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TEST REPORT

Report No.: 23090695HKG-002

VTech Telecommunications Ltd.

Application for Original Grant of 47 CFR Part 15 Certification

Single New of RSS-247 Issue 3 Certification

VoIP Phone

This report contains the data of 5GHz WLAN (Wi-Fi) portion only.

FCC ID: EW780-S212-00

IC: 1135B-80S21200

Prepared and Checked by:	**Approved by:**
Signed on File Leung Chun Ning, Peter Assistant Engineer	Digitally signed by Herbert Wong Location: Intertek Testing Services Hong Kong Limited Wong Cheuk Ho, Herbert Assistant Supervisor Date: April 24, 2024

TEST REPORT

GENERAL INFORMATION

Grantee:	VTech Telecommunications Ltd.
Grantee Address:	23/F., Tai Ping Industrial Centre, Block 1, 57 Ting Kok Road, Tai Po, Hong Kong.
Manufacturer Name:	VTech (Dongguan) Telecommunications Limited
Manufacturer Address:	VTech Science Park, Xia Ling Bei Management Zone, Liaobu, Dongguan, Guangdong, China.
FCC Specification Standard:	FCC Part 15, October 1, 2022 Edition
FCC ID:	EW780-S212-00
FCC Model(s):	D815
IC Specification Standard:	RSS-247 Issue 3, August 2023 RSS-Gen Issue 5 Amendment 2, February 2021
IC:	1135B-80S21200
HVIN:	35-400509BS
PMN:	D815
Type of EUT:	Unlicensed National Information Infrastructure Transmitter
Description of EUT:	VoIP Phone
Brand Name:	VTech
Sample Receipt Date:	September 27, 2023
Date of Test:	October 12, 2023 to January 12, 2024
Report Date:	April 24, 2024
Environmental Conditions:	Temperature: +10 to 40°C Relative Humidity: 10 to 90%
Conclusion:	Test was conducted by client submitted sample. The submitted sample as received complied with the 47 CFR Part 15 / RSS-247 Issue 3 Certification.
Remark:	This report contains the data of 5GHz Wi-Fi portion only

TEST REPORT

SUMMARY OF TEST RESULT

Test Items	FCC Part 15 Section	RSS-247 / RSS-Gen# Section	Test Engineer	Results
Antenna Requirement	15.407(a)	6.2.1.1/ 6.2.3.1/ 6.2.4.1	N/A	Complied
Max. Conducted Output Power (Peak)	15.407(a)	6.2.1.1/ 6.2.3.1/ 6.2.4.1	Rain Wang	Complied
Transmit Power Control (TPC)	15.407(h)		N/A	Not Applicable
Min. 6dB RF Bandwidth	15.407(e)	6.2.4.1	Rain Wang	Complied
26 dB emission bandwidth	15.407(a)		Rain Wang	Complied
Occupied Bandwidth	N/A			Complied
Max. Power Density (Average)	15.407(a)	6.2.4.1	Rain Wang	Complied
Out of Band Antenna Conducted Emission	15.407(b)	6.2.4.2	N/A	Not Applicable
Radiated Emission in Restricted Bands and Spurious Emissions	15.407(b), 15.209 & 15.109	6.2.4.2	Fire Huo	Complied
AC Power Line Conducted Emission	15.207 & 15.107	7.2.4#	Linson Xie	Complied
Dynamic Frequency Selection (DFS)	15.407		Rain Wang	Complied

Remark: Not Applicable (If the EUT is <500mW (27dBm))

Note: Pursuant to FCC Part 15 Section 15.215(c), the 20dB bandwidth of the emission was contained within the frequency band designated (mentioned as above) which the EUT operated. The effects, if any, from frequency sweeping, frequency hopping, other modulation techniques and frequency stability over expected variations in temperature and supply voltage were considered.

For all technical data, which can be referred to Annex B – Report cover sheet.
For electronic filing, the Annex B – Report cover sheet is saved with filename: Annex B.pdf.

The equipment under test is found to be complying with the following standards:

FCC Part 15, October 1, 2022 Edition
RSS-247 Issue 3, August 2023
RSS-Gen Issue 5 Amendment 2, February 2021

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TEST REPORT

EXHIBIT 1 GENERAL DESCRIPTION

1.1 Product Description

The D815 (35-400509BS) is a VoIP Phone, The EUT is powered by 100-240VAC 50/60Hz 0.3A or 100-240VAC 50/60Hz 0.5A adaptor.

For 5.15GHz to 5.25GHz Band:

The module operates at Frequency range of 5.18GHz to 5.24GHz.
For IEEE 802.11a mode, it operates at frequency range of 5.18GHz to 5.24GHz with 4 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can be up to 54Mbps.
For IEEE 802.11n (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.18GHz to 5.24GHz with 4 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 65Mbps.
For IEEE 802.11n (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.19GHz to 5.23GHz with 2 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 135Mbps.
For IEEE 802.11ac (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.18GHz to 5.24GHz with 4 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS8 78Mbps.
For IEEE 802.11ac (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.18GHz to 5.24GHz with 2 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 162Mbps.
For IEEE 802.11ac (with 80 MHz Bandwidth) mode, it operates at frequency 5.21GHz with 1 channel. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 390Mbps.

TEST REPORT

1.1 Product Description (Cont'd)

For 5.25GHz to 5.35GHz Band:

The module operates at Frequency range of 5.26GHz to 5.32GHz.
For IEEE 802.11a mode, it operates at frequency range of 5.26GHz to 5.32GHz with 4 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can be up to 54Mbps.
For IEEE 802.11n (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.26GHz to 5.32GHz with 4 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 65Mbps.
For IEEE 802.11n (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.27GHz to 5.32GHz with 2 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 135Mbps.
For IEEE 802.11ac (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.26GHz to 5.32GHz with 4 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS8 78Mbps.
For IEEE 802.11ac (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.27GHz to 5.31GHz with 2 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 162Mbps.
For IEEE 802.11ac (with 80 MHz Bandwidth) mode, it operates at frequency 5.29GHz with 1 channel. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 390Mbps.

For 5.47GHz to 5.725GHz Band:

The module operates at Frequency range of 5.5GHz to 5.7GHz.
For IEEE 802.11a mode, it operates at frequency range of 5.5GHz to 5.7GHz with 11 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can be up to 54Mbps.
For IEEE 802.11n (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.5GHz to 5.7GHz with 11 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 65Mbps.
For IEEE 802.11n (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.51GHz to 5.67GHz with 5 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 135Mbps.
For IEEE 802.11ac (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.5GHz to 5.7GHz with 11 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS8 78Mbps.
For IEEE 802.11ac (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.51GHz to 5.67GHz with 5 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 162Mbps.
For IEEE 802.11ac (with 80 MHz Bandwidth) mode, it operates at frequency range of 5.53GHz to 5.61GHz with 2 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 390Mbps.

TEST REPORT

1.1 Product Description (Cont'd)

For 5.725GHz to 5.85GHz Band:

The module operates at Frequency range of 5.745GHz to 5.825GHz.
For IEEE 802.11a mode, it operates at frequency range of 5.745GHz to 5.825GHz with 5 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can be up to 54Mbps.
For IEEE 802.11n (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.745GHz to 5.825GHz with 5 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 65Mbps.
For IEEE 802.11n (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.755GHz to 5.795GHz with 2 channels. It transmits via OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS7 135Mbps.
For IEEE 802.11ac (with 20 MHz Bandwidth) mode, it operates at frequency range of 5.745GHz to 5.825GHz with 5 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS8 78Mbps.
For IEEE 802.11ac (with 40 MHz Bandwidth) mode, it operates at frequency range of 5.755GHz to 5.795GHz with 2 channels. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 162Mbps.
For IEEE 802.11ac (with 80 MHz Bandwidth) mode, it operates at frequency 5775MHz with 1 channel. It transmits via OFDM/256-QAM, OFDM/64-QAM, 16-QAM, QPSK and BPSK modulation. Maximum bit rate can support up to MCS9 390Mbps.

Antenna Information:

- PCB Antenna
- WLAN IEEE 802.11 a/b/g/n/ac
- For operating frequency of 2.4GHz , antenna has maximum gain of 1 dBi
- For operating frequency of 5GHz , antenna has maximum gain of 0 dBi

The EUT is powered by 100-240VAC 50/60Hz 0.3A or 100-240VAC 50/60Hz 0.5A adaptor.

The antenna(s) used in the EUT is integral, and the test sample is a prototype.

The circuit description is saved with filename: descri.pdf.

1.2 Test Methodology

Both AC power line-conducted and radiated emission measurements were performed according to the procedures in ANSI C63.10 (2013). Preliminary radiated scans and all radiated measurements were performed in radiated emission test sites. All Radiated tests were performed at an antenna to EUT distance of 3 meters, unless stated otherwise in the "**Justification Section**" of this Application.
Antenna port conducted measurements were performed according to ANSI C63.10 (2013) and KDB Publication No. 558074 D01 v05r02 (April 02, 2019) All other measurements were made in accordance with the procedures in 47 CFR Part 2 and RSS-Gen Issue 5 Amendment 2, February 2021.

TEST REPORT

1.3 Test Facility

The radiated emission (15.209) test site are at Workshop No. 3, G/F., World-Wide Industrial Centre, 43-47 Shan Mei Street, Fo Tan, Sha Tin, N.T., Hong Kong SAR, China. This test facility and site measurement data have been fully placed on file with the FCC and Industry Canada No.: 2042H, CABID is “HKAP01”.

The radiated emission (except 15.209) test site and antenna port conducted measurement facility used to collect the radiated data and conductive data are at Shenzhen UnionTrust Quality and Technology Co., Ltd. at 16/F., Block A, Building 6, Baoneng Science and Technology Park, Qingxiang Road No.1, Longhua New District, Shenzhen, China 518109. This test facility and site measurement data have been fully placed on file with the FCC and Industry Canada No.: 21600, CABID “HKAP01”, “CN0023”.

1.4 Related Submittal(s) Grants

This is a single application for certification of a transceiver (5G WiFi Portion only).

TEST REPORT

EXHIBIT 2 SYSTEM TEST CONFIGURATION

2.1 Justification

For radiated emissions testing, the equipment under test (EUT) was setup to transmit / receive continuously to simplify the measurement methodology. Care was taken to ensure proper power supply voltages during testing. During testing, all cables (if any) were manipulated to produce worst case emissions.

The EUT was powered by 120VAC during test.

For the measurements, the EUT was attached to a plastic stand if necessary and placed on the wooden turntable. If the base unit attached to peripherals, they were connected and operational (as typical as possible).

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

For any intentional radiator powered by AC power line, measurements of the radiated signal level of the fundamental frequency component of the emission was performed with the supply voltage varied between 85% and 115% of the nominal rated supply voltage.

Radiated emission measurement for transmitter were performed from the lowest radio frequency signal generated in the device which is greater than 9 kHz to the tenth harmonic of the highest fundamental frequency or to 40 GHz, whichever is lower.

Emission that are directly caused by digital circuits in the transmit path and transmitter portion were measured, and the limit are according to FCC Part 15 Section 15.209 / RSS-247 Section 2.5. Digital circuitries used to control additional functions other than the operation of the transmitter are subject to FCC Part 15 Section 15.109 / RSS-247 Section 5.5 Limits.

Detector function for radiated emissions was in peak mode. Average readings, when required, were taken by measuring the duty cycle of the equipment under test and subtracting the corresponding amount in dB from the measured peak readings. A detailed description for the calculation of the average factor can be found in section 4.8.3.

Determination of pulse desensitization was made according to Hewlett Packard Application Note 150-2, Spectrum Analysis... Pulsed RF. The effective period (Teff) was referred to Exhibit 4.8.3. With the resolution bandwidth 1MHz and spectrum analyzer IF bandwidth 3dB, the pulse desensitization factor was 0dB.

For AC power line-conducted emission test, the EUT along with its peripherals were placed on a 1.0m(W)x1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50ohm coupling impedance for measuring

instrument. The LISN housing, measuring instrument case, reference ground plane, and vertical ground plane were bounded together. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were manipulated to find the maximum emission.

Different data rates have been tested. Worst case is reported only.

All relevant operation modes have been tested, and the worst case data is included in this report.

All data rates were tested under normal mode of WiFi. Only the worst-case data is shown in the report for OFDM.

2.2 EUT Exercising Software

The EUT exercise program (Tera Terms Version 4.106) used during radiated and conducted testing was designed to exercise the various system components in a manner similar to a typical use.

2.3 Details of EUT and Description of Accessories

Details of EUT:

An AC/DC Adaptor (provided with the unit) was used to power the device.
Their descriptions are listed below.

(1) An AC adaptor (Model: NBS12E050200UV; Brand Name: MASS POWER; Input: 100-240VAC 50/60Hz 0.3A; Output: 5.0VDC 2.0A 10.0W) (Provided by Applicant)

(2) An AC adaptor (Model: VT07EUS05200; Brand Name: VTPL; Input: 100-240VAC 50/60Hz 0.5A; Output: 5.0VDC 2.0A 10.0W) (Provided by Applicant)

Description of Accessories:

Not Applicable

2.4 Measurement Uncertainty

Decision Rule for compliance: For FCC/IC standard, the measured value must be within the limits of applicable standard without accounting for the measurement uncertainty. For EN/IEC/HKTA/HKTC standard, conformity rules will be used as per standard directly excepted EN/IEC 61000-3-2, EN/IEC 61000-3-3, HKTA1004, HKCA1008, HKTA1019, HKTA1020, HKTA1041 and HKTA1044.

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.

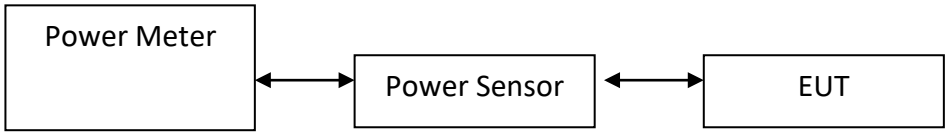
TEST REPORT

EXHIBIT 3 TEST RESULTS

3.1 Maximum Conducted (Peak) Output Power at Antenna Terminals

RF Conduct Measurement Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



The antenna port of the EUT was connected to the input of a spectrum analyzer.

☒ The antenna power of the EUT was connected to the input of a power meter. Power was read directly and cable loss correction was added to the reading to the obtain power at the EUT antenna terminals. The measurement procedure E.3.A (789033 D02 General UNII Test Procedures New Rules v02r01) was used.

☐ The EUT should be configured to transmit continuously (at a minimum duty cycle of 98%) at full power over the measurement duration. The measurement procedure AVG1 was used.

For Maximum EIRP (Peak Antenna Gain = 0 dBi)

IEEE 802.11ac (20MHz) (MCS0)

Frequency (MHz)	Conducted Output Power in dBm	Conducted Output Power in mWatt	EIRP in dBm	EIRP in mWatt
5180	14.81	30.27	14.81	30.27
5220	15.18	32.96	15.18	32.96
5240	15.32	34.04	15.32	34.04
5260	14.89	30.83	14.89	30.83
5300	14.83	30.41	14.83	30.41
5320	15.01	31.70	15.01	31.70
5500	13.66	23.23	13.66	23.23
5580	15.35	34.28	15.35	34.28
5700	15.61	36.39	15.61	36.39
5745	15.11	32.43	N/A	N/A
5785	14.38	27.42	N/A	N/A
5825	14.34	27.16	N/A	N/A

TEST REPORT

IEEE 802.11ac (40MHz) (MCS0)

Frequency (MHz)	Conducted Output Power in dBm	Conducted Output Power in mWatt	EIRP in dBm	EIRP in mWatt
5190	14.88	30.76	14.88	30.76
5230	15.39	34.59	15.39	34.59
5270	14.95	31.26	14.95	31.26
5310	14.92	31.05	14.92	31.05
5510	11.81	15.17	11.81	15.17
5550	12.72	18.71	12.72	18.71
5670	13.08	20.32	13.08	20.32
5755	15.36	34.36	N/A	N/A
5795	14.64	29.11	N/A	N/A

IEEE 802.11ac (80MHz) (MCS0)

Frequency (MHz)	Conducted Output Power in dBm	Conducted Output Power in mWatt	EIRP in dBm	EIRP in mWatt
5210	15.00	31.62	15.00	31.62
5290	14.75	29.85	14.75	29.85
5530	12.10	16.22	12.10	16.22
5775	14.67	29.31	N/A	N/A

IEEE 802.11a (20MHz) (OFDM, 6 Mbps)

Frequency (MHz)	Conducted Output Power in dBm	Conducted Output Power in mWatt	EIRP in dBm	EIRP in mWatt
5180	14.72	29.65	14.72	29.65
5220	15.14	32.66	15.14	32.66
5240	15.18	32.96	15.18	32.96
5260	14.73	29.72	14.73	29.72
5300	14.83	30.41	14.83	30.41
5320	14.71	29.58	14.71	29.58
5500	13.38	21.78	13.38	21.78
5580	15.18	32.96	15.18	32.96
5700	15.34	34.20	15.34	34.20
5745	15.06	32.06	N/A	N/A
5785	14.62	28.97	N/A	N/A
5825	14.26	26.67	N/A	N/A

TEST REPORT

IEEE 802.11n (20MHz) (OFDM, MCS0)

Frequency (MHz)	Conducted Output Power in dBm	Conducted Output Power in mWatt	EIRP in dBm	EIRP in mWatt
5180	14.65	29.17	14.65	29.17
5220	15.23	33.34	15.23	33.34
5240	15.32	34.04	15.32	34.04
5260	14.95	31.26	14.95	31.26
5300	14.85	30.55	14.85	30.55
5320	14.78	30.06	14.78	30.06
5500	13.58	22.80	13.58	22.80
5580	15.28	33.73	15.28	33.73
5700	15.63	36.56	15.63	36.56
5745	15.05	31.99	N/A	N/A
5785	14.75	29.85	N/A	N/A
5825	14.35	27.23	N/A	N/A

IEEE 802.11n (40MHz) (OFDM, MCS0)

Frequency (MHz)	Conducted Output Power in dBm	Conducted Output Power in mWatt	EIRP in dBm	EIRP in mWatt
5190	15.02	31.77	15.02	31.77
5230	15.40	34.67	15.40	34.67
5270	15.10	32.36	15.10	32.36
5310	15.16	32.81	15.16	32.81
5510	12.10	16.22	12.10	16.22
5550	12.89	19.45	12.89	19.45
5670	13.25	21.13	13.25	21.13
5755	15.20	33.11	N/A	N/A
5795	14.69	29.44	N/A	N/A

TEST REPORT

3.1 Maximum Conducted (Peak) Output Power at Antenna Terminals (Cont'd)

Cable loss: 1.02dB External Attenuation: 10dB

Cable loss, external attenuation: ☒ included in OFFSET function
☐ added to SA raw reading

IEEE 802.11ac (20MHz) (OFDM, MCS0)
Maximum Conducted (Peak) Output Level = 15.61dBm

IEEE 802.11ac (40MHz) (OFDM, MCS0)
Maximum Conducted (Peak) Output Level = 15.39dBm

IEEE 802.11ac (80MHz) (OFDM, MCS0)
Maximum Conducted (Peak) Output Level = 15.00dBm

IEEE 802.11a (20MHz) (OFDM, 6 Mbps)
Maximum Conducted (Peak) Output Level = 15.34dBm

IEEE 802.11n (20MHz) (OFDM, MCS0)
Maximum Conducted (Peak) Output Level = 15.63dBm

IEEE 802.11n (40MHz) (OFDM, MCS0)
Maximum Conducted (Peak) Output Level = 15.40dBm

Remark:

1. Maximum e.i.r.p = Maximum Conducted Output Power + Duty Cycle Factor + Antenna Gain
2. Maximum Conducted Output Power = Conducted Output Power + Duty Cycle Factor
3. Duty Cycle = On Time/ Period
   Duty Cycle Factor = 10 * log (1/ Duty cycle)
   Average factor = 20 log 10 Duty Cycle.

Limits for FCC:

5150 - 5250MHz: 250mW (24dBm) for antennas with gains of 6dBi or less. (Client Device)
5250 - 5350MHz: 250mW (24dBm)
5470 - 5725MHz: 250mW (24dBm)
5725 - 5850MHz: 1W (30dBm) for antennas with gains of 6dBi or less.

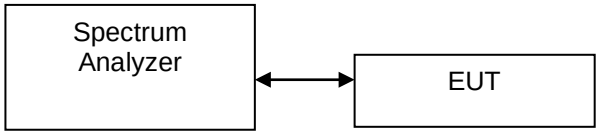
Limits for RSS:

5150 - 5250MHz: 200mW (23dBm) for antennas with gains of 6dBi or less.
5250 - 5350MHz: 250mW (24dBm)
5470 - 5725MHz: 250mW (24dBm)
5725 - 5850MHz: 1W (30dBm) for antennas with gains of 6dBi or less.

TEST REPORT

3.2 Minimum 6dB RF Bandwidth

The figure below shows the test setup, which is utilized to make these measurements.



The antenna port of the EUT was connected to the input of a spectrum analyzer. The EBW measurement procedure was used. A PEAK output reading was taken, a DISPLAY line was drawn 6dB lower than PEAK level. The 6dB bandwidth was determined from where the channel output spectrum intersected the display line.

IEEE 802.11ac (20MHz) (MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5745	17.64	17.861
5785	17.71	18.067
5825	17.76	18.399

IEEE 802.11ac (40MHz) (MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5755	36.41	36.462
5795	36.46	36.898

IEEE 802.11ac (80MHz) (MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5775	76.29	76.258

TEST REPORT

IEEE 802.11a (20MHz) (OFDM, 6 Mbps)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5745	16.51	16.976
5785	16.54	17.322
5825	16.52	18.251

IEEE 802.11n (20MHz) (OFDM, MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5745	17.64	17.902
5785	17.72	18.170
5825	17.68	18.798

IEEE 802.11n (40MHz) (OFDM, MCS0)

Frequency (MHz)	6dB Bandwidth (MHz)	99% Bandwidth (MHz)
5755	36.41	36.442
5795	36.43	36.947

Limits:

6dB bandwidth shall be at least 500kHz.

The plots of Minimum 6dB RF Bandwidth and Occupied Bandwidth are saved as below.

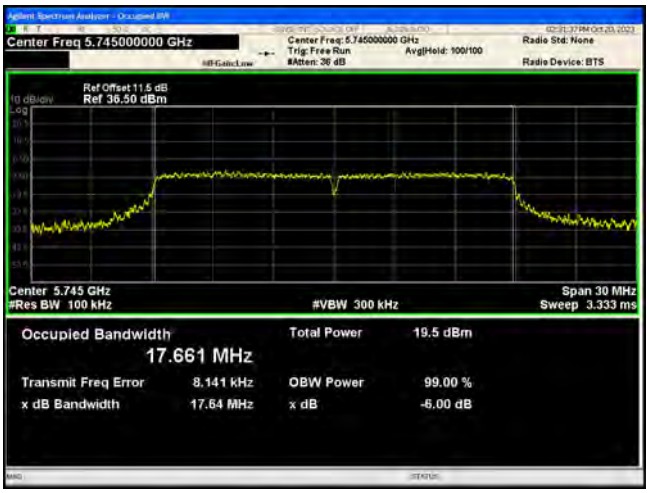
TEST REPORT

PLOTS OF 6dB RF BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (20MHz), 5745MHz

OCCUPIED BANDWIDTH

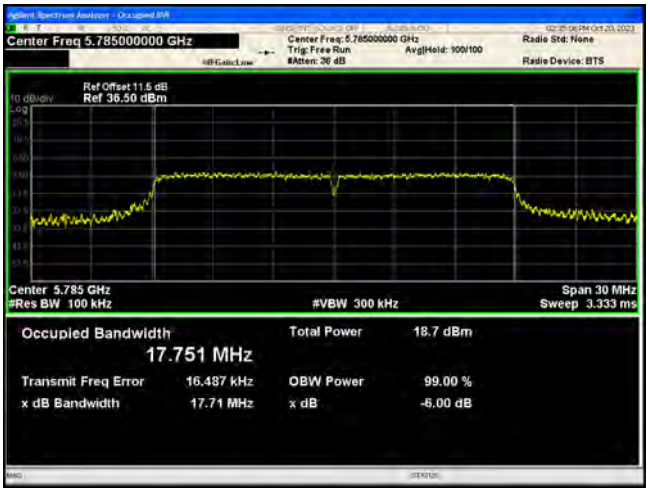
6dB BANDWIDTH



802.11ac (20MHz), 5785MHz

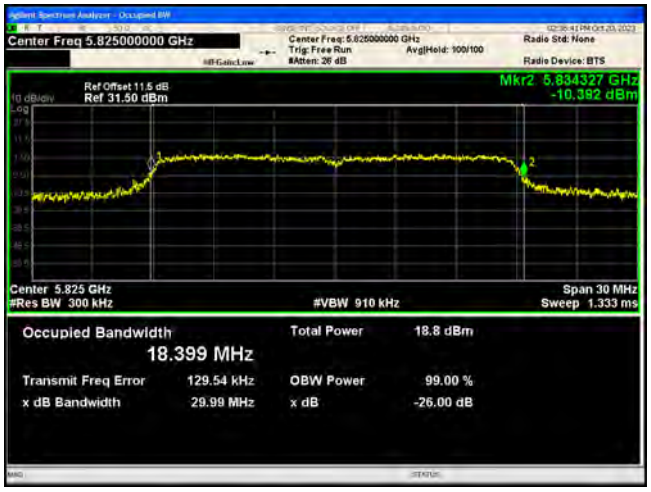
OCCUPIED BANDWIDTH

6dB BANDWIDTH

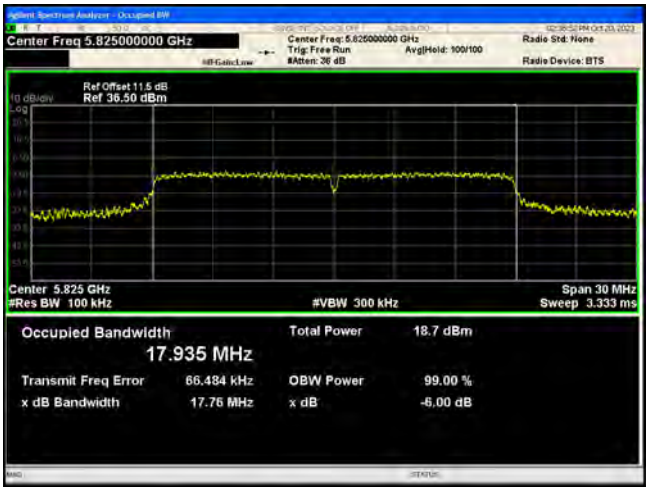


802.11ac (20MHz), 5825MHz

OCCUPIED BANDWIDTH



6dB BANDWIDTH

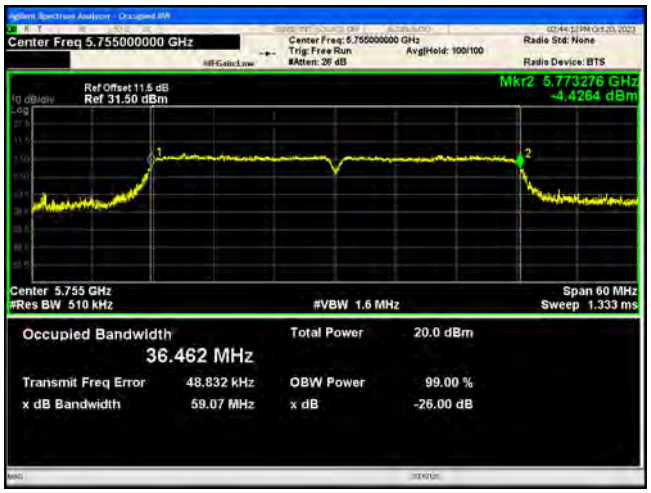


TEST REPORT

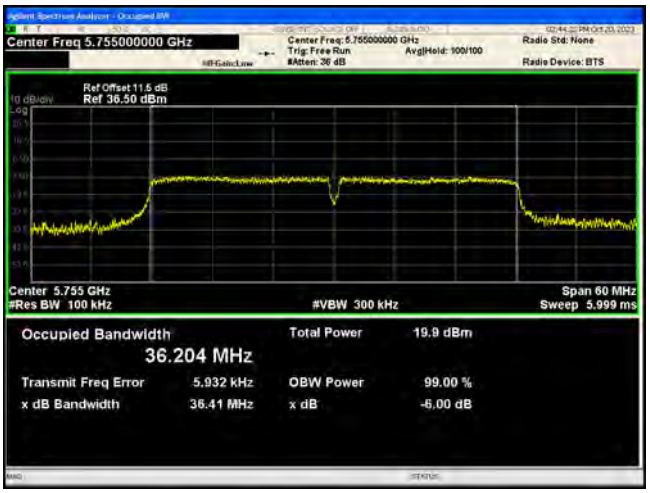
PLOTS OF 6dB RF BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (40MHz), 5755MHz

OCCUPIED BANDWIDTH

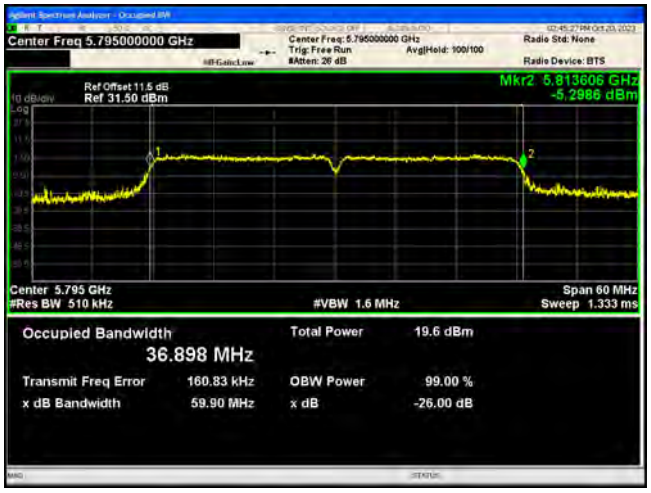


6dB BANDWIDTH

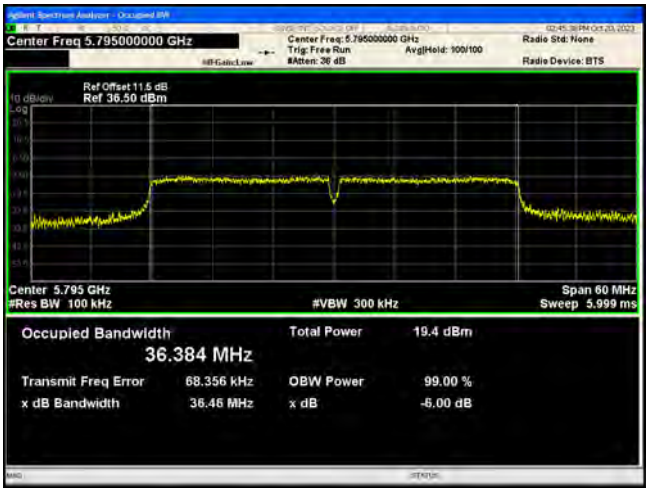


802.11ac (40MHz), 5795MHz

OCCUPIED BANDWIDTH

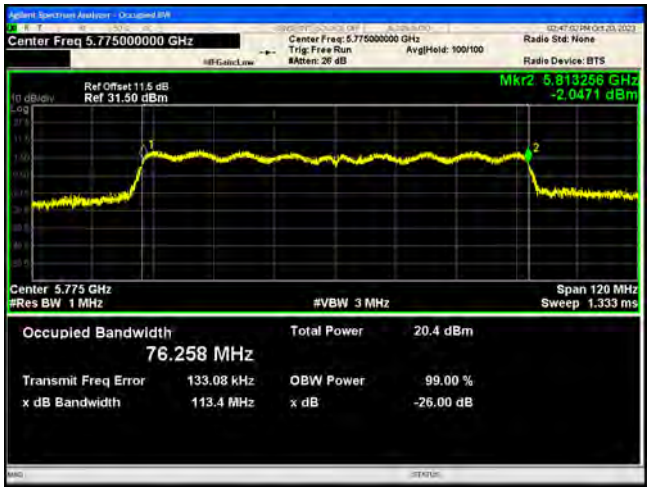


6dB BANDWIDTH

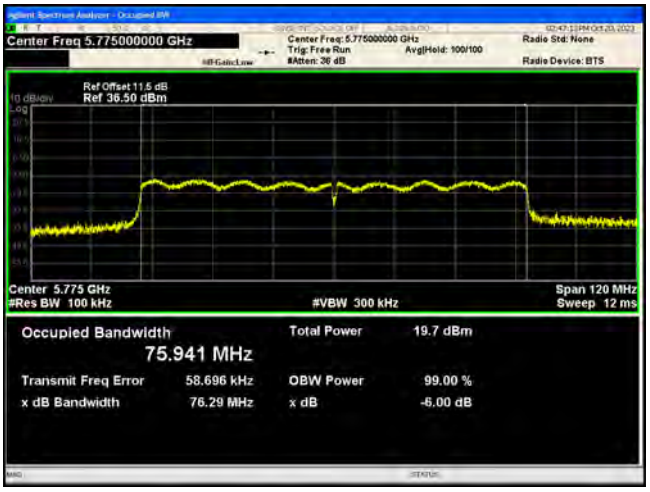


802.11ac (80MHz), 5775MHz

OCCUPIED BANDWIDTH



6dB BANDWIDTH

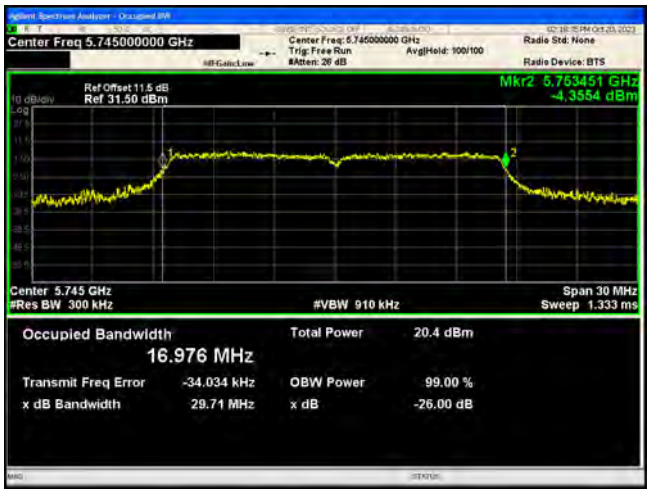


TEST REPORT

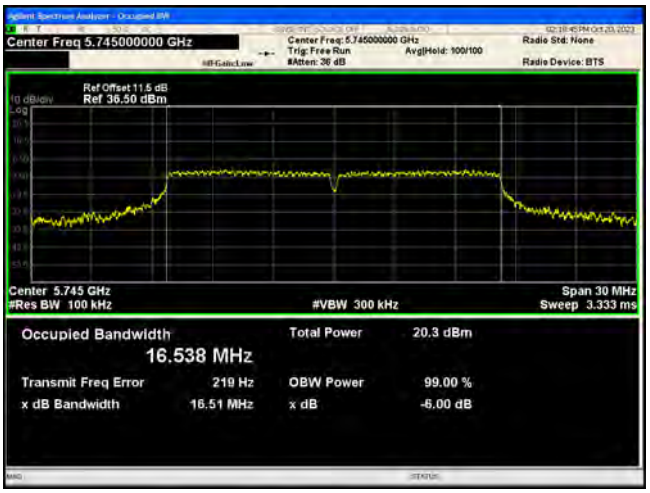
PLOTS OF 6dB RF BANDWIDTH & OCCUPIED BANDWIDTH

802.11a, 5745MHz

OCCUPIED BANDWIDTH

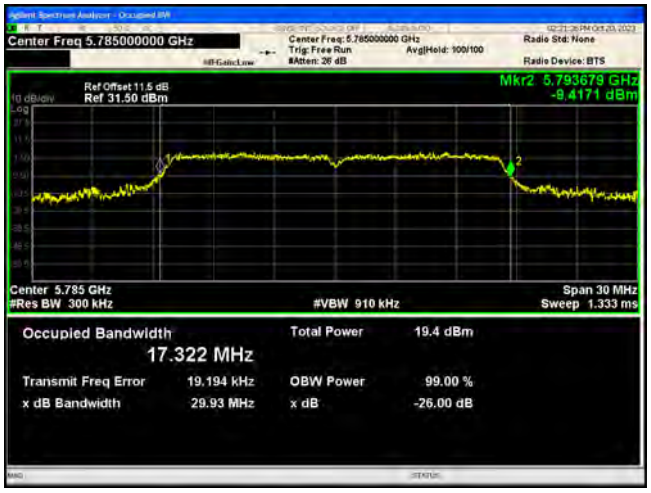


6dB BANDWIDTH

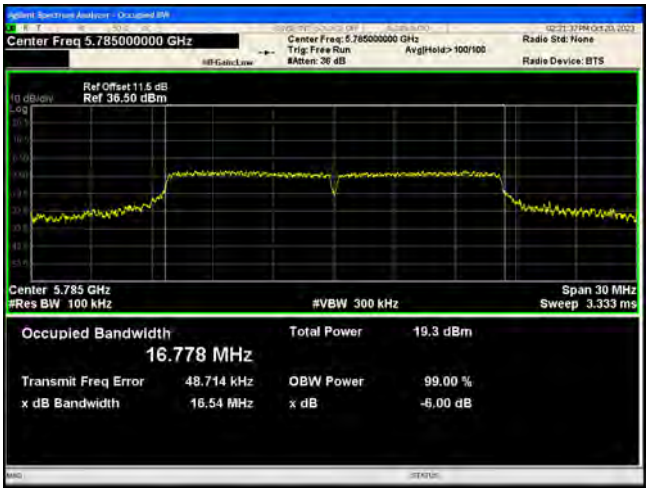


802.11a, 5785MHz

OCCUPIED BANDWIDTH

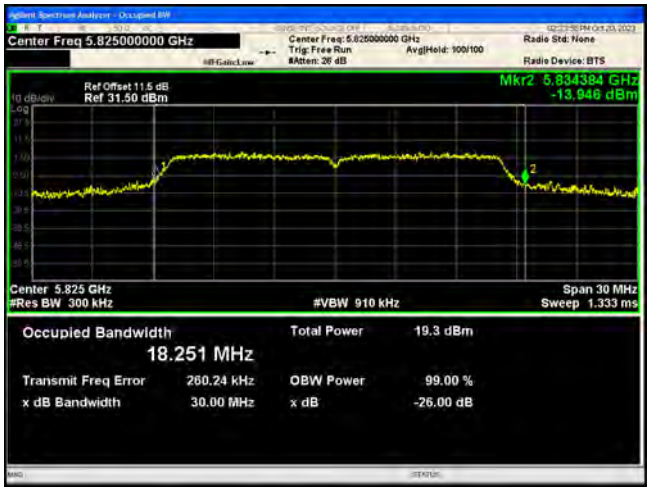


6dB BANDWIDTH

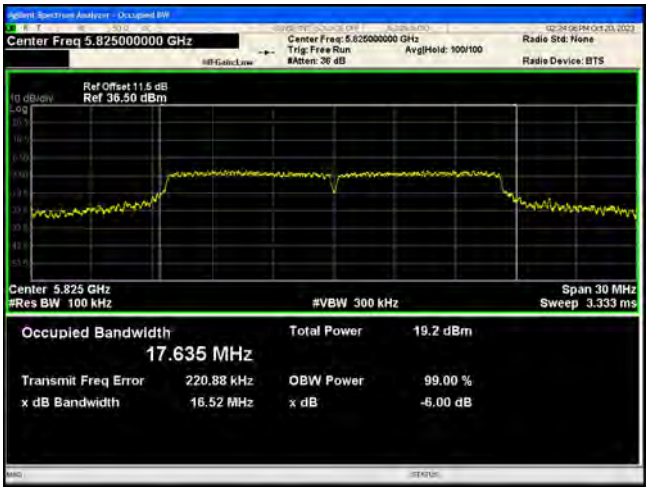


802.11a, 5825MHz

OCCUPIED BANDWIDTH



6dB BANDWIDTH



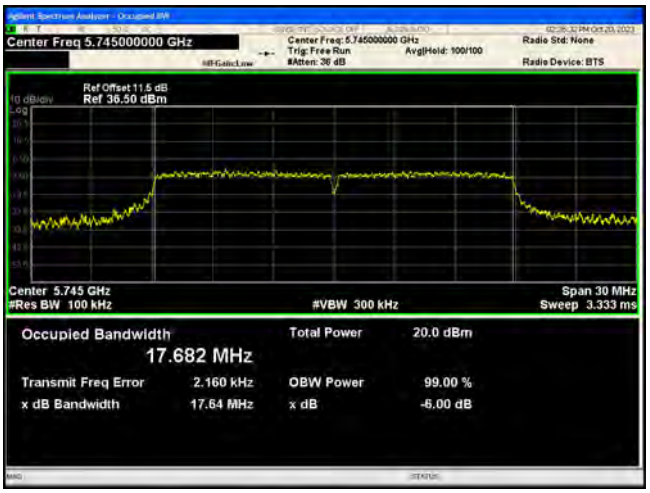
TEST REPORT

PLOTS OF 6dB RF BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (20MHz), 5745MHz

