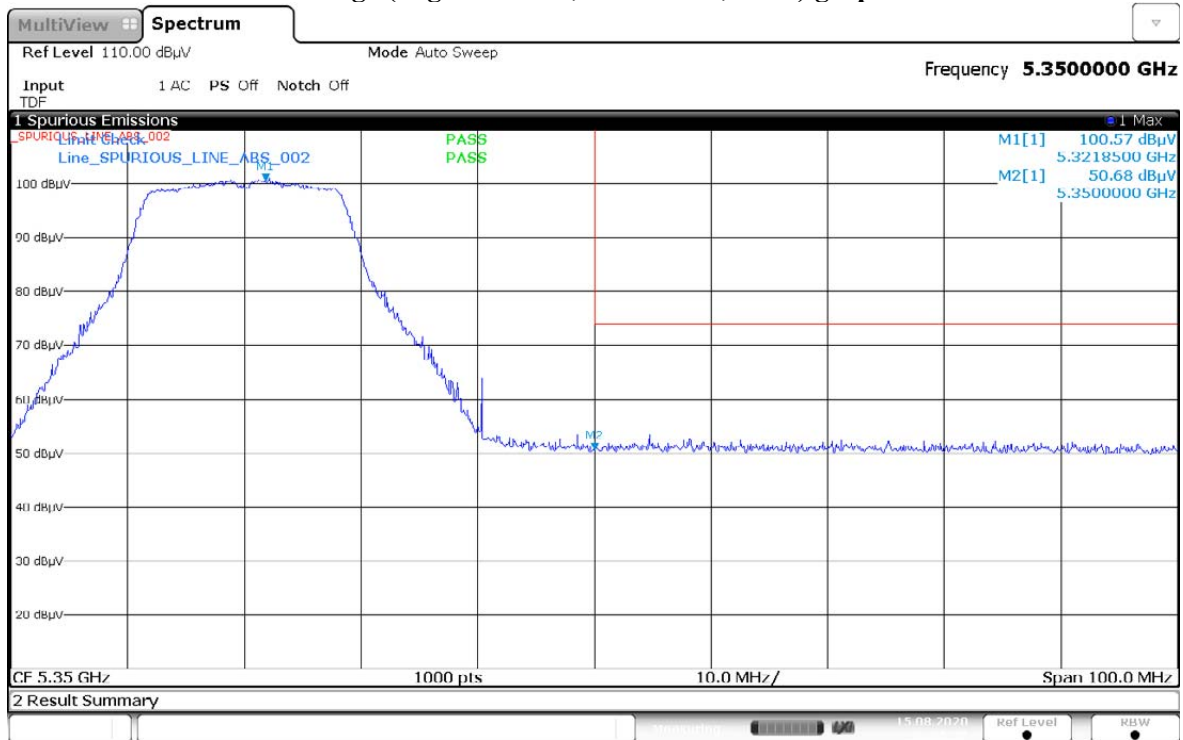
Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



