

TEST REPORT

FCC UNII Test for SM-A276U
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2604-FC012-R2

DATE OF ISSUE
May 15, 2026

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TEST REPORT

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HCT-RF-2604-FC012-R2

DATE OF ISSUE

May 15, 2026

Additional Model

SM-A276U1, SM-S276V

Applicant

SAMSUNG Electronics Co., Ltd.

129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea

Product Name

Mobile Phone

Model Name

SM-A276U

FCC ID

A3LSMA276U

Date of Test

March 13, 2026 ~ April 23, 2026

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	April 23, 2026	Initial Release
1	April 27, 2026	On page.25, 68 Revised
2	May 15, 2026	Added Straddle channel Output Power Limit on page.49

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).

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1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SM-A276U	
Additional Model	SM-A276U1, SM-S276V	
EUT Type	Mobile Phone	
Power Supply	DC 3.88 V	
Modulation Type	OFDM : 802.11a, 802.11n, 802.11ac	
Frequency Range (MHz)	U-NII-1	20 MHz BW : 5180 - 5240 40 MHz BW : 5190 - 5230 80 MHz BW : 5210
	U-NII-2A	20 MHz BW : 5260 - 5320 40 MHz BW : 5270 - 5310 80 MHz BW : 5290
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 - 5690
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Antenna Information	Please refer to the Antenna Specification document.	
Serial number	Conducted : 9aece164aa127ece	
	Radiated : R3GL30N9K9N	

ANTENNA CONFIGURATIONS [5G Legacy]

1. Antenna configuration

Configurations	SISO		MIMO	
	Ant.1	Ant.2	CDD	SDM
802.11a	O	X	X	X
802.11n	O	X	X	X
802.11ac	O	X	X	X

Note:

- (1) O = Support, X = Not Support
- (2) SISO = Single Input Single Output
- (3) SDM = Spatial Diversity Multiplexing
- (4) CDD = Cyclic Delay Diversity

2. MAXIMUM OUTPUT POWER

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

Band	Mode	Power	
		(dBm)	(W)
UNII1	802.11a	15.38	0.03
	802.11n (HT20)	15.91	0.04
	802.11n (HT40)	15.13	0.03
	802.11ac (VHT20)	15.93	0.04
	802.11ac (VHT40)	15.05	0.03
	802.11ac (VHT80)	12.97	0.02
UNII2A	802.11a	15.09	0.03
	802.11n (HT20)	15.79	0.04
	802.11n (HT40)	15.25	0.03
	802.11ac (VHT20)	15.82	0.04
	802.11ac (VHT40)	15.19	0.03
	802.11ac (VHT80)	13.86	0.02
UNII2C	802.11a	16.23	0.04
	802.11n (HT20)	16.05	0.04
	802.11n (HT40)	15.77	0.04
	802.11ac (VHT20)	16.06	0.04
	802.11ac (VHT40)	15.63	0.04
	802.11ac (VHT80)	14.67	0.03
UNII3	802.11a	16.20	0.04
	802.11n (HT20)	16.12	0.04
	802.11n (HT40)	15.61	0.04
	802.11ac (VHT20)	16.25	0.04
	802.11ac (VHT40)	15.61	0.04
	802.11ac (VHT80)	14.75	0.03

3. TEST METHODOLOGY

Unlicensed wireless device were tested using the following measurement procedure.

[1] KDB 789033 D02 15.407 Meas Guidance v02r01.

[2] ANSI C63.10-2020 + Cor. 1-2023

Note : Here in after, ANSI C63.10-2020 + Cor. 1-2023 will be referred to as ANSI C63.10-2020

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 C63.10-2020 Conducted emissions from the EUT measured in the frequency range between 0.15 MHz and 30 MHz using CISPR Quasi-peak and average detector modes.

Radiated Emissions

According to the requirements in Section 6.3 ~ Section 6.6 of ANSI C63.10-2020

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.

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 ANSI C63.5-2017.

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, Republic of Korea. The site is constructed in conformance with the requirements of ANSI C63.4-2014 and CISPR Publication 22.

Detailed description of test facility was submitted to the Commission and accepted dated February 26, 2026 (Registration Number: KR0032).

5.2 EQUIPMENT

Radiated emissions are measured with one or more of the following types of Linearly polarized antennas: tuned dipole, bi-conical, log periodic, bi-log, and/or ridged waveguide, horn. Spectrum analyzers with pre-selectors and quasi-peak detectors are used to perform radiated measurements. Conducted emissions are measured with Line Impedance Stabilization Networks and EMI Test Receivers. Calibrated wideband preamplifiers, coaxial cables, and coaxial attenuators are also used for making measurements.

All receiving equipment conforms to ANSI/USEMCSC C63.2-2023, "American National Standard for Specifications of Electromagnetic Interference and Field Strength Measuring Instrumentation in the Frequency Range 9 kHz to 40 GHz".

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.”

7. MEASUREMENT UNCERTAINTY

The measurement uncertainties shown below were calculated in accordance with the requirements of ANSI C63.10-2020.

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 ($\pm$ kHz)
X dB, 99% Bandwidth	95 (Confidence level about 95 %, $k=2$)
Frequency stability	28 (Confidence level about 95 %, $k=2$)

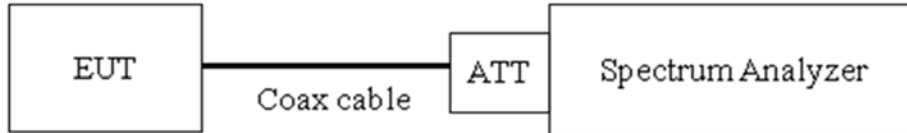
Parameter	Expanded Uncertainty ($\pm$ dB)
Conducted Disturbance (150 kHz ~ 30 MHz)	1.96 (Confidence level about 95 %, $k=2$)
Conducted Output Power(Power Meter)	0.54 (Confidence level about 95 %, $k=2$)
Conducted Output Power(Signal Analyzer)	0.73 (Confidence level about 95 %, $k=2$)
Power Spectral Density	0.98 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (9 kHz ~ 30 MHz)	4.54 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (30 MHz ~ 1 GHz)	5.74 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.80 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.86 (Confidence level about 95 %, $k=2$)
Radiated Disturbance (Above 40 GHz)	5.44 (Confidence level about 95 %, $k=2$)

8. DESCRIPTION OF TESTS

Test Item	Test Procedure
Duty Cycle	- KDB 789033 D02 – Section B.2
6 dB Bandwidth & 26dB Bandwidth	- KDB 789033 D02 - Section C
Output Power	- KDB 789033 D02 - Section E
Power Spectral Density	- KDB 789033 D02 - Section F
Frequency Stability	- ANSI C63.10-2020 - Section 6.8
AC Power line Conducted Emissions	- ANSI C63.10-2020– Section 6.2
Radiated Test	- KDB 789033 D02 – Section II.G - ANSI C63.10-2020 – Section 6.4 (Below 30 MHz) - ANSI C63.10-2020 – Section 6.5 (30 MHz to 1000 MHz) - ANSI C63.10-2020 – Section 6.6 (1 GHz to 40 GHz) - ANSI C63.10-2020 – Section 6.10 & 12.7 (Unwanted emissions)

8.1. Duty Cycle

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

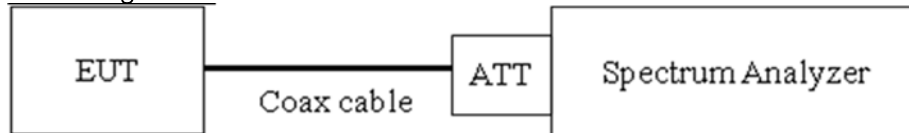
1. RBW = 8 MHz (the largest available value)
2. VBW = 8 MHz ($\geq$ RBW)
3. SPAN = 0 Hz
4. Detector = Average
5. Number of points in sweep > 100
6. Trace mode = Clear write
7. Measure T_{total} and T_{on}
8. Calculate Duty Cycle = $T_{\text{on}} / T_{\text{total}}$ and Duty Cycle Factor = $10\log(1/\text{Duty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

8.2. 6 dB Bandwidth & 26 dB Bandwidth

Limit

Within the 5.725-5.85 GHz(NII-3) 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.

The Spectrum Analyzer is set to

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.

The Spectrum Analyzer is set to

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

Note:

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

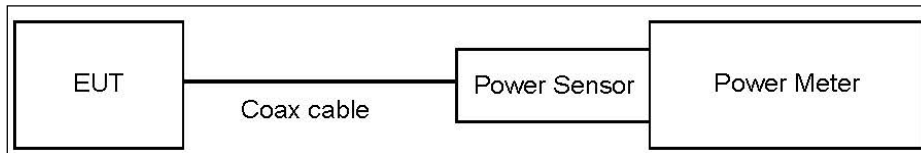
8.3. Output Power Measurement

Limit

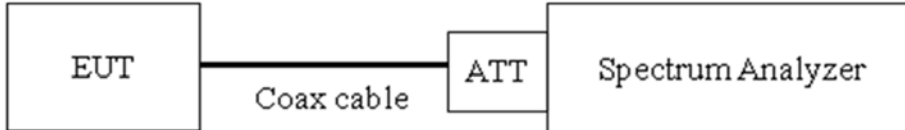
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)

Test Configuration

Power Meter



Spectrum Analyzer(Only Straddle Channel)



Test Procedure(Power Meter)

The transmitter output is connected to the Power Meter.

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)

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

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

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

Sample Calculation

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

Note

1. Spectrum Measured Levels are not plot data.

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

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

Band	Loss(dB)
UNII 1	11.85
UNII 2A	11.85
UNII 2C	11.85
UNII 3	11.85

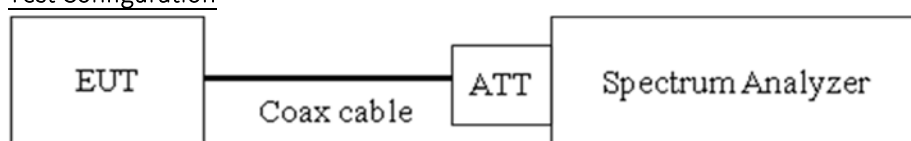
(Actual value of loss for the attenuator and cable combination)

8.4. Power Spectral Density

Limit

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

Test Configuration



Test Procedure

The transmitter output is connected to the Spectrum Analyzer.

The Spectrum Analyzer is set to

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 $\geq$ 3 MHz
4. Number of points in sweep $\geq$ 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	11.85
UNII 2A	11.85
UNII 2C	11.85
UNII 3	11.85

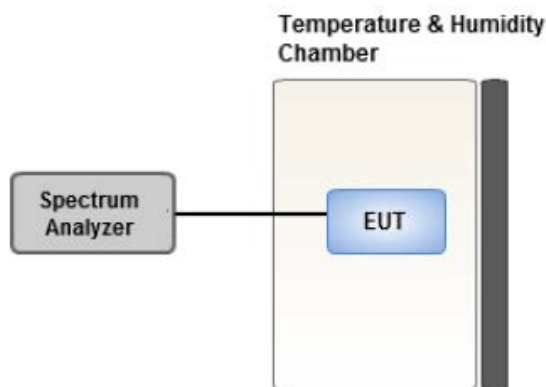
(Actual value of loss for the attenuator and cable combination)

8.5. Frequency Stability

Limit

Maintained within the band

Test Configuration



Test Procedure

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

8.6. AC Power line Conducted Emissions

Limit

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

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

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

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

Test Configuration

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

Test Procedure

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

Sample Calculation

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

8.7. Radiated Test

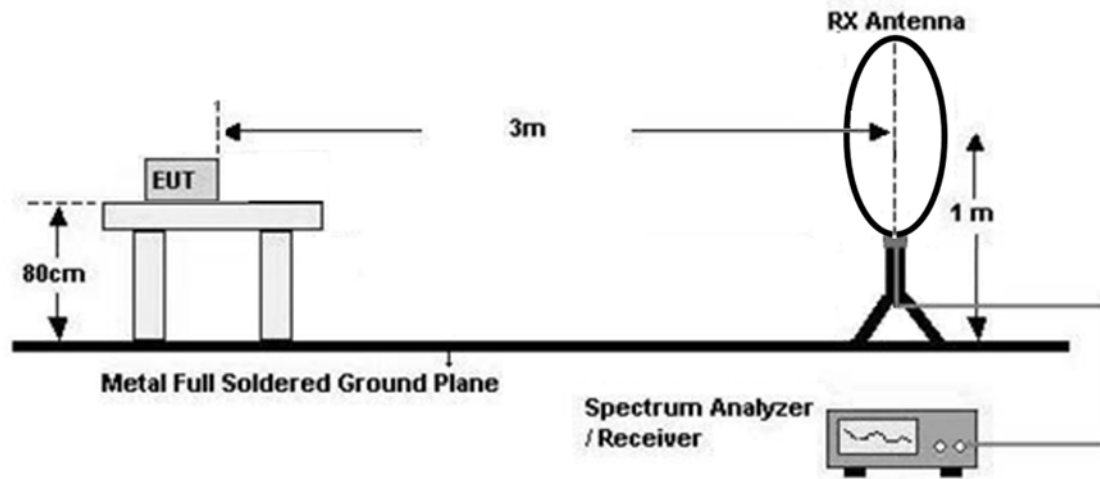
Limit

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

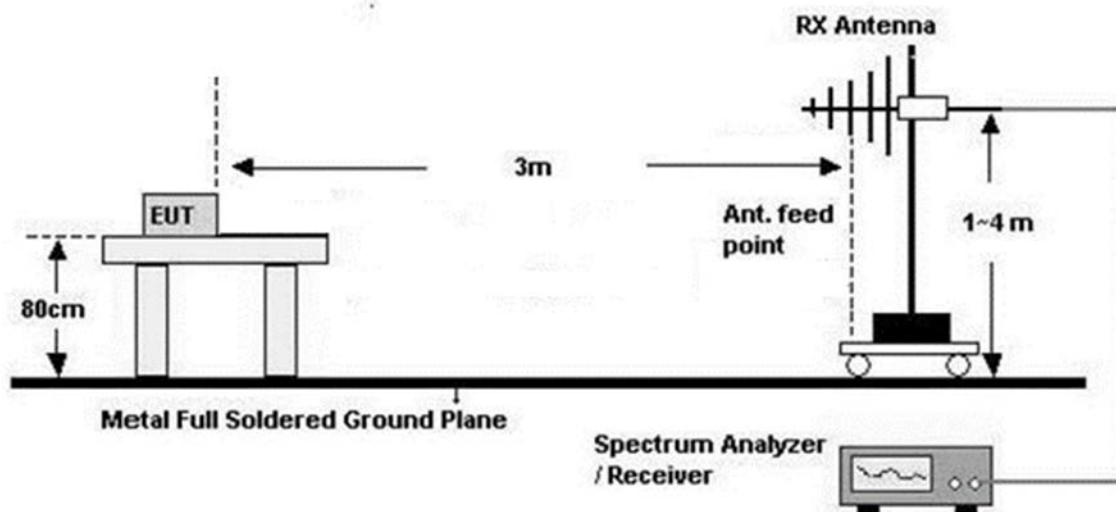
Frequency (MHz)	Field Strength ($\mu\text{V/m}$)	Measurement Distance (m)
0.009 – 0.490	$2400/F(\text{kHz})$	300
0.490 – 1.705	$24000/F(\text{kHz})$	30
1.705 – 30	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

