



RF Test Report

For

Applicant Name: Xwireless LLC
Address: 11565 Old Georgetown Road, Rockville, MD, USA
EUT Name: Tablet PC
Brand Name: Vortex
Model Number: T10MPROPLUS

Issued By

Company Name: BTF Testing Lab (Shenzhen) Co., Ltd.
Address: F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park,
Tantou Community, Songgang Street, Bao'an District, Shenzhen,
China

Report Number: BTF230710R00203
Test Standards: 47 CFR Part 15.247

Test Conclusion: Pass
FCC ID: 2ADLJ-T10MPROPLUS
Test Date: 2023-07-10 to 2023-07-21
Date of Issue: 2023-07-24

Prepared By: Elma.Yang

Date: elma.yang / Project Engineer
2023-07-24

Approved By: Ryan.CJ
Date: Ryan.CJ / EMC Manager
2023-07-24



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Revision History		
Version	Issue Date	Revisions Content
R_V0	2023-07-24	Original

Note: Once the revision has been made, then previous versions reports are invalid.

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1 Introduction

1.1 Identification of Testing Laboratory

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130

1.2 Identification of the Responsible Testing Location

Company Name:	BTF Testing Lab (Shenzhen) Co., Ltd.
Address:	F101, 201 and 301, Building 1, Block 2, Tantou Industrial Park, Tantou Community, Songgang Street, Bao'an District, Shenzhen, China
Phone Number:	+86-0755-23146130
Fax Number:	+86-0755-23146130
FCC Registration Number:	518915
Designation Number:	CN1330

1.3 Announcement

- (1) The test report reference to the report template version v0.
- (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 BTF 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) The laboratory is only responsible for the data released by the laboratory, except for the part provided by the applicant.

2 Product Information

2.1 Application Information

Company Name:	Xwireless LLC
Address:	11565 Old Georgetown Road, Rockville, MD, USA

2.2 Manufacturer Information

Company Name:	Xwireless LLC
Address:	11565 Old Georgetown Road, Rockville, MD, USA

2.3 Factory Information

Company Name:	ZTECH COMMUNICATION(SZ) CO LTD
Address:	FL 7 BLOCK D BAO'AN ZHIGU INNOVATION PARK YIN'TIAN ROAD NO.4 XI'XIANG STR' BAO'AN DISTRICT SZ CHINA

2.4 General Description of Equipment under Test (EUT)

EUT Name:	Tablet PC
Test Model Number:	T10MPROPLUS

2.5 Technical Information

Power Supply:	DC 5V from adapter
Power Adaptor:	Input: 100-240V 50/60Hz 0.3A Output: 5.0V 2.0A 10.0W
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz; 802.11n(HT40): 2422MHz to 2452MHz
Number of Channels:	802.11b/g/n(HT20): 11 Channels; 802.11n(HT40): 7 Channels
Modulation Type:	802.11b: DSSS(CCK, DQPSK, DBPSK); 802.11g: OFDM(BPSK, QPSK, 16QAM, 64QAM); 802.11n(HT20 and HT40): OFDM (BPSK, QPSK, 16QAM, 64QAM)
Antenna Type:	PIFA ANT
Antenna Gain#:	1.16 dBi
Note:	#: The antenna gain provided by the applicant, and the laboratory will not be responsible for the accumulated calculation results which covers the information provided by the applicant.

3 Summary of Test Results

3.1 Test Standards

The tests were performed according to following standards:

47 CFR Part 15.247: Operation within the bands 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz

3.2 Uncertainty of Test

Item	Measurement Uncertainty
Conducted Emission (150 kHz-30 MHz)	±2.64dB

The following measurement uncertainty levels have been estimated for tests performed on the EUT as specified in CISPR 16-4-2. This uncertainty represents an expanded uncertainty expressed at approximately the 95% confidence level using a coverage factor of k=2.

3.3 Summary of Test Result

Item	Standard	Requirement	Result
Antenna requirement	47 CFR Part 15.247	47 CFR 15.203	Pass
Conducted Emission at AC power line	47 CFR Part 15.247	47 CFR 15.207(a)	Pass
Occupied Bandwidth	47 CFR Part 15.247	47 CFR 15.247(a)(2)	Pass
Maximum Conducted Output Power	47 CFR Part 15.247	47 CFR 15.247(b)(3)	Pass
Power Spectral Density	47 CFR Part 15.247	47 CFR 15.247(e)	Pass
Emissions in non-restricted frequency bands	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Band edge emissions (Radiated)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (below 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass
Emissions in restricted frequency bands (above 1GHz)	47 CFR Part 15.247	47 CFR 15.247(d)	Pass

4 Test Configuration

4.1 Test Equipment List

Conducted Emission at AC power line					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Pulse Limiter	SCHWARZBECK	VTSD 9561-F	00953	2022-11-24	2023-11-23
Coaxial Switcher	SCHWARZBECK	CX210	CX210	2022-11-24	2023-11-23
V-LISN	SCHWARZBECK	NSLK 8127	01073	2022-11-24	2023-11-23
LISN	AFJ	LS16/110VAC	16010020076	2023-02-23	2024-02-22
EMI Receiver	ROHDE&SCHWARZ	ESCI3	101422	2022-11-24	2023-11-23

Occupied Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Maximum Conducted Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Power Spectral Density					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date

RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Emissions in non-restricted frequency bands

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
RFTest software	/	V1.00	/	/	/
RF Control Unit	Techy	TR1029-1	/	2022-11-24	2023-11-23
RF Sensor Unit	Techy	TR1029-2	/	2022-11-24	2023-11-23
Programmable constant temperature and humidity box	ZZCKONG	ZZ-K02A	20210928007	2022-11-24	2023-11-23
Adjustable Direct Current Regulated Power Supply	Dongguan Tongmen Electronic Technology Co., LTD	etm-6050c	20211026123	2022-11-24	2023-11-23
WIDEBAND RADIO COMMUNICATION TESTER	Rohde & Schwarz	CMW500	161997	2022-11-24	2023-11-23
MXA Signal Analyzer	KEYSIGHT	N9020A	MY50410020	2022-11-24	2023-11-23

Band edge emissions (Radiated)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMAMAM-10m	21101566	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMAMAM-1m	21101568	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2022-11-24	2023-11-23

SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

Emissions in restricted frequency bands (below 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESC17	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

Emissions in restricted frequency bands (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Coaxial cable Multiflex 141	Schwarzbeck	N/SMA 0.5m	517386	2023-03-24	2024-03-23
Preamplifier	SCHWARZBECK	BBV9744	00246	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-10m	21101566	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-10m	21101570	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF1-SMASMAM-1m	21101568	2022-11-24	2023-11-23

RE Cable	REBES Talent	UF2-NMNM-1m	21101576	2022-11-24	2023-11-23
RE Cable	REBES Talent	UF2-NMNM-2.5m	21101573	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Horn Antenna	SCHWARZBECK	BBHA9170	01157	2021-11-28	2023-11-27
EMI TEST RECEIVER	ROHDE&SCHWARZ	ESCI7	101032	2022-11-24	2023-11-23
SIGNAL ANALYZER	ROHDE&SCHWARZ	FSQ40	100010	2022-11-24	2023-11-23
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplifier	SCHWARZBECK	BBV9718D	00008	2023-03-24	2024-03-23
Horn Antenna	SCHWARZBECK	BBHA9120D	2597	2022-05-22	2024-05-21
EZ EMC	Frad	FA-03A2 RE+	/	/	/
POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Log periodic antenna	SCHWARZBECK	VULB 9168	01328	2021-11-28	2023-11-27

4.2 Test Auxiliary Equipment

The EUT was tested as an independent device.

4.3 Test Modes

No.	Test Modes	Description
TM1	802.11b mode	Keep the EUT in 802.11b transmitting mode.
TM2	802.11g mode	Keep the EUT in 802.11g transmitting mode.
TM3	802.11n(HT20) mode	Keep the EUT in 802.11n(HT20) transmitting mode.
TM4	802.11n(HT40) mode	Keep the EUT in 802.11n(HT40) transmitting mode.

5 Evaluation Results (Evaluation)

5.1 Antenna requirement

Test Requirement:	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.
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6 Radio Spectrum Matter Test Results (RF)

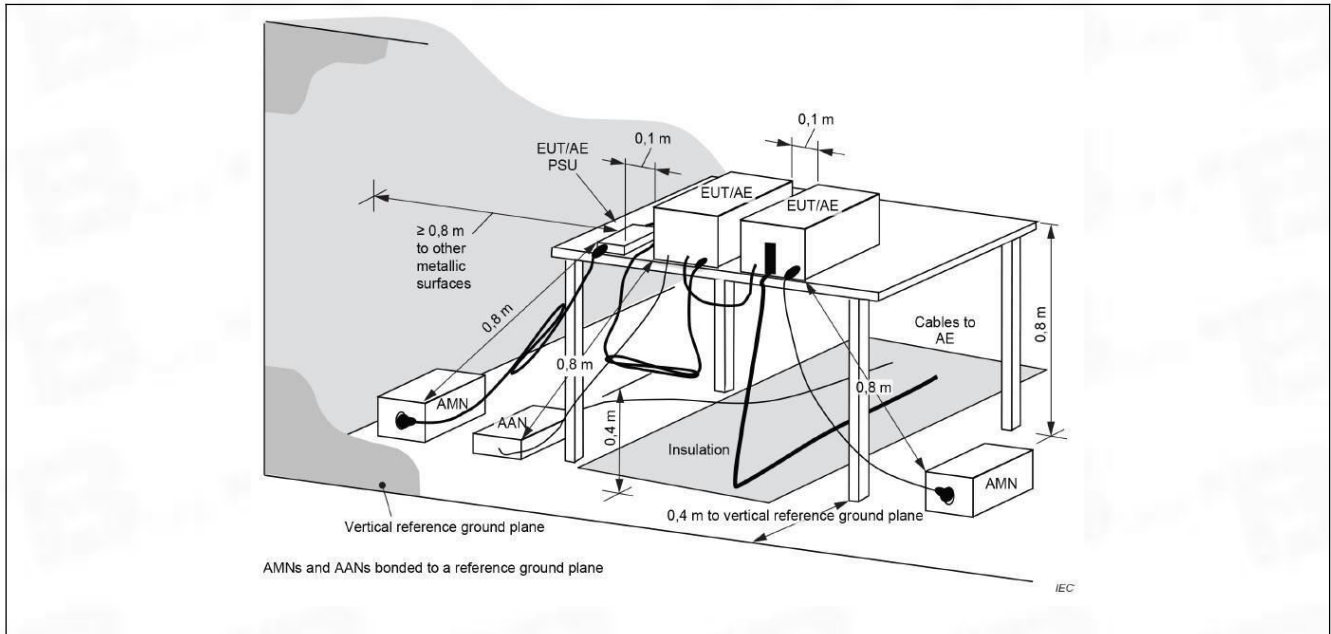
6.1 Conducted Emission at AC power line

Test Requirement:	Refer to 47 CFR 15.207(a), Except as shown in paragraphs (b) and (c) of this section, for an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50 μ H/50 ohms line impedance stabilization network (LISN).		
Test Method:	ANSI C63.10-2013 section 6.2 ANSI C63.10-2020 section 6.2		
Test Limit:	Frequency of emission (MHz)	Conducted limit (dB μ V)	
		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.		
Procedure:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices Refer to ANSI C63.10-2020 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices		

6.1.1 E.U.T. Operation:

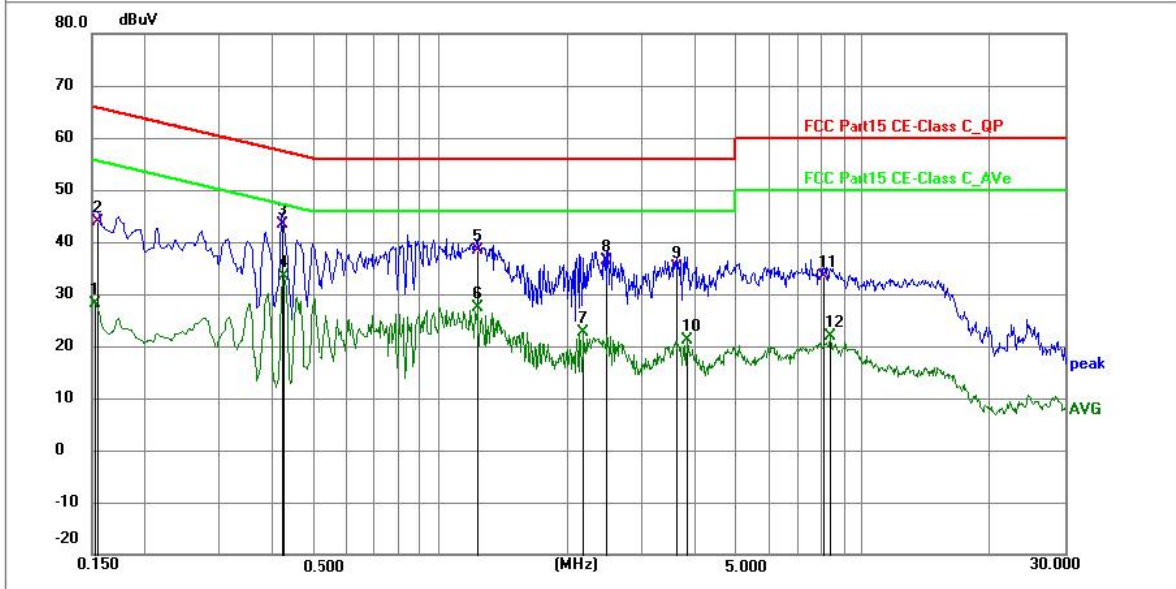
Operating Environment:	
Temperature:	23.3 °C
Humidity:	46.7 %
Atmospheric Pressure:	1010 mbar

6.1.2 Test Setup Diagram:



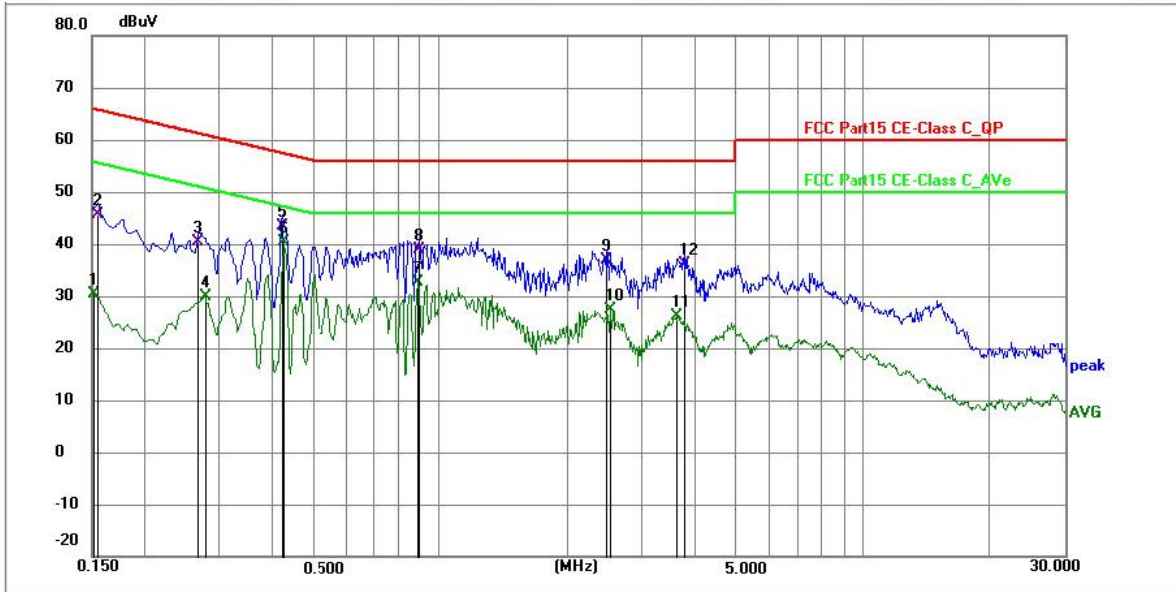
6.1.3 Test Data:

TM1 / Line: Line / Band: 2.4G / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1524	17.62	10.54	28.16	55.87	-27.71	AVG	P	
2	0.1544	33.25	10.55	43.80	65.76	-21.96	QP	P	
3	0.4200	32.90	10.60	43.50	57.45	-13.95	QP	P	
4 *	0.4244	22.85	10.60	33.45	47.36	-13.91	AVG	P	
5	1.2255	27.74	10.76	38.50	56.00	-17.50	QP	P	
6	1.2255	16.51	10.76	27.27	46.00	-18.73	AVG	P	
7	2.1794	11.92	10.69	22.61	46.00	-23.39	AVG	P	
8	2.4855	25.70	10.70	36.40	56.00	-19.60	QP	P	
9	3.6240	24.38	10.72	35.10	56.00	-20.90	QP	P	
10	3.8264	10.48	10.73	21.21	46.00	-24.79	AVG	P	
11	8.0295	22.49	10.81	33.30	60.00	-26.70	QP	P	
12	8.3310	10.94	10.83	21.77	50.00	-28.23	AVG	P	

