TEST REPORT

FCC UNII Test for SC-55F
Certification

APPLICANT
SAMSUNG Electronics Co., Ltd.

REPORT NO.
HCT-RF-2505-FC118

DATE OF ISSUE
June 5, 2025

Tested by
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Applicant	SAMSUNG Electronics Co., Ltd. 129, Samsung-ro, Yeongtong-gu, Suwon-si, Gyeonggi-do, 16677, Rep. of Korea
Product Name Model Name	Mobile Phone SC-55F
FCC ID	A3LSMF766JPN
Date of Test	February 23, 2025 ~ April 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)

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REVISION HISTORY

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

Revision No.	Date of Issue	Description
0	June 05, 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). Data referencing : UNII Report (FCC ID: A3LSMF766U, Report No. HCT-RF-2504-FC036)

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1. GENERAL INFORMATION

EUT DESCRIPTION

Model	SC-55F	
Additional Model	SCG35	
EUT Type	Mobile Phone	
Power Supply	DC 3.90 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 160 MHz BW : 5250
	U-NII-2A	20 MHz BW : 5260 - 5320 40 MHz BW : 5270 - 5310 80 MHz BW : 5290 160 MHz BW : 5250
	U-NII-2C	20 MHz BW : 5500 - 5720 40 MHz BW : 5510 - 5710 80 MHz BW : 5530 – 5690 160 MHz BW : 5570
	U-NII-3	20 MHz BW : 5745 - 5825 40 MHz BW : 5755 - 5795 80 MHz BW : 5775 160 MHz BW : 5815
	U-NII-4	20 MHz BW : 5845 - 5885 40 MHz BW : 5835 - 5875 80 MHz BW : 5855 160 MHz BW : 5815
Straddle channel	Supported	
TDWR Band	Supported	
Dynamic Frequency Selection	Slave without radar detection	
Antenna Specification	Type: Metal	
Serial number	Conducted : R3CY10XMXPJ Radiated : R3CY30S8XET	

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ANTENNA CONFIGURATIONS

1. Antenna configuration

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

Note:

(1) O = Support, X = Not Support

(2) SISO = Single Input Single Output

(3) SDM = Spatial Diversity Multiplexing

(4) CDD = Cyclic Delay Diversity

2.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 or 6GHz Bands simultaneously on each antenna.

Simultaneous transmission Scenario	2.4 GHz WiFi Ant.1	2.4 GHz WiFi Ant.2	5 GHz WiFi Ant.1	5 GHz WiFi Ant.2	6 GHz WiFi Ant.1	6 GHz WiFi Ant.2	BT Ant.1	BT Ant.2	Test Case
Dual Bluetooth + 5 GHz WiFi MIMO			on	on			on	on	Scenario1
Dual Bluetooth + 6 GHz WiFi MIMO					on	on	on	on	
2.4 GHz WiFi MIMO + 5 GHz WiFi MIMO	on	on	on	on					Scenario2
2.4 GHz WiFi MIMO + 6 GHz WiFi MIMO	on	on			on	on			
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 5 GHz WiFi MIMO	on		on	on				on	Scenario3
Bluetooth ANT.1 + 2.4 GHz WiFi ANT.2 + 6 GHz WiFi MIMO		on			on	on	on		

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3. Directional Gain Calculation

According to KDB 662911 D01 Multiple Transmitter Output v02r01 F) 2) e) (iii), f) ii)

$$\text{Directional Gain(CDD)} = 10 \cdot \log\left[\frac{\sum_{j=1}^{N_{SS}}\{\sum_{k=1}^{N_{ANT}} g_{j,k}\}^2}{N_{ANT}}\right]$$

Directional gain(SDM) = Gmax + 10•LOG(N_{ANT}/ N_{ss})

Band	Ant Gain (dBi)		N_{ANT}/ N_{ss}	Directional Gain (dBi)	
	ANT1	ANT2		CDD	SDM
UNII 1	-4.72	-6.46	2 / 2	-2.54	-4.72
UNII 2A	-4.85	-5.46		-2.14	-4.85
UNII 2C	-4.77	-5.69		-2.21	-4.77
UNII 3	-8.38	-7.25		-4.79	-7.25
UNII 4	-7.59	-7.21		-4.39	-7.21

Note

According to Ansi C63.10-2013 section 14.4.3, the directional gain is calculated using the formula, where GN is the gain of the nth antenna and NANT is the total number of antennas used.

Directional gain(CDD) = 10•log(((10$^{(ANT1\ Gain/20)}$+10$^{(ANT2\ Gain/20)}$)^2)/2) dBi

Directional gain(SDM) = Gmax + 10•LOG(N_{ANT}/ N_{ss})

Sample Calculation (Conducted Power, MIMO):

Ex) Ant 1 : 11.58 dBm Ant 2 : 12.08 dBm

Ant1 + Ant 2 = MIMO

(11.58 dBm + 12.08 dBm) = (14.387 mW + 16.143 mW) = 30.53 mW = 14.88 dBm

Sample Calculation (E.I.R.P & E.I.R.P Spectral Density, MIMO):

Ex) ANT1 : 15.35 dBm , ANT2 : 15.12 dBm, Directional Gain : 3 dBi

Conducted Power = (15.35 dBm + 15.12 dBm) = (34.276 mW + 32.508 mW) = 66.784 mW = 18.25 dBm

E.I.R.P = 18.25 dBm + 3 dBi = 21.25 dBm

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2. MAXIMUM OUTPUT POWER

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

Band	Mode	MIMO_CDD(Ant.1+ Ant.2)					
		Ant.1 Power		Ant.2 Power		Ant.1 + Ant.2 Power	
		(dBm)	(W)	(dBm)	(W)	(dBm)	(W)
UNII1	802.11a	17.30	0.054	16.37	0.043	19.87	0.097
	802.11n (HT20)	17.14	0.052	16.69	0.047	19.93	0.098
	802.11n (HT40)	17.92	0.062	17.15	0.052	20.56	0.114
	802.11ac (VHT20)	17.33	0.054	16.44	0.044	19.92	0.098
	802.11ac (VHT40)	17.92	0.062	17.15	0.052	20.57	0.114
	802.11ac (VHT80)	15.98	0.040	15.46	0.035	18.74	0.075
UNII2A	802.11a	17.51	0.056	16.32	0.043	19.97	0.099
	802.11n (HT20)	17.57	0.057	16.38	0.043	20.03	0.101
	802.11n (HT40)	17.93	0.062	17.29	0.054	20.63	0.116
	802.11ac (VHT20)	17.56	0.057	16.39	0.044	20.03	0.101
	802.11ac (VHT40)	17.95	0.062	17.32	0.054	20.66	0.116
	802.11ac (VHT80)	16.33	0.043	15.37	0.034	18.89	0.077
UNII2C	802.11a	17.12	0.051	16.62	0.046	19.89	0.097
	802.11n (HT20)	17.21	0.053	16.70	0.047	19.97	0.099
	802.11n (HT40)	17.58	0.057	17.71	0.059	20.66	0.116
	802.11ac (VHT20)	17.19	0.052	16.67	0.046	19.95	0.099
	802.11ac (VHT40)	17.62	0.058	17.70	0.059	20.67	0.117
	802.11ac (VHT80)	17.34	0.054	17.56	0.057	20.46	0.111
UNII3	802.11a	16.92	0.049	16.62	0.046	19.79	0.095
	802.11n (HT20)	17.01	0.050	16.71	0.047	19.87	0.097
	802.11n (HT40)	17.72	0.059	17.40	0.055	20.57	0.114
	802.11ac (VHT20)	17.00	0.050	16.68	0.047	19.85	0.097
	802.11ac (VHT40)	17.75	0.060	17.36	0.054	20.57	0.114
	802.11ac (VHT80)	17.33	0.054	17.20	0.052	20.27	0.107
UNII4 (Conducted For inf.)	802.11a	16.59	0.046	16.79	0.048	19.70	0.093
	802.11n (HT20)	16.66	0.046	16.85	0.048	19.77	0.095
	802.11n (HT40)	17.35	0.054	17.57	0.057	20.47	0.111
	802.11ac (VHT20)	16.64	0.046	16.81	0.048	19.74	0.094
	802.11ac (VHT40)	17.38	0.055	17.50	0.056	20.45	0.111
	802.11ac (VHT80)	16.95	0.050	17.30	0.054	20.14	0.103
UNII1-2A	802.11ac (VHT160)	15.80	0.038	15.65	0.037	18.74	0.075
UNII2C	802.11ac (VHT160)	15.76	0.038	15.26	0.034	18.53	0.071
UNII3&4	802.11ac (VHT160)	17.48	0.056	17.58	0.057	20.54	0.113

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Band	Mode	MIMO_CDD(Ant.1+ Ant.2) (EIRP)											
		Ant.1 Power				Ant.2 Power				(Ant.1 + Ant.2) Power			
		(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)	(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)	(dBm)	ANT Gain(dBi)	EIRP (dBm)	(W)
UNII4 (E.I.R.P)	802.11a	16.59	-7.59	9.00	0.008	16.79	-7.21	9.58	0.009	19.70	-4.39	15.31	0.034
	802.11n (HT20)	16.66	-7.59	9.07	0.008	16.85	-7.21	9.64	0.009	19.77	-4.39	15.38	0.034
	802.11n (HT40)	17.35	-7.59	9.76	0.009	17.57	-7.21	10.36	0.011	20.47	-4.39	16.08	0.041
	802.11ac (VHT20)	16.64	-7.59	9.05	0.008	16.81	-7.21	9.60	0.009	19.74	-4.39	15.35	0.034
	802.11ac (VHT40)	17.38	-7.59	9.79	0.010	17.50	-7.21	10.29	0.011	20.45	-4.39	16.06	0.040
	802.11ac (VHT80)	16.95	-7.59	9.36	0.009	17.30	-7.21	10.09	0.010	20.14	-4.39	15.75	0.038
	802.11ac (VHT160)	17.48	-7.59	9.89	0.010	17.58	-7.21	10.37	0.011	20.54	-4.39	16.15	0.041

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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)

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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."

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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)	1.54 (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)	5.68 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (1 GHz ~ 18 GHz)	5.75 (Confidence level about 95 %, *k*=2)
Radiated Disturbance (18 GHz ~ 40 GHz)	5.82 (Confidence level about 95 %, *k*=2)

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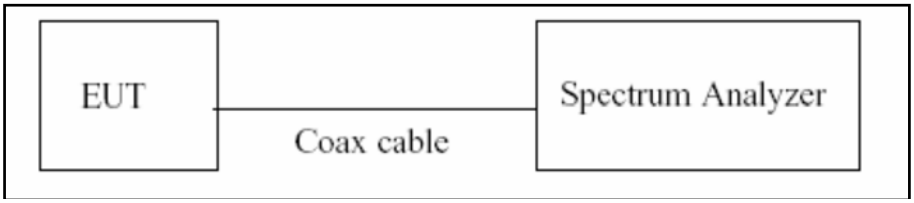
8. DESCRIPTION OF TESTS

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)

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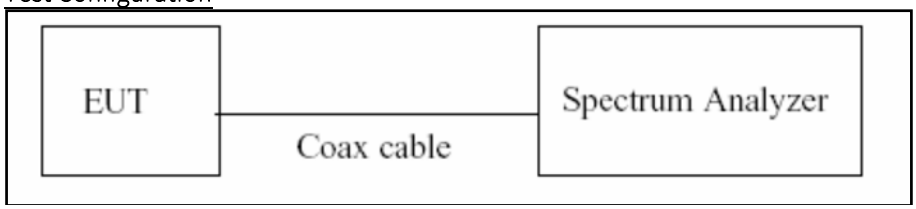
8.2. 6 dB Bandwidth & 26 dB Bandwidth

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.

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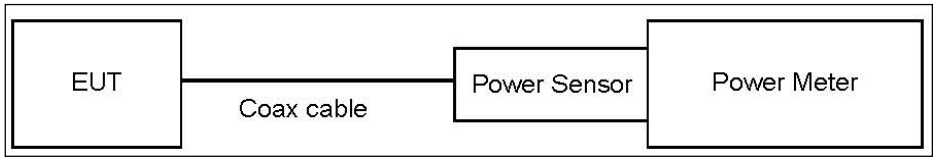
8.3. Output Power Measurement

Limit

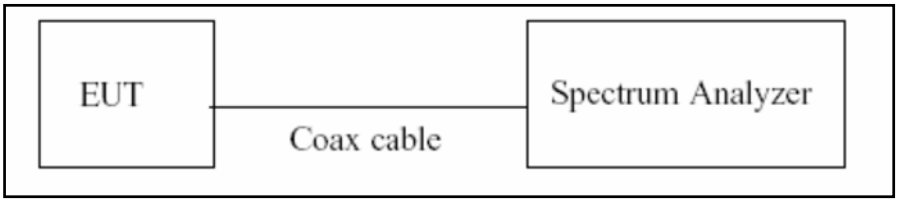
Band	Limit
UNII 1	- Master : Not exceed 1 W(=30 dBm) - Slave : Not exceed 250 mW(=23.98 dBm)
UNII 2A, 2C	Not exceed the lesser of 250 mW or 11 dBm + 10 log B, (where B is the 26 dB emission bandwidth in megahertz.)
UNII 3	Not exceed 1 W(=30 dBm)
UNII 4	EIRP 30 dBm

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.

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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 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	Ant.1 Loss(dB)	Ant.2 Loss(dB)
UNII 1	11.30	10.80
UNII 2A	11.30	10.80
UNII 2C	11.30	10.80
UNII 3&4	11.30	10.80

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

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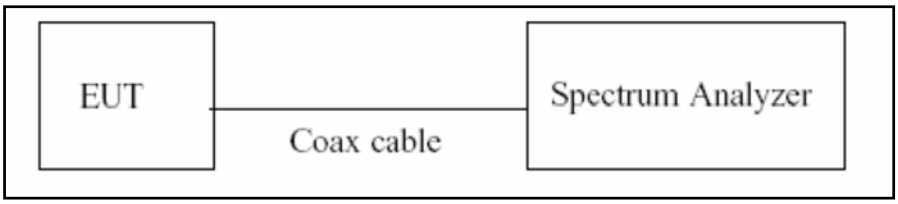
8.4. Power Spectral Density

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.

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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	Ant.1 Loss(dB)	Ant.2 Loss(dB)
UNII 1	11.30	10.80
UNII 2A	11.30	10.80
UNII 2C	11.30	10.80
UNII 3&4	11.30	10.80

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

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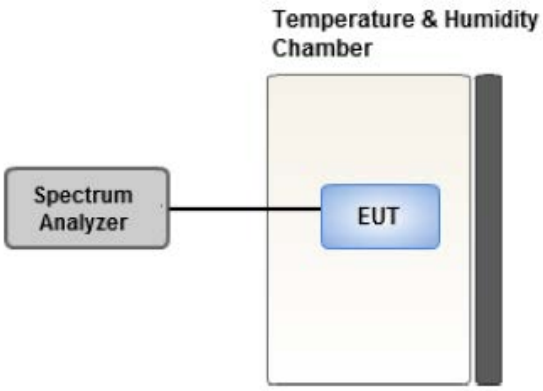
8.5. Frequency Stability

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 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.

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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

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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.

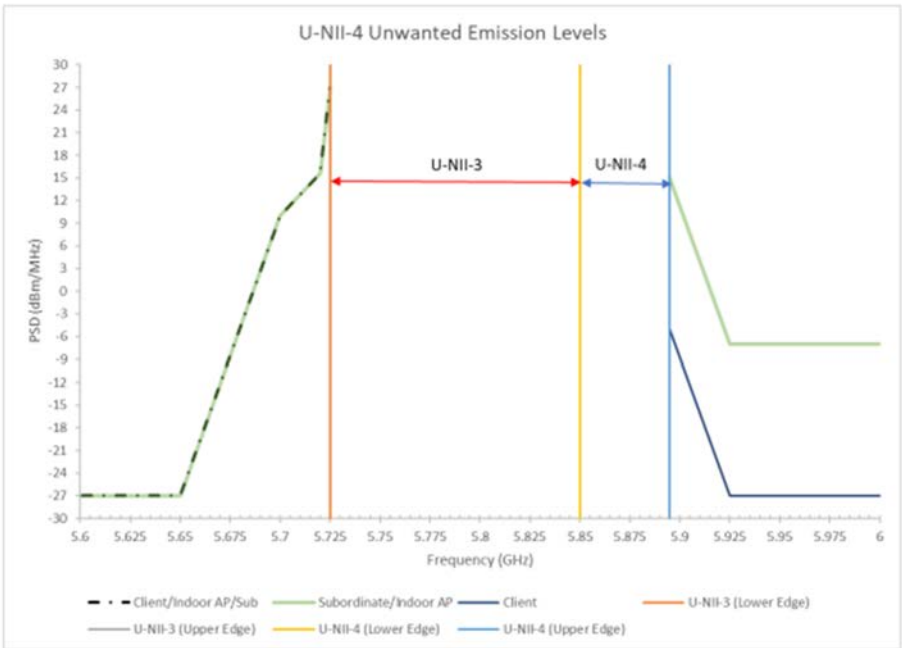

Figure 1. Out of Band Emission Mask of U-NII Devices Operating in the 5.850-5.895 GHz Band

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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

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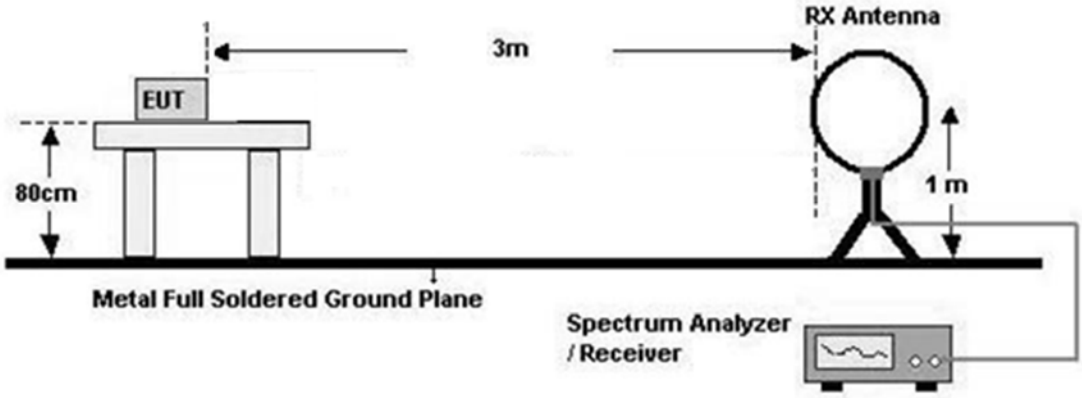
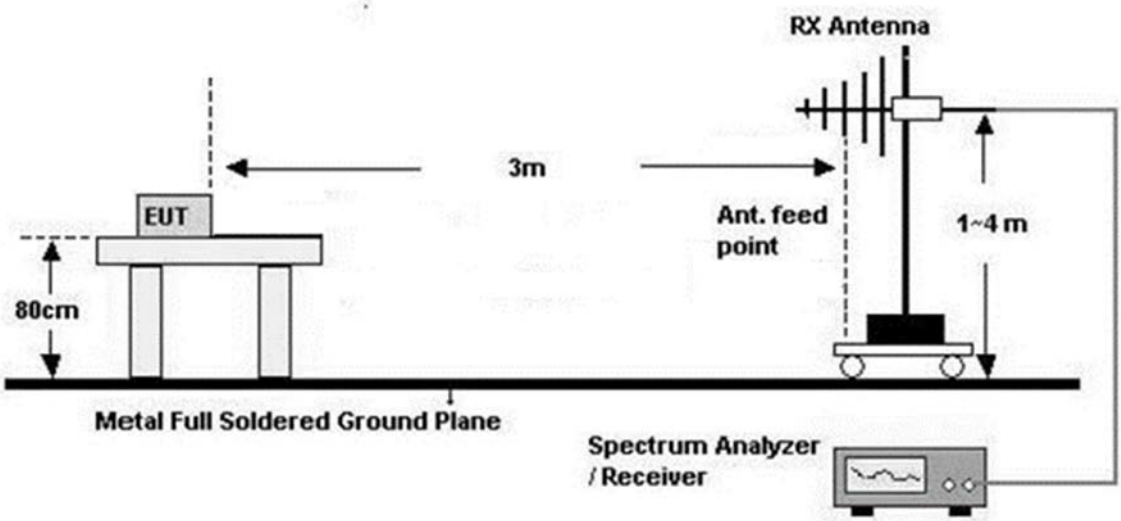
Test Configuration

Below 30 MHz



30 MHz - 1 GHz



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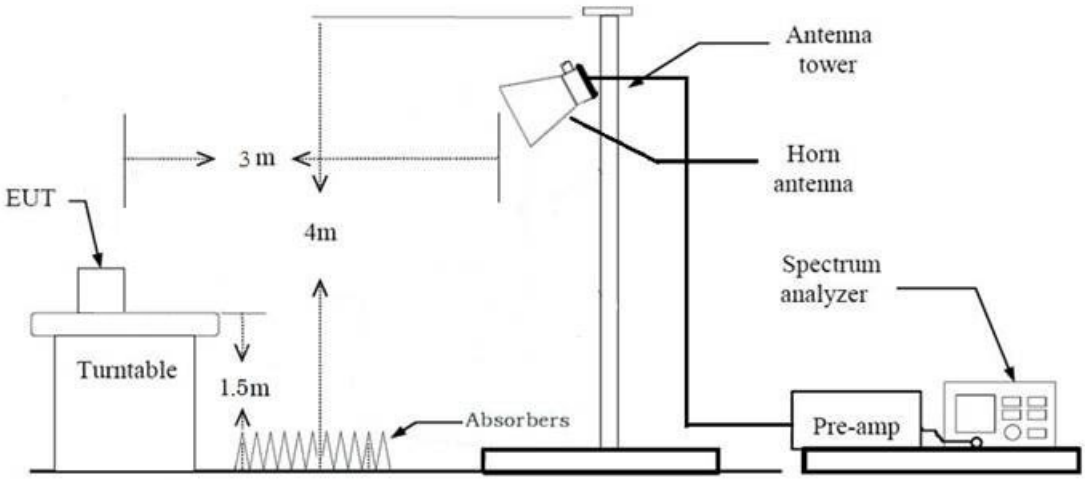
Above 1 GHz



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.

