RF TEST REPORT

For

Shenzhen fen wave Zhilian technology Co., LTD

Product Name: T86 Smart screen

Test Model(s).: F01

Report Reference No.	:	**POCE240319011RL002**
FCC ID	:	**2BFMS-F01**
Applicant's Name	:	Shenzhen fen wave Zhilian technology Co., LTD
Address	:	101, Building 18, Longwangmiao Industrial Zone, Baishixia Community, Fuyong Street, Baoan District, Shenzhen
Testing Laboratory	:	Shenzhen POCE Technology Co., Ltd.
Address	:	H1 Building 102, H Building 1/F, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Test Specification Standard	:	**47 CFR Part 15E**
Date of Receipt	:	March 19, 2024
Date of Test	:	March 19, 2024 to March 28, 2024
Data of Issue	:	March 28, 2024
Result	:	**Pass**

Revision History Of Report

Version	Description	REPORT No.	Issue Date
V1.0	Original	POCE240319011RL002	March 28, 2024

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.

Compiled by:	Supervised by:	Approved by:
Ben Tang	Tom Chen	Machael Mo
Ben Tang /Test Engineer	Tom Chen / Project Engineer	Machael Mo / Manager

CONTENTS

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
Antenna requirement	47 CFR Part 15E		Part 15.203	Pass
Duty Cycle	47 CFR Part 15E	ANSI C63.10-2013 section 12.2 (b)		Pass
Maximum conducted output power	47 CFR Part 15E	ANSI C63.10-2013, section 12.3	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 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 C63.10-2013, section 12.5	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)	Pass
Emission bandwidth and occupied bandwidth	47 CFR Part 15E	ANSI C63.10-2013, section 6.9 & 12.4 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
Band edge emissions (Radiated)	47 CFR Part 15E	ANSI C63.10-2013, 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 C63.10-2013, 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 C63.10-2013, 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	:	Shenzhen fen wave Zhilian technology Co., LTD
Address	:	101, Building 18, Longwangmiao Industrial Zone, Baishixia Community, Fuyong Street, Baoan District, Shenzhen
Manufacturer	:	Shenzhen fen wave Zhilian technology Co., LTD
Address	:	101, Building 18, Longwangmiao Industrial Zone, Baishixia Community, Fuyong Street, Baoan District, Shenzhen

2.2 Description of Device (EUT)

Product Name:	T86 Smart screen
Model/Type reference:	F01
Series Model:	F02,F03
Model Difference:	The product has many models, only the model name is different, and the other parts such as the circuit principle, pcb and electrical structure are the same.
Trade Mark:	Phoebus Link
Power Supply:	DC:12V
Operation Frequency:	802.11a/n(HT20): U-NII Band 1: 5180MHz to 5240MHz; U-NII Band 3: 5745MHz to 5825MHz;
Number of Channels:	802.11a/n(HT20): U-NII Band 1: 4; U-NII Band 3: 5;
Modulation Type:	802.11a: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM);
Antenna Type:	Internal Antenna
Antenna Gain:	5.2GHZ :3.64dbi； 5.8GHZ :5.25dbi
Hardware Version:	V1.0
Software Version:	V1.0

Remark:The Antenna Gain is supplied by the customer.POCE is not responsible for this data and the related calculations associated with it

Operation Frequency each of channel

802.11a/n(HT20)

	U-NII Band 1	U-NII Band 3
Channel	Frequency	Frequency
1	5180 MHz	5745 MHz
2	5200 MHz	5765 MHz
3	5220 MHz	5785 MHz
4	5240 MHz	5805 MHz
5	/	5825 MHz

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:

802.11a/n(HT20)		
	U-NII Band 1	U-NII Band 3
Test channel	**Frequency (MHz)**	**Frequency (MHz)**
Lowest channel	5180 MHz	5745 MHz
Middle channel	5200 MHz	5785 MHz
Highest channel	5240 MHz	5825 MHz

2.3 Description of Test Modes

No	Title	Description
TM1	802.11a mode	Keep the EUT in continuously transmitting mode with 802.11a modulation type. All data rates has been tested and found the data rate @ 6Mbps is the worst case. Only the data of worst case is recorded in the report.
TM2	802.11n mode	Keep the EUT in continuously transmitting mode with 802.11n modulation type. All bandwidth and data rates has been tested and found the data rate @ MCS0 is the worst case. Only the data of worst case is recorded in the report.
Remark:Only the data of the worst mode would be recorded in this report.		

2.4 Description of Support Units

The EUT was tested as an independent device.

2.5 Equipments Used During The Test

Duty Cycle
Maximum conducted output power
Power spectral density
Emission bandwidth and occupied bandwidth

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RF Test Software	TACHOY	RTS-01	V2.0.0.0	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Power divider	MIDEWEST	PWD-2533	SMA-79	2023-05-11	2026-05-10
DC power	HP	66311B	38444359	/	/
RF Sensor Unit	Tachoy Information Technology(shenzhen) Co.,Ltd.	TR1029-2	000001	/	/
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Vector signal generator	Keysight	N5181A	MY48180415	2023-11-09	2024-11-08
Signal generator	Keysight	N5182A	MY50143455	2023-11-09	2024-11-08
Spectrum Analyzer	Keysight	N9020A	MY53420323	2023-12-12	2024-12-11

Undesirable emission limits (above 1GHz)
Band edge emissions (Radiated)
Undesirable emission limits (below 1GHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test software	Farad	EZ -EMC	V1.1.42	/	/
Positioning Controller	/	MF-7802	/	/	/
High Pass filter	ZHINAN	OQHPF1-M1.5-18G-224	6210075	/	/
Amplifier(18-40G)	COM-POWER	AH-1840	10100008-1	2022-04-05	2025-04-04
Horn antenna	COM-POWER	AH-1840 (18-40G)	10100008	2023-04-05	2025-04-04
Loop antenna	ZHINAN	ZN30900C	ZN30900C	2021-07-05	2024-07-04
Cable(LF)#2	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(LF)#1	Schwarzbeck	/	/	2024-02-19	2025-02-18
Cable(HF)#2	Schwarzbeck	AK9515E	96250	2024-02-19	2025-02-18
Cable(HF)#1	Schwarzbeck	SYV-50-3-1	/	2024-02-19	2025-02-18
Power amplifier(LF)	Schwarzbeck	BBV9743	9743-151	2023-06-13	2024-06-12
Power amplifier(HF)	Schwarzbeck	BBV9718	9718-282	2023-06-13	2024-06-12
Wideband radio communication tester	R&S	CMW500	113410	2023-06-13	2024-06-12
Spectrum Analyzer	R&S	FSP30	1321.3008K40 -101729-jR	2023-06-14	2024-06-13
Horn Antenna	Sunol Sciences	DRH-118	A091114	2023-05-13	2025-05-12
Broadband Antenna	Sunol Sciences	JB6 Antenna	A090414	2023-05-21	2025-05-20
Test Receiver	R&S	ESCI	102109	2023-06-13	2024-06-12

2.6 Statement Of The Measurement Uncertainty

Test Item	Measurement Uncertainty
Duty cycle	±3.1%
RF conducted power	±0.733dB
RF power density	±0.234%
Occupied Bandwidth	±3.63%
Radiated Emission (Above 1GHz)	±5.46dB
Radiated Emission (Below 1GHz)	±5.79dB
Note: (1) This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.	

2.7 Authorizations

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252

Identification of the Responsible Testing Location

Company Name:	Shenzhen POCE Technology Co., Ltd.
Address:	101-102 Building H5 & 1/F., Building H, Hongfa Science & Technology Park, Tangtou, Shiyan, Bao'an District, Shenzhen, Guangdong, China
Phone Number:	+86-13267178997
Fax Number:	86-755-29113252
FCC Registration Number:	0032847402
Designation Number:	CN1342
Test Firm Registration No.:	778666
A2LA Certificate Number:	6270.01

2.8 Announcement

(1) The test report reference to the report template version v1.0.

(2) The test report is invalid if not marked with the signatures of the persons responsible for preparing, reviewing and approving the test report.

(3) The test report is invalid if there is any evidence and/or falsification.

(4) This document may not be altered or revised in any way unless done so by POCE and all revisions are duly noted in the revisions section.

(5) Content of the test report, in part or in full, cannot be used for publicity and/or promotional purposes without prior written approval from the laboratory.

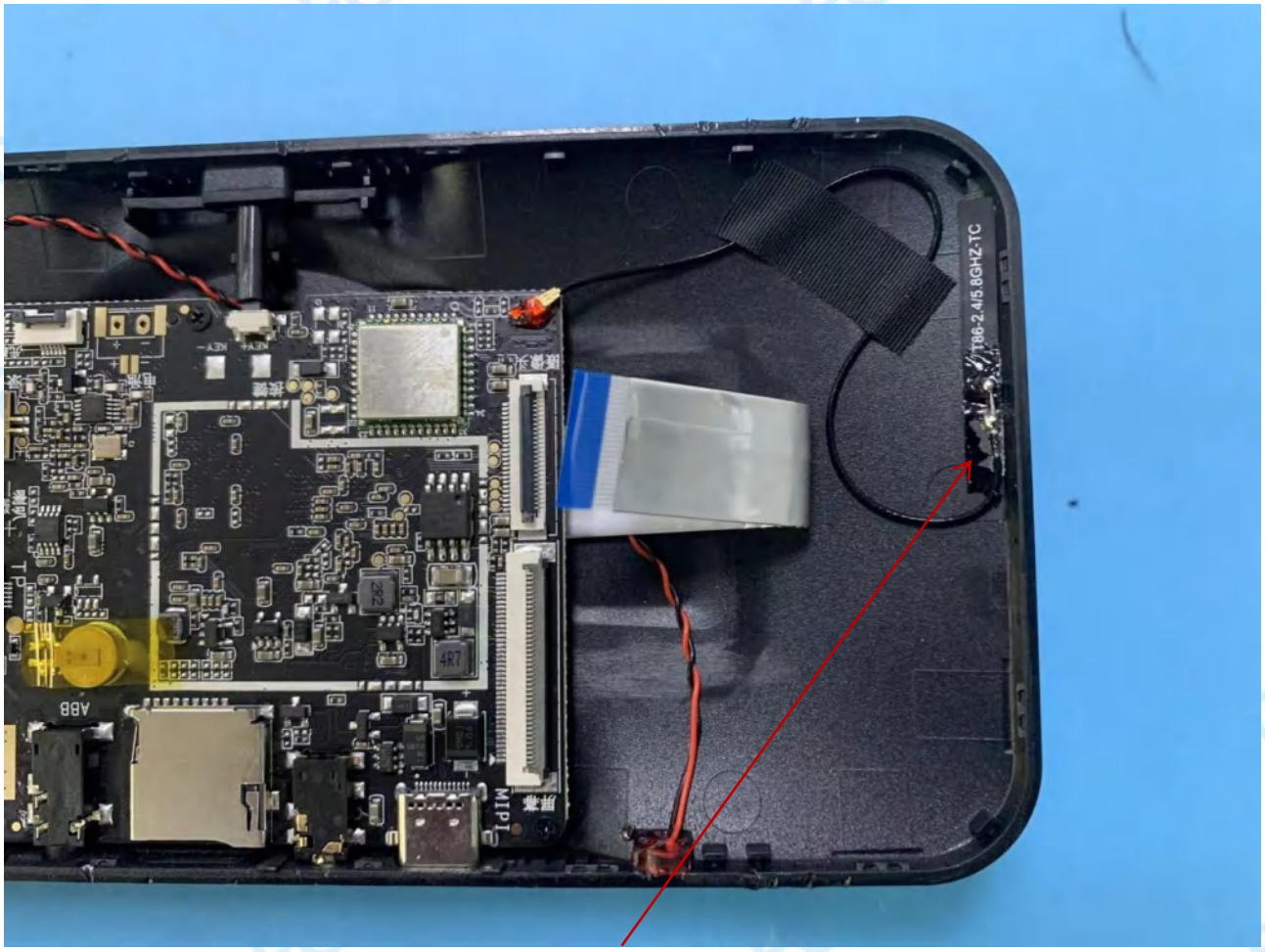
(6) We hereby declare that the laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant. the laboratory is not responsible for the accuracy of the information provided by the client. When the information provided by the customer may affect the effectiveness of the results, the responsibility lies with the customer, and the laboratory does not assume any responsibility.

3 Evaluation Results (Evaluation)

3.1 Antenna requirement

Test Requirement:	Refer to 47 CFR Part 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall 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.

3.1.1 Conclusion:



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4 Radio Spectrum Matter Test Results (RF)

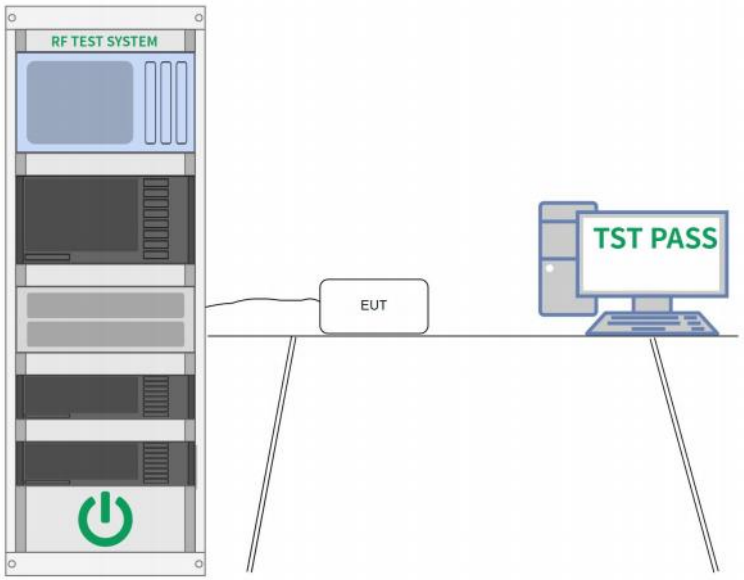
4.1 Duty Cycle

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 C63.10-2013 section 12.2 (b)
Procedure:	i) Set the center frequency of the instrument to the center frequency of the transmission. ii) Set RBW >= EBW if possible; otherwise, set RBW to the largest available value. iii) Set VBW >= 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.

4.1.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	48.9 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

4.1.2 Test Setup Diagram:



4.1.3 Test Data:

Please Refer to Appendix for Details.

4.2 Maximum conducted output power

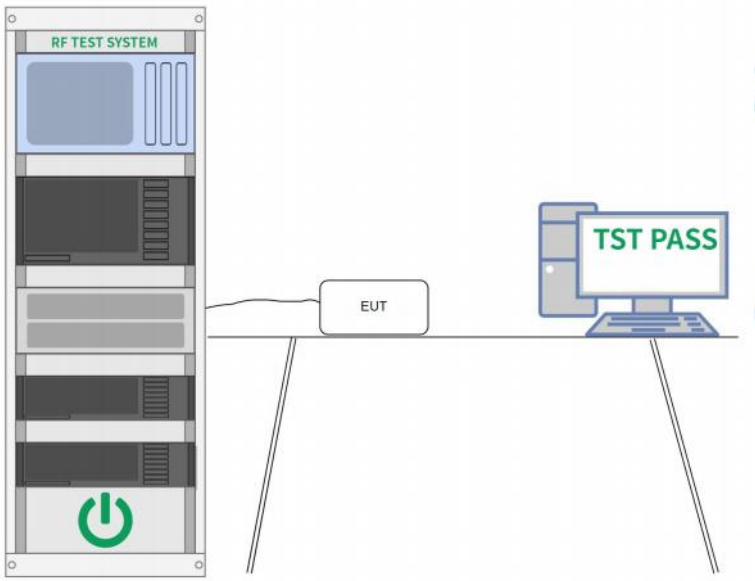
Test Requirement:	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)
Test Limit:	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W 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. The maximum e.i.r.p. at any elevation angle above 30 degrees as measured from the horizon must not exceed 125 mW (21 dBm). For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W 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 fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum conducted output power. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum conducted output power is required for each 1 dB of antenna gain in excess of 23 dBi. 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. 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 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 C63.10-2013, section 12.3
Procedure:	Refer to ANSI C63.10-2013 section 12.3

4.2.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	48.9 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

4.2.2 Test Setup Diagram:



4.2.3 Test Data:

Please Refer to Appendix for Details.

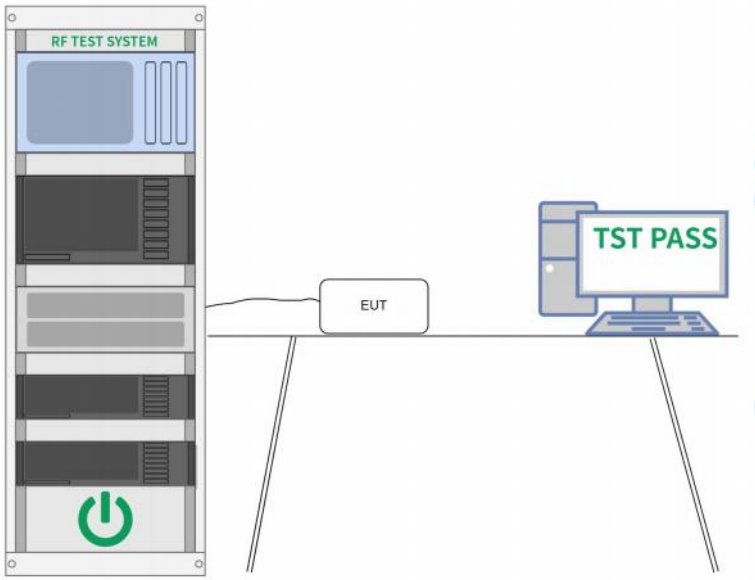
4.3 Power spectral density

Test Requirement:	47 CFR Part 15.407(a)(1)(i) 47 CFR Part 15.407(a)(1)(ii) 47 CFR Part 15.407(a)(1)(iii) 47 CFR Part 15.407(a)(1)(iv) 47 CFR Part 15.407(a)(3)(i)
Test Limit:	For an outdoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 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 an indoor access point operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 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 fixed point-to-point access points operating in the band 5.15-5.25 GHz, the maximum power spectral density shall not exceed 17 dBm in any 1 megahertz band. Fixed point-to-point U-NII devices may employ antennas with directional gain up to 23 dBi without any corresponding reduction in the maximum power spectral density. For fixed point-to-point transmitters that employ a directional antenna gain greater than 23 dBi, a 1 dB reduction in maximum power spectral density is required for each 1 dB of antenna gain in excess of 23 dBi. 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. 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 C63.10-2013, section 12.5
Procedure:	Refer to ANSI C63.10-2013, section 12.5

4.3.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	48.9 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

4.3.2 Test Setup Diagram:



4.3.3 Test Data:

Please Refer to Appendix for Details.

4.4 Emission bandwidth and occupied bandwidth

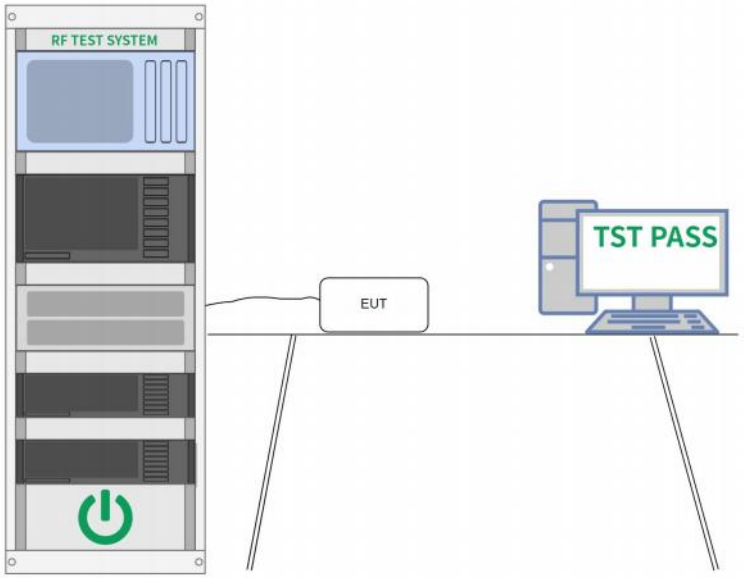
Test Requirement:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: 47 CFR Part 15.407(e)
Test Limit:	U-NII 1, U-NII 2A, U-NII 2C: No limits, only for report use. U-NII 3, U-NII 4: Within the 5.725-5.850 GHz and 5.850-5.895 GHz bands, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.
Test Method:	ANSI C63.10-2013, section 6.9 & 12.4 KDB 789033 D02, Clause C.2
Procedure:	Emission bandwidth: a) Set RBW = approximately 1% of the emission bandwidth. b) Set the VBW > RBW. c) Detector = peak. d) Trace mode = max hold. e) 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: a) 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. b) 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. c) 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 givenin 4.1.5.2. d) Step a) through step c) might require iteration to adjust within the specified range. e) 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. f) Use the 99% power bandwidth function of the instrument (if available) and report the measured bandwidth. g) 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).

Procedure:	6 dB emission bandwidth: a) Set RBW = 100 kHz. b) Set the video bandwidth (VBW) ≥ 3 >= 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.

4.4.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	48.9 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

4.4.2 Test Setup Diagram:



4.4.3 Test Data:

Please Refer to Appendix for Details.

4.5 Band edge emissions (Radiated)

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.

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			

[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 § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply 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:

Test Limit:

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 C63.10-2013, section 12.7.4, 12.7.6, 12.7.7
Procedure:	Above 1GHz: a. 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. b. The EUT was set 3 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 peak or average 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 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. 3. 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.

