



# FCC PART 15 TEST REPORT No.I23Z61566-IOT02

for

**Wingtech Group (Hong Kong) Limited**

**4G Mobile Hotspot**

**ATTCKTHS02**

**FCC ID:2APXW-ATTCKTHS02**

with

**Hardware Version: 80177\_1\_11**

**Software Version: ATTCKTHS02\_0.00.010**

**Issued Date: 2023-10-12**

**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.

**Test Laboratory:**

**CTTL-Telecommunication Technology Labs, CAICT**

No. 52, Huayuan North Road, Haidian District, Beijing, P. R. China 100191.

Tel:+86(0)10-62304633-2512, Fax:+86(0)10-62304633-2504

Email: [ctl\\_terminals@caict.ac.cn](mailto:ctl_terminals@caict.ac.cn), website: [www.caict.ac.cn](http://www.caict.ac.cn)



## **REPORT HISTORY**

<b>Report Number</b>	<b>Revision</b>	<b>Description</b>	<b>Issue Date</b>
I23Z61566-IOT02	Rev.0	1st edition	2023-10-12

Note: the latest revision of the test report supersedes all previous version.

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## **1. Test Laboratory**

### **1.1. Introduction & Accreditation**

**Telecommunication Technology Labs, CAICT** is an ISO/IEC 17025:2017 accredited test laboratory under American Association for Laboratory Accreditation (A2LA) with lab code 7049.01, and is also an FCC accredited test laboratory (CN1349), and ISED accredited test laboratory (CAB identifier:CN0066). The detail accreditation scope can be found on A2LA 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

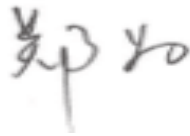
Testing Start Date: 2023-08-30  
Testing End Date: 2023-10-12

### 1.5. Signature



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Yao Xingyu  
( Prepared this test report )



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Zheng Wei  
(Reviewed this test report)



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Pang Shuai  
(Approved this test report)



## **2. Client Information**

### **2.1 Applicant Information**

Company Name: Wingtech Group (Hong Kong) Limited  
Address: Flat/RM 1903 19/F, Podium Plaza, 5 Hanoi Road, Tsim Sha Tsui, KL,  
HK  
City: Hong Kong  
Postal Code: /  
Country: China  
Telephone: +86-21-53529900  
Fax: /

### **2.2 Manufacturer Information**

Company Name: Wingtech Group (Hong Kong) Limited  
Address: Flat/RM 1903 19/F, Podium Plaza, 5 Hanoi Road, Tsim Sha Tsui, KL,  
HK  
City: Hong Kong  
Postal Code: /  
Country: China  
Telephone: +86-21-53529900  
Fax: /

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

#### 3.1. About EUT

Description	4G Mobile Hotspot
Model name	ATTCKTHS02
FCC ID	2APXW-ATTCKTHS02
WLAN Frequency Band	ISM Bands: -5150MHz~5250MHz -5250MHz~5350MHz -5470MHz~5725MHz
Type of modulation	OFDM
Antenna	Integral Antenna
Nominal Voltage	3.8V
Extreme High Voltage	4.4V
Extreme Low Voltage	3.6V

#### 3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of receipt
UT24a	864747070000451	80177_1_11	ATTCKTHS02_0.00.010	2023-08-24
UT53a	864747070000022	80177_1_11	ATTCKTHS02_0.00.010	2023-09-11

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

UT24a is used for Conduction test, UT53a is used for Radiation test.

#### 3.3. Internal Identification of AE used during the test

AE ID*	Description	Type	SN
AE1	Battery	/	/
AE2	Charger	/	/
AE3	USB Cable	/	/
AE1			
	Model	MF02	
	Manufacturer	Jiade Energy Technology (Zhuhai) Co., Ltd.	
	Capacity	3000mAh	
	Nominal Voltage	3.85V	
AE2			
	Model	PA-US5V2A-036	
	Manufacturer	HUIZHOU PUAN ELECTRONICS Co., Ltd.	
	Length of cable	/	
AE3			
	Model	HX-WT-54	
	Manufacturer	HEXIN	
	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 4G Mobile Hotspot with integrated antenna and inbuilt battery.

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. 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
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 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.

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 Facilities 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	2024-07-04
2	LISN	ENV216	101200	R&S	1 year	2024-06-05
3	Test Receiver	ESCI	100344	R&S	1 year	2024-02-21
4	Attenuator	10dB/2W	/	Rosenberger	/	/
5	Shielding Room	S81	/	ETS-Lindgren	/	/

### Radiated emission test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Period	Calibration Due date
1	Test Receiver	ESW44	103144	R&S	1 year	2023-10-25
2	EMI Antenna	VULB 9163	01222	SCHWARZBECK	1 year	2024-02-28
3	EMI Antenna	3115	6914	ETS-Lindgren	1 year	2024-04-25
4	EMI Antenna	3116	2661	ETS-Lindgren	1 year	2024-01-30

## 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 26dB Emission 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	/
$30\text{MHz} \leq f \leq 1\text{GHz}$	4.72
$1\text{GHz} \leq f \leq 18\text{GHz}$	4.84
$18\text{GHz} \leq f \leq 40\text{GHz}$	5.12

### 8.6 AC Power-line Conducted Emission

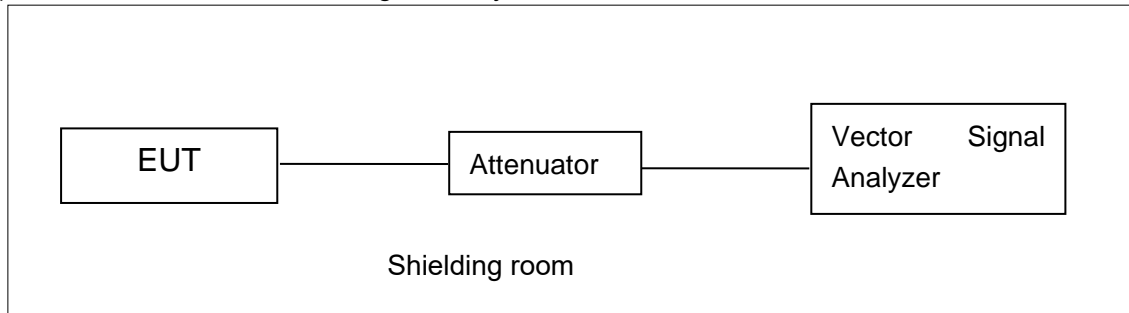
Measurement Uncertainty : 3.08dB,k=2

## **ANNEX A: Detailed Test 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

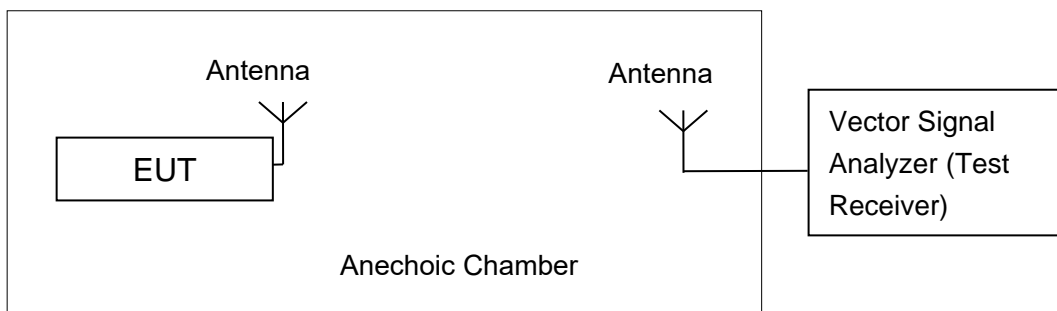


#### **A.1.2. Radiated Emission Measurements**

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

### A.2.1 Antenna Gain

Antenna gain is 1.9dBi and the value is supplied by the applicant or manufacturer.

### A.2.2 Maximum output Power-Conducted

EUT ID: UT24a

### Measurement Results:

#### 802.11a mode

Mode	Frequency	Test Result (dBm)							
		Data Rate (Mbps)							
		6	9	12	18	24	36	48	54
802.11a	5180MHz	17.22	/	/	/	/	/	/	/
	5200MHz	17.05	/	/	/	/	/	/	/
	5240MHz	17.18	/	/	/	/	/	/	/
	5260MHz	17.18	/	/	/	/	/	/	/
	5280MHz	17.12	/	/	/	/	/	/	/
	5320MHz	17.08	/	/	/	/	/	/	/
	5500MHz	17.38	/	/	/	/	/	/	/
	5580MHz	17.04	/	/	/	/	/	/	/
	5700MHz	17.08	/	/	/	/	/	/	/
	5720MHz	17.16	/	/	/	/	/	/	/

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	16.91	/	/	/	/	/	/	/
	5200MHz	16.84	/	/	/	/	/	/	/
	5240MHz	16.95	/	/	/	/	/	/	/
	5260MHz	16.90	/	/	/	/	/	/	/
	5280MHz	16.89	/	/	/	/	/	/	/
	5320MHz	16.81	/	/	/	/	/	/	/

	5500MHz	17.12	/	/	/	/	/	/	/
	5580MHz	16.83	/	/	/	/	/	/	/
	5700MHz	16.82	/	/	/	/	/	/	/
	5720MHz	16.88	/	/	/	/	/	/	/

The data rate MSC0 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 (VHT20)	5180MHz	16.97	/	/	/	/	/	/	/	/
	5200MHz	16.81	/	/	/	/	/	/	/	/
	5240MHz	16.95	/	/	/	/	/	/	/	/
	5260MHz	16.95	/	/	/	/	/	/	/	/
	5280MHz	16.89	/	/	/	/	/	/	/	/
	5320MHz	16.80	/	/	/	/	/	/	/	/
	5500MHz	17.14	/	/	/	/	/	/	/	/
	5580MHz	16.83	/	/	/	/	/	/	/	/
	5700MHz	16.84	/	/	/	/	/	/	/	/
	5720MHz	16.90	/	/	/	/	/	/	/	/

The data rate MSC0 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	17.32	/	/	/	/	/	/	/
	5230MHz	17.28	/	/	/	/	/	/	/
	5270MHz	17.35	/	/	/	/	/	/	/
	5310MHz	17.22	/	/	/	/	/	/	/
	5510MHz	17.46	/	/	/	/	/	/	/
	5550MHz	17.19	/	/	/	/	/	/	/
	5670MHz	17.37	/	/	/	/	/	/	/
	5710MHz	17.26	/	/	/	/	/	/	/

The data rate MSC0 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 (VHT40)	5190MHz	17.30	/	/	/	/	/	/	/	/	/
	5230MHz	17.29	/	/	/	/	/	/	/	/	/
	5270MHz	17.35	/	/	/	/	/	/	/	/	/
	5310MHz	17.21	/	/	/	/	/	/	/	/	/
	5510MHz	17.47	/	/	/	/	/	/	/	/	/
	5550MHz	17.20	/	/	/	/	/	/	/	/	/
	5670MHz	17.36	/	/	/	/	/	/	/	/	/
	5710MHz	17.27	/	/	/	/	/	/	/	/	/

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

**802.11ac-VHT80 mode**

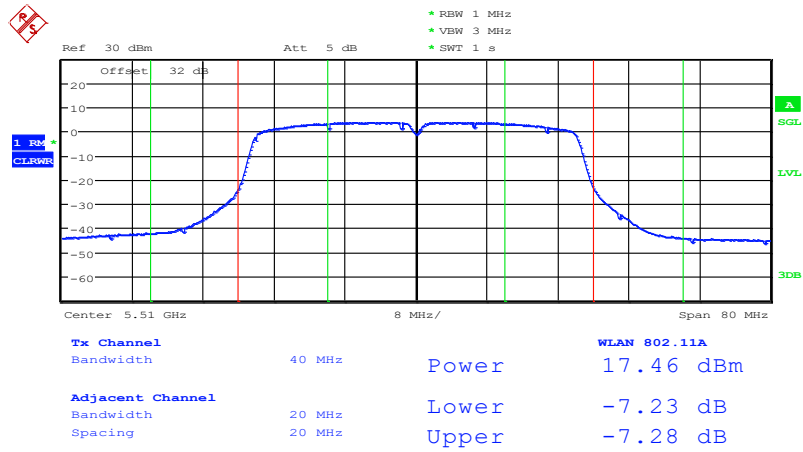
Mode	Frequency	Test Result (dBm)									
		Data Rate									
		MCS0	MCS1	MCS2	MCS3	MCS4	MCS5	MCS6	MCS7	MCS8	MCS9
802.11ac (VHT80)	5210MHz	16.66	/	/	/	/	/	/	/	/	/
	5290MHz	16.67	/	/	/	/	/	/	/	/	/
	5530MHz	16.78	/	/	/	/	/	/	/	/	/
	5610MHz	16.95	/	/	/	/	/	/	/	/	/
	5690MHz	16.76	/	/	/	/	/	/	/	/	/

The data rate MSC0 is selected as worst condition, and the following cases are performed with this condition.

**Duty Cycle**

Mode	802.11a	802.11n20	802.11ac20	802.11n40	802.11ac40	802.11ac80
Duty Cycle	98%	99%	99%	98%	99%	98%





Date: 12.SEP.2023 16:30:03

### Maximum output Power

**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

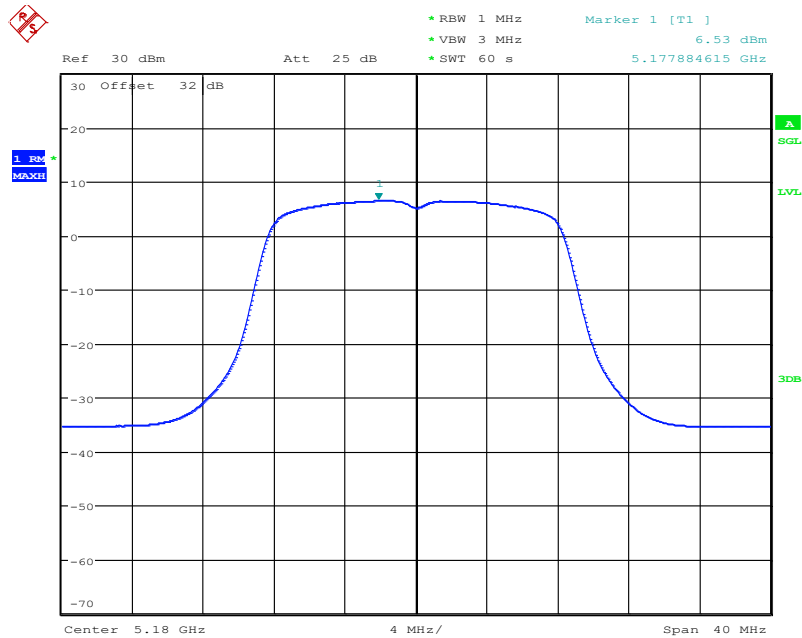
The output power measurement method Section F is made according to KDB 789033

#### EUT ID: UT24a

#### Measurement Results:

Mode	Frequency	Power Spectral Density (dBm/MHz)	Conclusion
802.11a	5180 MHz	6.53	P
	5200 MHz	6.35	P
	5240 MHz	6.53	P
	5260 MHz	6.47	P
	5280 MHz	6.37	P
	5320 MHz	6.36	P
	5500 MHz	6.67	P
	5580 MHz	6.51	P
	5700 MHz	6.41	P
802.11ac VHT20	5180 MHz	6.11	P
	5200 MHz	5.94	P
	5240 MHz	6.14	P
	5260 MHz	6.10	P
	5280 MHz	5.97	P
	5320 MHz	5.94	P
	5500 MHz	6.26	P
	5580 MHz	6.11	P
	5700 MHz	6.00	P
	5720 MHz	6.06	P
802.11n HT40	5190 MHz	3.36	P
	5230 MHz	3.32	P
	5270 MHz	3.27	P
	5310 MHz	3.16	P
	5510 MHz	3.46	P
	5550 MHz	3.14	P
	5670 MHz	3.40	P
	5710 MHz	3.27	P
802.11ac VHT80	5210 MHz	-0.57	P
	5290 MHz	-0.57	P

	5530 MHz	-0.53	P
	5610 MHz	-0.15	P
	5690 MHz	-0.30	P



Date: 12.SEP.2023 16:55:53

### Peak Power Spectral Density

**Conclusion: PASS**

#### **A.4. 26dB Emission 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
-------------------------	---------

**EUT ID: UT24a**

##### **Measurement Result:**

Mode	Frequency	26dB Emission Bandwidth ( MHz)		conclusion
		Fig.	Value	
802.11a	5180 MHz	Fig.1	18.80	P
	5200 MHz	Fig.2	18.64	P
	5240 MHz	Fig.3	18.64	P
	5260 MHz	Fig.4	18.80	P
	5280 MHz	Fig.5	18.72	P
	5320 MHz	Fig.6	18.68	P
	5500 MHz	Fig.7	18.72	P
	5580 MHz	Fig.8	18.68	P
	5700 MHz	Fig.9	18.60	P
	5720 MHz	Fig.10	18.76	P
802.11ac VHT20	5180 MHz	Fig.11	19.76	P
	5200 MHz	Fig.12	19.56	P
	5240 MHz	Fig.13	19.60	P
	5260 MHz	Fig.14	19.60	P
	5280 MHz	Fig.15	19.72	P
	5320 MHz	Fig.16	19.68	P
	5500 MHz	Fig.17	19.64	P
	5580 MHz	Fig.18	19.56	P
	5700 MHz	Fig.19	19.64	P
	5720 MHz	Fig.20	19.32	
802.11n HT40	5190 MHz	Fig.21	40.32	P
	5230 MHz	Fig.22	40.00	P
	5270 MHz	Fig.23	40.00	P
	5310 MHz	Fig.24	40.00	P
	5510 MHz	Fig.25	40.64	P
	5550 MHz	Fig.26	40.16	P
	5670 MHz	Fig.27	39.84	P
	5710 MHz	Fig.28	40.56	P
802.11ac	5210MHz	Fig.29	83.20	P

VHT80	5290MHz	Fig.30	83.36	P
	5530MHz	Fig.31	83.68	P
	5610 MHz	Fig.32	83.04	P
	5690MHz	Fig.33	83.52	P

Test graphs as below:

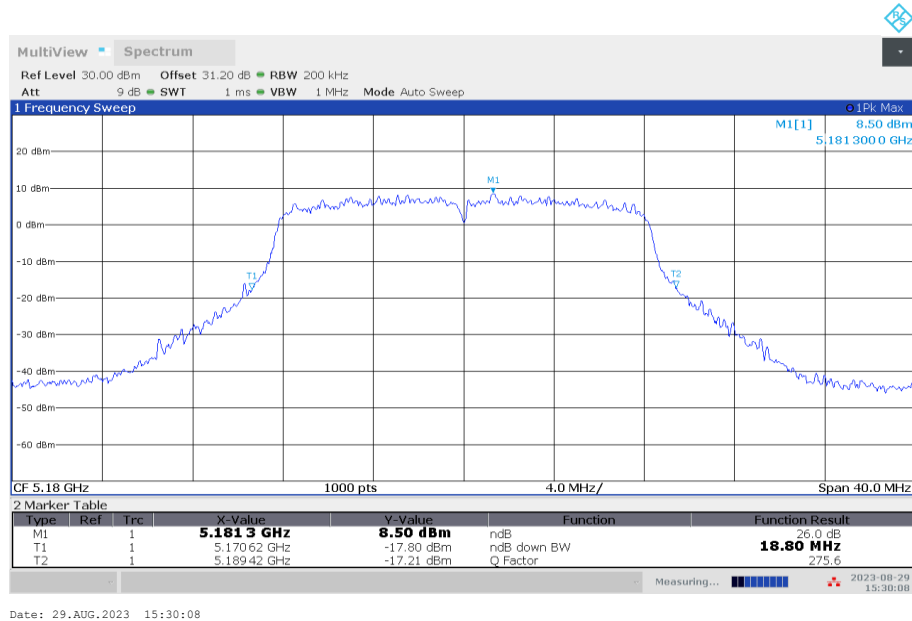


Fig.1 26dB Emission Bandwidth (802.11a, 5180MHz)

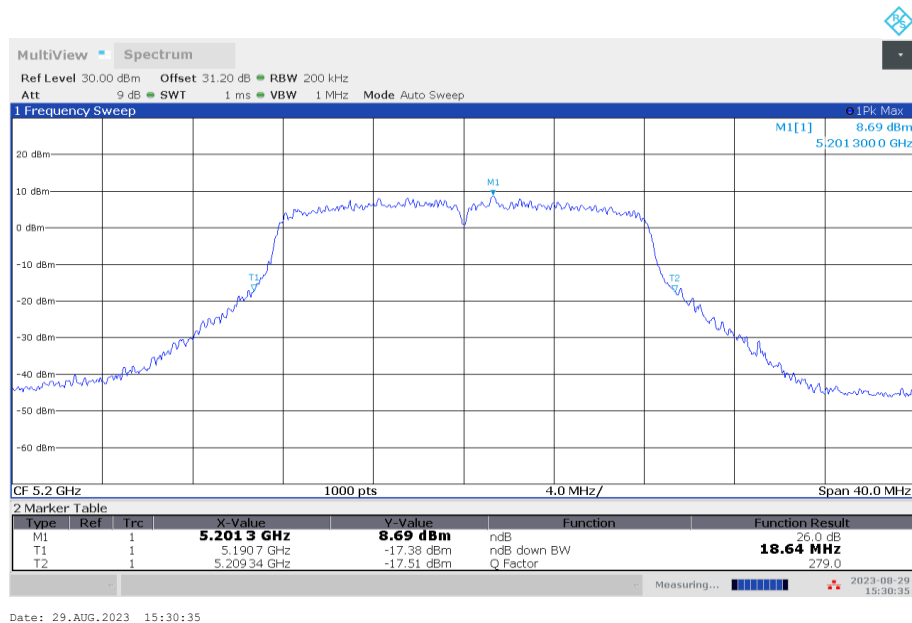
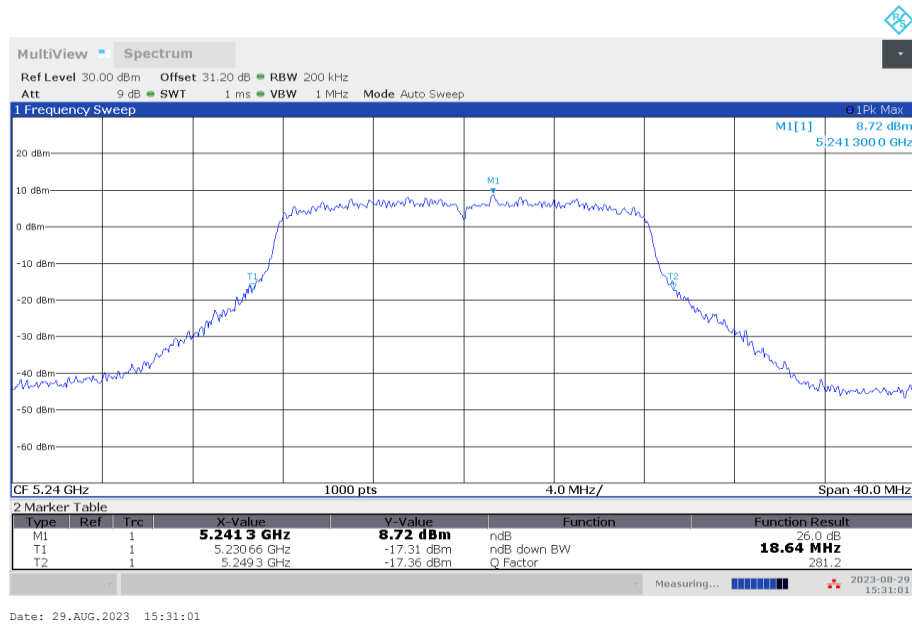
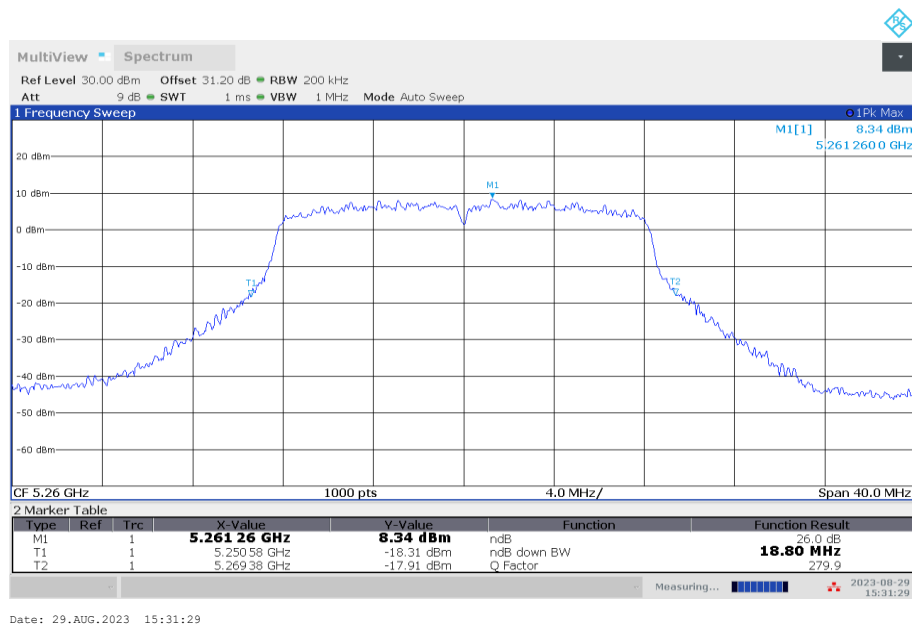


