

Report No.: SZEM200900885202
Page: 1 of 73

TEST REPORT

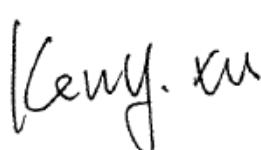
Application No.: SZEM2009008852CR
Applicant: Sichuan AI-Link Technology Co., Ltd.
Address of Applicant: Anzhou, Industrial park, Mianyang, Sichuan, china
Manufacturer: Sichuan AI-Link Technology Co., Ltd.
Address of Manufacturer: Anzhou, Industrial park, Mianyang, Sichuan, china
Factory: Sichuan AI-Link Technology Co., Ltd.
Address of Factory: Anzhou, Industrial park, Mianyang, Sichuan, china
Equipment Under Test (EUT):
EUT Name: WIFI module
Model No.: WF-R12B-UWD1, WF-R12B-UWD2, WF-R12B-UWD3 *

* Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.

FCC ID: 2AOKI-WFR12BUWD1
Standard(s): 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2020-09-04
Date of Test: 2020-09-04 to 2020-10-04
Date of Issue: 2020-10-04

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



Keny Xu
EMC Laboratory Manager



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Revision Record

Version	Chapter	Date	Modifier	Remark
01		2020-10-04		Original

Authorized for issue by:

**Edison 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
Radiated Emissions which fall in the restricted bands	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.10.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.4,6.5,6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

Remark:

Model No.: WF-R12B-UWD1, WF-R12B-UWD2, WF-R12B-UWD3

Only the model WF-R12B-UWD1 was tested, since the electrical circuit design, layout, components used, internal wiring and functions were identical for all the above models, with only the model WF-R12B-UWD1 and WF-R12B-UWD2 difference on the connector part and model No., WF-R12B-UWD2 and WF-R12B-UWD3 difference on overall dimension and model No. and for all the above models difference on the cable length of antennas.

This report SZEM200900885202 is prepared for FCC class II permissive change.

The modular approval by TCB, FCC ID:2AOKI-WFR12BUWD1, Granted on 04/16/2020.

According to the declaration from the applicant, this report was an additional report copied from the report SZEM200100064402, just added the antenna 1 series number15 and series number16. The specifications of antenna 1 series number15 and series number16 are shown below:

Antenna Type Code	Antenna Project Code	Max Antenna Gain(dBi)	Cable Length (Unit: cm)	Part No.	Remark
Walsin RF Device	Metal Antenna1	2.4G Peak Gain: 1.72dBi	10cm	SLK-T3010-L-XI-B	Series Number15
		5G Peak Gain: 2.57dBi	60cm	SLK-T3010-L-XI-B	Series Number16

Since the electrical circuit design, layout, components used and internal wiring were identical, only different by the addition of the antenna 1 series number15 and series number16.

Therefore in this report Radiated Emissions which fall in the restricted bands and Radiated Spurious Emissions of the antenna 1 series number15 and Series Number16 were fully retested on Model WF-R12B-UWD1, and only the antenna 1 series number15 worse data is recorded in this report.

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4 General Information

4.1 Details of E.U.T.

Power Supply:	DC3.3V
Internal source:	More than 108MHz
Type of Modulation:	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM (64QAM, 16QAM, QPSK, BPSK) 802.11n (HT20/HT40): OFDM (64QAM, 16QAM, QPSK, BPSK)
Operating Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz 802.11n(HT40): 2422MHz to 2452MHz
Channel Number:	802.11b/g/11n(HT20): 11 Channels 802.11n(HT40): 7 Channels
Channels Step:	Channels with 5MHz step
Sample Type:	Fixed production
Antenna Type:	Please refer to section 2 of this report.
Antenna Gain:	Please refer to section 2 of this report. Note: The two antennas can simultaneous transmission(MIMO for 802.11n).

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Laptop	Lenovo	T430u	REF. No.SEA1800

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Radiated Emissions which fall in the restricted bands	± 4.5dB (Below 1GHz);± 4.8dB (Above 1GHz)
Radiated Spurious Emissions	± 4.5dB (Below 1GHz);± 4.8dB (Above 1GHz)

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:

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen Branch
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**

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. 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

RE in Chamber					
Test 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(3Hz-3.6GHz)	KEYSIGHT	N9038A	SEM004-15	2019-12-16	2020-12-15
BiConiLog Antenna (26-3000MHz)	ETS-LINDGREN	3142C	SEM003-02	2019-05-24	2022-05-23
Pre-amplifier (0.1-1300MHz)	Agilent Technologies	8447D	SEM005-01	2020-04-01	2021-03-31
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2020-07-10	2021-07-09

Radiated Emissions					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2018-03-13	2021-03-12
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-25 2020-09-23	2020-09-24 2021-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09

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	2018-03-13	2021-03-12
EXA Signal Analyzer	Agilent Technologies Inc	N9010A	SEM004-12	2020-04-09	2021-04-08
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2018-04-13	2021-04-12
Pre-Amplifier	Compliance Directions Systems Inc.	PAP-0126	SEM004-11	2019-09-25 2020-09-23	2020-09-24 2021-09-22
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2020-07-10	2021-07-09

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General used equipment

Test Equipment	Manufacturer	Model No.	Inventory No.	Cal. Date (yyyy-mm-dd)	Cal. Due date (yyyy-mm-dd)
Humidity/ Temperature Indicator	Shanghai Meteorological Industry Factory	ZJ1-2B	SEM002-04	2019-09-17	2020-09-16
				2020-09-15	2021-09-14
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2019-09-17	2020-09-16
				2020-09-15	2021-09-14
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2020-04-07	2021-04-06

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.247

Limit:

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 product has two types of antennas for the application, the metal antenna1 can be replaced by the antennas in the table in section 2 of this report, not match this module when the replaceable antennas are not listed on the table in section 2; the metal antenna2 is integrated on the main PCB and no consideration of replacement.

Antenna location: Refer to internal photo.

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7 Radio Spectrum Matter Test Results

7.1 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.247

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

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.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C

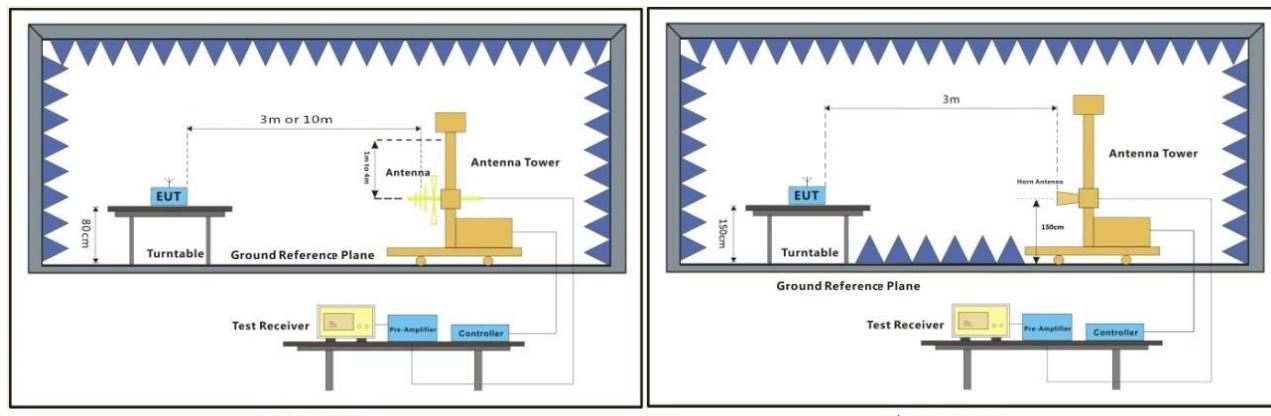
Humidity: 56.3 % RH

Atmospheric Pressure: 1010 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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.

7.1.3 Test Setup Diagram



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Shenzhen Branch (testing) EEC Laboratory

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7.1.4 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 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. 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.
- c. 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.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. 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.
- j. 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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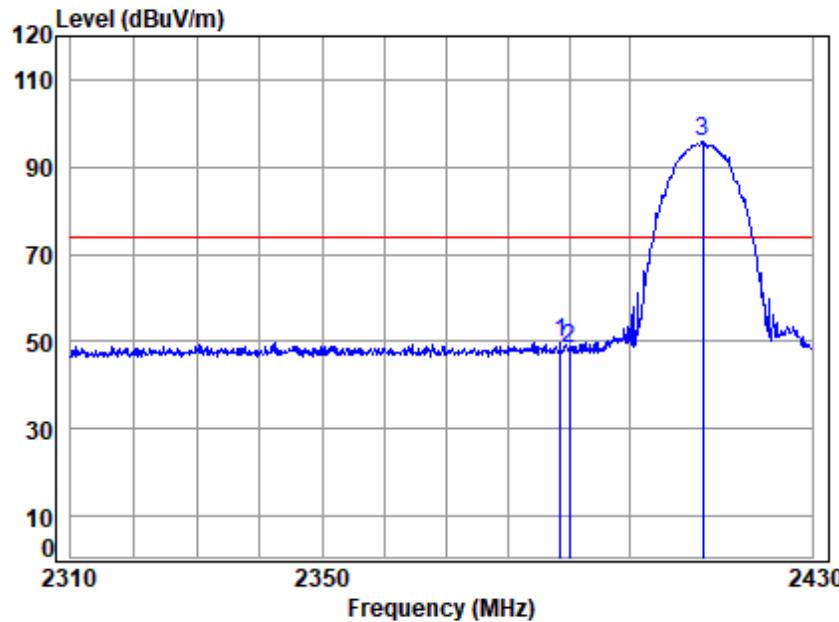
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



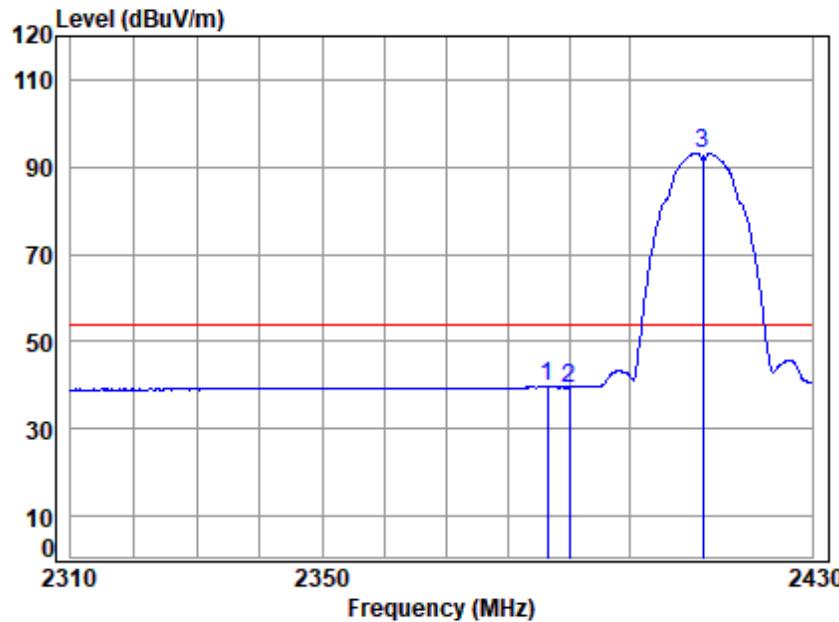
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2388.516	4.34	28.52	40.97	57.91	49.80	74.00 -24.20 peak
2	2390.000	4.34	28.52	40.97	56.54	48.43	74.00 -25.57 peak
3 *	2412.000	4.38	28.56	40.98	103.75	95.71	74.00 21.71 peak

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Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level			
1	2386.461	4.34	28.51	40.97	47.93	39.81	54.00 -14.19 Average
2	2390.000	4.34	28.52	40.97	47.55	39.44	54.00 -14.56 Average
3 *	2412.000	4.38	28.56	40.98	101.23	93.19	54.00 39.19 Average

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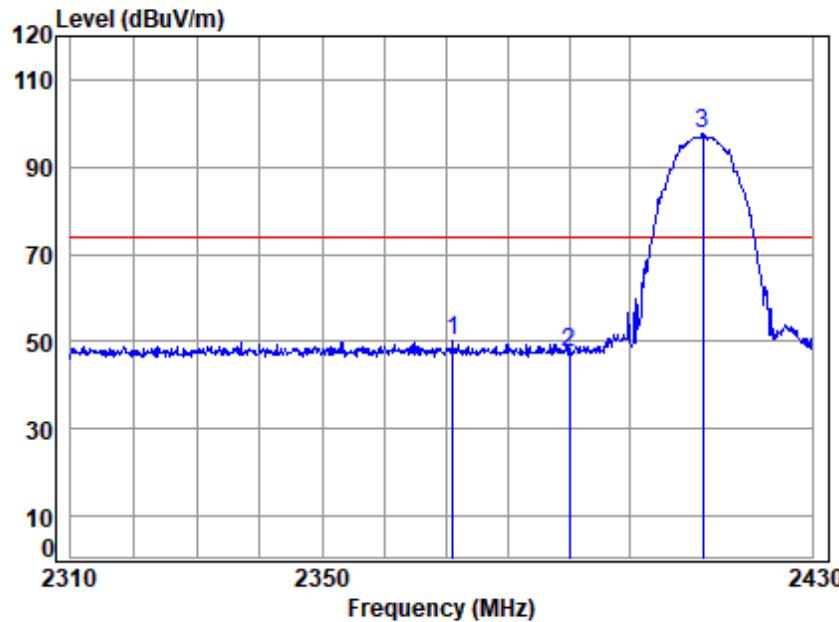
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Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



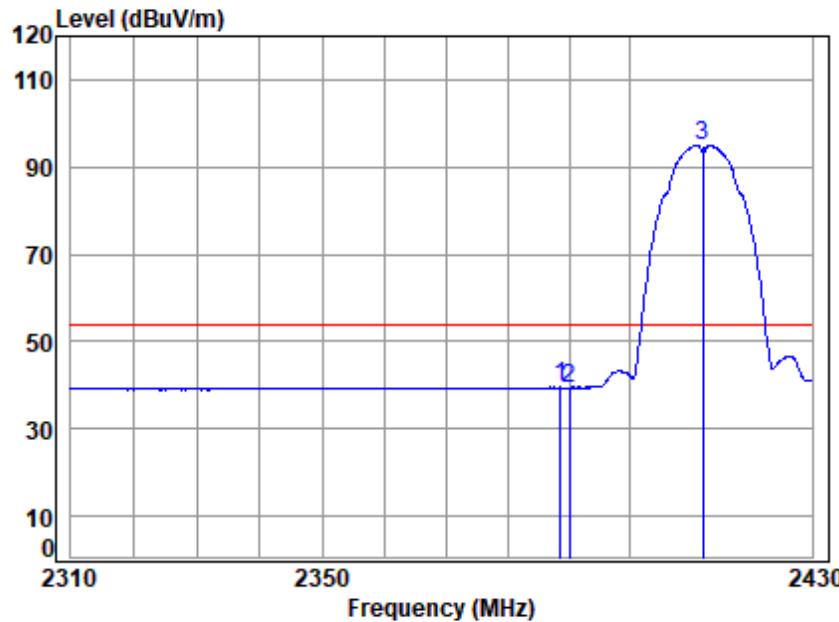
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2371.161	4.31	28.49	40.96	58.38	50.22	74.00 -23.78 peak
2	2390.000	4.34	28.52	40.97	55.47	47.36	74.00 -26.64 peak
3 *	2412.000	4.38	28.56	40.98	105.70	97.66	74.00 23.66 peak

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Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