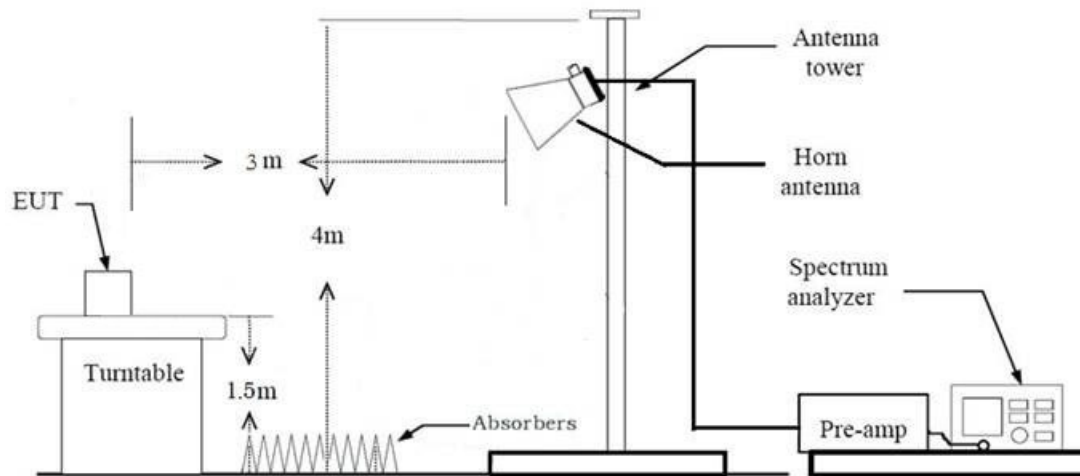
Test Configuration

Below 30 MHz



30 MHz - 1 GHz





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) = $40\log(3\text{ m}/300\text{ m}) = -80\text{ dB}$
Measurement Distance : 3 m
7. Distance Correction Factor(0.490 MHz – 30 MHz) = $40\log(3\text{ m}/30\text{ m}) = -40\text{ dB}$
Measurement Distance : 3 m
8. Spectrum Analyzer Setting
Measurement Type(Peak) :
 - Frequency Range = 9 kHz ~ 30 MHz
 - Detector = Peak
 - Trace = Max Hold
 - RBW = 9 kHz
 - VBW $\geq 3 \times$ RBW
9. Total = Measured Value + Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F)
10. Measurement value only up to 6 maximum emissions noted, or would be lesser if no specific emissions from the EUT are recorded (ie: margin > 20 dB from the applicable limit) and considered that's already beyond the background noise floor.

KDB 414788 OFS and Chamber Correlation Justification

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

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

Test Procedure of Radiated spurious emissions (Below 1 GHz)

1. The EUT was placed on a non-conductive table located on semi-anechoic chamber.
2. The EUT is placed on a turntable, which is 0.8m 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 Analyzer Setting

(1) Measurement Type(Peak) :

- Measured Frequency Range : 30 MHz – 1 GHz
- Detector = Peak
- Trace = Max Hold
- RBW = 100 kHz
- VBW $\geq$ 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. Spectrum Analyzer Setting

(1) Measurement Type (Peak) :

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

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

(2) Measurement Type (Average) :

- RBW = 1 MHz
- VBW(Duty cycle $\geq$ 98 percent) = VBW $\leq$ RBW/100(i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle $<$ 98 percent) = VBW $\geq$ $1/T$, where T is the minimum transmission duration.
- The analyzer is set to linear detector mode.
- Detector = Peak.
- Sweep time = auto.
- Trace mode = Max Hold.
- Allow Max Hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 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.

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
9. Measuring frequencies from 1 GHz to the 10th harmonic of highest fundamental frequency
10. Distance extrapolation factor = $20\log(\text{test distance} / \text{specific distance})$ (dB)
11. 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. Spectrum Analyzer Setting

(1) Measurement Type (Peak) :

- RBW = 1 MHz
 - VBW $\geq$ 3 MHz
 - Detector = Peak
 - Sweep Time = auto
 - Trace mode = Max Hold
 - Allow sweeps to continue until the trace stabilizes.
- Note that if the transmission is not continuous, the time required for the trace to stabilize will increase by a factor of approximately $1/x$, where x is the duty cycle.

(2) Measurement Type (Average) :

- RBW = 1 MHz
- VBW(Duty cycle $\geq$ 98 percent) = $VBW \leq RBW/100$ (i.e., 10 kHz) but not less than 10 Hz.
- VBW(Duty cycle is < 98 percent) = $VBW \geq 1/T$, where T is the minimum transmission duration.
- The analyzer is set to linear detector mode.
- Detector = Peak.
- Sweep time = auto.
- Trace mode = Max Hold.
- Allow Max Hold to run for at least 50 traces if the transmitted signal is continuous or has at least 98 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.

8. 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)

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

10. Total

(1) Measurement(Peak)

= Measured Value(Peak)

(2) Measurement(Avg)

= Measured Value (Avg)

- We apply to the offset in the range 1 GHz - 18 GHz.

- The offset = Antenna Factor(A.F) + Cable Loss(C.L) + Distance Factor(D.F) – Amp. Gain(A.G) + Attenuator (ATT)

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	6M	0.976	0.105	1 000
802.11n(HT20)	MCS0	0.975	0.111	1 000
802.11n(HT40)	MCS0	0.950	0.221	3 000
802.11ac(VHT20)	MCS0	0.973	0.117	1 000
802.11ac(VHT40)	MCS0	0.952	0.212	3 000
802.11ac(VHT80)	MCS0	0.906	0.430	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-A276U, Additional Models were tested and the worst case results are reported.
(Worst case: SM-A276U)

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 Antennas of operation were investigated and the worst case results are reported
 - Antenna Operation Type : SISO
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.
 - 802.11a : 6 Mbps
 - 802.11n_HT20 : MCS0
 - 802.11n_HT40 : MCS0
 - 802.11ac_VHT20 : MCS0
 - 802.11ac_VHT40 : MCS0
 - 802.11ac_VHT80 : MCS0
5. Radiated Spurious Emission
 - All modulations of operation were investigated and the worst case modulation results are reported.
 - Worst-case : 802.11a_6 Mbps
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-A276U, Additional Models were tested and the worst case results are reported.
(Worst case: SM-A276U)

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-A276U, Additional Models were tested and the worst case results are reported.
(Worst case: SM-A276U)

9. SUMMARY OF TEST RESULTS

Test Item	FCC Part Section(s)	Test Limit	Test Condition	Test Result
26 dB Bandwidth	§ 15.407 (for Power Measurement)	N/A	Conducted	PASS
6 dB Bandwidth	§ 15.407(e)	>500 kHz (5725-5850 MHz)(UNII-3)		PASS
Maximum Conducted Output Power	§ 15.407(a)(1),(2),(3)	< 250 mW(5150-5250 MHz) < 250 mW or 11+10log ₁₀ (BW) dBm (5250-5350 MHz) < 250 mW or 11+10log ₁₀ (BW) dBm (5470-5725 MHz) <1 W (5725-5850 MHz)		PASS
Maximum Power Spectral Density	§ 15.407(a)(1),(2),(3)	<11 dBm/ MHz (5150-5250 MHz) <11 dBm/ MHz (5250-5350 MHz) <11 dBm/ MHz (5470-5725 MHz) <30 dBm/500 kHz(5725-5850 MHz)		PASS
Frequency Stability	§ 15.407(g) § 2.1055	Maintained within the band		PASS
AC Conducted Emissions 150 kHz-30 MHz	15.207 15.407(b)(9)	<FCC 15.207 limits		PASS
Undesirable Emissions	§ 15.407(b) (1),(2),(3),(4) § 15.35(b)	<-27 dBm/MHz EIRP (UNII1, 2A, 2C) cf. Section 8.7 (UNII 3)	Radiated	PASS
General Field Strength Limits(Restricted Bands and Radiated Emission Limits)	15.205, 15.407(b)(9),(10)	Emissions in restricted bands must meet the radiated limits detailed in 15.209		PASS

Note:

1. UNII 2A, 2C: TPC mechanism is not required for systems with an e.i.r.p. of less than 500 mW.
2. The decision rule applies 'simple acceptance'

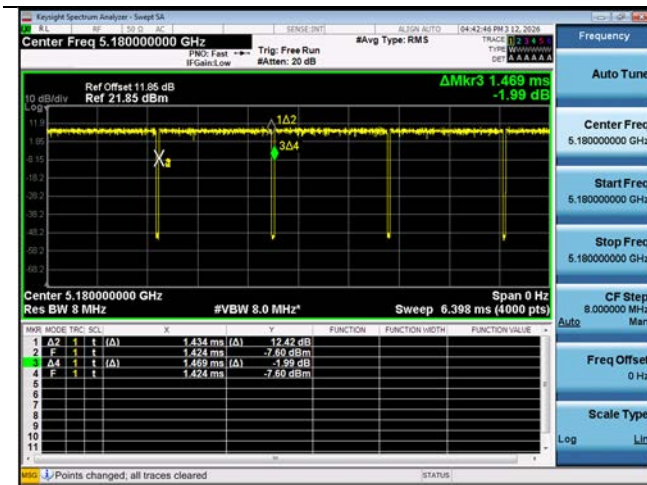
10. TEST RESULT

10.1 DUTY CYCLE

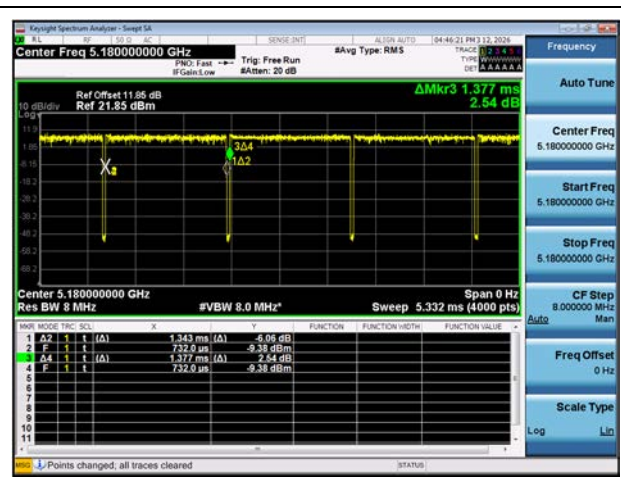
Mode	Data Rate (Mbps)	T _{on} (ms)	T _{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6M	1.434	1.469	0.976	0.105
802.11n(HT20)	MCS0	1.343	1.377	0.975	0.111
802.11n(HT40)	MCS0	0.666	0.700	0.950	0.221
802.11ac(VHT20)	MCS0	1.348	1.385	0.973	0.117
802.11ac(VHT40)	MCS0	0.674	0.708	0.952	0.212
802.11ac(VHT80)	MCS0	0.333	0.368	0.906	0.430

□ Test Plots(DUTY CYCLE)

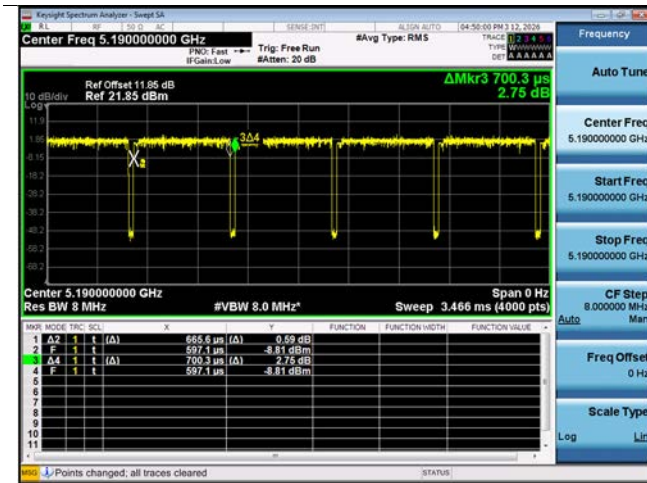
802.11a



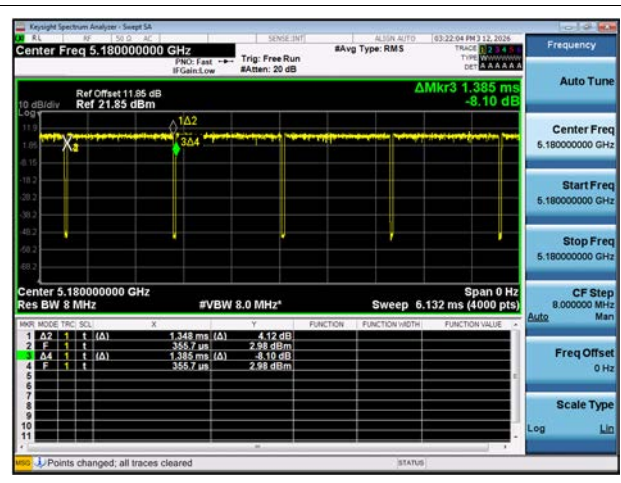
802.11n(HT20)



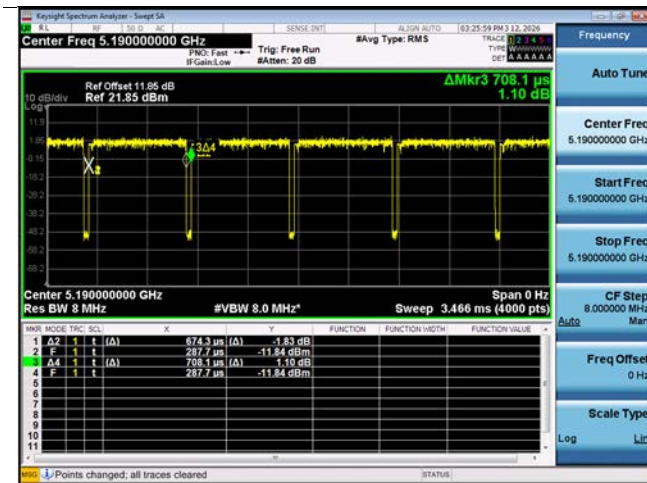
802.11n(HT40)