TM1 / Line: Neutral / Band: 2.4G / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.1515	19.72	10.54	30.26	55.92	-25.66	AVG	P	
2	0.1544	35.15	10.55	45.70	65.76	-20.06	QP	P	
3	0.2670	29.71	10.59	40.30	61.21	-20.91	QP	P	
4	0.2760	19.35	10.59	29.94	50.94	-21.00	AVG	P	
5	0.4200	32.90	10.60	43.50	57.45	-13.95	QP	P	
6 *	0.4244	29.83	10.60	40.43	47.36	-6.93	AVG	P	
7	0.8880	21.78	10.76	32.54	46.00	-13.46	AVG	P	
8	0.8970	28.14	10.76	38.90	56.00	-17.10	QP	P	
9	2.4855	26.10	10.70	36.80	56.00	-19.20	QP	P	
10	2.5304	16.59	10.70	27.29	46.00	-18.71	AVG	P	
11	3.6375	15.35	10.72	26.07	46.00	-19.93	AVG	P	
12	3.7905	25.37	10.73	36.10	56.00	-19.90	QP	P	

6.2 Occupied Bandwidth

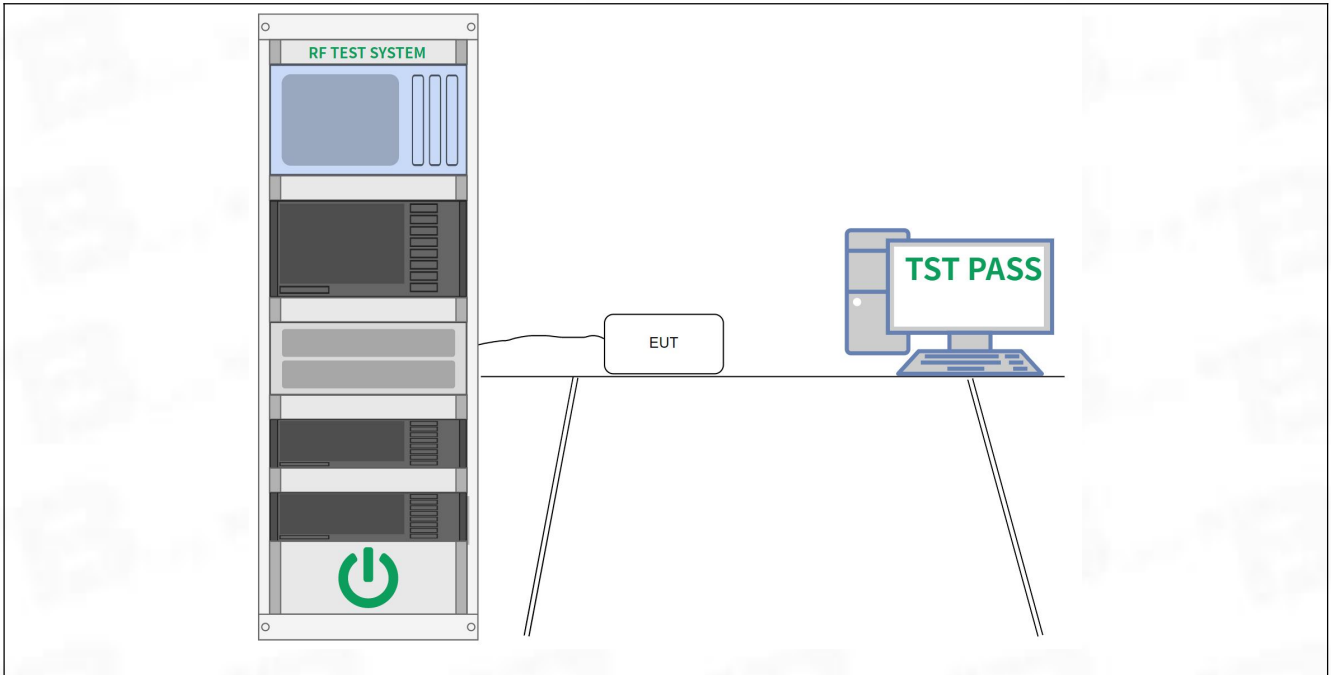
Test Requirement:	47 CFR 15.247(a)(2)
Test Method:	ANSI C63.10-2013, section 11.8 ANSI C63.10-2020, section 11.8 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(a)(2), Systems using digital modulation techniques may operate in the 902-928 MHz, and 2400-2483.5 MHz bands. The minimum 6 dB bandwidth shall be at least 500 kHz.
Procedure:	<p>a) Set RBW = 100 kHz. b) Set the VBW \geq [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.</p> <p>11.8.1 Option 1 The steps for the first option are as follows: a) Set RBW = shall be in the range of 1% to 5% of the OBW but not less than 100 kHz. b) Set the VBW \geq [3 × RBW]. c) Detector = peak. d) Trace mode = max-hold. e) Sweep = No faster than coupled (auto) time. f) Allow the trace to stabilize. g) Measure the maximum width of the emission by placing two markers, one at the lowest frequency and the other at the highest frequency of the envelope of the spectral display, such that each marker is at or slightly below the “-6 dB down amplitude”. If a marker is below this “-6 dB down amplitude” value, then it shall be as close as possible to this value.</p> <p>11.8.2 Option 2 The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described in 11.8.1 (i.e., RBW = 100 kHz, VBW \geq 3 × RBW, and peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be \geq 6 dB.</p>

6.2.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.4 °C
Humidity:	51.3 %
Atmospheric Pressure:	1010 mbar

6.2.2 Test Setup Diagram:

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6.2.3 Test Data:

Please Refer to Appendix for Details.

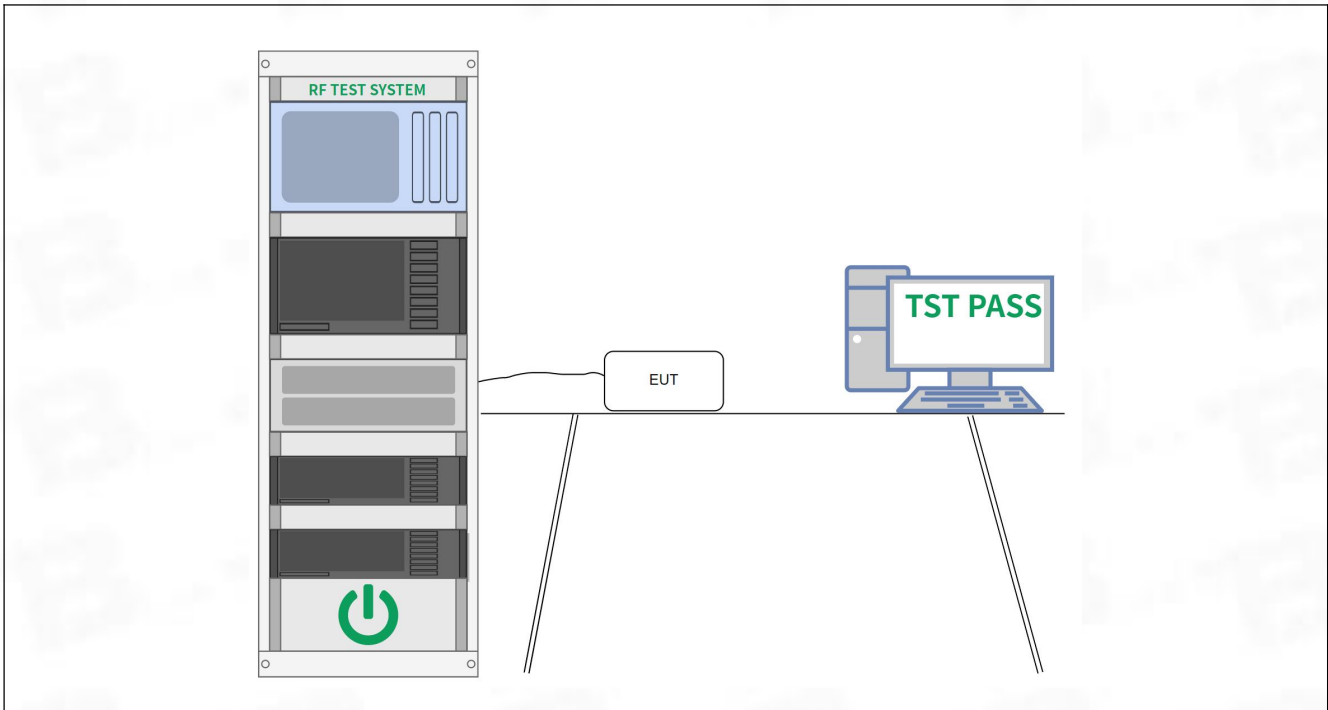
6.3 Maximum Conducted Output Power

Test Requirement:	47 CFR 15.247(b)(3)
Test Method:	ANSI C63.10-2013, section 11.9.1 ANSI C63.10-2020 section 11.9.1 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(b)(3), For systems using digital modulation in the 902-928 MHz, 2400-2483.5 MHz, and 5725-5850 MHz bands: 1 Watt. As an alternative to a peak power measurement, compliance with the one Watt limit can be based on a measurement of the maximum conducted output power. Maximum Conducted Output Power is defined as the total transmit power delivered to all antennas and antenna elements averaged across all symbols in the signaling alphabet when the transmitter is operating at its maximum power control level. Power must be summed across all antennas and antenna elements. The average must not include any time intervals during which the transmitter is off or is transmitting at a reduced power level. If multiple modes of operation are possible (e.g., alternative modulation methods), the maximum conducted output power is the highest total transmit power occurring in any mode.
Procedure:	ANSI C63.10-2013, section 11.9.1 Maximum peak conducted output power ANSI C63.10-2020, section 11.9.1 Maximum peak conducted output power

6.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.4 °C
Humidity:	51.3 %
Atmospheric Pressure:	1010 mbar

6.3.2 Test Setup Diagram:



6.3.3 Test Data:

Please Refer to Appendix for Details.

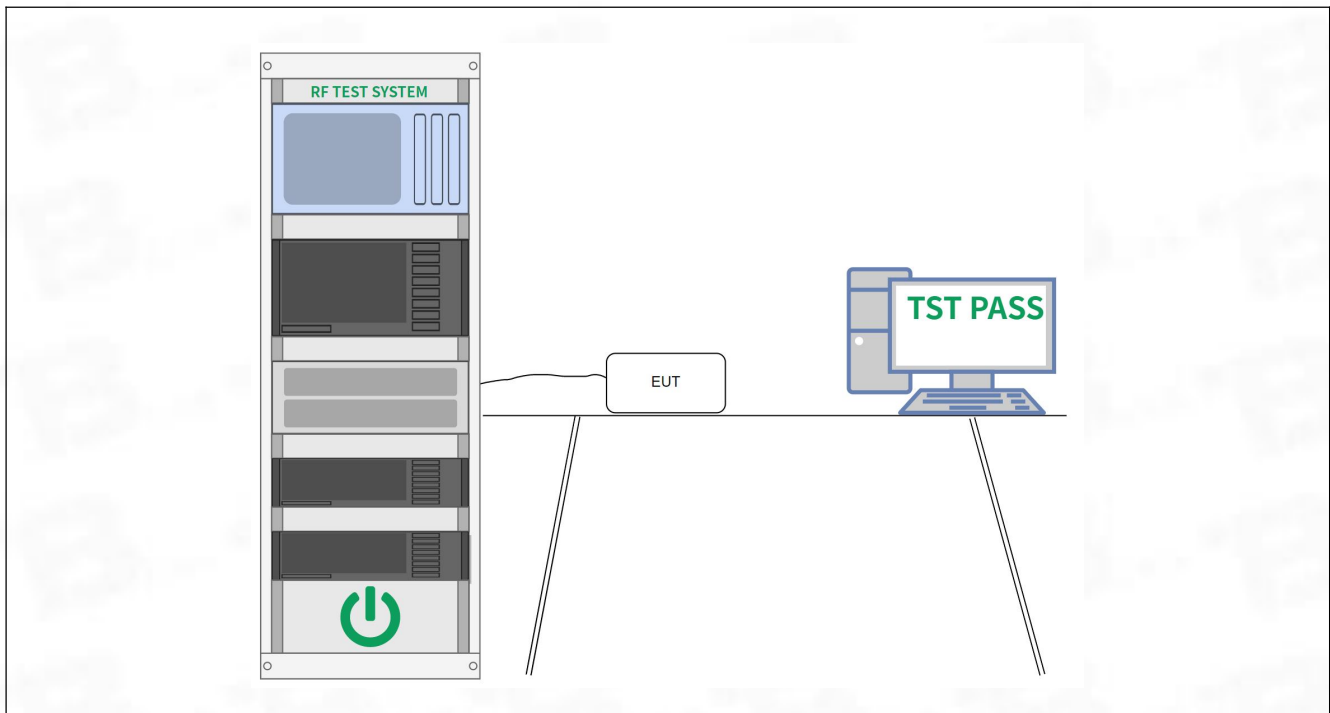
6.4 Power Spectral Density

Test Requirement:	47 CFR 15.247(e)
Test Method:	ANSI C63.10-2013, section 11.10 ANSI C63.10-2020, section 11.10 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(e), For digitally modulated systems, the power spectral density conducted from the intentional radiator to the antenna shall not be greater than 8 dBm in any 3 kHz band during any time interval of continuous transmission. This power spectral density shall be determined in accordance with the provisions of paragraph (b) of this section. The same method of determining the conducted output power shall be used to determine the power spectral density.
Procedure:	ANSI C63.10-2013, section 11.10, Maximum power spectral density level in the fundamental emission ANSI C63.10-2020, section 11.10, Maximum power spectral density level in the fundamental emission

6.4.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.4 °C
Humidity:	51.3 %
Atmospheric Pressure:	1010 mbar

6.4.2 Test Setup Diagram:



6.4.3 Test Data:

Please Refer to Appendix for Details.

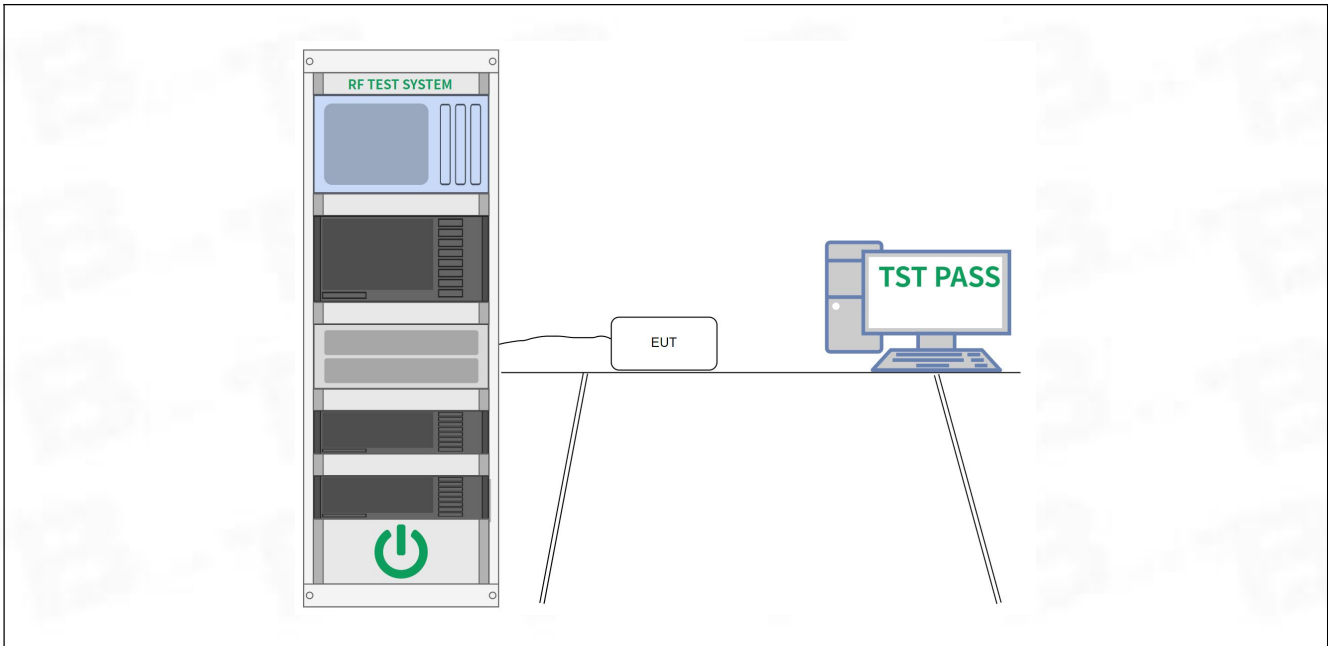
6.5 Emissions in non-restricted frequency bands

Test Requirement:	47 CFR 15.247(d)
Test Method:	ANSI C63.10-2013 section 11.11 ANSI C63.10-2020 section 11.11 KDB 558074 D01 15.247 Meas Guidance v05r02
Test Limit:	Refer to 47 CFR 15.247(d), In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in § 15.209(a) is not required.
Procedure:	ANSI C63.10-2013 Section 11.11.1, Section 11.11.2, Section 11.11.3 ANSI C63.10-2020 Section 11.11.1, Section 11.11.2, Section 11.11.3

6.5.1 E.U.T. Operation:

Operating Environment:	
Temperature:	22.4 °C
Humidity:	51.3 %
Atmospheric Pressure:	1010 mbar

6.5.2 Test Setup Diagram:



6.5.3 Test Data:

Please Refer to Appendix for Details.