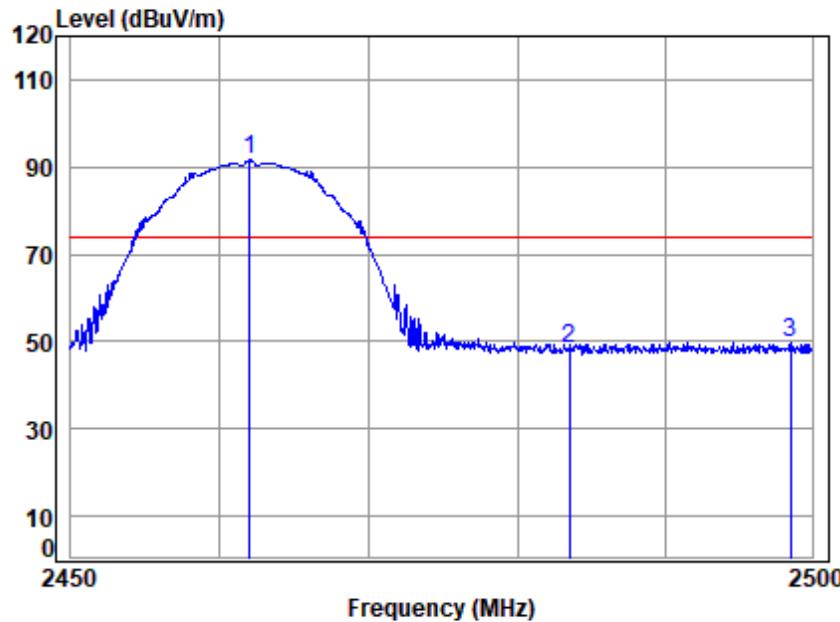
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2388.516	4.34	28.52	40.97	47.69	39.58	54.00 -14.42 Average
2	2390.000	4.34	28.52	40.97	47.46	39.35	54.00 -14.65 Average
3 *	2412.000	4.38	28.56	40.98	103.05	95.01	54.00 41.01 Average

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



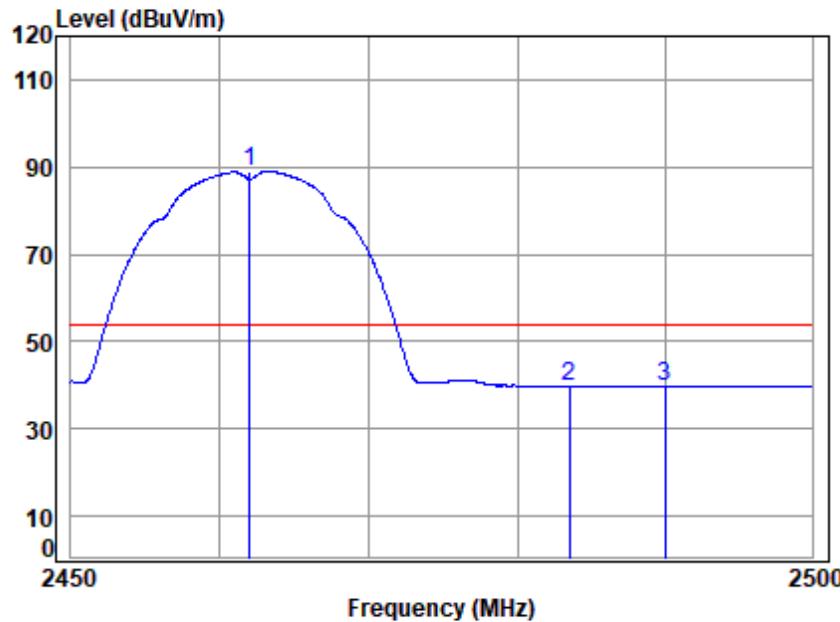
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level			
1 *	2462.000	4.46	28.64	41.00	99.47	91.57	74.00 17.57 peak
2	2483.500	4.49	28.67	41.01	56.33	48.48	74.00 -25.52 peak
3	2498.536	4.52	28.70	41.02	57.53	49.73	74.00 -24.27 peak

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



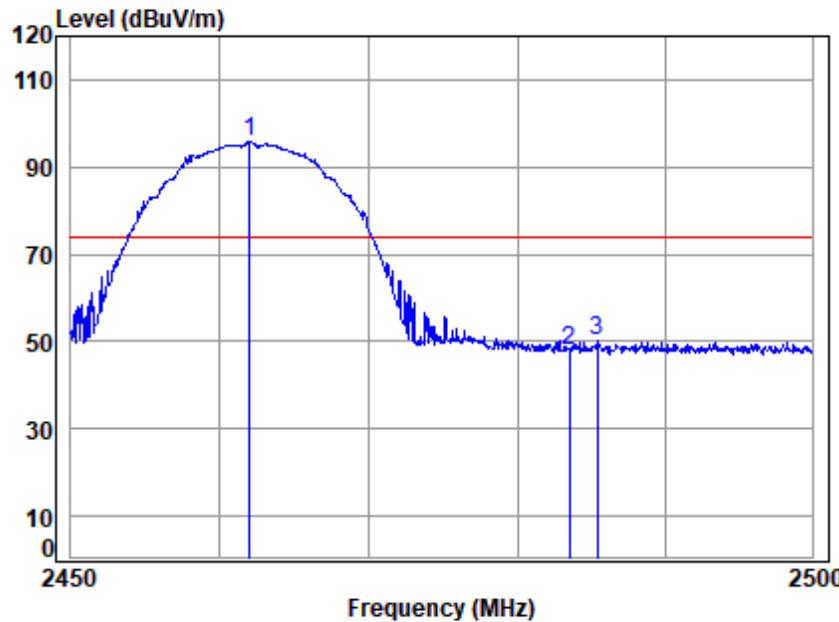
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 *	2462.000	4.46	28.64	41.00	96.87	88.97	54.00 34.97 Average
2	2483.500	4.49	28.67	41.01	47.47	39.62	54.00 -14.38 Average
3	2489.969	4.50	28.68	41.01	47.69	39.86	54.00 -14.14 Average

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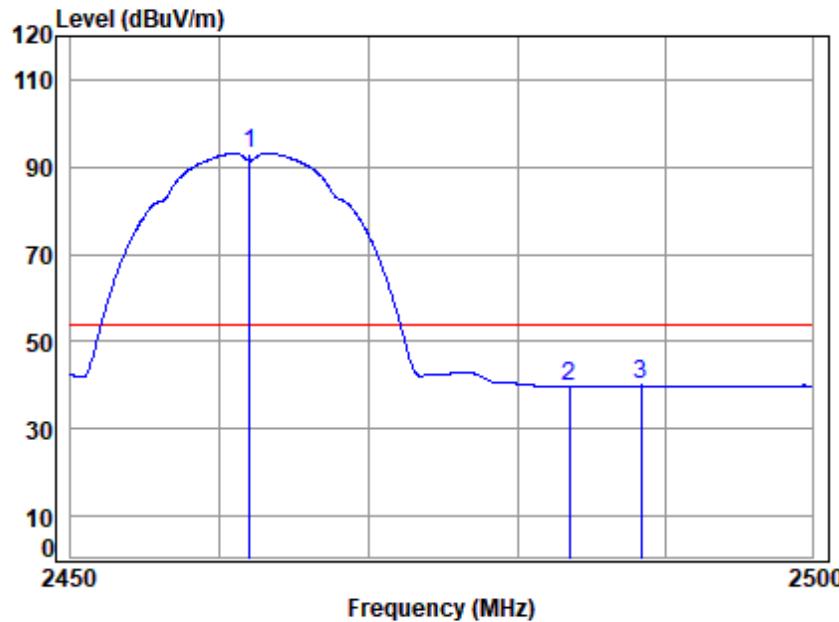
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level			
1 * 2462.000	4.46	28.64	41.00	103.77	95.87	74.00	21.87 peak
2 2483.500	4.49	28.67	41.01	55.65	47.80	74.00	-26.20 peak
3 2485.396	4.50	28.68	41.01	57.96	50.13	74.00	-23.87 peak

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Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 * 2462.000	4.46	28.64	41.00	101.05	93.15	54.00	39.15 Average
2 2483.500	4.49	28.67	41.01	47.63	39.78	54.00	-14.22 Average
3 2488.360	4.50	28.68	41.01	47.79	39.96	54.00	-14.04 Average

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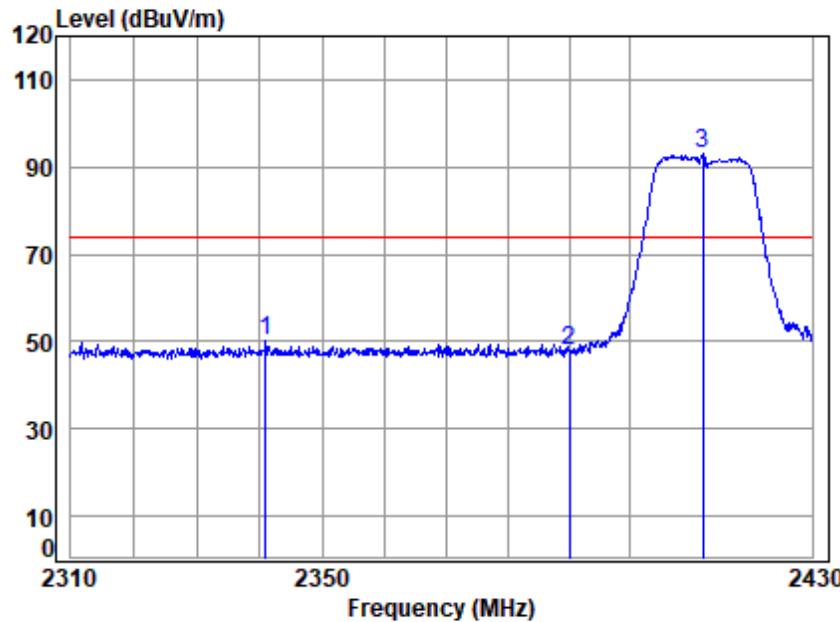
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



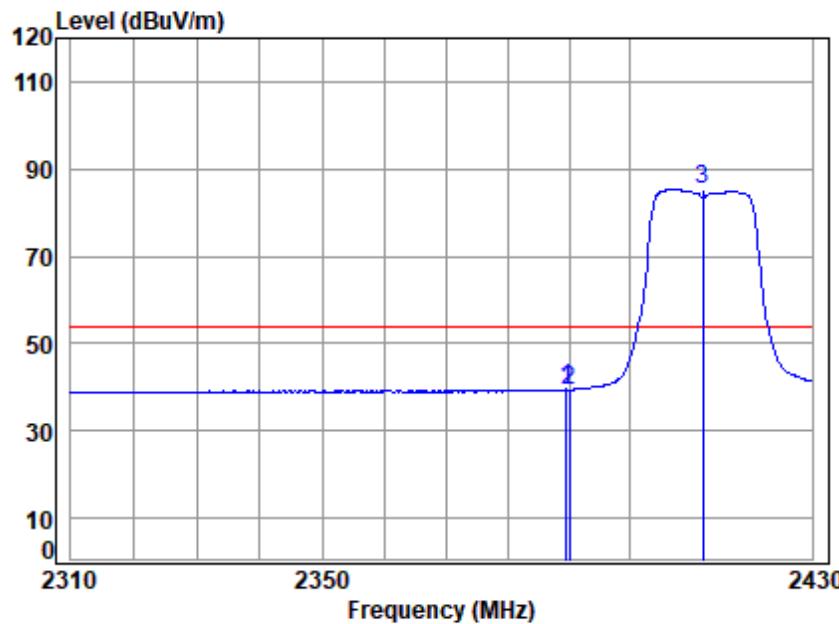
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2340.973	4.26	28.43	40.95	58.41	50.15	74.00 -23.85 peak
2	2390.000	4.34	28.52	40.97	56.22	48.11	74.00 -25.89 peak
3 *	2412.000	4.38	28.56	40.98	100.97	92.93	74.00 18.93 peak

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 2389.605	4.34	28.52	40.97	47.63	39.52	54.00	-14.48 Average
2 2390.000	4.34	28.52	40.97	47.40	39.29	54.00	-14.71 Average
3 * 2412.000	4.38	28.56	40.98	93.35	85.31	54.00	31.31 Average

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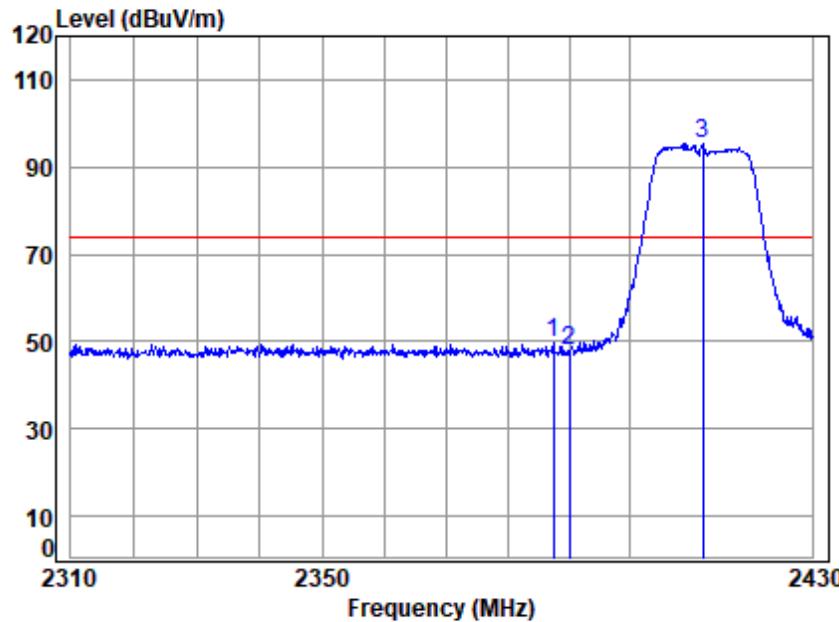
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Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



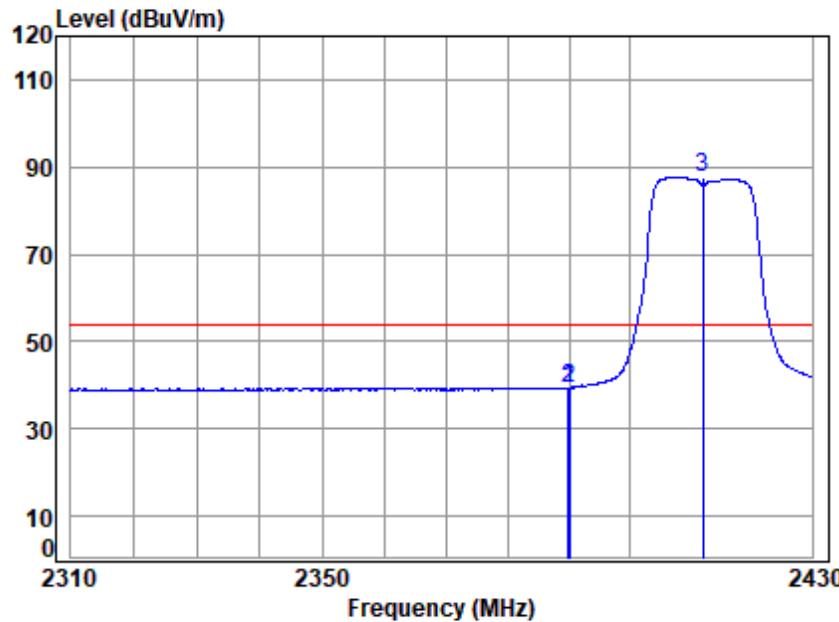
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2387.428	4.34	28.51	40.97	57.80	49.68	74.00 -24.32 peak
2	2390.000	4.34	28.52	40.97	56.19	48.08	74.00 -25.92 peak
3 *	2412.000	4.38	28.56	40.98	103.33	95.29	74.00 21.29 peak

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Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11G

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	2389.847	4.34	28.52	40.97	47.47	39.36	54.00 -14.64 Average
2	2390.000	4.34	28.52	40.97	47.45	39.34	54.00 -14.66 Average
3 *	2412.000	4.38	28.56	40.98	95.78	87.74	54.00 33.74 Average