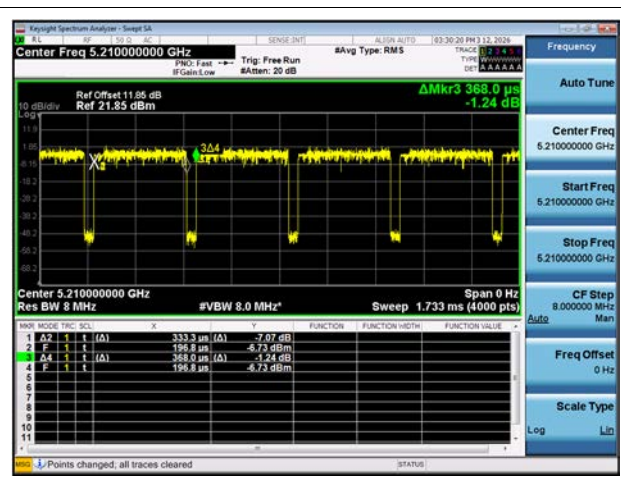
802.11ac(VHT20)



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

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	22.66	16.770
	5200	40	23.16	16.747
	5240	48	23.29	16.746
UNII2A	5260	52	22.84	16.717
	5300	60	22.57	16.729
	5320	64	22.82	16.747
UNII2C	5500	100	22.84	16.769
	5600	120	23.23	16.770
	5720	144	23.62	16.793
UNII3	5745	149	23.28	16.808
	5785	157	23.14	16.772
	5825	165	22.59	16.717

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	24.25	17.861
	5200	40	24.15	17.877
	5240	48	23.48	17.894
UNII2A	5260	52	23.86	17.859
	5300	60	23.87	17.908
	5320	64	24.20	17.888
UNII2C	5500	100	24.34	17.901
	5600	120	23.78	17.909
	5720	144	24.90	17.925
UNII3	5745	149	24.64	17.914
	5785	157	23.72	17.885
	5825	165	24.23	17.881

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	24.50	17.886
	5200	40	24.18	17.880
	5240	48	24.37	17.905
UNII2A	5260	52	23.61	17.862
	5300	60	24.17	17.910
	5320	64	24.25	17.903
UNII2C	5500	100	24.40	17.860
	5600	120	24.17	17.914
	5720	144	23.66	17.931
UNII3	5745	149	24.81	17.944
	5785	157	25.26	17.898
	5825	165	24.10	17.904

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	41.78	36.341
	5230	46	41.93	36.417
UNII2A	5270	54	42.04	36.355
	5310	62	41.61	36.409
UNII2C	5510	102	41.63	36.380
	5590	118	41.17	36.380
	5710	142	41.91	36.389
UNII3	5755	151	41.95	36.405
	5795	159	42.43	36.414

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	41.77	36.415
	5230	46	42.02	36.367
UNII2A	5270	54	42.19	36.388
	5310	62	41.46	36.439
UNII2C	5510	102	41.82	36.424
	5590	118	41.57	36.382
	5710	142	41.61	36.446
UNII3	5755	151	41.20	36.419
	5795	159	41.85	36.403

Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	83.71	75.578
UNII2A	5290	58	83.42	75.756
UNII2C	5530	106	84.04	75.642
	5610	122	84.29	75.499
	5690	138	89.16	76.025
UNII3	5775	155	84.40	75.708

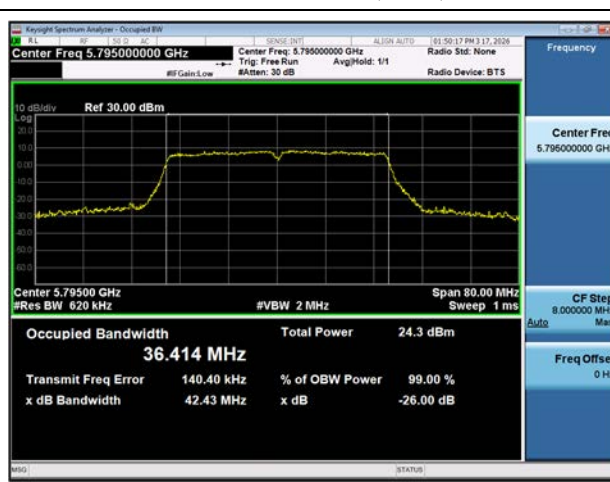
■ Test Plots(26 dB BANDWIDTH)

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

Bandwidth 20M, 802.11ac(VHT20) Ch.157



Bandwidth 40M, 802.11n(HT40) Ch.159



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



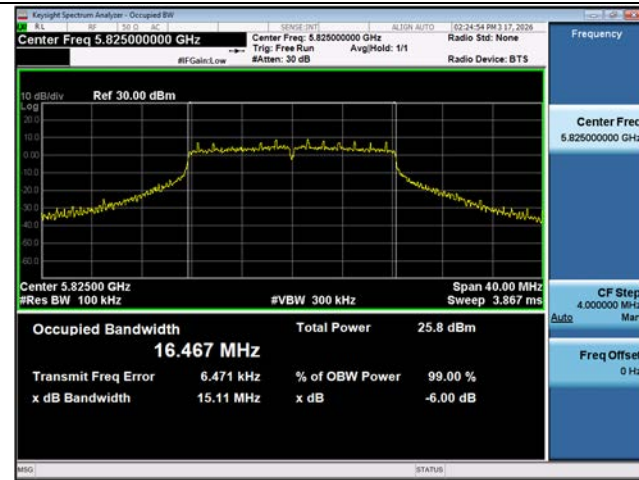
10.3 6 dB BANDWIDTH

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.18	> 0.5
	5785	157	15.16	> 0.5
	5825	165	15.11	> 0.5
Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.18	> 0.5
	5785	157	15.18	> 0.5
	5825	165	16.89	> 0.5
Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	15.72	> 0.5
	5785	157	16.38	> 0.5
	5825	165	15.13	> 0.5
Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	35.81	> 0.5
	5795	159	35.77	> 0.5
Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	35.81	> 0.5
	5795	159	35.77	> 0.5
Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	75.55	> 0.5

Test Plots(6 dB BANDWIDTH)

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

Bandwidth 20M, 802.11a Ch.165



Bandwidth 40M, 802.11ac(VHT40) Ch.159



Bandwidth 80M, 802.11ac(VHT80) Ch.155



10.4 OUTPUT POWER MEASUREMENT

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

Straddle channel data were added in section 10.7

Limit

(UNII 1) : 23.98 dBm

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

(UNII 3) : 30.00 dBm

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

Mode : 802.11a							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Factor [dB]	Total Power [dBm]	Limit [dBm]
UNII1	5180	36	6M	15.10	0.11	15.20	23.98
	5200	40	6M	15.28	0.11	15.38	23.98
	5240	48	6M	14.90	0.11	15.01	23.98
UNII2A	5260	52	6M	14.99	0.11	15.09	23.98
	5300	60	6M	14.91	0.11	15.02	23.98
	5320	64	6M	14.95	0.11	15.06	23.98
UNII2C	5500	100	6M	15.60	0.11	15.71	23.98
	5600	120	6M	16.12	0.11	16.23	23.98
	5720	144	6M	15.97	0.11	16.08	23.98
UNII3	5745	149	6M	15.63	0.11	15.74	30.00
	5785	157	6M	15.76	0.11	15.86	30.00
	5825	165	6M	16.10	0.11	16.20	30.00

Mode : 802.11n(HT20)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Factor [dB]	Total Power [dBm]	Limit [dBm]
UNII1	5180	36	MCS0	15.74	0.11	15.85	23.98
	5200	40	MCS0	15.80	0.11	15.91	23.98
	5240	48	MCS0	15.30	0.11	15.41	23.98
UNII2A	5260	52	MCS0	15.68	0.11	15.79	23.98
	5300	60	MCS0	15.48	0.11	15.59	23.98
	5320	64	MCS0	15.29	0.11	15.40	23.98
UNII2C	5500	100	MCS0	15.44	0.11	15.55	23.98
	5600	120	MCS0	15.94	0.11	16.05	23.98
	5720	144	MCS0	15.81	0.11	15.92	23.98
UNII3	5745	149	MCS0	15.49	0.11	15.60	30.00
	5785	157	MCS0	15.61	0.11	15.72	30.00
	5825	165	MCS0	16.01	0.11	16.12	30.00

Mode : 802.11ac(VHT20)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Factor [dB]	Total Power [dBm]	Limit [dBm]
UNII1	5180	36	MCS0	15.70	0.12	15.82	23.98
	5200	40	MCS0	15.81	0.12	15.93	23.98
	5240	48	MCS0	15.29	0.12	15.41	23.98
UNII2A	5260	52	MCS0	15.70	0.12	15.82	23.98
	5300	60	MCS0	15.51	0.12	15.63	23.98
	5320	64	MCS0	15.31	0.12	15.43	23.98
UNII2C	5500	100	MCS0	15.51	0.12	15.63	23.98
	5600	120	MCS0	15.94	0.12	16.06	23.98
	5720	144	MCS0	15.86	0.12	15.98	23.98
UNII3	5745	149	MCS0	15.50	0.12	15.61	30.00
	5785	157	MCS0	15.67	0.12	15.79	30.00
	5825	165	MCS0	16.13	0.12	16.25	30.00

Mode : 802.11n(HT40)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Factor [dB]	Total Power [dBm]	Limit [dBm]
UNII1	5190	38	MCS0	14.57	0.22	14.79	23.98
	5230	46	MCS0	14.90	0.22	15.13	23.98
UNII2A	5270	54	MCS0	15.03	0.22	15.25	23.98
	5310	62	MCS0	14.52	0.22	14.74	23.98
UNII2C	5510	102	MCS0	15.01	0.22	15.23	23.98
	5590	118	MCS0	15.28	0.22	15.51	23.98
	5710	142	MCS0	15.55	0.22	15.77	23.98
UNII3	5755	151	MCS0	15.23	0.22	15.45	30.00
	5795	159	MCS0	15.39	0.22	15.61	30.00

Mode : 802.11ac(VHT40)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Factor [dB]	Total Power [dBm]	Limit [dBm]
UNII1	5190	38	MCS0	14.47	0.21	14.69	23.98
	5230	46	MCS0	14.83	0.21	15.05	23.98
UNII2A	5270	54	MCS0	14.98	0.21	15.19	23.98
	5310	62	MCS0	14.57	0.21	14.78	23.98
UNII2C	5510	102	MCS0	14.96	0.21	15.17	23.98
	5590	118	MCS0	15.24	0.21	15.45	23.98
	5710	142	MCS0	15.42	0.21	15.63	23.98
UNII3	5755	151	MCS0	15.40	0.21	15.61	30.00
	5795	159	MCS0	15.38	0.21	15.59	30.00

Mode : 802.11ac(VHT80)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured Power [dBm]	Duty cycle Factor [dB]	Total Power [dBm]	Limit [dBm]
UNII1	5210	42	MCS0	12.54	0.43	12.97	23.98
UNII2A	5290	58	MCS0	13.43	0.43	13.86	23.98
UNII2C	5530	106	MCS0	13.62	0.43	14.05	23.98
	5610	122	MCS0	14.24	0.43	14.67	23.98
	5690	138	MCS0	14.20	0.43	14.63	23.98
UNII3	5775	155	MCS0	14.32	0.43	14.75	30.00

10.5 POWER SPECTRAL DENSITY

Note :

1. UNII3 Measured PSD, Total PSD Unit : [dBm/500kHz]

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

Mode : 802.11a							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz] Note.1	Duty cycle Factor [dB]	Total PSD [dBm/MHz] Note.1	Limit [dBm/MHz]
UNII1	5180	36	6M	5.279	0.105	5.384	11
	5200	40	6M	5.316	0.105	5.421	11
	5240	48	6M	4.736	0.105	4.841	11
UNII2A	5260	52	6M	5.185	0.105	5.290	11
	5300	60	6M	5.098	0.105	5.203	11
	5320	64	6M	4.887	0.105	4.992	11
UNII2C	5500	100	6M	4.488	0.105	4.593	11
	5600	120	6M	5.240	0.105	5.345	11
	5720	144	6M	5.343	0.105	5.448	11
UNII3	5745	149	6M	2.322	0.105	2.427	30 dBm/500kHz
	5785	157	6M	2.642	0.105	2.747	30 dBm/500kHz
	5825	165	6M	3.101	0.105	3.206	30 dBm/500kHz

Mode : 802.11n(HT20)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz] Note.1	Duty cycle Factor [dB]	Total PSD [dBm/MHz] Note.1	Limit [dBm/MHz]
UNII1	5180	36	MCS0	4.893	0.111	5.004	11
	5200	40	MCS0	4.950	0.111	5.061	11
	5240	48	MCS0	4.403	0.111	4.514	11
UNII2A	5260	52	MCS0	4.759	0.111	4.870	11
	5300	60	MCS0	4.728	0.111	4.839	11
	5320	64	MCS0	4.418	0.111	4.529	11
UNII2C	5500	100	MCS0	4.231	0.111	4.342	11
	5600	120	MCS0	4.960	0.111	5.071	11
	5720	144	MCS0	4.993	0.111	5.104	11
UNII3	5745	149	MCS0	2.033	0.111	2.144	30 dBm/500kHz
	5785	157	MCS0	2.148	0.111	2.259	30 dBm/500kHz
	5825	165	MCS0	2.683	0.111	2.794	30 dBm/500kHz

Mode : 802.11ac(VHT20)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz] Note.1	Duty cycle Factor [dB]	Total PSD [dBm/MHz] Note.1	Limit [dBm/MHz]
UNII1	5180	36	MCS0	4.826	0.117	4.943	11
	5200	40	MCS0	4.905	0.117	5.022	11
	5240	48	MCS0	4.352	0.117	4.469	11
UNII2A	5260	52	MCS0	4.778	0.117	4.895	11
	5300	60	MCS0	4.584	0.117	4.701	11
	5320	64	MCS0	4.406	0.117	4.523	11
UNII2C	5500	100	MCS0	4.067	0.117	4.184	11
	5600	120	MCS0	4.852	0.117	4.969	11
	5720	144	MCS0	5.120	0.117	5.237	11
UNII3	5745	149	MCS0	1.919	0.117	2.036	30 dBm/500kHz
	5785	157	MCS0	2.150	0.117	2.267	30 dBm/500kHz
	5825	165	MCS0	2.588	0.117	2.705	30 dBm/500kHz

Mode : 802.11n(HT40)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz] Note.1	Duty cycle Factor [dB]	Total PSD [dBm/MHz] Note.1	Limit [dBm/MHz]
UNII1	5190	38	MCS0	0.183	0.221	0.404	11
	5230	46	MCS0	0.989	0.221	1.210	11
UNII2A	5270	54	MCS0	1.177	0.221	1.398	11
	5310	62	MCS0	0.660	0.221	0.881	11
UNII2C	5510	102	MCS0	1.014	0.221	1.235	11
	5590	118	MCS0	1.331	0.221	1.552	11
	5710	142	MCS0	1.712	0.221	1.933	11
UNII3	5755	151	MCS0	-1.157	0.221	-0.936	30 dBm/500kHz
	5795	159	MCS0	-0.969	0.221	-0.748	30 dBm/500kHz