4.5.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	48.9 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

4.5.2 Test Data:

UNII-1_20M_5180MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5100	53.49	0.43	53.92	68.2	-14.28	peak	P
2	5150	53.61	0.43	54.04	68.2	-14.16	peak	P
3	5135	56.29	0.43	56.72	68.2	-11.48	peak	P

UNII-1_20M_5180MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5300	52.80	0.56	53.36	68.2	-14.84	peak	P
2	5330	51.55	0.58	52.13	68.2	-16.07	peak	P
3	5350	51.58	0.6	52.18	68.2	-16.02	peak	P

UNII-3_20M_5240MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5100	53.50	0.91	54.41	68.2	-13.79	peak	P
2	5150	51.58	0.91	52.49	68.2	-15.71	peak	P
3	5135	51.78	0.9	52.68	68.2	-15.52	peak	P

UNII-1_20M_5240MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5300	56.20	0.91	57.11	68.2	-11.09	peak	P
2	5330	54.81	0.91	55.72	68.2	-12.48	peak	P
3	5350	52.37	0.9	53.27	68.2	-14.93	peak	P

UNII-1_40M_5755MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650	52.32	0.79	53.11	68.2	-15.09	peak	P
2	5700	54.98	0.81	55.79	68.2	-12.41	peak	P
3	5720	58.15	0.81	58.96	68.2	-9.24	peak	P

UNII-1_40M_5755MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650	51.35	0.79	52.14	68.2	-16.06	peak	P
2	5700	53.78	0.81	54.59	105.6	-51.01	peak	P
3	5720	59.77	0.81	60.58	110.8	-50.22	peak	P

UNII-1_40M_5795MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5850	58.84	0.91	59.75	122.2	-62.45	peak	P
2	5875	53.95	0.91	54.86	110.8	-55.94	peak	P
3	5925	53.29	0.9	54.19	68.2	-14.01	peak	P

UNII-1_40M_5795MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5850	58.23	0.91	59.14	122.2	-63.06	peak	P
2	5875	54.16	0.91	55.07	110.8	-55.73	peak	P
3	5925	51.67	0.9	52.57	68.2	-15.63	peak	P

UNII-3_20M_5745MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650	52.80	0.91	53.71	68.2	-14.49	peak	P
2	5700	53.84	0.91	54.75	105.2	-50.45	peak	P
3	5720	58.34	0.9	59.24	110.8	-51.56	peak	P

UNII-3_20M_5745MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650	52.63	0.91	53.54	68.2	-14.66	peak	P
2	5700	54.72	0.91	55.63	105.2	-49.57	peak	P
3	5720	60.29	0.9	61.19	110.8	-49.61	peak	P

UNII-3_20M_5825MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5850	58.29	0.91	59.20	122.2	-63.00	peak	P
2	5875	53.01	0.91	53.92	110.8	-56.88	peak	P
3	5925	51.59	0.9	52.49	68.2	-15.71	peak	P

UNII-3_20M_5825MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5850	52.79	0.91	53.70	122.2	-68.50	peak	P
2	5875	51.49	0.91	52.40	110.8	-58.40	peak	P
3	5925	48.88	0.9	49.78	68.2	-18.42	peak	P

UNII-3_40M_5755MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650	52.56	0.79	53.35	68.2	-14.85	peak	P
2	5700	54.41	0.81	55.22	105.2	-49.98	peak	P
3	5720	58.42	0.81	59.23	110.8	-51.57	peak	P

UNII-3_40M_5755MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5650	53.08	0.79	53.87	68.2	-14.33	peak	P
2	5700	53.02	0.81	53.83	105.2	-51.37	peak	P
3	5720	59.89	0.81	60.70	110.8	-50.10	peak	P

UNII-3_40M_5795MHz_Horizontal								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5850	58.17	0.91	59.08	122.2	-63.12	peak	P
2	5875	53.58	0.91	54.49	110.8	-56.31	peak	P
3	5925	52.49	0.9	53.39	68.2	-14.81	peak	P

UNII-3_40M_5795MHz_Vertical								
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	5850	59.27	0.91	60.18	122.2	-62.02	peak	P
2	5875	54.90	0.91	55.81	110.8	-54.99	peak	P
3	5925	51.37	0.9	52.27	68.2	-15.93	peak	P

4.6 Undesirable emission limits (below 1GHz)

<table>
<tr><td>Test Requirement:</td><td>47 CFR Part 15.407(b)(9)</td></tr>
<tr><td>Test Limit:</td><td>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.</td></tr>
<tr><td>Test Method:</td><td>ANSI C63.10-2013, section 12.7.4, 12.7.5</td></tr>
</table>

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: a. 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. b. The EUT was set 3 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 peak or average 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.

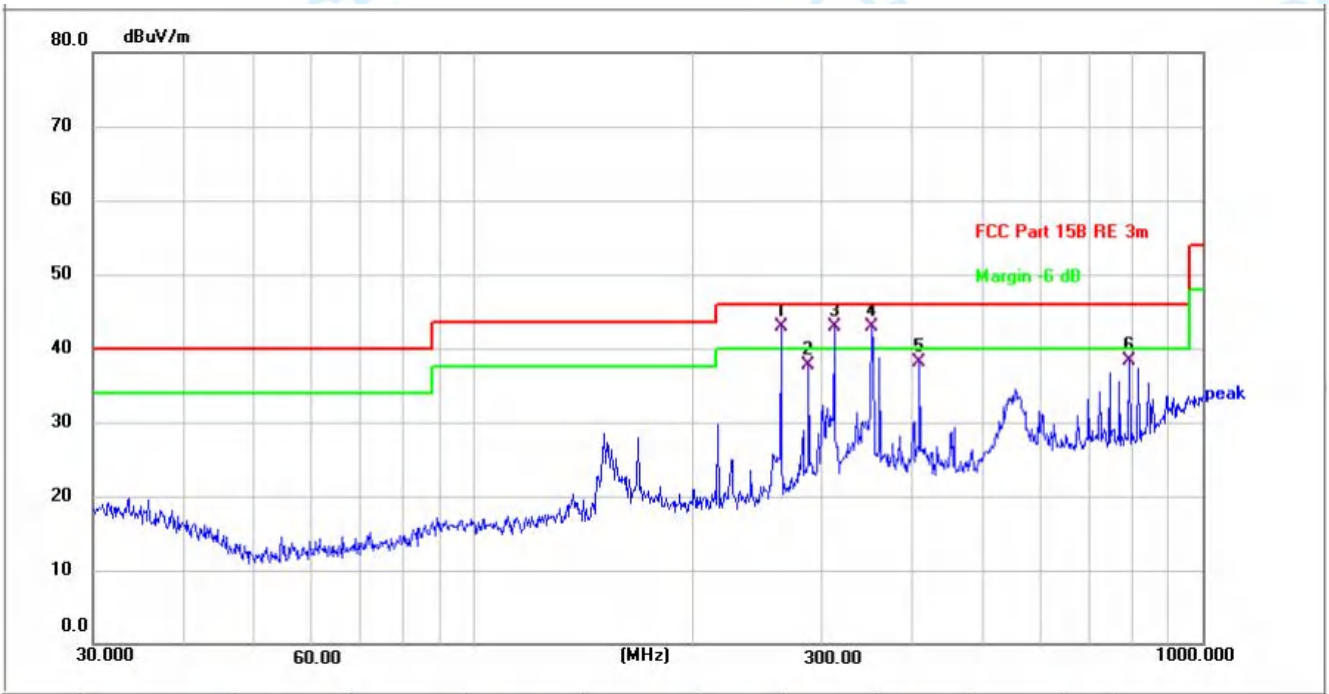
	Remark: 1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor 2. Scan from 18GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported. 3. 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.

4.6.1 E.U.T. Operation:

Operating Environment:					
Temperature:	22.7 °C	Humidity:	48.9 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

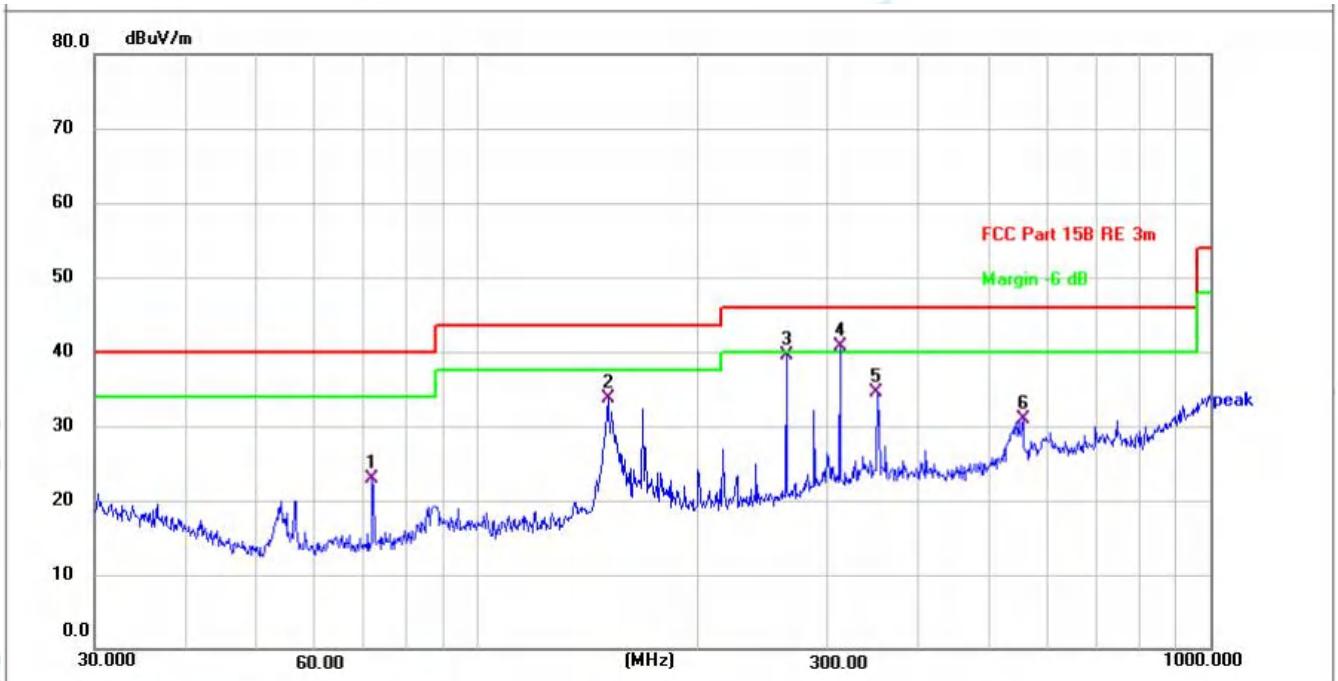
4.6.2 Test Data:

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



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 !	263.8190	44.26	-1.34	42.92	46.00	-3.08	QP			P	
2	287.9904	37.67	0.01	37.68	46.00	-8.32	QP			P	
3 *	312.1794	41.99	0.95	42.94	46.00	-3.06	QP			P	
4 !	351.7080	41.14	1.75	42.89	46.00	-3.11	QP			P	
5	408.9460	36.81	1.34	38.15	46.00	-7.85	QP			P	
6	793.3960	32.36	5.93	38.29	46.00	-7.71	QP			P	

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



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	71.8320	31.26	-8.42	22.84	40.00	-17.16	QP	100		P	
2	150.5378	37.51	-3.72	33.79	43.50	-9.71	QP	100		P	
3	263.8190	41.16	-1.56	39.60	46.00	-6.40	QP	100		P	
4 *	312.1794	40.52	0.10	40.62	46.00	-5.38	QP	100		P	
5	351.7079	33.70	0.79	34.49	46.00	-11.51	QP	100		P	
6	554.8254	28.05	2.87	30.92	46.00	-15.08	QP	100		P	

4.7 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.

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			

[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 § 15.209shall be demonstrated using measurement instrumentation employing a CISPR quasi-peak detector. Above 1000 MHz, compliance with the emission limits in § 15.209shall be demonstrated based on the average value of the measured emissions. The provisions in § 15.35apply 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:

Test Limit:

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 C63.10-2013, section 12.7.4, 12.7.6, 12.7.7

Procedure:	Above 1GHz: a. 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. b. The EUT was set 3 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 peak or average 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 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. 3. 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.

4.7.1 E.U.T. Operation:

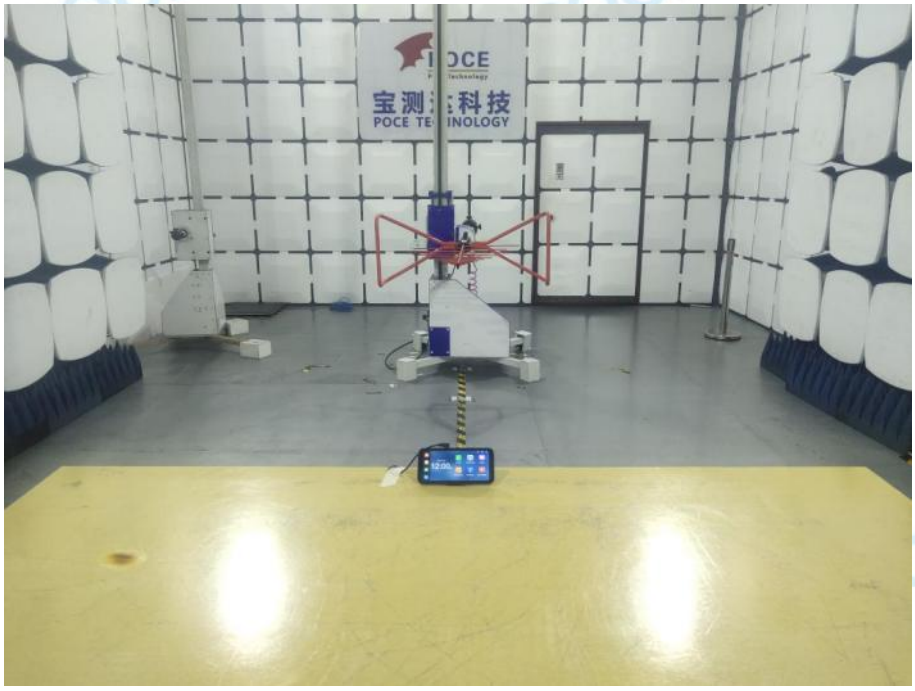
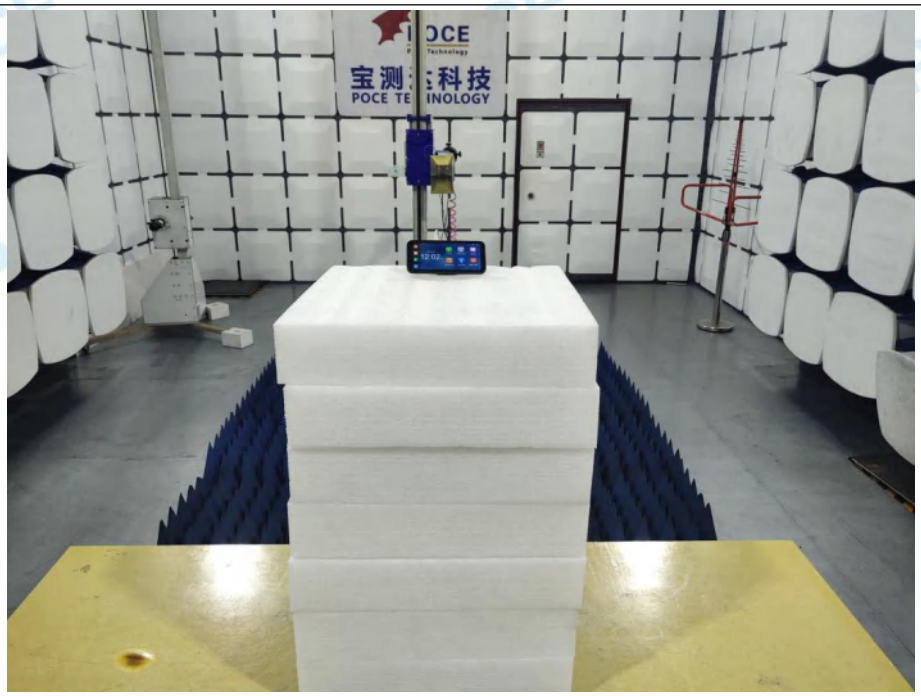
Operating Environment:					
Temperature:	22.7 °C	Humidity:	48.9 %	Atmospheric Pressure:	101 kPa
Pretest mode:	TM1, TM2				
Final test mode:	TM1, TM2				

4.7.2 Test Data:

UNII-1_20M-802.11a mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360	45.66	9.54	55.20	68.2	-13.00	Vertical
10360	47.57	9.54	57.11	68.2	-11.09	Horizontal
UNII-1_20M-802.11a mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10360	31.86	9.54	41.40	54	-12.60	Vertical
10360	31.96	9.54	41.50	54	-12.50	Horizontal
UNII-1_20M-802.11a mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400	47.32	9.64	56.96	68.2	-11.24	Vertical
10400	45.69	9.64	55.33	68.2	-12.87	Horizontal
UNII-1_20M-802.11a mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10400	32.08	9.64	41.72	54	-12.28	Vertical
10400	32.62	9.64	42.26	54	-11.74	Horizontal
UNII-1_20M-802.11a mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480	45.71	9.74	55.45	68.2	-12.75	Vertical
10480	47.45	9.74	57.19	68.2	-11.01	Horizontal
UNII-1_20M-802.11a mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
10480	31.17	9.74	40.91	54	-13.09	Vertical
10480	31.38	9.74	41.12	54	-12.88	Horizontal

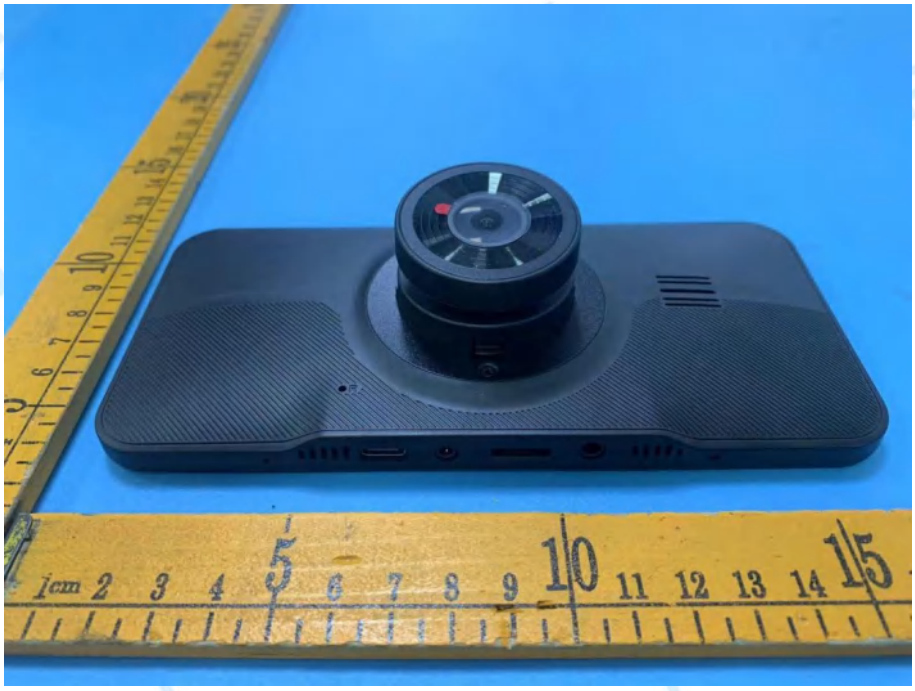
UNII-3_20M-802.11a mode Lowest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490	47.04	9.54	56.58	68.2	-11.62	Vertical
11490	46.49	9.54	56.03	68.2	-12.17	Horizontal
UNII-3_20M-802.11a mode Lowest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11490	32.24	9.54	41.78	54	-12.22	Vertical
11490	33.04	9.54	42.58	54	-11.42	Horizontal
UNII-3_20M-802.11a mode Middle channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570	46.71	9.64	56.35	68.2	-11.85	Vertical
11570	47.55	9.64	57.19	68.2	-11.01	Horizontal
UNII-3_20M-802.11a mode Middle channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11570	33.15	9.64	42.79	54	-11.21	Vertical
11570	31.56	9.64	41.20	54	-12.80	Horizontal
UNII-3_20M-802.11a mode Highest channel (Peak Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650	45.60	9.74	55.34	68.2	-12.86	Vertical
11650	45.03	9.74	54.77	68.2	-13.43	Horizontal
802.11a mode Highest channel (Average Value)						
Frequency (MHz)	Read Level (dBuV)	Correct factor(dB)	Level (dBuV/m)	Limit Line (dBuV/m)	Over Limit (dB)	polarization
11650	33.03	9.74	42.77	54	-11.23	Vertical
11650	31.67	9.74	41.41	54	-12.59	Horizontal

