

## Dynascan Technology Corp.

# TEST REPORT

**SCOPE OF WORK:**

47 CFR FCC Part 15.407 – Radio Spectrum report

**Model:**

FBP206

**REPORT NUMBER**

220500398THC-001

**ISSUE DATE**

Jul. 08, 2022

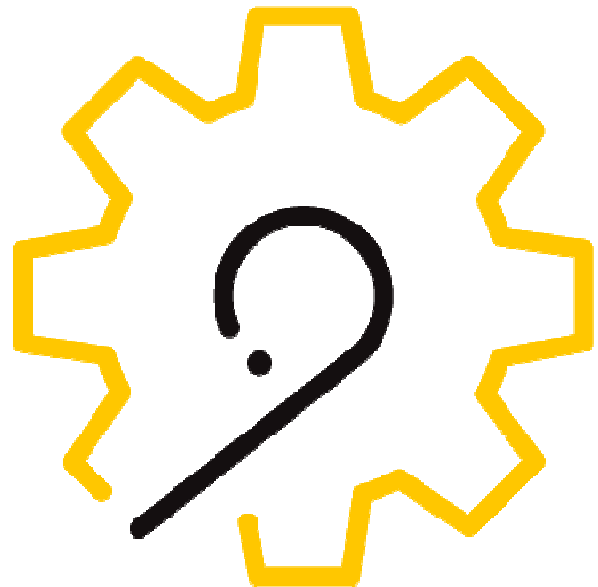
**PAGES**

159

**DOCUMENT CONTROL NUMBER**

GFT-OP-10h (28-Nov-2018)

© 2020 Intertek



# Radio Spectrum TEST REPORT

<b>Applicant:</b>	<b>Dynascan Technology Corp. 6F., No. 88, Wenmao Rd., Guishan Dist., Taoyuan City 333001, Taiwan</b>
<b>Product:</b>	<b>Digital Transmission Systems</b>
<b>Model No.:</b>	<b>FBP206</b>
<b>FCC ID:</b>	<b>2AKWYFBP206</b>
<b>Test Method/ Standard:</b>	<b>47 CFR FCC Part 15.407 KDB 789033 D02 v02r01 ANSI C63.10 2013 KDB 662911 D01 v02r01</b>
<b>Test By:</b>	<b>Intertek Testing Services Taiwan Ltd., Hsinchu Laboratory No. 11, Lane 275, Ko-Nan 1 Street, Chia-Tung Li, Shiang-Shan District, Hsinchu City, Taiwan</b>



*Zero chen*

Zero Chen  
Engineer

*Rico Deng*

Rico Deng  
Reviewer

This report is for the exclusive use of Intertek's Client and is provided pursuant to the agreement between Intertek and its Client. Intertek's responsibility and liability are limited to the terms and conditions of the agreement. Intertek assumes no liability to any party, other than to the Client in accordance with the agreement, for any loss, expense or damage occasioned by the use of this report. Only the Client is authorized to permit copying or distribution of this report and then only in its entirety. Any use of the Intertek name or one of its marks for the sale or advertisement of the tested material, product or service must first be approved in writing by Intertek. The observations and test results in this report are relevant only to the sample tested. This report by itself does not imply that the material, product, or service is or has ever been under an Intertek certification program.

**TEST REPORT****Revision History**

<b>Report No.</b>	<b>Issue Date</b>	<b>Revision Summary</b>
220500398THC-001	Jul. 08, 2022	Original report

## Table of Contents

Summary of Test Data .....	5
1. General Information .....	6
1.1 Identification of the EUT .....	6
1.2 Description of the EUT .....	6
1.3 Antenna description .....	6
1.4 Operation mode .....	8
1.5 Peripherals equipment .....	9
2. Maximum Conducted Output Power .....	10
2.1 Limit for maximum output power .....	10
2.2 Measuring instrument setting .....	10
2.3 Test procedure .....	10
2.4 Test diagram .....	10
2.5 Test results .....	11
3. Power Spectrum Density .....	37
3.1 Limit for power spectrum density .....	37
3.2 Measuring instrument setting .....	37
3.3 Test procedure .....	38
3.4 Test diagram .....	38
3.5 Test results .....	39
4. Minimum Bandwidth .....	65
4.1 Limit for minimum emission bandwidth .....	65
4.2 Measuring instrument setting .....	65
4.3 Test procedure .....	66
4.4 Test diagram .....	66
4.5 Test results .....	67
5. Emissions in Restricted Frequency Bands (Radiated emission measurements) .....	112
5.1 Limit for emission in restricted frequency bands (Radiated emission measurement) .....	136
5.2 Measuring instrument setting .....	137
5.3 Test procedure .....	138
5.4 Test configuration .....	139
5.4.1 Radiated emission from 9 kHz to 30MHz using Loop Antenna .....	139
5.5 Test results .....	141
5.5.1 Measurement results: frequencies from 9 kHz to 30MHz .....	141
5.5.2 Measurement results from 30 MHz to 1GHz .....	143
5.5.3 Measurement results from 1 GHz to 40 GHz .....	144
6. Emission on The Band Edge .....	146
6.1 Measuring instrument setting .....	146
6.2 Test procedure .....	146
6.3 Limit for Band Edge (Radiated emission measurement) .....	146
6.4 Test Result .....	147

**TEST REPORT**

7. AC Power Line Conducted Emission ..... 153

    7.1 Measuring instrument setting..... 153

    7.2 Test Procedure..... 153

    7.3 Test Diagram ..... 154

    7.4 Limit..... 154

    7.5 Test Results ..... 155

Appendix A: Test equipment list..... 157

Appendix B: Measurement Uncertainty..... 159

**Summary of Test Data**

Test Requirement	Applicable Rule (Section 15.407)	Result
Maximum Conducted Output Power	15.407 (a)(1)/(2)/(3) KDB 789033 D02 v01r02	Pass
Power Spectrum Density	15.407 (a)(1)/(2)/(3) KDB 789033 D02 v01r02	Pass
Minimum Emission Bandwidth	15.407(a)(5), 15.407(e) KDB 789033 D02 v01r02	Pass
Emissions In Restricted Frequency Bands (Radiated emission measurements)	15.407(b), 15.209	Pass
Emission on The Band Edge	15.407(b), 15.209	Pass
AC Line Conducted Emission	15.407(b)(6) 15.207	Pass
Antenna requirement	15.203	Pass

Note: Please note that the test results with statement of conformity, the decision rules which are based on: Safety Testing: the specification, standard or IEC Guide 115.

Other Testing: the specification, standard and not taking into account the measurement uncertainty.

## 1. General Information

### 1.1 Identification of the EUT

<b>Product:</b>	Digital Transmission System
<b>Model No.:</b>	FBP206
<b>Operating Frequency:</b>	1. 5180MHz~5240MHz 2. 5745MHz~5825MHz
<b>Channel Number:</b>	1. 7 channels for 5180MHz ~ 5240MHz 2. 8 channels for 5745MHz ~ 5825MHz
<b>Access scheme:</b>	OFDM
<b>Rated Power:</b>	DC 3.3V
<b>Power Cord:</b>	N/A
<b>Sample receiving date:</b>	2022/05/30
<b>Sample condition:</b>	Workable
<b>Test Date(s):</b>	2022/06/18 ~ 2022/07/04

### 1.2 Description of the EUT

Modulation mode	Transmit path			
	Chain 0	Chain 1	Chain 2	Chain 3
802.11a	V	V	V	V
802.11ac (VHT20)	V	V	V	V
802.11ac (VHT40)	V	V	V	V
802.11ac (VHT80)	V	V	V	V

Item	Product name	Model No.	Rated Power
Host	Display	65512	100-240V~ 50-60Hz 4A

**1.3 Antenna description****For antenna 0 (Chain 0)**

Antenna Gain : -2.31 dBi  
Antenna Type : PIFA antenna  
Connector Type : I-pex

**For antenna 1 (Chain 1)**

Antenna Gain : -2.31 dBi  
Antenna Type : PIFA antenna  
Connector Type : I-pex

**For antenna 2 (Chain 2)**

Antenna Gain : -2.31 dBi  
Antenna Type : PIFA antenna  
Connector Type : I-pex

**For antenna 3 (Chain 3)**

Antenna Gain : -2.31 dBi  
Antenna Type : PIFA antenna  
Connector Type : I-pex



**TEST REPORT**

**1.4 Operation mode**

Power on, executing “WLAN Test Tool V2.3.0” to select different frequency and modulation.

With individual verifying, the maximum output power were found out 6 Mbps data rate for 802.11a mode, 6.5 Mbps data rate for 802.11ac(VHT20) mode , 13.5 Mbps data rate for 802.11ac(VHT40) mode , 29.3 Mbps data rate for 802.11ac(VHT80) mode , the final tests were executed under these conditions recorded in this report individually.

Mode	Data rate (Mbps)	Signal on time (ms)	signal on+off time (ms)	Duty cycle (%)	Duty Cycle factor
802.11a	6	2.025	2.525	80.20	0.958
802.11ac (VHT20)	6.5	1.890	2.395	78.91	1.028
802.11ac (VHT40)	13.5	1.323	1.863	71.01	1.487
802.11ac (VHT80)	29.3	0.418	0.956	43.72	3.593

**1.5 Peripherals equipment**

<b>Peripherals</b>	<b>Brand</b>	<b>Model No.</b>	<b>Description of Data Cable</b>
Notebook PC	HP	HSTNN-Q96C	Shielded HDMI cable 1.5m x 2
Earphone	i Coby	M80	Unshielded audio 3.5mm cable 2m x 1
Earphone	i Coby	M80	Unshielded audio 3.5mm cable 2m x 1
USB flash drive	Kingston	DTSE9G2/8GB	N/A
USB flash drive	Kingston	DTSE9G2/8GB	N/A
Wireless AP	BUFFALO	WZR-AGL300NH	N/A

## 2. Maximum Conducted Output Power

### 2.1 Limit for maximum output power

Operating Frequency (MHz)	Conducted output power limit
5150~5725	< 0.25 W (24 dBm)
5725~5850	< 1 W (30 dBm)

Operating Frequency (MHz)	Maximum E.I.R.P. limit
5150~5725	< 1 W (30 dBm)
5725~5850	< 4 W (36 dBm)

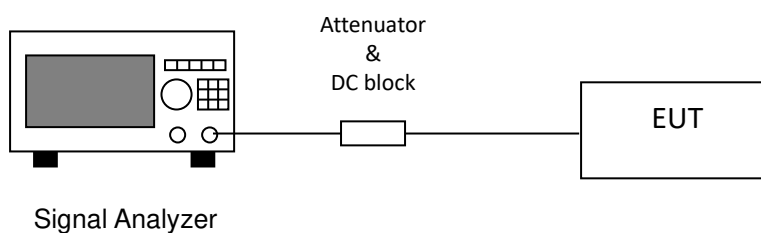
### 2.2 Measuring instrument setting

Spectrum Analyzer function	Setting
RBW	=1 MHz
VBW	$\geq 3$ MHz
Sweep time	Auto couple
Detector	RMS
Trace	Average
Span	Encompass the EBW
Attenuation	Auto
Sweep point	$\geq 2$ Span / RBW

### 2.3 Test procedure

Test procedures refer to clause E) 2) d) Method SA-2 of KDB 789033 D02 v01r02

### 2.4 Test diagram



2.5 Test results

Temperature (°C) :	29
Relative Humidity (%) :	60
Test date :	2022/06/29 ~ 2022/07/04

Chain 0+1+2+3

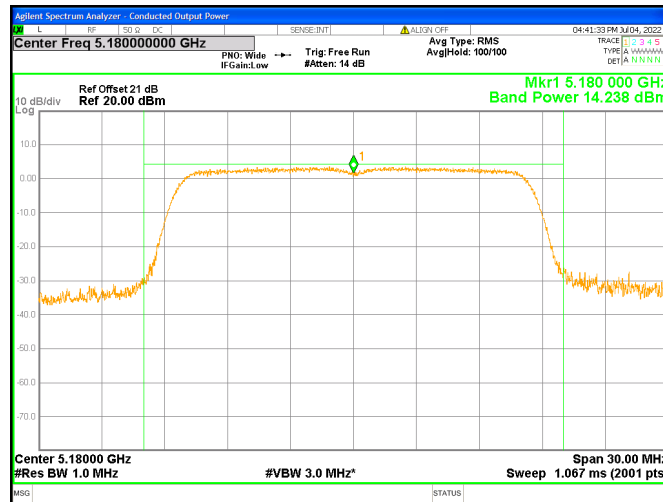
Mode	Channel	Frequency (MHz)	Output Power (dBm@AV)				Total Power (AV)		Duty Factor	Result (dBm)	Limit of Conducted Power (dBm)	Margin (dB)
			Chain 0	Chain 1	Chain 2	Chain 3	mW	dBm				
802.11a	36	5180	14.238	13.417	14.084	12.314	91.144	19.597	0.958	20.556	24	-3.444
	44	5220	14.246	12.659	13.675	11.833	83.587	19.221	0.958	20.180	24	-3.820
	48	5240	14.492	12.353	13.228	11.538	80.601	19.063	0.958	20.022	24	-3.978
	149	5745	20.981	19.991	20.264	19.613	422.878	26.262	0.958	27.221	30	-2.779
	157	5785	20.874	20.309	20.886	19.610	443.709	26.471	0.958	27.429	30	-2.571
	165	5825	20.580	19.956	19.934	19.980	411.312	26.142	0.958	27.100	30	-2.900
802.11ac (VHT20)	36	5180	14.376	12.910	13.665	12.243	86.949	19.393	1.028	20.421	24	-3.579
	44	5220	13.958	12.647	13.522	11.915	81.315	19.102	1.028	20.130	24	-3.870
	48	5240	14.224	12.939	13.886	12.198	87.179	19.404	1.028	20.433	24	-3.567
	149	5745	20.912	19.752	20.212	19.426	410.439	26.132	1.028	27.161	30	-2.839
	157	5785	20.609	19.895	19.898	19.846	406.860	26.094	1.028	27.123	30	-2.877
	165	5825	19.821	19.801	19.607	20.085	384.808	25.852	1.028	26.881	30	-3.119
802.11ac (VHT40)	38	5190	12.006	11.535	11.763	10.080	55.304	17.428	1.487	18.914	24	-5.086
	46	5230	16.628	15.391	16.110	14.014	146.638	21.662	1.487	23.149	24	-0.851
	151	5755	19.338	18.784	19.070	18.170	307.779	24.882	1.487	26.369	30	-3.631
	159	5795	19.203	19.072	19.140	18.458	316.143	24.999	1.487	26.485	30	-3.515
802.11ac (VHT80)	42	5210	13.337	12.449	12.642	10.692	69.239	18.404	3.593	21.996	24	-2.004
	155	5775	18.220	17.619	17.675	17.073	233.685	23.686	3.593	27.279	30	-2.721

**TEST REPORT**

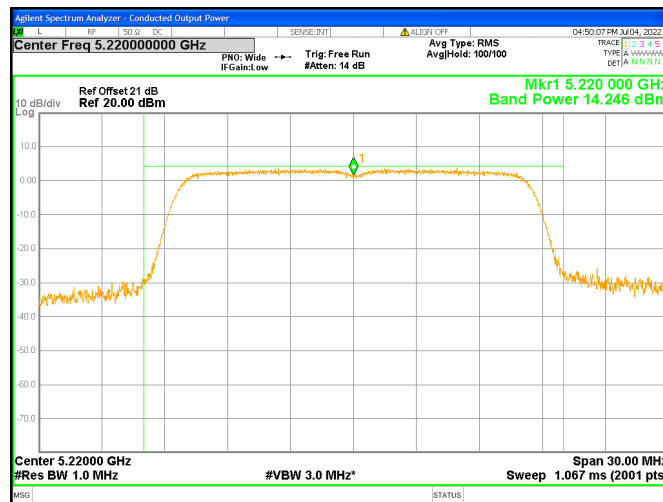
Mode	Channel	Frequency (MHz)	Antenna 0 Gain (dBi)	Antenna 1 Gain (dBi)	Antenna 2 Gain (dBi)	Antenna 3 Gain (dBi)	E.I.R.P. (dBm)	Limit of E.I.R.P. (dBm)	Margin (dB)
802.11a	36	5180	-2.31	-2.31	-2.31	-2.31	18.246	30	-11.754
	44	5220	-2.31	-2.31	-2.31	-2.31	17.870	30	-12.130
	48	5240	-2.31	-2.31	-2.31	-2.31	17.712	30	-12.288
	149	5745	-2.31	-2.31	-2.31	-2.31	24.911	36	-11.089
	157	5785	-2.31	-2.31	-2.31	-2.31	25.119	36	-10.881
	165	5825	-2.31	-2.31	-2.31	-2.31	24.790	36	-11.210
802.11ac (VHT20)	36	5180	-2.31	-2.31	-2.31	-2.31	18.041	30	-11.959
	44	5220	-2.31	-2.31	-2.31	-2.31	17.750	30	-12.250
	48	5240	-2.31	-2.31	-2.31	-2.31	18.052	30	-11.948
	149	5745	-2.31	-2.31	-2.31	-2.31	24.781	36	-11.219
	157	5785	-2.31	-2.31	-2.31	-2.31	24.743	36	-11.257
	165	5825	-2.31	-2.31	-2.31	-2.31	24.501	36	-11.499
802.11ac (VHT40)	38	5190	-2.31	-2.31	-2.31	-2.31	16.076	30	-13.924
	46	5230	-2.31	-2.31	-2.31	-2.31	20.311	30	-9.689
	151	5755	-2.31	-2.31	-2.31	-2.31	23.531	36	-12.469
	159	5795	-2.31	-2.31	-2.31	-2.31	23.647	36	-12.353
802.11ac (VHT80)	42	5210	-2.31	-2.31	-2.31	-2.31	17.052	30	-12.948
	155	5775	-2.31	-2.31	-2.31	-2.31	22.335	36	-13.665

Note: Result=Total Power+Duty Factor

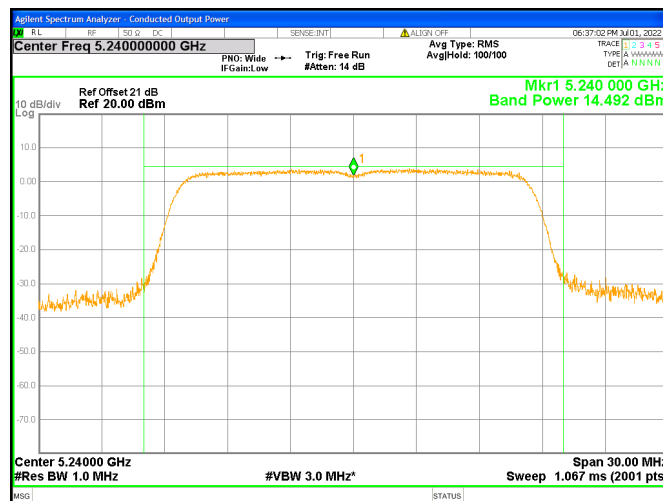
### Chain0 : Conducted Power & EIRP @ 802.11a Mode Ch36



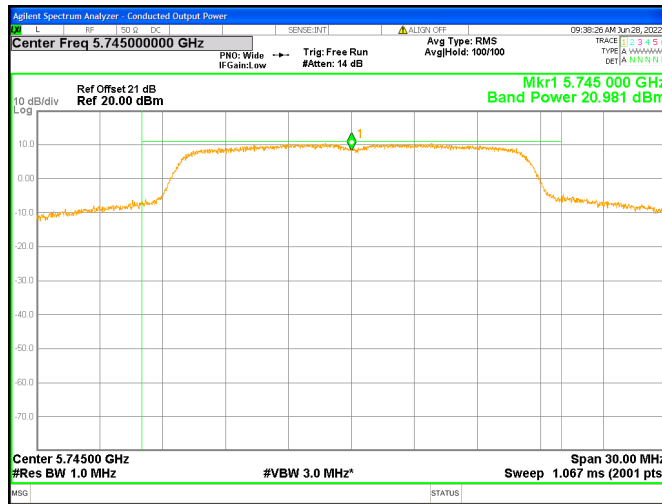
### Chain0 : Conducted Power & EIRP @ 802.11a Mode Ch44



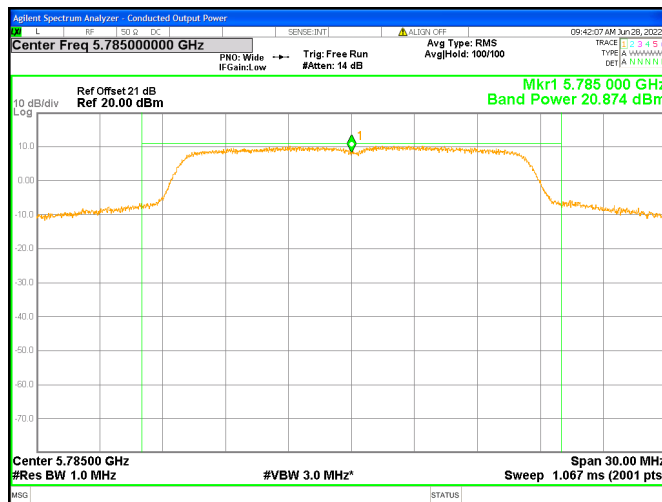
### Chain0 : Conducted Power & EIRP @ 802.11a Mode Ch48



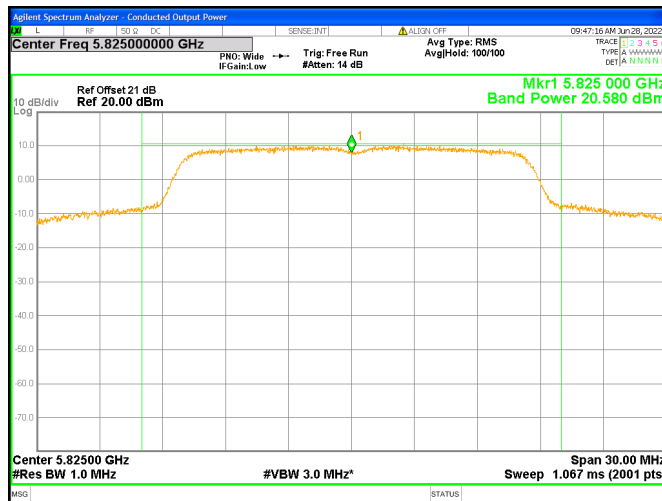
### Chain0 : Conducted Power & EIRP @ 802.11a Mode Ch149



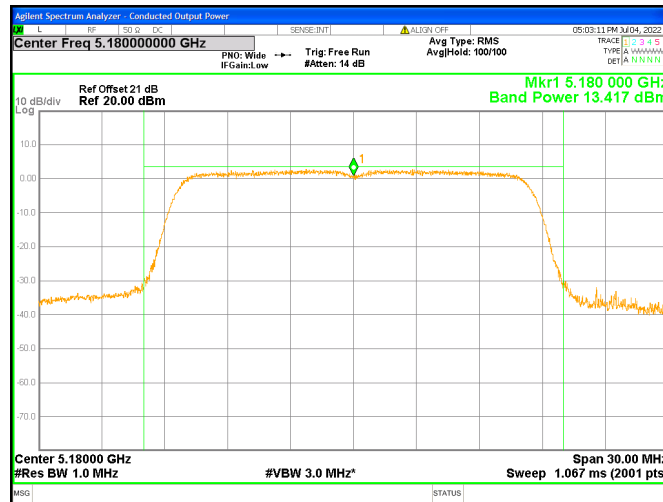
### Chain0 : Conducted Power & EIRP @ 802.11a Mode Ch157



