



FCC PART 15 TEST REPORT No.I22Z70062-IOT04

for

Samsung Electronics Co., Ltd.

Tablet with Bluetooth, WLAN

SM-T503

With

FCC ID: ZCASMT503

Hardware Version: REV1.0

Software Version: T503.001

Issued Date: 2022-03-31

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 CTTL.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the U.S.Government.

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
I22Z70062-IOT04	Rev.0	1st edition	2022-03-28
I22Z70062-IOT04	Rev.1	Update duty cycle	2022-03-31

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1. TEST LATORATORY

1.1. Introduction & Accreditation

Telecommunication Technology Labs, CAICT is an ISO/IEC 17025:2017 accredited test laboratory under NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM (NVLAP) with lab code 600118-0, and is also an FCC accredited test laboratory (CN5017), and ISED accredited test laboratory (ISED#: 24849). The detail accreditation scope can be found on NVLAP website.

1.2. Testing Location

Testing Location 1: CTTL(Huayuan North Road)

Address: No. 52, Huayuan North Road, Haidian District, Beijing,
P. R. China100191

Testing Location 2: CTTL(BDA)

Address: No. 18A, Kangding Street, Beijing Economic-Technology
Development Area, Beijing, 100176, P.R. China

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2022-02-22

Testing End Date: 2022-03-28

1.5. Signature

谢秀珍

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(Prepared this test report)



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(Reviewed this test report)

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2. CLIENT INFORMATION

2.1 Applicant Information

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2.2 Manufacturer Information

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Email: ggobi.cho@samsung.com
Telephone: +82-10-2722-4159

3. EQUIPMENT UNDER TEST (EUT) AND

ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	Tablet with Bluetooth, WLAN
Model name	SM-T503
FCC ID	ZCASMT503
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Antenna gain	-2.01dBi
Voltage	3.8V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
UT15a	2270062UT15a	REV1.0	T503.001
UT17a	2270062UT17a	REV1.0	T503.001
UT20a	2270062UT20a	REV1.0	T503.001

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

3.3. Internal Identification of AE used during the test

AE ID*	Description	Remark
AE1	Adapter1	/
AE2	Adapter2	/
AE3	Adapter3	/
AE4	Adapter4	/
AE5	Data Cable1	/
AE6	Data Cable2	/
AE7	Headset	/
AE8	Battery	/
AE1		
Model	EP-TA50JWE	
Manufacturer	HAEM Co.,Ltd	
Length of cable	/	
AE2		
Model	EP-TA50EWE	
Manufacturer	RFTECH Co., Ltd.	
Length of cable	/	

AE3	
Model	EP-TA50EWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/
AE4	
Model	EP-TA50UWE
Manufacturer	HAEM Co.,Ltd
Length of cable	/
AE5	
Model	EP-DT725BWE
Manufacturer	R.F.Tech Electronics (HuiZhou) Co.,Ltd.
Length of cable	/
AE6	
Model	EP-DT725BWE
Manufacturer	DONGGUAN KSD CO.,LTD
Length of cable	/
AE7	
Model	EHS61ASFWE
Manufacturer	DONGGUAN YOUNGBO ELECTRONICS CO.,LTD
Length of cable	/
AE8	
Model	/
Manufacturer	/
Length of cable	/

*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 Tablet with Bluetooth, WLAN with integrated antenna and inbuilt battery.

It has Bluetooth (EDR)function.

It consists of normal options: travel charger, USB cable.

Manual and specifications of the EUT were provided to fulfil the test.

Samples undergoing test were selected by the client.

3.5. Interpretation of the Test Environment

For the test methods, the test environment uncertainty figures correspond to an expansion factor $k=2$.

Measurement Uncertainty

Parameter	Uncertainty
temperature	0.48°C
humidity	2 %
DC voltages	0.003V

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.

FCC Part15	Title 47 of the Code of Federal Regulations; Chapter I Part 15 - Radio frequency devices	2018
ANSI C63.10	Methods of Measurement of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the Range of 9 kHz to 40 GHz	2013
UNII: KDB 789033 D02	General U-NII Test Procedures New Rules v02r01	2017-12

5. LABORATORY ENVIRONMENT

Conducted RF performance testing is performed in shielding room.

EMC performance testing is performed in Semi-anechoic chamber.

6. SUMMARY OF TEST RESULTS

6.1. Summary of Test Results

SUMMARY OF MEASUREMENT RESULTS	Sub-clause of Part15E	Sub-clause of IC	Verdict
Maximum Output Power	15.407	/	P
Peak Power Spectral Density	15.407	/	P
Occupied 26dB Bandwidth	15.403	/	P
Band edge compliance (Radiated)	15.209	/	P
Transmitter spurious emissions (Radiated)	15.407	/	P
AC Powerline Conducted Emission (150kHz- 30MHz)	15.407	/	P
Frequency Stability	15.407	/	P
99% Occupied bandwidth	/	/	P
Transmit Power Control	15.407	/	NA

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

Terms used in Verdict column

P	Pass, The EUT complies with the essential requirements in the standard.
NM	Not measured, The test was not measured by CTTL
NA	Not Applicable, The test was not applicable
F	Fail, The EUT does not comply with the essential requirements in the standard

6.2. Statements

CTTL has evaluated the test cases requested by the client/matrix manufacturer as listed in section 6.1 of this report for the EUT specified in section 3 according to the standards or reference documents listed in section 4.1.

This report only deals with the WLAN function among the features described in section 3.

6.3. Test Conditions

For this report, all the test cases are tested under normal temperature and normal voltage, and also under norm humidity, the specific condition is shown as follows:

Temperature	26°C
Voltage	3.8V
Humidity	44%

7. TEST EQUIPMENTS UTILIZED

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Vector Signal Analyzer	FSQ40	200089	Rohde & Schwarz	1 year	2022-05-24
2	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESU26	100376	R&S	1 year	2022-09-15
2	EMI Antenna	VULB9163	9163-514	Schwarzbeck	1 year	2022-03-22
3	EMI Antenna	3117	00139065	ETS-Lindgren	1 year	2022-09-02
4	EMI Antenna	LB-180400-25-C-KF	J211060826	A-INFO	1 year	2023-02-27
5	Loop Antenna	HFH2-Z2	829324/007	R&S	1 year	2022-12-22
6	Analytical Spectrometer	FSV40	101047	R&S	1 year	2022-06-02
7	Test Receiver	ESW44	103015	R&S	1 year	2022-09-02

AC Power Line Conducted Emission

No.	Equipment	Model	Manufacturer	Serial Number	Calibration Period	Calibration Due date
1	LISN	ENV216	101459	R&S	1 year	2022-03-16
2	Test Receiver	ESCI	100766	R&S	1 year	2023-03-02

Note:

The LISN which Serial Number is 101459 was before Calibration Due date when used.

8. Measurement Uncertainty

8.1 Transmitter Output Power

Measurement Uncertainty: 0.387dB,k=1.96

8.2 Peak Power Spectral Density

Measurement Uncertainty: 0.705dB,k=1.96

8.3 Occupied Channel Bandwidth

Measurement Uncertainty: 60.80Hz,k=1.96

8.4 Band Edges Compliance

Measurement Uncertainty : 0.62dB,k=1.96

8.5 Spurious Emissions

Conducted (k=1.96)

Frequency Range	Uncertainty(dB)
$30\text{MHz} \leq f \leq 2\text{GHz}$	1.22
$2\text{GHz} \leq f \leq 3.6\text{GHz}$	1.22
$3.6\text{GHz} \leq f \leq 8\text{GHz}$	1.22
$8\text{GHz} \leq f \leq 12.75\text{GHz}$	1.51
$12.75\text{GHz} \leq f \leq 26\text{GHz}$	1.51
$26\text{GHz} \leq f \leq 40\text{GHz}$	1.59

Radiated (k=2)

Frequency Range	Uncertainty(dB)
9kHz-30MHz	/
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.40
$1\text{GHz} \leq f \leq 18\text{GHz}$	4.32
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.26

8.6.AC Power-line Conducted Emission

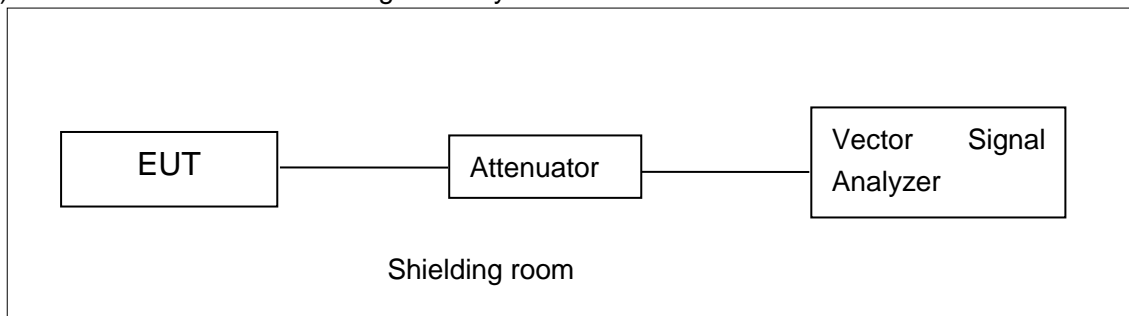
Measurement Uncertainty: 3.10, k=2

ANNEX A: MEASUREMENT RESULTS

A.1. Measurement Method

A.1.1. 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. Vector Signal Analyzer

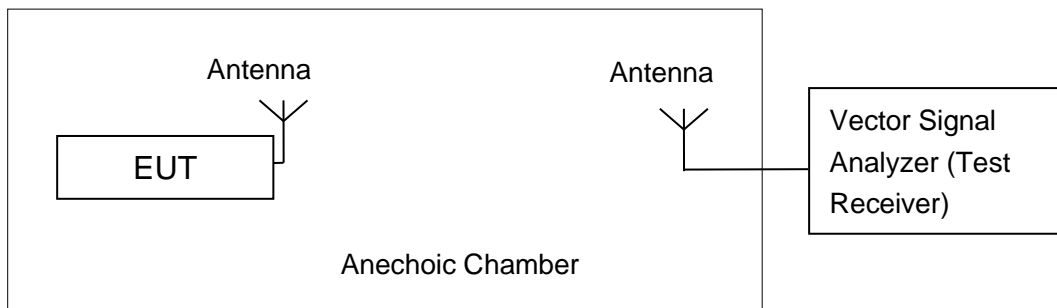


A.1.2. Radiated Emission Measurements

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

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

Sweep frequency from 1 GHz to 26GHz, RBW = 1MHz, VBW = 3MHz;



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(a)	5150MHz~5250MHz	24dBm
	5250MHz~5350MHz	24dBm or 11+10logB
	5470MHz~5725MHz	24dBm or 11+10logB

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

The measurement method SA-2 is made according to KDB 789033

Measurement Results:

Duty cycle

Mode	Test Result							
	6	9	12	18	24	36	48	54
802.11a	98%	98%	97%	93%	94%	90%	89%	90%
Mode	Test Result							
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	97%	96%	95%	93%	90%	89%	87%	88%
Mode	Test Result							
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	98%	97%	96%	94%	91%	90%	88%	87%

Mode	Test Result								
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (HT20)	98%	97%	95%	94%	90%	89%	88%	87%	86%

Mode	Test Result									
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT40)	98%	98%	97%	96%	94%	92%	91%	91%	90%	88%
Mode	Test Result									
	MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT80)	97%	98%	96%	94%	91%	89%	88%	87%	85%	86%

802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	17.37	16.63	15.21	15.26	14.21	14.03	13.33	13.31
	5200MHz	16.44	/	/	/	/	/	/	/
	5240MHz	16.22	/	/	/	/	/	/	/
	5260MHz	16.52	/	/	/	/	/	/	/
	5280MHz	17.14	/	/	/	/	/	/	/
	5320MHz	17.79	/	/	/	/	/	/	/
	5500MHz	17.63	/	/	/	/	/	/	/
	5580MHz	16.95	/	/	/	/	/	/	/
	5700MHz	12.09	/	/	/	/	/	/	/

The data rate 6Mbps is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT20 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT20)	5180MHz	15.53	14.99	14.67	13.77	13.67	13.21	13.19	13.16
	5200MHz	15.47	/	/	/	/	/	/	/
	5240MHz	16.01	/	/	/	/	/	/	/
	5260MHz	15.92	/	/	/	/	/	/	/
	5280MHz	15.97	/	/	/	/	/	/	/
	5320MHz	16.28	/	/	/	/	/	/	/
	5500MHz	16.44	/	/	/	/	/	/	/
	5580MHz	16.33	/	/	/	/	/	/	/
		5700MHz	10.09	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11ac-HT20 mode

Mode	Frequency	Test Result (dBm)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (HT20)	5180MHz	16.74	16.51	16.45	13.35	13.30	12.02	12.05	11.93	11.51
	5200MHz	16.33	/	/	/	/	/	/	/	/
	5240MHz	16.96	/	/	/	/	/	/	/	/
	5260MHz	16.73	/	/	/	/	/	/	/	/
	5280MHz	16.81	/	/	/	/	/	/	/	/
	5320MHz	17.10	/	/	/	/	/	/	/	/
	5500MHz	17.31	/	/	/	/	/	/	/	/
		5580MHz	17.27	/	/	/	/	/	/	/

5700MHz	11.16	/	/	/	/	/	/	/	/	/
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The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11n-HT40 mode

Mode	Frequency	Test Result (dBm)							
		Data Rate							
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7
802.11n (HT40)	5190MHz	15.63	14.36	14.31	13.43	13.34	12.91	12.87	12.82
	5230MHz	15.25	/	/	/	/	/	/	/
	5270MHz	15.71	/	/	/	/	/	/	/
	5310MHz	15.99	/	/	/	/	/	/	/
	5510MHz	15.86	/	/	/	/	/	/	/
	5550MHz	15.31	/	/	/	/	/	/	/
	5670MHz	15.38	/	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11ac-HT40 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT40)	5190MHz	16.42	16.27	16.23	13.47	13.09	11.89	11.92	11.82	11.44	11.36
	5230MHz	16.50	/	/	/	/	/	/	/	/	/
	5270MHz	16.75	/	/	/	/	/	/	/	/	/
	5310MHz	16.96	/	/	/	/	/	/	/	/	/
	5510MHz	16.88	/	/	/	/	/	/	/	/	/
	5550MHz	16.69	/	/	/	/	/	/	/	/	/
	5670MHz	16.72	/	/	/	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

802.11ac-HT80 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT80)	5210MHz	16.40	16.32	16.22	13.62	13.56	11.85	11.96	11.87	11.42	11.36
	5290MHz	16.96	/	/	/	/	/	/	/	/	/
	5530MHz	16.63	/	/	/	/	/	/	/	/	/
	5610MHz	16.90	/	/	/	/	/	/	/	/	/

The data rate MCS0 is selected as worse condition, and the following cases are performed with this condition.

A.3. Peak Power Spectral Density (conducted)

Measurement Limit:

Standard	Frequency (MHz)	Limit (dBm/MHz)
FCC CRF Part 15.407(a)	5150MHz~5250MHz	11
	5250MHz~5350MHz	11
	5470MHz~5725MHz	11

The output power measurement method Section F is made according to KDB 789033

Measurement Results:

Mode	Frequency	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	6.18	P
	5200 MHz	5.04	P
	5240 MHz	5.73	P
	5260 MHz	5.21	P
	5280 MHz	5.52	P
	5320 MHz	5.43	P
	5500 MHz	5.07	P
	5580 MHz	4.84	P
802.11ac HT20	5180 MHz	6.20	P
	5200 MHz	5.11	P
	5240 MHz	5.82	P
	5260 MHz	5.3	P
	5280 MHz	5.65	P
	5320 MHz	5.75	P
	5500 MHz	5.09	P
	5580 MHz	4.93	P
802.11ac HT40	5190 MHz	2.64	P
	5230 MHz	2.77	P
	5270 MHz	2.44	P
	5310 MHz	2.72	P
	5510 MHz	1.79	P
	5550 MHz	1.82	P
	5670 MHz	2.13	P
802.11ac HT80	5210MHz	-0.64	P
	5290MHz	-0.45	P
	5530MHz	-1.50	P
	5610MHz	-1.26	P

Conclusion: PASS

A.4. Occupied 26dB Bandwidth(conducted)

Measurement Limit:

Standard	Limit (kHz)
FCC 47 CFR Part 15.403 (i)	/

The measurement is made according to KDB 789033

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
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Measurement Result:

Mode	Frequency	Occupied 26dB Bandwidth (MHz)		conclusion
		Fig.	Value	
802.11a	5180 MHz	Fig.1	31.85	P
	5200 MHz	Fig.2	33.00	P
	5240 MHz	Fig.3	31.80	P
	5260 MHz	Fig.4	32.05	P
	5280 MHz	Fig.5	33.05	P
	5320 MHz	Fig.6	33.05	P
	5500 MHz	Fig.7	33.00	P
	5580 MHz	Fig.8	33.00	P
	5700 MHz	Fig.9	34.15	P
802.11ac HT20	5180 MHz	Fig.10	38.45	P
	5200 MHz	Fig.11	39.35	P
	5240 MHz	Fig.12	37.00	P
	5260 MHz	Fig.13	39.45	P
	5280 MHz	Fig.14	39.95	P
	5320 MHz	Fig.15	39.50	P
	5500 MHz	Fig.16	38.55	P
	5580 MHz	Fig.17	37.00	P
	5700 MHz	Fig.18	39.90	P
802.11ac HT40	5190 MHz	Fig.19	50.00	P
	5230 MHz	Fig.20	45.84	P
	5270 MHz	Fig.21	54.40	P
	5310 MHz	Fig.22	54.88	P
	5510 MHz	Fig.23	47.84	P
	5550 MHz	Fig.24	52.56	P
	5670 MHz	Fig.25	48.72	P
802.11ac HT80	5210MHz	Fig.26	93.92	P
	5290MHz	Fig.27	99.36	P
	5530MHz	Fig.28	94.88	P
	5610MHz	Fig.29	97.60	P

Conclusion: PASS
Test graphs as below:

