TEST REPORT

FCC UNII Test for SM-A266M/DS
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2501-FC050

DATE OF ISSUE
January 22, 2025

Tested by
Se Wook Park

Technical Manager
Jong Seok Lee

HCT CO., LTD.
BongJai Huh
BongJai Huh / CEO

HCT CO., LTD. 2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea Tel. +82 31 645 6300 Fax. +82 31 645 6401

HCT CO.,LTD.
2-6, 73, 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea
Tel. +82 31 645 6300 Fax. +82 31 645 6401

TEST REPORT

REPORT NO.
HCT-RF-2501-FC050

DATE OF ISSUE
January 22, 2025

Additional Model
SM-A266M

Applicant	**SAMSUNG Electronics Co., Ltd.** 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Mobile Phone SM-A266M/DS
FCC ID	A3LSMA266M
Date of Test	December 09, 2024 ~ January 22, 2025
FCC Classification	Unlicensed National Information Infrastructure(NII)
Test Standard Used	FCC Rule Part(s): Part 15.407
Test Results	PASS
Location of Test	■ Permanent Testing Lab ☐ On Site Testing Lab (Address: 74, Seoicheon-ro 578beon-gil, Majang-myeon, Icheon-si, Gyeonggi-do, Republic of Korea)

REVISION HISTORY

The revision history for this test report is shown in table.

Revision No.	Date of Issue	Description
0	January 22, 2025	Initial Release

Notice

Content
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. The laboratory is not accredited for the test results marked *. Information provided by the applicant is marked **. Test results provided by external providers are marked ***. The results shown in this test report only apply to the sample(s), as received, provided by the applicant, unless otherwise stated. The test results have only been applied with the test methods required by the standard(s). When confirmation of authenticity of this test report is required, please contact www.hct.co.kr The test results in this test report are not associated with the ((KS Q) ISO/IEC 17025) accreditation by KOLAS (Korea Laboratory Accreditation Scheme) / A2LA (American Association for Laboratory Accreditation) that are under the ILAC (International Laboratory Accreditation Cooperation) Mutual Recognition Agreement (MRA).

CONTENTS

1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-A266M/DS	
Additional Model	SM-A266M	
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
	U-NII-4	20 MHz BW : 5845 - 5885 40 MHz BW : 5835 - 5875 80 MHz BW : 5855
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Antenna Specification	Type: Metal Peak Gain: -4.60 dBi	
Serial number	Conducted : R3CXB08FQ5F Radiated : 8b3223c567537ece	

Simultaneous transmission Scenario

This device supports simultaneous transmission operation, which allows for two channels to operate independent of one another in the 2.4 GHz and 5 GHz bands simultaneously on each antenna.

Simultaneous transmission Scenario	2.4 GHz WiFi	5 GHz WiFi	Bluetooth	Test Case
Bluetooth + 5 GHz WiFi		on	on	Scenario1

2. MAXIMUM OUTPUT POWER

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

Band	Mode	SISO_Ant.1 Power	
		(dBm)	(W)
UNII1	802.11a	16.54	0.045
	802.11n (HT20)	16.61	0.046
	802.11n (HT40)	13.34	0.022
	802.11ac (VHT20)	16.79	0.048
	802.11ac (VHT40)	13.67	0.023
	802.11ac (VHT80)	9.58	0.009
UNII2A	802.11a	16.54	0.045
	802.11n (HT20)	16.71	0.047
	802.11n (HT40)	13.69	0.023
	802.11ac (VHT20)	16.50	0.045
	802.11ac (VHT40)	13.75	0.024
	802.11ac (VHT80)	9.69	0.009
UNII2C	802.11a	17.94	0.062
	802.11n (HT20)	17.97	0.063
	802.11n (HT40)	14.95	0.031
	802.11ac (VHT20)	17.92	0.062
	802.11ac (VHT40)	14.96	0.031
	802.11ac (VHT80)	13.81	0.024
UNII3	802.11a	17.96	0.063
	802.11n (HT20)	17.96	0.063
	802.11n (HT40)	14.96	0.031
	802.11ac (VHT20)	17.97	0.063
	802.11ac (VHT40)	14.97	0.031
	802.11ac (VHT80)	13.89	0.024
UNII4 (Conducted For inf.)	802.11a	17.43	0.055
	802.11n (HT20)	17.23	0.053
	802.11n (HT40)	14.20	0.026
	802.11ac (VHT20)	17.43	0.055
	802.11ac (VHT40)	14.22	0.026
	802.11ac (VHT80)	12.60	0.018

Band	Mode	SISO_Ant.1 Power			
		(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)
UNII4 (E.I.R.P)	802.11a	17.43	-4.60	12.83	0.019
	802.11n (HT20)	17.23	-4.60	12.63	0.018
	802.11n (HT40)	14.20	-4.60	9.60	0.009
	802.11ac (VHT20)	17.43	-4.60	12.83	0.019
	802.11ac (VHT40)	14.22	-4.60	9.62	0.009
	802.11ac (VHT80)	12.60	-4.60	8.00	0.006

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. Additionally, for U-NII-4 band, use the following measurement procedure KDB 291074 D02 EMC Measurement v01

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 Measurement Typeor 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 March 11, 2024 (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 Measurement Typeors 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.

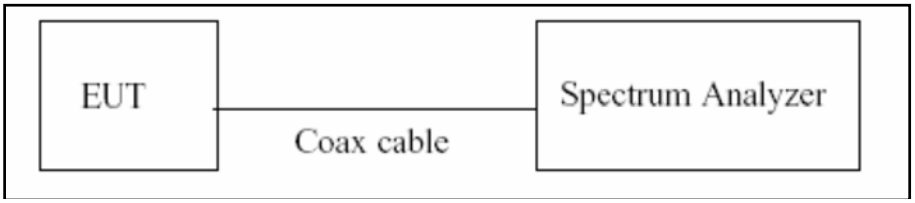
Parameter	Expanded Uncertainty (±kHz)
X dB, 99% Bandwidth	95 (Confidence level about 95 %, k=2)
Frequency stability	28 (Confidence level about 95 %, k=2)

Parameter	Expanded Uncertainty (±dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.98 (Confidence level about 95 %, k=2)
Conducted Output Power(Power Meter)	0.54 (Confidence level about 95 %, k=2)
Conducted Output Power(Signal Analyzer)	0.68 (Confidence level about 95 %, k=2)
Power Spectral Density	1.03 (Confidence level about 95 %, k=2)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.36 (Confidence level about 95 %, k=2)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.70 (Confidence level about 95 %, k=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.52 (Confidence level about 95 %, k=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.66 (Confidence level about 95 %, k=2)
Radiated Disturbance (Above 40 GHz)	5.58 (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.

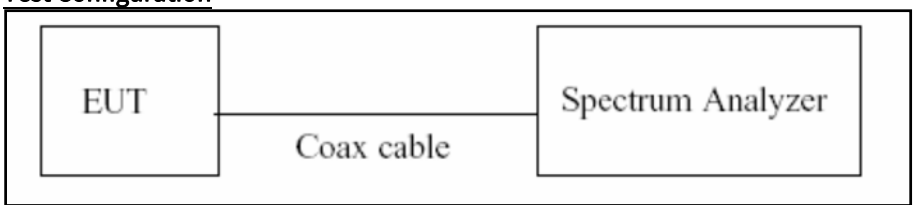
1. RBW = 8 MHz (the largest availble value)
2. VBW = 8 MHz (≥ RBW)
3. SPAN = 0 Hz
4. Measurement Typeor = Peak
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = T_{on}/ T_{total} and Duty Cycle Factor = 10log(1/Duty Cycle)

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

Within the 5.725-5.85 GHz(NII-3) & 5.85-5.925 GHz(NII-4) band, 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 ≥ 3 x 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 lever 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.

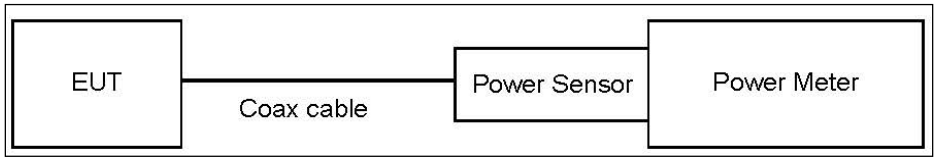
8.3. Output Power Measurement

Limit

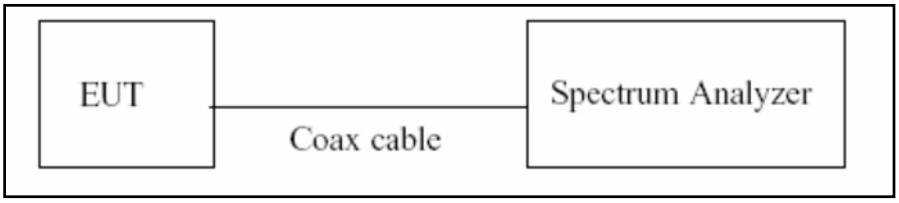
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)
UNII 4	EIRP 30 dBm

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 ≥ 3 MHz.
5. Number of points in sweep ≥ 2 x span/RBW.
6. Sweep time = auto.
7. Measurement Typeor = 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 10log(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 Values are not plot data.
   The power results in plot is already including the actual values of loss for the attenuator and cable combination.
2. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	21.82
UNII 2A	21.82
UNII 2C	21.82
UNII 3&4	21.82

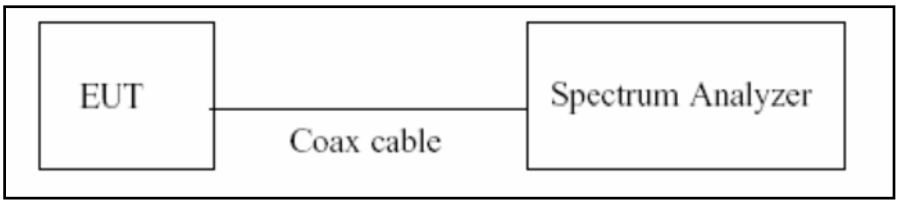
(Actual value of loss for the attenuator and cable combination)

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
UNII 4	EIRP 14 dBm/MHz

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)
   ➔For portion within the NII-3 be used RBW 510kHz
3. VBW ≥ 3 MHz
4. Number of points in sweep ≥ 2 x span/RBW.
5. Sweep time = auto.
6. Measurement Typeor = RMS(i.e., power averaging), if available. Otherwise, use sample Measurement Typeor 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) + 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. Actual value of loss for the attenuator and cable combination is below table.

Band	Loss(dB)
UNII 1	21.82
UNII 2A	21.82
UNII 2C	21.82
UNII 3&4	21.82

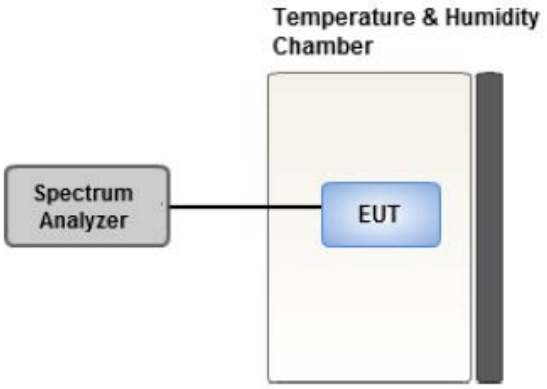
(Actual value of loss for the attenuator and cable combination)

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 ℃ and 50 ℃.
2. The temperature was incremented by 10 ℃ 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 battety 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 μH/50 ohms line impedance stabilization network (LISN).

Frequency Range (MHz)	Limits (dBμV)	
	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. Measurement Typeors : Quasi Peak and Average Measurement Typeor.

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. UNII 4: [Low Channel O.O.B.E] measured with a Peak detector

   For a client device or indoor access point or subordinate device, all emissions below 5.725 GHz shall not exceed an e.i.r.p. of −27 dBm/MHz at 5.65 GHz increasing linearly to 10 dBm/MHz at 5.7 GHz, and from 5.7 GHz increasing linearly to a level of 15.6 dBm/MHz at 5.72 GHz, and from 5.72 GHz increasing linearly to a level of 27 dBm/MHz at 5.725 GHz.

   [High Channel O.O.B.E] measured with an RMS detector

   For a client device, all emissions at or above 5.895 GHz shall not exceed an e.i.r.p. of −5 dBm/MHz and shall decrease linearly to an e.i.r.p. of −27 dBm/MHz at or above 5.925 GHz.

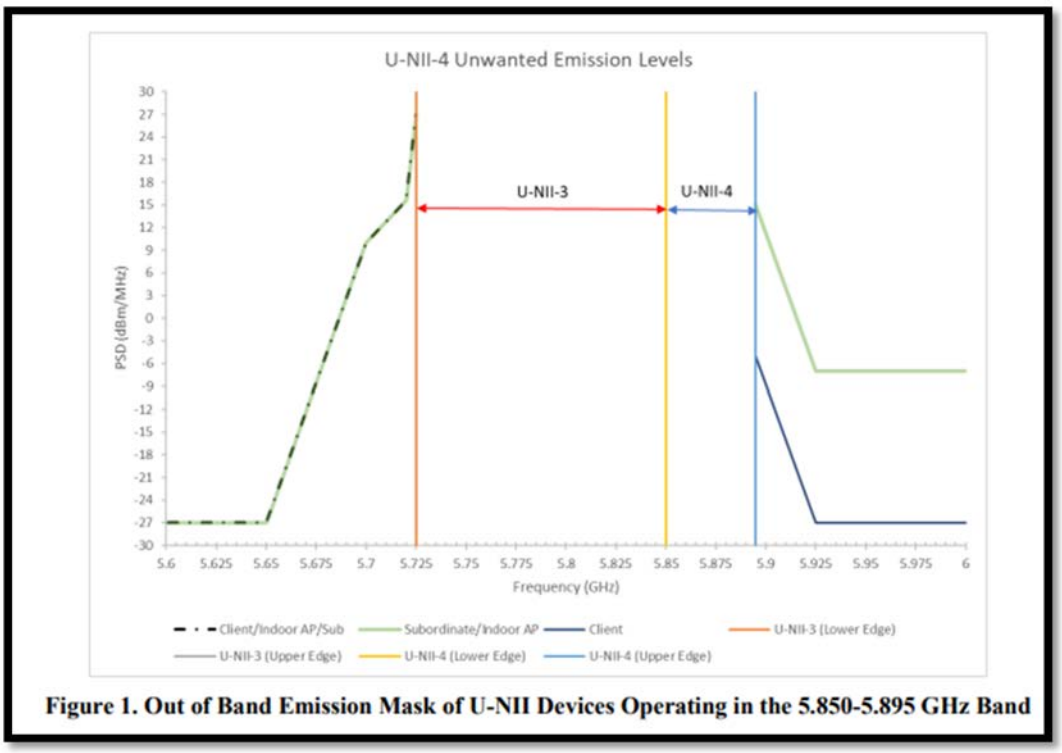


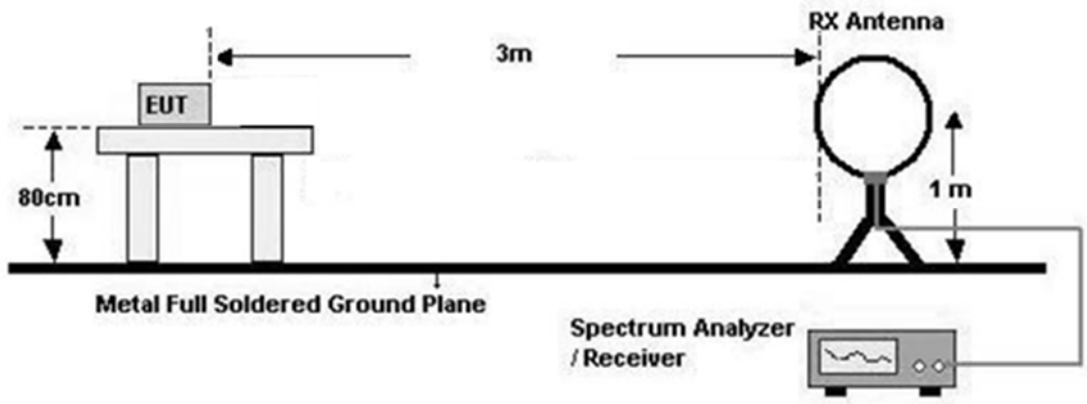
Figure 1. Out of Band Emission Mask of U-NII Devices Operating in the 5.850-5.895 GHz Band

5. 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.