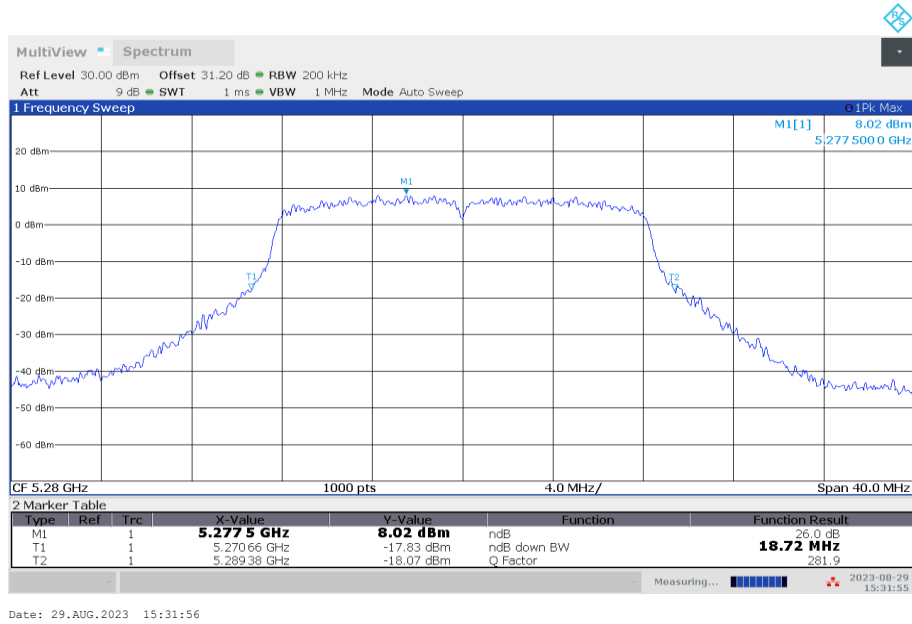
Fig.2 26dB Emission Bandwidth (802.11a, 5200MHz)



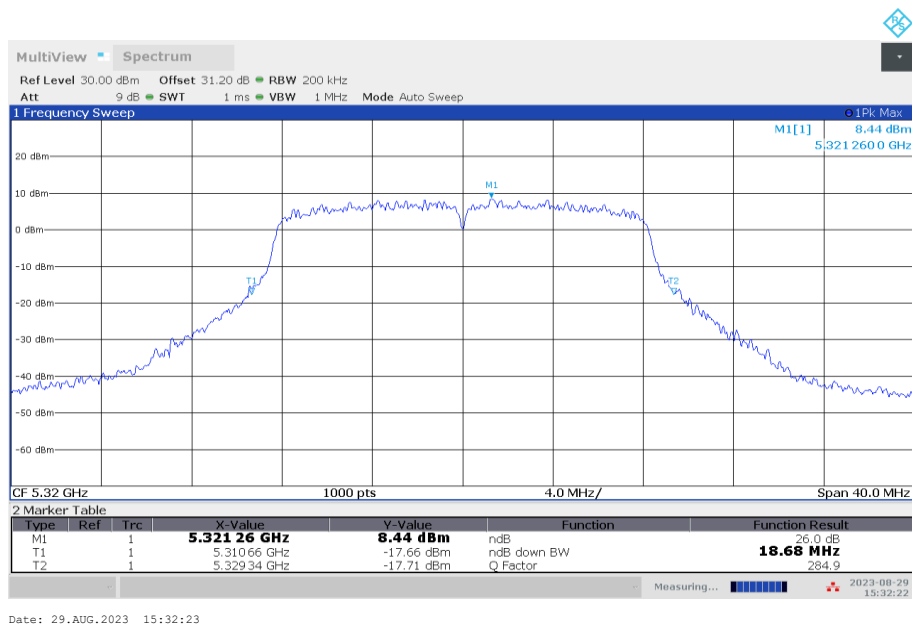
**Fig.3 26dB Emission Bandwidth (802.11a, 5240MHz)**



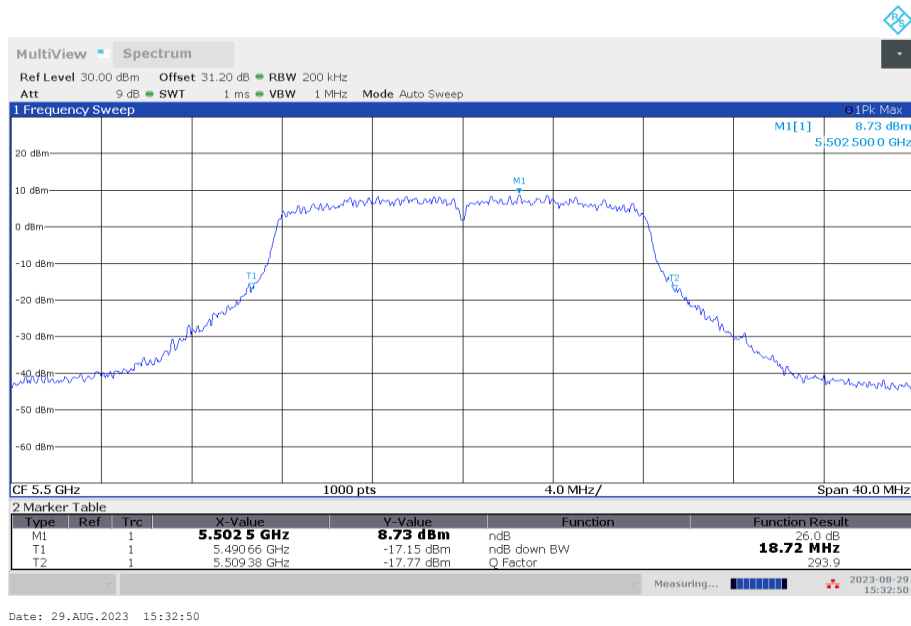
**Fig.4 26dB Emission Bandwidth (802.11a, 5260MHz)**



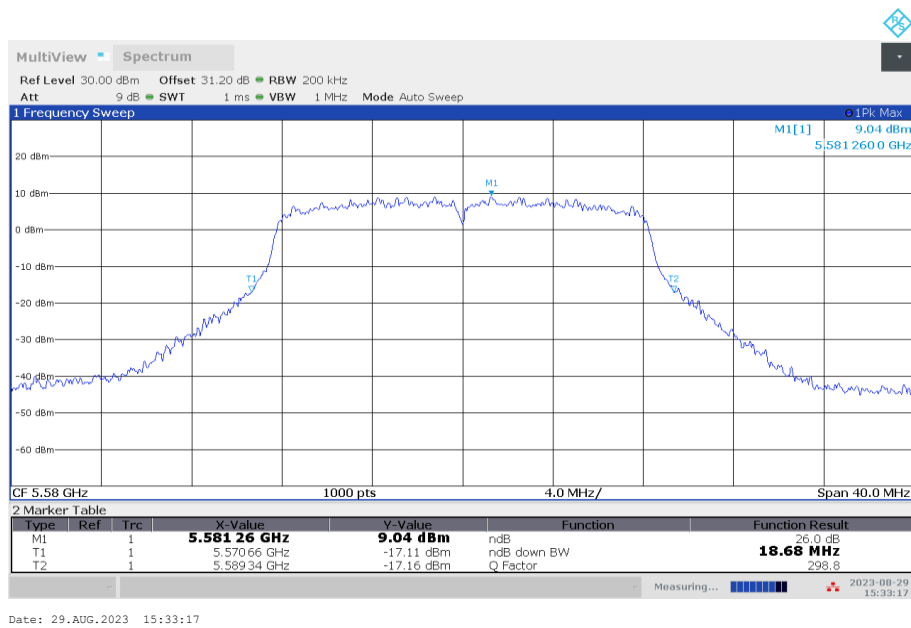
**Fig.5 26dB Emission Bandwidth (802.11a, 5280MHz)**



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

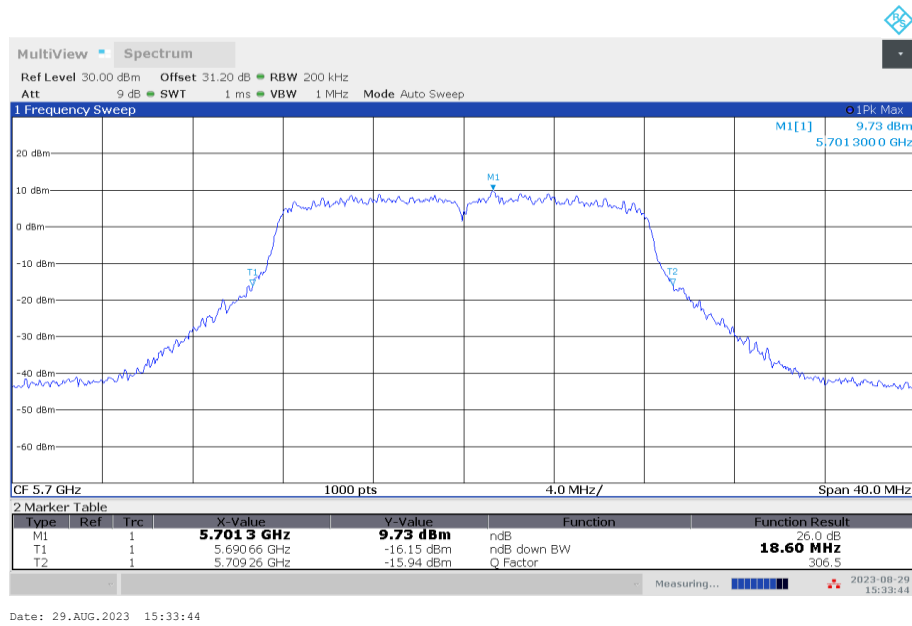


**Fig.7 26dB Emission Bandwidth (802.11a, 5500MHz)**

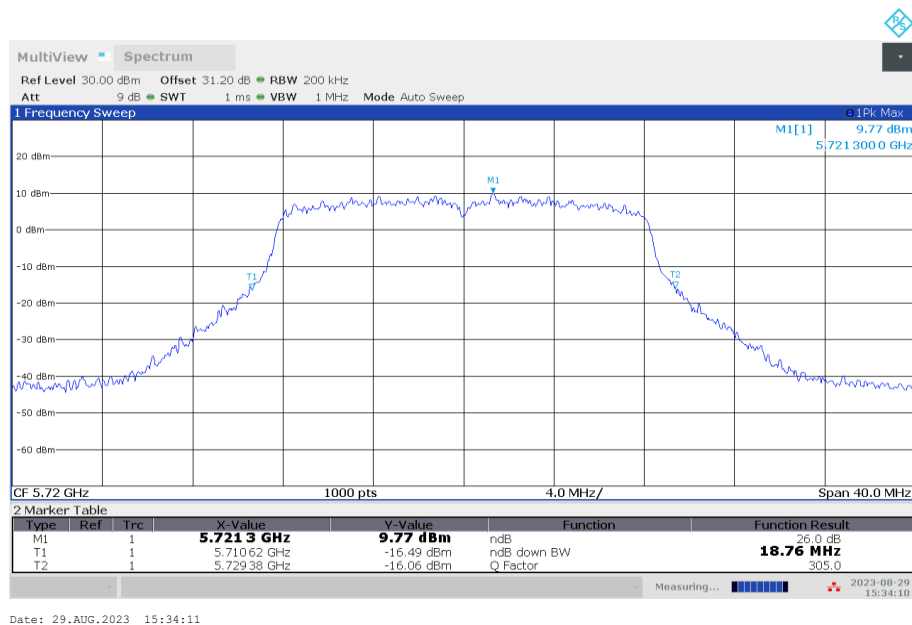


**Fig.8 26dB Emission Bandwidth (802.11a, 5580MHz)**

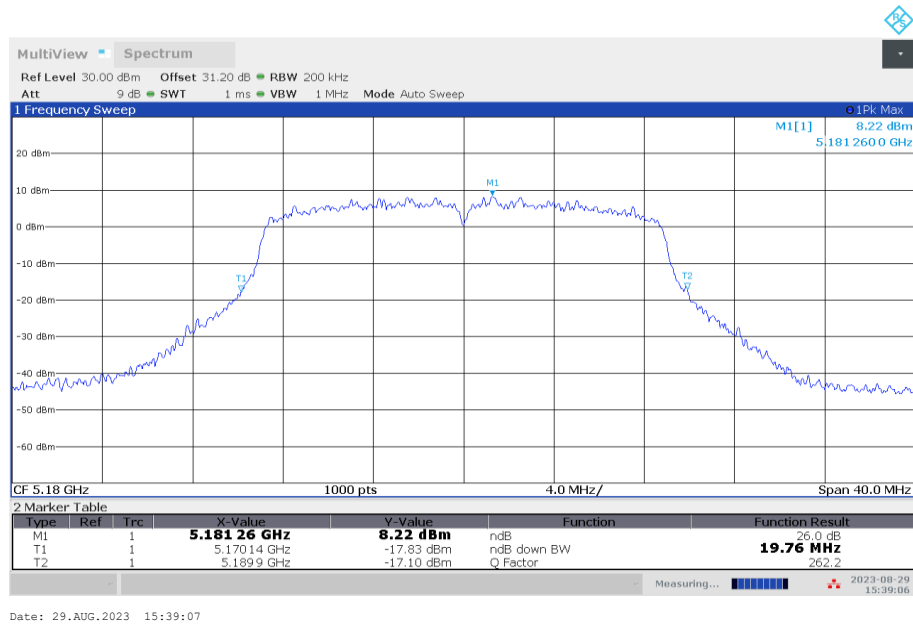




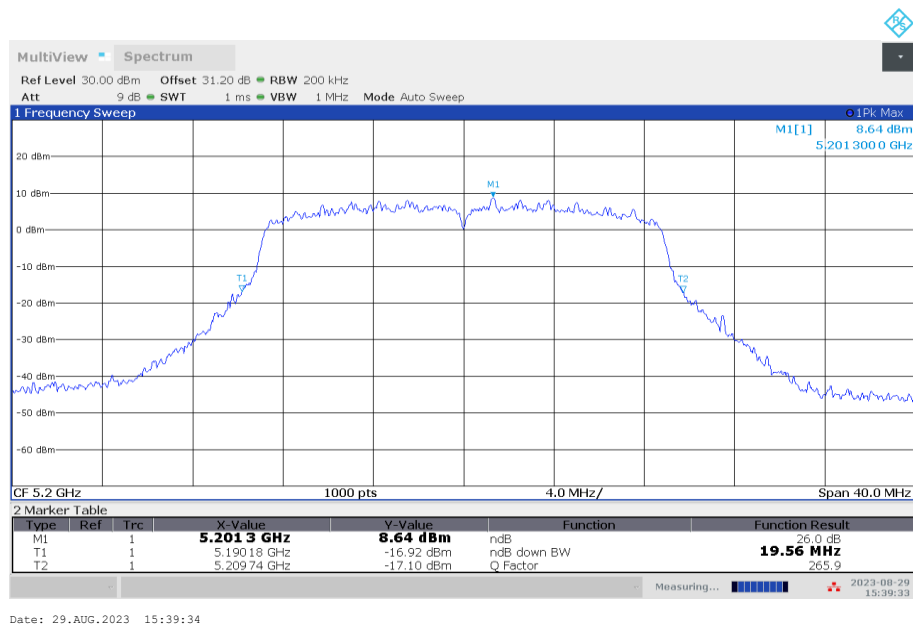
**Fig.9 26dB Emission Bandwidth (802.11a, 5700MHz)**



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



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



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

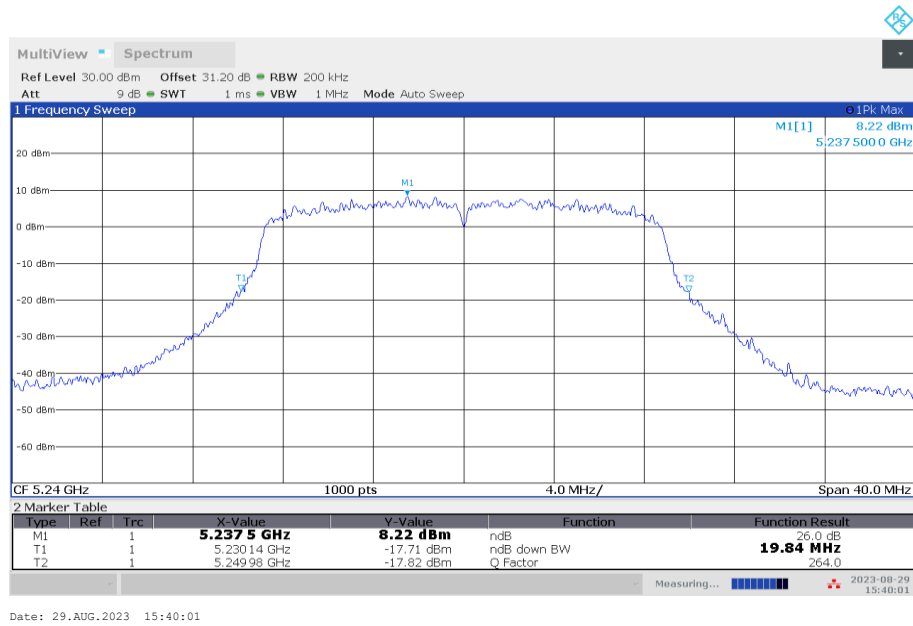


Fig.13 26dB Emission Bandwidth (802.11ac-VHT20, 5240MHz)

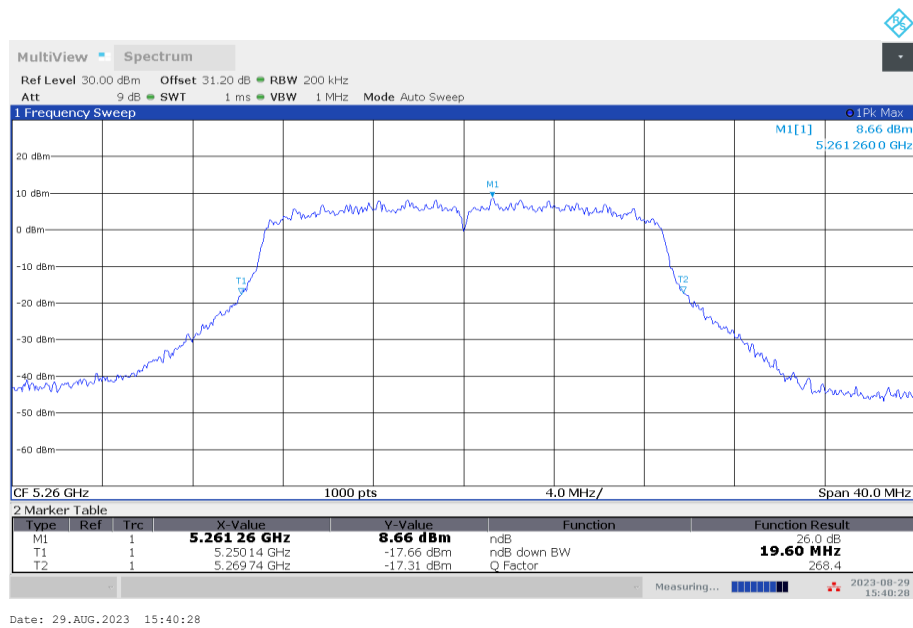
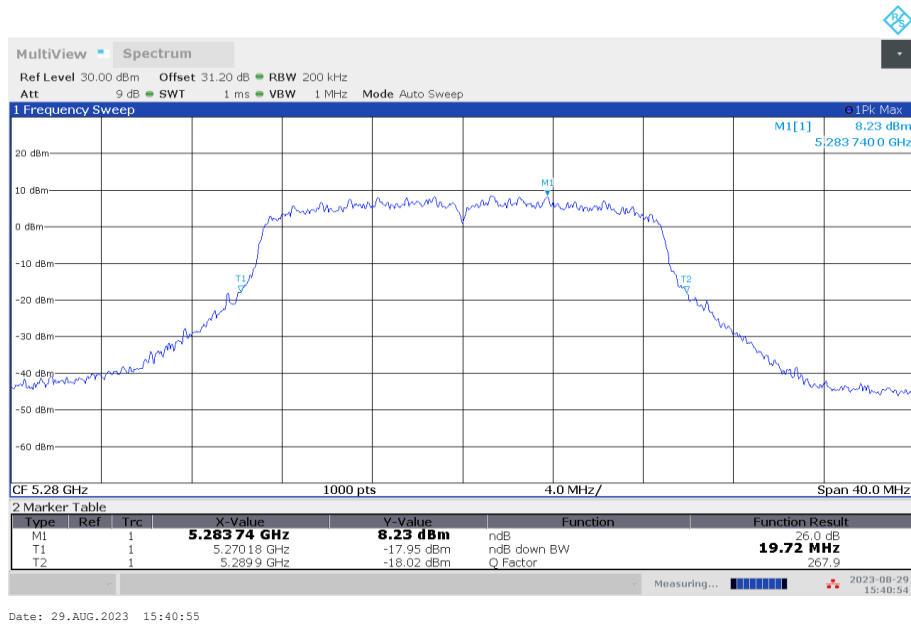
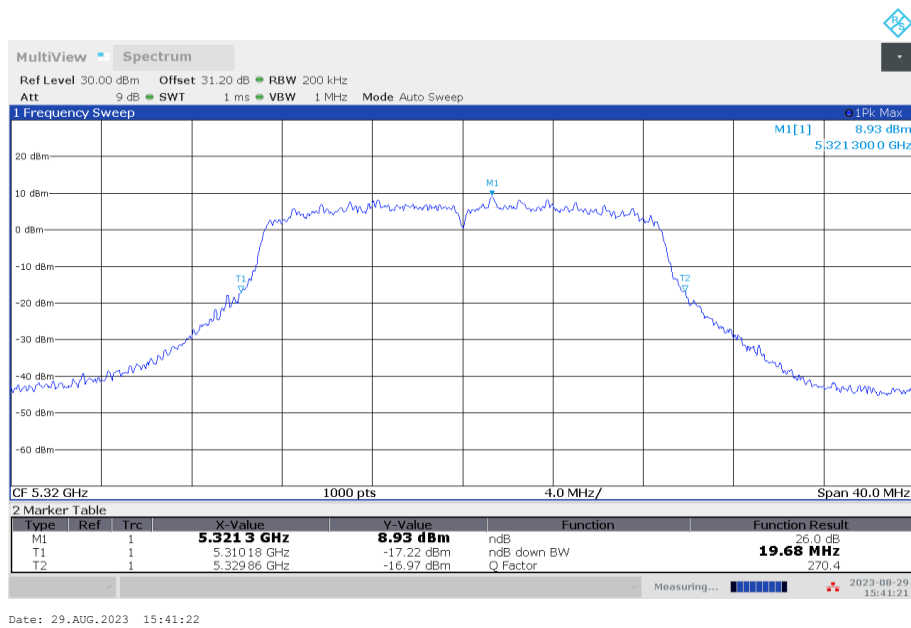


