RF Test Report

For

Applicant Name:	**Zhejiang Lianyong Intelligent Technology Co.,Ltd.**
Address:	No.1, First Street, Eastern New Area, Wenling, Taizhou, Zhejiang, China
EUT Name:	Mobile phone
Brand Name:	MAZE SPEED, SOHO STYLE
Model Number:	MS5614G
Series Model Number:	Refer to section 2

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:	BTF230613R00503
Test Standards:	47 CFR Part 15.247
Test Conclusion:	Pass
FCC ID:	2BBW3-MS5614G
Test Date:	2023-06-13 to 2023-06-28
Date of Issue:	2023-06-29
Prepared By:	Elma.Yang
	elma.yang / Project Engineer
Date:	2023-06-29
Approved By:	Ryan.CJ
	Ryan.CJ / EMC Manager
Date:	2023-06-29

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Revision History		
Version	Issue Date	Revisions Content
R_V0	2023-06-29	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.
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2 Product Information

2.1 Application Information

Company Name:	Zhejiang Lianyong Intelligent Technology Co.,Ltd.
Address:	No.1, First Street, Eastern New Area, Wenling, Taizhou, Zhejiang, China

2.2 Manufacturer Information

Company Name:	Zhejiang Lianyong Intelligent Technology Co.,Ltd.
Address:	No.1, First Street, Eastern New Area, Wenling, Taizhou, Zhejiang, China

2.3 Factory Information

Company Name:	Zhejiang Lianyong Intelligent Technology Co.,Ltd.
Address:	No.1, First Street, Eastern New Area, Wenling, Taizhou, Zhejiang, China

2.4 General Description of Equipment under Test (EUT)

EUT Name:	Mobile phone
Test Model Number:	MS5614G
Series Model Number:	SS5614G
Description of Model name differentiation:	Only the model name and brand name are different, the others are the same.

2.5 Technical Information

Power Supply:	DC 3.7V from Battery
Power Adaptor:	INPUT: 100-240V 50/60Hz OUTPUT: 5.0V 1000mA
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#:	0.33 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.	

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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	Part 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

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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 COMMNUNICATION 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 COMMNUNICATION 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	/	/	/

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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 COMMNUNICATION 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 COMMNUNICATION 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-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

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POSITIONAL CONTROLLER	SKET	PCI-GPIB	/	/	/
Broadband Preamplilifier	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	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 Preamplilifier	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

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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 Preamplilifier	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

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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.

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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.

6 Radio Spectrum Matter Test Results (RF)

6.1 Conducted Emission at AC power line

Test Requirement:	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 μH/50 ohms line impedance stabilization network (LISN).
Test Method:	Refer to ANSI C63.10-2013 section 6.2, standard test method for ac power-line conducted emissions from unlicensed wireless devices
Test Limit:	

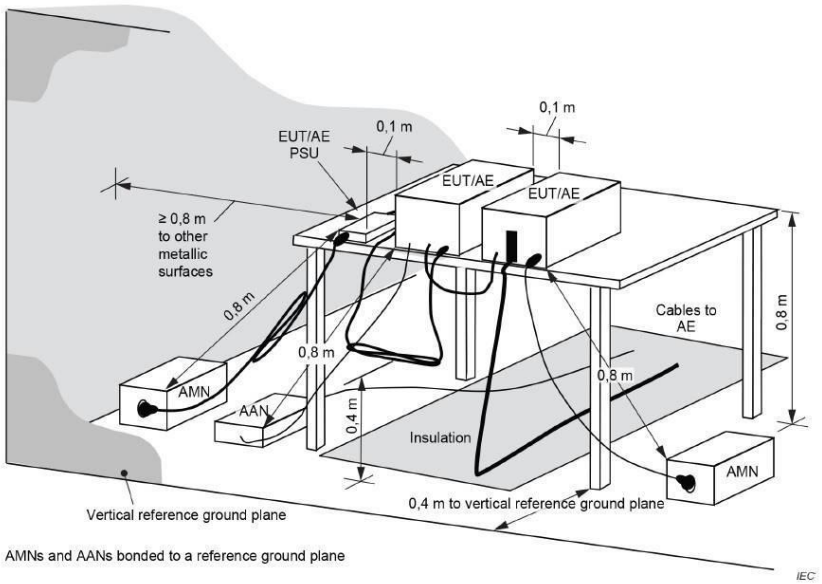
Frequency of emission (MHz)	Conducted limit (dBμV)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

6.1.1 E.U.T. Operation:

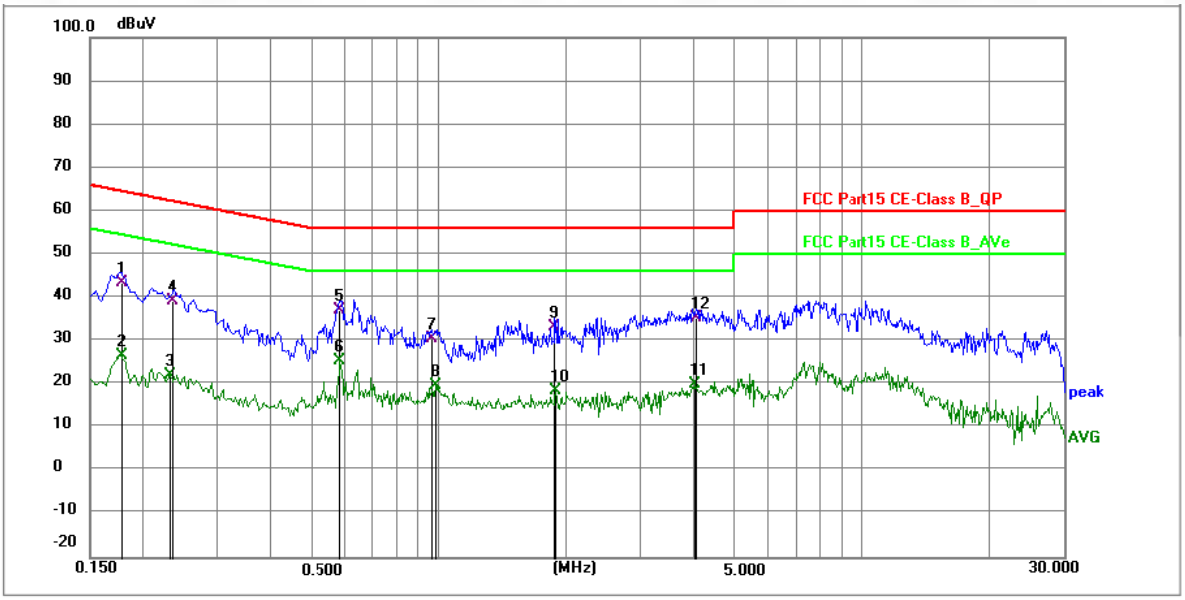
Operating Environment:	
Temperature:	23 °C
Humidity:	50.2 %
Atmospheric Pressure:	1010 mbar

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	0.1770	33.04	10.56	43.60	64.63	-21.03	QP	P	
2	0.1770	16.14	10.56	26.70	54.63	-27.93	AVG	P	
3	0.2310	11.70	10.59	22.29	52.41	-30.12	AVG	P	
4	0.2353	28.71	10.59	39.30	62.26	-22.96	QP	P	
5 *	0.5865	26.54	10.66	37.20	56.00	-18.80	QP	P	
6	0.5865	14.68	10.66	25.34	46.00	-20.66	AVG	P	
7	0.9645	19.83	10.77	30.60	56.00	-25.40	QP	P	
8	0.9870	8.95	10.78	19.73	46.00	-26.27	AVG	P	
9	1.8870	22.60	10.70	33.30	56.00	-22.70	QP	P	
10	1.8911	7.78	10.70	18.48	46.00	-27.52	AVG	P	
11	4.0200	9.28	10.73	20.01	46.00	-25.99	AVG	P	
12	4.0650	24.76	10.74	35.50	56.00	-20.50	QP	P	

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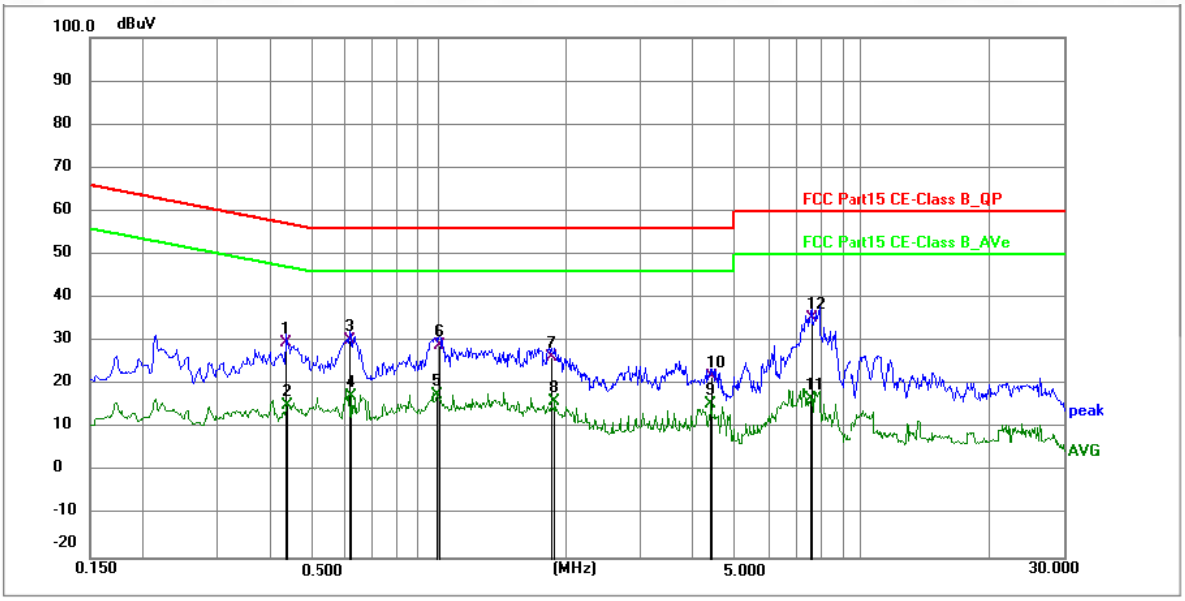
TM1 / Line: Neutral / Band: 2.4G / BW: 20 / CH: M



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB)	Level (dBuV)	Limit (dBuV)	Margin (dB)	Detector	P/F	Remark
1	0.4334	19.09	10.61	29.70	57.19	-27.49	QP	P	
2	0.4374	4.76	10.61	15.37	47.11	-31.74	AVG	P	
3	0.6180	19.62	10.68	30.30	56.00	-25.70	QP	P	
4	0.6238	6.68	10.68	17.36	46.00	-28.64	AVG	P	
5	0.9960	6.85	10.78	17.63	46.00	-28.37	AVG	P	
6	1.0050	18.42	10.78	29.20	56.00	-26.80	QP	P	
7	1.8510	15.80	10.70	26.50	56.00	-29.50	QP	P	
8	1.8870	5.36	10.70	16.06	46.00	-29.94	AVG	P	
9	4.4024	4.93	10.77	15.70	46.00	-30.30	AVG	P	
10	4.4250	11.03	10.77	21.80	56.00	-34.20	QP	P	
11	7.5480	6.08	10.78	16.86	50.00	-33.14	AVG	P	
12 *	7.5884	24.62	10.78	35.40	60.00	-24.60	QP	P	

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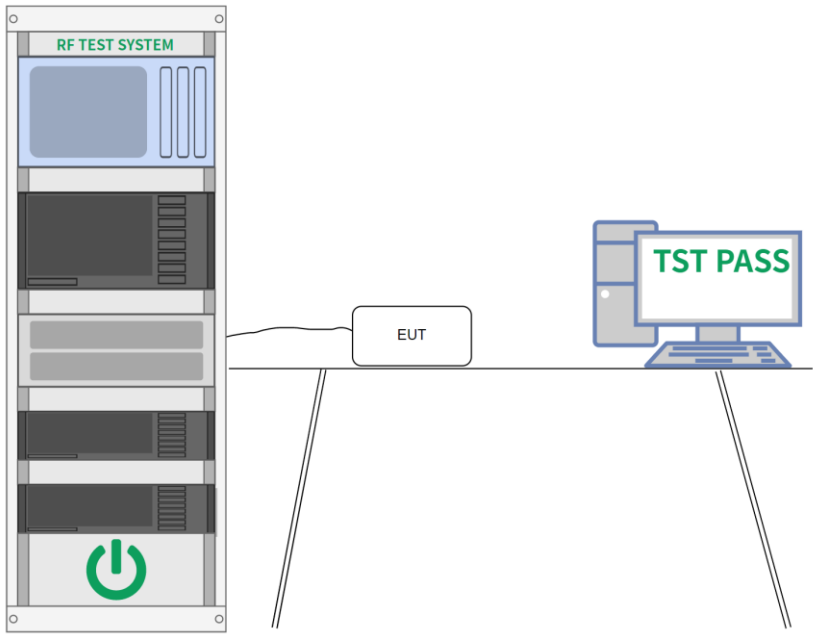
6.2 Occupied Bandwidth

Test Requirement:	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.
Test Method:	DTS bandwidth
Test Limit:	Section (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:	a) Set RBW = 100 kHz. b) Set the 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.

6.2.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.1 °C
Humidity:	49.8 %
Atmospheric Pressure:	1010 mbar

6.2.2 Test Setup Diagram:



6.2.3 Test Data:

Please Refer to Appendix for Details.

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6.3 Maximum Conducted Output Power

Test Requirement:	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.
Test Method:	Maximum peak conducted output power
Test Limit:	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

6.3.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.1 °C
Humidity:	49.8 %
Atmospheric Pressure:	1010 mbar

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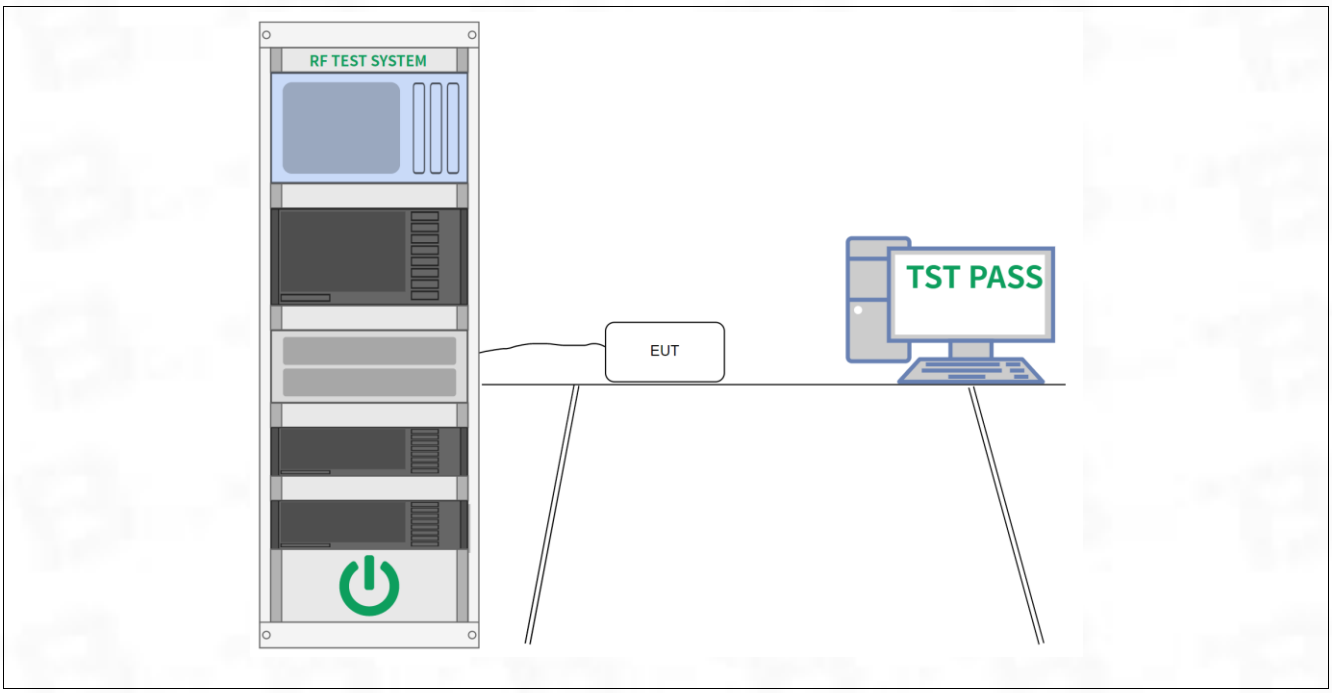
6.3.2 Test Setup Diagram:



6.3.3 Test Data:

Please Refer to Appendix for Details.