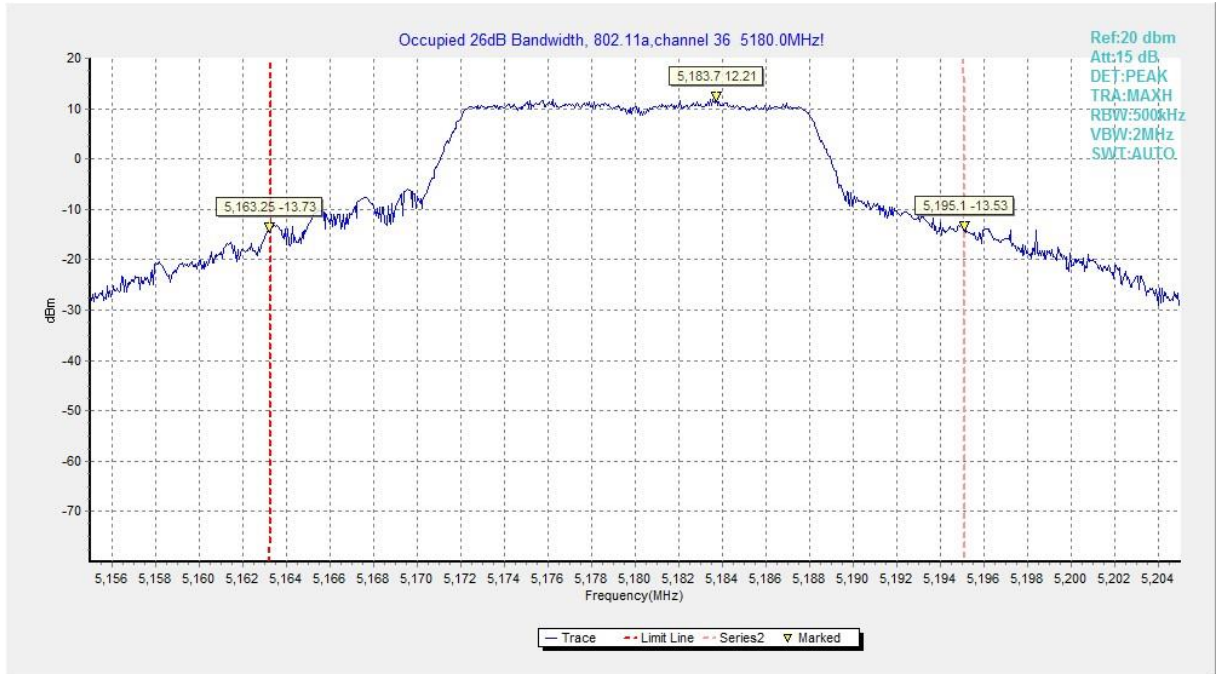


Fig.1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

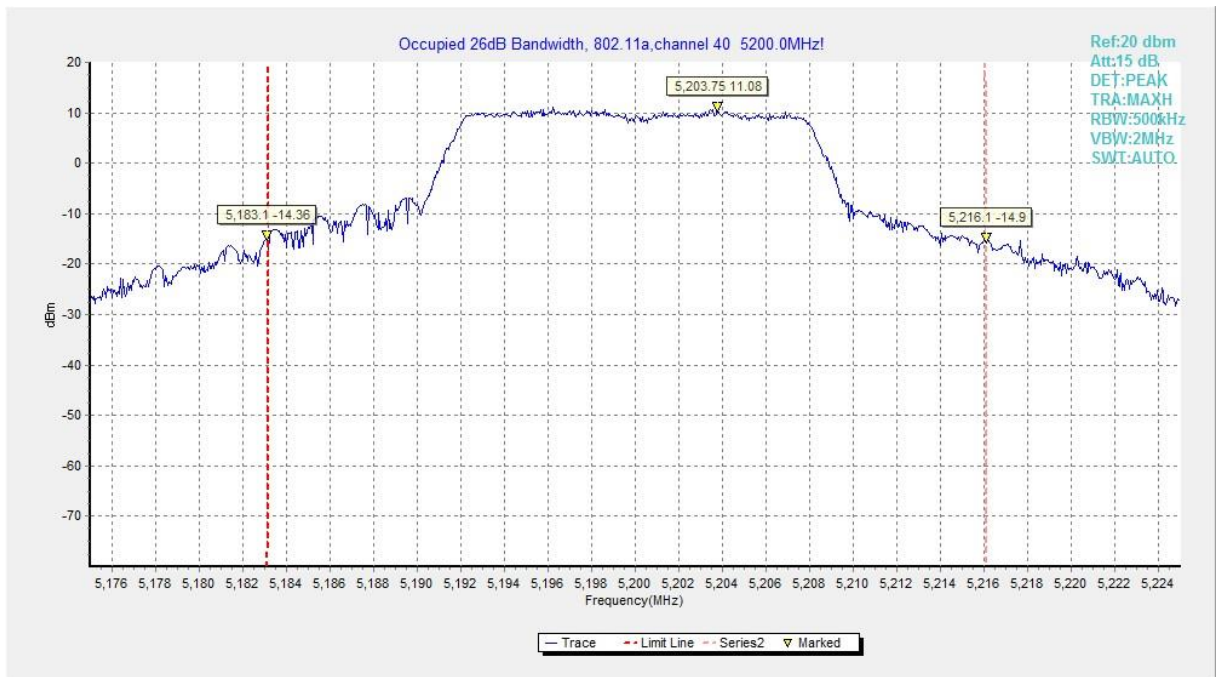


Fig.2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

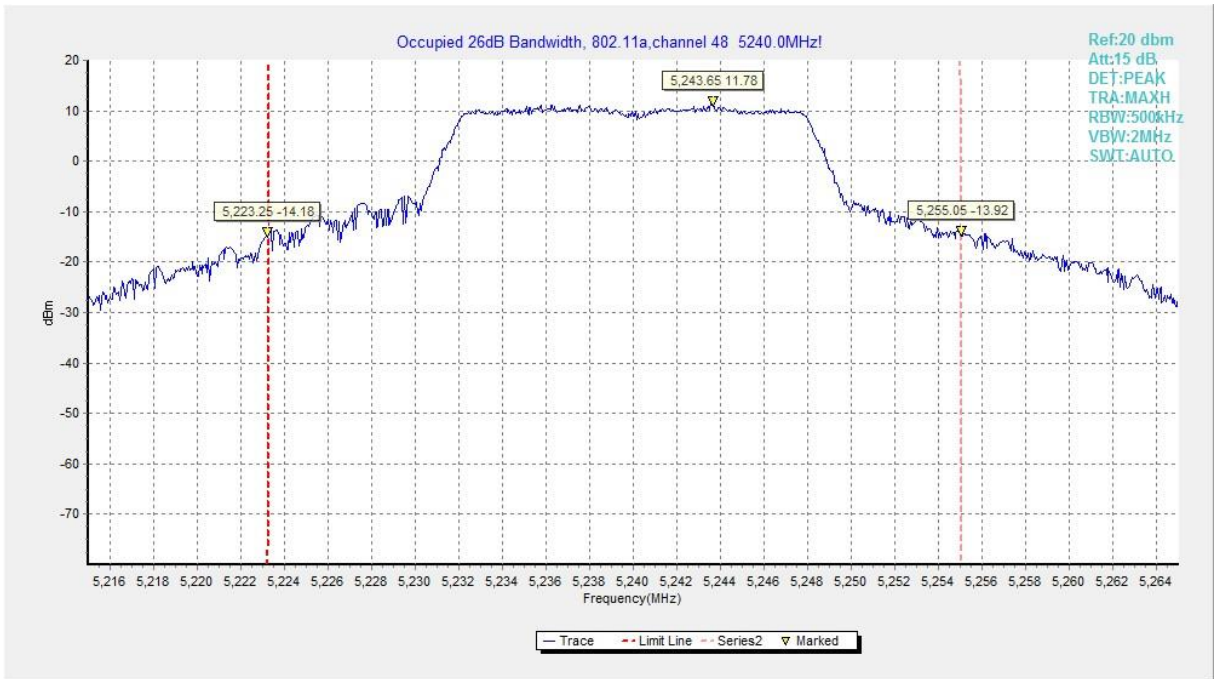


Fig.3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

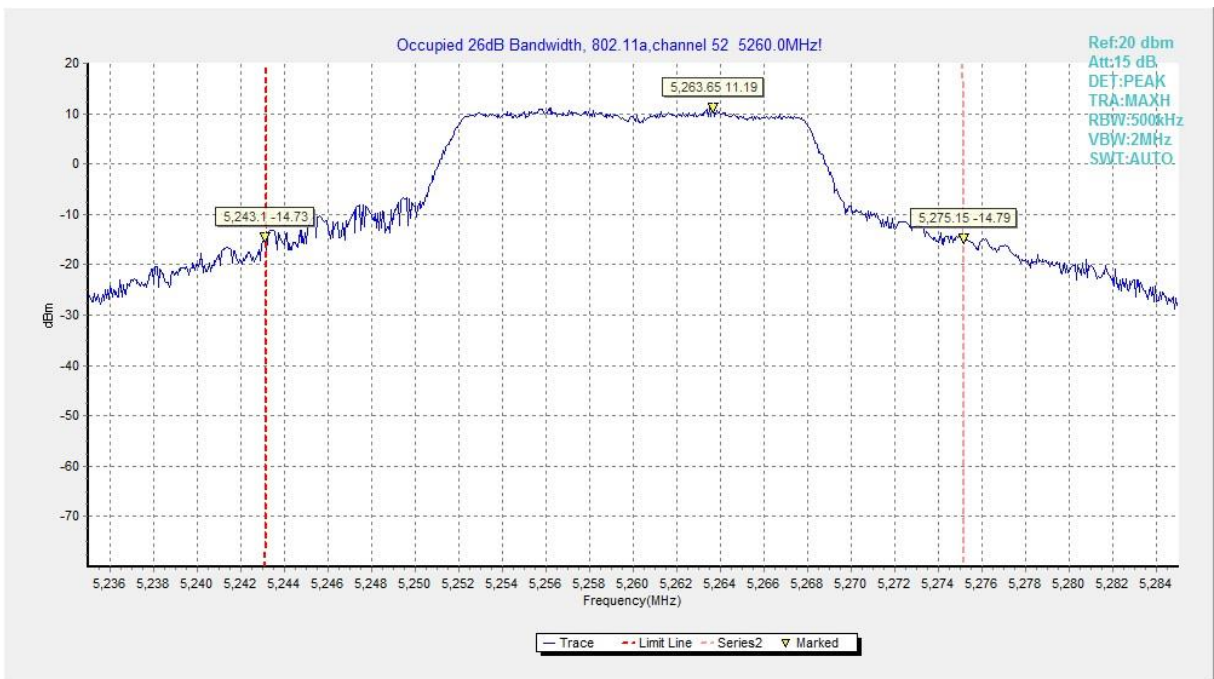


Fig.4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

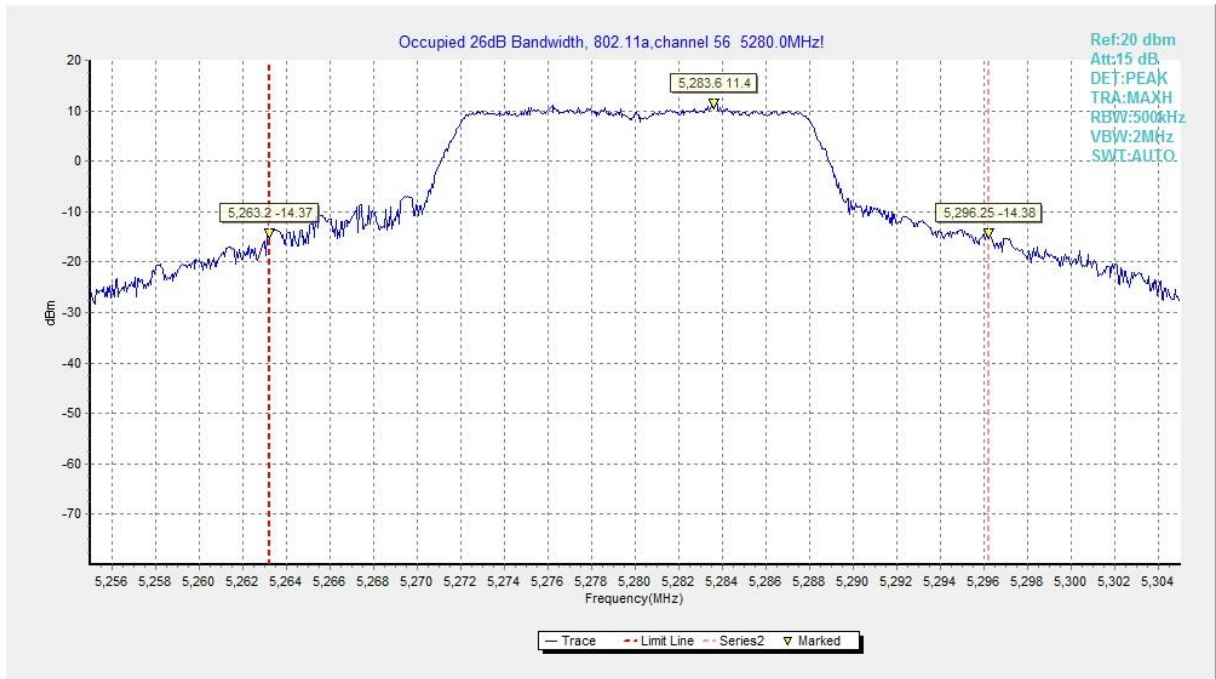


Fig.5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

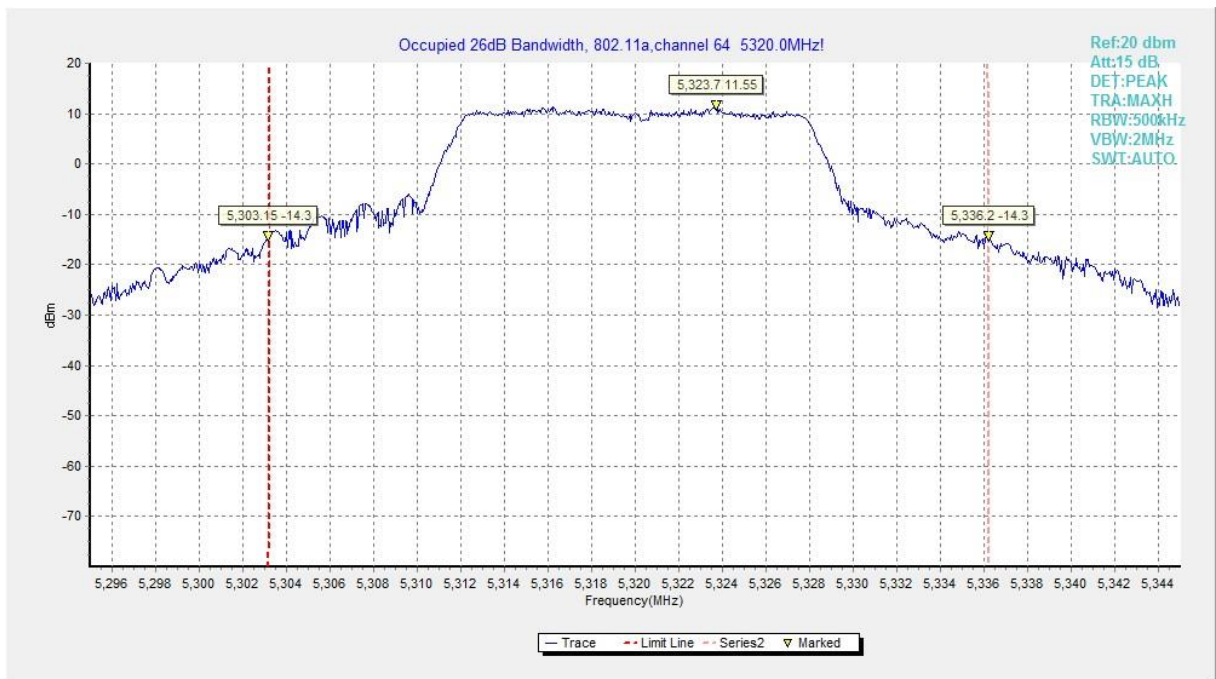


Fig.6 Occupied 26dB Bandwidth (802.11a, 5320MHz)



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

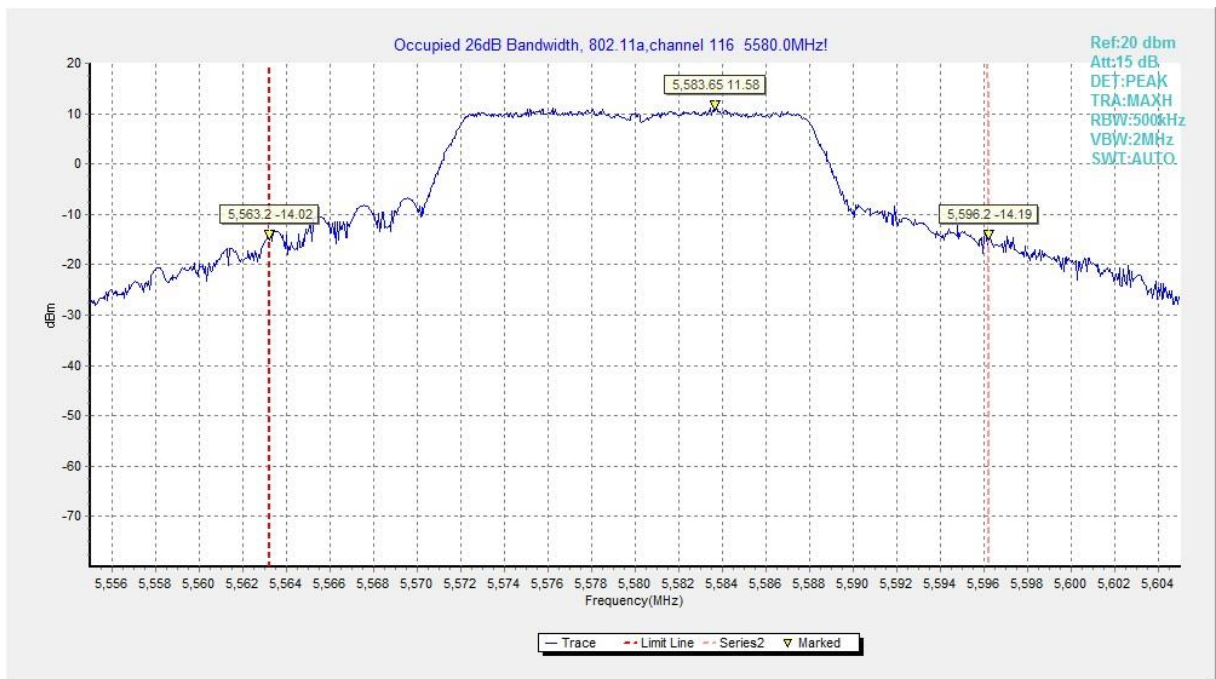


Fig.8 Occupied 26dB Bandwidth (802.11a, 5580MHz)

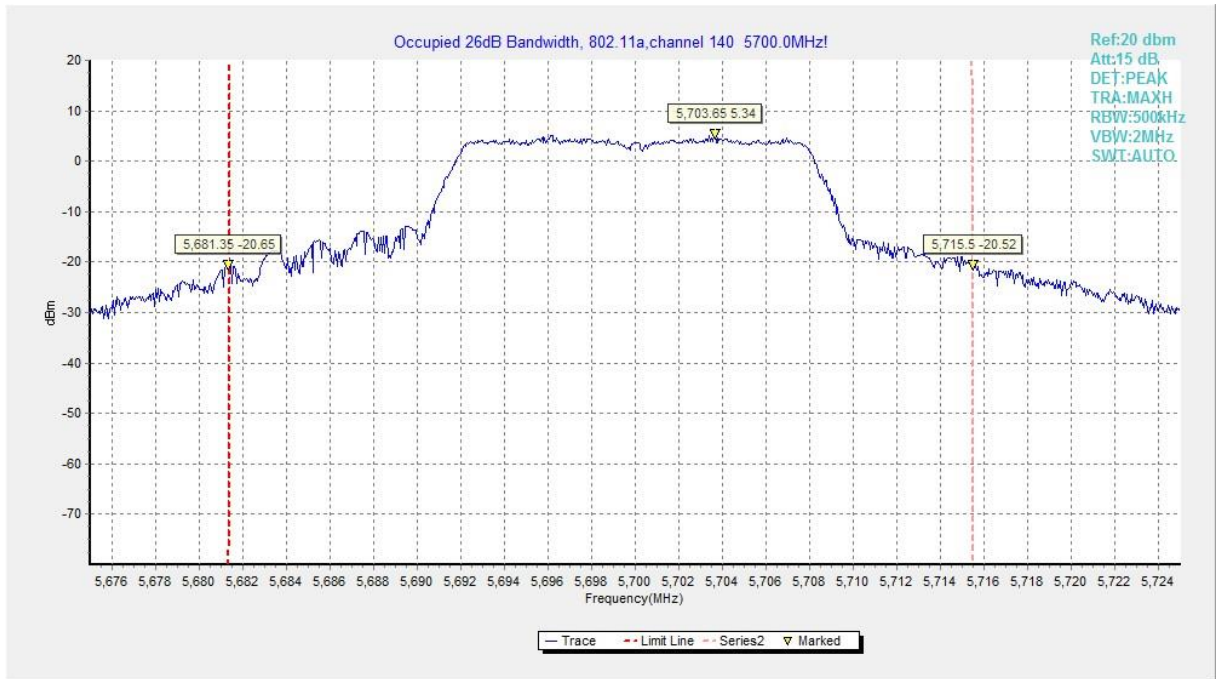


Fig.9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

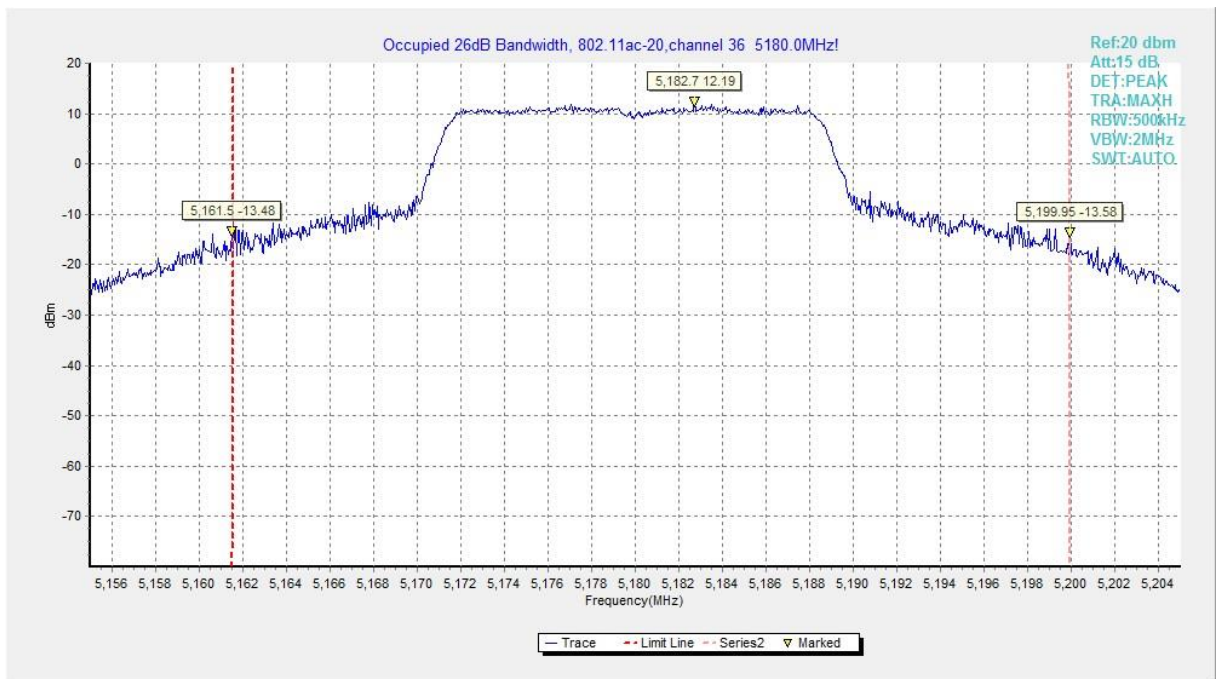


Fig.10 Occupied 26dB Bandwidth (802.11ac-HT20, 5180MHz)

