



FCC PART 15 TEST REPORT No.I22Z61952-IOT04

for

Honor Device Co., Ltd.

Smart Phone

RMO-NX1

With

FCC ID: 2AYGCRM0-NX1

Hardware Version: HN2RMOM

Software Version: 6.1.0.21(C900E21R1P1)

Issued Date: 2022-11-11

Note:

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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

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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

Conducted testing Location: CTTL(Huayuan North Road)

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

Radiated testing Location: CTTL(huayuan North Road)

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

1.3. Testing Environment

Normal Temperature: 15-35°C

Relative Humidity: 20-75%

1.4. Project date

Testing Start Date: 2022-10-09

Testing End Date: 2022-11-04



1.5. Signature

Xie Xiuzhen
(Prepared this test report)

Zheng Wei
(Reviewed this test report)

Pang Shuai
(Approved this test report)



2. CLIENT INFORMATION

2.1 Applicant Information

Company Name: Honor Device Co., Ltd.
Address: Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China
City: Shenzhen
Country: China
Telephone: /
Fax: /

2.2 Manufacturer Information

Company Name: Honor Device Co., Ltd.
Address: Shum Yip Sky Park, No. 8089, Hongli West Road, Shenzhen, China
City: Shenzhen
Country: China
Telephone: /
Fax: /

3. EQUIPMENT UNDER TEST (EUT) AND

ANCILLARY EQUIPMENT (AE)

3.1. About EUT

Description	Smart Phone
Model name	RMO-NX1
FCC ID	2AYGCRMO-NX1
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Antenna Gain	0dBi
Voltage	3.87V

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version
UT07a	/	HN2RMOM	6.1.0.21(C900E21R1P1)
UT35a	/	HN2RMOM	6.1.0.21(C900E21R1P1)
UT22a	/	HN2RMOM	6.1.0.21(C900E21R1P1)
UT25a	/	HN2RMOM	6.1.0.21(C900E21R1P1)
UT26a	/	HN2RMOM	6.1.0.21(C900E21R1P1)

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

UT07a and UT35a is used for Conduction test, UT22a/25a/26a are used for Radiation test.

3.3. Internal Identification of AE used during the test

AE ID*	Name	Model	Manufacturer
AE1-1	Adapter	HW-100400E01	Honor Device Co., Ltd.
AE1-2	Adapter	HW-100400B01	Honor Device Co., Ltd.
AE1-3	Adapter	HW-100400U01	Honor Device Co., Ltd.
AE2-1	USB Cable	WA0052	Broad
AE2-2	USB Cable	CUDU01B-HC385-EH	FOXCONN
AE2-3	USB Cable	L99UC144-CS-H	LUXSHARE
AE2-4	USB Cable	AU2-CRO009HF	Freeport
AE2-5	USB Cable	2120-00062-0	MING JI
AE2-6	USB Cable	2120-00060-0	MING JI
AE2-7	USB Cable	L99UC139-CS-H	LUXSHARE
AE3-1	Headset	1293-3283-3.5mm-339	Quancheng
AE3-2	Headset	EPAB542-2WH05-DH	FOXCONN

AE3-3	Headset	MEND1532B528C00	Lianchuang
AE4-1	Battery	HB506492EFW	Honor Device Co., Ltd. (Sunwoda)
AE4-2	Battery	HB506492EFW	Honor Device Co., Ltd. (Desay)
AE4-3	Battery	HB506492EFW	Honor Device Co., Ltd. (CosMX)
AE5-1	Type-C to 3.5mm	USB042020090AW7	LC
AE5-2	Type-C to 3.5mm	6001-7001-TC-348	QC

*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 Smart Phone 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	2021
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	/	BR
Peak Power Spectral Density	15.407	/	BR
Occupied 26dB Bandwidth	15.403	/	BR
Band edge compliance (Radiated)	15.209	/	BR
Transmitter spurious emissions (Radiated)	15.407	/	BR
AC Powerline Conducted Emission (150kHz- 30MHz)	15.407	/	BR
Frequency Stability	15.407	/	BR
99% Occupied bandwidth	/	/	BR
Transmit Power Control	15.407	/	BR

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
BR	Re-use test data from basic model report.
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/manufacture 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.

The Equipment Under Test (EUT) model RMO-NX1 (FCC ID: 2AYGCRMO-NX1) is variant products of RMO-NX3 (FCC ID: 2AYGCRMO-NX3), all the test results are derived from test report No.I22Z61813-IOT04.

For detail differences between two models please refer the Declaration of Changes document.

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	3.87V
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	2023-05-15
2	Test Receiver	ESCI	100344	Rohde & Schwarz	1 year	2023-03-21
3	LISN	ENV216	101200	Rohde & Schwarz	1 year	2023-06-29
4	Shielding Room	S81	/	ETS-Lindgren	/	/

Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103015	Rohde & Schwarz	1 year	2023-01-23
2	BiLog Antenna	VULB9163	01223	Schwarzbeck	1 year	2023-07-25
3	Dual-Ridge Waveguide Horn Antenna	3116	2661	ETS-Lindgren	1 year	2023-02-08
4	EMI Antenna	3115	00167250	ETS-Lindgren	1 year	2023-06-20
5	Antenna	HFH2-Z2	829324/007	Rohde & Schwarz	1 year	2022-12-22

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)

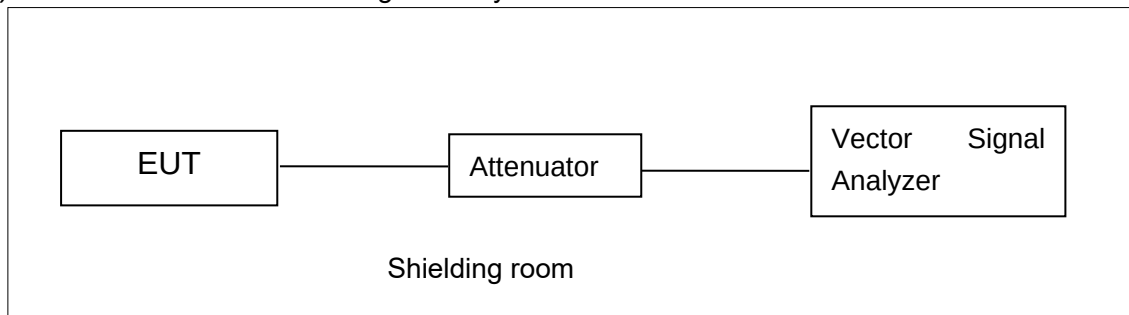
Frequency Range	Uncertainty(dB)
9kHz-30MHz	4.92
$30\text{MHz} \leq f \leq 1\text{GHz}$	5.18
$1\text{GHz} \leq f \leq 18\text{GHz}$	5.54
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.26

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

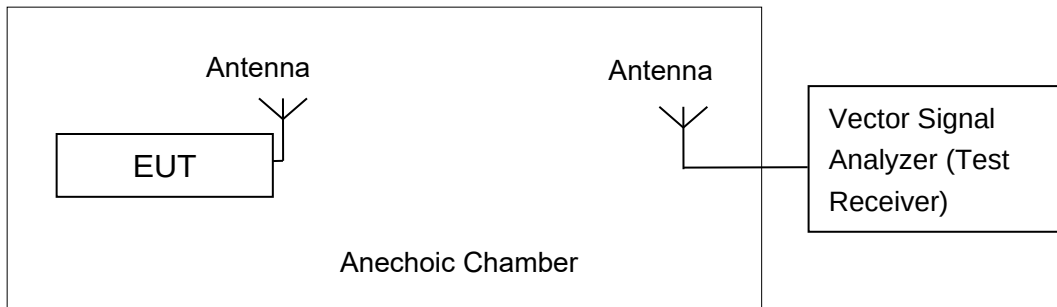


A.1.2. Radiated Emission Measurements

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 = 10Hz;



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:

802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	14.31	/	/	/	/	/	/	/
	5200MHz	14.66	/	/	/	/	/	/	/
	5240MHz	14.19	/	/	/	/	/	/	/
	5260MHz	14.12	/	/	/	/	/	/	/
	5280MHz	14.11	/	/	/	/	/	/	/
	5320MHz	14.06	/	/	/	/	/	/	/
	5500MHz	13.22	/	/	/	/	/	/	/
	5580MHz	14.49	/	/	/	/	/	/	/
	5700MHz	11.09	/	/	/	/	/	/	/
	5720MHz	13.59	/	/	/	/	/	/	/

The data rate 6Mbps is selected as worst 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	13.84	/	/	/	/	/	/	/
	5200MHz	14.32	/	/	/	/	/	/	/
	5240MHz	13.47	/	/	/	/	/	/	/
	5260MHz	13.99	/	/	/	/	/	/	/
	5280MHz	13.86	/	/	/	/	/	/	/
	5320MHz	13.59	/	/	/	/	/	/	/
	5500MHz	11.55	/	/	/	/	/	/	/
	5580MHz	13.85	/	/	/	/	/	/	/
	5700MHz	10.45	/	/	/	/	/	/	/
	5720MHz	13.53	/	/	/	/	/	/	/

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

802.11ac-VHT20 mode

Mode	Frequency	Test Result (dBm)								
		Data Rate								
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8
802.11ac (HT20)	5180MHz	13.91	/	/	/	/	/	/	/	/
	5200MHz	14.39	/	/	/	/	/	/	/	/
	5240MHz	13.49	/	/	/	/	/	/	/	/
	5260MHz	13.98	/	/	/	/	/	/	/	/
	5280MHz	13.86	/	/	/	/	/	/	/	/
	5320MHz	13.59	/	/	/	/	/	/	/	/
	5500MHz	11.48	/	/	/	/	/	/	/	/
	5580MHz	13.87	/	/	/	/	/	/	/	/
	5700MHz	10.44	/	/	/	/	/	/	/	/
	5720MHz	13.52	/	/	/	/	/	/	/	/

The data rate MCS0 is selected as worst 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	11.64	/	/	/	/	/	/	/
	5230MHz	14.22	/	/	/	/	/	/	/
	5270MHz	14.44	/	/	/	/	/	/	/
	5310MHz	11.31	/	/	/	/	/	/	/
	5510MHz	11.93	/	/	/	/	/	/	/
	5550MHz	14.72	/	/	/	/	/	/	/
	5670MHz	14.75	/	/	/	/	/	/	/
	5710MHz	14.11	/	/	/	/	/	/	/

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

802.11ac-VHT40 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT40)	5190MHz	11.66	/	/	/	/	/	/	/	/	/
	5230MHz	14.26	/	/	/	/	/	/	/	/	/
	5270MHz	14.55	/	/	/	/	/	/	/	/	/
	5310MHz	11.34	/	/	/	/	/	/	/	/	/
	5510MHz	11.91	/	/	/	/	/	/	/	/	/

	5550MHz	14.72	/	/	/	/	/	/	/	/	/
	5670MHz	14.73	/	/	/	/	/	/	/	/	/
	5710MHz	14.08	/	/	/	/	/	/	/	/	/

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

802.11ac-VHT80 mode

Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (HT80)	5210MHz	10.97	/	/	/	/	/	/	/	/	/
	5290MHz	9.75	/	/	/	/	/	/	/	/	/
	5530MHz	11.44	/	/	/	/	/	/	/	/	/
	5610MHz	14.93	/	/	/	/	/	/	/	/	/
	5690MHz	14.49	/	/	/	/	/	/	/	/	/

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

Duty Cycle

Mode	802.11a	802.11n20	802.11n40	802.11ac20	802.11ac40	802.11ac80
Duty Cycle	98%	98%	98%	98%	98%	98%

Conclusion: PASS

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	4.55	P
	5200 MHz	4.50	P
	5240 MHz	4.37	P
	5260 MHz	4.50	P
	5280 MHz	4.57	P
	5320 MHz	4.61	P
	5500 MHz	2.62	P
	5580 MHz	4.31	P
	5700 MHz	0.92	P
	5720 MHz	4.17	P
802.11ac HT20	5180 MHz	4.14	P
	5200 MHz	4.12	P
	5240 MHz	4.01	P
	5260 MHz	4.09	P
	5280 MHz	4.13	P
	5320 MHz	4.19	P
	5500 MHz	1.25	P
	5580 MHz	3.91	P
	5700 MHz	0.50	P
	5720 MHz	4.03	P
802.11n HT40	5190 MHz	-1.28	P
	5230 MHz	1.56	P
	5270 MHz	1.59	P
	5310 MHz	-0.64	P
	5510 MHz	-1.38	P
	5550 MHz	1.38	P
	5670 MHz	1.71	P
	5710 MHz	1.46	P
802.11ac HT80	5210MHz	-5.20	P
	5290MHz	-6.01	P
	5530MHz	-5.06	P

	5610MHz	-1.62	P
	5690MHz	-1.78	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
802.11a	5180 MHz	Fig.1	23.15	P
	5200 MHz	Fig.2	23.50	P
	5240 MHz	Fig.3	23.25	P
	5260 MHz	Fig.4	23.90	P
	5280 MHz	Fig.5	22.90	P
	5320 MHz	Fig.6	23.00	P
	5500 MHz	Fig.7	23.50	P
	5580 MHz	Fig.8	24.00	P
	5700 MHz	Fig.9	24.05	P
	5720 MHz	Fig.10	24.60	P
802.11ac VHT20	5180 MHz	Fig.11	24.05	P
	5200 MHz	Fig.12	24.25	P
	5240 MHz	Fig.13	24.80	P
	5260 MHz	Fig.14	23.30	P
	5280 MHz	Fig.15	24.65	P
	5320 MHz	Fig.16	24.05	P
	5500 MHz	Fig.17	24.70	P
	5580 MHz	Fig.18	24.30	P
	5700 MHz	Fig.19	24.25	P
	5720 MHz	Fig.20	26.05	P
802.11n HT40	5190 MHz	Fig.21	41.52	P
	5230 MHz	Fig.22	41.20	P
	5270 MHz	Fig.23	41.36	P
	5310 MHz	Fig.24	41.44	P

	5510 MHz	Fig.25	40.88	P
	5550 MHz	Fig.26	40.80	P
	5670 MHz	Fig.27	41.04	P
	5710 MHz	Fig.28	42.00	P
	5210MHz	Fig.29	82.88	P
802.11ac VHT80	5290MHz	Fig.30	82.72	P
	5530MHz	Fig.31	82.88	P
	5610MHz	Fig.32	83.36	P
	5690MHz	Fig.33	87.52	P

Conclusion: PASS

Test graphs as below:

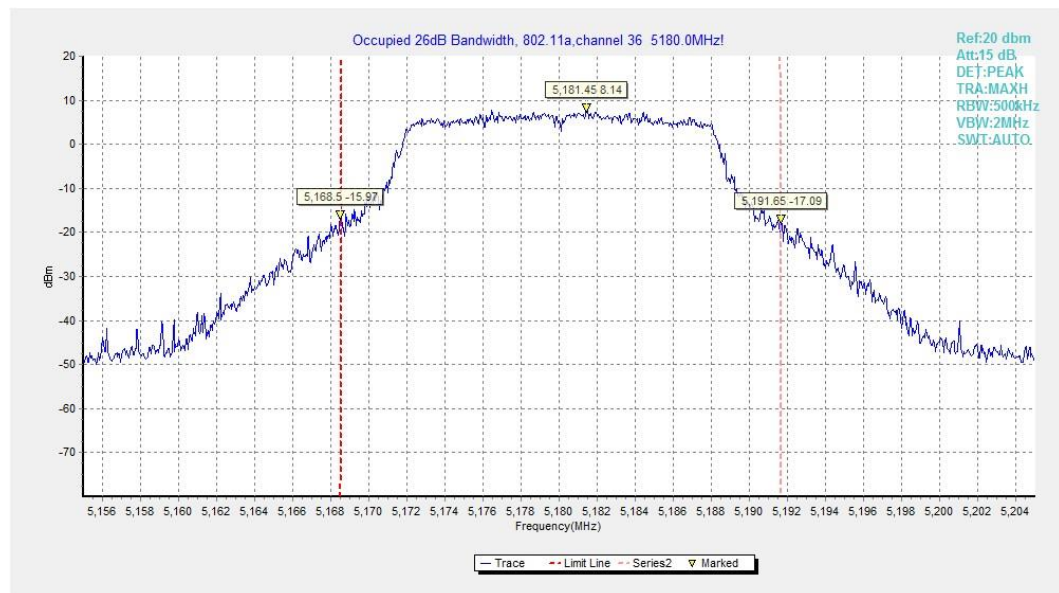


Fig.1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

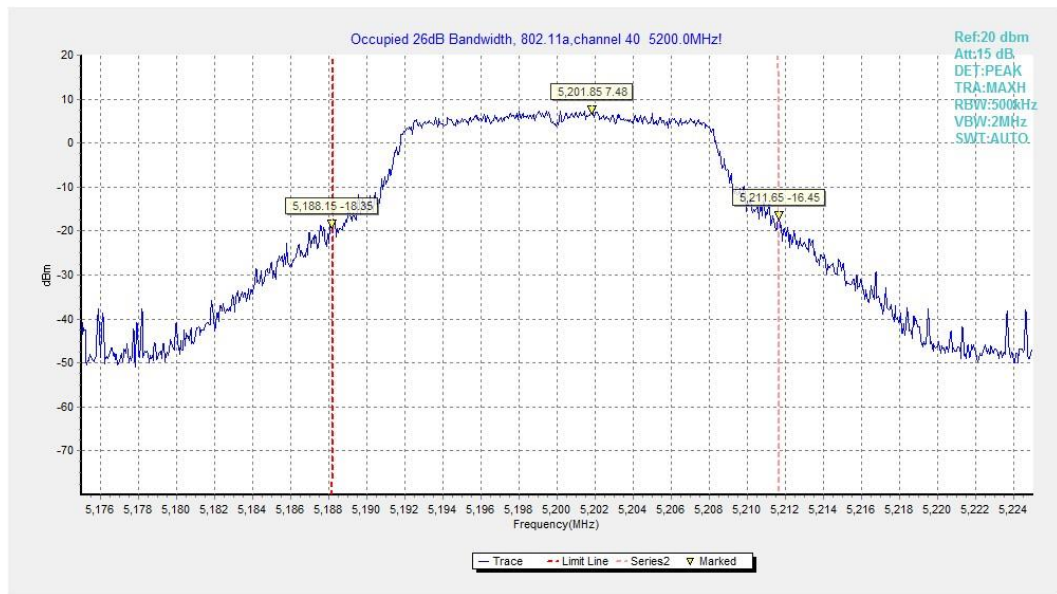


Fig.2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

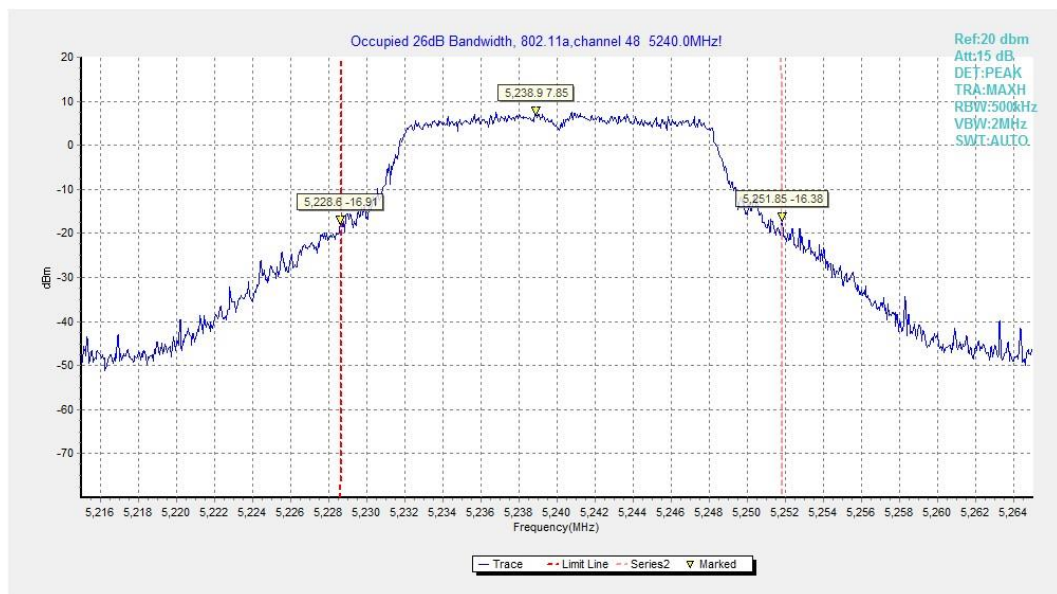


Fig.3 Occupied 26dB Bandwidth (802.11a, 5240MHz)

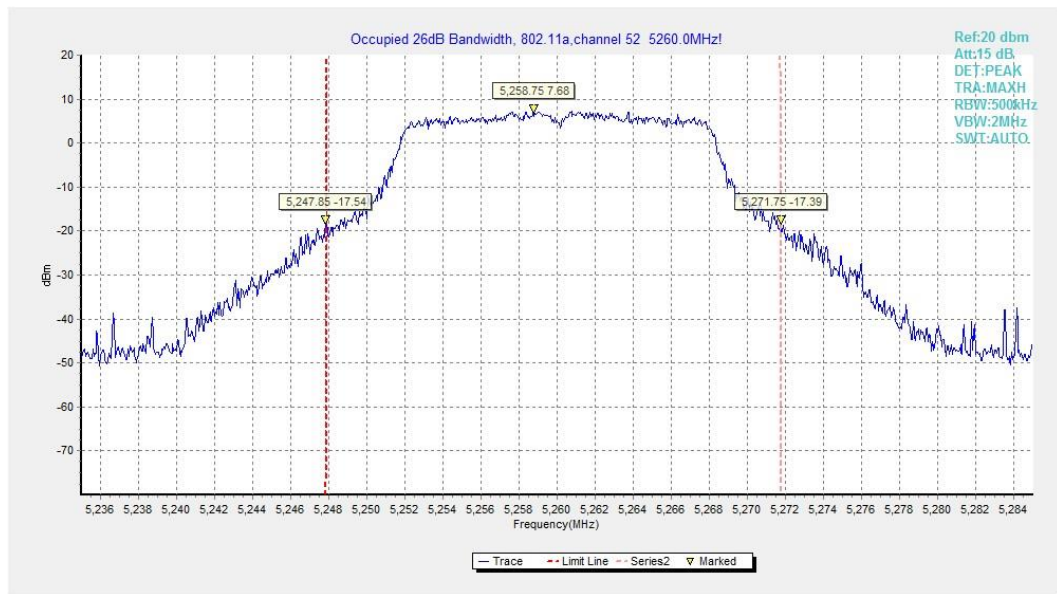


Fig.4 Occupied 26dB Bandwidth (802.11a, 5260MHz)