Fig.14 26dB Emission Bandwidth (802.11ac-VHT20, 5260MHz)



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



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

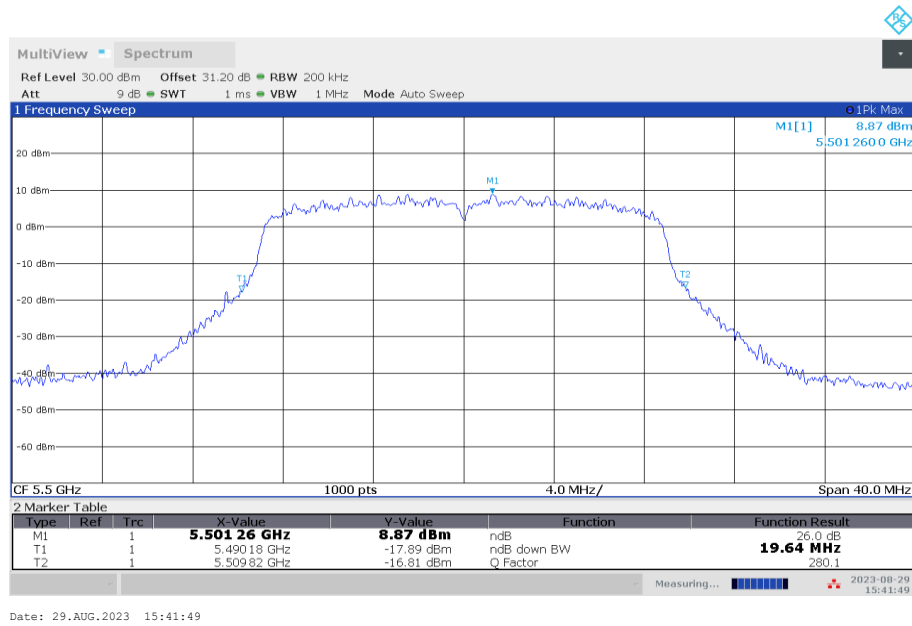


Fig.17 26dB Emission Bandwidth (802. 11ac-VHT20, 5500MHz)

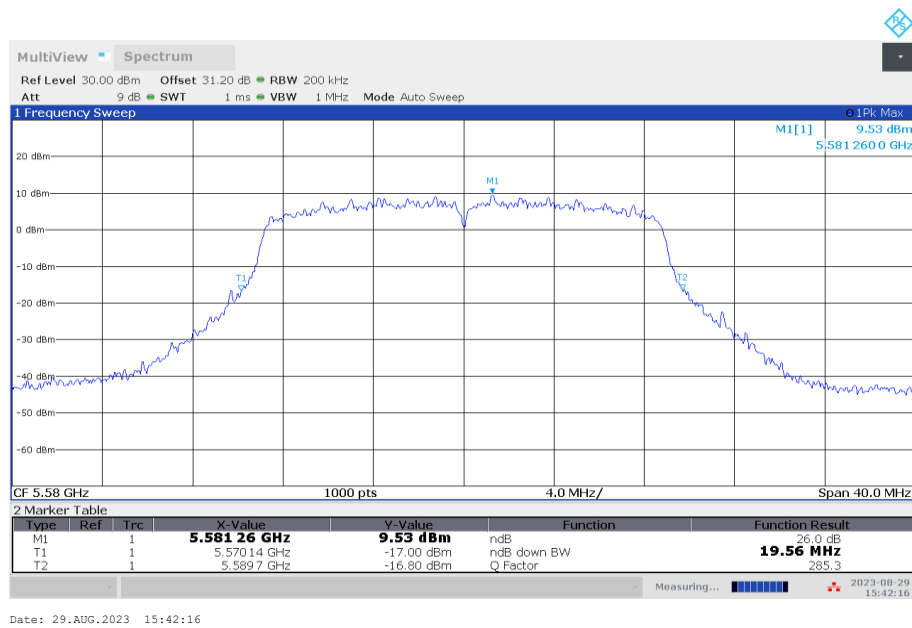
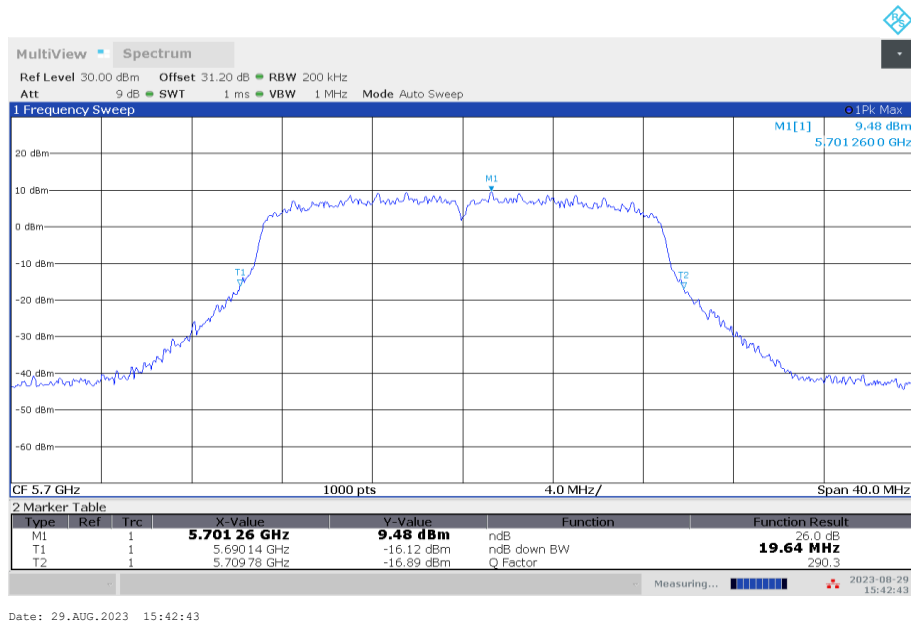
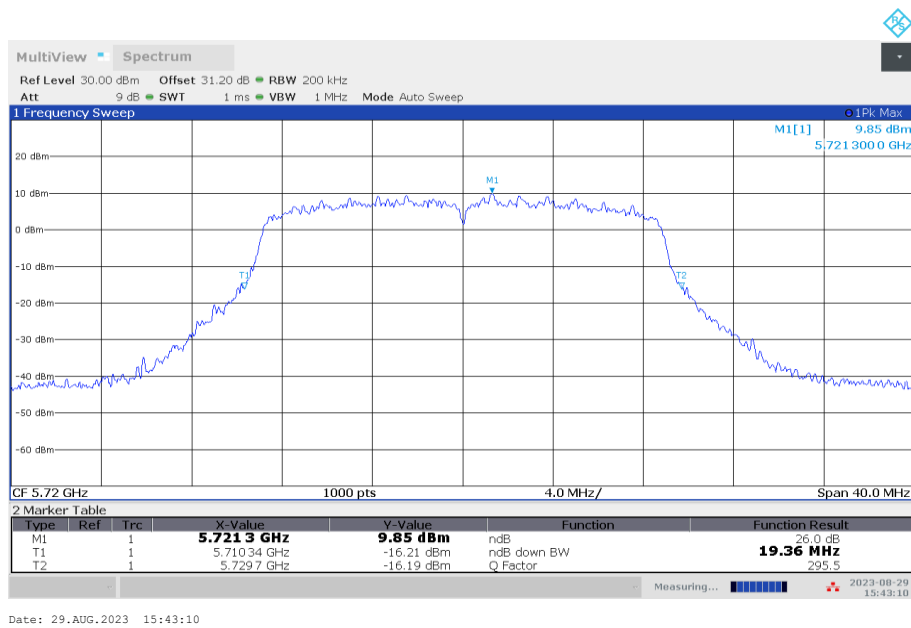


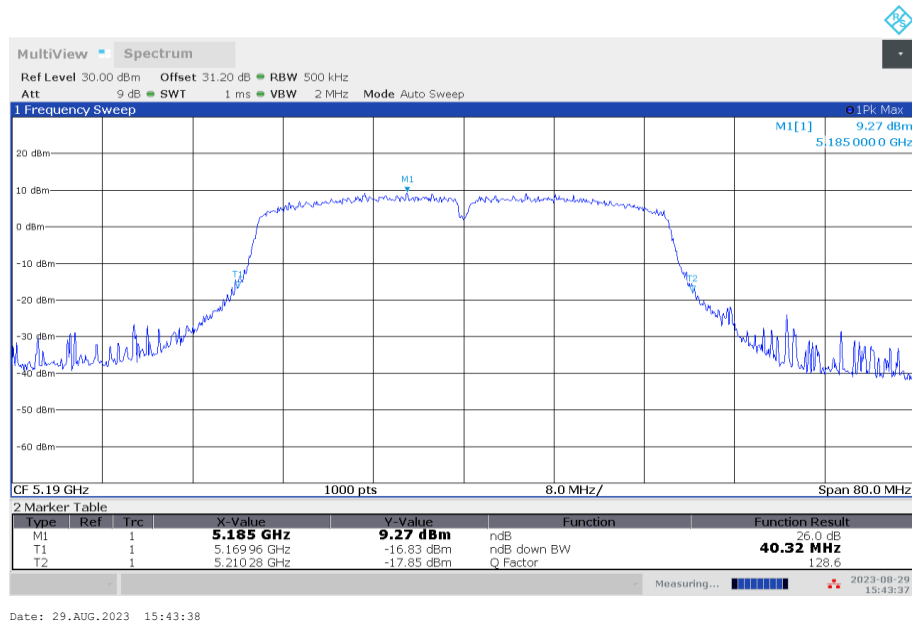
Fig.18 26dB Emission Bandwidth (802. 11ac-VHT20, 5580MHz)



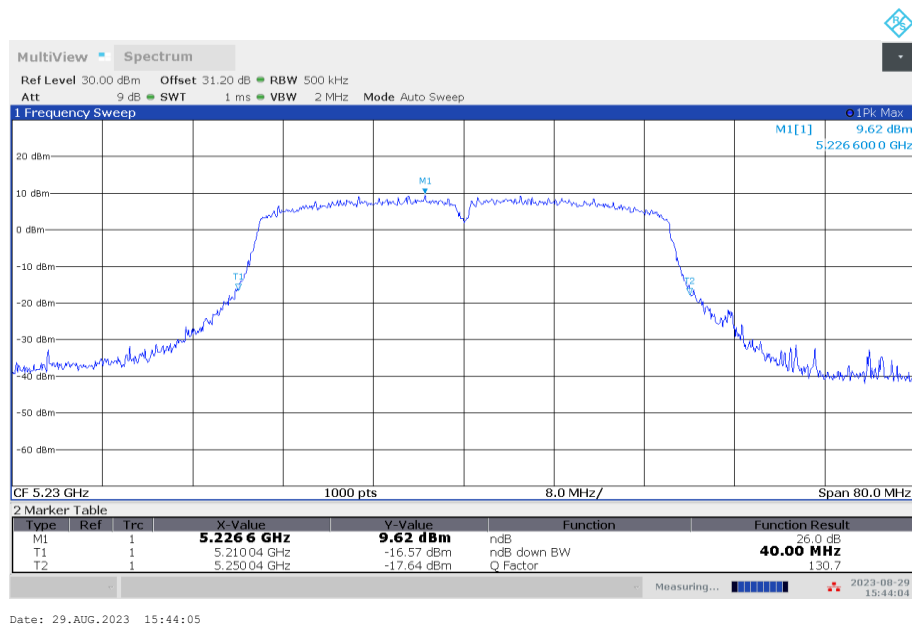
**Fig.19 26dB Emission Bandwidth (802. 11ac-VHT20, 5700MHz)**



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



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



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

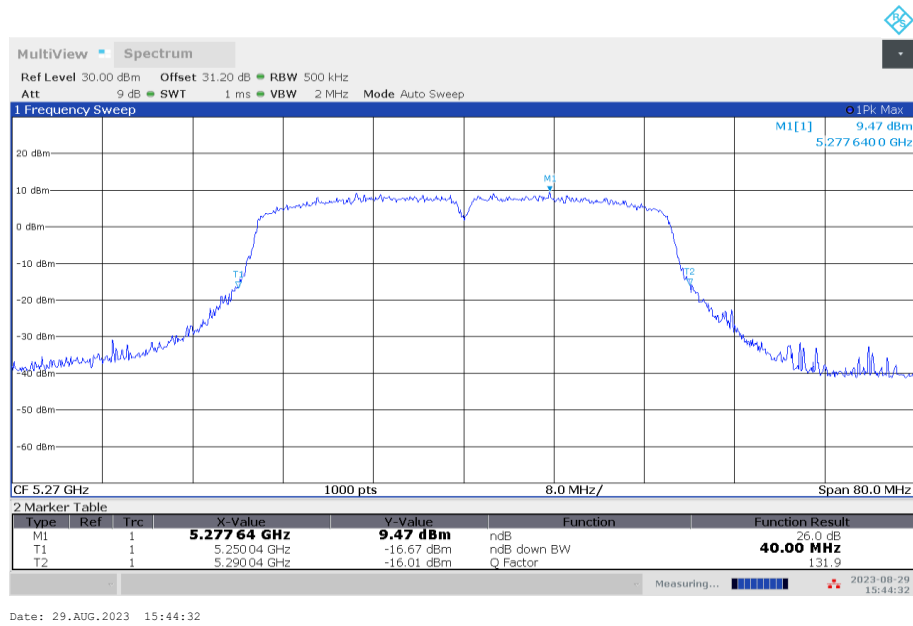


Fig.23 26dB Emission Bandwidth (802.11n-HT40, 5270MHz)

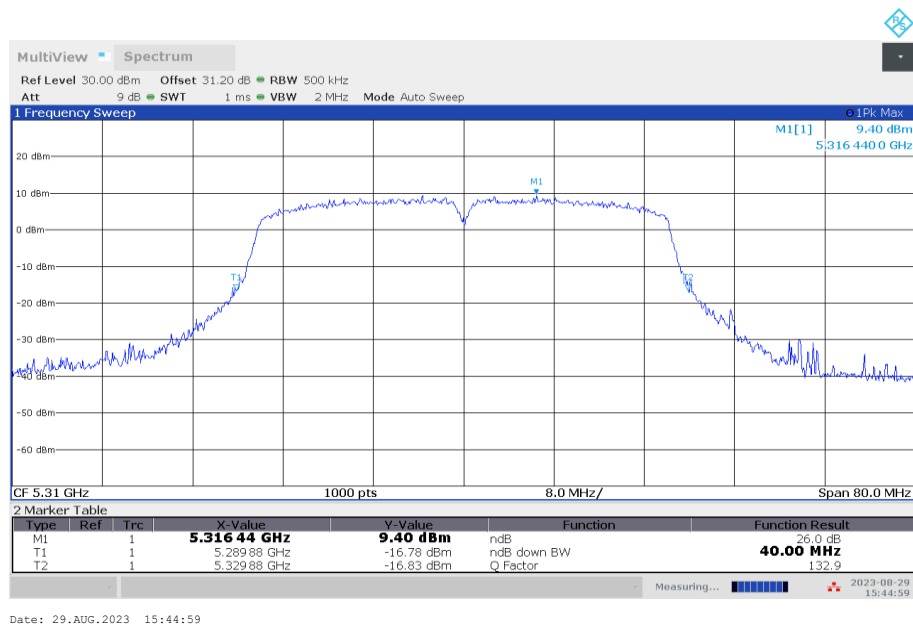


Fig.24 26dB Emission Bandwidth (802.11n-HT40, 5310MHz)



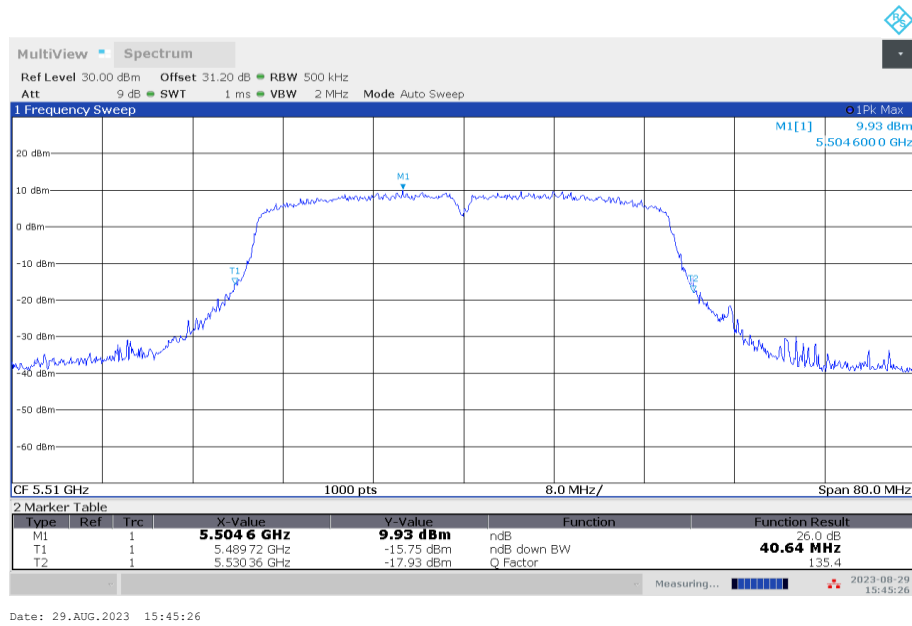


Fig.25 26dB Emission Bandwidth (802. 11n-HT40, 5510MHz)

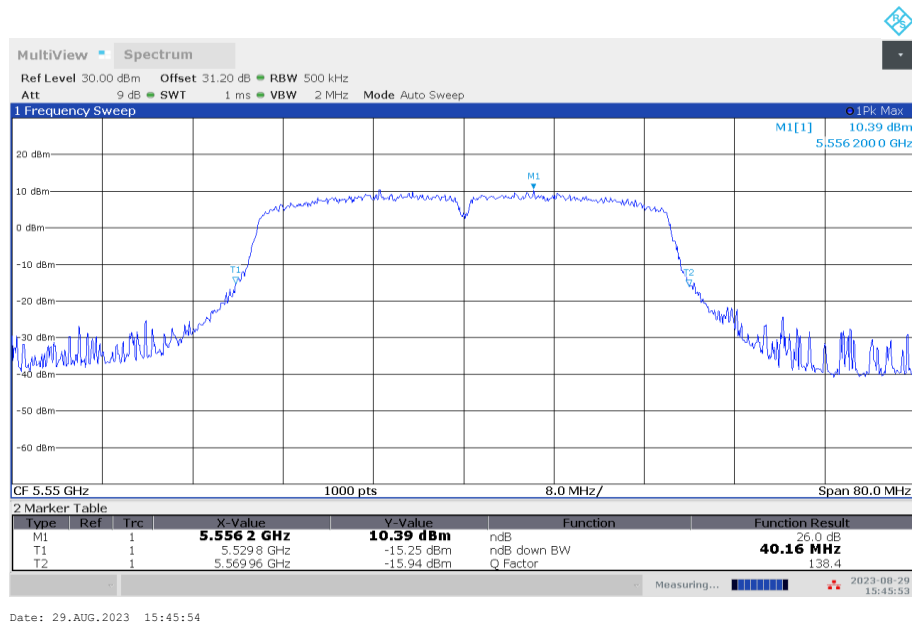
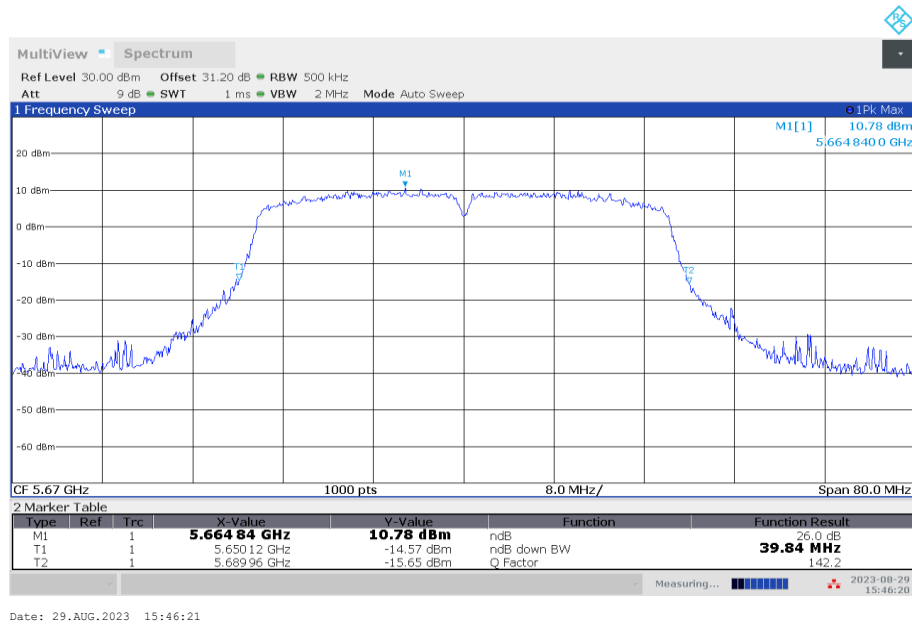
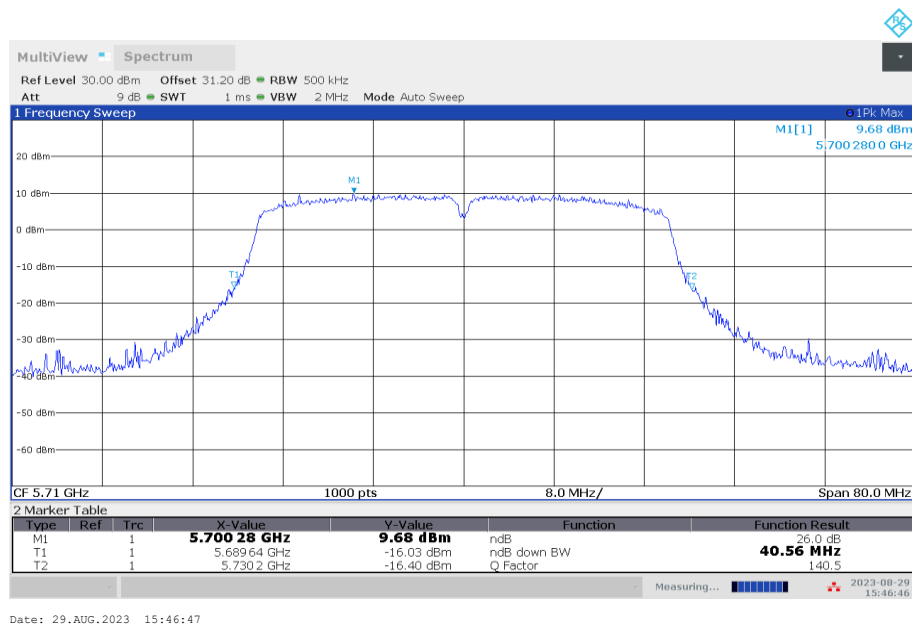


