

UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.

TEST REPORT

SCOPE OF WORK

EMC TESTING—SEE PAGE 2

REPORT NUMBER

250603077GZU-002

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FCC WIFI 5G

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TEST REPORT

Applicant Name & : UNI-TREND TECHNOLOGY (CHINA) CO.,LTD.
Address : No 6, Gong Ye Bei 1 st Road, Songshan Lake National High-Tech
Industrial Development Zone, Dongguan,Guangdong Province, China
Manufacturing Site : Same as applicant
Intertek Report No: 250603077GZU-002
FCC ID: 2APMK-6401218X

Test standards

47 CFR PART 15 Subpart E: 2024 section 15.407

Sample Description

Product : Expert Thermal Imager
Model No. : UTi640X, UTi640XH, UTi384X, UTi384XH
Electrical Rating : Powered by 7.2V 5000mAh Li-ion battery, Type-C:5V/3A, 9V/3A
Serial No. : Not Labeled
Date Received : 03 June 2025
Date Test : 22 July 2025-05 August 2025
Conducted

Prepared and Checked By



Elena Lei

Project Engineer

Approved By:



Dean Liu

Sr. Project Engineer

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1.0 TEST RESULT SUMMARY

Test Item	Test Requirement	Test Method	Result
Antenna Requirement	FCC PART 15 C clause 15.203	FCC PART 15 C clause 15.247 (c) and clause 15.203	PASS
26 dB Bandwidth / 99% Occupied Bandwidth	FCC PART 15 E clause 15.407(a)	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause C&D	PASS
6 dB Bandwidth	FCC PART 15 E clause 15.407(e) Only for band IV	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause C	PASS
Maximum Conducted Output Power	FCC PART 15 E clause 15.407(a)	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause E	PASS
Maximum Peak Power Spectral Density	FCC PART 15 E clause 15.407(a)	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause F	PASS
Radiated spurious emission	FCC PART 15 E clause 15.407(b)	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause G	PASS
Band Edge	FCC PART 15 E clause 15.407(b)	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause G	PASS
Conducted Emissions at Mains Terminals	FCC PART 15 E section 15.207	ANSI C63.10: Clause 6.2	PASS
<p>Remark: N/A: not applicable. Refer to the relative section for the details. EUT: In this whole report EUT means Equipment Under Test. Tx: In this whole report Tx (or tx) means Transmitter. Rx: In this whole report Rx (or rx) means Receiver. RF: In this whole report RF means Radio Frequency. ANSI C63.10: the detail version is ANSI C63.10:2020 in the whole report. Model numbers: UTi640X, UTi640XH, UTi384X, UTi384XH are identical except for model number, software and language. Select the model UTi640X for the test. Pretest on all channel for each mode (a, n20, n40, ac20, ac40, ac80) of the brand I and brand IV, Pretest on all rates, Only the worst data for modes a, n20, n40, and ac80 are retained in the report.</p>			

TEST REPORT

2.0 General Description

2.1 Product Description

Operating Frequency:	Band I(U-NII-1): 5150 MHz to 5250 MHz, Band IV (U-NII-3): 5725 MHz to 5850MHz
Type of Modulation:	802.11 a: OFDM (BPSK/QPSK/16QAM/64QAM) 802.11 n: OFDM (BPSK/QPSK/16QAM/64QAM) 802.11 ac: OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)
Transmit Data Rate:	802.11a :6/9/12/18/24/36/48/54 Mbps 802.11n HT20: MCS0: 7.2Mbps, MCS1:14.2Mbps, MCS2:21.7Mbps, MCS3:28.9Mbps, MCS4:43.3Mbps, MCS5:57.8Mbps, MCS6:65.0Mbps, MCS7:72.2Mbps 802.11n HT40: MCS0:15Mbps, MCS1:30Mbps, MCS2:45Mbps, MCS3:60Mbps, MCS4:90Mbps, MCS5:120Mbps, MCS6:135Mbps, MCS7:150Mbps 802.11ac VHT20: MCS0: 7.2Mbps, MCS1:14.2Mbps, MCS2:21.7Mbps, MCS3:28.9Mbps, MCS4:43.3Mbps, MCS5:57.8Mbps, MCS6:65.0Mbps, MCS7:72.2Mbps, MCS8: 86.7Mbps 802.11ac VHT40: MCS0:15Mbps, MCS1:30Mbps, MCS2:45Mbps, MCS3:60Mbps, MCS4:90Mbps, MCS5:120Mbps, MCS6:135Mbps, MCS7:150Mbps, MCS8:180Mbps, MCS9:200Mbps 802.11ac VHT80: MCS0:32.5Mbps, MCS1:65Mbps, MCS2:97.5Mbps, MCS3:130Mbps, MCS4:195Mbps, MCS5:260Mbps, MCS6:292.5Mbps, MCS7:325Mbps, MCS8:390Mbps, MCS9:433.3Mbps
Number of Channels	4 channels for 5180 MHz ~ 5240 MHz (802.11 a/n HT20/ac VHT20); 2 channels for 5190 MHz ~ 5230 MHz (802.11 n HT40/ac VHT40); 1 channels for 5210 MHz (802.11ac VHT80); 5 channels for 5745 MHz ~ 5825 MHz (802.11a/n HT20/ac VHT20); 2 channels for 5755 MHz ~ 5795 MHz (802.11n HT40/ac VHT40); 1 channels for 5775 MHz (802.11ac VHT80);
Channel Separation:	20 MHz
Antenna Type	FPC Antenna
Antenna gain:	4.12 dBi
Function:	Professional Thermal Imager with 5 GHz WIFI
EUT Power Supply:	AC 120V 60 Hz

Channels and frequencies list:

Band I 5150 MHz to 5250 MHz

For 802.11a/n HT20/ac VHT20: test frequencies are lowest channel 36: 5180 MHz, middle channel 40: 5200 MHz and highest channel 48: 5240.

For 802.11n HT40/ac VHT40: test frequencies are lowest channel 38: 5190 MHz and highest channel 46: 5230 MHz

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For 802.11ac VHT80: test frequencies is channel 42: 5210 MHz

Band IV 5725 MHz to 5850 MHz

For 802.11a/n HT20/ac VHT20: test frequencies are lowest channel 149: 5745 MHz, middle channel 157: 5785 MHz and highest channel 165: 5825 MHz

For 802.11n HT40/ac VHT40: test frequencies are lowest channel 151: 5755 MHz and highest channel 159: 5795 MHz

For 802.11ac VHT80: test frequencies is channel 155: 5775 MHz

For 802.11a/n HT20/ac VHT20:

Band I (5150MHz-5250MHz)		Band IV(5725MHz-5850MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
36	5180	149	5745
40	5200	153	5765
44	5220	157	5785
48	5240	161	5805
		165	5825

For 802.11n HT40/ac VHT40:

Band I(5150MHz-5250MHz)		Band IV(5725MHz-5850MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
38	5190	151	5755
46	5230	159	5795

For 802.11ac VHT80:

Band I(5150MHz-5250MHz)		Band IV(5725MHz-5850MHz)	
Channel	Frequency (MHz)	Channel	Frequency (MHz)
42	5210	155	5775

2.2 Related Submittal(s) Grants

This is an application for certification of Unlicensed National Information Infrastructure Devices

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2.3 Test Methodology

The EUT was performed according to the procedures in FCC Part 15 E, Section 15.203, 15.207, 15.209, 15.407 and ANSI C63.10:2020, method of measurement: reference to FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01.

Both AC mains line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10:2020. Radiated emission measurement was performed in semi-anechoic chamber and conducted emission measurement was performed in shield room. For radiated emission measurement, preliminary scans and final tests were performed in the semi-anechoic chamber to determine the worst case modes. All radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise.

2.4 Test Facility

All tests were performed at:

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch
Room 102/104, No 203, KeZhu Road, Science City, GETDD Guangzhou, China

Except Conducted Emissions was performed at:

Room 101/301/401/102/202/302/402/502/602/702/802, No. 7-2, Caipin Road, Huangpu District, Guangzhou, Guangdong, China

A2LA Certificate Number 0078.10, FCC Designation No: CN1200.

Intertek Testing Services Shenzhen Ltd. Guangzhou Branch is accredited by A2LA and Listed in FCC website. FCC accredited test labs may perform both Certification testing under Parts 15 and 18 and Declaration of Conformity testing.

3.0 System Test Configuration

3.1 Justification

For emissions testing, the equipment under test (EUT) setup to transmit continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, AC power line was manipulated to produce worst case emissions. It was powered by AC 120V/60Hz supply.

The signal is maximized through rotation and placement in the three orthogonal axes. The antenna height and polarization are varied during the search for maximum signal level. The antenna height is varied from 1 to 4 meters. Radiated emissions are taken at three meters unless the signal level is too low for measurement at that distance. If necessary, a pre-amplifier is used and/or the test is conducted at a closer distance.

All readings are extrapolated back to the equivalent three meter reading using inverse scaling with distance. The spurious emissions more than 20 dB below the permissible value are not reported.

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For an intentional radiator, the spectrum shall be investigated from the lowest radio frequency signal generated in the device, without going below 9 kHz, up to at least the frequency shown in the following table:

Frequency range of radiated emission measurements

Lowest frequency generated in the device	Upper frequency range of measurement
9 kHz to below 10 GHz	10th harmonic of highest fundamental frequency or to 40 GHz, whichever is lower
At or above 10 GHz to below 30 GHz	5th harmonic of highest fundamental frequency or to 100 GHz, whichever is lower
At or above 30 GHz	5th harmonic of highest fundamental frequency or to 200 GHz, whichever is lower, unless otherwise specified

Number of fundamental frequencies to be tested in EUT transmit band

Frequency range in which device operates	Number of frequencies	Location in frequency range of operation
1 MHz or less	1	Middle
1 MHz to 10 MHz	2	1 near top and 1 near bottom
More than 10 MHz	3	1 near top, 1 near middle and 1 near bottom

3.2 EUT Exercising Software

Description	Manufacturer	Model No.	SN/Version	Supplied by
For fixing frequency	--	Qualcomm Package Manager 3	QRCT4	Applicant

3.3 Special Accessories

No special accessories used.

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3.4 Measurement Uncertainty

No.	Item	Measurement Uncertainty
1	20 dB Bandwidth	2.31%
	6dB Bandwidth	
	99% Bandwidth	
2	Carrier Frequencies Separated	2.31%
3	Dwell Time	1.19%
4	Maximum Peak Conducted Output Power	1.98 dB
5	Peak Power Spectral Density	1.98 dB
6	Out of Band Conducted Emissions	1.98 dB
7	Band edges measurement	1.98 dB
8	Radiated Emissions	3.64 dB (9 kHz-30 MHz)
		4.26 dB (30 MHz-1 GHz)
		4.96 dB (1 GHz-18 GHz)
		5.16 dB (18 GHz-40 GHz)
9	Conducted Emissions at Mains Terminals	2.23 dB
10	Temperature	0.81 °C
11	Humidity	1.73%
12	Time	1.19%

The measurement uncertainty describes the overall uncertainty of the given measured value during the operation of the EUT.

Measurement uncertainty is calculated in accordance with ETSI TR 100 028-2001.

The measurement uncertainty is given with a confidence of 95%, k=2.

When determining of the test conclusion, the Measurement Uncertainty of test has been considered.

Uncertainty and Compliance – Unless the standard specifically states that measured values are to be extended by the measurement uncertainty in determining compliance, all compliance determinations are based on the actual measured value

3.5 Equipment Modification

Any modifications installed previous to testing by UNI-TREND TECHNOLOGY (CHINA) CO.,LTD. will be incorporated in each production model sold / leased in the United States.

No modifications were installed by Intertek Testing Services Shenzhen Ltd. Guangzhou Branch.

3.6 Support Equipment List and Description

This product was tested with corresponding support equipment as below:

Cable

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Description	Model No.	Connector type	Cable length/type	Supplied by
Antenna cable	RF-01	SMA	0.2 m(unshielded)	Intertek
Adapter to EUT	--	AC-DC	1 m(shielded)	applicant

Support equipment

Description	Model No.	Rating	Supplied by
NoteBook	Latitude 5420	100-240VAC,50/60Hz	Intertek
Adapter power supply	S065YM2000325	100-240VAC,50/60Hz 1.6A Max	applicant

Remark:

After the frequency was fixed, Notebook and Fix board were removed out of the Chamber before test.

TEST REPORT

4.0 Measurement Results

4.1 Antenna Requirement

Standard requirement:

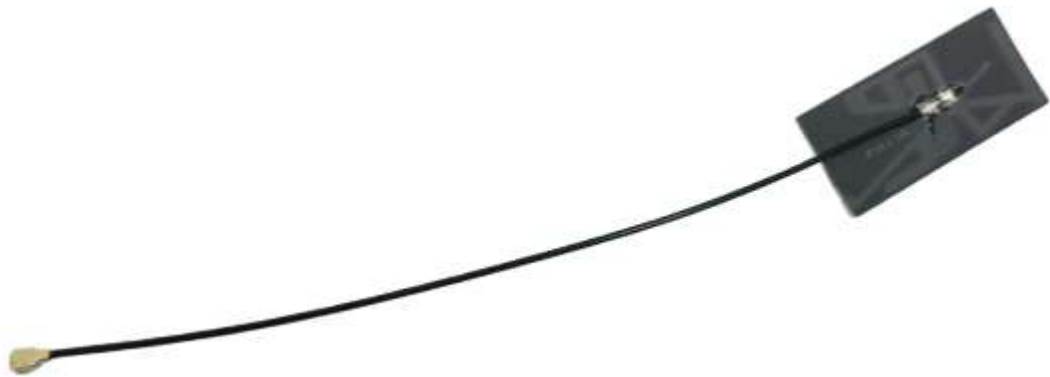
15.203 requirement:

For intentional device. According to 15.203 an intentional radiator shall be designed to Ensure that no antenna other than that furnished by the responsible party shall be used with the device.

EUT Antenna

The functions of the 7 antenna interfaces are as follows: the main interface for WIFI + BT TRX, the split interface for WIFI TRX (in the off state), the antenna interfaces for cellular network communication ANT0 to ANT3 (in the off state), and the RX interface for GNSS positioning antenna (in the off state). The WIFI has only one antenna output (the split interface is in the off state and no antenna is connected), and all other antenna functions are in a software-off state. No antenna is connected on the hardware side either. Currently, none of the device models are in use, and they are merely reserved.

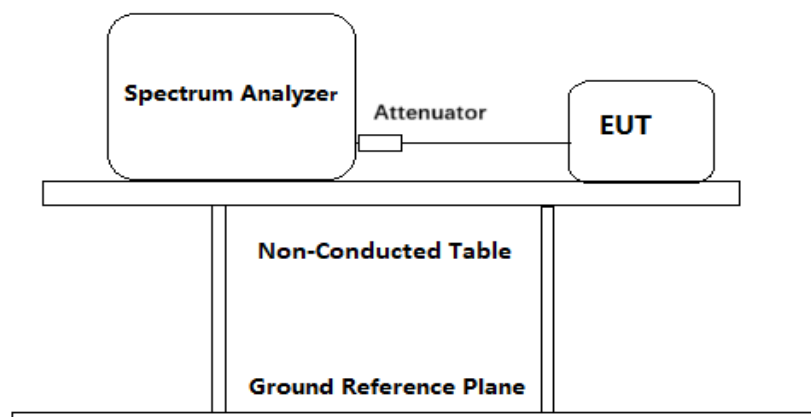
The antenna is an integral antenna and no consideration of replacement. The best case gain of the antenna is 4.12 dBi as provided by applicant.



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4.2 Duty Cycle

Test Requirement:	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause B
Test Method:	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause B
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test Configuration:	



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1 dB, with 10dB attenuator) from the antenna port to the spectrum.
2. Set the spectrum analyser:
 - a) Set $RBW \geq 1\text{MHz}$
 - b) Set the $VBW \geq [3 \times RBW]$
 - c) Detector =peak
 - d) Span = Zero span
 - e) Sweep time = 100ms
 - f) Trace mode = Free run
3. Repeat until all the test status is investigated.
4. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.

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Test result:

Band I (5150MHz-5250MHz)

Channel No.	Frequency (MHz)	Mode	On time (ms)	Period (ms)	Duty Cycle (%)
40	5200	802.11a	10	10	100
40	5200	802.11n HT20	10	10	100
38	5190	802.11n HT40	10	10	100
42	5210	802.11ac VHT80	10	10	100

Band IV (5725MHz-5850MHz)

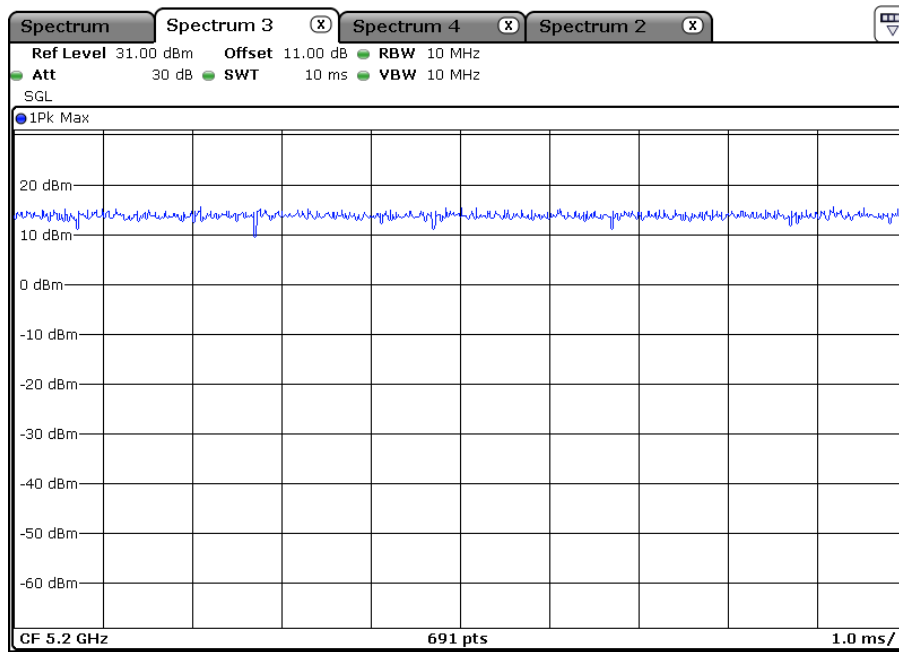
Channel No.	Frequency (MHz)	Mode	On time (ms)	Period (ms)	Duty Cycle (%)
157	5785	802.11a	10	10	100
157	5785	802.11n HT20	10	10	100
151	5755	802.11n HT40	10	10	100
155	5775	802.11ac VHT80	10	10	100

TEST REPORT

Result plot as follows

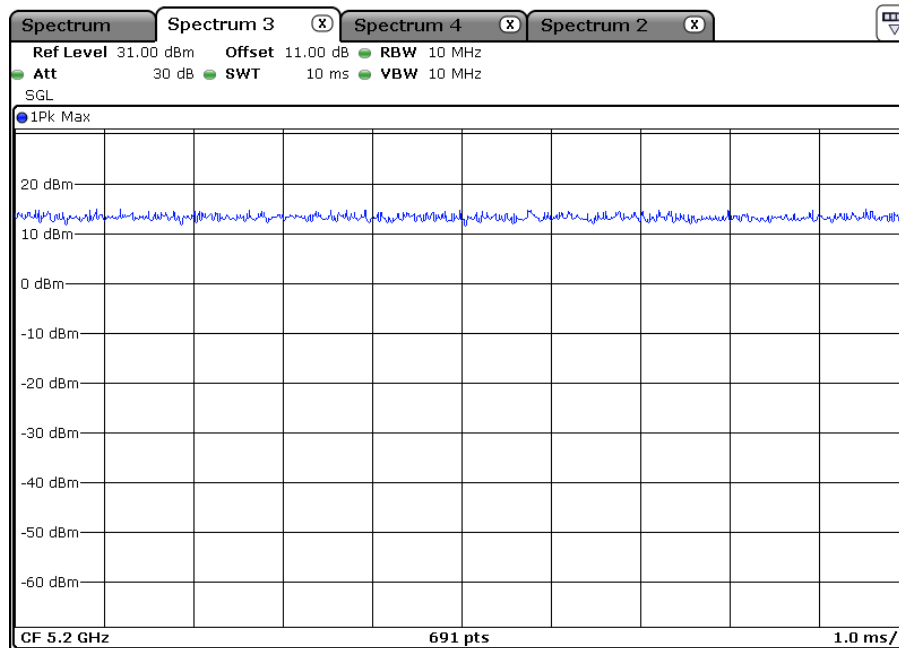
802.11a

Channel 40: 5200 MHz:



802.11n HT20

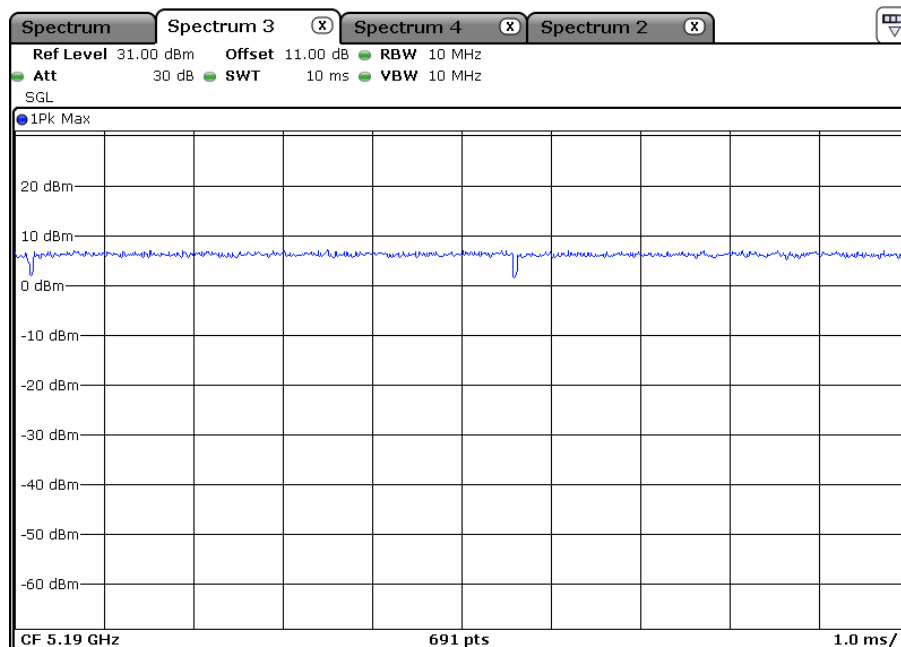
Channel 36: 5200 MHz:



TEST REPORT

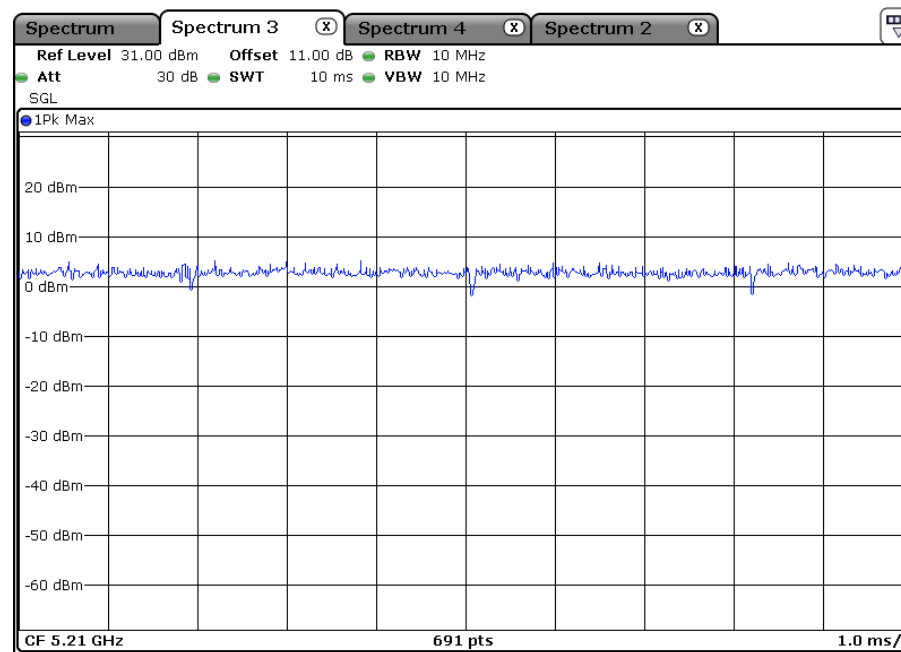
802.11n HT40

Channel 38: 5190 MHz:



802.11ac VHT80

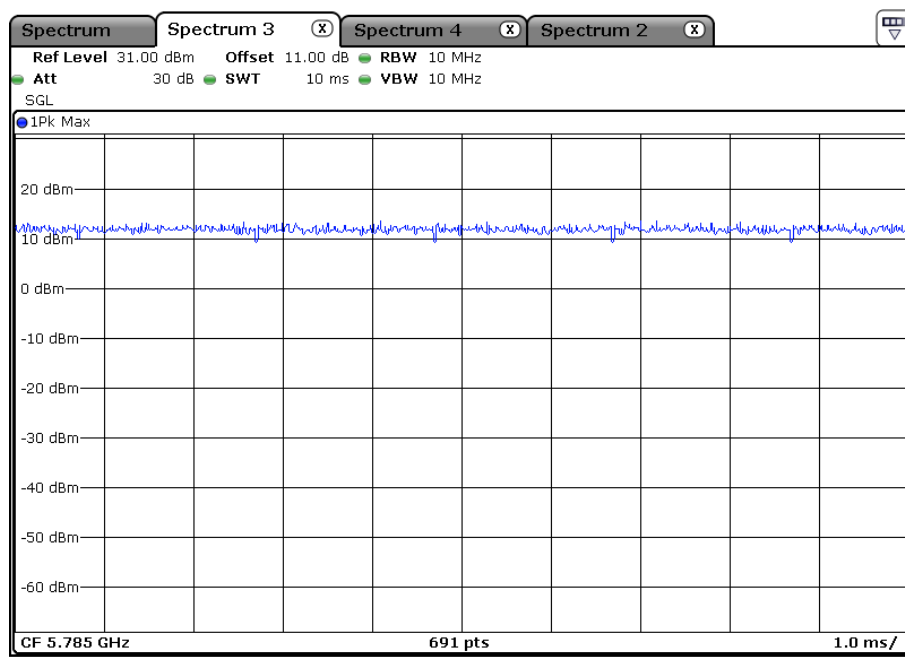
Channel 42: 5210 MHz:



TEST REPORT

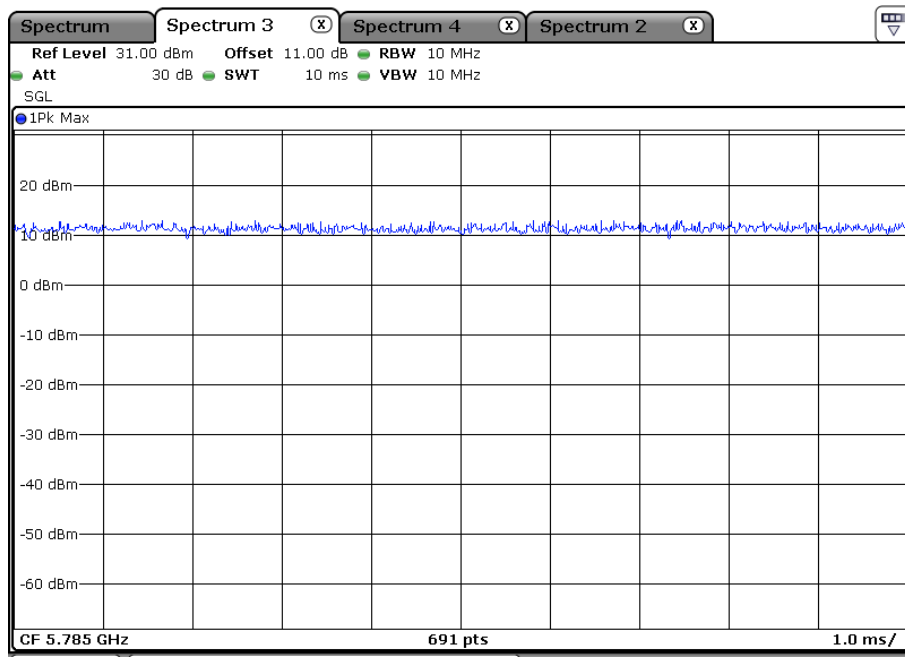
802.11a

Channel 157: 5785 MHz:



802.11n HT20

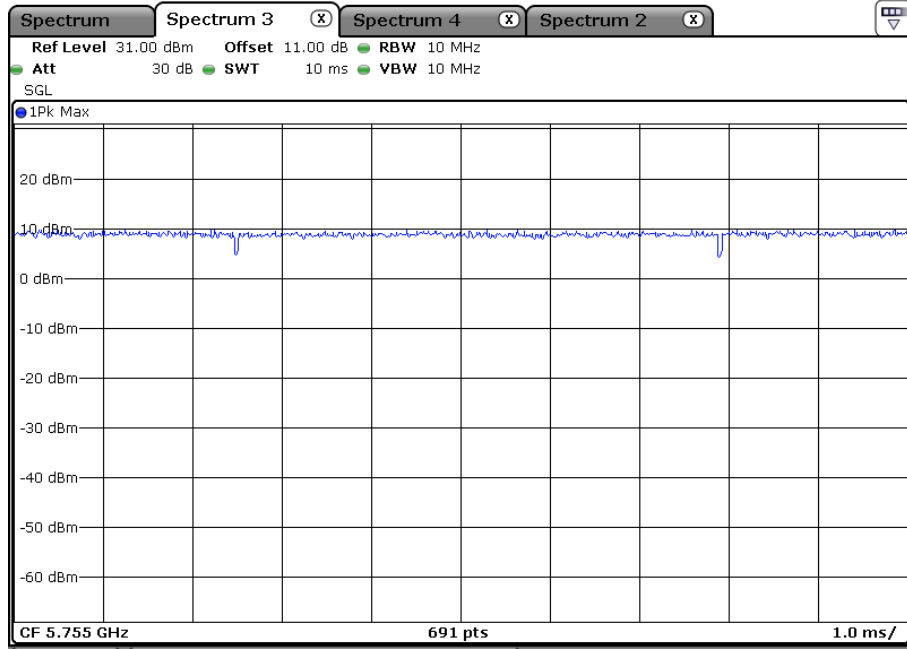
Channel 157: 5785 MHz:



TEST REPORT

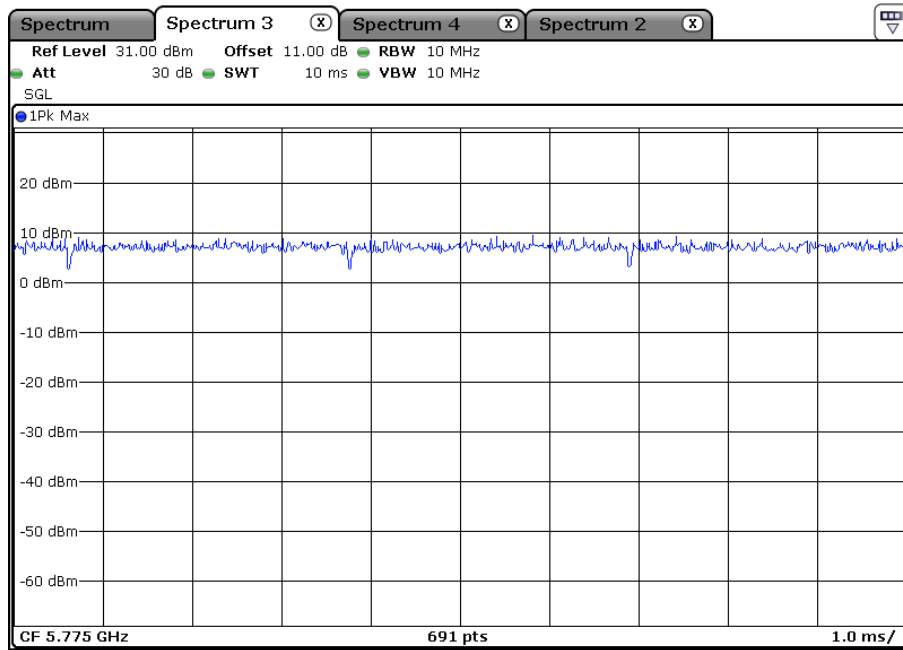
802.11n HT40

Channel 151:5755 MHz:



802.11ac VHT80

Channel 155: 5775 MHz:

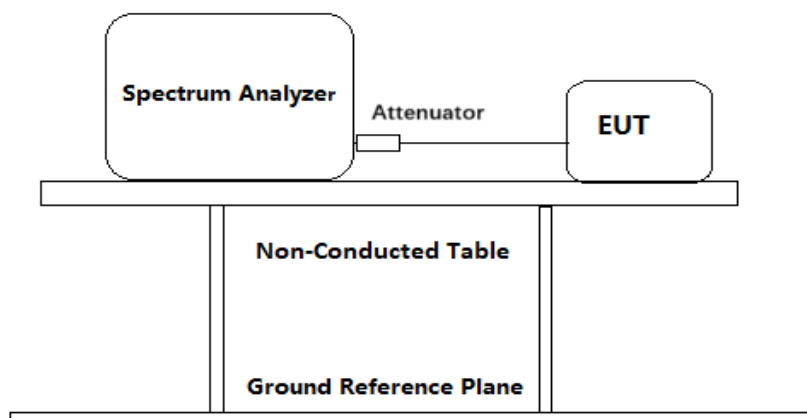


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4.3 26 dB Bandwidth

Test Requirement: FCC PART 15 E clause 15.407(a)
 Test Method: FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause C&D
 Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1 dB, with 10dB attenuator) from the antenna port to the spectrum.
2. Set the spectrum analyzer:
 - Emission Bandwidth (EBW)**
 - a) Set the RBW = approximately 1% of the emission bandwidth.
 - b) Set the VBW > RBW.
 - c) Detector = peak.
 - d) Trace mode = max hold.
 - e) Sweep = auto couple.
 - f) Allow trace to fully stabilize.
 - g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 26 dB relative to the maximum level measured in the fundamental emission.
 - Minimum Emission Bandwidth for the band 5.725–5.85 GHz**
 - a) Set RBW = 100 kHz.
 - b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
 - c) Detector = Peak.
 - d) Trace mode = max-hold.
 - e) Sweep = No faster than coupled (auto) time.

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- f) Allow the trace to stabilize.
g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

3. Repeat until all the test status is investigated.
4. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.

Band I (5150MHz – 5250MHz)

Channel No.	Frequency (MHz)	Mode	Data Rate	Result (MHz)
36	5180	802.11a	6 Mbps	19.33
40	5200		6 Mbps	19.80
48	5240		6 Mbps	19.22
36	5180	802.11 n HT20	7.2 Mbps	20.67
40	5200		7.2 Mbps	20.67
48	5240		7.2 Mbps	20.72
38	5190	802.11n HT40	15 Mbps	40.17
46	5230		15 Mbps	39.94
42	5210	802.11ac VHT80	32.5 Mbps	81.74

Band IV (5725MHz – 5850MHz)

Channel No.	Frequency (MHz)	Mode	Data Rate	Result (MHz)
149	5745	802.11a	6 Mbps	19.57
157	5785		6 Mbps	19.74
165	5825		6 Mbps	19.68
149	5745	802.11 n HT20	7.2 Mbps	20.72
157	5785		7.2 Mbps	21.01
165	5825		7.2 Mbps	20.96
151	5755	802.11n HT40	15 Mbps	40.06
159	5795		15 Mbps	39.94
155	5775	802.11ac VHT80	32.5 Mbps	81.27

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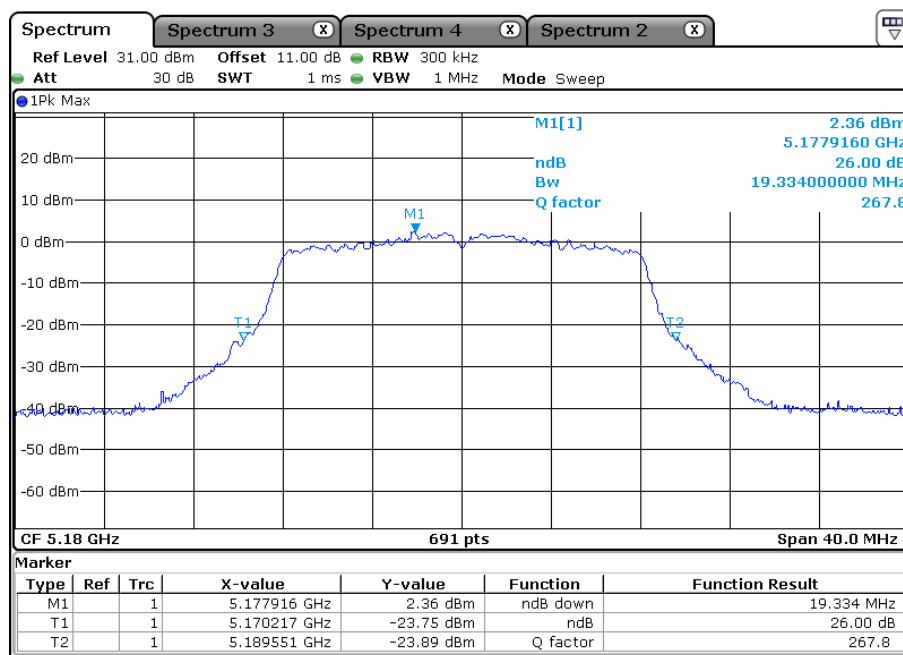
Test result: The unit does meet the FCC requirements.

Result plot as follows

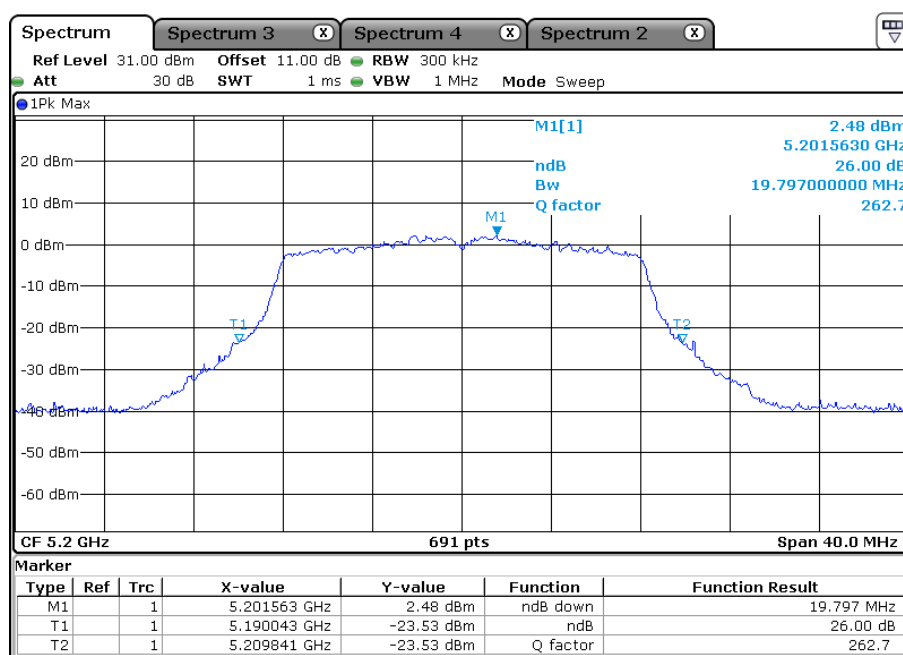
Band I 5150 MHz to 5250 MHz

802.11a

Channel 36: 5180 MHz:

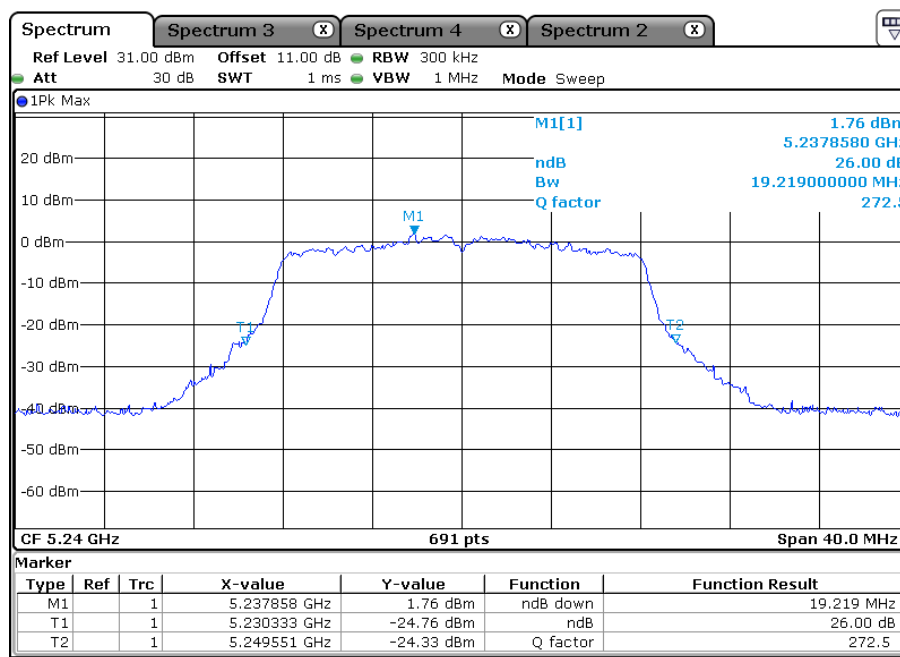


Channel 40: 5200 MHz:



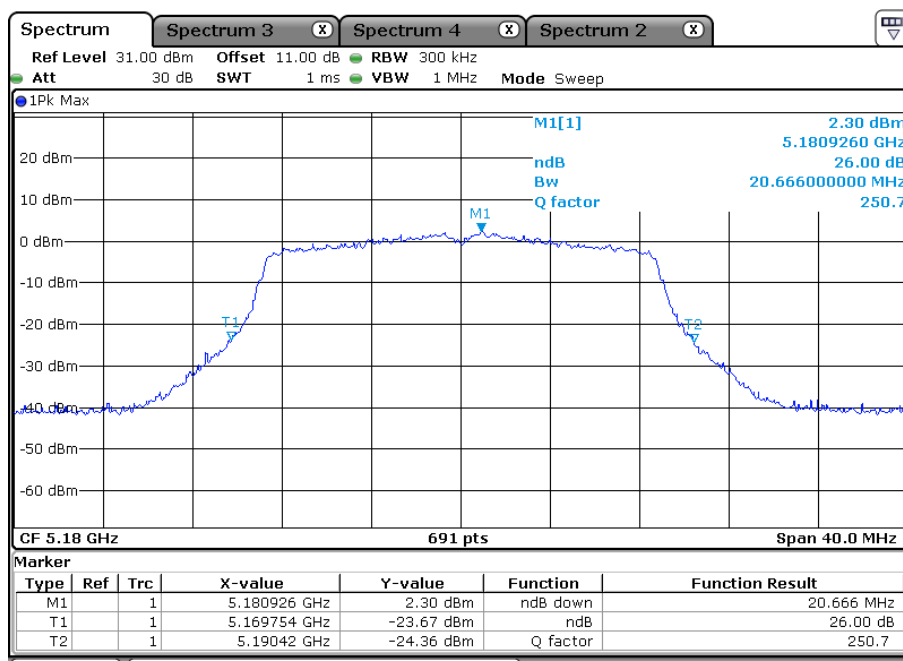
TEST REPORT

Channel 48: 5240 MHz:



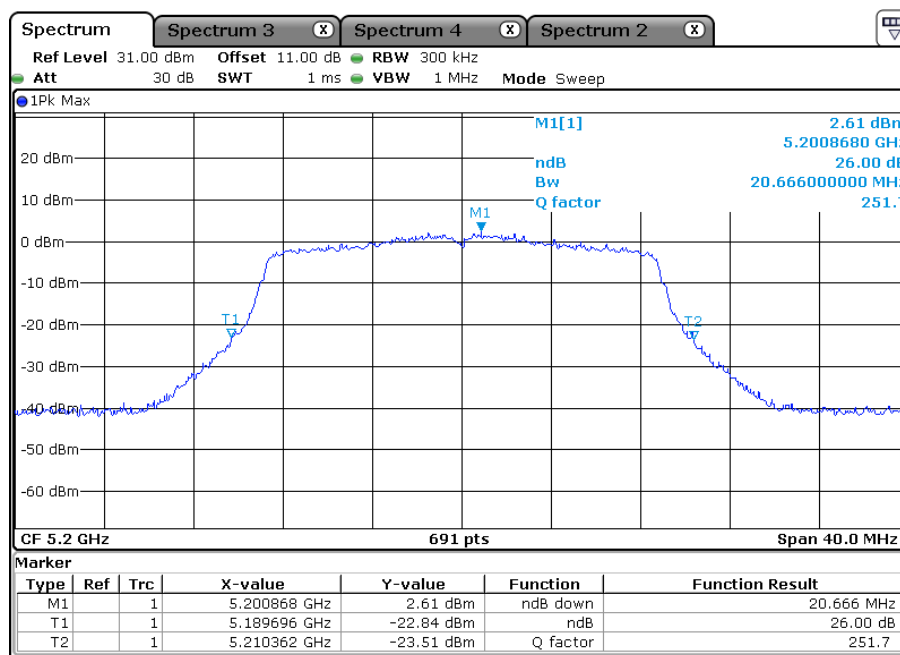
802.11n HT20

Channel 36: 5180 MHz:

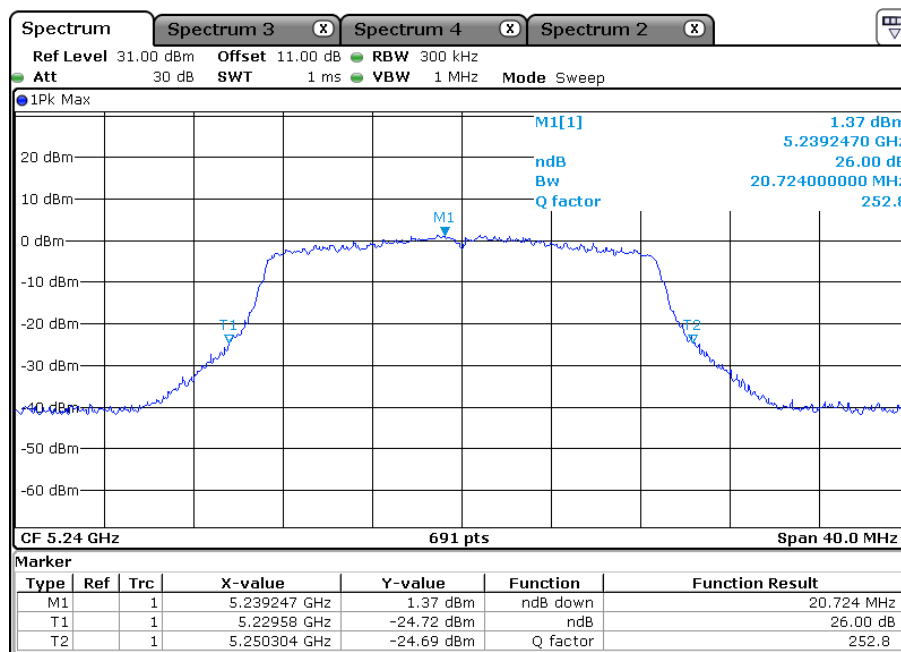


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Channel 40: 5200 MHz:



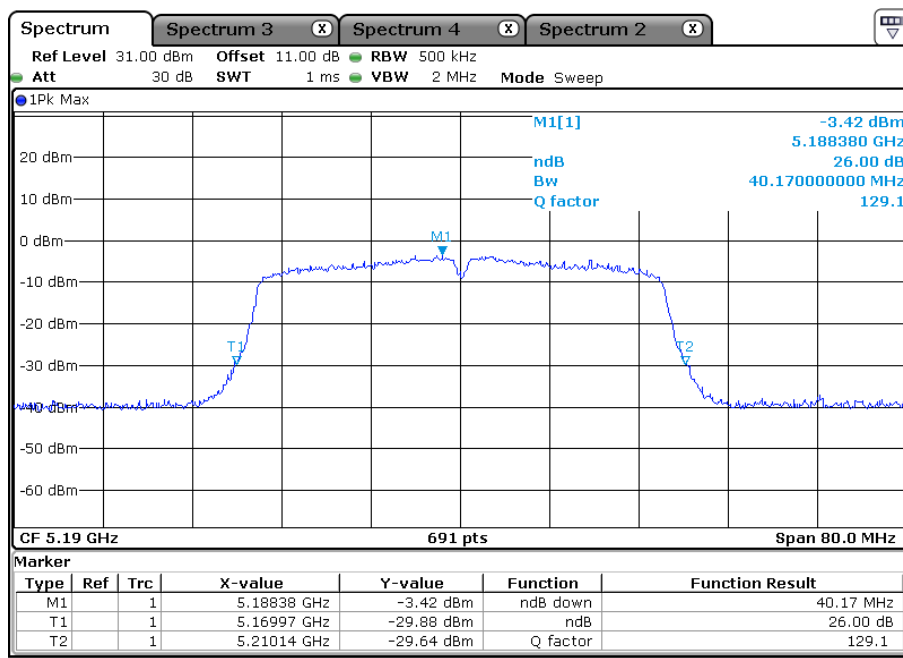
Channel 48: 5240 MHz:



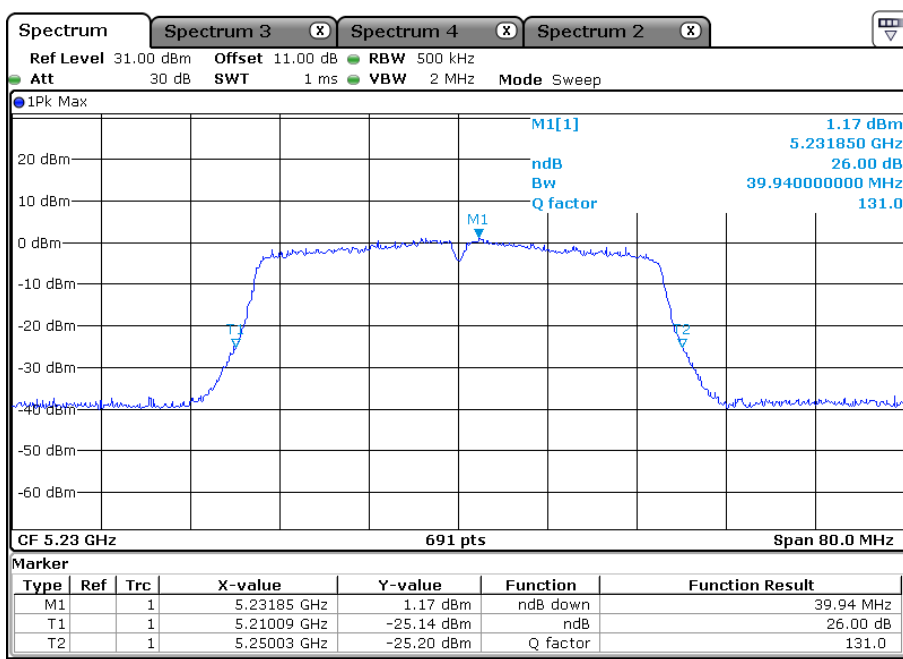
TEST REPORT

802.11n HT40

Channel 38: 5190 MHz:



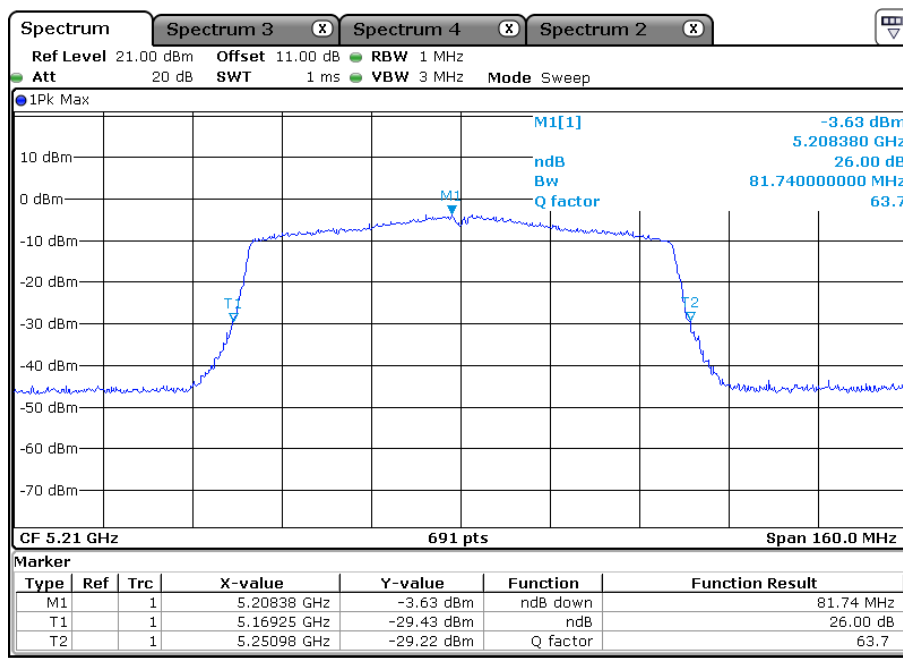
Channel 46: 5230 MHz:



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802.11ac VHT80

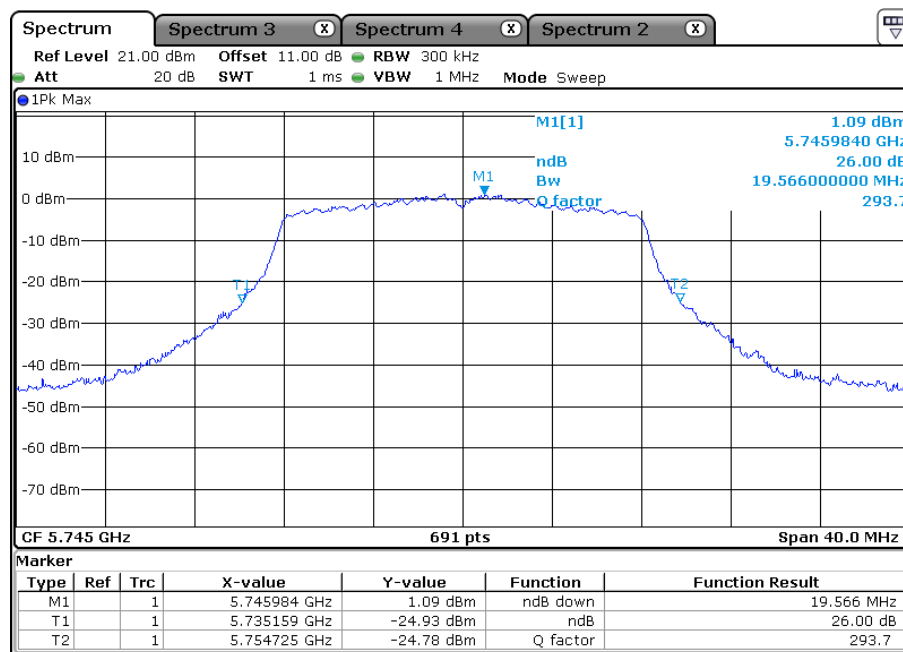
Channel 42: 5210 MHz:



Band IV 5725 MHz to 5850 MHz

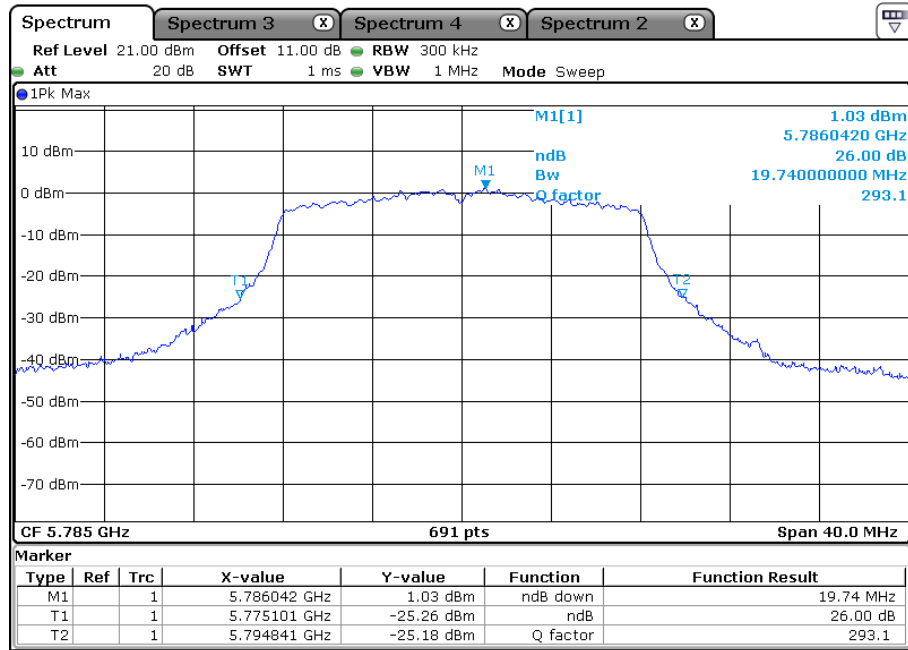
802.11a

Channel 149: 5745 MHz:

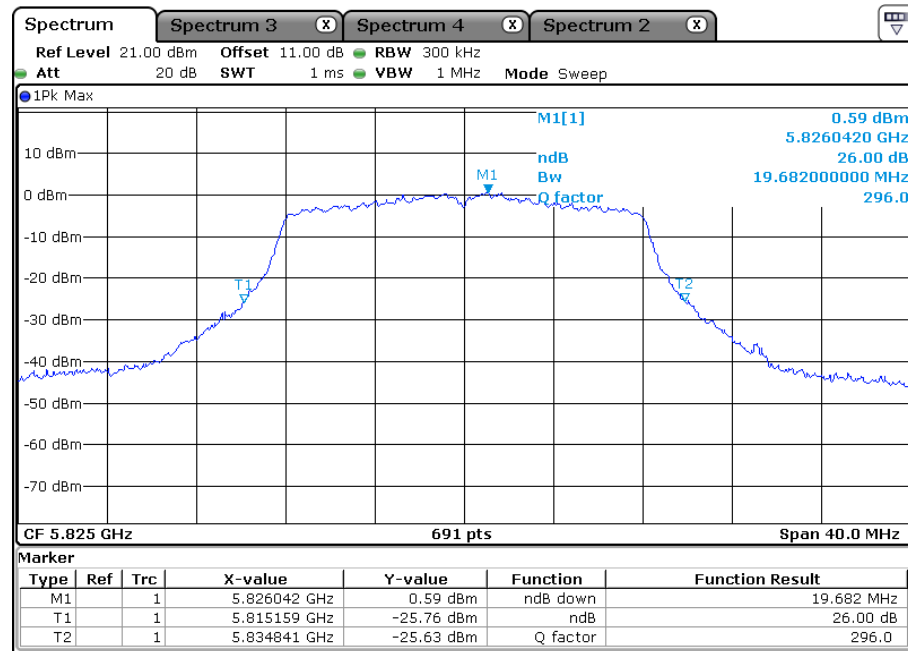


TEST REPORT

Channel 157: 5785 MHz:



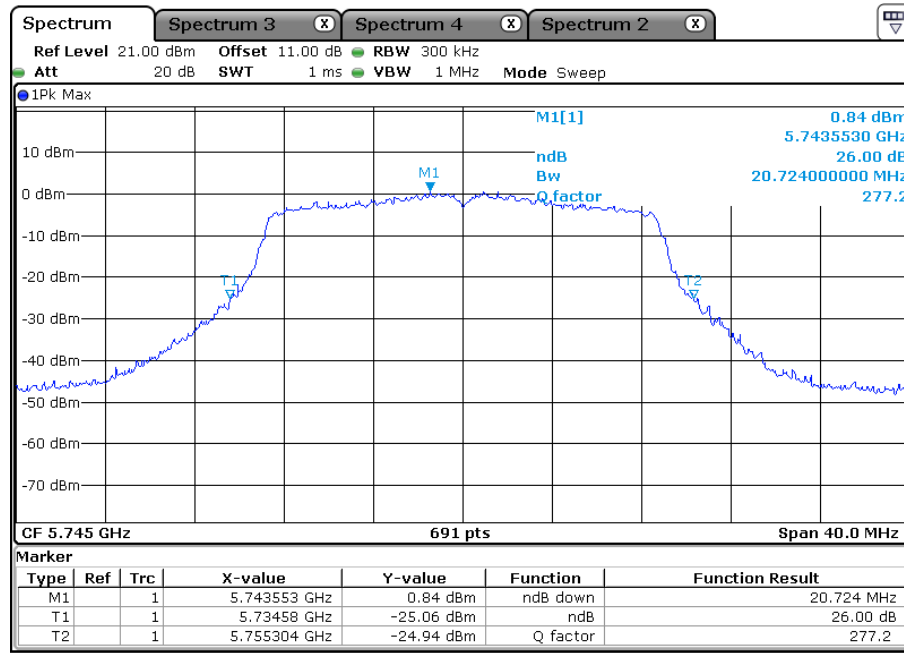
Channel 165: 5825 MHz:



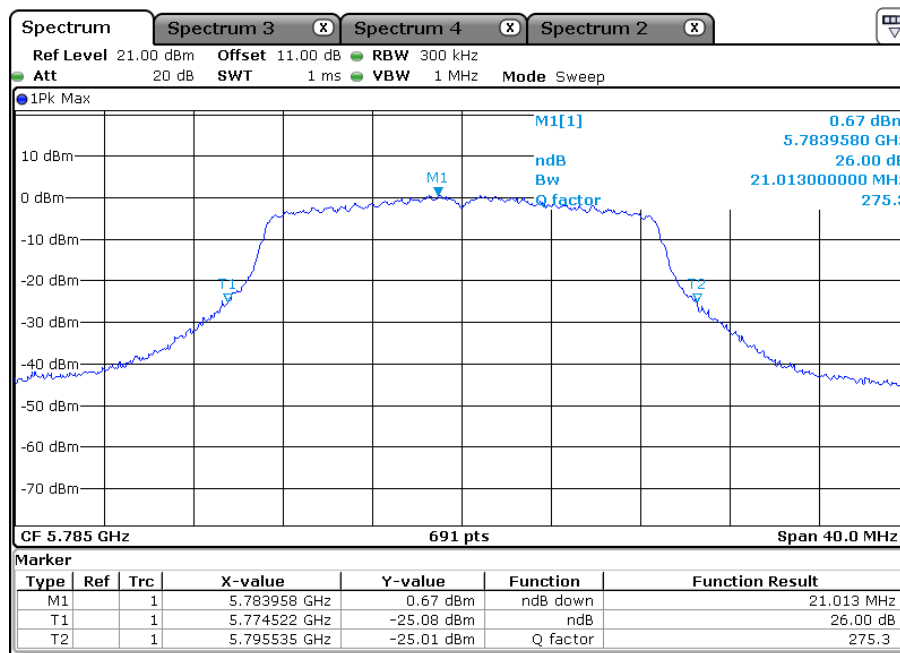
TEST REPORT

802.11n HT20

Channel 149: 5745 MHz:

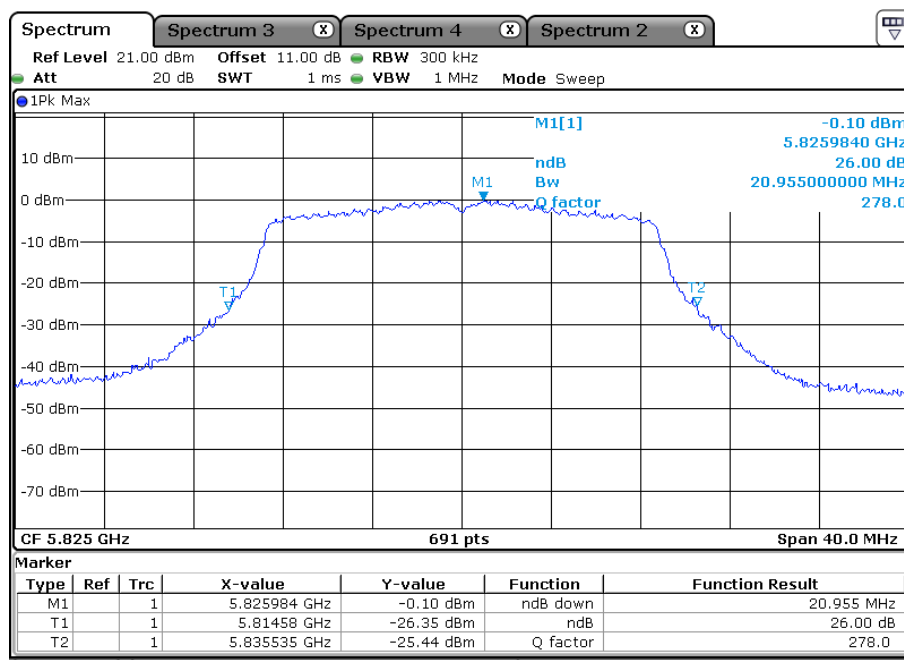


Channel 157: 5785 MHz:



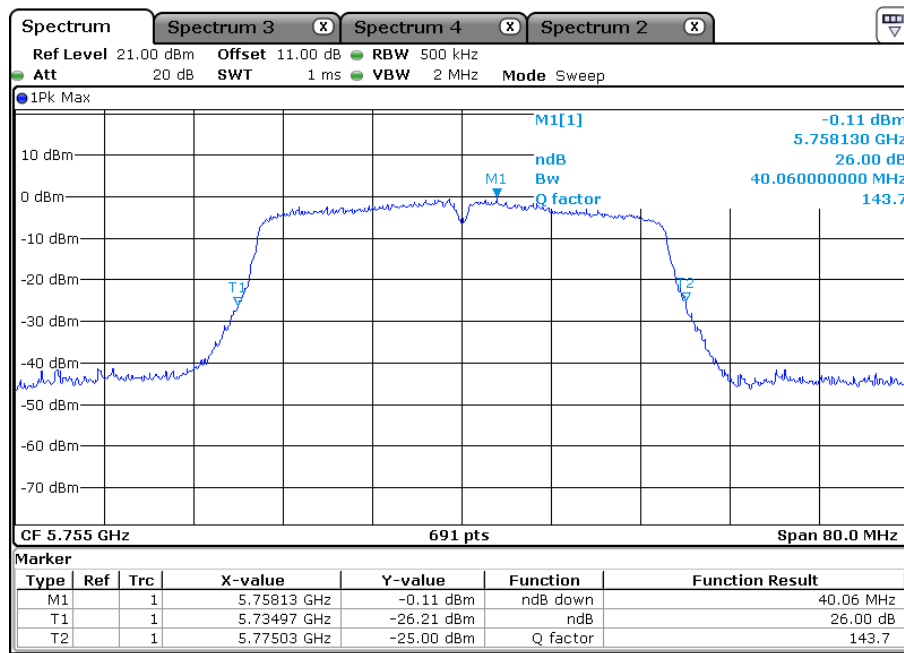
TEST REPORT

Channel 165: 5825 MHz:



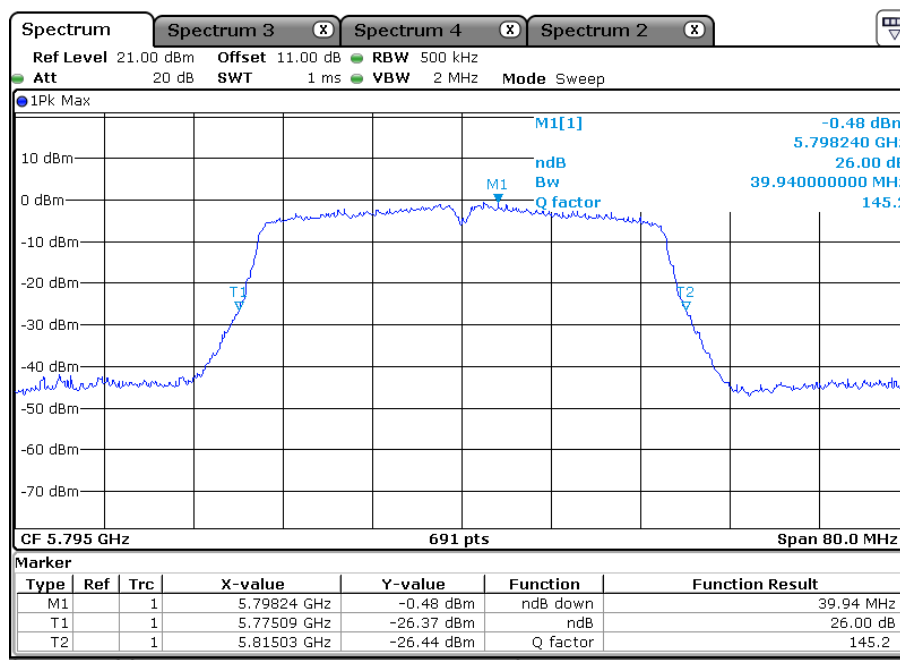
802.11n HT40

Channel 151: 5755 MHz:



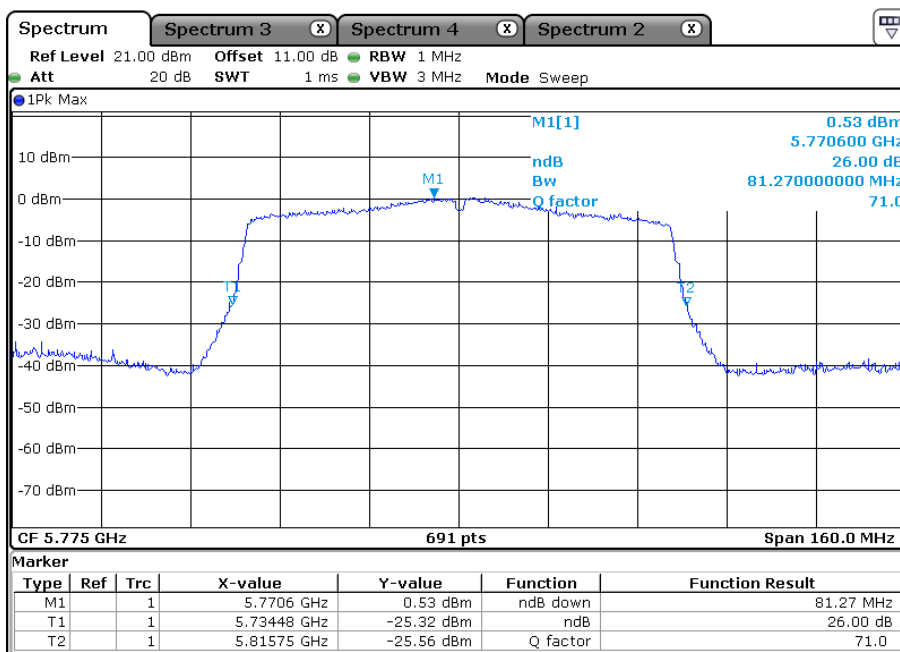
TEST REPORT

Channel 159: 5795 MHz:



802.11ac VHT80

Channel 155: 5775 MHz:



TEST REPORT

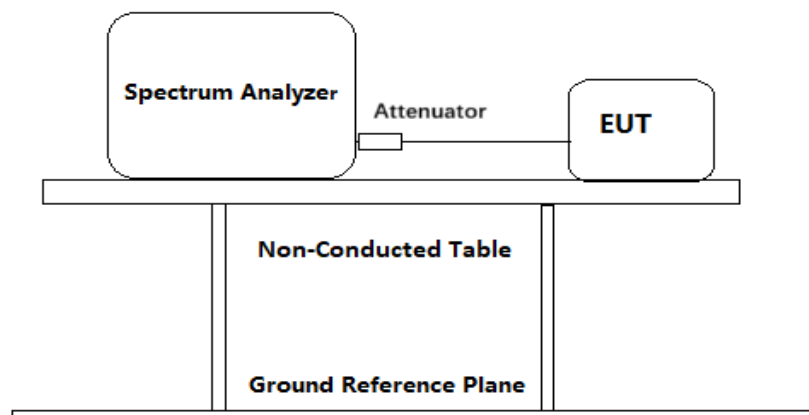
4.4 6 dB Bandwidth

Test Requirement: FCC PART 15 E clause 15.407(e)
Within the 5.725–5.85 GHz band the minimum 6 dB bandwidth of U–NII devices shall be at least 500 kHz.

Test Method: FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause C

Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable(cable loss =1 dB, with 10dB attenuator) from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer:
 - a) Set RBW = 100 kHz.
 - b) Set VBW $\geq [3 \times \text{RBW}]$
 - c) Detector = peak.
 - d) Trace mode = max hold.
 - e) Sweep = auto couple.
 - f) Allow the trace to stabilize.
 - g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
 - h) $\text{Span} = 2 * \text{BW} \sim 5 * \text{BW}$.
3. Repeat until all the test status is investigated.

TEST REPORT

4. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.

Test result:

Channel No.	Frequency (MHz)	Mode	Data Rate	6dB bandwidth (MHz)	Limit	Result
149	5745	802.11a	6 Mbps	15.86	≥500kHz	Pass
157	5785		6 Mbps	16.03		Pass
165	5825		6 Mbps	16.09		Pass
149	5745	802.11n HT20	7.2 Mbps	16.56		Pass
157	5785		7.2 Mbps	16.56		Pass
165	5825		7.2 Mbps	16.85		Pass
151	5755	802.11n HT40	15 Mbps	35.77		Pass
159	5795		15 Mbps	35.66		Pass
155	5775	802.11ac VHT80	32.5 Mbps	75.25		Pass

Test result: The unit does meet the FCC requirements

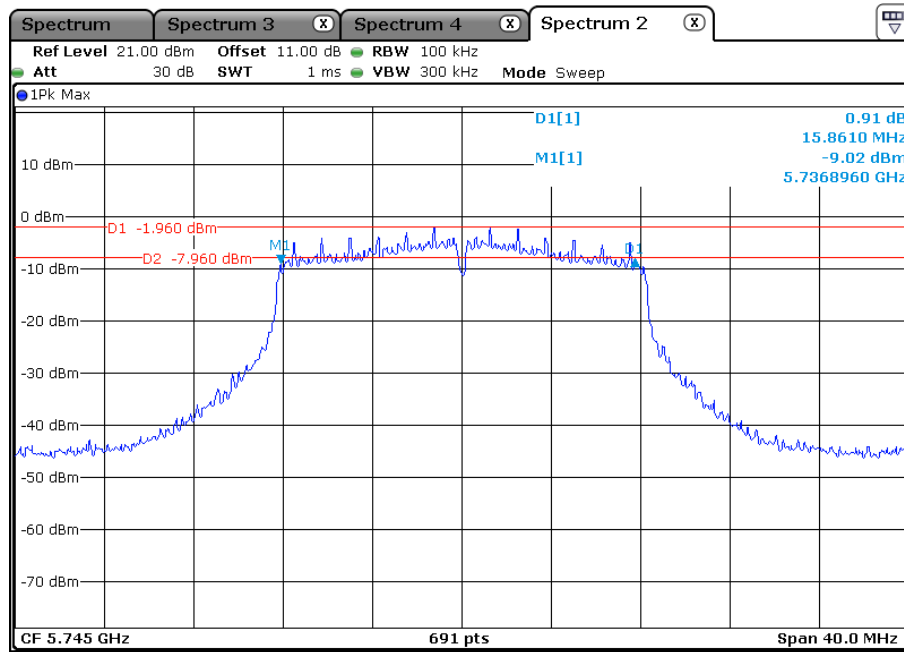
TEST REPORT

Result plot as follows:

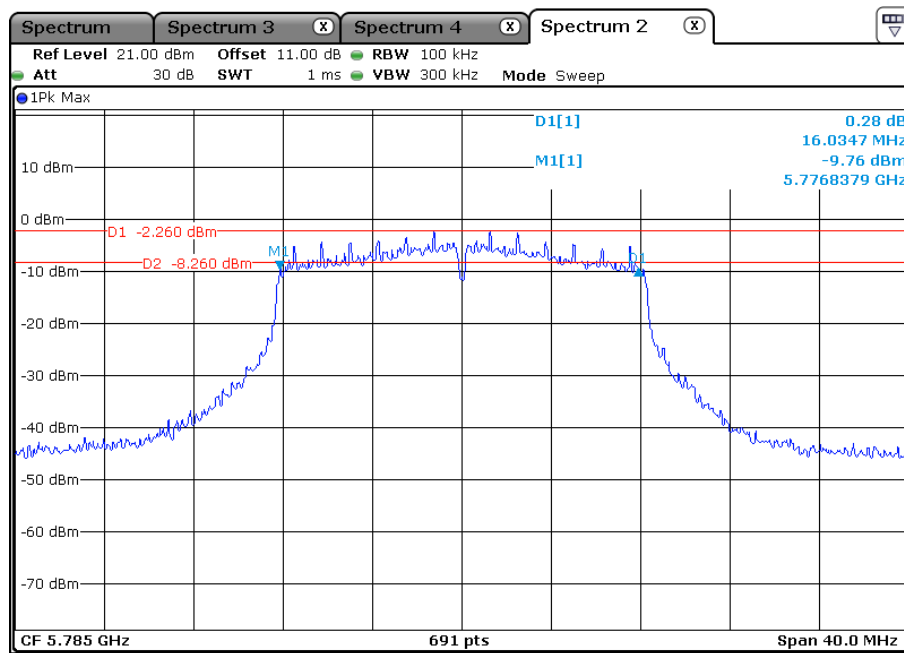
Band IV 5725 MHz to 5850 MHz

802.11a mode

Channel 149: 5745 MHz:

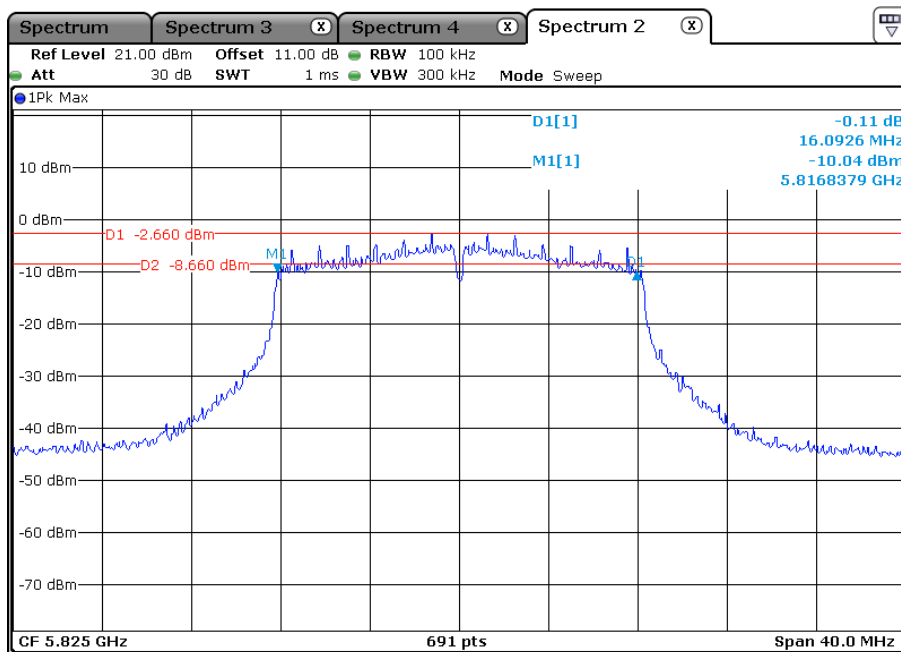


Channel 157: 5785 MHz:



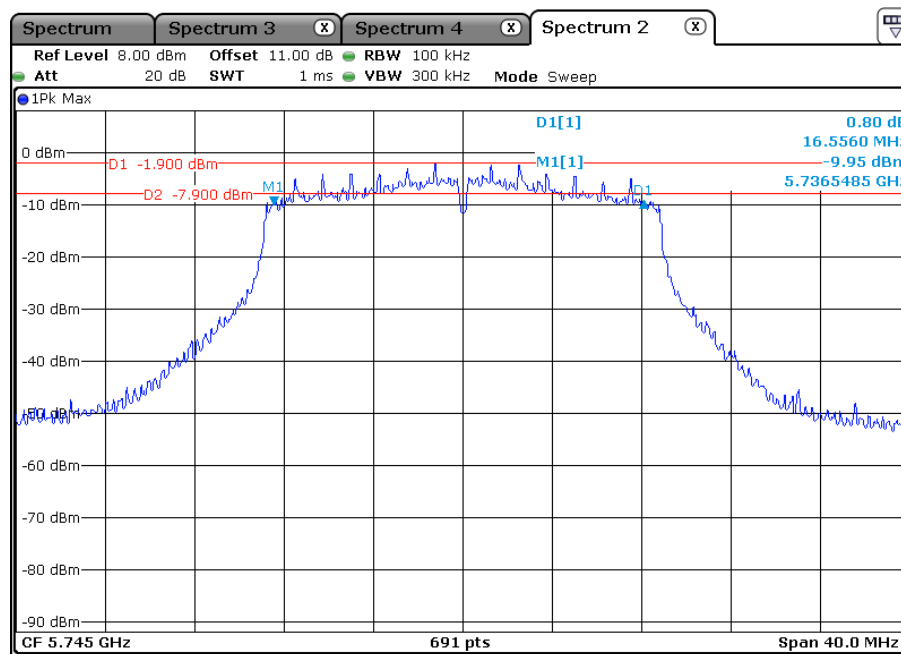
TEST REPORT

Channel 165: 5825 MHz:



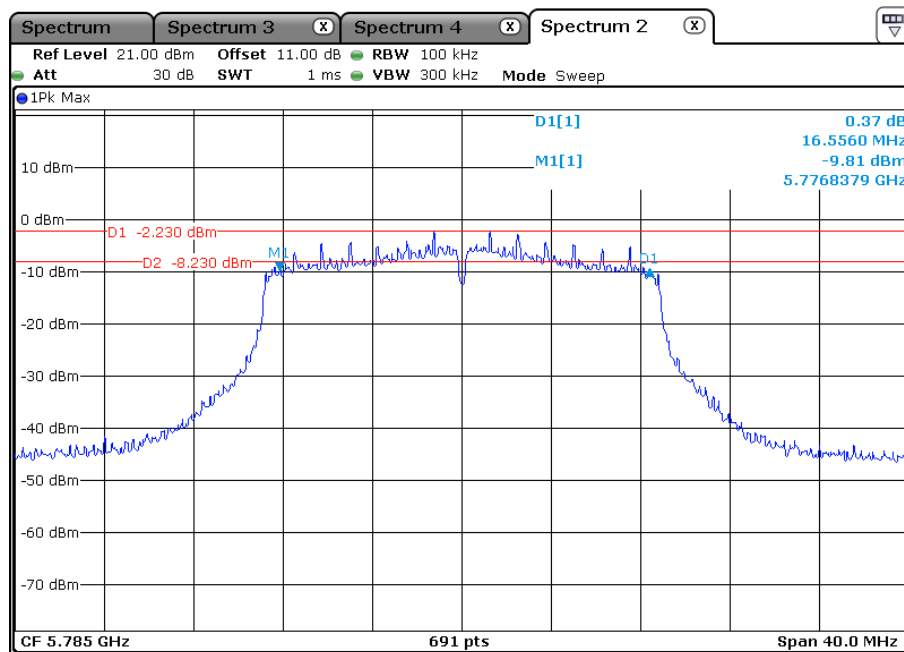
802.11n HT20

Channel 149: 5745 MHz:

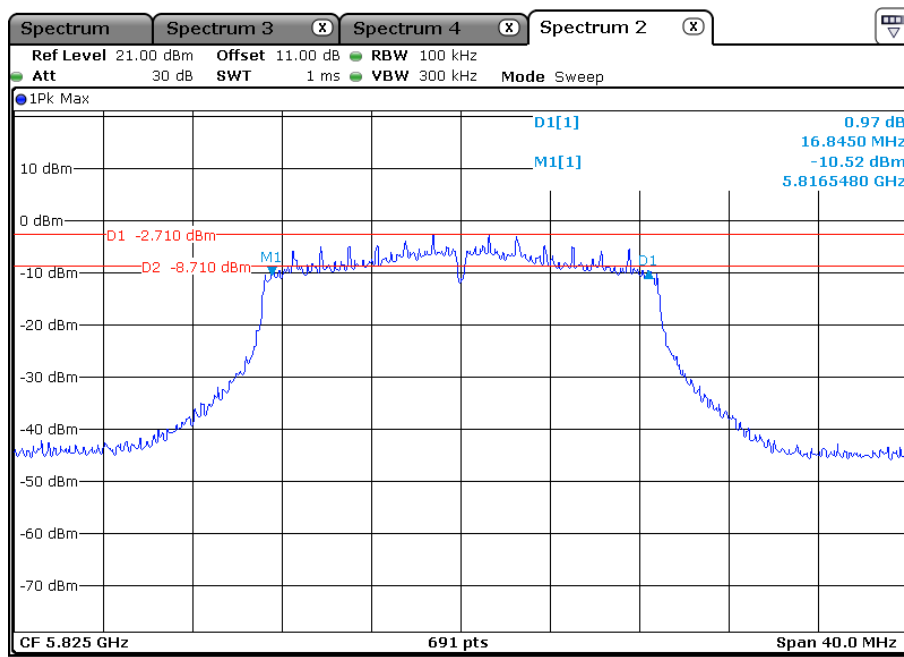


TEST REPORT

Channel 157: 5785 MHz:



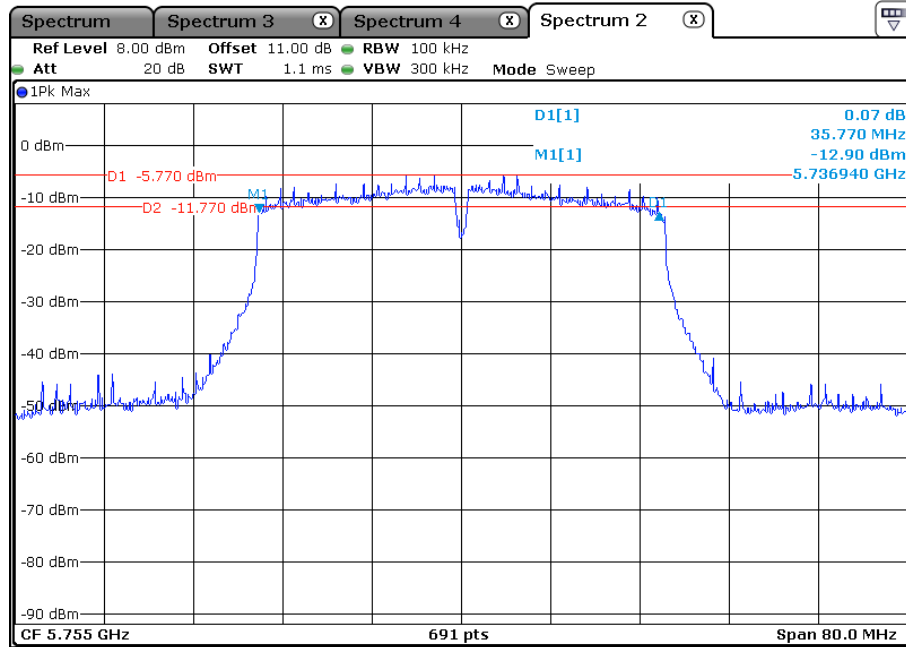
Channel 165: 5825 MHz:



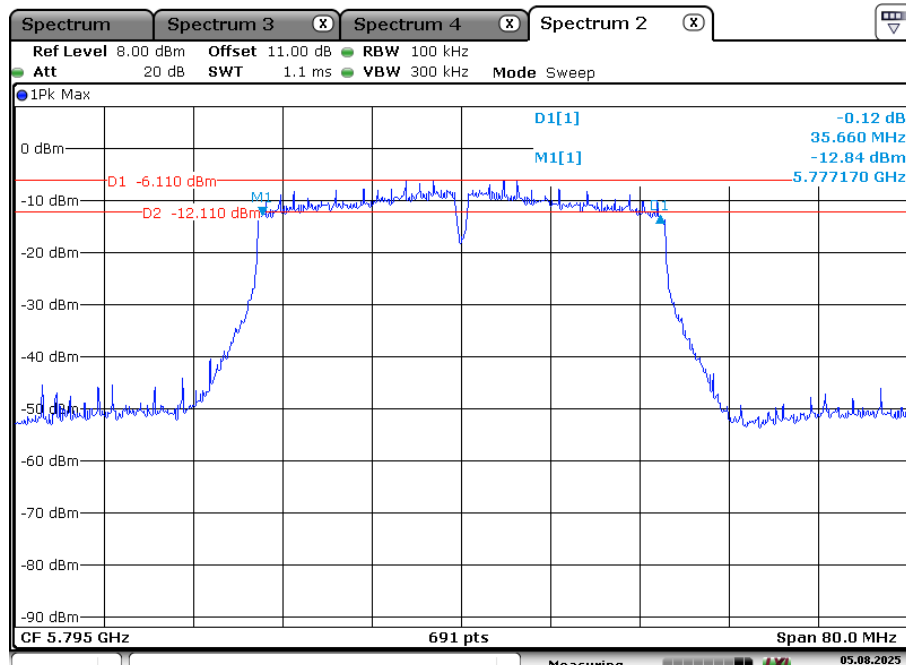
TEST REPORT

802.11n HT40

Channel 151: 5755 MHz:



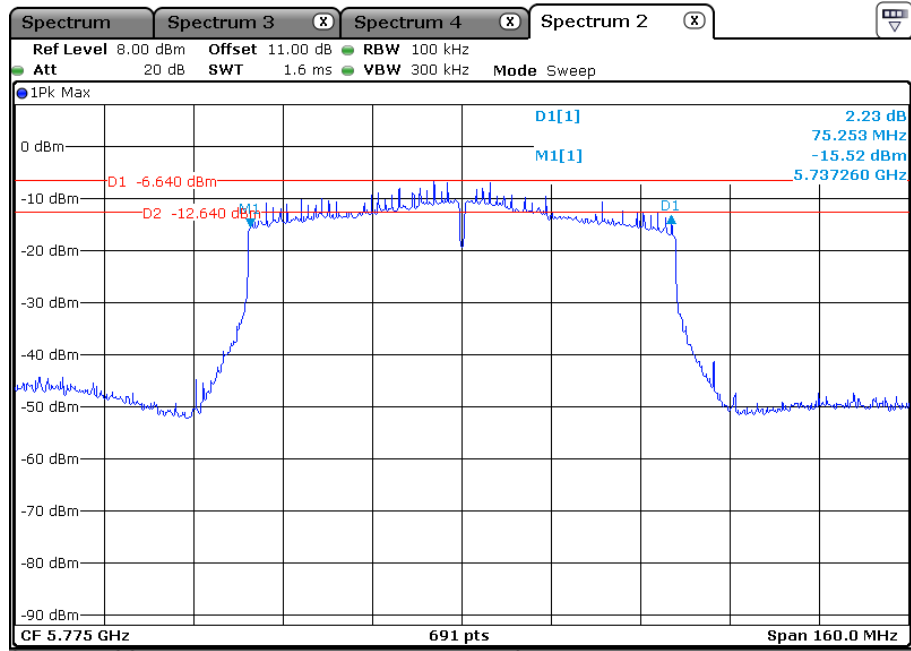
Channel 159: 5795 MHz:



TEST REPORT

802.11ac VHT80

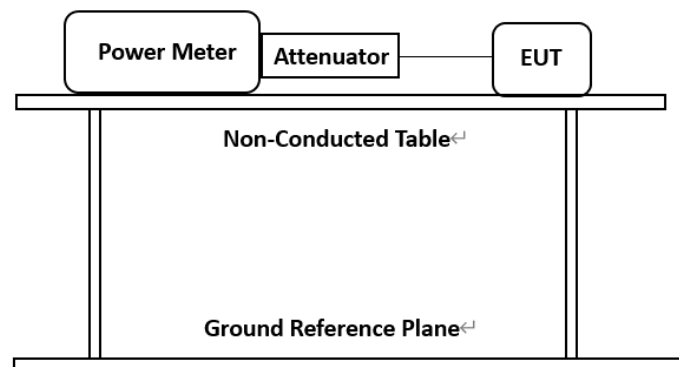
Channel 155: 5775 MHz:



TEST REPORT

4.5 Maximum Conducted Output Power

Test Requirement: FCC Part 15 E clause 15.407(a)
 Test Method: FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause E
 Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
 Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1 dB, with a 10dB attenuator) from the antenna port to the power meter.
2. The EUT is configured to transmit continuously or to transmit with a constant duty cycle.
3. If the EUT is transmitting at all times, it must be transmitting at its maximum power control level.
4. If the EUT does not transmit continuously, measure the duty cycle and adjust the measurement in dBm by adding $10\log(1/x)$ where x is the duty cycle of transmitter output signal. This measurement is an average over both the ON and OFF periods of the transmitter.
5. Report the worst case.

Used Test Equipment List

Power Sensor. Refer to Clause 5 Test Equipment List for details.

Test result:

TEST REPORT

Maximum Conducted Output Power Band I (5150MHz-5250MHz)

Channel No.	Frequency (MHz)	Mode	Data Rate	Maximum Conducted output power (dBm)	Limit dBm	Result
36	5180	802.11a	6 Mbps	13.96	24	Pass
40	5200		6 Mbps	13.95		Pass
48	5240		6 Mbps	12.81		Pass
36	5180	802.11n HT20	7.2 Mbps	13.62		Pass
40	5200		7.2 Mbps	13.56		Pass
48	5240		7.2 Mbps	12.57		Pass
38	5190	802.11n HT40	15 Mbps	8.94		Pass
46	5230	HT40	15 Mbps	13.03		Pass
42	5210	802.11ac VHT80	32.5 Mbps	7.08		Pass

Band IV (5725MHz-5850MHz)

Channel No.	Frequency (MHz)	Mode	Data Rate	Maximum Conducted output power (dBm)	Limit dBm	Result
149	5745	802.11a	6 Mbps	8.70	30	Pass
157	5785		6 Mbps	9.37		Pass
165	5825		6 Mbps	9.01		Pass
149	5745	802.11n HT20	7.2 Mbps	9.27		Pass
157	5785		7.2 Mbps	9.02		Pass
165	5825		7.2 Mbps	8.71		Pass
151	5755	802.11n HT40	15 Mbps	8.95		Pass
159	5795	HT40	15 Mbps	8.77		Pass
155	5775	802.11ac VHT80	32.5 Mbps	8.96		Pass

The measured power in the table has considered the compensation of cable loss, attenuator and duty cycle.

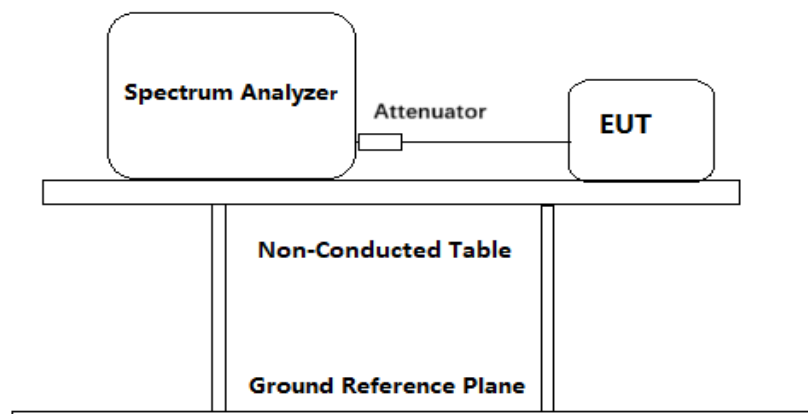
The unit does meet the FCC requirements.

TEST REPORT

4.6 Maximum Peak Power Spectral Density

Test Requirement: FCC Part 15 E clause 15.407(a)
 Test Method: FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause F
 Test Status: Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.

Test Configuration:



Test Procedure:

1. Remove the antenna from the EUT and then connect a low attention attenuation RF cable (cable loss =1dB, with 10 dB attenuator) from the antenna port to the spectrum analyzer.
2. Set the spectrum analyzer:
 - For 5.15–5.25 GHz, 5.25–5.35 GHz, and 5.47–5.725 GHz
 - a) Set the RBW = 1MHz.
 - b) Set the VBW $\geq [3 \times \text{RBW}]$.
 - c) Set the span ≥ 26 dB Bandwidth
 - d) Detector = peak
 - e) Sweep time = auto couple.
 - f) Trace mode = max hold.
 - g) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum amplitude level within the RBW.

For 5.725–5.85 GHz

- a) Set the RBW = 500kHz.
- b) Set the VBW $\geq [3 \times \text{RBW}]$.
- c) Set the span ≥ 26 dB Bandwidth.
- d) Detector = peak

TEST REPORT

- e) Sweep time = auto couple.
 - f) Trace mode = max hold.
 - g) Allow trace to fully stabilize.
 - i) Use the peak marker function to determine the maximum amplitude level within the RBW. Measure the Power Spectral Density of the test frequency with special test status.
3. Measure the Power Spectral Density of the test frequency with special test status.
 4. Repeat until all the test status is investigated.
 5. Report the worst case.

Used Test Equipment List

Spectrum Analyzer. Refer to Clause 5 Test Equipment List for details.

Band I (5150MHz-5250MHz)

Channel No.	Frequency (MHz)	Mode	Data Rate	Maximum PSD (dBm/MHz)	Limit dBm/MHz	Result
36	5180	802.11a	6 Mbps	8.08	11	Pass
40	5200		6 Mbps	7.70		Pass
48	5240		6 Mbps	7.17		Pass
36	5180	802.11n HT20	7.2 Mbps	8.77		Pass
40	5200		7.2 Mbps	7.84		Pass
48	5240		7.2 Mbps	8.13		Pass
38	5190	802.11 n HT40	15 Mbps	0.68		Pass
46	5230		15 Mbps	5.50		Pass
42	5210	802.11ac VHT80	32.5 Mbps	-3.92		Pass

TEST REPORT

Band IV (5725MHz-5850MHz)

Channel No.	Frequency (MHz)	Mode	Data Rate	Maximum PSD (dBm/500kHz)	Limit	Result
149	5745	802.11a	6 Mbps	3.39	30dBm /500k Hz	Pass
157	5785		6 Mbps	3.16		Pass
165	5825		6 Mbps	2.72		Pass
149	5745	802.11n HT20	7.2 Mbps	2.76		Pass
157	5785		7.2 Mbps	2.76		Pass
165	5825		7.2 Mbps	2.68		Pass
151	5755	802.11 n HT40	15 Mbps	-0.41		Pass
159	5795		15 Mbps	-0.56		Pass
155	5775	802.11ac VHT80	32.5 Mbps	-2.77		Pass

Test result: Level = Read Level + Cable Loss(1dB).
The unit does meet the FCC requirements

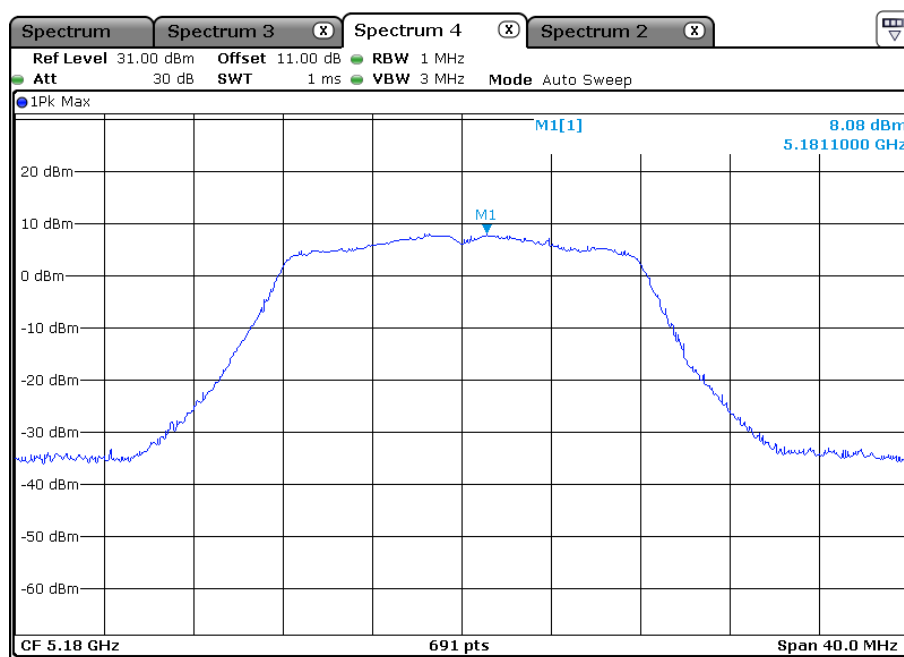
TEST REPORT

Result plot as follows:

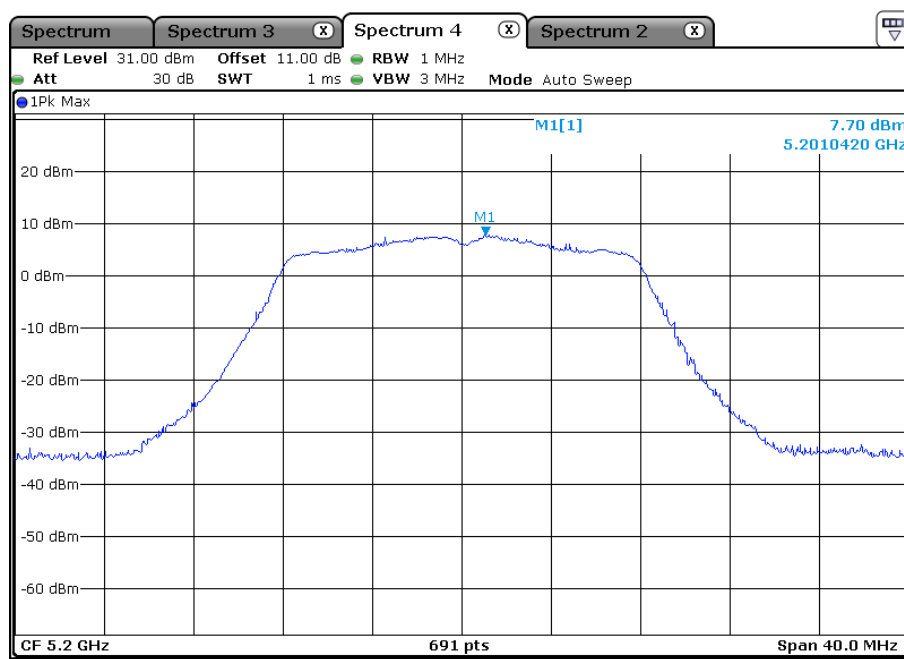
Band I 5150 MHz to 5250 MHz

802.11a

Channel 36: 5180 MHz:

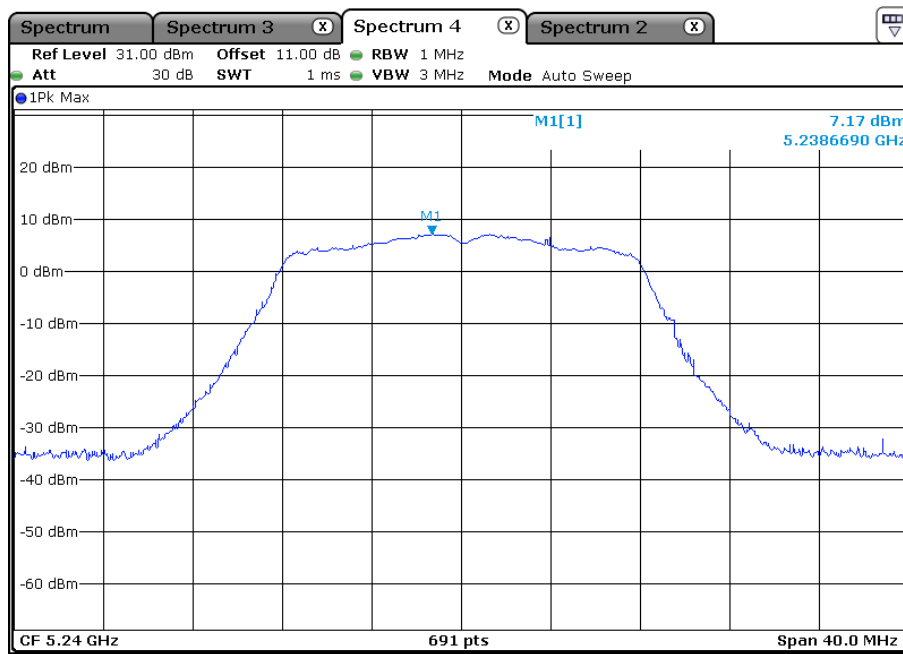


Channel 40: 5200 MHz:



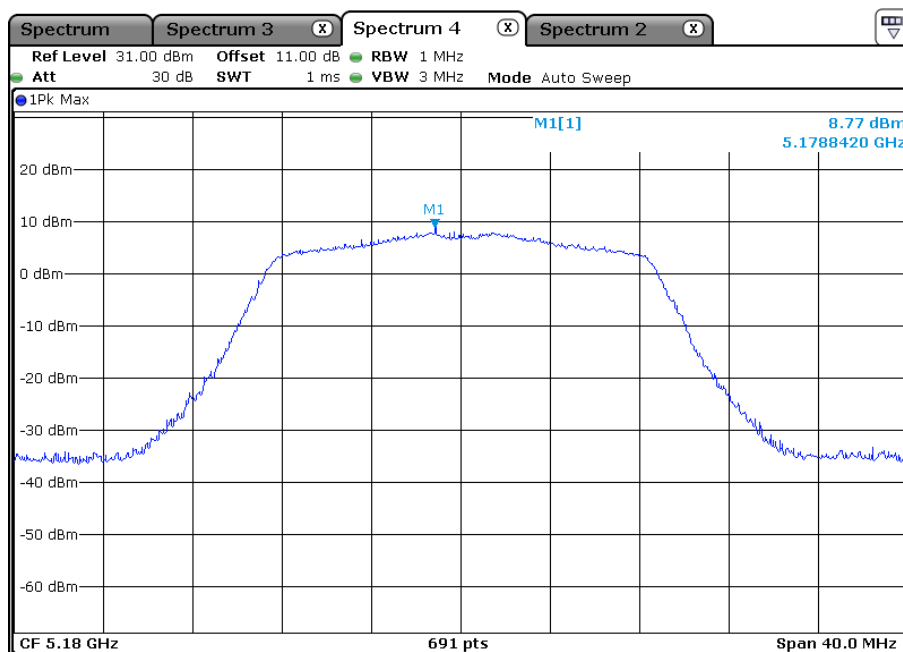
TEST REPORT

Channel 48: 5240 MHz:



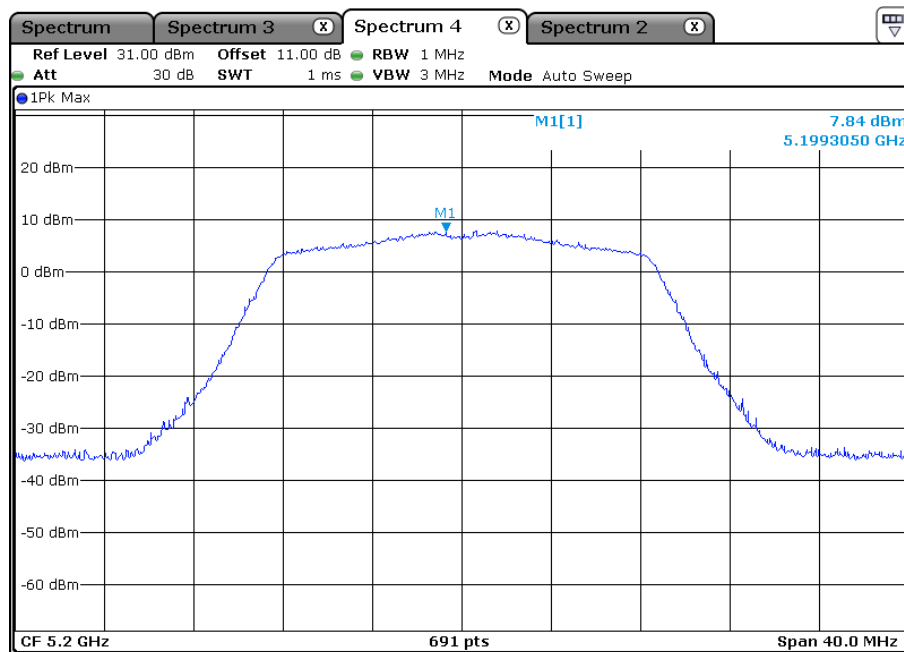
802.11n HT20

Channel 36: 5180 MHz:

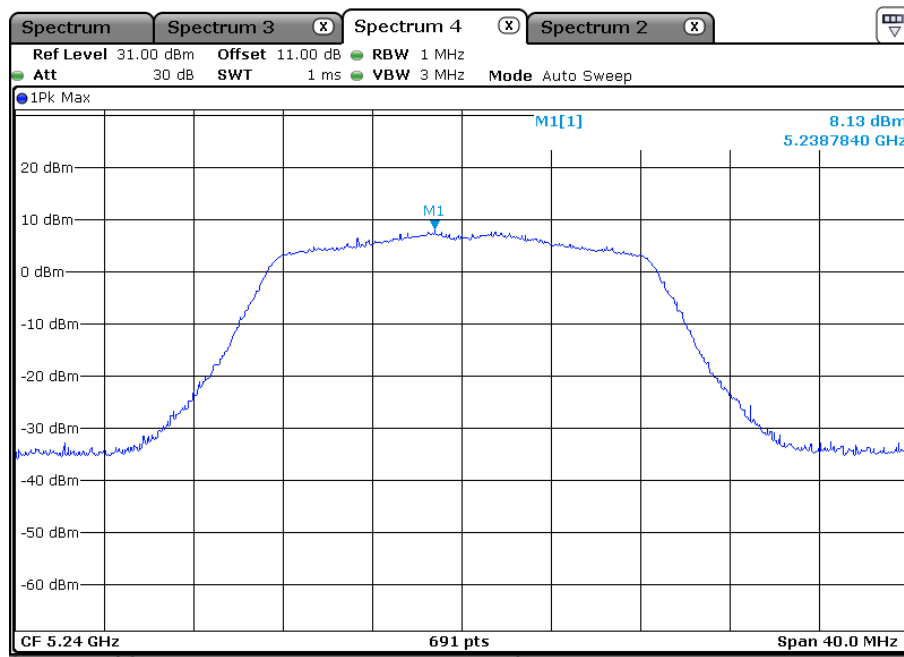


TEST REPORT

Channel 40: 5200 MHz:



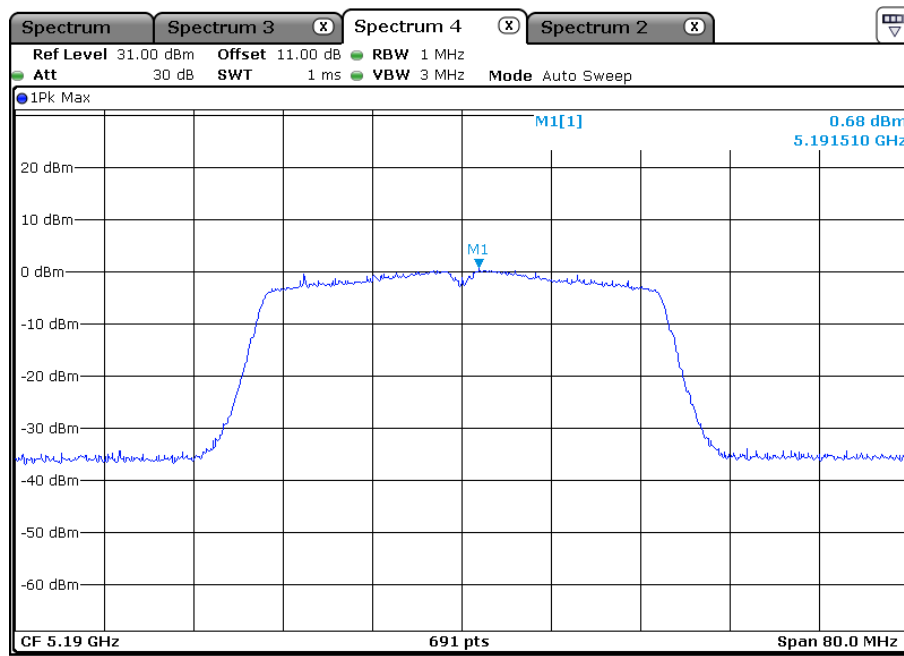
Channel 48: 5240 MHz:



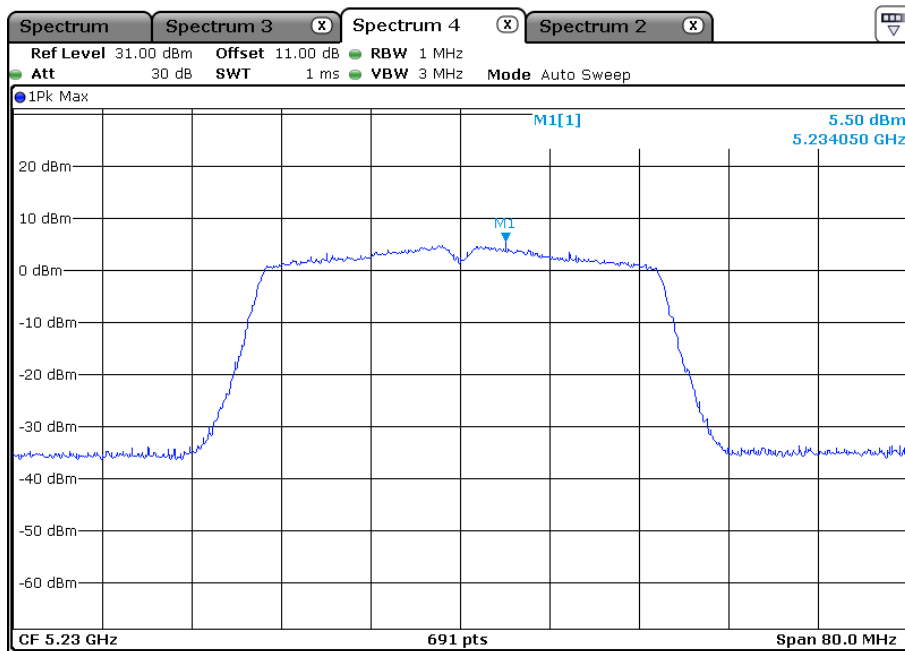
TEST REPORT

802.11n HT40

Channel 38: 5190 MHz:



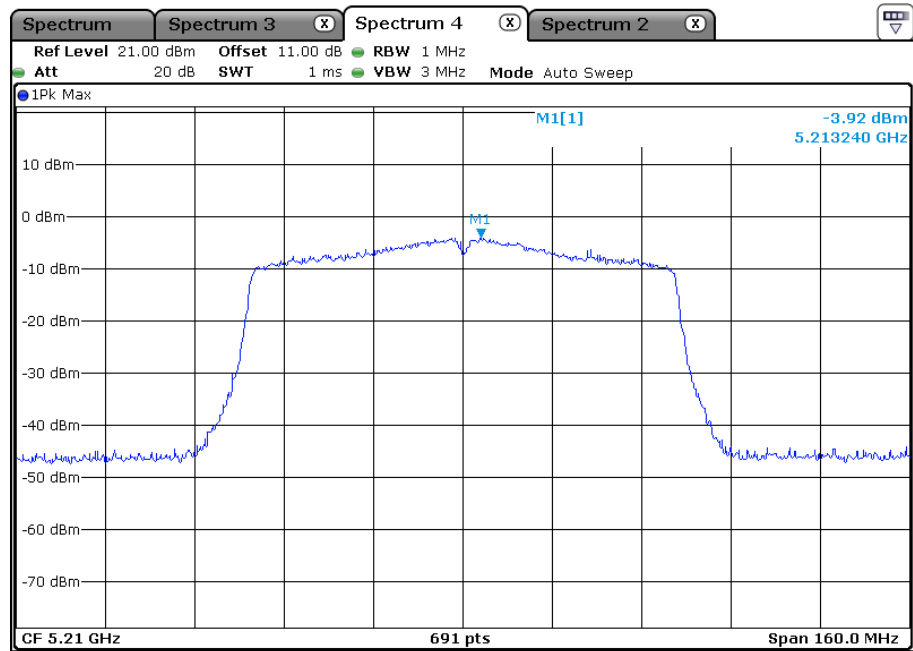
Channel 46: 5230 MHz:



TEST REPORT

802.11ac VHT80

Channel 42: 5210 MHz:

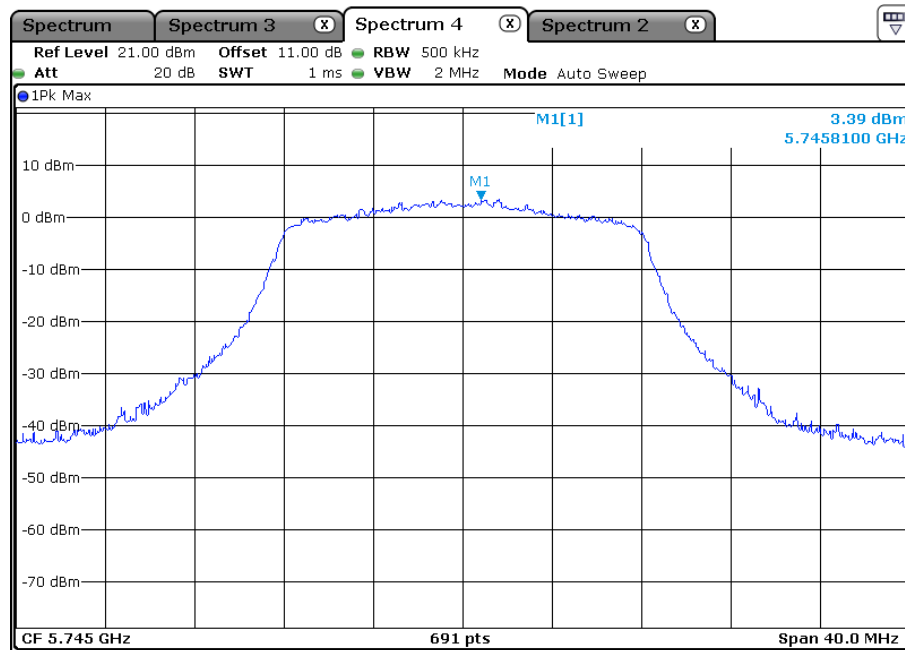


TEST REPORT

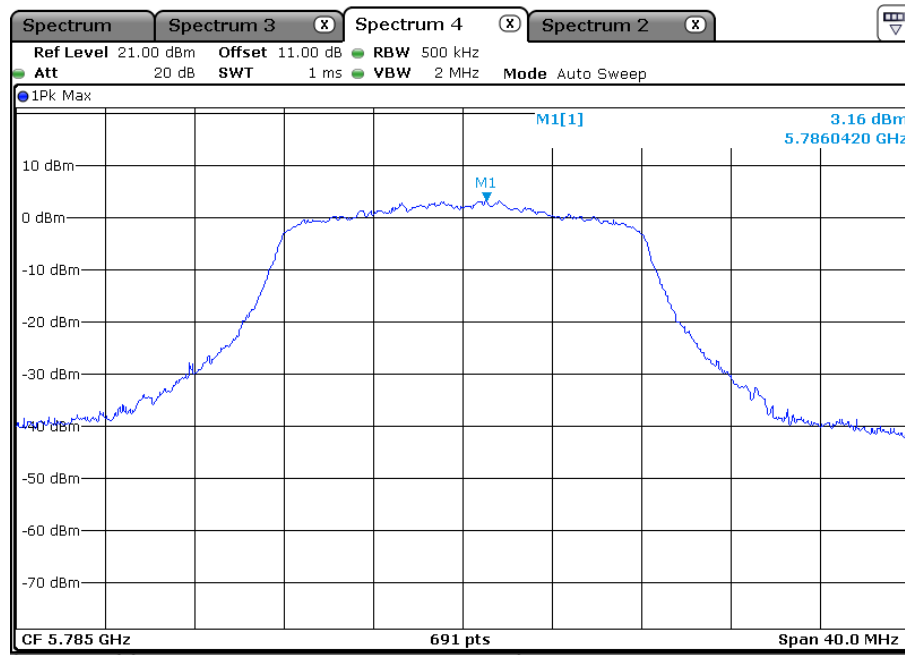
Band IV 5725 MHz to 5850 MHz

802.11a

Channel 149: 5745 MHz:

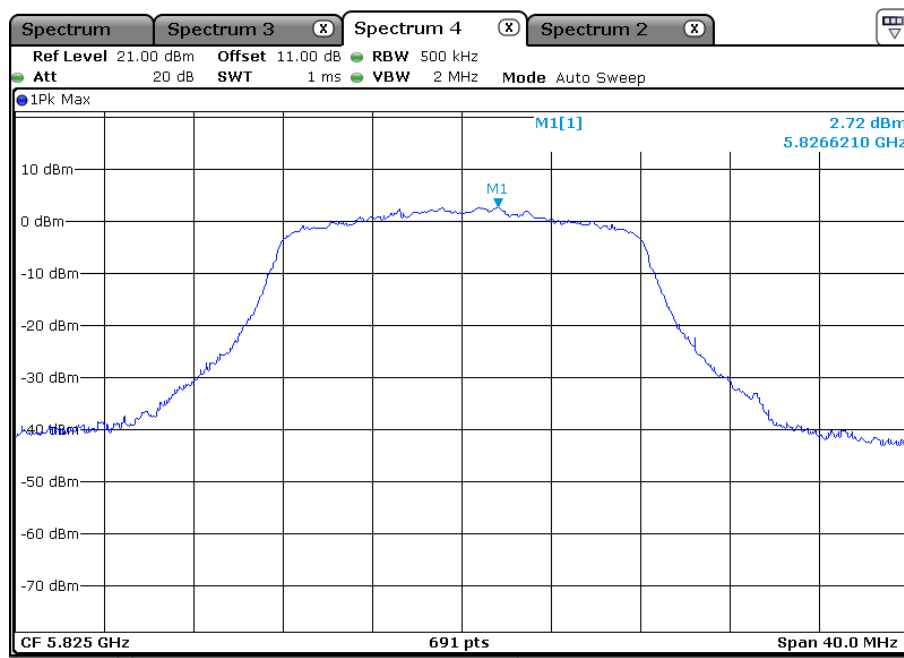


Channel 157: 5785 MHz:



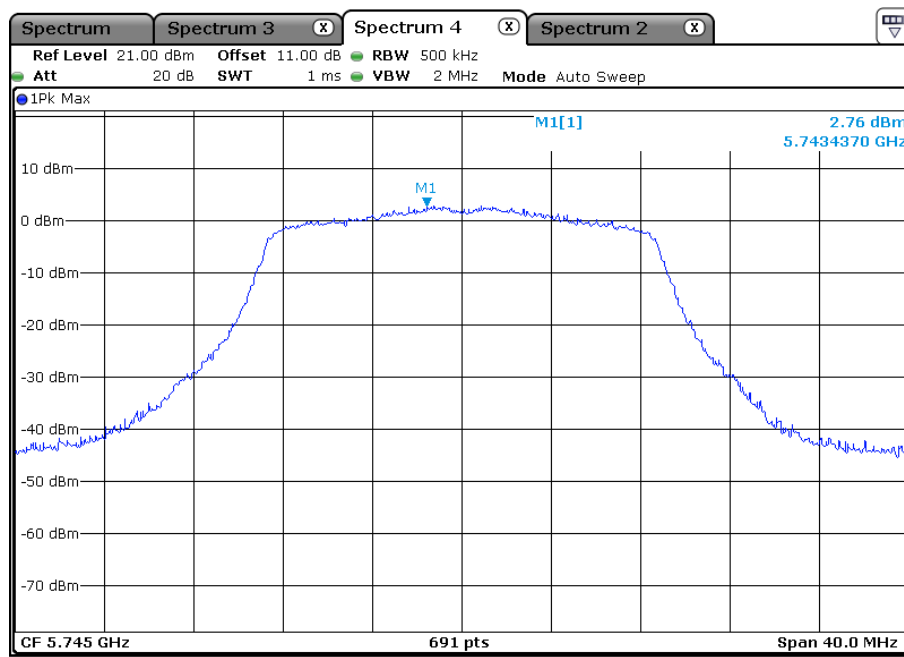
TEST REPORT

Channel 165: 5825 MHz:



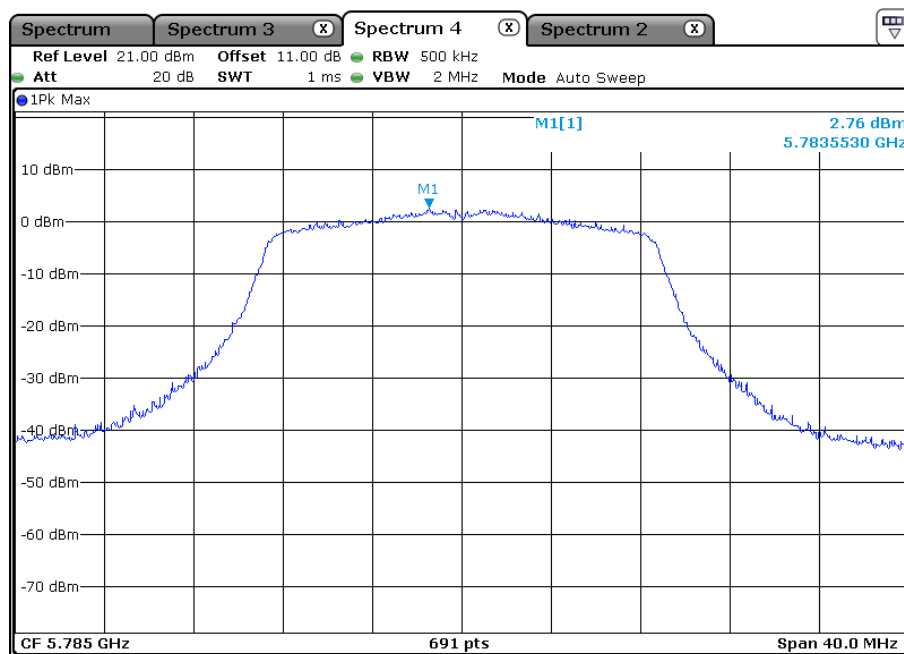
802.11n HT20

Channel 149: 5745 MHz:

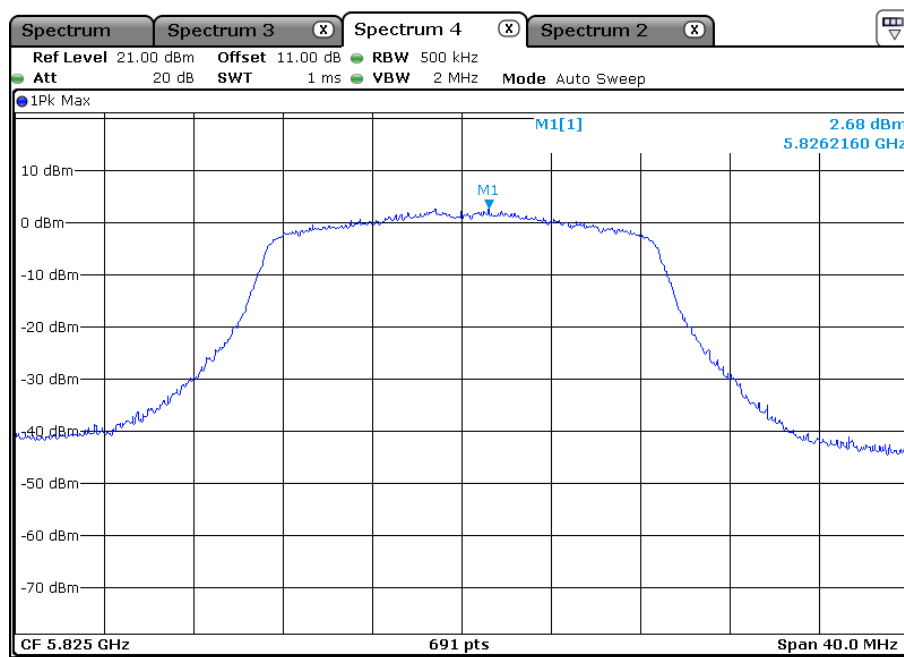


TEST REPORT

Channel 157: 5785 MHz:



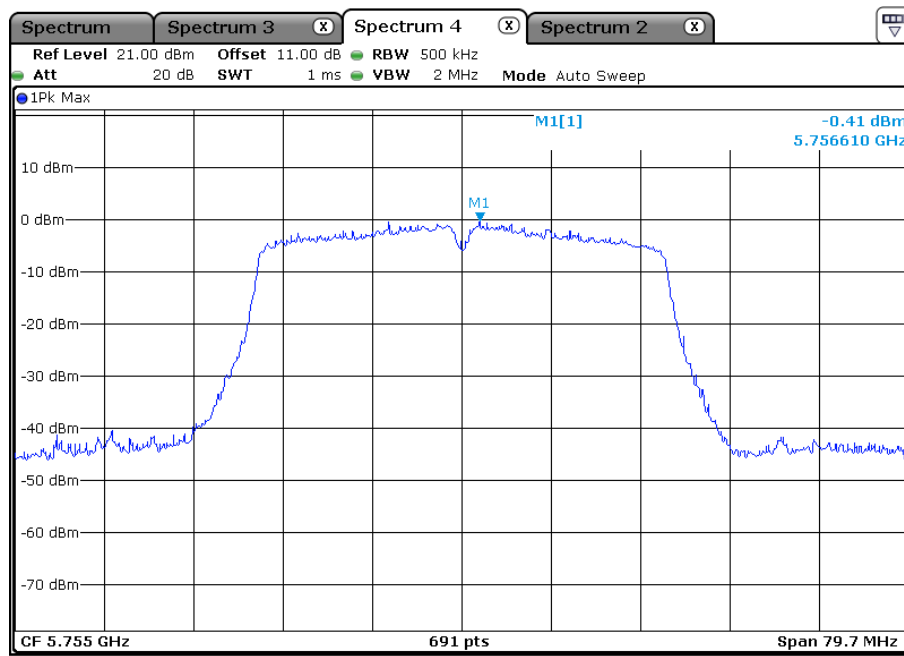
Channel 165: 5825 MHz:



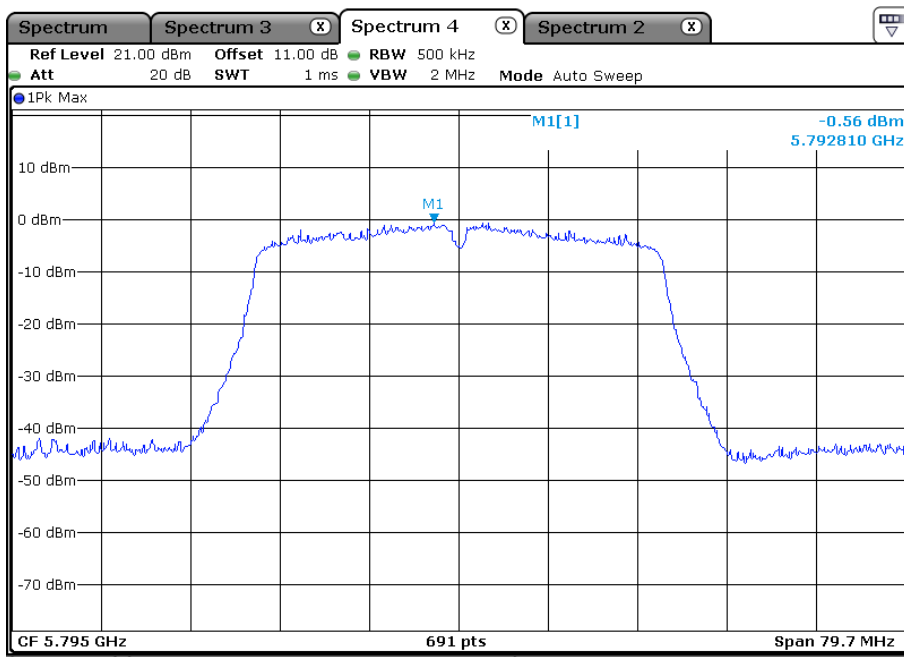
TEST REPORT

802.11n HT40

Channel 151: 5755 MHz:



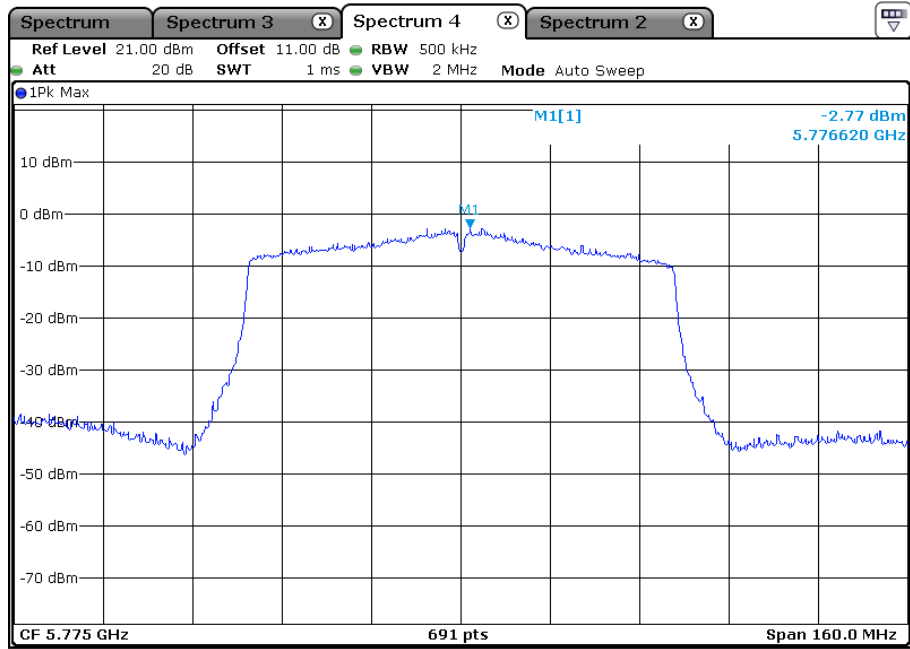
Channel 159: 5795 MHz:



TEST REPORT

802.11ac VHT80

Channel 155: 5775 MHz:



TEST REPORT

4.7 Radiated Spurious Emissions

Test Requirement:	<p>FCC Part 15 E clause 15.407(b)</p> <p>In addition, radiated emissions which fall in the restricted bands, as defined in Section 15.205(a), must also comply with the radiated emission limits specified in Section 15.209(a) (see Section 15.205(c)).</p>
Test Method:	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause G
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Limit:	<p>40.0 dBμV/m between 30MHz & 88MHz;</p> <p>43.5 dBμV/m between 88MHz & 216MHz;</p> <p>46.0 dBμV/m between 216MHz & 960MHz;</p> <p>54.0 dBμV/m above 960MHz.</p>
Detector:	<p>For Peak and Quasi-Peak value:</p> <p>RBW =</p> <p>1 MHz for $f \geq 1$ GHz,</p> <p>200 Hz for 9 kHz to 150 kHz</p> <p>9 kHz for 150 kHz to 30 MHz</p> <p>120 kHz for 30 MHz to 1GHz</p> <p>VBW $\geq$ RBW</p> <p>Sweep = auto</p> <p>Detector function = peak for $f \geq 1$ GHz, QP for $f < 1$ GHz</p> <p>Trace = max hold</p> <p>For AV value:</p> <p>RBW = 1 MHz for $f \geq 1$ GHz, 100 kHz for $f < 1$ GHz</p> <p>VBW=10 Hz</p> <p>Sweep = auto</p> <p>Trace = max hold</p>
Field Strength Calculation:	<p>The field strength is calculated by adding the reading on the Spectrum Analyzer to the factors associated with preamplifiers (if any), antennas, cables, pulse desensitization and average factors (when specified limit is in average and measurements are made with peak detectors). A sample calculation is included below:</p> <p>FS = RA + AF + CF - AG + PD + AV</p> <p>FS = RA + Correct Factor + AV</p>

TEST REPORT

Where:

FS = Field Strength in dB μ V/m

RA = Receiver Amplitude (including preamplifier) in dB μ V

AF = Antenna Factor in dB

CF = Cable Attenuation Factor in dB

AG = Amplifier Gain in dB

PD = Pulse Desensitization in dB

AV = Average Factor in -dB

Correct Factor = AF + CF - AG + PD

In the radiated emission table which follows, the reading shown on the data table may reflect the preamplifier gain. An example of the calculations, where the reading does not reflect the preamplifier gain, follows:

FS = RA + AF + CF - AG + PD + AV

Assume a receiver reading of 62.0 dB μ V is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29 dB is subtracted. The pulse desensitization factor of the spectrum analyzer was 0 dB, and the resultant average factor was -10 dB. The net field strength for comparison to the appropriate emission limit is 32 dB μ V/m.

RA = 62.0 dB μ V

AF = 7.4 dB

CF = 1.6 dB

AG = 29.0 dB

PD = 0 dB

AV = -10 dB

Correct Factor = 7.4 + 1.6 - 29.0 + 0 = -20 dB

FS = 62 + (-20) + (-10) = 32 dB μ V/m

TEST REPORT

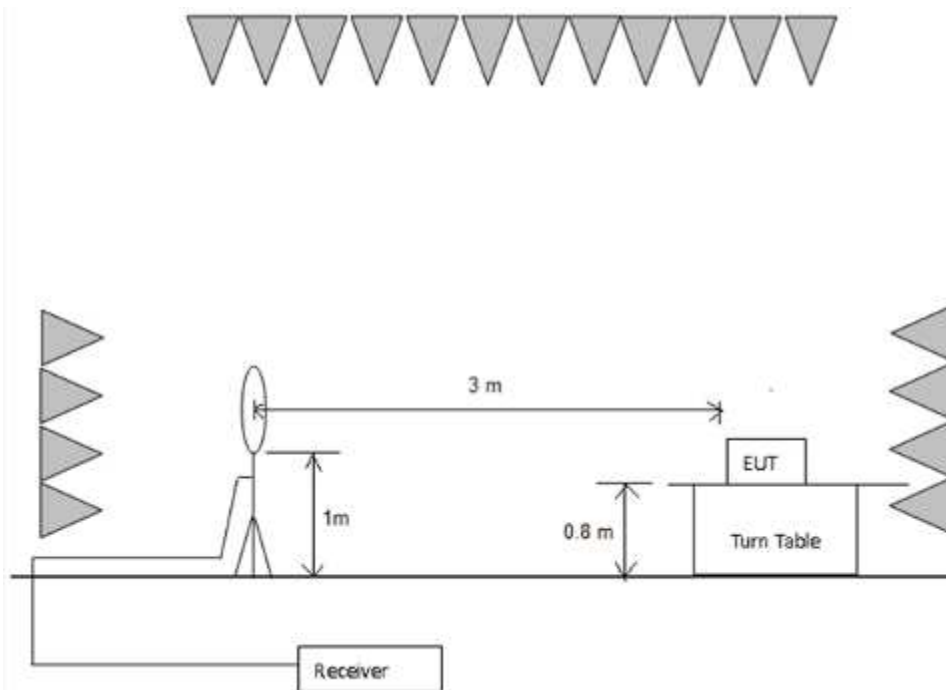
Section 15.205 Restricted bands of operation.