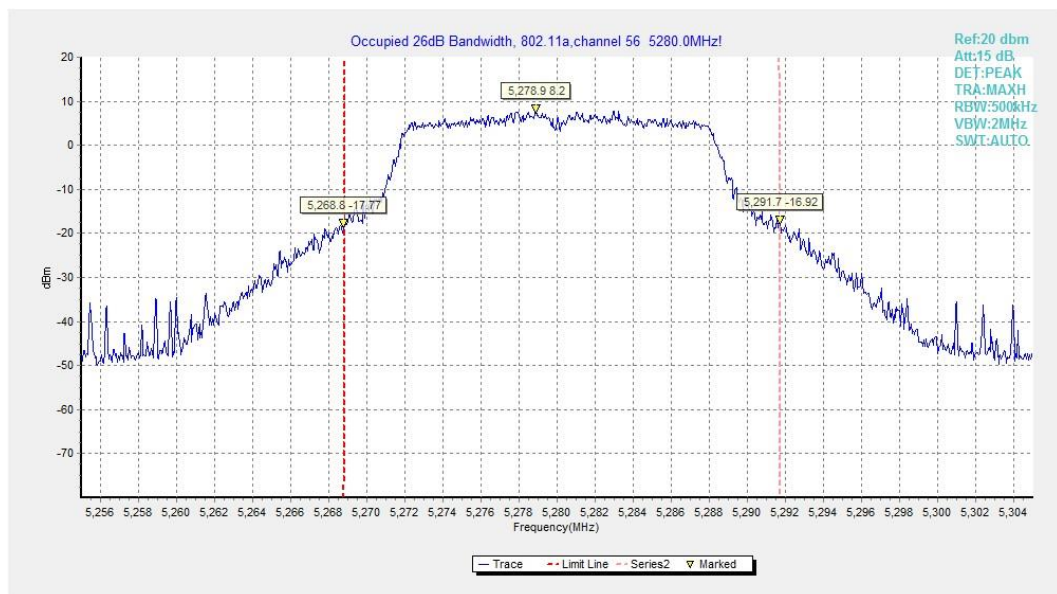


Fig.5 Occupied 26dB Bandwidth (802.11a, 5280MHz)

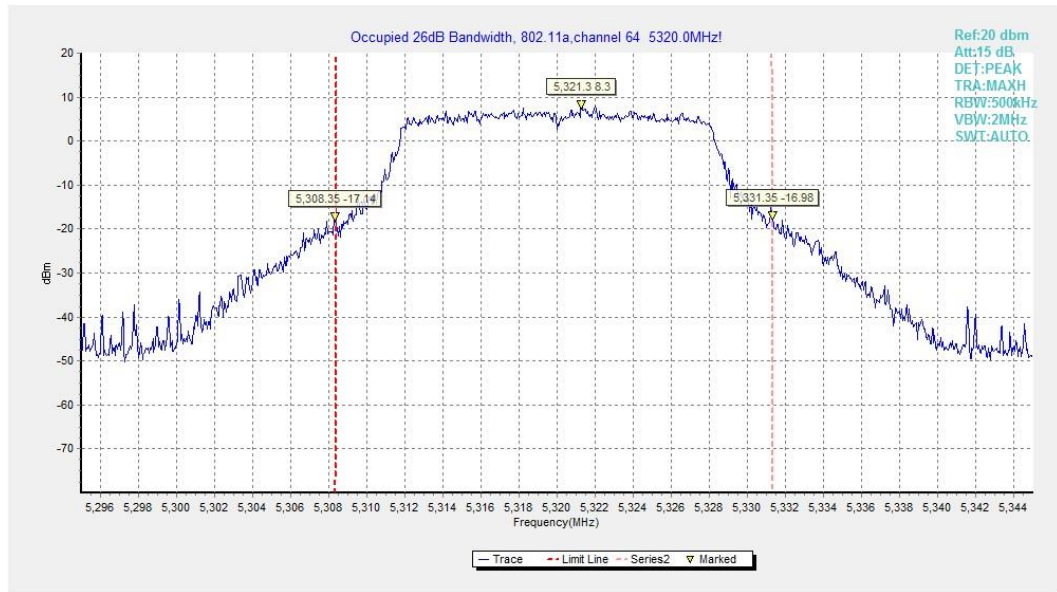


Fig.6 Occupied 26dB Bandwidth (802.11a, 5320MHz)

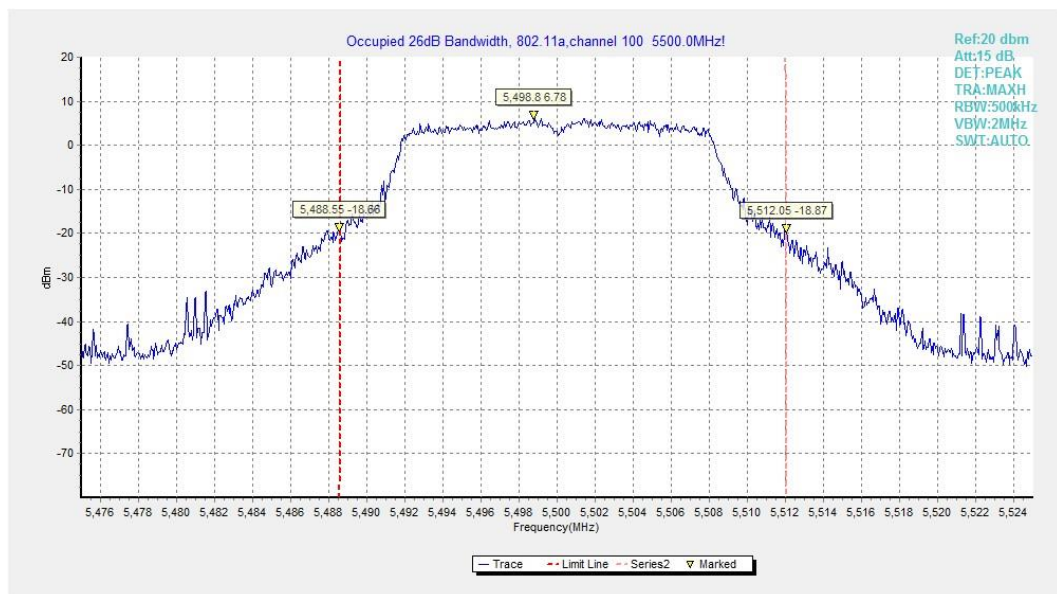


Fig.7 Occupied 26dB Bandwidth (802.11a, 5500MHz)

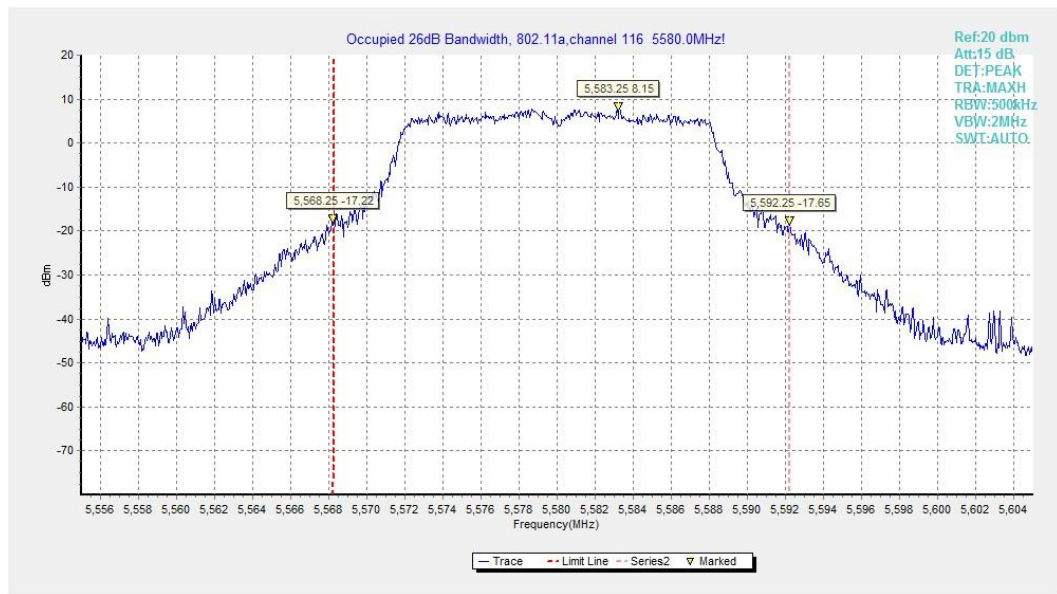


Fig.8 Occupied 26dB Bandwidth (802.11a, 5580MHz)

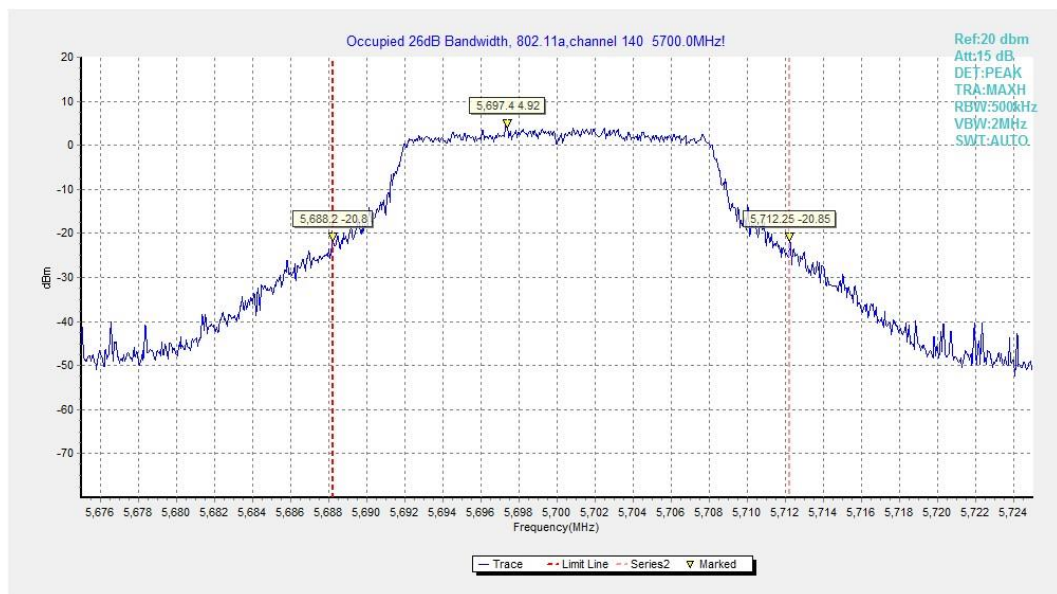


Fig.9 Occupied 26dB Bandwidth (802.11a, 5700MHz)

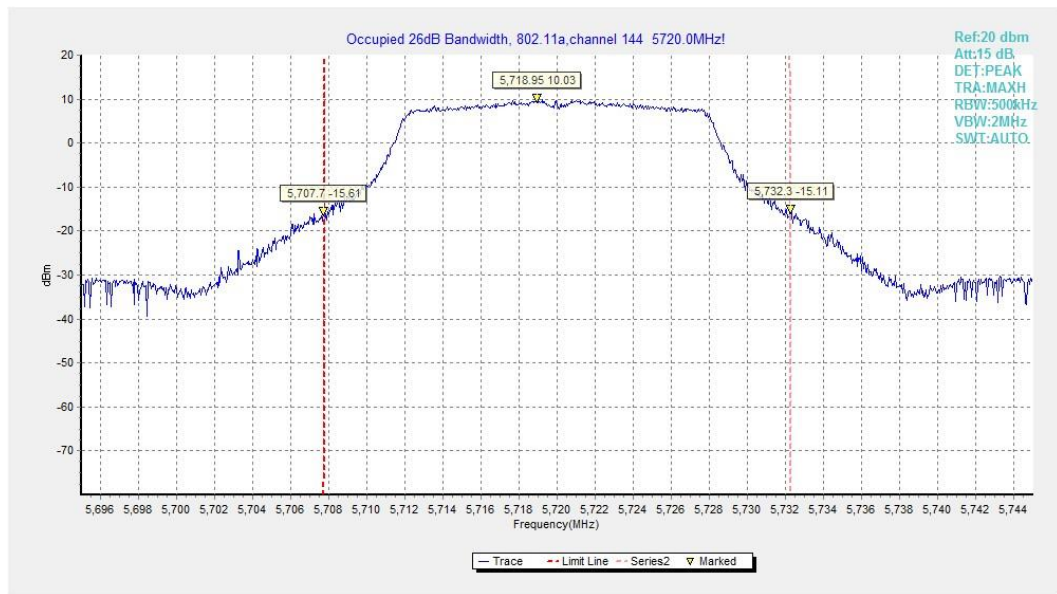


Fig.10 Occupied 26dB Bandwidth (802.11a, 5720MHz)

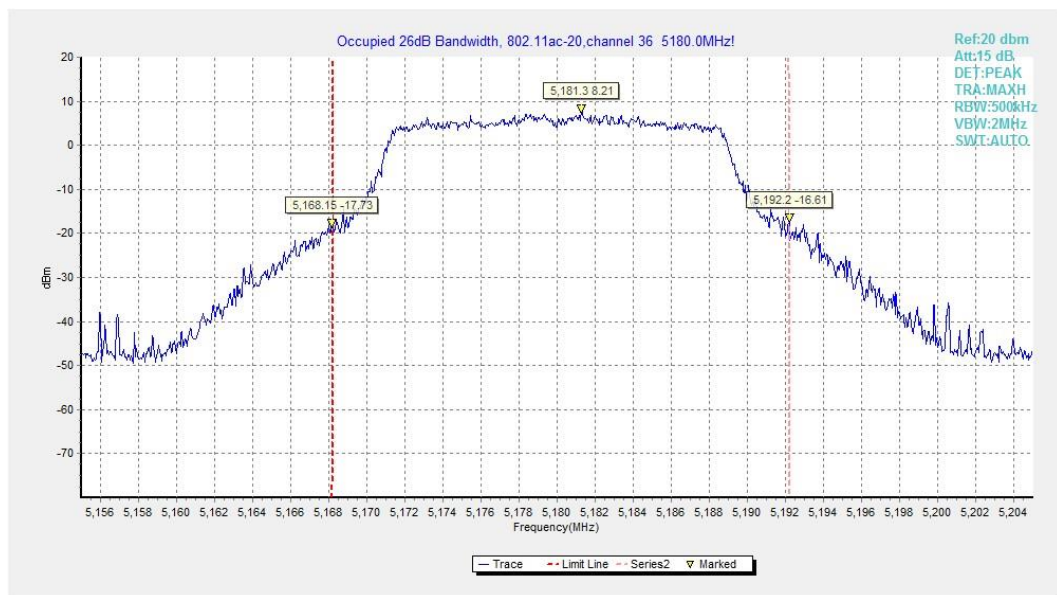


Fig.11 Occupied 26dB Bandwidth (802.11ac-VHT20, 5180MHz)

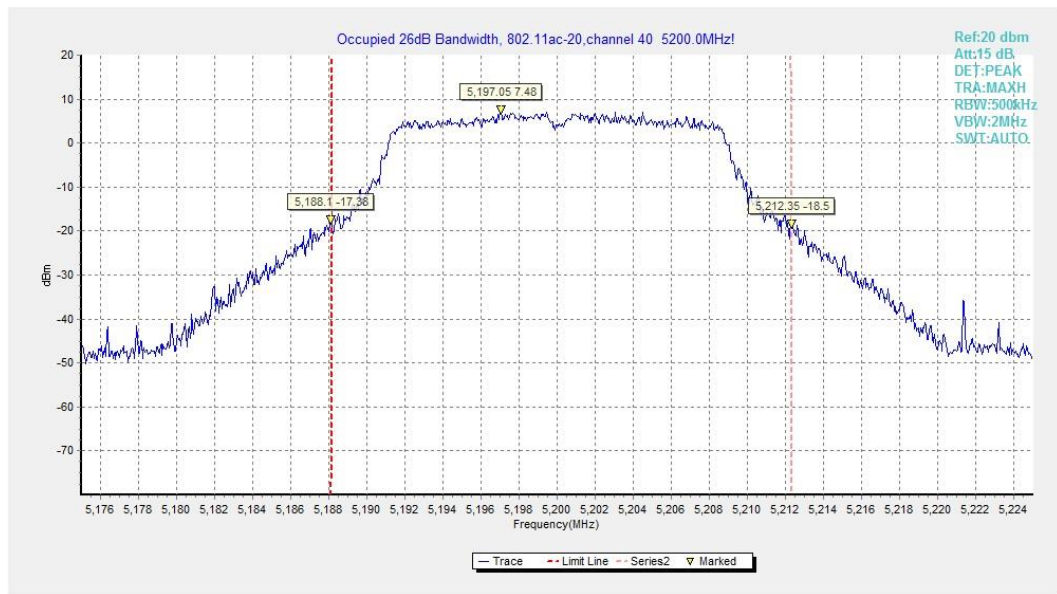


Fig.12 Occupied 26dB Bandwidth (802.11ac-VHT20, 5200MHz)

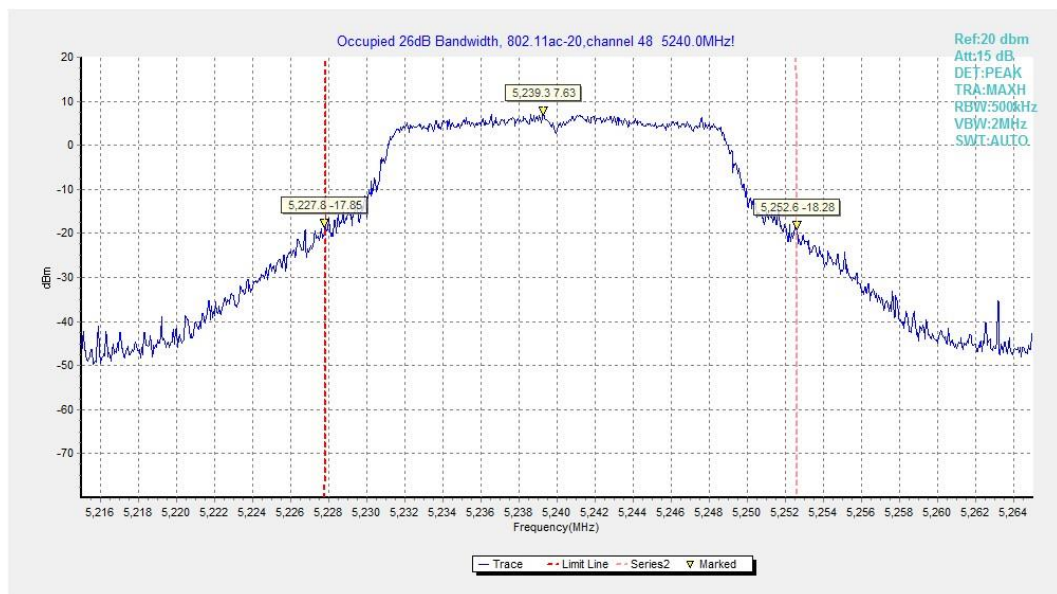


Fig.13 Occupied 26dB Bandwidth (802.11ac-VHT20, 5240MHz)

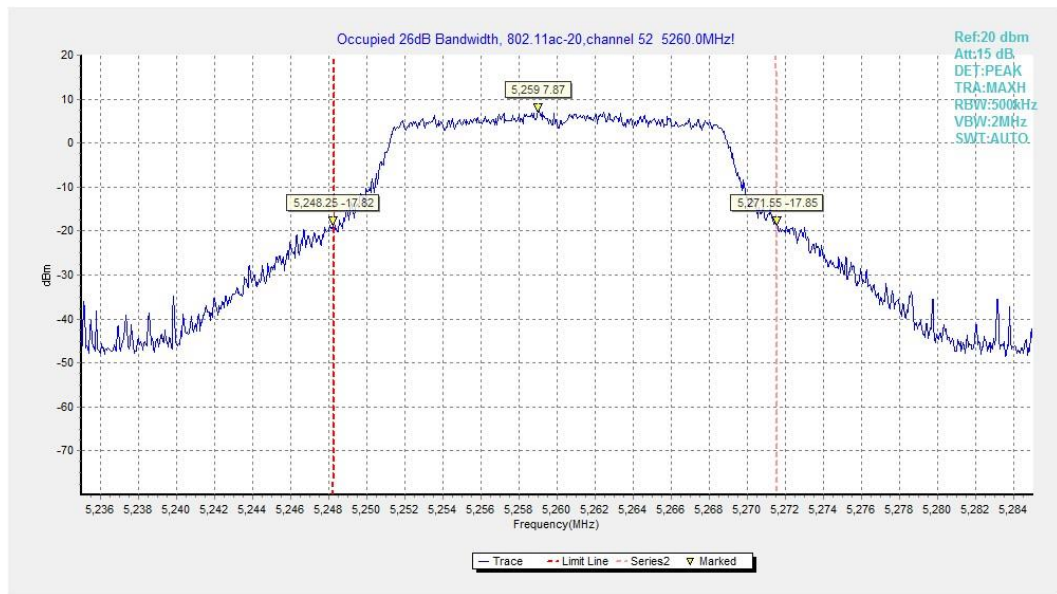


Fig.14 Occupied 26dB Bandwidth (802.11ac-VHT20, 5260MHz)