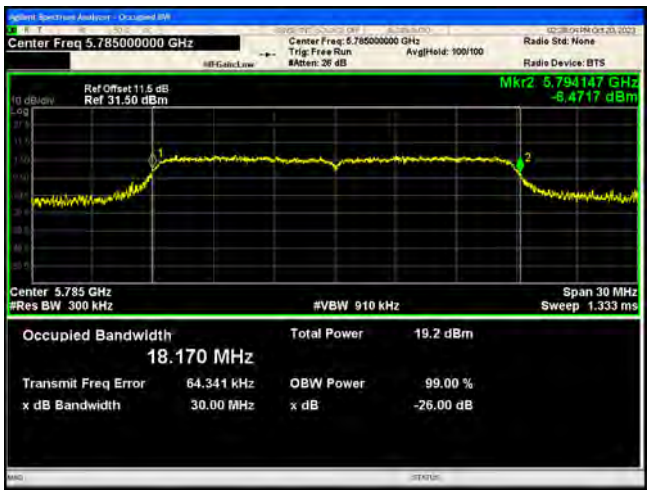
OCCUPIED BANDWIDTH

6dB BANDWIDTH

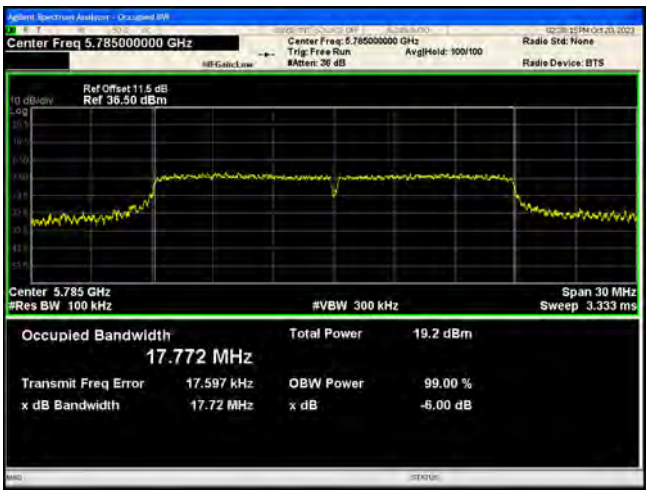


802.11n (20MHz), 5785MHz

OCCUPIED BANDWIDTH

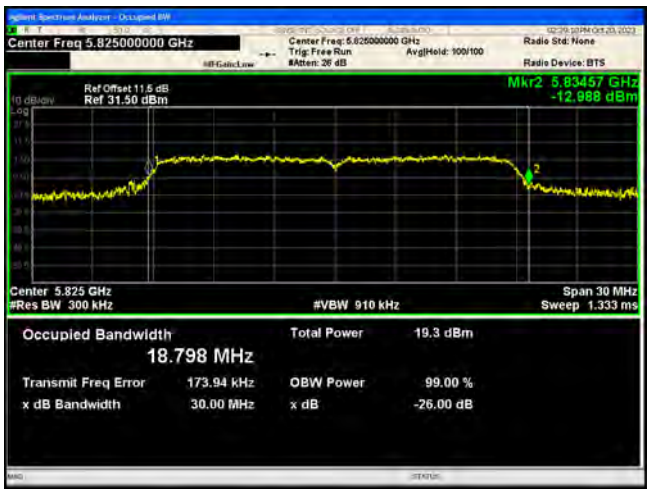


6dB BANDWIDTH

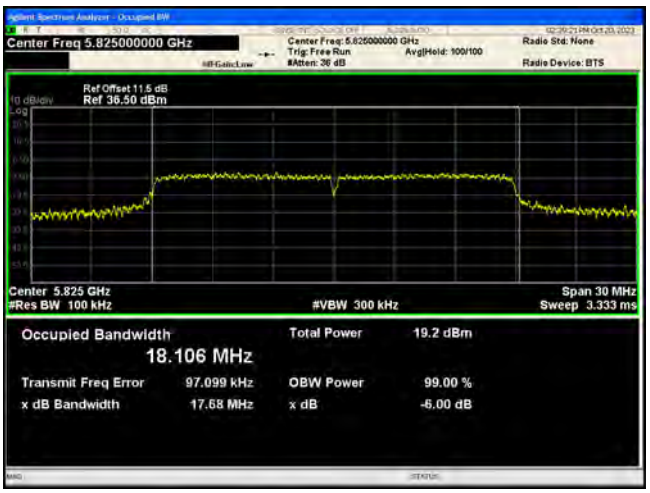


802.11n (20MHz), 5825MHz

OCCUPIED BANDWIDTH



6dB BANDWIDTH

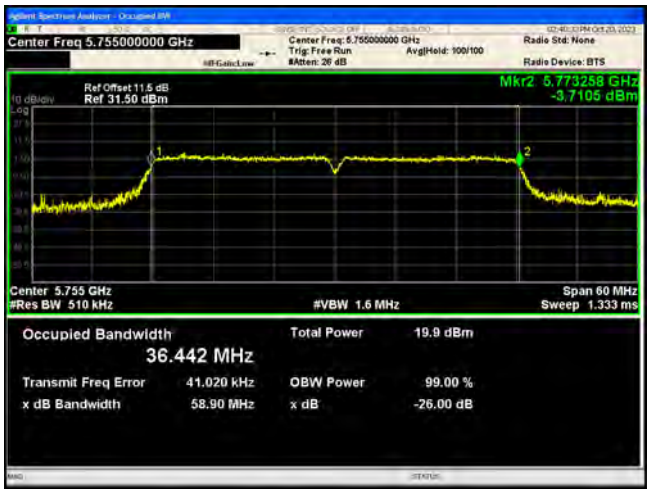


TEST REPORT

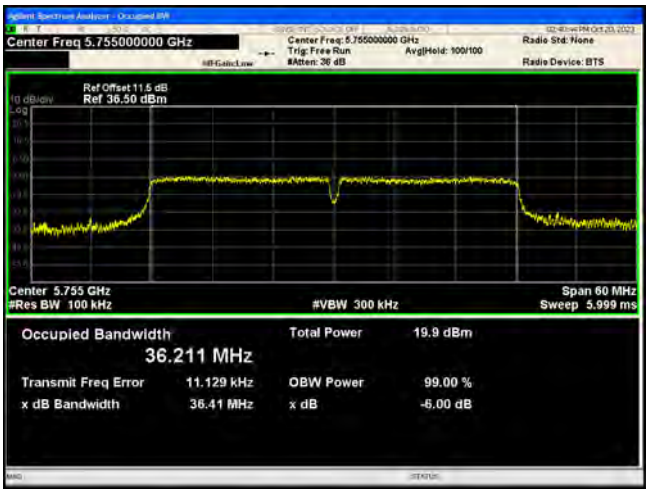
PLOTS OF 6dB RF BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (40MHz), 5755MHz

OCCUPIED BANDWIDTH

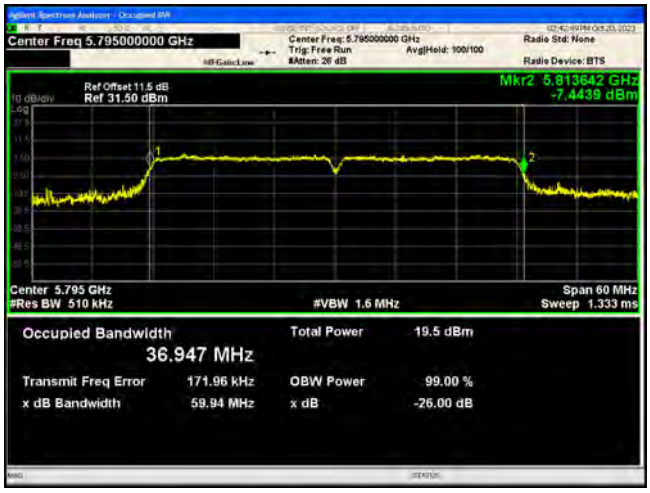


6dB BANDWIDTH

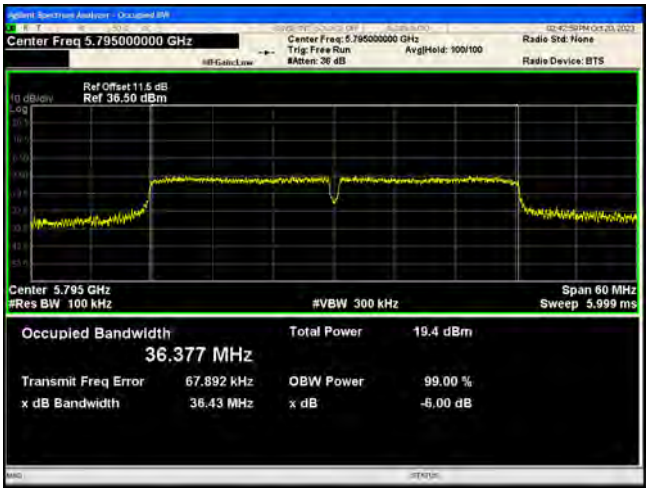


802.11n (40MHz), 5795MHz

OCCUPIED BANDWIDTH



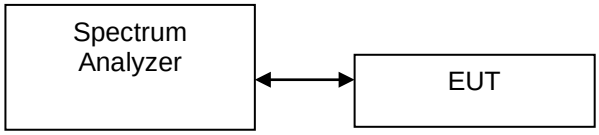
6dB BANDWIDTH



TEST REPORT

3.3 26dB Bandwidth and Occupied Bandwidth

The figure below shows the test setup, which is utilized to make these measurements.



The antenna port of the EUT was connected to the input of a spectrum analyzer. The EBW measurement procedure was used. A PEAK output reading was taken, a DISPLAY line was drawn 26dB lower than PEAK level. The 26dB bandwidth was determined from where the channel output spectrum intersected the display line.

IEEE 802.11ac (20MHz) (MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	21.66	17.805
5220	25.85	17.943
5240	26.07	17.995
5260	28.36	18.060
5300	26.24	17.943
5320	23.11	17.912
5500	30.00	18.505
5580	29.99	18.317
5700	29.89	18.050

IEEE 802.11ac (40MHz) (MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5190	48.34	36.327
5230	58.84	36.506
5270	58.23	36.494
5310	58.33	36.359
5510	60.00	37.639
5550	60.00	37.706
5670	59.84	36.649

IEEE 802.11ac (80MHz) (MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5210	100.99	76.011
5290	101.63	75.929
5530	119.98	87.165

TEST REPORT

IEEE 802.11a (20MHz) (OFDM, 6 Mbps)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	20.85	16.764
5220	26.26	16.957
5240	29.00	16.997
5260	28.52	17.067
5300	27.98	16.860
5320	23.69	16.851
5500	30.00	19.358
5580	29.97	17.757
5700	29.94	17.093

IEEE 802.11n (20MHz) (OFDM, MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5180	21.50	17.804
5220	25.90	17.892
5240	25.94	17.969
5260	28.21	17.996
5300	25.86	17.907
5320	21.60	17.763
5500	30.00	18.904
5580	30.00	18.345
5700	29.85	17.996

IEEE 802.11n (40MHz) (OFDM, MCS0)

Frequency (MHz)	26dB Bandwidth (MHz)	99% Bandwidth (MHz)
5190	51.07	36.300
5230	51.70	36.483
5270	58.83	36.512
5310	58.71	36.422
5510	60.00	37.435
5550	60.00	37.254
5670	59.54	36.652

Limits:

26dB bandwidth shall be at least 500kHz.

The plots of 26dB Bandwidth and Occupied Bandwidth are saved as below.

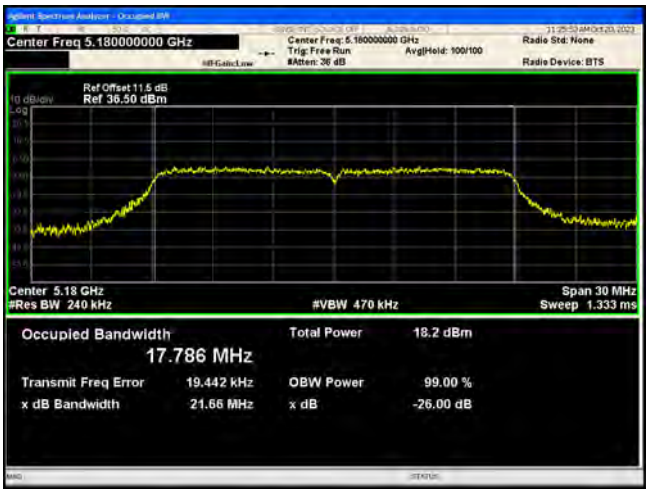
TEST REPORT

PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (20MHz), 5180MHz

OCCUPIED BANDWIDTH

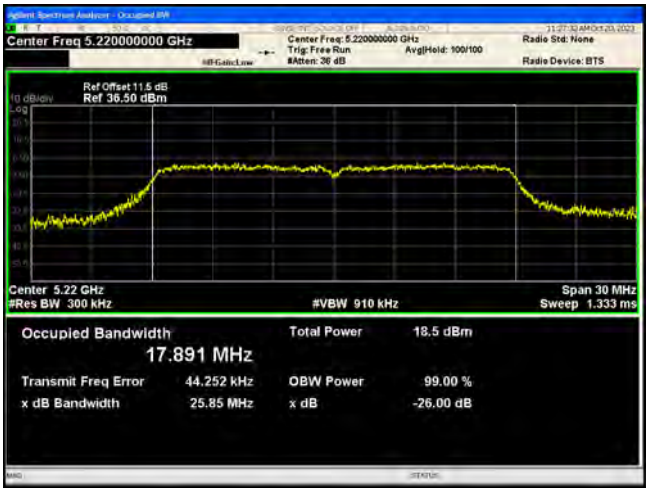
26dB BANDWIDTH



802.11ac (20MHz), 5220MHz

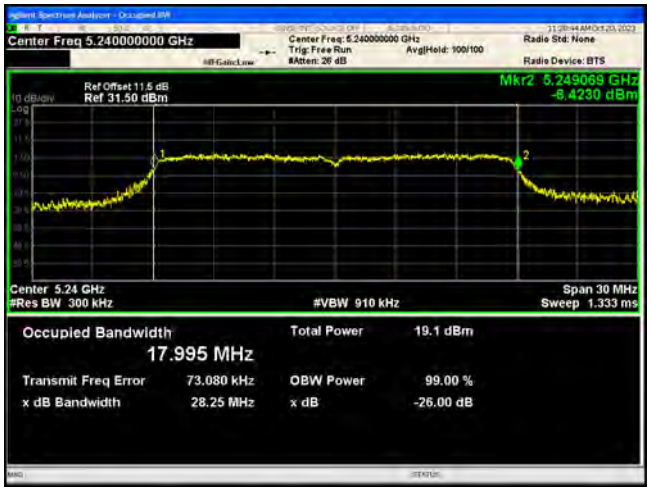
OCCUPIED BANDWIDTH

26dB BANDWIDTH

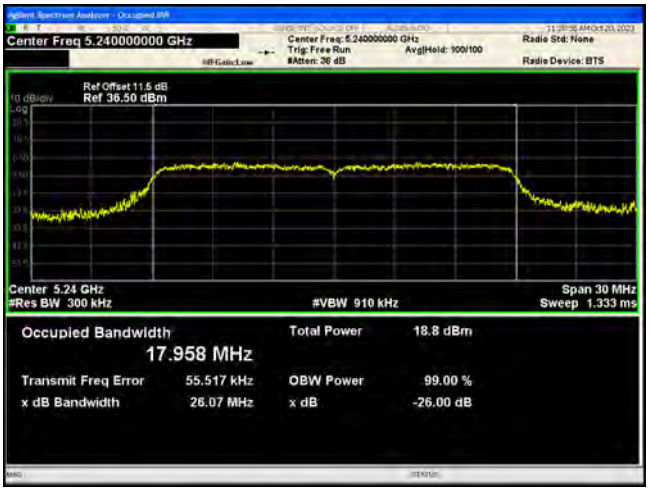


802.11ac (20MHz), 5240MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH



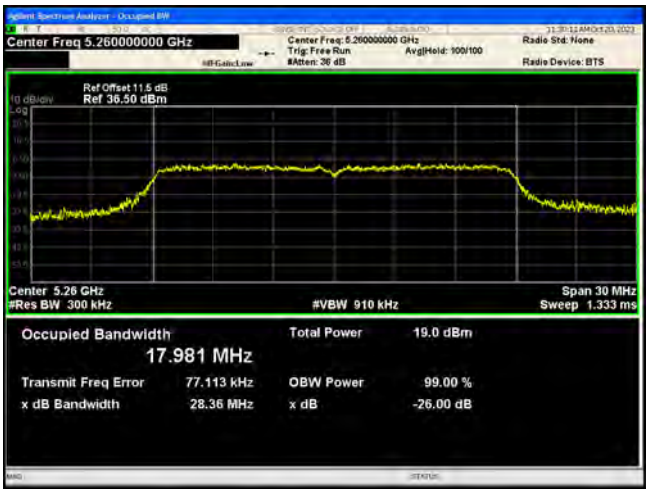
TEST REPORT

PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (20MHz), 5260MHz

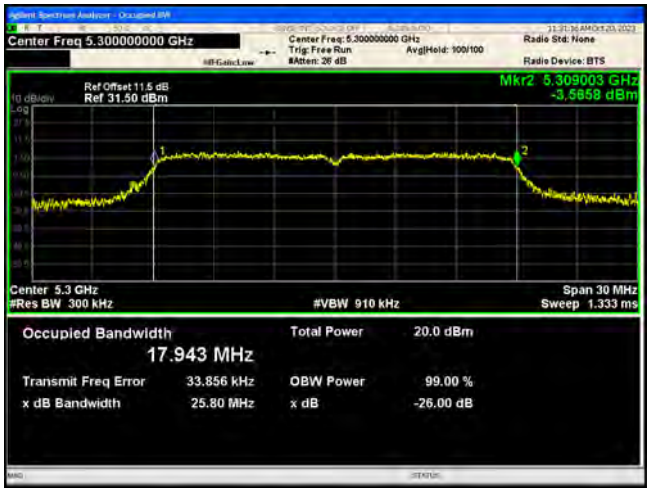
OCCUPIED BANDWIDTH

26dB BANDWIDTH



802.11ac (20MHz), 5300MHz

OCCUPIED BANDWIDTH

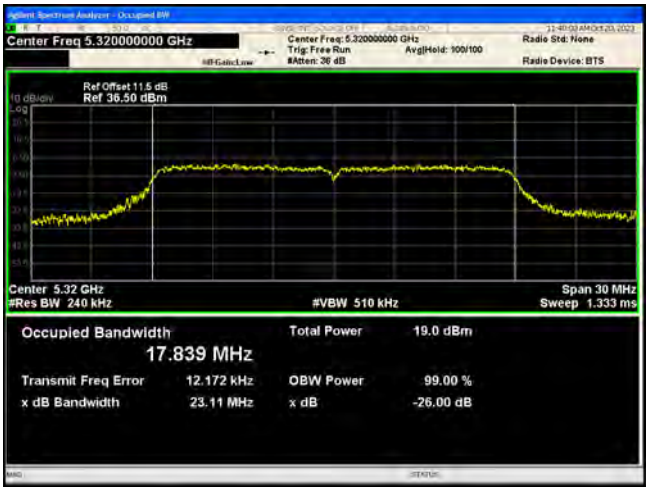


26dB BANDWIDTH

802.11ac (20MHz), 5320MHz

OCCUPIED BANDWIDTH

26dB BANDWIDTH



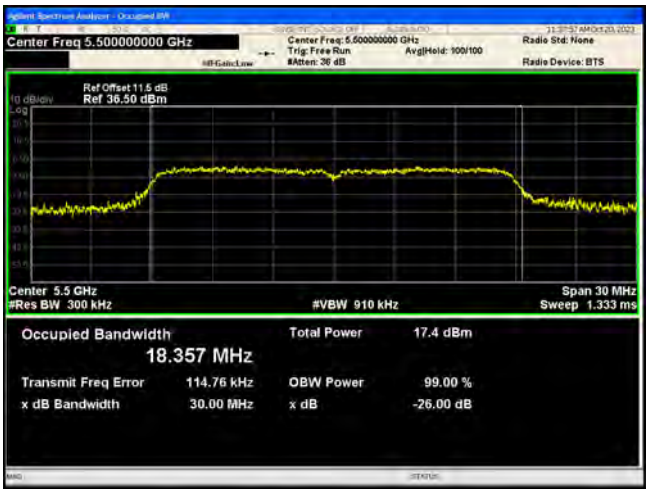
TEST REPORT

PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (20MHz), 5500MHz

OCCUPIED BANDWIDTH

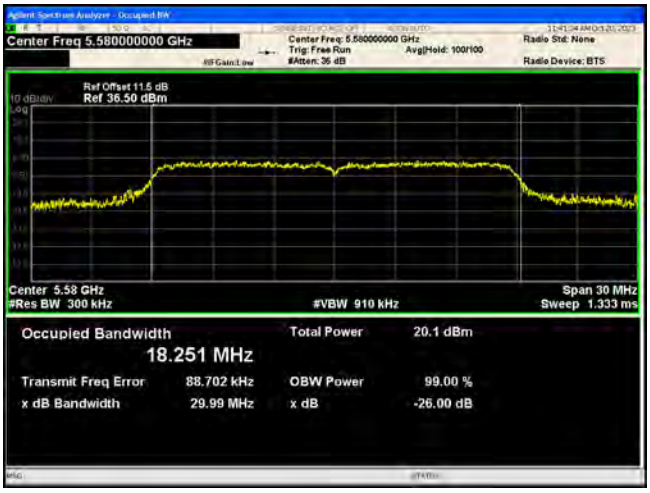
26dB BANDWIDTH



802.11ac (20MHz), 5580MHz

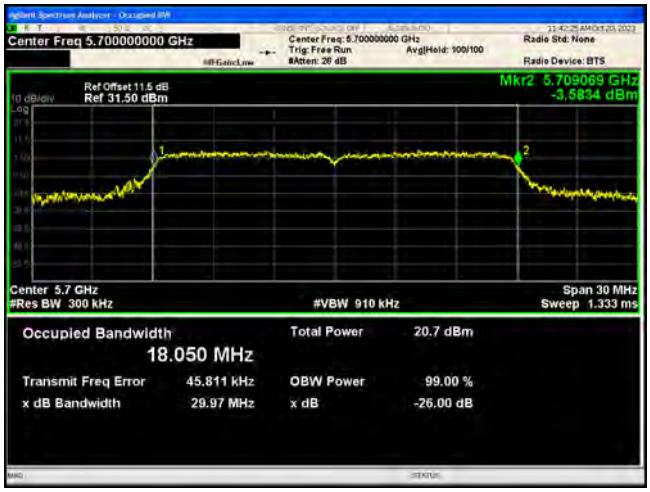
OCCUPIED BANDWIDTH

26dB BANDWIDTH

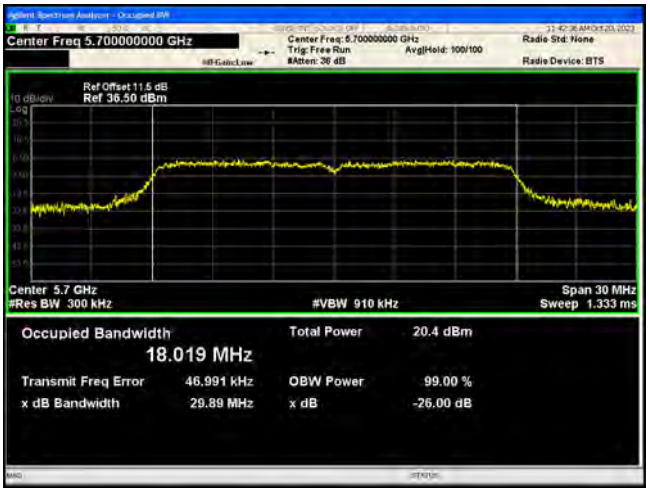


802.11ac (20MHz), 5700MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH

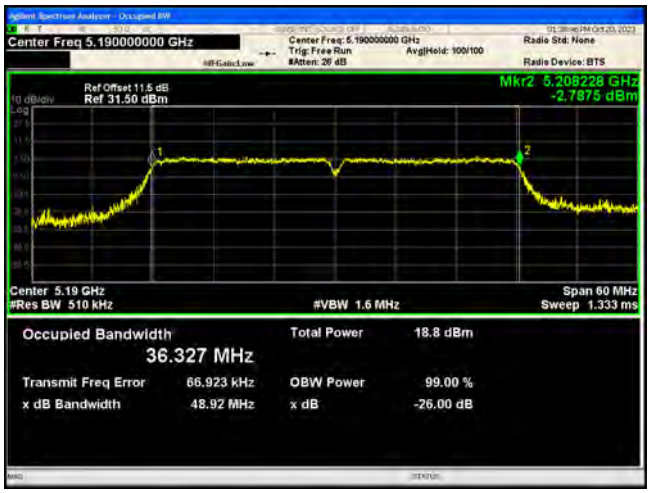


TEST REPORT

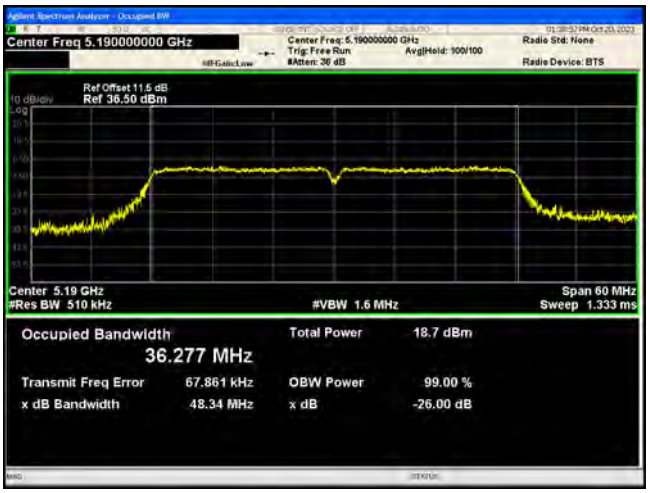
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (40MHz), 5190MHz

OCCUPIED BANDWIDTH

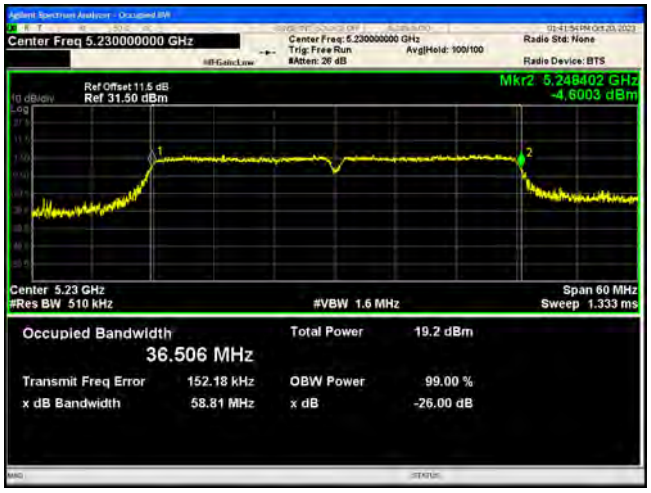


26dB BANDWIDTH

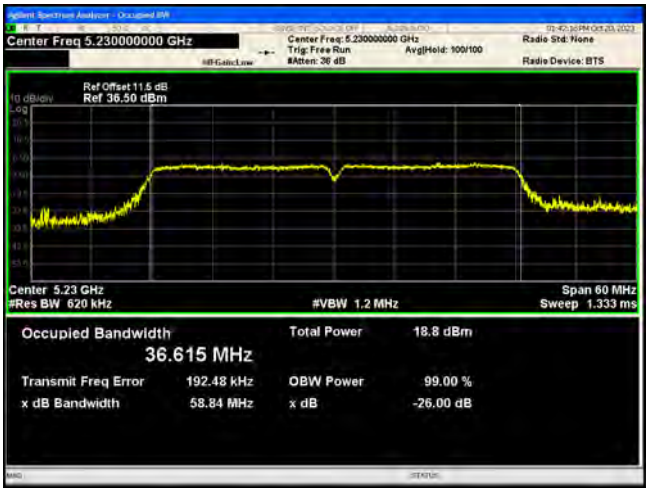


802.11ac (40MHz), 5230MHz

OCCUPIED BANDWIDTH



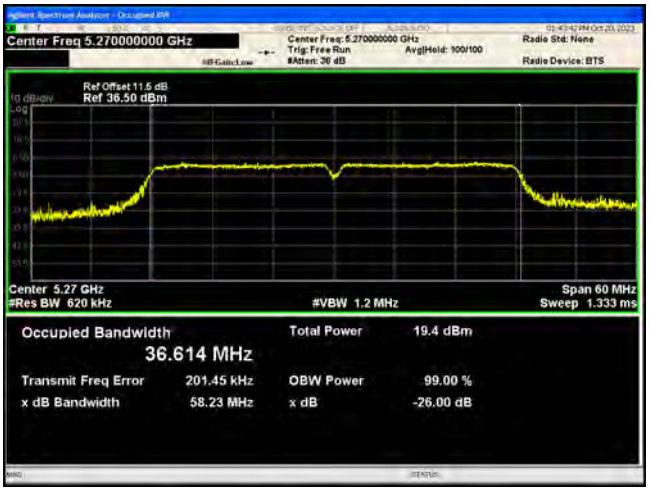
26dB BANDWIDTH



802.11ac (40MHz), 5270MHz

OCCUPIED BANDWIDTH

26dB BANDWIDTH

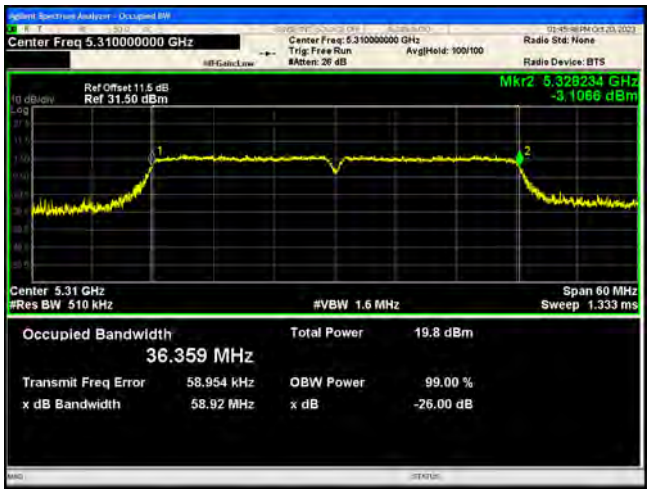


TEST REPORT

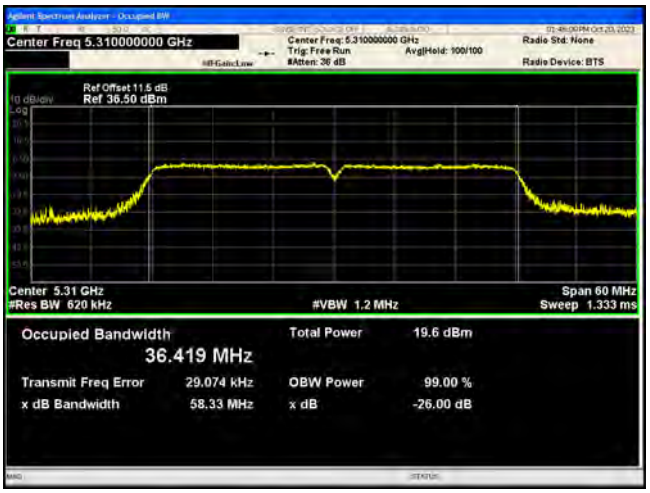
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (40MHz), 5310MHz

OCCUPIED BANDWIDTH



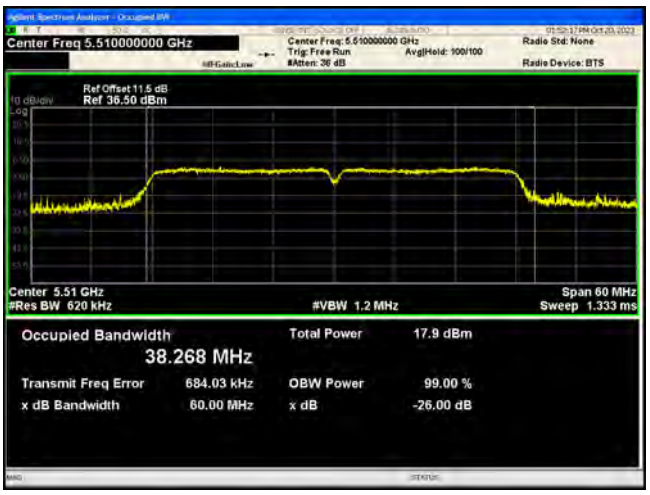
26dB BANDWIDTH



802.11ac (40MHz), 5510MHz

OCCUPIED BANDWIDTH

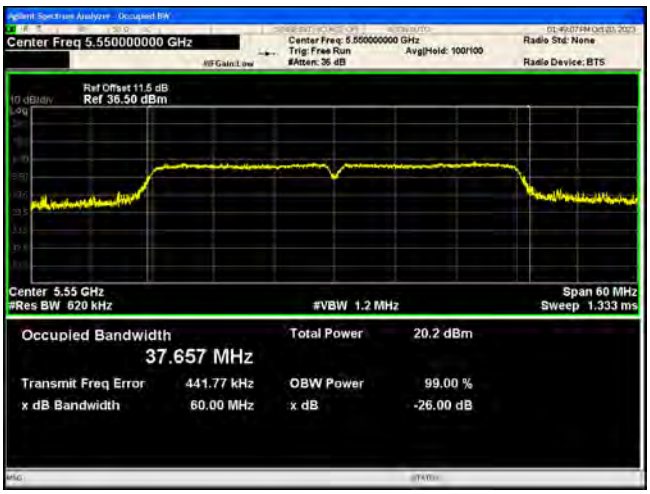
26dB BANDWIDTH



802.11ac (40MHz), 5550MHz

OCCUPIED BANDWIDTH

26dB BANDWIDTH

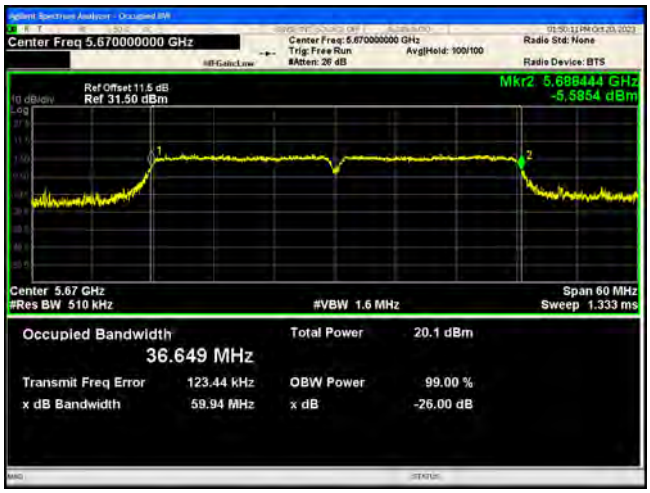


TEST REPORT

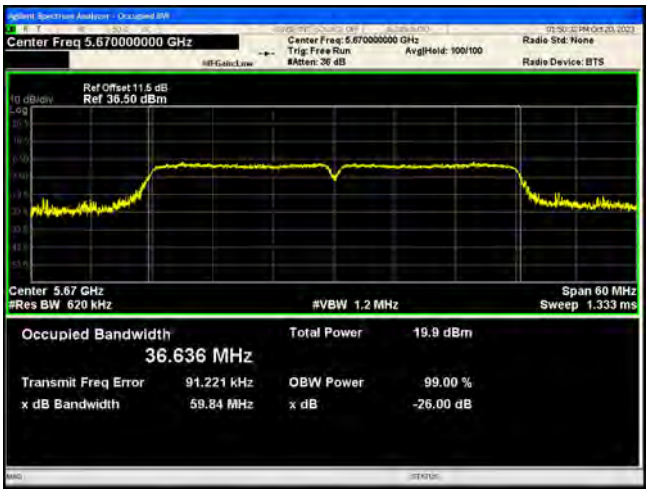
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (40MHz), 5670MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH

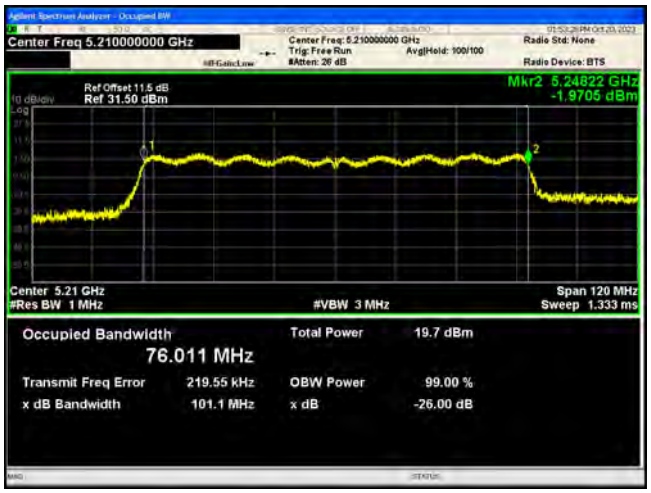


TEST REPORT

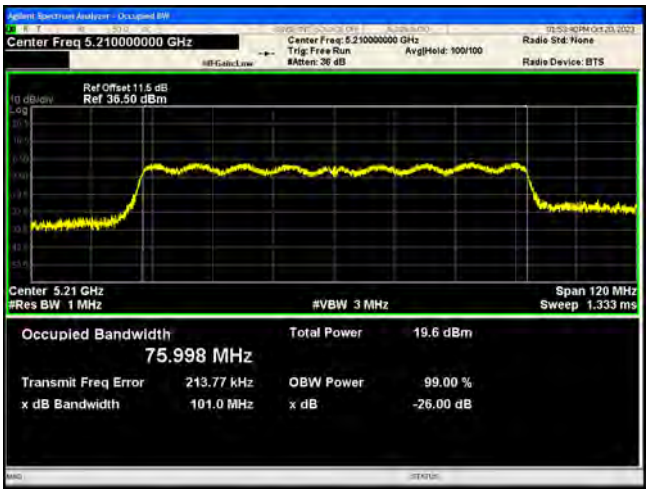
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11ac (80MHz), 5210MHz

OCCUPIED BANDWIDTH

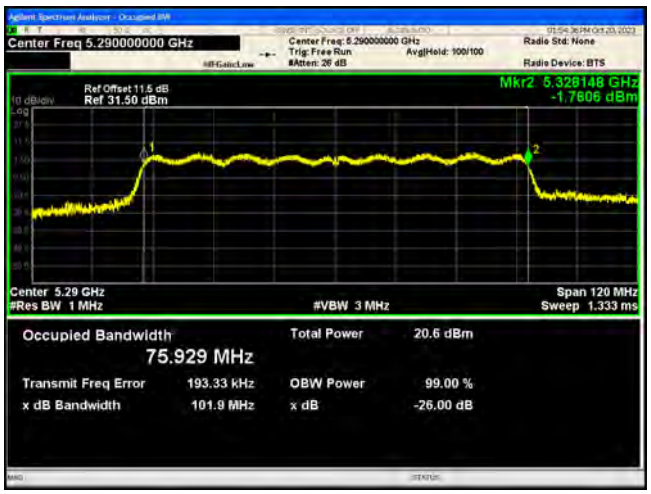


26dB BANDWIDTH

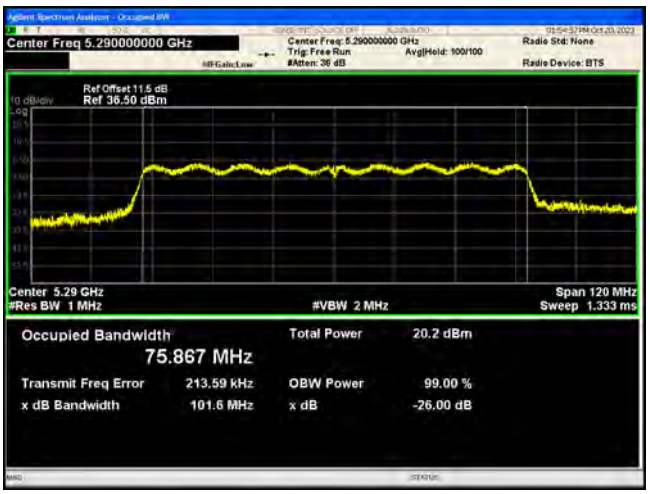


802.11ac (80MHz), 5290MHz

OCCUPIED BANDWIDTH

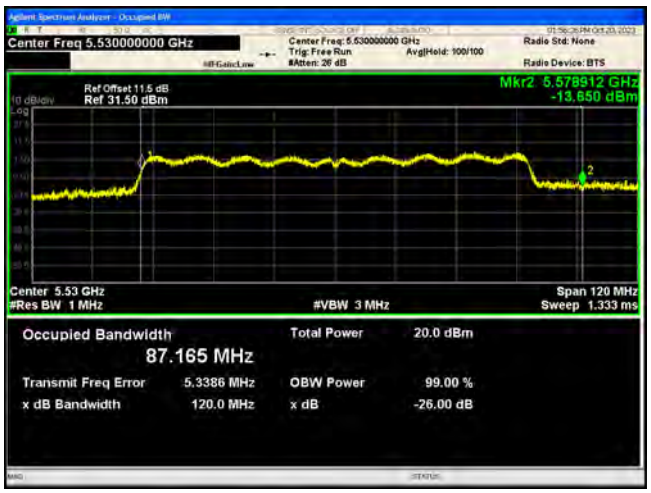


26dB BANDWIDTH

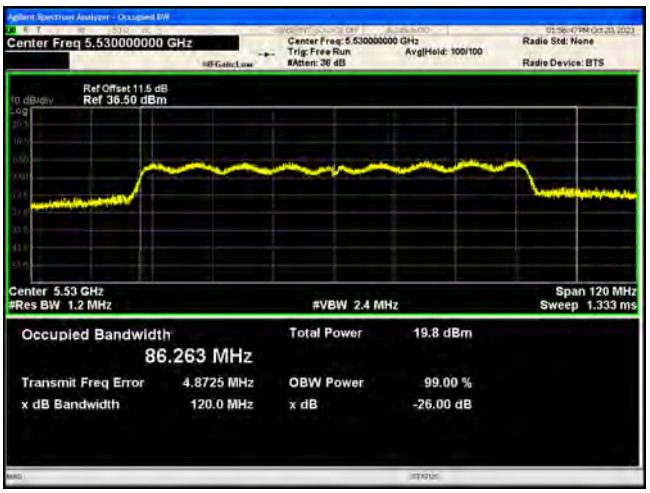


802.11ac (80MHz), 5530MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH

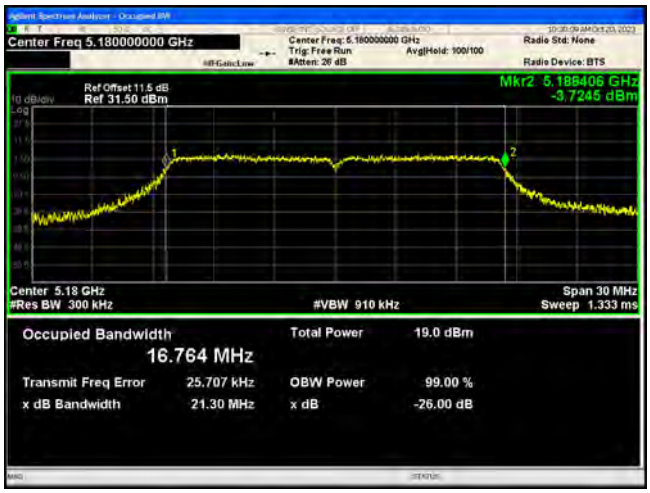


TEST REPORT

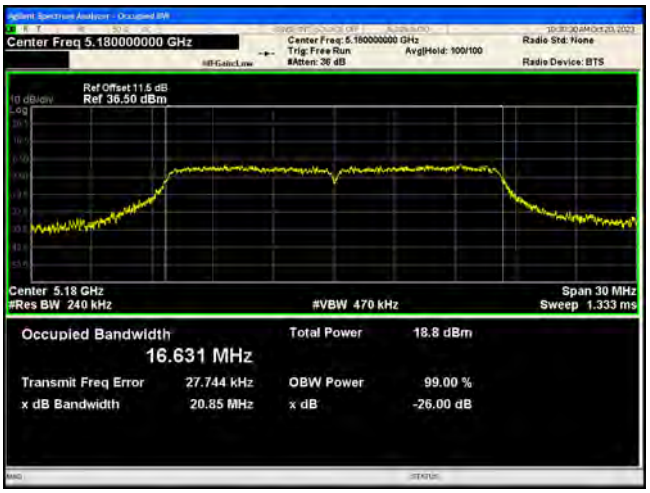
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11a, 5180MHz

