

Report No.: SZCR210702201701
Page: 1 of 140

TEST REPORT

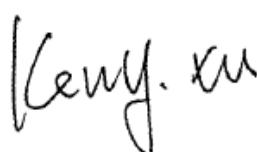
Application No.: SZCR2107022017AT
Applicant: SHENZHEN ELECTRON TECHNOLOGY CO., LTD.
Address of Applicant: Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Baoan, Shenzhen, China
Manufacturer: SHENZHEN ELECTRON TECHNOLOGY CO., LTD.
Address of Manufacturer: Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Baoan, Shenzhen, China
Factory: SHENZHEN ELECTRON TECHNOLOGY CO., LTD.
Address of Factory: Bld.2, Yingfeng Industrial Zone, Tantou Community, Songgang Street, Baoan, Shenzhen, China

Equipment Under Test (EUT):

EUT Name: Wifi Digital photo frame
Model No.: W15F
FCC ID: 2ABC5-W0551
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2021-07-08
Date of Test: 2021-07-13 to 2021-07-23
Date of Issue: 2021-07-30

Test Result:	Pass*
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* In the configuration tested, the EUT complied with the standards specified above.



Keny Xu
EMC Laboratory Manager



SGS-CSTC Standards Technical Services Co., Ltd.
Shenzhen Branch Inspection & Testing Services Laboratory

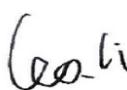
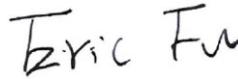
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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-07-30		Original

Authorized for issue by:			
		Leo Li/Project Engineer	
		Eric Fu/Reviewer	

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2 Test Summary

Radio Spectrum Technical Requirement				
Item	Standard	Method	Requirement	Result
Antenna Requirement	47 CFR Part 15, Subpart C 15.247	N/A	47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Peak Output Power	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 11.9.1	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth		ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density		ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement		ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions		ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Conducted Emissions at AC Power Line (150kHz-30MHz)		ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	Pass

N/A: No applicable

Declaration of EUT Family Grouping:

This device contains two kinds of TFT-LCD Screen samples, one TFT-LCD Screen model No. is LQ150X1LW94 and the other one TFT-LCD Screen model No. is LQ150X1LCN7.

Only the sample with TFT-LCD Screen model No. LQ150X1LCN7 was tested fully, and the TFT-LCD Screen model LQ150X1LW94 sample was performed the Radiated Emissions(30MHz-1GHz) test for discrepancy. According to the declaration from the applicant, the electrical circuit design, PCB layout, components used and internal wiring were identical for mainboard of EUTs, only difference on TFT-LCD Screen model names and TFT-LCD Screen model No. LQ150X1LCN7 has an LCD driver board installed.

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 5V from adapter input AC 120V/60Hz Adapter Model: S024-1B120200VU Input: AC100-240V~, 50/60Hz 0.6A Output: DC 12.0V 2.0A 3V DC(3V x 1 "CR2032" Button Cells) for remote
Cable(s):	Adapter DC Cable: 200cm length
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz; 802.11n(HT40): 2422MHz to 2452MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK), 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20): 11; 802.11n(HT40): 7
Channel Spacing:	5MHz
Antenna Type:	FPC Antenna
Antenna Gain:	2.87dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
--	--	--	--

The EUT has been tested as an independent unit.

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 3.0dB (150kHz to 30MHz)
Conducted Peak Output Power	± 0.75dB
Minimum 6dB Bandwidth	± 3%
Power Spectrum Density	± 2.84dB
Conducted Band Edges Measurement	± 0.75dB
Conducted Spurious Emissions	± 0.75dB
Radiated Emissions which fall in the restricted bands	± 4.5dB (Below 1GHz); ± 4.8dB (Above 1GHz)
Radiated Spurious Emissions Below 1GHz	± 4.5dB
Radiated Spurious Emissions Above 1GHz	± 4.8dB

Remark:

The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty), so the test results

- compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
- non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

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4.4 Test Location

All tests were performed at:

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No. 1 Workshop, M-10, Middle Section, Science & Technology Park, Shenzhen, Guangdong, China.
518057.

Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

- **A2LA (Certificate No. 3816.01)**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

- **VCCI (Member No. 1937)**

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

- **FCC –Designation Number: CN1178**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1178. Test Firm Registration Number: 406779.

- **Innovation, Science and Economic Development Canada**

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Equipment List

Conducted Peak Output Power					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2021-07-09	2022-07-08
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2021-04-08	2022-04-07

Minimum 6dB Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2021-07-09	2022-07-08
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2021-04-08	2022-04-07

Power Spectrum Density					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2021-07-09	2022-07-08
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2021-04-08	2022-04-07

Conducted Band Edges Measurement					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A

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Coaxial Cable	SGS	N/A	SEM031-02	2021-07-09	2022-07-08
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2021-04-08	2022-04-07

Conducted Spurious Emissions

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Shielding Room	SAEMC	MSR733	SEM001-09	2019-06-13	2022-06-12
DC Power Supply	Rohde & Schwarz	NGSM 32/10	SEM011-04	2021-03-23	2022-03-22
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-17	2021-04-08	2022-04-07
Measurement Software	TST	TST PASS V1.0.5	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-02	2021-07-09	2022-07-08
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2021-04-08	2022-04-07

Radiated Emissions which fall in the restricted bands

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2021-03-26	2024-03-25
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2021-02-01	2022-01-31
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2021-04-14	2024-04-13
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2021-07-09	2022-07-08
Horn Antenna	Schwarzbeck	BBHA 9170	SEM003-15	2020-11-14	2023-11-13
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-2640-50	SEM005-08	2021-03-24	2022-03-23

Radiated Spurious Emissions Below 1GHz

Radiated Spurious Emissions Below 1GHz					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2020-11-02	2021-11-01
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2021-03-24	2022-03-23
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2021-07-09	2022-07-08



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Radiated Spurious Emissions Above 1GHz

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2021-03-26	2024-03-25
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2021-02-01	2022-01-31
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2021-04-14	2024-04-13
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2020-09-23	2021-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2021-07-09	2022-07-08

General used equipment

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2020-09-15	2021-09-14
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2020-09-15	2021-09-14
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2021-03-30	2022-03-29



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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203 & 15.247(b)(4)

6.1.2 Conclusion

Standard 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, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

The conducted output power limit specified in paragraph (b) of this section is based on the use of antennas with directional gains that do not exceed 6 dBi. Except as shown in paragraph (c) of this section, if transmitting antennas of directional gain greater than 6 dBi are used, the conducted output power from the intentional radiator shall be reduced below the stated values in paragraphs (b)(1), (b)(2), and (b)(3) of this section, as appropriate, by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna is 2.87 dBi.

Antenna location: Refer to internal photo.



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7 Radio Spectrum Matter Test Results

7.1 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)
Test Method: ANSI C63.10 (2013) Section 11.9.1

Limit:

Frequency range(MHz)	Output power of the intentional radiator(watt)
902-928	1 for ≥ 50 hopping channels
	0.25 for $25 \leq$ hopping channels < 50
	1 for digital modulation
2400-2483.5	1 for ≥ 75 non-overlapping hopping channels
	0.125 for all other frequency hopping systems
	1 for digital modulation
5725-5850	1 for frequency hopping systems and digital modulation

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C Humidity: 56.1 % RH Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode. Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

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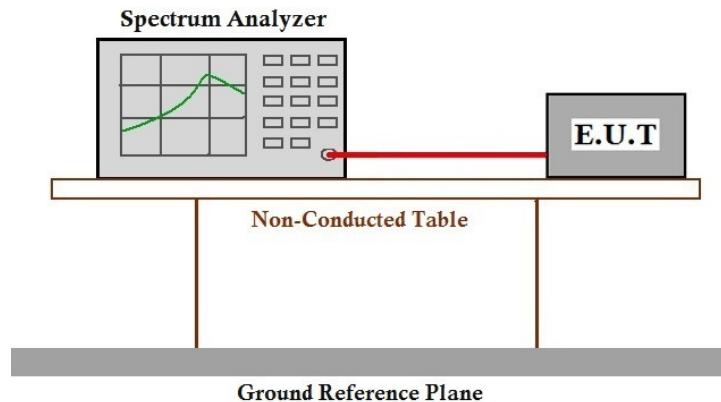
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7.1.3 Test Setup Diagram**7.1.4 Measurement Procedure and Data**

Please Refer to Appendix for Details



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7.2 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)
Test Method: ANSI C63.10 (2013) Section 11.8.1
Limit: ≥ 500 kHz

7.2.1 E.U.T. Operation

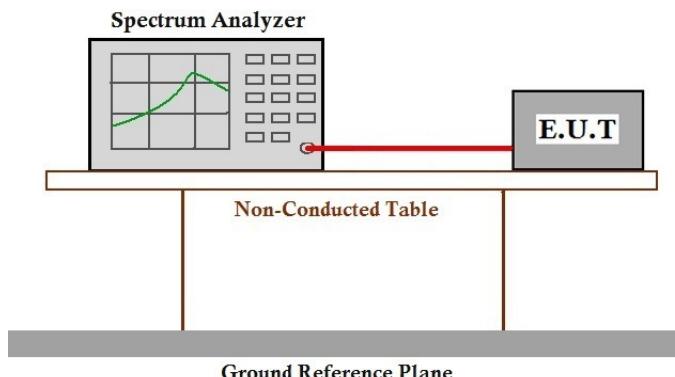
Operating Environment:

Temperature: 25.5 °C Humidity: 56.1 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.3 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)

Test Method: ANSI C63.10 (2013) Section 11.10.2

Limit:

≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.3.1 E.U.T. Operation

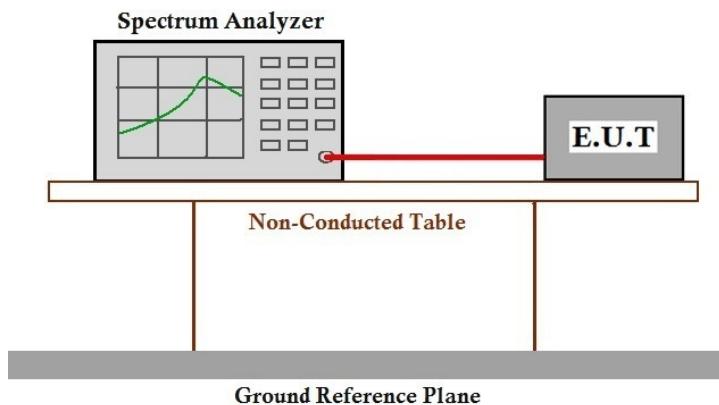
Operating Environment:

Temperature: 25.5 °C Humidity: 56.1 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

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7.4 Conducted Band Edges Measurement

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 11.13.3.2

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. 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)).

7.4.1 E.U.T. Operation

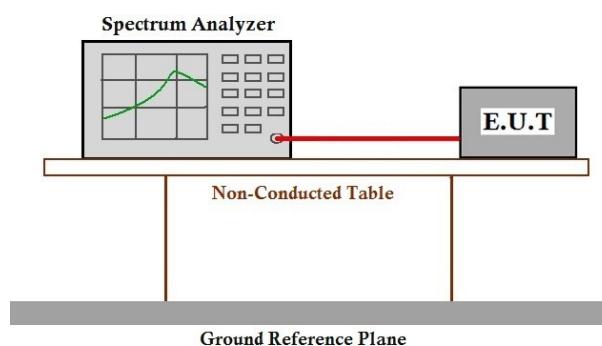
Operating Environment:

Temperature: 25.5 °C Humidity: 56.1 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

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7.5 Conducted Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247(d)

Test Method: ANSI C63.10 (2013) Section 11.11

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. 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)).

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

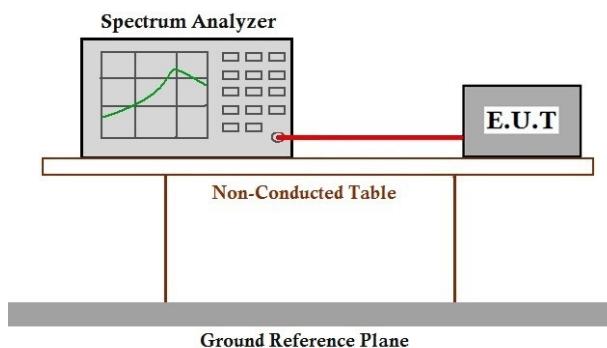
Humidity: 56.1 % RH

Atmospheric Pressure: 1010 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

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7.6 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.10.5

Measurement Distance: 3m

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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 21.2 °C Humidity: 54.3 % RH Atmospheric Pressure: 1010 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

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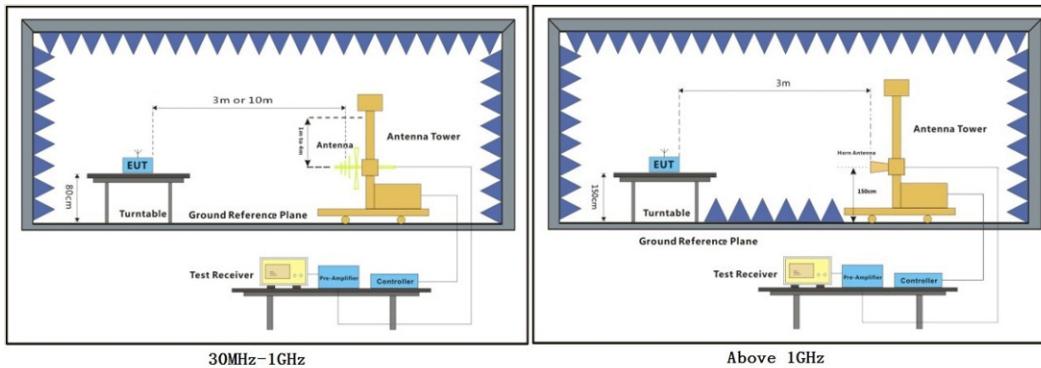
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7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.
- Test the EUT in the lowest channel, the middle channel, the Highest channel.
- The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- Repeat above procedures until all frequencies measured was complete.

Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



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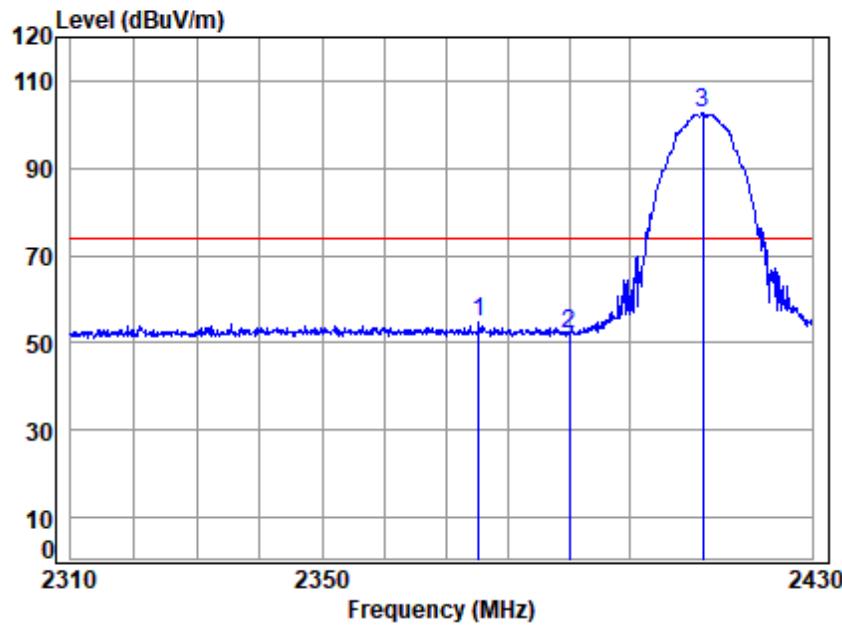
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



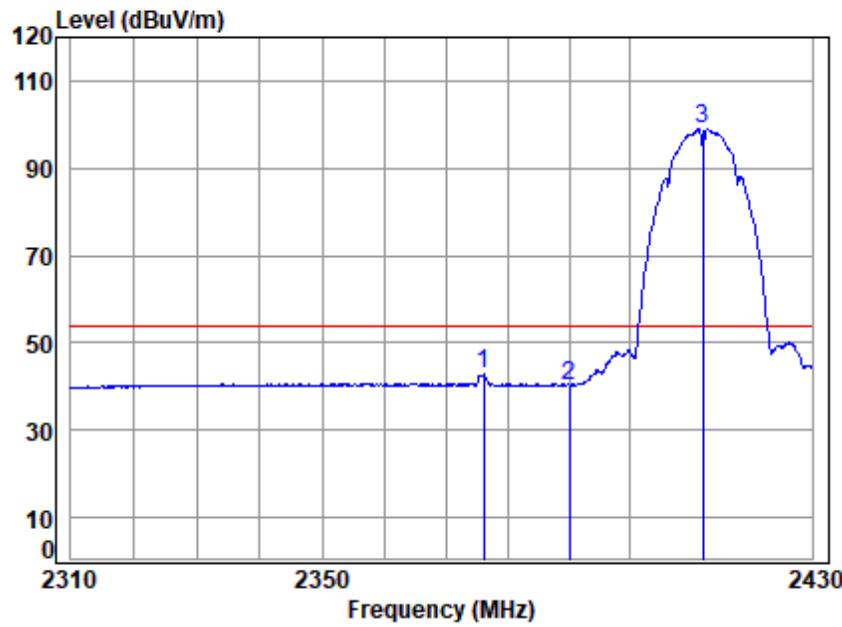
Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2375.368	4.32	28.85	40.41	61.83	54.59	74.00	-19.41 peak
2 2390.000	4.34	28.88	40.42	59.06	51.86	74.00	-22.14 peak
3 . 2412.000	4.38	28.92	40.43	109.72	102.59	74.00	28.59 peak

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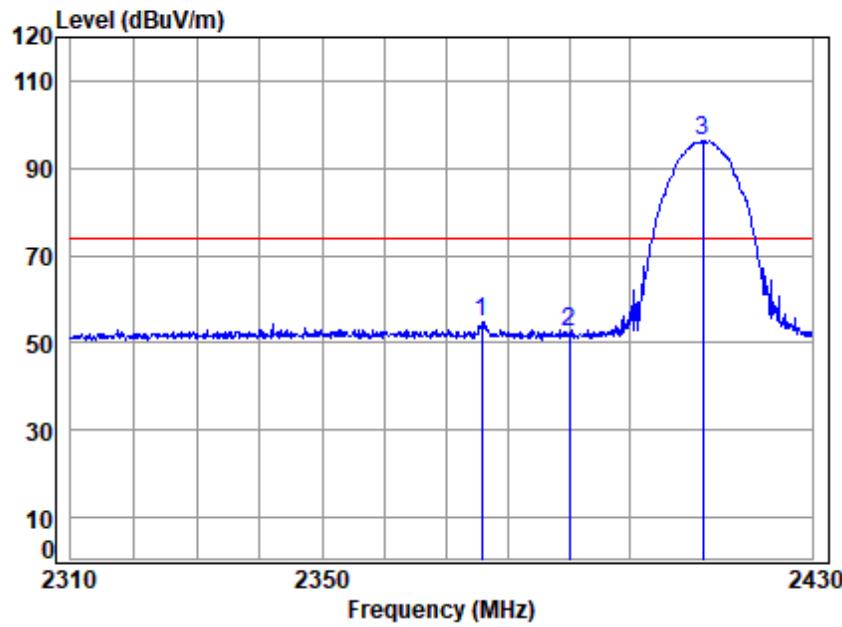
Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2376.090	4.32	28.85	40.41	50.24	43.00	54.00	-11.00 Average
2 2390.000	4.34	28.88	40.42	47.55	40.35	54.00	-13.65 Average
3 . 2412.000	4.38	28.92	40.43	106.08	98.95	54.00	44.95 Average

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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dBuV/m	dB
1 2375.849	4.32	28.85	40.41	62.11	54.87	74.00	-19.13	Peak
2 2390.000	4.34	28.88	40.42	59.48	52.28	74.00	-21.72	Peak
3 . 2412.000	4.38	28.92	40.43	103.50	96.37	74.00	22.37	Peak

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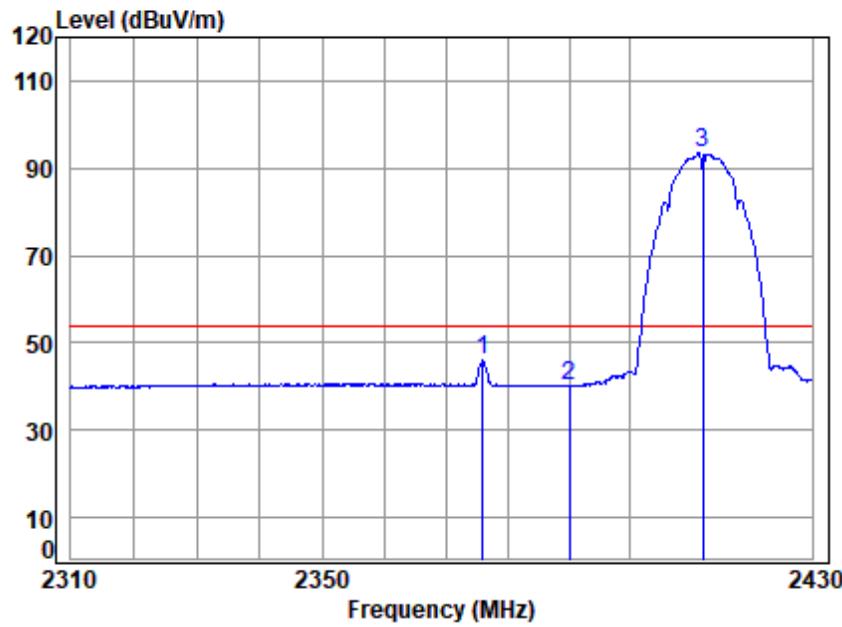


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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dBuV/m	dB
1 2375.969	4.32	28.85	40.41	53.17	45.93	54.00	-8.07	Average
2 2390.000	4.34	28.88	40.42	47.29	40.09	54.00	-13.91	Average
3 . 2412.000	4.38	28.92	40.43	100.61	93.48	54.00	39.48	Average

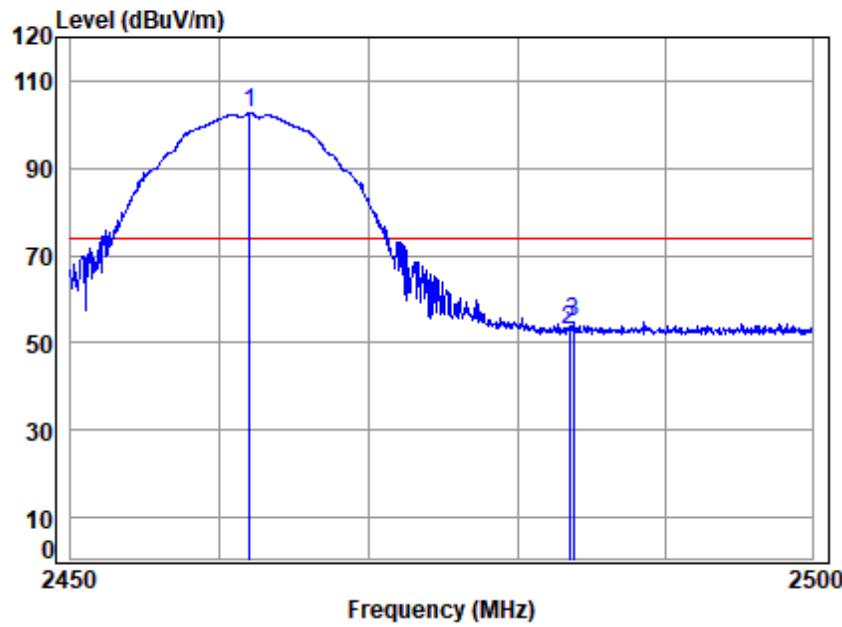
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz								
1 . 2462.000	4.46	29.02	40.46	109.69	102.71	74.00	28.71	peak
2 . 2483.500	4.49	29.07	40.47	59.62	52.71	74.00	-21.29	peak
3 . 2483.790	4.49	29.07	40.47	61.50	54.59	74.00	-19.41	peak

