

RF TEST REPORT

For

X Square Robot Technology (Shenzhen) Co.,Ltd.

**Product Name: Next-Generation General-Purpose Wheeled
Humanoid Robot**

Test Model(s): Quanta X2

Report Reference No. : DACE260309053RL003

FCC ID : 2BVQW-QUANTA-X2

Applicant's Name : X Square Robot Technology (Shenzhen) Co.,Ltd.

Address : 31st Floor, Aerospace Innovation Building, No. 7013 Liuxian Boulevard,
Xili Community, Xili Subdistrict, Nanshan District, Shenzhen

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Test Specification Standard : 47 CFR Part 15E

Date of Receipt : March 9, 2026

Date of Test : March 9, 2026 to April 8, 2026

Date of Issue : April 8, 2026

Result : Pass

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Apply for company information

Applicant's Name	:	X Square Robot Technology (Shenzhen) Co.,Ltd.
Address	:	31st Floor, Aerospace Innovation Building, No. 7013 Liuxian Boulevard, Xili Community, Xili Subdistrict, Nanshan District, Shenzhen
Product Name	:	Next-Generation General-Purpose Wheeled Humanoid Robot
Test Model(s)	:	Quanta X2
Test Specification Standard(s)	:	47 CFR Part 15E

NOTE1:

The manufacturer should ensure that all products in series production are in conformity with the product sample detailed in this report. If the product in this report is used in any configuration other than that detailed in the report, the manufacturer must ensure the new system complies with all relevant standards.

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April 8, 2026

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April 8, 2026

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April 8, 2026

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	DACE260309053RL003	April 8, 2026

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1 TEST SUMMARY

1.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15E: Unlicensed National Information Infrastructure Devices

1.2 Summary of Test Result

Item	Standard	Method	Requirement	Result
Conducted Emission at AC power line	47 CFR Part 15E	ANSI C63.10-2020 section 6.2	47 CFR Part 15.207(a)	Pass
Duty Cycle	47 CFR Part 15E	ANSI C63.10-2020 section 12.2 (b)		Pass
Emission bandwidth and occupied bandwidth	47 CFR Part 15E	ANSI C63.10-2020, section 6.9 & 12.5 KDB 789033 D02, Clause C.2	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. 47 CFR Part 15.407(e)	Pass
Maximum conducted output power	47 CFR Part 15E	ANSI C63.10-2020, section 12.4	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)	Pass
Power spectral density	47 CFR Part 15E	ANSI C63.10-2020, section 12.6	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)	Pass
Frequency stability	47 CFR Part 15E	ANSI C63.10-2020, section 6.8	47 CFR Part 15.407(g)	Pass
Band edge emissions (Conducted)	47 CFR Part 15E	ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass
Band edge emissions (Radiated)	47 CFR Part 15E	ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass
Undesirable emission limits (below 1GHz)	47 CFR Part 15E	ANSI C63.10-2020, section 12.7.4, 12.7.5	47 CFR Part 15.407(b)(9)	Pass
Undesirable emission limits (above 1GHz)	47 CFR Part 15E	ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)	Pass

2 GENERAL INFORMATION

2.1 Client Information

Applicant's Name : X Square Robot Technology (Shenzhen) Co.,Ltd.
Address : 31st Floor, Aerospace Innovation Building, No. 7013 Liuxian Boulevard, Xili Community, Xili Subdistrict, Nanshan District, Shenzhen

Manufacturer : X Square Robot Technology (Shenzhen) Co.,Ltd.
Address : 31st Floor, Aerospace Innovation Building, No. 7013 Liuxian Boulevard, Xili Community, Xili Subdistrict, Nanshan District, Shenzhen

2.2 Description of Device (EUT)

Product Name:	Next-Generation General-Purpose Wheeled Humanoid Robot
Model/Type reference:	Quanta X2
Trade Mark:	
Power Supply:	Basic Parameters Of Charger: INPUT: 100-240Vac 50/60Hz Max.15A OUTPUT: DC 52.5V $\pm$ 50A DC 48V by battery
Operation Frequency:	5.2GWIFI: 5150-5250MHz 5.8GWIFI: 5725-5850MHz
Number of Channels:	IEEE 802.11a/n/ac/ax(20M): 5150MHz ~5250MHz/ 4 channel IEEE 802.11n/ac/ax(40M): 5150MHz ~5250MHz/ 2 channel IEEE 802.11ac/ax(80M): 5150MHz ~5250MHz/ 1 channel IEEE 802.11a/n/ac/ax(20M): 5725MHz ~5850MHz/ 5 channel IEEE 802.11n/ac/ax(40M): 5725MHz ~5850MHz/ 2 channel IEEE 802.11ac/ax(80M): 5725MHz ~5850MHz/ 1 channel
Modulation Type:	OFDM
Antenna Type:	FPC Antenna
Antenna Gain:	5.2GWIFI: -0.99dBi 5.8GWIFI: -1.02dBi
Hardware Version:	V1.0
Software Version:	V0x26

2.3 Description of Test Modes

No	Title	Description
TM1	5.2GWIFI TX	Keep the EUT in TX mode
TM2	5.8GWIFI TX	Keep the EUT in TX mode
Test Environment		Normal Voltage(DC): 48V

2.4 Description of Support Units

Title	Manufacturer	Model No.	Serial No.
Basic Parameters Of Charger	/	3000A4850L	/

2.5 Operation Frequency each of channel

5.2GWIFI:

CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
36	5180	38	5190	40	5200	42	5210
44	5220	46	5230	48	5240	/	/

5.8GWIFI:

CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)	CH	Frequency (MHz)
149	5745	151	5755	153	5765	155	5775
157	5785	159	5795	161	5805	163	5815
165	5825	/	/	/	/	/	/

Note: In section 15.31(m), regards to the operating frequency range over 10 MHz, the Lowest frequency, the middle frequency, and the highest frequency of channel were selected to perform the test, and the selected channel see below:

Test channel	802.11a/n/ac20	802.11n/ac40	802.11ac80
	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
Lowest channel	5180MHz	5190MHz	/
Middle channel	5200MHz	/	5210MHz
Highest channel	5240MHz	5230MHz	/

Test channel	802.11a/n/ac20	802.11n/ac40	802.11ac80
	Frequency (MHz)	Frequency (MHz)	Frequency (MHz)
Lowest channel	5745MHz	5755MHz	/
Middle channel	5785MHz	/	5775MHz
Highest channel	5825MHz	5795MHz	/

2.6 Equipments Used During The Test

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Power absorbing clamp	SCHWARZ BECK	MESS-ELEKTRONIK	/	2025-04-23	2026-04-22
Electric Network	SCHWARZ BECK	CAT5 8158	CAT5 8158#207	2025-04-18	2026-04-17
Cable	SCHWARZ BECK	/	/	2025-04-18	2026-04-17
Pulse Limiter	SCHWARZ BECK	VTSD 9561-F Pulse limiter 10dB Attenuation	561-G071	2025-12-02	2026-12-01
Test Receiver	Rohde & Schwarz	ESPI TEST RECEIVER	1164.6607K03 -102109-MH	2025-04-25	2026-04-24
L.I.S.N	R&S	ESH3-Z5	831.5518.52	2025-04-18	2026-04-17
L.I.S.N	SCHWARZ BECK	NSLK 8126	05055	2025-04-18	2026-04-17
Pulse Limiter	CYBERTEK	EM5010A	/	2025-04-25	2026-04-24
EMI test software	EZ -EMC	EZ	V1.1.42	/	/

Power spectral density
Frequency stability
Band edge emissions (Conducted)
Duty Cycle
Emission bandwidth and occupied bandwidth
Maximum conducted output power

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	Tachoy Information Technology(she nzen) Co.,Ltd.	RTS-01	V1.0.0	/	/
RF Sensor Unit	Tachoy Information Technology(she nzen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2025-04-25	2026-04-24
Vector Signal Generator	Keysight	N5181A	MY50143455	2025-12-02	2026-12-01
Signal Generator	Keysight	N5182A	MY48180415	2025-12-02	2026-12-01
Spectrum Analyzer	Keysight	N9020A	MY53420323	2025-12-02	2026-12-01

Band edge emissions (Radiated) Undesirable emission limits (below 1GHz) Undesirable emission limits (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	MF	MF-7802	/	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2024-04-26	2027-04-25
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2024-04-26	2027-04-25
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2025-04-28	2026-04-27
Cable(LF)#2	Schwarzbeck	/	/	2025-04-12	2026-04-11
Cable(LF)#1	Schwarzbeck	/	/	2025-04-17	2026-04-16
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2025-04-25	2026-04-24
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2025-04-25	2026-04-24
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2025-04-29	2026-04-28
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2025-04-29	2026-04-28
Wideband radio communication tester	R&S	CMW500	113410	2025-04-25	2026-04-24
Spectrum Analyzer	R&S	FSP30	1321.3008K40-101729-jR	2025-04-18	2026-04-17
Test Receiver	R&S	ESCI 3	1166.5950K03-101431-Jq	2025-04-18	2026-04-17
Horn Antenna	Sunol Sciences	DRH-118	A091114	2025-04-21	2026-04-20
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2024-09-28	2026-09-27

2.7 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Disturbance (0.15~30MHz)	$\pm 3.41\text{dB}$
Duty cycle	$\pm 3.1\%$
Occupied Bandwidth	$\pm 3.63\%$
RF conducted power	$\pm 0.733\text{dB}$
RF power density	$\pm 0.234\%$
Conducted Spurious emissions	$\pm 1.98\text{dB}$
Radiated Emission (Above 1GHz)	$\pm 5.46\text{dB}$
Radiated Emission (Below 1GHz)	$\pm 5.79\text{dB}$
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

3 Radio Spectrum Matter Test Results (RF)

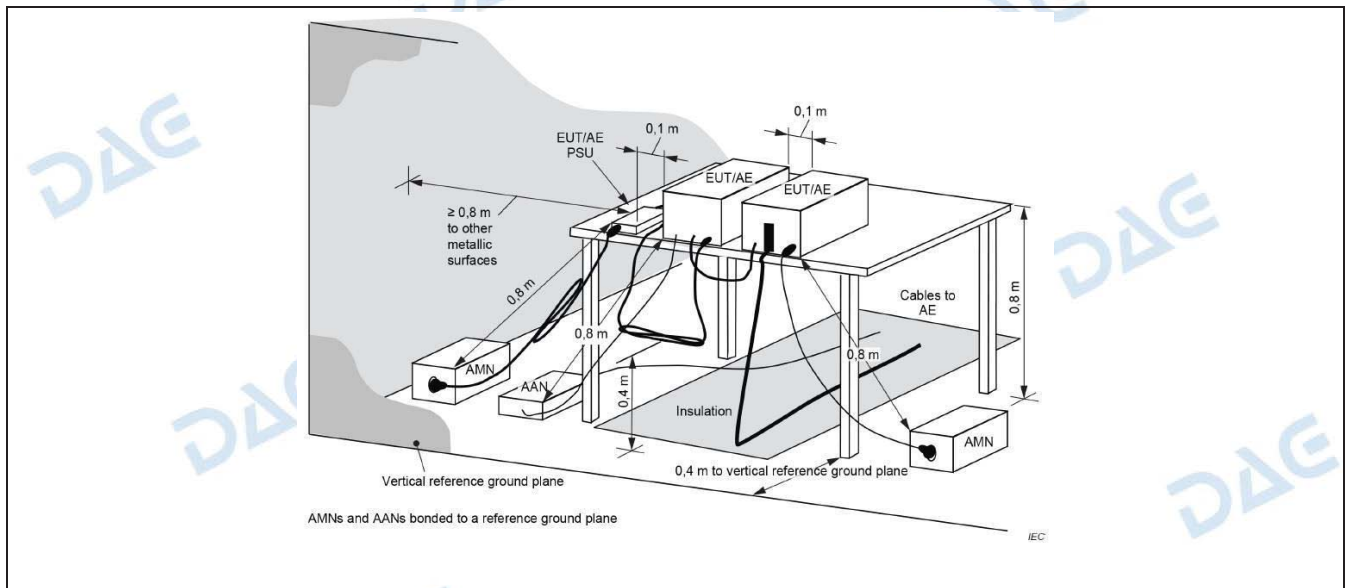
3.1 Conducted Emission at AC power line

Test Requirement:	47 CFR Part 15.207(a)		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dBµV)	
		Quasi-peak	Average
	0.15-0.5	66 to 56*	56 to 46*
	0.5-5	56	46
	5-30	60	50
	*Decreases with the logarithm of the frequency.		
Test Method:	ANSI C63.10-2020 section 6.2		

3.1.1 E.U.T. Operation:

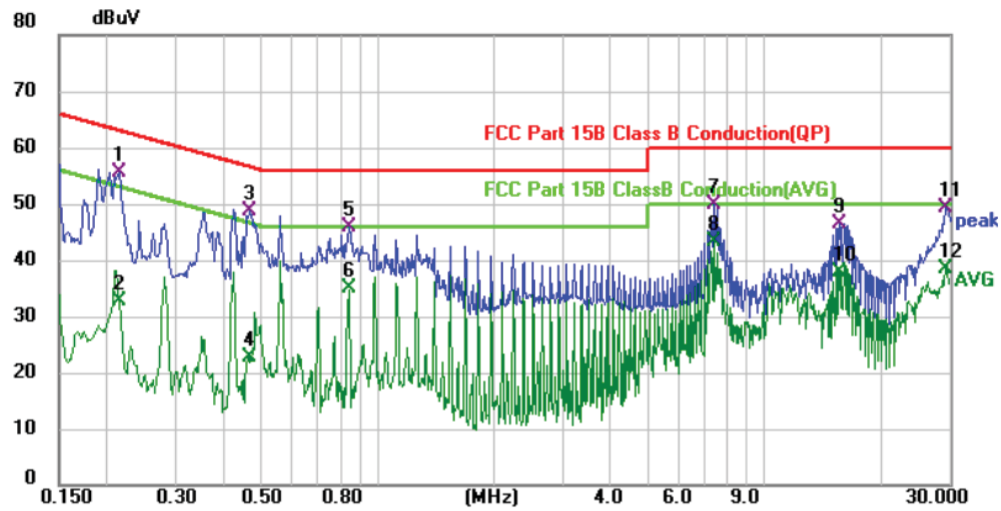
Operating Environment:					
Temperature:	23.4 °C	Humidity:	52 %	Atmospheric Pressure:	102 kPa
Pretest mode:		TM1, TM2			
Final test mode:		TM1, TM2			

3.1.2 Test Setup Diagram:



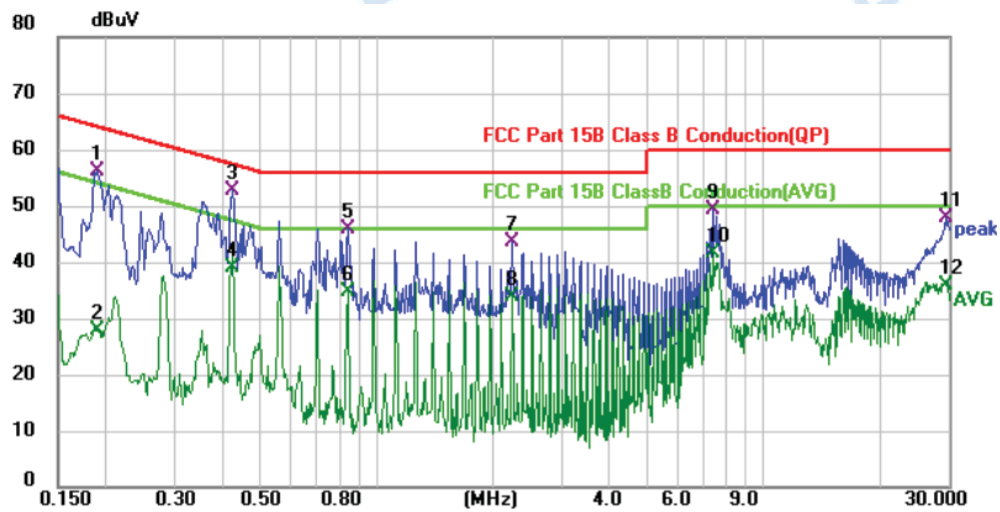
3.1.3 Test Data:

TM1 / Line: Line / Band: 5150-5250 MHz / BW: 20



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.2140	45.45	10.08	55.53	63.05	-7.52	QP	
2		0.2140	22.63	10.08	32.71	53.05	-20.34	AVG	
3		0.4660	38.57	10.09	48.66	56.58	-7.92	QP	
4		0.4660	12.54	10.09	22.63	46.58	-23.95	AVG	
5		0.8420	35.74	10.09	45.83	56.00	-10.17	QP	
6		0.8420	24.77	10.09	34.86	46.00	-11.14	AVG	
7		7.4300	39.65	10.24	49.89	60.00	-10.11	QP	
8	*	7.4300	33.18	10.24	43.42	50.00	-6.58	AVG	
9		15.6980	35.95	10.50	46.45	60.00	-13.55	QP	
10		15.6980	27.31	10.50	37.81	50.00	-12.19	AVG	
11		29.5140	38.27	11.14	49.41	60.00	-10.59	QP	
12		29.5140	27.43	11.14	38.57	50.00	-11.43	AVG	

TM1 / Line: Neutral / Band: 5150-5250 MHz / BW: 20



No.	Mk.	Freq. MHz	Reading Level dBuV	Correct Factor dB	Measure- ment dBuV	Limit dBuV	Over dB	Detector	Comment
1		0.1900	46.20	10.08	56.28	64.04	-7.76	QP	
2		0.1900	17.86	10.08	27.94	54.04	-26.10	AVG	
3	*	0.4213	42.54	10.08	52.62	57.42	-4.80	QP	
4		0.4213	28.97	10.08	39.05	47.42	-8.37	AVG	
5		0.8420	35.84	10.09	45.93	56.00	-10.07	QP	
6		0.8420	24.55	10.09	34.64	46.00	-11.36	AVG	
7		2.2420	33.52	10.01	43.53	56.00	-12.47	QP	
8		2.2420	23.77	10.01	33.78	46.00	-12.22	AVG	
9		7.4300	39.15	10.24	49.39	60.00	-10.61	QP	
10		7.4300	31.36	10.24	41.60	50.00	-8.40	AVG	
11		29.5780	36.81	11.15	47.96	60.00	-12.04	QP	
12		29.5780	24.65	11.15	35.80	50.00	-14.20	AVG	

NOTE:

1. An initial pre-scan was performed on the line and neutral lines with peak detector.
2. Quasi-Peak and Average measurement were performed at the frequencies with maximized peak emission.
3. Measurement Level = Reading level + Correct Factor, Over = Limit - Measurement

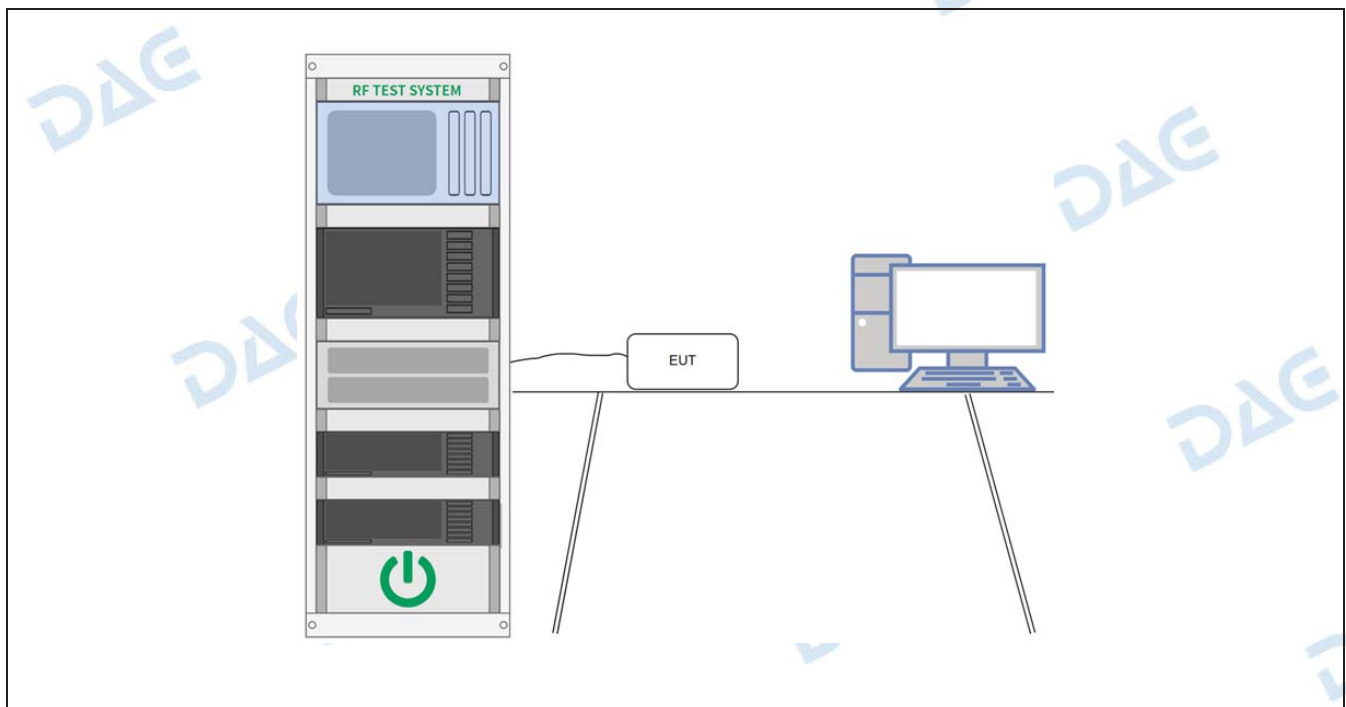
3.2 Duty Cycle

Test Requirement:	All measurements are to be performed with the EUT transmitting at 100% duty cycle at its maximum power control level; however, if 100% duty cycle cannot be achieved, measurements of duty cycle, x, and maximum-power transmission duration, T, are required for each tested mode of operation.
Test Limit:	No limits, only for report use.
Test Method:	ANSI C63.10-2020 section 12.2 (b)
Procedure:	i) Set the center frequency of the instrument to the center frequency of the transmission. ii) Set RBW $\geq$ EBW if possible; otherwise, set RBW to the largest available value. iii) Set VBW $\geq$ RBW. iv) Set detector = peak. v) The zero-span measurement method shall not be used unless both RBW and VBW are $> 50/T$, where T is defined in item a1) of 12.2, and the number of sweep points across duration T exceeds 100.

3.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.3 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

3.2.2 Test Setup Diagram:



3.2.3 Test Data:

Please Refer to Appendix for Details.

3.3 Emission bandwidth and occupied bandwidth

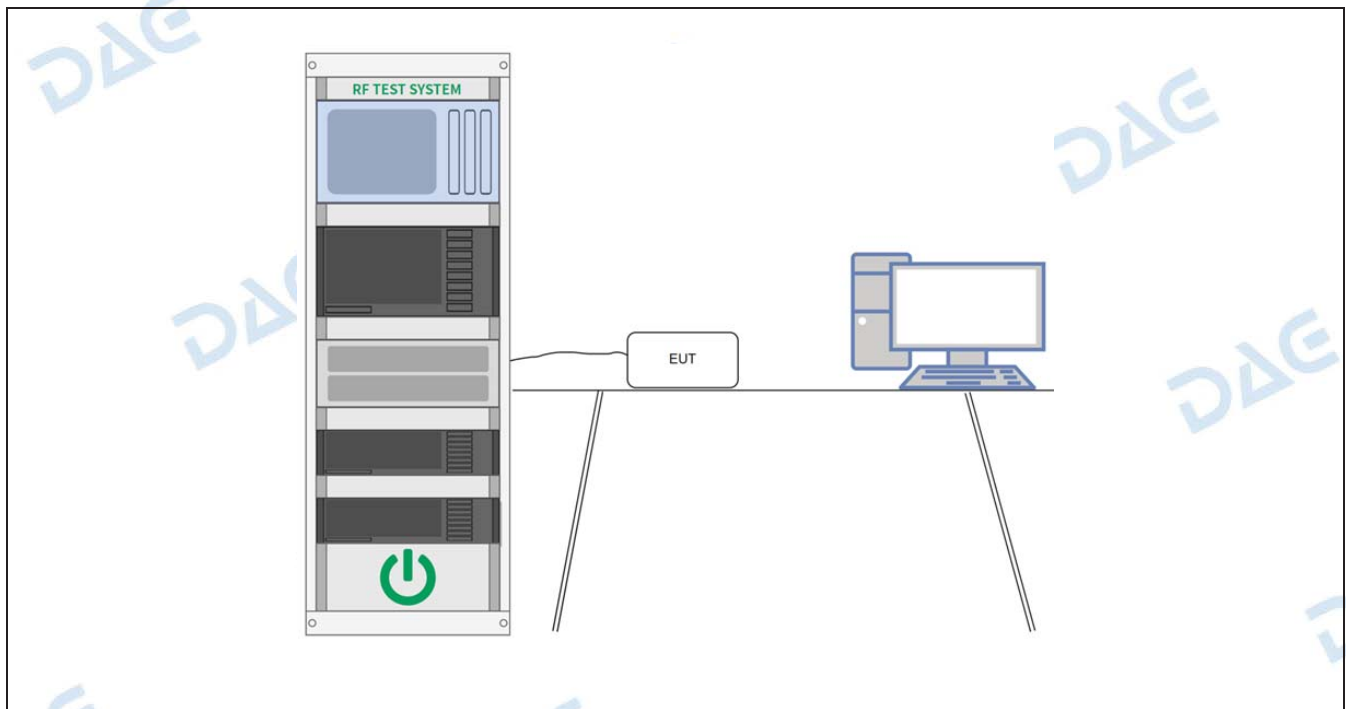
Test Requirement:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: 47 CFR Part 15.407(e)
Test Limit:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.
Test Method:	ANSI C63.10-2020, section 6.9 & 12.5 KDB 789033 D02, Clause C.2
Procedure:	Emission bandwidth: - Set RBW = approximately 1% of the emission bandwidth. - Set the VBW > RBW. - Detector = peak. - Trace mode = max hold. - Measure the maximum width of the emission that is 26 dB down from the peak of the emission. Compare this with the RBW setting of the instrument. Readjust RBW and repeat measurement as needed until the RBW/EBW ratio is approximately 1%. Occupied bandwidth: - The instrument center frequency is set to the nominal EUT channel center frequency. The frequency span for the spectrum analyzer shall be between 1.5 times and 5.0 times the OBW. - The nominal IF filter bandwidth (3 dB RBW) shall be in the range of 1% to 5% of the OBW, and VBW shall be approximately three times the RBW, unless otherwise specified by the applicable requirement. - Set the reference level of the instrument as required, keeping the signal from exceeding the maximum input mixer level for linear operation. In general, the peak of the spectral envelope shall be more than $[10 \log (OBW/RBW)]$ below the reference level. Specific guidance is given in 4.1.5.2. - Step a) through step c) might require iteration to adjust within the specified range. - Video averaging is not permitted. Where practical, a sample detection and single sweep mode shall be used. Otherwise, peak detection and max hold mode (until the trace stabilizes) shall be used. - Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth. - If the instrument does not have a 99% power bandwidth function, then the trace data points are recovered and directly summed in linear power terms. The recovered amplitude data points, beginning at the lowest frequency, are placed in a running sum until 0.5% of the total is reached; that frequency is recorded as the lower frequency. The process is repeated until 99.5% of the total is reached; that frequency is recorded as the upper frequency. The 99% power bandwidth is

	the difference between these two frequencies. h) The occupied bandwidth shall be reported by providing plot(s) of the measuring instrument display; the plot axes and the scale units per division shall be clearly labeled. Tabular data may be reported in addition to the plot(s). 6 dB emission bandwidth: a) Set RBW = 100 kHz. b) Set the video bandwidth (VBW) $\geq 3 \times$ RBW. c) Detector = Peak. d) Trace mode = max hold. e) Sweep = auto couple. f) Allow the trace to stabilize. g) Measure the maximum width of the emission that is constrained by the frequencies associated with the two outermost amplitude points (upper and lower frequencies) that are attenuated by 6 dB relative to the maximum level measured in the fundamental emission.
--	---

3.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.2 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

3.3.2 Test Setup Diagram:



3.3.3 Test Data:

Please Refer to Appendix for Details.

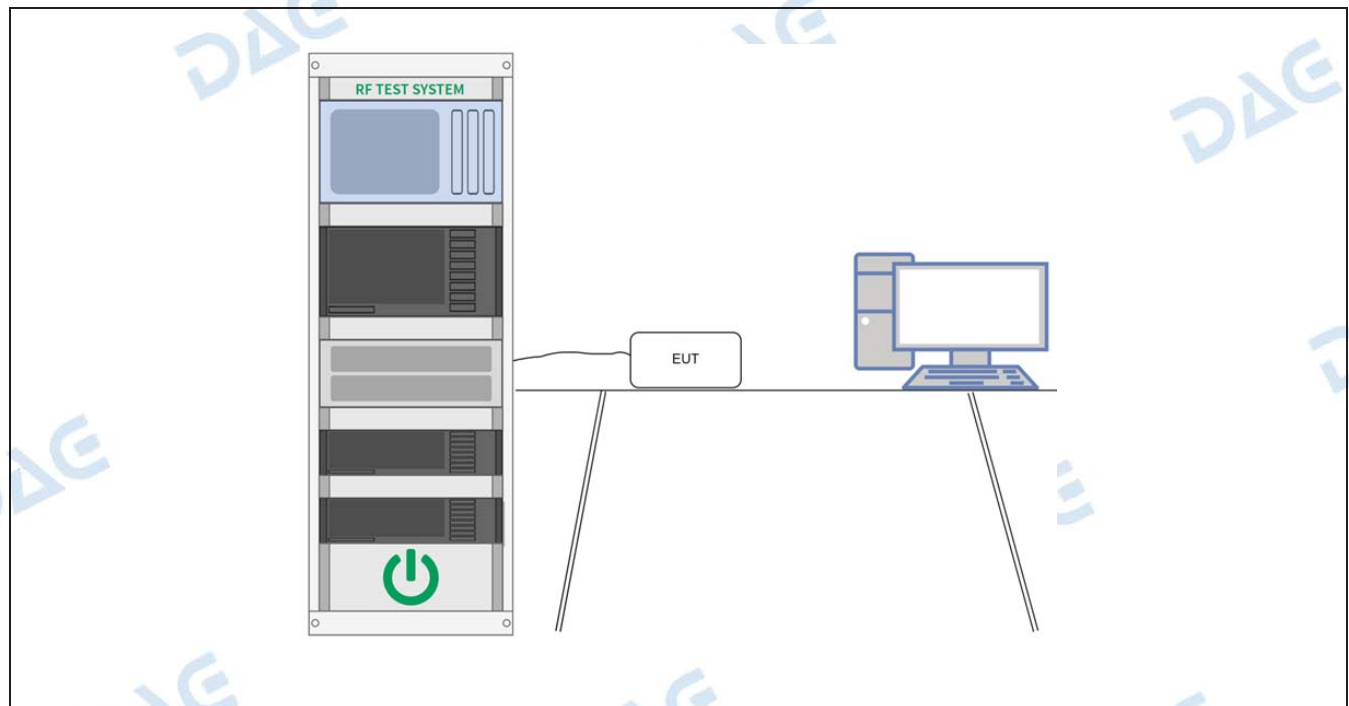
3.4 Maximum conducted output power

Test Requirement:	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)
Test Limit:	For client devices in the 5.15-5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW provided the maximum antenna gain does not exceed 6 dBi. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For the band 5.725-5.850 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum conducted output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple colocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
Test Method:	ANSI C63.10-2020, section 12.4
Procedure:	Refer to ANSI C63.10-2020 section 12.4

3.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.2 °C	Humidity:	52 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

3.4.2 Test Setup Diagram:



3.4.3 Test Data:

Please Refer to Appendix for Details.

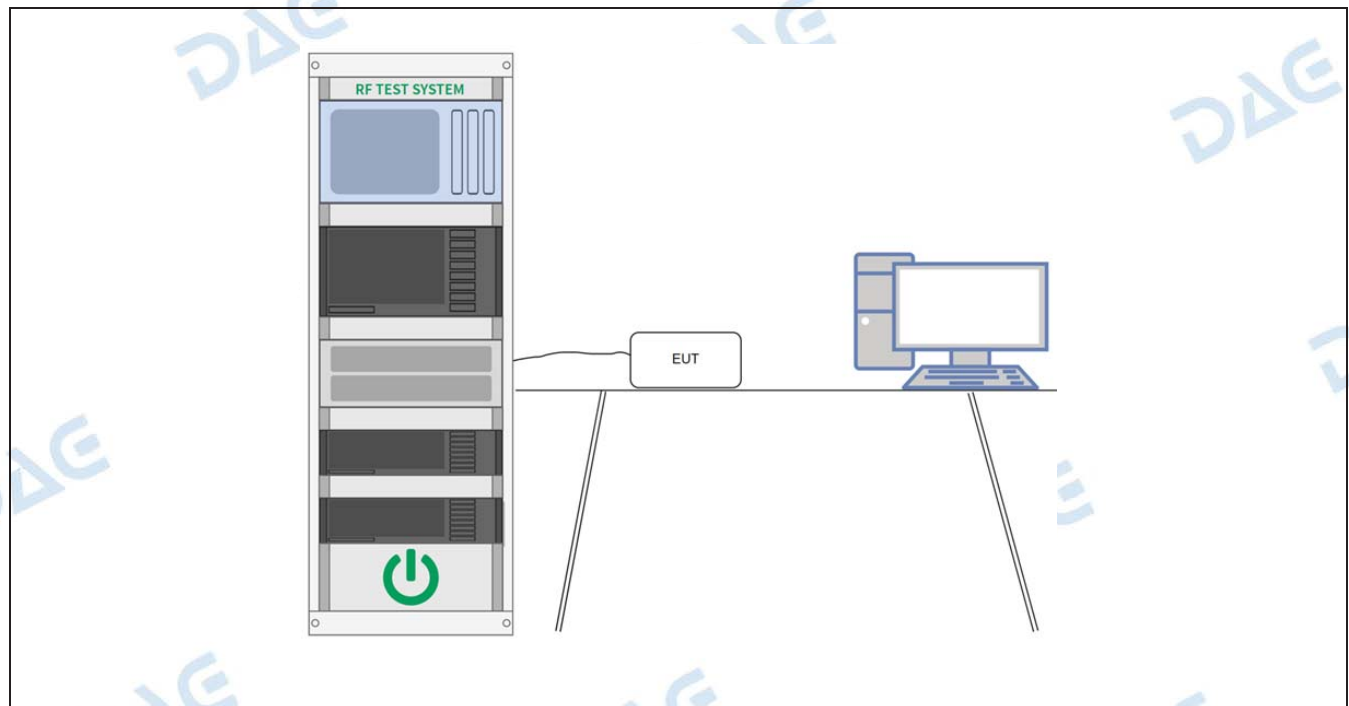
3.5 Power spectral density

Test Requirement:	47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)
Test Limit:	For client devices in the 5.15-5.25 GHz band, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. For the band 5.725-5.850 GHz, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi. However, fixed point-to-point U-NII devices operating in this band may employ transmitting antennas with directional gain greater than 6 dBi without any corresponding reduction in transmitter conducted power. Fixed, point-to-point operations exclude the use of point-to-multipoint systems, omnidirectional applications, and multiple collocated transmitters transmitting the same information. The operator of the U-NII device, or if the equipment is professionally installed, the installer, is responsible for ensuring that systems employing high gain directional antennas are used exclusively for fixed, point-to-point operations.
Test Method:	ANSI C63.10-2020, section 12.6
Procedure:	Refer to ANSI C63.10-2020, section 12.6

3.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	53 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

3.5.2 Test Setup Diagram:



3.5.3 Test Data:

Please Refer to Appendix for Details.

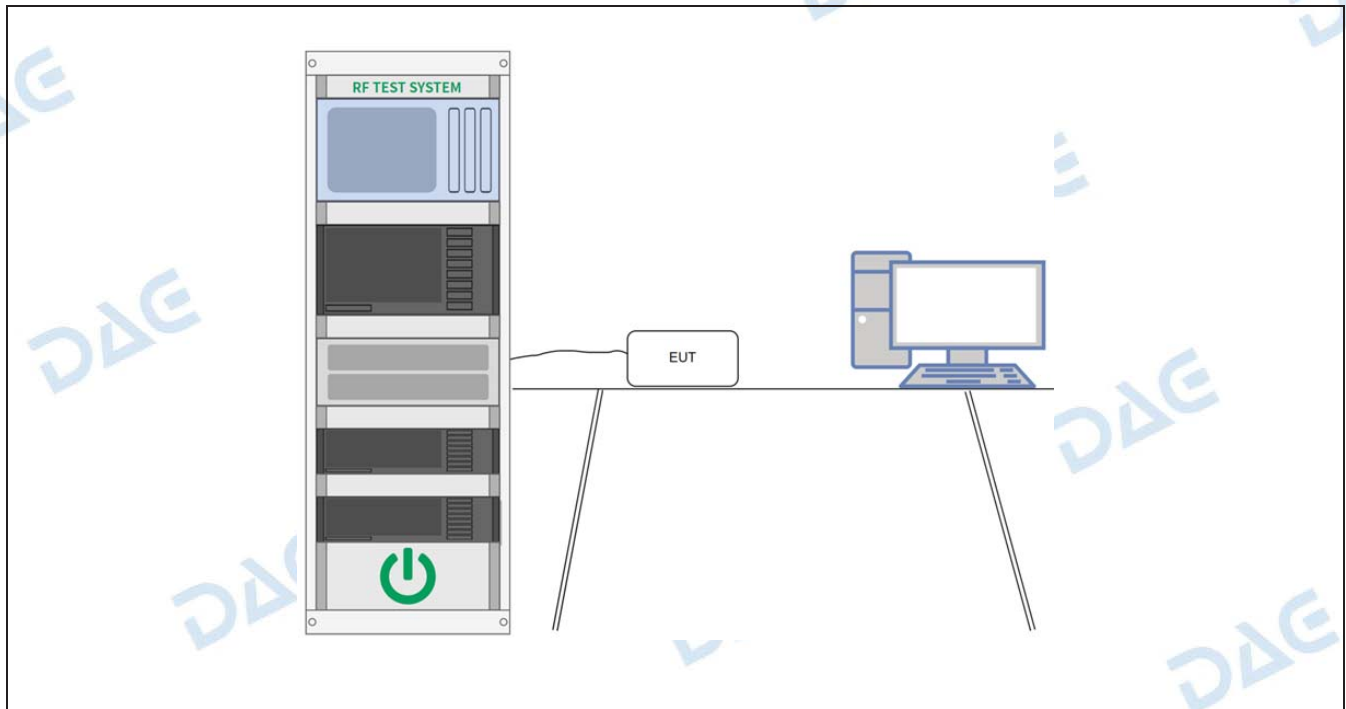
3.6 Frequency stability

Test Requirement:	47 CFR Part 15.407(g)
Test Limit:	Manufacturers of U-NII devices are responsible for ensuring frequency stability such that an emission is maintained within the band of operation under all conditions of normal operation as specified in the users manual.
Test Method:	ANSI C63.10-2020, section 6.8
Procedure:	Refer to ANSI C63.10-2020 section 6.8

3.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.1 °C	Humidity:	55 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

3.6.2 Test Setup Diagram:



3.6.3 Test Data:

Please Refer to Appendix for Details.