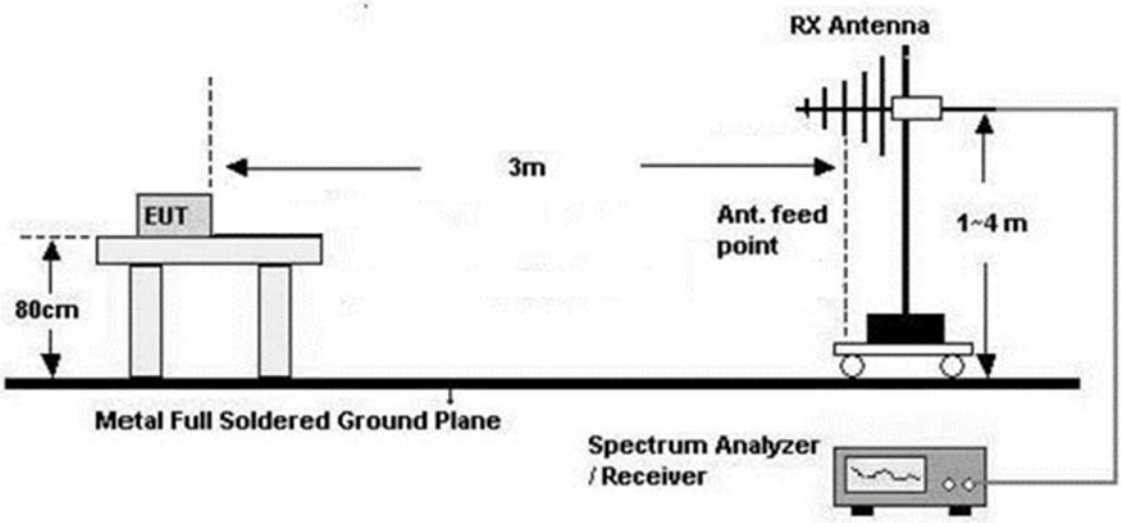
Frequency (MHz)	Field Strength (μV/m)	Measurement Distance (m)
0.009 – 0.490	2400/F(kHz)	300
0.490 – 1.705	24000/F(kHz)	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

Test Configuration

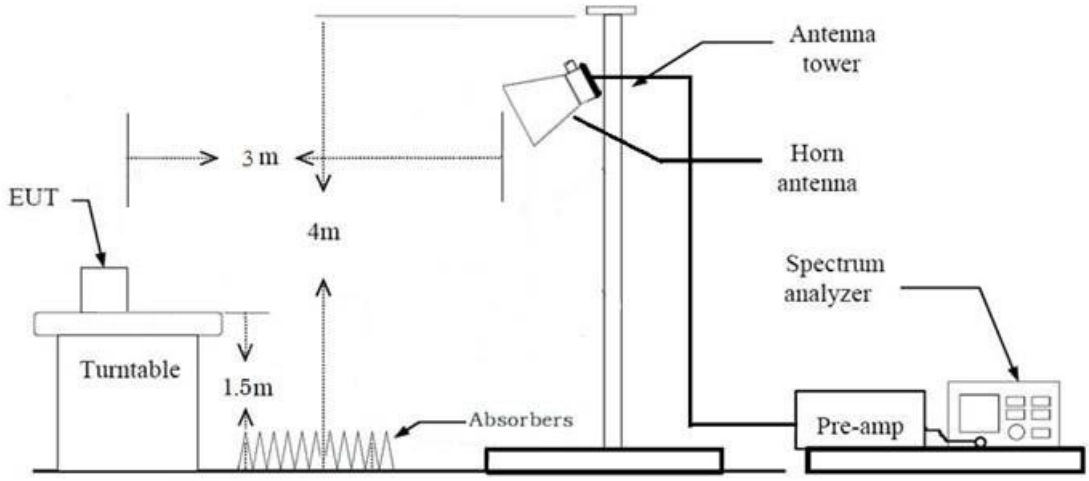
Below 30 MHz



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 0.8m 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) =40log(3 m/300 m)= - 80 dB
   Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) =40log(3 m/30 m)= - 40 dB

Measurement Distance : 3 m

8. Spectrum Setting

- Frequency Range = 9 kHz ~ 30 MHz
- Detector = Peak
- Trace = Max Hold
- RBW = 9 kHz
- VBW ≥ 3 x 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 0.8m 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 = Max Hold
- RBW = 100 kHz
- VBW ≥ 3 x 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 ≥ 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 ≥ 98 percent) = VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
   - VBW(Duty cycle is < 98 percent) = VBW ≥ 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 percent 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 = 20log (test distance / 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 ≥ 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 ≥ 98 percent) = VBW ≤ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 percent) = VBW ≥ 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 percent 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 = 20log (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	0.914	0.390	1 000
802.11n(HT20)	MCS0	0.902	0.446	1 000
802.11n(HT40)	MCS0	0.814	0.896	3 000
802.11ac(VHT20)	MCS0	0.898	0.465	1 000
802.11ac(VHT40)	MCS0	0.815	0.889	3 000
802.11ac(VHT80)	MCS0	0.697	1.569	5 000

8.8. Worst case configuration and mode

Conducted test

1. All datarate of operation were investigated and the worst case datarate results are reported.
2. SM-A266M/DS, SM-A266M were tested and the worst case results are reported.
(Worst case: SM-A266M/DS)

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. All Antenna of operation were investigated and the worst case results are reported
3. EUT Axis
   - Radiated Spurious Emissions : X
   - Radiated Restricted Band Edge : X
4. All datarate of operation were investigated and the worst case datarate results are reported.
5. Radiated Spurious Emission
   - All modulation of operation were investigated and the worst case modulation results are reported.
   - Worstcase : 802.11n_HT20 : MCS0
6. 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
7. SM-A266M/DS, SM-A266M were tested and the worst case results are reported.
(Worst case: SM-A266M/DS)

Radiated test(Simultaneous transmission Scenario)

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 : X
3. All of Simultaneous transmission Scenario Scenario were investigated and the worst case configuration results are reported.

Simultaneous transmission Scenario	2.4 GHz WiFi	5 GHz WiFi	Bluetooth	Test Case
Bluetooth + 5 GHz WiFi		on	on	Scenario1

4. The Simultaneous transmission Scenario mode test investigated both intermodulation and radiated spurious emissions.

And the worst results were reported.

- Worst result: Radiated spurious emissions
- Intermodulation: No signals are generated.
- Radiated spurious emissions: cf. Section 10.6.2.

5. The following tables show the worst case configurations determined during testing.

Description	Bluetooth Emission	5 GHz Emission
Channel	78	48
Data Rate	1 Mbps	MCS0
Mode	GFSK: DH5	802.11n_HT20

Note : BT Simultaneous transmission Scenario Data refer to [BT] Test Report.

6. SM-A266M/DS, SM-A266M were tested and the worst case results are reported.
(Worst case: SM-A266M/DS)

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. SM-A266M/DS, SM-A266M were tested and the worst case results are reported.
(Worst case: SM-A266M/DS)

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) (5850-5895 MHz)(UNII-4)		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 EIRP Output Power	§ 15.407(a)(3)(iii)	< EIRP 30dBm (5850-5895 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) < EIRP 14 dBm/MHz(5850-5895 MHz)		PASS
Frequency Stability	§ 15.407(g) § 2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207 15.407(b)(8)	<FCC 15.207 limits		PASS
Undesirable Emissions	§ 15.407(b) (1),(2),(3),(4) § 15.407(b)(5)(ii),(iii) § 15.35(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.6 (UNII 3&4)	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

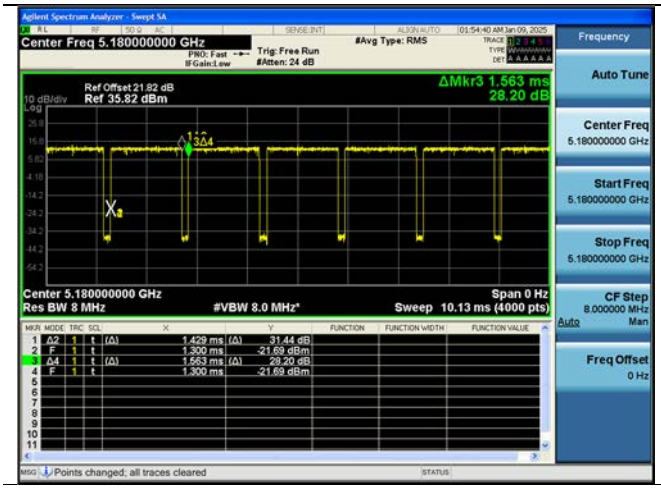
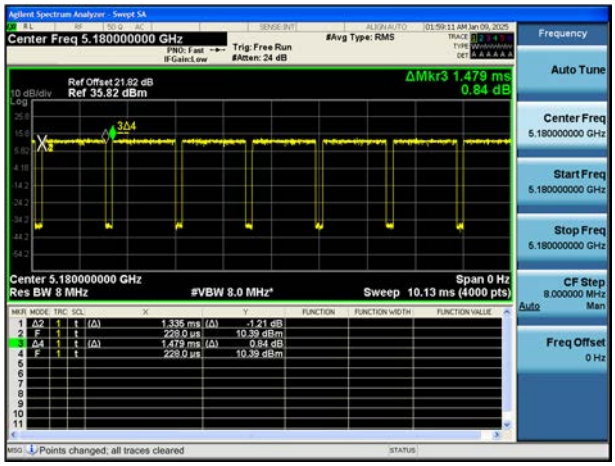
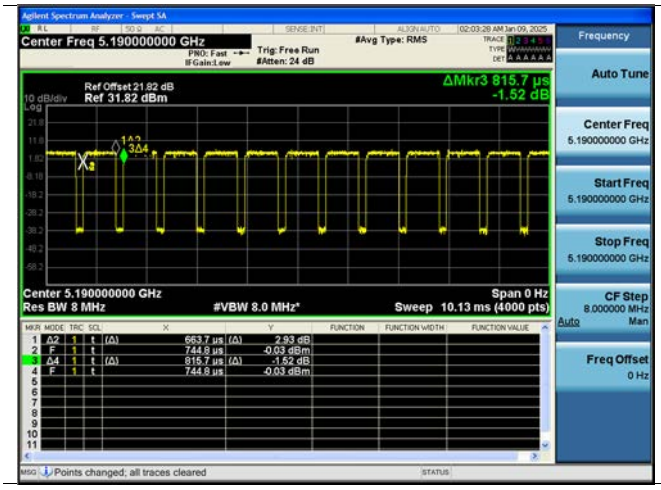
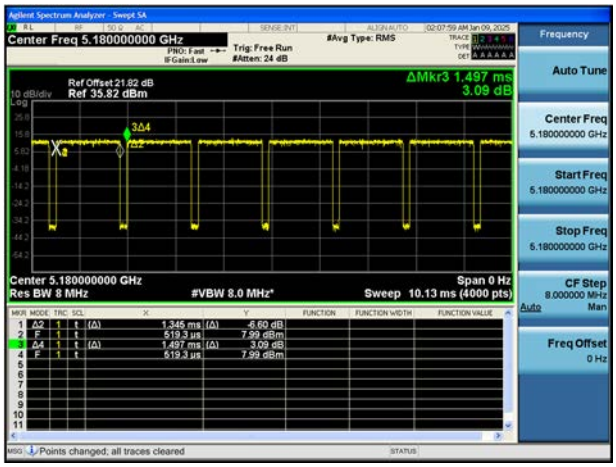
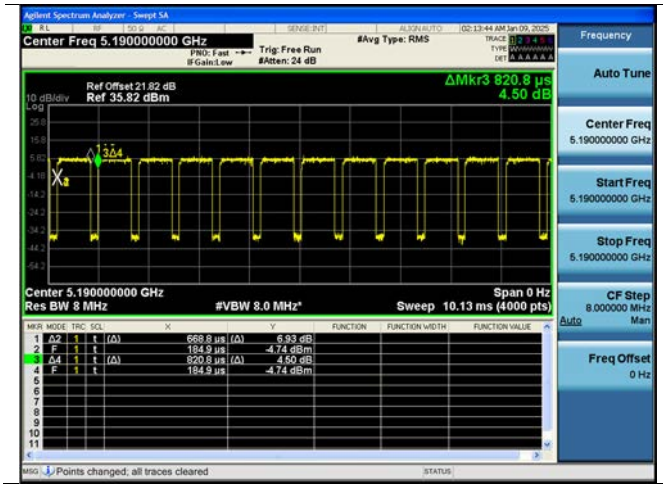
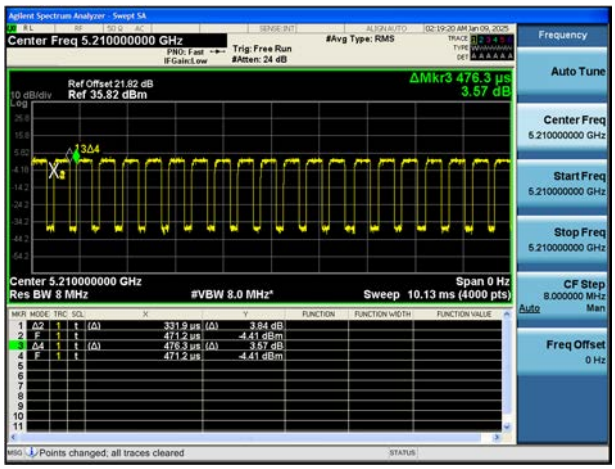
10. TEST RESULT

10.1 DUTY CYCLE

Mode	Data Rate	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor (dB)
802.11a	6M	1.429	1.563	0.914	0.390
802.11n(HT20)	MCS0	1.335	1.479	0.902	0.446
802.11n(HT40)	MCS0	0.664	0.816	0.814	0.896
802.11ac(VHT20)	MCS0	1.345	1.497	0.898	0.465
802.11ac(VHT40)	MCS0	0.669	0.821	0.815	0.889
802.11ac(VHT80)	MCS0	0.332	0.476	0.697	1.569

Note:

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

802.11a	802.11n(HT20)
	
802.11n(HT40)	**802.11ac(VHT20)**
	
802.11ac(VHT40)	**802.11ac(VHT80)**
	

10.2 26 dB Bandwidth

Note:

Straddle channel data in the table below are for reporting purposes only. Straddle channel data were added in section 10.7.1.

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11a	5180	36	20.86	16.327
	5200	40	20.97	16.319
	5240	48	20.27	16.315
	5260	52	19.96	16.305
	5300	60	21.05	16.314
	5320	64	20.01	16.298
	5500	100	19.93	16.317
	5580	116	22.18	16.387
	5720	144	20.92	16.347
	5745	149	20.07	16.323
	5785	157	20.38	16.308
	5825	165	20.29	16.306
	5845	169	20.03	16.295
	5865	173	19.95	16.293
	5885	177	19.45	16.282

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11n (HT20)	5180	36	22.99	17.474
	5200	40	22.95	17.453
	5240	48	22.87	17.420
	5260	52	21.14	17.425
	5300	60	21.94	17.427
	5320	64	23.93	17.429
	5500	100	21.51	17.459
	5580	116	23.42	17.483
	5720	144	25.36	17.477
	5745	149	24.63	17.456
	5785	157	21.72	17.421
	5825	165	21.48	17.428
	5845	169	22.58	17.426
	5865	173	21.18	17.389
	5885	177	20.48	17.409

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT20)	5180	36	22.94	17.452
	5200	40	24.66	17.439
	5240	48	23.26	17.442
	5260	52	21.52	17.400
	5300	60	23.60	17.439
	5320	64	23.40	17.449
	5500	100	20.21	17.410
	5580	116	22.86	17.475
	5720	144	24.90	17.481
	5745	149	24.64	17.440
	5785	157	21.18	17.446
	5825	165	24.81	17.431
	5845	169	21.49	17.420
	5865	173	22.68	17.406
	5885	177	22.60	17.411

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11n (HT40)	5190	38	40.44	35.879
	5230	46	40.07	35.861
	5270	54	40.44	35.880
	5310	62	40.22	35.903
	5510	102	41.18	35.932
	5550	110	40.10	35.867
	5710	142	40.28	35.963
	5755	151	40.74	35.885
	5795	159	40.06	35.944
	5835	167	40.31	35.830
	5875	175	40.14	35.849

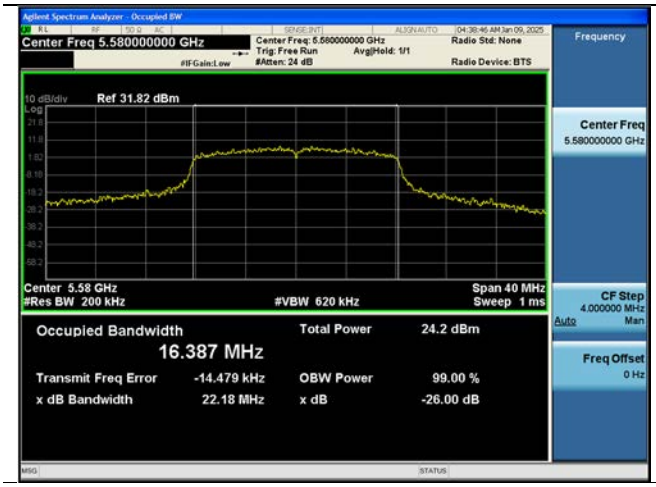
Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT40)	5190	38	40.54	35.875
	5230	46	40.24	35.868
	5270	54	40.02	35.831
	5310	62	40.12	35.908
	5510	102	40.46	35.868
	5550	110	40.41	35.890
	5710	142	40.57	35.950
	5755	151	40.15	35.874
	5795	159	40.31	35.886
	5835	167	40.10	35.852
	5875	175	40.10	35.827

Mode	Frequency [MHz]	Channel No.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
802.11ac (VHT80)	5210	42	80.53	75.032
	5290	58	80.62	75.024
	5530	106	80.66	74.776
	5610	122	80.34	74.968
	5690	138	80.42	74.882
	5775	155	80.41	74.885
	5855	171	80.65	74.978

▣ Test Plots

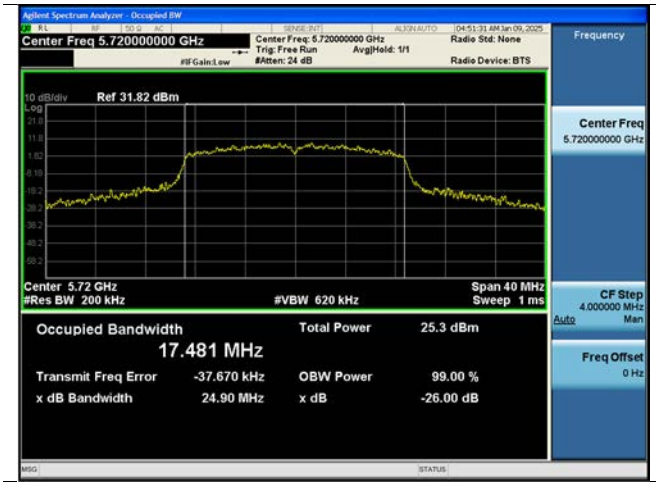
Note:In order to simplify the report, attached plots were only the widest channel per channel bandwidth.