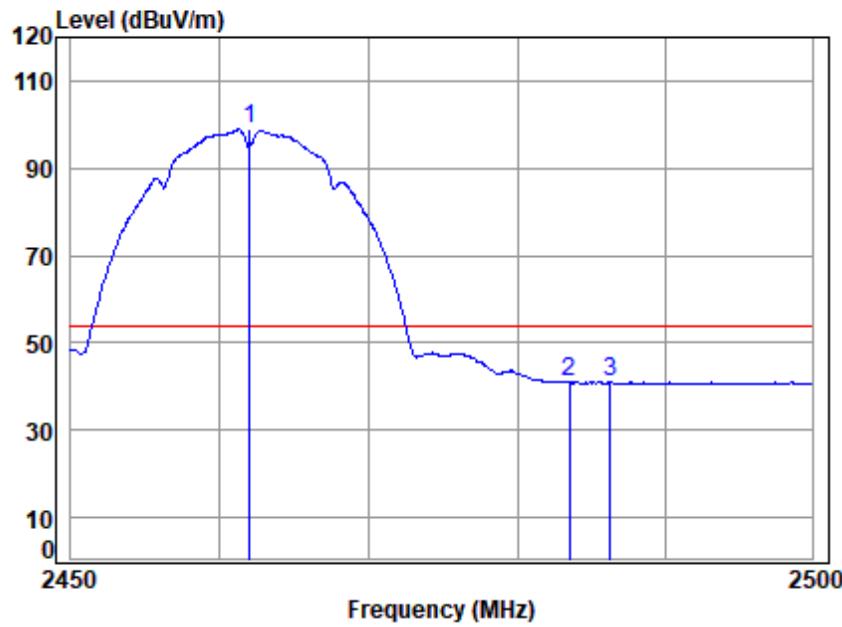
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

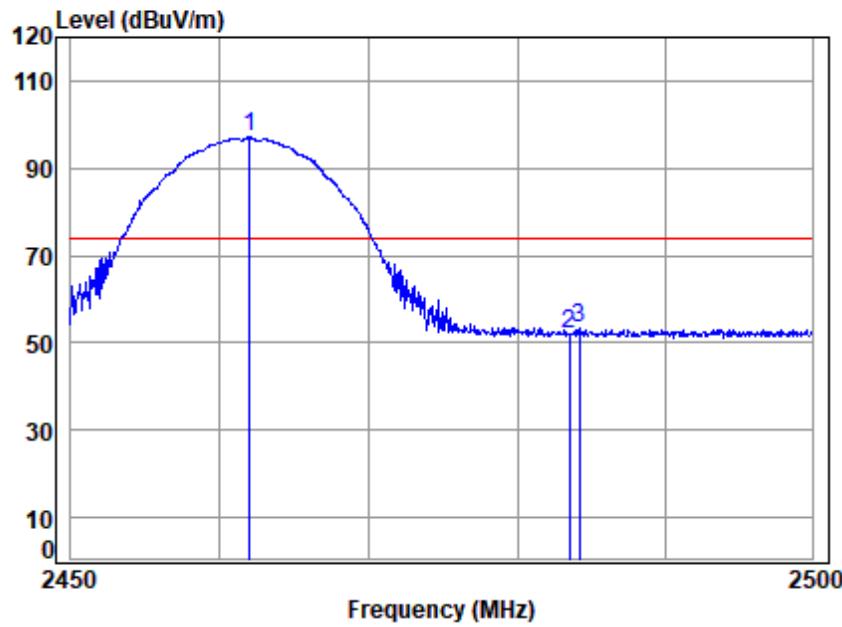
Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz								
1 . 2462.000	4.46	29.02	40.46	105.83	98.85	54.00	44.85	Average
2 2483.500	4.49	29.07	40.47	47.91	41.00	54.00	-13.00	Average
3 2486.300	4.50	29.07	40.47	48.01	41.11	54.00	-12.89	Average

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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz								
1 . 2462.000	4.46	29.02	40.46	104.07	97.09	74.00	23.09	Peak
2 2483.500	4.49	29.07	40.47	58.84	51.93	74.00	-22.07	Peak
3 2484.191	4.50	29.07	40.47	60.13	53.23	74.00	-20.77	Peak

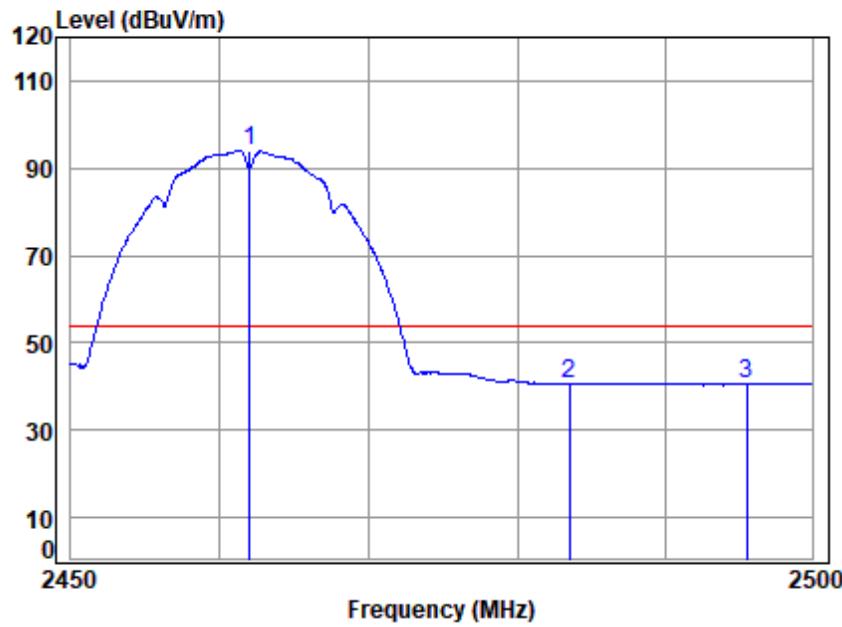
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



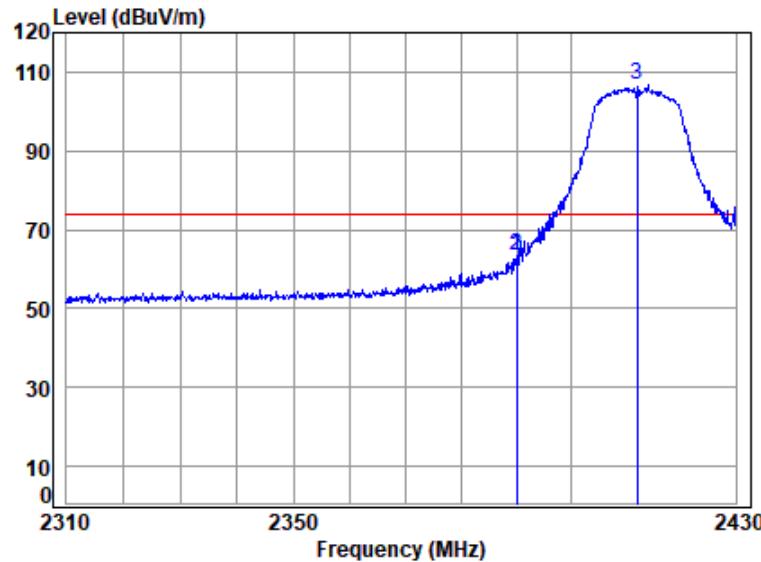
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2462.000	4.46	29.02	40.46	101.17	94.19	54.00	40.19 Average
2 2483.500	4.49	29.07	40.47	47.48	40.57	54.00	-13.43 Average
3 2495.559	4.51	29.09	40.47	47.68	40.81	54.00	-13.19 Average

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Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2389.968	4.34	28.88	40.42	70.43	63.23	74.00	-10.77 peak
2 2390.000	4.34	28.88	40.42	70.43	63.23	74.00	-10.77 peak
3 2412.000	4.38	28.92	40.43	113.75	106.62	74.00	32.62 peak



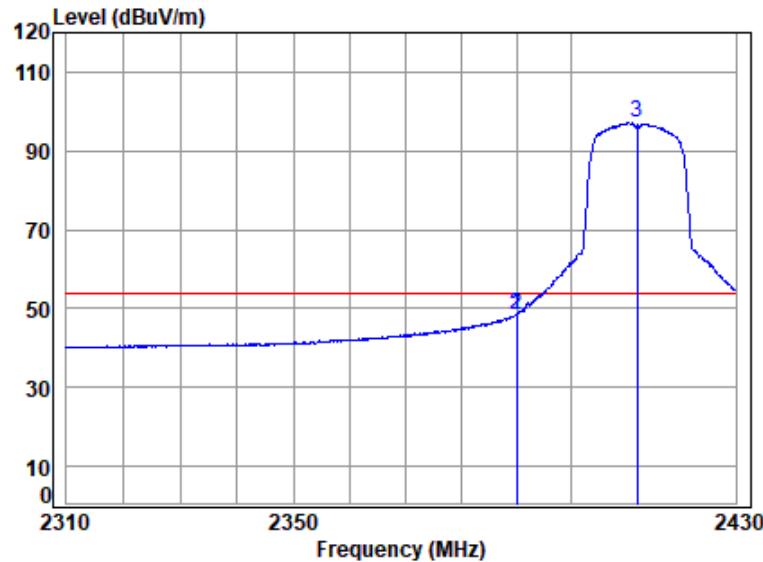
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Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark	
	Loss	Factor	Factor	Level				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	2389.968	4.34	28.88	40.42	55.77	48.57	54.00	-5.43 Average
2	2390.000	4.34	28.88	40.42	55.77	48.57	54.00	-5.43 Average
3	2412.000	4.38	28.92	40.43	104.27	97.14	54.00	43.14 Average



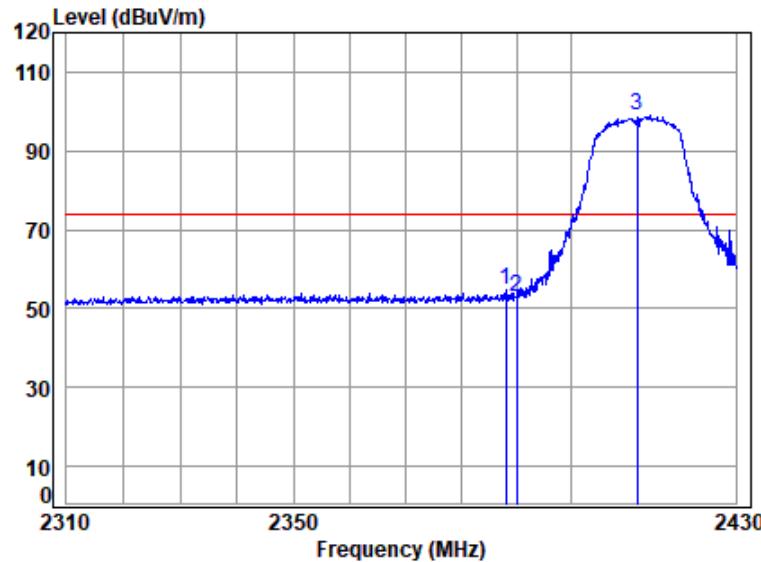
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Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2388.154	4.34	28.87	40.42	61.87	54.66	74.00	-19.34 Peak
2 2390.000	4.34	28.88	40.42	60.15	52.95	74.00	-21.05 Peak
3 . 2412.000	4.38	28.92	40.43	106.28	99.15	74.00	25.15 Peak



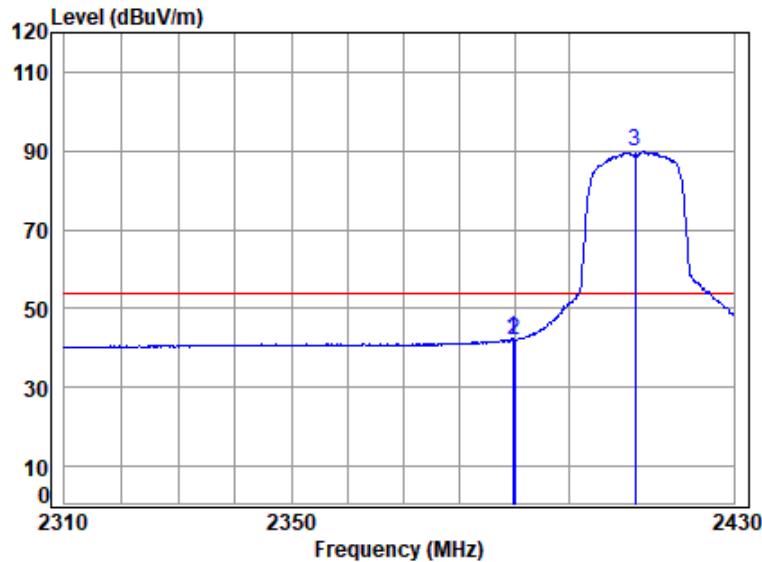
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Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Freq	Loss	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2389.726	4.34	28.88	40.42	49.52	42.32	54.00	-11.68 Average
2 2390.000	4.34	28.88	40.42	49.25	42.05	54.00	-11.95 Average
3 2412.000	4.38	28.92	40.43	96.93	89.80	54.00	35.80 Average



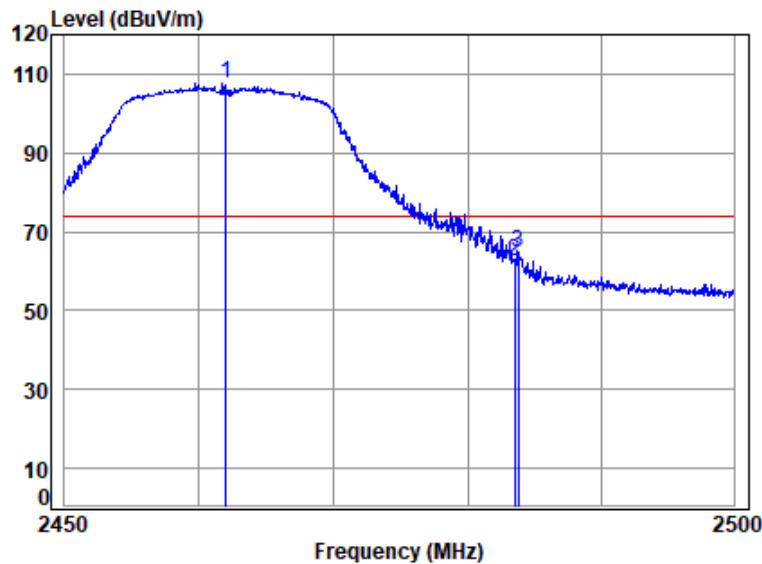
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2462.000	4.46	29.02	40.46	114.77	107.79	74.00	33.79 peak
2 2483.500	4.49	29.07	40.47	69.22	62.31	74.00	-11.69 peak
3 2483.790	4.49	29.07	40.47	71.61	64.70	74.00	-9.30 peak



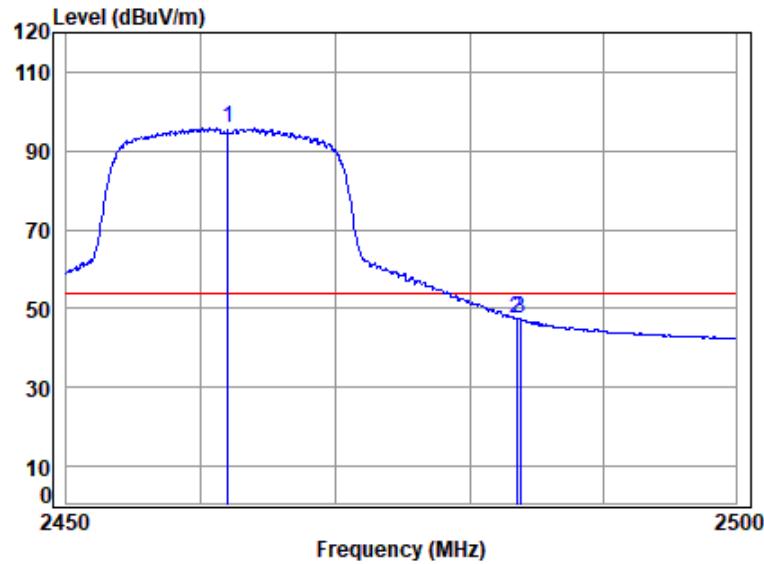
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Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2462.000	4.46	29.02	40.46	102.74	95.76	54.00	41.76 Average
2 2483.500	4.49	29.07	40.47	54.36	47.45	54.00	-6.55 Average
3 2483.790	4.49	29.07	40.47	54.28	47.37	54.00	-6.63 Average



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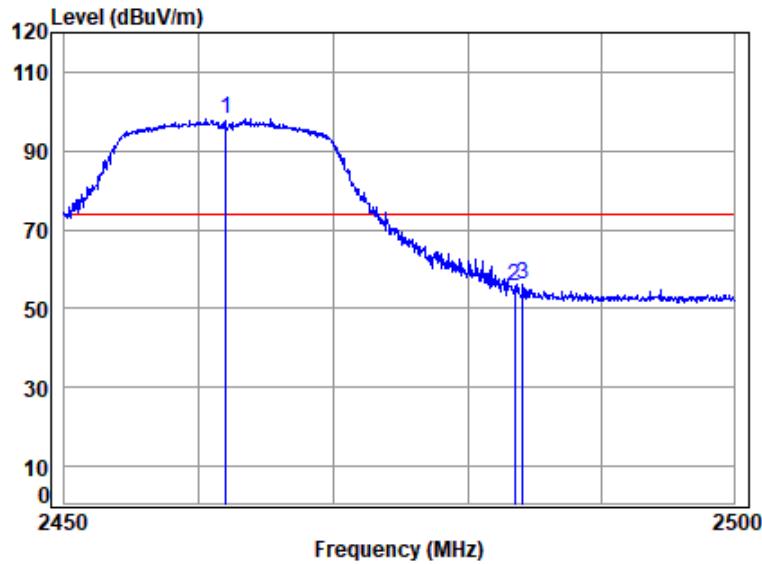
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Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2462.000	4.46	29.02	40.46	105.30	98.32	74.00	24.32 Peak
2 2483.500	4.49	29.07	40.47	62.63	55.72	74.00	-18.28 Peak
3 2484.141	4.50	29.07	40.47	63.08	56.18	74.00	-17.82 Peak



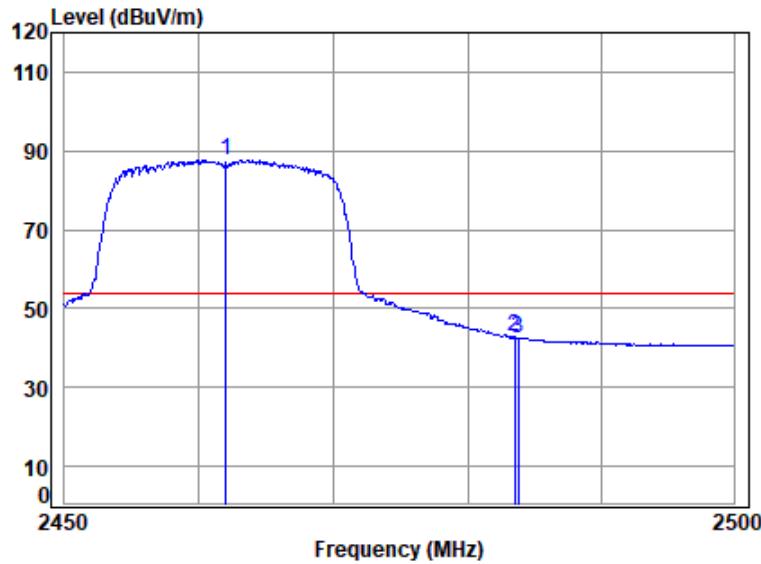
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Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2462.000	4.46	29.02	40.46	94.67	87.69	54.00	33.69 Average
2 2483.500	4.49	29.07	40.47	49.60	42.69	54.00	-11.31 Average
3 2483.790	4.49	29.07	40.47	49.55	42.64	54.00	-11.36 Average



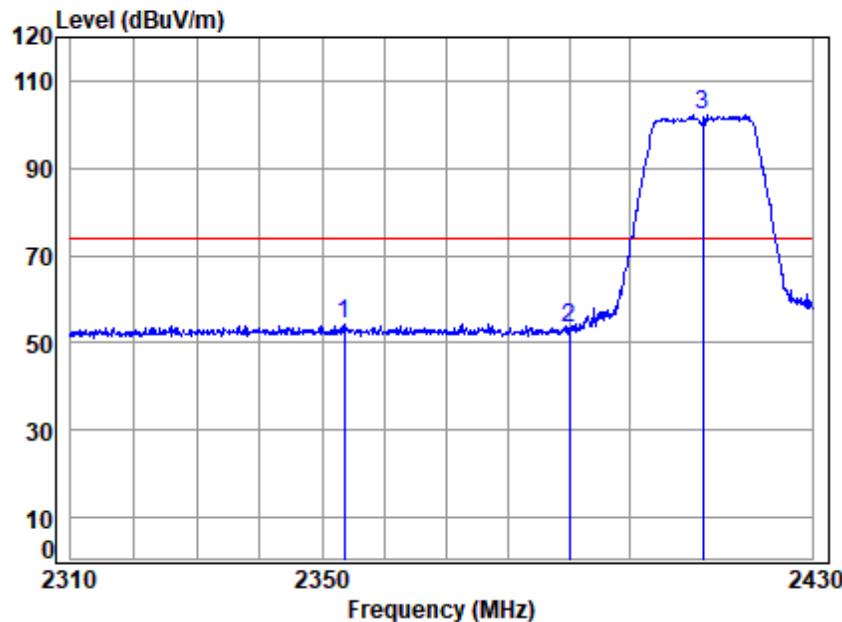
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz								
1	2353.574	4.28	28.80	40.40	61.70	54.38	74.00	-19.62 peak
2	2390.000	4.34	28.88	40.42	60.73	53.53	74.00	-20.47 peak
3	2412.000	4.38	28.92	40.43	109.35	102.22	74.00	28.22 peak

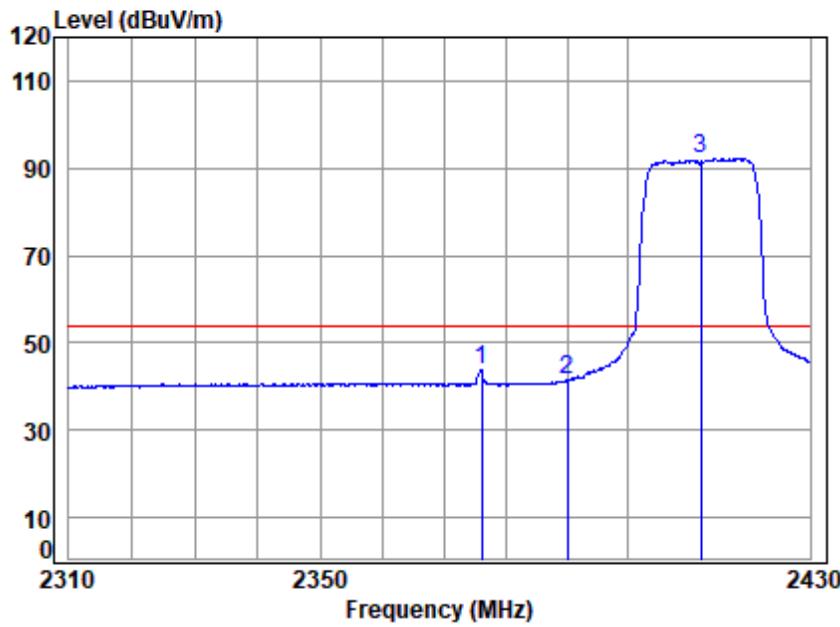
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2376.090	4.32	28.85	40.41	51.08	43.84	54.00	-10.16 Average
2 2390.000	4.34	28.88	40.42	48.61	41.41	54.00	-12.59 Average
3 . 2412.000	4.38	28.92	40.43	99.45	92.32	54.00	38.32 Average



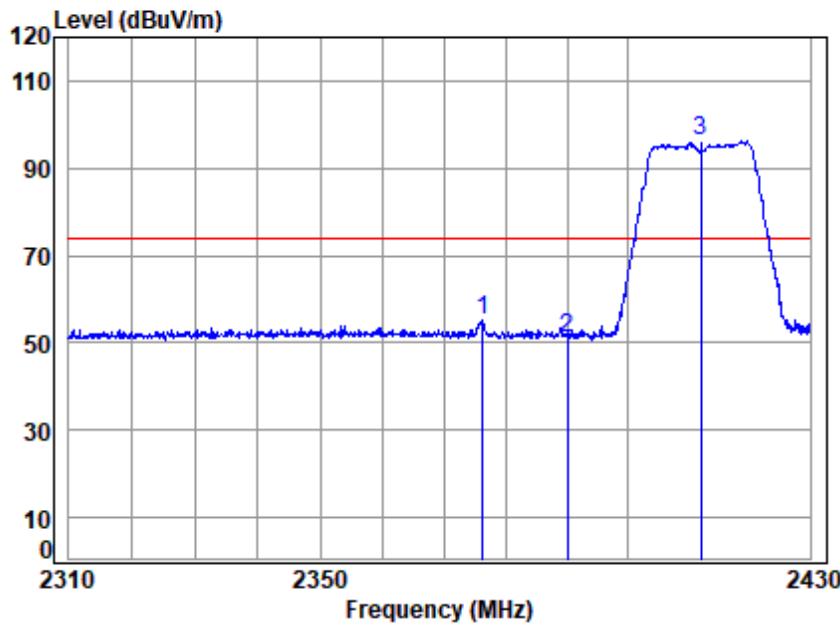
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz	dB	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB
1 2376.330	4.32	28.85	40.41	62.29	55.05	74.00	-18.95	Peak
2 2390.000	4.34	28.88	40.42	58.53	51.33	74.00	-22.67	Peak
3 . 2412.000	4.38	28.92	40.43	103.20	96.07	74.00	22.07	Peak



