



TEST REPORT

No.24T04N002827-010-WLAN 5G

for

Realme Chongqing Mobile Telecommunications Corp., Ltd.

Mobile Phone

Model Name: RMX5020

with

Hardware Version: 11

Software Version: realme UI 6.0

FCC ID: 2AUYFRMX5020

Issued Date: 2025-01-06

Designation Number: CN1210

Note:

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

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REPORT HISTORY

Report Number	Revision	Description	Issue Date
24T04N002827-010-WLAN 5G	Rev.0	1st edition	2025-01-06

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



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1. Summary of Test Report

1.1. Test Items

Description	Mobile Phone
Model Name	RMX5020
Applicant's name	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Manufacturer's Name	Realme Chongqing Mobile Telecommunications Corp., Ltd.

1.2. Test Standards

FCC Part15-2023; FCC 06-96-2006; ANSI C63.10-2013; KDB789033-V02r01; KDB 905462-D02.

1.3. Test Result

Pass

Please refer to "5.2. Test Results"

1.4. Testing Location

Address: Building G, Shenzhen International Innovation Center, No.1006 Shennan Road,
Futian District, Shenzhen, Guangdong, P. R. China 51800

1.5. Project data

Testing Start Date: 2024-11-28
Testing End Date: 2024-12-24

1.6. Signature

Lin Zechuang
(Prepared this test report)

An Ran
(Reviewed this test report)

Zhang Bojun
(Approved this test report)



2. Client Information

2.1. Applicant Information

Company Name:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address:	No.178 Yulong Avenue,Yufengshan,Yubei District,Chongqing,China
Contact Person	HuangMinJiang
E-Mail	mega@realme.com
Telephone:	(86)18502096102
Fax:	/

2.2. Manufacturer Information

Company Name:	Realme Chongqing Mobile Telecommunications Corp., Ltd.
Address:	No.178 Yulong Avenue,Yufengshan,Yubei District,Chongqing,China
Contact Person	HuangMinJiang
E-Mail	mega@realme.com
Telephone:	(86)18502096102
Fax:	/



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

3.1. About EUT

Description	Mobile Phone
Model Name	RMX5020
RF Protocol	IEEE 802.11a/n-HT20,40/ac-VHT20,40,80
WLAN Frequency Range	ISM Bands: 5150MHz~5250MHz; 5250MHz~5350MHz; 5470MHz~5725MHz; 5725MHz~5850MHz.
Type of modulation	OFDM
Antenna Type	PIFA antenna
Antenna Gain	5150MHz~5250MHz: 0.6dBi; 5250MHz~5350MHz: 0.9dBi; 5470MHz~5725MHz: 0.7dBi; 5725MHz~5850MHz: -2.1dBi.
Power Supply	3.82V DC by Battery
FCC ID	2AUYFRMX5020
Device Type (DFS)	Client without radar detection(only support client mode)
Condition of EUT as received	No abnormality in appearance

Note: Components list, please refer to documents of the manufacturer; it is also included in the original test record of Shenzhen Academy of Information and Communications Technology.

3.2. Internal Identification of EUT used during the test

EUT ID*	SN or IMEI	HW Version	SW Version	Date of Receipt
UT06aa	868617070019916	11	realme UI 6.0	2024-11-27
UT01aa	004180606972897	11	realme UI 6.0	2024-11-26
UT02aa	004180606949549	11	realme UI 6.0	2024-11-26

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

UT06aa is used for conduction test, UT01aa is used for radiation test, and UT02aa is used for AC Power line Conducted Emission test.

3.3. Internal Identification of AE used during the test

AE No.	Description	AE ID*
AE1	Battery	/
AE2	Charger	Aa01a
AE3	USB Cable	Ca01a

AE1

Model	BLPB59
Manufacturer	Chongqing CosMX Battery Co.,Ltd.



Capacity	5180mAh
Nominal Voltage	3.82V
AE2-1	
Model	VCB4JAUH
Manufacturer	Jiangsu Chenyang Electron Co., Ltd
Specification	American Standard Charger
AE2-2	
Model	VCB4JAUH
Manufacturer	Huizhou Golden Lake Industrial Co., Ltd.
Specification	American Standard Charger
AE3	
Model	DL154
Manufacturer	/

*AE ID and AE Label: 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 PIFA antenna and battery. It consists of normal options: Lithium Battery, Charger and USB Cable. Manual and specifications of the EUT were provided to fulfil the test. Samples undergoing test were selected by the client.



4. REFERENCE DOCUMENTS

4.1. Documents supplied by applicant

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

4.2. Reference Documents for testing

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

Reference	Title	Version
FCC Part15	FCC CFR 47,Part 15,Subpart C	2023
	FCC CFR 47,Part 15,Subpart E	
FCC 06-96	Revision of Parts 2 and 15 of the Commission's Rules to Permit Unlicensed National Information Infrastructure (U-NII) devices in the 5 GHz band	2006
ANSI C63.10	American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices	2013
KDB 789033	GUIDELINES FOR COMPLIANCE TESTING OF UNLICENSED NATIONAL INFORMATION INFRASTRUCTURE (U-NII) DEVICES PART 15, SUBPART E	V02r01
KDB 905462	Compliance Measurement Procedures for Unlicensed-national Information Infrastructure Devices Operating in the 5250-5350 MHz and 5470-5725 MHz Bands Incorporating Dynamic Frequency Selection	D02

5. Test Results

5.1. Testing Environment

Normal Temperature: 15~35°C

Relative Humidity: 20~75%

5.2. Test Results

No.	Test cases	Sub-clause of Part15E	Verdict
0	Maximum Output Power	15.407(a)	P
1	Power Spectral Density	15.407(a)	P
2	Occupied 26dB Bandwidth	15.403(i)	/
3	Occupied 6dB Bandwidth	15.407(e)	P
4	99% Occupied Bandwidth	15.403	/
5	Dynamic Frequency Selection	15.407 (h)	P
6	Band edge compliance	15.209	P
7	Radiated Spurious Emissions	15.209	P
8	AC Power line Conducted	15.207	P
9	Transmit Power Control	15.407	NA

See **ANNEX A** for details.

Note: According to the definition of the application description, the device will automatically discontinue transmission in case of either absence of information to transmit or operational failure.

5.3. Statements

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

Disclaimer:

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

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

6. Test Equipments Utilized

Conducted test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Vector Signal Analyzer	FSV40	100903	Rohde & Schwarz	2024-12-27	1 year
2	Power Sensor	U2021XA	MY55430013	Keysight	2024-12-27	1 year
3	RF Control Unit	JS0806-2	21C8060398	Tonscend	2025-05-06	1 year
4	Vector Signal Generator	SMW200A	110889	Rohde & Schwarz	2025-03-11	1 year
5	Shielding Room	S81	CT000986-1344	ETS-Lindgren	2026-09-12	5 years
No.	Equipment	Model	FCC ID	Manufacturer	Calibration Due date	Calibration Period
6	Master AP	RT-AX86U	MSQ-RTAXI600	ASUS	/	/

Radiated test system

No.	Equipment	Model	Serial Number	Manufacturer	Calibration Due date	Calibration Period
1	Test Receiver	ESR7	101676	Rohde & Schwarz	2025-11-21	1 year
2	Spectrum Analyzer	FSV40	101192	Rohde & Schwarz	2025-01-12	1 year
3	BiLog Antenna	3142E	00224831	ETS-Lindgren	2027-10-23	3 years
4	Horn Antenna	3117	00066577	ETS-Lindgren	2025-04-17	3 years
5	Horn Antenna	QSH-SL-1 8-26-S-20	17013	Q-par	2026-02-01	3 years
6	Horn Antenna	QSH-SL-1 8-40-K-SG	15979	Q-par	2026-01-30	3 years
7	Anechoic Chamber	FACT3-2.0	1285	ETS-Lindgren	2025-05-28	2 years
8	Loop Antenna	HLA6120	35779	TESEQ	2025-05-10	3 years
9	Test Receiver	ESCI	100702	Rohde & Schwarz	2025-01-10	1 year
10	LISN	ENV216	102067	Rohde & Schwarz	2025-10-06	1 year

Test software

No.	Equipment	Manufacturer	Version
1	JS1120-3	Tonscend	3.5
2	EMC32	Rohde & Schwarz	10.50.40

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

7. Laboratory Environment

Shielded room

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

Anechoic chamber

Temperature	Min. = 15 °C, Max. = 35 °C
Relative humidity	Min. = 20 %, Max. = 75 %
Shielding effectiveness	0.014MHz-1MHz> 60 dB; 1MHz-18000MHz>90 dB
Electrical insulation	> 2M Ω
Ground system resistance	< 4 Ω
Normalised site attenuation (NSA)	< ± 4 dB, 3 m distance, from 30 to 1000 MHz
Voltage Standing Wave Ratio (VSWR)	≤ 6 dB, from 1 to 18 GHz, 3m distance
Uniformity of field strength	Between 0 and 6 dB, from 80 to 6000 MHz

8. Measurement Uncertainty

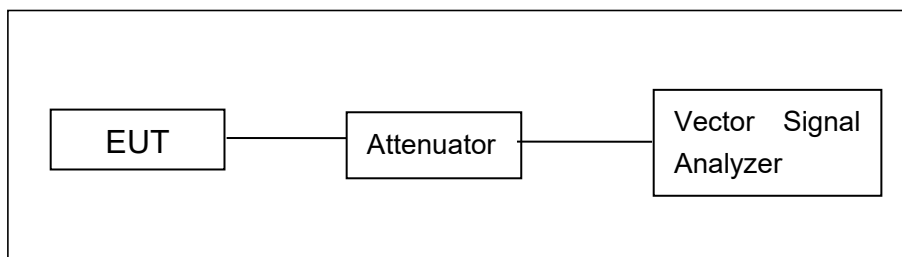
Test Name	Uncertainty ($k=2$)	
1. Maximum output Power	1.36dB	
2. Peak Power Spectral Density	1.36dB	
3. Occupied 26dB Bandwidth	4.56kHz	
4. Occupied 6dB Bandwidth	4.56kHz	
5. 99% Occupied Bandwidth	4.56kHz	
6. Band Edges Compliance	4.68dB	
7. Transmitter Spurious Emission - Radiated	$9\text{kHz} \leq f < 30\text{MHz}$	1.79dB
	$30\text{MHz} \leq f < 1\text{GHz}$	4.86dB
	$1\text{GHz} \leq f < 18\text{GHz}$	4.82dB
	$18\text{GHz} \leq f \leq 40\text{GHz}$	2.90dB
8. AC Power line Conducted Emission	$150\text{kHz} \leq f \leq 30\text{MHz}$	2.68dB

ANNEX A: Detailed Test Results

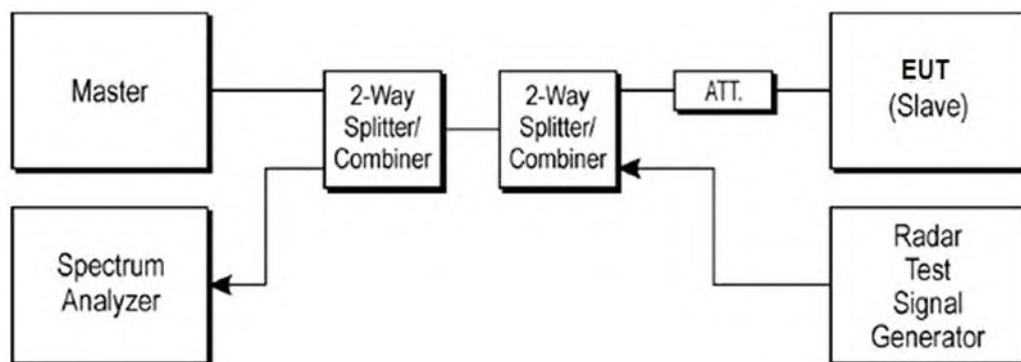
A.1. Measurement Method

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.



6). The below figure shows the DFS setup, where the EUT is a RLAN device operating in slave mode, without Radar Interference Detection function. This setup also contains a device operating in master mode. The radar test signals are injected into the master device. The EUT (slave device) is associated with the master device. WLAN traffic is generated by streaming the mpeg file from the master to the slave in full monitor video mode using the media player.

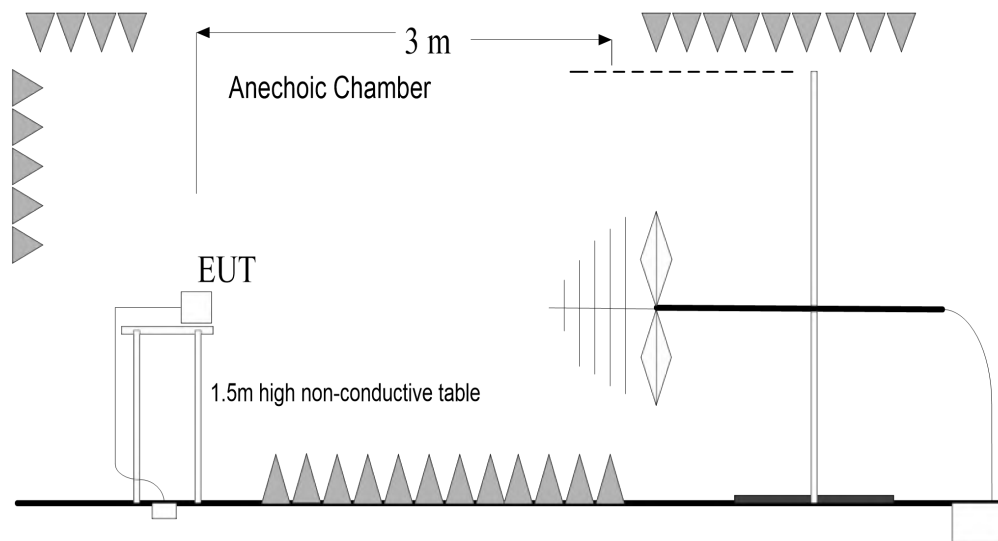


2) Radiated Emission Measurements

Test setup:

9kHz-30MHz:

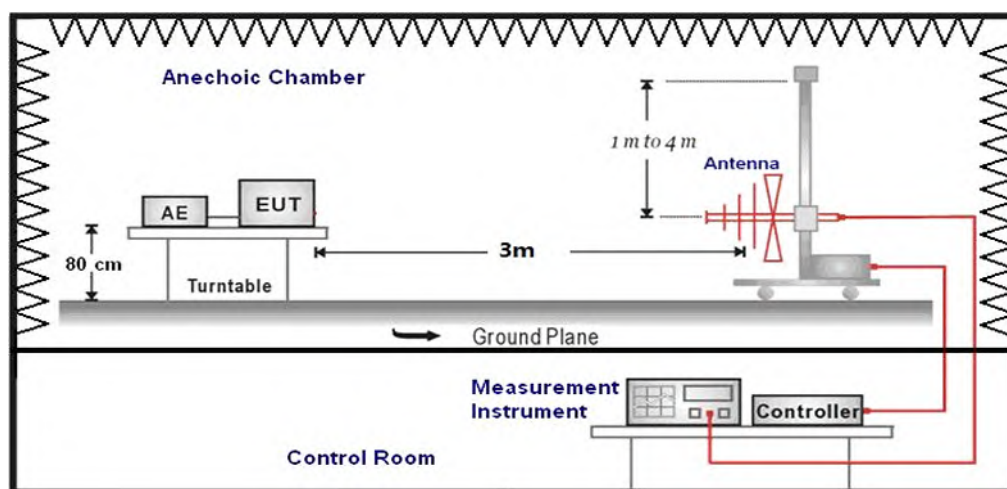
The EUT are measured in a anechoic chamber. The EUT is placed on a non-conductive stand of 80cm high, and at a measurement distance of 3m from the receiving antenna. The center of the receiving loop antenna is 1.0 meter above the ground. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT and adjusting the receiver antenna polarization.



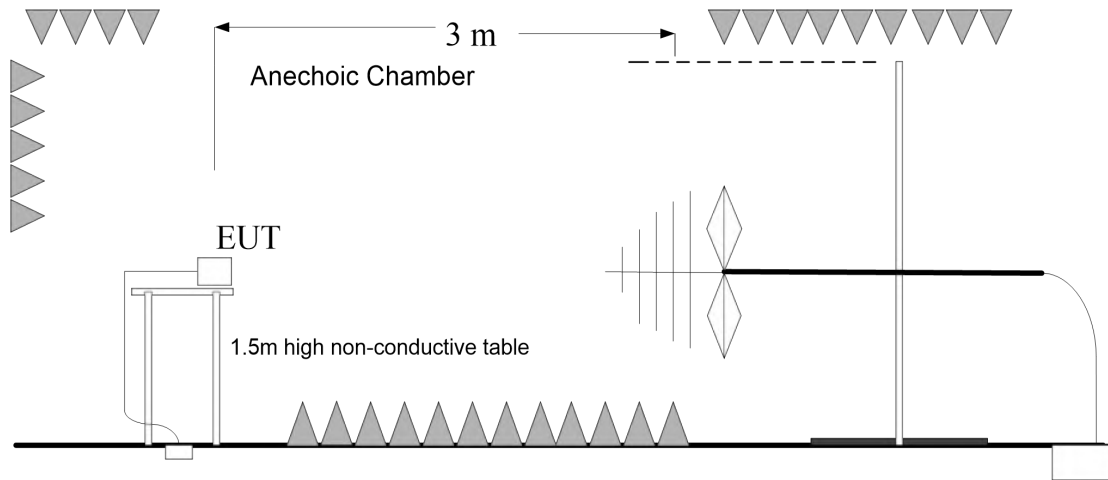
30MHz-40GHz:

The EUT are measured in a anechoic chamber. The EUT is placed on a non-conductive stand of 80cm high, and at a measurement distance of 3m from the receiving antenna. The center of the receiving antenna is 1.0 meter to 4.0 meter above the ground. The test setup refers to figure below. Detected emissions were maximized at each frequency by rotating the EUT and adjusting the receiver antenna polarization.

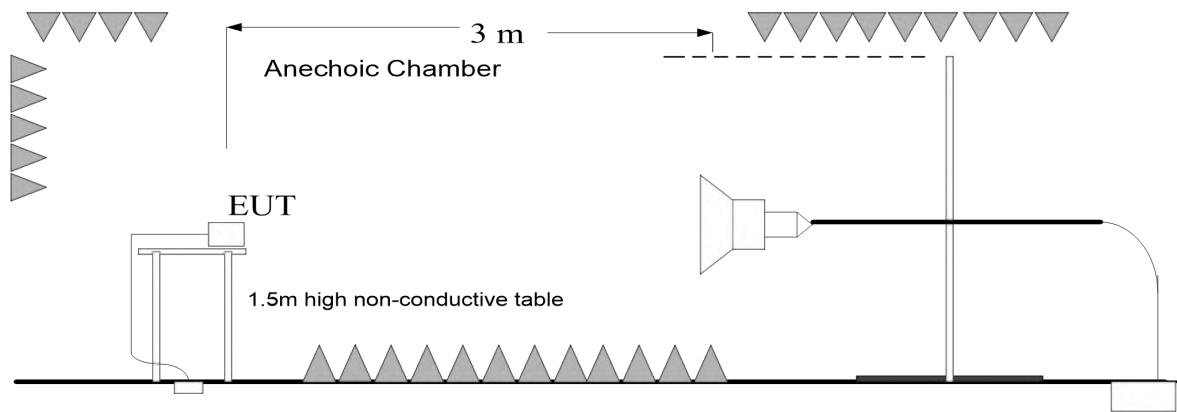
30MHz-1GHz:



1GHz-3GHz:

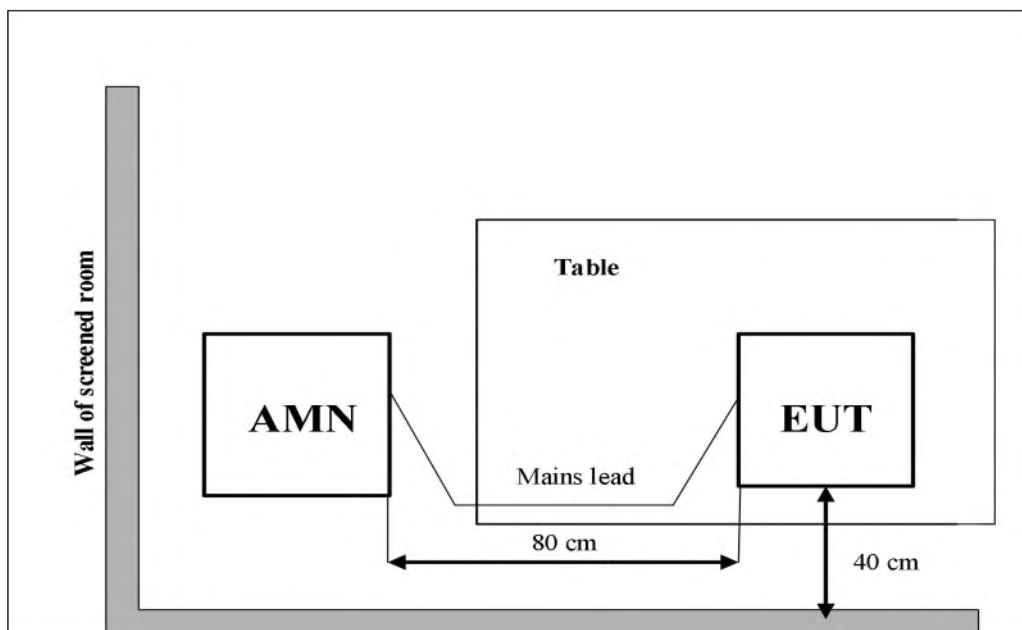


3GHz-40GHz:



3) AC Power line Conducted Emission Measurement

For WLAN, the EUT is working under test mode. The EUT is commanded to operate at maximum transmitting power.