6.6 Band edge emissions (Radiated)

Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Method:	ANSI C63.10-2013 section 6.10 ANSI C63.10-2020 section 6.10 KDB 558074 D01 15.247 Meas Guidance v05r02		
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.			
Procedure:	ANSI C63.10-2013 section 6.10.5.2 ANSI C63.10-2020 section 6.10.5.2		

6.6.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.3 °C
Humidity:	46.7 %
Atmospheric Pressure:	1010 mbar

6.6.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	71.43	-30.59	40.84	74.00	-33.16	peak	P
2	2390.000	73.28	-30.49	42.79	74.00	-31.21	peak	P
3 *	2400.000	81.86	-30.48	51.38	74.00	-22.62	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	68.93	-30.59	38.34	74.00	-35.66	peak	P
2	2390.000	70.28	-30.49	39.79	74.00	-34.21	peak	P
3 *	2400.000	79.86	-30.48	49.38	74.00	-24.62	peak	P

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	82.31	-30.39	51.92	74.00	-22.08	peak	P
2	2500.000	72.25	-30.37	41.88	74.00	-32.12	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	79.81	-30.39	49.42	74.00	-24.58	peak	P
2	2500.000	72.75	-30.37	42.38	74.00	-31.62	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	69.42	-30.59	38.83	74.00	-35.17	peak	P
2	2390.000	73.46	-30.49	42.97	74.00	-31.03	peak	P
3 *	2400.000	81.43	-30.48	50.95	74.00	-23.05	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	72.92	-30.59	42.33	74.00	-31.67	peak	P
2	2390.000	71.96	-30.49	41.47	74.00	-32.53	peak	P
3 *	2400.000	82.43	-30.48	51.95	74.00	-22.05	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	78.92	-30.39	48.53	74.00	-25.47	peak	P
2	2500.000	70.11	-30.37	39.74	74.00	-34.26	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	81.92	-30.39	51.53	74.00	-22.47	peak	P
2	2500.000	72.11	-30.37	41.74	74.00	-32.26	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	67.88	-30.59	37.29	74.00	-36.71	peak	P
2	2390.000	69.77	-30.49	39.28	74.00	-34.72	peak	P
3 *	2400.000	81.74	-30.48	51.26	74.00	-22.74	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	69.88	-30.59	39.29	74.00	-34.71	peak	P
2	2390.000	74.27	-30.49	43.78	74.00	-30.22	peak	P
3 *	2400.000	82.74	-30.48	52.26	74.00	-21.74	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	77.39	-30.39	47.00	74.00	-27.00	peak	P
2	2500.000	70.65	-30.37	40.28	74.00	-33.72	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	78.39	-30.39	48.00	74.00	-26.00	peak	P
2	2500.000	72.15	-30.37	41.78	74.00	-32.22	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	69.14	-30.59	38.55	74.00	-35.45	peak	P
2	2390.000	72.62	-30.49	42.13	74.00	-31.87	peak	P
3 *	2400.000	81.13	-30.48	50.65	74.00	-23.35	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2310.000	69.02	-30.59	38.43	74.00	-35.57	peak	P
2	2390.000	70.60	-30.49	40.11	74.00	-33.89	peak	P
3 *	2400.000	80.72	-30.48	50.24	74.00	-23.76	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	78.87	-30.39	48.48	74.00	-25.52	peak	P
2	2500.000	78.06	-30.37	47.69	74.00	-26.31	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1 *	2483.500	79.87	-30.39	49.48	74.00	-24.52	peak	P
2	2500.000	75.56	-30.37	45.19	74.00	-28.81	peak	P

6.7 Emissions in restricted frequency bands (below 1GHz)

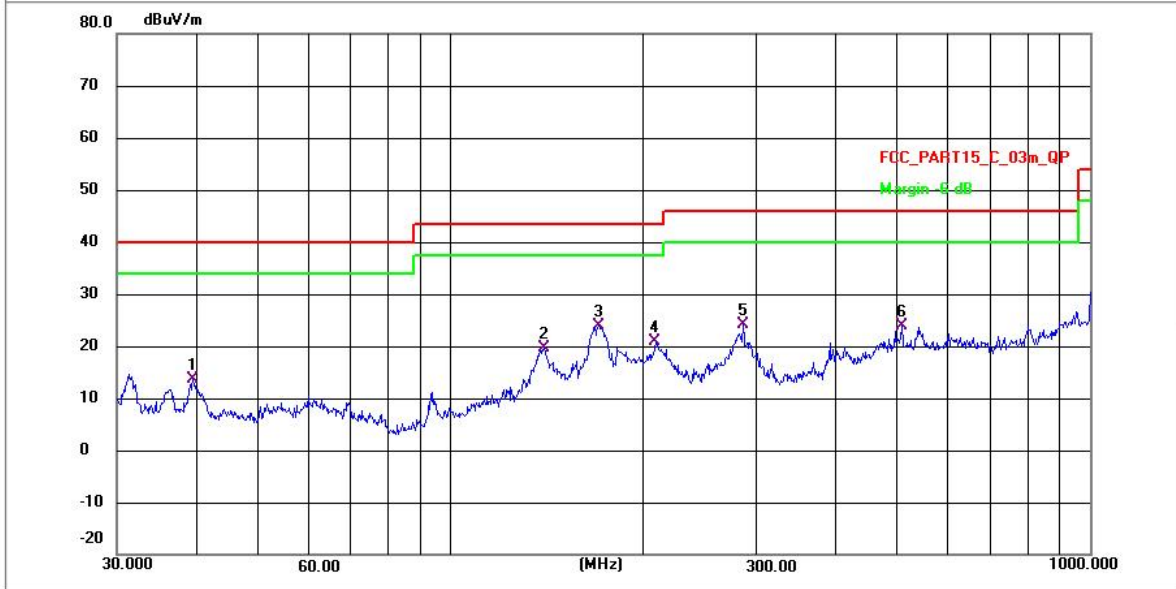
Test Requirement:	Refer to 47 CFR 15.247(d), In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Method:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02		
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.			
Procedure:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4		

6.7.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.3 °C
Humidity:	46.7 %
Atmospheric Pressure:	1010 mbar

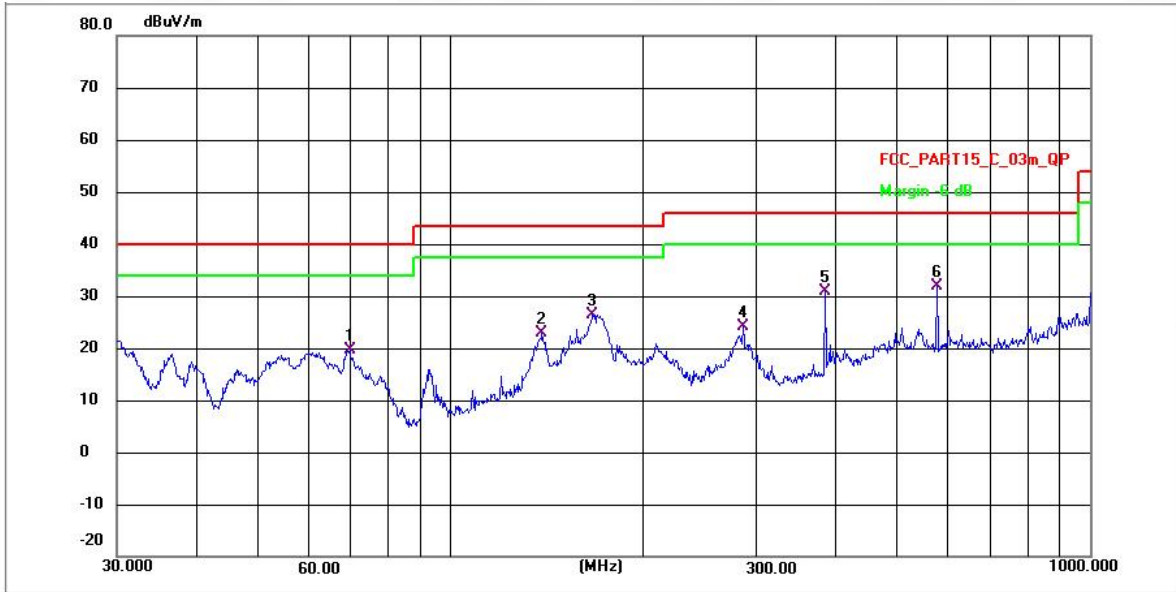
6.7.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	39.4371	32.16	-18.41	13.75	40.00	-26.25	QP	P
2	139.8508	47.50	-27.87	19.63	43.50	-23.87	QP	P
3 *	170.1948	51.56	-27.60	23.96	43.50	-19.54	QP	P
4	209.3129	47.79	-26.92	20.87	43.50	-22.63	QP	P
5	285.9778	49.74	-25.55	24.19	46.00	-21.81	QP	P
6	508.2582	45.10	-21.22	23.88	46.00	-22.12	QP	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	69.6005	39.69	-19.99	19.70	40.00	-20.30	QP	P
2	138.8735	50.78	-27.88	22.90	43.50	-20.60	QP	P
3	166.6514	53.97	-27.63	26.34	43.50	-17.16	QP	P
4	285.9778	49.74	-25.55	24.19	46.00	-21.81	QP	P
5	383.9318	55.54	-24.76	30.78	46.00	-15.22	QP	P
6 *	576.6443	53.75	-21.95	31.80	46.00	-14.20	QP	P

6.8 Emissions in restricted frequency bands (above 1GHz)

Test Requirement:	In addition, radiated emissions which fall in the restricted bands, as defined in § 15.205(a), must also comply with the radiated emission limits specified in § 15.209(a)(see § 15.205(c)).		
Test Method:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4 KDB 558074 D01 15.247 Meas Guidance v05r02		
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.			
Procedure:	ANSI C63.10-2013 section 6.6.4 ANSI C63.10-2020 section 6.6.4		

6.8.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.3 °C
Humidity:	46.7 %
Atmospheric Pressure:	1010 mbar

6.8.2 Test Data:

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2991.395	65.22	-29.53	35.69	74.00	-38.31	peak	P
2	4448.593	63.86	-28.81	35.05	74.00	-38.95	peak	P
3	7347.474	65.09	-24.83	40.26	74.00	-33.74	peak	P
4	11221.100	66.09	-23.28	42.81	74.00	-31.19	peak	P
5	14317.095	68.50	-21.16	47.34	74.00	-26.66	peak	P
6 *	17092.403	68.93	-17.92	51.01	74.00	-22.99	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3047.246	64.10	-29.47	34.63	74.00	-39.37	peak	P
2	5228.685	63.90	-27.17	36.73	74.00	-37.27	peak	P
3	7173.305	64.64	-24.88	39.76	74.00	-34.24	peak	P
4	11221.100	68.59	-23.28	45.31	74.00	-28.69	peak	P
5	13357.598	66.76	-21.08	45.68	74.00	-28.32	peak	P
6 *	15713.564	68.13	-21.54	46.59	74.00	-27.41	peak	P

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2897.783	64.63	-29.68	34.95	74.00	-39.05	peak	P
2	4299.426	60.44	-28.87	31.57	74.00	-42.43	peak	P
3	5825.586	63.76	-25.89	37.87	74.00	-36.13	peak	P
4	8288.633	64.30	-25.41	38.89	74.00	-35.11	peak	P
5	11593.646	67.16	-22.90	44.26	74.00	-29.74	peak	P
6 *	14350.239	68.53	-21.16	47.37	74.00	-26.63	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2897.783	63.63	-29.68	33.95	74.00	-40.05	peak	P
2	4164.880	63.16	-28.93	34.23	74.00	-39.77	peak	P
3	6399.352	62.94	-25.37	37.57	74.00	-36.43	peak	P
4	8843.028	66.94	-24.63	42.31	74.00	-31.69	peak	P
5	11902.632	69.17	-22.36	46.81	74.00	-27.19	peak	P
6 *	14865.293	70.01	-20.61	49.40	74.00	-24.60	peak	P

TM1 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3545.552	62.43	-29.05	33.38	74.00	-40.62	peak	P
2	4779.181	66.18	-28.00	38.18	74.00	-35.82	peak	P
3	6704.183	65.23	-25.20	40.03	74.00	-33.97	peak	P
4	8665.908	67.26	-24.98	42.28	74.00	-31.72	peak	P
5	11095.321	69.00	-23.37	45.63	74.00	-28.37	peak	P
6 *	15007.760	70.14	-20.42	49.72	74.00	-24.28	peak	P

TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3161.182	64.74	-29.37	35.37	74.00	-38.63	peak	P
2	4502.926	65.05	-28.77	36.28	74.00	-37.72	peak	P
3	7173.305	62.14	-24.88	37.26	74.00	-36.74	peak	P
4	10713.986	64.59	-24.06	40.53	74.00	-33.47	peak	P
5	13528.560	67.95	-20.97	46.98	74.00	-27.02	peak	P
6 *	14955.796	69.79	-20.47	49.32	74.00	-24.68	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3157.529	62.42	-29.37	33.05	74.00	-40.95	peak	P
2	4523.799	60.82	-28.72	32.10	74.00	-41.90	peak	P
3	6760.614	65.32	-25.14	40.18	74.00	-33.82	peak	P
4	9901.070	69.92	-24.07	45.85	74.00	-28.15	peak	P
5	12596.397	69.49	-21.56	47.93	74.00	-26.07	peak	P
6 *	15301.225	71.79	-21.06	50.73	74.00	-23.27	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3130.268	60.92	-29.39	31.53	74.00	-42.47	peak	P
2	4059.108	60.52	-28.97	31.55	74.00	-42.45	peak	P
3	5961.861	62.63	-25.45	37.18	74.00	-36.82	peak	P
4	8078.132	69.51	-25.50	44.01	74.00	-29.99	peak	P
5	12068.917	68.85	-22.11	46.74	74.00	-27.26	peak	P
6 *	15882.512	71.04	-21.57	49.47	74.00	-24.53	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2991.395	60.22	-29.53	30.69	74.00	-43.31	peak	P
2	4448.593	61.86	-28.81	33.05	74.00	-40.95	peak	P
3	7134.019	63.24	-24.89	38.35	74.00	-35.65	peak	P
4	9978.641	68.18	-24.24	43.94	74.00	-30.06	peak	P
5	13357.598	68.26	-21.08	47.18	74.00	-26.82	peak	P
6 *	17092.403	67.43	-17.92	49.51	74.00	-24.49	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2953.593	60.61	-29.59	31.02	74.00	-42.98	peak	P
2	4478.266	63.34	-28.80	34.54	74.00	-39.46	peak	P
3	7962.228	67.03	-25.47	41.56	74.00	-32.44	peak	P
4	11341.747	69.29	-23.18	46.11	74.00	-27.89	peak	P
5	14350.239	69.53	-21.16	48.37	74.00	-25.63	peak	P
6 *	16798.538	67.40	-18.64	48.76	74.00	-25.24	peak	P

TM2 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2674.821	64.66	-30.07	34.59	74.00	-39.41	peak	P
2	3764.159	62.50	-29.03	33.47	74.00	-40.53	peak	P
3	5533.448	64.35	-26.84	37.51	74.00	-36.49	peak	P
4	8031.569	68.80	-25.52	43.28	74.00	-30.72	peak	P
5	10713.986	68.59	-24.06	44.53	74.00	-29.47	peak	P
6 *	15372.150	71.13	-21.22	49.91	74.00	-24.09	peak	P