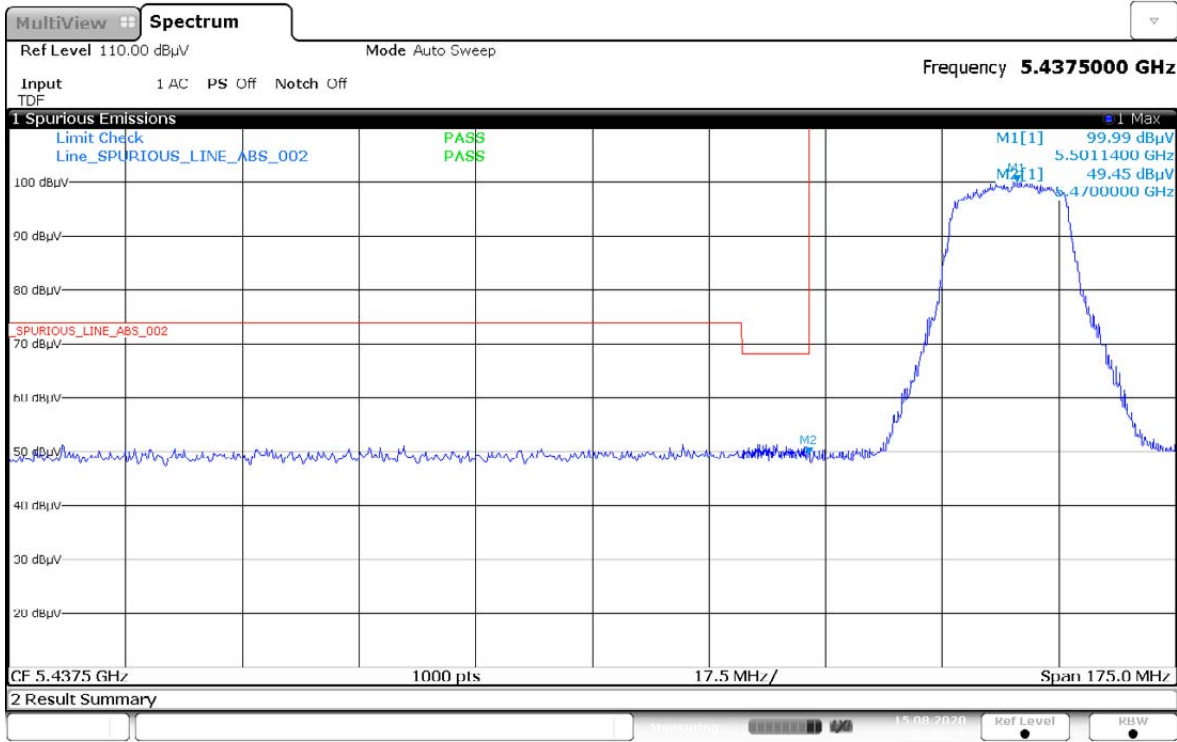
20:02:24 15.08.2020

Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot

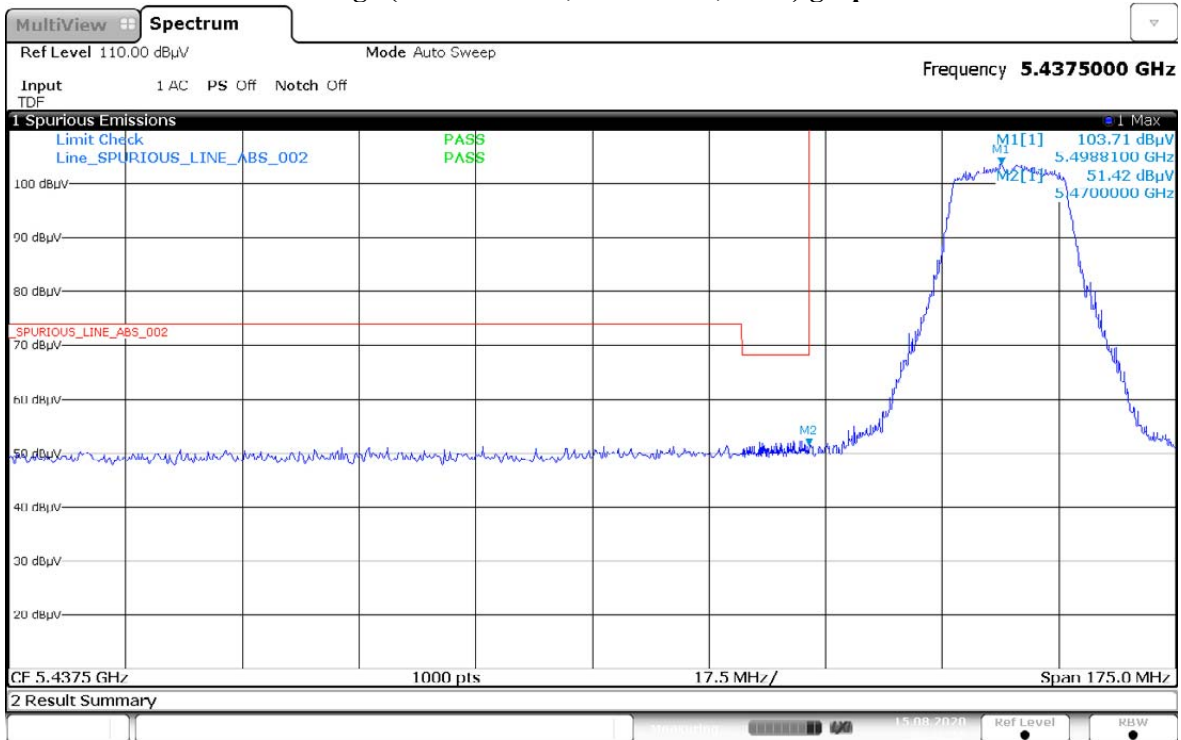