A.2. Maximum output Power

Measurement Limit and Method:

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

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

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

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

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

Measurement Results:

Mode	Frequency (MHz)	RF output power (dBm)	Conclusion
802.11a	5180MHz(CH36)	13.17	P
	5200MHz(CH40)	14.26	P
	5240MHz(CH48)	13.68	P
	5260MHz(CH52)	16.32	P
	5280MHz(CH56)	16.39	P
	5320MHz(CH64)	13.26	P
	5500MHz(CH100)	10.21	P
	5580MHz(CH116)	14.35	P
	5700MHz(CH140)	10.60	P
	5745MHz(CH149)	14.94	P
	5785MHz(CH157)	14.86	P
	5825MHz(CH165)	15.07	P
802.11n-HT20	5180MHz(CH36)	13.16	P
	5200MHz(CH40)	14.25	P
	5240MHz(CH48)	13.66	P
	5260MHz(CH52)	16.32	P
	5280MHz(CH56)	16.23	P
	5320MHz(CH64)	13.23	P
	5500MHz(CH100)	10.09	P
	5580MHz(CH116)	14.32	P
	5700MHz(CH140)	10.44	P
	5745MHz(CH149)	14.85	P
	5785MHz(CH157)	14.77	P

	5825MHz(CH165)	14.84	P
802.11ac-VHT20	5180MHz(CH36)	13.06	P
	5200MHz(CH40)	14.01	P
	5240MHz(CH48)	13.75	P
	5260MHz(CH52)	16.15	P
	5280MHz(CH56)	16.21	P
	5320MHz(CH64)	13.15	P
	5500MHz(CH100)	10.01	P
	5580MHz(CH116)	14.18	P
	5700MHz(CH140)	10.50	P
	5745MHz(CH149)	14.81	P
	5785MHz(CH157)	14.65	P
	5825MHz(CH165)	14.81	P
802.11n-HT40	5190MHz(CH38)	12.32	P
	5230MHz(CH46)	14.48	P
	5270MHz(CH54)	14.68	P
	5310MHz(CH62)	11.69	P
	5510MHz(CH102)	9.27	P
	5550MHz(CH110)	14.40	P
	5670MHz(CH134)	12.19	P
	5755MHz(CH151)	14.94	P
	5795MHz(CH159)	15.00	P
802.11ac-VHT40	5190MHz(CH38)	12.20	P
	5230MHz(CH46)	14.46	P
	5270MHz(CH54)	14.57	P
	5310MHz(CH62)	11.91	P
	5510MHz(CH102)	9.23	P
	5550MHz(CH110)	14.39	P
	5670MHz(CH134)	12.26	P
	5755MHz(CH151)	14.91	P
	5795MHz(CH159)	14.96	P
802.11ac-VHT80	5210MHz(CH42)	11.84	P
	5290MHz(CH58)	10.82	P
	5530MHz(CH106)	10.28	P
	5610MHz(CH122)	13.87	P
	5775MHz(CH155)	14.66	P

Note: The data rate 6Mbps (11a mode), MCS0 (11n mode) and MCS0(VHT mode) are selected as the Worst-Case. **802.11a** mode is selected as the worst condition. The following cases and test graphs are performed with this condition.

The EUT was programmed to be in continuously transmitting mode and the transmit duty cycle is not less than 98%.

Conclusion: PASS

A.3. Peak Power Spectral Density (conducted)

Measurement of method: See KDB 789033 D02 v02r01, Section F.

Measurement Limit:

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

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

Measurement Results:

Mode	Frequency (MHz)	Power Spectral Density(dBm/MHz)	Conclusion
802.11a	5180MHz(CH36)	2.98	P
	5200MHz(CH40)	2.76	P
	5240MHz(CH48)	2.83	P
	5260MHz(CH52)	4.89	P
	5280MHz(CH56)	4.87	P
	5320MHz(CH64)	1.45	P
	5500MHz(CH100)	-0.30	P
	5580MHz(CH116)	3.71	P
	5700MHz(CH140)	-0.56	P
802.11n-HT40	5190MHz(CH38)	-1.84	P
	5230MHz(CH46)	0.84	P
	5270MHz(CH54)	0.49	P
	5310MHz(CH62)	-2.65	P
	5510MHz(CH102)	-4.29	P
	5550MHz(CH110)	0.51	P
	5670MHz(CH134)	-2.21	P
802.11ac-VHT80	5210MHz(CH42)	-6.02	P
	5290MHz(CH58)	-6.50	P
	5530MHz(CH106)	-7.22	P
	5610MHz(CH122)	-3.94	P
Mode	Channel	Power Spectral Density (dBm/500kHz)	Conclusion
802.11a	5745MHz(CH149)	0.69	P
	5785MHz(CH157)	0.91	P
	5825MHz(CH165)	1.16	P
802.11n-HT40	5755MHz(CH151)	-2.75	P
	5795MHz(CH159)	-2.02	P
802.11ac-VHT80	5775MHz(CH155)	-5.72	P

Conclusion: PASS

A.4. Occupied 26dB Bandwidth (conducted)

Measurement of method: See KDB 789033 D02 v02r01, Section C.1.

Measurement Limit:

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

The measurement is made according to KDB 789033

Measurement Result:

Mode	Frequency (MHz)	Occupied 26dB Bandwidth (MHz)		Conclusion
802.11a	5180MHz(CH36)	Fig.1	19.76	/
	5200MHz(CH40)	Fig.2	19.88	/
	5240MHz(CH48)	/	19.80	/
	5260MHz(CH52)	/	19.64	/
	5280MHz(CH56)	/	19.72	/
	5320MHz(CH64)	/	19.84	/
	5500MHz(CH100)	/	19.60	/
	5580MHz(CH116)	/	19.80	/
	5700MHz(CH140)	/	19.56	/
	5745MHz(CH149)	/	19.64	/
	5785MHz(CH157)	/	19.92	/
	5825MHz(CH165)	/	19.92	/
802.11n-HT40	5190MHz(CH38)	Fig.3	41.04	/
	5230MHz(CH46)	Fig.4	40.96	/
	5270MHz(CH54)	/	40.88	/
	5310MHz(CH62)	/	40.48	/
	5510MHz(CH102)	/	41.12	/
	5550MHz(CH110)	/	40.64	/
	5670MHz(CH134)	/	41.04	/
	5755MHz(CH151)	/	41.12	/
	5795MHz(CH159)	/	46.48	/
802.11ac-VHT80	5210MHz(CH42)	Fig.5	81.76	/
	5290MHz(CH58)	Fig.6	81.76	/
	5530MHz(CH106)	/	81.44	/
	5610MHz(CH122)	/	81.60	/
	5775MHz(CH155)	/	81.60	/

See below for test graphs.

Conclusion: PASS

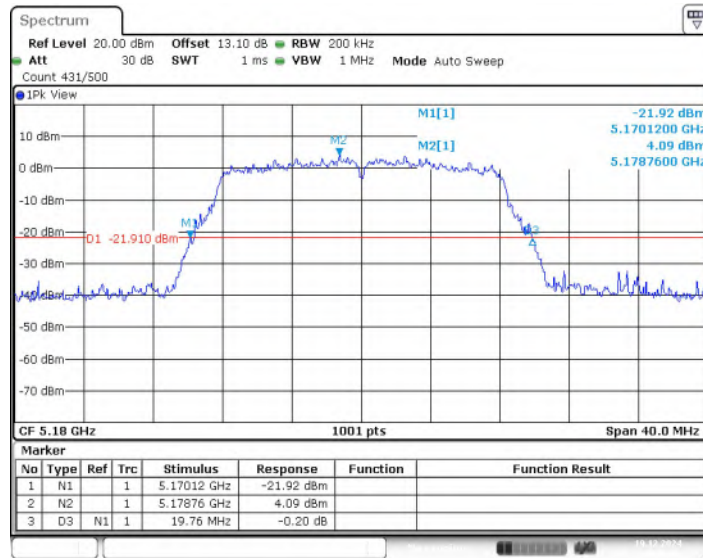


Fig. 1 Occupied 26dB Bandwidth (802.11a, 5180MHz)

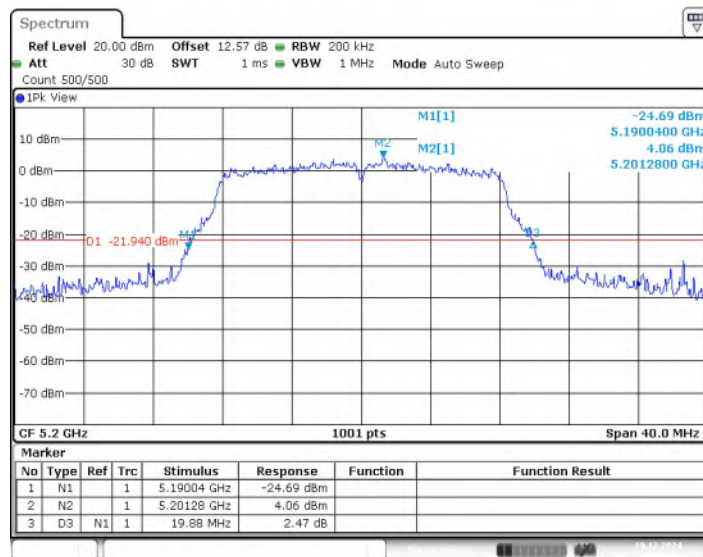


Fig. 2 Occupied 26dB Bandwidth (802.11a, 5200MHz)

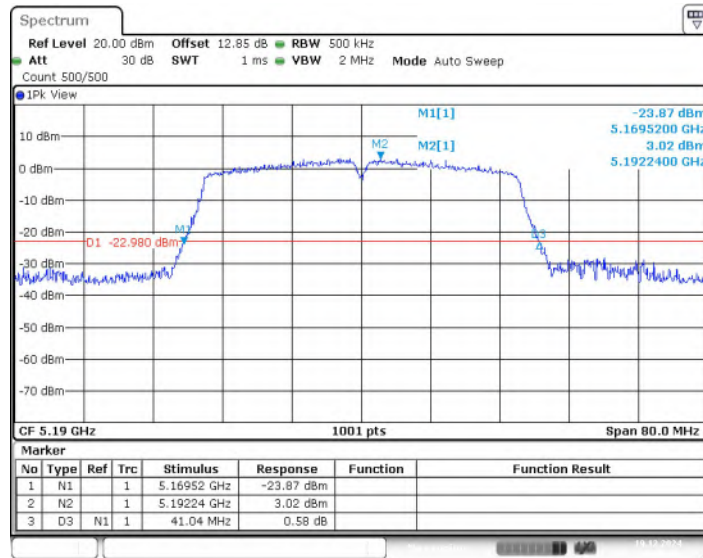


Fig. 3 Occupied 26dB Bandwidth (802.11n-HT40, 5190MHz)

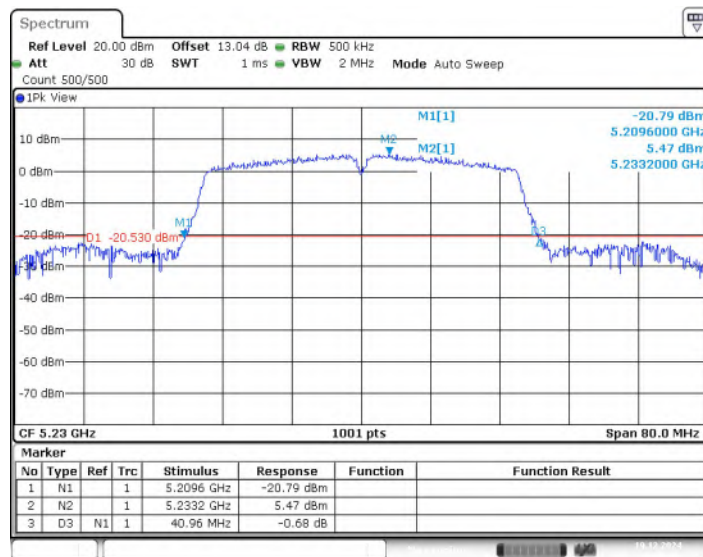


Fig. 4 Occupied 26dB Bandwidth (802.11n-HT40, 5230MHz)

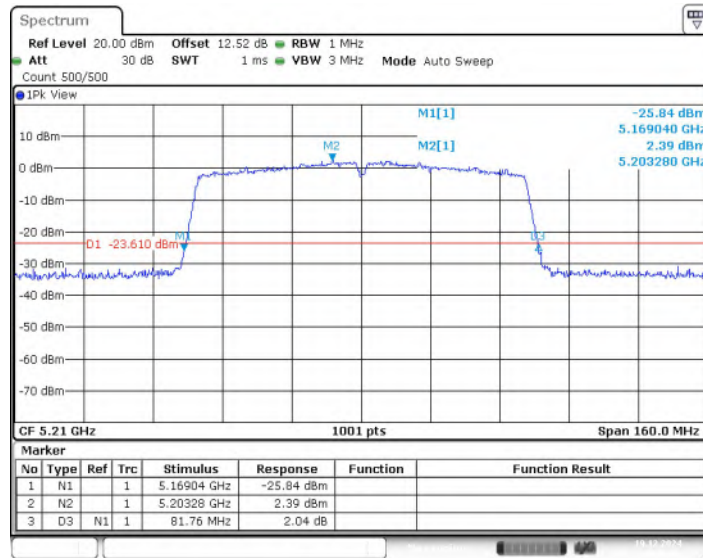


Fig. 5 Occupied 26dB Bandwidth (802.11ac-VHT80, 5210MHz)

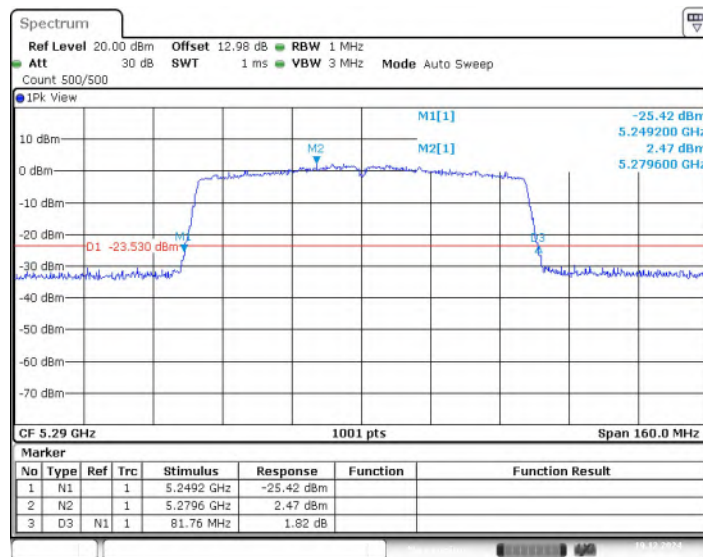


Fig. 6 Occupied 26dB Bandwidth (802.11ac-VHT80, 5290MHz)

**A.5. Occupied 6dB Bandwidth (conducted)**

Measurement of method: See KDB 789033 D02 v02r01, Section C.2.

Measurement Limit:

Standard	Limit (MHz)
FCC 47 CFR Part 15.407 (e)	≥ 0.5

The measurement is made according to KDB 789033.

Measurement Result:

Mode	Frequency (MHz)	Occupied 6dB Bandwidth (MHz)		Conclusion
802.11a	5745MHz(CH149)	Fig.7	15.04	P
	5785MHz(CH157)	Fig.8	15.08	P
	5825MHz(CH165)	Fig.9	15.12	P
802.11n-HT40	5755MHz(CH151)	Fig.10	35.04	P
	5795MHz(CH159)	Fig.11	35.12	P
802.11ac-VHT80	5775MHz(CH155)	Fig.12	75.20	P

See below for test graphs.

Conclusion: PASS

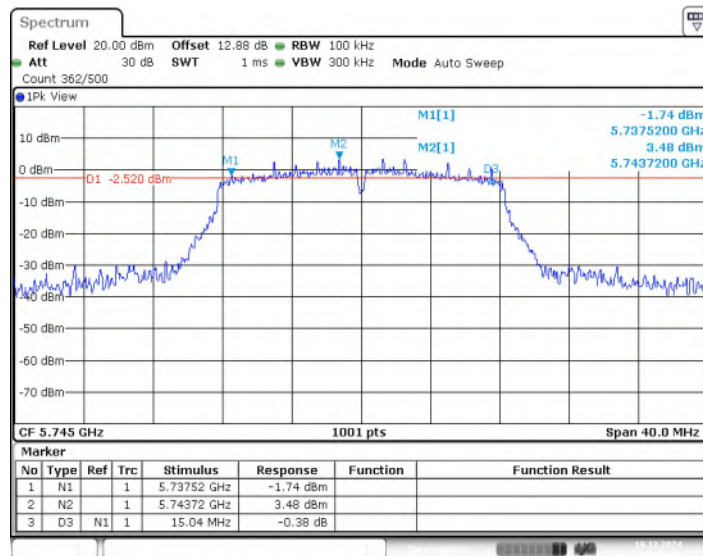


Fig. 7 Occupied 6dB Bandwidth (802.11a, 5745MHz)

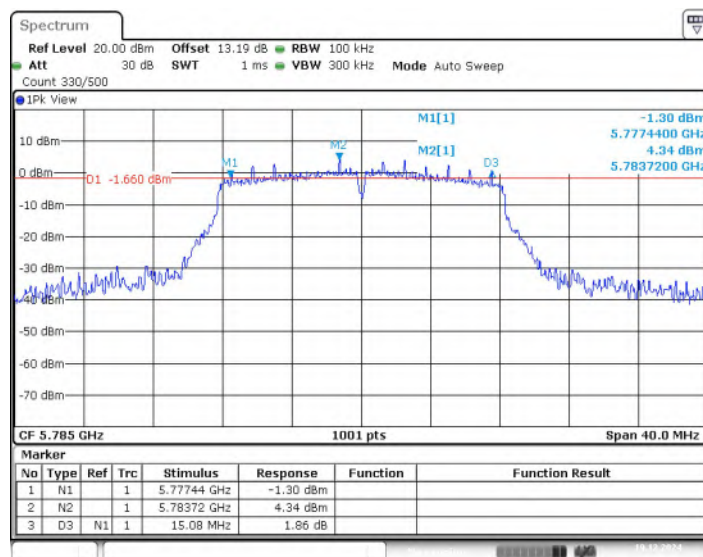


Fig. 8 Occupied 6dB Bandwidth (802.11a, 5785MHz)

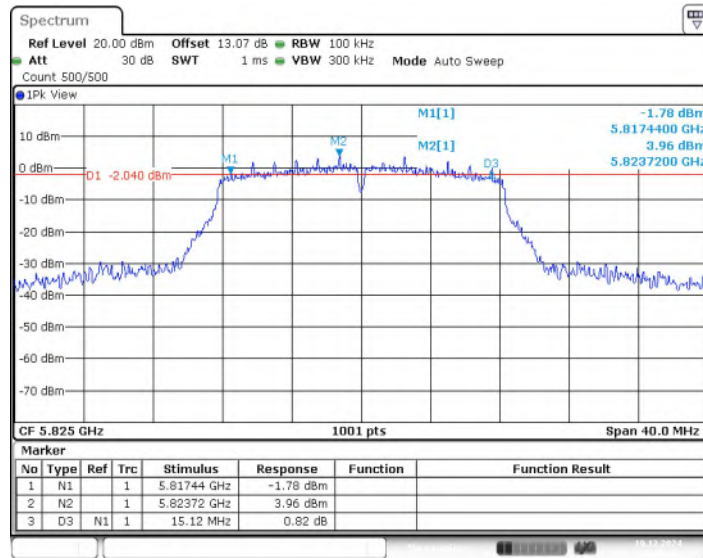


Fig. 9 Occupied 6dB Bandwidth (802.11a, 5825MHz)

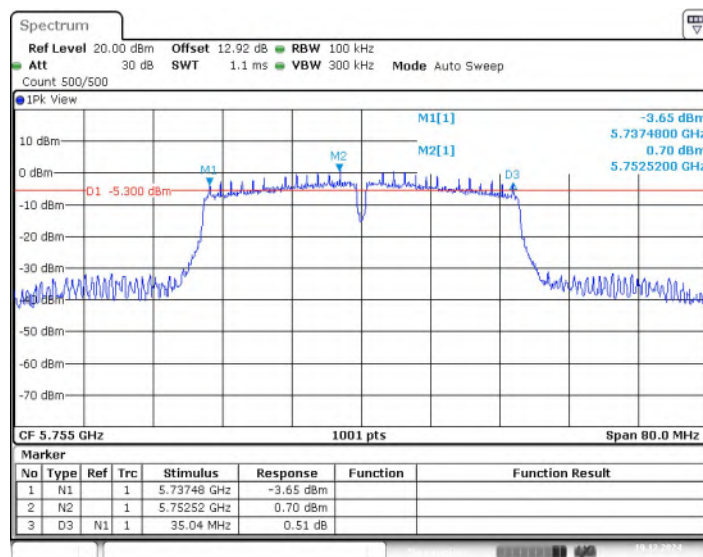


Fig. 10 Occupied 6dB Bandwidth (802.11n-HT40, 5755MHz)

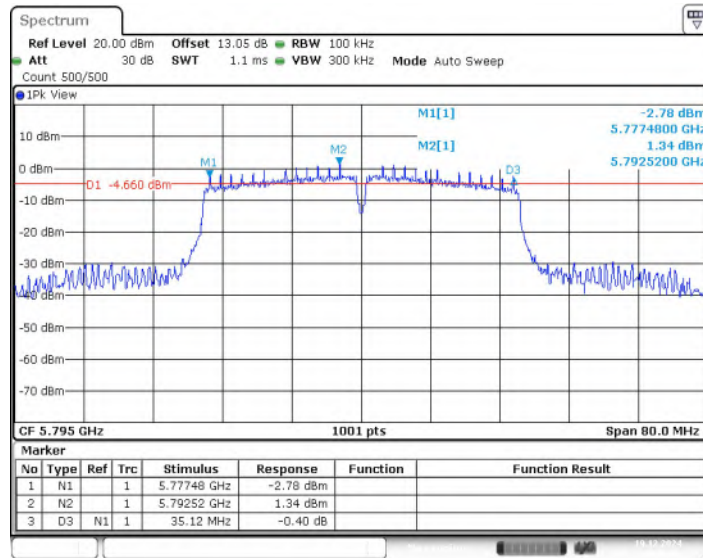


Fig. 11 Occupied 6dB Bandwidth (802.11n-HT40, 5795MHz)

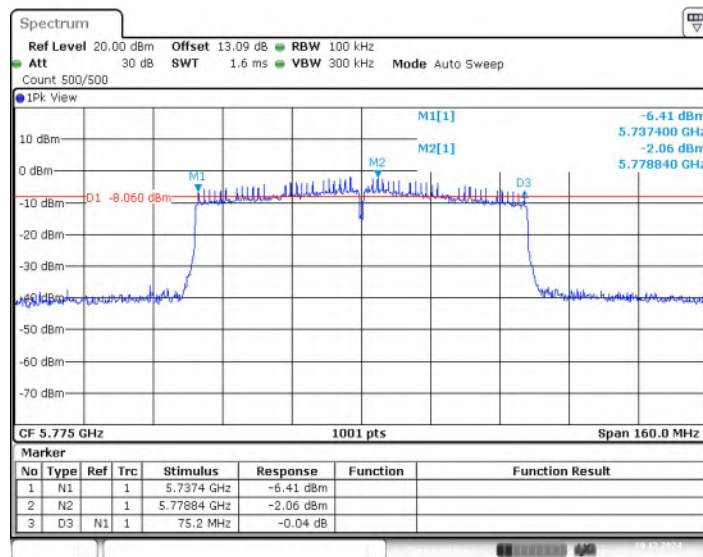


Fig. 12 Occupied 6dB Bandwidth (802.11ac-VHT80, 5775MHz)

A.6. 99% Occupied Bandwidth (conducted)

Measurement of method: See KDB 789033 D02 v02r01, Section D.