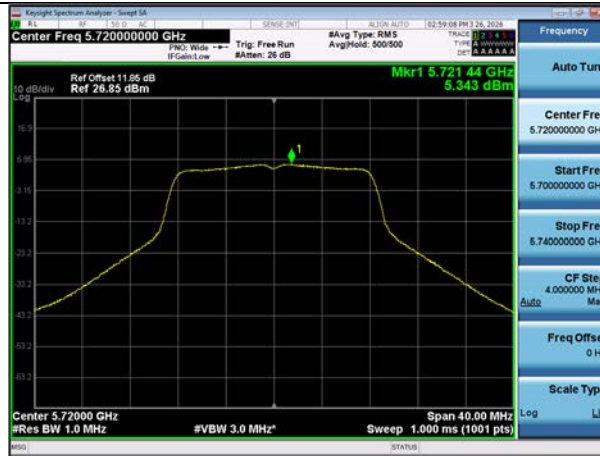
Mode : 802.11ac(VHT40)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz] Note.1	Duty cycle Factor [dB]	Total PSD [dBm/MHz] Note.1	Limit [dBm/MHz]
UNII1	5190	38	MCS0	0.190	0.212	0.402	11
	5230	46	MCS0	1.015	0.212	1.227	11
UNII2A	5270	54	MCS0	1.210	0.212	1.422	11
	5310	62	MCS0	0.645	0.212	0.857	11
UNII2C	5510	102	MCS0	1.018	0.212	1.230	11
	5590	118	MCS0	1.263	0.212	1.475	11
	5710	142	MCS0	1.789	0.212	2.001	11
UNII3	5755	151	MCS0	-1.280	0.212	-1.068	30 dBm/500kHz
	5795	159	MCS0	-1.265	0.212	-1.053	30 dBm/500kHz

Mode : 802.11ac(VHT80)							
Band	Freq. [MHz]	CH.	Worstcase Datarate	Measured PSD [dBm/MHz] Note.1	Duty cycle Factor [dB]	Total PSD [dBm/MHz] Note.1	Limit [dBm/MHz]
UNII1	5210	42	MCS0	-5.107	0.430	-4.677	11
UNII2A	5290	58	MCS0	-3.549	0.430	-3.119	11
UNII2C	5530	106	MCS0	-3.465	0.430	-3.035	11
	5610	122	MCS0	-2.879	0.430	-2.449	11
	5690	138	MCS0	-2.690	0.430	-2.260	11
UNII3	5775	155	MCS0	-5.480	0.430	-5.050	30 dBm/500kHz

■ Test Plots(POWER SPECTRAL DENSITY)

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

Bandwidth 20M, 802.11a (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.

10.6.1 802.11ac 80 MHz BW

REFERENCE VOLTAGE: 3.88 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 %	3.88	+20(Ref)	5210022.38	22.38	5290027.30	27.30	5530020.98	20.98
100 %		-30	5210010.50	10.50	5290010.13	10.13	5530011.07	11.07
100 %		-20	5210013.67	13.67	5290011.22	11.22	5530013.18	13.18
100 %		-10	5210010.61	10.61	5290018.56	18.56	5530011.59	11.59
100 %		0	5210024.10	24.10	5290021.24	21.24	5530023.53	23.53
100 %		+10	5210036.97	36.97	5290036.79	36.79	5530035.33	35.33
100 %		+30	5210043.96	43.96	5290048.66	48.66	5530040.41	40.41
100 %		+40	5210040.69	40.69	5290043.88	43.88	5530044.99	44.99
100 %		+50	5210054.73	54.73	5290050.12	50.12	5530058.63	58.63
High	4.47	+20	5210052.04	52.04	5290056.38	56.38	5530054.62	54.62
End Point	3.30	+20	5210059.35	59.35	5290052.80	52.80	5530055.94	55.94

OPERATING BAND:			UNII Band 3	
OPERATING FREQUENCY:			5,775,000,000 Hz	
CHANNEL:			155	
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100 %	3.88	+20(Ref)	5775023.96	23.96
100 %		-30	5775014.75	14.75
100 %		-20	5775012.89	12.89
100 %		-10	5775017.02	17.02
100 %		0	5775026.15	26.15
100 %		+10	5775031.14	31.14
100 %		+30	5775041.50	41.50
100 %		+40	5775043.50	43.50
100 %		+50	5775057.94	57.94
High	4.47	+20	5775056.30	56.30
End Point	3.30	+20	5775053.15	53.15

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 %	3.88	+20(Ref)	5210026.86	26.86	5290028.85	28.85	5530021.02	21.02
100 %		-30	5210007.61	7.61	5290011.40	11.40	5530012.81	12.81
100 %		-20	5210014.83	14.83	5290010.29	10.29	5530013.46	13.46
100 %		-10	5210018.75	18.75	5290019.78	19.78	5530013.19	13.19
100 %		0	5210026.53	26.53	5290027.83	27.83	5530023.50	23.50
100 %		+10	5210038.12	38.12	5290030.67	30.67	5530037.59	37.59
100 %		+30	5210048.06	48.06	5290041.95	41.95	5530045.23	45.23
100 %		+40	5210042.83	42.83	5290045.53	45.53	5530048.55	48.55
100 %		+50	5210059.03	59.03	5290054.67	54.67	5530053.73	53.73
High	4.47	+20	5210058.97	58.97	5290052.15	52.15	5530057.15	57.15
End Point	3.30	+20	5210050.73	50.73	5290056.39	56.39	5530052.46	52.46

OPERATING BAND:			UNII Band 3	
OPERATING FREQUENCY:			5,775,000,000 Hz	
CHANNEL:			155	
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100 %	3.88	+20(Ref)	5775027.07	27.07
100 %		-30	5775008.98	8.98
100 %		-20	5775011.77	11.77
100 %		-10	5775017.55	17.55
100 %		0	5775026.86	26.86
100 %		+10	5775038.67	38.67
100 %		+30	5775047.62	47.62
100 %		+40	5775040.70	40.70
100 %		+50	5775053.25	53.25
High	4.47	+20	5775050.34	50.34
End Point	3.30	+20	5775052.49	52.49

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 %	3.88	+20(Ref)	5210028.93	28.93	5290025.42	25.42	5530021.08	21.08
100 %		-30	5210005.05	5.05	5290005.63	5.63	5530009.60	9.60
100 %		-20	5210011.67	11.67	5290010.83	10.83	5530011.59	11.59
100 %		-10	5210012.48	12.48	5290013.53	13.53	5530019.93	19.93
100 %		0	5210023.68	23.68	5290028.75	28.75	5530028.02	28.02
100 %		+10	5210035.11	35.11	5290030.96	30.96	5530036.73	36.73
100 %		+30	5210047.66	47.66	5290043.19	43.19	5530046.86	46.86
100 %		+40	5210049.62	49.62	5290041.79	41.79	5530047.70	47.70
100 %		+50	5210054.65	54.65	5290053.78	53.78	5530051.09	51.09
High	4.47	+20	5210057.12	57.12	5290058.72	58.72	5530058.74	58.74
End Point	3.30	+20	5210051.78	51.78	5290058.03	58.03	5530059.35	59.35

OPERATING BAND:			UNII Band 3	
OPERATING FREQUENCY:			5,775,000,000 Hz	
CHANNEL:			155	
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100 %	3.88	+20(Ref)	5775025.30	25.30
100 %		-30	5775008.56	8.56
100 %		-20	5775014.86	14.86
100 %		-10	5775019.85	19.85
100 %		0	5775026.01	26.01
100 %		+10	5775033.15	33.15
100 %		+30	5775044.07	44.07
100 %		+40	5775046.84	46.84
100 %		+50	5775055.05	55.05
High	4.47	+20	5775053.82	53.82
End Point	3.30	+20	5775050.86	50.86

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 %	3.88	+20(Ref)	5210022.84	22.84	5290028.81	28.81	5530020.84	20.84
100 %		-30	5210010.61	10.61	5290012.81	12.81	5530012.44	12.44
100 %		-20	5210013.87	13.87	5290011.85	11.85	5530013.82	13.82
100 %		-10	5210010.31	10.31	5290016.17	16.17	5530015.50	15.50
100 %		0	5210022.61	22.61	5290026.05	26.05	5530025.82	25.82
100 %		+10	5210037.02	37.02	5290037.09	37.09	5530034.36	34.36
100 %		+30	5210046.07	46.07	5290044.92	44.92	5530040.09	40.09
100 %		+40	5210049.49	49.49	5290043.16	43.16	5530041.35	41.35
100 %		+50	5210051.56	51.56	5290057.81	57.81	5530058.77	58.77
High	4.47	+20	5210057.58	57.58	5290059.45	59.45	5530057.53	57.53
End Point	3.30	+20	5210051.56	51.56	5290056.17	56.17	5530055.80	55.80

OPERATING BAND:			UNII Band 3	
OPERATING FREQUENCY:			5,775,000,000 Hz	
CHANNEL:			155	
Voltage	Power	Temp.	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)
100 %	3.88	+20(Ref)	5775022.70	22.70
100 %		-30	5775013.76	13.76
100 %		-20	5775011.13	11.13
100 %		-10	5775010.54	10.54
100 %		0	5775023.24	23.24
100 %		+10	5775032.20	32.20
100 %		+30	5775041.30	41.30
100 %		+40	5775040.38	40.38
100 %		+50	5775053.47	53.47
High	4.47	+20	5775052.20	52.20
End Point	3.30	+20	5775059.42	59.42

10.7 STRADDLE CHANNEL

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

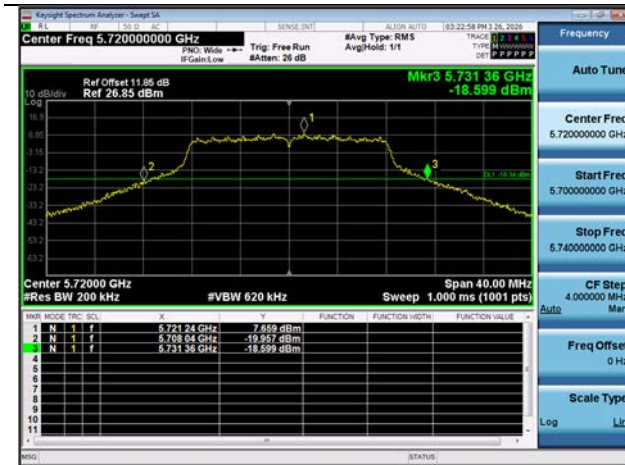
Mode	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Output Power Limit [dBm]	Total PSD [dBm]
802.11a	UNII2C	5720	144	16.96	-	15.33	23.29	5.638
802.11n(HT20)				16.68	-	15.07	23.22	5.091
802.11ac(VHT20)				16.92	-	15.06	23.28	5.234
802.11a	UNII3	5720	144	6.36	2.92	8.70	30.00	1.377
802.11n(HT20)				7.36	3.16	9.04	30.00	1.024
802.11ac(VHT20)				6.96	3.16	9.00	30.00	1.074

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Output Power Limit [dBm]	Total PSD [dBm]
802.11n(HT40)	UNII2C	5710	142	35.72	-	15.28	23.98	1.808
802.11ac(VHT40)				35.56	-	15.28	23.98	1.146
802.11n(HT40)	UNII3	5710	142	6.20	3.24	4.62	30.00	-2.476
802.11ac(VHT40)				5.80	2.92	4.92	30.00	-3.282

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Output Power Limit [dBm]	Total PSD [dBm]
802.11ac(VHT80)	UNII2C	5690	138	76.60	-	14.60	23.98	-2.188
802.11ac(VHT80)	UNII3	5690	138	7.88	2.76	1.23	30.00	-6.202

Test Plots(UNII 2C Band 26 dB Bandwidth)

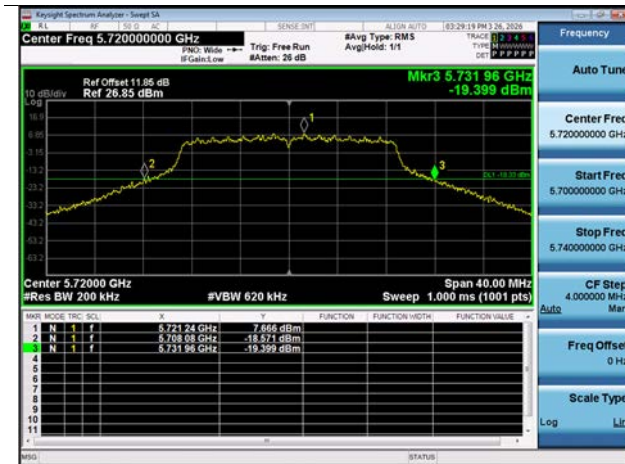
802.11a UNII Band



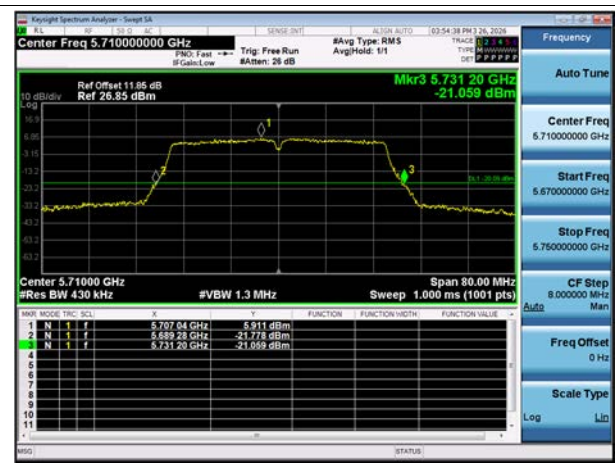
802.11n(HT20) UNII Band



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)