802.11a 26 dB Bandwidth (CH 116)

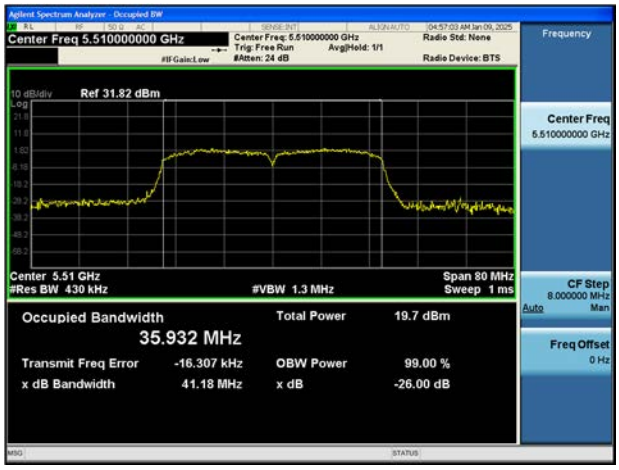


802.11n(HT20) 26 dB Bandwidth (CH 144)

802.11ac(VHT20) 26 dB Bandwidth (CH 144)

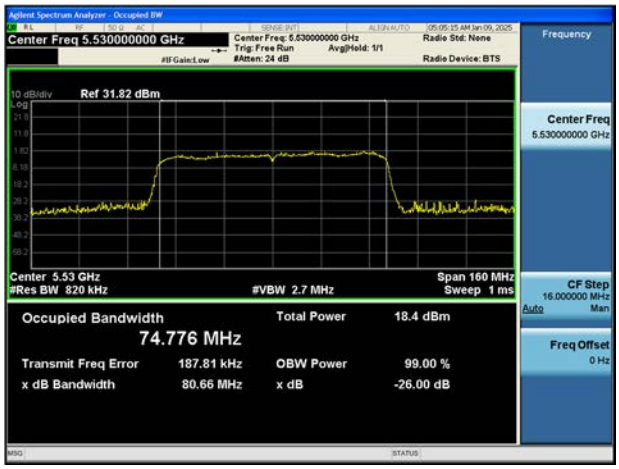


802.11n(HT40) 26 dB Bandwidth (CH 102)



802.11ac(VHT40) 26 dB Bandwidth (CH 142)

802.11ac(VHT80) 26 dB Bandwidth (CH 106)



10.3 6 dB BANDWIDTH

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.14	> 0.5
	5785	157	15.02	> 0.5
	5825	165	15.06	> 0.5
UNII4	5845	169	14.47	> 0.5
	5865	173	15.12	> 0.5
	5885	177	15.10	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.12	> 0.5
	5785	157	15.09	> 0.5
	5825	165	15.11	> 0.5
UNII4	5845	169	15.15	> 0.5
	5865	173	13.90	> 0.5
	5885	177	15.14	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.10	> 0.5
	5785	157	15.14	> 0.5
	5825	165	15.12	> 0.5
UNII4	5845	169	15.14	> 0.5
	5865	173	15.14	> 0.5
	5885	177	15.14	> 0.5

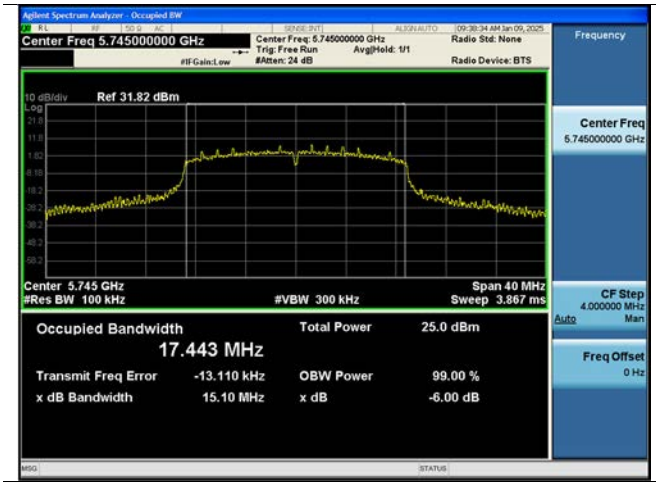
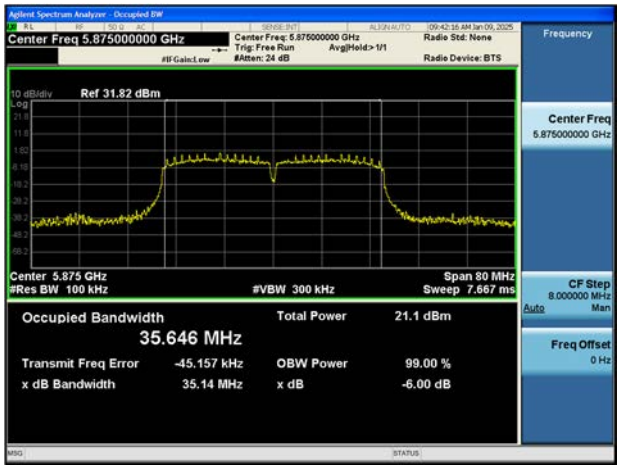
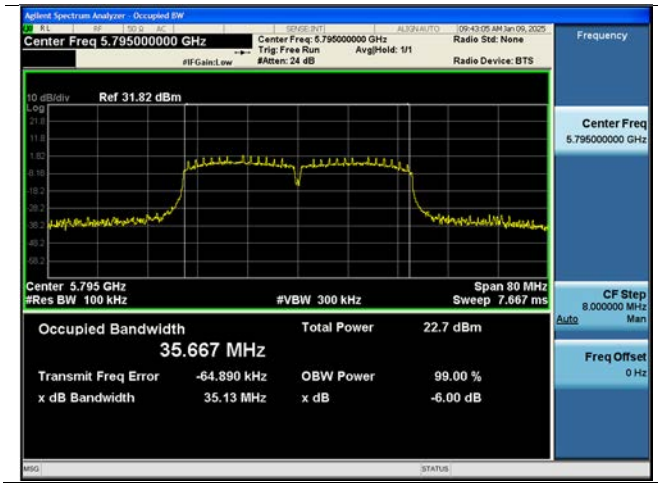
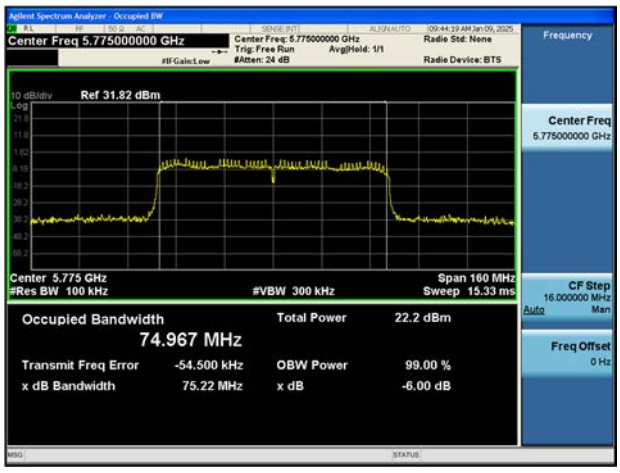
Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	35.16	> 0.5
	5795	159	35.15	> 0.5
UNII4	5835	167	35.17	> 0.5
	5875	175	35.14	> 0.5

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	35.15	> 0.5
	5795	159	35.13	> 0.5
UNII4	5835	167	35.20	> 0.5
	5875	175	35.15	> 0.5

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	75.22	> 0.5
UNII4	5855	171	75.34	> 0.5

▣ Test Plots

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

802.11a 6 dB Bandwidth (CH 169)	802.11n(HT20) 6 dB Bandwidth (CH 173)
	
802.11ac(VHT20) 6 dB Bandwidth (CH 149)	**802.11n(HT40) 6 dB Bandwidth (CH 175)**
	
802.11ac(VHT40) 6 dB Bandwidth (CH 159)	**802.11ac(VHT80) 6 dB Bandwidth (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
(UNII 4) : EIRP 30.0 dBm/MHz
(UNII 3&4) : Worst limit 30.00 dBm ➔UNII 4 Band Antenna Gain Negative
Total Power [dBm] = Measured Power [dBm] + Duty Cycle Factor [dB]

Frequency [MHz]	Channel	Datarate	Mode	Mea.Power [dBm]	D.C.F [dB]	Total Power [dBm]	Peak Gain [dBi]	EIRP [dBm]	Limit [dBm]
5180	36	6M	a	16.13	0.39	16.52	-	-	23.98
5200	40	6M	a	16.00	0.39	16.39	-	-	23.98
5240	48	6M	a	16.15	0.39	16.54	-	-	23.98
5260	52	6M	a	16.15	0.39	16.54	-	-	23.98
5300	60	6M	a	16.04	0.39	16.43	-	-	23.98
5320	64	6M	a	16.13	0.39	16.52	-	-	23.98
5500	100	6M	a	16.38	0.39	16.77	-	-	23.98
5580	116	6M	a	16.78	0.39	17.17	-	-	23.98
5720	144	6M	a	17.55	0.39	17.94	-	-	23.98
5745	149	6M	a	17.54	0.39	17.93	-	-	30
5785	157	6M	a	17.57	0.39	17.96	-	-	30
5825	165	6M	a	17.19	0.39	17.58	-	-	30
5845	169	6M	a	17.04	0.39	17.43	-4.60	12.83	30/EIRP
5865	173	6M	a	16.78	0.39	17.17	-4.60	12.57	30/EIRP
5885	177	6M	a	16.52	0.39	16.91	-4.60	12.31	30/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. Power [dBm]	D.C.F [dB]	Total Power [dBm]	Peak Gain [dBi]	EIRP [dBm]	Limit [dBm]
5180	36	MCS0	n20	15.99	0.45	16.44	-	-	23.98
5200	40	MCS0	n20	15.75	0.45	16.19	-	-	23.98
5240	48	MCS0	n20	16.16	0.45	16.61	-	-	23.98
5260	52	MCS0	n20	16.26	0.45	16.71	-	-	23.98
5300	60	MCS0	n20	16.04	0.45	16.49	-	-	23.98
5320	64	MCS0	n20	16.01	0.45	16.45	-	-	23.98
5500	100	MCS0	n20	16.04	0.45	16.49	-	-	23.98
5580	116	MCS0	n20	16.90	0.45	17.35	-	-	23.98
5720	144	MCS0	n20	17.52	0.45	17.97	-	-	23.98
5745	149	MCS0	n20	17.52	0.45	17.96	-	-	30
5785	157	MCS0	n20	17.38	0.45	17.82	-	-	30
5825	165	MCS0	n20	17.00	0.45	17.45	-	-	30
5845	169	MCS0	n20	16.79	0.45	17.23	-4.60	12.63	30/EIRP
5865	173	MCS0	n20	16.60	0.45	17.04	-4.60	12.44	30/EIRP
5885	177	MCS0	n20	16.23	0.45	16.67	-4.60	12.07	30/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. Power [dBm]	D.C.F [dB]	Total Power [dBm]	Peak Gain [dBi]	EIRP [dBm]	Limit [dBm]
5180	36	MCS0	ac20	15.95	0.46	16.41	-	-	23.98
5200	40	MCS0	ac20	15.89	0.46	16.35	-	-	23.98
5240	48	MCS0	ac20	16.33	0.46	16.79	-	-	23.98
5260	52	MCS0	ac20	16.01	0.46	16.48	-	-	23.98
5300	60	MCS0	ac20	16.03	0.46	16.50	-	-	23.98
5320	64	MCS0	ac20	15.79	0.46	16.26	-	-	23.98
5500	100	MCS0	ac20	15.37	0.46	15.83	-	-	23.98
5580	116	MCS0	ac20	16.91	0.46	17.38	-	-	23.98
5720	144	MCS0	ac20	17.46	0.46	17.92	-	-	23.98
5745	149	MCS0	ac20	17.39	0.46	17.85	-	-	30
5785	157	MCS0	ac20	17.51	0.46	17.97	-	-	30
5825	165	MCS0	ac20	17.26	0.46	17.73	-	-	30
5845	169	MCS0	ac20	16.97	0.46	17.43	-4.60	12.83	30/EIRP
5865	173	MCS0	ac20	16.54	0.46	17.01	-4.60	12.41	30/EIRP
5885	177	MCS0	ac20	16.51	0.46	16.97	-4.60	12.37	30/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. Power [dBm]	D.C.F [dB]	Total Power [dBm]	Peak Gain [dBi]	EIRP [dBm]	Limit [dBm]
5190	38	MCS0	n40	11.77	0.90	12.66	-	-	23.98
5230	46	MCS0	n40	12.44	0.90	13.34	-	-	23.98
5270	54	MCS0	n40	12.79	0.90	13.69	-	-	23.98
5310	62	MCS0	n40	12.79	0.90	13.68	-	-	23.98
5510	102	MCS0	n40	12.08	0.90	12.98	-	-	23.98
5550	110	MCS0	n40	13.31	0.90	14.21	-	-	23.98
5710	142	MCS0	n40	14.05	0.90	14.95	-	-	23.98
5755	151	MCS0	n40	14.06	0.90	14.96	-	-	30
5795	159	MCS0	n40	14.02	0.90	14.92	-	-	30
5835	167	MCS0	n40	13.31	0.90	14.20	-4.60	9.60	30/EIRP
5875	175	MCS0	n40	12.75	0.90	13.64	-4.60	9.04	30/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. Power [dBm]	D.C.F [dB]	Total Power [dBm]	Peak Gain [dBi]	EIRP [dBm]	Limit [dBm]
5190	38	MCS0	ac40	11.56	0.89	12.45	-	-	23.98
5230	46	MCS0	ac40	12.78	0.89	13.67	-	-	23.98
5270	54	MCS0	ac40	12.86	0.89	13.75	-	-	23.98
5310	62	MCS0	ac40	12.67	0.89	13.56	-	-	23.98
5510	102	MCS0	ac40	12.08	0.89	12.97	-	-	23.98
5550	110	MCS0	ac40	13.39	0.89	14.28	-	-	23.98
5710	142	MCS0	ac40	14.07	0.89	14.96	-	-	23.98
5755	151	MCS0	ac40	14.08	0.89	14.97	-	-	30
5795	159	MCS0	ac40	14.04	0.89	14.93	-	-	30
5835	167	MCS0	ac40	13.33	0.89	14.22	-4.60	9.62	30/EIRP
5875	175	MCS0	ac40	12.83	0.89	13.72	-4.60	9.12	30/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. Power [dBm]	D.C.F [dB]	Total Power [dBm]	Peak Gain [dBi]	EIRP [dBm]	Limit [dBm]
5210	42	MCS0	ac80	8.01	1.57	9.58	-	-	23.98
5290	58	MCS0	ac80	8.12	1.57	9.69	-	-	23.98
5530	106	MCS0	ac80	9.47	1.57	11.03	-	-	23.98
5610	122	MCS0	ac80	11.60	1.57	13.17	-	-	23.98
5690	138	MCS0	ac80	12.24	1.57	13.81	-	-	23.98
5775	155	MCS0	ac80	12.32	1.57	13.89	-	-	30
5855	171	MCS0	ac80	11.04	1.57	12.60	-4.60	8.00	30/EIRP

10.5 POWER SPECTRAL DENSITY

Ant Total PSD [dBm] = Measured PSD [dBm] + Duty Cycle Factor [dB]

Frequency [MHz]	Channel	Datarate	Mode	Mea. PSD [dBm/MHz]	D.C.F [dB]	Total PSD [dBm/MHz]	Peak Gain [dBi]	EIRPSD [dBm/MHz]	Limit
5180	36	6M	a	5.736	0.390	6.126	-	-	11 dBm/MHz
5200	40	6M	a	5.616	0.390	6.006	-	-	11 dBm/MHz
5240	48	6M	a	5.785	0.390	6.175	-	-	11 dBm/MHz
5260	52	6M	a	5.787	0.390	6.177	-	-	11 dBm/MHz
5300	60	6M	a	5.761	0.390	6.151	-	-	11 dBm/MHz
5320	64	6M	a	5.642	0.390	6.032	-	-	11 dBm/MHz
5500	100	6M	a	5.795	0.390	6.185	-	-	11 dBm/MHz
5580	116	6M	a	6.563	0.390	6.953	-	-	11 dBm/MHz
5720	144	6M	a	7.346	0.390	7.736	-	-	11 dBm/MHz
5745	149	6M	a	4.625	0.390	5.015	-	-	30 dBm/500kHz
5785	157	6M	a	4.725	0.390	5.115	-	-	30 dBm/500kHz
5825	165	6M	a	3.956	0.390	4.346	-	-	30 dBm/500kHz
5845	169	6M	a	6.925	0.390	7.315	-4.60	2.715	14 dBm/EIRP
5865	173	6M	a	6.381	0.390	6.771	-4.60	2.171	14 dBm/EIRP
5885	177	6M	a	6.432	0.390	6.822	-4.60	2.222	14 dBm/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. PSD [dBm/MHz]	D.C.F [dB]	Total PSD [dBm/MHz]	Peak Gain [dBi]	EIRPSD [dBm/MHz]	Limit
5180	36	MCS0	n20	5.365	0.446	5.811	-	-	11 dBm/MHz
5200	40	MCS0	n20	5.231	0.446	5.677	-	-	11 dBm/MHz
5240	48	MCS0	n20	5.484	0.446	5.930	-	-	11 dBm/MHz
5260	52	MCS0	n20	5.472	0.446	5.918	-	-	11 dBm/MHz
5300	60	MCS0	n20	5.675	0.446	6.121	-	-	11 dBm/MHz
5320	64	MCS0	n20	5.516	0.446	5.962	-	-	11 dBm/MHz
5500	100	MCS0	n20	5.493	0.446	5.939	-	-	11 dBm/MHz
5580	116	MCS0	n20	6.443	0.446	6.889	-	-	11 dBm/MHz
5720	144	MCS0	n20	7.390	0.446	7.836	-	-	11 dBm/MHz
5745	149	MCS0	n20	4.451	0.446	4.897	-	-	30 dBm/500kHz
5785	157	MCS0	n20	4.304	0.446	4.750	-	-	30 dBm/500kHz
5825	165	MCS0	n20	4.181	0.446	4.627	-	-	30 dBm/500kHz
5845	169	MCS0	n20	6.578	0.446	7.024	-4.60	2.424	14 dBm/EIRP
5865	173	MCS0	n20	6.177	0.446	6.623	-4.60	2.023	14 dBm/EIRP
5885	177	MCS0	n20	6.034	0.446	6.480	-4.60	1.880	14 dBm/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. PSD [dBm/MHz]	D.C.F [dB]	Total PSD [dBm/MHz]	Peak Gain [dBi]	EIRPSD [dBm/MHz]	Limit
5180	36	MCS0	ac20	5.355	0.465	5.820	-	-	11 dBm/MHz
5200	40	MCS0	ac20	5.002	0.465	5.467	-	-	11 dBm/MHz
5240	48	MCS0	ac20	5.365	0.465	5.830	-	-	11 dBm/MHz
5260	52	MCS0	ac20	5.541	0.465	6.006	-	-	11 dBm/MHz
5300	60	MCS0	ac20	5.036	0.465	5.501	-	-	11 dBm/MHz
5320	64	MCS0	ac20	5.306	0.465	5.771	-	-	11 dBm/MHz
5500	100	MCS0	ac20	4.450	0.465	4.915	-	-	11 dBm/MHz
5580	116	MCS0	ac20	6.342	0.465	6.807	-	-	11 dBm/MHz
5720	144	MCS0	ac20	7.459	0.465	7.924	-	-	11 dBm/MHz
5745	149	MCS0	ac20	4.307	0.465	4.772	-	-	30 dBm/500kHz
5785	157	MCS0	ac20	4.521	0.465	4.986	-	-	30 dBm/500kHz
5825	165	MCS0	ac20	3.979	0.465	4.444	-	-	30 dBm/500kHz
5845	169	MCS0	ac20	6.595	0.465	7.060	-4.60	2.460	14 dBm/EIRP
5865	173	MCS0	ac20	6.257	0.465	6.722	-4.60	2.122	14 dBm/EIRP
5885	177	MCS0	ac20	5.856	0.465	6.321	-4.60	1.721	14 dBm/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. PSD [dBm/MHz]	D.C.F [dB]	Total PSD [dBm/MHz]	Peak Gain [dBi]	EIRPSD [dBm/MHz]	Limit
5190	38	MCS0	n40	-2.381	0.896	-1.485	-	-	11 dBm/MHz
5230	46	MCS0	n40	-1.108	0.896	-0.212	-	-	11 dBm/MHz
5270	54	MCS0	n40	-0.790	0.896	0.106	-	-	11 dBm/MHz
5310	62	MCS0	n40	-1.184	0.896	-0.288	-	-	11 dBm/MHz
5510	102	MCS0	n40	-1.985	0.896	-1.089	-	-	11 dBm/MHz
5550	110	MCS0	n40	-0.504	0.896	0.392	-	-	11 dBm/MHz
5710	142	MCS0	n40	0.478	0.896	1.374	-	-	11 dBm/MHz
5755	151	MCS0	n40	-2.519	0.896	-1.623	-	-	30 dBm/500kHz
5795	159	MCS0	n40	-1.690	0.896	-0.794	-	-	30 dBm/500kHz
5835	167	MCS0	n40	-0.531	0.896	0.365	-4.60	-4.235	14 dBm/EIRP
5875	175	MCS0	n40	-0.934	0.896	-0.038	-4.60	-4.638	14 dBm/EIRP