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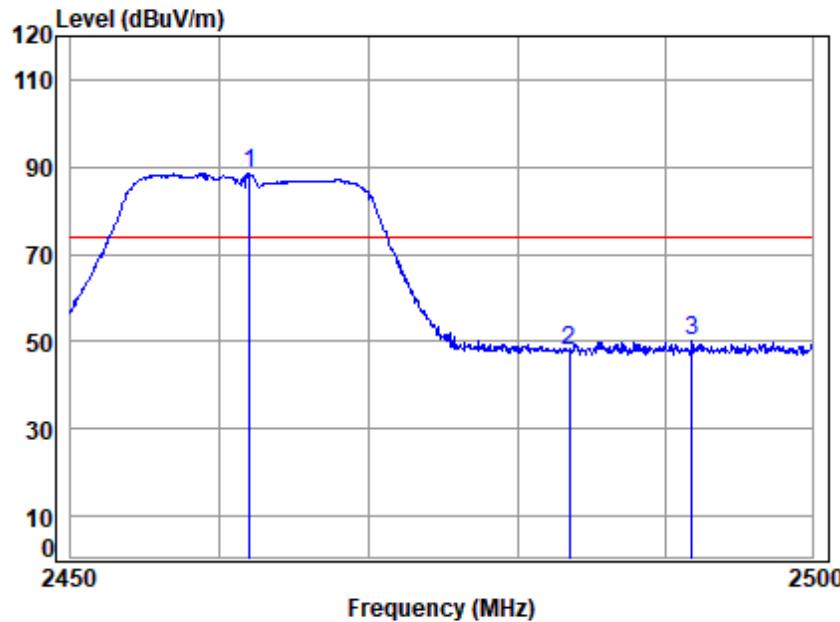
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



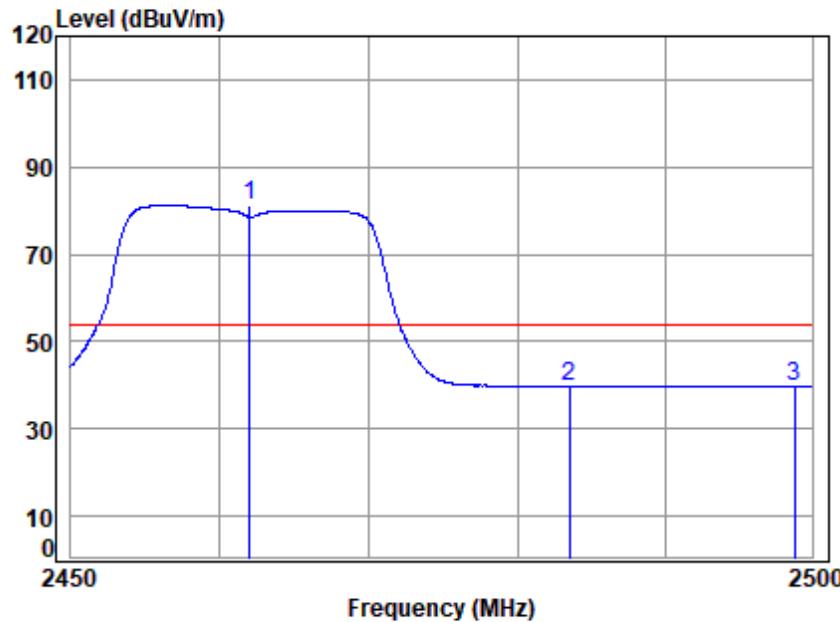
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 *	2462.000	4.46	28.64	41.00	96.35	88.45	74.00 14.45 peak
2	2483.500	4.49	28.67	41.01	55.71	47.86	74.00 -26.14 peak
3	2491.831	4.51	28.69	41.01	57.96	50.15	74.00 -23.85 peak

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



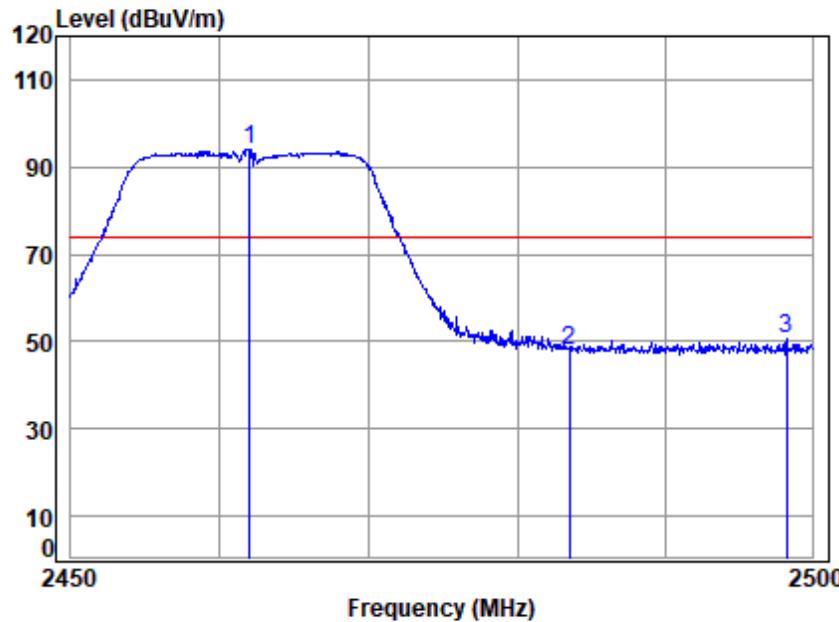
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 * 2462.000	4.46	28.64	41.00	89.08	81.18	54.00	27.18 Average
2 2483.500	4.49	28.67	41.01	47.43	39.58	54.00	-14.42 Average
3 2498.788	4.52	28.70	41.02	47.63	39.83	54.00	-14.17 Average

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Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 * 2462.000	4.46	28.64	41.00	102.06	94.16	74.00	20.16 peak
2 2483.500	4.49	28.67	41.01	55.77	47.92	74.00	-26.08 peak
3 2498.233	4.52	28.70	41.02	58.24	50.44	74.00	-23.56 peak

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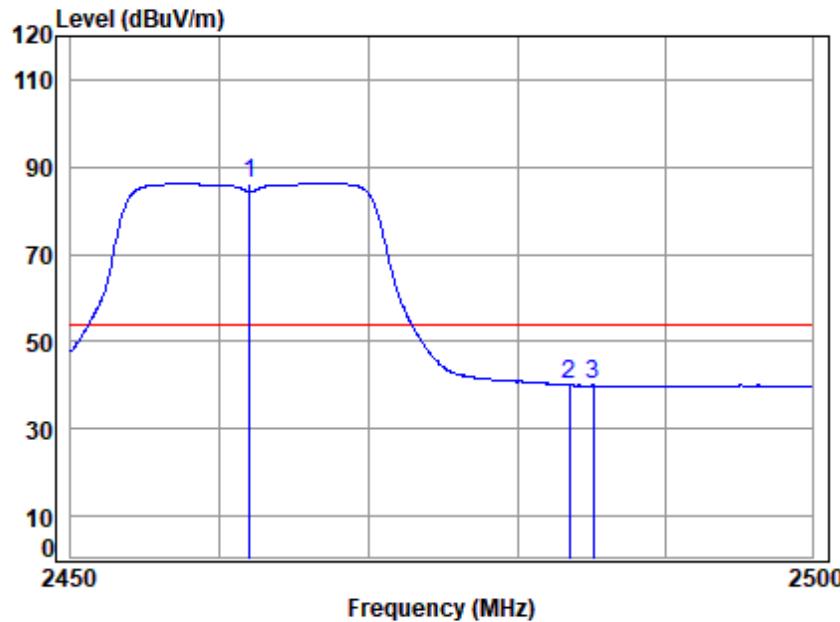
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Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



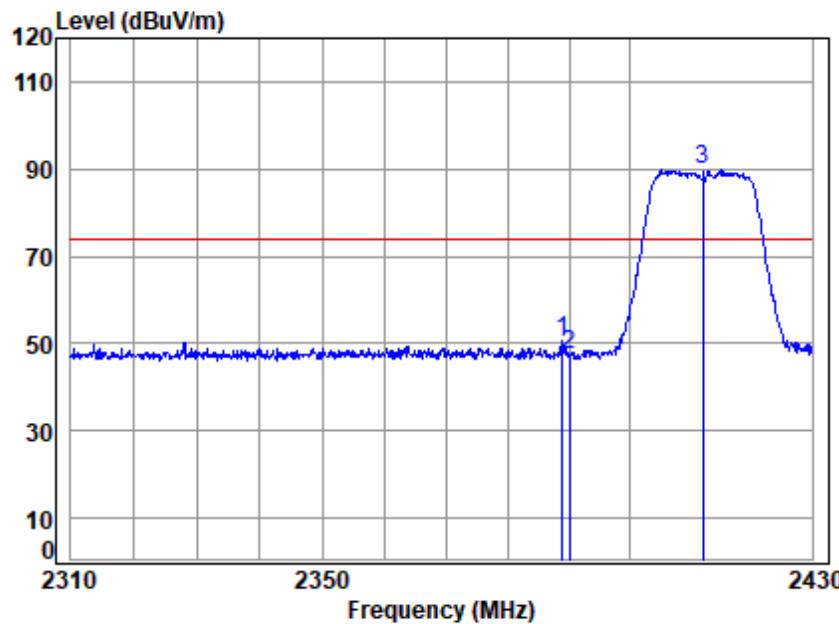
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 * 2462.000	4.46	28.64	41.00	94.25	86.35	54.00	32.35 Average
2 2483.500	4.49	28.67	41.01	47.86	40.01	54.00	-13.99 Average
3 2485.145	4.50	28.68	41.01	47.84	40.01	54.00	-13.99 Average

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



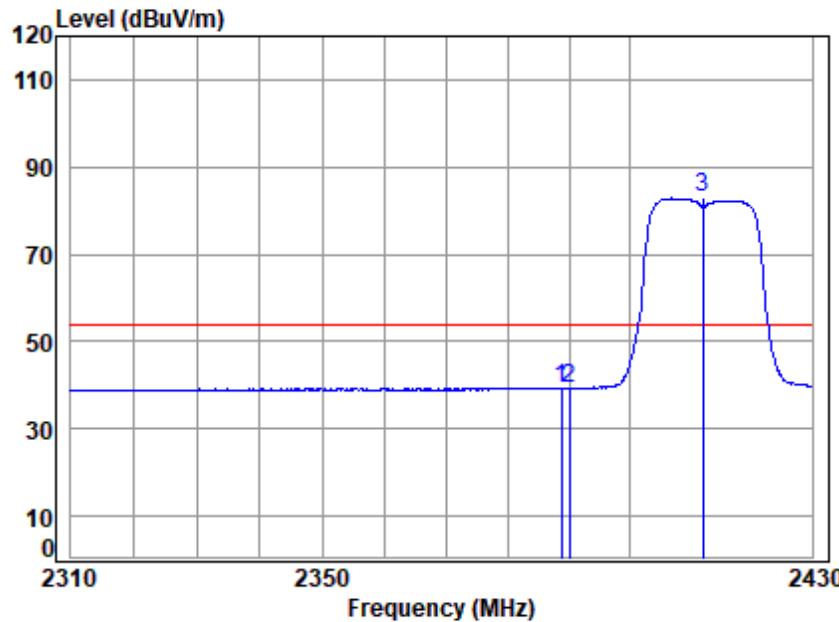
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2388.879	4.34	28.52	40.97	58.92	50.81	74.00 -23.19 peak
2	2390.000	4.34	28.52	40.97	55.37	47.26	74.00 -26.74 peak
3 *	2412.000	4.38	28.56	40.98	97.93	89.89	74.00 15.89 peak

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2388.758	4.34	28.52	40.97	47.36	39.25	54.00 -14.75 Average
2	2390.000	4.34	28.52	40.97	47.32	39.21	54.00 -14.79 Average
3 *	2412.000	4.38	28.56	40.98	90.86	82.82	54.00 28.82 Average

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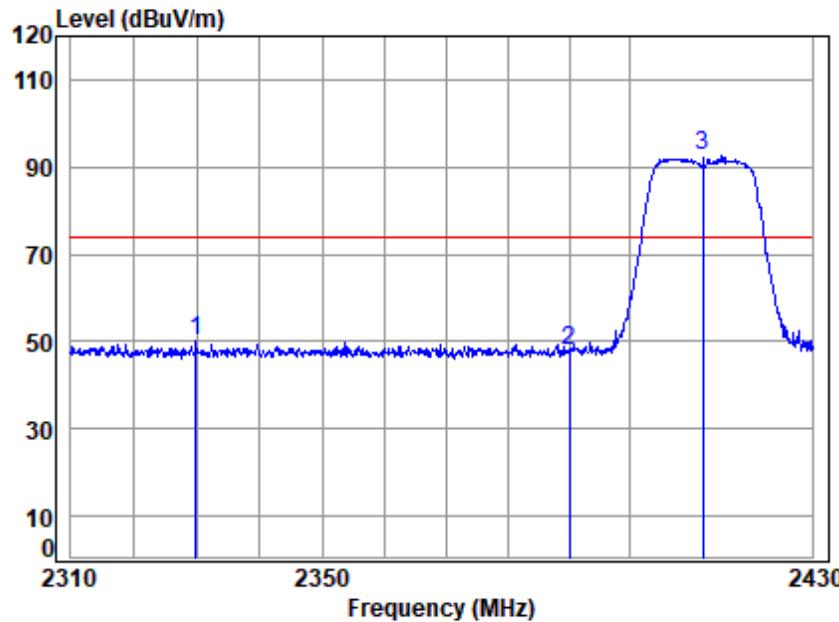
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2329.856	4.25	28.42	40.95	58.59	50.31	74.00 -23.69 peak
2	2390.000	4.34	28.52	40.97	56.07	47.96	74.00 -26.04 peak
3 *	2412.000	4.38	28.56	40.98	100.48	92.44	74.00 18.44 peak

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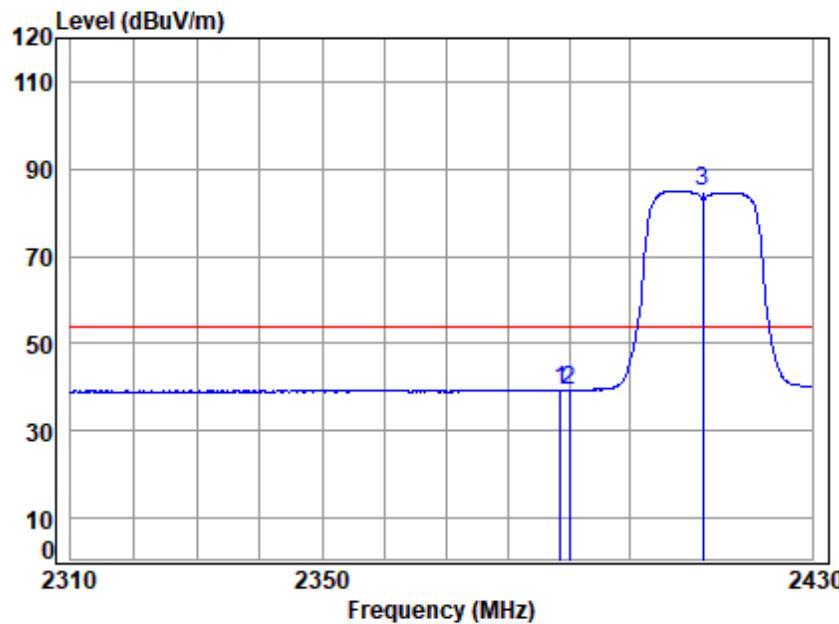
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2388.637	4.34	28.52	40.97	47.45	39.34	54.00 -14.66 Average
2	2390.000	4.34	28.52	40.97	47.29	39.18	54.00 -14.82 Average
3 *	2412.000	4.38	28.56	40.98	93.04	85.00	54.00 31.00 Average

