

FCC UNII REPORT

Certification

Applicant Name:

SAMSUNG Electronics Co., Ltd.

Date of Issue:

July 18, 2022

Address:

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Report No.: HCT-RF-2207-FC021**FCC ID:** A3LSMA233JPN**APPLICANT:** SAMSUNG Electronics Co., Ltd.**Model:** SC-56C**Additional Model:** SCG18, SM-A233C**EUT Type:** Mobile Phone**Modulation type** OFDM**FCC Classification:** Unlicensed National Information Infrastructure(NII)**FCC Rule Part(s):** Part 15.407**Engineering Statement:**

The measurements shown in this report were made in accordance with the procedures indicated, and the emissions from this equipment were found to be within the limits applicable. I assume full responsibility for the accuracy and completeness of these measurements, and for the qualifications of all persons taking them. It is further stated that upon the basis of the measurements made, the equipment tested is capable of operation in accordance with the requirements of the FCC Rules under normal use and maintenance.

Report No.: HCT-RF-2207-FC021

REVIEWED BY



Report prepared by : Woong Jin Kim
Engineer of Telecommunication Testing Center

Report approved by : Se Wook Park
Manager of Telecommunication Testing Center

This test results were applied only to the test methods required by the standard.

This laboratory is not accredited for the test results marked *.
The above Test Report is the accredited test result by (KS Q) ISO/IEC 17025 and KOLAS(Korea Laboratory Accreditation Scheme), which signed the ILAC-MRA. (HCT Accreditation No.: KT197)

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Version

TEST REPORT NO.	DATE	DESCRIPTION
HCT-RF-2207-FC021	July 18, 2022	- First Approval Report

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1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SC-56C	
Additional Model	SCG18, SM-A233C	
EUT Type	Mobile Phone	
Power Supply	DC 4.20 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20 MHz BW : 5180 - 5240 40 MHz BW : 5190 - 5230 80 MHz BW : 5210
	U-NII-2A	20 MHz BW : 5260 - 5320 40 MHz BW : 5270 - 5310 80 MHz BW : 5290
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 - 5690
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Date(s) of Tests	June 23, 2022 ~ July 18, 2022	
Serial number	Radiated : R3CT50MQF8M Conducted : R3CT50MQEKV	

2. MAXIMUM OUTPUT POWER

The transmitter has a maximum total conducted average output power as follows:

Band	Mode	Power	
		(dBm)	(W)
UNII1	802.11a	16.85	0.048
	802.11n (HT20)	16.25	0.042
	802.11n (HT40)	13.28	0.021
	802.11ac (VHT20)	15.54	0.036
	802.11ac (VHT40)	13.35	0.022
	802.11ac (VHT80)	13.16	0.021
UNII2A	802.11a	15.97	0.040
	802.11n (HT20)	16.18	0.041
	802.11n (HT40)	13.31	0.021
	802.11ac (VHT20)	15.88	0.039
	802.11ac (VHT40)	13.44	0.022
	802.11ac (VHT80)	12.17	0.016
UNII2C	802.11a	12.38	0.017
	802.11n (HT20)	12.33	0.017
	802.11n (HT40)	13.18	0.021
	802.11ac (VHT20)	12.36	0.017
	802.11ac (VHT40)	13.18	0.021
	802.11ac (VHT80)	13.69	0.023
UNII3	802.11a	11.22	0.013
	802.11n (HT20)	11.14	0.013
	802.11n (HT40)	12.34	0.017
	802.11ac (VHT20)	11.15	0.013
	802.11ac (VHT40)	12.33	0.017
	802.11ac (VHT80)	12.80	0.019

3. TEST METHODOLOGY

The measurement procedure described in FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01 dated December 14, 2017 entitled "Guidelines for Compliance Testing of Unlicensed National Information Infrastructure (U-NII) Devices Part15, Subpart E" and ANSI C63.10(Version : 2013) 'the American National Standard of Procedures for Compliance Testing of Unlicensed Wireless Devices' were used in the measurement.

EUT CONFIGURATION

The EUT configuration for testing is installed on RF field strength measurement to meet the Commissions requirement and operating in a manner that intends to maximize its emission characteristics in a continuous normal application.

EUT EXERCISE

The EUT was operated in the engineering mode to fix the Tx frequency that was for the purpose of the measurements. According to its specifications, the EUT must comply with the requirements of the Section 15.207, 15.209 and 15.407 under the FCC Rules Part 15 Subpart E.

GENERAL TEST PROCEDURES

Conducted Emissions

The EUT is placed on the turntable, which is 0.8 m above ground plane. According to the requirements in Section 6.2 of ANSI C63.10. (Version :2013) Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

The EUT is placed on a turn table, which is 0.8 m above ground plane below 1 GHz. Above 1 GHz with 1.5 m using absorbers between the EUT and receive antenna. The turntable shall rotate 360 degrees to determine the position of maximum emission level. EUT is set 3 m away from the receiving antenna, which varied from 1 m to 4 m to find out the highest emission. And also, each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical. In order to find out the max. emission, the relative positions of this hand-held transmitter (EUT) was rotated through three orthogonal axes according to the requirements in Section 6.6.5 of ANSI C63.10. (Version: 2013)

DESCRIPTION OF TEST MODES

The EUT has been tested under operating condition. Test program used to control the EUT for staying in continuous transmitting and receiving mode is programmed.

4. INSTRUMENT CALIBRATION

The measuring equipment, which was utilized in performing the tests documented herein, has been calibrated in accordance with the manufacturer's recommendations for utilizing calibration equipment's, which is traceable to recognized national standards.

Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5 (Version : 2017).

5. FACILITIES AND ACCREDITATIONS

5.1 FACILITIES

The SAC(Semi-Anechoic Chamber) and conducted measurement facility used to collect the radiated data are located at the 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, 17383, Rep. of KOREA. The site is constructed in conformance with the requirements of ANSI C63.4. (Version :2014) and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated April 02, 2018 (Registration Number: KR0032).

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements.

Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to CISPR Publication 16-1, "Radio Interference Measuring Apparatus and Measurement Methods."

6. ANTENNA REQUIREMENTS

According to FCC 47 CFR §15.203, §15.407:

"An intentional radiator antenna shall be designed to ensure that no antenna other than that furnished by the responsible party can be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section."

- (1) The antennas of this E.U.T are permanently attached.
- (2) The E.U.T Complies with the requirement of §15.203, §15.407

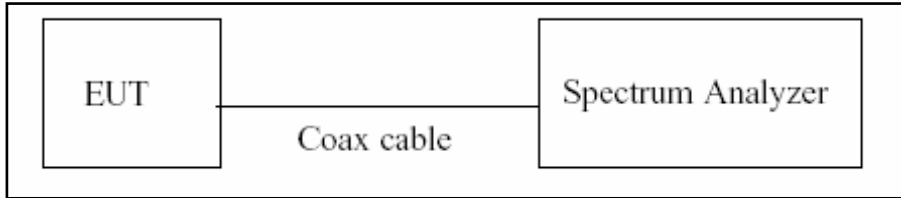
7. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2013.

All measurement uncertainty values are shown with a coverage factor of $k = 2$ to indicate a 95 % level of confidence.

The measurement data shown herein meets or exceeds the U_{CISPR} measurement uncertainty values specified in CISPR 16-4-2 and, thus, can be compared directly to specified limits to determine compliance.

Parameter	Expanded Uncertainty (dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	2.00 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.40 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.74 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.51 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.92 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.48 (Confidence level about 95 %, $k=2$)

8. DESCRIPTION OF TESTS**8.1. Duty Cycle****Test Configuration****Test Procedure**

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure B.2 in KDB 789033 D02 v02r01.

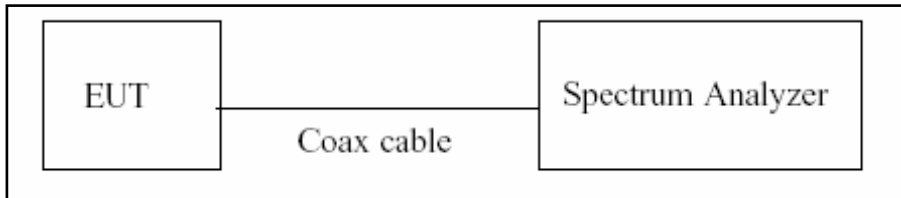
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ($\geq$ RBW)
3. SPAN = 0 Hz
4. Detector = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = $T_{\text{on}} / T_{\text{total}}$ and Duty Cycle Factor = $10\log(1/\text{Duty Cycle})$

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

Within the 5.725-5.85 GHz(NII-3), the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

Test Configuration



Test Procedure(26 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure C.1 in KDB 789033 D02 v02r01.

1. RBW = approximately 1 % of the emission bandwidth
2. VBW > RBW
3. Detector = Peak
4. Trace mode = max hold
5. Measure the maximum width of the emission that is 26 dB down from the maximum of the emission.
Compare this with the RBW setting of the analyzer. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1 %.

Test Procedure (6 dB Bandwidth)

The transmitter output is connected to the Spectrum Analyzer.

We tested according to Procedure C.2 in KDB 789033 D02 v02r01.

1. RBW = 100 kHz
2. VBW $\geq 3 \times$ RBW
3. Detector = Peak
4. Trace mode = max hold
5. Allow the trace to stabilize
6. Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points(upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.

Note:

1. We tested X dB bandwidth using the automatic bandwidth measurement capability of a spectrum analyzer.
2. DFS test channels should be defined. So, We performed the OBW test to prove that no part of the fundamental emissions of any channels belong to UNII1 and UNII3 band for DFS.
3. The 26 dB bandwidth is used to determine the conducted power limits.

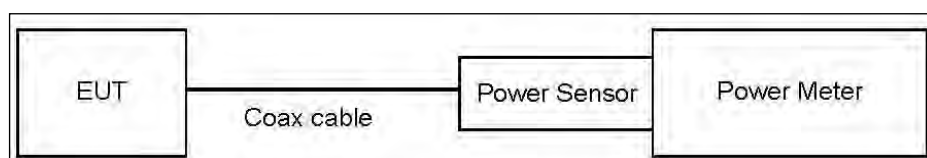
8.3. Output Power Measurement

Limit

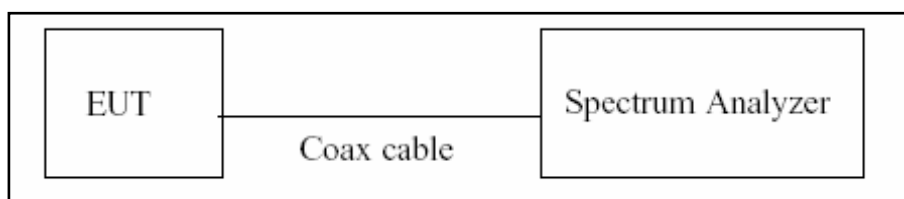
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)

Test Configuration

Power Meter



Spectrum Analyzer(Only Straddle Channel)



Test Procedure(Power Meter)

We tested according to Procedure E.3.a in KDB 789033 D02 v02r01.

1. Measure the duty cycle.
2. Measure the average power of the transmitter. This measurement is an average over both the on and off periods of the transmitter.
3. Add $10 \log (1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Test Procedure(Spectrum Analyzer)

The transmitter output is connected to the Spectrum Analyzer.

We use the spectrum analyzer's integrated band power measurement function.

We tested according to Procedure E.2.d) in KDB 789033 D02 v02r01.

1. Measure the duty cycle.
2. Set span to encompass the 26 dB EBW of the signal.
3. RBW = 1 MHz.
4. VBW $\geq$ 3 MHz.
5. Number of points in sweep $\geq 2 \times \text{span/RBW}$.
6. Sweep time = auto.
7. Detector = RMS.
8. Do not use sweep triggering. Allow the sweep to "free run".
9. Trace average at least 100 traces in power averaging(RMS) mode
10. Integrated bandwidth = OBW
11. Add $10\log(1/x)$, where x is the duty cycle, to the measured power in order to compute the average power during the actual transmission times.

Sample Calculation

Total Power(dBm) = Measured Value(dBm) + ATT loss(dB) + Cable loss(dB) + Duty Cycle Factor(dB)

Note

1. Spectrum Measured Levels are not plot data.

The power results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Spectrum offset Loss = Attenuator loss(20 dB) + Cable loss + EUT Cable
3. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	21.32
UNII 2A	21.32
UNII 2C	21.32
UNII 3	21.32

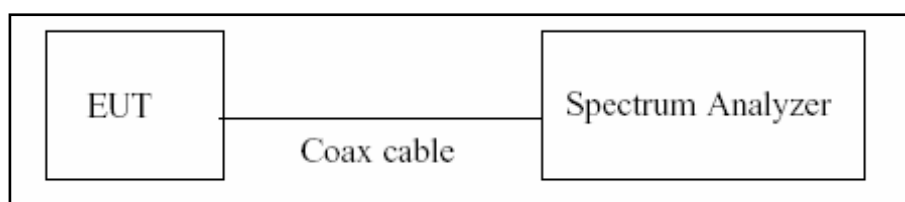
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

Band	Limit
UNII 1	11 dBm/MHz
UNII 2A, 2C	11 dBm/MHz
UNII 3	30 dBm/500 kHz

Test Configuration



Test Procedure

We tested according to Procedure F in KDB 789033 D02 v02r01.

1. Set span to encompass the entire emission bandwidth(EBW) of the signal.
2. RBW = 1 MHz(510 kHz for UNII 3)
3. VBW $\geq$ 3 MHz
4. Number of points in sweep $\geq$ 2 x span/RBW.
5. Sweep time = auto.
6. Detector = RMS(i.e., power averaging), if available. Otherwise, use sample detector mode.
7. Do not use sweep triggering. Allow the sweep to “free run”.
8. Trace average at least 100 traces in power averaging(RMS) mode
9. Use the peak search function on the spectrum analyzer to find the peak of the spectrum.
10. If Method SA-2 was used, add $10 \log(1/x)$, where x is the duty cycle, to the peak of the spectrum.

Sample Calculation

Total PSD(dBm) = Measured Value(dBm) + ATT loss(dB) + Cable loss(dB) + EUT Cable + Duty Cycle Factor(dB)

Note

1. Spectrum Measured Levels are not plot data.

The PSD results in plot is already including the actual values of loss for the attenuator and cable combination.

2. Spectrum offset Loss = Attenuator loss(20 dB) + Cable loss + EUT Cable

3. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	21.32
UNII 2A	21.32
UNII 2C	21.32
UNII 3	21.32

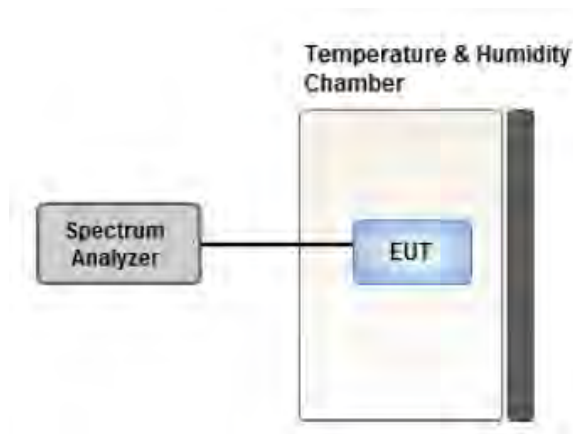
(Actual value of loss for the attenuator and cable combination)

8.5. Frequency Stability

Limit

Maintained within the band

Test Configuration



Test Procedure

1. The EUT was placed inside an environmental chamber as the temperature in the chamber was varied between -30 °C and 50 °C.
2. The temperature was incremented by 10 °C intervals and the unit was allowed to stabilize at each temperature before each measurement. The center frequency of the transmitting channel was evaluated at each temperature and the frequency deviation from the channel's center frequency was recorded.
3. The primary supply voltage is varied from 85% to 115% of the nominal value for non hand-carried battery and AC powered equipment. For hand-carried, battery-powered equipment, primary supply voltage is reduced to the battery operating end point which shall be specified by the manufacturer.
4. While maintaining a constant temperature inside the environmental chamber, turn the EUT ON and record the operating frequency at startup, and at 2 minutes, 5 minutes, and 10 minutes after the EUT is energized. Four measurements in total are made.

8.6. AC Power line Conducted Emissions

Limit

For an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dB μ V)	
	Quasi-peak	Average
0.15 to 0.50	66 to 56 ^(a)	56 to 46 ^(a)
0.50 to 5	56	46
5 to 30	60	50

^(a)Decreases with the logarithm of the frequency.

Compliance with this provision shall be based on the measurement of the radio frequency voltage between each power line (LINE and NEUTRAL) and ground at the power terminals.

Test Configuration

See test photographs attached in Annex A for the actual connections between EUT and support equipment.

Test Procedure

1. The EUT is placed on a wooden table 80 cm above the reference ground plane.
2. The EUT is connected via LISN to a test power supply.
3. The measurement results are obtained as described below:
4. Detectors : Quasi Peak and Average Detector.

Sample Calculation

Quasi-peak(Final Result) = Measured Value + Correction Factor

8.7. Radiated Test

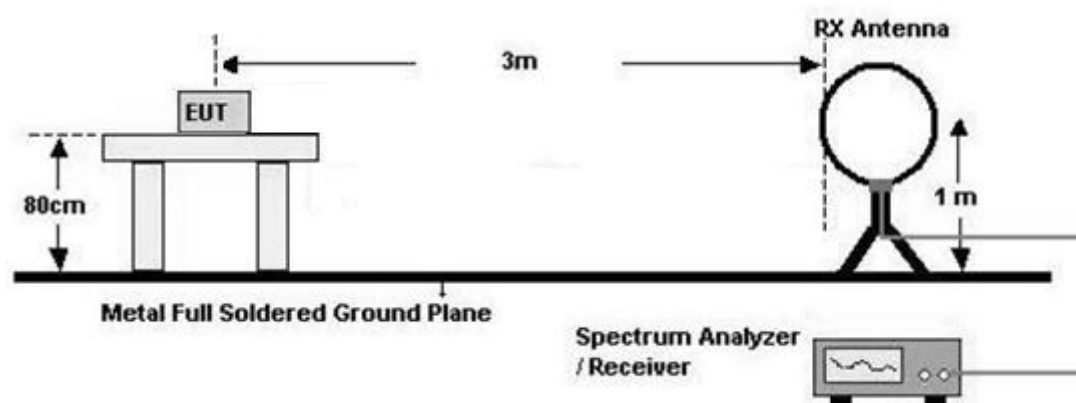
Limit

1. UNII 1: All emissions outside of the 5.15-5.35 GHz band shall not exceed an EIRP of -27 dBm/MHz.
2. UNII 2A, 2C: All emissions outside of the 5.47-5.725 GHz band shall not exceed an EIRP of -27 dBm/MHz.
3. UNII 3: All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.
4. All out of band emissions appearing in a restricted band as specified in Section 15.205 of the Title 47 CFR must not exceed the limits shown in Section 15.209.

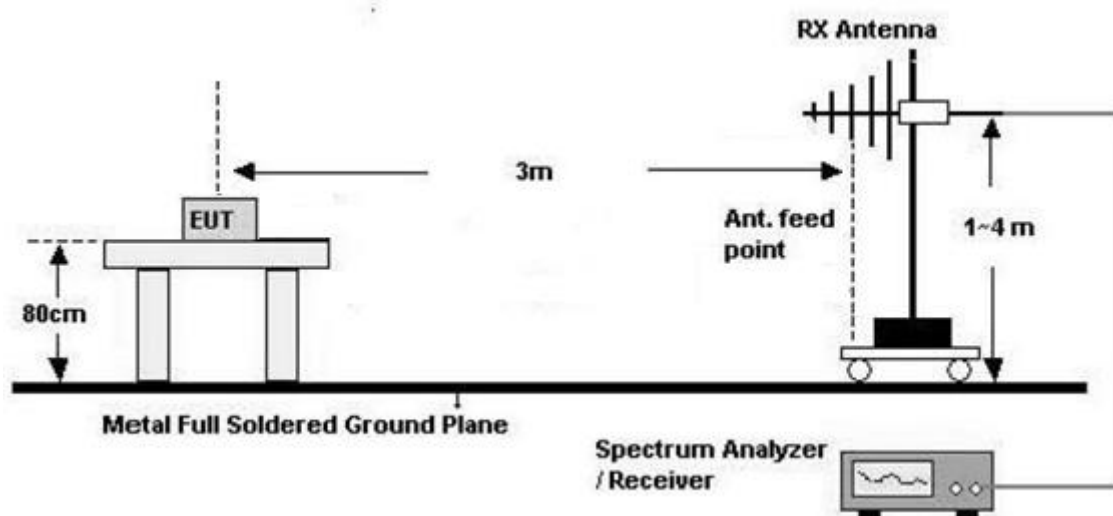
Frequency (MHz)	Field Strength (μ V/m)	Measurement Distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	300
0.490 – 1.705	$24000/F(\text{kHz})$	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

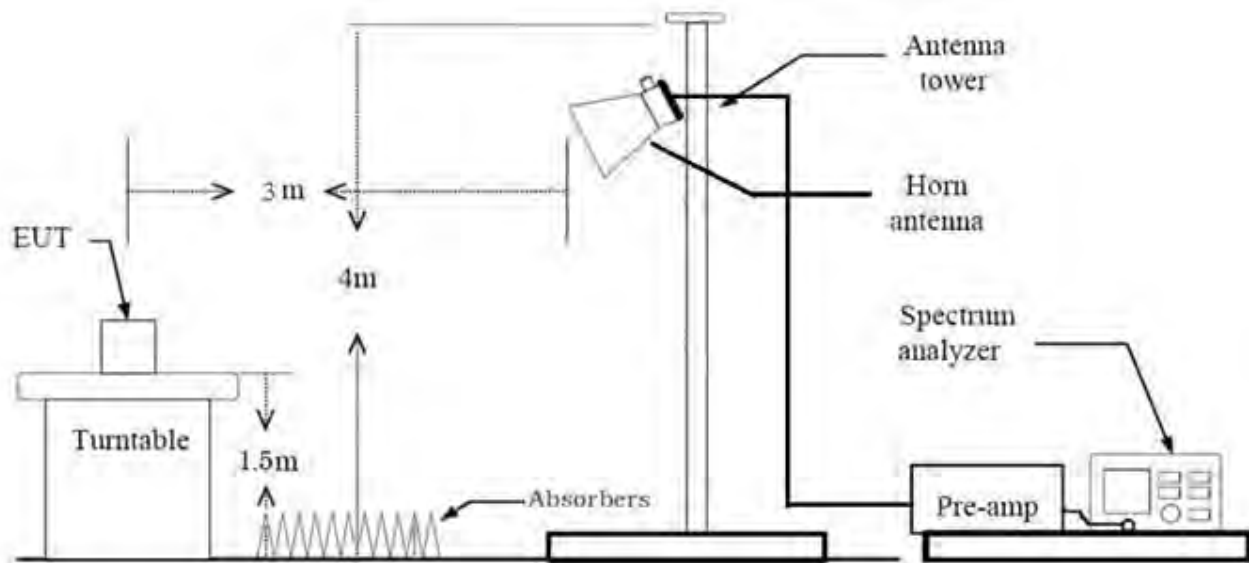
Below 30 MHz



30 MHz - 1 GHz



Above 1 GHz



Test Procedure of Radiated spurious emissions(Below 30 MHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The loop antenna was placed at a location 3 m from the EUT
3. The EUT is placed on a turntable, which is 0.8 m above ground plane.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization and Parallel to the ground plane in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Distance Correction Factor(0.009 MHz – 0.490 MHz) = $40\log(3 \text{ m}/300 \text{ m}) = - 80 \text{ dB}$
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = $40\log(3 \text{ m}/30 \text{ m}) = - 40 \text{ dB}$
Measurement Distance : 3 m
8. Spectrum Setting
 - Frequency Range = 9 kHz ~ 30 MHz
 - Detector = Peak
 - Trace = Maxhold
 - RBW = 9 kHz
 - VBW $\geq 3 \times$ RBW
9. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

KDB 414788 OFS and Chamber Correlation Justification

Base on FCC 15.31 (f) (2): measurements may be performed at a distance closer than that specified in the regulations; however, an attempt should be made to avoid making measurements in the near field.

OFS and chamber correlation testing had been performed and chamber measured test result is the worst case test result.