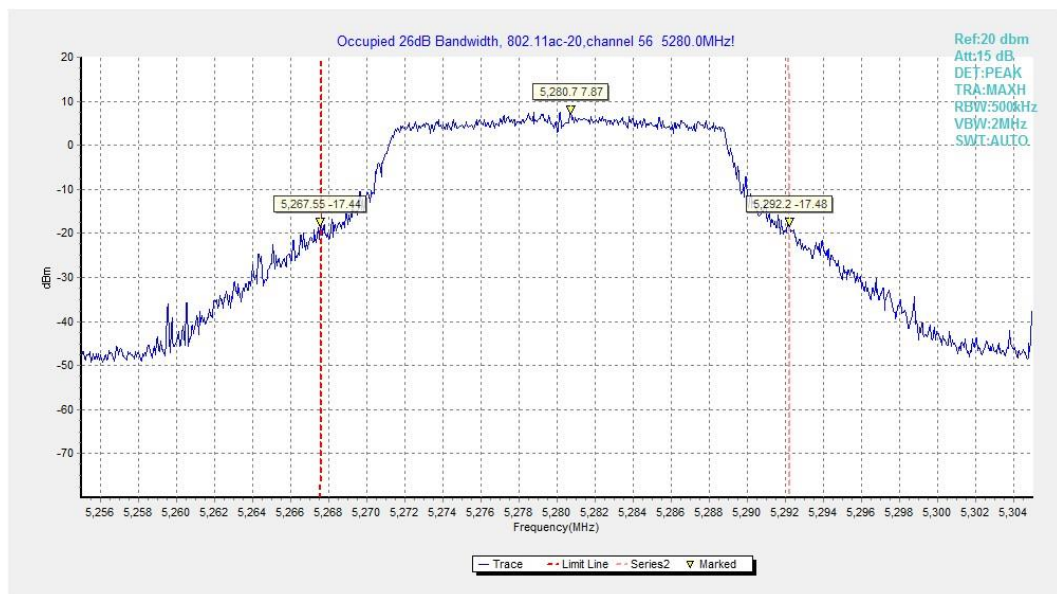


Fig.15 Occupied 26dB Bandwidth (802.11ac-VHT20, 5280MHz)

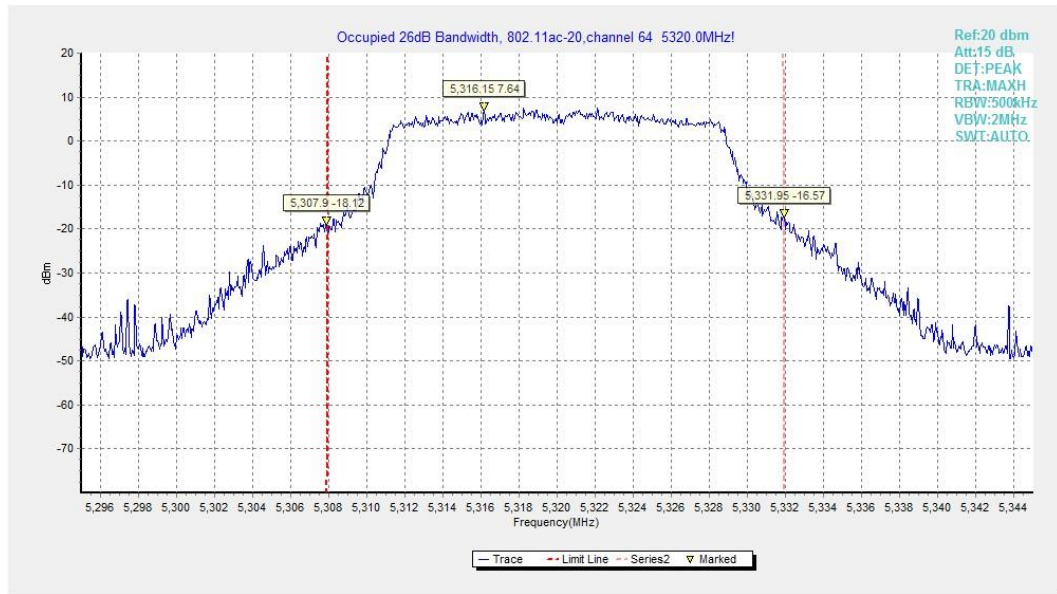


Fig.16 Occupied 26dB Bandwidth (802.11ac-VHT20, 5320MHz)

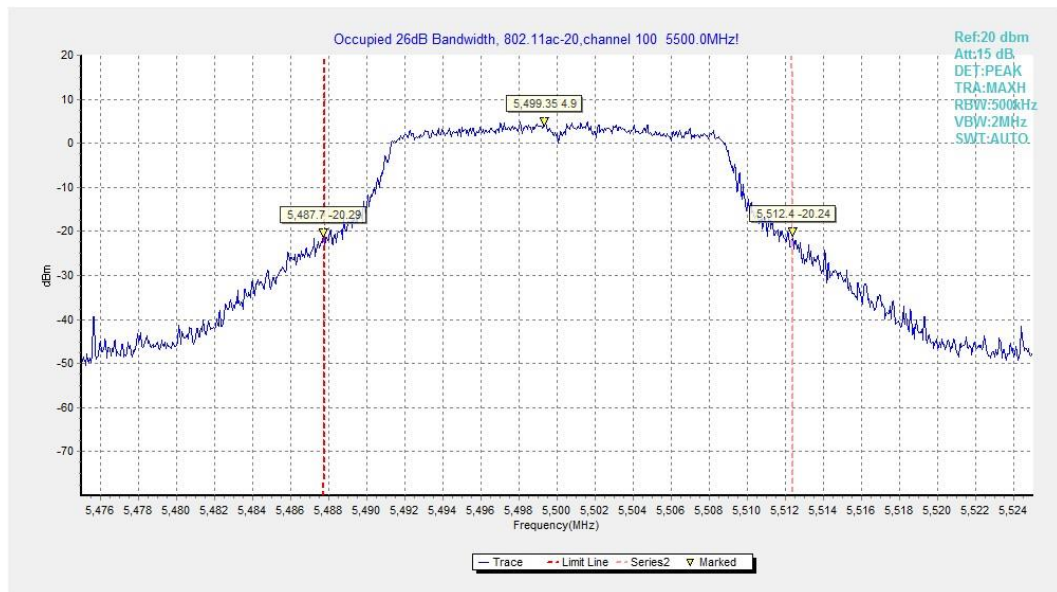


Fig.17 Occupied 26dB Bandwidth (802. 11ac-VHT20, 5500MHz)

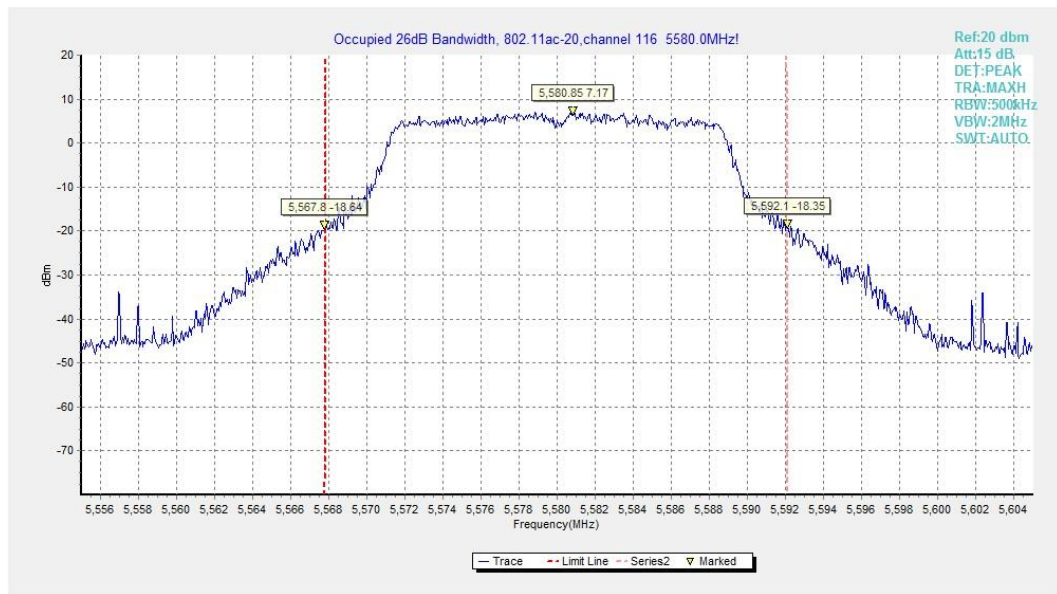


Fig.18 Occupied 26dB Bandwidth (802. 11ac-VHT20, 5580MHz)

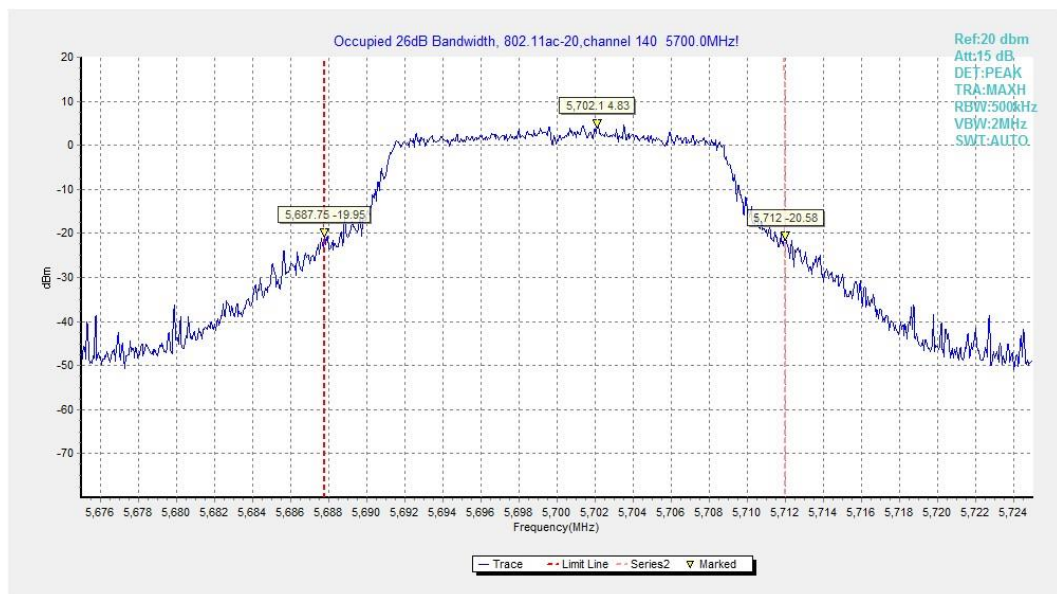


Fig.19 Occupied 26dB Bandwidth (802. 11ac-VHT20, 5700MHz)

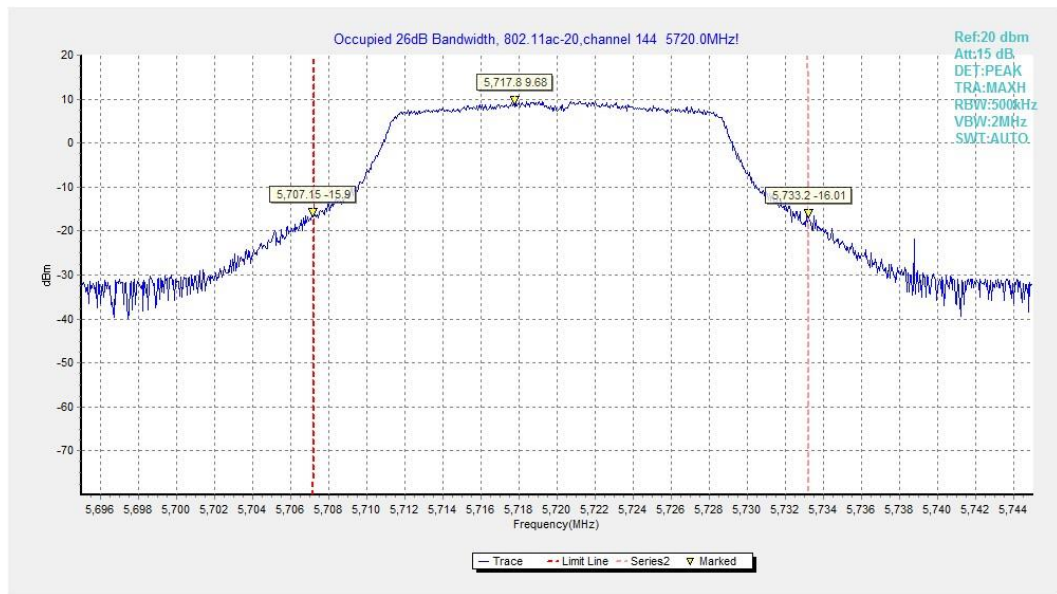


Fig.20 Occupied 26dB Bandwidth (802. 11ac-VHT20, 5720MHz)

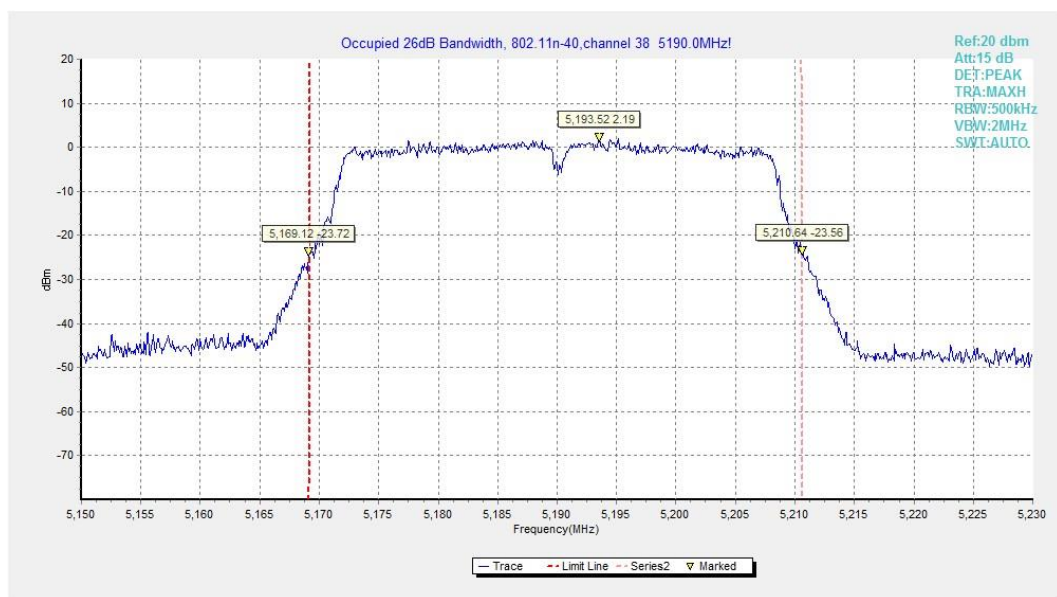


Fig.21 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

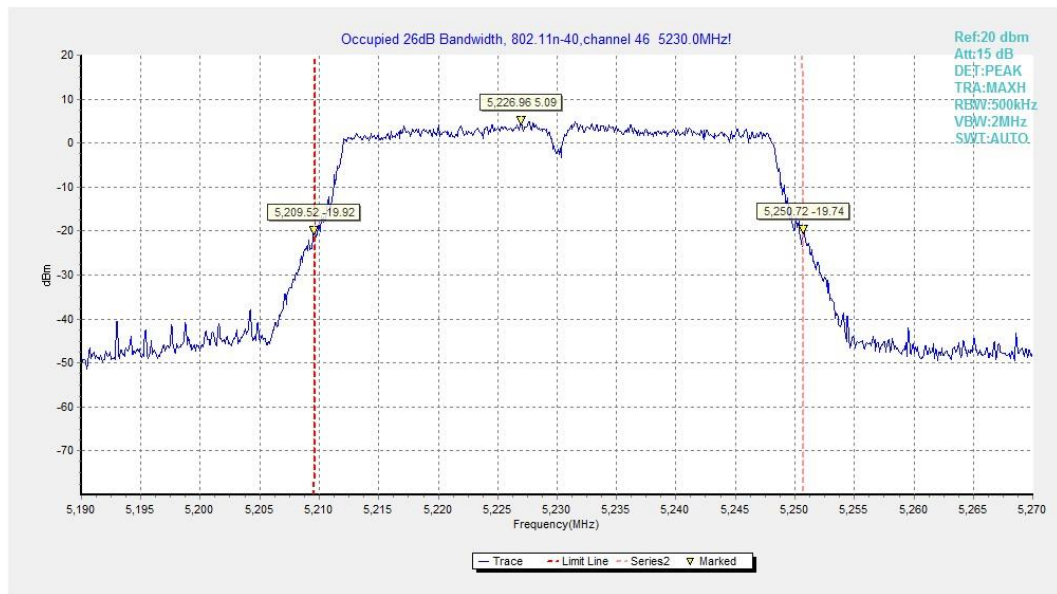


Fig.22 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

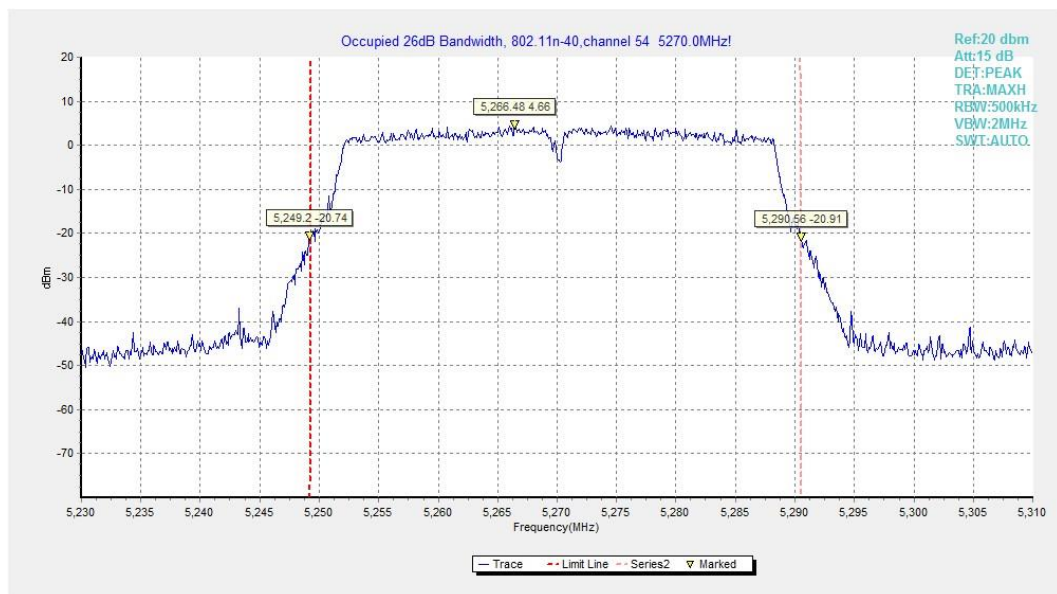


Fig.23 Occupied 26dB Bandwidth (802.11n-HT40, 5270MHz)

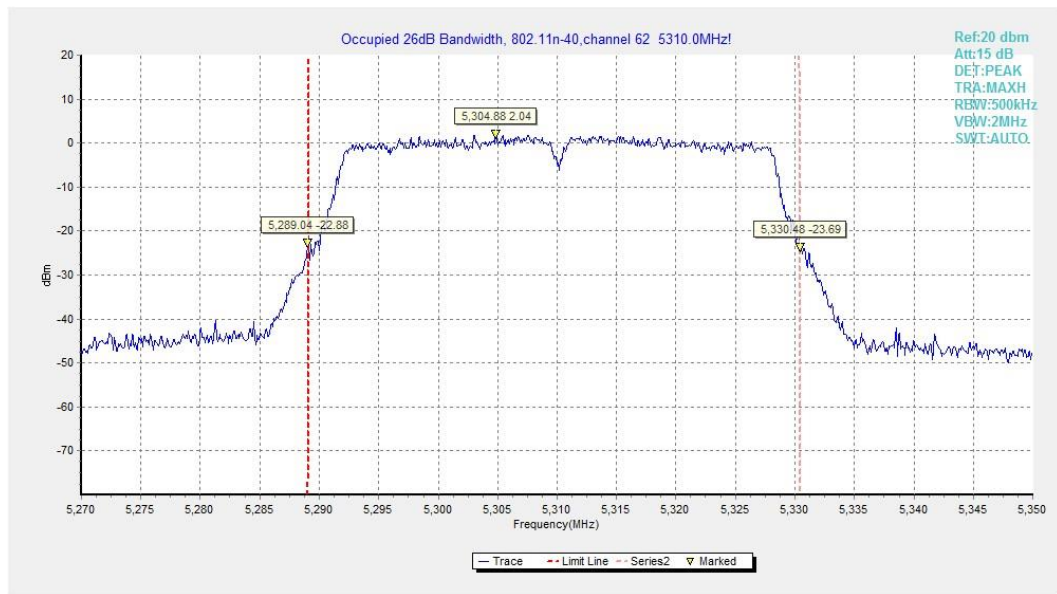


Fig.24 Occupied 26dB Bandwidth (802.11n-HT40, 5310MHz)

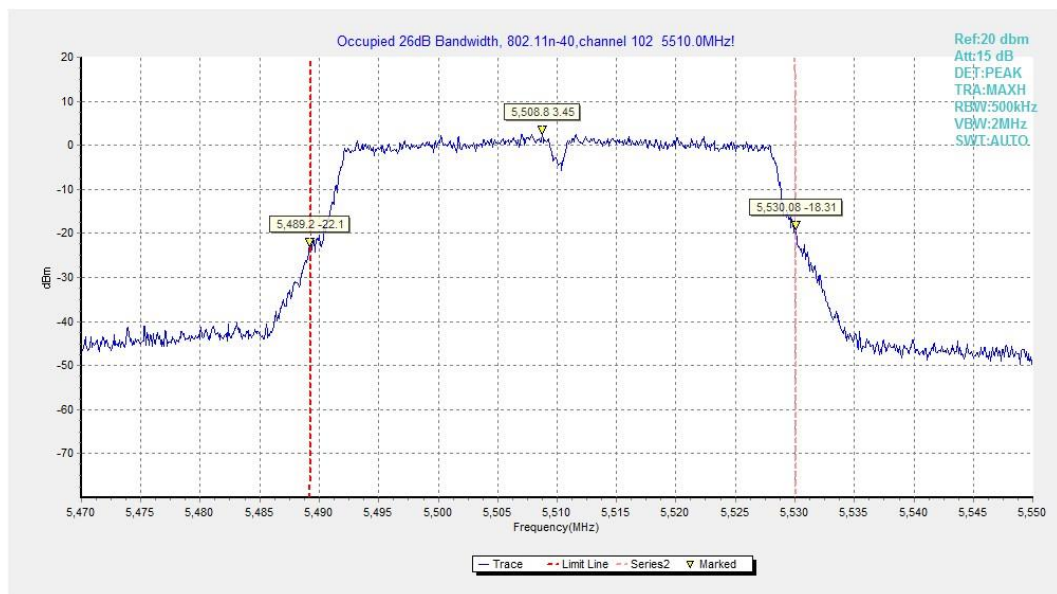


Fig.25 Occupied 26dB Bandwidth (802. 11n-HT40, 5510MHz)