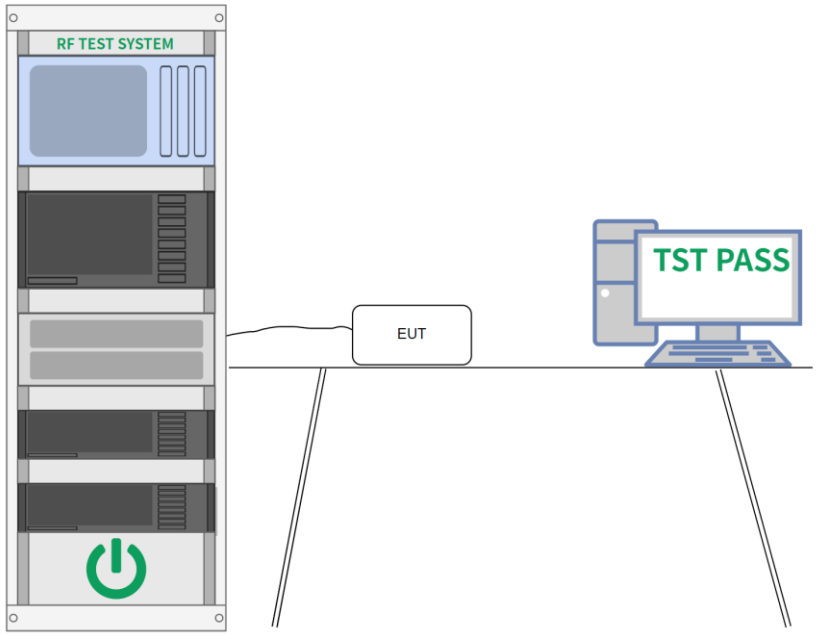
6.4 Power Spectral Density

Test Requirement:	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.
Test Method:	Maximum power spectral density level in the fundamental emission
Test Limit:	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.

6.4.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.1 °C
Humidity:	49.8 %
Atmospheric Pressure:	1010 mbar

6.4.2 Test Setup Diagram:



6.4.3 Test Data:

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6.5 Emissions in non-restricted frequency bands

Test Requirement:	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.
Test Method:	Emissions in nonrestricted frequency bands
Test Limit:	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

6.5.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23.1 °C
Humidity:	49.8 %
Atmospheric Pressure:	1010 mbar

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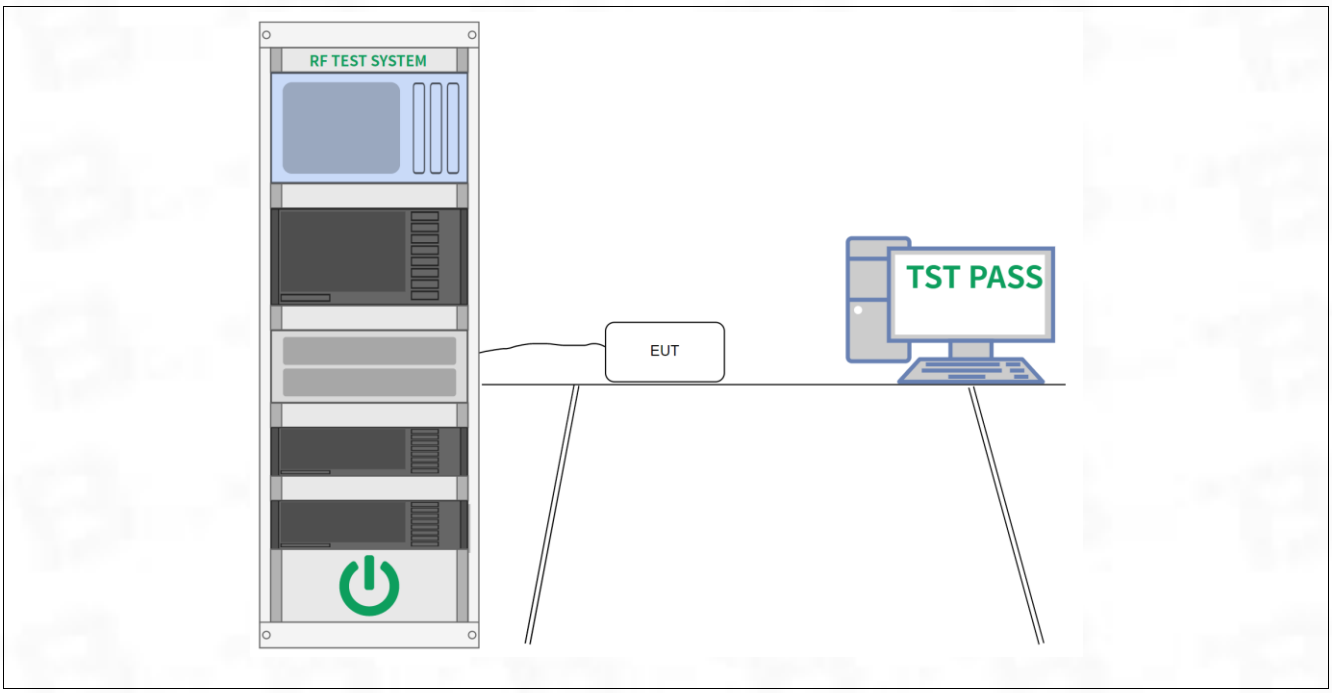
6.5.2 Test Setup Diagram:



6.5.3 Test Data:

Please Refer to Appendix for Details.

6.6 Band edge emissions (Radiated)

Test Requirement:	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:	Radiated emissions tests
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

6.6.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23 °C
Humidity:	50.2 %
Atmospheric Pressure:	1010 mbar

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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	66.69	-30.59	36.10	74.00	-37.90	peak	P
2	2390.000	66.56	-30.49	36.07	74.00	-37.93	peak	P
3 *	2400.000	78.63	-30.48	48.15	74.00	-25.85	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	64.69	-30.59	34.10	74.00	-39.90	peak	P
2	2390.000	67.56	-30.49	37.07	74.00	-36.93	peak	P
3 *	2400.000	76.13	-30.48	45.65	74.00	-28.35	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	76.07	-30.39	45.68	74.00	-28.32	peak	P
2	2500.000	66.60	-30.37	36.23	74.00	-37.77	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	73.07	-30.39	42.68	74.00	-31.32	peak	P
2	2500.000	68.60	-30.37	38.23	74.00	-35.77	peak	P

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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	64.31	-30.59	33.72	74.00	-40.28	peak	P
2	2390.000	74.69	-30.49	44.20	74.00	-29.80	peak	P
3 *	2400.000	80.98	-30.48	50.50	74.00	-23.50	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	63.35	-30.59	32.76	74.00	-41.24	peak	P
2	2390.000	70.69	-30.49	40.20	74.00	-33.80	peak	P
3 *	2400.000	77.98	-30.48	47.50	74.00	-26.50	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	82.34	-30.39	51.95	74.00	-22.05	peak	P
2	2500.000	68.71	-30.37	38.34	74.00	-35.66	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	80.84	-30.39	50.45	74.00	-23.55	peak	P
2	2500.000	69.71	-30.37	39.34	74.00	-34.66	peak	P

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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	66.68	-30.59	36.09	74.00	-37.91	peak	P
2 *	2390.000	75.48	-30.49	44.99	74.00	-29.01	peak	P
3	2400.000	74.74	-30.48	44.26	74.00	-29.74	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	64.68	-30.59	34.09	74.00	-39.91	peak	P
2	2390.000	70.48	-30.49	39.99	74.00	-34.01	peak	P
3 *	2400.000	74.24	-30.48	43.76	74.00	-30.24	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	81.91	-30.39	51.52	74.00	-22.48	peak	P
2	2500.000	68.76	-30.37	38.39	74.00	-35.61	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	80.41	-30.39	50.02	74.00	-23.98	peak	P
2	2500.000	70.76	-30.37	40.39	74.00	-33.61	peak	P

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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	66.01	-30.59	35.42	74.00	-38.58	peak	P
2	2390.000	65.56	-30.49	35.07	74.00	-38.93	peak	P
3 *	2400.000	66.16	-30.48	35.68	74.00	-38.32	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	65.01	-30.59	34.42	74.00	-39.58	peak	P
2	2390.000	64.56	-30.49	34.07	74.00	-39.93	peak	P
3	2400.000	64.16	-30.48	33.68	74.00	-40.32	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	79.83	-30.39	49.44	74.00	-24.56	peak	P
2	2500.000	78.90	-30.37	48.53	74.00	-25.47	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	79.33	-30.39	48.94	74.00	-25.06	peak	P
2	2500.000	74.90	-30.37	44.53	74.00	-29.47	peak	P

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6.7 Emissions in restricted frequency bands (below 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:	Radiated emissions tests
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

6.7.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23 °C
Humidity:	50.2 %
Atmospheric Pressure:	1010 mbar

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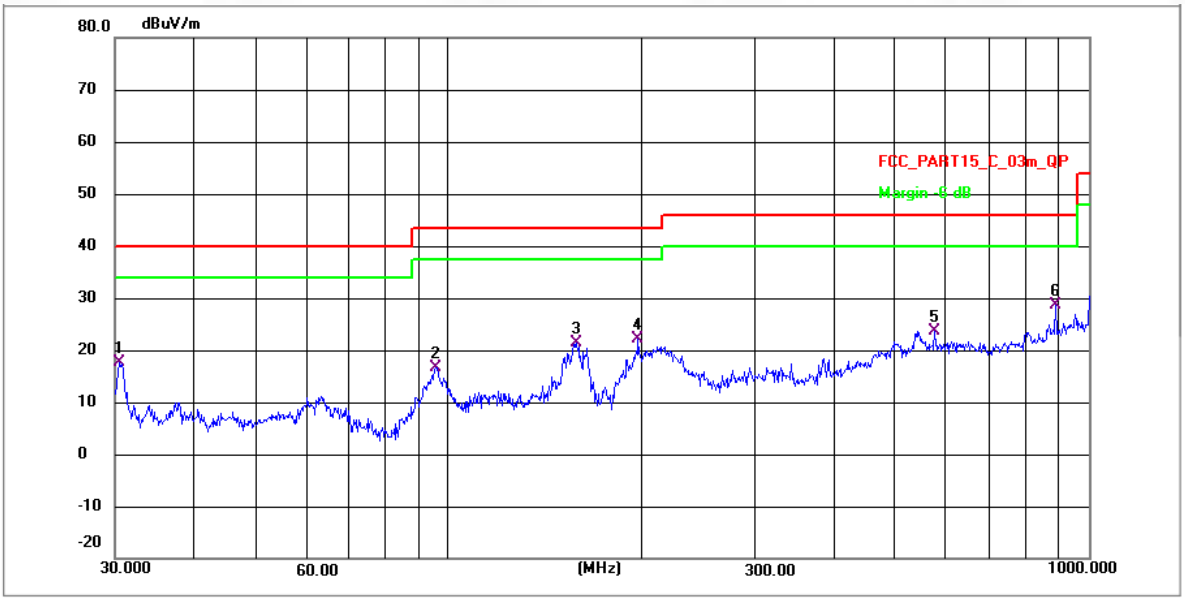
6.7.2 Test Data:

Note: All the mode have been tested, and only the worst mode are in the report
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	30.5842	36.17	-18.64	17.53	40.00	-22.47	QP	P
2	95.4270	45.74	-28.99	16.75	43.50	-26.75	QP	P
3	158.6677	48.99	-27.70	21.29	43.50	-22.21	QP	P
4	197.5462	49.49	-27.35	22.14	43.50	-21.36	QP	P
5	576.6443	45.65	-21.95	23.70	46.00	-22.30	QP	P
6 *	890.7278	50.78	-22.23	28.55	46.00	-17.45	QP	P

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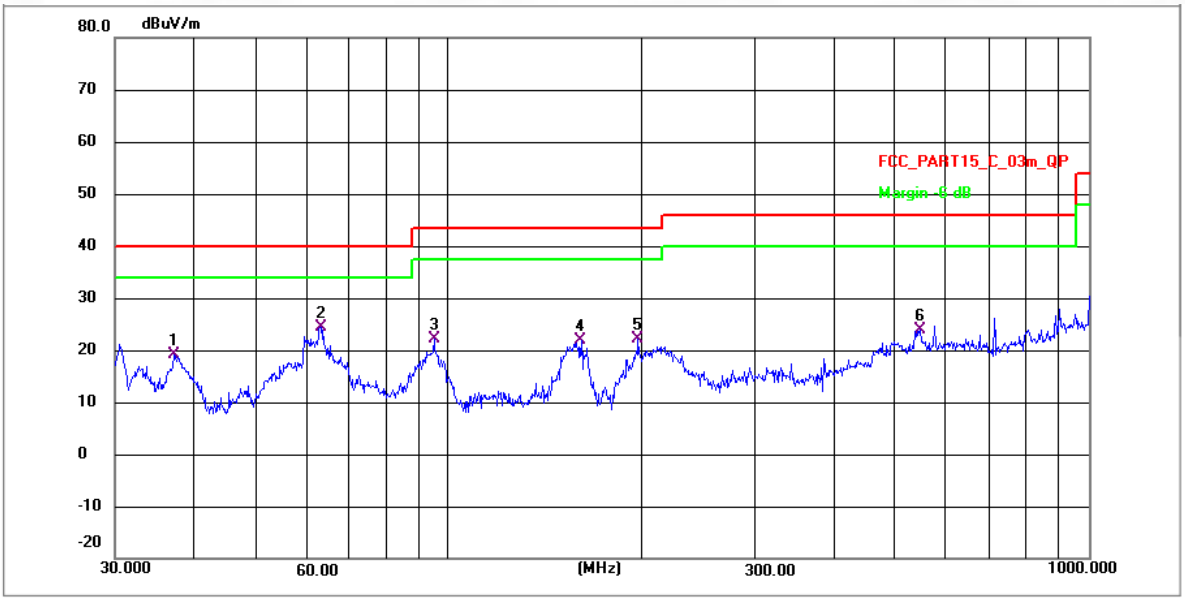
TM1 / Polarization: Vertical / Band: 2.4G / BW: 20 / CH: L



No.	Frequency (MHz)	Reading (dBuV)	Factor (dB/m)	Level (dBuV/m)	Limit (dBuV/m)	Margin (dB)	Detector	P/F
1	37.1550	39.61	-20.59	19.02	40.00	-20.98	QP	P
2 *	62.8708	44.50	-20.11	24.39	40.00	-15.61	QP	P
3	94.7601	51.25	-29.10	22.15	43.50	-21.35	QP	P
4	160.9089	49.44	-27.68	21.76	43.50	-21.74	QP	P
5	197.5462	49.49	-27.35	22.14	43.50	-21.36	QP	P
6	546.1393	45.42	-21.62	23.80	46.00	-22.20	QP	P

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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:	Radiated emissions tests
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

6.8.1 E.U.T. Operation:

Operating Environment:	
Temperature:	23 °C
Humidity:	50.2 %
Atmospheric Pressure:	1010 mbar

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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	3495.691	59.91	-29.06	30.85	74.00	-43.15	peak	P
2	4374.638	63.72	-28.83	34.89	74.00	-39.11	peak	P
3	5849.207	64.87	-25.82	39.05	74.00	-34.95	peak	P
4	7041.830	65.52	-24.92	40.60	74.00	-33.40	peak	P
5 *	11467.005	66.02	-23.09	42.93	74.00	-31.07	peak	P
6	14571.763	63.80	-21.08	42.72	74.00	-31.28	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	4374.638	61.22	-28.83	32.39	74.00	-41.61	peak	P
2	5496.784	62.58	-26.95	35.63	74.00	-38.37	peak	P
3	6554.729	62.59	-25.33	37.26	74.00	-36.74	peak	P
4	8050.162	64.35	-25.51	38.84	74.00	-35.16	peak	P
5	11079.298	64.22	-23.38	40.84	74.00	-33.16	peak	P
6 *	15217.425	66.53	-20.88	45.65	74.00	-28.35	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	3261.418	64.61	-29.27	35.34	74.00	-38.66	peak	P
2	4626.946	64.92	-28.43	36.49	74.00	-37.51	peak	P
3	6657.838	67.28	-25.23	42.05	74.00	-31.95	peak	P
4	9272.300	65.98	-23.71	42.27	74.00	-31.73	peak	P
5	11799.869	64.77	-22.54	42.23	74.00	-31.77	peak	P
6 *	15704.483	70.50	-21.53	48.97	74.00	-25.03	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	3450.518	64.80	-29.10	35.70	74.00	-38.30	peak	P
2	4718.786	62.92	-28.17	34.75	74.00	-39.25	peak	P
3	6717.761	66.51	-25.18	41.33	74.00	-32.67	peak	P
4	8436.068	67.19	-25.35	41.84	74.00	-32.16	peak	P
5	11101.737	70.31	-23.36	46.95	74.00	-27.05	peak	P
6 *	15827.520	70.61	-21.56	49.05	74.00	-24.95	peak	P