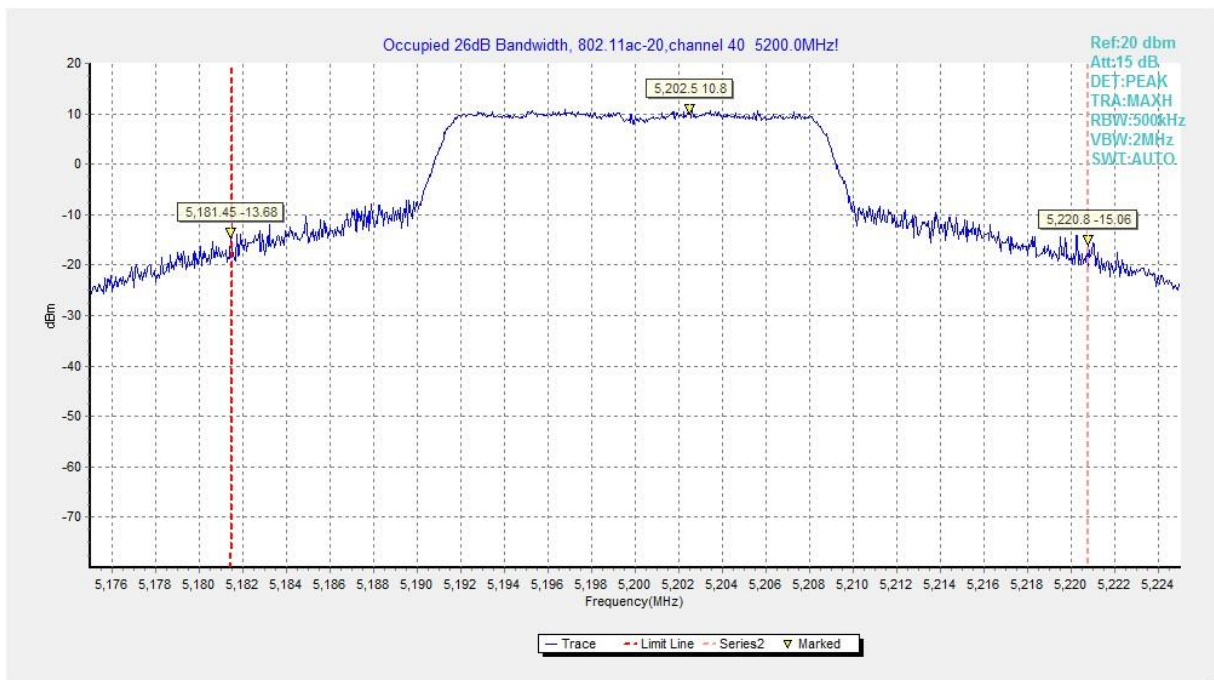


Fig.11 Occupied 26dB Bandwidth (802.11ac-HT20, 5200MHz)

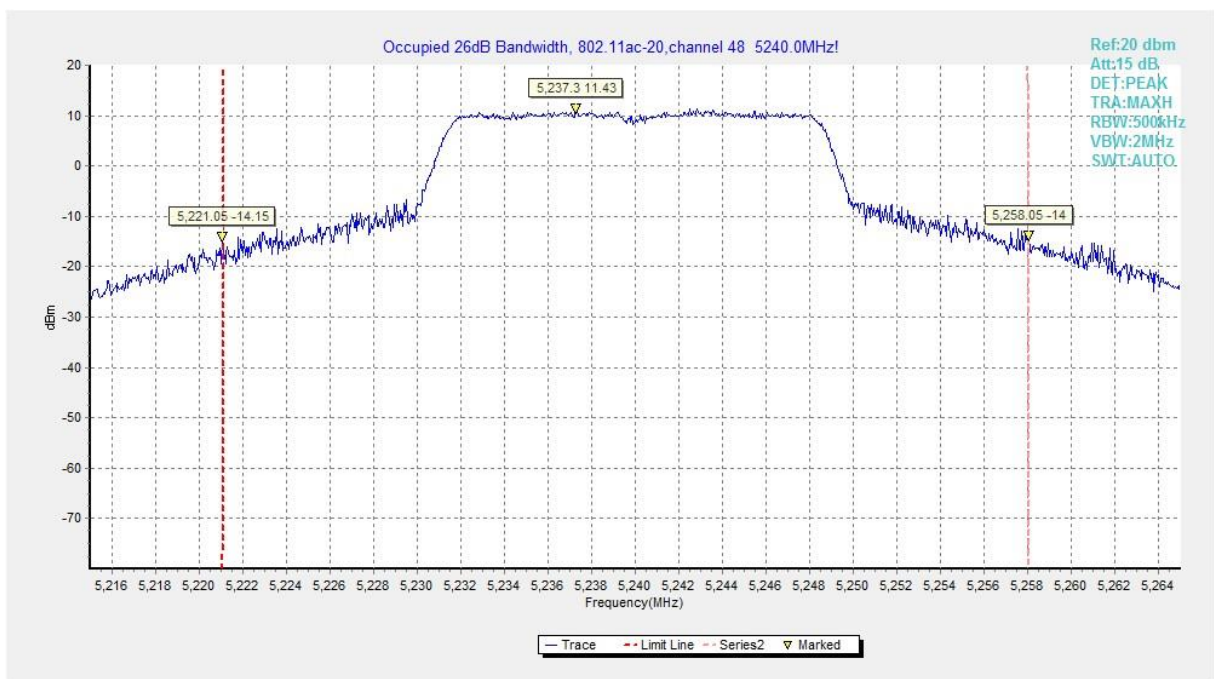


Fig.12 Occupied 26dB Bandwidth (802.11ac-HT20, 5240MHz)

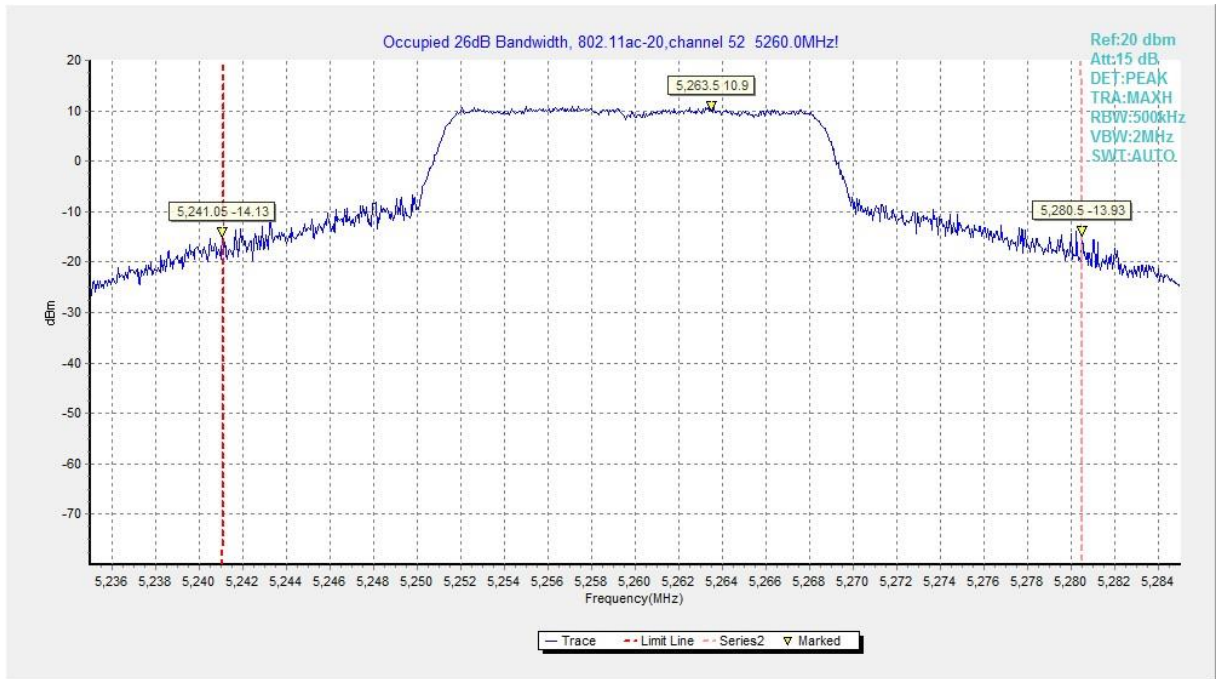


Fig.13 Occupied 26dB Bandwidth (802.11ac-HT20, 5260MHz)

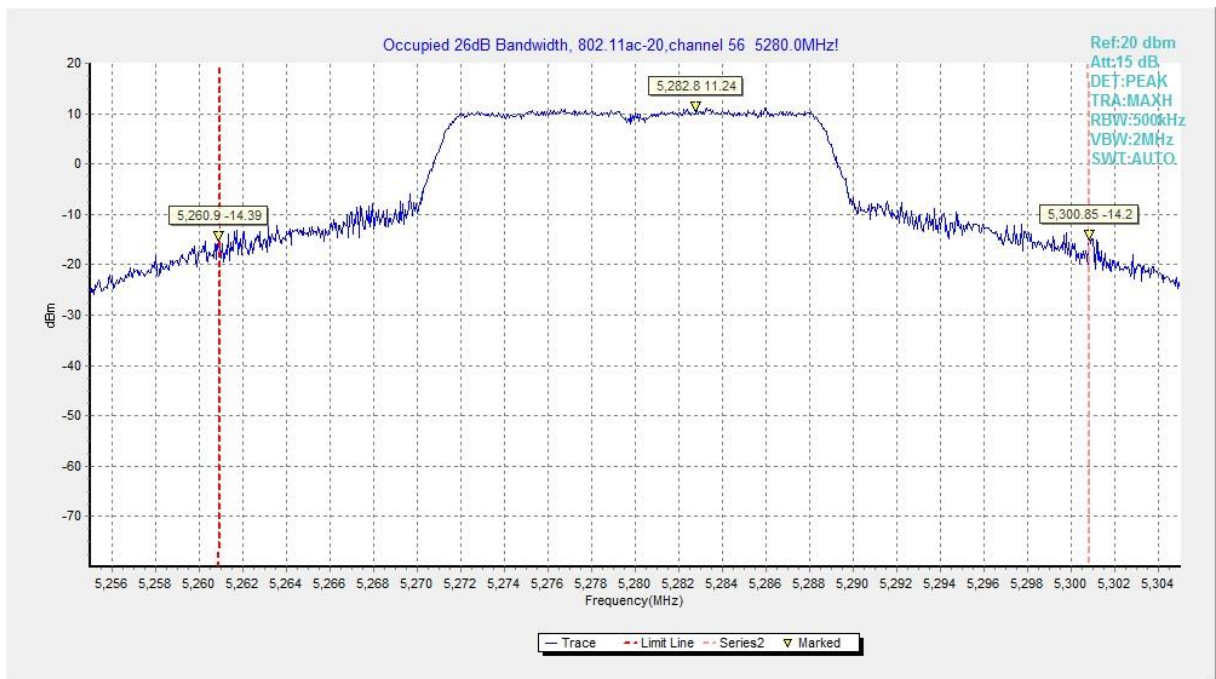


Fig.14 Occupied 26dB Bandwidth (802.11ac-HT20, 5280MHz)

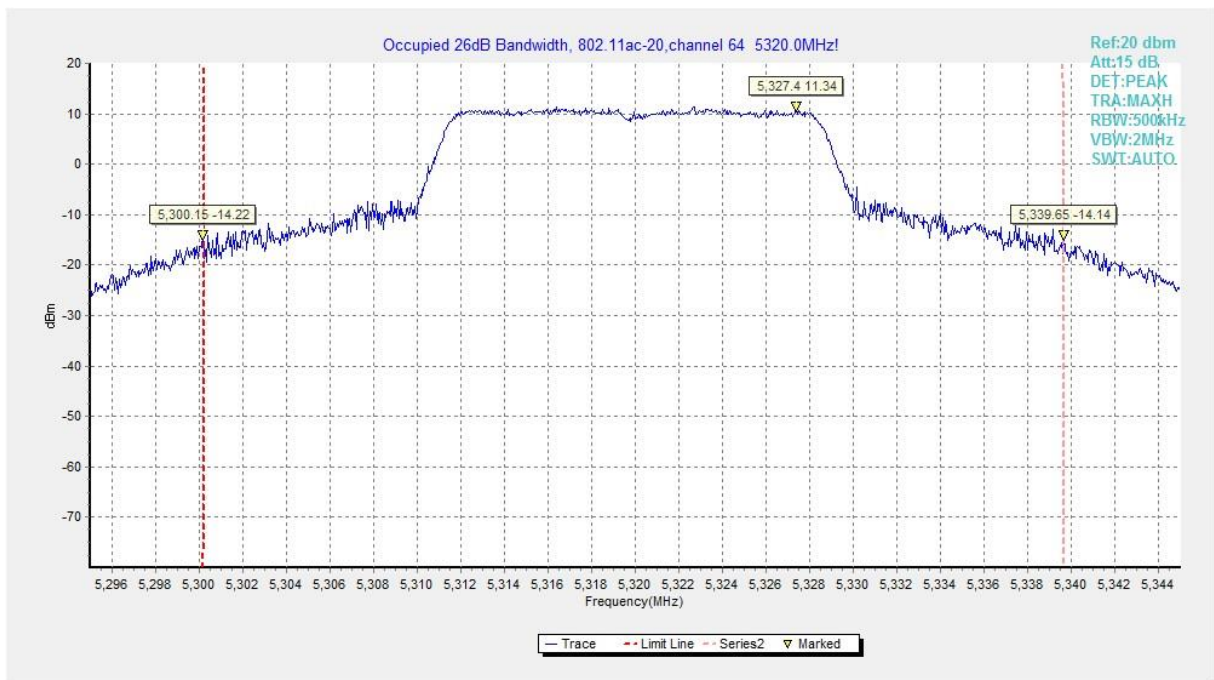


Fig.15 Occupied 26dB Bandwidth (802.11ac-HT20, 5320MHz)

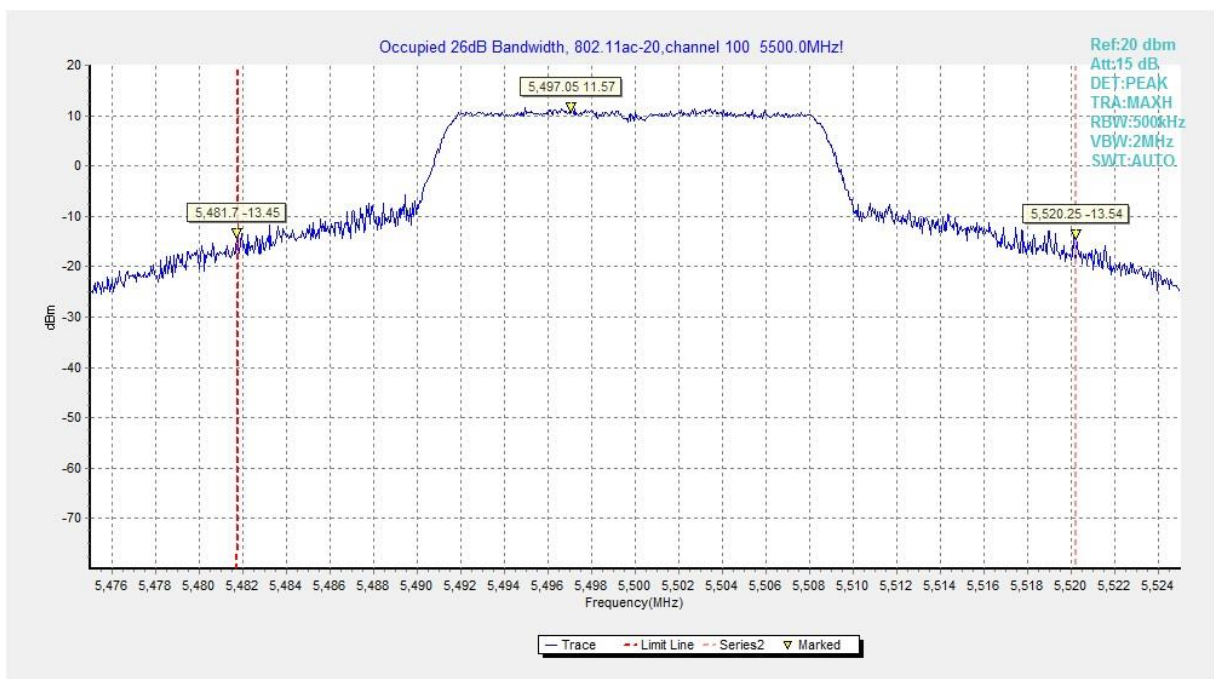


Fig.16 Occupied 26dB Bandwidth (802.11ac-HT20, 5500MHz)

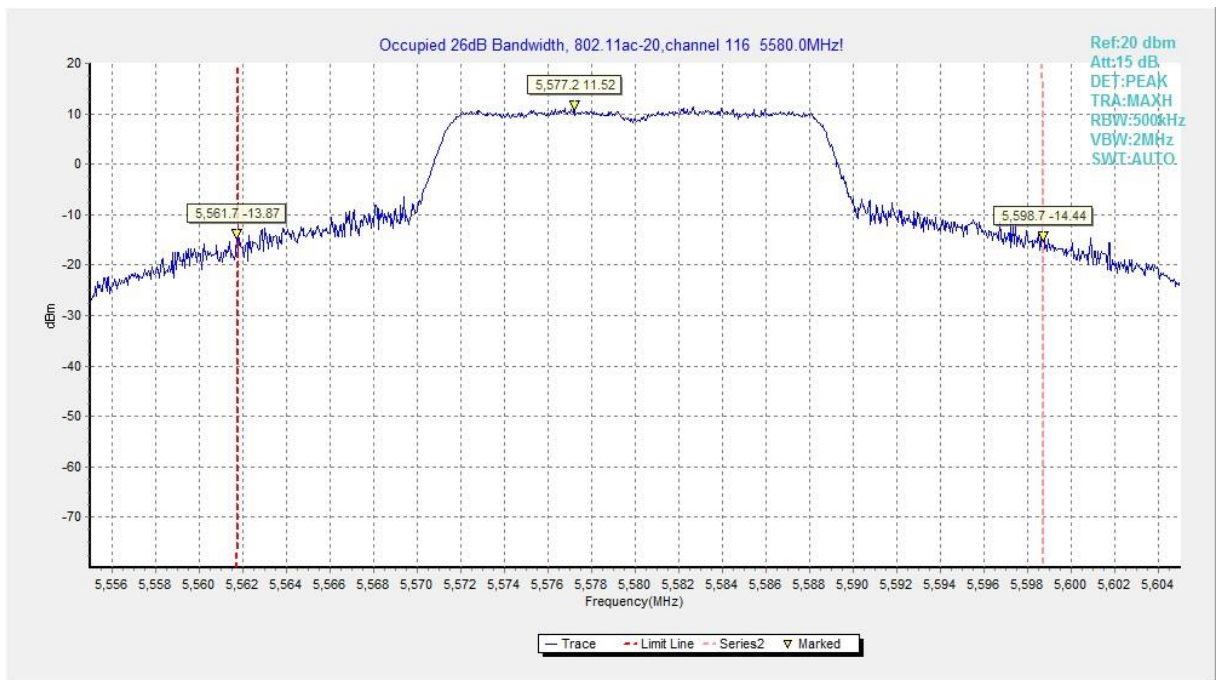


Fig.17 Occupied 26dB Bandwidth (802. 11ac-HT20, 5580MHz)