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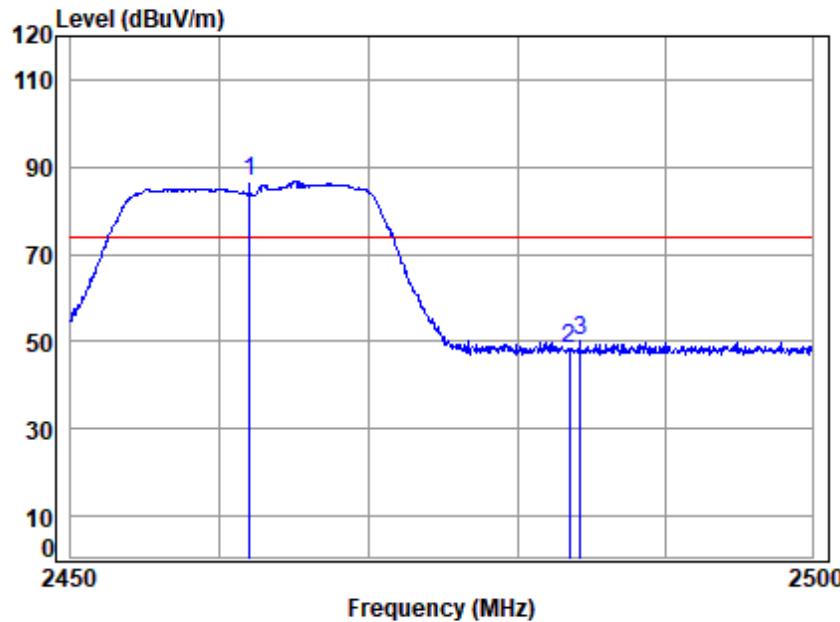
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



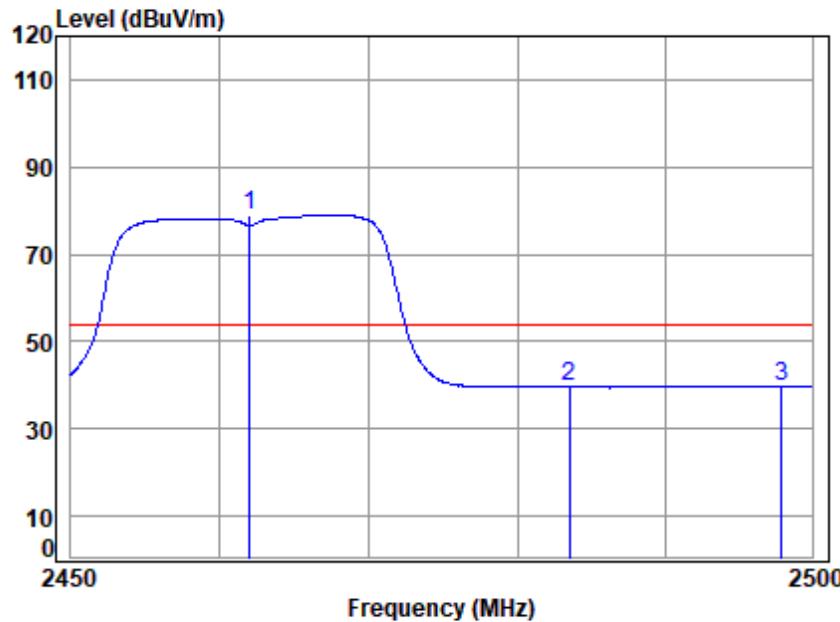
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 *	2462.000	4.46	28.64	41.00	94.61	86.71	74.00 12.71 peak
2	2483.500	4.49	28.67	41.01	56.25	48.40	74.00 -25.60 peak
3	2484.241	4.50	28.67	41.01	57.82	49.98	74.00 -24.02 peak

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



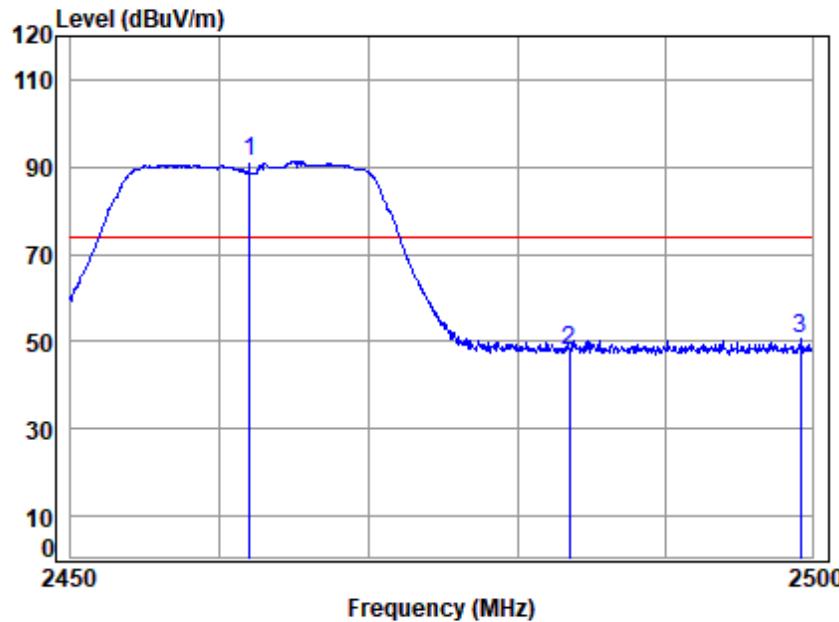
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 * 2462.000	4.46	28.64	41.00	86.94	79.04	54.00	25.04 Average
2 2483.500	4.49	28.67	41.01	47.38	39.53	54.00	-14.47 Average
3 2497.930	4.52	28.70	41.02	47.52	39.72	54.00	-14.28 Average

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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



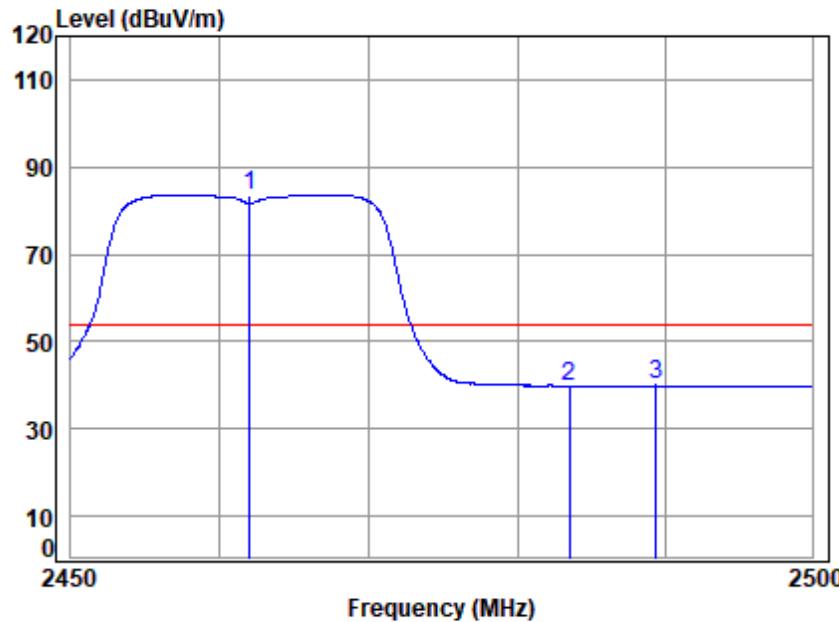
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 *	2462.000	4.46	28.64	41.00	99.32	91.42	74.00 17.42 peak
2	2483.500	4.49	28.67	41.01	55.94	48.09	74.00 -25.91 peak
3	2499.242	4.52	28.70	41.02	58.29	50.49	74.00 -23.51 peak

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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



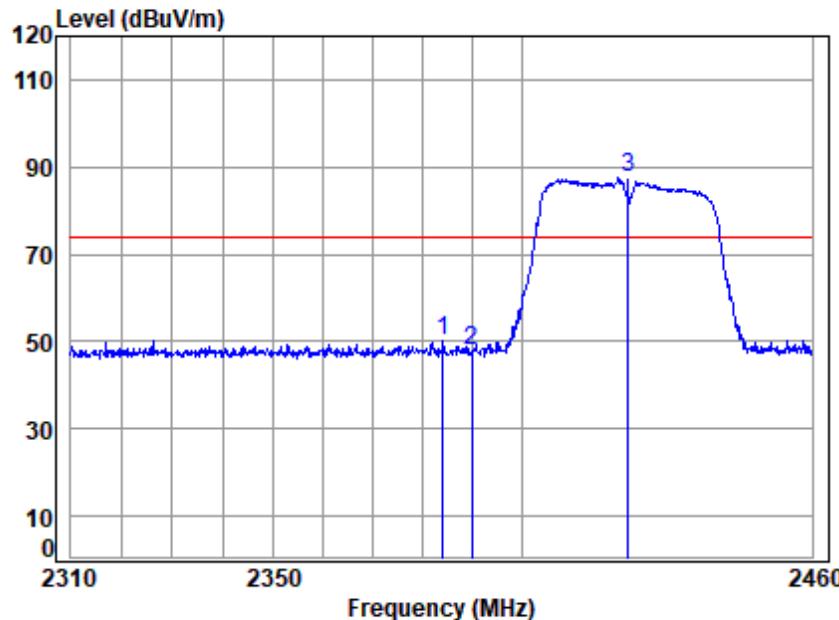
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 Band edge
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 *	2462.000	4.46	28.64	41.00	91.60	83.70	54.00 29.70 Average
2	2483.500	4.49	28.67	41.01	47.62	39.77	54.00 -14.23 Average
3	2489.366	4.50	28.68	41.01	47.76	39.93	54.00 -14.07 Average

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



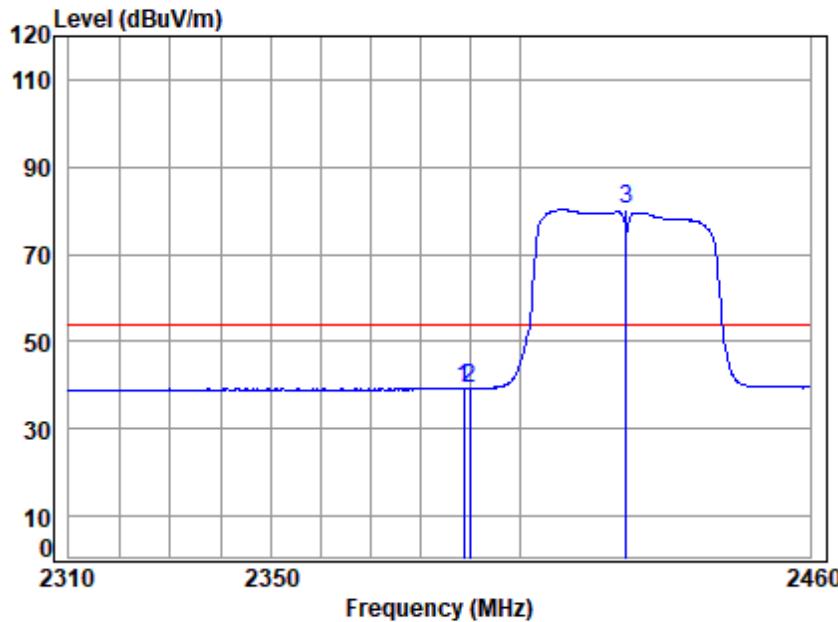
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level			
1	2384.120	4.33	28.51	40.97	58.40	50.27	74.00 -23.73 peak
2	2390.000	4.34	28.52	40.97	55.88	47.77	74.00 -26.23 peak
3 *	2422.000	4.40	28.57	40.99	95.61	87.59	74.00 13.59 peak

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



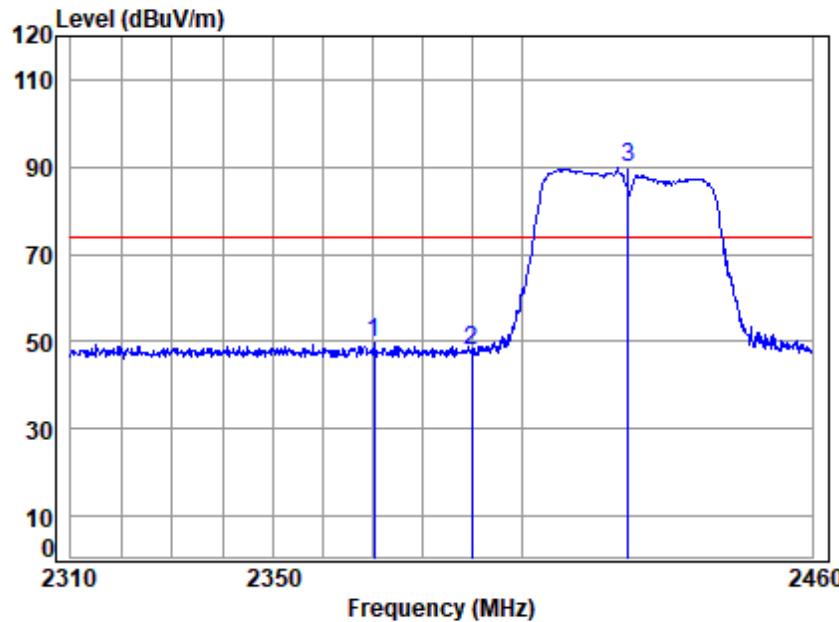
Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2388.775	4.34	28.52	40.97	47.42	39.31	54.00 -14.69 Average
2	2390.000	4.34	28.52	40.97	47.30	39.19	54.00 -14.81 Average
3 *	2422.000	4.40	28.57	40.99	88.23	80.21	54.00 26.21 Average

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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



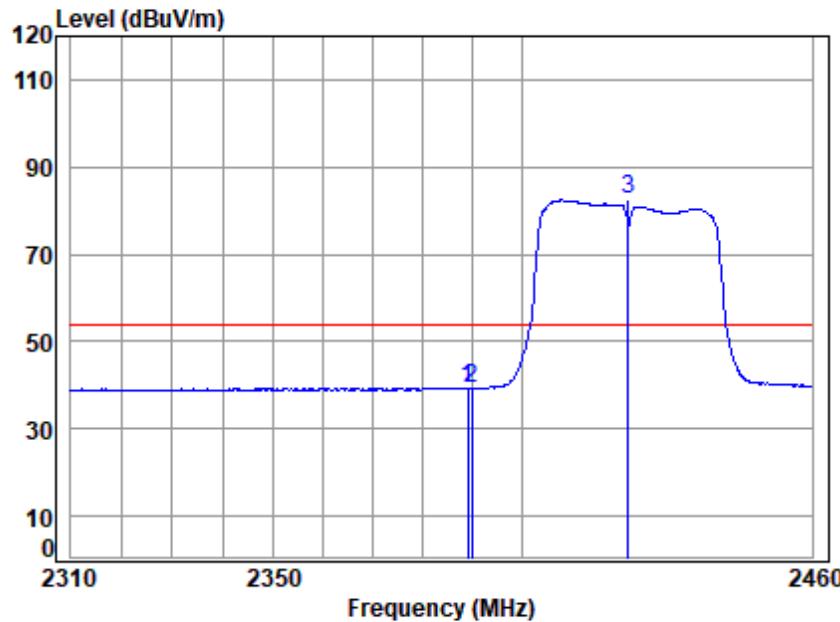
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2370.212	4.31	28.48	40.96	57.75	49.58	74.00 -24.42 peak
2	2390.000	4.34	28.52	40.97	55.98	47.87	74.00 -26.13 peak
3 *	2422.000	4.40	28.57	40.99	97.69	89.67	74.00 15.67 peak

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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



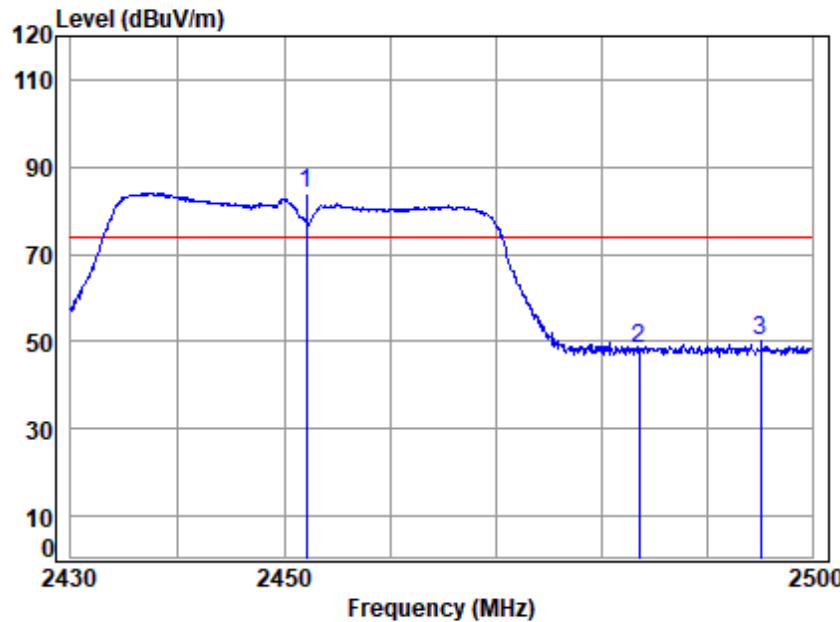
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2422 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	2389.075	4.34	28.52	40.97	47.41	39.30	54.00 -14.70 Average
2	2390.000	4.34	28.52	40.97	47.33	39.22	54.00 -14.78 Average
3 *	2422.000	4.40	28.57	40.99	90.40	82.38	54.00 28.38 Average