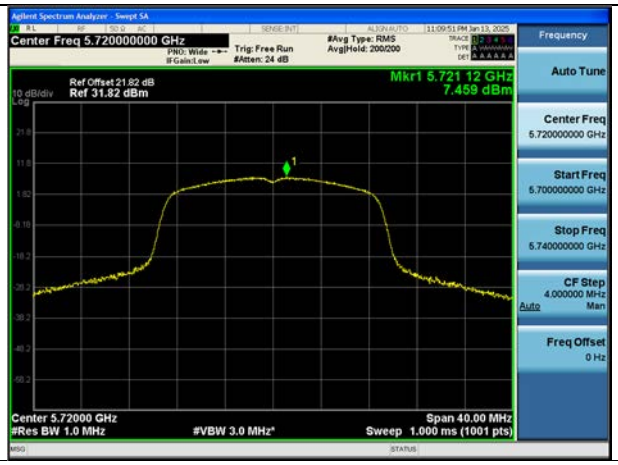
Frequency [MHz]	Channel	Datarate	Mode	Mea. PSD [dBm/MHz]	D.C.F [dB]	Total PSD [dBm/MHz]	Peak Gain [dBi]	EIRPSD [dBm/MHz]	Limit
5190	38	MCS0	ac40	-2.513	0.889	-1.624	-	-	11 dBm/MHz
5230	46	MCS0	ac40	-1.018	0.889	-0.129	-	-	11 dBm/MHz
5270	54	MCS0	ac40	-1.030	0.889	-0.141	-	-	11 dBm/MHz
5310	62	MCS0	ac40	-0.871	0.889	0.018	-	-	11 dBm/MHz
5510	102	MCS0	ac40	-1.644	0.889	-0.755	-	-	11 dBm/MHz
5550	110	MCS0	ac40	-0.560	0.889	0.329	-	-	11 dBm/MHz
5710	142	MCS0	ac40	0.974	0.889	1.863	-	-	11 dBm/MHz
5755	151	MCS0	ac40	-2.415	0.889	-1.526	-	-	30 dBm/500kHz
5795	159	MCS0	ac40	-2.048	0.889	-1.159	-	-	30 dBm/500kHz
5835	167	MCS0	ac40	-0.237	0.889	0.652	-4.60	-3.948	14 dBm/EIRP
5875	175	MCS0	ac40	-0.728	0.889	0.161	-4.60	-4.439	14 dBm/EIRP

Frequency [MHz]	Channel	Datarate	Mode	Mea. PSD [dBm/MHz]	D.C.F [dB]	Total PSD [dBm/MHz]	Peak Gain [dBi]	EIRPSD [dBm/MHz]	Limit
5210	42	MCS0	ac80	-8.679	1.569	-7.110	-	-	11 dBm/MHz
5290	58	MCS0	ac80	-9.055	1.569	-7.486	-	-	11 dBm/MHz
5530	106	MCS0	ac80	-7.042	1.569	-5.473	-	-	11 dBm/MHz
5610	122	MCS0	ac80	-5.048	1.569	-3.479	-	-	11 dBm/MHz
5690	138	MCS0	ac80	-4.789	1.569	-3.220	-	-	11 dBm/MHz
5775	155	MCS0	ac80	-7.369	1.569	-5.800	-	-	30 dBm/500kHz
5855	171	MCS0	ac80	-5.583	1.569	-4.014	-4.60	-8.614	14 dBm/EIRP

▣ Test Plots

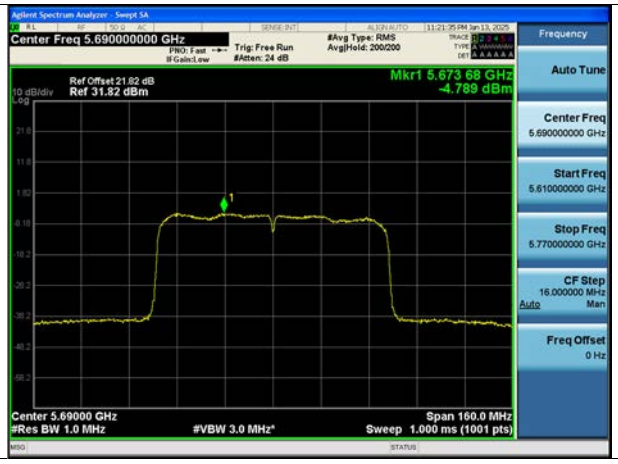
Note: In order to simplify the report, attached plots were only channel of the highest PSD.

Bandwidth 20M, 802.11ac(VHT20) (Ch. 144)



Bandwidth 40M, 802.11ac(VHT40) (Ch. 142)

Bandwidth 80M, 802.11ac(VHT80) (Ch. 138)



10.6 FREQUENCY STABILITY

Note:

1. All modes of operation were investigated and the worst case configuration results are reported.
2. 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.

10.6.1 80 MHz BW

REFERENCE VOLTAGE: 4.20 VDC

Startup after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5210030.29	30.29	5290033.57	33.57	5530032.76	32.76
100%		-30	5210005.70	5.70	5290006.76	6.76	5530006.30	6.30
100%		-20	5210014.90	14.90	5290011.06	11.06	5530013.65	13.65
100%		-10	5210019.93	19.93	5290017.32	17.32	5530015.31	15.31
100%		0	5210024.62	24.62	5290024.85	24.85	5530022.65	22.65
100%		+10	5210025.31	25.31	5290028.55	28.55	5530026.98	26.98
100%		+30	5210037.73	37.73	5290037.13	37.13	5530036.26	36.26
100%		+40	5210048.90	48.90	5290047.25	47.25	5530041.06	41.06
100%		+50	5210051.06	51.06	5290058.47	58.47	5530054.30	54.30
High	4.40	+20	5210034.84	34.84	5290031.73	31.73	5530035.04	35.04
Low	3.80	+20	5210032.91	32.91	5290030.59	30.59	5530032.77	32.77

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5775030.13	30.13	5855030.67	30.67
100%		-30	5775006.78	6.78	5855006.17	6.17
100%		-20	5775011.02	11.02	5855015.18	15.18
100%		-10	5775015.62	15.62	5855015.36	15.36
100%		0	5775020.92	20.92	5855023.38	23.38
100%		+10	5775026.92	26.92	5855028.63	28.63
100%		+30	5775038.67	38.67	5855036.63	36.63
100%		+40	5775049.72	49.72	5855046.24	46.24
100%		+50	5775056.39	56.39	5855053.15	53.15
High	4.40	+20	5775033.47	33.47	5855031.23	31.23
Low	3.80	+20	5775030.33	30.33	5855035.08	35.08

2 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5210035.28	35.28	5290033.98	33.98	5530034.64	34.64
100%		-30	5210010.62	10.62	5290008.38	8.38	5530005.65	5.65
100%		-20	5210012.69	12.69	5290015.07	15.07	5530013.23	13.23
100%		-10	5210016.72	16.72	5290016.65	16.65	5530015.45	15.45
100%		0	5210022.37	22.37	5290021.12	21.12	5530024.26	24.26
100%		+10	5210028.98	28.98	5290029.78	29.78	5530028.81	28.81
100%		+30	5210039.02	39.02	5290040.63	40.63	5530036.84	36.84
100%		+40	5210050.52	50.52	5290045.31	45.31	5530046.08	46.08
100%		+50	5210051.70	51.70	5290051.93	51.93	5530057.65	57.65
High	4.40	+20	5210032.58	32.58	5290032.70	32.70	5530032.30	32.30
Low	3.80	+20	5210034.37	34.37	5290031.52	31.52	5530032.11	32.11

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5775035.65	35.65	5855030.70	30.70
100%		-30	5775009.88	9.88	5855005.10	5.10
100%		-20	5775013.44	13.44	5855014.68	14.68
100%		-10	5775015.38	15.38	5855020.43	20.43
100%		0	5775022.32	22.32	5855025.99	25.99
100%		+10	5775029.26	29.26	5855030.92	30.92
100%		+30	5775035.92	35.92	5855038.41	38.41
100%		+40	5775046.85	46.85	5855046.74	46.74
100%		+50	5775051.19	51.19	5855058.60	58.60
High	4.40	+20	5775032.46	32.46	5855031.03	31.03
Low	3.80	+20	5775030.62	30.62	5855030.19	30.19

5 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5210032.20	32.20	5290032.15	32.15	5530033.44	33.44
100%		-30	5210009.39	9.39	5290005.84	5.84	5530009.83	9.83
100%		-20	5210012.74	12.74	5290013.65	13.65	5530015.22	15.22
100%		-10	5210018.83	18.83	5290016.25	16.25	5530015.95	15.95
100%		0	5210024.52	24.52	5290021.48	21.48	5530024.99	24.99
100%		+10	5210030.48	30.48	5290028.42	28.42	5530027.46	27.46
100%		+30	5210035.61	35.61	5290036.11	36.11	5530037.91	37.91
100%		+40	5210050.27	50.27	5290043.86	43.86	5530049.59	49.59
100%		+50	5210051.64	51.64	5290060.29	60.29	5530052.84	52.84
High	4.40	+20	5210030.58	30.58	5290033.15	33.15	5530032.36	32.36
Low	3.80	+20	5210030.02	30.02	5290035.76	35.76	5530034.11	34.11

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5775031.76	31.76	5855031.37	31.37
100%		-30	5775007.76	7.76	5855010.30	10.30
100%		-20	5775012.69	12.69	5855014.99	14.99
100%		-10	5775016.06	16.06	5855018.28	18.28
100%		0	5775020.08	20.08	5855020.90	20.90
100%		+10	5775027.58	27.58	5855026.87	26.87
100%		+30	5775037.08	37.08	5855039.59	39.59
100%		+40	5775045.12	45.12	5855047.13	47.13
100%		+50	5775058.91	58.91	5855051.08	51.08
High	4.40	+20	5775035.33	35.33	5855031.98	31.98
Low	3.80	+20	5775033.90	33.90	5855030.56	30.56

10 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1		UNII Band 2A		UNII Band 2C	
OPERATING FREQUENCY:			5,210,000,000 Hz		5,290,000,000 Hz		5, 530,000,000 Hz	
CHANNEL:			42		58		106	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5210033.52	33.52	5290035.90	35.90	5530031.13	31.13
100%		-30	5210007.88	7.88	5290006.18	6.18	5530006.90	6.90
100%		-20	5210014.71	14.71	5290012.92	12.92	5530012.79	12.79
100%		-10	5210019.57	19.57	5290018.79	18.79	5530015.04	15.04
100%		0	5210025.04	25.04	5290024.89	24.89	5530025.07	25.07
100%		+10	5210026.18	26.18	5290027.33	27.33	5530026.59	26.59
100%		+30	5210038.10	38.10	5290036.62	36.62	5530035.97	35.97
100%		+40	5210044.21	44.21	5290048.34	48.34	5530041.83	41.83
100%		+50	5210055.34	55.34	5290059.13	59.13	5530052.23	52.23
High	4.40	+20	5210033.84	33.84	5290032.40	32.40	5530035.13	35.13
Low	3.80	+20	5210032.69	32.69	5290030.33	30.33	5530034.36	34.36

OPERATING BAND:			UNII Band 3		UNII Band 4	
OPERATING FREQUENCY:			5,775,000,000 Hz		5,855,000,000 Hz	
CHANNEL:			155		171	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)
100%	4.20	+20(Ref)	5775030.23	30.23	5855033.89	33.89
100%		-30	5775008.93	8.93	5855006.75	6.75
100%		-20	5775011.66	11.66	5855010.87	10.87
100%		-10	5775018.89	18.89	5855019.38	19.38
100%		0	5775023.71	23.71	5855020.40	20.40
100%		+10	5775029.72	29.72	5855025.15	25.15
100%		+30	5775036.67	36.67	5855040.70	40.70
100%		+40	5775046.12	46.12	5855040.47	40.47
100%		+50	5775059.79	59.79	5855053.58	53.58
High	4.40	+20	5775033.84	33.84	5855031.92	31.92
Low	3.80	+20	5775031.23	31.23	5855033.94	33.94

10.7 STRADDLE CHANNEL

Test Description	Note
26 dB Bandwidth	1. [UNII 2C] 26 dB Bandwidth = 5725 MHz - Measured Frequency[MHz] 2. [UNII 3] 26 dB Bandwidth = Measured Frequency[MHz] -5725 MHz
6 dB Bandwidth	1. 6 dB Bandwidth = Measured Frequency[MHz] – 5725 MHz 2. Limit : > 0.5 MHz
Output Power	1. Limit(UNII2C) : 23.98 dBm or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.) 2. Limit(UNII 3) : 30.00 dBm 3. Total Power (dBm) = Measured Value (dBm) + Duty Cycle Factor (dB)
Power Spectral Density	1. Limit(UNII 2C) : 11.0 dBm/MHz 2. Limit(UNII 3) : 30.0 dBm/500kHz 3. Total PSD (dBm) = Measured Value (dBm) + Duty Cycle Factor (dB)

Mode	Worstcase Datarate	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Total PSD [dBm/MHz]
802.11a	6M	UNII2C	5720	144	17.28	-	17.05	7.398
802.11n(HT20)	MCS0				17.88	-	16.80	7.324
802.11ac(VHT20)	MCS0				17.72	-	16.74	7.137
802.11a	6M	UNII3	5720	144	5.56	2.60	8.86	2.660
802.11n(HT20)	MCS0				7.28	2.60	9.07	2.343
802.11ac(VHT20)	MCS0				6.36	2.60	9.02	2.335

Mode	Worstcase Datarate	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Total PSD [dBm/MHz]
802.11n(HT40)	MCS0	UNII2C	5710	142	35.40	-	14.58	1.216
802.11ac(VHT40)	MCS0				35.40	-	14.26	1.083
802.11n(HT40)	MCS0	UNII3	5710	142	5.24	2.68	2.23	-4.361
802.11ac(VHT40)	MCS0				5.32	2.68	1.94	-4.135

Mode	Worstcase Datarate	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Total PSD [dBm/MHz]
802.11ac(VHT80)	MCS0	UNII2C	5690	138	75.32	-	12.76	-4.136
802.11ac(VHT80)	MCS0	UNII3	5690	138	5.32	2.76	-3.30	-9.762

▣ Test Plots (26 dB Bandwidth)

802.11a UNII Band

802.11n(HT20) UNII Band

802.11ac(VHT20) UNII Band

802.11n(HT40) UNII Band

802.11ac(VHT40) UNII Band

802.11ac(VHT80) UNII Band

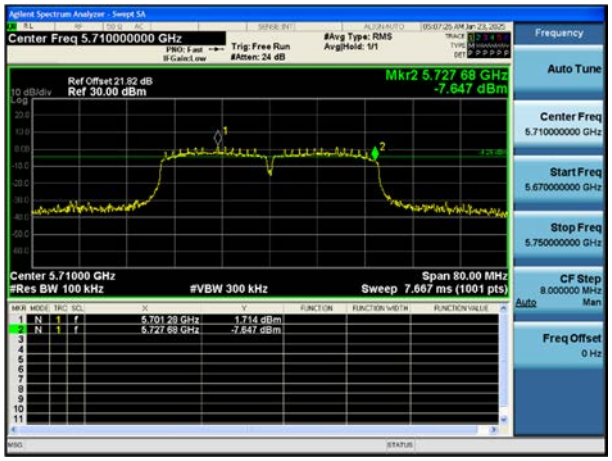
▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

802.11a UNII Band

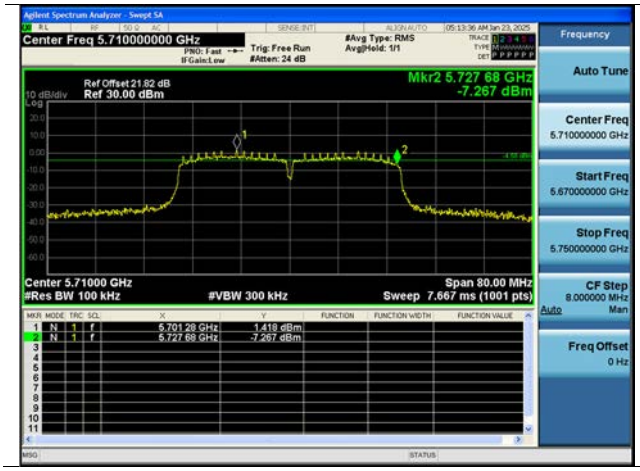
802.11n(HT20) UNII Band

802.11ac(VHT20) UNII Band

802.11n(HT40) UNII Band

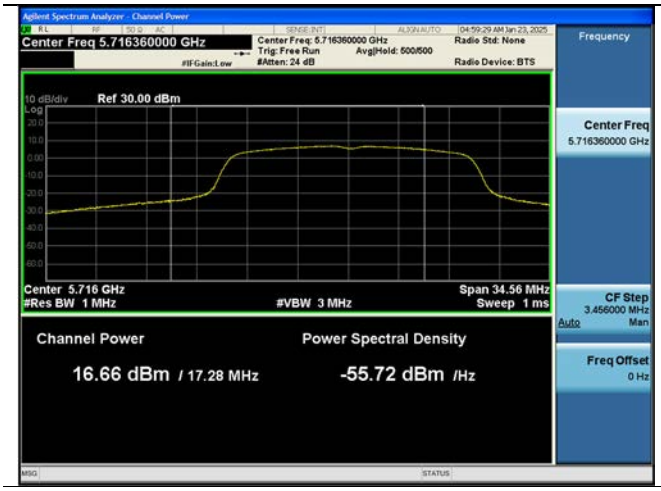
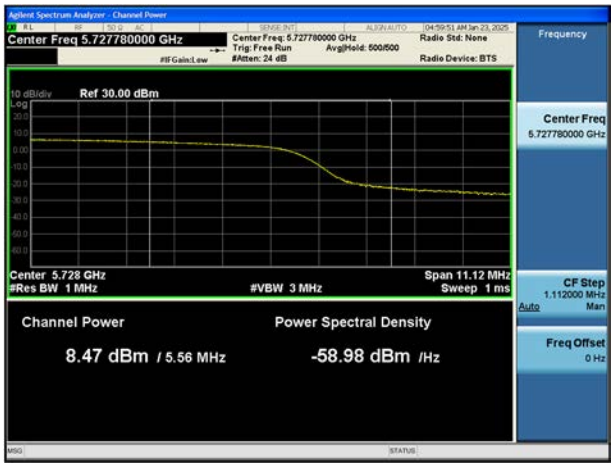
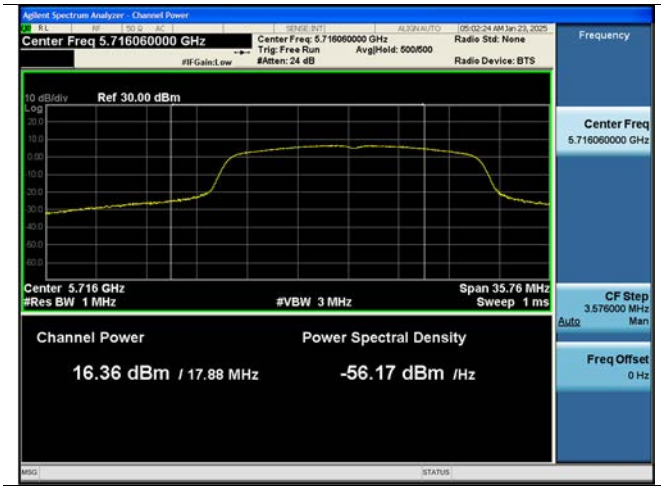
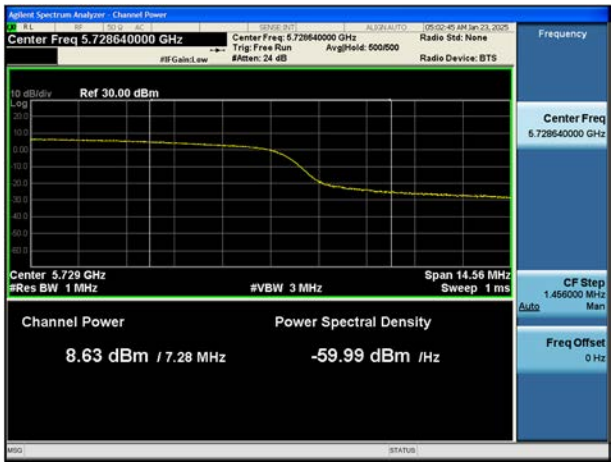
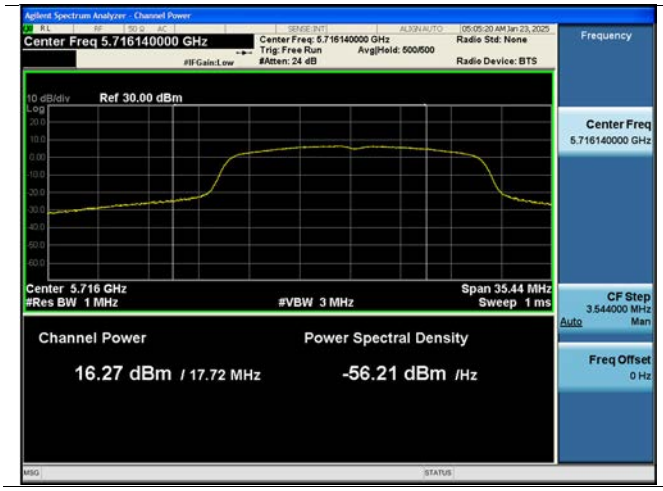
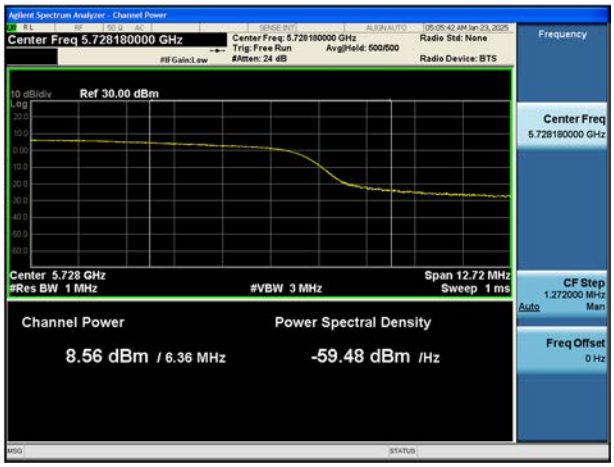