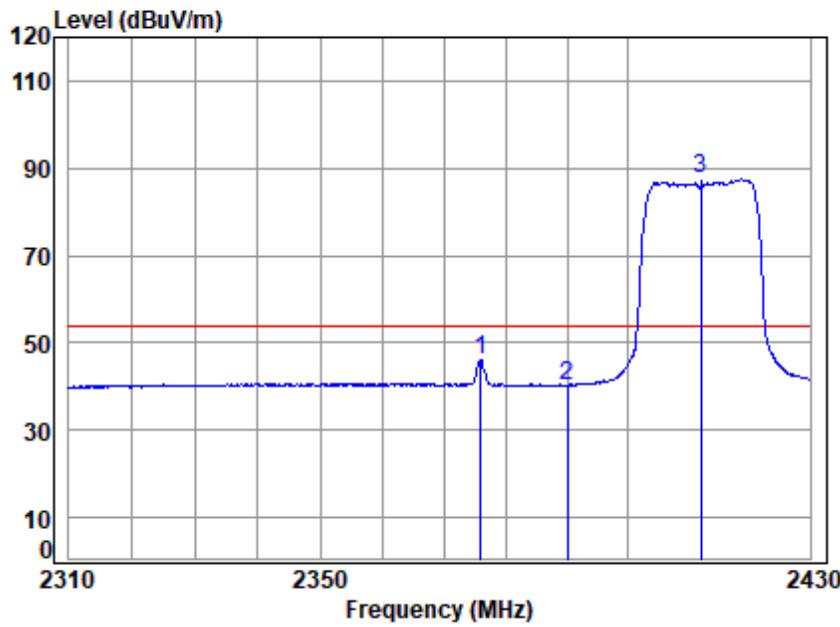
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



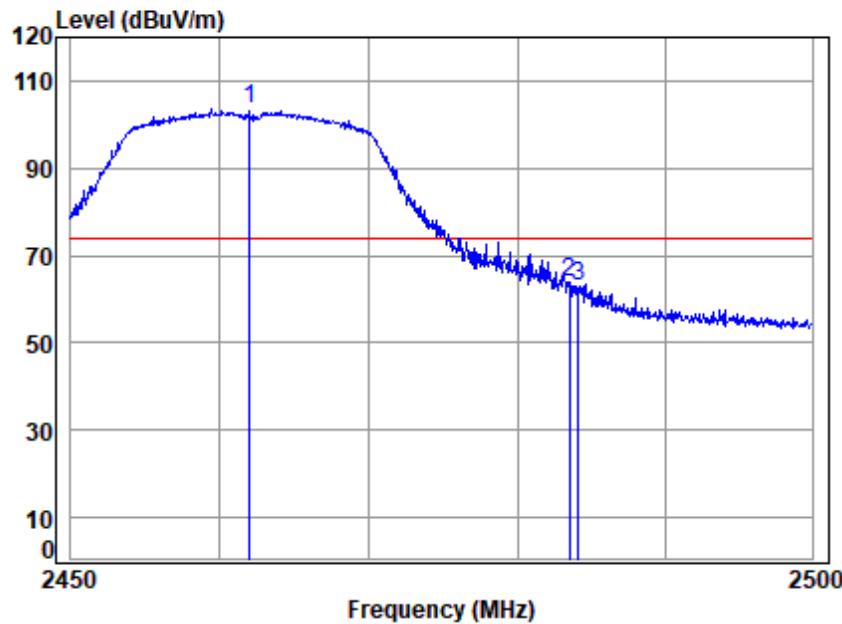
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dBuV/m	dB
1 2375.969	4.32	28.85	40.41	53.46	46.22	54.00	-7.78	Average
2 2390.000	4.34	28.88	40.42	47.56	40.36	54.00	-13.64	Average
3 . 2412.000	4.38	28.92	40.43	94.78	87.65	54.00	33.65	Average

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz								
1 . 2462.000	4.46	29.02	40.46	110.39	103.41	74.00	29.41	peak
2 2483.500	4.49	29.07	40.47	70.95	64.04	74.00	-9.96	peak
3 2484.141	4.50	29.07	40.47	70.09	63.19	74.00	-10.81	peak

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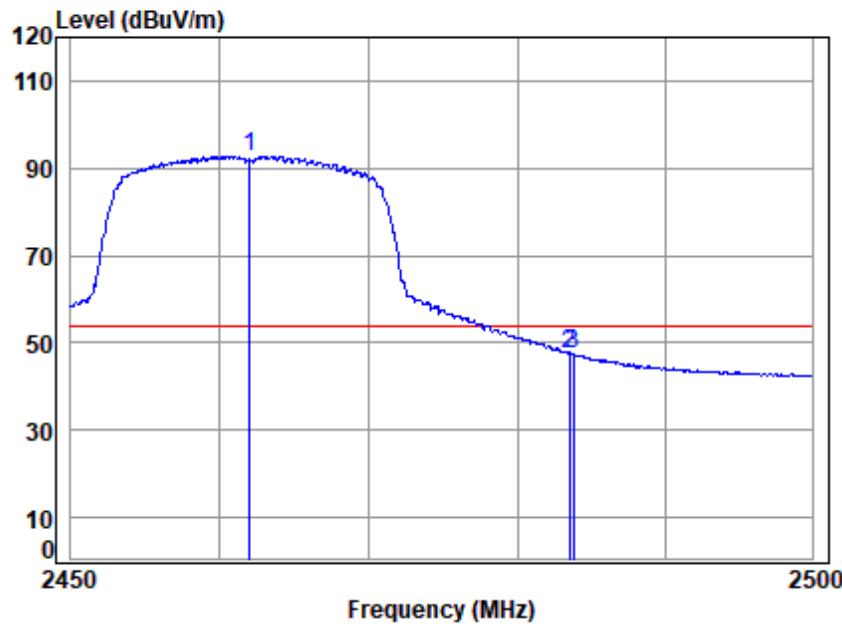
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2462.000	4.46	29.02	40.46	99.80	92.82	54.00	38.82 Average
2 2483.500	4.49	29.07	40.47	54.56	47.65	54.00	-6.35 Average
3 2483.790	4.49	29.07	40.47	54.43	47.52	54.00	-6.48 Average



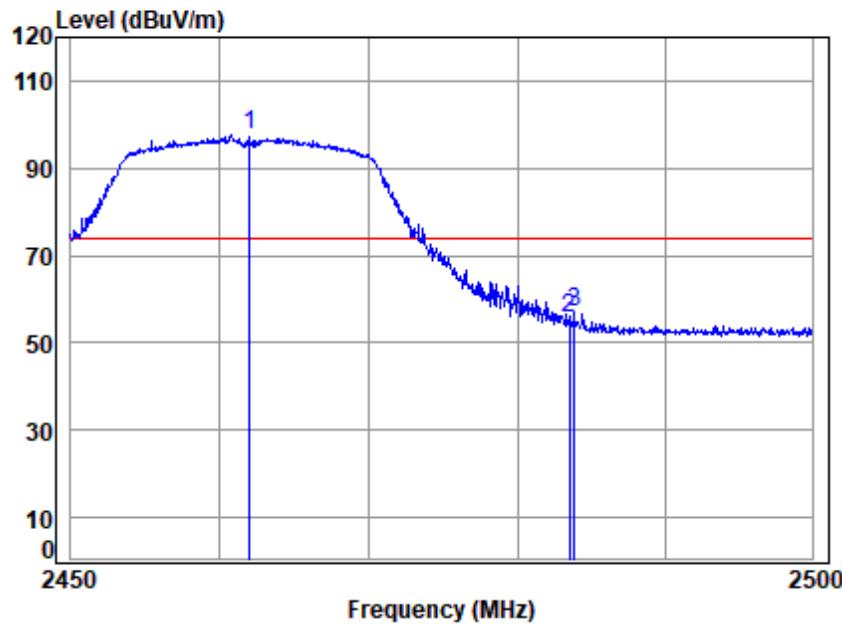
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



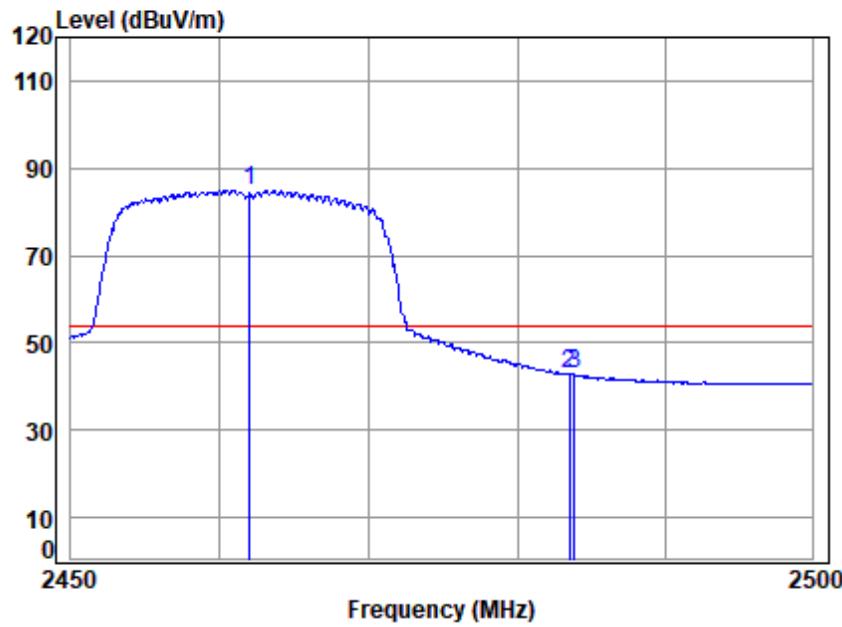
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2462.000	4.46	29.02	40.46	104.53	97.55	74.00	23.55 Peak
2 2483.500	4.49	29.07	40.47	62.51	55.60	74.00	-18.40 Peak
3 2483.840	4.49	29.07	40.47	63.82	56.91	74.00	-17.09 Peak

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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz								
1 . 2462.000	4.46	29.02	40.46	92.00	85.02	54.00	31.02	Average
2 2483.500	4.49	29.07	40.47	49.96	43.05	54.00	-10.95	Average
3 2483.840	4.49	29.07	40.47	49.79	42.88	54.00	-11.12	Average

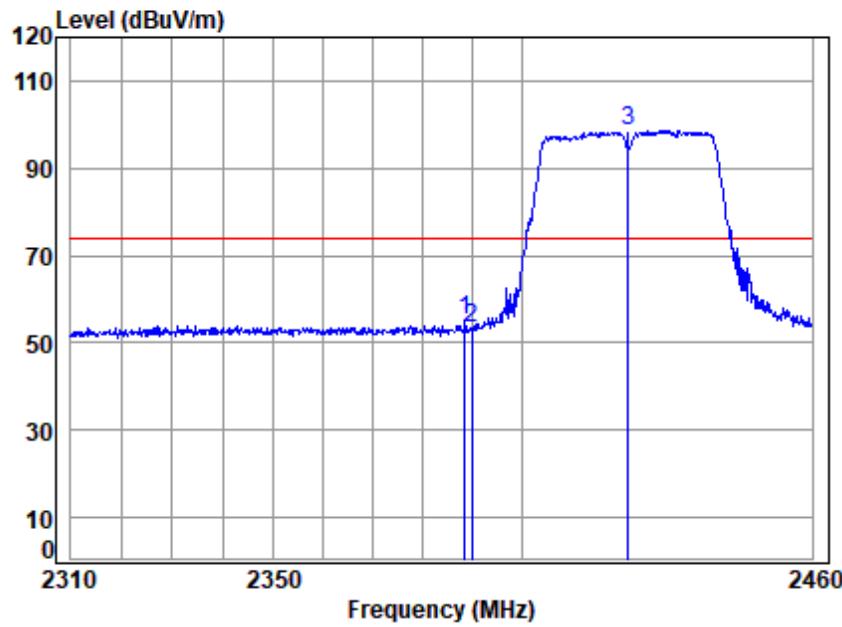
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2388.625	4.34	28.88	40.42	62.33	55.13	74.00	-18.87 peak
2 2390.000	4.34	28.88	40.42	60.78	53.58	74.00	-20.42 peak
3 . 2422.000	4.40	28.94	40.44	105.73	98.63	74.00	24.63 peak

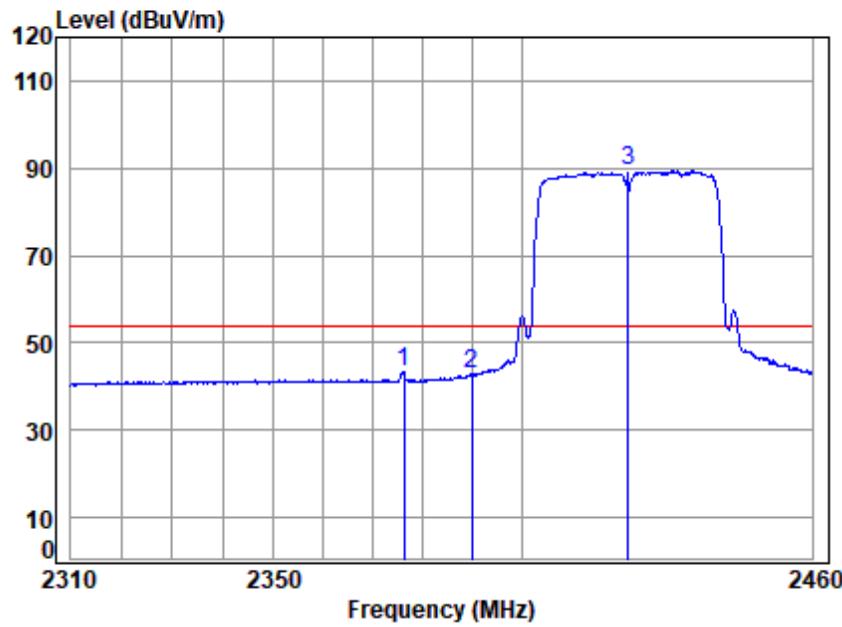
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 2376.184	4.32	28.85	40.41	50.61	43.37	54.00	-10.63 Average
2 2390.000	4.34	28.88	40.42	49.88	42.68	54.00	-11.32 Average
3 . 2422.000	4.40	28.94	40.44	96.44	89.34	54.00	35.34 Average



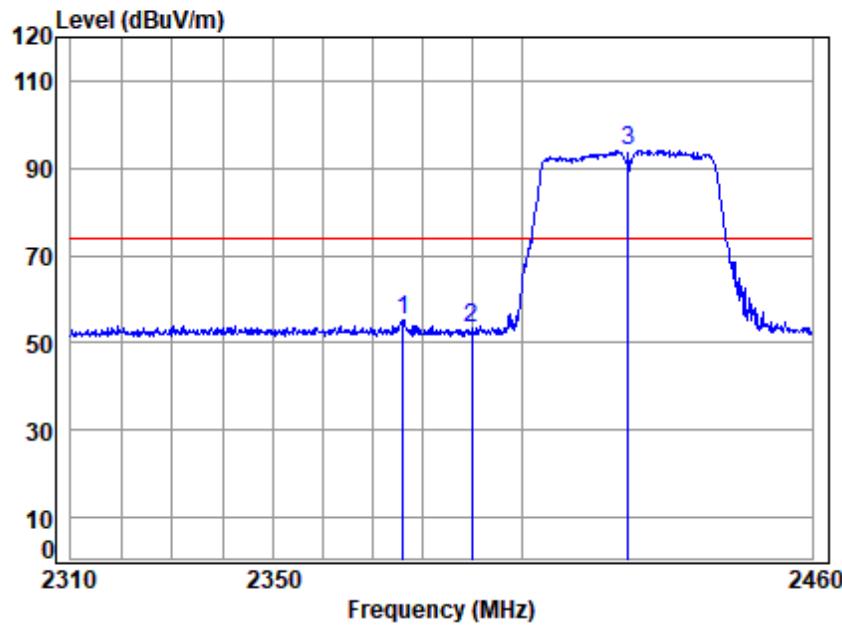
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit Line	Over Limit	Remark
				Level			
MHz	dB	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 2376.034	4.32	28.85	40.41	62.36	55.12	74.00	-18.88 Peak
2 2390.000	4.34	28.88	40.42	60.62	53.42	74.00	-20.58 Peak
3 . 2422.000	4.40	28.94	40.44	101.28	94.18	74.00	20.18 Peak

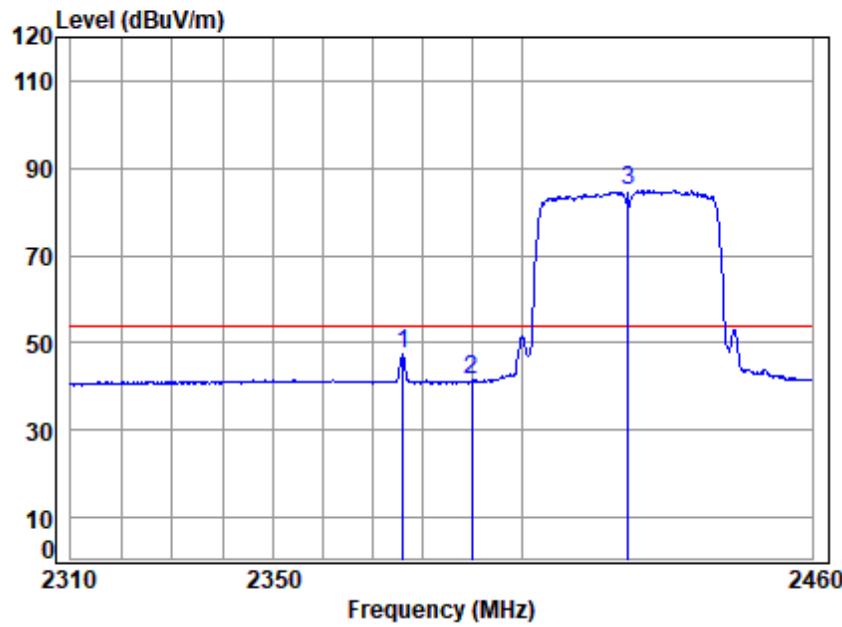
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

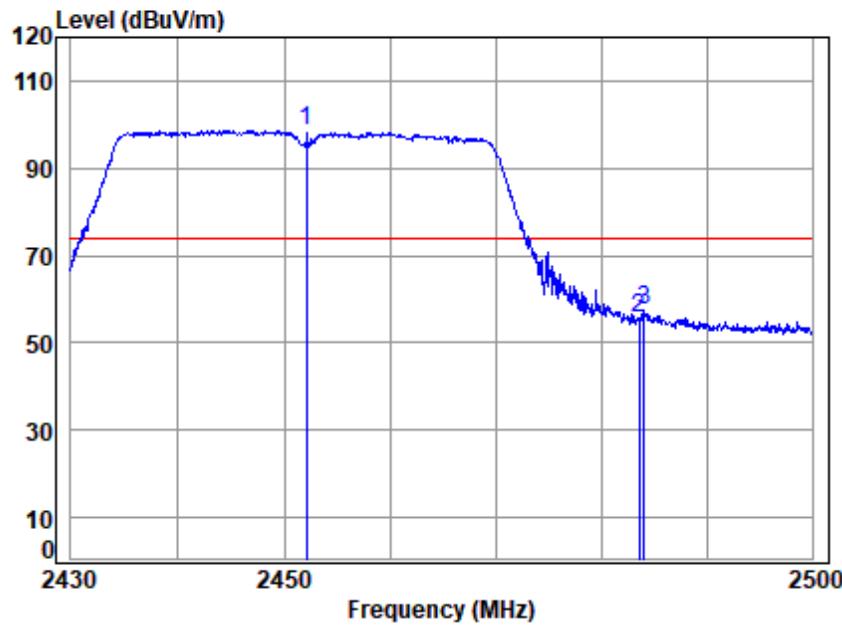
Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit		Over Limit	Remark
					Level	Level		
MHz	dB	dB/m		dB	dBuV	dBuV/m	dBuV/m	dB
1 2376.034	4.32	28.85	40.41	54.47	47.23	54.00	-6.77	Average
2 2390.000	4.34	28.88	40.42	48.50	41.30	54.00	-12.70	Average
3 . 2422.000	4.40	28.94	40.44	92.00	84.90	54.00	30.90	Average

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2452.000	4.44	29.00	40.45	105.70	98.69	74.00	24.69 peak
2 2483.500	4.49	29.07	40.47	62.38	55.47	74.00	-18.53 peak
3 2484.006	4.49	29.07	40.47	64.56	57.65	74.00	-16.35 peak



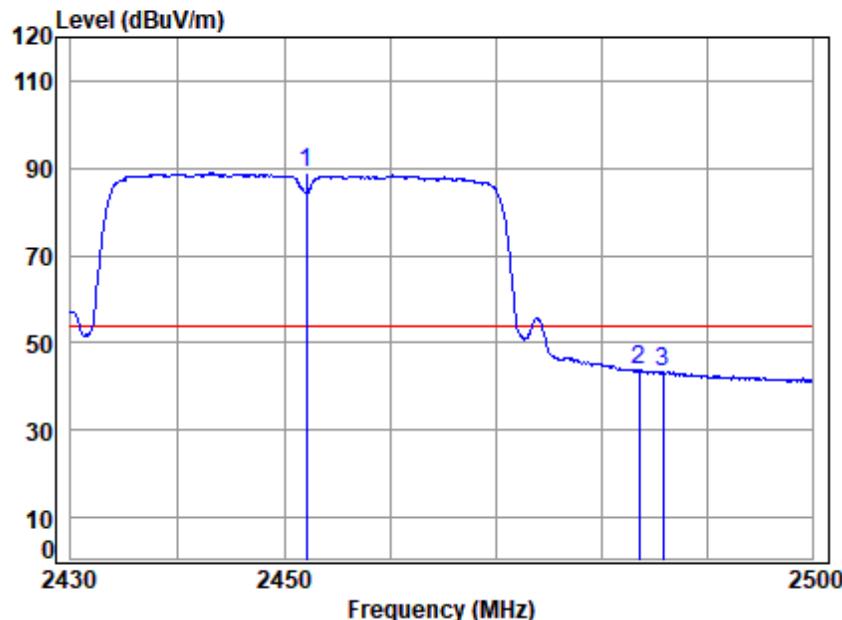
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2452.000	4.44	29.00	40.45	96.02	89.01	54.00	35.01 Average
2 2483.500	4.49	29.07	40.47	50.57	43.66	54.00	-10.34 Average
3 2485.770	4.50	29.07	40.47	50.45	43.55	54.00	-10.45 Average



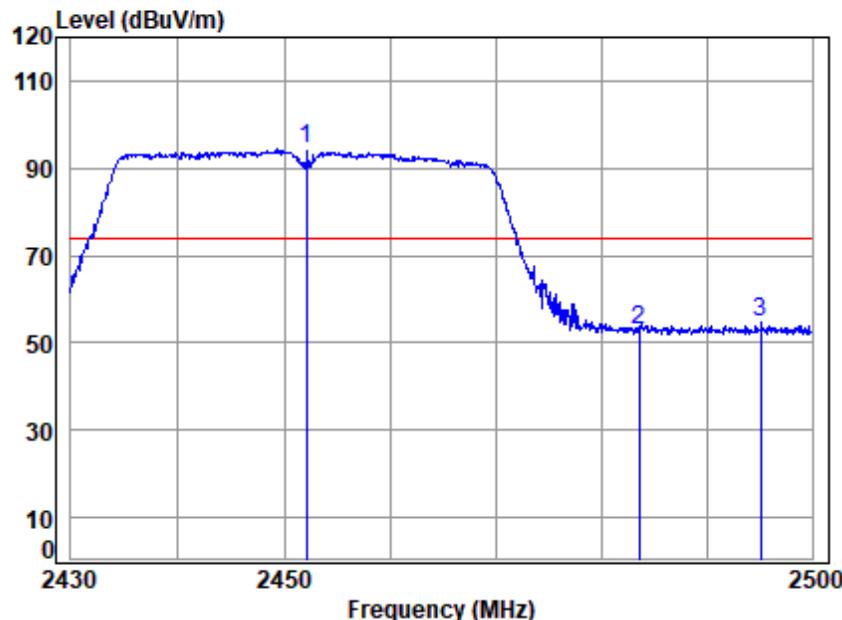
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



