



# TEST REPORT

No. I22N01222-WLAN 5GHz

**TCL Communication Ltd.**

**GSM/UMTS/LTE/NR mobile phone**

**Model Name: T771A**

**with**

**Hardware Version: 05**

**Software Version: HR1J-3**

**FCC ID: 2ACCJH169**

**Issued Date: 2022-09-27**

**Designation Number: CN1210**

**Note:**

The test results in this test report relate only to the devices specified in this report. This report shall not be reproduced except in full without the written approval of SAICT.

**Test Laboratory:**

**Shenzhen Academy of Information and Communications Technology**

Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China 518000.

Tel: +86(0)755-33322000, Fax: +86(0)755-33322001

Email: yewu@caict.ac.cn, website: [www.cszit.com](http://www.cszit.com)



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## 1. Summary of Test Report

### 1.1. Test Items

Description	GSM/UMTS/LTE/NR mobile phone
Model Name	T771A
Applicant's name	TCL Communication Ltd.
Manufacturer's Name	TCL Communication Ltd.

### 1.2. Test Standards

FCC Part15-2019; ANSI C63.10-2013

### 1.3. Test Result

**Pass**

Please refer to 5.2 Test Results.

### 1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road, Futian District, Shenzhen, Guangdong, P. R. China

### 1.5. Project data

Testing Start Date:	2022-08-23
Testing End Date:	2022-09-20

### 1.6. Signature

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Lin Kanfeng  
(Prepared this test report)

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An Ran  
(Reviewed this test report)

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Zhang Bojun  
(Approved this test report)



## **2. Client Information**

### **2.1. Applicant Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong  
Contact Person: Annie Jiang  
E-Mail: nianxiang.jiang@tcl.com  
Telephone: +86 755 3661 1621  
Fax: +86 755 3661 2000-81722

### **2.2. Manufacturer Information**

Company Name: TCL Communication Ltd.  
Address: 5/F, Building 22E, 22 Science Park East Avenue, Hong Kong Science Park, Shatin, NT, Hong Kong  
Contact Person: Annie Jiang  
E-Mail: nianxiang.jiang@tcl.com  
Telephone: +86 755 3661 1621  
Fax: +86 755 3661 2000-81722



### **3. Equipment Under Test (EUT) and Ancillary Equipment (AE)**

#### **3.1. About EUT**

Description	GSM/UMTS/LTE/NR mobile phone
Model Name	T771A
RLAN Frequency Range	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz -5725MHz~5850MHz
RLAN Protocol	IEEE 802.11a,802.11n-HT20/40,802.11ac-VHT20/40/80
Type of modulation	OFDM
Antenna Type	Integrated
Antenna Gain	-3.2 dBi
Power Supply	3.85V DC by Battery
FCC ID	2ACCJH169
Condition of EUT as received	No abnormality in appearance

#### **3.2. Internal Identification of EUT**

<b>EUT ID*</b>	<b>IMEI</b>	<b>HW Version</b>	<b>SW Version</b>	<b>Receive Date</b>
UT08aa	356613230200610	05	HR1J-3	2022-08-22
UT01aa	356613230200545	05	HR1J-3	2022-08-26

\*EUT ID: is used to identify the test sample in the lab internally.

\*UT08aa is used for Conduction test; UT01aa is used for radiation test and AC Power line Conducted Emission test.

#### **3.3. Internal Identification of AE**

<b>AE ID*</b>	<b>Description</b>	<b>SN</b>
AE1	Battery	/
AE2	Battery	/
AE3	Charger	/
AE4	Charger	/
AE1		
Model	TLp048A7	
Manufacturer	NINGBO VEKEN BATTERY CO., LTD	
Capacity	Min4850mAh/typ 5000mAh	
Nominal Voltage	3.85V	
AE2		
Model	TLp048A1	
Manufacturer	Shenzhen BYD lithium BATTERY CO., LTD	
Capacity	Min4850mAh/typ 5000mAh	
Nominal Voltage	3.85V	



AE3

Model	UC13US
Manufacturer	HUIZHOU PUAN ELECTRONICS CO., LTD

AE4

Model	UC13US
Manufacturer	Huizhou BYD ELECTRON CO., LTD

\*AE ID: is used to identify the test sample in the lab internally.

### **3.4. General Description**

The Equipment under Test (EUT) is a model of GSM/UMTS/LTE/NR mobile phone with integrated antenna and battery. It consists of normal options: Lithium Battery and Charger. Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client.



## **4. REFERENCE DOCUMENTS**

### **4.1. Documents supplied by applicant**

EUT feature information is supplied by the applicant or manufacturer, which is the basis of testing.

### **4.2. Reference Documents for testing**

The following documents listed in this section are referred for testing.

<b>Reference</b>	<b>Title</b>	<b>Version</b>
FCC Part15	FCC CFR 47,Part 15,Subpart C FCC CFR 47,Part 15,Subpart E	2019
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013
KDB789033	GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E	V02r01



## 5. Test Results

### 5.1. Testing Environment

Normal Temperature: 15~35°C

Relative Humidity: 20~75%

### 5.2. Test Results

No.	Test cases	Sub-clause of Part15E	Verdict
1	Maximum Output Power	15.407	<b>P</b>
2	Power Spectral Density	15.407	<b>P</b>
3	Occupied 26dB Bandwidth	15.403	<b>P</b>
4	Occupied 6dB Bandwidth	15.407	<b>P</b>
5	99% Occupied Bandwidth	15.403	<b>P</b>
6	Band edge compliance	15.209	<b>P</b>
7	Transmitter Spurious Emissions	15.407, 15.205	<b>P</b>
8	AC Power line Conducted	15.107, 15.207	<b>P</b>
9	Transmit Power Control	15.407	<b>NA</b>

Please refer to **ANNEX A** for detail.

### 5.3. Statements

SAICT has evaluated the test cases requested by the applicant/manufacturer as listed in section 5.2 of this report, for the EUT specified in section 3, according to the standards or reference documents listed in section 4.2.

Disclaimer:

A. After confirmation with the customer, the sample information provided by the customer may affect the validity of the measurement results in this report, and the impact and consequences arising therefrom shall be borne by the customer.

B. The samples in this report are provided by the customer, and the test results are only applicable to the samples received.



## 6. Test Equipments Utilized

### Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due Date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2022-12-29	1 year
2	Power Sensor	U2021XA	MY55430013	Keysight	2022-12-29	1 year
3	Data Acquisition	U2531A	TW55443507	Keysight	/	/

### Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	LISN	ENV216	102067	R&S	2023-07-14	1 year
2	Test Receiver	ESCI	100702	R&S	2023-01-12	1 year
3	Loop Antenna	HLA6120	35779	TESEQ	2025-04-24	3 years
4	BiLog Antenna	3142E	0224831	ETS-Lindgren	2024-05-27	3 years
5	Horn Antenna	3117	00066577	ETS-Lindgren	2025-04-01	3 years
6	Test Receiver	ESR7	101676	R&S	2022-11-24	1 year
7	Spectrum Analyzer	FSV40	101192	R&S	2023-01-12	1 year
8	Chamber	FACT3-2.0	1285	ETS-Lindgren	2023-05-29	2 years
9	Antenna	QSH-SL-1 8-26-S-20	17013	Q-par	2023-01-06	3 years
10	Antenna	QSH-SL-1 8-40-K-SG	15979	Q-par	2023-01-06	3 years

### Test software

No.	Equipment	Manufacturer	Version
1	TechMgr Software	CAICT	2.1.1
2	EMC32	Rohde & Schwarz	10.50.40

EUT is engineering software provided by the customer to control the transmitting signal. The EUT was programmed to be in continuously transmitting mode.

### Anechoic chamber

Fully anechoic chamber by ETS-Lindgren

## 7. Laboratory Environment

### Semi-anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ±4 dB, 3 m distance, from 30 to 1000 MHz

### Shielded room

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω

### Fully-anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2MΩ
Ground system resistance	< 4 Ω
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3 m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz



## 8. Measurement Uncertainty

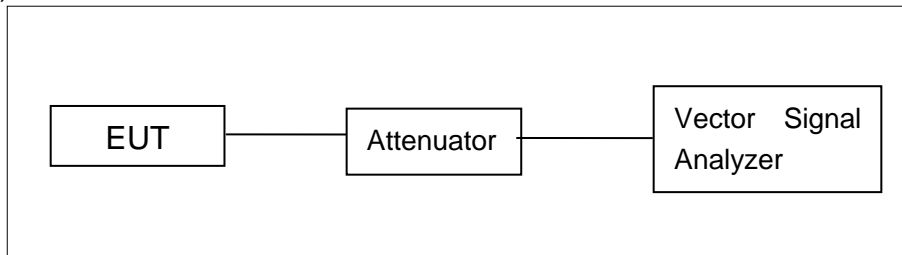
Test Name	Uncertainty ( $k=2$ )	
1. RF Output Power - Conducted	1.36dB	
2. Power Spectral Density - Conducted	1.36dBm/MHz	
3. Occupied channel bandwidth - Conducted	4.56kHz	
4. Transmitter Spurious Emission - Radiated	$9\text{kHz} \leq f < 30\text{MHz}$	1.79dB
	$30\text{MHz} \leq f < 1\text{GHz}$	4.86dB
	$1\text{GHz} \leq f < 18\text{GHz}$	4.50dB
	$18\text{GHz} \leq f \leq 40\text{GHz}$	2.90dB
5. AC Power line Conducted Emission	$150\text{kHz} \leq f \leq 30\text{MHz}$	2.62dB

## **ANNEX A: MEASUREMENT RESULTS**

### **A.1. Measurement Method**

#### **Conducted Measurements**

- 1). Connect the EUT to the test system correctly.
- 2). Set the EUT to the required work mode.
- 3). Set the EUT to the required channel.
- 4). Set the spectrum analyzer to start measurement.
- 5). Record the values.

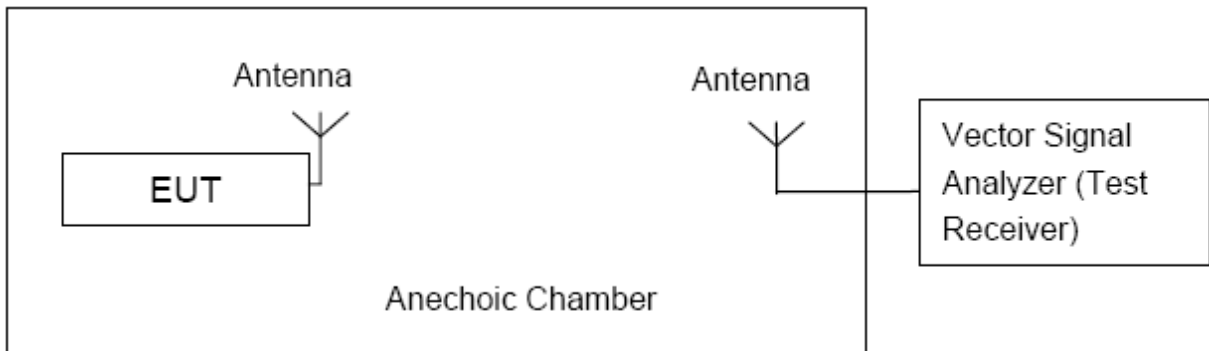


#### **Radiated Emission Measurements**

In the case of radiated emission, the used settings are as follows:

Sweep frequency from 30 MHz to 1 GHz, RBW = 100 KHz, VBW = 300 KHz;

Sweep frequency from 1 GHz to 26 GHz, RBW = 1 MHz, VBW = 10 Hz;



The measurement is made according to KDB 789033.

The radiated emission test is performed in semi-anechoic chamber. The distance from the EUT to the reference point of measurement antenna is 3m. The test is carried out on both vertical and horizontal polarization and only maximization result of both polarizations is kept. During the test, the turntable is rotated 360° and the measurement antenna is moved from 1m to 4m to get the maximization result.



## A.2. Maximum Output Power

### Measurement Limit and Method:

Standard	Frequency (MHz)	Limit (dBm)
FCC CRF Part 15.407	5150MHz~5250MHz	24
	5250MHz~5350MHz	24 or 11+10logB
	5470MHz~5725MHz	24 or 11+10logB
	5725MHz~5850MHz	30

Limit use the less value, and B is the 26dB bandwidth.

### Measurement of method: See ANSI C63.10-2013-Clause 12.3.3.2

Method PM-G is a measurement using a gated RF average power meter.

Measurements may be performed using a wideband gated RF power meter provided that the gate parameters are adjusted such that the power is measured only when the EUT is transmitting at its maximum power control level. Because the measurement is made only during the ON time of the transmitter, no duty cycle correction factor is required.

### Measurement Results:

#### 802.11a mode

Mode	Channel	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz(Ch36)	16.29	16.24	16.23	16.20	16.16	15.22	15.18	14.15
	5200MHz(Ch40)	16.33	/	/	/	/	/	/	/
	5240MHz(Ch48)	16.91	/	/	/	/	/	/	/
	5260MHz(Ch52)	16.96	/	/	/	/	/	/	/
	5280MHz(Ch56)	16.87	/	/	/	/	/	/	/
	5320MHz(Ch64)	16.93	/	/	/	/	/	/	/
	5500MHz(Ch100)	17.03	/	/	/	/	/	/	/
	5580MHz(Ch116)	17.04	/	/	/	/	/	/	/
	5700MHz(Ch140)	17.05	/	/	/	/	/	/	/
	5745MHz(Ch149)	17.03	/	/	/	/	/	/	/
	5785MHz(Ch157)	17.08	/	/	/	/	/	/	/
5825MHz(Ch165)	17.04	/	/	/	/	/	/	/	

#### 802.11n-HT20 mode

Mode	Channel	Test Result (dBm)							
		Data Rate (Index)							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz(Ch36)	16.21	16.18	16.17	16.12	16.11	15.68	15.66	14.74
	5200MHz(Ch40)	16.28	/	/	/	/	/	/	/



	5240MHz(Ch48)	16.35	/	/	/	/	/	/	/
	5260MHz(Ch52)	16.77	/	/	/	/	/	/	/
	5280MHz(Ch56)	16.75	/	/	/	/	/	/	/
	5320MHz(Ch64)	16.77	/	/	/	/	/	/	/
	5500MHz(Ch100)	16.88	/	/	/	/	/	/	/
	5580MHz(Ch116)	16.90	/	/	/	/	/	/	/
	5700MHz(Ch140)	16.91	/	/	/	/	/	/	/
	5745MHz(Ch149)	16.93	/	/	/	/	/	/	/
	5785MHz(Ch157)	16.94	/	/	/	/	/	/	/
	5825MHz(Ch165)	16.96	/	/	/	/	/	/	/

**802.11ac-VHT20 mode**

Mode	Channel	Test Result (dBm)							
		Data Rate (Index)							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11ac (VHT20)	5180MHz(Ch36)	15.24	15.19	15.16	15.12	15.11	14.67	14.63	13.15
	5200MHz(Ch40)	15.73	/	/	/	/	/	/	/
	5240MHz(Ch48)	15.78	/	/	/	/	/	/	/
	5260MHz(Ch52)	15.79	/	/	/	/	/	/	/
	5280MHz(Ch56)	15.85	/	/	/	/	/	/	/
	5320MHz(Ch64)	15.73	/	/	/	/	/	/	/
	5500MHz(Ch100)	15.87	/	/	/	/	/	/	/
	5580MHz(Ch116)	15.91	/	/	/	/	/	/	/
	5700MHz(Ch140)	15.94	/	/	/	/	/	/	/
	5745MHz(Ch149)	15.89	/	/	/	/	/	/	/
	5785MHz(Ch157)	15.98	/	/	/	/	/	/	/
5825MHz(Ch165)	15.96	/	/	/	/	/	/	/	

**802.11n-HT40 mode**

Mode	Channel	Test Result (dBm)							
		Data Rate (Index)							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz(Ch38)	14.96	14.91	14.88	14.86	14.83	13.89	13.84	13.81
	5230MHz(Ch46)	14.91	/	/	/	/	/	/	/
	5270MHz(Ch54)	15.48	/	/	/	/	/	/	/
	5310MHz(Ch62)	15.55	/	/	/	/	/	/	/
	5510MHz(Ch102)	15.58	/	/	/	/	/	/	/
	5670MHz(Ch134)	15.61	/	/	/	/	/	/	/
	5755MHz(Ch151)	15.57	/	/	/	/	/	/	/
	5795MHz(Ch159)	15.64	/	/	/	/	/	/	/

**802.11ac-VHT40 mode**

Mode	Channel	Test Result (dBm)							
		Data Rate (Index)							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11ac (VHT40)	5190MHz(Ch38)	14.05	14.02	13.99	13.98	13.93	13.91	13.87	11.02
	5230MHz(Ch46)	14.51	/	/	/	/	/	/	/
	5270MHz(Ch54)	14.56	/	/	/	/	/	/	/
	5310MHz(Ch62)	14.58	/	/	/	/	/	/	/
	5510MHz(Ch102)	14.71	/	/	/	/	/	/	/
	5670MHz(Ch134)	14.73	/	/	/	/	/	/	/
	5755MHz(Ch151)	14.75	/	/	/	/	/	/	/
	5795MHz(Ch159)	14.82	/	/	/	/	/	/	/

**802.11ac-VHT80 mode**

Mode	Channel	Test Result (dBm)							
		Data Rate (Index)							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11ac (VHT80)	5210MHz(Ch42)	13.13	13.09	13.07	13.04	13.00	12.97	12.96	10.08
	5290MHz(Ch58)	13.03	/	/	/	/	/	/	/
	5610MHz(Ch122)	13.26	/	/	/	/	/	/	/
	5775MHz(Ch155)	13.24	/	/	/	/	/	/	/

**Conclusion: PASS**

Note: The data rate 6Mbps (11a mode), MCS0 (11n mode) and MCS0 (11ac mode) are selected as the worst case. 802.11a, 802.11n-HT40 and 802.11ac-VHT80 modes are selected as the worst case. The following cases and test graphs are performed with this condition. The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.



### A.3. Peak Power Spectral Density

**Measurement Limit:**

Standard	Frequency (MHz)	Limit
FCC CRF Part 15.407	5150MHz~5250MHz	11dBm/MHz
	5250MHz~5350MHz	11dBm/MHz
	5470MHz~5725MHz	11dBm/MHz
	5725MHz~5850MHz	30dBm/500KHz

The PPSD measurement method SA-1 is made according to KDB 789033.

**Measurement Results:**

U-NII Band	Mode	Channel	Frequency (MHz)	Test Results (dBm/MHz)
5.2GHz Band (UNII-1)	802.11a	CH 36	5180	4.65
		CH 40	5200	4.62
		CH 48	5240	4.72
	802.11n-HT40	CH 38	5190	0.58
		CH 46	5230	0.54
	802.11ac-VHT80	CH 42	5210	-5.05
5.3GHz Band (UNII-2A)	802.11a	CH 52	5260	4.65
		CH 56	5280	4.38
		CH 64	5320	4.56
	802.11n-HT40	CH 54	5270	0.21
		CH 62	5310	0.38
	802.11ac-VHT80	CH 58	5290	-5.46
5.5GHz Band (UNII-2C)	802.11a	CH 100	5500	4.88
		CH 116	5580	4.64
		CH 140	5700	4.67
	802.11n-HT40	CH 102	5510	0.66
		CH 134	5670	0.62
	802.11ac-VHT80	CH 122	5610	-4.78
5.8GHz Band (UNII-3)	802.11a	CH 149	5745	1.91
		CH 157	5785	2.07
		CH 165	5825	2.03
	802.11n-HT40	CH 151	5755	-2.71
		CH 159	5795	-2.25
	802.11ac-VHT80	CH 155	5775	-7.60

**Conclusion: PASS**



**A.4. Occupied 26dB Bandwidth****Measurement Limit:**

Standard	Limit (MHz)
FCC 47 CFR Part 15.403	/

The measurement is made according to KDB 789033.

**Measurement Result:**

Mode	Channel	Occupied 26dB Bandwidth (MHz)		Conclusion
		Fig.	Value	
802.11a	5180MHz (Ch36)	Fig.1	31.15	P
	5200MHz (Ch40)	Fig.2	34.00	P
	5240MHz (Ch48)	Fig.3	31.25	P
	5260MHz (Ch52)	Fig.4	31.60	P
	5280MHz (Ch56)	Fig.5	30.35	P
	5320MHz (Ch64)	Fig.6	32.25	P
	5500MHz (Ch100)	Fig.7	30.25	P
	5580MHz (Ch116)	Fig.8	30.50	P
	5700MHz (Ch140)	Fig.9	32.25	P
802.11n-HT40	5190MHz (Ch38)	Fig.10	41.04	P
	5230MHz (Ch46)	Fig.11	41.20	P
	5270MHz (Ch54)	Fig.12	41.84	P
	5310MHz (Ch62)	Fig.13	43.20	P
	5510MHz (Ch102)	Fig.14	42.16	P
	5670MHz (Ch134)	Fig.15	43.44	P
802.11ac-VHT80	5210MHz (Ch42)	Fig.16	81.28	P
	5290MHz (Ch58)	Fig.17	81.28	P
	5610MHz (Ch122)	Fig.18	81.28	P