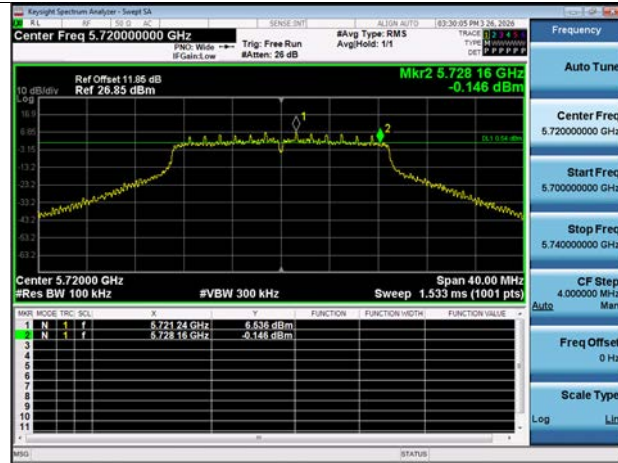
802.11a UNII Band



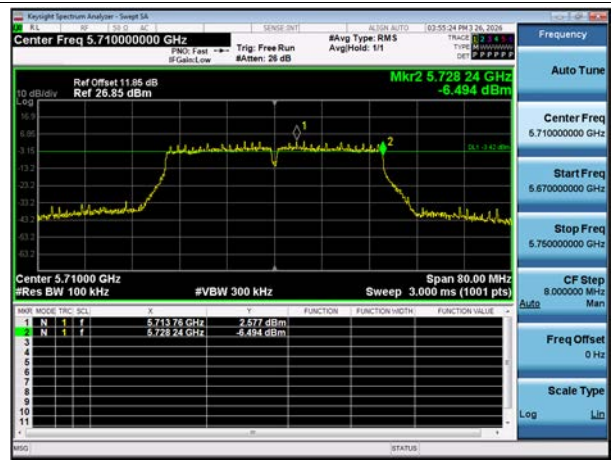
802.11n(HT20) UNII Band



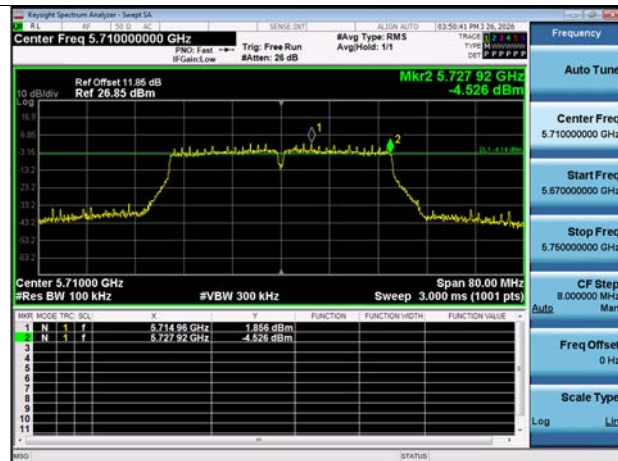
802.11ac(VHT20) UNII Band



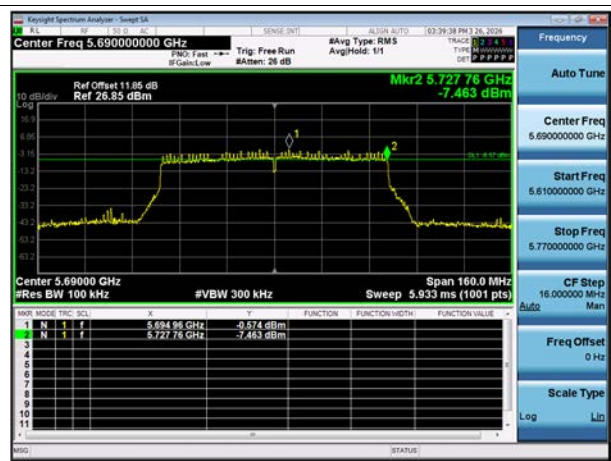
802.11n(HT40) UNII Band



802.11ac(VHT40) UNII Band

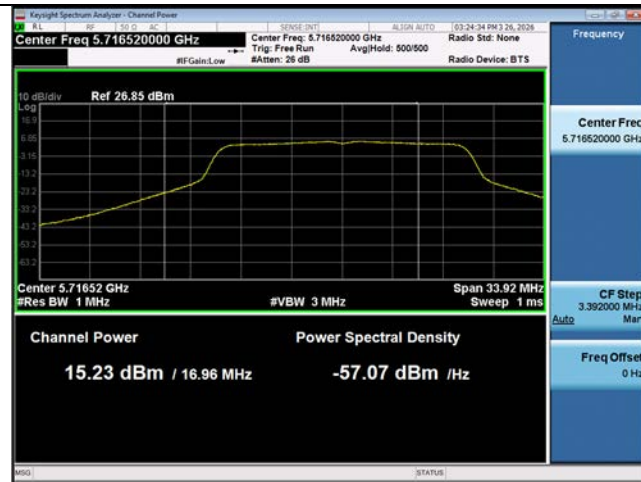


802.11ac(VHT80) UNII Band

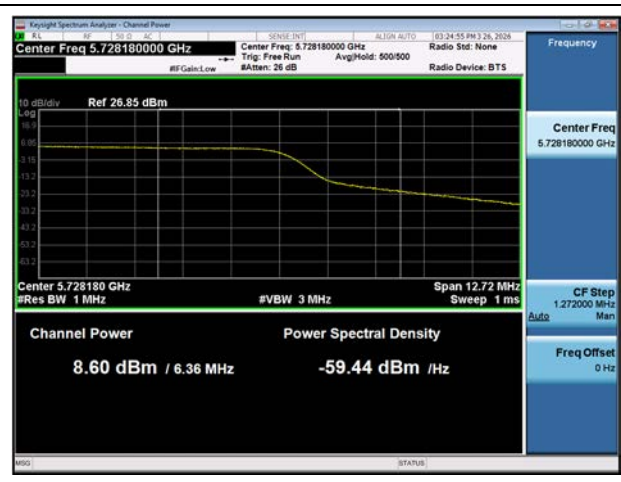


Test Plots(Output Power)

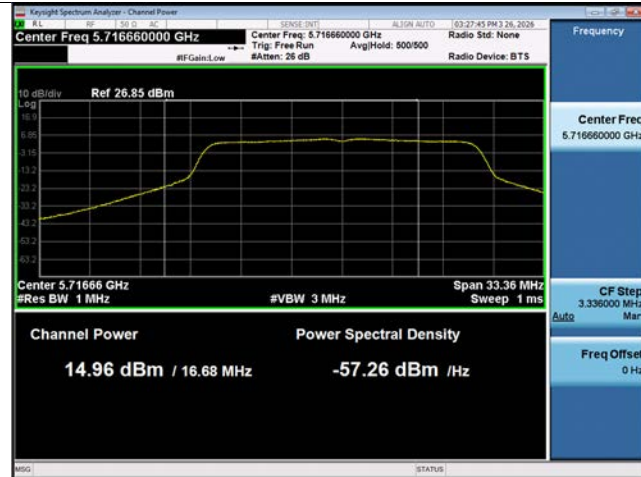
802.11a UNII 2C Band



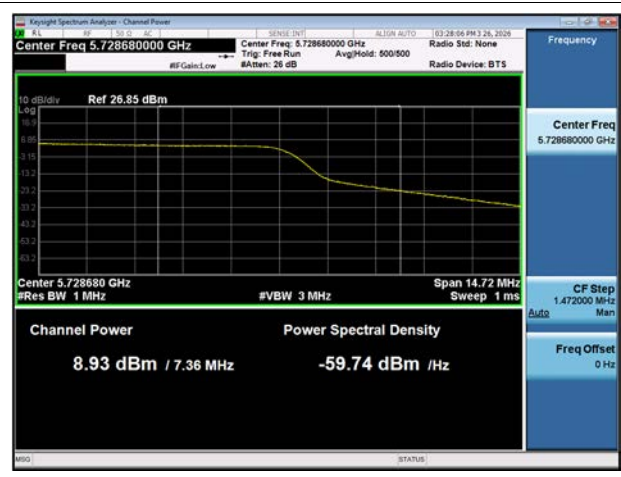
802.11a UNII 3 Band



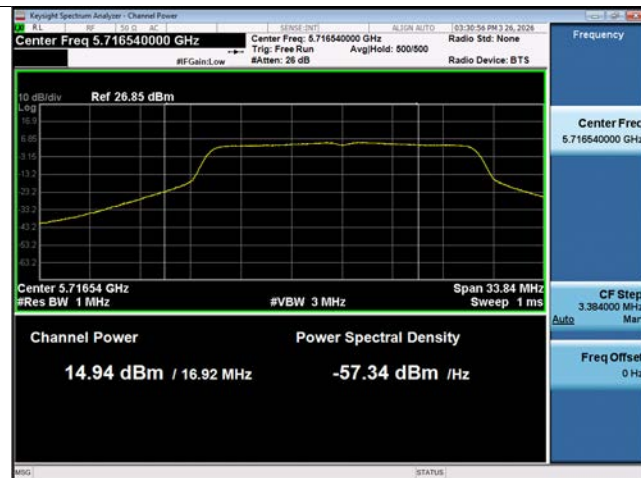
802.11n(HT20) UNII 2C Band



802.11n(HT20) UNII 3 Band



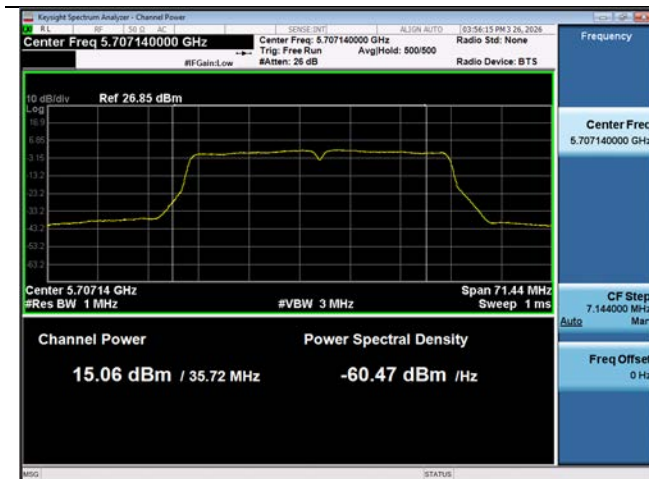
802.11ac(VHT20) UNII 2C Band



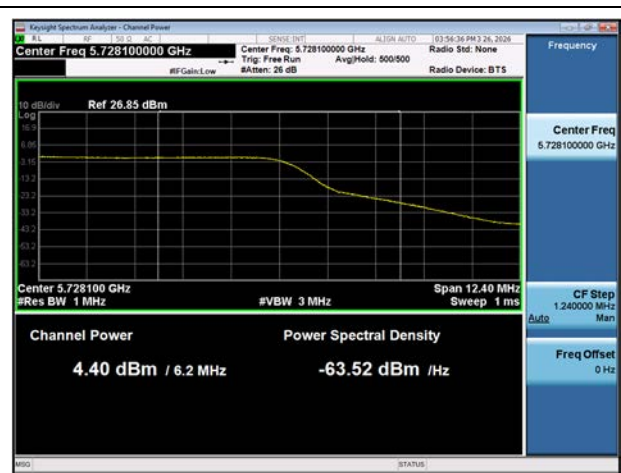
802.11ac(VHT20) UNII 3 Band



802.11n(HT40) UNII 2C Band



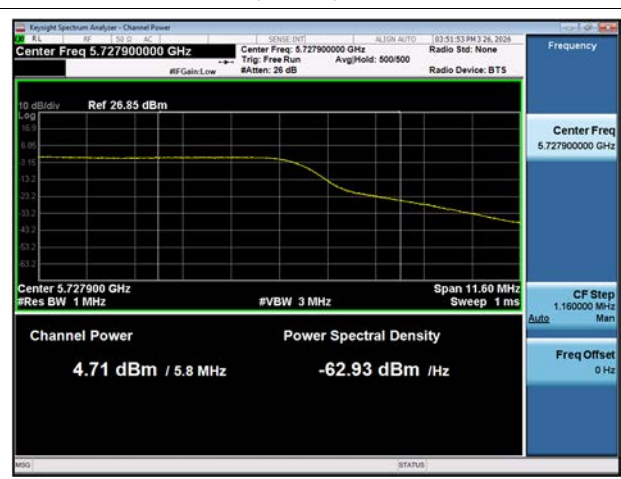
802.11n(HT40) UNII 3 Band



802.11ac(VHT40) UNII 2C Band



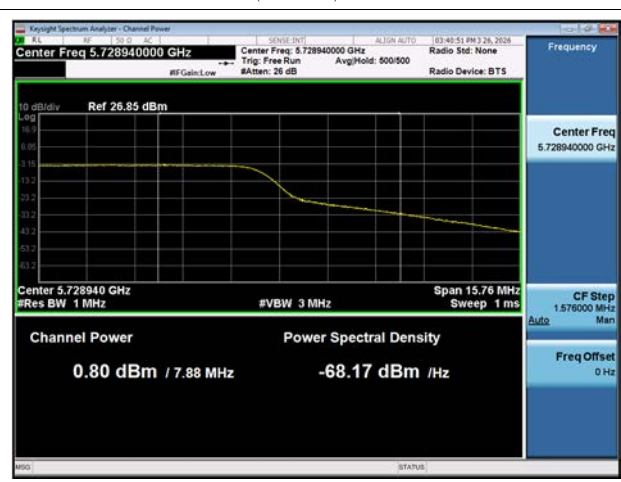
802.11ac(VHT40) UNII 3 Band



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



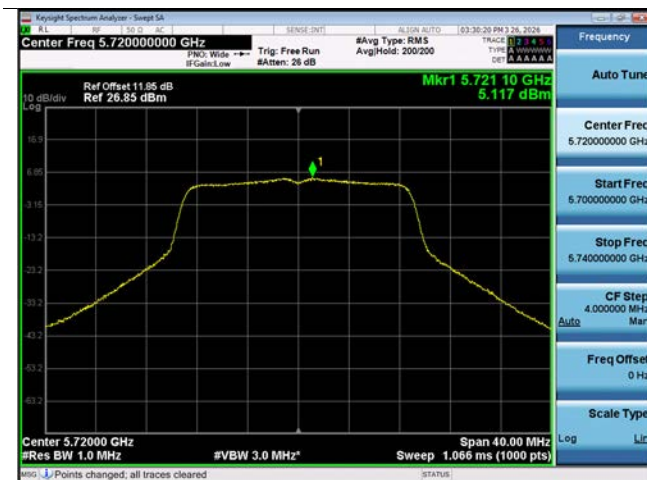
802.11n(HT20) UNII 2C Band



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

Frequency Range : Below 1 GHz

Frequency	Measured Value	A.F+C.L	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 : 802.11a				
CH.36 5180 MHz			Transfer Rate : 6Mbps				
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	55.75	-3.54	V	52.21	68.20	15.99	PK
15540	52.74	-0.81	V	51.93	73.98	22.05	PK
15540	38.83	-0.81	V	38.02	53.98	15.96	AV
10360	56.28	-3.54	H	52.74	68.20	15.46	PK
15540	52.45	-0.81	H	51.64	73.98	22.34	PK
15540	38.83	-0.81	H	38.02	53.98	15.96	AV

Band : UNII 1			Operation Mode : 802.11a				
CH.40 5200 MHz			Transfer Rate : 6Mbps				
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	55.06	-3.54	V	51.52	68.20	16.68	PK
15600	53.60	-1.40	V	52.20	73.98	21.78	PK
15600	39.96	-1.40	V	38.56	53.98	15.42	AV
10400	55.99	-3.54	H	52.45	68.20	15.75	PK
15600	53.09	-1.40	H	51.69	73.98	22.29	PK
15600	40.05	-1.40	H	38.65	53.98	15.33	AV

Band : UNII 1			Operation Mode : 802.11a				
CH.48 5240 MHz			Transfer Rate : 6Mbps				
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	55.88	-3.91	V	51.97	68.20	16.23	PK
15720	53.53	-1.14	V	52.39	73.98	21.59	PK
15720	39.92	-1.14	V	38.78	53.98	15.20	AV
10480	55.87	-3.91	H	51.96	68.20	16.24	PK
15720	53.50	-1.14	H	52.36	73.98	21.62	PK
15720	39.90	-1.14	H	38.76	53.98	15.22	AV