TM2 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2991.395	62.22	-29.53	32.69	74.00	-41.31	peak	P
2	3876.785	61.89	-29.02	32.87	74.00	-41.13	peak	P
3	5081.188	65.08	-27.30	37.78	74.00	-36.22	peak	P
4	6590.825	64.93	-25.30	39.63	74.00	-34.37	peak	P
5	9716.791	68.88	-23.67	45.21	74.00	-28.79	peak	P
6 *	13025.893	69.86	-21.32	48.54	74.00	-25.46	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2953.593	60.61	-29.59	31.02	74.00	-42.98	peak	P
2	4156.462	61.07	-28.93	32.14	74.00	-41.86	peak	P
3	5081.188	61.08	-27.30	33.78	74.00	-40.22	peak	P
4	7545.474	64.99	-24.85	40.14	74.00	-33.86	peak	P
5	10077.187	67.83	-24.33	43.50	74.00	-30.50	peak	P
6 *	14955.796	69.29	-20.47	48.82	74.00	-25.18	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2868.615	56.82	-29.73	27.09	74.00	-46.91	peak	P
2	3928.674	63.57	-29.01	34.56	74.00	-39.44	peak	P
3	5493.607	60.58	-26.95	33.63	74.00	-40.37	peak	P
4	8217.072	65.76	-25.44	40.32	74.00	-33.68	peak	P
5	12138.887	66.09	-22.03	44.06	74.00	-29.94	peak	P
6 *	16334.105	68.05	-19.98	48.07	74.00	-25.93	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2645.603	63.20	-30.12	33.08	74.00	-40.92	peak	P
2	3857.783	63.03	-29.01	34.02	74.00	-39.98	peak	P
3	6078.440	59.43	-25.34	34.09	74.00	-39.91	peak	P
4	9978.641	68.18	-24.24	43.94	74.00	-30.06	peak	P
5	14144.343	66.87	-21.12	45.75	74.00	-28.25	peak	P
6 *	15759.048	69.53	-21.55	47.98	74.00	-26.02	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3189.634	60.08	-29.34	30.74	74.00	-43.26	peak	P
2	4684.811	60.96	-28.26	32.70	74.00	-41.30	peak	P
3	6494.383	62.46	-25.38	37.08	74.00	-36.92	peak	P
4	10100.515	63.95	-24.33	39.62	74.00	-34.38	peak	P
5	11937.085	65.73	-22.30	43.43	74.00	-30.57	peak	P
6 *	15323.354	70.00	-21.11	48.89	74.00	-25.11	peak	P

TM3 / Polarization: Horizontal / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3142.052	61.32	-29.38	31.94	74.00	-42.06	peak	P
2	4655.116	64.95	-28.35	36.60	74.00	-37.40	peak	P
3	6880.870	64.06	-25.04	39.02	74.00	-34.98	peak	P
4	8802.227	67.02	-24.71	42.31	74.00	-31.69	peak	P
5	12491.255	68.28	-21.63	46.65	74.00	-27.35	peak	P
6 *	16197.764	70.42	-20.64	49.78	74.00	-24.22	peak	P

TM3 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: H

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3140.237	61.40	-29.38	32.02	74.00	-41.98	peak	P
2	4284.540	67.92	-28.88	39.04	74.00	-34.96	peak	P
3	5773.621	67.28	-26.06	41.22	74.00	-32.78	peak	P
4	7962.228	68.53	-25.47	43.06	74.00	-30.94	peak	P
5	11305.744	68.08	-23.21	44.87	74.00	-29.13	peak	P
6 *	15398.832	69.71	-21.28	48.43	74.00	-25.57	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3020.064	60.24	-29.50	30.74	74.00	-43.26	peak	P
2	4568.475	63.23	-28.59	34.64	74.00	-39.36	peak	P
3	6434.592	61.67	-25.37	36.30	74.00	-37.70	peak	P
4	8943.274	67.65	-24.42	43.23	74.00	-30.77	peak	P
5	12629.207	67.20	-21.55	45.65	74.00	-28.35	peak	P
6 *	16390.857	69.66	-19.71	49.95	74.00	-24.05	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: L

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2692.662	64.91	-30.04	34.87	74.00	-39.13	peak	P
2	4225.507	64.05	-28.91	35.14	74.00	-38.86	peak	P
3	5122.477	63.12	-27.27	35.85	74.00	-38.15	peak	P
4	7015.420	61.48	-24.93	36.55	74.00	-37.45	peak	P
5	10229.790	69.53	-24.39	45.14	74.00	-28.86	peak	P
6 *	13599.128	67.67	-20.99	46.68	74.00	-27.32	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2680.238	63.46	-30.06	33.40	74.00	-40.60	peak	P
2	4858.571	66.79	-27.77	39.02	74.00	-34.98	peak	P
3	7580.450	67.07	-24.90	42.17	74.00	-31.83	peak	P
4	11221.100	64.59	-23.28	41.31	74.00	-32.69	peak	P
5	13981.755	68.82	-21.08	47.74	74.00	-26.26	peak	P
6 *	16920.363	69.32	-18.42	50.90	74.00	-23.10	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: M

No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3254.826	62.51	-29.28	33.23	74.00	-40.77	peak	P
2	5094.423	64.19	-27.29	36.90	74.00	-37.10	peak	P
3	6872.919	64.15	-25.05	39.10	74.00	-34.90	peak	P
4	10942.450	69.16	-23.56	45.60	74.00	-28.40	peak	P
5	13693.792	66.85	-21.02	45.83	74.00	-28.17	peak	P
6 *	15960.745	71.77	-21.59	50.18	74.00	-23.82	peak	P

TM4 / Polarization: Horizontal / Band: 2.4G / BW: 40 / CH: H

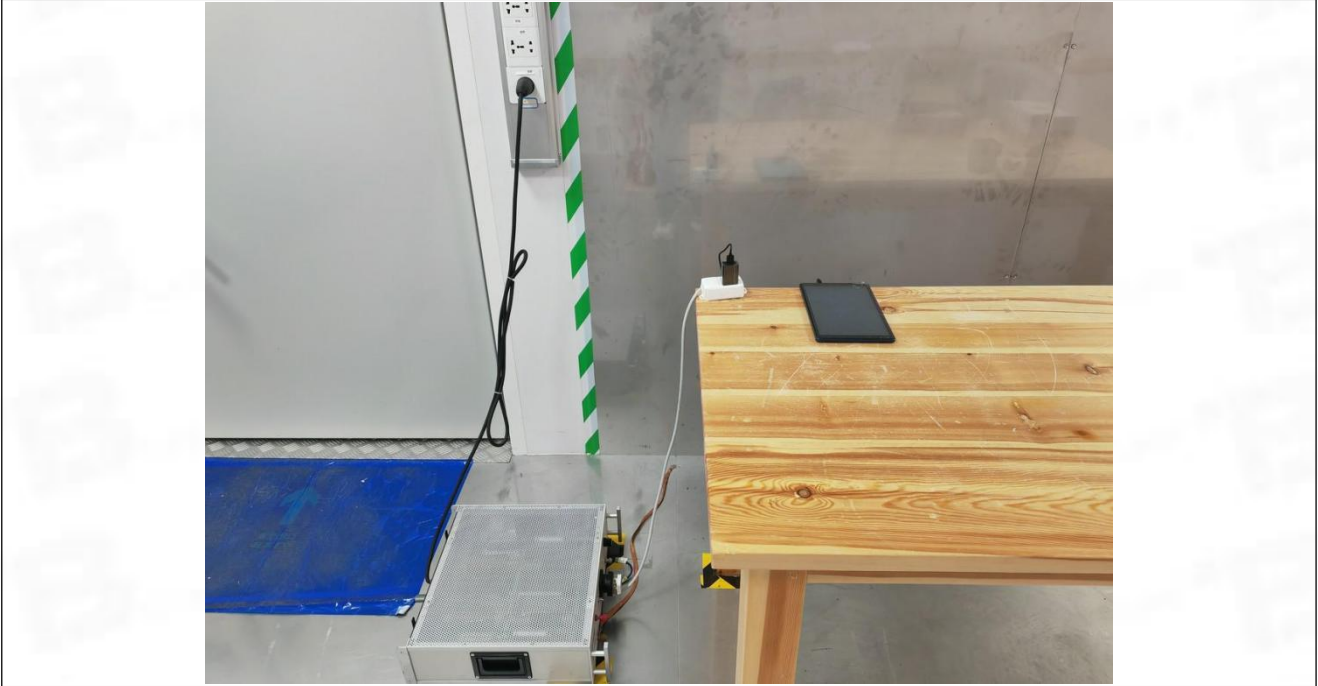
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	2705.925	58.29	-30.01	28.28	74.00	-45.72	peak	P
2	4266.004	65.69	-28.88	36.81	74.00	-37.19	peak	P
3	5893.330	63.58	-25.68	37.90	74.00	-36.10	peak	P
4	9202.880	67.12	-23.85	43.27	74.00	-30.73	peak	P
5	12549.155	67.85	-21.59	46.26	74.00	-27.74	peak	P
6 *	16249.345	69.83	-20.39	49.44	74.00	-24.56	peak	P

TM4 / Polarization: Vertical / Band: 2.4G / BW: 40 / CH: H

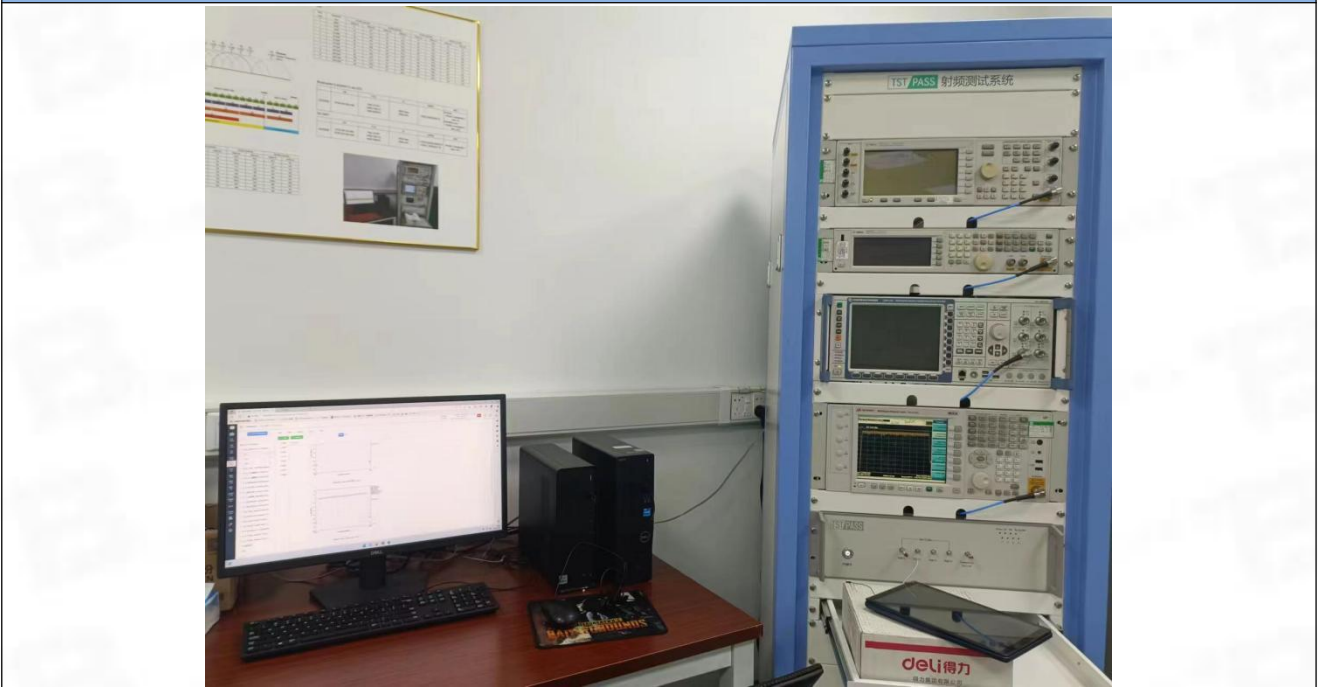
No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	3142.052	63.32	-29.38	33.94	74.00	-40.06	peak	P
2	4126.536	65.04	-28.95	36.09	74.00	-37.91	peak	P
3	5785.315	64.42	-26.03	38.39	74.00	-35.61	peak	P
4	7962.228	69.03	-25.47	43.56	74.00	-30.44	peak	P
5	10366.711	72.32	-24.46	47.86	74.00	-26.14	peak	P
6 *	13953.495	69.69	-21.08	48.61	74.00	-25.39	peak	P

7 Test Setup Photos

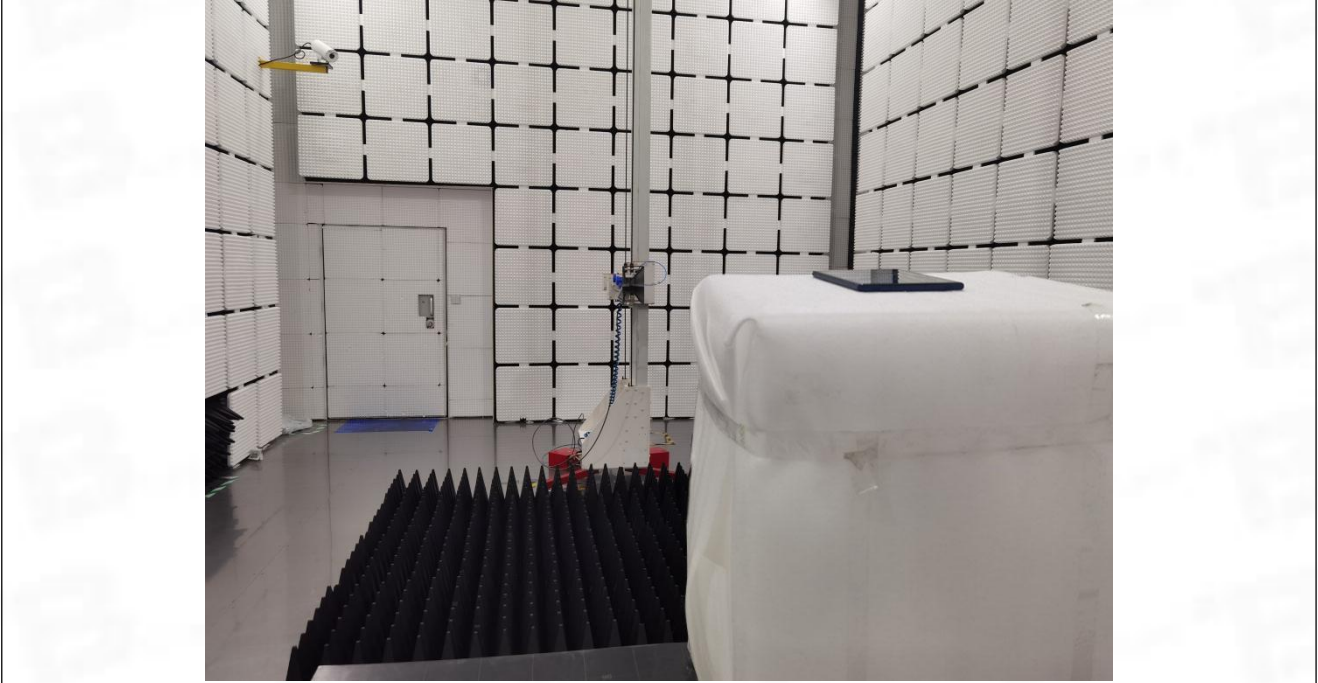
Conducted Emission at AC power line



Occupied Bandwidth
Maximum Conducted Output Power
Power Spectral Density
Emissions in non-restricted frequency bands



Band edge emissions (Radiated)
Emissions in restricted frequency bands (above 1GHz)



Emissions in restricted frequency bands (below 1GHz)