Fig.26 26dB Emission Bandwidth (802. 11n-HT40, 5550MHz)



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



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

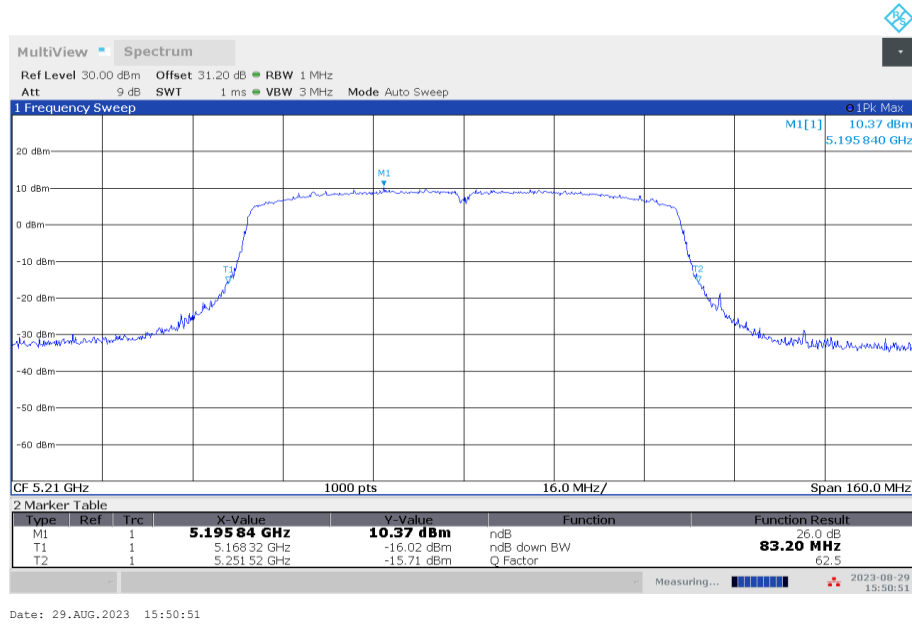


Fig.29 26dB Emission Bandwidth (802. 11ac-VHT80, 5210MHz)

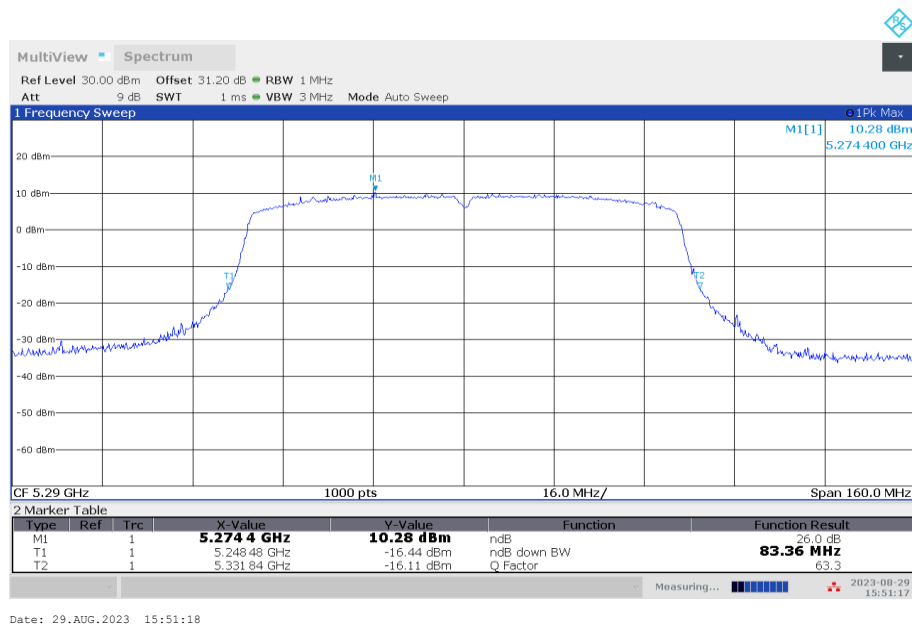
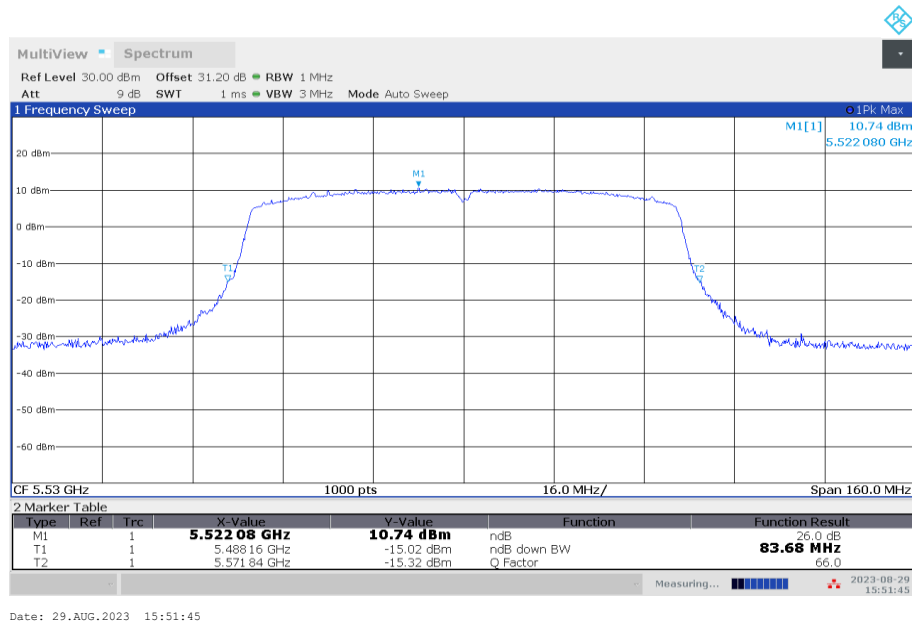
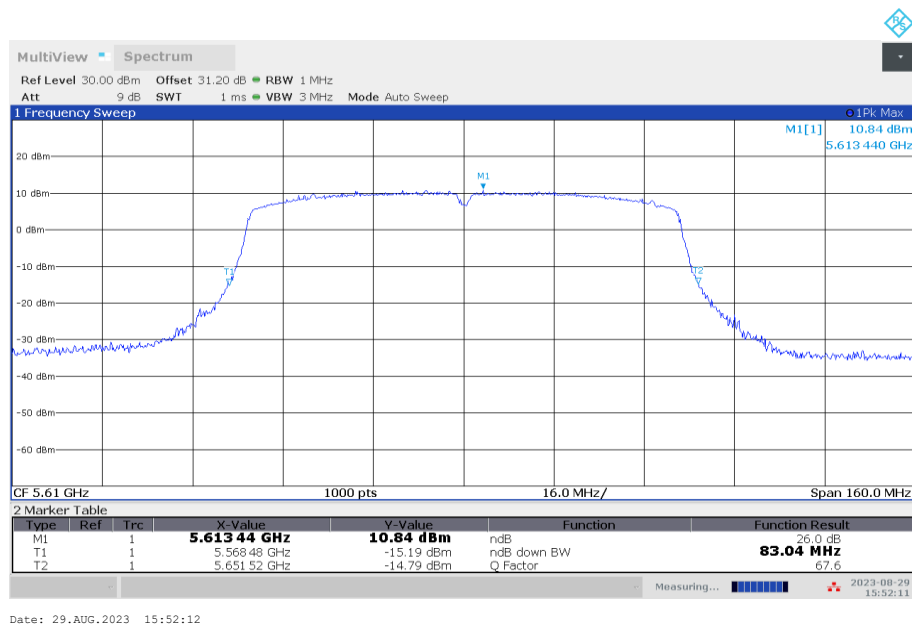


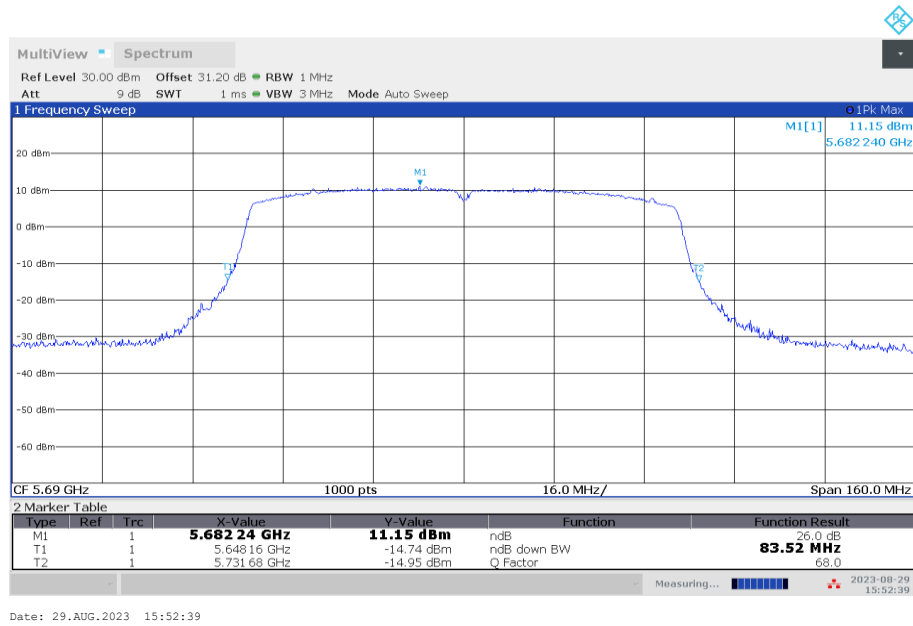
Fig.30 26dB Emission Bandwidth (802. 11ac-VHT80, 5290MHz)



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



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



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

**Conclusion: PASS**

## **A.5. Band Edges Compliance**

### **A5.1 Band Edges - Radiated**

#### **Measurement Limit:**

Standard	Limit (dB $\mu$ V/m)	
	FCC 47 CFR Part 15.209	Peak
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)).

#### **Measurement Uncertainty:**

Measurement Uncertainty	0.75dB
-------------------------	--------

#### **Measurement Result:**

Mode	Frequency	Test Results	Conclusion
802.11a	5180 MHz	Fig.34	P
	5320 MHz	Fig.35	P
	5500 MHz	Fig.36	P
	5700 MHz	Fig.37	P
802.11n HT20	5180 MHz	Fig.38	P
	5320 MHz	Fig.39	P
	5500 MHz	Fig.40	P
	5700 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

802.11n HT40	5190 MHz	Fig.46	P
	5310 MHz	Fig.47	P
	5510 MHz	Fig.48	P
	5670 MHz	Fig.49	P

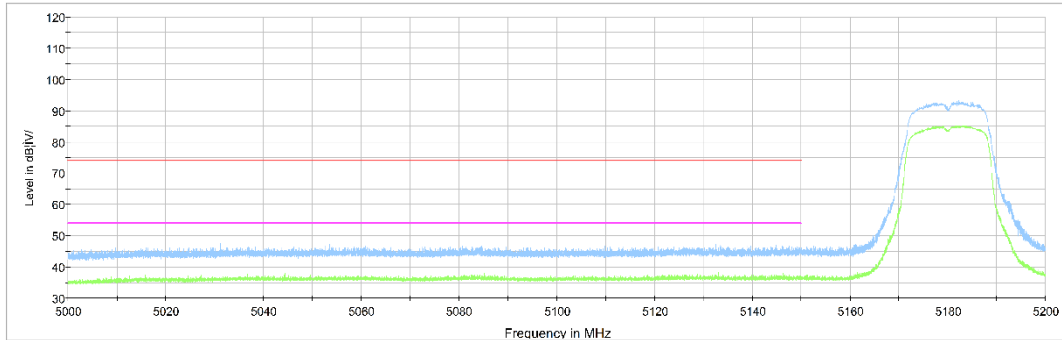
802.11ac HT40	5190 MHz	Fig.50	P
	5310 MHz	Fig.51	P
	5510 MHz	Fig.52	P
	5670 MHz	Fig.53	P

802.11ac HT80	5210MHz	Fig.54	P
	5290MHz	Fig.55	P

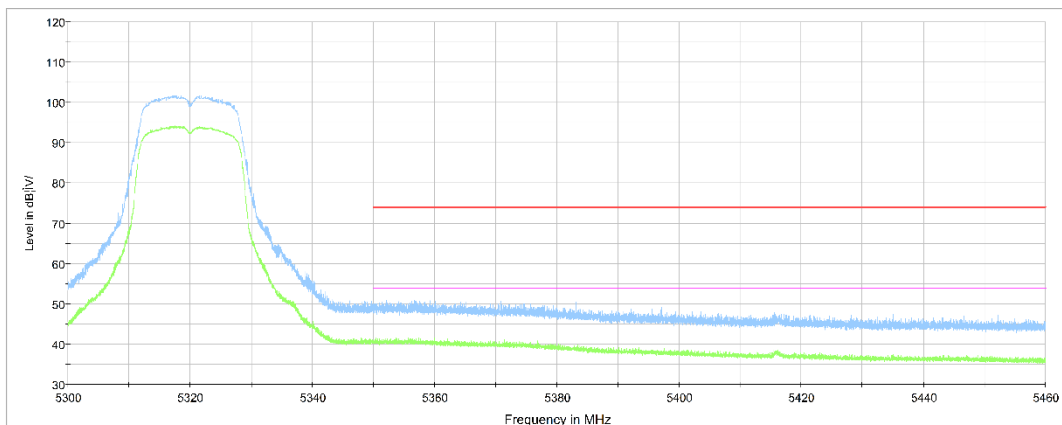
	5530MHz	Fig.56	P
	5610MHz	Fig.57	P

**Conclusion: PASS**

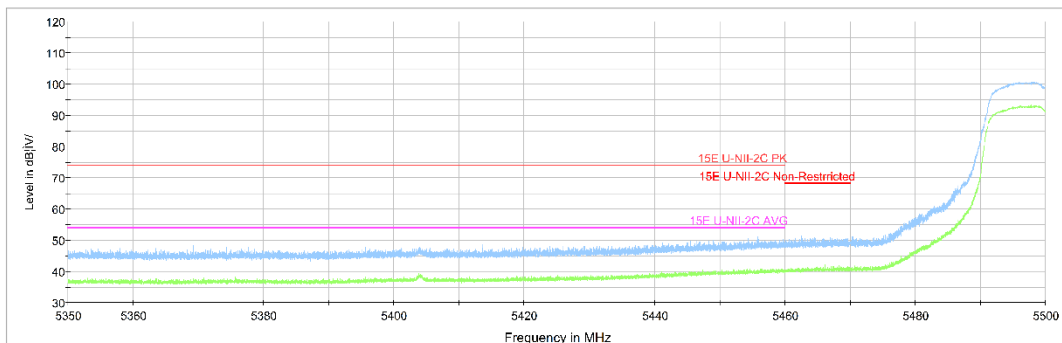
**Test graphs as below:**



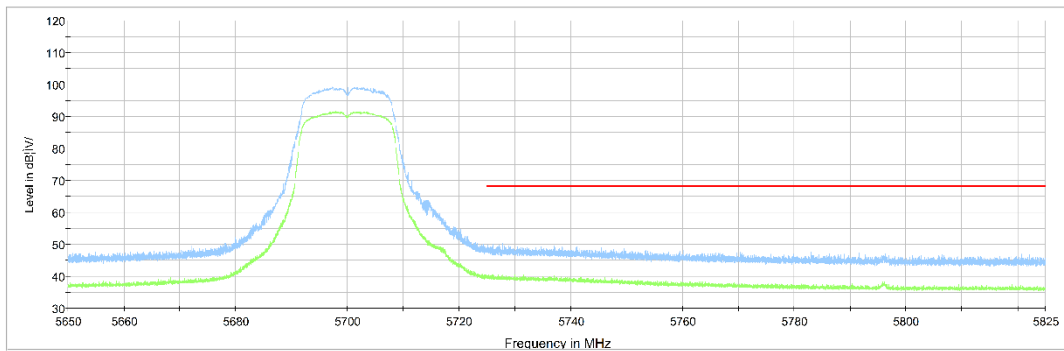
**Fig.34 Band Edges (802.11a, 5180MHz)**



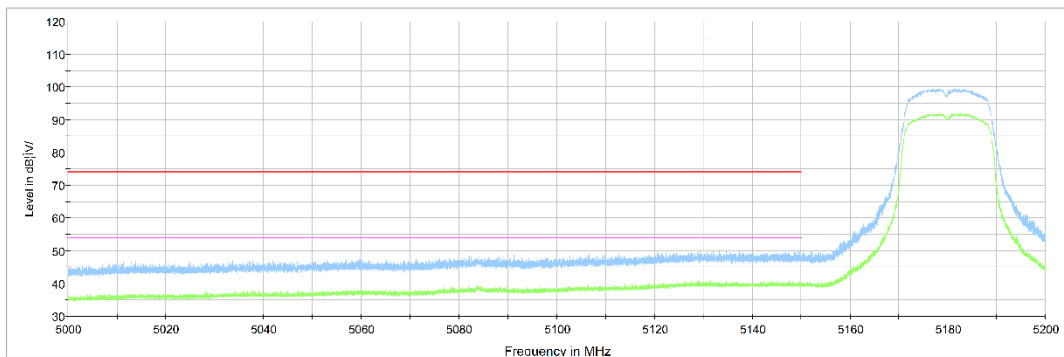
**Fig.35 Band Edges (802.11a, 5320MHz)**



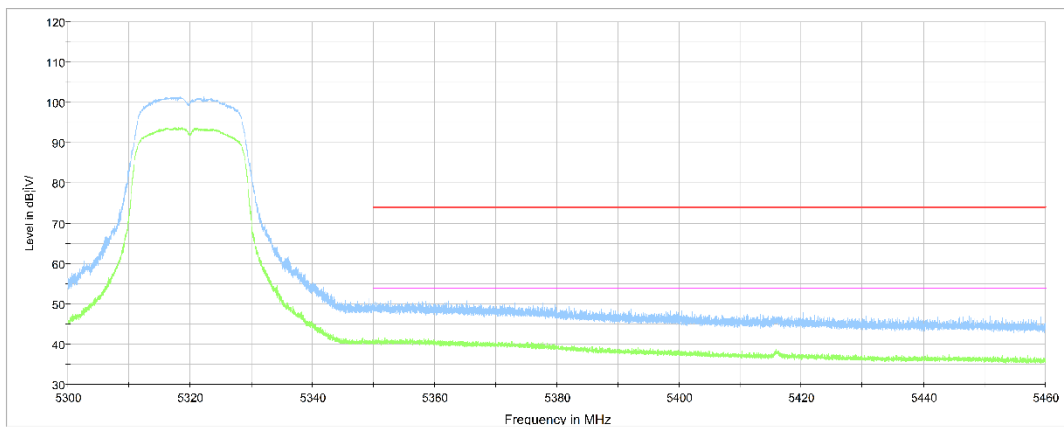
**Fig.36 Band Edges (802.11a, 5500MHz)**