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

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 *	2452.000	4.44	28.62	41.00	92.09	84.15	74.00 10.15 peak
2	2483.500	4.49	28.67	41.01	56.15	48.30	74.00 -25.70 peak
3	2495.106	4.51	28.69	41.02	58.04	50.22	74.00 -23.78 peak

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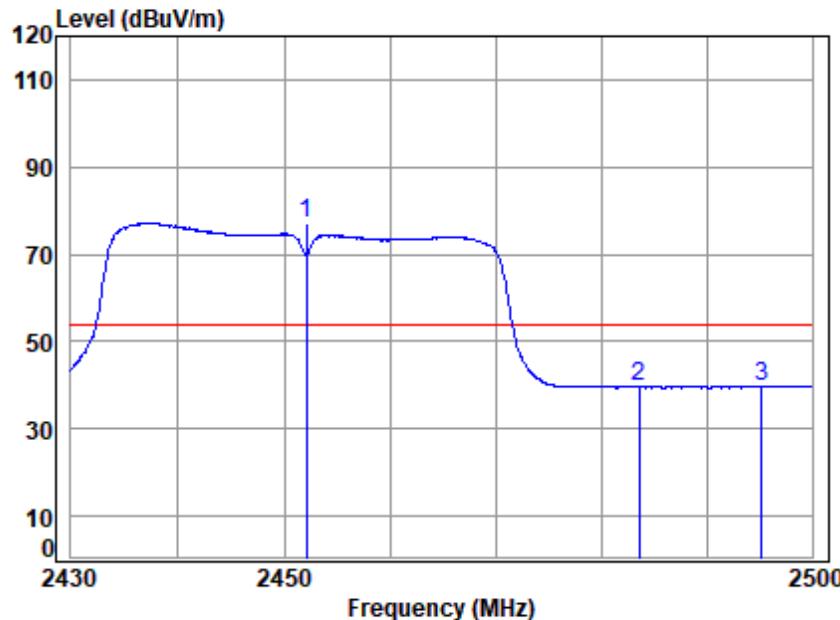
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 *	2452.000	4.44	28.62	41.00	85.01	77.07	54.00 23.07 Average
2	2483.500	4.49	28.67	41.01	47.38	39.53	54.00 -14.47 Average
3	2495.177	4.51	28.69	41.02	47.54	39.72	54.00 -14.28 Average

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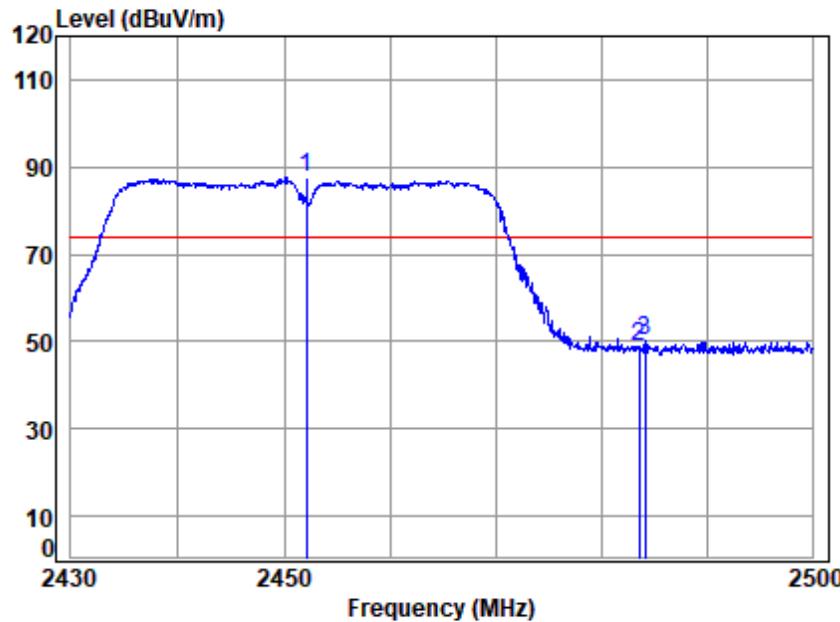
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



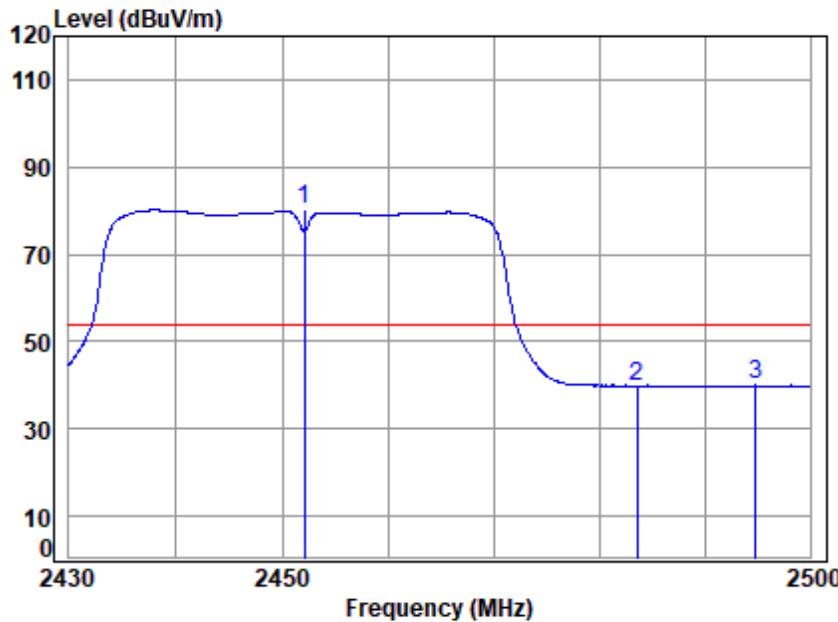
Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 * 2452.000	4.44	28.62	41.00	95.66	87.72	74.00	13.72 peak
2 2483.500	4.49	28.67	41.01	56.57	48.72	74.00	-25.28 peak
3 2484.076	4.50	28.67	41.01	58.20	50.36	74.00	-23.64 peak

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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2452 Band edge
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1 * 2452.000	4.44	28.62	41.00	88.08	80.14	54.00	26.14 Average
2 2483.500	4.49	28.67	41.01	47.72	39.87	54.00	-14.13 Average
3 2494.752	4.51	28.69	41.02	47.78	39.96	54.00	-14.04 Average

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7.2 Radiated Spurious Emissions

Test Requirement 47 CFR Part 15, Subpart C 15.247

Test Method: ANSI C63.10 (2013) Section 6.4,6.5,6.6

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.

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.5 °C

Humidity: 56.2 % RH

Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	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.

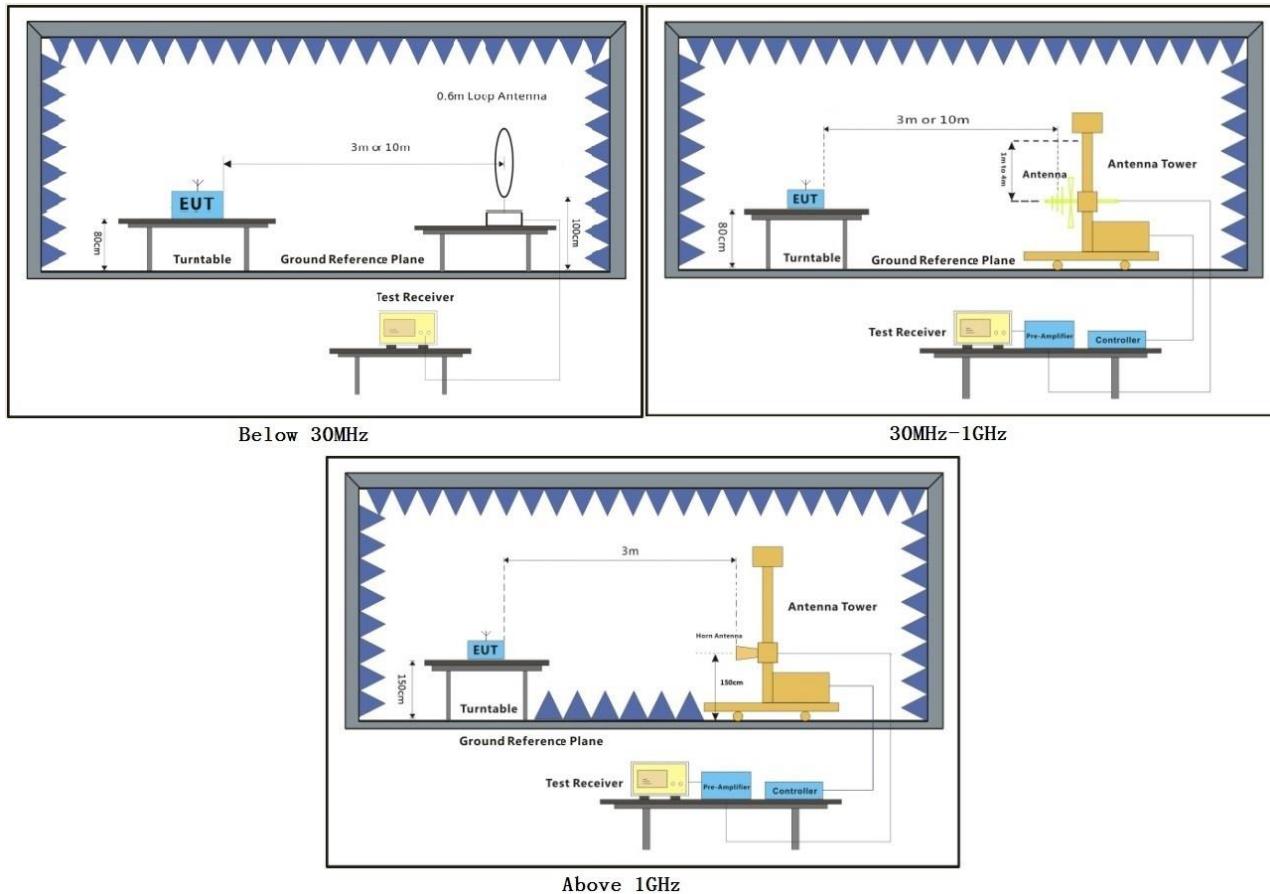
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7.2.3 Test Setup Diagram

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7.2.4 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 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. 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.
- c. 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.
- d. 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.
- e. 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.
- f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.
- g. 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.
- h. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- i. 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.
- j. Repeat above procedures until all frequencies measured was complete.

Remark:

- 1) For emission below 1GHz, through pre-scan found the worst case is the lowest channel. Only the worst case is recorded in the report.
- 2) The field strength is calculated by adding the Antenna Factor, Cable Factor & Preamplifier. The basic equation with a sample calculation is as follows:

Final Test Level =Receiver Reading + Antenna Factor + Cable Factor - Preamplifier Factor

3) Scan from 9kHz to 25GHz, the disturbance above 18GHz and 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.

4) 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.

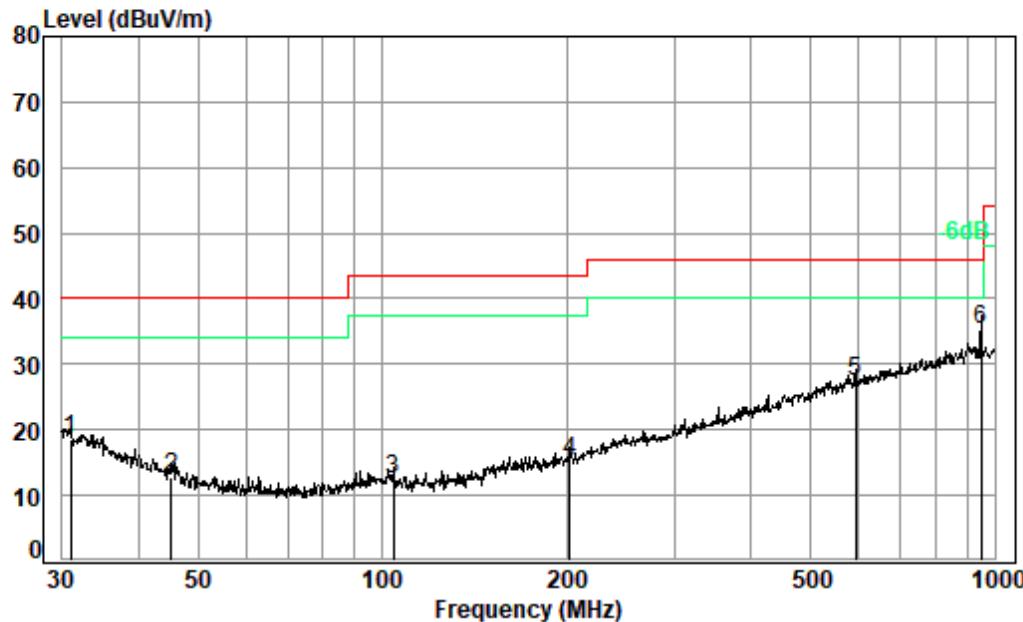
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Test Mode: 01; Polarity: Horizontal;



Condition: 3m HORIZONTAL

Job No. : 08852CR

Test mode: 01

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark	
	Loss	Factor	Factor	Level				
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB
1	30.96	0.61	21.95	27.73	23.66	18.49	40.00	-21.51 QP
2	45.22	0.70	15.69	27.69	24.22	12.92	40.00	-27.08 QP
3	104.17	1.11	13.80	27.58	25.00	12.33	43.50	-31.17 QP
4	202.10	1.22	16.58	27.14	24.53	15.19	43.50	-28.31 QP
5	593.05	2.69	26.47	28.11	26.21	27.26	46.00	-18.74 QP
6 pp	948.76	3.55	30.05	26.91	28.59	35.28	46.00	-10.72 QP

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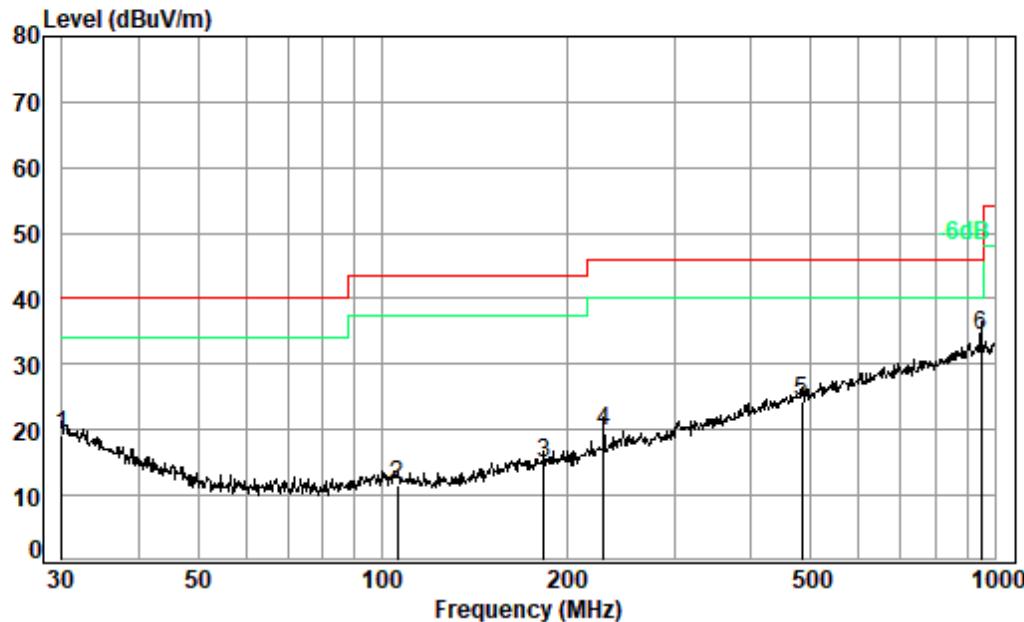
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Test Mode: 01; Polarity: Vertical;