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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	3337.710	62.66	-29.20	33.46	74.00	-40.54	peak	P
2	4163.676	66.37	-28.93	37.44	74.00	-36.56	peak	P
3	5571.966	66.47	-26.71	39.76	74.00	-34.24	peak	P
4	7650.888	70.47	-25.00	45.47	74.00	-28.53	peak	P
5	11230.835	68.64	-23.26	45.38	74.00	-28.62	peak	P
6 *	14341.946	71.49	-21.17	50.32	74.00	-23.68	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	4414.012	60.75	-28.82	31.93	74.00	-42.07	peak	P
2	5477.752	60.95	-26.96	33.99	74.00	-40.01	peak	P
3	6458.815	61.20	-25.37	35.83	74.00	-38.17	peak	P
4	8040.860	64.49	-25.51	38.98	74.00	-35.02	peak	P
5	10741.893	67.28	-23.99	43.29	74.00	-30.71	peak	P
6 *	16062.560	67.24	-21.28	45.96	74.00	-28.04	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	3921.867	58.86	-29.01	29.85	74.00	-44.15	peak	P
2	5419.483	60.36	-27.02	33.34	74.00	-40.66	peak	P
3	6655.914	63.42	-25.24	38.18	74.00	-35.82	peak	P
4	7999.135	64.12	-25.53	38.59	74.00	-35.41	peak	P
5	13450.581	67.20	-21.00	46.20	74.00	-27.80	peak	P
6 *	17286.166	66.14	-17.16	48.98	74.00	-25.02	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	3233.260	61.98	-29.29	32.69	74.00	-41.31	peak	P
2	4475.677	62.71	-28.80	33.91	74.00	-40.09	peak	P
3	6124.292	65.31	-25.34	39.97	74.00	-34.03	peak	P
4	8271.879	68.43	-25.42	43.01	74.00	-30.99	peak	P
5	11299.211	69.82	-23.22	46.60	74.00	-27.40	peak	P
6 *	15836.672	71.50	-21.56	49.94	74.00	-24.06	peak	P

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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	3353.182	60.79	-29.19	31.60	74.00	-42.40	peak	P
2	4085.001	62.50	-28.97	33.53	74.00	-40.47	peak	P
3	5090.007	65.24	-27.29	37.95	74.00	-36.05	peak	P
4	7948.431	69.00	-25.46	43.54	74.00	-30.46	peak	P
5 *	13705.671	67.90	-21.01	46.89	74.00	-27.11	peak	P
6	17777.670	62.92	-16.62	46.30	74.00	-27.70	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	2942.515	62.23	-29.61	32.62	74.00	-41.38	peak	P
2	3629.539	66.05	-29.04	37.01	74.00	-36.99	peak	P
3	4111.060	67.50	-28.95	38.55	74.00	-35.45	peak	P
4	5254.440	69.74	-27.16	42.58	74.00	-31.42	peak	P
5	6908.770	70.49	-25.01	45.48	74.00	-28.52	peak	P
6 *	12846.423	68.95	-21.42	47.53	74.00	-26.47	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	3220.203	57.66	-29.31	28.35	74.00	-45.65	peak	P
2	4224.286	61.07	-28.90	32.17	74.00	-41.83	peak	P
3	6481.256	61.75	-25.38	36.37	74.00	-37.63	peak	P
4	8884.018	64.39	-24.55	39.84	74.00	-34.16	peak	P
5	13037.193	62.52	-21.31	41.21	74.00	-32.79	peak	P
6 *	16827.696	63.22	-18.59	44.63	74.00	-29.37	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	3780.514	61.31	-29.03	32.28	74.00	-41.72	peak	P
2	4996.716	62.82	-27.38	35.44	74.00	-38.56	peak	P
3	6566.106	62.86	-25.32	37.54	74.00	-36.46	peak	P
4	9750.552	61.66	-23.74	37.92	74.00	-36.08	peak	P
5	12276.496	66.40	-21.87	44.53	74.00	-29.47	peak	P
6 *	15654.631	69.25	-21.52	47.73	74.00	-26.27	peak	P

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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	3927.539	58.68	-29.01	29.67	74.00	-44.33	peak	P
2	4858.571	64.49	-27.77	36.72	74.00	-37.28	peak	P
3	6526.372	61.66	-25.35	36.31	74.00	-37.69	peak	P
4	9711.176	67.02	-23.66	43.36	74.00	-30.64	peak	P
5	12177.543	66.56	-21.98	44.58	74.00	-29.42	peak	P
6 *	15191.058	66.50	-20.82	45.68	74.00	-28.32	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	3876.785	59.89	-29.02	30.87	74.00	-43.13	peak	P
2	4647.050	65.00	-28.37	36.63	74.00	-37.37	peak	P
3	6101.323	60.91	-25.34	35.57	74.00	-38.43	peak	P
4	8141.421	65.73	-25.47	40.26	74.00	-33.74	peak	P
5	10153.202	66.68	-24.36	42.32	74.00	-31.68	peak	P
6 *	13666.114	66.25	-21.01	45.24	74.00	-28.76	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	3629.539	59.05	-29.04	30.01	74.00	-43.99	peak	P
2	4389.838	61.84	-28.83	33.01	74.00	-40.99	peak	P
3	5910.388	59.18	-25.62	33.56	74.00	-40.44	peak	P
4	7982.967	64.35	-25.51	38.84	74.00	-35.16	peak	P
5	10847.977	64.97	-23.76	41.21	74.00	-32.79	peak	P
6 *	13552.042	67.37	-20.98	46.39	74.00	-27.61	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	3517.990	61.92	-29.05	32.87	74.00	-41.13	peak	P
2	4237.738	63.13	-28.90	34.23	74.00	-39.77	peak	P
3	5866.138	63.38	-25.77	37.61	74.00	-36.39	peak	P
4	7724.213	65.63	-25.11	40.52	74.00	-33.48	peak	P
5	9990.184	65.93	-24.26	41.67	74.00	-32.33	peak	P
6 *	14038.447	66.55	-21.10	45.45	74.00	-28.55	peak	P

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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	3942.324	58.10	-29.01	29.09	74.00	-44.91	peak	P
2	5369.588	60.99	-27.06	33.93	74.00	-40.07	peak	P
3	8224.200	61.36	-25.44	35.92	74.00	-38.08	peak	P
4	10983.644	63.83	-23.48	40.35	74.00	-33.65	peak	P
5	13280.604	62.08	-21.13	40.95	74.00	-33.05	peak	P
6 *	17127.020	63.20	-17.78	45.42	74.00	-28.58	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	4106.309	60.95	-28.95	32.00	74.00	-42.00	peak	P
2	5123.958	63.09	-27.27	35.82	74.00	-38.18	peak	P
3	7538.934	64.74	-24.84	39.90	74.00	-34.10	peak	P
4	9613.430	65.75	-23.44	42.31	74.00	-31.69	peak	P
5	12909.701	68.10	-21.39	46.71	74.00	-27.29	peak	P
6 *	17927.310	66.88	-16.78	50.10	74.00	-23.90	QP	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	3853.325	60.98	-29.01	31.97	74.00	-42.03	peak	P
2	4687.520	63.35	-28.26	35.09	74.00	-38.91	peak	P
3	5571.966	64.47	-26.71	37.76	74.00	-36.24	peak	P
4	6602.265	66.64	-25.29	41.35	74.00	-32.65	peak	P
5	9641.257	67.50	-23.51	43.99	74.00	-30.01	peak	P
6 *	11731.854	69.40	-22.66	46.74	74.00	-27.26	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	3730.582	61.74	-29.03	32.71	74.00	-41.29	peak	P
2	4532.961	60.50	-28.69	31.81	74.00	-42.19	peak	P
3	6106.616	63.90	-25.34	38.56	74.00	-35.44	peak	P
4	8087.477	66.92	-25.49	41.43	74.00	-32.57	peak	P
5	10039.393	68.53	-24.31	44.22	74.00	-29.78	peak	P
6 *	13074.930	70.32	-21.28	49.04	74.00	-24.96	peak	P

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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	3863.362	61.56	-29.02	32.54	74.00	-41.46	peak	P
2	5082.657	64.43	-27.30	37.13	74.00	-36.87	peak	P
3	7177.452	65.31	-24.88	40.43	74.00	-33.57	peak	P
4	10333.803	69.86	-24.44	45.42	74.00	-28.58	peak	P
5 *	12846.423	68.95	-21.42	47.53	74.00	-26.47	peak	P
6	17426.632	64.08	-16.61	47.47	74.00	-26.53	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	4085.001	64.00	-28.97	35.03	74.00	-38.97	peak	P
2	5664.525	66.79	-26.41	40.38	74.00	-33.62	peak	P
3	7863.881	67.08	-25.32	41.76	74.00	-32.24	peak	P
4	10153.202	71.18	-24.36	46.82	74.00	-27.18	peak	P
5 *	12322.711	71.16	-21.82	49.34	74.00	-24.66	peak	P
6	16886.163	66.85	-18.49	48.36	74.00	-25.64	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	4278.352	61.89	-28.88	33.01	74.00	-40.99	peak	P
2	5400.718	63.01	-27.03	35.98	74.00	-38.02	peak	P
3	6430.873	65.78	-25.37	40.41	74.00	-33.59	peak	P
4	7916.333	66.43	-25.41	41.02	74.00	-32.98	peak	P
5	12625.558	68.66	-21.55	47.11	74.00	-26.89	peak	P
6 *	17777.670	66.92	-16.62	50.30	74.00	-23.70	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	3585.745	62.72	-29.04	33.68	74.00	-40.32	peak	P
2	4389.838	64.34	-28.83	35.51	74.00	-38.49	peak	P
3	5839.072	64.39	-25.85	38.54	74.00	-35.46	peak	P
4	7820.813	66.56	-25.26	41.30	74.00	-32.70	peak	P
5	11143.530	66.78	-23.33	43.45	74.00	-30.55	peak	P
6 *	12902.240	67.04	-21.39	45.65	74.00	-28.35	peak	P

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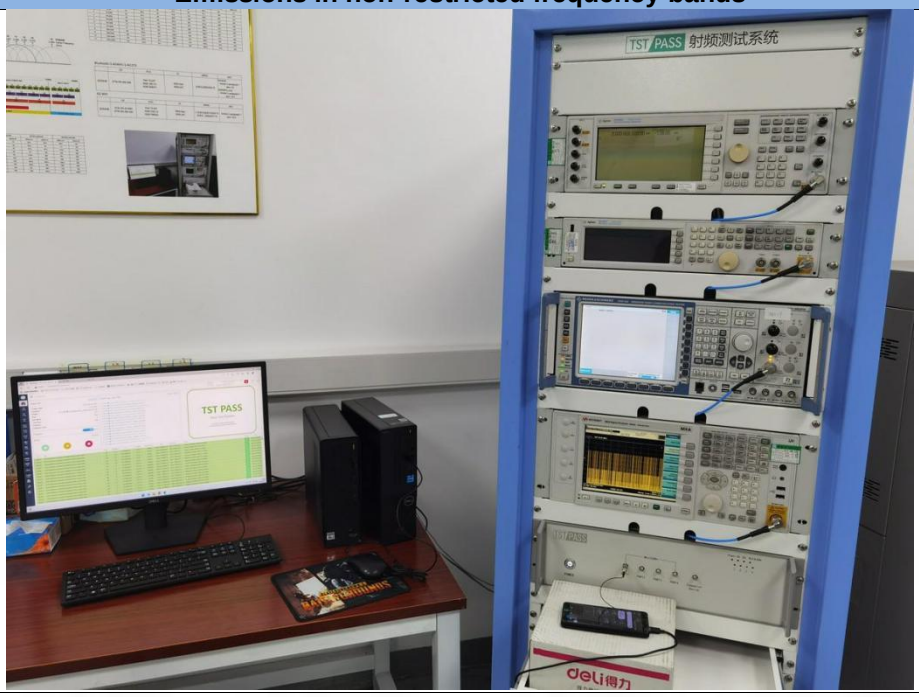
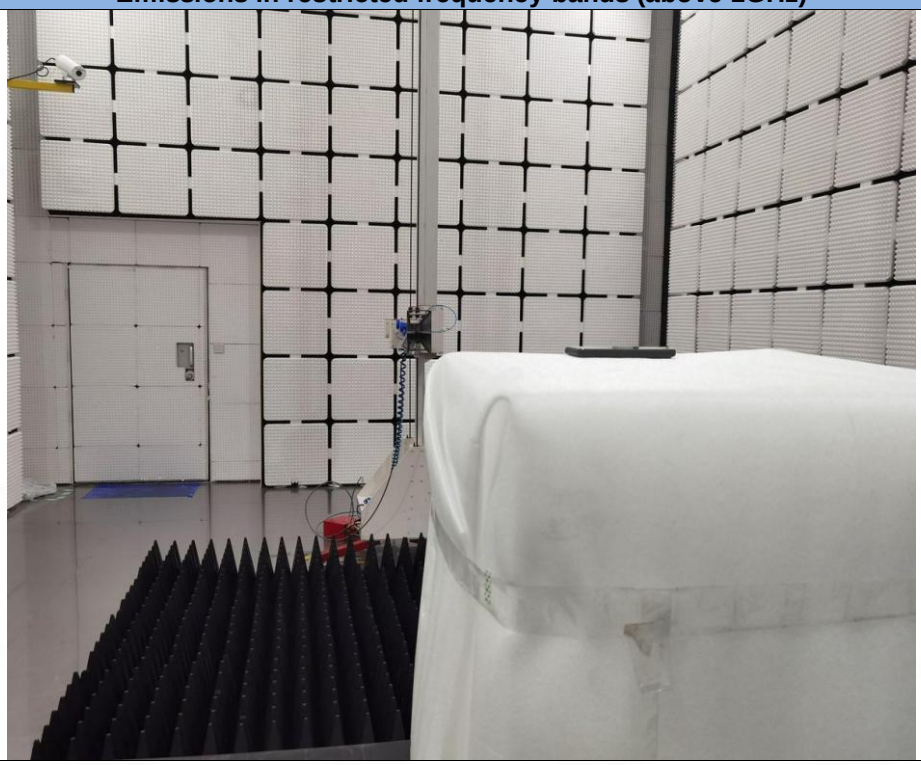
7 Test Setup Photos

Conducted Emission at AC power line

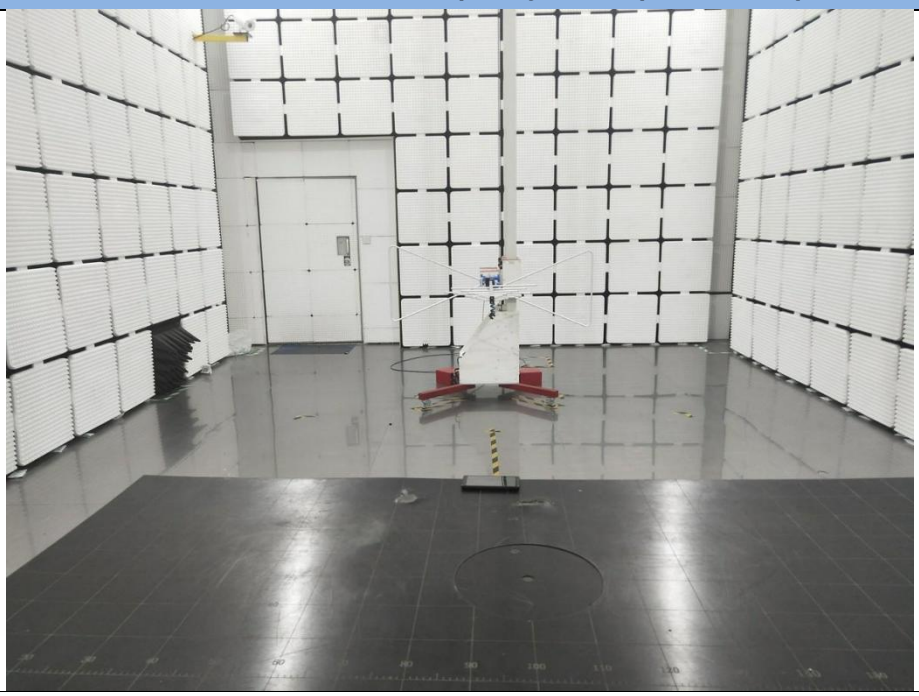
Occupied Bandwidth
Maximum Conducted Output Power
Power Spectral Density
Emissions in non-restricted frequency bands



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



Emissions in restricted frequency bands (below 1GHz)



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8 EUT Constructional Details (EUT Photos)

Please refer to Report BTF230613R00501

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Appendix

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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	8.384	8.414	99.64	0.02	0.04
		2462	8.387	8.414	99.68	0.01	0.00
802.11g	SISO	2412	1.392	1.427	97.55	0.11	0.07
		2437	1.393	1.428	97.55	0.11	0.03
		2462	1.393	1.428	97.55	0.11	0.03
802.11n (HT20)	SISO	2412	1.301	1.336	97.38	0.12	0.03
		2437	1.301	1.336	97.38	0.12	0.03
		2462	1.301	1.335	97.45	0.11	0.03
802.11n (HT40)	SISO	2422	0.649	0.683	95.02	0.22	0.03
		2437	0.648	0.683	94.88	0.23	0.03
		2452	0.648	0.683	94.88	0.23	0.03