**Conclusion: PASS**

**Test graphs as below:**

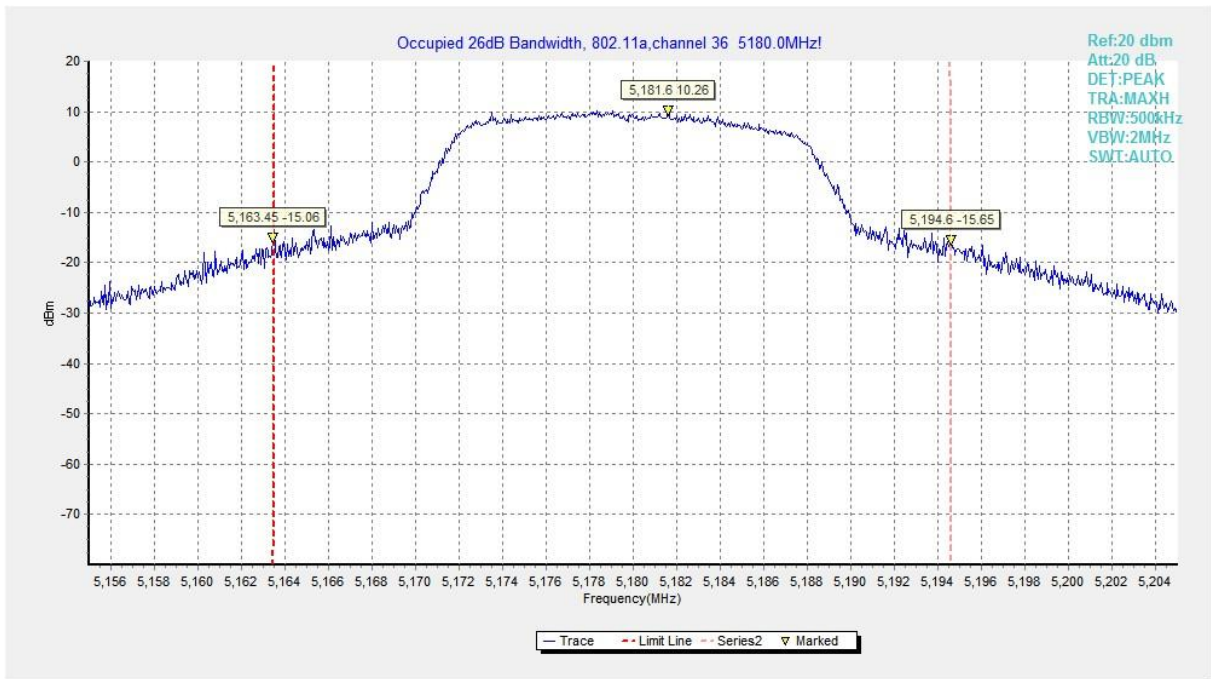


Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

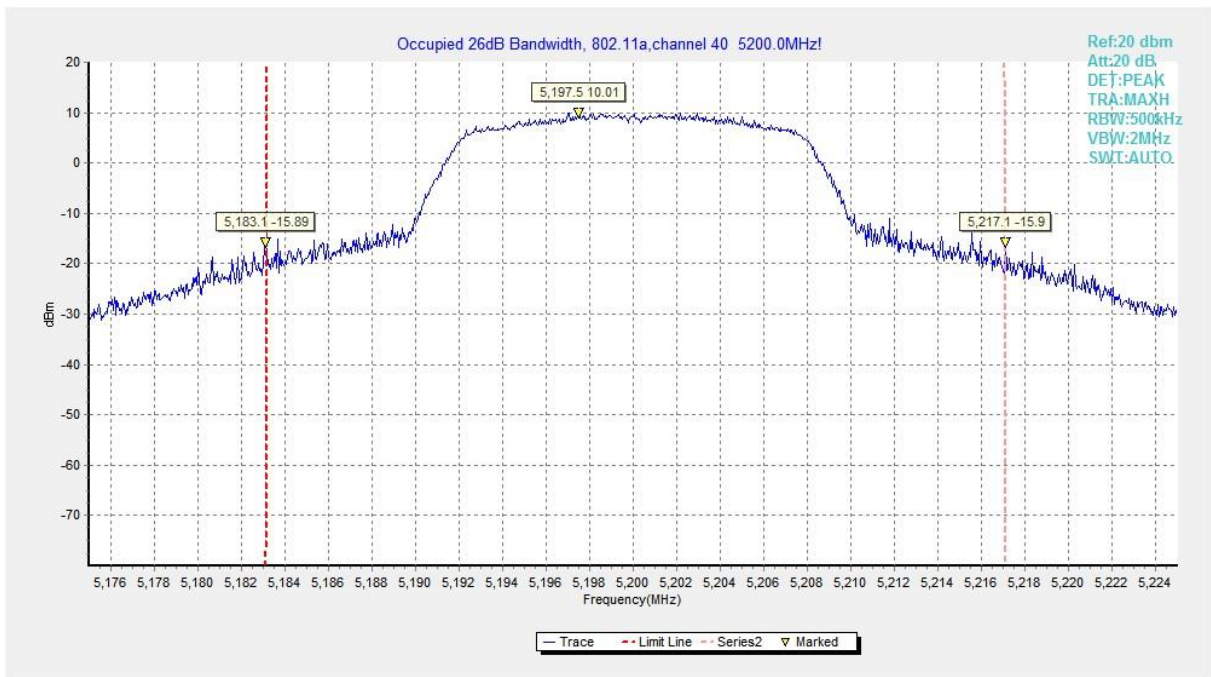


Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

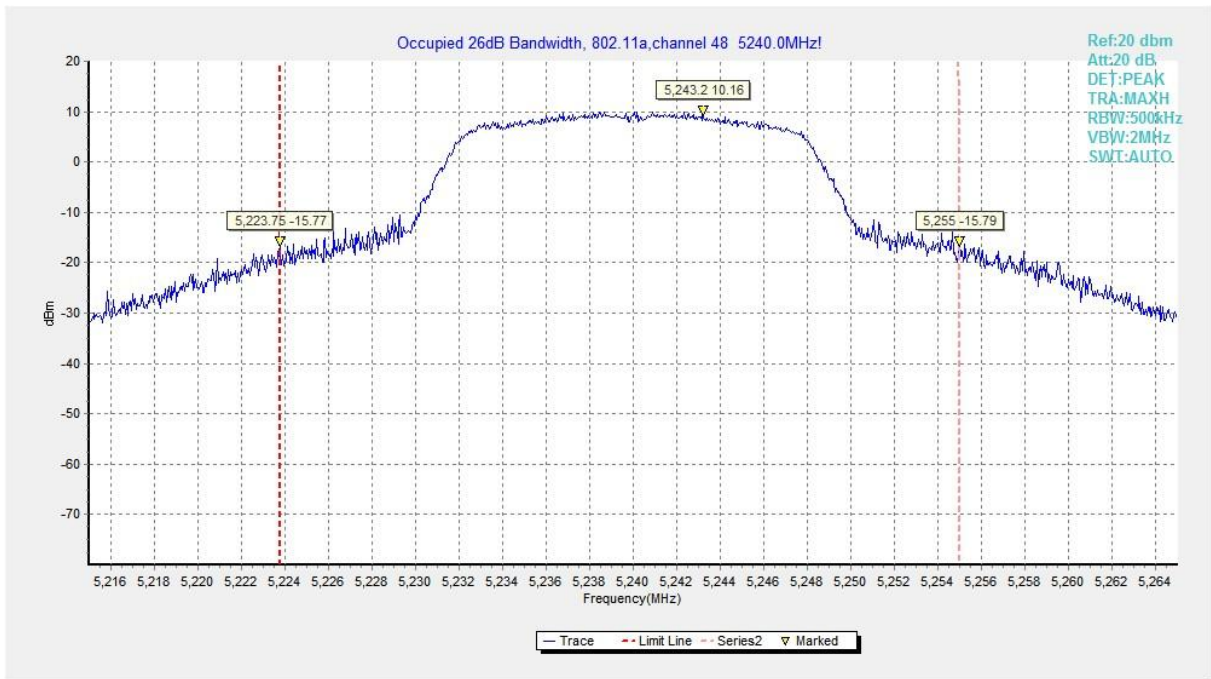


Fig. 3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

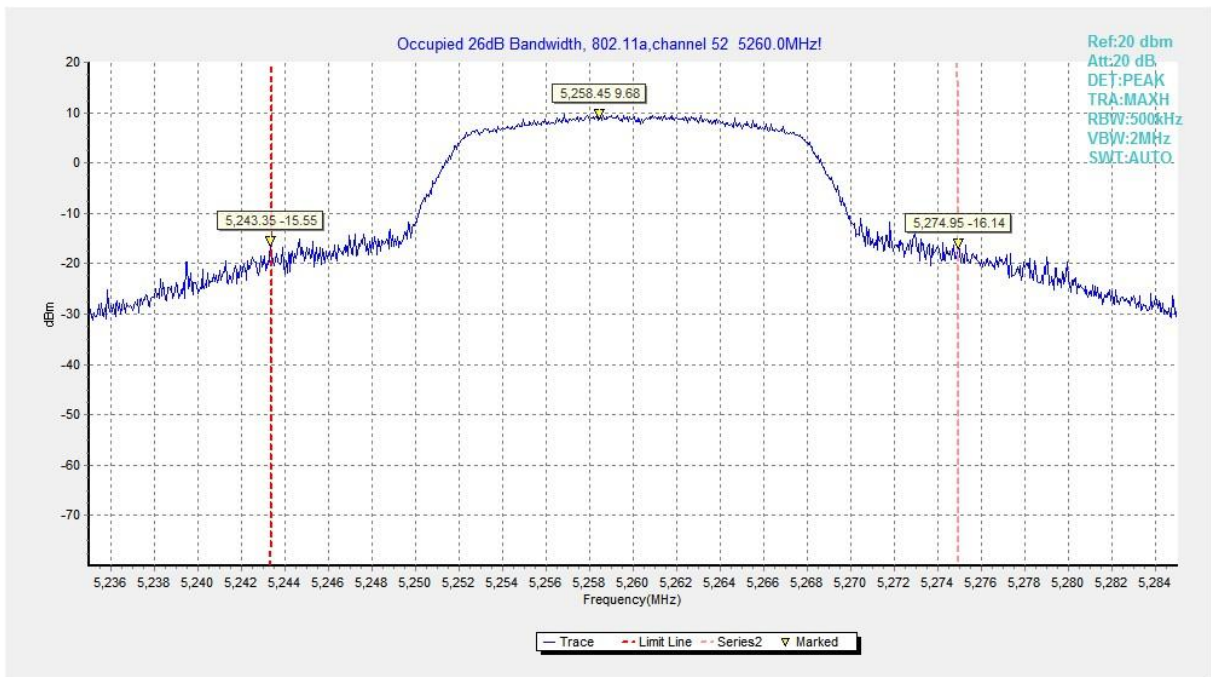


Fig. 4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

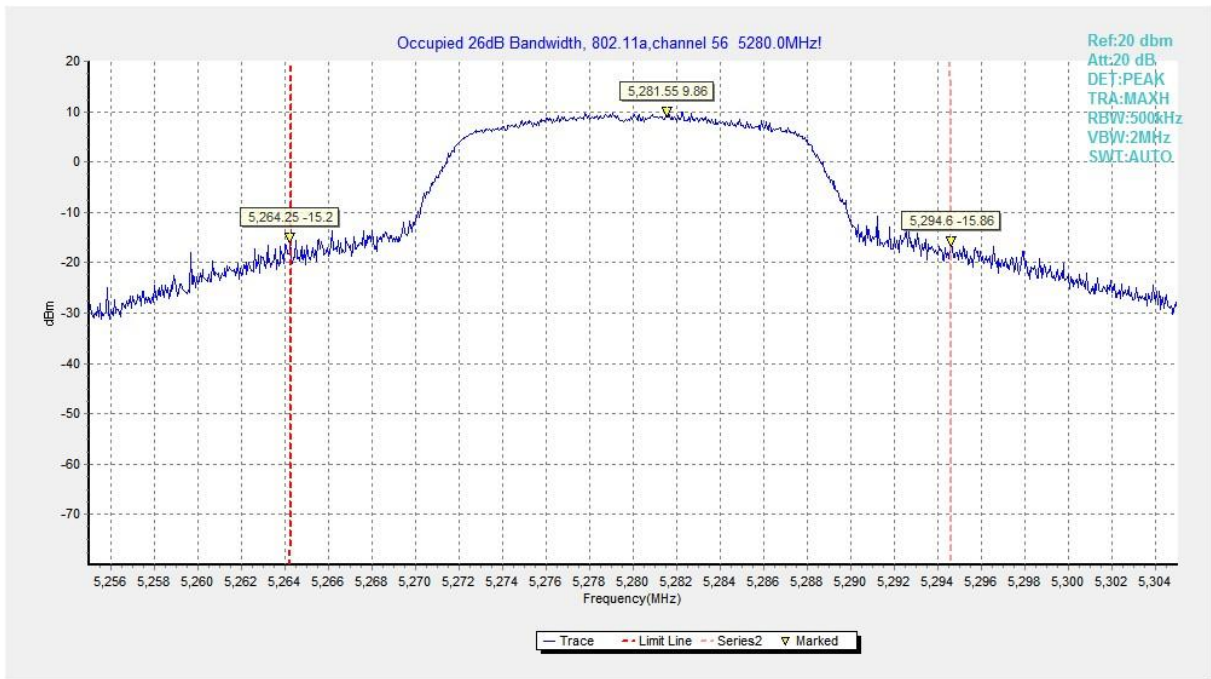


Fig. 5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

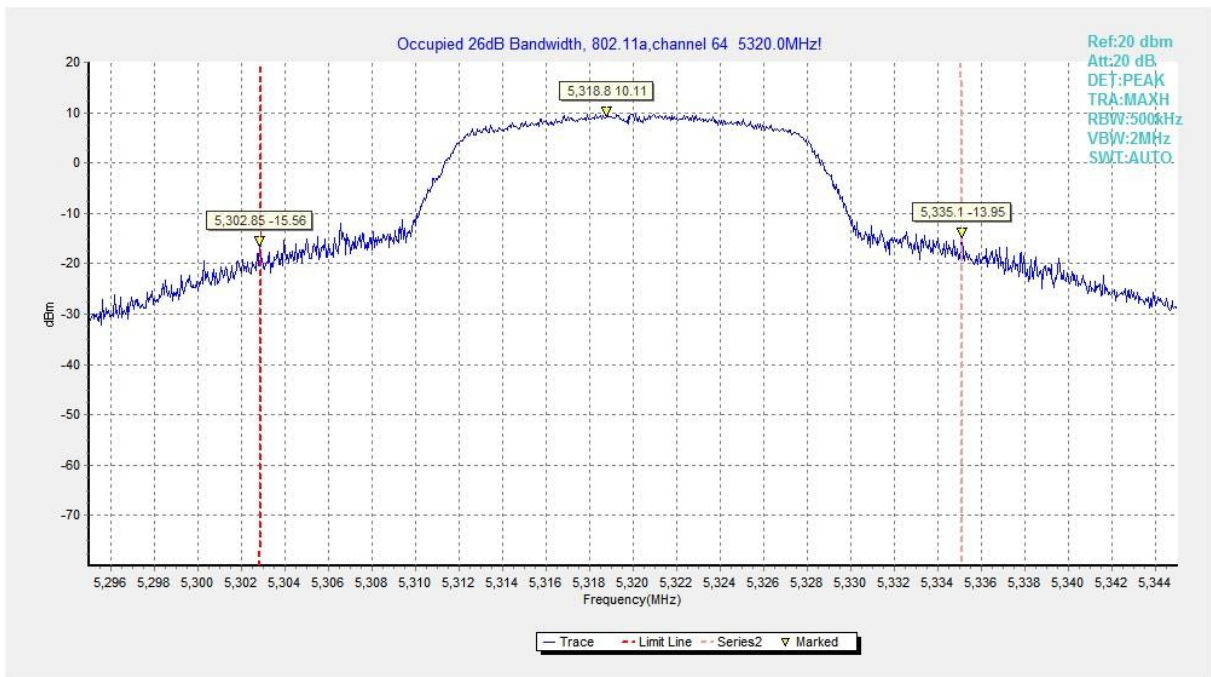


Fig. 6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

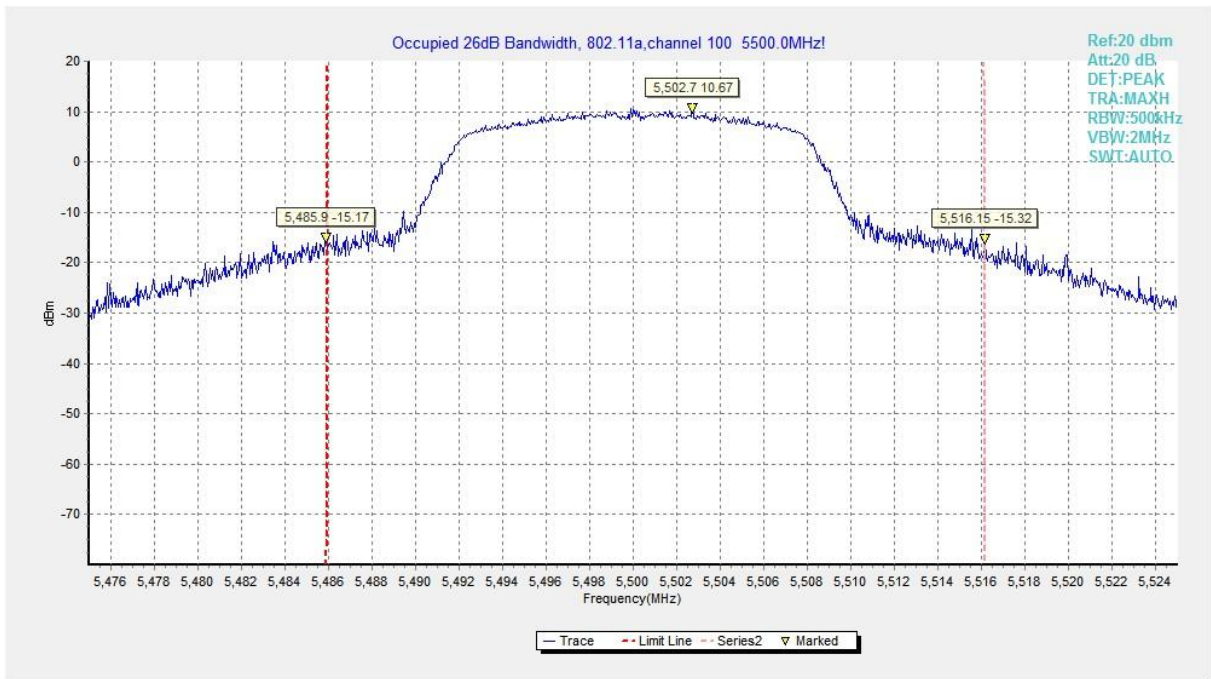


Fig. 7 Occupied 26dB Bandwidth (802.11a, 5500MHz)

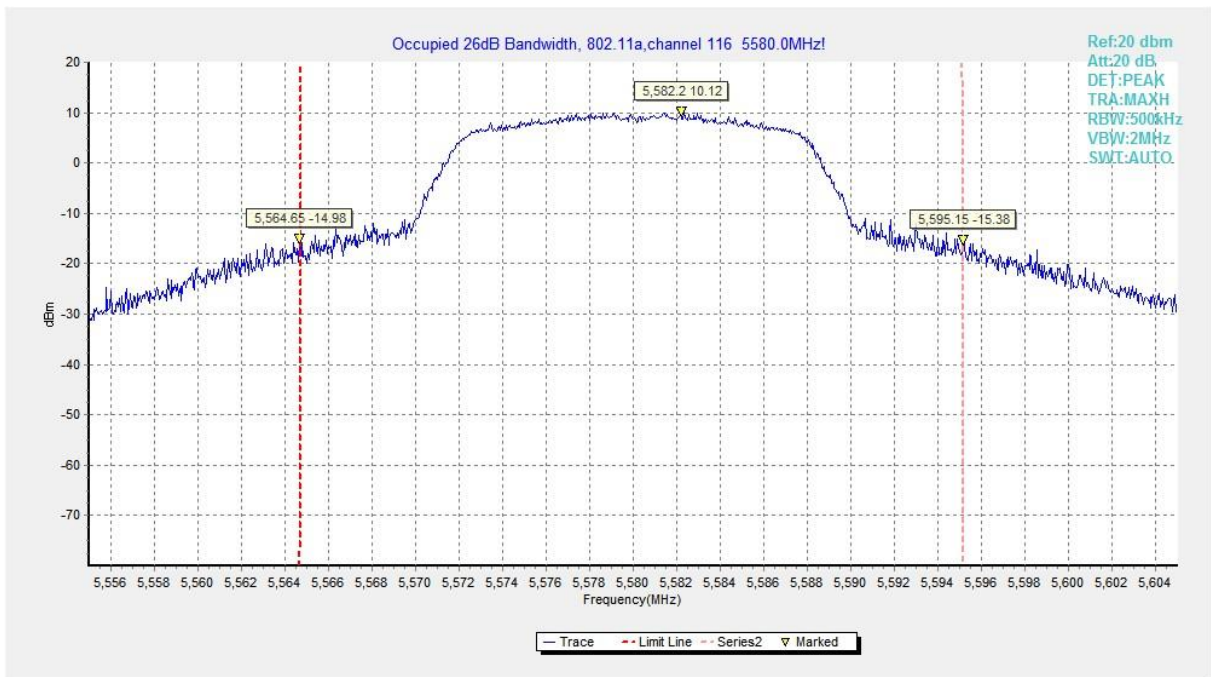


Fig. 8 Occupied 26dB Bandwidth (802.11a, 5580MHz)

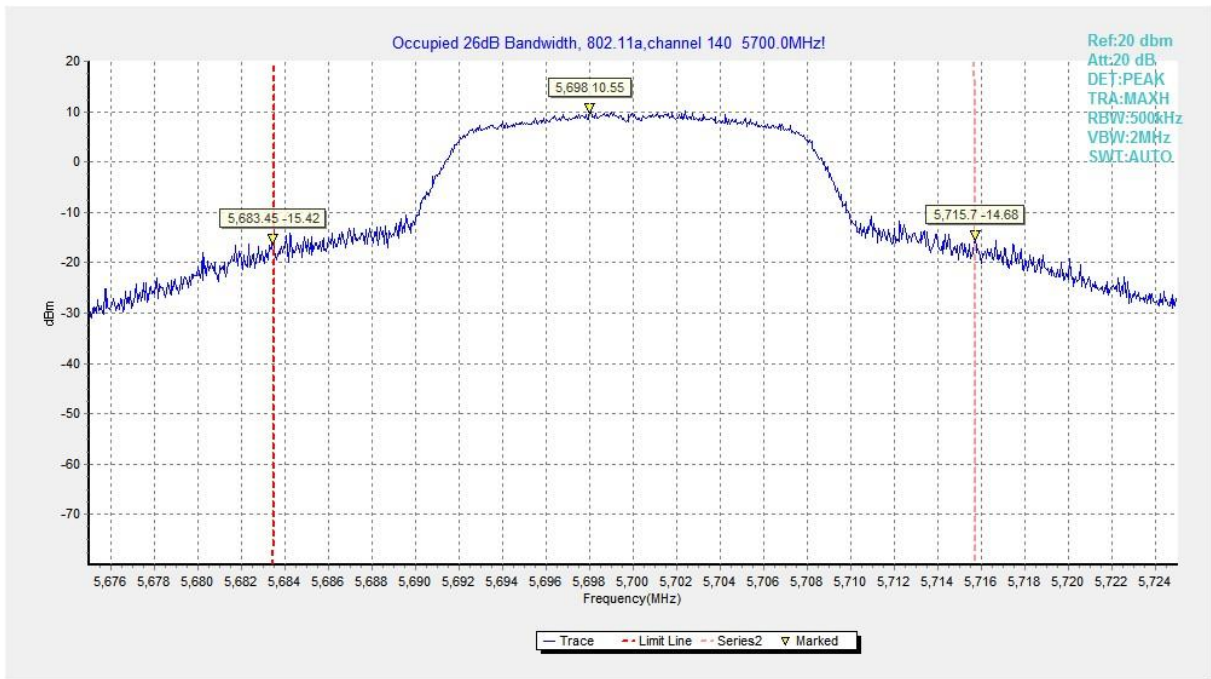


Fig. 9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

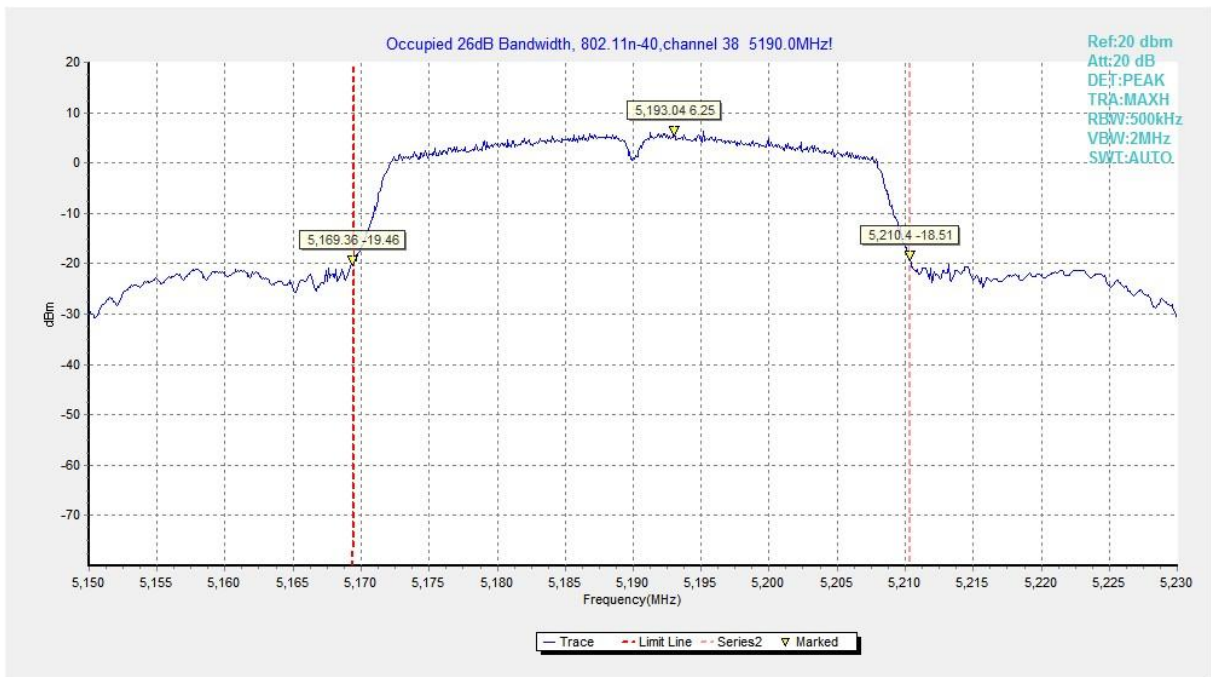


Fig. 10 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

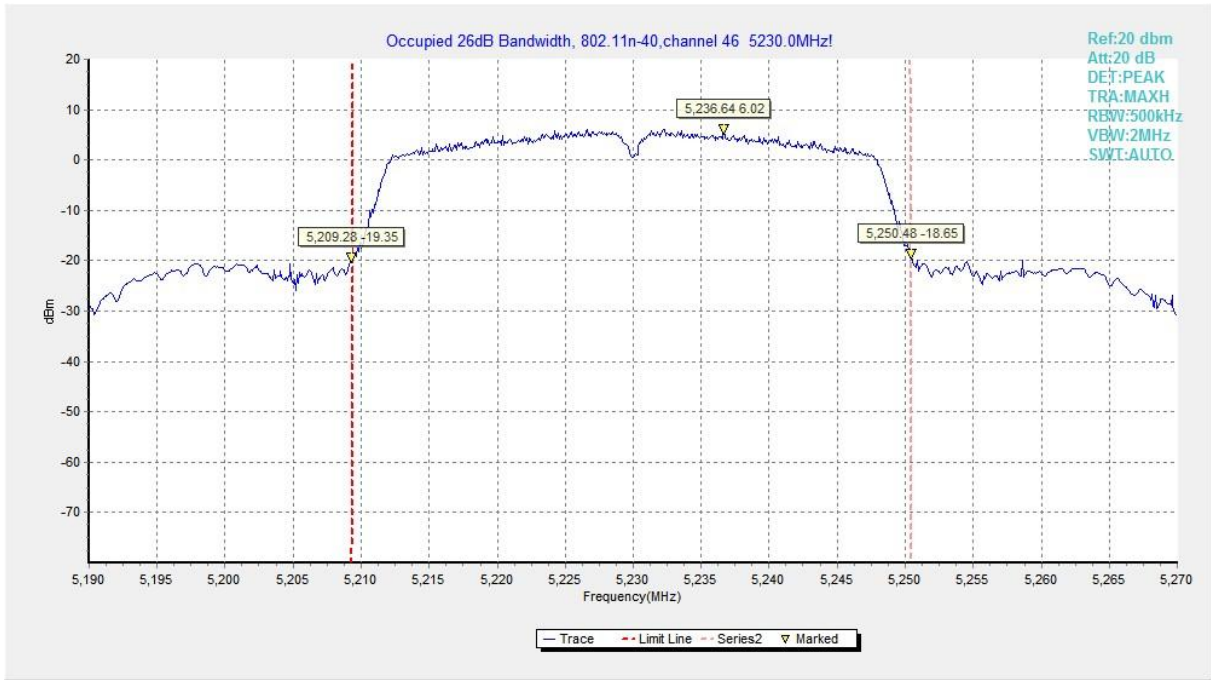


Fig. 11 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

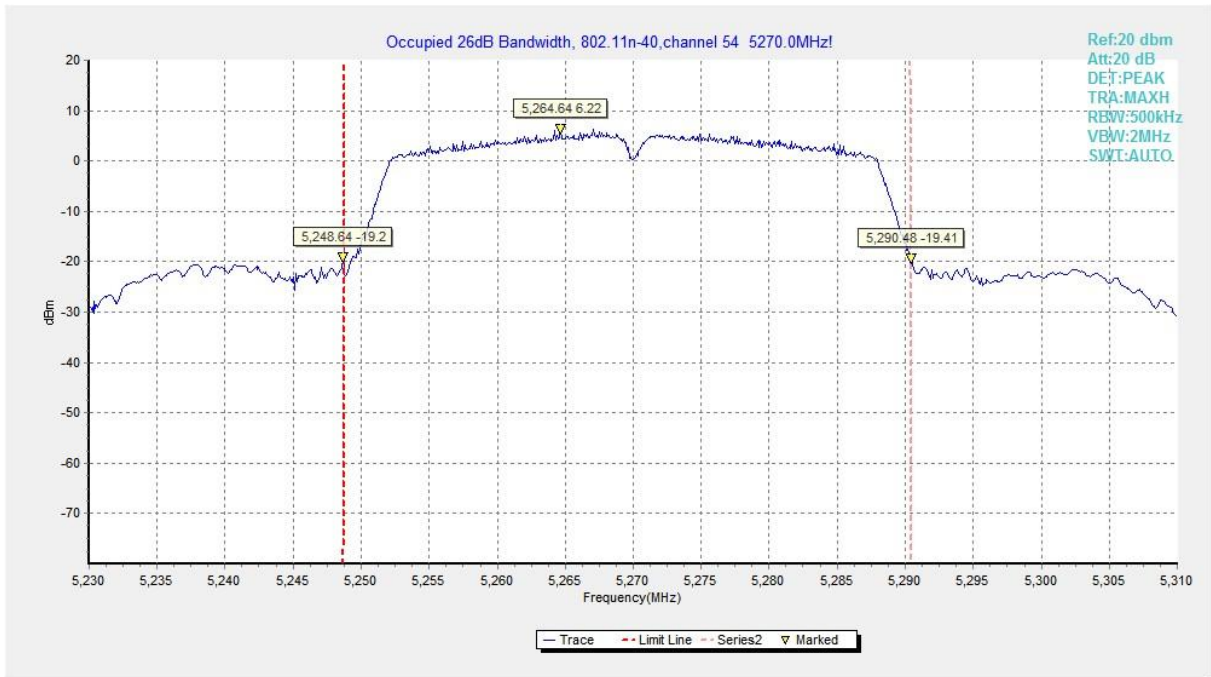


Fig. 12 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

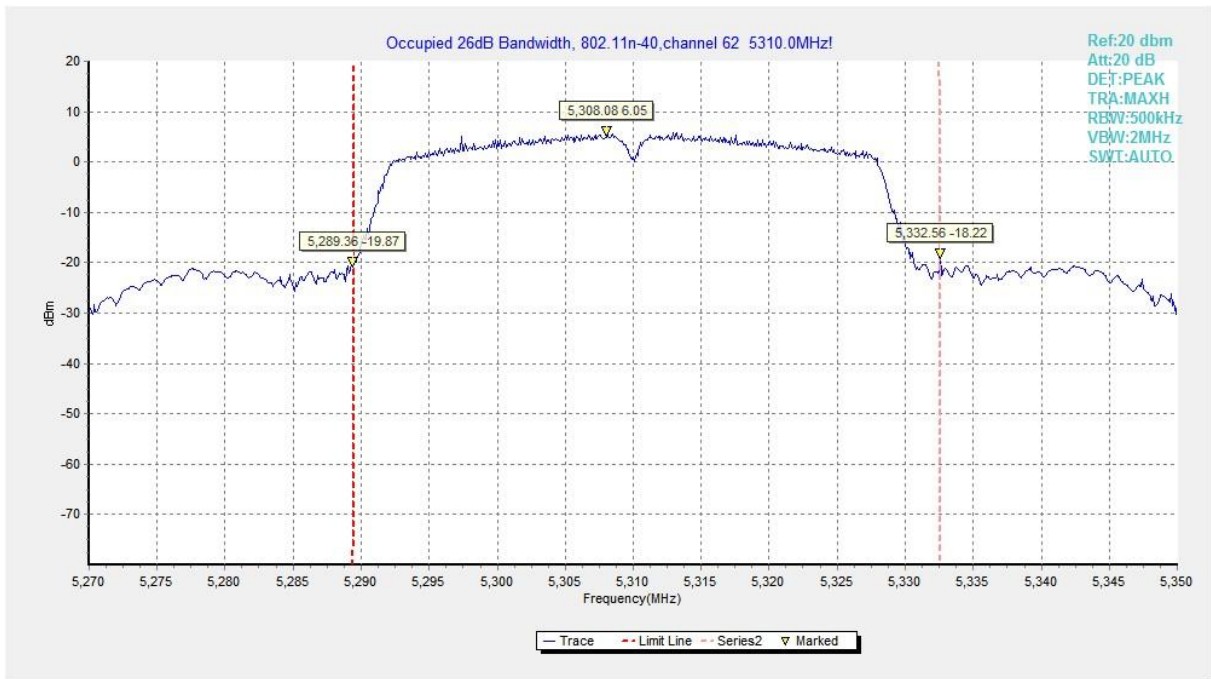


Fig. 13 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

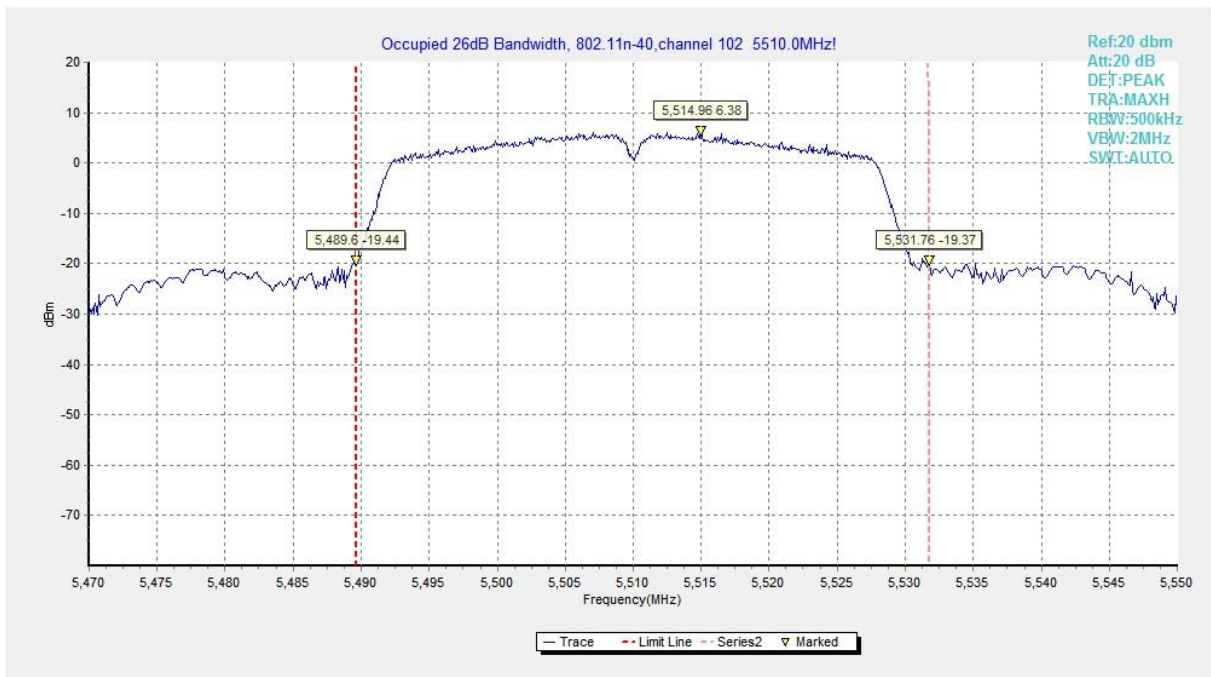


Fig. 14 Occupied 26dB Bandwidth (802.11n-HT40, 5510MHz)



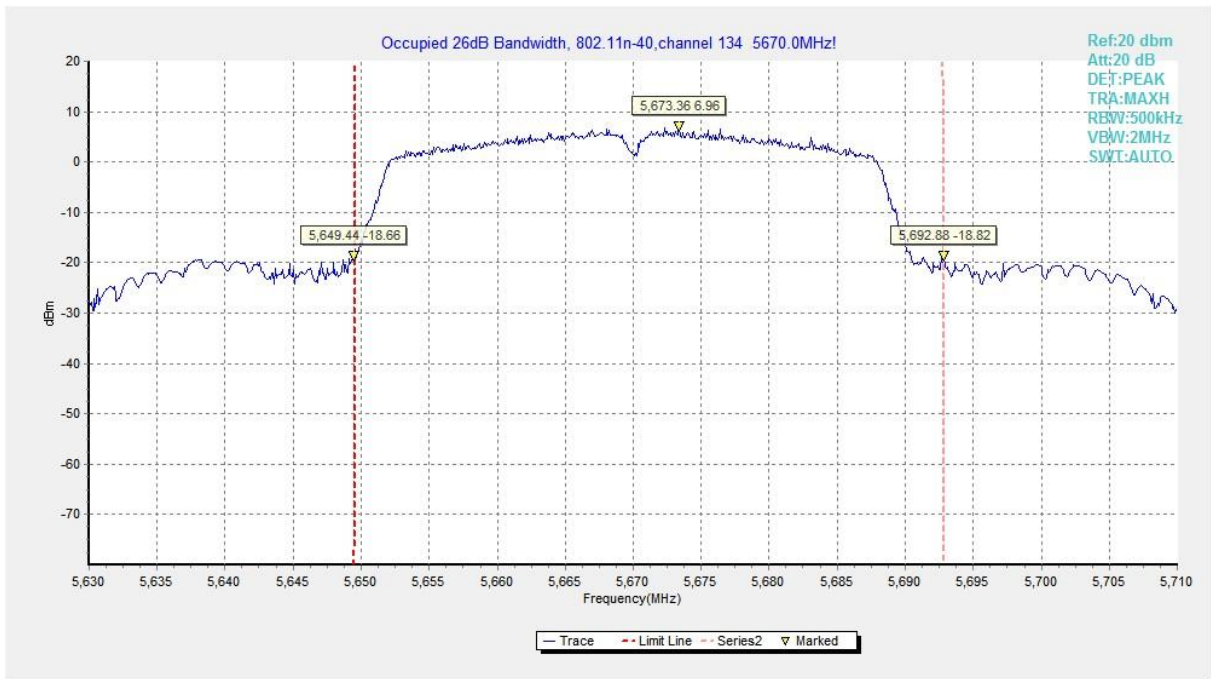


Fig. 15 Occupied 26dB Bandwidth (802.11n-HT40, 5670MHz)

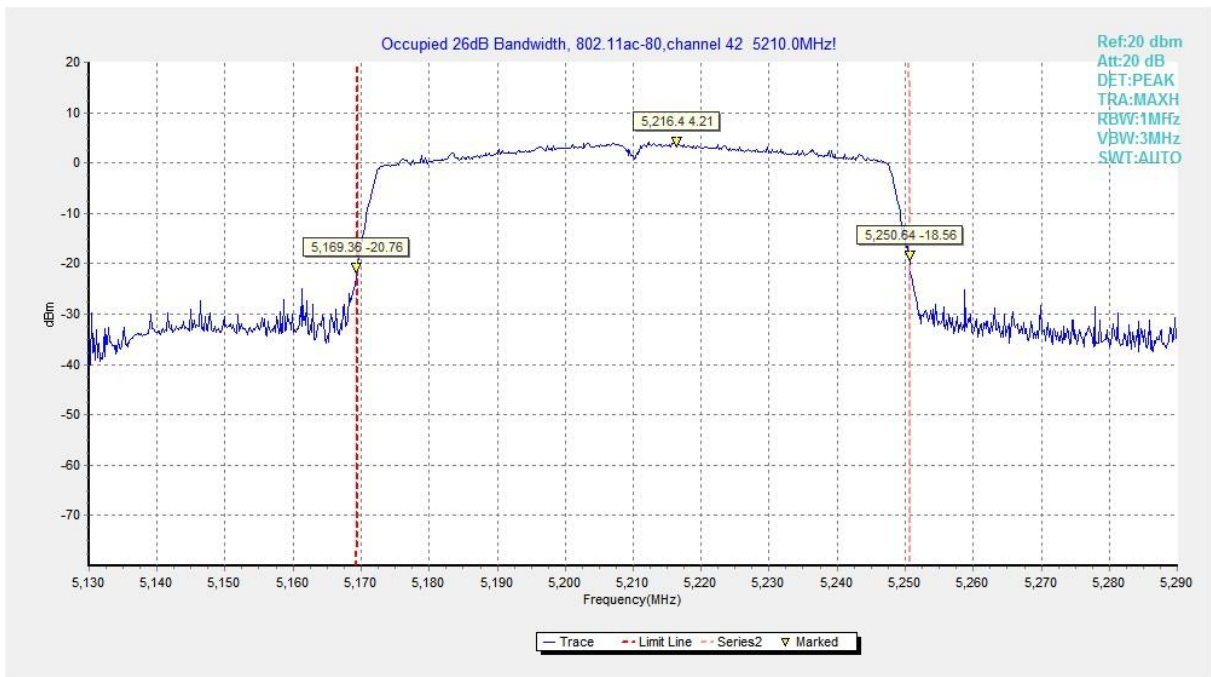


Fig. 16 Occupied 26dB Bandwidth (802.11ac-VHT80, 5210MHz)