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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.

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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)

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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.

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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
   (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	6	0.937	0.284	1 000
802.11n(HT20)	MCS0	0.927	0.328	1 000
802.11n(HT40)	MCS0	0.864	0.636	2 000
802.11ac(VHT20)	MCS0	0.928	0.322	1 000
802.11ac(VHT40)	MCS0	0.496	3.041	2 000
802.11ac(VHT80)	MCS0	0.761	1.188	5 000
802.11ac(VHT160)	MCS0	0.722	1.413	5 000

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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. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

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
   - Mode : SISO, Ant.1+Ant.2(SDM), Ant.1+Ant.2(CDD)
   - Worstcase : Ant.1+Ant.2(CDD)
3. The EUT was tested in three modes(Open, Half-open, Closed), the worst case configuration results are reported.
   - Radiated Spurious Emissions Worst case : Open mode, Half-open, Closed
   - Radiated Restricted Band Edge : Open mode
4. EUT Axis
   - Radiated Spurious Emissions : Z
   - Radiated Restricted Band Edge : X
5. 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
   - 802.11ac_VHT160: MCS0
6. Radiated Spurious Emission
   - All modulation of operation were investigated and the worst case modulation results are reported.

   Worst-case : 802.11a_6 Mbps
7. 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
8. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

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Radiated test(Simultaneous transmission Scenario)

1. Please refer to the [DTS], [BT], [UNII ax, be] Test Report.
2. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

AC Power line Conducted Emissions

1. All modes of operation were investigated and the worst case configuration results are reported.
   - Mode : Stand alone + External accessories (Earphone,etc) + Travel Adapter,
     Stand alone + Travel Adapter
   - Worstcase : Stand alone + Travel Adapter
2. SC-55F, SCG35 were tested and the worst case results are reported.

(Worst case : SC-55F)

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9. SUMMARY OF TEST RESULTS & DATA REFERENCING

9.1. Test result

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

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'

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9.2. Data Referencing

Equipment Class	Rule Part	Test item	Data Referencing	Comments
UNII (WLAN 5GHz)	§ 15.407 (for Power	26 dB Bandwidth	Y	-
	15.407(e)	6 dB Bandwidth	Y	-
	§ 15.407(a)(1),(2),(3)	Maximum Conducted output power	Y	Spot-check
	§ 15.407(a)(3)(iii)	Maximum EIRP Output Power	Y	-
	§ 15.407(a)(1),(2),(3)	Maximum Power Spectral Density	Y	-
	15.207 15.407(b)(8)	AC conducted Emission	Y	Spot-check
	§ 15.407(g) § 2.1055	Frequency Stability	Y	-
	§ 15.407(b) (1),(2),(3),(4) § 15.407(b)(5)(ii),(iii) § 15.35(b)	Undesirable Emissions	Y	Spot-check
	15.205, 15.407(b)(9),(10)	General Field Strength (Restricted bands and Radiated emission)	Y	Spot-check
	15.407(h)	DFS	Y	-

Spot-Check Result

1. Data was leveraged from model SM-F766U for the certification of SC-55F.
2. Please refer to the [FCC Evaluation] Report.

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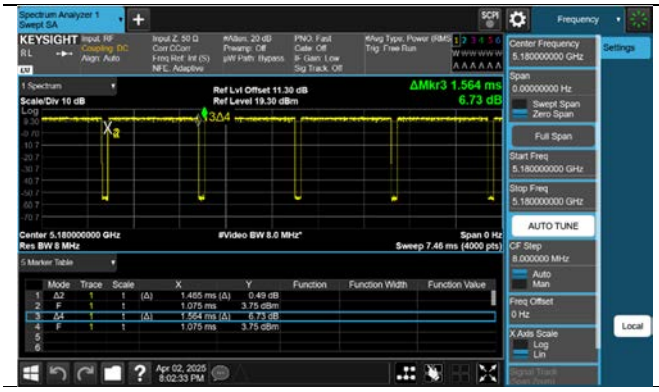
10. TEST RESULT

10.1 DUTY CYCLE

Mode	Data Rate (Mbps)	T_{on} (ms)	T_{total} (ms)	Duty Cycle	Duty Cycle Factor(dB)
802.11a	6M	1.465	1.564	0.937	0.284
802.11n(HT20)	MCS0	1.250	1.348	0.927	0.328
802.11n(HT40)	MCS0	0.621	0.718	0.864	0.636
802.11ac(VHT20)	MCS0	1.254	1.351	0.928	0.322
802.11ac(VHT40)	MCS0	0.623	1.255	0.496	3.041
802.11ac(VHT80)	MCS0	0.312	0.410	0.761	1.188
802.11ac(VHT160)	MCS0	0.253	0.350	0.722	1.413

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)

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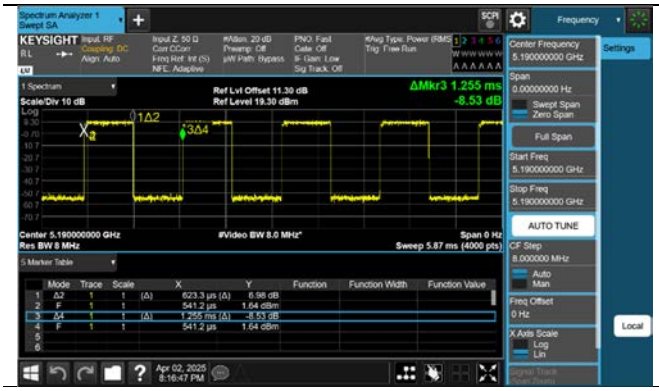
802.11ac(VHT40)



802.11ac(VHT80)

802.11ac(VHT160)

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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.

[Ant.1]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	21.24	16.571
	5200	40	21.23	16.584
	5240	48	21.20	16.574
UNII2A	5260	52	21.22	16.557
	5300	60	20.89	16.567
	5320	64	21.24	16.585
UNII2C	5500	100	20.92	16.571
	5580	116	20.89	16.571
	5720	144	20.94	16.578
UNII3	5745	149	20.88	16.569
	5785	157	20.88	16.560
	5825	165	20.94	16.557
UNII4	5845	169	20.92	16.554
	5865	173	20.92	16.563
	5885	177	20.92	16.566

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	21.06	17.745
	5200	40	20.98	17.742
	5240	48	21.01	17.739
UNII2A	5260	52	21.04	17.738
	5300	60	21.01	17.735
	5320	64	21.00	17.731
UNII2C	5500	100	21.01	17.728
	5580	116	21.31	17.727
	5720	144	21.31	17.732
UNII3	5745	149	21.02	17.729
	5785	157	21.51	17.734
	5825	165	21.19	17.735
UNII4	5845	169	21.27	17.726
	5865	173	21.32	17.724
	5885	177	21.27	17.732

The report shall not be (partly) reproduced except in full without approval of the laboratory.

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	21.02	17.744
	5200	40	21.06	17.744
	5240	48	21.01	17.751
UNII2A	5260	52	21.00	17.744
	5300	60	21.02	17.740
	5320	64	20.98	17.744
UNII2C	5500	100	21.03	17.731
	5580	116	21.02	17.727
	5720	144	21.08	17.739
UNII3	5745	149	21.05	17.746
	5785	157	21.00	17.737
	5825	165	21.27	17.739
UNII4	5845	169	21.32	17.735
	5865	173	21.00	17.732
	5885	177	21.05	17.743

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	42.37	36.417
	5230	46	42.70	36.445
UNII2A	5270	54	42.49	36.447
	5310	62	42.56	36.444
UNII2C	5510	102	42.43	36.419
	5550	110	42.41	36.435
	5710	142	42.70	36.407
UNII3	5755	151	42.44	36.430
	5795	159	42.59	36.434
UNII4	5835	167	42.47	36.442
	5875	175	42.50	36.404

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	42.64	36.475
	5230	46	42.67	36.449
UNII2A	5270	54	42.56	36.455
	5310	62	42.32	36.410
UNII2C	5510	102	42.45	36.416
	5550	110	42.41	36.438
	5710	142	42.58	36.429
UNII3	5755	151	42.38	36.439
	5795	159	42.54	36.399
UNII4	5835	167	42.74	36.407
	5875	175	42.70	36.435

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Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	92.69	76.522
UNII2A	5290	58	92.25	76.586
UNII2C	5530	106	92.60	76.490
	5610	122	91.29	76.554
	5690	138	92.41	76.532
UNII3	5775	155	91.96	76.566
UNII4	5855	171	92.96	76.516

Mode : 802.11ac(VHT160)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII 1-2A	5250	50	177.0	155.70
UNII 2C	5570	114	177.6	155.63
UNII 3-4	5815	163	182.0	155.61

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[Ant.2]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	20.91	16.567
	5200	40	20.92	16.565
	5240	48	20.93	16.569
UNII2A	5260	52	20.90	16.560
	5300	60	20.91	16.563
	5320	64	20.93	16.571
UNII2C	5500	100	20.89	16.557
	5580	116	20.89	16.585
	5720	144	20.89	16.559
UNII3	5745	149	20.93	16.574
	5785	157	20.91	16.583
	5825	165	20.88	16.562
UNII4	5845	169	20.89	16.568
	5865	173	21.25	16.577
	5885	177	20.93	16.561

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	21.29	17.725
	5200	40	21.46	17.730
	5240	48	21.34	17.728
UNII2A	5260	52	21.05	17.723
	5300	60	21.28	17.730
	5320	64	21.35	17.733
UNII2C	5500	100	21.01	17.727
	5580	116	21.03	17.730
	5720	144	21.23	17.734
UNII3	5745	149	21.06	17.730
	5785	157	21.05	17.730
	5825	165	21.08	17.739
UNII4	5845	169	21.15	17.727
	5865	173	21.34	17.738
	5885	177	21.07	17.733

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Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5180	36	21.07	17.741
	5200	40	21.29	17.736
	5240	48	21.41	17.737
UNII2A	5260	52	21.10	17.740
	5300	60	21.28	17.733
	5320	64	21.01	17.723
UNII2C	5500	100	21.23	17.728
	5580	116	21.33	17.727
	5720	144	21.31	17.733
UNII3	5745	149	20.99	17.735
	5785	157	21.31	17.745
	5825	165	21.03	17.725
UNII4	5845	169	21.37	17.745
	5865	173	21.31	17.742
	5885	177	21.08	17.736

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	42.44	36.427
	5230	46	42.49	36.433
UNII2A	5270	54	42.47	36.413
	5310	62	42.48	36.416
UNII2C	5510	102	42.55	36.426
	5550	110	42.53	36.454
	5710	142	42.48	36.411
UNII3	5755	151	42.62	36.448
	5795	159	42.51	36.447
UNII4	5835	167	42.29	36.441
	5875	175	42.45	36.438

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5190	38	42.26	36.411
	5230	46	42.22	36.427
UNII2A	5270	54	42.06	36.434
	5310	62	42.50	36.427
UNII2C	5510	102	42.51	36.422
	5550	110	42.40	36.448
	5710	142	42.49	36.385
UNII3	5755	151	42.58	36.439
	5795	159	42.36	36.431
UNII4	5835	167	42.48	36.427
	5875	175	42.36	36.431

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Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII1	5210	42	92.22	76.622
UNII2A	5290	58	92.18	76.543
UNII2C	5530	106	92.11	76.604
	5610	122	91.65	76.561
	5690	138	90.62	76.584
UNII3	5775	155	92.33	76.595
UNII4	5855	171	92.48	76.551

Mode : 802.11ac(VHT160)				
BAND	Freq. [MHz]	CH.	26 dB Bandwidth [MHz]	99% Occupied Bandwidth [MHz]
UNII 1-2A	5250	50	175.8	155.73
UNII 2C	5570	114	182.5	155.67
UNII 3-4	5815	163	176.5	155.59

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[ANT. 1]

▣ Test Plots

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

Bandwidth 20M, 802.11n(HT20) Ch.157	Bandwidth 40M, 802.11ac(VHT40) Ch.167
Bandwidth 80M, 802.11ac(VHT80) Ch.171	Bandwidth 160M, 802.11ac(VHT160) Ch.163

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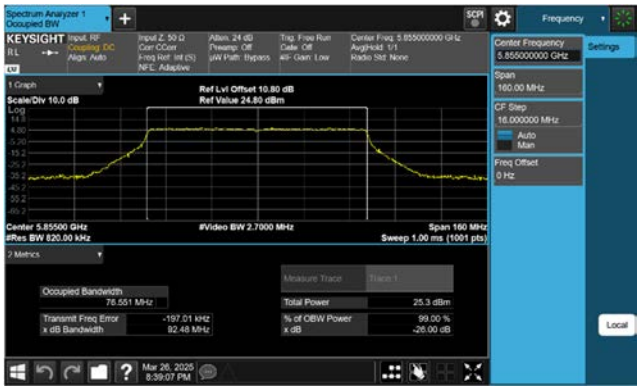
[ANT. 2]

▣ Test Plots

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

Bandwidth 20M, 802.11n(HT20) Ch.40	Bandwidth 40M, 802.11n(HT40) Ch.151
Bandwidth 80M, 802.11ac(VHT80) Ch.171	Bandwidth 160M, 802.11ac(VHT160) Ch.114
	

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10.3 6 dB BANDWIDTH

[Ant.1]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	16.38	> 0.5
	5785	157	16.38	> 0.5
	5825	165	16.39	> 0.5
UNII4	5845	169	16.38	> 0.5
	5865	173	16.38	> 0.5
	5885	177	16.38	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.61	> 0.5
	5785	157	17.61	> 0.5
	5825	165	17.61	> 0.5
UNII4	5845	169	17.62	> 0.5
	5865	173	17.61	> 0.5
	5885	177	17.61	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.62	> 0.5
	5785	157	17.61	> 0.5
	5825	165	17.61	> 0.5
UNII4	5845	169	17.61	> 0.5
	5865	173	17.62	> 0.5
	5885	177	17.61	> 0.5

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.42	> 0.5
	5795	159	36.43	> 0.5
UNII4	5835	167	36.43	> 0.5
	5875	175	36.43	> 0.5

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.41	> 0.5
	5795	159	36.43	> 0.5
UNII4	5835	167	36.44	> 0.5
	5875	175	36.41	> 0.5

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Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	76.46	> 0.5
UNII4	5855	171	76.45	> 0.5

Mode : 802.11ac(VHT160)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3-4	5815	163	156.4	> 0.5

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[Ant.2]

Mode : 802.11a				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	16.38	> 0.5
	5785	157	16.39	> 0.5
	5825	165	16.38	> 0.5
UNII4	5845	169	16.39	> 0.5
	5865	173	16.38	> 0.5
	5885	177	16.38	> 0.5

Mode : 802.11n(HT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.62	> 0.5
	5785	157	17.61	> 0.5
	5825	165	17.62	> 0.5
UNII4	5845	169	17.62	> 0.5
	5865	173	17.61	> 0.5
	5885	177	17.60	> 0.5

Mode : 802.11ac(VHT20)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5745	149	17.61	> 0.5
	5785	157	17.61	> 0.5
	5825	165	17.61	> 0.5
UNII4	5845	169	17.61	> 0.5
	5865	173	17.62	> 0.5
	5885	177	17.61	> 0.5

Mode : 802.11n(HT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.42	> 0.5
	5795	159	36.42	> 0.5
UNII4	5835	167	36.42	> 0.5
	5875	175	36.41	> 0.5

Mode : 802.11ac(VHT40)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5755	151	36.42	> 0.5
	5795	159	36.42	> 0.5
UNII4	5835	167	36.43	> 0.5
	5875	175	36.43	> 0.5

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Mode : 802.11ac(VHT80)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3	5775	155	76.46	> 0.5
UNII4	5855	171	76.44	> 0.5

Mode : 802.11ac(VHT160)				
BAND	Freq. [MHz]	CH.	6 dB Bandwidth [MHz]	Limit [MHz]
UNII3-4	5815	163	156.3	> 0.5

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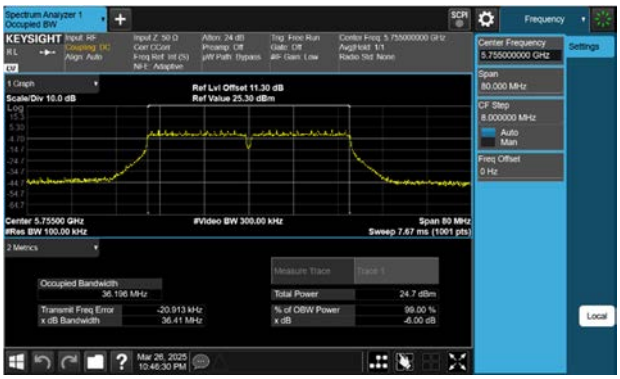
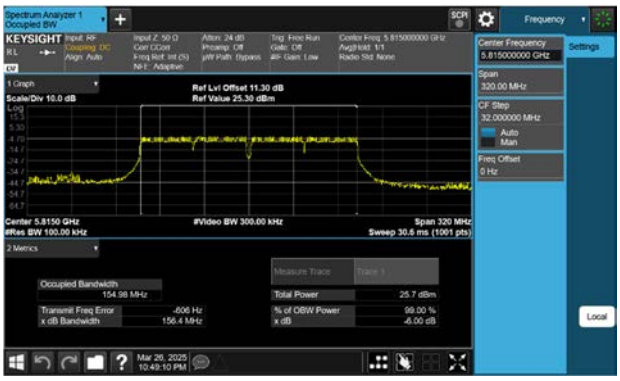
[ANT. 1]