3.7 Band edge emissions (Conducted)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)																																																																										
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. For transmitters operating solely in the 5.725-5.850 GHz band: 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. <table border="1"> <thead> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> </thead> <tbody> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td>¹ 0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(²)</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </tbody> </table> ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. ² Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:			MHz	MHz	MHz	GHz	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7	6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4	6.31175-6.31225	123-138	2200-2300	14.47-14.5	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5	12.57675-12.57725	322-335.4	3600-4400	(²)	13.36-13.41			
MHz	MHz	MHz	GHz																																																																								
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Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

In the emission table above, the tighter limit applies at the band edges.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

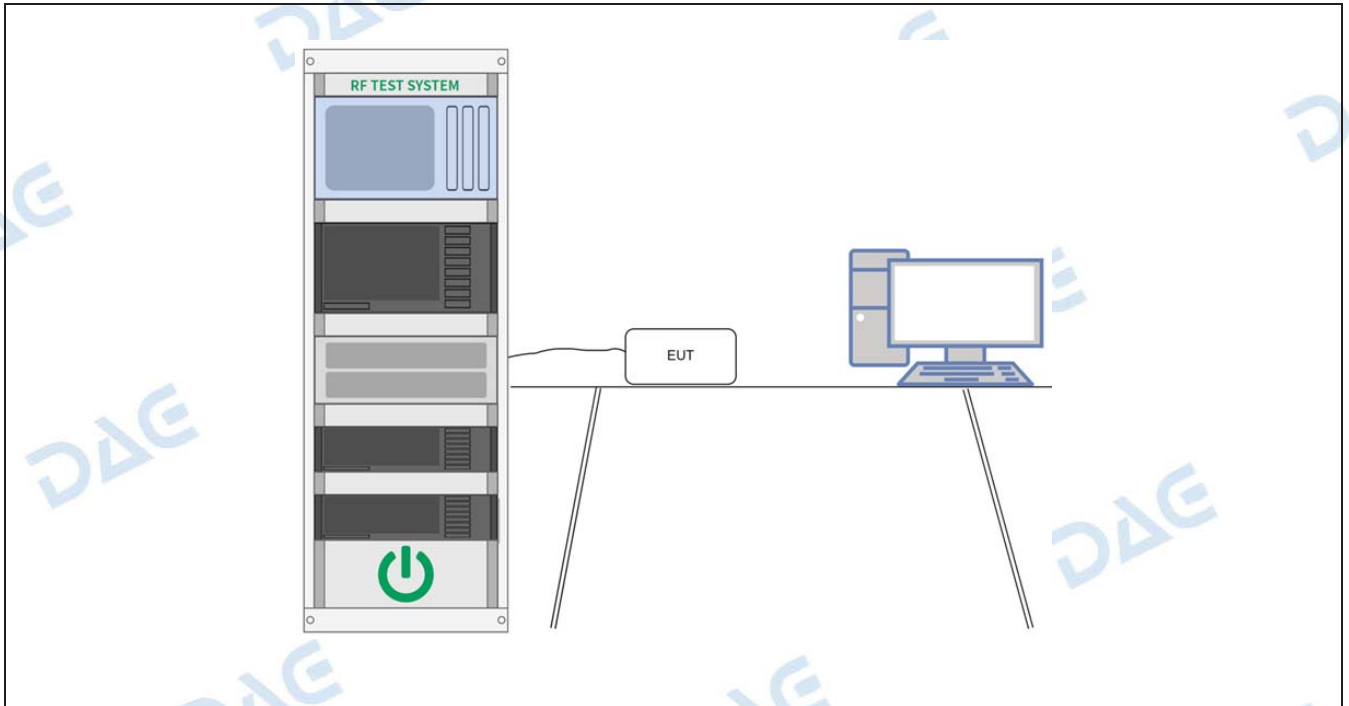
Test Method:	ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7
Procedure:	Above 1GHz: - For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. - For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. - Test the EUT in the lowest channel, the middle channel, the Highest channel. - The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. - Repeat above procedures until all frequencies measured was complete. Remark: - Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor - Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. - As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB

under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

3.7.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.2 °C	Humidity:	55 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

3.7.2 Test Setup Diagram:



3.7.3 Test Data:

Please Refer to Appendix for Details.

3.8 Band edge emissions (Radiated)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)																																																																										
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. For transmitters operating solely in the 5.725-5.850 GHz band: 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. <table border="1"> <thead> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> </thead> <tbody> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td>¹ 0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(²)</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </tbody> </table> ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. ² Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:			MHz	MHz	MHz	GHz	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7	6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4	6.31175-6.31225	123-138	2200-2300	14.47-14.5	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5	12.57675-12.57725	322-335.4	3600-4400	(²)	13.36-13.41			
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Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

In the emission table above, the tighter limit applies at the band edges.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Method:	ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7
Procedure:	Above 1GHz: - For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. - For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. - Test the EUT in the lowest channel, the middle channel, the Highest channel. - The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. - Repeat above procedures until all frequencies measured was complete. Remark: - Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor - Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. - As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB

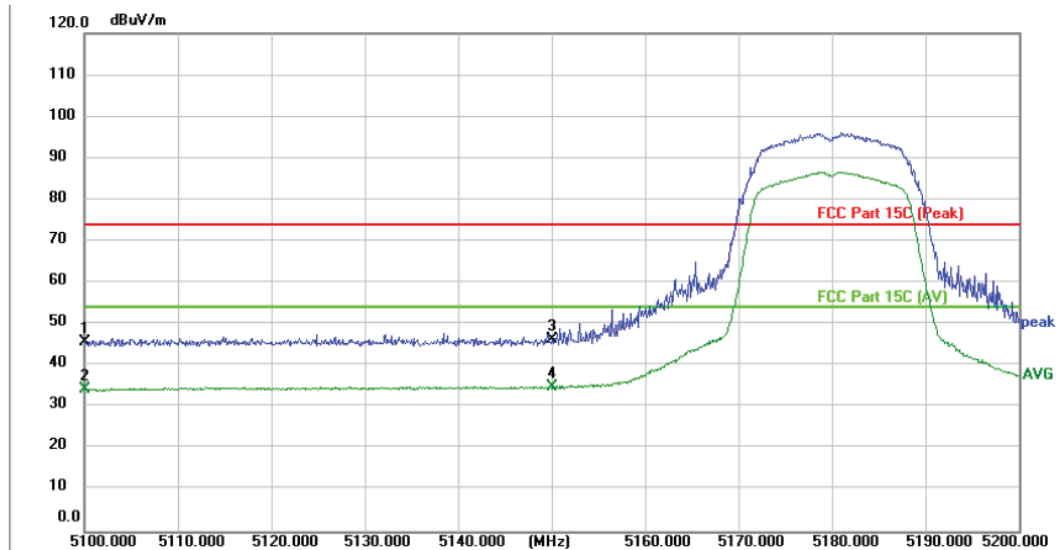
	under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report. 4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
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3.8.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.9 °C	Humidity:	55 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

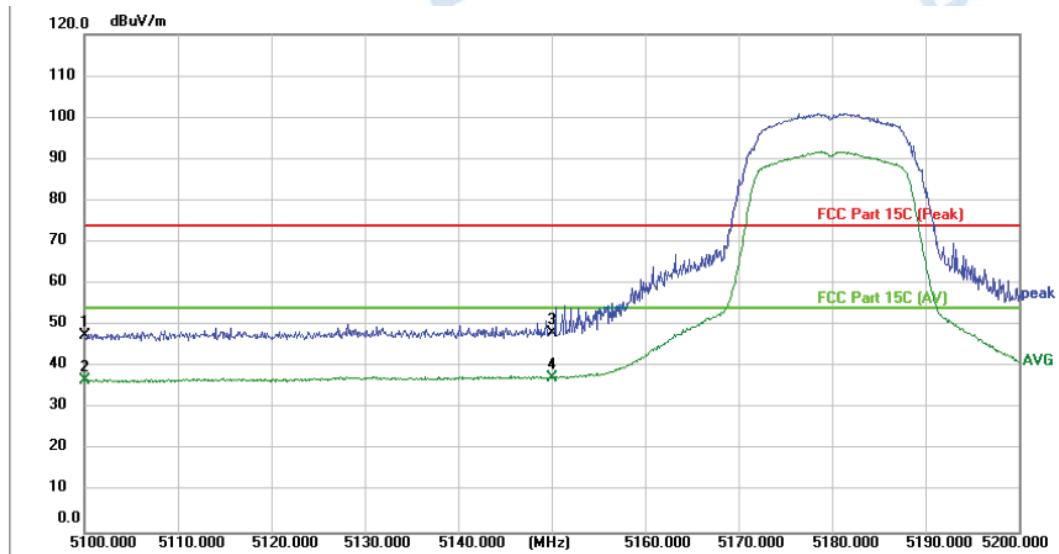
3.8.2 Test Data:

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20



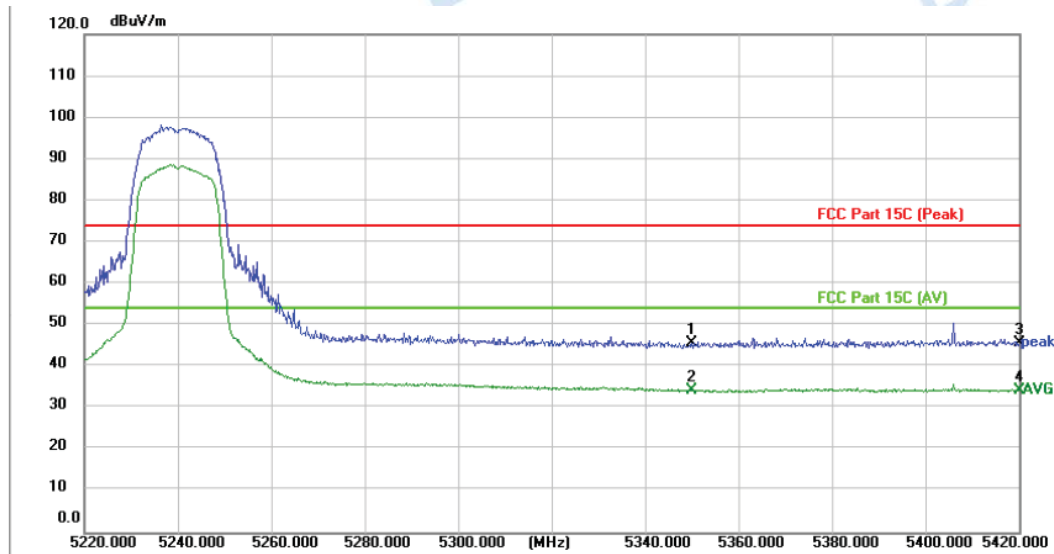
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5100.000	45.55	0.16	45.71	74.00	-28.29	peak	149		P	
2	5100.000	34.24	0.16	34.40	54.00	-19.60	AVG	149		P	
3	5150.000	46.07	0.25	46.32	74.00	-27.68	peak	149		P	
4 *	5150.000	34.69	0.25	34.94	54.00	-19.06	AVG	149		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20



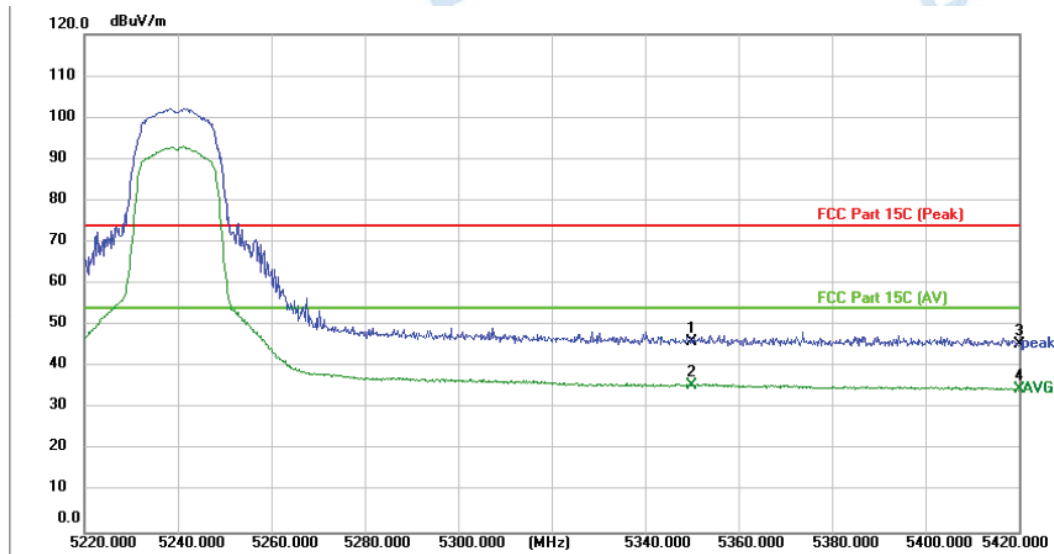
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5100.000	47.28	0.16	47.44	74.00	-26.56	peak			P	
2	5100.000	36.56	0.16	36.72	54.00	-17.28	AVG			P	
3	5150.000	47.96	0.25	48.21	74.00	-25.79	peak			P	
4 *	5150.000	37.23	0.25	37.48	54.00	-16.52	AVG			P	

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 40



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5350.000	44.98	0.65	45.63	74.00	-28.37	peak	149		P	
2	5350.000	33.58	0.65	34.23	54.00	-19.77	AVG	149		P	
3	5420.000	45.08	0.77	45.85	74.00	-28.15	peak	149		P	
4 *	5420.000	33.60	0.77	34.37	54.00	-19.63	AVG	149		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 40

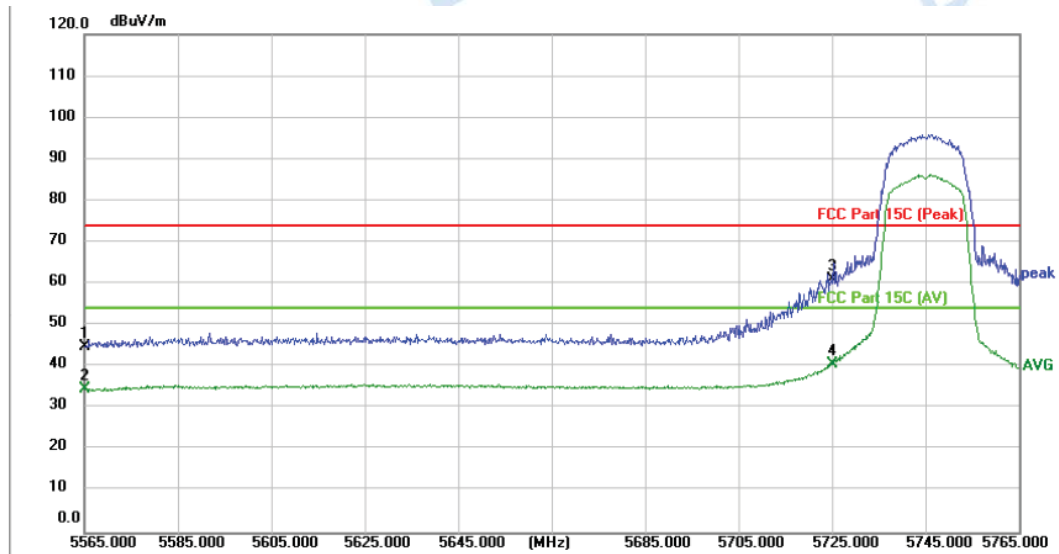


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	5350.000	45.50	0.65	46.15	74.00	-27.85	peak	149		P	
2 *	5350.000	34.83	0.65	35.48	54.00	-18.52	AVG	149		P	
3	5420.000	44.81	0.77	45.58	74.00	-28.42	peak	149		P	
4	5420.000	34.02	0.77	34.79	54.00	-19.21	AVG	149		P	

Remark: Margin=Level - Limit, Level=Test receiver reading + correction factor

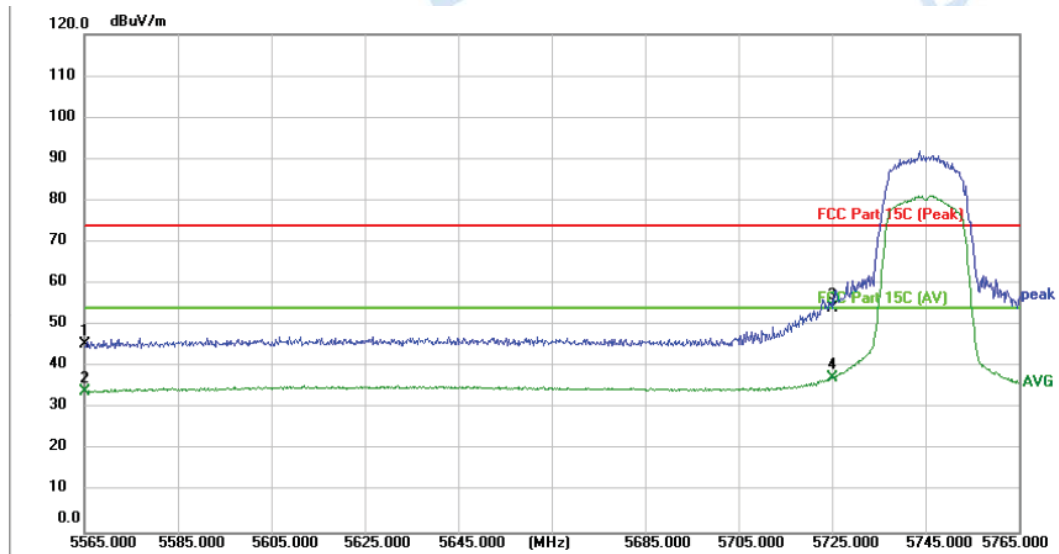
All modes have been tested, and the test results show that a-mode data is the worst, only a-mode test chart is put. Test Mode: 802.11a20 low channel (the worst)

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20



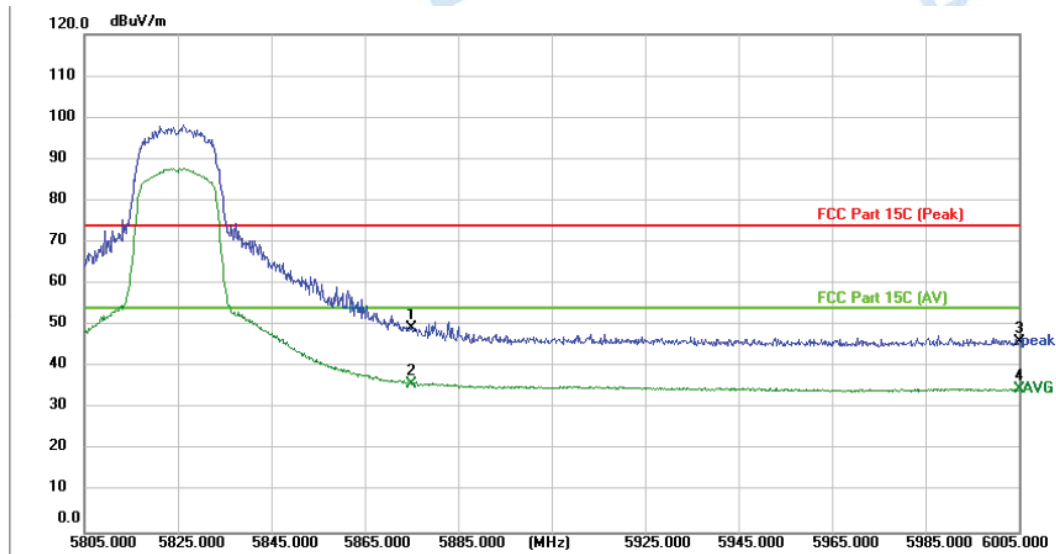
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector		P/F	Remark
1	5565.000	43.87	1.00	44.87	74.00	-29.13	peak		P	
2	5565.000	33.55	1.00	34.55	54.00	-19.45	AVG		P	
3 *	5725.000	59.94	1.17	61.11	74.00	-12.89	peak		P	
4	5725.000	39.43	1.17	40.60	54.00	-13.40	AVG		P	

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20



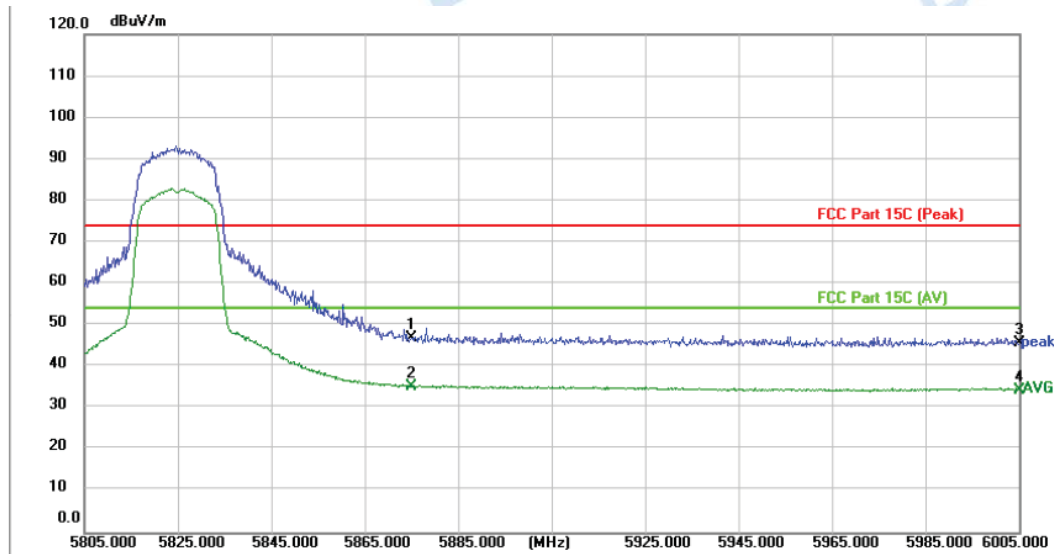
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	5565.000	44.53	1.00	45.53	74.00	-28.47	peak			P	
2	5565.000	33.11	1.00	34.11	54.00	-19.89	AVG			P	
3	5725.000	52.99	1.17	54.16	74.00	-19.84	peak			P	
4 *	5725.000	36.33	1.17	37.50	54.00	-16.50	AVG			P	

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 40



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	5875.000	47.91	1.35	49.26	74.00	-24.74	peak			P	
2 *	5875.000	34.47	1.35	35.82	54.00	-18.18	AVG			P	
3	6005.000	44.41	1.50	45.91	74.00	-28.09	peak			P	
4	6005.000	33.05	1.50	34.55	54.00	-19.45	AVG			P	

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 40



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	5875.000	45.72	1.35	47.07	74.00	-26.93	peak			P	
2 *	5875.000	34.03	1.35	35.38	54.00	-18.62	AVG			P	
3	6005.000	44.28	1.50	45.78	74.00	-28.22	peak			P	
4	6005.000	33.00	1.50	34.50	54.00	-19.50	AVG			P	

Remark: Margin=Level - Limit, Level=Test receiver reading + correction factor

All modes have been tested, and the test results show that a-mode data is the worst, only a-mode test chart is put. Test Mode: 802.11a20 low channel (the worst)

3.9 Undesirable emission limits (below 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(9)																										
Test Limit:	Unwanted emissions below 1 GHz must comply with the general field strength limits set forth in § 15.209. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table: <table><tr><th>Frequency (MHz)</th><th>Field strength (microvolts/meter)</th><th>Measurement distance (meters)</th></tr><tr><td>0.009-0.490</td><td>2400/F(kHz)</td><td>300</td></tr><tr><td>0.490-1.705</td><td>24000/F(kHz)</td><td>30</td></tr><tr><td>1.705-30.0</td><td>30</td><td>30</td></tr><tr><td>30-88</td><td>100 **</td><td>3</td></tr><tr><td>88-216</td><td>150 **</td><td>3</td></tr><tr><td>216-960</td><td>200 **</td><td>3</td></tr><tr><td>Above 960</td><td>500</td><td>3</td></tr></table> ** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241. In the emission table above, the tighter limit applies at the band edges. The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.			Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)	0.009-0.490	2400/F(kHz)	300	0.490-1.705	24000/F(kHz)	30	1.705-30.0	30	30	30-88	100 **	3	88-216	150 **	3	216-960	200 **	3	Above 960	500	3
Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)																									
0.009-0.490	2400/F(kHz)	300																									
0.490-1.705	24000/F(kHz)	30																									
1.705-30.0	30	30																									
30-88	100 **	3																									
88-216	150 **	3																									
216-960	200 **	3																									
Above 960	500	3																									
Test Method:	ANSI C63.10-2020, section 12.7.4, 12.7.5																										
Procedure:	Below 1GHz: a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet. g. Test the EUT in the lowest channel, the middle channel, the Highest channel. h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. i. Repeat above procedures until all frequencies measured was complete. Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor																										

2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

Above 1GHz:

- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- Repeat above procedures until all frequencies measured was complete.

Remark:

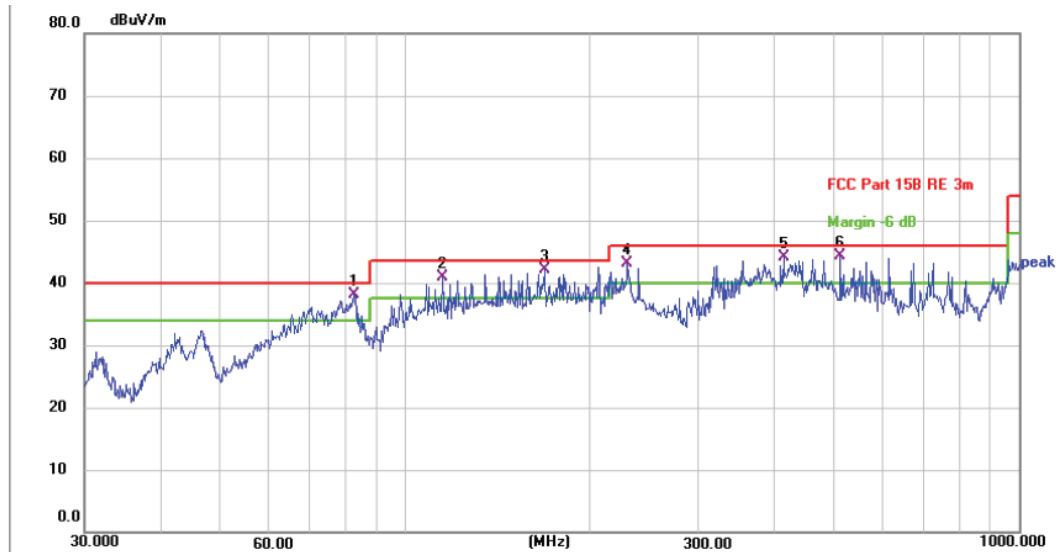
- Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
- As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
- The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

3.9.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.9 °C	Humidity:	54 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

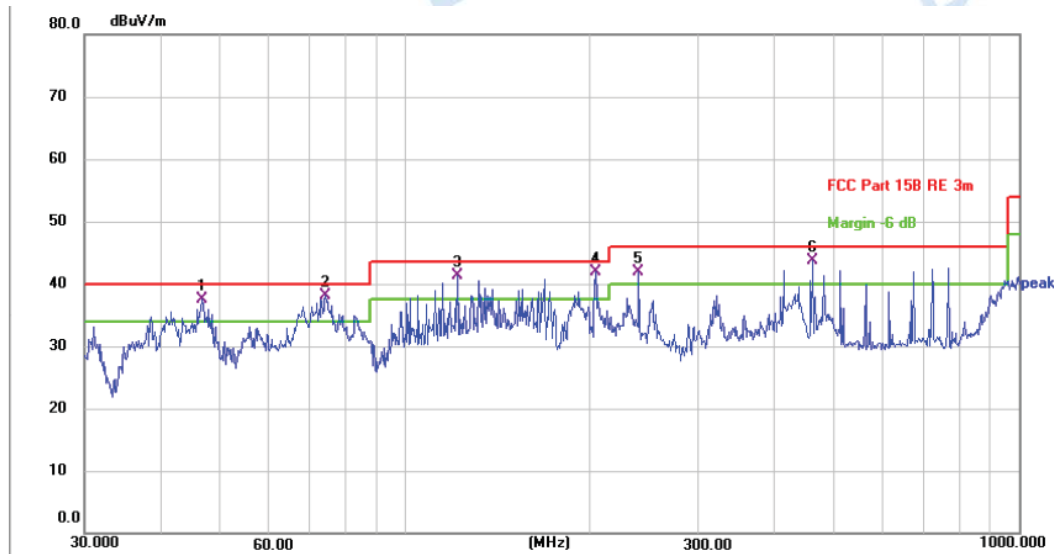
3.9.2 Test Data:

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	82.3588	50.83	-12.77	38.06	40.00	-1.94	QP			P	
2 !	114.9167	48.05	-7.15	40.90	43.50	-2.60	QP			P	
3 *	168.4137	50.87	-8.81	42.06	43.50	-1.44	QP			P	
4 !	230.0985	53.95	-10.91	43.04	46.00	-2.96	QP			P	
5 !	413.2706	49.32	-5.30	44.02	46.00	-1.98	QP			P	
6 !	511.8351	47.43	-3.21	44.22	46.00	-1.78	QP			P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1 !	46.6662	48.92	-11.48	37.44	40.00	-2.56	QP			P	
2 !	74.1350	50.84	-12.78	38.06	40.00	-1.94	QP			P	
3 !	121.5485	48.19	-6.83	41.36	43.50	-2.14	QP			P	
4 *	204.2375	51.46	-9.65	41.81	43.50	-1.69	QP			P	
5 !	239.9873	52.08	-10.16	41.92	46.00	-4.08	QP			P	
6 !	460.7271	47.71	-4.09	43.62	46.00	-2.38	QP			P	

Remark: Margin=Level - Limit, Level=Test receiver reading + correction factor

All modes have been tested, and the test results show that a-mode data is the worst, only a-mode test chart is put. Test Mode: 802.11a20 low channel (the worst)

3.10 Undesirable emission limits (above 1GHz)

Test Requirement:	47 CFR Part 15.407(b)(1) 47 CFR Part 15.407(b)(4) 47 CFR Part 15.407(b)(10)																																																																										
Test Limit:	For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz. For transmitters operating solely in the 5.725-5.850 GHz band: 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. <table border="1"> <thead> <tr> <th>MHz</th><th>MHz</th><th>MHz</th><th>GHz</th></tr> </thead> <tbody> <tr> <td>0.090-0.110</td><td>16.42-16.423</td><td>399.9-410</td><td>4.5-5.15</td></tr> <tr> <td>¹ 0.495-0.505</td><td>16.69475-16.69525</td><td>608-614</td><td>5.35-5.46</td></tr> <tr> <td>2.1735-2.1905</td><td>16.80425-16.80475</td><td>960-1240</td><td>7.25-7.75</td></tr> <tr> <td>4.125-4.128</td><td>25.5-25.67</td><td>1300-1427</td><td>8.025-8.5</td></tr> <tr> <td>4.17725-4.17775</td><td>37.5-38.25</td><td>1435-1626.5</td><td>9.0-9.2</td></tr> <tr> <td>4.20725-4.20775</td><td>73-74.6</td><td>1645.5-1646.5</td><td>9.3-9.5</td></tr> <tr> <td>6.215-6.218</td><td>74.8-75.2</td><td>1660-1710</td><td>10.6-12.7</td></tr> <tr> <td>6.26775-6.26825</td><td>108-121.94</td><td>1718.8-1722.2</td><td>13.25-13.4</td></tr> <tr> <td>6.31175-6.31225</td><td>123-138</td><td>2200-2300</td><td>14.47-14.5</td></tr> <tr> <td>8.291-8.294</td><td>149.9-150.05</td><td>2310-2390</td><td>15.35-16.2</td></tr> <tr> <td>8.362-8.366</td><td>156.52475-156.52525</td><td>2483.5-2500</td><td>17.7-21.4</td></tr> <tr> <td>8.37625-8.38675</td><td>156.7-156.9</td><td>2690-2900</td><td>22.01-23.12</td></tr> <tr> <td>8.41425-8.41475</td><td>162.0125-167.17</td><td>3260-3267</td><td>23.6-24.0</td></tr> <tr> <td>12.29-12.293</td><td>167.72-173.2</td><td>3332-3339</td><td>31.2-31.8</td></tr> <tr> <td>12.51975-12.52025</td><td>240-285</td><td>3345.8-3358</td><td>36.43-36.5</td></tr> <tr> <td>12.57675-12.57725</td><td>322-335.4</td><td>3600-4400</td><td>(²)</td></tr> <tr> <td>13.36-13.41</td><td></td><td></td><td></td></tr> </tbody> </table> ¹ Until February 1, 1999, this restricted band shall be 0.490-0.510 MHz. ² Above 38.6 The field strength of emissions appearing within these frequency bands shall not exceed the limits shown in § 15.209. At frequencies equal to or less than 1000 MHz, compliance with the limits in § 15.209 shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209 shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35 apply to these measurements. Except as provided elsewhere in this subpart, the emissions from an intentional radiator shall not exceed the field strength levels specified in the following table:			MHz	MHz	MHz	GHz	0.090-0.110	16.42-16.423	399.9-410	4.5-5.15	¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46	2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75	4.125-4.128	25.5-25.67	1300-1427	8.025-8.5	4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2	4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5	6.215-6.218	74.8-75.2	1660-1710	10.6-12.7	6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4	6.31175-6.31225	123-138	2200-2300	14.47-14.5	8.291-8.294	149.9-150.05	2310-2390	15.35-16.2	8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4	8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12	8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0	12.29-12.293	167.72-173.2	3332-3339	31.2-31.8	12.51975-12.52025	240-285	3345.8-3358	36.43-36.5	12.57675-12.57725	322-335.4	3600-4400	(²)	13.36-13.41			
MHz	MHz	MHz	GHz																																																																								
0.090-0.110	16.42-16.423	399.9-410	4.5-5.15																																																																								
¹ 0.495-0.505	16.69475-16.69525	608-614	5.35-5.46																																																																								
2.1735-2.1905	16.80425-16.80475	960-1240	7.25-7.75																																																																								
4.125-4.128	25.5-25.67	1300-1427	8.025-8.5																																																																								
4.17725-4.17775	37.5-38.25	1435-1626.5	9.0-9.2																																																																								
4.20725-4.20775	73-74.6	1645.5-1646.5	9.3-9.5																																																																								
6.215-6.218	74.8-75.2	1660-1710	10.6-12.7																																																																								
6.26775-6.26825	108-121.94	1718.8-1722.2	13.25-13.4																																																																								
6.31175-6.31225	123-138	2200-2300	14.47-14.5																																																																								
8.291-8.294	149.9-150.05	2310-2390	15.35-16.2																																																																								
8.362-8.366	156.52475-156.52525	2483.5-2500	17.7-21.4																																																																								
8.37625-8.38675	156.7-156.9	2690-2900	22.01-23.12																																																																								
8.41425-8.41475	162.0125-167.17	3260-3267	23.6-24.0																																																																								
12.29-12.293	167.72-173.2	3332-3339	31.2-31.8																																																																								
12.51975-12.52025	240-285	3345.8-3358	36.43-36.5																																																																								
12.57675-12.57725	322-335.4	3600-4400	(²)																																																																								
13.36-13.41																																																																											

Frequency (MHz)	Field strength (microvolts/meter)	Measurement distance (meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100 **	3
88-216	150 **	3
216-960	200 **	3
Above 960	500	3

** Except as provided in paragraph (g), fundamental emissions from intentional radiators operating under this section shall not be located in the frequency bands 54-72 MHz, 76-88 MHz, 174-216 MHz or 470-806 MHz. However, operation within these frequency bands is permitted under other sections of this part, e.g., §§ 15.231 and 15.241.

In the emission table above, the tighter limit applies at the band edges.

The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9–90 kHz, 110–490 kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector.