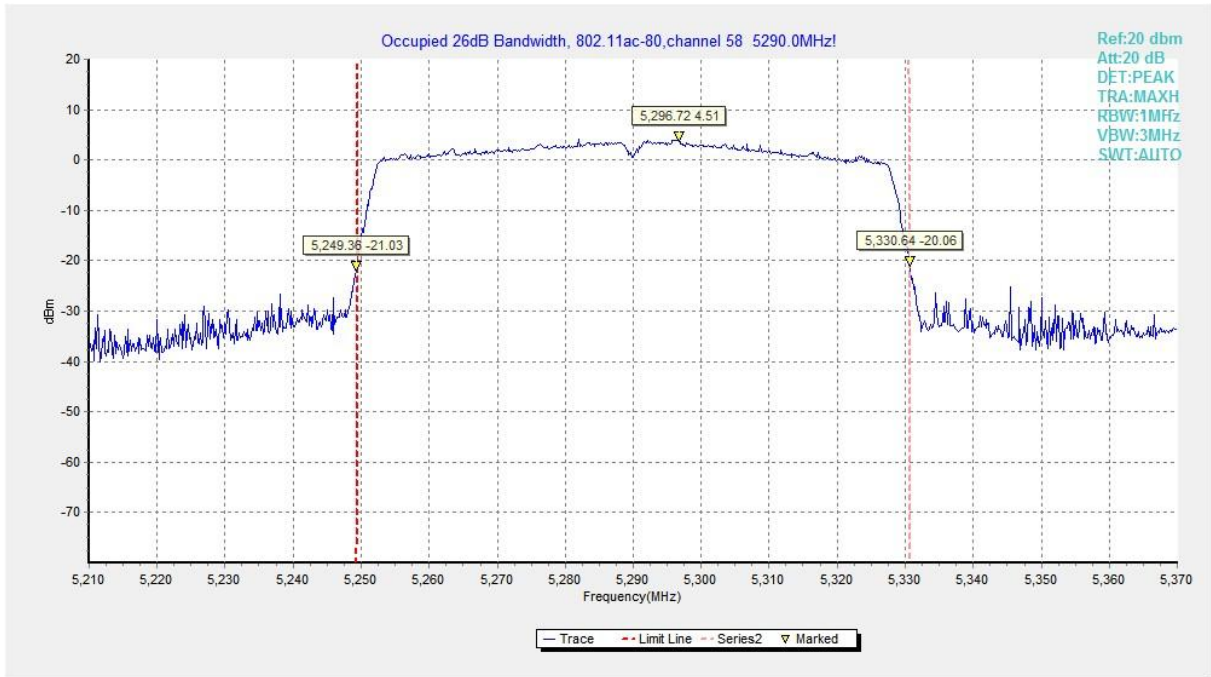


Fig. 17 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5290MHz)

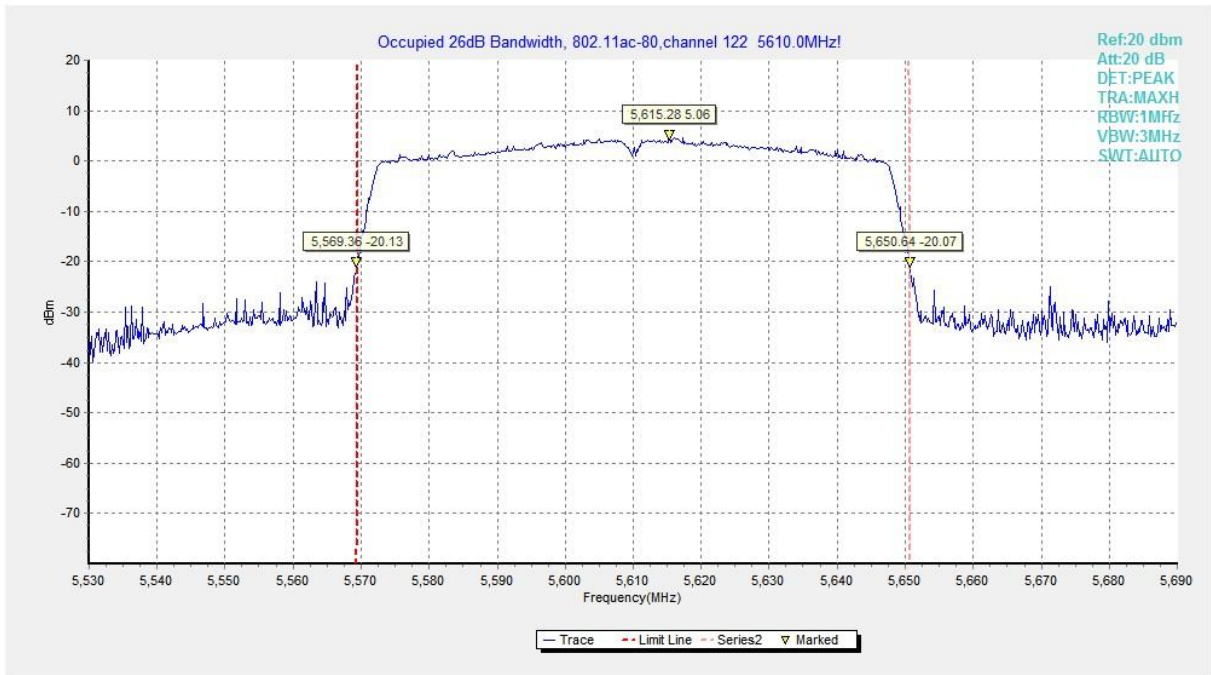


Fig. 18 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5610MHz)

### A.5. Occupied 6dB Bandwidth

**Measurement Limit:**

Standard	Limit (MHz)
FCC 47 CFR Part 15.407	$\geq 0.5$

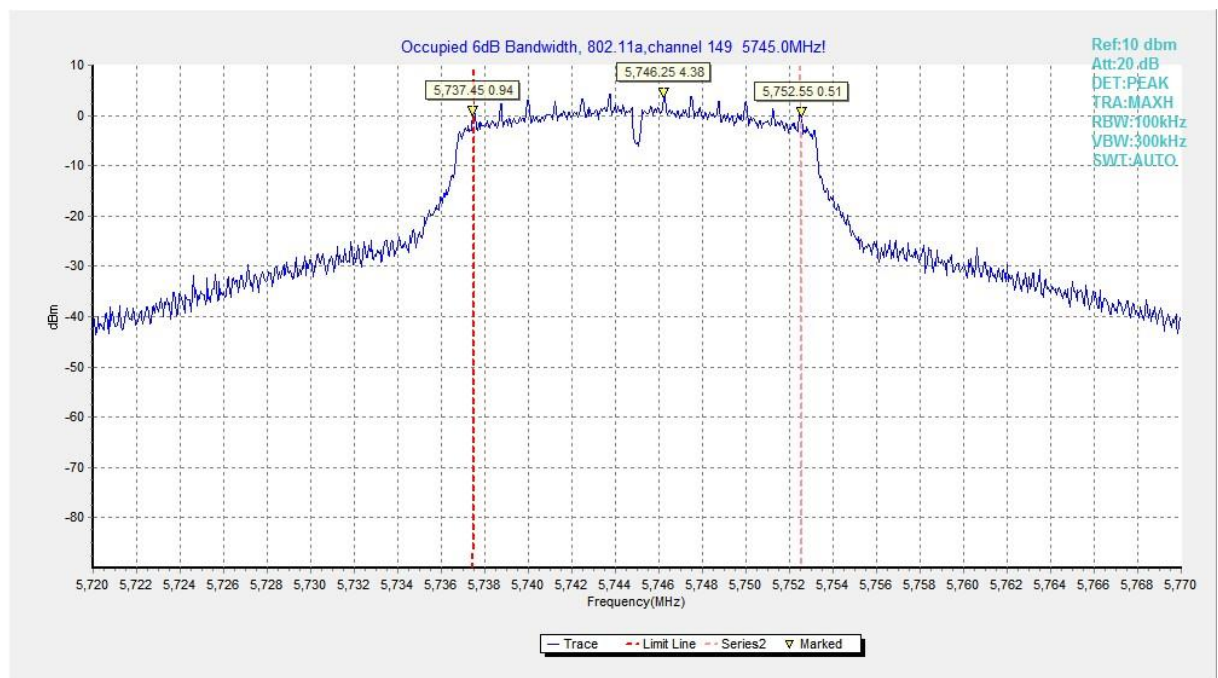
The measurement is made according to KDB 789033.

**Measurement Result:**

Mode	Channel	Occupied 6dB Bandwidth (MHz)		Conclusion
802.11a	5745MHz (Ch149)	Fig.19	15.10	P
	5785MHz (Ch157)	Fig.20	15.10	P
	5825MHz (Ch165)	Fig.21	15.10	P
802.11n-HT40	5755MHz (Ch151)	Fig.22	35.20	P
	5795MHz (Ch159)	Fig.23	35.12	P
802.11ac-VHT80	5775MHz (Ch155)	Fig.24	75.20	P

**Conclusion: PASS**

Test graphs as below:



**Fig. 19 Occupied 6dB Bandwidth (802.11a, 5745MHz)**

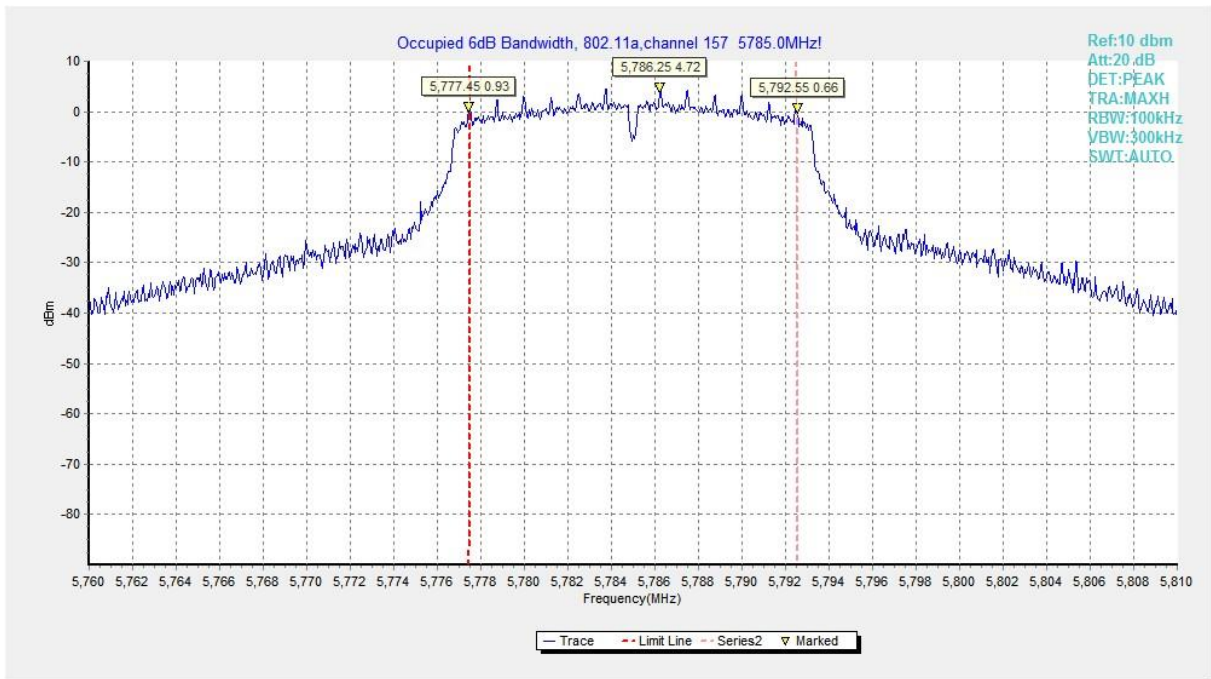


Fig. 20 Occupied 6dB Bandwidth (802.11a, 5785MHz)

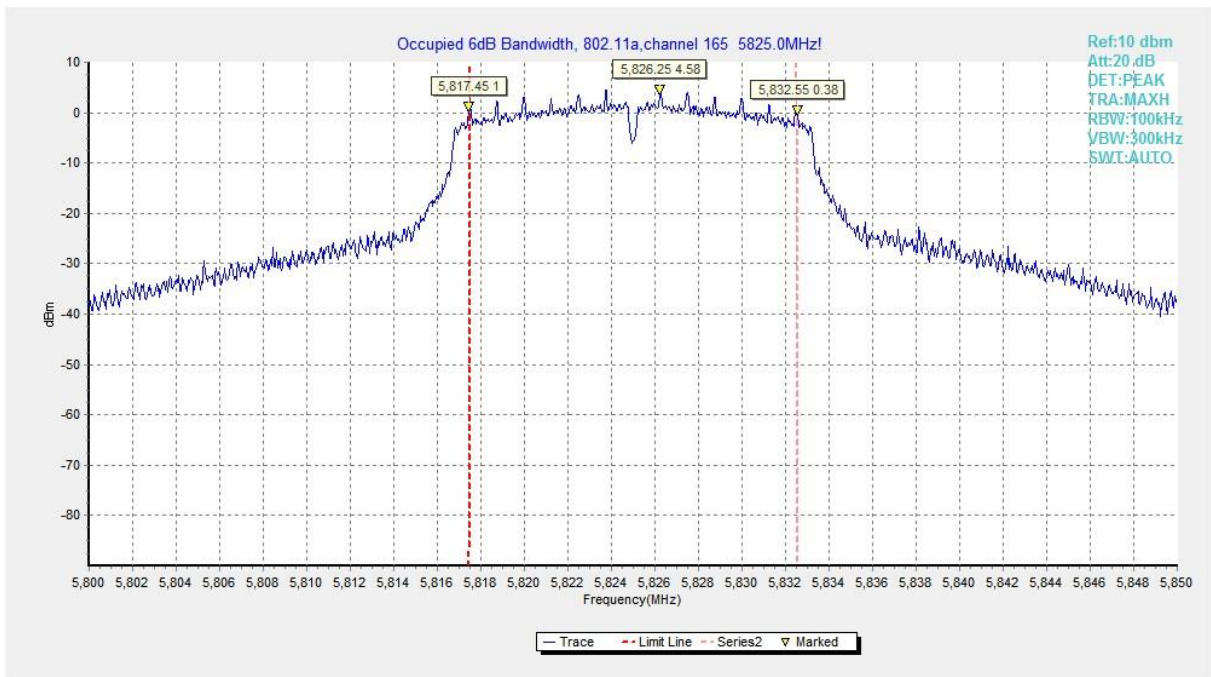


Fig. 21 Occupied 6dB Bandwidth (802.11a, 5825MHz)

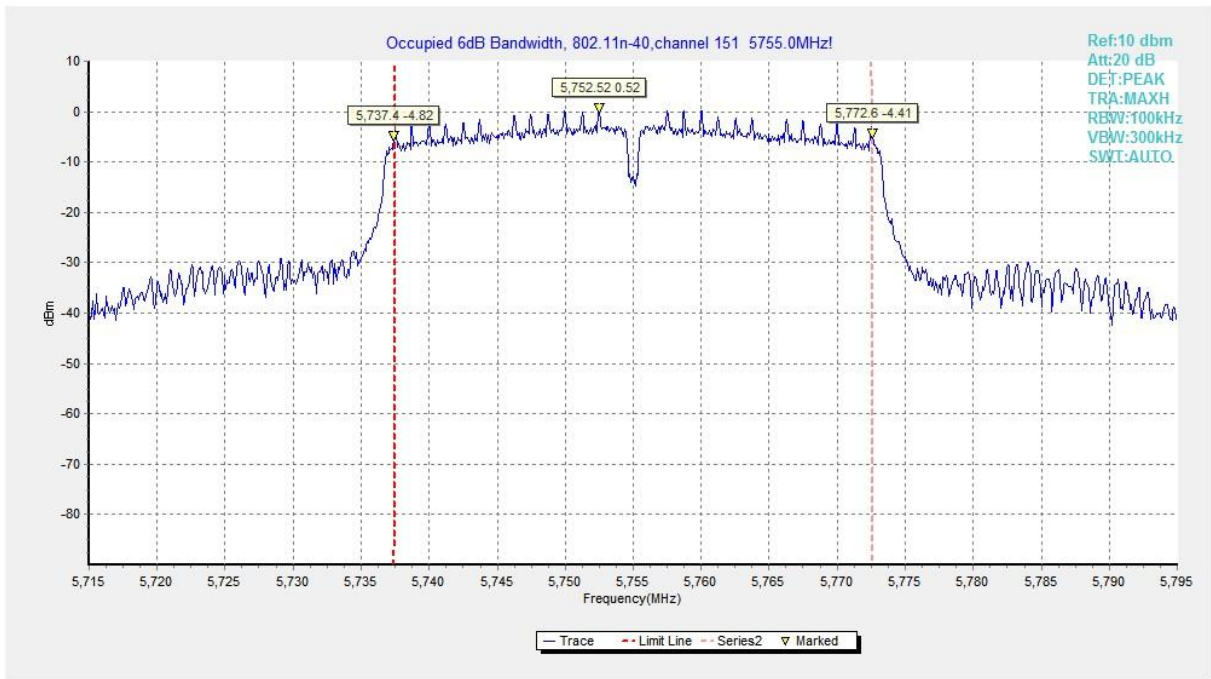


Fig. 22 Occupied 6dB Bandwidth (802.11n-HT40, 5755MHz)

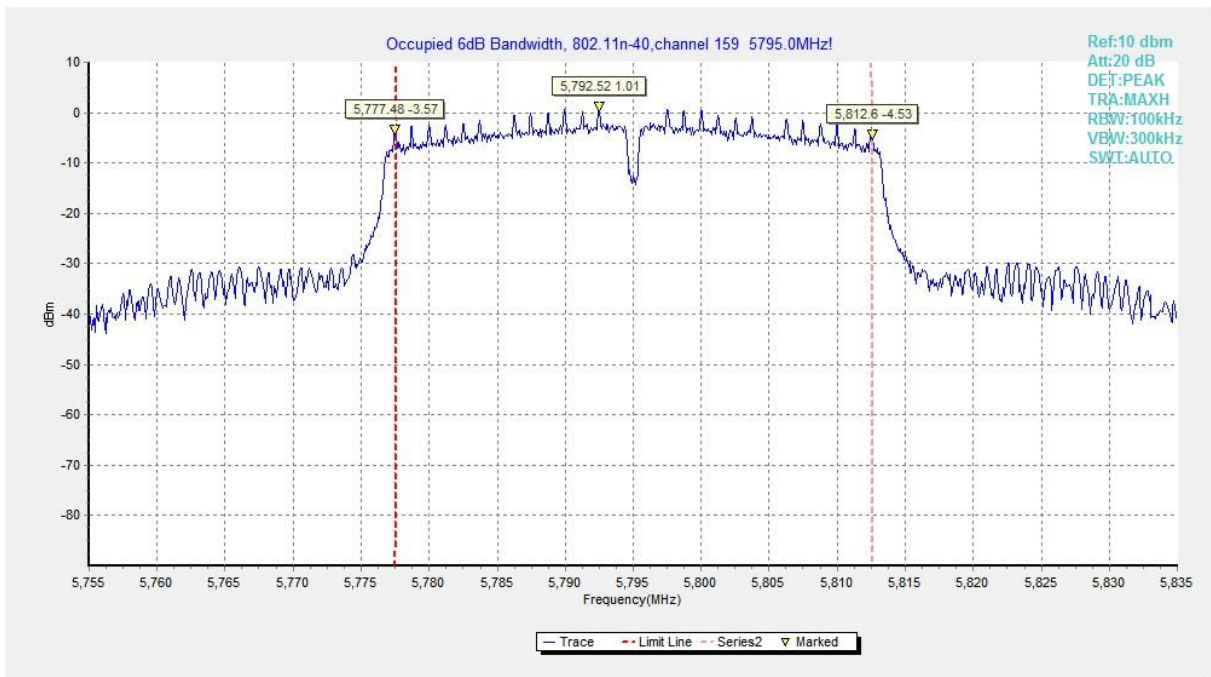


Fig. 23 Occupied 6dB Bandwidth (802.11n-HT40, 5795MHz)

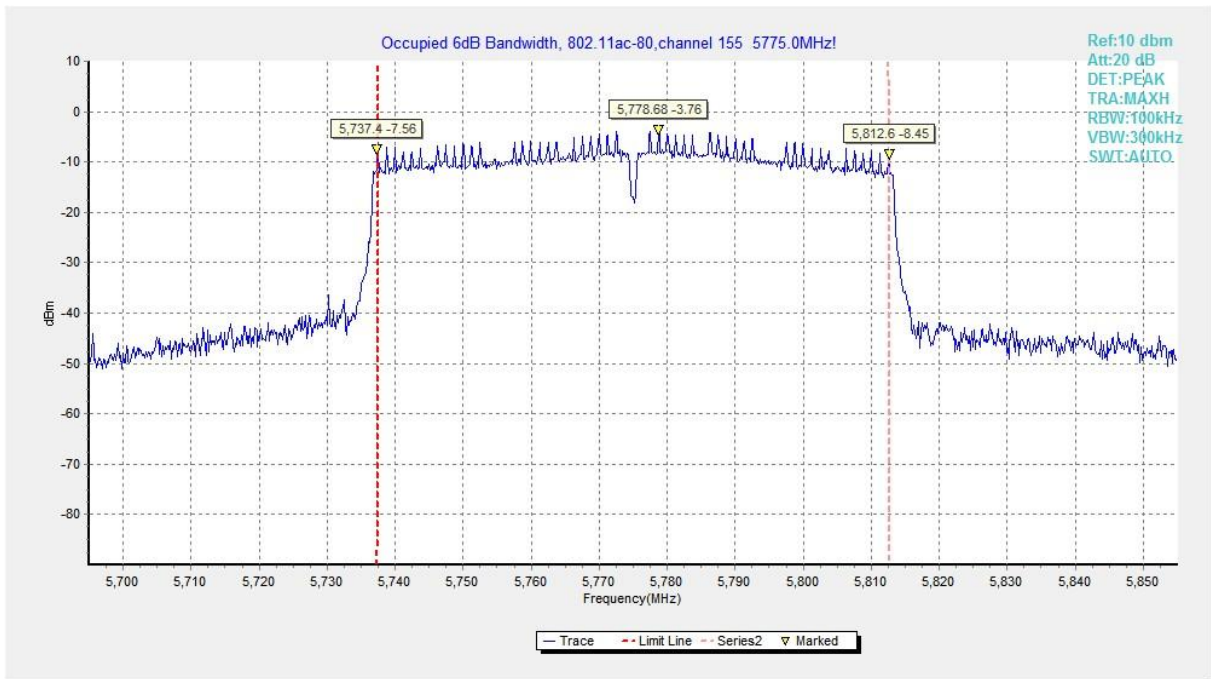


Fig. 24 Occupied 6dB Bandwidth (802.11ac-VHT80, 5775MHz)

### A.6. 99% Occupied Bandwidth

**Measurement Limit:**

Standard	Limit (MHz)
FCC 47 CFR Part 15.403	/

The measurement is made according to KDB 789033.

**Measurement Result:**

Mode	Channel	99% Occupied Bandwidth (MHz)		Conclusion
		Fig.	Value	
802.11a	5180MHz (Ch36)	Fig.25	17.68	P
	5200MHz (Ch40)	Fig.26	17.68	P
	5240MHz (Ch48)	Fig.27	17.64	P
	5260MHz (Ch52)	Fig.28	17.60	P
	5280MHz (Ch56)	Fig.29	17.68	P
	5320MHz (Ch64)	Fig.30	17.76	P
	5500MHz (Ch100)	Fig.31	17.68	P
	5580MHz (Ch116)	Fig.32	17.76	P
	5700MHz (Ch140)	Fig.33	17.76	P
	5745MHz (Ch149)	Fig.34	17.72	P
	5785MHz (Ch157)	Fig.35	17.80	P
	5825MHz (Ch165)	Fig.36	17.80	P
802.11n-HT40	5190MHz (Ch38)	Fig.37	36.40	P
	5230MHz (Ch46)	Fig.38	36.48	P
	5270MHz (Ch54)	Fig.39	36.40	P
	5310MHz (Ch62)	Fig.40	36.48	P
	5510MHz (Ch102)	Fig.41	36.40	P
	5670MHz (Ch134)	Fig.42	36.40	P
	5755MHz (Ch151)	Fig.43	36.64	P
	5795MHz (Ch159)	Fig.44	36.40	P
802.11ac-VHT80	5210MHz (Ch42)	Fig.45	75.36	P
	5290MHz (Ch58)	Fig.46	75.36	P
	5610MHz (Ch122)	Fig.47	75.20	P
	5775MHz (Ch155)	Fig.48	75.36	P

**Conclusion: PASS**

**Test graphs as below:**

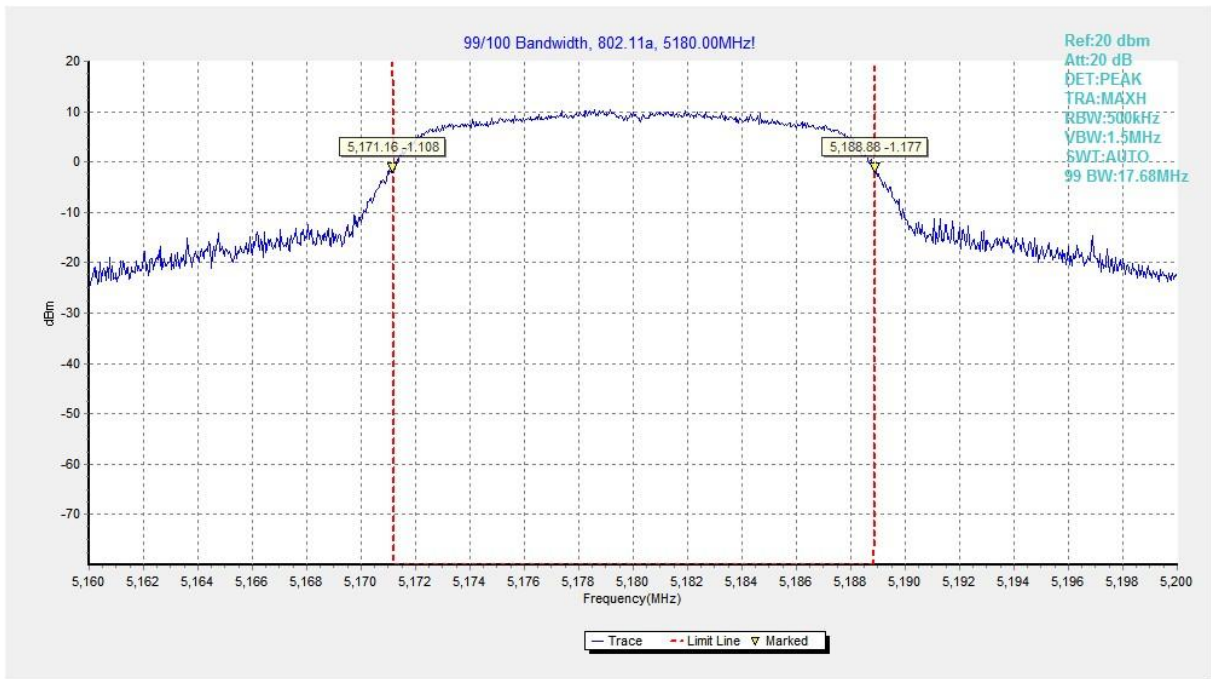


Fig. 25 99% Occupied Bandwidth (802.11a, 5180MHz)

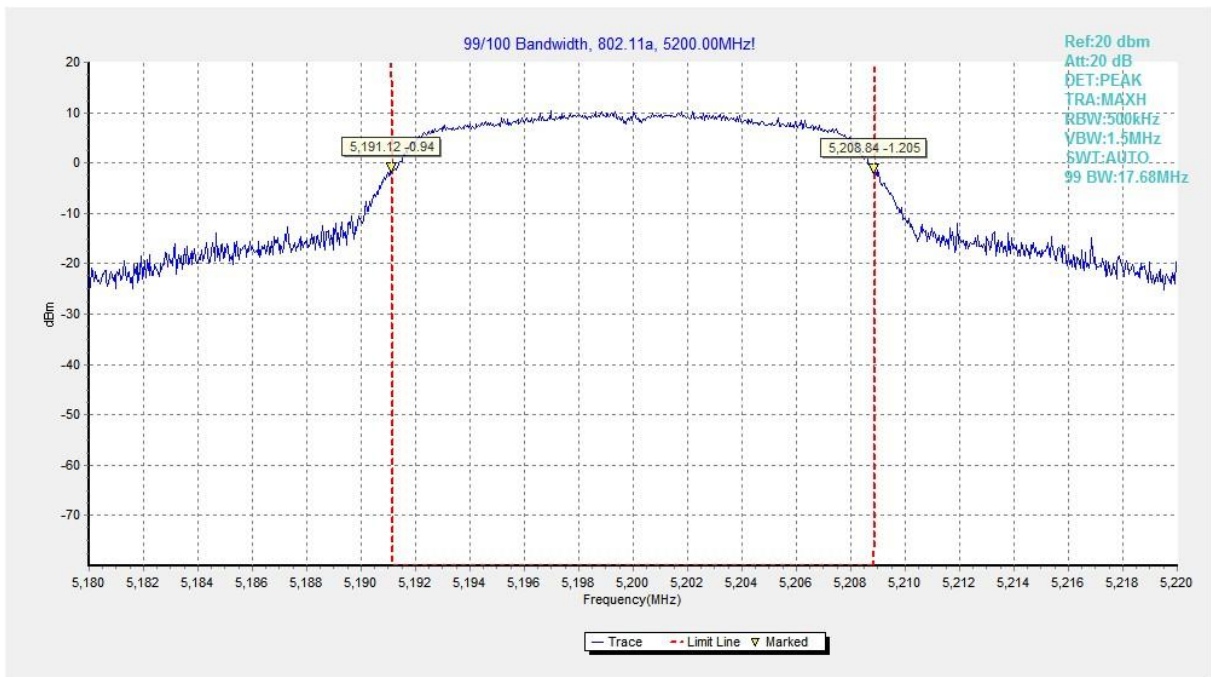


Fig. 26 99% Occupied Bandwidth (802.11a, 5200MHz)



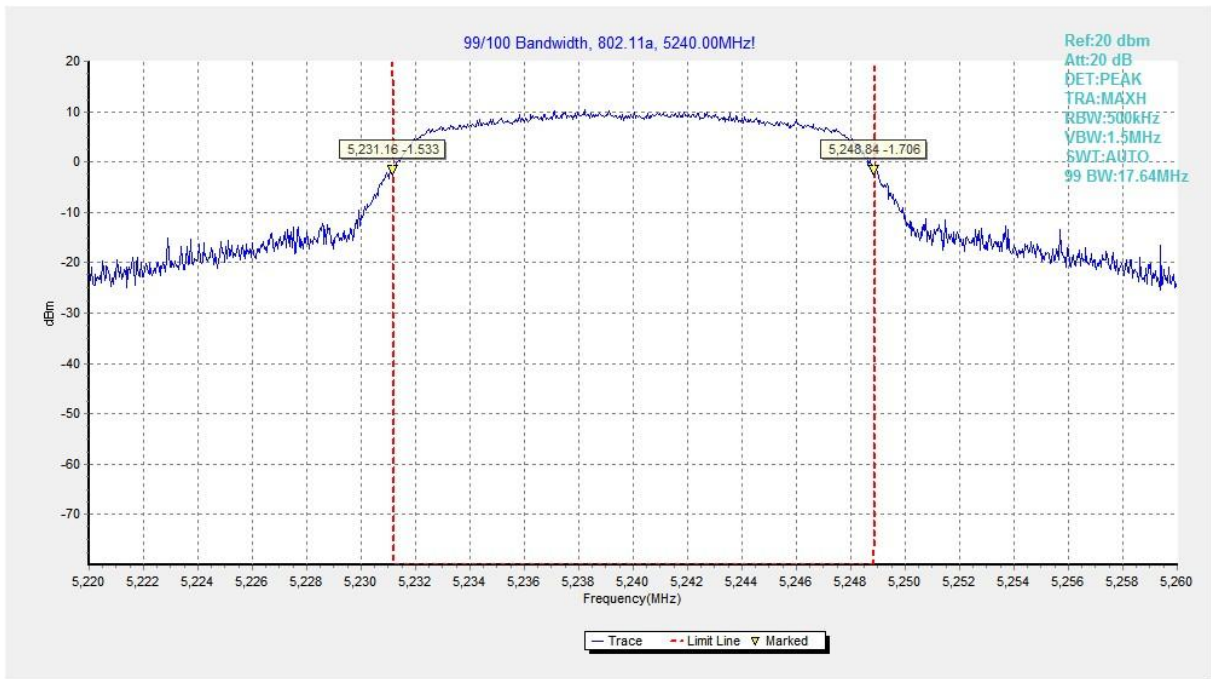


Fig. 27 99% Occupied Bandwidth (802.11a, 5240MHz)