Test Procedure of Radiated spurious emissions(Below 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8 m above ground plane.
3. The Hybrid antenna was placed at a location 3 m from the EUT, which is varied from 1 m to 4 m to find out the highest emissions.
4. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
5. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
6. Spectrum Setting

(1) Measurement Type(Peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Maxhold
- RBW = 100 kHz
- VBW $\geq 3 \times$ RBW

(2) Measurement Type(Quasi-peak):

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Quasi-Peak
- RBW = 120 kHz

※ In general, (1) is used mainly

7. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L)
8. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

Test Procedure of Radiated spurious emissions (Above 1 GHz)

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting

(1) Measurement Type (Peak, G.5 in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW $\geq$ 3 MHz
- Detector = Peak
- Sweep Time = auto
- Trace mode = max hold
- Allow sweeps to continue until the trace stabilizes.

Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately $1/x$, where x is the duty cycle.

(2) Measurement Type (Average, G.6.d in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW(Duty cycle $\geq$ 98 %) = $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 %) = $VBW \geq 1/T$, where T is the minimum transmission duration.
- The analyzer is set to linear detector mode.
- Detector = Peak.
- Sweep time = auto.
- Trace mode = max hold.
- Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 % duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where x is the duty cycle.

9. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor
10. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency
11. Distance extrapolation factor = $20\log(\text{test distance} / \text{specific distance})$ (dB)
12. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Distance Factor(D.F)

Test Procedure of Radiated Restricted Band Edge

1. The EUT is placed on a turntable, which is 1.5 m above ground plane.
2. We have done x, y, z planes in EUT and horizontal and vertical polarization in detecting antenna.
3. The turntable shall be rotated for 360 degrees to determine the position of maximum emission level.
4. EUT is set 3 m away from the receiving antenna, which is varied from 1 m to 4 m to find out the highest emissions.
5. Maximum procedure was performed on the six highest emissions to ensure EUT compliance.
6. Each emission was to be maximized by changing the polarization of receiving antenna both horizontal and vertical.
7. The unit was tested with its standard battery.
8. Spectrum Setting

(1) Measurement Type(Peak, G.5 in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW $\geq$ 3 MHz
- Detector = Peak
- Sweep Time = auto
- Trace mode = max hold
- Allow sweeps to continue until the trace stabilizes.

Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately $1/x$, where x is the duty cycle.

(2) Measurement Type(Average, G.6.d in KDB 789033 v02r01):

- RBW = 1 MHz
- VBW(Duty cycle $\geq$ 98 %) = $\text{VBW} \leq \text{RBW}/100$ (i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 %) = $\text{VBW} \geq 1/T$, where T is the minimum transmission duration.
- The analyzer is set to linear detector mode.
- Detector = Peak.
- Sweep time = auto.
- Trace mode = max hold.
- Allow max hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 % duty cycle. For lower duty cycles, increase the minimum number of traces by a factor of $1/x$, where x is the duty cycle.

9. Measured Frequency Range :

- 4 500 MHz ~ 5 150 MHz
- 5 350 MHz ~ 5 460 MHz
- 5 460 MHz ~ 5 470 MHz
- (75 MHz or more below the 5 725 MHz) ~ 5 725 MHz
- 5 850 MHz ~ (75 MHz or more above the 5 850 MHz)

10. Distance extrapolation factor = $20\log$ (test distance / specific distance) (dB)

11. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) - Amp Gain(A.G) + Attenuator(ATT)
+ Distance Factor(D.F)

The actual setting value of VBW

Mode	Worst Data rate (Mbps)	Duty Cycle	Duty Cycle Factor (dB)	The actual setting value of VBW (Hz)
802.11a	6	0.970	0.134	1000
802.11n(HT20)	MCS0	0.967	0.144	1000
802.11n(HT40)	MCS0	0.935	0.290	3000
802.11ac(VHT20)	MCS0	0.966	0.151	1000
802.11ac(VHT40)	MCS0	0.936	0.289	3000
802.11ac(VHT80)	MCS0	0.880	0.553	5000

8.8. Worst case configuration and mode

Radiated test

1. All modes of operation were investigated and the worst case configuration results are reported.
 - Mode : Stand alone, Stand alone + External accessories (Earphone, etc)
 - Worstcase : Stand alone
2. EUT Axis
 - Radiated Spurious Emissions : Z
 - Radiated Restricted Band Edge : Y
3. All datarate of operation were investigated and the worst case datarate results are reported.
 - 802.11a : 6 Mbps
 - 802.11n_HT20 : MCS0
 - 802.11n_HT40 : MCS0
 - 802.11ac_VHT20 : MCS0
 - 802.11ac_VHT40 : MCS0
 - 802.11ac_VHT80 : MCS0
4. Radiated Spurious Emission
 - All modulation of operation were investigated and the worst case modulation results are reported.
 - Worst case :
 - 802.11a : 6 Mbps (UNII-1, UNII-2A, UNII-2C, UNII-3)
 - 802.11n_HT20 : MCS0 (UNII-2C, UNII-3)
 - 802.11n_HT40 : MCS0 (UNII-2C, UNII-3)
 - 802.11ac_VHT20 : MCS0 (UNII-2C, UNII-3)
 - 802.11ac_VHT40 : MCS0 (UNII-2C, UNII-3)
 - 802.11ac_VHT80 : MCS0 (UNII-2C, UNII-3)
5. All position of loop antenna were investigated and the test result is a no critical peak found at all positions.
 - Position : Horizontal, Vertical, Parallel to the ground plane
6. SC-56C, SCG18, SM-A233C were tested and the worst case results are reported.
(Worst case : SC-56C)

AC Power line Conducted Emissions

1. All modes of operation were investigated and the worst case configuration results are reported.
 - Mode : Stand alone + External accessories (Earphone, etc) + Travel Adapter, Stand alone + Travel Adapter
 - Worstcase : Stand alone + Travel Adapter
2. SC-56C, SCG18, SM-A233C were tested and the worst case results are reported.
(Worst case : SC-56C)

Conducted test

1. All datarate of operation were investigated and the worst case datarate results are reported.
2. SC-56C, SCG18, SM-A233C were tested and the worst case results are reported.
(Worst case : SC-56C)

9. SUMMARY OF TEST RESULTS

Test Description	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26 dB Bandwidth	§15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§15.407(e)	> 500 kHz (5725-5850 MHz)(UNII-3)		PASS
Maximum Conducted Output Power	§15.407(a)(1),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log ₁₀ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log ₁₀ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Maximum Power Spectral Density	§15.407(a)(1),(2),(3)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207 15.407(b)(9)	<FCC 15.207 limits		PASS
Frequency Stability	§15.407(g) §2.1055	Maintained within the band		PASS
Undesirable Emissions	§15.407(b) (1),(2),(3),(4)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.6 (UNII 3)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

10. TEST RESULT

10.1 DUTY CYCLE

Mode	Data Rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6	1.391	1.435	0.970	0.134
	9	0.937	0.982	0.954	0.203
	12	0.708	0.754	0.939	0.271
	18	0.480	0.526	0.913	0.394
	24	0.364	0.408	0.890	0.504
	36	0.252	0.297	0.849	0.711
	48	0.192	0.237	0.811	0.910
	54	0.176	0.221	0.797	0.985

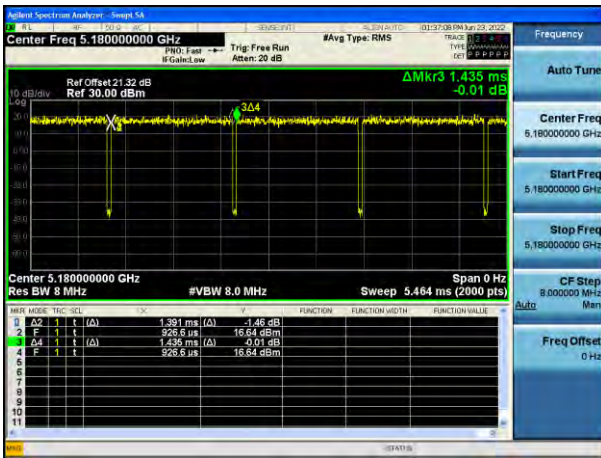
Mode	MCS Index	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11n (HT20)	0	1.301	1.345	0.967	0.144
	1	0.667	0.712	0.937	0.282
	2	0.460	0.505	0.911	0.404
	3	0.352	0.397	0.887	0.520
	4	0.248	0.293	0.848	0.719
	5	0.196	0.241	0.815	0.890
	6	0.180	0.225	0.801	0.962
	7	0.164	0.209	0.784	1.059
802.11n (HT40)	0	0.648	0.693	0.935	0.290
	1	0.344	0.388	0.887	0.523
	2	0.240	0.284	0.845	0.732
	3	0.192	0.236	0.813	0.897
	4	0.140	0.184	0.760	1.189
	5	0.116	0.160	0.724	1.400
	6	0.104	0.157	0.663	1.786
	7	0.100	0.153	0.654	1.842

Mode	MCS Index	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11ac (VHT20)	0	1.312	1.358	0.966	0.151
	1	0.676	0.721	0.938	0.279
	2	0.464	0.509	0.912	0.400
	3	0.360	0.405	0.889	0.509
	4	0.252	0.297	0.849	0.711
	5	0.199	0.245	0.814	0.892
	6	0.184	0.229	0.804	0.946
	7	0.168	0.213	0.789	1.027
	8	0.148	0.193	0.767	1.150
802.11ac (VHT40)	0	0.651	0.696	0.936	0.289
	1	0.349	0.392	0.890	0.507
	2	0.244	0.288	0.847	0.720
	3	0.196	0.240	0.818	0.871
	4	0.144	0.188	0.768	1.148
	5	0.120	0.164	0.732	1.357
	6	0.108	0.152	0.711	1.482
	7	0.104	0.148	0.703	1.532
	8	0.092	0.154	0.599	2.228
	9	0.088	0.150	0.586	2.318
802.11ac (VHT80)	0	0.324	0.368	0.880	0.553
	1	0.184	0.228	0.807	0.929
	2	0.137	0.180	0.757	1.211
	3	0.112	0.156	0.720	1.427
	4	0.088	0.150	0.588	2.308
	5	0.076	0.147	0.519	2.851
	6	0.072	0.143	0.506	2.956
	7	0.072	0.143	0.505	2.966
	8	0.064	0.144	0.446	3.506
	9	0.064	0.144	0.446	3.506

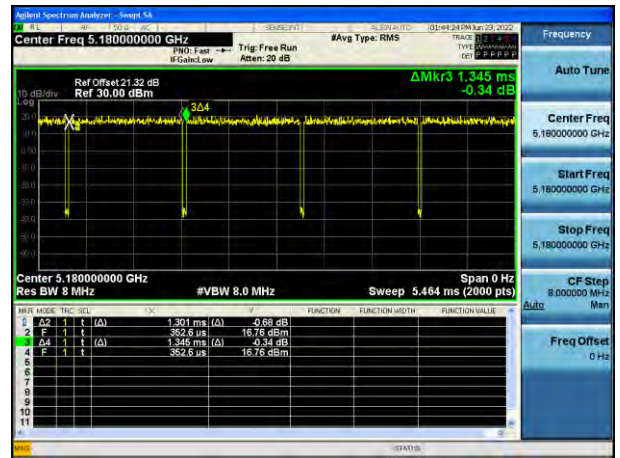
Note:

In order to simplify the report, attached plots were only the lowest datarate.

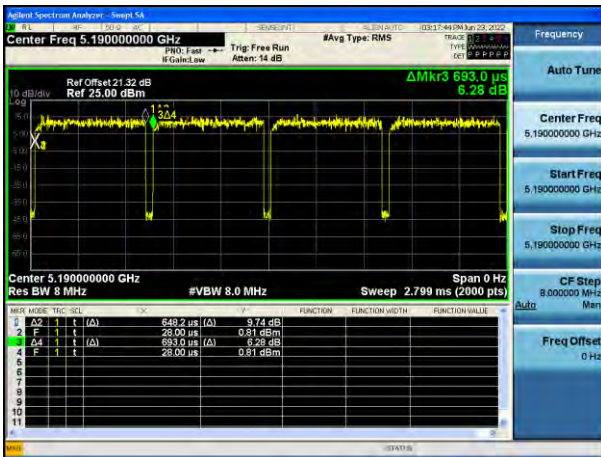
802.11a



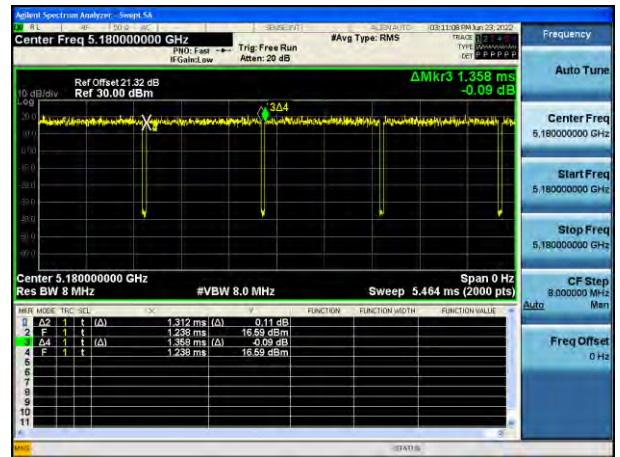
802.11n(HT20)



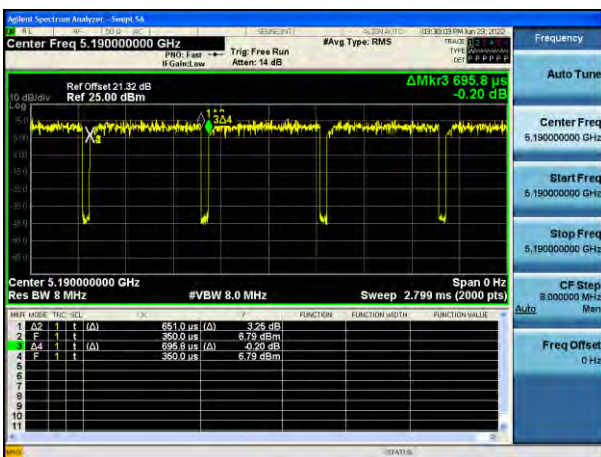
802.11n(HT40)



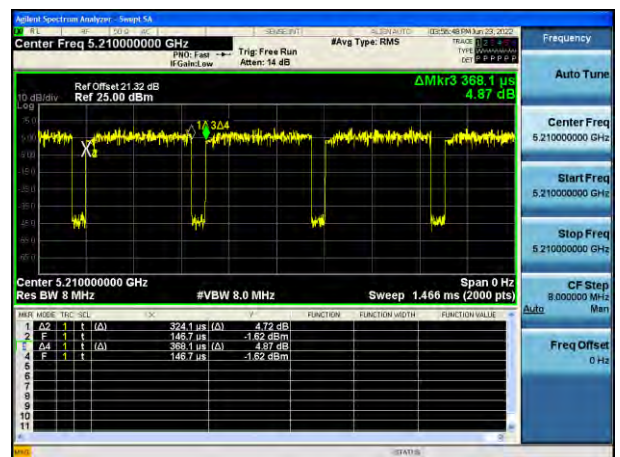
802.11ac(VHT20)



802.11ac(VHT40)



802.11ac(VHT80)



10.2 26 dB Bandwidth

Straddle channel data in the table below are for reporting purposes only.

Straddle channel data were added in section 10.7.1.

802.11a Mode		26dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	23.94	16.605
5200	40	20.00	16.492
5240	48	20.32	16.530
5260	52	22.17	16.533
5300	60	21.13	16.546
5320	64	20.79	16.523
5500	100	20.16	16.526
5600	120	19.71	16.456
5720	144	19.74	16.468
5745	149	19.59	16.483
5785	157	19.94	16.500
5825	165	19.73	16.476

802.11n(HT20) Mode		26dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	22.58	17.653
5200	40	22.80	17.648
5240	48	20.77	17.641
5260	52	21.73	17.616
5300	60	21.62	17.604
5320	64	20.02	17.590
5500	100	20.22	17.619
5600	120	20.04	17.588
5720	144	20.75	17.619
5745	149	20.62	17.633
5785	157	20.66	17.610
5825	165	20.48	17.641

802.11n(HT40) Mode		26dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.61	36.010
5230	46	40.29	36.038
5270	54	39.98	36.019
5310	62	40.13	35.993
5510	102	39.88	36.023
5590	118	39.98	35.993
5710	142	39.98	36.016
5755	151	40.16	35.959
5795	159	40.17	36.066

802.11ac(VHT20) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5180	36	19.90	17.592
5200	40	20.09	17.579
5240	48	19.93	17.583
5260	52	20.12	17.571
5300	60	19.98	17.593
5320	64	19.93	17.594
5500	100	19.96	17.569
5600	120	20.19	17.583
5720	144	20.15	17.614
5745	149	20.18	17.565
5785	157	20.15	17.593
5825	165	21.23	17.598

802.11ac(VHT40) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5190	38	40.25	36.031
5230	46	40.32	35.973
5270	54	40.38	35.979
5310	62	40.08	35.983
5510	102	40.02	35.916
5590	118	40.08	36.021
5710	142	39.83	35.971
5755	151	39.87	35.997
5795	159	40.15	35.976

802.11ac(VHT80) Mode		26 dB Bandwidth [MHz]	99 % bandwidth [MHz]
Frequency [MHz]	Channel No.		
5210	42	80.82	75.175
5290	58	80.73	75.233
5530	106	80.29	75.120
5610	122	80.92	75.169
5690	138	80.65	75.109
5775	155	80.47	75.137

☐ Test Plots(802.11a)

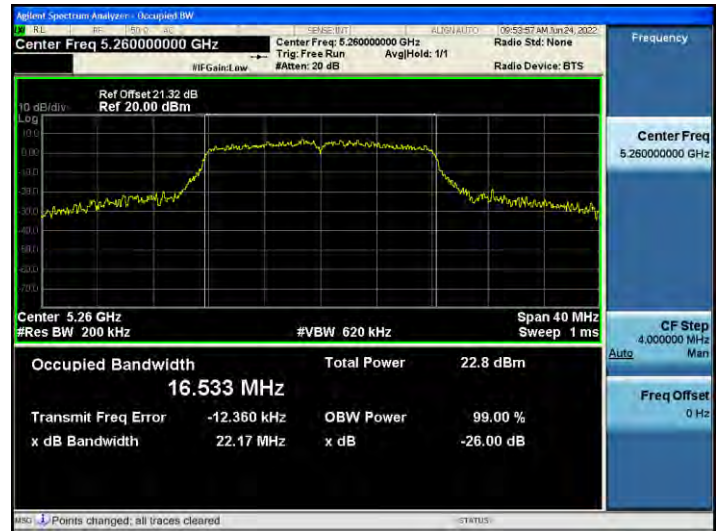
Note:

In order to simplify the report, attached plots were only the widest channel.

802.11a UNII 1 BAND 26 dB Bandwidth (CH 36)



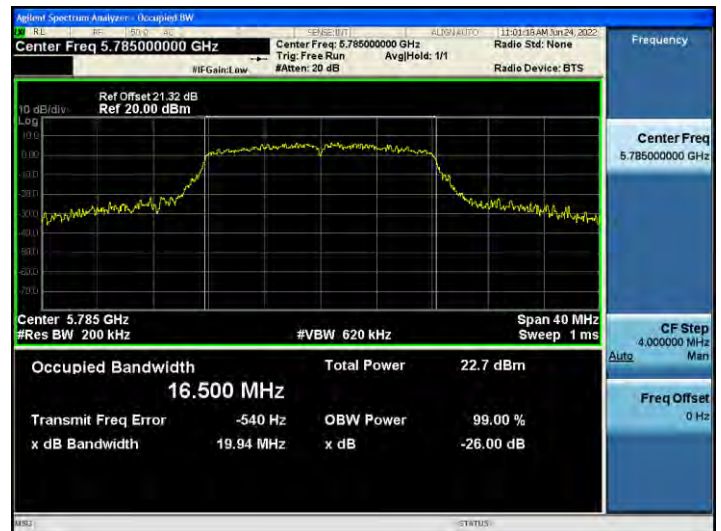
802.11a UNII 2A BAND 26 dB Bandwidth (CH 52)



802.11a UNII 2C BAND 26 dB Bandwidth (CH 100)



802.11a UNII 3 BAND 26 dB Bandwidth (CH 157)

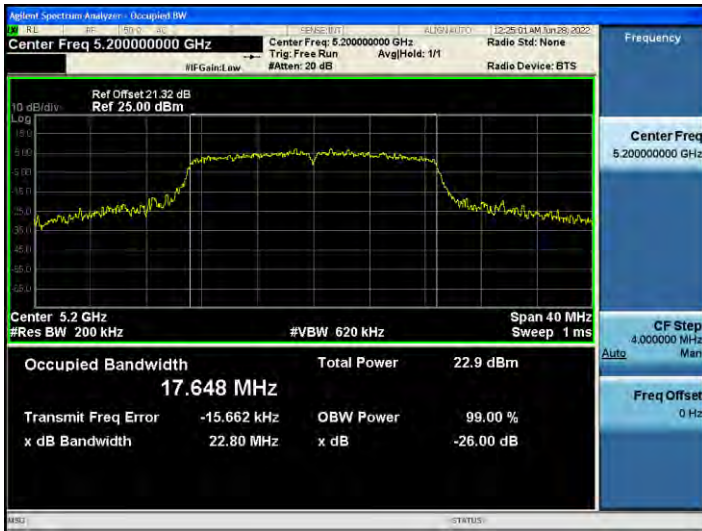


☐ Test Plots(802.11n(HT20))

Note:

In order to simplify the report, attached plots were only the widest channel.

802.11n_HT20 UNII 1 BAND 26 dB Bandwidth(CH 40)



802.11n_HT20 UNII 2A BAND 26 dB Bandwidth(CH 52)



802.11n_HT20 UNII 2C BAND 26 dB Bandwidth(CH 144)



802.11n_HT20 UNII 3 BAND 26 dB Bandwidth(CH 157)

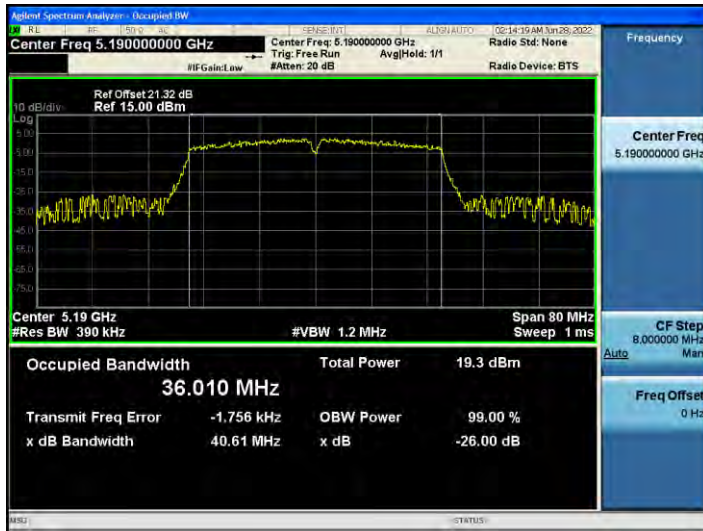


☐ Test Plots(802.11n(HT40))

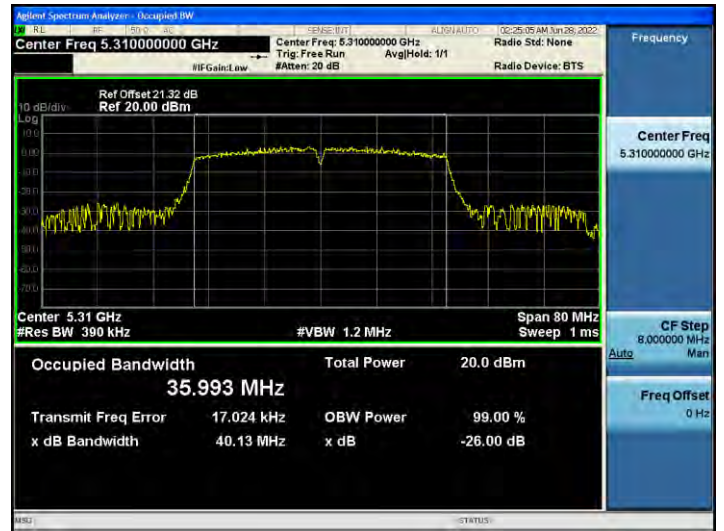
Note:

In order to simplify the report, attached plots were only the widest channel.