20:05:58 15.08.2020

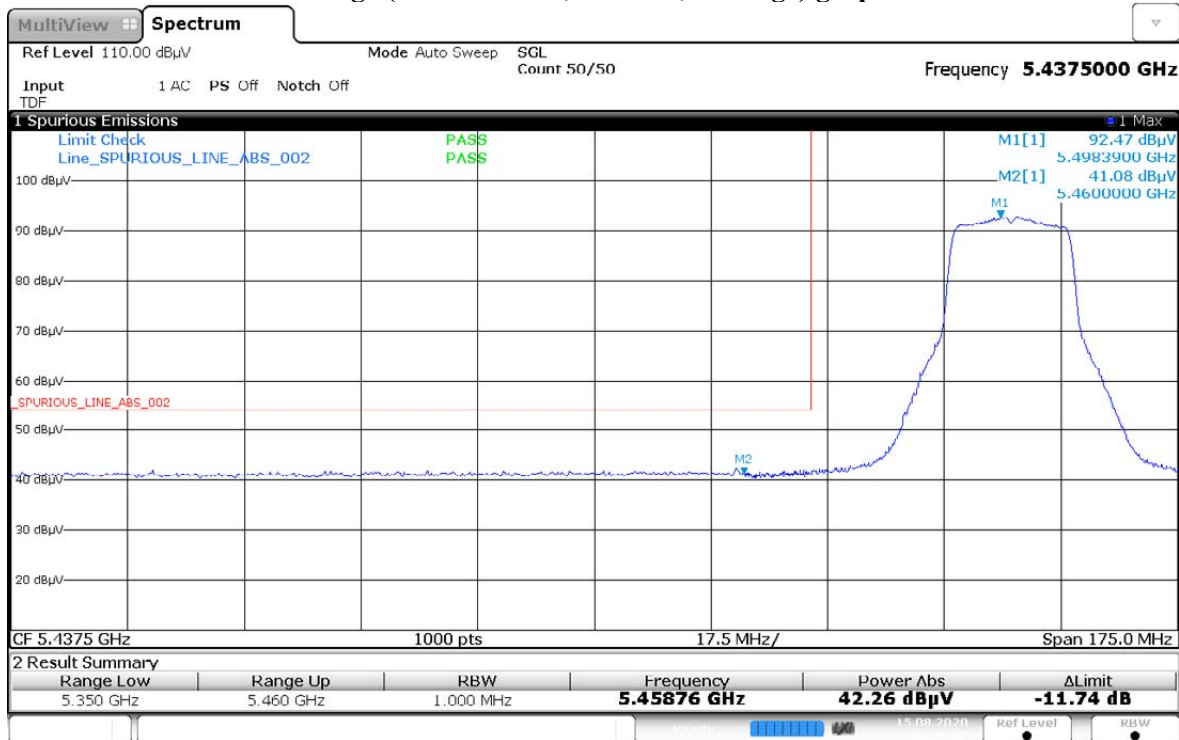
Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot

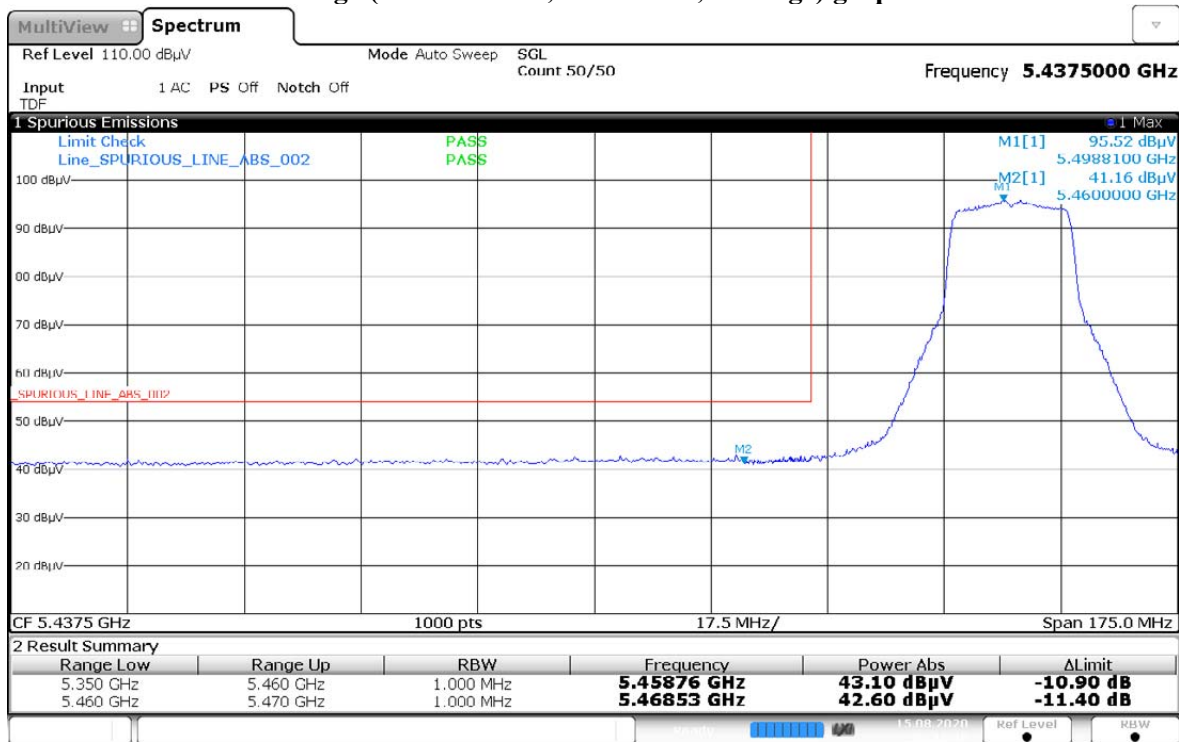


Restricted Band Edge (Low Channel, Vertical, Average) graphical screen shot



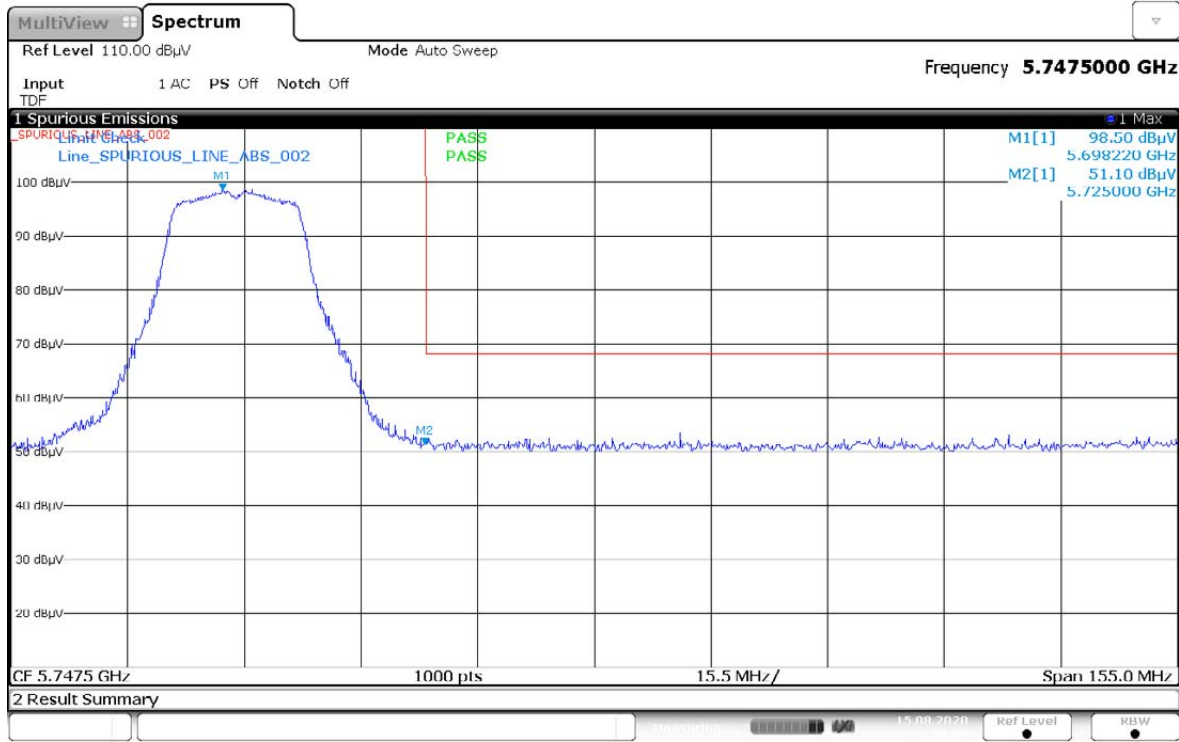
20:29:55 15.08.2020