(a) Except as shown in paragraph (d) of this section. Only spurious emissions are permitted in any of the frequency bands listed below:

MHz	MHz	MHz	GHz
0.090 - 0.110	16.42 - 16.423	399.9 - 410	4.5 - 5.15
10.495 - 0.505	16.69475 - 16.69525	608 - 614	5.35 - 5.46
2.1735 - 2.1905	16.80425 - 16.80475	960 - 1240	7.25 - 7.75
4.125 - 4.128	25.5 - 25.67	1300 - 1427	8.025 - 8.5
4.17725 - 4.17775	37.5 - 38.25	1435 - 1626.5	9.0 - 9.2
4.20725 - 4.20775	73 - 74.6	1645.5 - 1646.5	9.3 - 9.5
6.215 - 6.218	74.8 - 75.2	1660 - 1710	10.6 - 12.7
6.26775 - 6.26825	108 - 121.94	1718.8 - 1722.2	13.25 - 13.4
6.31175 - 6.31225	123 - 138	2200 - 2300	14.47 - 14.5
8.291 - 8.294	149.9 - 150.05	2310 - 2390	15.35 - 16.2
8.362 - 8.366	156.52475 -	2483.5 - 2500	17.7 - 21.4
8.37625 - 8.38675	156.52525	2655 - 2900	22.01 - 23.12
8.41425 - 8.41475	156.7 - 156.9	3260 - 3267	23.6 - 24.0
12.29 - 12.293	162.0125 - 167.17	3332 - 3339	31.2 - 31.8
12.51975 - 12.52025	167.72 - 173.2	3345.8 - 3358	36.43 - 36.5
12.57675 - 12.57725	240 - 285	3600 - 4400	
13.36 - 13.41	322 - 335.4		

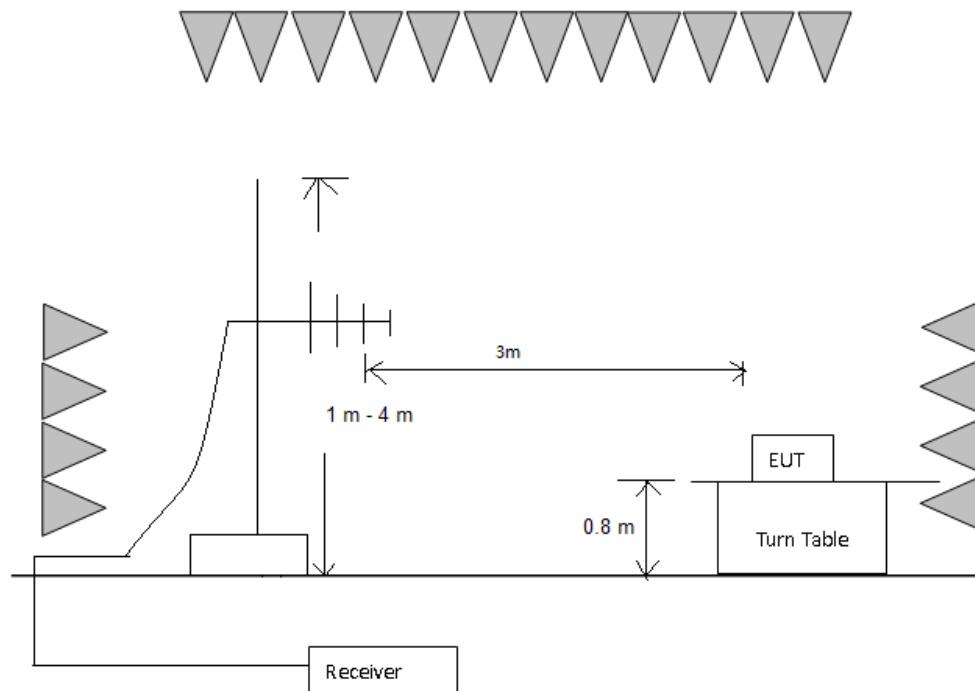
Test Configuration:

1) 9 kHz to 30 MHz emissions:

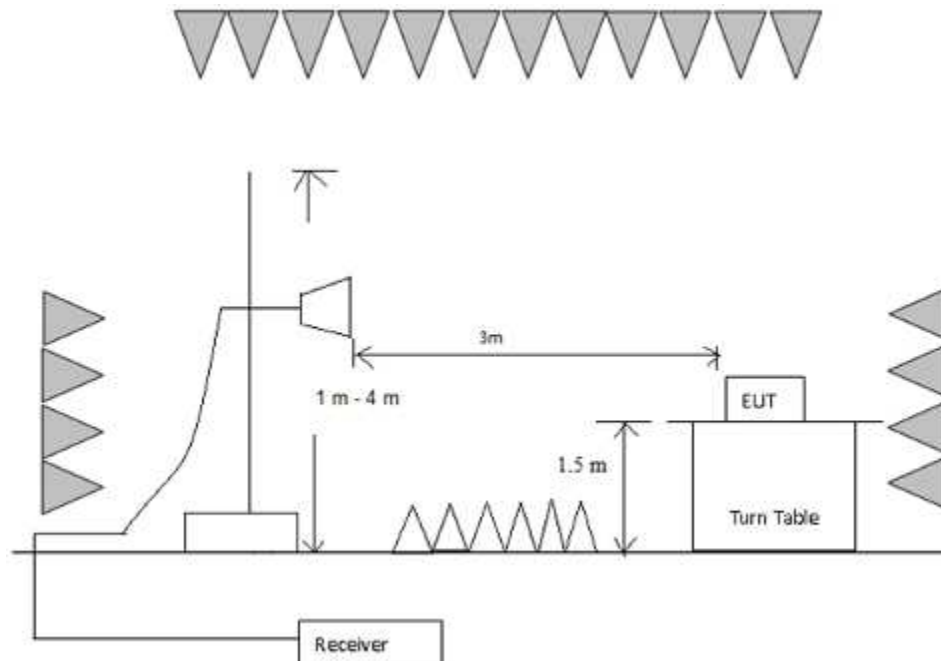


2) 30 MHz to 1 GHz emissions:

TEST REPORT



3) 1 GHz to 40 GHz emissions:



Test Procedure:

Test site with RF absorbing material covering the ground plane that met the site validation criterion called out in CISPR 16-1-4:2010 was used to perform radiated emission test above 1 GHz.

The receiver was scanned from 9 kHz to 25 GHz. When an emission was found, the table was rotated to produce the maximum signal strength. An initial pre-scan was performed for in peak detection mode using the receiver. The EUT was measured for both the Horizontal and Vertical polarities and performed a pre-test three orthogonal planes. For intentional radiators,

TEST REPORT

measurements of the variation of the input power or the radiated signal level of the fundamental frequency component of the emission, as appropriate, shall be performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage. The worst case emissions were reported.

Used Test Equipment List:

3m Semi-Anechoic Chamber, EMI Test Receiver (9 kHz~7 GHz), Signal and Spectrum Analyzer (10 Hz~40 GHz), Loop antenna (9 kHz-30 MHz). TRILOG Super Broadband test Antenna(30 MHz-3 GHz) (RX), Bouble-Ridged Waveguide Horn Antenna (800 MHz-18 GHz)(RX) and High Frequency Antenna & preamplifier(18 GHz~26.5 GHz) (RX). Refer to Clause 5 Test Equipment List for details.

Test result:

9 kHz~30 MHz Field Strength of Unwanted Emissions for Quasi-Peak Measurement

The measurements with active loop antenna were greater than 20dB below the limit, so the test data were not recorded in the test report.

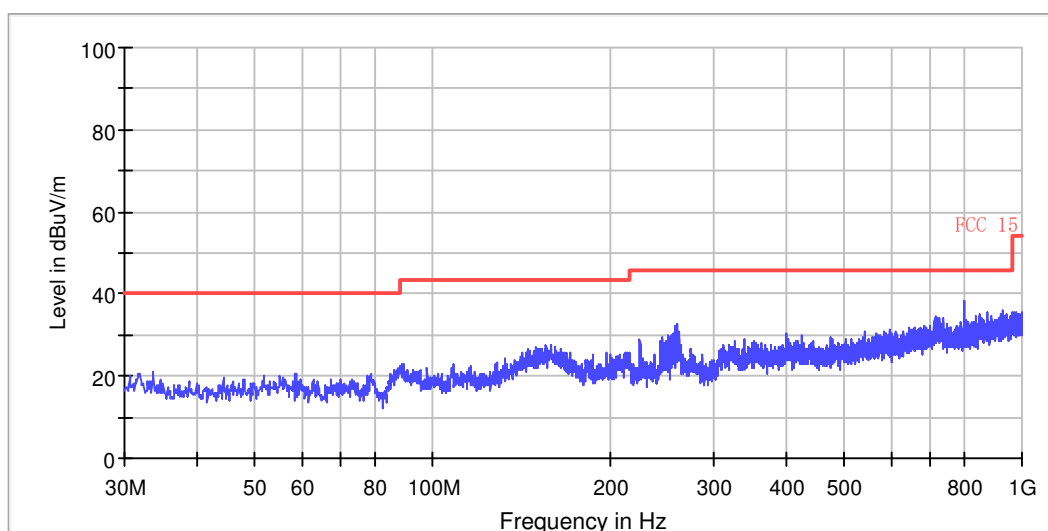
30 MHz~1 GHz Spurious Emissions .Quasi-Peak Measurement.

Pretest on the lowest channel, middle channel and highest channel for each mode of the Band I

Band II, Band III and Band IV.

The below data test on mode 802.11n HT20 channel 36: 5180MHz was the worst case of all test record.

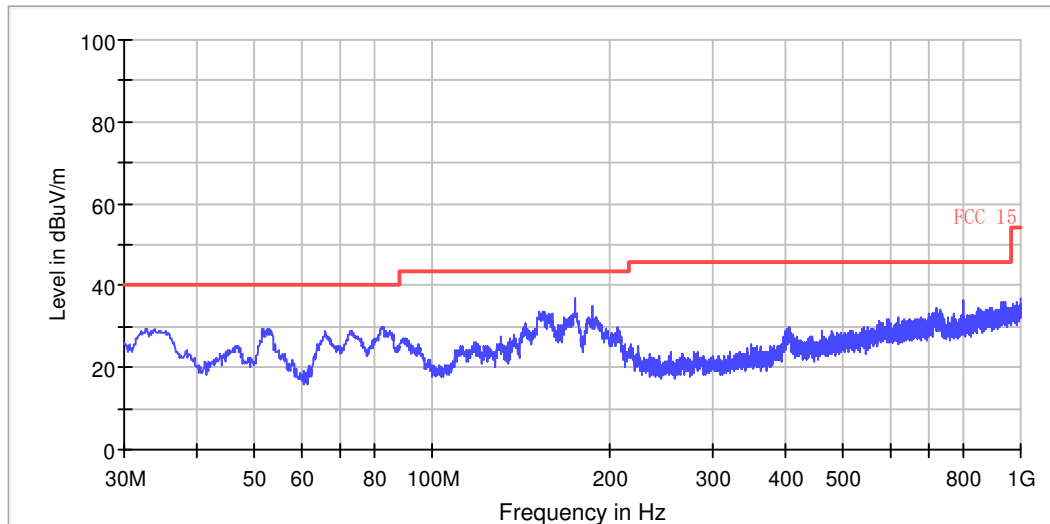
Horizontal:



All emission levels are more than 6dB below the limit.

TEST REPORT

Vertical:



All emission levels are more than 6dB below the limit.

1~40 GHz Radiated Emissions.

Result as follows:

Band I 5150 MHz to 5250 MHz

802.11a mode

Channel 36: 5180 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	61.3	-11.5	49.8	74	H
6400	47.6	1.3	48.9	68.2	H
1599	66.0	-11.5	54.5	74	V
6400	45.3	1.3	46.6	68.2	V

AV Measurement:

Frequency (MHz)	AV Reading Level (dBμV)	Correction factors (dB/m)	AV Emission Level (dBμV/m)	AV Limit (dBμV/m)	Antenna polarization
1599	53.5	-11.5	42.0	54	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

TEST REPORT

Channel 40: 5200 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	57.5	-11.5	46.0	74	H
6400	48.2	1.3	49.5	68.2	H
1597	66.5	-11.5	55.0	74	V
6400	45.7	1.3	47.0	68.2	V

AV Measurement:

Frequency (MHz)	AV Reading Level (dBμV)	Correction factors (dB/m)	AV Emission Level (dBμV/m)	AV Limit (dBμV/m)	Antenna polarization
1597	50.7	-11.5	39.2	54	H

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

Channel 48: 5240 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1604	63.5	-11.5	52.0	74	H
6400	47.8	1.3	49.1	68.2	H
1599	57.3	-11.5	45.8	74	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

802.11n HT20

Channel 36: 5180 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	58.6	-11.5	47.1	74	H
6400	44.7	1.3	46.0	68.2	H
1597	61.1	-11.5	49.6	74	V
6400	47.8	1.3	49.1	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

TEST REPORT

Channel 40: 5200 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	58.9	-11.5	47.4	74	H
6400	49.7	1.3	51.0	68.2	H
1599	60.1	-11.5	48.6	74	V
6400	46.4	1.3	47.7	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

Channel 48: 5240 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	60.5	-11.5	49.0	74	H
6400	47.9	1.3	49.2	68.2	H
1599	61.7	-11.5	50.2	74	V
6400	45.6	1.3	46.9	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

802.11n HT40

Channel 38: 5190 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	57.0	-11.5	45.5	74	H
6400	47.6	1.3	48.9	68.2	H
1599	59.5	-11.5	48.0	74	V
6400	48.2	1.3	49.5	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

Channel 46: 5230 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	62.6	-11.5	51.1	74	H
6400	45.6	1.3	46.9	68.2	H
1599	59.4	-11.5	47.9	74	V
6400	47.8	1.3	49.1	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

TEST REPORT

recorded.

802.11ac VHT80

Channel 42: 5210 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	56.8	-11.5	45.3	74	H
6400	46.0	1.3	47.3	68.2	H
1599	59.8	-11.5	48.3	74	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

TEST REPORT

Result as follows:

Band IV 5725 MHz to 5850 MHz

802.11a mode

Channel 149: 5745 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	58.5	-11.5	47.0	74	H
6400	48.9	1.3	50.2	68.2	H
1599	63.9	-11.5	52.4	74	V
6400	48.7	1.3	50.0	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

Channel 157: 5785 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	59.7	-11.5	48.2	74	H
6400	49.8	1.3	51.1	68.2	H
1599	59.1	-11.5	47.6	74	V
6400	49.0	1.3	50.3	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

Channel 165: 5825 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	56.0	-11.5	44.5	74	H
6400	48.2	1.3	49.5	68.2	H
1599	58.9	-11.5	47.4	74	V
6400	49.7	1.3	51.0	68.2	V

802.11n HT20

Channel 149: 5745 MHz:

TEST REPORT

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
6400	48.4	1.3	49.7	68.2	H
6400	48.7	1.3	50.0	68.2	V
1599	58.8	-11.5	47.3	74	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

Channel 157: 5785 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	58.9	-11.5	47.4	74	H
6399	50.2	1.3	51.5	68.2	H
1599	57.3	-11.5	45.8	74	V
6399	48.9	1.3	50.2	68.2	V

Channel 165: 5825 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	57.3	-11.5	45.8	74	H
6399	50.0	1.3	51.3	68.2	H
1599	58.4	-11.5	46.9	74	V
6399	48.1	1.3	49.4	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

802.11n HT40

Channel 151: 5755 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	56.0	-11.5	44.5	74	H
6399	47.4	1.3	48.7	68.2	H
1599	59.2	-11.5	47.7	74	V
6399	47.1	1.3	48.4	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

TEST REPORT

Channel 159: 5795 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	61.0	-11.5	49.5	74	H
6399	47.9	1.3	49.2	68.2	H
1599	59.7	-11.5	48.2	74	V
6399	48.3	1.3	49.6	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

802.11ac VHT80

Channel 155: 5775 MHz:

Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correction factors (dB/m)	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
1599	61.0	-11.5	49.5	74	H
1599	58.7	-11.5	47.2	74	V
6399	47.1	1.3	48.4	68.2	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

The field strength is calculated by adding the Antenna Factor. Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level = Receiver Reading + Antenna Factor + Cable Loss – Preamplifier Factor.

As shown in Section, for frequencies above 1000 MHz. the above field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

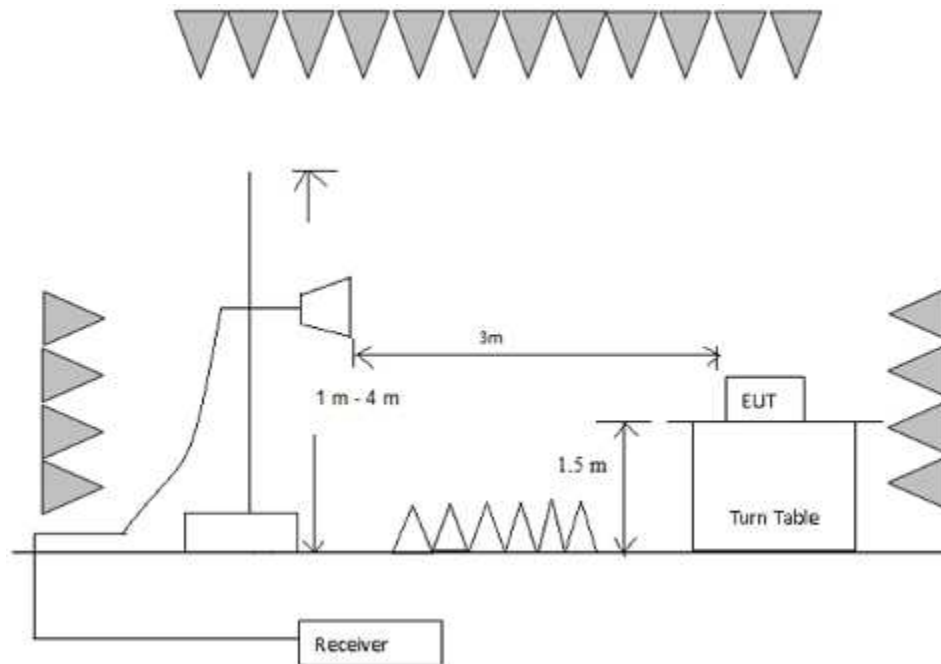
No any other emissions level which are attenuated less than 20dB below the limit.

TEST REPORT

4.8 Band Edges Requirement

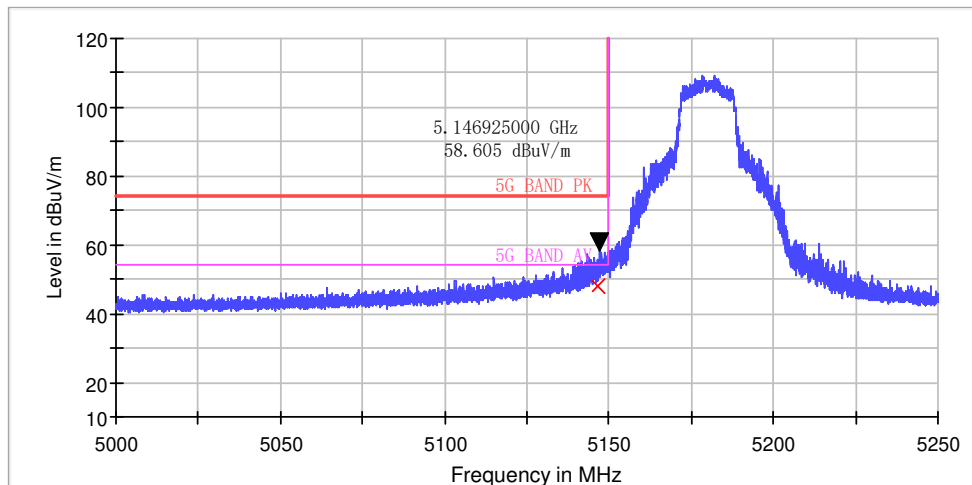
Test Requirement:	FCC Part 15 E clause 15.407(b) Undesirable emission limits. Except as shown in paragraph (b)(7) of this section, the maximum emissions outside of the frequency bands of operation shall be attenuated in accordance with the following limits.
Test Method:	FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01, Clause G
Test Status:	Pre-Scan has been conducted to determine the worst-case mode from all possible combinations between available modulations, data rates and antenna ports (if EUT with antenna diversity architecture). Following channel(s) was (were) selected for the final test as listed below.
Test site:	Measurement Distance: 3m (Semi-Anechoic Chamber)
Limit:	(1) For transmitters operating in the 5.15–5.25 GHz band: All emissions outside of the 5.15–5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. (2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. (3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. (4) For transmitters operating in the 5.725–5.85 GHz band: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
Test Configuration:	
4) 1 GHz to 40 GHz emissions:	

TEST REPORT

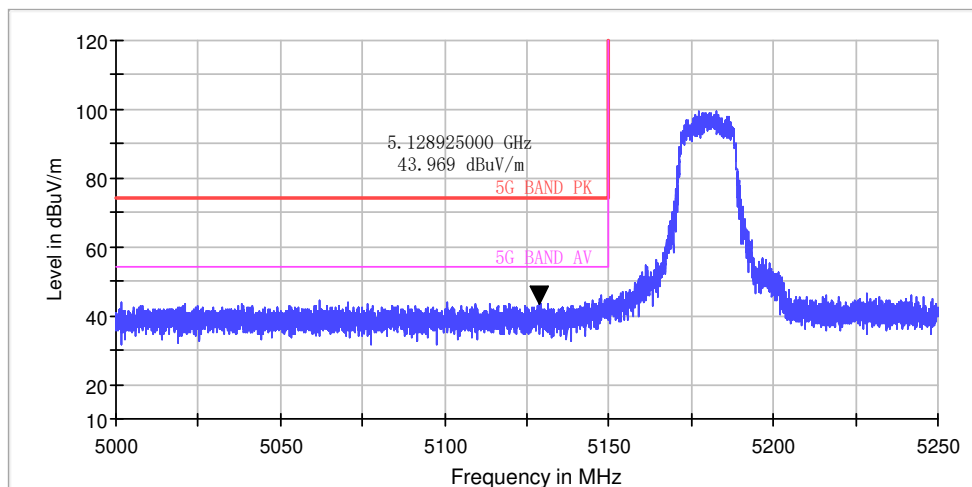


TEST REPORT

Test result:
5180MHz
802.11a
Horizontal



Vertical



Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5146.9	59.2	-0.6	58.6	74	H
5128.9	44.6	-0.6	44.0	74	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

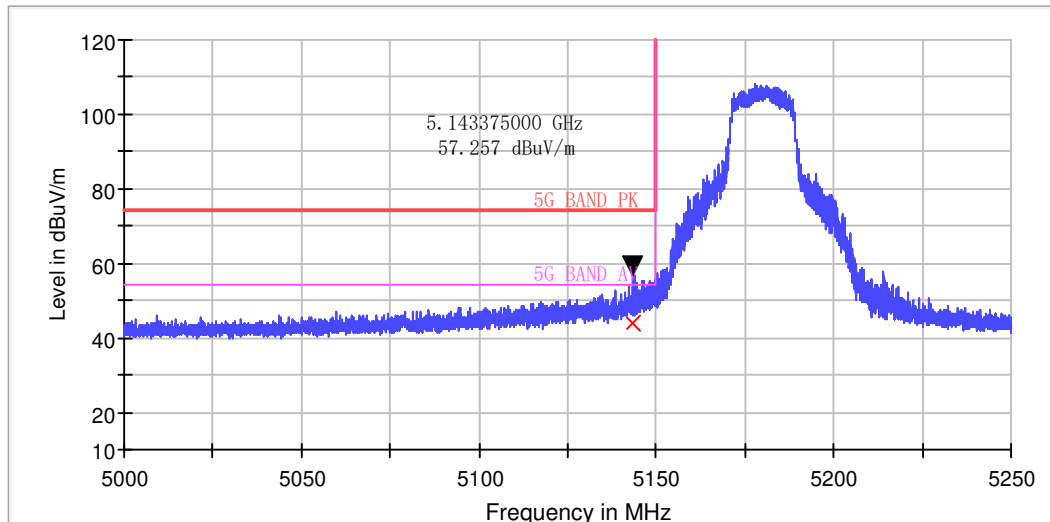
Average Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5146.8	48.8	-0.6	48.2	54	H

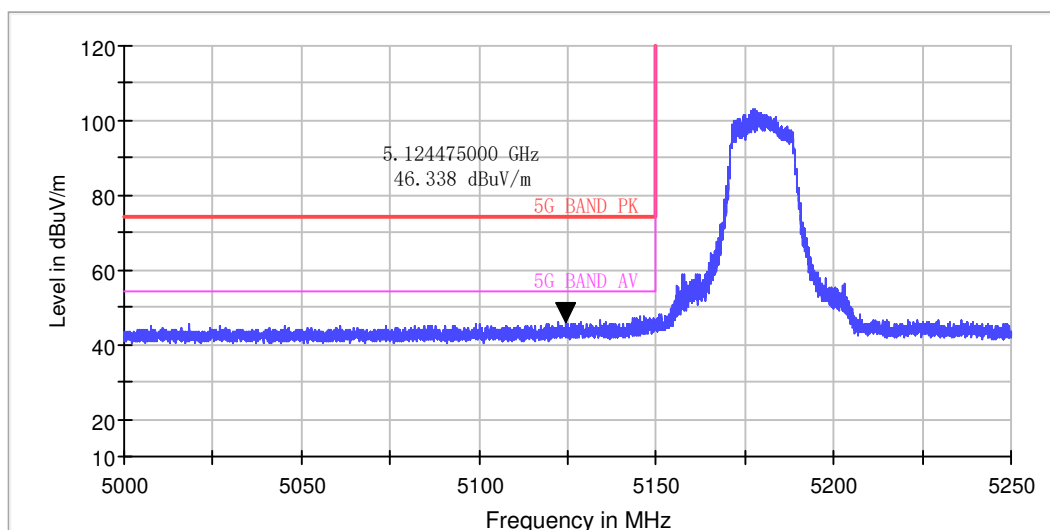
TEST REPORT

802.11n HT20

Horizontal



Vertical



Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5143.3	57.9	-0.6	57.3	74	H
5148.5	46.9	-0.6	46.3	74	V

Remark: When the peak emission level was below AV limit, the AV emission level was not recorded.