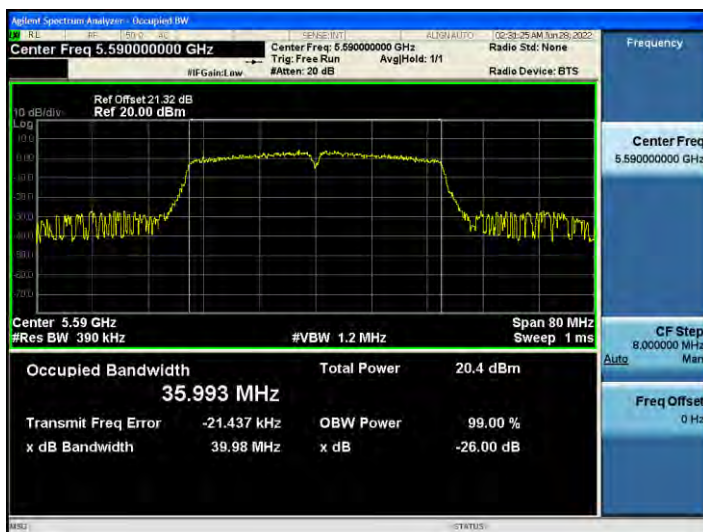
802.11n_HT40 UNII 1 BAND 26 dB Bandwidth(CH 38)



802.11n_HT40 UNII 2A BAND 26 dB Bandwidth (CH 62)



802.11n_HT40 UNII 2C BAND 26 dB Bandwidth(CH 118)



802.11n_HT40 UNII 3 BAND 26 dB Bandwidth (CH 159)

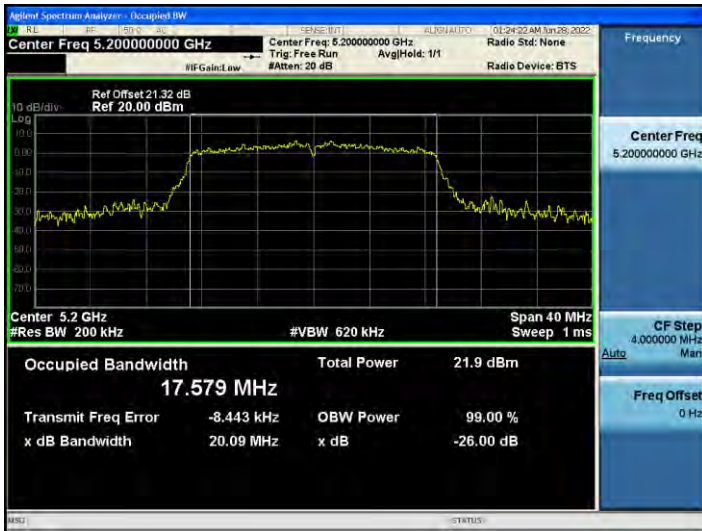


☐ Test Plots(802.11ac(VHT20))

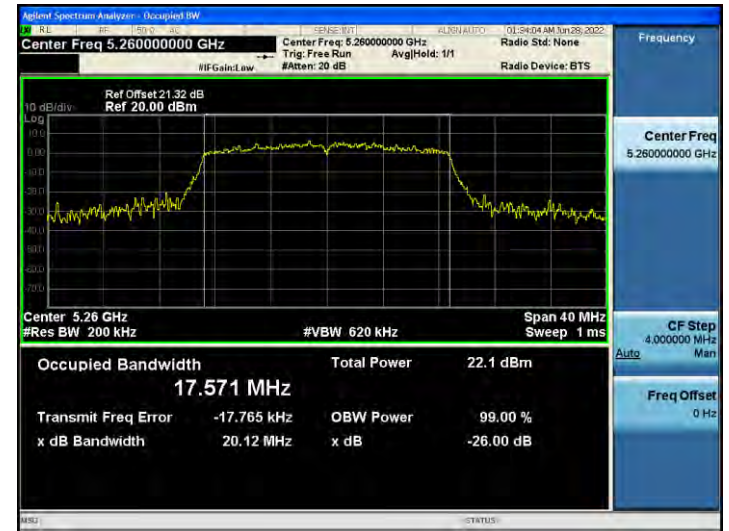
Note:

In order to simplify the report, attached plots were only the widest channel.

802.11ac_VHT20 UNII 1 BAND 26 dB Bandwidth(CH 40)



802.11ac_VHT20 UNII 2A BAND 26 dB Bandwidth(CH 52)



802.11ac_VHT20 UNII 2C BAND 26 dB Bandwidth(CH 120)



802.11ac_VHT20 UNII 3 BAND 26 dB Bandwidth(CH 165)



☐ Test Plots(802.11ac(VHT40))

Note:

In order to simplify the report, attached plots were only the widest channel.

802.11ac_VHT40 UNII 1 BAND 26 dB Bandwidth(CH 46)



802.11ac_VHT40 UNII 2A BAND 26 dB Bandwidth (CH 54)



802.11ac_VHT40 UNII 2C BAND 26 dB Bandwidth(CH 118)



802.11ac_VHT40 UNII 3 BAND 26 dB Bandwidth (CH 159)



☐ Test Plots(802.11ac(VHT80))

Note:

In order to simplify the report, attached plots were only the widest channel.

802.11ac_VHT80 UNII 1 BAND 26 dB Bandwidth(CH 42)



802.11ac_VHT80 UNII 2A BAND 26 dB Bandwidth (CH 58)



802.11ac_VHT80 UNII 2C BAND 26 dB Bandwidth(CH 122)



802.11ac_VHT80 UNII 3 BAND 26 dB Bandwidth (CH 155)



10.3 6 dB BANDWIDTH

802.11a Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.10	> 0.5	Pass
5785	157	14.60	> 0.5	Pass
5825	165	15.15	> 0.5	Pass

802.11n(HT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.16	> 0.5	Pass
5785	157	15.14	> 0.5	Pass
5825	165	15.18	> 0.5	Pass

802.11n(HT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.12	> 0.5	Pass
5795	159	35.13	> 0.5	Pass

802.11ac(VHT20) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5745	149	15.40	> 0.5	Pass
5785	157	14.79	> 0.5	Pass
5825	165	14.41	> 0.5	Pass

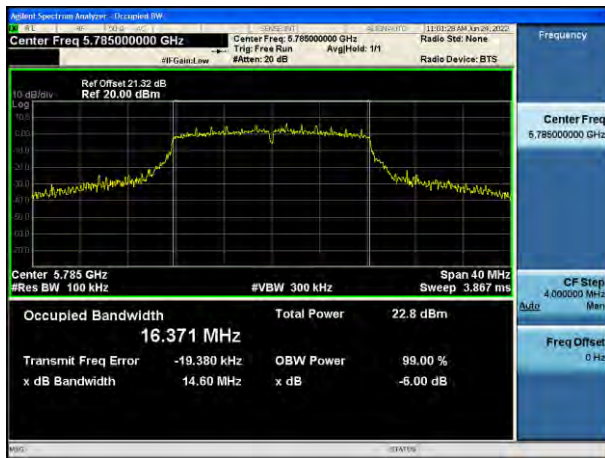
802.11ac(VHT40) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5755	151	35.13	> 0.5	Pass
5795	159	35.09	> 0.5	Pass

802.11ac(VHT80) Mode		Measured Bandwidth [MHz]	Limit [MHz]	Pass / Fail
Frequency [MHz]	Channel No.			
5775	155	75.23	> 0.5	Pass

Test Plots

Note: In order to simplify the report, attached plots were only the narrowest channel.

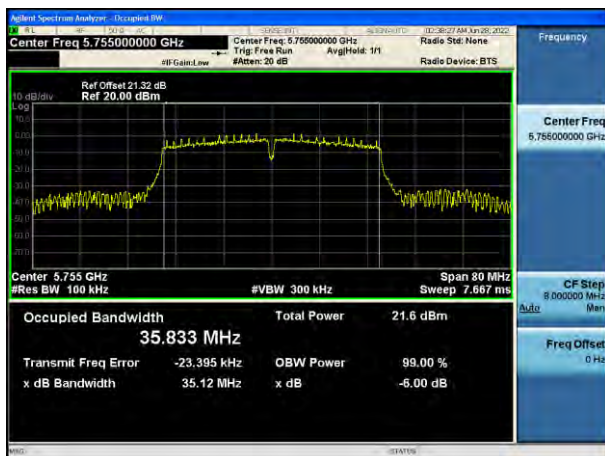
802.11a (CH.157)



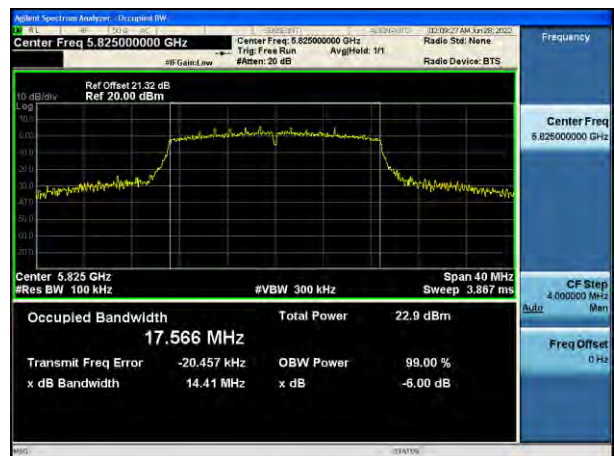
802.11n(HT20) (CH.157)



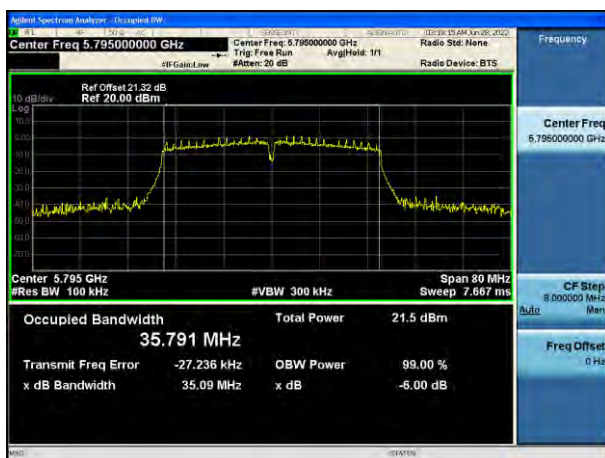
802.11n(HT40) (CH.151)



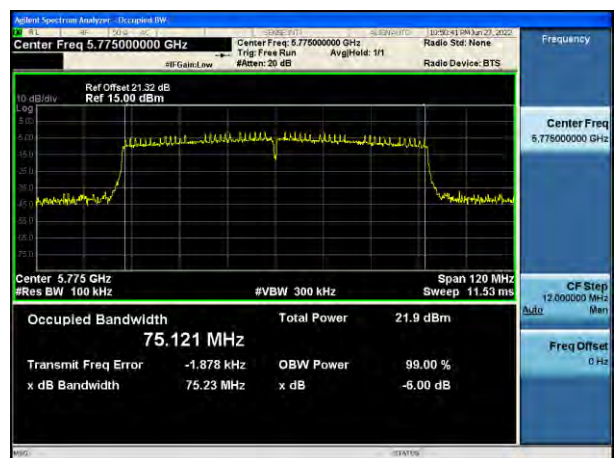
802.11ac(VHT20) (CH.165)



802.11ac(VHT40) (CH.159)



802.11ac(VHT80) (CH.155)



10.4 OUTPUT POWER MEASUREMENT

Straddle channel data in the table below are for reporting purposes only.

Straddle channel data were added in section 10.7.3.

Limit

(UNII 1) : 23.98 dBm

(UNII 2A, 2C) : 23.98 dBm or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)

(UNII 3) : 30.00 dBm

802.11a Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate [Mbps]
Frequency [MHz]	Channel No.					
5180	36	16.20	0.271	16.47	23.98	12M
5200	40	16.45	0.394	16.85	23.98	18M
5240	48	15.52	0.504	16.02	23.98	24M
5260	52	15.26	0.711	15.97	23.98	36M
5300	60	15.46	0.271	15.73	23.98	12M
5320	64	14.83	0.985	15.81	23.98	54M
5500	100	12.25	0.134	12.38	23.98	6M
5600	120	10.36	0.203	10.56	23.95	9M
5720	144	10.06	0.910	10.97	23.95	48M
5745	149	10.23	0.985	11.22	30.00	54M
5785	157	10.41	0.711	11.12	30.00	36M
5825	165	10.62	0.394	11.01	30.00	18M

802.11n(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	15.64	0.404	16.04	23.98	MCS2
5200	40	15.85	0.404	16.25	23.98	MCS2
5240	48	15.34	0.144	15.48	23.98	MCS0
5260	52	15.55	0.282	15.83	23.98	MCS1
5300	60	15.50	0.144	15.65	23.98	MCS0
5320	64	15.89	0.282	16.18	23.98	MCS1
5500	100	11.27	1.059	12.33	23.98	MCS7
5600	120	9.50	1.059	10.56	23.98	MCS7
5720	144	9.94	1.059	11.00	23.98	MCS7
5745	149	10.08	1.059	11.14	30.00	MCS7
5785	157	10.53	0.520	11.05	30.00	MCS3
5825	165	10.18	0.719	10.90	30.00	MCS4

802.11n(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	11.90	0.897	12.80	23.98	MCS3
5230	46	12.75	0.523	13.28	23.98	MCS1
5270	54	12.72	0.523	13.25	23.98	MCS1
5310	62	12.79	0.523	13.31	23.98	MCS1
5510	102	9.90	0.523	10.42	23.98	MCS1
5590	118	12.45	0.290	12.74	23.98	MCS0
5710	142	12.89	0.290	13.18	23.98	MCS0
5755	151	11.82	0.523	12.34	30.00	MCS1
5795	159	11.66	0.523	12.18	30.00	MCS1

802.11ac(20 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5180	36	14.99	0.151	15.15	23.98	MCS0
5200	40	15.20	0.151	15.35	23.98	MCS0
5240	48	15.39	0.151	15.54	23.98	MCS0
5260	52	15.37	0.151	15.52	23.98	MCS0
5300	60	15.64	0.151	15.79	23.98	MCS0
5320	64	15.48	0.400	15.88	23.98	MCS2
5500	100	11.21	1.150	12.36	23.98	MCS8
5600	120	10.04	0.509	10.55	23.98	MCS3
5720	144	10.48	0.509	10.99	23.98	MCS3
5745	149	10.26	0.892	11.15	30.00	MCS5
5785	157	10.37	0.711	11.08	30.00	MCS4
5825	165	9.92	1.027	10.95	30.00	MCS7

802.11ac(40 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5190	38	12.58	0.289	12.87	23.98	MCS0
5230	46	13.06	0.289	13.35	23.98	MCS0
5270	54	13.03	0.289	13.32	23.98	MCS0
5310	62	13.15	0.289	13.44	23.98	MCS0
5510	102	10.18	0.289	10.47	23.98	MCS0
5590	118	12.46	0.289	12.75	23.98	MCS0
5710	142	12.89	0.289	13.18	23.98	MCS0
5755	151	12.04	0.289	12.33	30.00	MCS0
5795	159	11.88	0.289	12.17	30.00	MCS0

802.11ac(80 MHz) Mode		Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase MCS Index
Frequency [MHz]	Channel No.					
5210	42	12.61	0.553	13.16	23.98	MCS0
5290	58	9.32	2.851	12.17	23.98	MCS5
5530	106	8.56	2.851	11.41	23.98	MCS5
5610	122	10.74	2.851	13.59	23.98	MCS5
5690	138	10.84	2.851	13.69	23.98	MCS5
5775	155	9.95	2.851	12.80	30.00	MCS5

10.5 POWER SPECTRAL DENSITY

802.11a Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase Datarate [Mbps]	Limit
Frequency [MHz]	Channel No.					
5180	36	5.423	0.271	5.694	12M	11 dBm/MHz
5200	40	5.573	0.394	5.967	18M	
5240	48	5.075	0.504	5.579	24M	
5260	52	4.599	0.711	5.310	36M	
5300	60	4.947	0.271	5.218	12M	
5320	64	4.540	0.985	5.525	54M	
5500	100	2.068	0.134	2.202	6M	
5600	120	0.379	0.203	0.582	9M	
5720	144	0.939	0.910	1.849	48M	
5745	149	-1.692	0.985	-0.707	54M	30 dBm/500 kHz
5785	157	-1.584	0.711	-0.873	36M	
5825	165	-1.804	0.394	-1.410	18M	

802.11n(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	5.504	0.404	5.908	MCS2	11 dBm/MHz
5200	40	5.291	0.404	5.695	MCS2	
5240	48	5.075	0.144	5.219	MCS0	
5260	52	4.851	0.282	5.133	MCS1	
5300	60	4.842	0.144	4.986	MCS0	
5320	64	4.849	0.282	5.131	MCS1	
5500	100	1.780	1.059	2.839	MCS7	
5600	120	-0.085	1.059	0.974	MCS7	
5720	144	0.511	1.059	1.570	MCS7	
5745	149	-1.963	1.059	-0.904	MCS7	30 dBm/500 kHz
5785	157	-2.323	0.520	-1.803	MCS3	
5825	165	-2.172	0.719	-1.453	MCS4	

802.11n(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-1.362	0.897	-0.465	MCS3	11 dBm/MHz
5230	46	-0.414	0.523	0.109	MCS1	
5270	54	-0.248	0.523	0.275	MCS1	
5310	62	-0.283	0.523	0.240	MCS1	
5510	102	-3.353	0.523	-2.830	MCS1	
5590	118	-0.682	0.290	-0.392	MCS0	
5710	142	-0.099	0.290	0.191	MCS0	30 dBm /500 kHz
5755	151	-3.854	0.523	-3.331	MCS1	
5795	159	-4.225	0.523	-3.702	MCS1	

802.11ac(20 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5180	36	4.383	0.151	4.534	MCS0	11 dBm/MHz
5200	40	4.379	0.151	4.530	MCS0	
5240	48	4.962	0.151	5.113	MCS0	
5260	52	4.882	0.151	5.033	MCS0	
5300	60	4.852	0.151	5.003	MCS0	
5320	64	4.502	0.400	4.902	MCS2	
5500	100	1.000	1.150	2.150	MCS8	
5600	120	-0.295	0.509	0.214	MCS3	
5720	144	0.558	0.509	1.067	MCS3	
5745	149	-2.142	0.892	-1.250	MCS5	30 dBm/500 kHz
5785	157	-2.579	0.711	-1.868	MCS4	
5825	165	-2.015	1.027	-0.988	MCS7	

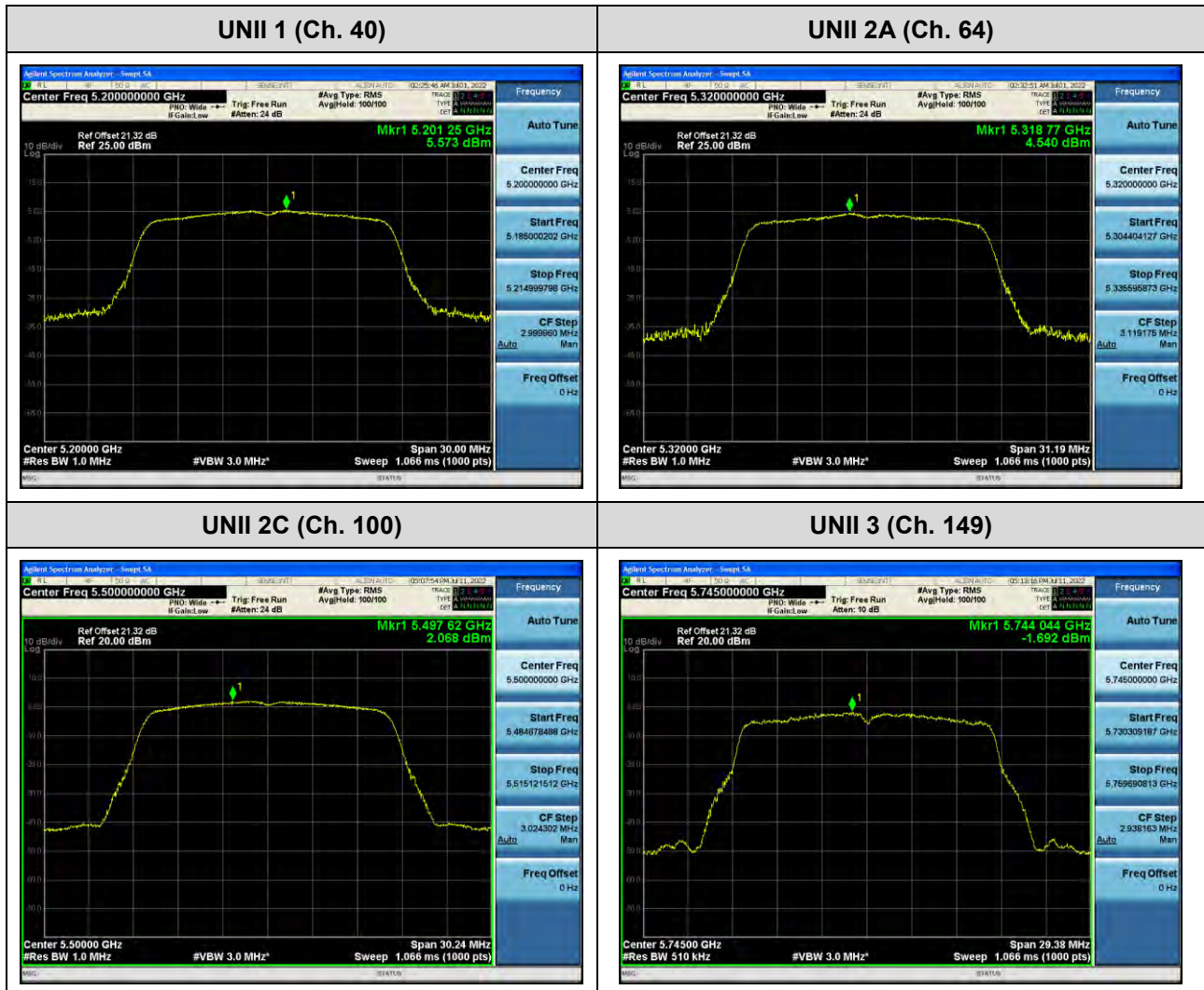
802.11ac(40 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5190	38	-0.438	0.289	-0.149	MCS0	11 dBm/MHz
5230	46	-0.080	0.289	0.209	MCS0	
5270	54	0.055	0.289	0.344	MCS0	
5310	62	-0.079	0.289	0.210	MCS0	
5510	102	-3.052	0.289	-2.763	MCS0	
5590	118	-0.732	0.289	-0.443	MCS0	
5710	142	-0.087	0.289	0.202	MCS0	30 dBm/500 kHz
5755	151	-3.837	0.289	-3.548	MCS0	
5795	159	-3.955	0.289	-3.666	MCS0	

802.11ac(80 MHz) Mode		Measured PSD [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm/MHz]	Worstcase MCS Index	Limit
Frequency [MHz]	Channel No.					
5210	42	-3.982	0.553	-3.429	MCS0	11 dBm/MHz
5290	58	-5.857	2.851	-3.006	MCS5	
5530	106	-6.749	2.851	-3.898	MCS5	
5610	122	-4.588	2.851	-1.737	MCS5	
5690	138	-4.157	2.851	-1.306	MCS5	
5775	155	-7.067	2.851	-4.216	MCS5	30 dBm/500 kHz

■ Test Plots(802.11a)

Note:

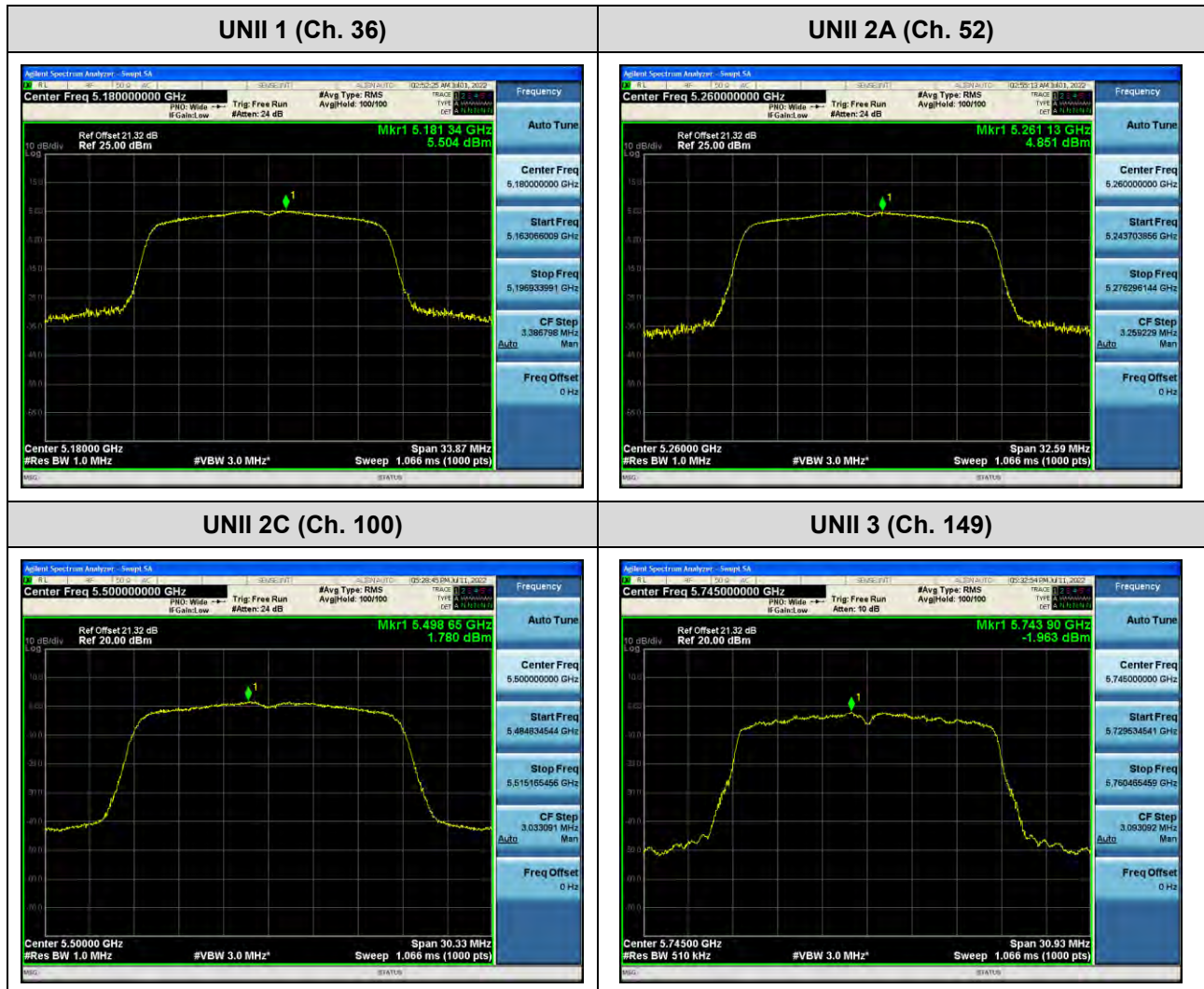
In order to simplify the report, attached plots were only channel of the highest power.