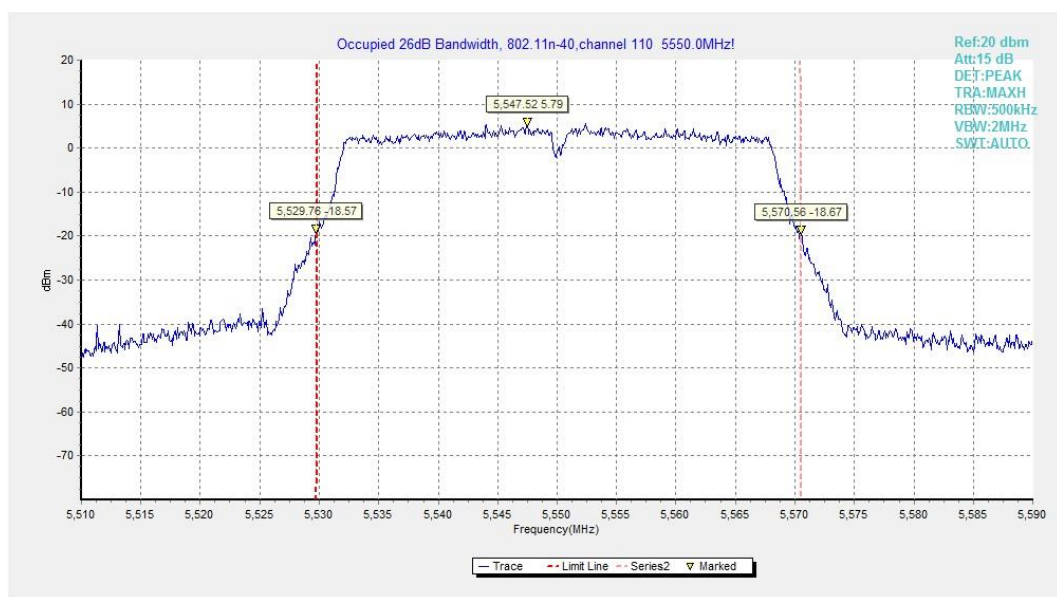


Fig.26 Occupied 26dB Bandwidth (802. 11n-HT40, 5550MHz)

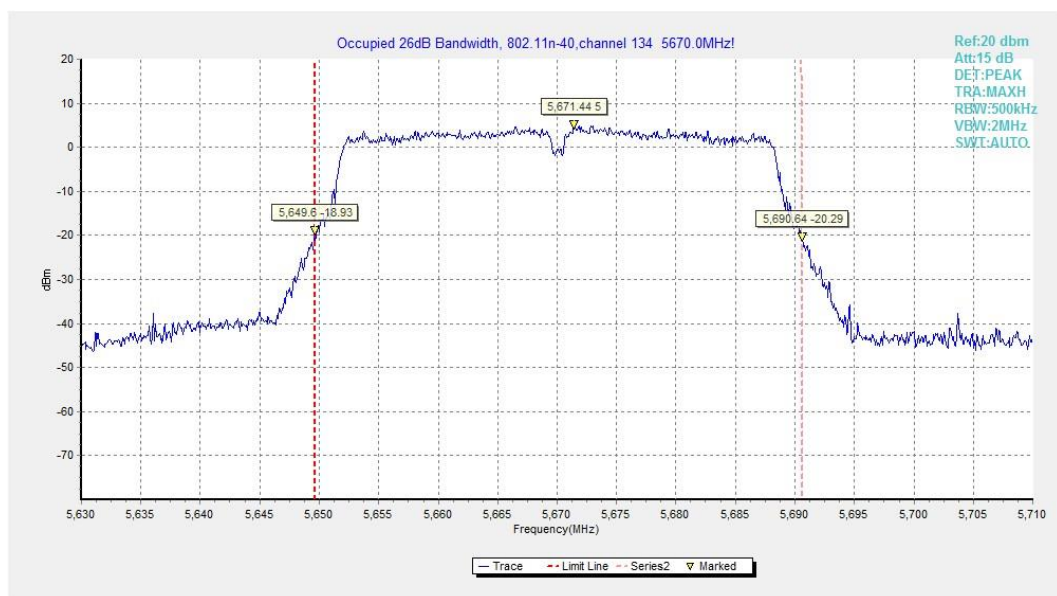


Fig.27 Occupied 26dB Bandwidth (802. 11n-HT40, 5670MHz)

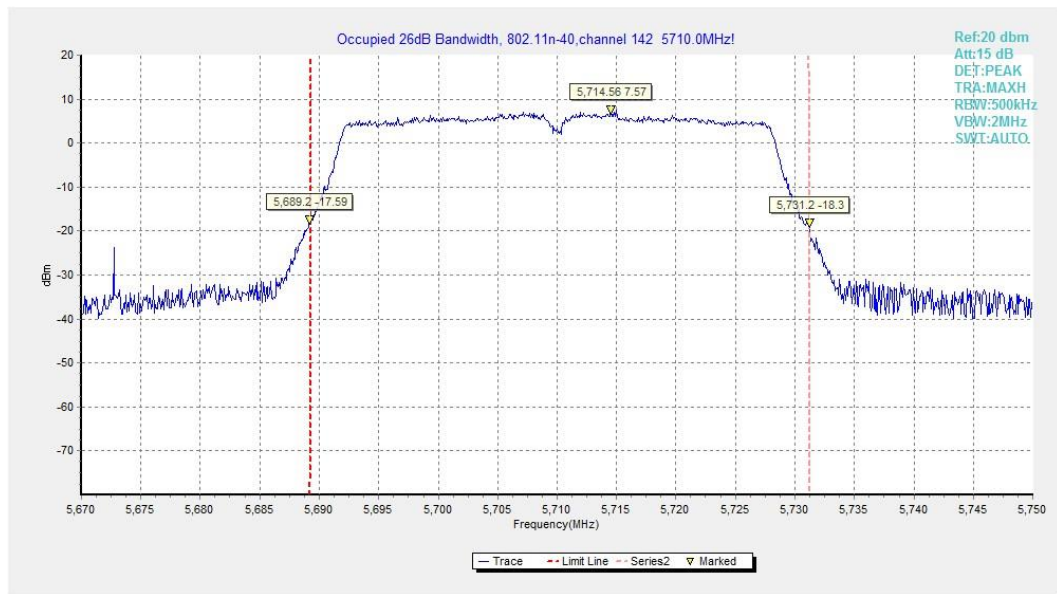


Fig.28 Occupied 26dB Bandwidth (802. 11n-HT40, 5710MHz)

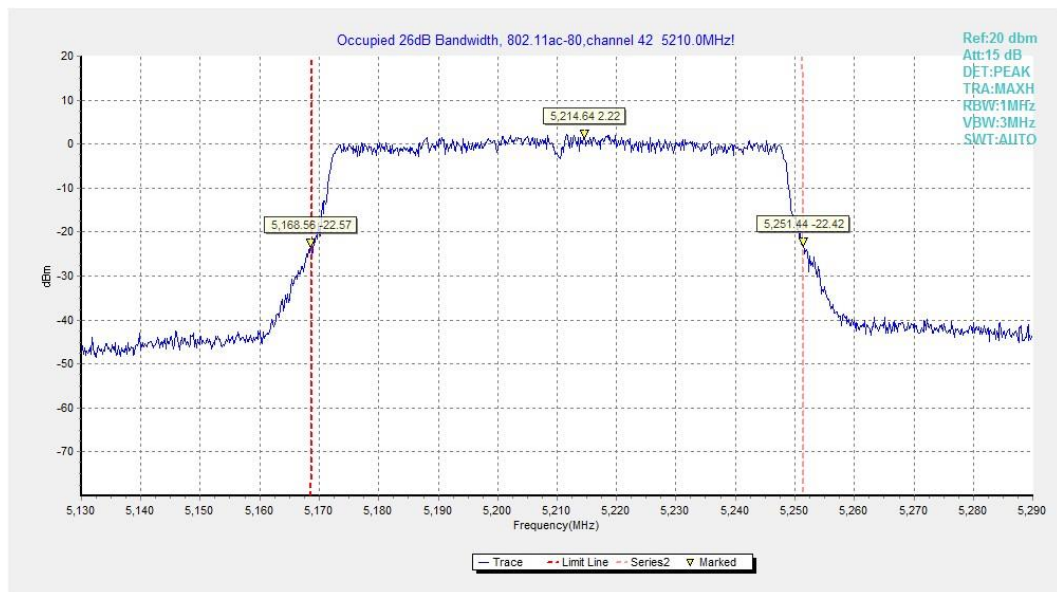


Fig.29 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5210MHz)

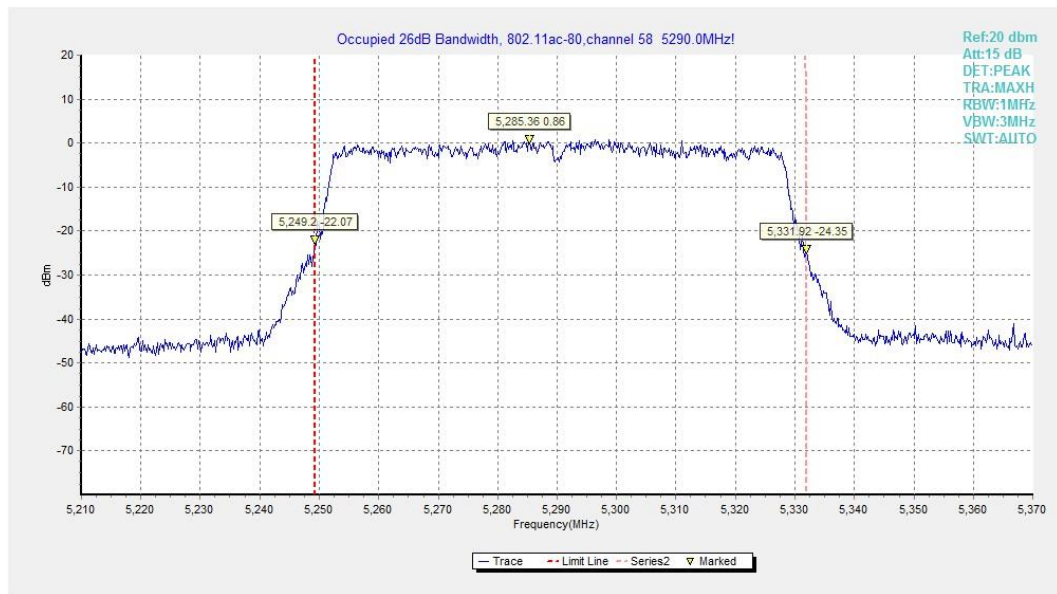


Fig.30 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5290MHz)

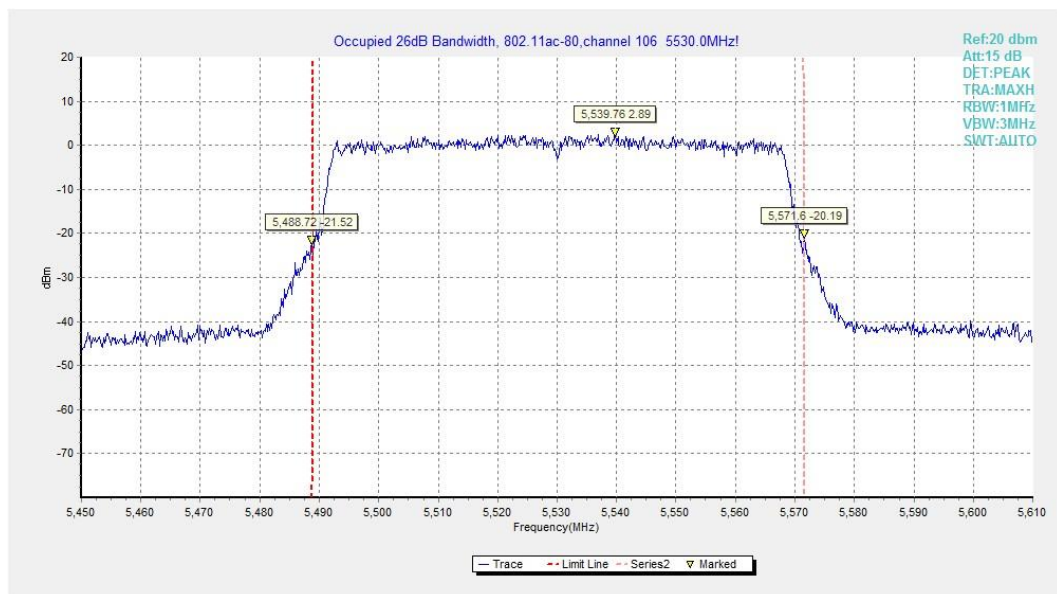


Fig.31 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5530MHz)

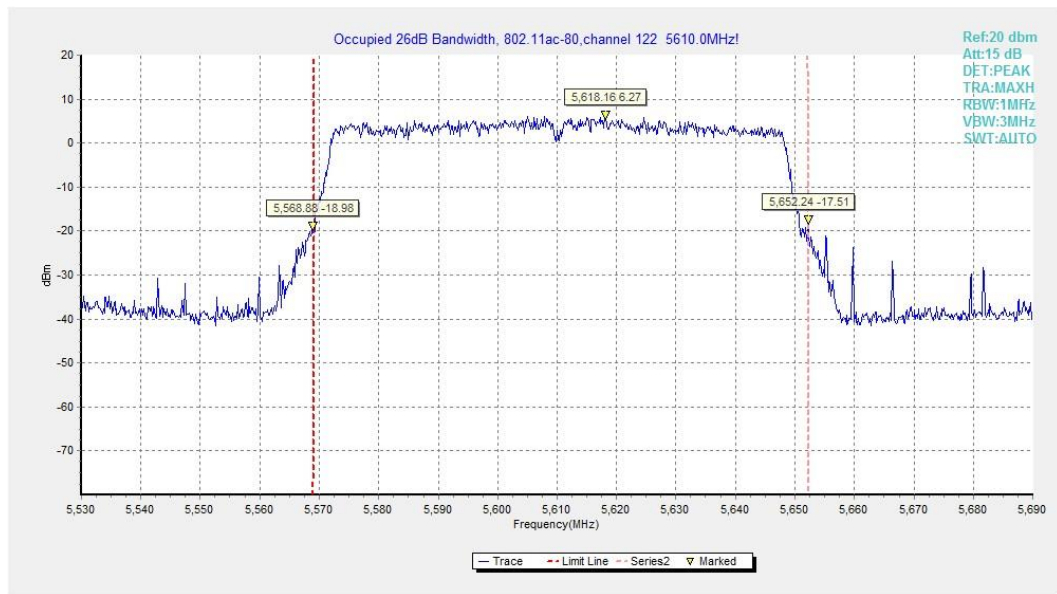


Fig.32 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5610MHz)

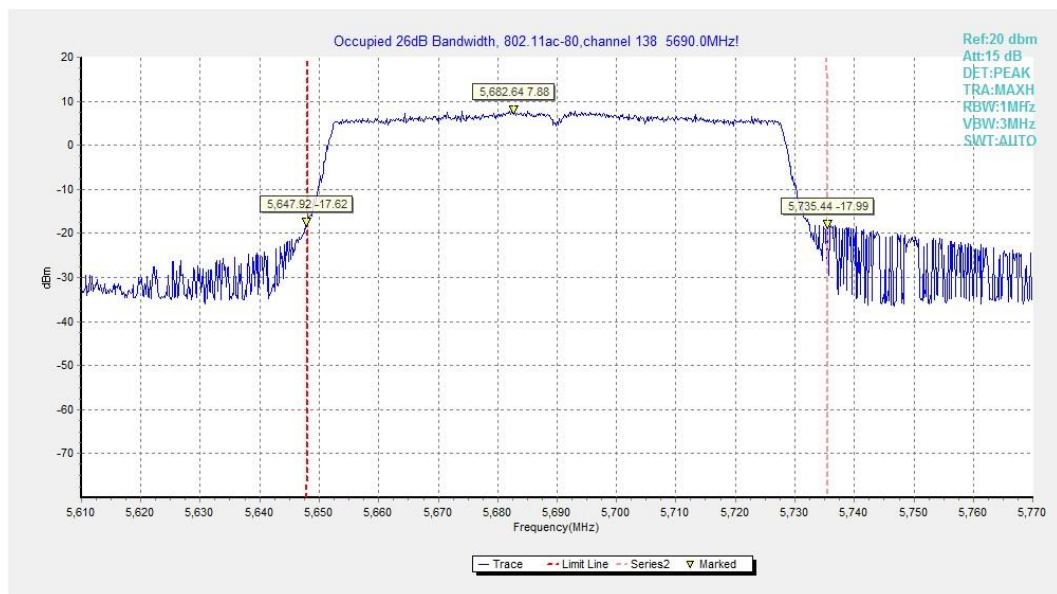


Fig.33 Occupied 26dB Bandwidth (802. 11ac-VHT80, 5690MHz)

A.5. 99% Occupied bandwidth

Method of Measurement: See ANSI C63.10-2013-clause 12.4.2.

- a) The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW.
- b) The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement.
- c) Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2.
- d) Step a) through step c) might require iteration to adjust within the specified range.
- e) Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used.
- f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth.
- g) If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is the difference between these two frequencies.
- h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s).

Measurement Uncertainty:

Measurement Uncertainty	60.80Hz
-------------------------	---------

Measurement Result:

Mode	Frequency	99% Occupied bandwidth (MHz)		conclusion
802.11a	5180 MHz	Fig.34	17.36	P
	5200 MHz	Fig.35	17.32	P
	5240 MHz	Fig.36	17.36	P
802.11ac VHT20	5180 MHz	Fig.37	18.44	P
	5200 MHz	Fig.38	18.48	P
	5240 MHz	Fig.39	18.44	P
802.11n HT40	5190 MHz	Fig.40	36.40	P
	5230 MHz	Fig.41	36.32	P
802.11ac VHT80	5210 MHz	Fig.42	75.68	P

Conclusion: PASS

Test graphs as below:



Fig.34 99% Occupied bandwidth (802.11a, 5180MHz)

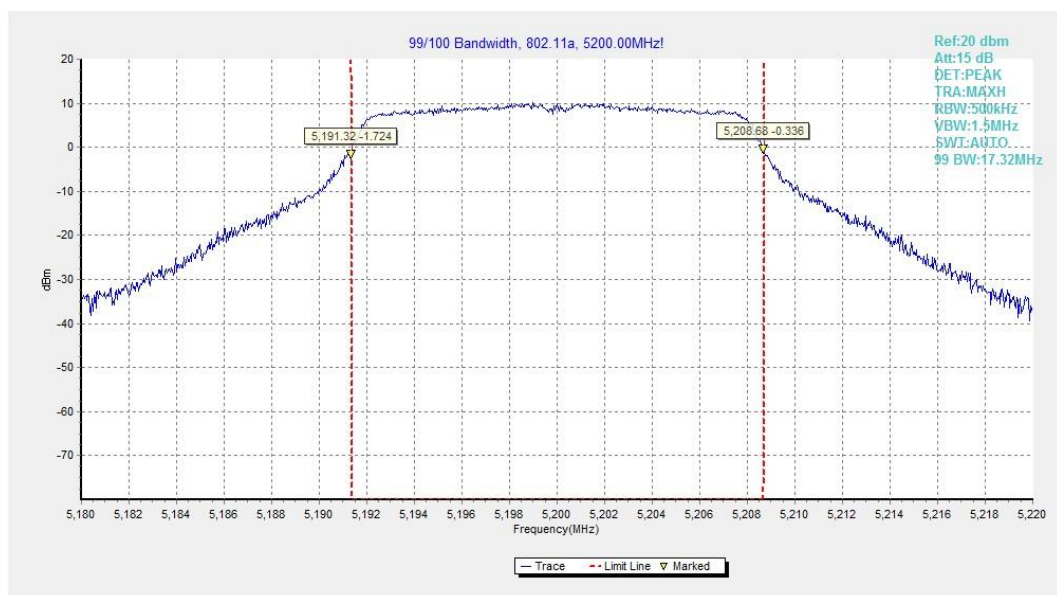


Fig.35 99% Occupied bandwidth (802.11a, 5200MHz)

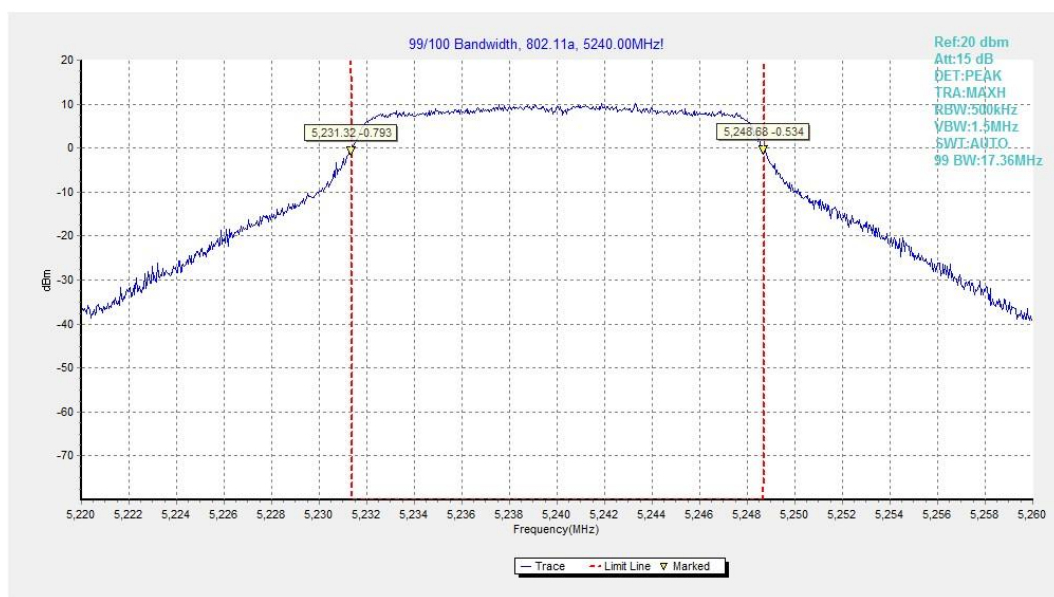


Fig.36 99% Occupied bandwidth (802.11a, 5240MHz)