Restricted Band Edge (Low Channel, Horizontal, Average) graphical screen shot

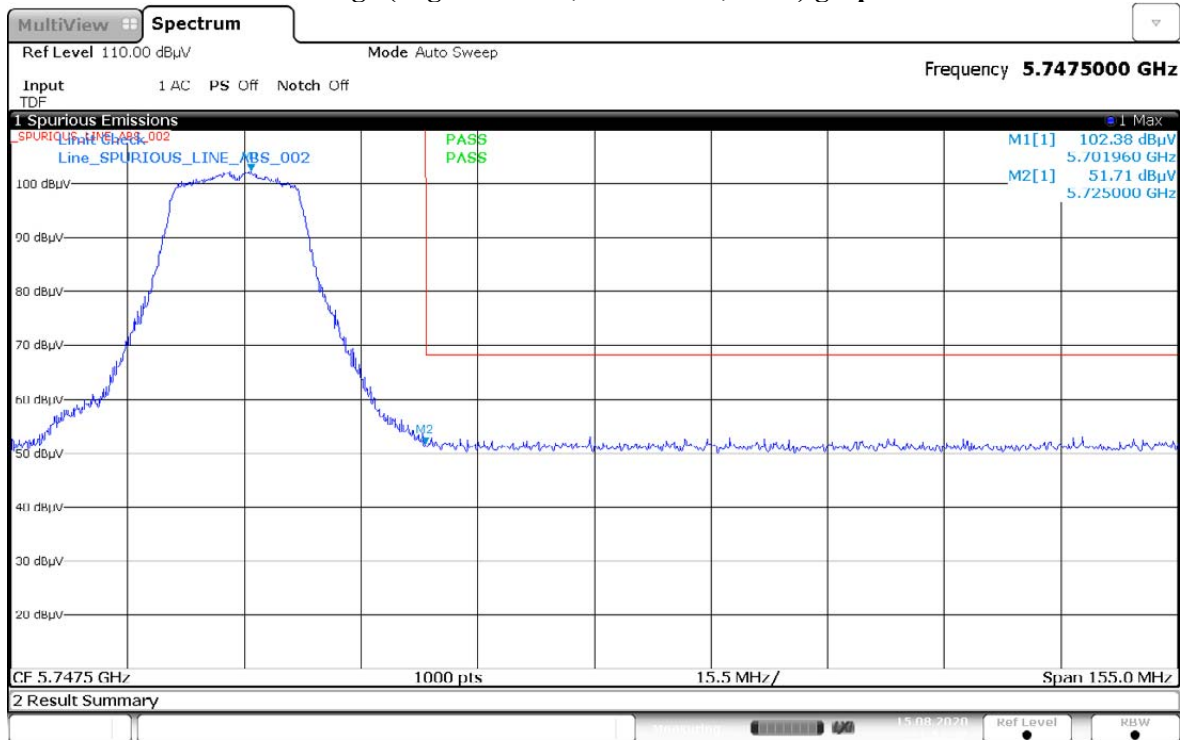


20:33:40 15.08.2020

Restricted Band Edge (High Channel, Vertical, Peak) graphical screen shot