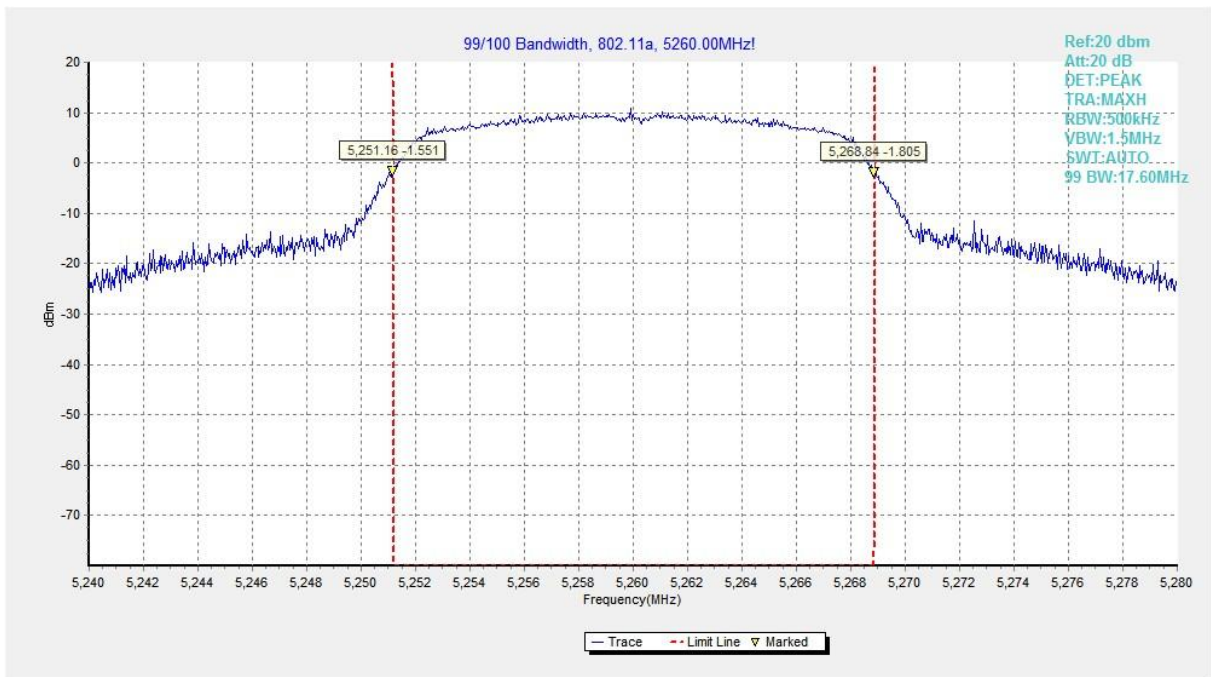
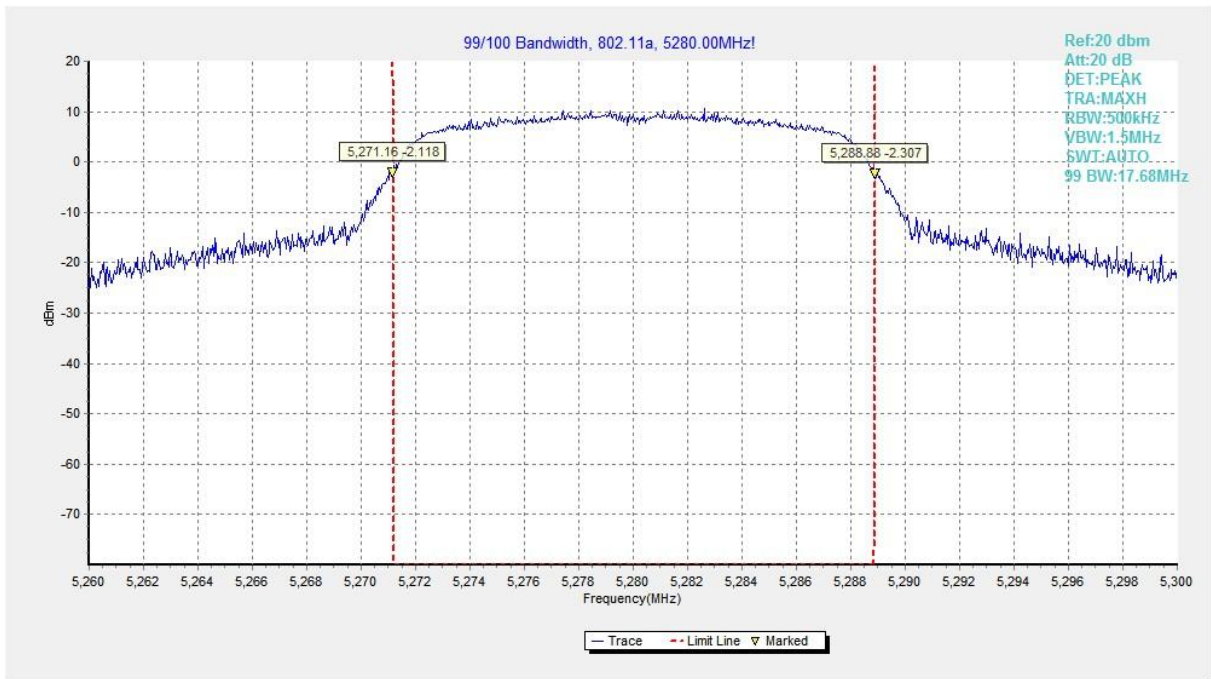
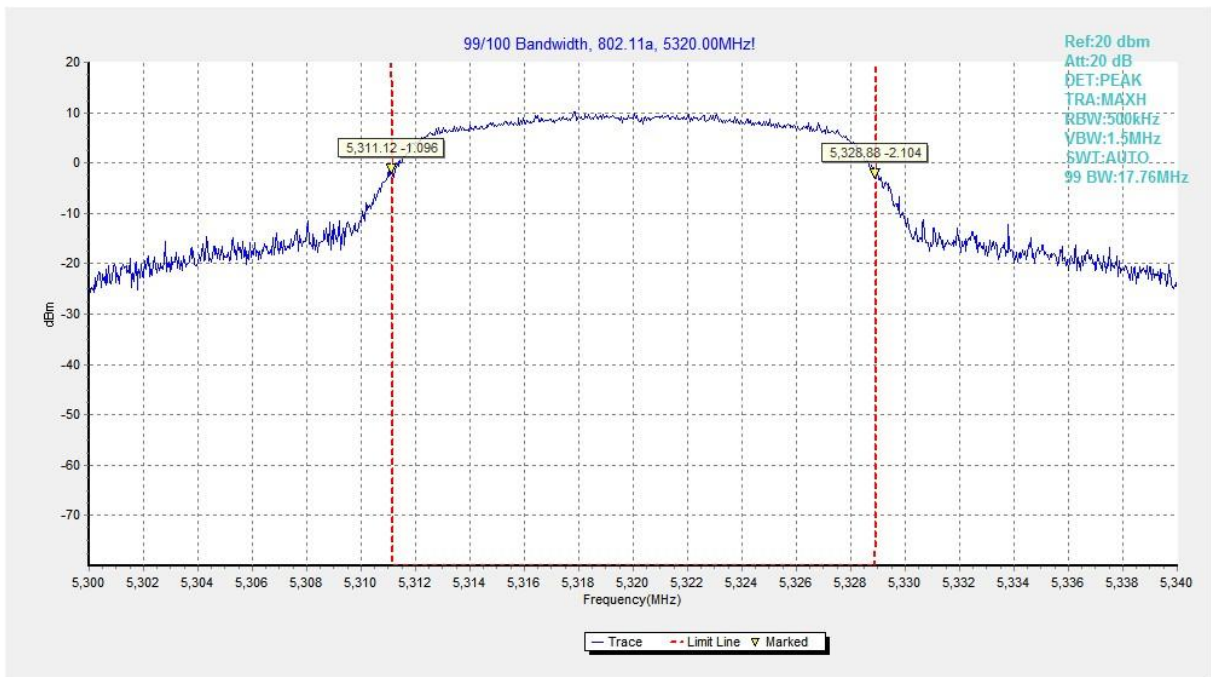


Fig. 28 99% Occupied Bandwidth (802.11a, 5260MHz)



**Fig. 29 99% Occupied Bandwidth (802.11a, 5280MHz)**



**Fig. 30 99% Occupied Bandwidth (802.11a, 5320MHz)**

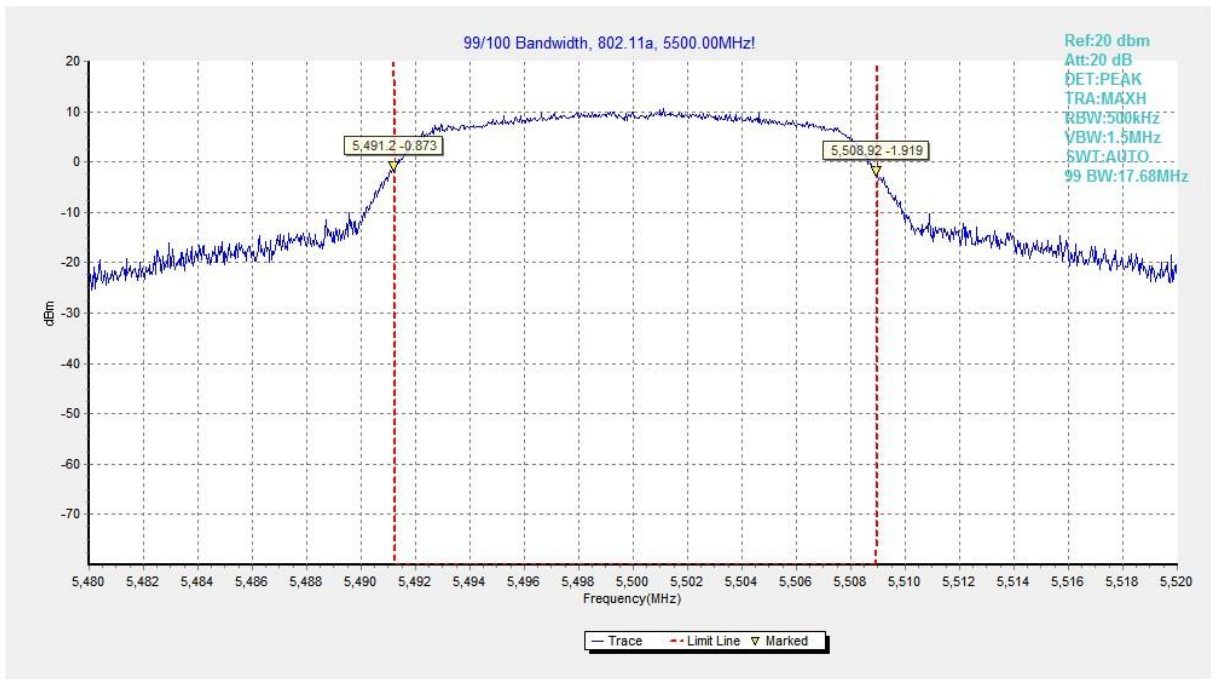


Fig. 31 99% Occupied Bandwidth (802.11a, 5500MHz)

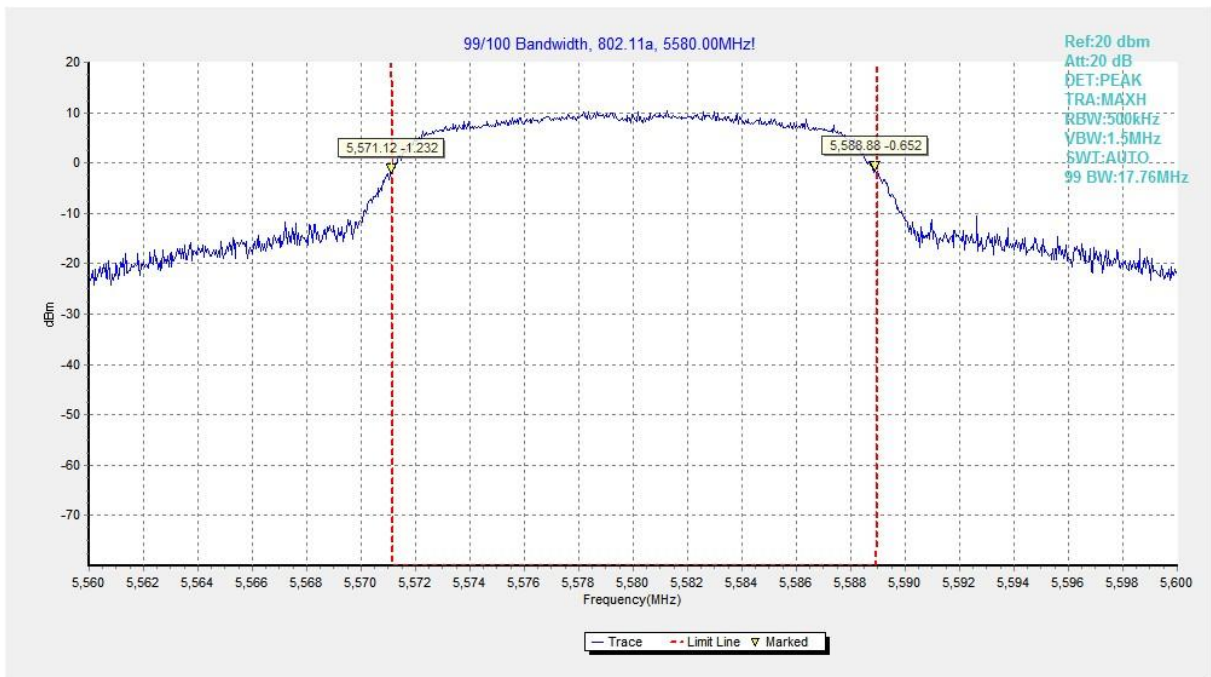


Fig. 32 99% Occupied Bandwidth (802.11a, 5580MHz)

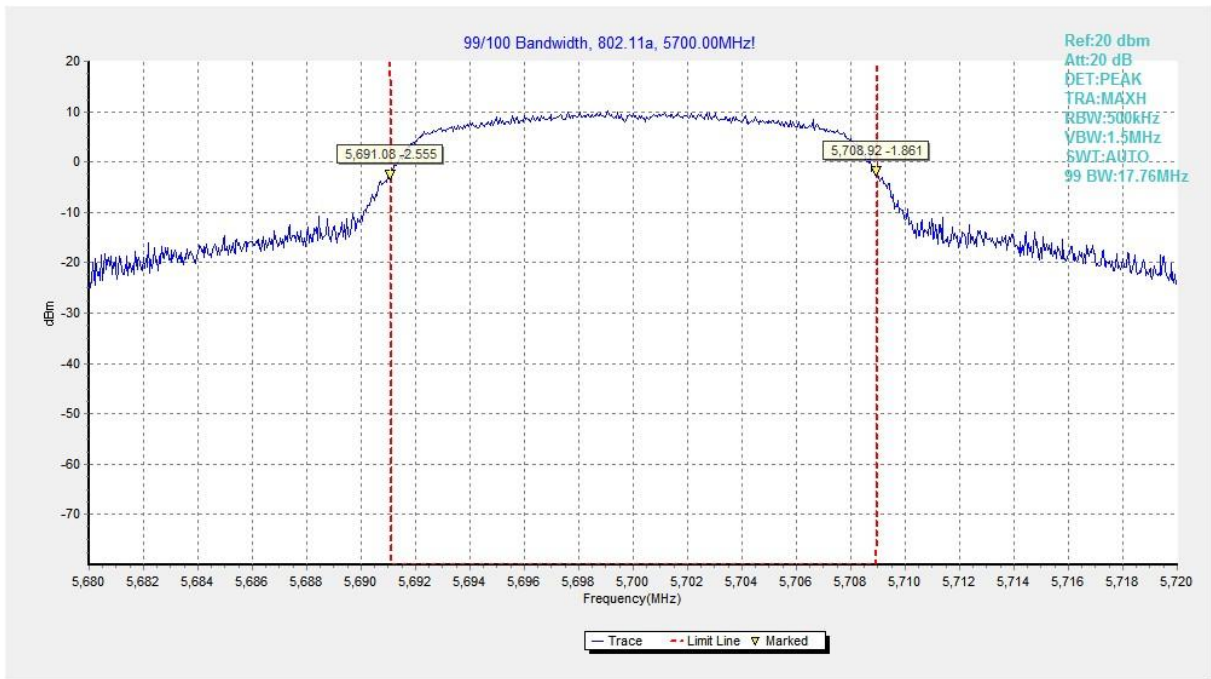


Fig. 33 99% Occupied Bandwidth (802.11a, 5700MHz)

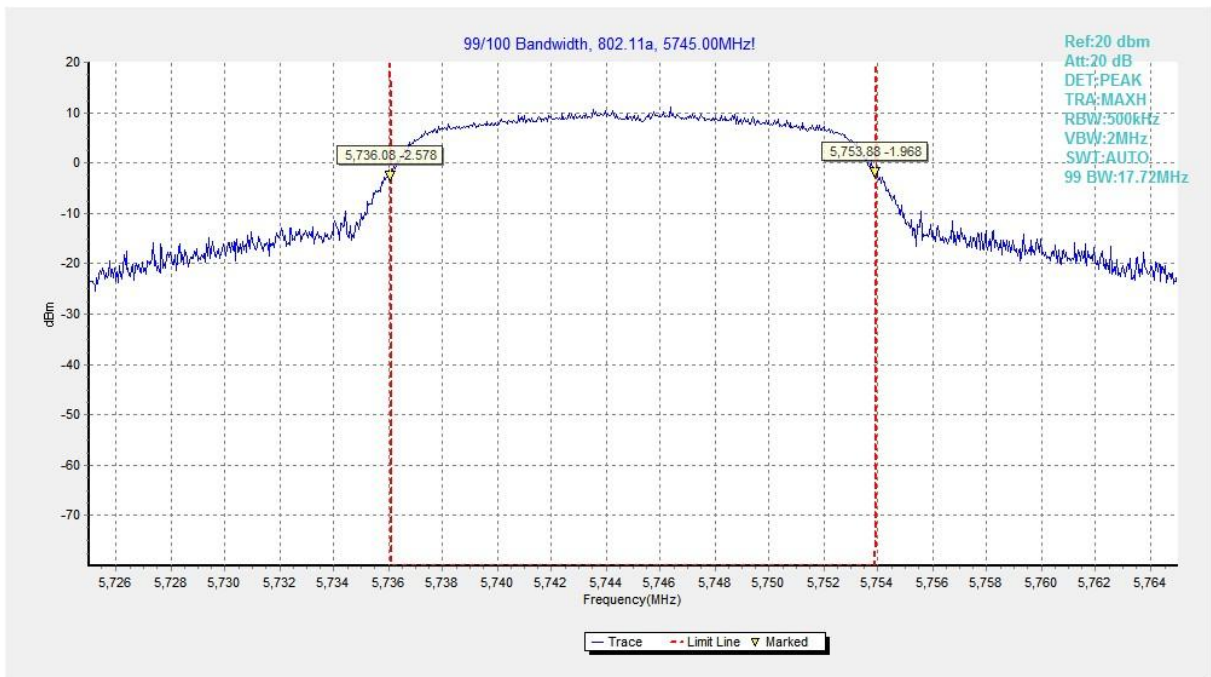


Fig. 34 99% Occupied Bandwidth (802.11a, 5745MHz)

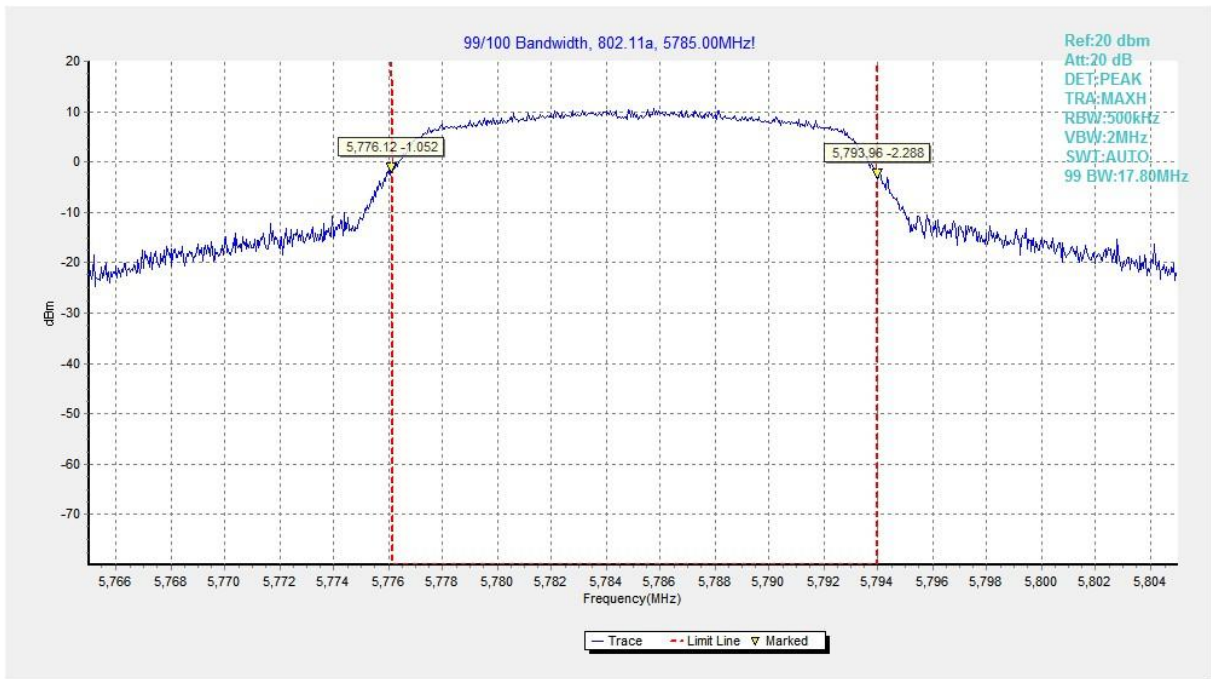


Fig. 35 99% Occupied Bandwidth (802.11a, 5785MHz)

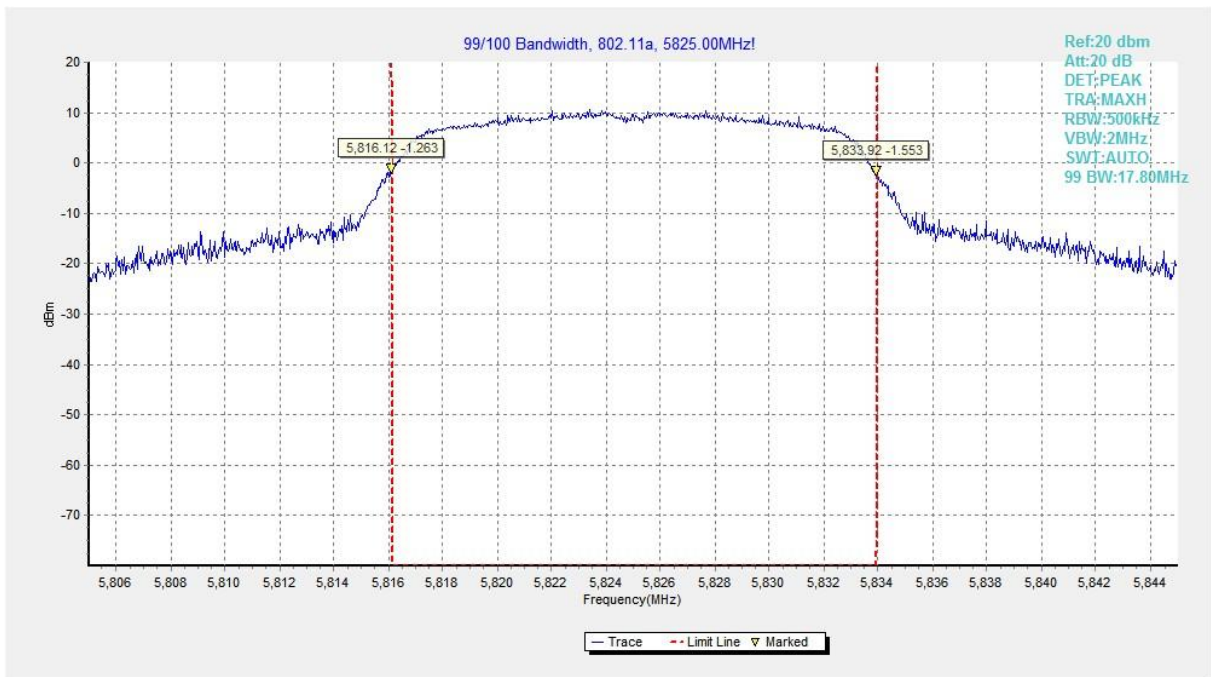


Fig. 36 99% Occupied Bandwidth (802.11a, 5825MHz)



Fig. 37 99% Occupied Bandwidth (802.11n-HT40, 5190MHz)

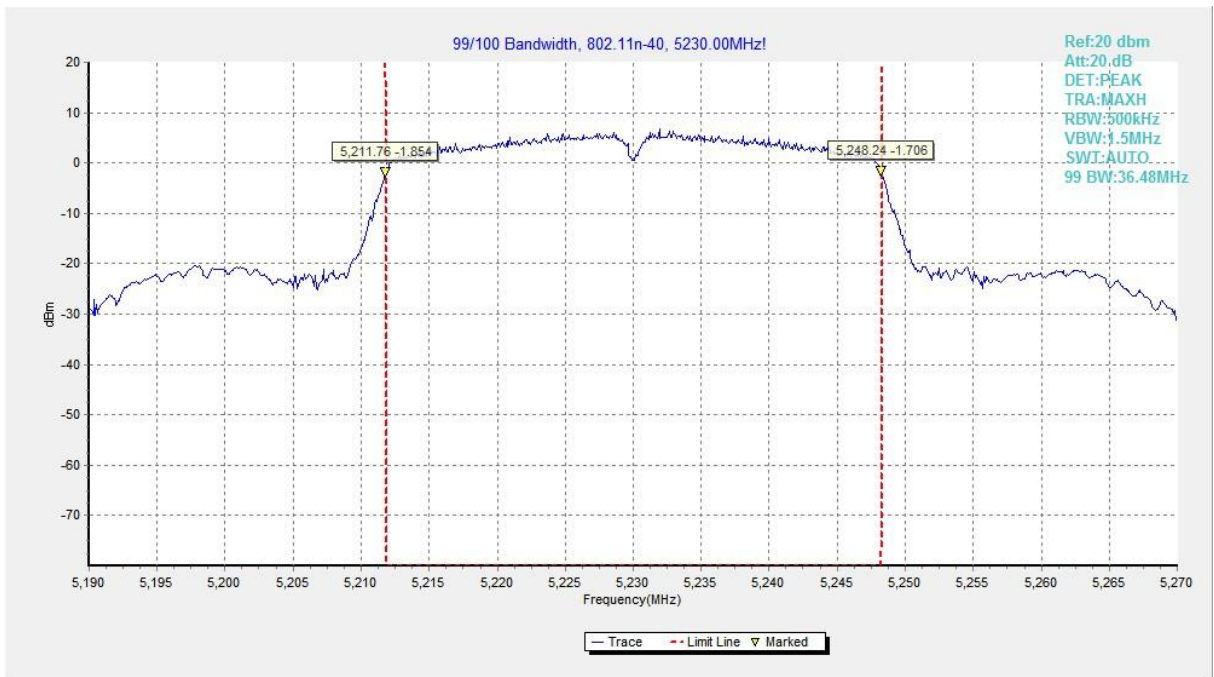


Fig. 38 99% Occupied Bandwidth (802.11n-HT40, 5230MHz)

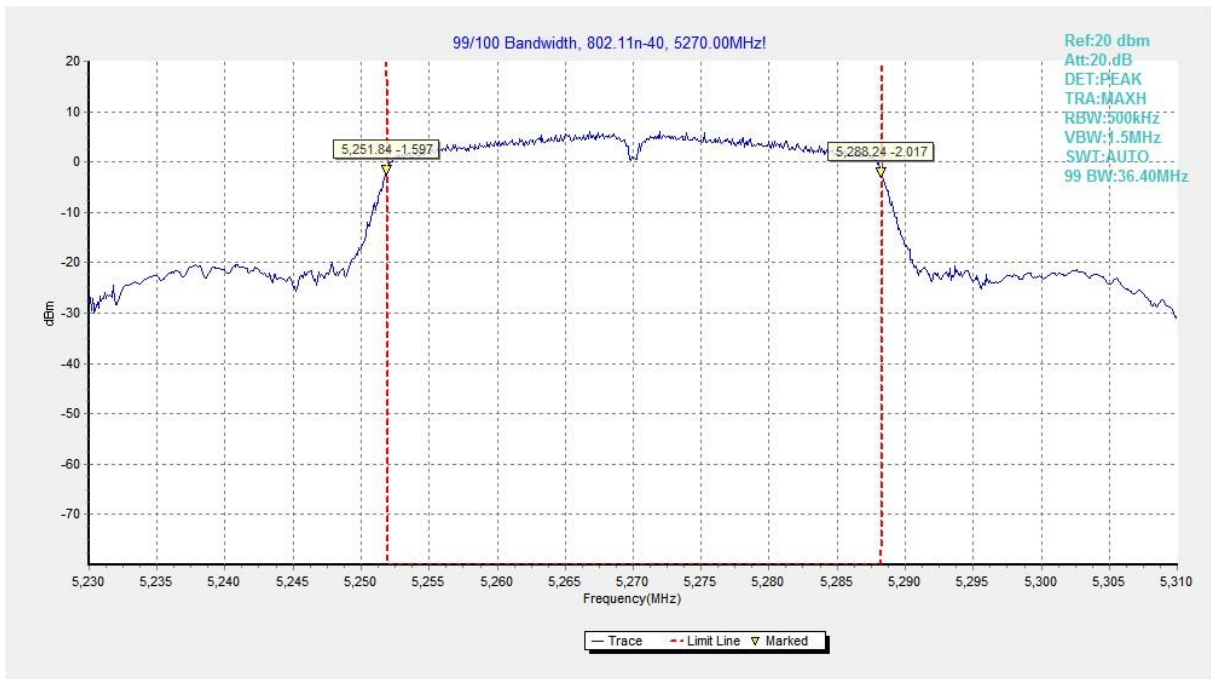


Fig. 39 99% Occupied Bandwidth (802.11n-HT40, 5270MHz)