5 TEST SETUP PHOTOS

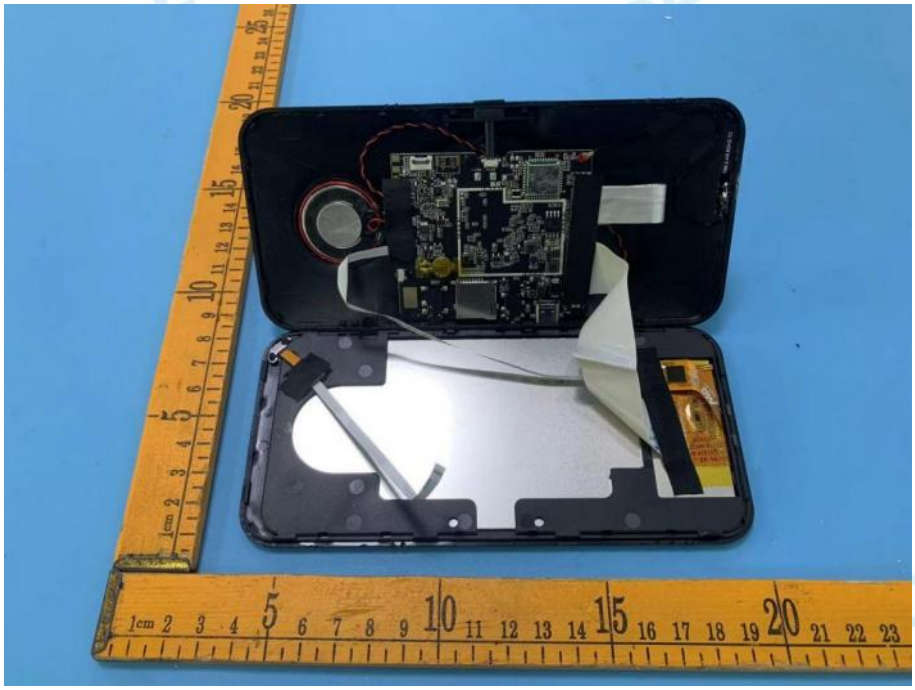
Emissions in frequency bands (below 1GHz)

Emissions in frequency bands (above 1GHz)


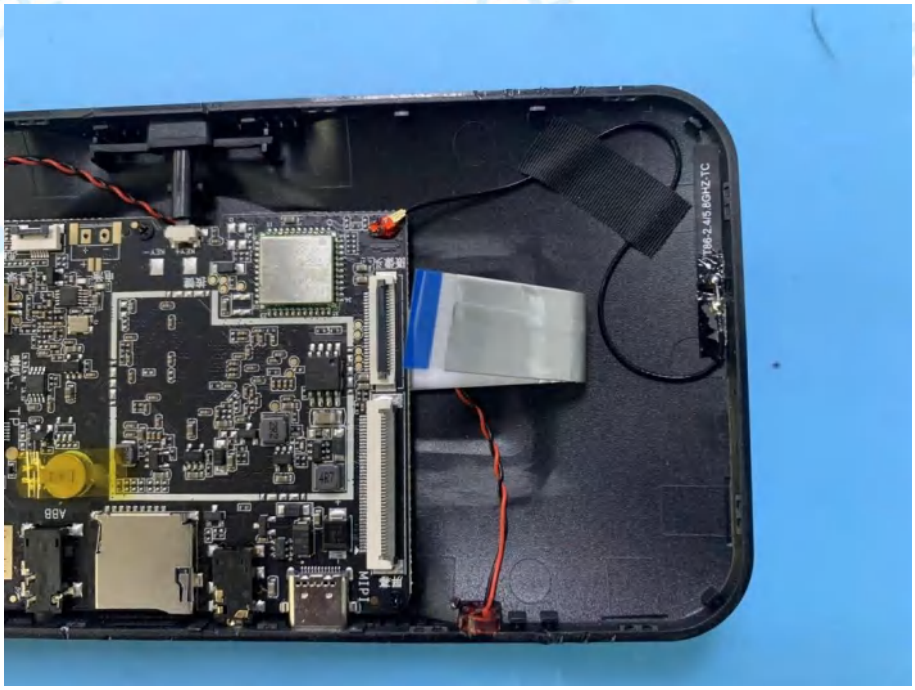
6 PHOTOS OF THE EUT

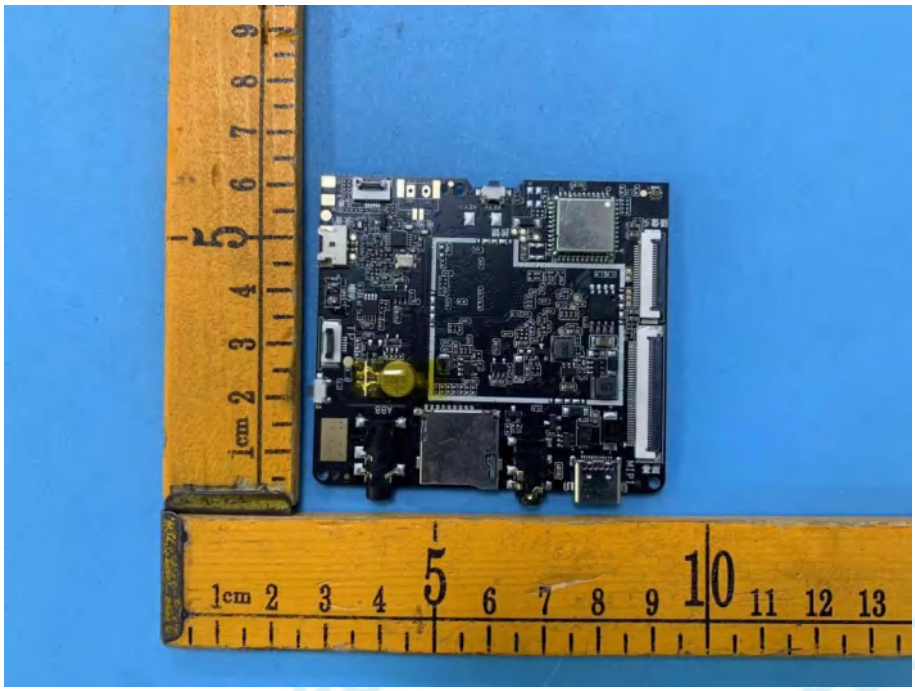
External

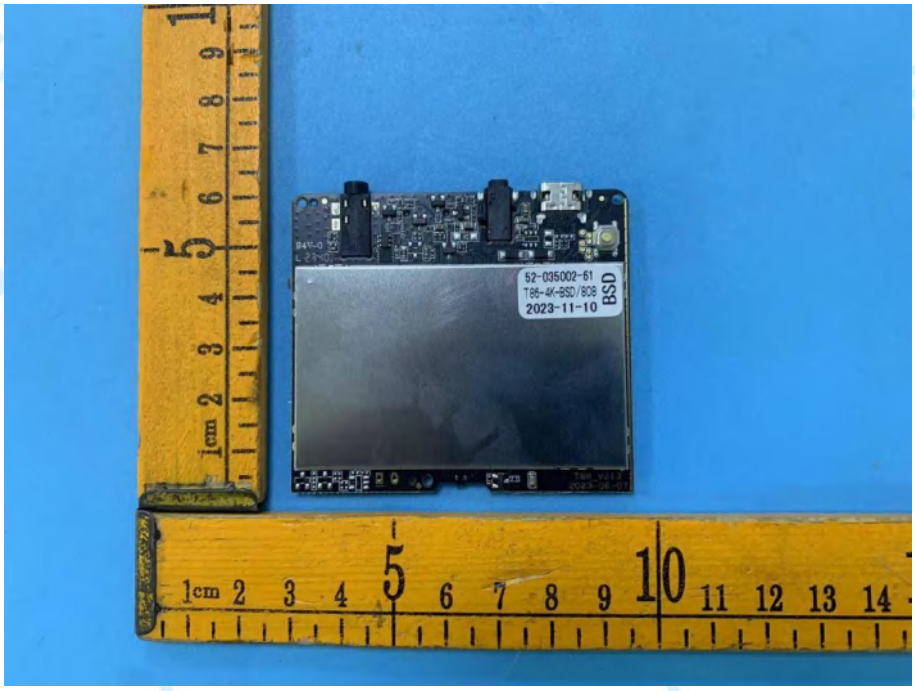



Internal





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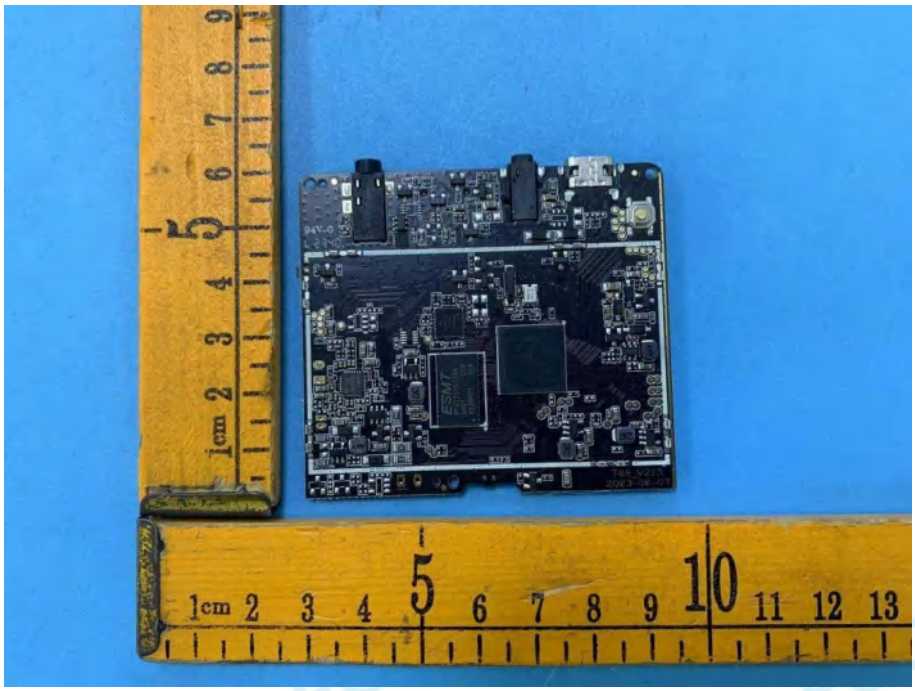
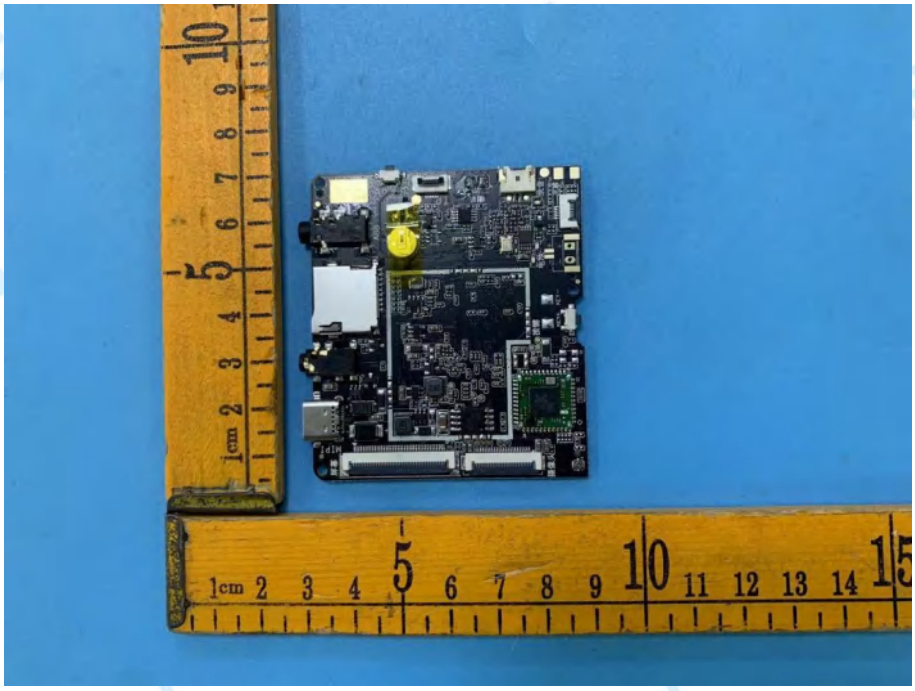
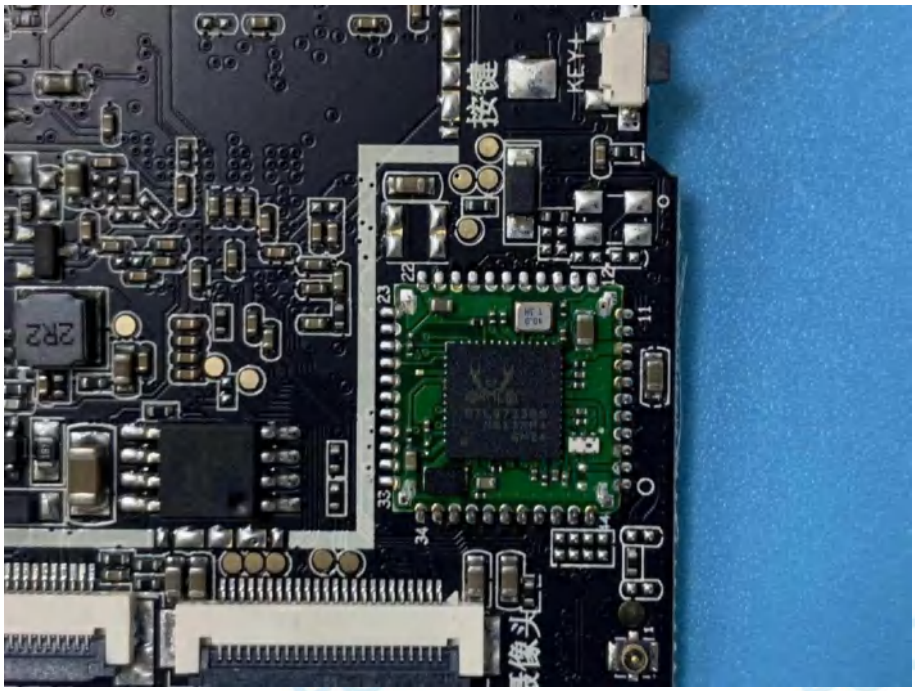
BSD






KEY4
2R2

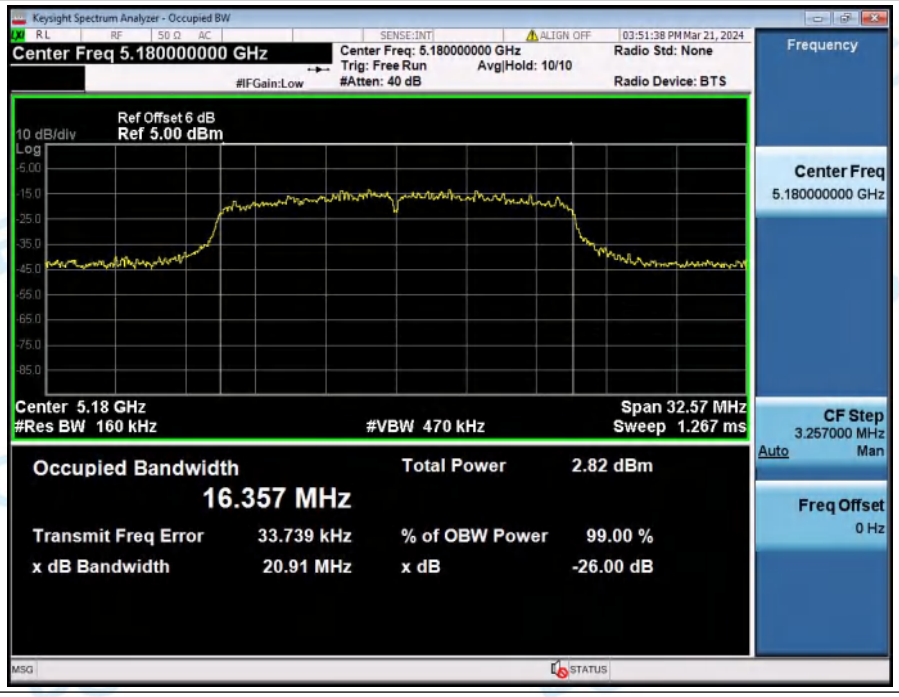
Appendix--5.2GWIFI

HT240319011--F01--5.2G--FCC
FCC_5.2G_WIFI (Part15.407) Test Data

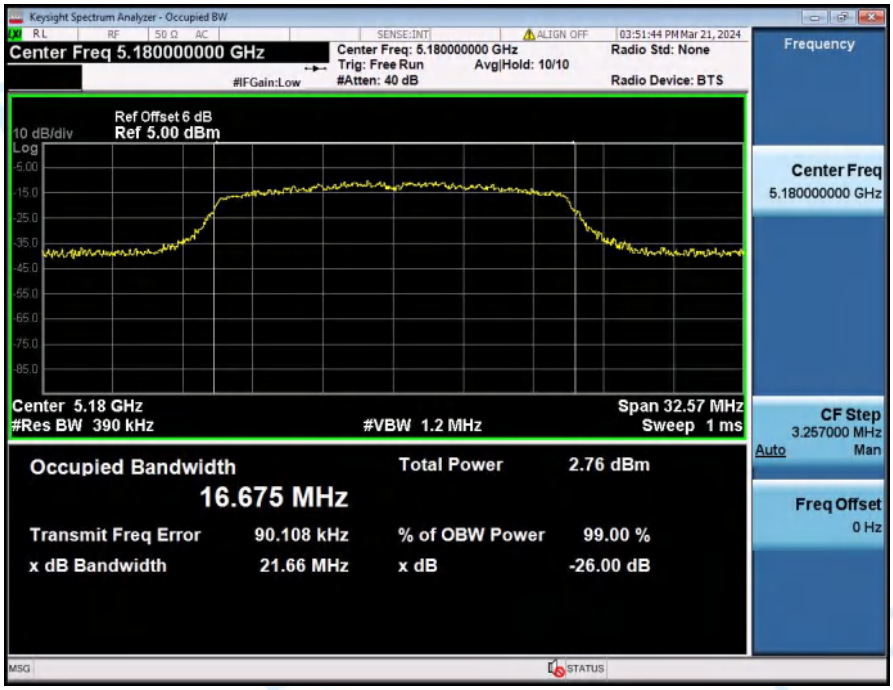
1. -26dB and 99% Emission Bandwidth

Condition	Antenna	Modulation	Frequency(MHz)	-26dB_Emission_Bandwidth(MHz)	Occupied Bandwidth(MHz)
NVNT	ANT1	802.11a	5180.00	21.66	16.36
NVNT	ANT1	802.11a	5200.00	20.74	16.31
NVNT	ANT1	802.11a	5240.00	20.96	16.30
NVNT	ANT1	802.11n(HT20)	5180.00	27.74	17.50
NVNT	ANT1	802.11n(HT20)	5200.00	21.92	17.47
NVNT	ANT1	802.11n(HT20)	5240.00	28.29	17.47
NVNT	ANT1	802.11n(HT40)	5190.00	71.19	35.80
NVNT	ANT1	802.11n(HT40)	5230.00	71.35	35.90