8 EUT Constructional Details (EUT Photos)

Please refer to Report BTF230710R00201

Appendix

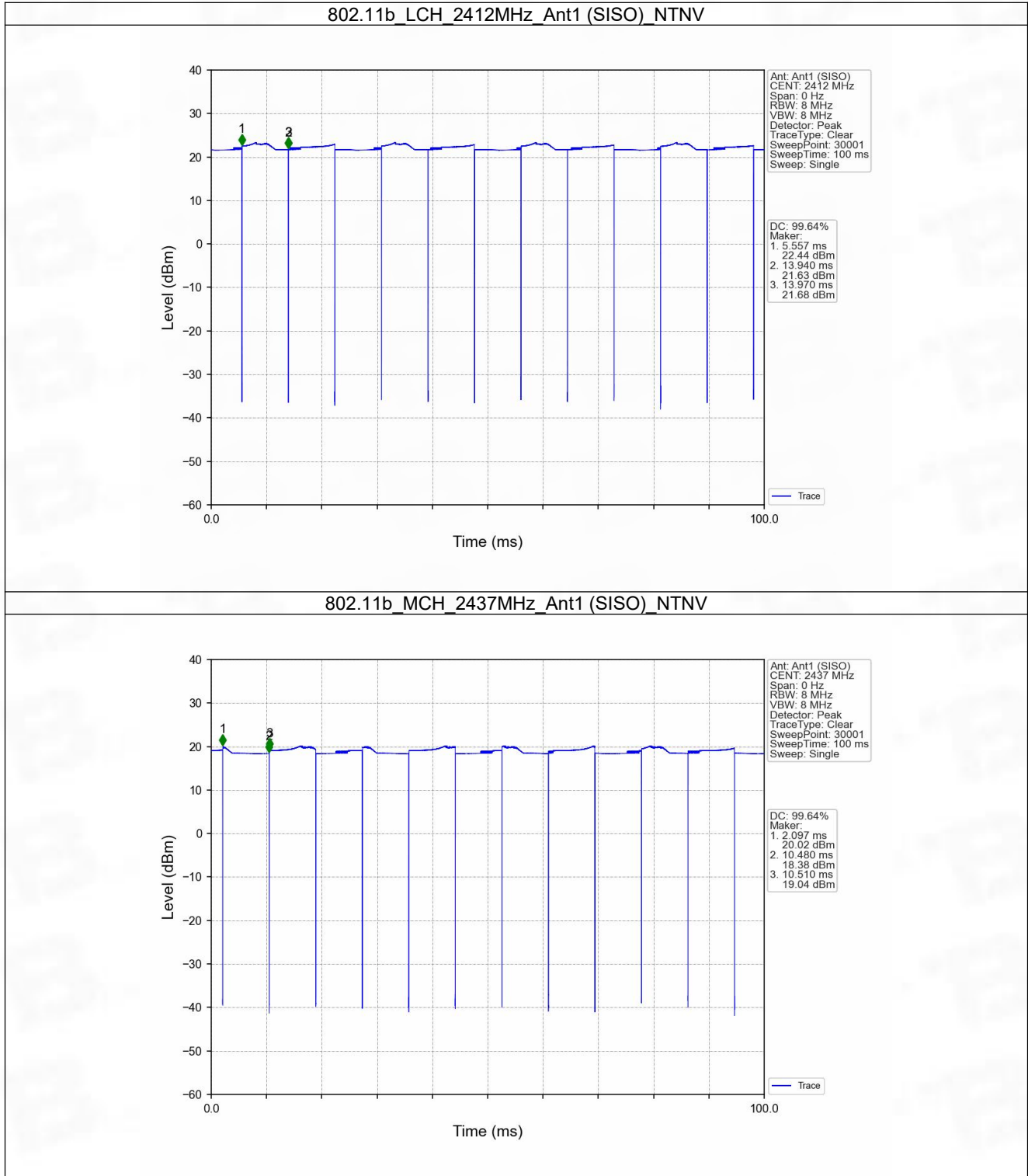
1. Duty Cycle

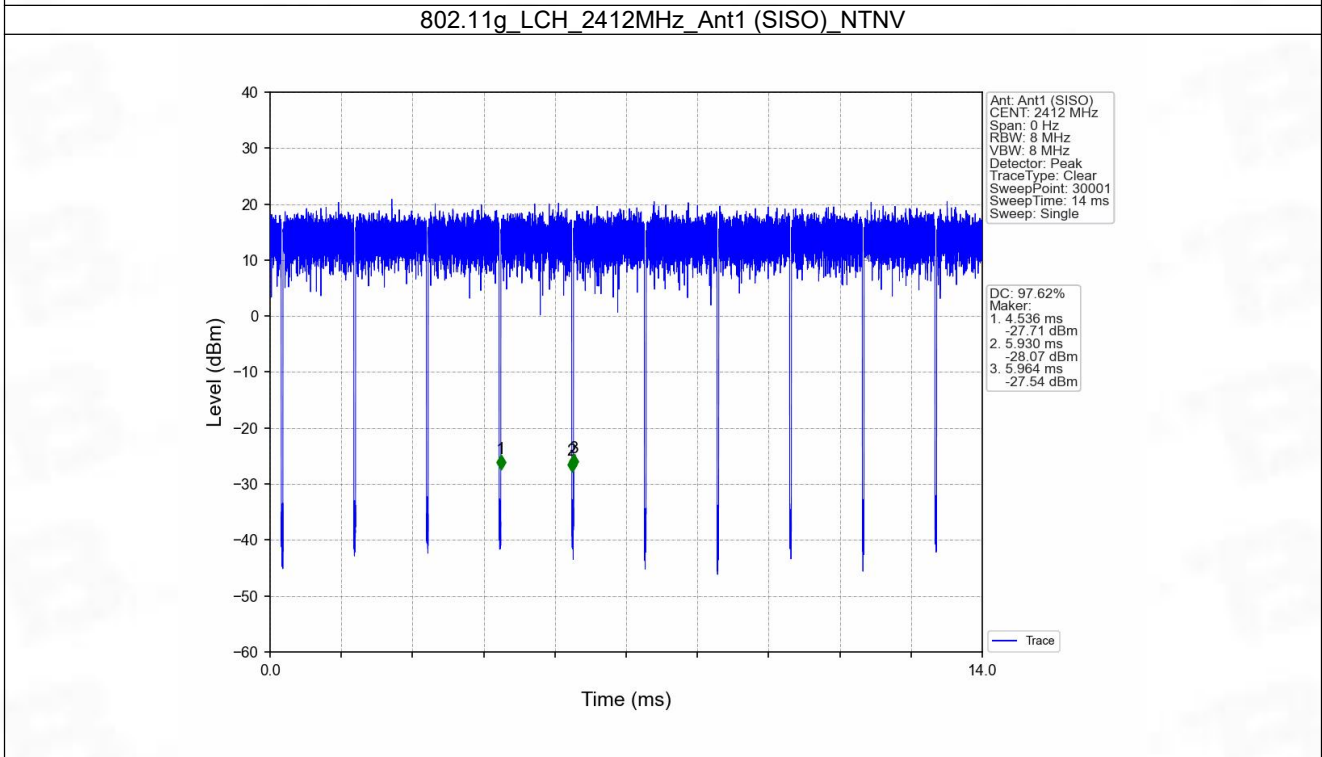
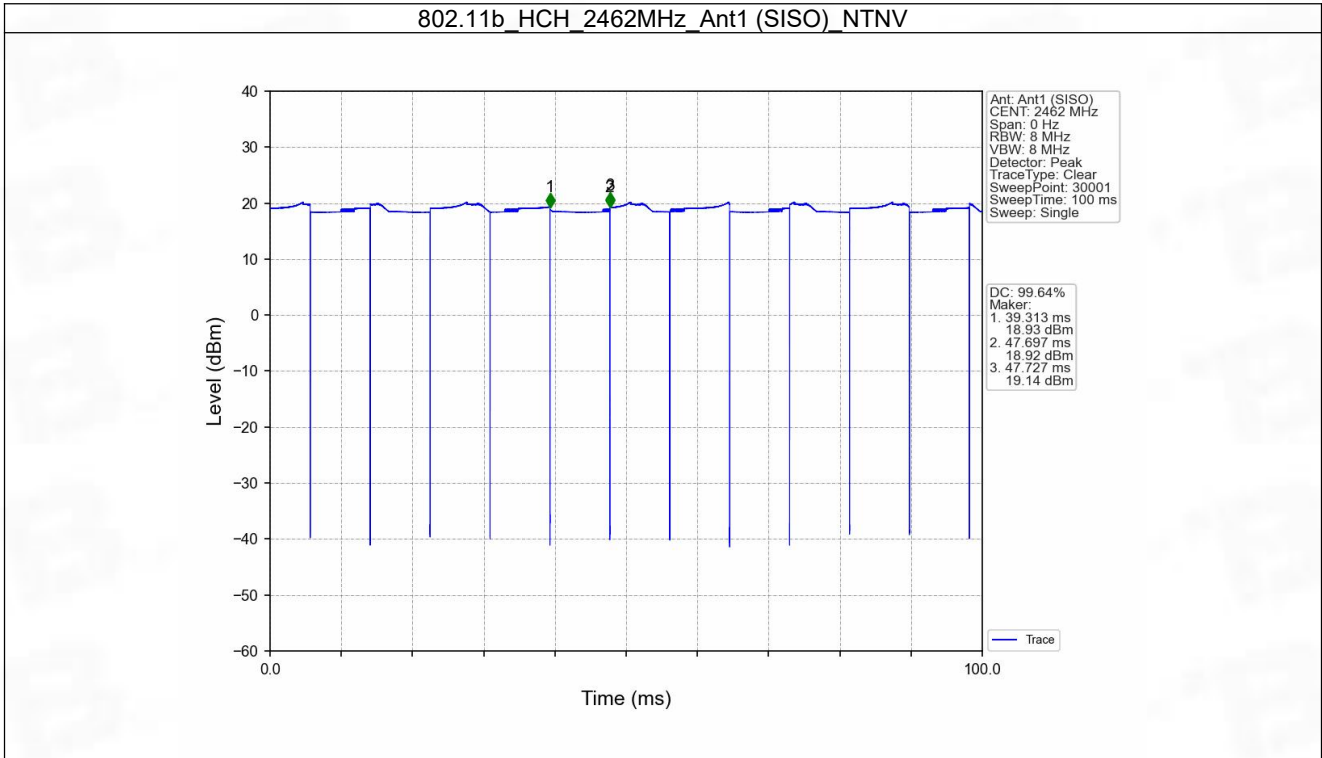
1.1 Ant1

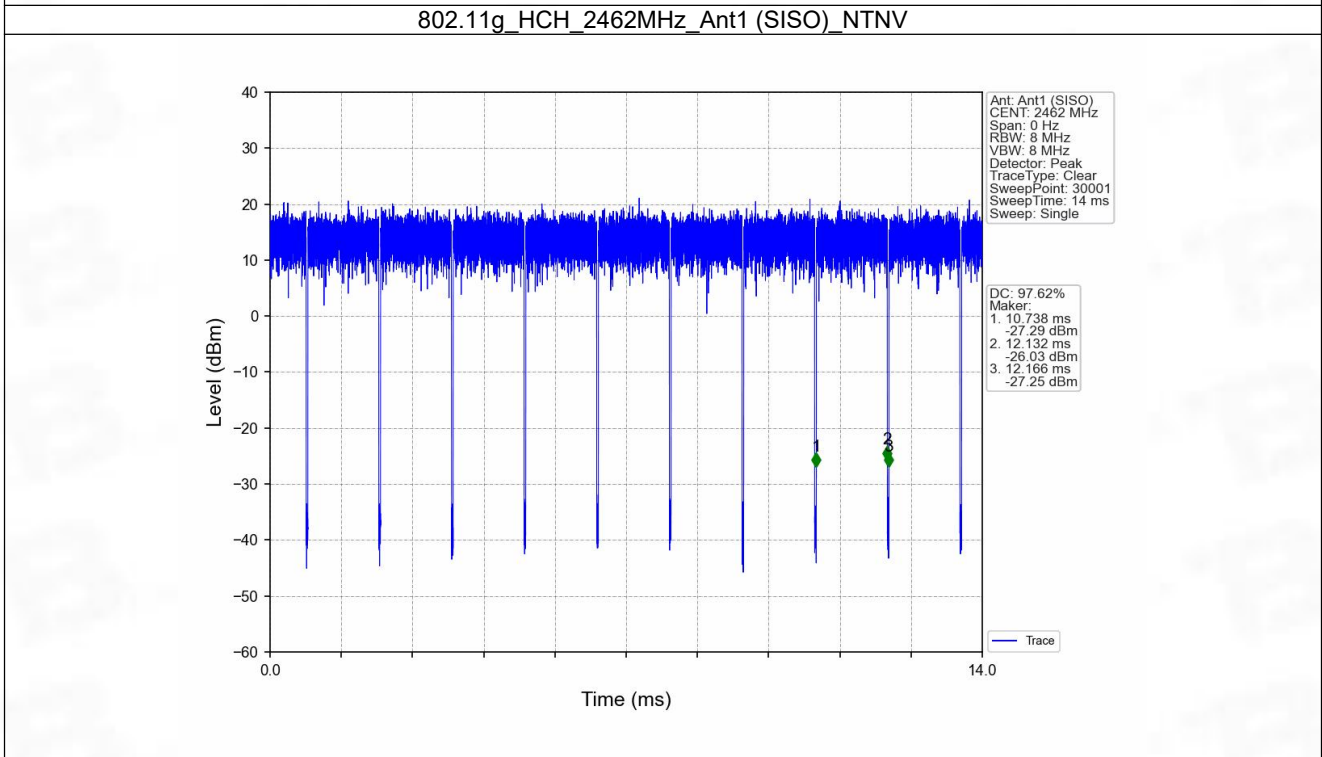
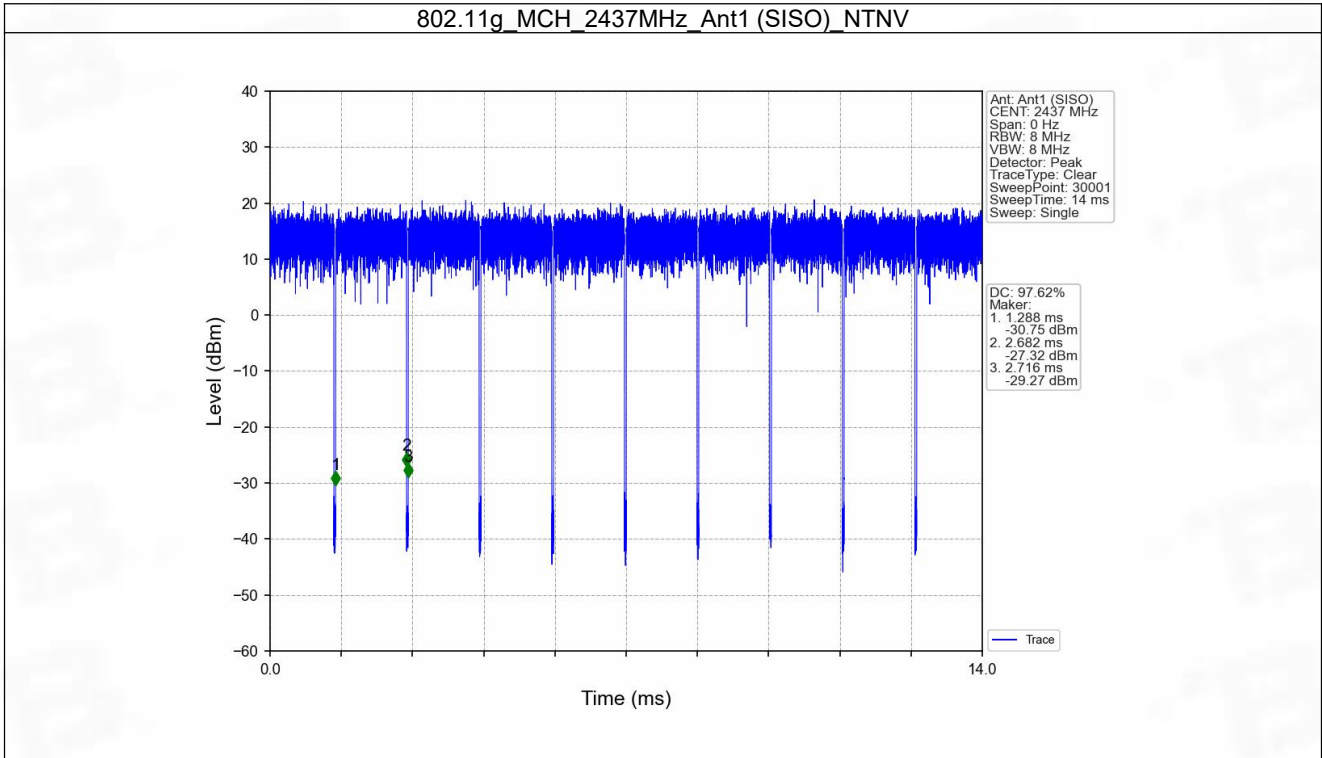
1.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11b	SISO	2412	8.383	8.413	99.64	0.02	0.04
		2437	8.383	8.413	99.64	0.02	0.04
		2462	8.384	8.414	99.64	0.02	0.04
802.11g	SISO	2412	1.394	1.428	97.62	0.10	0.06
		2437	1.394	1.428	97.62	0.10	0.03
		2462	1.394	1.428	97.62	0.10	0.03
802.11n (HT20)	SISO	2412	1.302	1.336	97.46	0.11	0.03
		2437	1.302	1.336	97.46	0.11	0.03
		2462	1.302	1.336	97.46	0.11	0.03
802.11n (HT40)	SISO	2422	0.649	0.683	95.02	0.22	0.07
		2437	0.650	0.683	95.17	0.22	0.03
		2452	0.650	0.683	95.17	0.22	0.03