Band : UNII 2A			Operation Mode : 802.11a				
CH.52 5260 MHz			Transfer Rate : 6Mbps				
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	55.95	-4.01	V	51.94	68.20	16.26	PK
15780	52.51	-1.28	V	51.23	73.98	22.75	PK
15780	39.10	-1.28	V	37.82	53.98	16.16	AV
10520	56.14	-4.01	H	52.13	68.20	16.07	PK
15780	52.73	-1.28	H	51.45	73.98	22.53	PK
15780	38.73	-1.28	H	37.45	53.98	16.53	AV

Band : UNII 2A			Operation Mode : 802.11a				
CH.60 5300 MHz			Transfer Rate : 6Mbps				
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	55.45	-3.82	V	51.63	73.98	22.35	PK
10600	41.96	-3.82	V	38.14	53.98	15.84	AV
15900	52.38	-1.57	V	50.81	73.98	23.17	PK
15900	38.90	-1.57	V	37.33	53.98	16.65	AV
10600	55.47	-3.82	H	51.65	73.98	22.33	PK
10600	42.09	-3.82	H	38.27	53.98	15.71	AV
15900	52.77	-1.57	H	51.20	73.98	22.78	PK
15900	38.96	-1.57	H	37.39	53.98	16.59	AV

Band : UNII 2A			Operation Mode : 802.11a				
CH.64 5320 MHz			Transfer Rate : 6Mbps				
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	54.98	-3.70	V	51.28	73.98	22.70	PK
10640	41.61	-3.70	V	37.91	53.98	16.07	AV
15960	54.24	-1.36	V	52.88	73.98	21.10	PK
15960	39.41	-1.36	V	38.05	53.98	15.93	AV
10640	55.49	-3.70	H	51.79	73.98	22.19	PK
10640	41.72	-3.70	H	38.02	53.98	15.96	AV
15960	53.46	-1.36	H	52.10	73.98	21.88	PK
15960	39.31	-1.36	H	37.95	53.98	16.03	AV

Band : UNII 2C			Operation Mode : 802.11a				
CH.100 5500 MHz			Transfer Rate : 6Mbps				
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	54.65	-3.05	V	51.60	73.98	22.38	PK
11000	40.90	-3.05	V	37.85	53.98	16.13	AV
16500	53.44	-2.54	V	50.90	68.20	17.30	PK
11000	54.87	-3.05	H	51.82	73.98	22.16	PK
11000	40.92	-3.05	H	37.87	53.98	16.11	AV
16500	53.26	-2.54	H	50.72	68.20	17.48	PK

Band : UNII 2C			Operation Mode : 802.11a				
CH.120 5600 MHz			Transfer Rate : 6Mbps				
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
11200	53.40	-3.51	V	49.89	73.98	24.09	PK
11200	39.93	-3.51	V	36.42	53.98	17.56	AV
16800	53.63	-2.12	V	51.51	68.20	16.69	PK
11200	53.70	-3.51	H	50.19	73.98	23.79	PK
11200	39.80	-3.51	H	36.29	53.98	17.69	AV
16800	53.70	-2.12	H	51.58	68.20	16.62	PK

Band : UNII 2C			Operation Mode : 802.11a				
CH.144 5720 MHz			Transfer Rate : 6Mbps				
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	55.70	-2.92	V	52.78	73.98	21.20	PK
11440	41.64	-2.92	V	38.72	53.98	15.26	AV
17160	53.97	-1.77	V	52.20	68.20	16.00	PK
11440	55.26	-2.92	H	52.34	73.98	21.64	PK
11440	41.53	-2.92	H	38.61	53.98	15.37	AV
17160	53.43	-1.77	H	51.66	68.20	16.54	PK

Band : UNII 3			Operation Mode : 802.11a				
CH.149 5745 MHz			Transfer Rate : 6Mbps				
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	54.23	-3.07	V	51.16	73.98	22.82	PK
11490	41.04	-3.07	V	37.97	53.98	16.01	AV
17235	53.89	-1.74	V	52.15	68.20	16.05	PK
11490	54.67	-3.07	H	51.60	73.98	22.38	PK
11490	41.11	-3.07	H	38.04	53.98	15.94	AV
17235	53.54	-1.74	H	51.80	68.20	16.40	PK

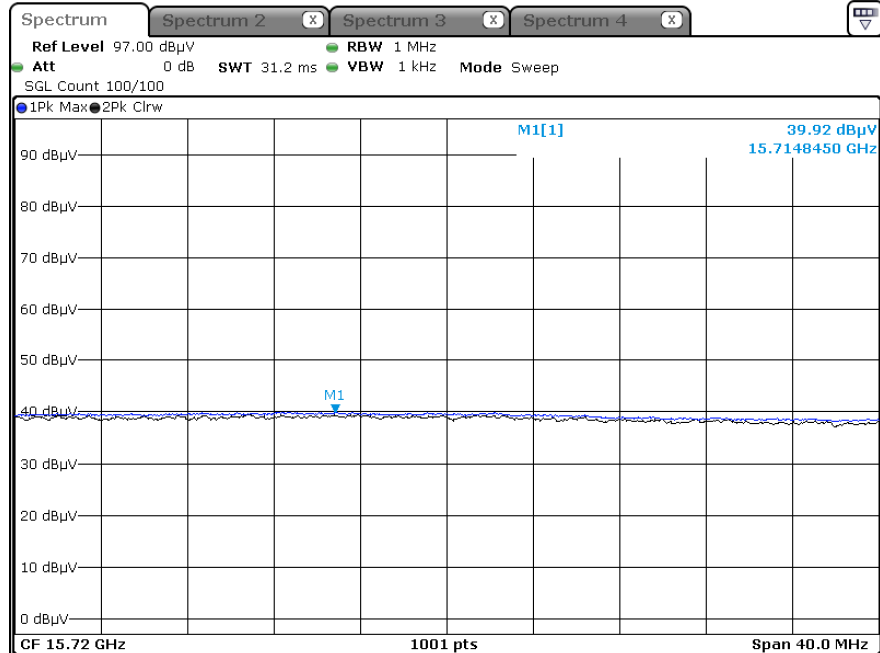
Band : UNII 3			Operation Mode : 802.11a				
CH.157 5785 MHz			Transfer Rate : 6Mbps				
Frequency [MHz]	Measured value [dBμV]	CL+AF+DF-AG [dB/m]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
11570	54.45	-3.35	V	51.10	73.98	22.88	PK
11570	41.10	-3.35	V	37.75	53.98	16.23	AV
17355	53.63	-1.66	V	51.97	68.20	16.23	PK
11570	55.33	-3.35	H	51.98	73.98	22.00	PK
11570	40.95	-3.35	H	37.60	53.98	16.38	AV
17355	53.30	-1.66	H	51.64	68.20	16.56	PK

Band : UNII 3			Operation Mode : 802.11a				
CH.165 5825 MHz			Transfer Rate : 6Mbps				
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	55.00	-3.83	V	51.17	73.98	22.81	PK
11650	41.18	-3.83	V	37.35	53.98	16.63	AV
17475	52.80	-0.42	V	52.38	68.20	15.82	PK
11650	54.67	-3.83	H	50.84	73.98	23.14	PK
11650	41.21	-3.83	H	37.38	53.98	16.60	AV
17475	52.85	-0.42	H	52.43	68.20	15.77	PK

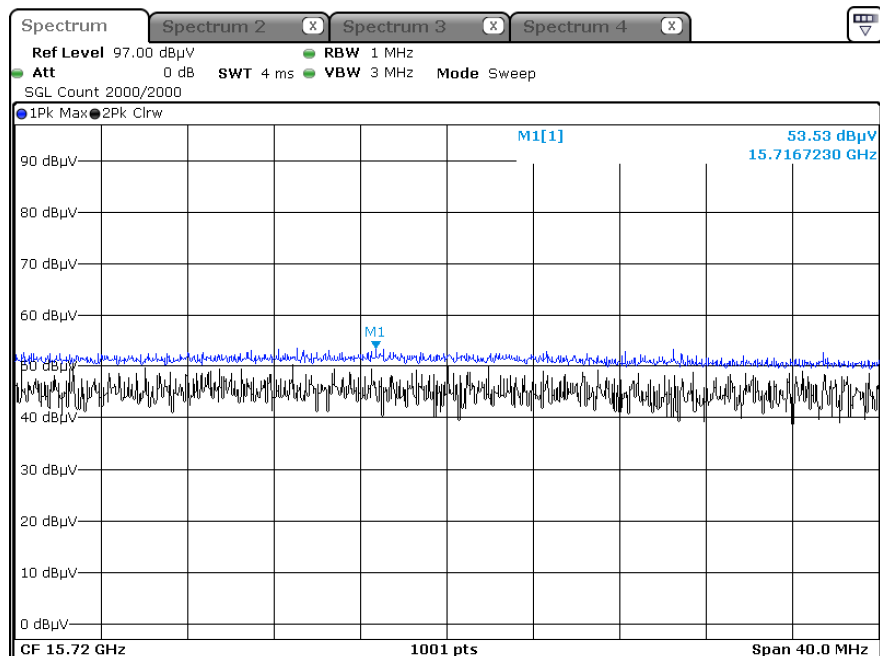
Test Plots(RADIATED SPURIOUS EMISSIONS)

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

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



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



10.9 RADIATED RESTRICTED BAND EDGE

[UNII-1]

[802.11a_20]

Operation Mode : 802.11a_20		Tone & RU Index : -		Transfer Rate : 6M		
Channel No. : 36		Frequency : 5180 MHz		Band : UNII-1		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	58.74	H	58.74	73.98	15.24	PK
4500 - 5150	46.34	H	46.34	53.98	7.64	AV

[802.11n_20]

Operation Mode : 802.11n_20		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 36		Frequency : 5180 MHz		Band : UNII-1		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	58.86	H	58.86	73.98	15.12	PK
4500 - 5150	46.25	H	46.25	53.98	7.73	AV

[802.11ac_20]

Operation Mode : 802.11ac_20		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 36		Frequency : 5180 MHz		Band : UNII-1		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	59.37	H	59.37	73.98	14.61	PK
4500 - 5150	46.52	H	46.52	53.98	7.46	AV

[802.11n_40]

Operation Mode :	802.11n_40	Tone & RU Index :	-	MCS index :	MCS0	
Channel No. :	38	Frequency :	5190 MHz	Band :	UNII-1	
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	63.02	H	63.02	73.98	10.96	PK
4500 - 5150	51.05	H	51.05	53.98	2.93	AV

[802.11ac_40]

Operation Mode : 802.11ac_40		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 38		Frequency : 5190 MHz		Band : UNII-1		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	63.61	H	63.61	73.98	10.37	PK
4500 - 5150	51.08	H	51.08	53.98	2.90	AV

[802.11n_40]

Operation Mode: 802.11n_40		Tone & RU Index: -		MCS index: MCS0		
Channel No.: 46		Frequency: 5230 MHz		Band: UNII-1		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	57.51	H	57.51	73.98	16.47	PK
4500 - 5150	46.18	H	46.18	53.98	7.80	AV

[802.11ac_40]

Operation Mode: 802.11ac_40		Tone & RU Index: -		MCS index: MCS0		
Channel No.: 46		Frequency: 5230 MHz		Band: UNII-1		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	57.29	H	57.29	73.98	16.69	PK
4500 - 5150	45.79	H	45.79	53.98	8.19	AV

[802.11ac_80]

Operation Mode : 802.11ac_80		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 42		Frequency : 5210 MHz		Band : UNII-1		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
4500 - 5150	61.84	H	61.84	73.98	12.14	PK
4500 - 5150	50.94	H	50.94	53.98	3.04	AV

[UNII-2A]

[802.11a_20]

Operation Mode :		802.11a_20		Tone & RU Index :		-		Transfer Rate :		6M			
Channel No. :		64		Frequency :		5320 MHz		Band :		UNII-2A			
Frequency [MHz]		Measured Value [dBμV]		ANT. POL [H/V]		Total [dBμV/m]		Limit [dBμV/m]		Margin [dB]		Measurement Type	
5350 - 5460		59.11		H		59.11		73.98		14.87		PK	
5350 - 5460		45.93		H		45.93		53.98		8.05		AV	

[802.11ac_20]

Operation Mode: 802.11ac_20		Tone & RU Index: -		MCS index: MCS0		
Channel No.: 64		Frequency: 5320 MHz		Band: UNII-2A		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	58.81	H	58.81	73.98	15.17	PK
5350 - 5460	45.95	H	45.95	53.98	8.03	AV

[802.11n_40]

Operation Mode: 802.11n_40		Tone & RU Index: -		MCS index: MCS0		
Channel No.: 62		Frequency: 5310 MHz		Band: UNII-2A		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	59.92	H	59.92	73.98	14.06	PK
5350 - 5460	47.97	H	47.97	53.98	6.01	AV

[802.11ac_40]

Operation Mode :	802.11ac_40	Tone & RU Index :	-	MCS index :	MCS0	
Channel No. :	62	Frequency :	5310 MHz	Band :	UNII-2A	
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	65.32	H	65.32	73.98	8.66	PK
5350 - 5460	48.08	H	48.08	53.98	5.90	AV

[802.11ac_80]

Operation Mode : 802.11ac_80		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 58		Frequency : 5290 MHz		Band : UNII-2A		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	60.90	H	60.90	73.98	13.08	PK
5350 - 5460	49.73	H	49.73	53.98	4.25	AV

[UNII-2C]

[802.11a_20]

Operation Mode :	802.11a_20	Tone & RU Index :	-	Transfer Rate :	6M	
Channel No. :	100	Frequency :	5500 MHz	Band :	UNII-2C	
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	59.09	H	59.09	73.98	14.89	PK
5350 - 5460	46.12	H	46.12	53.98	7.86	AV
5460 - 5470	60.92	H	60.92	68.20	7.28	PK

[802.11n_20]

Operation Mode : 802.11n_20		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 100		Frequency : 5500 MHz		Band : UNII-2C		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	58.68	H	58.68	73.98	15.30	PK
5350 - 5460	46.26	H	46.26	53.98	7.72	AV
5460 - 5470	60.17	H	60.17	68.20	8.03	PK

[802.11ac_20]

Operation Mode : 802.11ac_20		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 100		Frequency : 5500 MHz		Band : UNII-2C		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	58.88	H	58.88	73.98	15.10	PK
5350 - 5460	46.06	H	46.06	53.98	7.92	AV
5460 - 5470	60.18	H	60.18	68.20	8.02	PK

[802.11n_40]

Operation Mode :	802.11n_40	Tone & RU Index :	-	MCS index :	MCS0	
Channel No. :	102	Frequency :	5510 MHz	Band :	UNII-2C	
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	60.23	H	60.23	73.98	13.75	PK
5350 - 5460	46.93	H	46.93	53.98	7.05	AV
5460 - 5470	61.11	H	61.11	68.20	7.09	PK