802.11ac(VHT40) UNII Band

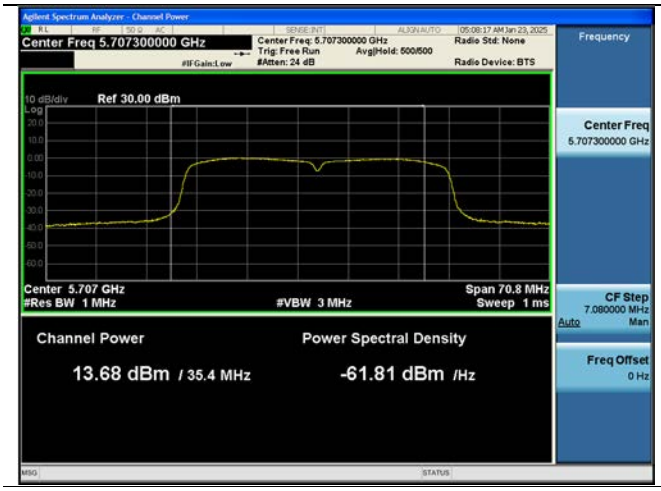


802.11ac(VHT80) UNII Band

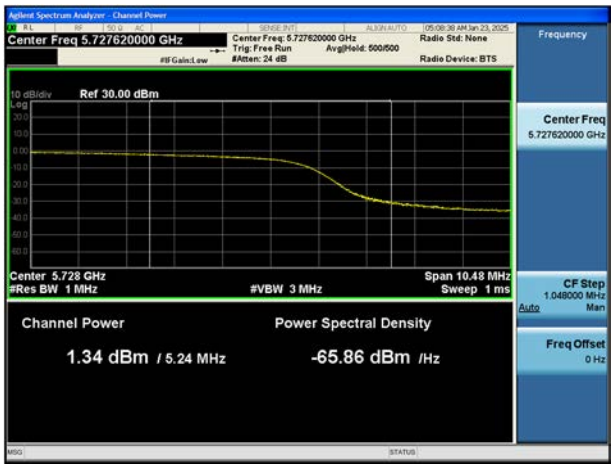
▣ Test Plots(Output Power)

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

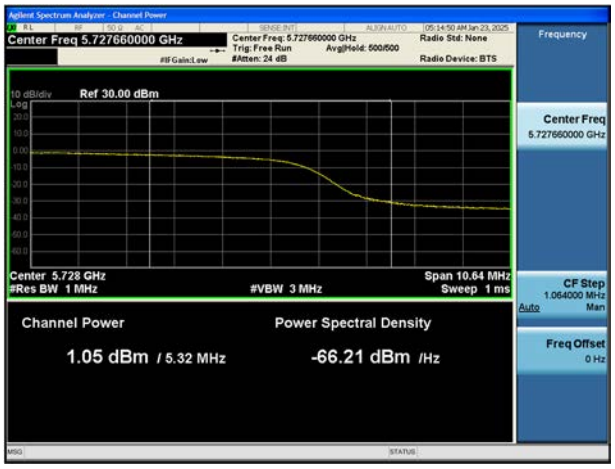


802.11n(HT40) UNII 3 Band

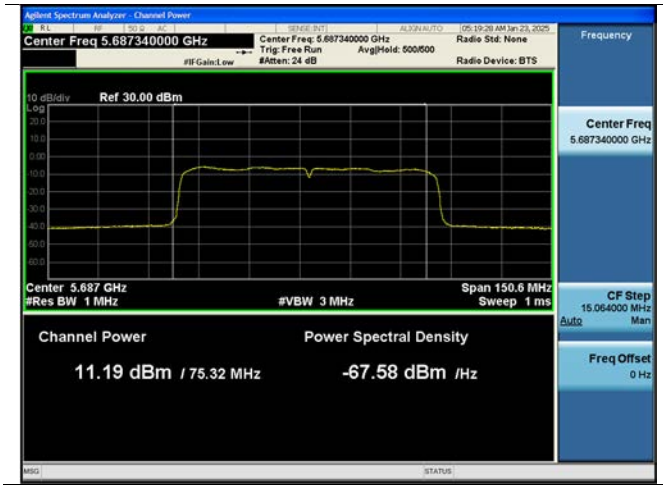


802.11ac(VHT40) UNII 2C Band

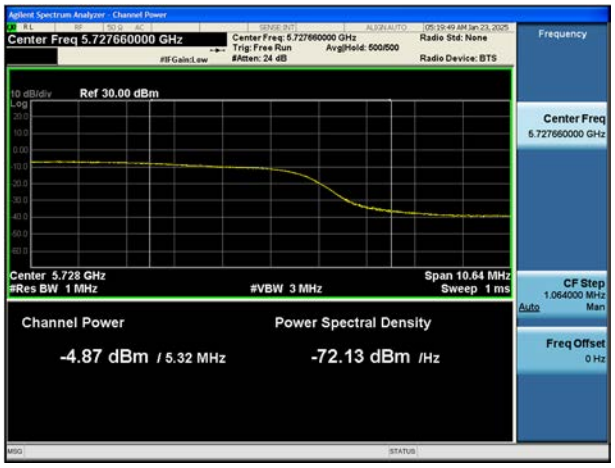
802.11ac(VHT40) UNII 3 Band



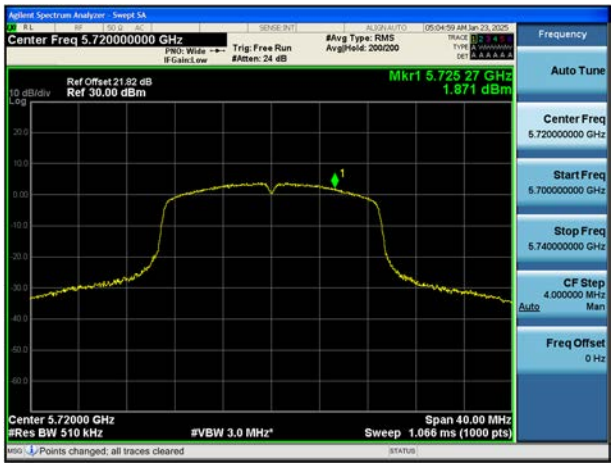
802.11ac(VHT80) UNII 2C Band

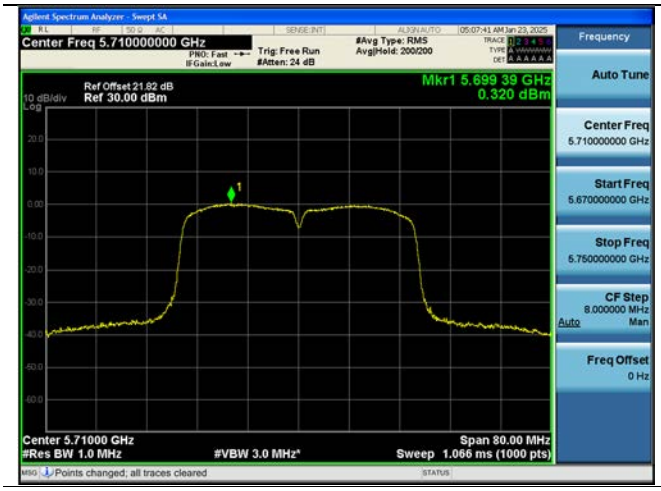
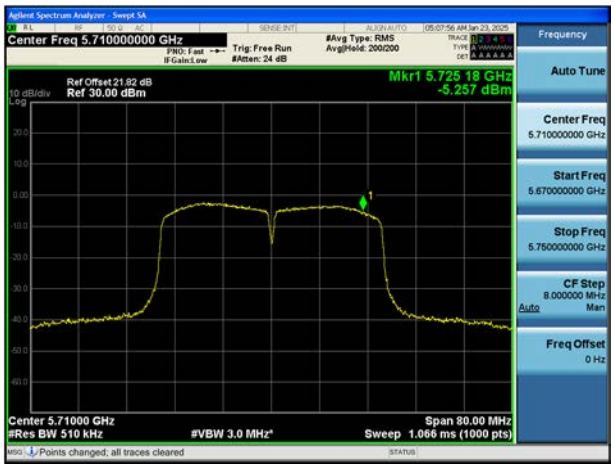
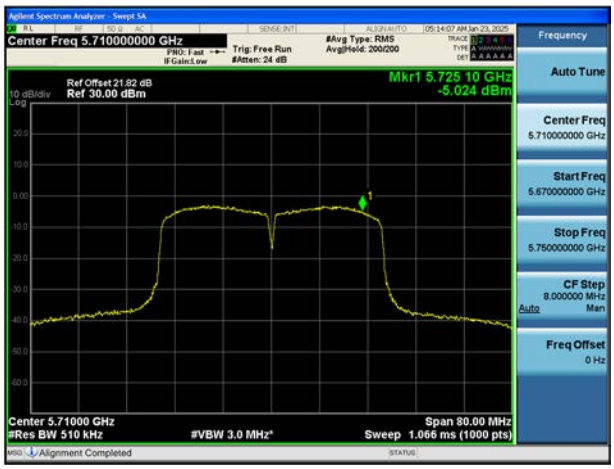


802.11ac(VHT80) UNII 3 Band



▣ Test Plots(Power Spectral Density)

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	CL+AF+DF-AG	ANT. POL	Total	Limit	Margin
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]
No Critical peaks found						

Note:

1. The Measured Val;ue 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 = 40log (specific distance / test distance) (dB)
3. Limit line = specific Limits (dBμV) + Distance extrapolation factor

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	ANT. 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 :		802.11n_HT20 MCS0		
CH.36	5180 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10360	50.58	7.59	V	58.17	68.20	10.03	PK
15540	41.46	12.73	V	54.19	73.98	19.79	PK
15540	27.85	12.73	V	40.58	53.98	13.40	AV
10360	50.08	7.59	H	57.67	68.20	10.53	PK
15540	41.30	12.73	H	54.03	73.98	19.95	PK
15540	27.77	12.73	H	40.50	53.98	13.48	AV

Band :	UNII 1		Operation Mode :		802.11n_HT20 MCS0		
CH.40	5200 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10400	50.02	8.11	V	58.13	68.20	10.07	PK
15600	40.55	12.87	V	53.42	73.98	20.56	PK
15600	27.50	12.87	V	40.37	53.98	13.61	AV
10400	49.16	8.11	H	57.27	68.20	10.93	PK
15600	40.84	12.87	H	53.71	73.98	20.27	PK
15600	27.48	12.87	H	40.35	53.98	13.63	AV

Band :	UNII 1		Operation Mode :		802.11n_HT20 MCS0		
CH.48	5240 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10480	50.98	8.38	V	59.36	68.20	8.84	PK
15720	41.14	13.27	V	54.41	73.98	19.57	PK
15720	27.36	13.27	V	40.63	53.98	13.35	AV
10480	48.48	8.38	H	56.86	68.20	11.34	PK
15720	40.20	13.27	H	53.47	73.98	20.51	PK
15720	27.41	13.27	H	40.68	53.98	13.30	AV

Band :	UNII 2A		Operation Mode :		802.11n_HT20 MCS0		
CH.52	5260 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10520	49.66	8.42	V	58.08	68.20	10.12	PK
15780	41.49	13.74	V	55.23	73.98	18.75	PK
15780	27.93	13.74	V	41.67	53.98	12.31	AV
10520	47.95	8.42	H	56.37	68.20	11.83	PK
15780	40.78	13.74	H	54.52	73.98	19.46	PK
15780	28.04	13.74	H	41.78	53.98	12.20	AV

Band :	UNII 2A		Operation Mode :		802.11n_HT20 MCS0		
CH.60	5300 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10600	49.28	9.23	V	58.51	73.98	15.47	PK
10600	34.75	9.23	V	43.98	53.98	10.00	AV
15900	41.50	12.90	V	54.40	73.98	19.58	PK
15900	28.58	12.90	V	41.48	53.98	12.50	AV
10600	48.39	9.23	H	57.62	73.98	16.36	PK
10600	33.62	9.23	H	42.85	53.98	11.13	AV
15900	41.58	12.90	H	54.48	73.98	19.50	PK
15900	28.14	12.90	H	41.04	53.98	12.94	AV

Band :	UNII 2A		Operation Mode :		802.11n_HT20 MCS0		
CH.64	5320 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
10640	48.76	9.53	V	58.29	73.98	15.69	PK
10640	34.44	9.53	V	43.97	53.98	10.01	AV
15960	41.27	13.03	V	54.30	73.98	19.68	PK
15960	28.48	13.03	V	41.51	53.98	12.47	AV
10640	47.22	9.53	H	56.75	73.98	17.23	PK
10640	32.96	9.53	H	42.49	53.98	11.49	AV
15960	41.31	13.03	H	54.34	73.98	19.64	PK
15960	28.14	13.03	H	41.17	53.98	12.81	AV

Band :	UNII 2C		Operation Mode :		802.11n_HT20 MCS0		
CH.100	5500 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11000	43.46	9.40	V	52.86	73.98	21.12	PK
11000	29.81	9.40	V	39.21	53.98	14.77	AV
16500	43.26	11.35	V	54.61	68.20	13.59	PK
11000	42.96	9.40	H	52.36	73.98	21.62	PK
11000	29.66	9.40	H	39.06	53.98	14.92	AV
16500	45.44	11.35	H	56.79	68.20	11.41	PK

Band :	UNII 2C		Operation Mode :		802.11n_HT20 MCS0		
CH.116	5580 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11160	42.36	9.75	V	52.11	73.98	21.87	PK
11160	29.72	9.75	V	39.47	53.98	14.51	AV
16740	44.79	11.40	V	56.19	68.20	12.01	PK
11160	43.00	9.75	H	52.75	73.98	21.23	PK
11160	29.66	9.75	H	39.41	53.98	14.57	AV
16740	44.60	11.40	H	56.00	68.20	12.20	PK

Band :	UNII 2C		Operation Mode :		802.11n_HT20 MCS0		
CH.144	5720 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11440	42.42	10.41	V	52.83	73.98	21.15	PK
11440	29.51	10.41	V	39.92	53.98	14.06	AV
17160	41.47	11.47	V	52.94	68.20	15.26	PK
11440	42.31	10.41	H	52.72	73.98	21.26	PK
11440	29.27	10.41	H	39.68	53.98	14.30	AV
17160	41.76	11.47	H	53.23	68.20	14.97	PK

Band :	UNII 3		Operation Mode :		802.11n_HT20 MCS0		
CH.149	5745 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11490	42.73	10.36	V	53.09	73.98	20.89	PK
11490	29.64	10.36	V	40.00	53.98	13.98	AV
17235	41.98	12.16	V	54.14	68.20	14.06	PK
11490	42.72	10.36	H	53.08	73.98	20.90	PK
11490	29.46	10.36	H	39.82	53.98	14.16	AV
17235	41.88	12.16	H	54.04	68.20	14.16	PK

Band :	UNII 3		Operation Mode :		802.11n_HT20 MCS0		
CH.157	5785 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11570	42.75	9.49	V	52.24	73.98	21.74	PK
11570	29.68	9.49	V	39.17	53.98	14.81	AV
17355	41.13	12.52	V	53.65	68.20	14.55	PK
11570	43.11	9.49	H	52.60	73.98	21.38	PK
11570	29.40	9.49	H	38.89	53.98	15.09	AV
17355	41.62	12.52	H	54.14	68.20	14.06	PK

Band :	UNII 3		Operation Mode :		802.11n_HT20 MCS0		
CH.165	5825 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11650	43.03	9.49	V	52.52	73.98	21.46	PK
11650	29.77	9.49	V	39.26	53.98	14.72	AV
17475	41.17	13.55	V	54.72	68.20	13.48	PK
11650	42.94	9.49	H	52.43	73.98	21.55	PK
11650	29.67	9.49	H	39.16	53.98	14.82	AV
17475	41.50	13.55	H	55.05	68.20	13.15	PK

Band :	UNII 4		Operation Mode :		802.11n_HT20 MCS0		
CH.169	5845 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11690	42.85	8.96	V	51.81	73.98	22.17	PK
11690	29.67	8.96	V	38.63	53.98	15.35	AV
17535	40.62	14.19	V	54.81	68.20	13.39	PK
11690	43.02	8.96	H	51.98	73.98	22.00	PK
11690	29.78	8.96	H	38.74	53.98	15.24	AV
17535	40.98	14.19	H	55.17	68.20	13.03	PK