Test Method:	ANSI C63.10-2020, section 12.7.4, 12.7.6, 12.7.7
Procedure:	Above 1GHz: - For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation. - The EUT was set 3 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower. - The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement. - For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading. - The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode. - If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak or average method as specified and then reported in a data sheet. - Test the EUT in the lowest channel, the middle channel, the Highest channel. - The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case. - Repeat above procedures until all frequencies measured was complete. Remark: - Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor - Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. - As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB

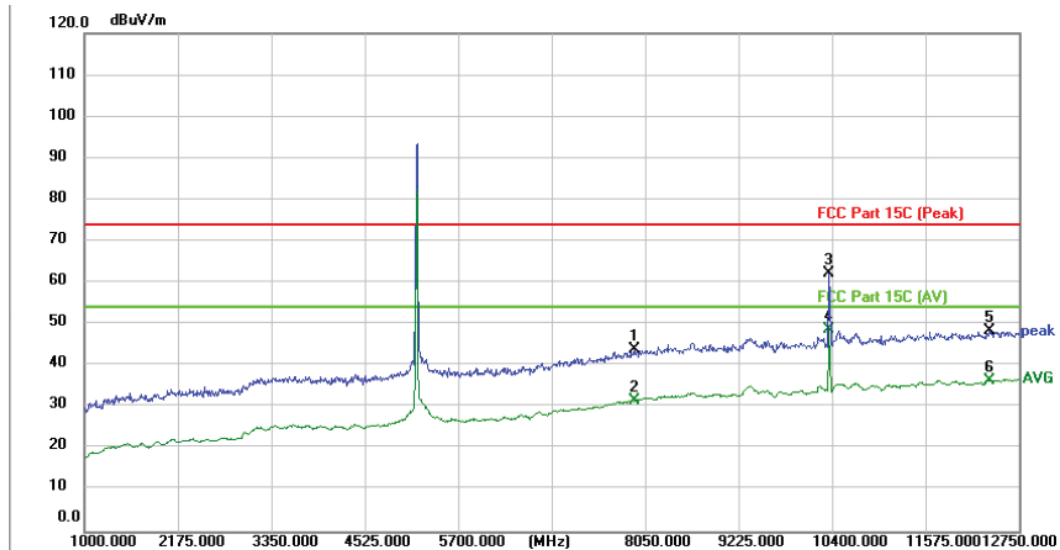
under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.
4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

3.10.1 E.U.T. Operation:

Operating Environment:					
Temperature:	23.4 °C	Humidity:	51 %	Atmospheric Pressure:	102 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

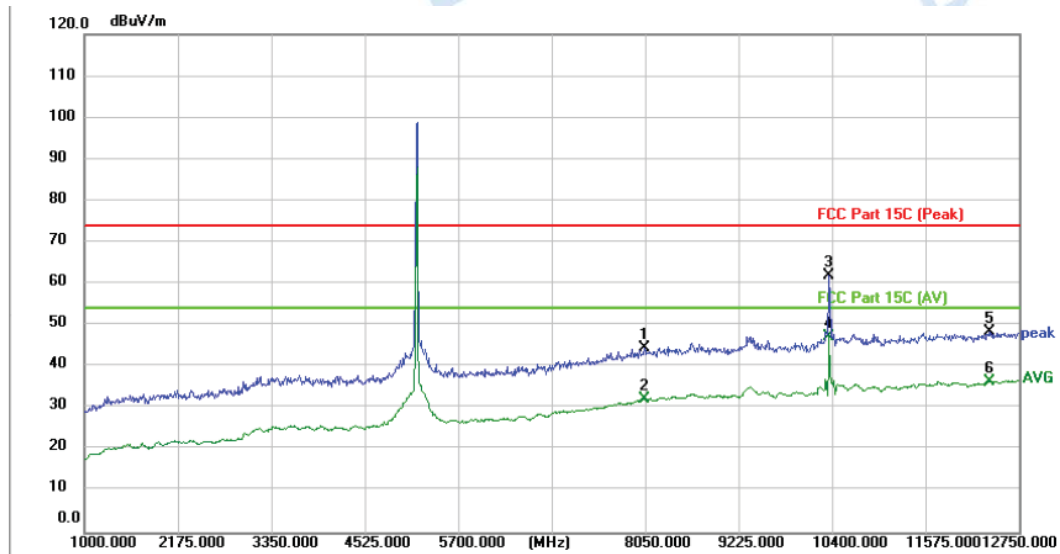
3.10.2 Test Data:

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 20



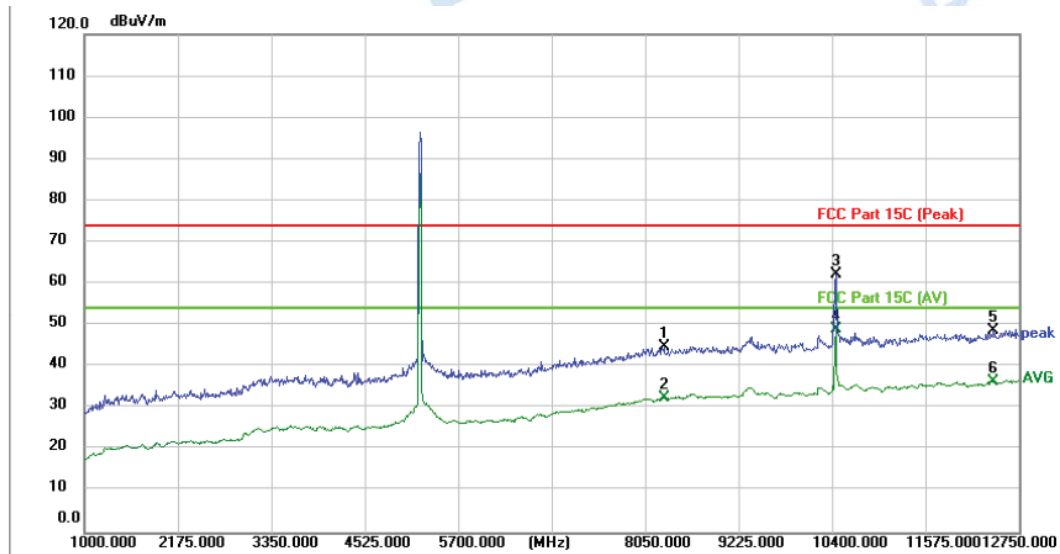
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	7909.000	37.58	6.36	43.94	74.00	-30.06	peak	149		P	
2	7909.000	25.37	6.36	31.73	54.00	-22.27	AVG	149		P	
3	10364.750	53.51	8.76	62.27	74.00	-11.73	peak	149		P	
4 *	10364.750	40.06	8.76	48.82	54.00	-5.18	AVG	149		P	
5	12385.750	37.65	10.79	48.44	74.00	-25.56	peak	149		P	
6	12385.750	25.69	10.79	36.48	54.00	-17.52	AVG	149		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 20



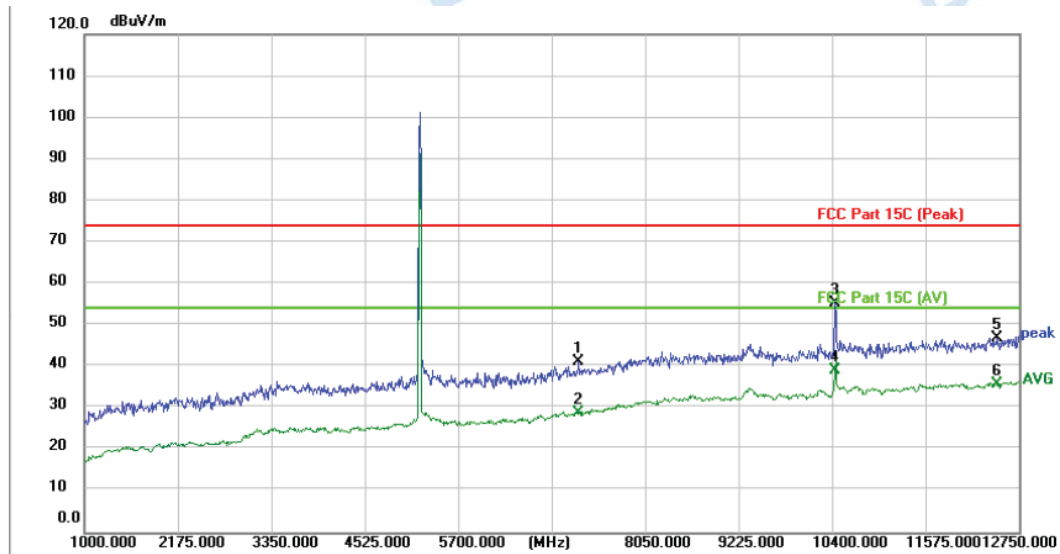
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	8038.250	37.81	6.73	44.54	74.00	-29.46	peak	149		P	
2	8038.250	25.47	6.73	32.20	54.00	-21.80	AVG	149		P	
3	10364.750	53.11	8.76	61.87	74.00	-12.13	peak	149		P	
4 *	10364.750	38.37	8.76	47.13	54.00	-6.87	AVG	149		P	
5	12374.000	37.81	10.77	48.58	74.00	-25.42	peak	149		P	
6	12374.000	25.81	10.77	36.58	54.00	-17.42	AVG	149		P	

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 40



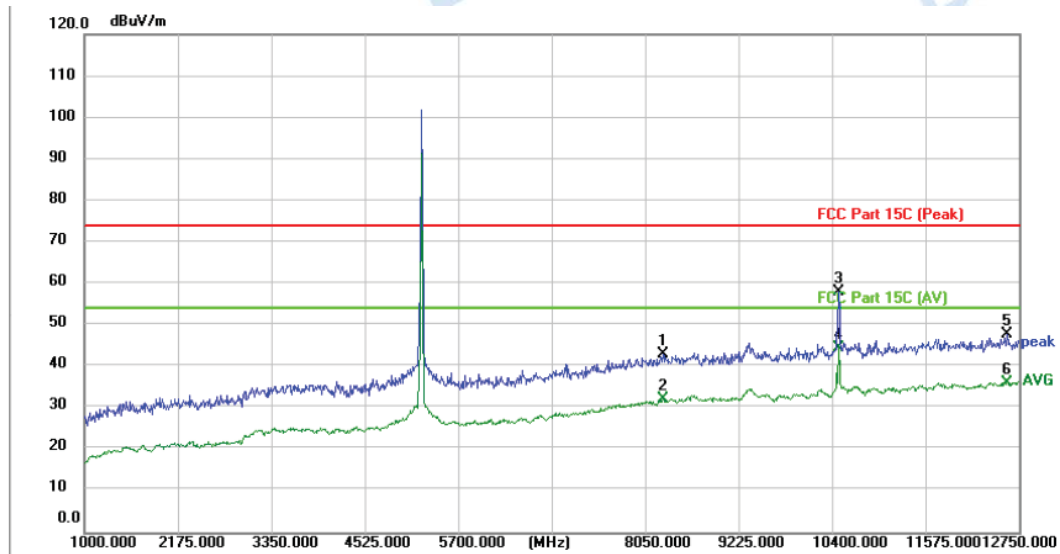
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	8285.000	37.72	7.11	44.83	74.00	-29.17	peak			P	
2	8285.000	25.56	7.11	32.67	54.00	-21.33	AVG			P	
3	10447.000	53.36	8.91	62.27	74.00	-11.73	peak			P	
4 *	10447.000	40.00	8.91	48.91	54.00	-5.09	AVG			P	
5	12432.750	37.93	10.90	48.83	74.00	-25.17	peak			P	
6	12432.750	25.48	10.90	36.38	54.00	-17.62	AVG			P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 40



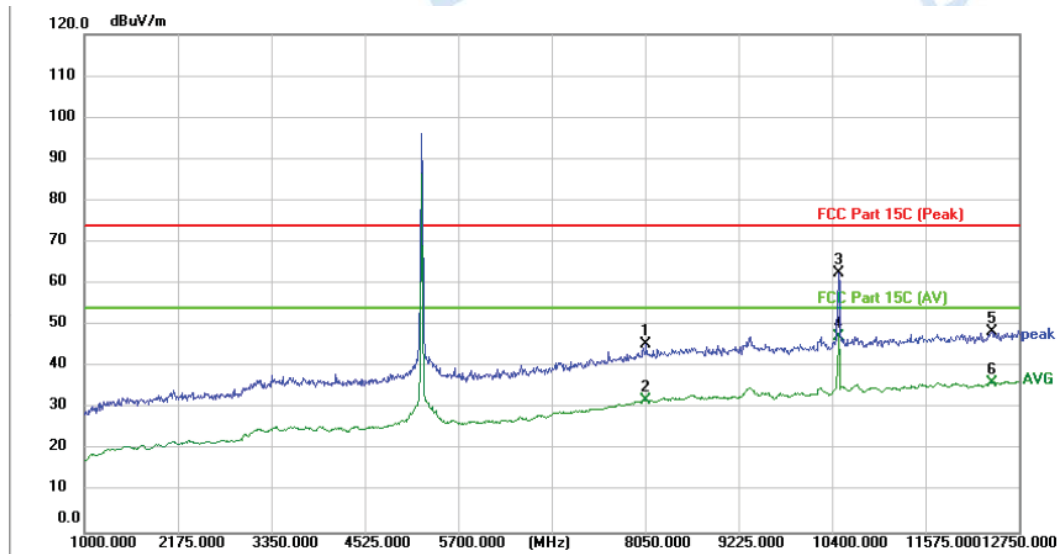
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	7215.750	36.94	4.38	41.32	74.00	-32.68	peak			P	
2	7215.750	24.63	4.38	29.01	54.00	-24.99	AVG			P	
3	10435.250	46.51	8.88	55.39	74.00	-18.61	peak			P	
4 *	10435.250	30.16	8.88	39.04	54.00	-14.96	AVG			P	
5	12468.000	35.93	10.95	46.88	74.00	-27.12	peak			P	
6	12468.000	24.83	10.95	35.78	54.00	-18.22	AVG			P	

TM1 / Polarization: Horizontal / Band: 5150-5250 MHz / BW: 80



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	8273.250	35.92	7.09	43.01	74.00	-30.99	peak	149		P	
2	8273.250	25.09	7.09	32.18	54.00	-21.82	AVG	149		P	
3	10482.250	49.06	8.97	58.03	74.00	-15.97	peak	149		P	
4 *	10482.250	35.49	8.97	44.46	54.00	-9.54	AVG	149		P	
5	12597.250	36.72	11.19	47.91	74.00	-26.09	peak	149		P	
6	12597.250	25.11	11.19	36.30	54.00	-17.70	AVG	149		P	

TM1 / Polarization: Vertical / Band: 5150-5250 MHz / BW: 80

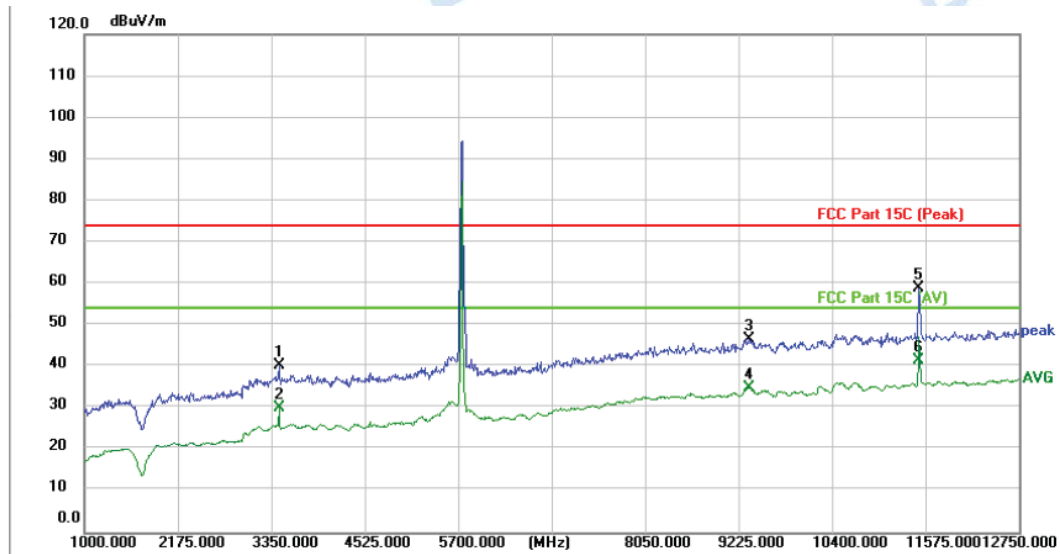


No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	Height (cm)	Azimuth (deg.)	P/F	Remark
1	8061.750	38.55	6.78	45.33	74.00	-28.67	peak			P	
2	8061.750	25.15	6.78	31.93	54.00	-22.07	AVG			P	
3	10482.250	53.44	8.97	62.41	74.00	-11.59	peak			P	
4 *	10482.250	38.20	8.97	47.17	54.00	-6.83	AVG			P	
5	12409.250	37.54	10.84	48.38	74.00	-25.62	peak			P	
6	12409.250	25.29	10.84	36.13	54.00	-17.87	AVG			P	

Remark: Margin=Level - Limit, Level=Test receiver reading + correction factor

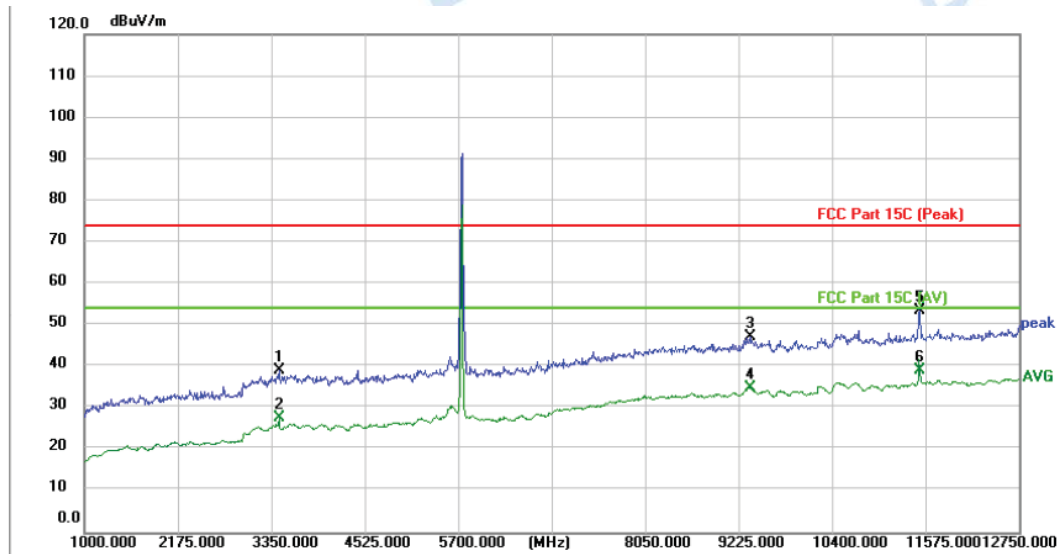
All modes have been tested, and the test results show that a-mode data is the worst, only a-mode test chart is put. Test Mode: 802.11a20 low channel (the worst)

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 20



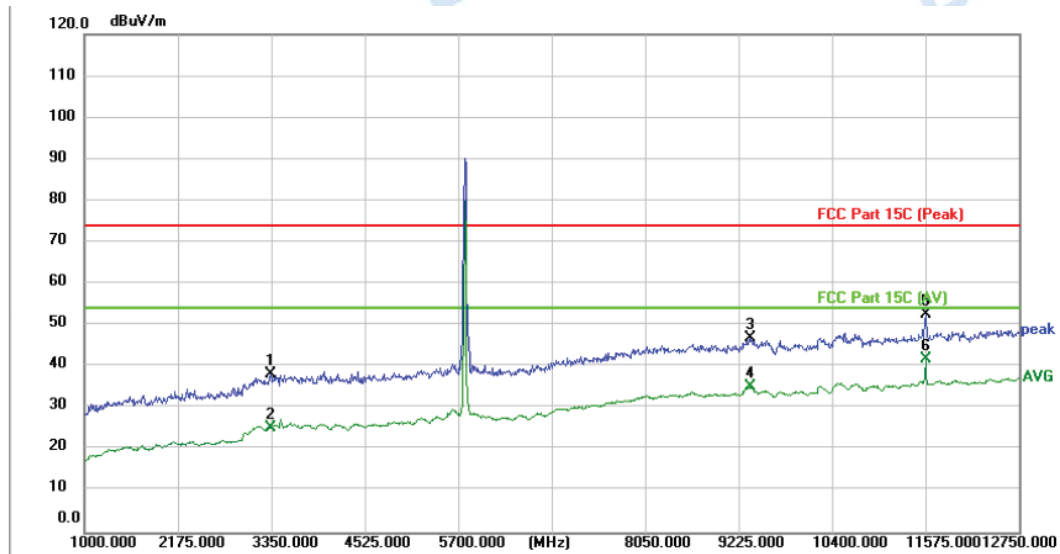
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	3444.000	44.12	-3.78	40.34	74.00	-33.66	peak			P	
2	3444.000	34.00	-3.78	30.22	54.00	-23.78	AVG			P	
3	9354.250	38.44	8.15	46.59	74.00	-27.41	peak			P	
4	9354.250	26.86	8.15	35.01	54.00	-18.99	AVG			P	
5	11481.000	49.42	9.65	59.07	74.00	-14.93	peak			P	
6 *	11481.000	31.89	9.65	41.54	54.00	-12.46	AVG			P	

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 20



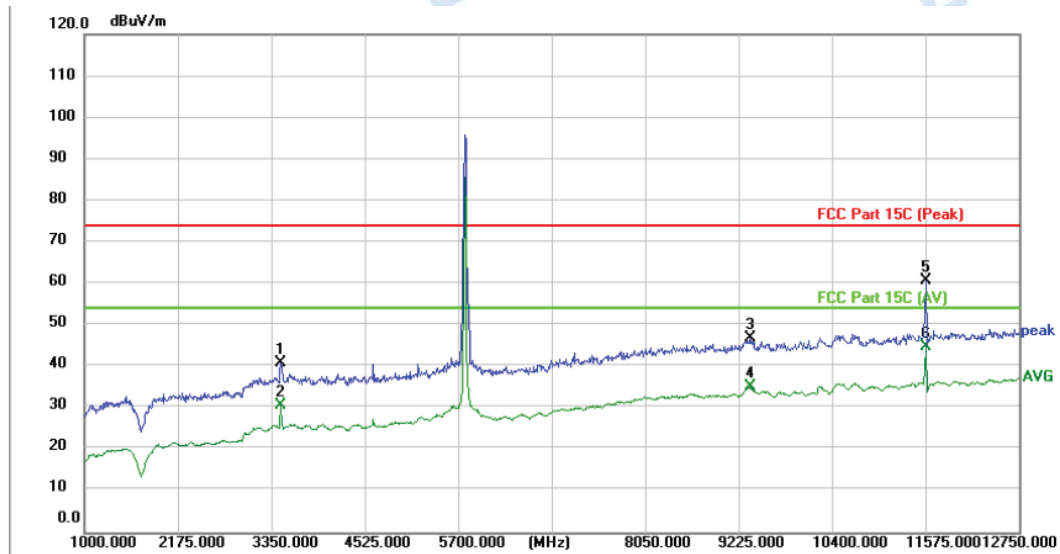
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	3444.000	43.04	-3.78	39.26	74.00	-34.74	peak			P	
2	3444.000	31.68	-3.78	27.90	54.00	-26.10	AVG			P	
3	9377.750	39.07	8.14	47.21	74.00	-26.79	peak			P	
4	9377.750	26.93	8.14	35.07	54.00	-18.93	AVG			P	
5	11504.500	44.01	9.67	53.68	74.00	-20.32	peak			P	
6 *	11504.500	29.59	9.67	39.26	54.00	-14.74	AVG			P	

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 40



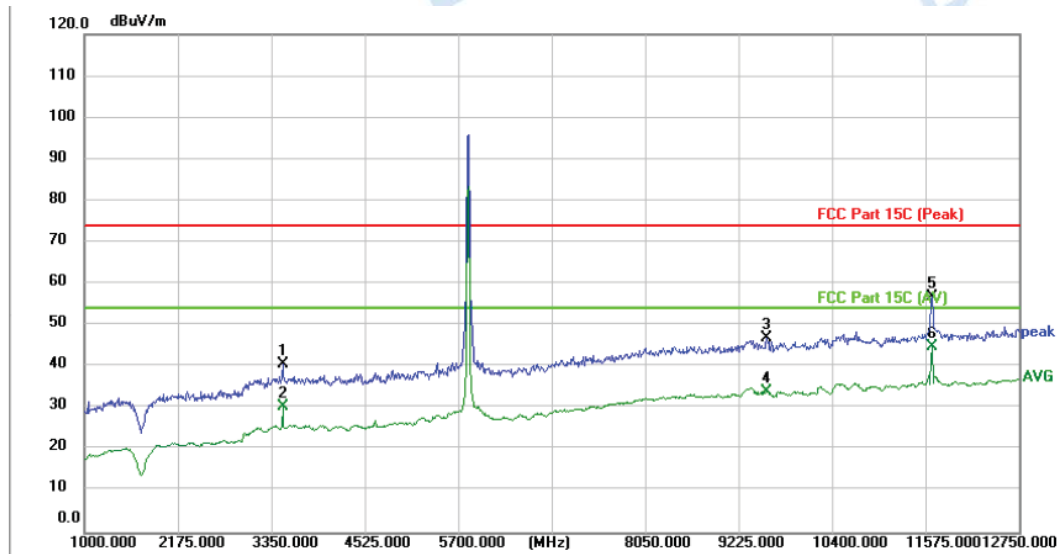
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	3338.250	42.33	-4.15	38.18	74.00	-35.82	peak			P	
2	3338.250	29.63	-4.15	25.48	54.00	-28.52	AVG			P	
3	9366.000	38.76	8.15	46.91	74.00	-27.09	peak			P	
4	9366.000	27.05	8.15	35.20	54.00	-18.80	AVG			P	
5	11575.000	43.00	9.72	52.72	74.00	-21.28	peak			P	
6 *	11575.000	32.13	9.72	41.85	54.00	-12.15	AVG			P	

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 40



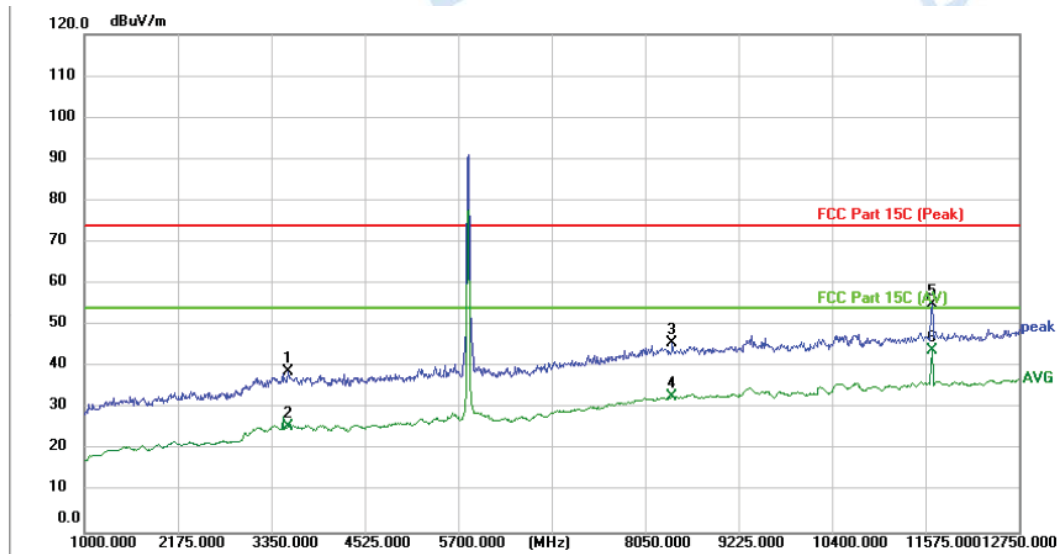
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	3467.500	44.54	-3.69	40.85	74.00	-33.15	peak			P	
2	3467.500	34.52	-3.69	30.83	54.00	-23.17	AVG			P	
3	9366.000	38.67	8.15	46.82	74.00	-27.18	peak			P	
4	9366.000	26.95	8.15	35.10	54.00	-18.90	AVG			P	
5	11586.750	51.03	9.72	60.75	74.00	-13.25	peak			P	
6 *	11586.750	35.13	9.72	44.85	54.00	-9.15	AVG			P	

TM2 / Polarization: Horizontal / Band: 5725-5850 MHz / BW: 80



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	3491.000	44.21	-3.62	40.59	74.00	-33.41	peak			P	
2	3491.000	34.14	-3.62	30.52	54.00	-23.48	AVG			P	
3	9577.500	38.90	8.10	47.00	74.00	-27.00	peak			P	
4	9577.500	26.01	8.10	34.11	54.00	-19.89	AVG			P	
5	11657.250	47.20	9.77	56.97	74.00	-17.03	peak			P	
6 *	11657.250	35.16	9.77	44.93	54.00	-9.07	AVG			P	

TM2 / Polarization: Vertical / Band: 5725-5850 MHz / BW: 80



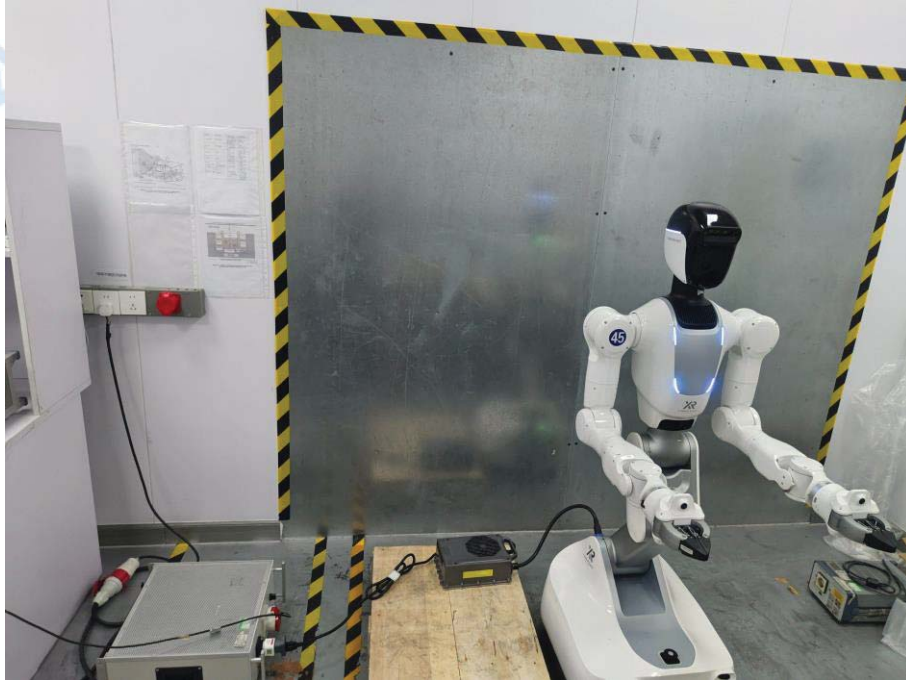
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector			P/F	Remark
1	3561.500	42.28	-3.47	38.81	74.00	-35.19	peak			P	
2	3561.500	28.99	-3.47	25.52	54.00	-28.48	AVG			P	
3	8390.750	38.49	7.27	45.76	74.00	-28.24	peak			P	
4	8390.750	25.46	7.27	32.73	54.00	-21.27	AVG			P	
5	11657.250	45.39	9.77	55.16	74.00	-18.84	peak			P	
6 *	11657.250	34.27	9.77	44.04	54.00	-9.96	AVG			P	

Remark: Margin=Level - Limit, Level=Test receiver reading + correction factor

All modes have been tested, and the test results show that a-mode data is the worst, only a-mode test chart is put. Test Mode: 802.11a20 low channel (the worst)

4 TEST SETUP PHOTOS

Conducted Emission at AC power line



Emissions in frequency bands (below 1GHz)



Emissions in frequency bands (above 1GHz)



5 PHOTOS OF THE EUT

Refer to Appendix - EUT Photos for EUT External Photo and Internal Photo.

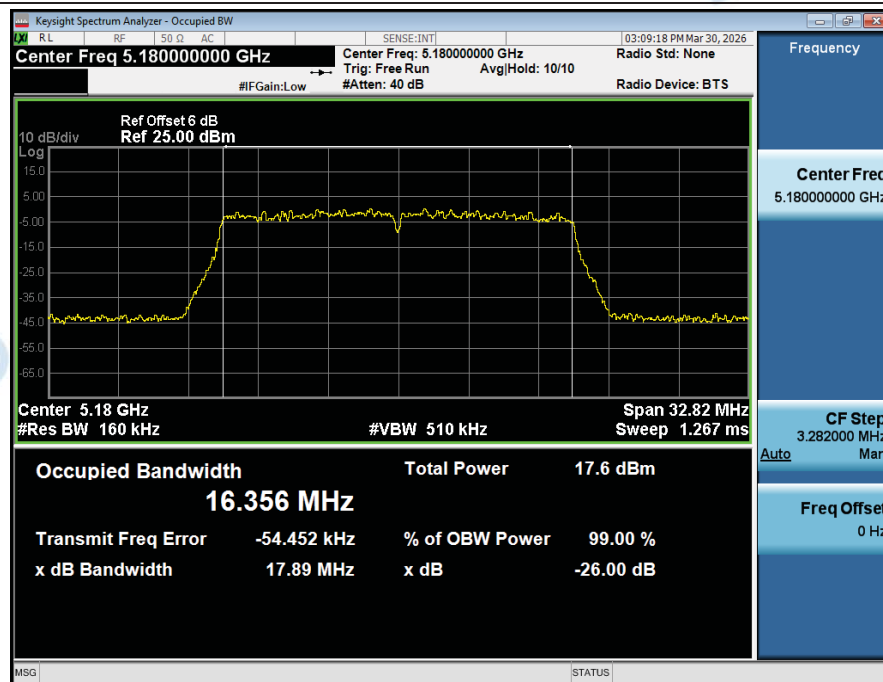
Appendix

FCC_5.2G_WIFI (Part15.407) Test Data

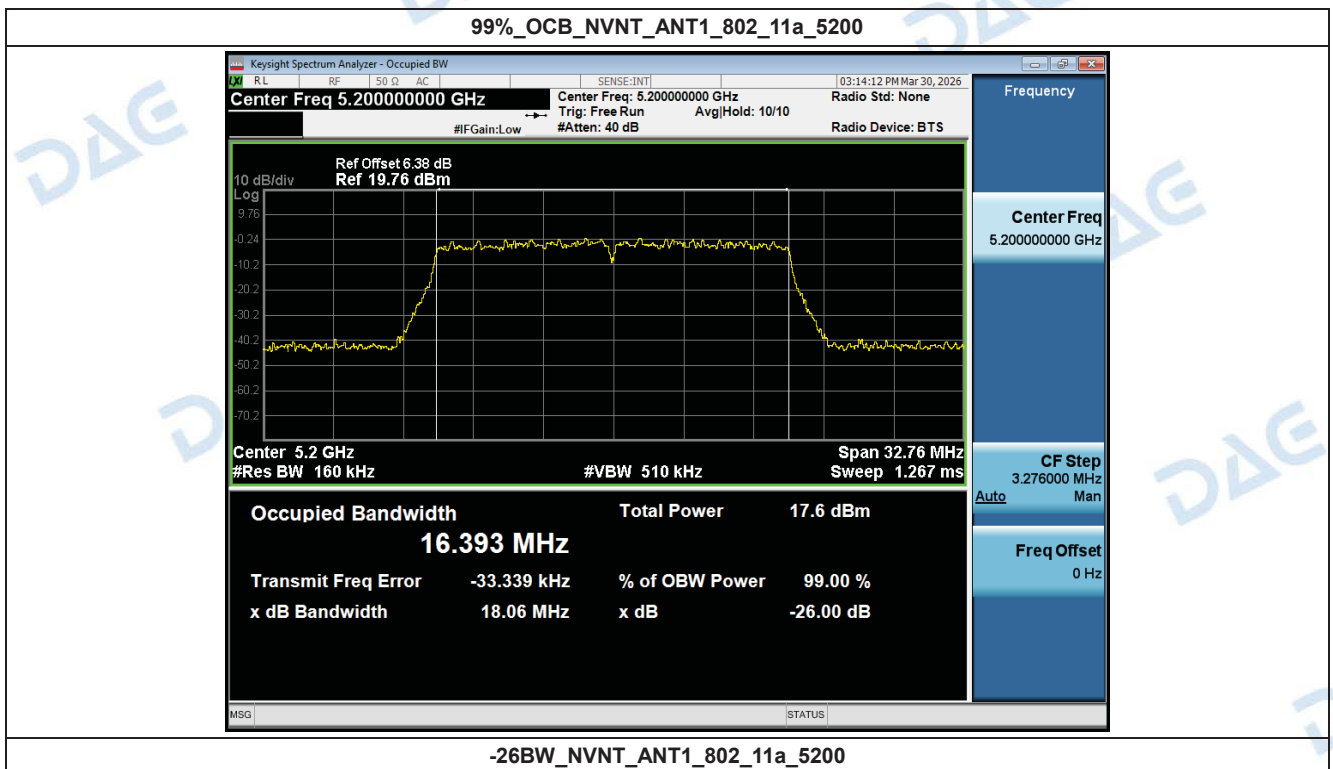
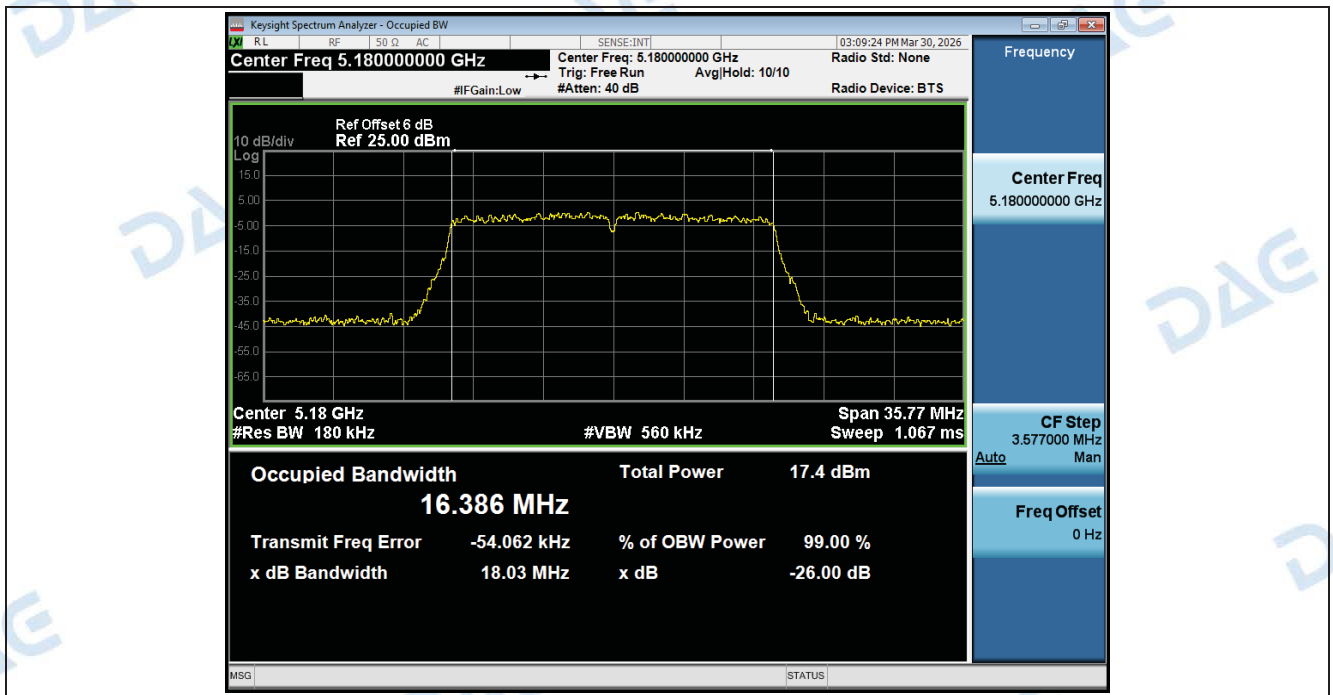
1. -26dB and 99% Emission Bandwidth

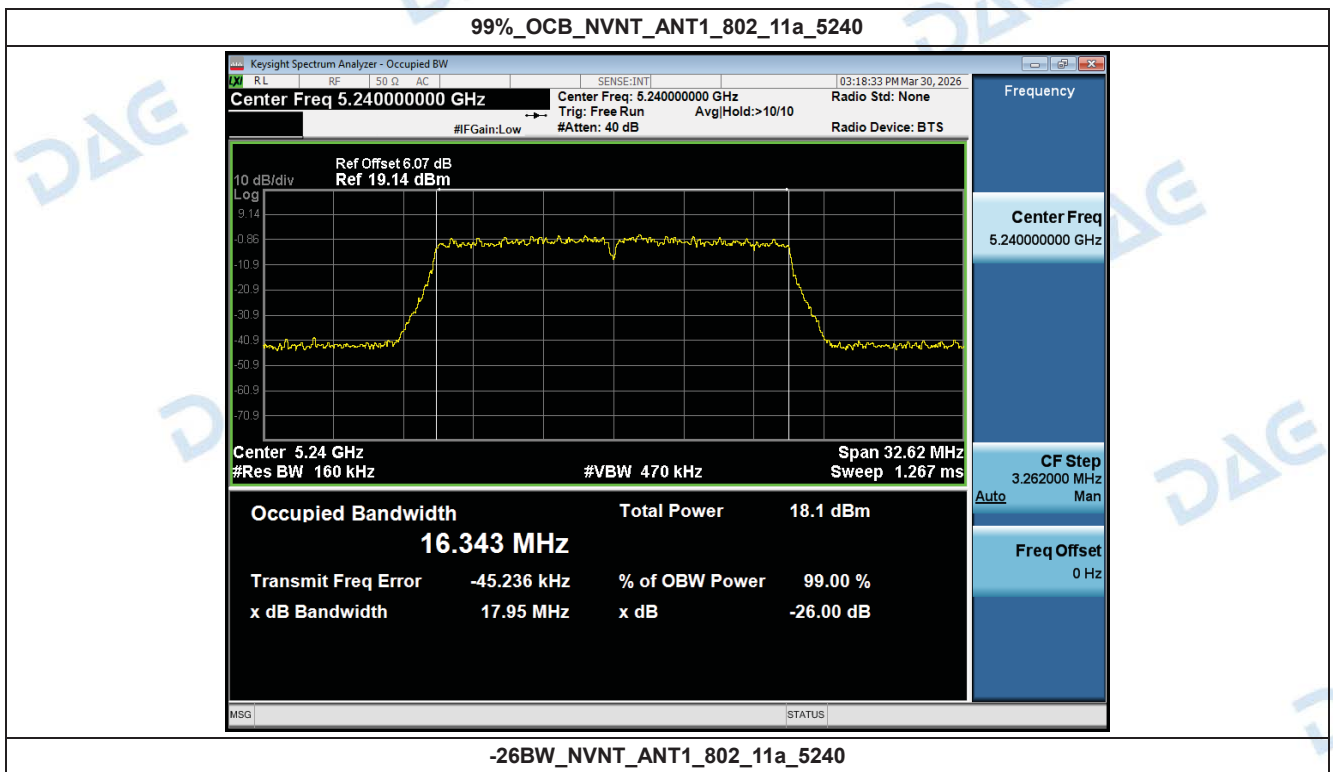
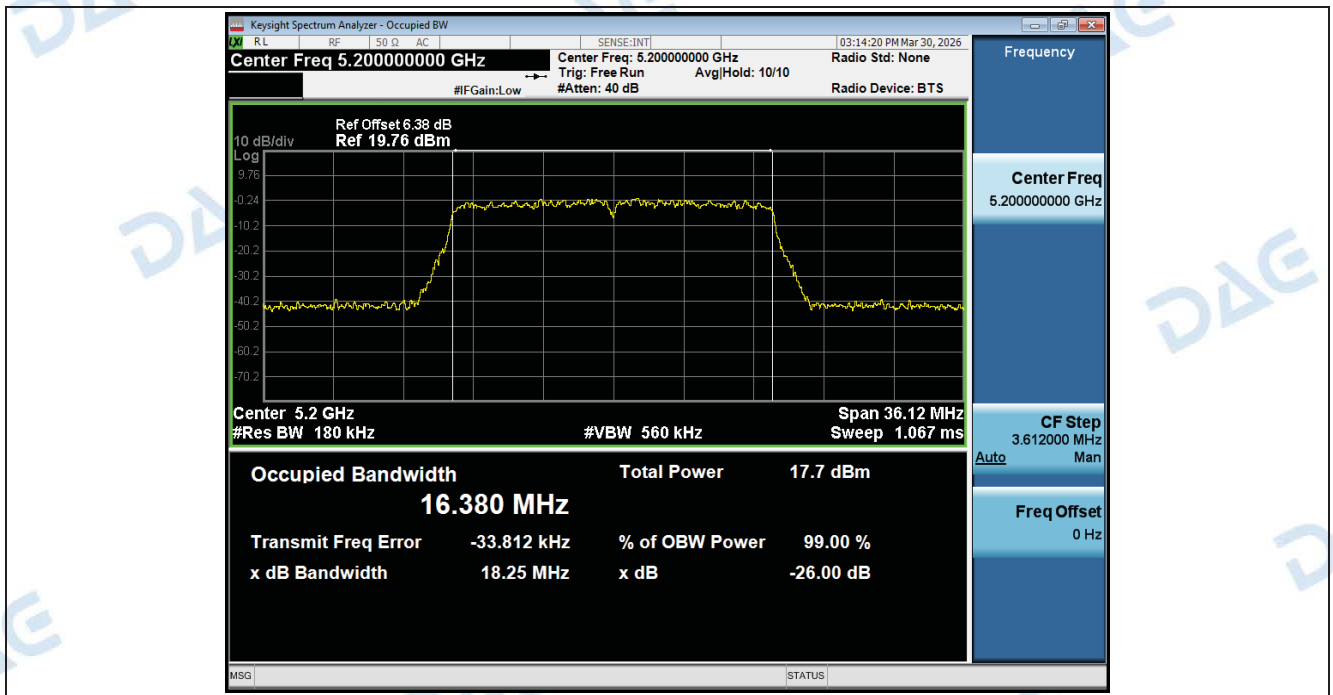
Condition	Antenna	Modulation	Frequency(MHz)	26dB_Emission_Bandwidth(MHz)	Occupied Bandwidth(MHz)
NVNT	ANT1	802.11a	5180.00	18.03	16.36
NVNT	ANT1	802.11a	5200.00	18.25	16.39
NVNT	ANT1	802.11a	5240.00	18.06	16.34
NVNT	ANT1	802.11n(HT20)	5180.00	18.80	17.50
NVNT	ANT1	802.11n(HT20)	5200.00	19.29	17.51
NVNT	ANT1	802.11n(HT20)	5240.00	18.87	17.46
NVNT	ANT1	802.11ac(VHT20)	5180.00	18.89	17.51
NVNT	ANT1	802.11ac(VHT20)	5200.00	19.01	17.51
NVNT	ANT1	802.11ac(VHT20)	5240.00	18.91	17.47
NVNT	ANT1	802.11n(HT40)	5190.00	38.50	35.92
NVNT	ANT1	802.11n(HT40)	5230.00	38.24	35.77
NVNT	ANT1	802.11ac(VHT40)	5190.00	38.36	35.96
NVNT	ANT1	802.11ac(VHT40)	5230.00	38.17	35.79
NVNT	ANT1	802.11ac(VHT80)	5210.00	79.90	75.38