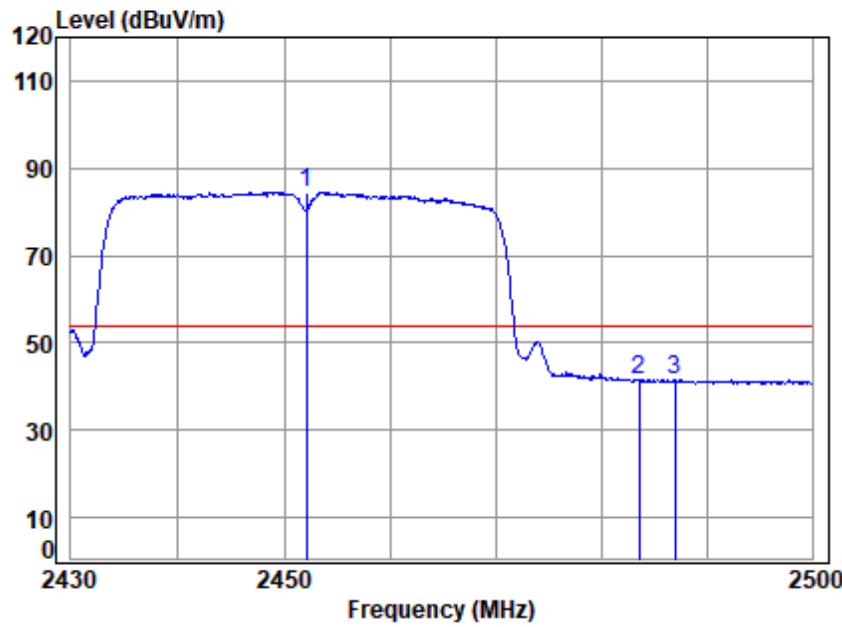
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 . 2452.000	4.44	29.00	40.45	101.26	94.25	74.00	20.25 Peak
2 2483.500	4.49	29.07	40.47	59.98	53.07	74.00	-20.93 Peak
3 2495.106	4.51	29.09	40.47	61.57	54.70	74.00	-19.30 Peak

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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz								
1 . 2452.000	4.44	29.00	40.45	91.65	84.64	54.00	30.64	Average
2 2483.500	4.49	29.07	40.47	48.26	41.35	54.00	-12.65	Average
3 2486.900	4.50	29.07	40.47	48.53	41.63	54.00	-12.37	Average

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7.7 Radiated Spurious Emissions Below 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.4,6.5

Measurement Distance: 3m

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
960-1000	500	3

7.7.1 E.U.T. Operation

Operating Environment:

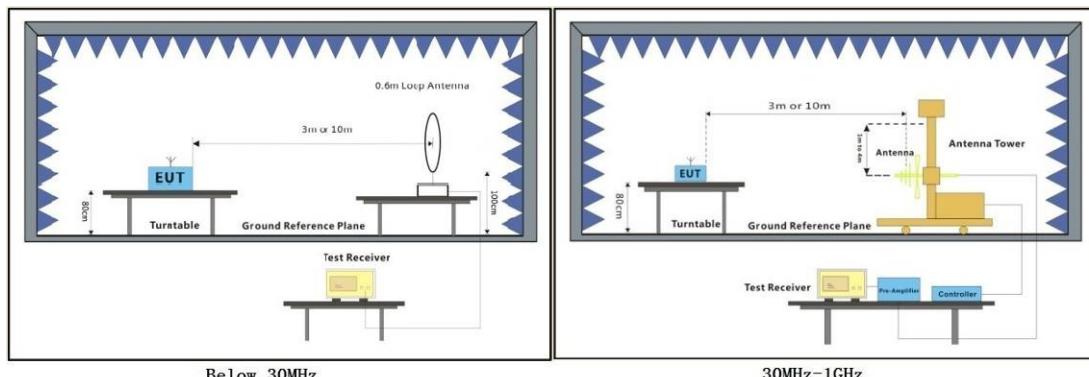
Temperature: 26.0 °C

Humidity: 60.7 % RH

Atmospheric Pressure: 1010 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode _Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.7.3 Test Setup Diagram

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7.7.4 Measurement Procedure and Data

- a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.
- c. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.
- d. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.
- e. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- f. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using quasi-peak method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.



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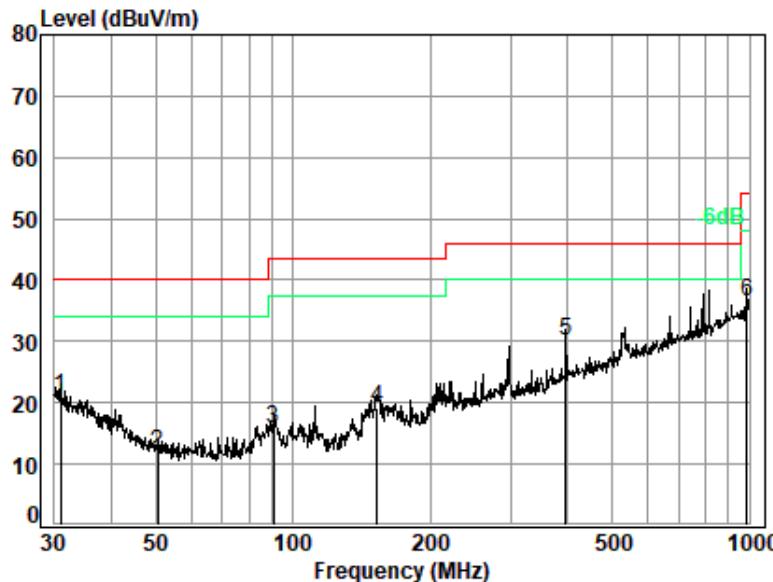
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TFT-LCD Screen Model No.: LQ150X1LW94

Test Mode: 00; Polarity: Horizontal Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No. : 22017AT
Mode : 00 Main

Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Limit		Over Limit	Remark
					Level	Line		
1	30.96	21.95	0.61	27.73	26.20	21.03	40.00	-18.97 QP
2	50.41	14.16	0.70	27.69	24.75	11.92	40.00	-28.08 QP
3	90.54	13.15	1.29	27.65	29.02	15.81	43.50	-27.69 QP
4	152.66	14.87	1.16	27.35	30.62	19.30	43.50	-24.20 QP
5 q	396.24	22.31	2.29	27.40	32.76	29.96	46.00	-16.04 QP
6	989.54	30.25	3.59	26.95	29.66	36.55	54.00	-17.45 QP

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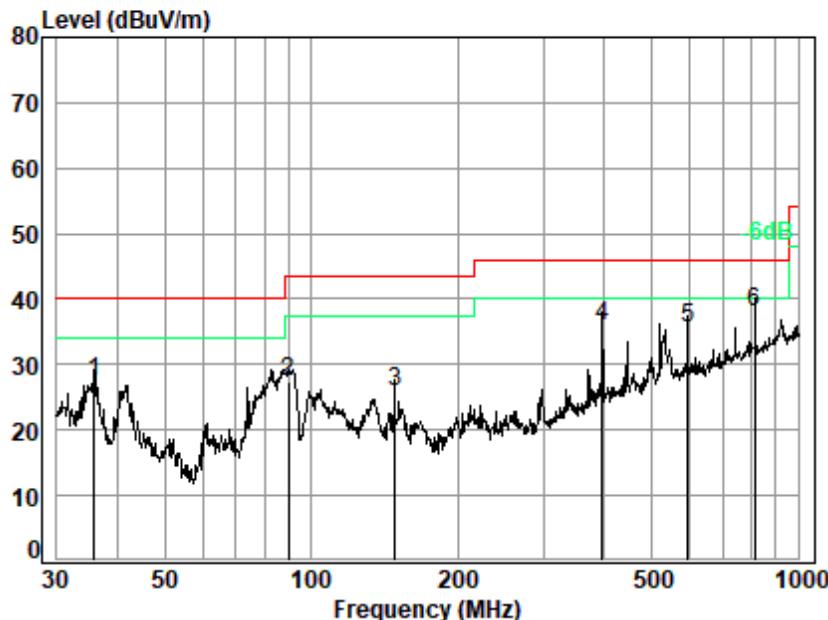
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Test Mode: 00; Polarity: Vertical Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No. : 22017AT
Mode : 00 Main

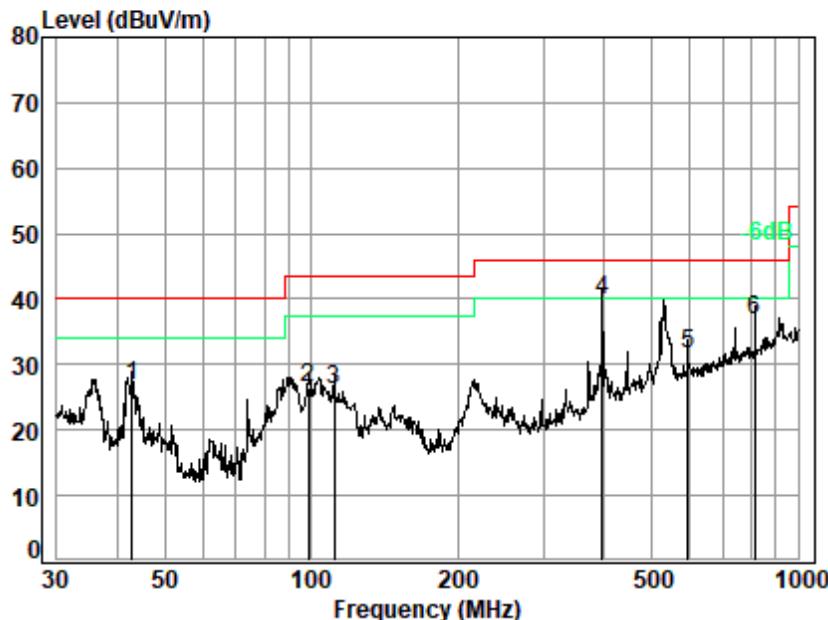
Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Limit		Over Limit	Remark
					dB	dBuV	dBuV/m	dBuV/m
MHz	dB/m	dB	dB	dB	dB	dB	dB	dB
1	35.87	19.39	0.66	27.72	35.00	27.33	40.00	-12.67 QP
2	89.90	13.09	1.30	27.65	40.49	27.23	43.50	-16.27 QP
3	148.44	14.49	1.16	27.37	37.55	25.83	43.50	-17.67 QP
4	396.24	22.31	2.29	27.40	38.81	36.01	46.00	-9.99 QP
5	593.05	26.47	2.69	28.15	34.50	35.51	46.00	-10.49 QP
6 q	815.97	28.72	3.33	27.65	33.73	38.13	46.00	-7.87 QP

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TFT-LCD Screen Model No.: LQ150X1LCN7

Test Mode: 00; Polarity: Vertical Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No. : 22017AT
Mode : 00 Difference

Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Limit		Over Limit	Remark
					dB	dBuV	dBuV/m	dBuV/m
MHz	dB/m							
1	42.90	16.46	0.70	27.70	37.32	26.78	40.00	-13.22 QP
2	98.83	13.90	1.12	27.64	39.07	26.45	43.50	-17.05 QP
3	111.35	13.47	1.12	27.57	39.15	26.17	43.50	-17.33 QP
4 q	396.24	22.31	2.29	27.40	42.55	39.75	46.00	-6.25 QP
5	593.05	26.47	2.69	28.15	30.77	31.78	46.00	-14.22 QP
6	815.97	28.72	3.33	27.65	32.45	36.85	46.00	-9.15 QP

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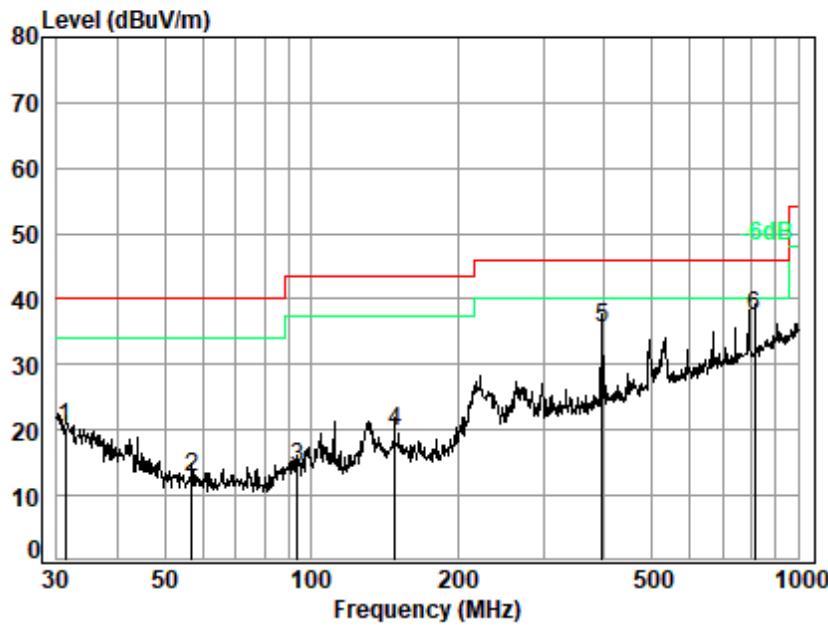
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Test Mode: 00; Polarity: Horizontal Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No. : 22017AT
Mode : 00 Difference

Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Limit		Over Limit	Remark
					dB	dBuV	dBuV/m	dBuV/m
MHz	dB/m							
1	31.29	21.77	0.61	27.73	25.63	20.28	40.00	-19.72 QP
2	56.79	13.50	0.77	27.68	26.24	12.83	40.00	-27.17 QP
3	93.44	13.42	1.23	27.65	27.22	14.22	43.50	-29.28 QP
4	148.44	14.49	1.16	27.37	31.48	19.76	43.50	-23.74 QP
5	396.24	22.31	2.29	27.40	38.43	35.63	46.00	-10.37 QP
6 q	815.97	28.72	3.33	27.65	32.95	37.35	46.00	-8.65 QP

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7.8 Radiated Spurious Emissions Above 1GHz

Test Requirement 47 CFR Part 15, Subpart C 15.205 & 15.209

Test Method: ANSI C63.10 (2013) Section 6.6

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1000	500	3

7.8.1 E.U.T. Operation

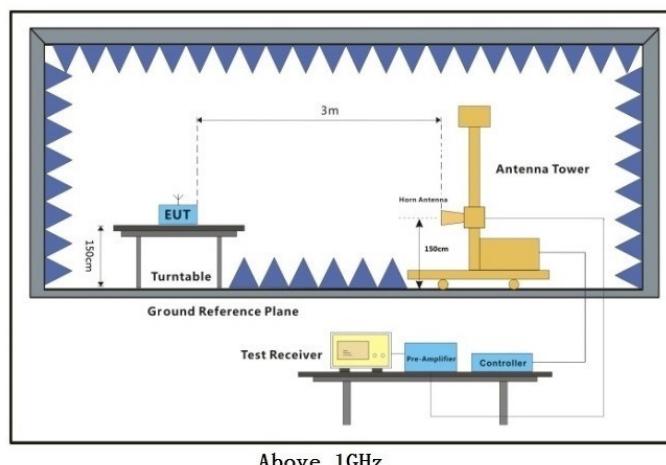
Operating Environment:

Temperature: 21.2 °C Humidity: 54.6 % RH Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20); data rate @ 13.5Mbps is the worst case of IEEE 802.11n(HT40). Only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram



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7.8.4 Measurement Procedure and Data

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

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 1GHz to 25GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.



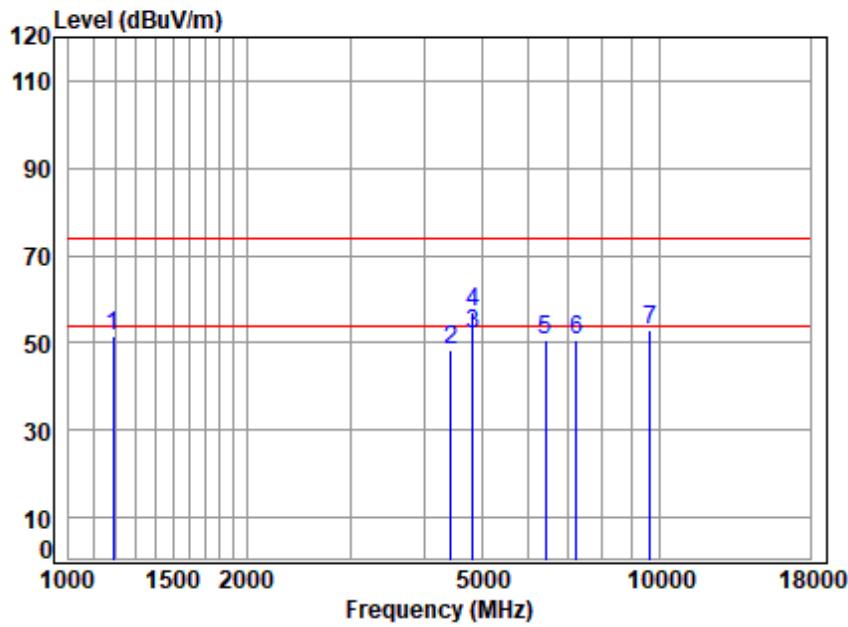
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 TX SE
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Line Level	Over Limit	Over Limit Remark	
								MHz	dB
1	1189.368	2.74	25.07	39.75	63.60	51.66	74.00	-22.34	peak
2	4430.628	6.70	32.95	41.81	50.30	48.14	74.00	-25.86	peak
3	4824.000	7.11	33.65	42.15	53.22	51.83	54.00	-2.17	Average
4	4824.000	7.12	33.66	42.16	58.62	57.24	74.00	-16.76	peak
5	6414.167	8.28	34.60	42.10	50.01	50.79	74.00	-23.21	peak
6	7236.000	8.77	35.69	41.48	47.62	50.60	74.00	-23.40	peak
7	9648.000	10.79	37.36	37.69	42.26	52.72	74.00	-21.28	peak

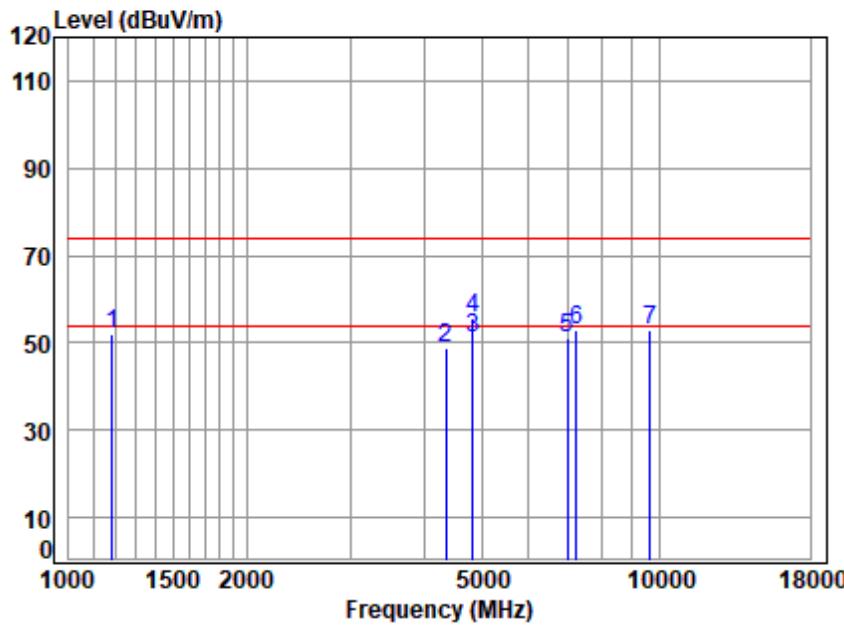
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



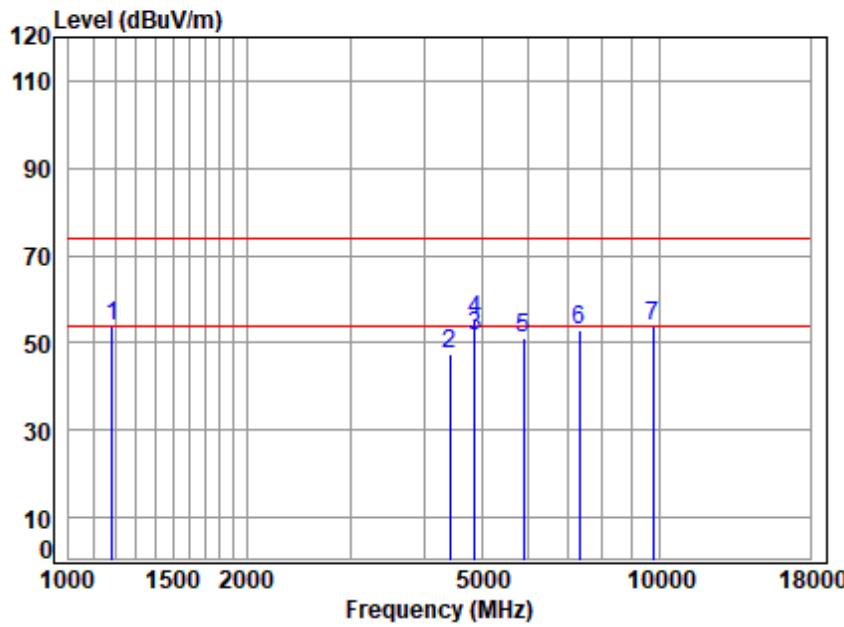
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 TX SE
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark	
								MHz	dB
1	1185.936	2.74	25.06	39.75	64.14	52.19	74.00	-21.81	peak
2	4354.454	6.63	32.89	41.74	51.03	48.81	74.00	-25.19	peak
3	4824.000	7.11	33.65	42.15	52.65	51.26	54.00	-2.74	Average
4	4824.000	7.12	33.66	42.16	56.97	55.59	74.00	-18.41	peak
5	6974.982	8.53	35.46	41.72	48.70	50.97	74.00	-23.03	peak
6	7236.000	8.77	35.69	41.48	49.79	52.77	74.00	-21.23	peak
7	9648.000	10.79	37.36	37.69	42.47	52.93	74.00	-21.07	peak

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark	
								MHz	dB
1	1185.936	2.74	25.06	39.75	65.75	53.80	74.00	-20.20	peak
2	4417.841	6.68	32.94	41.80	49.81	47.63	74.00	-26.37	peak
3	4874.000	7.17	33.76	42.20	52.68	51.41	54.00	-2.59	Average
4	4874.000	7.17	33.76	42.20	56.57	55.30	74.00	-18.70	peak
5	5898.442	8.24	34.52	42.39	50.71	51.08	74.00	-22.92	peak
6	7311.000	8.84	35.75	41.41	49.72	52.90	74.00	-21.10	peak
7	9748.000	10.76	37.40	37.52	43.00	53.64	74.00	-20.36	peak

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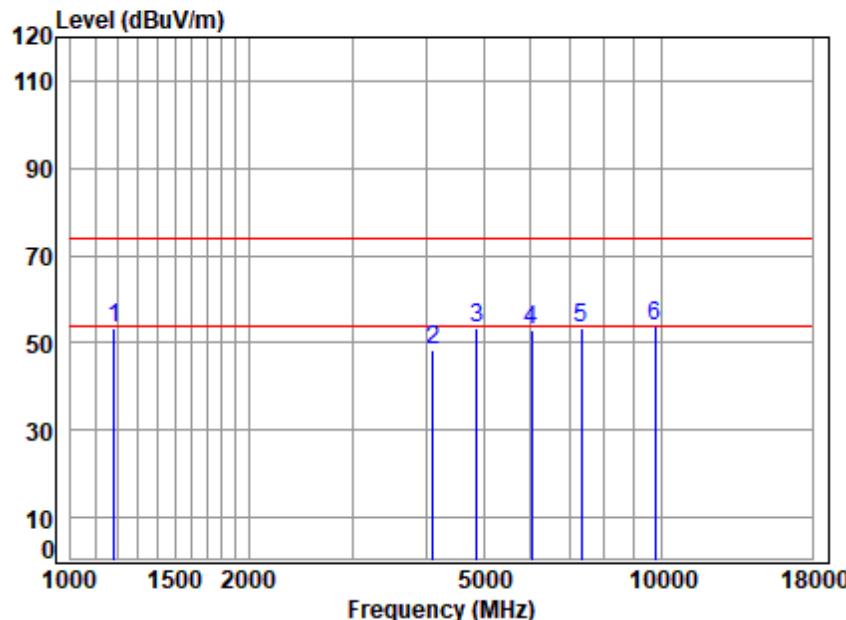