Band :	UNII 4		Operation Mode :		802.11n_HT20 MCS0		
CH.173	5865 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11730	43.31	9.29	V	52.60	73.98	21.38	PK
11730	29.86	9.29	V	39.15	53.98	14.83	AV
17595	41.54	14.50	V	56.04	68.20	12.16	PK
11730	42.69	9.29	H	51.98	73.98	22.00	PK
11730	29.97	9.29	H	39.26	53.98	14.72	AV
17595	41.75	14.50	H	56.25	68.20	11.95	PK

Band :	UNII 4		Operation Mode :		802.11n_HT20 MCS0		
CH.177	5885 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
11770	43.25	8.78	V	52.03	73.98	21.95	PK
11770	30.11	8.78	V	38.89	53.98	15.09	AV
17655	41.99	14.68	V	56.67	68.20	11.53	PK
11770	42.87	8.78	H	51.65	73.98	22.33	PK
11770	29.81	8.78	H	38.59	53.98	15.39	AV
17655	41.28	14.68	H	55.96	68.20	12.24	PK

[Simultaneous transmission Scenario]

Bluetooth_Ch.78_GFSK + WLAN_5 GHz_ Ch.48_ 802.11n_HT20 MCS0

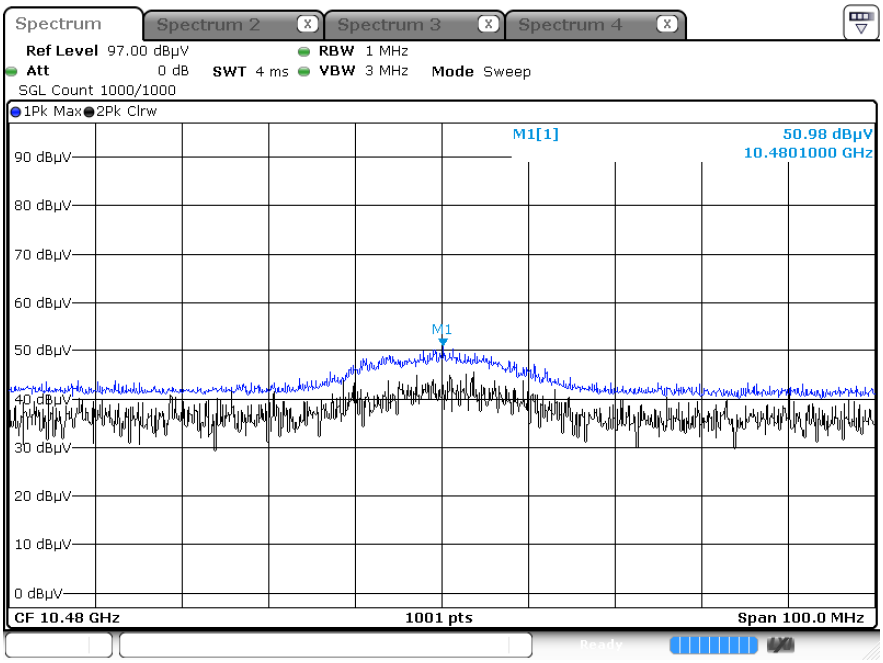
Band :	UNII 1		Operation Mode :		802.11n_HT20 MCS0		
CH.48	5240 MHz		Transfer Rate :		MCS0		
Frequency [MHz]	Measured value [dBµV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBµV/m]	Limit [dBµV/m]	Margin [dB]	Measurement Type
10480	47.40	8.38	V	55.78	68.20	12.42	PK
15720	39.67	13.27	V	52.94	73.98	21.04	PK
15720	26.53	13.27	V	39.80	53.98	14.18	AV
10480	46.51	8.38	H	54.89	68.20	13.31	PK
15720	39.84	13.27	H	53.11	73.98	20.87	PK
15720	26.62	13.27	H	39.89	53.98	14.09	AV

Note : BT Simultaneous transmission Scenario Data refer to [BT] Test Report

▣ Test Plots

Note: Only the worst case plots for Radiated Spurious Emissions.

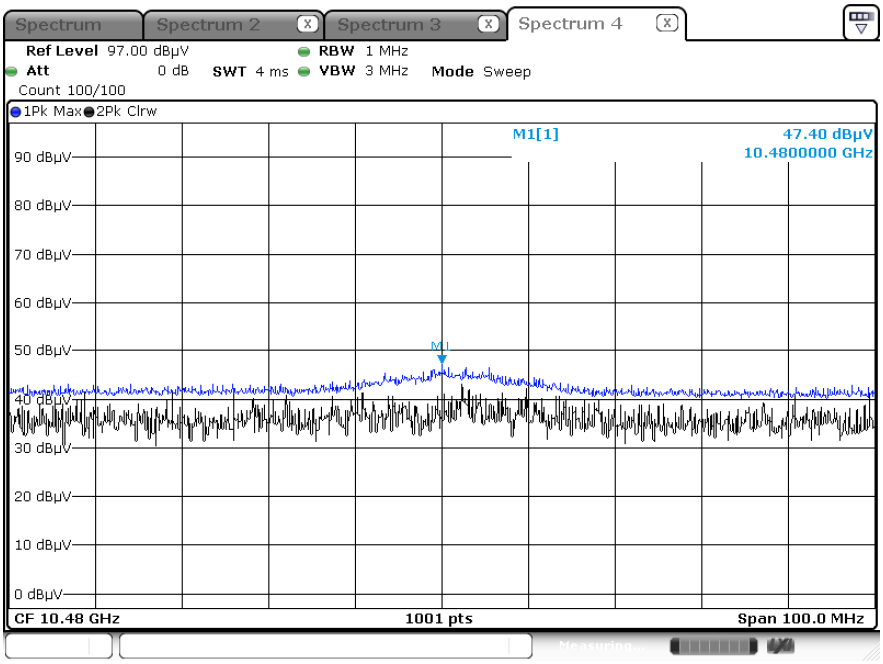
Radiated Spurious Emissions plot – Peak Result (802.11n_HT20, Ch.48 Spurious Emissions, X-V)



[Simultaneous transmission Scenario]

Bluetooth_Ch.78_GFSK + WLAN_5 GHz_ Ch.48_ 802.11n_HT20 MCS0

Radiated Spurious Emissions plot – Peak Result (2nd Harmonic, X-V)



10.9 RADIATED RESTRICTED BAND EDGE

Note : integration method Used (KDB 789033 D02 v02r01 Section 3) d) (ii))

802.11 a		Transfer Rate: 6 Mbps					
Channel	Ch.36	5180 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	53.16	15.98	H	69.14	73.98	4.84	PK
5150	34.37	15.98	H	50.35	53.98	3.63	AV

802.11 a		Transfer Rate: 6 Mbps					
Channel	Ch. 64	5320 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	50.74	15.69	H	66.43	73.98	7.55	PK
5350	33.31	15.69	H	49.00	53.98	4.98	AV

802.11 a		Transfer Rate: 6 Mbps					
Channel	Ch. 100	5500 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	49.50	16.12	H	65.62	73.98	8.36	PK
5460	31.73	16.12	H	47.85	53.98	6.13	AV
# 5470	48.00	16.12	H	64.12	68.20	4.08	PK

802.11 n_HT20		Transfer MCS Index: MCS 0					
Channel	Ch. 36	5180 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	52.40	15.98	H	68.38	73.98	5.60	PK
5150	34.08	15.98	H	50.06	53.98	3.92	AV

802.11 n_HT20		Transfer MCS Index: MCS 0					
Channel	Ch. 64	5320 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	53.30	15.69	H	68.99	73.98	4.99	PK
5350	33.83	15.69	H	49.52	53.98	4.46	AV

802.11 n_HT20		Transfer MCS Index: MCS 0					
Channel	Ch. 100	5500 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	51.78	16.12	H	67.90	73.98	6.08	PK
5460	31.27	16.12	H	47.39	53.98	6.59	AV
# 5470	49.04	16.12	H	65.16	68.20	3.04	PK

802.11 ac_VHT20		Transfer MCS Index: MCS 0					
Channel	Ch. 36	5180 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	52.70	15.98	H	68.68	73.98	5.30	PK
5150	34.49	15.98	H	50.47	53.98	3.51	AV

802.11 ac_VHT20		Transfer MCS Index: MCS 0					
Channel	Ch. 64	5320 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	51.89	15.69	H	67.58	73.98	6.40	PK
5350	33.34	15.69	H	49.03	53.98	4.95	AV

802.11 ac_VHT20		Transfer MCS Index: MCS 0					
Channel	Ch. 100	5500 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	47.99	16.12	H	64.11	73.98	9.87	PK
5460	29.85	16.12	H	45.97	53.98	8.01	AV
# 5470	47.20	16.12	H	63.32	68.20	4.88	PK

802.11 ac_VHT20		Transfer MCS Index: MCS 0					
Channel	Ch. 104	5520 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	48.10	16.12	H	64.22	73.98	9.76	PK
5460	31.64	16.12	H	47.76	53.98	6.22	AV
# 5470	46.21	16.12	H	62.33	68.20	5.87	PK

802.11 n_HT40		Transfer MCS Index: MCS 0					
Channel	Ch. 38	5190 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	51.38	15.98	H	67.36	73.98	6.62	PK
5150	34.22	15.98	H	50.2	53.98	3.78	AV

802.11 n_HT40		Transfer MCS Index: MCS 0					
Channel	Ch. 46	5230 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	42.34	15.98	H	58.32	73.98	15.66	PK
5150	29.97	15.98	H	45.95	53.98	8.03	AV

802.11 n_HT40		Transfer MCS Index: MCS 0					
Channel	Ch. 62	5310 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5350	53.21	15.69	H	68.90	73.98	5.08	PK
5350	35.57	15.69	H	51.26	53.98	2.72	AV

802.11 n_HT40		Transfer MCS Index: MCS 0					
Channel	Ch. 102	5510 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	51.27	16.12	H	67.39	73.98	6.59	PK
5460	31.06	16.12	H	47.18	53.98	6.80	AV
# 5470	48.01	16.12	H	64.13	68.20	4.07	PK

802.11 n_HT40		Transfer MCS Index: MCS 0					
Channel	Ch. 110	5550 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	44.09	16.12	H	60.21	73.98	13.77	PK
5460	28.99	16.12	H	45.11	53.98	8.87	AV
5470	44.98	16.12	H	61.1	68.20	7.10	PK

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 38	5190 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	51.55	15.98	H	67.53	73.98	6.45	PK
5150	34.62	15.98	H	50.60	53.98	3.38	AV

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 46	5230 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5150	42.06	15.98	H	58.04	73.98	15.94	PK
5150	29.75	15.98	H	45.73	53.98	8.25	AV

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 62	5310 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5350	52.87	15.69	H	68.56	73.98	5.42	PK
5350	34.33	15.69	H	50.02	53.98	3.96	AV

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 102	5510 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	51.66	16.12	H	67.78	73.98	6.20	PK
5460	31.38	16.12	H	47.50	53.98	6.48	AV
# 5470	48.03	16.12	H	64.15	68.20	4.05	PK

802.11 ac_VHT40		Transfer MCS Index: MCS 0					
Channel	Ch. 110	5550 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	43.72	16.12	H	59.84	73.98	14.14	PK
5460	29.15	16.12	H	45.27	53.98	8.71	AV
5470	45.48	16.12	H	61.60	68.20	6.60	PK

802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 42	5210 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	47.29	15.98	H	63.27	73.98	10.71	PK
5150	33.70	15.98	H	49.68	53.98	4.30	AV

802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 58	5290 MHz	UNII 1				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5150	41.89	15.98	H	57.87	73.98	16.11	PK
5150	30.28	15.98	H	46.26	53.98	7.72	AV

802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 58	5290 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	47.43	15.69	H	63.12	73.98	10.86	PK
5350	35.08	15.69	H	50.77	53.98	3.21	AV

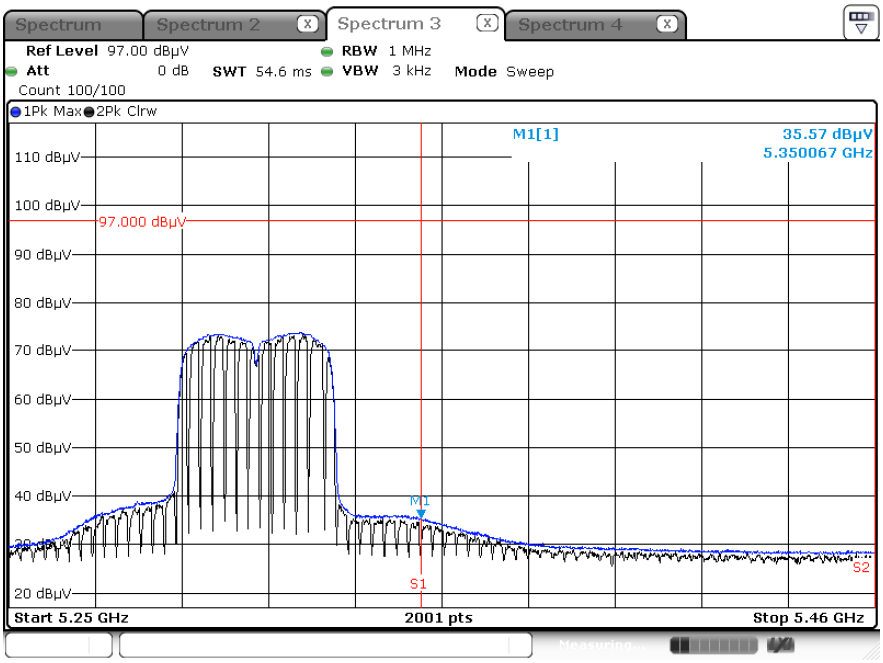
802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 42	5210 MHz	UNII 2A				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5350	42.82	15.69	H	58.51	73.98	15.47	PK
5350	29.74	15.69	H	45.43	53.98	8.55	AV

802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 106	5530 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBμV]	[dB/m]	[H/V]	[dBμV/m]	[dBμV/m]	[dB]	Type
5460	47.45	16.12	H	63.57	73.98	10.41	PK
5460	33.48	16.12	H	49.60	53.98	4.38	AV
# 5470	44.07	16.12	H	60.19	68.20	8.01	PK

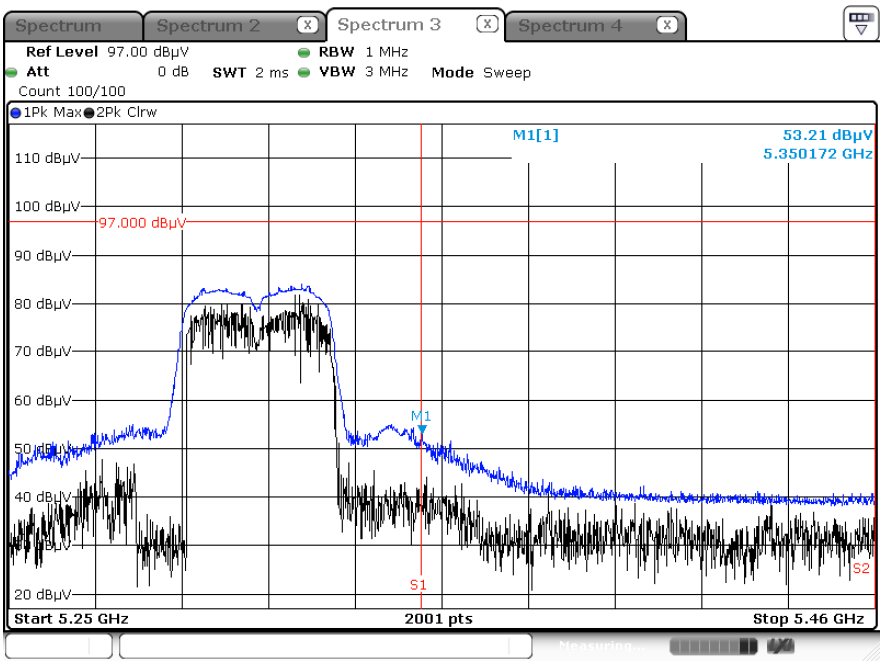
802.11 ac_VHT80		Transfer MCS Index: MCS 0					
Channel	Ch. 122	5610 MHz	UNII 2C				
Frequency	Measured Value	C.L+A.F+D.F-A.G+ATT	ANT. POL	Total	Limit	Margin	Measurement
[MHz]	[dBµV]	[dB/m]	[H/V]	[dBµV/m]	[dBµV/m]	[dB]	Type
5460	42.50	16.12	H	58.62	73.98	15.36	PK
5460	29.38	16.12	H	45.50	53.98	8.48	AV
5470	42.42	16.12	H	58.54	68.20	9.66	PK

▣ Test Plots(UNII 1, 2A, 2C)

Average Result (802.11 n_HT40_ MCS0, Ch.62, X-H)