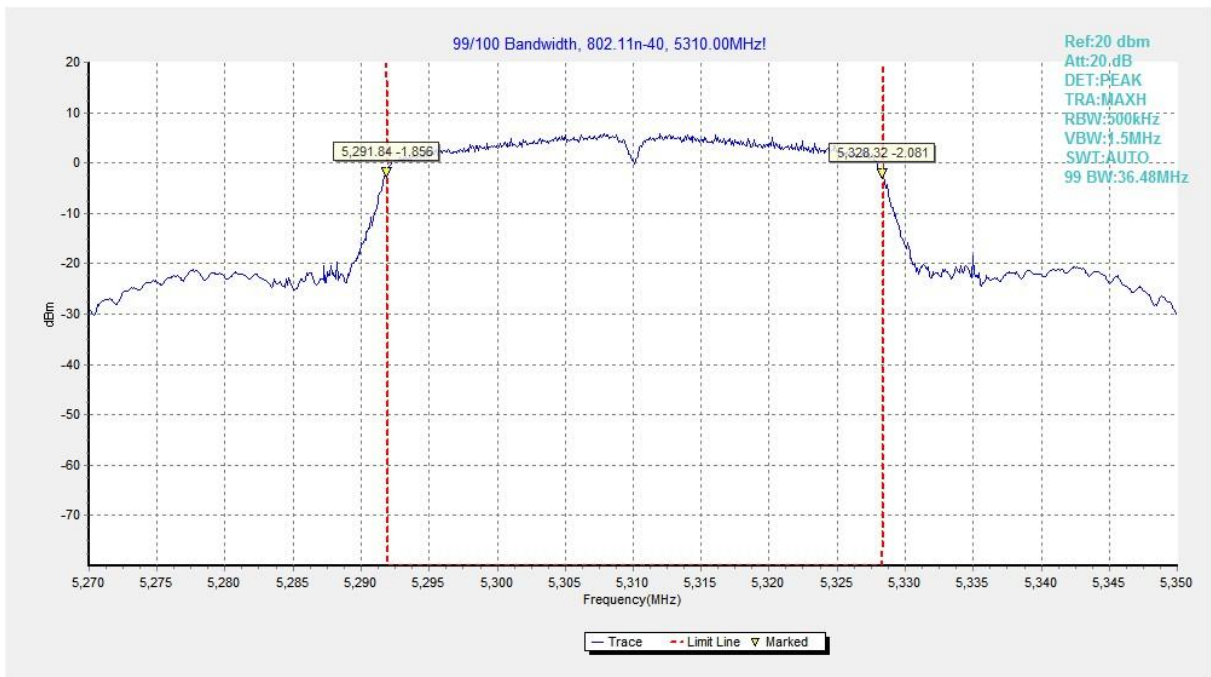


Fig. 40 99% Occupied Bandwidth (802.11n-HT40, 5310MHz)

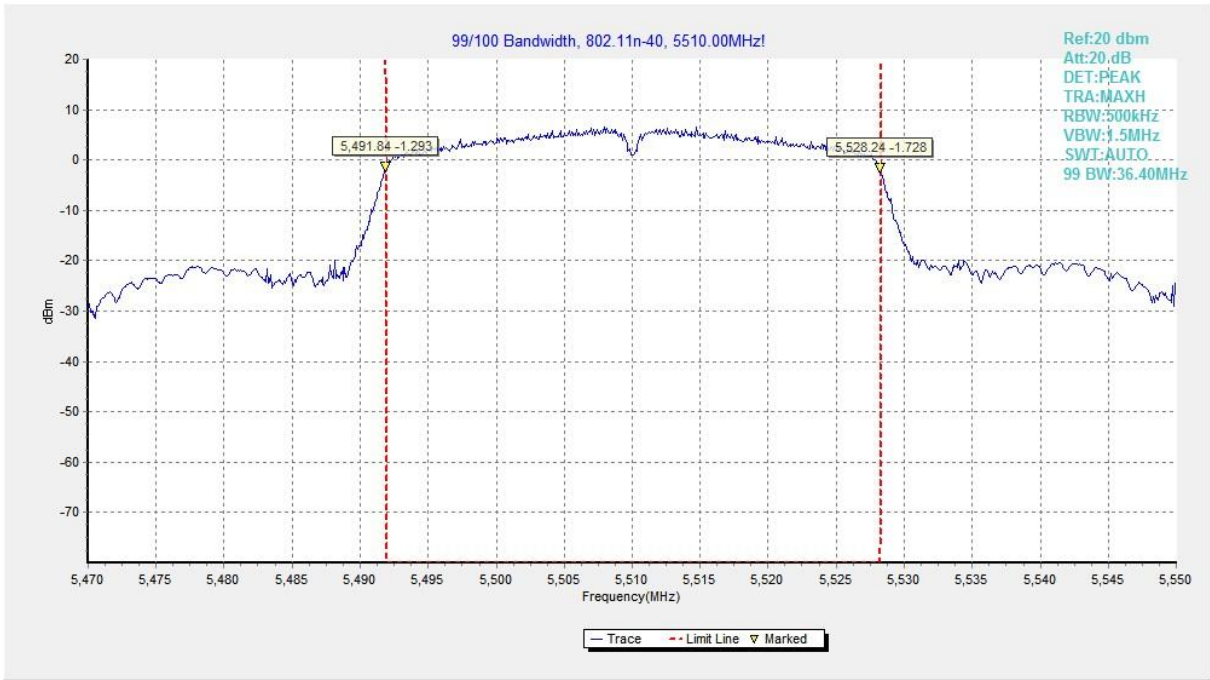


Fig. 41 99% Occupied Bandwidth (802.11n-HT40, 5510MHz)

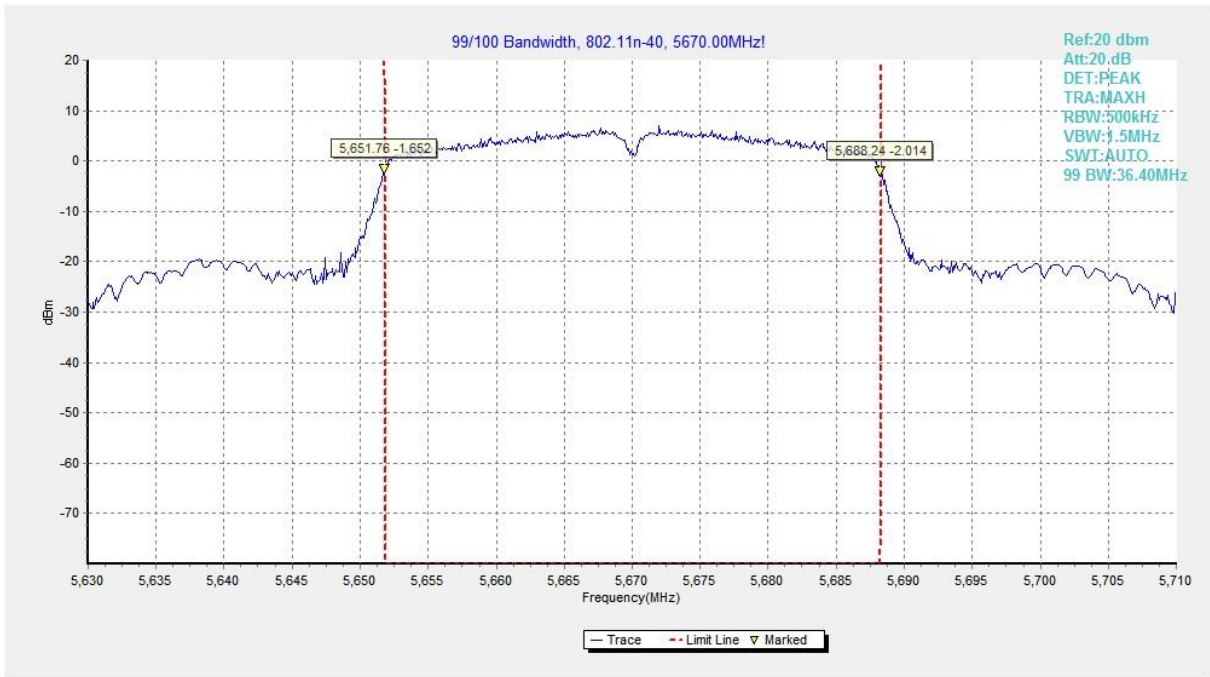


Fig. 42 99% Occupied Bandwidth (802.11n-HT40, 5670MHz)



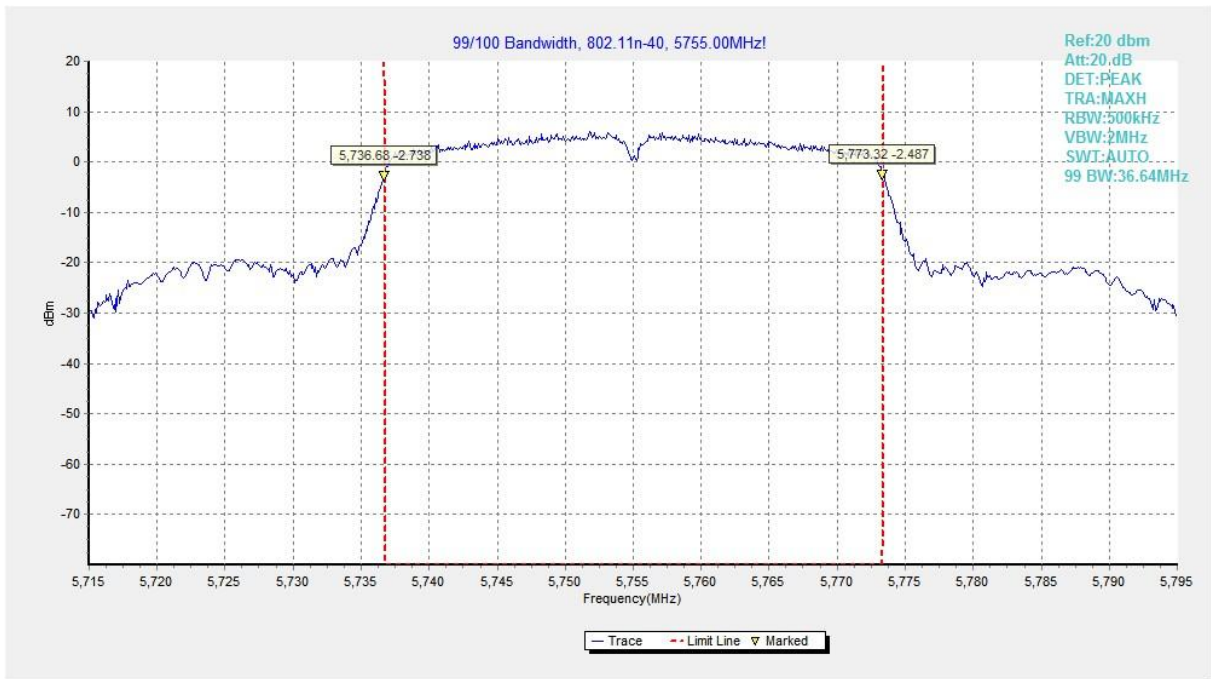


Fig. 43 99% Occupied Bandwidth (802.11n-HT40, 5755MHz)

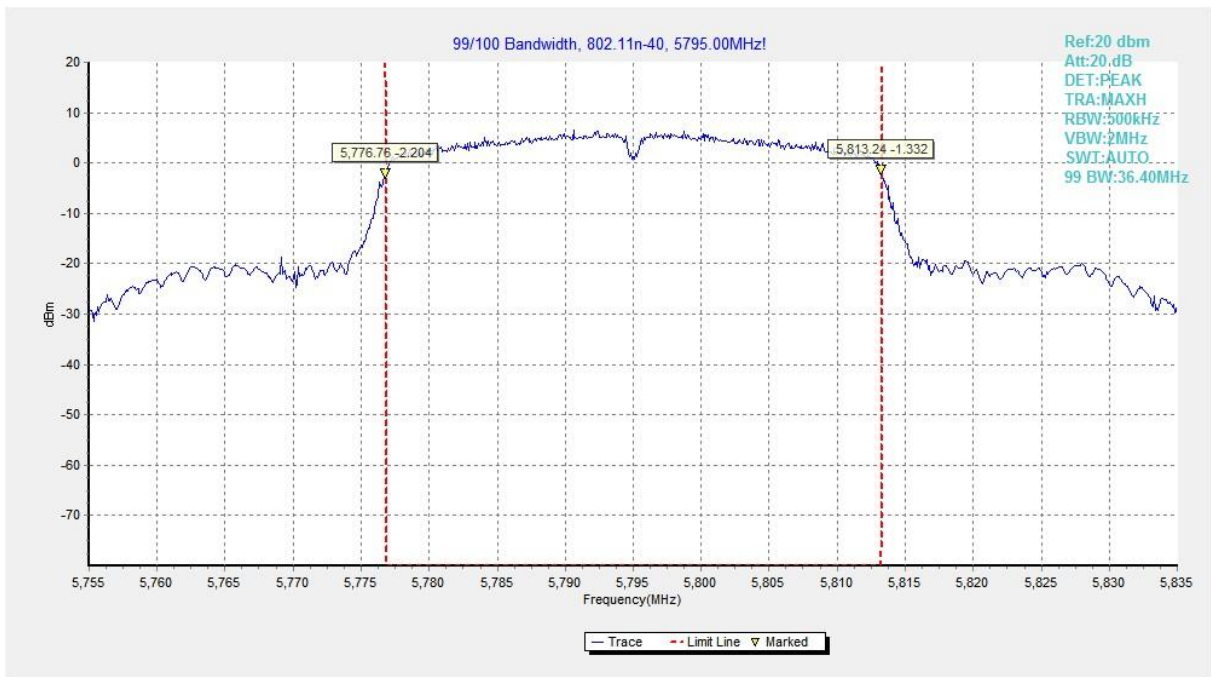


Fig. 44 99% Occupied Bandwidth (802.11n-HT40, 5795MHz)

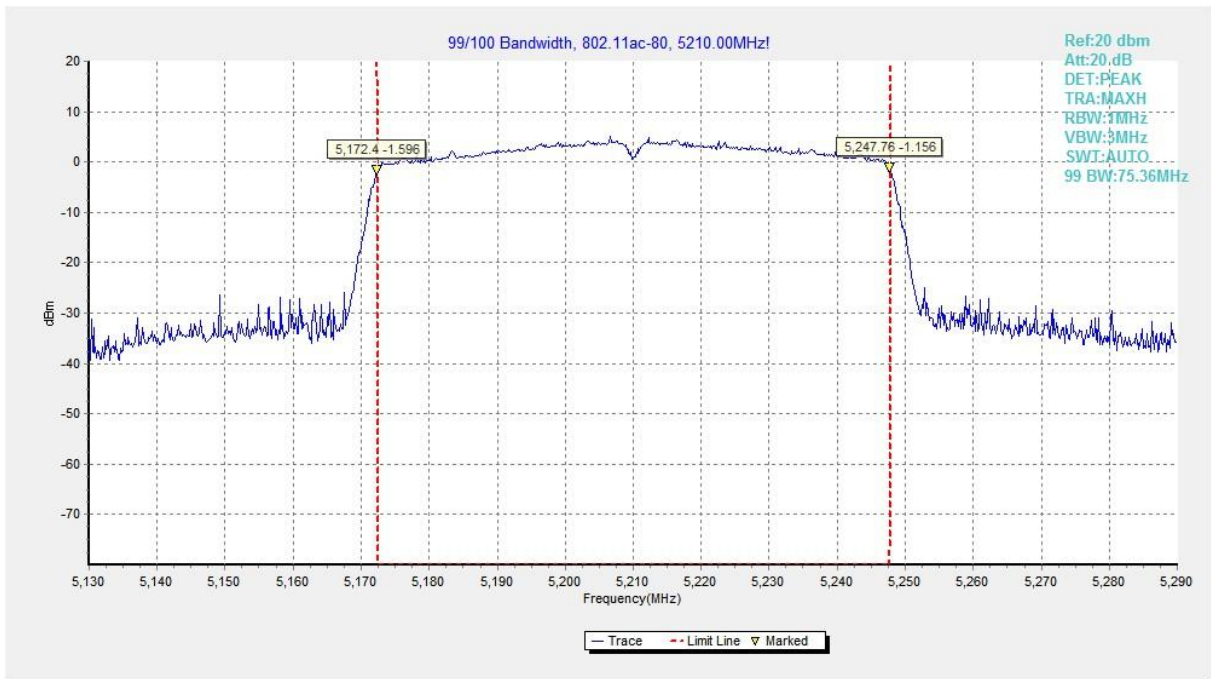


Fig. 45 99% Occupied Bandwidth (802. 11ac-VHT80, 5210MHz)

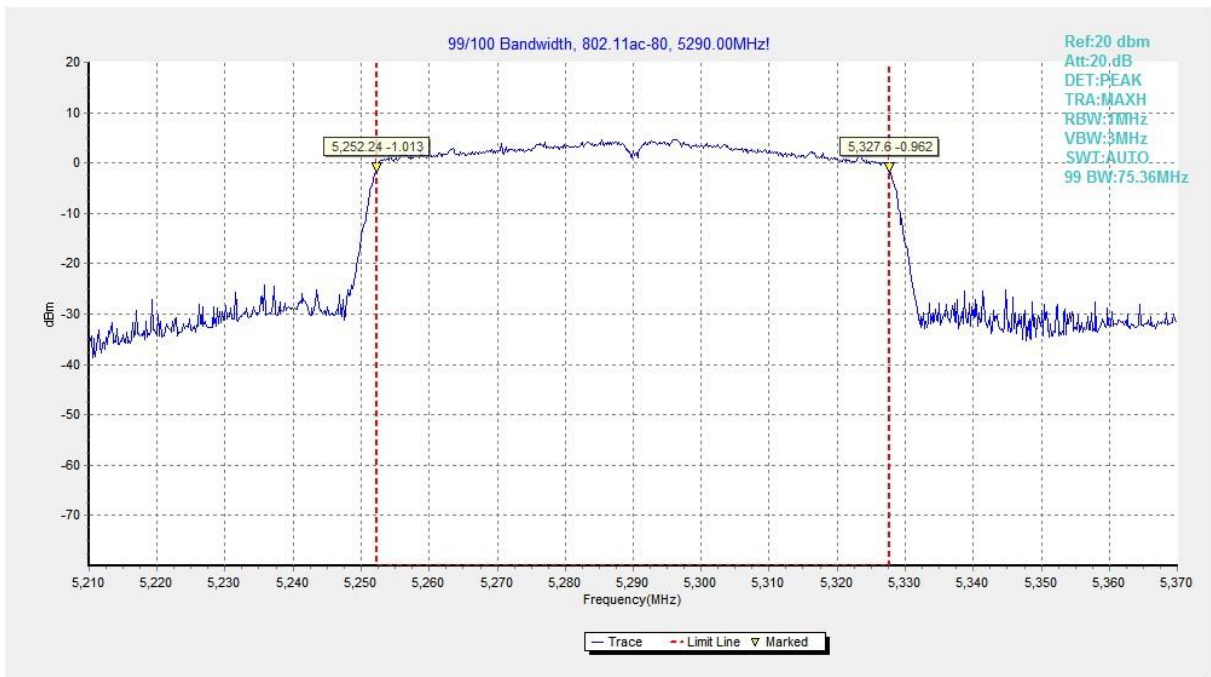


Fig. 46 99% Occupied Bandwidth (802. 11ac-VHT80, 5290MHz)

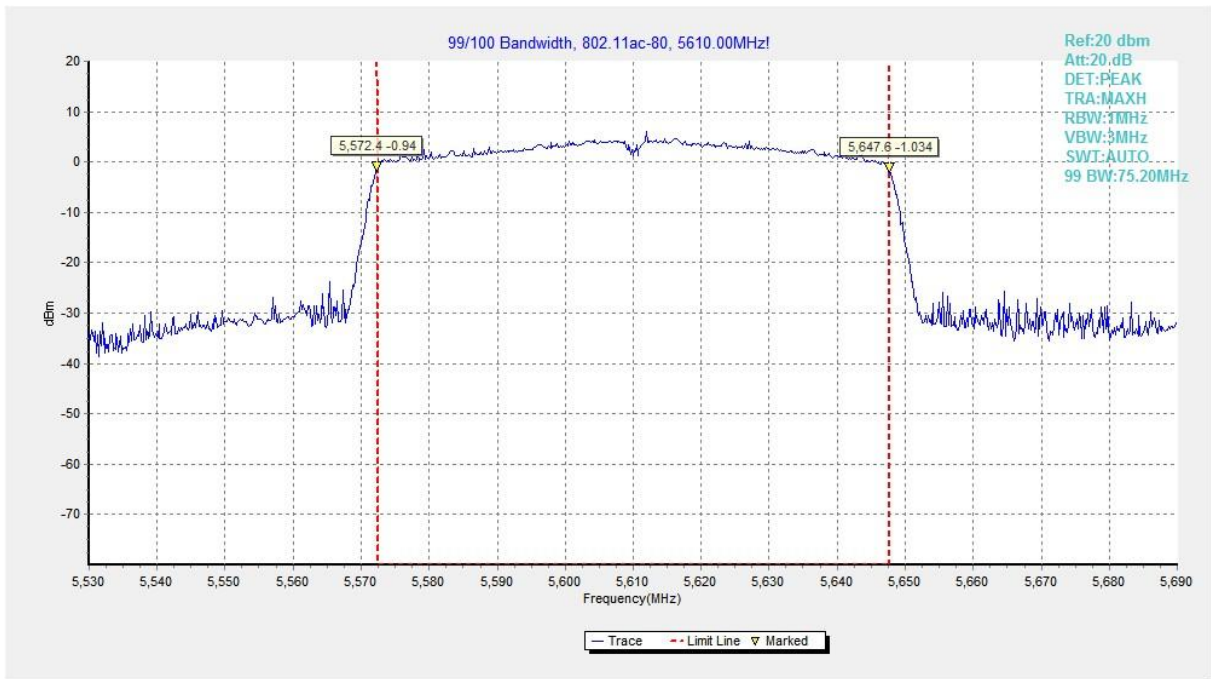


Fig. 47 99% Occupied Bandwidth (802.11ac-VHT80, 5610MHz)

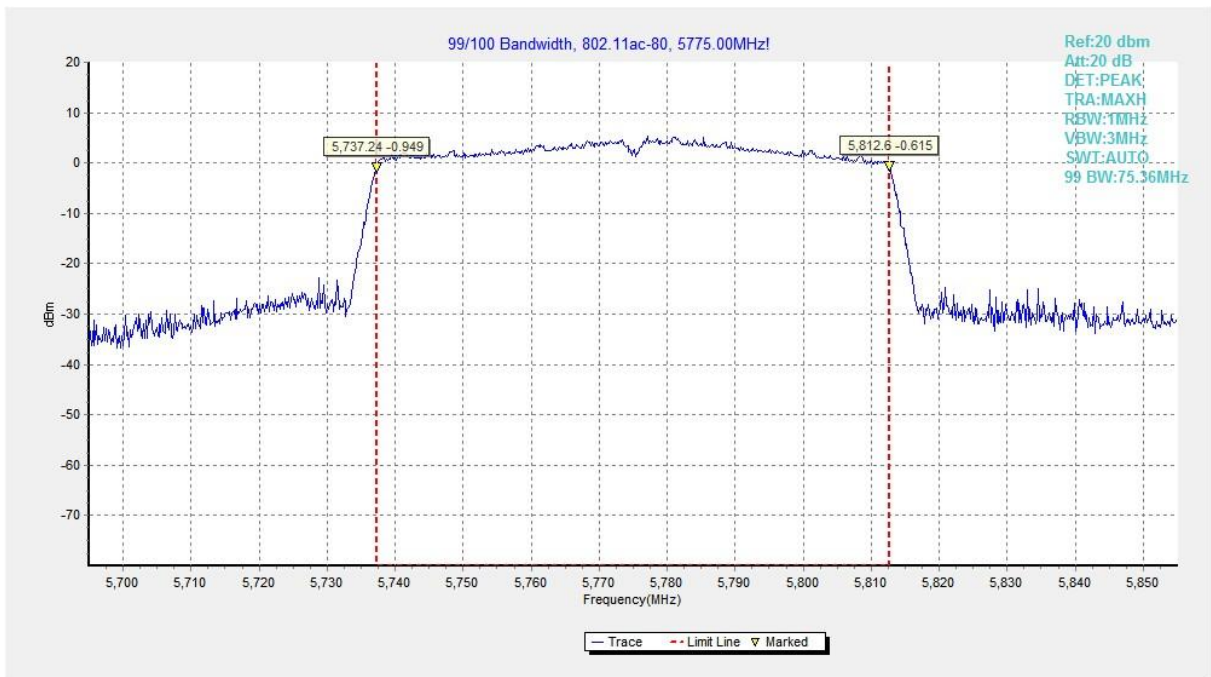


Fig. 48 99% Occupied Bandwidth (802.11ac-VHT80, 5775MHz)

### A.7. Band Edges Compliance

**Measurement Limit:**

Standard	Limit (dBuV/m)	
	FCC 47 CFR Part 15.209	Peak
Average		54

The measurement is made according to KDB 789033.

**Measurement Result:**

Mode	Channel	Test Results	Conclusion
802.11a	5180MHz (CH36)	Fig.49	<b>P</b>
	5320MHz (CH64)	Fig.50	<b>P</b>
	5500MHz (CH100)	Fig.51	<b>P</b>
	5700MHz (CH140)	Fig.52	<b>P</b>
	5745MHz (CH149)	Fig.53	<b>P</b>
	5825MHz (CH165)	Fig.54	<b>P</b>
802.11n-HT40	5190MHz (CH38)	Fig.55	<b>P</b>
	5310MHz (CH62)	Fig.56	<b>P</b>
	5510MHz (CH102)	Fig.57	<b>P</b>
	5670MHz (CH134)	Fig.58	<b>P</b>
	5755MHz (CH151)	Fig.59	<b>P</b>
	5795MHz (CH159)	Fig.60	<b>P</b>
802.11ac-VHT80	5210MHz (CH42)	Fig.61	<b>P</b>
	5290MHz (CH58)	Fig.62	<b>P</b>
	5610MHz (Ch122)	Fig.63	<b>P</b>
	5775MHz (CH155)	Fig.64	<b>P</b>

**Conclusion: PASS**

Test graphs as below:

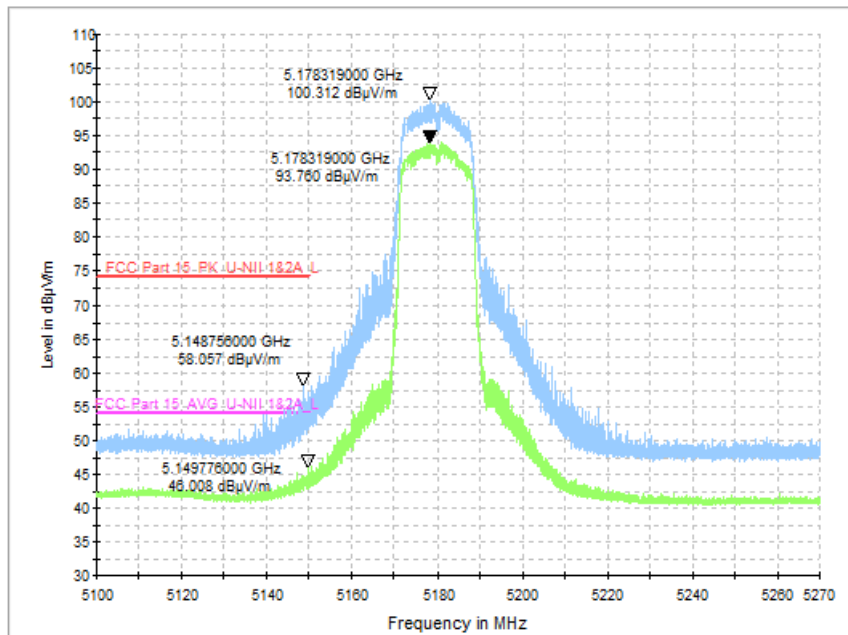


Fig. 49 Band Edges (802.11a, CH36 5180MHz)

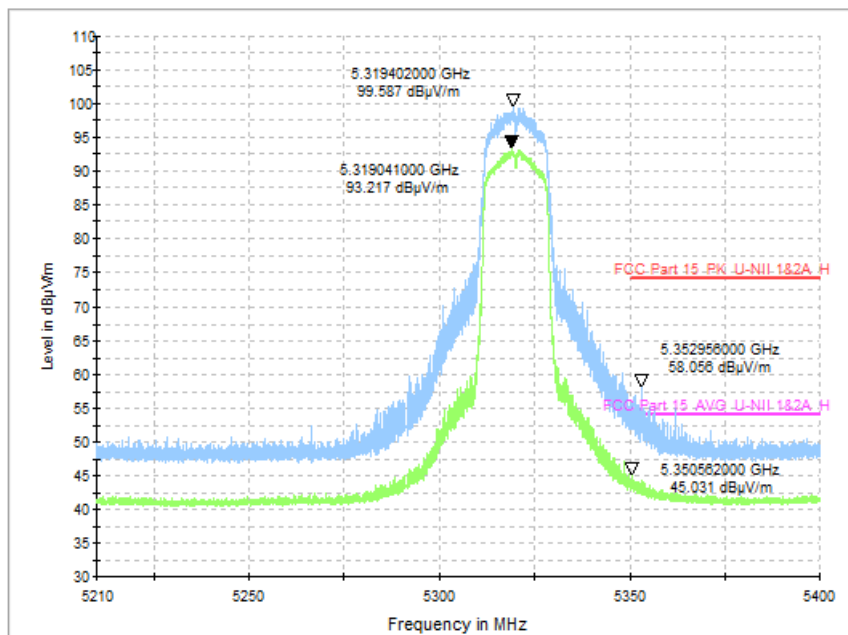


Fig. 50 Band Edges (802.11a, CH64 5320MHz)

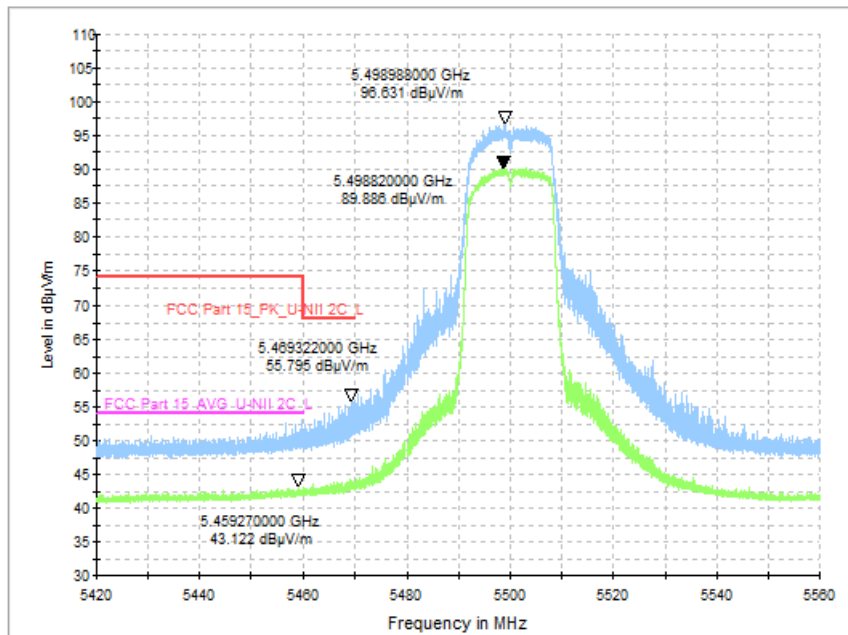


Fig. 51 Band Edges (802.11a, CH100 5500MHz)