▣ Test Plots

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

Bandwidth 20M, 802.11a Ch.169	Bandwidth 40M, 802.11ac(VHT40) Ch.151
	
Bandwidth 80M, 802.11ac(VHT80) Ch.171	Bandwidth 160M, 802.11ac(VHT160) Ch.163
	

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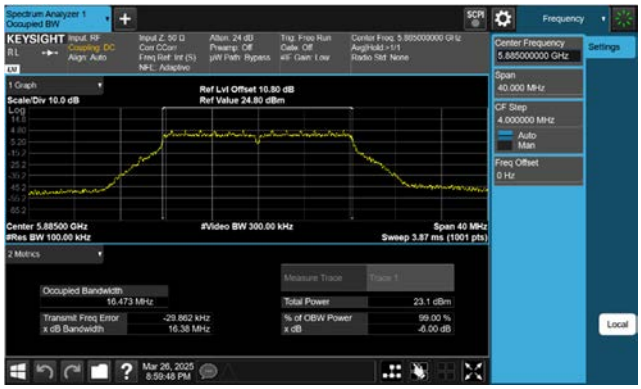
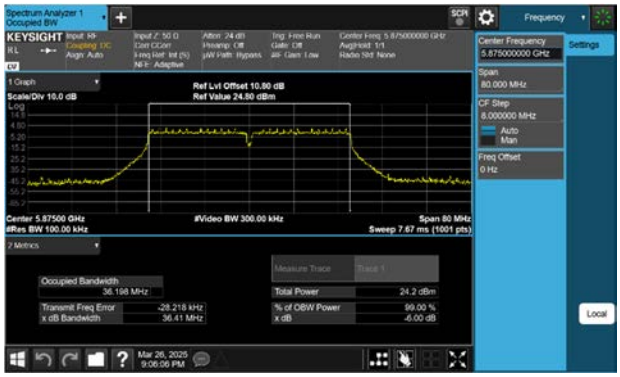
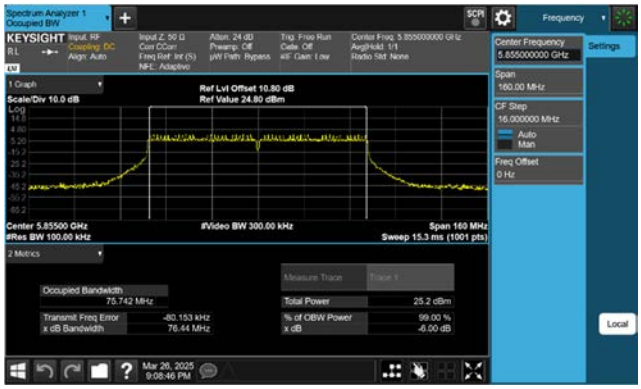
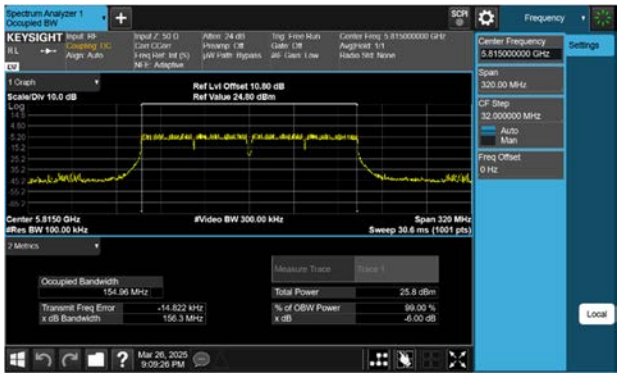
[ANT. 2]

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

Bandwidth 20M, 802.11a Ch.177	Bandwidth 40M, 802.11n(HT40) Ch.175
	
Bandwidth 80M, 802.11ac(VHT80) Ch.171	Bandwidth 160M, 802.11ac(VHT160) Ch.163
	

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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

[MIMO_CDD(Ant.1+ Ant.2)]

Ant Total Power [dBm] = Measured Power [dBm] + Duty Cycle Factor [dB]
MIMO_CDD(Ant.1+ Ant.2) Total Power [dBm] = Ant.1 Total Power [dBm] + Ant.2 Total Power [dBm]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5180	36	6M	a	17.11	16.58	19.86	-	-	-	-	23.98
5200	40	6M	a	17.18	16.50	19.86	-	-	-	-	23.98
5240	48	6M	a	17.30	16.37	19.87	-	-	-	-	23.98
5260	52	6M	a	17.21	16.56	19.90	-	-	-	-	23.98
5300	60	6M	a	17.51	16.32	19.97	-	-	-	-	23.98
5320	64	6M	a	17.38	16.22	19.85	-	-	-	-	23.98
5500	100	6M	a	17.28	16.32	19.83	-	-	-	-	23.98
5580	116	6M	a	17.12	16.62	19.89	-	-	-	-	23.98
5720	144	6M	a	16.66	16.61	19.65	-	-	-	-	23.98
5745	149	6M	a	16.92	16.62	19.79	-	-	-	-	30.00
5785	157	6M	a	16.88	16.66	19.78	-	-	-	-	30.00
5825	165	6M	a	16.69	16.80	19.76	-	-	-	-	30.00
5845	169	6M	a	16.59	16.79	19.70	-7.59	-7.21	-4.39	15.31	30 EIRP
5865	173	6M	a	16.49	16.74	19.62	-7.59	-7.21	-4.39	15.23	30 EIRP
5885	177	6M	a	17.09	16.06	19.62	-7.59	-7.21	-4.39	15.23	30 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5180	36	MCS0	n20	17.14	16.69	19.93	-	-	-	-	23.98
5200	40	MCS0	n20	17.23	16.57	19.93	-	-	-	-	23.98
5240	48	MCS0	n20	17.35	16.44	19.93	-	-	-	-	23.98
5260	52	MCS0	n20	17.28	16.63	19.98	-	-	-	-	23.98
5300	60	MCS0	n20	17.57	16.38	20.03	-	-	-	-	23.98
5320	64	MCS0	n20	17.44	16.29	19.91	-	-	-	-	23.98
5500	100	MCS0	n20	17.39	16.40	19.93	-	-	-	-	23.98
5580	116	MCS0	n20	17.21	16.70	19.97	-	-	-	-	23.98
5720	144	MCS0	n20	16.76	16.69	19.74	-	-	-	-	23.98
5745	149	MCS0	n20	17.01	16.71	19.87	-	-	-	-	30.00
5785	157	MCS0	n20	16.93	16.69	19.82	-	-	-	-	30.00
5825	165	MCS0	n20	16.78	16.85	19.82	-	-	-	-	30.00
5845	169	MCS0	n20	16.66	16.85	19.77	-7.59	-7.21	-4.39	15.38	30 EIRP
5865	173	MCS0	n20	16.53	16.81	19.69	-7.59	-7.21	-4.39	15.30	30 EIRP
5885	177	MCS0	n20	17.14	16.11	19.67	-7.59	-7.21	-4.39	15.28	30 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5180	36	MCS0	ac20	17.13	16.67	19.92	-	-	-	-	23.98
5200	40	MCS0	ac20	17.21	16.55	19.90	-	-	-	-	23.98
5240	48	MCS0	ac20	17.33	16.44	19.92	-	-	-	-	23.98
5260	52	MCS0	ac20	17.26	16.63	19.97	-	-	-	-	23.98
5300	60	MCS0	ac20	17.56	16.39	20.03	-	-	-	-	23.98
5320	64	MCS0	ac20	17.43	16.29	19.91	-	-	-	-	23.98
5500	100	MCS0	ac20	17.40	16.41	19.94	-	-	-	-	23.98
5580	116	MCS0	ac20	17.19	16.67	19.95	-	-	-	-	23.98
5720	144	MCS0	ac20	16.74	16.67	19.71	-	-	-	-	23.98
5745	149	MCS0	ac20	17.00	16.68	19.85	-	-	-	-	30.00
5785	157	MCS0	ac20	16.95	16.70	19.84	-	-	-	-	30.00
5825	165	MCS0	ac20	16.78	16.84	19.82	-	-	-	-	30.00
5845	169	MCS0	ac20	16.64	16.81	19.74	-7.59	-7.21	-4.39	15.35	30 EIRP
5865	173	MCS0	ac20	16.54	16.80	19.68	-7.59	-7.21	-4.39	15.29	30 EIRP
5885	177	MCS0	ac20	17.13	16.12	19.67	-7.59	-7.21	-4.39	15.28	30 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5190	38	MCS0	n40	15.66	15.02	18.36	-	-	-	-	23.98
5230	46	MCS0	n40	17.92	17.15	20.56	-	-	-	-	23.98
5270	54	MCS0	n40	17.93	17.29	20.63	-	-	-	-	23.98
5310	62	MCS0	n40	15.89	14.99	18.47	-	-	-	-	23.98
5510	102	MCS0	n40	17.84	17.25	20.56	-	-	-	-	23.98
5550	110	MCS0	n40	17.86	17.22	20.56	-	-	-	-	23.98
5710	142	MCS0	n40	17.58	17.71	20.66	-	-	-	-	23.98
5755	151	MCS0	n40	17.72	17.40	20.57	-	-	-	-	30.00
5795	159	MCS0	n40	17.54	17.47	20.52	-	-	-	-	30.00
5835	167	MCS0	n40	17.35	17.57	20.47	-7.59	-7.21	-4.39	16.08	30 EIRP
5875	175	MCS0	n40	17.11	17.05	20.09	-7.59	-7.21	-4.39	15.70	30 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5190	38	MCS0	ac40	16.74	16.26	19.52	-	-	-	-	23.98
5230	46	MCS0	ac40	17.92	17.15	20.57	-	-	-	-	23.98
5270	54	MCS0	ac40	17.95	17.32	20.66	-	-	-	-	23.98
5310	62	MCS0	ac40	15.93	15.02	18.51	-	-	-	-	23.98
5510	102	MCS0	ac40	17.88	17.23	20.58	-	-	-	-	23.98
5550	110	MCS0	ac40	17.91	17.21	20.59	-	-	-	-	23.98
5710	142	MCS0	ac40	17.62	17.70	20.67	-	-	-	-	23.98
5755	151	MCS0	ac40	17.75	17.36	20.57	-	-	-	-	30.00
5795	159	MCS0	ac40	17.58	17.45	20.53	-	-	-	-	30.00
5835	167	MCS0	ac40	17.38	17.50	20.45	-7.59	-7.21	-4.39	16.06	30 EIRP
5875	175	MCS0	ac40	17.14	17.05	20.11	-7.59	-7.21	-4.39	15.72	30 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5210	42	MCS0	ac80	15.98	15.46	18.74	-	-	-	-	23.98
5290	58	MCS0	ac80	16.33	15.37	18.89	-	-	-	-	23.98
5530	106	MCS0	ac80	15.36	14.64	18.02	-	-	-	-	23.98
5610	122	MCS0	ac80	17.60	17.24	20.43	-	-	-	-	23.98
5690	138	MCS0	ac80	17.34	17.56	20.46	-	-	-	-	23.98
5775	155	MCS0	ac80	17.33	17.20	20.27	-	-	-	-	30.00
5855	171	MCS0	ac80	16.95	17.30	20.14	-7.59	-7.21	-4.39	15.75	30 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Average Power [dBm]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm]	[dBm]
5250	50	MCS0	ac160	15.80	15.65	18.74	-	-	-	-	23.98
5570	114	MCS0	ac160	15.76	15.26	18.53	-	-	-	-	23.98
5815	163	MCS0	ac160	17.48	17.58	20.54	-7.59	-7.21	-4.39	16.15	30.00

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10.5 POWER SPECTRAL DENSITY

[MIMO_CDD(Ant.1+ Ant.2)]

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

MIMO_CDD(ANT.1+ ANT.2)Total PSD [dBm] = Ant.1 Total PSD [dBm] + Ant.2 Total PSD [dB]

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	36	6M	a	6.039	5.833	8.947	-	-	-	-	11.00
5200	40	6M	a	6.103	5.443	8.796	-	-	-	-	11.00
5240	48	6M	a	6.284	5.336	8.846	-	-	-	-	11.00
5260	52	6M	a	6.211	5.576	8.915	-	-	-	-	11.00
5300	60	6M	a	6.303	5.293	8.837	-	-	-	-	11.00
5320	64	6M	a	6.557	5.092	8.896	-	-	-	-	11.00
5500	100	6M	a	6.243	5.250	8.785	-	-	-	-	11.00
5580	116	6M	a	6.040	5.600	8.836	-	-	-	-	11.00
5720	144	6M	a	5.521	5.543	8.542	-	-	-	-	11.00
5745	149	6M	a	2.965	2.785	5.886	-	-	-	-	30 dBm/500kHz
5785	157	6M	a	2.817	2.859	5.848	-	-	-	-	30 dBm/500kHz
5825	165	6M	a	2.724	2.995	5.872	-	-	-	-	30 dBm/500kHz
5845	169	6M	a	5.426	5.754	8.603	-7.59	-7.21	-4.39	4.213	14 EIRP
5865	173	6M	a	5.468	5.698	8.595	-7.59	-7.21	-4.39	4.205	14 EIRP
5885	177	6M	a	6.084	5.101	8.630	-7.59	-7.21	-4.39	4.240	14 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	36	MCS0	n20	5.884	5.449	8.683	-	-	-	-	11.00
5200	40	MCS0	n20	5.884	5.377	8.648	-	-	-	-	11.00
5240	48	MCS0	n20	5.926	5.222	8.599	-	-	-	-	11.00
5260	52	MCS0	n20	5.869	5.374	8.639	-	-	-	-	11.00
5300	60	MCS0	n20	6.242	5.220	8.772	-	-	-	-	11.00
5320	64	MCS0	n20	5.972	5.221	8.623	-	-	-	-	11.00
5500	100	MCS0	n20	6.018	5.075	8.583	-	-	-	-	11.00
5580	116	MCS0	n20	5.859	5.521	8.704	-	-	-	-	11.00
5720	144	MCS0	n20	5.321	5.290	8.316	-	-	-	-	11.00
5745	149	MCS0	n20	2.874	2.624	5.761	-	-	-	-	30 dBm/500kHz
5785	157	MCS0	n20	2.691	2.620	5.666	-	-	-	-	30 dBm/500kHz
5825	165	MCS0	n20	2.621	2.820	5.732	-	-	-	-	30 dBm/500kHz
5845	169	MCS0	n20	5.387	5.396	8.402	-7.59	-7.21	-4.39	4.012	14 EIRP
5865	173	MCS0	n20	5.167	5.587	8.393	-7.59	-7.21	-4.39	4.003	14 EIRP
5885	177	MCS0	n20	5.702	4.801	8.285	-7.59	-7.21	-4.39	3.895	14 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5180	36	MCS0	ac20	5.759	5.399	8.593	-	-	-	-	11.00
5200	40	MCS0	ac20	6.278	5.433	8.887	-	-	-	-	11.00
5240	48	MCS0	ac20	6.027	5.231	8.658	-	-	-	-	11.00
5260	52	MCS0	ac20	5.818	5.114	8.491	-	-	-	-	11.00
5300	60	MCS0	ac20	6.297	5.223	8.804	-	-	-	-	11.00
5320	64	MCS0	ac20	6.024	4.808	8.469	-	-	-	-	11.00
5500	100	MCS0	ac20	6.016	5.242	8.657	-	-	-	-	11.00
5580	116	MCS0	ac20	6.091	5.587	8.857	-	-	-	-	11.00
5720	144	MCS0	ac20	5.364	5.280	8.333	-	-	-	-	11.00
5745	149	MCS0	ac20	2.708	2.483	5.607	-	-	-	-	30 dBm/500kHz
5785	157	MCS0	ac20	3.066	2.835	5.963	-	-	-	-	30 dBm/500kHz
5825	165	MCS0	ac20	2.499	2.597	5.559	-	-	-	-	30 dBm/500kHz
5845	169	MCS0	ac20	5.365	5.589	8.489	-7.59	-7.21	-4.39	4.099	14 EIRP
5865	173	MCS0	ac20	5.187	5.453	8.333	-7.59	-7.21	-4.39	3.943	14 EIRP
5885	177	MCS0	ac20	5.864	4.701	8.332	-7.59	-7.21	-4.39	3.942	14 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5190	38	MCS0	n40	1.106	0.896	4.013	-	-	-	-	11.00
5230	46	MCS0	n40	3.739	2.952	6.374	-	-	-	-	11.00
5270	54	MCS0	n40	3.481	2.807	6.168	-	-	-	-	11.00
5310	62	MCS0	n40	1.714	0.710	4.252	-	-	-	-	11.00
5510	102	MCS0	n40	3.367	2.797	6.102	-	-	-	-	11.00
5550	110	MCS0	n40	3.329	2.719	6.045	-	-	-	-	11.00
5710	142	MCS0	n40	3.204	3.205	6.215	-	-	-	-	11.00
5755	151	MCS0	n40	0.513	0.168	3.355	-	-	-	-	30 dBm/500kHz
5795	159	MCS0	n40	0.204	0.468	3.349	-	-	-	-	30 dBm/500kHz
5835	167	MCS0	n40	2.861	3.147	6.017	-7.59	-7.21	-4.39	1.627	14 EIRP
5875	175	MCS0	n40	2.678	2.550	5.625	-7.59	-7.21	-4.39	1.235	14 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5190	38	MCS0	ac40	2.497	2.068	5.298	-	-	-	-	11.00
5230	46	MCS0	ac40	3.469	2.205	5.893	-	-	-	-	11.00
5270	54	MCS0	ac40	4.064	3.787	6.938	-	-	-	-	11.00
5310	62	MCS0	ac40	2.236	0.655	4.527	-	-	-	-	11.00
5510	102	MCS0	ac40	3.689	3.343	6.530	-	-	-	-	11.00
5550	110	MCS0	ac40	3.799	4.047	6.935	-	-	-	-	11.00
5710	142	MCS0	ac40	2.946	3.918	6.469	-	-	-	-	11.00
5755	151	MCS0	ac40	0.647	0.475	3.572	-	-	-	-	30 dBm/500kHz
5795	159	MCS0	ac40	0.742	0.700	3.731	-	-	-	-	30 dBm/500kHz
5835	167	MCS0	ac40	3.448	3.292	6.381	-7.59	-7.21	-4.39	1.991	14 EIRP
5875	175	MCS0	ac40	2.821	3.331	6.094	-7.59	-7.21	-4.39	1.704	14 EIRP

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Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5210	42	MCS0	ac80	-1.270	-1.910	1.432	-	-	-	-	11.00
5290	58	MCS0	ac80	-0.672	-2.091	1.686	-	-	-	-	11.00
5530	106	MCS0	ac80	-2.048	-2.575	0.707	-	-	-	-	11.00
5610	122	MCS0	ac80	0.483	-0.216	3.158	-	-	-	-	11.00
5690	138	MCS0	ac80	-0.184	0.348	3.100	-	-	-	-	11.00
5775	155	MCS0	ac80	-2.756	-2.834	0.215	-	-	-	-	30 dBm/500kHz
5855	171	MCS0	ac80	-0.676	0.041	2.707	-7.59	-7.21	-4.39	-1.683	14 EIRP

Freq. [MHz]	CH.	Datarate	Mode (802.11)	Total Power Spectral Density [dBm/MHz]			Ant.1 Gain	Ant.2 Gain	Directional Gain	Max EIRP	Limit
				ANT1	ANT2	MIMO	[dBi]	[dBi]	[dBi]	[dBm/MHz]	[dBm/MHz]
5250	50	MCS0	ac160	-4.312	-4.375	-1.333	-	-	-	-	11.00
5570	114	MCS0	ac160	-4.430	-5.410	-1.882	-	-	-	-	11.00
5815	163	MCS0	ac160	-2.776	-2.928	0.159	-7.59	-7.21	-4.39	-4.231	14 EIRP