Average Measurement:

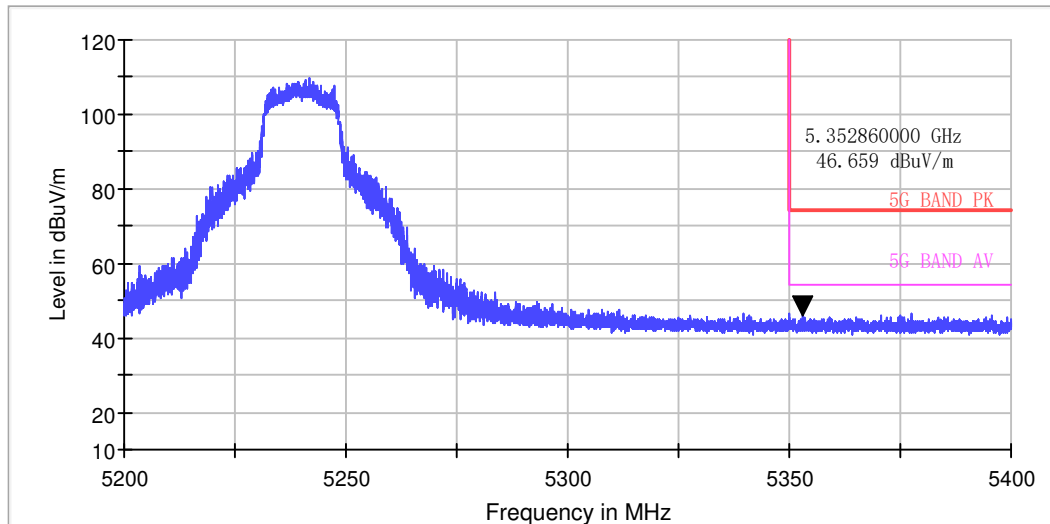
Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5146.8	44.5	-0.6	43.9	54	H

TEST REPORT

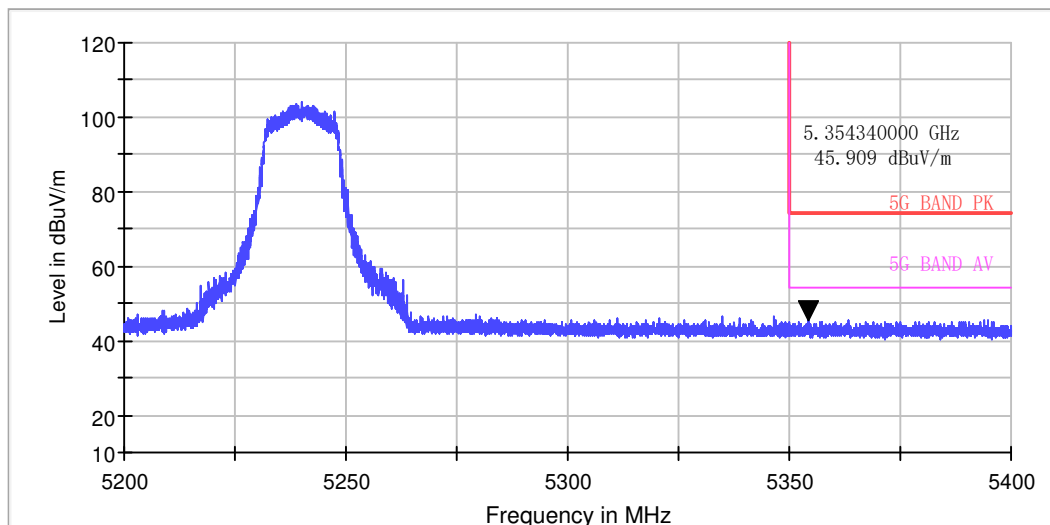
5240MHz

802.11a

Horizontal



Vertical



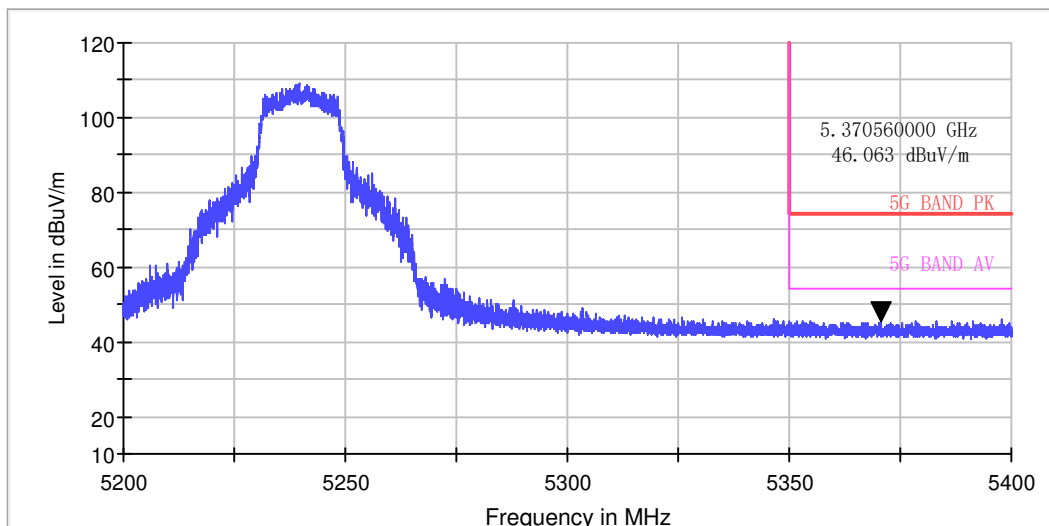
Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5352.9	47.0	-0.3	46.7	74	H
5354.3	46.2	-0.3	45.9	74	V

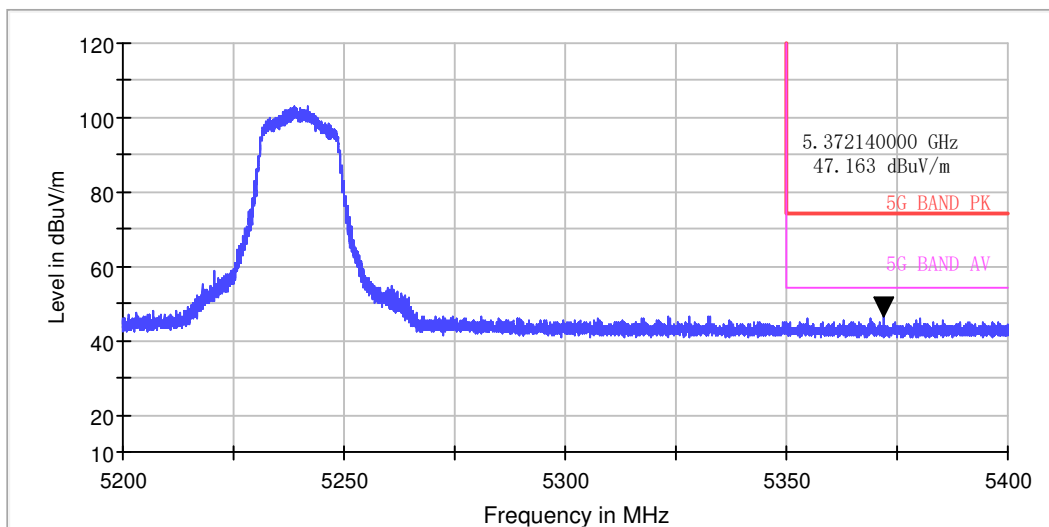
TEST REPORT

802.11n HT20

Horizontal



Vertical

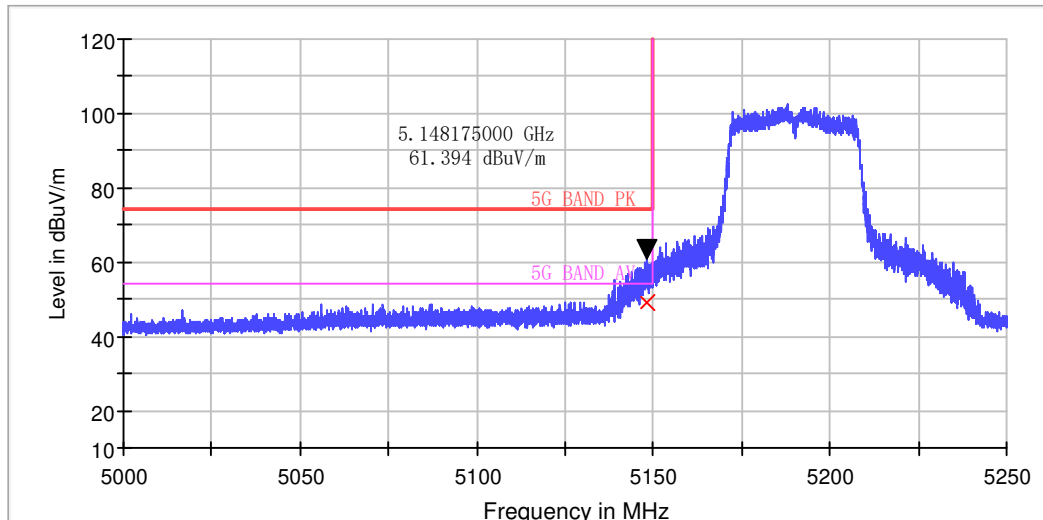


Peak Measurement:

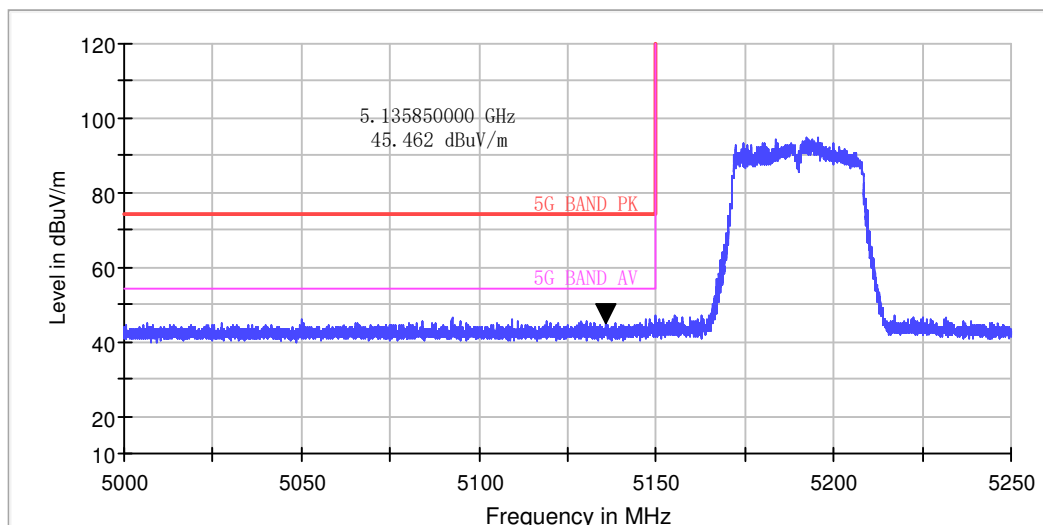
Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5370.6	46.2	-0.2	46.0	74	H
5372.1	47.4	-0.2	47.2	74	V

TEST REPORT

5190MHz
802.11n HT40
Horizontal



Vertical



Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5148.2	61.9	-0.6	61.3	74	H
5135.6	46.1	-0.6	45.5	74	V

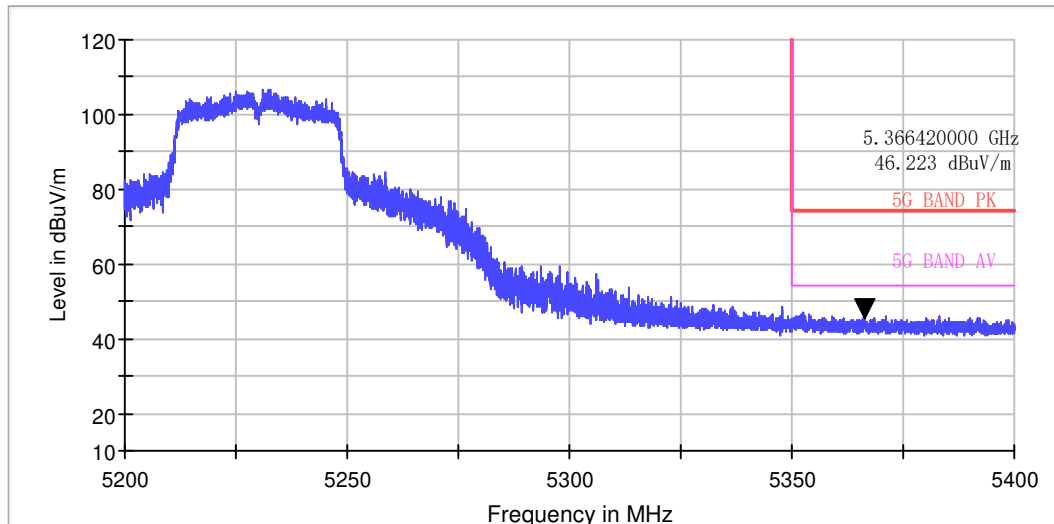
AV Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5148.0	49.9	-0.6	49.3	54	H

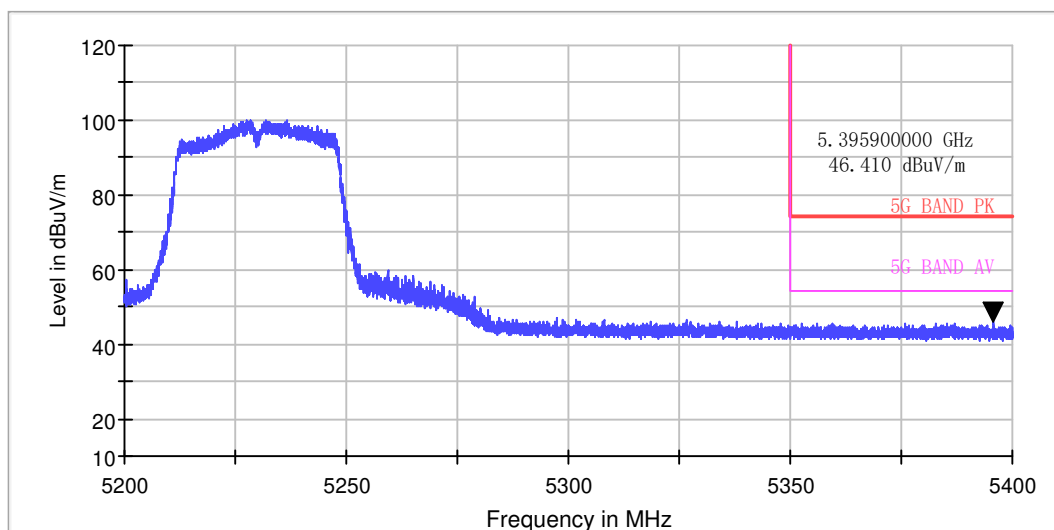
TEST REPORT

5230MHz
802.11n HT40

Horizontal



Vertical

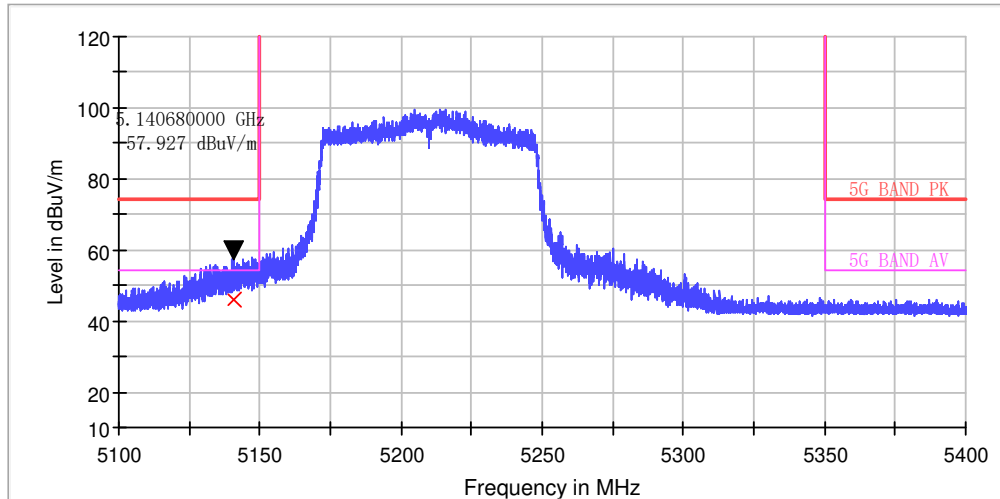


Peak Measurement:

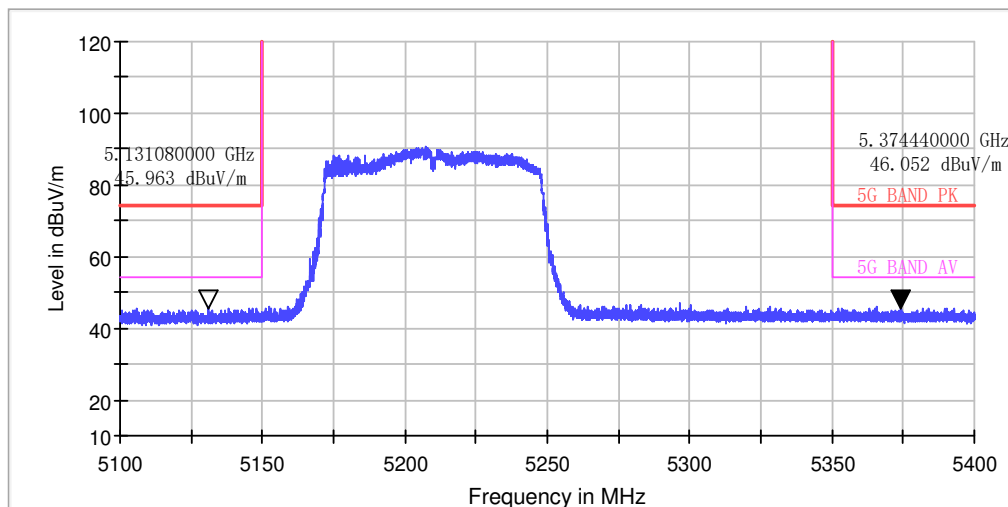
Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5366.4	46.4	-0.2	46.2	74	H
5395.9	46.6	-0.2	46.4	74	V

TEST REPORT

5210MHz
802.11ac VHT80
Horizontal



Vertical



Peak Measurement:

Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5140.7	58.5	-0.6	57.9	74	H
5131.1	46.6	-0.6	46.0	74	V
5377.4	46.3	-0.2	46.1	74	V

Average Measurement:

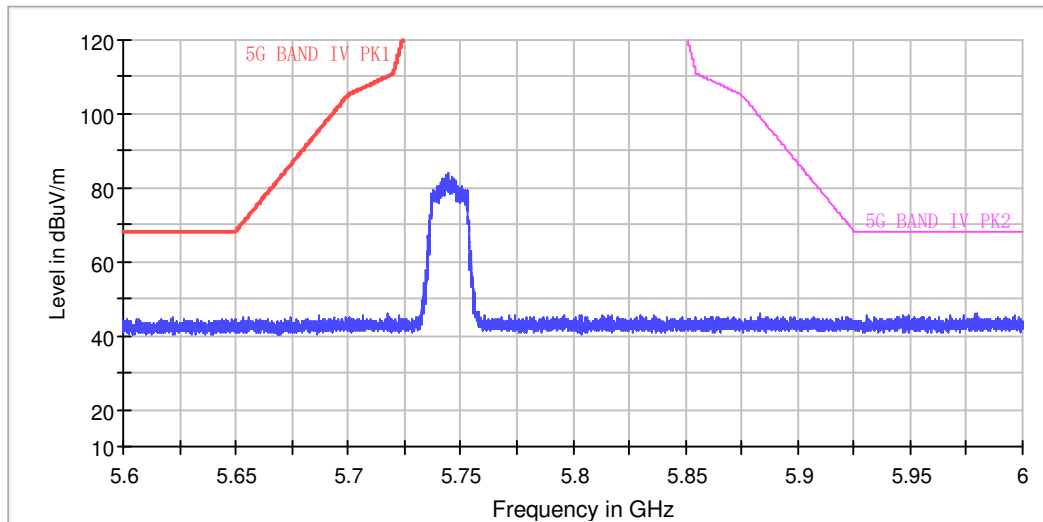
Frequency (MHz)	Reading Level (dBμV)	Correct Factor	Emission Level (dBμV/m)	Limit (dBμV/m)	Antenna polarization
5140.8	46.7	-0.6	46.1	54	H

TEST REPORT

5745MHz

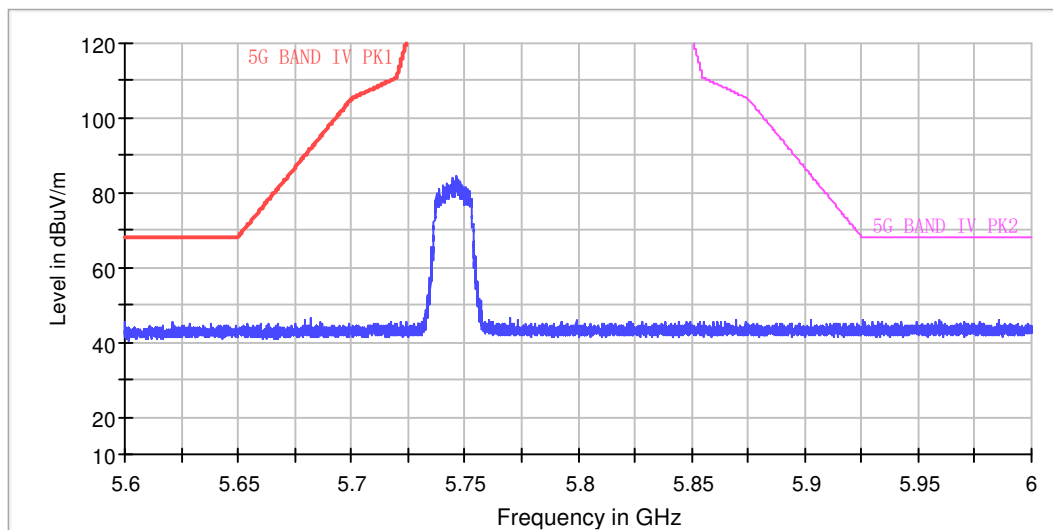
802.11a

Horizontal



All emission levels are more than 6dB below the limit.

Vertical

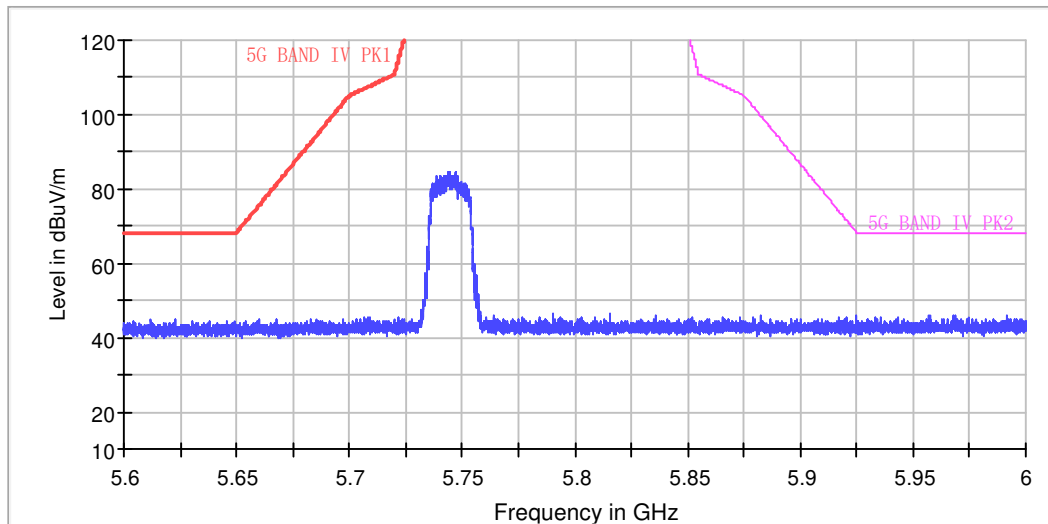


All emission levels are more than 6dB below the limit.

TEST REPORT

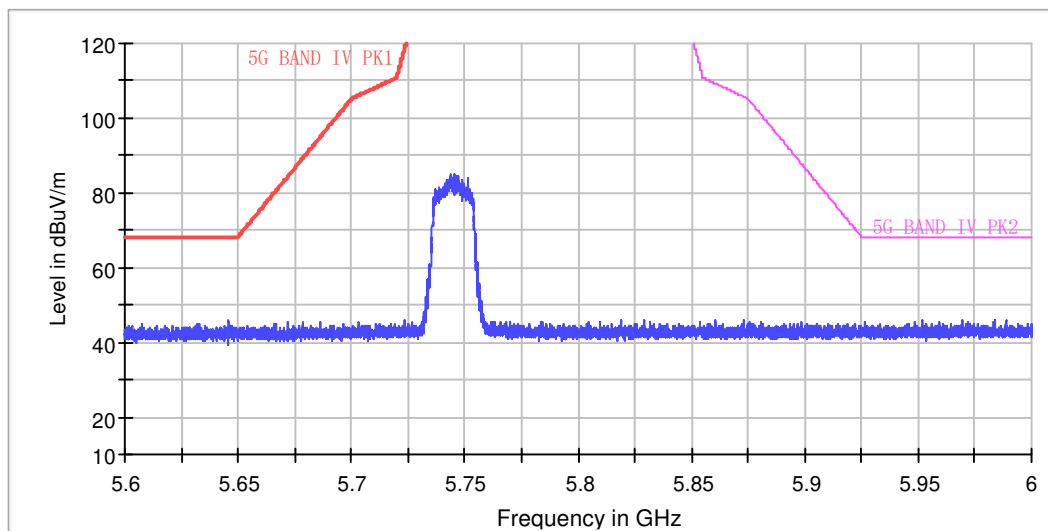
802.11n HT20

Horizontal



All emission levels are more than 6dB below the limit.

Vertical



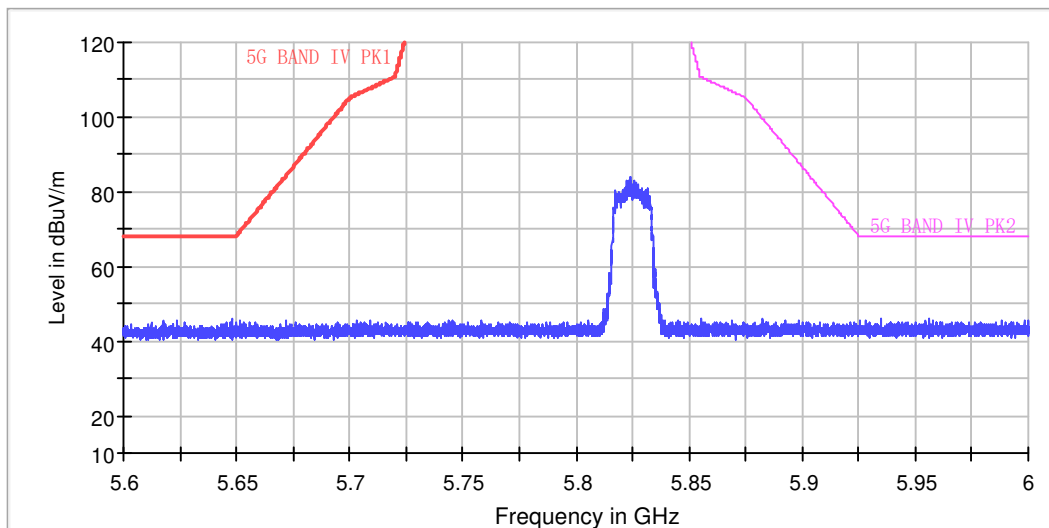
All emission levels are more than 6dB below the limit.

TEST REPORT

5825MHz

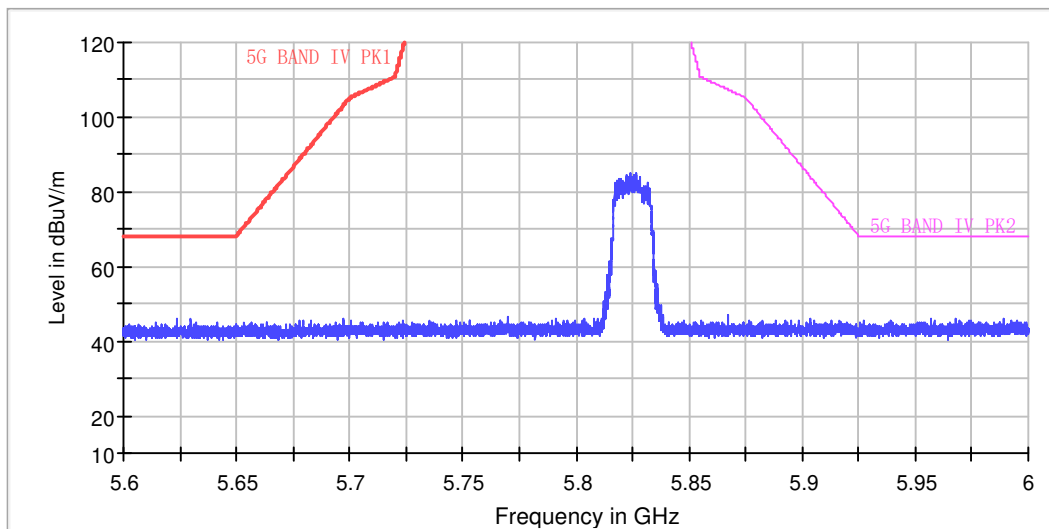
802.11a

Horizontal



All emission levels are more than 6dB below the limit.