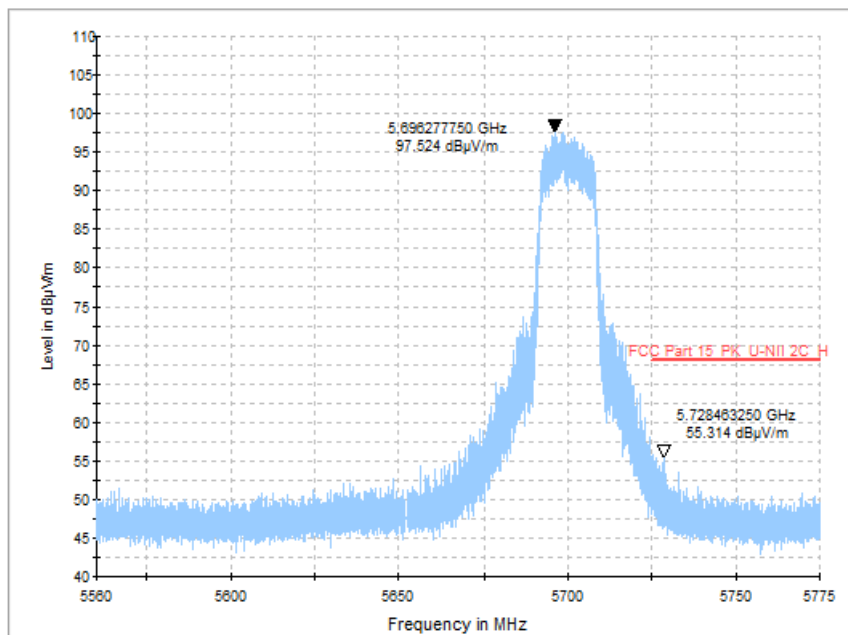
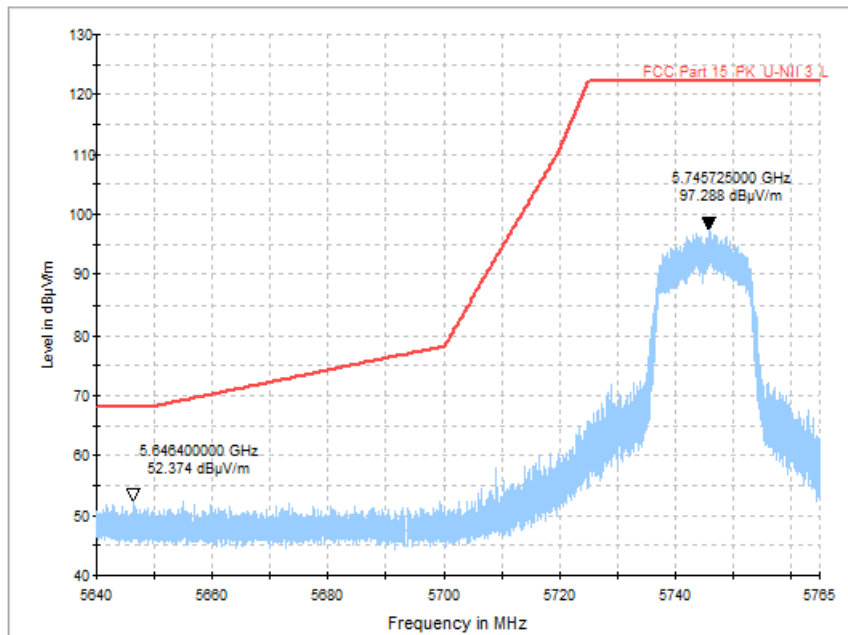
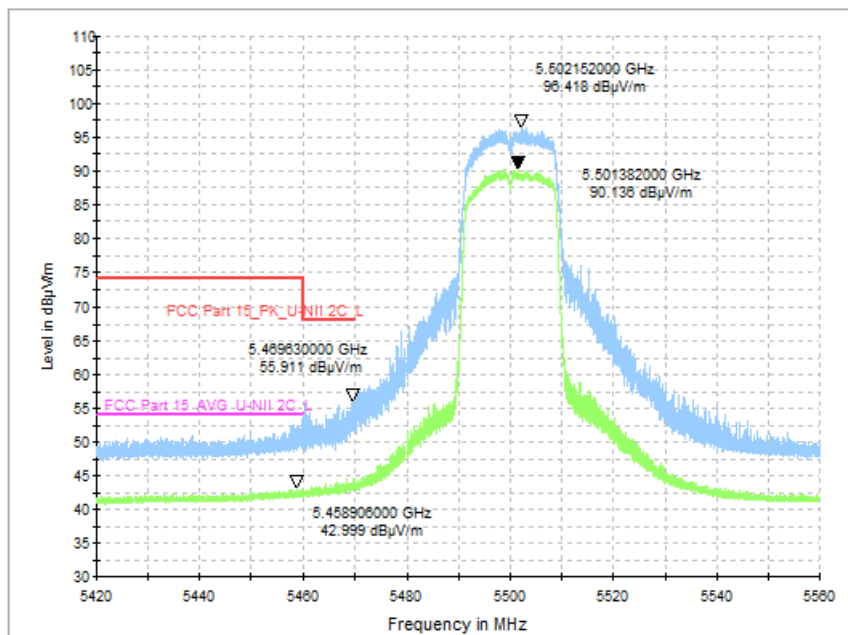


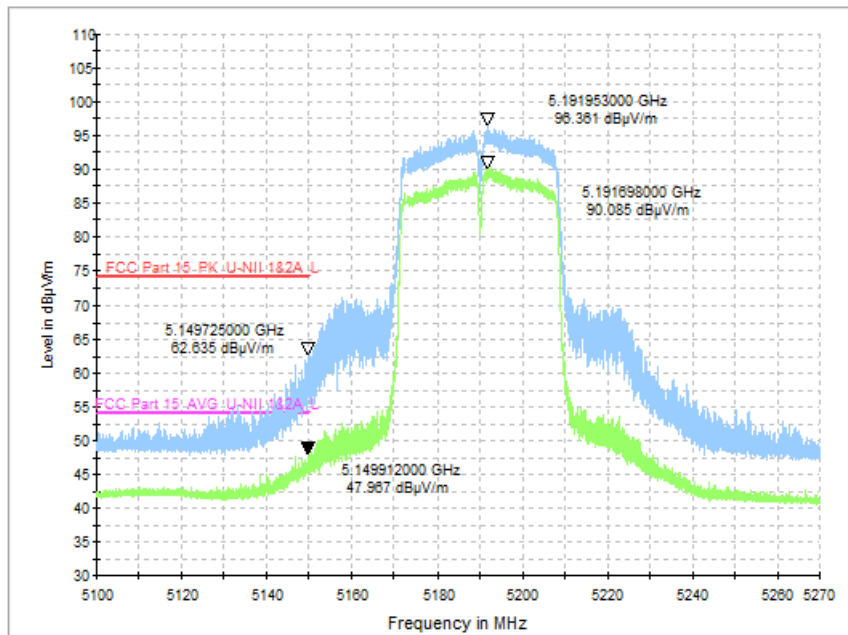
Fig. 52 Band Edges (802.11a, CH140 5700MHz)



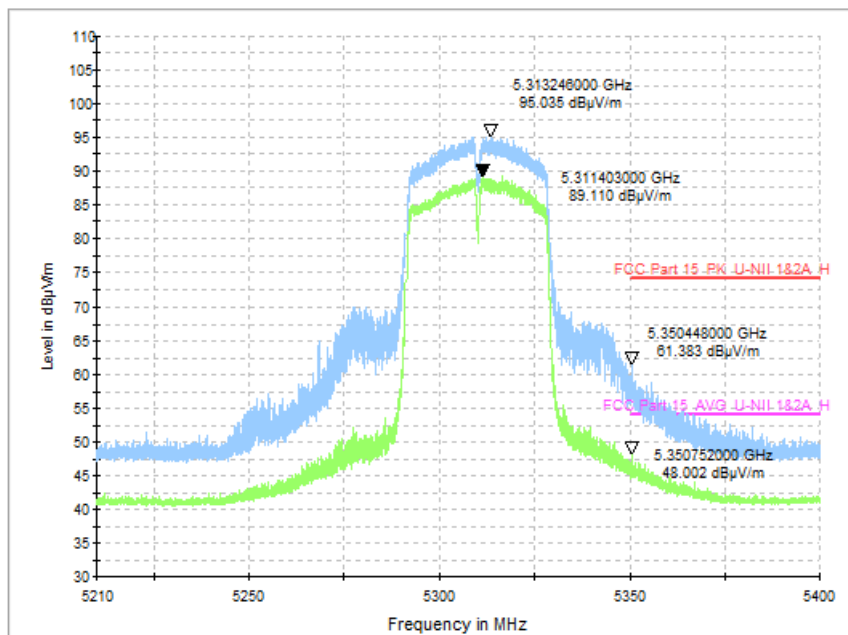
**Fig. 53 Band Edges (802.11a, CH149 5745MHz)**



**Fig. 54 Band Edges (802.11a, CH165 5825MHz)**



**Fig. 55 Band Edges (802.11n-HT40, CH38 5190MHz)**



**Fig. 56 Band Edges (802.11n-HT40, CH62 5310MHz)**



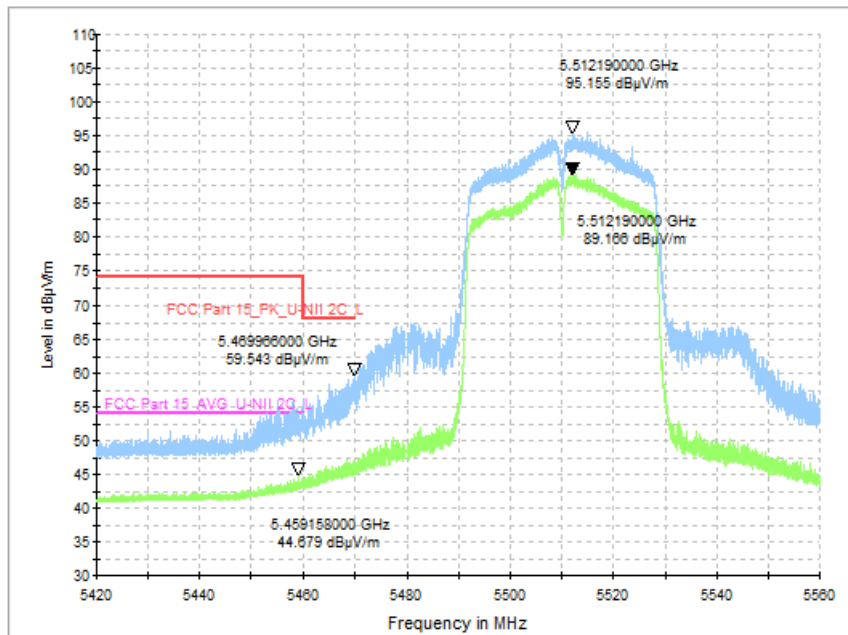


Fig. 57 Band Edges (802.11n-HT40, CH102 5510MHz)

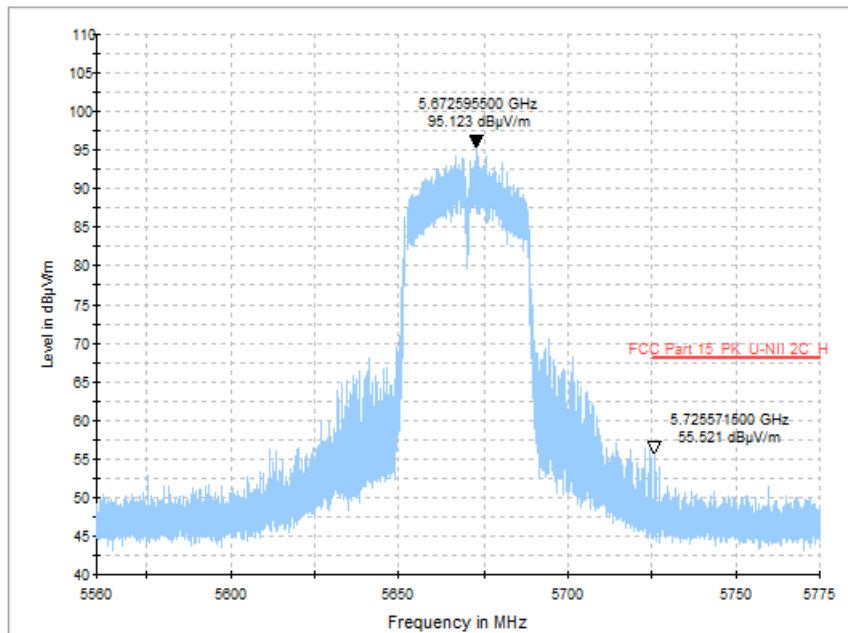
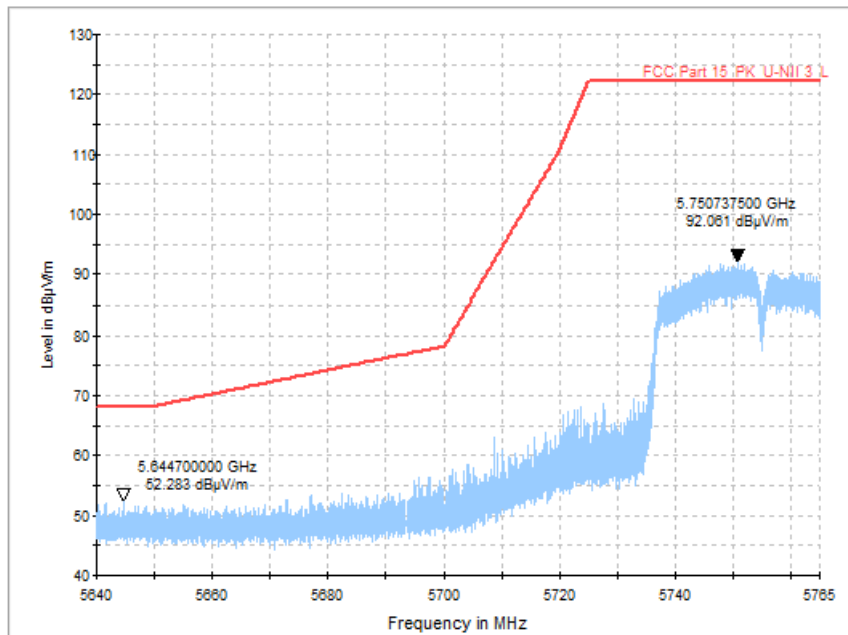
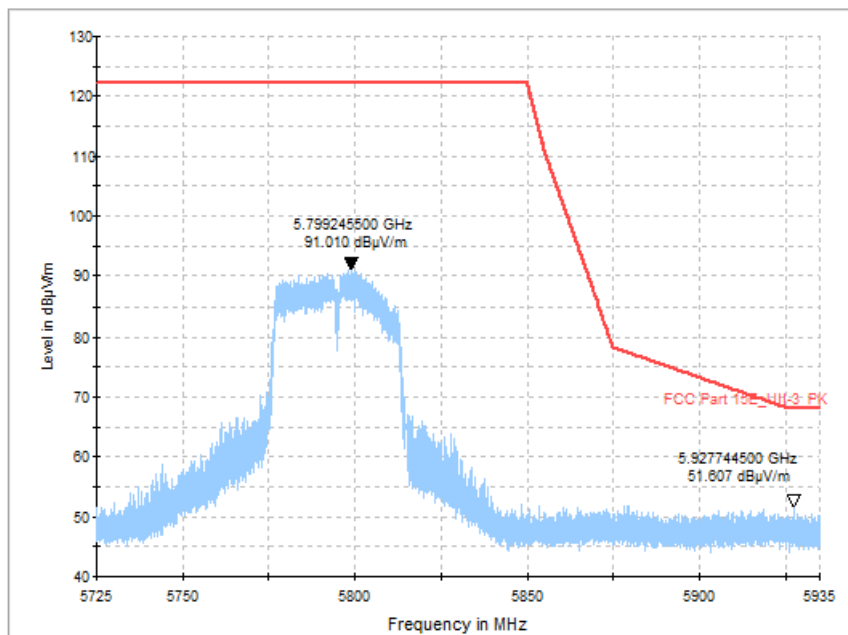


Fig. 58 Band Edges (802.11n-HT40, CH134 5670MHz)



**Fig. 59 Band Edges (802.11n-HT40, CH151 5755MHz)**



**Fig. 60 Band Edges (802.11n-HT40, CH159 5795MHz)**

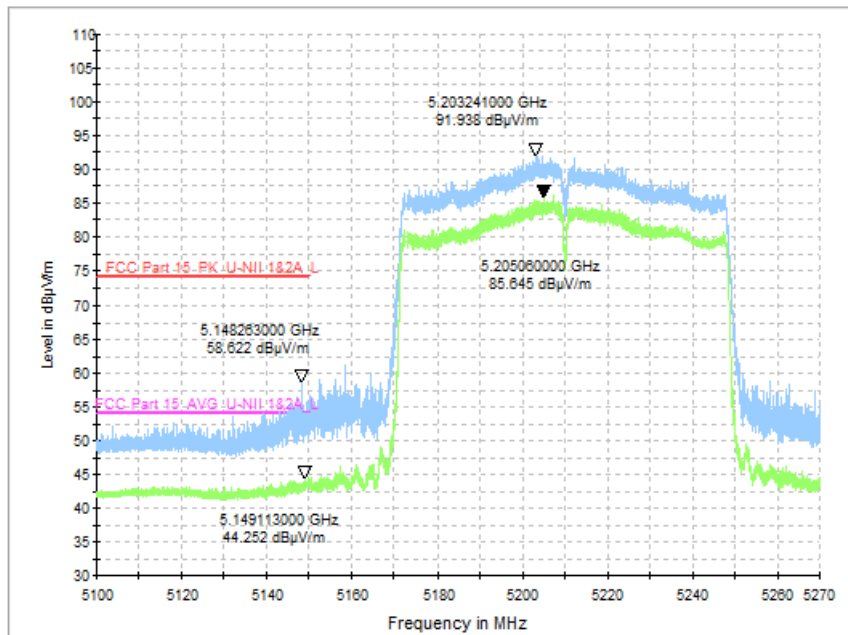


Fig. 61 Band Edges (802.11ac-VHT80, CH42 5210MHz)

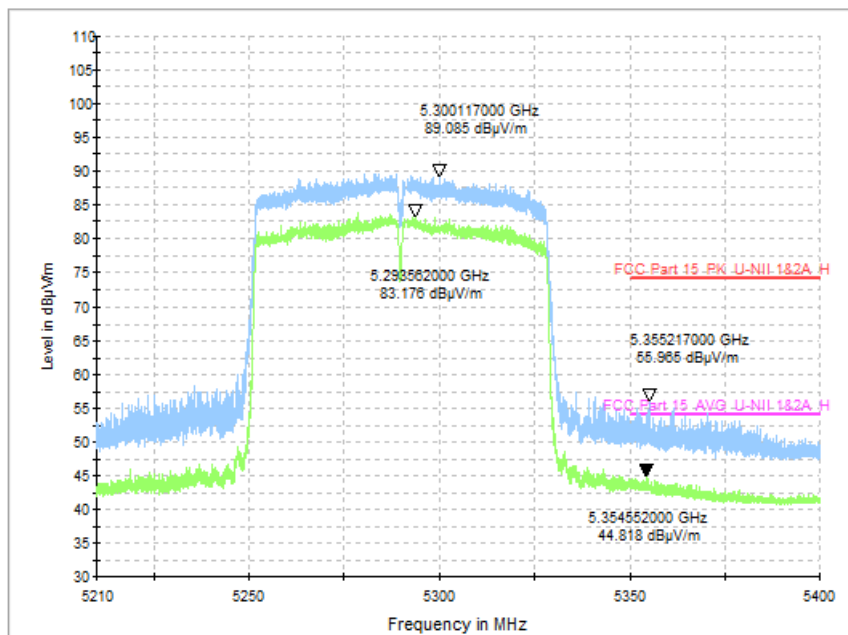


Fig. 62 Band Edges (802.11ac-VHT80, CH58 5290MHz)

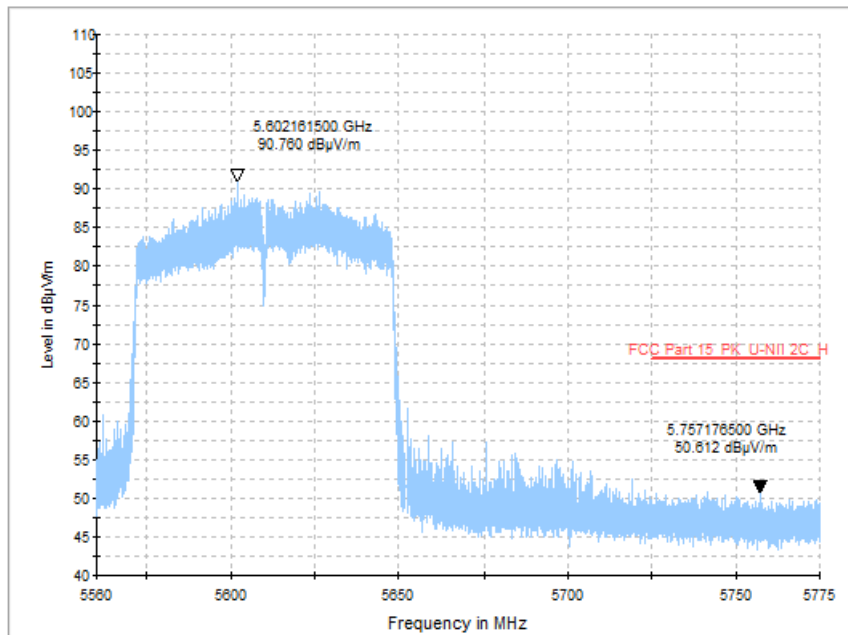


Fig. 63 Band Edges (802.11ac-VHT80, CH122 5610MHz)

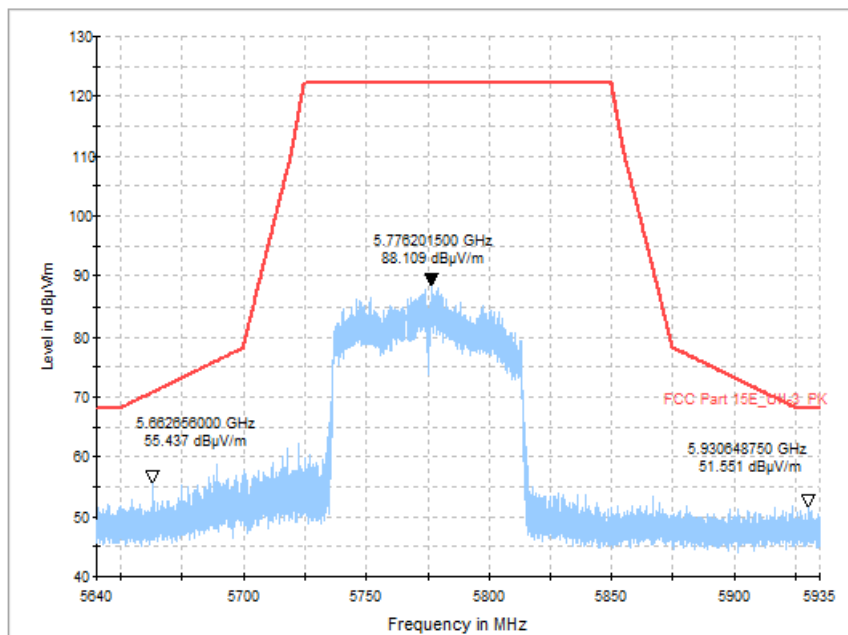


Fig. 64 Band Edges (802.11ac-VHT80, CH155 5775MHz)

### A.8. Transmitter Spurious Emission

**Measurement Limit:**

Standard	Limit (dBm/MHz)
FCC 47 CFR Part 15.407, 15.205	< -27

The measurement is made according to KDB 789033.

In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a) (see § 15.205(c)).

**Limit in restricted band:**

Frequency of emission (MHz)	Field strength (dBµV/m)	Measurement distance (m)
30-88	40.0	3
88-216	43.5	3
216-960	46.0	3
Above 960	54.0	3

Note: For frequency range below 960MHz, the limit in 15.209 is defined in 10m test distance. The limit used above is calculated from 10m to 3m.

**Measurement Result:**

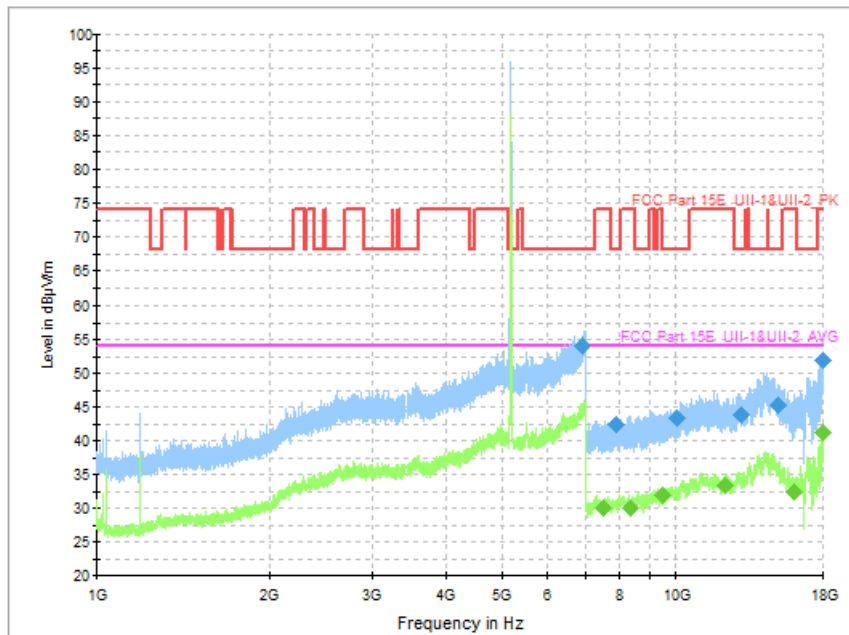
Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	5180MHz (Ch36)	1 GHz ~ 18 GHz	Fig.65	P
	5200MHz (Ch40)	1 GHz ~ 18 GHz	Fig.66	P
	5240MHz (Ch48)	1 GHz ~ 18 GHz	Fig.67	P
	5260MHz (Ch52)	1 GHz ~ 18 GHz	Fig.68	P
	5280MHz (Ch56)	1 GHz ~ 18 GHz	Fig.69	P
	5320MHz (Ch64)	1 GHz ~ 18 GHz	Fig.70	P
	5500MHz (Ch100)	1 GHz ~ 18 GHz	Fig.71	P
	5580MHz (Ch116)	1 GHz ~ 18 GHz	Fig.72	P
	5700MHz (Ch140)	1 GHz ~ 18 GHz	Fig.73	P
	5745MHz (Ch149)	1 GHz ~ 18 GHz	Fig.74	P
	5785MHz (Ch157)	1 GHz ~ 18 GHz	Fig.75	P
802.11n-H T40	5825MHz (Ch165)	1 GHz ~ 18 GHz	Fig.76	P
	5190MHz (Ch38)	1 GHz ~ 18 GHz	Fig.77	P
	5230MHz (Ch46)	1 GHz ~ 18 GHz	Fig.78	P
	5270MHz (Ch54)	1 GHz ~ 18 GHz	Fig.79	P
	5310MHz (Ch62)	1 GHz ~ 18 GHz	Fig.80	P
	5510MHz (Ch102)	1 GHz ~ 18 GHz	Fig.81	P
	5670MHz (Ch134)	1 GHz ~ 18 GHz	Fig.82	P
	5755MHz (Ch151)	1 GHz ~ 18 GHz	Fig.83	P
5795MHz (Ch159)	1 GHz ~ 18 GHz	Fig.84	P	



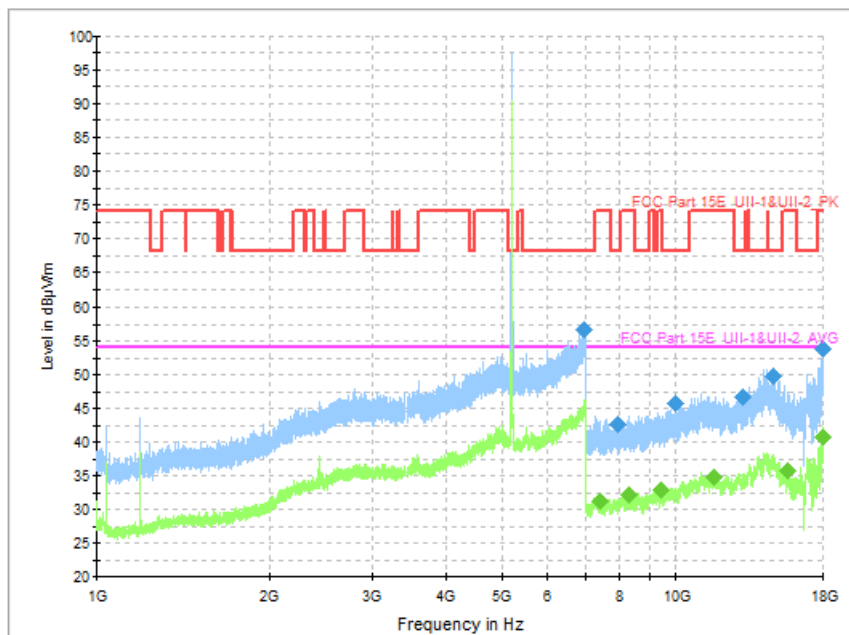
802.11ac-VHT80	5210MHz (Ch42)	1 GHz ~ 18 GHz	Fig.85	<b>P</b>
	5290MHz (Ch58)	1 GHz ~ 18 GHz	Fig.86	<b>P</b>
	5610MHz (Ch122)	1 GHz ~ 18 GHz	Fig.87	<b>P</b>
	5775MHz (Ch155)	1 GHz ~ 18 GHz	Fig.88	<b>P</b>
All channels		30MHz ~ 1GHz	Fig.89	<b>P</b>
		18GHz ~ 26.5GHz	Fig.90	<b>P</b>
		26.5GHz ~ 40GHz	Fig.91	<b>P</b>

**Conclusion: PASS**

**Test graphs as below:**



**Fig. 65 Transmitter Spurious Emission (802.11a, CH36 5180MHz)**



**Fig. 66 Transmitter Spurious Emission (802.11a, CH40 5200MHz)**

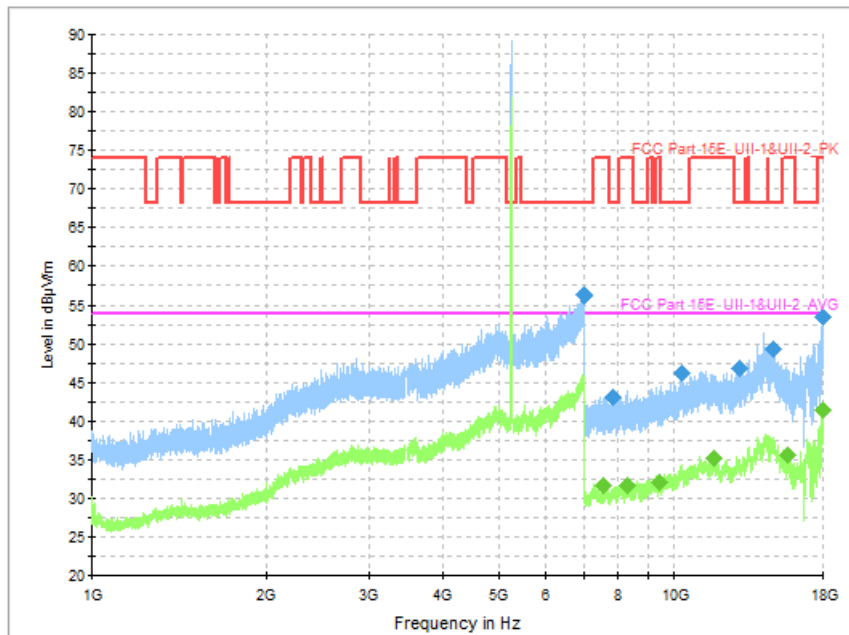


Fig. 67 Transmitter Spurious Emission (802.11a, CH48 5240MHz)