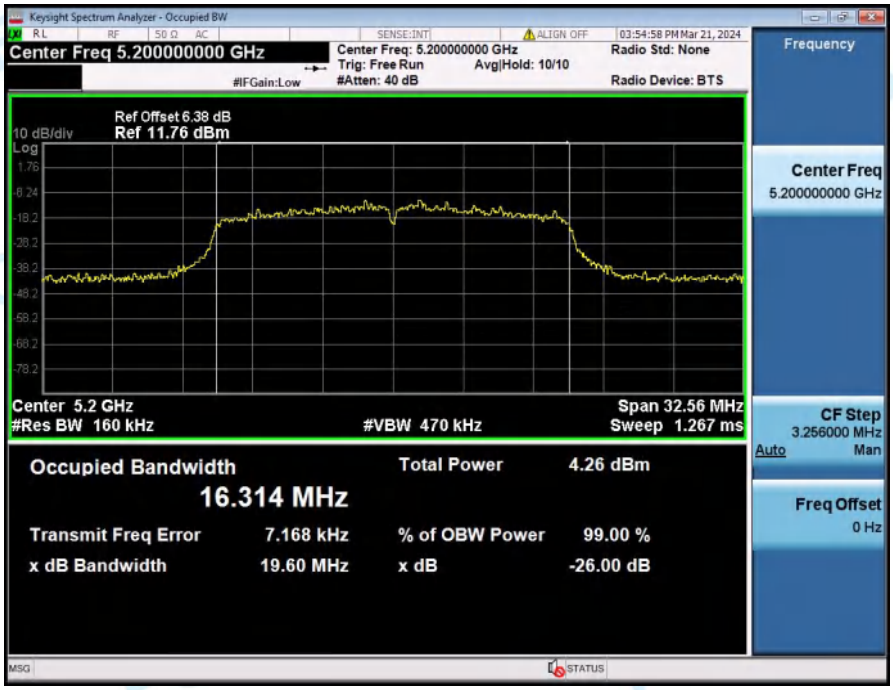
99%_OCB_NVNT_ANT1_802_11a_5180



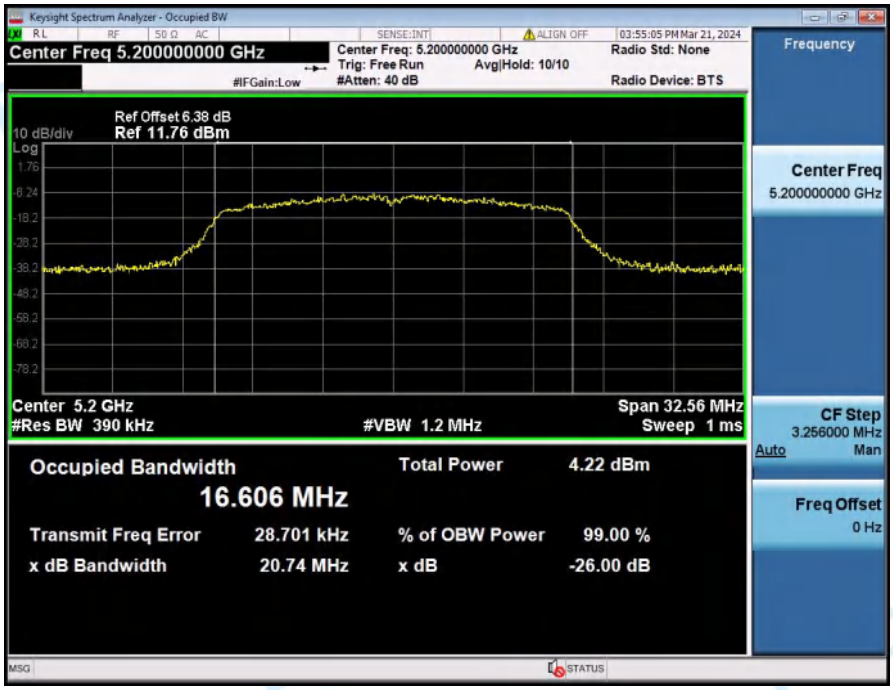
-26BW_NVNT_ANT1_802_11a_5180



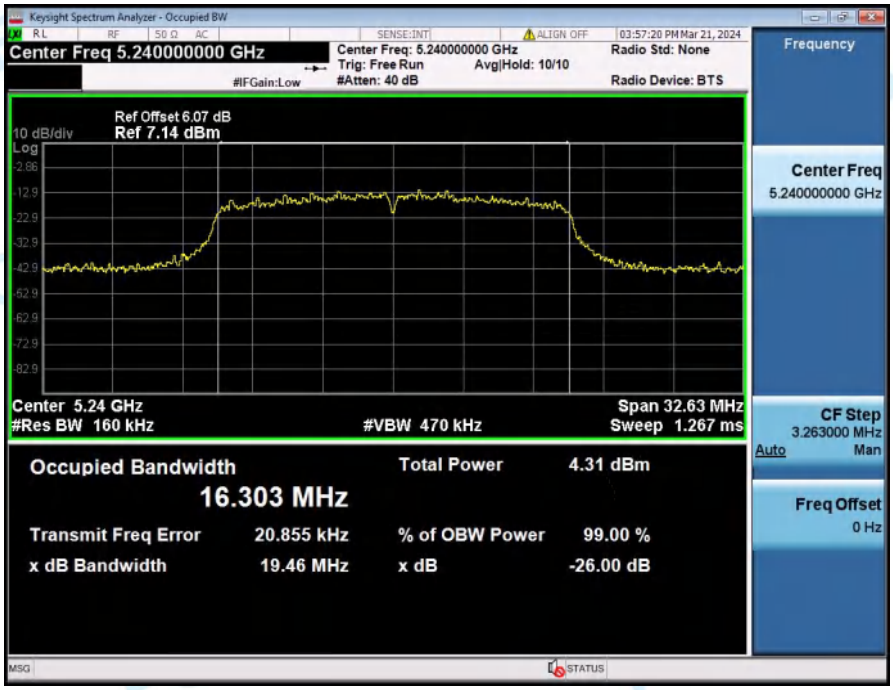
99%_OCB_NVNT_ANT1_802_11a_5200



-26BW_NVNT_ANT1_802_11a_5200



99%_OCB_NVNT_ANT1_802_11a_5240



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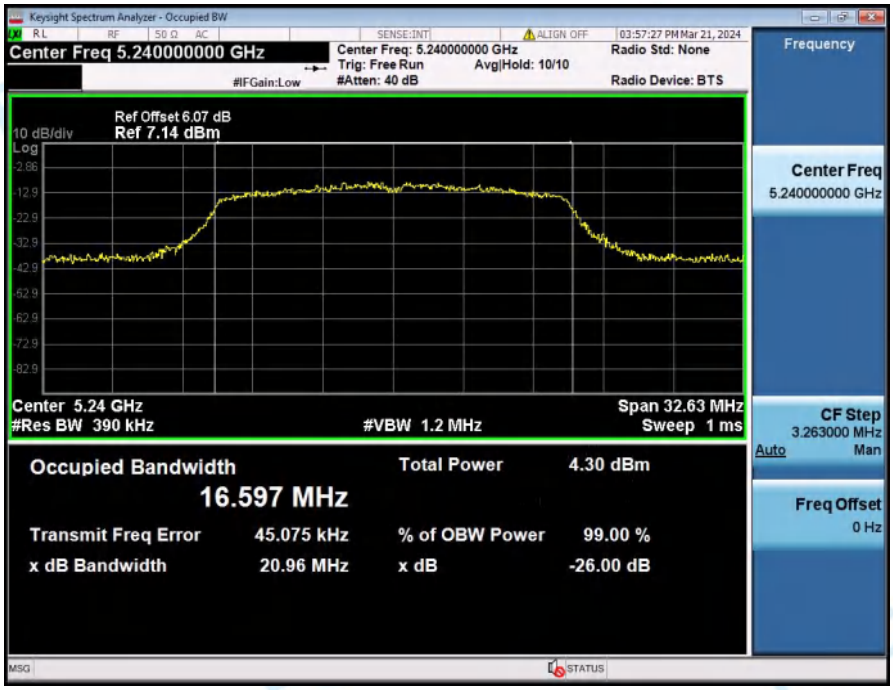
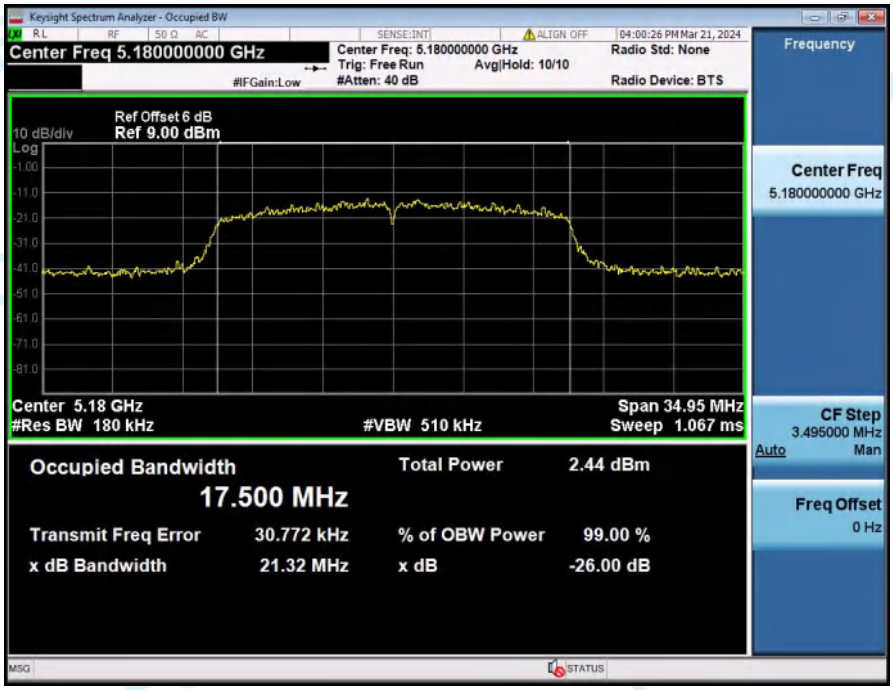


99%_OCB_NVNT_ANT1_802_11n(HT20)_5180



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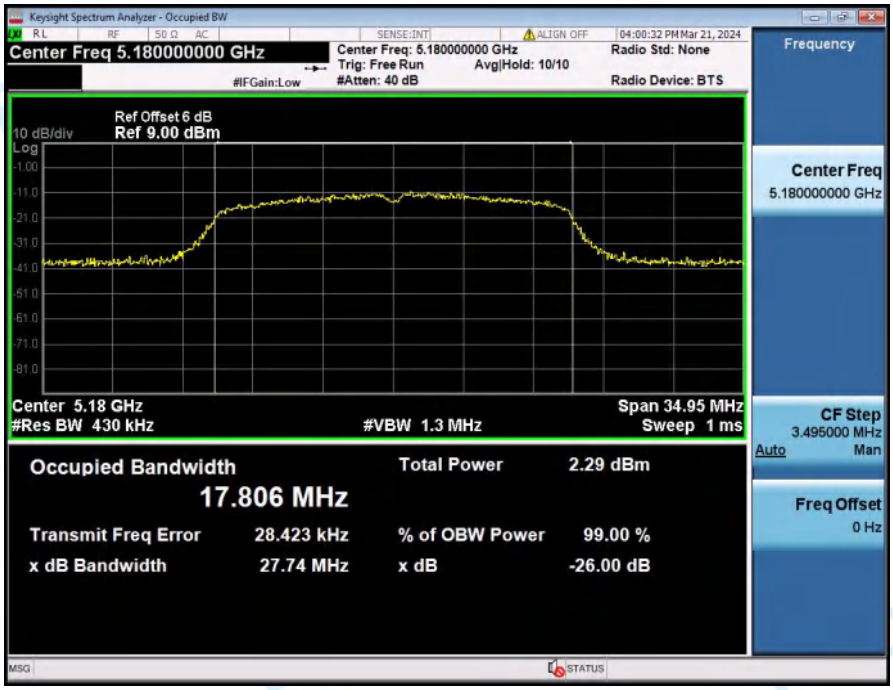

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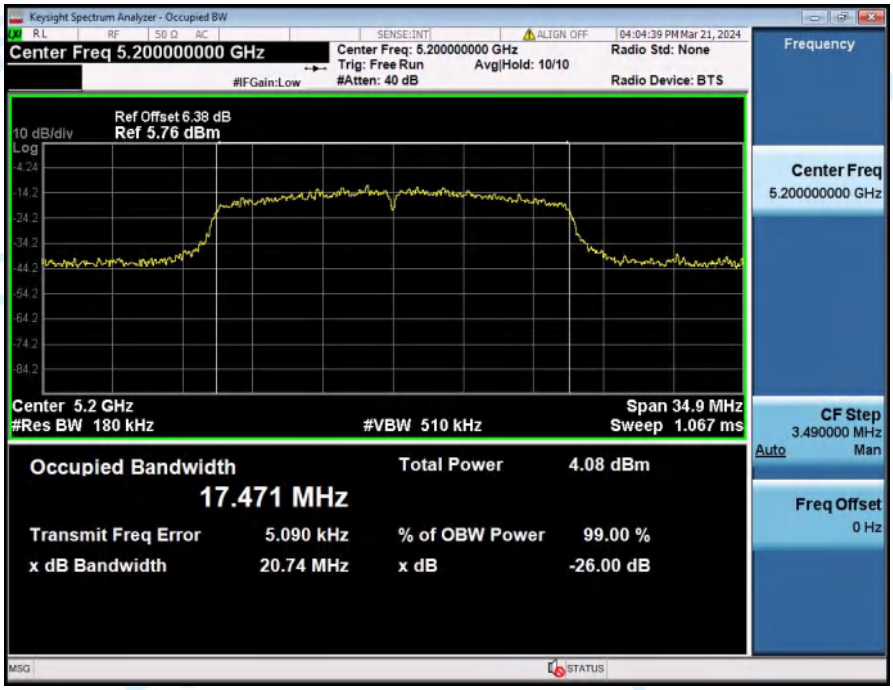

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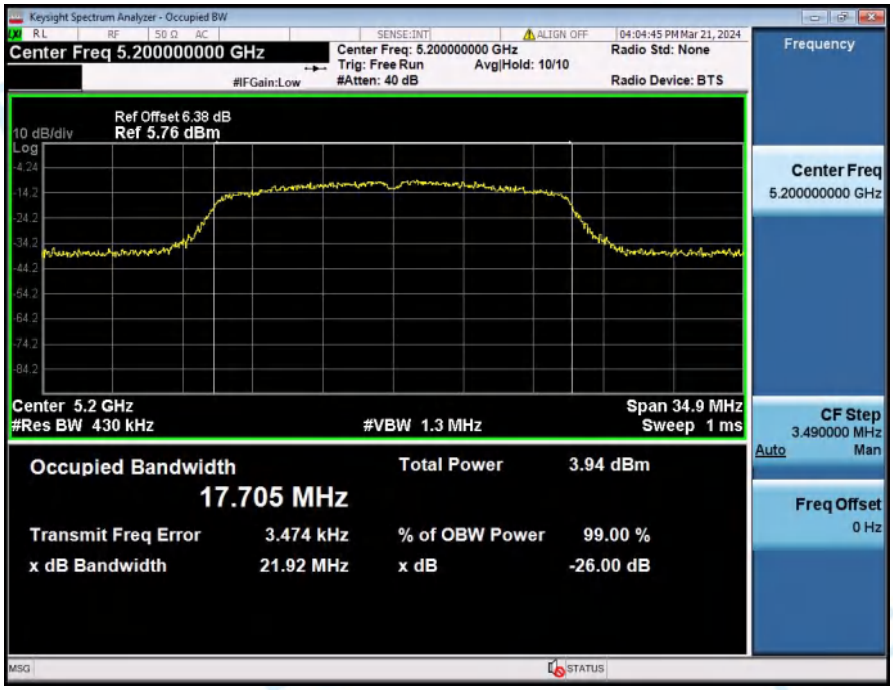
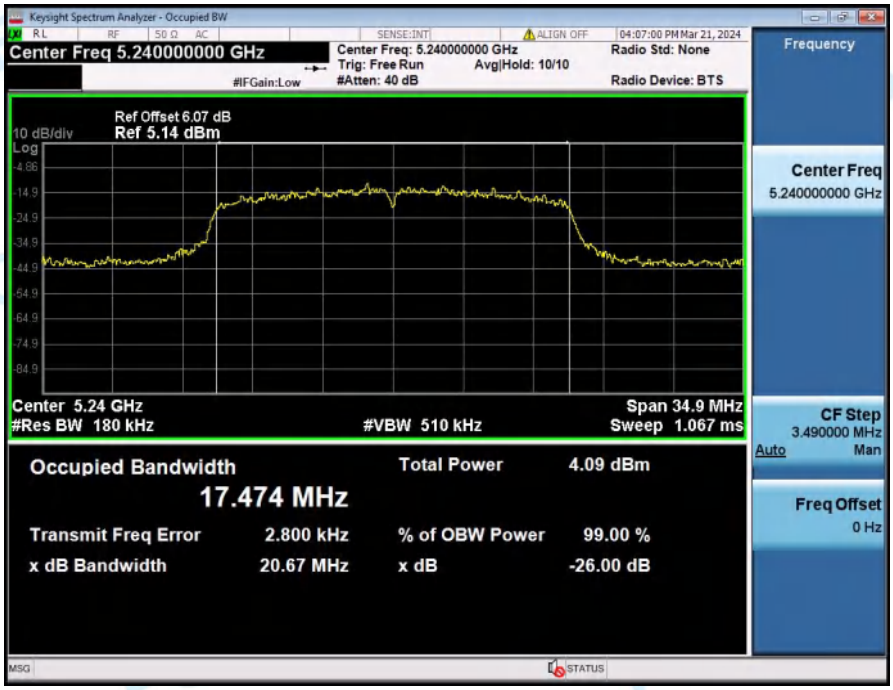


99%_OCB_NVNT_ANT1_802_11n(HT20)_5240


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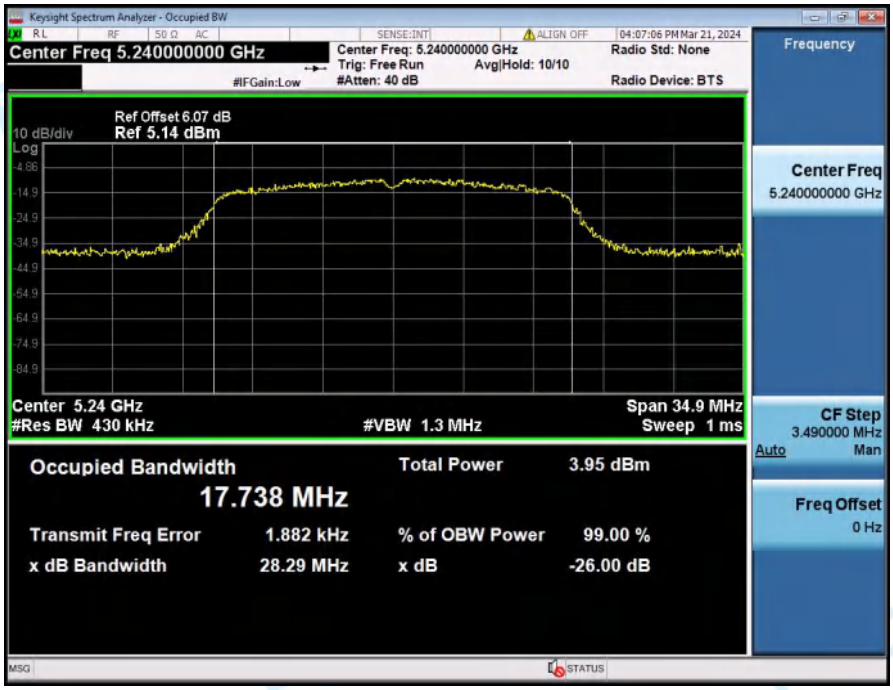
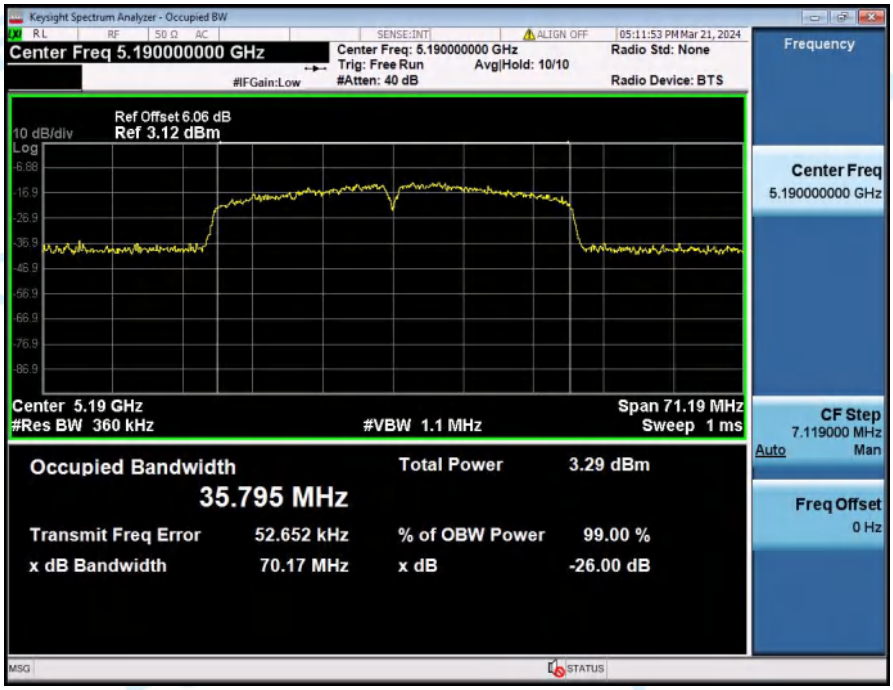


99%_OCB_NVNT_ANT1_802_11n(HT40)_5190


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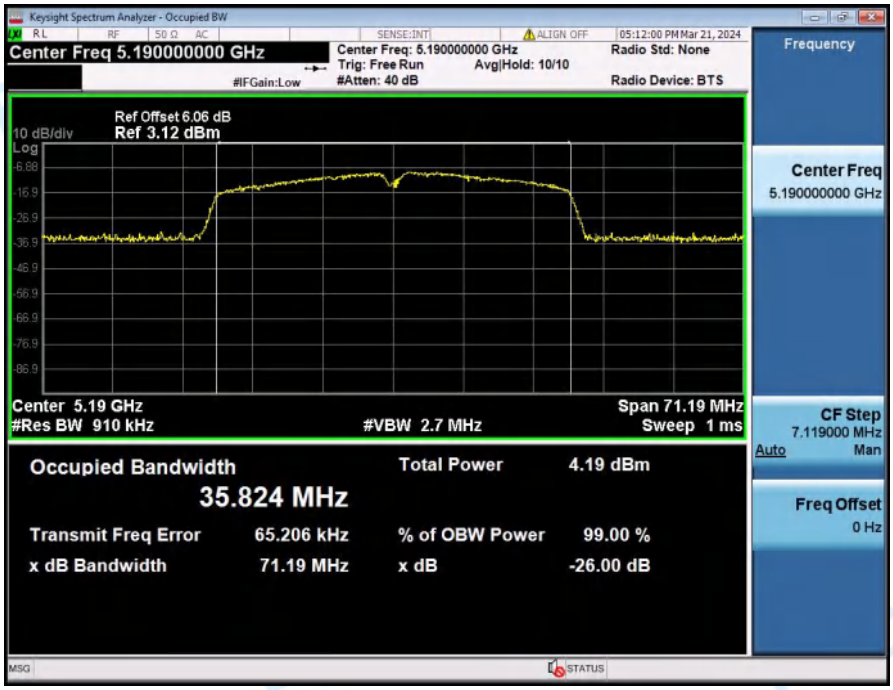