Measurement Limit:

Standard	Limit (MHz)
FCC 47 CFR Part 15.403	/

The measurement is made according to KDB 789033.

Measurement Result:

Mode	Frequency (MHz)	99% Occupied Bandwidth (MHz)		Conclusion
802.11a	5180MHz(CH36)	Fig.13	17.10	/
	5200MHz(CH40)	Fig.14	17.18	/
	5240MHz(CH48)	/	17.14	/
	5260MHz(CH52)	/	17.26	/
	5280MHz(CH56)	/	17.30	/
	5320MHz(CH64)	/	17.10	/
	5500MHz(CH100)	/	17.18	/
	5580MHz(CH116)	/	17.22	/
	5700MHz(CH140)	/	17.14	/
	5745MHz(CH149)	/	17.30	/
	5785MHz(CH157)	/	17.22	/
	5825MHz(CH165)	/	17.30	/
802.11n-HT40	5190MHz(CH38)	Fig.15	36.36	/
	5230MHz(CH46)	Fig.16	36.60	/
	5270MHz(CH54)	/	36.60	/
	5310MHz(CH62)	/	36.36	/
	5510MHz(CH102)	/	36.44	/
	5550MHz(CH110)	/	36.68	/
	5670MHz(CH134)	/	36.44	/
	5755MHz(CH151)	/	36.60	/
	5795MHz(CH159)	/	36.92	/
802.11ac-VHT80	5210MHz(CH42)	Fig.17	75.45	/
	5290MHz(CH58)	Fig.18	75.45	/
	5530MHz(CH106)	/	75.29	/
	5610MHz(CH122)	/	75.45	/
	5775MHz(CH155)	/	75.45	/

See below for test graphs.

Conclusion: PASS

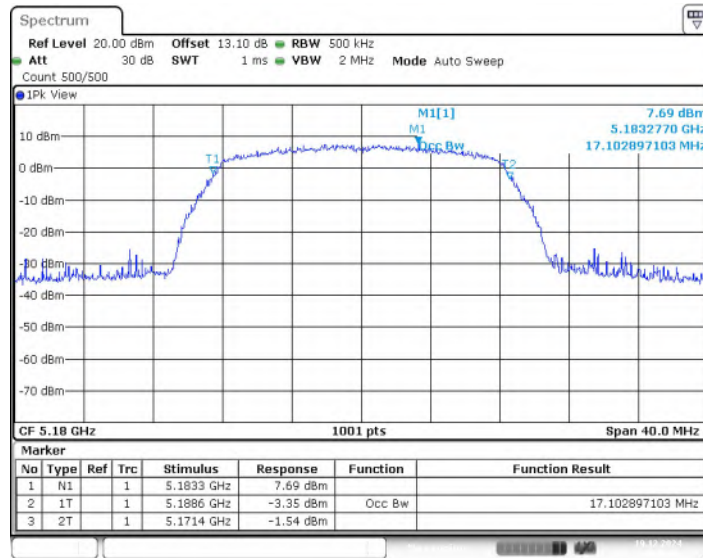


Fig. 13 99% Occupied Bandwidth (802.11a, 5180MHz)

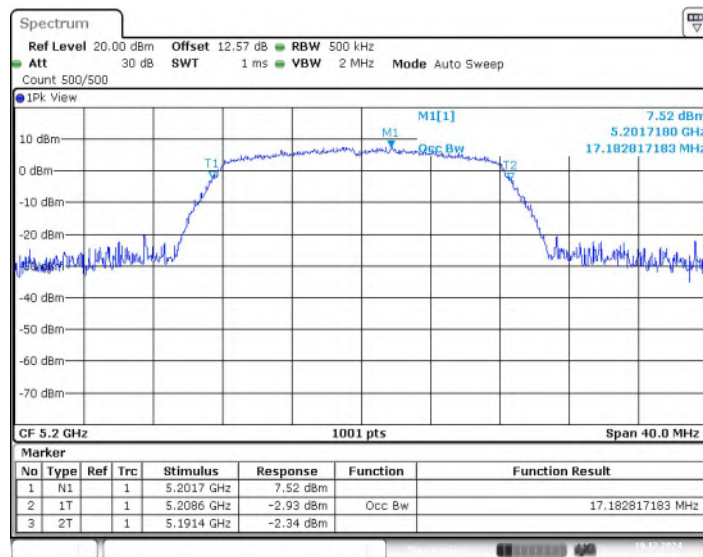


Fig. 14 99% Occupied Bandwidth (802.11a, 5200MHz)

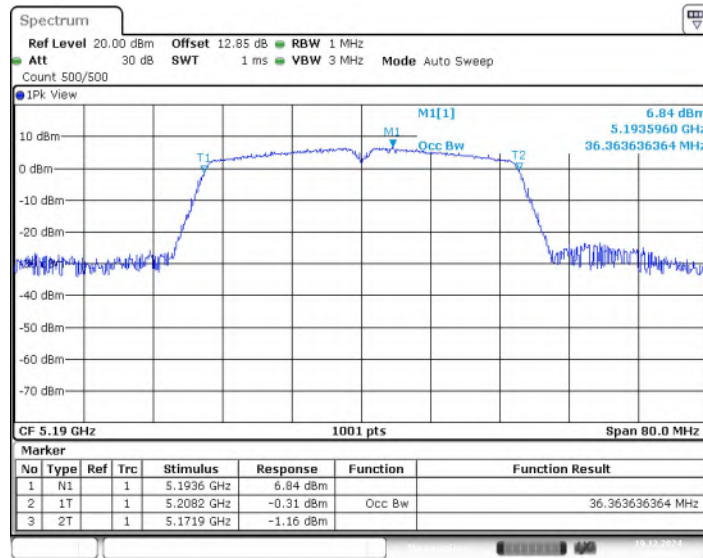


Fig. 15 99% Occupied Bandwidth (802.11n-HT40, 5190MHz)

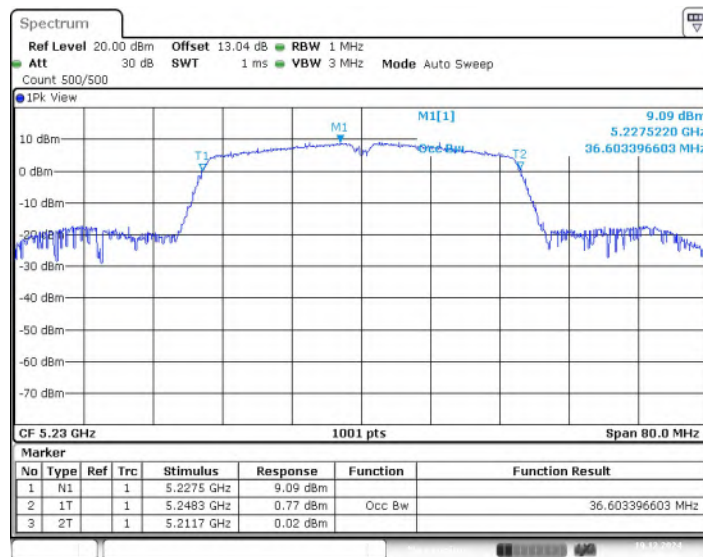


Fig. 16 99% Occupied Bandwidth (802.11n-HT40, 5230MHz)

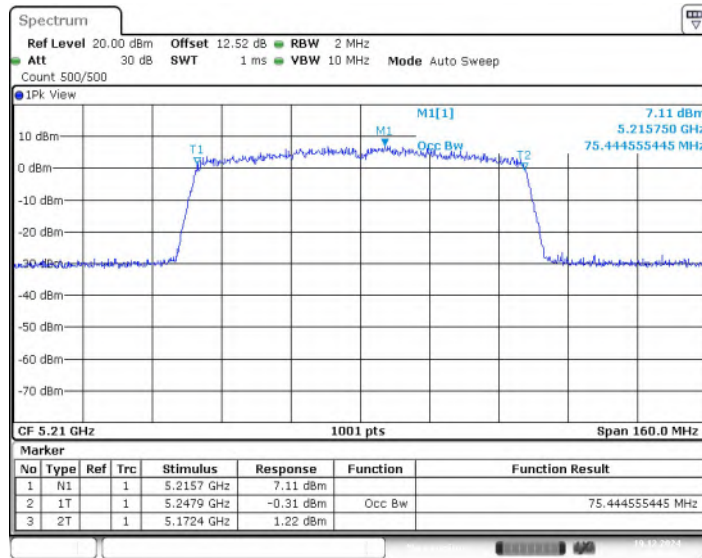


Fig. 17 99% Occupied Bandwidth (802.11ac-VHT80, 5210MHz)

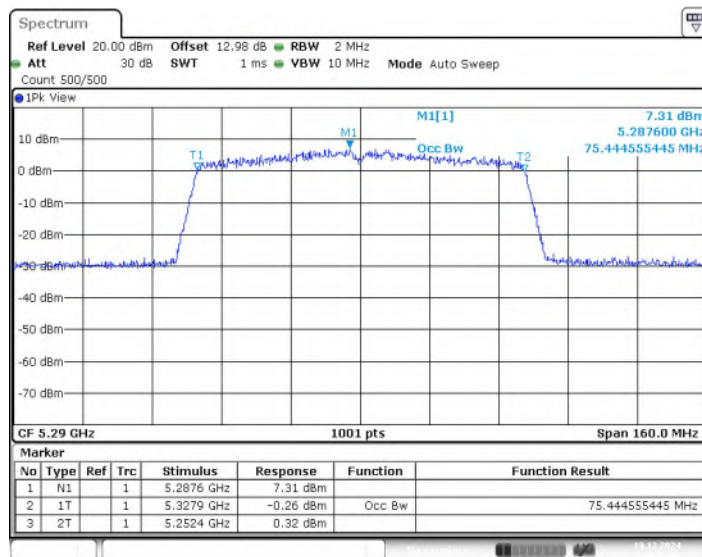


Fig. 18 99% Occupied Bandwidth (802.11ac-VHT80, 5290MHz)

A.7. Dynamic Frequency Selection

The EUT is Client without radar detection (only support client mode).

Measurement of method: See KDB 905462-D02.

Measurement Limit:

Standard	Test Items	Limit
FCC 47 CFR Part 15.407 (h)	Channel Move Time	< 10 s
	Channel Closing Transmission Time	< 200 ms + 60 ms
	Non-Occupancy Period	> 1800 s

The measurement is made according to KDB 905462.

1). Parameters of DFS test signal:

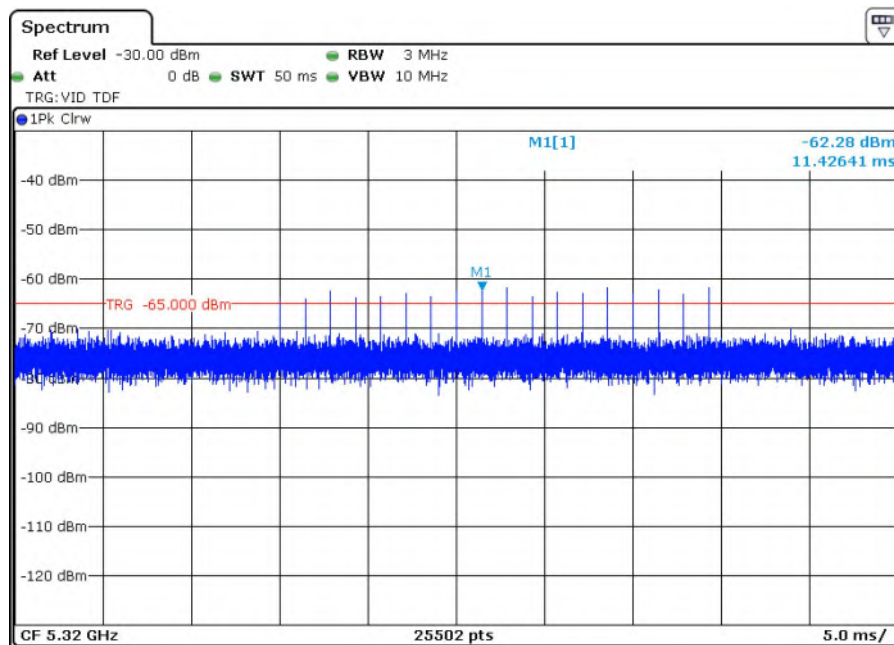
Interference threshold values, master or client incorporation in service monitoring. For device Power less than 23dBm (E.I.R.P.), the threshold level is -62 dBm at the antenna port after Correction for antenna gain and procedural adjustments.

Because of conducted measurement performed, the calibration power from radar signal generator to antenna port of DFS test equipment is -62 dBm.

Maximum Transmit Power	Value
> 200 mW	-64 dBm
< 200 mW	-62 dBm

2). Parameters of the reference DFS test signal:

Pulse width W (μs)	Pulse repetition frequency PRF (PPS)	Pulses per burst (PPB)
1	700	18



Radar Signal (Type 0)

**Measurement Results:****Channel Move Time & Channel Closing Transmission Time:**

Mode	Frequency (MHz)	Test Results	Conclusion
802.11a	5320MHz(Ch64)	Fig.19	P
802.11ac-VHT80	5530MHz(Ch106)	Fig.20	P

Non-Occupancy Period:

Mode	Frequency (MHz)	Test Results	Conclusion
802.11a	5320MHz(Ch64)	Fig.21	P
802.11ac-VHT80	5530MHz(Ch106)	Fig.22	P

See below for test graphs.

Conclusion: PASS

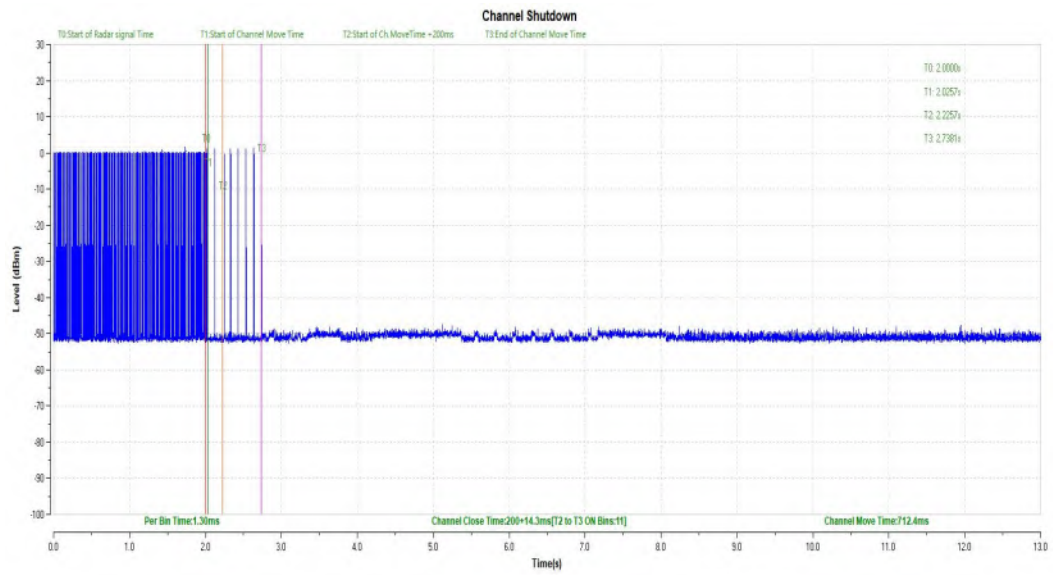


Fig. 19 Channel Move Time & Channel Closing Transmission Time (802.11a Frequency Band: 5250MHz ~ 5350MHz)

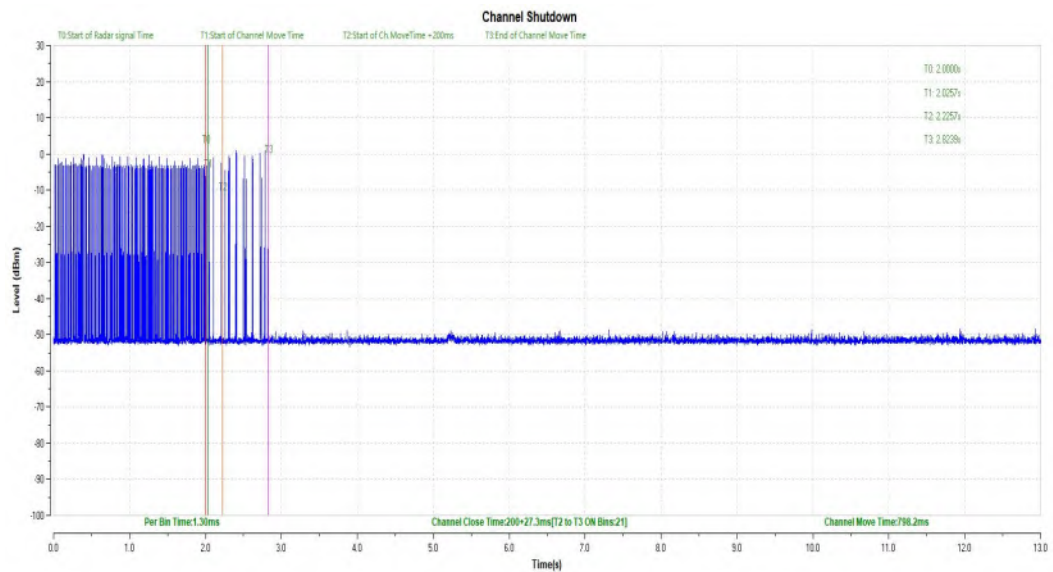


Fig. 20 Channel Move Time & Channel Closing Transmission Time (802.11ac-VHT80 Frequency Band: 5470MHz~5725MHz)

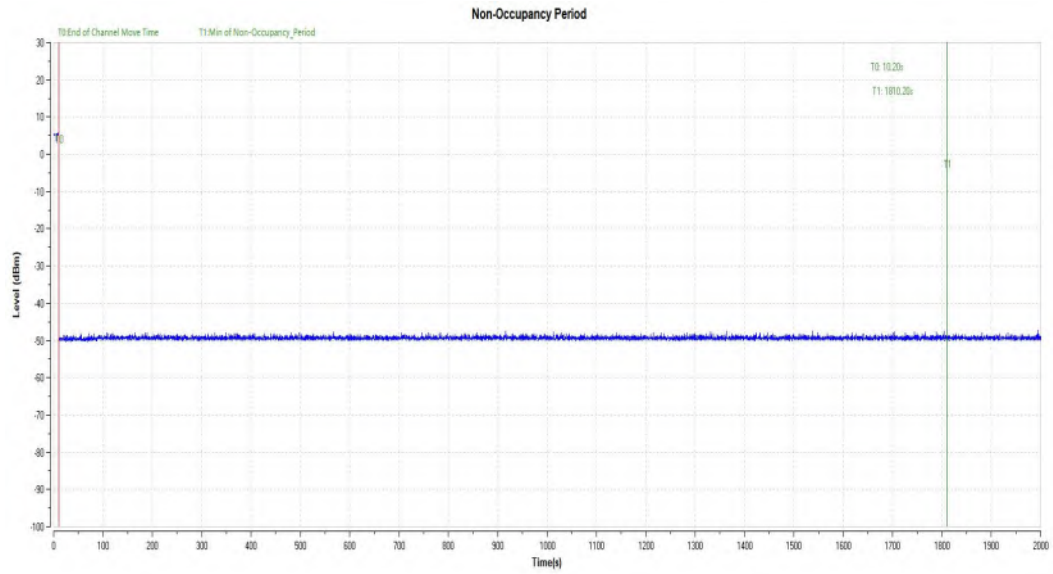


Fig. 21 Non-Occupancy Period (802.11a Frequency Band: 5250MHz ~ 5350MHz)

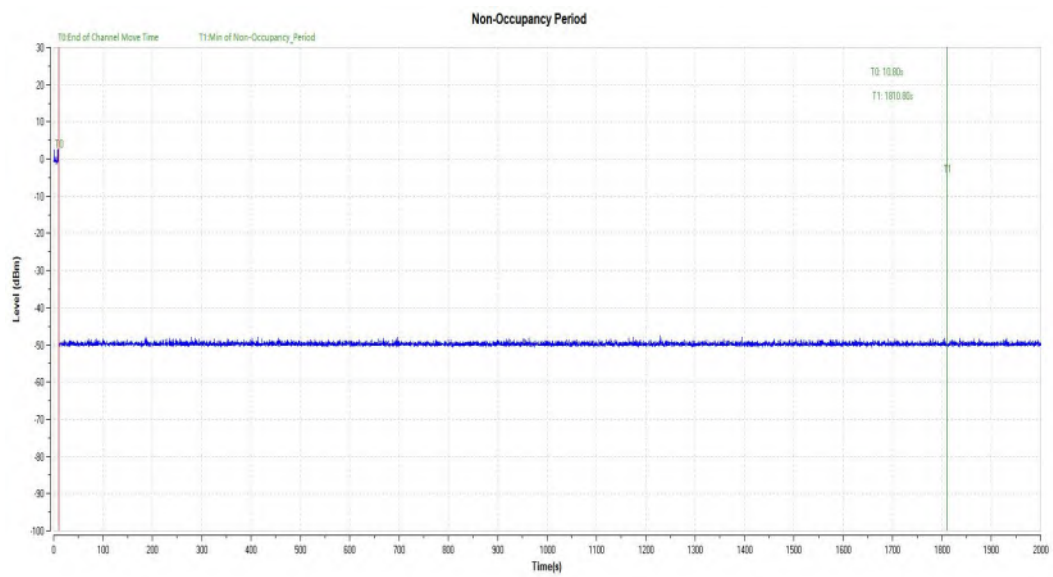


Fig. 22 Non-Occupancy Period (802.11ac-VHT80 Frequency Band: 5470MHz~5725MHz)

A.8. Band Edges Compliance

Method of Measurement: See ANSI C63.10-clause 6.10.

Measurement Limit:

Standard	Limit (dBμV/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)).