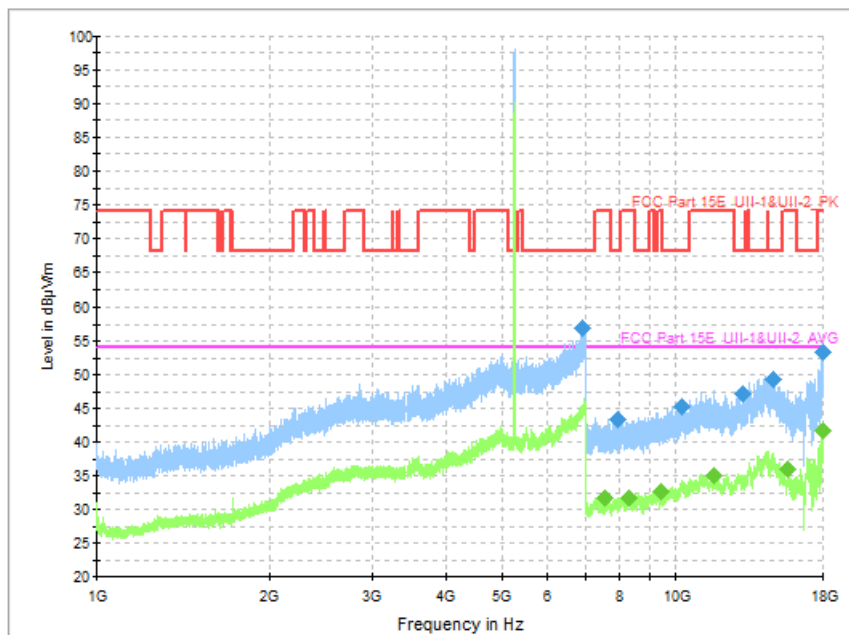
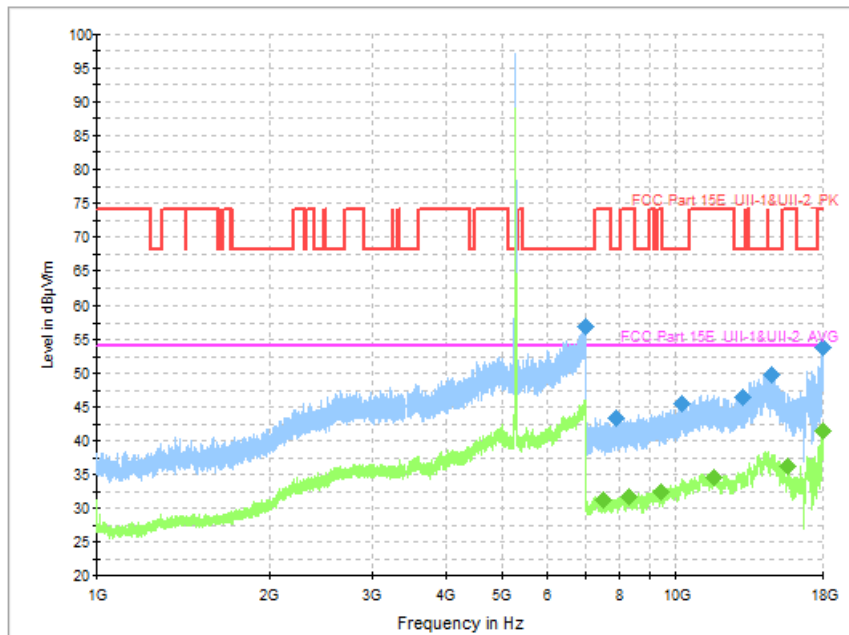
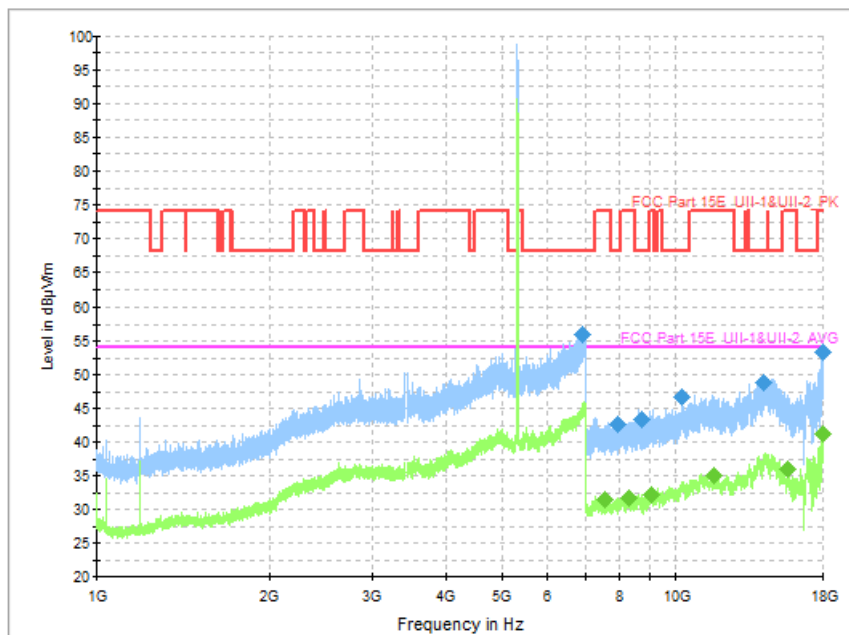


Fig. 68 Transmitter Spurious Emission (802.11a, CH52 5260MHz)





**Fig. 69 Transmitter Spurious Emission (802.11a, CH56 5280MHz)**



**Fig. 70 Transmitter Spurious Emission (802.11a, CH64 5320MHz)**

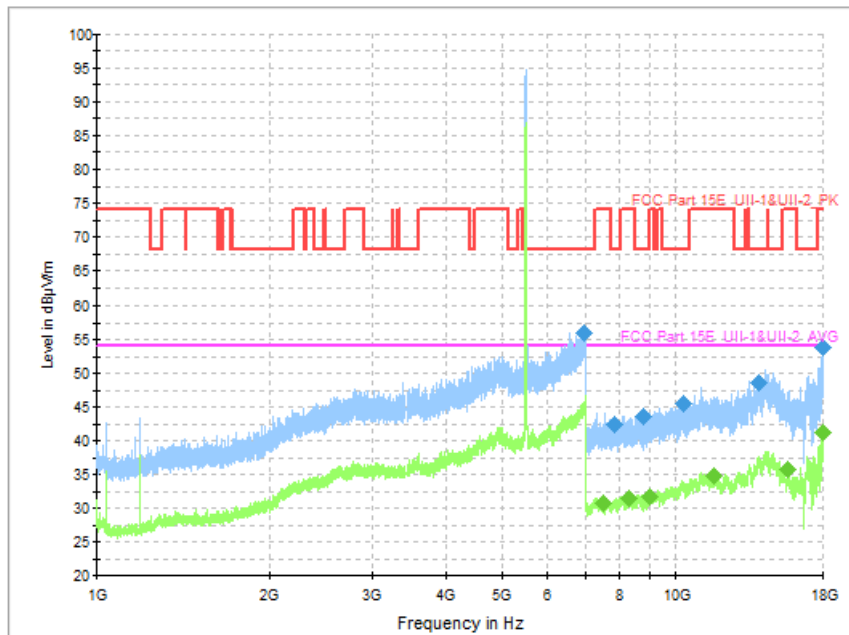


Fig. 71 Transmitter Spurious Emission (802.11a, CH100 5500MHz)

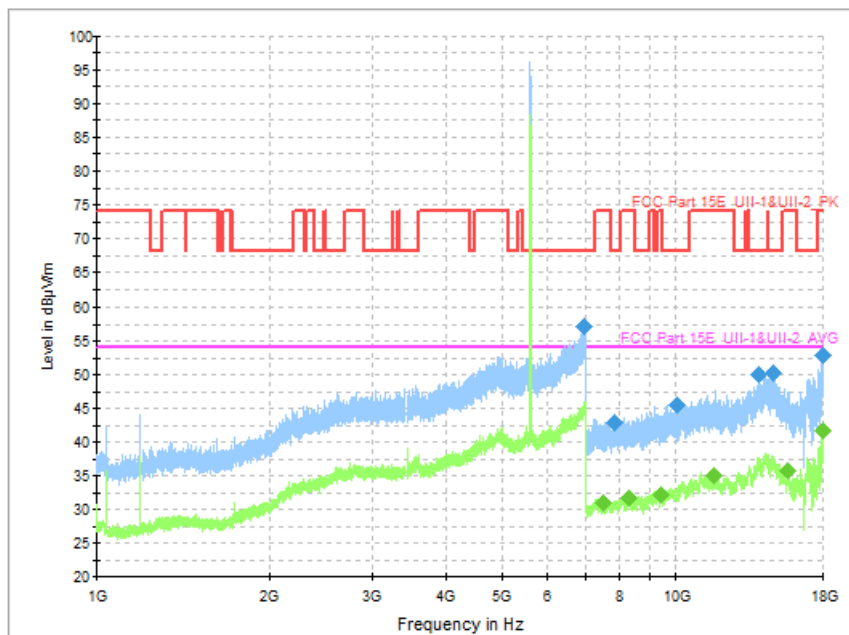


Fig. 72 Transmitter Spurious Emission (802.11a, CH116 5580MHz)

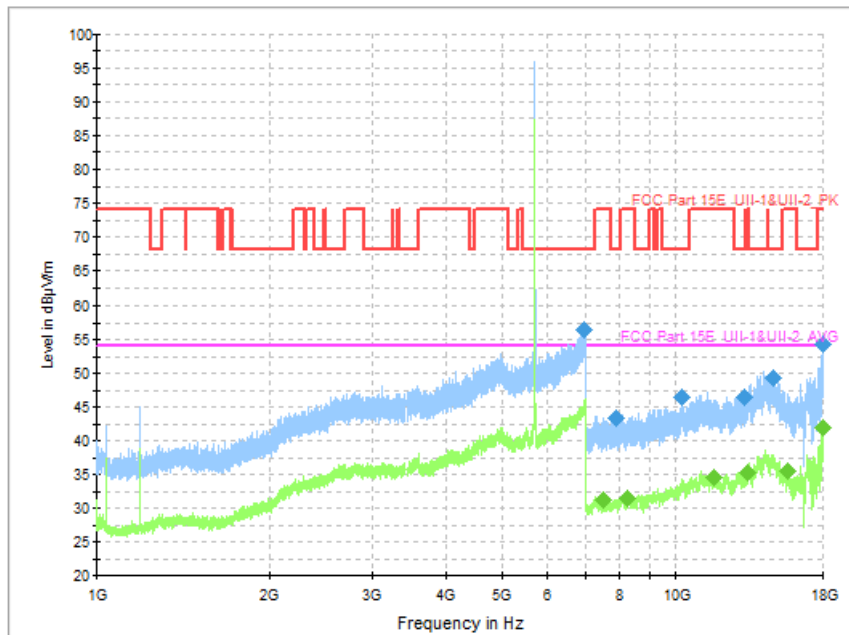


Fig. 73 Transmitter Spurious Emission (802.11a, CH140 5700MHz)

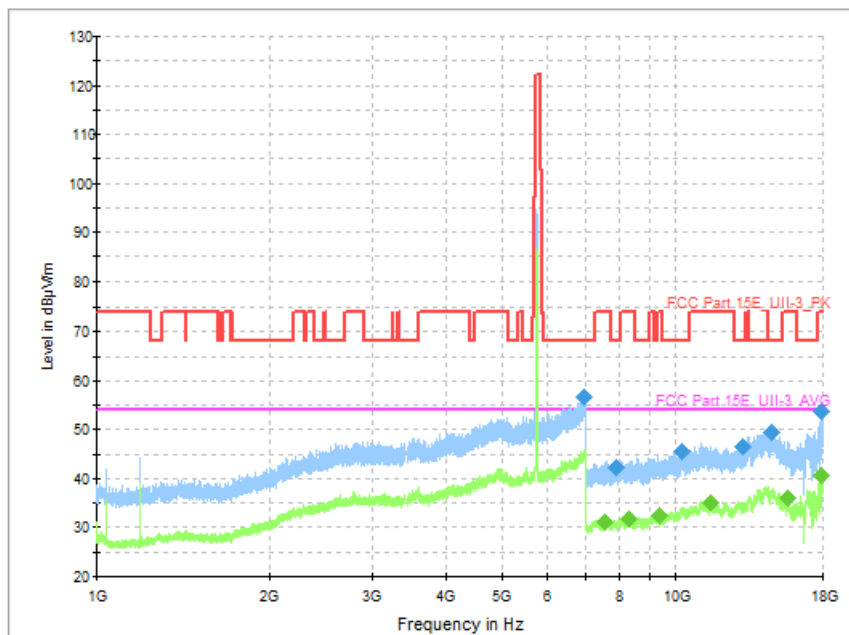


Fig. 74 Transmitter Spurious Emission (802. 11a, CH149 5745MHz)

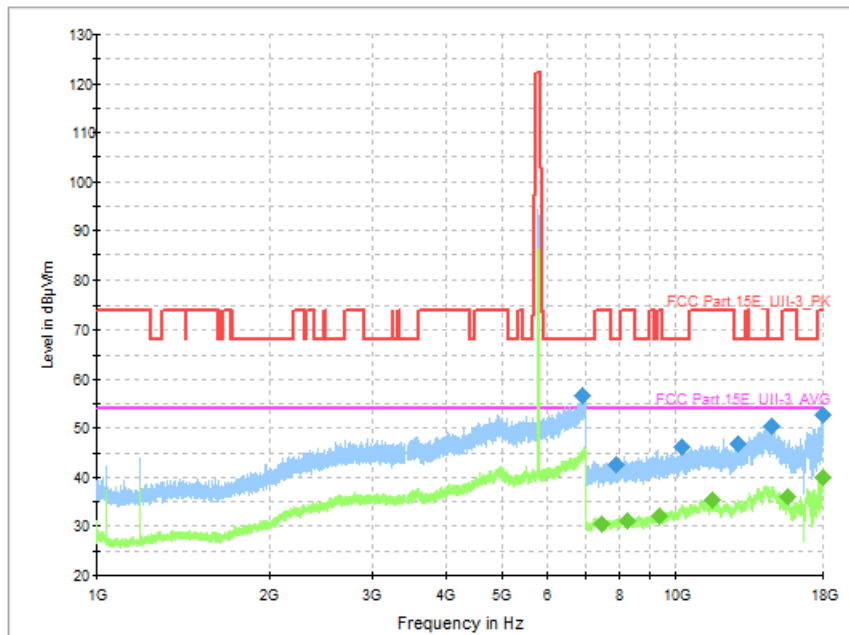


Fig. 75 Transmitter Spurious Emission (802. 11a, CH157 5785MHz)

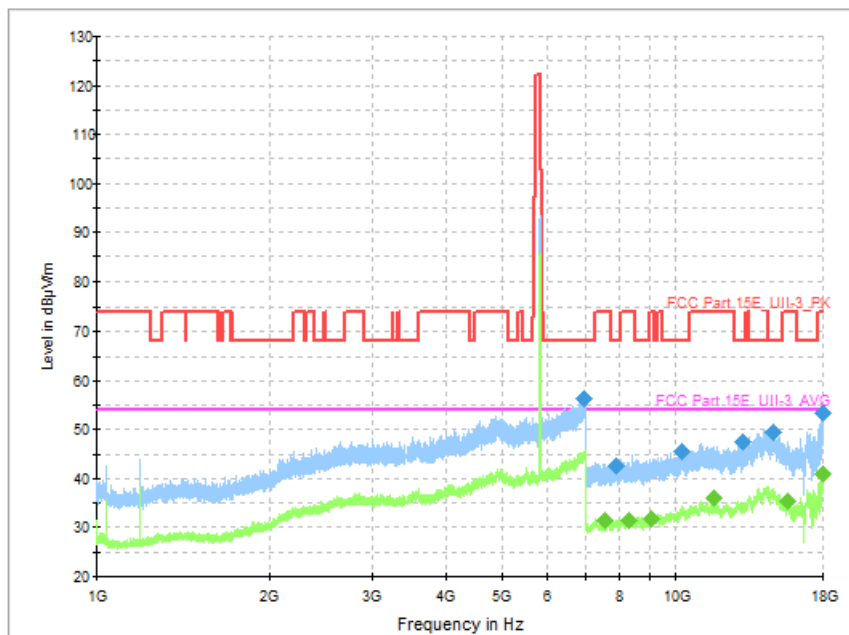


Fig. 76 Transmitter Spurious Emission (802. 11a, CH165 5825MHz)

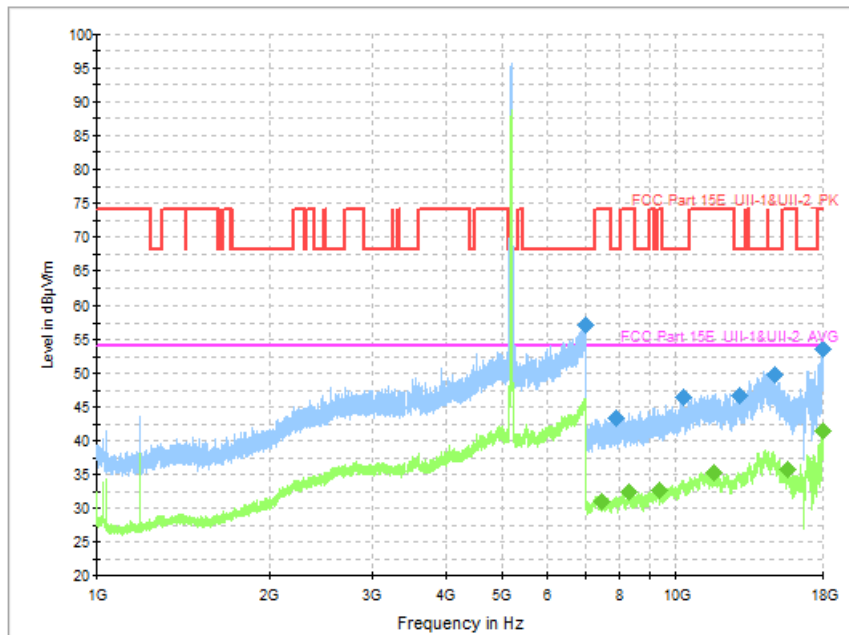


Fig. 77 Transmitter Spurious Emission (802.11n-HT40, CH38 5190MHz)

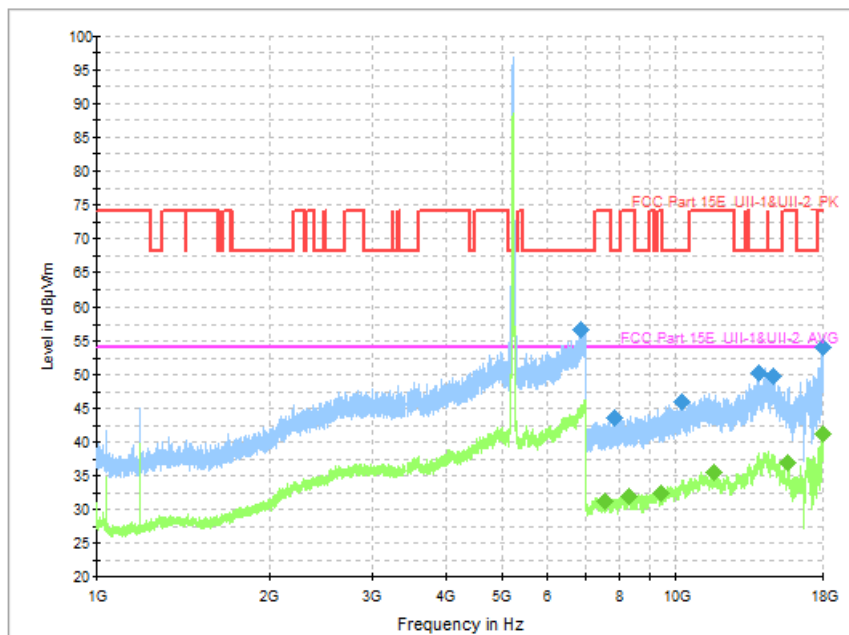


Fig. 78 Transmitter Spurious Emission (802.11n-HT40, CH46 5230MHz)

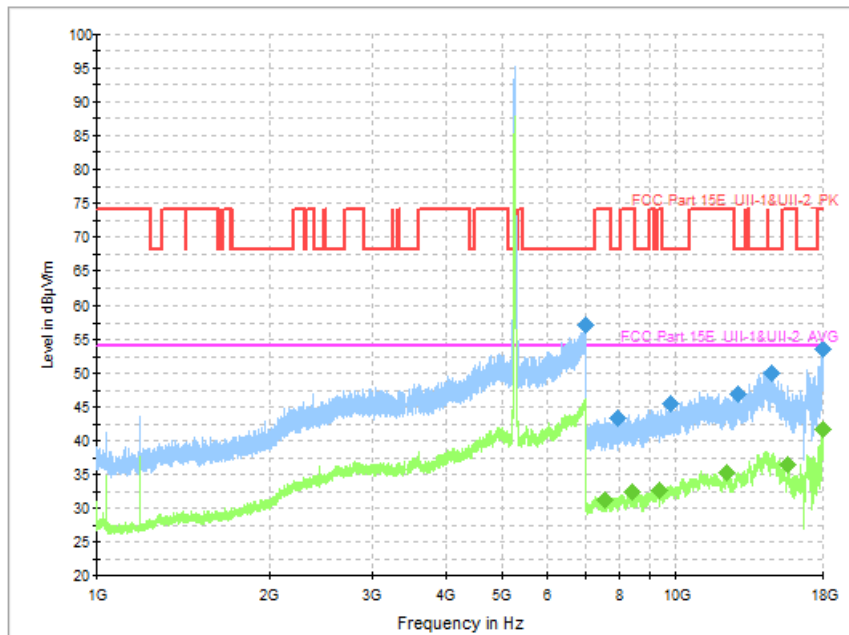


Fig. 79 Transmitter Spurious Emission (802.11n-HT40, CH54 5270MHz)

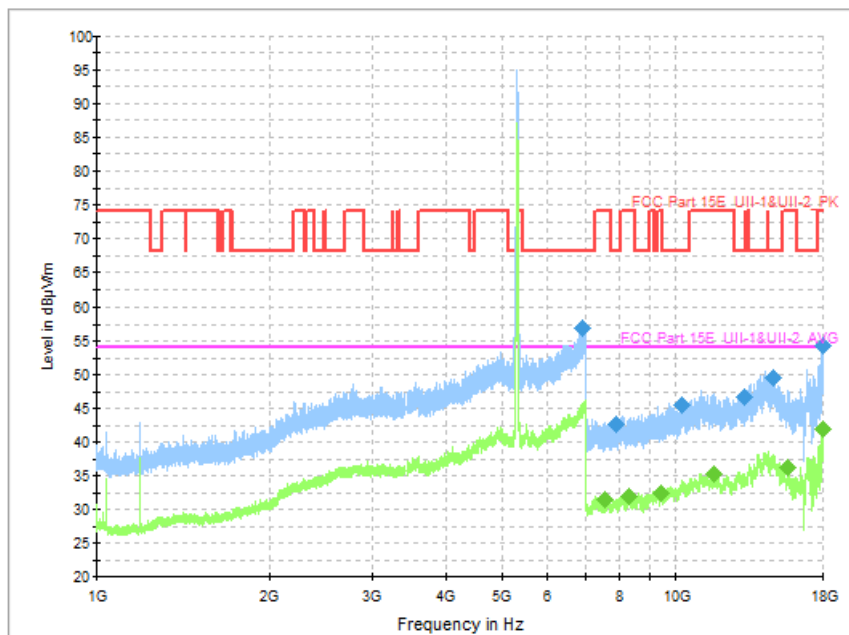
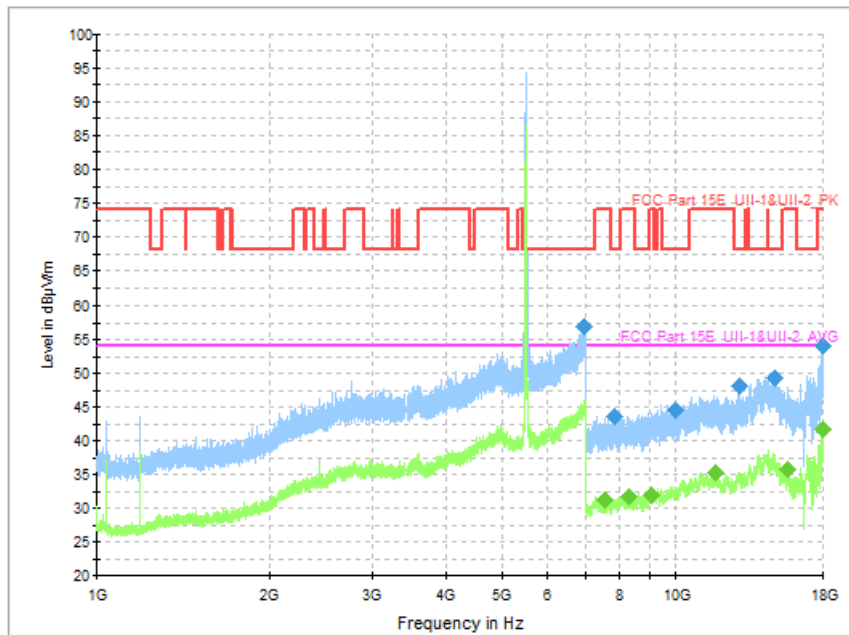
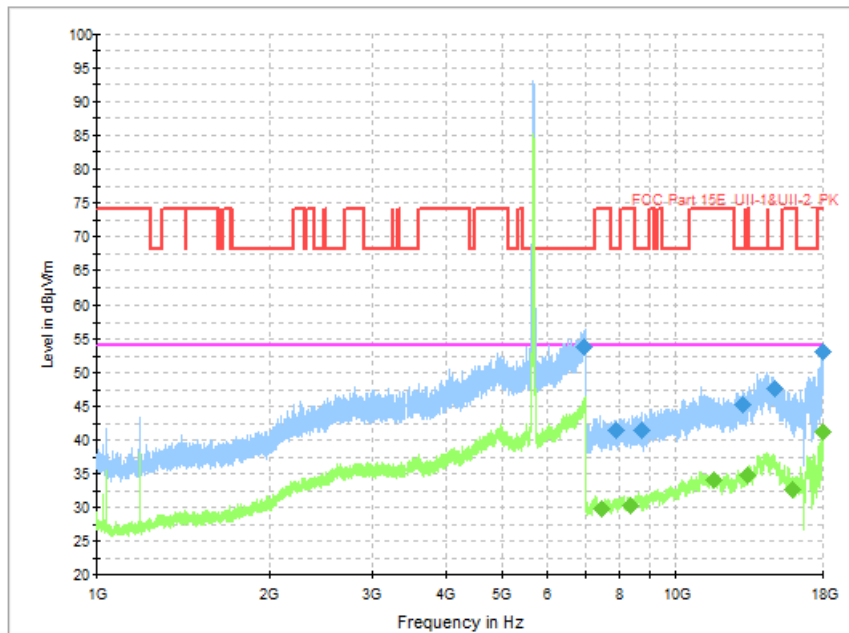


Fig. 80 Transmitter Spurious Emission (802.11n-HT40, CH62 5310MHz)



**Fig. 81 Transmitter Spurious Emission (802.11n-HT40, CH102 5510MHz)**



**Fig. 82 Transmitter Spurious Emission (802.11n-HT40, CH134 5670MHz)**

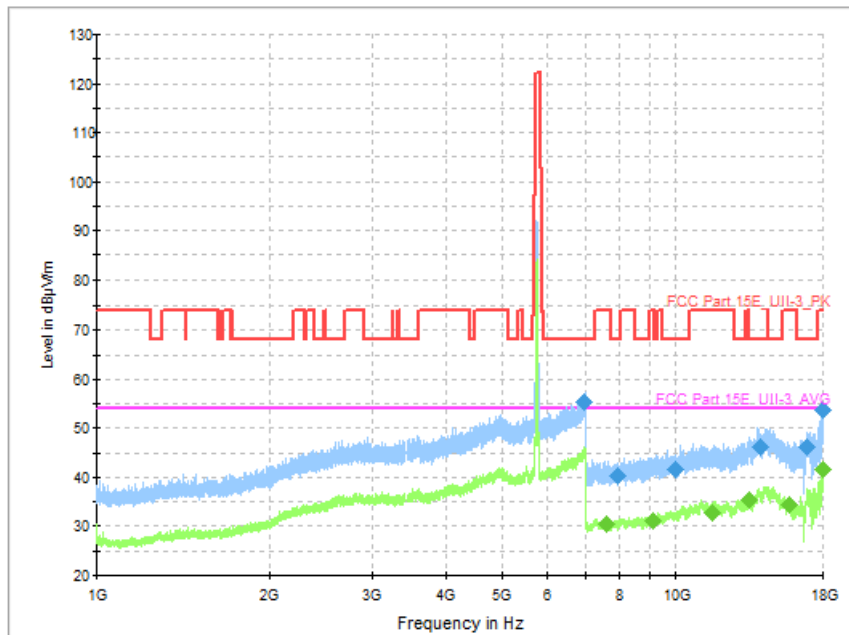


Fig. 83 Transmitter Spurious Emission (802. 11ac-VHT40, CH151 5755MHz)

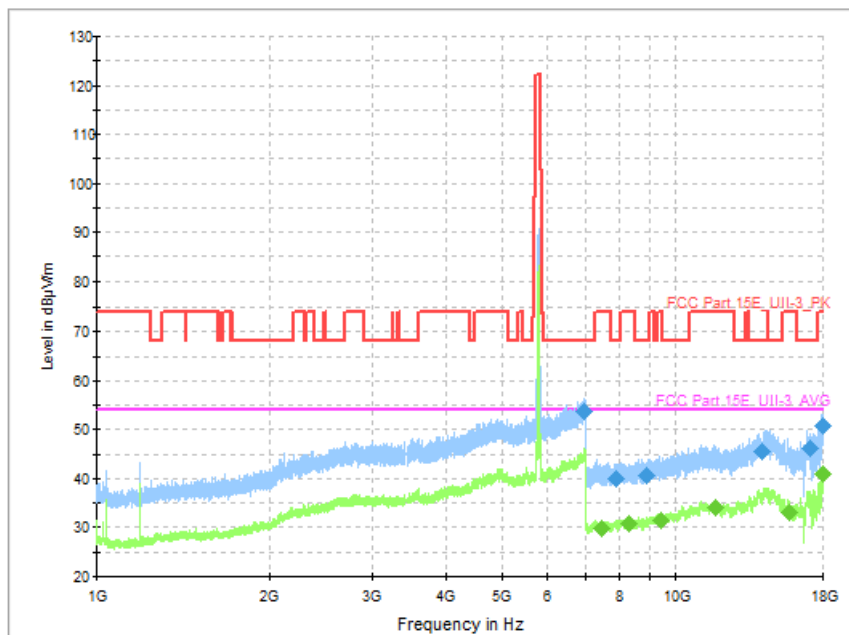


Fig. 84 Transmitter Spurious Emission (802. 11ac-VHT40, CH159 5795MHz)



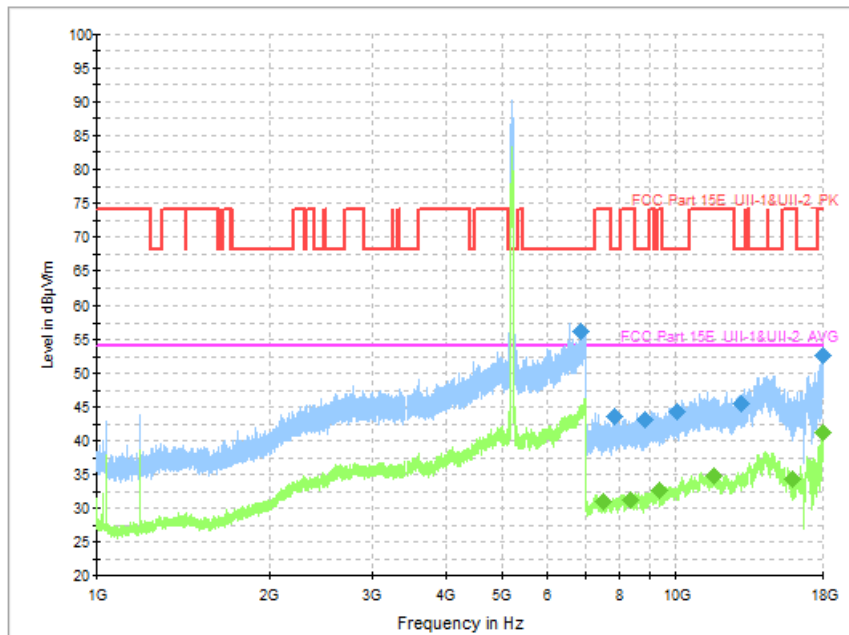


Fig. 85 Transmitter Spurious Emission (802. 11ac-VHT80, CH42 5210MHz)