Restricted Band Edge (High Channel, Horizontal, Peak) graphical screen shot

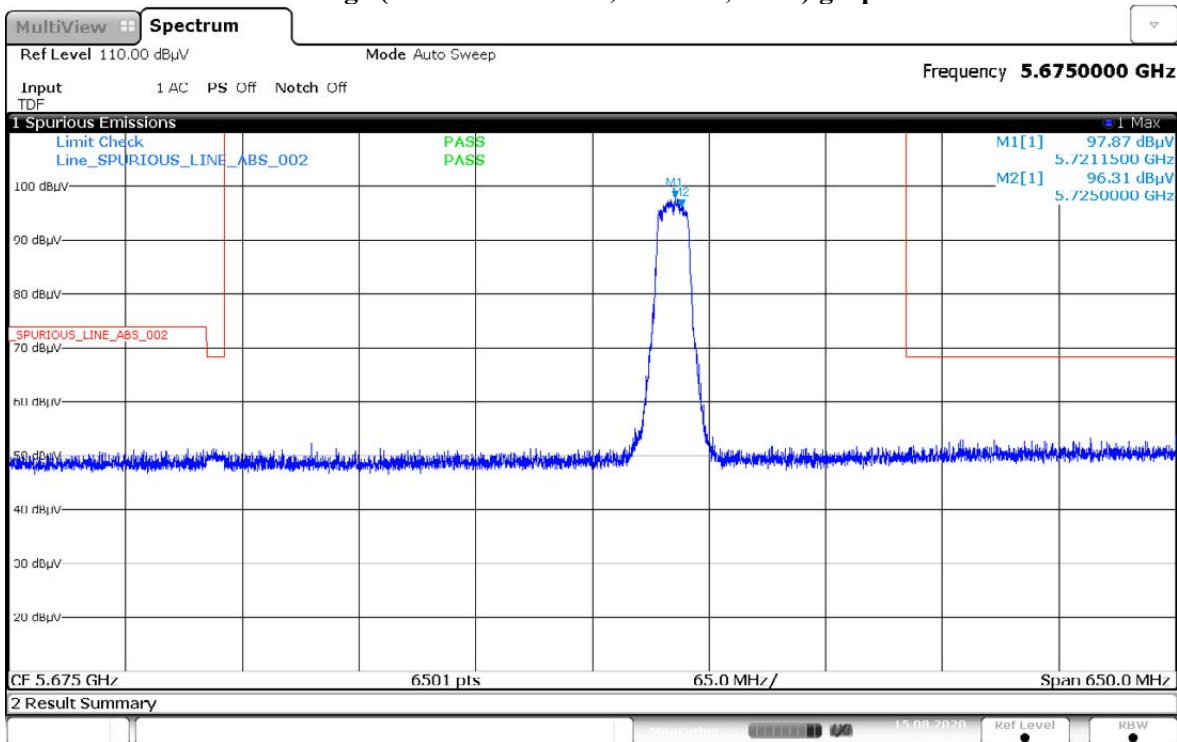


Restricted Band Edge (Straddle Channel) tabular data