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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



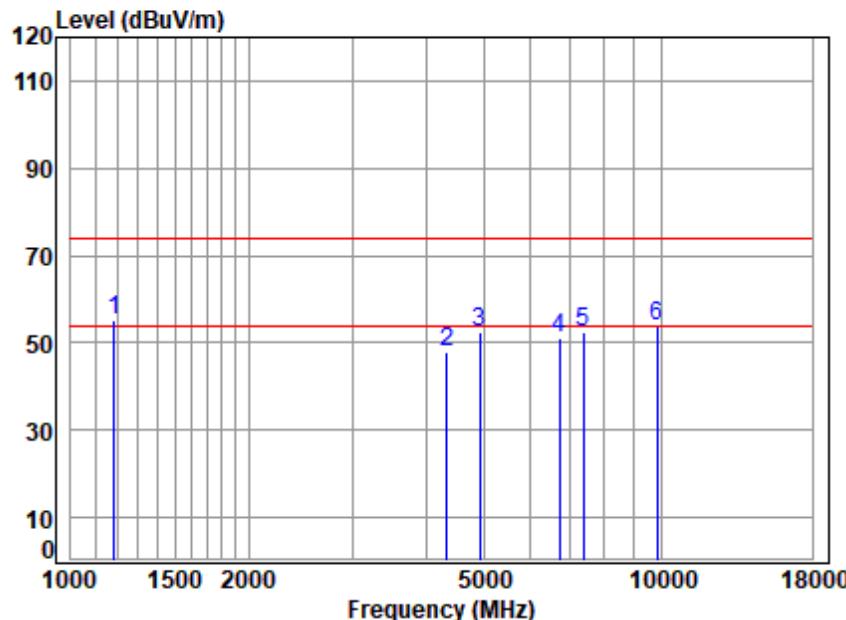
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 1185.936	2.74	25.06	39.75	65.21	53.26	74.00	-20.74 peak
2 4098.010	6.38	32.68	41.50	50.95	48.51	74.00	-25.49 peak
3 4874.000	7.17	33.76	42.20	54.84	53.57	74.00	-20.43 peak
4 6036.421	8.26	34.60	42.37	52.46	52.95	74.00	-21.05 peak
5 7311.000	8.84	35.75	41.41	50.42	53.60	74.00	-20.40 peak
6 9748.000	10.76	37.40	37.52	43.21	53.85	74.00	-20.15 peak

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 TX SE
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark	
								MHz	dB
1 1185.936	2.74	25.06	39.75	67.28	55.33	74.00	-18.67	peak	
2 4341.886	6.61	32.88	41.73	50.28	48.04	74.00	-25.96	peak	
3 4924.000	7.22	33.85	42.24	53.84	52.67	74.00	-21.33	peak	
4 6717.762	8.40	35.00	41.89	49.70	51.21	74.00	-22.79	peak	
5 7386.000	8.91	35.81	41.34	48.94	52.32	74.00	-21.68	peak	
6 9848.000	10.73	37.44	37.35	42.83	53.65	74.00	-20.35	peak	

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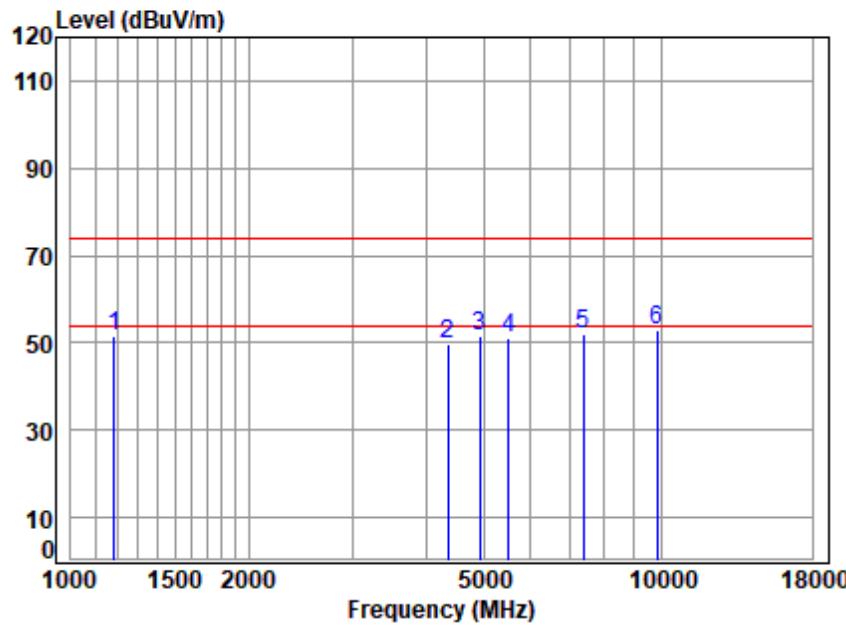
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



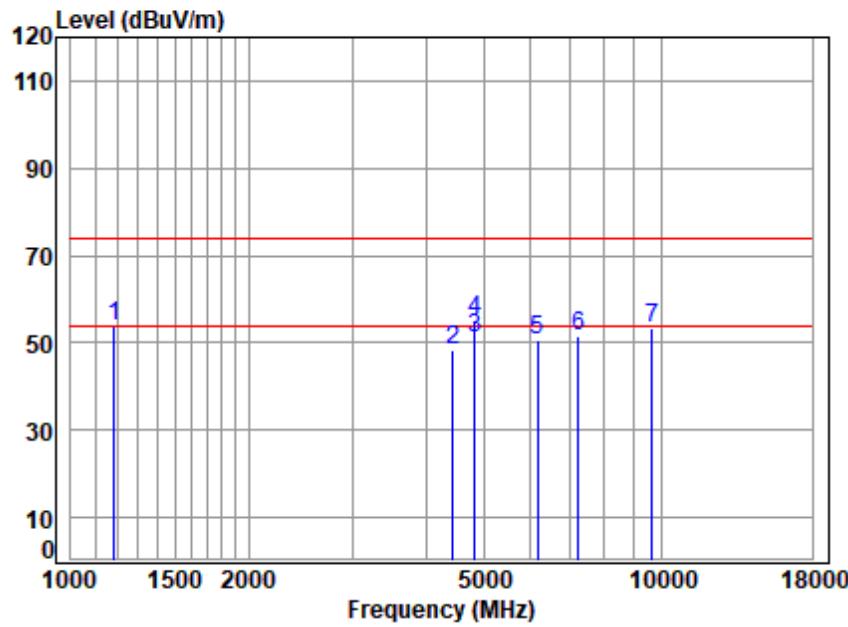
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 TX SE
Note : 2.4G WIFI 11B

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark	
								MHz	dB
1 1185.936	2.74	25.06	39.75	63.48	51.53	74.00	-22.47	peak	
2 4354.454	6.63	32.89	41.74	52.09	49.87	74.00	-24.13	peak	
3 4924.000	7.22	33.85	42.24	52.89	51.72	74.00	-22.28	peak	
4 5519.072	8.18	34.22	42.35	51.03	51.08	74.00	-22.92	peak	
5 7386.000	8.91	35.81	41.34	48.64	52.02	74.00	-21.98	peak	
6 9848.000	10.73	37.44	37.35	42.15	52.97	74.00	-21.03	peak	

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



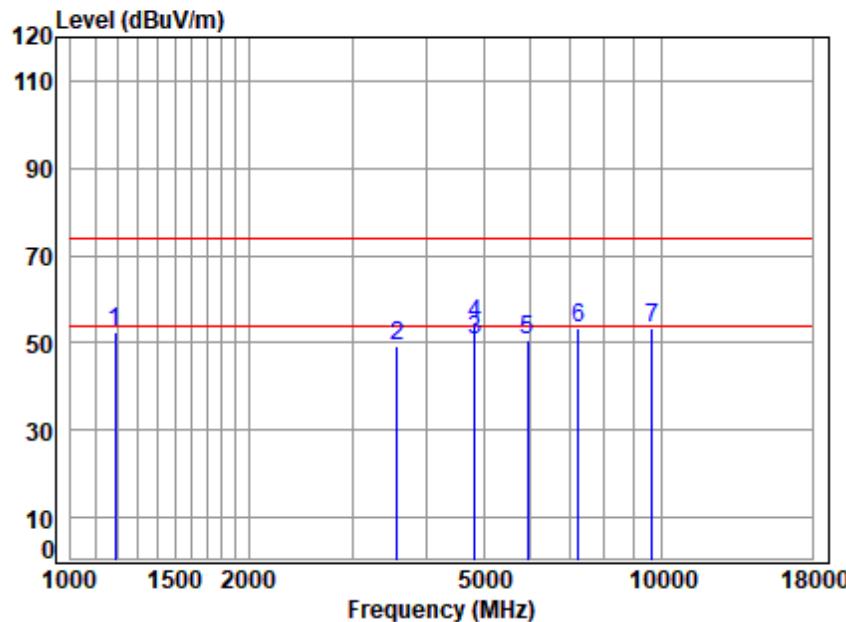
Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 TX SE
Note : 2.4G WIFI 11G

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark	
								MHz	dB
1 1185.936	2.74	25.06	39.75	65.80	53.85	74.00	-20.15	peak	
2 4443.453	6.71	32.96	41.82	50.57	48.42	74.00	-25.58	peak	
3 4824.000	7.11	33.65	42.15	52.47	51.08	54.00	-2.92	Average	
4 4824.000	7.12	33.66	42.16	56.75	55.37	74.00	-18.63	peak	
5 6159.797	8.27	34.60	42.28	50.07	50.66	74.00	-23.34	peak	
6 7236.000	8.77	35.69	41.48	48.53	51.51	74.00	-22.49	peak	
7 9648.000	10.79	37.36	37.69	42.80	53.26	74.00	-20.74	peak	

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Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 1189.368	2.74	25.07	39.75	64.35	52.41	74.00	-21.59 peak
2 3567.138	5.63	31.83	41.12	52.76	49.10	74.00	-24.90 peak
3 4824.000	7.11	33.65	42.15	52.05	50.66	54.00	-3.34 Average
4 4824.000	7.12	33.66	42.16	55.83	54.45	74.00	-19.55 peak
5 5932.638	8.25	34.55	42.39	50.07	50.48	74.00	-23.52 peak
6 7236.000	8.77	35.69	41.48	50.53	53.51	74.00	-20.49 peak
7 9648.000	10.79	37.36	37.69	43.06	53.52	74.00	-20.48 peak

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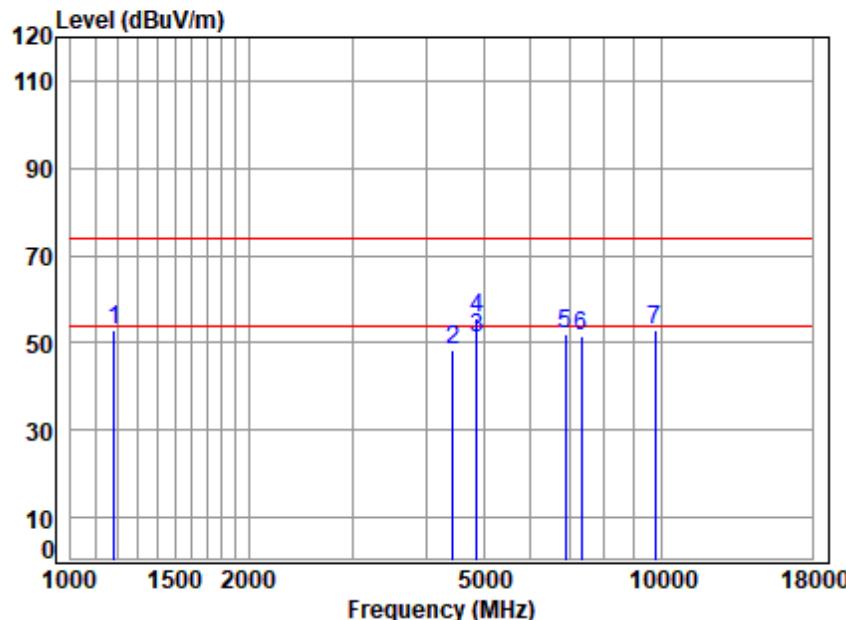
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11G

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark	
								MHz	dB
1	1185.936	2.74	25.06	39.75	65.03	53.08	74.00	-20.92	peak
2	4443.453	6.71	32.96	41.82	50.55	48.40	74.00	-25.60	peak
3	4874.000	7.17	33.76	42.20	52.33	51.06	54.00	-2.94	Average
4	4874.000	7.17	33.76	42.20	56.85	55.58	74.00	-18.42	peak
5	6874.906	8.48	35.28	41.78	50.10	52.08	74.00	-21.92	peak
6	7311.000	8.84	35.75	41.41	48.58	51.76	74.00	-22.24	peak
7	9748.000	10.76	37.40	37.52	42.34	52.98	74.00	-21.02	peak

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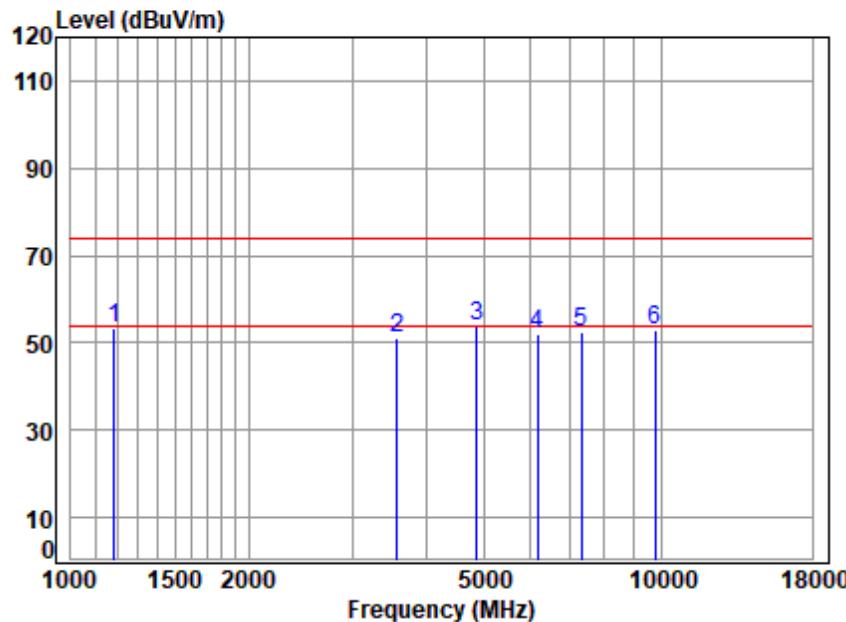
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Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



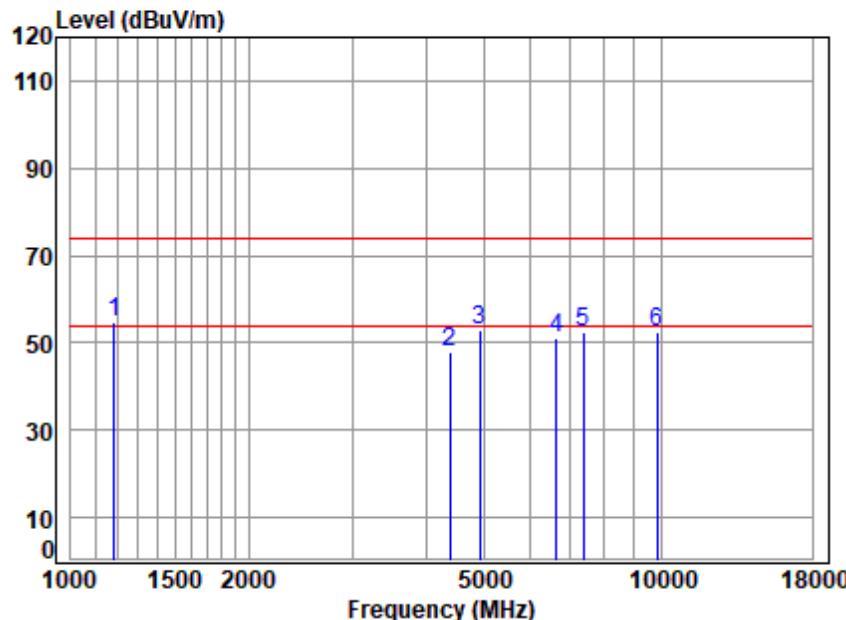
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 1185.936	2.74	25.06	39.75	65.42	53.47	74.00	-20.53 peak
2 3567.138	5.63	31.83	41.12	54.82	51.16	74.00	-22.84 peak
3 4874.000	7.17	33.76	42.20	54.93	53.66	74.00	-20.34 peak
4 6159.797	8.27	34.60	42.28	51.21	51.80	74.00	-22.20 peak
5 7311.000	8.84	35.75	41.41	49.10	52.28	74.00	-21.72 peak
6 9748.000	10.76	37.40	37.52	42.20	52.84	74.00	-21.16 peak

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



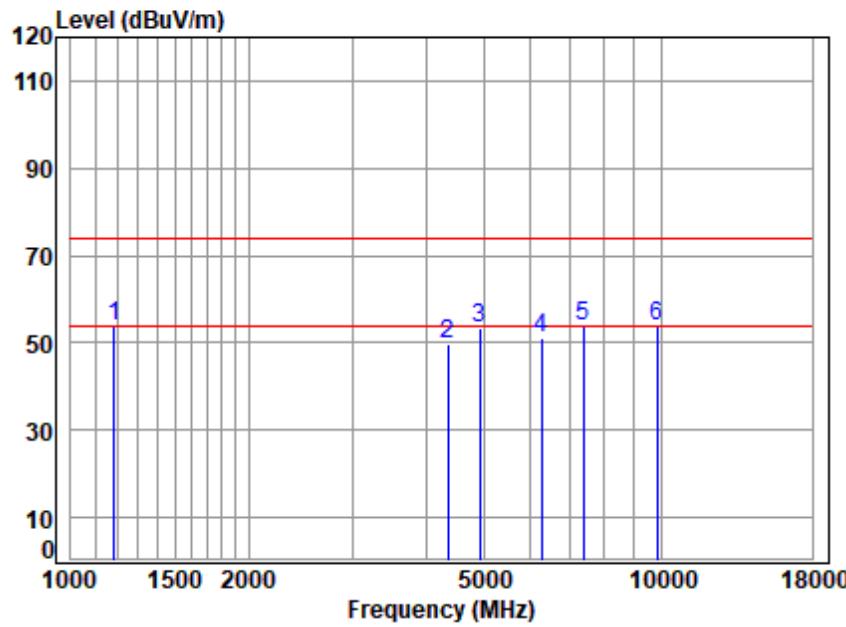
Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 TX SE
Note : 2.4G WIFI 11G

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark	
								MHz	dB
1 1185.936	2.74	25.06	39.75	66.83	54.88	74.00	-19.12	peak	
2 4379.699	6.65	32.91	41.77	50.04	47.83	74.00	-26.17	peak	
3 4924.000	7.22	33.85	42.24	54.09	52.92	74.00	-21.08	peak	
4 6640.542	8.36	34.86	41.94	49.77	51.05	74.00	-22.95	peak	
5 7386.000	8.91	35.81	41.34	49.27	52.65	74.00	-21.35	peak	
6 9848.000	10.73	37.44	37.35	41.83	52.65	74.00	-21.35	peak	

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Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



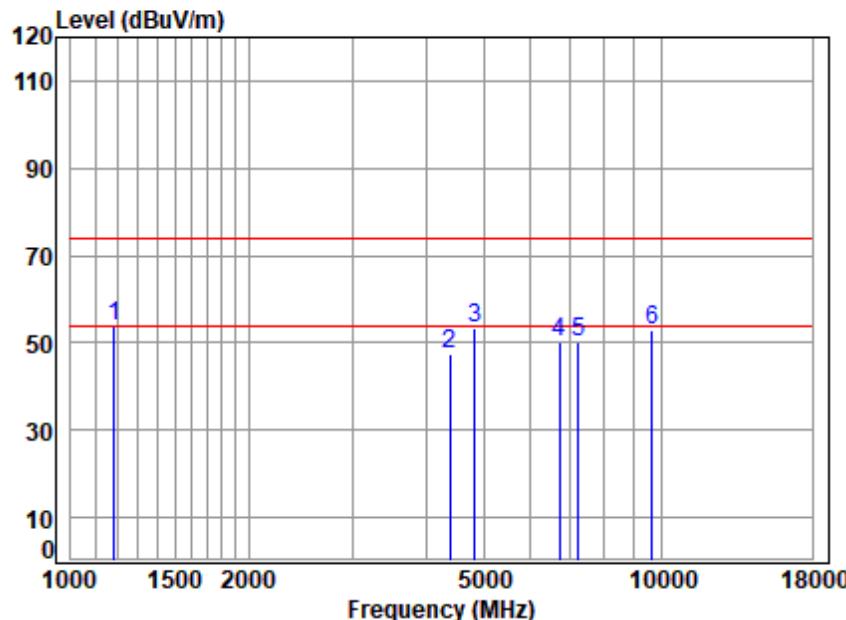
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark		
	MHz	Loss	Factor	Factor	Level	Level	Line	Limit	
1	1185.936	2.74	25.06	39.75	65.60	53.65	74.00	-20.35	peak
2	4354.454	6.63	32.89	41.74	51.81	49.59	74.00	-24.41	peak
3	4924.000	7.22	33.85	42.24	54.72	53.55	74.00	-20.45	peak
4	6267.553	8.27	34.60	42.20	50.51	51.18	74.00	-22.82	peak
5	7386.000	8.91	35.81	41.34	50.32	53.70	74.00	-20.30	peak
6	9848.000	10.73	37.44	37.35	42.81	53.63	74.00	-20.37	peak

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



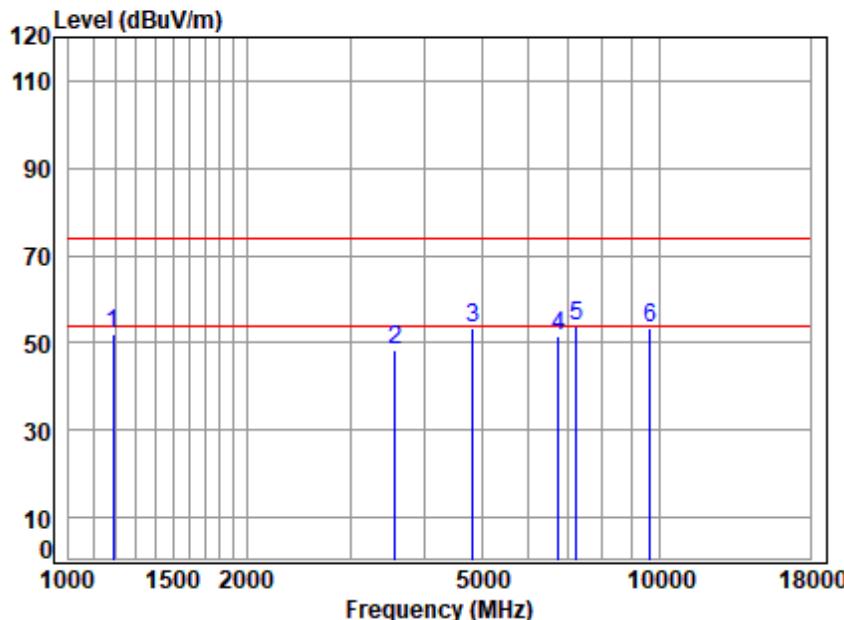
Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2412 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit	Over	Remark
				Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 1185.936	2.74	25.06	39.75	65.57	53.62	74.00	-20.38 peak
2 4379.699	6.65	32.91	41.77	49.78	47.57	74.00	-26.43 peak
3 4824.000	7.12	33.66	42.16	54.90	53.52	74.00	-20.48 peak
4 6717.762	8.40	35.00	41.89	48.72	50.23	74.00	-23.77 peak
5 7236.000	8.77	35.69	41.48	47.29	50.27	74.00	-23.73 peak
6 9648.000	10.79	37.36	37.69	42.53	52.99	74.00	-21.01 peak