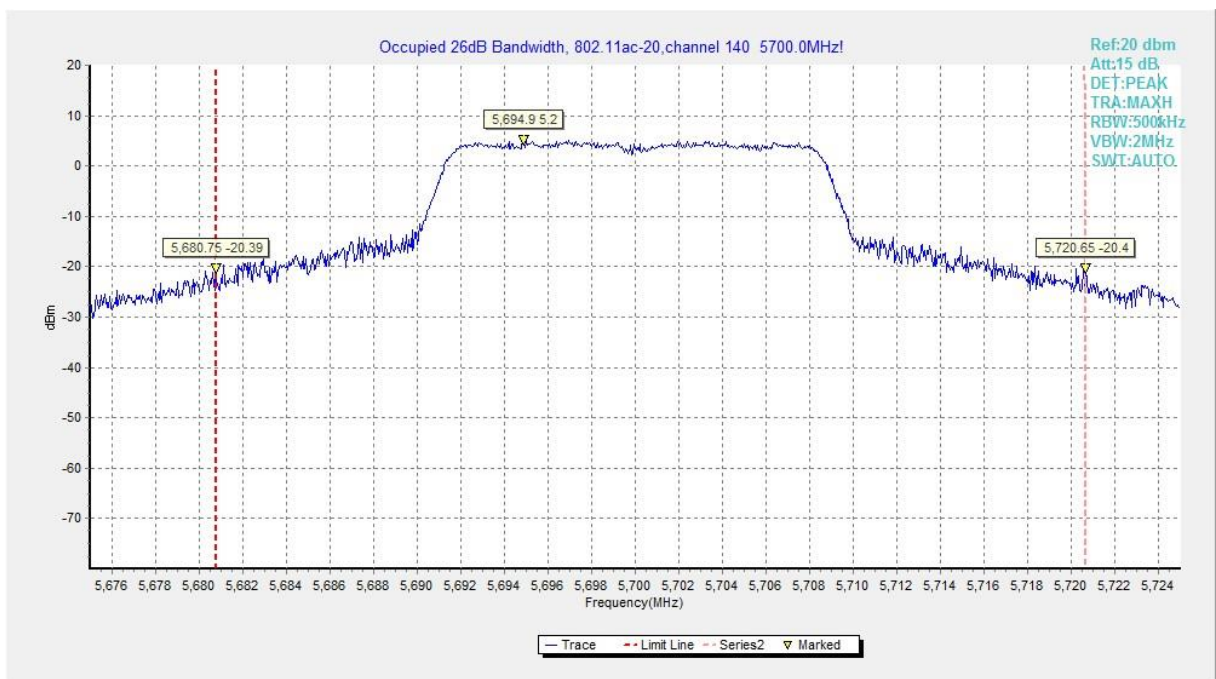


Fig.18 Occupied 26dB Bandwidth (802. 11ac-HT20, 5700MHz)

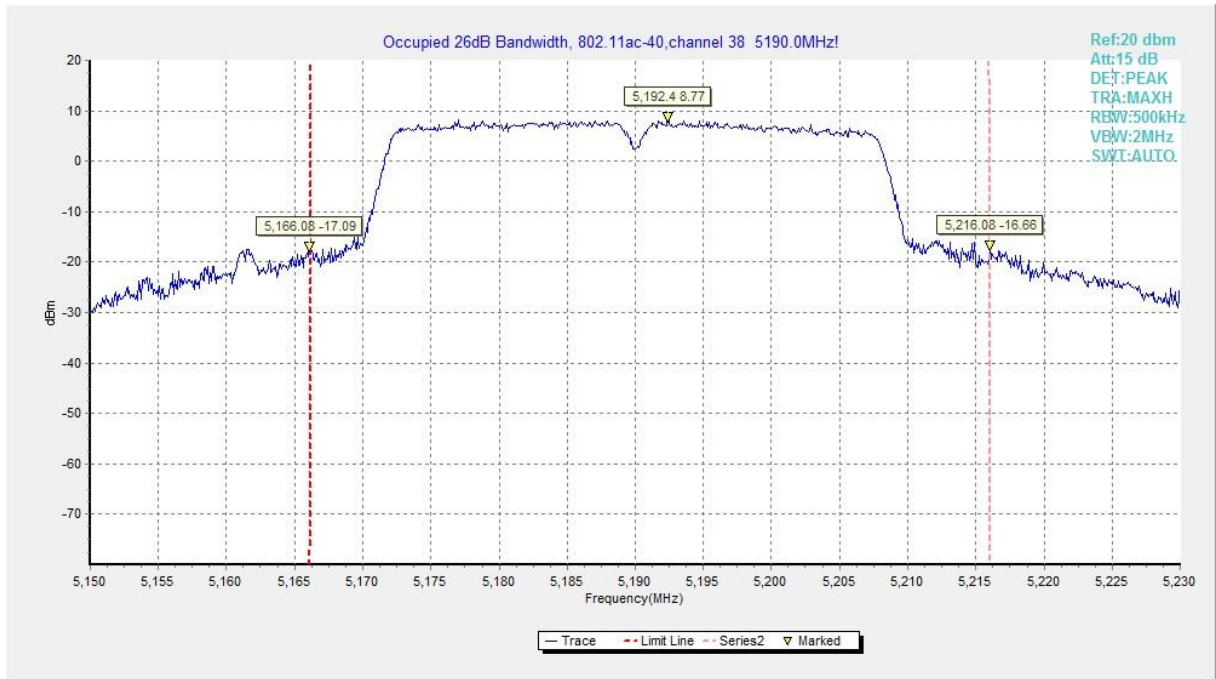


Fig.19 Occupied 26dB Bandwidth (802.11ac-HT40, 5190MHz)

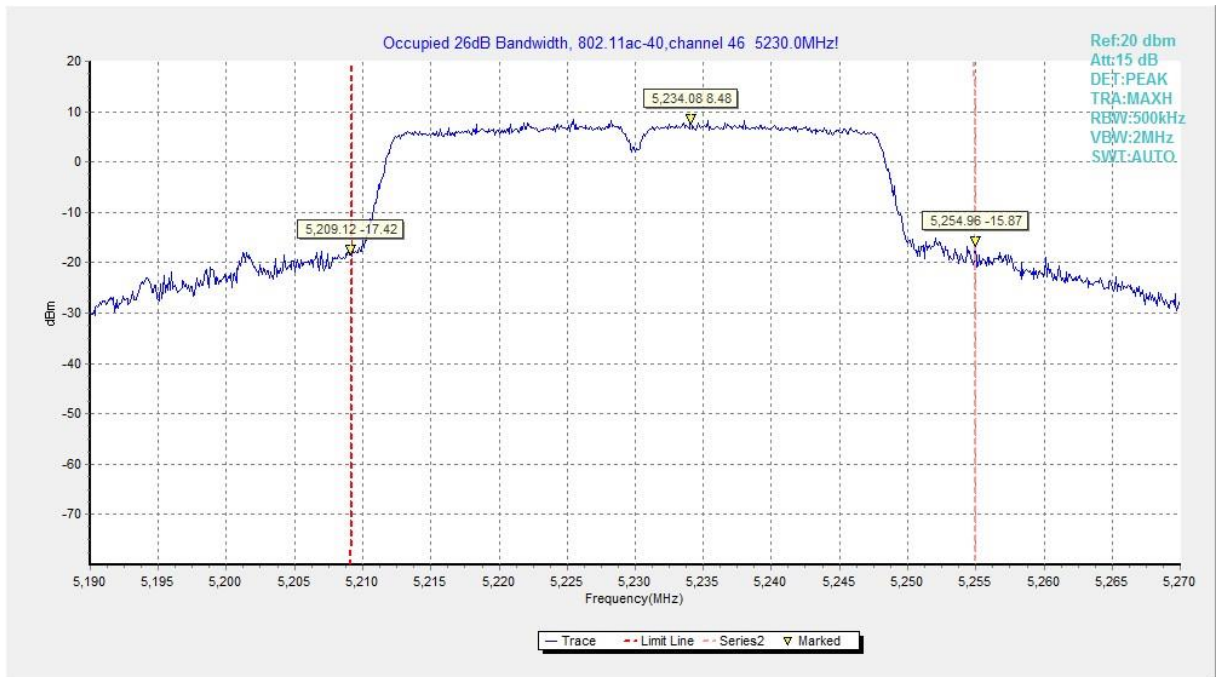


Fig.20 Occupied 26dB Bandwidth (802.11ac-HT40, 5230MHz)

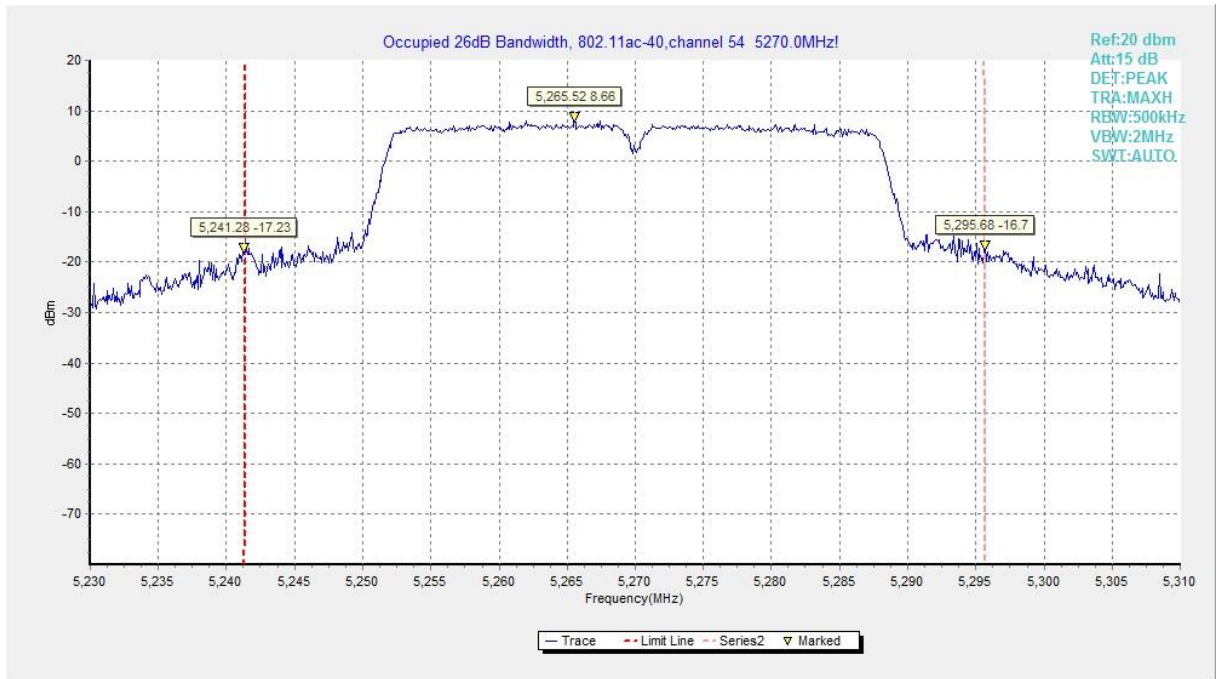


Fig.21 Occupied 26dB Bandwidth (802.11ac-HT40, 5270MHz)

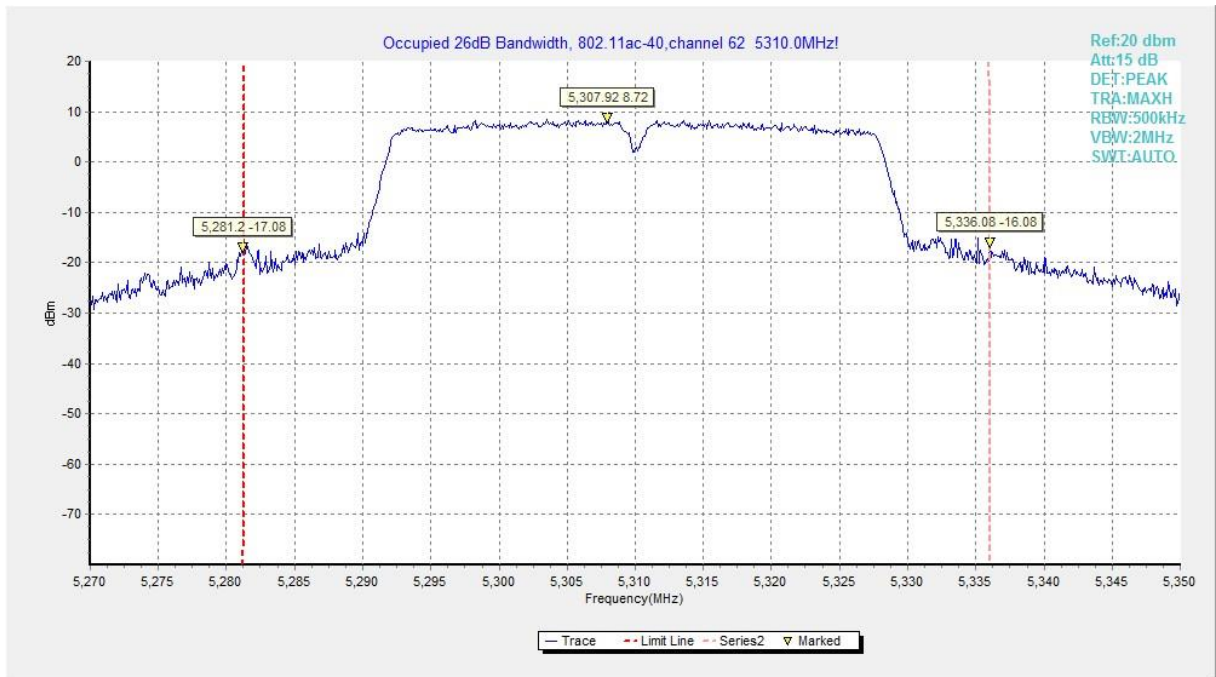


Fig.22 Occupied 26dB Bandwidth (802.11ac-HT40, 5310MHz)

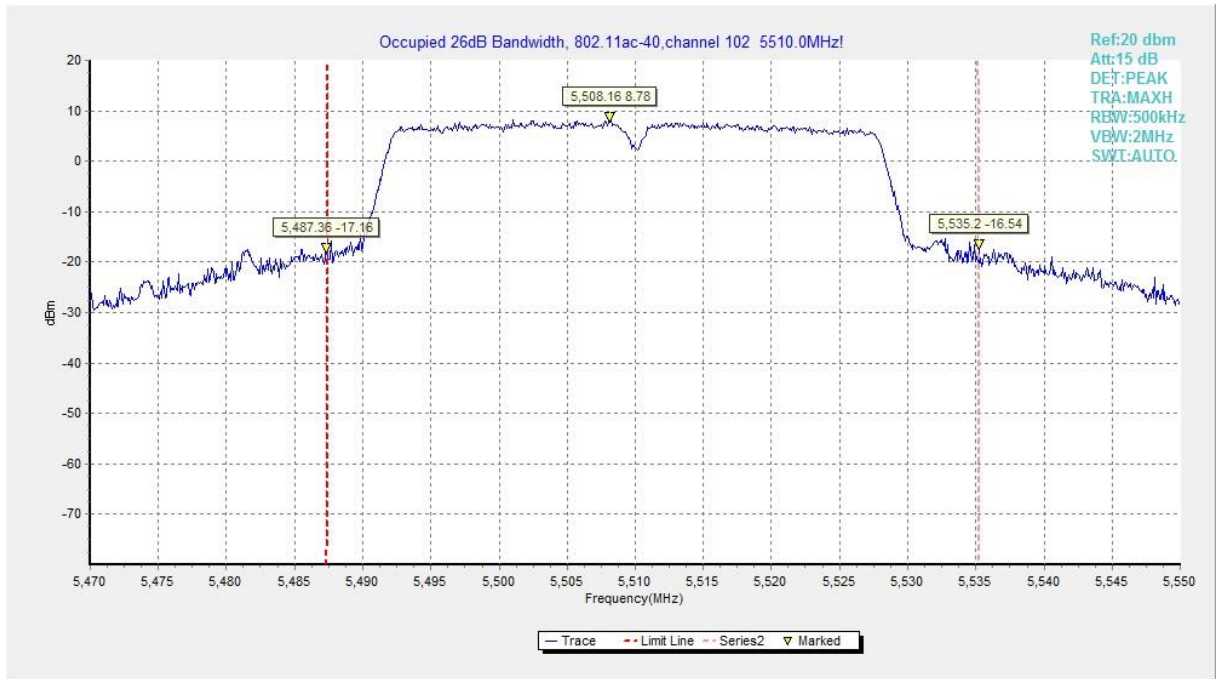


Fig.23 Occupied 26dB Bandwidth (802. 11ac-HT40, 5510MHz)

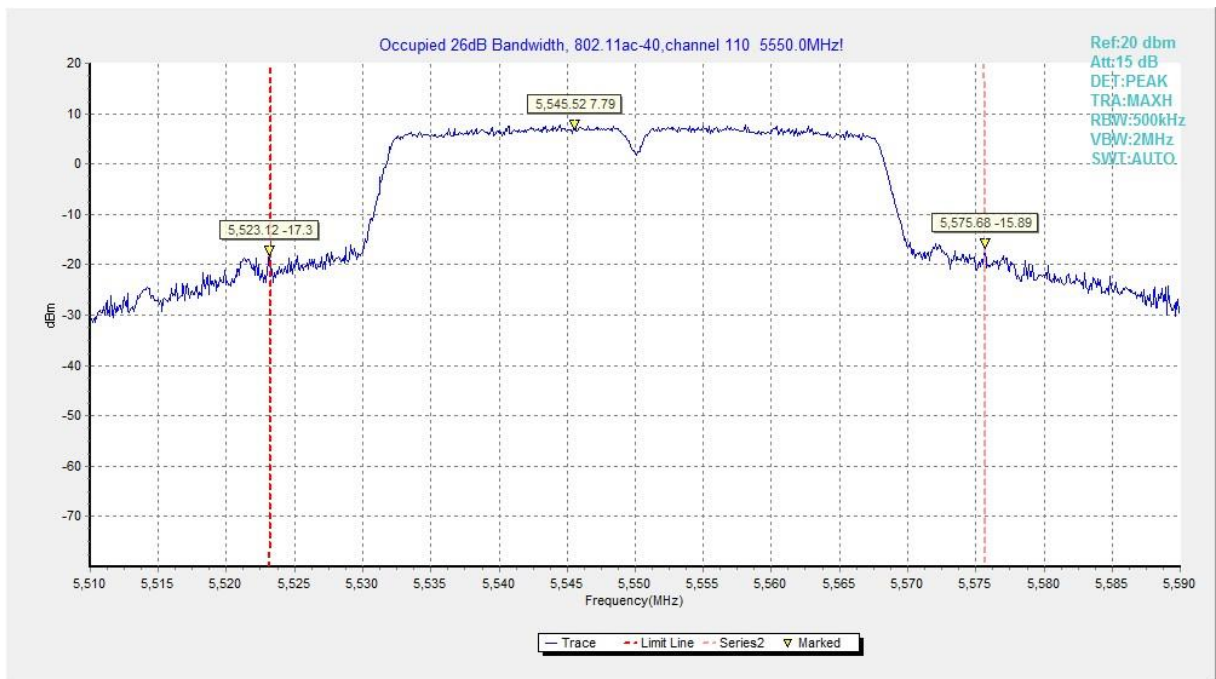


Fig.24 Occupied 26dB Bandwidth (802. 11ac-HT40, 5550MHz)

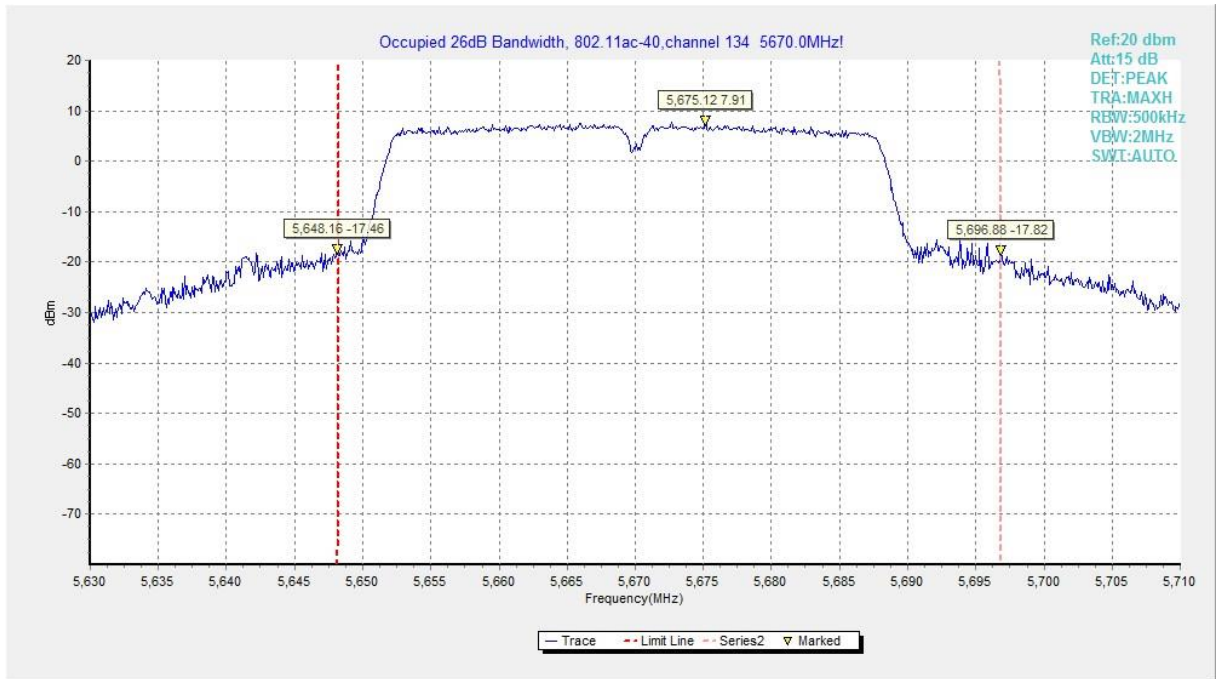


Fig.25 Occupied 26dB Bandwidth (802. 11ac-HT40, 5670MHz)