OCCUPIED BANDWIDTH

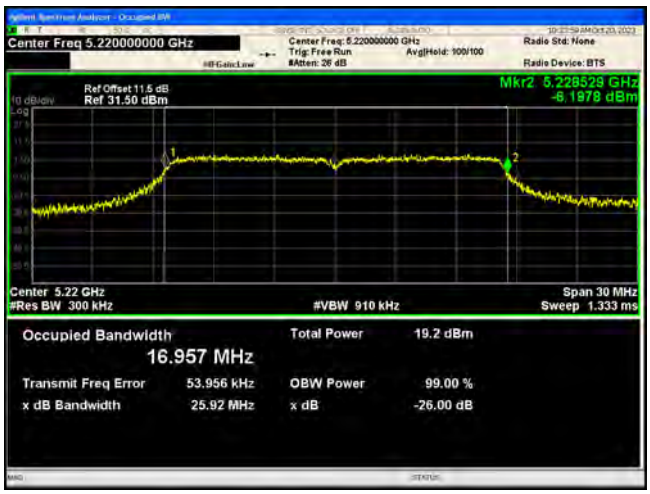


26dB BANDWIDTH

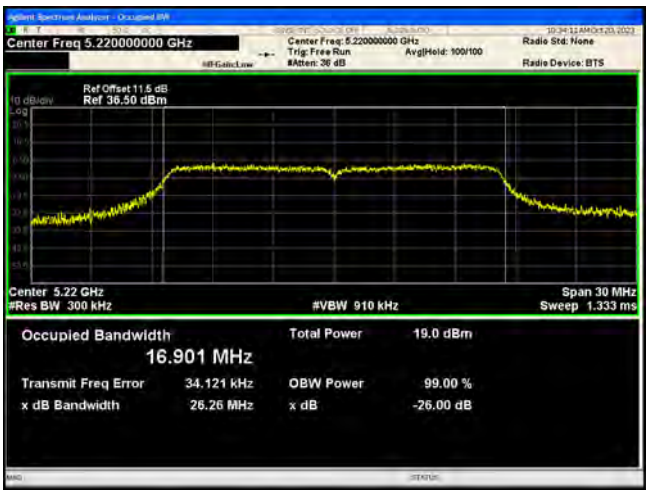


802.11a, 5220MHz

OCCUPIED BANDWIDTH

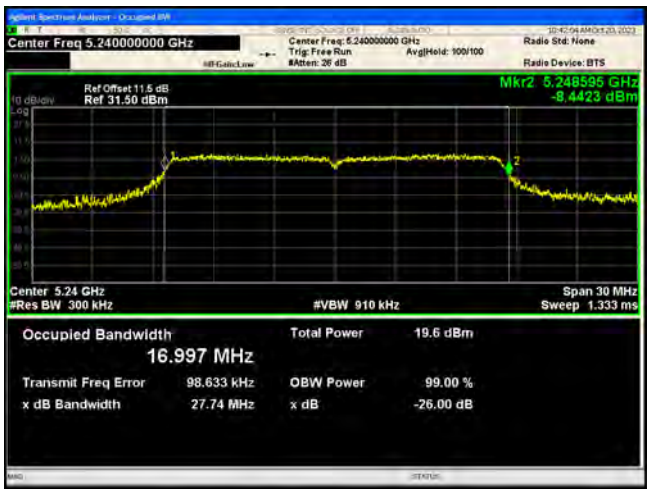


26dB BANDWIDTH

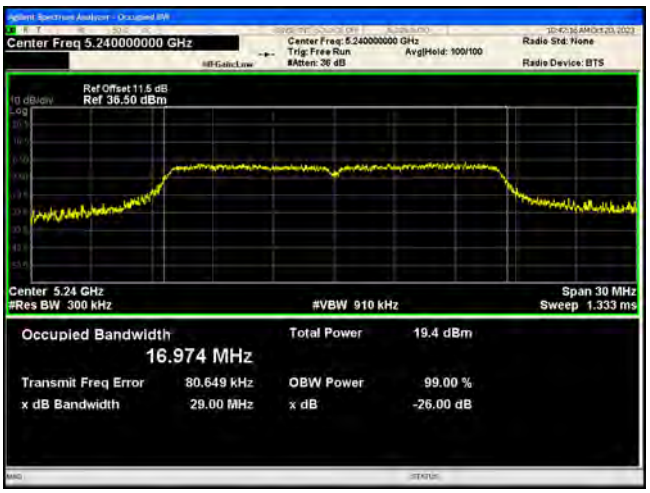


802.11a, 5240MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH

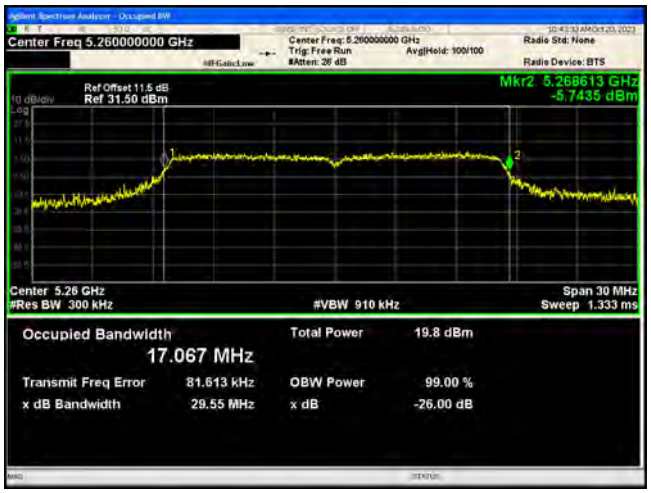


TEST REPORT

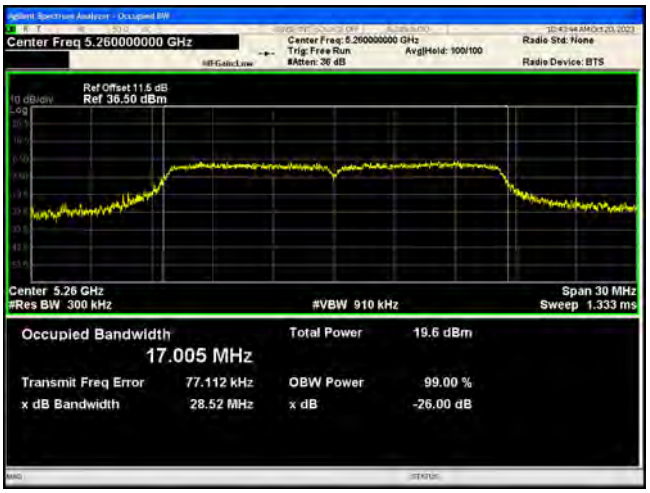
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11a, 5260MHz

OCCUPIED BANDWIDTH

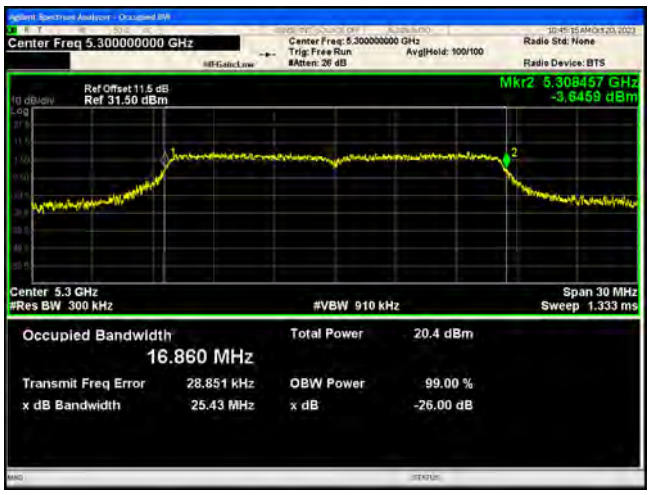


26dB BANDWIDTH

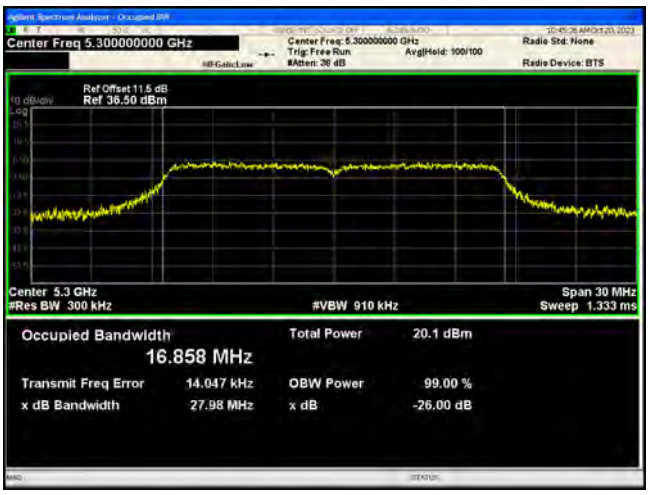


802.11a, 5300MHz

OCCUPIED BANDWIDTH



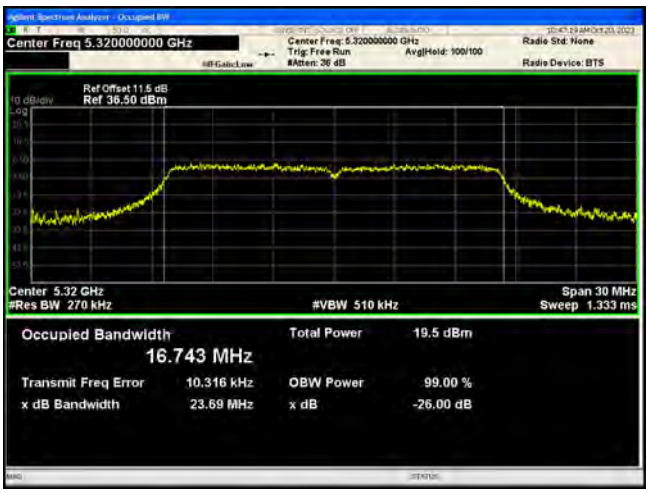
26dB BANDWIDTH



802.11a, 5320MHz

OCCUPIED BANDWIDTH

26dB BANDWIDTH

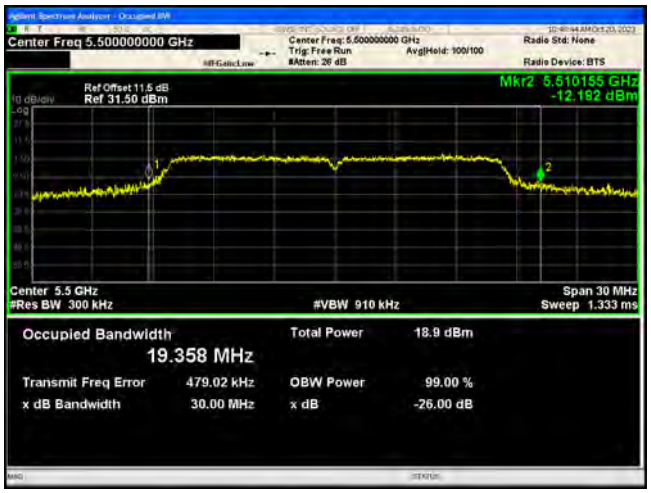


TEST REPORT

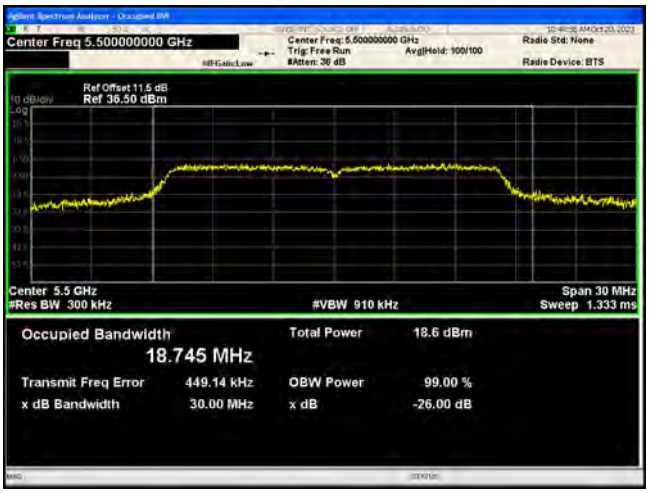
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11a, 5500MHz

OCCUPIED BANDWIDTH



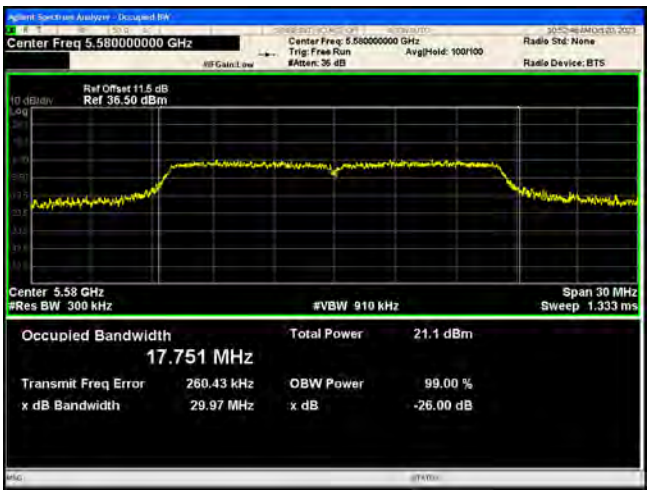
26dB BANDWIDTH



802.11a, 5580MHz

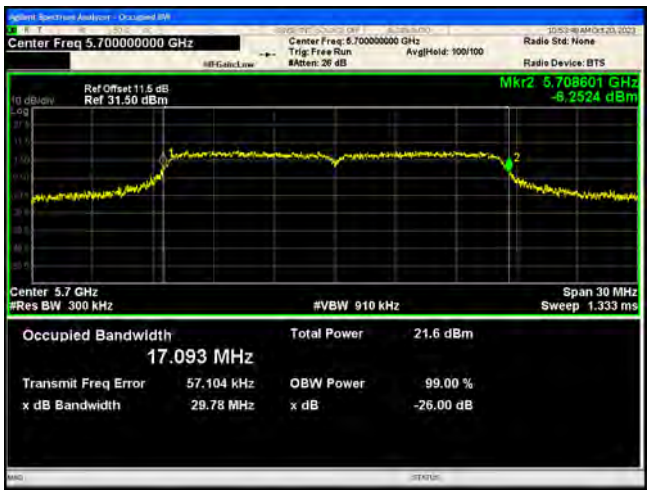
OCCUPIED BANDWIDTH

26dB BANDWIDTH

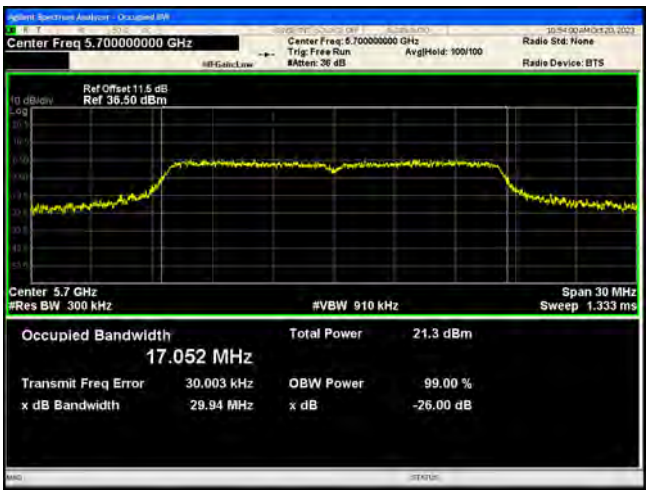


802.11a, 5700MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH



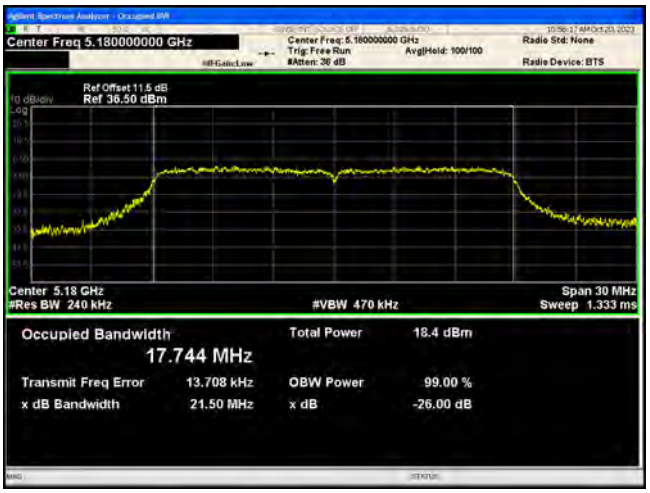
TEST REPORT

PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (20MHz), 5180MHz

OCCUPIED BANDWIDTH

26dB BANDWIDTH



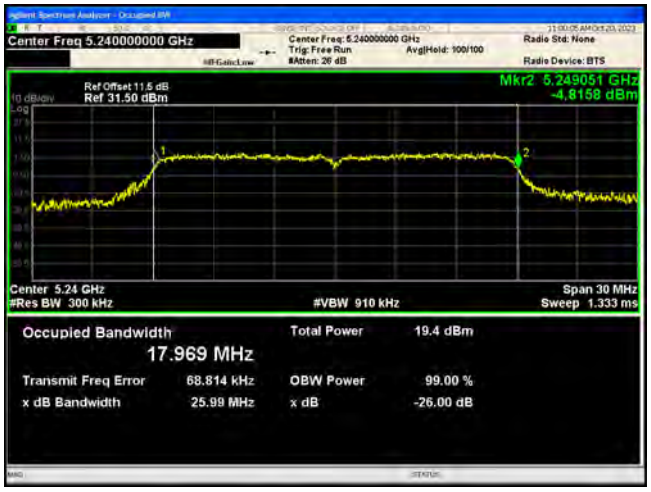
802.11n (20MHz), 5220MHz

OCCUPIED BANDWIDTH

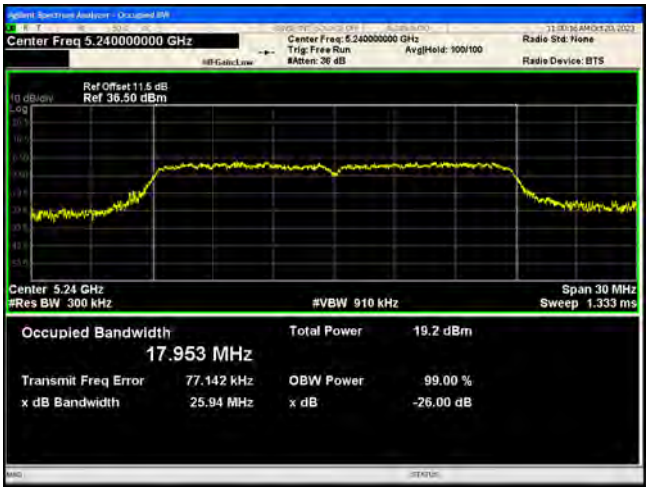
26dB BANDWIDTH

802.11n (20MHz), 5240MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH



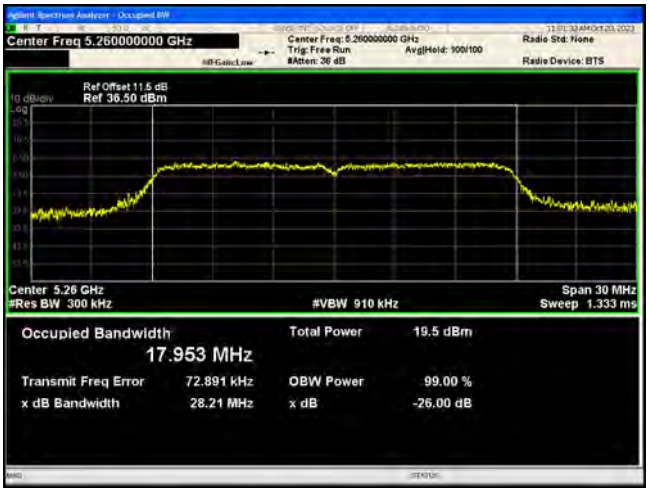
TEST REPORT

PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (20MHz), 5260MHz

OCCUPIED BANDWIDTH

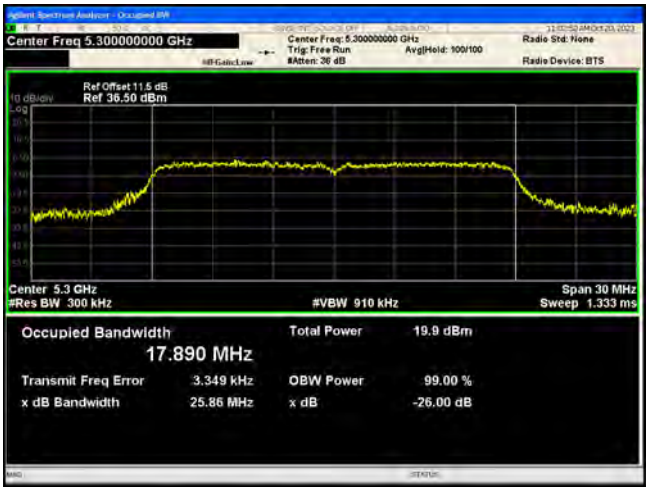
26dB BANDWIDTH



802.11n (20MHz), 5300MHz

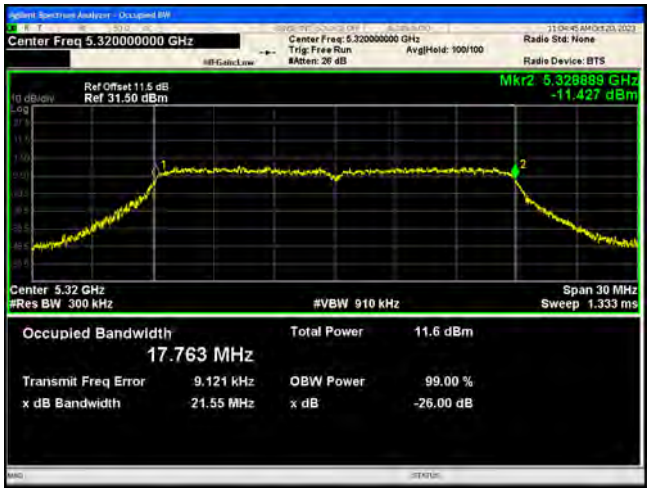
OCCUPIED BANDWIDTH

26dB BANDWIDTH

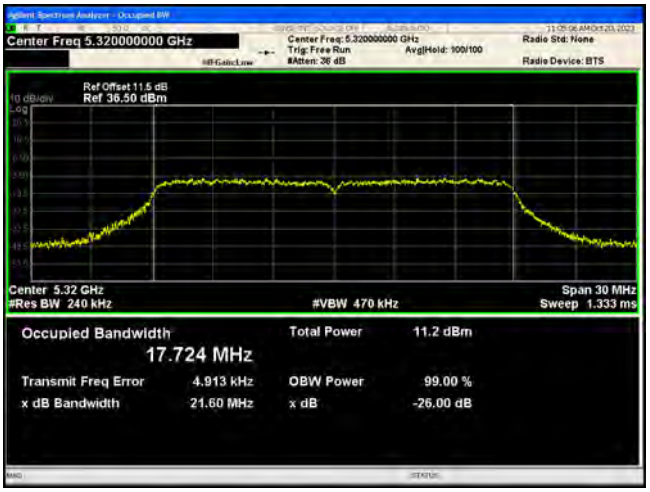


802.11n (20MHz), 5320MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH

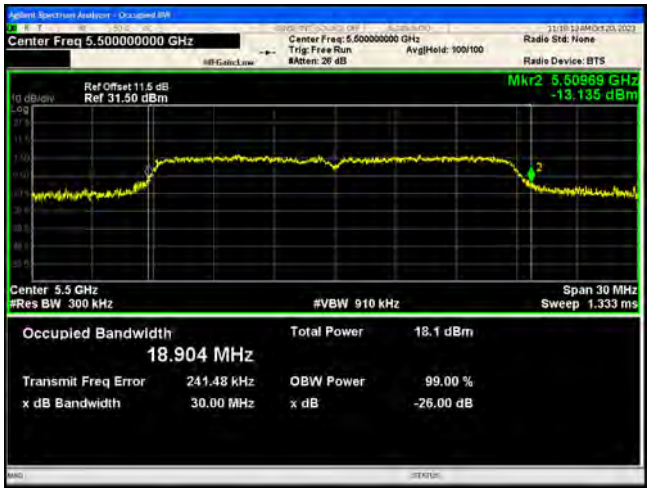


TEST REPORT

PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (20MHz), 5500MHz

OCCUPIED BANDWIDTH

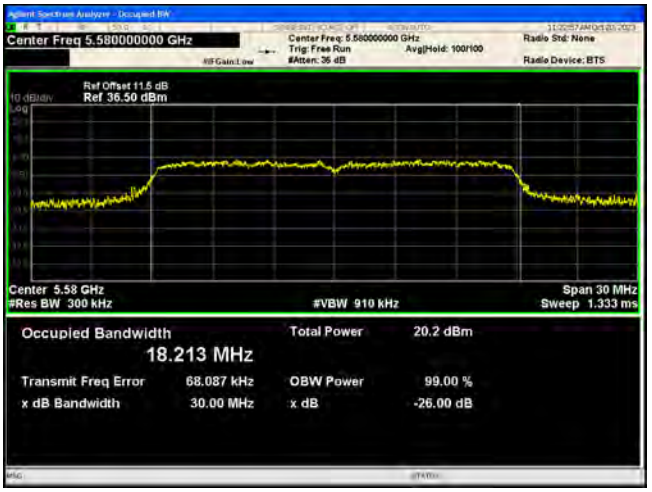


26dB BANDWIDTH

802.11n (20MHz), 5580MHz

OCCUPIED BANDWIDTH

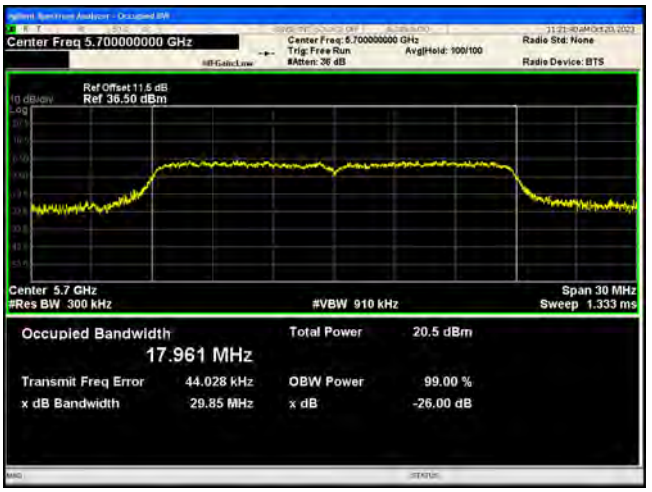
26dB BANDWIDTH



802.11n (20MHz), 5700MHz

OCCUPIED BANDWIDTH

26dB BANDWIDTH



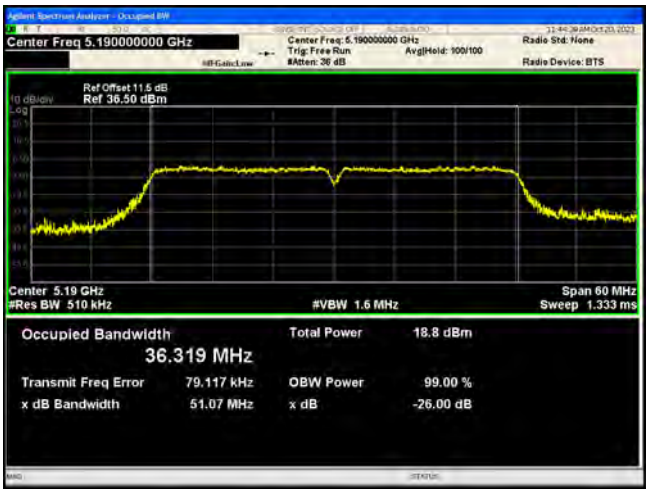
TEST REPORT

PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (40MHz), 5190MHz

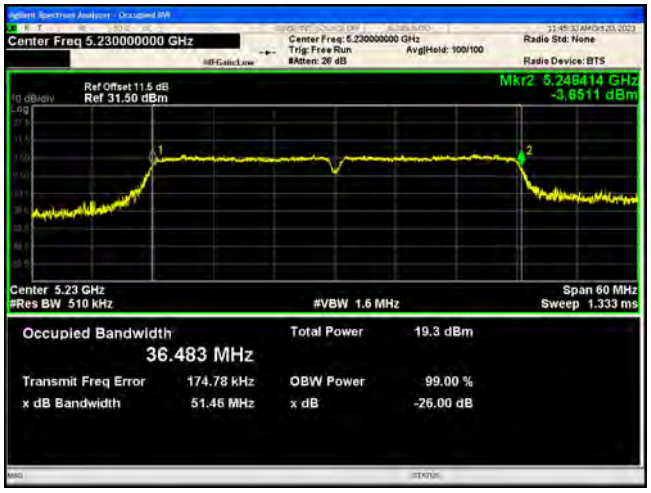
OCCUPIED BANDWIDTH

26dB BANDWIDTH

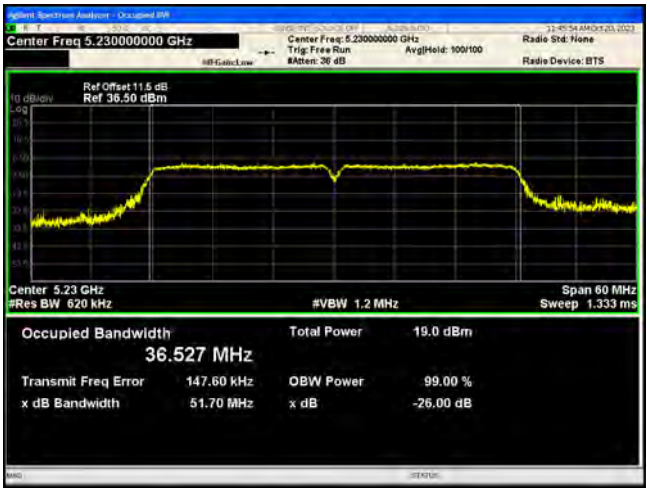


802.11n (40MHz), 5230MHz

OCCUPIED BANDWIDTH

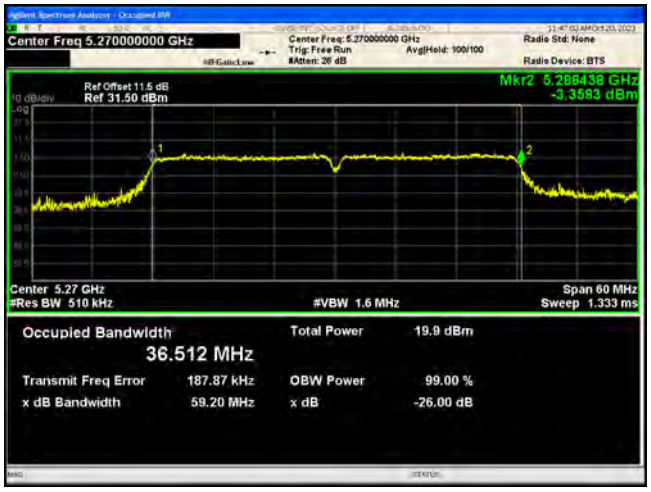


26dB BANDWIDTH

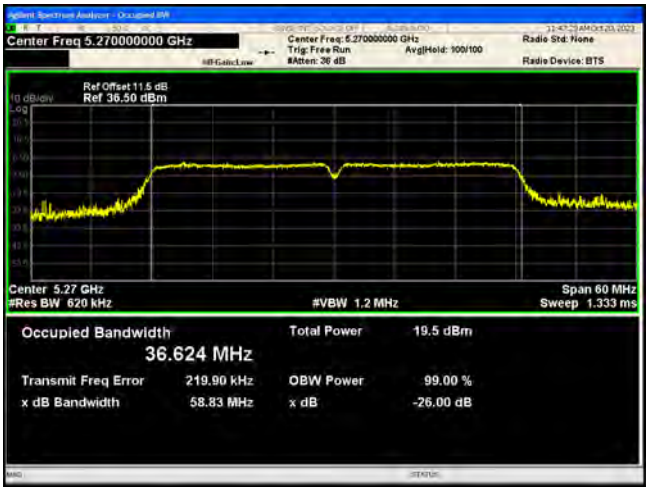


802.11n (40MHz), 5270MHz

OCCUPIED BANDWIDTH



26dB BANDWIDTH

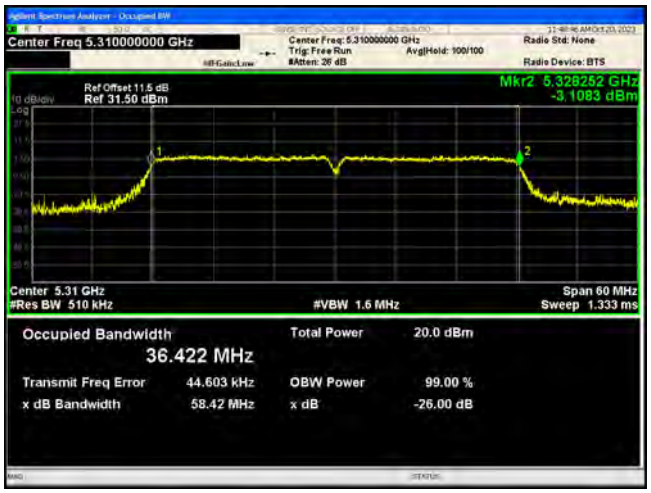


TEST REPORT

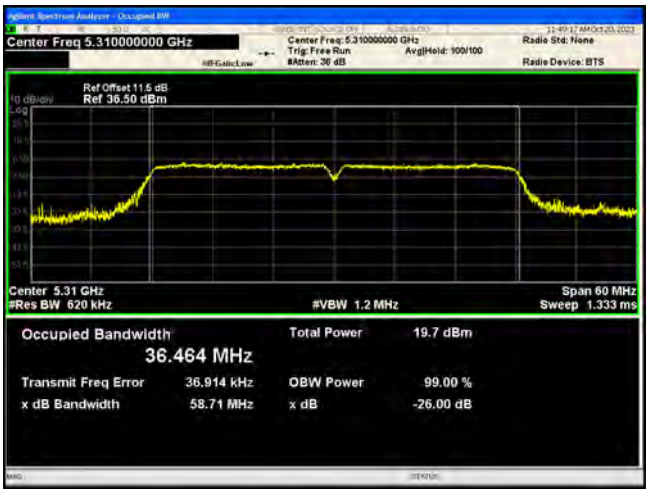
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (40MHz), 5310MHz

OCCUPIED BANDWIDTH



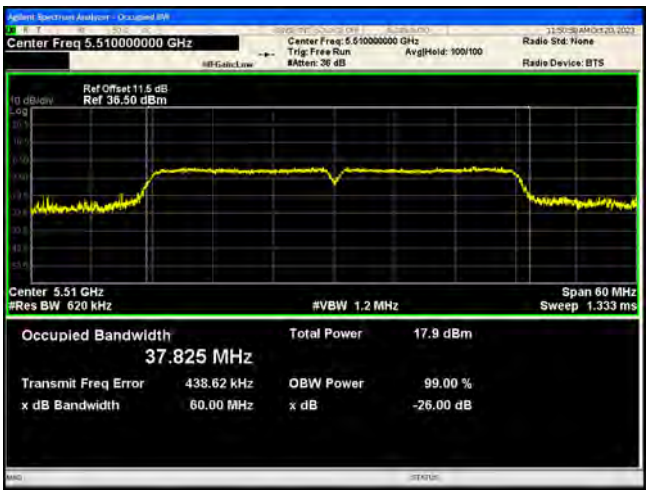
26dB BANDWIDTH



802.11n (40MHz), 5510MHz

OCCUPIED BANDWIDTH

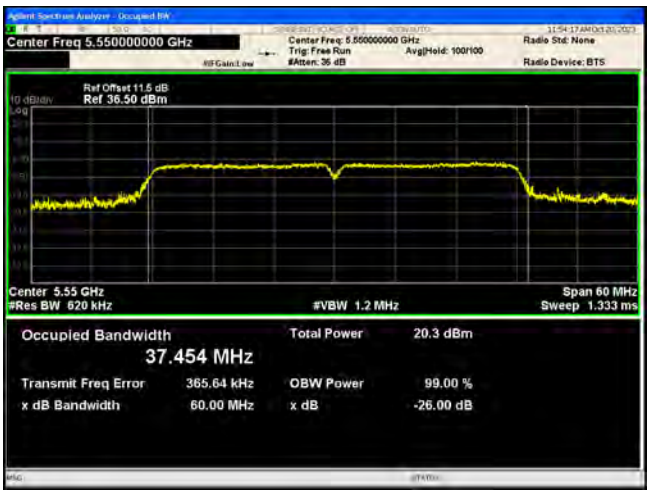
26dB BANDWIDTH



802.11n (40MHz), 5550MHz

OCCUPIED BANDWIDTH

26dB BANDWIDTH

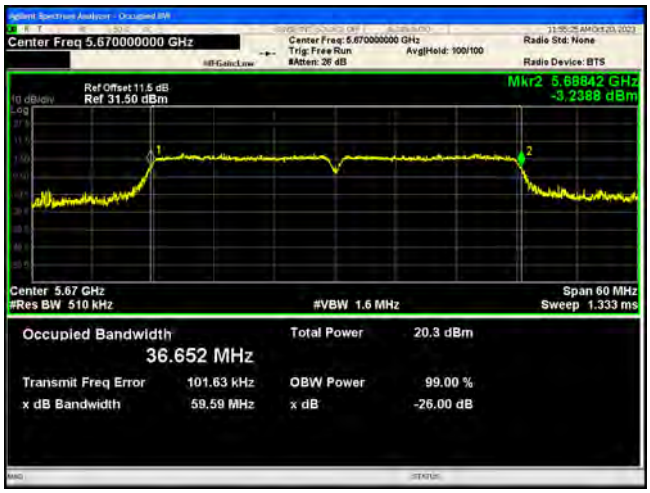


TEST REPORT

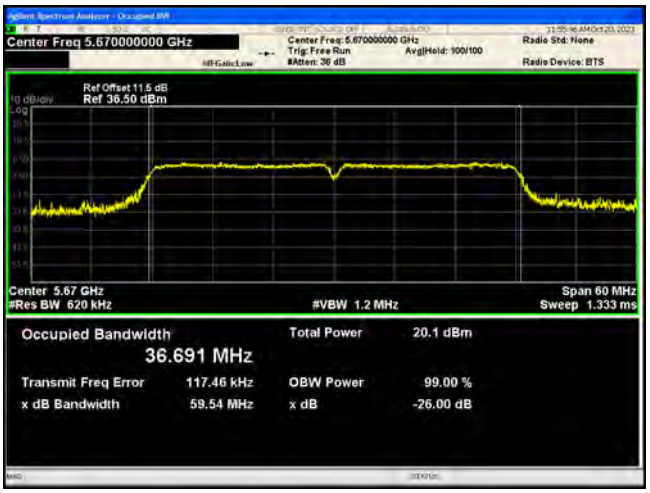
PLOTS OF 26dB BANDWIDTH & OCCUPIED BANDWIDTH

802.11n (40MHz), 5670MHz

OCCUPIED BANDWIDTH



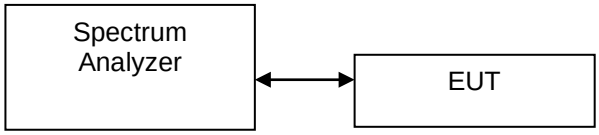
26dB BANDWIDTH



TEST REPORT

3.4 Maximum Power Spectral Density

The figure below shows the test setup, which is utilized to make these measurements.