[802.11ac_40]

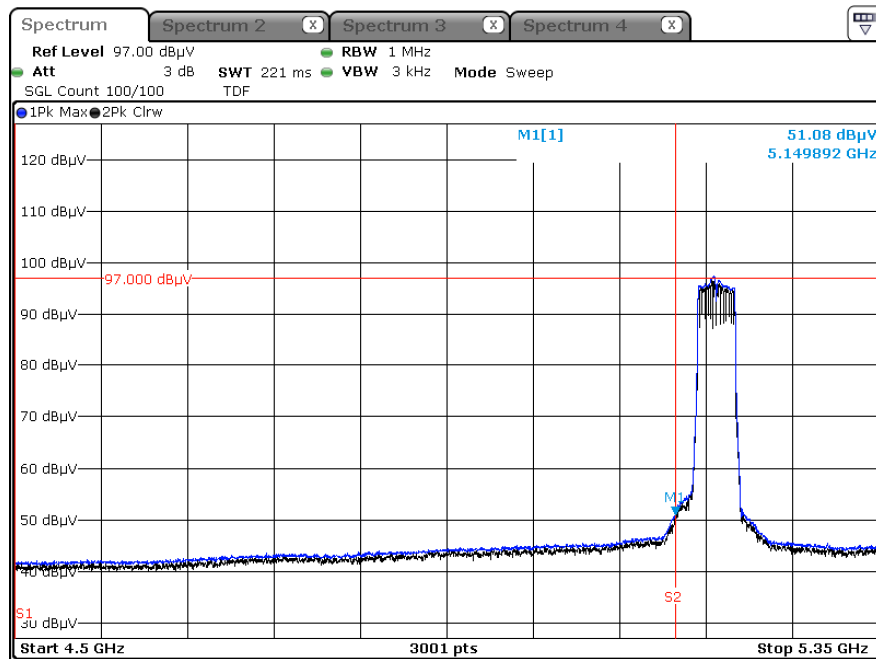
Operation Mode : 802.11ac_40		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 102		Frequency : 5510 MHz		Band : UNII-2C		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	57.93	H	57.93	73.98	16.05	PK
5350 - 5460	46.79	H	46.79	53.98	7.19	AV
5460 - 5470	59.30	H	59.30	68.20	8.90	PK

[802.11ac_80]

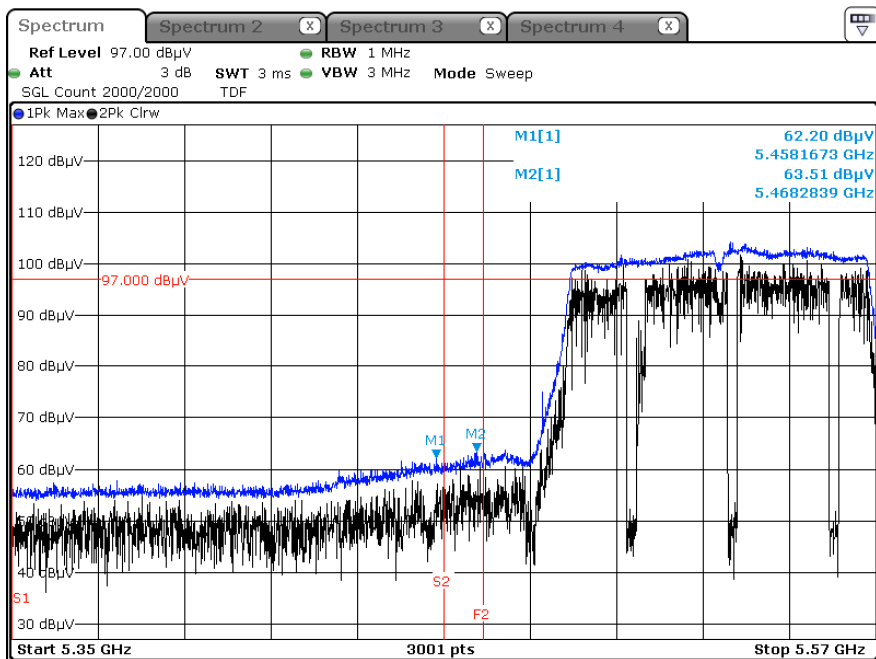
Operation Mode : 802.11ac_80		Tone & RU Index : -		MCS index : MCS0		
Channel No. : 106		Frequency : 5530 MHz		Band : UNII-2C		
Frequency [MHz]	Measured Value [dBμV]	ANT. POL [H/V]	Total [dBμV/m]	Limit [dBμV/m]	Margin [dB]	Measurement Type
5350 - 5460	62.20	H	62.20	73.98	11.78	PK
5350 - 5460	50.40	H	50.40	53.98	3.58	AV
5460 - 5470	63.51	H	63.51	68.20	4.69	PK

Test Plots(UNII 1, 2A, 2C)

Average Result (802.11 ac40_ MCS0, Ch. 38, X-H)



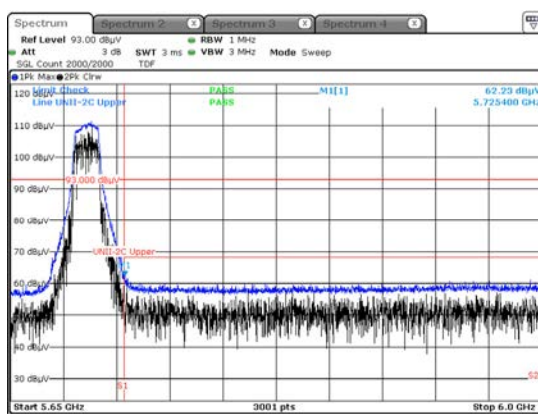
Peak Result (802.11 ac80_ MCS0, Ch. 106, X-H)



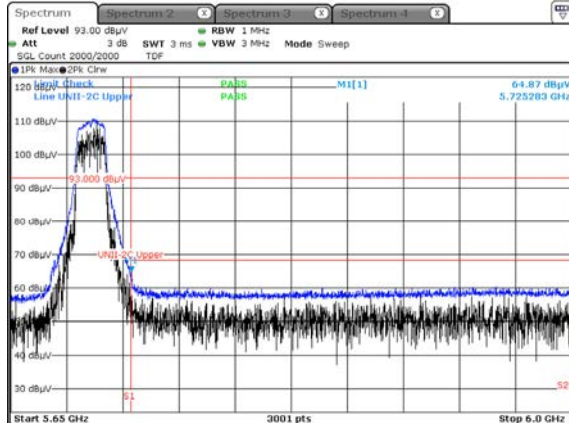
Note: Only the worst case plots for Radiated Restricted Band Edge.

Test Plots(UNII2C_Upper)

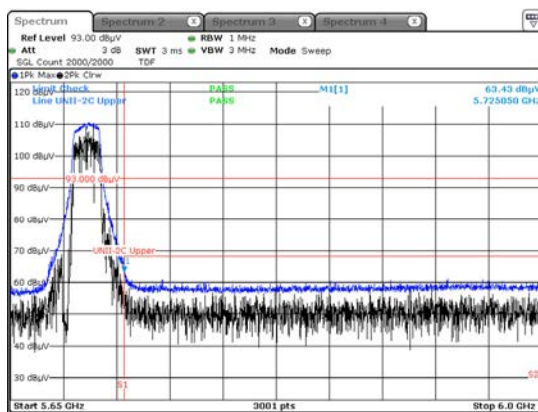
Peak Result (802.11a, Ch.140, X-H)



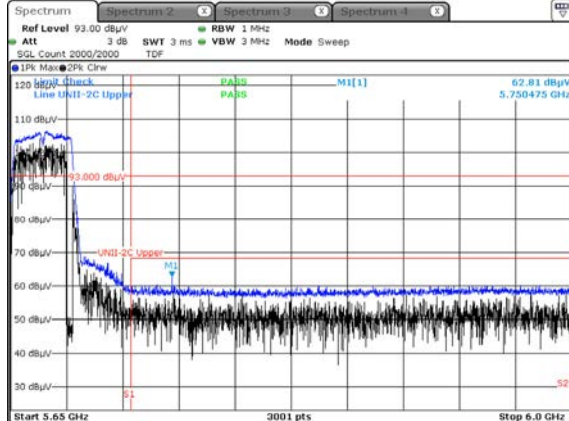
Peak Result (802.11n_HT20, Ch.140, X-H)



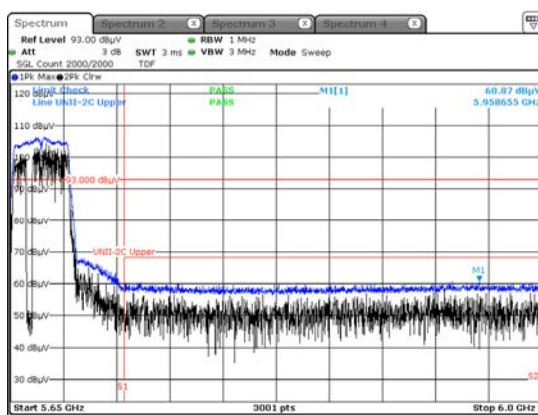
Peak Result (802.11ac_VHT20, Ch.140, X-H)



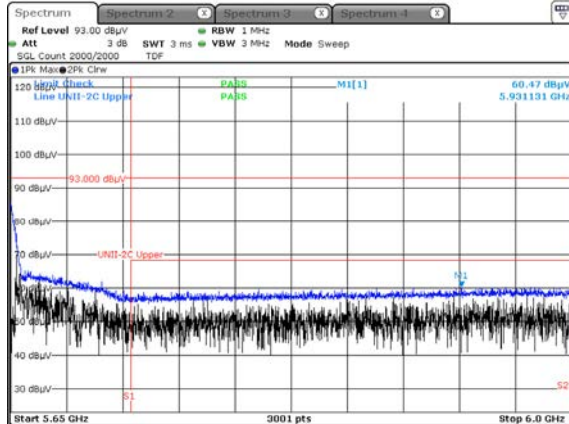
Peak Result (802.11n_HT40, Ch.134, X-H)



Peak Result (802.11ac_VHT40, Ch.134, X-H)

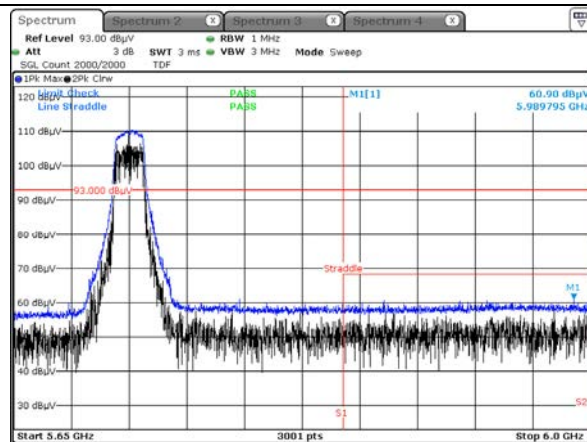


Peak Result (802.11ac_VHT80, Ch.122, X-H)

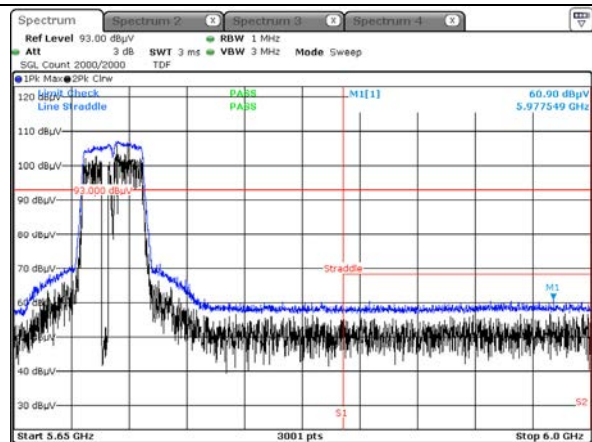


■ Test Plots(Straddle Channel)

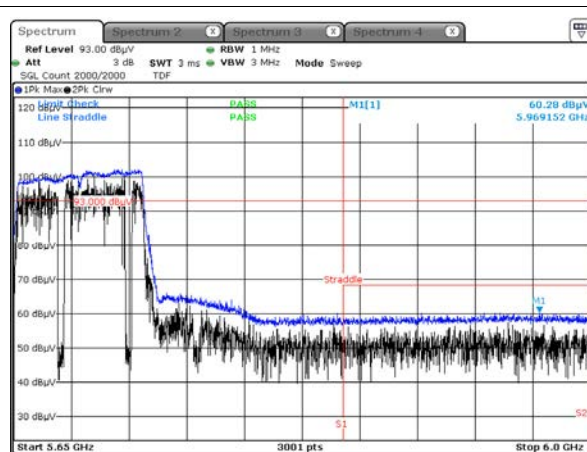
Peak Result 20M, (802.11n_HT20, Ch.144, X-H)



Peak Result 40M, (802.11n_HT40, Ch.142, X-H)



Peak Result 80M, (802.11ac_VHT80, Ch.138, X-H)

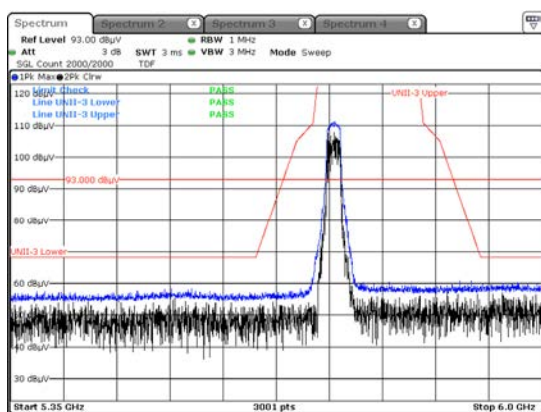


Note :

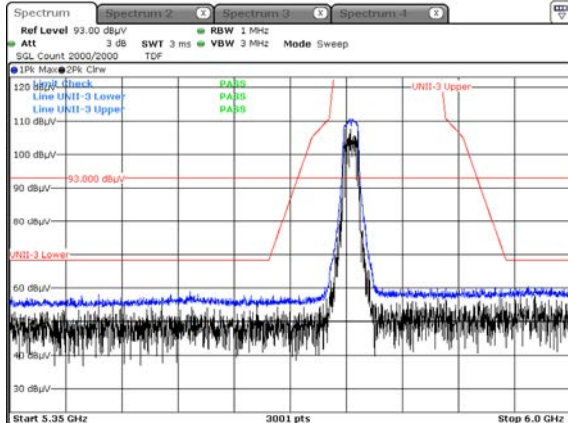
1. Only the worst case plots for Straddle channel.
2. Red line : 5 850 MHz

Test Plots(UNII 3)