**Fig.37 Band Edges (802.11a, 5700MHz)**

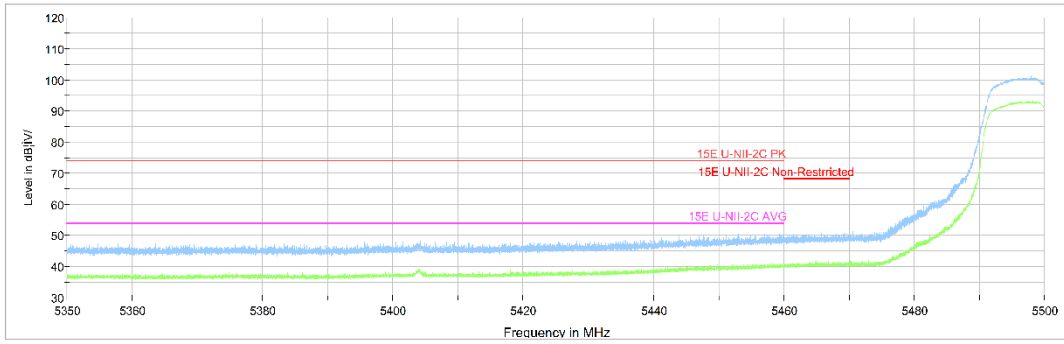


**Fig.38 Band Edges (802.11n-HT20, 5180MHz)**

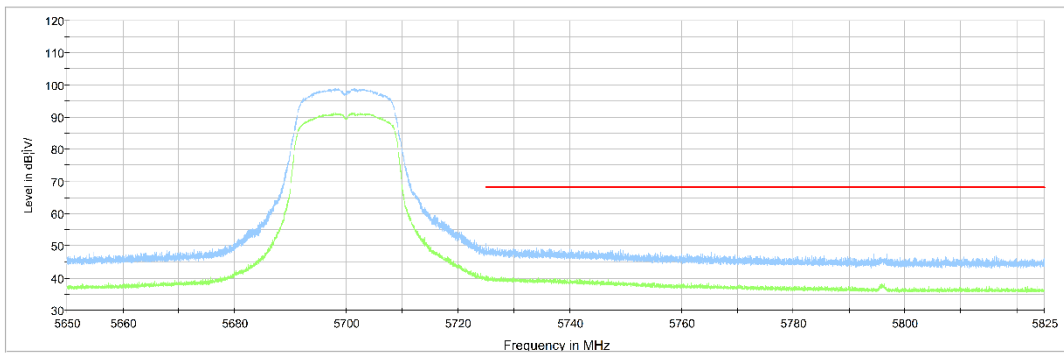


**Fig.39 Band Edges (802.11n-HT20, 5320MHz)**

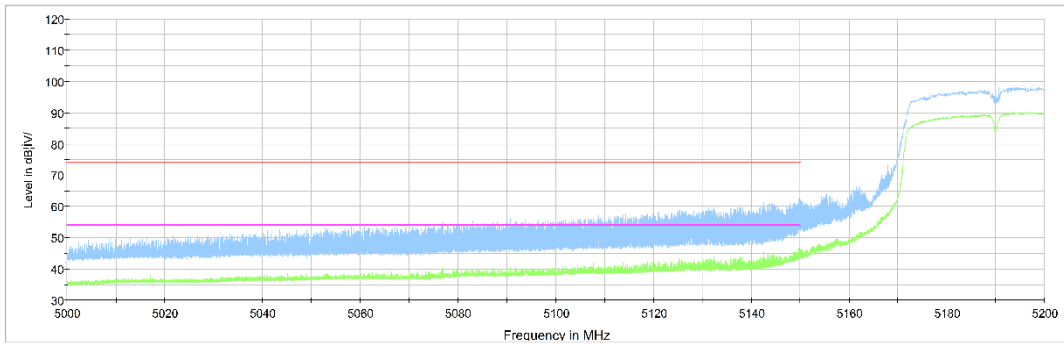




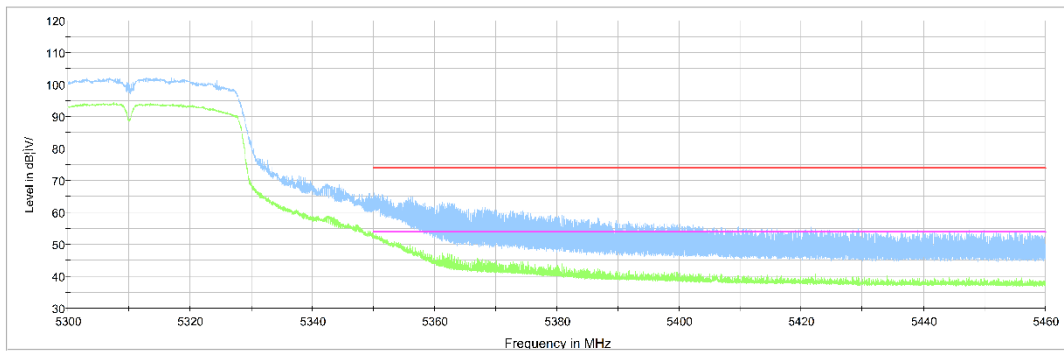
**Fig.40 Band Edges (802.11n-HT20, 5500MHz)**



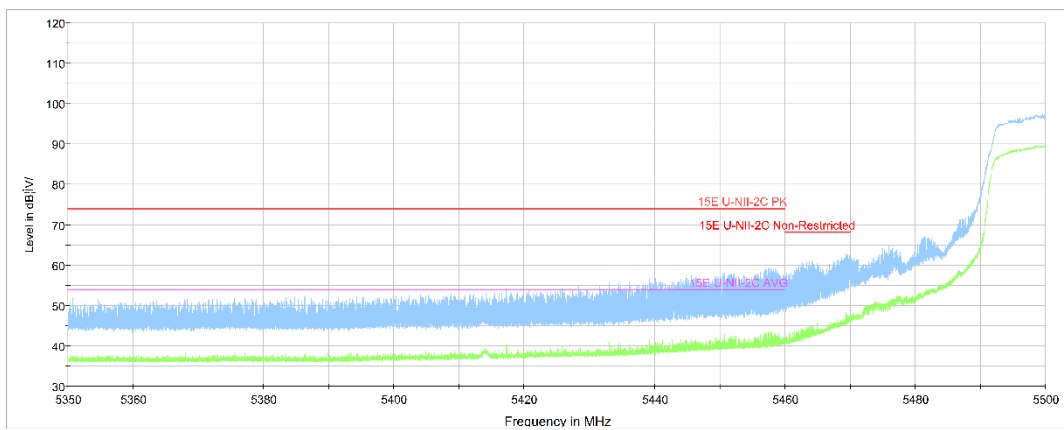
**Fig.41 Band Edges (802.11n-HT20, 5700MHz)**



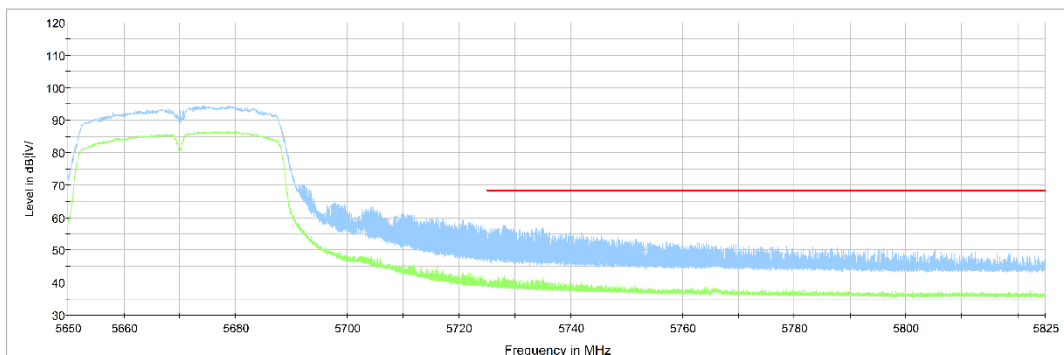
**Fig.42 Band Edges (802.11n-HT40, 5190MHz)**



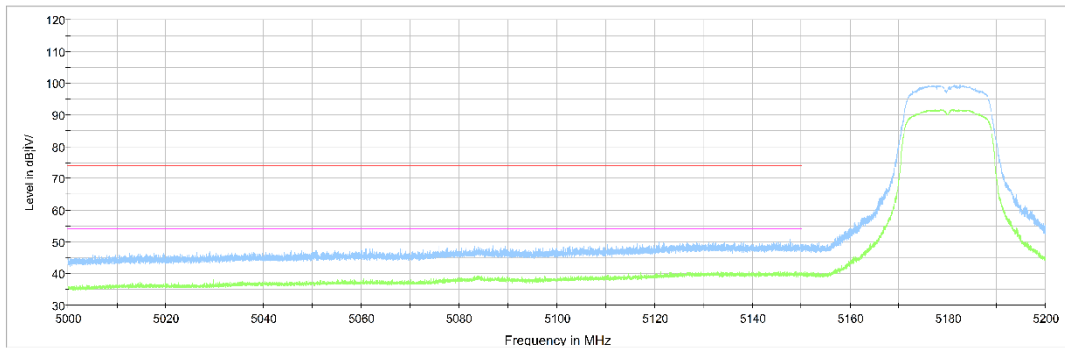
**Fig.43 Band Edges (802.11n-HT40, 5310MHz)**



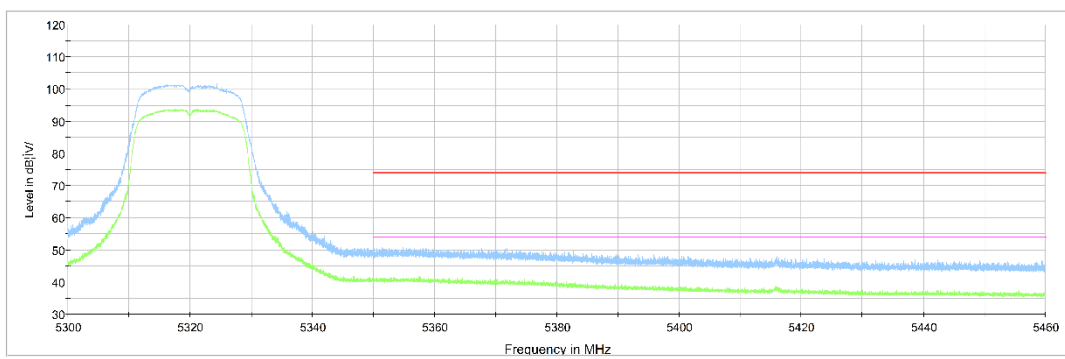
**Fig.44 Band Edges (802.11n-HT40, 5510MHz)**



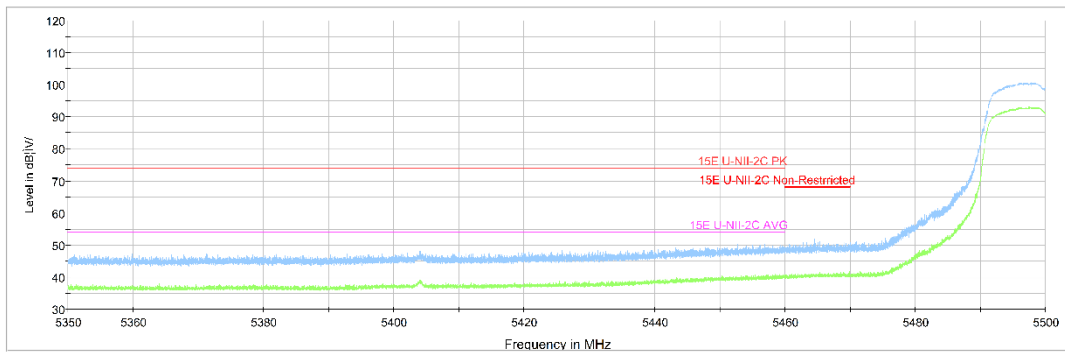
**Fig.45 Band Edges (802.11n-HT40, 5670MHz)**



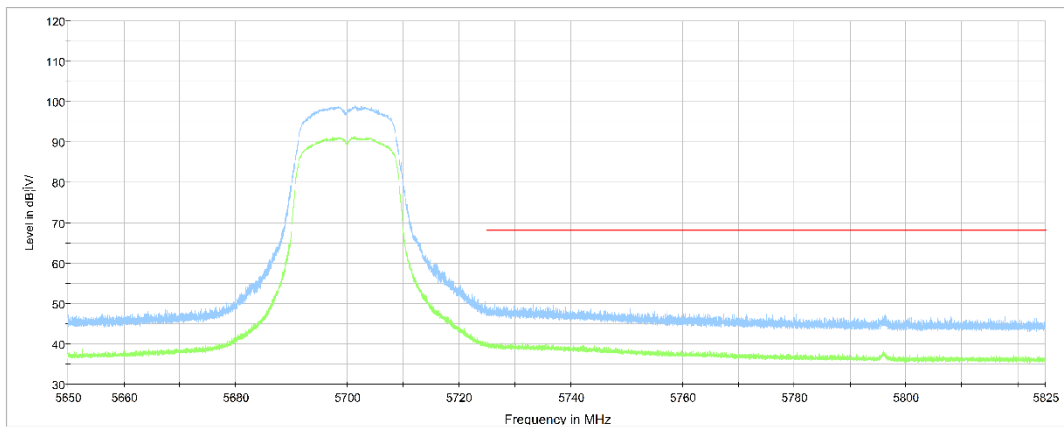
**Fig.46 Band Edges (802.11ac-HT20, 5180MHz)**



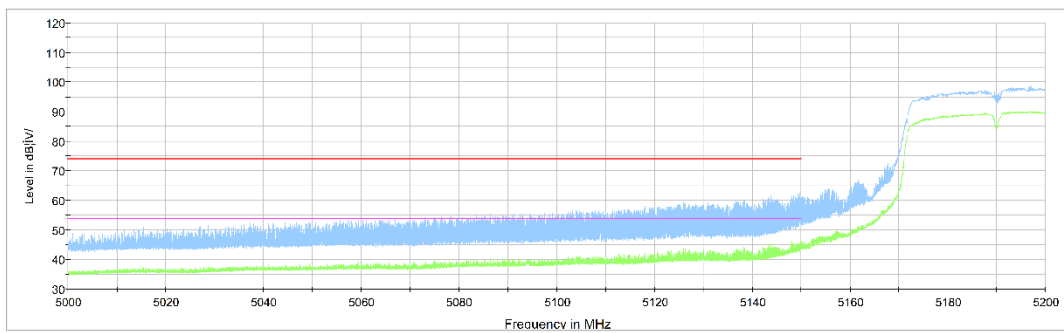
**Fig.47 Band Edges (802.11ac-HT20, 5320MHz)**



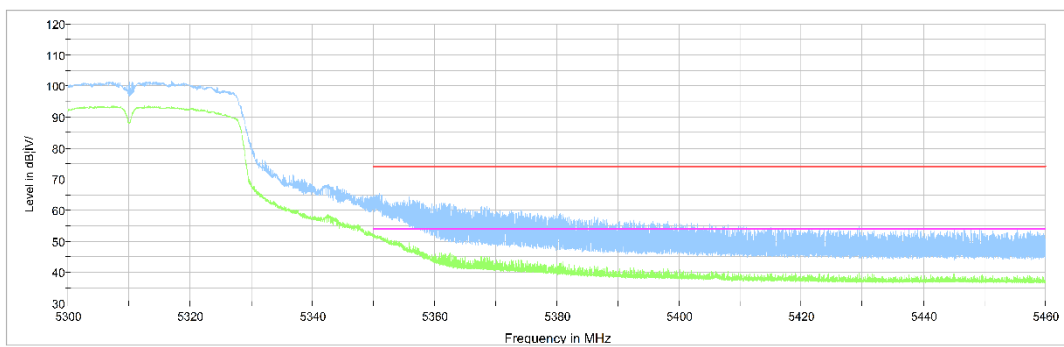
**Fig.48 Band Edges (802.11ac-HT20, 5500MHz)**



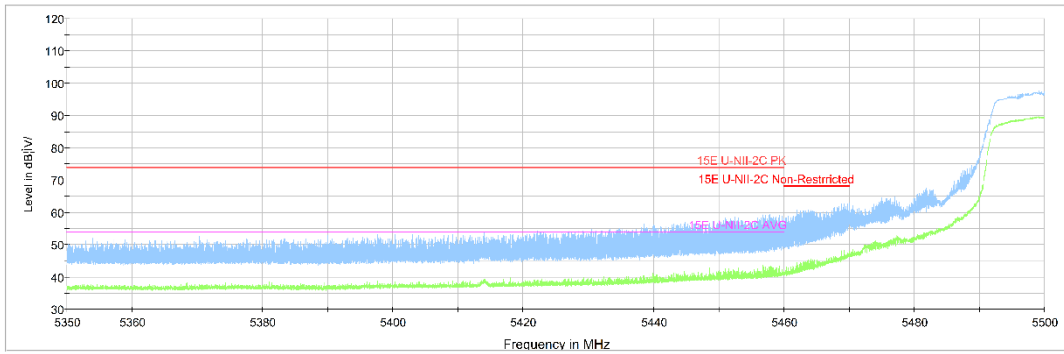
**Fig.49 Band Edges (802.11ac-HT20, 5700MHz)**



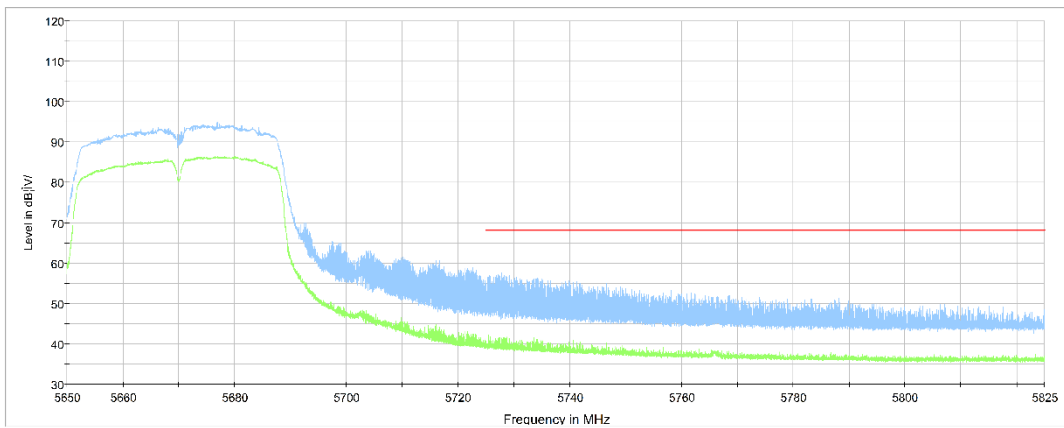
**Fig.50 Band Edges (802.11ac-HT40, 5190MHz)**



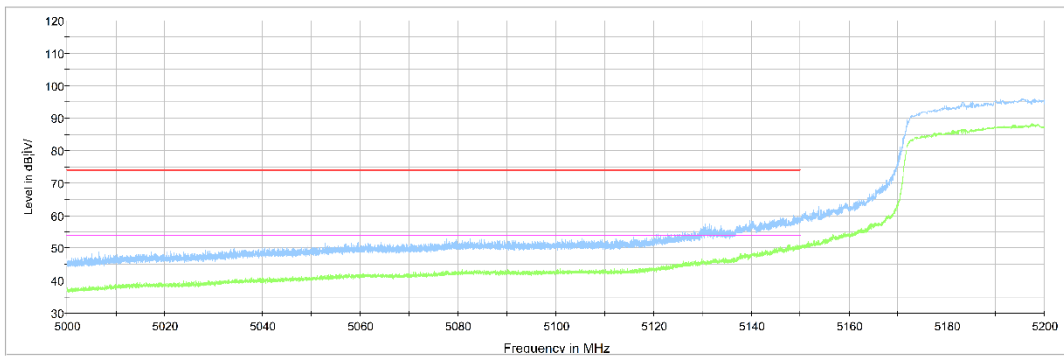
**Fig.51 Band Edges (802.11ac-HT40, 5310MHz)**



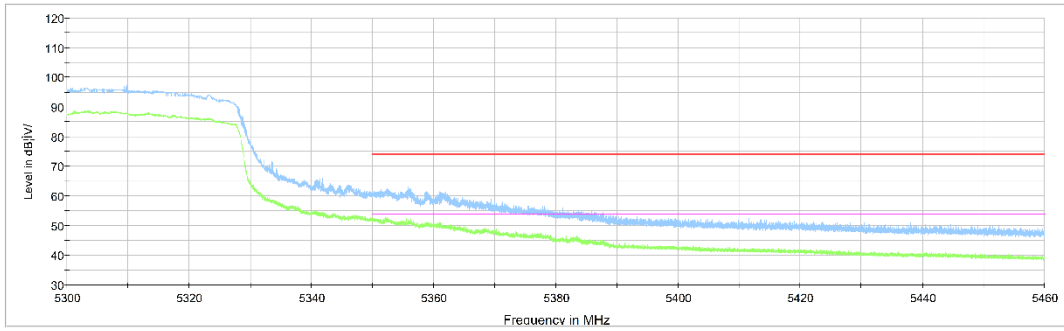
**Fig.52 Band Edges (802.11ac-HT40, 5510MHz)**



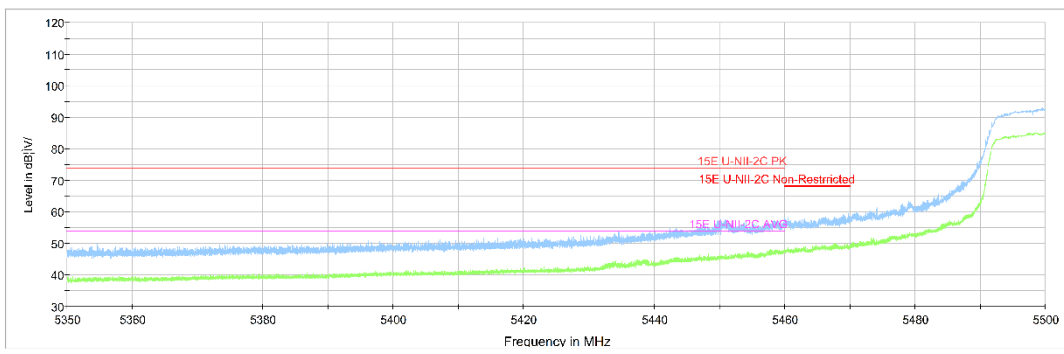
**Fig.53 Band Edges (802.11ac-HT40, 5670MHz)**



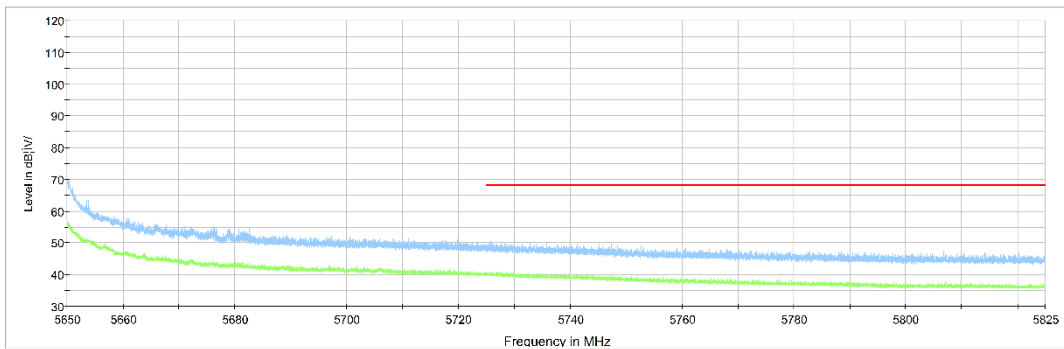
**Fig.54 Band Edges (802.11ac-HT80, 5210MHz)**



**Fig.55 Band Edges (802.11ac-HT80, 5290MHz)**



**Fig.56 Band Edges (802.11ac-HT80, 5530MHz)**



**Fig.57 Band Edges (802.11ac-HT80, 5610MHz)**

## **A.6. Transmitter Spurious Emission**

### **Measurement Limit:**

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

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 uncertainty:**

Expanded measurement uncertainty for this test item is  $U = 3.9\text{dB}$ ,  $k=2$ .