Remarks: Pass Result	Marginal Result	Fail Result
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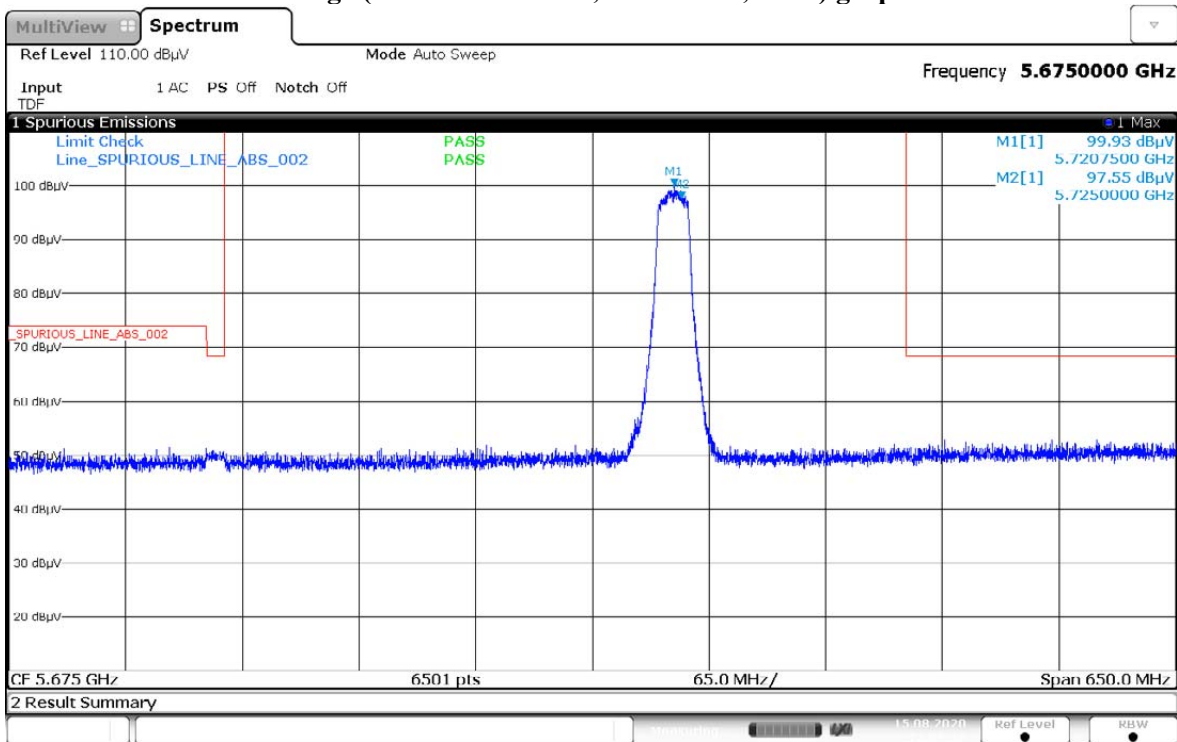
Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020