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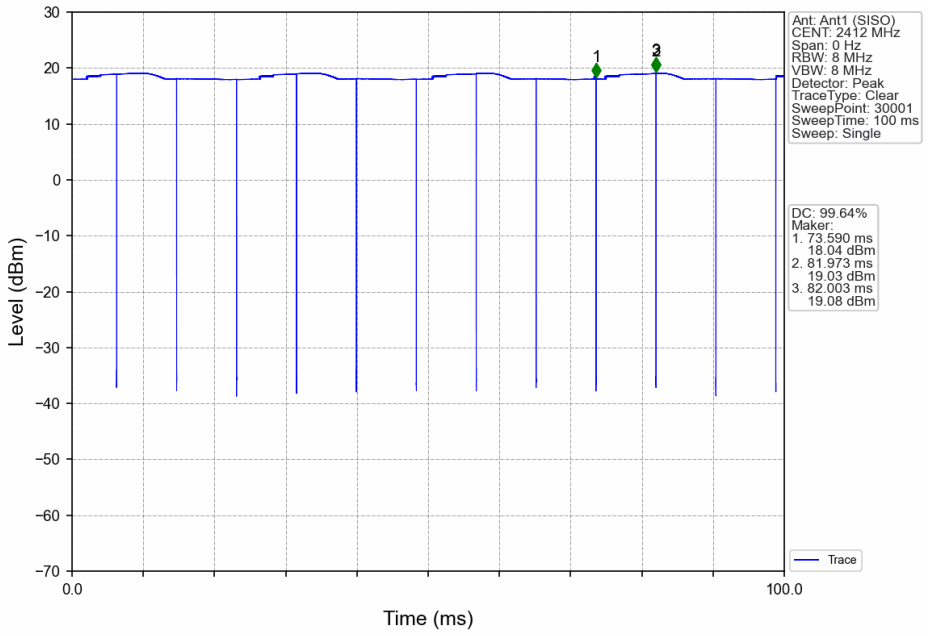
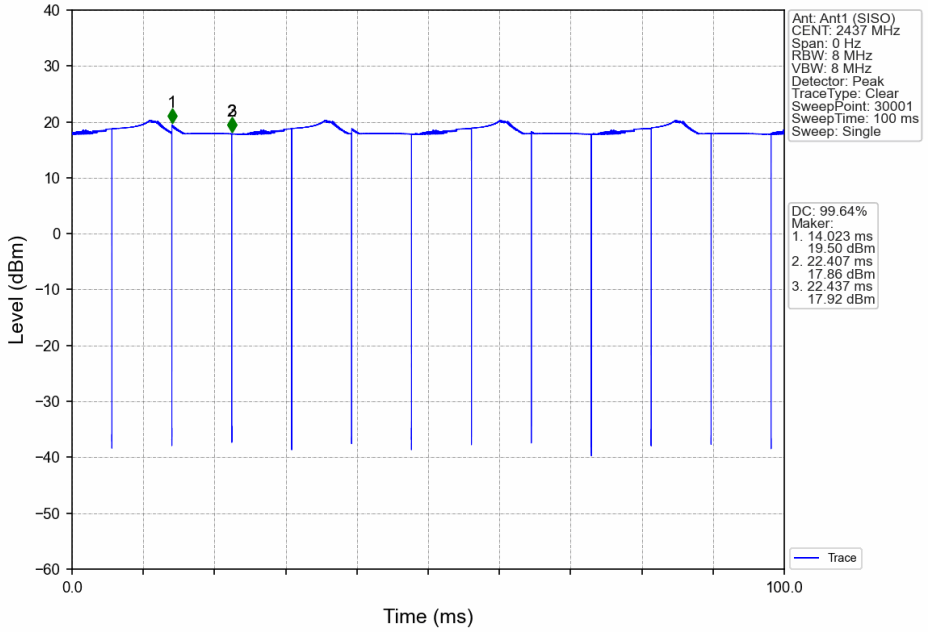
1.1.2 Test Graph

802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



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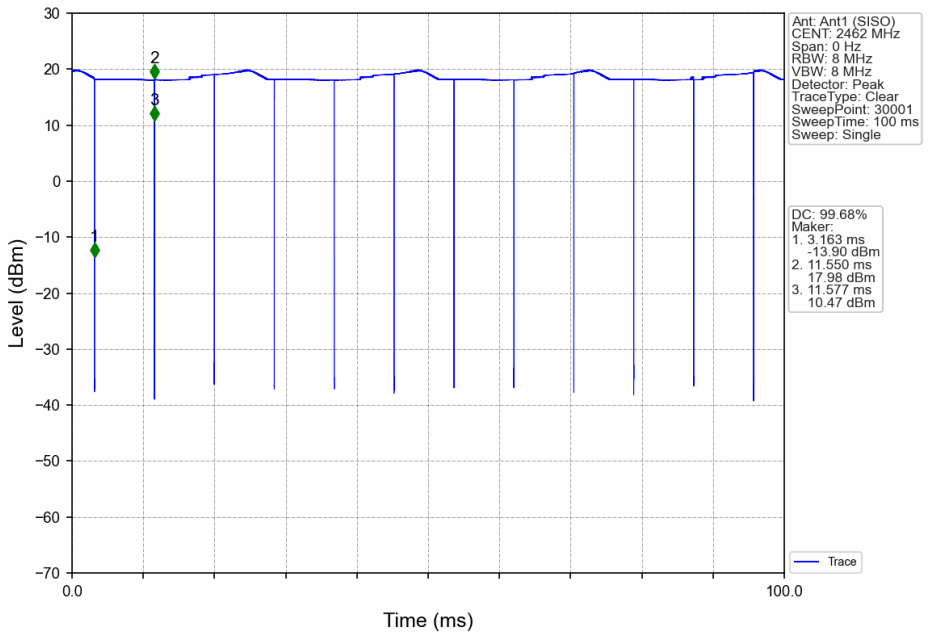
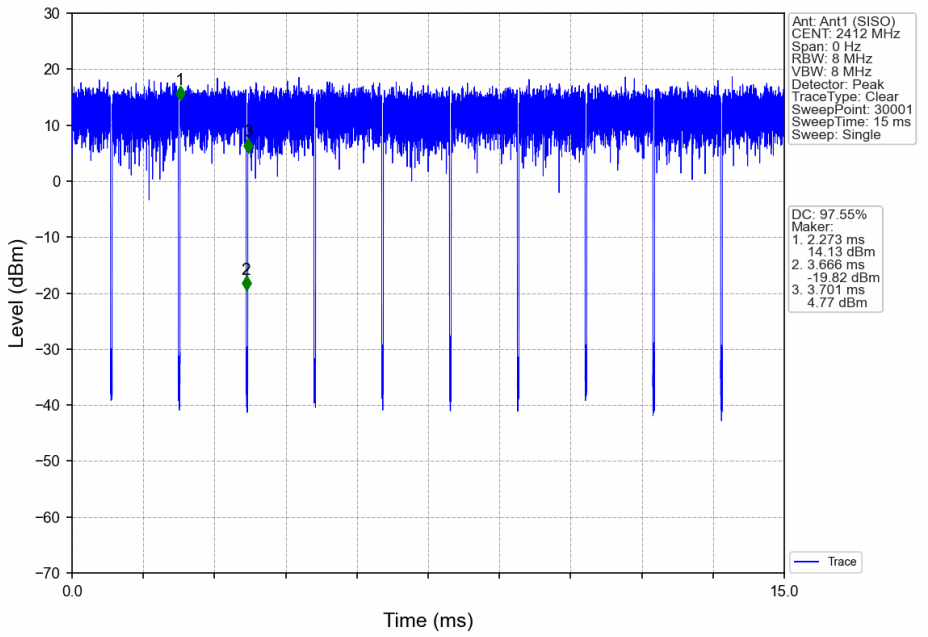
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



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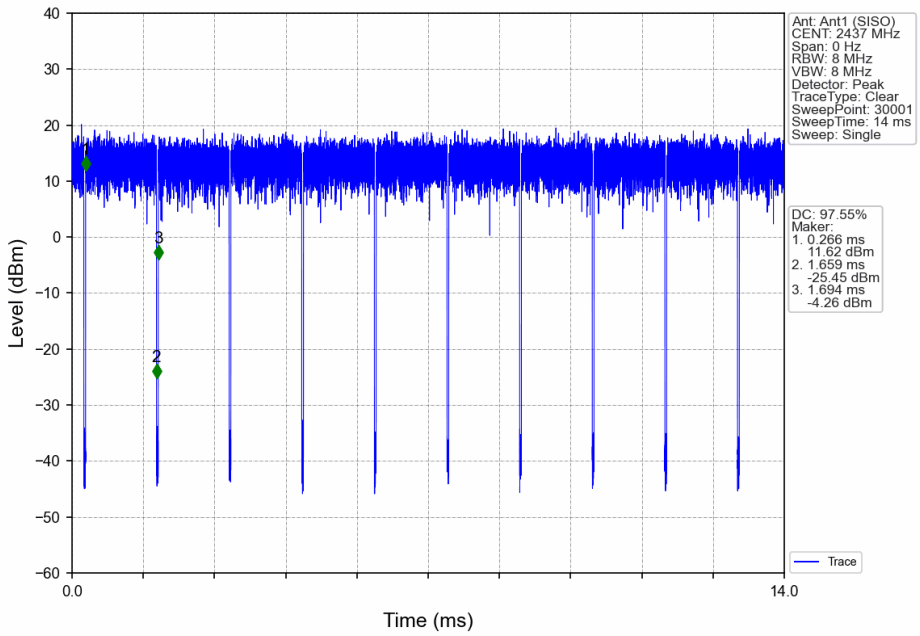
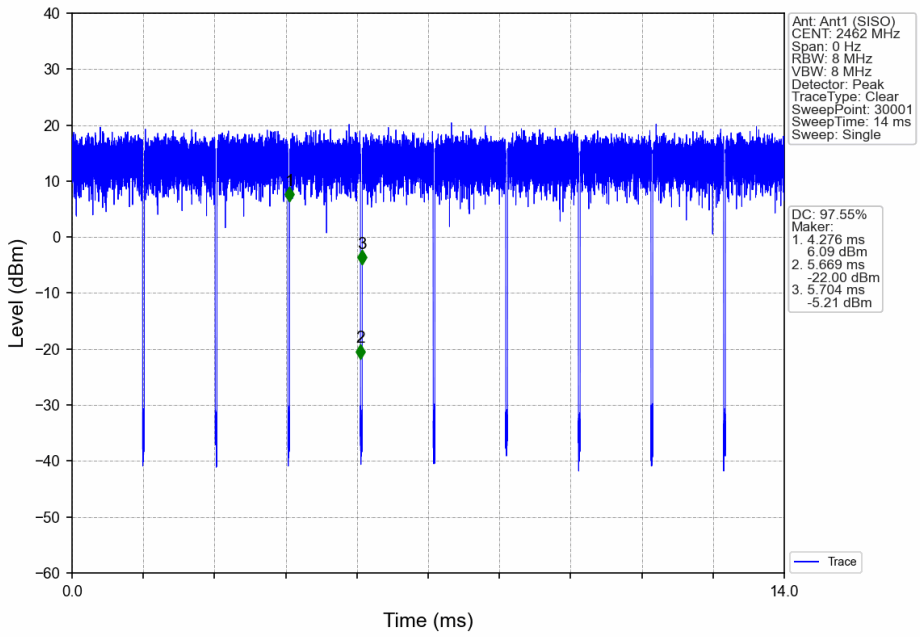
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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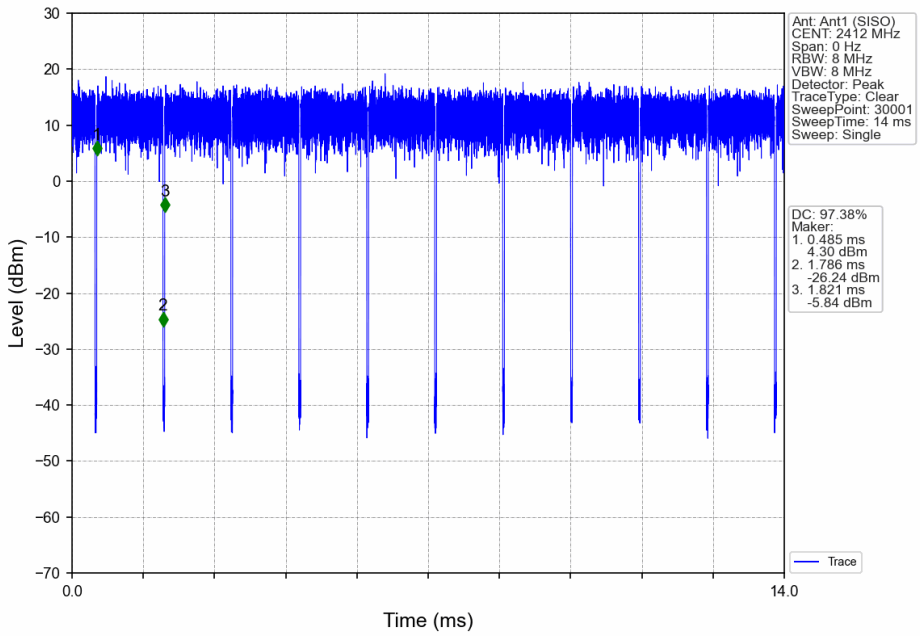
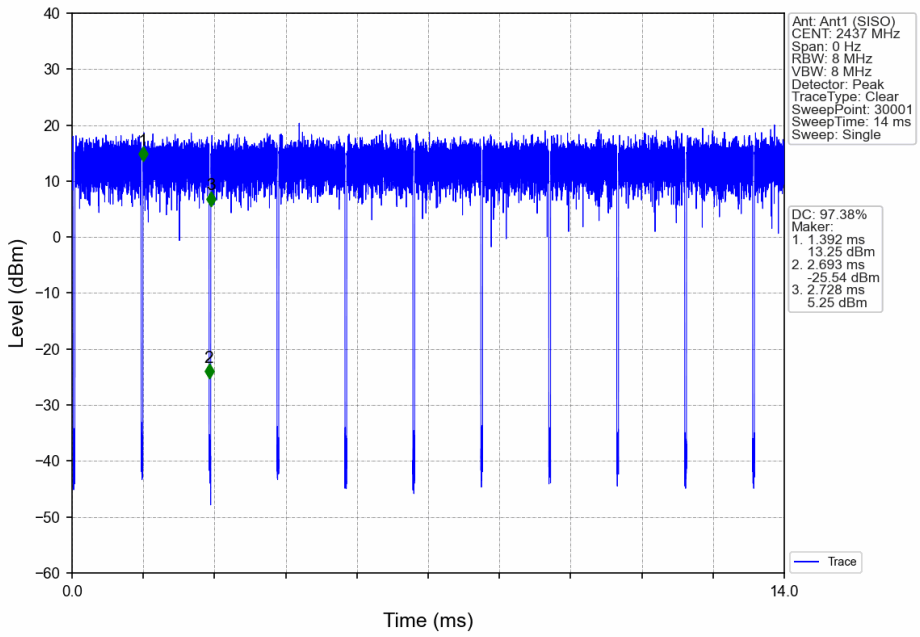
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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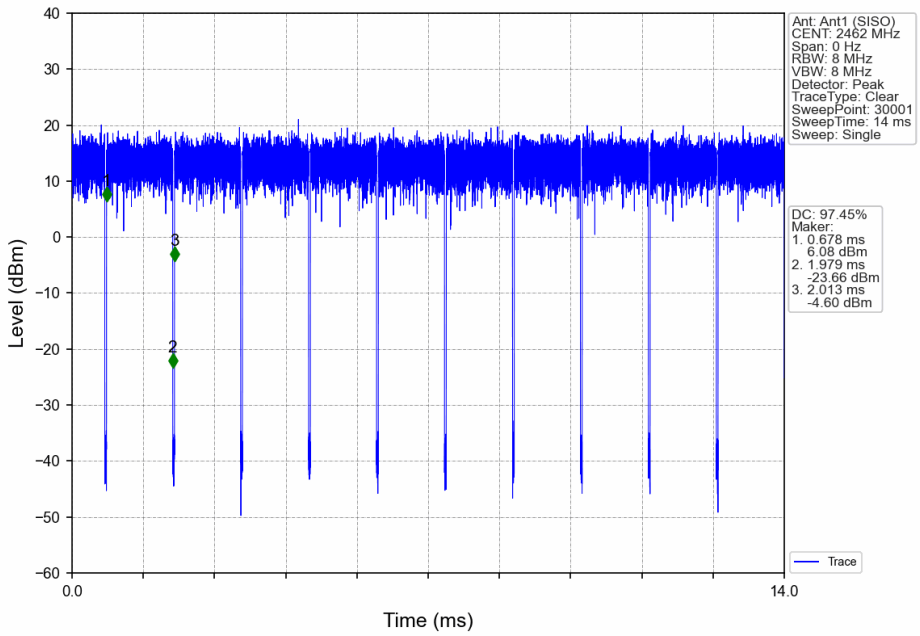
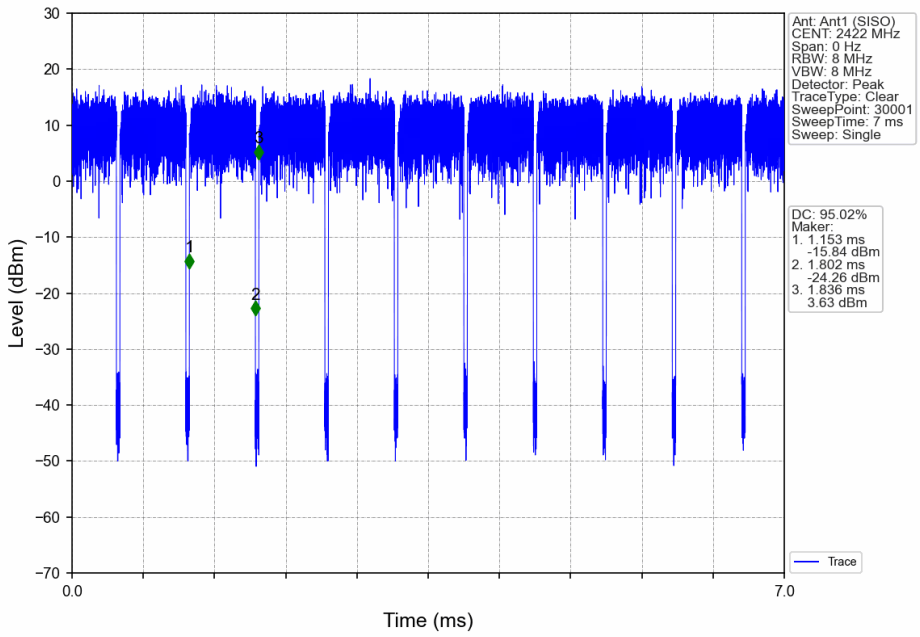
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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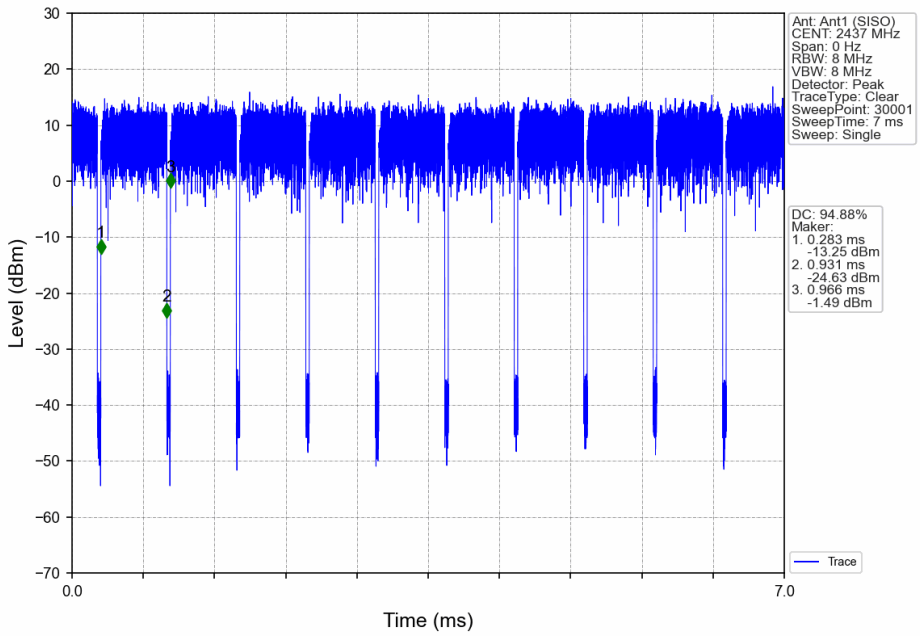
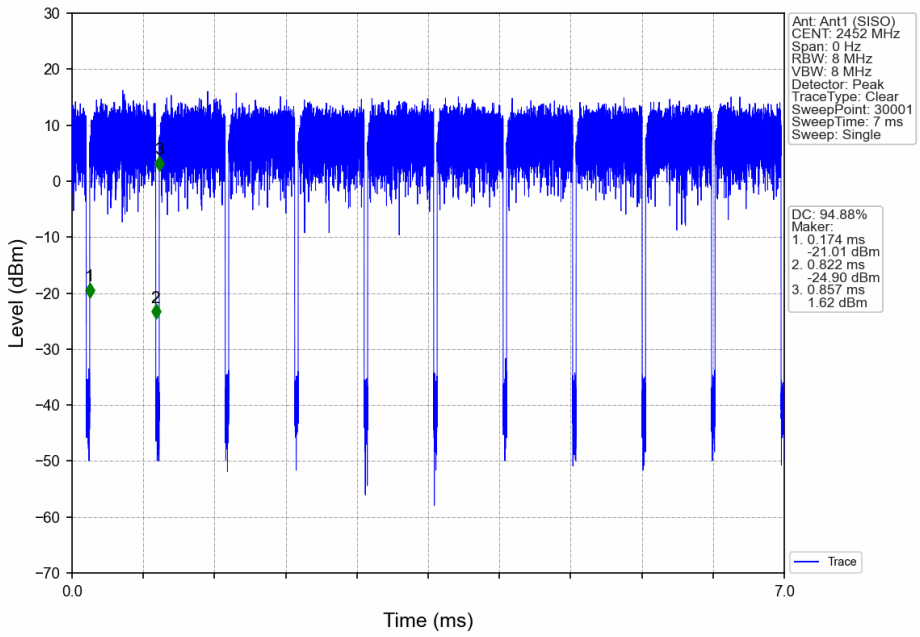
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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2. Bandwidth