### **Measurement Results:**

**Conclusion: PASS**

### **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= $P_{Mea}+A_{Rpl}= P_{Mea}+Cable\ Loss+Antenna\ Factor$

**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)
17963.150	43.62	-29.59	45.95	27.26	54.00	10.38	V
17973.050	43.37	-29.59	45.95	27.01	54.00	10.63	V
14482.200	38.35	-29.56	41.90	26.01	54.00	15.65	V
14493.200	38.22	-29.56	41.90	25.88	54.00	15.78	V
5133.130	38.14	-27.79	34.00	31.93	54.00	15.86	V
5146.250	38.07	-27.79	34.00	31.86	54.00	15.93	V

## 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)
17984.600	43.50	-29.59	45.95	27.14	54.00	10.50	V
17984.050	43.41	-29.59	45.95	27.05	54.00	10.59	V
14491.000	38.38	-29.56	41.90	26.04	54.00	15.62	V
14499.800	38.38	-29.56	41.90	26.04	54.00	15.62	H
11892.250	35.59	-32.53	39.10	29.02	54.00	18.41	V
11780.050	35.55	-32.71	39.20	29.06	54.00	18.45	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)
17952.700	43.79	-29.59	45.95	27.43	54.00	10.21	H
17954.350	43.28	-29.59	45.95	26.92	54.00	10.72	V
14499.800	38.67	-29.56	41.90	26.33	54.00	15.33	V
14496.500	38.58	-29.56	41.90	26.24	54.00	15.42	V
11776.750	36.01	-32.71	39.20	29.52	54.00	17.99	H
11872.450	35.63	-32.73	39.15	29.21	54.00	18.37	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)
17980.750	43.42	-29.59	45.95	27.06	54.00	10.58	V
17963.150	43.40	-29.59	45.95	27.04	54.00	10.60	V
14490.450	38.90	-29.56	41.90	26.56	54.00	15.10	V
14491.000	38.76	-29.56	41.90	26.42	54.00	15.24	V
11874.100	35.70	-32.73	39.15	29.28	54.00	18.30	V
11767.950	35.60	-32.71	39.20	29.11	54.00	18.40	H

## 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)
17984.050	43.52	-29.59	45.95	27.16	54.00	10.48	H
17960.400	43.48	-29.59	45.95	27.12	54.00	10.52	V
14499.800	38.67	-29.56	41.90	26.33	54.00	15.33	V
14496.500	38.56	-29.56	41.90	26.22	54.00	15.44	H
11892.250	36.17	-32.53	39.10	29.60	54.00	17.83	H
11781.700	35.81	-32.71	39.20	29.32	54.00	18.19	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)
17979.100	43.57	-29.59	45.95	27.21	54.00	10.43	V
17953.800	43.52	-29.59	45.95	27.16	54.00	10.48	V
14495.400	39.02	-29.56	41.90	26.68	54.00	14.98	H
14492.650	38.71	-29.56	41.90	26.37	54.00	15.29	V
5355.688	41.69	-27.82	34.20	35.31	54.00	12.31	V
5357.392	41.67	-27.82	34.20	35.29	54.00	12.33	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)
17980.200	43.12	-29.59	45.95	26.76	54.00	10.88	V
17960.950	43.11	-29.59	45.95	26.75	54.00	10.89	V
7333.300	42.86	-35.06	36.60	41.32	54.00	11.14	V
7332.750	41.90	-35.06	36.60	40.36	54.00	12.10	V
5457.895	40.99	-27.49	34.20	34.28	54.00	13.01	V
5454.280	40.91	-27.49	34.20	34.20	54.00	13.09	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)
17991.750	42.94	-29.59	45.95	26.58	54.00	11.06	H
17996.150	42.93	-29.59	45.95	26.57	54.00	11.07	H
14482.750	37.63	-29.56	41.90	25.29	54.00	16.37	H
14481.650	37.61	-29.56	41.90	25.27	54.00	16.39	V
7466.400	37.04	-35.20	36.50	35.74	54.00	16.96	V
11874.100	34.93	-32.73	39.15	28.51	54.00	19.07	H

## 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)
17987.350	42.85	-29.59	45.95	26.49	54.00	11.15	H
17972.500	42.82	-29.59	45.95	26.46	54.00	11.18	H
14486.600	37.99	-29.56	41.90	25.65	54.00	16.01	H
14487.150	37.79	-29.56	41.90	25.45	54.00	16.21	V
11881.250	34.81	-32.53	39.10	28.24	54.00	19.19	H
11883.450	34.77	-32.53	39.10	28.20	54.00	19.23	H

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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)
17975.800	43.48	-29.59	45.95	27.12	54.00	10.52	H
17981.850	43.46	-29.59	45.95	27.10	54.00	10.54	V
14499.800	38.50	-29.56	41.90	26.16	54.00	15.50	H
14493.750	38.25	-29.56	41.90	25.91	54.00	15.75	V
5131.560	40.96	-27.79	34.00	34.75	54.00	13.04	V
5127.740	40.85	-27.79	34.00	34.64	54.00	13.15	V

## 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)
17969.750	43.38	-29.59	45.95	27.02	54.00	10.62	V
17937.850	43.23	-29.59	45.95	26.87	54.00	10.77	H
14488.250	38.70	-29.56	41.90	26.36	54.00	15.30	H
14495.400	38.32	-29.56	41.90	25.98	54.00	15.68	V
11873.000	35.78	-32.73	39.15	29.36	54.00	18.22	H
11889.500	35.71	-32.53	39.10	29.14	54.00	18.29	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)
17952.150	43.39	-29.59	45.95	27.03	54.00	10.61	V
17976.350	43.31	-29.59	45.95	26.95	54.00	10.69	H
14476.700	38.73	-29.56	41.90	26.39	54.00	15.27	V
14488.800	38.68	-29.56	41.90	26.34	54.00	15.32	V
11881.250	35.66	-32.53	39.10	29.09	54.00	18.34	H
11774.550	35.60	-32.71	39.20	29.11	54.00	18.40	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)
17971.400	43.61	-29.59	45.95	27.25	54.00	10.39	H
17953.800	43.51	-29.59	45.95	27.15	54.00	10.49	H
14499.800	38.88	-29.56	41.90	26.54	54.00	15.12	H
14486.600	38.65	-29.56	41.90	26.31	54.00	15.35	V
11876.850	35.90	-32.73	39.15	29.48	54.00	18.10	V
11887.850	35.67	-32.53	39.10	29.10	54.00	18.33	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)
17982.950	43.44	-29.59	45.95	27.08	54.00	10.56	H
17980.750	43.35	-29.59	45.95	26.99	54.00	10.65	V
14491.550	38.69	-29.56	41.90	26.35	54.00	15.31	V
14491.000	38.62	-29.56	41.90	26.28	54.00	15.38	H
11884.550	35.90	-32.53	39.10	29.33	54.00	18.10	H
11890.600	35.82	-32.53	39.10	29.25	54.00	18.18	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)
17964.250	43.71	-29.59	45.95	27.35	54.00	10.29	V
17962.050	43.54	-29.59	45.95	27.18	54.00	10.46	H
14499.250	39.11	-29.56	41.90	26.77	54.00	14.89	H
14495.400	38.69	-29.56	41.90	26.35	54.00	15.31	V
5350.856	41.69	-27.82	34.20	35.31	54.00	12.31	H
5351.816	41.52	-27.82	34.20	35.14	54.00	12.48	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)
17968.650	43.30	-29.59	45.95	26.94	54.00	10.70	V
17991.750	42.96	-29.59	45.95	26.60	54.00	11.04	H
7332.750	40.98	-35.06	36.60	39.44	54.00	13.02	V
7333.300	40.44	-35.06	36.60	38.90	54.00	13.56	V
5458.113	41.11	-27.49	34.20	34.40	54.00	12.89	V
5459.538	40.87	-27.49	34.20	34.16	54.00	13.13	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)
17967.000	43.21	-29.59	45.95	26.85	54.00	10.79	H
17949.950	43.05	-29.59	45.95	26.69	54.00	10.95	V
14499.800	38.35	-29.56	41.90	26.01	54.00	15.65	H
14497.050	37.93	-29.56	41.90	25.59	54.00	16.07	H
7466.400	36.18	-35.20	36.50	34.88	54.00	17.82	V
11890.050	35.16	-32.53	39.10	28.59	54.00	18.84	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)
17985.150	43.05	-29.59	45.95	26.69	54.00	10.95	H
17959.850	43.03	-29.59	45.95	26.67	54.00	10.97	H
14499.250	37.74	-29.56	41.90	25.40	54.00	16.26	H
14480.000	37.66	-29.56	41.90	25.32	54.00	16.34	V
11827.350	34.98	-32.09	39.20	27.87	54.00	19.02	H
11877.950	34.93	-32.73	39.15	28.51	54.00	19.07	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)
17961.500	43.62	-29.59	45.95	27.26	54.00	10.38	H
17980.200	43.38	-29.59	45.95	27.02	54.00	10.62	H
14499.800	38.68	-29.56	41.90	26.34	54.00	15.32	V
14470.100	38.48	-29.56	41.90	26.14	54.00	15.52	H
5149.660	46.82	-28.00	34.00	40.82	54.00	7.18	H
5149.760	46.72	-28.00	34.00	40.72	54.00	7.28	H

## 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)
17949.400	43.38	-29.59	45.95	27.02	54.00	10.62	V
17963.150	43.37	-29.59	45.95	27.01	54.00	10.63	V
14497.050	38.58	-29.56	41.90	26.24	54.00	15.42	V
14499.250	38.55	-29.56	41.90	26.21	54.00	15.45	H
11775.100	35.70	-32.71	39.20	29.21	54.00	18.30	H
11893.900	35.67	-32.53	39.10	29.10	54.00	18.33	H

## 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)
17987.350	43.63	-29.59	45.95	27.27	54.00	10.37	H
17970.850	43.52	-29.59	45.95	27.16	54.00	10.48	V
14496.500	39.00	-29.56	41.90	26.66	54.00	15.00	V
14494.850	38.91	-29.56	41.90	26.57	54.00	15.09	V
11775.650	35.99	-32.71	39.20	29.50	54.00	18.01	V
11776.200	35.97	-32.71	39.20	29.48	54.00	18.03	H

## 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)
17957.650	43.63	-29.59	45.95	27.27	54.00	10.37	V
17985.700	43.60	-29.59	45.95	27.24	54.00	10.40	V
14498.700	38.95	-29.56	41.90	26.61	54.00	15.05	V
14494.300	38.78	-29.56	41.90	26.44	54.00	15.22	V
5350.440	53.18	-27.82	34.20	46.80	54.00	0.82	V
5350.080	52.65	-27.82	34.20	46.27	54.00	1.35	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)
17993.400	43.25	-29.59	45.95	26.89	54.00	10.75	H
17942.250	42.94	-29.59	45.95	26.58	54.00	11.06	H
7346.500	41.36	-35.06	36.60	39.82	54.00	12.64	V
7345.950	40.00	-35.06	36.60	38.46	54.00	14.00	V
5456.710	43.53	-27.49	34.20	36.82	54.00	10.47	V
5457.955	43.52	-27.49	34.20	36.81	54.00	10.48	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)
17994.500	43.10	-29.59	45.95	26.74	54.00	10.90	H
17996.150	43.05	-29.59	45.95	26.69	54.00	10.95	H
14498.150	38.30	-29.56	41.90	25.96	54.00	15.70	V
14480.550	38.00	-29.56	41.90	25.66	54.00	16.00	H
7453.200	37.45	-35.20	36.50	36.15	54.00	16.55	V
11767.950	35.70	-32.71	39.20	29.21	54.00	18.30	V

## Channel 134

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)
17986.250	43.18	-29.59	45.95	26.82	54.00	10.82	V
17958.200	43.12	-29.59	45.95	26.76	54.00	10.88	H
14493.200	38.37	-29.56	41.90	26.03	54.00	15.63	H
14497.050	38.10	-29.56	41.90	25.76	54.00	15.90	H
11862.550	35.49	-32.73	39.15	29.07	54.00	18.51	H
11877.400	35.48	-32.73	39.15	29.06	54.00	18.52	H

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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)
17965.900	43.23	-29.59	45.95	26.87	54.00	10.77	V
17988.450	43.16	-29.59	45.95	26.80	54.00	10.84	V
14492.650	38.44	-29.56	41.90	26.10	54.00	15.56	H
14497.600	38.37	-29.56	41.90	26.03	54.00	15.63	V
5145.390	40.75	-27.79	34.00	34.54	54.00	13.25	V
5146.710	40.75	-27.79	34.00	34.54	54.00	13.25	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)
17954.350	43.54	-29.59	45.95	27.18	54.00	10.46	V
17968.650	43.34	-29.59	45.95	26.98	54.00	10.66	H
14498.700	38.24	-29.56	41.90	25.90	54.00	15.76	V
14491.550	38.15	-29.56	41.90	25.81	54.00	15.85	H
11785.000	35.93	-32.09	39.20	28.82	54.00	18.07	V
11866.950	35.88	-32.73	39.15	29.46	54.00	18.12	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)
17967.550	43.57	-29.59	45.95	27.21	54.00	10.43	V
17974.700	43.42	-29.59	45.95	27.06	54.00	10.58	H
14491.000	38.66	-29.56	41.90	26.32	54.00	15.34	V
14481.650	38.48	-29.56	41.90	26.14	54.00	15.52	H
11788.300	35.67	-32.09	39.20	28.56	54.00	18.33	V
11892.800	35.66	-32.53	39.10	29.09	54.00	18.34	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)
17965.900	43.60	-29.59	45.95	27.24	54.00	10.40	V
17973.050	43.37	-29.59	45.95	27.01	54.00	10.63	H
14498.700	38.67	-29.56	41.90	26.33	54.00	15.33	H
14497.600	38.65	-29.56	41.90	26.31	54.00	15.35	H
11781.700	35.97	-32.71	39.20	29.48	54.00	18.03	V
11888.950	35.88	-32.53	39.10	29.31	54.00	18.12	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)
17974.150	43.89	-29.59	45.95	27.53	54.00	10.11	V
17960.400	43.40	-29.59	45.95	27.04	54.00	10.60	V
14491.550	38.68	-29.56	41.90	26.34	54.00	15.32	H
14487.150	38.66	-29.56	41.90	26.32	54.00	15.34	V
11890.600	36.21	-32.53	39.10	29.64	54.00	17.79	H
11894.450	36.12	-32.53	39.10	29.55	54.00	17.88	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)
17978.550	43.61	-29.59	45.95	27.25	54.00	10.39	V
17974.700	43.40	-29.59	45.95	27.04	54.00	10.60	V
14498.150	39.40	-29.56	41.90	27.06	54.00	14.60	H
14496.500	38.68	-29.56	41.90	26.34	54.00	15.32	H
5357.424	41.70	-27.82	34.20	35.32	54.00	12.30	H
5357.568	41.69	-27.82	34.20	35.31	54.00	12.31	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)
17982.950	43.09	-29.59	45.95	26.73	54.00	10.91	H
17987.900	43.08	-29.59	45.95	26.72	54.00	10.92	V
7332.750	41.37	-35.06	36.60	39.83	54.00	12.63	V
7333.300	40.72	-35.06	36.60	39.18	54.00	13.28	V
5459.800	40.86	-27.49	34.20	34.15	54.00	13.14	H
5459.230	40.85	-27.49	34.20	34.14	54.00	13.15	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)
17967.000	42.98	-29.59	45.95	26.62	54.00	11.02	H
17966.450	42.91	-29.59	45.95	26.55	54.00	11.09	H
14486.050	38.05	-29.56	41.90	25.71	54.00	15.95	H
14496.500	38.05	-29.56	41.90	25.71	54.00	15.95	H
7466.400	36.60	-35.20	36.50	35.30	54.00	17.40	H
11892.250	35.22	-32.53	39.10	28.65	54.00	18.78	H

## 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)
17985.150	43.15	-29.59	45.95	26.79	54.00	10.85	H
17969.750	43.12	-29.59	45.95	26.76	54.00	10.88	V
14482.750	37.68	-29.56	41.90	25.34	54.00	16.32	H
14486.600	37.66	-29.56	41.90	25.32	54.00	16.34	V
11892.800	35.06	-32.53	39.10	28.49	54.00	18.94	V
11845.500	34.82	-32.73	39.15	28.40	54.00	19.18	H

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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)
17958.750	43.42	-29.59	45.95	27.06	54.00	10.58	V
17965.350	43.39	-29.59	45.95	27.03	54.00	10.61	H
14495.400	38.52	-29.56	41.90	26.18	54.00	15.48	V
14495.950	38.48	-29.56	41.90	26.14	54.00	15.52	V
5148.070	46.08	-27.79	34.00	39.87	54.00	7.92	H
5149.380	45.73	-28.00	34.00	39.73	54.00	8.27	H

## 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)
17979.100	43.55	-29.59	45.95	27.19	54.00	10.45	V
17953.800	43.49	-29.59	45.95	27.13	54.00	10.51	H
14486.600	38.68	-29.56	41.90	26.34	54.00	15.32	H
14493.750	38.55	-29.56	41.90	26.21	54.00	15.45	V
11891.700	36.24	-32.53	39.10	29.67	54.00	17.76	V
11781.150	35.72	-32.71	39.20	29.23	54.00	18.28	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)
17968.650	43.61	-29.59	45.95	27.25	54.00	10.39	V
17970.850	43.52	-29.59	45.95	27.16	54.00	10.48	V
14480.550	38.67	-29.56	41.90	26.33	54.00	15.33	V
14488.800	38.63	-29.56	41.90	26.29	54.00	15.37	V
11783.350	35.89	-32.09	39.20	28.78	54.00	18.11	V
11884.550	35.83	-32.53	39.10	29.26	54.00	18.17	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)
17986.250	43.59	-29.59	45.95	27.23	54.00	10.41	H
17961.500	43.58	-29.59	45.95	27.22	54.00	10.42	V
14498.150	38.99	-29.56	41.90	26.65	54.00	15.01	V
14494.300	38.71	-29.56	41.90	26.37	54.00	15.29	H
5350.064	52.12	-27.82	34.20	45.74	54.00	1.88	V
5350.024	52.07	-27.82	34.20	45.69	54.00	1.93	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)
17966.450	43.32	-29.59	45.95	26.96	54.00	10.68	V
17976.900	43.12	-29.59	45.95	26.76	54.00	10.88	V
7346.500	41.80	-35.06	36.60	40.26	54.00	12.20	V
7345.950	40.37	-35.06	36.60	38.83	54.00	13.63	V
5456.875	43.87	-27.49	34.20	37.16	54.00	10.13	H
5458.007	43.33	-27.49	34.20	36.62	54.00	10.67	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)
17961.500	43.17	-29.59	45.95	26.81	54.00	10.83	V
17986.250	43.01	-29.59	45.95	26.65	54.00	10.99	H
14499.800	38.31	-29.56	41.90	25.97	54.00	15.69	H
14489.350	38.20	-29.56	41.90	25.86	54.00	15.80	V
7453.200	37.71	-35.20	36.50	36.41	54.00	16.29	V
7452.650	36.84	-35.20	36.50	35.54	54.00	17.16	H

## Channel 134

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)
17971.400	43.09	-29.59	45.95	26.73	54.00	10.91	H
17975.250	43.08	-29.59	45.95	26.72	54.00	10.92	H
14492.100	38.14	-29.56	41.90	25.80	54.00	15.86	H
14481.100	38.13	-29.56	41.90	25.79	54.00	15.87	H
11860.350	35.49	-32.73	39.15	29.07	54.00	18.51	V
11849.900	35.48	-32.73	39.15	29.06	54.00	18.52	V

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## Channel 42

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)
17966.450	44.06	-29.59	45.95	27.70	54.00	9.94	H
17963.150	43.57	-29.59	45.95	27.21	54.00	10.43	V
14492.100	38.80	-29.56	41.90	26.46	54.00	15.20	H
14499.800	38.74	-29.56	41.90	26.40	54.00	15.26	V
11778.950	35.87	-32.71	39.20	29.38	54.00	18.13	H
11862.550	35.87	-32.73	39.15	29.45	54.00	18.13	H

## Channel 58

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)
17989.550	43.60	-29.59	45.95	27.24	54.00	10.40	H
17977.450	43.59	-29.59	45.95	27.23	54.00	10.41	V
14492.100	38.68	-29.56	41.90	26.34	54.00	15.32	H
14489.900	38.62	-29.56	41.90	26.28	54.00	15.38	V
5352.416	52.70	-27.82	34.20	46.32	54.00	1.30	H
5352.216	52.64	-27.82	34.20	46.26	54.00	1.36	V

## Channel 106

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)
17981.300	43.24	-29.59	45.95	26.88	54.00	10.76	V
17958.750	43.21	-29.59	45.95	26.85	54.00	10.79	H
7372.900	41.77	-35.06	36.60	40.23	54.00	12.23	V
7373.450	39.67	-35.06	36.60	38.13	54.00	14.33	V
5457.932	48.18	-27.49	34.20	41.47	54.00	5.82	H
5459.950	48.03	-27.49	34.20	41.32	54.00	5.97	V

## Channel 122

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)
17956.550	43.47	-29.59	45.95	27.11	54.00	10.53	H
17976.900	43.13	-29.59	45.95	26.77	54.00	10.87	H
14499.250	38.38	-29.56	41.90	26.04	54.00	15.62	H
14477.250	38.29	-29.56	41.90	25.95	54.00	15.71	V
7479.600	35.89	-35.32	36.40	34.81	54.00	18.11	H
11847.700	35.48	-32.73	39.15	29.06	54.00	18.52	H

**PEAK 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)
17962.050	54.50	-29.59	45.95	38.14	74.00	19.50	V
17949.950	54.14	-29.59	45.95	37.78	74.00	19.86	V
14582.300	50.60	-29.14	41.90	37.84	68.20	17.60	V
14561.400	50.57	-29.14	41.90	37.81	68.20	17.63	V
5031.220	47.51	-27.96	33.70	41.77	74.00	26.49	V
5123.220	47.37	-27.79	34.00	41.16	74.00	26.63	V