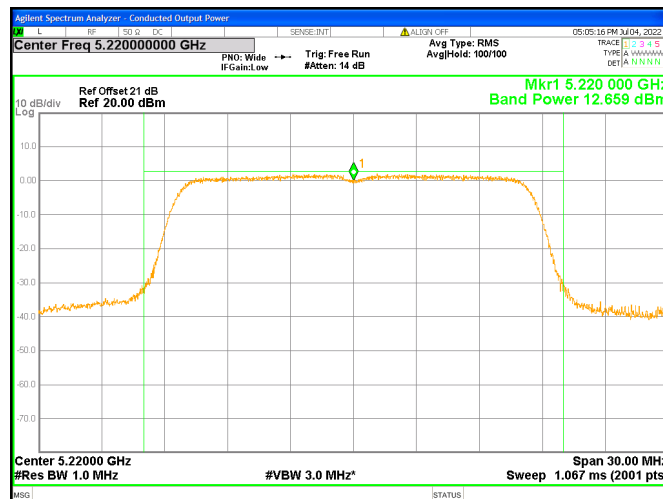
### Chain0 : Conducted Power & EIRP @ 802.11a Mode Ch165



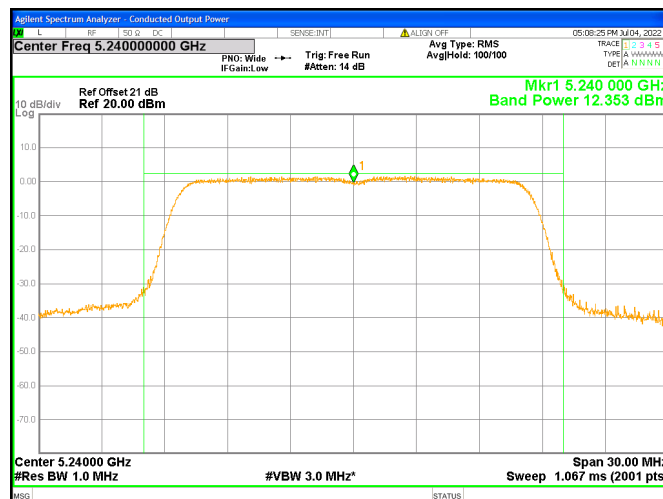
### Chain1 : Conducted Power & EIRP @ 802.11a Mode Ch36



### Chain1 : Conducted Power & EIRP @ 802.11a Mode Ch44

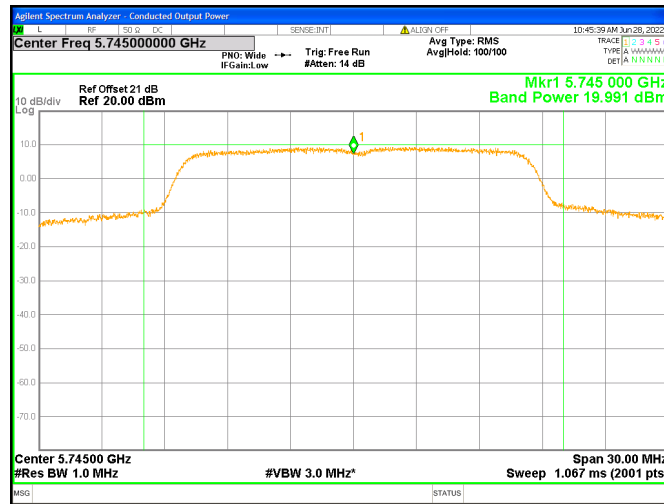


### Chain1 : Conducted Power & EIRP @ 802.11a Mode Ch48

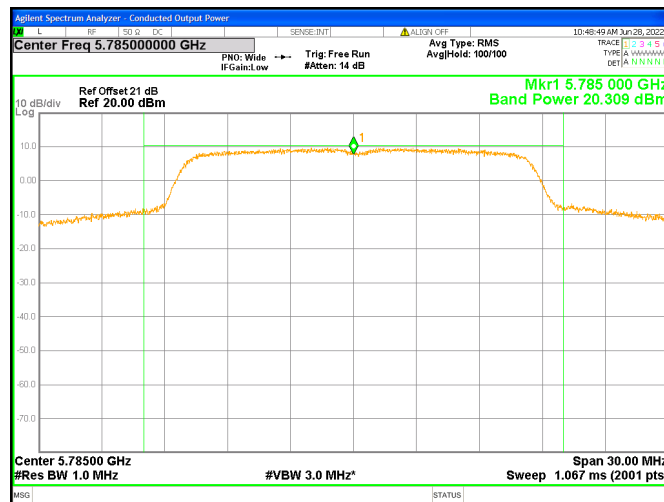




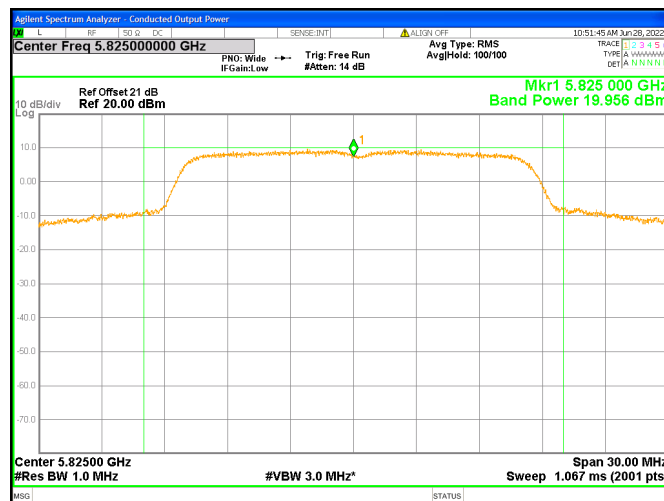
### Chain1 : Conducted Power & EIRP @ 802.11a Mode Ch149



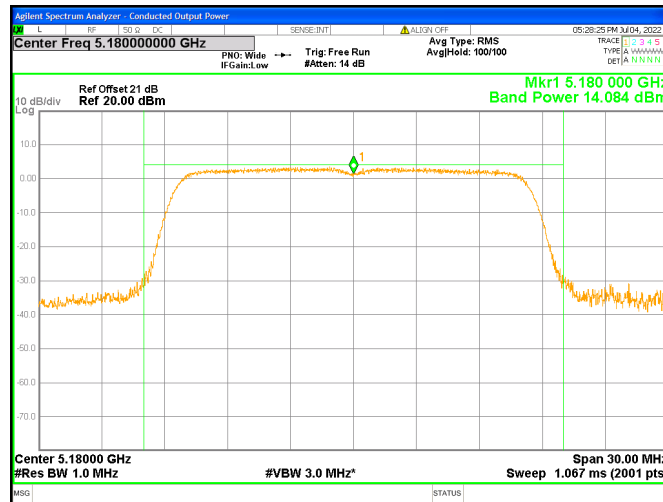
### Chain1 : Conducted Power & EIRP @ 802.11a Mode Ch157



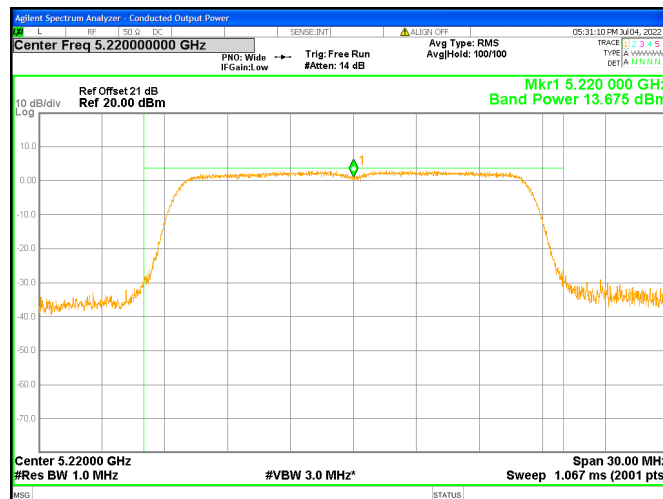
### Chain1 : Conducted Power & EIRP @ 802.11a Mode Ch165



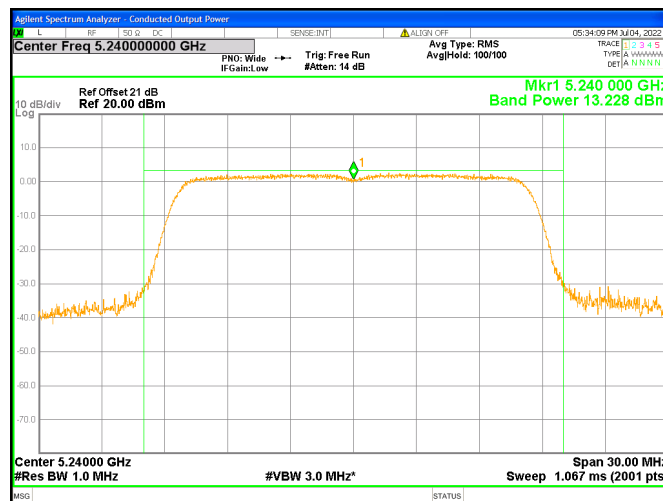
### Chain2 : Conducted Power & EIRP @ 802.11a Mode Ch36



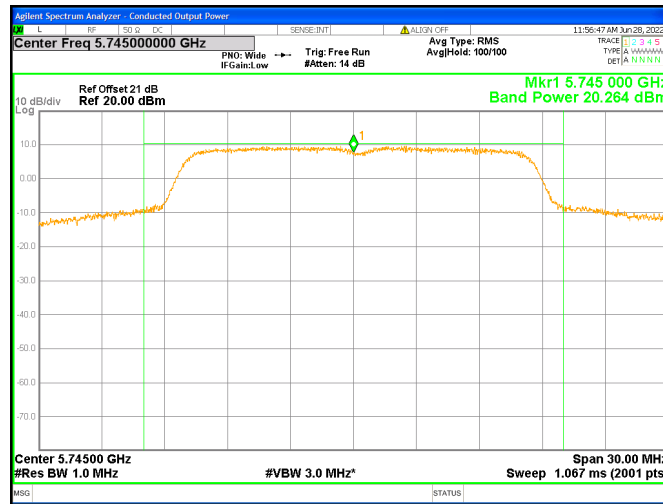
### Chain2 : Conducted Power & EIRP @ 802.11a Mode Ch44



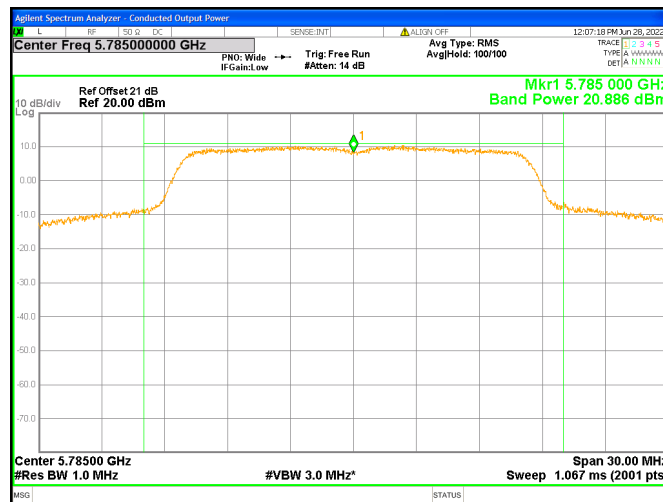
### Chain2 : Conducted Power & EIRP @ 802.11a Mode Ch48



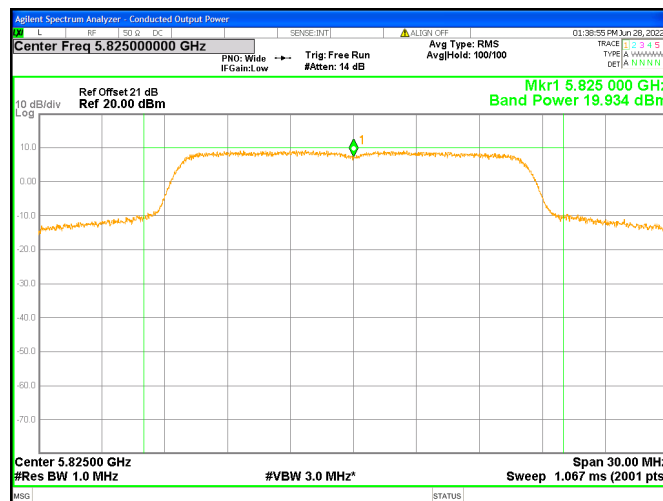
### Chain2 : Conducted Power & EIRP @ 802.11a Mode Ch149



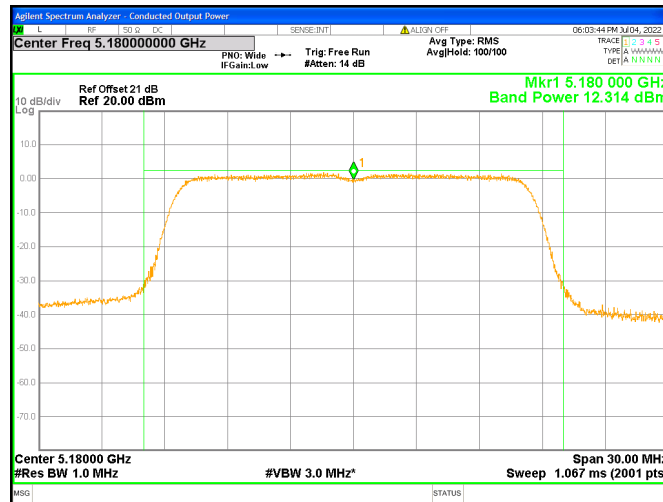
### Chain2 : Conducted Power & EIRP @ 802.11a Mode Ch157



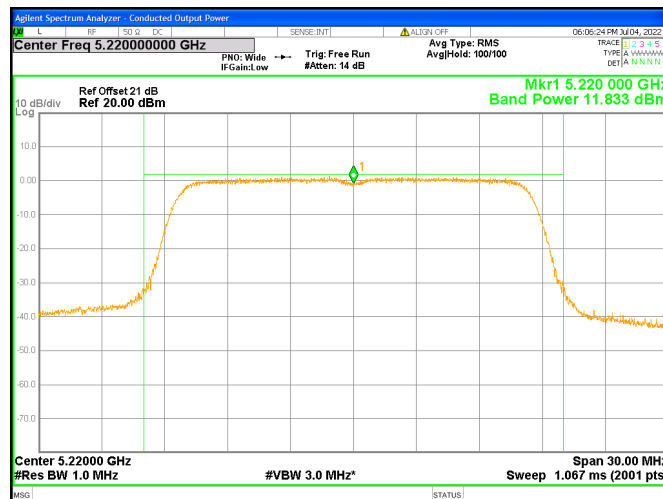
### Chain2 : Conducted Power & EIRP @ 802.11a Mode Ch165



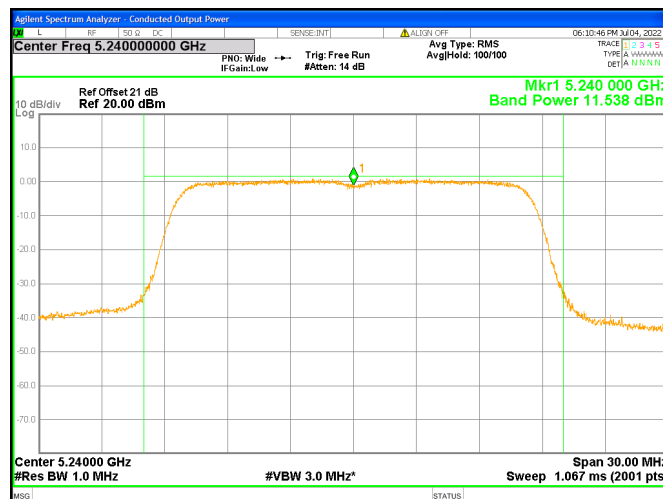
### Chain3 : Conducted Power & EIRP @ 802.11a Mode Ch36



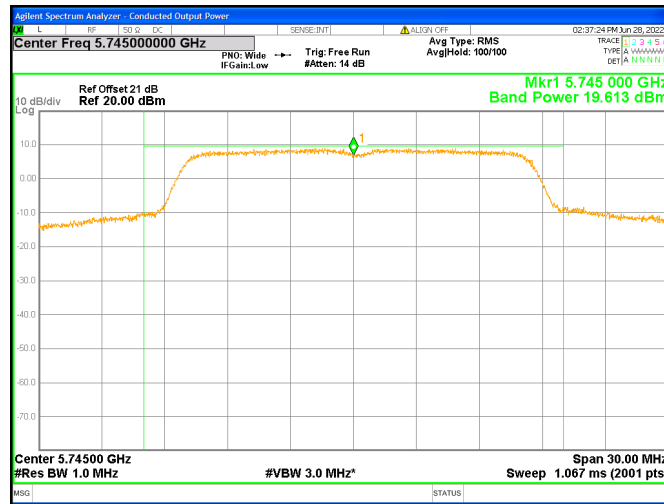
### Chain3 : Conducted Power & EIRP @ 802.11a Mode Ch44



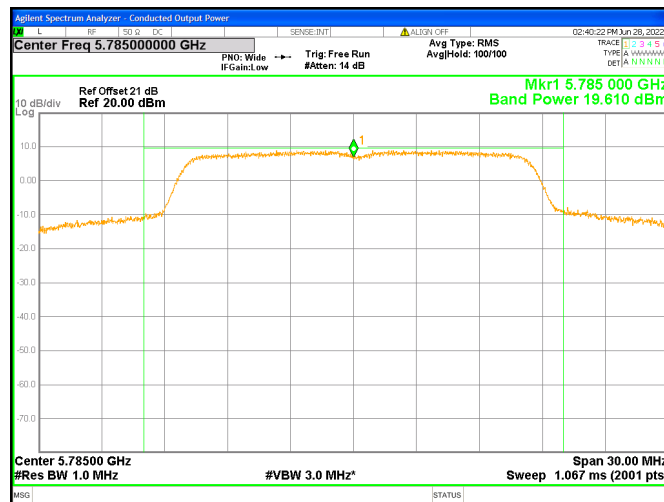
### Chain3 : Conducted Power & EIRP @ 802.11a Mode Ch48



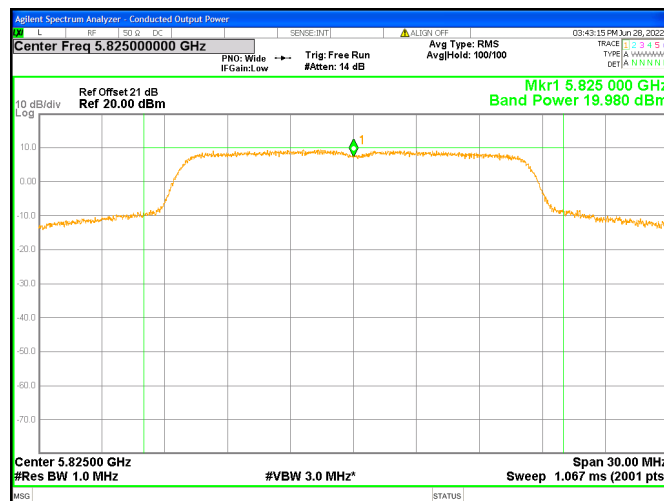
### Chain3 : Conducted Power & EIRP @ 802.11a Mode Ch149



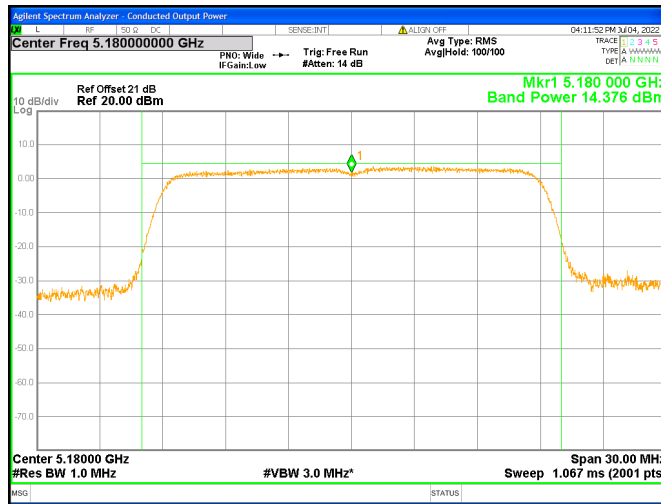
### Chain3 : Conducted Power & EIRP @ 802.11a Mode Ch157



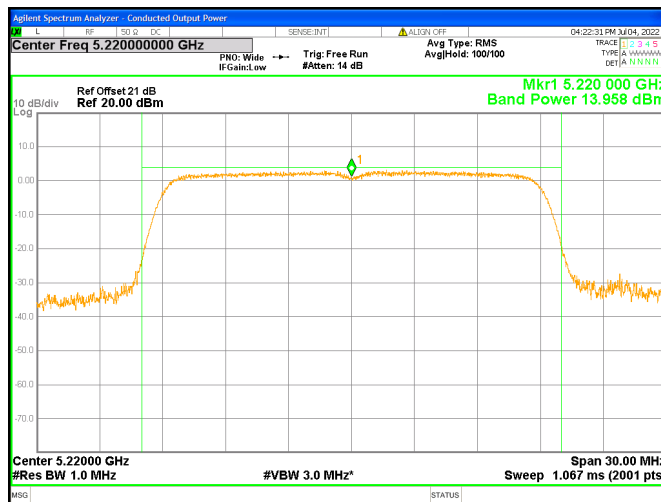
### Chain3 : Conducted Power & EIRP @ 802.11a Mode Ch165



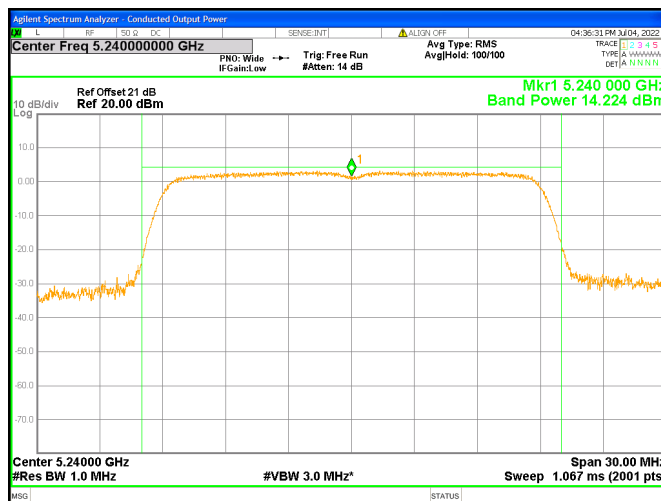
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch36