☐ Test Plots(802.11n(HT20))

Note:

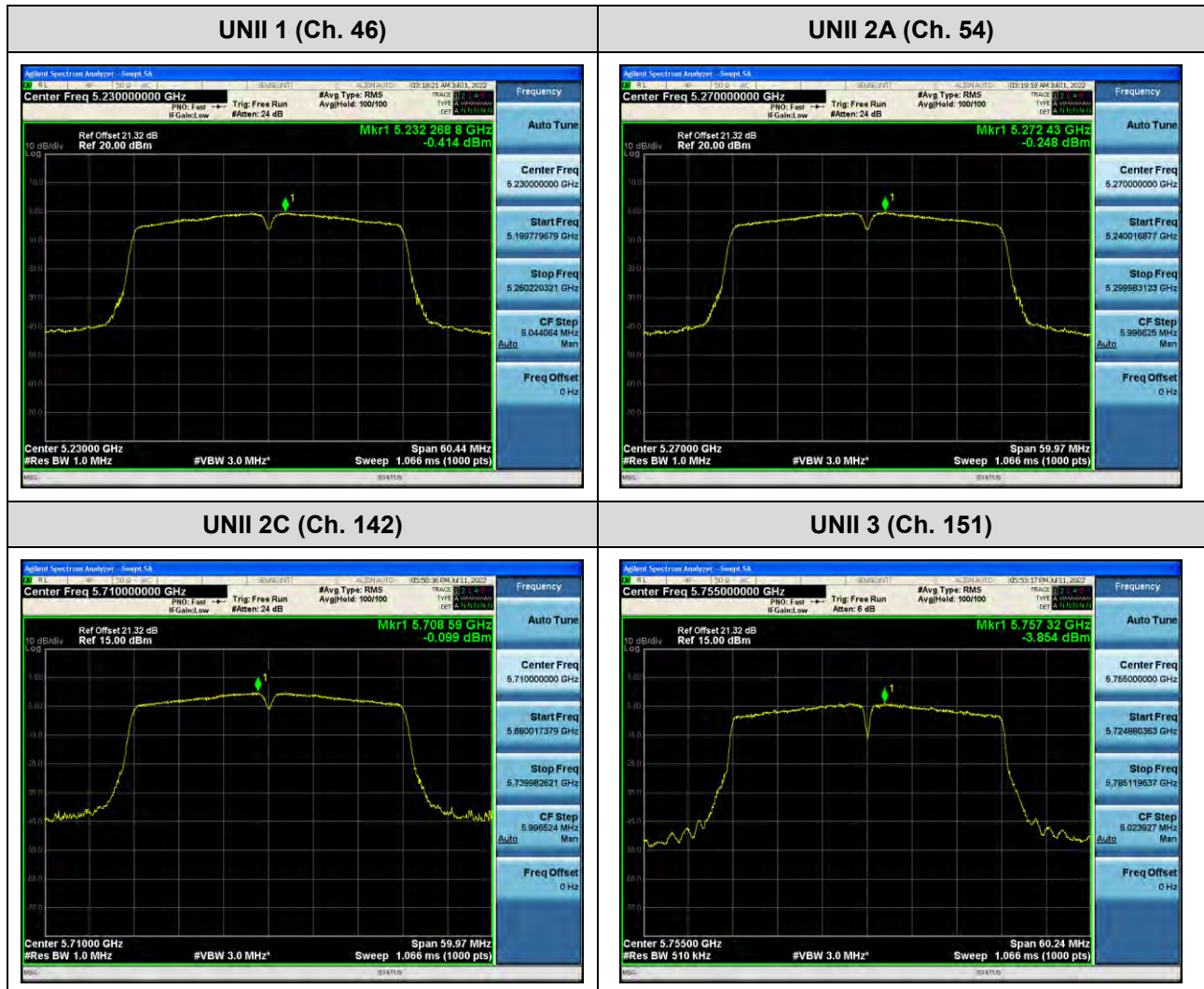
In order to simplify the report, attached plots were only channel of the highest power.



■ Test Plots(802.11n(HT40))

Note:

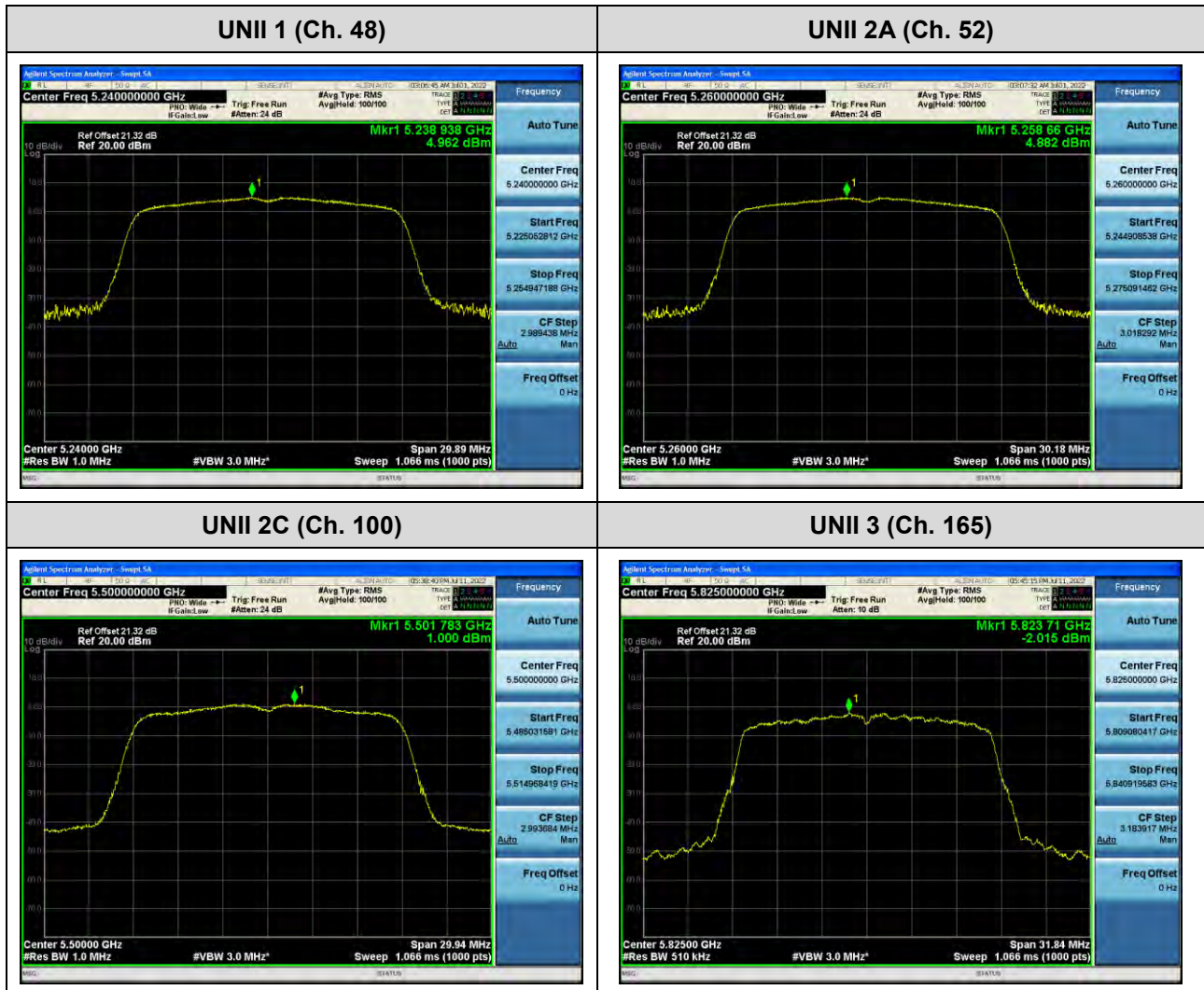
In order to simplify the report, attached plots were only channel of the highest power.



■ Test Plots(802.11ac(VHT20))

Note:

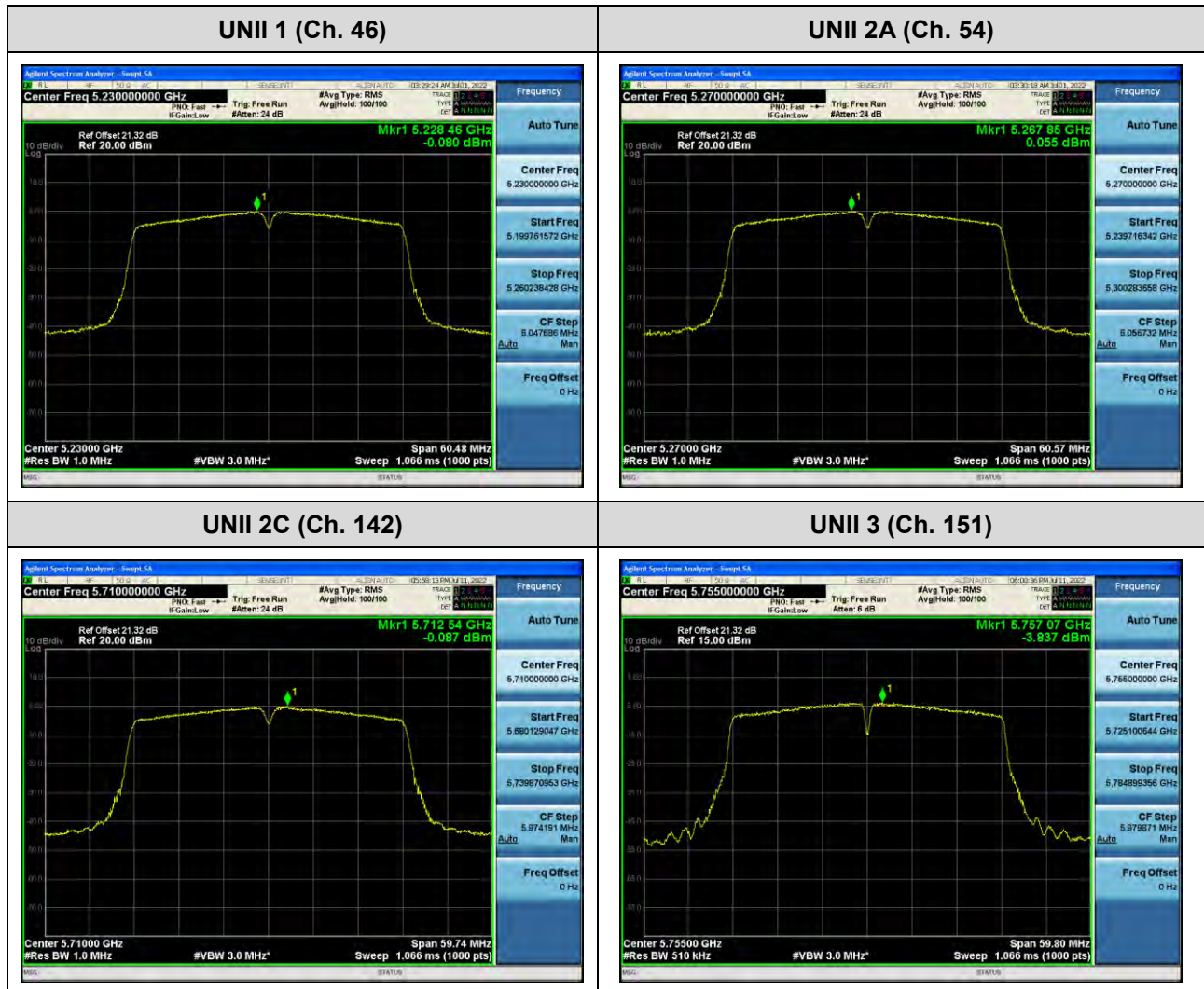
In order to simplify the report, attached plots were only channel of the highest power.



■ Test Plots(802.11ac(VHT40))

Note:

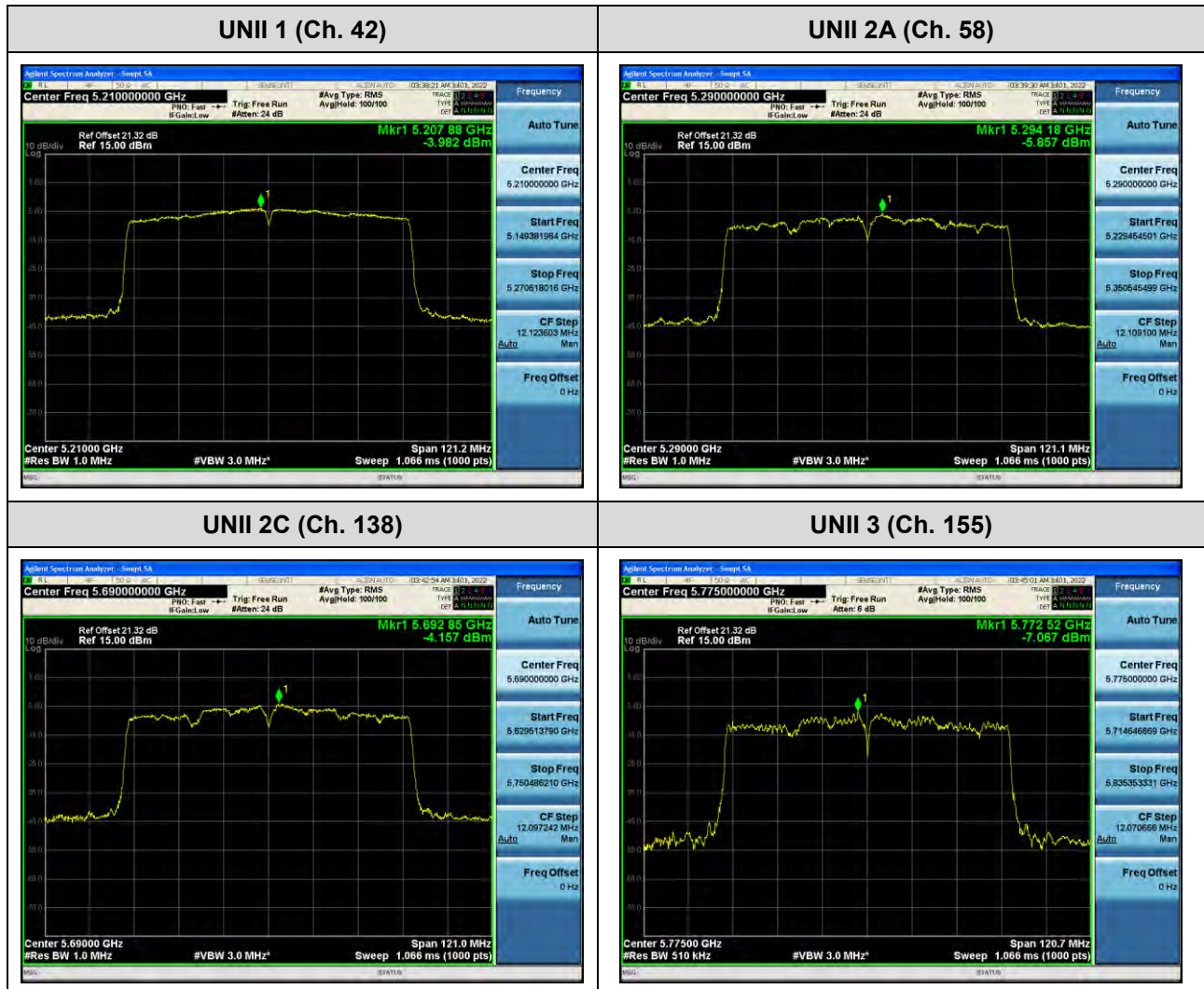
In order to simplify the report, attached plots were only channel of the highest power.



■ Test Plots(802.11ac(VHT80))

Note:

In order to simplify the report, attached plots were only channel of the highest power.



10.6 FREQUENCY STABILITY.

10.6.1 80 MHz BW

Startup after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5210052.80	52.80
100%		-30	5210071.73	71.73
100%		-20	5210068.77	68.77
100%		-10	5210063.30	63.30
100%		0	5210059.67	59.67
100%		+10	5210056.17	56.17
100%		+30	5210056.12	56.12
100%		+40	5210065.90	65.90
100%		+50	5210071.93	71.93
High	4.40	+20	5210072.83	72.83
Low	3.80	+20	5210070.16	70.16

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5290054.29	54.29
100%		-30	5290074.09	74.09
100%		-20	5290071.31	71.31
100%		-10	5290065.07	65.07
100%		0	5290061.17	61.17
100%		+10	5290058.70	58.70
100%		+30	5290057.31	57.31
100%		+40	5290067.04	67.04
100%		+50	5290070.49	70.49
High	4.40	+20	5290071.74	71.74
Low	3.80	+20	5290073.10	73.10

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5530051.88	51.88
100%		-30	5530070.86	70.86
100%		-20	5530067.55	67.55
100%		-10	5530061.23	61.23
100%		0	5530056.98	56.98
100%		+10	5530052.93	52.93
100%		+30	5530055.22	55.22
100%		+40	5530065.05	65.05
100%		+50	5530069.11	69.11
High	4.40	+20	5530069.94	69.94
Low	3.80	+20	5530070.62	70.62

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5775049.27	49.27
100%		-30	5775068.97	68.97
100%		-20	5775066.84	66.84
100%		-10	5775060.51	60.51
100%		0	5775056.68	56.68
100%		+10	5775053.05	53.05
100%		+30	5775052.64	52.64
100%		+40	5775060.98	60.98
100%		+50	5775064.90	64.90
High	4.40	+20	5775067.19	67.19
Low	3.80	+20	5775066.96	66.96

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

2 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5210061.29	61.29
100%		-30	5210081.57	81.57
100%		-20	5210077.73	77.73
100%		-10	5210071.15	71.15
100%		0	5210067.50	67.50
100%		+10	5210065.05	65.05
100%		+30	5210063.85	63.85
100%		+40	5210073.48	73.48
100%		+50	5210079.17	79.17
High	4.40	+20	5210080.98	80.98
Low	3.80	+20	5210080.52	80.52

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5290058.88	58.88
100%		-30	5290079.11	79.11
100%		-20	5290076.54	76.54
100%		-10	5290069.61	69.61
100%		0	5290065.04	65.04
100%		+10	5290061.26	61.26
100%		+30	5290061.30	61.30
100%		+40	5290070.55	70.55
100%		+50	5290074.26	74.26
High	4.40	+20	5290076.59	76.59
Low	3.80	+20	5290078.29	78.29

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5530060.04	60.04
100%		-30	5530080.34	80.34
100%		-20	5530077.70	77.70
100%		-10	5530071.54	71.54
100%		0	5530066.81	66.81
100%		+10	5530064.35	64.35
100%		+30	5530062.20	62.20
100%		+40	5530071.68	71.68
100%		+50	5530077.43	77.43
High	4.40	+20	5530079.79	79.79
Low	3.80	+20	5530077.46	77.46

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5775063.91	63.91
100%		-30	5775082.85	82.85
100%		-20	5775080.37	80.37
100%		-10	5775073.80	73.80
100%		0	5775069.50	69.50
100%		+10	5775066.55	66.55
100%		+30	5775066.15	66.15
100%		+40	5775076.55	76.55
100%		+50	5775081.25	81.25
High	4.40	+20	5775082.61	82.61
Low	3.80	+20	5775082.94	82.94

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

5 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5210067.45	67.45
100%		-30	5210086.45	86.45
100%		-20	5210083.59	83.59
100%		-10	5210076.69	76.69
100%		0	5210071.82	71.82
100%		+10	5210068.21	68.21
100%		+30	5210071.33	71.33
100%		+40	5210079.02	79.02
100%		+50	5210085.07	85.07
High	4.40	+20	5210087.50	87.50
Low	3.80	+20	5210084.41	84.41

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5290063.85	63.85
100%		-30	5290083.68	83.68
100%		-20	5290080.48	80.48
100%		-10	5290075.31	75.31
100%		0	5290070.46	70.46
100%		+10	5290067.97	67.97
100%		+30	5290067.43	67.43
100%		+40	5290077.61	77.61
100%		+50	5290082.04	82.04
High	4.40	+20	5290082.28	82.28
Low	3.80	+20	5290082.20	82.20

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5530062.01	62.01
100%		-30	5530082.75	82.75
100%		-20	5530079.78	79.78
100%		-10	5530074.43	74.43
100%		0	5530070.11	70.11
100%		+10	5530066.99	66.99
100%		+30	5530064.23	64.23
100%		+40	5530072.40	72.40
100%		+50	5530075.80	75.80
High	4.40	+20	5530079.41	79.41
Low	3.80	+20	5530080.77	80.77

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5775066.24	66.24
100%		-30	5775085.29	85.29
100%		-20	5775081.86	81.86
100%		-10	5775075.01	75.01
100%		0	5775071.84	71.84
100%		+10	5775068.95	68.95
100%		+30	5775069.67	69.67
100%		+40	5775077.98	77.98
100%		+50	5775081.17	81.17
High	4.40	+20	5775083.43	83.43
Low	3.80	+20	5775085.78	85.78

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

10 minutes after the EUT is energized

OPERATING BAND:	UNII Band 1
OPERATING FREQUENCY:	5,210,000,000 Hz
CHANNEL:	42
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5210069.41	69.41
100%		-30	5210090.14	90.14
100%		-20	5210086.64	86.64
100%		-10	5210080.71	80.71
100%		0	5210076.52	76.52
100%		+10	5210074.29	74.29
100%		+30	5210071.79	71.79
100%		+40	5210081.24	81.24
100%		+50	5210084.43	84.43
High	4.40	+20	5210086.60	86.60
Low	3.80	+20	5210087.16	87.16

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2A
OPERATING FREQUENCY:	5,290,000,000 Hz
CHANNEL:	58
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5290070.85	70.85
100%		-30	5290091.37	91.37
100%		-20	5290087.80	87.80
100%		-10	5290081.71	81.71
100%		0	5290076.82	76.82
100%		+10	5290073.96	73.96
100%		+30	5290073.21	73.21
100%		+40	5290082.25	82.25
100%		+50	5290086.40	86.40
High	4.40	+20	5290089.00	89.00
Low	3.80	+20	5290090.71	90.71

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 2C
OPERATING FREQUENCY:	5,530,000,000 Hz
CHANNEL:	106
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5530070.36	70.36
100%		-30	5530089.72	89.72
100%		-20	5530086.83	86.83
100%		-10	5530081.32	81.32
100%		0	5530076.48	76.48
100%		+10	5530072.89	72.89
100%		+30	5530074.27	74.27
100%		+40	5530082.90	82.90
100%		+50	5530087.93	87.93
High	4.40	+20	5530089.39	89.39
Low	3.80	+20	5530090.04	90.04

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

OPERATING BAND:	UNII Band 3
OPERATING FREQUENCY:	5,775,000,000 Hz
CHANNEL:	155
REFERENCE VOLTAGE:	4.20 VDC

Voltage (%)	Power (VDC)	Temp. (°C)	Frequency (kHz)	Frequency Error (kHz)
100%	4.20	+20(Ref)	5775068.59	68.59
100%		-30	5775088.21	88.21
100%		-20	5775085.18	85.18
100%		-10	5775079.98	79.98
100%		0	5775075.93	75.93
100%		+10	5775073.34	73.34
100%		+30	5775072.46	72.46
100%		+40	5775080.79	80.79
100%		+50	5775084.14	84.14
High	4.40	+20	5775085.94	85.94
Low	3.80	+20	5775086.78	86.78

Note:

Based on the results of the frequency stability test shown above the frequency deviation results measured are very small. As such it is determined that the channels at the band edge would remain in-band when the maximum measured frequency error noted during the frequency stability tests is applied. Therefore the device is determined to remain operating in band over the temperature and voltage range as tested.