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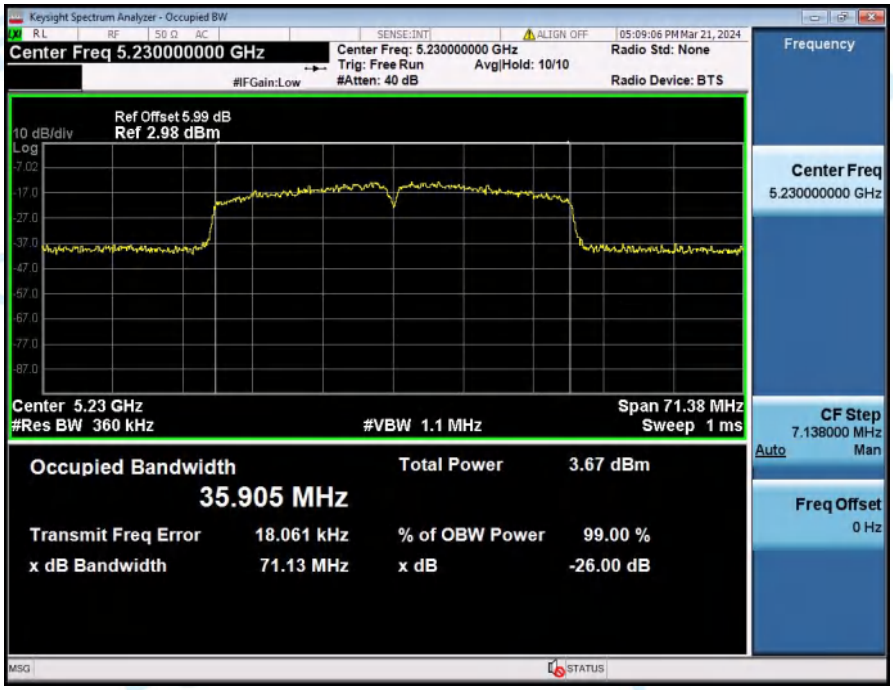

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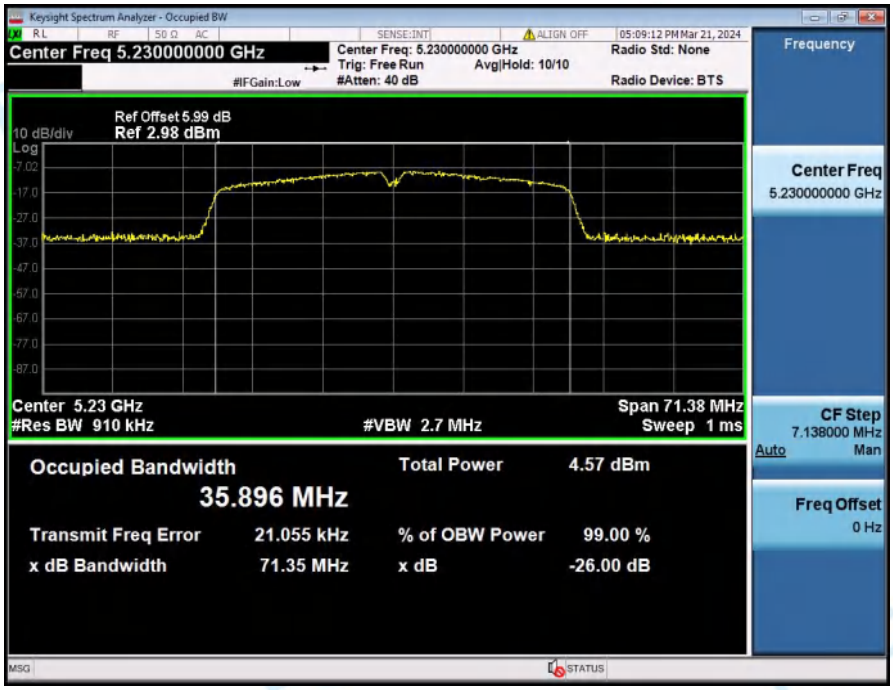
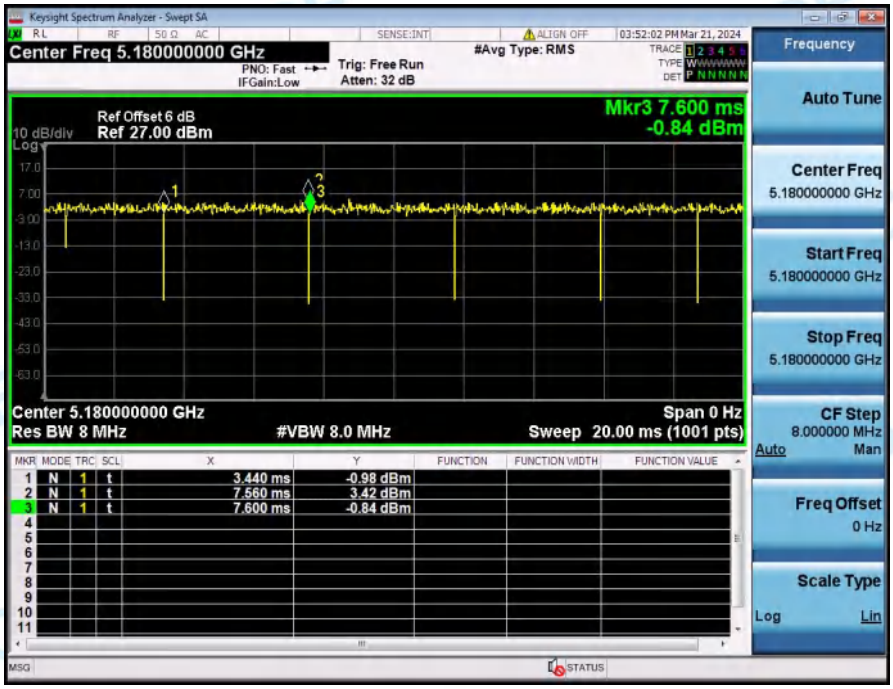


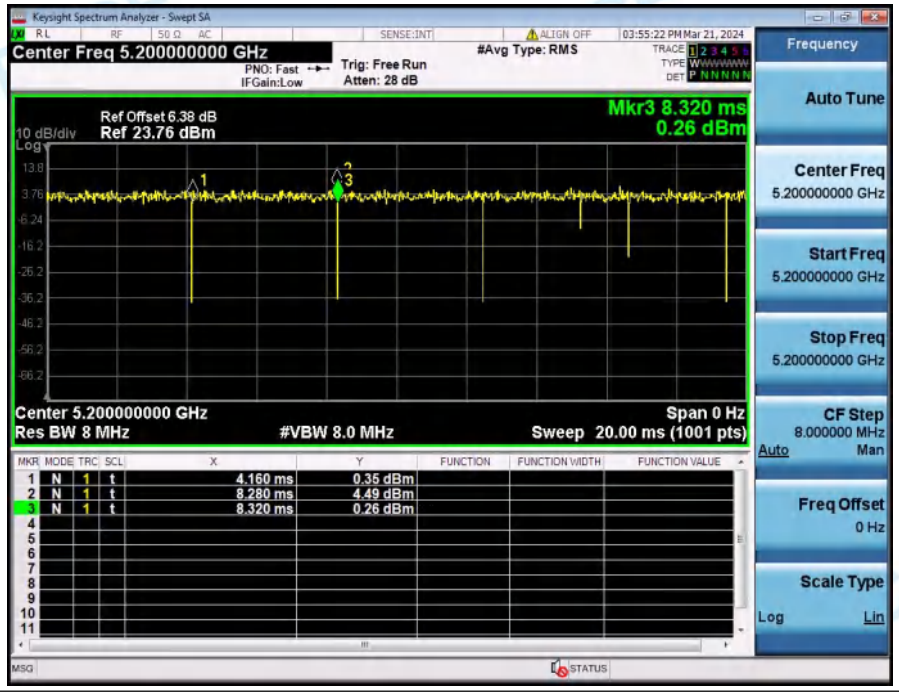
2. Duty Cycle

Condition	Antenna	Modulation	Frequency (MHz)	Duty cycle(%)	Duty_factor
NVNT	ANT1	802.11a	5180.00	99.04	0.00
NVNT	ANT1	802.11a	5200.00	99.04	0.00
NVNT	ANT1	802.11a	5240.00	98.56	0.00
NVNT	ANT1	802.11n(HT20)	5180.00	96.92	0.14
NVNT	ANT1	802.11n(HT20)	5200.00	96.92	0.14
NVNT	ANT1	802.11n(HT20)	5240.00	96.92	0.14
NVNT	ANT1	802.11n(HT40)	5190.00	93.94	0.27
NVNT	ANT1	802.11n(HT40)	5230.00	93.94	0.27

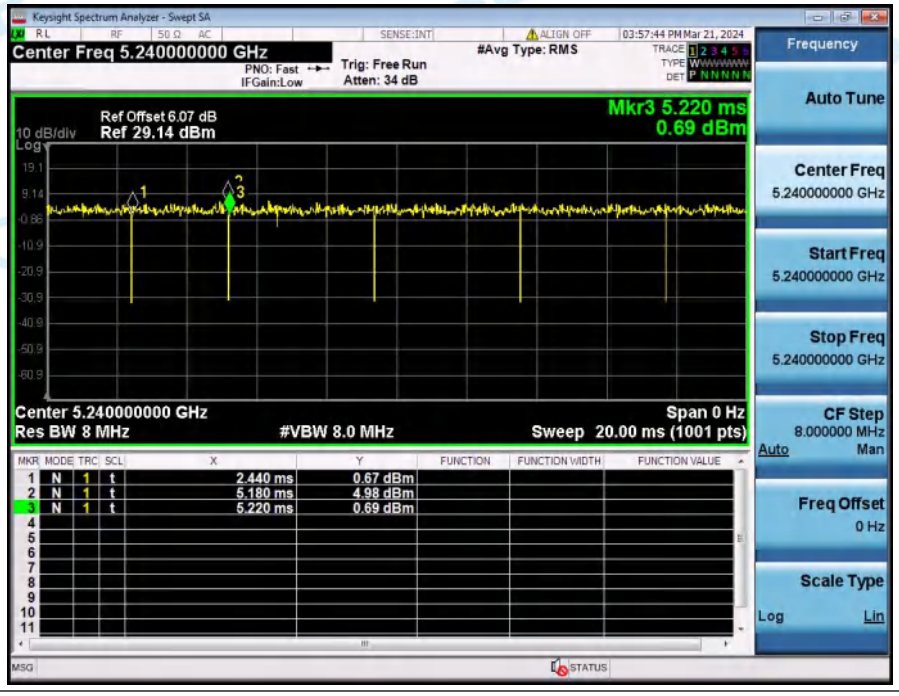
Duty_Cycle_NVNT_ANT1_802_11a_5180



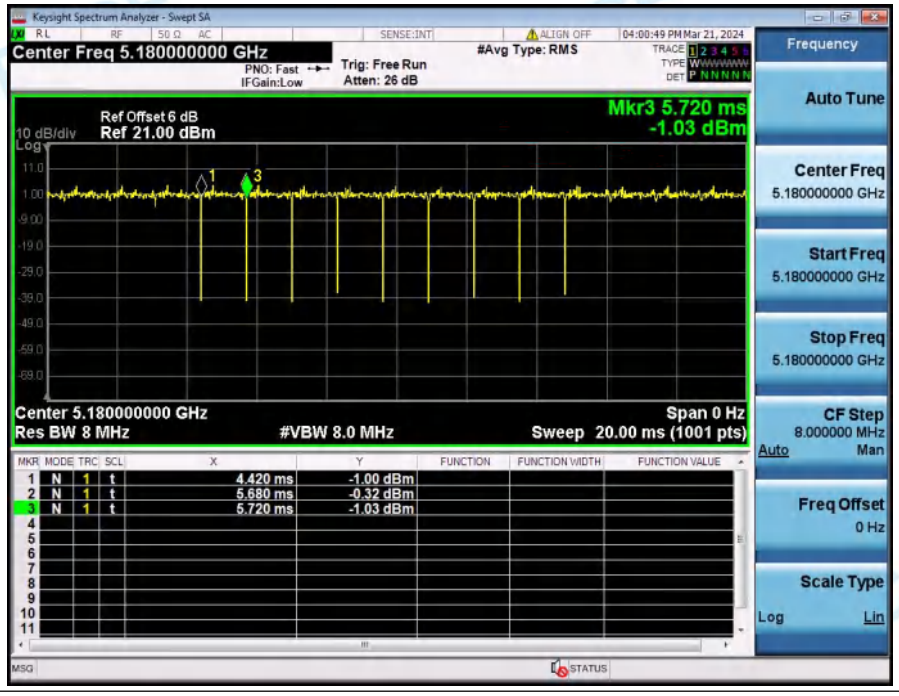
Duty_Cycle_NVNT_ANT1_802_11a_5200



Duty_Cycle_NVNT_ANT1_802_11a_5240



Duty_Cycle_NVNT_ANT1_802_11n(HT20)_5180



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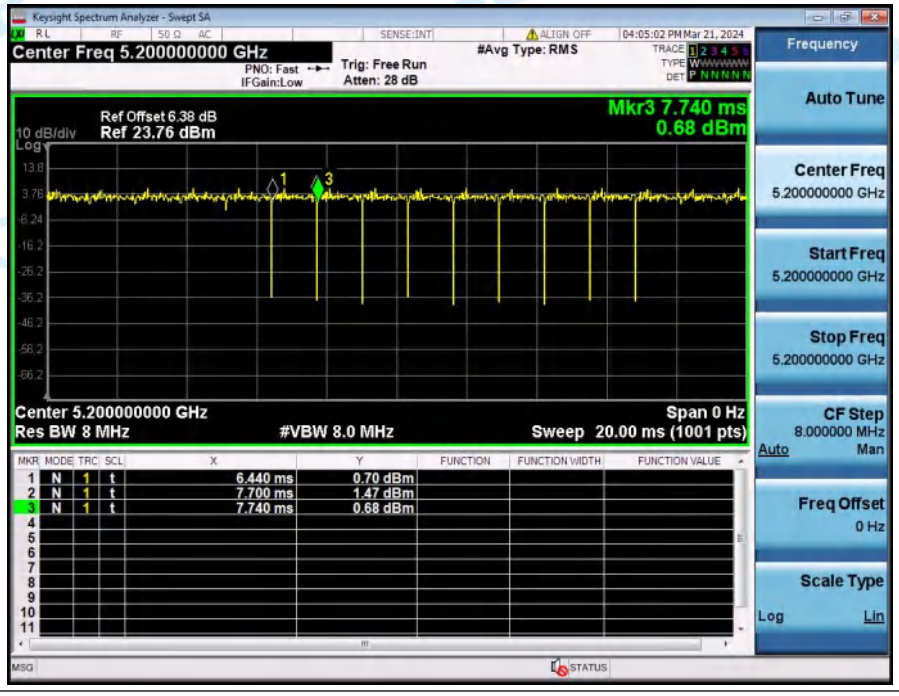

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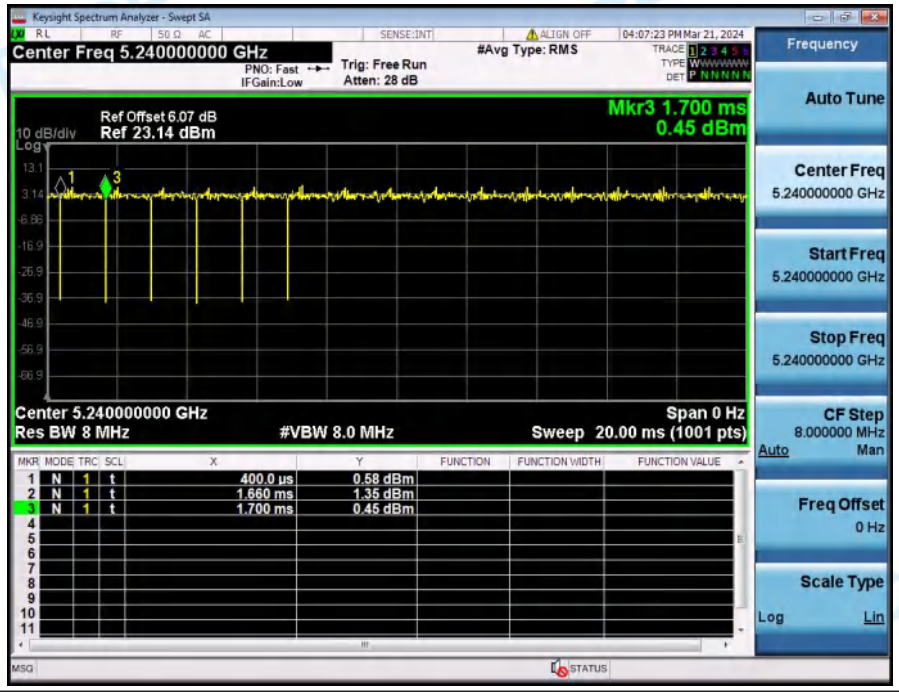
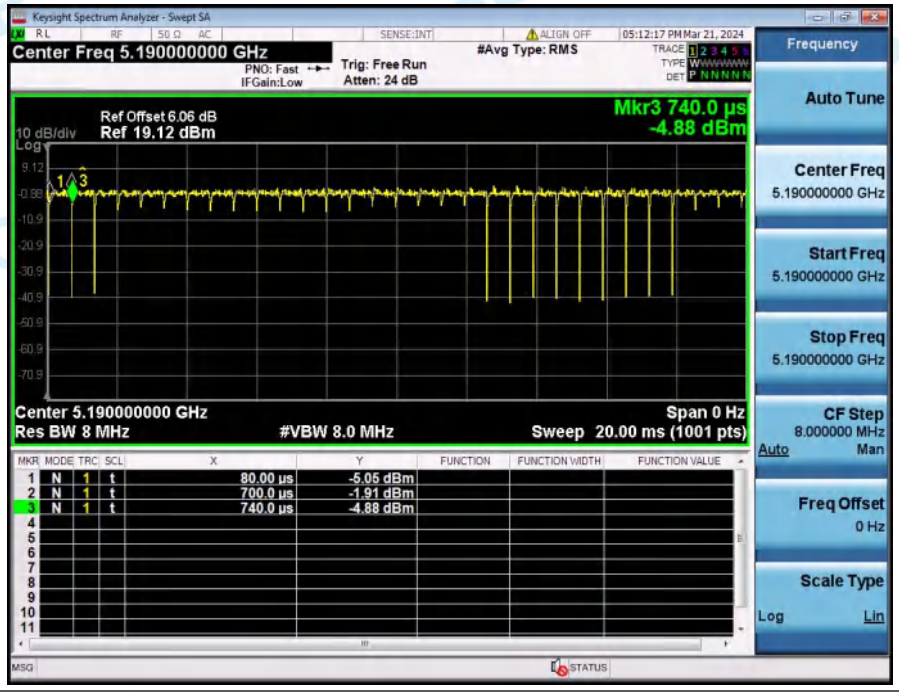


Duty_Cycle_NVNT_ANT1_802_11n(HT40)_5190



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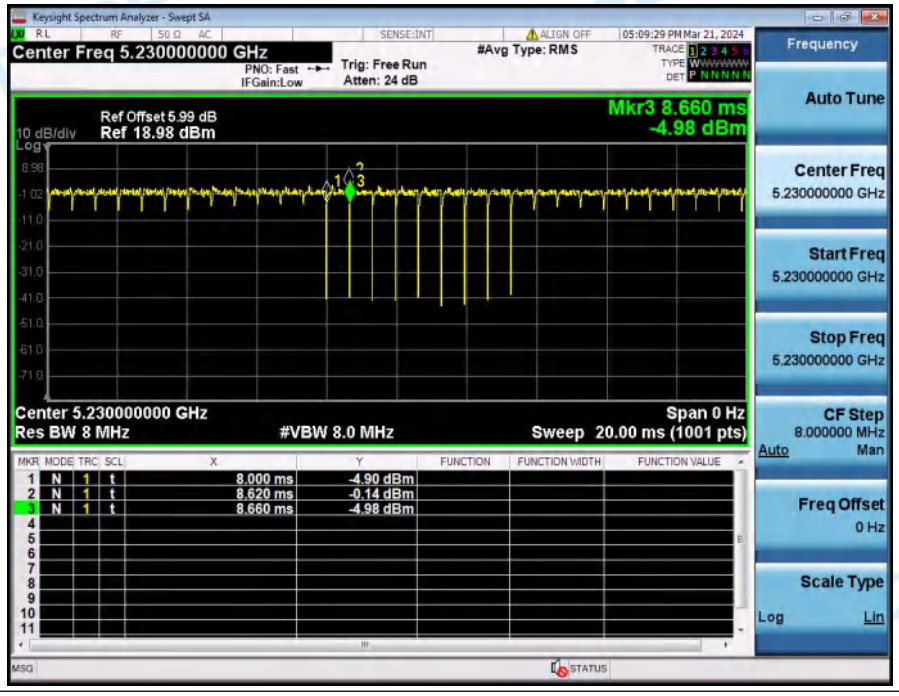
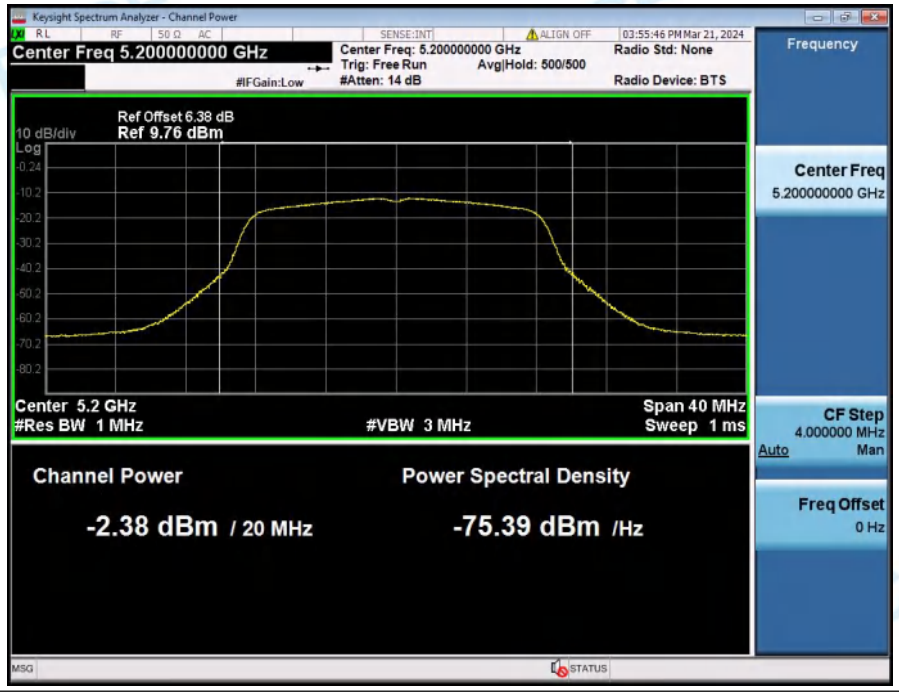