## 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)
17960.400	54.29	-29.59	45.95	37.93	74.00	19.71	V
17970.300	54.28	-29.59	45.95	37.92	74.00	19.72	V
14553.150	50.15	-30.55	41.90	38.80	68.20	18.05	H
14672.500	50.12	-30.04	41.50	38.66	68.20	18.08	V
11799.300	46.63	-32.09	39.20	39.52	74.00	27.37	H
11890.600	46.54	-32.53	39.10	39.97	74.00	27.46	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)
17953.800	54.70	-29.59	45.95	38.34	74.00	19.30	V
17936.200	54.32	-29.59	45.95	37.96	74.00	19.68	H
14584.500	50.79	-29.14	41.90	38.03	68.20	17.41	H
14590.550	50.59	-29.14	41.90	37.83	68.20	17.61	V
8738.550	46.63	-34.52	37.90	43.25	68.20	21.57	H
11908.200	46.51	-32.53	39.10	39.94	74.00	27.49	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)
17886.700	54.58	-29.59	45.95	38.22	74.00	19.42	H
17930.150	54.29	-29.59	45.95	37.93	74.00	19.71	V
14219.850	50.60	-30.75	41.75	39.60	68.20	17.60	V
7012.650	50.58	-34.94	35.30	50.22	68.20	17.62	V
14559.750	50.53	-29.14	41.90	37.77	68.20	17.67	H
7013.200	50.30	-34.94	35.30	49.94	68.20	17.90	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)
17952.700	54.91	-29.59	45.95	38.55	74.00	19.09	V
17899.900	54.42	-29.59	45.95	38.06	74.00	19.58	H
7039.600	50.83	-34.40	35.50	49.73	68.20	17.37	V
14543.250	50.42	-30.55	41.90	39.07	68.20	17.78	H
14599.900	50.39	-29.14	41.90	37.63	68.20	17.81	H
7040.150	50.00	-34.40	35.50	48.90	68.20	18.20	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)
17974.150	54.54	-29.59	45.95	38.18	74.00	19.46	H
17997.250	54.23	-29.59	45.95	37.87	74.00	19.77	V
7092.950	50.89	-34.95	35.70	50.14	68.20	17.31	V
14680.200	50.70	-30.04	41.50	39.24	68.20	17.50	V
5356.688	51.01	-27.82	34.20	44.63	74.00	22.99	H
5352.160	51.00	-27.82	34.20	44.62	74.00	23.00	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)
17972.500	54.87	-29.59	45.95	38.51	74.00	19.13	V
17961.500	54.01	-29.59	45.95	37.65	74.00	19.99	H
14555.900	50.32	-29.14	41.90	37.56	68.20	17.88	V
14583.400	50.00	-29.14	41.90	37.24	68.20	18.20	V
5455.870	51.08	-27.49	34.20	44.37	74.00	22.92	V
5462.627	51.32	-27.49	34.20	44.61	68.20	16.88	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)
17948.300	53.97	-29.59	45.95	37.61	74.00	20.03	H
17947.750	53.91	-29.59	45.95	37.55	74.00	20.09	V
14591.100	49.93	-29.14	41.90	37.17	68.20	18.27	H
14151.100	49.89	-30.93	41.70	39.11	68.20	18.31	V
11934.050	45.72	-32.42	39.05	39.09	74.00	28.28	V
11926.900	45.60	-32.53	39.10	39.03	74.00	28.40	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)
17972.500	53.89	-29.59	45.95	37.53	74.00	20.11	H
17987.350	53.77	-29.59	45.95	37.41	74.00	20.23	H
14691.750	49.97	-30.04	41.50	38.51	68.20	18.23	V
14563.050	49.96	-29.14	41.90	37.20	68.20	18.24	V
5727.726	50.54	-27.47	34.10	43.91	68.20	17.66	H
5727.087	50.10	-27.47	34.10	43.47	68.20	18.10	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)
17972.500	54.37	-29.59	45.95	38.01	74.00	19.63	V
17954.350	54.17	-29.59	45.95	37.81	74.00	19.83	H
14526.200	50.57	-30.55	41.90	39.22	68.20	17.63	V
14121.400	50.31	-30.93	41.70	39.53	68.20	17.89	H
5140.320	50.08	-27.79	34.00	43.87	74.00	23.92	V
5126.540	49.97	-27.79	34.00	43.76	74.00	24.03	V

## 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)
17971.950	54.09	-29.59	45.95	37.73	74.00	19.91	V
17977.450	53.98	-29.59	45.95	37.62	74.00	20.02	H
14554.800	50.37	-29.14	41.90	37.61	68.20	17.83	H
14580.100	50.30	-29.14	41.90	37.54	68.20	17.90	H
11878.500	47.05	-32.73	39.15	40.63	74.00	26.95	V
8713.800	46.56	-34.52	37.90	43.18	68.20	21.64	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)
17957.650	54.11	-29.59	45.95	37.75	74.00	19.89	V
17967.000	54.06	-29.59	45.95	37.70	74.00	19.94	V
14678.000	50.97	-30.04	41.50	39.51	68.20	17.23	H
14594.400	50.65	-29.14	41.90	37.89	68.20	17.55	V
11792.150	46.95	-32.09	39.20	39.84	74.00	27.05	H
11789.400	46.43	-32.09	39.20	39.32	74.00	27.57	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)
17949.950	54.63	-29.59	45.95	38.27	74.00	19.37	V
17924.650	54.33	-29.59	45.95	37.97	74.00	19.67	H
7013.200	51.16	-34.94	35.30	50.80	68.20	17.04	V
14581.750	50.69	-29.14	41.90	37.93	68.20	17.51	V
14481.100	50.66	-29.56	41.90	38.32	74.00	23.34	H
7012.650	50.11	-34.94	35.30	49.75	68.20	18.09	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)
17964.800	54.30	-29.59	45.95	37.94	74.00	19.70	V
17995.050	54.00	-29.59	45.95	37.64	74.00	20.00	H
7039.600	50.82	-34.40	35.50	49.72	68.20	17.38	V
14574.050	50.56	-29.14	41.90	37.80	68.20	17.64	H
14571.850	50.55	-29.14	41.90	37.79	68.20	17.65	V
7040.150	49.94	-34.40	35.50	48.84	68.20	18.26	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)
17969.750	54.83	-29.59	45.95	38.47	74.00	19.17	V
17849.300	54.19	-29.59	45.95	37.83	74.00	19.81	H
7092.950	50.89	-34.95	35.70	50.14	68.20	17.31	V
14546.000	50.77	-30.55	41.90	39.42	68.20	17.43	V
5350.312	50.96	-27.82	34.20	44.58	74.00	23.04	V
5352.856	50.91	-27.82	34.20	44.53	74.00	23.09	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)
17972.500	54.06	-29.59	45.95	37.70	74.00	19.94	V
17926.300	53.92	-29.59	45.95	37.56	74.00	20.08	V
14574.600	50.26	-29.14	41.90	37.50	68.20	17.94	H
14572.950	50.18	-29.14	41.90	37.42	68.20	18.02	H
5453.065	50.64	-27.49	34.20	43.93	74.00	23.36	H
5465.733	50.77	-27.49	34.20	44.06	68.20	17.43	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)
17939.500	54.18	-29.59	45.95	37.82	74.00	19.82	H
17921.900	53.91	-29.59	45.95	37.55	74.00	20.09	V
14695.050	49.99	-30.04	41.50	38.53	68.20	18.21	V
14690.650	49.91	-30.04	41.50	38.45	68.20	18.29	V
11814.150	46.88	-32.09	39.20	39.77	74.00	27.12	H
11792.150	45.75	-32.09	39.20	38.64	74.00	28.25	H

## 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)
17944.450	54.52	-29.59	45.95	38.16	74.00	19.48	H
17952.150	54.08	-29.59	45.95	37.72	74.00	19.92	V
14202.250	50.02	-30.42	41.70	38.74	68.20	18.18	V
14587.250	49.55	-29.14	41.90	36.79	68.20	18.65	H
5725.031	50.63	-27.47	34.10	44.00	68.20	17.57	V
5725.451	49.74	-27.47	34.10	43.11	68.20	18.46	H

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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)
17958.750	54.82	-29.59	45.95	38.46	74.00	19.18	H
17957.100	54.78	-29.59	45.95	38.42	74.00	19.22	H
14583.400	50.94	-29.14	41.90	38.18	68.20	17.26	V
14608.150	50.90	-30.67	41.70	39.87	68.20	17.30	V
5149.760	62.84	-28.00	34.00	56.84	74.00	11.16	H
5149.660	62.49	-28.00	34.00	56.49	74.00	11.51	H

## 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)
17981.850	54.45	-29.59	45.95	38.09	74.00	19.55	H
17964.800	54.37	-29.59	45.95	38.01	74.00	19.63	V
14673.050	51.27	-30.04	41.50	39.81	68.20	16.93	H
14588.350	50.46	-29.14	41.90	37.70	68.20	17.74	H
11792.150	46.69	-32.09	39.20	39.58	74.00	27.31	H
11778.950	46.52	-32.71	39.20	40.03	74.00	27.48	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)
17967.550	55.16	-29.59	45.95	38.80	74.00	18.84	V
17992.300	54.44	-29.59	45.95	38.08	74.00	19.56	V
14515.750	51.07	-30.55	41.90	39.72	68.20	17.13	V
14713.750	50.68	-30.13	41.35	39.46	68.20	17.52	V
11888.950	47.69	-32.53	39.10	41.12	74.00	26.31	H
11873.550	47.10	-32.73	39.15	40.68	74.00	26.90	H

## 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)
17915.300	54.61	-29.59	45.95	38.25	74.00	19.39	V
17972.500	54.43	-29.59	45.95	38.07	74.00	19.57	V
14107.650	50.69	-30.20	41.70	39.19	68.20	17.51	V
7079.750	50.64	-34.95	35.70	49.89	68.20	17.56	V
5350.112	66.09	-27.82	34.20	59.71	74.00	7.91	V
5351.464	65.83	-27.82	34.20	59.45	74.00	8.17	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)
17931.800	53.61	-29.59	45.95	37.25	74.00	20.39	V
17898.800	53.60	-29.59	45.95	37.24	74.00	20.40	V
14085.100	50.35	-30.20	41.70	38.85	68.20	17.85	V
14606.500	50.11	-30.67	41.70	39.08	68.20	18.09	V
5457.602	59.40	-27.49	34.20	52.69	74.00	14.60	V
5469.340	62.91	-27.49	34.20	56.20	68.20	5.29	V

## 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)
17953.250	54.53	-29.59	45.95	38.17	74.00	19.47	H
17795.400	54.35	-29.59	45.95	37.99	74.00	19.65	H
14575.700	50.68	-29.14	41.90	37.92	68.20	17.52	V
14190.700	50.27	-30.42	41.70	38.99	68.20	17.93	H
11818.000	46.38	-32.09	39.20	39.27	74.00	27.62	V
11818.550	46.33	-32.09	39.20	39.22	74.00	27.67	V

## Channel 134

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)
17987.900	54.15	-29.59	45.95	37.79	74.00	19.85	V
17953.800	54.09	-29.59	45.95	37.73	74.00	19.91	V
14580.100	50.22	-29.14	41.90	37.46	68.20	17.98	V
14592.200	50.13	-29.14	41.90	37.37	68.20	18.07	H
5727.954	57.78	-27.47	34.10	51.15	68.20	10.42	V
5728.111	57.51	-27.47	34.10	50.88	68.20	10.69	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)
17981.850	54.61	-29.59	45.95	38.25	74.00	19.39	V
17984.050	54.47	-29.59	45.95	38.11	74.00	19.53	V
14099.400	50.32	-30.20	41.70	38.82	68.20	17.88	V
14576.800	50.16	-29.14	41.90	37.40	68.20	18.04	H
5147.680	50.76	-27.79	34.00	44.55	74.00	23.24	H
5138.160	50.21	-27.79	34.00	44.00	74.00	23.79	V

## 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)
17943.350	54.32	-29.59	45.95	37.96	74.00	19.68	V
17983.500	54.17	-29.59	45.95	37.81	74.00	19.83	H
14584.500	50.85	-29.14	41.90	38.09	68.20	17.35	H
14656.000	50.42	-30.04	41.50	38.96	68.20	17.78	V
11267.450	46.58	-32.99	38.65	40.92	74.00	27.42	H
11788.300	46.55	-32.09	39.20	39.44	74.00	27.45	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)
17964.800	54.14	-29.59	45.95	37.78	74.00	19.86	H
17965.350	54.13	-29.59	45.95	37.77	74.00	19.87	V
14561.400	51.07	-29.14	41.90	38.31	68.20	17.13	H
14588.900	50.91	-29.14	41.90	38.15	68.20	17.29	H
9992.550	46.70	-34.00	37.95	42.75	68.20	21.50	V
11463.800	46.56	-33.09	39.05	40.60	74.00	27.44	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)
17997.250	54.73	-29.59	45.95	38.37	74.00	19.27	H
17934.000	54.03	-29.59	45.95	37.67	74.00	19.97	H
14594.950	51.37	-29.14	41.90	38.61	68.20	16.83	V
14538.850	51.11	-30.55	41.90	39.76	68.20	17.09	H
7013.200	50.78	-34.94	35.30	50.42	68.20	17.42	V
7012.650	50.21	-34.94	35.30	49.85	68.20	17.99	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)
17952.700	54.87	-29.59	45.95	38.51	74.00	19.13	V
17966.450	54.64	-29.59	45.95	38.28	74.00	19.36	H
7039.600	51.04	-34.40	35.50	49.94	68.20	17.16	V
14535.550	50.71	-30.55	41.90	39.36	68.20	17.49	V
14597.150	50.69	-29.14	41.90	37.93	68.20	17.51	H
7040.150	50.50	-34.40	35.50	49.40	68.20	17.70	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)
17864.150	54.24	-29.59	45.95	37.88	74.00	19.76	V
17975.250	54.10	-29.59	45.95	37.74	74.00	19.90	V
14564.700	50.73	-29.14	41.90	37.97	68.20	17.47	H
14583.950	50.46	-29.14	41.90	37.70	68.20	17.74	V
5354.880	50.84	-27.82	34.20	44.46	74.00	23.16	V
5351.536	50.80	-27.82	34.20	44.42	74.00	23.20	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)
17943.350	53.59	-29.59	45.95	37.23	74.00	20.41	H
17972.500	53.49	-29.59	45.95	37.13	74.00	20.51	V
14581.750	50.81	-29.14	41.90	38.05	68.20	17.39	H
14594.400	50.72	-29.14	41.90	37.96	68.20	17.48	H
5451.070	50.16	-27.49	34.20	43.45	74.00	23.84	H
5464.630	51.86	-27.49	34.20	45.15	68.20	16.34	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)
17941.150	54.07	-29.59	45.95	37.71	74.00	19.93	V
17930.700	54.06	-29.59	45.95	37.70	74.00	19.94	H
14191.250	49.97	-30.42	41.70	38.69	68.20	18.23	V
14541.050	49.94	-30.55	41.90	38.59	68.20	18.26	V
11833.400	46.23	-32.73	39.15	39.81	74.00	27.77	H
11899.950	46.09	-32.53	39.10	39.52	74.00	27.91	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)
17974.700	53.92	-29.59	45.95	37.56	74.00	20.08	H
17991.200	53.76	-29.59	45.95	37.40	74.00	20.24	H
14583.400	50.10	-29.14	41.90	37.34	68.20	18.10	H
14542.150	49.91	-30.55	41.90	38.56	68.20	18.29	V
5726.449	49.71	-27.47	34.10	43.08	68.20	18.49	H
5733.326	49.71	-27.47	34.10	43.08	68.20	18.49	H

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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)
17983.500	54.55	-29.59	45.95	38.19	74.00	19.45	V
17977.450	54.28	-29.59	45.95	37.92	74.00	19.72	H
14696.700	50.57	-30.04	41.50	39.11	68.20	17.63	H
14586.150	50.39	-29.14	41.90	37.63	68.20	17.81	V
5149.690	62.24	-28.00	34.00	56.24	74.00	11.76	H
5149.390	62.02	-28.00	34.00	56.02	74.00	11.98	H

## 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)
17959.300	55.12	-29.59	45.95	38.76	74.00	18.88	V
17980.750	54.79	-29.59	45.95	38.43	74.00	19.21	H
14474.500	50.85	-29.56	41.90	38.51	74.00	23.15	H
14639.500	50.31	-30.67	41.70	39.28	68.20	17.89	V
11679.950	47.12	-32.62	39.20	40.54	74.00	26.88	V
11770.700	46.83	-32.71	39.20	40.34	74.00	27.17	H

## 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)
17965.900	54.46	-29.59	45.95	38.10	74.00	19.54	H
17982.400	54.28	-29.59	45.95	37.92	74.00	19.72	H
14566.350	50.95	-29.14	41.90	38.19	68.20	17.25	V
14601.550	50.80	-29.14	41.90	38.04	68.20	17.40	H
11868.050	46.84	-32.73	39.15	40.42	74.00	27.16	V
11692.600	46.70	-32.70	39.20	40.20	74.00	27.30	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)
17926.300	54.33	-29.59	45.95	37.97	74.00	19.67	V
17984.050	54.15	-29.59	45.95	37.79	74.00	19.85	V
7079.750	50.87	-34.95	35.70	50.12	68.20	17.33	V
14547.650	50.47	-30.55	41.90	39.12	68.20	17.73	V
5351.080	65.44	-27.82	34.20	59.06	74.00	8.56	V
5350.816	64.97	-27.82	34.20	58.59	74.00	9.03	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)
17934.550	54.37	-29.59	45.95	38.01	74.00	19.63	H
17974.700	53.86	-29.59	45.95	37.50	74.00	20.14	V
14579.550	50.10	-29.14	41.90	37.34	68.20	18.10	V
14591.100	50.07	-29.14	41.90	37.31	68.20	18.13	H
5457.948	59.47	-27.49	34.20	52.76	74.00	14.53	H
5469.985	62.88	-27.49	34.20	56.17	68.20	5.32	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)
17965.900	54.32	-29.59	45.95	37.96	74.00	19.68	H
17975.250	53.71	-29.59	45.95	37.35	74.00	20.29	H
14568.550	50.72	-29.14	41.90	37.96	68.20	17.48	H
14563.050	50.10	-29.14	41.90	37.34	68.20	18.10	V
11858.700	46.87	-32.73	39.15	40.45	74.00	27.13	H
11884.550	46.82	-32.53	39.10	40.25	74.00	27.18	H

## Channel 134

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)
17968.100	54.34	-29.59	45.95	37.98	74.00	19.66	V
17969.200	53.93	-29.59	45.95	37.57	74.00	20.07	V
14572.400	50.27	-29.14	41.90	37.51	68.20	17.93	V
14583.950	50.17	-29.14	41.90	37.41	68.20	18.03	V
5727.770	57.71	-27.47	34.10	51.08	68.20	10.49	V
5727.166	57.12	-27.47	34.10	50.49	68.20	11.08	V

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## Channel 42

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)
17929.050	54.82	-29.59	45.95	38.46	74.00	19.18	H
17991.200	54.75	-29.59	45.95	38.39	74.00	19.25	H
14720.350	51.18	-30.13	41.35	39.96	68.20	17.02	V
14563.600	51.09	-29.14	41.90	38.33	68.20	17.11	V
11881.250	47.15	-32.53	39.10	40.58	74.00	26.85	H
11769.600	46.89	-32.71	39.20	40.40	74.00	27.11	H

## Channel 58

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)
17948.300	54.89	-29.59	45.95	38.53	74.00	19.11	V
17968.100	54.68	-29.59	45.95	38.32	74.00	19.32	V
7052.800	51.36	-34.40	35.50	50.26	68.20	16.84	V
14206.650	50.71	-30.42	41.70	39.43	68.20	17.49	H
5355.936	62.94	-27.82	34.20	56.56	74.00	11.06	H
5352.600	62.40	-27.82	34.20	56.02	74.00	11.60	V

## Channel 106

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)
17965.350	55.32	-29.59	45.95	38.96	74.00	18.68	H
17981.850	54.56	-29.59	45.95	38.20	74.00	19.44	V
14576.800	50.45	-29.14	41.90	37.69	68.20	17.75	H
14187.400	50.41	-30.42	41.70	39.13	68.20	17.79	H
5450.245	57.75	-27.49	34.20	51.04	74.00	16.25	H
5469.842	59.43	-27.49	34.20	52.72	68.20	8.77	V

## Channel 122

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)
17929.050	54.49	-29.59	45.95	38.13	74.00	19.51	H
17965.350	54.44	-29.59	45.95	38.08	74.00	19.56	H
14574.050	50.56	-29.14	41.90	37.80	68.20	17.64	V
14601.550	50.37	-29.14	41.90	37.61	68.20	17.83	V
5725.722	50.44	-27.47	34.10	43.81	68.20	17.76	H
5727.621	50.25	-27.47	34.10	43.62	68.20	17.95	H

### **A.7. AC Powerline Conducted Emission (150kHz- 30MHz)**

**Test Condition:**

Voltage (V)	Frequency (Hz)
110	60

**Measurement uncertainty:**

Expanded measurement uncertainty for this test item is U =3.08dB, k=2.

**Measurement Result and limit:**

WLAN (Quasi-peak Limit)

Frequency range (MHz)	Quasi-peak Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	66 to 56	Fig.58	Fig.59	P
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.

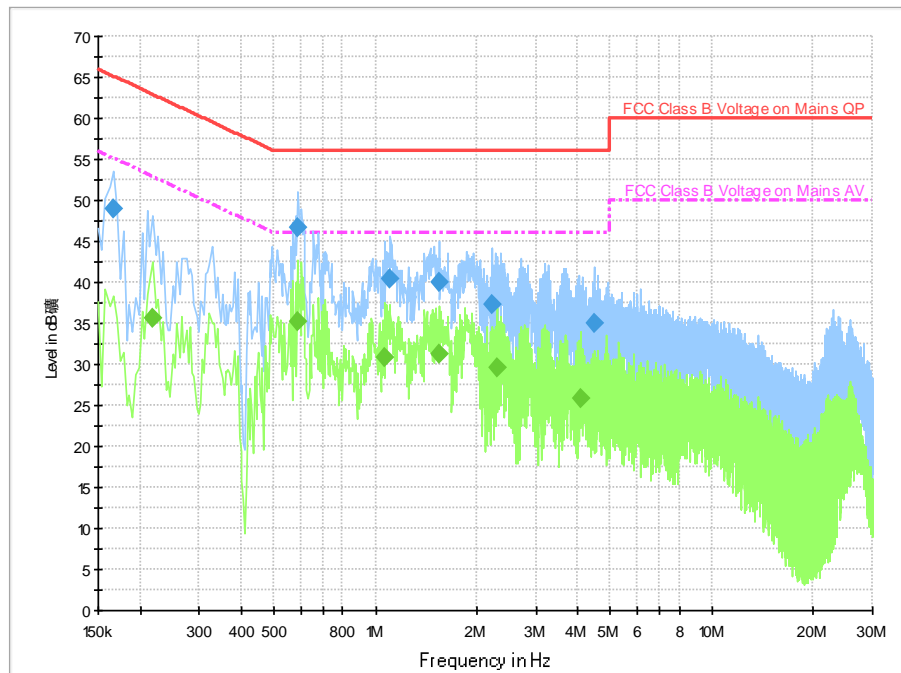
WLAN (Average Limit)

Frequency range (MHz)	Average Limit (dB $\mu$ V)	Result (dB $\mu$ V)		Conclusion
		With charger		
		11a mode	Idle	
0.15 to 0.5	56 to 46	Fig.58	Fig.59	P
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.