Measurement Result:

Mode	Frequency (MHz)	Test Results	Conclusion
802.11a	5180MHz(CH36)	Fig.23	P
	5320MHz(CH64)	Fig.24	P
	5500MHz(CH100)	Fig.25	P
	5700MHz(CH140)	Fig.26	P
	5745MHz(CH149)	Fig.27	P
	5825MHz(CH165)	Fig.28	P
802.11n-HT40	5190MHz(CH38)	Fig.29	P
	5310MHz(CH62)	Fig.30	P
	5510MHz(CH102)	Fig.31	P
	5670MHz(CH134)	Fig.32	P
	5755MHz(CH151)	Fig.33	P
	5795MHz(CH159)	Fig.34	P
802.11ac-VHT80	5210MHz(CH42)	Fig.35	P
	5290MHz(CH58)	Fig.36	P
	5530MHz(CH106)	Fig.37	P
	5610MHz(Ch122)	Fig.38	P
	5775MHz(CH155)	Fig.39	P

See below for test graphs.

Conclusion: PASS

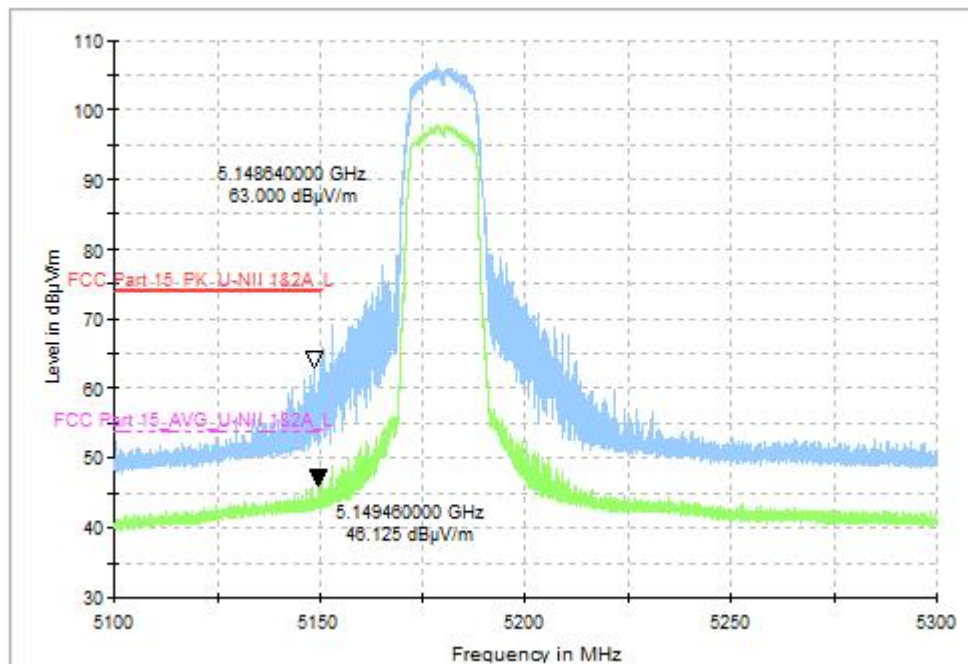


Fig. 23 Band Edges (802.11a, CH36 5180MHz)

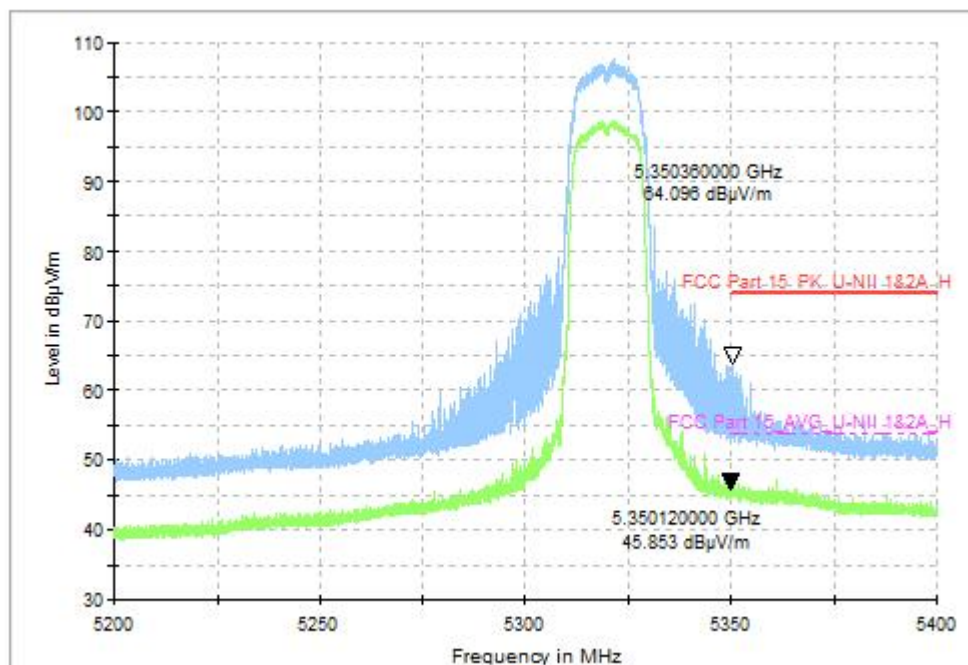


Fig. 24 Band Edges (802.11a, CH64 5320MHz)

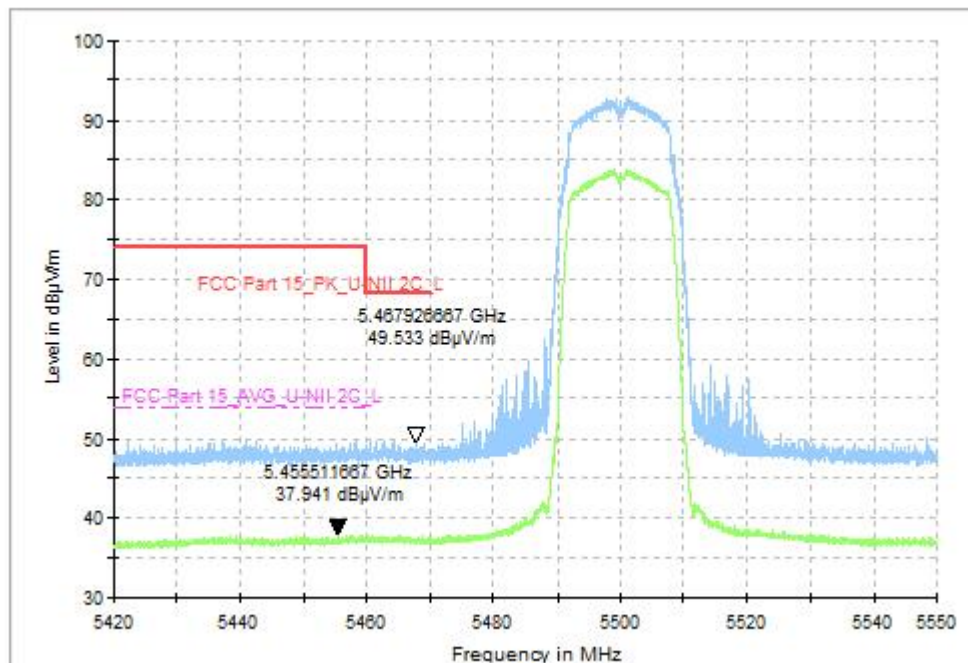


Fig. 25 Band Edges (802.11a, CH100 5500MHz)

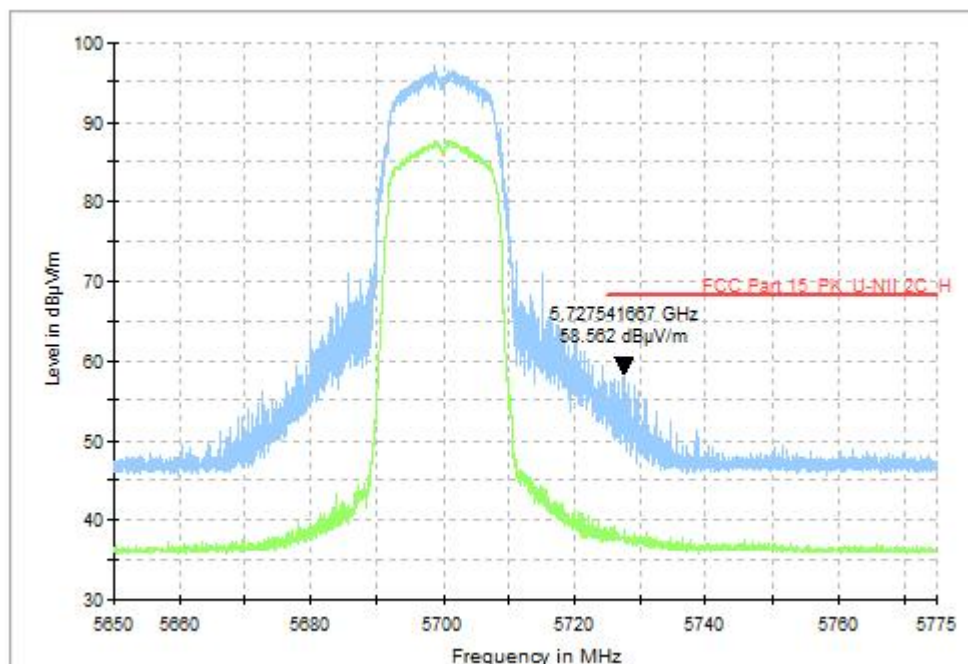


Fig. 26 Band Edges (802.11a, CH140 5700MHz)

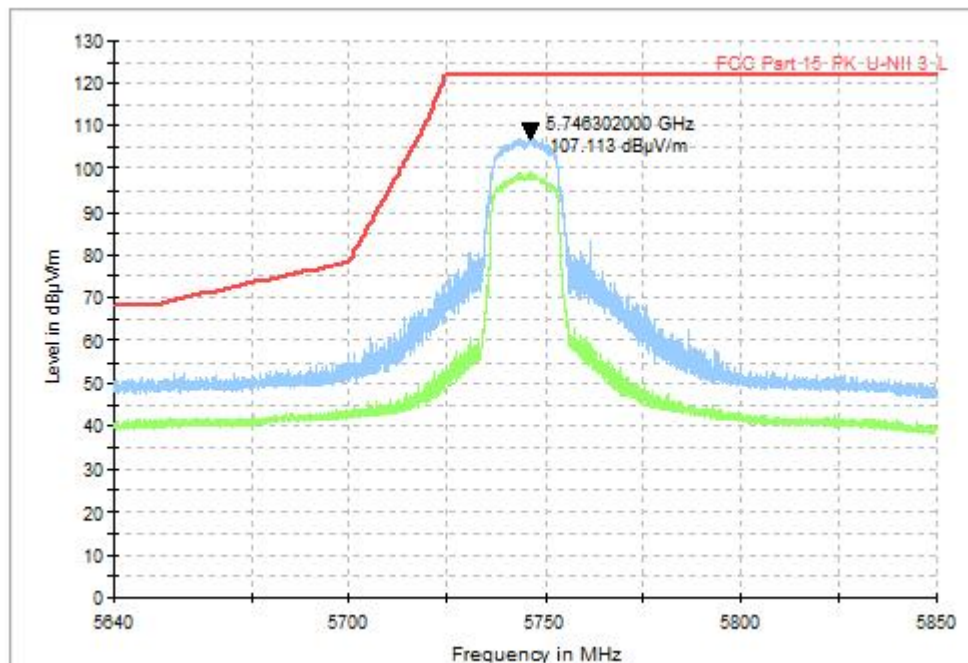


Fig. 27 Band Edges (802.11a, CH149 5745MHz)

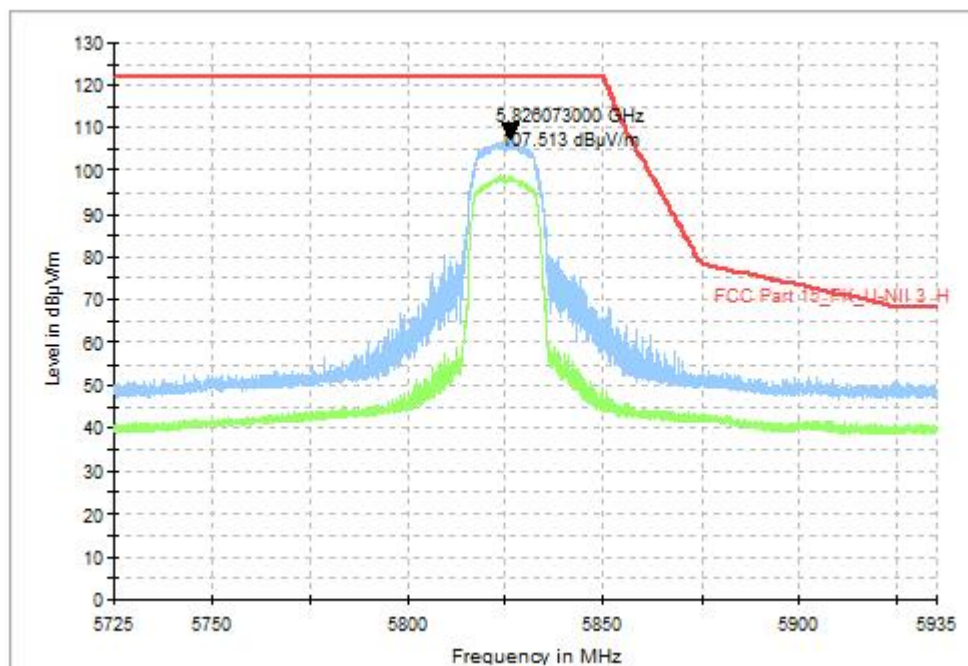


Fig. 28 Band Edges (802.11a, CH165 5825MHz)

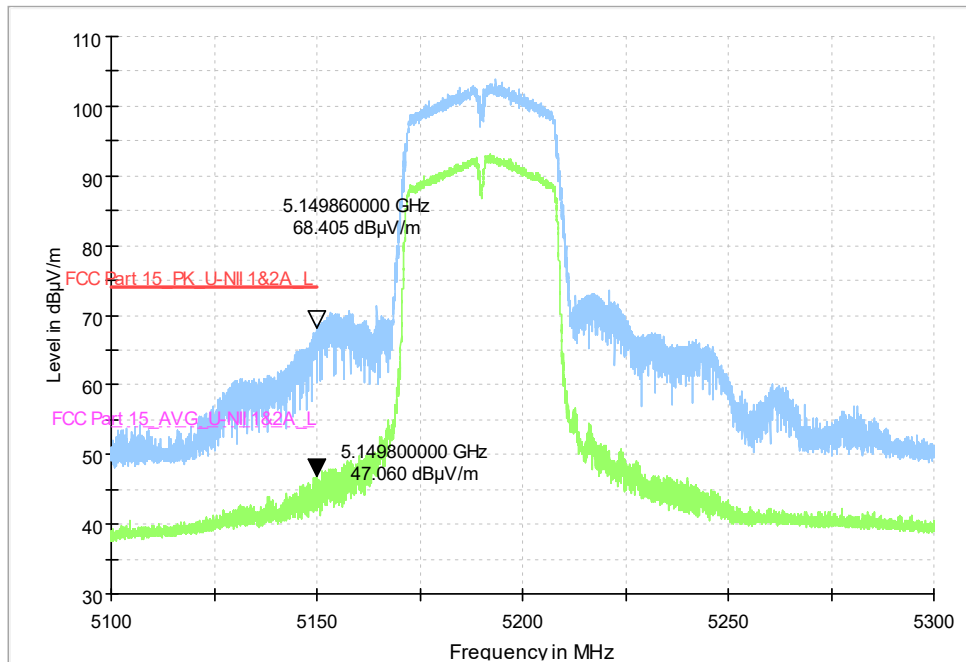


Fig. 29 Band Edges (802.11n-HT40, CH38 5190MHz)

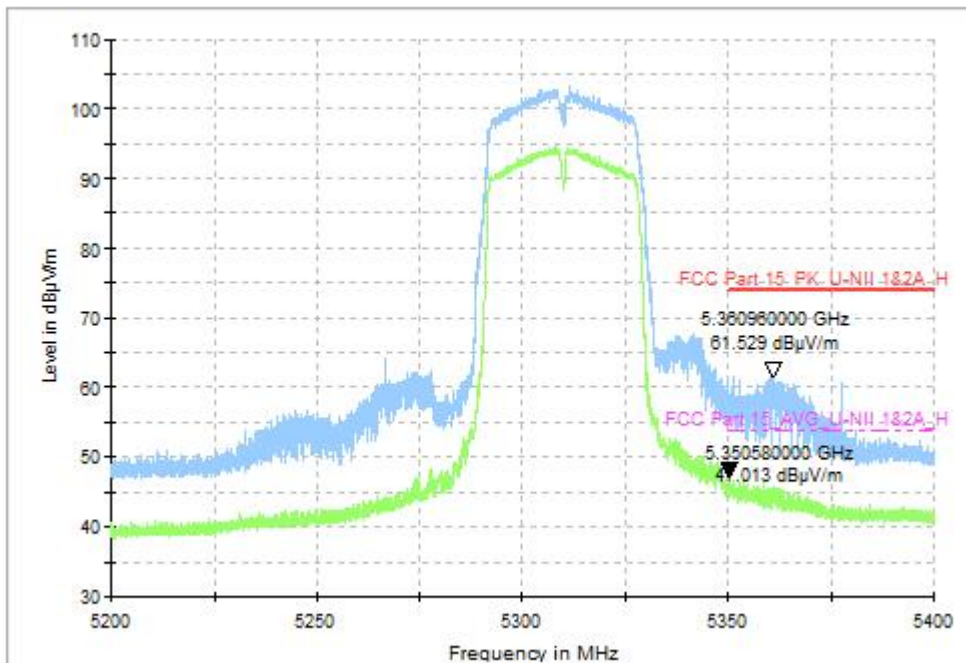


Fig. 30 Band Edges (802.11n-HT40, CH62 5310MHz)

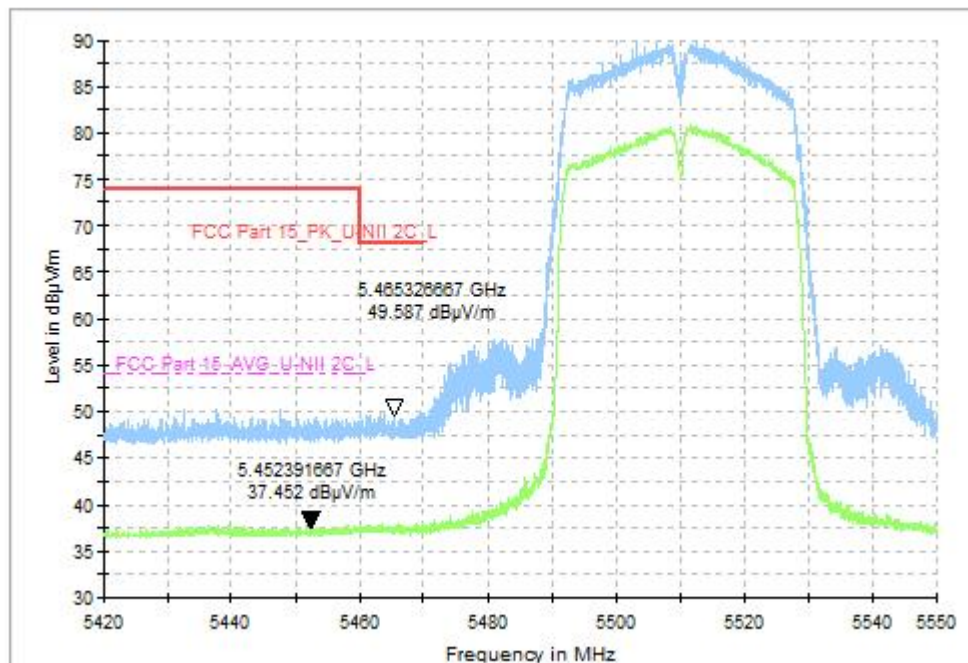


Fig. 31 Band Edges (802.11n-HT40, CH102 5510MHz)

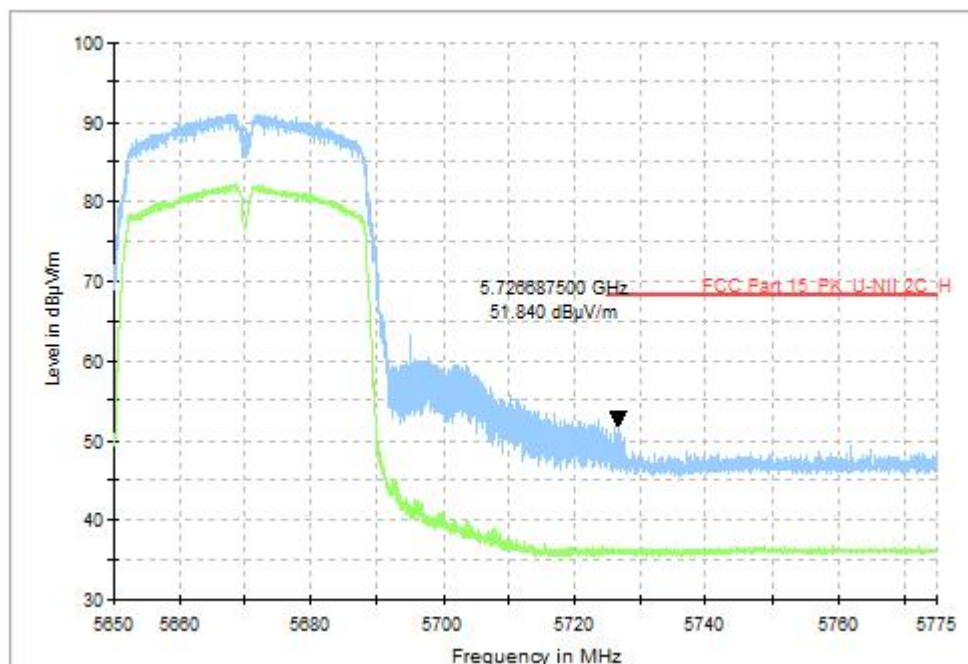


Fig. 32 Band Edges (802.11n-HT40, CH134 5670MHz)