Restricted Band Edge (Straddle Channel, Vertical, Peak) graphical screen shot



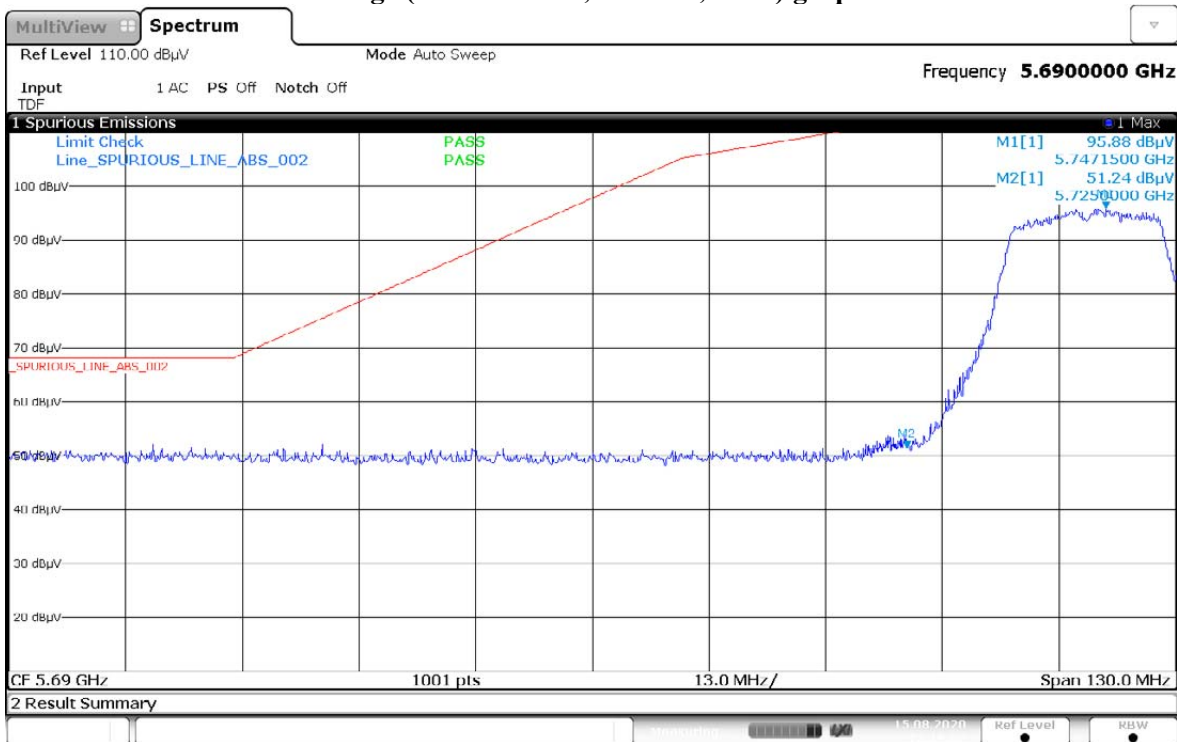
22:06:01 15.08.2020

Restricted Band Edge (Straddle Channel, Horizontal, Peak) graphical screen shot



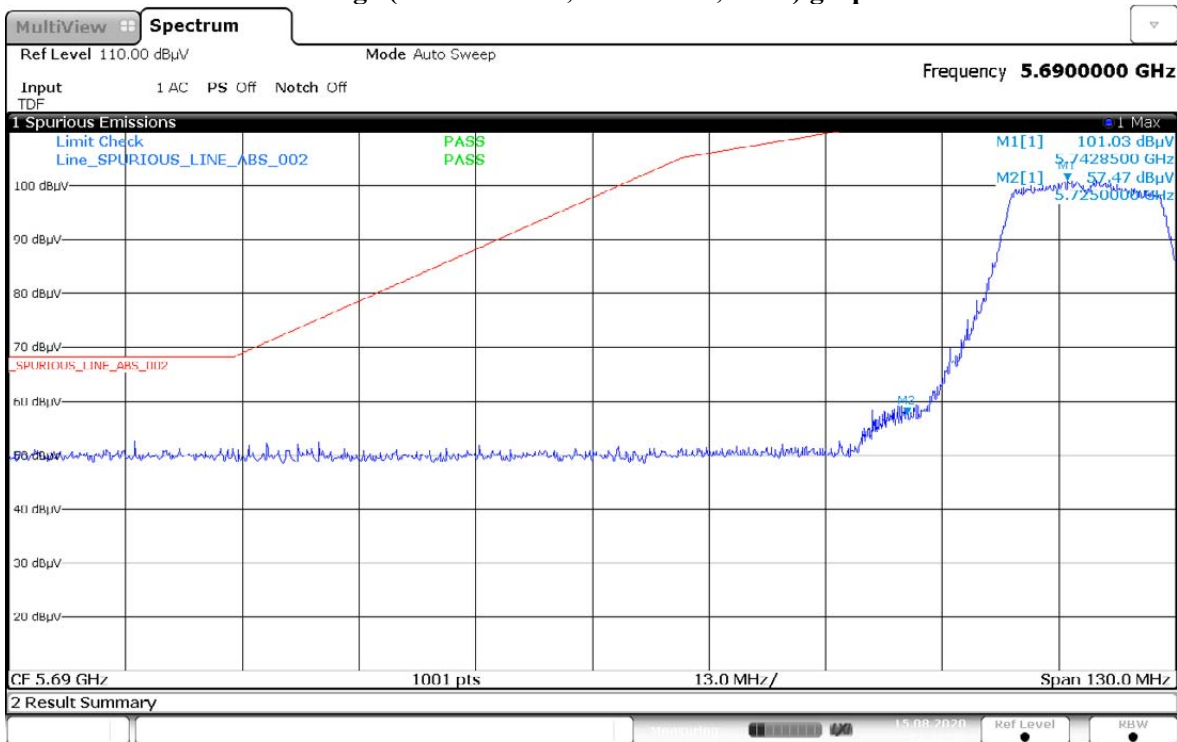
22:09:39 15.08.2020

Restricted Band Edge (Low Channel, Vertical, Peak) graphical screen shot



22:19:02 15.08.2020

Restricted Band Edge (Low Channel, Horizontal, Peak) graphical screen shot



22:22:57 15.08.2020

Restricted Band Edge (High Channel) tabular data

Remarks: Pass Result	Marginal Result	Fail Result
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Humidity (%): 70.3
Test Date: Sat, Aug 15, 2020