Condition: 3m VERTICAL

Job No. : 08852CR

Test mode: 01

Freq	Cable Loss		Ant Factor		Preamp Factor		Read Level	Limit Level	Line Limit	Over Limit	Remark
	MHz	dB	dB/m				dBuV	dBuV/m	dBuV/m		
1	30.00	0.60	22.50	27.74	23.86	19.22	40.00	-20.78	QP		
2	106.01	1.11	13.71	27.57	24.35	11.60	43.50	-31.90	QP		
3	183.84	1.19	16.02	27.20	24.83	14.84	43.50	-28.66	QP		
4	230.10	1.48	18.03	27.05	27.31	19.77	46.00	-26.23	QP		
5	483.91	2.47	24.28	27.74	25.36	24.37	46.00	-21.63	QP		
6 pp	948.76	3.55	30.05	26.91	27.77	34.46	46.00	-11.54	QP		

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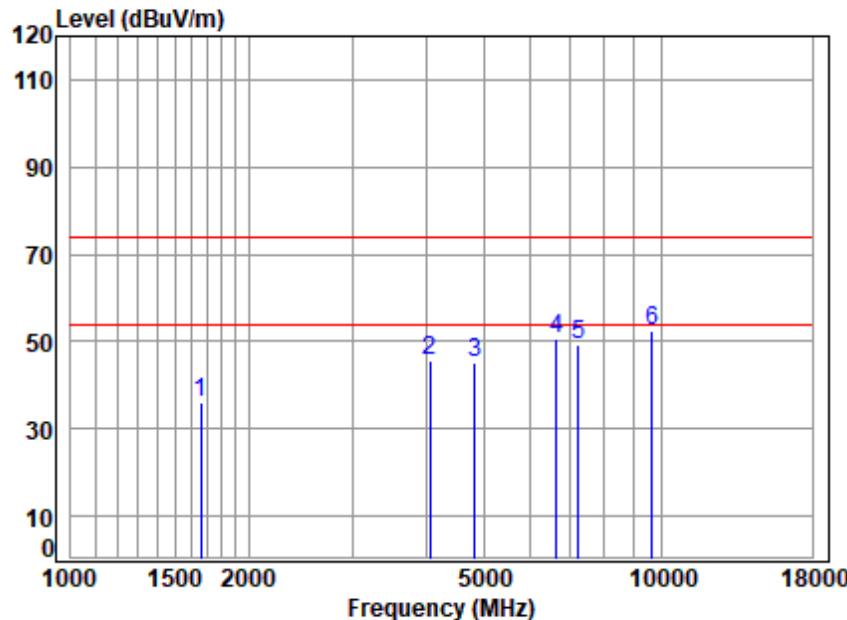
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 TX SE
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1663.137	3.40	26.52	40.61	46.86	36.17	74.00 -37.83 peak
2	4062.629	6.34	32.82	42.21	48.71	45.66	74.00 -28.34 peak
3	4824.000	7.12	34.00	42.78	46.84	45.18	74.00 -28.82 peak
4	6640.542	8.36	35.69	41.87	48.44	50.62	74.00 -23.38 peak
5	7236.000	8.77	36.09	41.56	45.84	49.14	74.00 -24.86 peak
6	9648.000	10.79	37.69	38.51	42.55	52.52	74.00 -21.48 peak

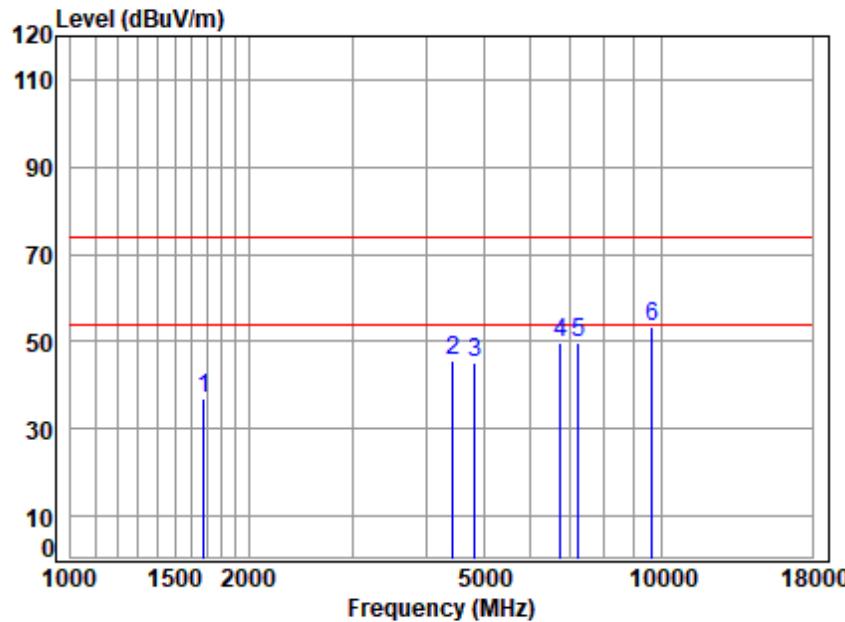
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Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 TX SE
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1677.621	3.41	26.58	40.62	47.71	37.08	74.00 -36.92 peak
2	4443.453	6.71	33.50	42.51	48.00	45.70	74.00 -28.30 peak
3	4824.000	7.12	34.00	42.78	46.67	45.01	74.00 -28.99 peak
4	6737.207	8.41	35.75	41.82	47.40	49.74	74.00 -24.26 peak
5	7236.000	8.77	36.09	41.56	46.33	49.63	74.00 -24.37 peak
6	9648.000	10.79	37.69	38.51	43.26	53.23	74.00 -20.77 peak

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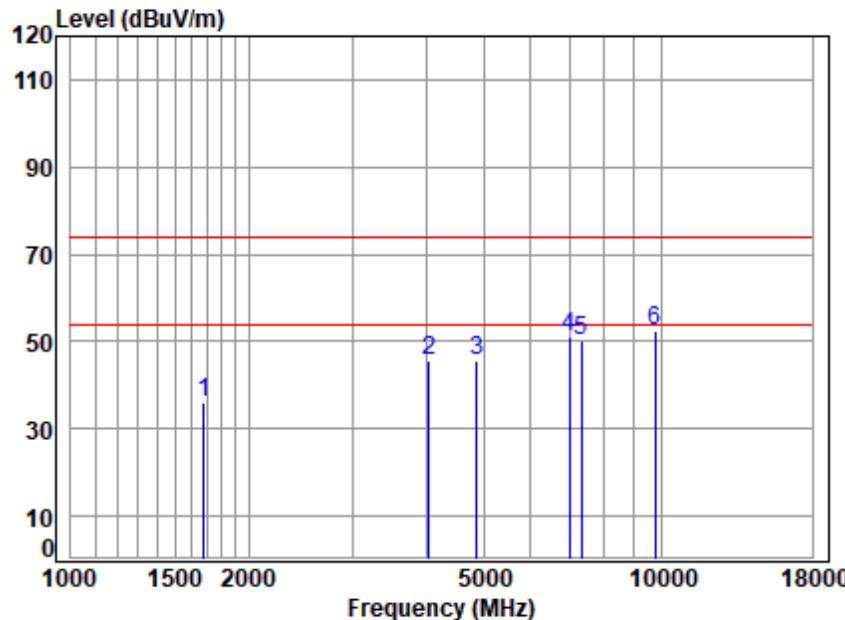
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1677.621	3.41	26.58	40.62	46.62	35.99	74.00 -38.01 peak
2	4039.212	6.32	32.77	42.19	48.81	45.71	74.00 -28.29 peak
3	4874.000	7.17	34.05	42.82	47.02	45.42	74.00 -28.58 peak
4	6995.172	8.54	35.90	41.69	48.58	51.33	74.00 -22.67 peak
5	7311.000	8.84	36.15	41.53	46.86	50.32	74.00 -23.68 peak
6	9748.000	10.76	37.75	38.37	42.36	52.50	74.00 -21.50 peak

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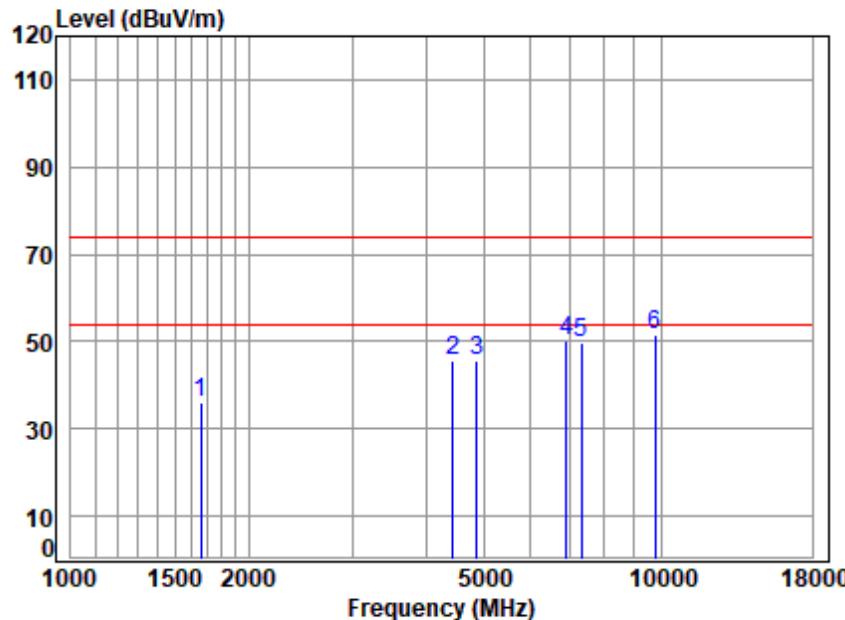
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Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1663.137	3.40	26.52	40.61	46.81	36.12	74.00 -37.88 peak
2	4430.628	6.70	33.48	42.50	47.75	45.43	74.00 -28.57 peak
3	4874.000	7.17	34.05	42.82	47.38	45.78	74.00 -28.22 peak
4	6914.763	8.50	35.85	41.73	47.49	50.11	74.00 -23.89 peak
5	7311.000	8.84	36.15	41.53	46.44	49.90	74.00 -24.10 peak
6	9748.000	10.76	37.75	38.37	41.62	51.76	74.00 -22.24 peak

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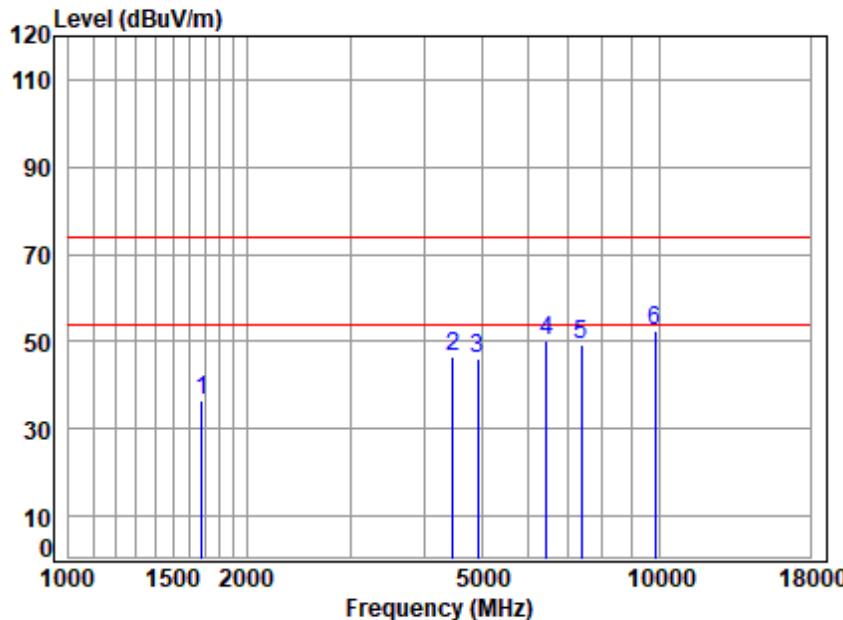
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 TX SE
Note : 2.4G WIFI 11B

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1682.477	3.42	26.60	40.62	47.32	36.72	74.00 -37.28 peak
2	4469.214	6.73	33.55	42.53	48.72	46.47	74.00 -27.53 peak
3	4924.000	7.22	34.11	42.85	47.59	46.07	74.00 -27.93 peak
4	6451.353	8.28	35.55	41.98	48.20	50.05	74.00 -23.95 peak
5	7386.000	8.91	36.21	41.49	45.66	49.29	74.00 -24.71 peak
6	9848.000	10.73	37.81	38.22	42.34	52.66	74.00 -21.34 peak

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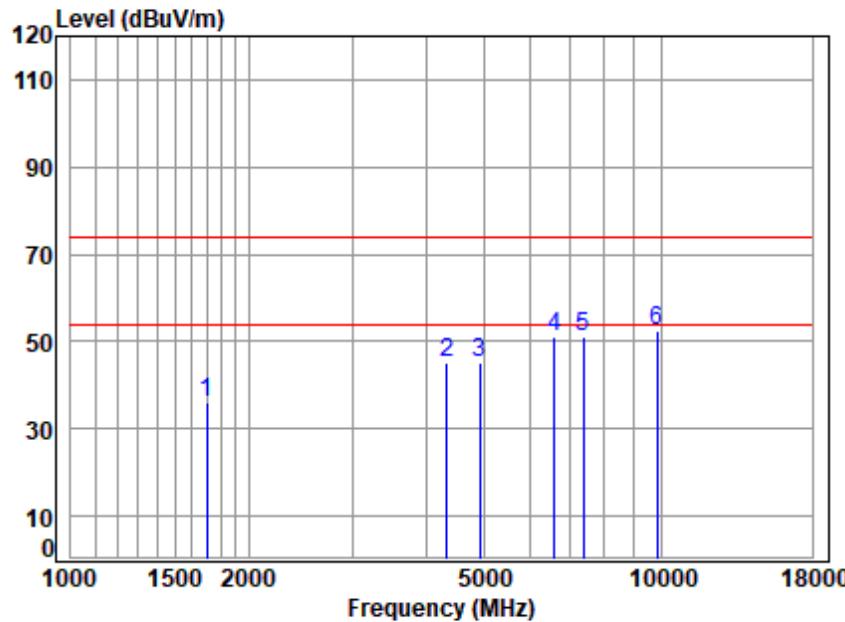
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Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 TX SE
Note : 2.4G WIFI 11B