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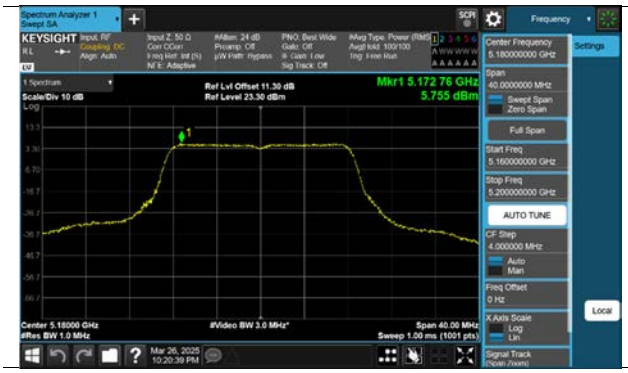
[MIMO_CDD(Ant.1+ Ant.2)]

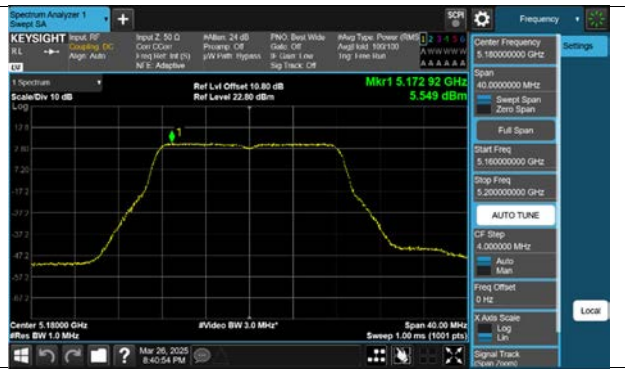
▣ Test Plots

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

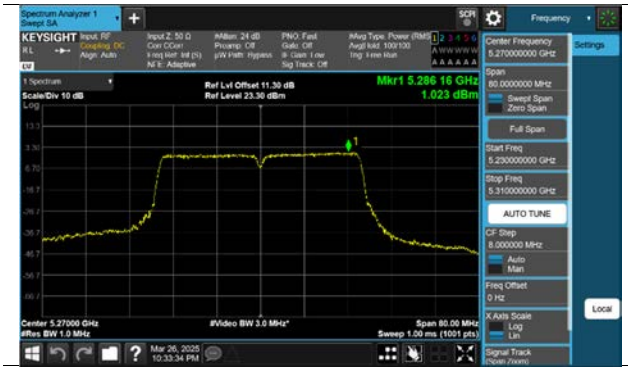
ANT. 1	ANT. 2

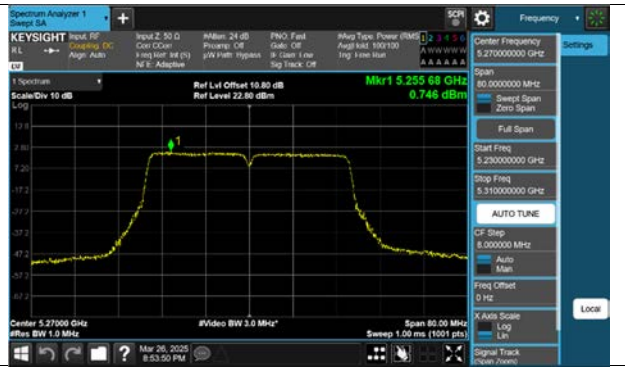
Bandwidth 20M, 802.11a (Ch. 36)



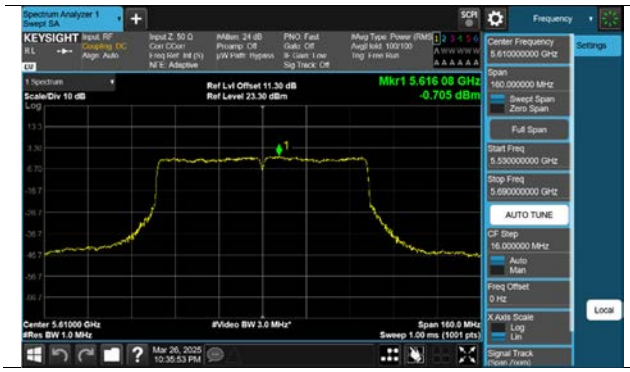


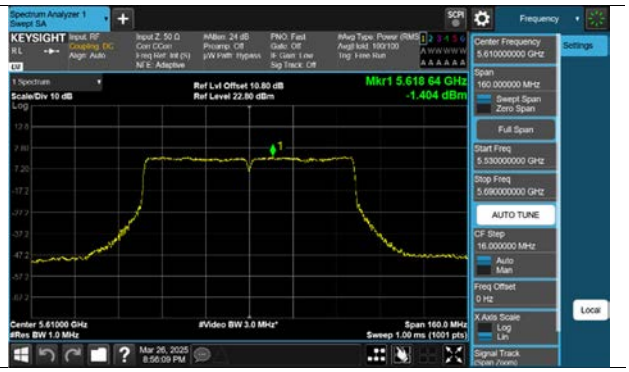
Bandwidth 40M, 802.11ac(VHT40) (Ch. 54)





Bandwidth 80M, 802.11ac(VHT80) (Ch. 122)





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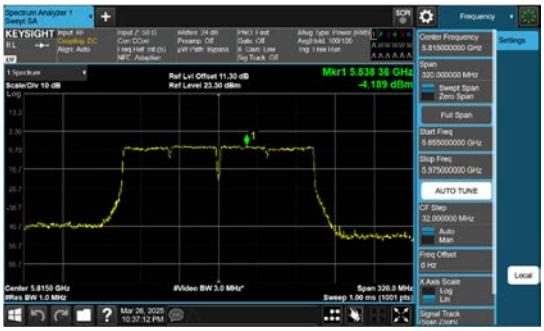
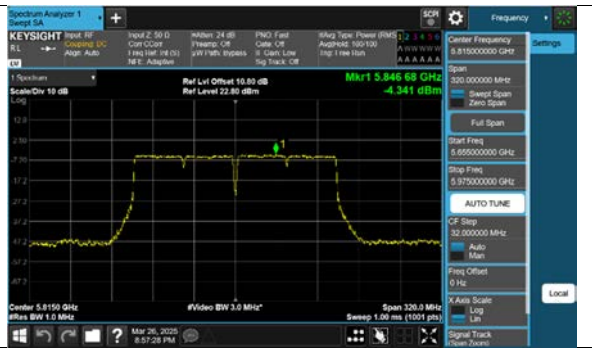
ANT. 1	ANT. 2
Bandwidth 160M, 802.11ac(VHT160) (Ch. 163)	
	

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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.

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10.6.1 802.11ac 160 MHz BW

[MIMO_CDD(Ant1+Ant2)]

REFERENCE VOLTAGE: 3.90 VDC

Startup after the EUT is energized

OPERATING BAND:			UNII Band 1 & 2A		UNII Band 2C		UNII Band 3 & 4	
OPERATING FREQUENCY:			5,250,000,000 Hz		5,570,000,000 Hz		5,815,000,000 Hz	
CHANNEL:			50		114		163	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.90	+20(Ref)	5250005.61	5.61	5570007.58	7.58	5815069.80	69.80
100%		-30	5250028.52	28.52	5570092.52	92.52	5815097.05	97.05
100%		-20	5250048.41	48.41	5570098.29	98.29	5815078.43	78.43
100%		-10	5250022.95	22.95	5570013.98	13.98	5815078.34	78.34
100%		0	5250034.91	34.91	5570075.96	75.96	5815004.04	4.04
100%		+10	5250029.94	29.94	5570054.04	54.04	5815001.55	1.55
100%		+30	5250068.75	68.75	5570074.87	74.87	5815001.22	1.22
100%		+40	5250019.31	19.31	5570091.63	91.63	5815003.78	3.78
100%		+50	5250078.17	78.17	5570027.32	27.32	5815092.15	92.15
High	4.45	+20	5250068.67	68.67	5570002.45	2.45	5815063.32	63.32
End Point	3.30	+20	5250095.75	95.75	5570041.61	41.61	5815053.98	53.98

2 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1 & 2A		UNII Band 2C		UNII Band 3 & 4	
OPERATING FREQUENCY:			5,250,000,000 Hz		5,570,000,000 Hz		5,815,000,000 Hz	
CHANNEL:			50		114		163	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.90	+20(Ref)	5250022.77	22.77	5570007.87	7.87	5815049.18	49.18
100%		-30	5250001.19	1.19	5570088.40	88.40	5815092.11	92.11
100%		-20	5250087.64	87.64	5570078.53	78.53	5815032.51	32.51
100%		-10	5250057.28	57.28	5570004.79	4.79	5815085.03	85.03
100%		0	5250079.78	79.78	5570080.78	80.78	5815009.10	9.10
100%		+10	5250047.98	47.98	5570040.69	40.69	5815068.53	68.53
100%		+30	5250041.35	41.35	5570027.54	27.54	5815084.45	84.45
100%		+40	5250010.48	10.48	5570077.20	77.20	5815039.54	39.54
100%		+50	5250010.91	10.91	5570031.26	31.26	5815028.11	28.11
High	4.45	+20	5250082.46	82.46	5570036.69	36.69	5815085.53	85.53
End Point	3.30	+20	5250028.63	28.63	5570007.30	7.30	5815077.31	77.31

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5 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1 & 2A		UNII Band 2C		UNII Band 3 & 4	
OPERATING FREQUENCY:			5,250,000,000 Hz		5,570,000,000 Hz		5,815,000,000 Hz	
CHANNEL:			50		114		163	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.90	+20(Ref)	5250079.69	79.69	5570049.72	49.72	5815011.76	11.76
100%		-30	5250064.97	64.97	5570033.40	33.40	5815073.60	73.60
100%		-20	5250088.82	88.82	5570049.18	49.18	5815095.34	95.34
100%		-10	5250067.95	67.95	5570020.56	20.56	5815061.28	61.28
100%		0	5250041.67	41.67	5570017.37	17.37	5815079.42	79.42
100%		+10	5250015.47	15.47	5570043.91	43.91	5815076.75	76.75
100%		+30	5250032.65	32.65	5570086.61	86.61	5815086.02	86.02
100%		+40	5250010.48	10.48	5570008.20	8.20	5815072.39	72.39
100%		+50	5250083.92	83.92	5570033.60	33.60	5815048.45	48.45
High	4.45	+20	5250059.49	59.49	5570023.07	23.07	5815033.67	33.67
End Point	3.30	+20	5250069.51	69.51	5570009.77	9.77	5815017.80	17.80

10 minutes after the EUT is energized

OPERATING BAND:			UNII Band 1 & 2A		UNII Band 2C		UNII Band 3 & 4	
OPERATING FREQUENCY:			5,250,000,000 Hz		5,570,000,000 Hz		5,815,000,000 Hz	
CHANNEL:			50		114		163	
Voltage	Power	Temp.	Frequency	Frequency Error	Frequency	Frequency Error	Frequency	Frequency Error
(%)	(VDC)	(°C)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)	(kHz)
100%	3.90	+20(Ref)	5250098.55	98.55	5570096.48	96.48	5815051.31	51.31
100%		-30	5250054.02	54.02	5570069.72	69.72	5815061.33	61.33
100%		-20	5250028.08	28.08	5570081.07	81.07	5815078.65	78.65
100%		-10	5250022.97	22.97	5570006.11	6.11	5815022.55	22.55
100%		0	5250035.23	35.23	5570076.96	76.96	5815075.11	75.11
100%		+10	5250082.89	82.89	5570098.17	98.17	5815029.95	29.95
100%		+30	5250013.26	13.26	5570039.39	39.39	5815098.40	98.40
100%		+40	5250046.05	46.05	5570044.65	44.65	5815075.12	75.12
100%		+50	5250066.67	66.67	5570091.32	91.32	5815006.72	6.72
High	4.45	+20	5250018.46	18.46	5570066.69	66.69	5815024.91	24.91
End Point	3.30	+20	5250031.73	31.73	5570057.61	57.61	5815081.67	81.67

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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)

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[ANT. 1]

Mode	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11a	UNII2C	5720	144	15.52	-	15.79	22.91	5.549	11
802.11n(HT20)				15.60	-	15.72	22.93	5.183	11
802.11ac(VHT20)				15.92	-	15.73	23.02	5.204	11
802.11a	UNII3	5720	144	5.48	3.20	9.84	30.00	2.453	30 dBm/500kHz
802.11n(HT20)				5.48	3.80	10.25	30.00	2.196	30 dBm/500kHz
802.11ac(VHT20)				5.52	3.80	10.34	30.00	2.158	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11n(HT40)	UNII2C	5710	142	36.68	-	17.17	23.98	3.079	11
802.11ac(VHT40)				36.44	-	17.14	23.98	3.078	11
802.11n(HT40)	UNII3	5710	142	6.28	3.24	7.22	30.00	-0.126	30 dBm/500kHz
802.11ac(VHT40)				6.28	3.24	7.45	30.00	0.127	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11ac(VHT80)	UNII2C	5690	138	81.40	-	17.13	23.98	-0.100	11
802.11ac(VHT80)	UNII3	5690	138	9.96	3.24	4.07	30.00	-3.044	30 dBm/500kHz

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[ANT. 2]

Mode	Band	Freq. [MHz]	CH.	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11a	UNII2C	5720	144	15.48	-	15.74	22.90	5.344	11
802.11n(HT20)				15.92	-	15.70	23.02	5.282	11
802.11ac(VHT20)				15.88	-	15.72	23.01	5.330	11
802.11a	UNII3	5720	144	5.48	3.20	9.79	30.00	2.547	30 dBm/500kHz
802.11n(HT20)				5.48	3.80	10.26	30.00	2.206	30 dBm/500kHz
802.11ac(VHT20)				5.52	3.80	10.37	30.00	2.195	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11n(HT40)	UNII2C	5710	142	36.52	-	17.38	23.98	3.100	11
802.11ac(VHT40)				36.52	-	17.53	23.98	2.930	11
802.11n(HT40)	UNII3	5710	142	6.28	3.24	7.40	30.00	-0.044	30 dBm/500kHz
802.11ac(VHT40)				6.12	3.24	7.65	30.00	-0.180	30 dBm/500kHz

Mode	Band	Freq. [MHz]	Channel	26dB BW [MHz]	6dB BW [MHz]	Total Power [dBm]	Limit [dBm]	Total PSD [dBm]	Limit [dBm/MHz]
802.11ac(VHT80)	UNII2C	5690	138	81.88	-	17.37	23.98	-0.186	11
802.11ac(VHT80)	UNII3	5690	138	10.76	3.24	4.26	30.00	-3.318	30 dBm/500kHz

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▣ Test Plots (26 dB Bandwidth)

[ANT. 1]

802.11a UNII Band

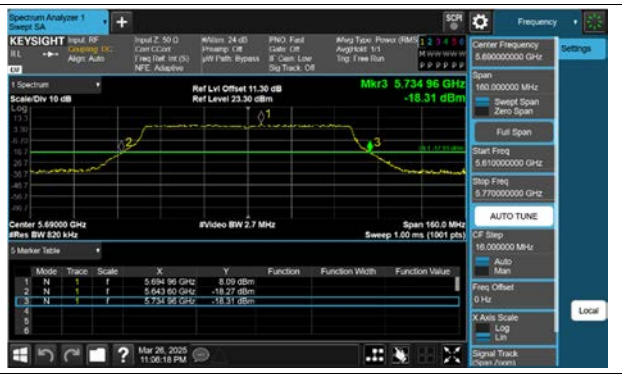
802.11n(HT20) UNII Band

802.11ac(VHT20) UNII Band

802.11n(HT40) UNII Band

802.11ac(VHT40) UNII Band

802.11ac(VHT80) UNII Band



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[ANT. 2]

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

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▣ Test Plots(UNII 3 Band 6 dB Bandwidth)

[ANT. 1]

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

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[ANT. 2]

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

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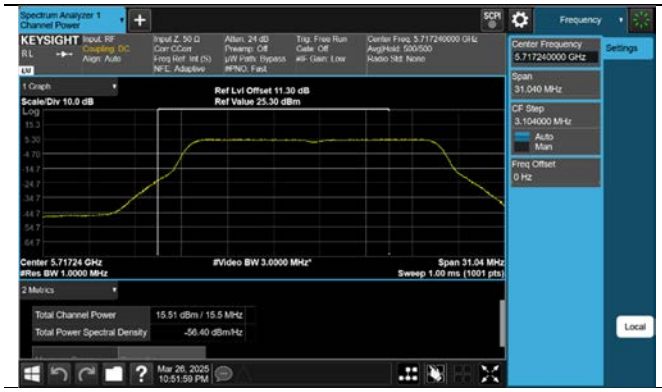
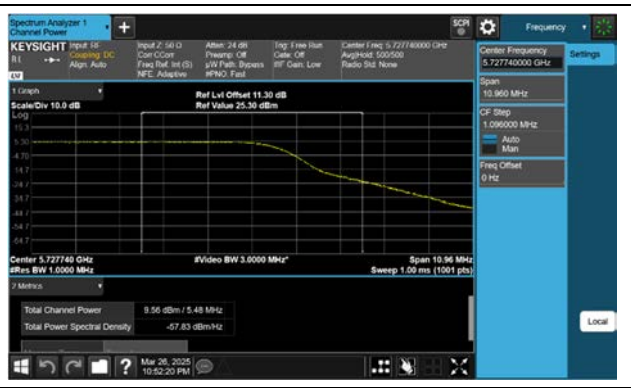
▣ Test Plots(Output Power)

[ANT. 1]

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

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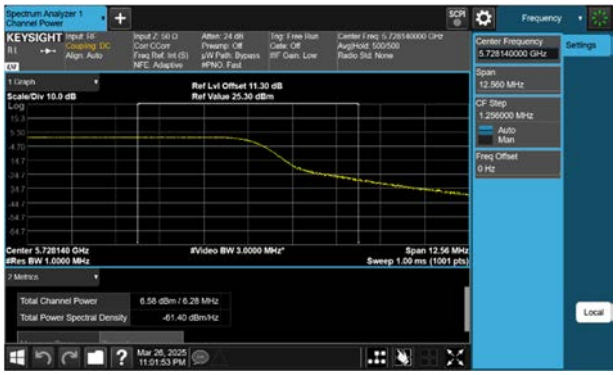
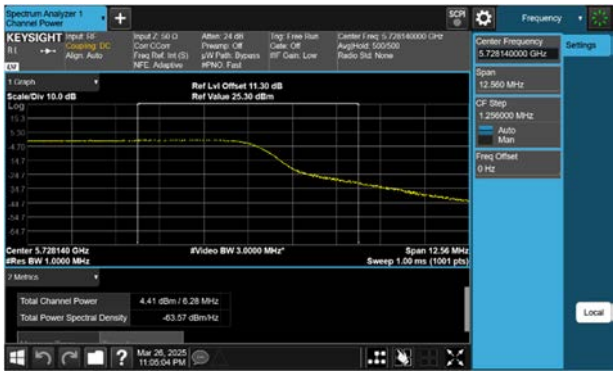
802.11n(HT40) UNII 2C Band