2.1 OBW

2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz) Result	Verdict
802.11b	SISO	2412	1	12.440	Pass
		2437	1	12.802	Pass
		2462	1	12.404	Pass
802.11g	SISO	2412	1	17.331	Pass
		2437	1	17.727	Pass
		2462	1	17.286	Pass
802.11n (HT20)	SISO	2412	1	17.457	Pass
		2437	1	18.772	Pass
		2462	1	17.411	Pass
802.11n (HT40)	SISO	2422	1	35.476	Pass
		2437	1	37.729	Pass
		2452	1	35.424	Pass

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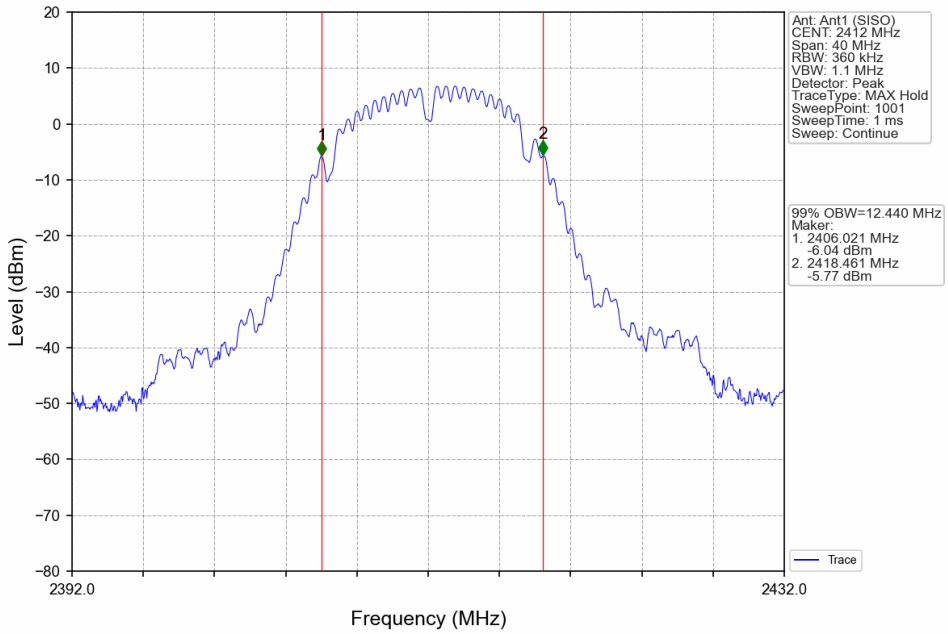
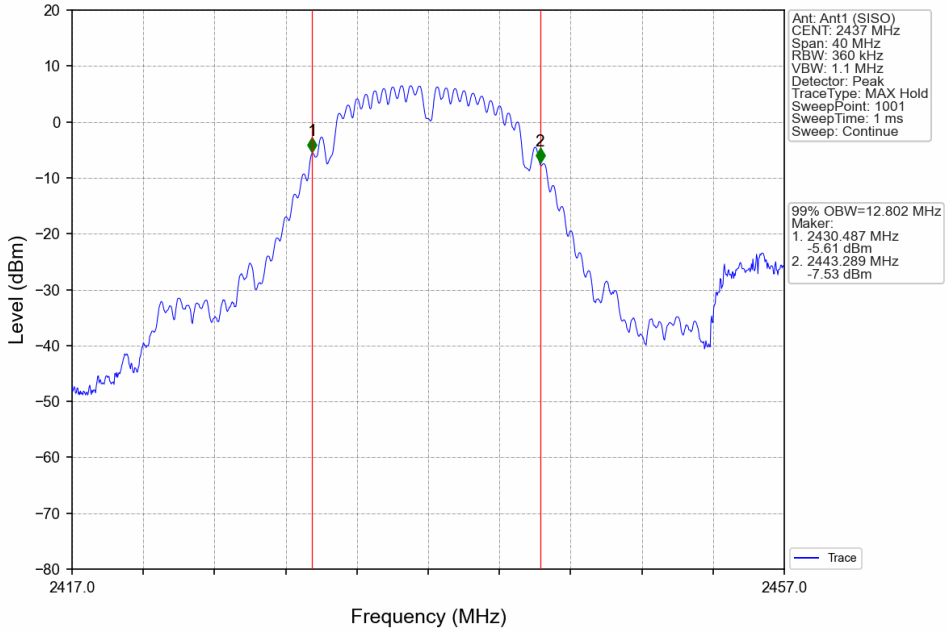
2.1.2 Test Graph

802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



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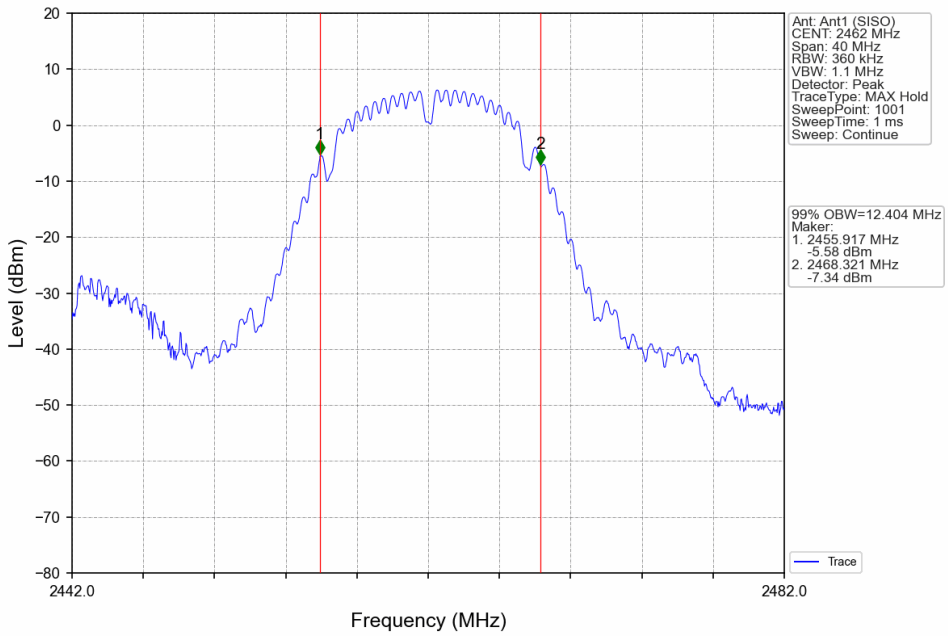
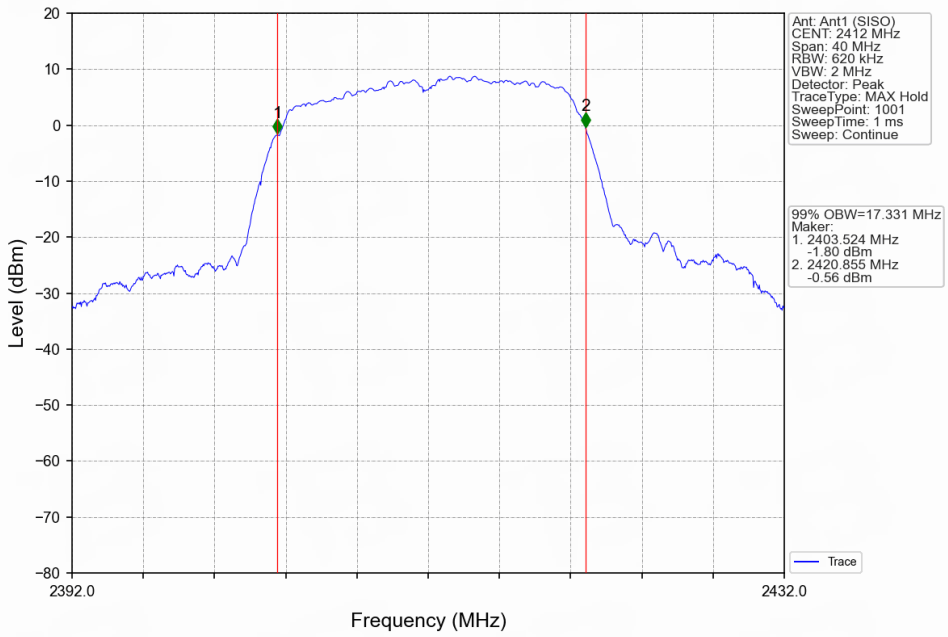
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