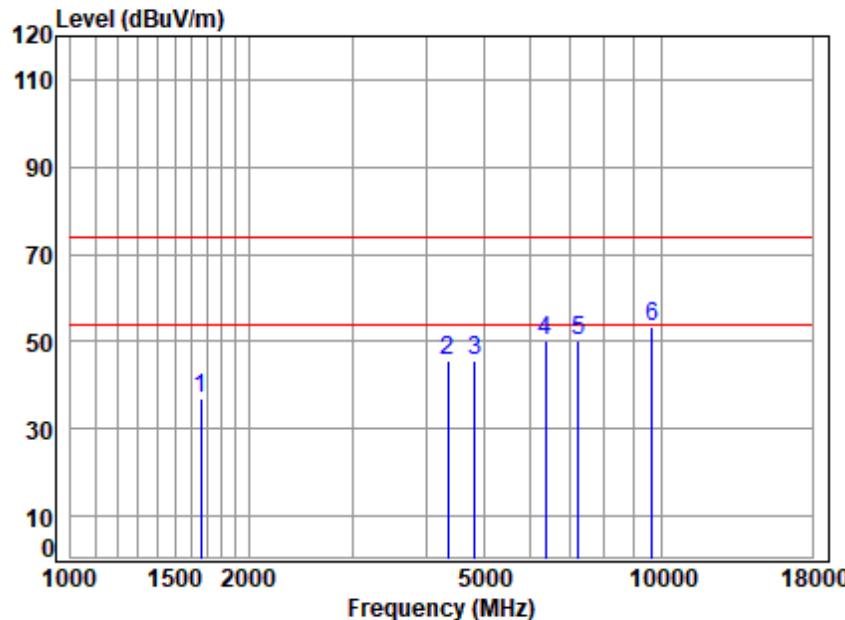
Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1702.042	3.43	26.68	40.63	46.40	35.88	74.00 -38.12 peak
2	4329.354	6.60	33.30	42.42	47.82	45.30	74.00 -28.70 peak
3	4924.000	7.22	34.11	42.85	46.77	45.25	74.00 -28.75 peak
4	6583.209	8.32	35.65	41.91	48.89	50.95	74.00 -23.05 peak
5	7386.000	8.91	36.21	41.49	47.46	51.09	74.00 -22.91 peak
6	9848.000	10.73	37.81	38.22	41.93	52.25	74.00 -21.75 peak

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Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1663.137	3.40	26.52	40.61	47.50	36.81	74.00 -37.19 peak
2	4354.454	6.63	33.35	42.44	47.96	45.50	74.00 -28.50 peak
3	4824.000	7.12	34.00	42.78	47.36	45.70	74.00 -28.30 peak
4	6377.195	8.28	35.48	42.02	48.33	50.07	74.00 -23.93 peak
5	7236.000	8.77	36.09	41.56	46.79	50.09	74.00 -23.91 peak
6	9648.000	10.79	37.69	38.51	43.49	53.46	74.00 -20.54 peak

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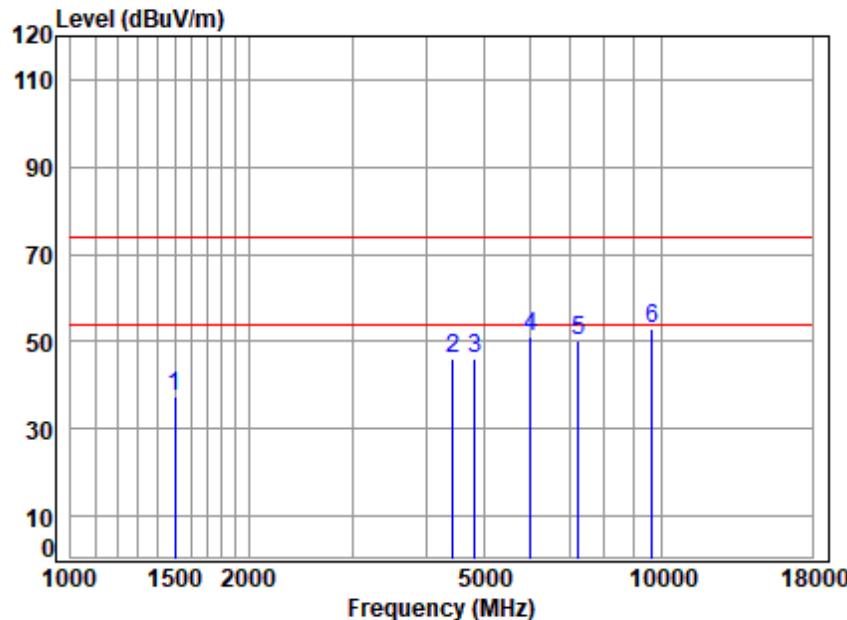
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Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1498.781	3.26	25.80	40.51	48.82	37.37	74.00 -36.63 peak
2	4443.453	6.71	33.50	42.51	48.18	45.88	74.00 -28.12 peak
3	4824.000	7.12	34.00	42.78	47.74	46.08	74.00 -27.92 peak
4	6001.626	8.26	35.10	42.24	50.10	51.22	74.00 -22.78 peak
5	7236.000	8.77	36.09	41.56	46.84	50.14	74.00 -23.86 peak
6	9648.000	10.79	37.69	38.51	43.01	52.98	74.00 -21.02 peak

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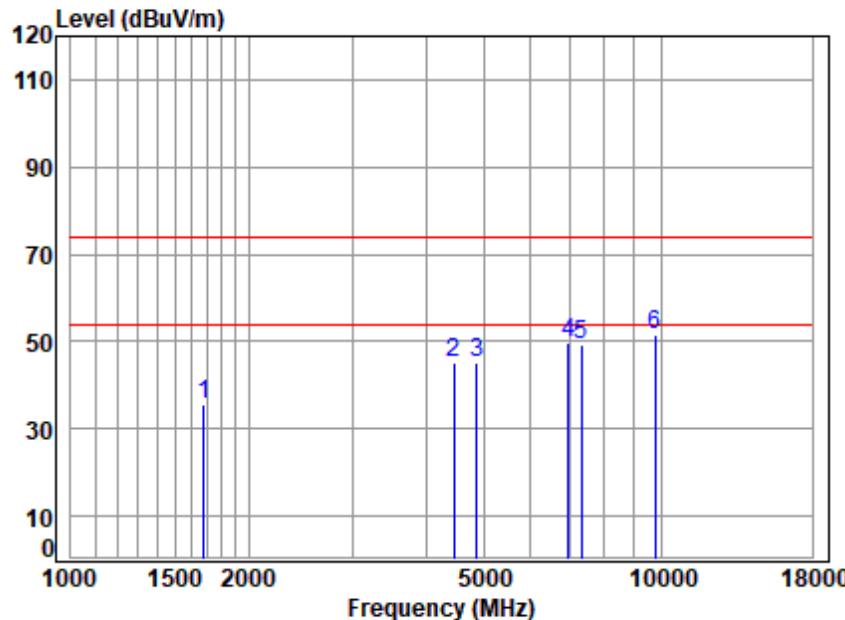
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1682.477	3.42	26.60	40.62	46.02	35.42	74.00 -38.58 peak
2	4456.315	6.72	33.53	42.52	47.43	45.16	74.00 -28.84 peak
3	4874.000	7.17	34.05	42.82	46.80	45.20	74.00 -28.80 peak
4	6954.852	8.52	35.87	41.71	47.26	49.94	74.00 -24.06 peak
5	7311.000	8.84	36.15	41.53	45.89	49.35	74.00 -24.65 peak
6	9748.000	10.76	37.75	38.37	41.28	51.42	74.00 -22.58 peak

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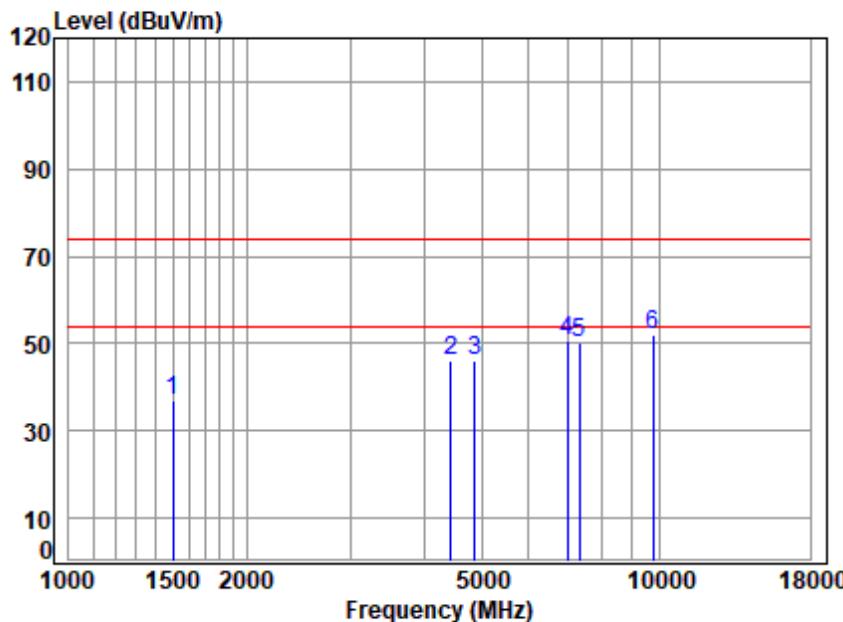
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Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1498.781	3.26	25.80	40.51	48.23	36.78	74.00 -37.22 peak
2	4443.453	6.71	33.50	42.51	48.38	46.08	74.00 -27.92 peak
3	4874.000	7.17	34.05	42.82	47.54	45.94	74.00 -28.06 peak
4	6974.982	8.53	35.89	41.70	47.98	50.70	74.00 -23.30 peak
5	7311.000	8.84	36.15	41.53	46.75	50.21	74.00 -23.79 peak
6	9748.000	10.76	37.75	38.37	41.78	51.92	74.00 -22.08 peak

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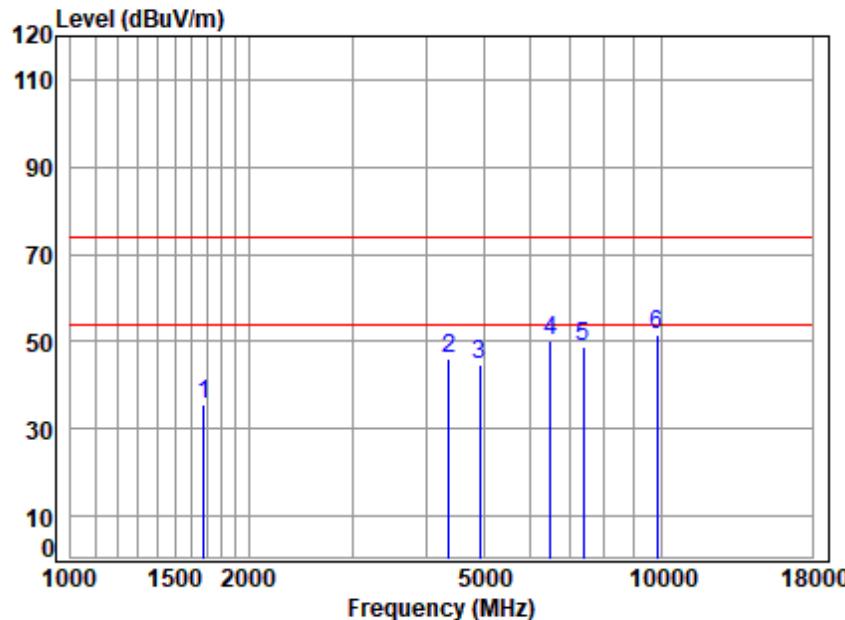
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1677.621	3.41	26.58	40.62	46.33	35.70	74.00 -38.30 peak
2	4367.058	6.64	33.37	42.45	48.68	46.24	74.00 -27.76 peak
3	4924.000	7.22	34.11	42.85	46.04	44.52	74.00 -29.48 peak
4	6488.754	8.28	35.59	41.96	48.10	50.01	74.00 -23.99 peak
5	7386.000	8.91	36.21	41.49	45.34	48.97	74.00 -25.03 peak
6	9848.000	10.73	37.81	38.22	41.40	51.72	74.00 -22.28 peak

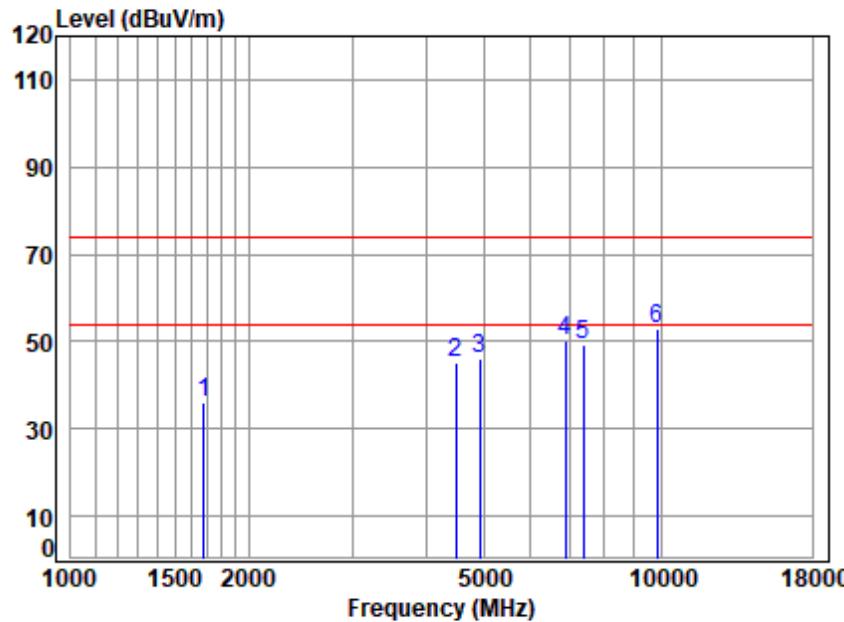
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Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 TX SE
Note : 2.4G WIFI 11G

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1677.621	3.41	26.58	40.62	46.87	36.24	74.00 -37.76 peak
2	4495.125	6.76	33.59	42.55	47.41	45.21	74.00 -28.79 peak
3	4924.000	7.22	34.11	42.85	47.58	46.06	74.00 -27.94 peak
4	6874.906	8.48	35.83	41.75	47.57	50.13	74.00 -23.87 peak
5	7386.000	8.91	36.21	41.49	45.77	49.40	74.00 -24.60 peak
6	9848.000	10.73	37.81	38.22	42.70	53.02	74.00 -20.98 peak

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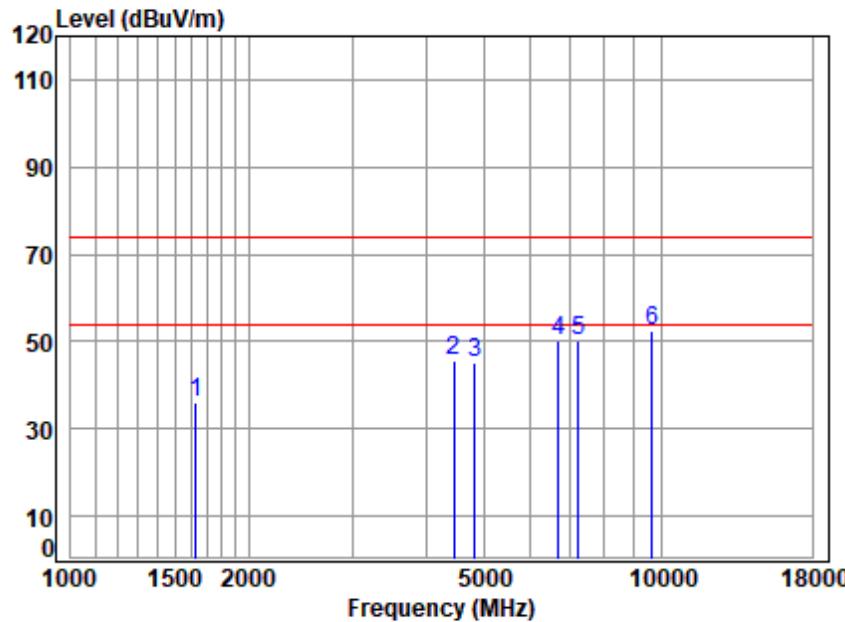
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2412 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1629.825	3.37	26.38	40.59	46.84	36.00	74.00 -38.00 peak
2	4456.315	6.72	33.53	42.52	47.89	45.62	74.00 -28.38 peak
3	4824.000	7.12	34.00	42.78	46.93	45.27	74.00 -28.73 peak
4	6698.373	8.39	35.72	41.84	48.14	50.41	74.00 -23.59 peak
5	7236.000	8.77	36.09	41.56	47.12	50.42	74.00 -23.58 peak
6	9648.000	10.79	37.69	38.51	42.72	52.69	74.00 -21.31 peak