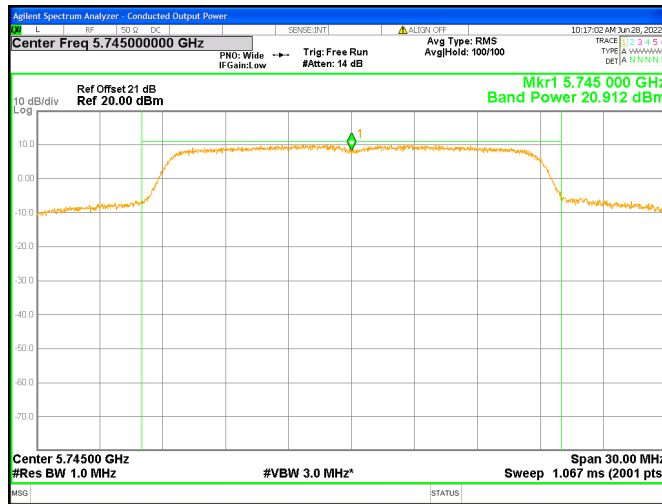
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch44



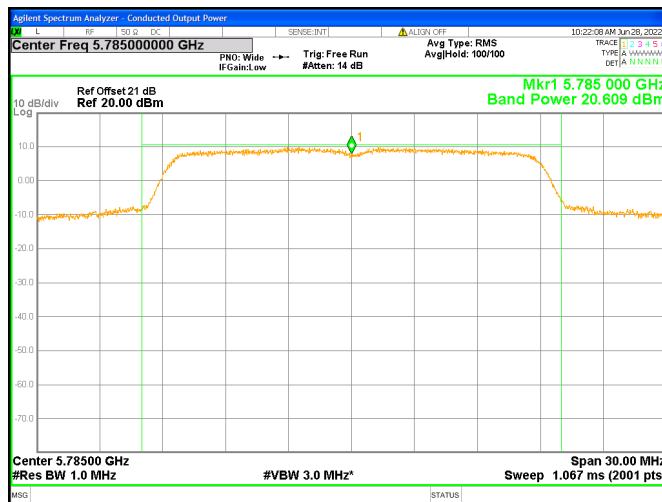
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch48



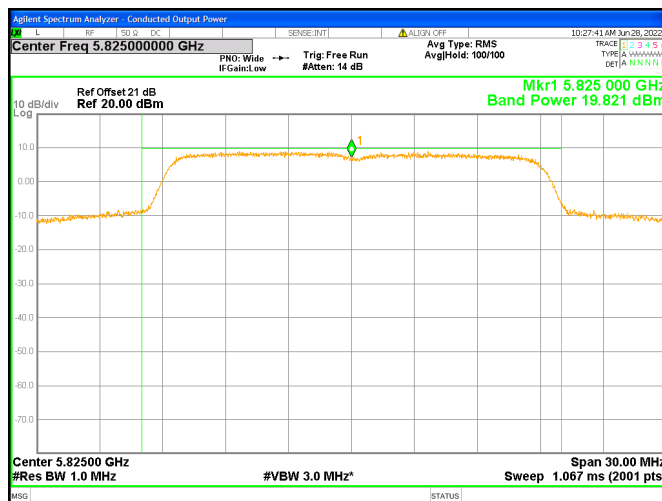
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch149



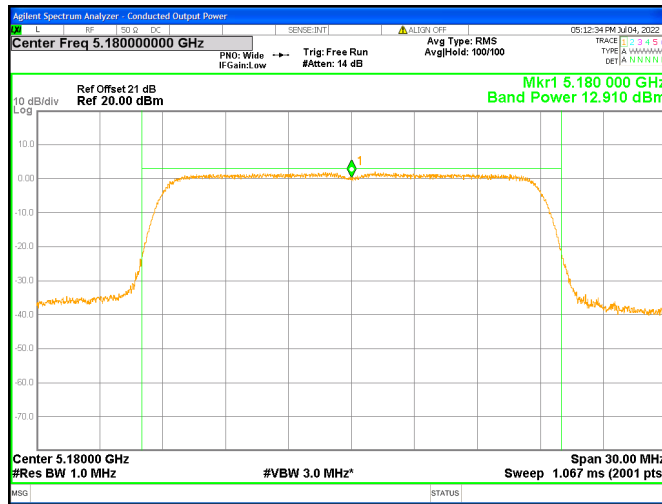
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch157



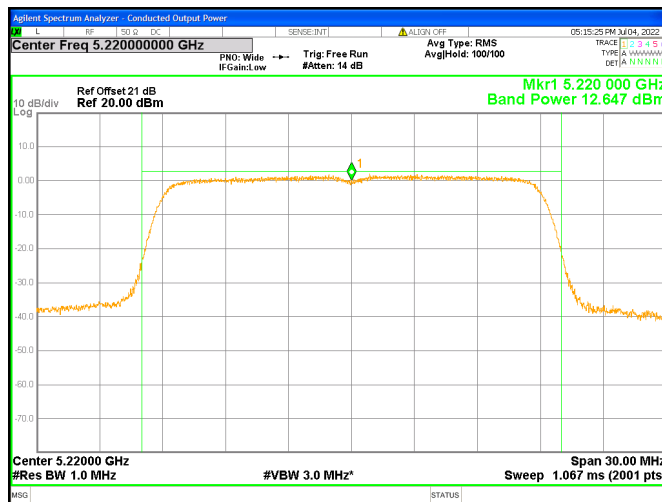
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch165



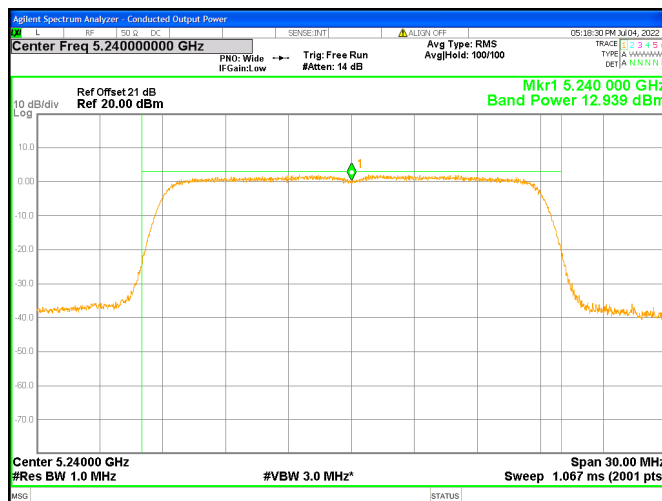
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch36



### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch44

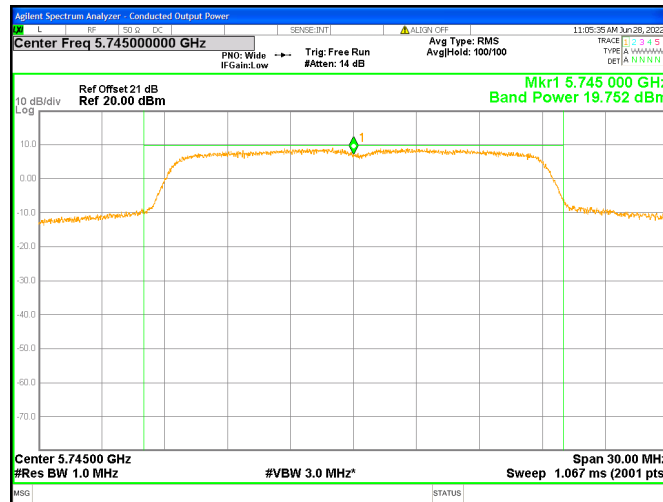


### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch48

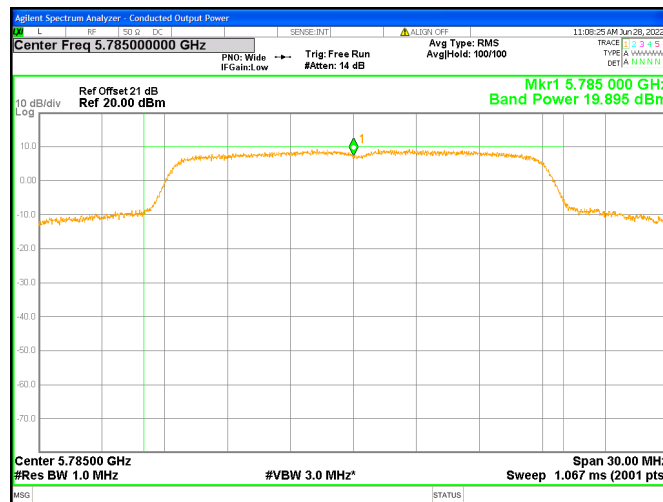




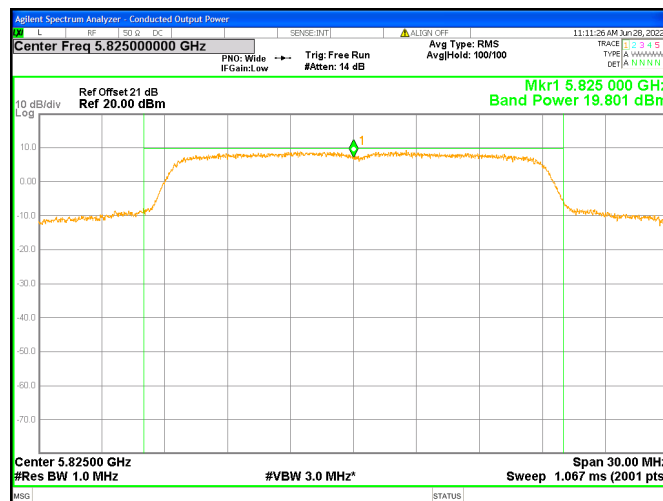
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch149



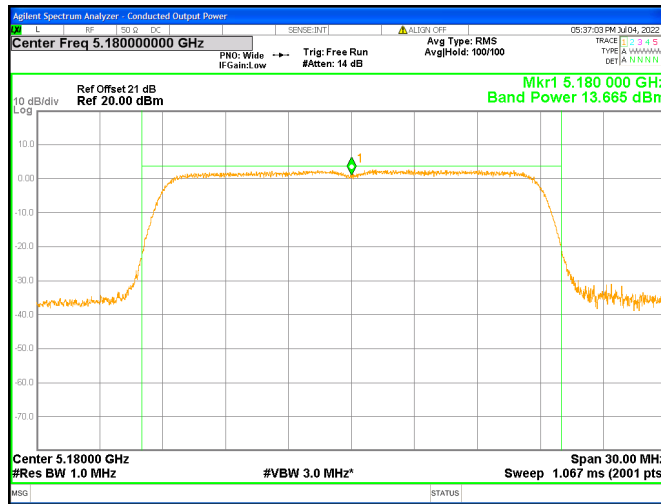
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch157



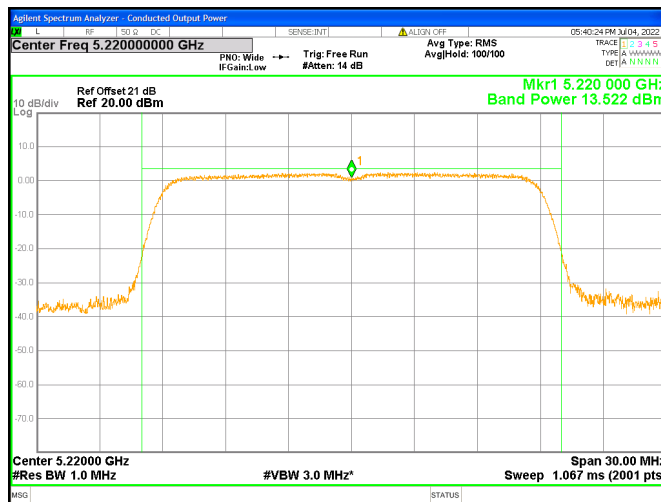
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch165



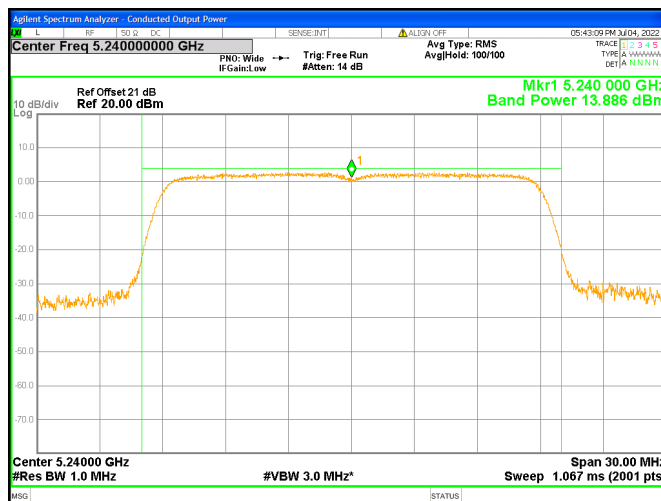
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch36



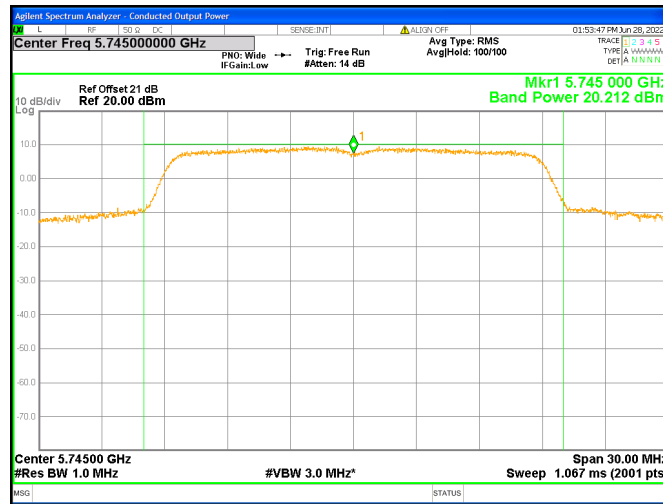
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch44



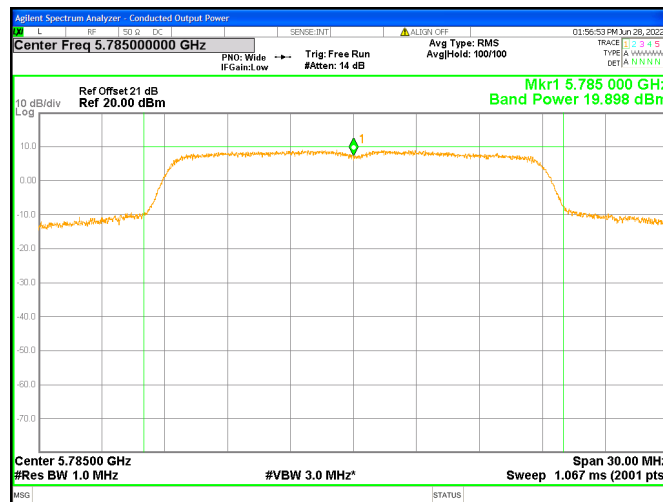
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch48



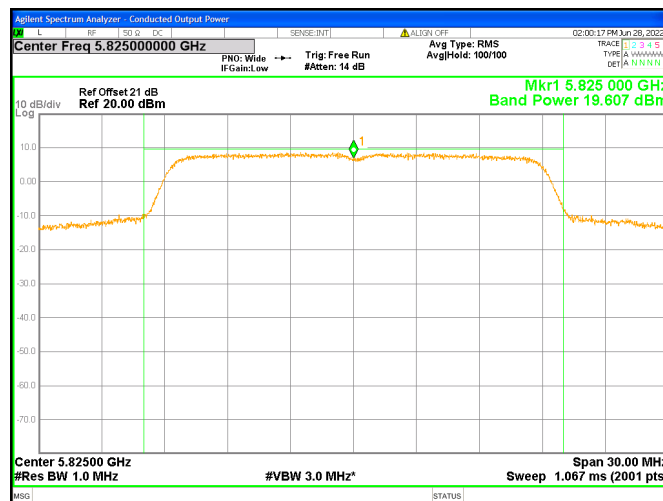
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch149



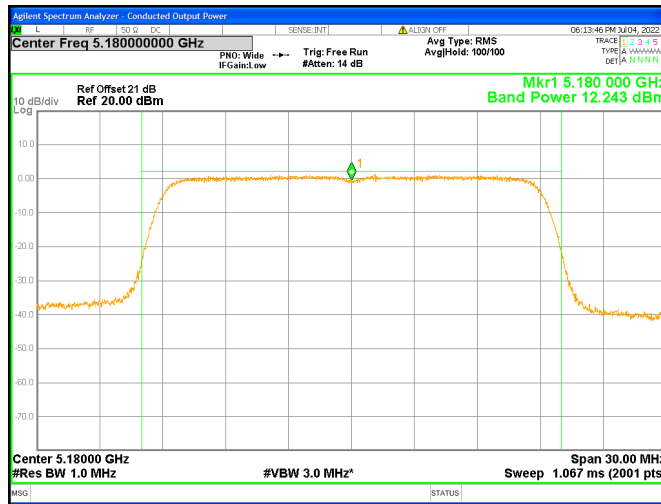
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch157



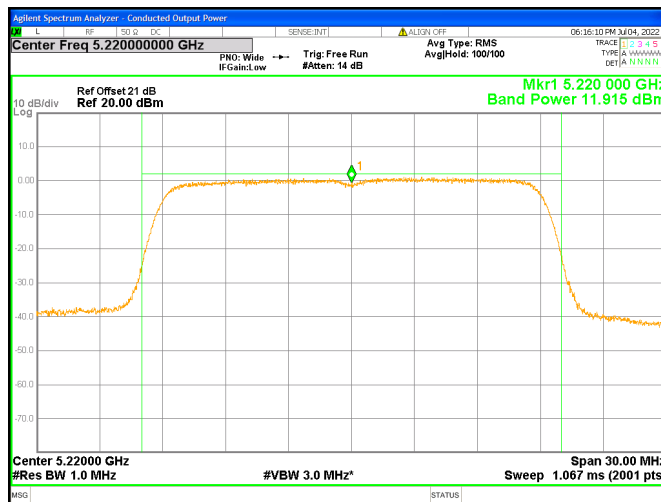
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch165



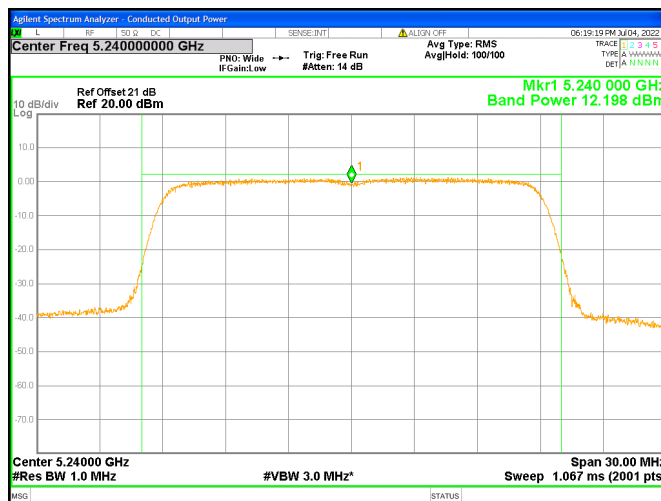
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch36



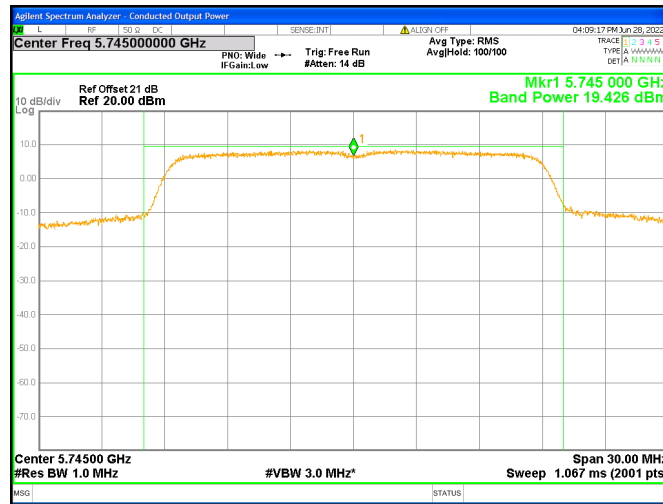
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch44



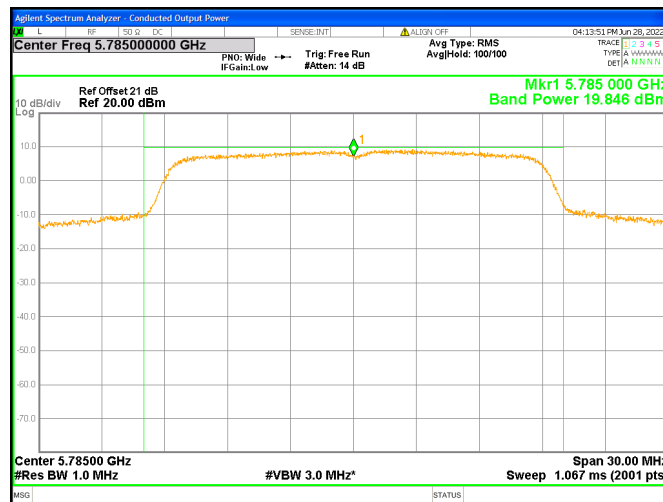
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch48



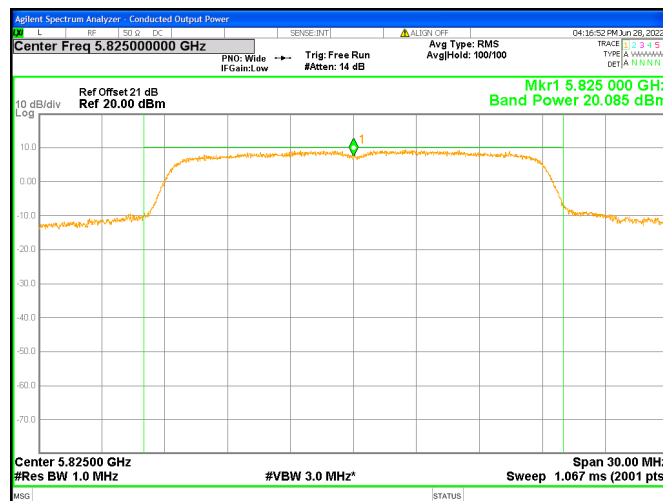
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch149