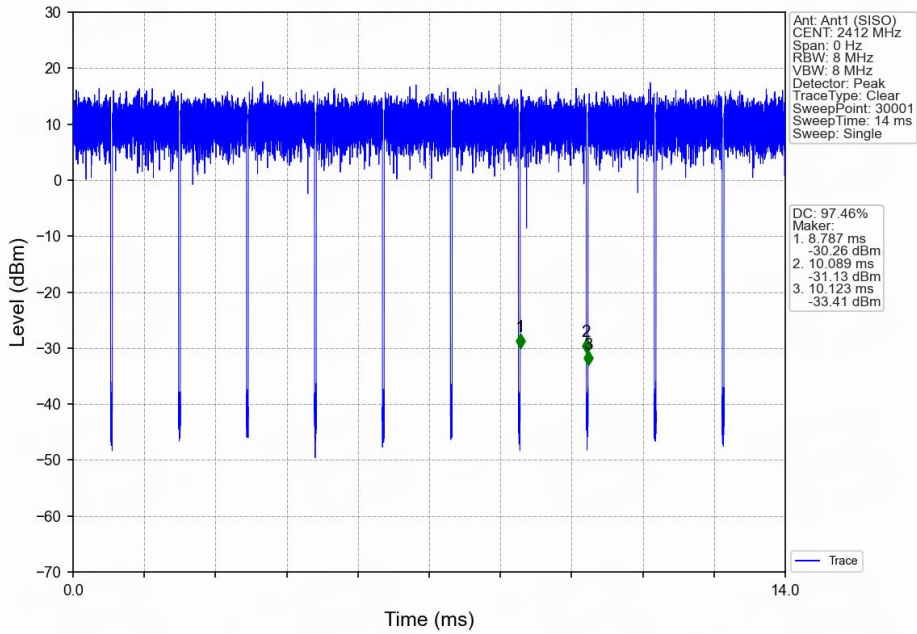
1.1.2 Test Graph



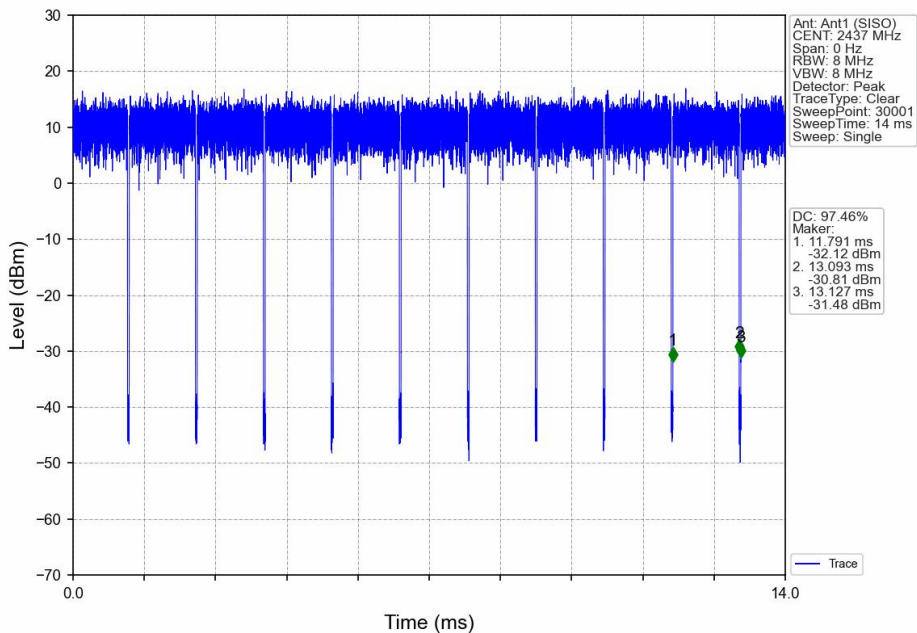


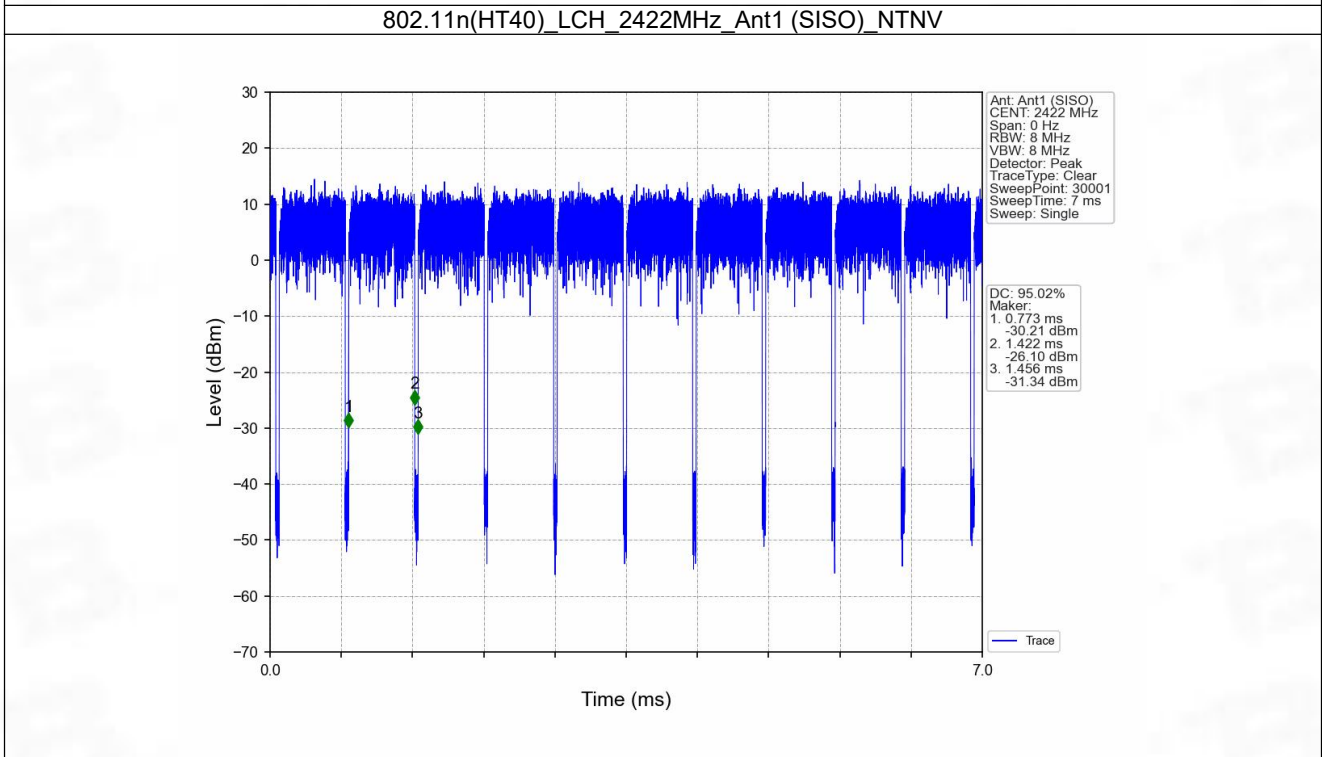
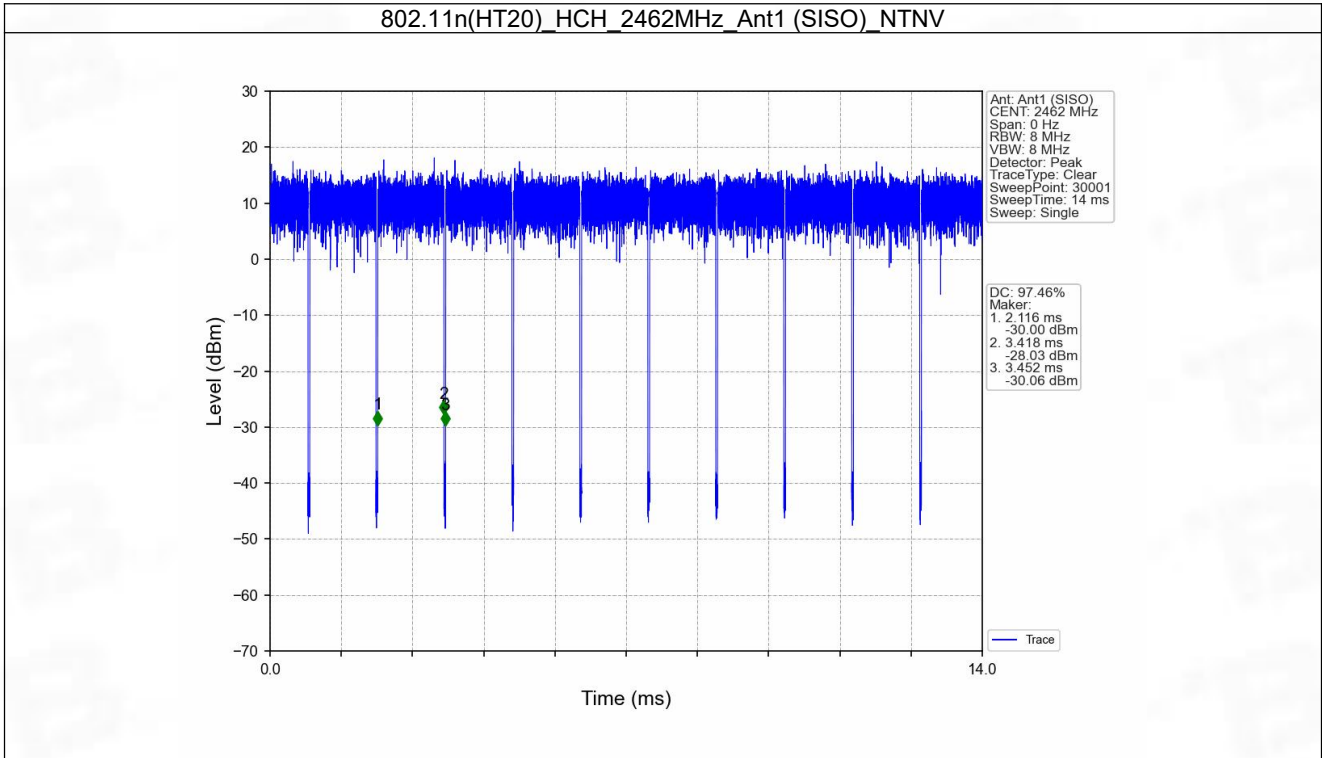


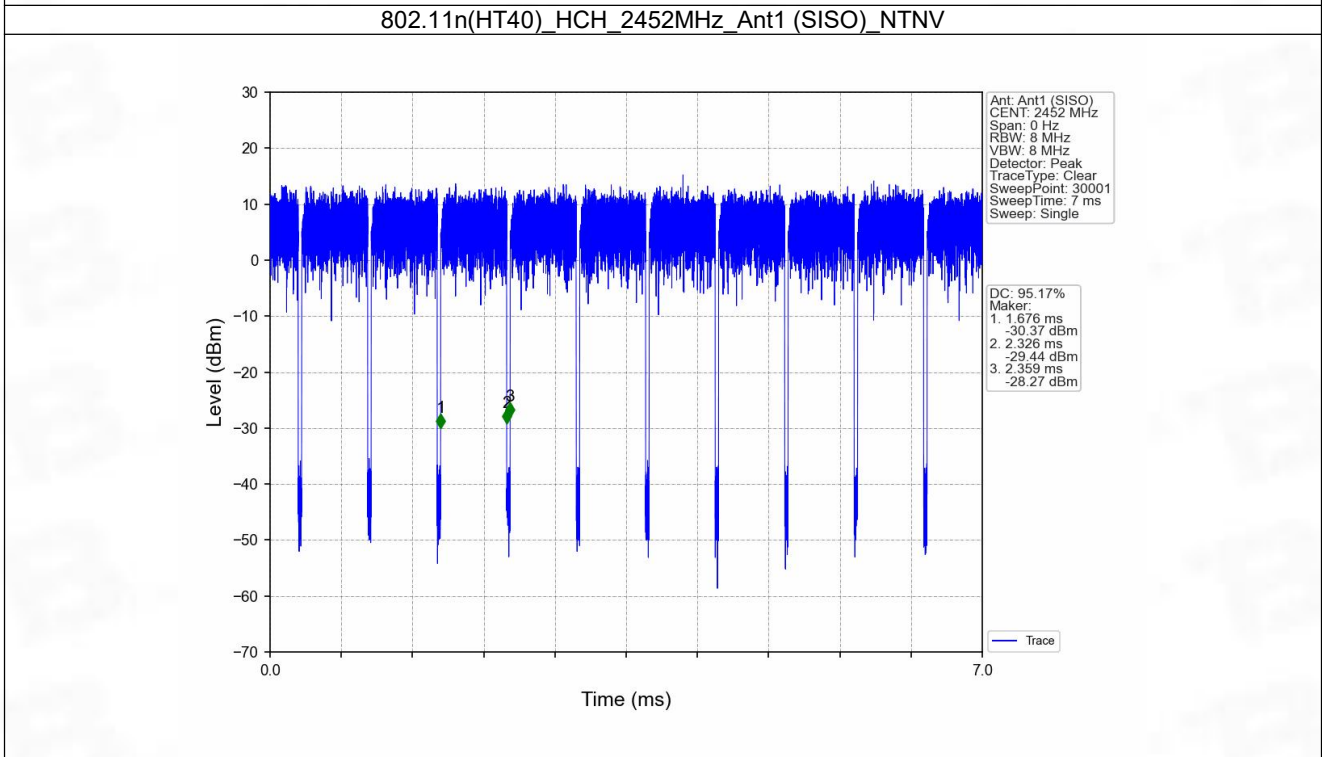
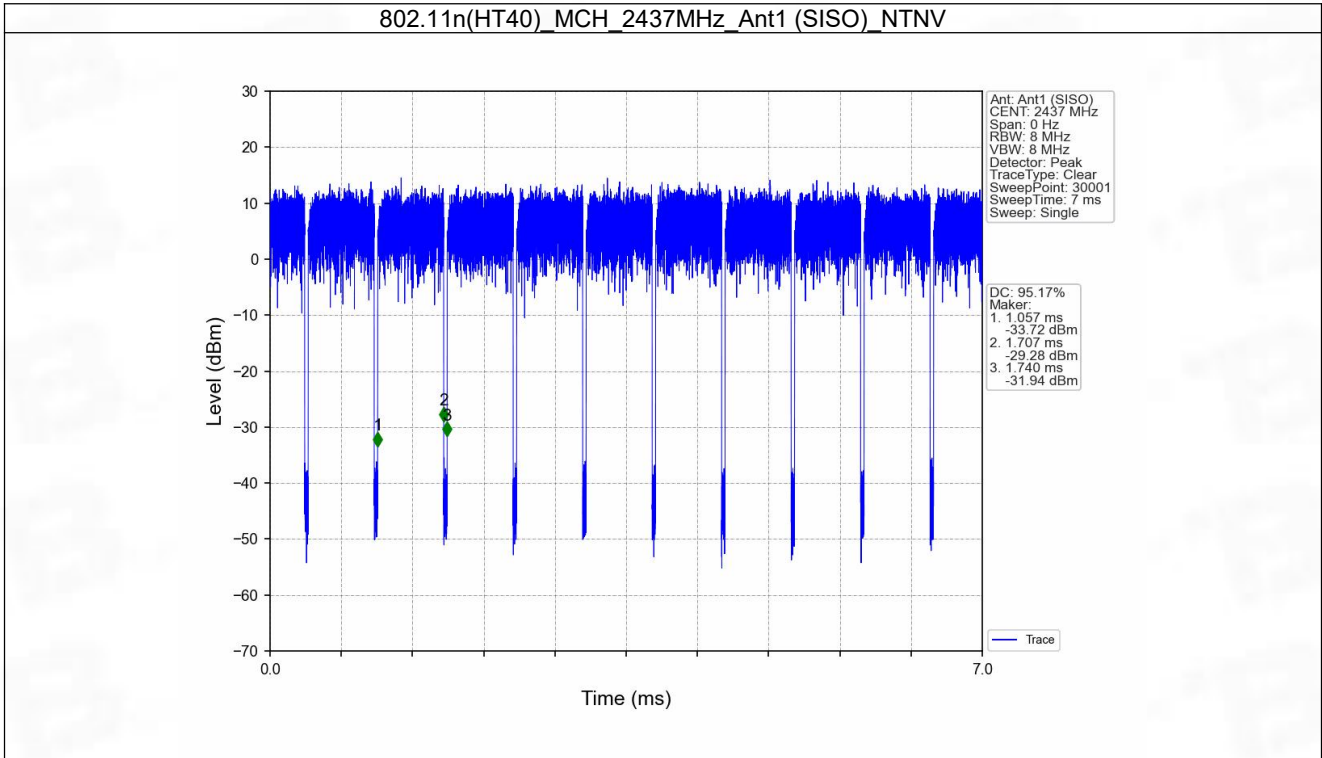
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV







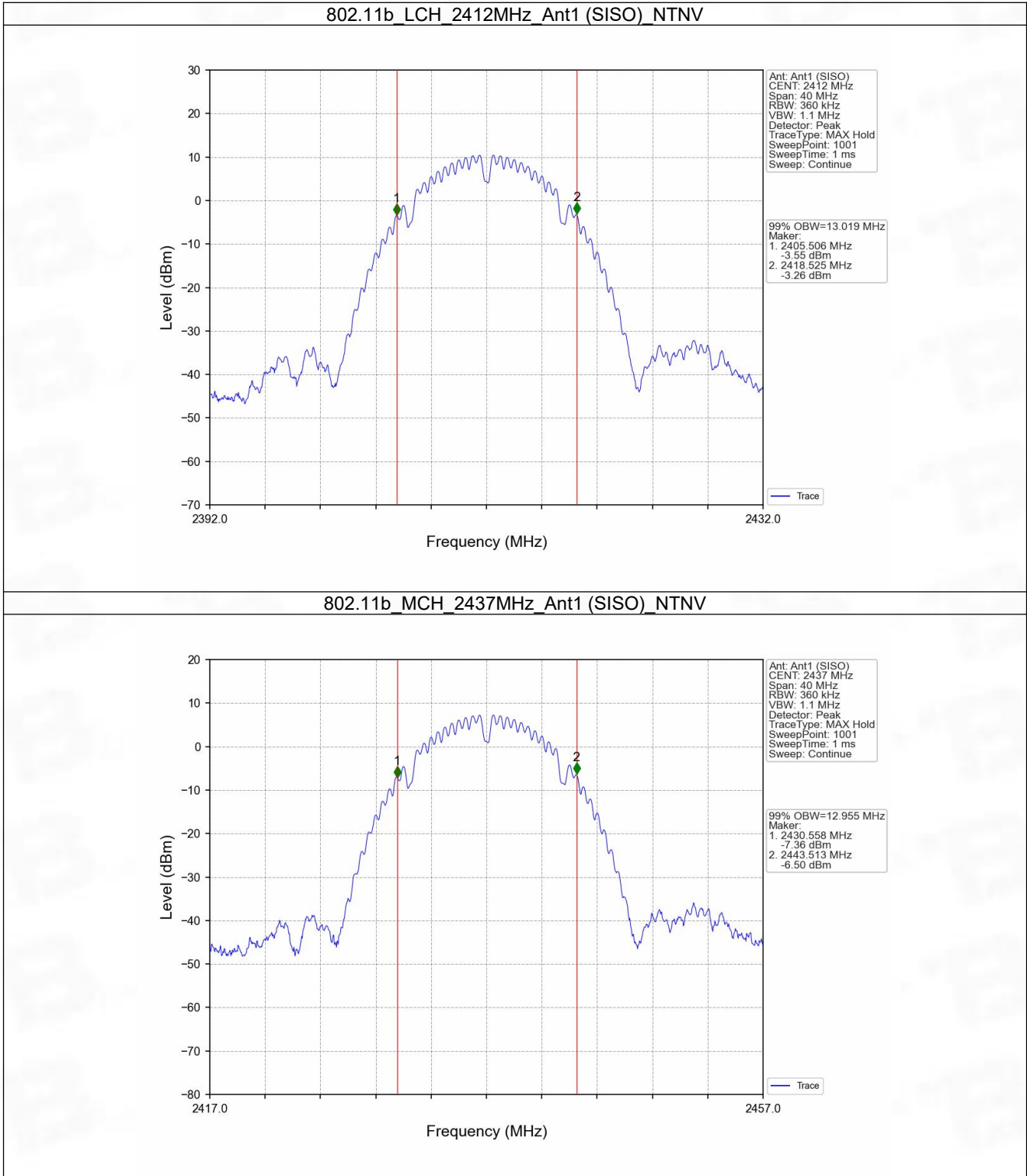
2. Bandwidth

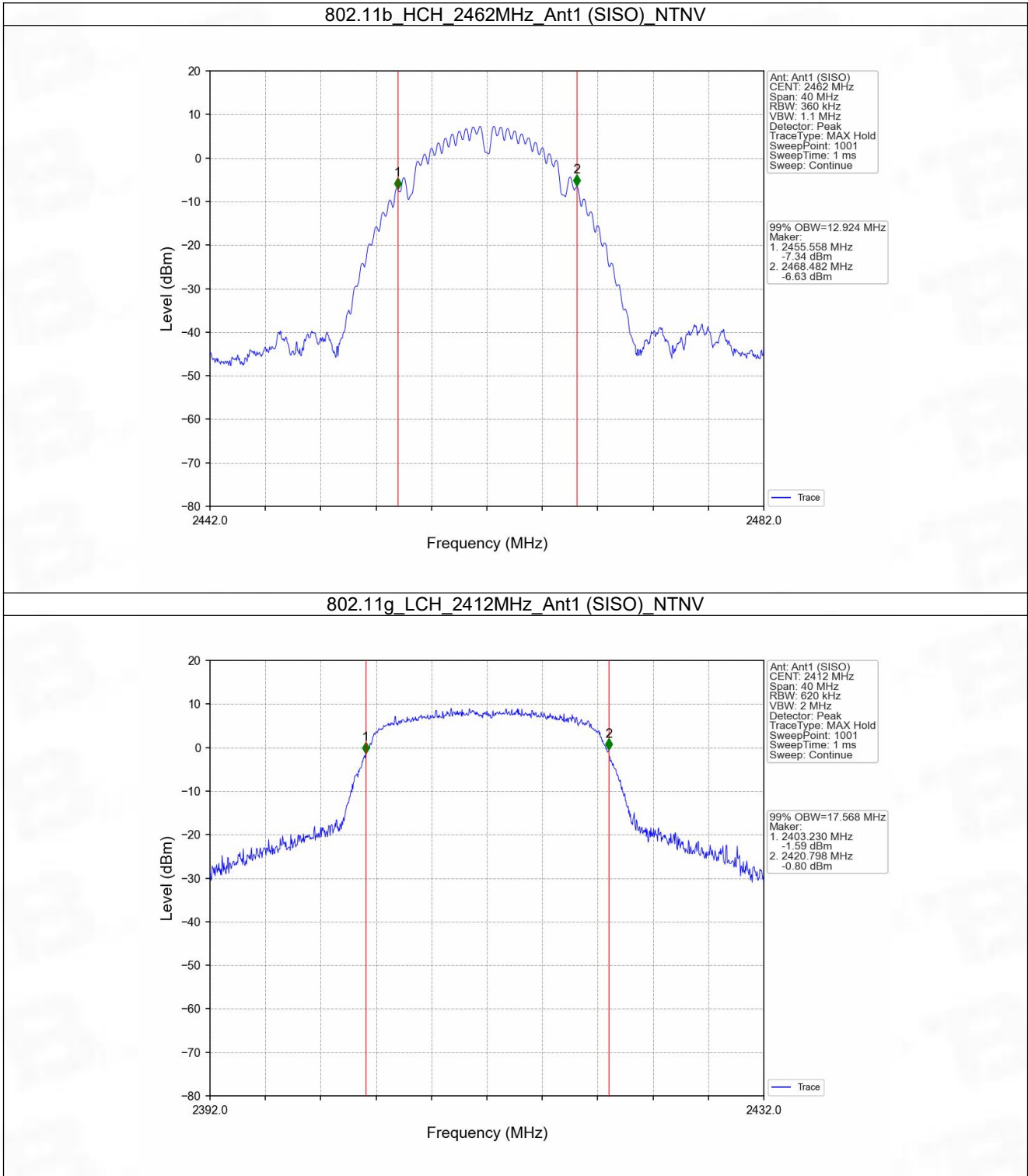
2.1 OBW

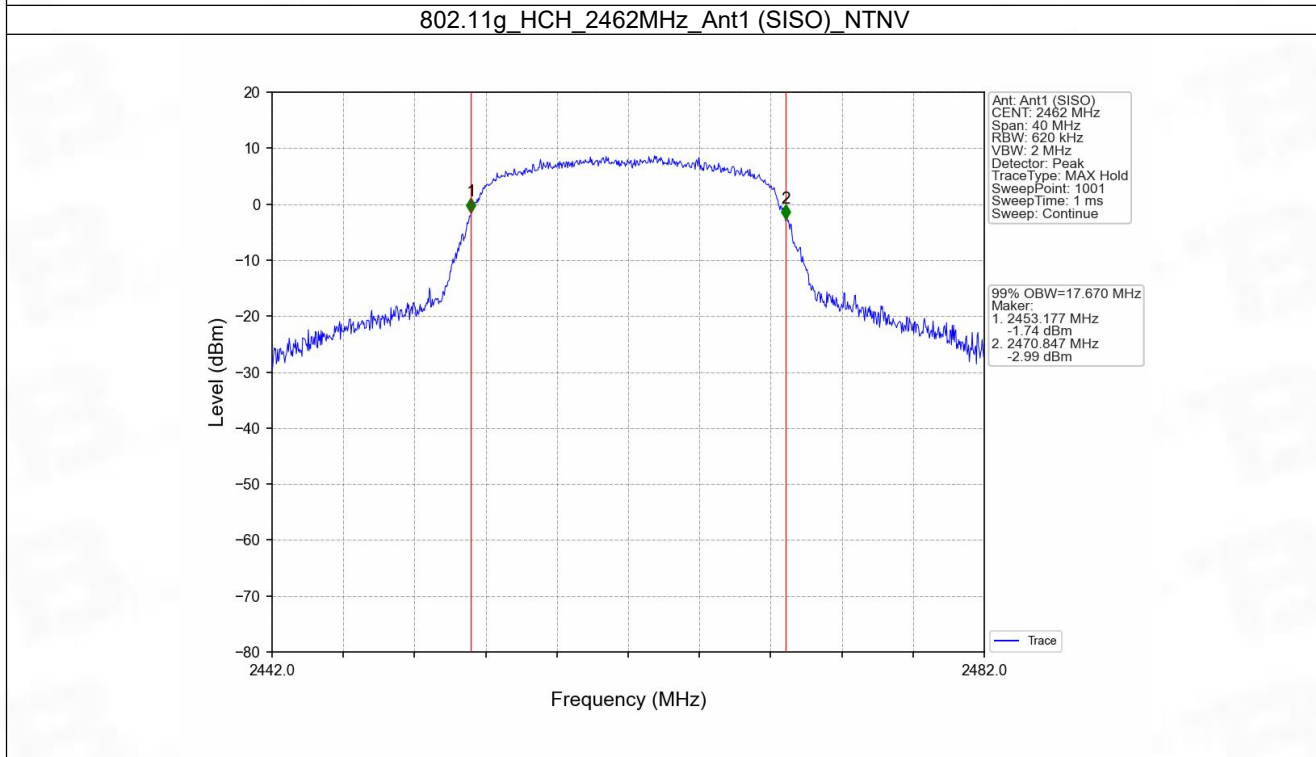
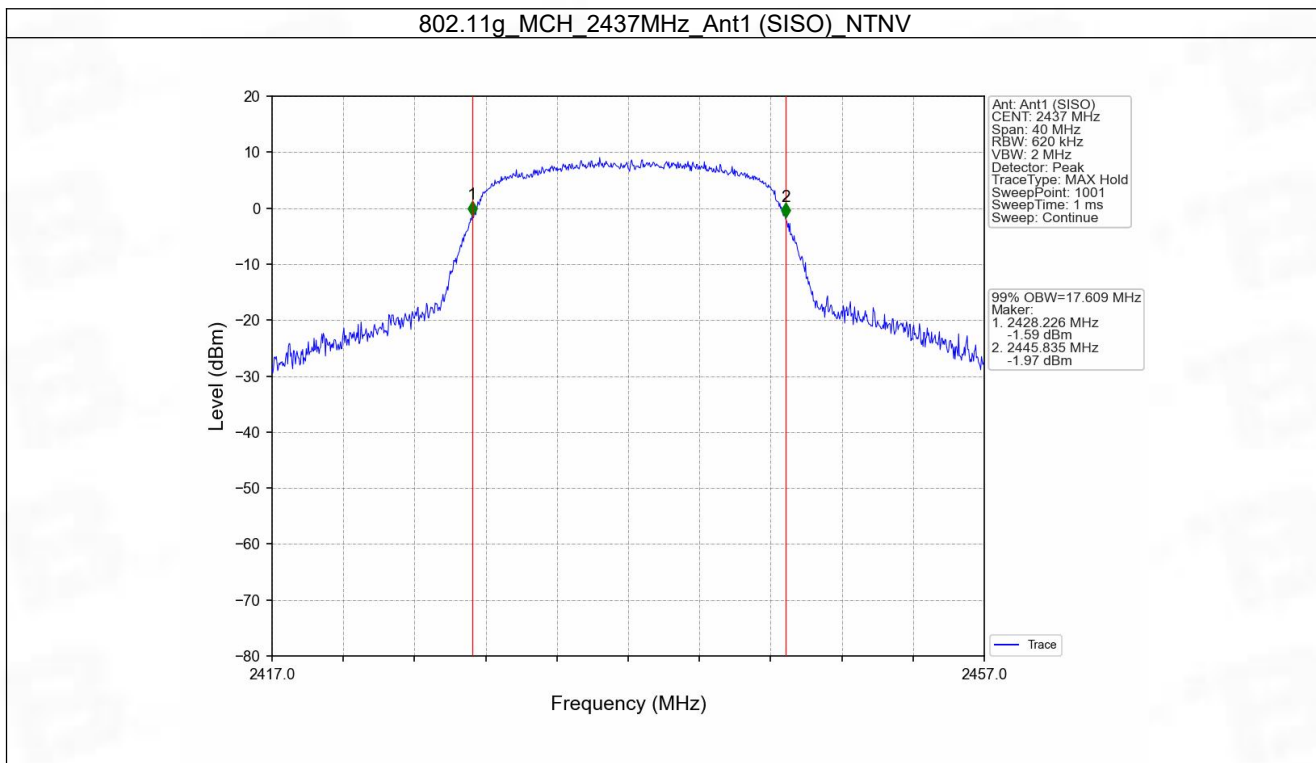
2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11b	SISO	2412	1	13.019	Pass
		2437	1	12.955	Pass
		2462	1	12.924	Pass
802.11g	SISO	2412	1	17.568	Pass
		2437	1	17.609	Pass
		2462	1	17.670	Pass
802.11n (HT20)	SISO	2412	1	18.285	Pass
		2437	1	18.233	Pass
		2462	1	18.311	Pass
802.11n (HT40)	SISO	2422	1	36.697	Pass
		2437	1	36.672	Pass
		2452	1	36.667	Pass