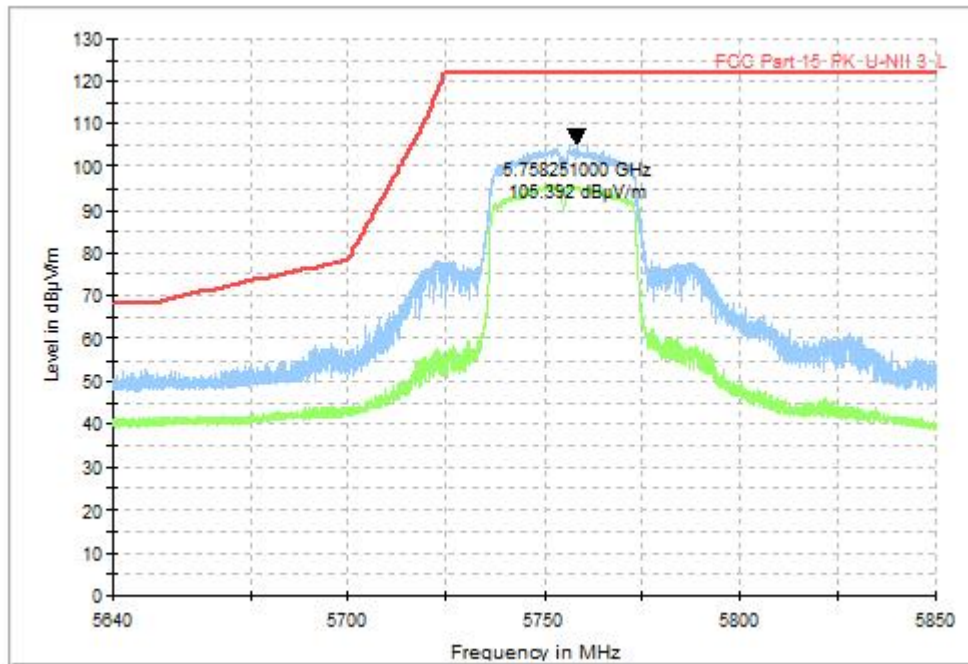


Fig. 33 Band Edges (802.11n-HT40, CH151 5755MHz)

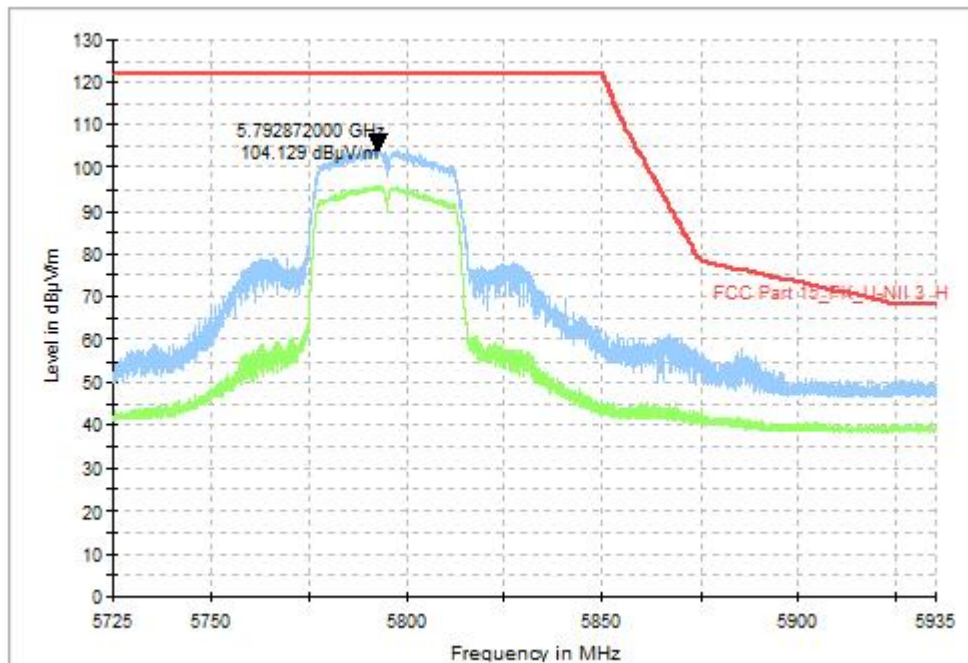


Fig. 34 Band Edges (802.11n-HT40, CH159 5795MHz)

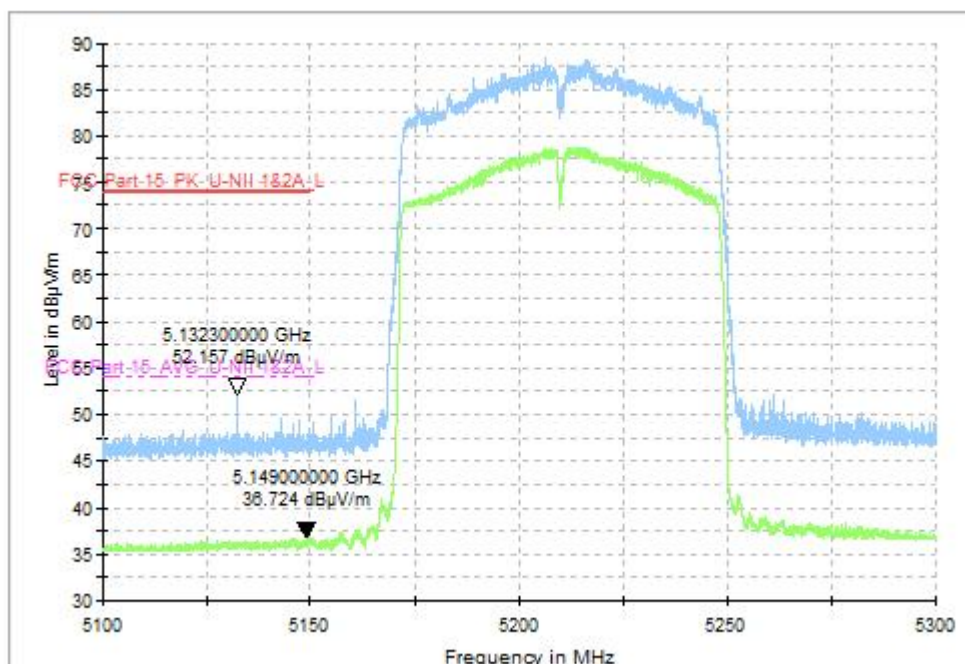


Fig. 35 Band Edges (802.11ac-VHT80, CH42 5210MHz)

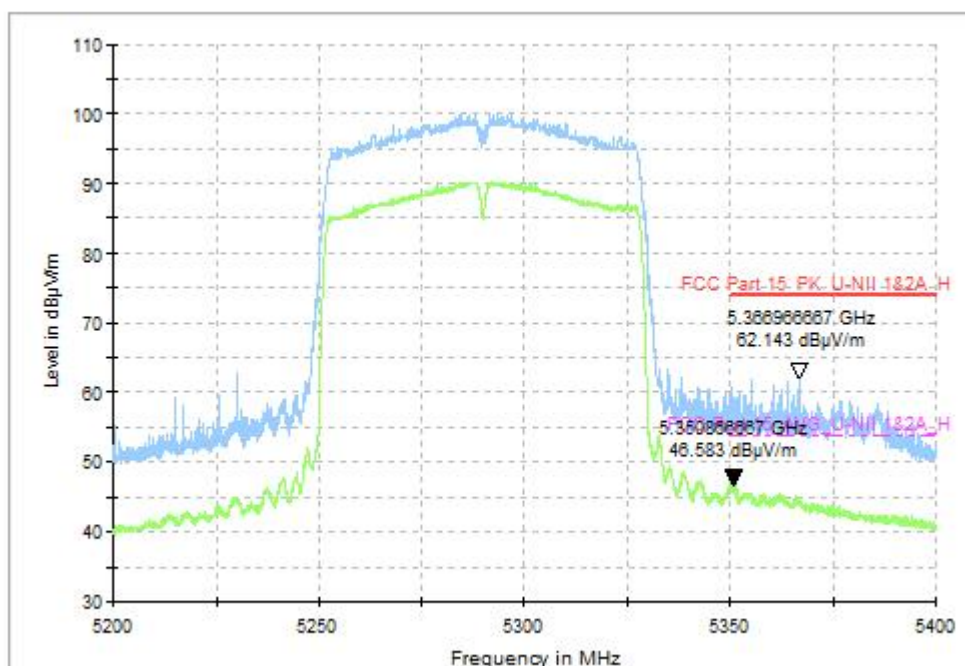


Fig. 36 Band Edges (802.11ac-VHT80, CH58 5290MHz)

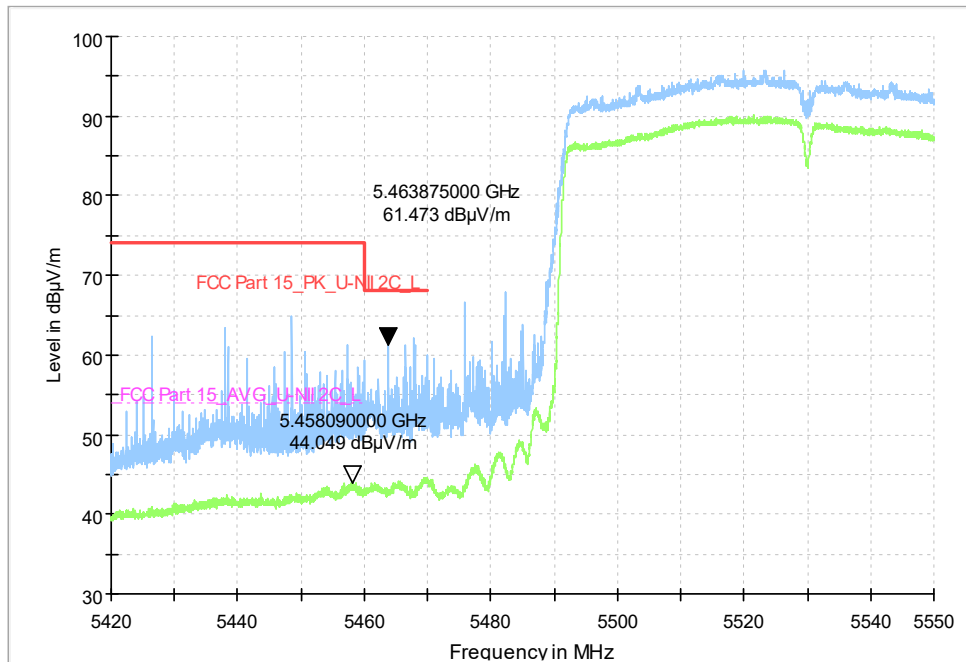


Fig. 37 Band Edges (802.11ac-VHT80, CH106 5530MHz)

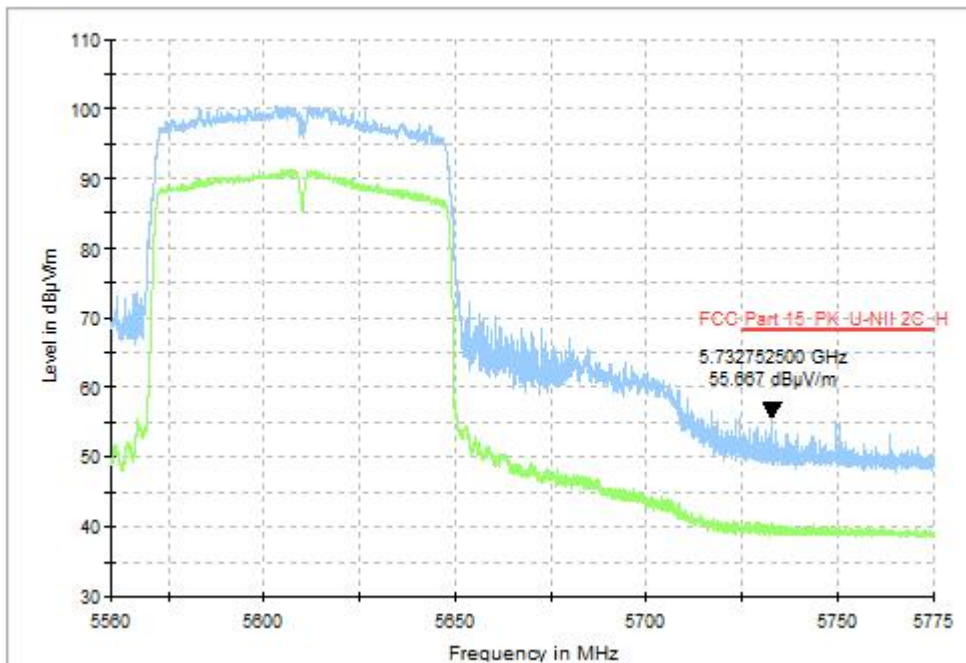


Fig. 38 Band Edges (802.11ac-VHT80, CH122 5610MHz)

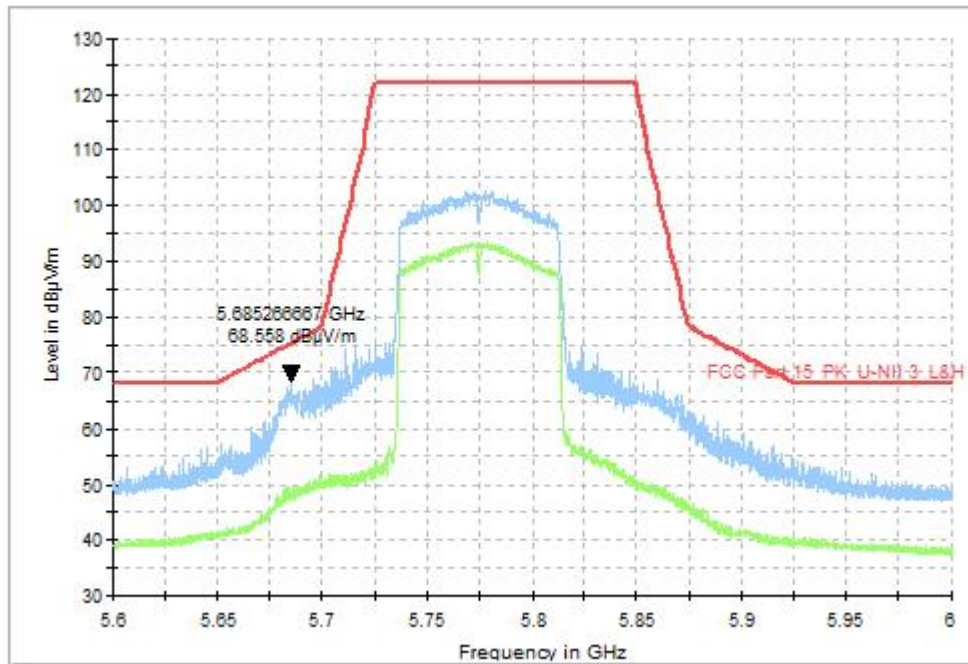


Fig. 39 Band Edges (802.11ac-VHT80, CH155 5775MHz)

A.9. Transmitter Spurious Emission

Measurement of method: See KDB 789033 D02 v02r01, Section G.3, G.4, G.5 and G.6.

Measurement Limit:

Standard	Limit (dBμV/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)).

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.

The measurement results include the horizontal polarization and vertical polarization measurements. For radiated measurement, pre-scanned in three orthogonal panels, X, Y, Z. The worst cases were recorded in this report.

Measurement Result:

Mode	Frequency (MHz)	Frequency Range	Test Results	Conclusion
802.11a	5180MHz(CH36)	1 GHz ~18 GHz	Fig.40	P
	5200MHz(CH40)	1 GHz ~18 GHz	Fig.41	P
	5240MHz(CH48)	1 GHz ~18 GHz	Fig.42	P
	5260MHz(CH52)	1 GHz ~18 GHz	Fig.43	P
	5280MHz(CH56)	1 GHz ~18 GHz	Fig.44	P
	5320MHz(CH64)	1 GHz ~18 GHz	Fig.45	P
	5500MHz(CH100)	1 GHz ~18 GHz	Fig.46	P
	5600MHz(CH120)	1 GHz ~18 GHz	Fig.47	P
	5700MHz(CH140)	1 GHz ~18 GHz	Fig.48	P
	5745MHz(CH149)	1 GHz ~18 GHz	Fig.49	P
	5785MHz(CH157)	1 GHz ~18 GHz	Fig.50	P
	5825MHz(CH165)	1 GHz ~18 GHz	Fig.51	P
802.11n-HT40	5190MHz(CH38)	1 GHz ~18 GHz	Fig.52	P
	5230MHz(CH46)	1 GHz ~18 GHz	Fig.53	P
	5270MHz(CH54)	1 GHz ~18 GHz	Fig.54	P
	5310MHz(CH62)	1 GHz ~18 GHz	Fig.55	P



	5510MHz(CH102)	1 GHz ~18 GHz	Fig.56	P
	5580MHz(CH118)	1 GHz ~18 GHz	Fig.57	P
	5670MHz(CH134)	1 GHz ~18 GHz	Fig.58	P
	5755MHz(CH151)	1 GHz ~18 GHz	Fig.59	P
	5795MHz(CH159)	1 GHz ~18 GHz	Fig.60	P
802.11ac -VHT80	5210MHz(CH42)	1 GHz ~18 GHz	Fig.61	P
	5290MHz(CH58)	1 GHz ~18 GHz	Fig.62	P
	5530MHz(CH106)	1 GHz ~18 GHz	Fig.63	P
	5610MHz(CH122)	1 GHz ~18 GHz	Fig.64	P
	5775MHz(CH155)	1 GHz ~18 GHz	Fig.65	P
All channels		30 MHz ~1 GHz	Fig.66	P
		18 GHz ~26.5 GHz	Fig.67	P
		26.5GHz~40GHz	Fig.68	P

Worst Case Result:

802.11a CH56

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
7477.384616	45.51	74.00	28.49	H	7.0
8368.615385	44.90	74.00	29.10	V	7.5
11127.692308	47.43	74.00	26.57	H	10.7
12378.923077	47.11	74.00	26.89	V	12.7
16142.307692	52.13	74.00	21.87	V	16.8
17716.615385	54.20	74.00	19.80	H	20.5

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
7477.384616	34.12	54.00	19.88	H	7.0
8368.615385	33.95	54.00	20.05	V	7.5
11127.692308	35.47	54.00	18.53	H	10.7
12378.923077	37.46	54.00	16.54	V	12.7
16142.307692	41.47	54.00	12.53	V	16.8
17716.615385	43.78	54.00	10.22	H	20.5

802.11n-HT40 CH159

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
7495.846154	45.31	74.00	28.69	H	7.0
8038.153846	45.11	74.00	28.89	V	7.5
11173.846154	46.12	74.00	27.88	H	10.3
12441.692308	47.94	74.00	26.06	H	12.3
15649.384615	51.31	74.00	22.69	V	14.0
17968.615385	52.95	74.00	21.05	H	20.6

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
7495.846154	34.79	54.00	19.21	H	7.0
8038.153846	34.96	54.00	19.04	V	7.5
11173.846154	36.14	54.00	17.86	H	10.3
12441.692308	37.19	54.00	16.81	H	12.3
15649.384615	40.75	54.00	13.25	V	14.0
17968.615385	43.14	54.00	10.86	H	20.6

802.11ac-VHT80 CH155

Frequency (MHz)	MaxPeak (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
7451.500000	45.02	74.00	28.98	H	7.0
8084.000000	44.85	74.00	29.15	V	7.4
11075.000000	47.60	74.00	26.40	H	11.0
12352.000000	48.85	74.00	25.15	V	12.8
15649.500000	51.32	74.00	22.68	V	14.0
17977.000000	54.00	74.00	20.00	H	20.6

Frequency (MHz)	Average (dBμV/m)	Limit (dBμV/m)	Margin (dB)	Pol	Corr. (dB/m)
7451.500000	34.54	54.00	19.46	H	7.0
8084.000000	34.52	54.00	19.48	V	7.4
11075.000000	36.20	54.00	17.80	H	11.0
12352.000000	38.41	54.00	15.59	V	12.8
15649.500000	40.83	54.00	13.17	V	14.0
17977.000000	43.46	54.00	10.54	H	20.6

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

See below for test graphs.