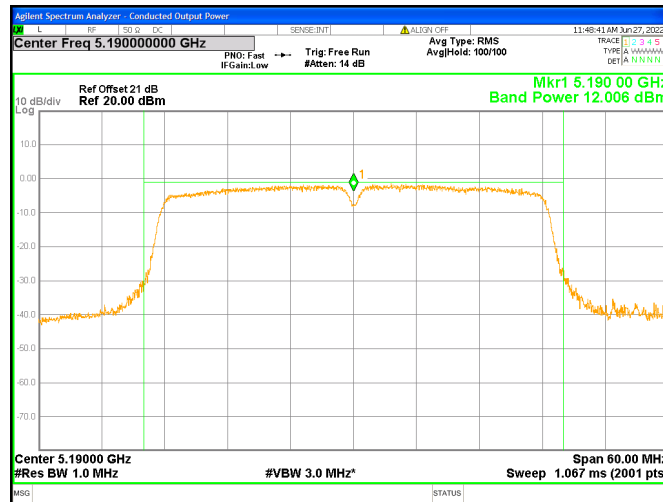
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch157



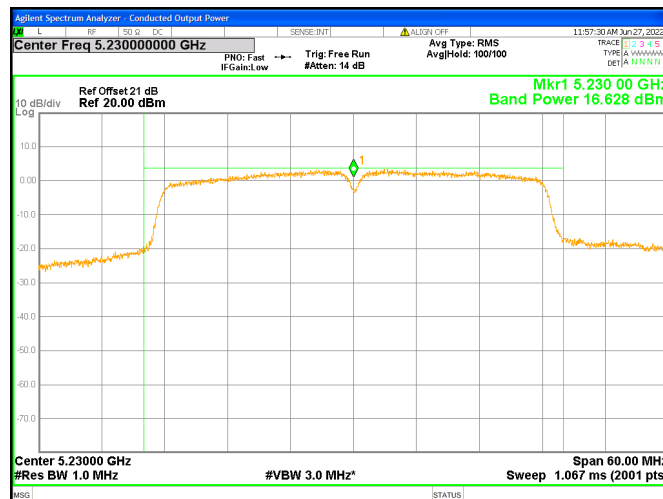
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT20) Mode Ch165



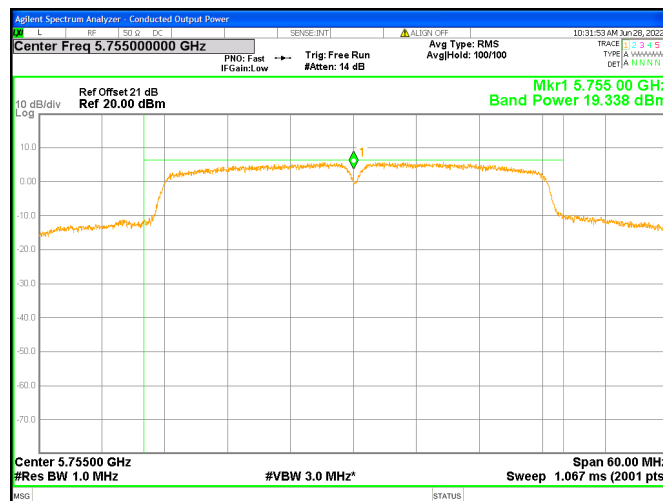
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch38



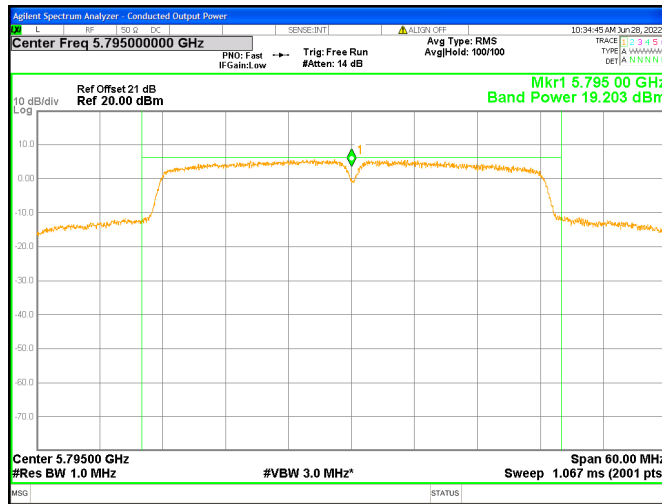
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch46



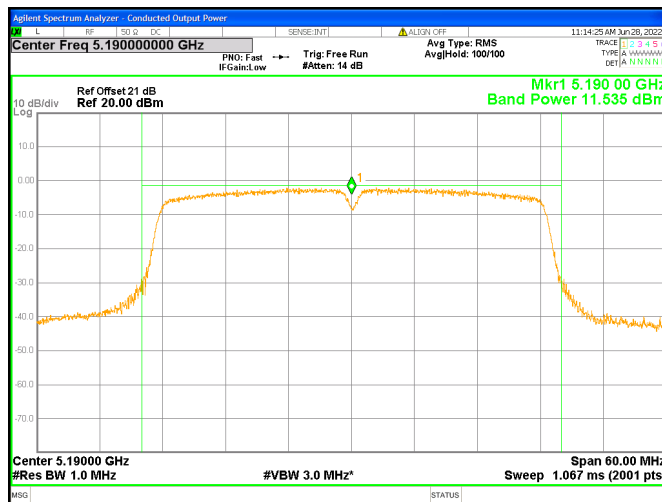
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch151



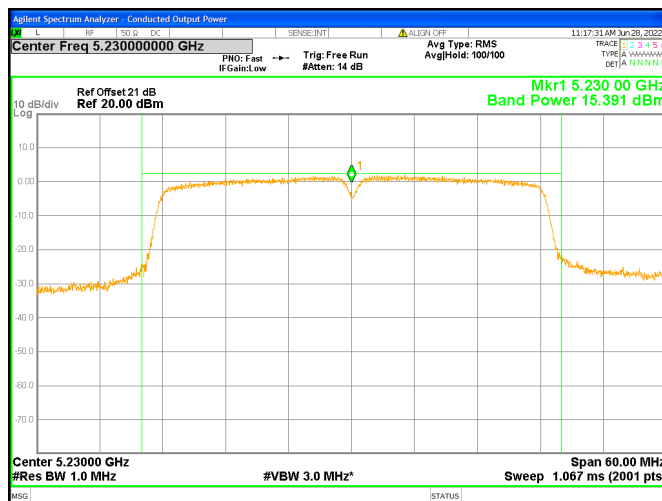
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch159



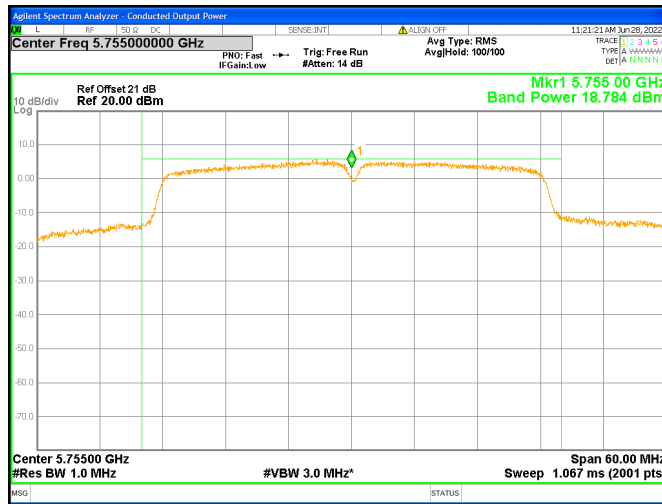
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch38



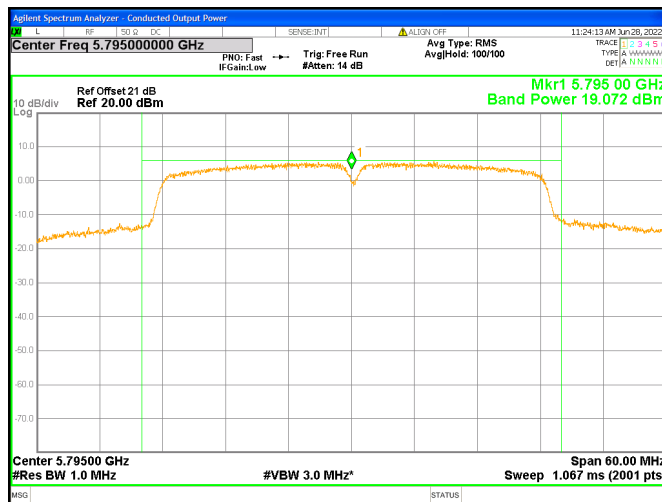
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch46



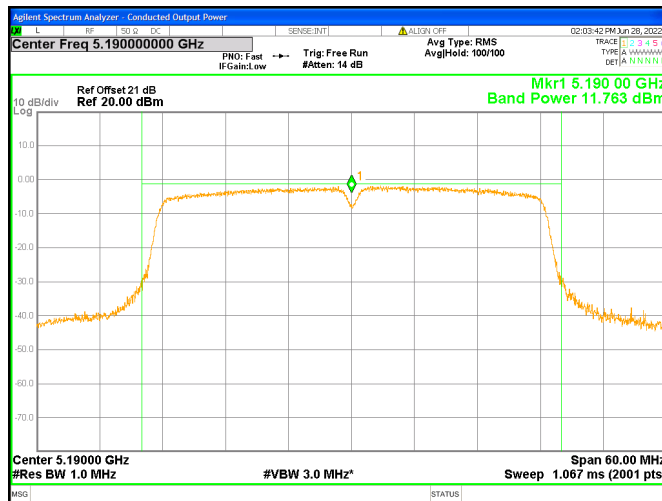
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch151



### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch159

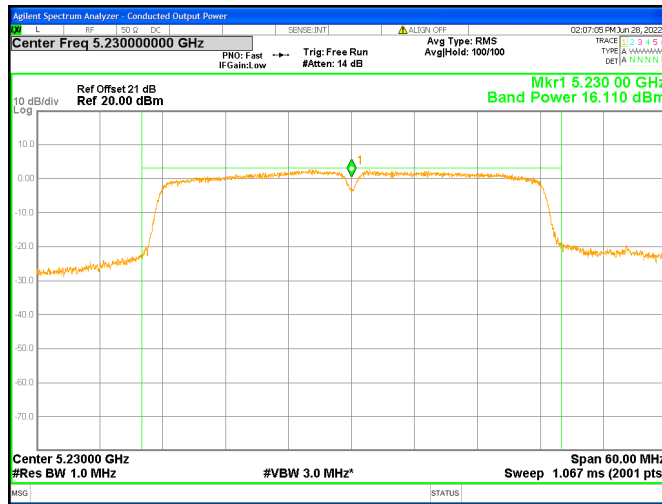


### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch38

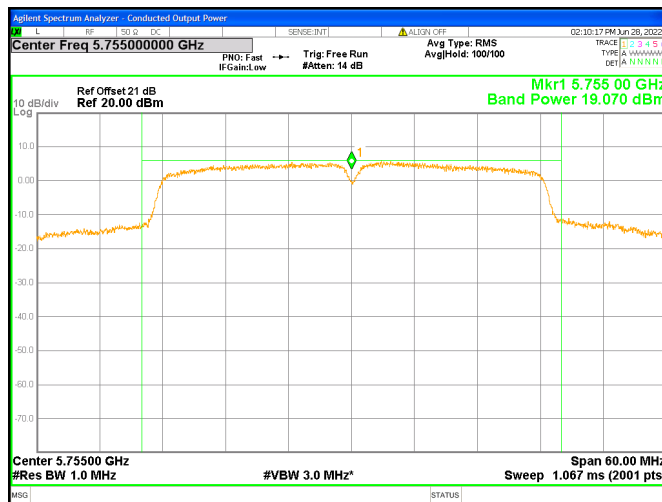




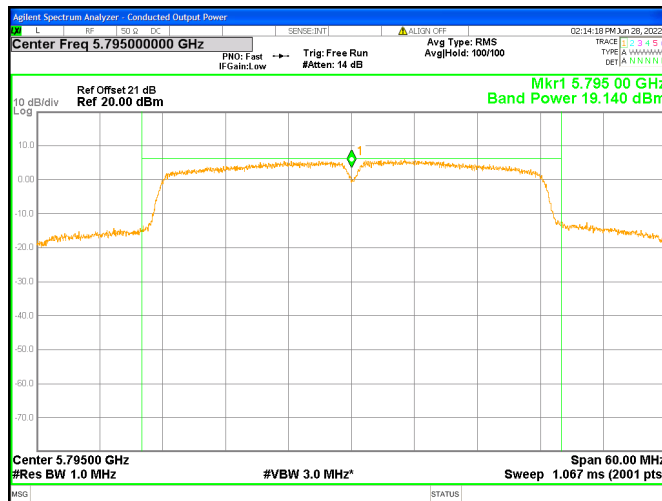
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch46



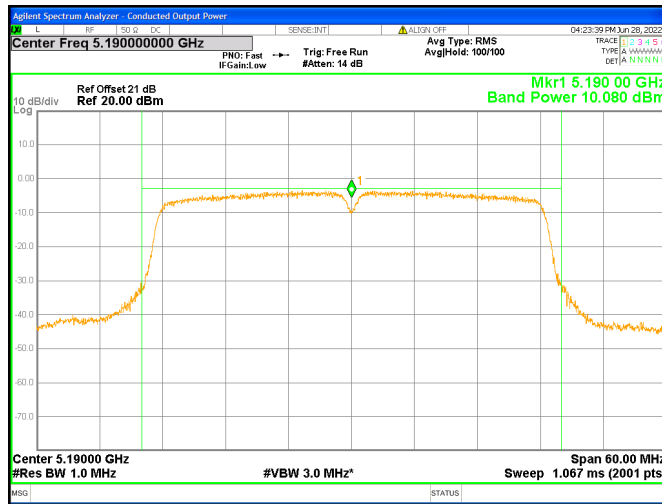
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch151



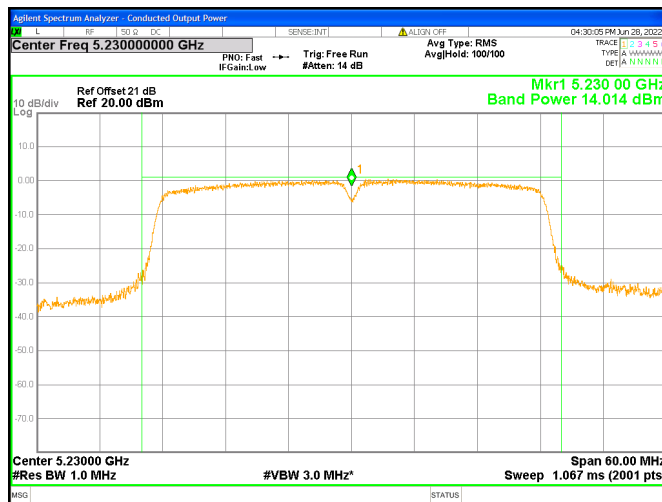
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch159



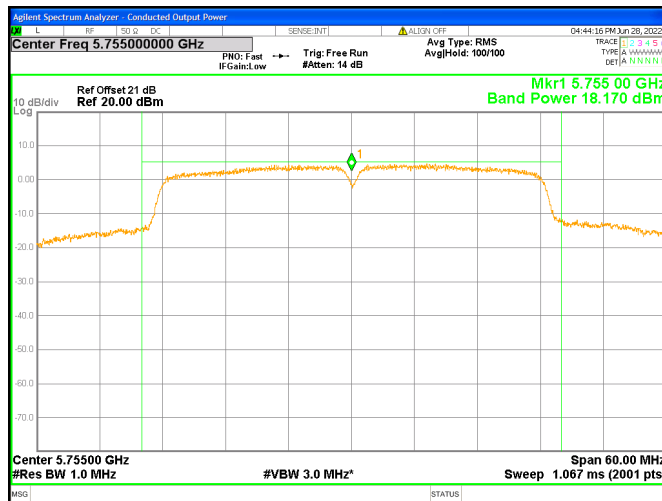
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch38



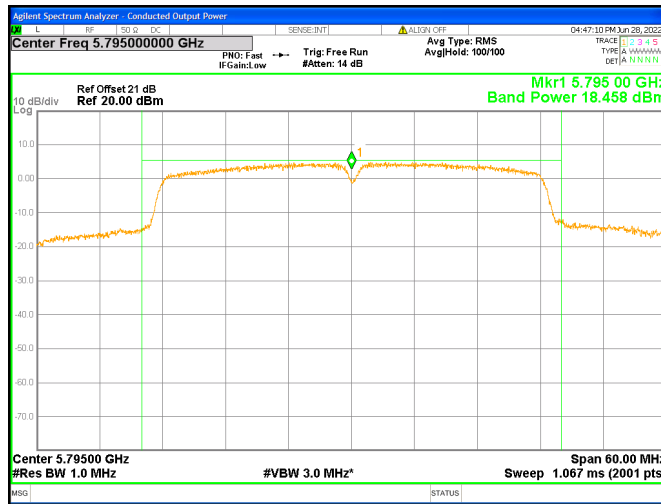
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch46



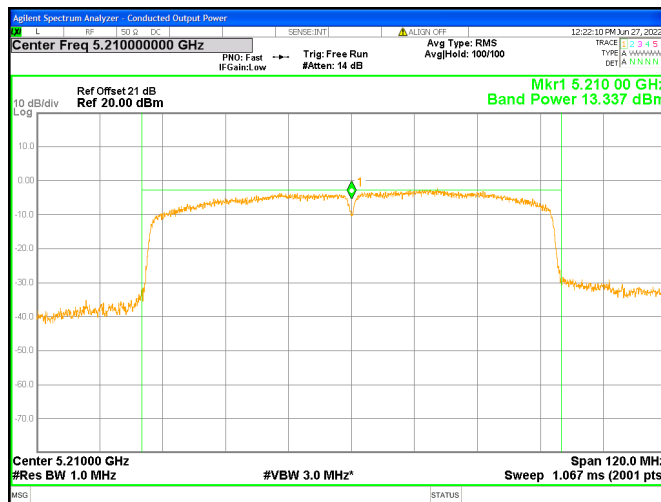
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch151



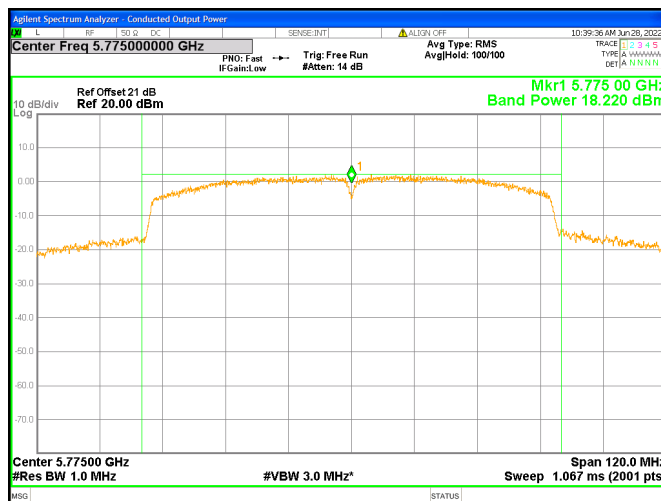
### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT40) Mode Ch159



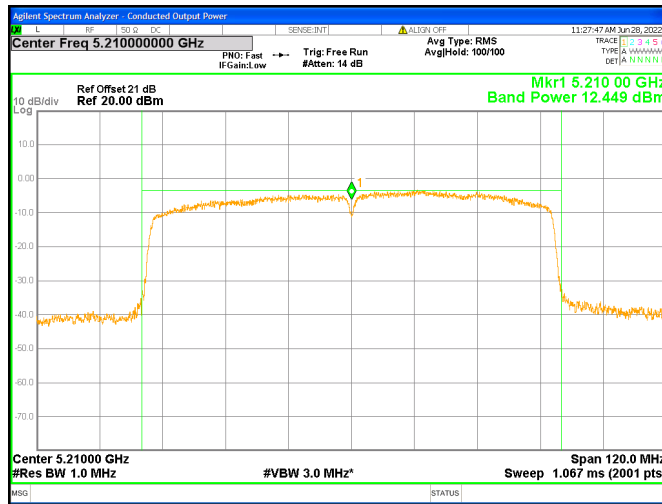
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch42



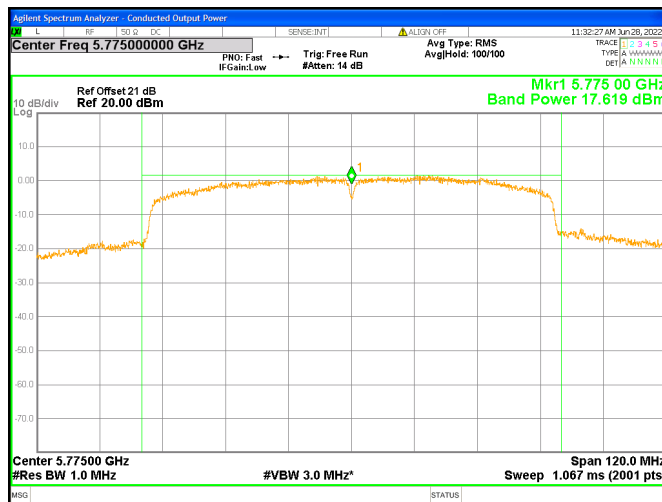
### Chain0 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch155



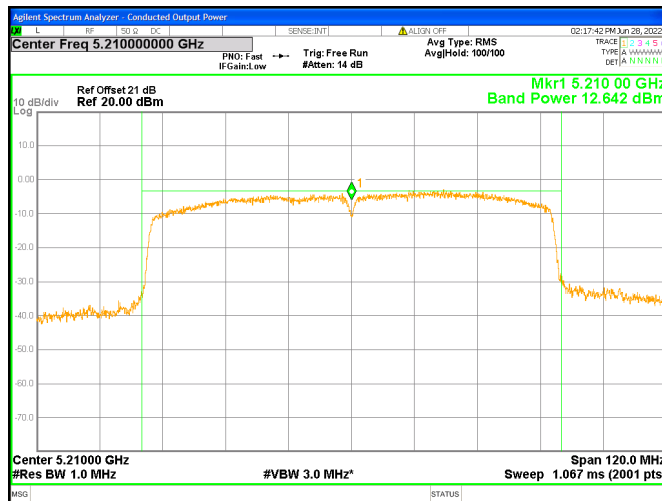
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch42



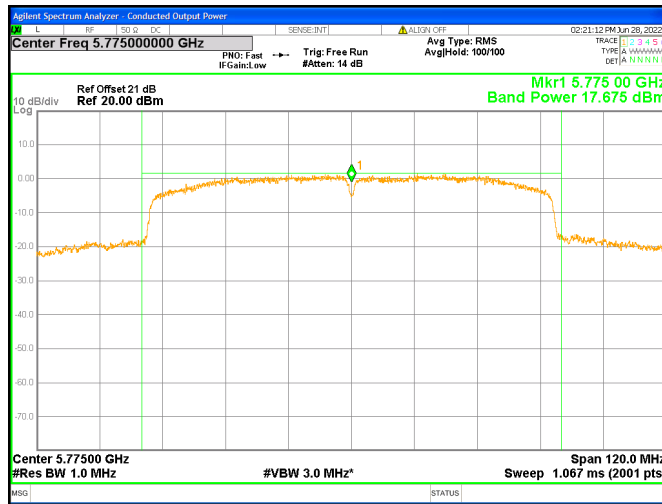
### Chain1 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch155