The output from the transmitter was connected to an attenuator and then to the input of the RF Spectrum Analyzer.

Spectrum analyser according to the following Settings:

For U-NII-1, U-NII-2A, U-NII-2C Band:
Using Method SA-2

a) Set span to encompass the entire emission bandwidth (EBW) of the signal.
b) Set RBW = 1 MHz, Set VBW ≥ 3 RBW, Detector = RMS
c) Sweep time = auto, trigger set to “free run”.
d) Trace average at least 100 traces in power averaging mode.
e) Record the max value and add 10 log (1/duty cycle)

For U-NII-3 Band:

a) Set span to encompass the entire emission bandwidth (EBW) of the signal.
b) Set RBW = 500 kHz, Set VBW ≥ 3 RBW, Detector = RMS
c) Use the peak marker function to determine the maximum power level in any 500 kHz band segment within the fundamental EBW.
d) Sweep time = auto, trigger set to “free run”.
e) Trace average at least 100 traces in power averaging mode.
f) Record the max value and add 10 log (1/duty cycle)

Note: The cable loss and attenuator loss were offset into measure device as an amplitude offset.

TEST REPORT

For Maximum EIRP (Peak Antenna Gain = 0 dBi)

IEEE 802.11ac (20MHz) (MCS0)

Frequency (MHz)	PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)	PSD in 500kHz (dBm)
5180	2.502	2.502	N/A
5220	2.447	2.447	N/A
5240	2.770	2.770	N/A
5260	2.906	2.906	N/A
5300	3.563	3.563	N/A
5320	3.156	3.156	N/A
5500	1.271	1.271	N/A
5580	3.888	3.888	N/A
5700	4.302	4.302	N/A
5745	N/A	N/A	0.119
5785	N/A	N/A	-0.607
5825	N/A	N/A	-0.663

IEEE 802.11ac (40MHz) (MCS0)

Frequency (MHz)	PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)	PSD in 500kHz (dBm)
5190	-0.480	-0.480	N/A
5230	-0.484	-0.484	N/A
5270	-0.107	-0.107	N/A
5310	0.160	0.160	N/A
5510	-1.596	-1.596	N/A
5550	0.278	0.278	N/A
5670	-0.403	-0.403	N/A
5755	N/A	N/A	-2.252
5795	N/A	N/A	-3.325

IEEE 802.11ac (80MHz) (MCS0)

Frequency (MHz)	PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)	PSD in 500kHz (dBm)
5210	-2.802	-2.802	N/A
5290	-2.000	-2.000	N/A
5530	-3.020	-3.020	N/A
5775	N/A	N/A	-4.714

TEST REPORT

IEEE 802.11a (20MHz) (OFDM, 6 Mbps)

Frequency (MHz)	PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)	PSD in 500kHz (dBm)
5180	2.737	2.737	N/A
5220	3.160	3.160	N/A
5240	3.187	3.187	N/A
5260	3.593	3.593	N/A
5300	3.760	3.760	N/A
5320	3.417	3.417	N/A
5500	2.385	2.385	N/A
5580	4.953	4.953	N/A
5700	5.336	5.336	N/A
5745	N/A	N/A	1.279
5785	N/A	N/A	0.380
5825	N/A	N/A	0.129

IEEE 802.11n (20MHz) (OFDM, MCS0)

Frequency (MHz)	PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)	PSD in 500kHz (dBm)
5180	2.263	2.263	N/A
5220	2.778	2.778	N/A
5240	3.161	3.161	N/A
5260	3.391	3.391	N/A
5300	3.736	3.736	N/A
5320	4.103	4.103	N/A
5500	1.630	1.630	N/A
5580	3.897	3.897	N/A
5700	4.278	4.278	N/A
5745	N/A	N/A	0.661
5785	N/A	N/A	-0.348
5825	N/A	N/A	0.006

IEEE 802.11n (40MHz) (OFDM, MCS0)

Frequency (MHz)	PSD in 1MHz (dBm)	EIRP PSD in 1MHz (dBm)	PSD in 500kHz (dBm)
5190	-0.663	-0.663	N/A
5230	0.143	0.143	N/A
5270	0.294	0.294	N/A
5310	0.052	0.052	N/A
5510	-1.288	-1.288	N/A
5550	0.254	0.254	N/A
5670	-0.415	-0.415	N/A
5755	N/A	N/A	-2.664
5795	N/A	N/A	-2.880

TEST REPORT

Remark:

1. Cable Loss: 1.02dB
2. e.i.r.p = Power Spectral Density + Duty Cycle Factor + Antenna Gain
3. Power Spectral Density = Power Spectral Density + Duty Cycle Factor
4. Duty Cycle = On Time/ Period
   Duty Cycle Factor = 10 * log (1/ Duty Cycle)
   Average factor = 20 log 10 Duty Cycle.

Limits for FCC:

For U-NII-1: 11dBm/MHz for mobile/portable device
For U-NII-2: 11dBm/MHz
For U-NII-3 in 3kHz: 30dBm/500kHz

Limits for RSS:

For U-NII-1: 10dBm/MHz E.I.R.P
For U-NII-2: 11dBm/MHz
For U-NII-3 in 3kHz: 30dBm/500kHz

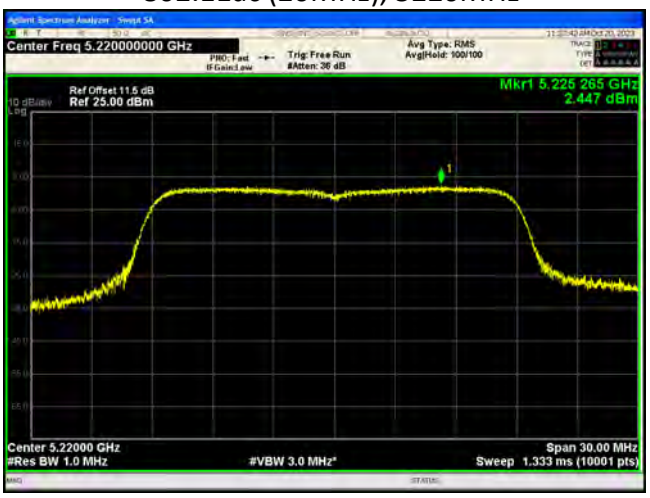
The plots of Maximum Power Spectral Density are saved as below.

TEST REPORT

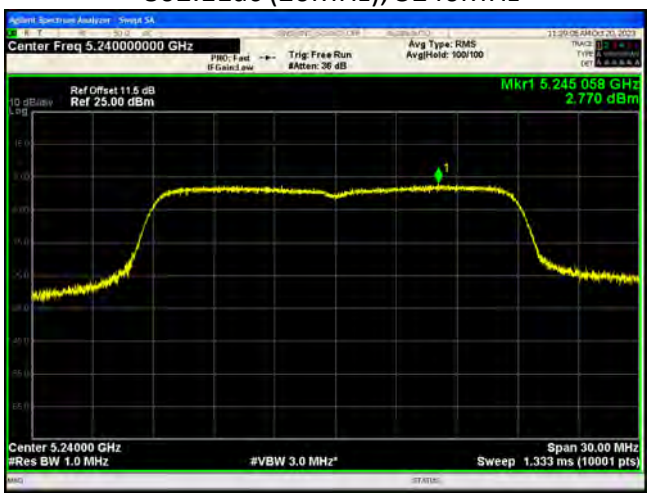
PLOTS OF POWER SPECTRAL DENSITY

802.11ac (20MHz), 5180MHz

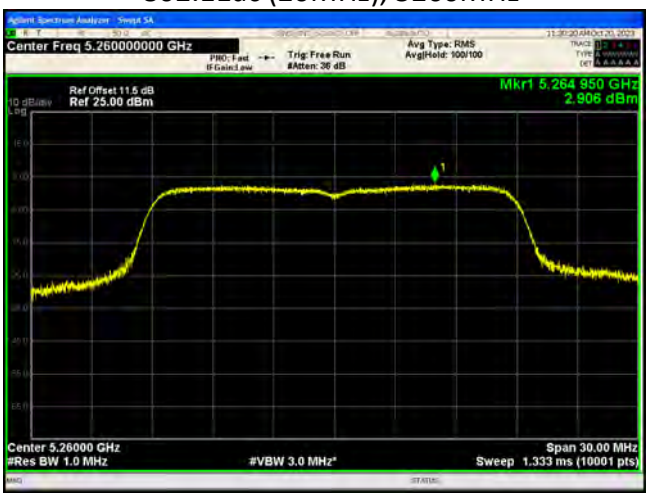
802.11ac (20MHz), 5220MHz



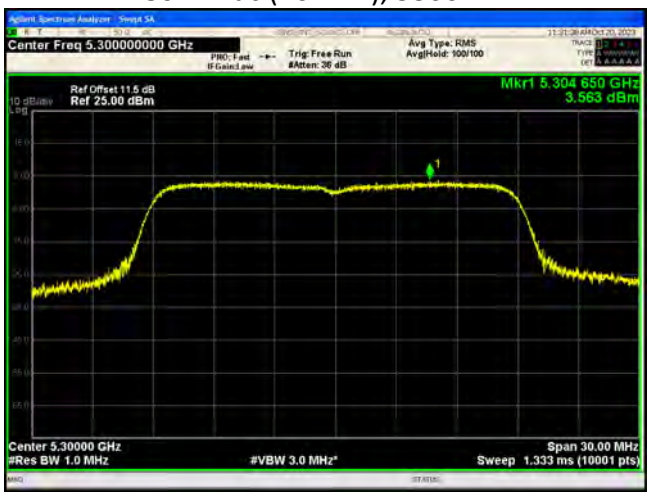
802.11ac (20MHz), 5240MHz



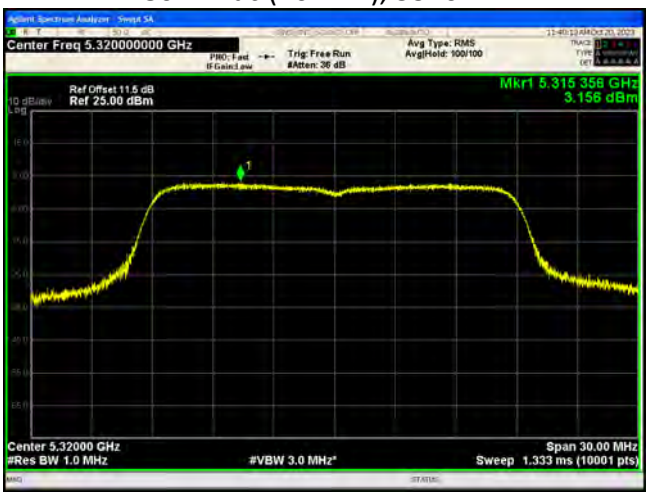
802.11ac (20MHz), 5260MHz



802.11ac (20MHz), 5300MHz



802.11ac (20MHz), 5320MHz



TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

802.11ac (20MHz), 5500MHz

802.11ac (20MHz), 5580MHz

802.11ac (20MHz), 5700MHz

802.11ac (20MHz), 5745MHz

802.11ac (20MHz), 5785MHz

802.11ac (20MHz), 5825MHz

TEST REPORT

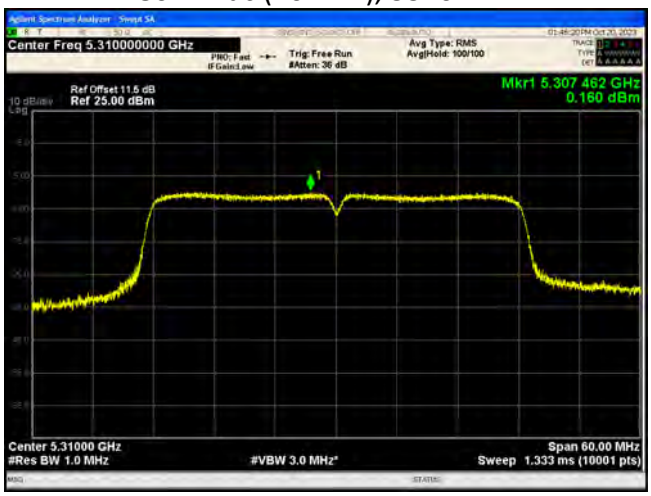
PLOTS OF POWER SPECTRAL DENSITY

802.11ac (40MHz), 5190MHz

802.11ac (40MHz), 5230MHz

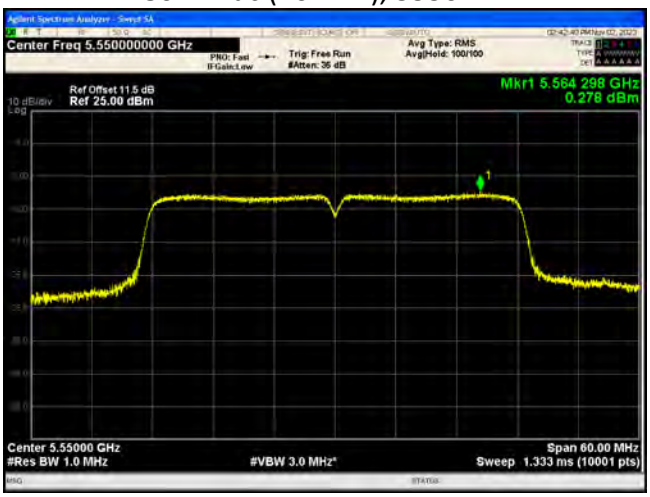
802.11ac (40MHz), 5270MHz

802.11ac (40MHz), 5310MHz



802.11ac (40MHz), 5510MHz

802.11ac (40MHz), 5550MHz



TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

802.11ac (40MHz), 5670MHz

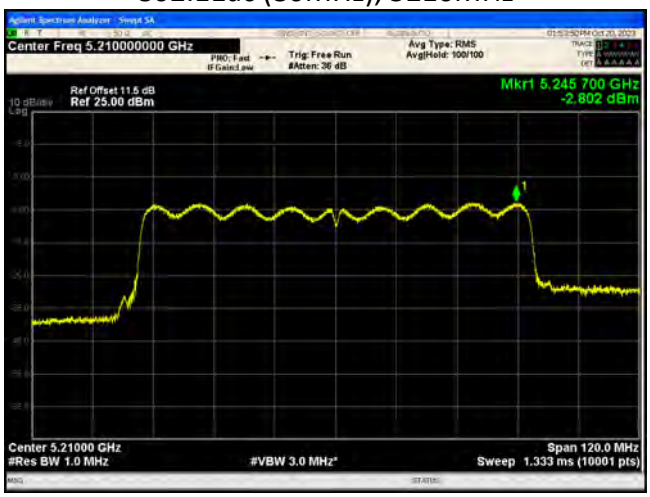
802.11ac (40MHz), 5755MHz

802.11ac (40MHz), 5795MHz

TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

802.11ac (80MHz), 5210MHz



802.11ac (80MHz), 5290MHz

802.11ac (80MHz), 5530MHz

802.11ac (80MHz), 5775MHz

TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

802.11a, 5180MHz

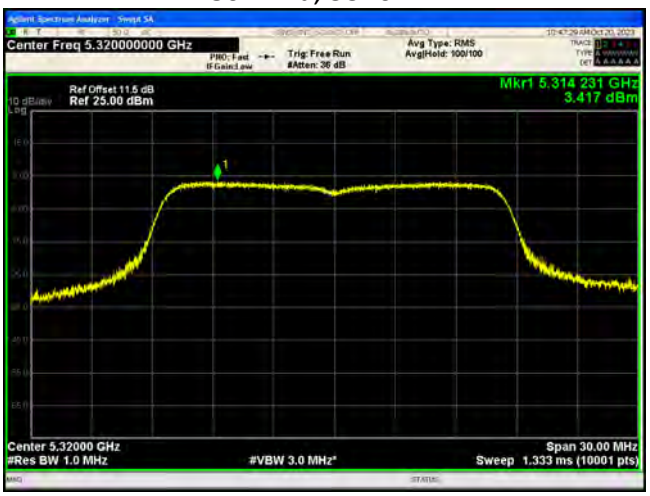
802.11a, 5220MHz

802.11a, 5240MHz

802.11a, 5260MHz

802.11a, 5300MHz

802.11a, 5320MHz

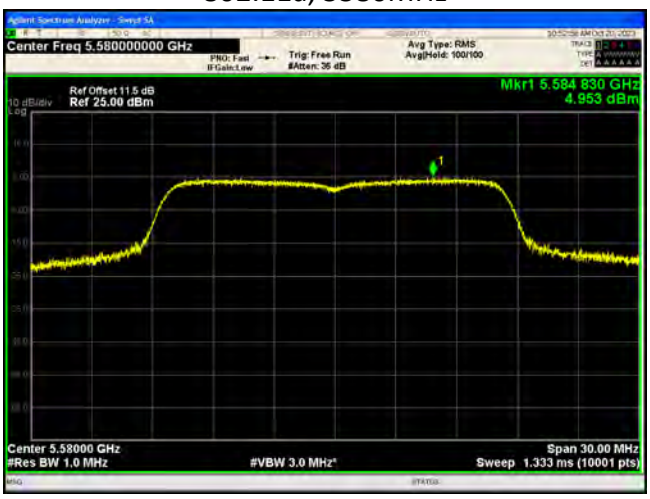


TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

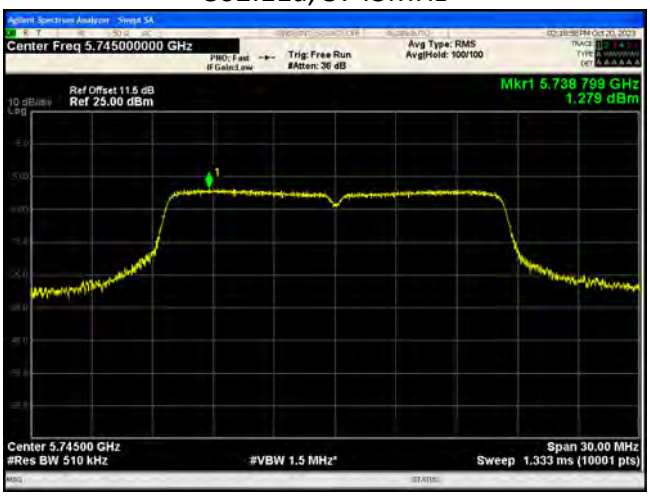
802.11a, 5500MHz

802.11a, 5580MHz



802.11a, 5700MHz

802.11a, 5745MHz



802.11a, 5785MHz

802.11a, 5825MHz

TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

802.11n (20MHz), 5180MHz

802.11n (20MHz), 5220MHz

802.11n (20MHz), 5240MHz

802.11n (20MHz), 5260MHz

802.11n (20MHz), 5300MHz

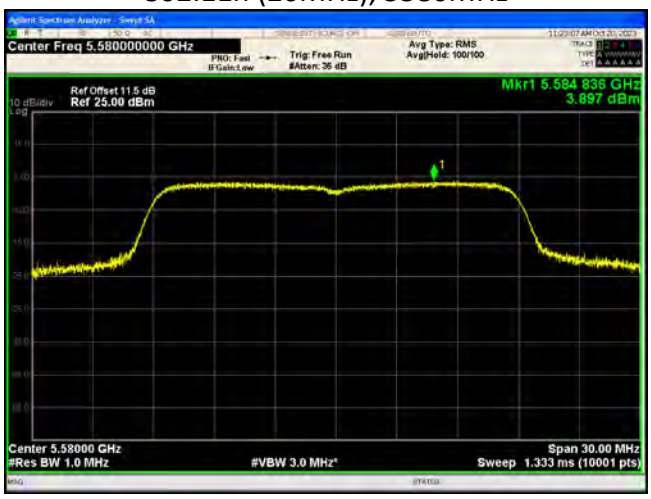
802.11n (20MHz), 5320MHz

TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

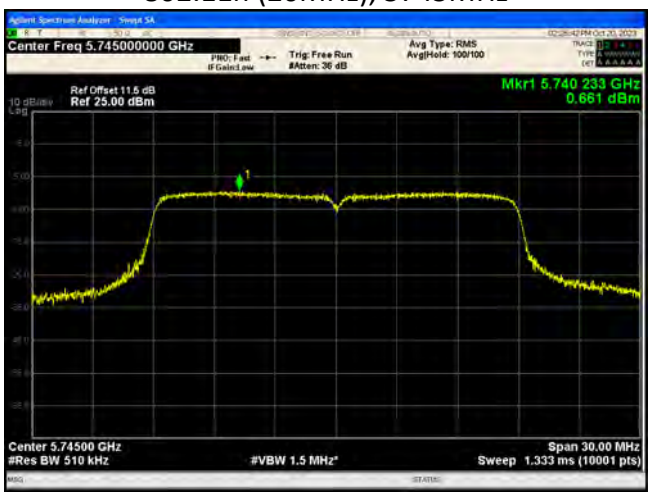
802.11n (20MHz), 5500MHz

802.11n (20MHz), 5580MHz

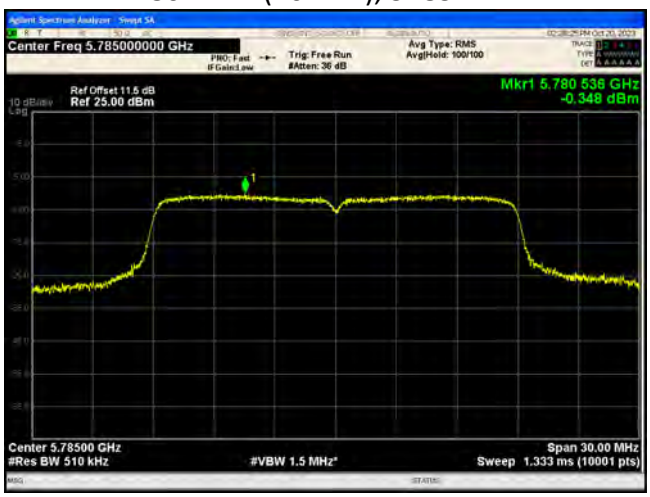


802.11n (20MHz), 5700MHz

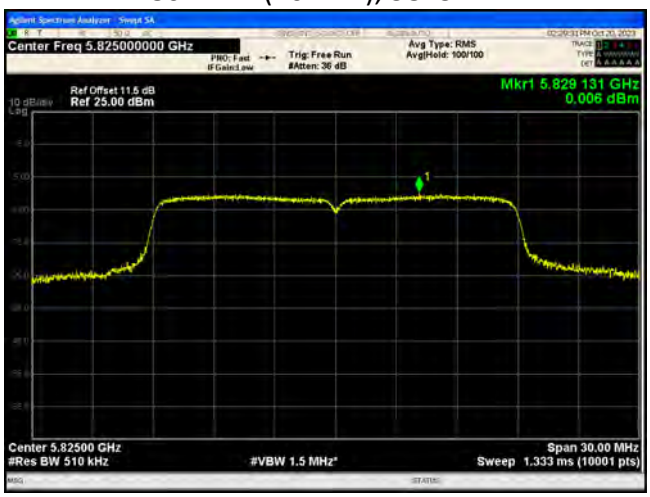
802.11n (20MHz), 5745MHz



802.11n (20MHz), 5785MHz



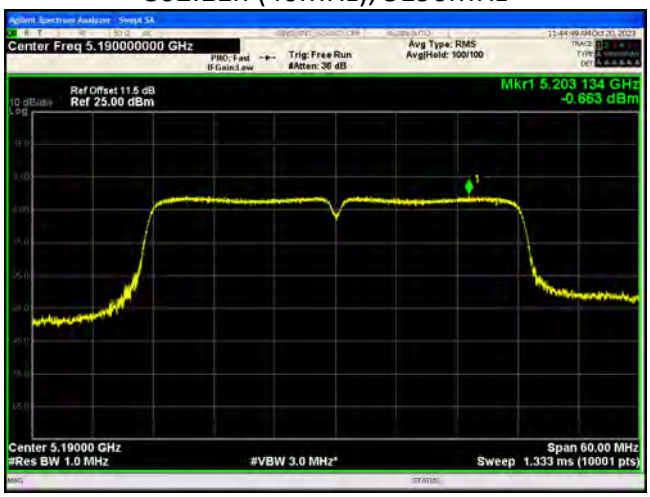
802.11n (20MHz), 5825MHz



TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

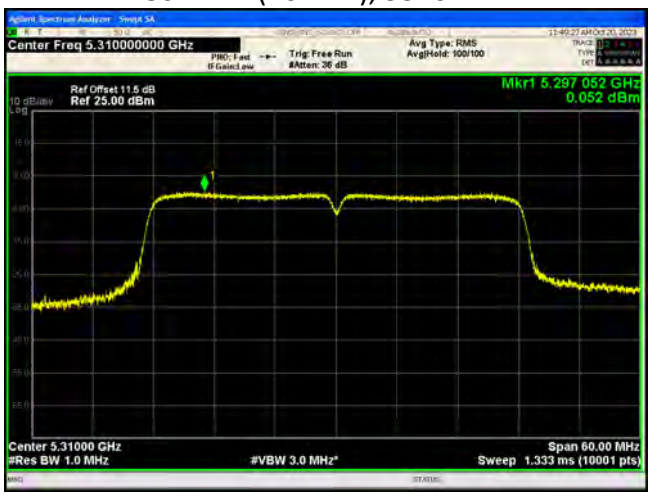
802.11n (40MHz), 5190MHz



802.11n (40MHz), 5230MHz

802.11n (40MHz), 5270MHz

802.11n (40MHz), 5310MHz



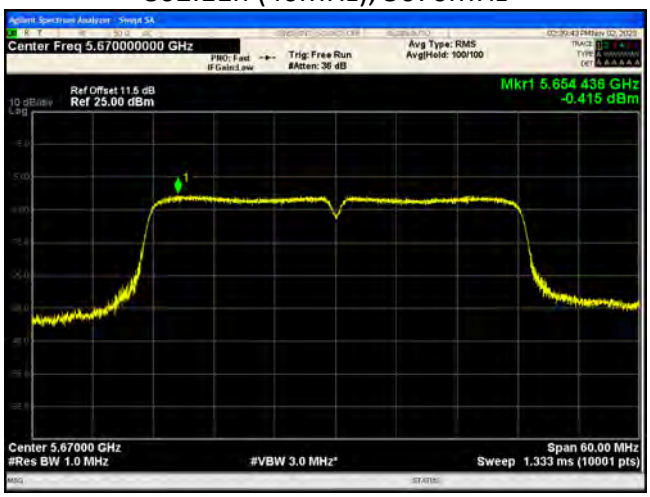
802.11n (40MHz), 5510MHz

802.11n (40MHz), 5550MHz

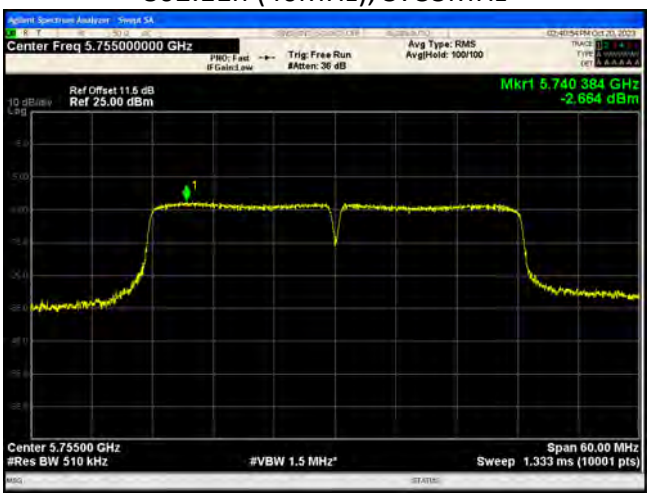
TEST REPORT

PLOTS OF POWER SPECTRAL DENSITY

802.11n (40MHz), 5670MHz



802.11n (40MHz), 5755MHz



802.11n (40MHz), 5795MHz

TEST REPORT

3.5 Field Strength Calculation

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.

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

Where FS = Field Strength in dBμV/m
RA = Receiver Amplitude (including preamplifier) in dBμV
CF = Cable Attenuation Factor in dB
AF = Antenna Factor in dB
AG = Amplifier Gain in dB
PD = Pulse Desensitization in dB
AV = Average Factor in -dB

In the radiated emission table which follows, the reading shown on the data table may reflects 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

Example:

Assume a receiver reading of 62.0 dBμV is obtained. The antenna factor of 7.4 dB and cable factor of 1.6 dB is added. The amplifier gain of 29.0 dB is subtracted. The pulse desensitization factor of the spectrum analyzer is 0.0 dB, and the resultant average factor is -10.0 dB. The net field strength for comparison to the appropriate emission limit is 32.0 dBμV/m. This value in dBμV/m is converted to its corresponding level in μV/m.

RA = 62.0 dBμV
AF = 7.4 dB
CF = 1.6 dB
AG = 29.0 dB
PD = 0.0 dB
AV = -10.0 dB
FS = 62.0 + 7.4 + 1.6 – 29.0 + 0.0 + (-10.0) = 32.0 dBμV/m

Level in μV/m = Common Antilogarithm [(32.0 dBμV/m)/20] = 39.8 μV/m

TEST REPORT

3.6 Transmitter Radiated Emissions in Restricted Bands and Spurious Emissions

Data is included of the worst case configuration (the configuration which resulted in the highest emission levels). A sample calculation, configuration photographs and data tables of the emissions are included.

The data on the following pages list the significant emission frequencies, the limit and the margin of compliance.

3.6.1 Radiated Emission Configuration Photograph

Worst Case Restricted Band Radiated Emission at 875.050 MHz.

The worst case radiated emission configuration photographs are saved with filename:
config photos.pdf

3.6.2 Radiated Emission Data

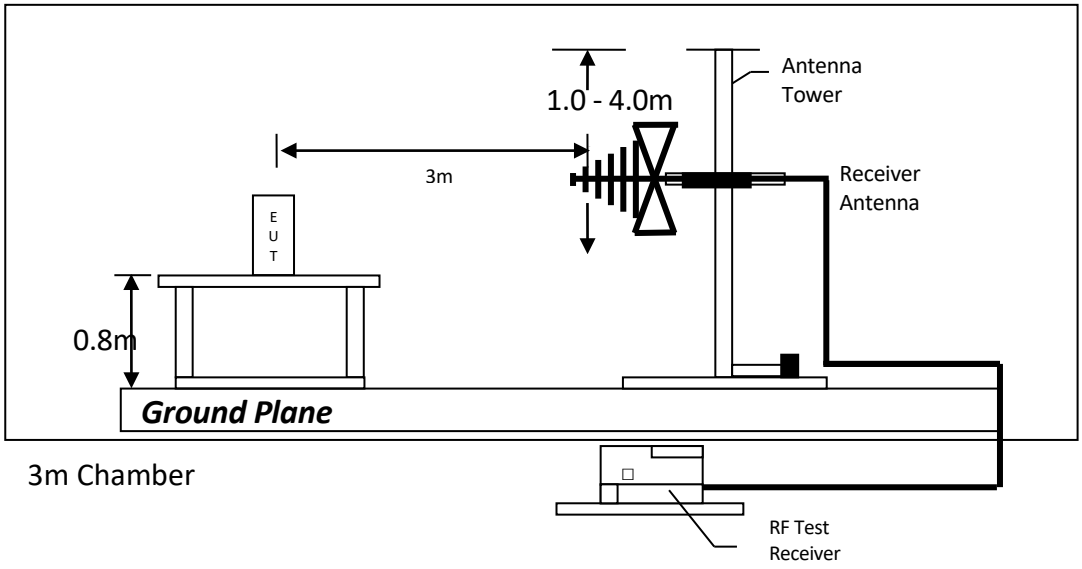
The data in below tables list the significant emission frequencies, the limit and the margin of compliance.

Judgement – Passed by 0.7 dB margin

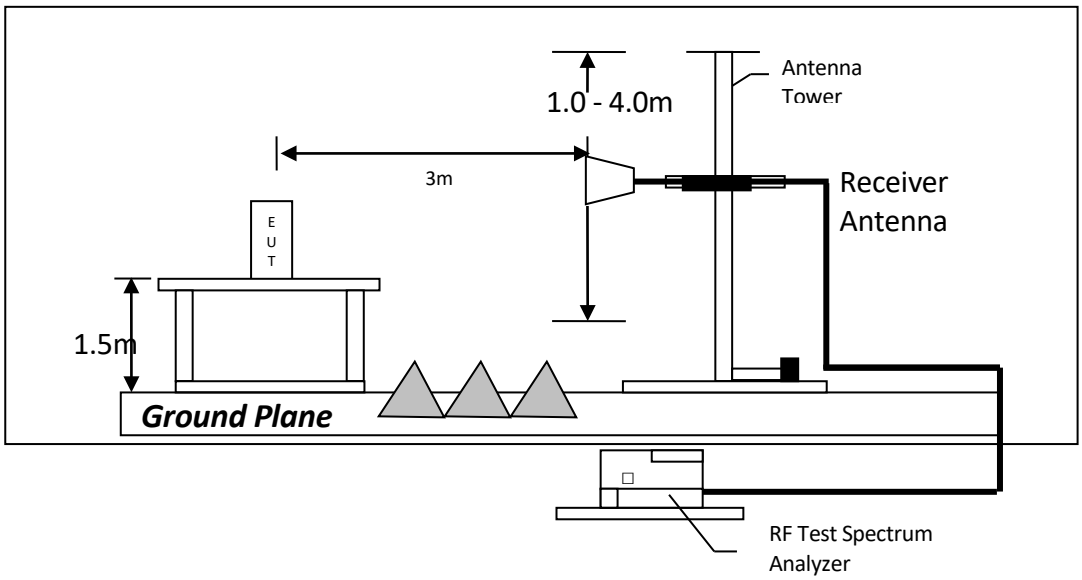
TEST REPORT

3.6.3 Radiated Emission Test Setup

The figure below shows the test setup, which is utilized to make these measurements.



Test setup of radiated emissions up to 1GHz



Test setup of radiated emissions above 1GHz

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT20_5180MHz (Channel 36)								
1	10360	37.18	7.19	44.37	68.2	-23.83	Peak	Horizontal
2	10360	24.45	7.19	31.64	54	-22.36	Average	Horizontal
3	15540	35.75	11.93	47.68	74	-26.32	Peak	Horizontal
4	15540	23.80	11.93	35.73	54	-18.27	Average	Horizontal
5	10360	37.78	7.19	44.97	68.2	-23.23	Peak	Vertical
6	10360	26.32	7.19	33.51	54	-20.49	Average	Vertical
7	15540	43.67	11.93	55.60	74	-18.40	Peak	Vertical
8	15540	23.71	11.93	35.64	54	-18.36	Average	Vertical
IEEE 802.11ac-VHT20_5220MHz (Channel 44)								
1	10440	43.08	7.23	50.31	68.2	-17.89	Peak	Horizontal
2	10440	28.50	7.23	35.73	54	-18.27	Average	Horizontal
3	15660	36.89	11.94	48.83	74	-25.17	Peak	Horizontal
4	15660	24.27	11.94	36.21	54	-17.79	Average	Horizontal
5	10440	47.39	7.23	54.62	68.2	-13.58	Peak	Vertical
6	10440	29.34	7.23	36.57	54	-17.43	Average	Vertical
7	15660	37.21	11.94	49.15	74	-24.85	Peak	Vertical
8	15660	24.27	11.94	36.21	54	-17.79	Average	Vertical
IEEE 802.11ac-VHT20_5240MHz (Channel 48)								
1	10480	35.18	7.24	42.42	68.2	-25.78	Peak	Horizontal
2	10480	24.45	7.24	31.69	54	-22.31	Average	Horizontal
3	15720	34.66	11.96	46.62	74	-27.38	Peak	Horizontal
4	15720	23.82	11.96	35.78	54	-18.22	Average	Horizontal
5	10480	46.00	7.24	53.24	68.2	-14.96	Peak	Vertical
6	10480	25.51	7.24	32.75	54	-21.25	Average	Vertical
7	15720	42.56	11.96	54.52	74	-19.48	Peak	Vertical
8	15720	23.91	11.96	35.87	54	-18.13	Average	Vertical
IEEE 802.11ac-VHT20_5260MHz (Channel 52)								
1	10520	35.00	7.29	42.29	68.2	-25.91	Peak	Horizontal
2	10520	24.48	7.29	31.77	54	-22.23	Average	Horizontal
3	15780	34.72	11.98	46.70	74	-27.30	Peak	Horizontal
4	15780	23.80	11.98	35.78	54	-18.22	Average	Horizontal
5	10520	35.97	7.29	43.26	68.2	-24.94	Peak	Vertical
6	10520	25.30	7.29	32.59	54	-21.41	Average	Vertical
7	15780	34.85	11.98	46.83	74	-27.17	Peak	Vertical
8	15780	23.80	11.98	35.78	54	-18.22	Average	Vertical

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT20_5300MHz (Channel 60)								
1	10600	36.57	7.44	44.01	74.00	-29.99	Peak	Horizontal
2	10600	24.40	7.44	31.84	54.00	-22.16	Average	Horizontal
3	15900	34.57	12.01	46.58	74.00	-27.42	Peak	Horizontal
4	15900	23.13	12.01	35.14	54.00	-18.86	Average	Horizontal
5	10600	35.63	7.44	43.07	74.00	-30.93	Peak	Vertical
6	10600	24.91	7.44	32.35	54.00	-21.65	Average	Vertical
7	15900	33.87	12.01	45.88	74.00	-28.12	Peak	Vertical
8	15900	23.13	12.01	35.14	54.00	-18.86	Average	Vertical
IEEE 802.11ac-VHT20_5320MHz (Channel 64)								
1	10640	52.63	7.52	60.15	74.00	-13.85	Peak	Horizontal
2	10640	30.93	7.52	38.45	54.00	-15.55	Average	Horizontal
3	15960	36.97	12.01	48.98	74.00	-25.02	Peak	Horizontal
4	15960	23.23	12.01	35.24	54.00	-18.76	Average	Horizontal
5	10640	55.26	7.52	62.78	74.00	-11.22	Peak	Vertical
6	10640	33.32	7.52	40.84	54.00	-13.16	Average	Vertical
7	15960	37.52	12.01	49.53	74.00	-24.47	Peak	Vertical
8	15960	23.43	12.01	35.44	54.00	-18.56	Average	Vertical
IEEE 802.11ac-VHT20_5500MHz (Channel 100)								
1	11000	51.94	8.22	60.16	74	-13.84	Peak	Horizontal
2	11000	34.43	8.22	42.65	54	-11.35	Average	Horizontal
3	16500	35.15	12.75	47.90	68.2	-20.30	Peak	Horizontal
4	16500	23.33	12.75	36.08	54	-17.92	Average	Horizontal
5	11000	49.42	8.22	57.64	74	-16.36	Peak	Vertical
6	11000	32.11	8.22	40.33	54	-13.67	Average	Vertical
7	16500	35.87	12.75	48.62	68.2	-19.58	Peak	Vertical
8	16500	23.33	12.75	36.08	54	-17.92	Average	Vertical
IEEE 802.11ac-VHT20_5580MHz (Channel 116)								
1	11160	46.31	8.05	54.36	74	-19.64	Peak	Horizontal
2	11160	27.57	8.05	35.62	54	-18.38	Average	Horizontal
3	16740	38.33	12.86	51.19	68.2	-17.01	Peak	Horizontal
4	16740	23.79	12.86	36.65	54	-17.35	Average	Horizontal
5	11160	50.87	8.05	58.92	74	-15.08	Peak	Vertical
6	11160	30.62	8.05	38.67	54	-15.33	Average	Vertical
7	16740	41.19	12.86	54.05	68.2	-14.15	Peak	Vertical
8	16740	23.50	12.86	36.36	54	-17.64	Average	Vertical

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT20_5700MHz (Channel 140)								
1	11400	41.35	7.79	49.14	74	-24.86	Peak	Horizontal
2	11400	27.24	7.79	35.03	54	-18.97	Average	Horizontal
3	17100	35.08	13.26	48.34	68.2	-19.86	Peak	Horizontal
4	17100	22.99	13.26	36.25	54	-17.75	Average	Horizontal
5	11400	48.39	7.79	56.18	74	-17.82	Peak	Vertical
6	11400	30.47	7.79	38.26	54	-15.74	Average	Vertical
7	17100	35.40	13.26	48.66	68.2	-19.54	Peak	Vertical
8	17100	22.99	13.26	36.25	54	-17.75	Average	Vertical
IEEE 802.11ac-VHT20_5745MHz (Channel 149)								
1	11490	36.34	7.70	44.04	74	-29.96	Peak	Horizontal
2	11490	23.25	7.70	30.95	54	-23.05	Average	Horizontal
3	17235	34.37	13.65	48.02	68.2	-20.18	Peak	Horizontal
4	17235	22.52	13.65	36.17	54	-17.83	Average	Horizontal
5	11490	39.65	7.70	47.35	74	-26.65	Peak	Vertical
6	11490	23.82	7.70	31.52	54	-22.48	Average	Vertical
7	17235	34.28	13.65	47.93	68.2	-20.27	Peak	Vertical
8	17235	22.30	13.65	35.95	54	-18.05	Average	Vertical
IEEE 802.11ac-VHT20_5785MHz (Channel 157)								
1	11570	36.60	7.79	44.39	74	-29.61	Peak	Horizontal
2	11570	25.37	7.79	33.16	54	-20.84	Average	Horizontal
3	17355	34.55	13.98	48.53	68.2	-19.67	Peak	Horizontal
4	17355	22.91	13.98	36.89	54	-17.11	Average	Horizontal
5	11570	44.27	7.79	52.06	74	-21.94	Peak	Vertical
6	11570	28.82	7.79	36.61	54	-17.39	Average	Vertical
7	17355	35.05	13.98	49.03	68.2	-19.17	Peak	Vertical
8	17355	23.01	13.98	36.99	54	-17.01	Average	Vertical
IEEE 802.11ac-VHT20_5825MHz (Channel 165)								
1	11650	40.38	7.91	48.29	74	-25.71	Peak	Horizontal
2	11650	26.03	7.91	33.94	54	-20.06	Average	Horizontal
3	17475	34.13	14.32	48.45	68.2	-19.75	Peak	Horizontal
4	17475	22.75	14.32	37.07	54	-16.93	Average	Horizontal
5	11650	41.89	7.91	49.80	74	-24.20	Peak	Vertical
6	11650	26.59	7.91	34.50	54	-19.50	Average	Vertical
7	17475	34.07	14.32	48.39	68.2	-19.81	Peak	Vertical
8	17475	22.64	14.32	36.96	54	-17.04	Average	Vertical