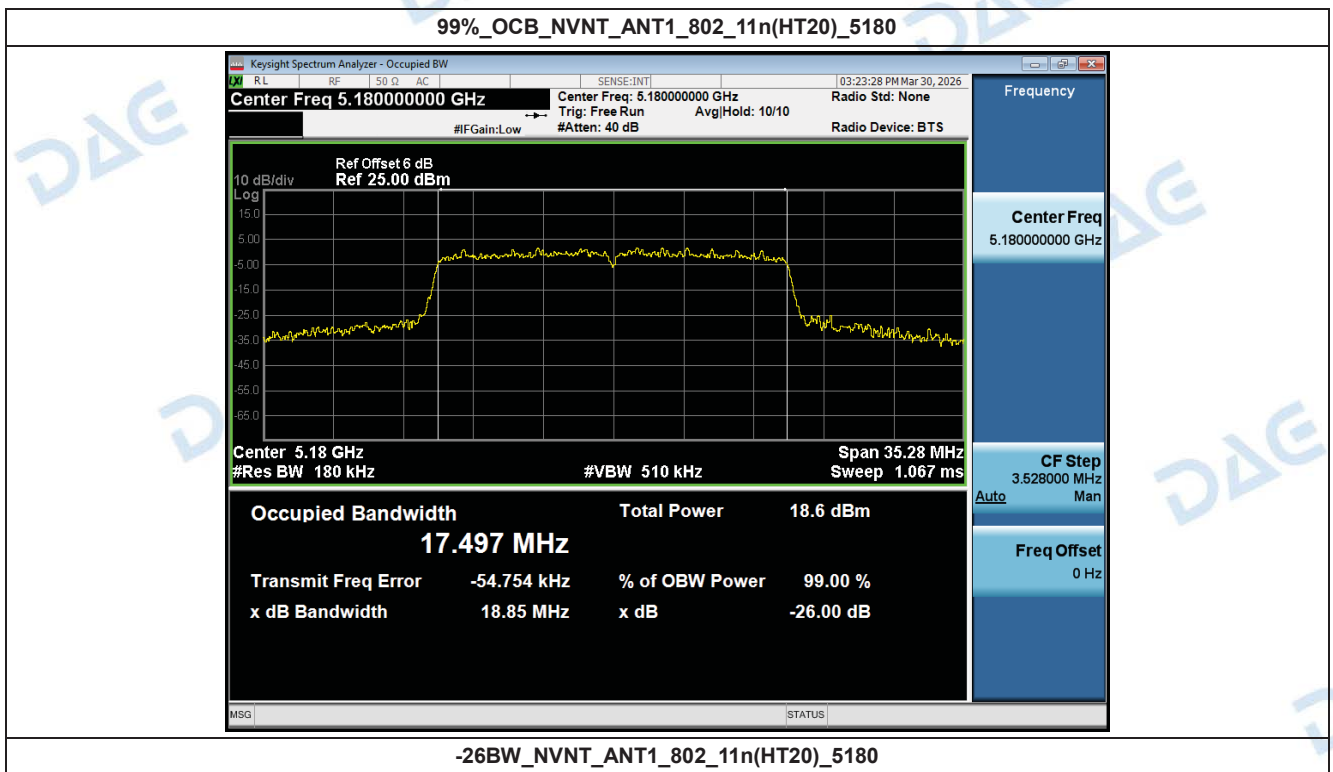
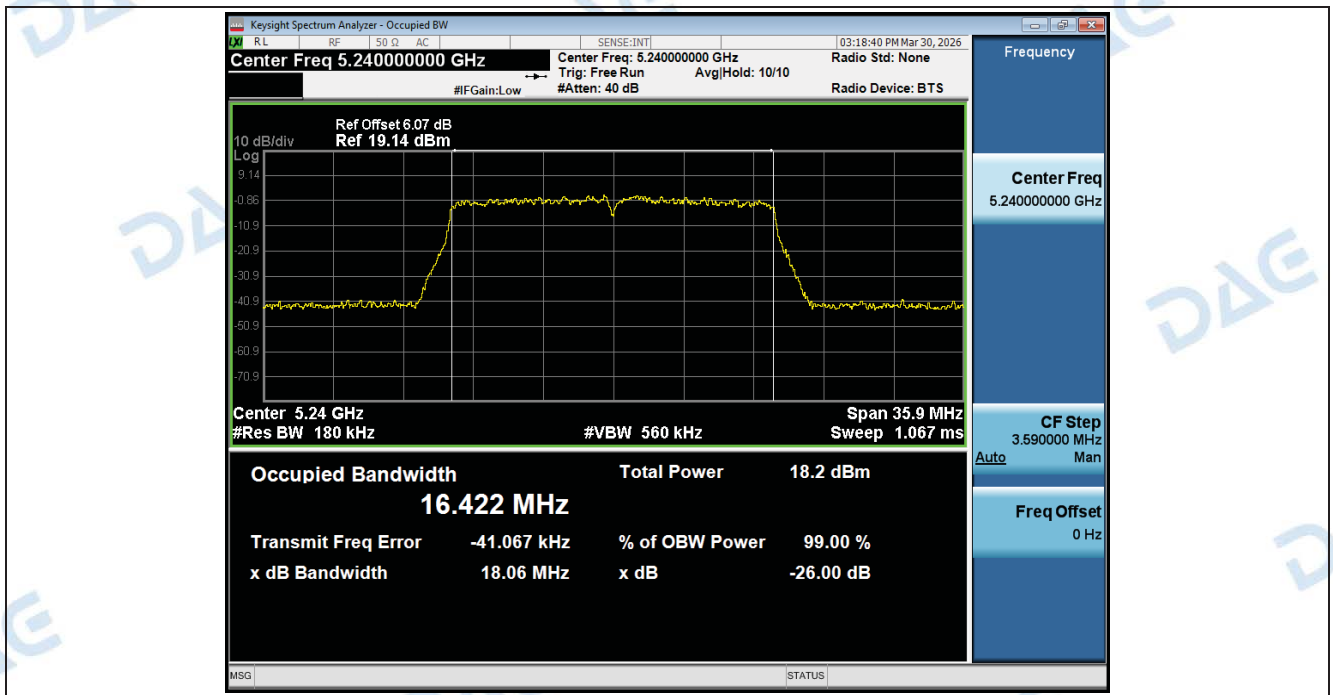
99%_OCB_NVNT_ANT1_802_11a_5180

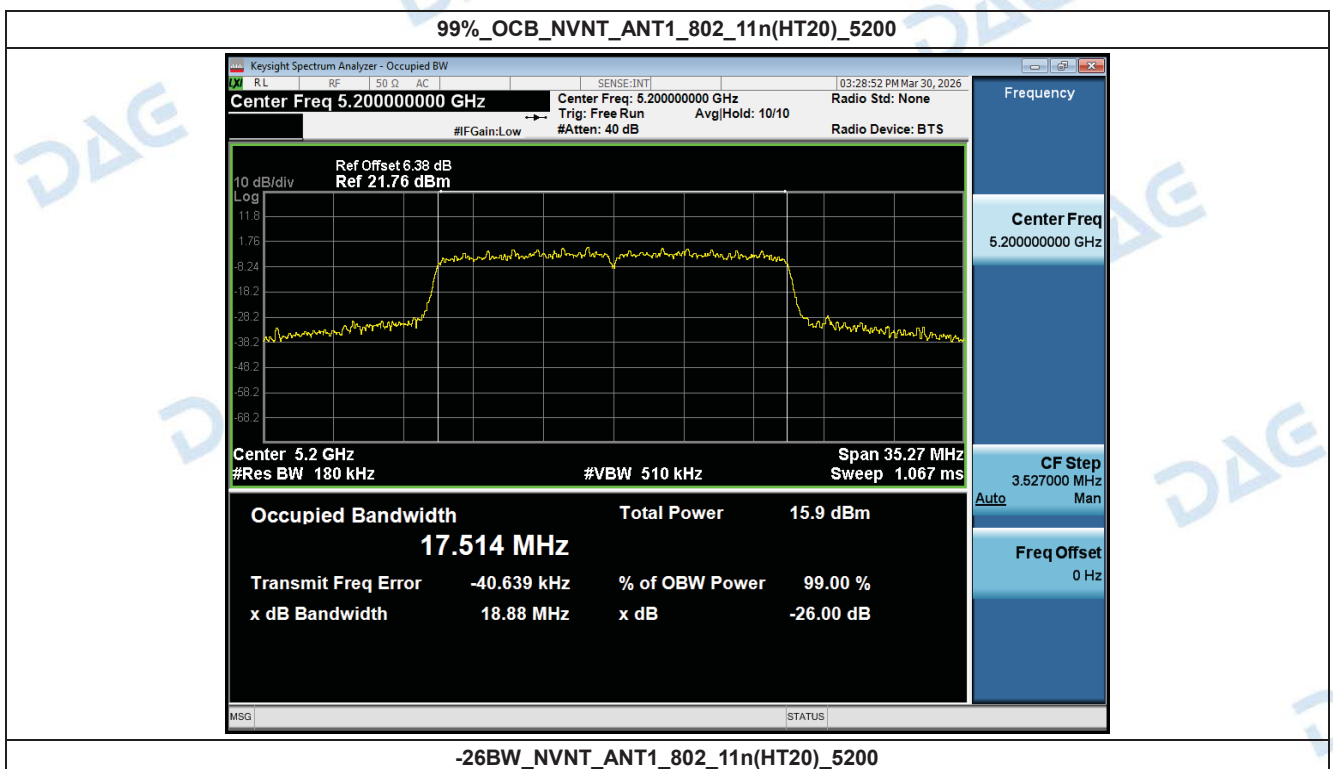
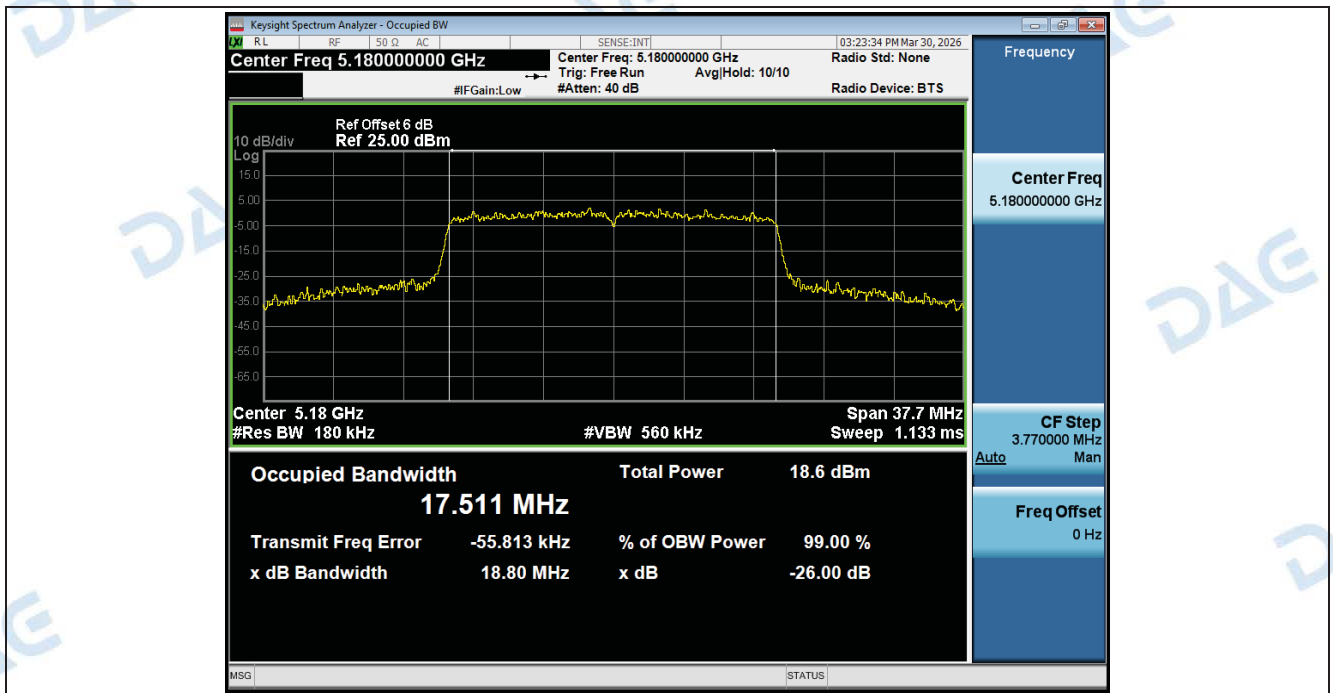


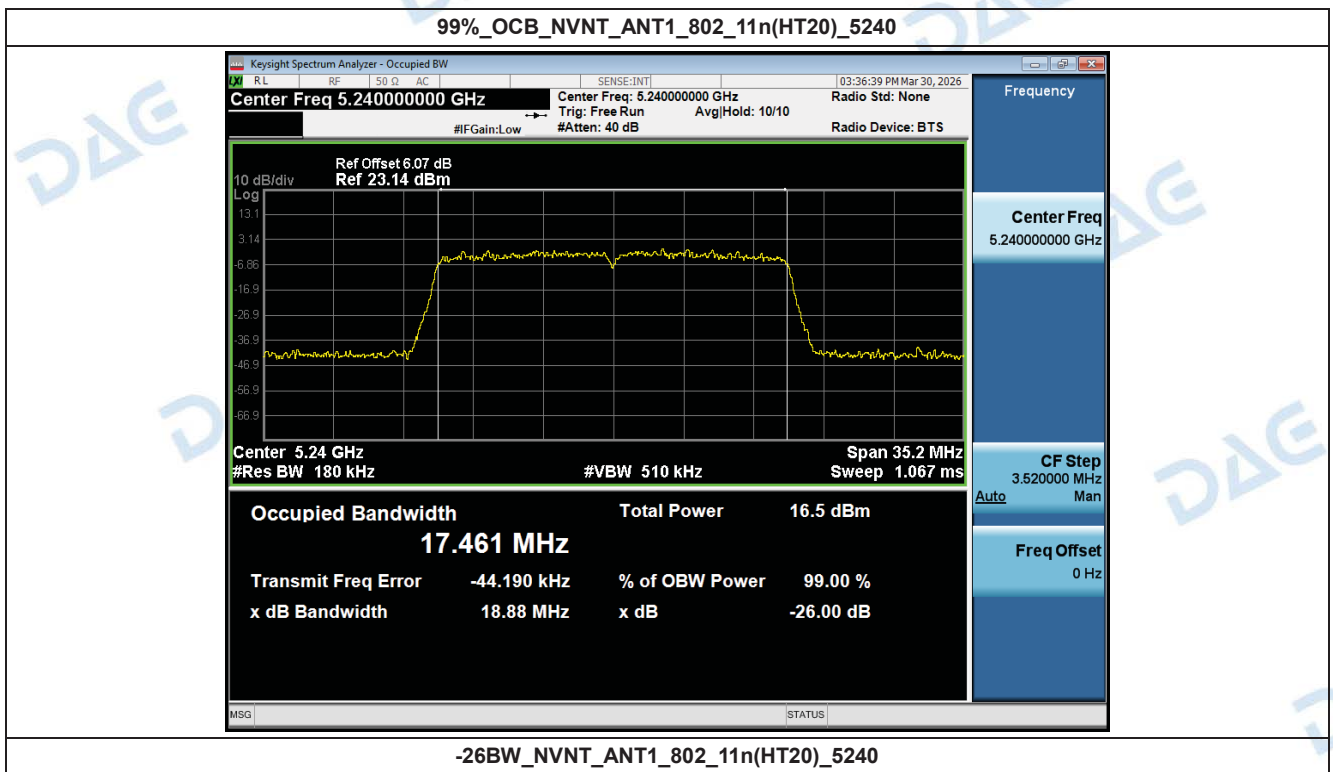
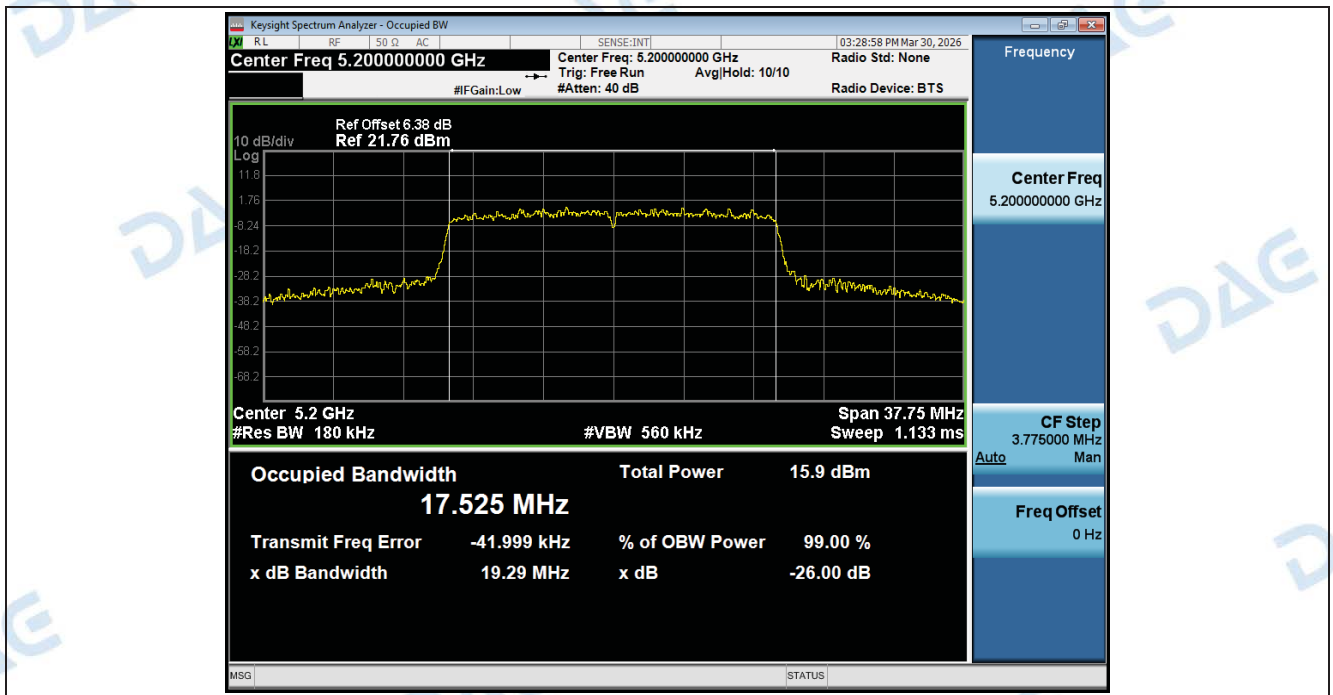
-26BW_NVNT_ANT1_802_11a_5180

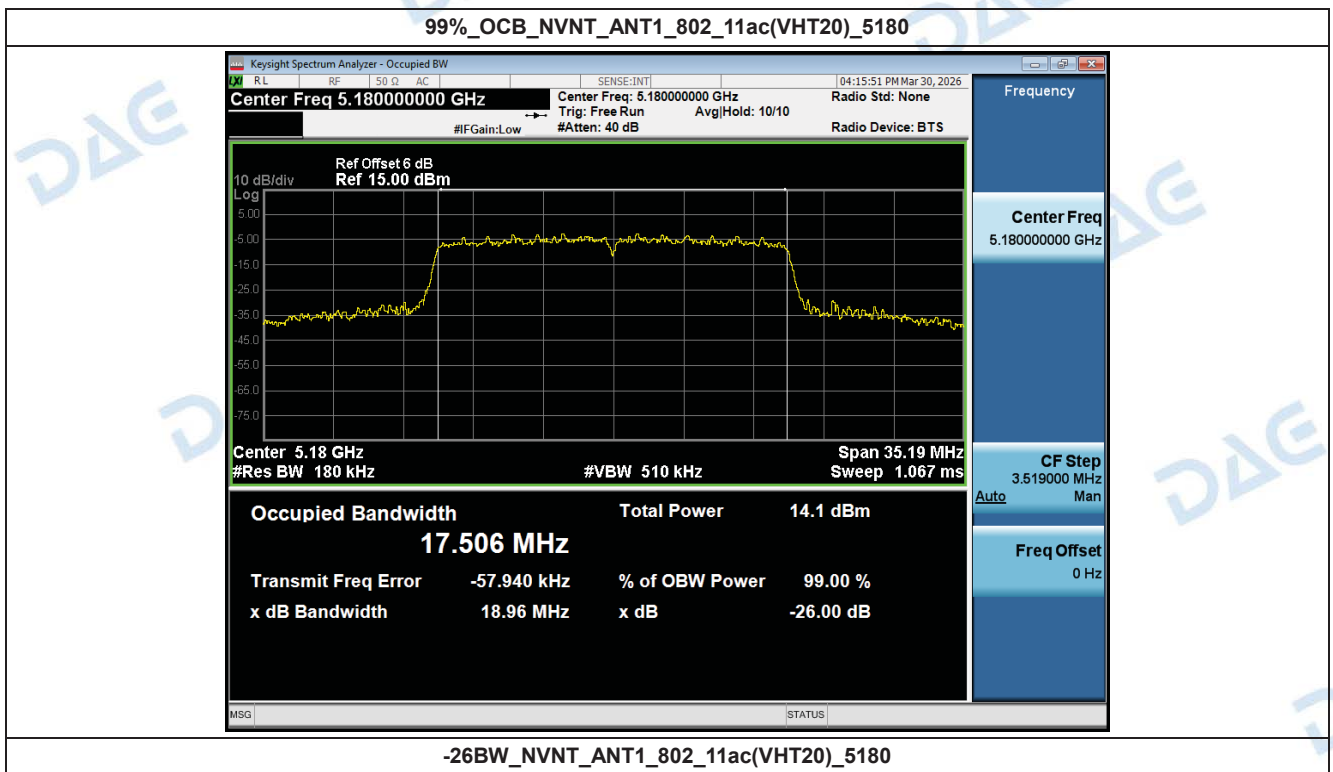
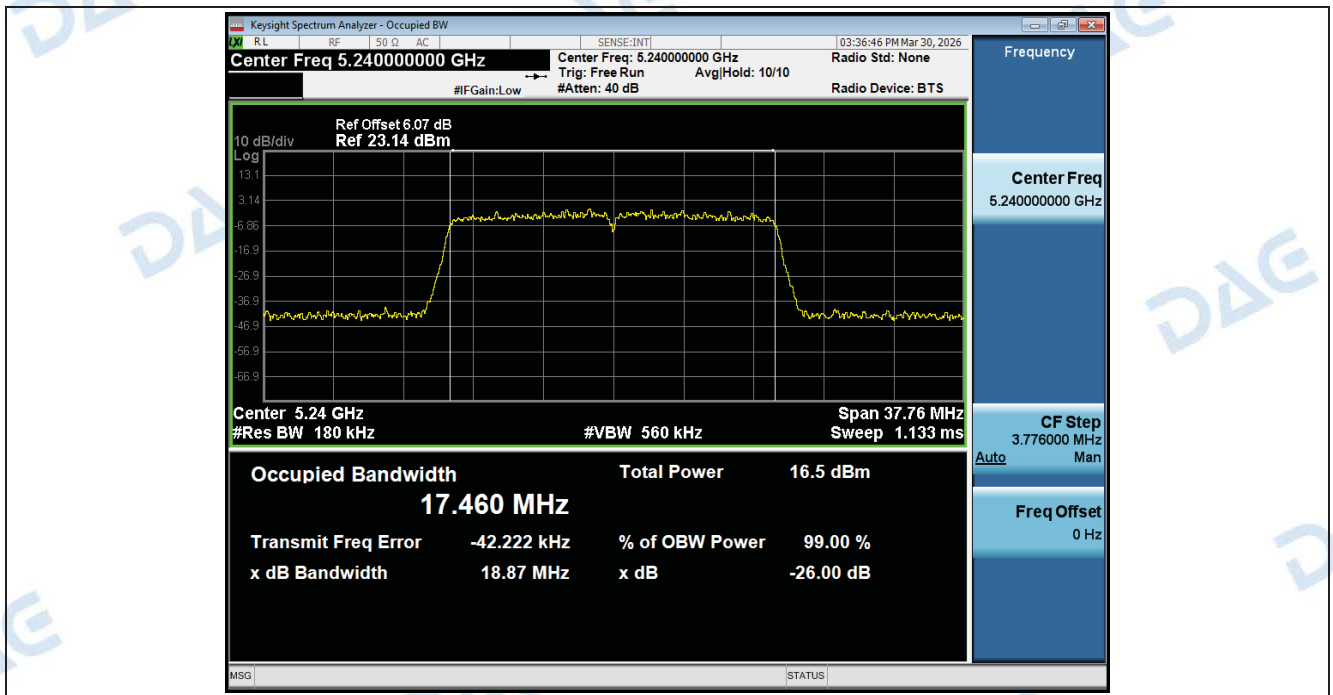


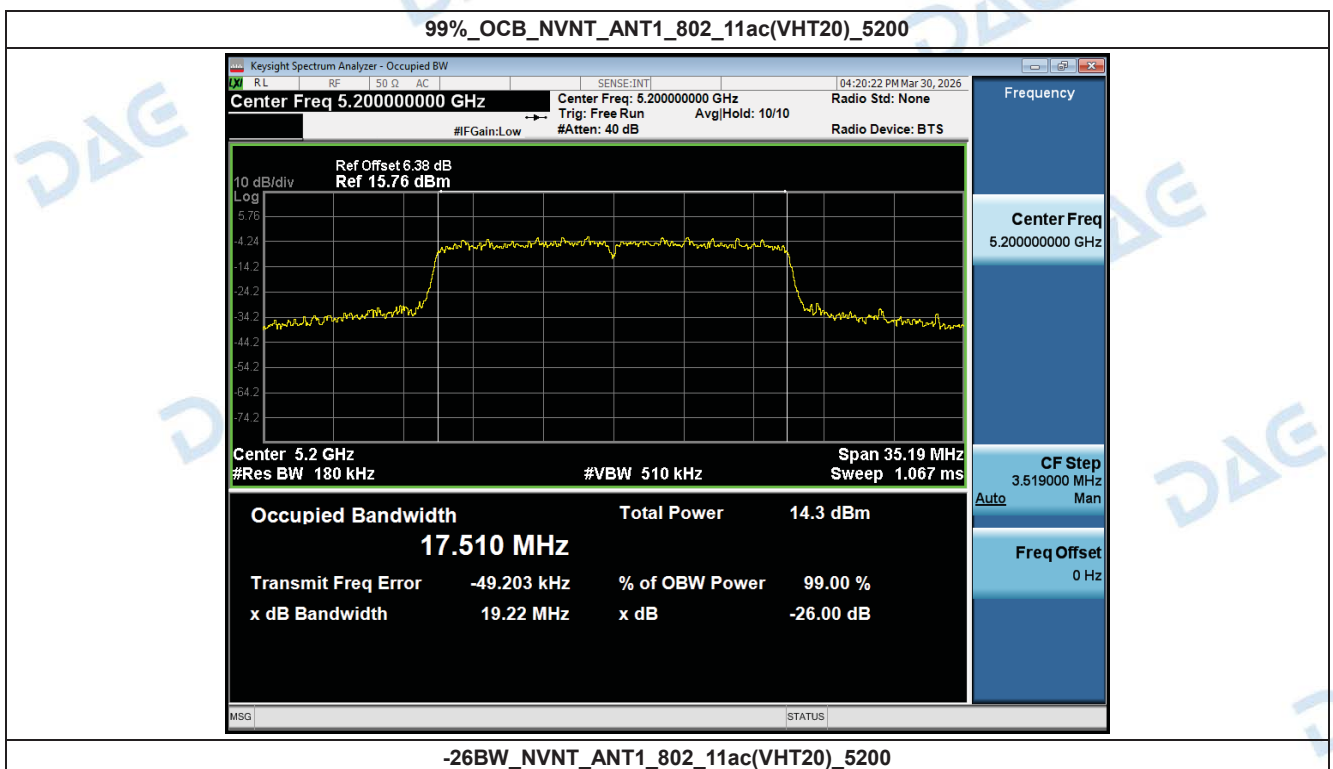
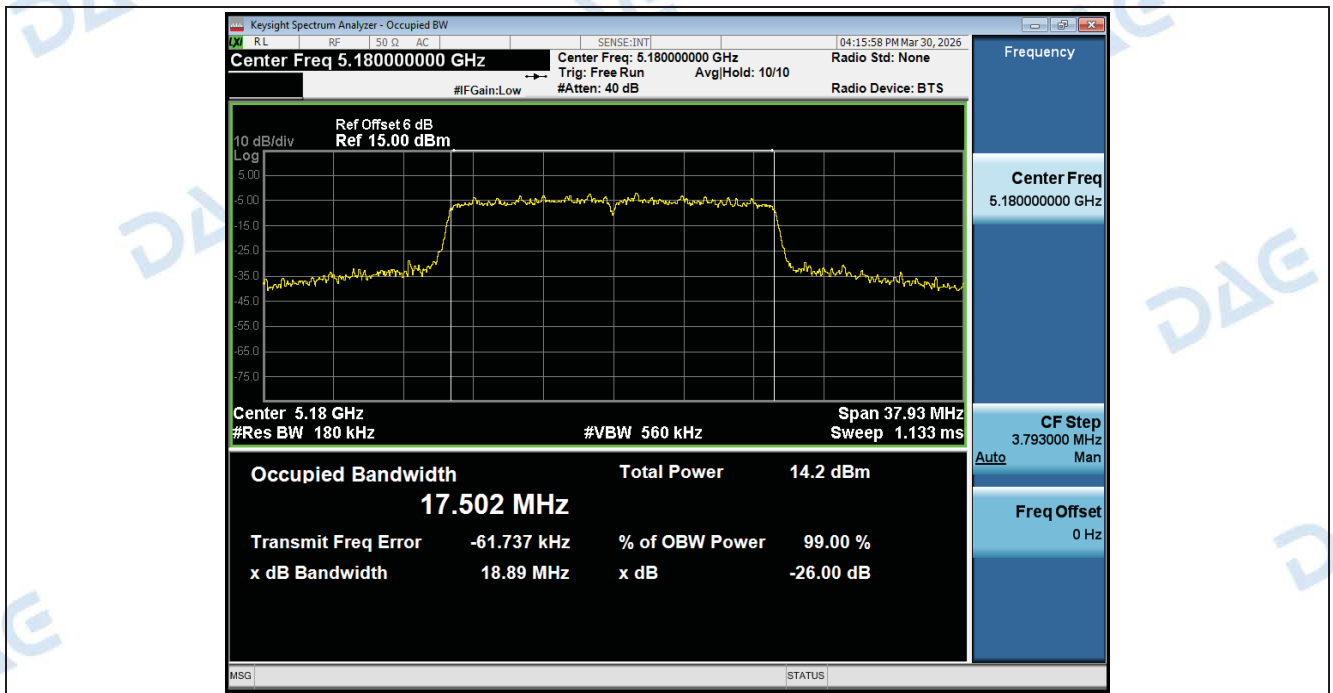




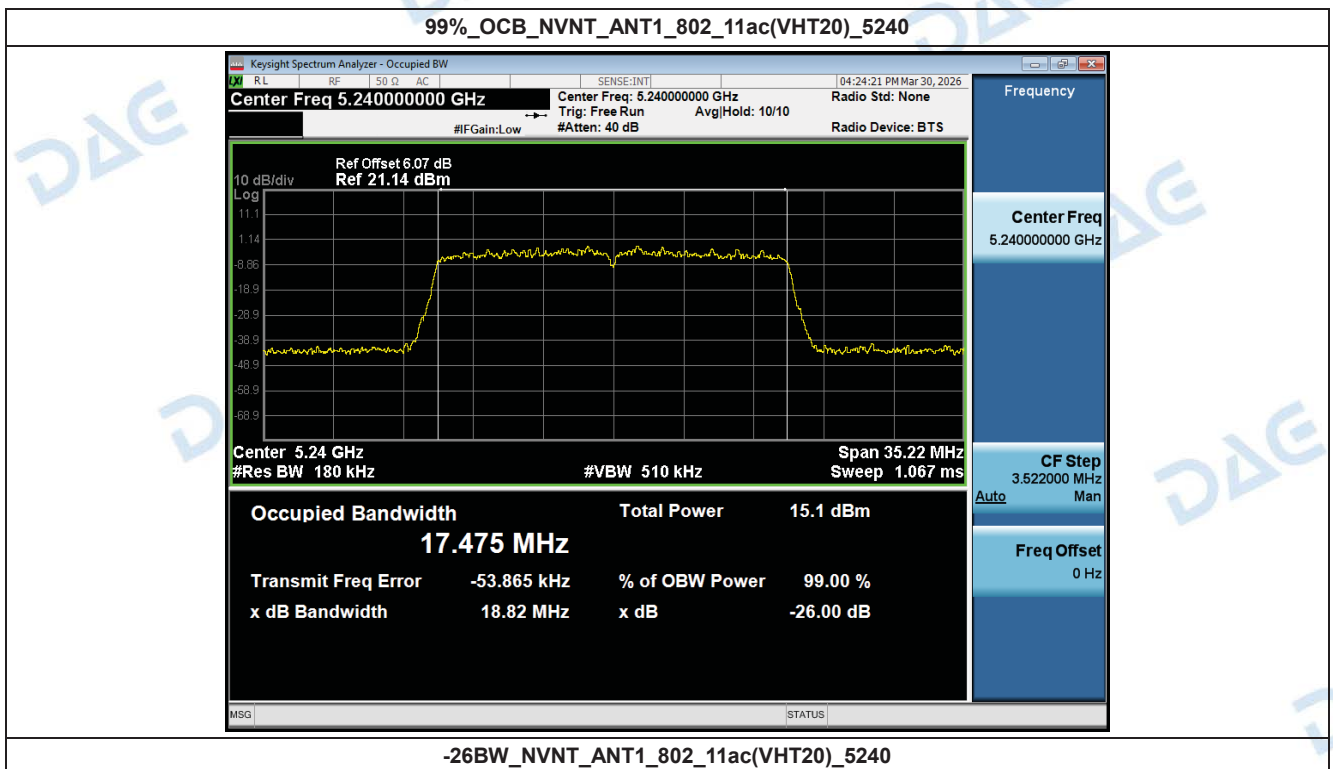
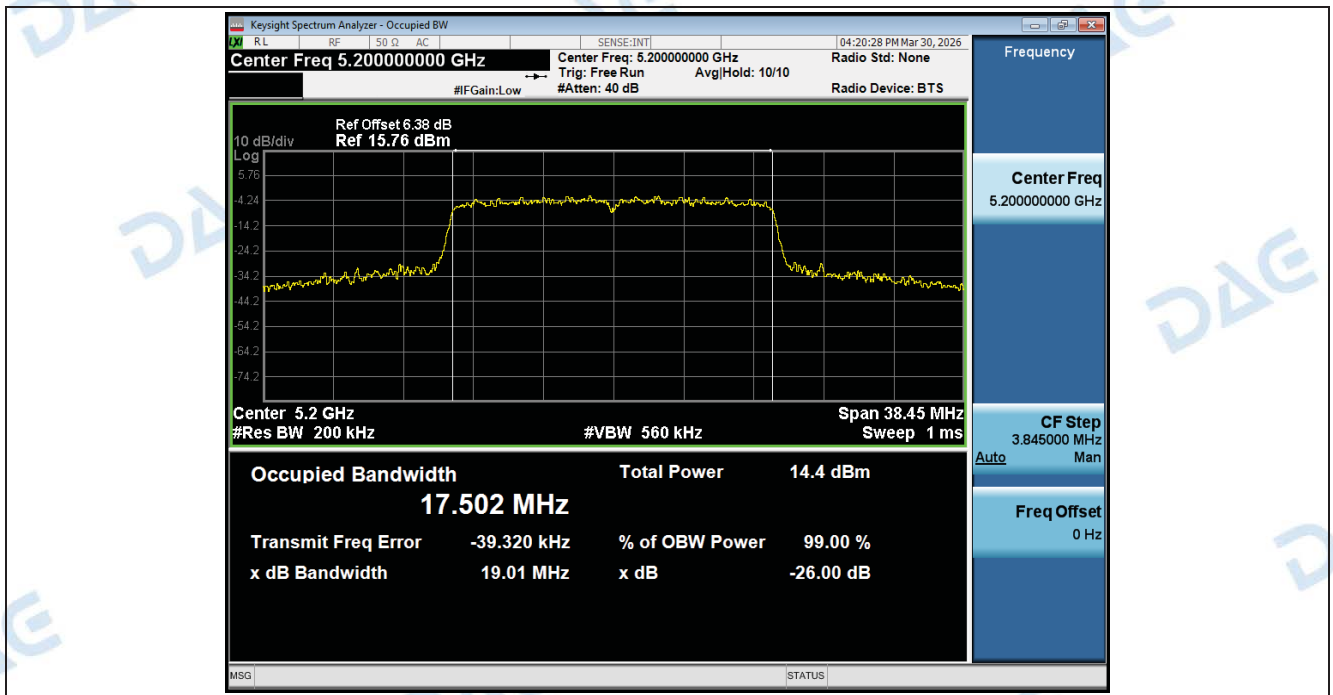