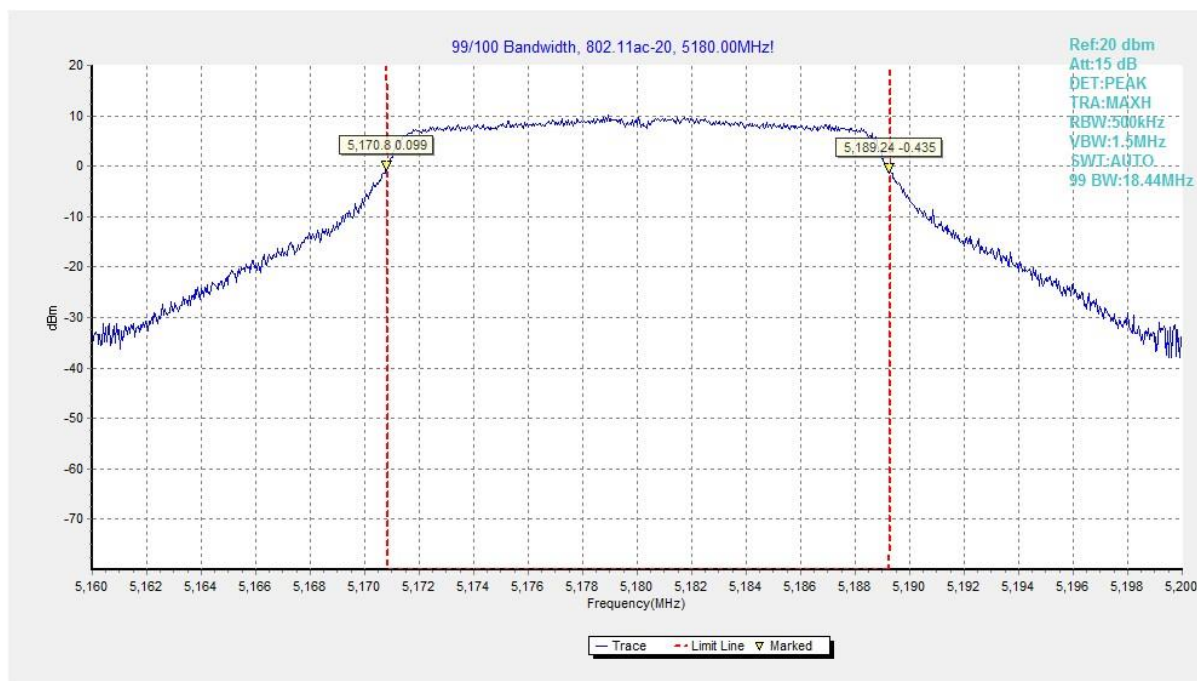


Fig.37 99% Occupied bandwidth (802.11ac-VHT20, 5180MHz)

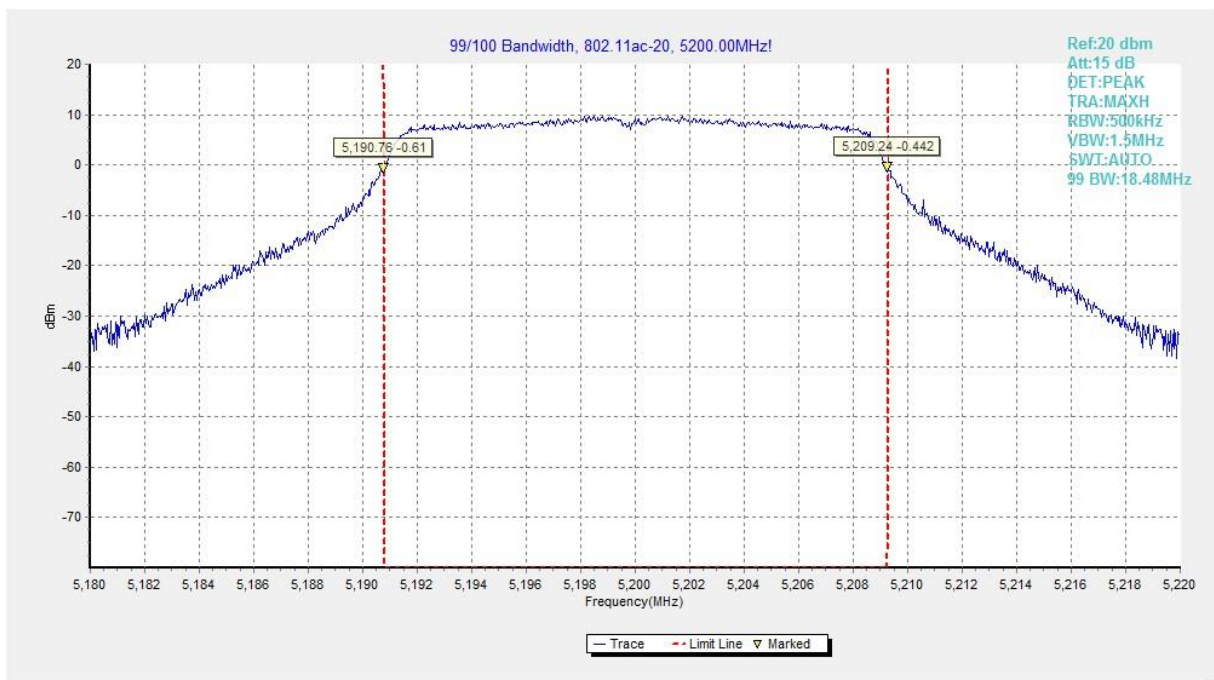


Fig.38 99% Occupied bandwidth (802.11ac-VHT20, 5200MHz)

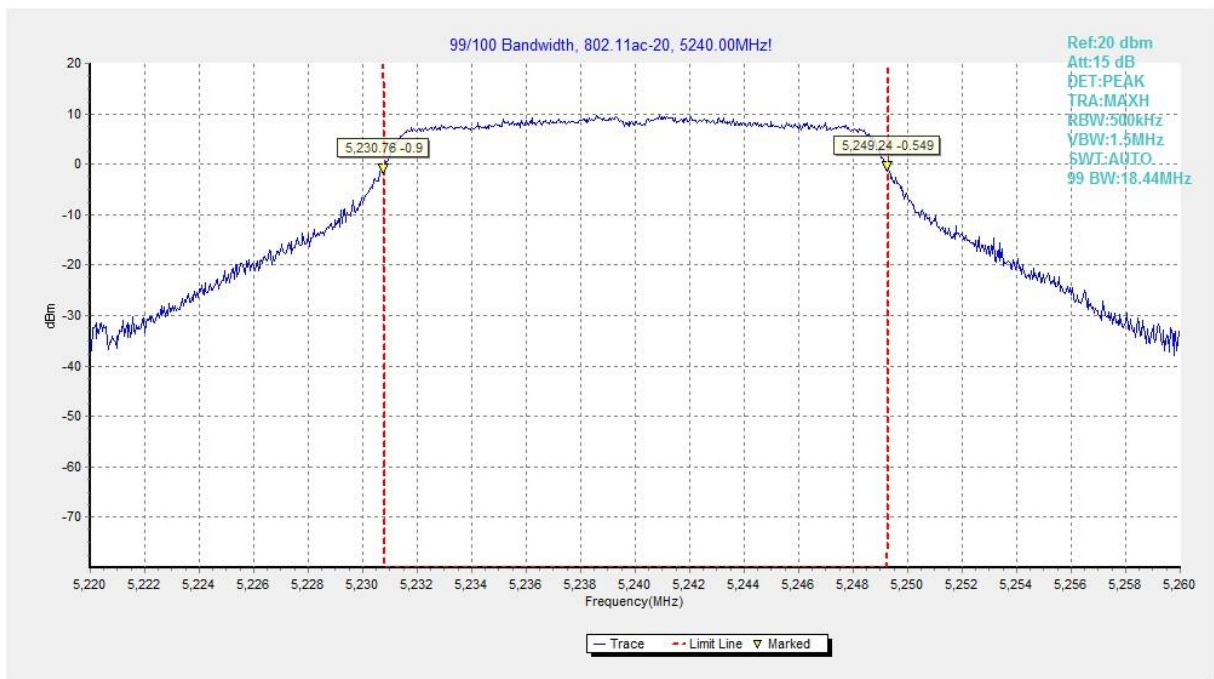


Fig.39 99% Occupied bandwidth (802.11ac-VHT20, 5240MHz)



Fig.40 99% Occupied bandwidth (802.11n-HT40, 5190MHz)

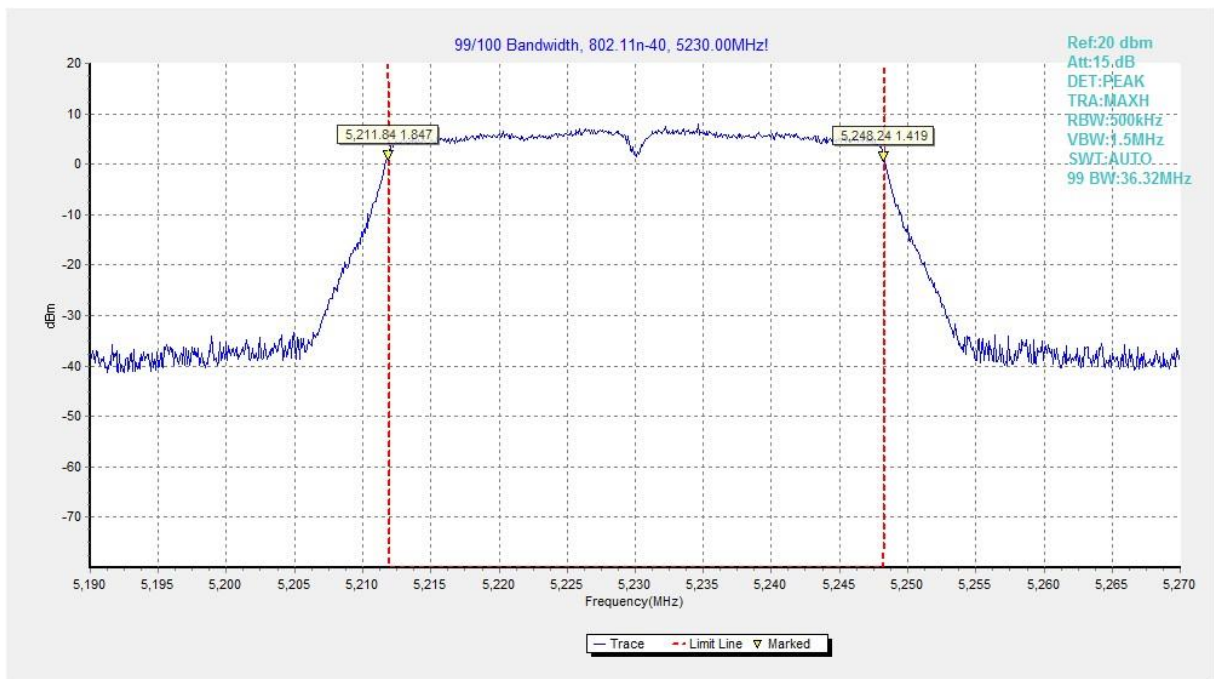


Fig.41 99% Occupied bandwidth (802.11n-HT40, 5230MHz)

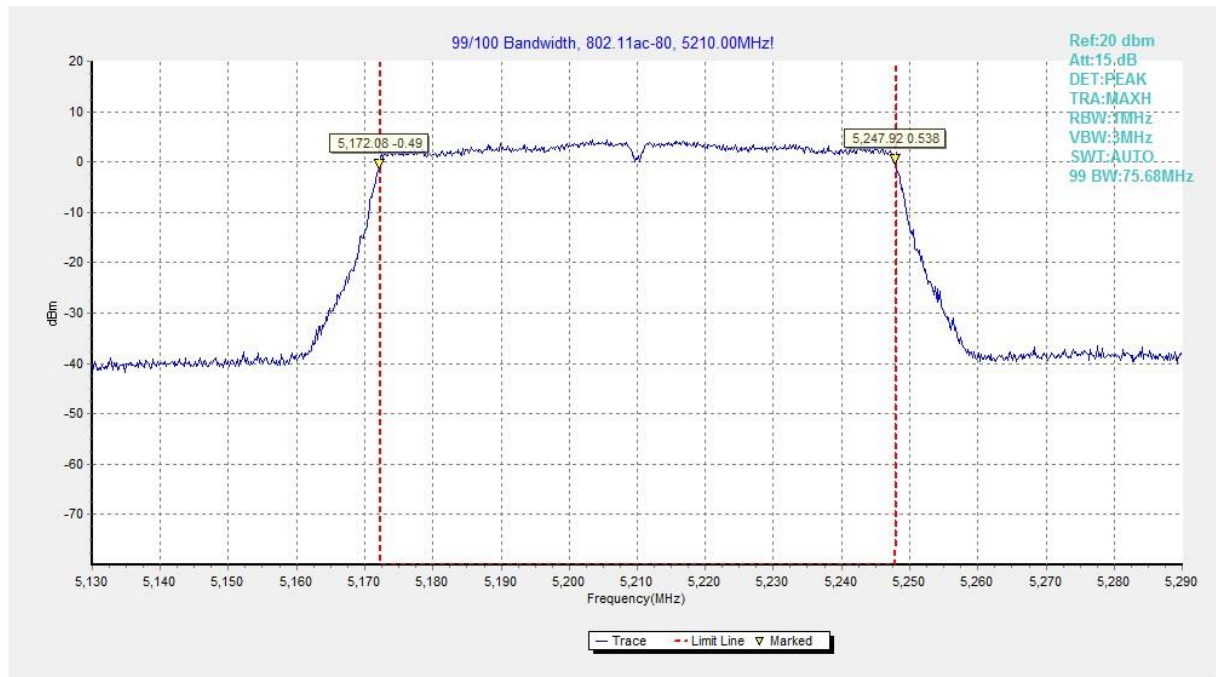


Fig.42 99% Occupied bandwidth (802.11ac-VHT80, 5210MHz)

A.6. Band Edges Compliance

A6.1 Band Edges - Radiated

Measurement Limit:

Standard	Limit (dB μ V/m)	
FCC 47 CFR Part 15.209	Peak	74
	Average	54

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)).

EUT ID: UT22a + AE2-1 + AE1-3

Measurement Result:

Mode	Frequency	Test Results	Conclusion
802.11a	5180 MHz	Fig.43	P
	5320 MHz	Fig.44	P
	5500 MHz	Fig.45	P
	5700 MHz	Fig.46	P
802.11n HT20	5180 MHz	Fig.47	P
	5320 MHz	Fig.48	P
	5500 MHz	Fig.49	P
	5700 MHz	Fig.50	P

802.11ac HT20	5180 MHz	Fig.51	P
	5320 MHz	Fig.52	P
	5500 MHz	Fig.53	P
	5700 MHz	Fig.54	P

802.11n HT40	5190 MHz	Fig.55	P
	5310 MHz	Fig.56	P
	5510 MHz	Fig.57	P
	5670 MHz	Fig.58	P

802.11ac HT40	5190 MHz	Fig.59	P
	5310 MHz	Fig.60	P
	5510 MHz	Fig.61	P
	5670 MHz	Fig.62	P

802.11ac HT80	5210MHz	Fig.63	P
	5290MHz	Fig.64	P
	5530MHz	Fig.65	P
	5610MHz	Fig.66	P
	5610MHz	Fig.67	P

Mode	Frequency	Test Results	Conclusion
802.11a	5200 MHz	Fig.68	P
	5300 MHz	Fig.69	P
	5520 MHz	Fig.70	P
	5680 MHz	Fig.71	P
802.11n HT20	5200 MHz	Fig.72	P
	5300 MHz	Fig.73	P
	5520 MHz	Fig.74	P
	5680 MHz	Fig.75	P
802.11ac HT20	5200 MHz	Fig.76	P
	5300 MHz	Fig.77	P
	5520 MHz	Fig.78	P
	5680 MHz	Fig.79	P
802.11n HT40	5550 MHz	Fig.80	P
802.11ac HT40	5550 MHz	Fig.81	P

Conclusion: PASS

Test graphs as below:

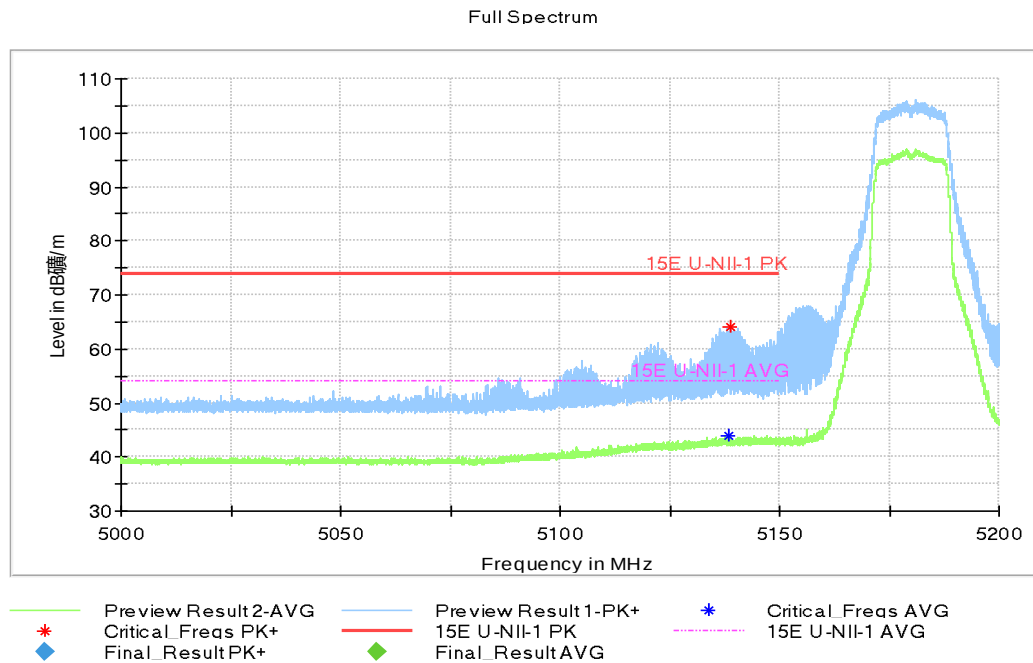


Fig.43 Band Edges (802.11a, CH 36, 5180MHz)

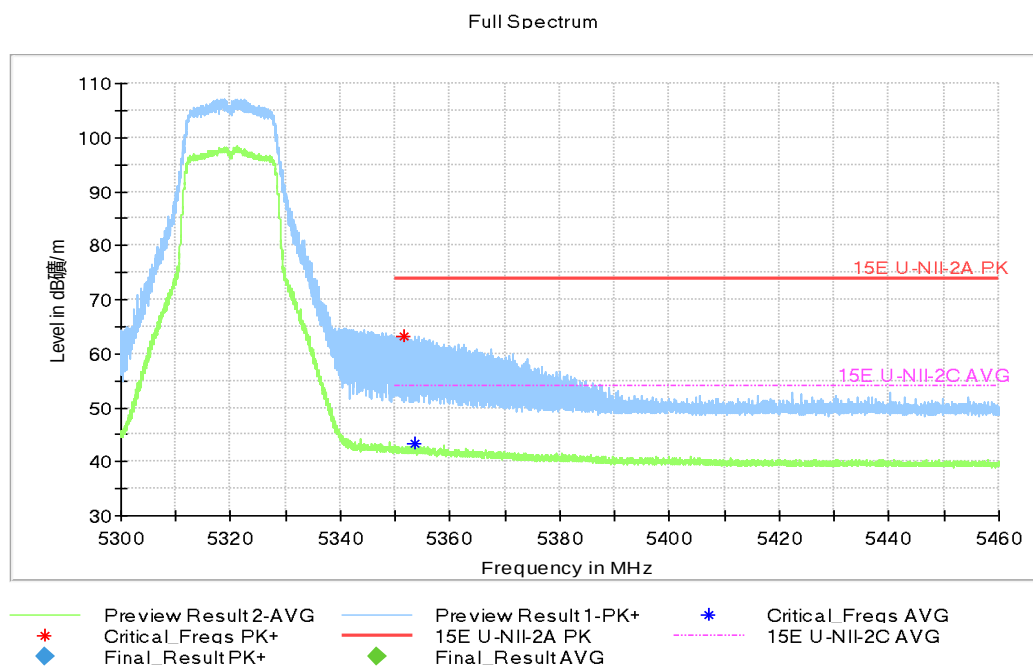


Fig.44 Band Edges (802.11a, CH64, 5320MHz)