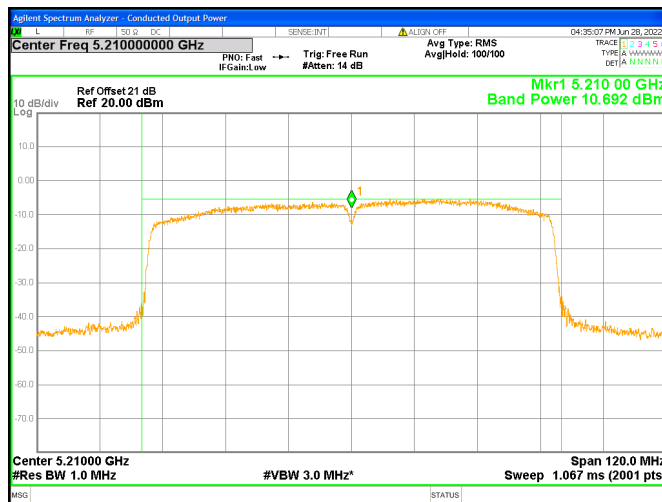
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch42



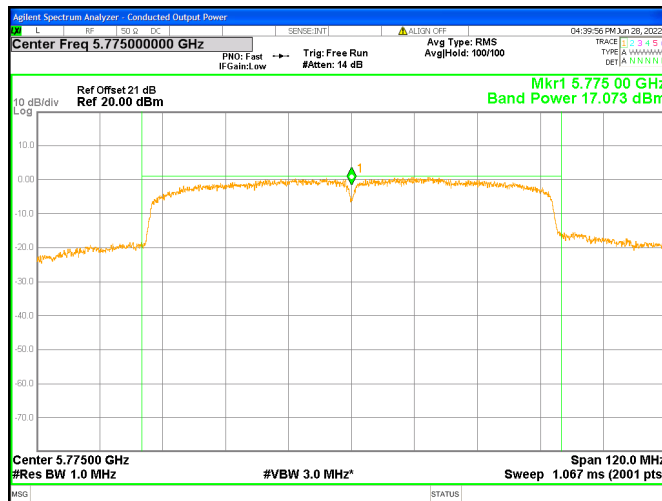
### Chain2 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch155



### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch42



### Chain3 : Conducted Power & EIRP @ 802.11ac(VHT80) Mode Ch155



### 3. Power Spectrum Density

#### 3.1 Limit for power spectrum density

Operating Frequency (MHz)	Power density limit
5150~5725	< 11 dBm/1MHz
5725~5850	< 30 dBm/500kHz

#### 3.2 Measuring instrument setting

Spectrum analyzer settings (5150~5725MHz)	
Spectrum Analyzer function	Setting
Detector	RMS
RBW	=1MHz
VBW	$\geq 3$ MHz
Sweep	Auto couple
Trace	Average
Span	Encompass the 26 dB EBW
Attenuation	Auto
Sweep point	$\geq 2$ Span / RBW

Spectrum analyzer settings (5725~5850MHz)	
Spectrum Analyzer function	Setting
Detector	RMS
RBW	=100kHz
VBW	$\geq 300$ kHz
Sweep	Auto couple
Trace	Average
Span	Encompass the 26 dB EBW
Attenuation	Auto
Sweep point	$\geq 2$ Span / RBW

### 3.3 Test procedure

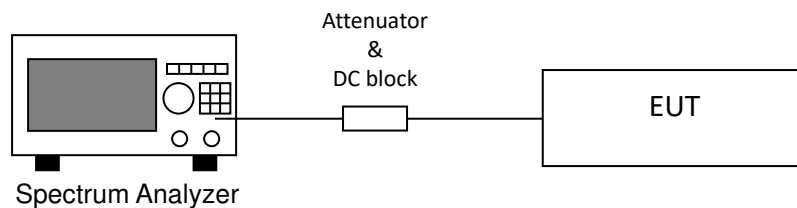
Set relevant parameter according to clause 4.3.

Trace average at least 100 traces in power averaging mode.

Compute power by integrating the spectrum across the 26 dB or 6dB EBW of the signal using the instrument's band power measurement function with band limits set equal to the EBW band edges.

If measurement bandwidth of Maximum PSD is specified in 500 kHz, add  $10\log(500\text{kHz}/\text{RBW})$  to the measured result, whereas RBW ( $< 500 \text{ kHz}$ ) is the reduced resolution bandwidth of the spectrum analyzer set during measurement. The RBW is 100 kHz. So, we will add 6.989 to the results.

### 3.4 Test diagram



**TEST REPORT**

**3.5 Test results**

Temperature (°C) :	29
Relative Humidity (%) :	60
Test date :	2022/06/29 ~ 2022/07/04

**CDD Chain 0+1+2+3**

Mode	Channel	Frequency (MHz)	PSD (dBm)				Total PSD	
			Chain 0	Chain 1	Chain 2	Chain 3	mW	dBm
802.11a	36	5180	3.062	2.559	3.326	1.760	7.477	8.737
	44	5220	3.169	2.271	2.831	1.158	6.986	8.442
	48	5240	3.222	2.012	2.971	1.279	7.014	8.459
	149	5745	0.696	-0.337	0.325	-0.663	4.035	6.059
	157	5785	0.764	0.167	0.657	-0.228	4.344	6.379
	165	5825	1.122	0.570	0.900	-0.026	4.659	6.683
802.11ac (VHT20)	36	5180	3.067	2.264	3.291	1.840	7.372	8.676
	44	5220	2.951	1.932	2.764	1.284	6.767	8.304
	48	5240	3.273	2.352	2.826	1.384	7.136	8.534
	149	5745	0.090	-0.515	-0.294	-0.435	3.748	5.738
	157	5785	0.159	-0.749	-0.131	0.298	3.920	5.933
	165	5825	-0.001	0.237	-0.438	0.166	3.999	6.019
802.11ac (VHT40)	38	5190	-1.875	-1.451	-1.623	-3.156	2.537	4.043
	46	5230	4.048	1.565	3.087	0.978	7.262	8.610
	151	5755	-3.019	-3.726	-3.239	-3.239	1.872	2.722
	159	5795	-2.211	-3.120	-3.271	-3.107	2.048	3.114
802.11ac (VHT80)	42	5210	-3.878	-2.847	-2.108	-4.783	1.876	2.733
	155	5775	-6.121	-6.683	-6.814	-6.388	0.897	-0.473



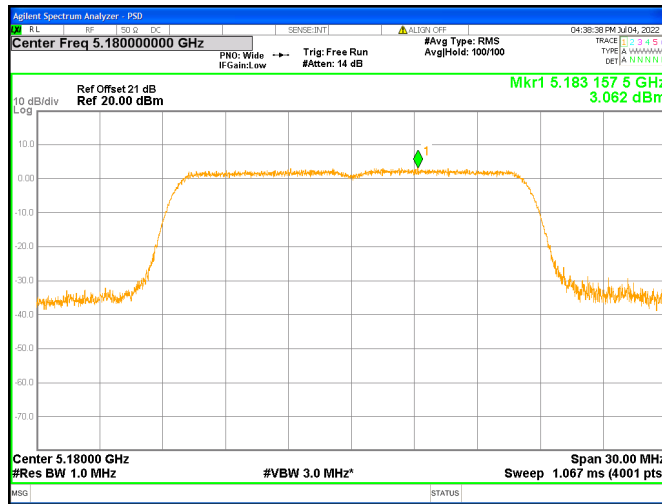
**TEST REPORT**

Mode	Channel	Frequency (MHz)	RBW Correction	Duty Factor	Result (dBm)	Limit (dBm)	Margin (dB)
802.11a	36	5180		0.96	9.696	11	-1.304
	44	5220		0.96	9.401	11	-1.599
	48	5240		0.96	9.418	11	-1.582
	149	5745	6.99	0.96	14.007	30	-15.993
	157	5785	6.99	0.96	14.327	30	-15.673
	165	5825	6.99	0.96	14.631	30	-15.369
802.11ac (VHT20)	36	5180		1.03	9.704	11	-1.296
	44	5220		1.03	9.332	11	-1.668
	48	5240		1.03	9.563	11	-1.437
	149	5745	6.99	1.03	13.757	30	-16.243
	157	5785	6.99	1.03	13.951	30	-16.049
	165	5825	6.99	1.03	14.038	30	-15.962
802.11ac (VHT40)	38	5190		1.49	5.530	11	-5.470
	46	5230		1.49	10.097	11	-0.903
	151	5755	6.99	1.49	11.199	30	-18.801
	159	5795	6.99	1.49	11.590	30	-18.410
802.11ac (VHT80)	42	5210		3.59	6.326	11	-4.674
	155	5775	6.99	3.59	10.110	30	-19.890

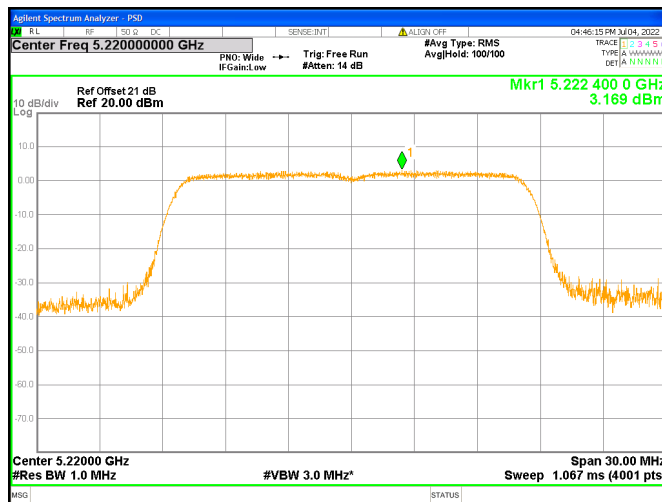
Note : RBW Correction in 5725~5850MHz :  $10\log(500\text{kHz}/100\text{kHz})$

Result=Total Power+Duty Factor

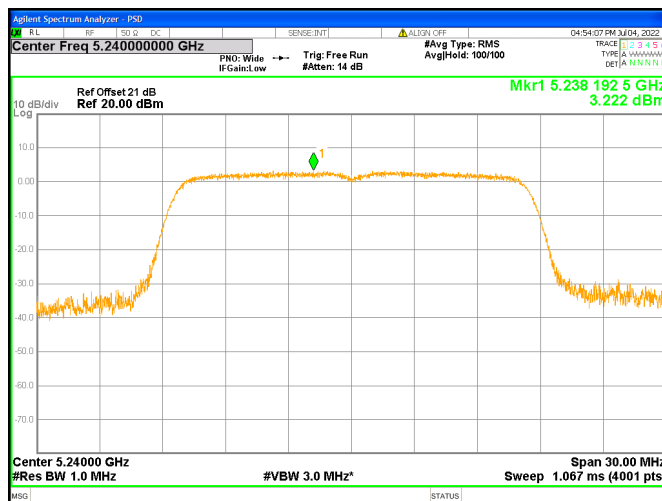
### Chain0 : Power Spectral Density @ 802.11a Mode Ch36



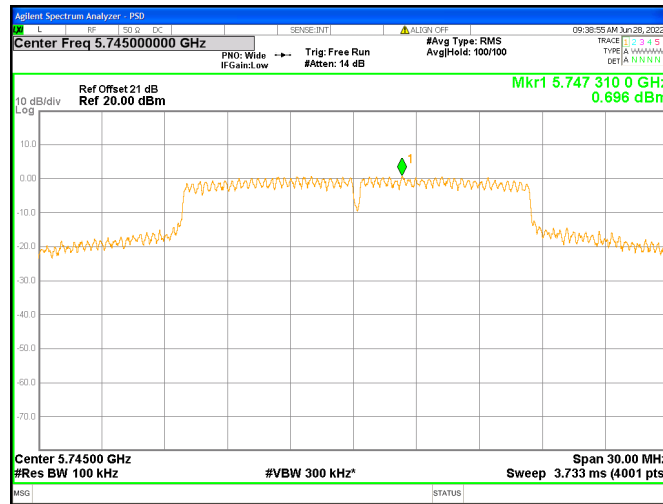
### Chain0 : Power Spectral Density @ 802.11a Mode Ch44



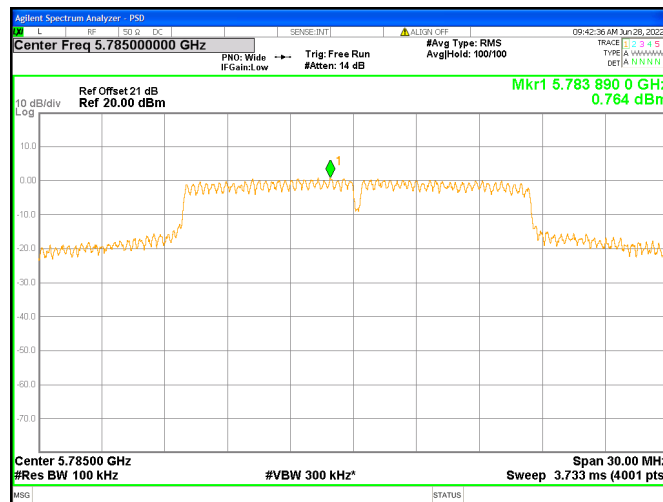
### Chain0 : Power Spectral Density @ 802.11a Mode Ch48



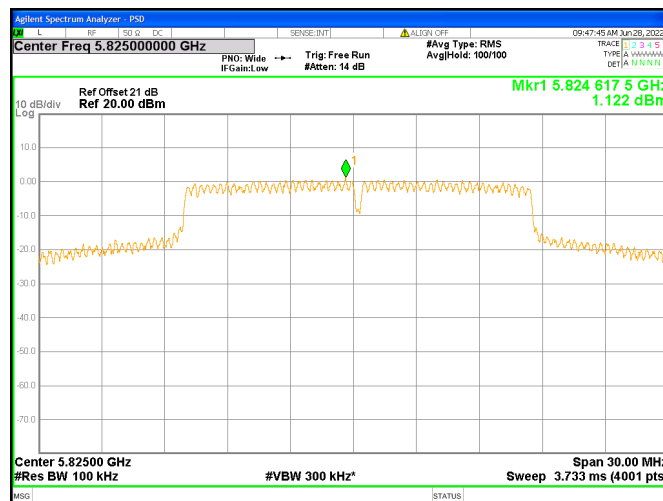
### Chain0 : Power Spectral Density @ 802.11a Mode Ch149



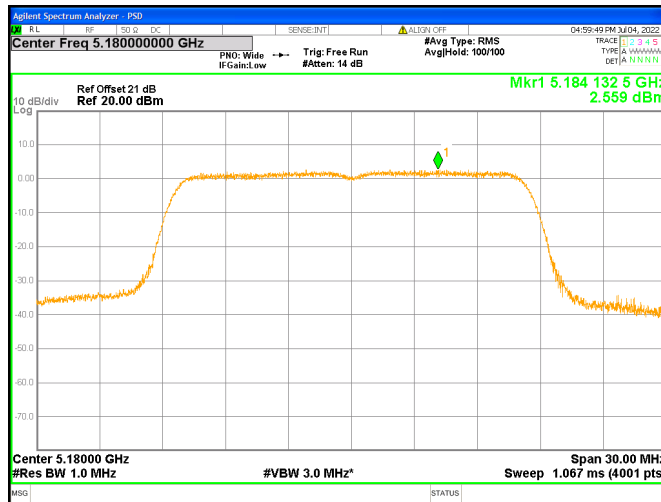
### Chain0 : Power Spectral Density @ 802.11a Mode Ch157



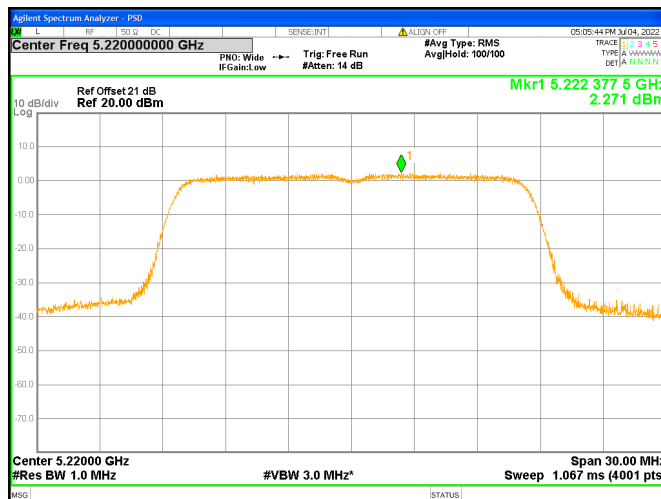
### Chain0 : Power Spectral Density @ 802.11a Mode Ch165



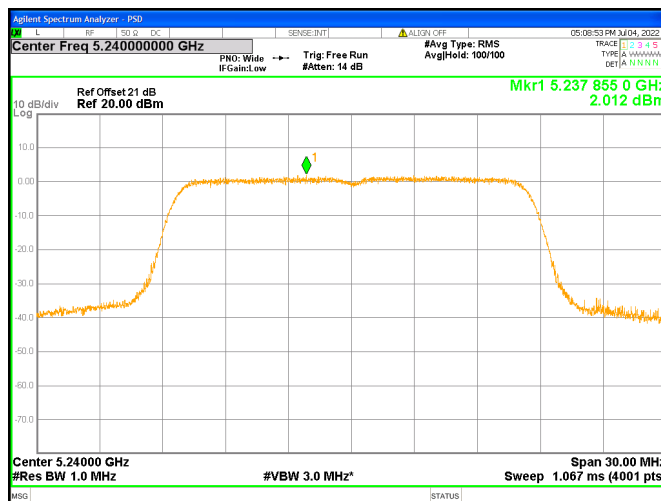
### Chain1 : Power Spectral Density @ 802.11a Mode Ch36



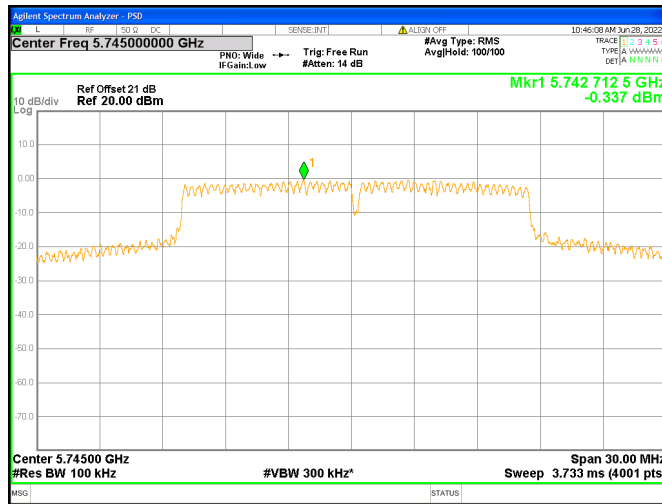
### Chain1 : Power Spectral Density @ 802.11a Mode Ch44



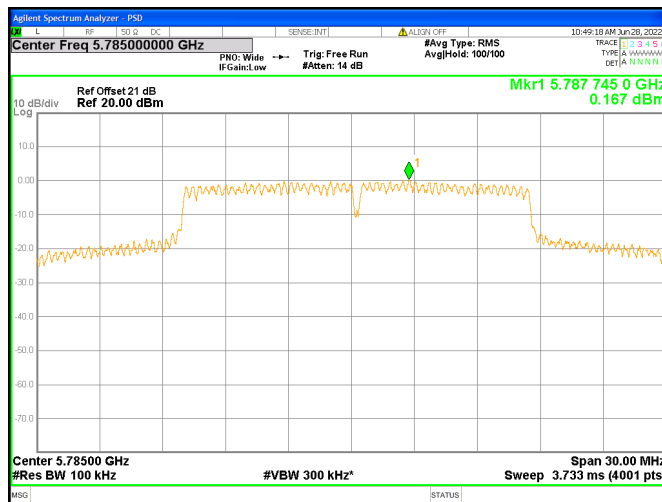
### Chain1 : Power Spectral Density @ 802.11a Mode Ch48



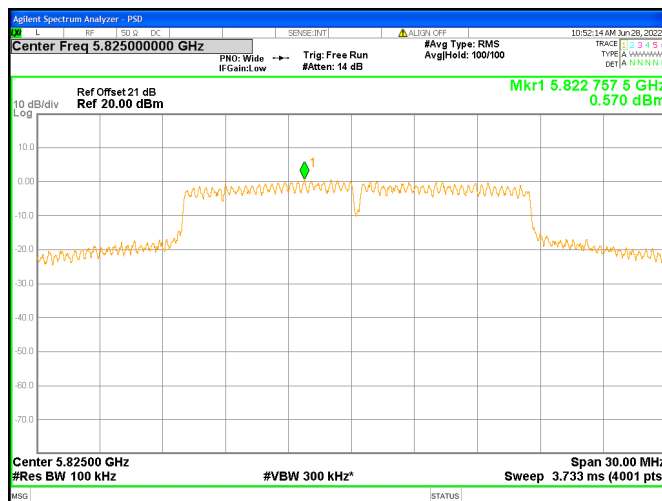
### Chain1 : Power Spectral Density @ 802.11a Mode Ch149



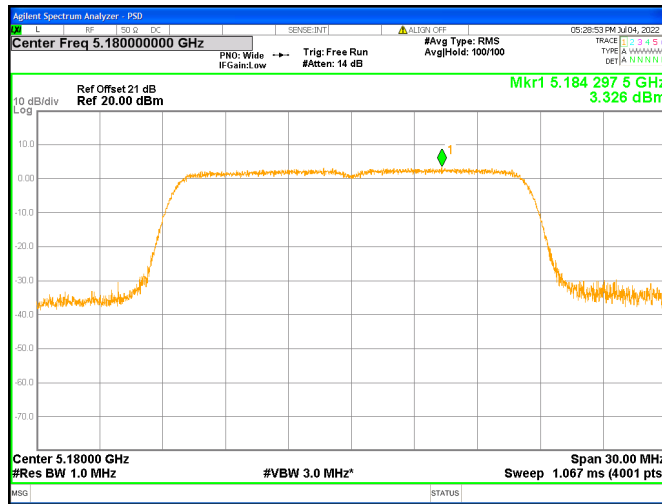
### Chain1 : Power Spectral Density @ 802.11a Mode Ch157