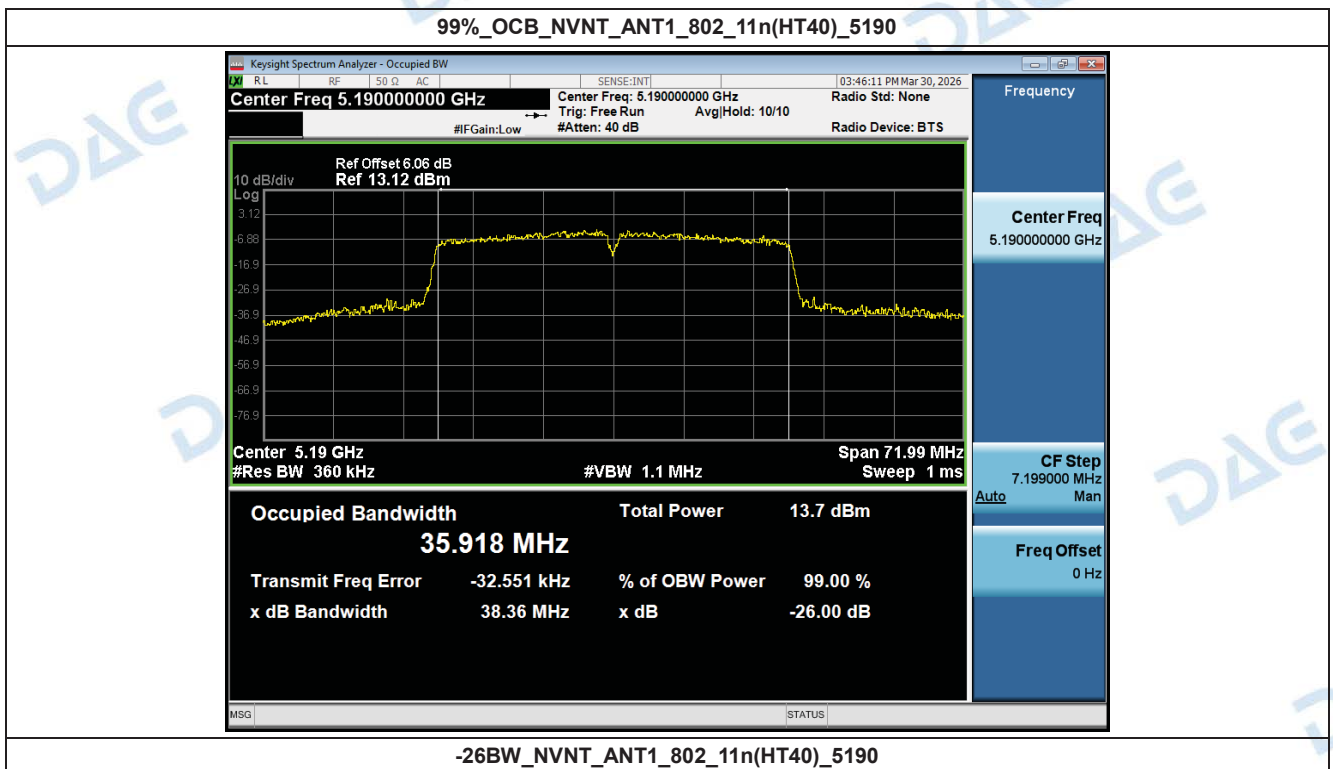
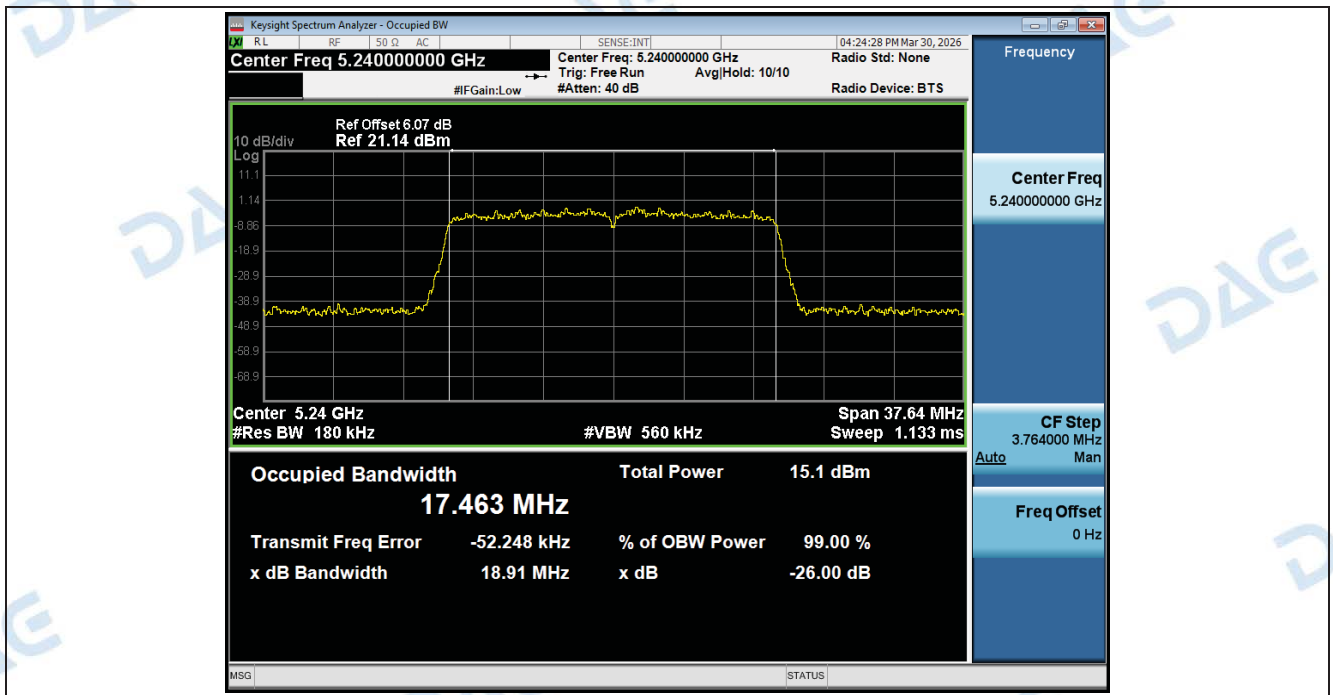




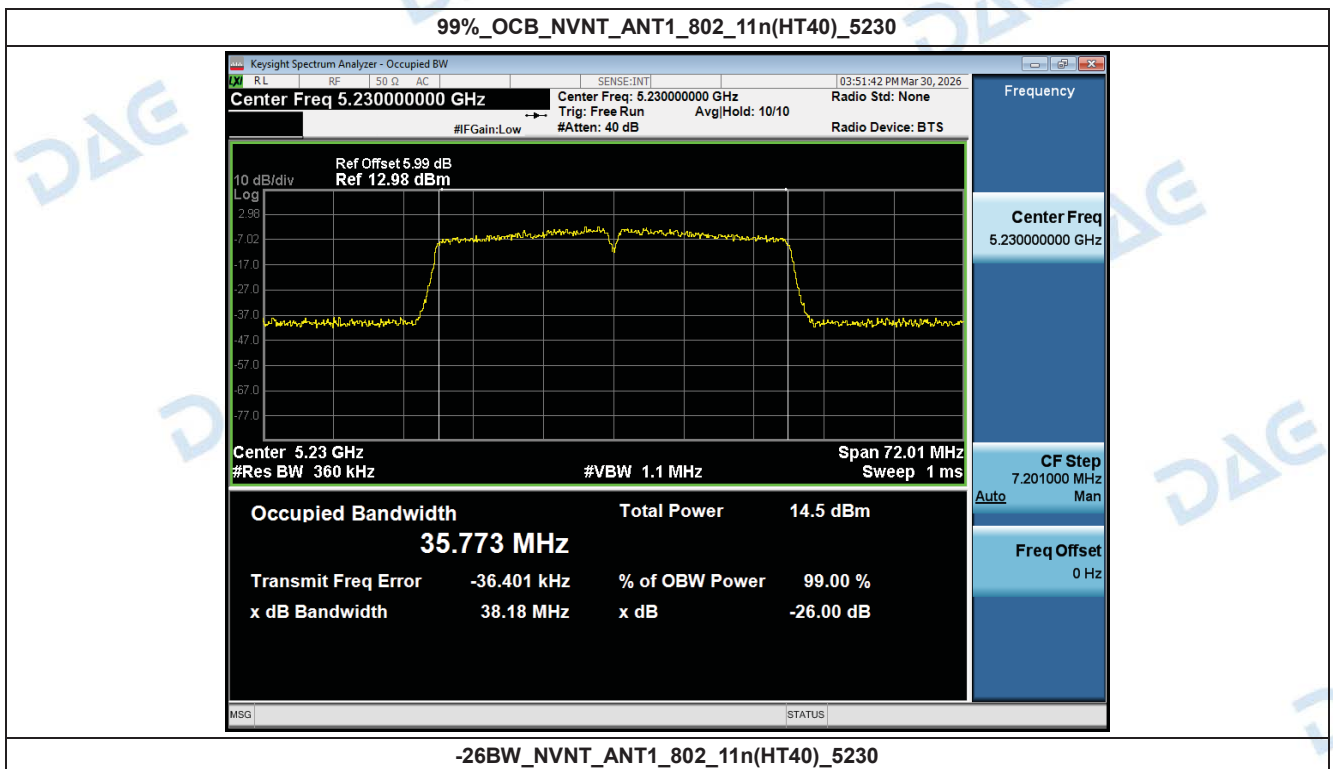
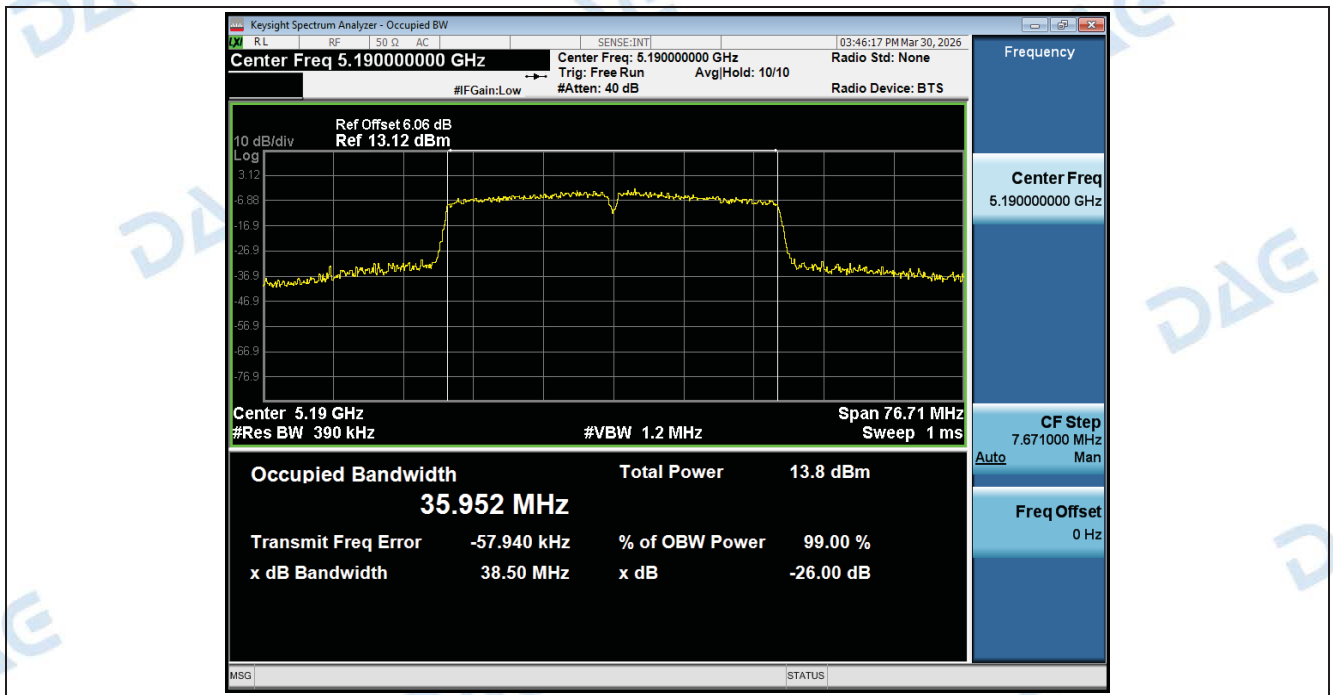


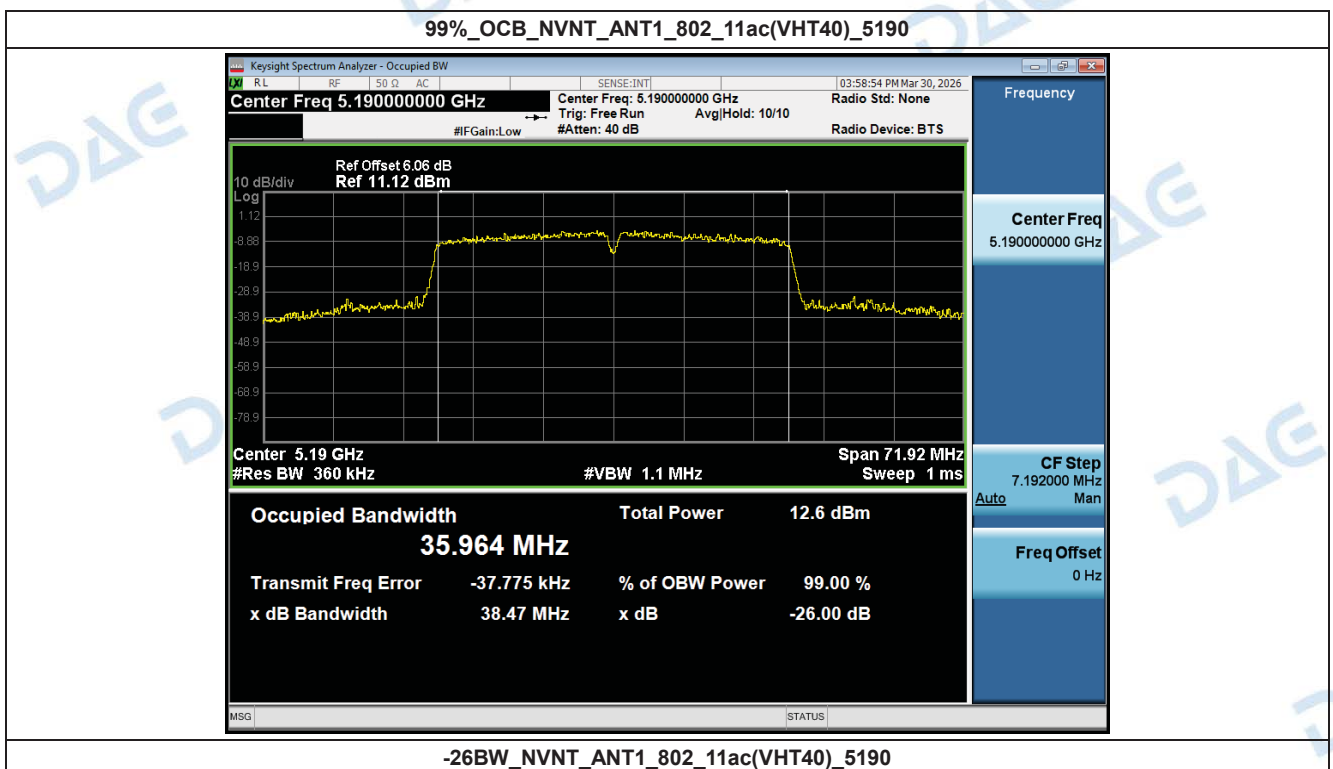
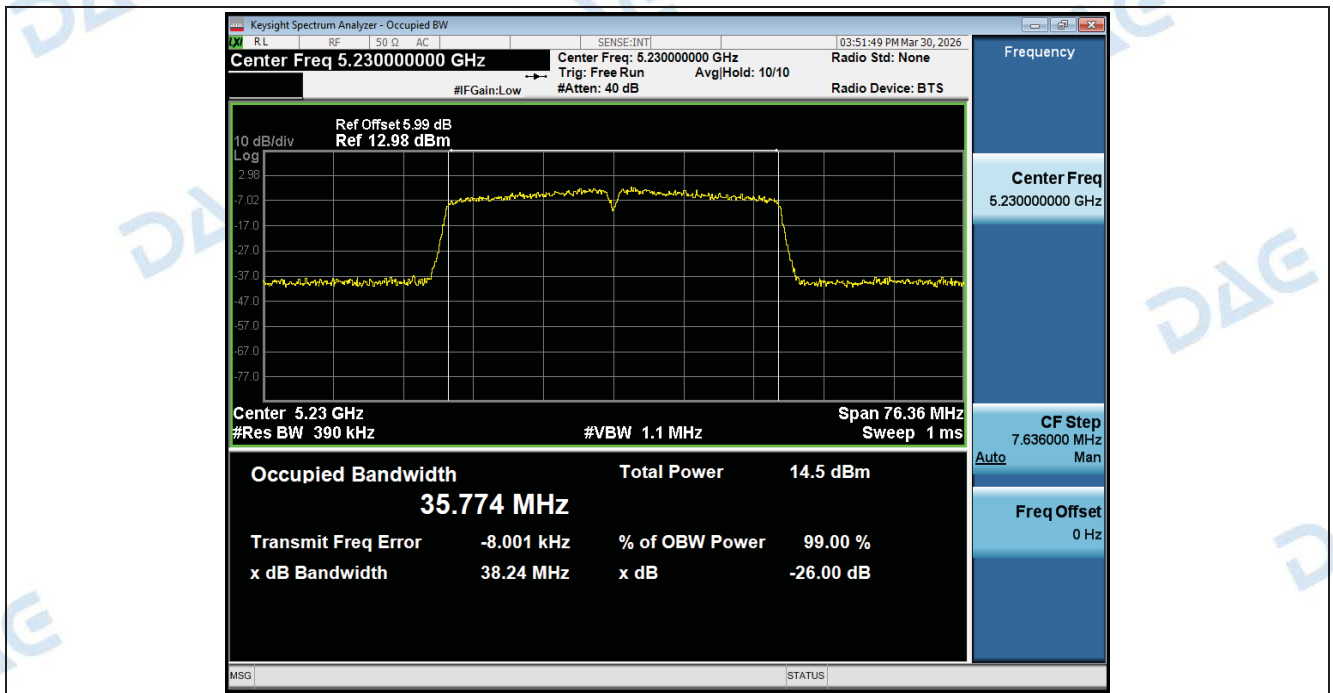
-26BW_NVNT_ANT1_802_11ac(VHT20)_5200



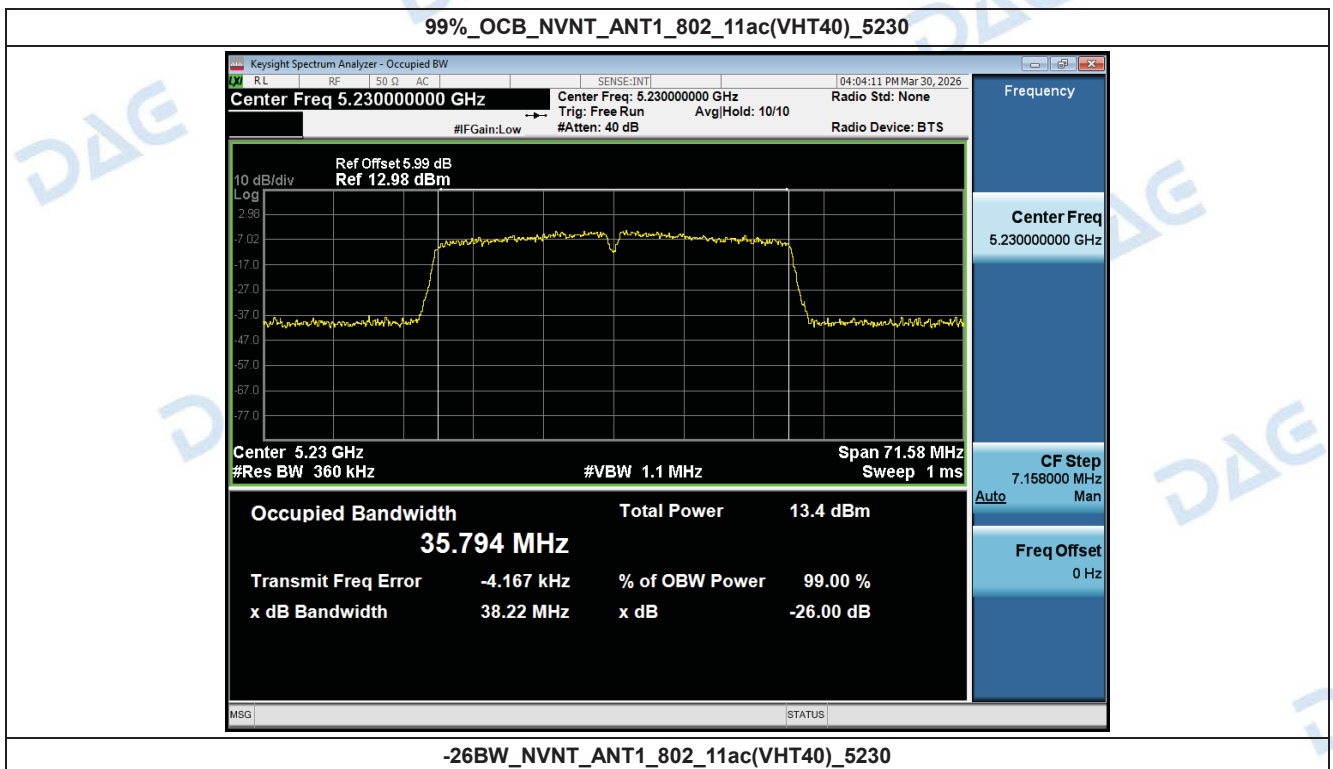
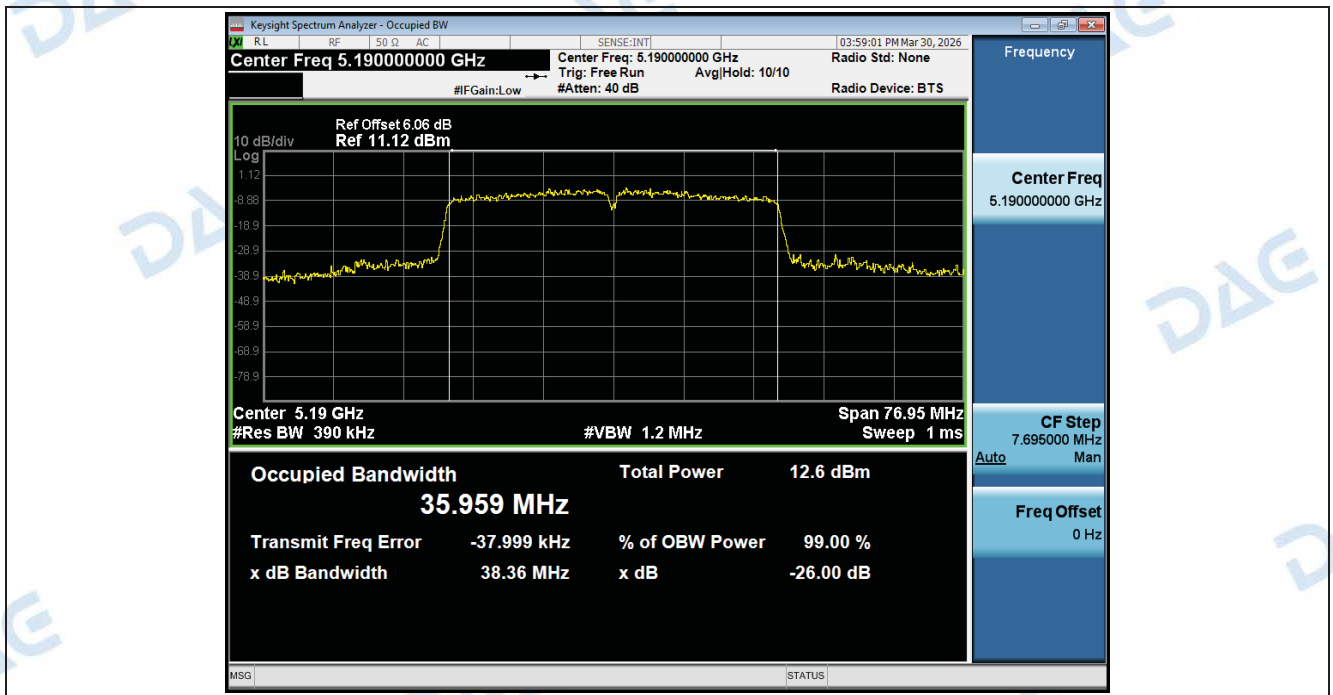


-26BW_NVNT_ANT1_802_11n(HT40)_5190

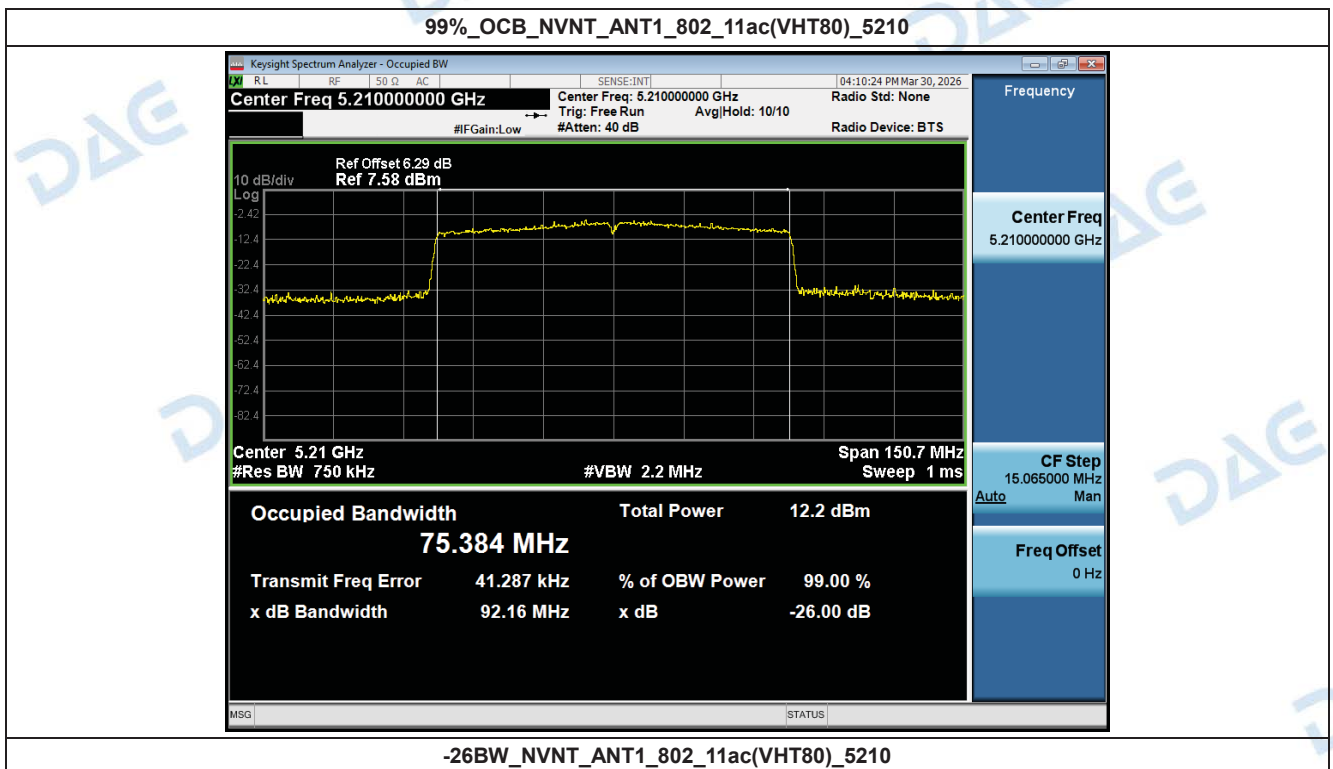
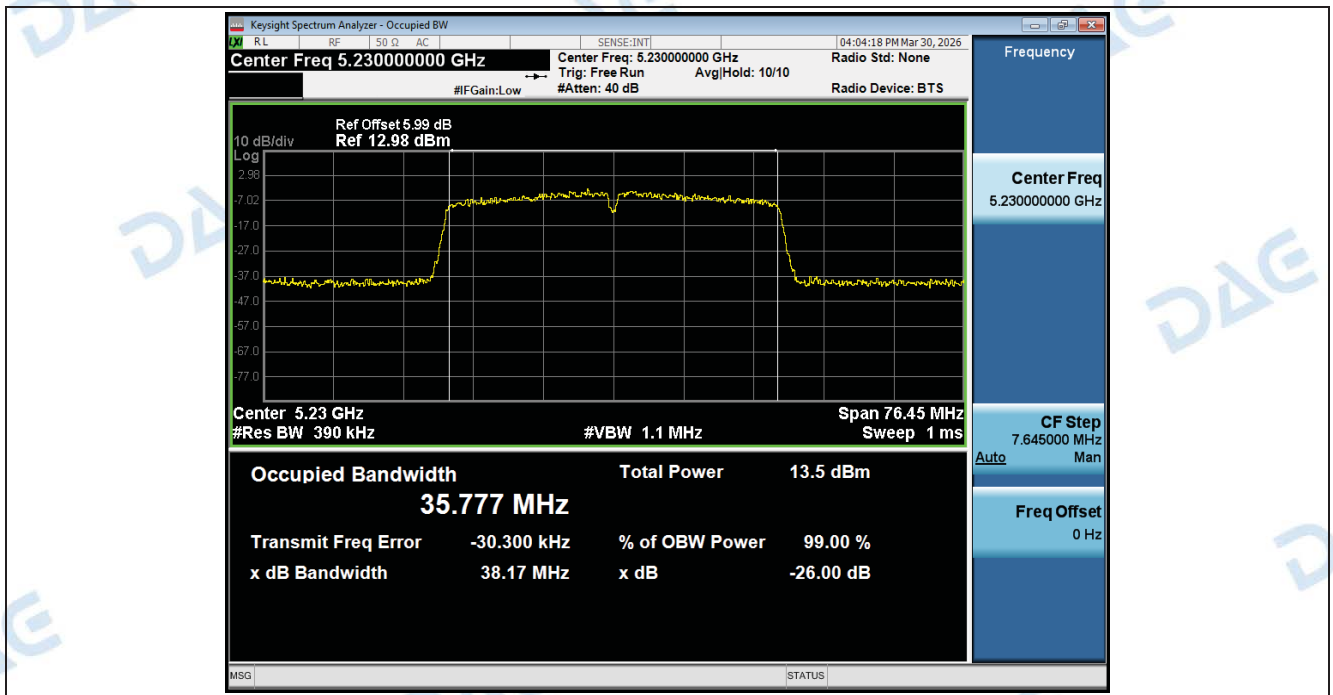




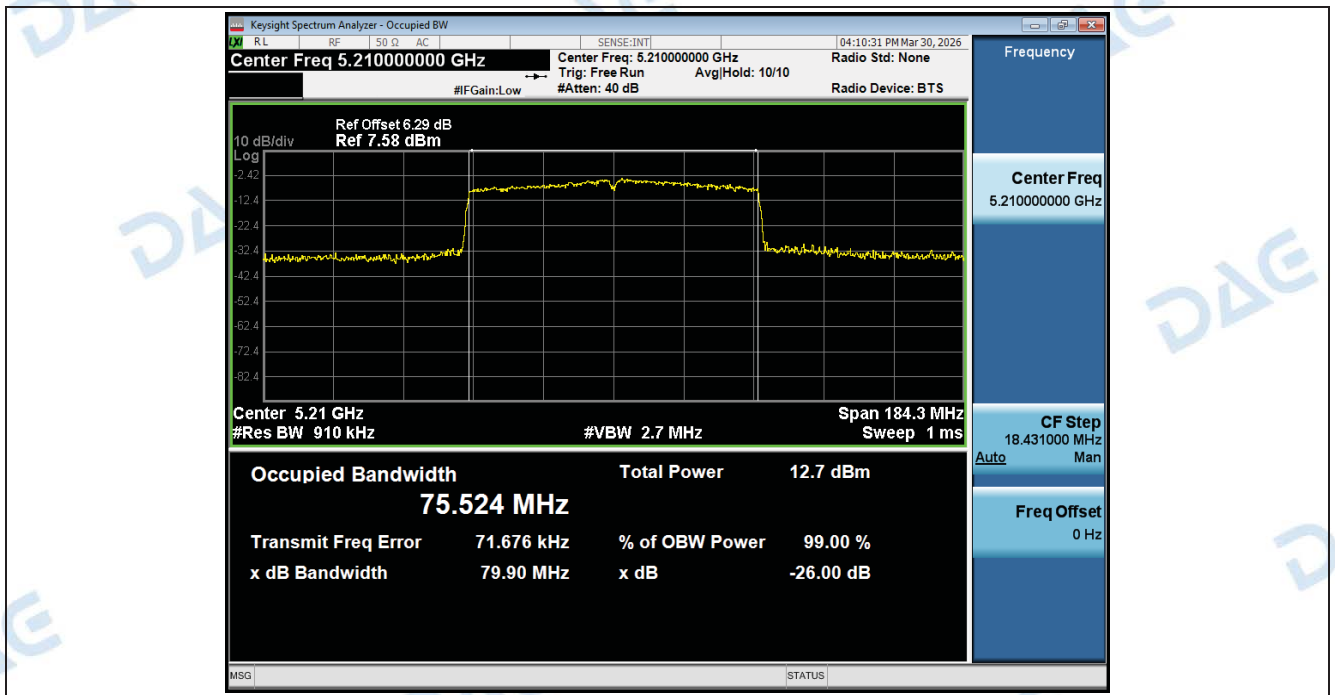
-26BW_NVNT_ANT1_802_11ac(VHT40)_5190



-26BW_NVNT_ANT1_802_11ac(VHT40)_5230



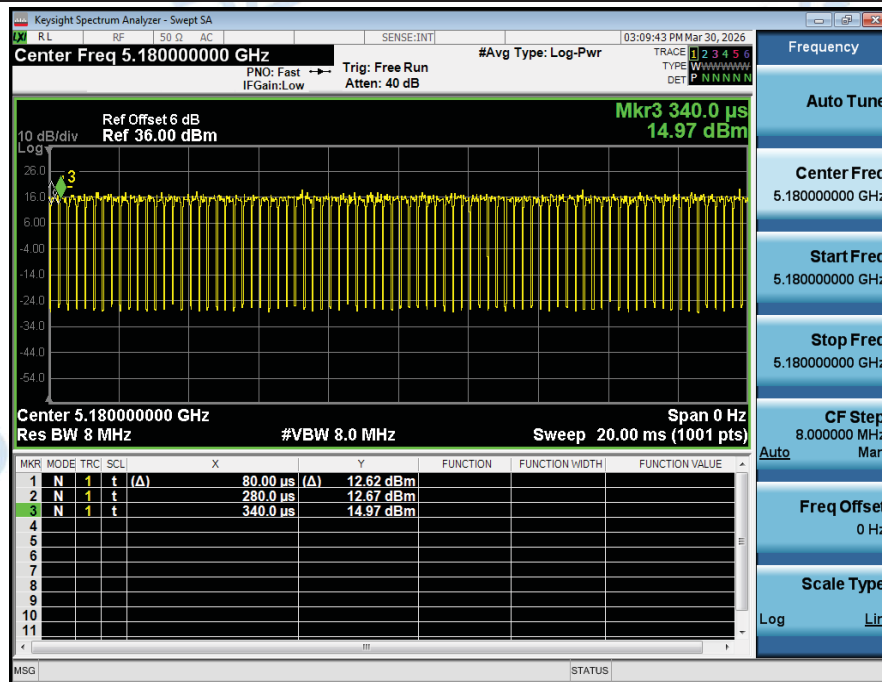
-26BW_NVNT_ANT1_802_11ac(VHT80)_5210



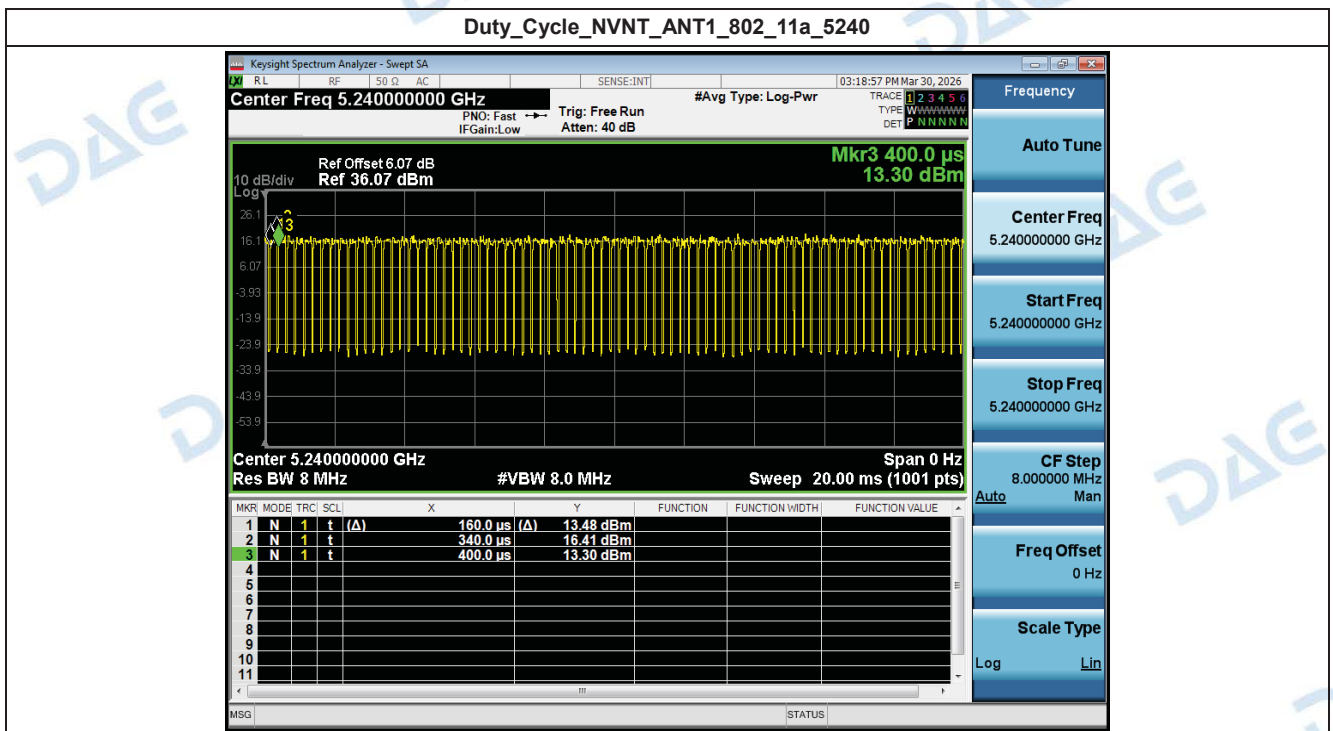
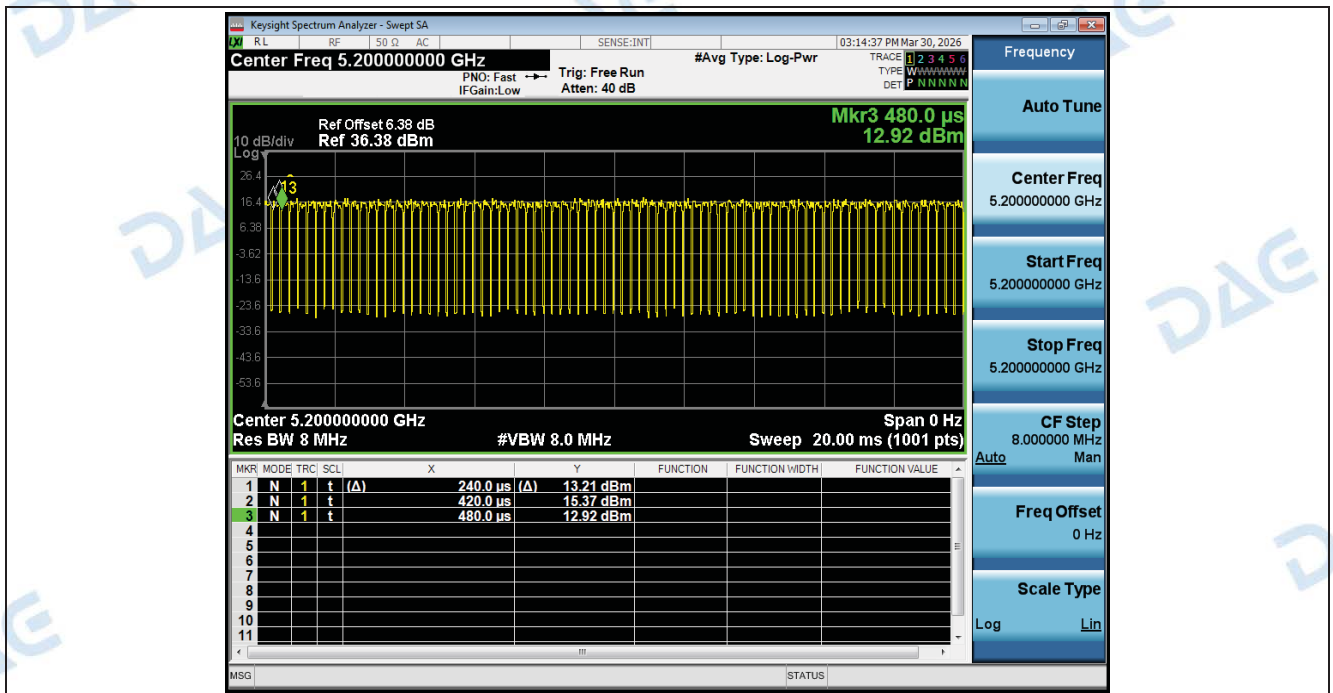
2. Duty Cycle

Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty_factor
NVNT	ANT1	802.11a	5180.00	76.92	1.14
NVNT	ANT1	802.11a	5200.00	75.00	1.25
NVNT	ANT1	802.11a	5240.00	75.00	1.25
NVNT	ANT1	802.11n(HT20)	5180.00	95.65	0.19
NVNT	ANT1	802.11n(HT20)	5200.00	95.59	0.20
NVNT	ANT1	802.11n(HT20)	5240.00	95.65	0.19
NVNT	ANT1	802.11ac(VHT20)	5180.00	91.89	0.37
NVNT	ANT1	802.11ac(VHT20)	5200.00	91.89	0.37
NVNT	ANT1	802.11ac(VHT20)	5240.00	91.89	0.37
NVNT	ANT1	802.11n(HT40)	5190.00	91.67	0.38
NVNT	ANT1	802.11n(HT40)	5230.00	91.43	0.39
NVNT	ANT1	802.11ac(VHT40)	5190.00	85.71	0.67
NVNT	ANT1	802.11ac(VHT40)	5230.00	85.71	0.67
NVNT	ANT1	802.11ac(VHT80)	5210.00	75.00	1.25

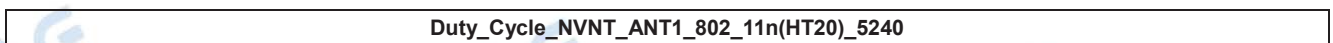
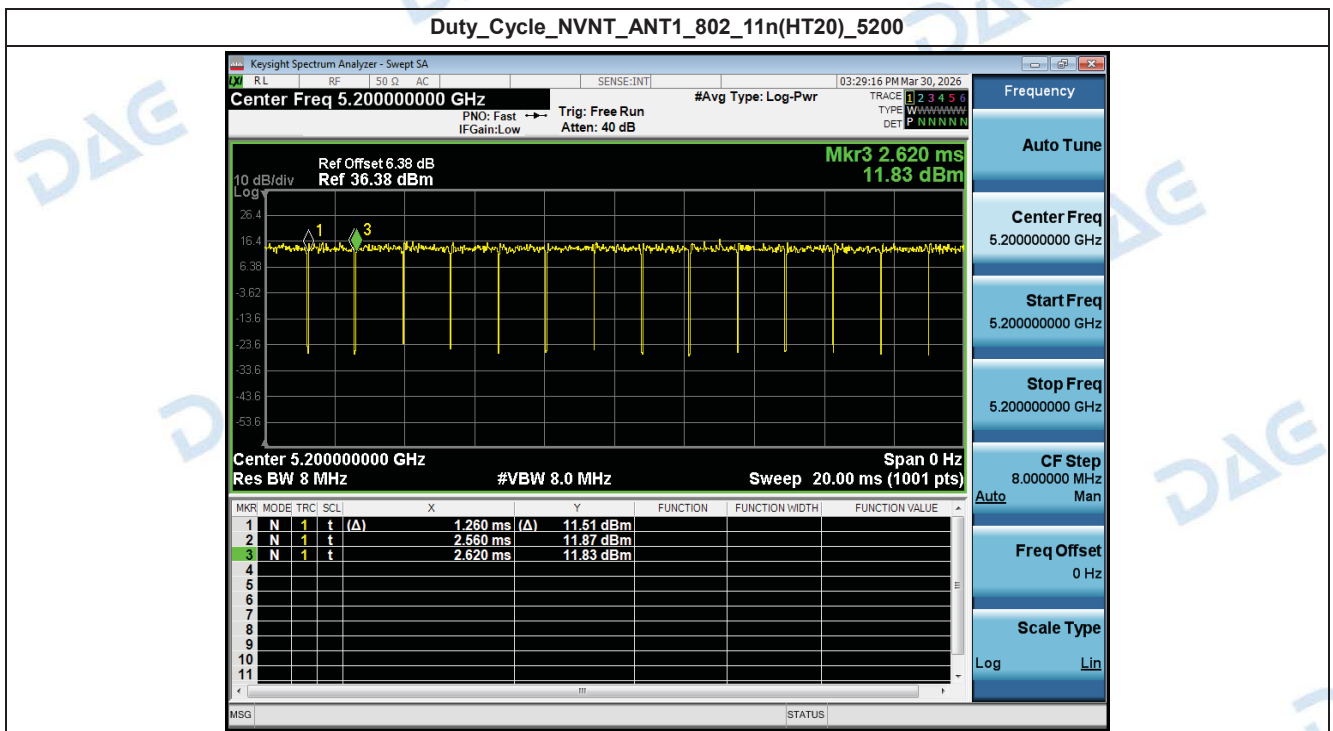
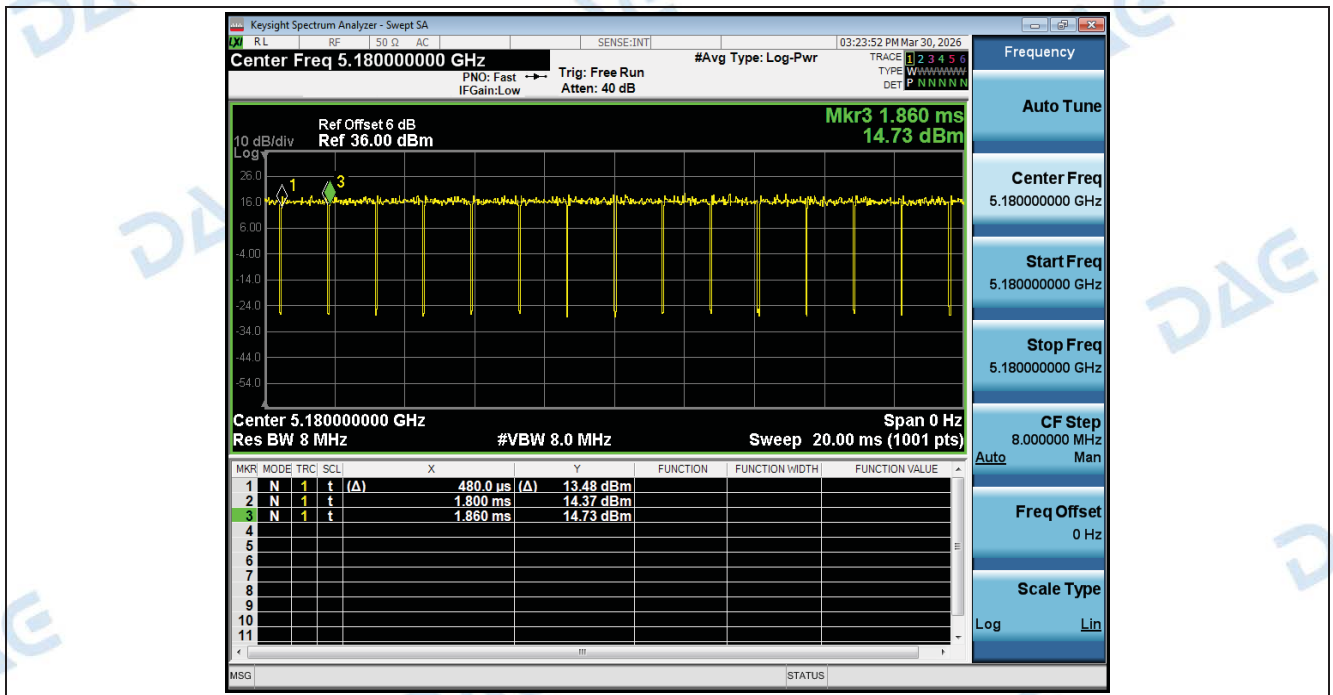
Duty_Cycle_NVNT_ANT1_802_11a_5180

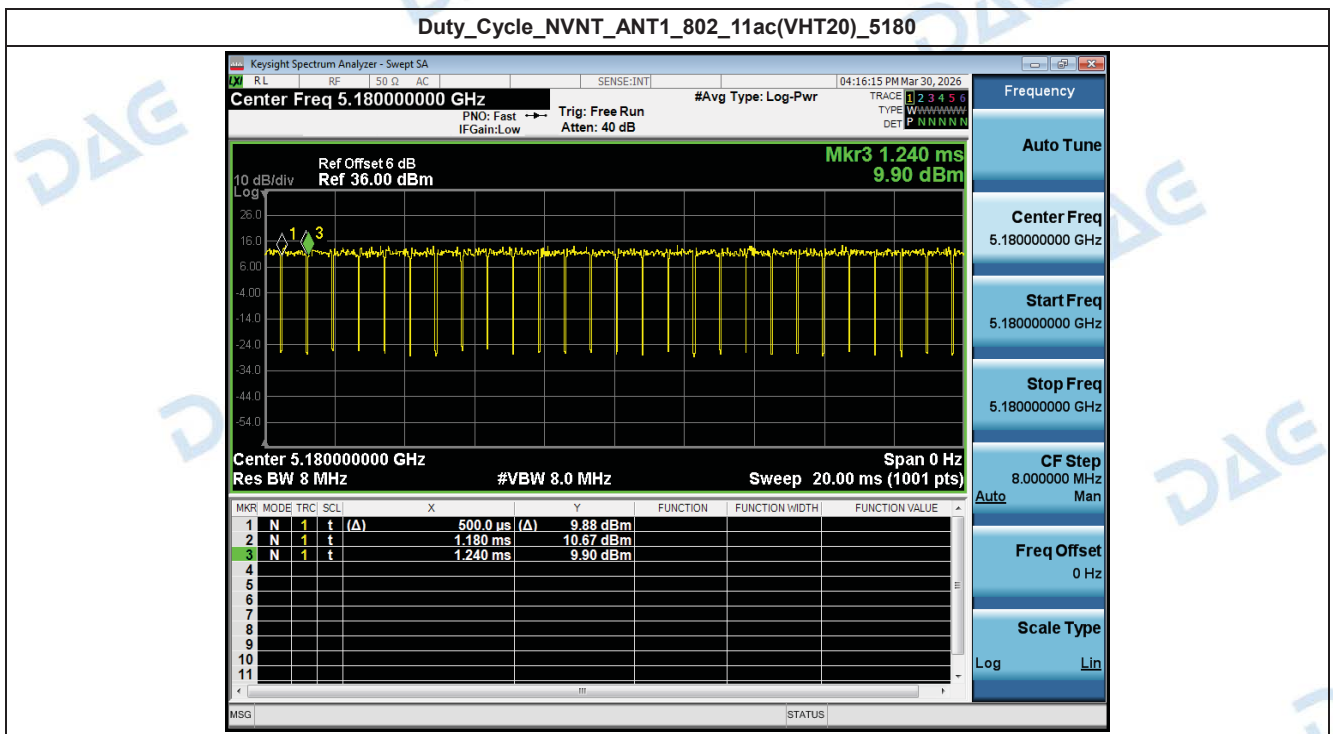
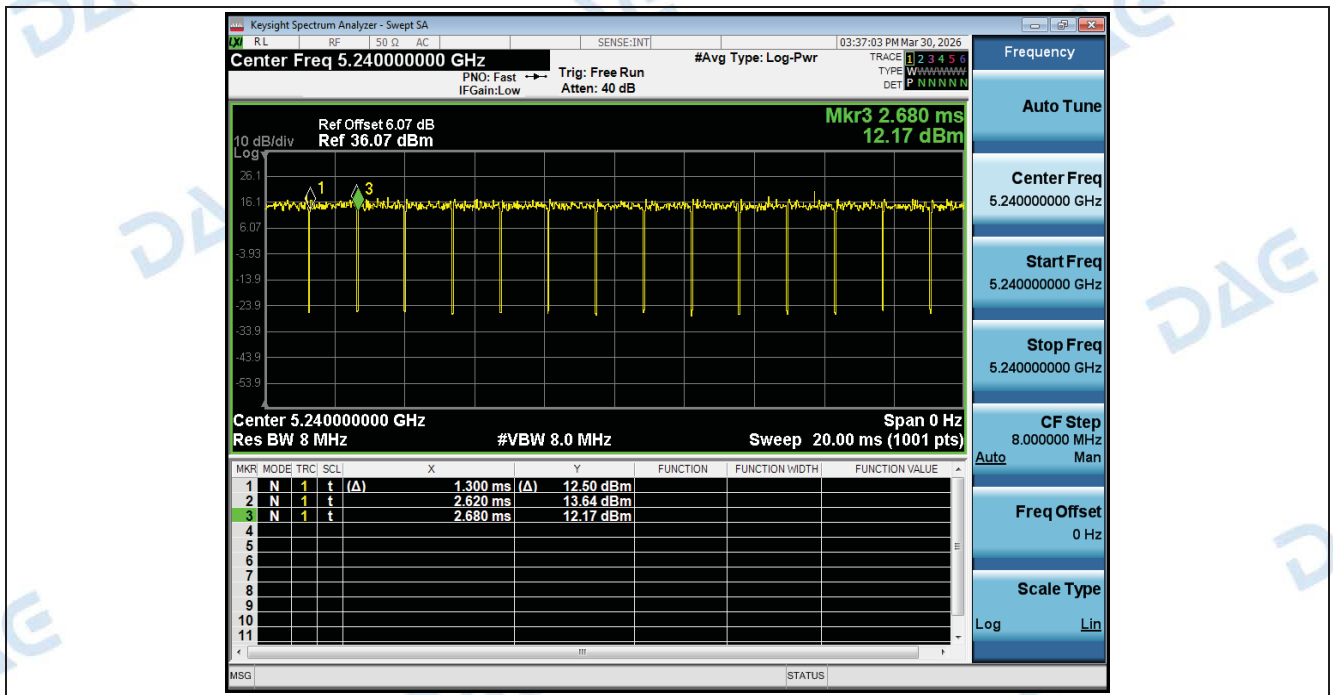


Duty_Cycle_NVNT_ANT1_802_11a_5200

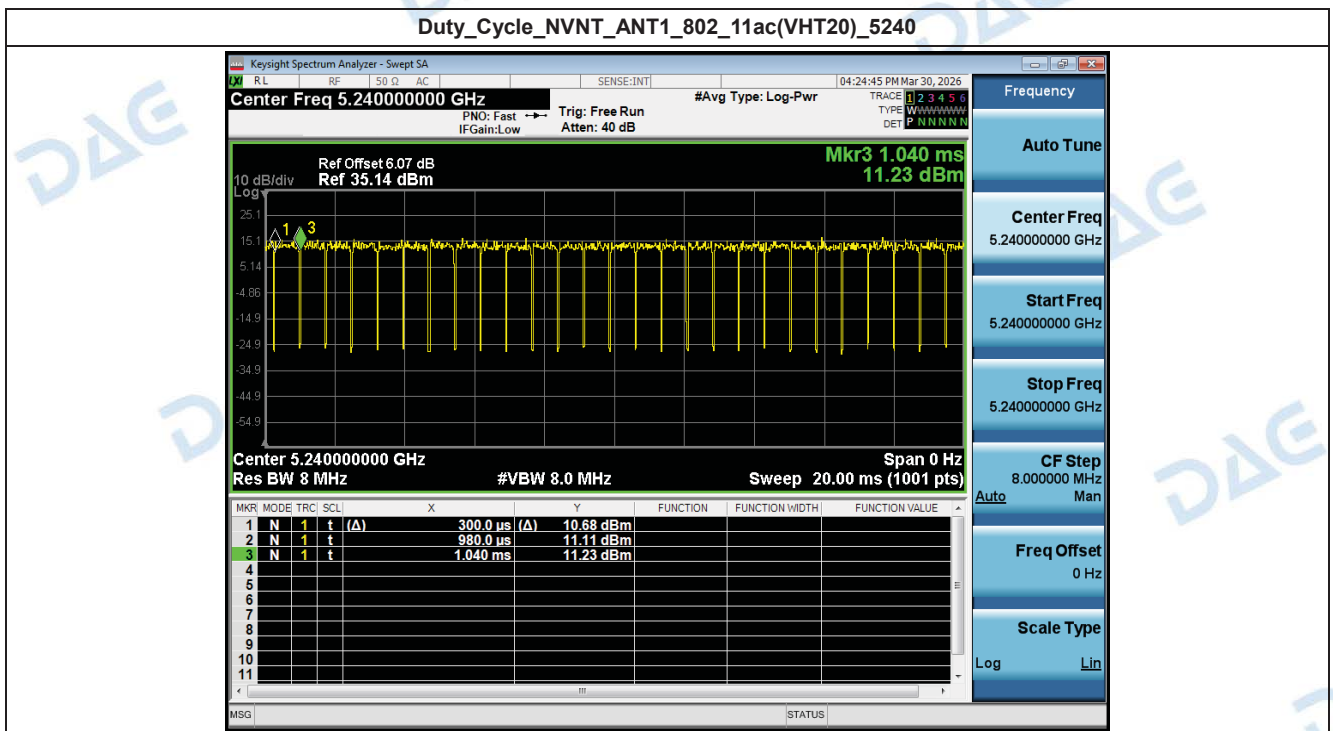
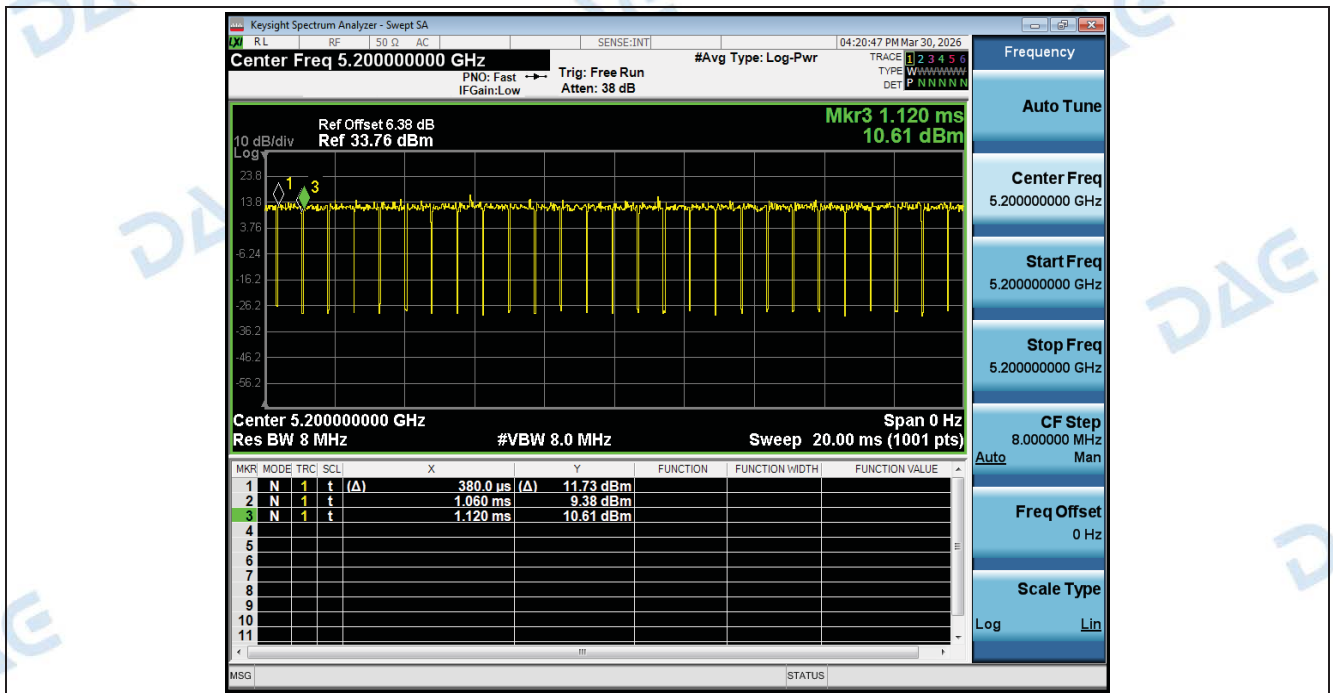


Duty_Cycle_NVNT_ANT1_802_11n(HT20)_5180

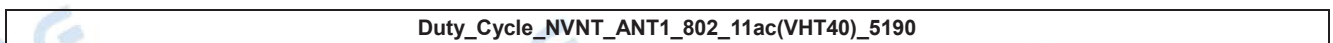
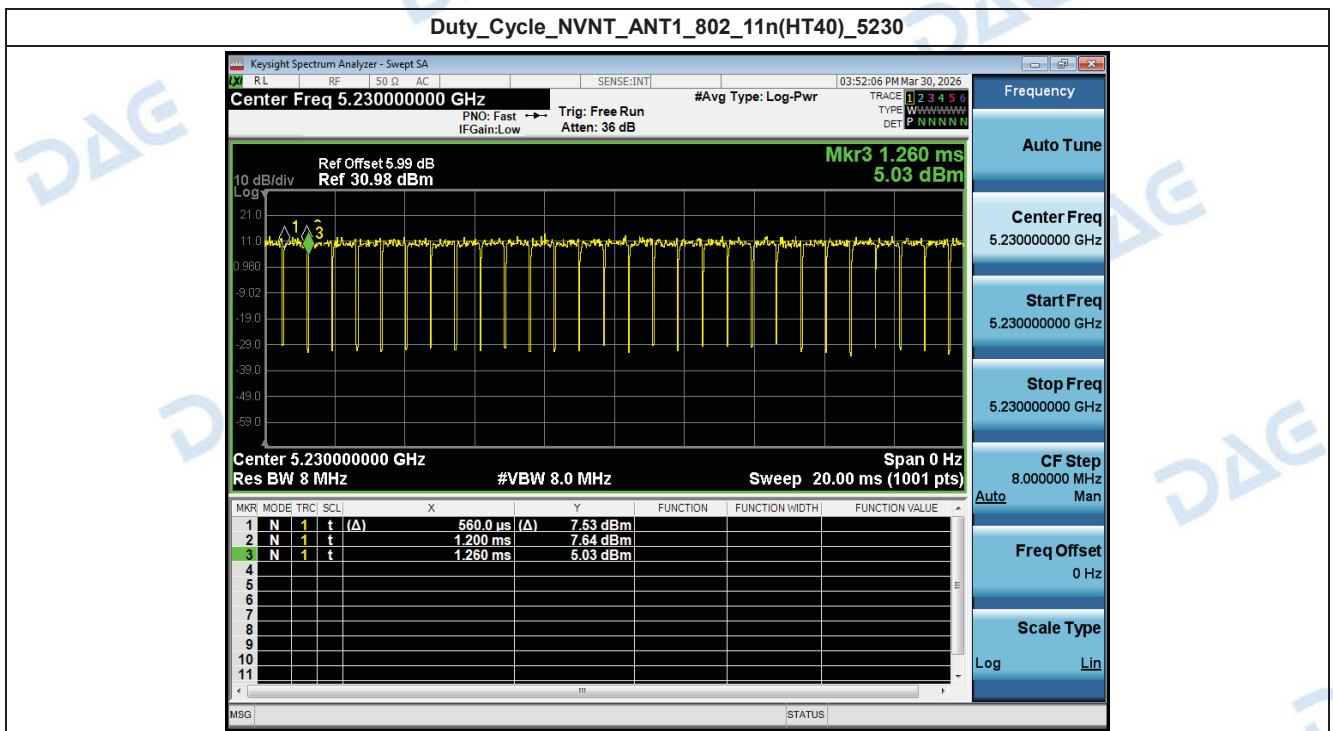
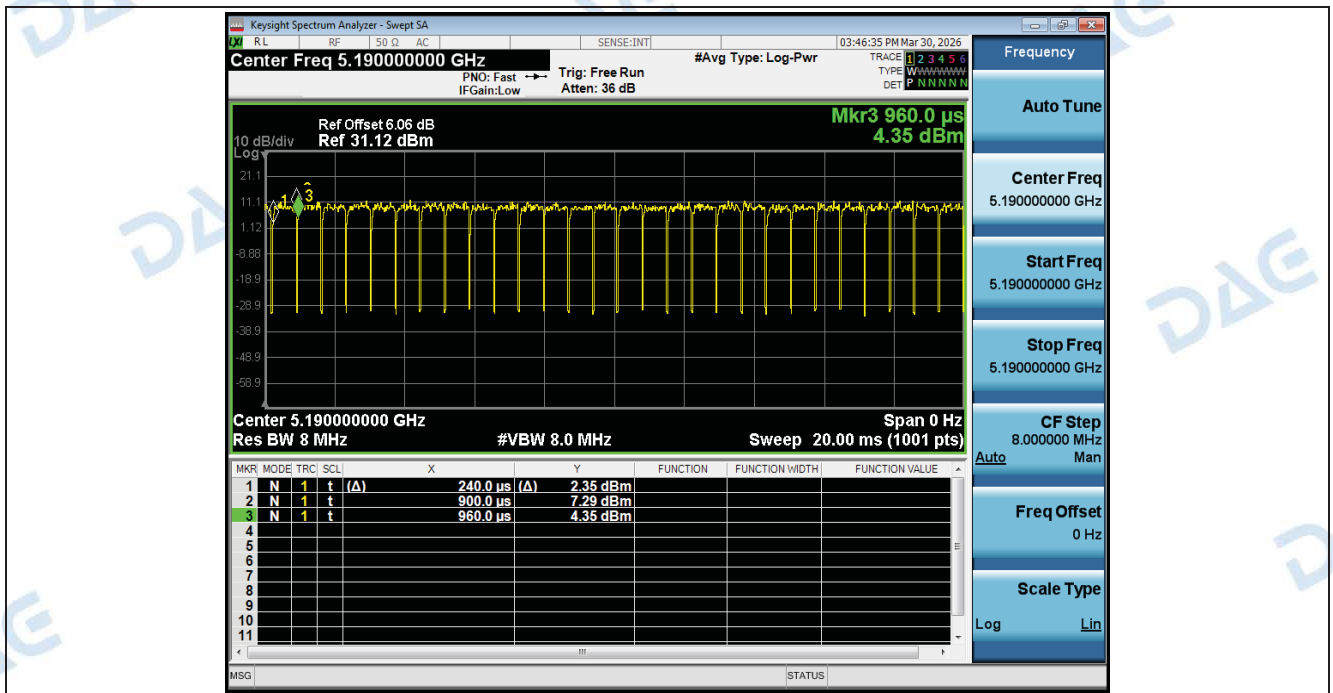


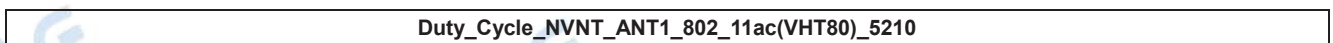
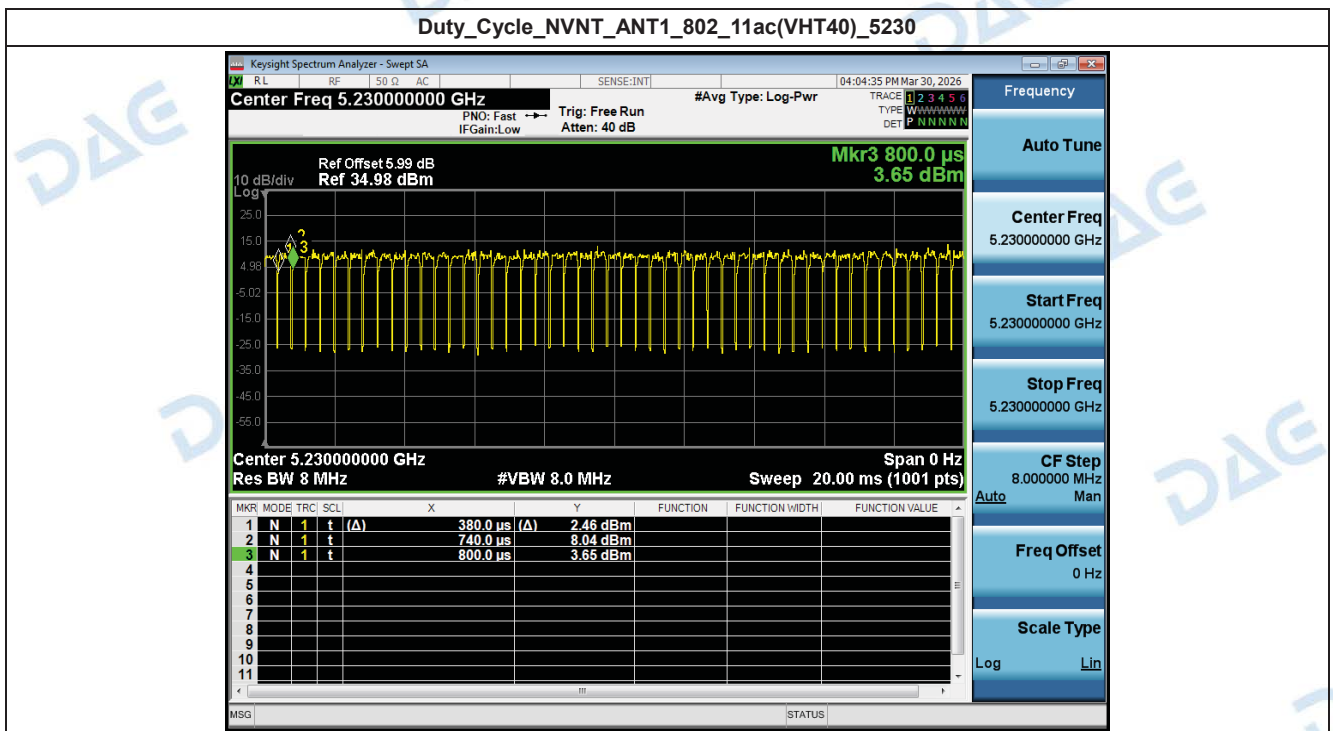
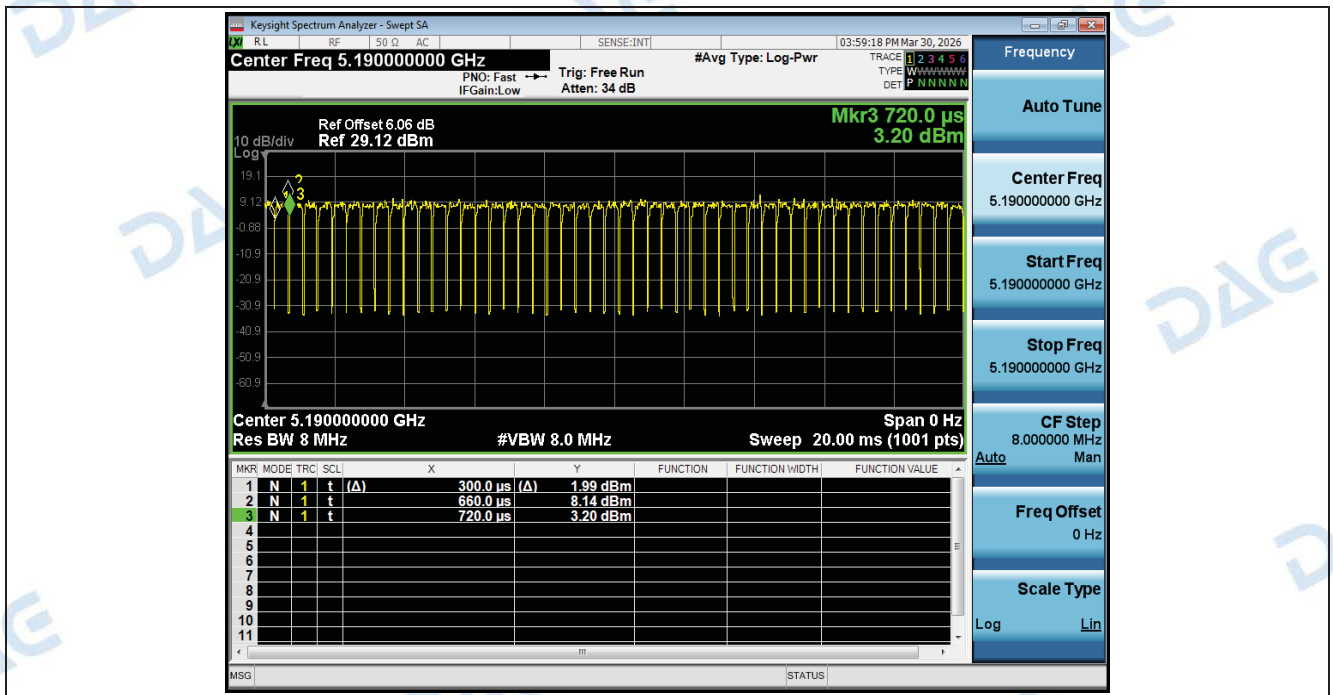


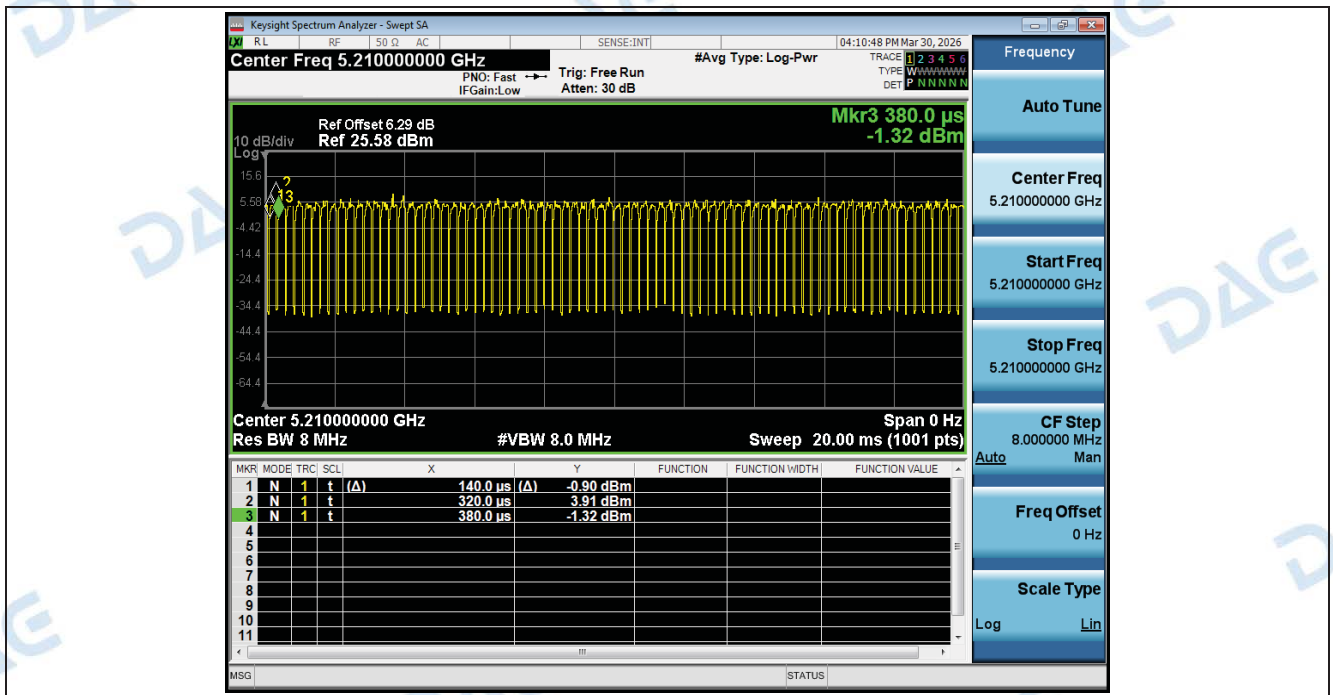
Duty_Cycle_NVNT_ANT1_802_11ac(VHT20)_5200