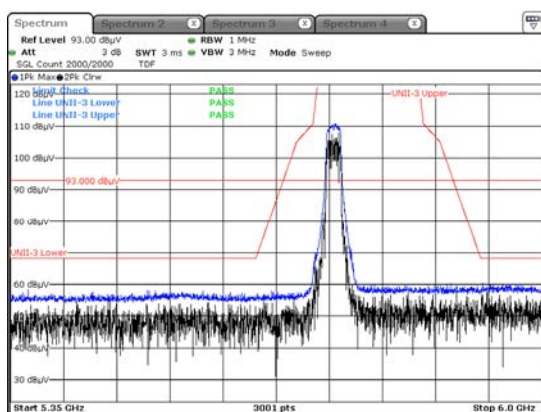
Peak Result (802.11a, Ch.149, X-H)



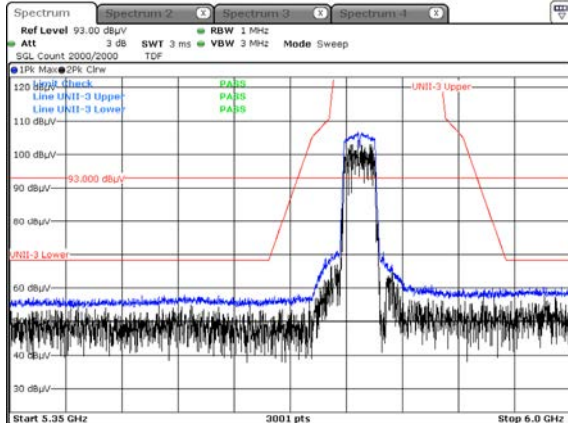
Peak Result (802.11n_HT20, Ch.149, X-H)



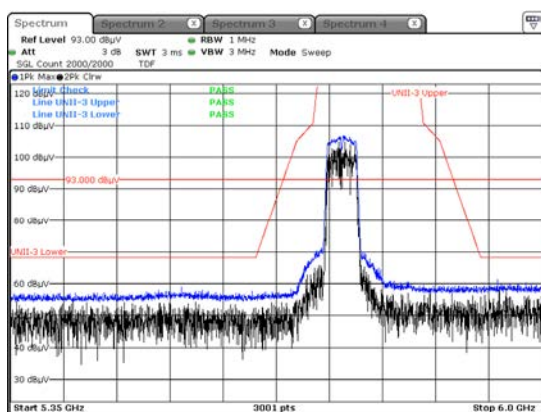
Peak Result (802.11ac_VHT20, Ch.149, X-H)



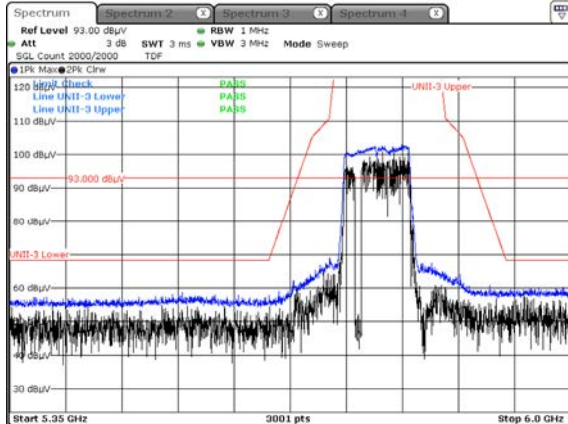
Peak Result (802.11n_HT40, Ch.151, X-H)



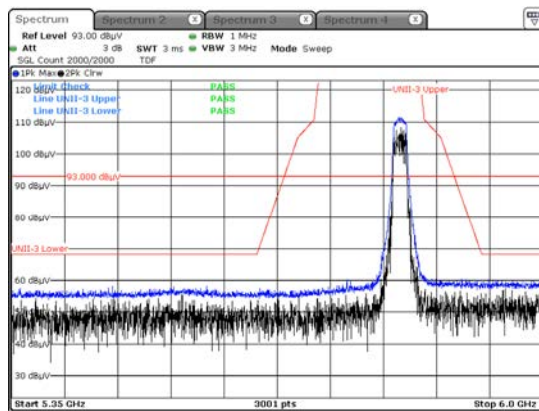
Peak Result (802.11ac_VHT40, Ch.151, X-H)



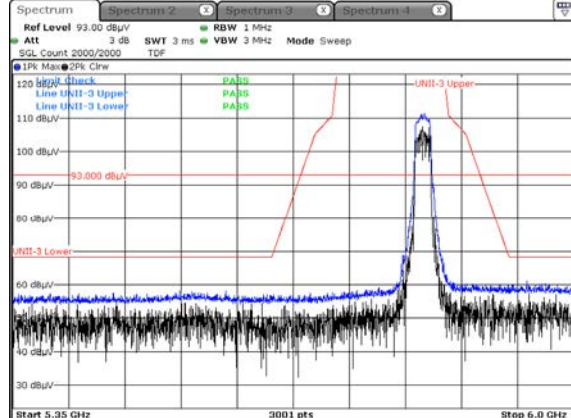
Peak Result (802.11ac_VHT80, Ch.155, X-H)



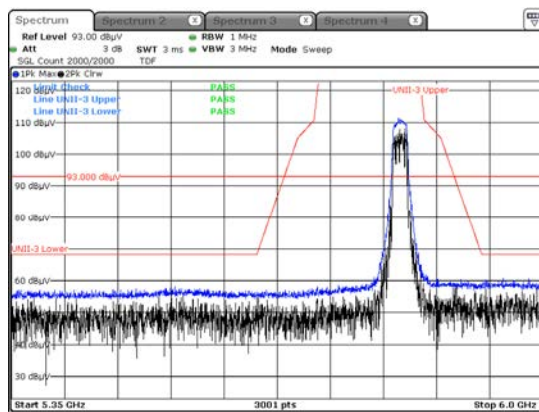
Peak Result (802.11a, Ch.165, X-H)



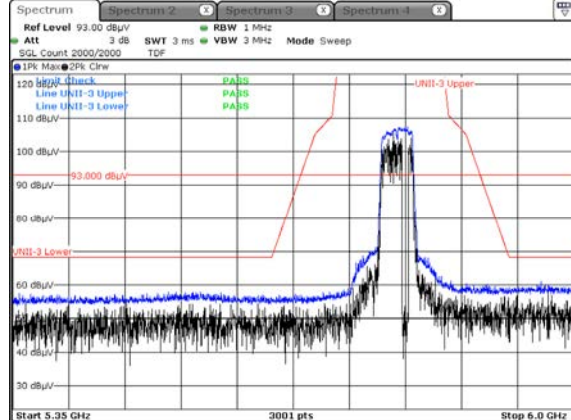
Peak Result (802.11n_HT20, Ch.165, X-H)



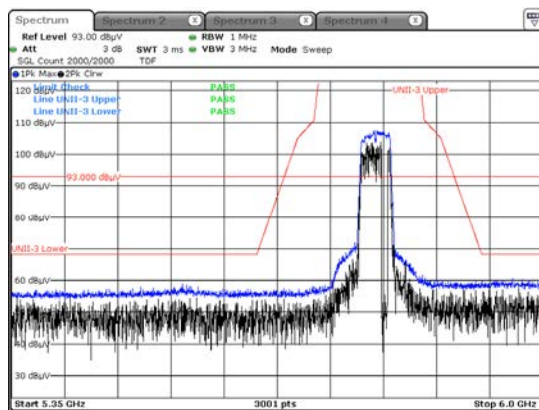
Peak Result (802.11ac_VHT20, Ch.165, X-H)



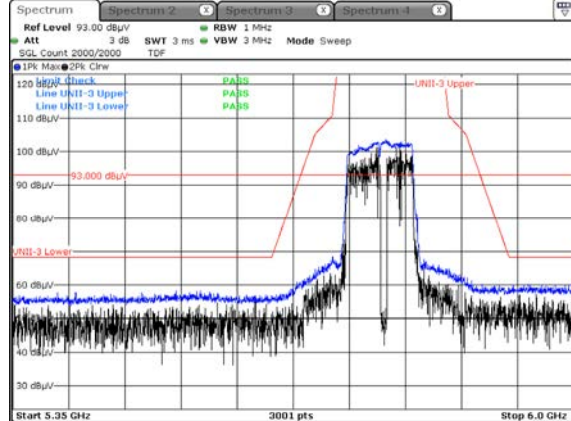
Peak Result (802.11n_HT40, Ch.159, X-H)



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



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



Note:

1. Only the worst case plots for U-NII-3 Out of Band e.i.r.p Emission.

10.9 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions

Test

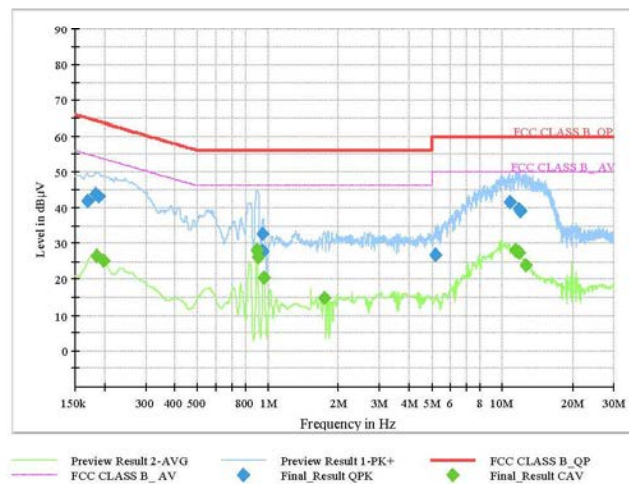
1 / 1

Test Report

Common Information

EUT : SM-A276U
Operating Conditions : 5G WLAN Mode
Comment :

Full Spectrum



Final Result QPK

Frequency (MHz)	QuasiPeak (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1703	41.99	64.95	22.95	9.000	N	9.7
0.1838	43.80	64.31	20.51	9.000	L1	9.8
0.1905	43.35	64.02	20.67	9.000	L1	9.8
0.9478	27.94	56.00	28.06	9.000	N	9.8
0.9523	32.70	56.00	23.30	9.000	N	9.8
5.2160	27.00	60.00	33.00	9.000	L1	10.0
10.7218	41.50	60.00	18.50	9.000	L1	10.2
11.7455	39.67	60.00	20.33	9.000	L1	10.2
11.8828	39.18	60.00	20.82	9.000	L1	10.2

Final Result CAV

Frequency (MHz)	CAverage (dBμV)	Limit (dBμV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1860	26.68	54.21	27.54	9.000	L1	9.8
0.1995	25.41	53.63	28.22	9.000	L1	9.8
0.8938	28.09	46.00	17.91	9.000	L1	9.8
0.9050	26.21	46.00	19.79	9.000	N	9.8
0.9568	20.49	46.00	25.51	9.000	L1	9.8
1.7465	14.61	46.00	31.39	9.000	N	9.8
11.4643	28.29	50.00	21.71	9.000	L1	10.2
11.8468	27.44	50.00	22.56	9.000	L1	10.2
12.6478	23.90	50.00	26.10	9.000	L1	10.2

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11. LIST OF TEST EQUIPMENT

Conducted Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
LISN	ENV216	Rohde & Schwarz	102245	07/15/2026	Annual
EMI Test Receiver	ESR7	Rohde & Schwarz	101910	08/20/2026	Annual
Chamber	SU-642	ESPEC	93022487	06/26/2026	Annual
Signal Analyzer	N9030A	Keysight	MY55410508	07/23/2026	Annual
Open Switch and Control Platform	OSP 120	Rohde & Schwarz	100935	07/24/2026	Annual
Power Meter	N1911A	Agilent	MY45100523	02/13/2027	Annual
WIDEBAND Power Sensor	N1921A	Keysight	MY57820067	01/26/2027	Annual
Directional Coupler	87300B	Agilent	3116A03621	10/14/2026	Annual
Power Splitter	11667B	Hewlett Packard	10545	01/15/2027	Annual
DC Power Supply	E3632A	Agilent	MY40010147	07/29/2026	Annual
Attenuator	8493C-010	HP	08285	05/19/2026	Annual
Software	EMC32	Rohde & Schwarz	N/A	N/A	N/A
Automation Software	FCC WLAN Conducted	HCT CO., LTD.	-	-	-
Automation Software	FCC BT Conducted	HCT CO., LTD.	-	-	-

Note:

1. Equipment whose calibration due date was updated during the test period was not used between the previous due date and the update.
All reported measurements were performed using equipment within valid calibration.
2. Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI C63.5-2017.

Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Antenna Mast Controller	CO3000	Innco systems GmbH	CO3000/1031/41190717/P	N/A	N/A
Antenna Mast	MA46040/800-XP-ET	Innco systems GmbH	S2AM	07/25/2026	Annual
Turn Table	DS2000-s	Innco systems GmbH	4860320	N/A	N/A
Loop Antenna	FMZB 1513	Schwarzbeck Mess-Elektronik OHG	1513-175	06/24/2027	Biennial
Trilog Broadband Antenna	VULB 9168	Schwarzbeck Mess-Elektronik OHG	01135	08/19/2026	Biennial
Horn Antenna	BBHA 9120 D	Schwarzbeck Mess-Elektronik OHG	02299	01/08/2028	Biennial
Horn Antenna	BBHA 9170	Schwarzbeck Mess-Elektronik OHG	BBHA9170342	09/20/2026	Biennial
Signal Analyzer	FSV40	Rohde & Schwarz	100901	02/13/2027	Annual
Signal Analyzer	N9030A	Agilent	MY52350879	03/16/2027	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	5	05/27/2026	Annual
Band Reject Filter	WRCJV12-4900-5100-5900-6100-50SS	Wainwright Instruments	6	05/27/2026	Annual
Band Reject Filter	WRCJV2400/2483.5-2370/2520-60/12SS	Wainwright Instruments	2	12/11/2026	Annual
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	01/07/2027	Annual
RF Switching System	FMSR-04B (3G HPF+LNA)	T&M SYSTEM	S2L1	12/18/2026	Annual
RF Switching System	FMSR-04B (10dB ATT+LNA)	T&M SYSTEM	S2L2	12/18/2026	Annual
RF Switching System	FMSR-04B (3dB ATT+LNA)	T&M SYSTEM	S2L3	12/18/2026	Annual
RF Switching System	FMSR-04B (LNA)	T&M SYSTEM	S2L4	12/18/2026	Annual
RF Switching System	FMSR-04B (7G HPF+LNA)	T&M SYSTEM	S2L5	12/18/2026	Annual
Broadband LNA	CBL18265035	CERNEX	22966	10/21/2026	Annual
Broadband LNA	CBL26405040	CERNEX	25956	02/09/2027	Annual
Automation Software	FCC WLAN Radiated	HCT CO., LTD	-	-	-

Note:

- Equipment whose calibration due date was updated during the test period was not used between the previous due date and the update.
All reported measurements were performed using equipment within valid calibration.
- Especially, all antenna for measurement is calibrated in accordance with the requirements of ANSI C63.5-2017.

12. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2604-FC012-P