Full Spectrum

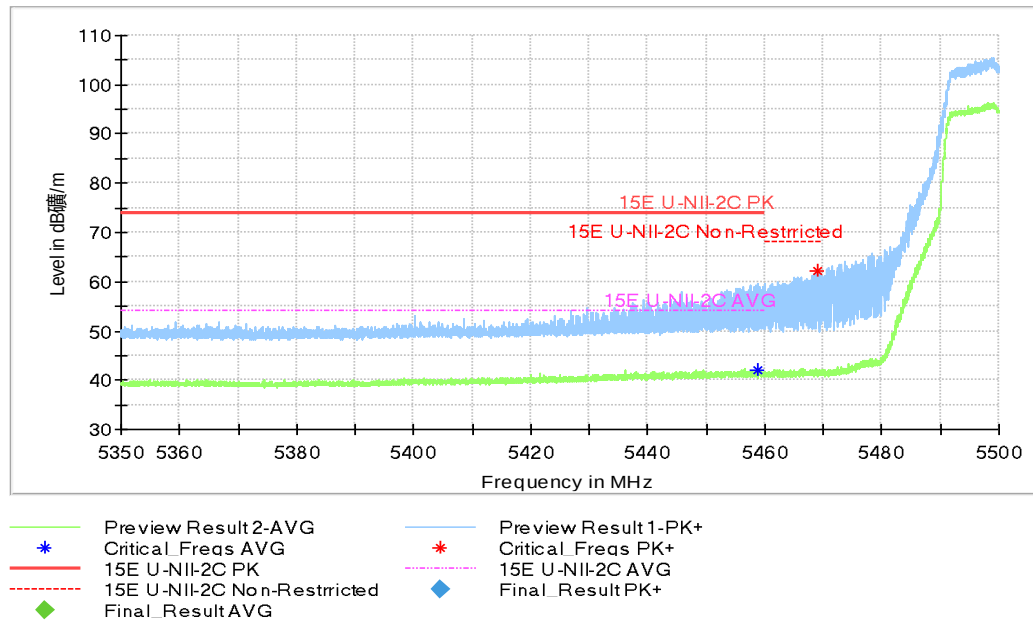


Fig.45 Band Edges (802.11a, CH100, 5500MHz)

Full Spectrum

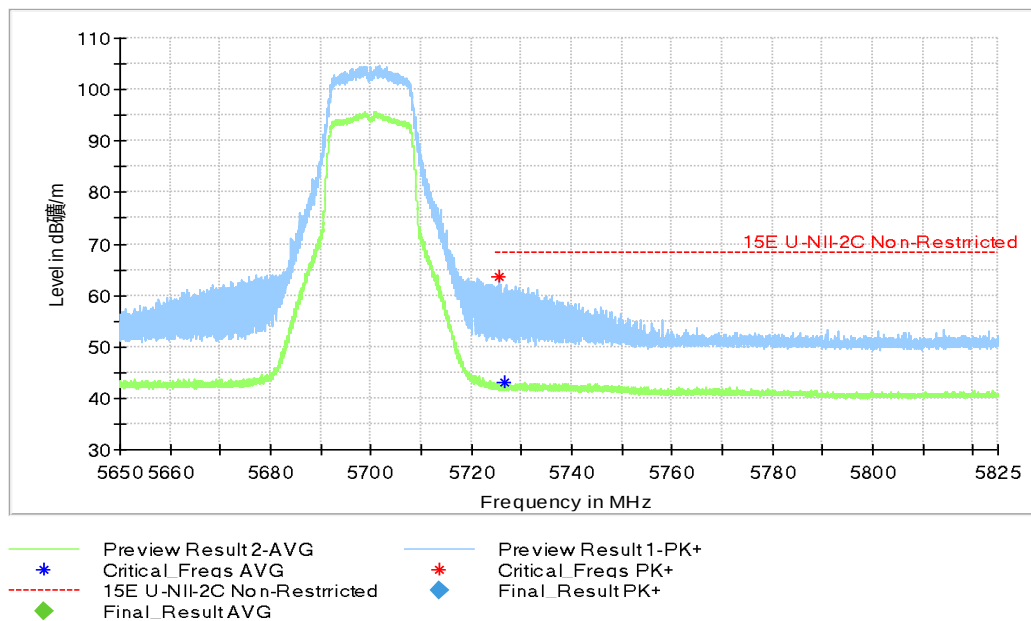


Fig.46 Band Edges (802.11a, CH140, 5700MHz)

Full Spectrum

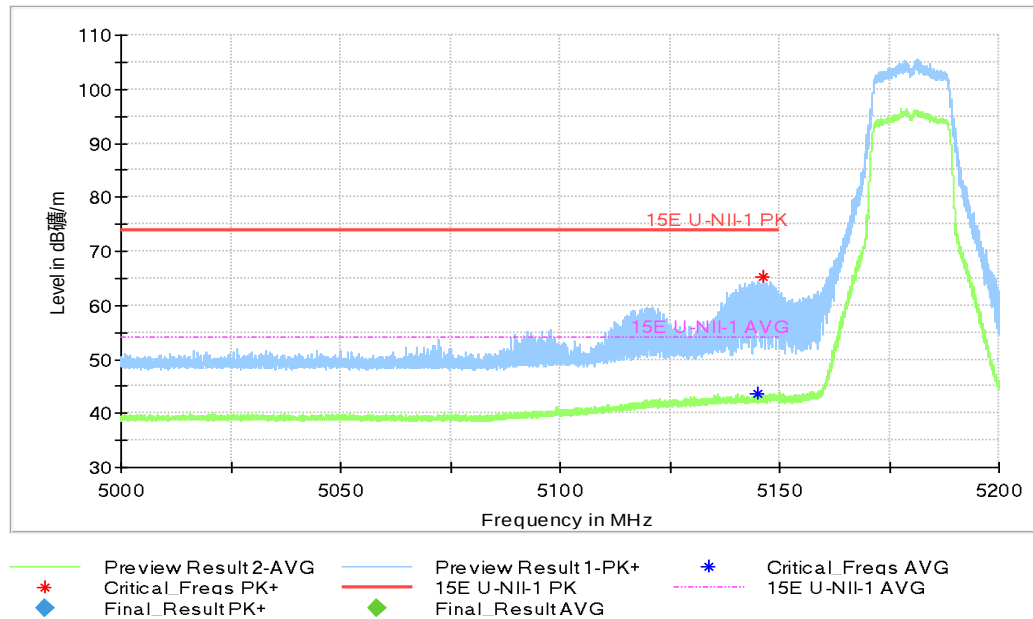


Fig.47 Band Edges (802.11n-HT20, CH36, 5180MHz)

Full Spectrum

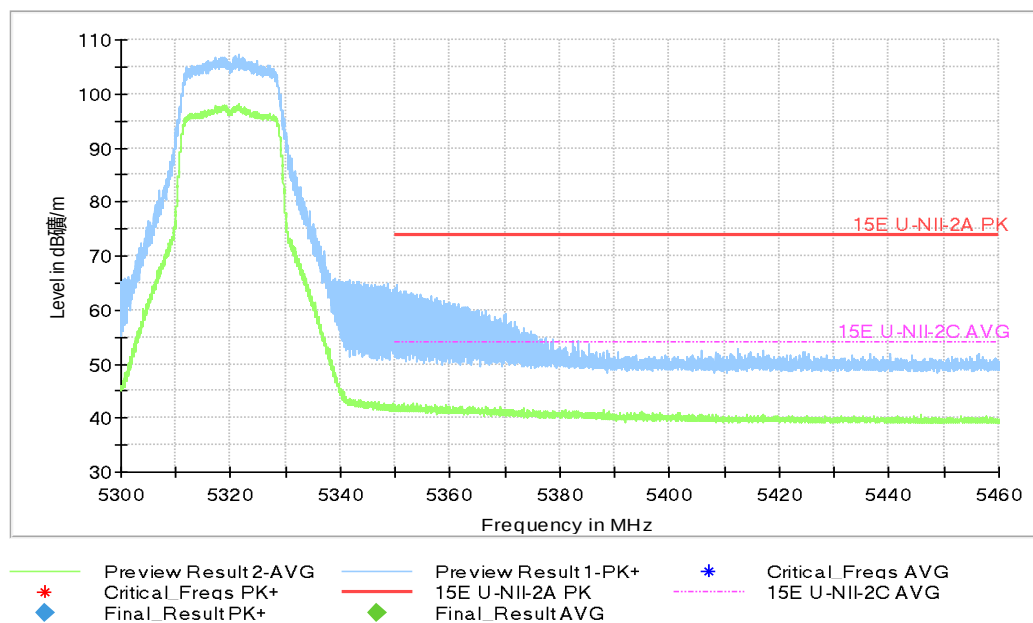


Fig.48 Band Edges (802.11n-HT20, CH64, 5320MHz)

Full Spectrum

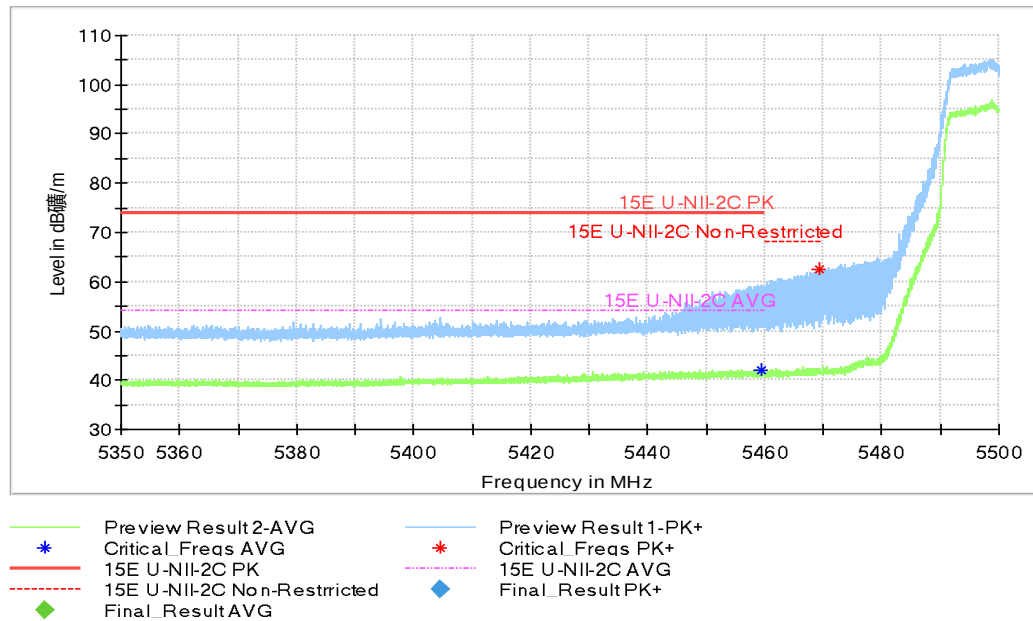


Fig.49 Band Edges (802.11n-HT20, CH100, 5500MHz)

Full Spectrum

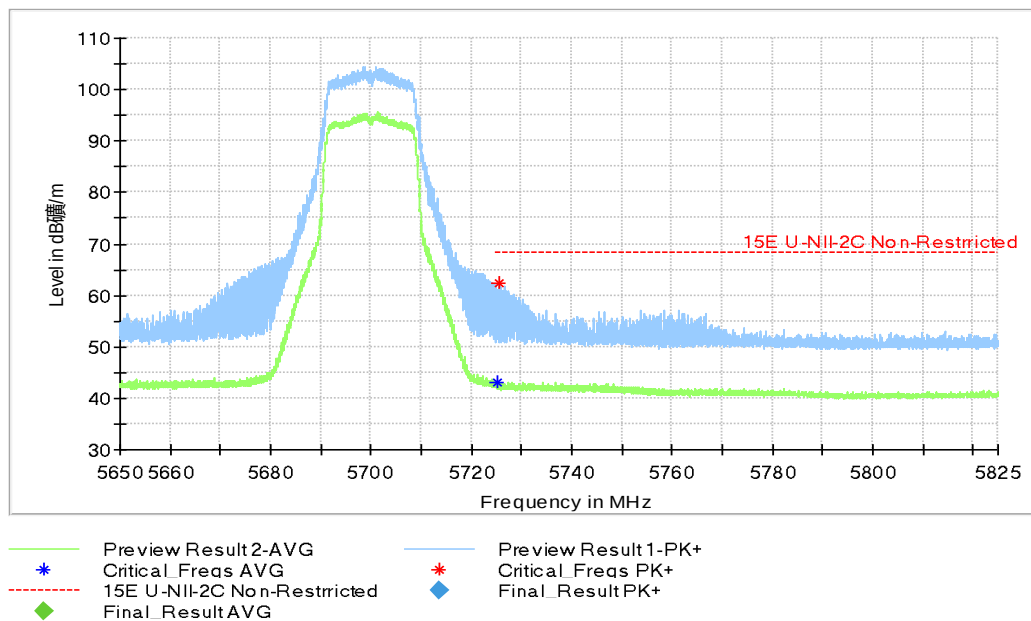


Fig.50 Band Edges (802.11n-HT20, CH140, 5700MHz)

Full Spectrum

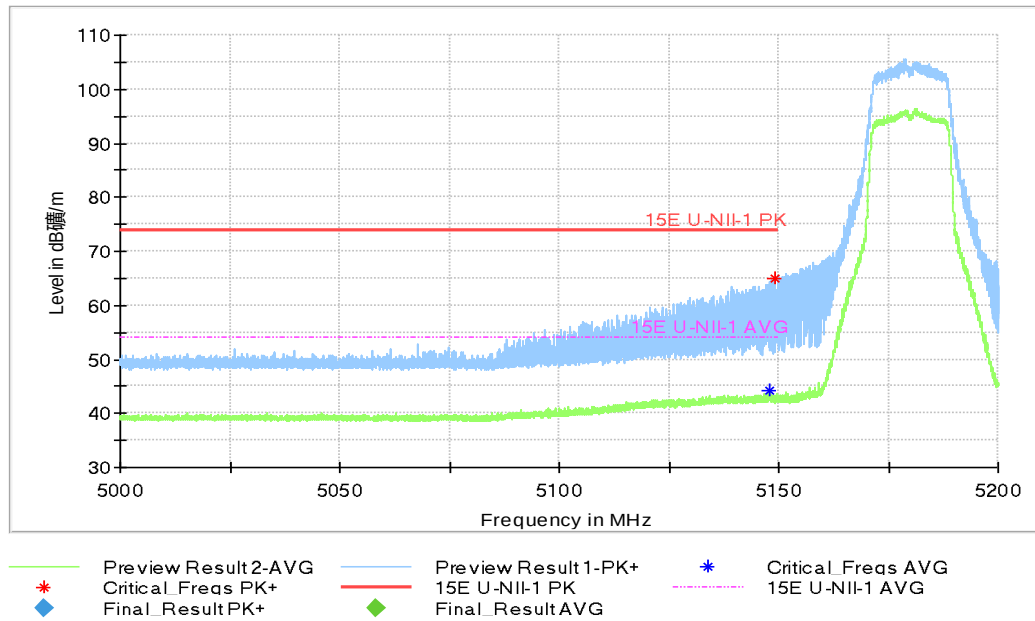


Fig.51 Band Edges (802.11ac-HT20, CH36, 5180MHz)

Full Spectrum

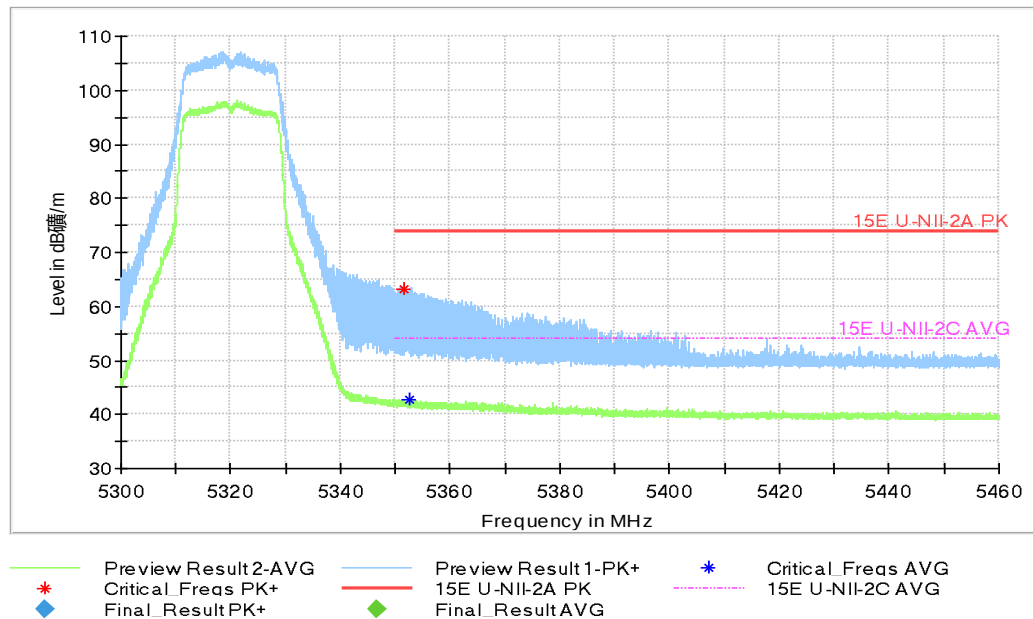


Fig.52 Band Edges (802.11ac-HT20, CH64, 5320MHz)

Full Spectrum

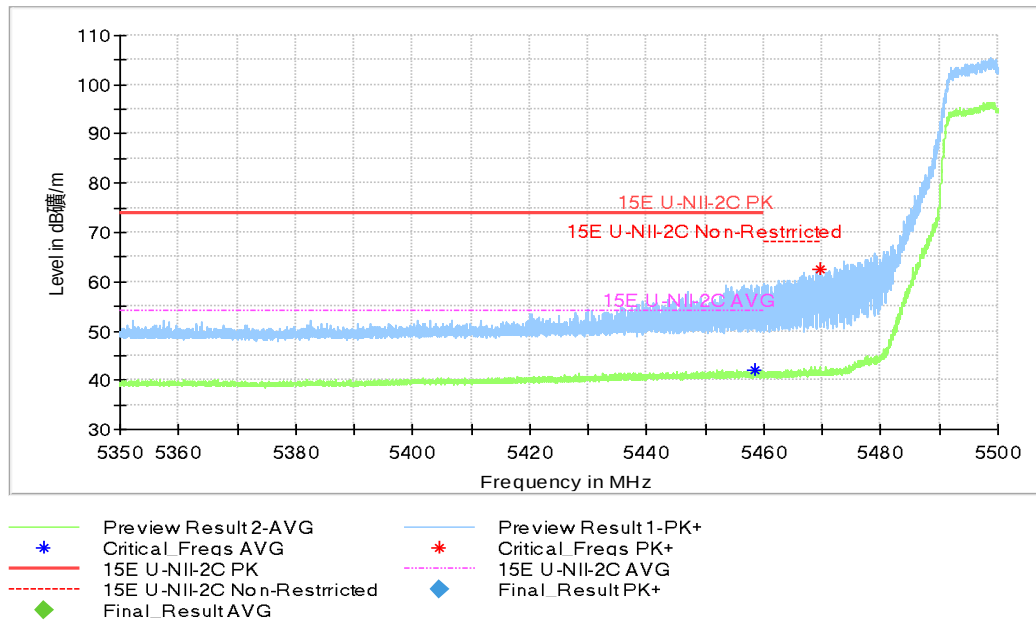


Fig.53 Band Edges (802.11ac-HT20, CH100, 5500MHz)

Full Spectrum

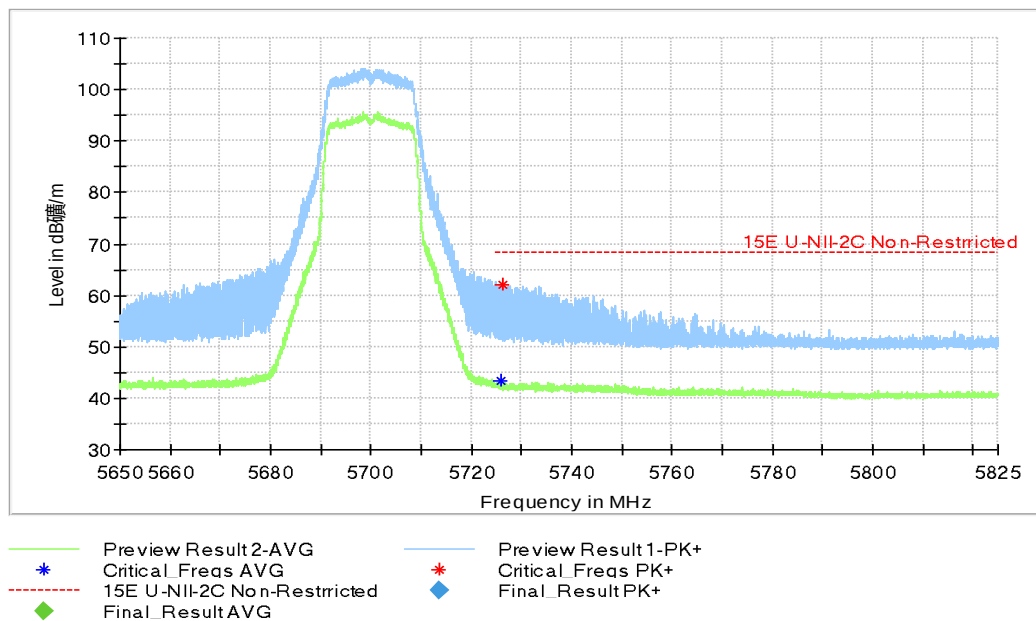


Fig.54 Band Edges (802.11ac-HT20, CH140, 5700MHz)

Full Spectrum

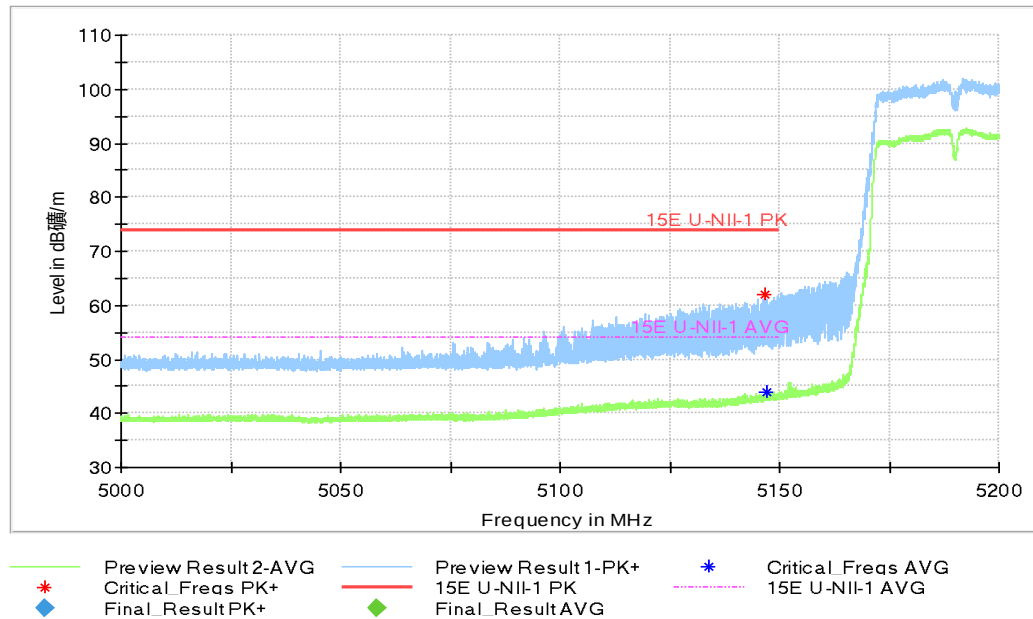


Fig.55 Band Edges (802.11n-HT40, CH38, 5190MHz)