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RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT40_5190MHz (Channel 38)								
1	10380	36.48	7.20	43.68	68.2	-24.52	Peak	Horizontal
2	10380	24.08	7.20	31.28	54	-22.72	Average	Horizontal
3	15570	36.17	11.92	48.09	74	-25.91	Peak	Horizontal
4	15570	23.81	11.92	35.73	54	-18.27	Average	Horizontal
5	10380	37.90	7.20	45.10	68.2	-23.10	Peak	Vertical
6	10380	25.88	7.20	33.08	54	-20.92	Average	Vertical
7	15570	36.37	11.92	48.29	74	-25.71	Peak	Vertical
8	15570	23.90	11.92	35.82	54	-18.18	Average	Vertical
IEEE 802.11ac-VHT40_5230MHz (Channel 46)								
1	10460	36.09	7.23	43.32	68.2	-24.88	Peak	Horizontal
2	10460	25.64	7.23	32.87	54	-21.13	Average	Horizontal
3	15690	35.88	11.96	47.84	74	-26.16	Peak	Horizontal
4	15690	24.34	11.96	36.30	54	-17.70	Average	Horizontal
5	10460	37.28	7.23	44.51	68.2	-23.69	Peak	Vertical
6	10460	27.16	7.23	34.39	54	-19.61	Average	Vertical
7	15690	34.87	11.96	46.83	74	-27.17	Peak	Vertical
8	15690	24.16	11.96	36.12	54	-17.88	Average	Vertical
IEEE 802.11ac-VHT40_5270MHz (Channel 54)								
1	10540	35.11	7.32	42.43	68.2	-25.77	Peak	Horizontal
2	10540	22.44	7.32	29.76	54	-24.24	Average	Horizontal
3	15810	35.11	7.32	42.43	74	-31.57	Peak	Horizontal
4	15810	28.00	7.32	35.32	54	-18.68	Average	Horizontal
5	10540	34.83	7.32	42.15	68.2	-26.05	Peak	Vertical
6	10540	22.87	7.32	30.19	54	-23.81	Average	Vertical
7	15810	36.07	11.98	48.05	74	-25.95	Peak	Vertical
8	15810	23.34	11.98	35.32	54	-18.68	Average	Vertical
IEEE 802.11ac-VHT40_5310MHz (Channel 62)								
1	10620	35.89	7.49	43.38	74.00	-30.62	Peak	Horizontal
2	10620	24.43	7.49	31.92	54.00	-22.08	Average	Horizontal
3	15930	34.17	12.02	46.19	74.00	-27.81	Peak	Horizontal
4	15930	23.82	12.02	35.84	54.00	-18.16	Average	Horizontal
5	10620	35.56	7.49	43.05	74.00	-30.95	Peak	Vertical
6	10620	24.61	7.49	32.10	54.00	-21.90	Average	Vertical
7	15930	33.68	12.02	45.70	74.00	-28.30	Peak	Vertical
8	15930	22.92	12.02	34.94	54.00	-19.06	Average	Vertical

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RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT40_5510MHz (Channel 102)								
1	11020	37.32	8.20	45.52	74	-28.48	Peak	Horizontal
2	11020	25.96	8.20	34.16	54	-19.84	Average	Horizontal
3	16530	34.76	12.77	47.53	68.2	-20.67	Peak	Horizontal
4	16530	23.21	12.77	35.98	54	-18.02	Average	Horizontal
5	11020	37.36	8.20	45.56	74	-28.44	Peak	Vertical
6	11020	26.39	8.20	34.59	54	-19.41	Average	Vertical
7	16530	34.58	12.77	47.35	68.2	-20.85	Peak	Vertical
8	16530	23.11	12.77	35.88	54	-18.12	Average	Vertical
IEEE 802.11ac-VHT40_5550MHz (Channel 110)								
1	11100	35.70	8.11	43.81	74	-30.19	Peak	Horizontal
2	11100	25.39	8.11	33.50	54	-20.50	Average	Horizontal
3	16650	34.34	12.82	47.16	68.2	-21.04	Peak	Horizontal
4	16650	22.73	12.82	35.55	54	-18.45	Average	Horizontal
5	11100	35.09	8.11	43.20	74	-30.80	Peak	Vertical
6	11100	24.99	8.11	33.10	54	-20.90	Average	Vertical
7	16650	34.09	12.82	46.91	68.2	-21.29	Peak	Vertical
8	16650	22.52	12.82	35.34	54	-18.66	Average	Vertical
IEEE 802.11ac-VHT40_5670MHz (Channel 134)								
1	11340	35.00	7.86	42.86	74	-31.14	Peak	Horizontal
2	11340	24.45	7.86	32.31	54	-21.69	Average	Horizontal
3	17010	33.43	13.01	46.44	68.2	-21.76	Peak	Horizontal
4	17010	22.88	13.01	35.89	54	-18.11	Average	Horizontal
5	11340	34.41	7.86	42.27	74	-31.73	Peak	Vertical
6	11340	23.82	7.86	31.68	54	-22.32	Average	Vertical
7	17010	34.53	13.01	47.54	68.2	-20.66	Peak	Vertical
8	17010	22.99	13.01	36.00	54	-18.00	Average	Vertical
IEEE 802.11ac-VHT40_5755MHz (Channel 151)								
1	11510	34.37	7.70	42.07	74	-31.93	Peak	Horizontal
2	11510	23.04	7.70	30.74	54	-23.26	Average	Horizontal
3	17265	34.67	13.73	48.40	68.2	-19.80	Peak	Horizontal
4	17265	22.22	13.73	35.95	54	-18.05	Average	Horizontal
5	11510	33.49	7.70	41.19	74	-32.81	Peak	Vertical
6	11510	23.34	7.70	31.04	54	-22.96	Average	Vertical
7	17265	32.45	13.73	46.18	68.2	-22.02	Peak	Vertical
8	17265	22.22	13.73	35.95	54	-18.05	Average	Vertical

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RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT40_5795MHz (Channel 159)								
1	11590	36.39	7.82	44.21	74	-29.79	Peak	Horizontal
2	11590	24.78	7.82	32.60	54	-21.40	Average	Horizontal
3	17385	34.52	14.06	48.58	68.2	-19.62	Peak	Horizontal
4	17385	22.72	14.06	36.78	54	-17.22	Average	Horizontal
5	11590	38.21	7.82	46.03	74	-27.97	Peak	Vertical
6	11590	26.31	7.82	34.13	54	-19.87	Average	Vertical
7	17385	34.52	14.06	48.58	68.2	-19.62	Peak	Vertical
8	17385	22.83	14.06	36.89	54	-17.11	Average	Vertical

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RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11ac-VHT80_5210MHz (Channel 42)								
1	10420	38.08	7.22	45.30	68.2	-22.90	Peak	Horizontal
2	10420	25.88	7.22	33.10	54	-20.90	Average	Horizontal
3	15630	37.59	11.94	49.53	74	-24.47	Peak	Horizontal
4	15630	24.27	11.94	36.21	54	-17.79	Average	Horizontal
5	10420	38.91	7.22	46.13	68.2	-22.07	Peak	Vertical
6	10420	26.78	7.22	34.00	54	-20.00	Average	Vertical
7	15630	36.46	11.94	48.40	74	-25.60	Peak	Vertical
8	15630	24.27	11.94	36.21	54	-17.79	Average	Vertical
IEEE 802.11ac-VHT80_5290MHz (Channel 58)								
1	10580	33.07	7.39	40.46	68.2	-27.74	Peak	Horizontal
2	10580	22.48	7.39	29.87	54	-24.13	Average	Horizontal
3	15870	34.09	12.00	46.09	74	-27.91	Peak	Horizontal
4	15870	23.22	12.00	35.22	54	-18.78	Average	Horizontal
5	10580	34.89	7.39	42.28	68.2	-25.92	Peak	Vertical
6	10580	22.48	7.39	29.87	54	-24.13	Average	Vertical
7	15870	33.49	12.00	45.49	74	-28.51	Peak	Vertical
8	15870	23.32	12.00	35.32	54	-18.68	Average	Vertical
IEEE 802.11ac-VHT80_5530MHz (Channel 106)								
1	11060	41.10	8.15	49.25	74	-24.75	Peak	Horizontal
2	11060	29.04	8.15	37.19	54	-16.81	Average	Horizontal
3	16590	35.19	12.80	47.99	68.2	-20.21	Peak	Horizontal
4	16590	22.39	12.80	35.19	54	-18.81	Average	Horizontal
5	11060	45.40	8.15	53.55	74	-20.45	Peak	Vertical
6	11060	31.63	8.15	39.78	54	-14.22	Average	Vertical
7	16590	35.11	12.80	47.91	68.2	-20.29	Peak	Vertical
8	16590	22.28	12.80	35.08	54	-18.92	Average	Vertical
IEEE 802.11ac-VHT80_5775MHz (Channel 155)								
1	11550	34.74	7.76	42.50	74	-31.50	Peak	Horizontal
2	11550	23.19	7.76	30.95	54	-23.05	Average	Horizontal
3	17325	34.53	13.90	48.43	68.2	-19.77	Peak	Horizontal
4	17325	22.16	13.90	36.06	54	-17.94	Average	Horizontal
5	11550	36.78	7.76	44.54	74	-29.46	Peak	Vertical
6	11550	24.65	7.76	32.41	54	-21.59	Average	Vertical
7	17325	34.53	13.90	48.43	68.2	-19.77	Peak	Vertical
8	17325	21.94	13.90	35.84	54	-18.16	Average	Vertical

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RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11a_5180MHz (Channel 36)								
1	10360	35.45	7.19	42.64	68.2	-25.56	Peak	Horizontal
2	10360	23.34	7.19	30.53	54	-23.47	Average	Horizontal
3	15540	34.98	11.93	46.91	74	-27.09	Peak	Horizontal
4	15540	23.52	11.93	35.45	54	-18.55	Average	Horizontal
5	10360	36.07	7.19	43.26	68.2	-24.94	Peak	Vertical
6	10360	24.09	7.19	31.28	54	-22.72	Average	Vertical
7	15540	34.91	11.93	46.84	74	-27.16	Peak	Vertical
8	15540	23.52	11.93	35.45	54	-18.55	Average	Vertical
IEEE 802.11a_5220MHz (Channel 44)								
1	10440	38.29	7.23	45.52	68.2	-22.68	Peak	Horizontal
2	10440	25.26	7.23	32.49	54	-21.51	Average	Horizontal
3	15660	36.13	11.94	48.07	74	-25.93	Peak	Horizontal
4	15660	24.09	11.94	36.03	54	-17.97	Average	Horizontal
5	10440	44.03	7.23	51.26	68.2	-16.94	Peak	Vertical
6	10440	28.46	7.23	35.69	54	-18.31	Average	Vertical
7	15660	36.18	11.94	48.12	74	-25.88	Peak	Vertical
8	15660	24.00	11.94	35.94	54	-18.06	Average	Vertical
IEEE 802.11a_5240MHz (Channel 48)								
1	10480	34.71	7.24	41.95	68.2	-26.25	Peak	Horizontal
2	10480	23.91	7.24	31.15	54	-22.85	Average	Horizontal
3	15720	34.24	11.96	46.20	74	-27.80	Peak	Horizontal
4	15720	23.63	11.96	35.59	54	-18.41	Average	Horizontal
5	10480	37.45	7.24	44.69	68.2	-23.51	Peak	Vertical
6	10480	25.03	7.24	32.27	54	-21.73	Average	Vertical
7	15720	36.11	11.96	48.07	74	-25.93	Peak	Vertical
8	15720	23.53	11.96	35.49	54	-18.51	Average	Vertical
IEEE 802.11a_5260MHz (Channel 52)								
1	10520	36.22	7.29	43.51	68.2	-24.69	Peak	Horizontal
2	10520	24.04	7.29	31.33	54	-22.67	Average	Horizontal
3	15780	35.93	11.98	47.91	74	-26.09	Peak	Horizontal
4	15780	23.70	11.98	35.68	54	-18.32	Average	Horizontal
5	10520	35.52	7.29	42.81	68.2	-25.39	Peak	Vertical
6	10520	24.82	7.29	32.11	54	-21.89	Average	Vertical
7	15780	34.31	11.98	46.29	74	-27.71	Peak	Vertical
8	15780	23.61	11.98	35.59	54	-18.41	Average	Vertical

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RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11a_5300MHz (Channel 60)								
1	10600	34.14	7.44	41.58	74.00	-32.42	Peak	Horizontal
2	10600	23.85	7.44	31.29	54.00	-22.71	Average	Horizontal
3	15900	33.10	12.01	45.11	74.00	-28.89	Peak	Horizontal
4	15900	22.72	12.01	34.73	54.00	-19.27	Average	Horizontal
5	10600	36.76	7.44	44.20	74.00	-29.80	Peak	Vertical
6	10600	24.31	7.44	31.75	54.00	-22.25	Average	Vertical
7	15900	34.84	12.01	46.85	74.00	-27.15	Peak	Vertical
8	15900	22.82	12.01	34.83	54.00	-19.17	Average	Vertical
IEEE 802.11a_5320MHz (Channel 64)								
1	10640	35.58	7.52	43.10	74.00	-30.90	Peak	Horizontal
2	10640	23.87	7.52	31.39	54.00	-22.61	Average	Horizontal
3	15960	34.46	12.01	46.47	74.00	-27.53	Peak	Horizontal
4	15960	22.82	12.01	34.83	54.00	-19.17	Average	Horizontal
5	10640	36.00	7.52	43.52	74.00	-30.48	Peak	Vertical
6	10640	24.32	7.52	31.84	54.00	-22.16	Average	Vertical
7	15960	35.02	12.01	47.03	74.00	-26.97	Peak	Vertical
8	15960	22.82	12.01	34.83	54.00	-19.17	Average	Vertical
IEEE 802.11a_5500MHz (Channel 100)								
1	11000	36.30	8.22	44.52	54	-19.91	Peak	Horizontal
2	11000	25.87	8.22	34.09	68.2	-21.07	Average	Horizontal
3	16500	34.38	12.75	47.13	54	-18.22	Peak	Horizontal
4	16500	23.03	12.75	35.78	74	-28.42	Average	Horizontal
5	11000	37.36	8.22	45.58	54	-19.62	Peak	Vertical
6	11000	26.16	8.22	34.38	68.2	-21.04	Average	Vertical
7	16500	34.41	12.75	47.16	54	-18.22	Peak	Vertical
8	16500	23.03	12.75	35.78	54	-19.91	Average	Vertical
IEEE 802.11a_5580MHz (Channel 116)								
1	11160	36.24	8.05	44.29	74	-29.71	Peak	Horizontal
2	11160	25.13	8.05	33.18	54	-20.82	Average	Horizontal
3	16740	33.54	12.86	46.40	68.2	-21.80	Peak	Horizontal
4	16740	22.48	12.86	35.34	54	-18.66	Average	Horizontal
5	11160	35.83	8.05	43.88	74	-30.12	Peak	Vertical
6	11160	25.45	8.05	33.50	54	-20.50	Average	Vertical
7	16740	33.67	12.86	46.53	68.2	-21.67	Peak	Vertical
8	16740	22.48	12.86	35.34	54	-18.66	Average	Vertical

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RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11a_5700MHz (Channel 140)								
1	11400	35.60	7.79	43.39	74	-30.61	Peak	Horizontal
2	11400	24.27	7.79	32.06	54	-21.94	Average	Horizontal
3	17100	34.74	13.26	48.00	68.2	-20.20	Peak	Horizontal
4	17100	22.78	13.26	36.04	54	-17.96	Average	Horizontal
5	11400	35.20	7.79	42.99	74	-31.01	Peak	Vertical
6	11400	24.00	7.79	31.79	54	-22.21	Average	Vertical
7	17100	33.62	13.26	46.88	68.2	-21.32	Peak	Vertical
8	17100	22.57	13.26	35.83	54	-18.17	Average	Vertical
IEEE 802.11a_5745MHz (Channel 149)								
1	11490	36.50	7.70	44.20	74	-29.80	Peak	Horizontal
2	11490	23.04	7.70	30.74	54	-23.26	Average	Horizontal
3	17235	35.74	13.65	49.39	68.2	-18.81	Peak	Horizontal
4	17235	22.52	13.65	36.17	54	-17.83	Average	Horizontal
5	11490	42.16	7.70	49.86	74	-24.14	Peak	Vertical
6	11490	24.96	7.70	32.66	54	-21.34	Average	Vertical
7	17235	34.45	13.65	48.10	68.2	-20.10	Peak	Vertical
8	17235	22.52	13.65	36.17	54	-17.83	Average	Vertical
IEEE 802.11a_5785MHz (Channel 157)								
1	11570	36.66	7.79	44.45	74	-29.55	Peak	Horizontal
2	11570	25.45	7.79	33.24	54	-20.76	Average	Horizontal
3	17355	35.41	13.98	49.39	68.2	-18.81	Peak	Horizontal
4	17355	22.91	13.98	36.89	54	-17.11	Average	Horizontal
5	11570	40.86	7.79	48.65	74	-25.35	Peak	Vertical
6	11570	27.75	7.79	35.54	54	-18.46	Average	Vertical
7	17355	35.18	13.98	49.16	68.2	-19.04	Peak	Vertical
8	17355	23.01	13.98	36.99	54	-17.01	Average	Vertical
IEEE 802.11a_5825MHz (Channel 165)								
1	11650	38.02	7.91	45.93	74	-28.07	Peak	Horizontal
2	11650	25.96	7.91	33.87	54	-20.13	Average	Horizontal
3	17475	34.84	14.32	49.16	68.2	-19.04	Peak	Horizontal
4	17475	22.64	14.32	36.96	54	-17.04	Average	Horizontal
5	11650	41.85	7.91	49.76	74	-24.24	Peak	Vertical
6	11650	26.39	7.91	34.30	54	-19.70	Average	Vertical
7	17475	35.30	14.32	49.62	68.2	-18.58	Peak	Vertical
8	17475	22.64	14.32	36.96	54	-17.04	Average	Vertical

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Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT20_5180MHz (Channel 36)								
1	10360	45.83	7.19	53.02	68.2	-15.18	Peak	Horizontal
2	10360	27.56	7.19	34.75	54	-19.25	Average	Horizontal
3	15540	44.38	11.93	56.31	74	-17.69	Peak	Horizontal
4	15540	23.80	11.93	35.73	54	-18.27	Average	Horizontal
5	10360	52.79	7.19	59.98	68.2	-8.22	Peak	Vertical
6	10360	31.98	7.19	39.17	54	-14.83	Average	Vertical
7	15540	49.05	11.93	60.98	74	-13.02	Peak	Vertical
8	15540	31.12	11.93	43.05	54	-10.95	Average	Vertical
IEEE 802.11n-HT20_5220MHz (Channel 44)								
1	10440	55.82	7.23	63.05	68.2	-5.15	Peak	Horizontal
2	10440	36.81	7.23	44.04	54	-9.96	Average	Horizontal
3	15660	45.08	11.94	57.02	74	-16.98	Peak	Horizontal
4	15660	28.72	11.94	40.66	54	-13.34	Average	Horizontal
5	10440	53.54	7.23	60.77	68.2	-7.43	Peak	Vertical
6	10440	35.16	7.23	42.39	54	-11.61	Average	Vertical
7	15660	41.94	11.94	53.88	74	-20.12	Peak	Vertical
8	15660	24.18	11.94	36.12	54	-17.88	Average	Vertical
IEEE 802.11n-HT20_5240MHz (Channel 48)								
1	10480	49.77	7.24	57.01	68.2	-11.19	Peak	Horizontal
2	10480	30.81	7.24	38.05	54	-15.95	Average	Horizontal
3	15720	35.13	11.96	47.09	74	-26.91	Peak	Horizontal
4	15720	23.63	11.96	35.59	54	-18.41	Average	Horizontal
5	10480	56.07	7.24	63.31	68.2	-4.89	Peak	Vertical
6	10480	36.74	7.24	43.98	54	-10.02	Average	Vertical
7	15720	44.24	11.96	56.20	74	-17.80	Peak	Vertical
8	15720	23.72	11.96	35.68	54	-18.32	Average	Vertical
IEEE 802.11n-HT20_5260MHz (Channel 52)								
1	10520	36.72	7.29	44.01	68.2	-24.19	Peak	Horizontal
2	10520	24.65	7.29	31.94	54	-22.06	Average	Horizontal
3	15780	35.53	11.98	47.51	74	-26.49	Peak	Horizontal
4	15780	23.70	11.98	35.68	54	-18.32	Average	Horizontal
5	10520	36.06	7.29	43.35	68.2	-24.85	Peak	Vertical
6	10520	25.38	7.29	32.67	54	-21.33	Average	Vertical
7	15780	35.16	11.98	47.14	74	-26.86	Peak	Vertical
8	15780	23.61	11.98	35.59	54	-18.41	Average	Vertical

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT20_5300MHz (Channel 60)								
1	10600	57.80	7.44	65.24	74.00	-8.76	Peak	Horizontal
2	10600	39.75	7.44	47.19	54.00	-6.81	Average	Horizontal
3	15900	47.46	12.01	59.47	74.00	-14.53	Peak	Horizontal
4	15900	29.13	12.01	41.14	54.00	-12.86	Average	Horizontal
5	10600	61.02	7.44	68.46	74.00	-5.54	Peak	Vertical
6	10600	42.72	7.44	50.16	54.00	-3.84	Average	Vertical
7	15900	48.06	12.01	60.07	74.00	-13.93	Peak	Vertical
8	15900	29.28	12.01	41.29	54.00	-12.71	Average	Vertical
IEEE 802.11n-HT20_5320MHz (Channel 64)								
1	10640	58.00	7.52	65.52	74.00	-8.48	Peak	Horizontal
2	10640	41.89	7.52	49.41	54.00	-4.59	Average	Horizontal
3	15960	48.37	12.01	60.38	74.00	-13.62	Peak	Horizontal
4	15960	27.73	12.01	39.74	54.00	-14.26	Average	Horizontal
5	10640	60.68	7.52	68.20	74.00	-5.80	Peak	Vertical
6	10640	41.18	7.52	48.70	54.00	-5.30	Average	Vertical
7	15960	49.66	12.01	61.67	74.00	-12.33	Peak	Vertical
8	15960	27.30	12.01	39.31	54.00	-14.69	Average	Vertical
IEEE 802.11n-HT20_5500MHz (Channel 100)								
1	11000	37.78	8.22	46.00	74	-28.00	Peak	Horizontal
2	11000	26.30	8.22	34.52	54	-19.48	Average	Horizontal
3	16500	34.27	12.75	47.02	68.2	-21.18	Peak	Horizontal
4	16500	23.23	12.75	35.98	54	-18.02	Average	Horizontal
5	11000	37.08	8.22	45.30	74	-28.70	Peak	Vertical
6	11000	26.51	8.22	34.73	54	-19.27	Average	Vertical
7	16500	35.30	12.75	48.05	68.2	-20.15	Peak	Vertical
8	16500	23.23	12.75	35.98	54	-18.02	Average	Vertical
IEEE 802.11n-HT20_5580MHz (Channel 116)								
1	11160	52.26	8.05	60.31	74	-13.69	Peak	Horizontal
2	11160	30.53	8.05	38.58	54	-15.42	Average	Horizontal
3	16740	46.51	12.86	59.37	68.2	-8.83	Peak	Horizontal
4	16740	26.49	12.86	39.35	54	-14.65	Average	Horizontal
5	11160	51.55	8.05	59.60	74	-14.40	Peak	Vertical
6	11160	32.42	8.05	40.47	54	-13.53	Average	Vertical
7	16740	45.82	12.86	58.68	68.2	-9.52	Peak	Vertical
8	16740	27.52	12.86	40.38	54	-13.62	Average	Vertical

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT20_5700MHz (Channel 140)								
1	11400	44.74	7.79	52.53	74	-21.47	Peak	Horizontal
2	11400	30.47	7.79	38.26	54	-15.74	Average	Horizontal
3	17100	47.77	13.26	61.03	68.2	-7.17	Peak	Horizontal
4	17100	29.54	13.26	42.80	54	-11.20	Average	Horizontal
5	11400	51.70	7.79	59.49	74	-14.51	Peak	Vertical
6	11400	35.30	7.79	43.09	54	-10.91	Average	Vertical
7	17100	50.01	13.26	63.27	68.2	-4.93	Peak	Vertical
8	17100	29.86	13.26	43.12	54	-10.88	Average	Vertical
IEEE 802.11n-HT20_5745MHz (Channel 149)								
1	11490	34.90	7.70	42.60	74	-31.40	Peak	Horizontal
2	11490	23.15	7.70	30.85	54	-23.15	Average	Horizontal
3	17235	32.84	13.65	46.49	68.2	-21.71	Peak	Horizontal
4	17235	22.41	13.65	36.06	54	-17.94	Average	Horizontal
5	11490	44.75	7.70	52.45	74	-21.55	Peak	Vertical
6	11490	25.52	7.70	33.22	54	-20.78	Average	Vertical
7	17235	44.79	13.65	58.44	68.2	-9.76	Peak	Vertical
8	17235	22.30	13.65	35.95	54	-18.05	Average	Vertical
IEEE 802.11n-HT20_5785MHz (Channel 157)								
1	11570	40.88	7.79	48.67	74	-25.33	Peak	Horizontal
2	11570	26.19	7.79	33.98	54	-20.02	Average	Horizontal
3	17355	33.71	13.98	47.69	68.2	-20.51	Peak	Horizontal
4	17355	22.91	13.98	36.89	54	-17.11	Average	Horizontal
5	11570	43.39	7.79	51.18	74	-22.82	Peak	Vertical
6	11570	27.81	7.79	35.60	54	-18.40	Average	Vertical
7	17355	45.36	13.98	59.34	68.2	-8.86	Peak	Vertical
8	17355	22.91	13.98	36.89	54	-17.11	Average	Vertical
IEEE 802.11n-HT20_5825MHz (Channel 165)								
1	11650	47.98	7.91	55.89	74	-18.11	Peak	Horizontal
2	11650	30.03	7.91	37.94	54	-16.06	Average	Horizontal
3	17475	33.60	14.32	47.92	68.2	-20.28	Peak	Horizontal
4	17475	22.42	14.32	36.74	54	-17.26	Average	Horizontal
5	11650	47.67	7.91	55.58	74	-18.42	Peak	Vertical
6	11650	29.56	7.91	37.47	54	-16.53	Average	Vertical
7	17475	43.71	14.32	58.03	68.2	-10.17	Peak	Vertical
8	17475	22.42	14.32	36.74	54	-17.26	Average	Vertical

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT40_5190MHz (Channel 38)								
1	10380	37.29	7.20	44.49	68.2	-23.71	Peak	Horizontal
2	10380	24.17	7.20	31.37	54	-22.63	Average	Horizontal
3	15570	36.35	11.92	48.27	74	-25.73	Peak	Horizontal
4	15570	23.81	11.92	35.73	54	-18.27	Average	Horizontal
5	10380	37.79	7.20	44.99	68.2	-23.21	Peak	Vertical
6	10380	25.42	7.20	32.62	54	-21.38	Average	Vertical
7	15570	35.69	11.92	47.61	74	-26.39	Peak	Vertical
8	15570	23.72	11.92	35.64	54	-18.36	Average	Vertical
IEEE 802.11n-HT40_5230MHz (Channel 46)								
1	10460	37.14	7.23	44.37	68.2	-23.83	Peak	Horizontal
2	10460	25.79	7.23	33.02	54	-20.98	Average	Horizontal
3	15690	36.22	11.96	48.18	74	-25.82	Peak	Horizontal
4	15690	24.16	11.96	36.12	54	-17.88	Average	Horizontal
5	10460	44.45	7.23	51.68	68.2	-16.52	Peak	Vertical
6	10460	29.54	7.23	36.77	54	-17.23	Average	Vertical
7	15690	37.43	11.96	49.39	74	-24.61	Peak	Vertical
8	15690	24.51	11.96	36.47	54	-17.53	Average	Vertical
IEEE 802.11n-HT40_5270MHz (Channel 54)								
1	10540	37.31	7.32	44.63	68.2	-23.57	Peak	Horizontal
2	10540	23.28	7.32	30.60	54	-23.40	Average	Horizontal
3	15810	36.02	11.98	48.00	74	-26.00	Peak	Horizontal
4	15810	23.44	11.98	35.42	54	-18.58	Average	Horizontal
5	10540	45.44	7.32	52.76	68.2	-15.44	Peak	Vertical
6	10540	30.76	7.32	38.08	54	-15.92	Average	Vertical
7	15810	35.03	11.98	47.01	74	-26.99	Peak	Vertical
8	15810	23.34	11.98	35.32	54	-18.68	Average	Vertical
IEEE 802.11n-HT40_5310MHz (Channel 62)								
1	10620	41.10	7.49	48.59	74.00	-25.41	Peak	Horizontal
2	10620	27.11	7.49	34.60	54.00	-19.40	Average	Horizontal
3	15930	35.51	12.02	47.53	74.00	-26.47	Peak	Horizontal
4	15930	23.12	12.02	35.14	54.00	-18.86	Average	Horizontal
5	10620	49.70	7.49	57.19	74.00	-16.81	Peak	Vertical
6	10620	35.06	7.49	42.55	54.00	-11.45	Average	Vertical
7	15930	35.06	12.02	47.08	74.00	-26.92	Peak	Vertical
8	15930	23.22	12.02	35.24	54.00	-18.76	Average	Vertical

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT40_5510MHz (Channel 102)								
1	11020	45.47	8.20	53.67	74	-20.33	Peak	Horizontal
2	11020	31.26	8.20	39.46	54	-14.54	Average	Horizontal
3	16530	35.15	12.77	47.92	68.2	-20.28	Peak	Horizontal
4	16530	23.79	12.77	36.56	54	-17.44	Average	Horizontal
5	11020	44.84	8.20	53.04	74	-20.96	Peak	Vertical
6	11020	30.34	8.20	38.54	54	-15.46	Average	Vertical
7	16530	37.29	12.77	50.06	68.2	-18.14	Peak	Vertical
8	16530	23.98	12.77	36.75	54	-17.25	Average	Vertical
IEEE 802.11n-HT40_5550MHz (Channel 110)								
1	11100	40.74	8.11	48.85	74	-25.15	Peak	Horizontal
2	11100	27.87	8.11	35.98	54	-18.02	Average	Horizontal
3	16650	34.06	12.82	46.88	68.2	-21.32	Peak	Horizontal
4	16650	22.73	12.82	35.55	54	-18.45	Average	Horizontal
5	11100	44.50	8.11	52.61	74	-21.39	Peak	Vertical
6	11100	30.38	8.11	38.49	54	-15.51	Average	Vertical
7	16650	34.59	12.82	47.41	68.2	-20.79	Peak	Vertical
8	16650	22.73	12.82	35.55	54	-18.45	Average	Vertical
IEEE 802.11n-HT40_5670MHz (Channel 134)								
1	11340	38.72	7.86	46.58	74	-27.42	Peak	Horizontal
2	11340	28.42	7.86	36.28	54	-17.72	Average	Horizontal
3	17010	34.77	13.01	47.78	68.2	-20.42	Peak	Horizontal
4	17010	23.19	13.01	36.20	54	-17.80	Average	Horizontal
5	11340	44.05	7.86	51.91	74	-22.09	Peak	Vertical
6	11340	31.06	7.86	38.92	54	-15.08	Average	Vertical
7	17010	34.72	13.01	47.73	68.2	-20.47	Peak	Vertical
8	17010	23.09	13.01	36.10	54	-17.90	Average	Vertical
IEEE 802.11n-HT40_5755MHz (Channel 151)								
1	11510	34.53	7.70	42.23	74	-31.77	Peak	Horizontal
2	11510	23.04	7.70	30.74	54	-23.26	Average	Horizontal
3	17265	33.15	13.73	46.88	68.2	-21.32	Peak	Horizontal
4	17265	22.22	13.73	35.95	54	-18.05	Average	Horizontal
5	11510	41.83	7.70	49.53	74	-24.47	Peak	Vertical
6	11510	28.09	7.70	35.79	54	-18.21	Average	Vertical
7	17265	35.20	13.73	48.93	68.2	-19.27	Peak	Vertical
8	17265	22.22	13.73	35.95	54	-18.05	Average	Vertical

TEST REPORT

RADIATED EMISSION DATA

Radiated Emission Test Data (Above 1GHz): Worst-Case Configuration								
No.	Frequency (MHz)	Reading (dBµV)	Correction factor (dB/m)	Result (dBµV/m)	Limit (dBµV/m)	Margin (dB)	Detector	Antenna Polaxis
IEEE 802.11n-HT40_5795MHz (Channel 159)								
1	11590	35.04	7.82	42.86	74	-31.14	Peak	Horizontal
2	11590	24.94	7.82	32.76	54	-21.24	Average	Horizontal
3	17385	33.26	14.06	47.32	68.2	-20.88	Peak	Horizontal
4	17385	22.93	14.06	36.99	54	-17.01	Average	Horizontal
5	11590	37.23	7.82	45.05	74	-28.95	Peak	Vertical
6	11590	25.42	7.82	33.24	54	-20.76	Average	Vertical
7	17385	34.19	14.06	48.25	68.2	-19.95	Peak	Vertical
8	17385	22.72	14.06	36.78	54	-17.22	Average	Vertical

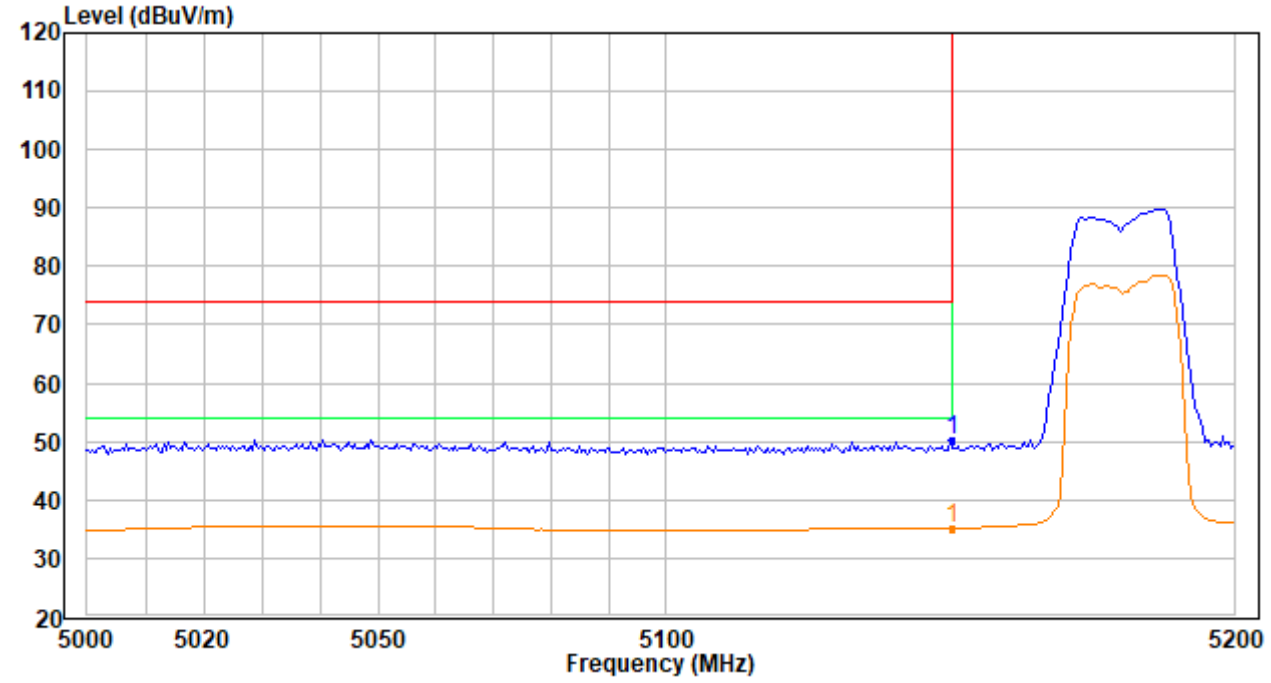
Notes:
1. Peak detector is used for the emission measurement.
2. Average detector is used for the average data of emission measurement.
3. All measurements were made at 3 meters.
4. Negative value in the margin column shows emission below limit.
5. Horn antenna is used for the emission over 1000MHz.
6. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
7. Correct Factor = Antenna Factor + Cable Loss - Amplifier Gain, the value was added to Original Receiver Reading by the software automatically.