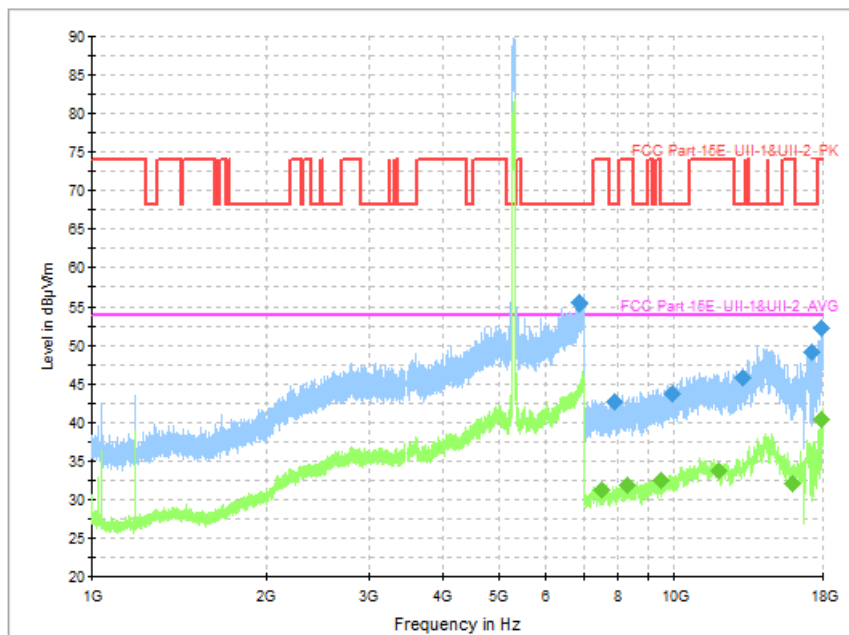


Fig. 86 Transmitter Spurious Emission (802. 11ac-VHT80, CH58 5290MHz)

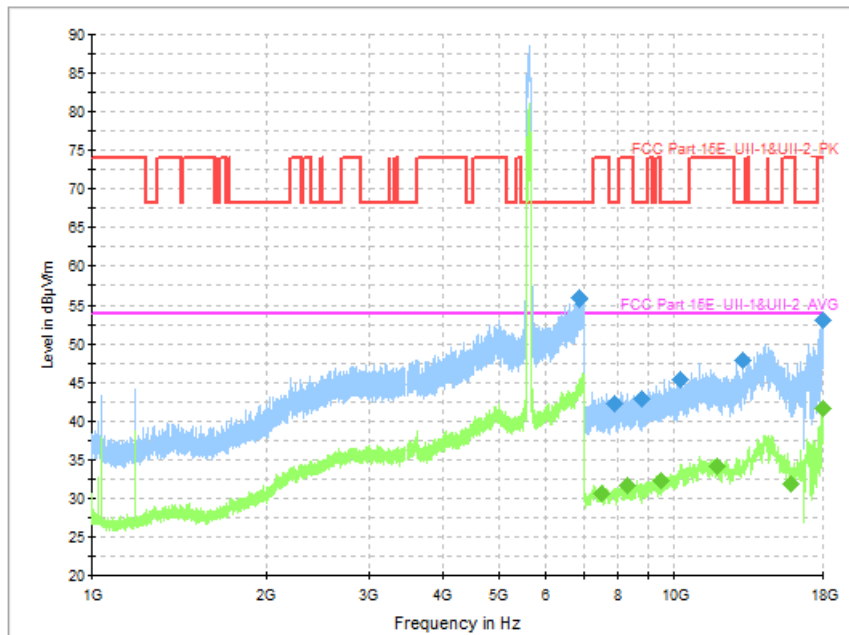


Fig. 87 Transmitter Spurious Emission (802. 11ac-VHT80, CH122 5610MHz)

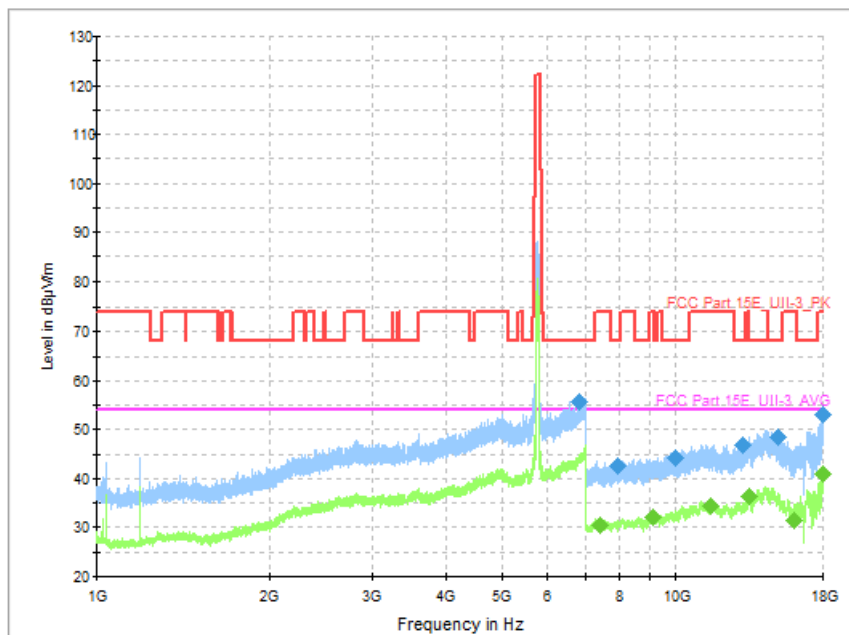


Fig. 88 Transmitter Spurious Emission (802. 11ac-VHT80, CH155 5775MHz)

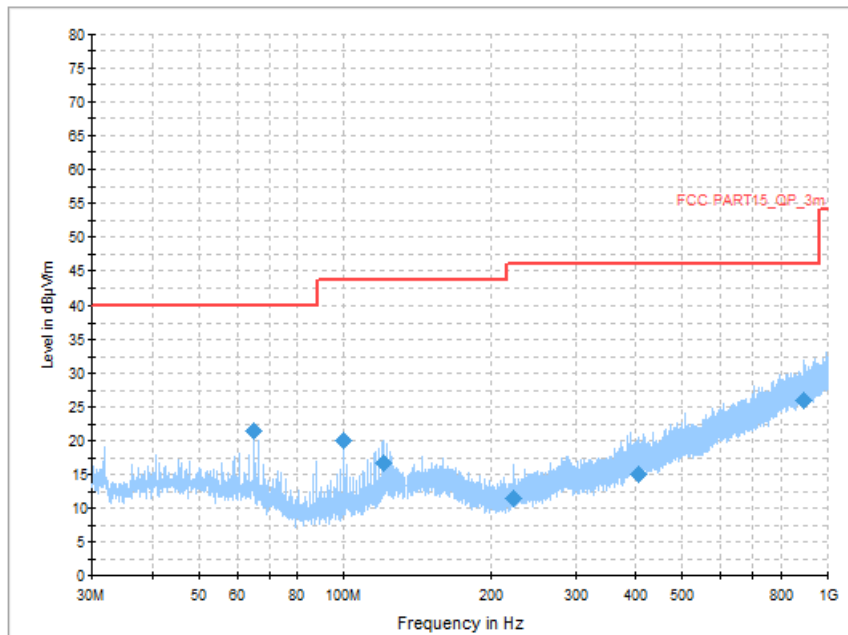


Fig. 89 Transmitter Spurious Emission (All channel, 30MHz~1GHz)

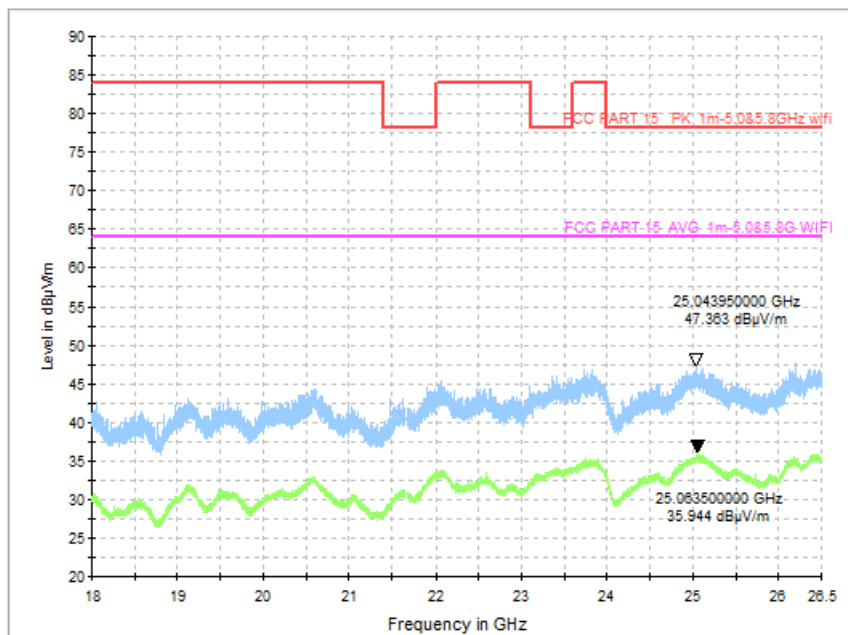


Fig. 90 Transmitter Spurious Emission (All channel, 18GHz~26.5GHz)

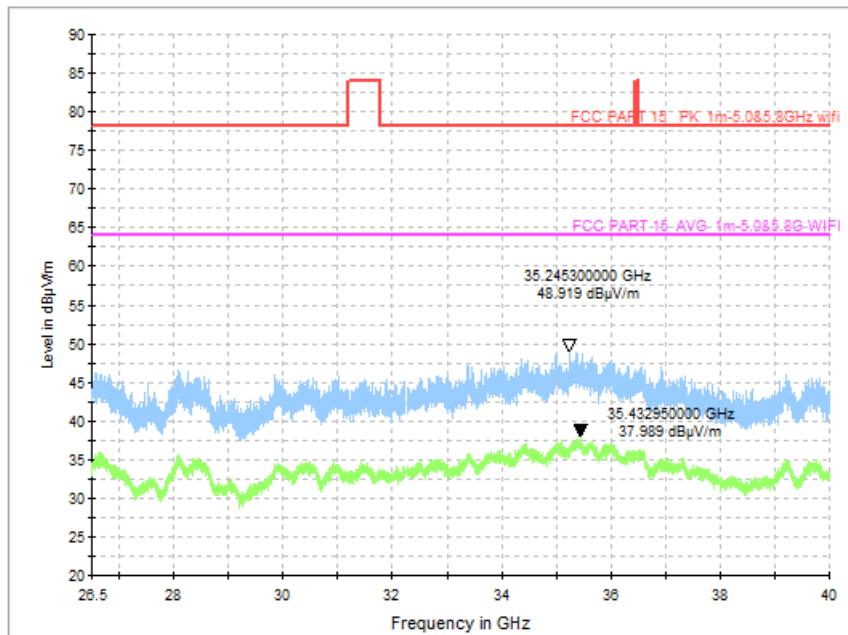


Fig. 91 Transmitter Spurious Emission (All channel, 26.5GHz~40GHz)



**Worst Case Result**

**802.11a CH48**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
7662.923077	46.12	74.00	27.88	V	5.7
8264.769231	46.37	74.00	27.63	V	5.9
10916.769231	47.01	74.00	26.99	V	9.4
12414.461539	48.87	74.00	25.13	V	11.4
15879.692308	51.15	74.00	22.85	H	14.0
17973.230769	53.18	74.00	20.82	V	19.1

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
7662.923077	34.27	54.00	19.73	V	5.7
8264.769231	34.49	54.00	19.51	V	5.9
10916.769231	36.36	54.00	17.64	V	9.4
12414.461539	37.59	54.00	16.41	V	11.4
15879.692308	41.23	54.00	12.77	H	14.0
17973.230769	43.17	54.00	10.83	V	19.1

**802.11a CH52**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
7615.384616	44.26	74.00	29.74	V	5.7
8241.230769	45.66	74.00	28.34	V	5.9
11224.153846	46.82	74.00	27.18	V	9.7
12473.538462	48.09	74.00	25.91	H	11.3
15947.538462	51.80	74.00	22.20	V	14.1
17910.923077	53.93	74.00	20.07	V	18.9

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
7615.384616	34.47	54.00	19.53	V	5.7
8241.230769	34.60	54.00	19.40	V	5.9
11224.153846	36.66	54.00	17.34	V	9.7
12473.538462	37.64	54.00	16.36	H	11.3
15947.538462	40.76	54.00	13.24	V	14.1
17910.923077	43.53	54.00	10.47	V	18.9



## 802.11a CH140

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7630.615385	43.86	74.00	30.14	V	5.7
8230.153846	45.50	74.00	28.50	H	5.9
10998.461539	50.60	74.00	23.40	H	9.7
12456.923077	47.51	74.00	26.49	V	11.4
15961.846154	50.67	74.00	23.33	V	14.1
17994.923077	53.23	74.00	20.77	V	19.2

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7630.615385	34.24	54.00	19.76	V	5.7
8230.153846	34.17	54.00	19.83	H	5.9
10998.461539	39.58	54.00	14.42	H	9.7
12456.923077	37.95	54.00	16.05	V	11.4
15961.846154	40.47	54.00	13.53	V	14.1
17994.923077	42.93	54.00	11.07	V	19.2

## 802.11a CH157

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7543.846154	43.86	74.00	30.14	V	5.6
8236.615385	44.94	74.00	29.06	H	5.9
10908.923077	46.86	74.00	27.14	H	9.4
12346.615385	48.05	74.00	25.95	H	11.2
15864.461539	51.94	74.00	22.06	H	14.0
17920.153846	53.76	74.00	20.24	V	18.9

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7543.846154	33.62	54.00	20.38	V	5.6
8236.615385	34.41	54.00	19.59	H	5.9
10908.923077	36.40	54.00	17.60	H	9.4
12346.615385	37.32	54.00	16.68	H	11.2
15864.461539	40.80	54.00	13.20	H	14.0
17920.153846	43.70	54.00	10.30	V	18.9

**802.11n-HT40 CH38**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7449.692308	43.31	74.00	30.69	V	5.7
8277.692308	44.55	74.00	29.45	H	6.0
11056.153846	46.93	74.00	27.07	H	9.7
11484.461539	47.69	74.00	26.31	H	10.1
12219.230769	47.37	74.00	26.63	H	10.9
15917.076923	50.48	74.00	23.52	V	14.1

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7449.692308	34.19	54.00	18.81	V	5.7
8277.692308	35.11	54.00	18.89	H	6.0
11056.153846	36.86	54.00	17.14	H	9.7
11484.461539	38.29	54.00	15.71	H	10.1
12219.230769	39.00	54.00	16.00	H	10.9
15917.076923	41.36	54.00	12.64	V	14.1

**802.11n-HT40 CH62**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7613.538462	43.90	74.00	30.10	V	5.7
10824.923077	45.84	74.00	28.16	H	9.2
11864.307692	46.39	74.00	27.61	H	10.1
12172.153846	46.89	74.00	27.11	H	10.7
12449.076923	48.32	74.00	25.68	H	11.4
15894.923077	51.50	74.00	22.50	H	14.0

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7613.538462	35.62	54.00	18.38	V	5.7
10824.923077	37.34	54.00	16.66	H	9.2
11864.307692	37.44	54.00	16.56	H	10.1
12172.153846	38.84	54.00	15.16	H	10.7
12449.076923	39.04	54.00	14.96	H	11.4
15894.923077	40.34	54.00	13.66	H	14.0



## 802.11n-HT40 CH134

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
8259.692308	45.15	74.00	28.85	H	5.9
10896.000000	46.59	74.00	27.41	V	9.4
11659.846154	47.10	74.00	26.90	H	9.9
12287.538462	46.62	74.00	27.38	H	11.0
15891.692308	49.84	74.00	24.16	H	14.0
17981.076923	54.44	74.00	19.56	H	19.1

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
8259.692308	33.77	54.00	20.23	H	5.9
10896.000000	35.89	54.00	18.11	V	9.4
11659.846154	36.37	54.00	17.63	H	9.9
12287.538462	36.78	54.00	17.22	H	11.0
15891.692308	39.96	54.00	14.04	H	14.0
17981.076923	43.41	54.00	10.59	H	19.1

## 802.11n-HT40 CH159

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
8222.307692	44.39	74.00	29.61	H	5.9
11066.307692	47.04	74.00	26.96	V	9.7
11635.846154	48.11	74.00	25.89	H	9.9
12468.000000	47.32	74.00	26.68	H	11.3
15858.000000	51.61	74.00	22.39	V	14.0
17916.000000	54.23	74.00	19.77	V	18.9

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
8222.307692	33.69	54.00	20.31	H	5.9
11066.307692	35.96	54.00	18.04	V	9.7
11635.846154	36.56	54.00	17.44	H	9.9
12468.000000	36.91	54.00	17.09	H	11.3
15858.000000	40.28	54.00	13.72	V	14.0
17916.000000	43.41	54.00	10.59	V	18.9



**802.11ac-VHT80 CH42**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7440.461539	43.95	74.00	30.05	V	5.7
8239.384616	44.94	74.00	29.06	V	5.9
10918.153846	45.97	74.00	28.03	V	9.4
12331.384615	46.98	74.00	27.02	V	11.1
15821.538462	49.82	74.00	24.18	V	14.0
17923.384615	53.80	74.00	20.20	H	18.9

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
7440.461539	35.11	54.00	18.89	V	5.7
8239.384616	35.77	54.00	18.23	V	5.9
10918.153846	37.65	54.00	16.35	V	9.4
12331.384615	37.97	54.00	16.03	V	11.1
15821.538462	39.62	54.00	14.38	V	14.0
17923.384615	43.21	54.00	10.79	H	18.9

**802.11ac-VHT80 CH58**

Frequency (MHz)	Max Peak (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
8220.461539	44.67	74.00	29.33	H	5.9
10882.615385	45.64	74.00	28.36	V	9.3
11536.153846	46.46	74.00	27.54	V	10.1
12461.076923	48.28	74.00	25.72	V	11.4
15888.923077	51.38	74.00	22.62	V	14.0
17913.230769	54.01	74.00	19.99	V	18.9

Frequency (MHz)	Average (dB $\mu$ V/m)	Limit (dB $\mu$ V/m)	Margin (dB)	Pol	Corr. (dB)
8220.461539	35.67	54.00	18.33	H	5.9
10882.615385	37.43	54.00	16.57	V	9.3
11536.153846	37.86	54.00	16.14	V	10.1
12461.076923	37.92	54.00	16.08	V	11.4
15888.923077	40.46	54.00	13.54	V	14.0
17913.230769	43.25	54.00	10.75	V	18.9



**802.11ac-VHT80 CH122**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
8305.846154	44.54	74.00	29.46	H	6.0
10874.769231	45.99	74.00	28.01	H	9.3
11611.846154	46.69	74.00	27.31	V	9.9
12299.076923	47.27	74.00	26.73	V	11.0
15871.384615	52.38	74.00	21.62	V	14.0
17953.384615	54.09	74.00	19.91	V	19.0

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
8305.846154	33.50	54.00	20.50	H	6.0
10874.769231	35.64	54.00	18.36	H	9.3
11611.846154	36.27	54.00	17.73	V	9.9
12299.076923	36.95	54.00	17.05	V	11.0
15871.384615	40.49	54.00	13.51	V	14.0
17953.384615	43.37	54.00	10.63	V	19.0

**802.11ac-VHT80 CH155**

Frequency (MHz)	Max Peak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
8178.461539	44.45	74.00	29.55	V	6.0
10751.538462	46.12	74.00	27.88	V	9.0
11413.384615	45.44	74.00	28.56	V	10.0
12210.923077	47.21	74.00	26.79	H	10.8
15872.769231	52.22	74.00	21.78	H	14.0
17928.923077	54.96	74.00	19.04	H	18.9

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB)
8178.461539	33.62	54.00	20.38	V	6.0
10751.538462	35.23	54.00	18.77	V	9.0
11413.384615	35.47	54.00	18.53	V	10.0
12210.923077	36.56	54.00	17.44	H	10.8
15872.769231	40.75	54.00	13.25	H	14.0
17928.923077	43.31	54.00	10.69	H	18.9

Note: A "reference path loss" is established and the  $A_{Rpl}$  is the attenuation of "reference path loss", and including the gain of receive antenna, the gain of the preamplifier, the cable loss.  $P_{Mea}$  is the field strength recorded from the instrument. The measurement results are obtained as described below:  $Result = P_{Mea} + A_{Rpl} = P_{Mea} + Cable Loss + Antenna Factor$

### A.9. Radiated Spurious Emissions < 30MHz

Measurement Limit (15.209, 9kHz-30MHz):

Frequency (MHz)	Field strength ( $\mu\text{V}/\text{m}$ )	Measurement distance (m)
0.009 - 0.490	2400/F(kHz)	300
0.490 - 1.705	24000/F(kHz)	30
1.705 - 30.0	30	30

The measurement is made according to KDB 789033.

Note: The measurement distance during the test is 3m. The limit used in plots recalculated based on the extrapolation factor of 40 dB/decade.

Measurement Result:

Channel	Frequency Range	Test Results	Conclusion
All Channel	9kHz ~ 30MHz	Fig.92	P

Conclusion: PASS

Test graphs as below:

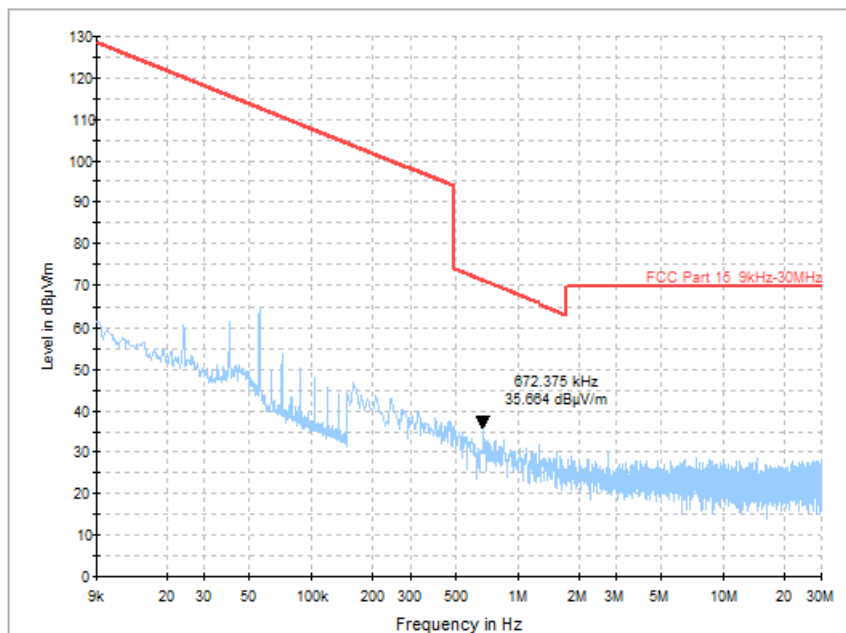


Fig. 92 Radiated Spurious Emission (All Channel, 9kHz ~ 30MHz)



**A.10. AC Power Line Conducted Emission**

**Test Condition:**

Voltage(V)	Frequency (Hz)
120	60

**Measurement Result and limit:**

RLAN (Quasi-peak Limit) - AE3

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	66 to 56	Fig.93	Fig.94	<b>P</b>
0.5 to 5	56			
5 to 30	60			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

RLAN (Average Limit) - AE3

Frequency range (MHz)	Average-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		Traffic	Idle	
0.15 to 0.5	56 to 46	Fig.93	Fig.94	<b>P</b>
0.5 to 5	46			
5 to 30	50			

NOTE: The limit decreases linearly with the logarithm of the frequency in the range 0.15 MHz to 0.5 MHz.

Note: The measurement results include the L1 and N measurements.

**Conclusion: PASS**

**Test graphs as below:**

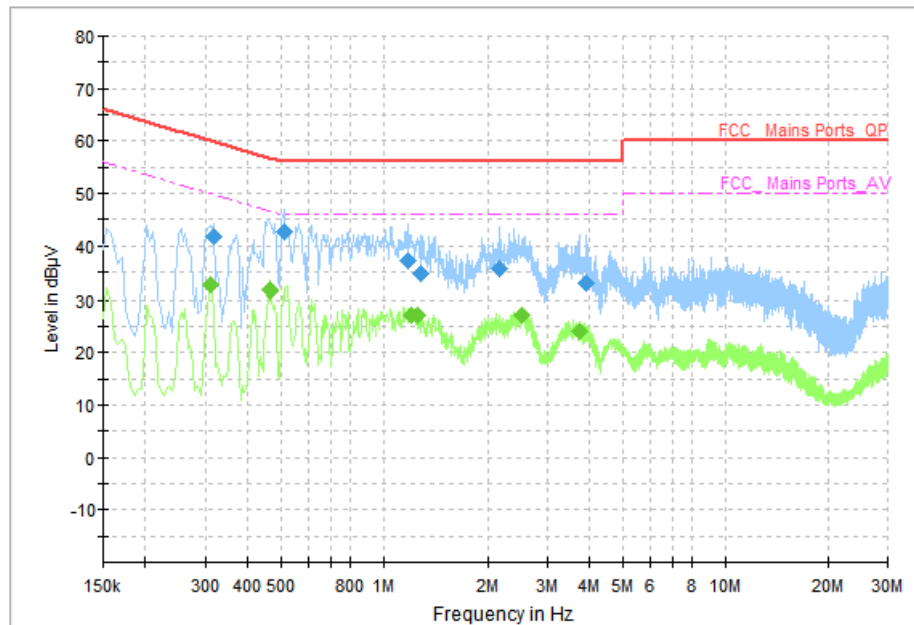


Fig. 93 AC Power line Conducted Emission (Traffic)

**Measurement Result: Quasi Peak**

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.318000	41.80	59.76	17.96	L1	ON	10
0.510000	42.60	56.00	13.40	N	ON	10
1.174000	37.10	56.00	18.90	N	ON	10
1.290000	34.84	56.00	21.16	N	ON	10
2.158000	35.77	56.00	20.23	N	ON	10
3.898000	32.83	56.00	23.17	N	ON	10

**Measurement Result: Average**

Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.310000	32.53	49.97	17.44	L1	ON	10
0.466000	31.69	46.59	14.90	L1	ON	10
1.206000	26.98	46.00	19.02	N	ON	10
1.254000	27.17	46.00	18.83	N	ON	10
2.518000	27.00	46.00	19.00	N	ON	10
3.726000	24.09	46.00	21.91	N	ON	10

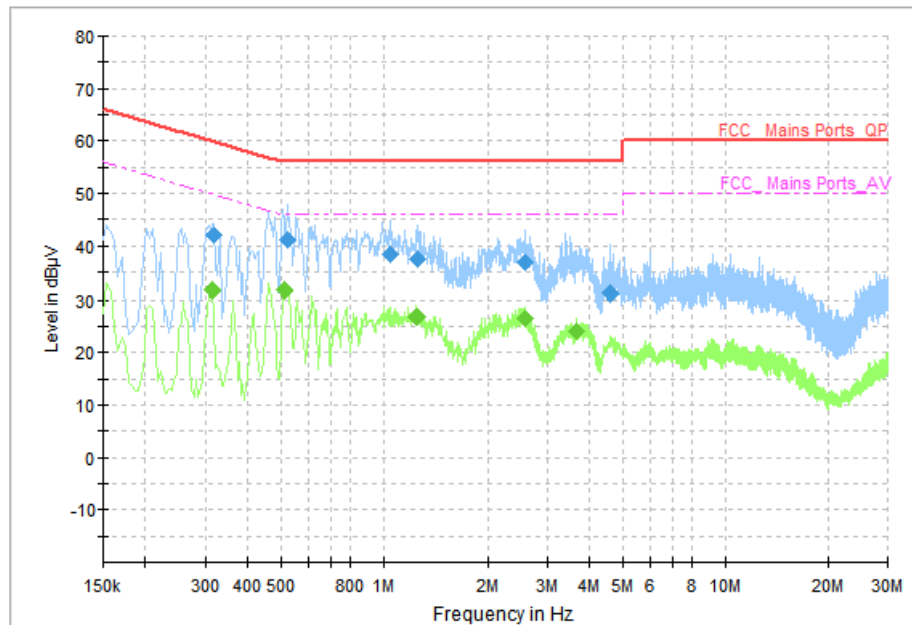


Fig. 94 AC Power line Conducted Emission (Idle)

Measurement Result: Quasi Peak

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.318000	42.04	59.76	17.72	L1	ON	10
0.522000	41.12	56.00	14.88	N	ON	10
1.042000	38.48	56.00	17.52	N	ON	10
1.266000	37.50	56.00	18.50	N	ON	10
2.570000	36.99	56.00	19.01	N	ON	10
4.586000	31.12	56.00	24.88	N	ON	8

Measurement Result: Average

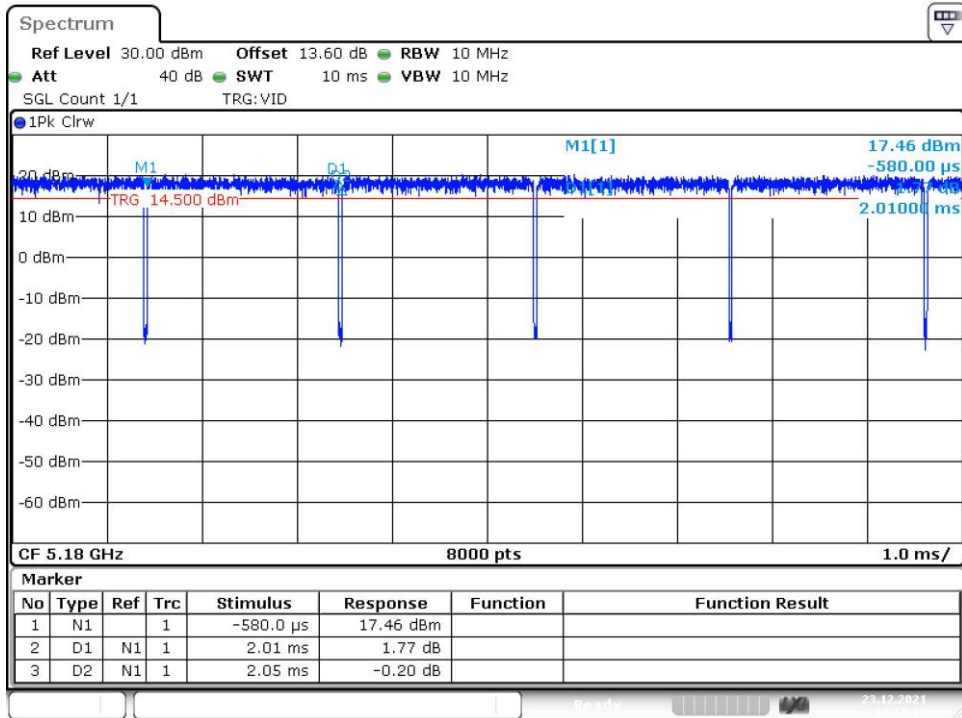
Frequency (MHz)	Average (dBµV)	Limit (dBµV)	Margin (dB)	Line	Filter	Corr. (dB)
0.314000	31.66	49.86	18.21	L1	ON	10
0.514000	31.69	46.00	14.31	N	ON	10
1.246000	26.67	46.00	19.33	N	ON	10
1.266000	26.65	46.00	19.35	N	ON	10
2.590000	26.48	46.00	19.52	N	ON	10
3.646000	24.11	46.00	21.89	N	ON	10



### **A.11. Power control**

A Transmission Power Control mechanism is not required for systems with an e.i.r.p. of less than 27dBm (500mW).

### ANNEX B: Duty Cycle



Duty Cycle WLAN 5GHz (98.05%)

\*\*\* END OF REPORT \*\*\*