**Conclusion: PASS**

**Test graphs as below:**



**Fig.58 Conducted Emission(802.11a, Ch40, TX)**

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

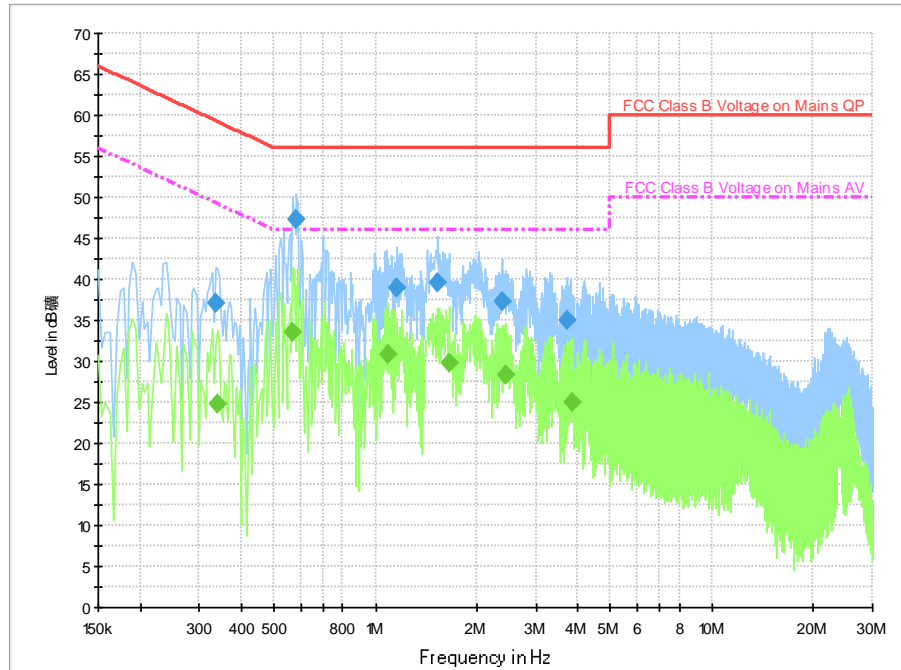
**Final Result 1**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.166000	48.9	2000.	9.000	On	L1	19.8	16.2	65.2	
0.590000	46.7	2000.	9.000	On	N	19.6	9.3	56.0	
1.106000	40.3	2000.	9.000	On	L1	19.6	15.7	56.0	
1.550000	40.1	2000.	9.000	On	N	19.6	15.9	56.0	
2.230000	37.3	2000.	9.000	On	N	19.6	18.7	56.0	
4.454000	34.9	2000.	9.000	On	N	19.6	21.1	56.0	

**Final Result 2**

Frequency (MHz)	QuasiPeak (dBµV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBµV)	Comment
0.218000	35.5	2000.	9.000	On	L1	19.7	17.3	52.9	
0.586000	35.2	2000.	9.000	On	N	19.6	10.8	46.0	
1.066000	30.8	2000.	9.000	On	N	19.6	15.2	46.0	
1.550000	31.3	2000.	9.000	On	N	19.6	14.7	46.0	
2.290000	29.6	2000.	9.000	On	N	19.6	16.4	46.0	
4.066000	25.7	2000.	9.000	On	L1	19.6	20.3	46.0	

Note2: The measurement results showed here are worst cases of the combinations of different cables and chargers



**Fig.59 Conducted Emission(802.11a, IDLE)**

Note1: The graphic result above is the maximum of the measurements for both phase line and neutral line.

**Final Result 1**

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.334000	37.0	2000.	9.000	On	N	19.7	22.3	59.4	
0.582000	47.4	2000.	9.000	On	N	19.7	8.6	56.0	
1.162000	39.0	2000.	9.000	On	N	19.6	17.0	56.0	
1.530000	39.7	2000.	9.000	On	N	19.6	16.3	56.0	
2.374000	37.2	2000.	9.000	On	N	19.6	18.8	56.0	
3.702000	35.0	2000.	9.000	On	L1	19.6	21.0	56.0	

**Final Result 2**

Frequency (MHz)	QuasiPeak (dBμV)	Meas. Time	Bandwidth (kHz)	Filter	Line	Corr. (dB)	Margin (dB)	Limit (dBμV)	Comment
0.338000	24.8	2000.	9.000	On	N	19.7	24.4	49.3	
0.566000	33.6	2000.	9.000	On	N	19.7	12.4	46.0	
1.086000	30.8	2000.	9.000	On	L1	19.7	15.2	46.0	
1.658000	29.8	2000.	9.000	On	N	19.6	16.2	46.0	
2.446000	28.4	2000.	9.000	On	N	19.6	17.6	46.0	
3.846000	25.0	2000.	9.000	On	L1	19.6	21.0	46.0	

Note2: The measurement results showed here are worst cases of the combinations of different cables and chargers



### **A.8. 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
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**EUT ID: UT24a**

#### **Measurement Result:**

Mode	Frequency	99% Occupied bandwidth ( MHz)		conclusion
802.11a	5180 MHz	Fig.60	16.52	P
	5200 MHz	Fig.61	16.52	P
	5240 MHz	Fig.62	16.51	P
802.11ac (VHT20)	5180 MHz	Fig.63	17.56	P
	5200 MHz	Fig.64	17.56	P
	5240 MHz	Fig.65	17.56	P
802.11n HT40	5190 MHz	Fig.66	35.85	P
	5230 MHz	Fig.67	35.82	P
802.11ac (VHT80)	5210 MHz	Fig.68	74.92	P

Test graphs as below:

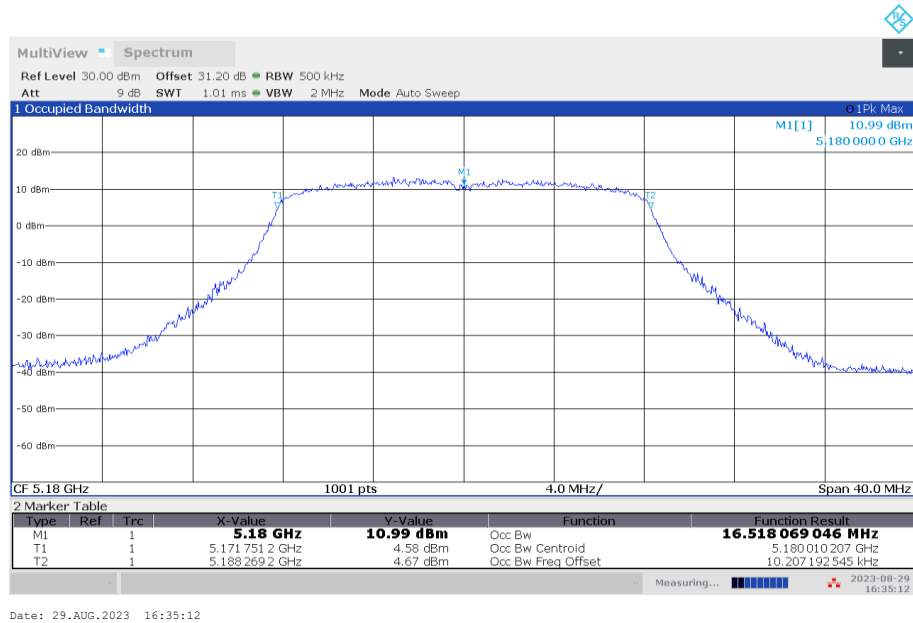


Fig.60 99% Occupied bandwidth (802.11a, 5180MHz)

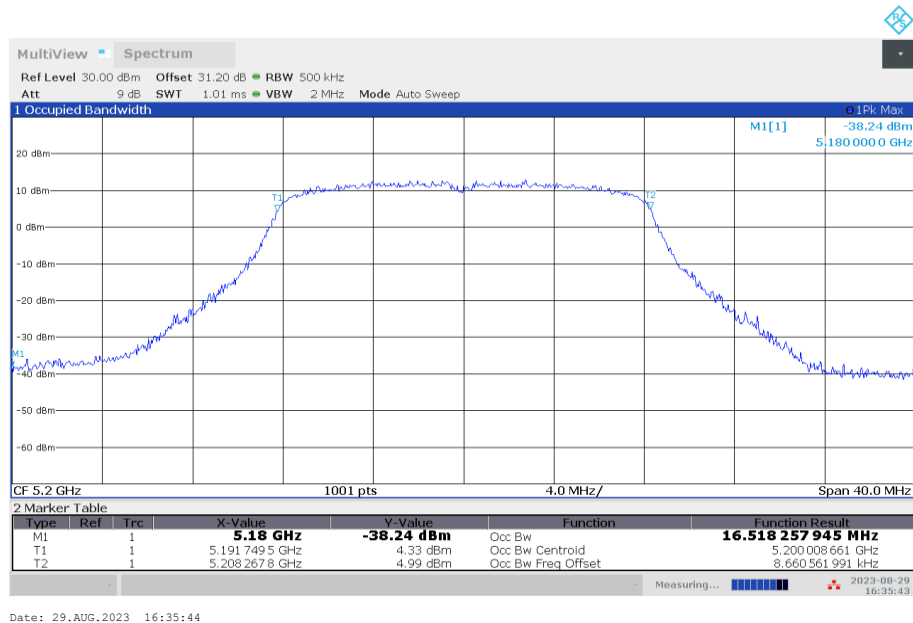
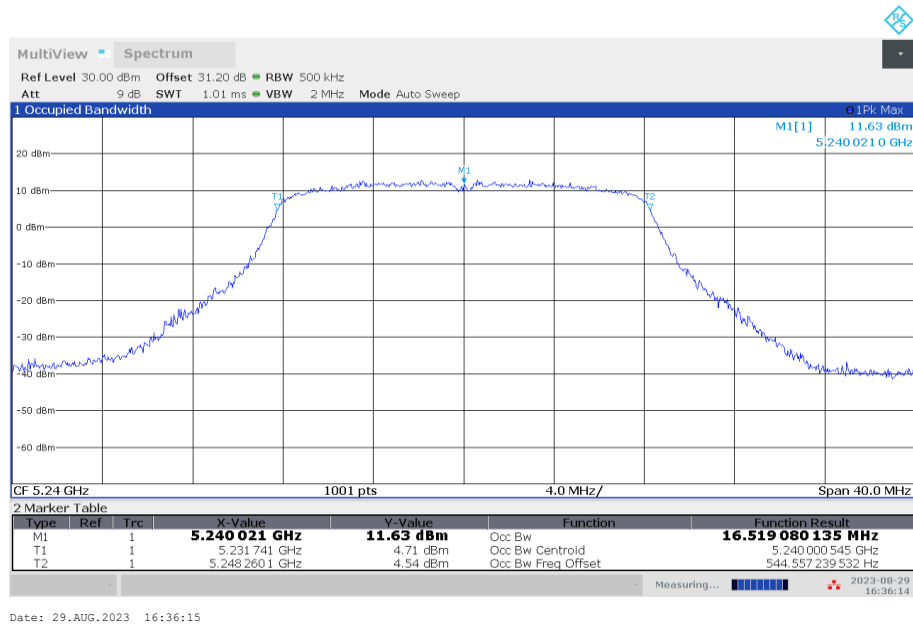
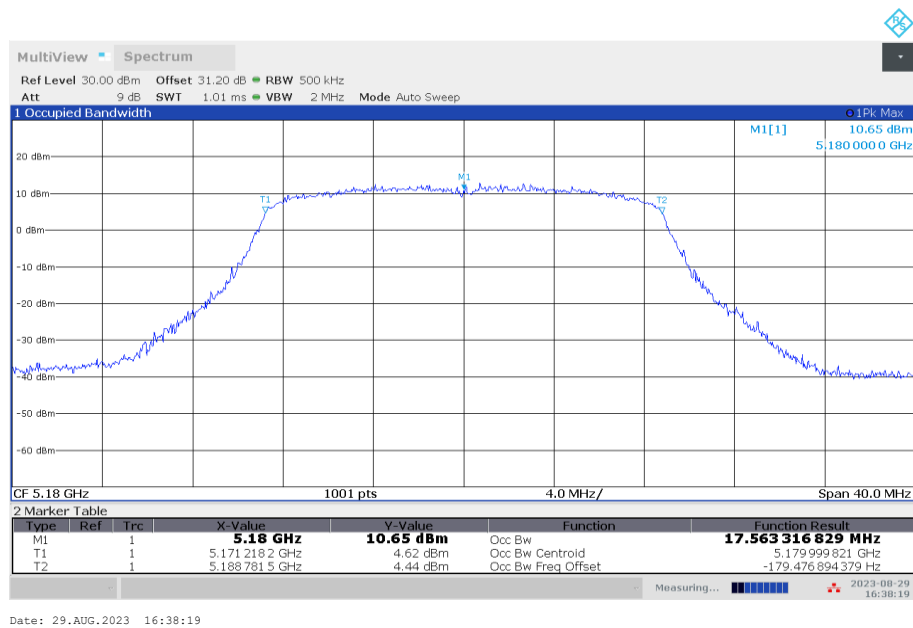


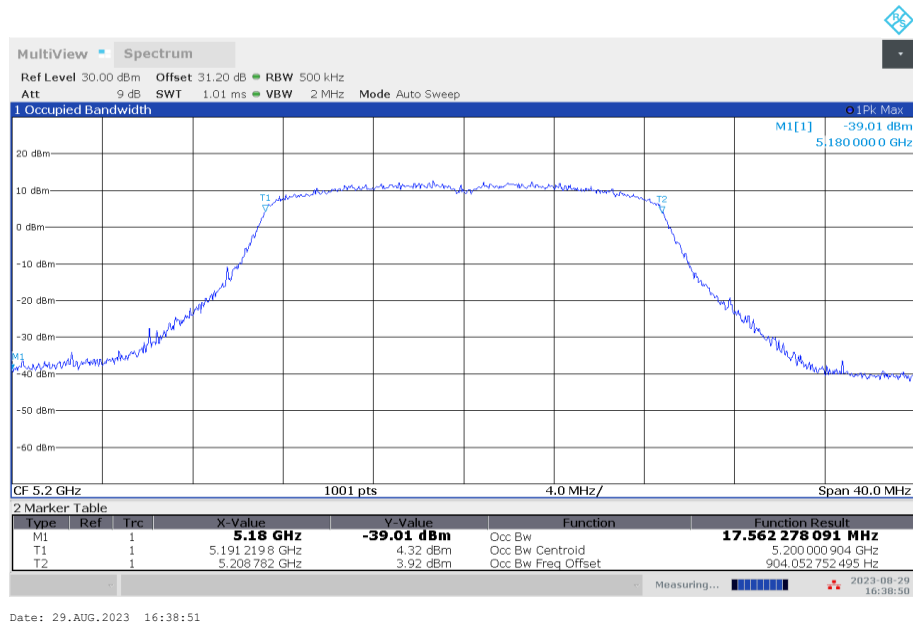
Fig.61 99% Occupied bandwidth (802.11a, 5200MHz)



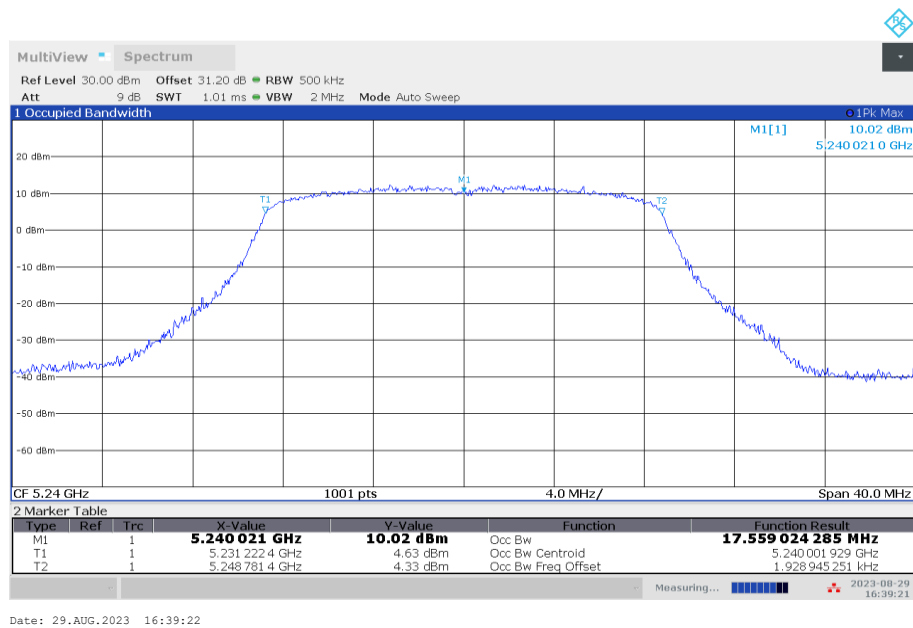
**Fig.62 99% Occupied bandwidth (802.11a, 5240MHz)**



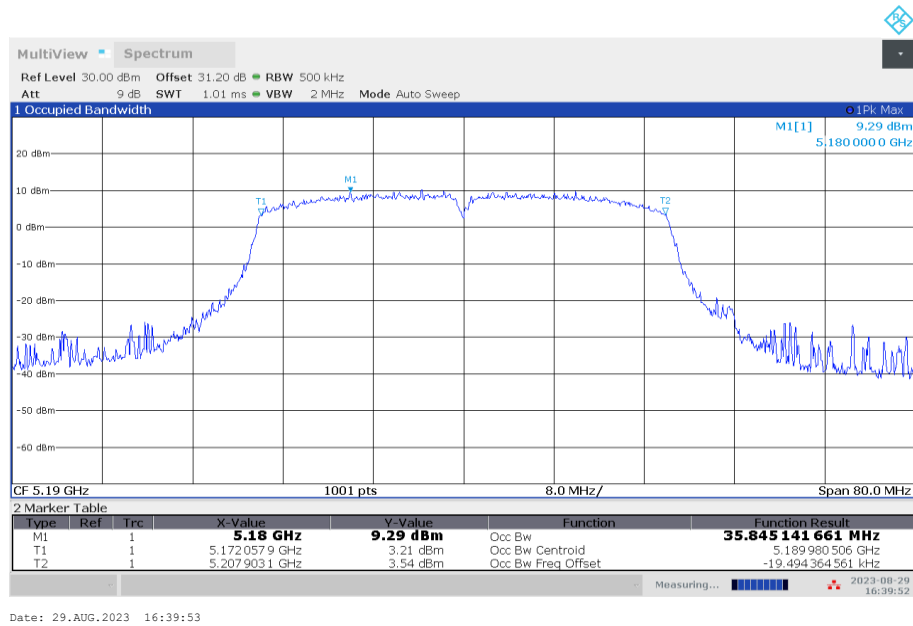
**Fig.63 99% Occupied bandwidth (802.11ac-VHT20, 5180MHz)**



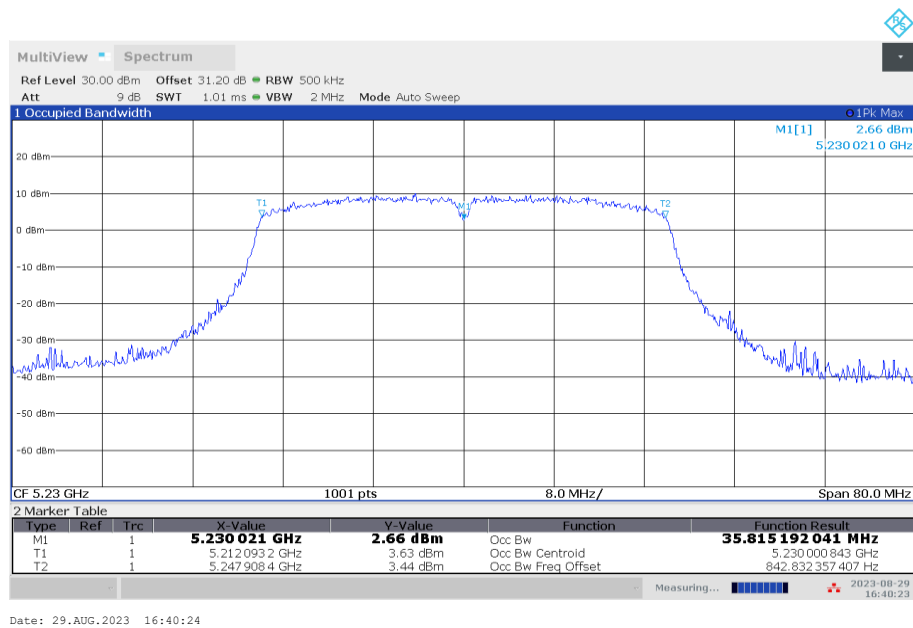
**Fig.64 99% Occupied bandwidth (802.11ac-VHT20, 5200MHz)**



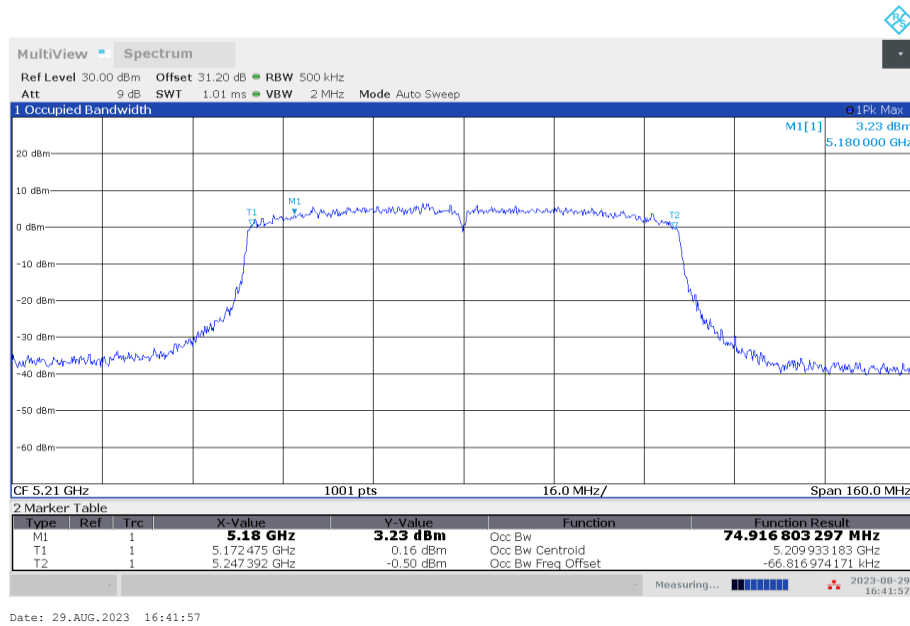
**Fig.65 99% Occupied bandwidth (802.11ac-VHT20, 5240MHz)**



**Fig.66 99% Occupied bandwidth (802.11n-HT40, 5190MHz)**



**Fig.67 99% Occupied bandwidth (802.11n-HT40, 5230MHz)**



**Fig.68 99% Occupied bandwidth (802.11ac-VHT80, 5210MHz)**

**Conclusion: PASS**

### **A.9. Power control**

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

## **ANNEX B: EUT parameters**

Disclaimer: The antenna gain and worse case provided by the client may affect the validity of the measurement results in this report, and the client shall bear the impact and consequences arising therefrom.

## ANNEX C: Accreditation Certificate



### Accredited Laboratory

A2LA has accredited

#### TELECOMMUNICATION TECHNOLOGY LABS, CAICT

Beijing, People's Republic of China

for technical competence in the field of

#### Electrical Testing

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 General requirements for the competence of testing and calibration laboratories. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (refer to joint ISO-ILAC-IAF Communiqué dated April 2017).



Presented this 26<sup>th</sup> day of June 2023.

Mr. Trace McInturf, Vice President, Accreditation Services  
For the Accreditation Council  
Certificate Number 7049.01  
Valid to July 31, 2024

For the tests to which this accreditation applies, please refer to the laboratory's Electrical Scope of Accreditation.

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