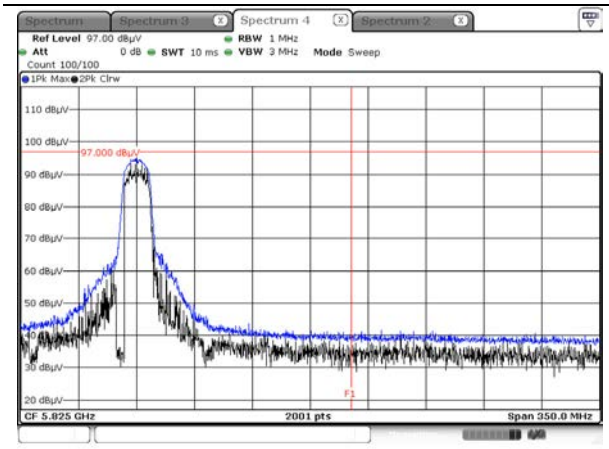
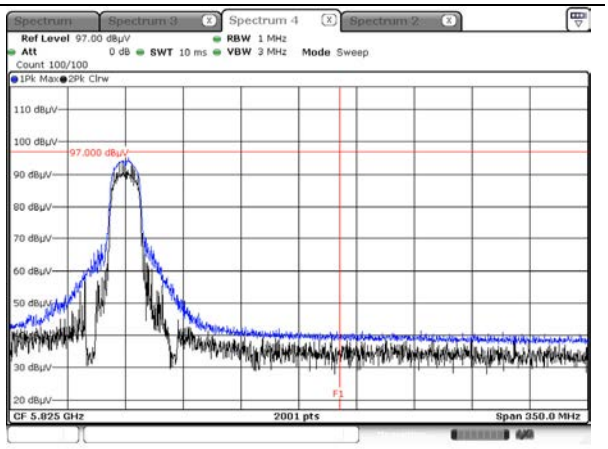
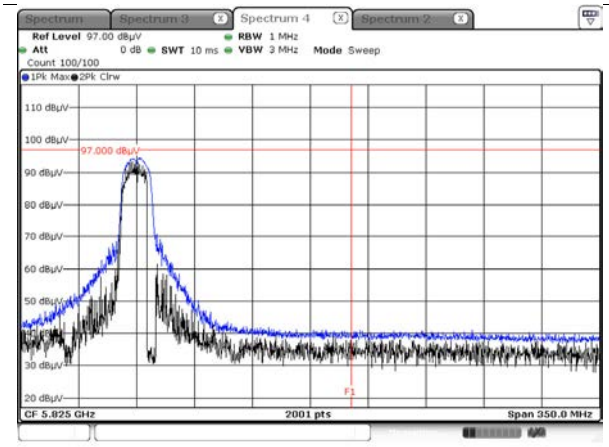
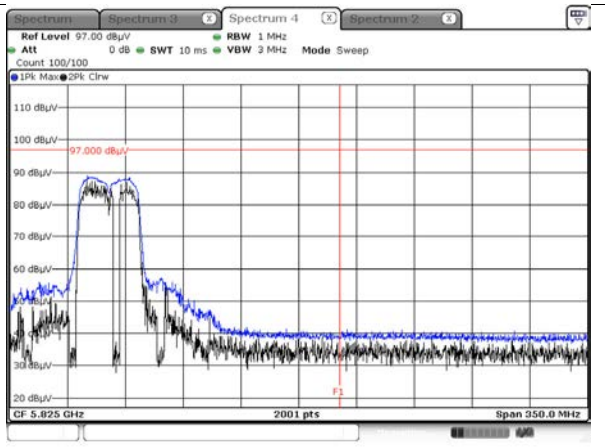
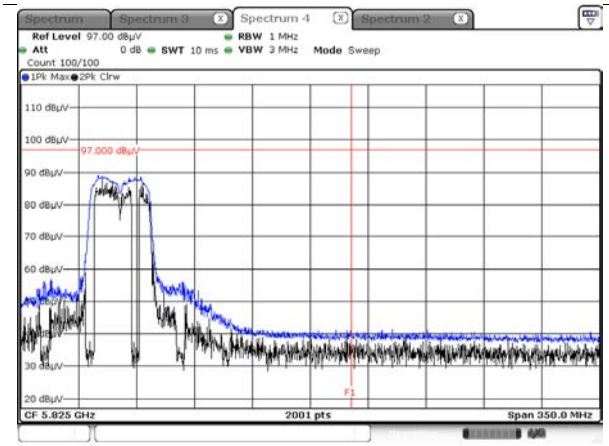
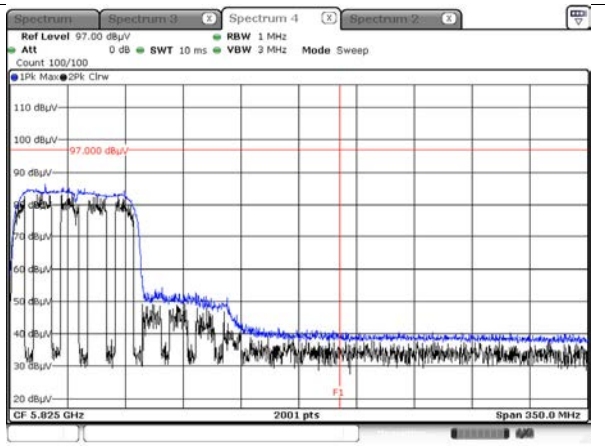
Peak Result (802.11 n_HT40_ MCS0, Ch.62, X-H)



Note:

Only the worst case plots for Radiated Restricted Band Edge.

▣ Test Plots(Straddle Channel)

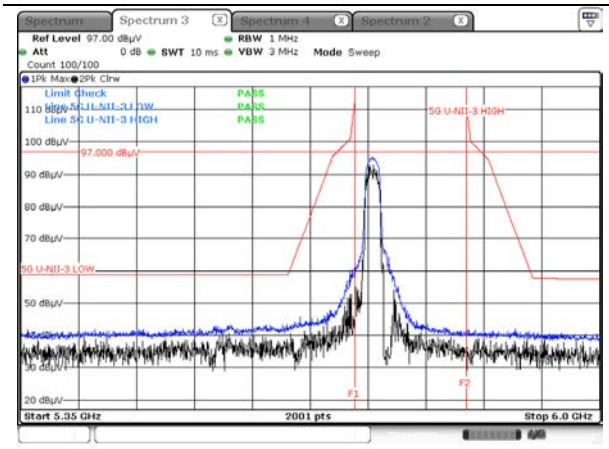
Peak Result (802.11a, Ch.144, Z-H)	Peak Result (802.11n_HT20, Ch.144, Z-H)
	
Peak Result (802.11ac_VHT20, Ch.144, Z-H)	Peak Result (802.11n_HT40, Ch.142, Z-H)
	
Peak Result (802.11ac_VHT40, Ch.142, Z-H)	Peak Result (802.11ac_VHT80, Ch.138, Z-H)
	

Note :

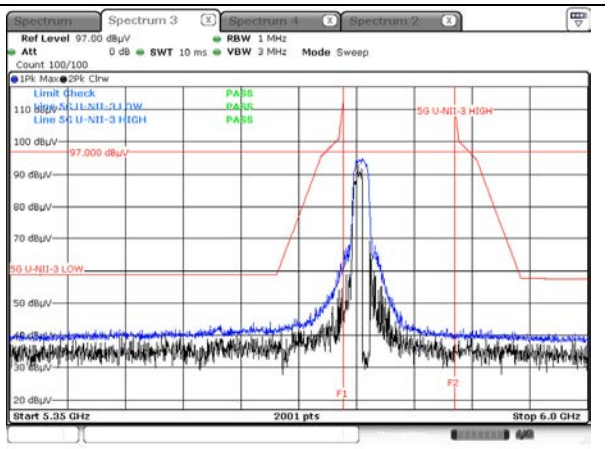
1. Only the worst case plots for Radiated Restricted Band Edge.
2. Red line : 5 850 MHz
3. Ambient Noise (Because of ambient noise, We attached only the worst plot without a data table)

▣ Test Plots(UNII 3)

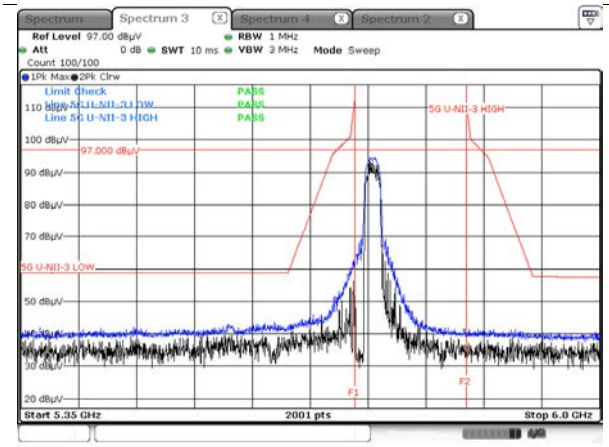
Peak Result (802.11a, Ch.149, X-H)



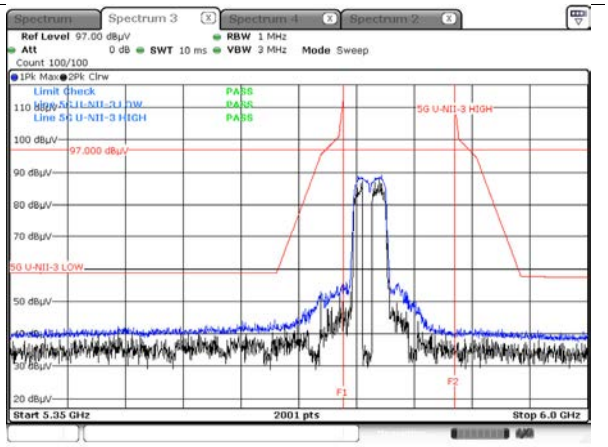
Peak Result (802.11n_HT20, Ch.149, X-H)



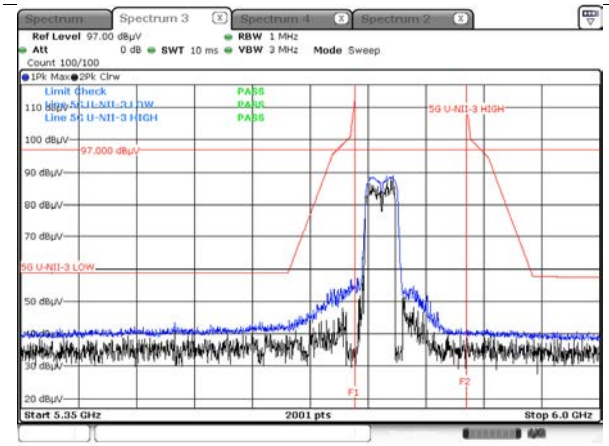
Peak Result (802.11ac_VHT20, Ch.149, X-H)



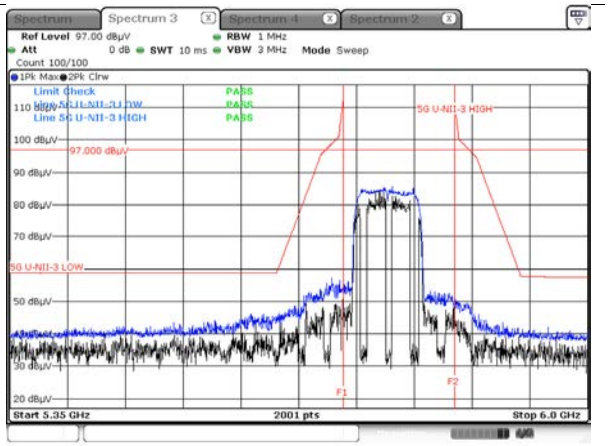
Peak Result (802.11n_HT40, Ch.151, X-H)

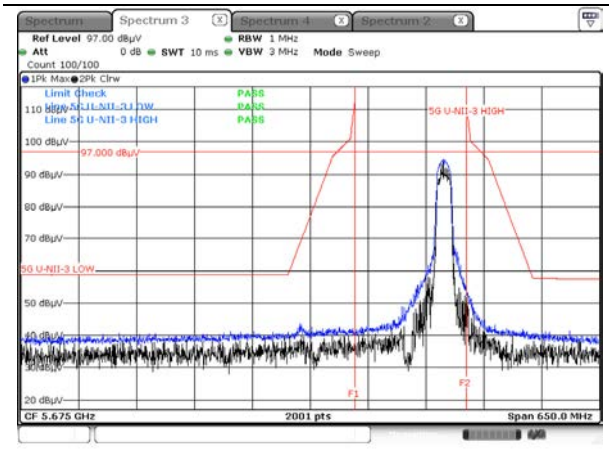
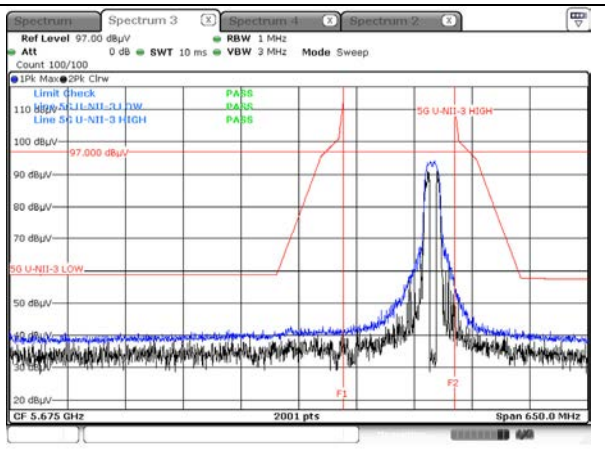
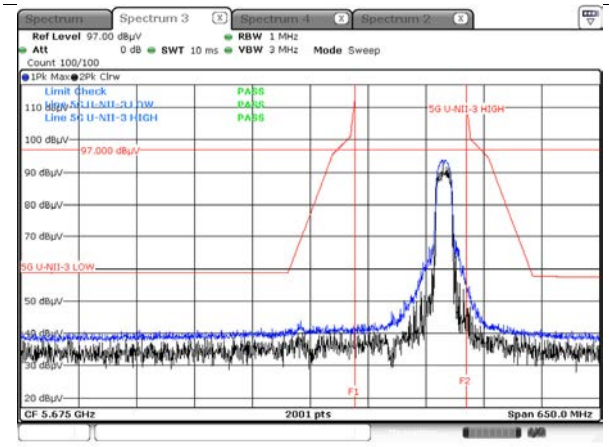
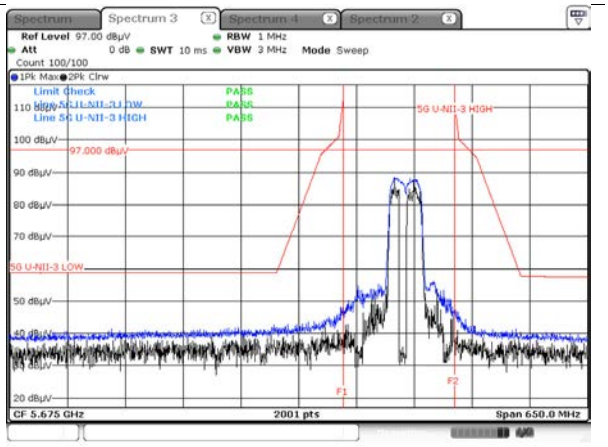
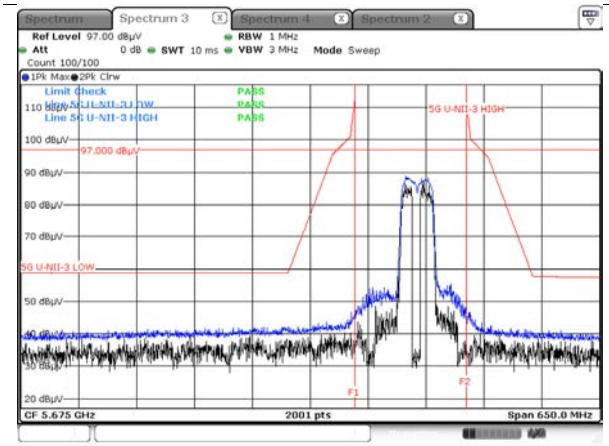
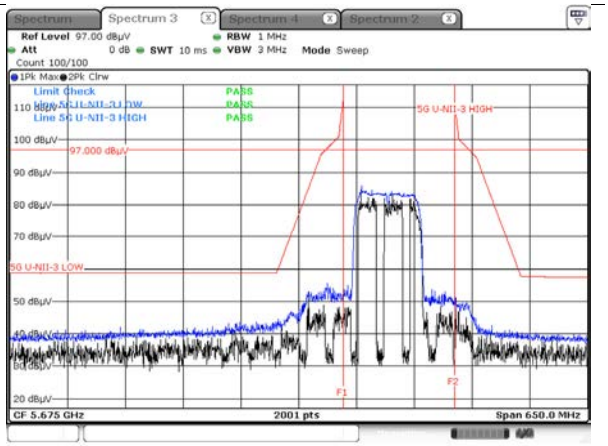


Peak Result (802.11ac_VHT40, Ch.151, X-H)



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



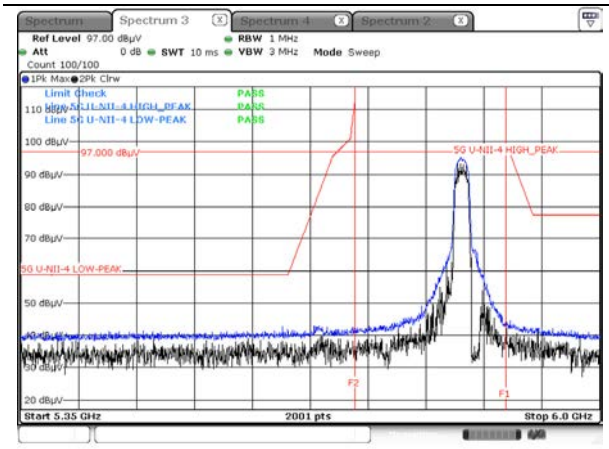
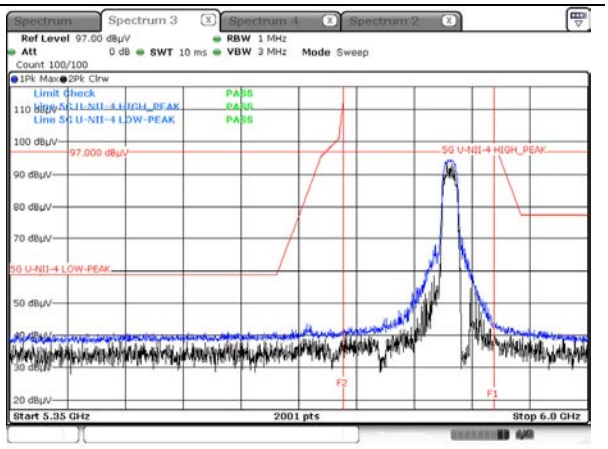
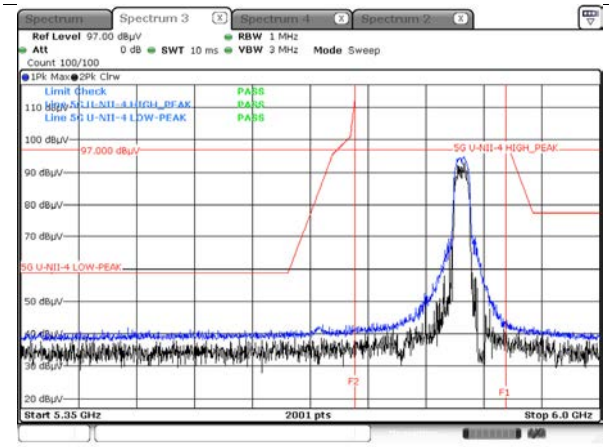
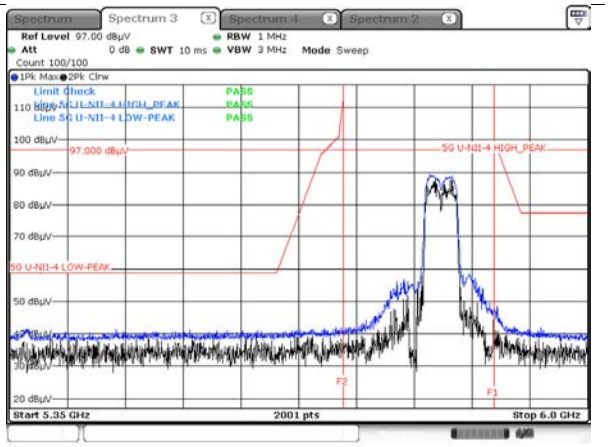
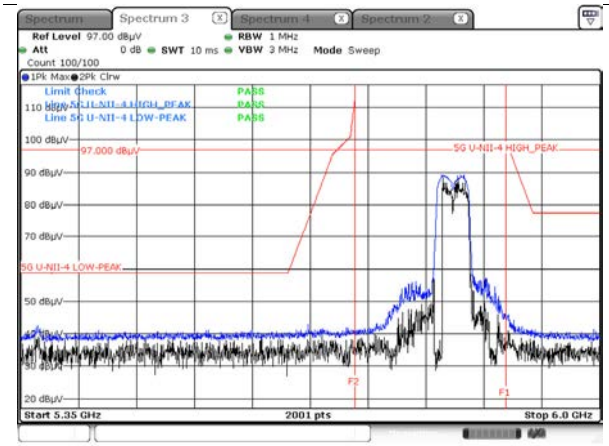
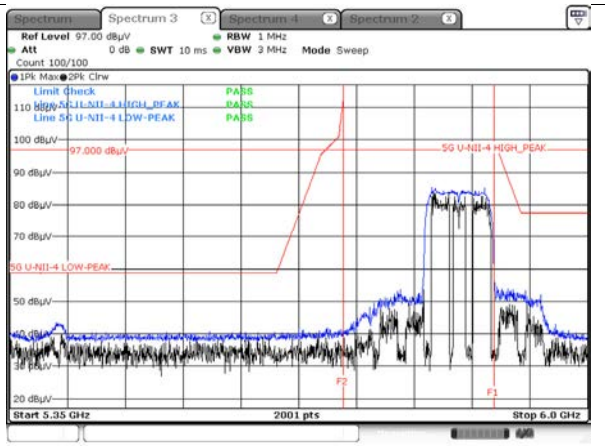
Peak Result (802.11a, Ch.165, Z-H)	Peak Result (802.11n_HT20, Ch.165, Z-H)
	
Peak Result (802.11ac_VHT20, Ch.165, Z-H)	**Peak Result (802.11n_HT40, Ch.159, Z-H)**
	
Peak Result (802.11ac_VHT40, Ch.159, Z-H)	**Peak Result (802.11ac_VHT80, Ch.155, Z-H)**
	

Note :

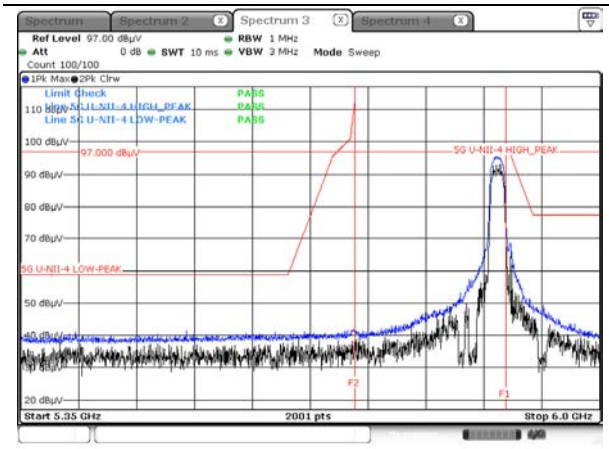
1. Only the worst case plots for U-NII-3 Out of Band e.i.r.p Emission.
2. U-NII-3 Low & High Band Edge RedLine is Final Test Limit about factor value compensation.