802.11n(HT40) UNII 3 Band



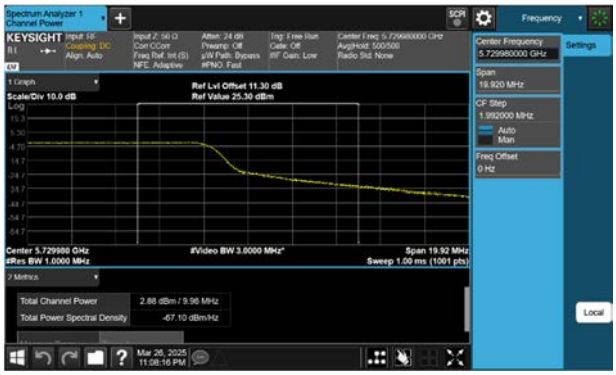
802.11ac(VHT40) UNII 2C Band

802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band

802.11ac(VHT80) UNII 3 Band



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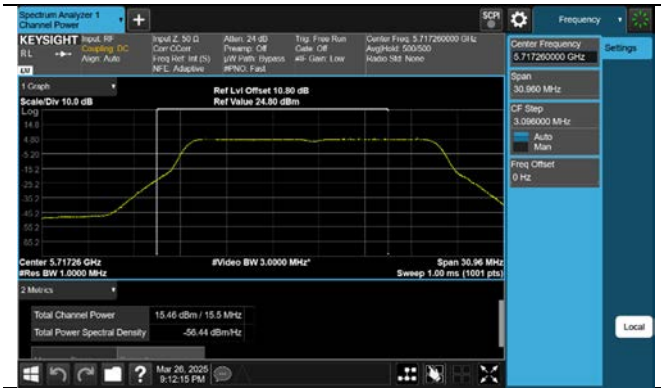
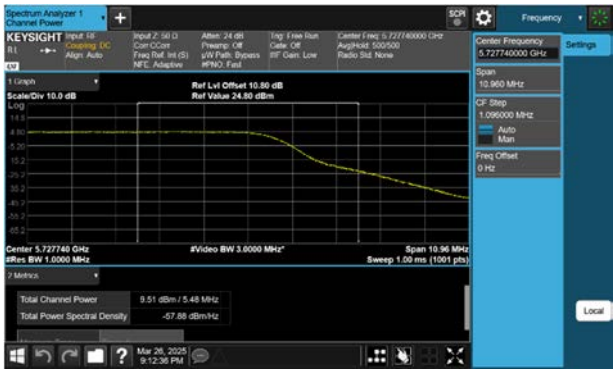
[ANT. 2]

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

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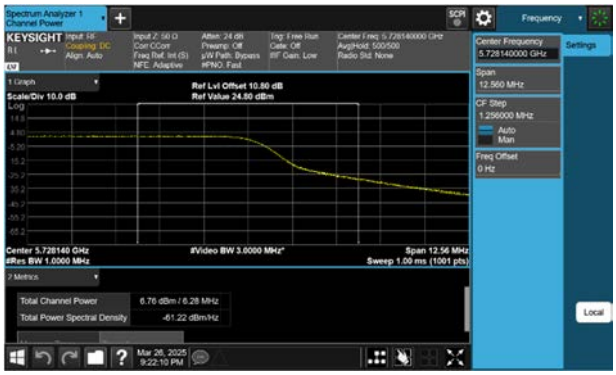
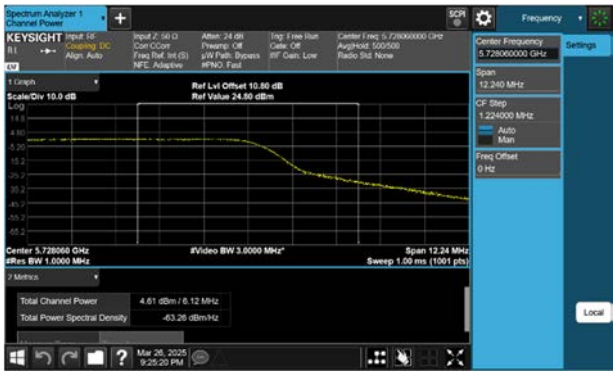
802.11n(HT40) UNII 2C Band

802.11n(HT40) UNII 3 Band

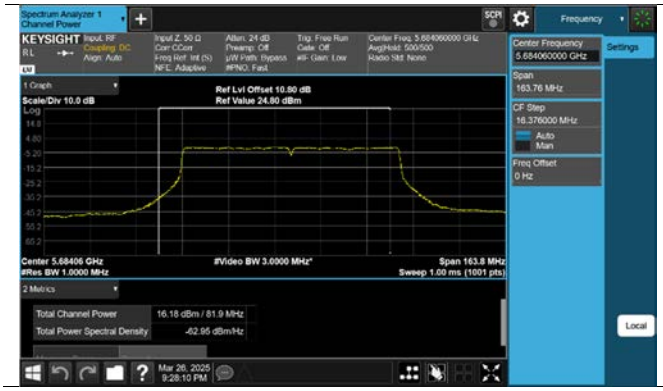


802.11ac(VHT40) UNII 2C Band

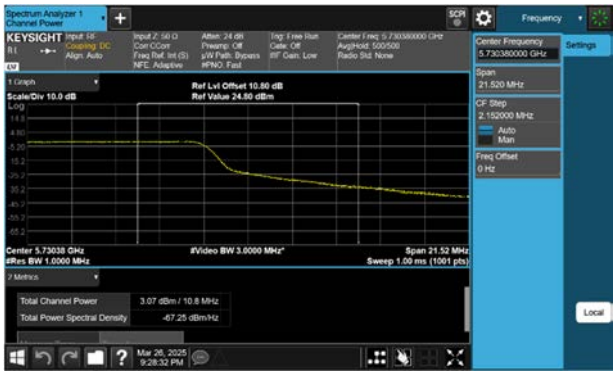
802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band



802.11ac(VHT80) UNII 3 Band



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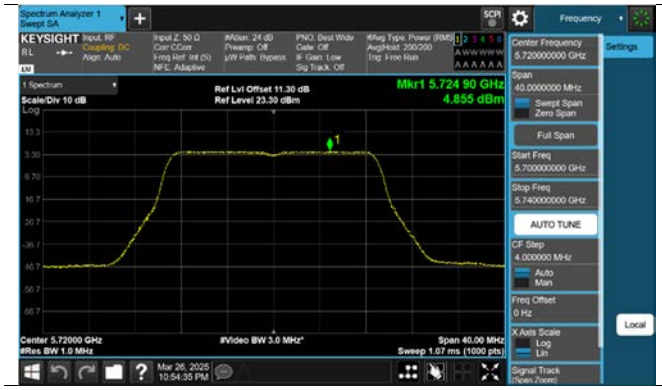
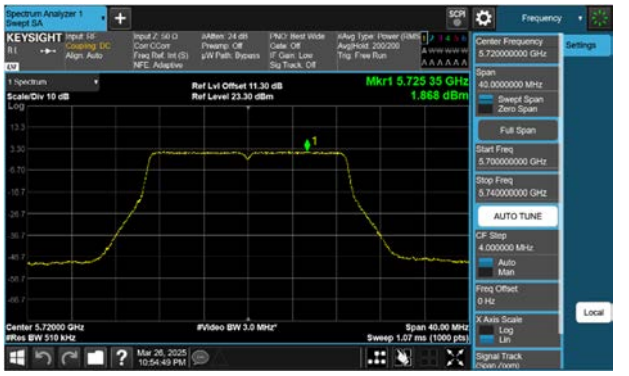
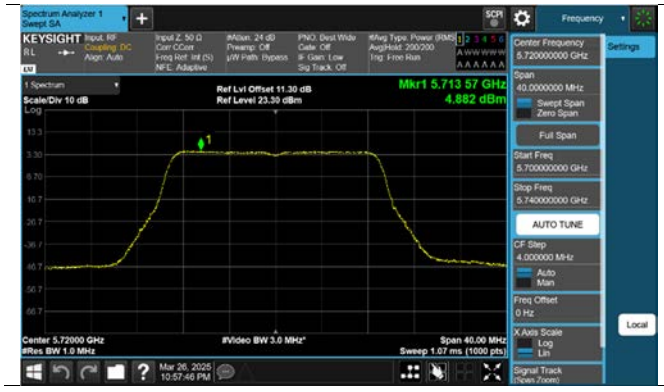
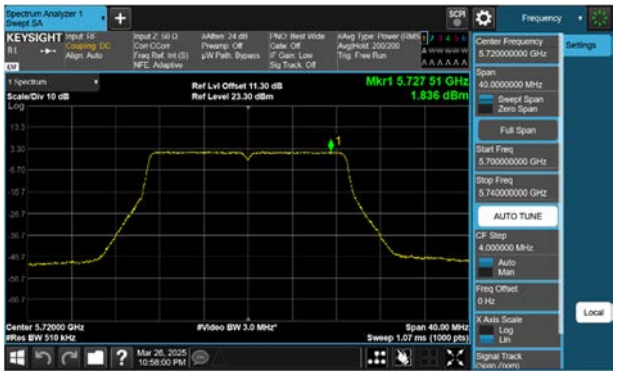
▣ Test Plots(Power Spectral Density)

[ANT. 1]

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
	

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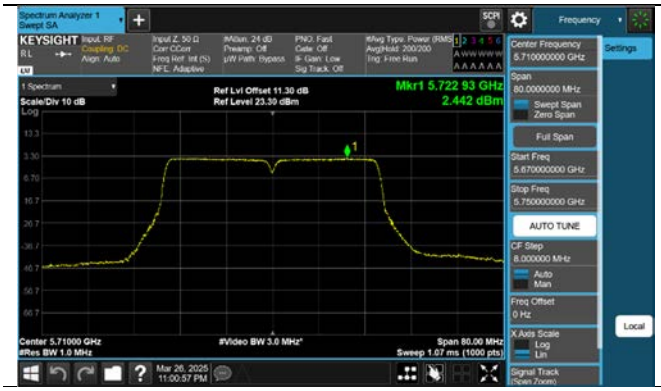
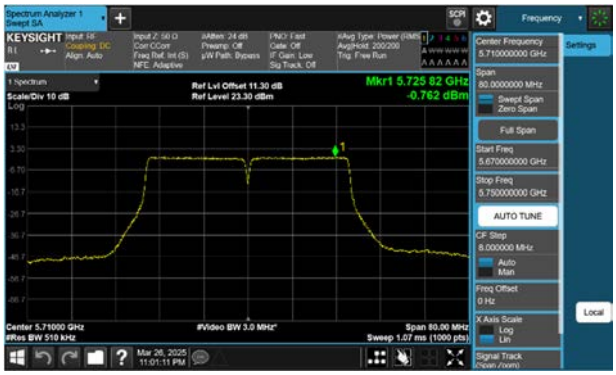
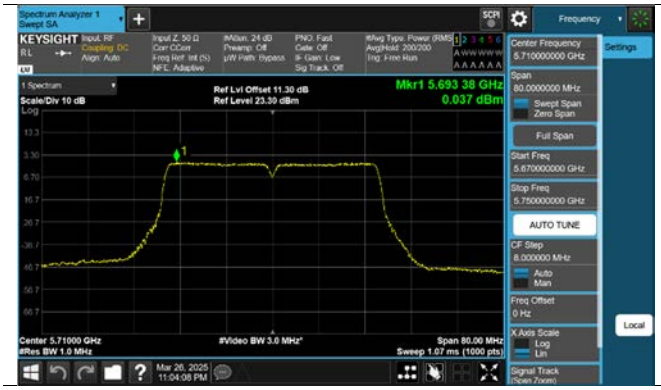
802.11n(HT40) UNII 2C Band



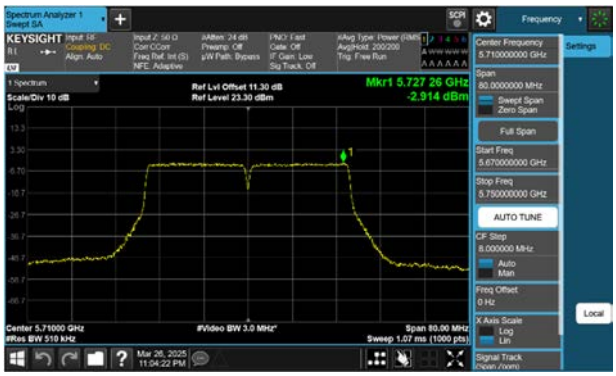
802.11n(HT40) UNII 3 Band



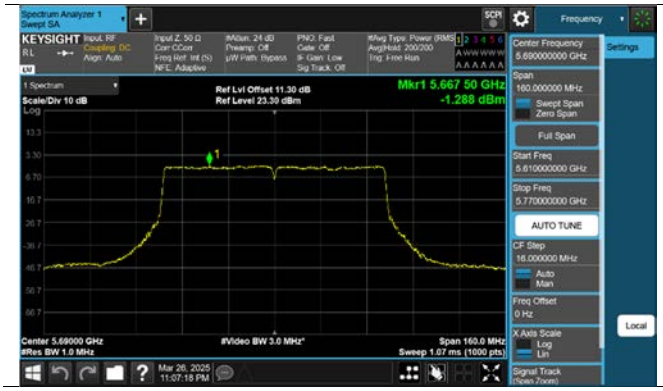
802.11ac(VHT40) UNII 2C Band



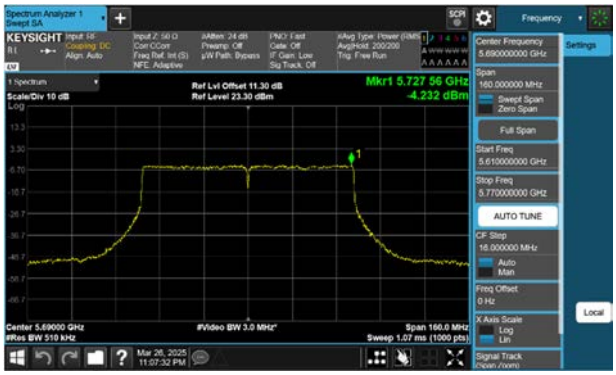
802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band



802.11ac(VHT80) UNII 3 Band



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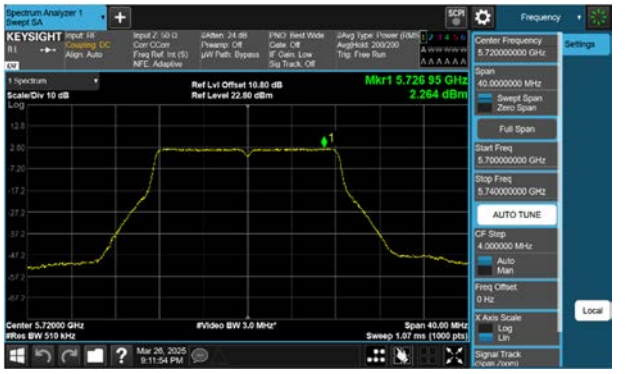
[ANT. 2]

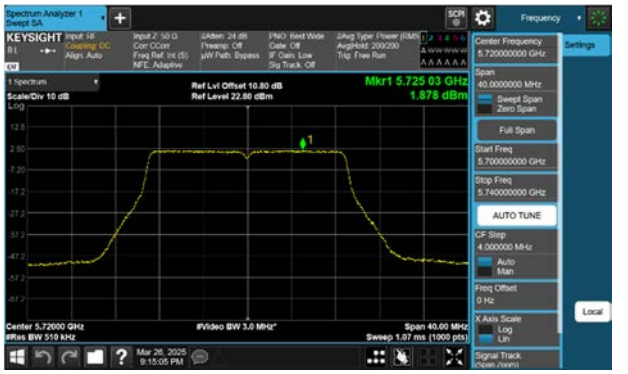
802.11a UNII 2C Band

802.11a UNII 3 Band



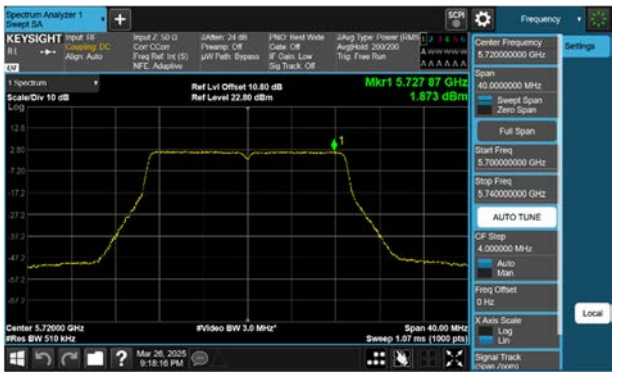
802.11n(HT20) UNII 2C Band

802.11n(HT20) UNII 3 Band



802.11ac(VHT20) UNII 2C Band

802.11ac(VHT20) UNII 3 Band



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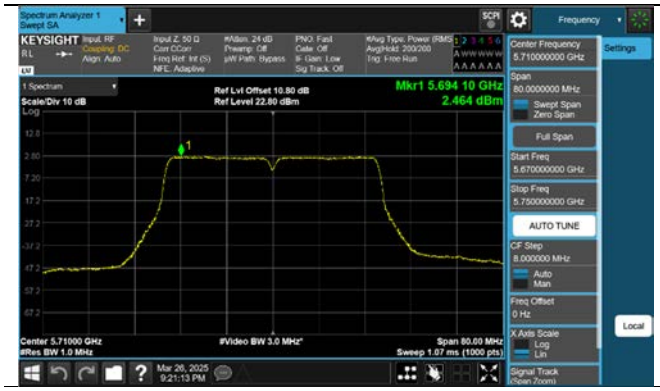
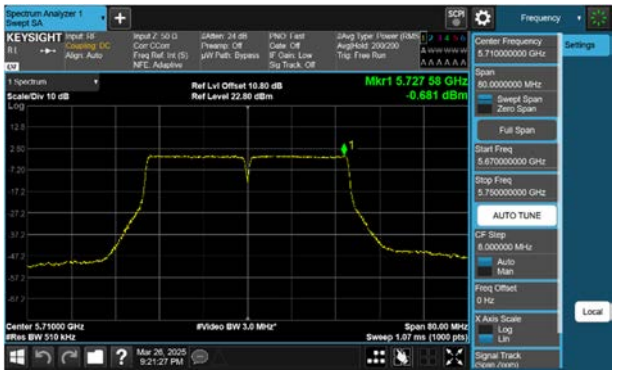
802.11n(HT40) UNII 2C Band

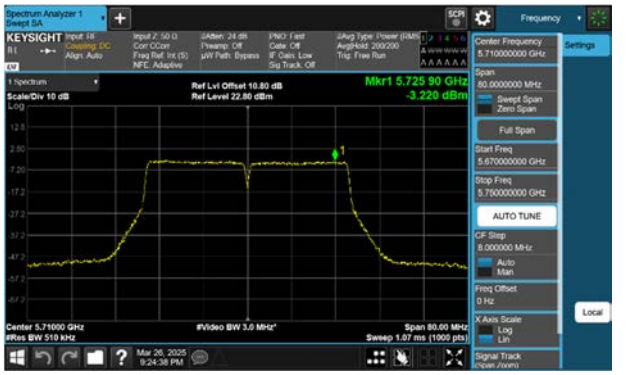


802.11n(HT40) UNII 3 Band

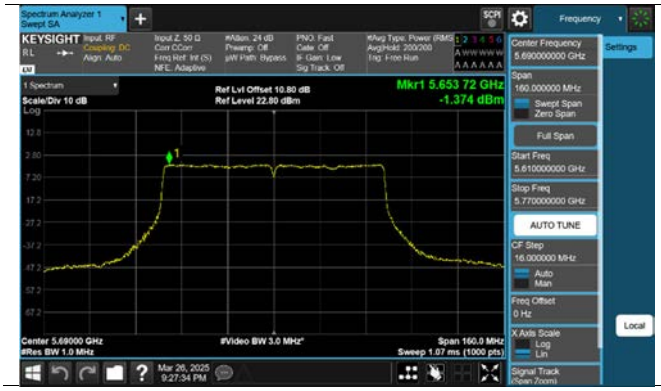


802.11ac(VHT40) UNII 2C Band

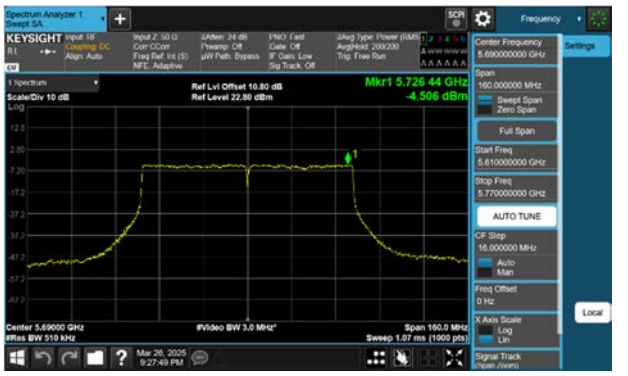
802.11ac(VHT40) UNII 3 Band



802.11ac(VHT80) UNII 2C Band



802.11ac(VHT80) UNII 3 Band



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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