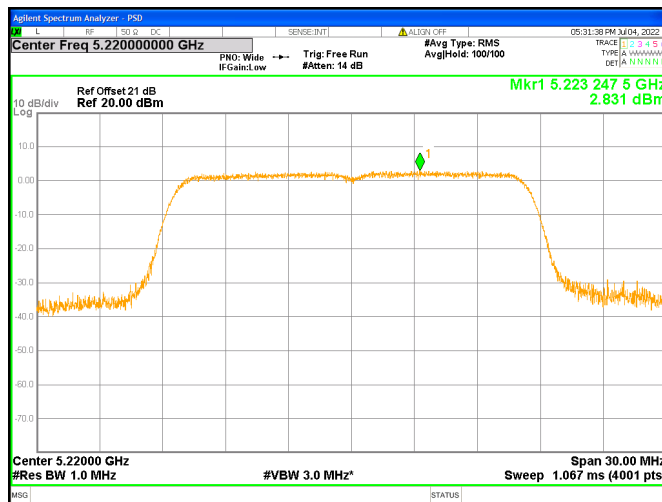
### Chain1 : Power Spectral Density @ 802.11a Mode Ch165



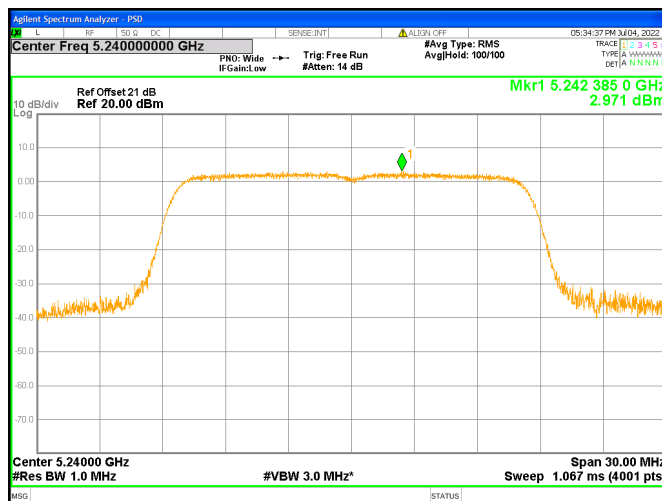
### Chain2 : Power Spectral Density @ 802.11a Mode Ch36



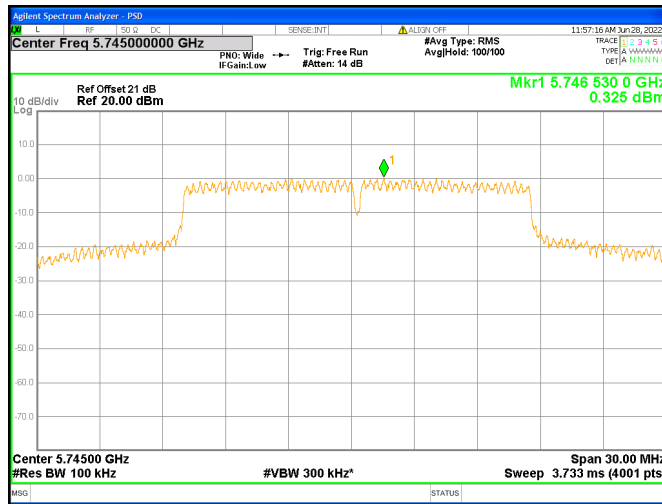
### Chain2 : Power Spectral Density @ 802.11a Mode Ch44



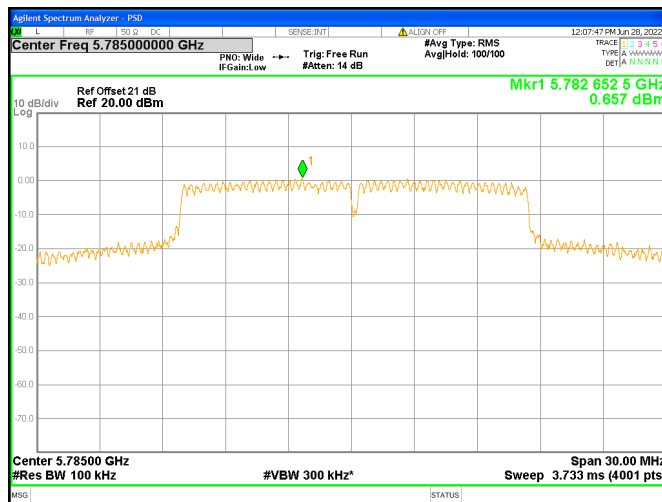
### Chain2 : Power Spectral Density @ 802.11a Mode Ch48



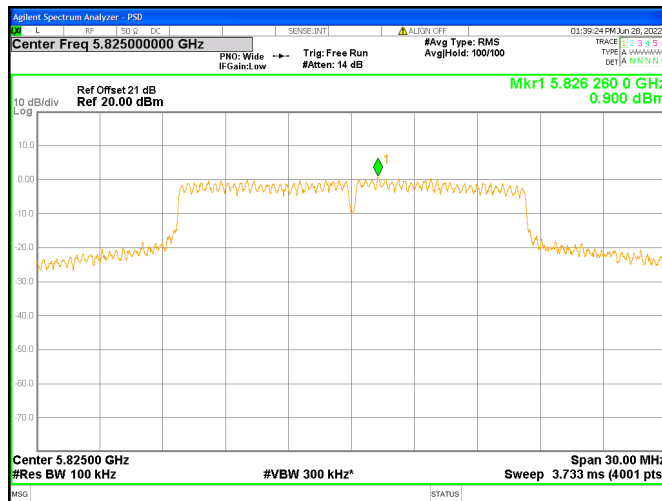
### Chain2 : Power Spectral Density @ 802.11a Mode Ch149



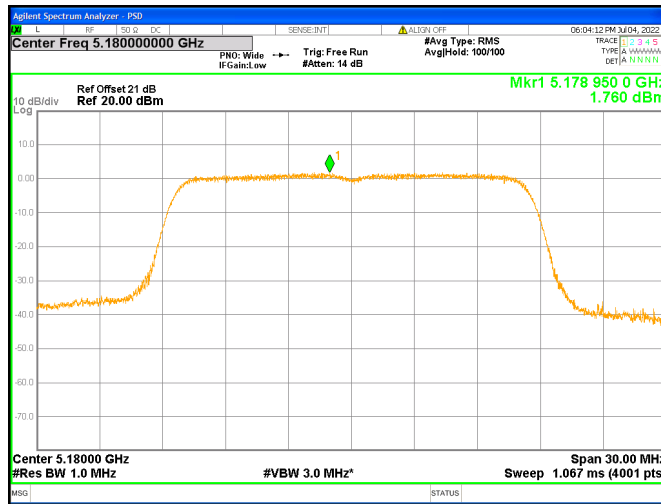
### Chain2 : Power Spectral Density @ 802.11a Mode Ch157



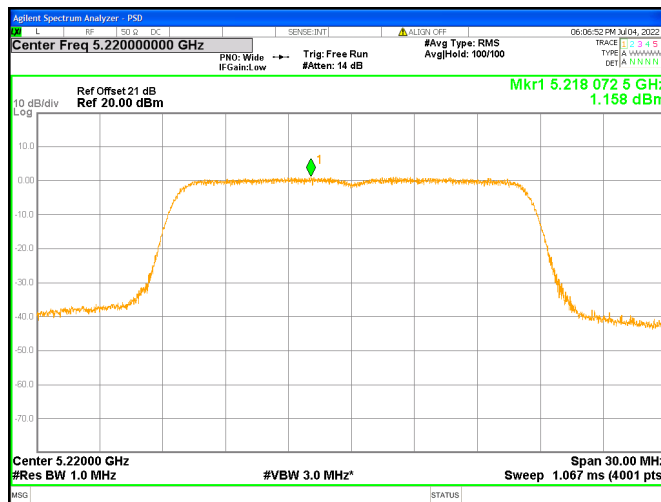
### Chain2 : Power Spectral Density @ 802.11a Mode Ch165



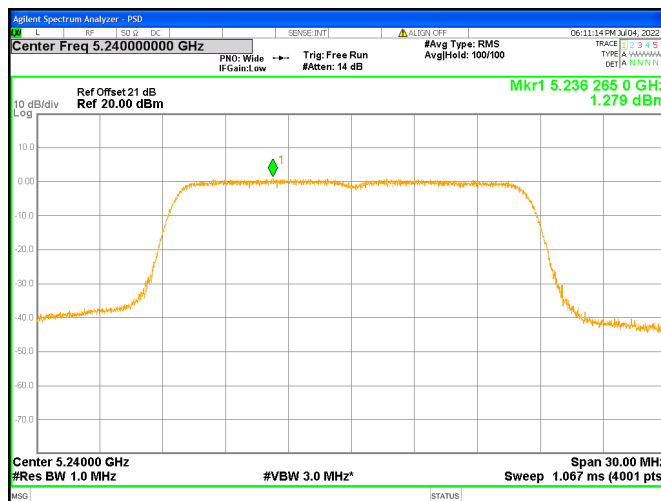
### Chain3 : Power Spectral Density @ 802.11a Mode Ch36



### Chain3 : Power Spectral Density @ 802.11a Mode Ch44

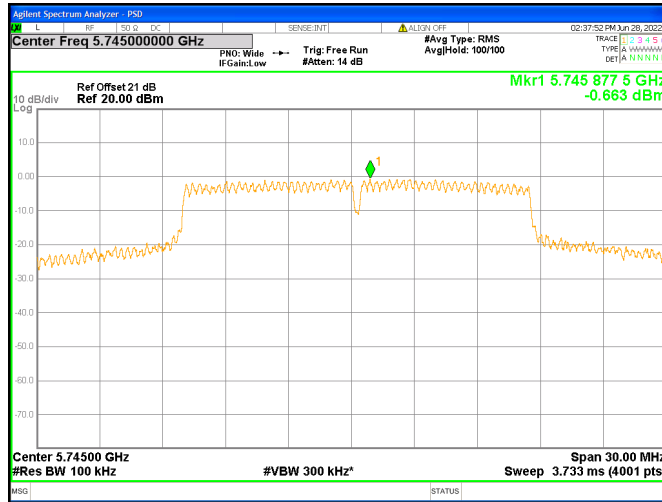


### Chain3 : Power Spectral Density @ 802.11a Mode Ch48

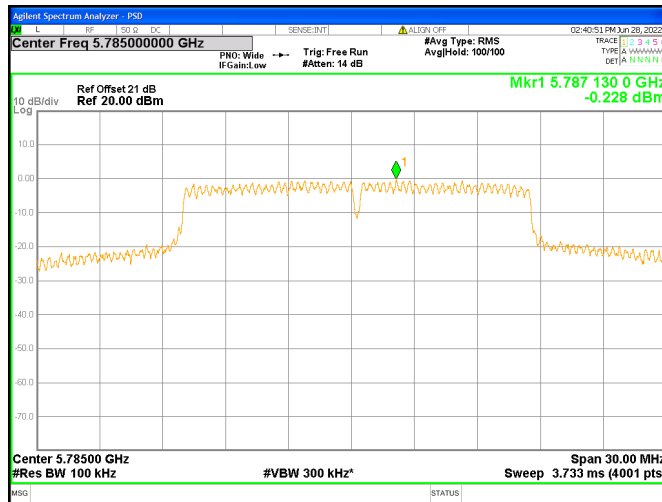




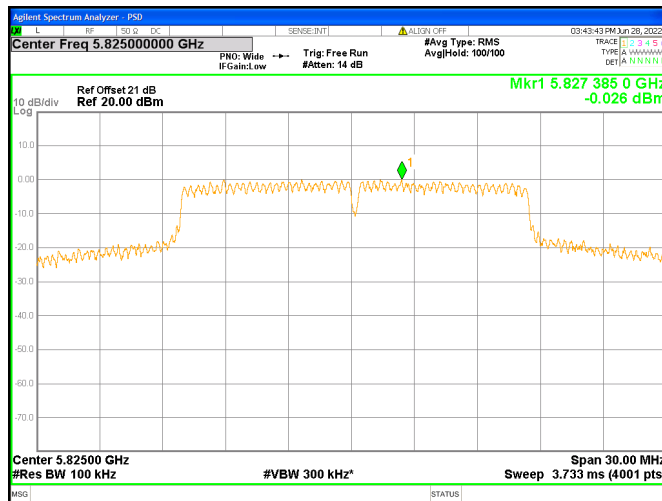
### Chain3 : Power Spectral Density @ 802.11a Mode Ch149



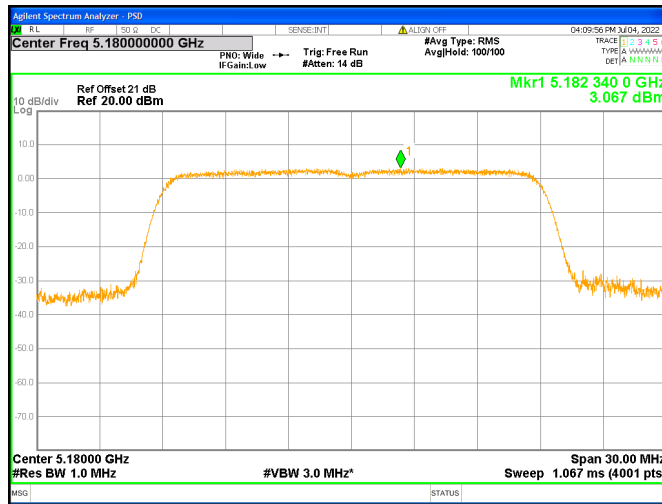
### Chain3 : Power Spectral Density @ 802.11a Mode Ch157



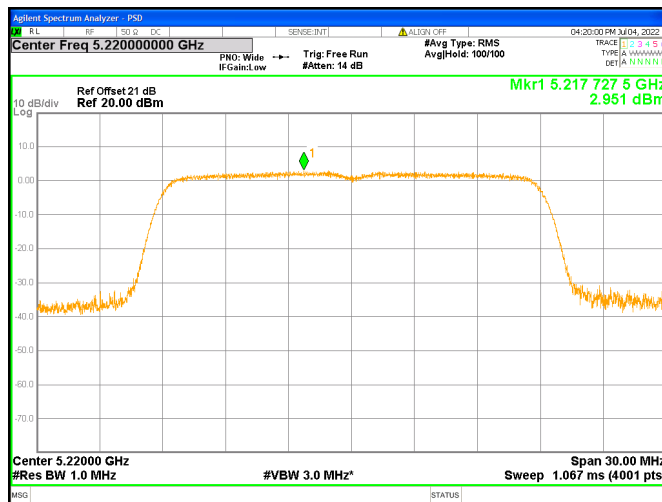
### Chain3 : Power Spectral Density @ 802.11a Mode Ch165



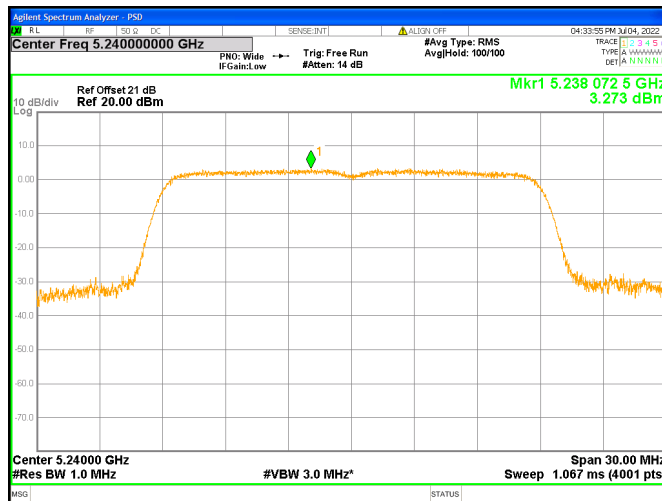
### Chain0 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch36



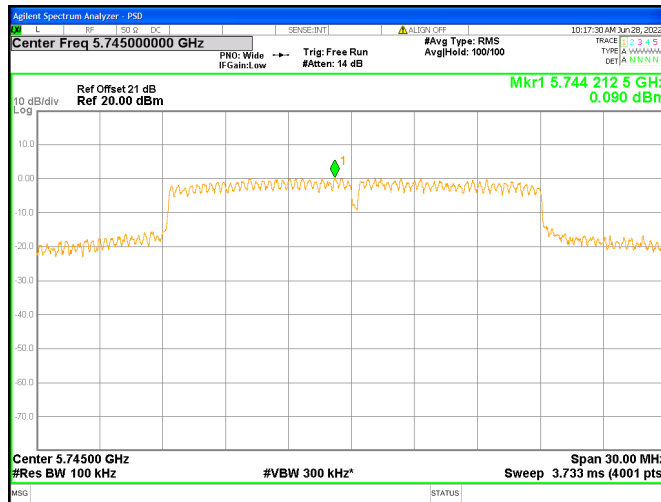
### Chain0 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch44



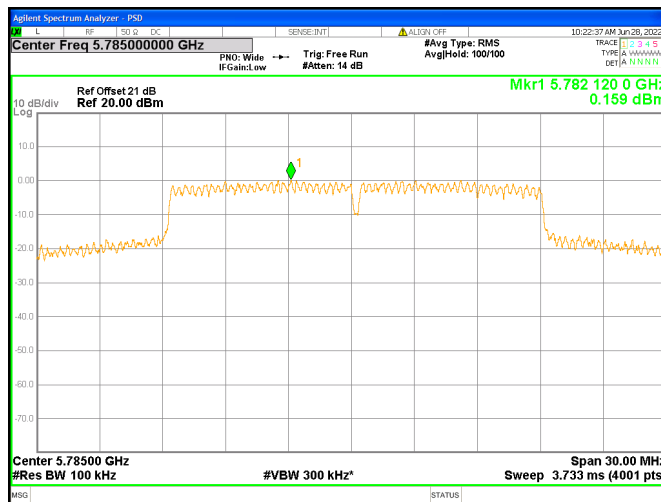
### Chain0 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch48



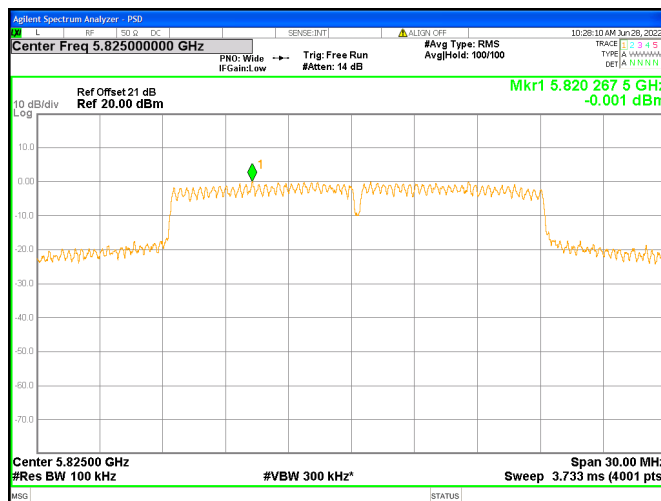
### Chain0 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch149



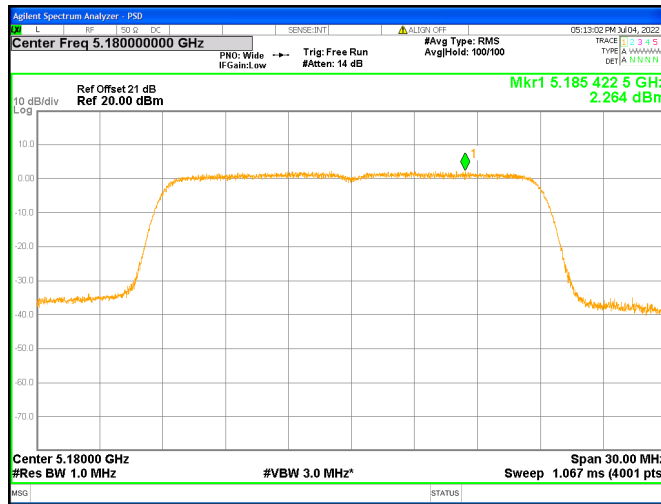
### Chain0 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch157



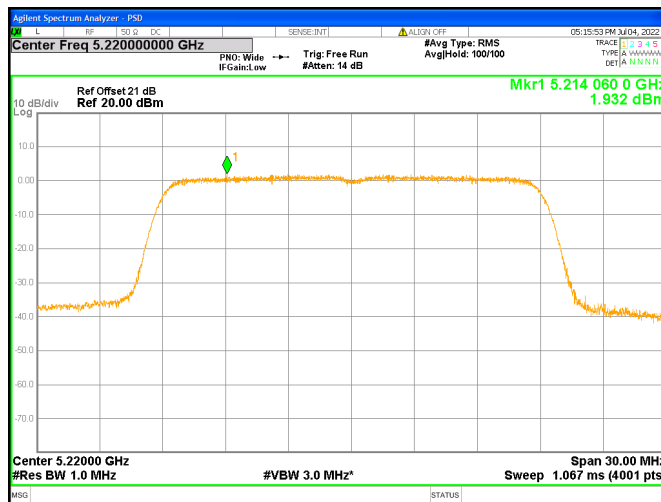
### Chain0 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch165



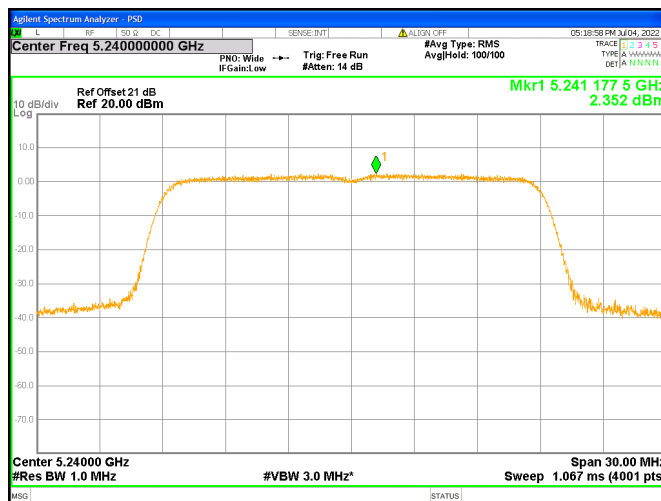
### Chain1 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch36



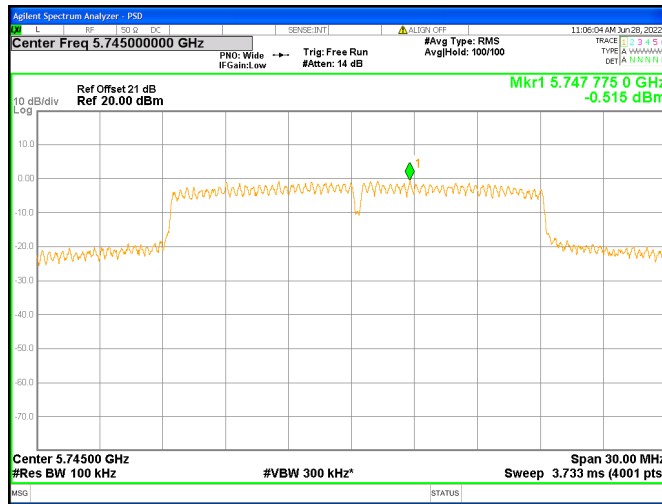
### Chain1 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch44