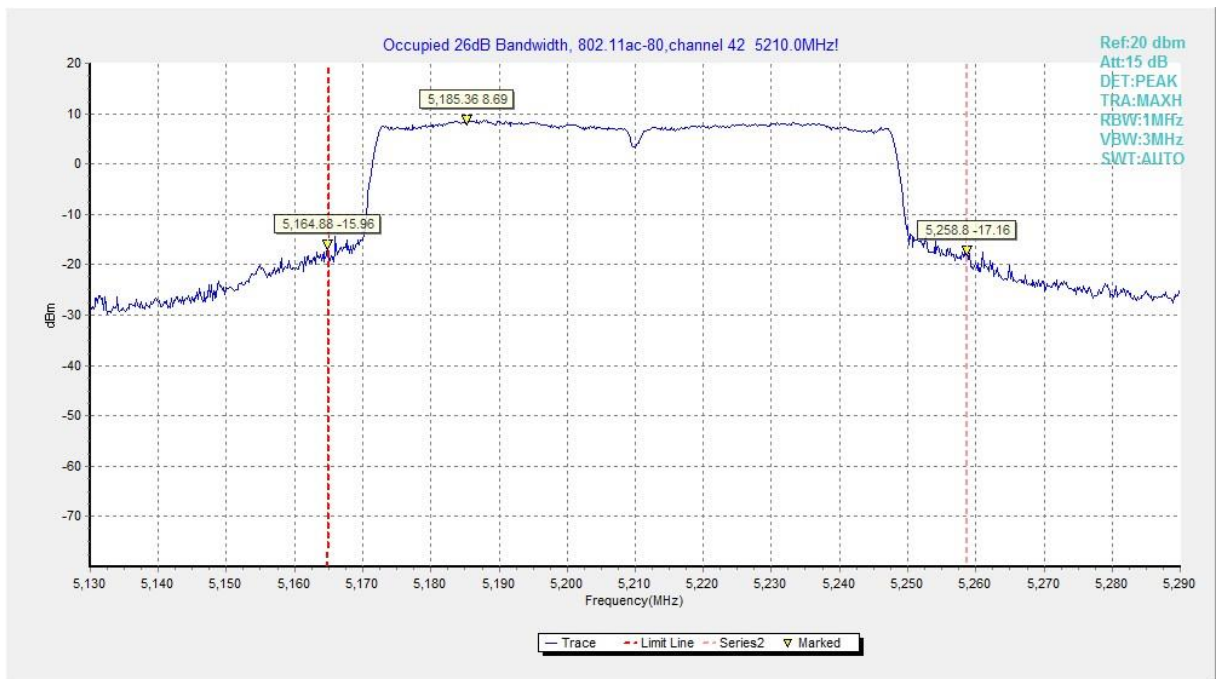


Fig.26 Occupied 26dB Bandwidth (802. 11ac-HT80, 5210MHz)

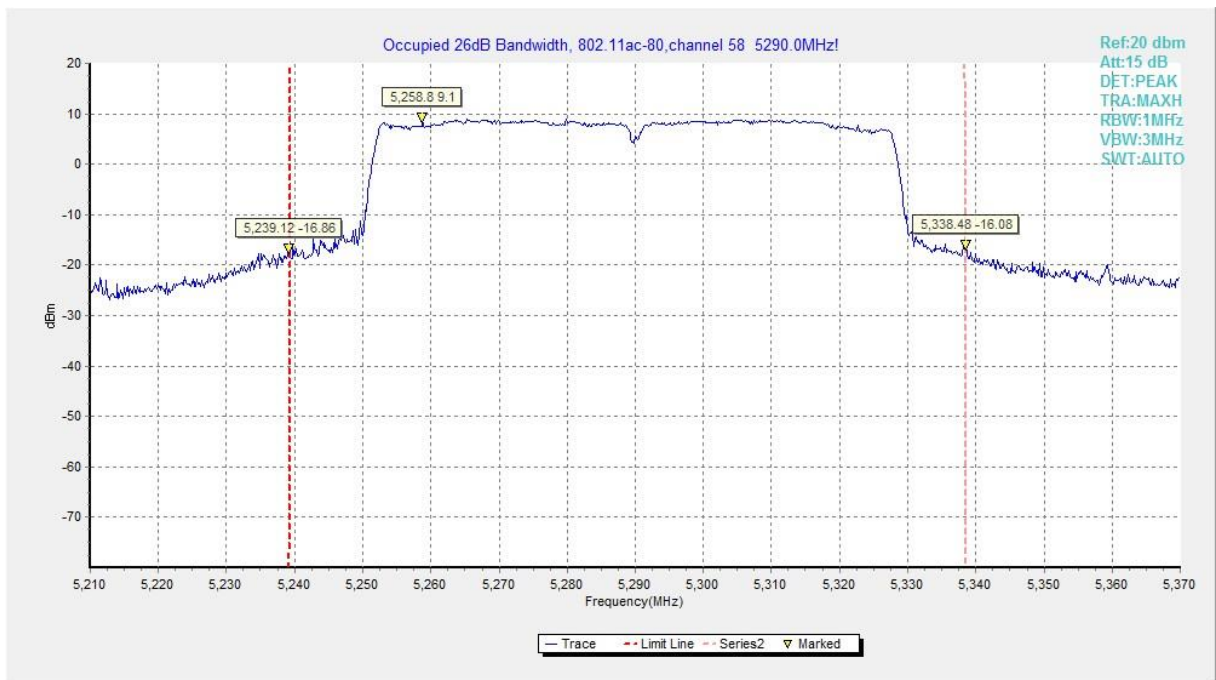


Fig.27 Occupied 26dB Bandwidth (802.11ac-HT80, 5290MHz)

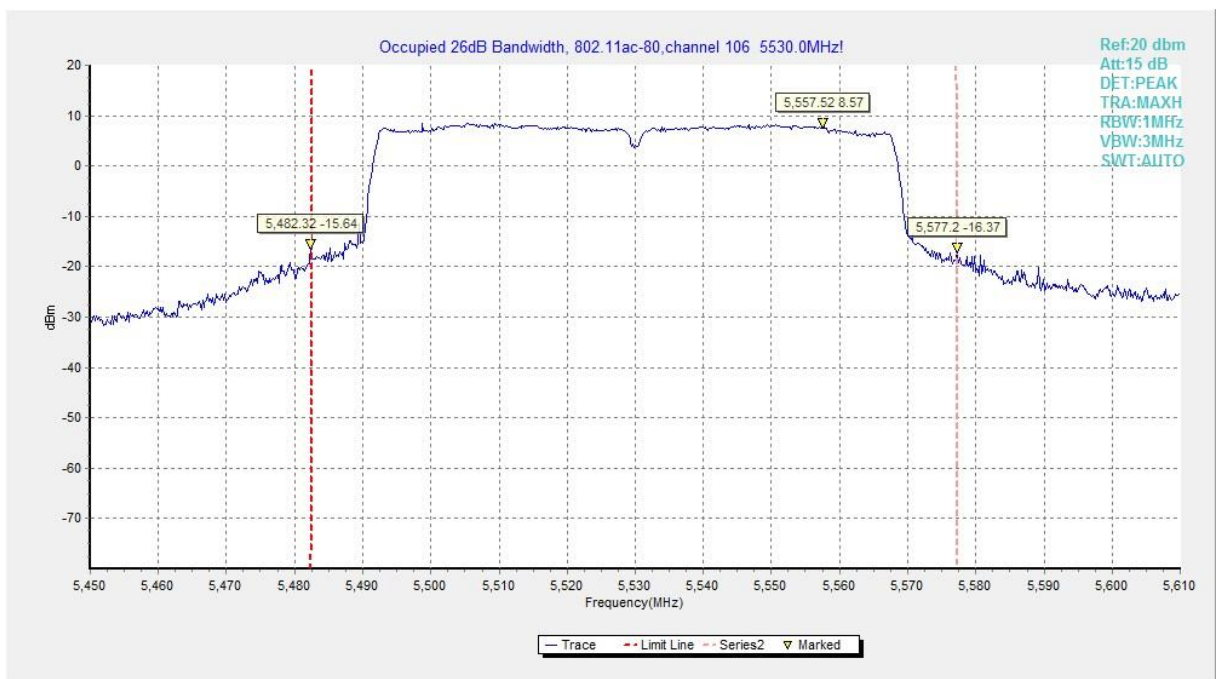


Fig.28 Occupied 26dB Bandwidth (802.11ac-HT80, 5530MHz)

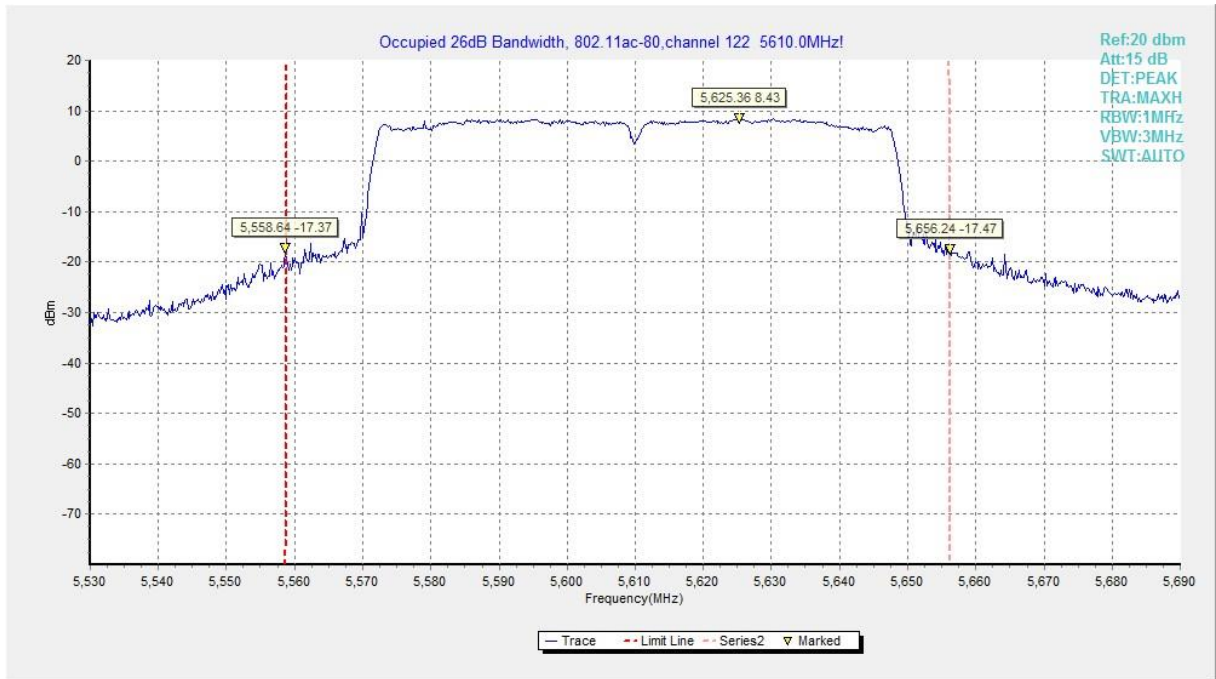


Fig.29 Occupied 26dB Bandwidth (802.11ac-HT80, 5610MHz)

A.5. Band Edges Compliance

A5.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

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(uV/m)	Field strength(dBuV/m)	Measurement distance(m)
Above 960	500	54	3

The measurement is made according to ANSI C63.10-2013 and KDB 789033

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m and the table height shall be 1.5 m.

The EUT and transmitting antenna shall be centered on the turntable.

Test Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. 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. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Sample Calculations

1. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$E = \sqrt{EIRP - 20 \log(D) + 104.77}$ Where:

E is the field strength in dB μ V/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dbm

Measurement Result:

Mode	Channel	Test Results	Conclusion
802.11a	5180 MHz	Fig.30	P
	5320 MHz	Fig.31	P
	5500 MHz	Fig.32	P
	5700 MHz	Fig.33	P
802.11n HT20	5180 MHz	Fig.34	P
	5320 MHz	Fig.35	P
	5500 MHz	Fig.36	P
	5700 MHz	Fig.37	P
802.11n HT40	5190 MHz	Fig.38	P
	5310 MHz	Fig.39	P
	5510 MHz	Fig.40	P
	5670 MHz	Fig.41	P
802.11ac HT20	5180 MHz	Fig.42	P
	5320 MHz	Fig.43	P
	5500 MHz	Fig.44	P
	5700 MHz	Fig.45	P
802.11ac HT40	5190 MHz	Fig.46	P
	5310 MHz	Fig.47	P
	5510 MHz	Fig.48	P
	5670 MHz	Fig.49	P
802.11ac HT80	5210MHz	Fig.50	P
	5290MHz	Fig.51	P
	5530MHz	Fig.52	P
	5610MHz	Fig.53	P

Conclusion: PASS

Test graphs as below:

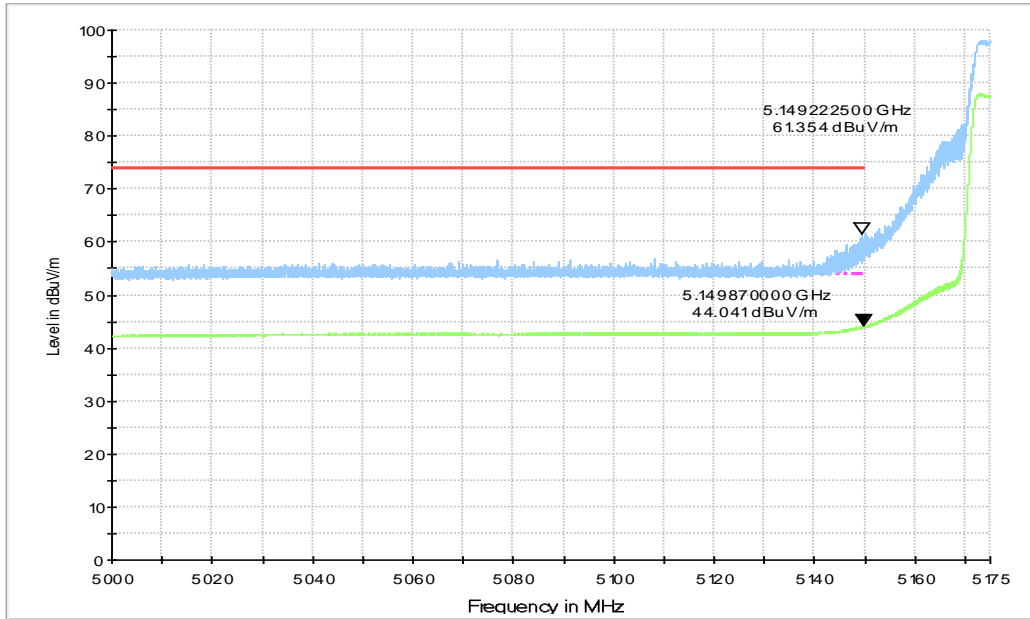


Fig.30 Band Edges (802.11a Ch36, 5180MHz)

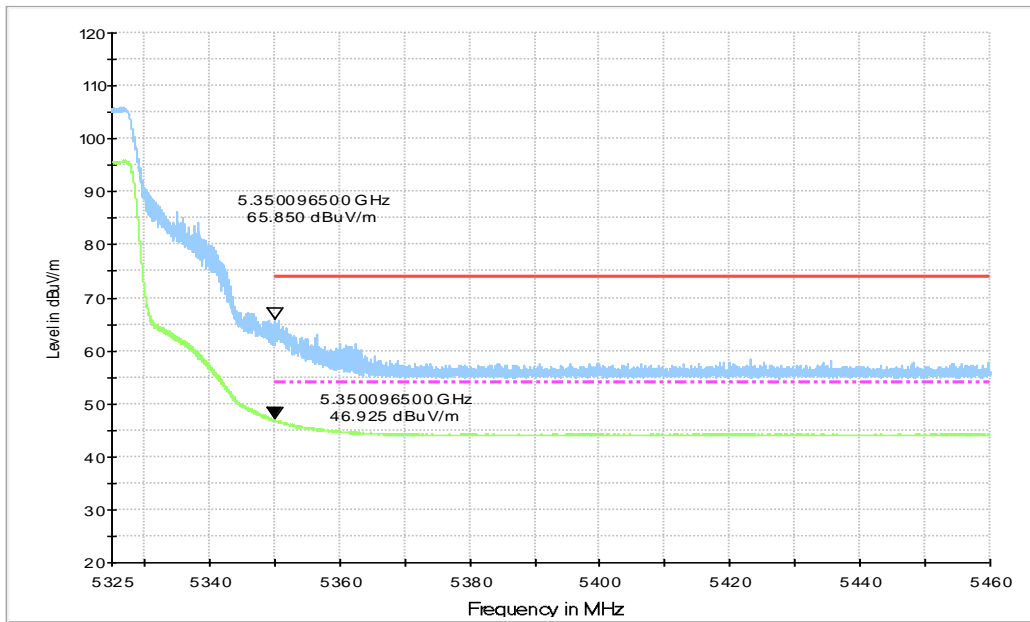


Fig.31 Band Edges (802.11a Ch64, 5320MHz)

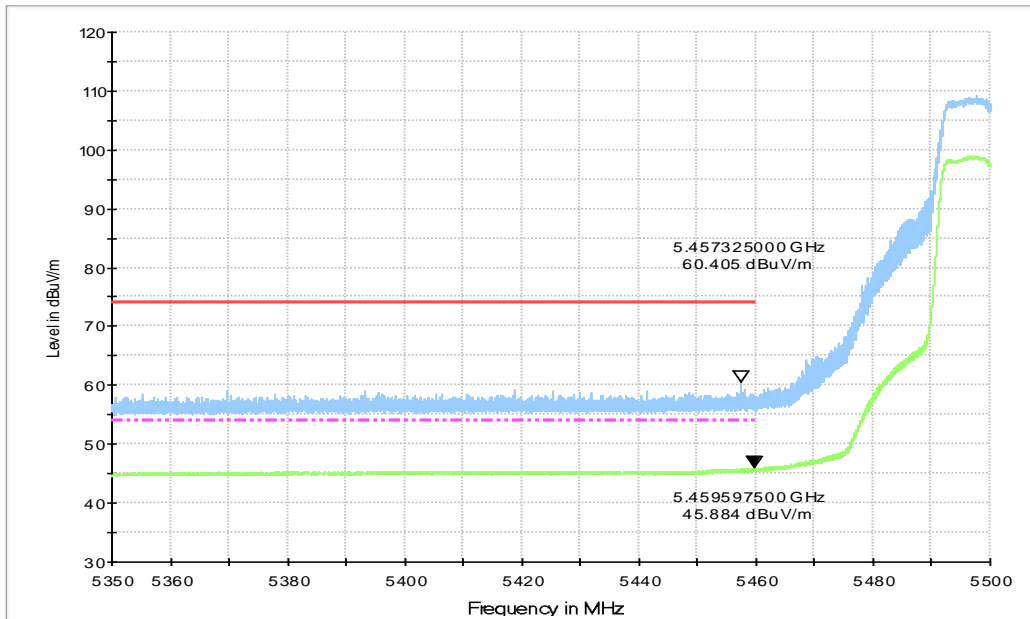


Fig.32 Band Edges (802.11a Ch100, 5500MHz)