3. Maximum Conducted Output Power

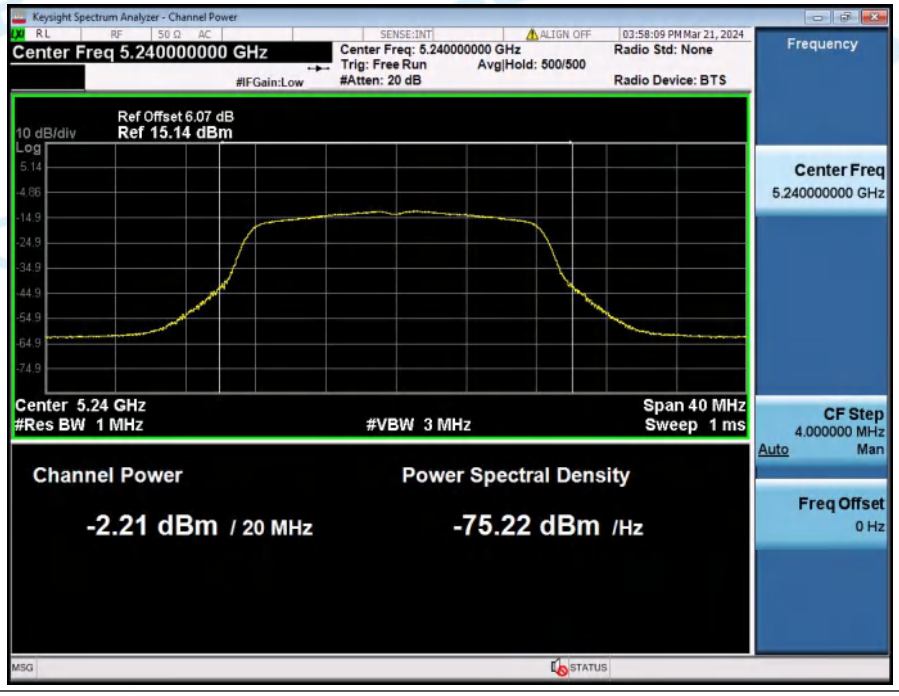
Condition	Antenna	Modulation	Frequency (MHz)	Conducted Power(dBm)	Duty factor(dB)	Total Power(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	-3.86	0.00	-3.86	24	Pass
NVNT	ANT1	802.11a	5200.00	-2.38	0.00	-2.38	24	Pass
NVNT	ANT1	802.11a	5240.00	-2.21	0.00	-2.21	24	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	-4.24	0.14	-4.10	24	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	-2.50	0.14	-2.36	24	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	-2.47	0.14	-2.33	24	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	-3.44	0.27	-3.17	24	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	-3.04	0.27	-2.77	24	Pass

Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5180_20M

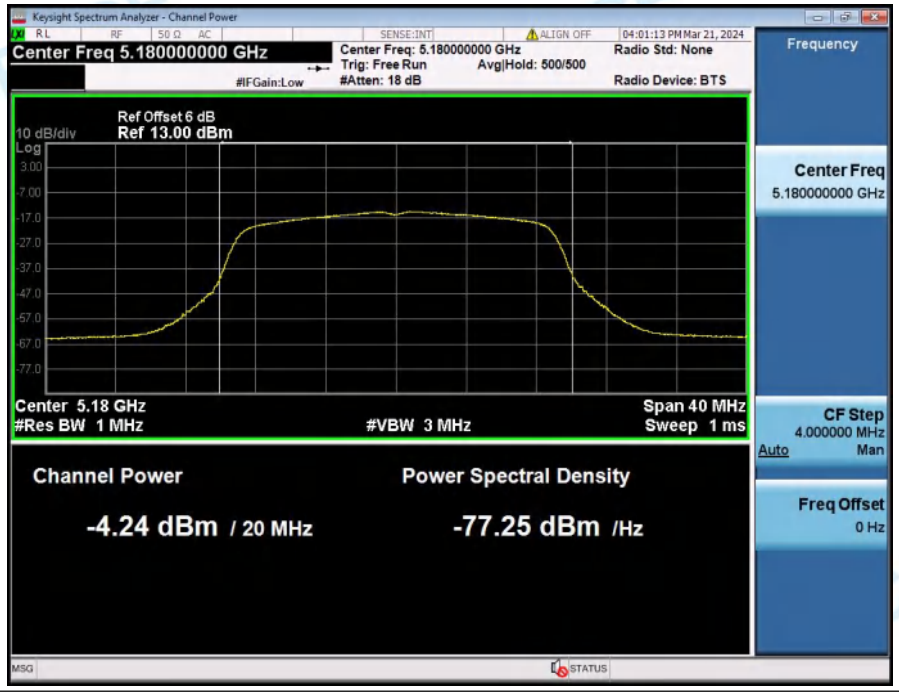
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5200_20M



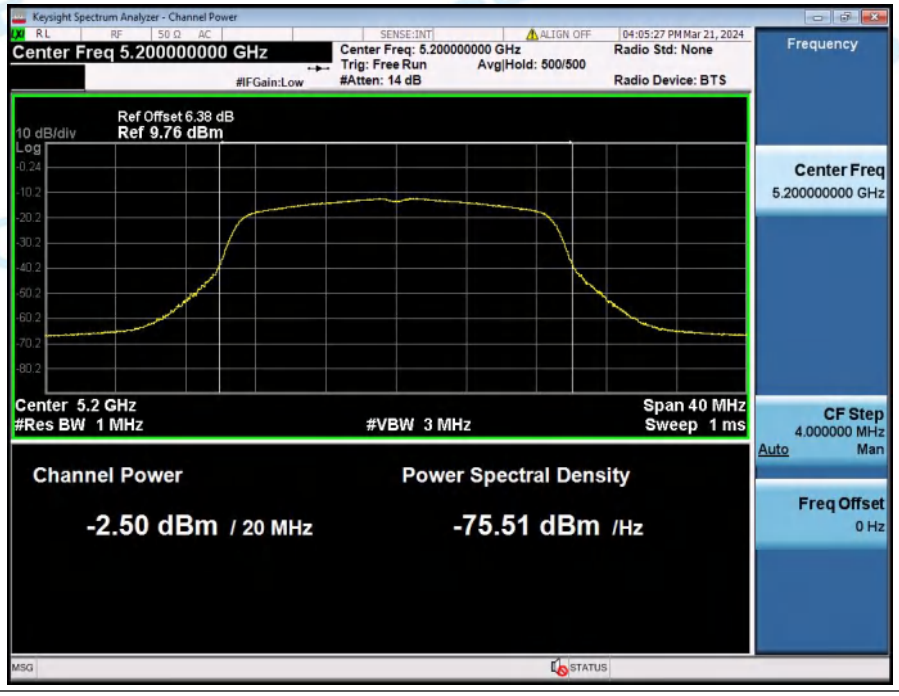
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11a_5240_20M



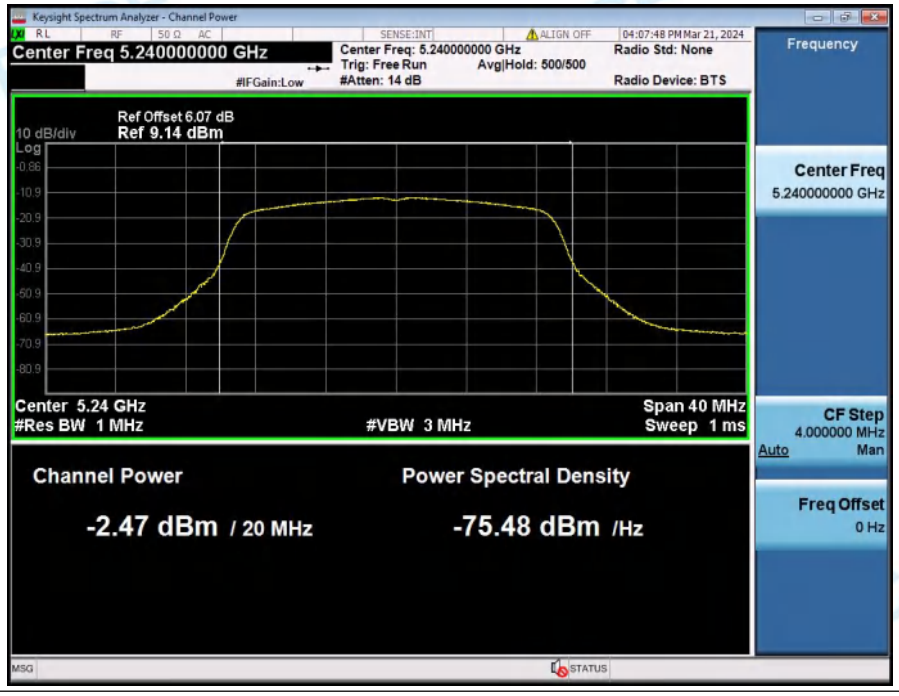
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5180_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5200_20M

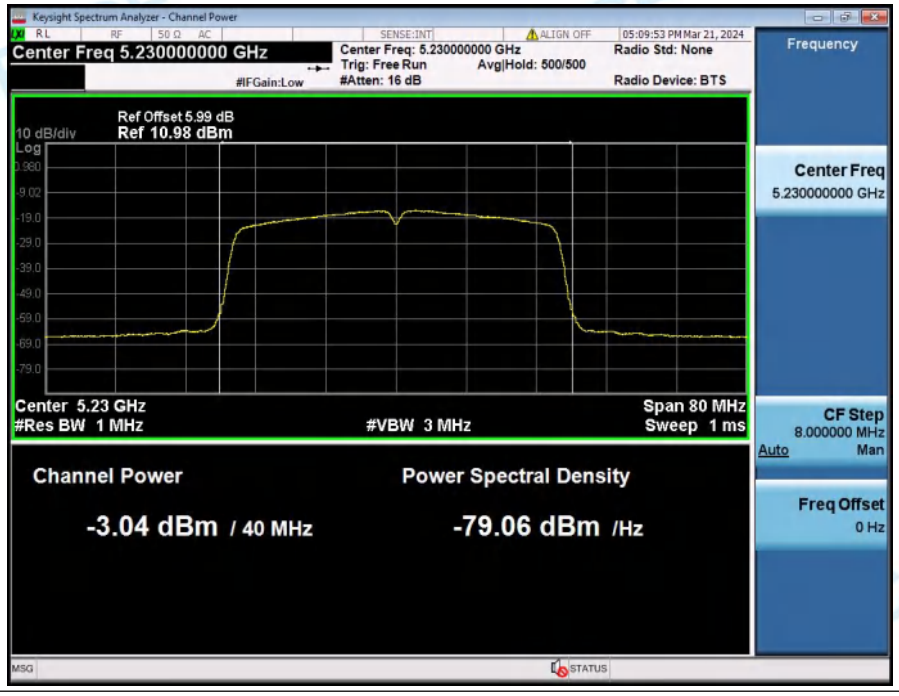


Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT20)_5240_20M



Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT40)_5190_40M

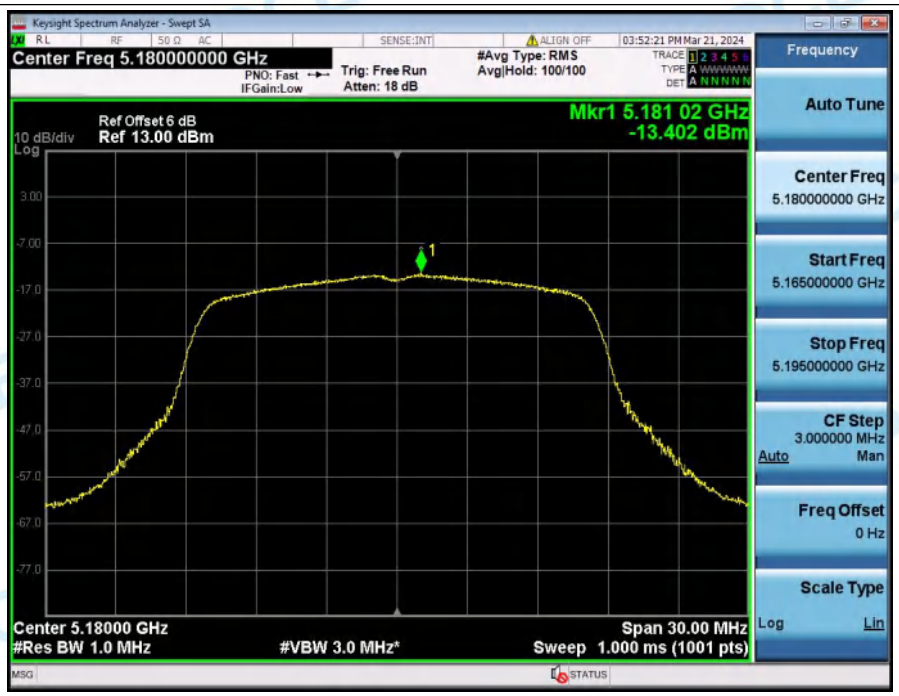
Maximum_Conducted_Output_Power_NVNT_ANT1_802_11n(HT40)_5230_40M



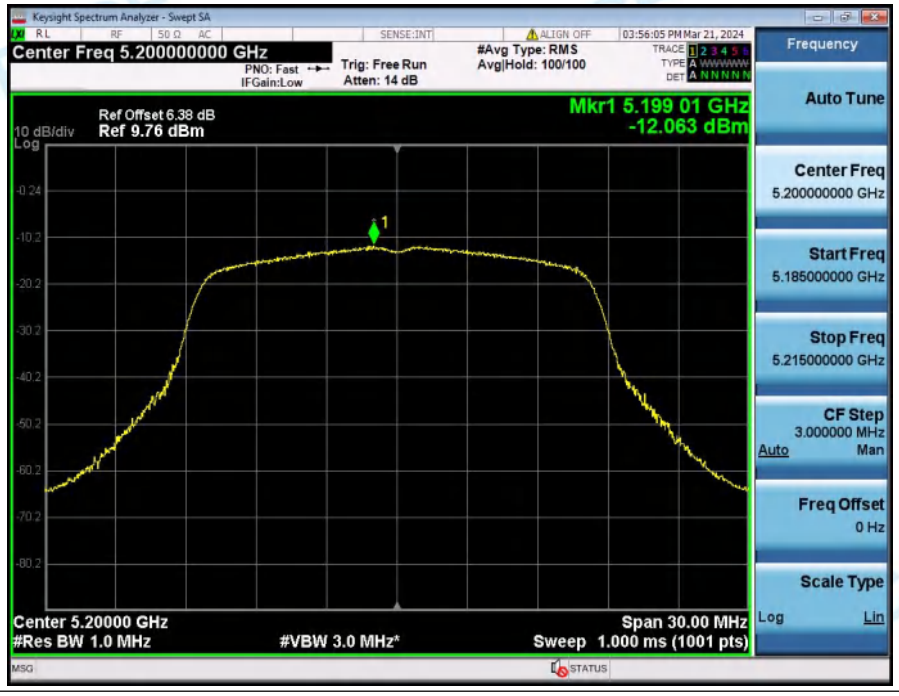
4. Power Spectral Density

Condition	Antenna	Modulation	Frequency (MHz)	PSD(dBm/MHz)	Duty factor(dB)	Total PSD(dBm/MHz)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	-13.40	0.00	-13.40	11	Pass
NVNT	ANT1	802.11a	5200.00	-12.06	0.00	-12.06	11	Pass
NVNT	ANT1	802.11a	5240.00	-12.03	0.00	-12.03	11	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	-14.02	0.14	-13.88	11	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	-12.45	0.14	-12.31	11	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	-12.28	0.14	-12.13	11	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	-15.83	0.27	-15.56	11	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	-15.57	0.27	-15.30	11	Pass

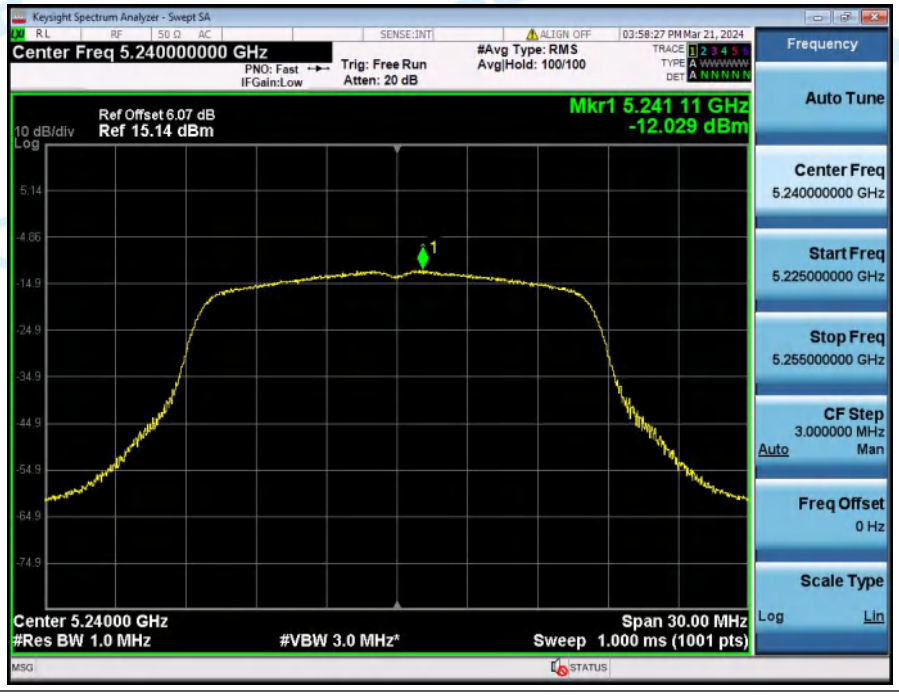
Power_Spectral_Density_NVNT_ANT1_802_11a_5180



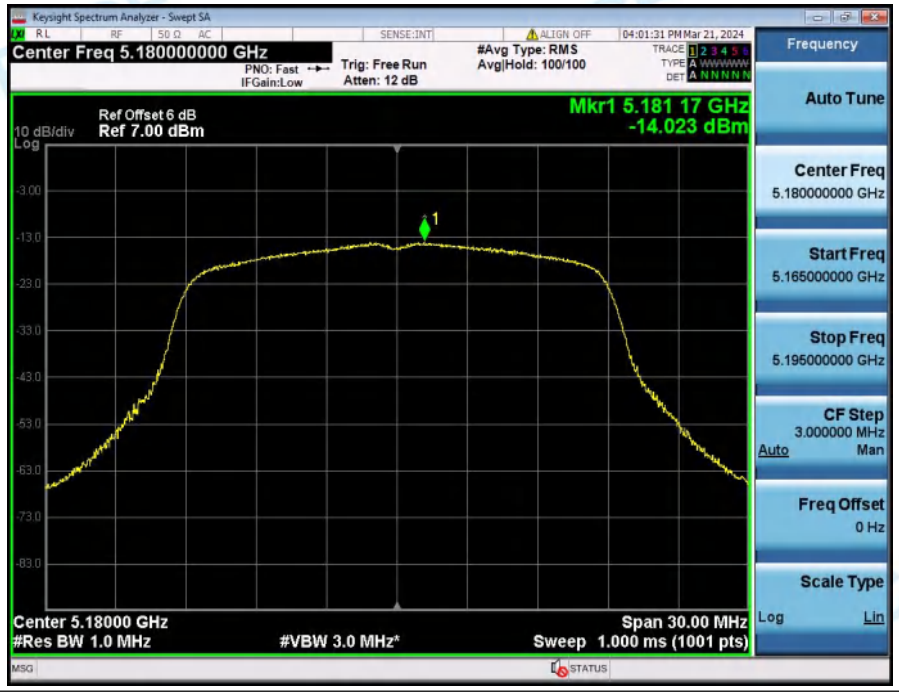
Power_Spectral_Density_NVNT_ANT1_802_11a_5200