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Frequency Range : Above 1 GHz

[MIMO_CDD(Ant1+Ant2)]

Band :	UNII 1		Operation Mode :		802.11a_HT20 6M		
CH.36	5180 MHz		Transfer Rate :		6M		
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	56.13	-2.96	V	53.17	68.20	15.03	PK
15540	54.01	-3.14	V	50.87	73.98	23.11	PK
15540	41.50	-3.14	V	38.36	53.98	15.62	AV
10360	55.68	-2.96	H	52.72	68.20	15.48	PK
15540	53.58	-3.14	H	50.44	73.98	23.54	PK
15540	41.50	-3.14	H	38.36	53.98	15.62	AV

Band :	UNII 1		Operation Mode :		802.11a_HT20 6M		
CH.40	5200 MHz		Transfer Rate :		6M		
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	56.21	-2.81	V	53.40	68.20	14.80	PK
15600	54.50	-3.13	V	51.37	73.98	22.61	PK
15600	41.96	-3.13	V	38.83	53.98	15.15	AV
10400	56.01	-2.81	H	53.20	68.20	15.00	PK
15600	54.88	-3.13	H	51.75	73.98	22.23	PK
15600	41.99	-3.13	H	38.86	53.98	15.12	AV

Band :	UNII 1		Operation Mode :		802.11a_HT20 6M		
CH.48	5240 MHz		Transfer Rate :		6M		
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	55.75	-2.36	V	53.39	68.20	14.81	PK
15720	54.48	-3.83	V	50.65	73.98	23.33	PK
15720	42.20	-3.83	V	38.37	53.98	15.61	AV
10480	56.26	-2.36	H	53.90	68.20	14.30	PK
15720	54.79	-3.83	H	50.96	73.98	23.02	PK
15720	42.23	-3.83	H	38.40	53.98	15.58	AV

Band :	UNII 2A		Operation Mode :		802.11a_HT20 6M		
CH.52	5260 MHz		Transfer Rate :		6M		
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	55.71	-2.05	V	53.66	68.20	14.54	PK
15780	54.02	-3.49	V	50.53	73.98	23.45	PK
15780	41.69	-3.49	V	38.20	53.98	15.78	AV
10520	56.10	-2.05	H	54.05	68.20	14.15	PK
15780	54.57	-3.49	H	51.08	73.98	22.90	PK
15780	41.77	-3.49	H	38.28	53.98	15.70	AV

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Band :	UNII 2A		Operation Mode :		802.11a_HT20 6M		
CH.60	5300 MHz		Transfer Rate :		6M		
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	55.03	-2.50	V	52.53	73.98	21.45	PK
10600	42.55	-2.50	V	40.05	53.98	13.93	AV
15900	52.90	-3.31	V	49.59	73.98	24.39	PK
15900	40.68	-3.31	V	37.37	53.98	16.61	AV
10600	55.49	-2.50	H	52.99	73.98	20.99	PK
10600	42.48	-2.50	H	39.98	53.98	14.00	AV
15900	52.88	-3.31	H	49.57	73.98	24.41	PK
15900	40.51	-3.31	H	37.20	53.98	16.78	AV

Band :	UNII 2A		Operation Mode :		802.11a_HT20 6M		
CH.64	5320 MHz		Transfer Rate :		6M		
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	54.84	-2.41	V	52.43	73.98	21.55	PK
10640	42.14	-2.41	V	39.73	53.98	14.25	AV
15960	53.17	-3.54	V	49.63	73.98	24.35	PK
15960	41.27	-3.54	V	37.73	53.98	16.25	AV
10640	55.78	-2.41	H	53.37	73.98	20.61	PK
10640	42.20	-2.41	H	39.79	53.98	14.19	AV
15960	53.23	-3.54	H	49.69	73.98	24.29	PK
15960	41.05	-3.54	H	37.51	53.98	16.47	AV

Band :	UNII 2C		Operation Mode :		802.11a_HT20 6M		
CH.100	5500 MHz		Transfer Rate :		6M		
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	56.27	-2.08	V	54.19	73.98	19.79	PK
11000	43.46	-2.08	V	41.38	53.98	12.60	AV
16500	53.84	-2.72	V	51.12	68.20	17.08	PK
11000	55.11	-2.08	H	53.03	73.98	20.95	PK
11000	42.91	-2.08	H	40.83	53.98	13.15	AV
16500	54.58	-2.72	H	51.86	68.20	16.34	PK

Band :	UNII 2C		Operation Mode :		802.11a_HT20 6M		
CH.116	5580 MHz		Transfer Rate :		6M		
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	54.23	-2.45	V	51.78	73.98	22.20	PK
11160	41.54	-2.45	V	39.09	53.98	14.89	AV
16740	54.73	-2.20	V	52.53	68.20	15.67	PK
11160	53.98	-2.45	H	51.53	73.98	22.45	PK
11160	41.40	-2.45	H	38.95	53.98	15.03	AV
16740	54.29	-2.20	H	52.09	68.20	16.11	PK

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Band :	UNII 2C		Operation Mode :		802.11a_HT20 6M		
CH.144	5720 MHz		Transfer Rate :		6M		
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	53.57	-2.19	V	51.38	73.98	22.60	PK
11440	40.43	-2.19	V	38.24	53.98	15.74	AV
17160	54.62	-2.22	V	52.40	68.20	15.80	PK
11440	53.42	-2.19	H	51.23	73.98	22.75	PK
11440	40.40	-2.19	H	38.21	53.98	15.77	AV
17160	54.43	-2.22	H	52.21	68.20	15.99	PK

Band :	UNII 3		Operation Mode :		802.11a_HT20 6M		
CH.149	5745 MHz		Transfer Rate :		6M		
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	53.54	-2.25	V	51.29	73.98	22.69	PK
11490	40.59	-2.25	V	38.34	53.98	15.64	AV
17235	54.44	-2.54	V	51.90	68.20	16.30	PK
11490	53.53	-2.25	H	51.28	73.98	22.70	PK
11490	40.48	-2.25	H	38.23	53.98	15.75	AV
17235	54.15	-2.54	H	51.61	68.20	16.59	PK

Band :	UNII 3		Operation Mode :		802.11a_HT20 6M		
CH.157	5785 MHz		Transfer Rate :		6M		
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	53.42	-2.38	V	51.04	73.98	22.94	PK
11570	40.86	-2.38	V	38.48	53.98	15.50	AV
17355	54.41	-1.09	V	53.32	68.20	14.88	PK
11570	54.31	-2.38	H	51.93	73.98	22.05	PK
11570	40.81	-2.38	H	38.43	53.98	15.55	AV
17355	54.36	-1.09	H	53.27	68.20	14.93	PK

Band :	UNII 3		Operation Mode :		802.11a_HT20 6M		
CH.165	5825 MHz		Transfer Rate :		6M		
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	54.25	-2.58	V	51.67	73.98	22.31	PK
11650	41.03	-2.58	V	38.45	53.98	15.53	AV
17475	55.64	-0.63	V	55.01	68.20	13.19	PK
11650	53.96	-2.58	H	51.38	73.98	22.60	PK
11650	41.06	-2.58	H	38.48	53.98	15.50	AV
17475	56.24	-0.63	H	55.61	68.20	12.59	PK

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Band :	UNII 4		Operation Mode :		802.11a_HT20 6M		
CH.169	5845 MHz		Transfer Rate :		6M		
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	54.03	-2.59	V	51.44	73.98	22.54	PK
11690	41.15	-2.59	V	38.56	53.98	15.42	AV
17535	55.99	-0.44	V	55.55	68.20	12.65	PK
11690	54.30	-2.59	H	51.71	73.98	22.27	PK
11690	41.20	-2.59	H	38.61	53.98	15.37	AV
17535	56.23	-0.44	H	55.79	68.20	12.41	PK

Band :	UNII 4		Operation Mode :		802.11a_HT20 6M		
CH.173	5865 MHz		Transfer Rate :		6M		
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	54.31	-2.94	V	51.37	73.98	22.61	PK
11730	41.27	-2.94	V	38.33	53.98	15.65	AV
17595	57.29	-0.09	V	57.20	68.20	11.00	PK
11730	54.81	-2.94	H	51.87	73.98	22.11	PK
11730	41.48	-2.94	H	38.54	53.98	15.44	AV
17595	56.96	-0.09	H	56.87	68.20	11.33	PK

Band :	UNII 4		Operation Mode :		802.11a_HT20 6M		
CH.177	5885 MHz		Transfer Rate :		6M		
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	54.21	-2.98	V	51.23	73.98	22.75	PK
11770	41.38	-2.98	V	38.40	53.98	15.58	AV
17655	56.67	0.50	V	57.17	68.20	11.03	PK
11770	54.59	-2.98	H	51.61	73.98	22.37	PK
11770	41.42	-2.98	H	38.44	53.98	15.54	AV
17655	56.84	0.50	H	57.34	68.20	10.86	PK

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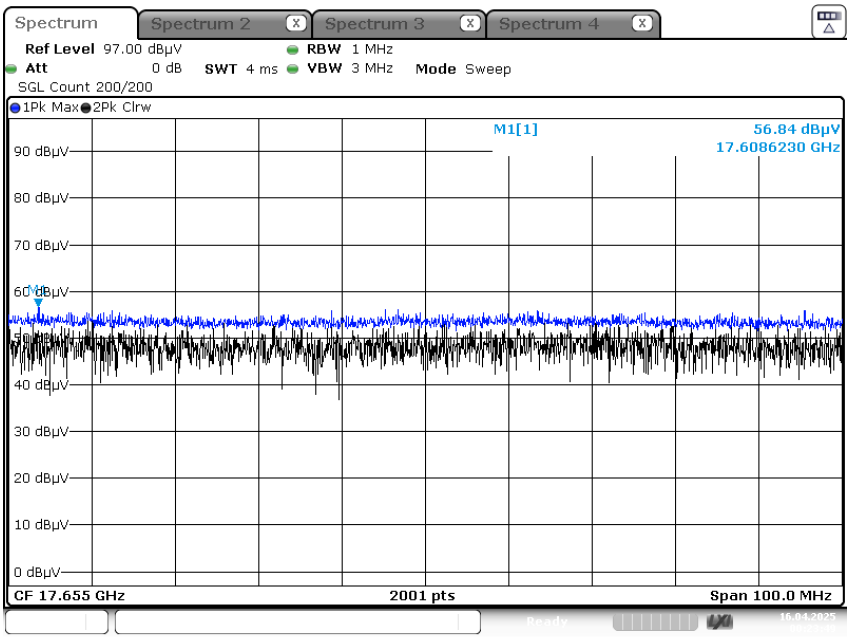
▣ Test Plots

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

[MIMO_CDD(Ant1+Ant2)]

Radiated Spurious Emissions plot – Peak Result (802.11a, Ch.177 Spurious Emissions, Z-H)



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10.9 RADIATED RESTRICTED BAND EDGE

[MIMO_CDD(Ant1+Ant2)]

802.11 a		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	56.20	-	V	56.20	73.98	17.78	PK
5150	43.80	-	V	43.80	53.98	10.18	AV

802.11 a		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	54.95	-	H	54.95	73.98	19.03	PK
5350	41.72	-	H	41.72	53.98	12.26	AV

802.11 a		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	54.40	-	H	54.40	73.98	19.58	PK
5460	41.65	-	H	41.65	53.98	12.33	AV
5470	54.11	-	H	54.11	68.20	14.09	PK

802.11 n_HT20		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	56.61	-	V	56.61	73.98	17.37	PK
5150	43.58	-	V	43.58	53.98	10.40	AV

802.11 n_HT20		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	54.61	-	H	54.61	73.98	19.37	PK
5350	41.76	-	H	41.76	53.98	12.22	AV

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802.11 n_HT20		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	54.08	-	H	54.08	73.98	19.90	PK
5460	42.68	-	H	42.68	53.98	11.30	AV
5470	54.05	-	H	54.05	68.20	14.15	PK

802.11 ac_VHT20		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	55.36	-	V	55.36	73.98	18.62	PK
5150	43.74	-	V	43.74	53.98	10.24	AV

802.11 ac_VHT20		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	54.78	-	H	54.78	73.98	19.20	PK
5350	41.77	-	H	41.77	53.98	12.21	AV

802.11 ac_VHT20		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	55.46	-	H	55.46	73.98	18.52	PK
5460	42.63	-	H	42.63	53.98	11.35	AV
5470	54.52	-	H	54.52	68.20	13.68	PK

802.11 n_HT40		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	55.49	-	V	55.49	73.98	18.49	PK
5150	43.99	-	V	43.99	53.98	9.99	AV

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802.11 n_HT40		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	56.56	-	H	56.56	73.98	17.42	PK
5350	44.14	-	H	44.14	53.98	9.84	AV

802.11 n_HT40		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	55.56	-	H	55.56	73.98	18.42	PK
5460	43.81	-	H	43.81	53.98	10.17	AV
5470	59.56	-	H	59.56	68.20	8.64	PK

802.11 ac_VHT40		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	56.05	-	H	56.05	73.98	17.93	PK
5150	44.28	-	H	44.28	53.98	9.70	AV

802.11 ac_VHT40		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	57.19	-	H	57.19	73.98	16.79	PK
5350	44.21	-	H	44.21	53.98	9.77	AV

802.11 ac_VHT40		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	55.68	-	H	55.68	73.98	18.30	PK
5460	43.77	-	H	43.77	53.98	10.21	AV
5470	59.81	-	H	59.81	68.20	8.39	PK

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802.11 ac_VHT80		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	56.90	-	H	56.90	73.98	17.08	PK
5150	46.45	-	H	46.45	53.98	7.53	AV

802.11 ac_VHT80		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	58.74	-	H	58.74	73.98	15.24	PK
5350	47.09	-	H	47.09	53.98	6.89	AV

802.11 ac_VHT80		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	59.02	-	H	59.02	73.98	14.96	PK
5460	47.52	-	H	47.52	53.98	6.46	AV
5470	60.37	-	H	60.37	68.20	7.83	PK

802.11 ac_VHT160(Lower)		MCS 0					
Channel	Ch. 50	5250 MHz	UNII 1 & 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
5150	64.64	-	H	64.64	73.98	9.34	PK
5150	45.75	-	H	45.75	53.98	8.23	AV

802.11 ac_VHT160(Upper)		MCS 0					
Channel	Ch. 50	5250 MHz	UNII 1 & 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	63.47	-	H	63.47	73.98	10.51	PK
5350	44.66	-	H	44.66	53.98	9.32	AV

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802.11 ac_VHT160		MCS 0					
Channel	Ch. 114	5570 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	63.32	-	H	63.62	73.98	10.66	PK
5460	46.51	-	H	46.51	53.98	7.47	AV
#5470	56.43	-	H	56.43	68.20	11.77	PK

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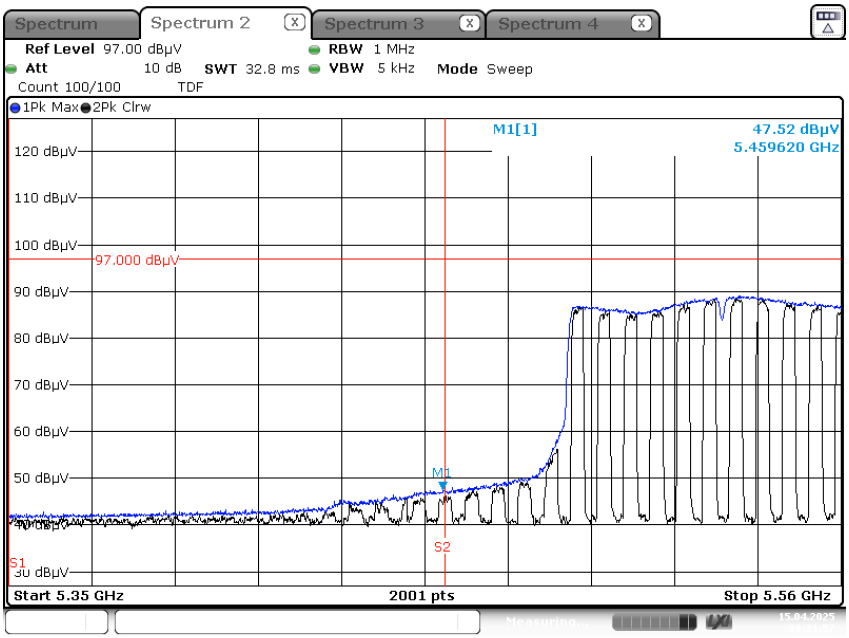
[MIMO_CDD(Ant1+Ant2)]

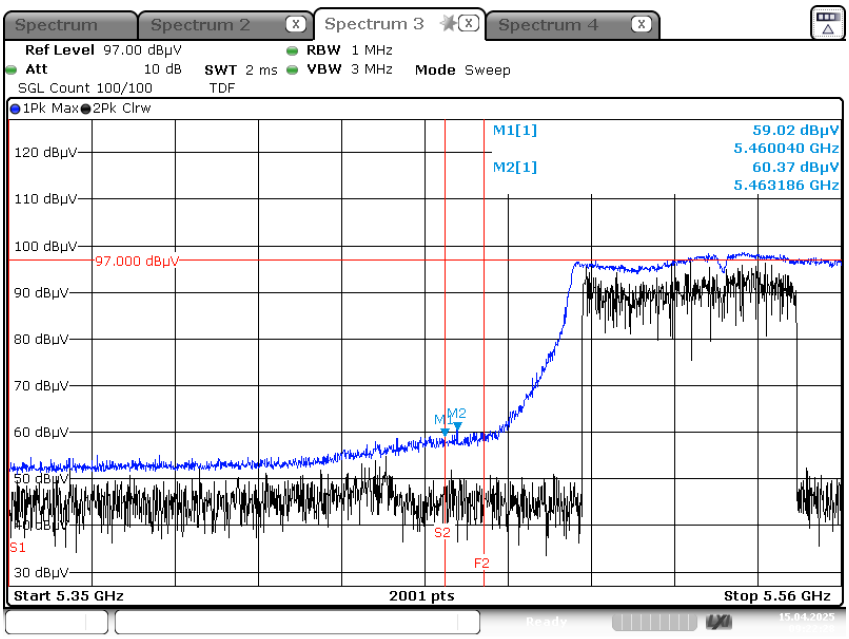
▣ Test Plots(UNII 1, 2A, 2C)

Average Result (802.11 ac_VHT80_ MCS0, Ch.106, X-H)



Date: 15.APR.2025 09:21:57

Peak Result (802.11 ac_VHT80_ MCS0, Ch.106, X-H)