Vertical

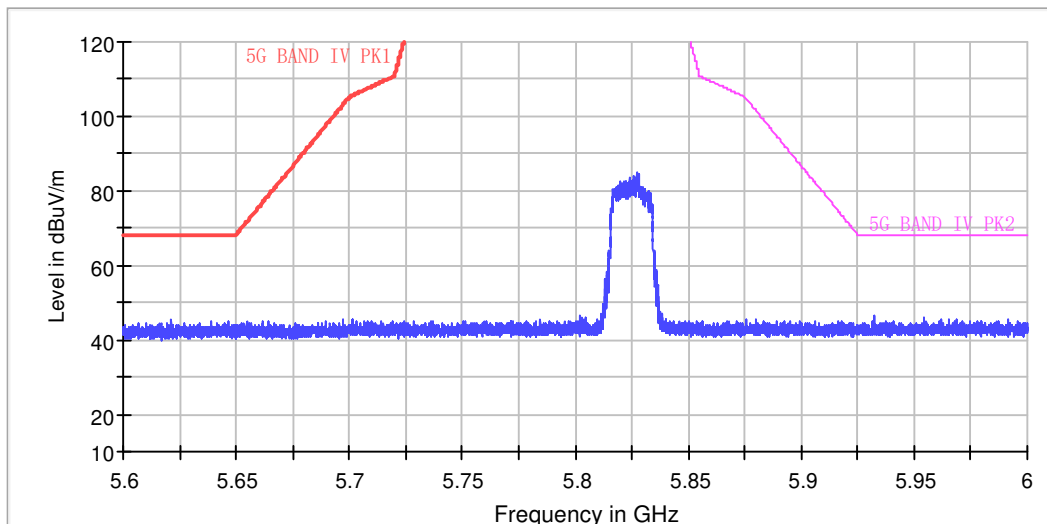


All emission levels are more than 6dB below the limit.

TEST REPORT

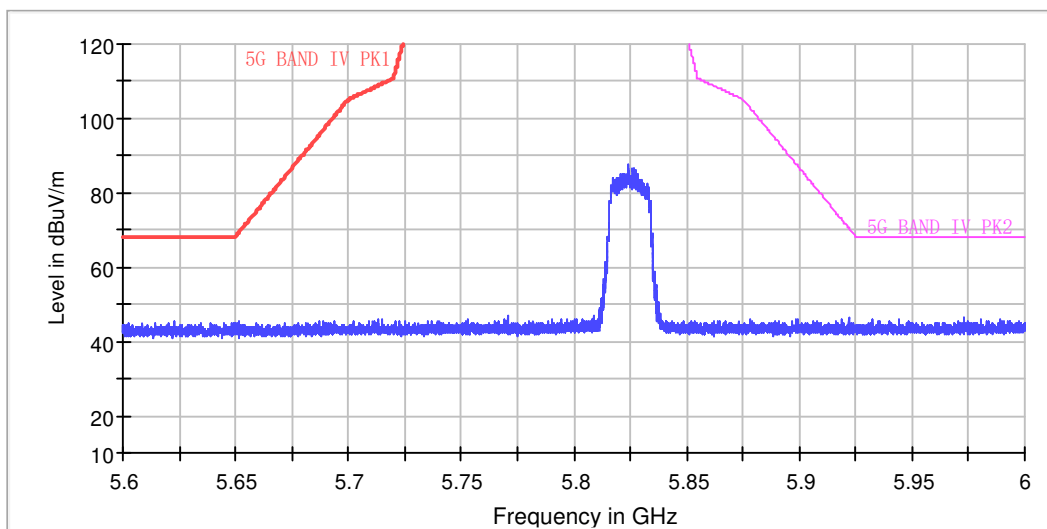
802.11n HT20

Horizontal



All emission levels are more than 6dB below the limit.

Vertical

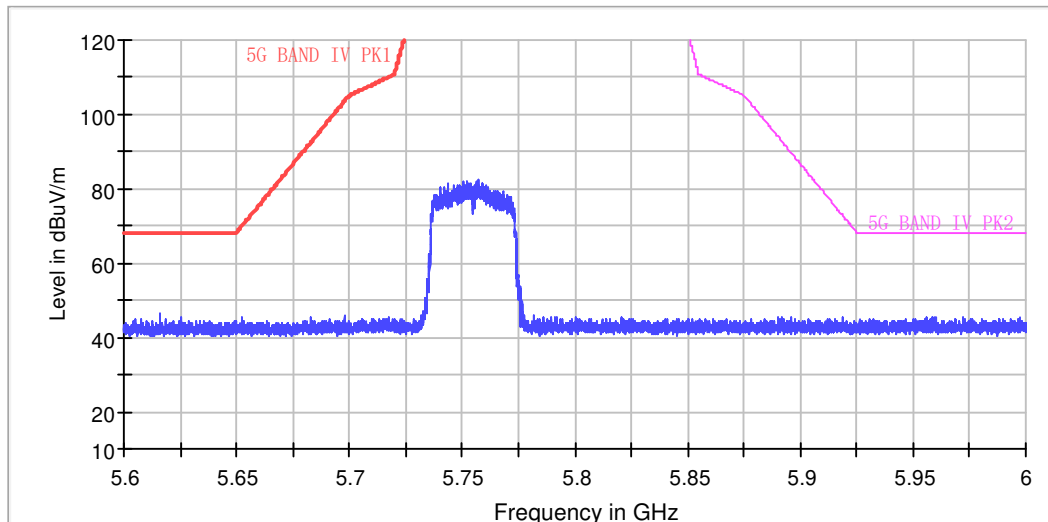


All emission levels are more than 6dB below the limit.

TEST REPORT

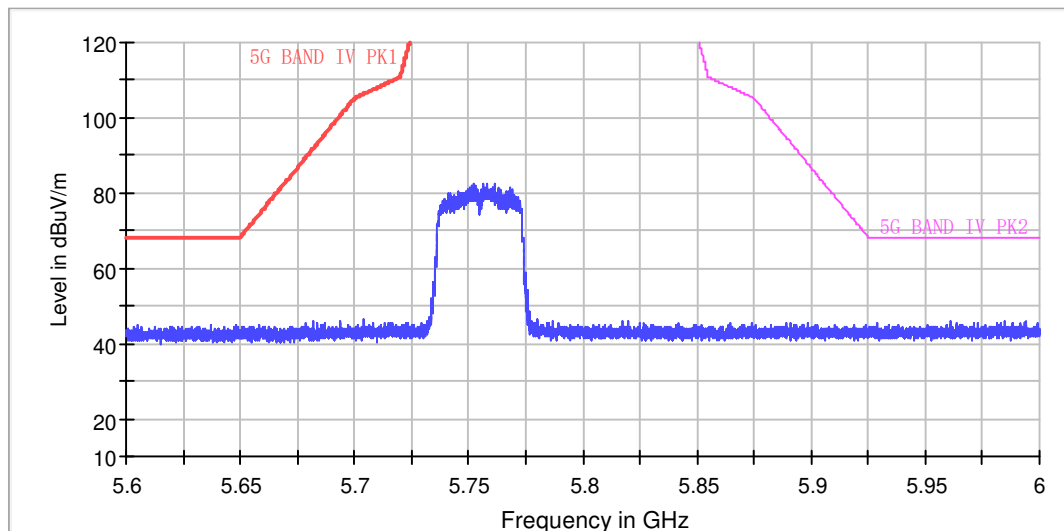
5755MHz
802.11n HT40

Horizontal



All emission levels are more than 6dB below the limit.

Vertical

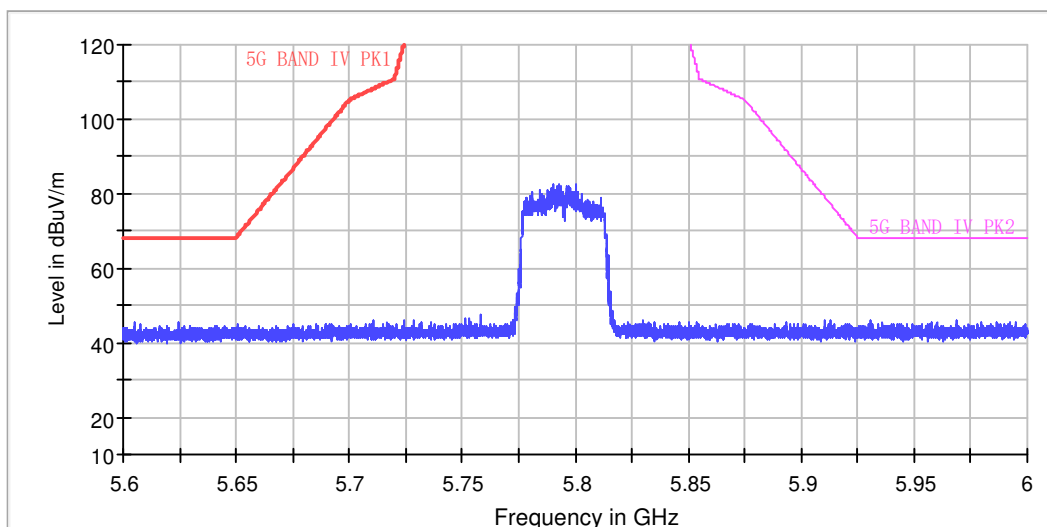


All emission levels are more than 6dB below the limit.

TEST REPORT

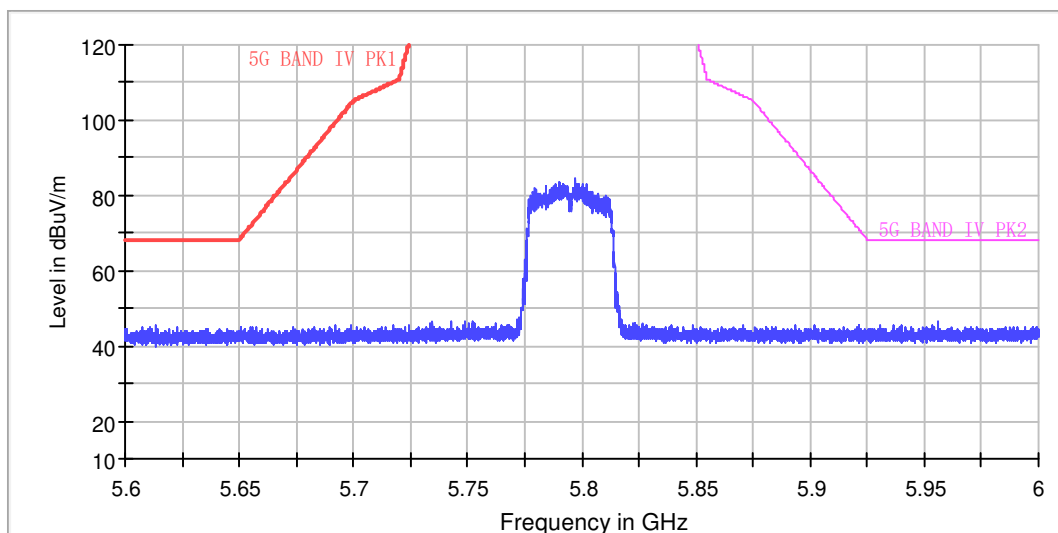
5795MHz
802.11n HT40

Horizontal



All emission levels are more than 6dB below the limit.

Vertical

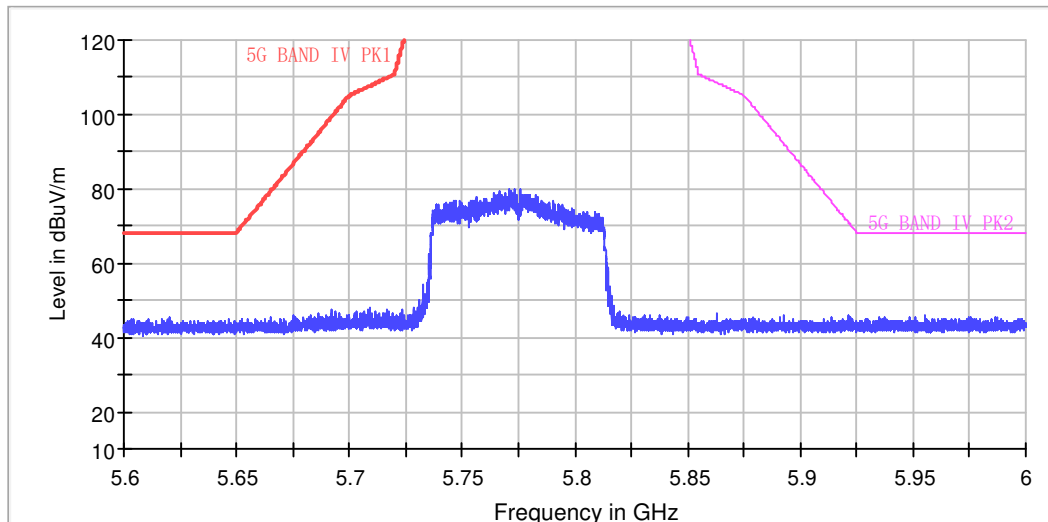


All emission levels are more than 6dB below the limit.

TEST REPORT

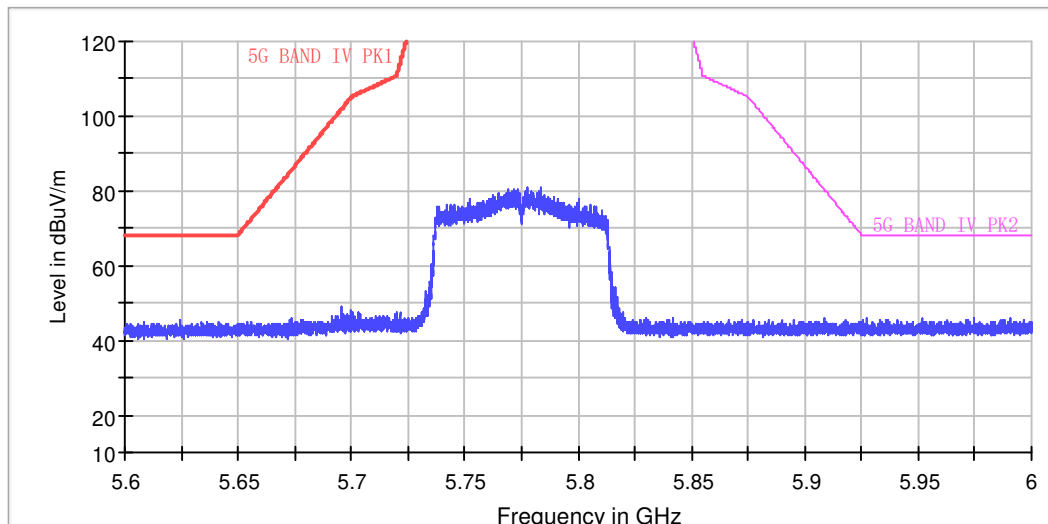
5775MHz
802.11ac VHT80

Horizontal



All emission levels are more than 6dB below the limit.

Vertical



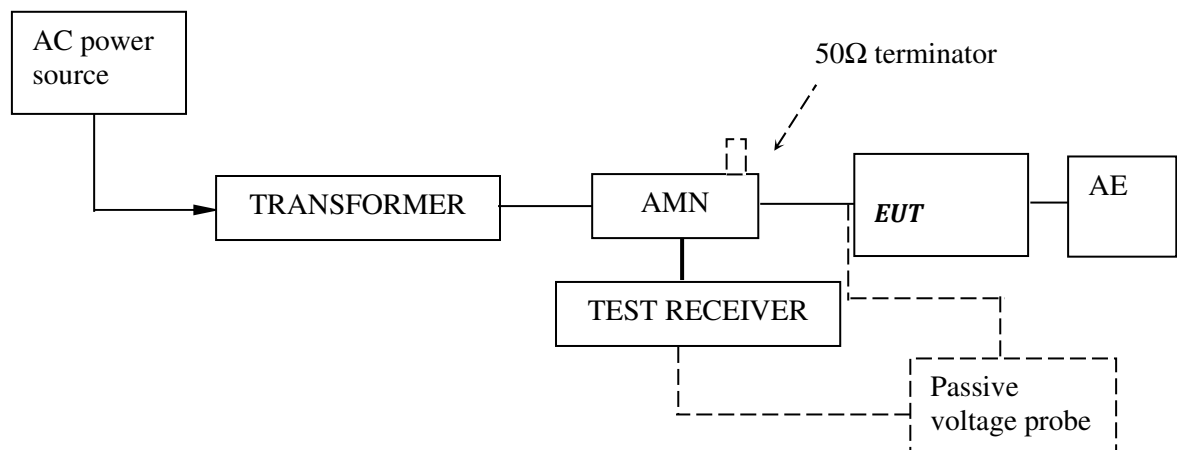
All emission levels are more than 6dB below the limit.

Remark: When Peak emission level was below AV limit, the AV emission level did not be record.

TEST REPORT

4.10 Conducted Emission Test

Test Configuration:



Test Setup and Procedure:

Test was performed according to ANSI C63.10 Clause 6.2. The EUT was set to achieve the maximum emission level. The mains terminal disturbance voltage was measured with the EUT in a shielded room. The EUT was connected to AC power source through an Artificial Mains Network which provides a 50Ω linear impedance. An Artificial hand is used if appropriate (for handheld apparatus). The load/control terminal disturbance voltage was measured with a passive voltage probe if appropriate.

The table-top EUT was placed on a 0.8m high non-metallic table above earthed ground plane (Ground Reference Plane). And for floor standing EUT, was placed on a 0.1m high non-metallic supported on GRP. The EUT keeps a distance of at least 0.8m from any other of the metallic surface. The Artificial Mains Network is situated at a distance of 0.8m from the EUT.

During the test, mains lead of EUT excess 0.8m was folded back and forth parallel to the lead so as to form a horizontal bundle with a length between 0.3m and 0.4m.

The bandwidth of test receiver was set at 9 kHz. The frequency range from 150 kHz to 30MHz was checked.

TEST REPORT

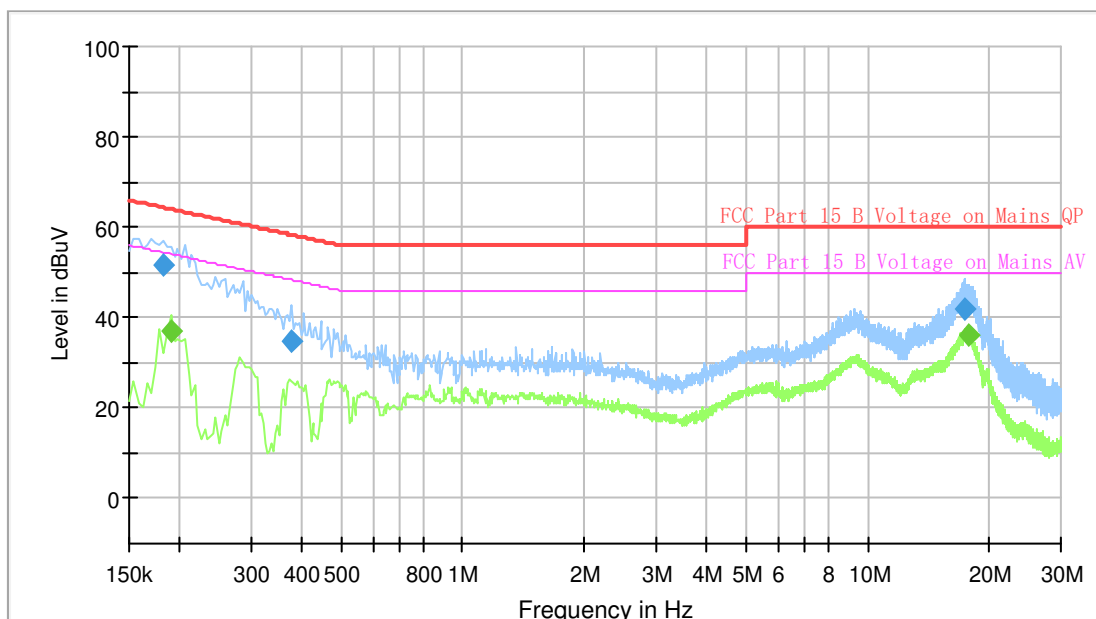
Test Data and Curve

At main terminal: Pass

Tested Wire: Live

Operation Mode: transmitting mode

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.182000	51.72	---	64.39	12.67	1000.0	9.000	L1	ON	9.6
0.190000	---	36.95	54.04	17.08	1000.0	9.000	L1	ON	9.6
0.378000	34.64	---	58.32	23.68	1000.0	9.000	L1	ON	9.6
17.266000	41.70	---	60.00	18.30	1000.0	9.000	L1	ON	10.0
17.734000	---	36.12	50.00	13.88	1000.0	9.000	L1	ON	10.0

Remark:

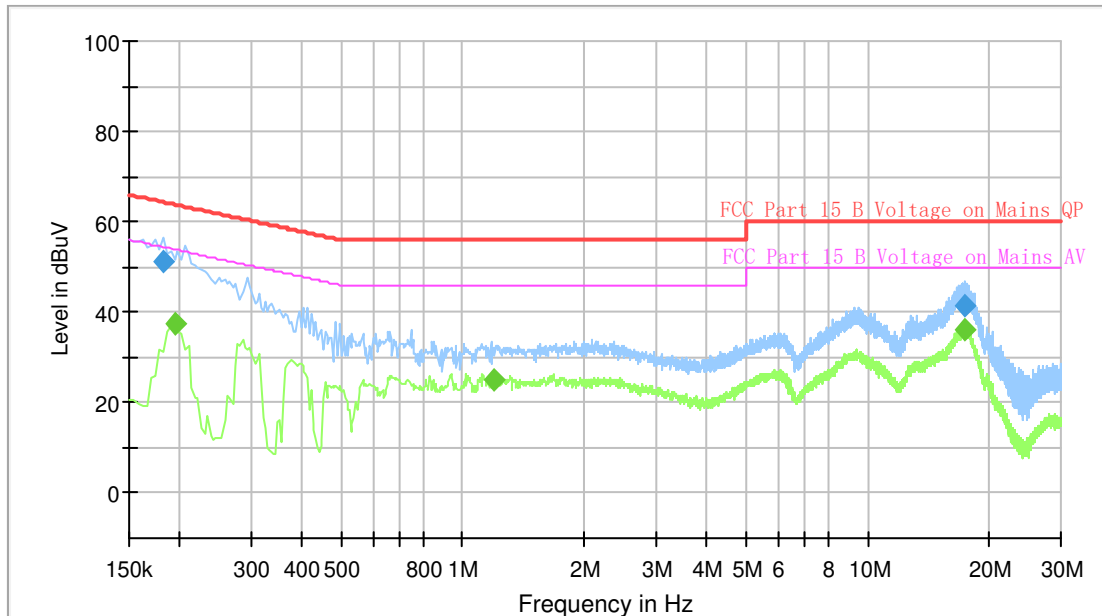
1. Corr. (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Level (dBμV) = Corr. (dB) + Read Level (dBμV)
3. Delta Limit (dB) = Level (dBμV)-Limit (dBμV)

TEST REPORT

Tested Wire: Neutral

Operation Mode: transmitting mode

Full Spectrum



Final Result

Frequency (MHz)	QuasiPeak (dBuV)	CAverage (dBuV)	Limit (dBuV)	Margin (dB)	Meas. Time (ms)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.182000	51.19	---	64.39	13.20	1000.0	9.000	N	ON	9.6
0.194000	---	37.62	53.86	16.25	1000.0	9.000	N	ON	9.6
1.194000	---	25.26	46.00	20.74	1000.0	9.000	N	ON	9.6
17.294000	41.57	---	60.00	18.43	1000.0	9.000	N	ON	10.1
17.362000	---	35.97	50.00	14.03	1000.0	9.000	N	ON	10.1

Remark:

1. Corr. (dB) = LISN Factor (dB) + Cable Loss (dB)
2. Level (dBμV) = Corr. (dB) + Read Level (dBμV)
3. Delta Limit (dB) = Level (dBμV)-Limit (dBμV)

TEST REPORT

5.0 Test Equipment List

Radiated Emission/Radio					
Equipment No.	Equipment	Model	Manufacturer	Cal. Due date (YYYY-MM-DD)	Calibration Interval
EM030-04	3m Semi-Anechoic Chamber	9×6×6 m ³	ETS• LINDGREN	2026-04-08	1Y
EM031-02	EMI Test Receiver (9 kHz~7 GHz)	R&S ESR7	R&S	2025-11-10	1Y
EM031-03	Signal and Spectrum Analyzer (10 Hz~40 GHz)	R&S FSV40	R&S	2025-11-10	1Y
EM011-04	Loop antenna (9 kHz-30 MHz)	HFH2-Z2	R&S	2026-07-08	1Y
EM033-01	TRILOG Super Broadband test Antenna(30 MHz-3 GHz) (RX)	VULB 9163	SCHWARZBECK	2025-12-08	1Y
EM033-02	Bouble-Ridged Waveguide Horn Antenna (800 MHz-18 GHz)(RX)	R&S HF907	R&S	2026-07-07	1Y
EM033-03	High Frequency Antenna & preamplifier(18 GHz~26.5 GHz) (RX)	R&S SCU-26	R&S	2026-04-27	1Y
EM033-04	High Frequency Antenna & preamplifier (26 GHz-40 GHz)	R&S SCU-40	R&S	2026-04-27	1Y
EM031-02-01	Coaxial cable(9 kHz-1 GHz)	N/A	R&S	2026-04-09	1Y
EM033-02-02	Coaxial cable(1 GHz-18 GHz)	N/A	R&S	2026-04-09	1Y
EM033-04-02	Coaxial cable(18 GHz~40 GHz)	N/A	R&S	2026-04-26	1Y
EM031-01	Signal Generator (9 kHz~6 GHz)	SMB100A	R&S	2025-10-28	1Y
EM040-01	Band Reject/Notch Filter	WRHFV	Wainwright	N/A	1Y
EM040-02	Band Reject/Notch Filter	WRCGV	Wainwright	N/A	1Y
EM040-03	Band Reject/Notch Filter	WRCGV	Wainwright	N/A	1Y
EM022-03	2.45 GHz Filter	BRM50702	Micro-Tronics	2026-05-14	1Y
SA016-29	Climatic Test Chamber	MHU-80L	JIANQIAO	2026-01-05	1Y
EM046-05	Power Sensor	NPR6A	R&S	2026-04-13	1Y
EM046-06	Power Sensor	NPR6A	R&S	2026-05-14	1Y
EM031-04-01	EMC32	V10.01.00	R&S	N/A	N/A
EM045-01-10	10dB Attenuator	N/A	R&S	2025-12-24	1Y
EM046-06-01	Power Viewer	V11.0.5.11.2018	R&S	N/A	N/A
Conducted Disturbance-Mains Terminal (2)					
Equipment No.	Equipment	Model	Manufacturer	Cal. Due date (DD-MM-YYYY)	Calibration Interval
EM031-04	EMI receiver	ESR3	R&S	05/01/2026	1Y
EM006-06	LISN	ENV216	R&S	01/09/2025	1Y
SA047-111	Digital Temperature-Humidity Recorder	RS210	YIJIE	20/10/2025	1Y
EM004-03	EMC shield Room	8m×4m×3m	Zhongyu	05/01/2026	1Y
EM031-04-01	EMC32	V10.01.00	R&S	N/A	N/A

*****End of the test report*****