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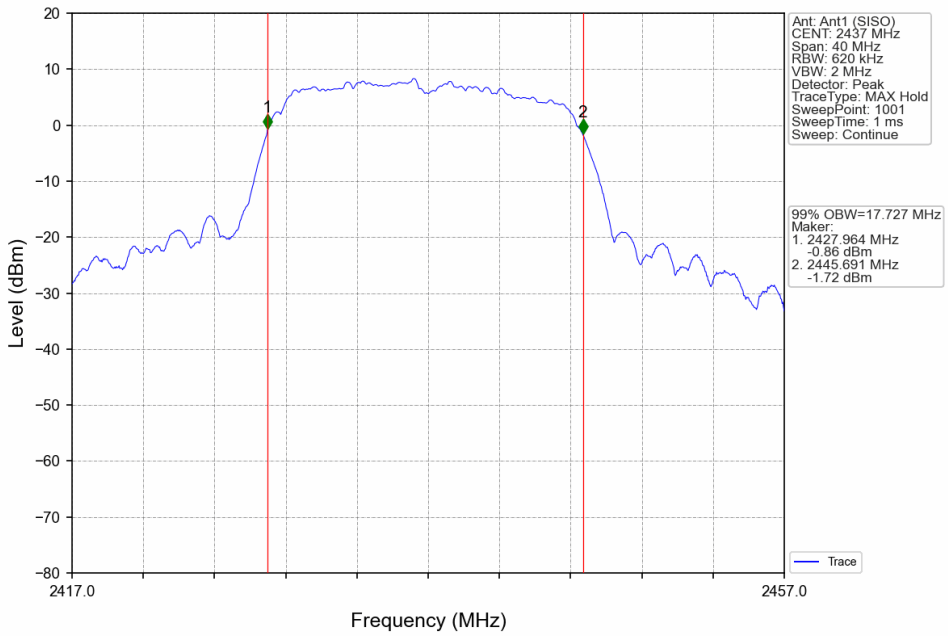
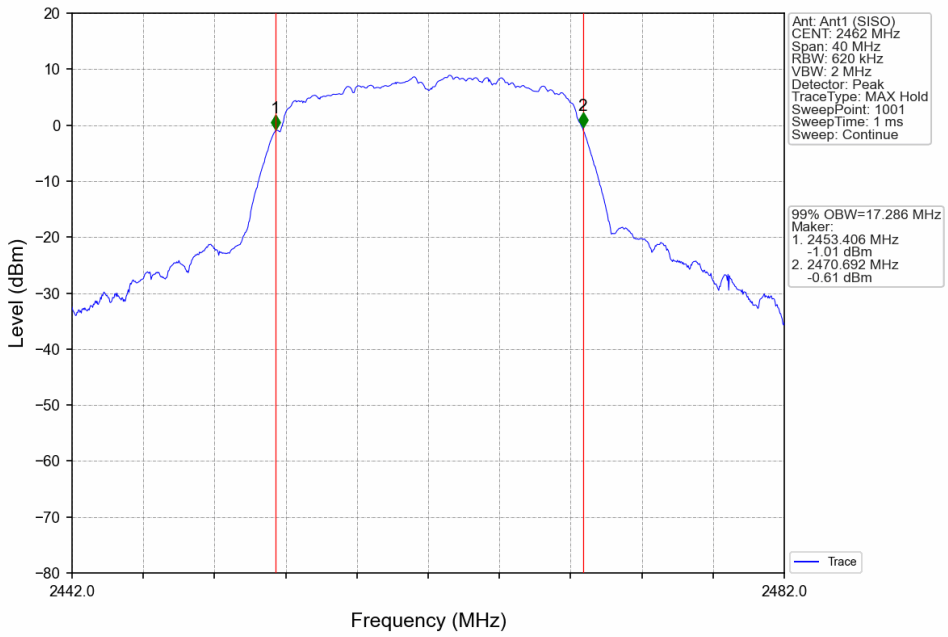
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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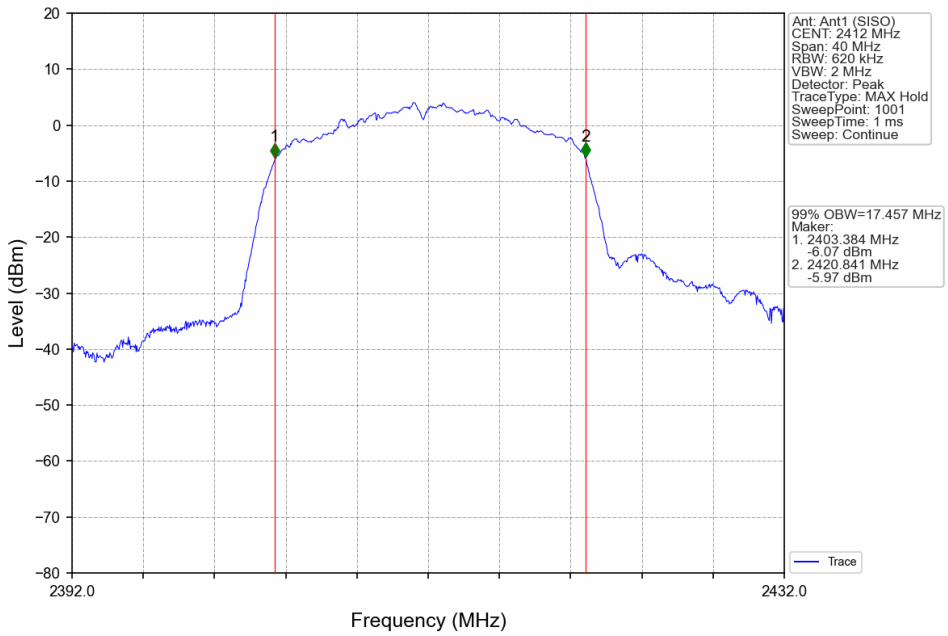
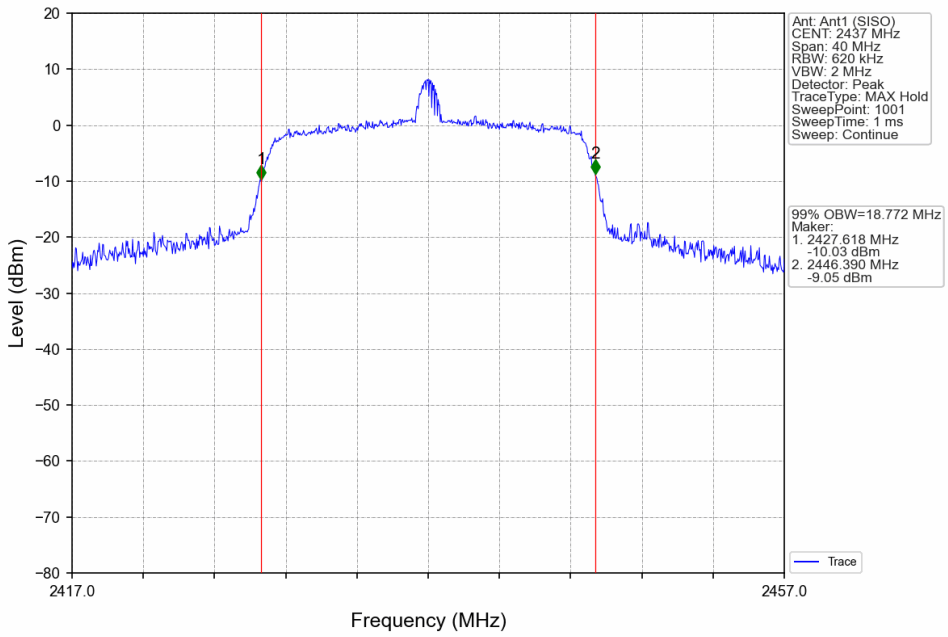
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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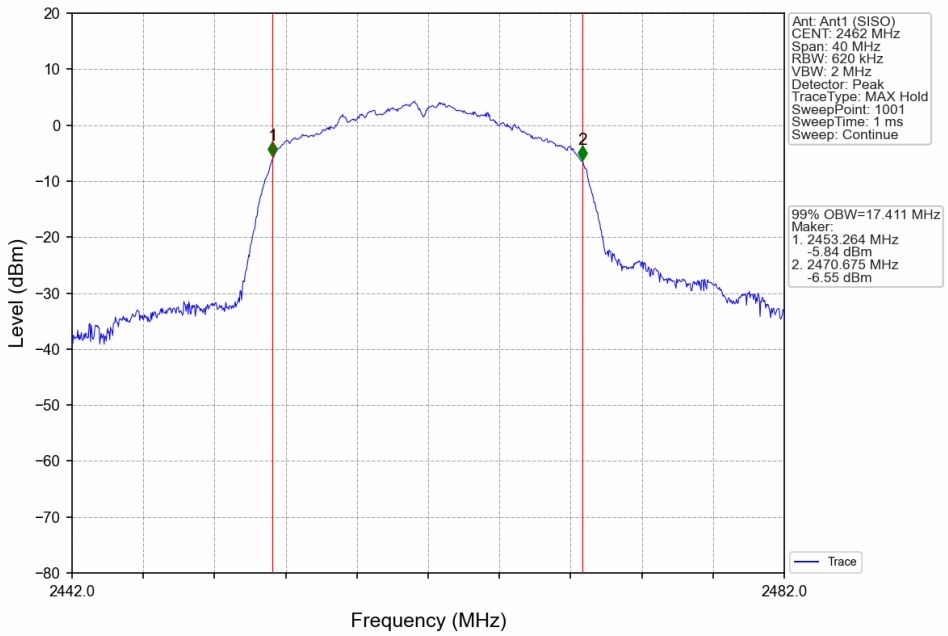
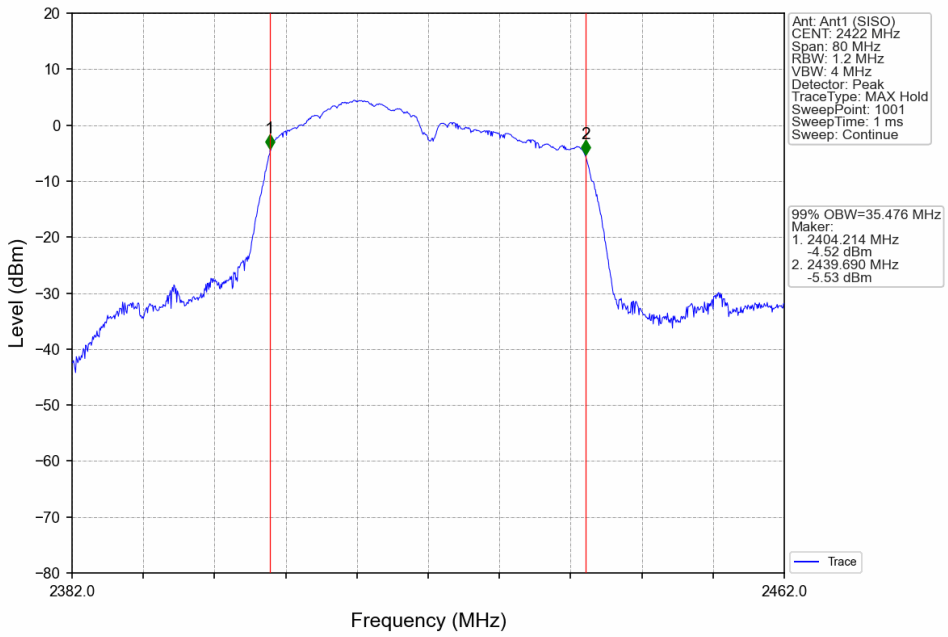
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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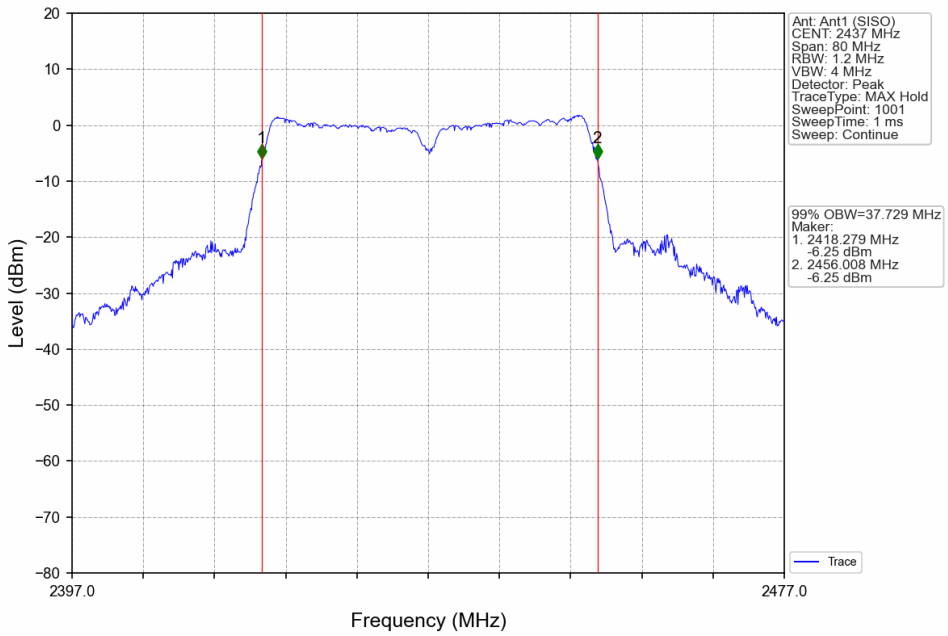
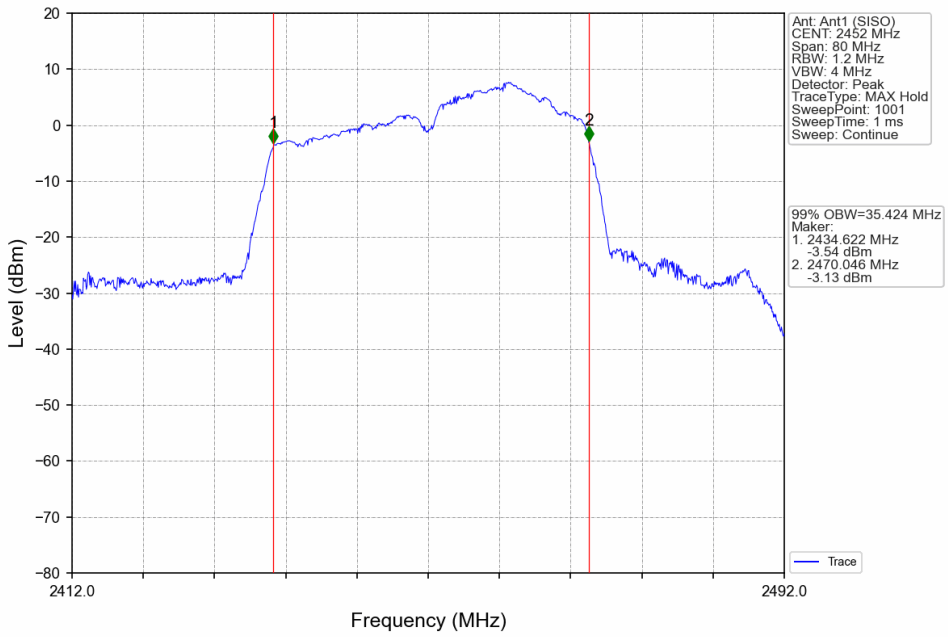
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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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	9.302	>=0.5	Pass
		2437	1	9.546	>=0.5	Pass
		2462	1	9.158	>=0.5	Pass
802.11g	SISO	2412	1	16.024	>=0.5	Pass
		2437	1	16.483	>=0.5	Pass
		2462	1	16.192	>=0.5	Pass
802.11n (HT20)	SISO	2412	1	13.396	>=0.5	Pass
		2437	1	16.128	>=0.5	Pass
		2462	1	12.548	>=0.5	Pass
802.11n (HT40)	SISO	2422	1	21.813	>=0.5	Pass
		2437	1	36.567	>=0.5	Pass
		2452	1	18.488	>=0.5	Pass

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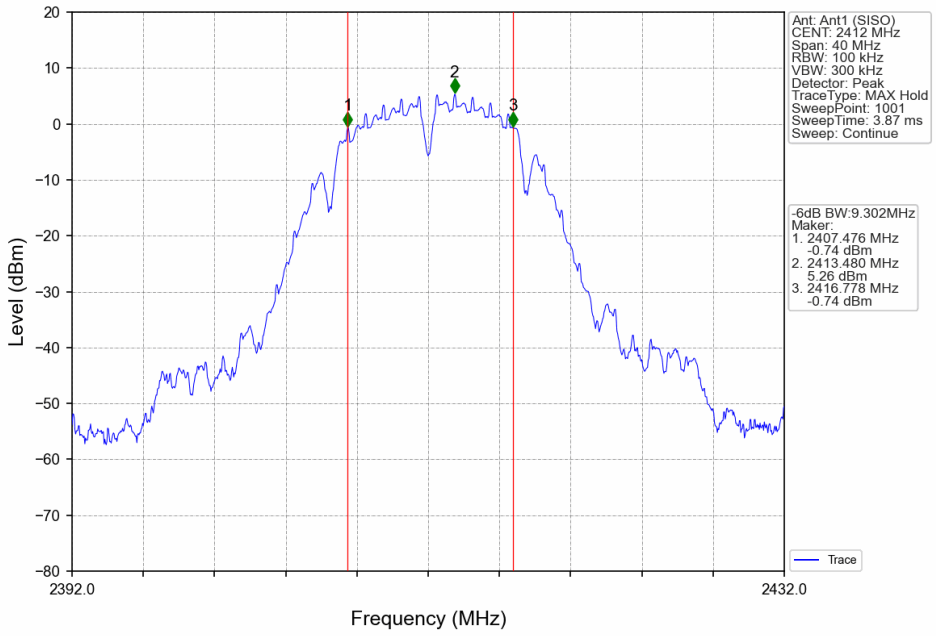
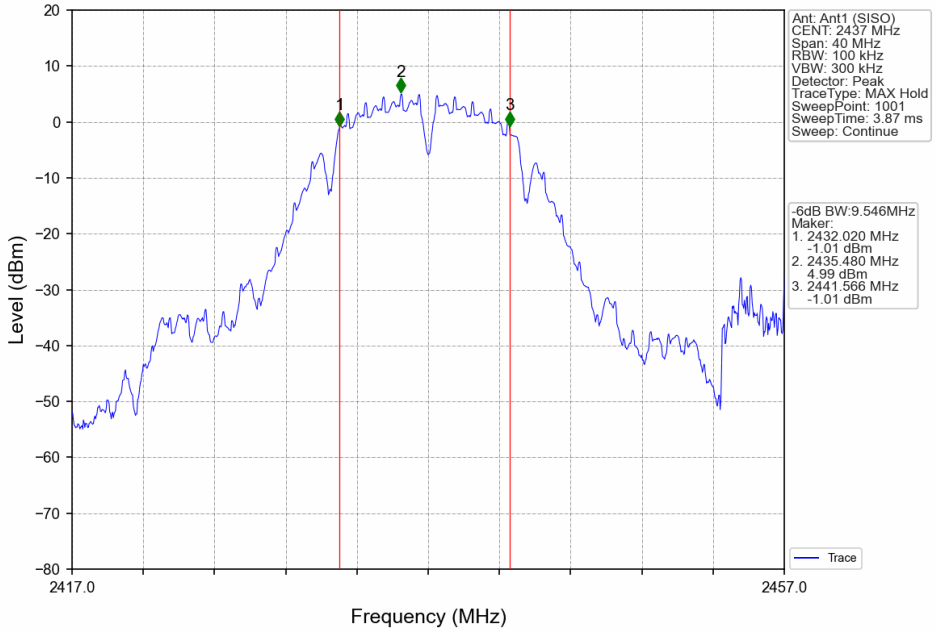
2.2.2 Test Graph

802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



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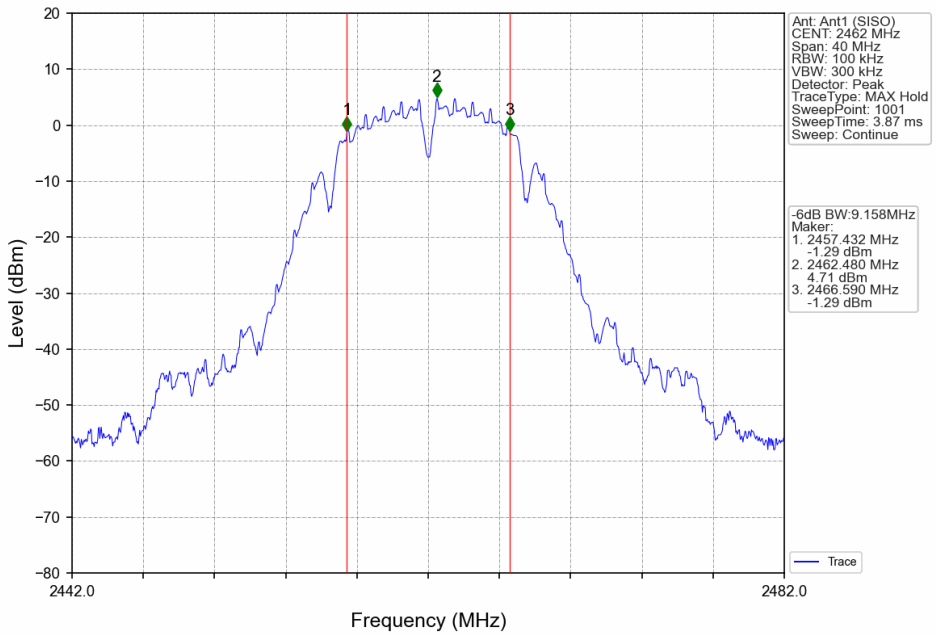
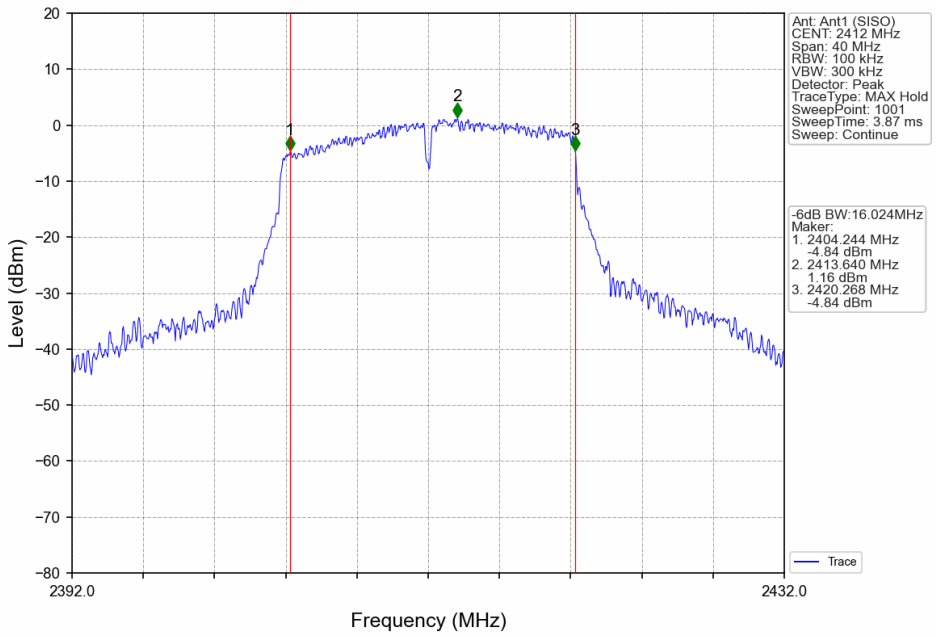
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