Conclusion: PASS

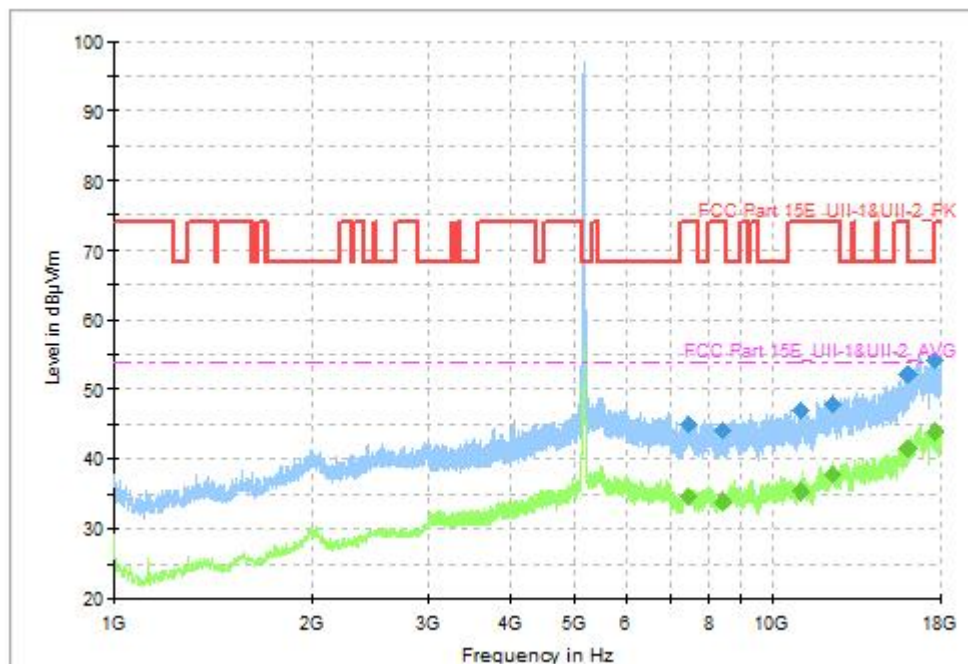


Fig. 40 Transmitter Spurious Emission (802.11a, CH36 5180MHz, 1GHz-18GHz)

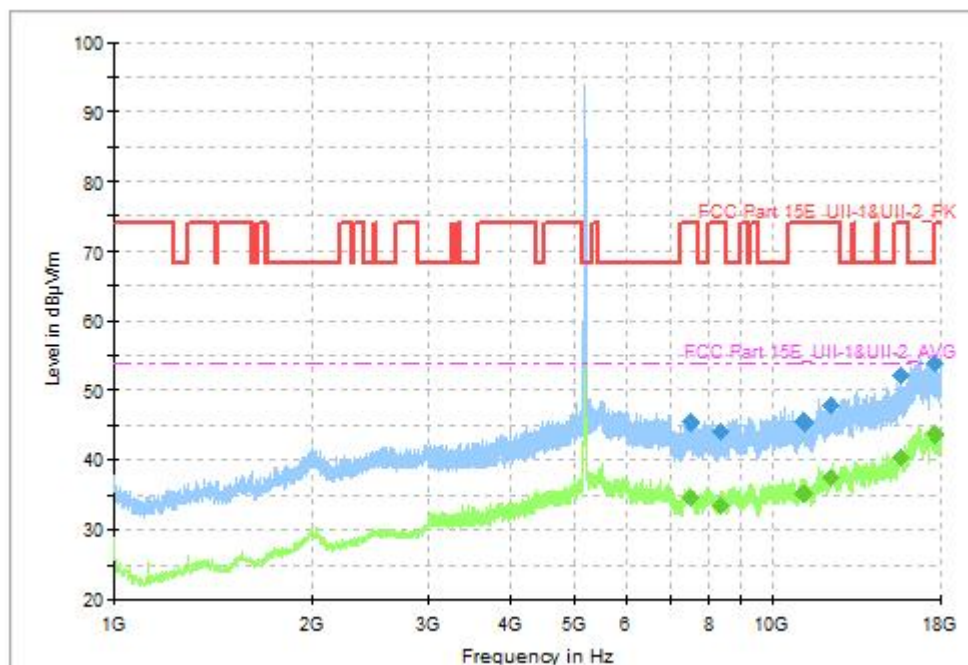


Fig. 41 Transmitter Spurious Emission (802.11a, CH40 5200MHz, 1GHz-18GHz)

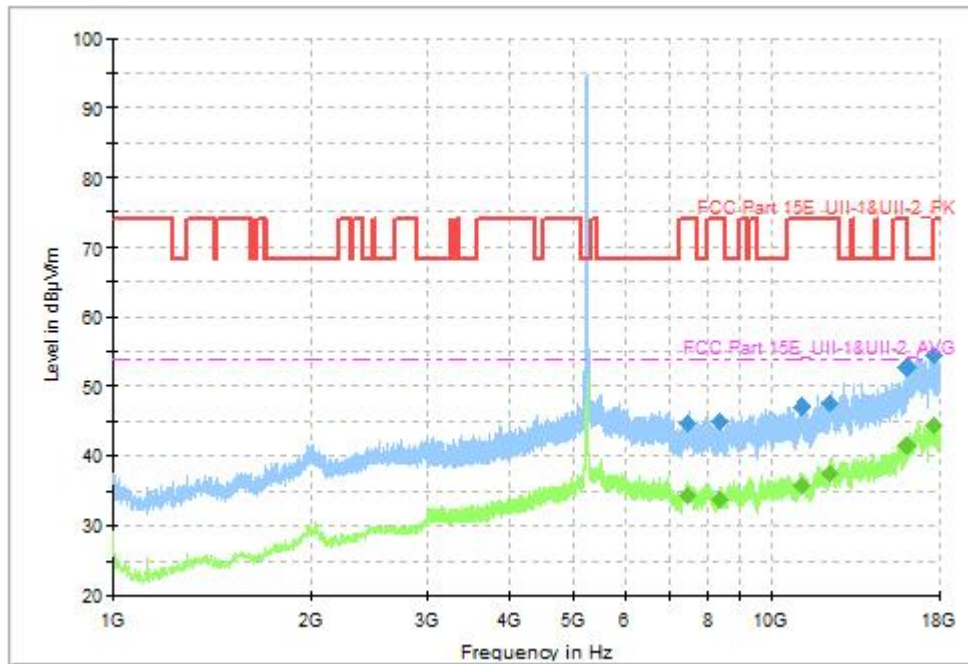


Fig. 42 Transmitter Spurious Emission (802.11a, CH48 5240MHz, 1GHz-18GHz)

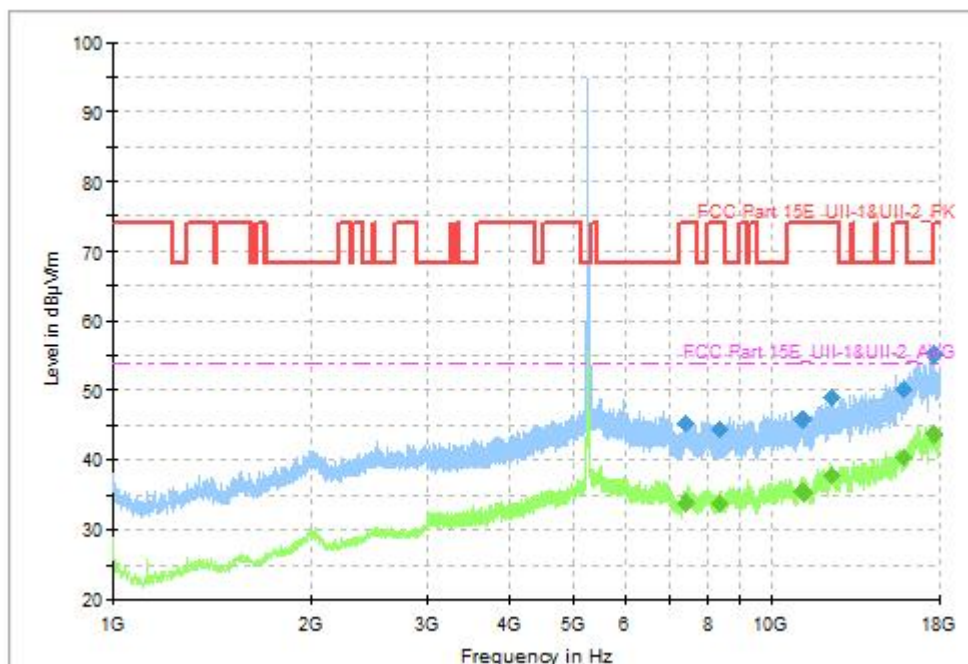


Fig. 43 Transmitter Spurious Emission (802.11a, CH52 5260MHz, 1GHz-18GHz)

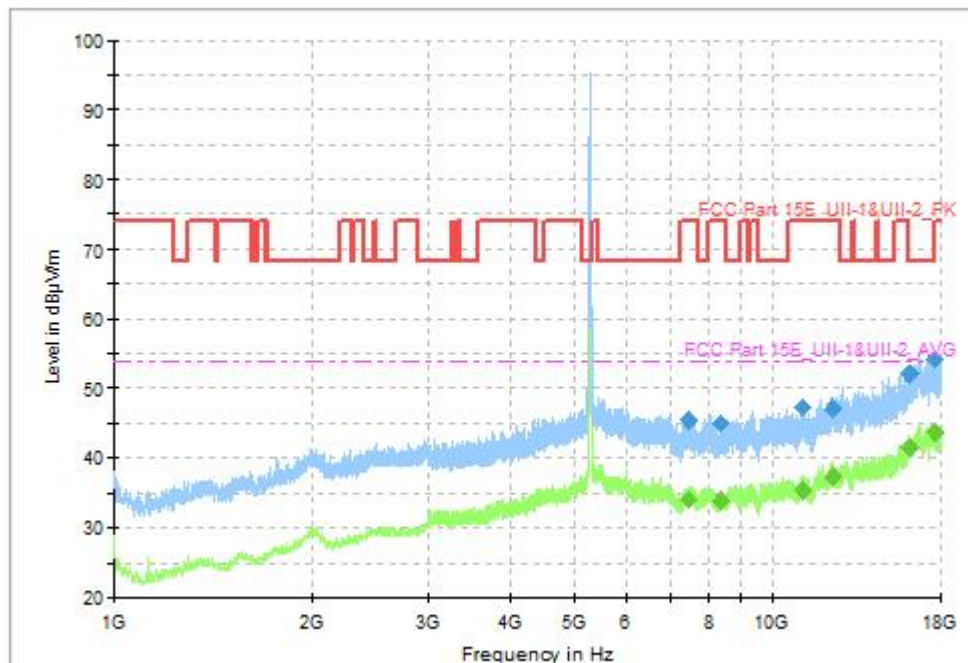


Fig. 44 Transmitter Spurious Emission (802.11a, CH56 5280MHz, 1GHz-18GHz)

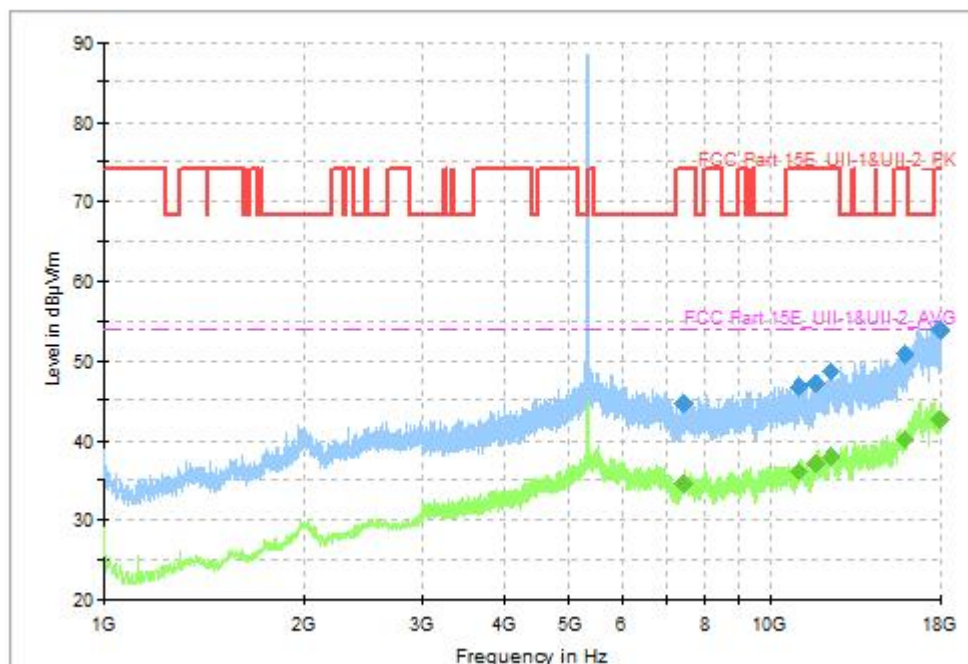


Fig. 45 Transmitter Spurious Emission (802.11a, CH64 5320MHz, 1GHz-18GHz)

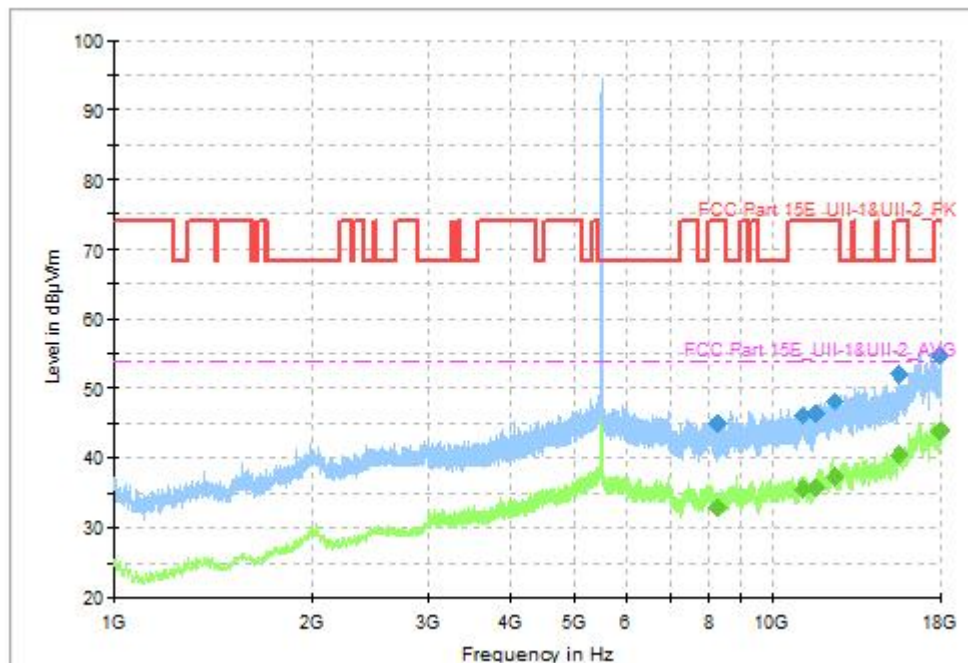


Fig. 46 Transmitter Spurious Emission (802.11a, CH100 5500MHz, 1GHz-18GHz)

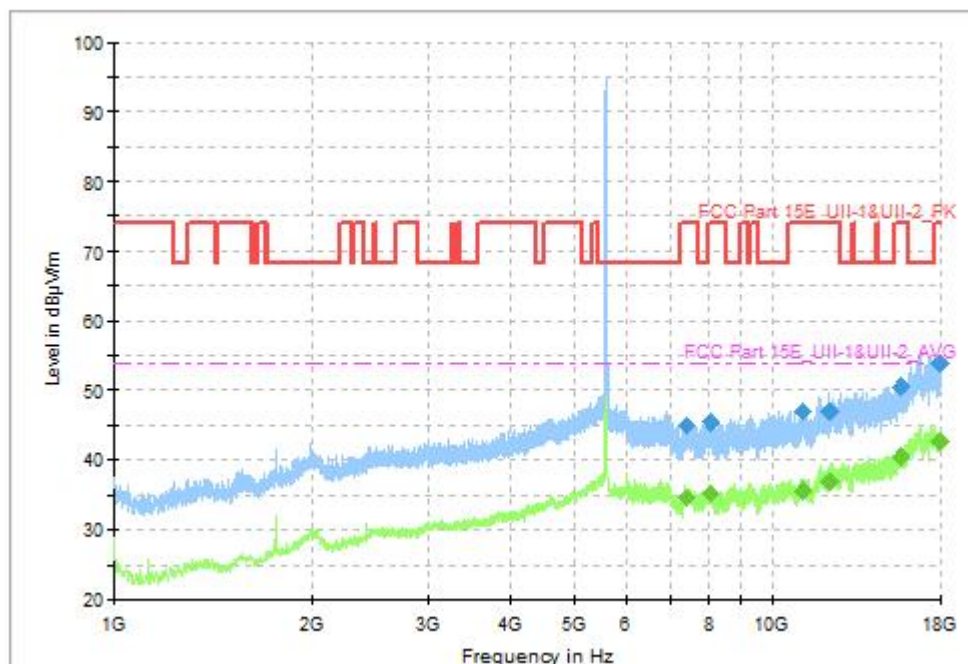


Fig. 47 Transmitter Spurious Emission (802.11a, CH120 5600MHz, 1GHz-18GHz)

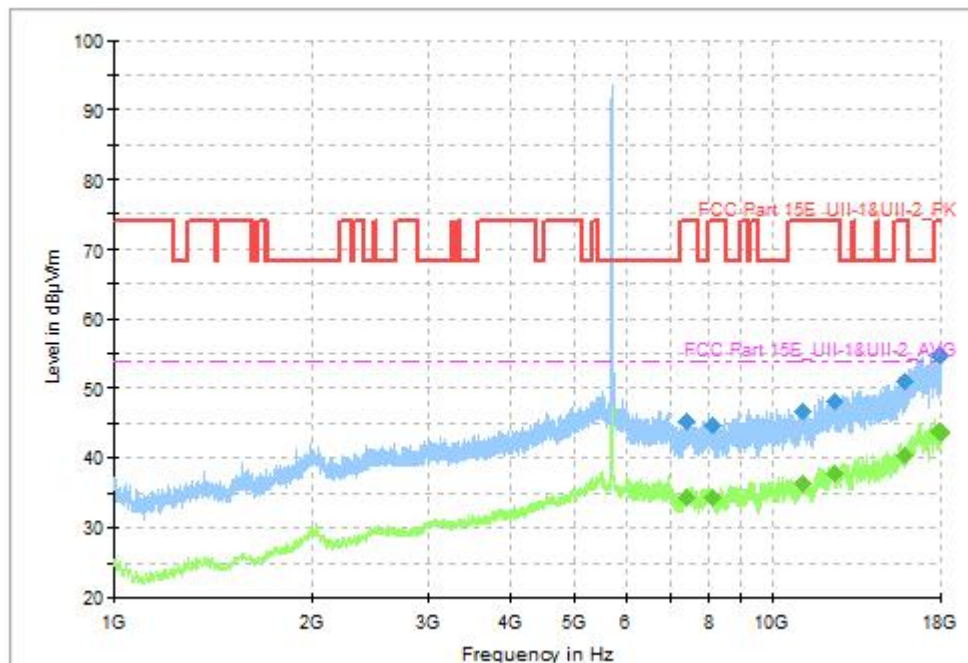


Fig. 48 Transmitter Spurious Emission (802.11a, CH140 5700MHz, 1GHz-18GHz)

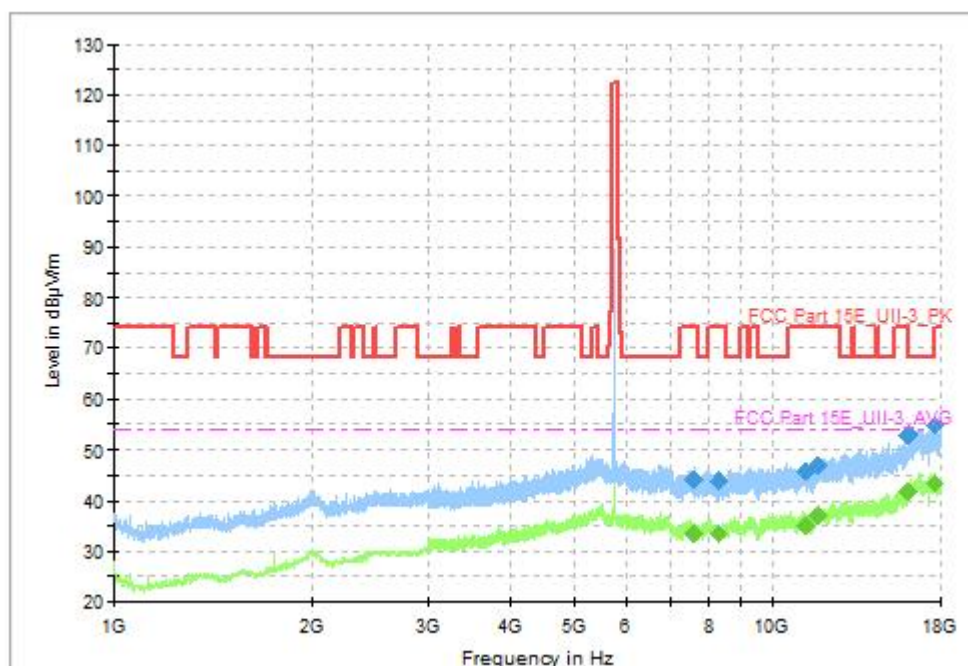


Fig. 49 Transmitter Spurious Emission (802.11a, CH149 5745MHz, 1GHz-18GHz)

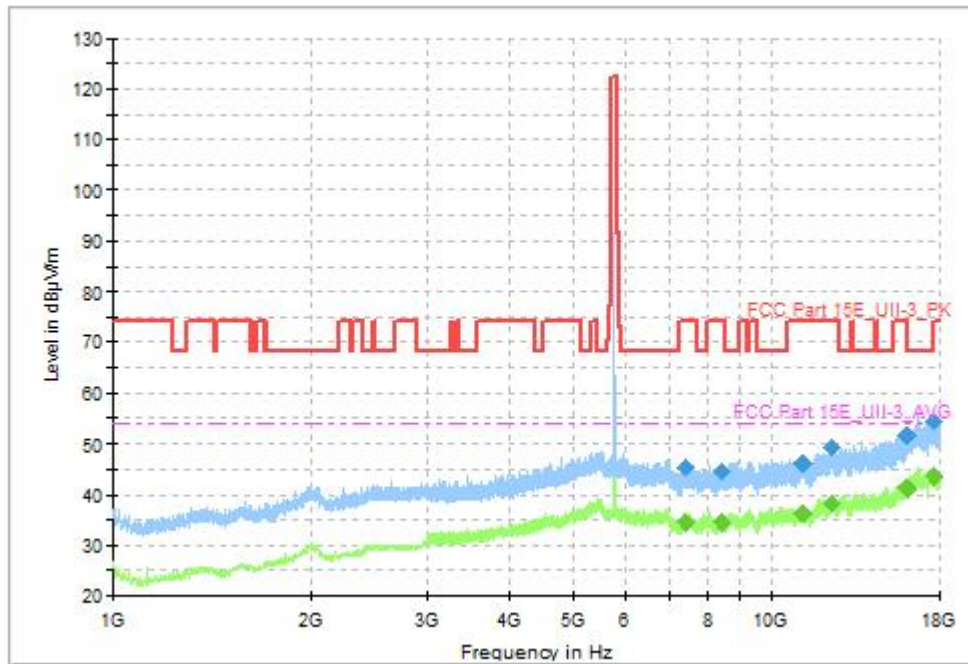


Fig. 50 Transmitter Spurious Emission (802.11a, CH157 5785MHz, 1GHz-18GHz)

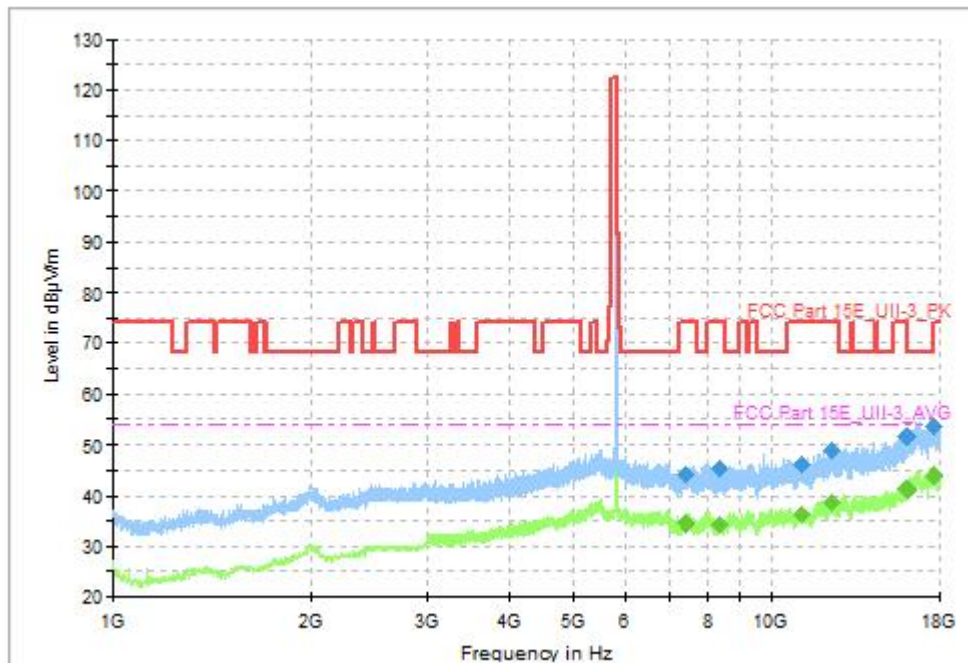


Fig. 51 Transmitter Spurious Emission (802.11a, CH165 5825MHz, 1GHz-18GHz)