▣ Test Plots(UNII 4) – O.O.B.E

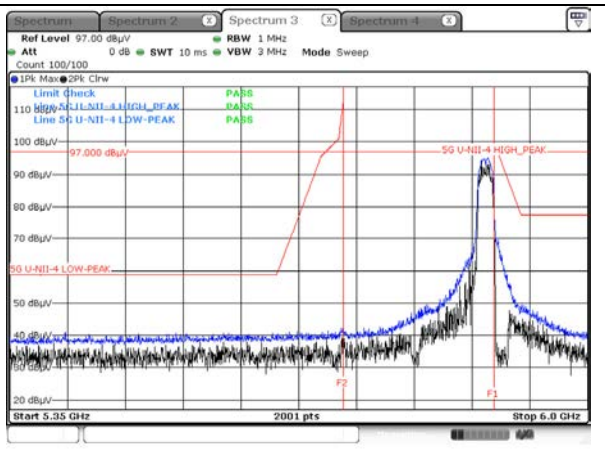
Peak Result

Peak Result (802.11a, Ch.169, Z-H)	Peak Result (802.11n_HT20, Ch.169, Z-H)
	
Peak Result (802.11ac_VHT20, Ch.169, Z-H)	**Peak Result (802.11n_HT40, Ch.167, Z-H)**
	
Peak Result (802.11ac_VHT40, Ch.167, Z-H)	**Peak Result (802.11ac_VHT80, Ch.171, Z-H)**
	

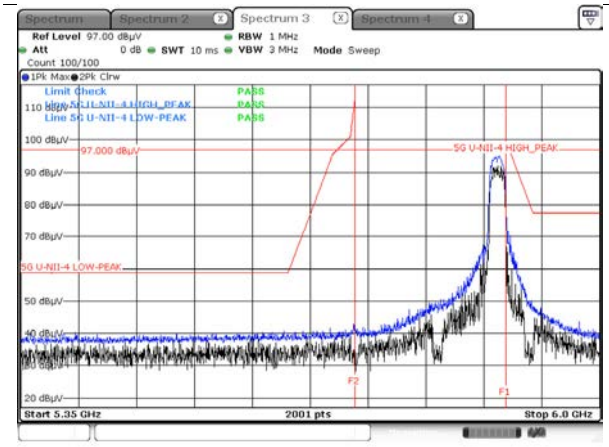
Peak Result (802.11a, Ch.177, Z-H)



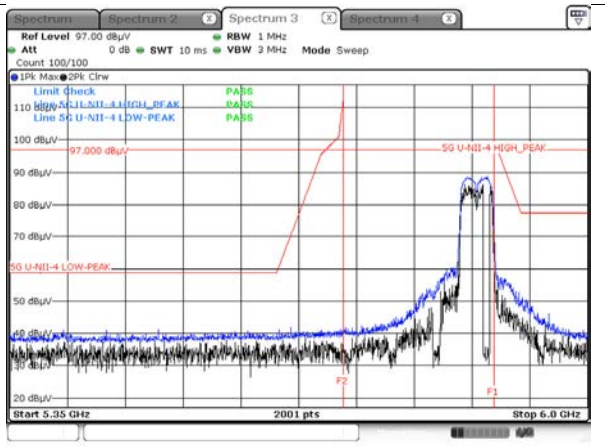
Peak Result (802.11n_HT20, Ch.177, Z-H)



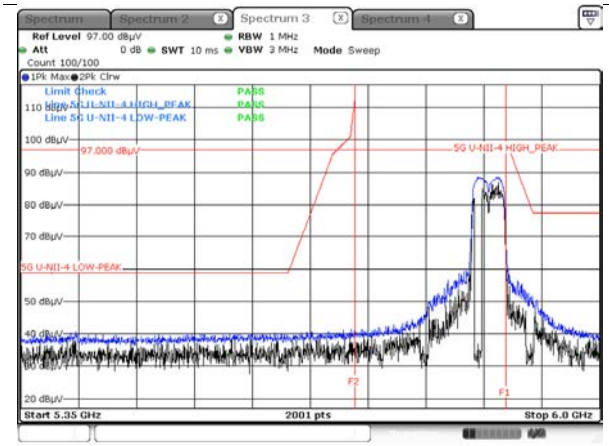
Peak Result (802.11ac_VHT20, Ch.177, Z-H)



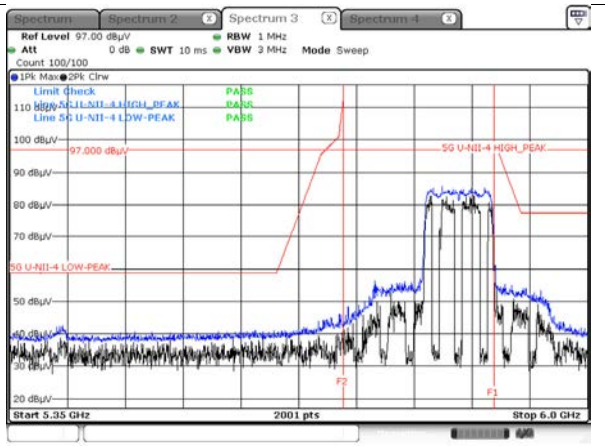
Peak Result (802.11n_HT40, Ch.175, Z-H)



Peak Result (802.11ac_VHT40, Ch.175, Z-H)



Peak Result (802.11ac_VHT80, Ch.171, Z-H)

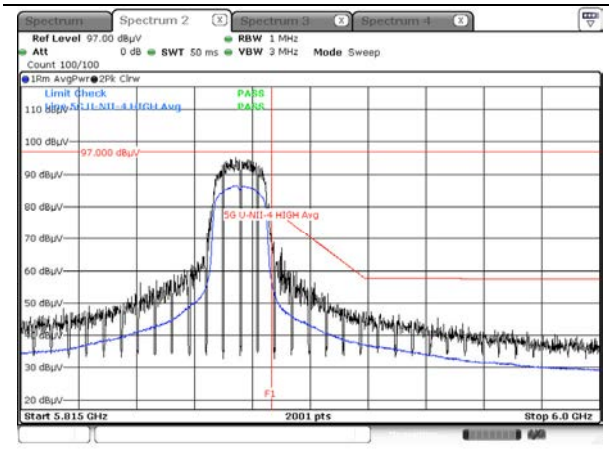


Note :

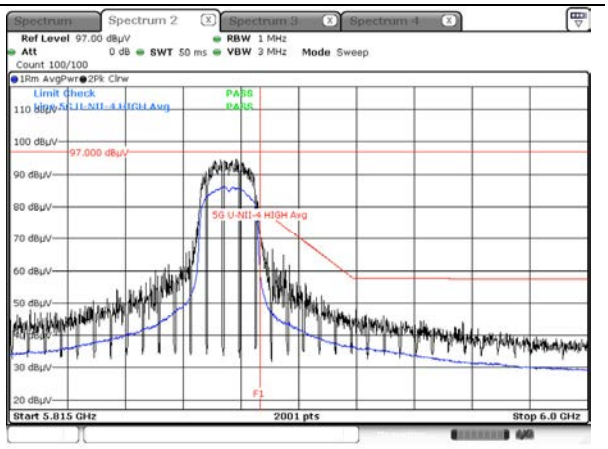
1. Only the worst case plots for U-NII-4 O.O.B.E
2. U-NII-4 Low & High O.O.B.E RedLine is Final Test Limit(Peak) about factor value compensation.

Average Result

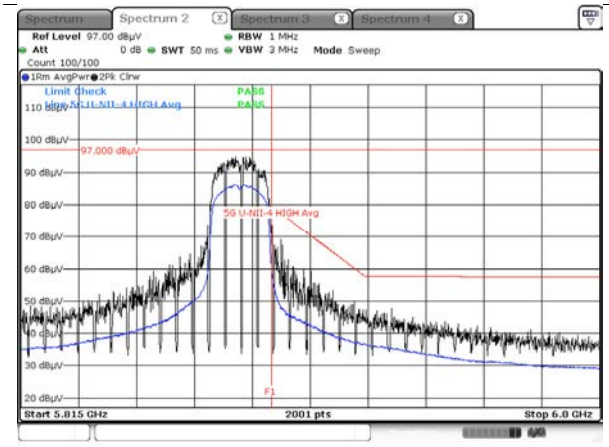
Average Result (802.11a, Ch.177, Z-H)



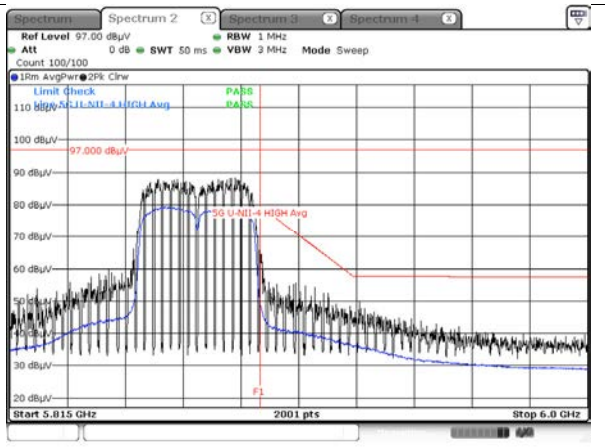
Average Result (802.11n_HT20, Ch.177, Z-H)



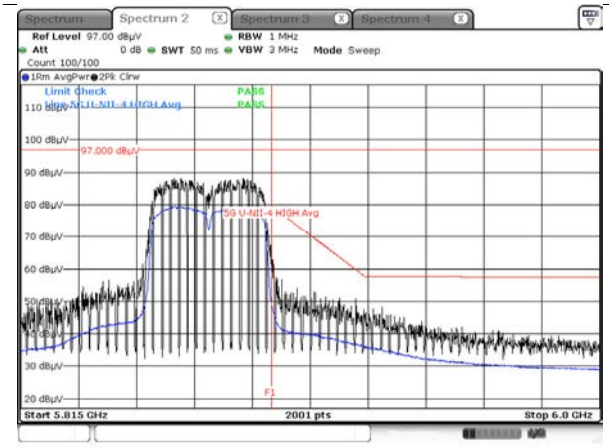
Average Result (802.11ac_VHT20, Ch.177, Z-H)



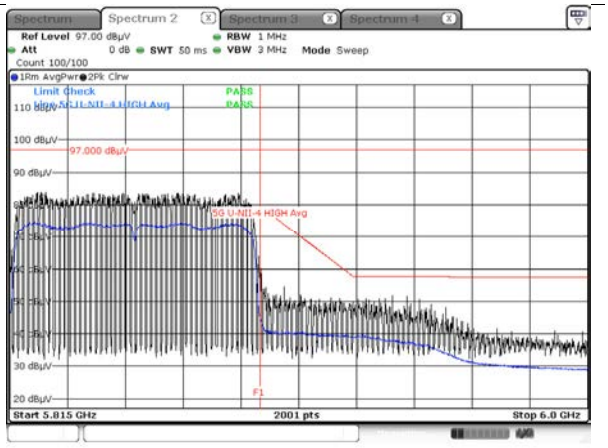
Average Result (802.11n_HT40, Ch.175, Z-H)



Average Result (802.11ac_VHT40, Ch.175, Z-H)



Average Result (802.11ac_VHT80, Ch.171, Z-H)



Note :

1. Only the worst case pl ots for U-NII-4 O.O.B.E
2. U-NII-4 Low & High O.O.B.E RedLine is Final Test Limit(Average) about factor value compensation.

10.10 POWERLINE CONDUCTED EMISSIONS

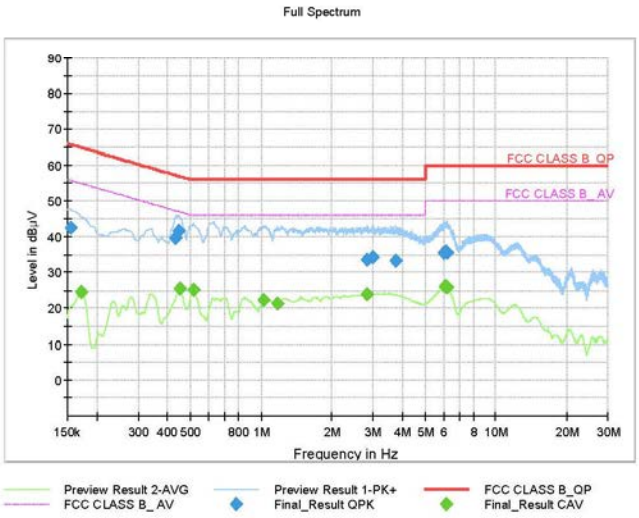
Conducted Emissions

Test 1 / 1

Test Report

Common Information

EUT : SM-A266M/DS
Operating Conditions : 5G WLAN Mode
Comment :



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1545	42.54	65.75	23.22	9.000	N	9.6
0.4335	39.64	57.19	17.55	9.000	L1	9.7
0.4448	41.63	56.97	15.34	9.000	L1	9.7
2.8400	33.69	56.00	22.31	9.000	L1	9.8
2.9953	34.14	56.00	21.86	9.000	L1	9.8
3.7490	33.42	56.00	22.58	9.000	L1	9.8
6.0193	35.52	60.00	24.48	9.000	L1	9.9
6.1228	35.91	60.00	24.09	9.000	L1	9.9
6.2015	35.52	60.00	24.48	9.000	L1	9.9

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1725	24.71	54.84	30.13	9.000	L1	9.6
0.4538	25.63	46.81	21.17	9.000	L1	9.7
0.5158	25.16	46.00	20.84	9.000	L1	9.7
1.0310	22.46	46.00	23.54	9.000	L1	9.7
1.1750	21.43	46.00	24.57	9.000	L1	9.7
2.8175	24.11	46.00	21.89	9.000	L1	9.8
6.0958	26.26	50.00	23.74	9.000	L1	9.9
6.1228	26.25	50.00	23.75	9.000	L1	9.9
6.2038	25.88	50.00	24.12	9.000	L1	9.9

2025-01-03 오후 2:24:00

11. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	07/17/2025	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	07/02/2025	Annual
Temperature Chamber	SU-642	ESPEC	0093008124	02/19/2025	Annual
Signal Analyzer	N9030A	Agilent	MY49432108	02/20/2025	Annual
Power Measurement Set	OSP 120	Rohde & Schwarz	100935	08/01/2025	Annual
Power Meter	N1911A	Agilent	MY45100523	02/28/2025	Annual
Power Sensor	N1921A	Agilent	MY57820067	02/22/2025	Annual
Directional Coupler	87300B	Agilent	3116A03621	10/21/2025	Annual
Power Splitter	11667B	Hewlett Packard	10545	02/06/2025	Annual
DC Power Supply	E3632A	Agilent	KR75303243	04/19/2025	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	07560	06/05/2025	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C	HP	08285	05/28/2025	Annual
Attenuator(20 dB)	18N-20dB	Rohde & Schwarz	8	02/20/2025	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	CO3000	Innco system	CO3000-4p	N/A	N/A
Antenna Position Tower	MA4640/800-XP-EP	Innco system	S1AM	07/30/2025	Annual
Turn Table	DS2000-S-1t	Innco system	DS2000/572/54610422/P	N/A	N/A
Amp & Filter Bank Switch Controller	FBSM-01B	T&M system	TM19050002	N/A	N/A
Loop Antenna	FMZB 1513	Schwarzbeck	1513-175	01/06/2027	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-0895	08/28/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1300	01/03/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-2296	05/16/2026	Biennial
Horn Antenna(15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170342	09/20/2026	Biennial
Spectrum Analyzer	FSV(10 Hz ~ 40 GHz)	Rohde & Schwarz	101055	05/09/2025	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	12/26/2025	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	06/04/2025	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	06/04/2025	Annual
High Pass Filter(7 GHz ~ 18 GHz)	WHKX10-7150-8000-18000-50SS	Wainwright Instruments	1	02/28/2025	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/26/2025	Annual
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	03/19/2025	Annual
RF Switching System	FMSR-05B (HPF(3~18GHz) + LNA1(1~18GHz))	T&M system	S1L1	12/23/2025	Annual
RF Switching System	FMSR -05B (ATT(10dB) + LNA1(1~18GHz))	T&M system	S1L2	12/23/2025	Annual
RF Switching System	FMSR -05B (ATT(3dB) + LNA1(1~18GHz))	T&M system	S1L3	12/23/2025	Annual
RF Switching System	FMSR -05B (LNA1(1~18GHz))	T&M system	S1L4	12/23/2025	Annual
RF Switching System	FMSR -05B (HPF(7~18GHz) + LNA2(6~18GHz))	T&M system	S1L5	12/23/2025	Annual
RF Switching System	FMSR -05B (Thru(30MHz ~ 18GHz))	T&M system	S1L6	12/23/2025	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-2501-FC050-P