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

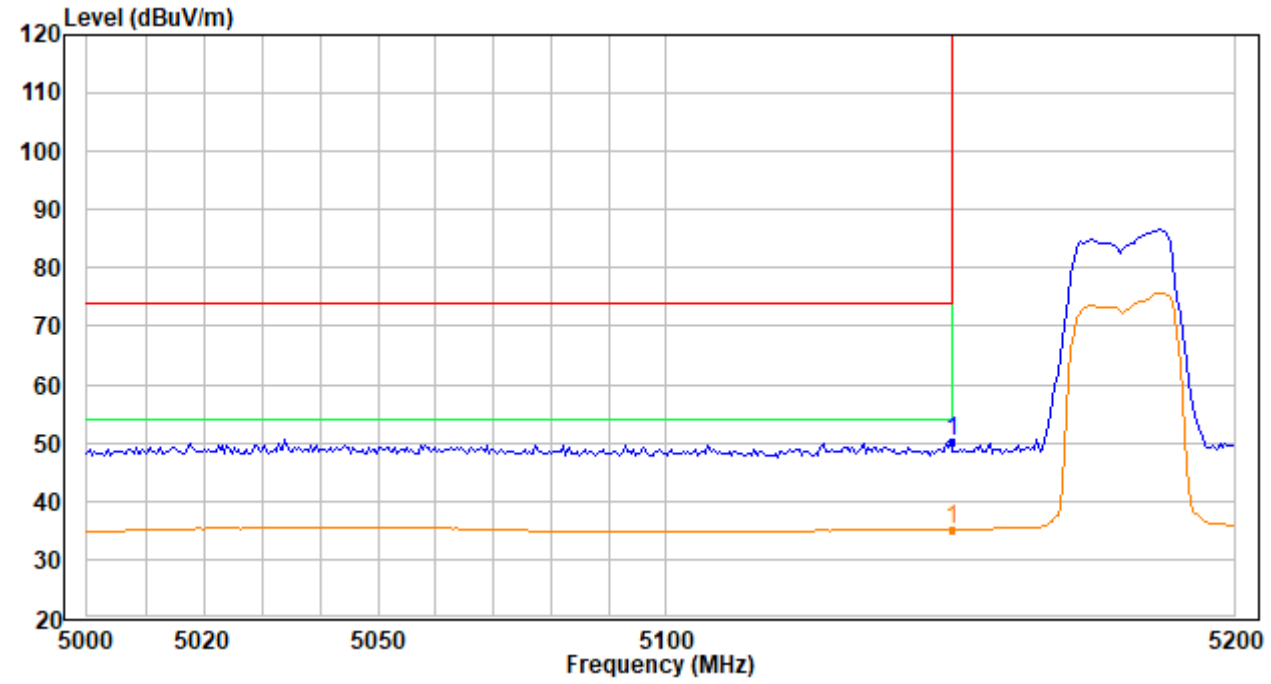
IEEE 802.11ac-VHT20

Test Channel:	Channel 36	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	50.23	74.00	35.20	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



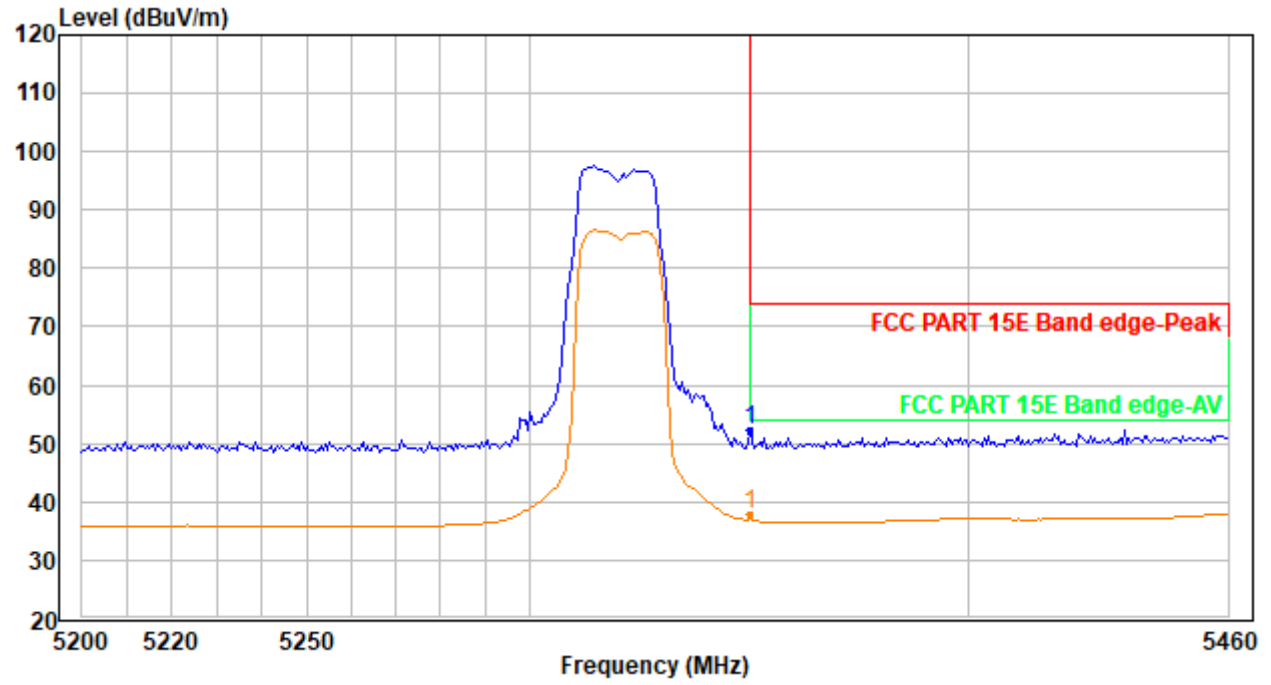
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	50.25	74.00	35.17	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

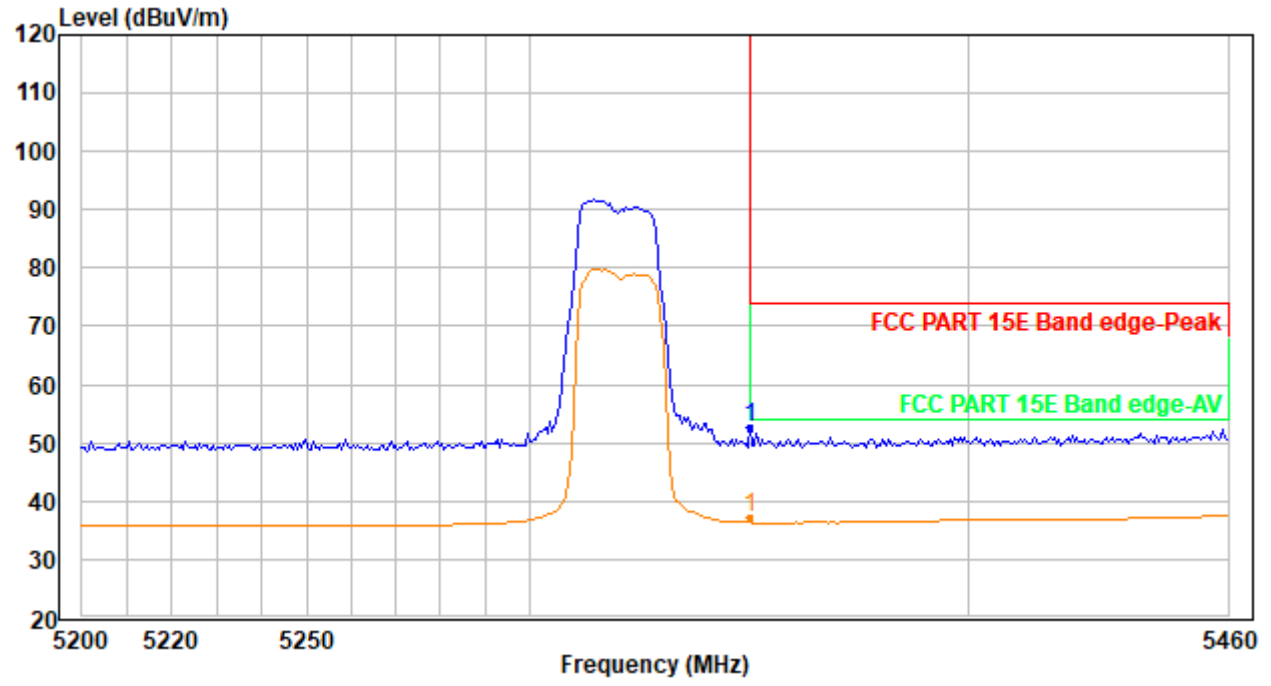
IEEE 802.11ac-VHT20

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	52.34	74.00	37.83	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



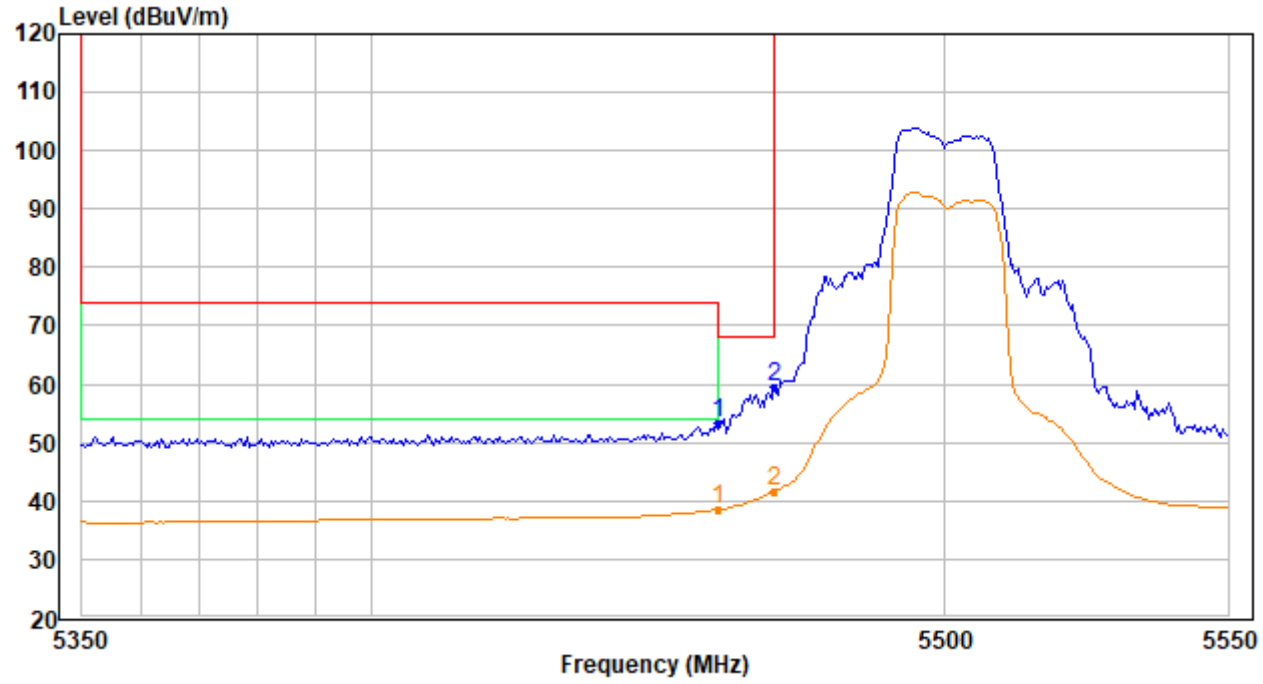
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	52.59	74.00	37.32	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

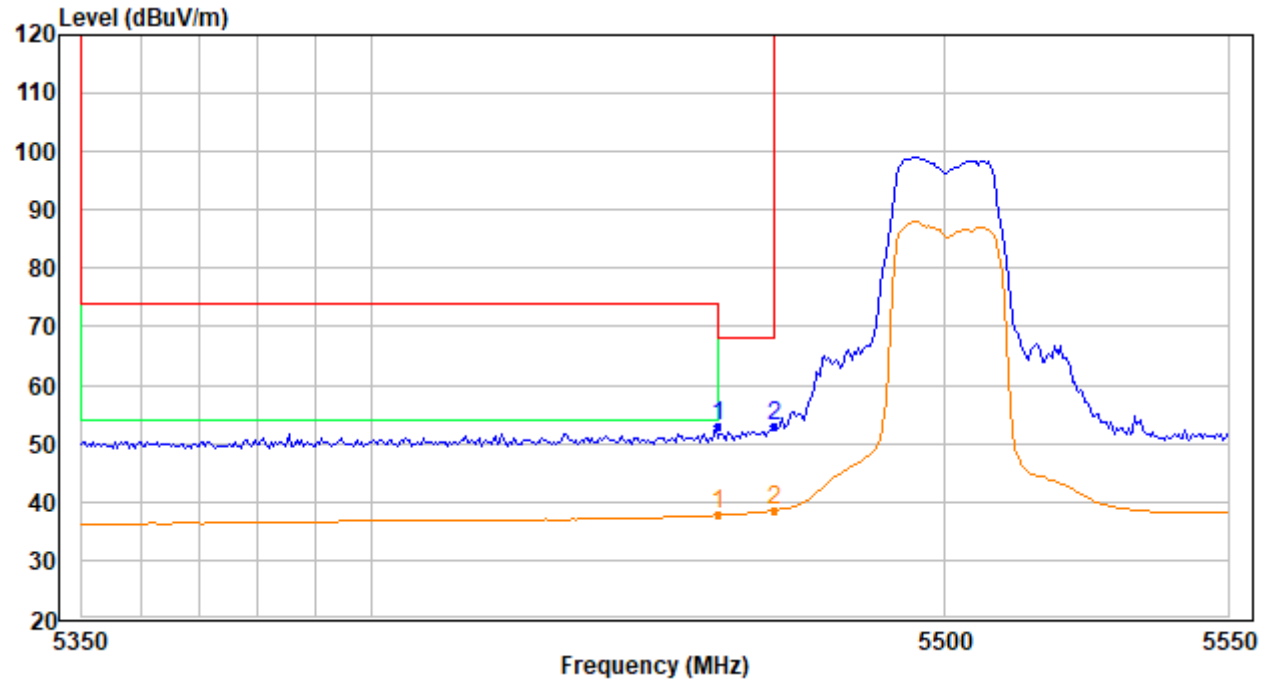
IEEE 802.11ac-VHT20

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	53.29	68.20	38.50	54.00	Pass
5470.0000	59.41	68.20	41.54	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



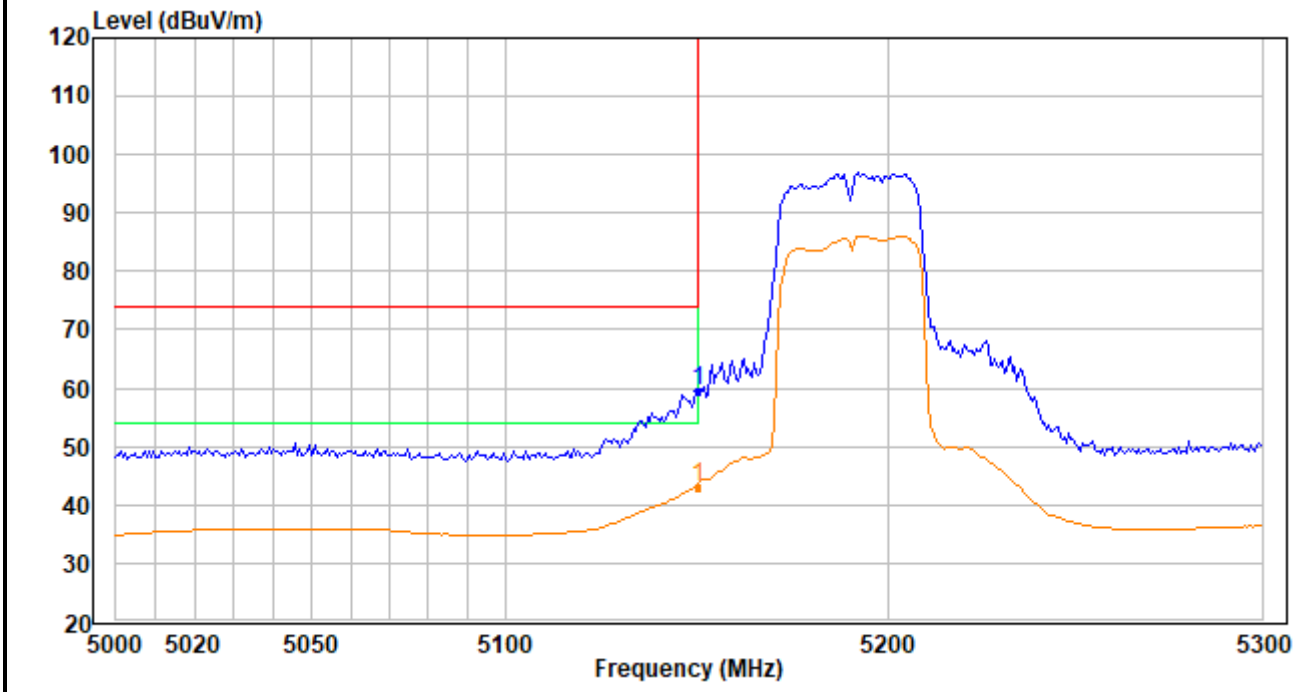
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	52.88	68.20	37.72	54.00	Pass
5470.0000	53.14	68.20	38.51	68.20	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

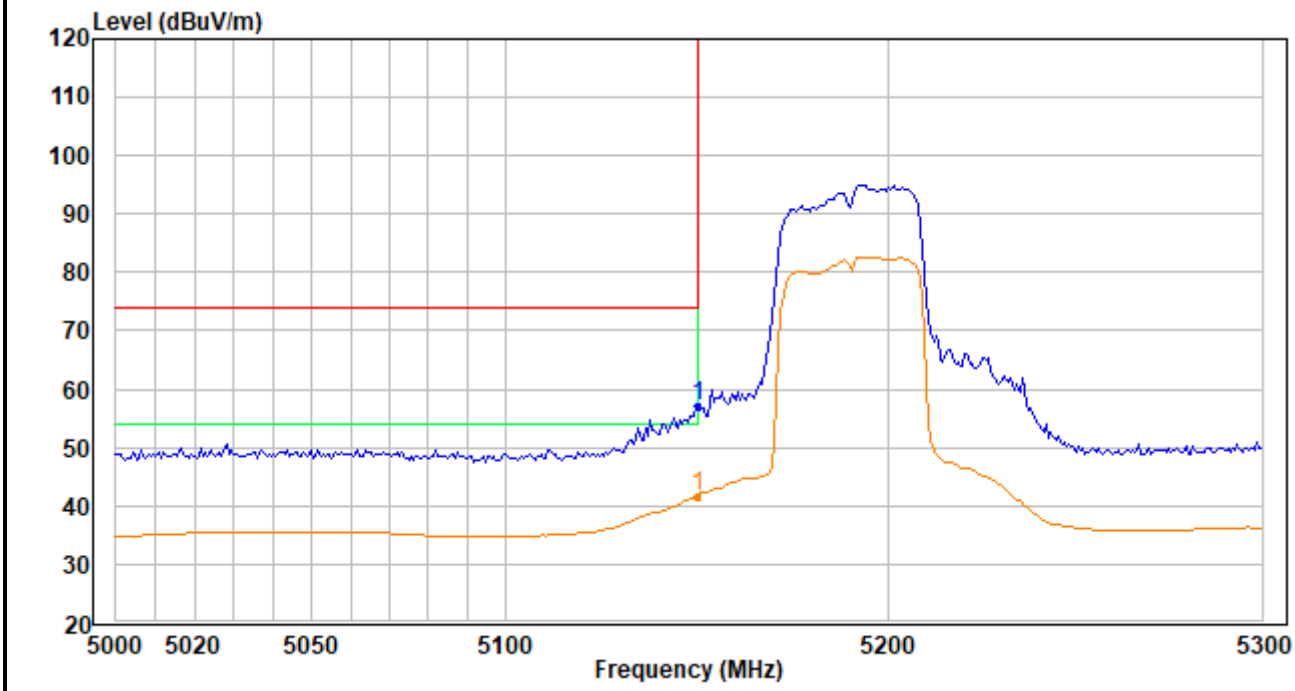
IEEE 802.11ac-VHT40

Test Channel:	Channel 38	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	59.66	74.00	43.17	54.00	Pass

Test Channel:	Channel 38	Ant. Polar. :	Vertical



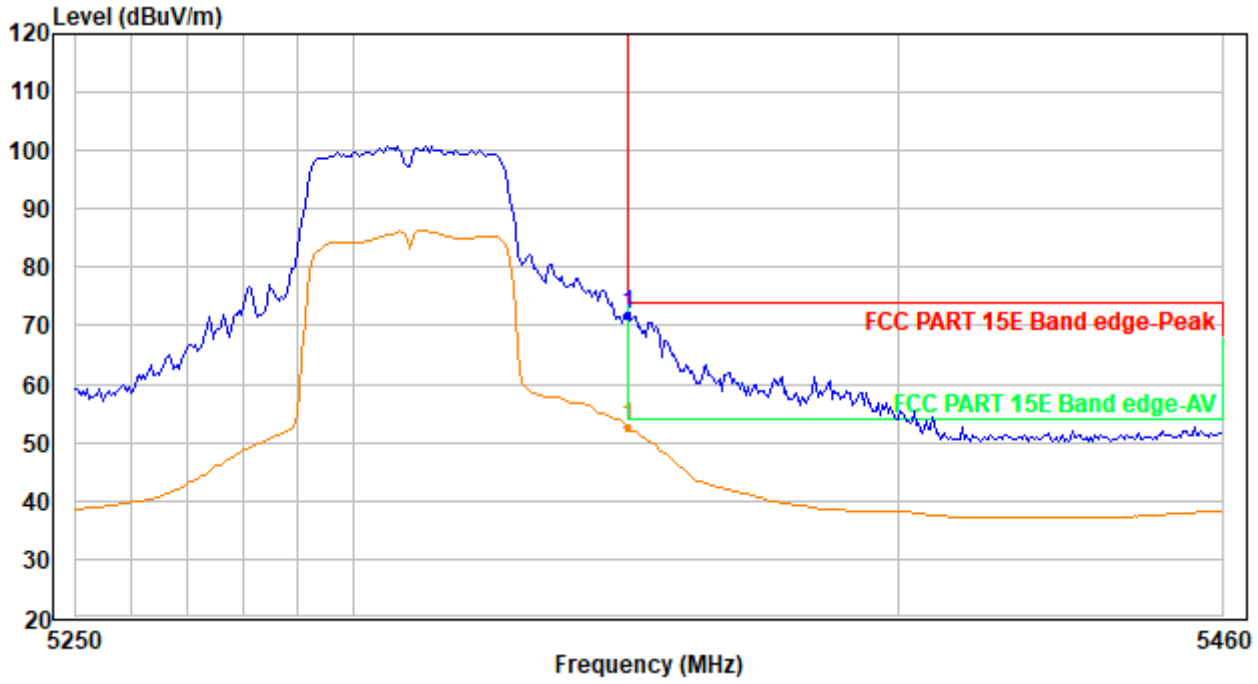
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	57.17	74.00	41.55	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

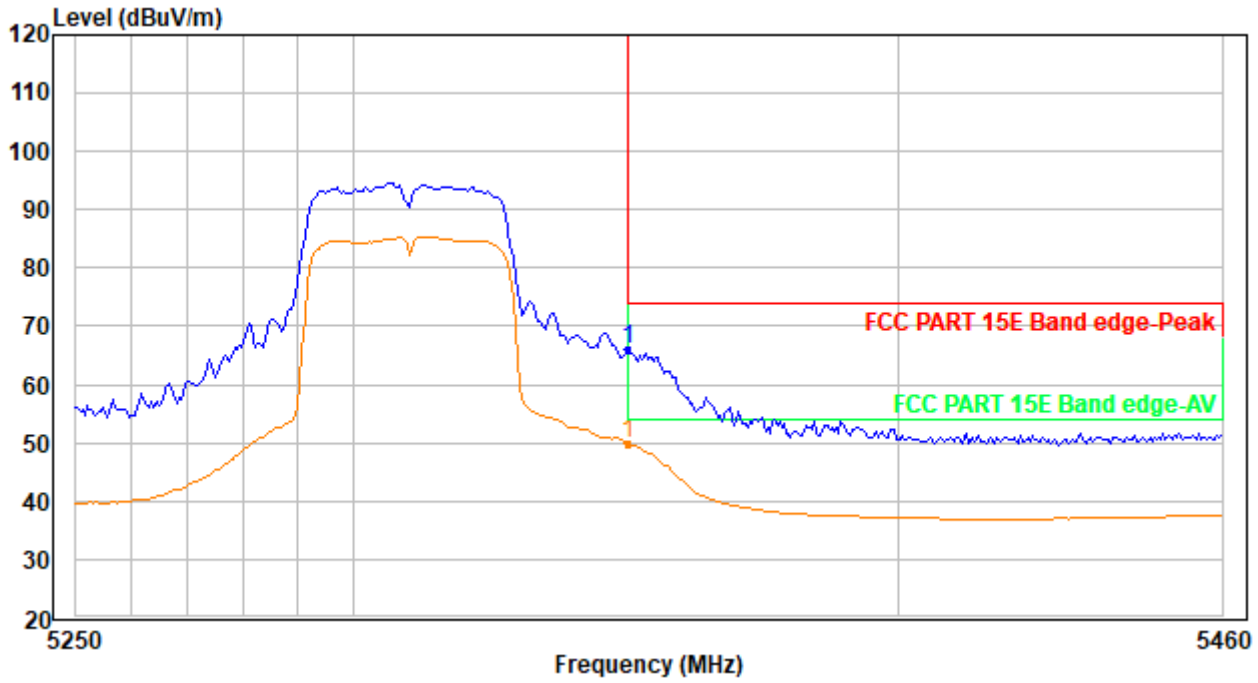
IEEE 802.11ac-VHT40

Test Channel:	Channel 62	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	71.98	74.00	52.62	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Vertical



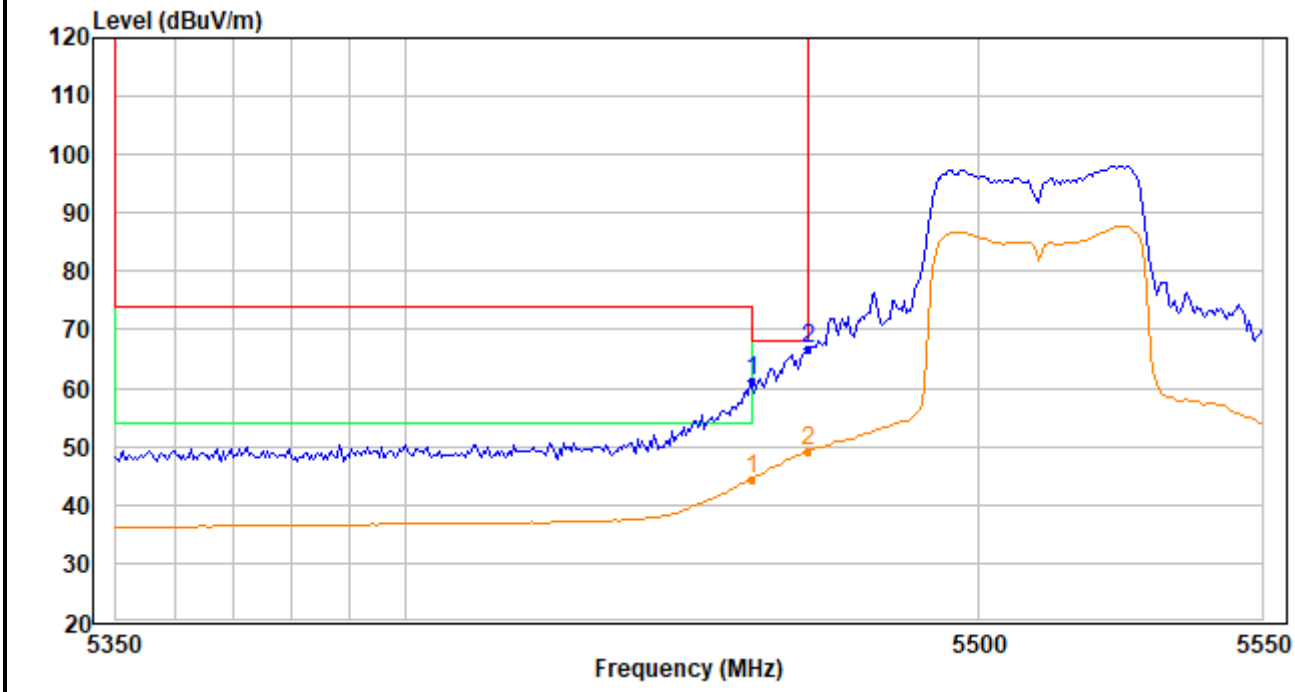
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	66.20	74.00	49.92	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

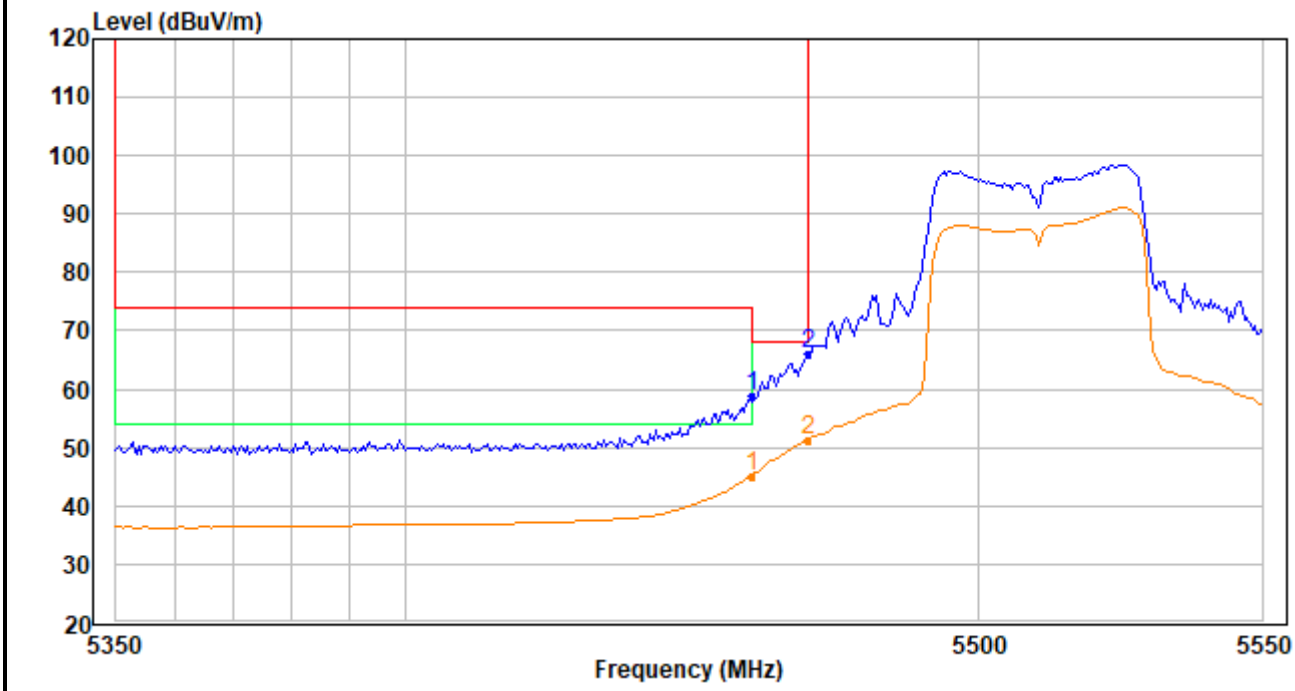
IEEE 802.11ac-VHT40

Test Channel:	Channel 102	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	61.34	68.20	44.27	54.00	Pass
5470.0000	66.89	68.20	49.09	68.20	Pass

Test Channel:	Channel 102	Ant. Polar. :	Vertical



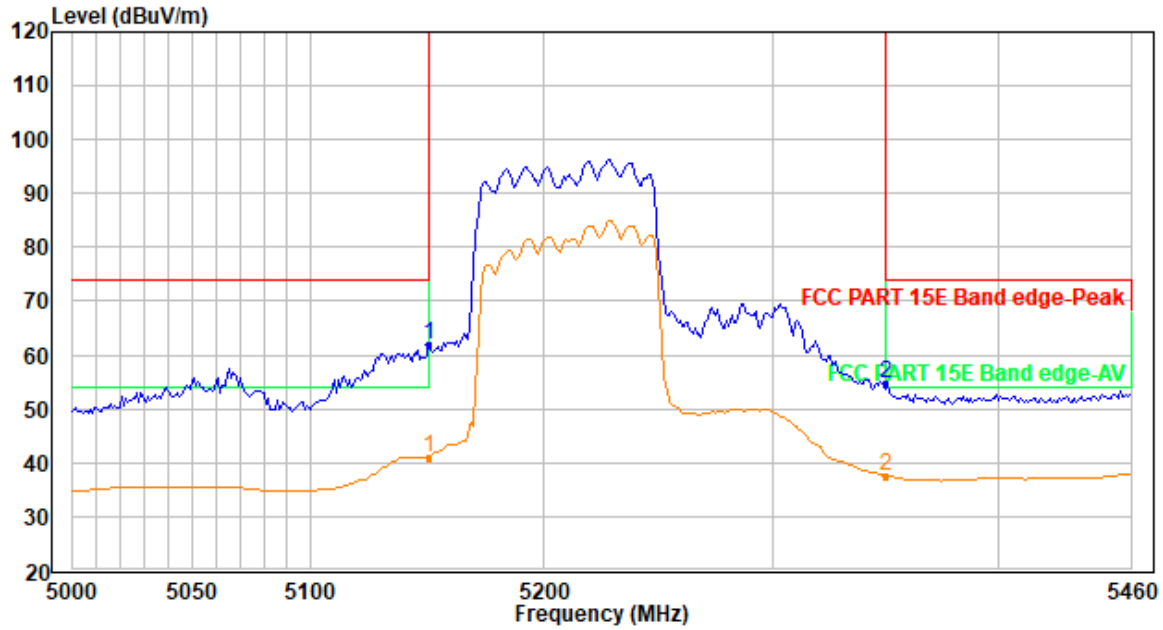
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	58.79	68.20	45.10	54.00	Pass
5470.0000	66.03	68.20	51.25	68.20	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

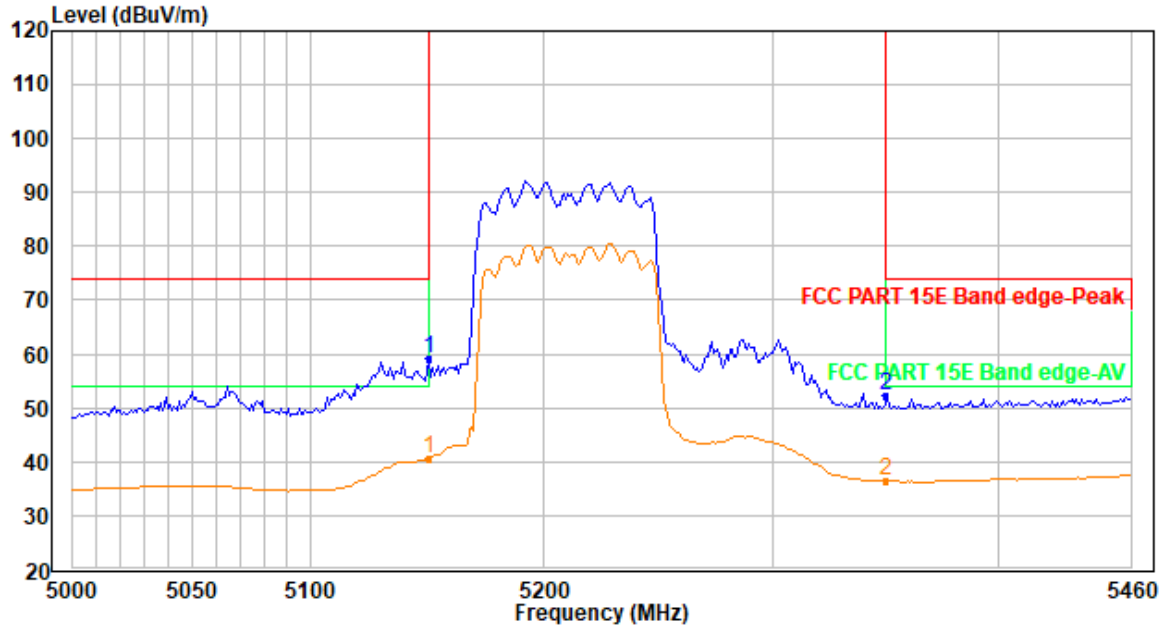
IEEE 802.11ac-VHT80

Test Channel:	Channel 42	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	62.01	74.00	41.09	54.00	Pass
5350.0000	54.56	74.00	37.66	54.00	Pass

Test Channel:	Channel 42	Ant. Polar. :	Vertical



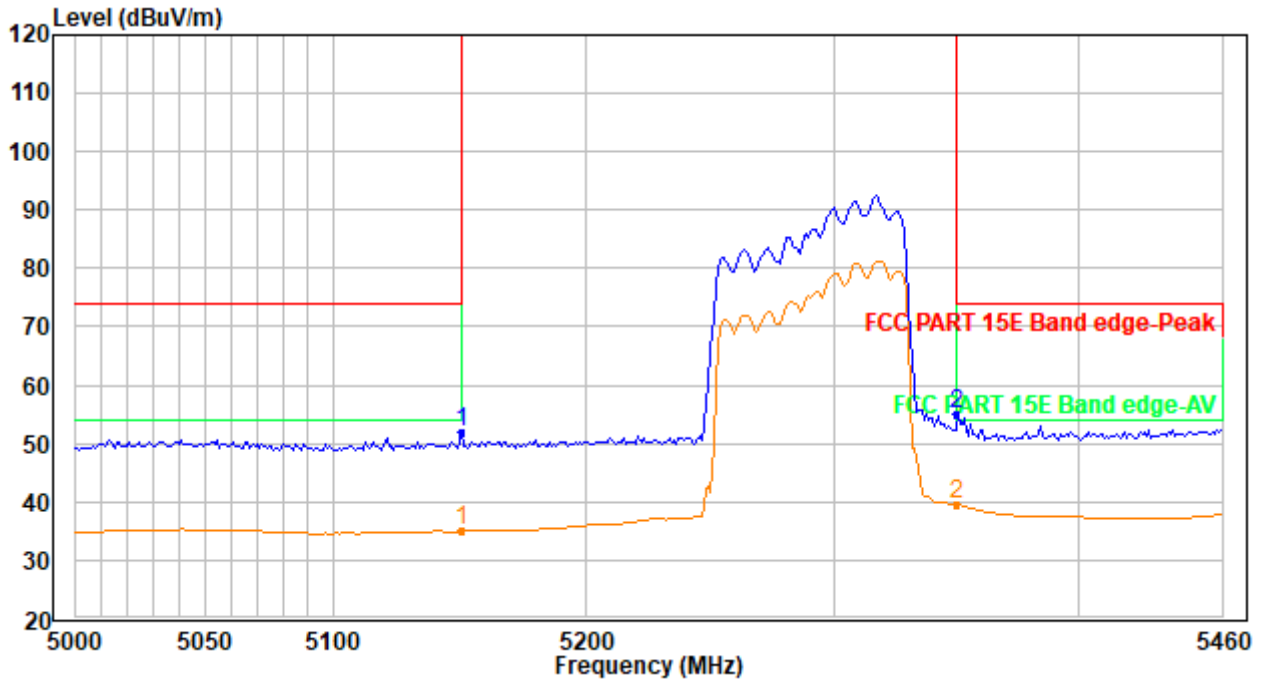
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	59.31	74.00	40.61	54.00	Pass
5350.0000	52.31	74.00	36.44	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

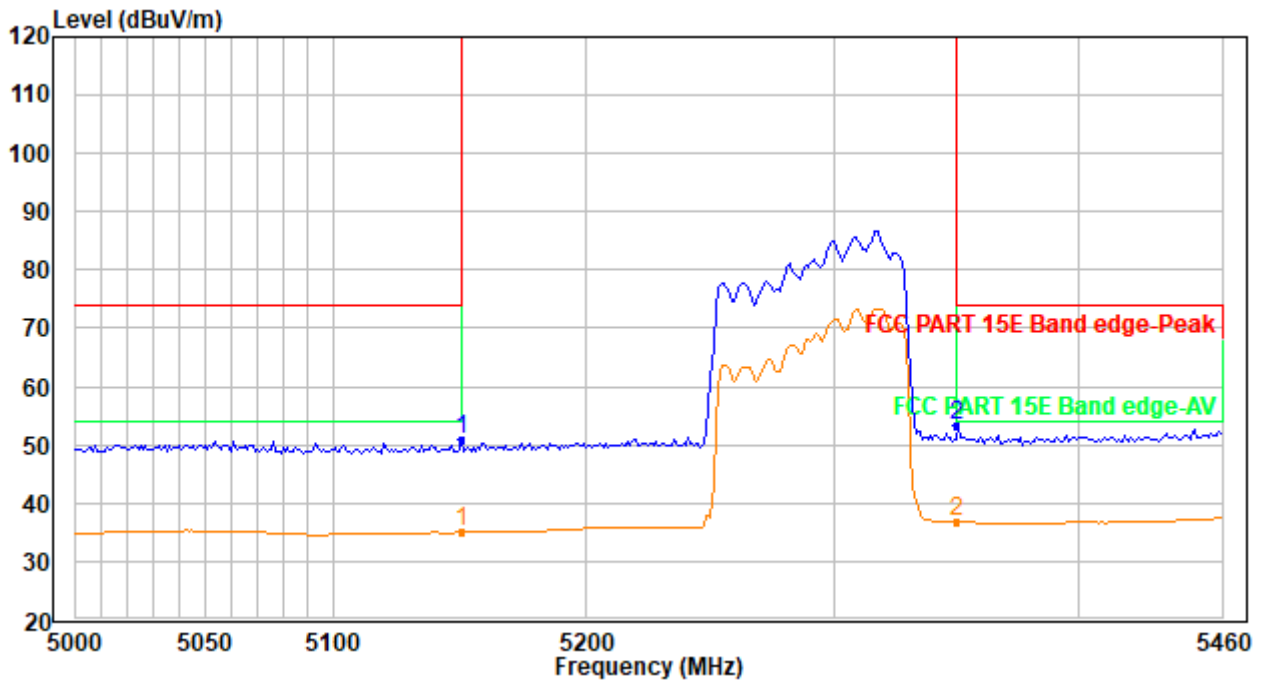
IEEE 802.11ac-VHT80

Test Channel:	Channel 58	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	51.93	68.20	35.03	54.00	Pass
5350.0000	54.94	68.20	39.52	68.20	Pass

Test Channel:	Channel 58	Ant. Polar. :	Vertical



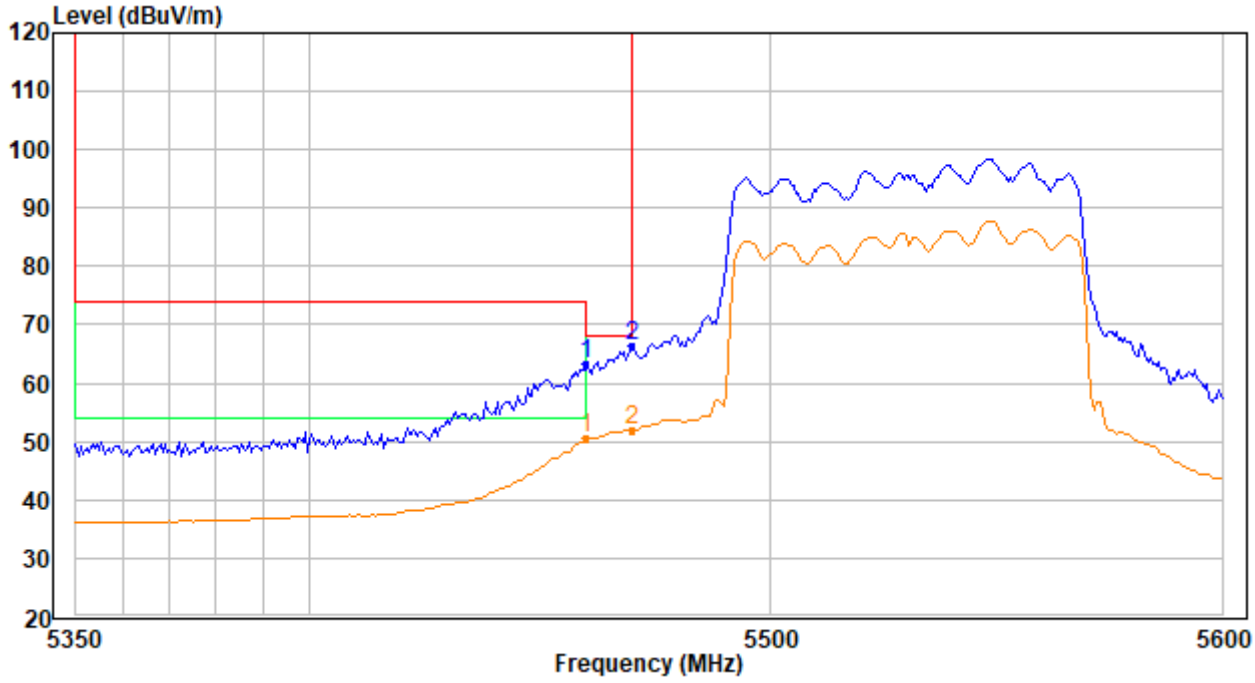
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	51.09	68.20	34.98	54.00	Pass
5350.0000	53.17	68.20	36.87	68.20	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