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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



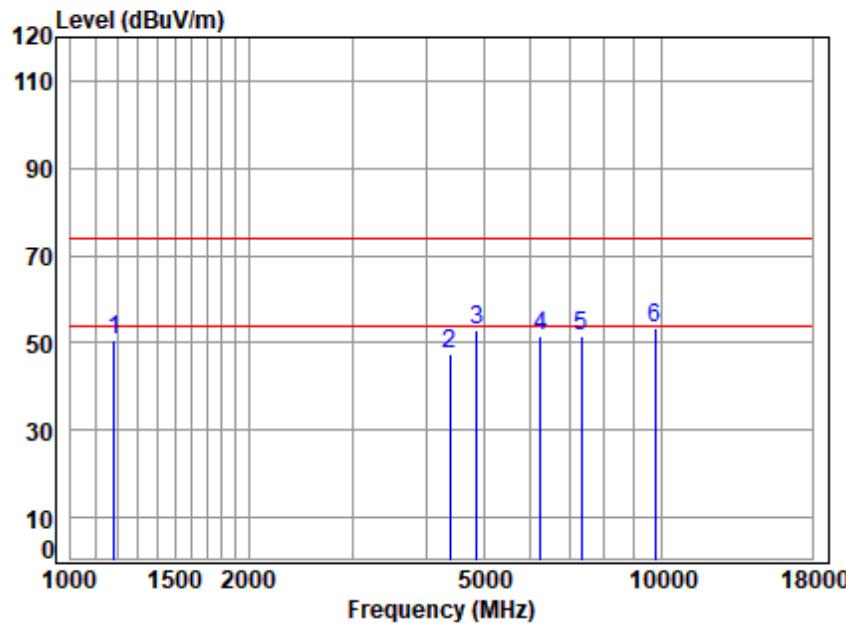
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2412 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dBuV/m	dB
1 1189.368	2.74	25.07	39.75	63.92	51.98	74.00	-22.02	peak
2 3567.138	5.63	31.83	41.12	52.19	48.53	74.00	-25.47	peak
3 4824.000	7.12	33.66	42.16	54.83	53.45	74.00	-20.55	peak
4 6756.708	8.42	35.07	41.86	49.92	51.55	74.00	-22.45	peak
5 7236.000	8.77	35.69	41.48	50.82	53.80	74.00	-20.20	peak
6 9648.000	10.79	37.36	37.69	43.00	53.46	74.00	-20.54	peak

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



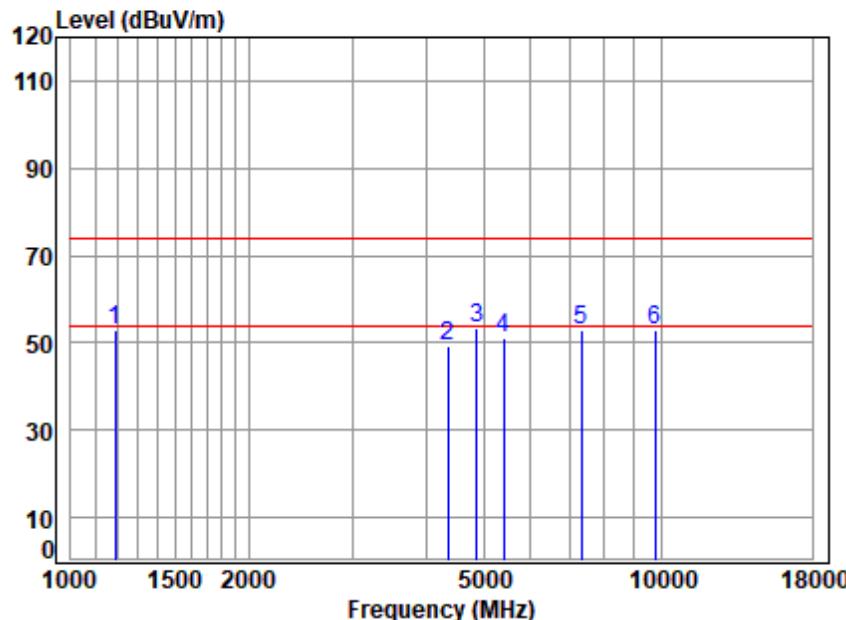
Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit Line	Over Limit	Remark
				Level			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 1185.936	2.74	25.06	39.75	62.41	50.46	74.00	-23.54 peak
2 4379.699	6.65	32.91	41.77	49.72	47.51	74.00	-26.49 peak
3 4874.000	7.17	33.76	42.20	54.33	53.06	74.00	-20.94 peak
4 6249.464	8.27	34.60	42.22	50.69	51.34	74.00	-22.66 peak
5 7311.000	8.84	35.75	41.41	48.37	51.55	74.00	-22.45 peak
6 9748.000	10.76	37.40	37.52	42.72	53.36	74.00	-20.64 peak

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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit Line	Over Limit	Remark
				Level			
MHz	dB	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 1189.368	2.74	25.07	39.75	64.91	52.97	74.00	-21.03 peak
2 4354.454	6.63	32.89	41.74	51.66	49.44	74.00	-24.56 peak
3 4874.000	7.17	33.76	42.20	54.67	53.40	74.00	-20.60 peak
4 5408.529	8.03	34.16	42.34	51.34	51.19	74.00	-22.81 peak
5 7311.000	8.84	35.75	41.41	49.90	53.08	74.00	-20.92 peak
6 9748.000	10.76	37.40	37.52	42.32	52.96	74.00	-21.04 peak

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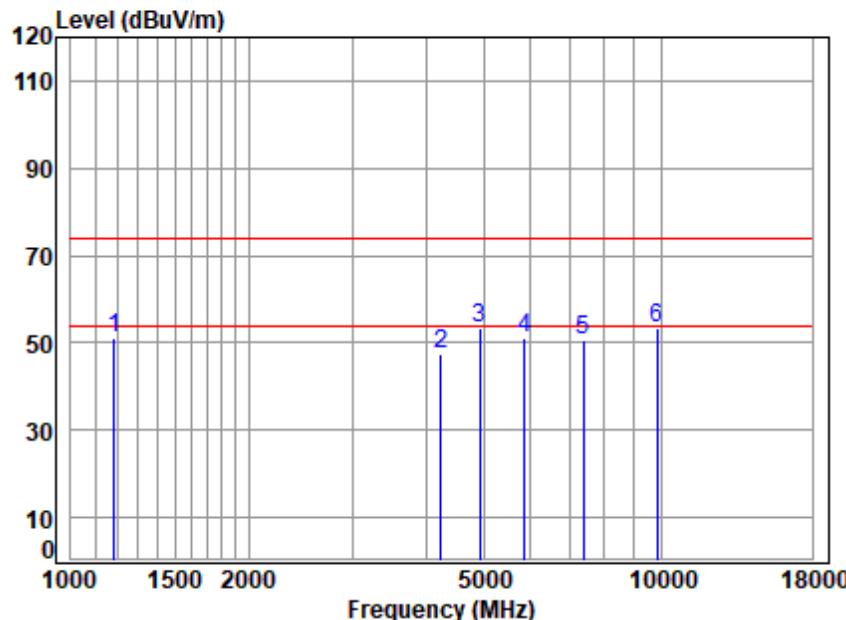
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2462 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit	Over	Remark
				Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 1185.936	2.74	25.06	39.75	63.19	51.24	74.00	-22.76 peak
2 4230.396	6.51	32.79	41.63	49.85	47.52	74.00	-26.48 peak
3 4924.000	7.22	33.85	42.24	54.37	53.20	74.00	-20.80 peak
4 5864.443	8.24	34.49	42.39	50.63	50.97	74.00	-23.03 peak
5 7386.000	8.91	35.81	41.34	47.30	50.68	74.00	-23.32 peak
6 9848.000	10.73	37.44	37.35	42.45	53.27	74.00	-20.73 peak

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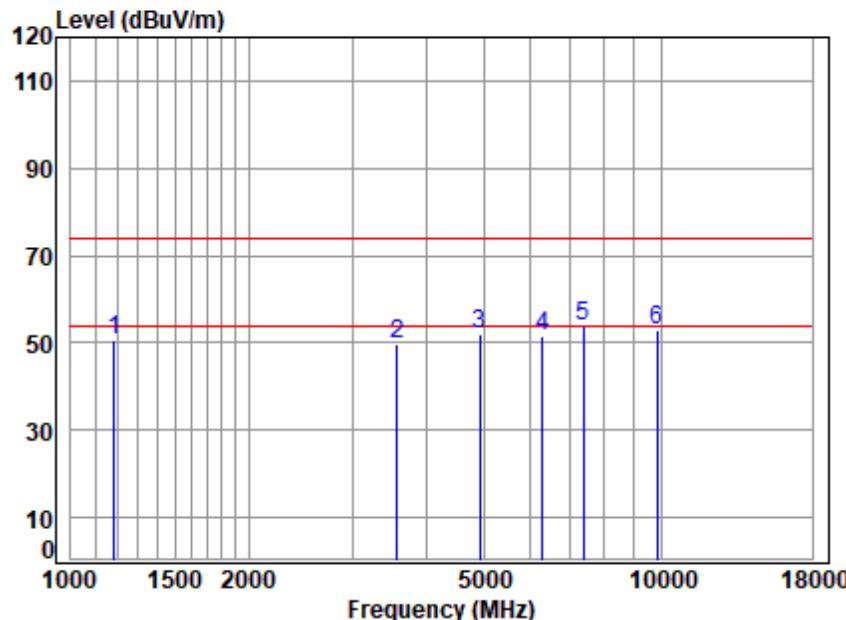


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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2462 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				dB	dB/m			
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dBuV/m	dB
1 1185.936	2.74	25.06	39.75	62.59	50.64	74.00	-23.36	peak
2 3567.138	5.63	31.83	41.12	53.49	49.83	74.00	-24.17	peak
3 4924.000	7.22	33.85	42.24	52.99	51.82	74.00	-22.18	peak
4 6285.695	8.27	34.60	42.19	50.92	51.60	74.00	-22.40	peak
5 7386.000	8.91	35.81	41.34	50.55	53.93	74.00	-20.07	peak
6 9848.000	10.73	37.44	37.35	42.31	53.13	74.00	-20.87	peak

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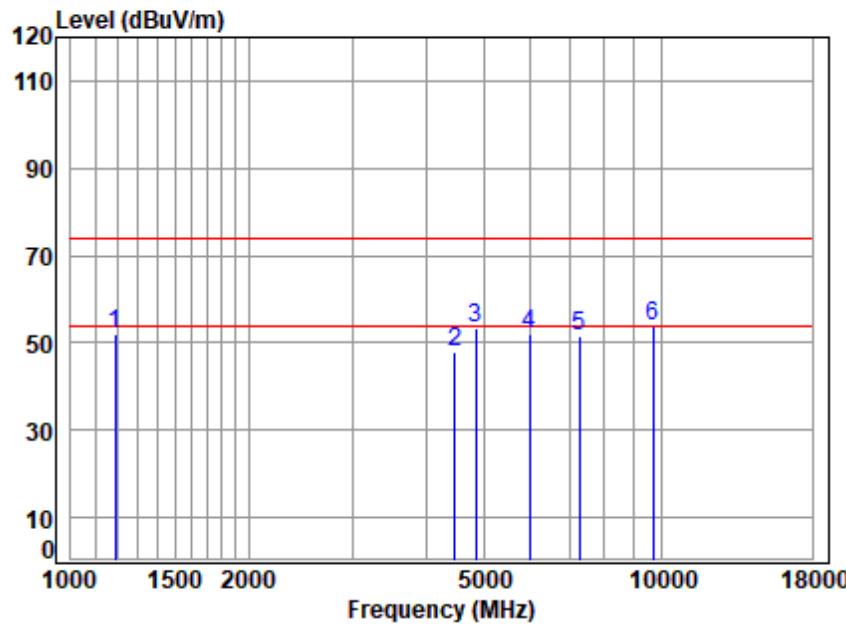


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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2422 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable Loss		Ant Factor	Preamp Factor	Read Level	Limit Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m		dB	dBuV	dBuV/m	dBuV/m	
1	1189.368	2.74	25.07	39.75	64.10	52.16	74.00	-21.84	peak
2	4469.214	6.73	32.98	41.85	50.08	47.94	74.00	-26.06	peak
3	4844.000	7.14	33.70	42.17	54.80	53.47	74.00	-20.53	peak
4	5984.305	8.26	34.59	42.40	51.72	52.17	74.00	-21.83	peak
5	7266.000	8.79	35.72	41.45	48.35	51.41	74.00	-22.59	peak
6	9688.000	10.78	37.38	37.63	43.17	53.70	74.00	-20.30	peak

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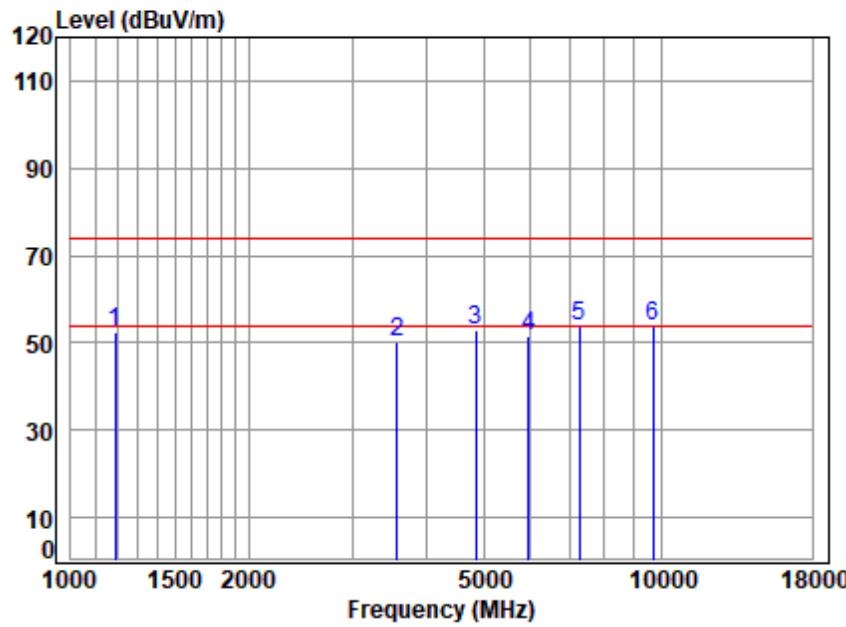
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



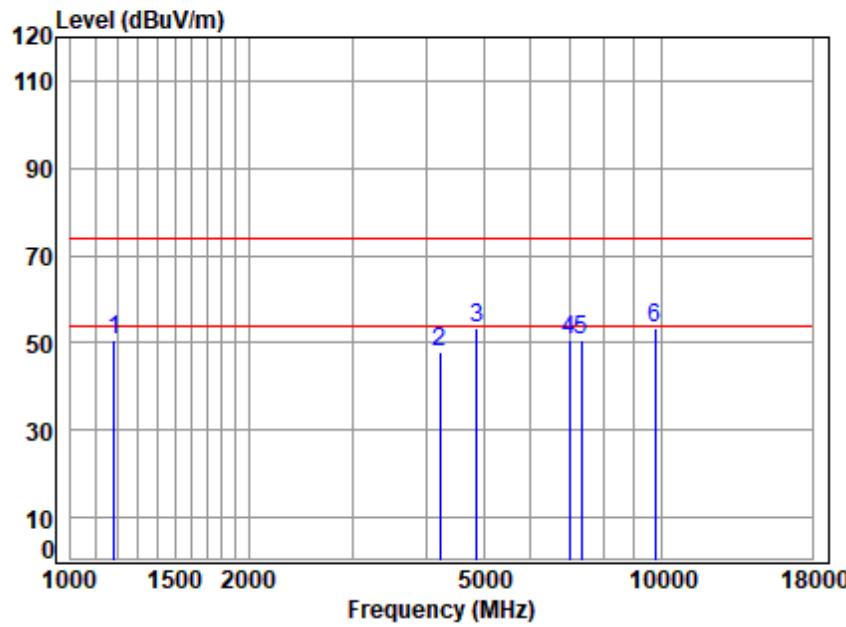
Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2422 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit Line	Over Limit	Remark
				Level			
MHz	dB	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1 1189.368	2.74	25.07	39.75	64.24	52.30	74.00	-21.70 peak
2 3567.138	5.63	31.83	41.12	53.99	50.33	74.00	-23.67 peak
3 4844.000	7.14	33.70	42.17	54.08	52.75	74.00	-21.25 peak
4 5967.033	8.25	34.57	42.40	51.26	51.68	74.00	-22.32 peak
5 7266.000	8.79	35.72	41.45	50.62	53.68	74.00	-20.32 peak
6 9688.000	10.78	37.38	37.63	43.19	53.72	74.00	-20.28 peak

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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



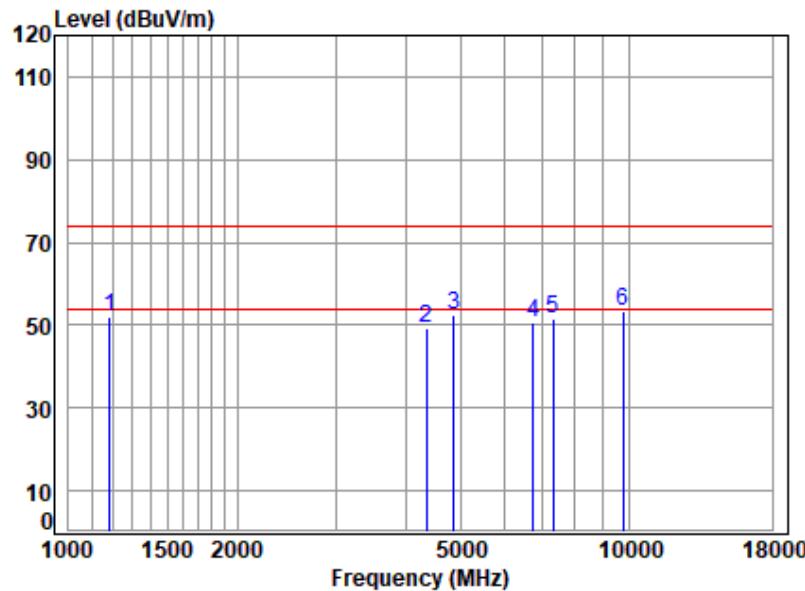
Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	Loss	Factor	Factor	Level	Level	Line	
MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1 1185.936	2.74	25.06	39.75	62.59	50.64	74.00	-23.36 peak
2 4218.186	6.50	32.78	41.61	50.09	47.76	74.00	-26.24 peak
3 4874.000	7.17	33.76	42.20	54.74	53.47	74.00	-20.53 peak
4 6995.172	8.54	35.49	41.70	48.23	50.56	74.00	-23.44 peak
5 7311.000	8.84	35.75	41.41	47.45	50.63	74.00	-23.37 peak
6 9748.000	10.76	37.40	37.52	42.78	53.42	74.00	-20.58 peak

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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2437 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable Loss	Ant Factor	Preamp Factor	Read	Limit Level	Line Limit	Over Limit	Remark
				dB	dB/m	dB	dBuV	dBuV/m
1 1185.936	2.74	25.06	39.75	64.09	52.14	74.00	-21.86	peak
2 4354.454	6.63	32.89	41.74	51.56	49.34	74.00	-24.66	peak
3 4874.000	7.17	33.76	42.20	53.80	52.53	74.00	-21.47	peak
4 6756.708	8.42	35.07	41.86	49.02	50.65	74.00	-23.35	peak
5 7311.000	8.84	35.75	41.41	48.21	51.39	74.00	-22.61	peak
6 9748.000	10.76	37.40	37.52	42.69	53.33	74.00	-20.67	peak

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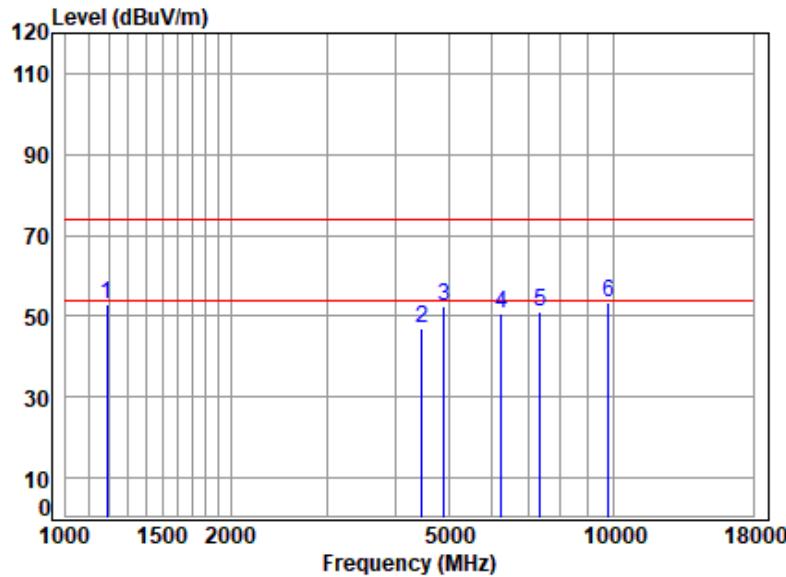
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 22017AT/22018AT
Mode : 2452 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level		Limit Line	Over Limit	Remark
				Level	Level			
1 1189.368	2.74	25.07	39.75	65.04	53.10	74.00	-20.90	peak
2 4469.214	6.73	32.98	41.85	49.08	46.94	74.00	-27.06	peak
3 4904.000	7.20	33.82	42.22	53.70	52.50	74.00	-21.50	peak
4 6249.464	8.27	34.60	42.22	50.21	50.86	74.00	-23.14	peak
5 7356.000	8.88	35.79	41.37	47.67	50.97	74.00	-23.03	peak
6 9808.000	10.75	37.42	37.42	42.50	53.25	74.00	-20.75	peak

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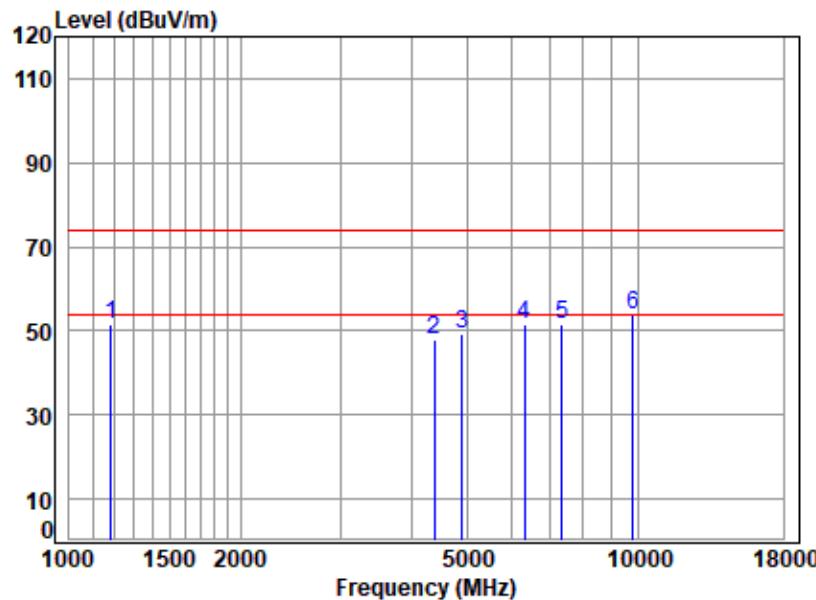
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 22017AT/22018AT
Mode : 2452 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Limit		Over Line Limit	Remark
					dB	dBuV	dBuV/m	dBuV/m
1 1185.936	2.74	25.06	39.75	63.68	51.73	74.00	-22.27	peak
2 4392.376	6.66	32.92	41.78	50.24	48.04	74.00	-25.96	peak
3 4904.000	7.20	33.82	42.22	50.35	49.15	74.00	-24.85	peak
4 6322.136	8.27	34.60	42.16	50.65	51.36	74.00	-22.64	peak
5 7356.000	8.88	35.79	41.37	48.21	51.51	74.00	-22.49	peak
6 9808.000	10.75	37.42	37.42	43.05	53.80	74.00	-20.20	peak