Duty_Cycle_NVNT_ANT1_802_11n(HT40)_5190



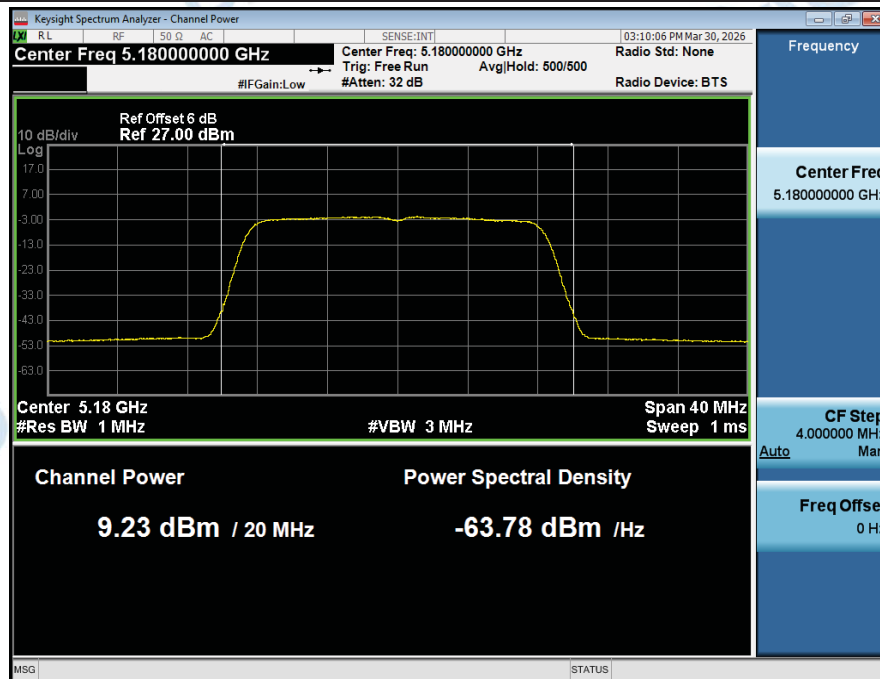




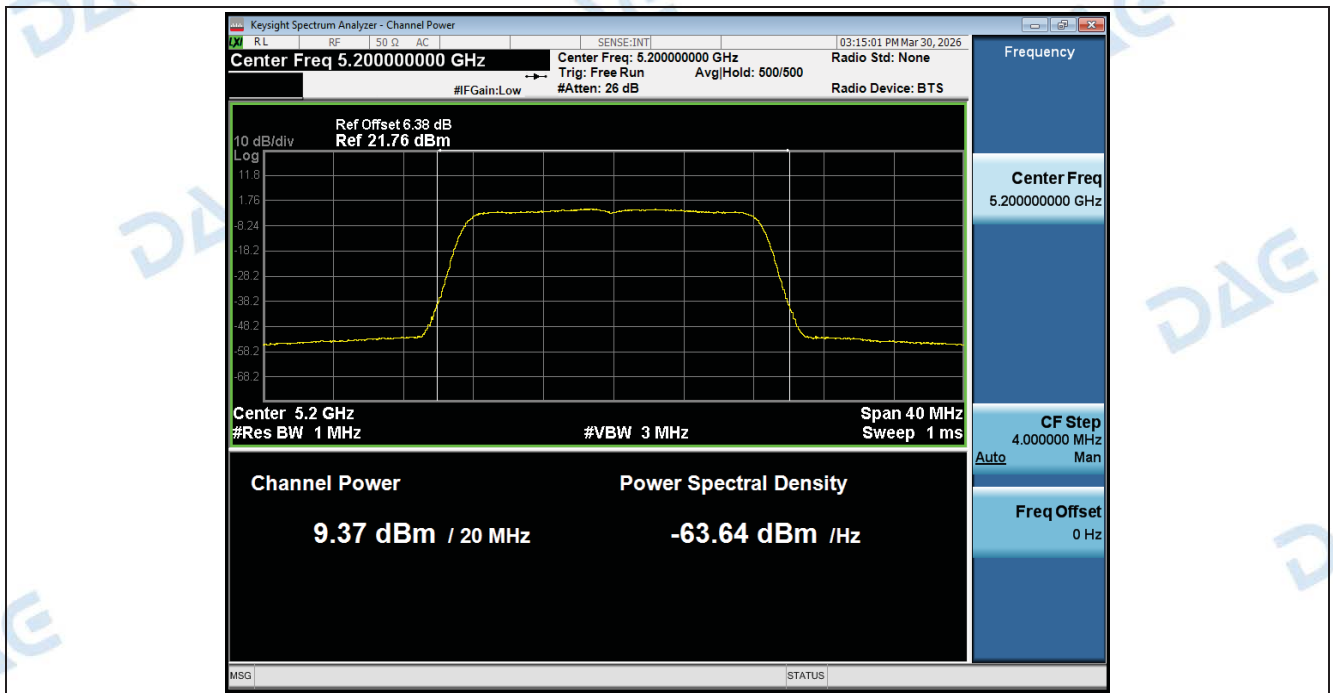
3. Maximum Conducted Output Power

Condition	Antenna	Modulation	Frequency (MHz)	Conducted Power(dBm)	Duty factor(dB)	Total Power(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	9.23	1.14	10.37	24	Pass
NVNT	ANT1	802.11a	5200.00	9.37	1.25	10.62	24	Pass
NVNT	ANT1	802.11a	5240.00	9.88	1.25	11.13	24	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	8.88	0.19	9.07	24	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	8.14	0.20	8.34	24	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	8.79	0.19	8.98	24	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	7.16	0.37	7.53	24	Pass
NVNT	ANT1	802.11ac(VHT20)	5200.00	7.45	0.37	7.82	24	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	7.13	0.37	7.50	24	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	6.74	0.38	7.12	24	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	6.49	0.39	6.88	24	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	5.32	0.67	5.99	24	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	5.70	0.67	6.37	24	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	4.17	1.25	5.42	24	Pass

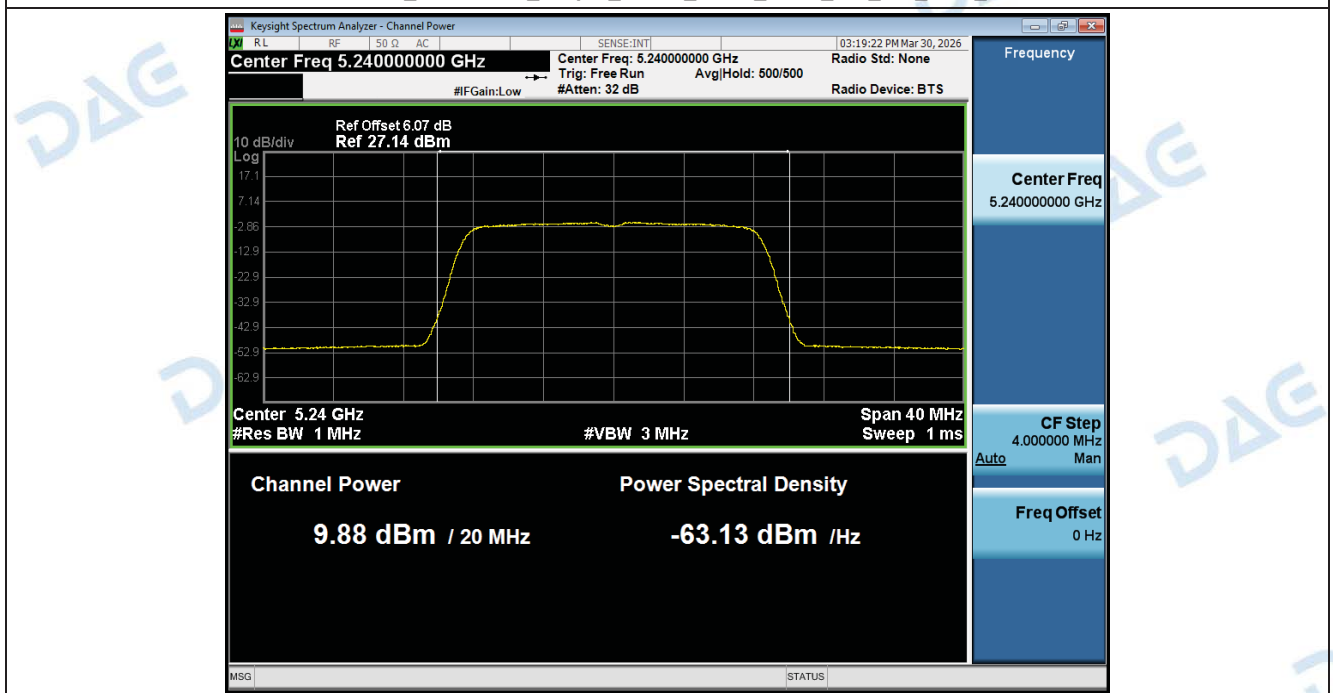
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5180_20M



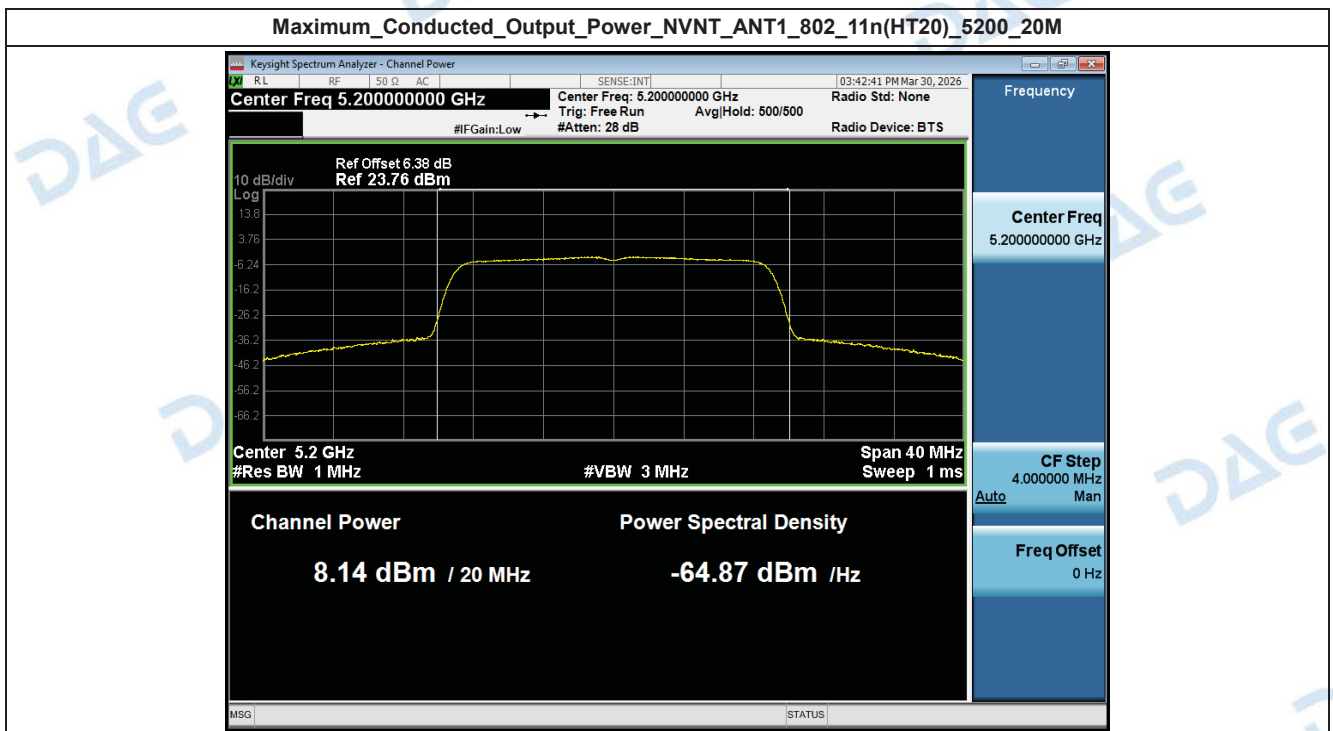
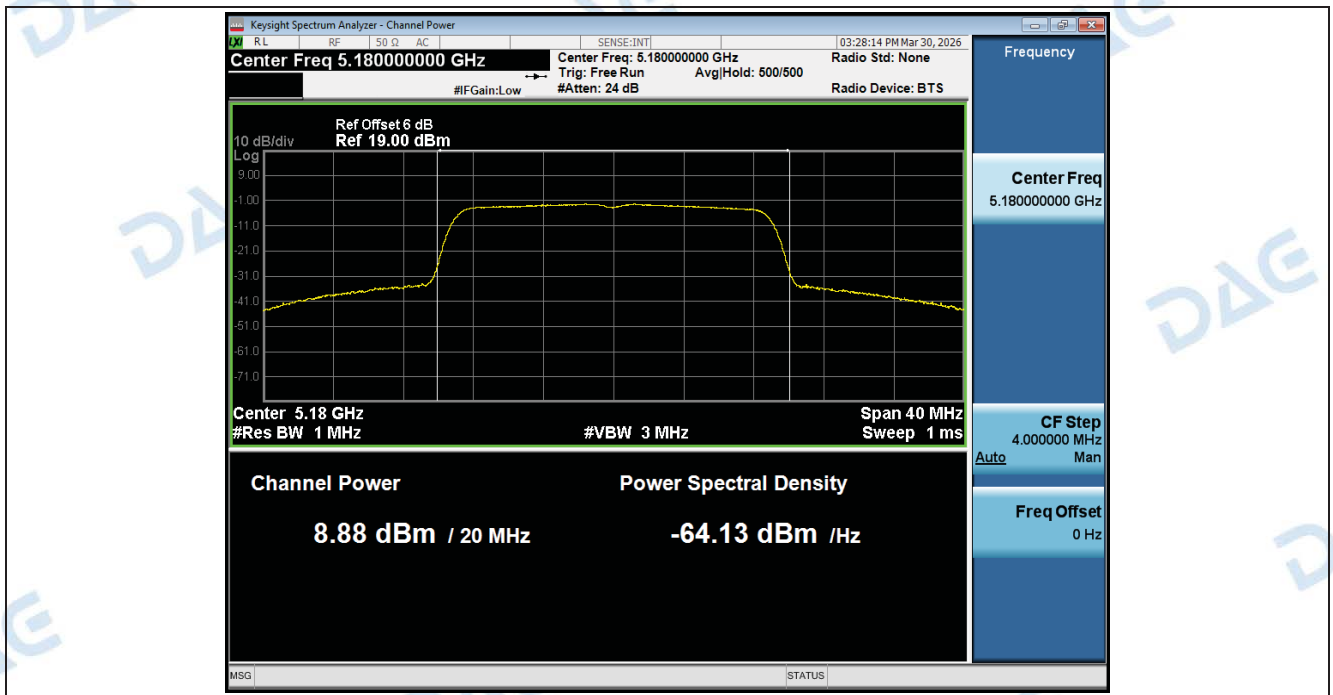
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5200_20M



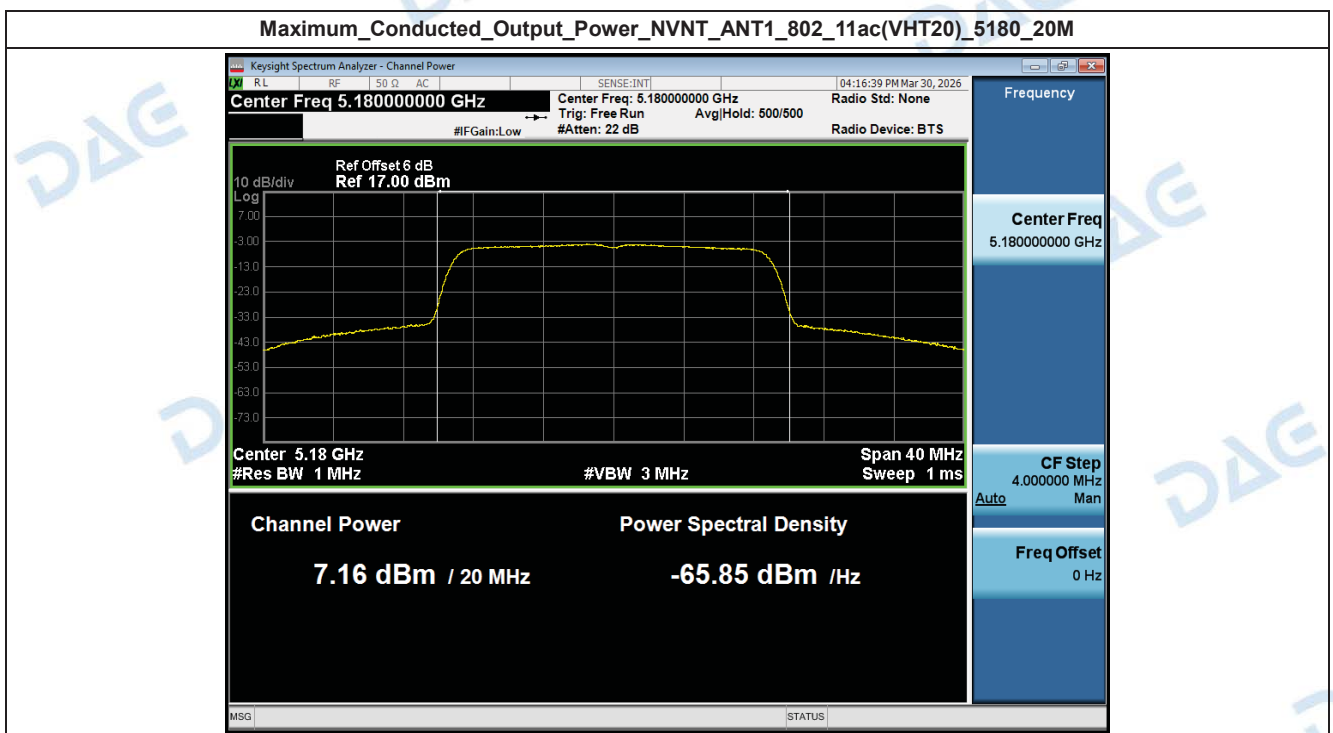
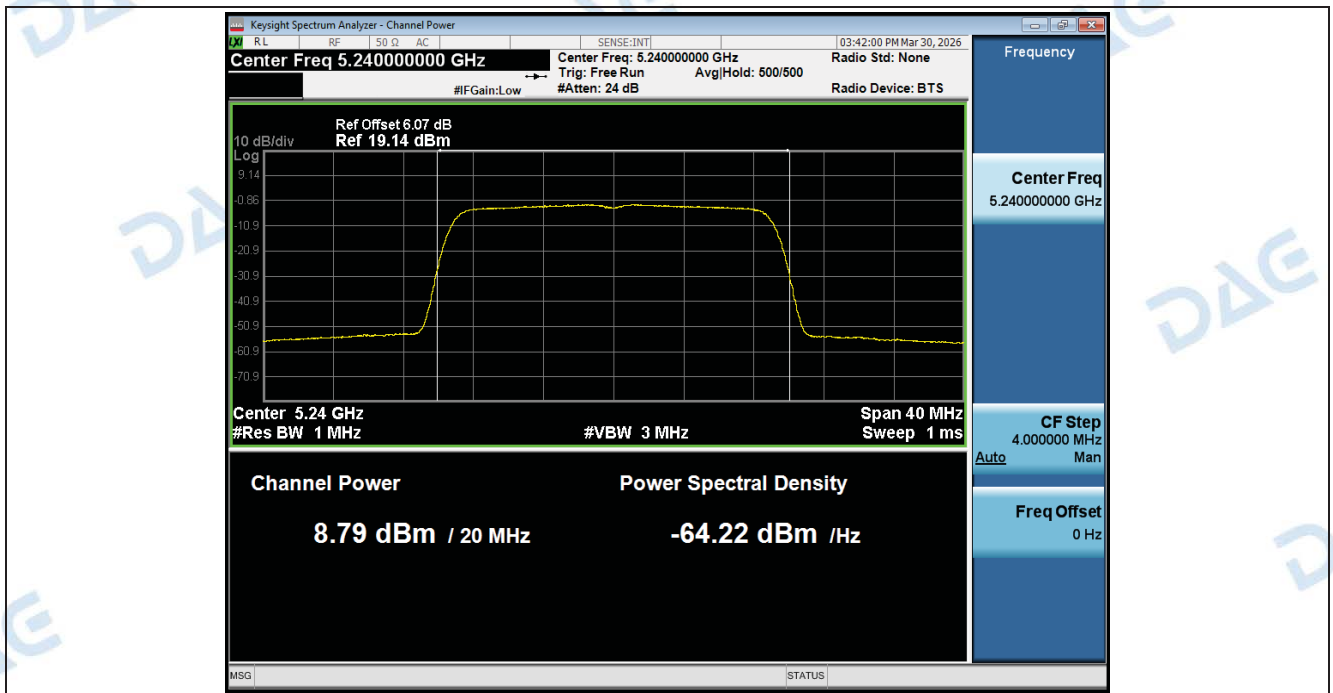
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5240_20M



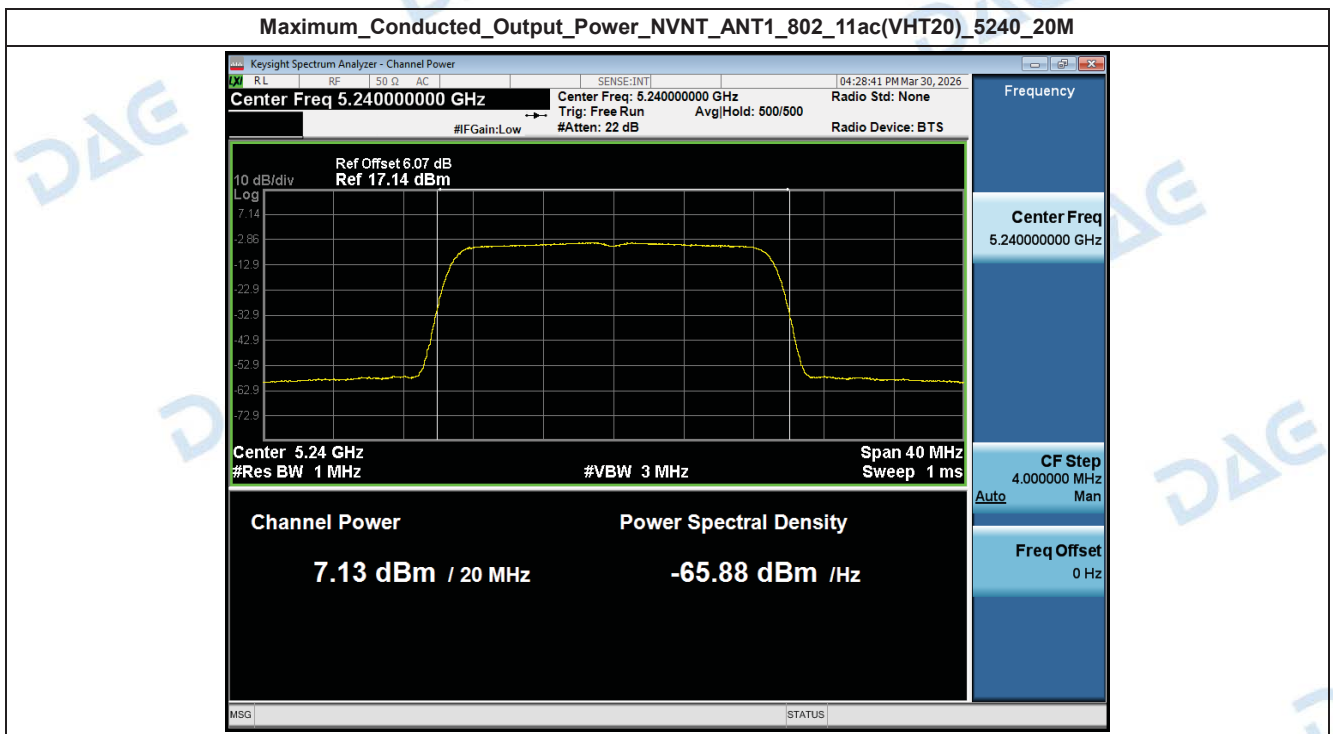
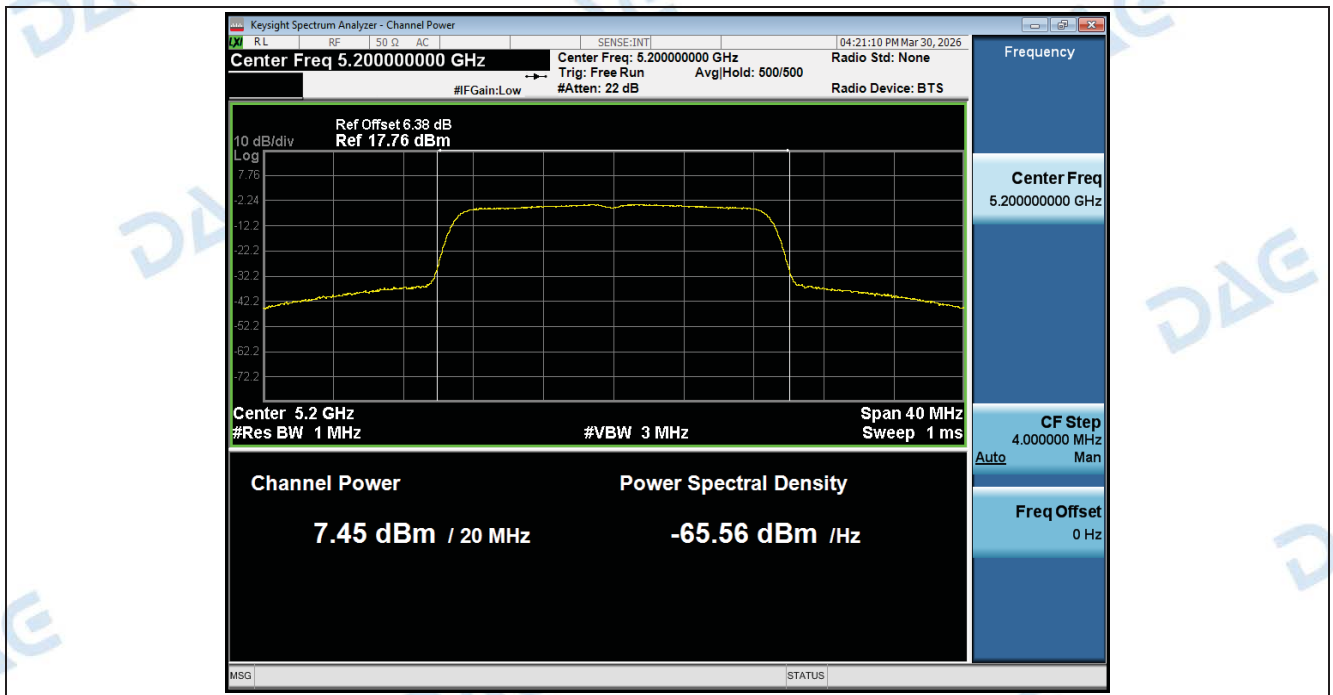
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5180_20M



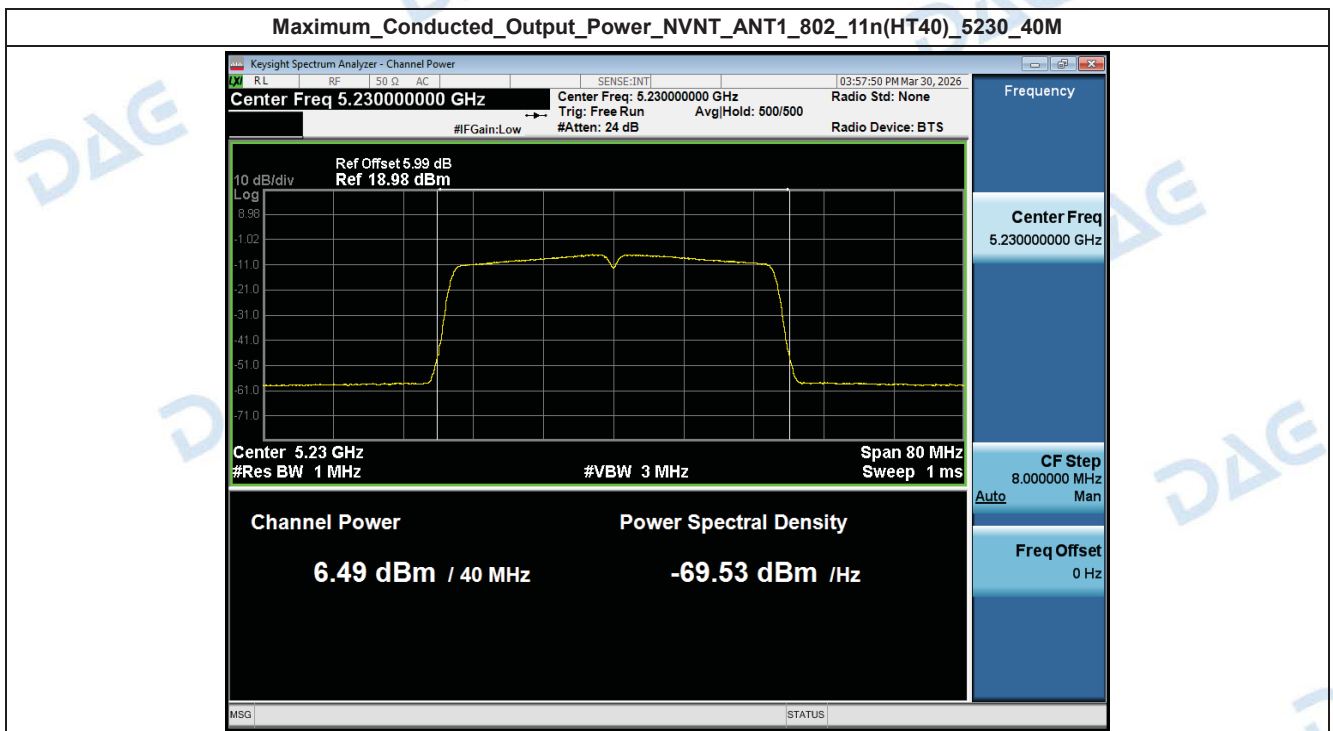
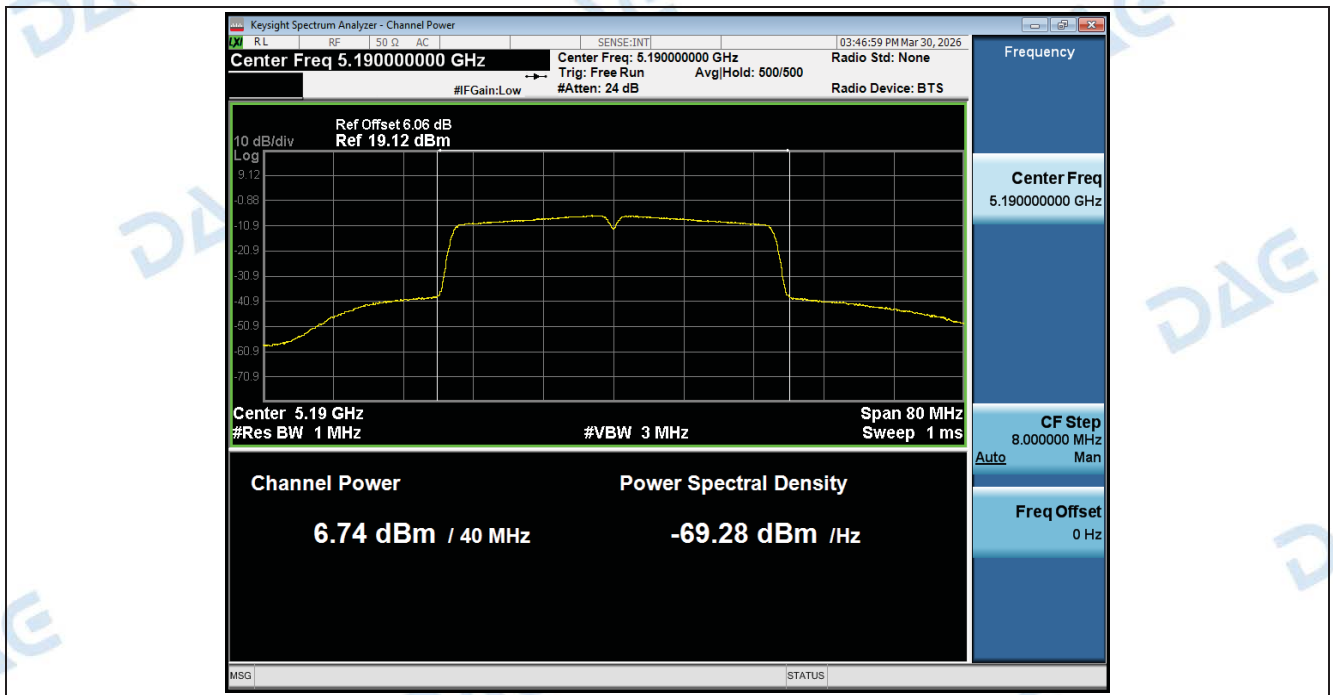
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5240_20M



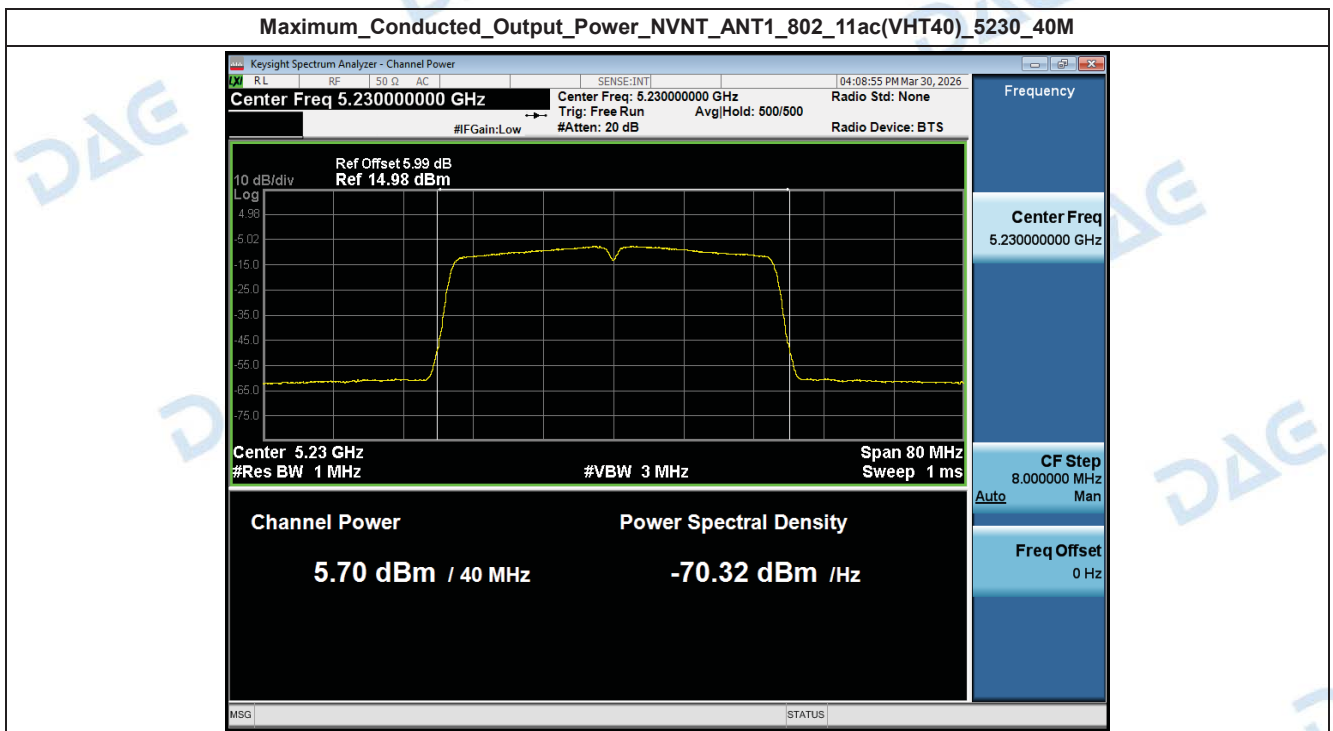
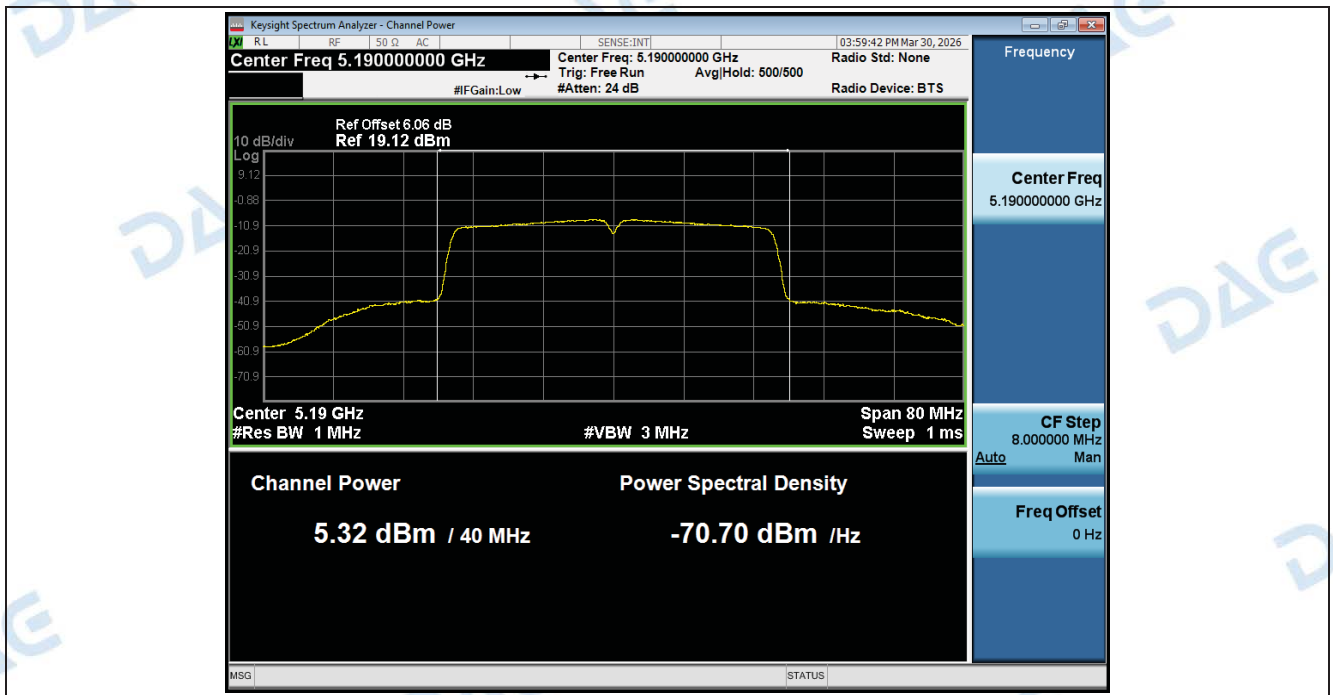
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11ac(VHT20)_5200_20M

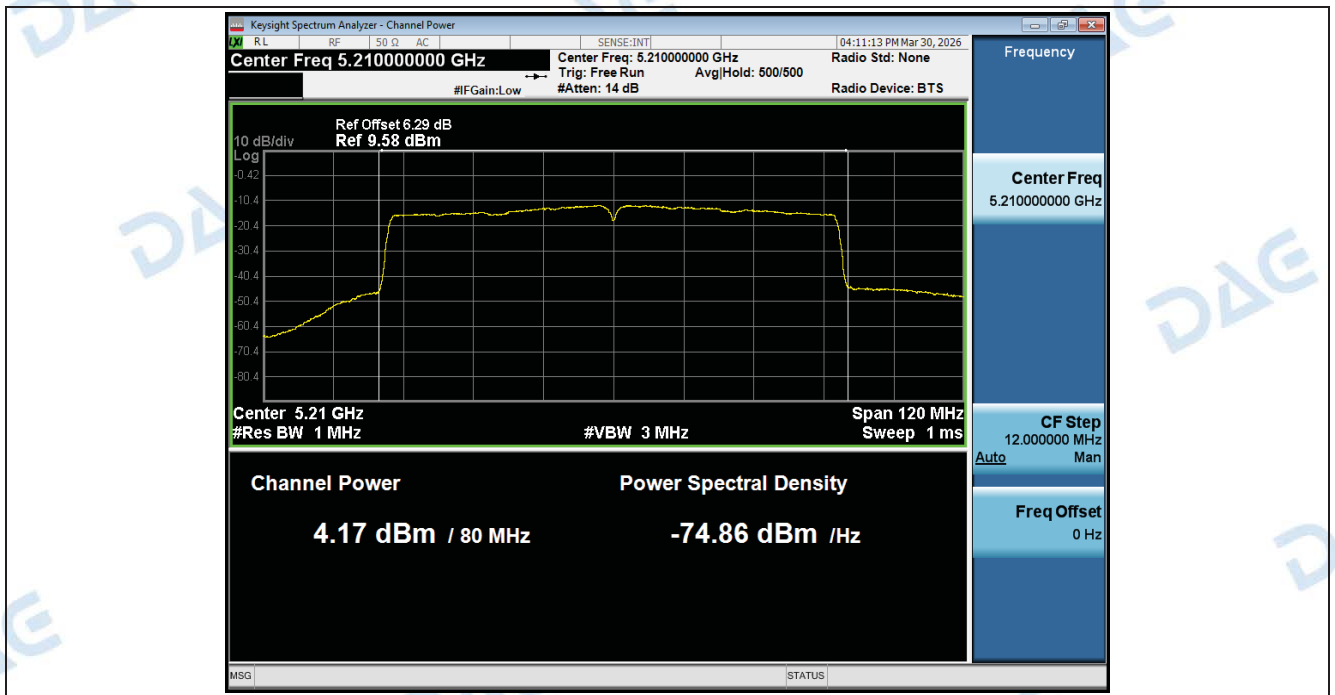


Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT40)_5190_40M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11ac(VHT40)_5190_40M