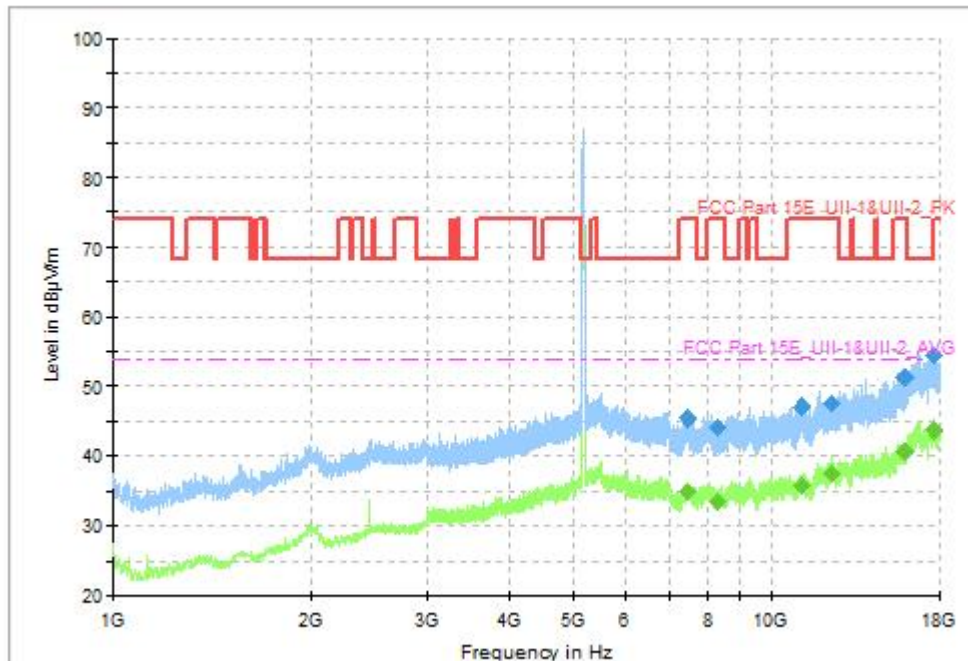


Fig. 52 Transmitter Spurious Emission (802.11n-HT40, CH38 5190MHz, 1GHz-18GHz)

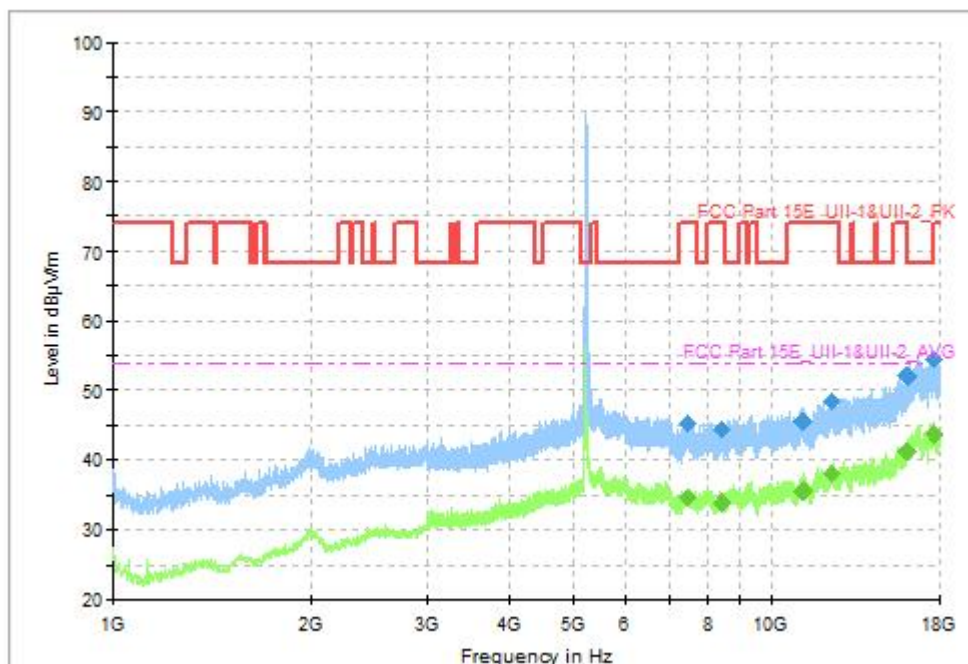


Fig. 53 Transmitter Spurious Emission (802.11n-HT40, CH46 5230MHz, 1GHz-18GHz)

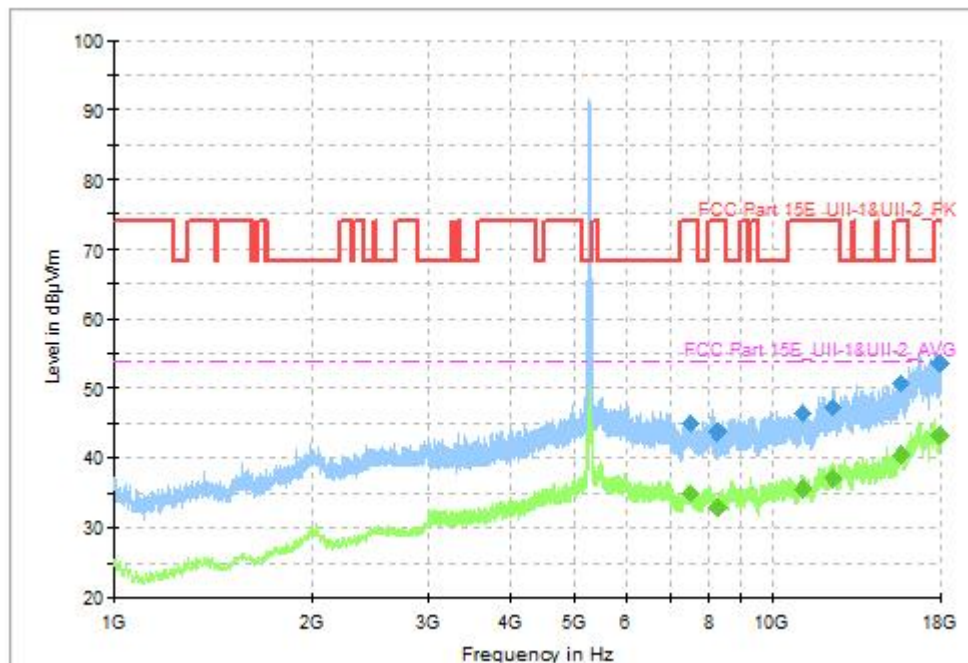


Fig. 54 Transmitter Spurious Emission (802.11n-HT40, CH54 5270MHz, 1GHz-18GHz)

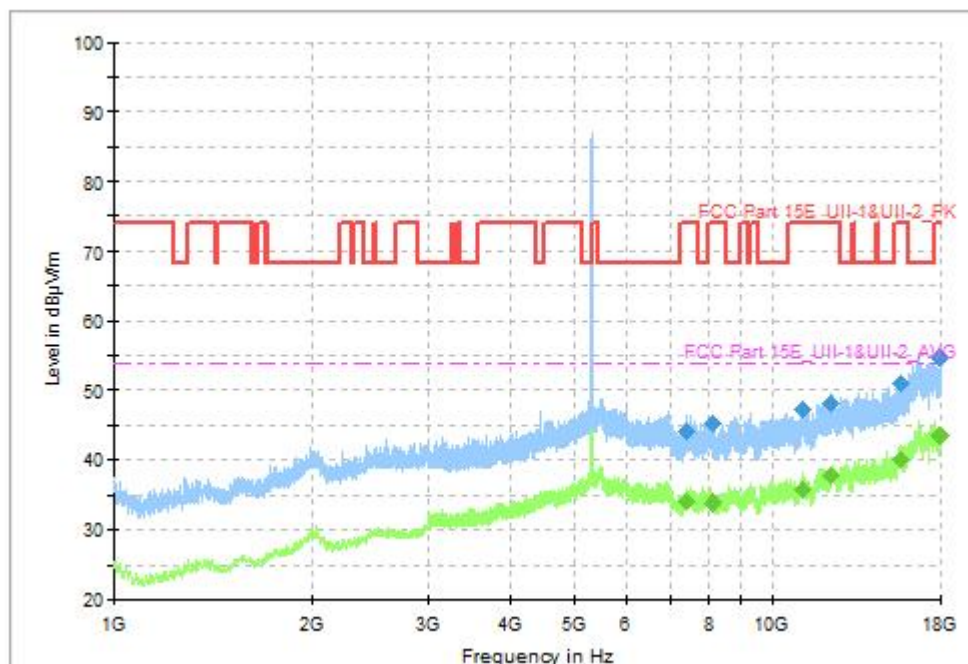


Fig. 55 Transmitter Spurious Emission (802.11n-HT40, CH62 5310MHz, 1GHz-18GHz)

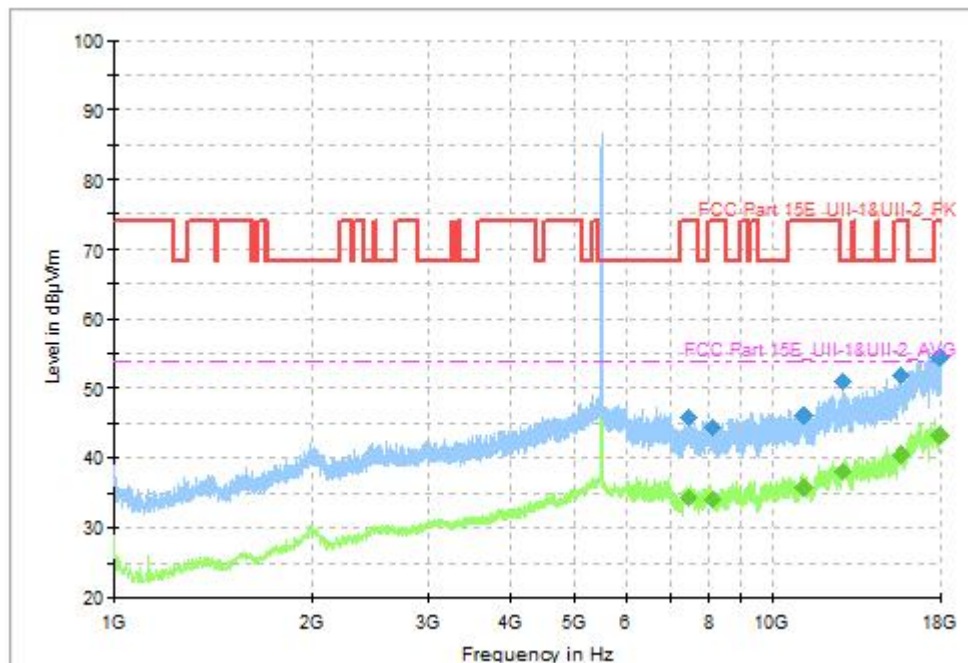


Fig. 56 Transmitter Spurious Emission (802.11n-HT40, CH102 5510MHz, 1GHz-18GHz)

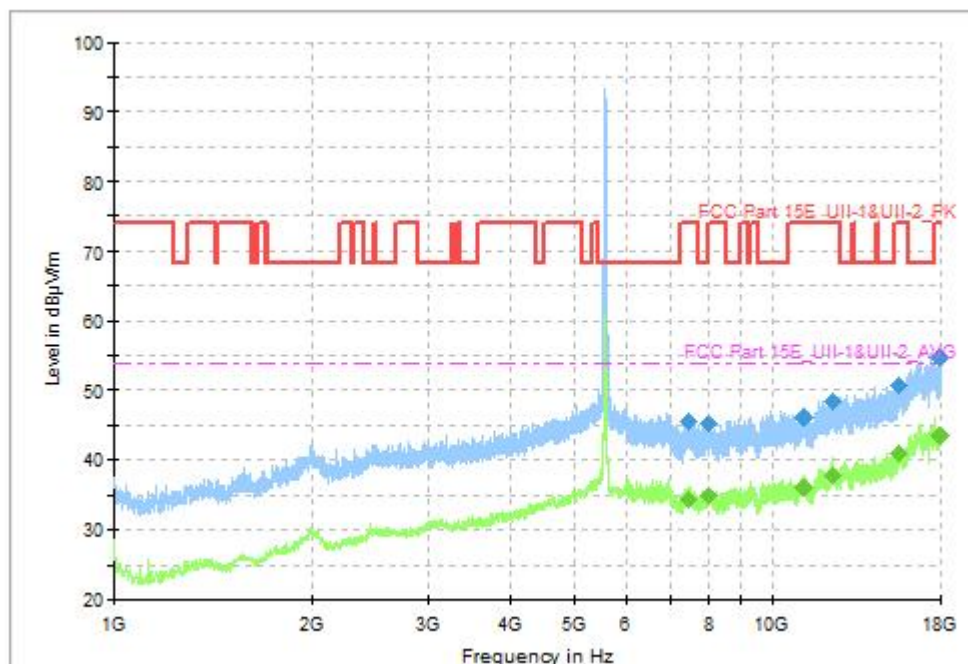


Fig. 57 Transmitter Spurious Emission (802.11n-HT40, CH118 5580MHz, 1GHz-18GHz)

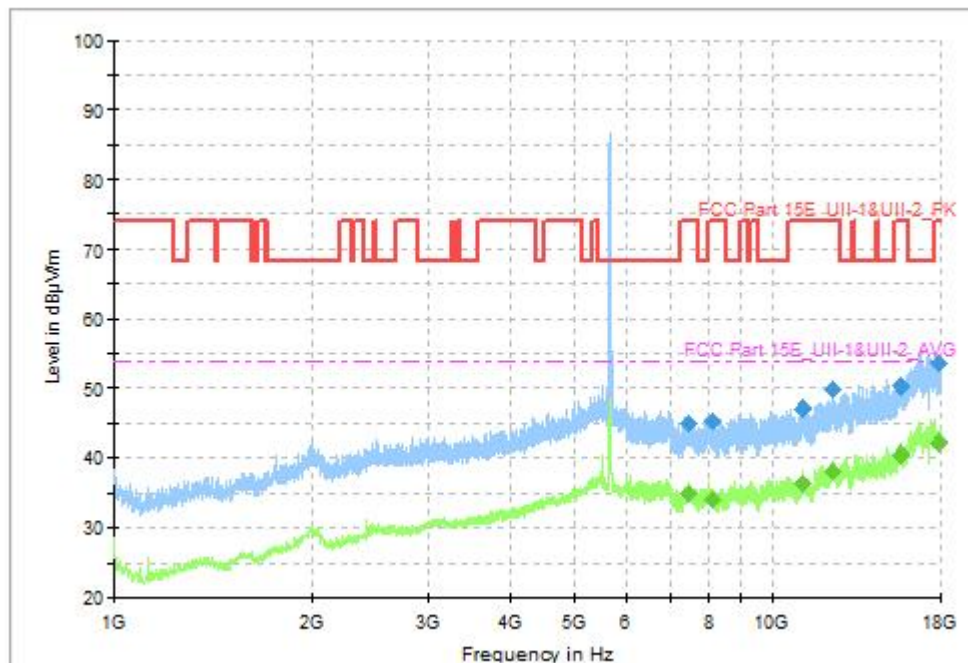


Fig. 58 Transmitter Spurious Emission (802.11n-HT40, CH134 5670MHz, 1GHz-18GHz)

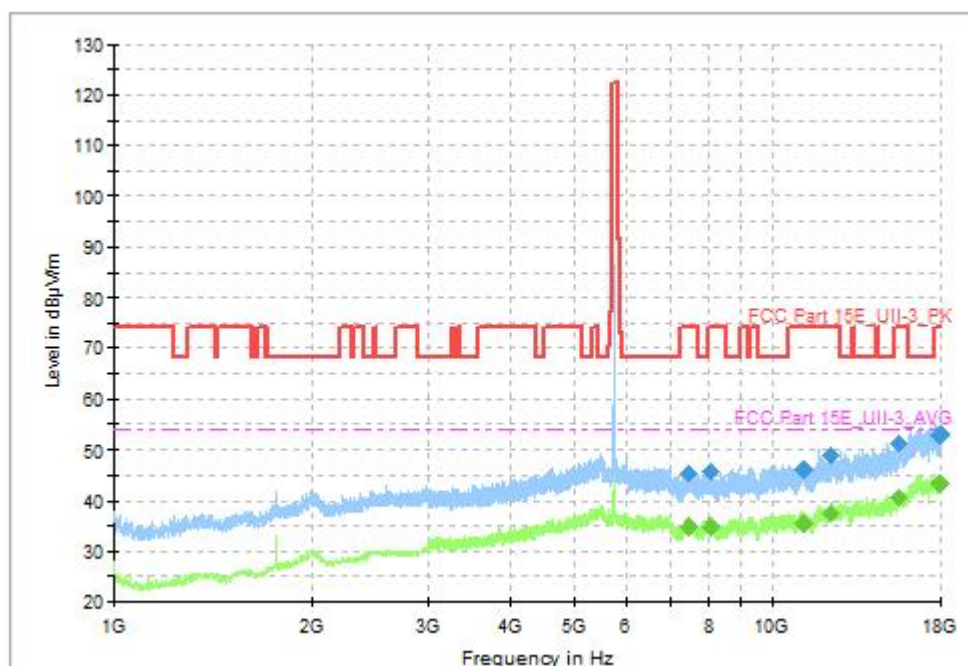


Fig. 59 Transmitter Spurious Emission (802.11n-HT40, CH151 5755MHz, 1GHz-18GHz)

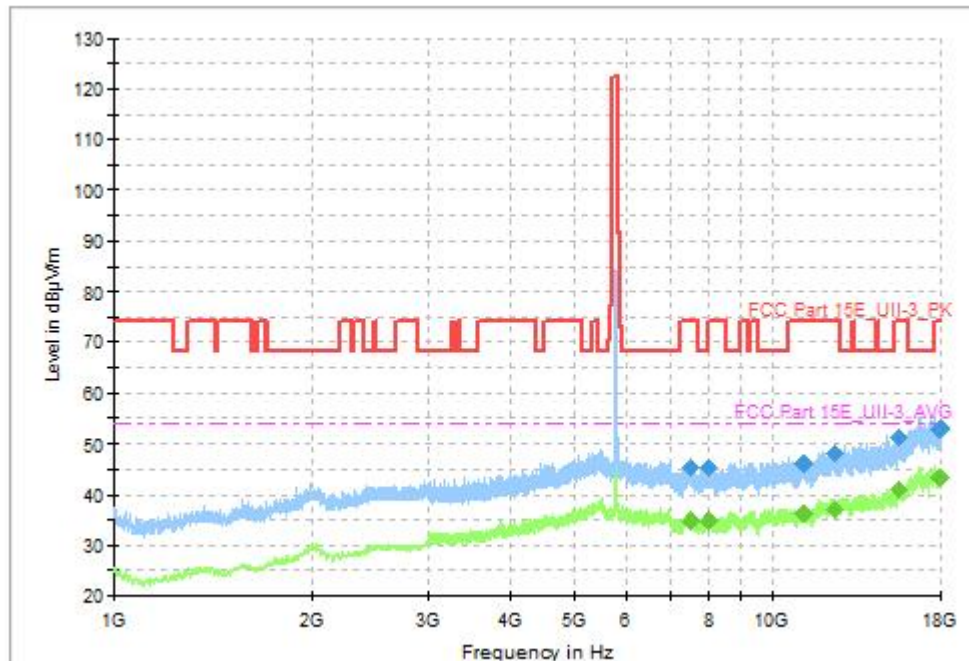


Fig. 60 Transmitter Spurious Emission (802.11n-HT40, CH159 5795MHz, 1GHz-18GHz)

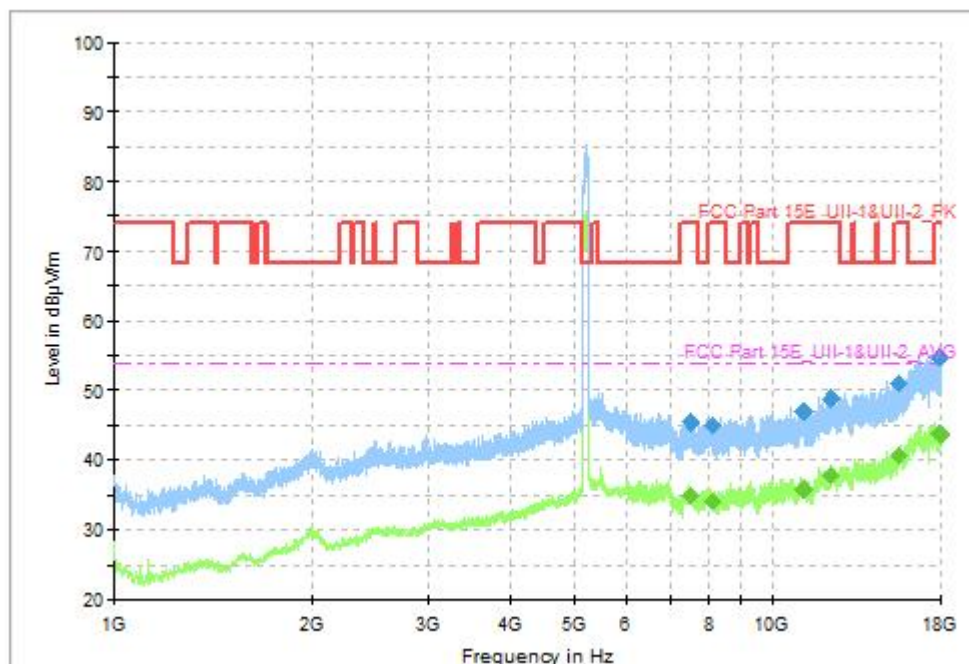


Fig. 61 Transmitter Spurious Emission (802.11ac-VHT80, CH42 5210MHz, 1GHz-18GHz)