10.7 STRADDLE CHANNEL

10.7.1 26 dB Bandwidth

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11a	UNII 2C	5720	144	5710.12	14.88
802.11n(HT20)				5710.04	14.96
802.11ac(VHT20)				5710.04	14.96
802.11a	UNII 3	5720	144	5729.92	4.92
802.11n(HT20)				5730.08	5.08
802.11ac(VHT20)				5730.08	5.08

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11n(HT40)	UNII 2C	5710	142	5690.00	35.00
802.11ac(VHT40)				5690.00	35.00
802.11n(HT40)	UNII 3	5710	142	5730.16	5.16
802.11ac(VHT40)				5730.16	5.16

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	26 dB Bandwidth [MHz]
802.11ac(VHT80)	UNII 2C	5690	138	5650.04	74.96
	UNII 3	5690	138	5730.20	5.20

Note:

[UNII 2C] 26 dB Bandwidth = 5 725 MHz - Measured Frequency[MHz]

[UNII 3C] 26 dB Bandwidth = Measured Frequency[MHz] – 5 725 MHz

Test Plots (26 dB Bandwidth)

802.11a UNII Band



802.11n(HT20) UNII Band

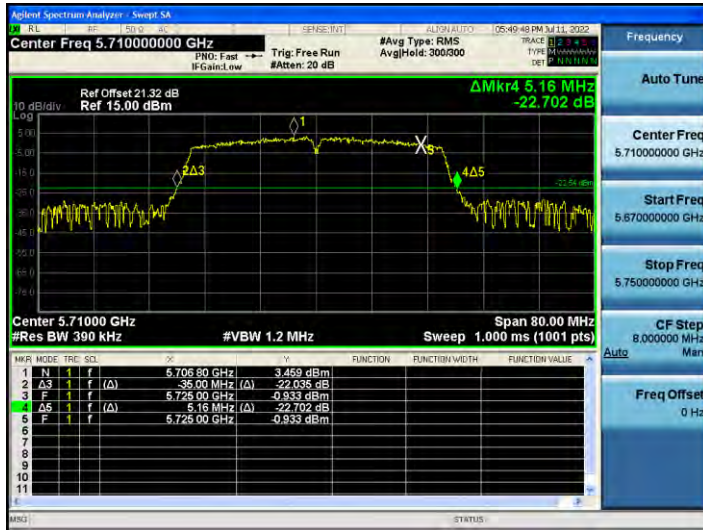


802.11ac(VHT20) UNII Band



☐ Test Plots (26 dB Bandwidth)

802.11n(HT40) UNII Band



802.11ac(VHT40) UNII Band



802.11ac(VHT80) UNII Band



10.7.2 6 dB Bandwidth

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11a	UNII 3	5720	144	5727.60	2.60	> 0.5
802.11n(HT20)				5727.56	2.56	> 0.5
802.11ac(VHT20)				5727.60	2.60	> 0.5

Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11n(HT40)	UNII 3	5710	142	5727.60	2.60	> 0.5
802.11ac(VHT40)				5727.60	2.60	> 0.5

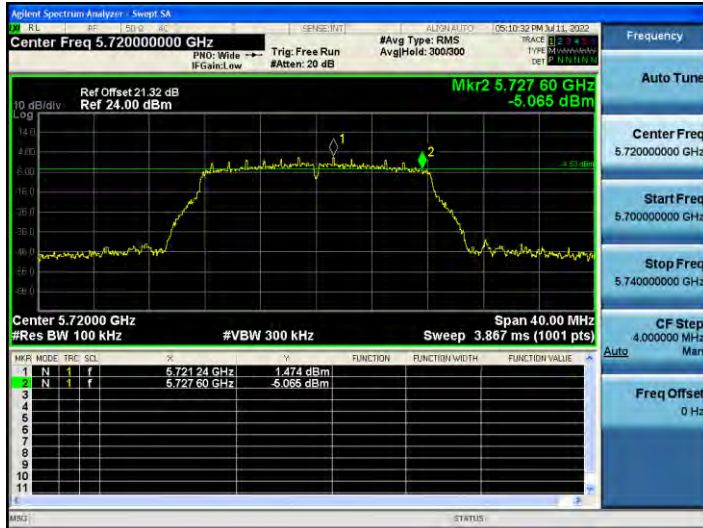
Mode	Band	Frequency [MHz]	Channel	Measured Frequency [MHz]	6 dB Bandwidth [MHz]	Limit [MHz]
802.11ac(VHT80)	UNII 3	5690	138	5727.68	2.68	> 0.5

Note:

6 dB Bandwidth = Measured Frequency[MHz] – 5725MHz

Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a CH.144



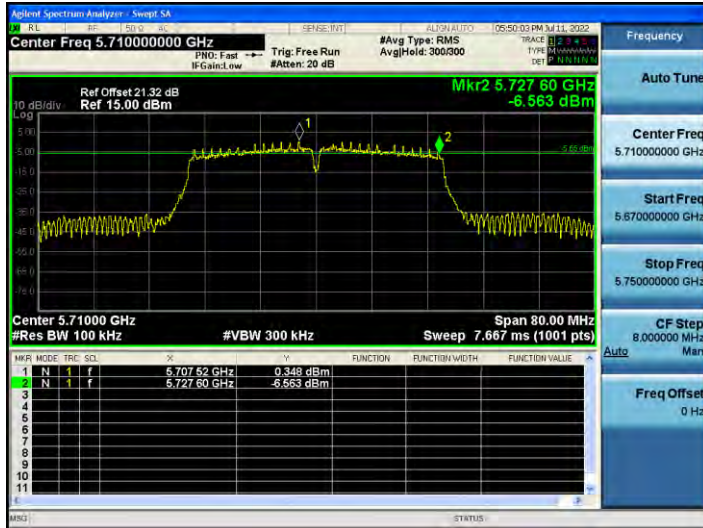
802.11n_HT20 CH.144



802.11ac_VHT20 CH.144



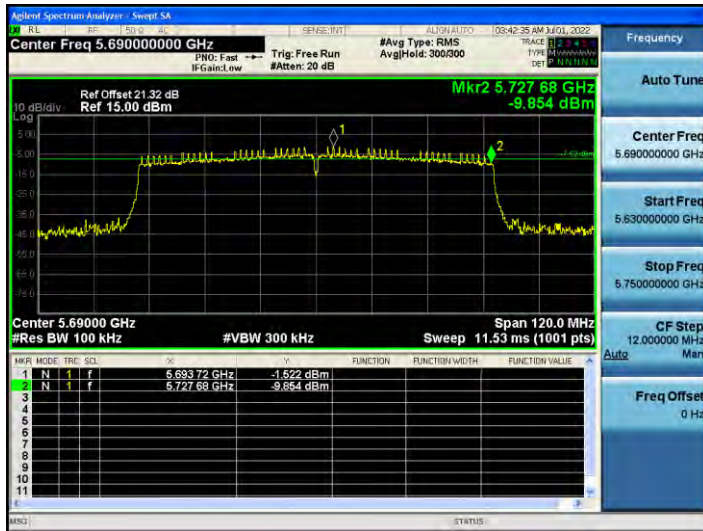
802.11n_HT40 CH.142



802.11ac_VHT40 CH.142



802.11ac_VHT80 CH.138



10.7.3 Output Power

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720	144	10.07	0.910	10.98	22.73	48 Mbps
802.11n(HT20)	(UNII 2C		9.75	1.059	10.81	22.75	MCS7
802.11ac(VHT20)	Band)		9.74	0.509	10.25	22.75	MCS3
802.11a	5720	144	2.62	0.910	3.53	30.00	48 Mbps
802.11n(HT20)	(UNII 3		2.69	1.059	3.75	30.00	MCS7
802.11ac(VHT20)	Band)		2.59	0.509	3.10	30.00	MCS3

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710	142	12.71	0.290	13.00	23.98	MCS0
802.11ac(VHT40)	(UNII 2C Band)		12.73	0.289	13.02	23.98	MCS0
802.11n(HT40)	5710	142	0.57	0.290	0.86	30.00	MCS0
802.11ac(VHT40)	(UNII 3 Band)		0.57	0.289	0.86	30.00	MCS0

Mode	Frequency [MHz]	Channel	Measured Power [dBm]	Duty Cycle Factor [dB]	Total Power [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	10.82	2.851	13.67	23.98	MCS5
	5690 (UNII 3 Band)	138	-3.89	2.851	-1.03	30.00	MCS5

Test Plots

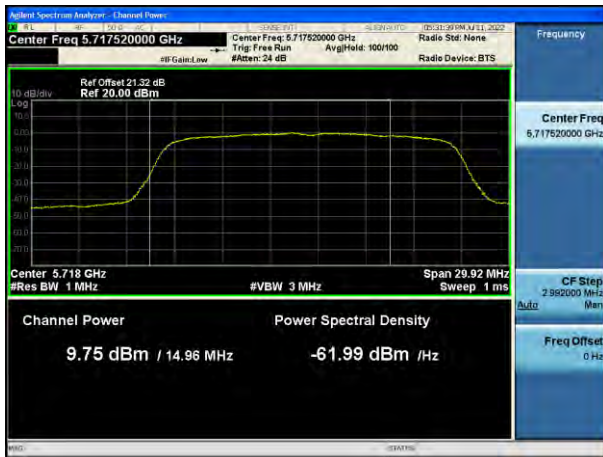
802.11a UNII 2C Band



802.11a UNII 3 Band



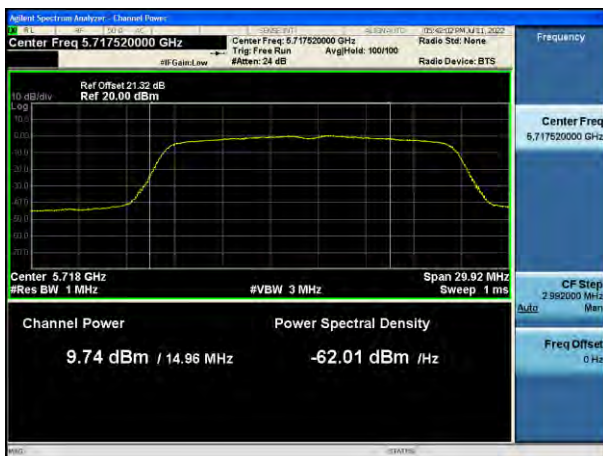
802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band



802.11ac(VHT20) UNII 2C Band



802.11ac(VHT20) UNII 3 Band



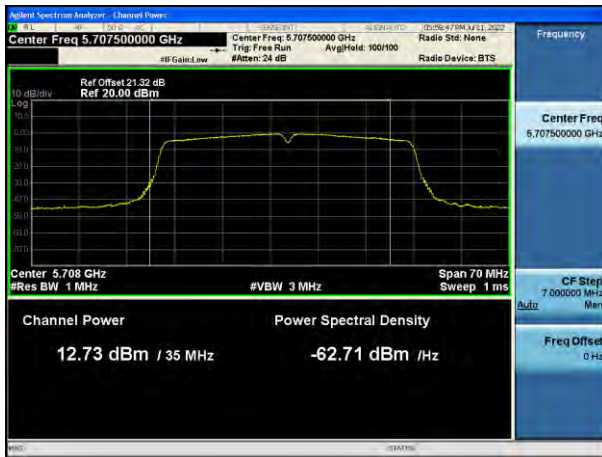
802.11n(HT40) UNII 2C Band



802.11n(HT40) UNII 3 Band



802.11ac(VHT40) UNII 2C Band



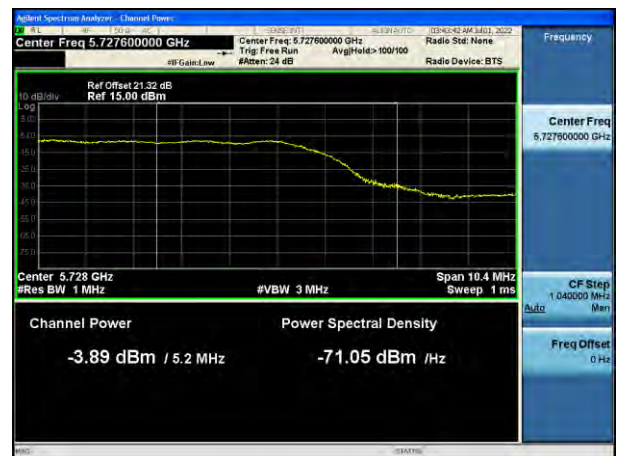
802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band



802.11ac(VHT80) UNII 3 Band



10.7.4 Power Spectral Density

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11a	5720	144	0.905	0.910	1.815	11 dBm/ MHz	48 Mbps
802.11n(HT20)	(UNII 2C		0.718	1.059	1.777		MCS7
802.11ac(VHT20)	Band)		0.197	0.509	0.706		MCS3
802.11a	5720	144	-3.650	0.910	-2.740	30	48 Mbps
802.11n(HT20)	(UNII 3		-3.927	1.059	-2.868	dBm/500 kHz	MCS7
802.11ac(VHT20)	Band)		-4.129	0.509	-3.620		MCS3

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11n(HT40)	5710	142	0.061	0.290	0.351	11 dBm/ MHz	MCS0
802.11ac(VHT40)	(UNII 2C Band)		-0.176	0.289	0.113		MCS0
802.11n(HT40)	5710	142	-6.085	0.290	-5.795	30 dBm/ 500 kHz	MCS0
802.11ac(VHT40)	(UNII 3 Band)		-6.160	0.289	-5.871		MCS0

Mode	Frequency [MHz]	Channel	Measured Density [dBm]	Duty Cycle Factor [dB]	Total PSD [dBm]	Limit [dBm]	Worstcase Datarate
802.11ac(VHT80)	5690 (UNII 2C Band)	138	-4.761	2.851	-1.910	11 dBm/ MHz	MCS5
	5690 (UNII 3 Band)	138	-10.573	2.851	-7.722	30 dBm/ 500 kHz	MCS5

Test Plots

802.11a UNII 2C Band



802.11a UNII 3 Band



802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band



802.11ac(VHT20) UNII 2C Band



802.11ac(VHT20) UNII 3 Band



802.11n(HT40) UNII 2C Band



802.11n(HT40) UNII 3 Band



802.11ac(VHT40) UNII 2C Band



802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band



802.11ac(VHT80) UNII 3 Band



10.8 RADIATED SPURIOUS EMISSIONS**Frequency Range : 9 kHz – 30 MHz**

Frequency	Measured Value	A.F+D.F+C.L	POL	Total	Limit	Margin
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]
No Critical peaks found						

Note:

1. The Measured Value of emissions are attenuated more than 20 dB below the permissible limits or the field strength is too small to be measured.
2. Distance extrapolation factor = $40\log(\text{specific distance} / \text{test distance})$ (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	POL	Total	Limit	Margin
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]
No Critical peaks found						

Note:

1. Radiated emissions measured in frequency range from 30 MHz to 1000 MHz were made with an instrument using Quasi peak detector mode

Frequency Range : Above 1 GHz

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10360	57.87	-0.94	V	56.93	68.20	11.27	PK
15540	45.62	1.57	V	47.19	73.98	26.79	PK
15540	40.62	1.57	V	42.19	53.98	11.79	AV
10360	57.55	-0.94	H	56.61	68.20	11.59	PK
15540	45.44	1.57	H	47.01	73.98	26.97	PK
15540	40.48	1.57	H	42.05	53.98	11.93	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5200 MHz
Channel No.	40 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10400	57.22	-0.07	V	57.15	68.20	11.05	PK
15600	54.12	1.52	V	55.64	73.98	18.34	PK
15600	40.08	1.52	V	41.60	53.98	12.38	AV
10400	56.98	-0.07	H	56.91	68.20	11.29	PK
15600	53.99	1.52	H	55.51	73.98	18.47	PK
15600	39.78	1.52	H	41.30	53.98	12.68	AV

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5240 MHz
Channel No.	48 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10480	58.94	-0.97	V	57.97	68.20	10.23	PK
15720	53.82	0.64	V	54.46	73.98	19.52	PK
15720	39.76	0.64	V	40.40	53.98	13.58	AV
10480	58.55	-0.97	H	57.58	68.20	10.62	PK
15720	53.71	0.64	H	54.35	73.98	19.63	PK
15720	39.55	0.64	H	40.19	53.98	13.79	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5260 MHz
Channel No.	52 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10520	62.16	-1.06	V	61.11	68.20	7.10	PK
15780	55.22	0.59	V	55.81	73.98	18.17	PK
15780	40.23	0.59	V	40.82	53.98	13.16	AV
10520	61.85	-1.06	H	60.80	68.20	7.41	PK
15780	55.01	0.59	H	55.60	73.98	18.38	PK
15780	40.02	0.59	H	40.61	53.98	13.37	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5300 MHz
Channel No.	60 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10600	61.67	-0.61	V	61.06	73.98	12.92	PK
10600	47.41	-0.61	V	46.80	53.98	7.18	AV
15900	56.12	0.25	V	56.37	73.98	17.61	PK
15900	41.48	0.25	V	41.73	53.98	12.25	AV
10600	61.48	-0.61	H	60.87	73.98	13.11	PK
10600	47.22	-0.61	H	46.61	53.98	7.37	AV
15900	55.89	0.25	H	56.14	73.98	17.84	PK
15900	41.26	0.25	H	41.51	53.98	12.47	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10640	61.55	-0.73	V	60.82	73.98	13.16	PK
10640	48.12	-0.73	V	47.39	53.98	6.59	AV
15960	53.94	0.53	V	54.47	73.98	19.51	PK
15960	40.06	0.53	V	40.59	53.98	13.39	AV
10640	61.32	-0.73	H	60.59	73.98	13.39	PK
10640	47.86	-0.73	H	47.13	53.98	6.85	AV
15960	53.78	0.53	H	54.31	73.98	19.67	PK
15960	39.92	0.53	H	40.45	53.98	13.53	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11000	63.98	-0.18	V	63.80	73.98	10.18	PK
11000	49.72	-0.18	V	49.54	53.98	4.44	AV
16500	51.66	0.60	V	52.26	68.20	15.94	PK
11000	63.71	-0.18	H	63.53	73.98	10.45	PK
11000	49.42	-0.18	H	49.24	53.98	4.74	AV
16500	51.48	0.60	H	52.08	68.20	16.12	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11200	63.77	-1.01	V	62.76	73.98	11.22	PK
11200	49.55	-1.01	V	48.54	53.98	5.44	AV
16800	51.82	-0.07	V	51.75	68.20	16.45	PK
11200	63.51	-1.01	H	62.50	73.98	11.48	PK
11200	49.32	-1.01	H	48.31	53.98	5.67	AV
16800	51.52	-0.07	H	51.45	68.20	16.75	PK

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11440	63.55	-0.52	V	63.03	73.98	10.95	PK
11440	49.12	-0.52	V	48.60	53.98	5.38	AV
17160	51.36	0.64	V	52.00	68.20	16.20	PK
11440	63.32	-0.52	H	62.80	73.98	11.18	PK
11440	48.89	-0.52	H	48.37	53.98	5.61	AV
17160	51.12	0.64	H	51.76	68.20	16.44	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5745MHz
Channel No.	149 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	62.48	-0.38	V	62.10	73.98	11.88	PK
11490	48.55	-0.38	V	48.17	53.98	5.81	AV
17235	51.43	1.04	V	52.47	68.20	15.73	PK
11490	62.12	-0.38	H	61.74	73.98	12.24	PK
11490	48.22	-0.38	H	47.84	53.98	6.14	AV
17235	51.23	1.04	H	52.27	68.20	15.93	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	65.28	-0.29	V	64.99	73.98	9.00	PK
11570	49.63	-0.29	V	49.34	53.98	4.65	AV
17355	51.92	1.14	V	53.06	68.20	15.15	PK
11570	65.02	-0.29	H	64.73	73.98	9.26	PK
11570	49.48	-0.29	H	49.19	53.98	4.80	AV
17355	51.55	1.14	H	52.69	68.20	15.52	PK

Band :	UNII 3
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	63.85	-1.16	V	62.69	73.98	11.29	PK
11650	49.34	-1.16	V	48.18	53.98	5.80	AV
17475	51.11	2.16	V	53.27	68.20	14.93	PK
11650	63.75	-1.16	H	62.59	73.98	11.39	PK
11650	49.12	-1.16	H	47.96	53.98	6.02	AV
17475	50.98	2.16	H	53.14	68.20	15.06	PK

Band :	UNII 2C
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11000	64.02	-0.18	V	63.84	73.98	10.14	PK
11000	49.68	-0.18	V	49.50	53.98	4.48	AV
16500	51.78	0.60	V	52.38	68.20	15.82	PK
11000	63.85	-0.18	H	63.67	73.98	10.31	PK
11000	49.48	-0.18	H	49.30	53.98	4.68	AV
16500	51.55	0.60	H	52.15	68.20	16.05	PK

Band :	UNII 2C
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	0
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11200	63.38	-1.01	V	62.37	73.98	11.61	PK
11200	49.48	-1.01	V	48.47	53.98	5.51	AV
16800	51.32	-0.07	V	51.25	68.20	16.95	PK
11200	63.12	-1.01	H	62.11	73.98	11.87	PK
11200	49.22	-1.01	H	48.21	53.98	5.77	AV
16800	51.02	-0.07	H	50.95	68.20	17.25	PK

Band :	UNII 2C
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	0
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11440	63.48	-0.52	V	62.96	73.98	11.02	PK
11440	49.02	-0.52	V	48.50	53.98	5.48	AV
17160	50.78	0.64	V	51.42	68.20	16.78	PK
11440	63.25	-0.52	H	62.73	73.98	11.25	PK
11440	48.89	-0.52	H	48.37	53.98	5.61	AV
17160	50.51	0.64	H	51.15	68.20	17.05	PK