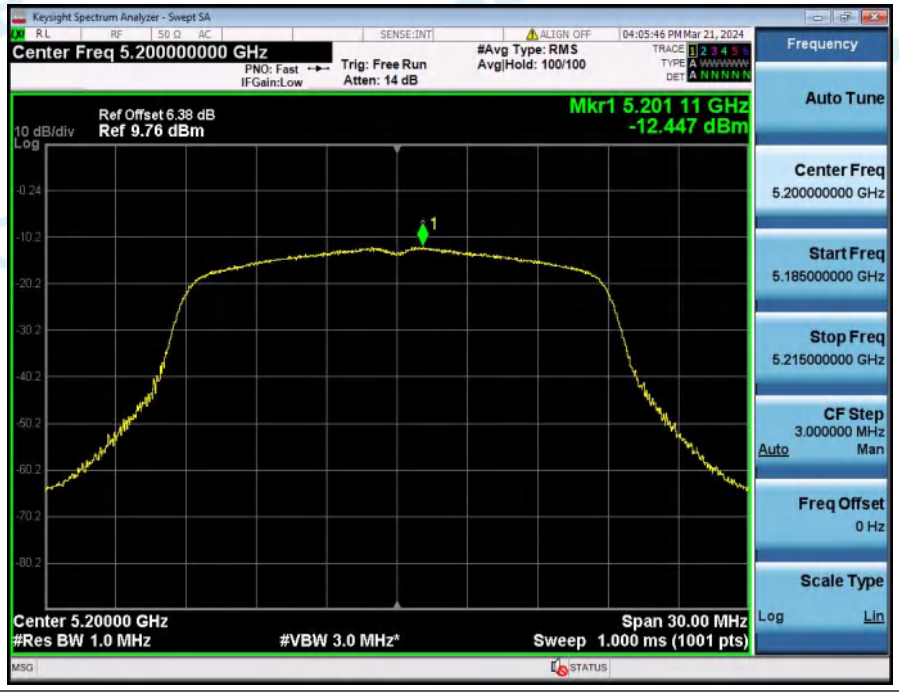
Power_Spectral_Density_NVNT_ANT1_802_11a_5240



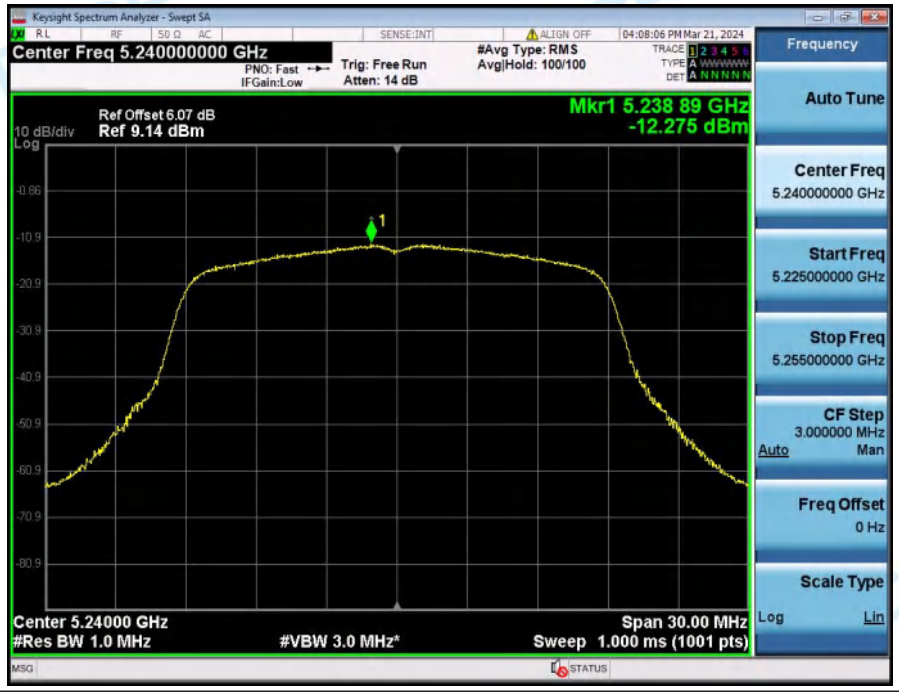
Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5180



Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5200



Power_Spectral_Density_NVNT_ANT1_802_11n(HT20)_5240



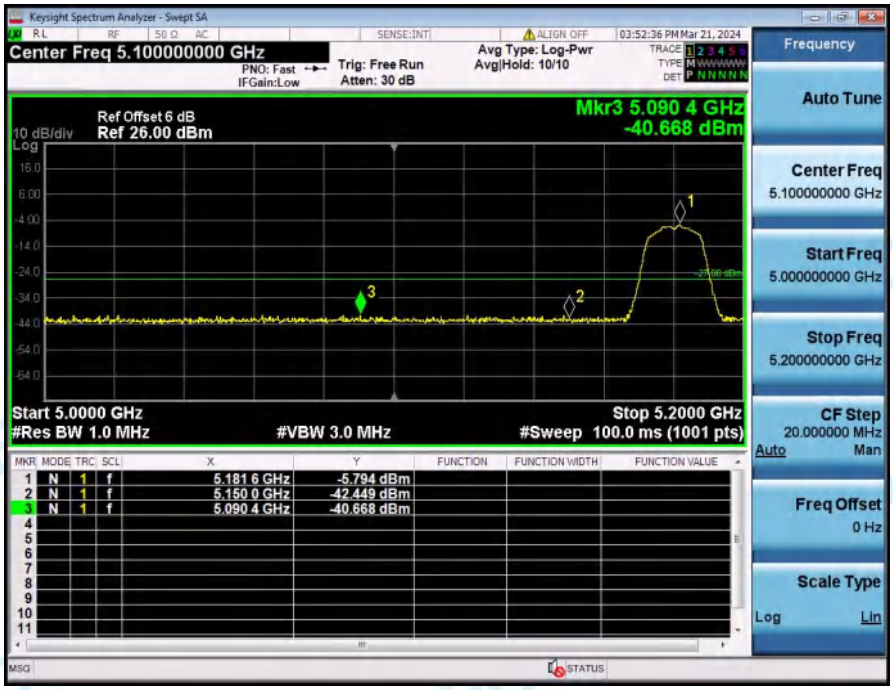
Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_5190

Power_Spectral_Density_NVNT_ANT1_802_11n(HT40)_5230

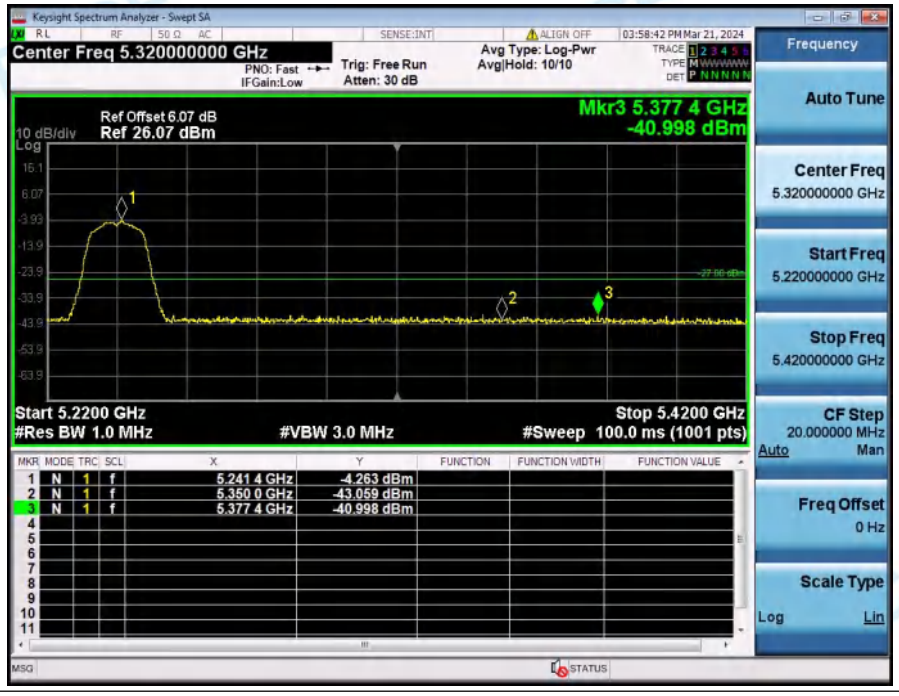
5. Bandedge

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark Frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	5090.40	-40.67	-27	Pass
NVNT	ANT1	802.11a	5240.00	5377.40	-41.00	-27	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	5076.60	-40.91	-27	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	5369.00	-41.07	-27	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	5059.64	-40.03	-27	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	5405.30	-41.04	-27	Pass

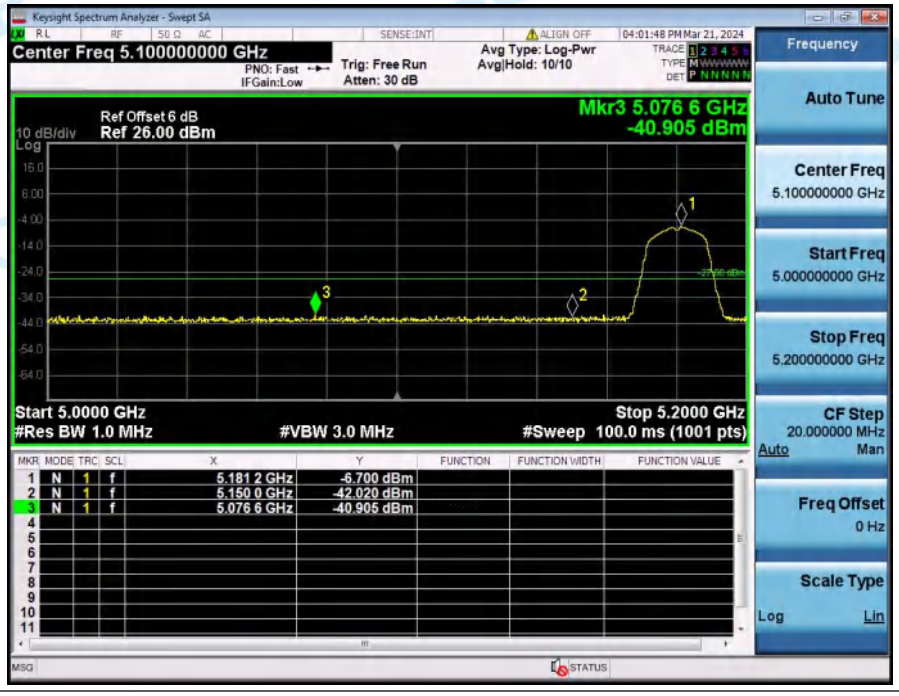
Bandedge_NVNT_ANT1_802_11a_5180



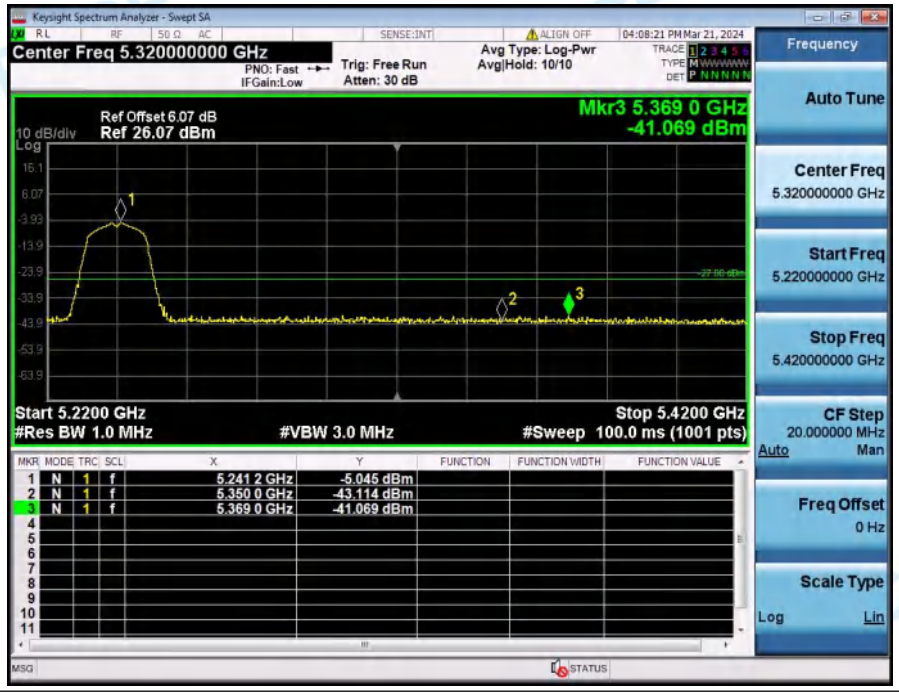
Bandedge_NVNT_ANT1_802_11a_5240



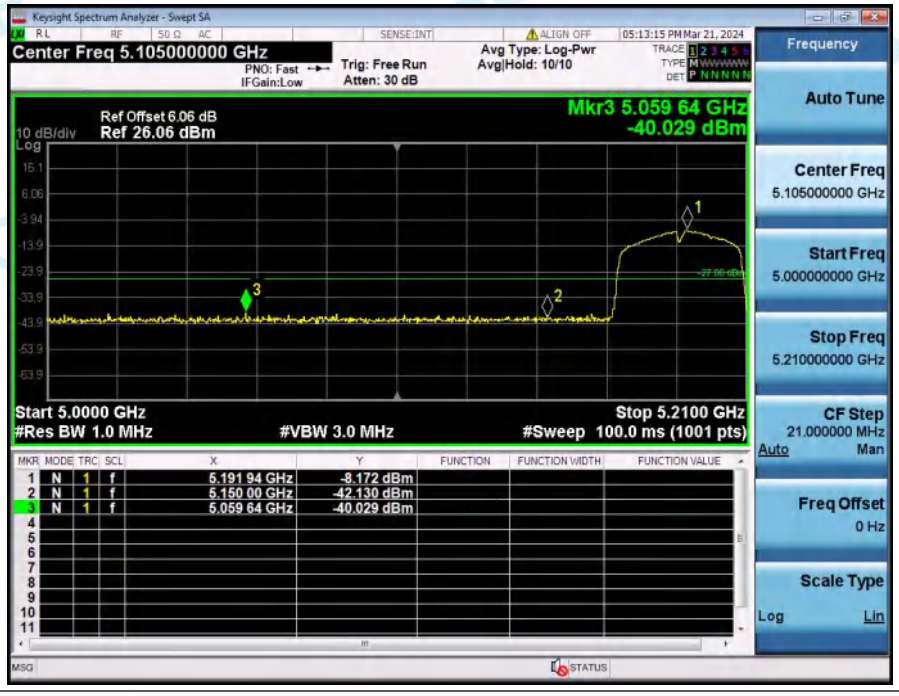
Bandedge_NVNT_ANT1_802_11n(HT20)_5180



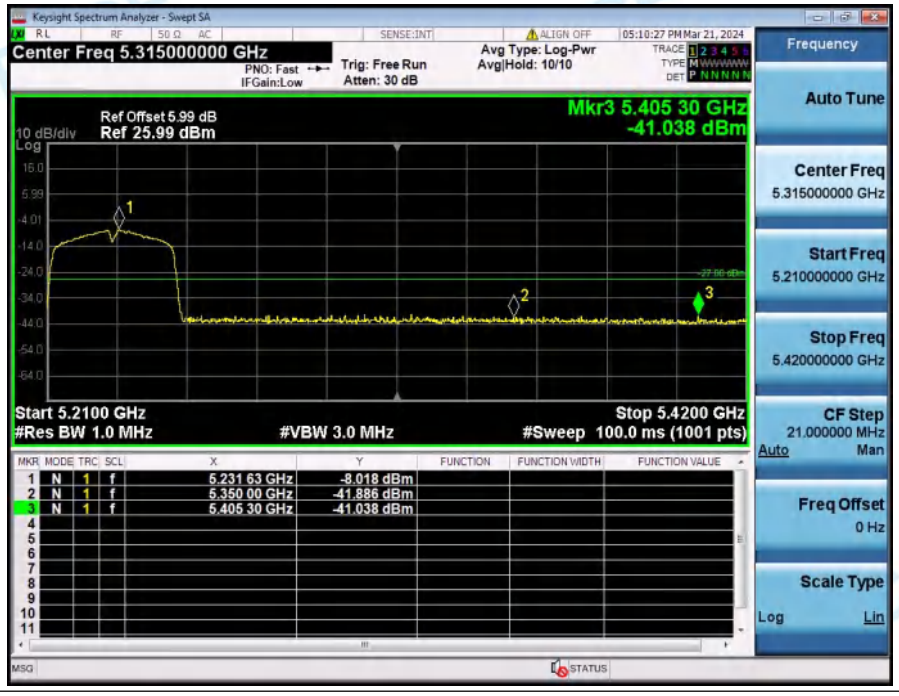
Bandedge_NVNT_ANT1_802_11n(HT20)_5240



Bandedge_NVNT_ANT1_802_11n(HT40)_5190



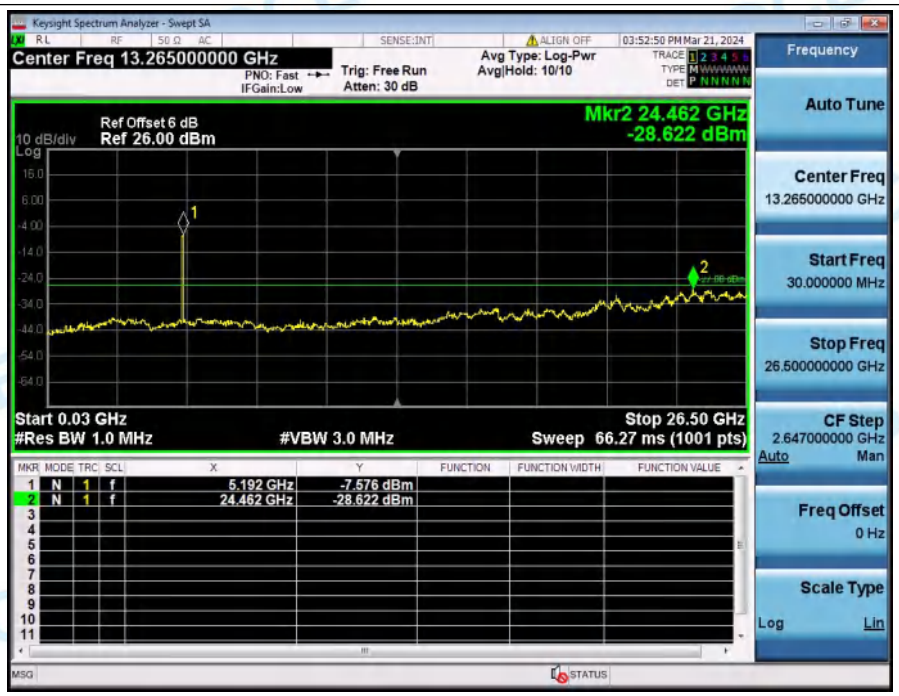
Bandedge_NVNT_ANT1_802_11n(HT40)_5230



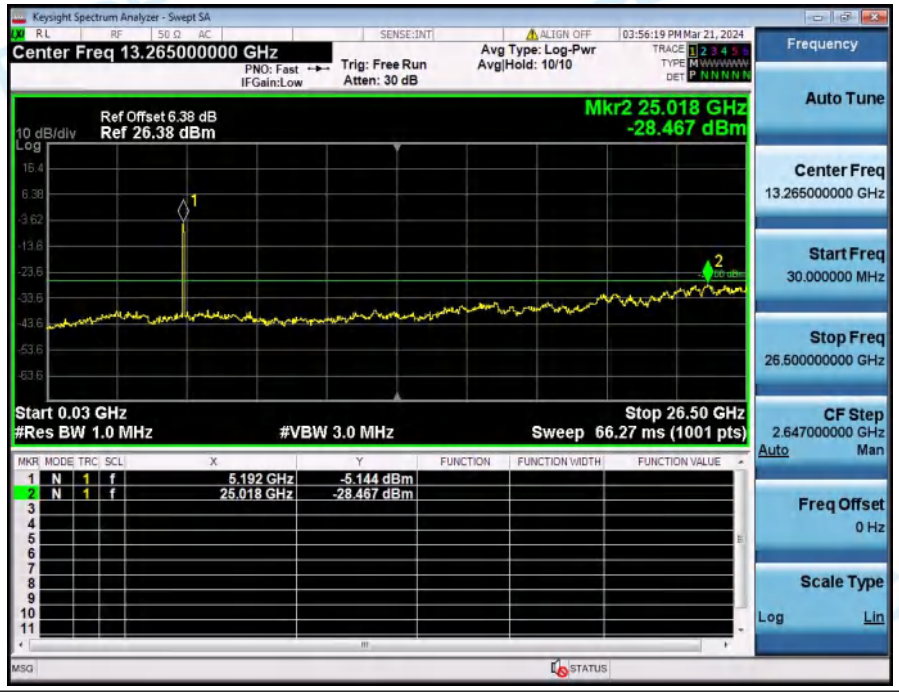
6. Spurious Emission

Condition	Antenna	Modulation	TX_Frequency (MHz)	Max. Mark Frequency(MHz)	Spurious level(dBm)	limit(dBm)	Result
NVNT	ANT1	802.11a	5180.00	24461.81	-28.62	-27	Pass
NVNT	ANT1	802.11a	5200.00	25017.68	-28.47	-27	Pass
NVNT	ANT1	802.11a	5240.00	24991.21	-27.91	-27	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	25017.68	-28.45	-27	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	24514.75	-27.94	-27	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	24938.27	-28.80	-27	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	26288.24	-29.09	-27	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	25097.09	-28.57	-27	Pass