Full Spectrum

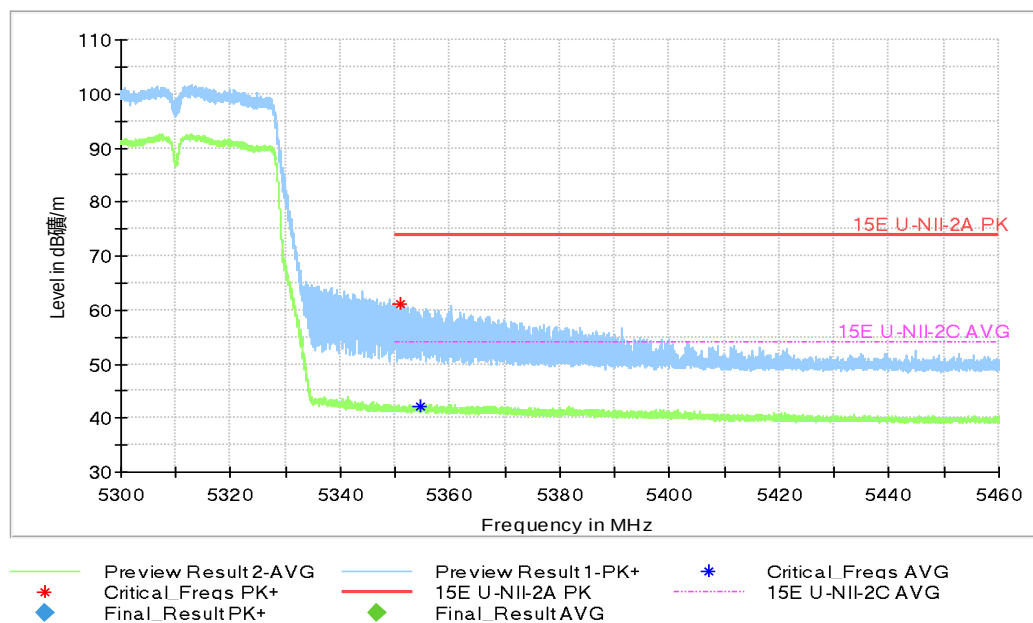


Fig.56 Band Edges (802.11n-HT40, CH62, 5310MHz)

Full Spectrum

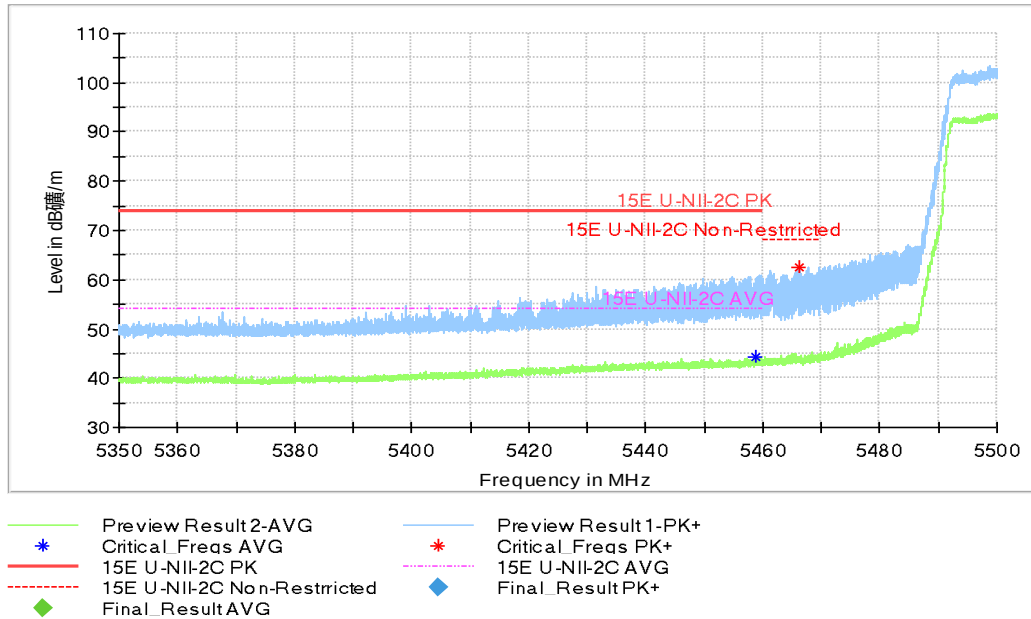


Fig.57 Band Edges (802.11n-HT40, CH102, 5510MHz)

Full Spectrum

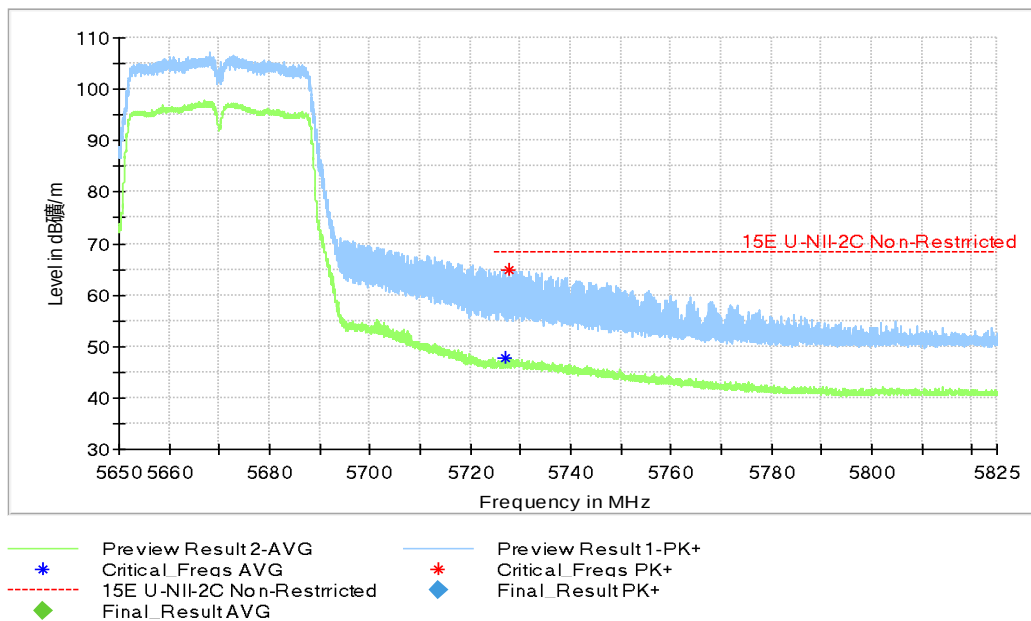


Fig.58 Band Edges (802.11n-HT40, CH134, 5670MHz)

Full Spectrum

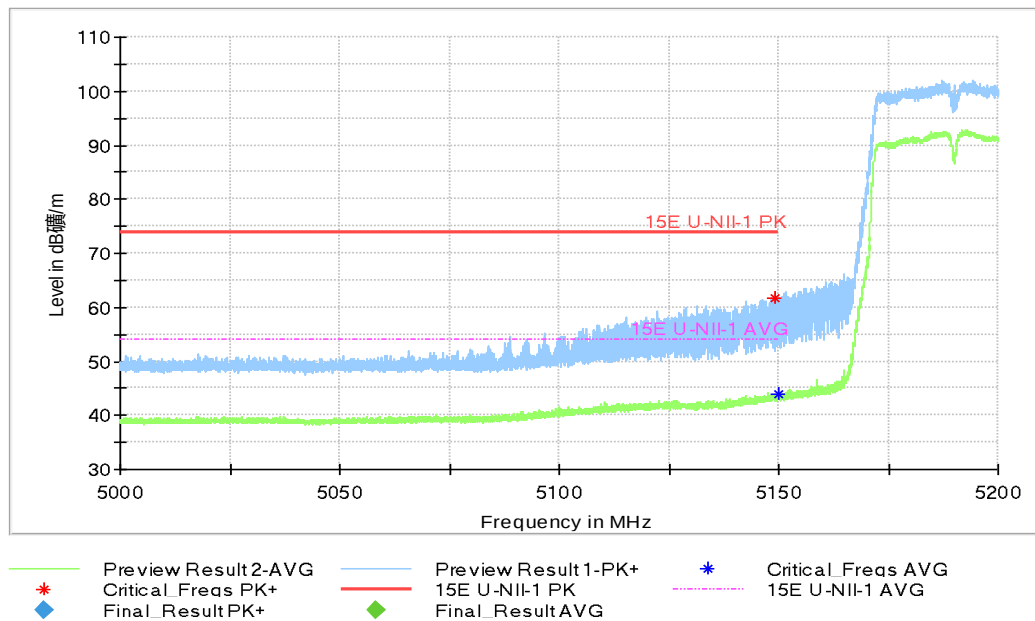


Fig.59 Band Edges (802.11ac-HT40, CH38, 5190MHz)

Full Spectrum

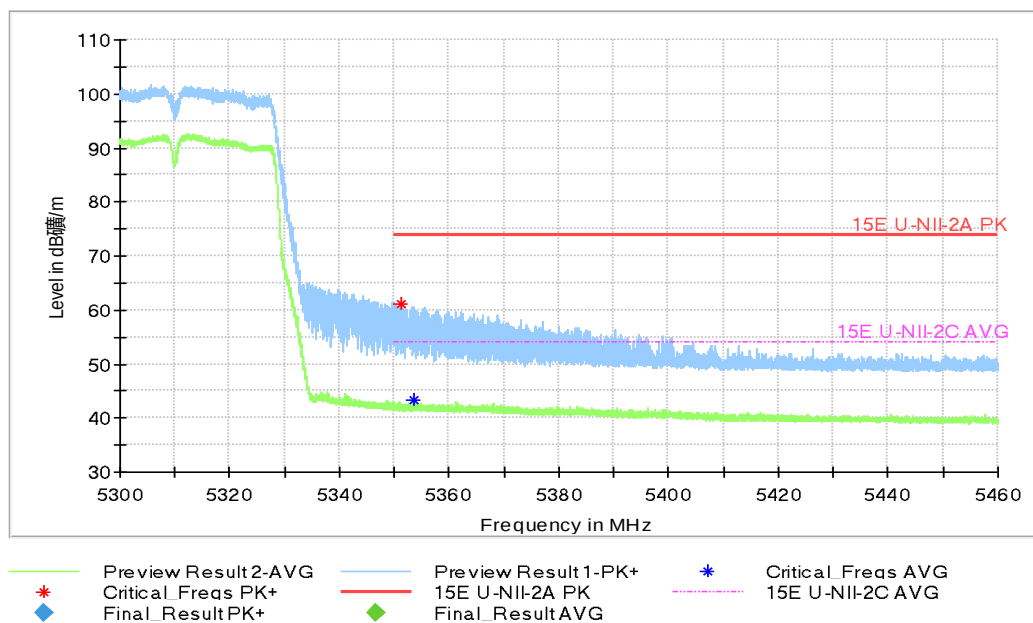


Fig.60 Band Edges (802.11ac-HT40, CH62, 5310MHz)

Full Spectrum

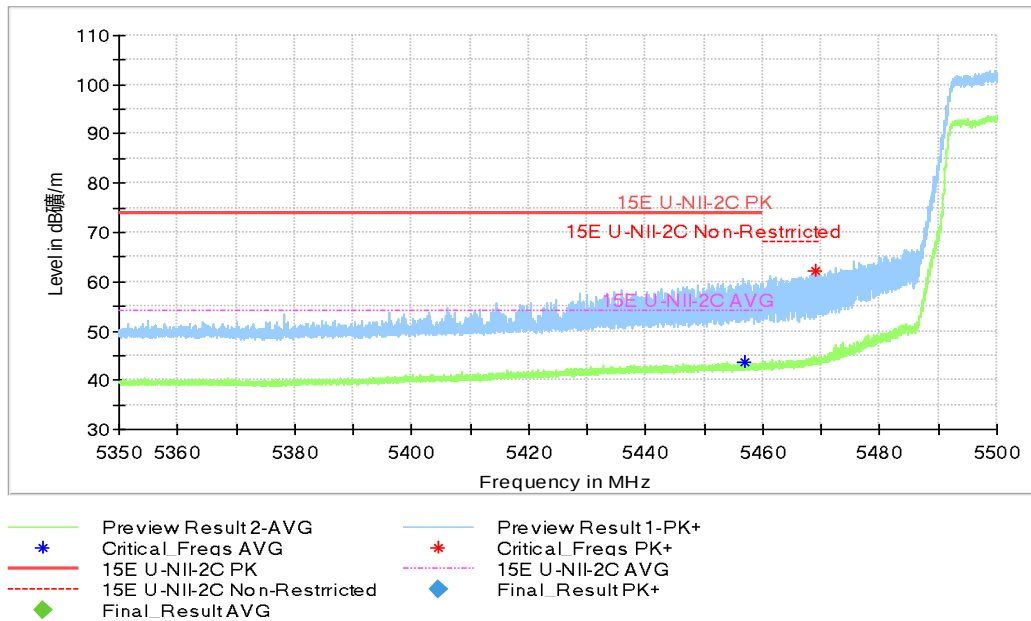


Fig.61 Band Edges (802.11ac-HT40, CH102, 5510MHz)

Full Spectrum

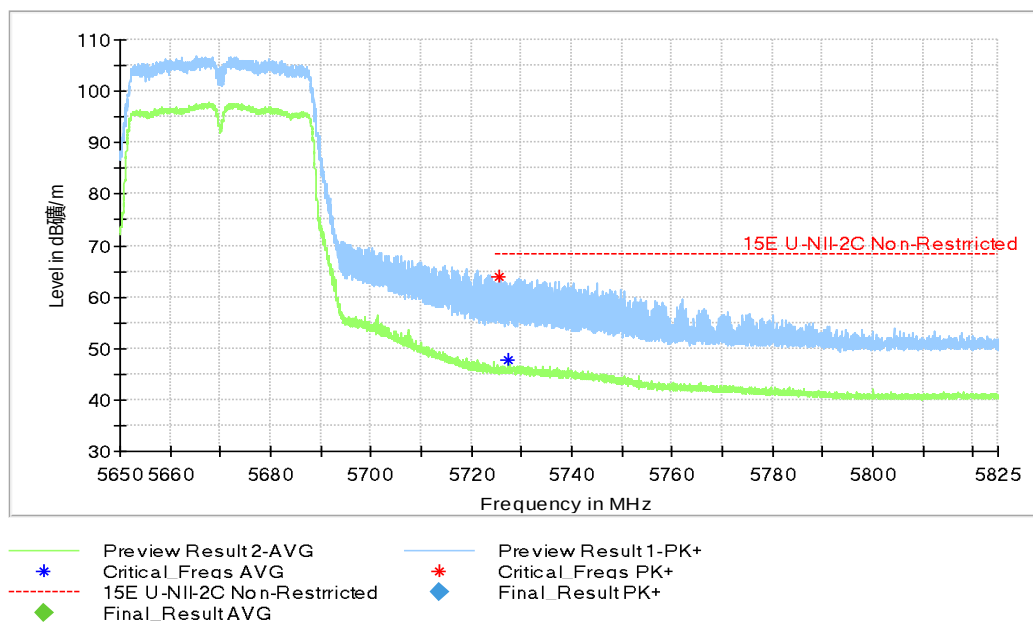


Fig.62 Band Edges (802.11ac-HT40, CH134, 5670MHz)

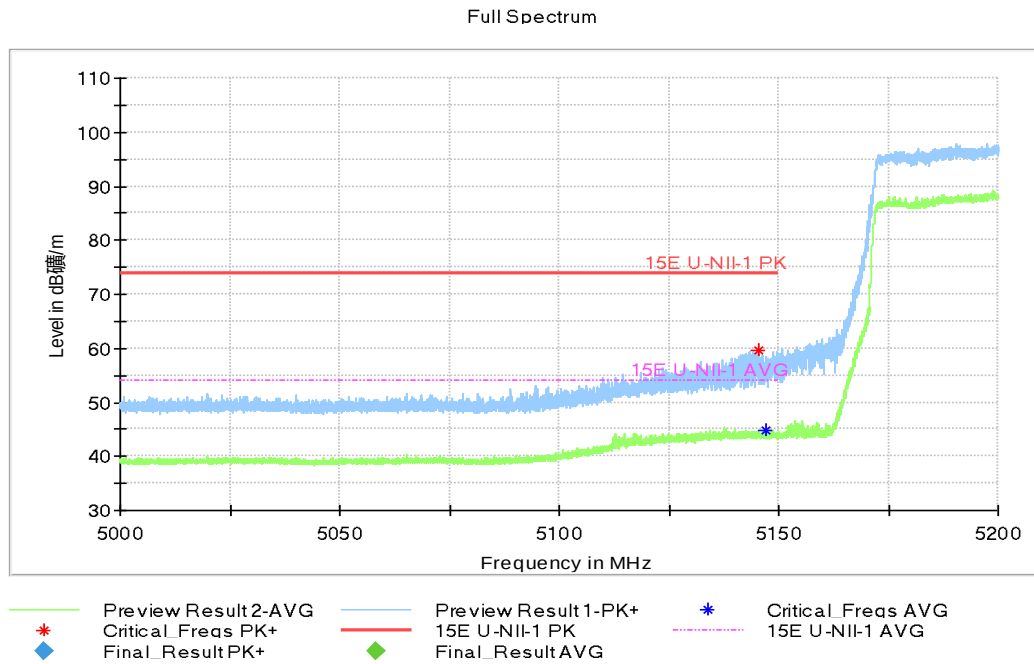


Fig.63 Band Edges (802.11ac-HT80, CH42, 5210MHz)

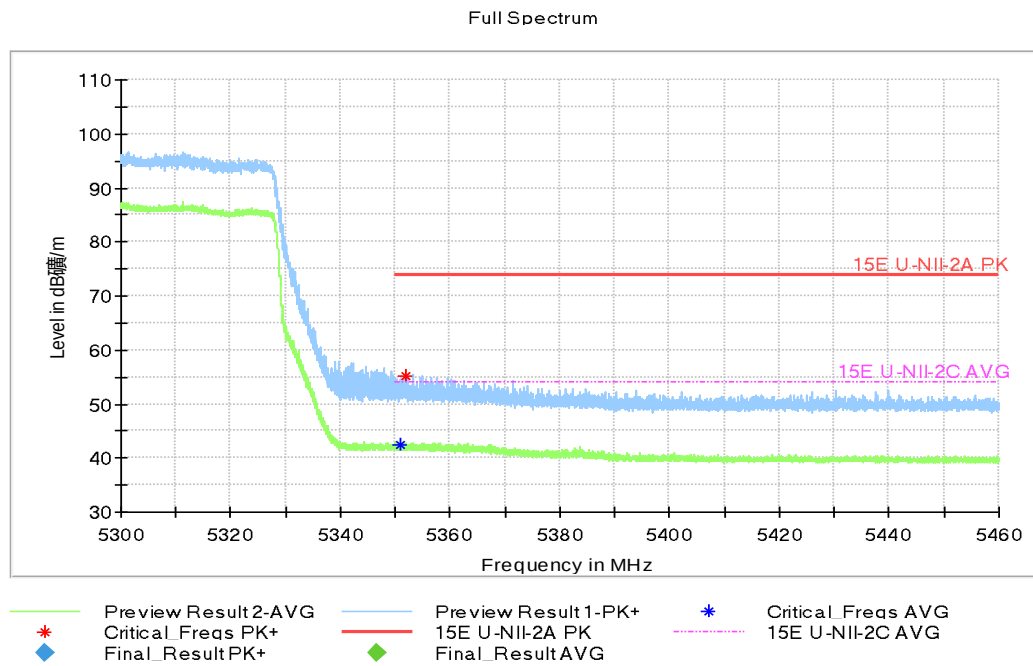


Fig.64 Band Edges (802.11ac-HT80, CH58, 5290MHz)

Full Spectrum

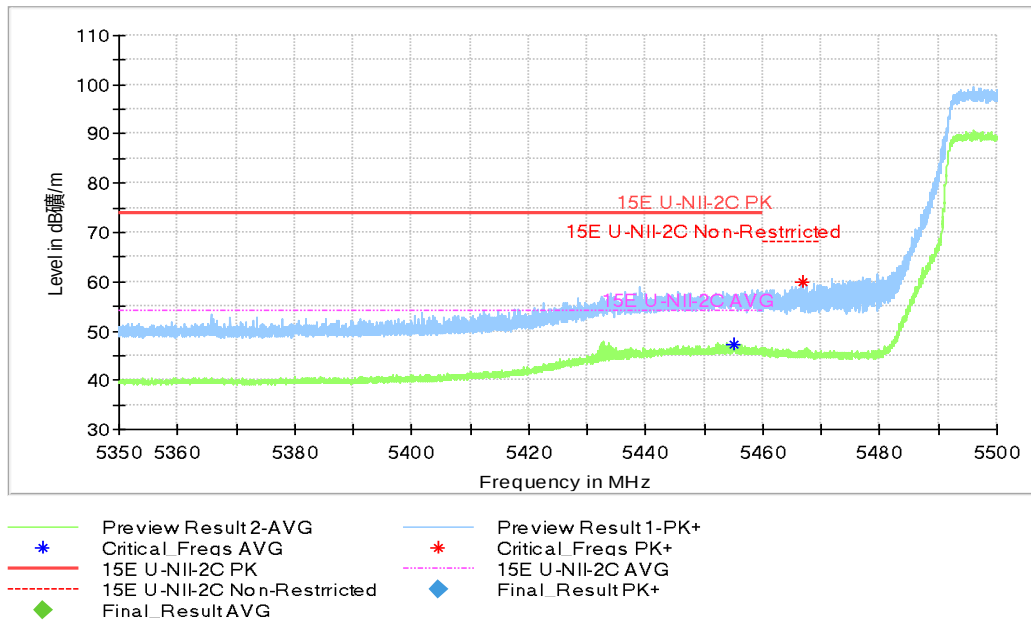


Fig.65 Band Edges (802.11ac-HT80, CH106, 5530MHz)