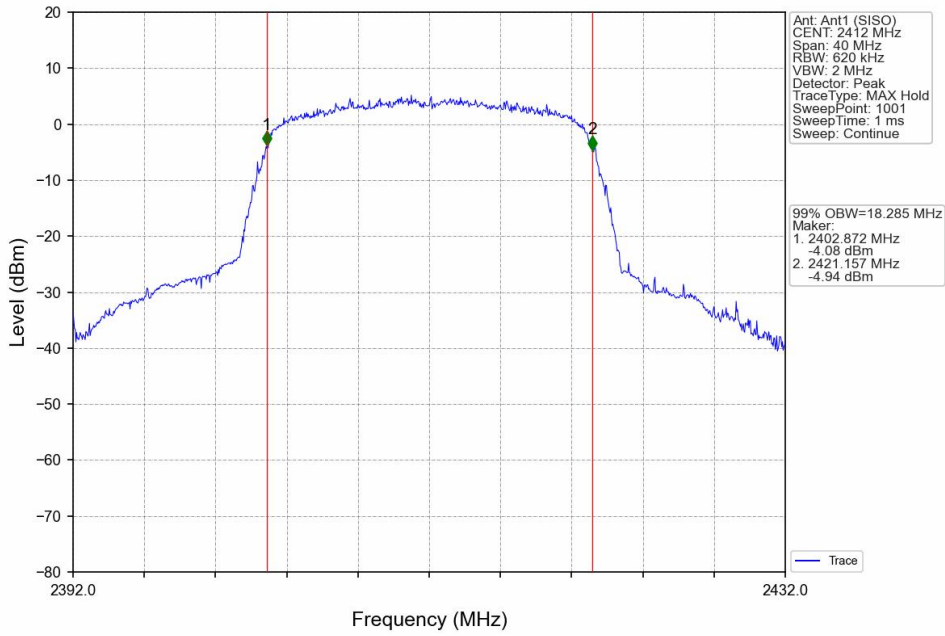
2.1.2 Test Graph



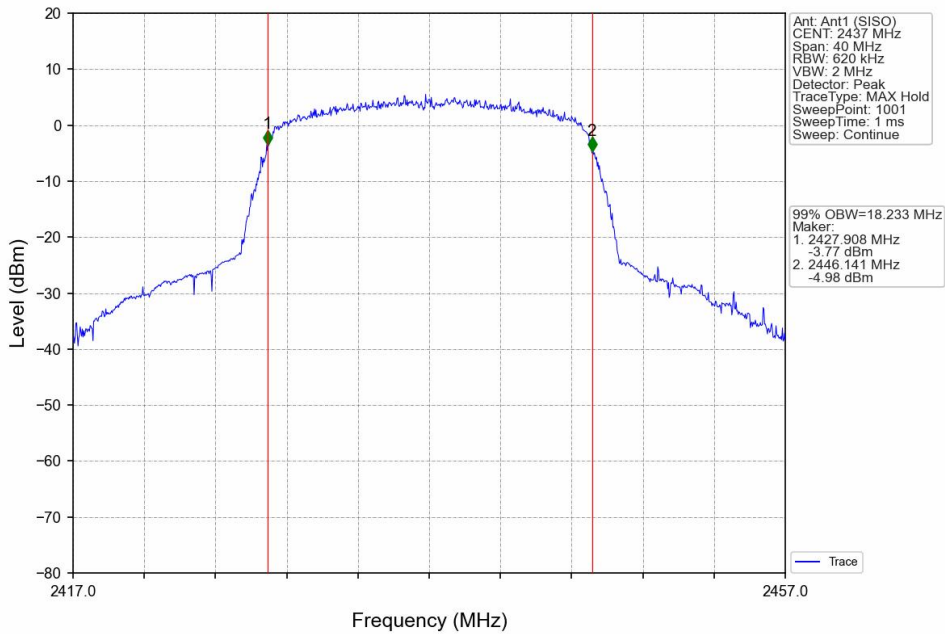


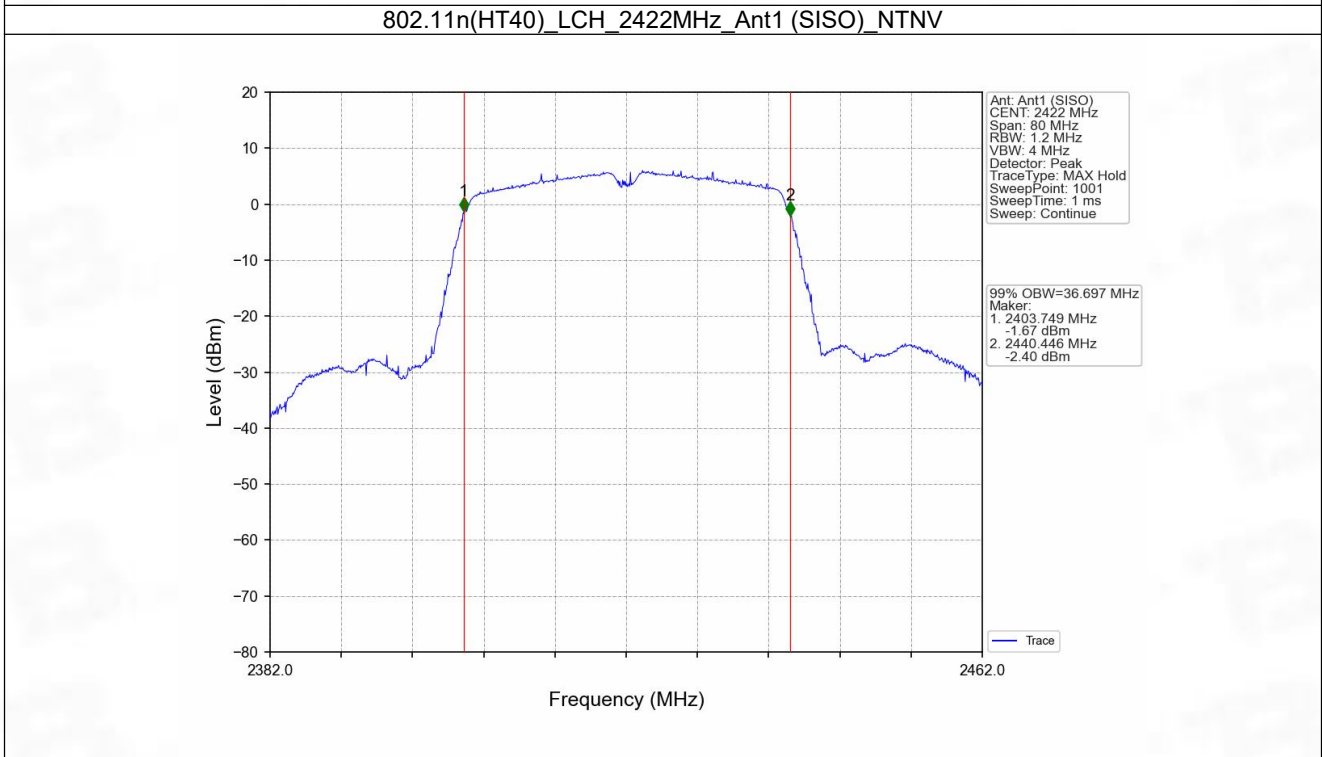
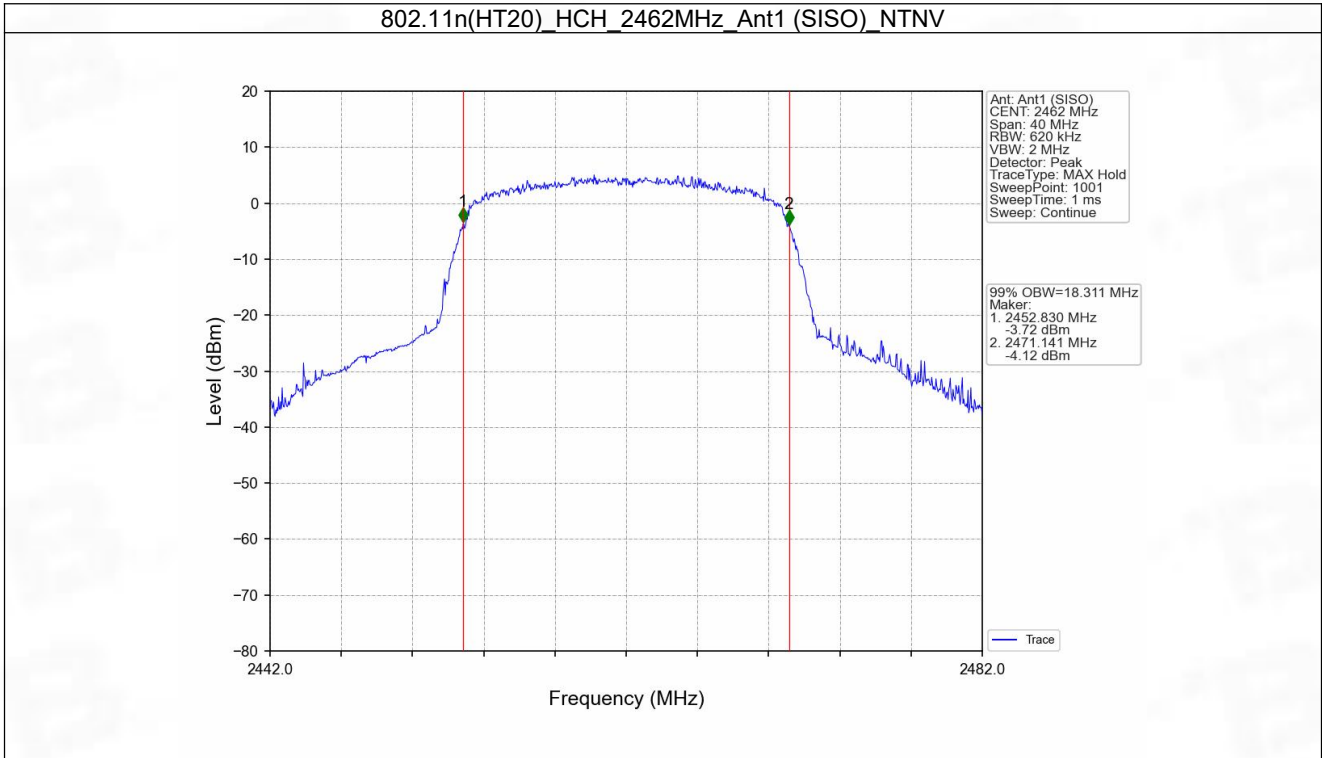


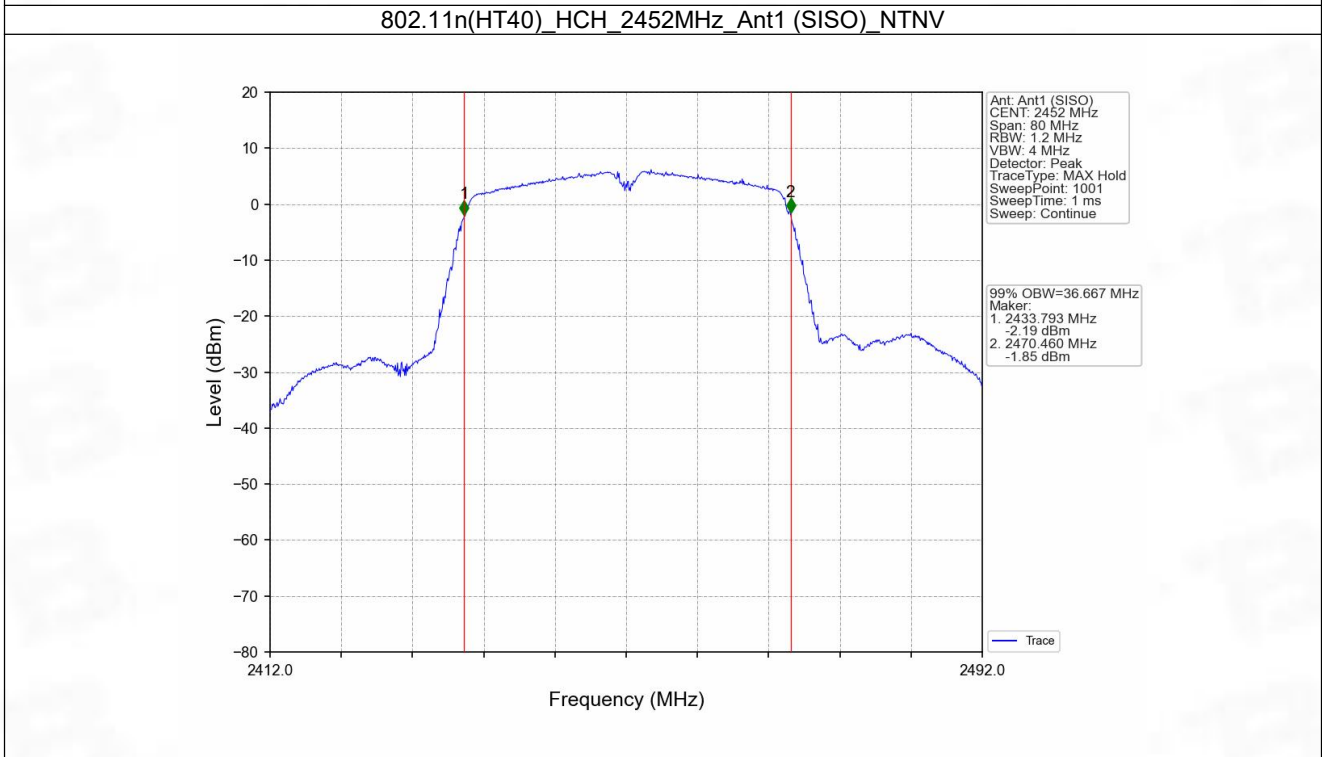
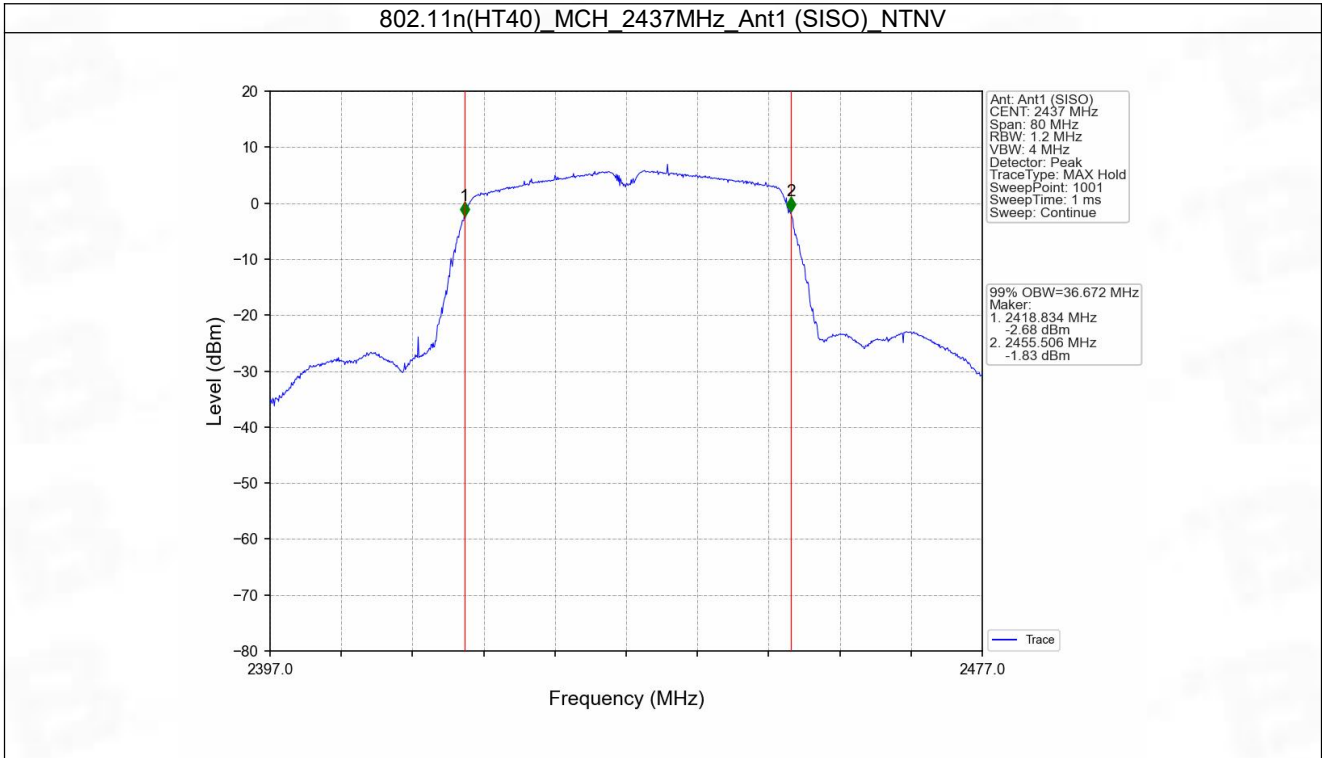
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV







2.2 6dB BW

2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	6dB Bandwidth (MHz)		Verdict
				Result	Limit	
802.11b	SISO	2412	1	8.101	≥ 0.5	Pass
		2437	1	8.081	≥ 0.5	Pass
		2462	1	8.090	≥ 0.5	Pass
802.11g	SISO	2412	1	15.173	≥ 0.5	Pass
		2437	1	15.350	≥ 0.5	Pass
		2462	1	15.171	≥ 0.5	Pass
802.11n (HT20)	SISO	2412	1	15.173	≥ 0.5	Pass
		2437	1	15.171	≥ 0.5	Pass
		2462	1	15.176	≥ 0.5	Pass
802.11n (HT40)	SISO	2422	1	35.164	≥ 0.5	Pass
		2437	1	35.158	≥ 0.5	Pass
		2452	1	35.158	≥ 0.5	Pass