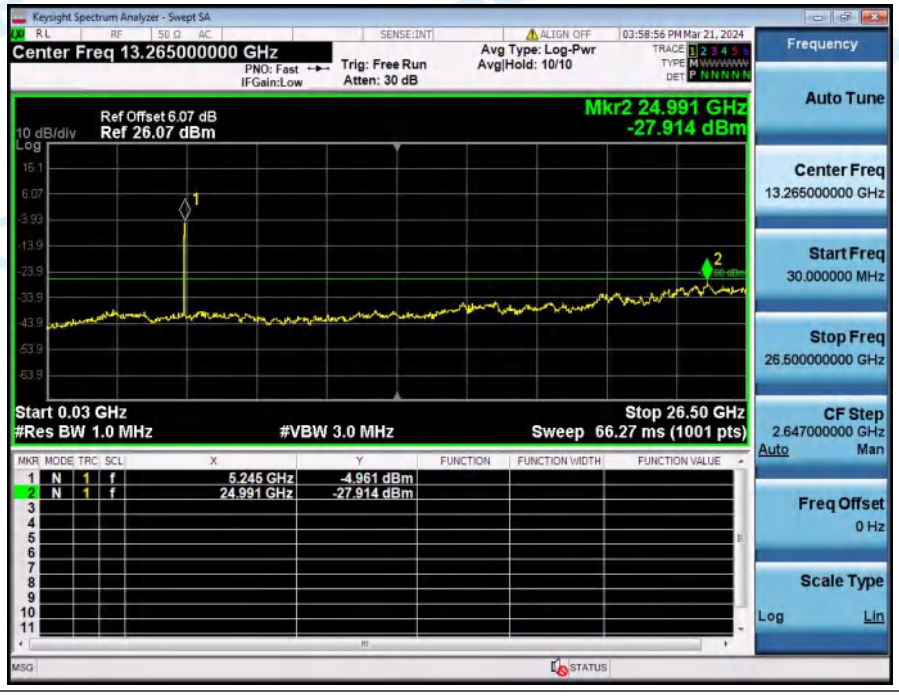
Spurious_Emission_NVNT_ANT1_802_11a_5180_20M



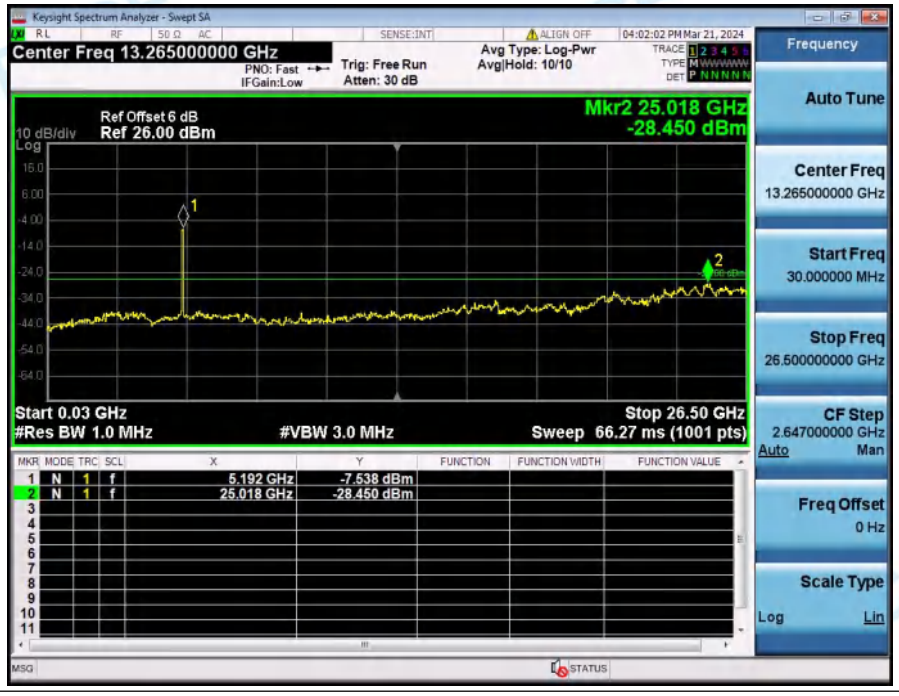
Spurious_Emission_NVNT_ANT1_802_11a_5200_20M



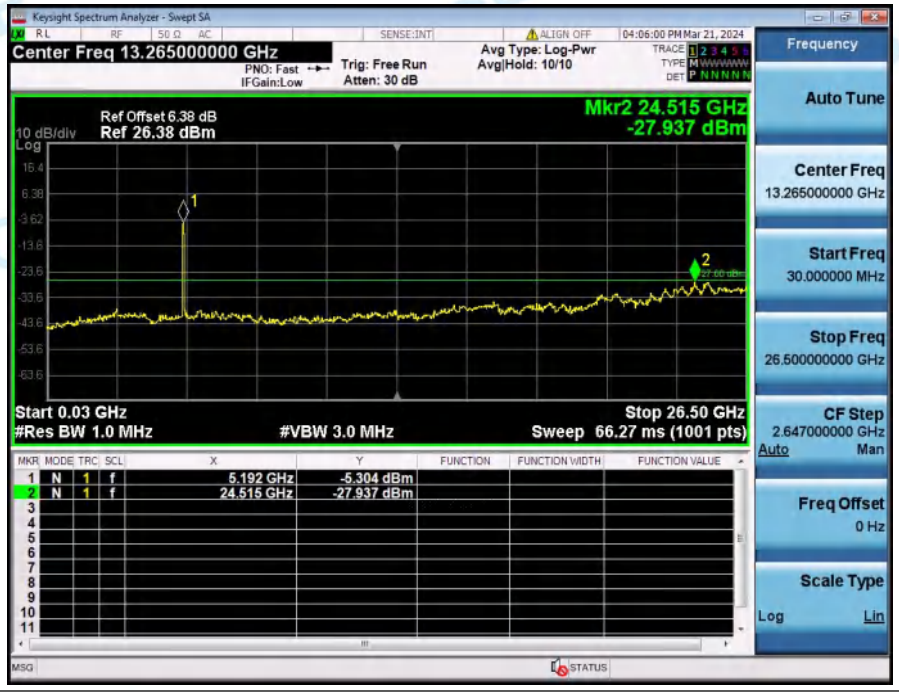
Spurious_Emission_NVNT_ANT1_802_11a_5240_20M



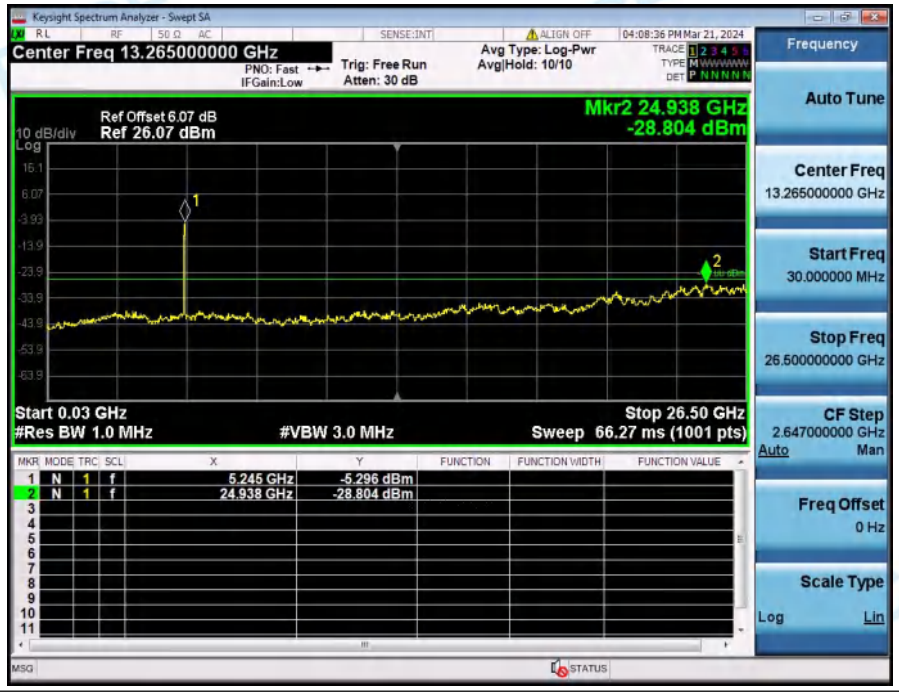
Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5180_20M



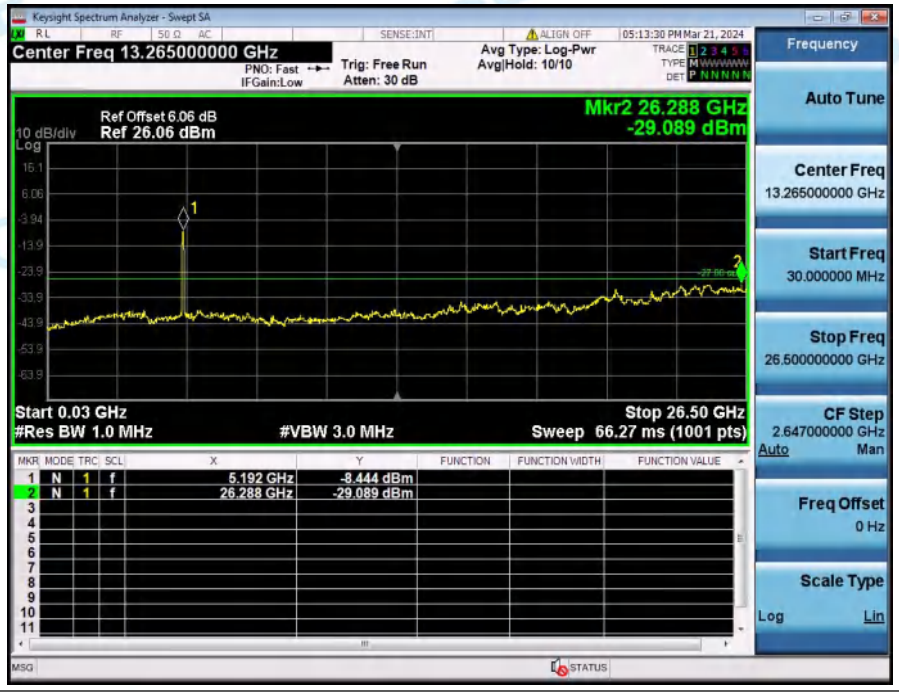
Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5200_20M



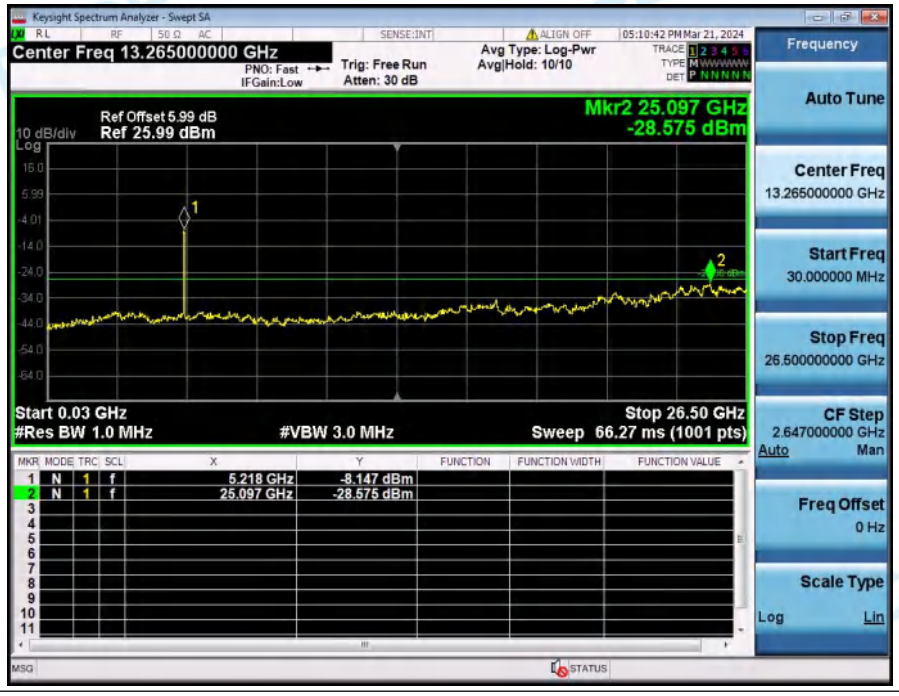
Spurious_Emission_NVNT_ANT1_802_11n(HT20)_5240_20M



Spurious_Emission_NVNT_ANT1_802_11n(HT40)_5190_40M



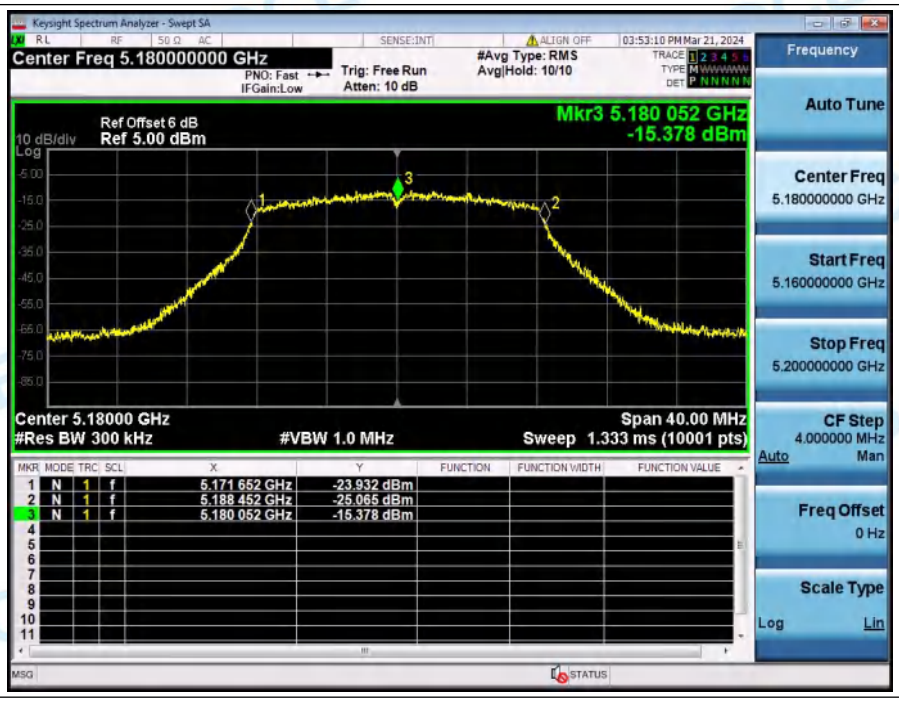
Spurious_Emission_NVNT_ANT1_802_11n(HT40)_5230_40M



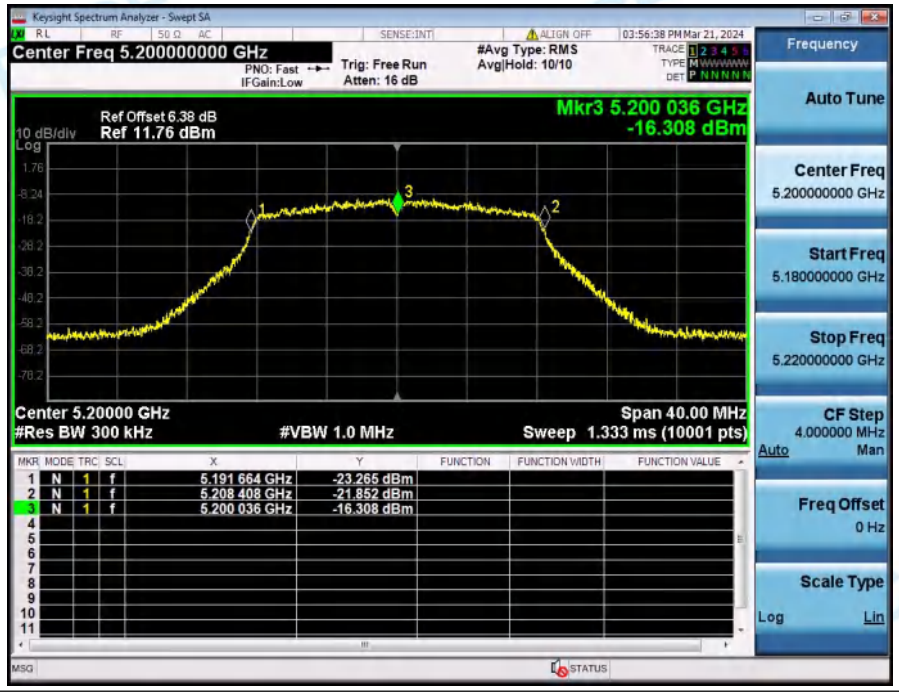
7. Frequency Stability

Condition	Antenna	Modulation	Frequency (MHz)	Fc(MHz)	Fl(MHz)	Fh(MHz)	Limit(MHz)	Result
NVNT	ANT1	802.11a	5180.00	5180.052	5171.652	5188.452	5150~5250	Pass
NVNT	ANT1	802.11a	5200.00	5200.036	5191.664	5208.408	5150~5250	Pass
NVNT	ANT1	802.11a	5240.00	5240.024	5231.624	5248.424	5150~5250	Pass
NVNT	ANT1	802.11n(HT20)	5180.00	5180.012	5171.080	5188.944	5150~5250	Pass
NVNT	ANT1	802.11n(HT20)	5200.00	5200.000	5191.100	5208.900	5150~5250	Pass
NVNT	ANT1	802.11n(HT20)	5240.00	5240.000	5231.072	5248.928	5150~5250	Pass
NVNT	ANT1	802.11n(HT40)	5190.00	5190.008	5172.088	5207.928	5150~5250	Pass
NVNT	ANT1	802.11n(HT40)	5230.00	5229.992	5212.040	5247.944	5150~5250	Pass

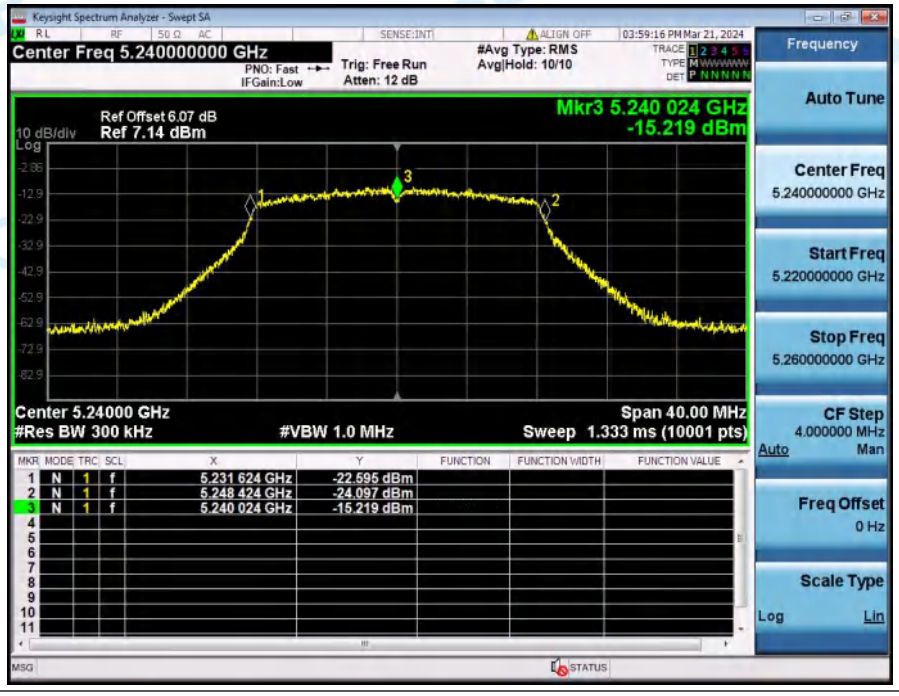
Frequency_Stability_NVNT_ANT1_802_11a_5180

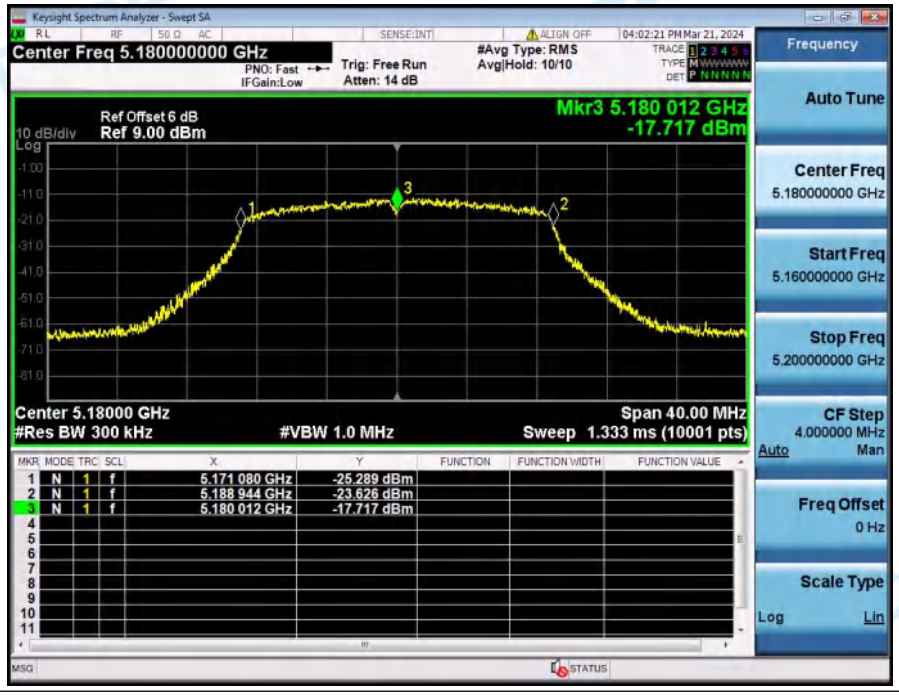


Frequency_Stability_NVNT_ANT1_802_11a_5200



Frequency_Stability_NVNT_ANT1_802_11a_5240



Frequency_Stability_NVNT_ANT1_802_11n(HT20)_5180


Frequency_Stability_NVNT_ANT1_802_11n(HT20)_5200