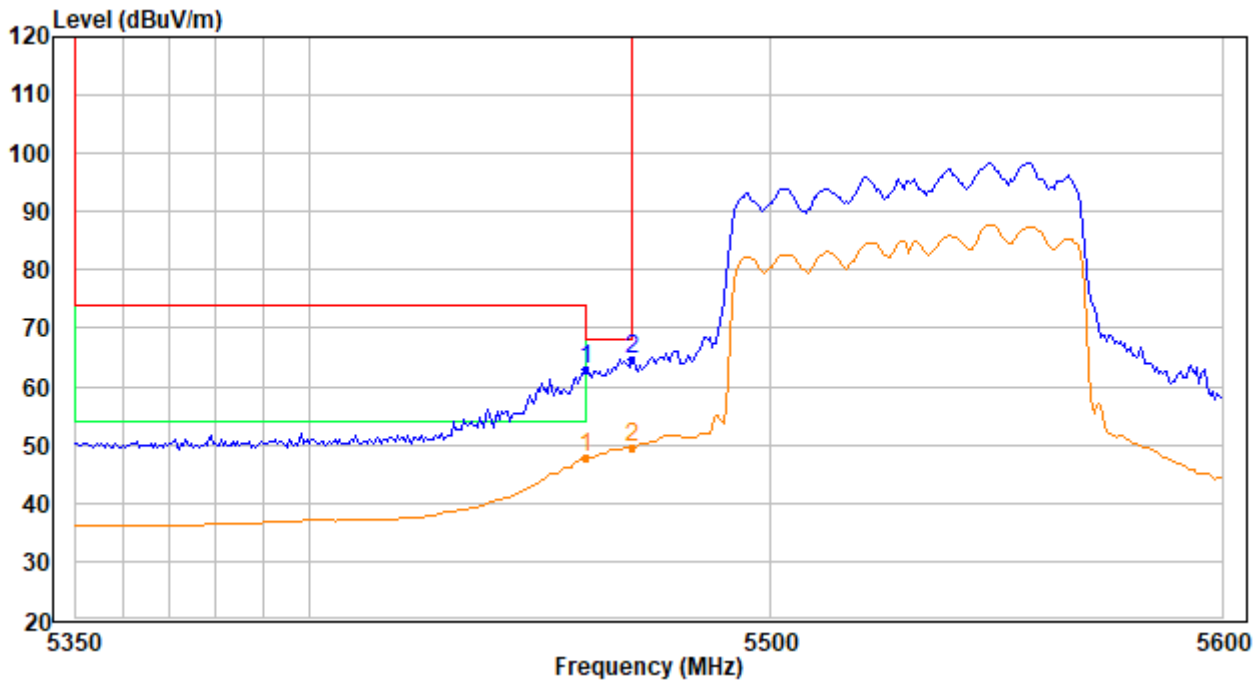
IEEE 802.11ac-VHT80

Test Channel:	Channel 106	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	63.35	68.20	50.43	54.00	Pass
5470.000	66.26	68.20	51.90	68.20	Pass

Test Channel:	Channel 106	Ant. Polar. :	Vertical



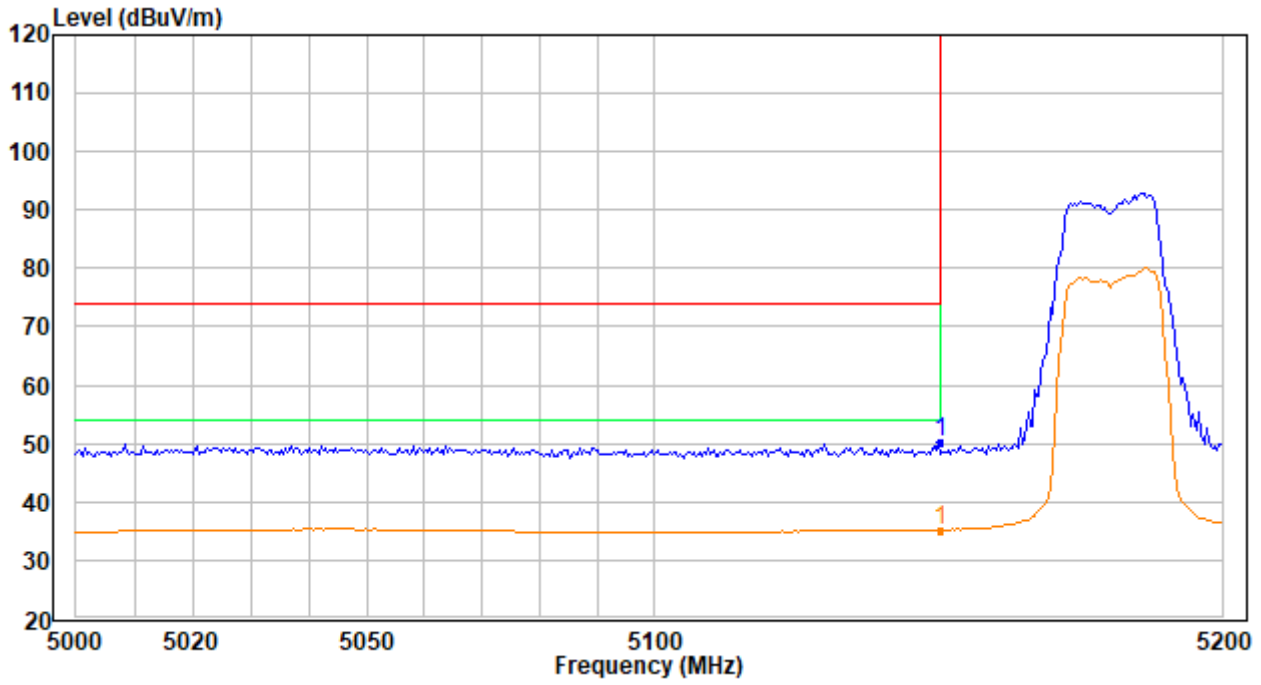
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.000	62.85	68.20	47.92	54.00	Pass
5470.000	64.66	68.20	49.54	68.20	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

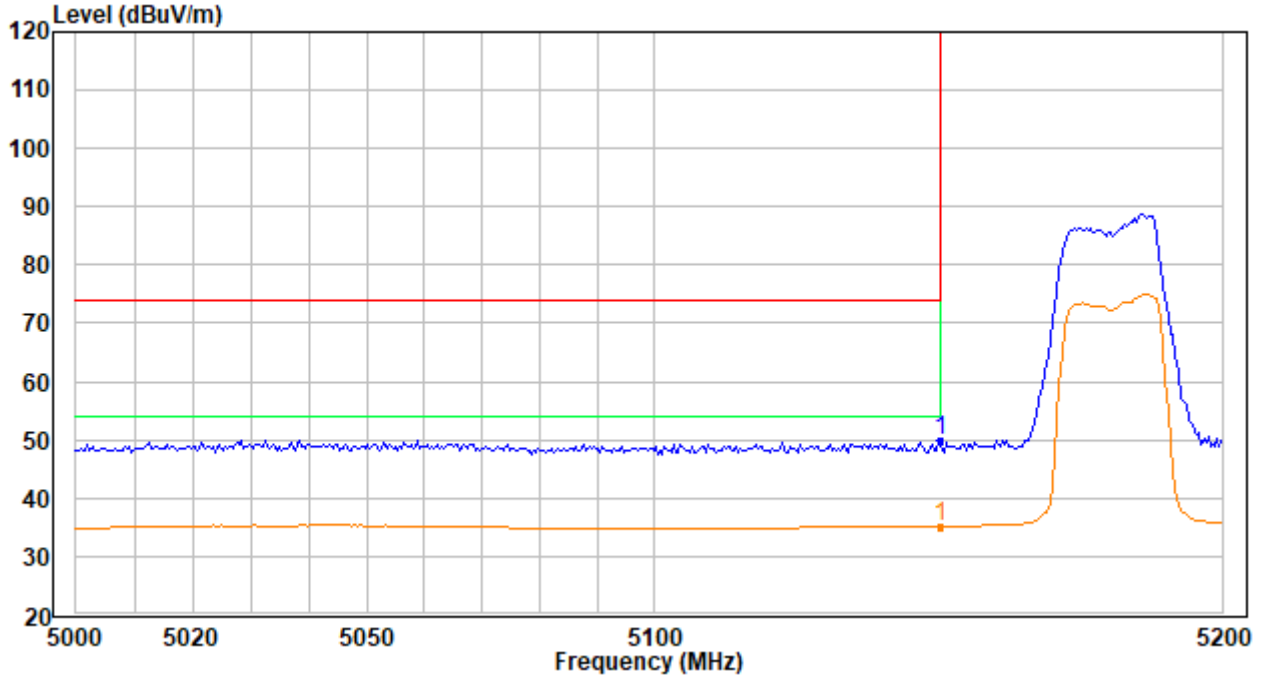
IEEE 802.11a

Test Channel:	Channel 36	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	50.26	74.00	35.25	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



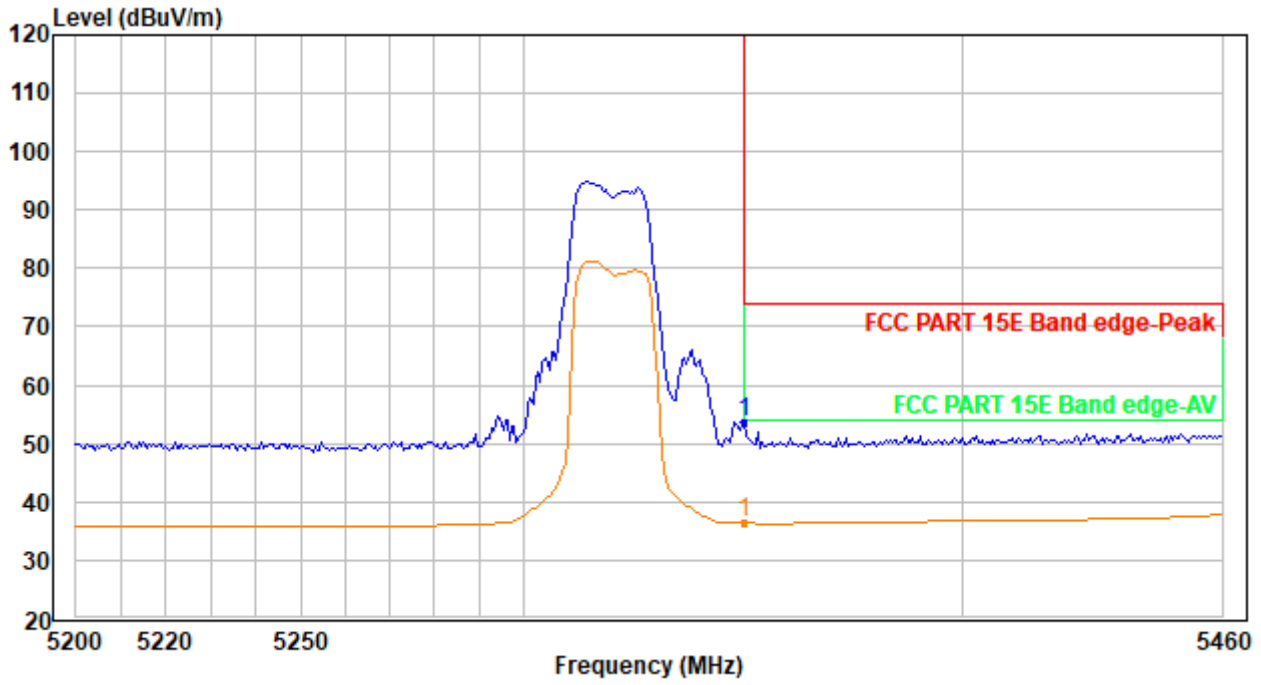
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	49.86	74.00	35.16	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

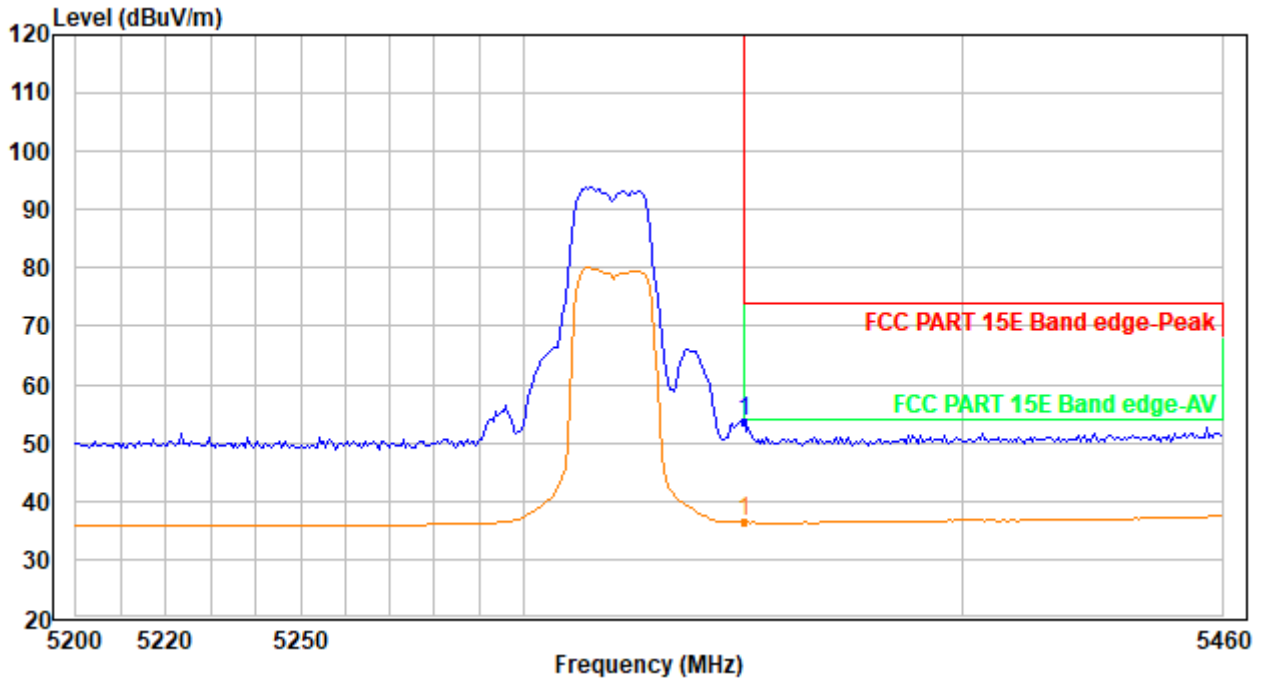
IEEE 802.11a

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	53.61	74.00	36.38	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



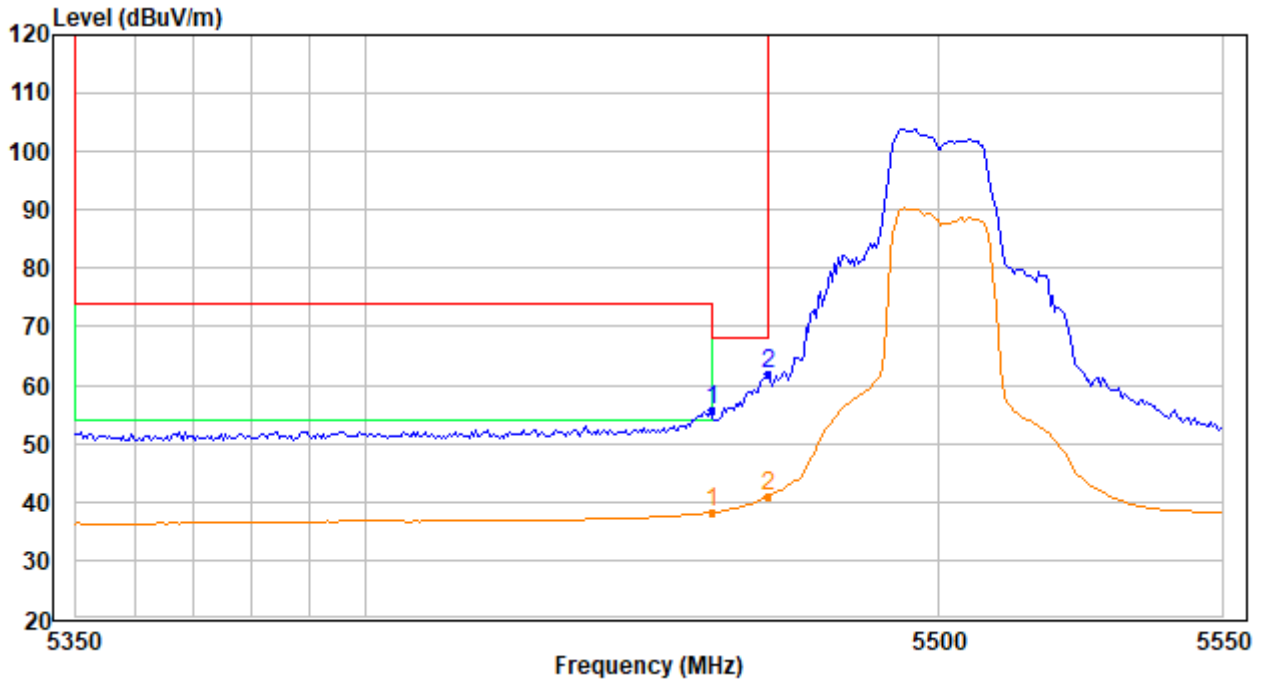
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	53.58	74.00	36.36	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

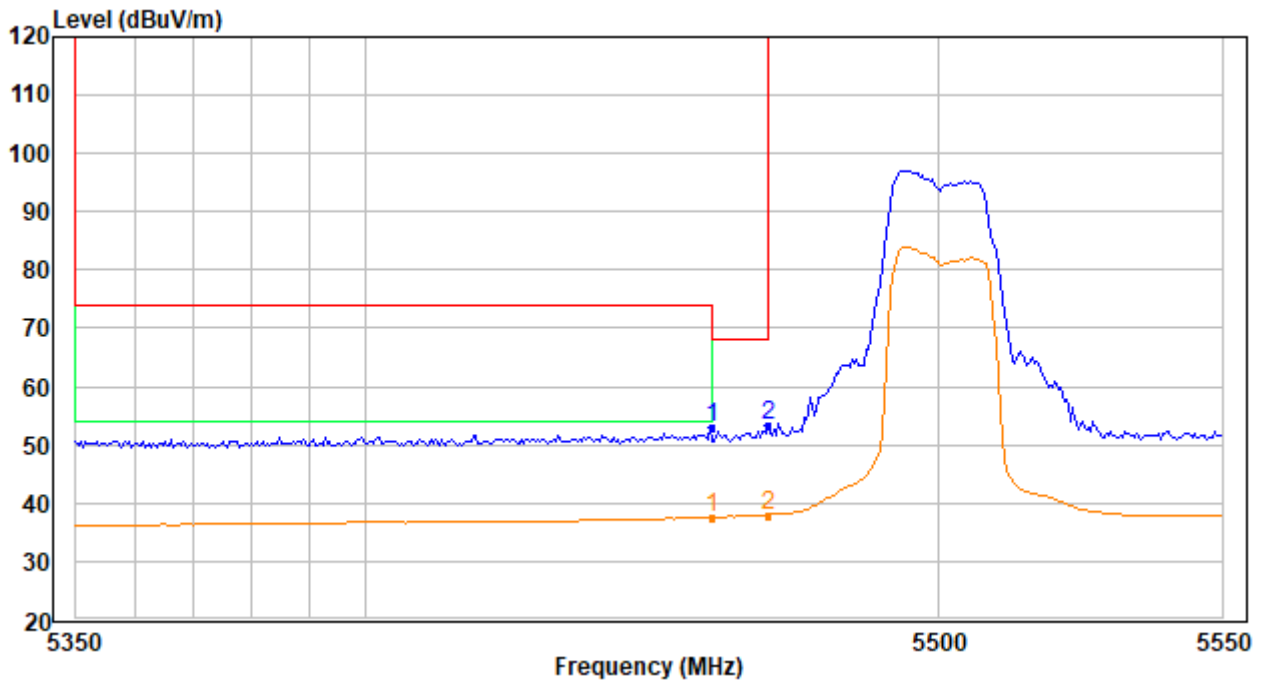
IEEE 802.11a

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	55.67	68.20	38.19	54.00	Pass
5470.0000	61.79	68.20	40.94	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



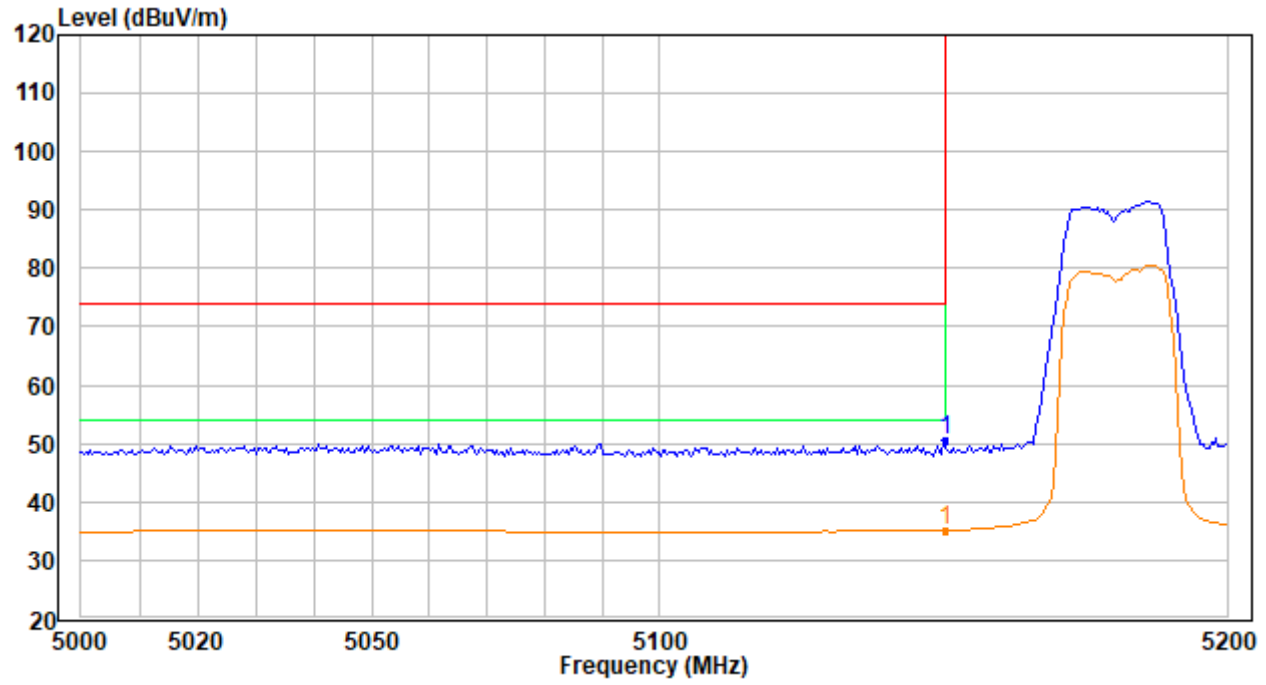
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	53.07	68.20	37.57	54.00	Pass
5470.0000	53.36	68.20	37.94	68.20	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

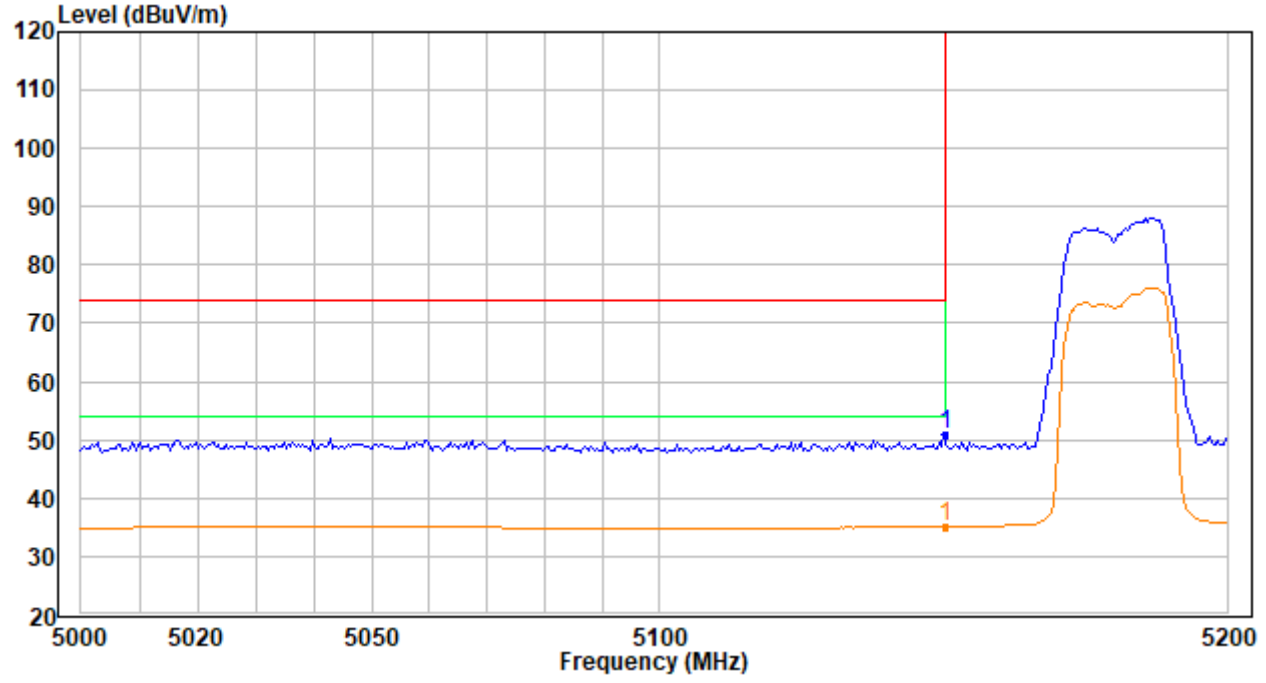
IEEE 802.11n-HT20

Test Channel:	Channel 36	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	50.57	74.00	35.21	54.00	Pass

Test Channel:	Channel 36	Ant. Polar. :	Vertical



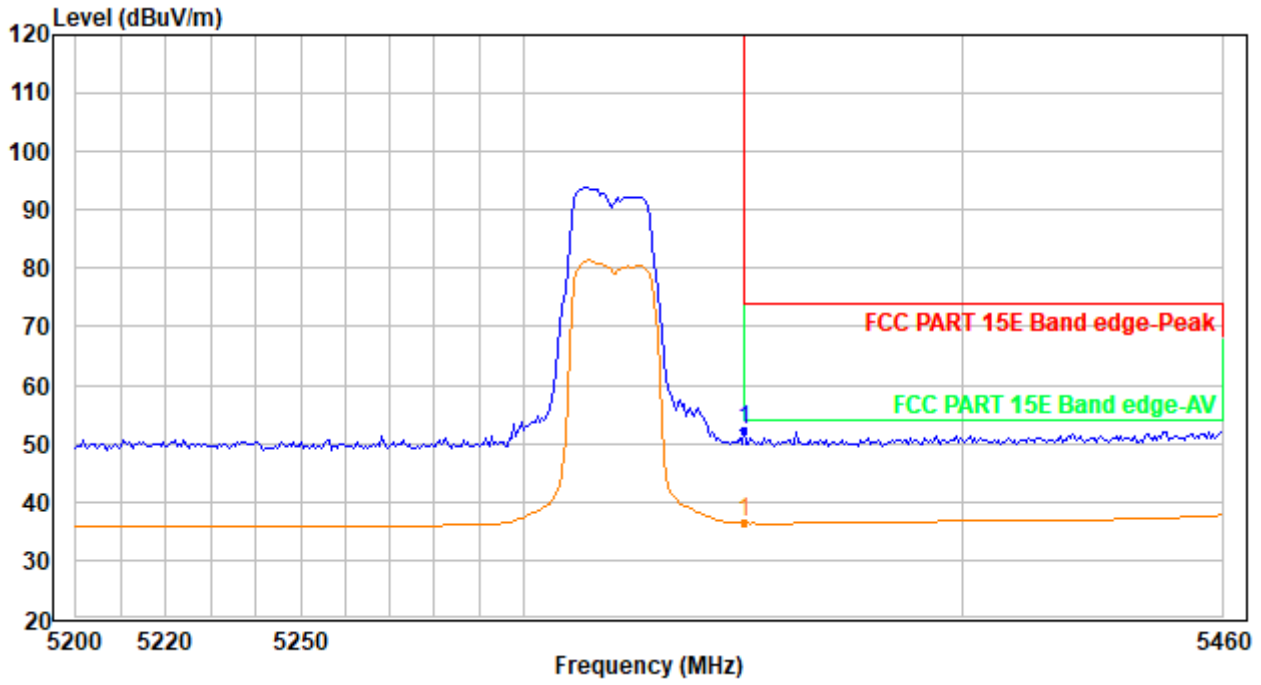
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	51.07	74.00	35.08	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

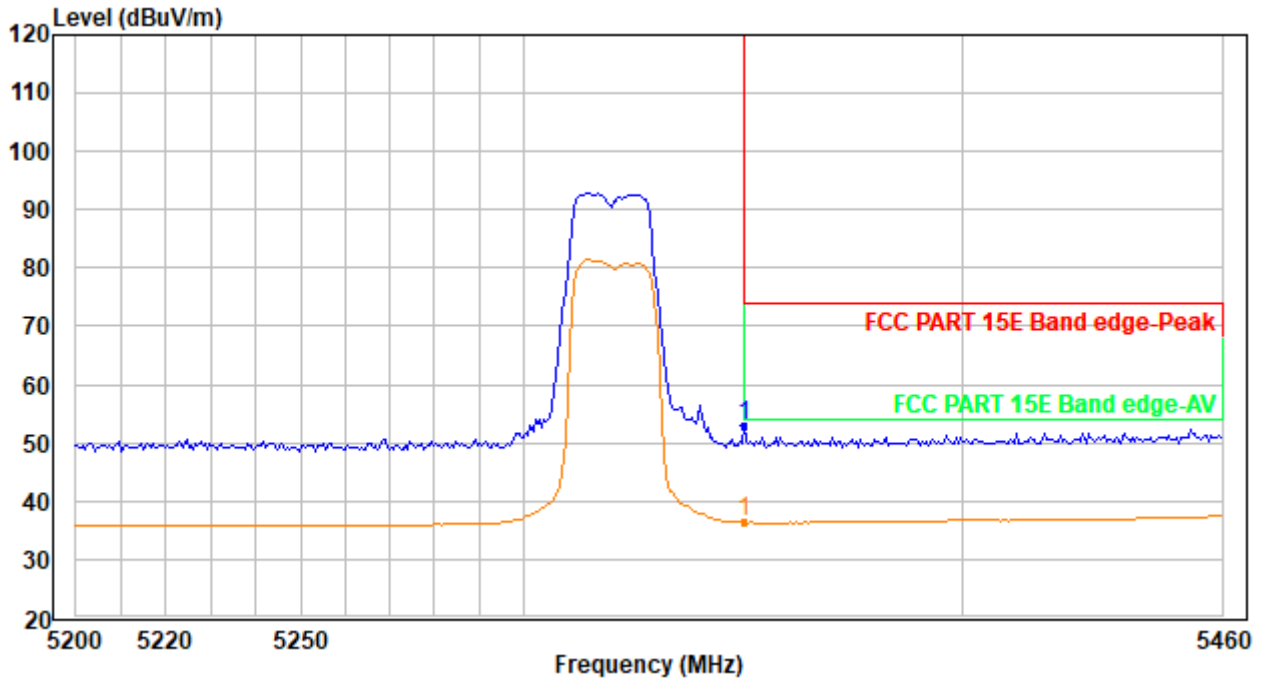
IEEE 802.11n-HT20

Test Channel:	Channel 64	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	52.46	74.00	36.38	54.00	Pass

Test Channel:	Channel 64	Ant. Polar. :	Vertical



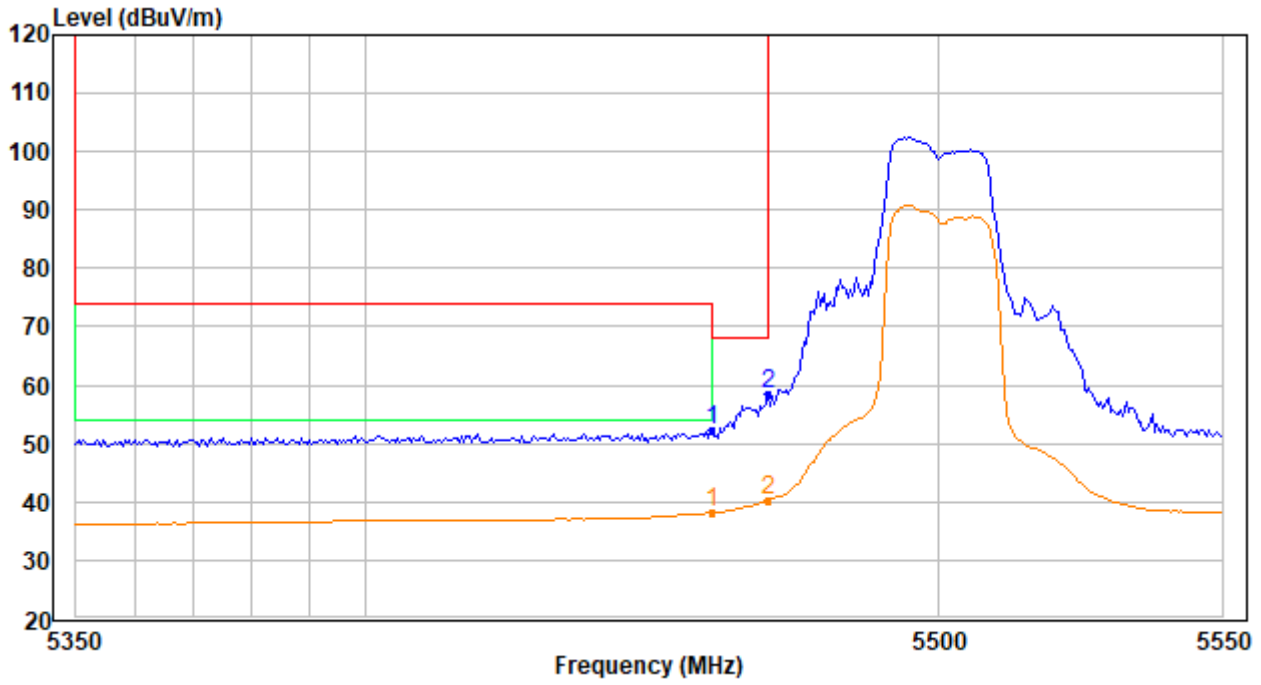
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	52.97	74.00	36.34	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

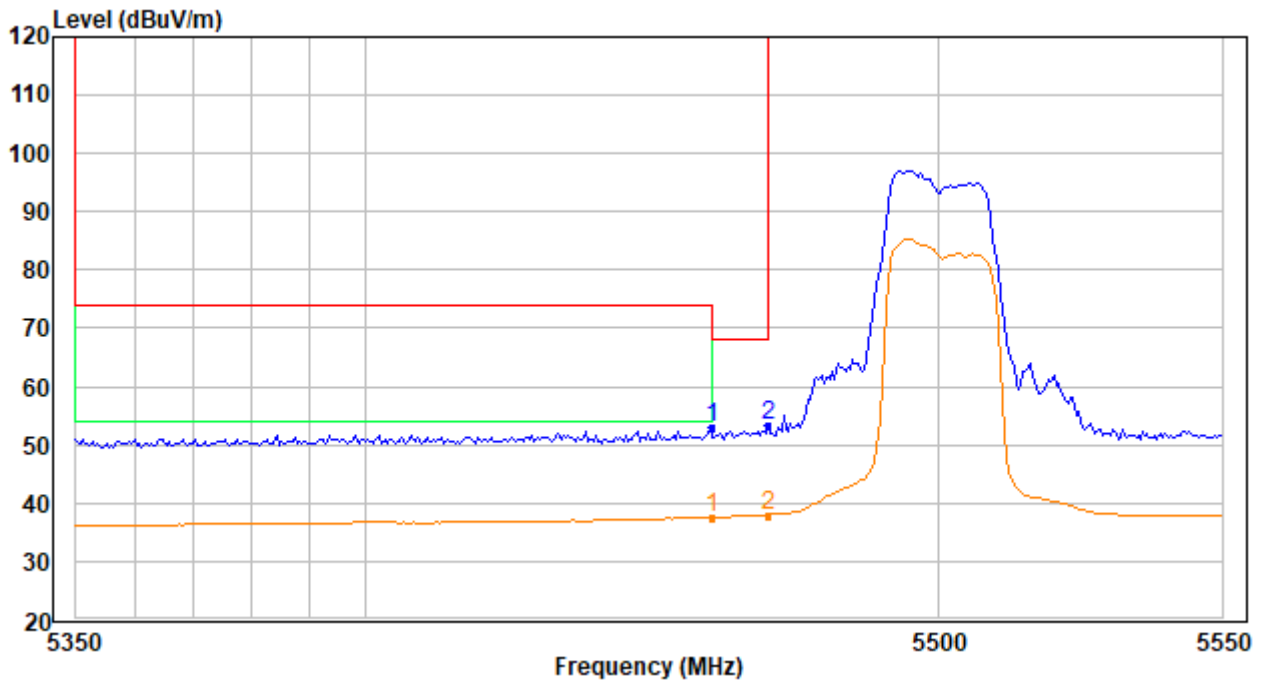
IEEE 802.11n-HT20

Test Channel:	Channel 100	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	52.35	68.20	38.08	54.00	Pass
5470.0000	58.51	68.20	40.18	68.20	Pass

Test Channel:	Channel 100	Ant. Polar. :	Vertical



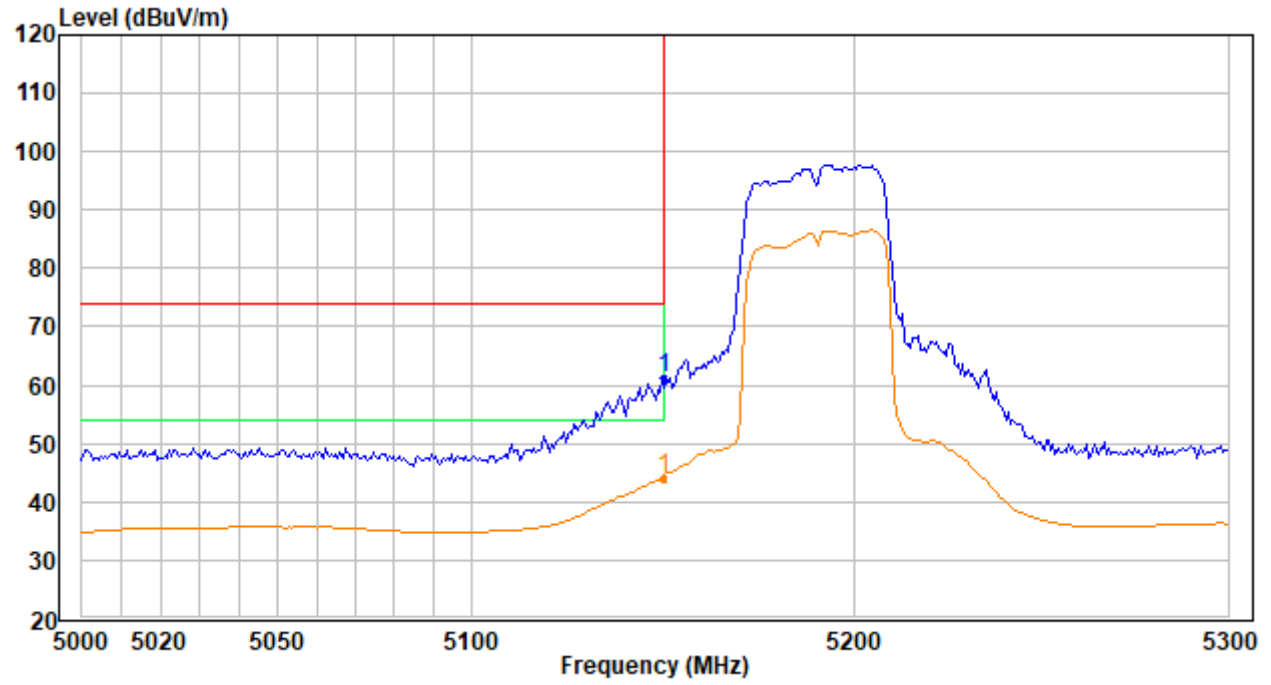
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	53.11	68.20	37.56	54.00	Pass
5470.0000	53.47	68.20	38.03	68.20	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

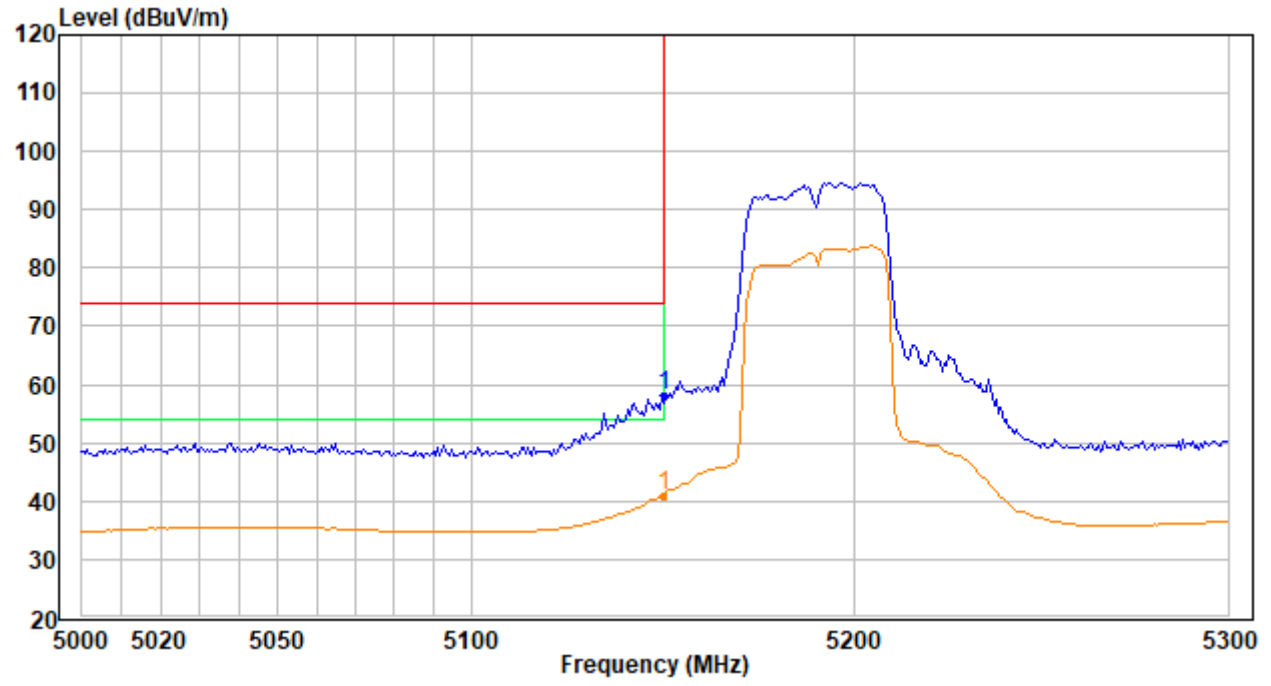
IEEE 802.11n-HT40

Test Channel:	Channel 38	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	61.32	74.00	44.11	54.00	Pass