Band :	UNII 3
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	62.38	-0.38	V	62.00	73.98	11.98	PK
11490	48.32	-0.38	V	47.94	53.98	6.04	AV
17235	51.33	1.04	V	52.37	68.20	15.83	PK
11490	62.22	-0.38	H	61.84	73.98	12.14	PK
11490	48.12	-0.38	H	47.74	53.98	6.24	AV
17235	51.12	1.04	H	52.16	68.20	16.04	PK

Band :	UNII 3
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	0
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	65.12	-0.29	V	64.83	73.98	9.16	PK
11570	49.55	-0.29	V	49.26	53.98	4.73	AV
17355	51.88	1.14	V	53.02	68.20	15.19	PK
11570	64.85	-0.29	H	64.56	73.98	9.43	PK
11570	49.32	-0.29	H	49.03	53.98	4.96	AV
17355	51.48	1.14	H	52.62	68.20	15.59	PK

Band :	UNII 3
Operation Mode:	802.11n(HT20)
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	62.85	-1.16	V	61.69	73.98	12.29	PK
11650	49.22	-1.16	V	48.06	53.98	5.92	AV
17475	51.12	2.16	V	53.28	68.20	14.92	PK
11650	62.65	-1.16	H	61.49	73.98	12.49	PK
11650	49.02	-1.16	H	47.86	53.98	6.12	AV
17475	50.89	2.16	H	53.05	68.20	15.15	PK

Band :	UNII 2C
Operation Mode:	802.11n(HT40)
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11020	59.84	0.01	V	59.86	73.98	14.13	PK
11020	47.12	0.01	V	47.14	53.98	6.85	AV
16530	51.32	0.61	V	51.93	68.20	16.27	PK
11020	59.77	0.01	H	59.79	73.98	14.20	PK
11020	46.89	0.01	H	46.91	53.98	7.08	AV
16530	51.02	0.61	H	51.63	68.20	16.57	PK

Band :	UNII 2C
Operation Mode:	802.11n(HT40)
Transfer MCS Index:	0
Operating Frequency	5590 MHz
Channel No.	118 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11180	63.93	-0.19	V	63.74	73.98	10.24	PK
11180	50.80	-0.19	V	50.61	53.98	3.37	AV
16770	51.32	0.03	V	51.35	68.20	16.85	PK
11180	62.78	-0.19	H	62.59	73.98	11.39	PK
11180	50.51	-0.19	H	50.32	53.98	3.66	AV
16770	51.02	0.03	H	51.05	68.20	17.15	PK

Band :	UNII 2C
Operation Mode:	802.11n(HT40)
Transfer MCS Index:	0
Operating Frequency	5710 MHz
Channel No.	142 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11420	63.45	-0.67	V	62.79	73.98	11.20	PK
11420	50.37	-0.67	V	49.71	53.98	4.28	AV
17130	51.55	0.97	V	52.52	68.20	15.68	PK
11420	63.21	-0.67	H	62.55	73.98	11.44	PK
11420	49.89	-0.67	H	49.23	53.98	4.76	AV
17130	51.33	0.97	H	52.30	68.20	15.90	PK

Band :	UNII 3
Operation Mode:	802.11n(HT40)
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11510	62.54	-0.86	V	61.68	73.98	12.30	PK
11510	49.52	-0.86	V	48.66	53.98	5.32	AV
17265	51.89	0.93	V	52.82	68.20	15.38	PK
11510	62.32	-0.86	H	61.46	73.98	12.52	PK
11510	49.23	-0.86	H	48.37	53.98	5.61	AV
17265	51.57	0.93	H	52.50	68.20	15.70	PK

Band :	UNII 3
Operation Mode:	802.11n(HT40)
Transfer MCS Index:	0
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11590	63.57	-1.14	V	62.43	73.98	11.55	PK
11590	49.62	-1.14	V	48.48	53.98	5.50	AV
17385	51.35	1.16	V	52.51	68.20	15.69	PK
11590	63.23	-1.14	H	62.09	73.98	11.89	PK
11590	49.48	-1.14	H	48.34	53.98	5.64	AV
17385	51.12	1.16	H	52.28	68.20	15.92	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11000	63.99	-0.18	V	63.81	73.98	10.17	PK
11000	49.66	-0.18	V	49.48	53.98	4.50	AV
16500	51.58	0.60	V	52.18	68.20	16.02	PK
11000	63.41	-0.18	H	63.23	73.98	10.75	PK
11000	49.48	-0.18	H	49.30	53.98	4.68	AV
16500	51.32	0.60	H	51.92	68.20	16.28	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5600 MHz
Channel No.	120 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11200	63.52	-1.01	V	62.51	73.98	11.47	PK
11200	49.32	-1.01	V	48.31	53.98	5.67	AV
16800	51.12	-0.07	V	51.05	68.20	17.15	PK
11200	63.22	-1.01	H	62.21	73.98	11.77	PK
11200	49.12	-1.01	H	48.11	53.98	5.87	AV
16800	50.89	-0.07	H	50.82	68.20	17.38	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5720 MHz
Channel No.	144 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11440	63.33	-0.52	V	62.81	73.98	11.17	PK
11440	48.99	-0.52	V	48.47	53.98	5.51	AV
17160	50.83	0.64	V	51.47	68.20	16.73	PK
11440	63.02	-0.52	H	62.50	73.98	11.48	PK
11440	48.78	-0.52	H	48.26	53.98	5.72	AV
17160	50.62	0.64	H	51.26	68.20	16.94	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5745 MHz
Channel No.	149 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11490	62.41	-0.38	V	62.03	73.98	11.95	PK
11490	48.35	-0.38	V	47.97	53.98	6.01	AV
17235	51.48	1.04	V	52.52	68.20	15.68	PK
11490	62.02	-0.38	H	61.64	73.98	12.34	PK
11490	48.12	-0.38	H	47.74	53.98	6.24	AV
17235	51.23	1.04	H	52.27	68.20	15.93	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5785 MHz
Channel No.	157 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	65.21	-0.29	V	64.92	73.98	9.07	PK
11570	49.48	-0.29	V	49.19	53.98	4.80	AV
17355	51.78	1.14	V	52.92	68.20	15.29	PK
11570	65.08	-0.29	H	64.79	73.98	9.20	PK
11570	49.22	-0.29	H	48.93	53.98	5.06	AV
17355	51.55	1.14	H	52.69	68.20	15.52	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT20)
Transfer MCS Index:	0
Operating Frequency	5825 MHz
Channel No.	165 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11650	62.75	-1.16	V	61.59	73.98	12.39	PK
11650	49.13	-1.16	V	47.97	53.98	6.01	AV
17475	51.19	2.16	V	53.35	68.20	14.85	PK
11650	62.51	-1.16	H	61.35	73.98	12.63	PK
11650	48.89	-1.16	H	47.73	53.98	6.25	AV
17475	50.89	2.16	H	53.05	68.20	15.15	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT40)
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11020	59.99	0.01	V	60.01	73.98	13.98	PK
11020	47.02	0.01	V	47.04	53.98	6.95	AV
16530	51.39	0.61	V	52.00	68.20	16.20	PK
11020	59.78	0.01	H	59.80	73.98	14.19	PK
11020	46.85	0.01	H	46.87	53.98	7.12	AV
16530	51.12	0.61	H	51.73	68.20	16.47	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT40)
Transfer MCS Index:	0
Operating Frequency	5590 MHz
Channel No.	118 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11180	63.78	-0.19	V	63.59	73.98	10.39	PK
11180	50.55	-0.19	V	50.36	53.98	3.62	AV
16770	51.12	0.03	V	51.15	68.20	17.05	PK
11180	63.55	-0.19	H	63.36	73.98	10.62	PK
11180	50.32	-0.19	H	50.13	53.98	3.85	AV
16770	50.95	0.03	H	50.98	68.20	17.22	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT40)
Transfer MCS Index:	0
Operating Frequency	5710 MHz
Channel No.	142 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11420	63.35	-0.67	V	62.69	73.98	11.30	PK
11420	50.33	-0.67	V	49.67	53.98	4.32	AV
17130	51.42	0.97	V	52.39	68.20	15.81	PK
11420	63.12	-0.67	H	62.46	73.98	11.53	PK
11420	50.12	-0.67	H	49.46	53.98	4.53	AV
17130	51.19	0.97	H	52.16	68.20	16.04	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT40)
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	151 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11510	62.44	-0.86	V	61.58	73.98	12.40	PK
11510	49.48	-0.86	V	48.62	53.98	5.36	AV
17265	52.08	0.93	V	53.01	68.20	15.19	PK
11510	62.18	-0.86	H	61.32	73.98	12.66	PK
11510	49.23	-0.86	H	48.37	53.98	5.61	AV
17265	51.89	0.93	H	52.82	68.20	15.38	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT40)
Transfer MCS Index:	0
Operating Frequency	5795 MHz
Channel No.	159 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11590	63.48	-1.14	V	62.34	73.98	11.64	PK
11590	49.55	-1.14	V	48.41	53.98	5.57	AV
17385	51.39	1.16	V	52.55	68.20	15.65	PK
11590	63.18	-1.14	H	62.04	73.98	11.94	PK
11590	49.32	-1.14	H	48.18	53.98	5.80	AV
17385	51.11	1.16	H	52.27	68.20	15.93	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT80)
Transfer MCS Index:	0
Operating Frequency	5530 MHz
Channel No.	106 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11060	61.76	-1.08	V	60.68	73.98	13.30	PK
11060	48.51	-1.08	V	47.43	53.98	6.55	AV
16590	51.75	0.32	V	52.07	68.20	16.13	PK
11060	61.53	-1.08	H	60.45	73.98	13.53	PK
11060	48.22	-1.08	H	47.14	53.98	6.84	AV
16590	51.48	0.32	H	51.80	68.20	16.40	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT80)
Transfer MCS Index:	0
Operating Frequency	5610 MHz
Channel No.	122 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11220	62.15	-0.80	V	61.35	73.98	12.63	PK
11220	48.93	-0.80	V	48.13	53.98	5.85	AV
16830	51.22	0.13	V	51.35	68.20	16.85	PK
11220	61.82	-0.80	H	61.02	73.98	12.96	PK
11220	49.78	-0.80	H	48.98	53.98	5.00	AV
16830	51.02	0.13	H	51.15	68.20	17.05	PK

Band :	UNII 2C
Operation Mode:	802.11ac(VHT80)
Transfer MCS Index:	0
Operating Frequency	5690 MHz
Channel No.	138 Ch

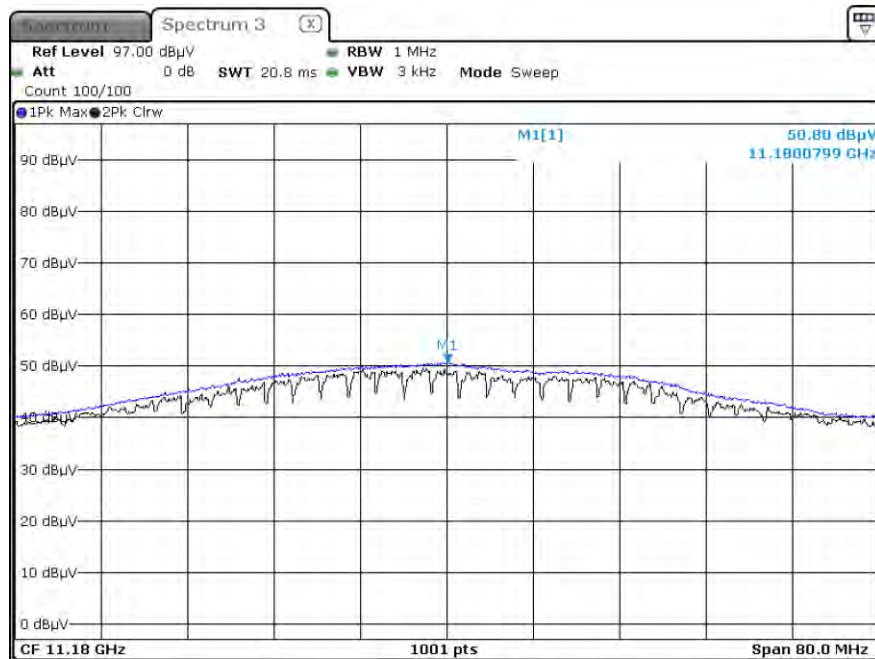
Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11380	61.78	-0.25	V	61.53	73.98	12.45	PK
11380	49.23	-0.25	V	48.98	53.98	5.00	AV
17070	51.56	0.94	V	52.51	68.20	15.70	PK
11380	64.52	-0.25	H	64.27	73.98	9.71	PK
11380	49.02	-0.25	H	48.77	53.98	5.21	AV
17070	51.32	0.94	H	52.27	68.20	15.94	PK

Band :	UNII 3
Operation Mode:	802.11ac(VHT80)
Transfer MCS Index:	0
Operating Frequency	5755 MHz
Channel No.	155 Ch

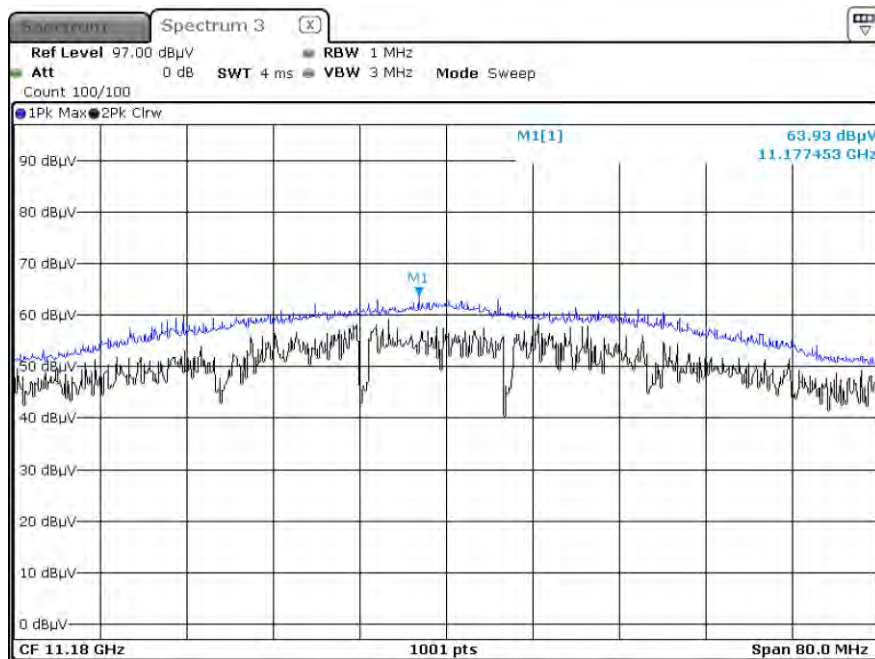
Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG [dB/m]	POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11550	61.35	-0.46	V	60.89	73.98	13.09	PK
11550	48.31	-0.46	V	47.85	53.98	6.13	AV
17325	51.60	1.00	V	52.60	68.20	15.60	PK
11550	61.18	-0.46	H	60.72	73.98	13.26	PK
11550	48.02	-0.46	H	47.56	53.98	6.42	AV
17325	51.32	1.00	H	52.32	68.20	15.88	PK

▣ Test Plots

Average Result (802.11n(HT40), Ch.118 Spurious Emissions, Z-V)



Peak Result (802.11n(HT40), Ch.118 Spurious Emissions, Z-V)



Note:

Only the worst case plots for Radiated Spurious Emissions.

10.9 RADIATED RESTRICTED BAND EDGE

Band :	UNII 1
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	52.22	13.64	H	65.86	73.98	8.12	PK
5150	33.67	13.64	H	47.31	53.98	6.67	AV
5150	52.02	13.64	V	65.66	73.98	8.32	PK
5150	32.85	13.64	V	46.49	53.98	7.49	AV

Band :	UNII 2A
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	55.98	14.22	H	70.20	73.98	3.78	PK
5350	33.48	14.22	H	47.7	53.98	6.28	AV
5350	55.56	14.22	V	69.78	73.98	4.20	PK
5350	32.02	14.22	V	46.24	53.98	7.74	AV

Band :	UNII 2C
Operation Mode:	802.11 a
Transfer Rate:	6 Mbps
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	42.23	14.69	H	56.92	73.98	17.06	PK
5460	29.29	14.69	H	43.98	53.98	10.00	AV
5470	49.43	15.03	H	64.46	68.20	3.74	PK
5460	42.12	14.69	V	56.81	73.98	17.17	PK
5460	28.62	14.69	V	43.31	53.98	10.67	AV
5470	49.22	15.03	V	64.25	68.20	3.95	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	52.44	13.64	H	66.08	73.98	7.90	PK
5150	33.63	13.64	H	47.27	53.98	6.71	AV
5150	52.12	13.64	V	65.76	73.98	8.22	PK
5150	33.48	13.64	V	47.12	53.98	6.86	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	56.30	14.22	H	70.52	73.98	3.46	PK
5350	32.07	14.22	H	46.29	53.98	7.69	AV
5350	56.02	14.22	V	70.24	73.98	3.74	PK
5350	31.78	14.22	V	46	53.98	7.98	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	43.92	14.69	H	58.61	73.98	15.37	PK
5460	29.12	14.69	H	43.81	53.98	10.17	AV
5470	48.55	15.03	H	63.58	68.20	4.62	PK
5460	43.77	14.69	V	58.46	73.98	15.52	PK
5460	28.65	14.69	V	43.34	53.98	10.64	AV
5470	48.21	15.03	V	63.24	68.20	4.96	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5180 MHz
Channel No.	36 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	50.98	13.64	H	64.62	73.98	9.36	PK
5150	33.74	13.64	H	47.38	53.98	6.60	AV
5150	50.21	13.64	V	63.85	73.98	10.13	PK
5150	32.85	13.64	V	46.49	53.98	7.49	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5320 MHz
Channel No.	64 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	56.00	14.22	H	70.22	73.98	3.76	PK
5350	32.27	14.22	H	46.49	53.98	7.49	AV
5350	55.89	14.22	V	70.11	73.98	3.87	PK
5350	31.62	14.22	V	45.84	53.98	8.14	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT20
Transfer MCS Index:	0
Operating Frequency	5500 MHz
Channel No.	100 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	41.59	14.69	H	56.28	73.98	17.70	PK
5460	29.25	14.69	H	43.94	53.98	10.04	AV
5470	49.82	15.03	H	64.85	68.20	3.35	PK
5460	41.26	14.69	V	55.95	73.98	18.03	PK
5460	28.62	14.69	V	43.31	53.98	10.67	AV
5470	49.51	15.03	V	64.54	68.20	3.66	PK

Band :	UNII 1
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	56.48	13.64	H	70.12	73.98	3.86	PK
5150	33.37	13.64	H	47.01	53.98	6.97	AV
5150	55.32	13.64	V	68.96	73.98	5.02	PK
5150	33.02	13.64	V	46.66	53.98	7.32	AV

Band :	UNII 2A
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	56.75	14.22	H	70.97	73.98	3.01	PK
5350	34.80	14.22	H	49.02	53.98	4.96	AV
5350	55.89	14.22	V	70.11	73.98	3.87	PK
5350	33.12	14.22	V	47.34	53.98	6.64	AV

Band :	UNII 2C
Operation Mode:	802.11 n_HT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	42.90	14.69	H	57.59	73.98	16.39	PK
5460	29.87	14.69	H	44.56	53.98	9.42	AV
5470	48.25	15.03	H	63.28	68.20	4.92	PK
5460	42.78	14.69	V	57.47	73.98	16.51	PK
5460	29.62	14.69	V	44.31	53.98	9.67	AV
5470	48.02	15.03	V	63.05	68.20	5.15	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5190 MHz
Channel No.	38 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	55.21	13.64	H	68.85	73.98	5.13	PK
5150	33.32	13.64	H	46.96	53.98	7.02	AV
5150	55.00	13.64	V	68.64	73.98	5.34	PK
5150	33.02	13.64	V	46.66	53.98	7.32	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5310 MHz
Channel No.	62 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	55.22	14.22	H	69.44	73.98	4.54	PK
5350	34.86	14.22	H	49.08	53.98	4.90	AV
5350	55.02	14.22	V	69.24	73.98	4.74	PK
5350	33.58	14.22	V	47.8	53.98	6.18	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT40
Transfer MCS Index:	0
Operating Frequency	5510 MHz
Channel No.	102 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	41.10	14.69	H	55.79	73.98	18.19	PK
5460	29.66	14.69	H	44.35	53.98	9.63	AV
5470	47.68	15.03	H	62.71	68.20	5.49	PK
5460	40.89	14.69	V	55.58	73.98	18.40	PK
5460	29.48	14.69	V	44.17	53.98	9.81	AV
5470	47.48	15.03	V	62.51	68.20	5.69	PK

Band :	UNII 1
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5210 MHz
Channel No.	42 Ch

Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5150	55.66	13.64	H	69.30	73.98	4.68	PK
5150	36.29	13.64	H	49.93	53.98	4.05	AV
5150	55.35	13.64	V	68.99	73.98	4.99	PK
5150	36.02	13.64	V	49.66	53.98	4.32	AV

Band :	UNII 2A
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5290 MHz
Channel No.	58 Ch

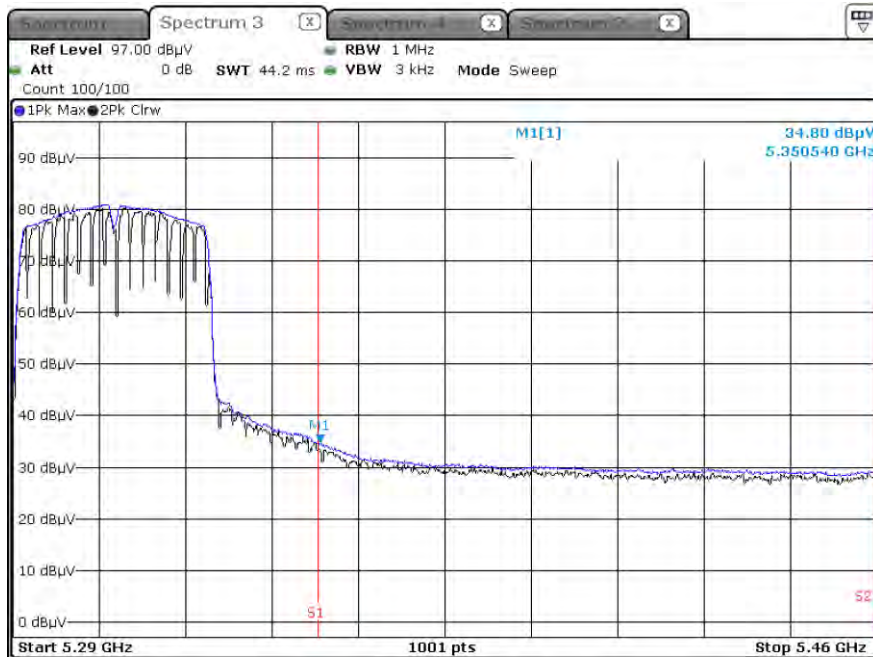
Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350	53.66	14.22	H	67.88	73.98	6.10	PK
5350	36.22	14.22	H	50.44	53.98	3.54	AV
5350	53.42	14.22	V	67.64	73.98	6.34	PK
5350	35.88	14.22	V	50.1	53.98	3.88	AV

Band :	UNII 2C
Operation Mode:	802.11 ac_VHT80
Transfer MCS Index:	0
Operating Frequency	5530 MHz
Channel No.	106 Ch