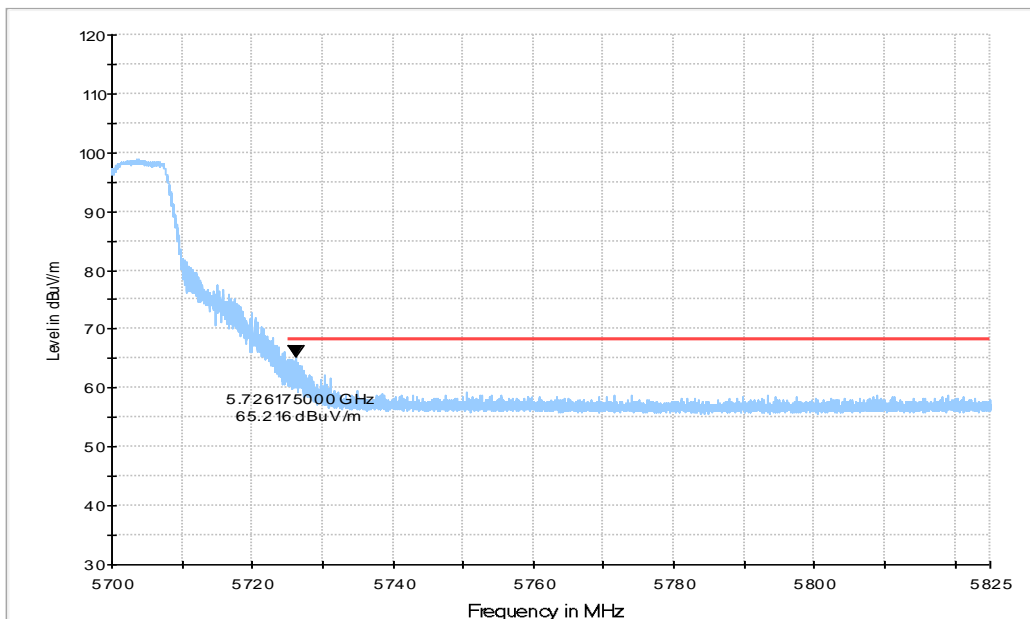


Fig.33 Band Edges (802.11a Ch140, 5700MHz)

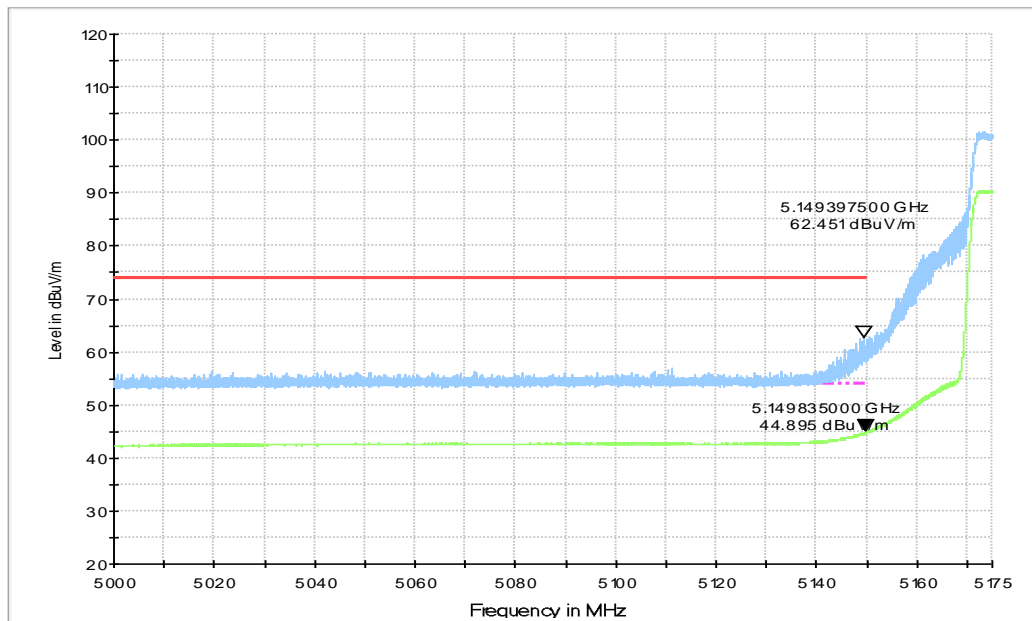


Fig.34 Band Edges (802.11n-HT20 Ch36, 5180MHz)

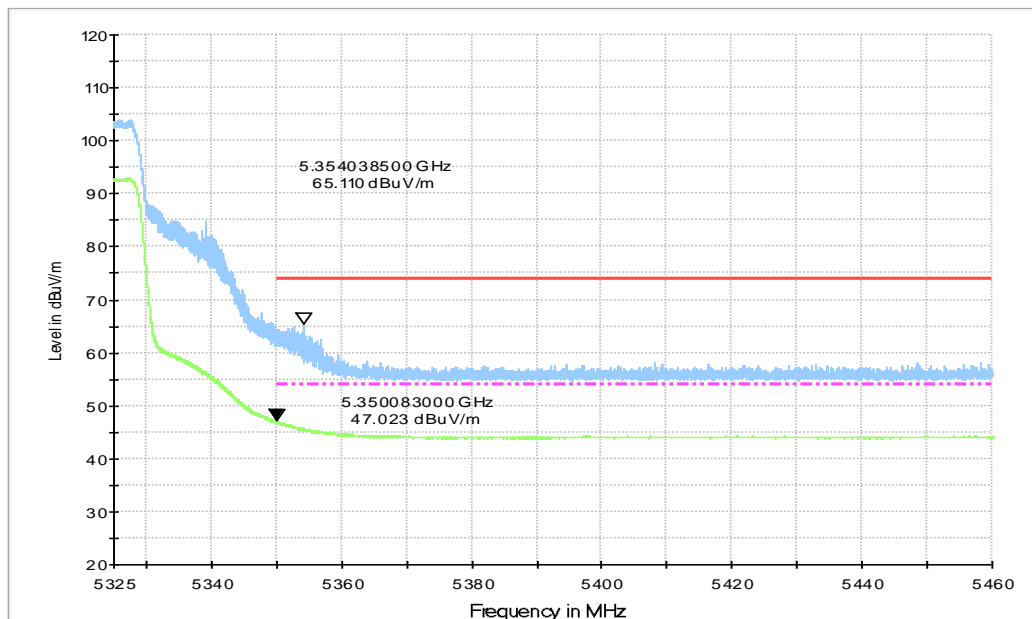


Fig.35 Band Edges (802.11n-HT20 Ch64, 5320MHz)

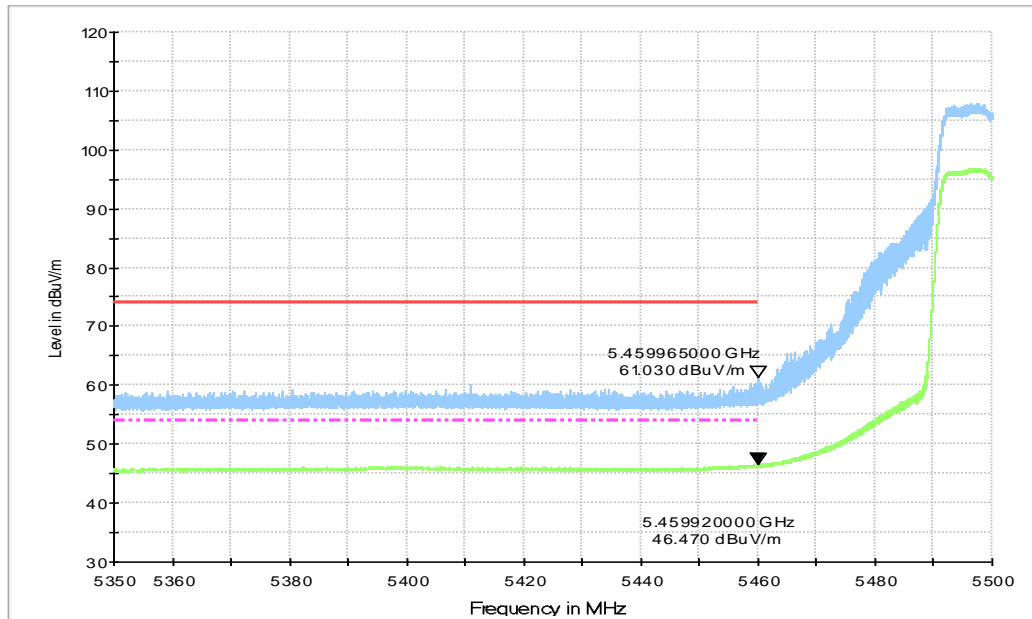


Fig.36 Band Edges (802.11n-HT20 Ch100, 5500MHz)

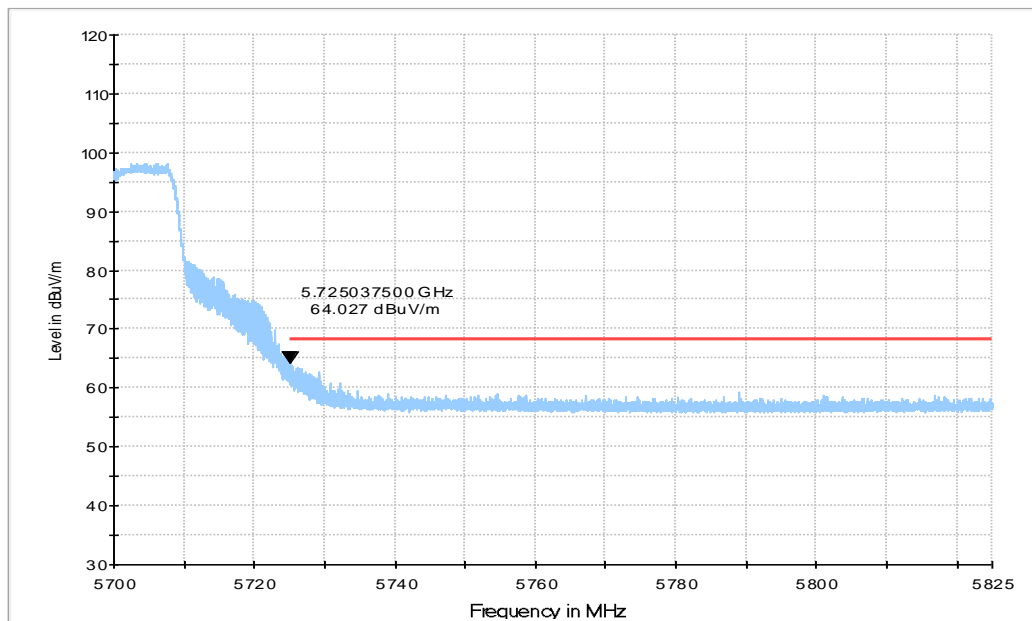


Fig.37 Band Edges (802.11n-HT20 Ch140, 5700MHz)

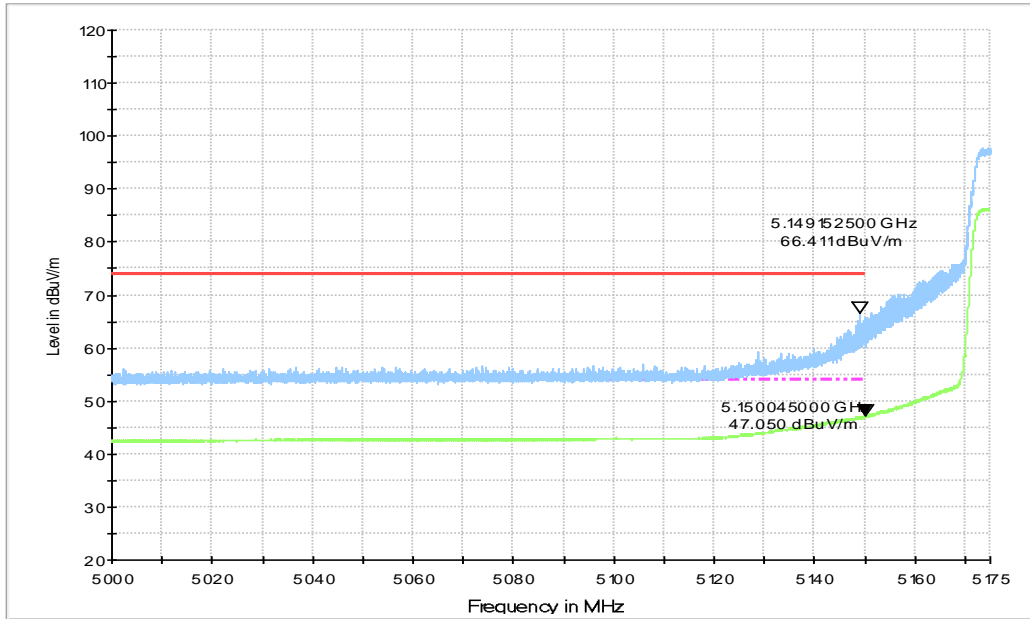


Fig.38 Band Edges (802.11n-HT40 Ch38, 5190MHz)

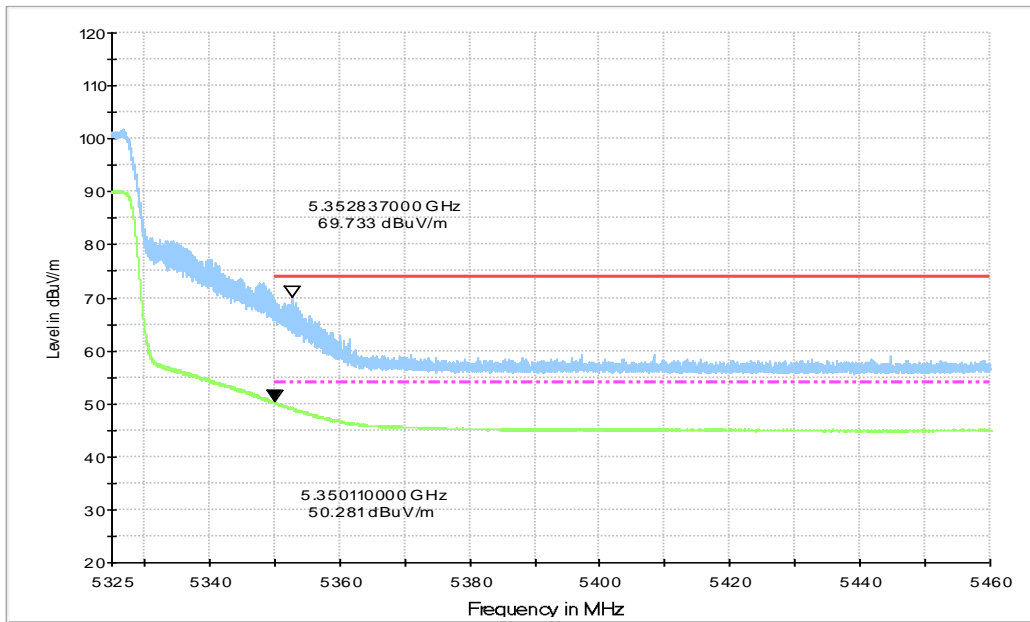


Fig.39 Band Edges (802.11n-HT40 Ch62, 5310MHz)

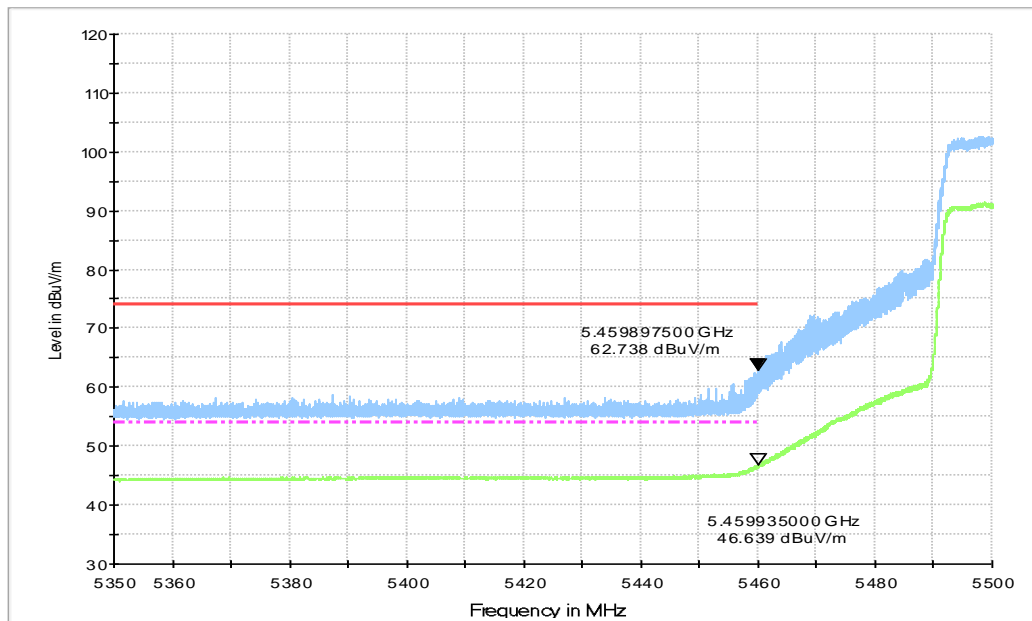


Fig.40 Band Edges (802.11n-HT40 Ch102, 5510MHz)

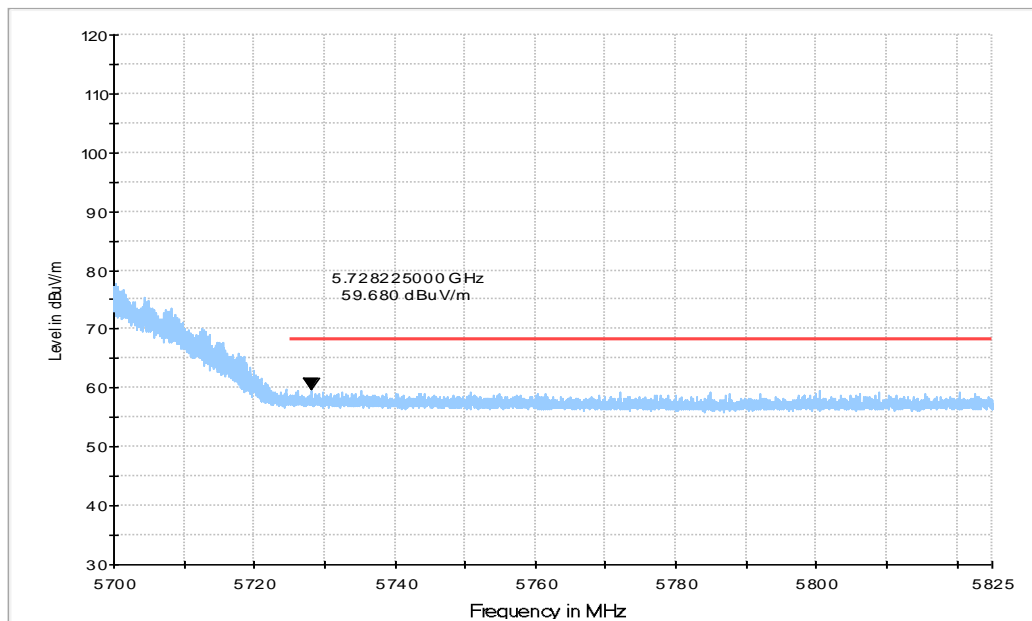


Fig.41 Band Edges (802.11n-HT40 Ch134, 5670MHz)

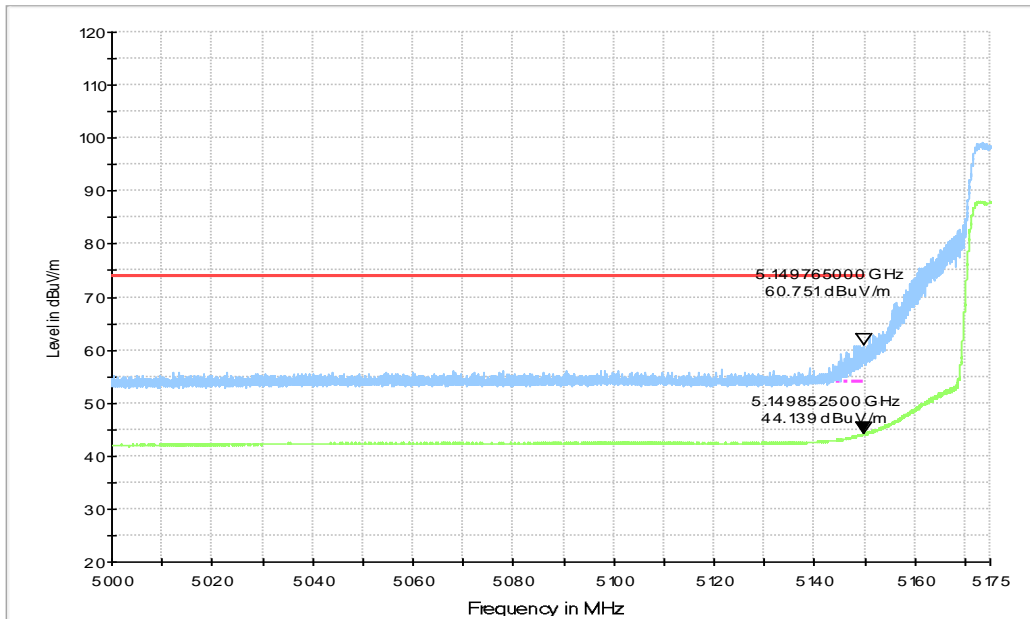


Fig.42 Band Edges (802.11ac-HT20 Ch36, 5180MHz)