Full Spectrum

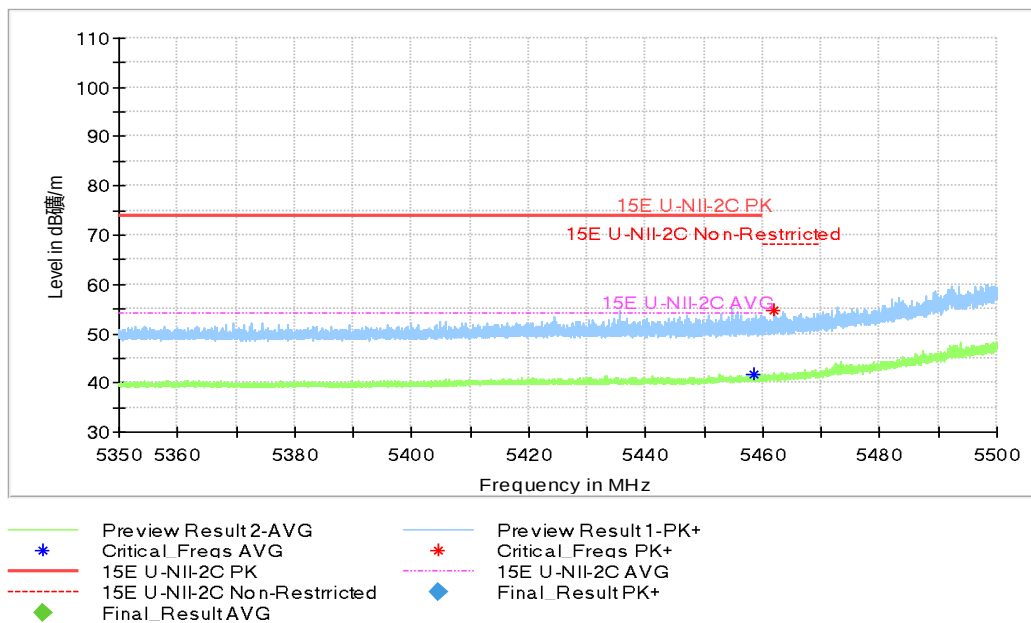


Fig.66 Band Edges (802.11ac-HT80, CH122, 5610MHz, L)

Full Spectrum

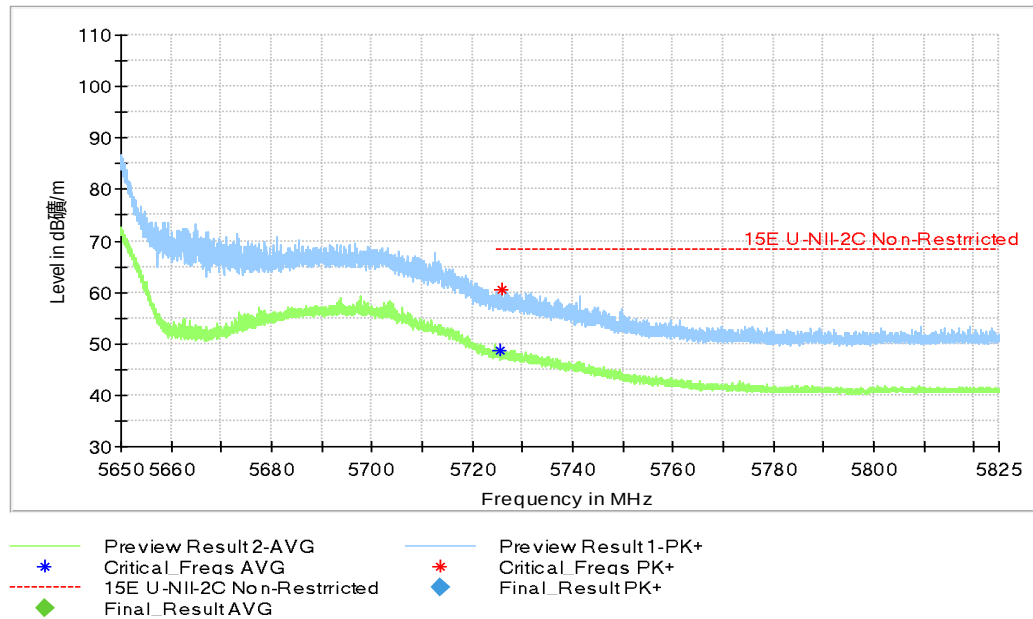


Fig.67 Band Edges (802.11ac-HT80, CH122, 5610MHz, R)

Full Spectrum

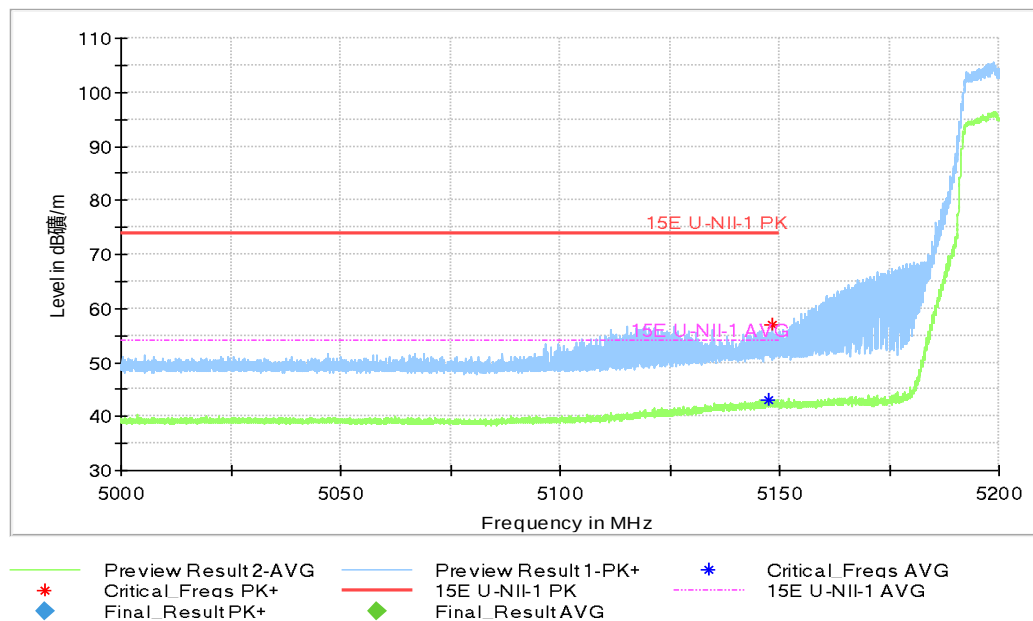


Fig.68 Band Edges (802.11a, CH40, 5200MHz)

Full Spectrum

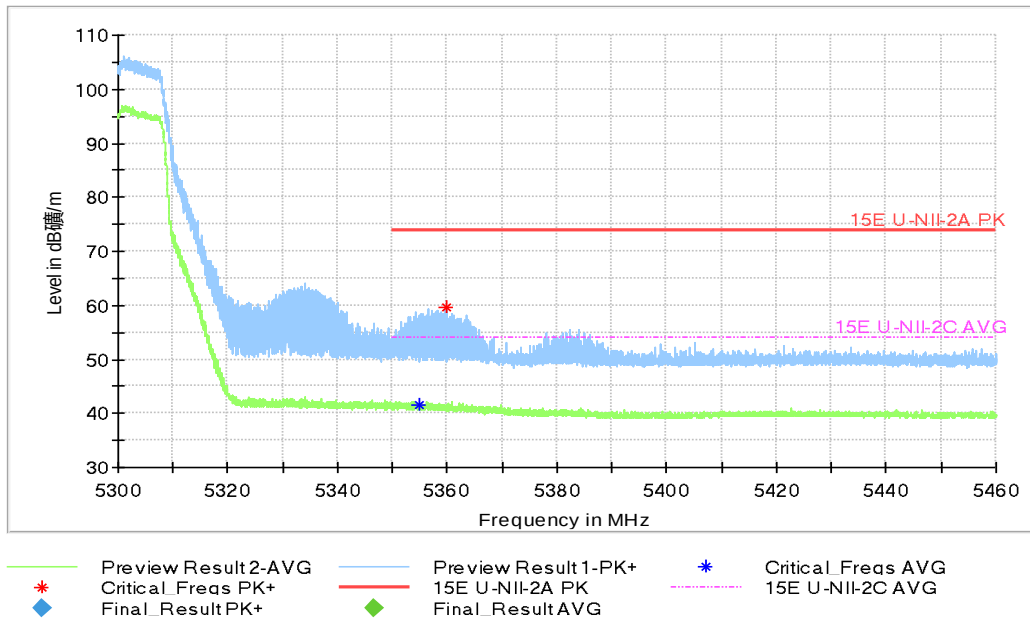


Fig.69 Band Edges (802.11a, CH60, 5300MHz)

Full Spectrum

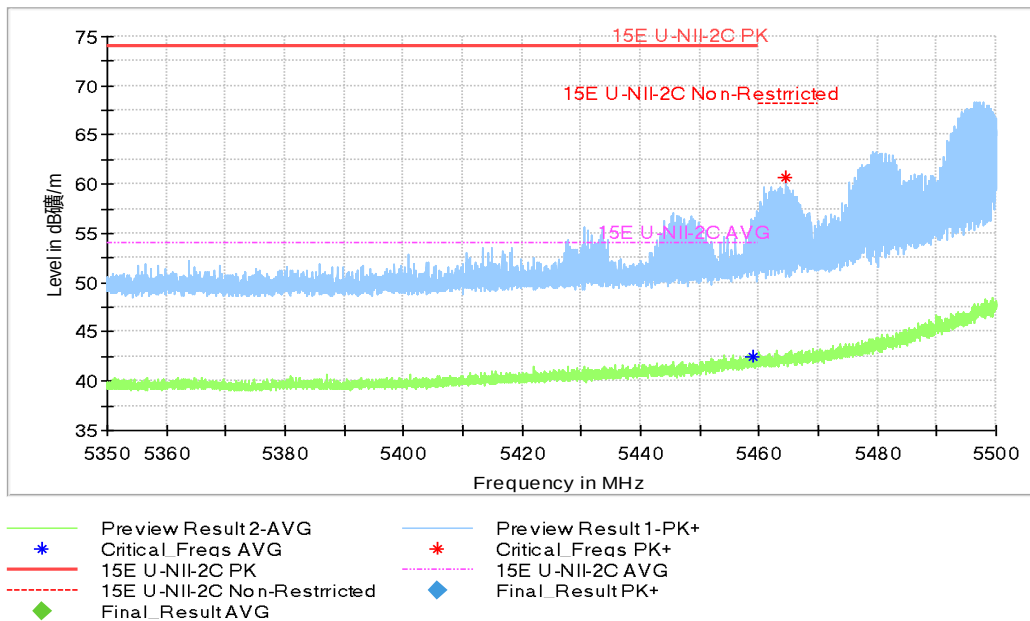


Fig.70 Band Edges (802.11a, CH104, 5520MHz)

Full Spectrum

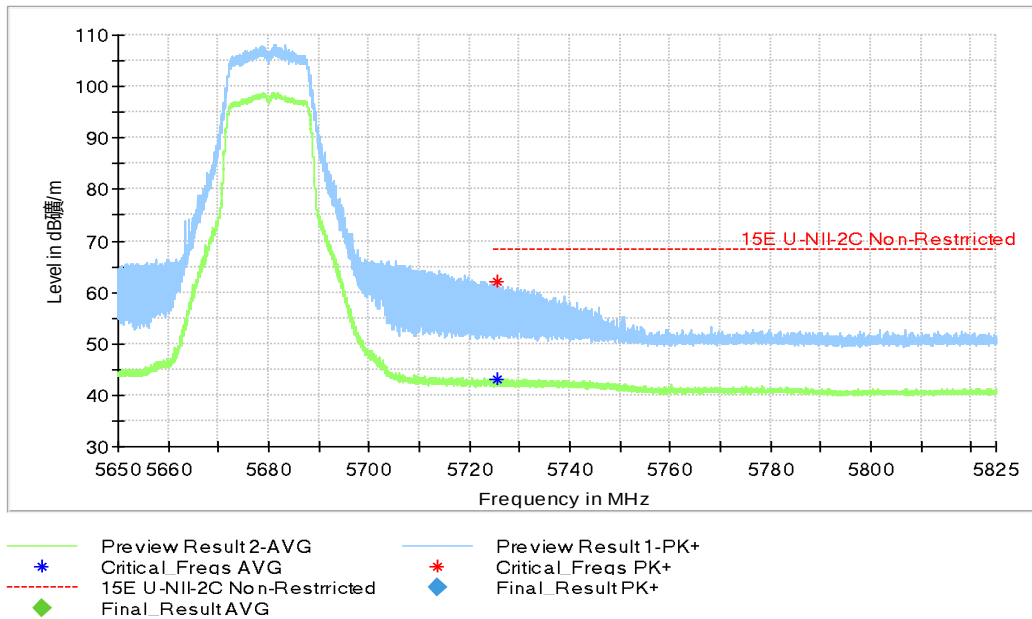


Fig.71 Band Edges (802.11a, CH136, 5680MHz)

Full Spectrum

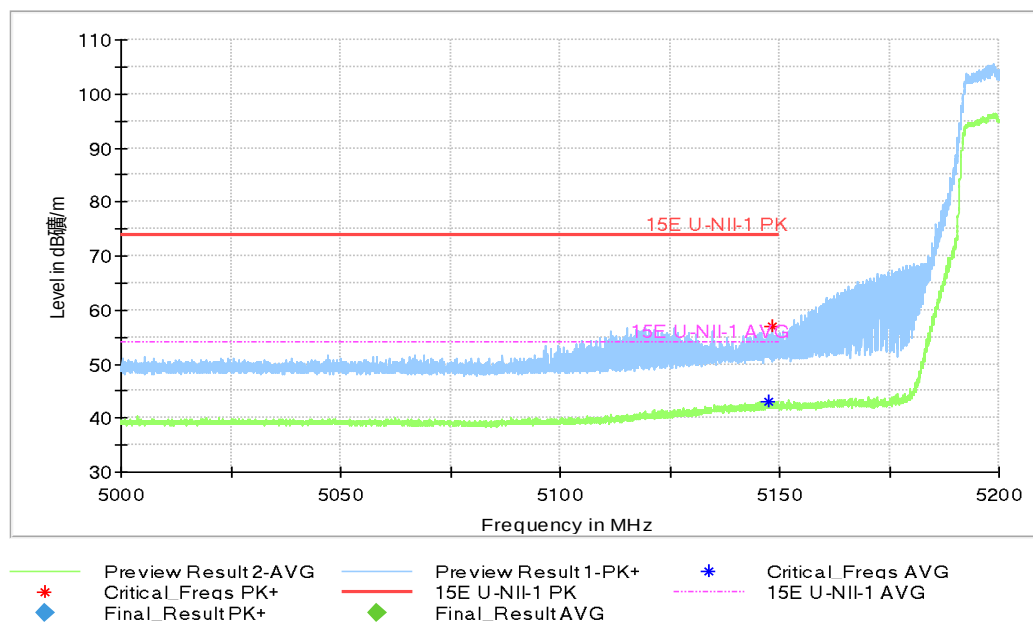
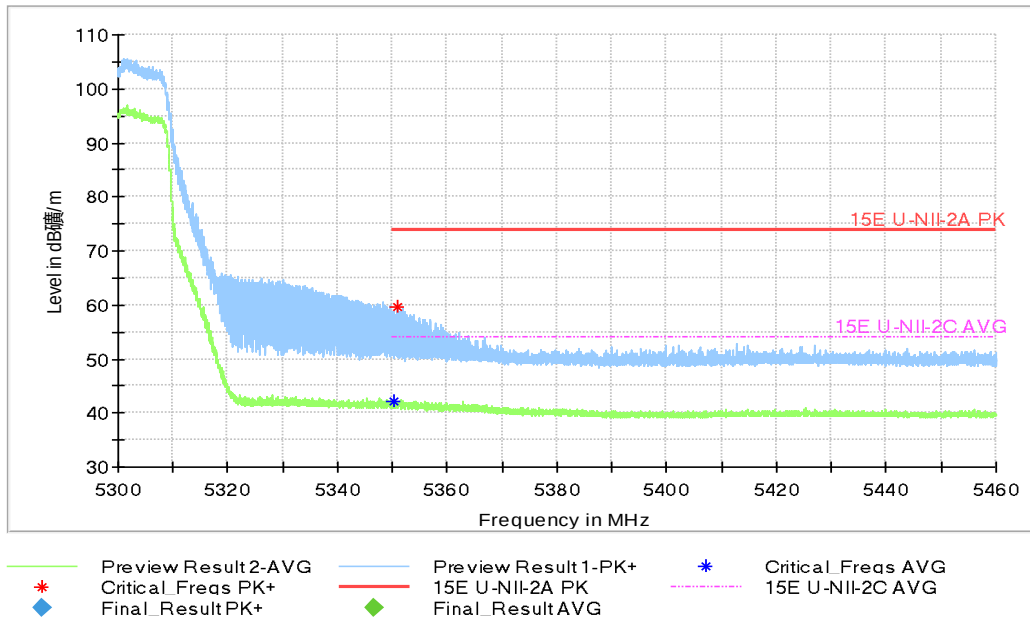


Fig.72 Band Edges (802.11n 20MHz, CH40, 5200MHz)

Full Spectrum


Fig.73 Band Edges (802.11n 20M, CH60, 5300MHz)

Full Spectrum

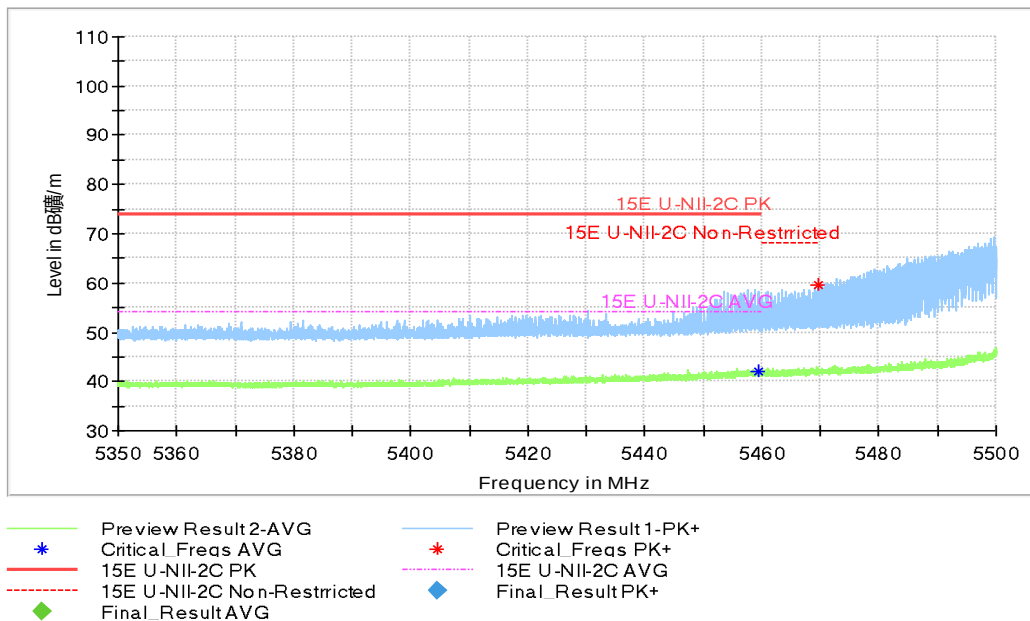
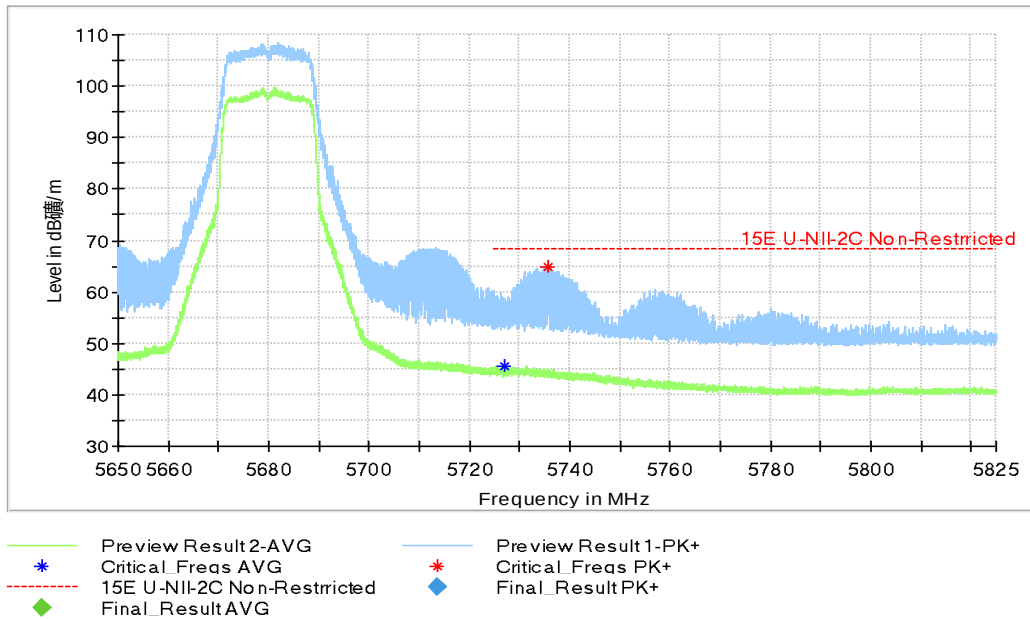


Fig.74 Band Edges (802.11n 20MHz, CH104, 5520MHz)

Full Spectrum


Fig.75 Band Edges (802.11n 20MHz, CH136, 5680MHz)

Full Spectrum