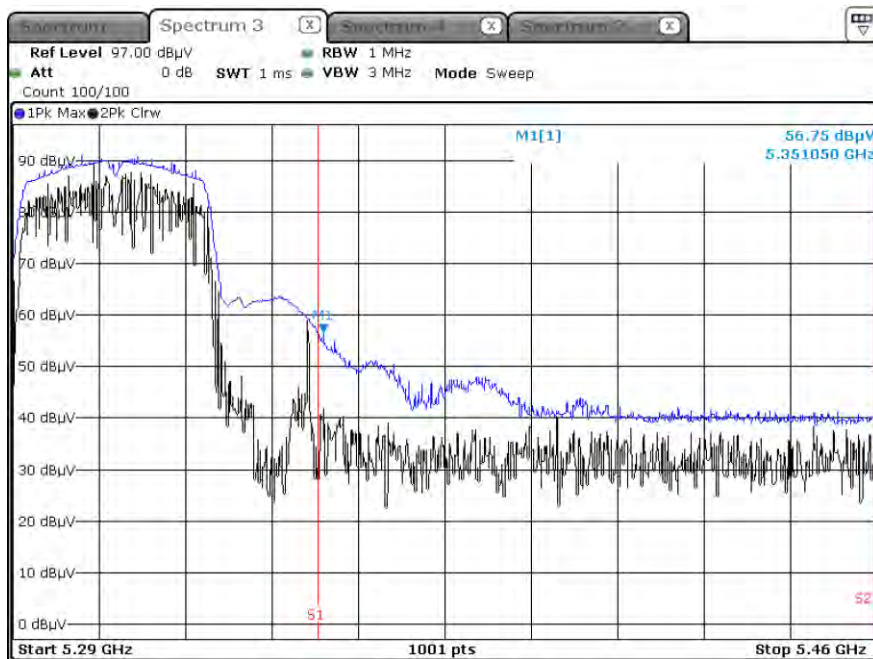
Frequency [MHz]	Measured Value [dBμV]	CL+AF+DF-AG+ATT [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5460	45.20	14.69	H	59.89	73.98	14.09	PK
5460	31.70	14.69	H	46.39	53.98	7.59	AV
5470	50.14	15.03	H	65.17	68.20	3.03	PK
5460	44.89	14.69	V	59.58	73.98	14.40	PK
5460	31.48	14.69	V	46.17	53.98	7.81	AV
5470	49.88	15.03	V	64.91	68.20	3.29	PK

▣ Test Plots(UNII 1, 2A, 2C)

Average Result (802.11n(HT40), Ch.62 Spurious Emissions, Y-H)



Peak Result (802.11n(HT40), Ch.62 Spurious Emissions, Y-H)

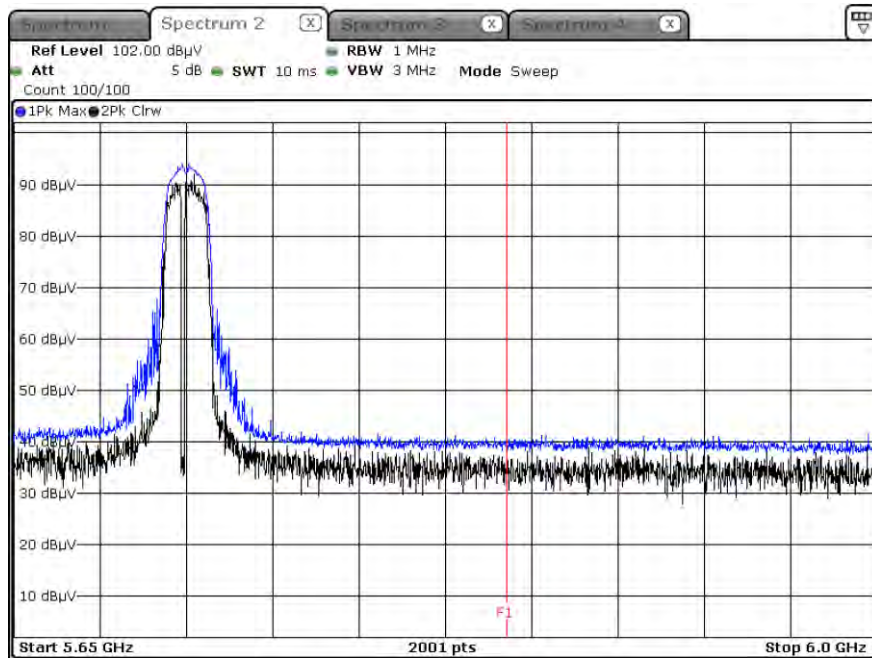


Note:

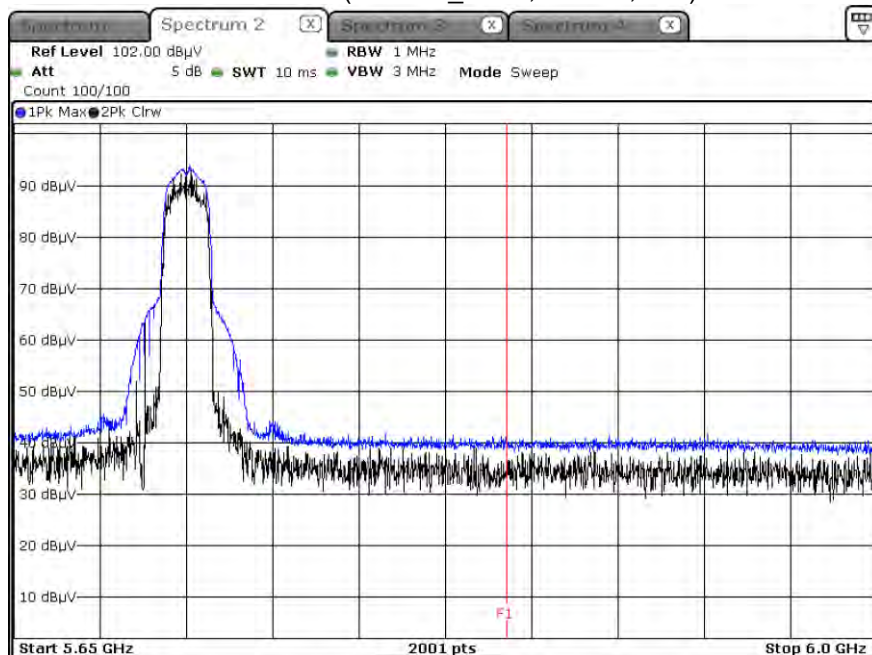
Only the worst case plots for Radiated Restricted Band Edge.

▣ Test Plots(Straddle Channel)

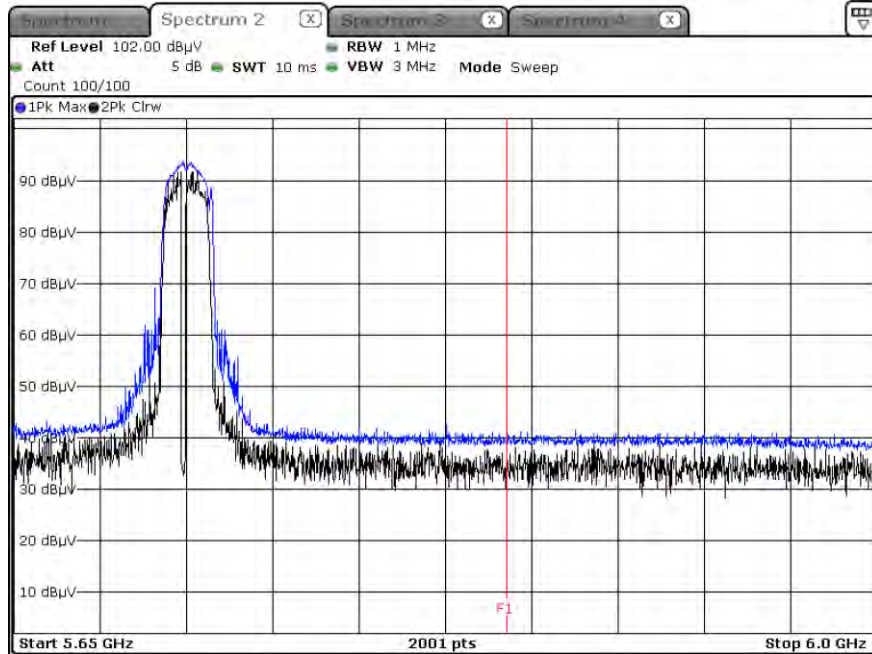
Peak Result (802.11a, Ch.144, Z-H)



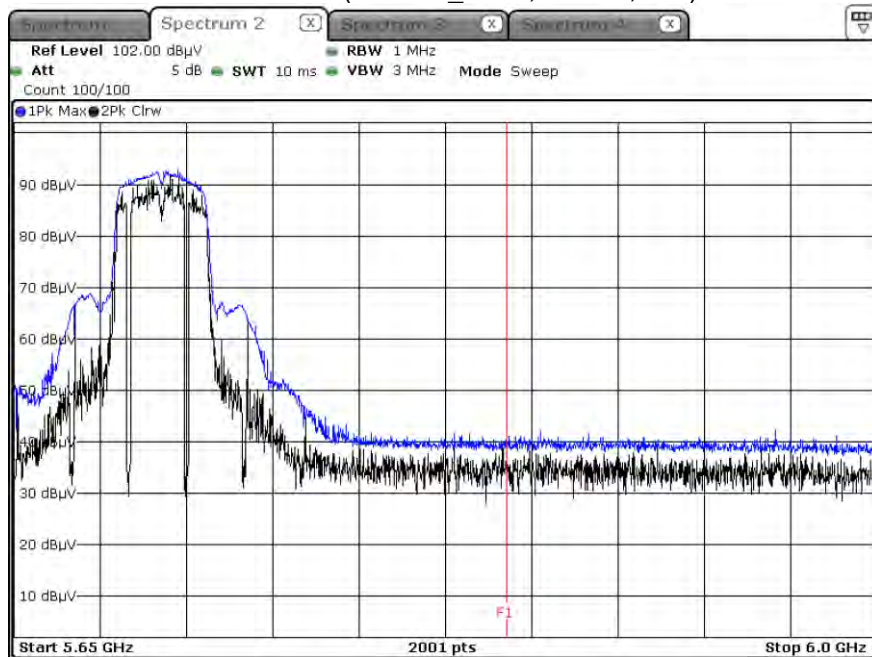
Peak Result (802.11n_HT20, Ch.144, Z-H)



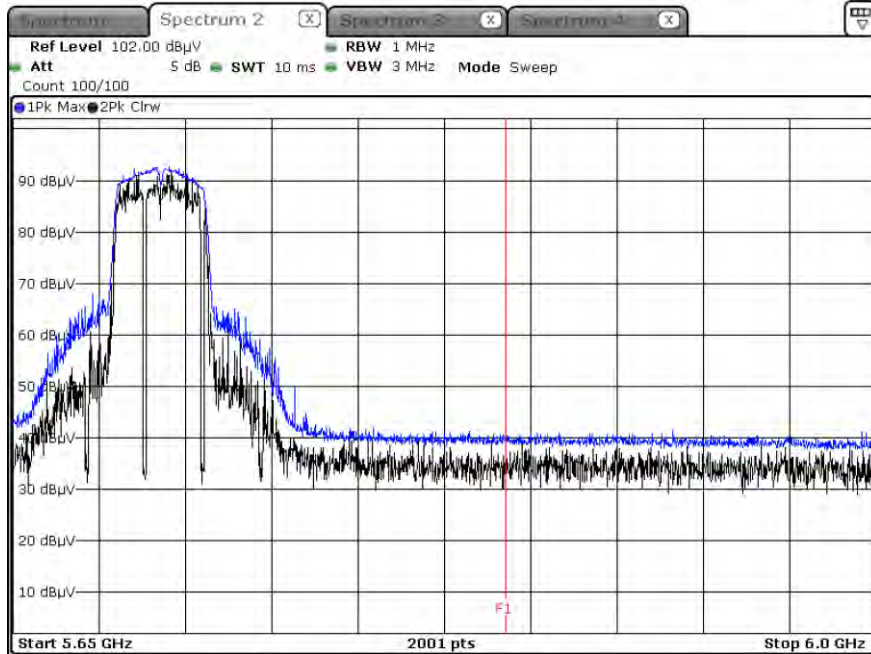
Peak Result (802.11ac_VHT20, Ch.144, Z-H)



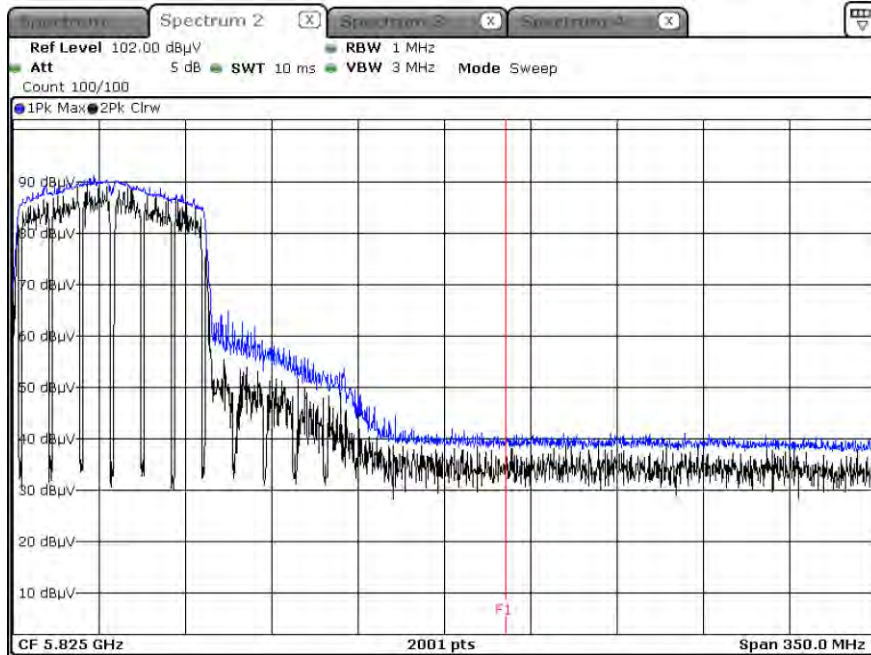
Peak Result (802.11n_HT40, Ch.142, Z-H)



Peak Result (802.11ac_VHT40, Ch.142, Z-H)



Peak Result (802.11ac_VHT80, Ch.138, Z-H)

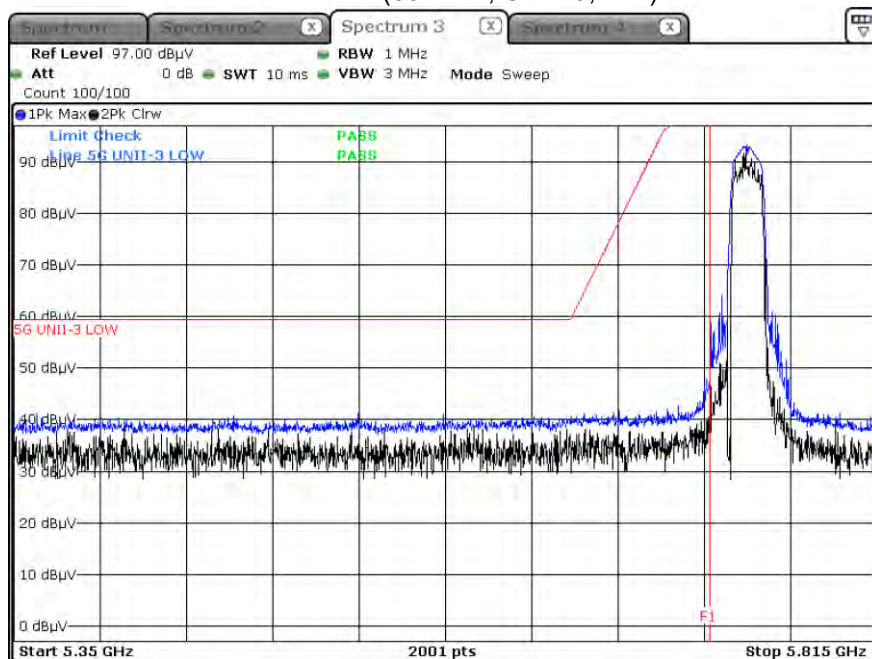


Note :

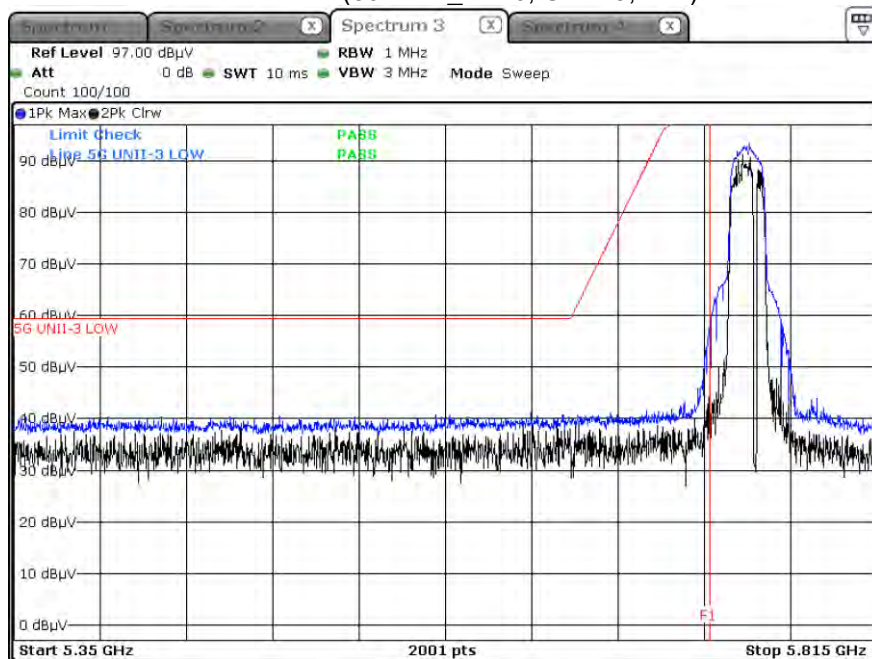
1. Only the worst case plots for Radiated Restricted Band Edge.
2. Red line : 5 850 MHz
3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

▣ Test Plots(UNII 3)

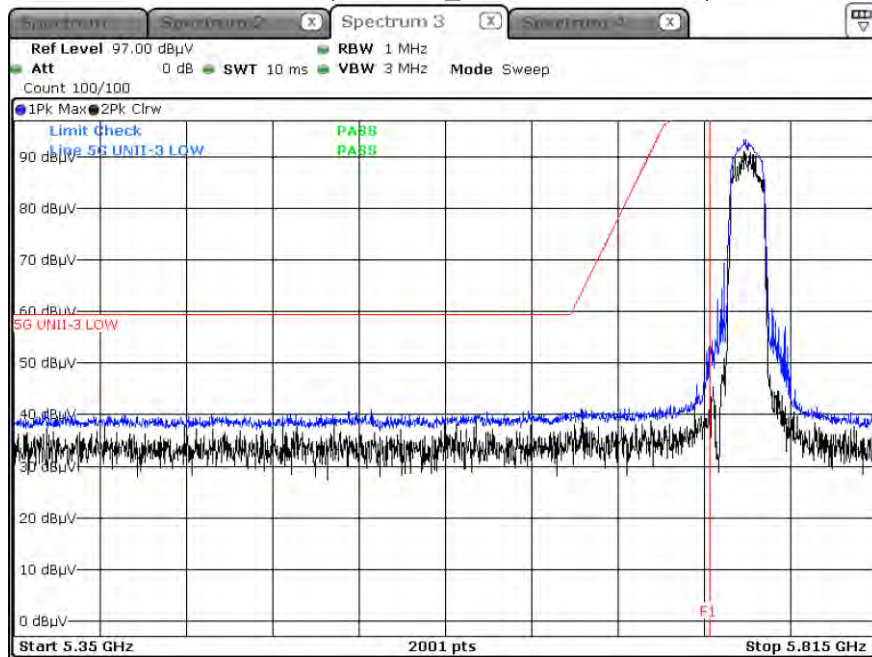
Peak Result (802.11a, Ch.149, Y-H)



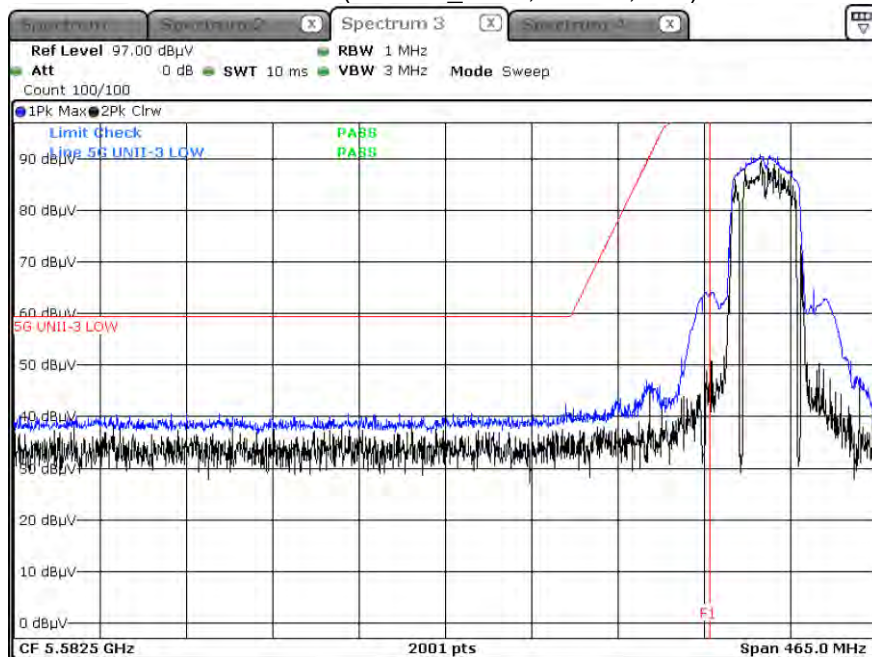
Peak Result (802.11n_HT20, Ch.149, Y-H)



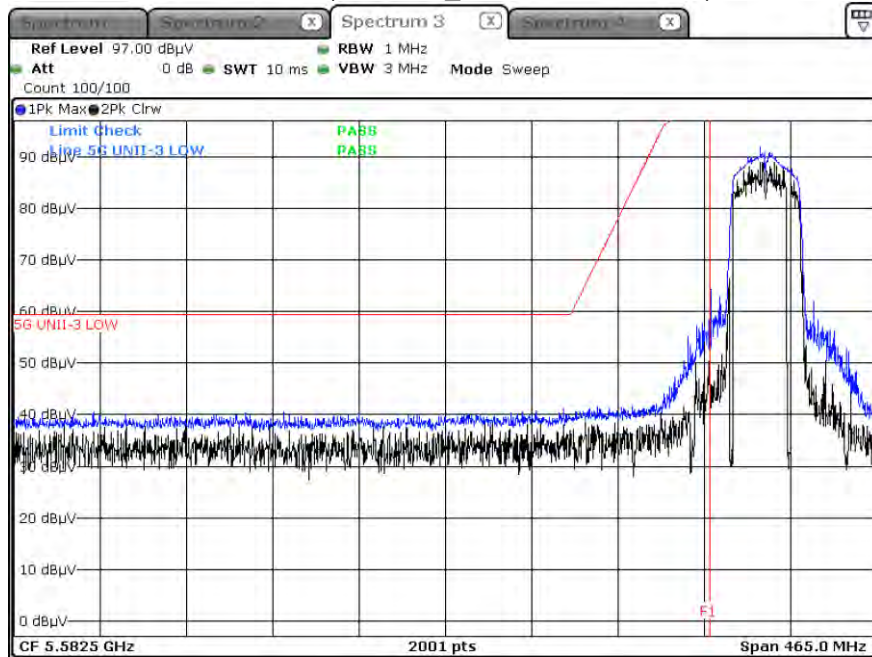
Peak Result (802.11ac_VHT20, Ch.149, Y-H)