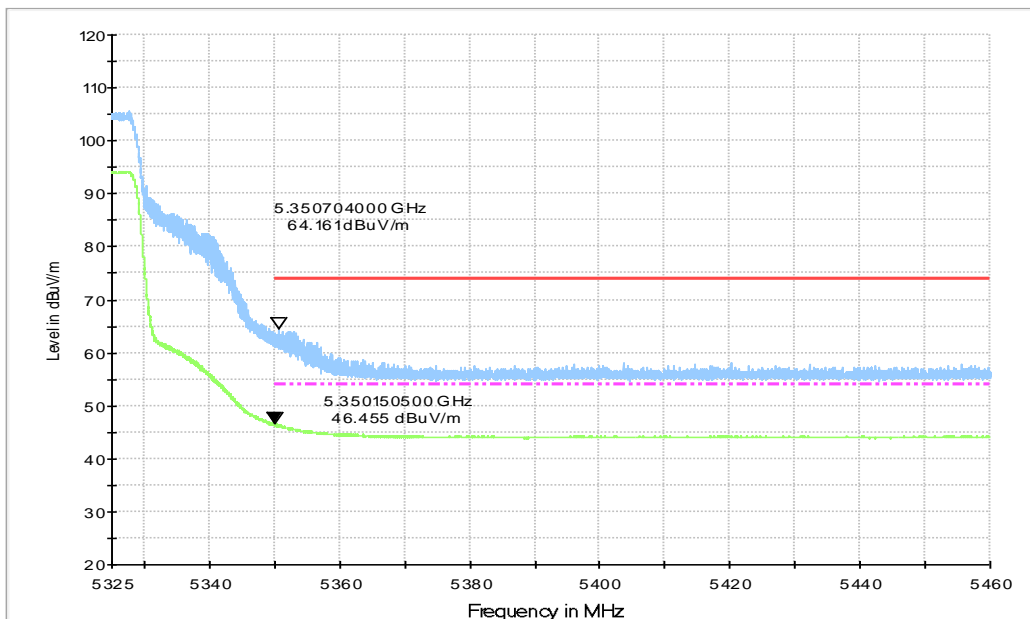


Fig.43 Band Edges (802.11ac-HT20 Ch64, 5320MHz)

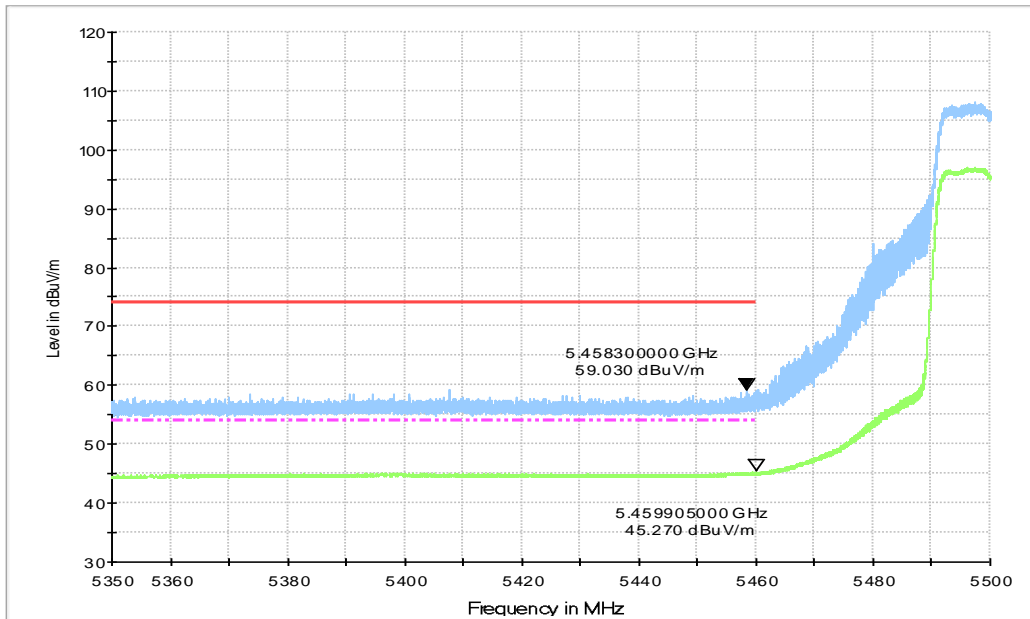


Fig.44 Band Edges (802.11ac-HT20 Ch100, 5500MHz)

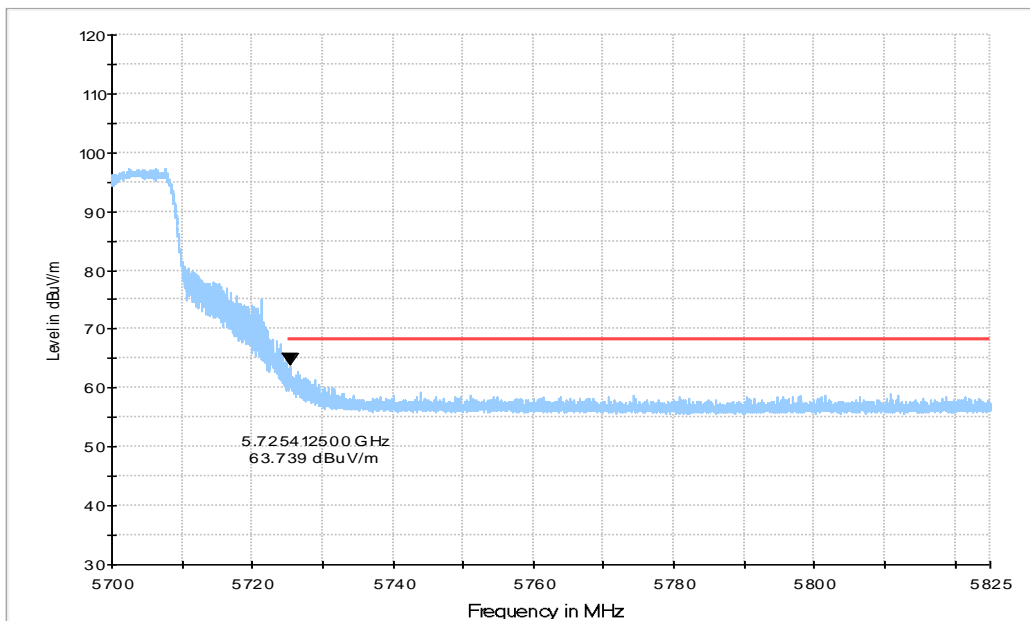


Fig.45 Band Edges (802.11ac-HT20 Ch140, 5700MHz)

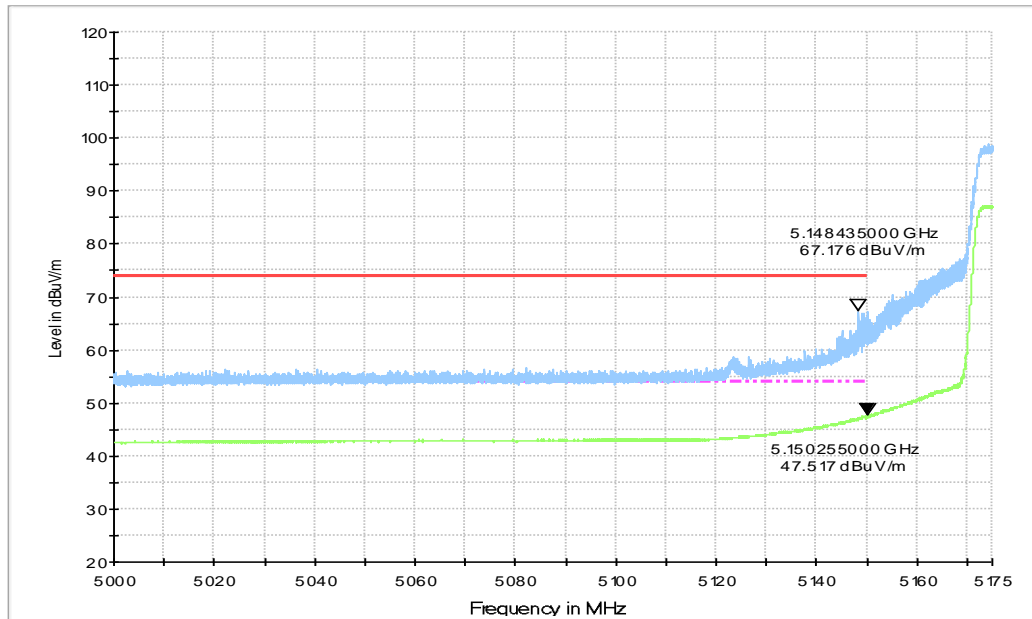


Fig.46 Band Edges (802.11ac-HT40 Ch38, 5190MHz)

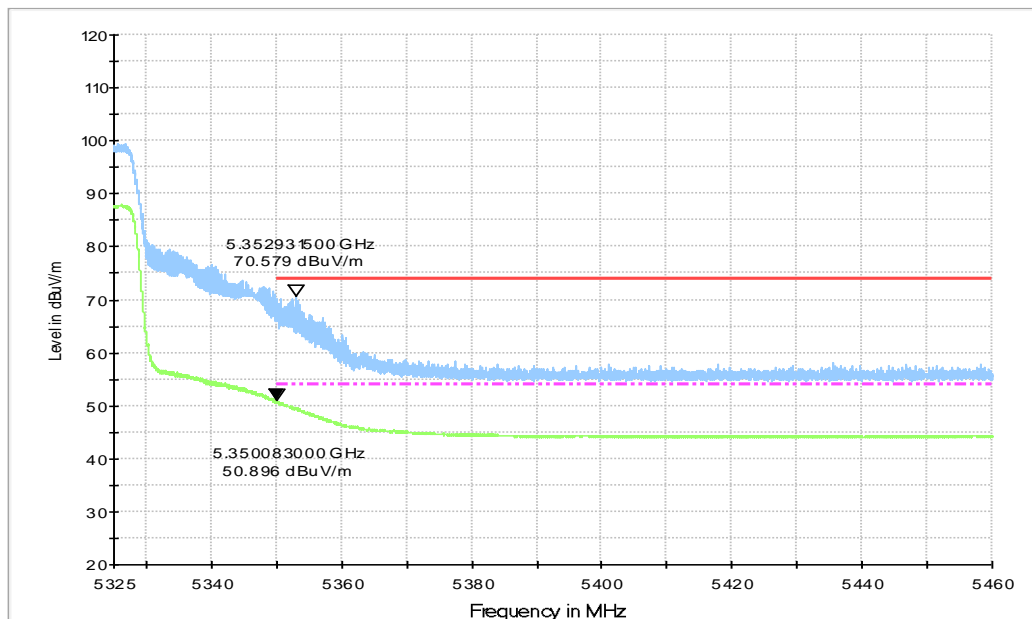


Fig.47 Band Edges (802.11ac-HT40 Ch62, 5310MHz)

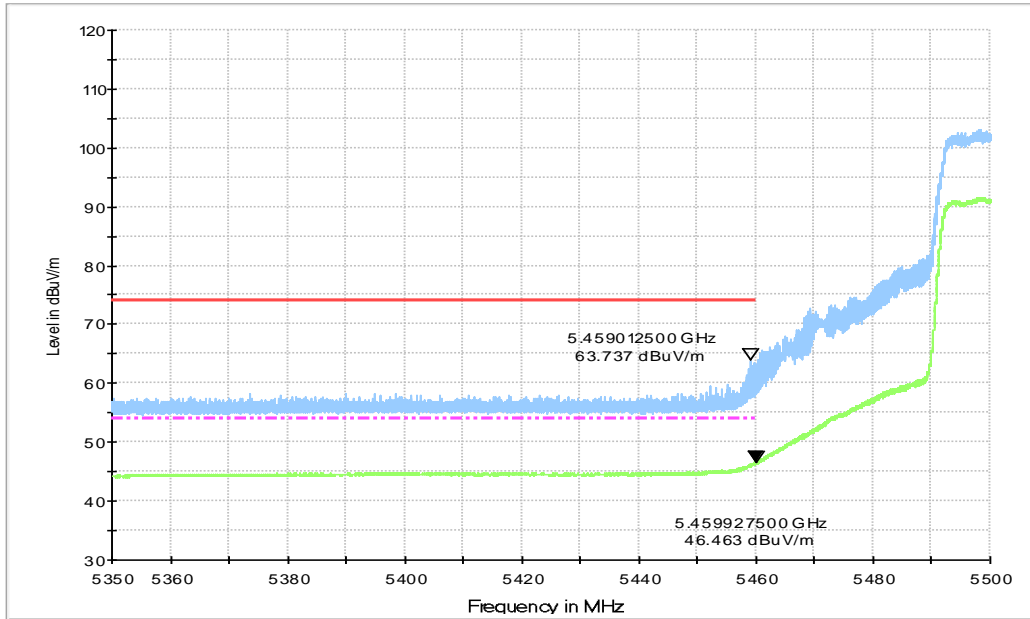


Fig.48 Band Edges (802.11ac-HT40 Ch102, 5510MHz)

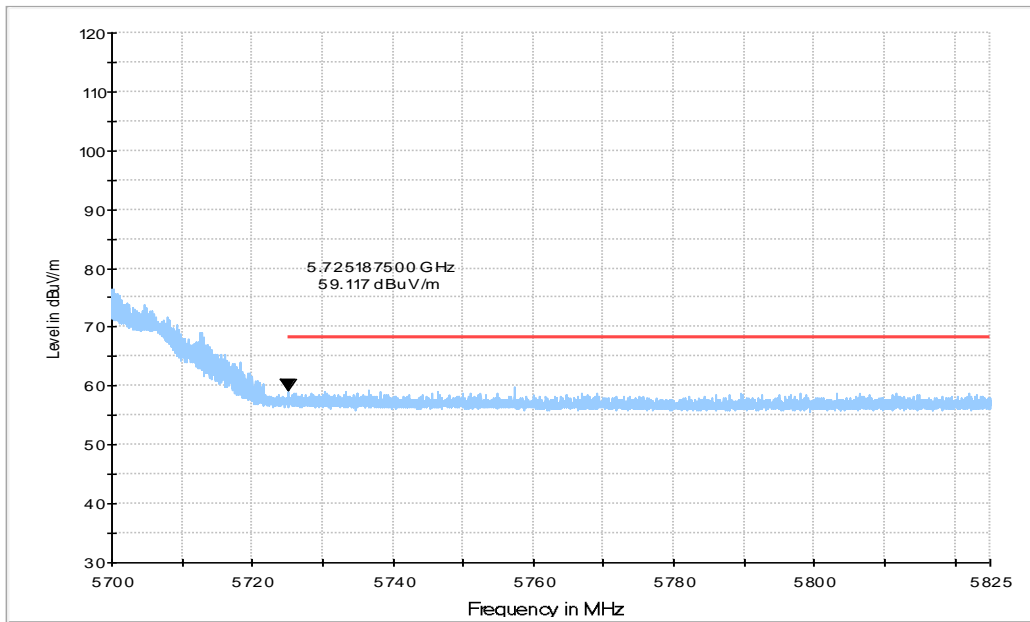


Fig.49 Band Edges (802.11ac-HT40 Ch134, 5670MHz)

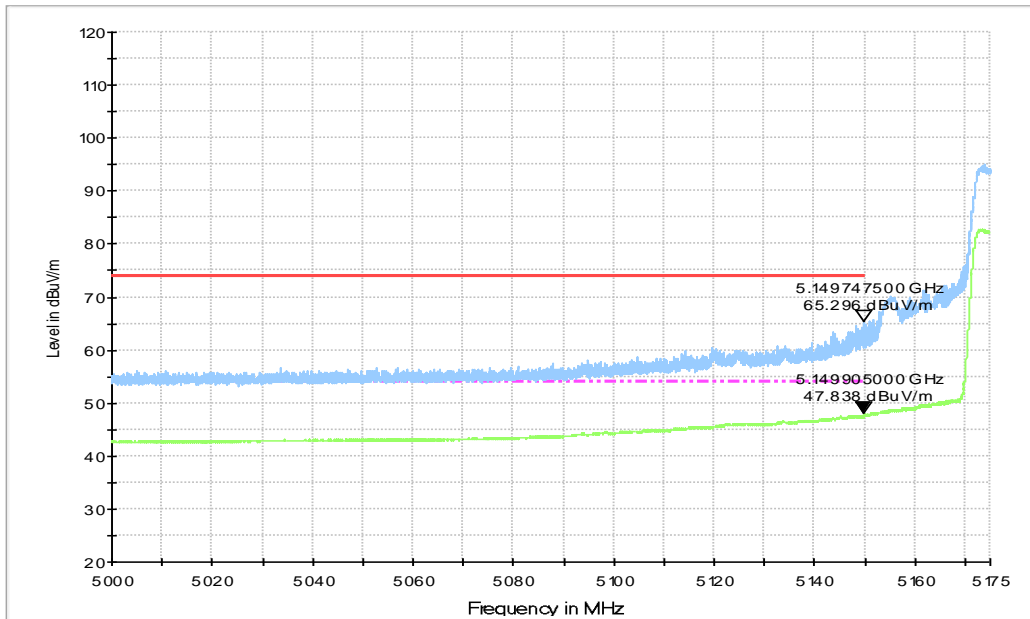


Fig.50 Band Edges (802.11ac-HT80 Ch42 , 5210MHz)

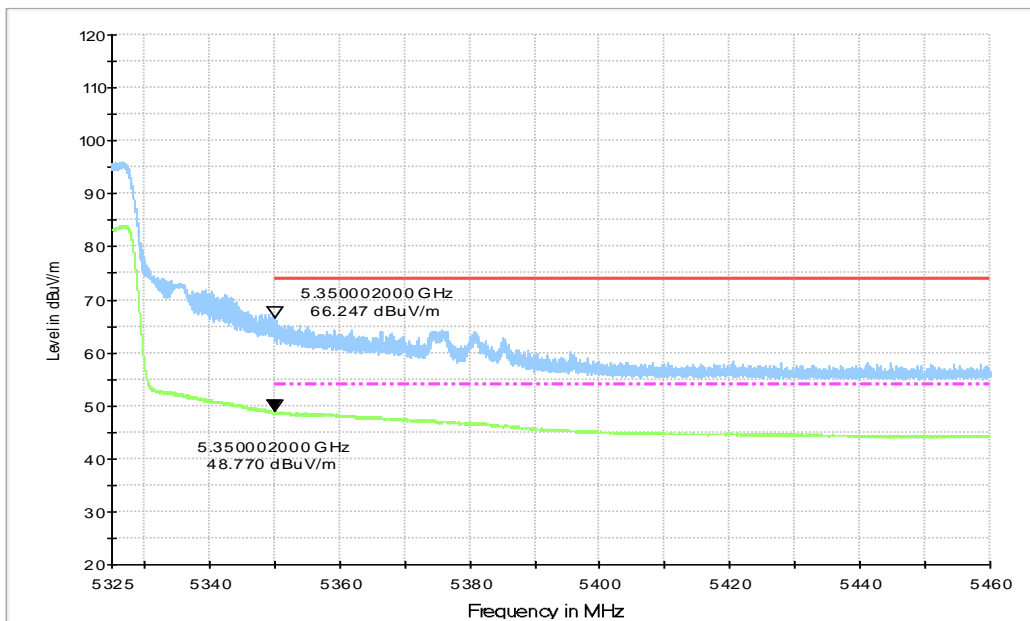


Fig.51 Band Edges (802.11ac-HT80 Ch58, 5290MHz)