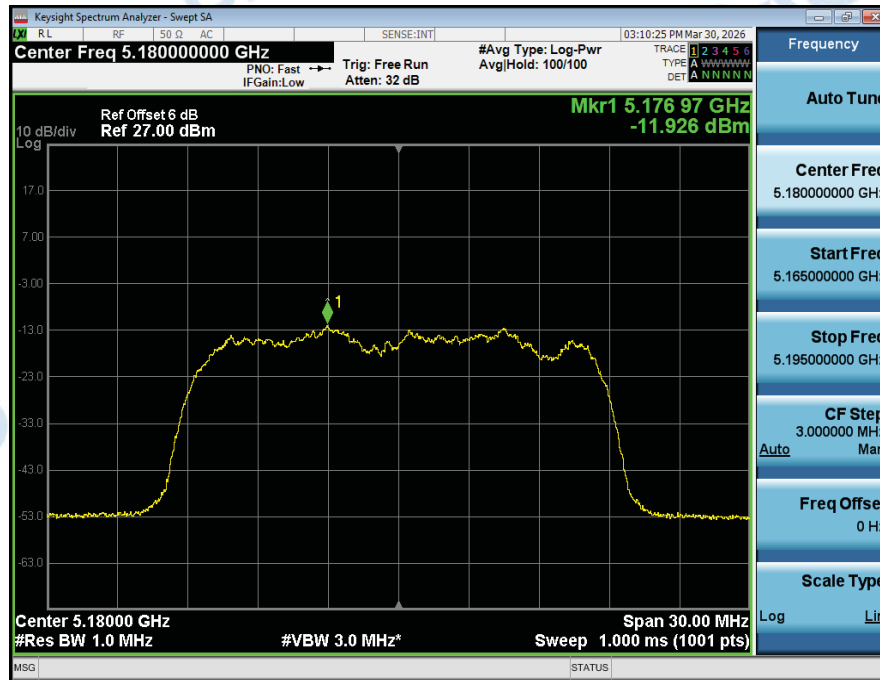




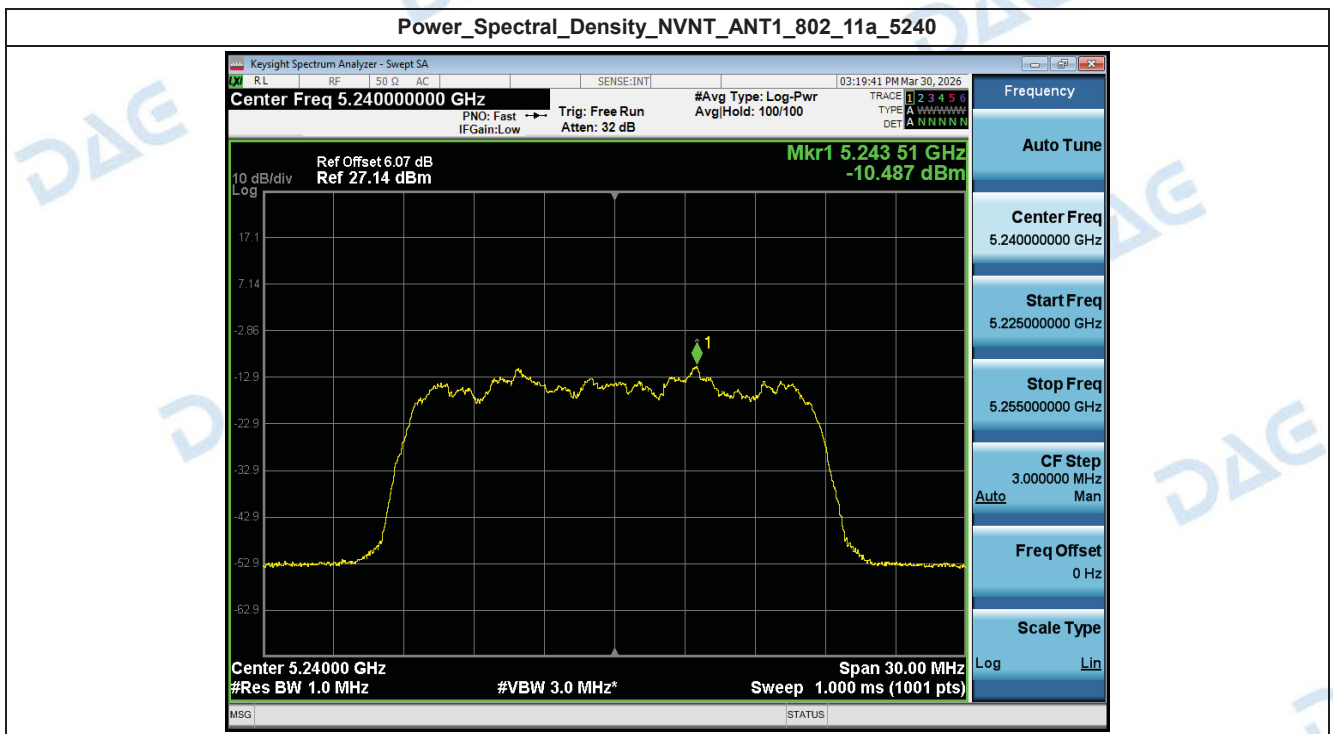
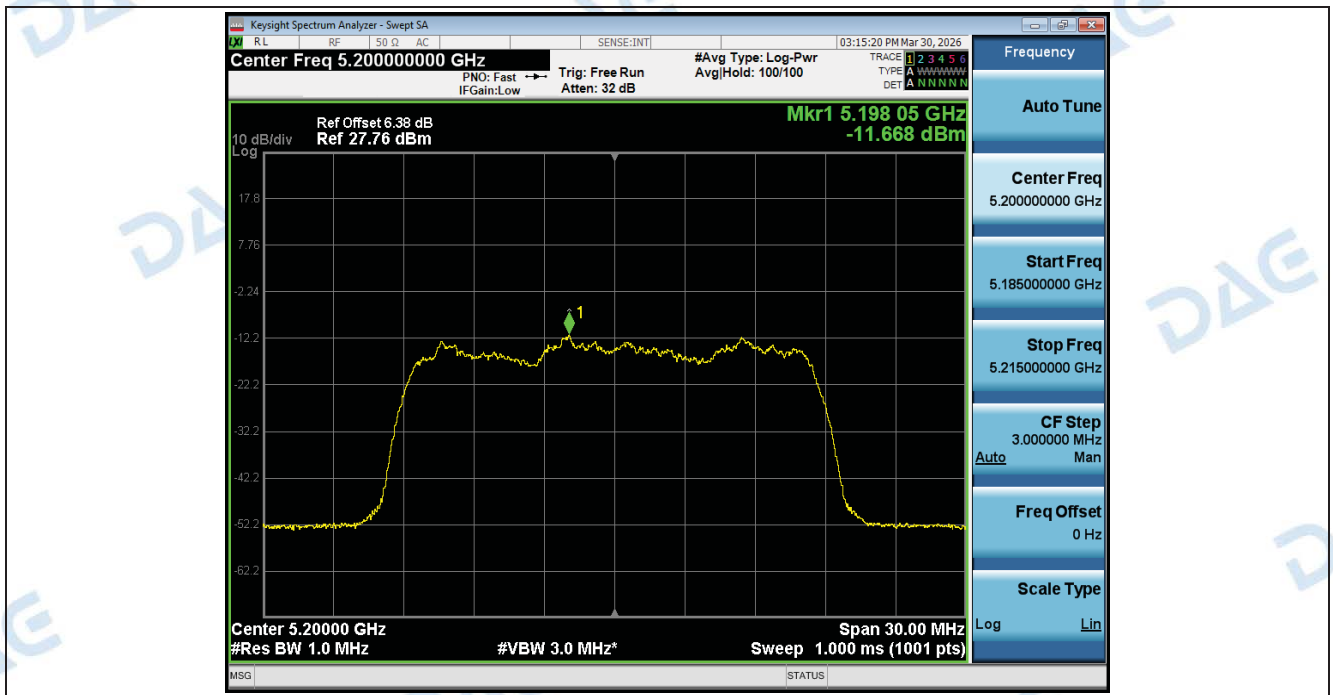
4. Power Spectral Density

Condition	Antenna	Modulation	Frequency (MHz)	PSD(dBm/MHz)	Duty factor(dB)	Total PSD(dBm/MHz)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	-11.93	1.14	-10.79	11	Pass
NVNT	ANT1	802.11a	5200.00	-11.67	1.25	-10.42	11	Pass
NVNT	ANT1	802.11a	5240.00	-10.49	1.25	-9.24	11	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	-2.58	0.19	-2.39	11	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	-4.96	0.20	-4.76	11	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	-4.62	0.19	-4.43	11	Pass
NVNT	ANT1	802.11ac(VHT20)	5180.00	-7.92	0.37	-7.55	11	Pass
NVNT	ANT1	802.11ac(VHT20)	5200.00	-7.83	0.37	-7.46	11	Pass
NVNT	ANT1	802.11ac(VHT20)	5240.00	-7.88	0.37	-7.51	11	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	-10.30	0.38	-9.92	11	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	-11.61	0.39	-11.22	11	Pass
NVNT	ANT1	802.11ac(VHT40)	5190.00	-16.24	0.67	-15.57	11	Pass
NVNT	ANT1	802.11ac(VHT40)	5230.00	-13.88	0.67	-13.21	11	Pass
NVNT	ANT1	802.11ac(VHT80)	5210.00	-23.55	1.25	-22.30	11	Pass

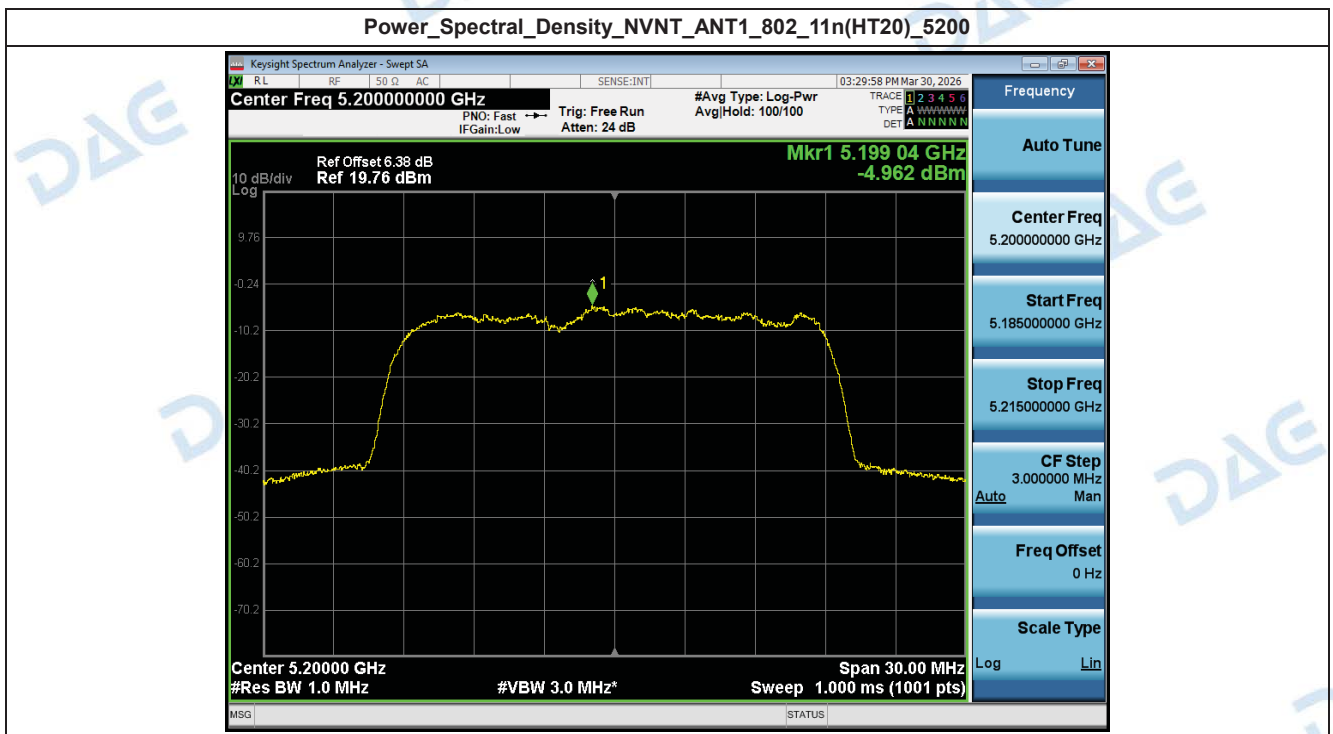
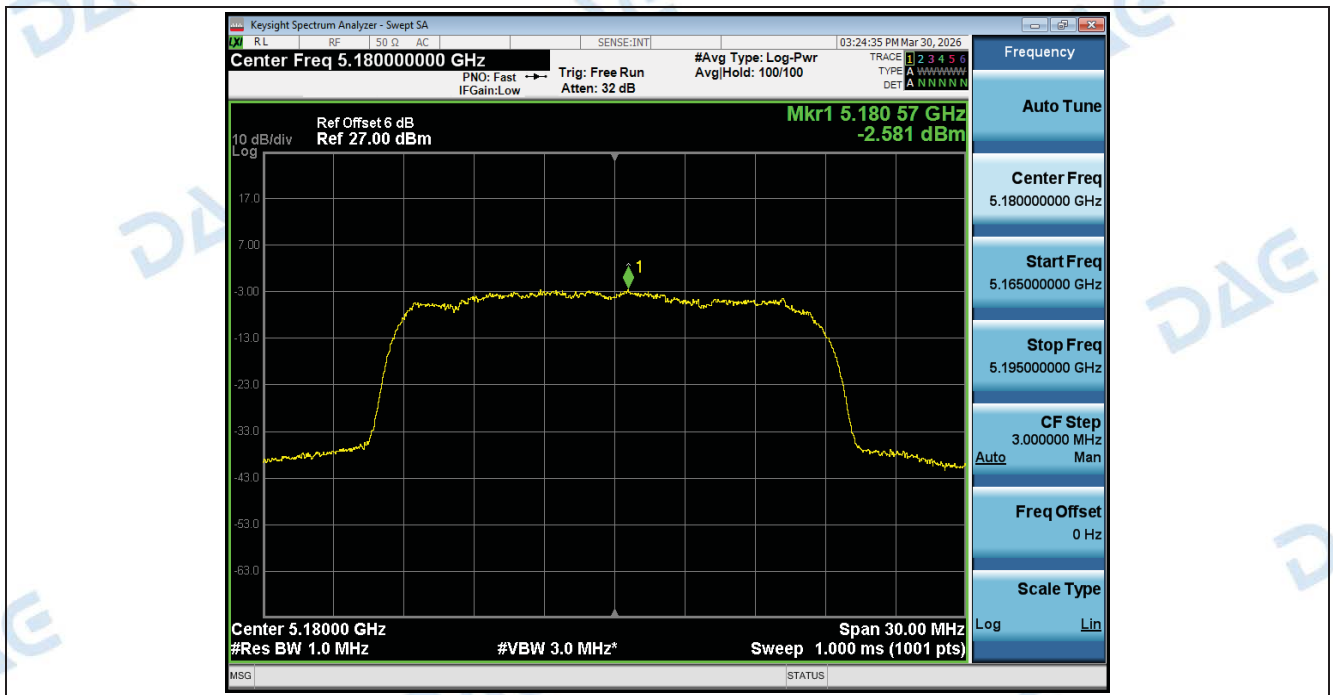
Power_Spectral_Density_NVNT_ANT1_802_11a_5180



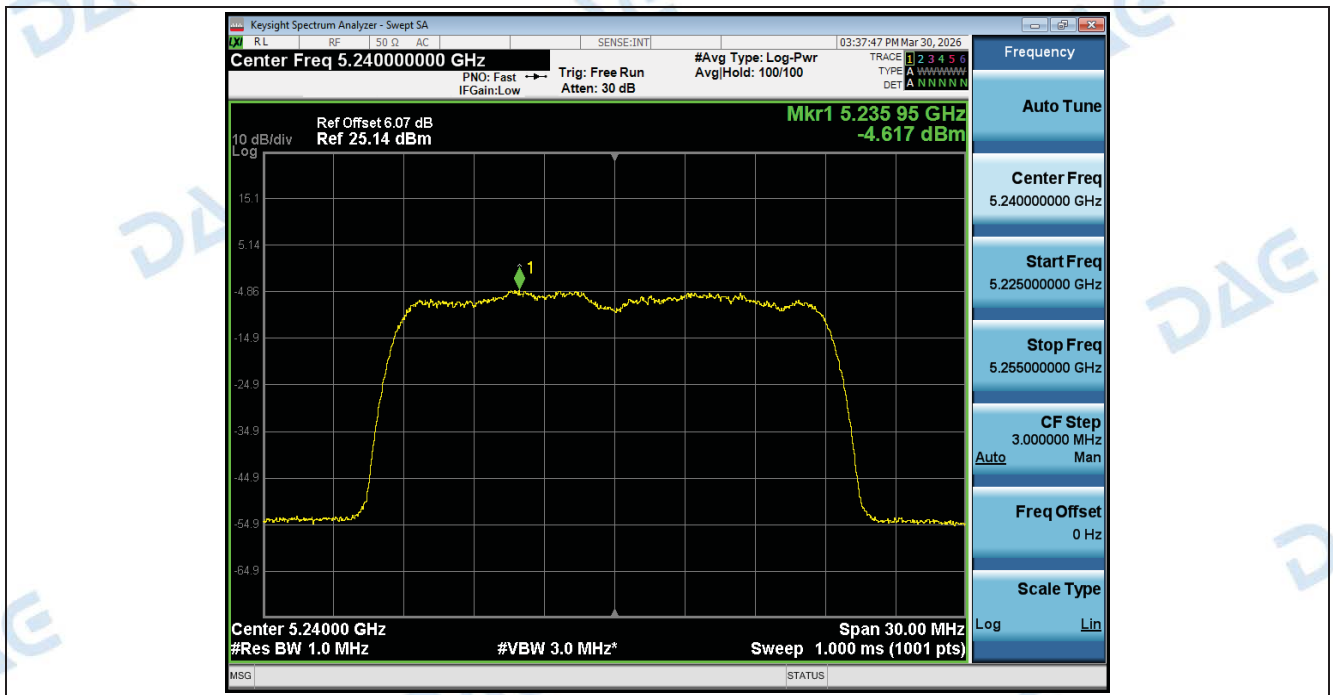
Power_Spectral_Density_NVNT_ANT1_802_11a_5200



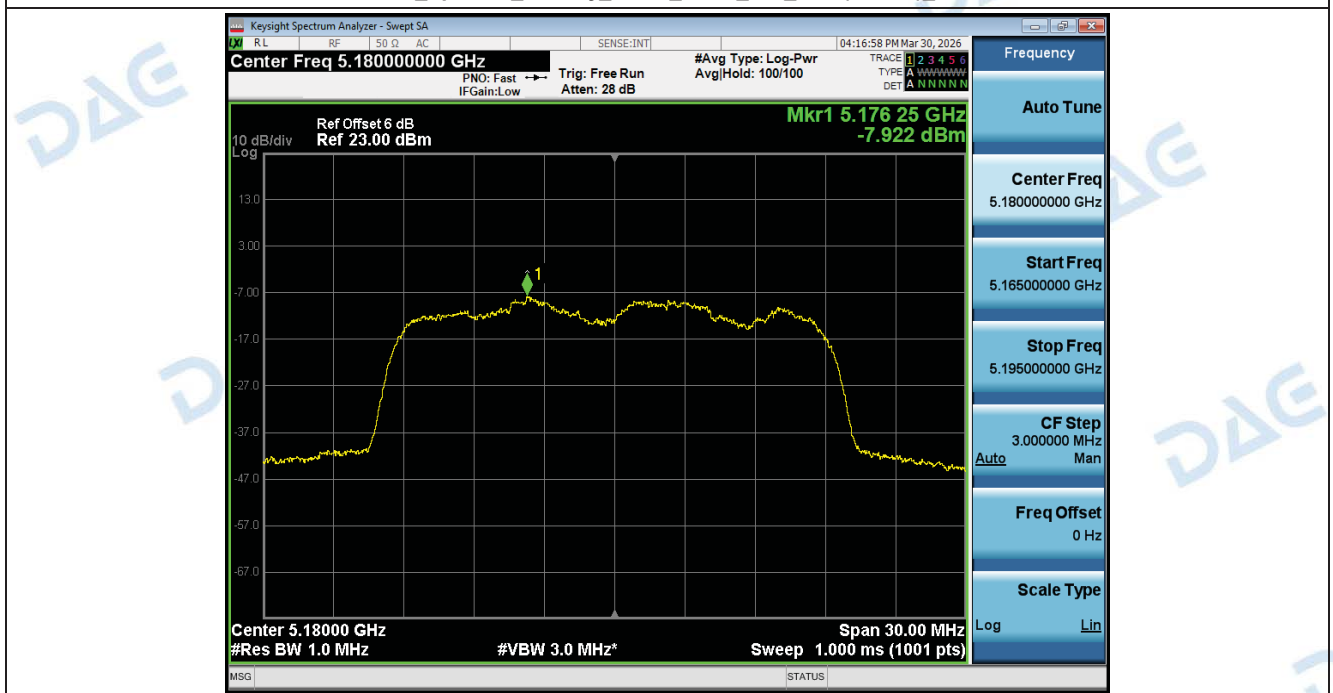
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5180



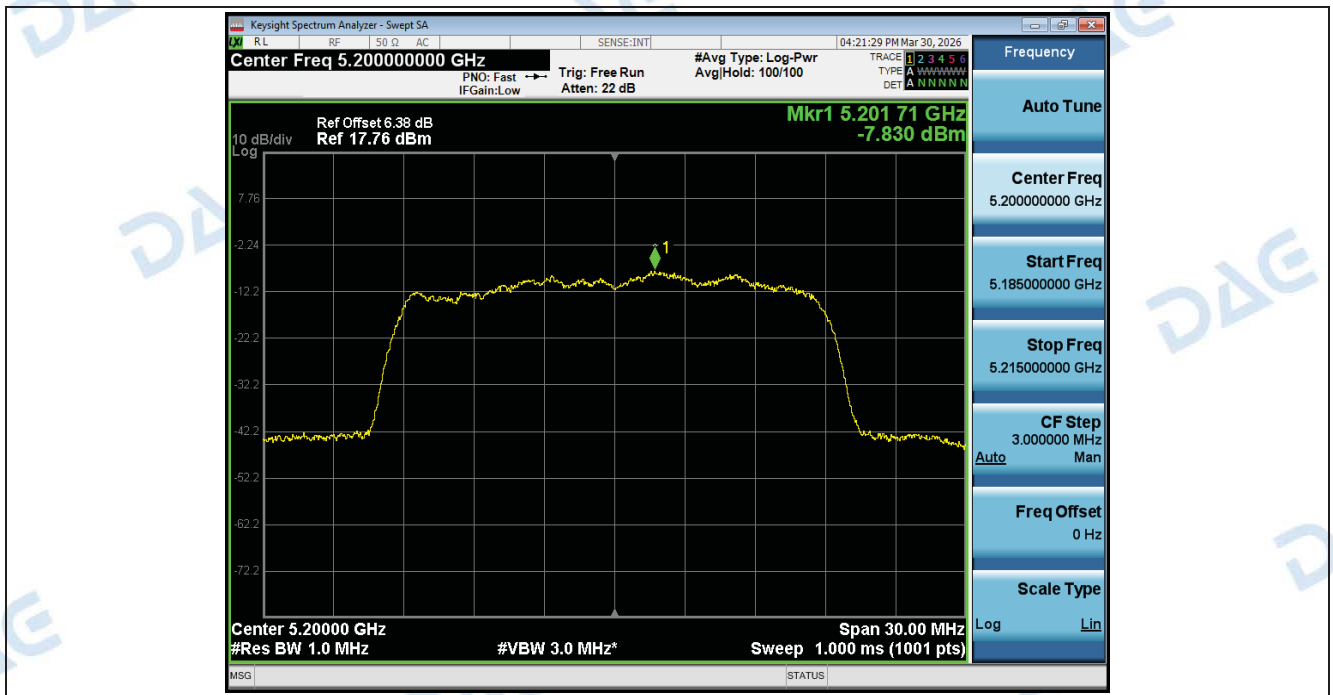
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5240



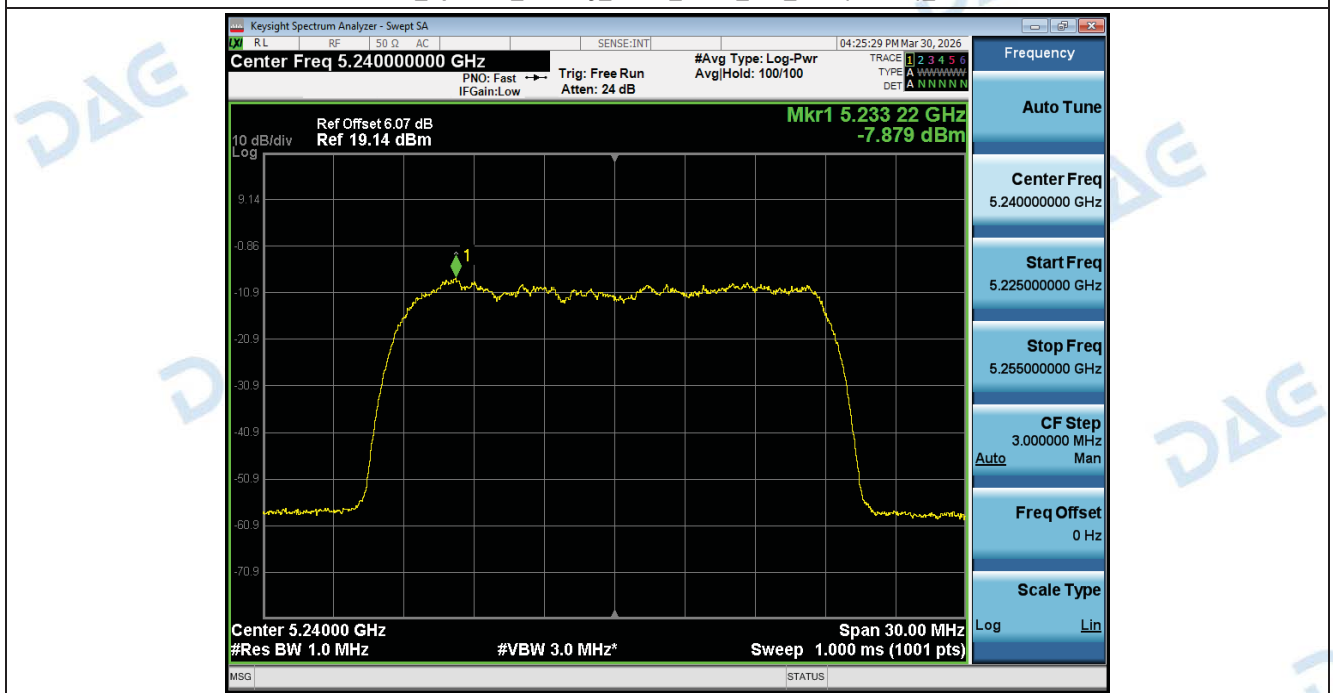
Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT20)_5180



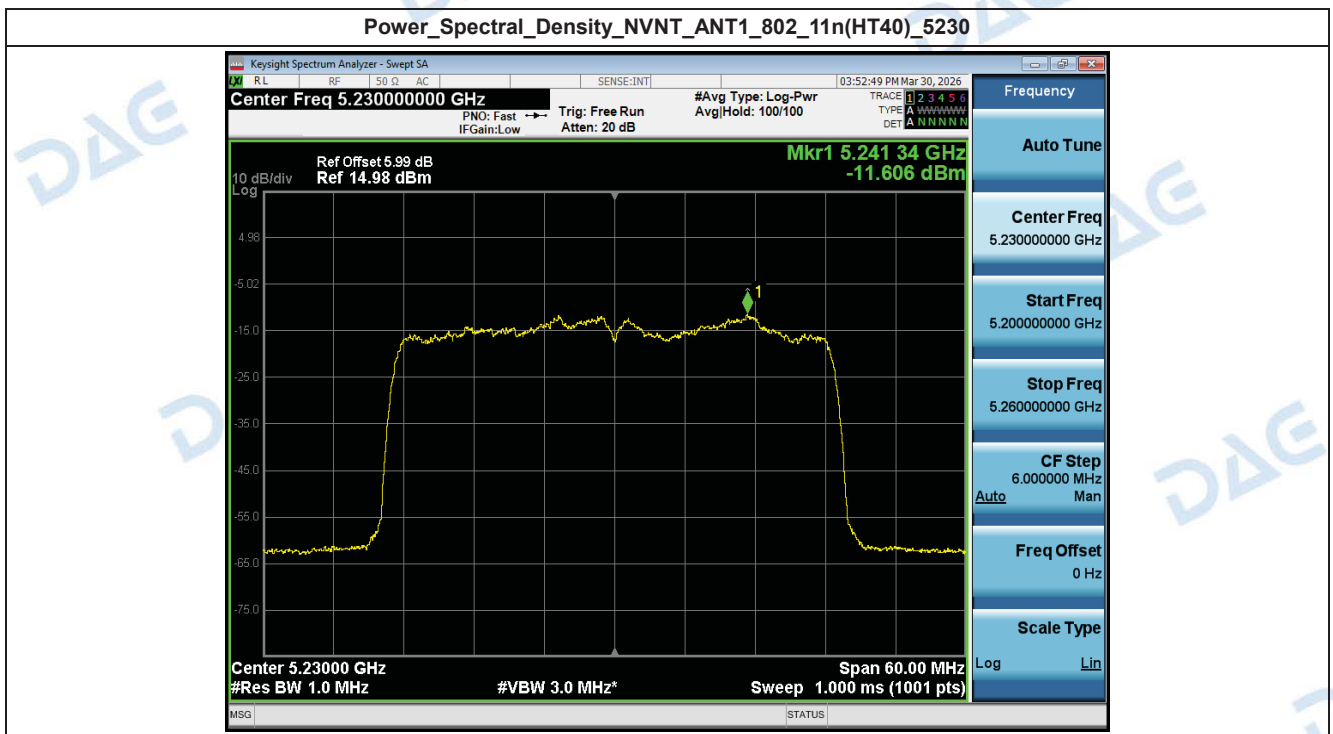
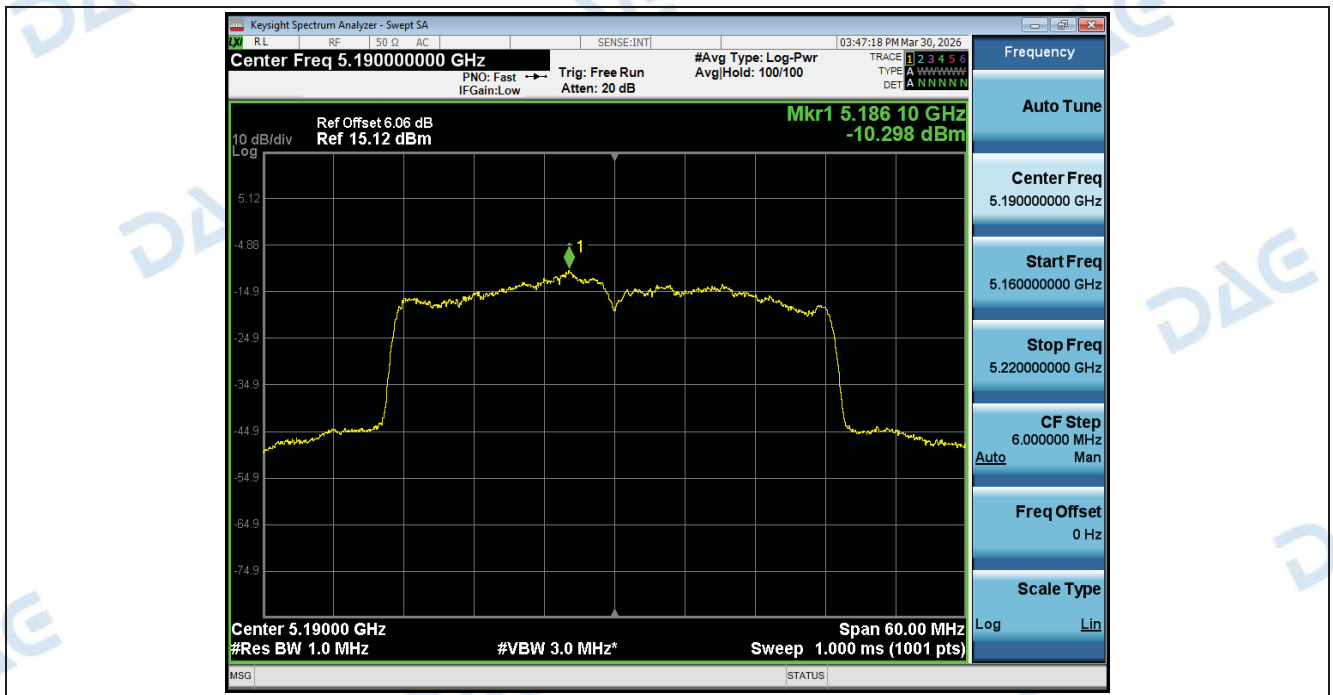
Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT20)_5200



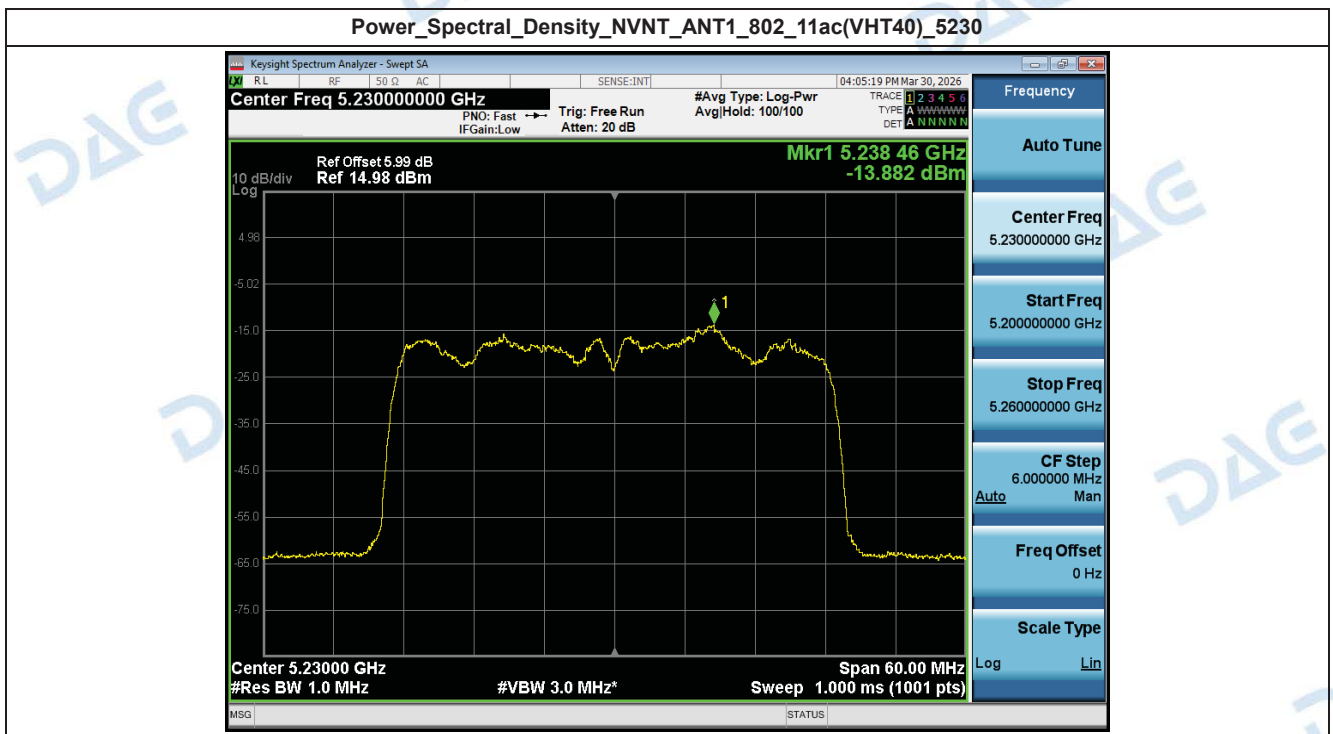
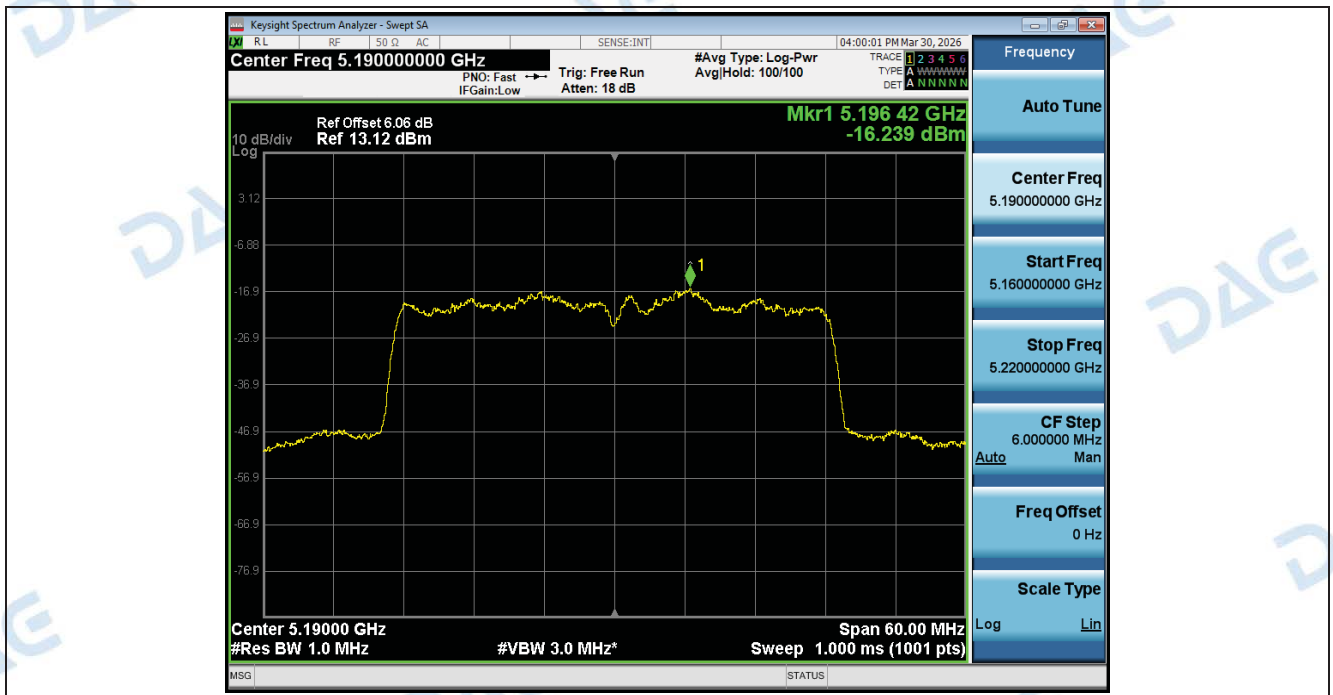
Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT20)_5240



Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_5190



Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT40)_5190



Power_Spectral_Density_NVNT_ANT1_802_11ac(VHT80)_5210