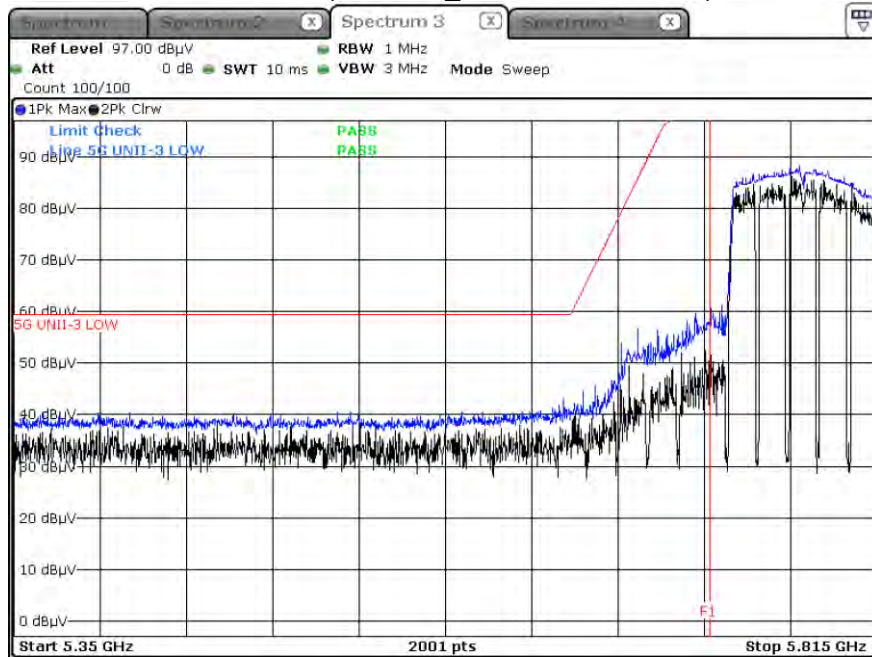
Peak Result (802.11n_HT40, Ch.151, Y-H)



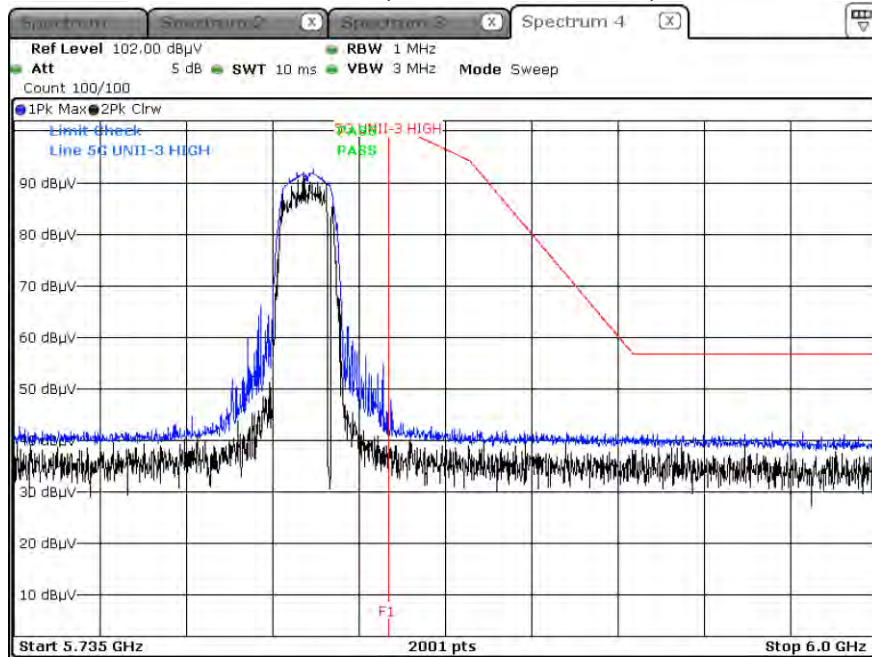
Peak Result (802.11ac_VHT40, Ch.151, Y-H)



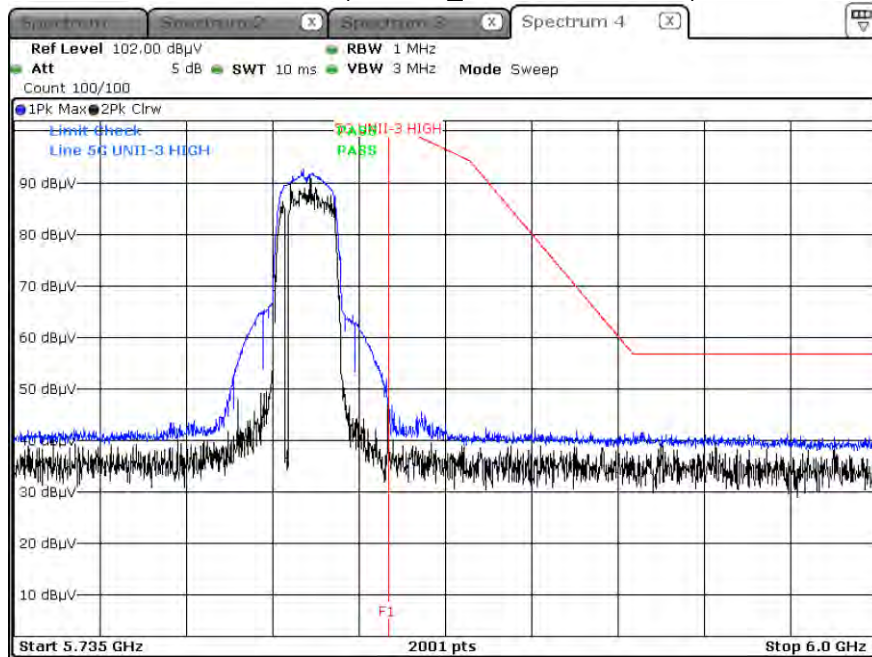
Peak Result (802.11ac_VHT80, Ch.155, Y-H)



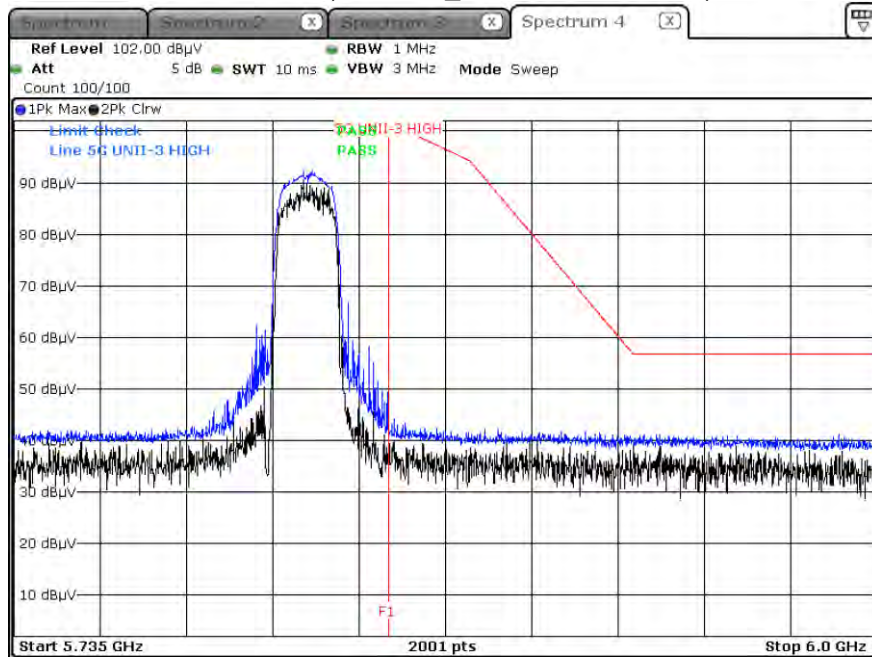
Peak Result (802.11a, Ch.165, Y-H)



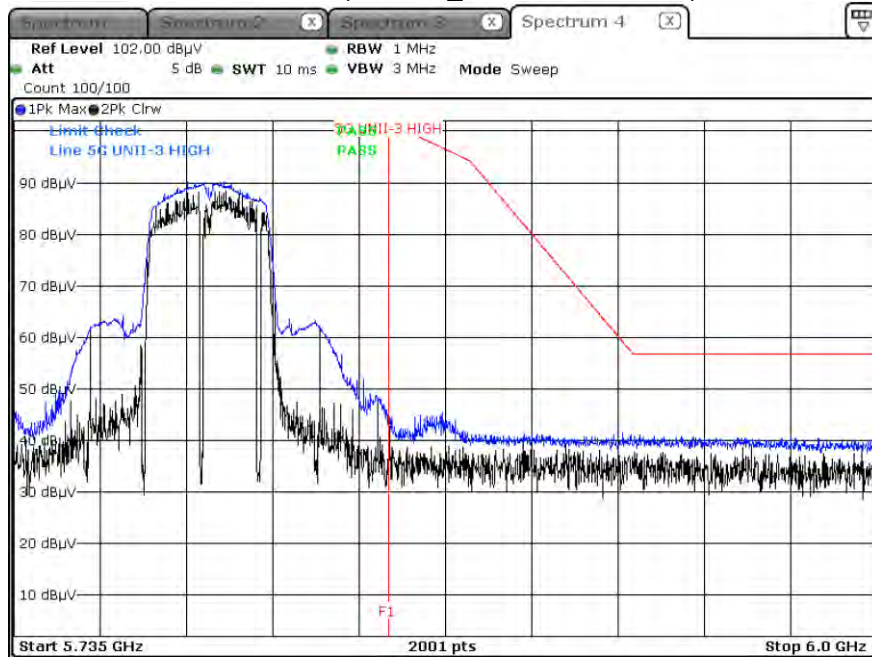
Peak Result (802.11n_HT20, Ch.165, Y-H)



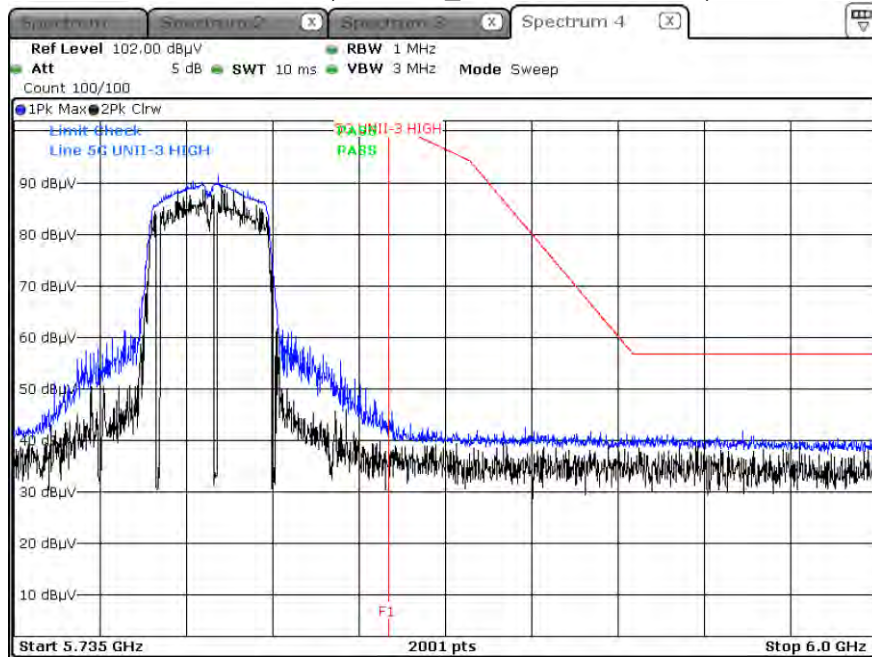
Peak Result (802.11ac_VHT20, Ch.165, Y-H)



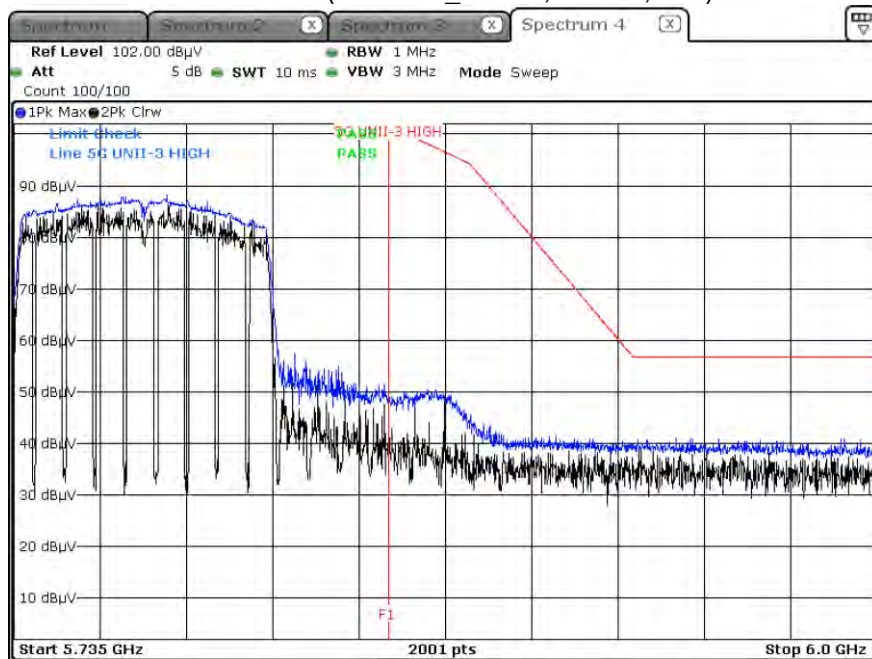
Peak Result (802.11n_HT40, Ch.159, Y-H)



Peak Result (802.11ac_VHT40, Ch.159, Y-H)



Peak Result (802.11ac_VHT80, Ch.155, Y-H)



Note :

1. Only the worst case plots for U-NII-3 Out of Band e.i.r.p Emission.
2. U-NII-3 Low & High Band Edge RedLine is Final Test Limit about factor value compensation.

10.10 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions (Line 1)

WLAN 5G MODE_L1

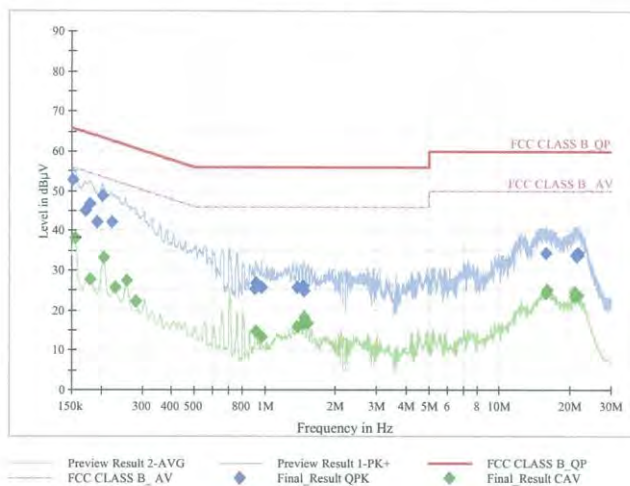
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Test Report

Common Information

EUT : SC-56C
Manufacturer : SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions : WLAN 5G MODE_L1

Full Spectrum



Final Result QPK

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1523	52.75	65.88	13.12	9.000	L1	OFF	9.6
0.1725	44.93	64.84	19.90	9.000	L1	OFF	9.6
0.1793	46.85	64.52	17.67	9.000	L1	OFF	9.6
0.1928	42.02	63.92	21.90	9.000	L1	OFF	9.6
0.2040	48.71	63.45	14.74	9.000	L1	OFF	9.6
0.2220	42.04	62.74	20.70	9.000	L1	OFF	9.6
0.9118	25.30	56.00	30.70	9.000	L1	OFF	9.7
0.9185	26.91	56.00	29.09	9.000	L1	OFF	9.7
0.9703	25.59	56.00	30.41	9.000	L1	OFF	9.7
1.3798	25.79	56.00	30.21	9.000	L1	OFF	9.7
1.4630	25.84	56.00	30.16	9.000	L1	OFF	9.7
1.4765	24.95	56.00	31.05	9.000	L1	OFF	9.7
15.7640	34.37	60.00	25.63	9.000	L1	OFF	10.2
21.1078	33.76	60.00	26.24	9.000	L1	OFF	10.4
21.5060	33.36	60.00	26.64	9.000	L1	OFF	10.4
21.5150	33.77	60.00	26.23	9.000	L1	OFF	10.4
21.6298	34.33	60.00	25.67	9.000	L1	OFF	10.4
21.6388	33.87	60.00	26.13	9.000	L1	OFF	10.4

Final Result CAV

2022-07-01

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WLAN 5G MODE_L1

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Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1545	37.95	55.75	17.80	9.000	L1	OFF	9.6
0.1793	27.56	54.52	26.96	9.000	L1	OFF	9.6
0.2063	33.05	53.36	20.30	9.000	L1	OFF	9.6
0.2288	25.57	52.50	26.93	9.000	L1	OFF	9.6
0.2580	27.39	51.50	24.11	9.000	L1	OFF	9.6
0.2805	22.27	50.80	28.53	9.000	L1	OFF	9.6
0.9163	14.64	46.00	31.36	9.000	L1	OFF	9.7
0.9680	13.28	46.00	32.72	9.000	L1	OFF	9.7
1.3753	15.85	46.00	30.15	9.000	L1	OFF	9.7
1.4675	18.26	46.00	27.74	9.000	L1	OFF	9.7
1.4788	16.85	46.00	29.15	9.000	L1	OFF	9.7
1.5193	16.73	46.00	29.27	9.000	L1	OFF	9.7
15.7685	24.36	50.00	25.64	9.000	L1	OFF	10.2
15.9463	25.21	50.00	24.79	9.000	L1	OFF	10.2
20.9278	23.26	50.00	26.74	9.000	L1	OFF	10.4
21.0470	24.45	50.00	25.55	9.000	L1	OFF	10.4
21.5128	23.52	50.00	26.48	9.000	L1	OFF	10.4
21.6320	23.65	50.00	26.35	9.000	L1	OFF	10.4

2022-07-01

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Conducted Emissions (Line 2)

WLAN 5G MODE_N

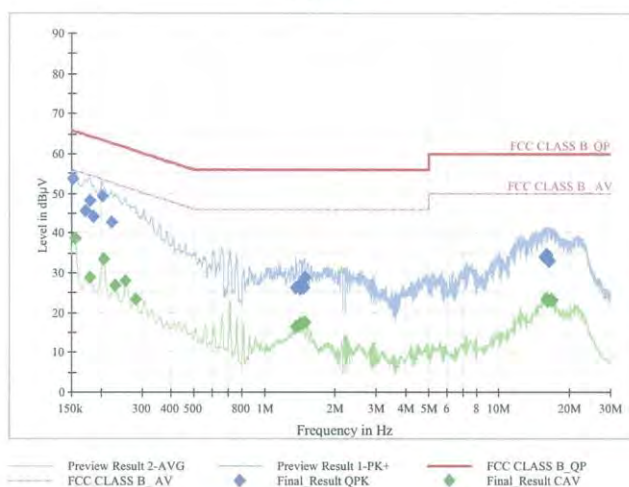
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Test Report

Common Information

EUT : SC-56C
Manufacturer : SAMSUNG
Test Site: SHIELD ROOM
Operating Conditions : WLAN 5G MODE_N

Full Spectrum



Final Result QPK

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1523	53.55	65.88	12.32	9.000	N	OFF	9.6
0.1725	45.62	64.84	19.22	9.000	N	OFF	9.6
0.1793	48.15	64.52	16.37	9.000	N	OFF	9.6
0.1860	44.22	64.21	20.00	9.000	N	OFF	9.6
0.2040	49.45	63.45	14.00	9.000	N	OFF	9.6
0.2220	42.79	62.74	19.95	9.000	N	OFF	9.6
1.3595	26.22	56.00	29.78	9.000	N	OFF	9.7
1.4135	26.75	56.00	29.25	9.000	N	OFF	9.7
1.4203	25.95	56.00	30.05	9.000	N	OFF	9.7
1.4315	27.25	56.00	28.75	9.000	N	OFF	9.7
1.4675	26.22	56.00	29.78	9.000	N	OFF	9.7
1.4810	28.75	56.00	27.25	9.000	N	OFF	9.7
15.5930	33.90	60.00	26.10	9.000	N	OFF	10.3
15.9440	34.30	60.00	25.70	9.000	N	OFF	10.3
16.0003	34.74	60.00	25.26	9.000	N	OFF	10.3
16.0070	33.75	60.00	26.25	9.000	N	OFF	10.3
16.3468	32.80	60.00	27.20	9.000	N	OFF	10.3
16.3513	33.17	60.00	26.83	9.000	N	OFF	10.3

Final Result CAV

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WLAN 5G MODE_N

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Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Filter	Corr. (dB)
0.1545	38.62	55.75	17.13	9.000	N	OFF	9.6
0.1793	28.87	54.52	25.65	9.000	N	OFF	9.6
0.2063	33.41	53.36	19.94	9.000	N	OFF	9.6
0.2288	26.83	52.50	25.66	9.000	N	OFF	9.6
0.2558	28.00	51.57	23.57	9.000	N	OFF	9.6
0.2805	23.24	50.80	27.56	9.000	N	OFF	9.6
1.3618	16.43	46.00	29.57	9.000	N	OFF	9.7
1.4113	16.62	46.00	29.38	9.000	N	OFF	9.7
1.4225	17.32	46.00	28.68	9.000	N	OFF	9.7
1.4315	17.29	46.00	28.71	9.000	N	OFF	9.7
1.4720	17.38	46.00	28.62	9.000	N	OFF	9.7
1.4810	17.61	46.00	28.39	9.000	N	OFF	9.7
16.0003	23.70	50.00	26.30	9.000	N	OFF	10.3
16.0543	23.44	50.00	26.56	9.000	N	OFF	10.3
16.2365	22.72	50.00	27.28	9.000	N	OFF	10.3
16.3513	23.04	50.00	26.96	9.000	N	OFF	10.3
16.7630	23.25	50.00	26.75	9.000	N	OFF	10.3
16.8193	23.11	50.00	26.89	9.000	N	OFF	10.3

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11. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	08/23/2022	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	06/07/2023	Annual
Temperature Chamber	SU-642	ESPEC	0093008124	03/04/2023	Annual
Signal Analyzer	N9030A	Agilent	MY49432108	03/08/2023	Annual
Power Measurement Set	OSP 120	Rohde & Schwarz	101231	06/14/2023	Annual
Power Meter	N1911A	Agilent	MY45100523	03/24/2023	Annual
Power Sensor	N1921A	Keysight	MY57820067	03/24/2023	Annual
Directional Coupler	87300B	Agilent	3116A03621	11/02/2022	Annual
Power Splitter	11667B	Hewlett Packard	05001	05/18/2023	Annual
DC Power Supply	E3646A	Agilent	MY40002937	12/14/2022	Annual
Attenuator(10 dB)	8493C	Hewlett Packard	07560	06/14/2023	Annual
Attenuator(20 dB)	18N-20dB	Rohde & Schwarz	8	03/07/2023	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
FCC WLAN&BT&BLE Conducted Test Software v3.0	N/A	HCT CO., LTD.	N/A	N/A	N/A

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller(Antenna mast)	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	N/A	N/A	N/A
Controller	EM1000	Audix	060520	N/A	N/A
Turn Table	N/A	Audix	N/A	N/A	N/A
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	04/05/2023	Annual
Loop Antenna	FMZB 1513	Rohde & Schwarz	1513-333	03/17/2024	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	760	02/22/2023	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	02299	03/24/2024	Biennial
Horn Antenna (15GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	10/13/2022	Biennial
Spectrum Analyzer	FSV40-N	Rohde & Schwarz	102168	07/04/2023	Annual
Signal Analyzer	N9030A	Agilent	MY49431210	01/11/2023	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/13/2023	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/13/2023	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	01/06/2023	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	02/07/2023	Annual
High Pass Filter	WHK3.0/18G-10EF	Wainwright Instruments	8	01/21/2023	Annual
High Pass Filter	WHKX8-6090-7000-18000-40SS	Wainwright Instruments	25	01/21/2023	Annual
Attenuator (3 dB)	18B-03	Api tech.	1	01/21/2023	Annual
Attenuator(10 dB)	8493C-10	Agilent	08285	01/21/2023	Annual
Power Amplifier	CBLU1183540	CERNEX	22964	01/21/2023	Annual
Power Amplifier	CBL06185030	CERNEX	22965	01/21/2023	Annual
Power Amplifier	CBL18265035	CERNEX	22966	12/02/2022	Annual
Power Amplifier	CBL26405040	CERNEX	25956	03/11/2023	Annual

Note:

1. Equipment listed above that calibrated during the testing period was set for test after the calibration.
2. Equipment listed above that has a calibration due date during the testing period, the testing is completed before equipment expiration date.
3. Especially, all antenna for measurement is calibrated in accordance with the requirements of C63.5(Version : 2017).

12. ANNEX A_ TEST SETUP PHOTO

Please refer to test setup photo file no. as follows;

No.	Description
1	HCT-RF-2207-FC021-P