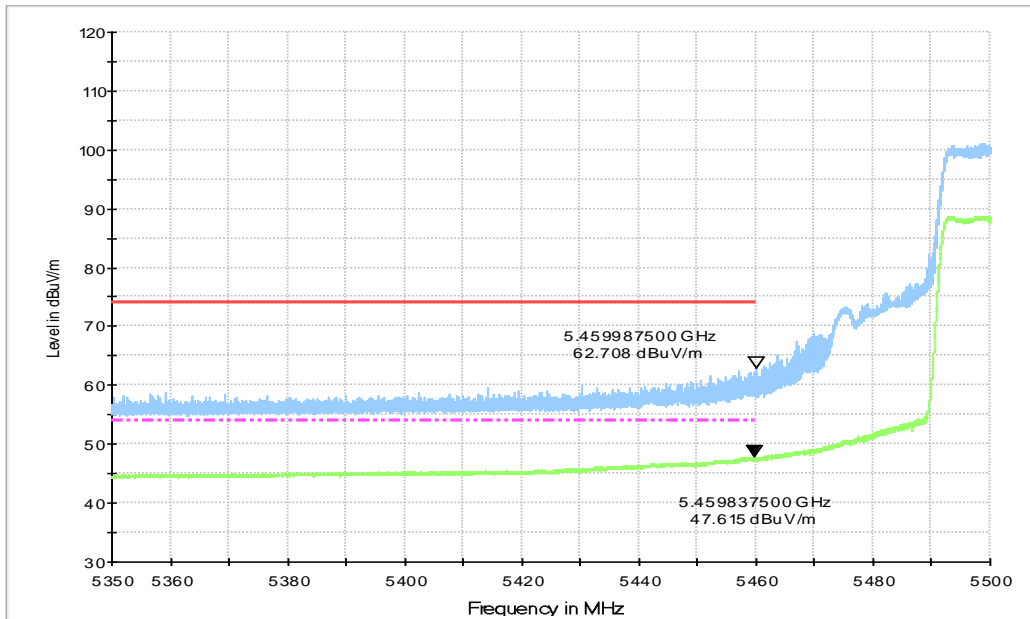


Fig.52 Band Edges (802.11ac-HT80 Ch106, 5530MHz)

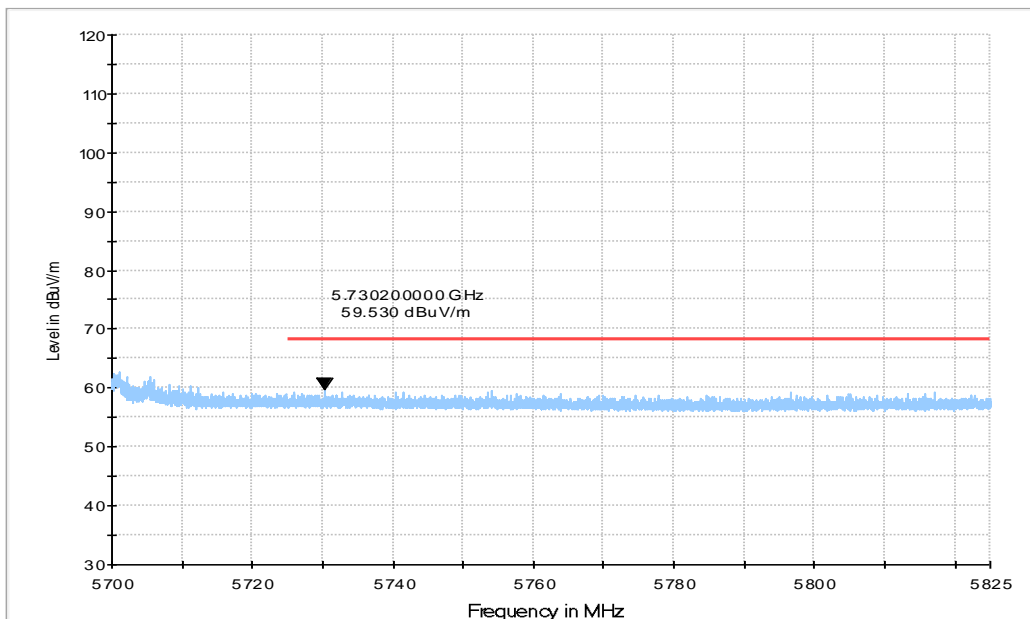


Fig.53 Band Edges (802.11ac-HT80 Ch122, 5610MHz)

A.6. Transmitter Spurious Emission

Measurement Limit:

Standard	Limit
FCC 47 CFR Part 15.407	-27 dBm/MHz

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 (MHz)	Field strength(μ V/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

Frequency of emission (MHz)	Field strength(μ V/m)	Field strength(dBuV/m)	Measurement distance(m)
30-88	100	40	3
88-216	150	43.5	3
216-960	200	46	3
Above 960	500	54	3

The measurement is made according to ANSI C63.10-2013 and KDB 789033

Set up:

Tabletop devices shall be placed on a nonconducting platform with nominal top surface dimensions 1 m by 1.5 m. For emissions testing at or below 1 GHz, the table height shall be 80 cm above the reference ground plane. For emission measurements above 1 GHz, the table height shall be 1.5 m

The EUT and transmitting antenna shall be centered on the turntable.

Test Procedure

The EUT was placed on a non-conductive table. The measurement antenna was placed at a distance of 3 meters from the EUT. 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. This maximization process was repeated with the EUT positioned in each of its three orthogonal orientations.

The receiver references:

Frequency of emission (MHz)	RBW/VBW	Sweep Time(s)
30-1000	100kHz/300kHz	5
1000-4000	1MHz/3MHz	15
4000-18000	1MHz/3MHz	40
18000-26500	1MHz/3MHz	20

Sample Calculations

1. Convert the resultant EIRP level to an equivalent electric field strength using the following relationship:

$$E = \text{EIRP} - 20 \log(D) + 104.77$$

Where:

E is the field strength in dB μ V/m

D is the measurement distance in meters

EIRP is the equivalent isotropically radiated power in dbm

2. The measurement results are obtained as described below:

$$\text{Result} = P_{\text{Mea}} + A_{\text{Rpl}} = P_{\text{Mea}} + \text{Cable Loss} + \text{Antenna Factor}$$

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.

Measurement Results:
802.11a mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11a	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	64(5320MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	100(5500MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	120(5600MHz)	9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	140(5700MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P

		7 GHz ~ 18 GHz	---	P
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802.11n-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11n -HT20	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
	64(5320MHz)	26.5 GHz ~ 40 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
	100(5500MHz)	7 GHz ~ 18 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
	120(5600MHz)	7 GHz ~ 18 GHz	---	P
		9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	140(5700MHz)	18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11n-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion	
802.11n HT40	38(5190MHz)	30 MHz ~1 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
		18 GHz ~ 26.5 GHz	---	P	
		26.5 GHz ~ 40 GHz	---	P	
	46(5230MHz)	1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
	54(5270MHz)	9kHz ~30 MHz	---	P	
		30 MHz ~1 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
		18 GHz ~ 26.5 GHz	---	P	
	62(5310MHz)	26.5 GHz ~ 40 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
		102(5510MHz)	9kHz ~30 MHz	---	P
			30 MHz ~1 GHz	---	P
	1 GHz ~ 3 GHz		---	P	
	3 GHz ~ 7 GHz		---	P	
	7 GHz ~ 18 GHz		---	P	
	18 GHz ~ 26.5 GHz		---	P	
	118(5590MHz)	26.5 GHz ~ 40 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
	134(5670MHz)	7 GHz ~ 18 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
			7 GHz ~ 18 GHz	---	P

802.11ac-HT20 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11ac -HT20	36(5180MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	40(5200MHz)	30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	48(5240MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	52(5260MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	56(5280MHz)	9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
	64(5320MHz)	26.5 GHz ~ 40 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
	100(5500MHz)	7 GHz ~ 18 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
	120(5600MHz)	7 GHz ~ 18 GHz	---	P
		9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	140(5700MHz)	18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
		1 GHz ~ 3 GHz	---	P
	140(5700MHz)	3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		7 GHz ~ 18 GHz	---	P

802.11ac-HT40 mode

Mode	Channel	Frequency Range	Test Results	Conclusion	
802.11ac HT40	38(5190MHz)	30 MHz ~1 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
		18 GHz ~ 26.5 GHz	---	P	
		26.5 GHz ~ 40 GHz	---	P	
	46(5230MHz)	1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
	54(5270MHz)	9kHz ~30 MHz	---	P	
		30 MHz ~1 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
		18 GHz ~ 26.5 GHz	---	P	
	62(5310MHz)	26.5 GHz ~ 40 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
		7 GHz ~ 18 GHz	---	P	
		102(5510MHz)	9kHz ~30 MHz	---	P
			30 MHz ~1 GHz	---	P
	1 GHz ~ 3 GHz		---	P	
	3 GHz ~ 7 GHz		---	P	
	7 GHz ~ 18 GHz		---	P	
	18 GHz ~ 26.5 GHz		---	P	
	118(5590MHz)	26.5 GHz ~ 40 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	
	134(5670MHz)	7 GHz ~ 18 GHz	---	P	
		1 GHz ~ 3 GHz	---	P	
		3 GHz ~ 7 GHz	---	P	

802.11ac-HT80 mode

Mode	Channel	Frequency Range	Test Results	Conclusion
802.11ac -HT80	42(5210MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	58(5290MHz)	9kHz ~30 MHz	---	P
		30 MHz ~1 GHz	---	P
		1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
		18 GHz ~ 26.5 GHz	---	P
		26.5 GHz ~ 40 GHz	---	P
	106(5530MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P
	122(5610MHz)	1 GHz ~ 3 GHz	---	P
		3 GHz ~ 7 GHz	---	P
		7 GHz ~ 18 GHz	---	P

Conclusion: PASS

AVERAGE Results:
802.11a

Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5149.980	43.09	-27.49	34.16	36.43	54.00	10.91	V
5149.860	43.00	-27.49	34.15	36.34	54.00	11.00	V
11988.500	38.83	-19.42	38.88	19.36	54.00	15.17	H
15540.250	40.59	-16.59	40.15	17.03	54.00	13.41	V
17966.540	43.05	-14.11	40.33	16.83	54.00	10.95	H
17868.380	43.29	-13.78	40.40	16.67	54.00	10.71	H

Channel 40

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4160.000	44.80	-28.60	33.40	40.00	54.00	9.20	V
5457.250	44.23	-27.10	34.46	36.86	54.00	9.77	V
11919.250	38.49	-19.54	38.79	19.24	54.00	15.51	H
15600.000	39.77	-16.57	40.22	16.11	54.00	14.23	H
17685.780	43.44	-13.90	40.55	16.79	54.00	10.56	V
17884.650	43.12	-13.84	40.39	16.57	54.00	10.88	H

Channel 48

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4191.850	45.72	-28.13	33.44	40.42	54.00	8.28	V
5470.800	44.09	-26.98	34.47	36.59	54.00	9.91	V
11925.500	38.49	-19.52	38.80	19.21	54.00	15.51	H
15720.560	40.63	-16.31	40.37	16.57	54.00	13.37	V
17967.500	43.12	-14.11	40.33	16.91	54.00	10.88	V
17882.500	43.35	-13.83	40.39	16.79	54.00	10.65	V

Channel 52

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4205.000	45.37	-27.92	33.45	39.84	54.00	8.63	V
5190.000	44.16	-27.51	34.20	37.47	54.00	9.84	V
12375.200	38.90	-19.29	38.90	19.30	54.00	15.10	V
15780.000	40.12	-16.11	40.44	15.79	54.00	13.88	V
17758.000	42.89	-13.71	40.49	16.11	54.00	11.11	V
17910.900	42.78	-13.92	40.37	16.34	54.00	11.22	V

Channel 56

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4224.500	44.75	-28.20	33.48	39.47	54.00	9.25	V
5458.050	44.09	-27.09	34.46	36.72	54.00	9.91	V
12415.300	38.88	-19.23	38.90	19.21	54.00	15.12	H
15840.000	40.78	-16.05	40.51	16.32	54.00	13.22	V
17763.500	43.07	-13.70	40.49	16.29	54.00	10.93	H
17885.600	42.91	-13.84	40.39	16.36	54.00	11.09	V

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.250	45.39	-27.29	34.36	38.33	54.00	8.61	V
5350.180	45.09	-27.29	34.36	38.02	54.00	8.91	V
10640.000	37.65	-19.94	37.86	19.73	54.00	16.35	V
15960.000	41.84	-16.13	40.65	17.32	54.00	12.16	H
17765.700	43.09	-13.70	40.49	16.30	54.00	10.91	V
17885.600	42.96	-13.84	40.39	16.41	54.00	11.04	H

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5456.400	43.61	-27.10	34.46	36.26	54.00	10.39	V
5459.820	43.62	-27.07	34.46	36.23	54.00	10.38	V
11000.000	37.89	-19.43	38.00	19.32	54.00	16.11	H
15921.560	40.62	-16.10	40.61	16.11	54.00	13.38	V
17796.500	42.54	-13.62	40.46	15.70	54.00	11.46	V
17848.300	42.53	-13.72	40.42	15.82	54.00	11.47	H

Channel 120

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5127.000	44.08	-27.46	34.13	37.40	54.00	9.92	V
5398.500	44.15	-26.92	34.40	36.66	54.00	9.85	V
11200.250	37.89	-19.62	38.08	19.42	54.00	16.11	V
17785.620	43.12	-13.64	40.47	16.29	54.00	10.88	V
17765.600	43.68	-13.70	40.49	16.89	54.00	10.32	H
17882.500	43.61	-13.83	40.39	17.05	54.00	10.39	V

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
51023.400	42.99	0.00	0.00	42.99	48.30	5.31	V
54022.200	42.98	0.00	0.00	42.98	48.30	5.32	V
11400.250	38.18	-19.43	38.16	19.45	48.30	10.12	H
17845.230	43.25	-13.71	40.42	16.53	48.30	5.05	H
17971.500	43.02	-14.13	40.32	16.82	48.30	5.28	H
17874.600	43.15	-13.80	40.40	16.55	48.30	5.15	V

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Channel 36

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5149.380	44.49	-27.49	34.15	37.83	54.00	9.51	V
5150.000	44.55	-27.49	34.16	37.89	54.00	9.45	V
11985.500	38.75	-19.41	38.88	19.28	54.00	15.25	V
15540.000	40.62	-16.59	40.15	17.06	54.00	13.38	H
17782.500	42.65	-13.65	40.47	15.83	54.00	11.35	H
17770.380	42.68	-13.68	40.48	15.88	54.00	11.32	H

Channel 40

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4160.250	43.84	-28.60	33.40	39.04	54.00	10.16	V
5396.560	44.02	-26.91	34.40	36.53	54.00	9.98	V
11845.500	38.56	-19.86	38.69	19.73	54.00	15.44	V
15600.000	39.84	-16.57	40.22	16.19	54.00	14.16	H
17965.800	43.15	-14.11	40.33	16.93	54.00	10.85	V
17879.450	43.38	-13.82	40.40	16.80	54.00	10.62	V

Channel 48

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4192.500	45.44	-28.12	33.44	40.12	54.00	8.56	V
5392.800	43.96	-26.93	34.40	36.49	54.00	10.04	V
11868.240	38.52	-19.76	38.72	19.56	54.00	15.48	V
15720.000	40.38	-16.31	40.37	16.32	54.00	13.62	H
17970.500	43.14	-14.12	40.32	16.94	54.00	10.86	H
17871.600	43.38	-13.79	40.40	16.77	54.00	10.62	H

Channel 52

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4207.850	44.88	-27.88	33.46	39.31	54.00	9.12	V
5398.050	44.18	-26.92	34.40	36.69	54.00	9.82	V
12348.500	38.88	-19.33	38.90	19.31	54.00	15.12	V
15780.000	40.12	-16.11	40.44	15.79	54.00	13.88	H
17767.900	42.99	-13.69	40.48	16.20	54.00	11.01	V
17919.700	42.77	-13.95	40.36	16.36	54.00	11.23	V

Channel 56

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4223.800	44.44	-28.18	33.48	39.15	54.00	9.56	V
5441.250	44.08	-27.12	34.44	36.75	54.00	9.92	V
11924.500	39.10	-19.52	38.80	19.83	54.00	14.90	H
15840.000	40.94	-16.05	40.51	16.48	54.00	13.06	V
17764.600	42.95	-13.70	40.49	16.16	54.00	11.05	H
17899.900	42.95	-13.89	40.38	16.46	54.00	11.05	H

Channel 64

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.020	46.30	-27.29	34.35	39.23	54.00	7.70	V
5350.250	46.17	-27.29	34.36	39.11	54.00	7.83	V
10640.000	37.58	-19.94	37.86	19.66	54.00	16.42	H
15960.000	41.75	-16.13	40.65	17.23	54.00	12.25	V
17765.700	42.96	-13.70	40.49	16.17	54.00	11.04	H
17869.100	42.86	-13.79	40.40	16.24	54.00	11.14	V

Channel 100

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5457.660	43.72	-27.09	34.46	36.35	54.00	10.28	V
5459.100	43.88	-27.08	34.46	36.50	54.00	10.12	V
11000.000	37.85	-19.43	38.00	19.28	54.00	16.15	H
15935.450	40.55	-16.11	40.62	16.04	54.00	13.45	H
17789.500	42.41	-13.64	40.47	15.58	54.00	11.59	H
17848.300	42.53	-13.72	40.42	15.82	54.00	11.47	V

Channel 120

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5112.400	46.03	-27.38	34.12	39.29	54.00	7.97	V
5128.000	45.88	-27.46	34.13	39.21	54.00	8.12	V
11200.500	37.78	-19.62	38.08	19.31	54.00	16.22	V
17765.500	43.24	-13.70	40.49	16.45	54.00	10.76	V
17778.800	43.70	-13.66	40.48	16.89	54.00	10.30	V
17879.420	43.39	-13.82	40.40	16.81	54.00	10.61	V

Channel 140

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5409.420	43.54	-26.97	34.41	36.09	48.30	4.76	V
5418.420	43.49	-27.01	34.42	36.08	48.30	4.81	V
11400.150	38.23	-19.43	38.16	19.49	48.30	10.07	H
17850.250	43.34	-13.72	40.42	16.64	48.30	4.96	H
17972.500	43.17	-14.13	40.32	16.98	48.30	5.13	V
17890.500	43.16	-13.86	40.39	16.63	48.30	5.14	V

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Channel 38

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5149.920	47.35	-27.49	34.15	40.69	54.00	6.65	V
5149.630	47.25	-27.49	34.15	40.59	54.00	6.75	V
12375.600	38.98	-19.29	38.90	19.37	54.00	15.02	H
15570.000	40.47	-16.58	40.19	16.86	54.00	13.53	V
17970.400	43.17	-14.12	40.32	16.97	54.00	10.83	H
17865.500	43.09	-13.77	40.41	16.46	54.00	10.91	V

Channel 46

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4767.500	45.67	-27.72	33.91	39.48	54.00	8.33	V
4184.630	43.77	-28.24	33.43	38.59	54.00	10.23	V
12678.200	38.15	-18.69	38.90	17.94	54.00	15.85	H
15690.000	40.23	-16.41	40.33	16.31	54.00	13.77	V
17780.600	43.62	-13.66	40.47	16.80	54.00	10.38	V
17878.650	43.52	-13.82	40.40	16.94	54.00	10.48	V

Channel 54

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
4215.800	44.15	-28.03	33.47	38.72	54.00	9.85	V
4807.600	45.46	-27.70	33.93	39.24	54.00	8.54	V
12001.750	38.88	-19.45	38.90	19.43	54.00	15.12	V
15810.000	40.33	-16.03	40.47	15.88	54.00	13.67	V
17761.300	42.73	-13.71	40.49	15.95	54.00	11.27	H
17902.100	42.59	-13.90	40.38	16.11	54.00	11.41	V

Channel 62

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5350.110	48.37	-27.29	34.36	41.31	54.00	5.63	V
5350.245	48.11	-27.29	34.36	41.05	54.00	5.89	V
10620.000	37.74	-19.96	37.85	19.86	54.00	16.26	V
15930.000	40.66	-16.11	40.62	16.15	54.00	13.34	V
17749.200	42.86	-13.74	40.50	16.10	54.00	11.14	V
17879.000	42.75	-13.82	40.40	16.18	54.00	11.25	H

Channel 102

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5459.830	46.65	-27.07	34.46	39.26	54.00	7.35	V
5459.935	46.64	-27.07	34.46	39.25	54.00	7.36	V
11020.000	37.88	-19.42	38.01	19.29	54.00	16.12	V
17853.600	42.56	-13.73	40.42	15.88	54.00	11.44	V
17948.780	43.10	-14.05	40.34	16.81	54.00	10.90	V
17860.500	43.24	-13.76	40.41	16.59	54.00	10.76	H

Channel 118

Frequency (MHz)	Measurement Result (dBuV/m)	Cable Loss (dB)	Antenna Factor (dB/m)	Receiver Reading (dBuV)	Limit (dBuV/m)	Margin (dB)	Antenna Pol. (H/V)
5093.600	46.17	-27.28	34.10	39.35	54.00	7.83	V
5127.200	46.97	-27.46	34.13	40.30	54.00	7.03	V
11180.000	37.58	-19.59	38.07	19.10	54.00	16.42	H
17768.500	43.10	-13.69	40.48	16.30	54.00	10.90	V
17975.500	43.22	-14.14	40.32	17.04	54.00	10.78	V
17911.500	43.25	-13.93	40.37	16.81	54.00	10.75	H