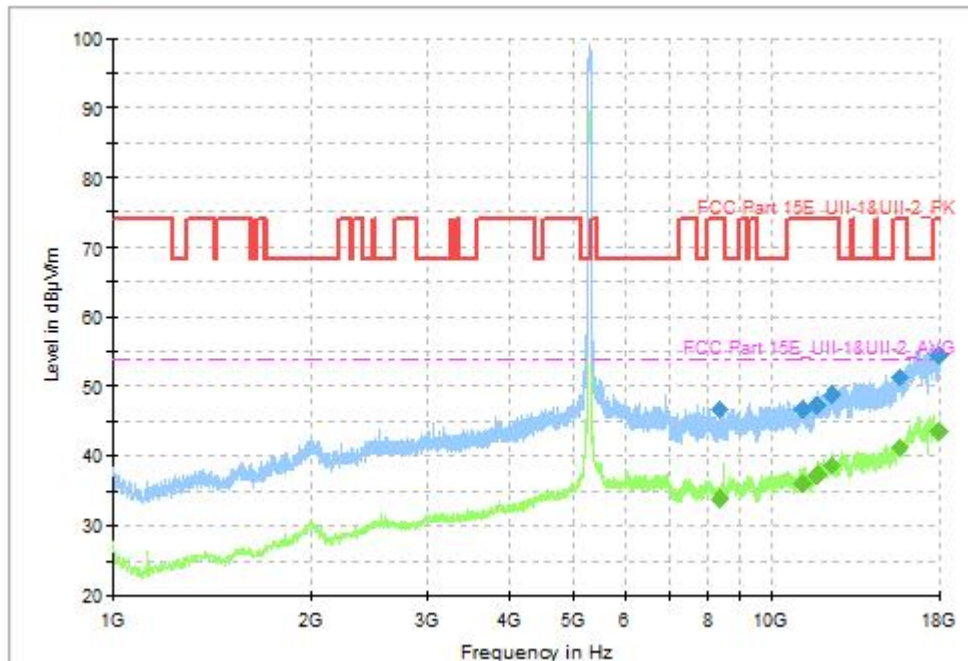


Fig. 62 Transmitter Spurious Emission (802.11ac-VHT80, CH58 5290MHz, 1GHz-18GHz)

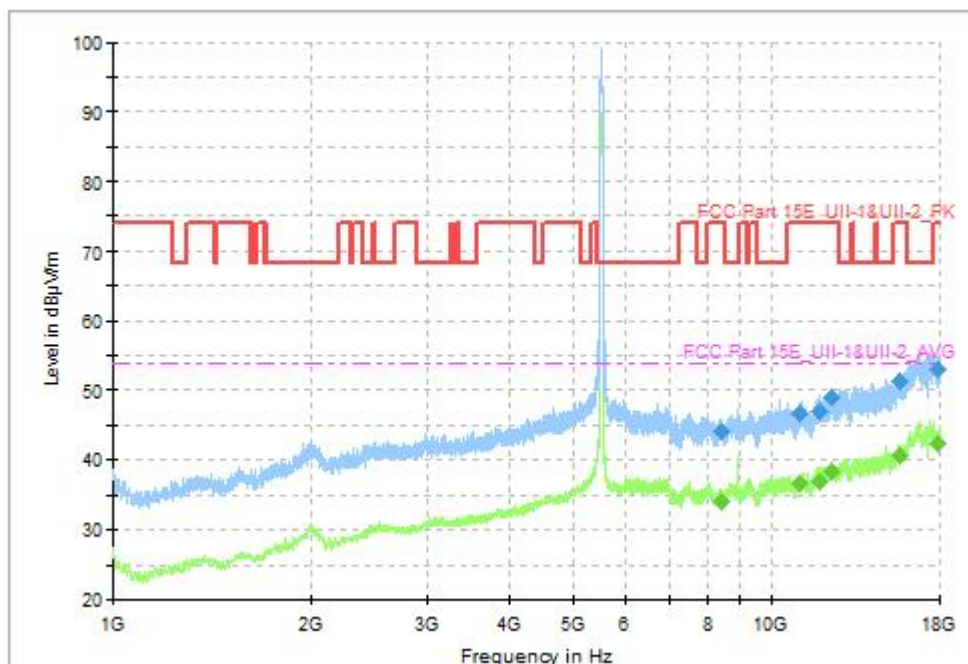


Fig. 63 Transmitter Spurious Emission (802.11ac-VHT80, CH106 5530MHz, 1GHz-18GHz)

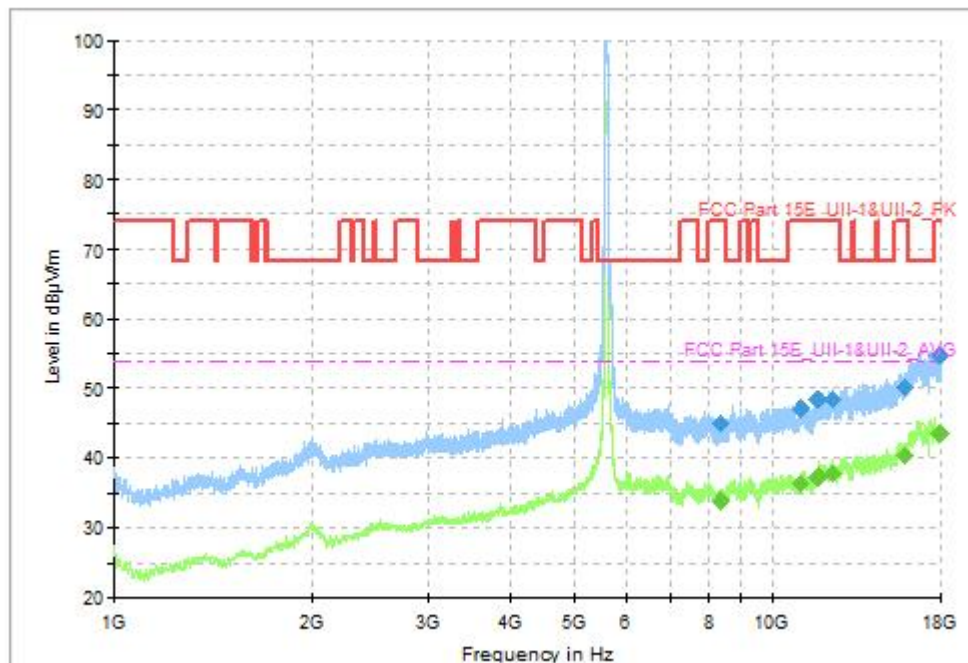


Fig. 64 Transmitter Spurious Emission (802.11ac-VHT80, CH122 5610MHz, 1GHz-18GHz)

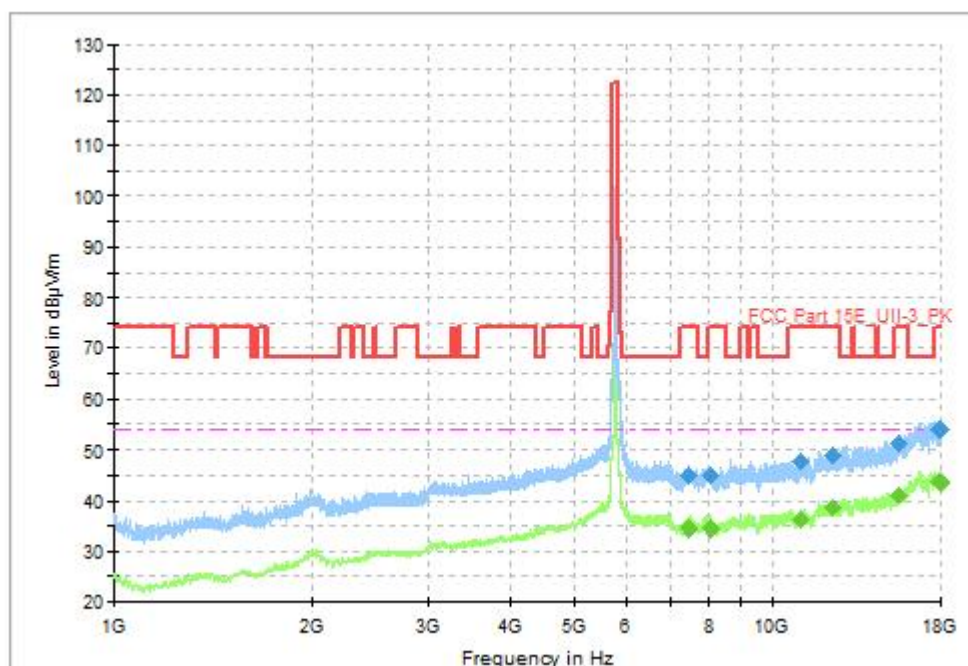


Fig. 65 Transmitter Spurious Emission (802.11ac-VHT80, CH155 5775MHz, 1GHz-18GHz)

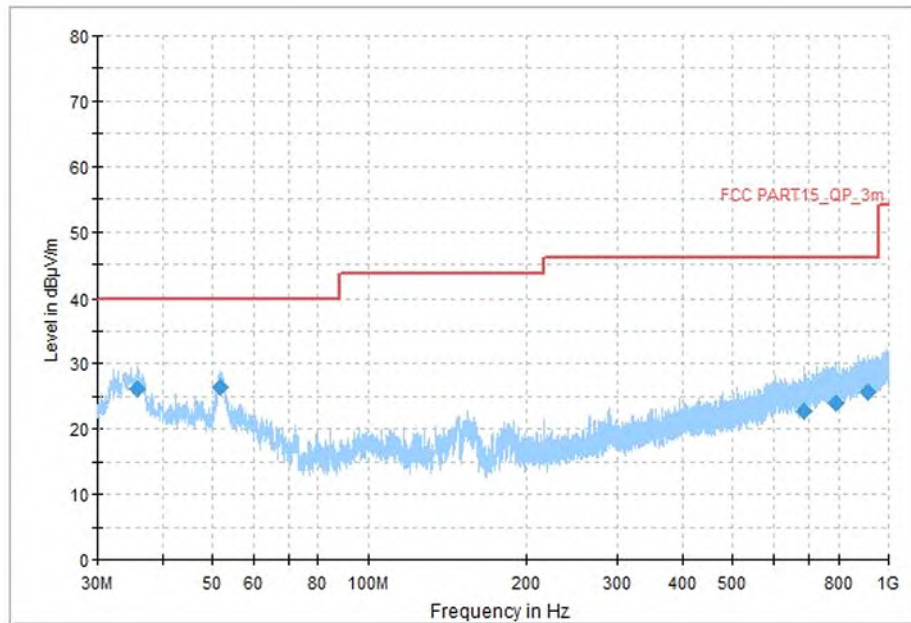


Fig. 66 Transmitter Spurious Emission (All channel, 30MHz~1GHz)

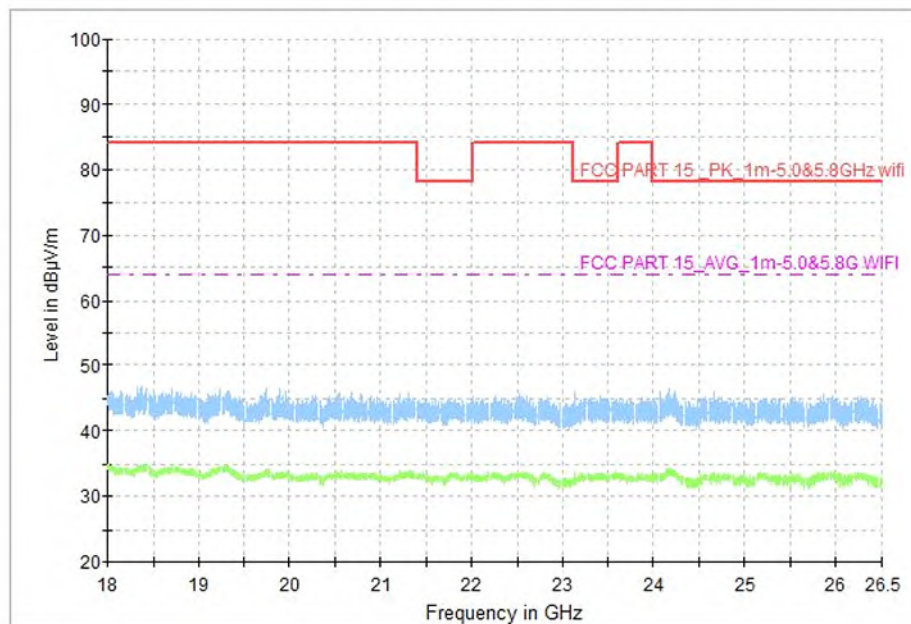


Fig. 67 Transmitter Spurious Emission (All channel, 18GHz~26.5GHz)

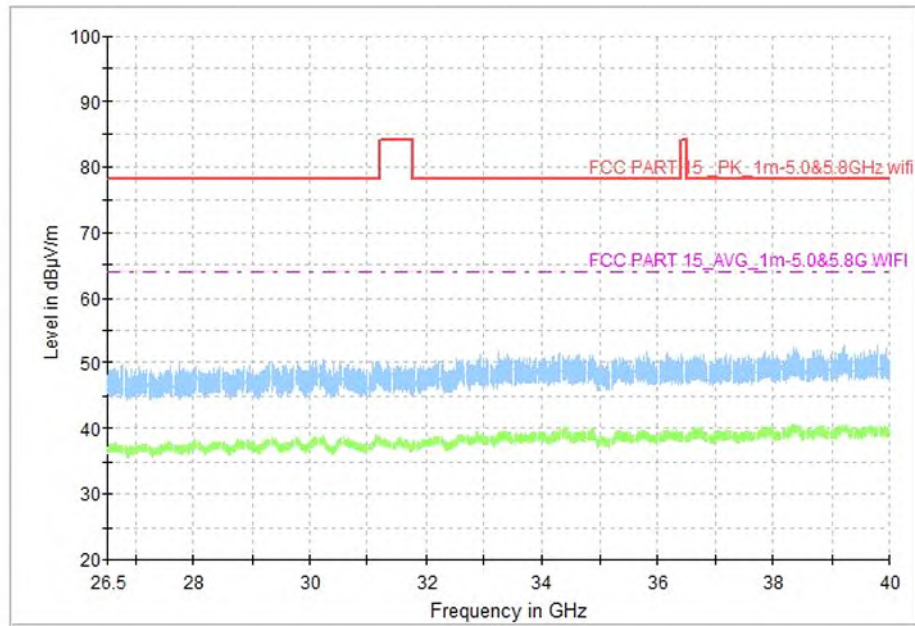


Fig. 68 Transmitter Spurious Emission (All channel, 26.5GHz~40GHz)

**A.10. Radiated Spurious Emissions < 30MHz**

Method of Measurement: See ANSI C63.10-clause 6.4.

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

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

The measurement is made according to KDB 789033.

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

Measurement Result (Worst case):

Mode	Frequency Range	Test Results	Conclusion
All Channel	9 kHz ~30 MHz	Fig.69	P

See below for test graphs.

Conclusion: **PASS**

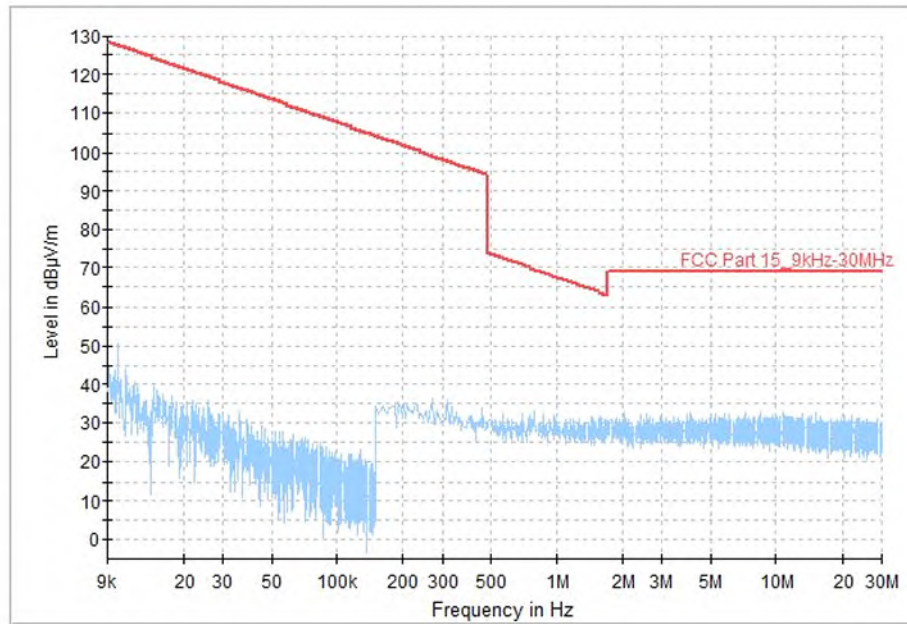


Fig. 69 Radiated Spurious Emission (All Channel, 9 kHz ~30 MHz)

**A.11. AC Power Line Conducted Emission**

Method of Measurement: See ANSI C63.10-clause 6.2.

Test Condition:

Voltage (V)	Frequency (Hz)
120	60

Measurement Result and limit:

Frequency range (MHz)	Quasi-peak Limit (dBμV)	Average-peak Limit (dBμV)	Result (dBμV)		Conclusion
			Traffic	Idle	
0.15 to 0.5	66 to 56	56 to 46	Fig.70	Fig.71	P
0.5 to 5	56	46			
5 to 30	60	50			

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

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

See below for test graphs.

Conclusion: PASS

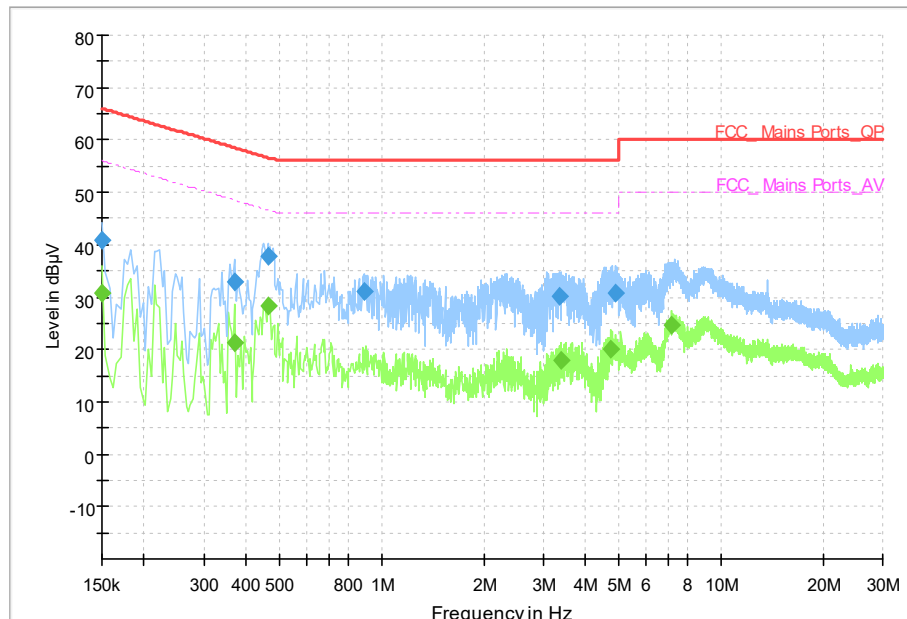


Fig. 70 AC Power line Conducted Emission (Traffic)

Measurement Result: Quasi Peak

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	40.84	66.00	25.16	L1	ON	10
0.370000	32.77	58.50	25.74	L1	ON	10
0.462000	37.67	56.66	18.99	N	ON	10
0.886000	31.06	56.00	24.94	L1	ON	10
3.358000	30.30	56.00	25.70	L1	ON	10
4.874000	30.91	56.00	25.09	L1	ON	10

Measurement Result: Average

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.150000	30.84	56.00	25.16	L1	ON	10
0.370000	21.39	48.50	27.11	L1	ON	10
0.462000	28.23	46.66	18.43	L1	ON	10
3.390000	17.80	46.00	28.20	L1	ON	10
4.730000	20.18	46.00	25.82	L1	ON	10
7.178000	24.69	50.00	25.31	L1	ON	10

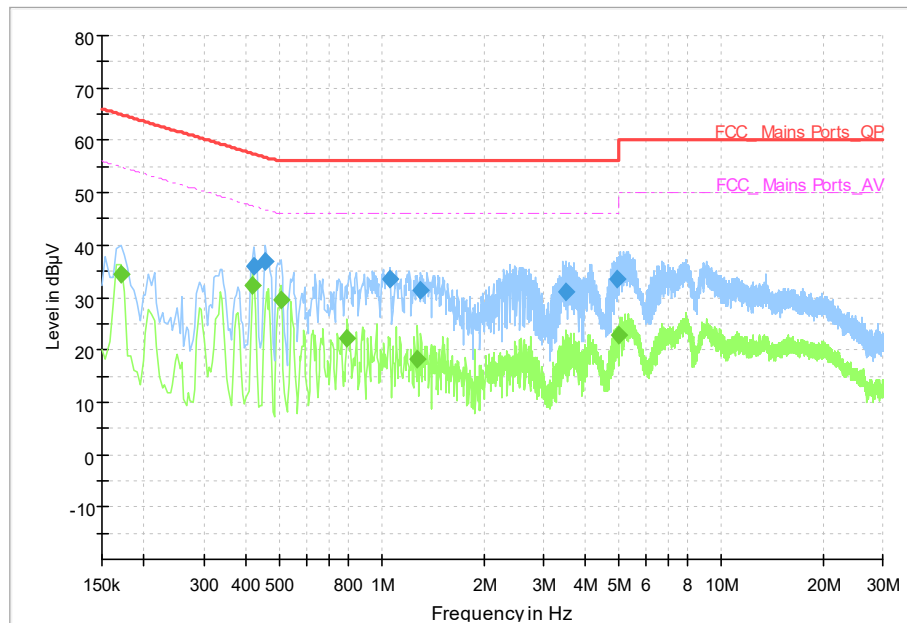


Fig. 71 AC Power line Conducted Emission (Idle)

Measurement Result: Quasi Peak

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.422000	35.85	57.41	21.56	N	ON	10
0.454000	36.91	56.80	19.89	L1	ON	10
1.058000	33.42	56.00	22.58	L1	ON	10
1.306000	31.23	56.00	24.77	L1	ON	10
3.510000	31.09	56.00	24.91	L1	ON	10
4.966000	33.39	56.00	22.61	L1	ON	10

Measurement Result: Average

Frequency (MHz)	Quasi Peak (dBμV)	Limit (dBμV)	Margin (dB)	Line	Filter	Corr. (dB)
0.170000	34.58	54.96	20.38	L1	ON	10
0.418000	32.44	47.49	15.05	L1	ON	10
0.506000	29.67	46.00	16.33	L1	ON	10
0.794000	22.07	46.00	23.93	N	ON	10
1.278000	18.37	46.00	27.63	L1	ON	10
4.990000	22.89	46.00	23.11	L1	ON	10



A.12. Power control

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

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