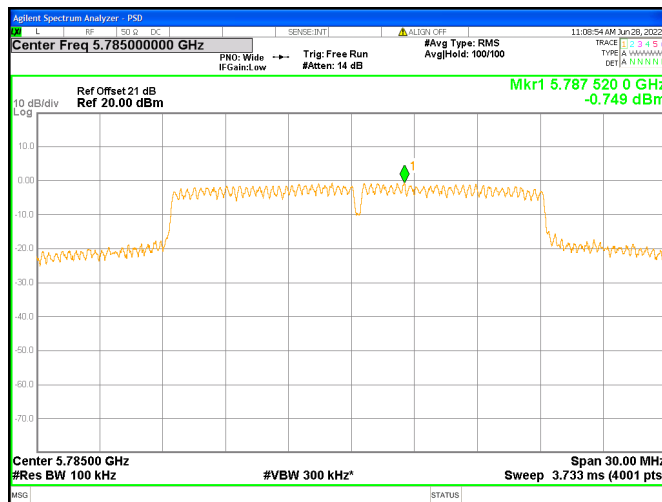
### Chain1 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch48



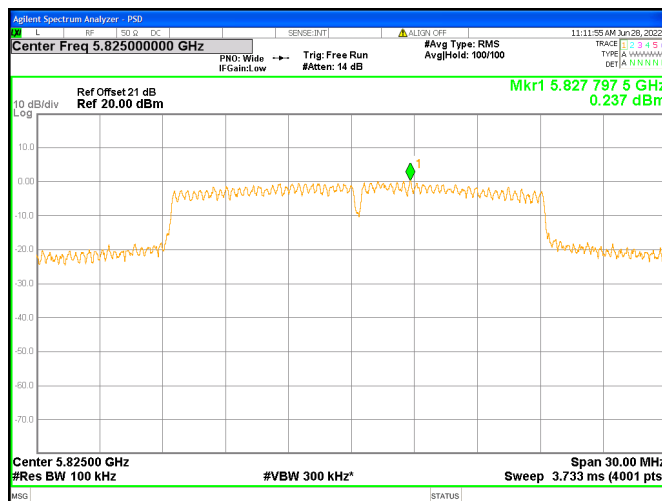
### Chain1 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch149



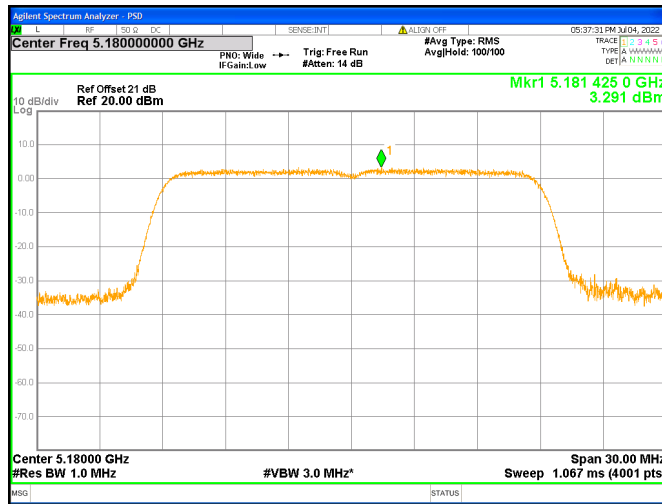
### Chain1 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch157



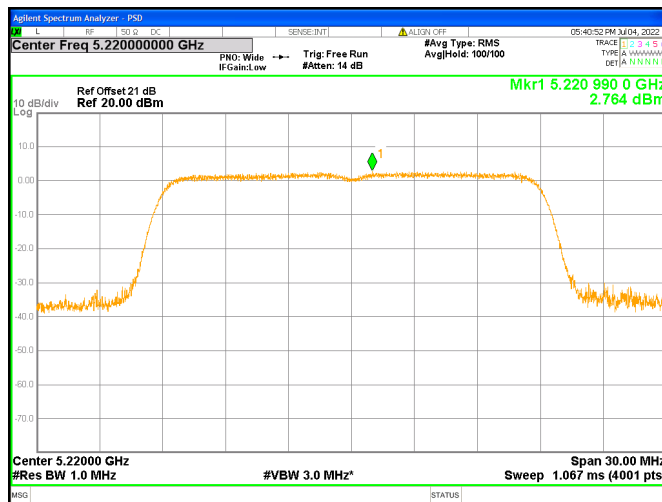
### Chain1 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch165



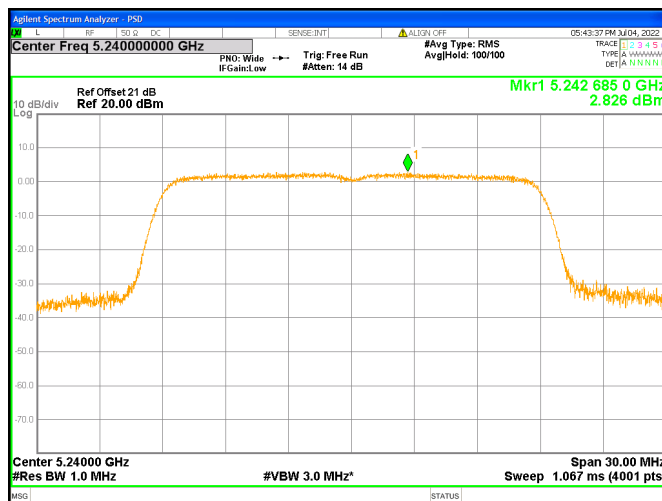
### Chain2 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch36



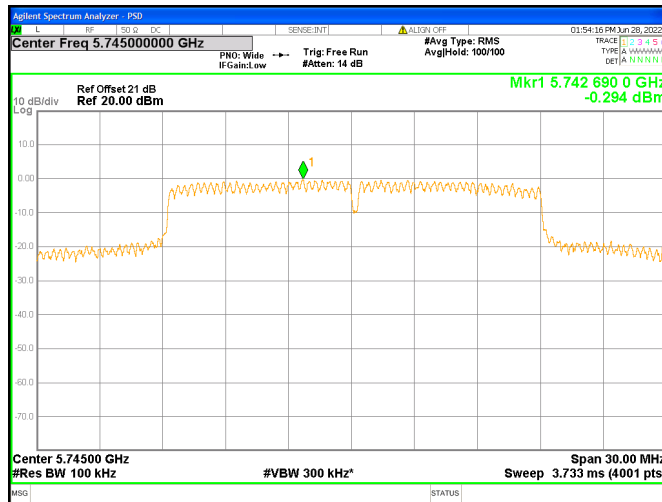
### Chain2 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch44



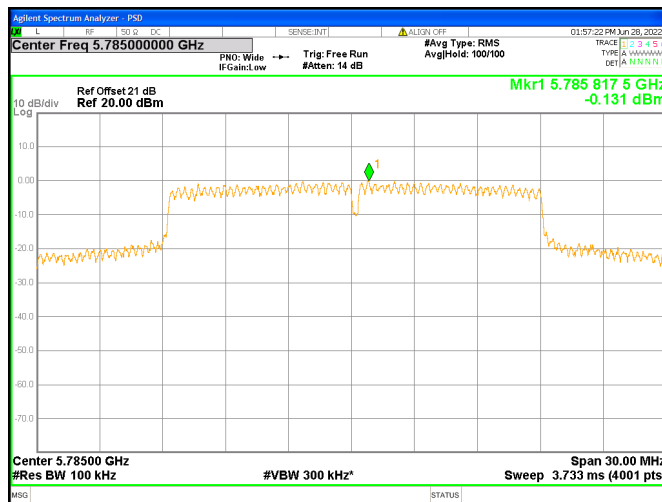
### Chain2 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch48



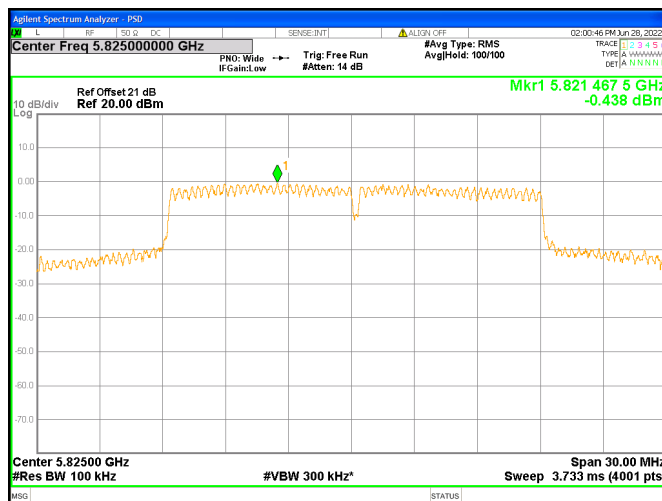
### Chain2 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch149



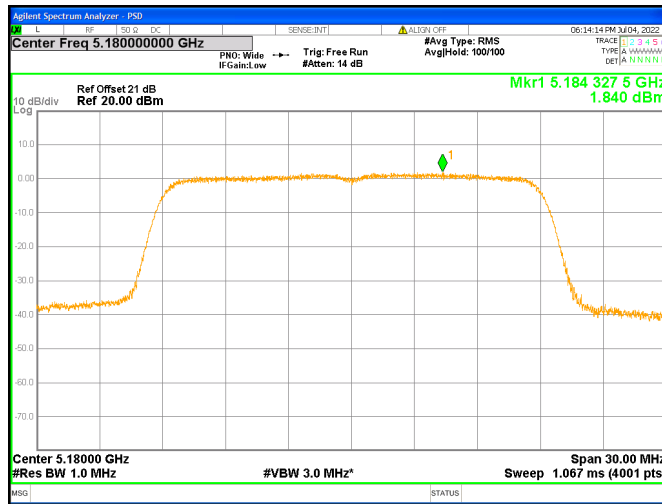
### Chain2 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch157



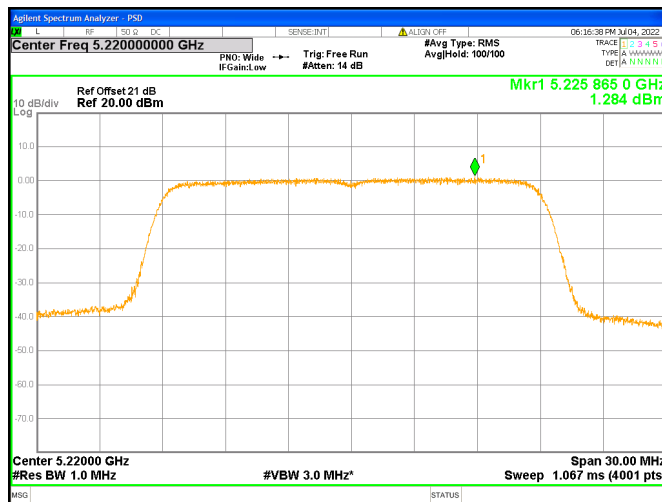
### Chain2 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch165



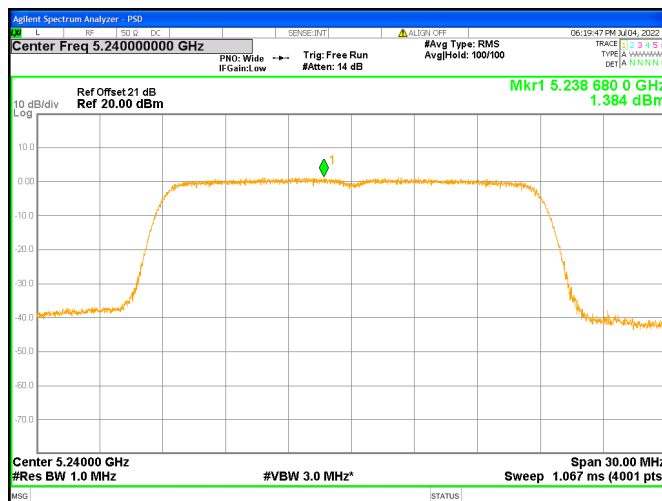
### Chain3 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch36



### Chain3 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch44

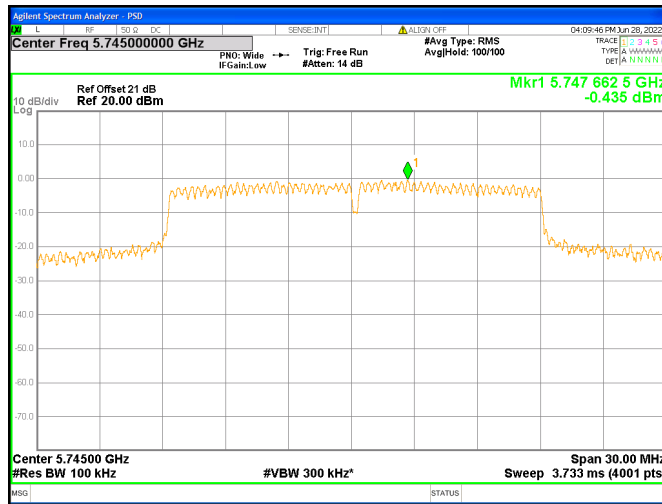


### Chain3 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch48

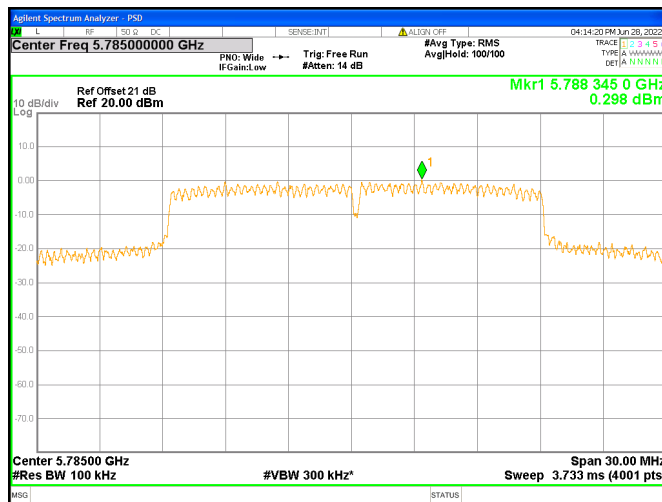




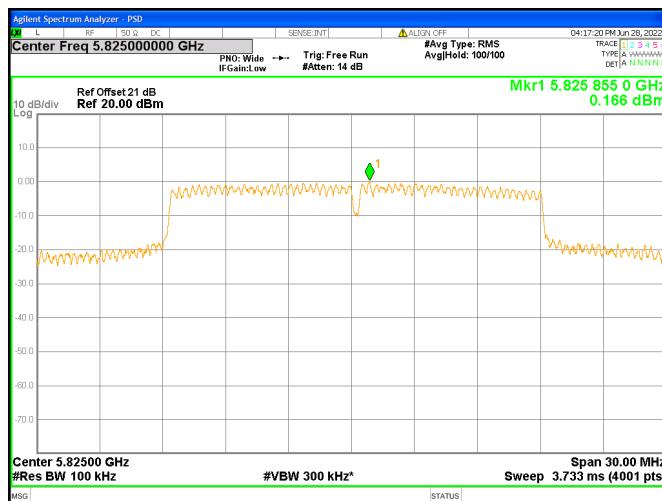
### Chain3 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch149



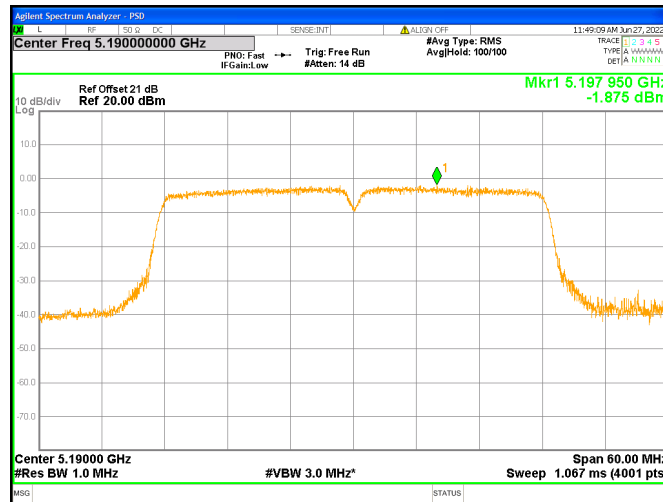
### Chain3 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch157



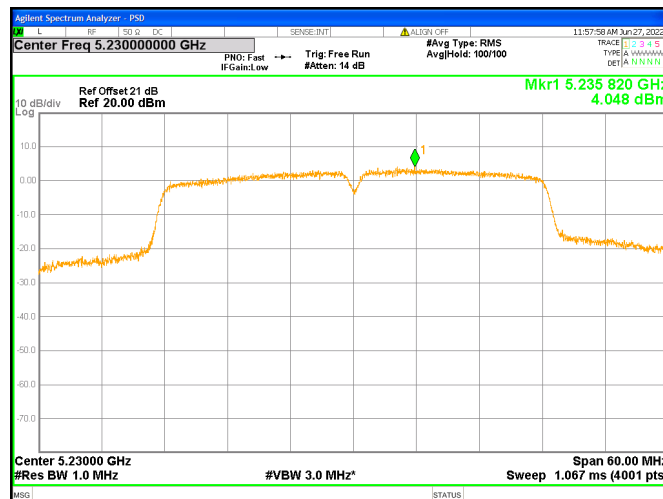
### Chain3 : Power Spectral Density @ 802.11ac(VHT20) Mode Ch165



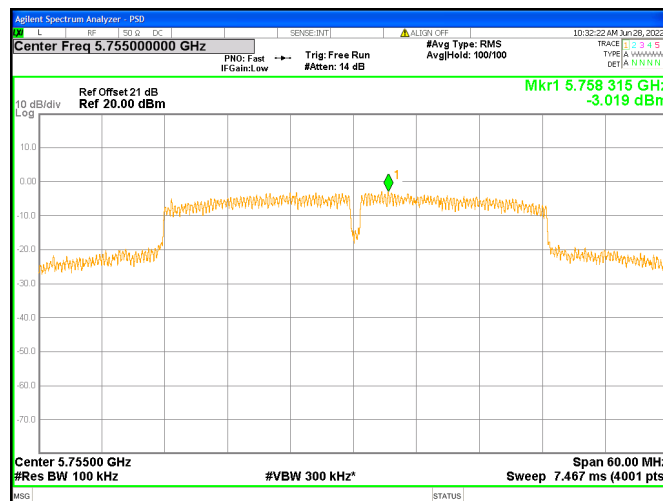
### Chain0 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch38



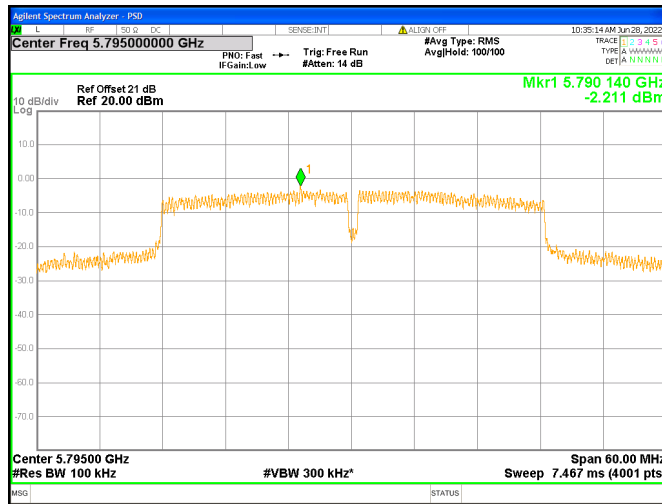
### Chain0 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch46



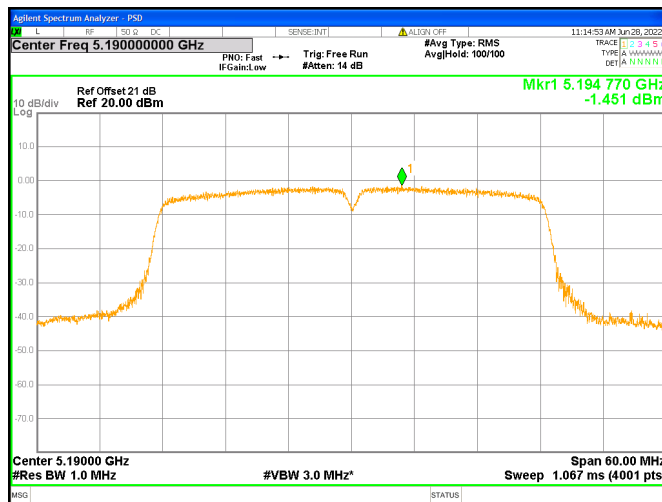
### Chain0 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch151



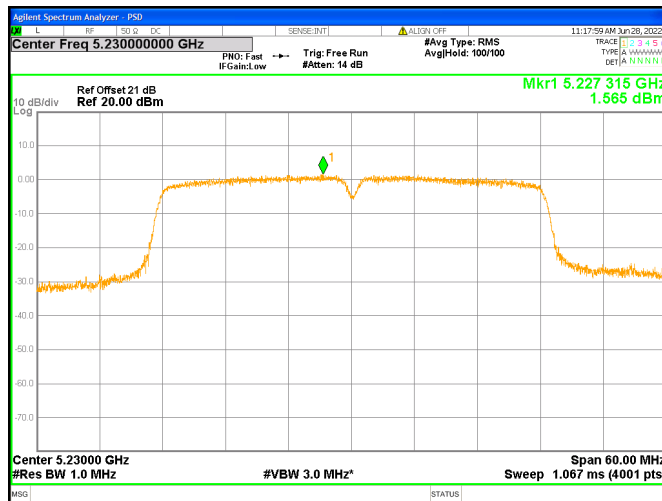
### Chain0 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch159



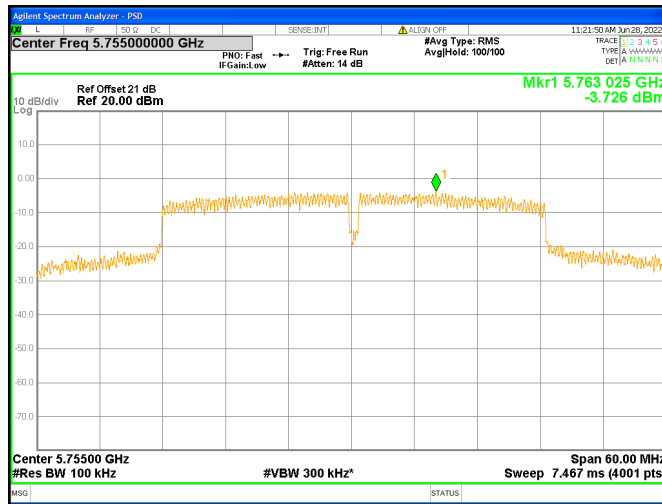
### Chain1 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch38