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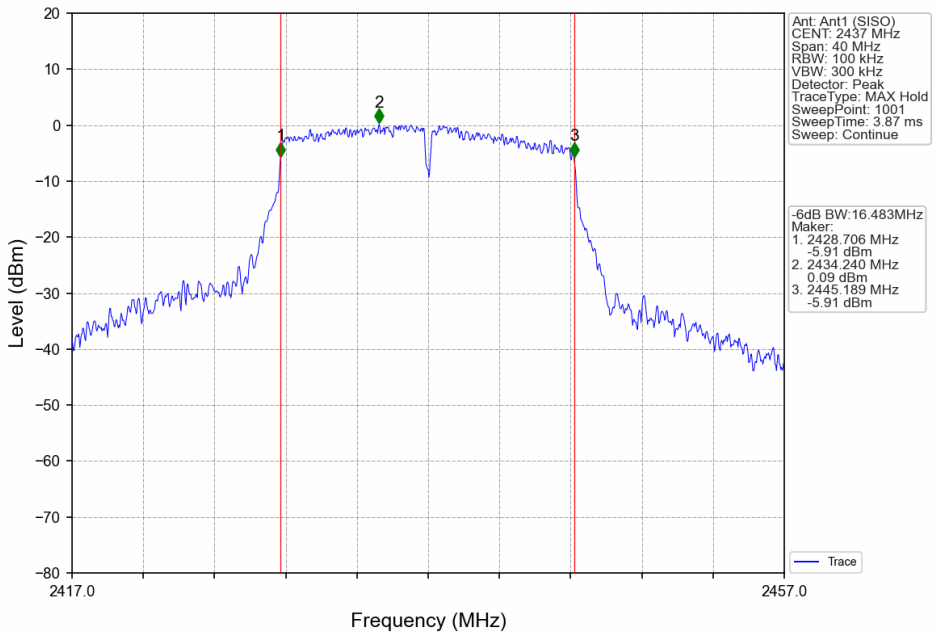
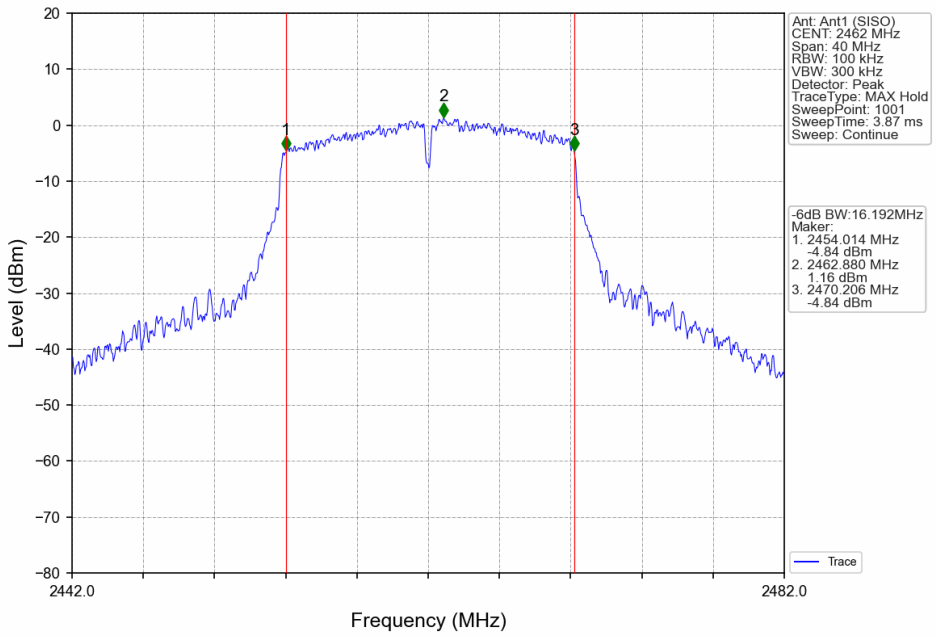
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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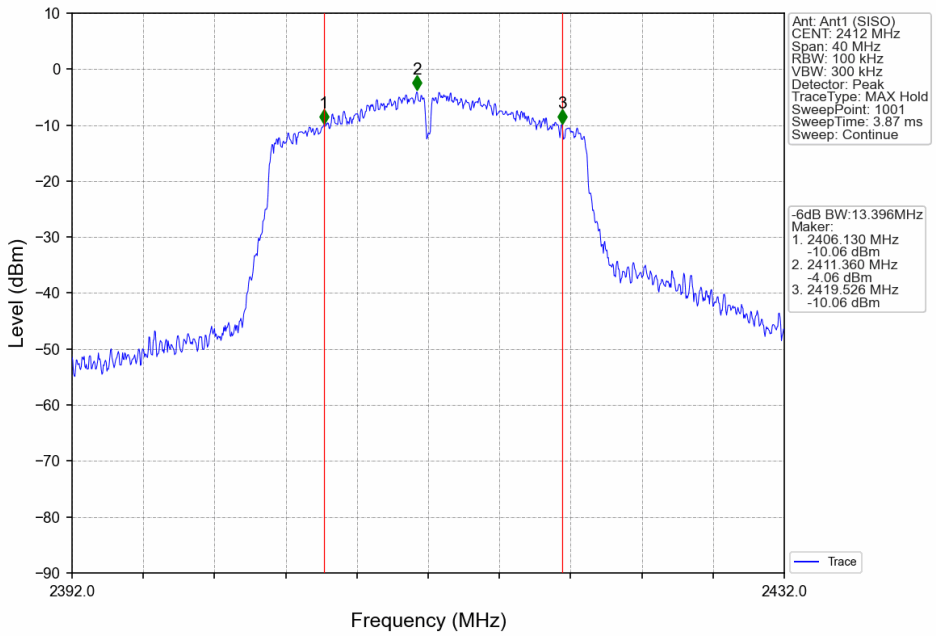
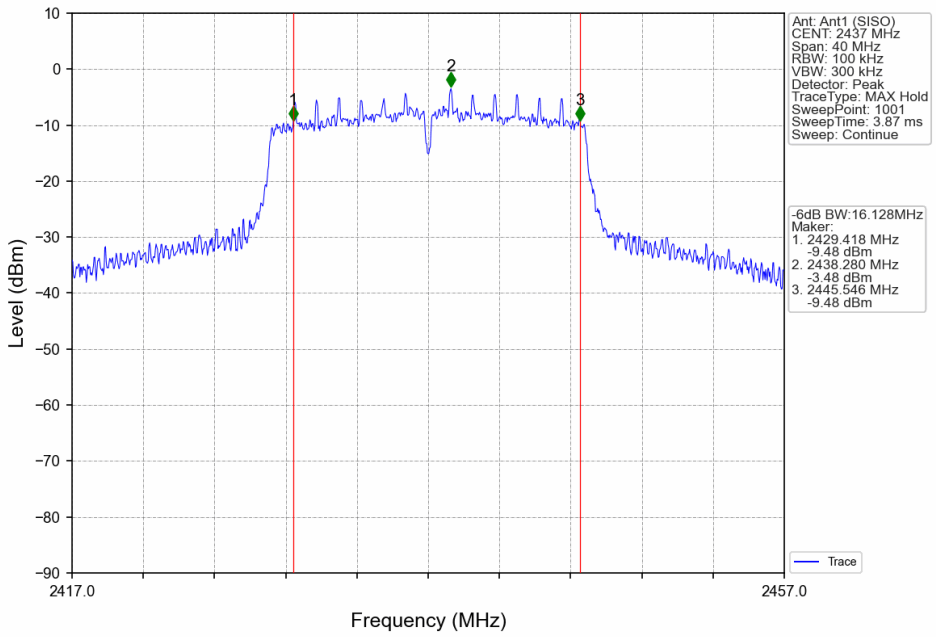
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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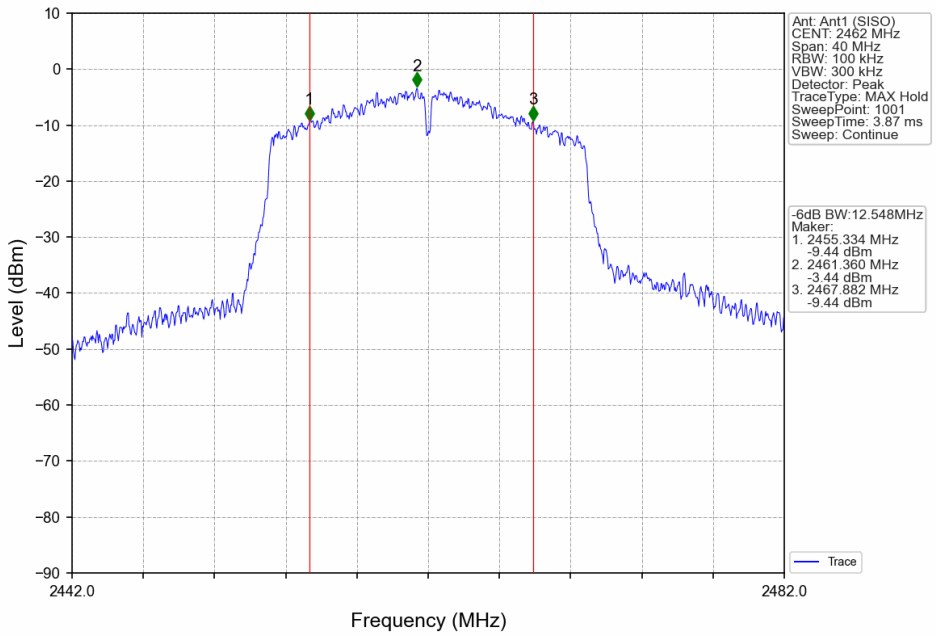
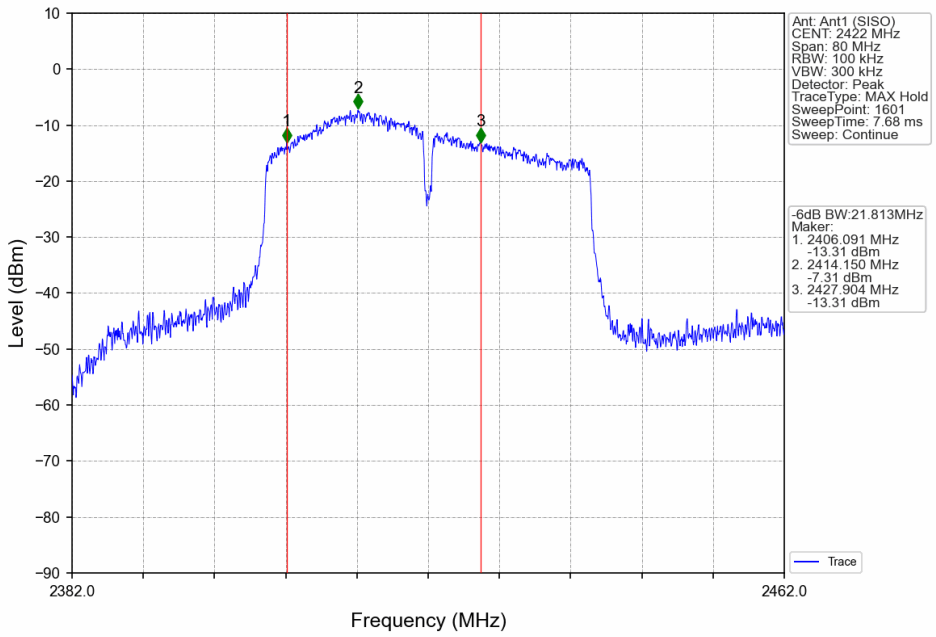
802.11n(HT20)_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_LCH_2422MHz_Ant1 (SISO)_NTNV



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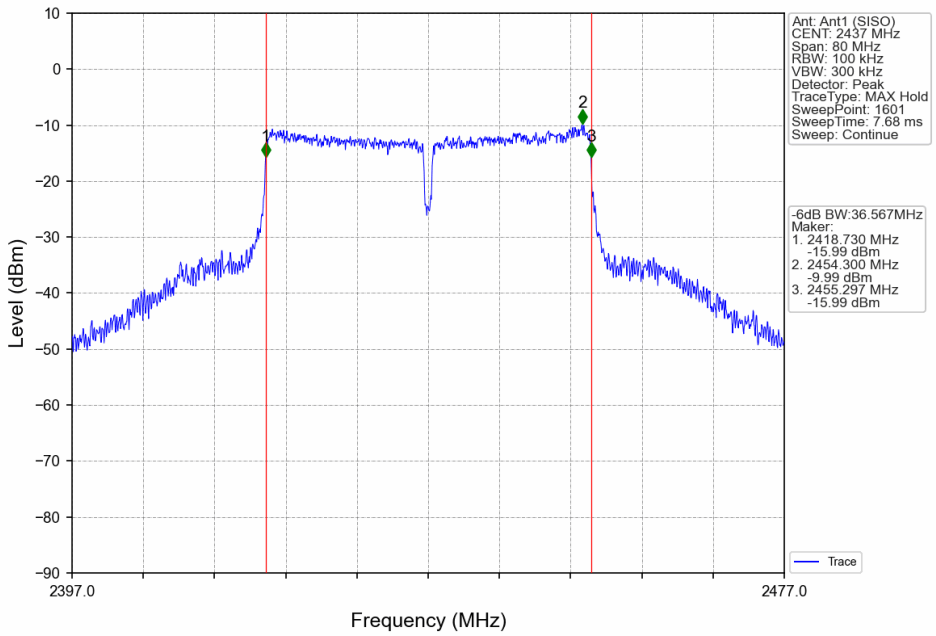
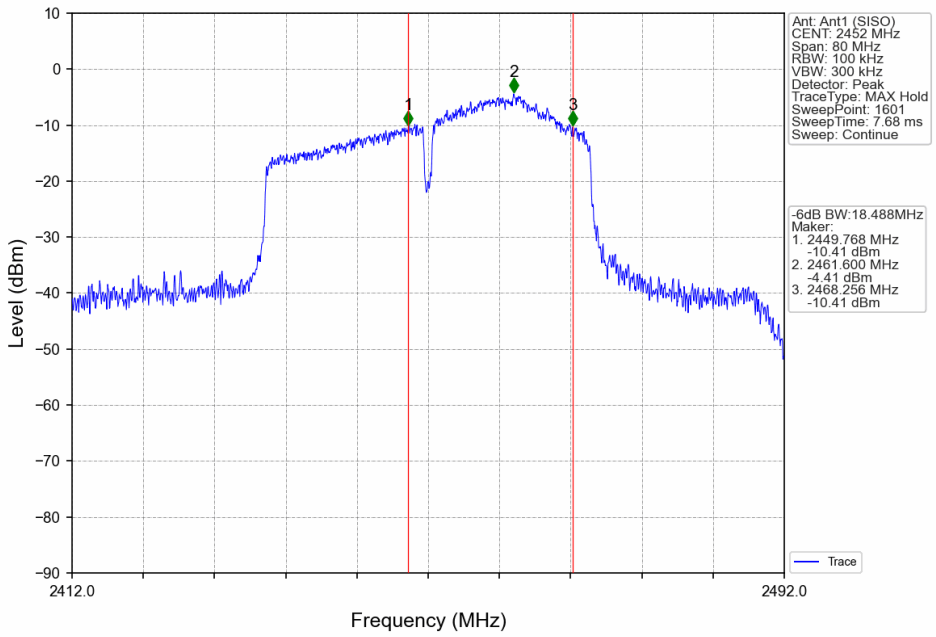
802.11n(HT40)_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11n(HT40)_HCH_2452MHz_Ant1 (SISO)_NTNV