Test Channel:	Channel 38	Ant. Polar. :	Vertical



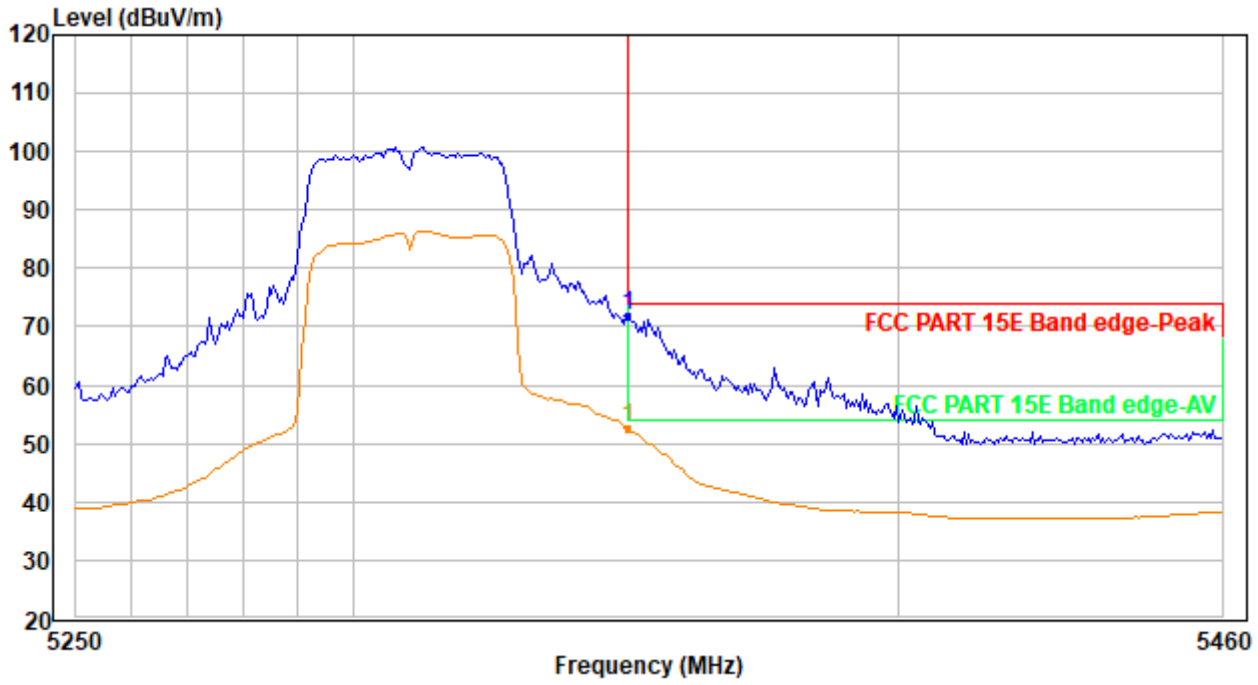
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5150.0000	58.14	74.00	40.89	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

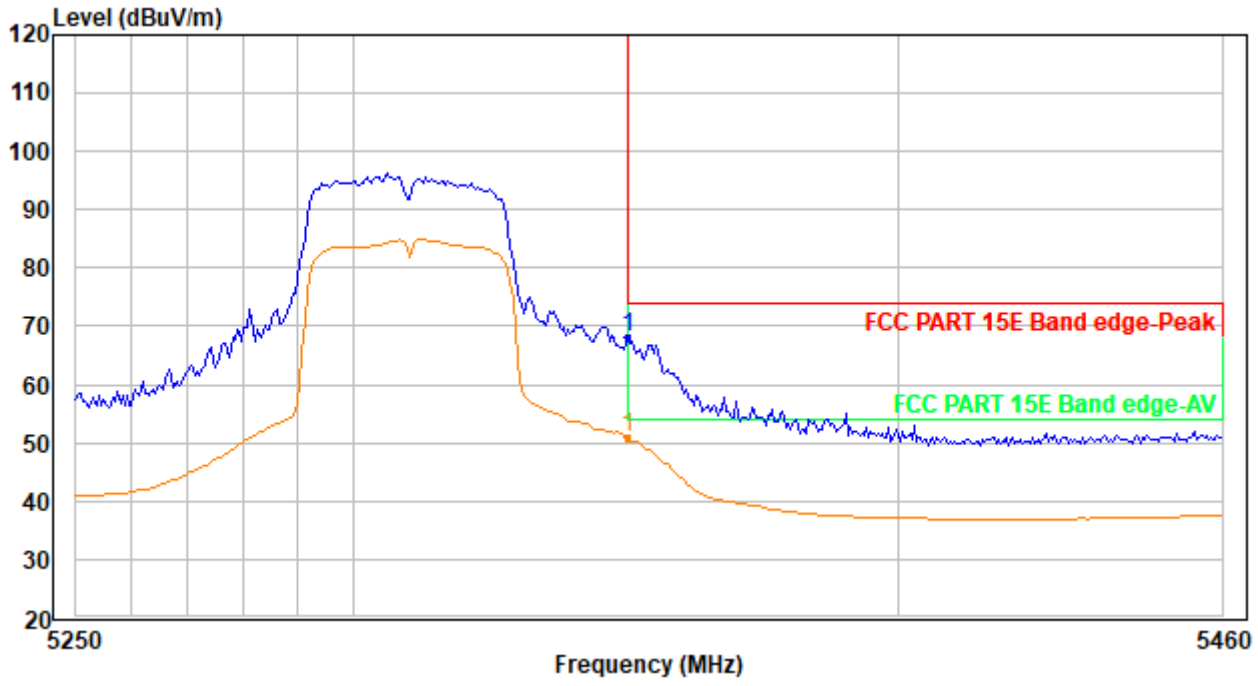
IEEE 802.11n-HT40

Test Channel:	Channel 62	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	72.02	74.00	52.55	54.00	Pass

Test Channel:	Channel 62	Ant. Polar. :	Vertical



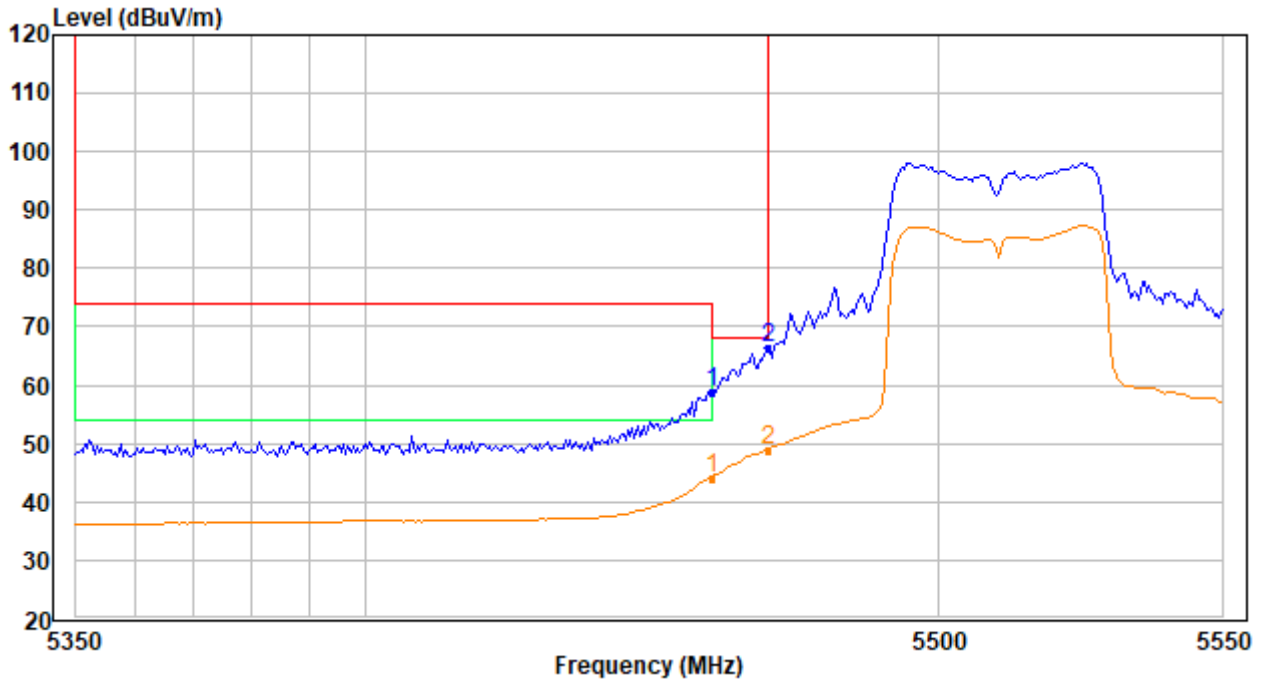
Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5350.0000	68.04	74.00	50.88	54.00	Pass

TEST REPORT

RADIATED EMISSION DATA (BAND EDGE MEASUREMENTS)

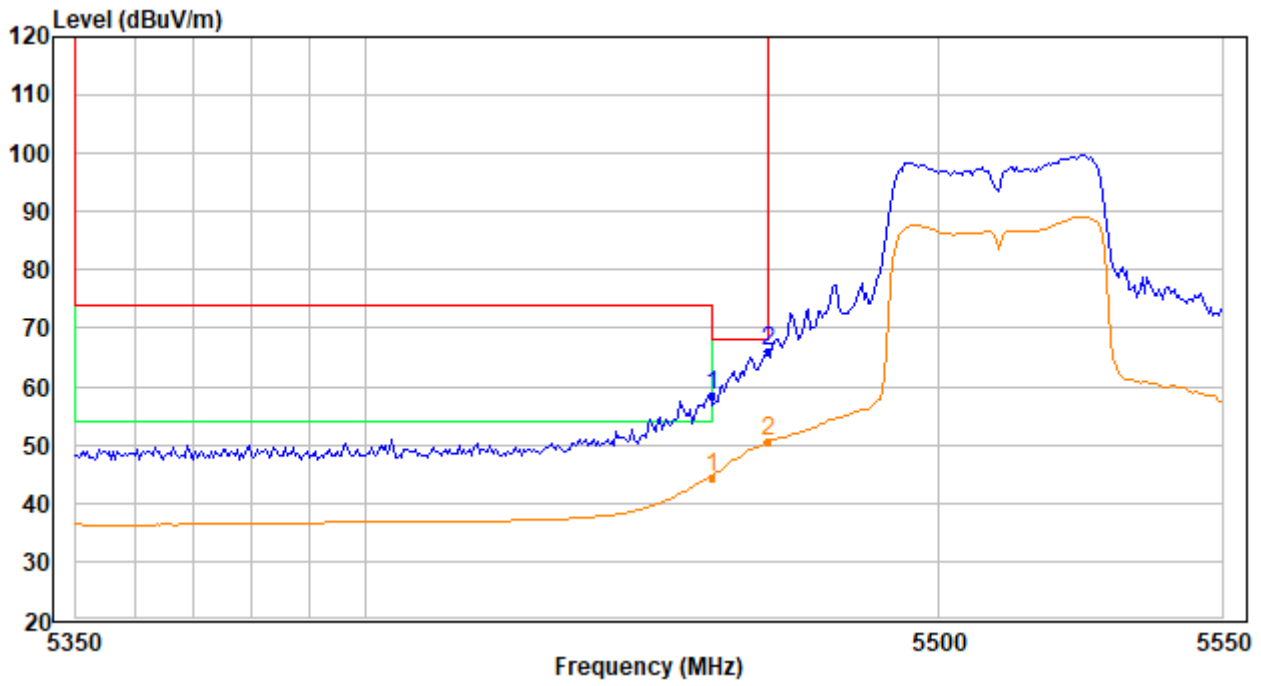
IEEE 802.11n-HT40

Test Channel:	Channel 102	Ant. Polar. :	Horizontal



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	58.68	68.20	44.12	54.00	Pass
5470.0000	66.41	68.20	48.96	68.20	Pass

Test Channel:	Channel 102	Ant. Polar. :	Vertical



Frequency (MHz)	Peak level (dBuv/m)	Peak Limit (dBuv/m)	AV level (dBuv/m)	AV Limit (dBuv/m)	Conclusion
5460.0000	58.38	68.20	44.54	54.00	Pass
5470.0000	66.08	68.20	50.43	68.20	Pass

TEST REPORT

RADIATED EMISSION DATA

Mode: Charging+Wi-Fi Link

Polarization	Frequency (MHz)	Reading (dBµV)	Pre-amp (dB)	Antenna Factor (dB)	Net at 3m (dBµV/m)	Limit at 3m (dBµV/m)	Margin (dB)
H	31.213	27.9	16	10.0	21.9	40.0	-18.1
V	48.794	23.1	16	11.0	18.1	40.0	-21.9
V	124.939	38.5	16	14.0	36.5	43.5	-7.0
V	145.915	34.4	16	14.0	32.4	43.5	-11.1
V	215.513	32.0	16	17.0	33.0	43.5	-10.5
H	249.463	34.3	16	20.0	38.3	46.0	-7.7
H	374.956	24.5	16	24.0	32.5	46.0	-13.5
H	500.086	24.0	16	26.0	34.0	46.0	-12.0
V	625.095	24.3	16	29.0	37.3	46.0	-8.7
H	750.050	31.1	16	30.0	45.1	46.0	-0.9
H	875.050	29.3	16	32.0	45.3	46.0	-0.7

Notes:
1. Peak and Quasi-Peak detector is used for the emission measurement.
2. All measurements were made at 3 meters.
3. Negative value in the margin column shows emission below limit.
4. Emissions within the restricted band meets the requirement of FCC Part 15 Section 15.205 / RSS-Gen Section 8.10.
5. Measurement Uncertainty is ±5.3dB at a level of confidence of 95%.

TEST REPORT

3.7 AC Power Line Conducted Emission

☐ Not Applicable – EUT is only powered by battery for operation.

☒ EUT connects to AC power line. Emission Data is listed in following pages.

☐ Base Unit connects to AC power line and has transmission. Handset connects to AC power line but has no transmission. Emission Data of Base Unit is listed in following pages.

3.7.1 AC Power Line Conducted Emission Configuration Photograph

Worst Case Line-Conducted Configuration at 0.4200 MHz.

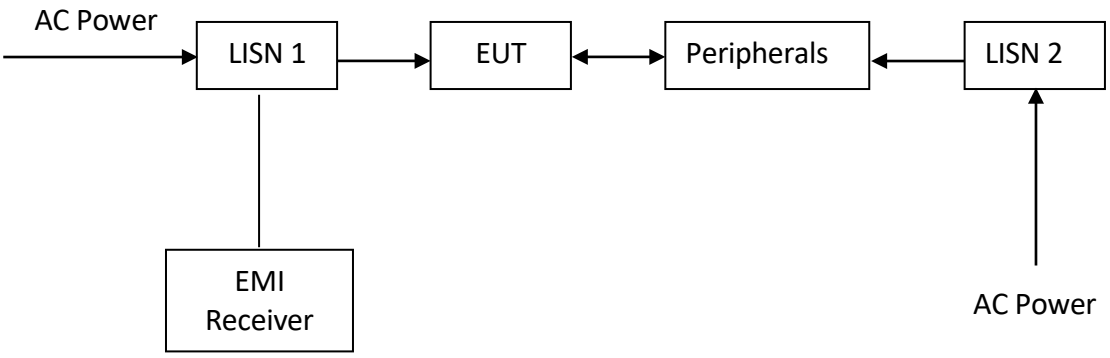
The worst case line conducted configuration photographs are attached in the Appendix and saved with filename: config photos.pdf.

3.7.2 AC Power Line Conducted Emission Data

The plot(s) and data in the following pages list the significant emission frequencies, the limit and the margin of compliance.

Passed by 8.5 dB margin compare with CISPR Average limit.

3.7.3 Conducted Emission Test Setup



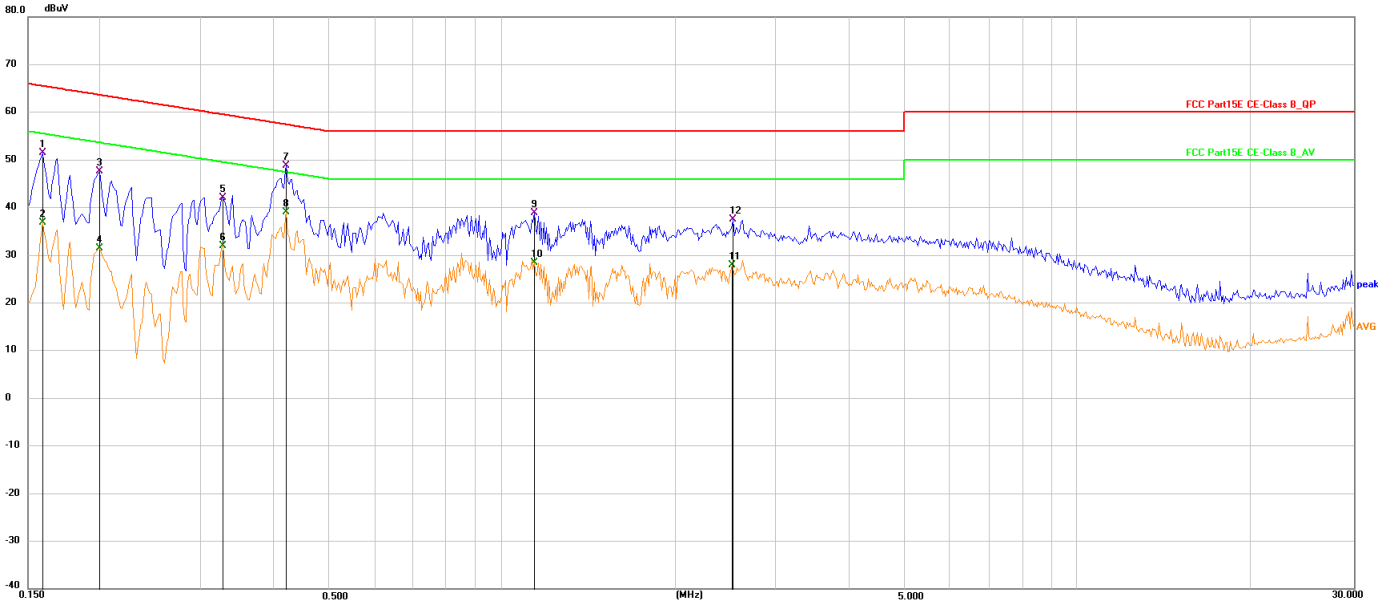
The EUT along with its peripherals were placed on a 1.0m(W)×1.5m(L) and 0.8m in height wooden table and the EUT was adjusted to maintain a 0.4 meter space from a vertical reference plane. The EUT was connected to power mains through a line impedance stabilization network (LISN), which provided 50 ohm coupling impedance for measuring instrument and the chassis ground was bounded to the horizontal ground plane of shielded room. The excess power cable between the EUT and the LISN was bundled.

All connecting cables of EUT and peripherals were moved to find the maximum emission.

TEST REPORT

AC POWER LINE CONDUCTED EMISSION

Worst Case Operating Mode: Charging+Wi-Fi Link (L1)

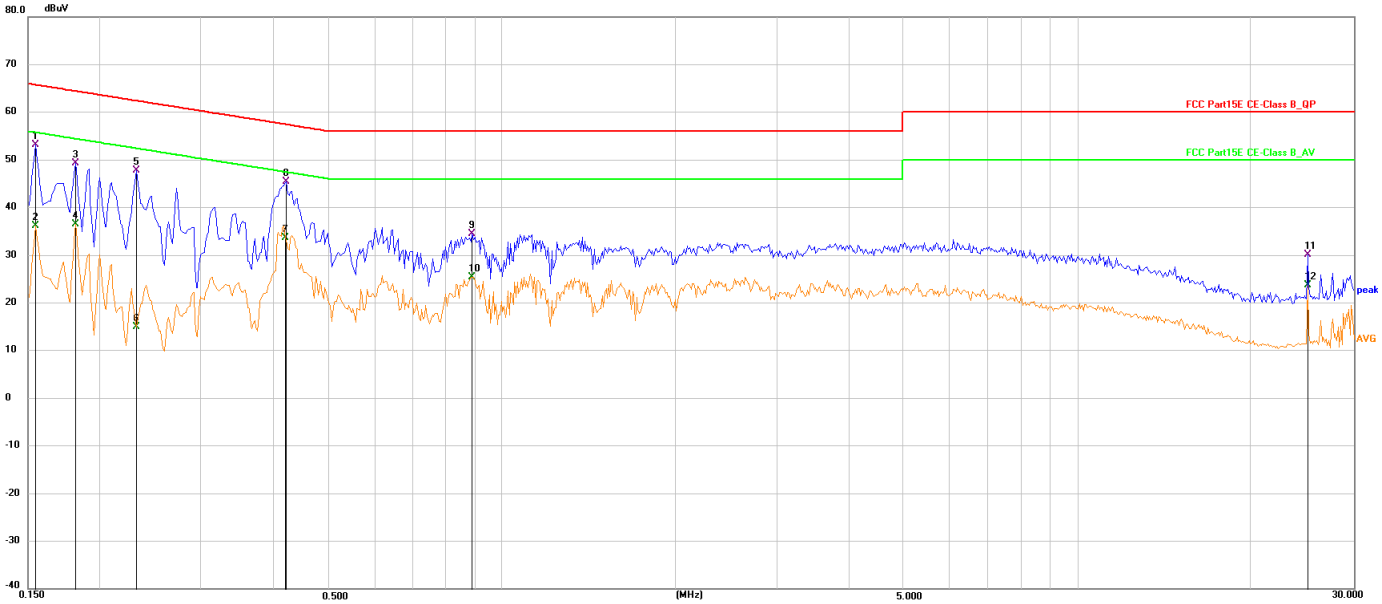


No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1590	41.50	10.03	51.53	65.52	-13.99	QP
2	0.1590	26.88	10.03	36.91	55.52	-18.61	Average
3	0.1995	37.55	10.01	47.56	63.63	-16.07	QP
4	0.1995	21.42	10.01	31.43	53.63	-22.20	Average
5	0.3255	32.06	10.02	42.08	59.57	-17.49	QP
6	0.3255	21.96	10.02	31.98	49.57	-17.59	Average
7	0.4200	38.68	10.02	48.70	57.45	-8.75	QP
8	0.4200	28.93	10.02	38.95	47.45	-8.50	Average
9	1.1400	28.81	10.04	38.85	56.00	-17.15	QP
10	1.1400	18.42	10.04	28.46	46.00	-17.54	Average
11	2.5080	17.81	10.09	27.90	46.00	-18.10	Average
12	2.5215	27.44	10.09	37.53	56.00	-18.47	QP

TEST REPORT

AC POWER LINE CONDUCTED EMISSION

Worst Case Operating Mode: Charging+Wi-Fi Link (N)



No.	Frequency (MHz)	Reading (dBuV)	Correction factor (dB)	Result (dBuV)	Limit (dBuV)	Margin (dB)	Remark
1	0.1545	43.11	10.02	53.13	65.75	-12.62	QP
2	0.1545	26.07	10.02	36.09	55.75	-19.66	Average
3	0.1815	39.29	10.00	49.29	64.42	-15.13	QP
4	0.1815	26.52	10.00	36.52	54.42	-17.90	Average
5	0.2310	37.76	10.00	47.76	62.41	-14.65	QP
6	0.2310	4.95	10.00	14.95	52.41	-37.46	Average
7	0.4193	23.63	10.01	33.64	47.46	-13.82	Average
8	0.4200	35.33	10.01	45.34	57.45	-12.11	QP
9	0.8880	24.50	10.03	34.53	56.00	-21.47	QP
10	0.8880	15.38	10.03	25.41	46.00	-20.59	Average
11	24.9990	18.87	11.29	30.16	60.00	-29.84	QP
12	24.9990	12.48	11.29	23.77	50.00	-26.23	Average

TEST REPORT

3.8 Frequency Stability Requirement

Frequency (MHz)	Mode	Measured Value (ppm) (0°C)	Measured Value (ppm) (10°C)	Measured Value (ppm) (20°C)	Measured Value (ppm) (30°C)	Measured Value (ppm) (40°C)	Measured Value (ppm) (50°C)
5180	A	0.804	0.952	4.054	4.102	3.840	3.700
5745		0.725	0.854	4.090	4.894	3.842	4.418

Temperature (°C)	Frequency (MHz)	Mode	Measured Value (ppm) 120VAC	Measured Value (ppm) 132VAC	Measured Value (ppm) 108VAC
25	5180	A	4.054	4.601	3.893
25	5745		4.09	3.568	4.496

The Maximum value is +4.894 ppm.

It is proved that the frequency stability such that an emission is maintained within the band of operation under all condition.

3.9 U-NII-1 99% Bandwidth Requirement

For the case if a channel operating in U-NII-1 band has a 26-dB bandwidth that straddles into U-NII-2A band but its 99% occupied power bandwidth does not. For this rare case, DFS requirement does not apply.

The plots of U-NII-1 99% bandwidth is saved with filename:
DATA.pdf proved that no further test for DFS.

TEST REPORT

3.10 Dynamic Frequency Selection (DFS)

According to standard 905462 DO2 UNII DFS Compliance Procedures New Rules v02 Section 5.1.1 and 5.1.2.

3.10.1 Master Devices

a) The Master Device will use DFS in order to detect Radar Waveforms with received signal strength above the DFS Detection Threshold in the 5250 - 5350 MHz and 5470- 5725 MHz bands. DFS is not required in the 5150 - 5250 MHz or 5725 - 5825 MHz bands.
b) Before initiating a network on a Channel, the Master Device will perform a Channel Availability Check for a specified time duration (Channel Availability Check Time) to ensure that there is no radar system operating on the Channel, using DFS described under subsection a) above.
c) The Master Device initiates a U-NII network by transmitting control signals that will enable other U-NII devices to Associate with the Master Device.
d) During normal operation, the Master Device will monitor the Channel (In-Service Monitoring) to ensure that there is no radar system operating on the Channel, using DFS described under a).
e) If the Master Device has detected a Radar Waveform during In-Service Monitoring as described under d), the Operating Channel of the U-NII network is no longer an Available Channel. The Master Device will instruct all associated Client Device(s) to stop transmitting on this Channel within the Channel Move Time. The transmissions during the Channel Move Time will be limited to the Channel Closing Transmission Time.
f) Once the Master Device has detected a Radar Waveform it will not utilize the Channel for the duration of the Non-Occupancy Period.
g) If the Master Device delegates the In-Service Monitoring to a Client Device, then the combination will be tested to the requirements described under d) through f) above.

3.10.2 Client Devices

a) A Client Device will not transmit before having received appropriate control signals from a Master Device.
b) A Client Device will stop all its transmissions whenever instructed by a Master Device to which it is associated and will meet the Channel Move Time and Channel Closing Transmission Time requirements. The Client Device will not resume any transmissions until it has again received control signals from a Master Device.
c) If a Client Device is performing In-Service Monitoring and detects a Radar Waveform above the DFS Detection Threshold, it will inform the Master Device. This is equivalent to the Master Device detecting the Radar Waveform and d) through f) of section 5.1.1 apply.
d) Irrespective of Client Device or Master Device detection the Channel Move Time and Channel Closing Transmission Time requirements remain the same.
e) The client test frequency must be monitored to ensure no transmission of any type has occurred for 30 minutes. Note: If the client moves with the master, the device is considered compliant if nothing appears in the client non-occupancy period test. For devices that shut down (rather than moving channels), no beacons should appear.

TEST REPORT

Applicability of DFS Requirement During Normal Operation

Requirement	Operational Mode	
	Master Device or Client with Radar Detection	Client Without Radar Detection
DFS Detection Threshold	Yes	Not required
Channel Closing Transmission Time	Yes	Yes
Channel Move Time	Yes	Yes
U-NII Detection Bandwidth	Yes	Not required

Additional requirements for devices with multiple bandwidth modes	Master Device or Client with Radar Detection	Client Without Radar Detection
U-NII Detection Bandwidth and Statistical Performance Check	All BW modes must be tested	Not required
Channel Move Time and Channel Closing Transmission Time	Test using widest BW mode available	Test using the widest BW mode available for the link
All other tests	Any single BW mode	Not required
Note: Frequencies selected for statistical performance check (Section 7.8.4) should include several frequencies within the radar detection bandwidth and frequencies near the edge of the radar detection bandwidth. For 802.11 devices it is suggested to select frequencies in each of the bonded 20 MHz channels and the channel center frequency.		

The operational behavior and individual DFS requirements that are associated with these modes are as follows:

TEST REPORT

Response Requirements

Parameter	Value
Non-occupancy period	Minimum 30 minutes
Channel Availability Check Time	60 seconds
Channel Move Time	10 seconds See Note 1.
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.

Note 1: *Channel Move Time* and the *Channel Closing Transmission Time* should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.
Note 2: The *Channel Closing Transmission Time* is comprised of 200 milliseconds starting at the beginning of the *Channel Move Time* plus any additional intermittent control signals required to facilitate a *Channel* move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.
Note 3: During the *U-NII Detection Bandwidth* detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

TEST REPORT

3.11 Short Pulse Radar Test Waveforms

Radar Type	Pulse Width (µsec)	PRI (µsec)	Number of Pulses	Minimum Percentage of Successful Detection	Minimum Number of Trials
0	1	1428	18	See Note 1	See Note 1
1	1	Test A: 15 unique PRI values randomly selected from the list of 23 PRI values in Table 5a	Roundup $\left\{\left(\frac{1}{360}\right)\cdot\left(\frac{19\cdot 10^6}{PRI_{\mu sec}}\right)\right\}$	60%	30
		Test B: 15 unique PRI values randomly selected within the range of 518-3066 µsec, with a minimum increment of 1 µsec, excluding PRI values selected in Test A			
2	1-5	150-230	23-29	60%	30
3	6-10	200-500	16-18	60%	30
4	11-20	200-500	12-16	60%	30
Aggregate (Radar Types 1-4)				80%	120

Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests.

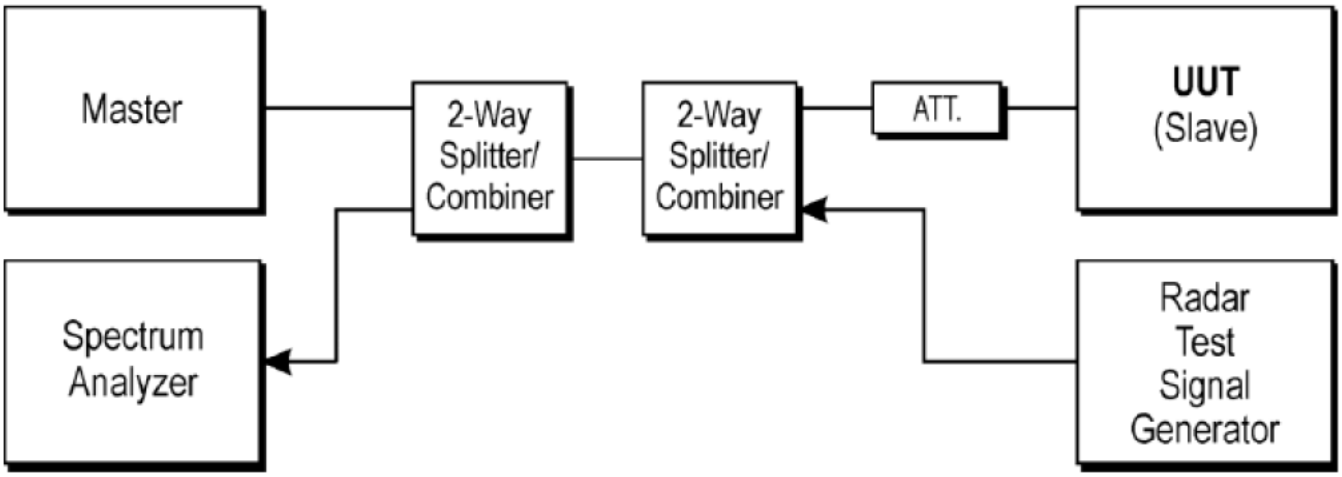
TEST REPORT

3.12 Calibration Setup and DFS Test Results

3.12.1 Calibration Procedure of Radar Waveform:

The Interference Radar Detection Threshold Level is -62dBm+ 0dBi +1 dB=-61dBm that had been taken into account the output power range and antenna gain. The following equipment setup was used to calibrate the conducted Radar Waveform. A vector signal generator was utilized to establish the test signal level for radar type 0. During this process there were no transmissions by either the Master or client device. The Spectrum analyzer was switched was used. The spectrum analyzer resolution bandwidth (RBW) and video bandwidth (VBW) were set to 1MHz or 3MHz respectively to measure the type 0 radar waveform. The spectrum analyzer had offset to compensate and RF cable loss. The vector signal generator amplitude was set so that the power level measured at the spectrum analyzer was -61dBm. Capture the spectrum analyzer plots on short pulse radar waveform.

3.12.2 Conducted Setup



3.12.3 Radar Waveform Calibration Result

The results are saved in DFS Test Data.pdf.

3.12.4 Test Deviation

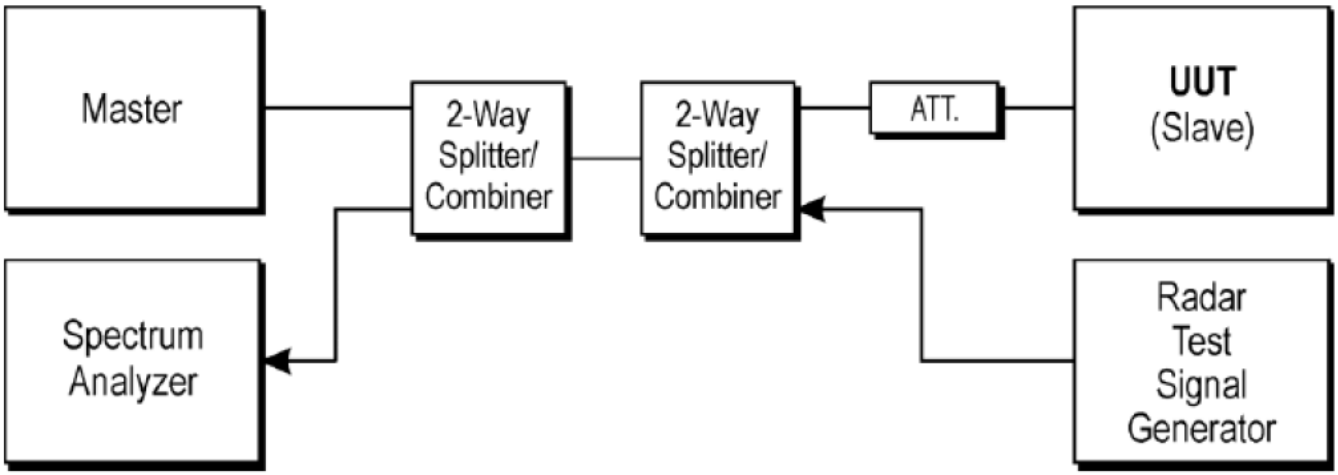
There is no deviation with the original standard.

TEST REPORT

3.13.1 Test Procedures

1. The radar pulse generator is setup to provide a pulse at frequency that the Master and Client are operating. A type 0 radar pulse with a 1us pulse width and a 1428 us PRI is used for the testing.
2. The vector signal generator is adjusted to provide the radar burst (18 pules) at a level approximately -62dBm at the antenna of the Master device.
3. An external trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
4. A U-NII device operating as a Client Device (EUT) will associate with the Master at same channel. The MEPG file "TestFile.mpg" specified by the FCC is streamed from the "file computer" through the master to the client device (EUT).
5. When a radar burst with a level equal to the DFS Detection Threshold + 1dB is generated on the operating Channel of the U-NII device. At time T0 the Radar Waveform generator sends a Burst of pulse of the radar waveform at Detection Threshold +1dB.
6. Observe the transmission of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the EUT during the observation time. One 20seconds plot is reported for the short pulse Radar Type 0. The plot for the short pulse radar types start at the end if the radar burst.
7. Measurement of the aggregate duration of the Channel Closing Transmission Time method:
   Center Frequency: operating frequency
   Span: Zero
   RBW: 1MHz
   VBW: 3MHz
   Sweep Time: 32Sec
   Detector: Max Peak
   Sweep: Single.
8. Measure the EUT for more than 30mintes following the Channel move time to verify the no transmission or beacons occur on this Channel.

3.13.2 Test Setup



3.13.3 Test Deviation

There is no deviation with the original standard.

TEST REPORT

3.13.4 Test Result

The results are saved in DFS Test Data.pdf.

TEST REPORT

EQUIPMENT LIST

1) Radiated Emissions Test

Radiated Emission Test - 3M Chamber						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date**	**Cal. Due date**
☒	3m Chamber & Accessory Equipment	ETS-Lindgren	3m	Euroshiedpn-CT001270-1317	11-Nov-2023	10-Nov-2026
☒	Broadband Antenna	ETS-Lindgren	3142E	00201566	30-Oct-2023	29-Oct-2024
☒	6dB Attenuator	Talent	RA6A5-N-18	18103001	30-Oct-2023	29-Oct-2024
☒	Pre-amplifier	HP	8447F	2805A02960	31-Oct-2023	30-Oct-2024
☒	Receiver	ROHDE & SCHWARZ	ESIB26	100114	27-Oct-2023	26-Oct-2024
☒	Double-Ridged Waveguide Horn Antenna (Pre-amplifier) 高频	ETS-LINDGREN	3117-PA	00201541	16- Apr-2023	15- Apr-2025
☒	Pre-amplifier	ETS-Lindgren	00118385	00201874	31-Oct-2023	30-Oct-2024
☒	Multi device Controller	ETS-Lindgren	7006-001	00160105	N/A	N/A
☒	Test Software	Audix	e3	Software Version: 9.160323		

Equipment	**Signal and Spectrum Analyzer (10Hz to 40GHz)**	**Biconical Antenna (30MHz to 300MHz)**	**EMI Test Receiver 7GHz**
Registration No.	EW-3016	EW-3242	EW-3603
Manufacturer	ROHDESCHWARZ	EMCO	ROHDESCHWARZ
Model No.	FSV40	3110C	ESR7
Calibration Date	December 13, 2022	May 26, 2021	December 06, 2022
Calibration Due Date	March 13, 2024	February 26, 2024	March 06, 2024

Equipment	**Log Periodic Antenna**	**14m Double Shield RF Cable (20MHz to 6GHz)**
Registration No.	EW-3243	EW-2074
Manufacturer	EMCO	RADIALL
Model No.	3148B	N(m)-RG142-BNC(m) L=14M
Calibration Date	June 03, 2021	December 10, 2021
Calibration Due Date	March 30, 2024	March 10, 2024

TEST REPORT

5.0 EQUIPMENT LIST (CONT'D)

2) Conducted Emissions Test

Conducted Emission Test						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date**	**Cal. Due date**
☒	LISN	R&S	ESH2-Z5	860014/024	27-Oct-2023	26-Oct-2024
☒	LISN	ETS-Lindgren	3816/2SH	00201088	27-Oct-2023	26-Oct-2024
☒	ISN	Schwarzbeck	NTFM 8158	NTFM 8158#113	27-Oct-2023	26-Oct-2024
☒	Receiver	R&S	ESR7	101181	27-Oct-2023	26-Oct-2024
☒	Pulse Limiter	R&S	ESH3-Z2	0357.8810.54	27-Oct-2023	26-Oct-2024
☒	Shielding room	ETS-Lindgren	843	Euroshiedpn-CT001270-1246	5-Nov-2021	4-Nov-2024
☒	Test Software	EZ-EMC	EZ-CON	Software Version: EMC-CON 3A1.1		

3) Control Software for Radiated Emission

Software Information	
Software Name	EMC32
Manufacturer	ROHDESCHWARZ
Software version	10.50.40

4) RF test

RF test						
Used	**Equipment**	**Manufacturer**	**Model No.**	**Serial Number**	**Cal. date**	**Cal. Due date**
☒	EXA Spectrum Analyzer	KEYSIGHT	N9010A	MY51440197	2023-04-14	2024-04-13
☒	USB Wideband Power Sensor	KEYSIGHT	U2021XA	MY55430035	2023-10-27	2024-10-26
☒	EXG-B RF Analog Signal Generator	KEYSIGHT	N5171B	MY53051777	2023-10-27	2024-10-26
☒	MXG X-Series RF Vector Signal Generator	KEYSIGHT	N5182B	MY51350267	2023-10-27	2024-10-26
☒	Temp & Humidity chamber	Votisch	VT4002	58566133290020	2023-04-14	2024-04-13

END OF TEST REPORT