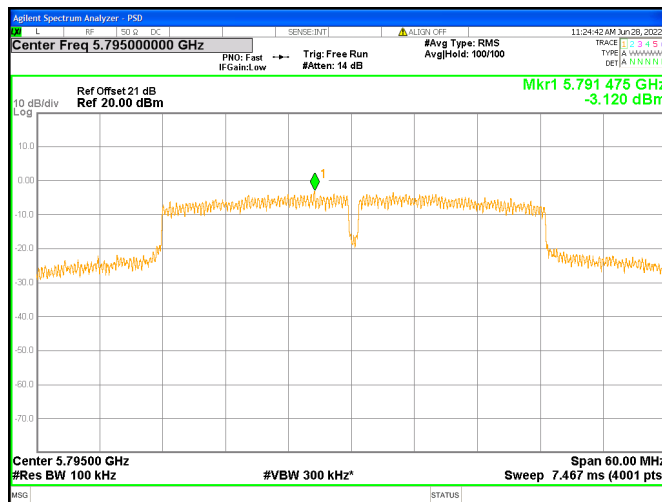
### Chain1 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch46



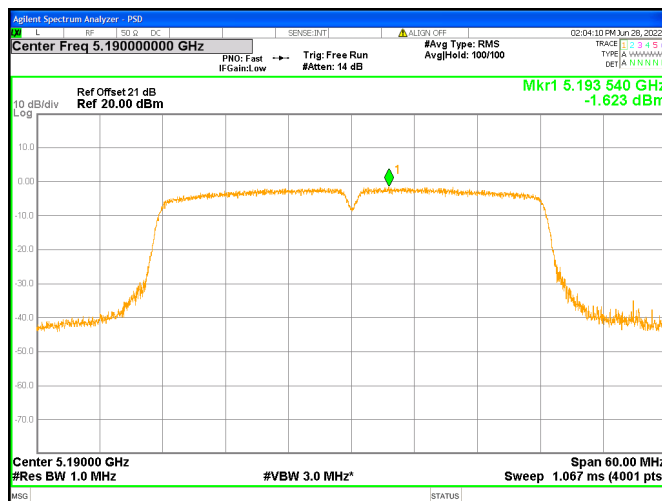
### Chain1 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch151



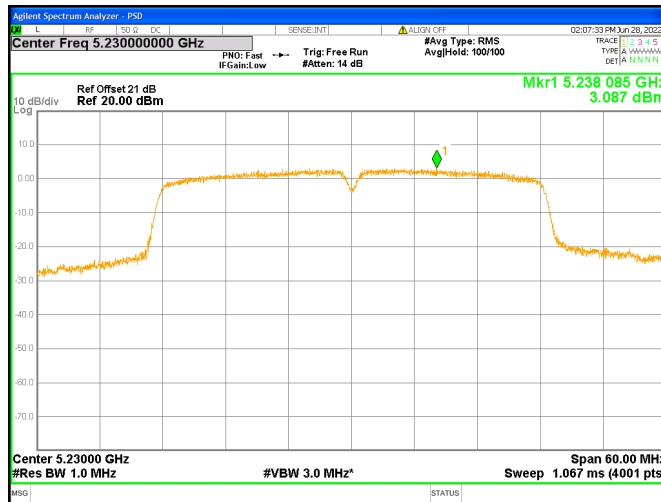
### Chain1 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch159



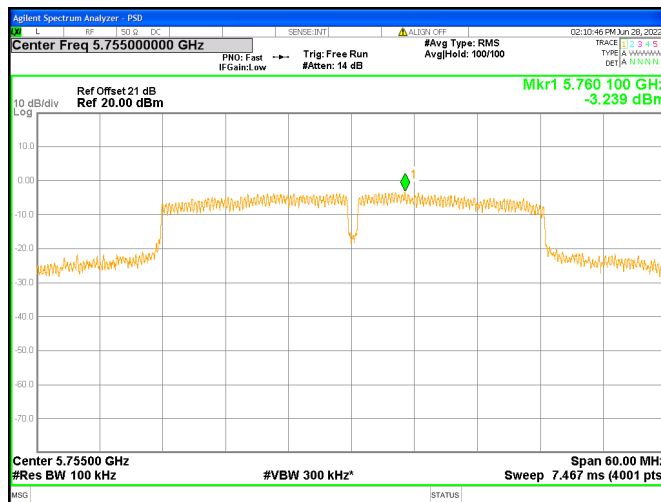
### Chain2 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch38



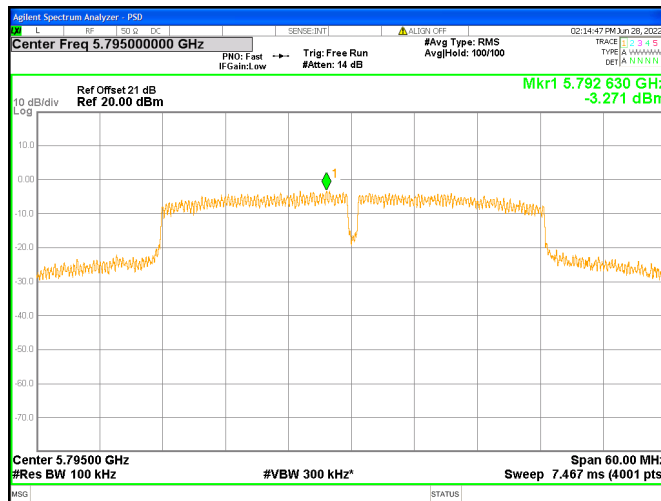
### Chain2 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch46



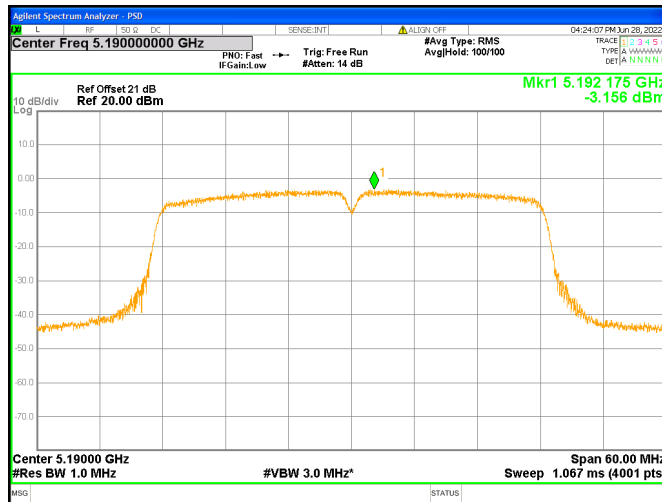
### Chain2 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch151



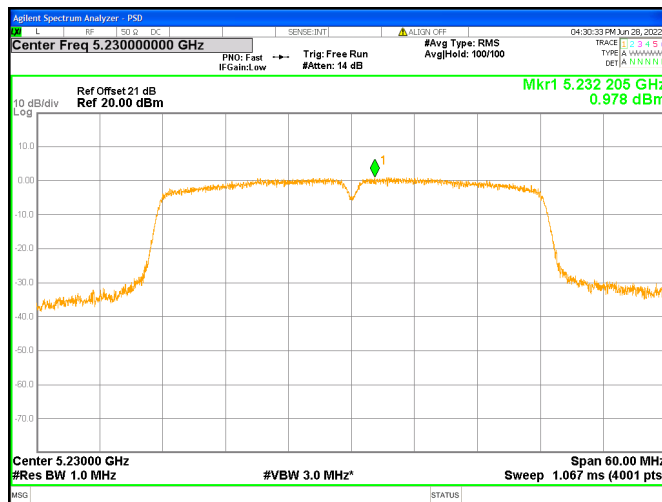
### Chain2 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch159



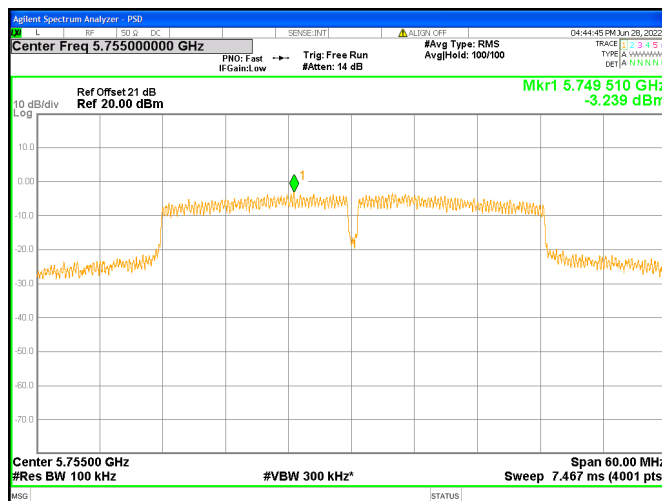
### Chain3 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch38



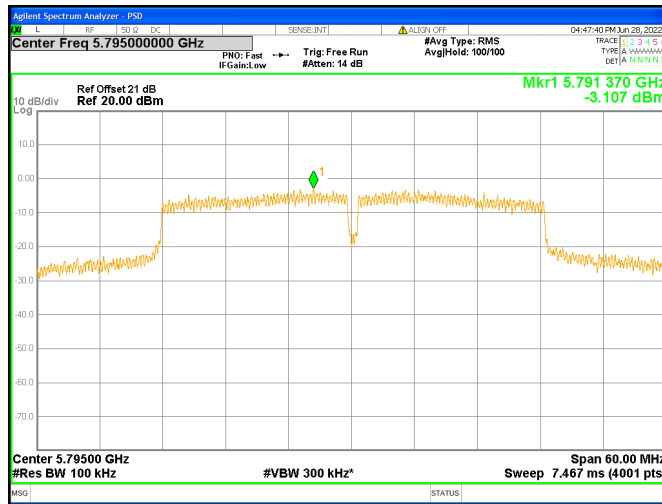
### Chain3 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch46



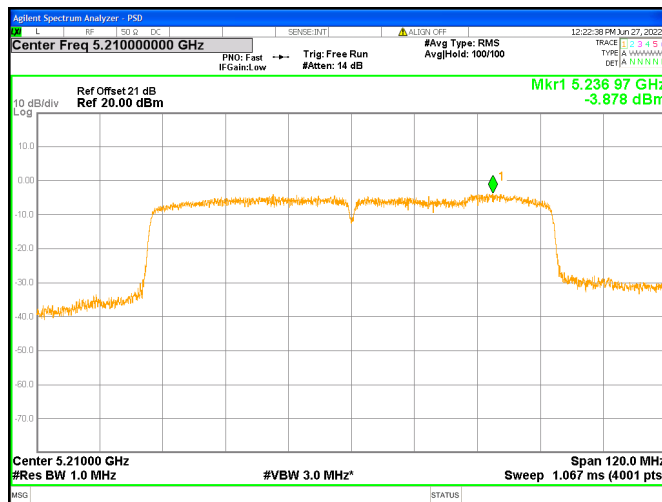
### Chain3 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch151



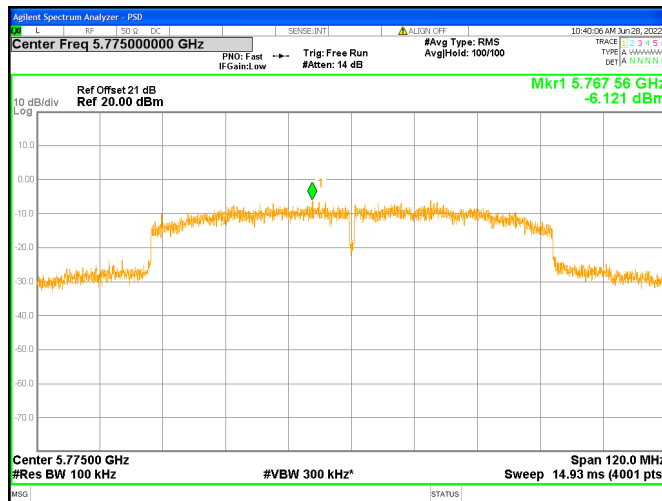
### Chain3 : Power Spectral Density @ 802.11ac(VHT40) Mode Ch159



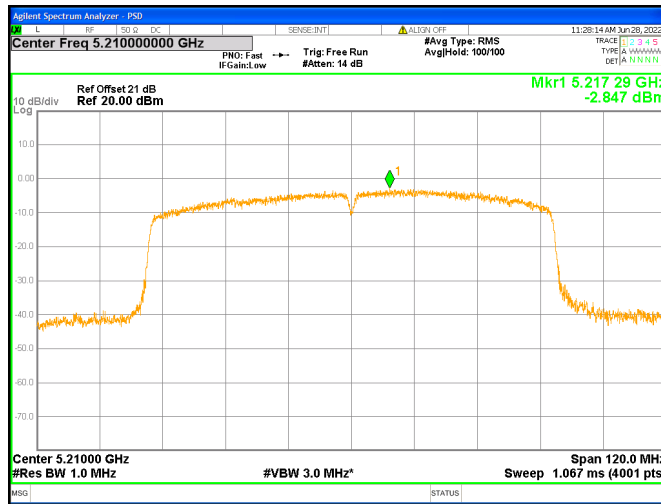
### Chain0 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch42



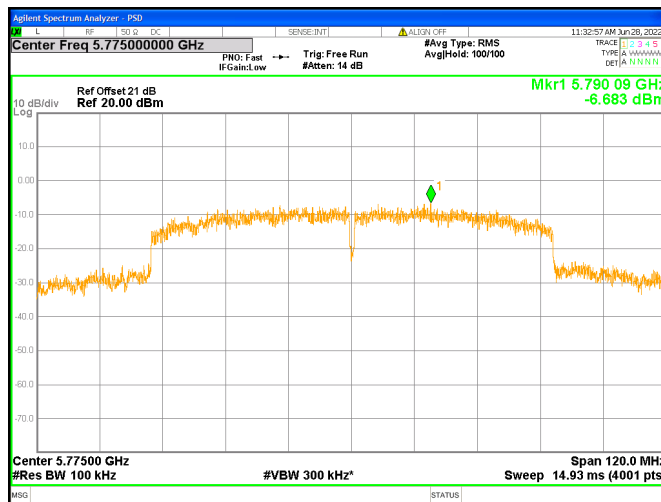
### Chain0 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch155



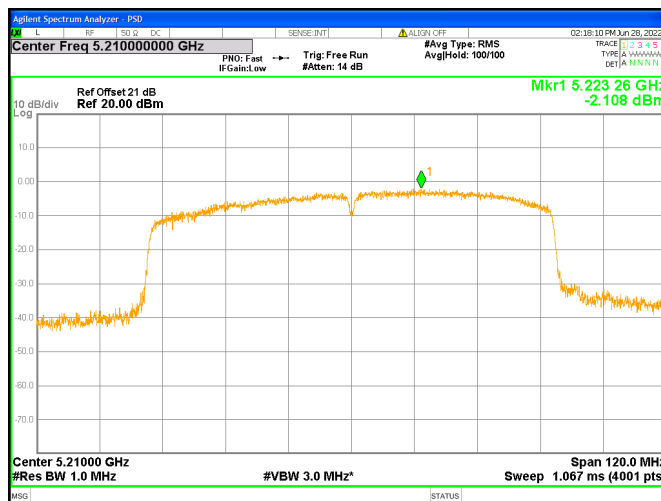
### Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch42



### Chain1 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch155

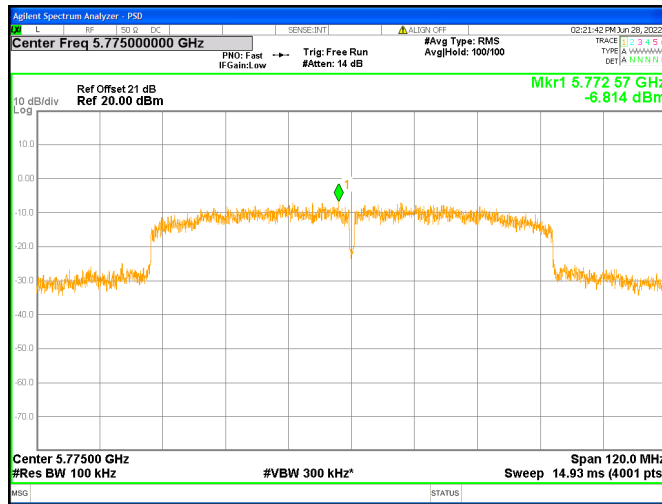


### Chain2 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch42

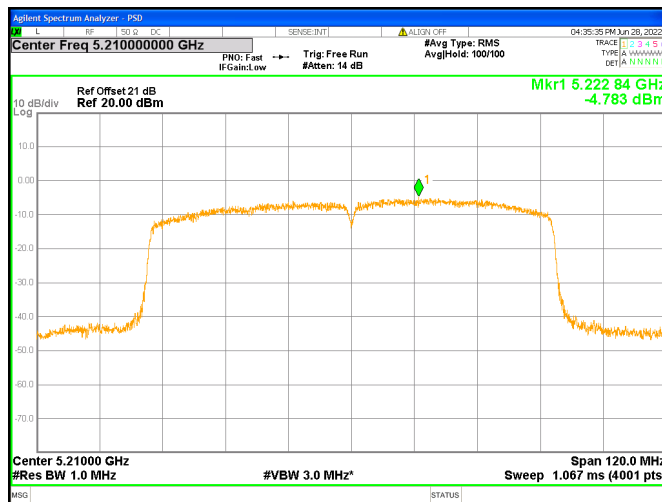




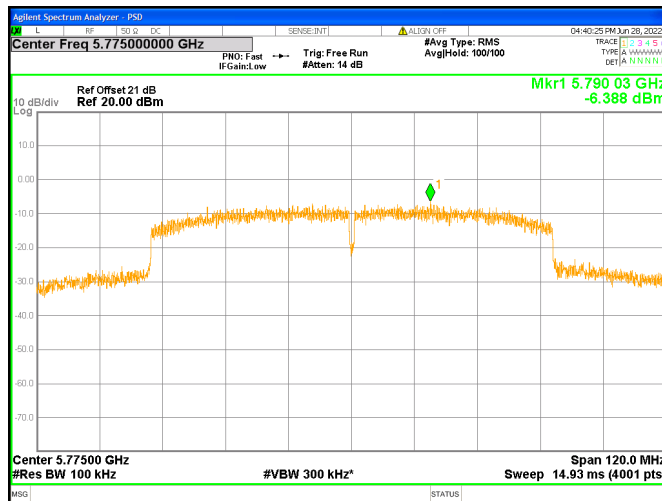
### Chain2 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch155



### Chain3 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch42



### Chain3 : Power Spectral Density @ 802.11ac(VHT80) Mode Ch155



#### 4. Minimum Bandwidth

##### 4.1 Limit for minimum emission bandwidth.

Within the 5.15-5.25 GHz, the 26 dB bandwidth is for reporting purpose only.

Within the 5.725-5.85 GHz, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz..

##### 4.2 Measuring instrument setting

###### Emission Bandwidth for 5.15-5.25 GHz

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	Approximately 1% of the EBW
VBW	> RBW
Trace mode	Max hold

###### Minimum Emission Bandwidth for 5.725-5.85 GHz

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Detector	Peak
RBW	100kHz
VBW	$\geq 3 \times \text{RBW}$
Sweep	Auto couple
Trace mode	Max hold

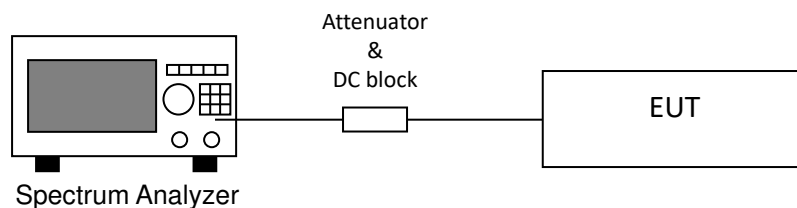
###### 99% Occupied Bandwidth

Spectrum analyzer settings	
Spectrum Analyzer function	Setting
Span	1.5 times to 5.0 times the OBW
RBW	1% to 5% of the OBW
VBW	$\geq 3 \times \text{RBW}$
Trace mode	Max hold

### 4.3 Test procedure

1. The transmitter output was connected to the spectrum analyzer.
2. Test was performed in accordance with section C&D of KDB 789033 D02 v01r02.
3. For the 5.725-5.85 GHz, measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
4. For the 5.15-5.25 GHz and 5.725-5.85 GHz, measure the maximum width of the emission that is 26 dB down from the maximum of the emission.

### 4.4 Test diagram



**TEST REPORT**

**4.5 Test results**

Temperature (°C) :	29
Relative Humidity (%) :	60
Test date :	2022/06/29 ~ 2022/07/04

Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11a Chain0	36	5180	18.14
	44	5220	18.40
	48	5240	18.40
	149	5745	39.96
	157	5785	40.00
	165	5825	39.86
802.11a Chain1	36	5180	18.34
	44	5220	18.18
	48	5240	18.26
	149	5745	39.62
	157	5785	40.00
	165	5825	39.60
802.11a Chain2	36	5180	18.28
	44	5220	18.30
	48	5240	18.36
	149	5745	39.68
	157	5785	39.94
	165	5825	39.22
802.11a Chain3	36	5180	18.38
	44	5220	18.06
	48	5240	18.24
	149	5745	39.28
	157	5785	39.96
	165	5825	39.86
802.11ac (VHT20) Chain0	36	5180	19.28
	44	5220	19.34
	48	5240	19.62
	149	5745	39.98
	157	5785	40.00
	165	5825	39.96

**TEST REPORT**

Mode	Channel	Frequency (MHz)	26dB Bandwidth (MHz)
802.11ac (VHT20) Chain1	36	5180	19.10
	44	5220	19.34
	48	5240	19.30
	149	5745	39.98
	157	5785	39.90
	165	5825	39.96
802.11ac (VHT20) Chain2	36	5180	19.22
	44	5220	19.30
	48	5240	19.72
	149	5745	39.94
	157	5785	39.98
	165	5825	39.84
802.11ac (VHT20) Chain3	36	5180	19.02
	44	5220	19.28
	48	5240	19.14
	149	5745	39.60
	157	5785	39.78
	165	5825	39.84
802.11ac (VHT40) Chain0	38	5190	40.88
	46	5230	70.00
	151	5755	80.00
	159	5795	79.68
802.11ac (VHT40) Chain1	38	5190	40.28
	46	5230	48.00
	151	5755	79.80
	159	5795	79.28
802.11ac (VHT40) Chain2	38	5190	40.48
	46	5230	64.36
	151	5755	79.84
	159	5795	79.72
802.11ac (VHT40) Chain3	38	5190	40.48
	46	5230	50.00
	151	5755	79.68
	159	5795	78.88
802.11ac (VHT80) Chain0	42	5210	107.04
	155	5775	151.44

**TEST REPORT**

<b>Mode</b>	<b>Channel</b>	<b>Frequency (MHz)</b>	<b>26dB Bandwidth (MHz)</b>
802.11ac (VHT80) Chain1	42	5210	80.16
	155	5775	152.80
802.11ac (VHT80) Chain2	42	5210	92.16
	155	5775	151.60
802.11ac (VHT80) Chain3	42	5210	80.16
	155	5775	148.24