Date: 15.APR.2025 09:22:29

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

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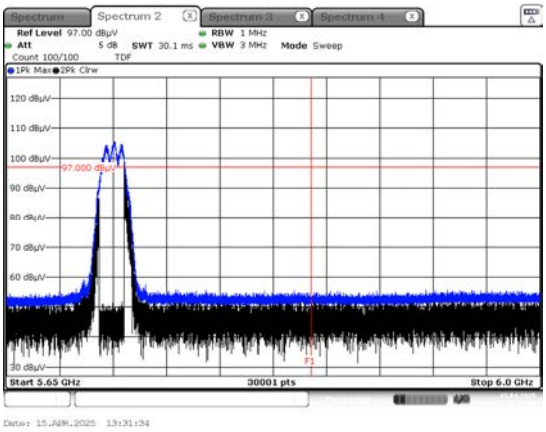
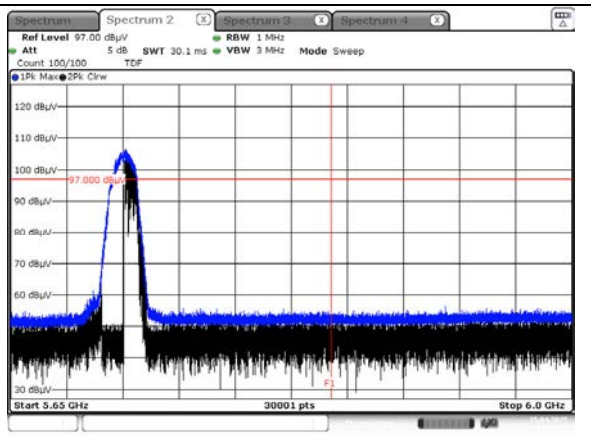
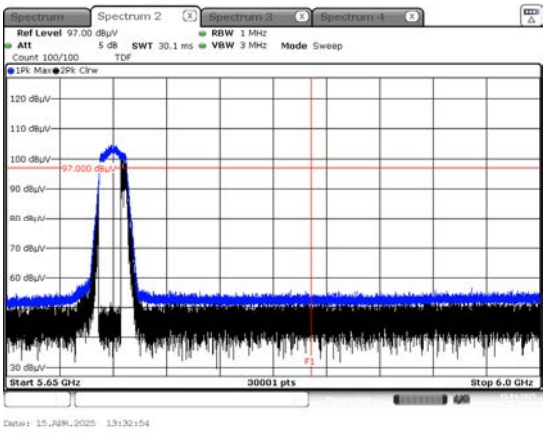
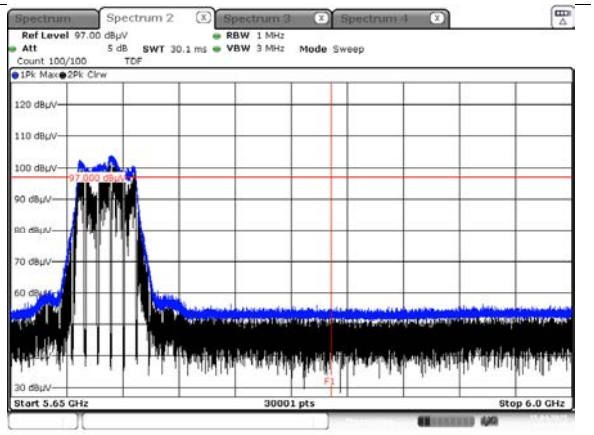
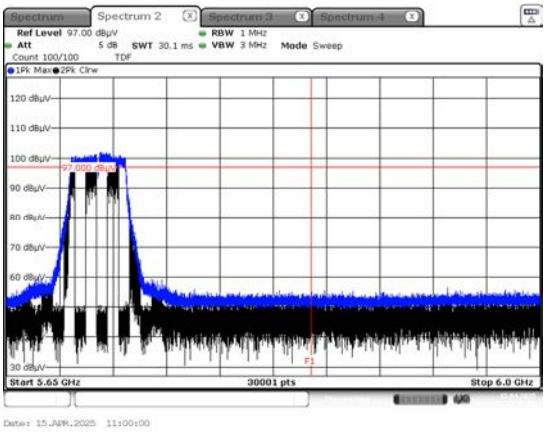
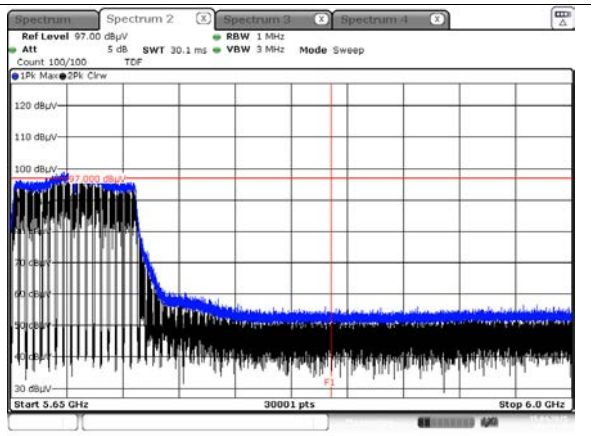
▣ Test Plots(Straddle Channel)

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

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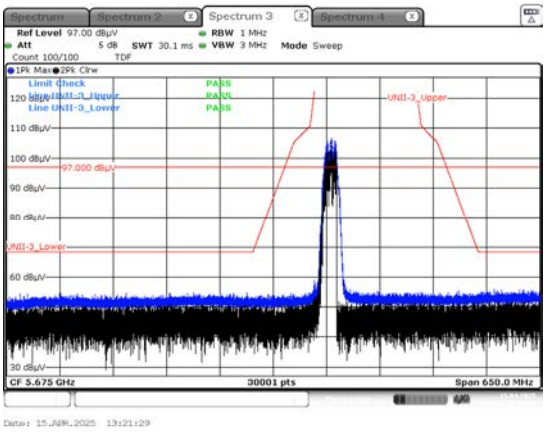
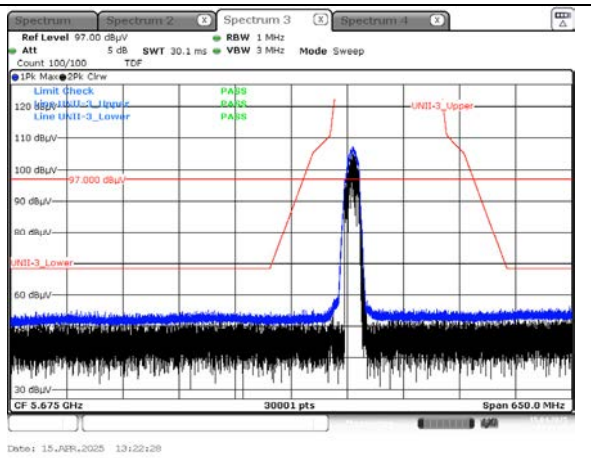
▣ Test Plots(UNII 3)

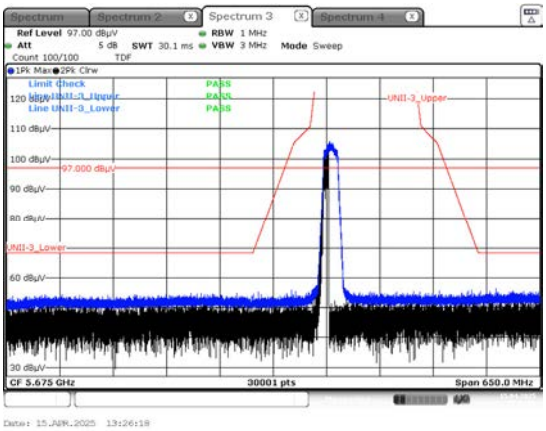
Peak Result (802.11a, Ch.149, X-H)



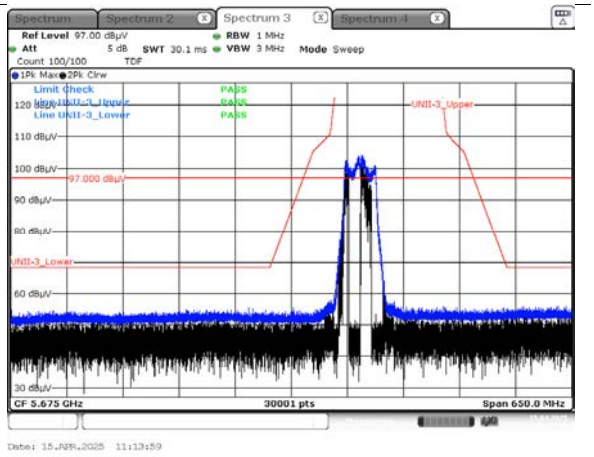
Peak Result (802.11n_HT20, Ch.149, X-H)



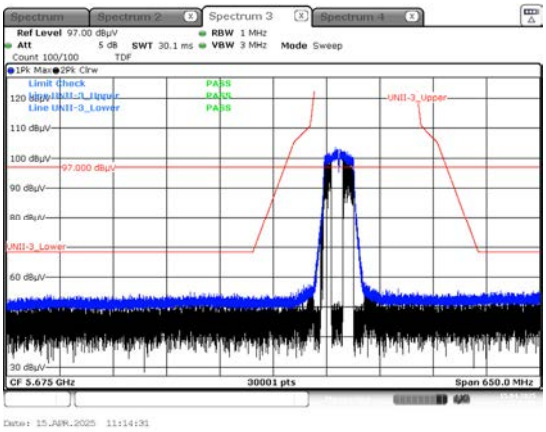
Peak Result (802.11ac_VHT20, Ch.149, X-H)



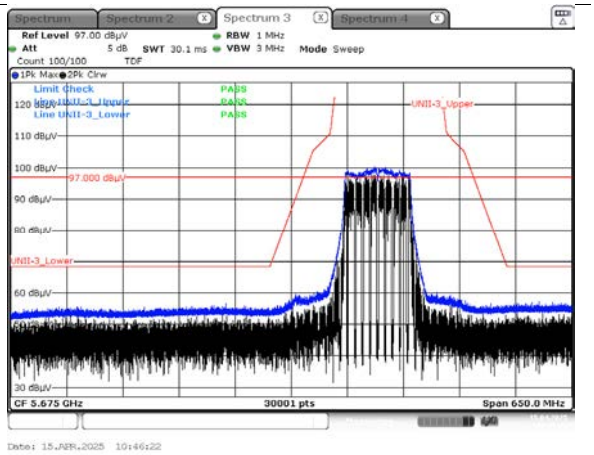
Peak Result (802.11n_HT40, Ch.151, X-H)



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



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



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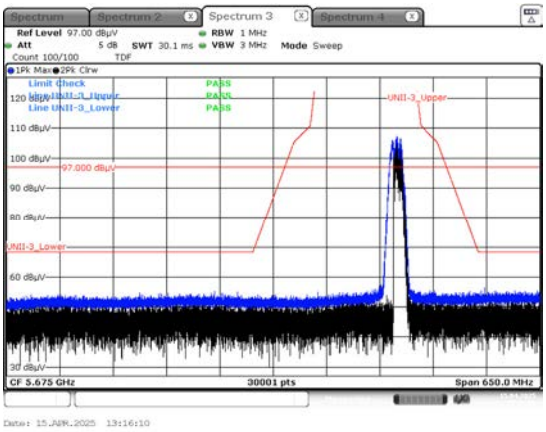
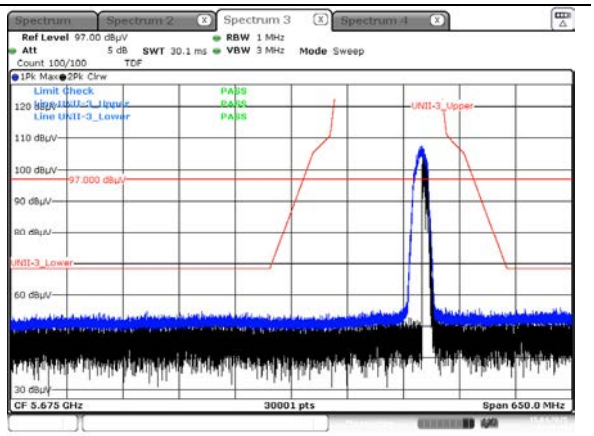
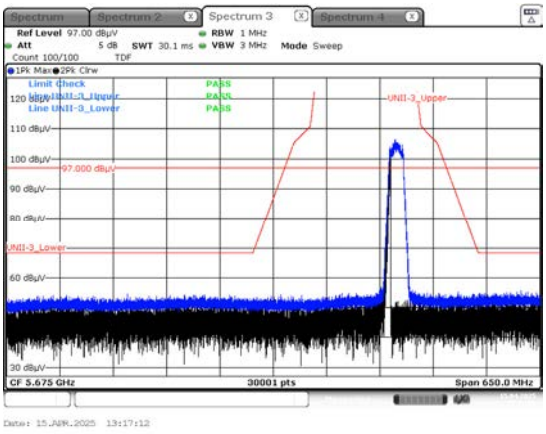
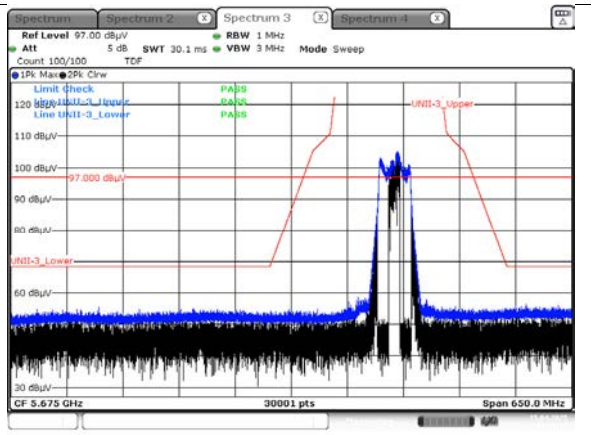
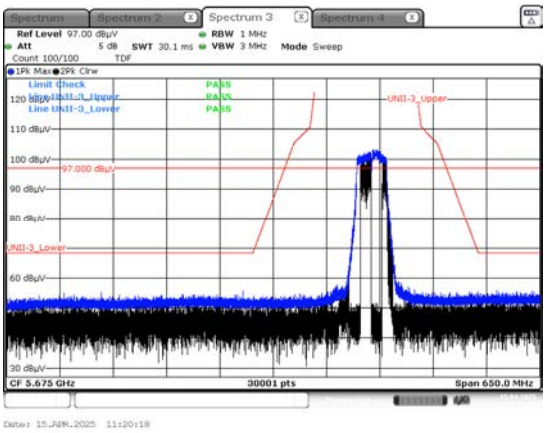
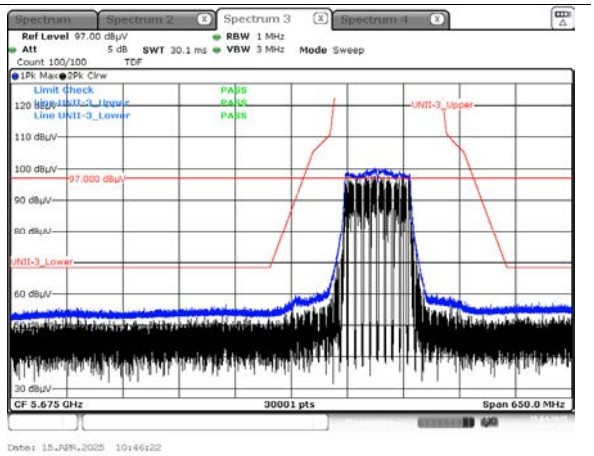
Peak Result (802.11a, Ch.165, X-H)	Peak Result (802.11n_HT20, Ch.165, X-H)
	
Peak Result (802.11ac_VHT20, Ch.165, X-H)	Peak Result (802.11n_HT40, Ch.159, X-H)
	
Peak Result (802.11ac_VHT40, Ch.159, X-H)	Peak Result (802.11ac_VHT80, Ch.155, X-H)
	

Note :

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

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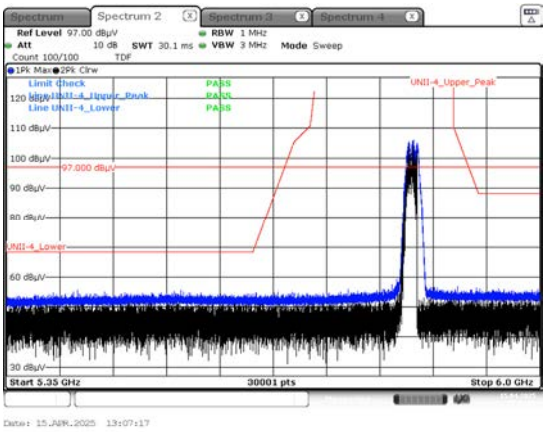
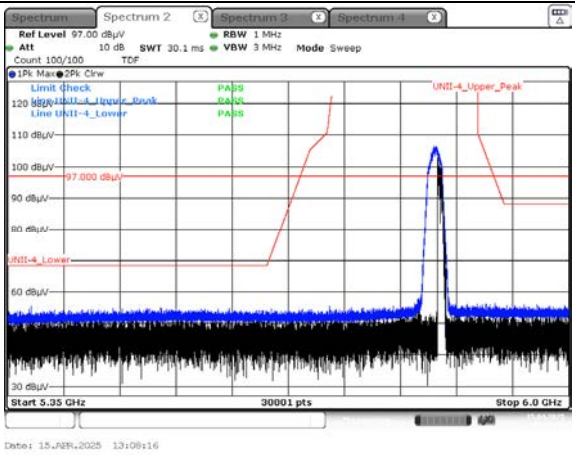
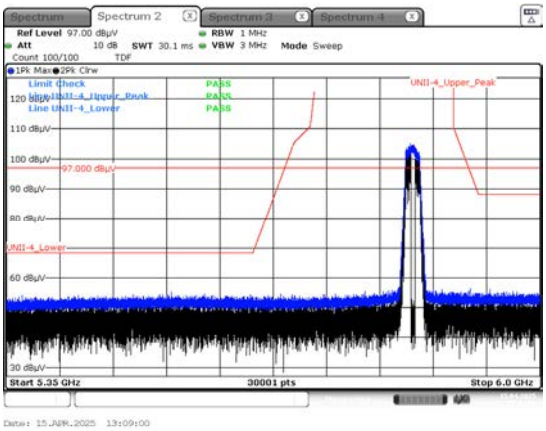
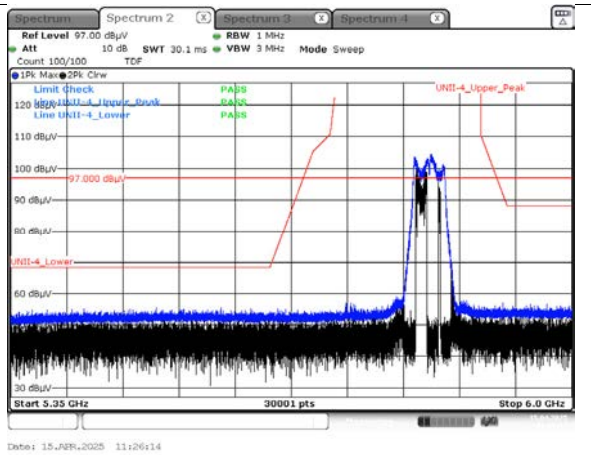
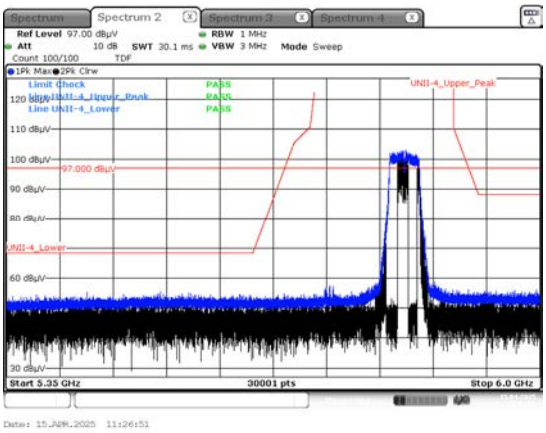
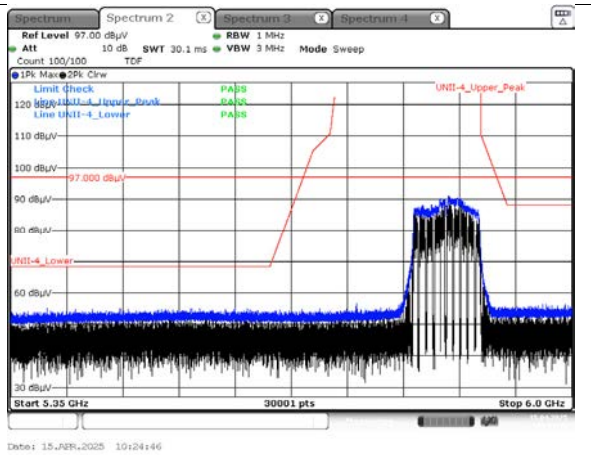
▣ Test Plots(UNII 4) – O.O.B.E