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3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Peak Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	17.61	<=30	Pass
		2437	17.57	<=30	Pass
		2462	17.17	<=30	Pass
802.11g	SISO	2412	21.61	<=30	Pass
		2437	21.19	<=30	Pass
		2462	21.74	<=30	Pass
802.11n (HT20)	SISO	2412	20.78	<=30	Pass
		2437	21.21	<=30	Pass
		2462	17.36	<=30	Pass
802.11n (HT40)	SISO	2422	14.09	<=30	Pass
		2437	14.73	<=30	Pass
		2452	14.73	<=30	Pass
Note1: Antenna Gain: Ant1: 0.33dBi;					

4. Maximum Power Spectral Density

4.1 PSD

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/3kHz)		Verdict
			ANT1	Limit	
802.11b	SISO	2412	-13.41	<=8	Pass
		2437	-13.66	<=8	Pass
		2462	-13.93	<=8	Pass
802.11g	SISO	2412	-12.93	<=8	Pass
		2437	-13.25	<=8	Pass
		2462	-13.21	<=8	Pass
802.11n (HT20)	SISO	2412	-18.14	<=8	Pass
		2437	-19.00	<=8	Pass
		2462	-17.75	<=8	Pass
802.11n (HT40)	SISO	2422	-20.78	<=8	Pass
		2437	-23.56	<=8	Pass
		2452	-17.01	<=8	Pass
Note1: Antenna Gain: Ant1: 0.33dBi;					

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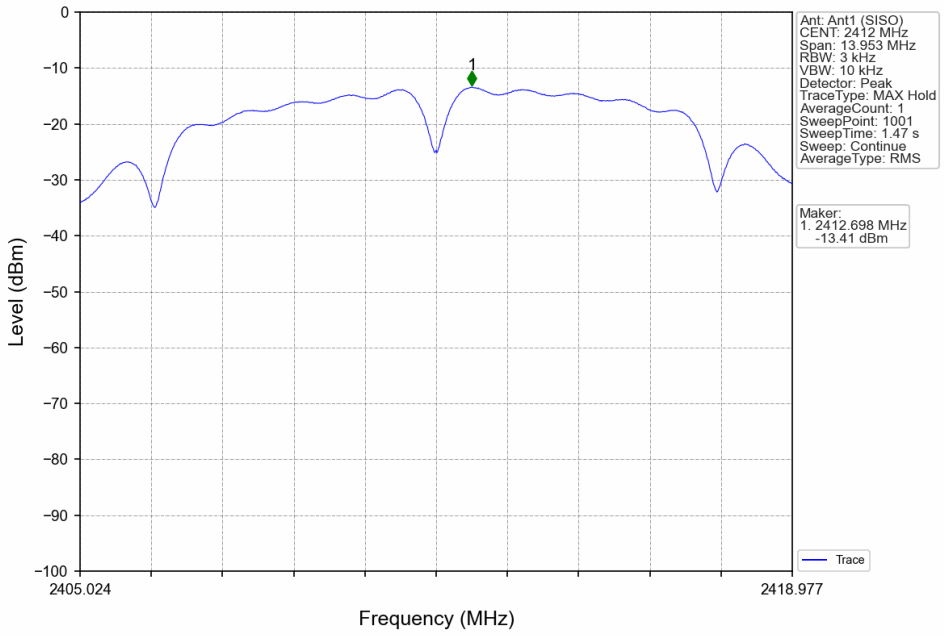
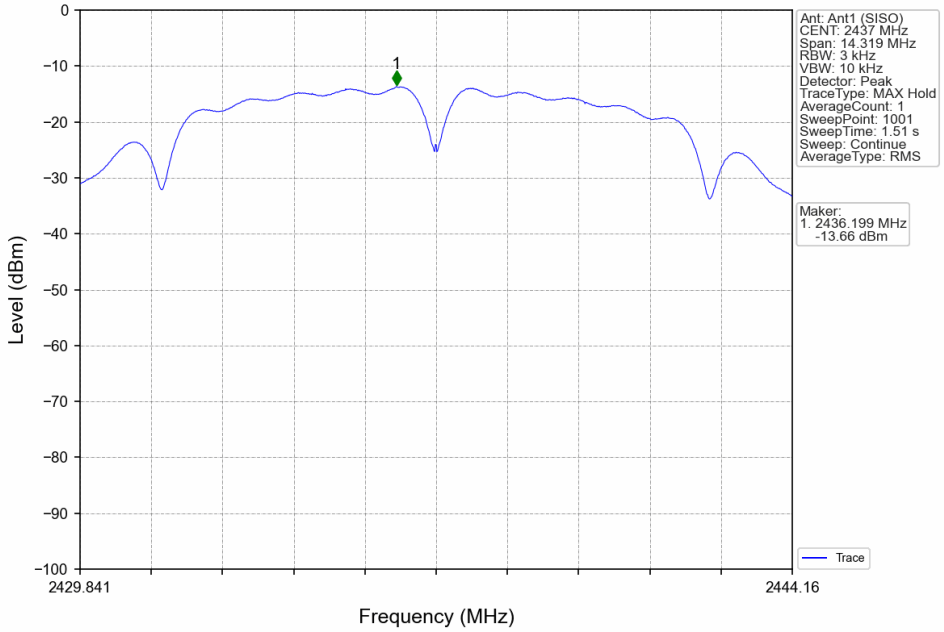
4.1.2 Test Graph

802.11b_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11b_MCH_2437MHz_Ant1 (SISO)_NTNV



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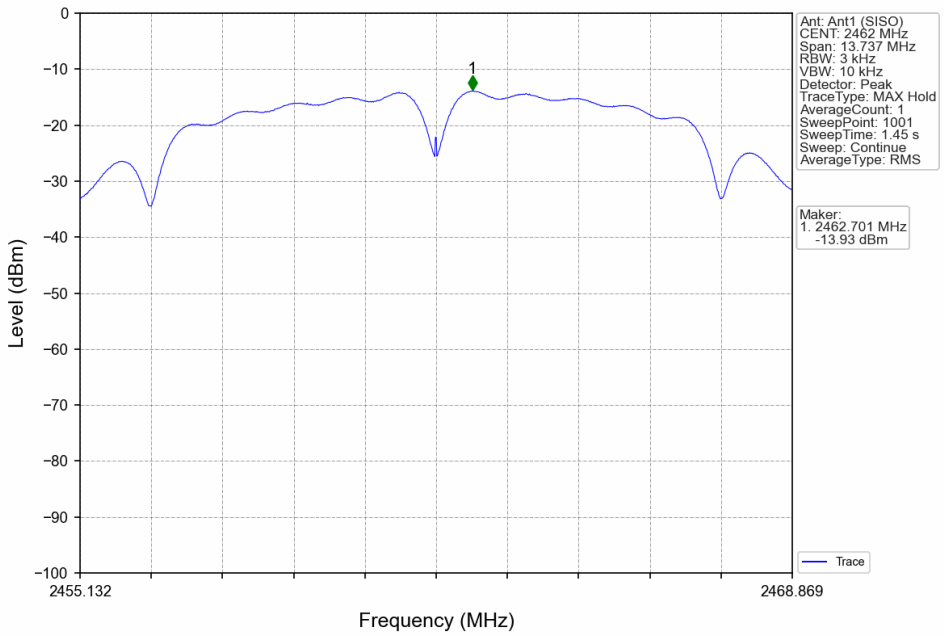
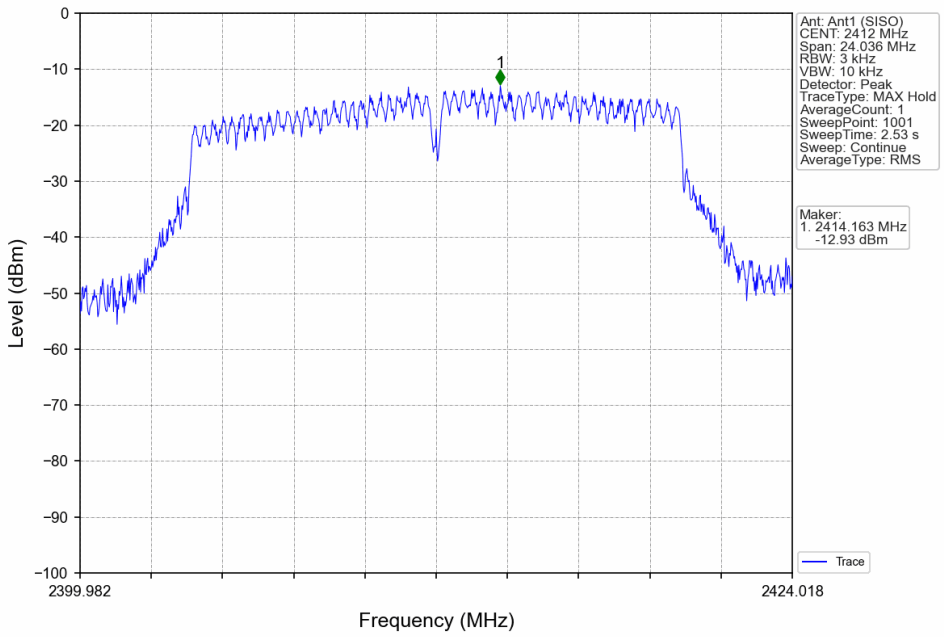
802.11b_HCH_2462MHz_Ant1 (SISO)_NTNV



802.11g_LCH_2412MHz_Ant1 (SISO)_NTNV



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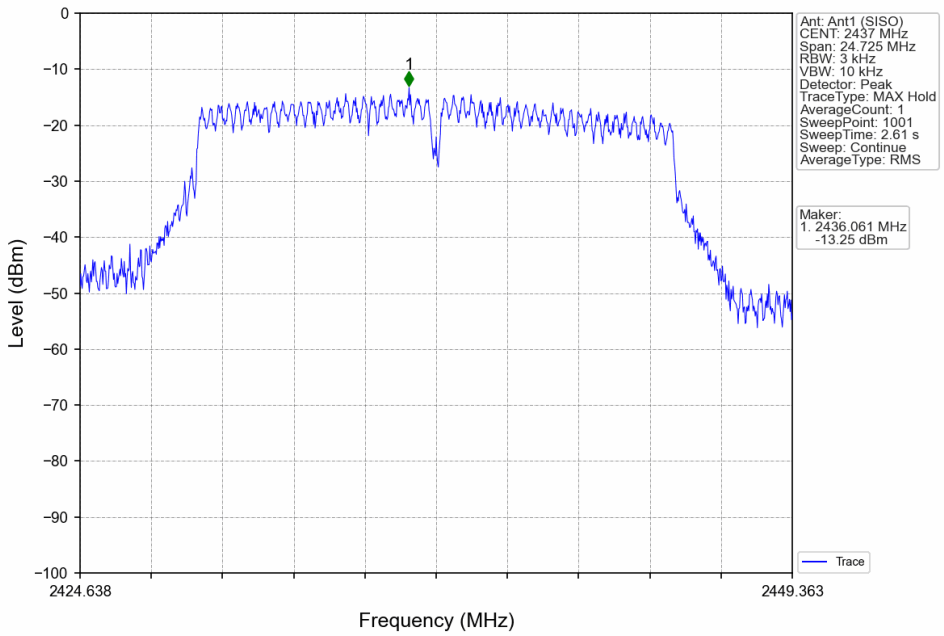
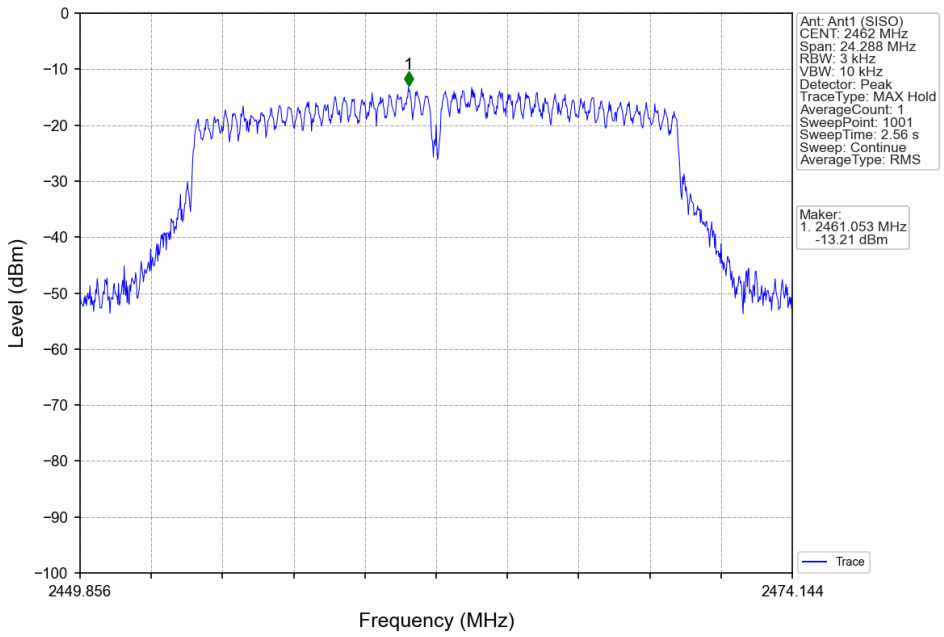
802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



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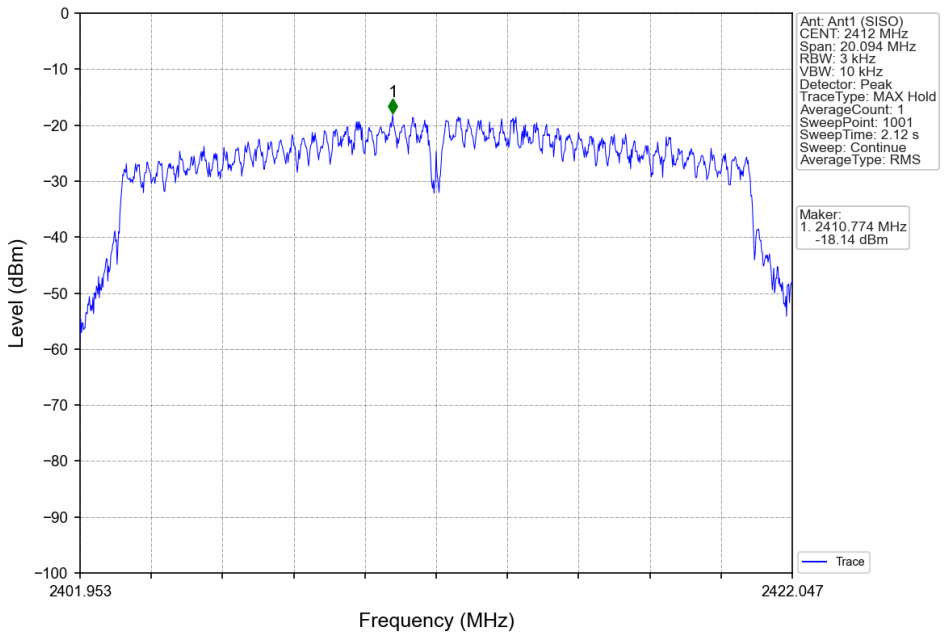
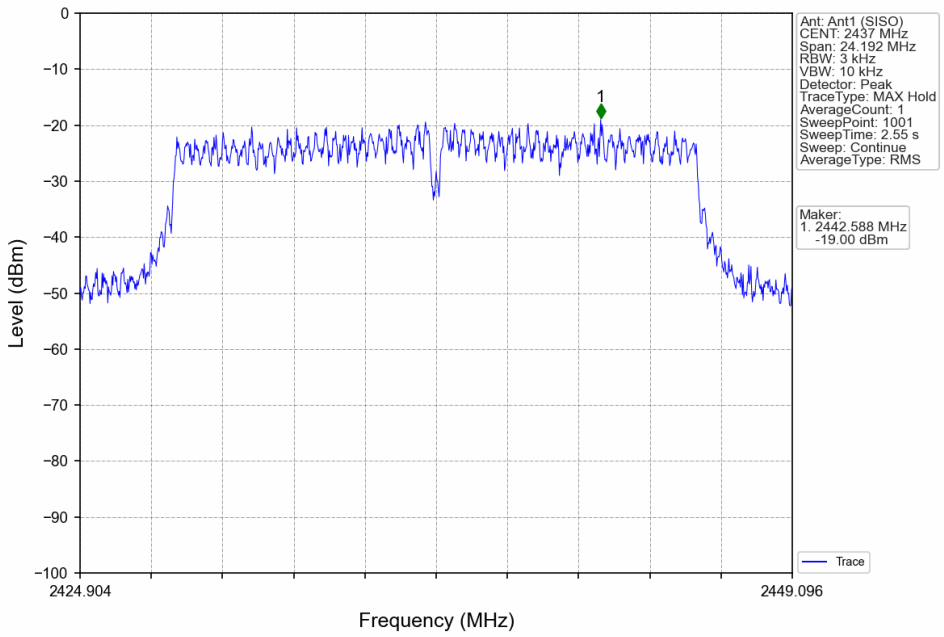
802.11n(HT20)_LCH_2412MHz_Ant1 (SISO)_NTNV



802.11n(HT20)_MCH_2437MHz_Ant1 (SISO)_NTNV



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