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8 Emission Test Results

8.1 Conducted Emissions at AC Power Line (150kHz-30MHz)

Test Requirement: 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 6.2

8.1.1 Conclusion



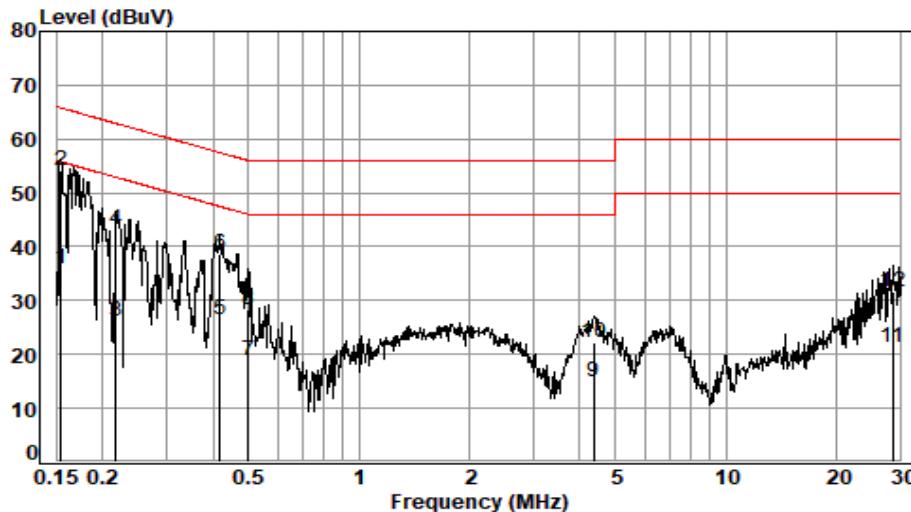
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Test Mode: 00; Line: Live line; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : Shielding Room

Condition: Line

Job No. : 22017AT

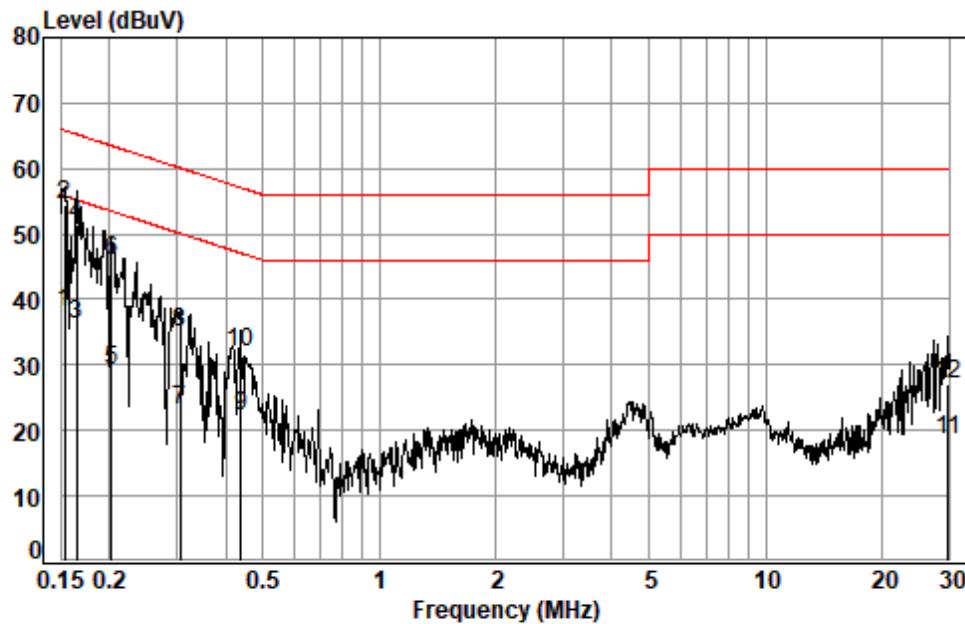
Test mode: 00

Freq	Cable Loss	LISN Factor	Read	Limit Line	Over Limit	Remark
			Level			
MHz	dB	dB	dBuV	dBuV	dB	
1	0.1540	0.03	9.70	26.14	35.87	55.78 -19.91 Average
2	0.1540	0.03	9.70	44.31	54.04	65.78 -11.74 QP
3	0.2174	0.04	9.73	16.41	26.18	52.92 -26.74 Average
4	0.2174	0.04	9.73	33.47	43.24	62.92 -19.68 QP
5	0.4193	0.07	9.76	16.78	26.61	47.46 -20.85 Average
6	0.4193	0.07	9.76	28.90	38.73	57.46 -18.73 QP
7	0.4994	0.07	9.77	8.95	18.79	46.01 -27.22 Average
8	0.4994	0.07	9.77	18.43	28.27	56.01 -27.74 QP
9	4.3606	0.15	9.90	4.96	15.01	46.00 -30.99 Average
10	4.3606	0.15	9.90	12.09	22.14	56.00 -33.86 QP
11	28.4519	0.20	11.08	10.07	21.35	50.00 -28.65 Average
12	28.4519	0.20	11.08	20.27	31.55	60.00 -28.45 QP

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Test Mode: 00; Line: Neutral Line; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : Shielding Room

Condition: Neutral

Job No. : 22017AT

Test mode: 00

Freq	Cable	LISN	Read	Limit		Over	Remark
	Loss	Factor	Level	Level	Line	Limit	
	MHz	dB	dB	dBuV	dBuV	dBuV	dB
1	0.1532	0.03	9.71	28.30	38.04	55.82	-17.78 Average
2	0.1532	0.03	9.71	44.65	54.39	65.82	-11.43 QP
3	0.1641	0.03	9.71	26.31	36.05	55.25	-19.20 Average
4	0.1641	0.03	9.71	41.54	51.28	65.25	-13.97 QP
5	0.2029	0.04	9.72	19.42	29.18	53.49	-24.31 Average
6	0.2029	0.04	9.72	36.10	45.86	63.49	-17.63 QP
7	0.3051	0.05	9.74	13.21	23.00	50.10	-27.10 Average
8	0.3051	0.05	9.74	25.29	35.08	60.10	-25.02 QP
9	0.4374	0.07	9.75	12.41	22.23	47.11	-24.88 Average
10	0.4374	0.07	9.75	22.19	32.01	57.11	-25.10 QP
11	29.6838	0.21	10.96	7.35	18.52	50.00	-31.48 Average
12	29.6838	0.21	10.96	15.89	27.06	60.00	-32.94 QP

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9 Test Setup Photo

Refer to Setup Photos for SZCR2107022017AT

10 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2107022017AT



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11 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	12.417	12.580	98.70	0.06	0.95
		2437	12.414	12.574	98.73	0.06	0.87
		2462	12.417	12.590	98.63	0.06	1.00
802.11g	SISO	2412	2.062	2.226	92.63	0.33	5.57
		2437	2.062	2.217	93.01	0.31	4.75
		2462	2.062	2.236	92.22	0.35	5.11
802.11n (HT20)	SISO	2412	1.917	2.090	91.72	0.38	5.89
		2437	1.920	2.083	92.17	0.35	5.94
		2462	1.918	2.091	91.73	0.38	5.89
802.11n (HT40)	SISO	2422	0.942	1.106	85.17	0.70	10.08
		2437	0.942	1.115	84.48	0.73	11.71
		2452	0.942	1.106	85.17	0.70	9.23

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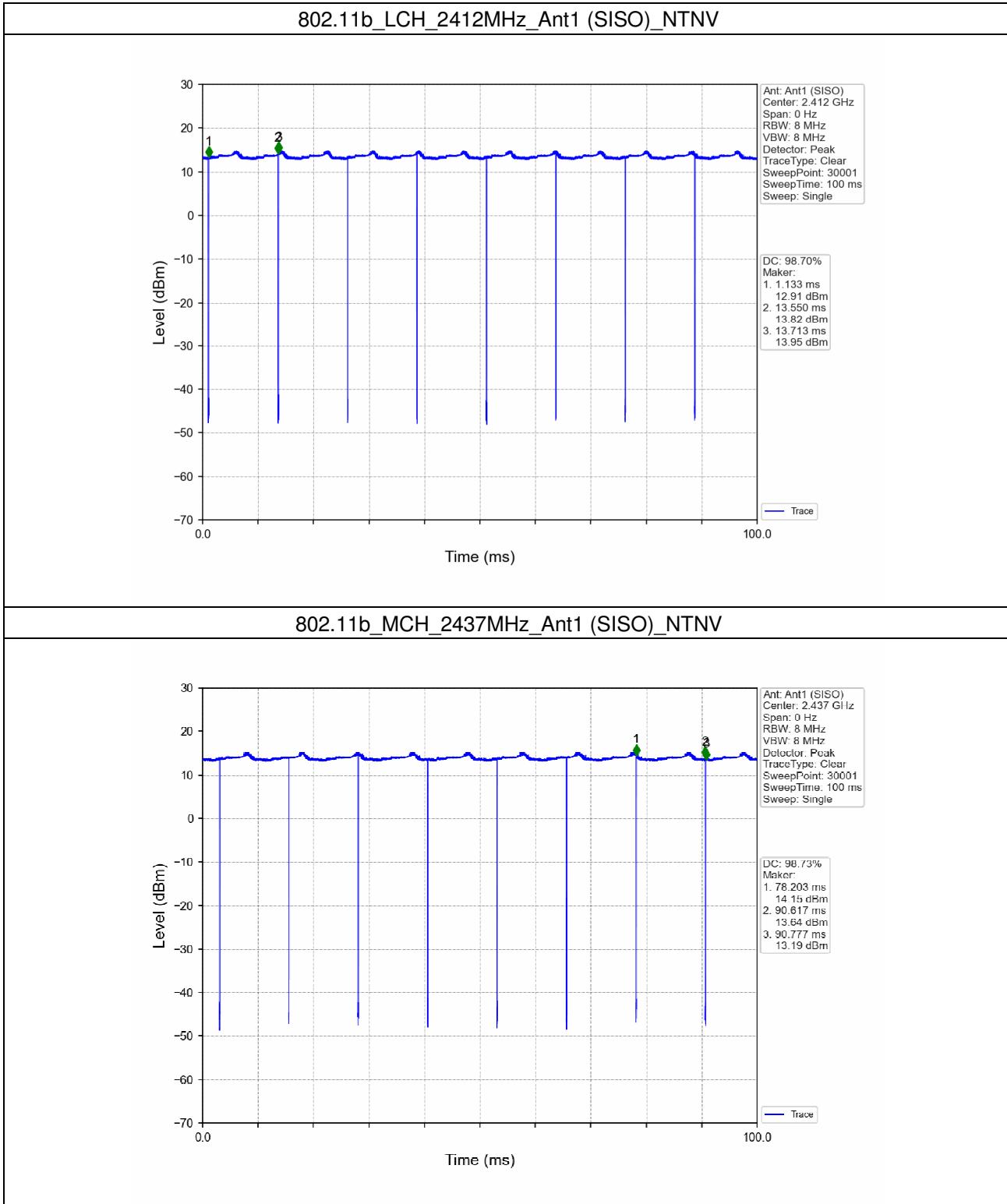
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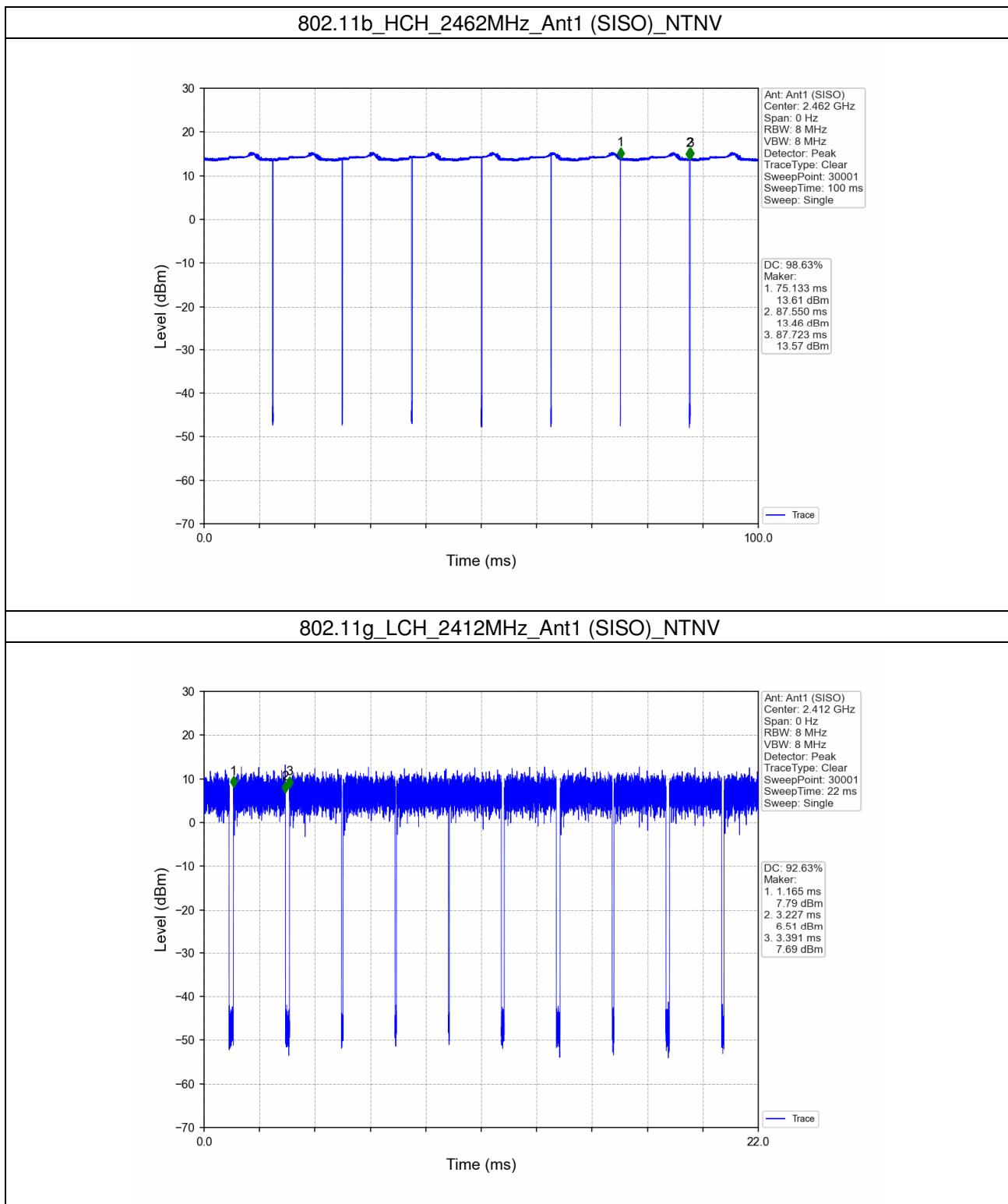


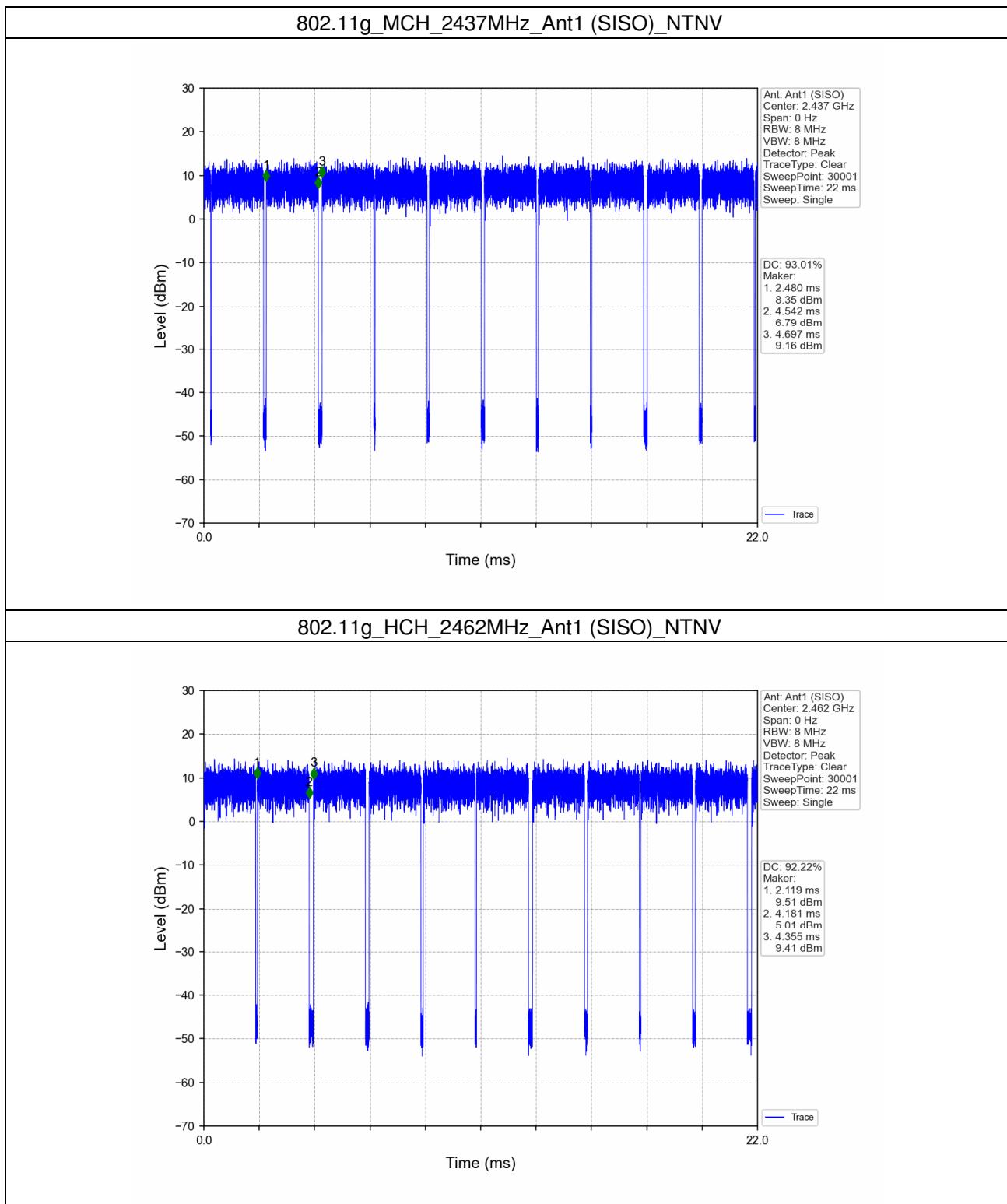
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1.1.2 Test Graph







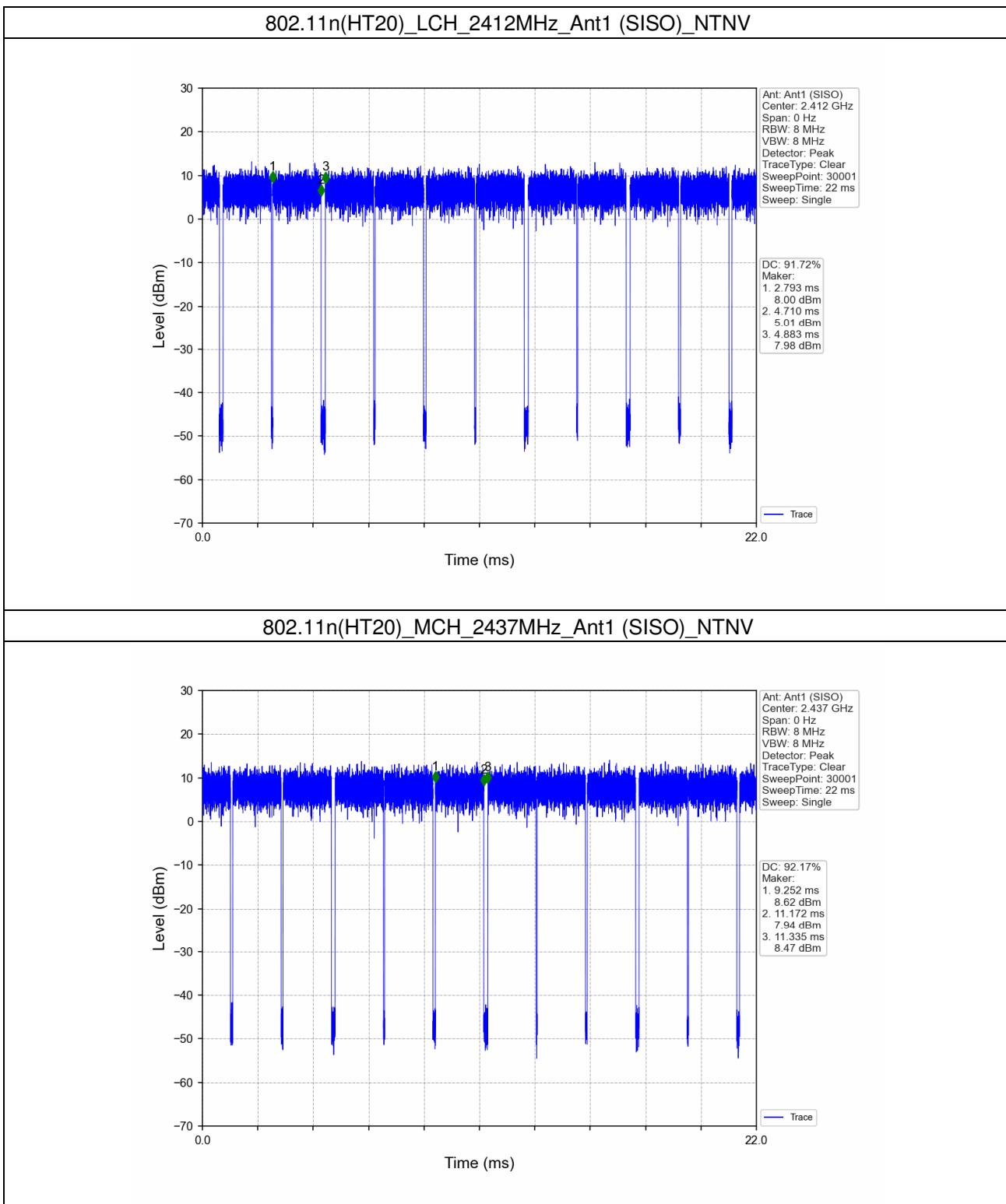
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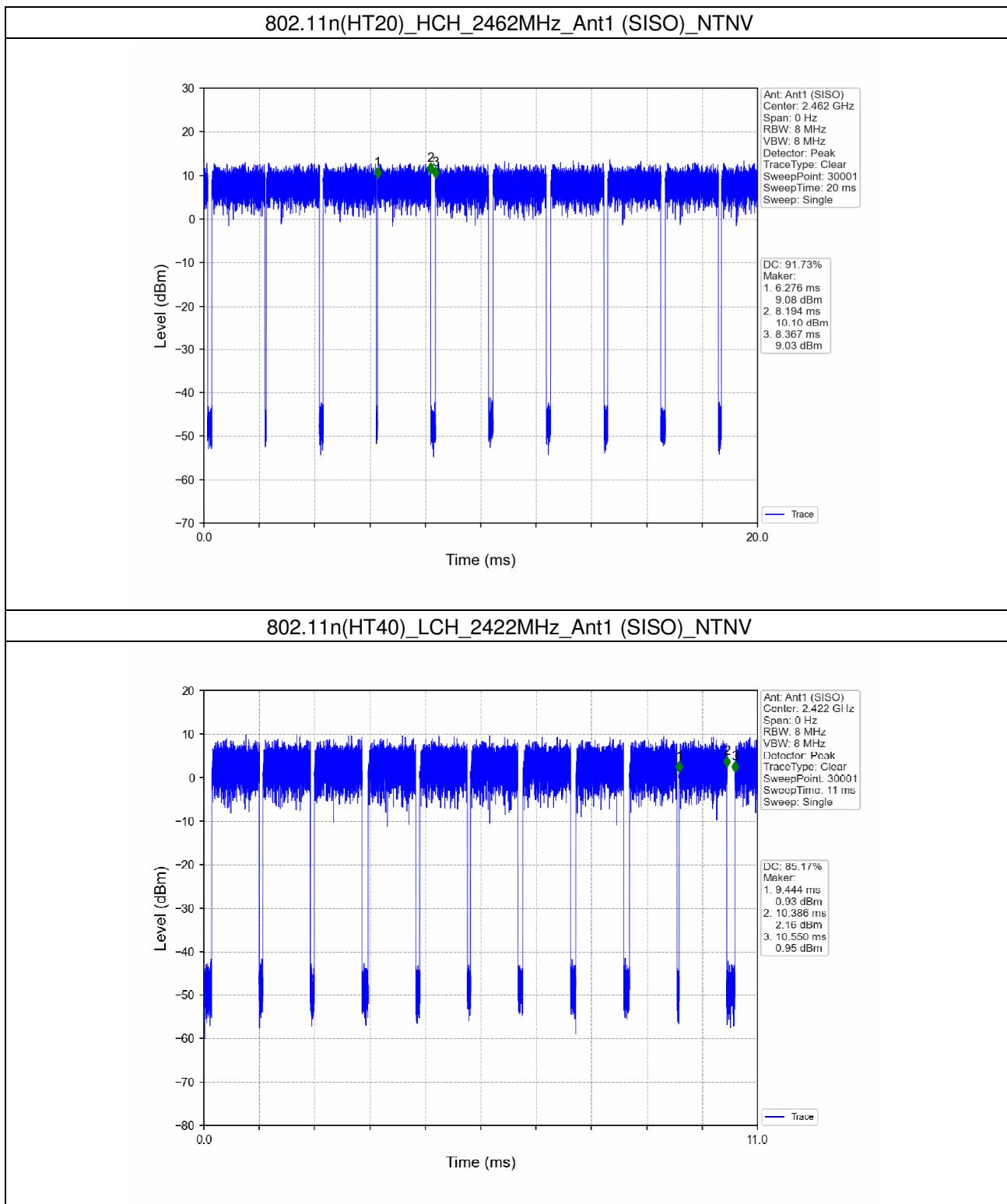
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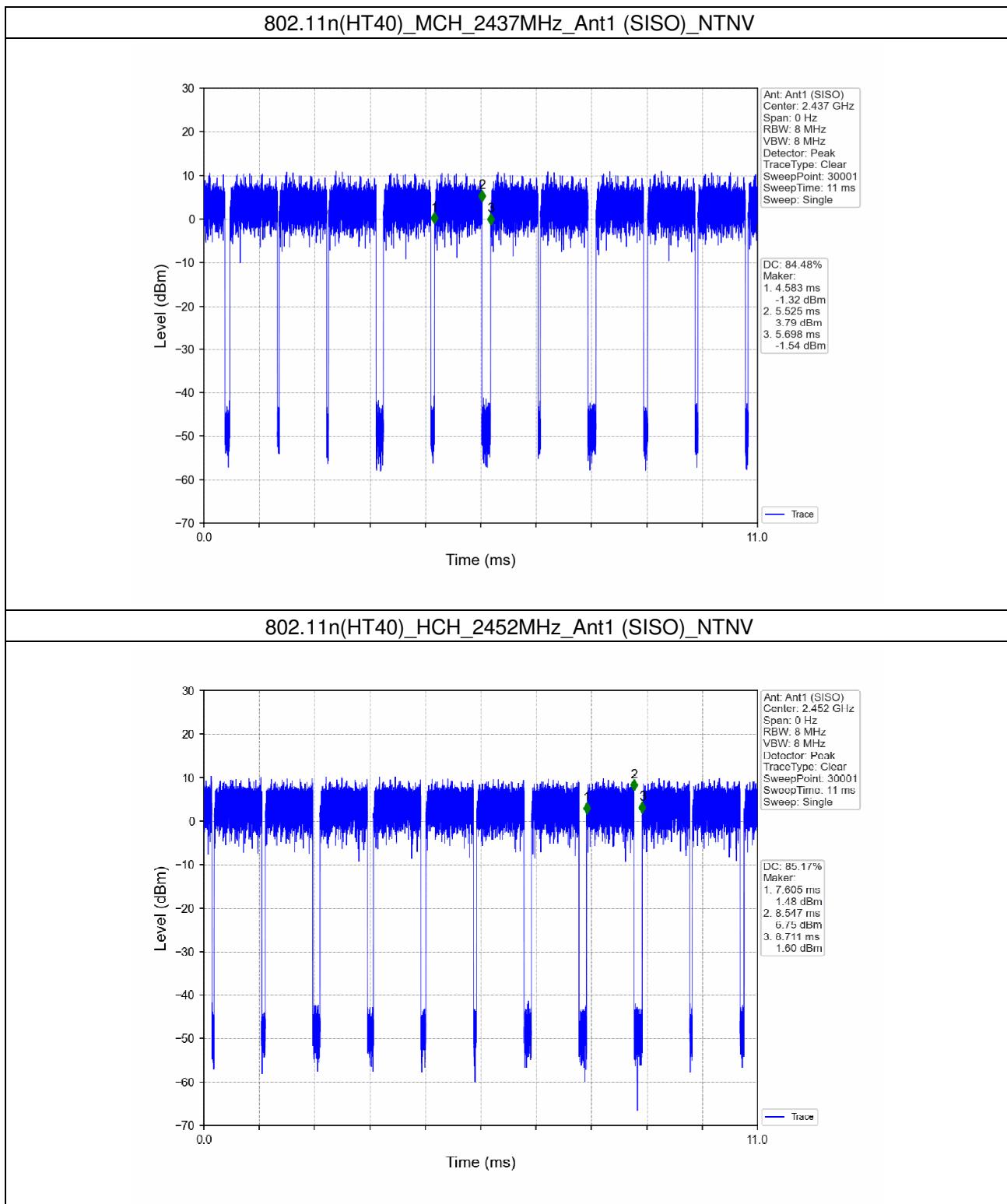
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2. Bandwidth