Peak Result

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

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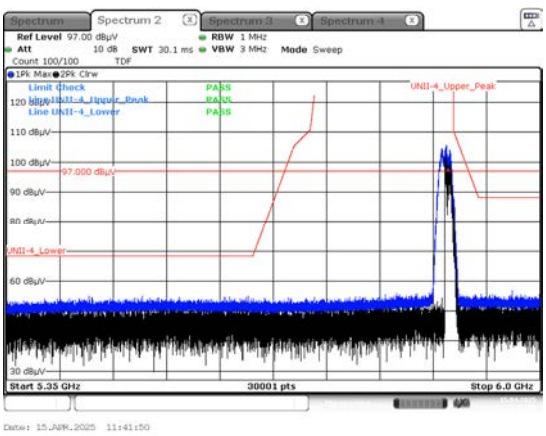
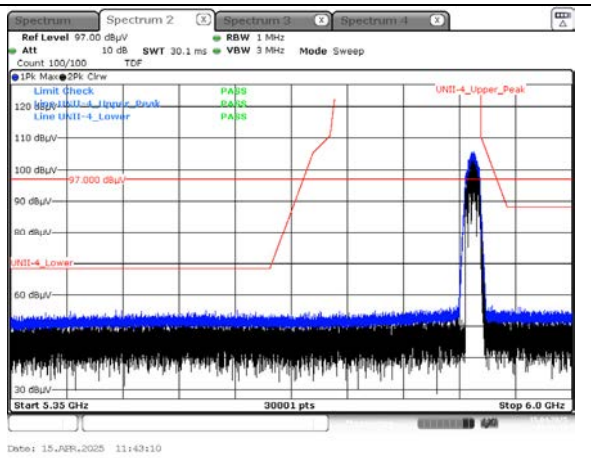
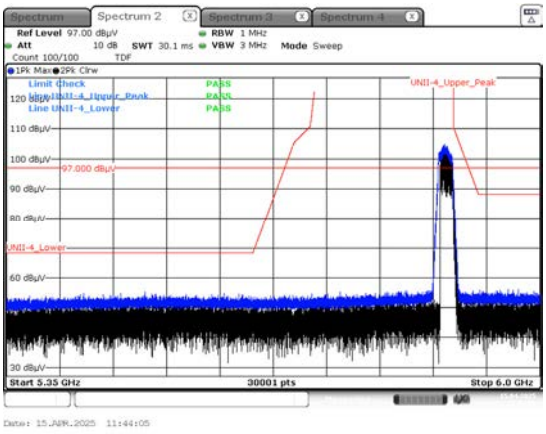
Peak Result (802.11a, Ch.177, X-H)



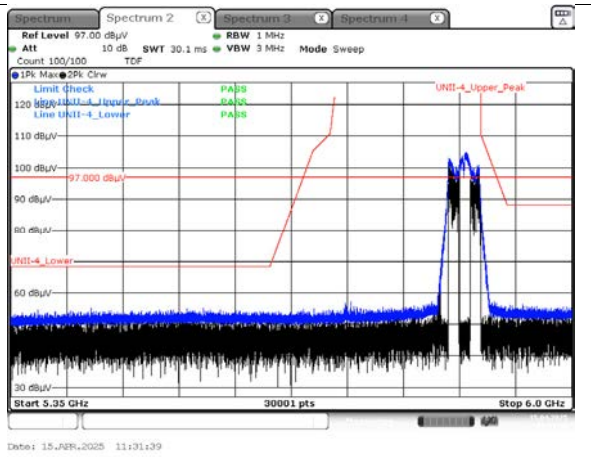
Peak Result (802.11n_HT20, Ch.177, X-H)



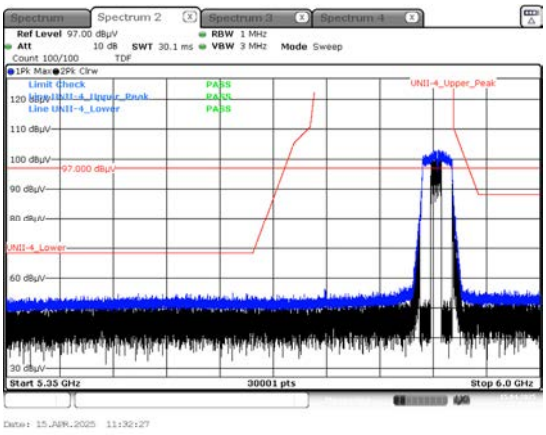
Peak Result (802.11ac_VHT20, Ch.177, X-H)



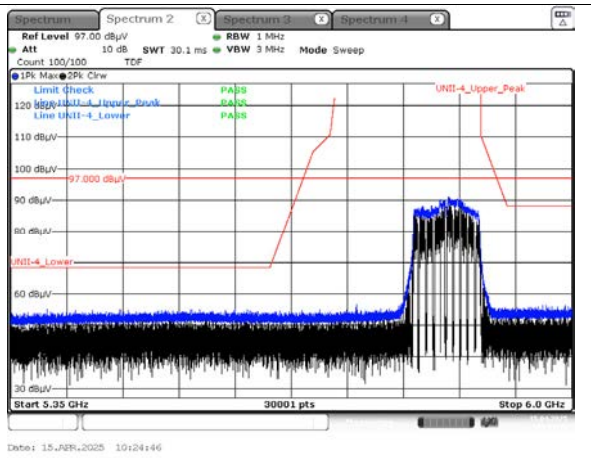
Peak Result (802.11n_HT40, Ch.175, X-H)



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



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



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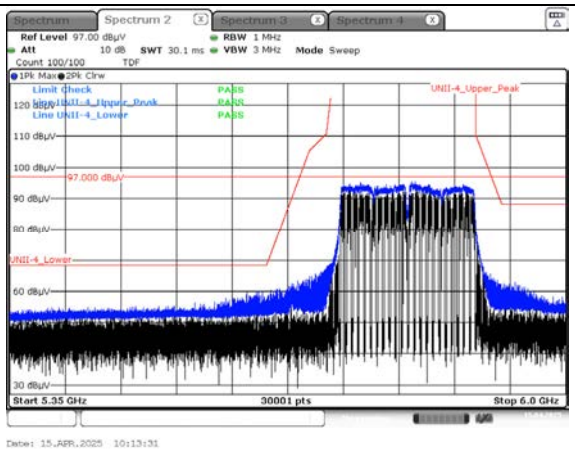
Peak Result (802.11ac_VHT160, Ch.163, X-H)



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.

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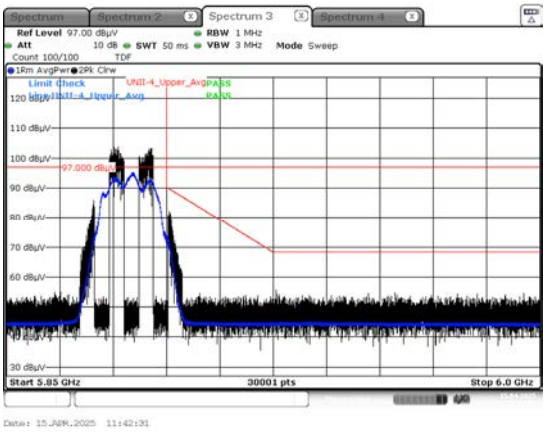
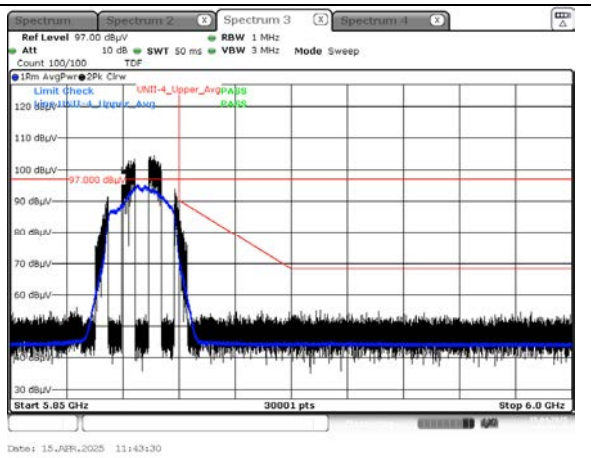
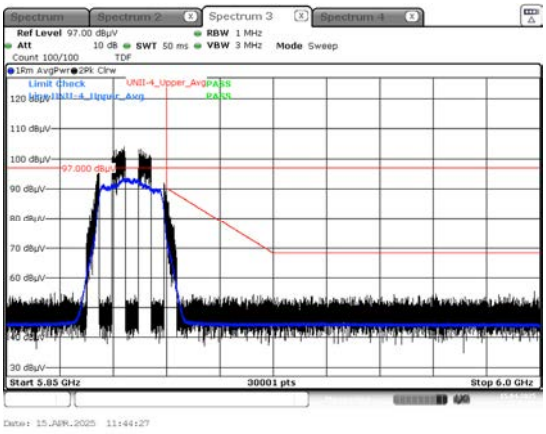
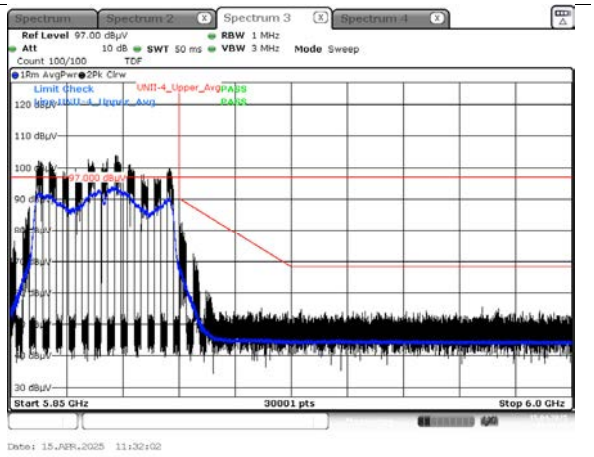
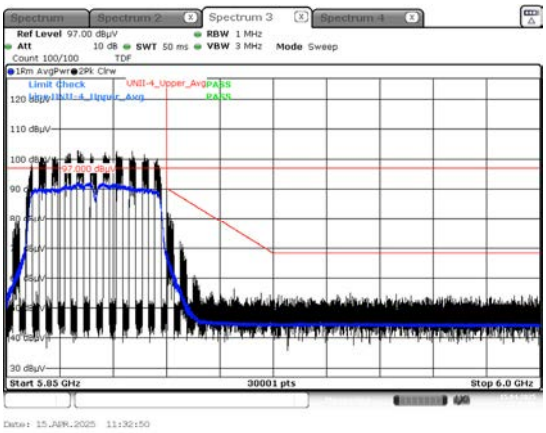
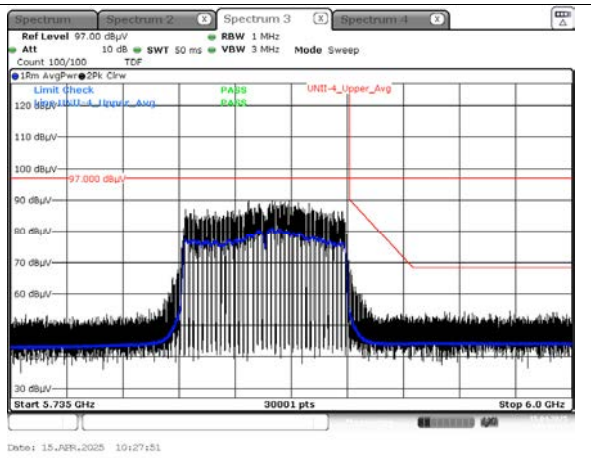
Average Result

Average Result (802.11a, Ch.177, X-H)	Average Result (802.11n_HT20, Ch.177, X-H)
	
Average Result (802.11ac_VHT20, Ch.177, X-H)	Average Result (802.11n_HT40, Ch.175, X-H)
	
Average Result (802.11ac_VHT40, Ch.175, X-H)	Average Result (802.11ac_VHT80, Ch.171, X-H)
	

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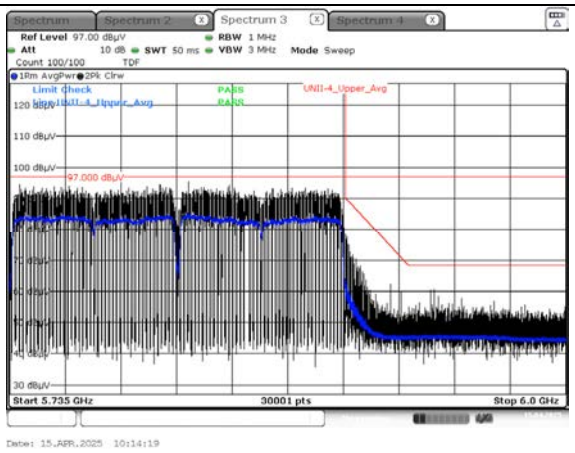
Average Result (802.11ac_VHT160, Ch.163, X-H)



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.

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10.10 POWERLINE CONDUCTED EMISSIONS

Conducted Emissions

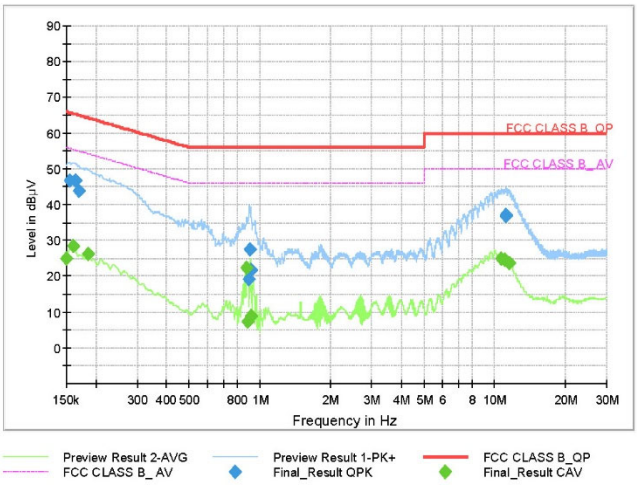
Test 1 / 1

Test Report

Common Information

EUT : SM-F766U
Operating Conditions : 5G WLAN Mode
Comment :

Full Spectrum



Final_Result_QPK

Frequency (MHz)	QuasiPeak (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1545	46.70	65.75	19.06	9.000	L1	9.6
0.1635	46.83	65.28	18.45	9.000	L1	9.6
0.1703	43.86	64.95	21.09	9.000	L1	9.6
0.8983	19.31	56.00	36.69	9.000	N	9.7
0.9095	27.48	56.00	28.52	9.000	N	9.7
0.9140	21.69	56.00	34.31	9.000	N	9.7
11.1088	36.76	60.00	23.24	9.000	N	10.1
11.1268	36.76	60.00	23.24	9.000	N	10.2
11.1560	37.24	60.00	22.76	9.000	N	10.2

Final_Result_CAV

Frequency (MHz)	CAverage (dBµV)	Limit (dBµV)	Margin (dB)	Bandwidth (kHz)	Line	Corr. (dB)
0.1500	25.07	56.00	30.93	9.000	N	9.6
0.1613	28.55	55.40	26.85	9.000	L1	9.6
0.1860	26.24	54.21	27.97	9.000	L1	9.6
0.8803	22.40	46.00	23.60	9.000	L1	9.7
0.8893	7.28	46.00	38.72	9.000	N	9.7
0.9140	8.81	46.00	37.19	9.000	N	9.7
10.7038	24.93	50.00	25.07	9.000	N	10.1
11.0818	24.49	50.00	25.51	9.000	N	10.1
11.5160	23.57	50.00	26.43	9.000	N	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	07/17/2025	Annual
EMI Test Receiver	ESR	Rohde & Schwarz	101910	07/02/2025	Annual
Temperature Chamber	SU-642	ESPEC	93008124	02/11/2026	Annual
Signal Analyzer	N9030A	Keysight	MY55410508	08/23/2025	Annual
Signal Analyzer	N9030B	Keysight	MY56320554	02/03/2026	Annual
Power Meter	N1911A	Agilent	MY45100523	02/21/2026	Annual
Power Sensor	N1921A	Agilent	MY57820067	02/04/2026	Annual
Directional Coupler	87300B	Agilent	3116A03621	10/21/2025	Annual
Power Splitter	11667B	Hewlett Packard	10545	01/23/2026	Annual
DC Power Supply	E3632A	Agilent	MY50360067	02/11/2026	Annual
Attenuator(10 dB)(DC-26.5 GHz)	8493C-010	Agilent	08285	05/28/2025	Annual
Attenuator(20 dB)	18N-20dB	Rohde & Schwarz	8	02/18/2026	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
Bluetooth Tester	CBT	Rohde & Schwarz	100808	02/27/2026	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.

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Radiated Test

Equipment	Model	Manufacturer	Serial No.	Due to Calibration	Calibration Interval
Controller (Antenna mast & Turn Table)	CO3000	Innco system	CO3000/ 15421/57580623/G	N/A	N/A
Antenna Position Tower	MA4640	Innco system	9320422	04/03/2026	Biennial
Turn Table	N/A	Innco system	5930623	N/A	N/A
Loop Antenna	FMZB 1513	Schwarzbeck	1513-175	01/06/2027	Biennial
Hybrid Antenna	VULB 9168	Schwarzbeck	9168-1135	08/19/2026	Biennial
Horn Antenna	BBHA 9120D	Schwarzbeck	9120D-1151	07/14/2025	Biennial
Horn Antenna (15 GHz ~ 40 GHz)	BBHA9170	Schwarzbeck	BBHA9170124	03/23/2027	Biennial
Amp & Filter Bank Switch Controller	FBSM-01B	T&M system	TM2009001	N/A	N/A
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
Band Reject Filter	WRCJV5100/5850-40/50-8EEK	Wainwright Instruments	1	01/09/2026	Annual
RF Switching System	FMSR-05B (HPF(3~18GHz) + LNA1(1~18GHz))	T&M system	S5L1	03/11/2026	Annual
RF Switching System	FMSR -05B (ATT(10dB) + LNA1(1~18GHz))	T&M system	S5L2	03/11/2026	Annual
RF Switching System	FMSR -05B (ATT(3dB) + LNA1(1~18GHz))	T&M system	S5L3	03/11/2026	Annual
RF Switching System	FMSR -05B (LNA1(1~18GHz))	T&M system	S5L4	03/11/2026	Annual
RF Switching System	FMSR -05B (HPF(7~18GHz) + LNA2(6~18GHz))	T&M system	S5L5	03/11/2026	Annual
RF Switching System	FMSR -05B (Thru(30MHz ~ 18GHz))	T&M system	S5L6	03/11/2026	Annual
Power Amplifier	CBL18265035	CERNEX	22966	11/07/2025	Annual
Power Amplifier	CBL26405040	CERNEX	25956	02/19/2026	Annual
Bluetooth Tester	TC-3000C	TESCOM	3000C000175	03/12/2026	Annual
Spectrum Analyzer	FSV40 (9 kHz ~ 40 GHz)	Rohde & Schwarz	101510	09/24/2025	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).

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12. ANNEX A_ TEST SETUP PHOTO

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

No.	Description
1	HCT-RF-2505-FC118-P

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