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	13.927	Pass
		2437	1	13.920	Pass
		2462	1	13.930	Pass
802.11g	SISO	2412	1	17.715	Pass
		2437	1	17.586	Pass
		2462	1	17.685	Pass
802.11n (HT20)	SISO	2412	1	18.494	Pass
		2437	1	18.492	Pass
		2462	1	18.438	Pass
802.11n (HT40)	SISO	2422	1	36.921	Pass
		2437	1	37.004	Pass
		2452	1	36.826	Pass

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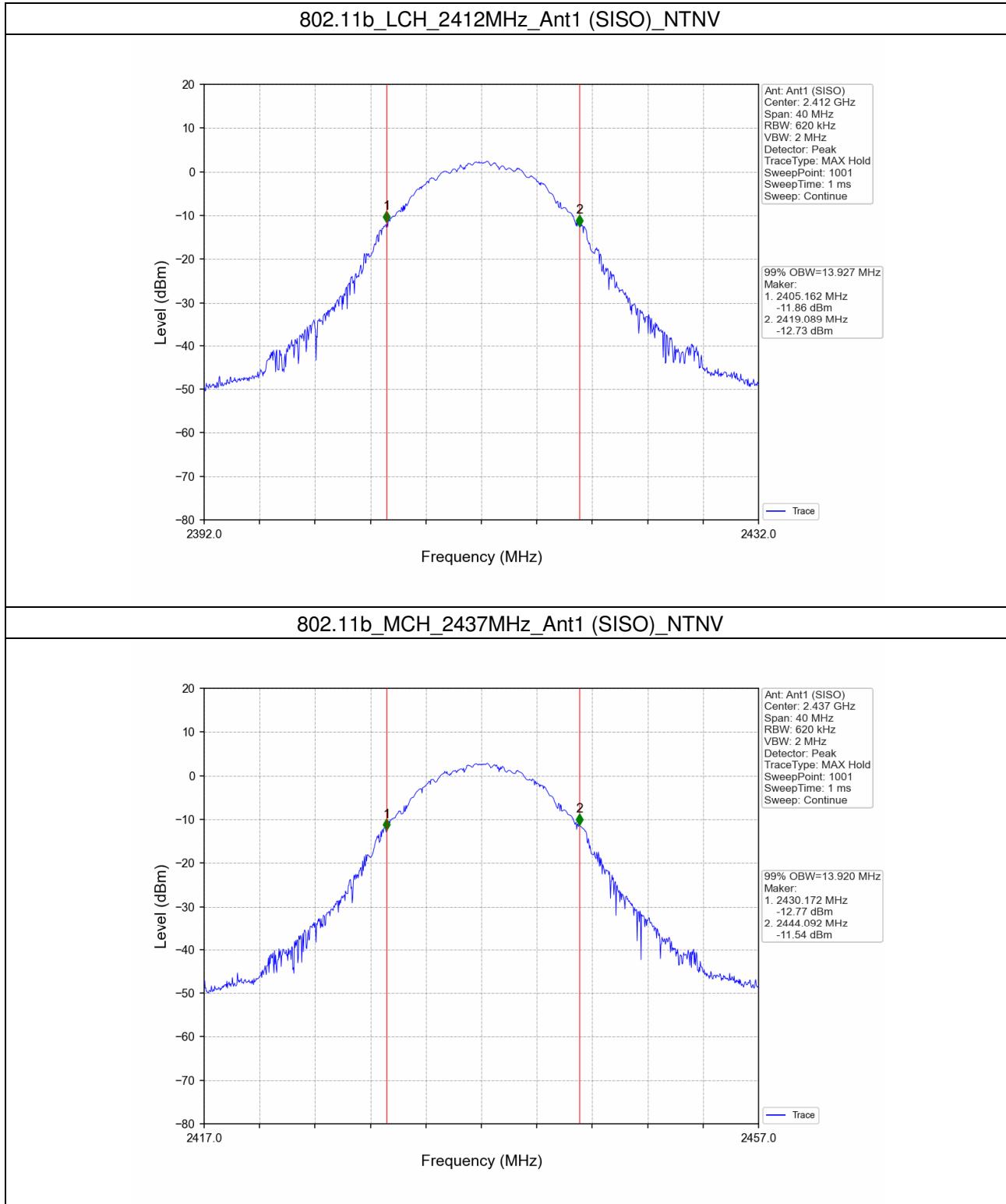
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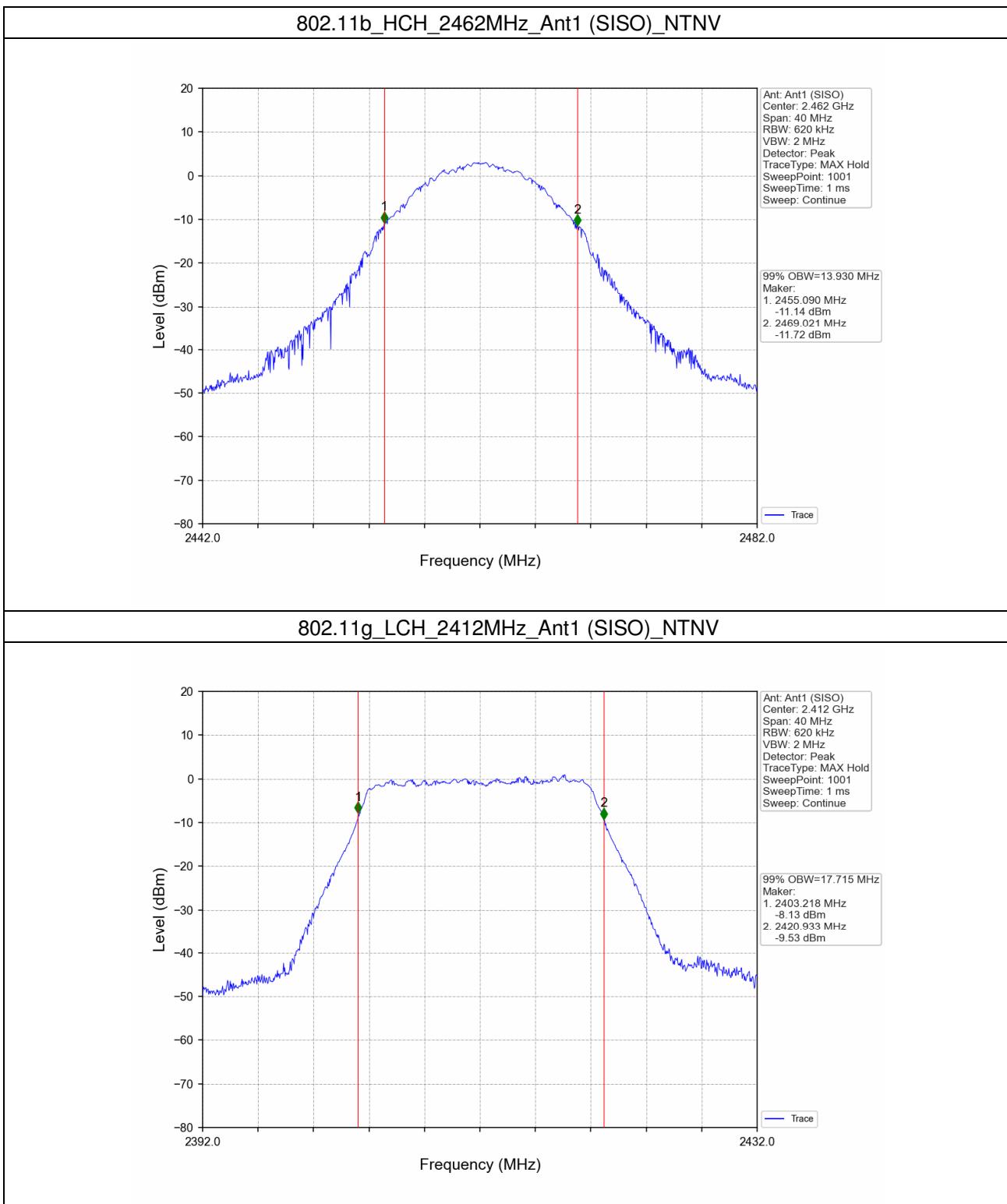


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2.1.2 Test Graph

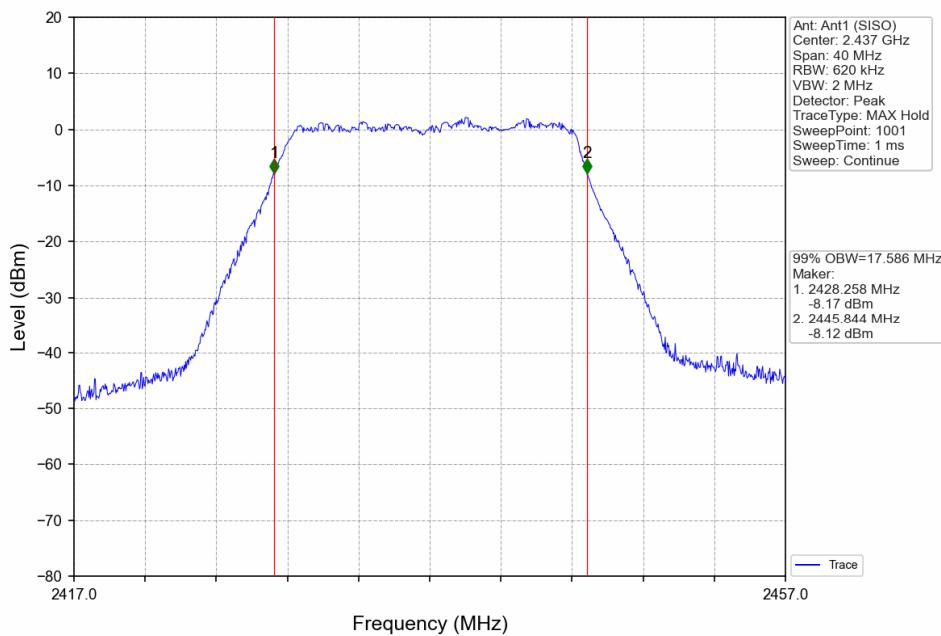




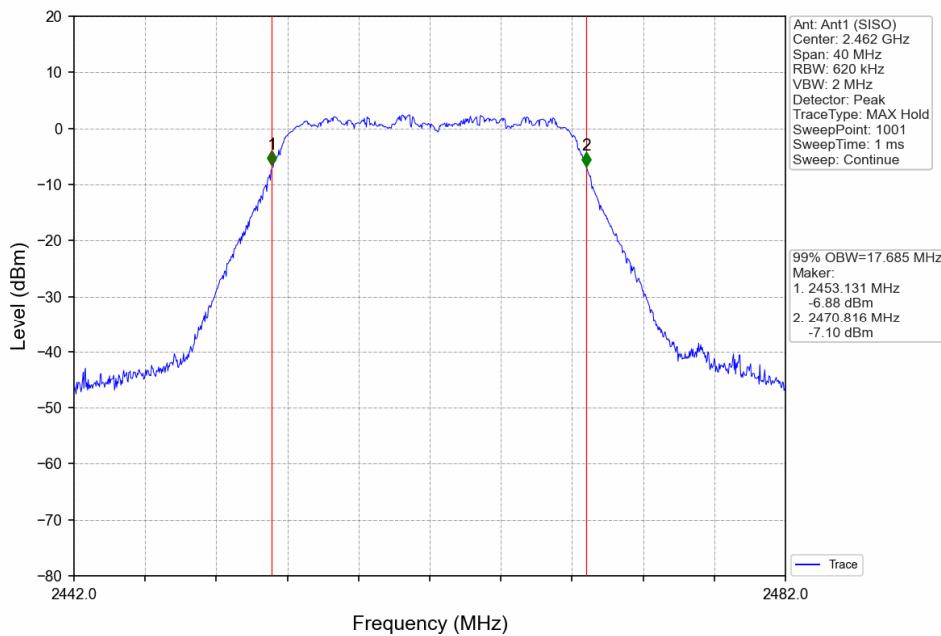
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802.11g_MCH_2437MHz_Ant1 (SISO)_NTNV



802.11g_HCH_2462MHz_Ant1 (SISO)_NTNV



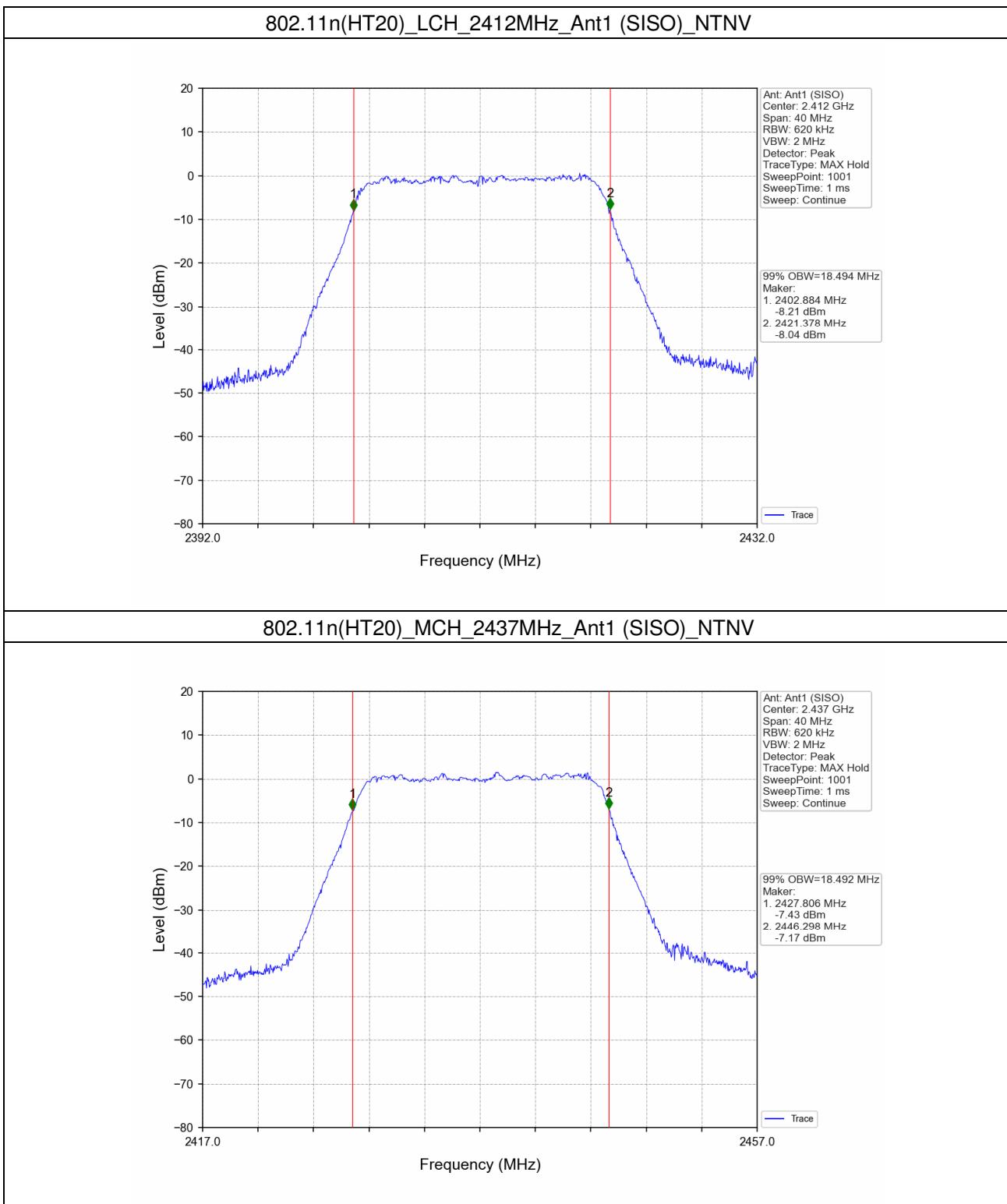
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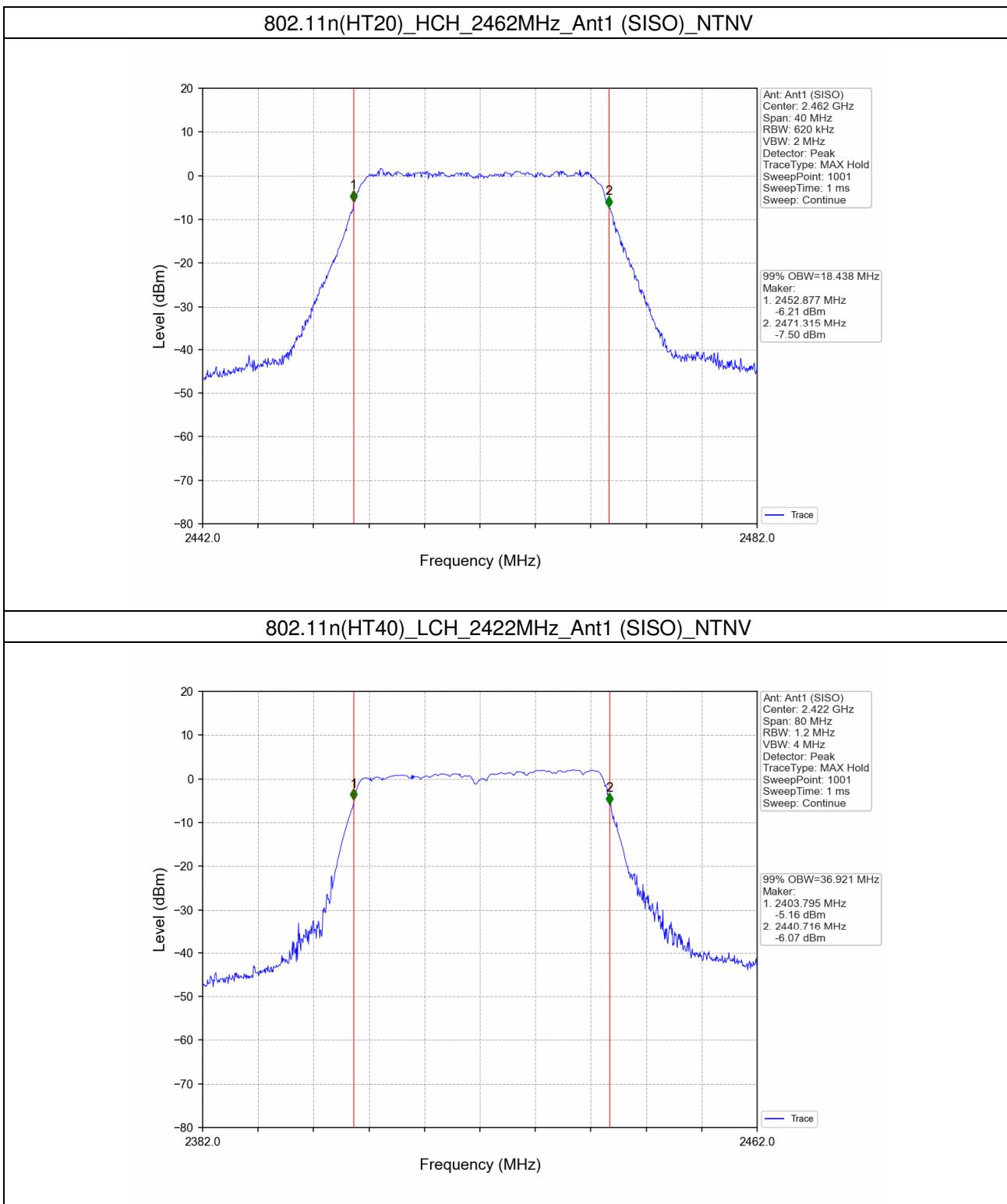
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