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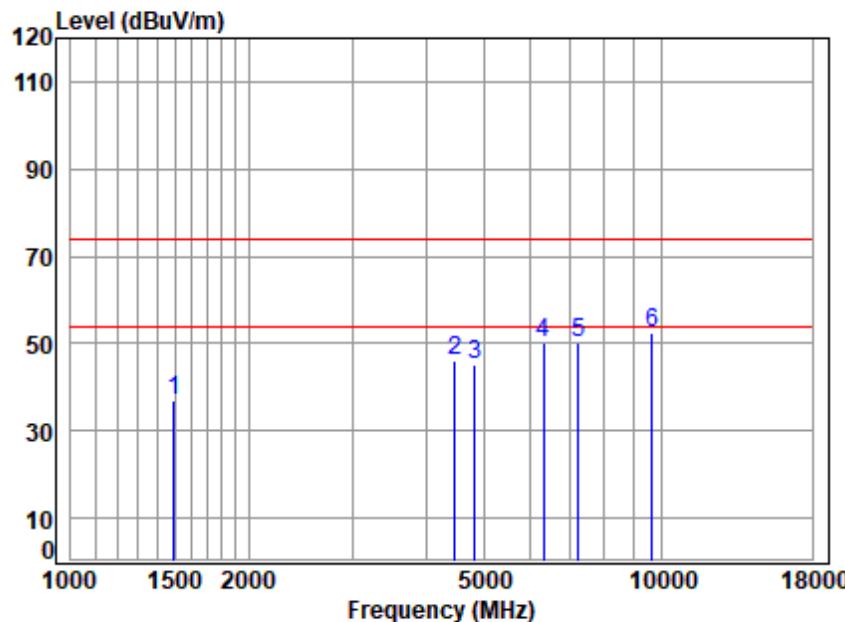
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2412 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1494.455	3.25	25.78	40.50	48.64	37.17	74.00 -36.83 peak
2	4469.214	6.73	33.55	42.53	48.41	46.16	74.00 -27.84 peak
3	4824.000	7.12	34.00	42.78	47.02	45.36	74.00 -28.64 peak
4	6322.136	8.27	35.43	42.05	48.74	50.39	74.00 -23.61 peak
5	7236.000	8.77	36.09	41.56	46.71	50.01	74.00 -23.99 peak
6	9648.000	10.79	37.69	38.51	42.56	52.53	74.00 -21.47 peak

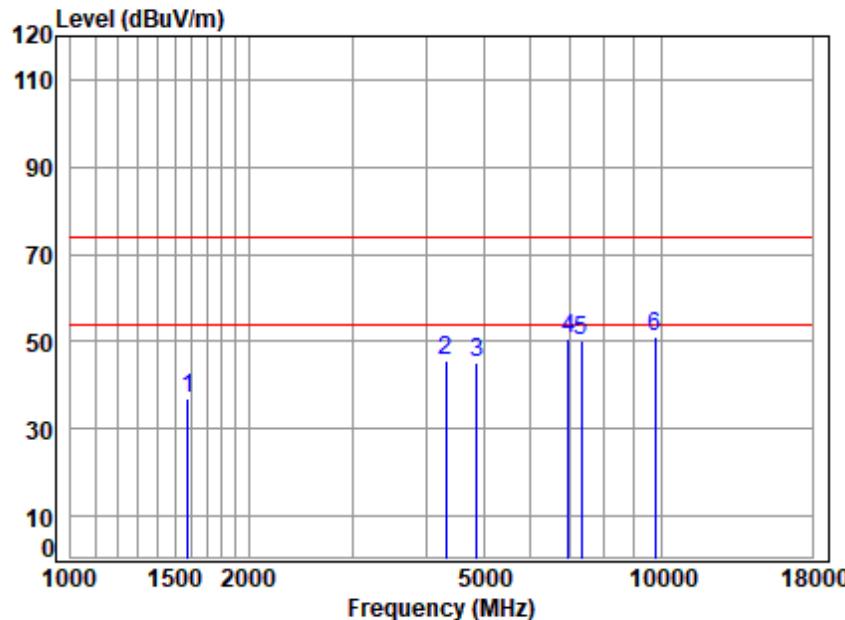
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1578.822	3.33	26.16	40.56	48.04	36.97	74.00 -37.03 peak
2	4316.859	6.59	33.28	42.41	48.17	45.63	74.00 -28.37 peak
3	4874.000	7.17	34.05	42.82	46.77	45.17	74.00 -28.83 peak
4	6954.852	8.52	35.87	41.71	47.90	50.58	74.00 -23.42 peak
5	7311.000	8.84	36.15	41.53	46.77	50.23	74.00 -23.77 peak
6	9748.000	10.76	37.75	38.37	41.05	51.19	74.00 -22.81 peak

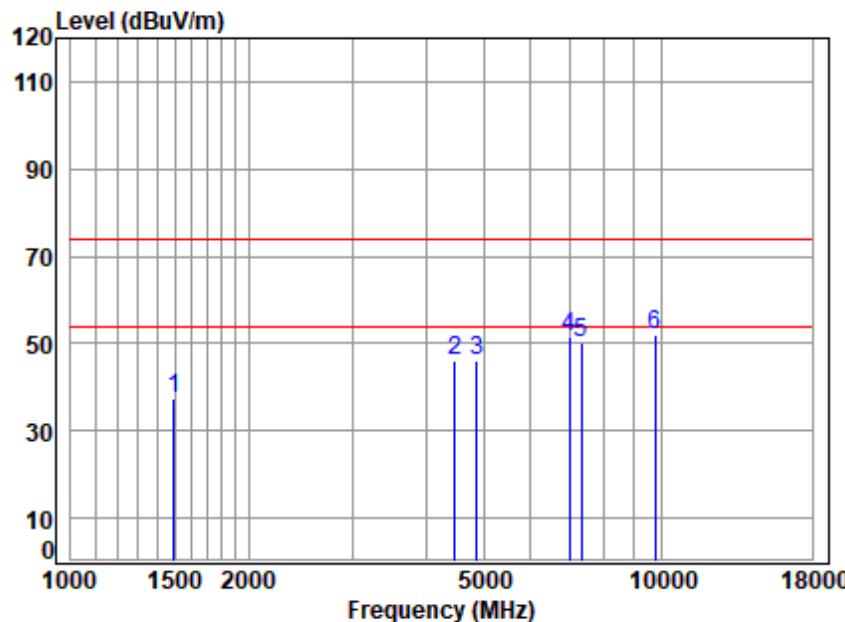
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1494.455	3.25	25.78	40.50	48.89	37.42	74.00 -36.58 peak
2	4469.214	6.73	33.55	42.53	48.36	46.11	74.00 -27.89 peak
3	4874.000	7.17	34.05	42.82	47.73	46.13	74.00 -27.87 peak
4	6995.172	8.54	35.90	41.69	48.73	51.48	74.00 -22.52 peak
5	7311.000	8.84	36.15	41.53	46.64	50.10	74.00 -23.90 peak
6	9748.000	10.76	37.75	38.37	41.77	51.91	74.00 -22.09 peak

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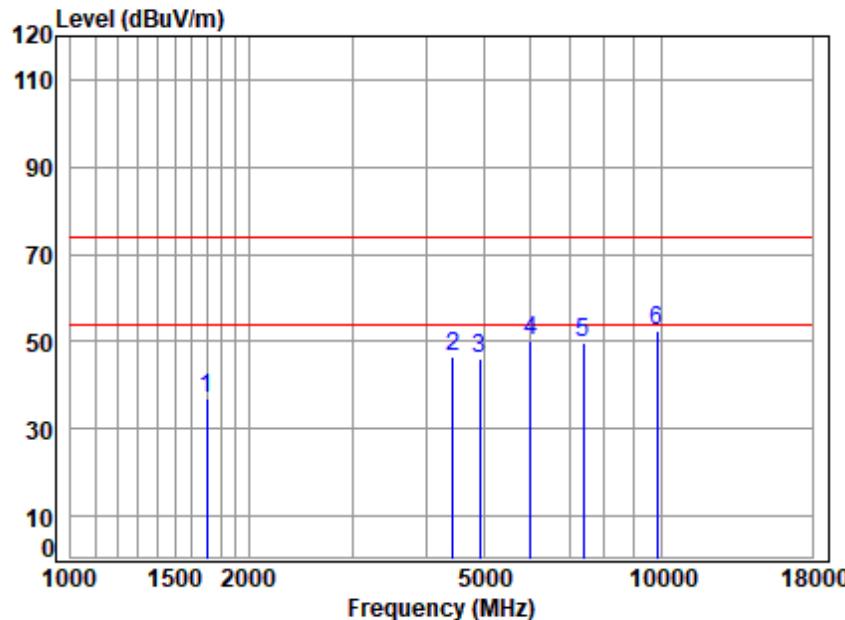
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2462 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1697.129	3.43	26.66	40.63	47.40	36.86	74.00 -37.14 peak
2	4443.453	6.71	33.50	42.51	48.90	46.60	74.00 -27.40 peak
3	4924.000	7.22	34.11	42.85	47.77	46.25	74.00 -27.75 peak
4	6001.626	8.26	35.10	42.24	49.03	50.15	74.00 -23.85 peak
5	7386.000	8.91	36.21	41.49	46.14	49.77	74.00 -24.23 peak
6	9848.000	10.73	37.81	38.22	42.29	52.61	74.00 -21.39 peak

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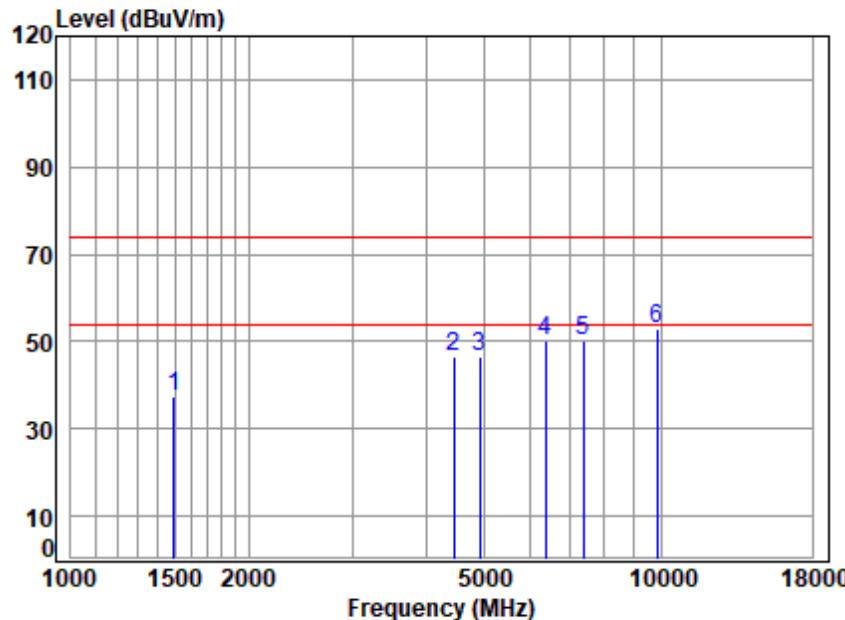


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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2462 TX SE
Note : 2.4G WIFI 11N20

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1494.455	3.25	25.78	40.50	49.01	37.54	74.00 -36.46 peak
2	4456.315	6.72	33.53	42.52	48.81	46.54	74.00 -27.46 peak
3	4924.000	7.22	34.11	42.85	47.89	46.37	74.00 -27.63 peak
4	6358.789	8.27	35.46	42.03	48.58	50.28	74.00 -23.72 peak
5	7386.000	8.91	36.21	41.49	46.50	50.13	74.00 -23.87 peak
6	9848.000	10.73	37.81	38.22	42.46	52.78	74.00 -21.22 peak

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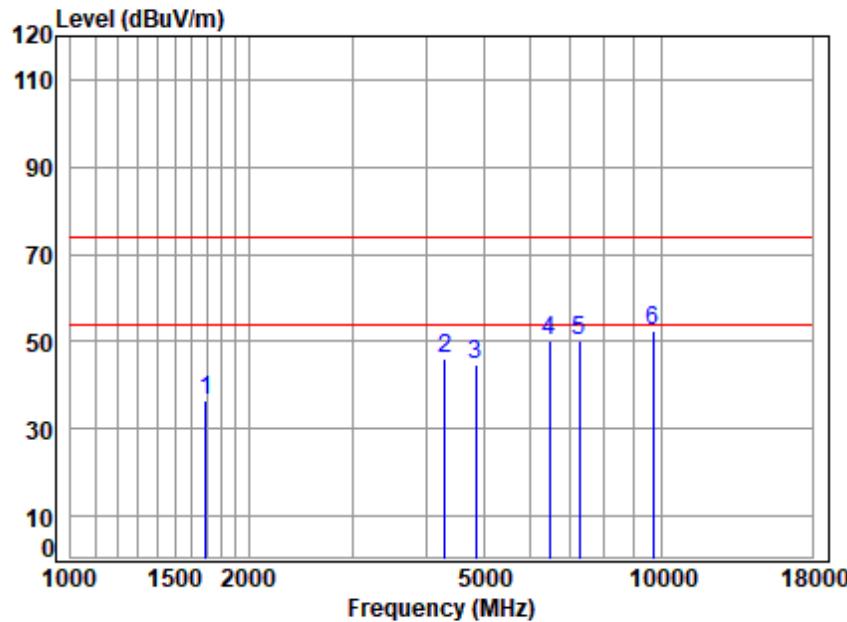
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2422 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1692.231	3.42	26.64	40.63	47.23	36.66	74.00 -37.34 peak
2	4304.400	6.58	33.26	42.40	48.78	46.22	74.00 -27.78 peak
3	4844.000	7.14	34.02	42.79	46.55	44.92	74.00 -29.08 peak
4	6470.026	8.28	35.57	41.97	48.34	50.22	74.00 -23.78 peak
5	7266.000	8.79	36.12	41.55	46.82	50.18	74.00 -23.82 peak
6	9688.000	10.78	37.71	38.45	42.60	52.64	74.00 -21.36 peak

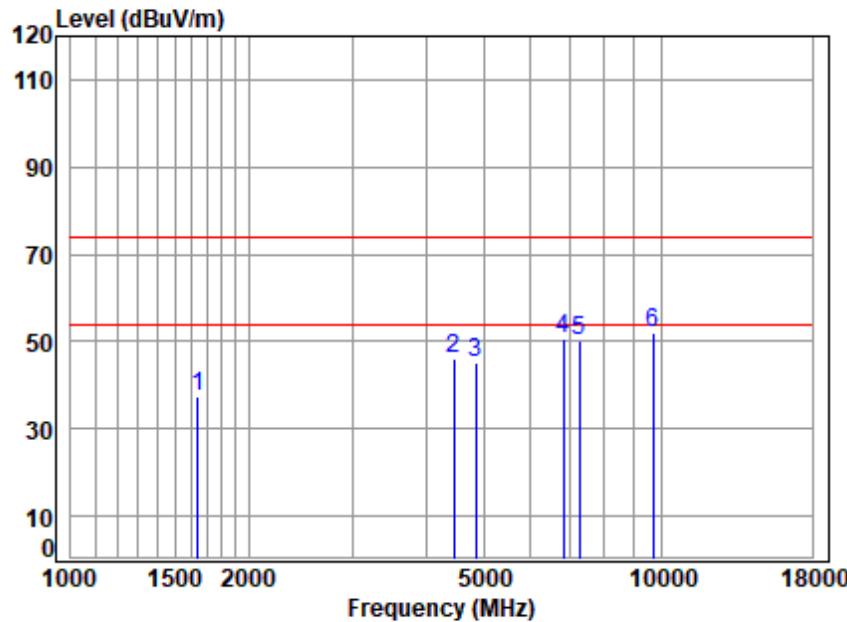
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2422 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1639.274	3.38	26.42	40.59	48.14	37.35	74.00 -36.65 peak
2	4456.315	6.72	33.53	42.52	48.58	46.31	74.00 -27.69 peak
3	4844.000	7.14	34.02	42.79	46.99	45.36	74.00 -28.64 peak
4	6835.278	8.46	35.80	41.77	47.99	50.48	74.00 -23.52 peak
5	7266.000	8.79	36.12	41.55	47.01	50.37	74.00 -23.63 peak
6	9688.000	10.78	37.71	38.45	42.02	52.06	74.00 -21.94 peak

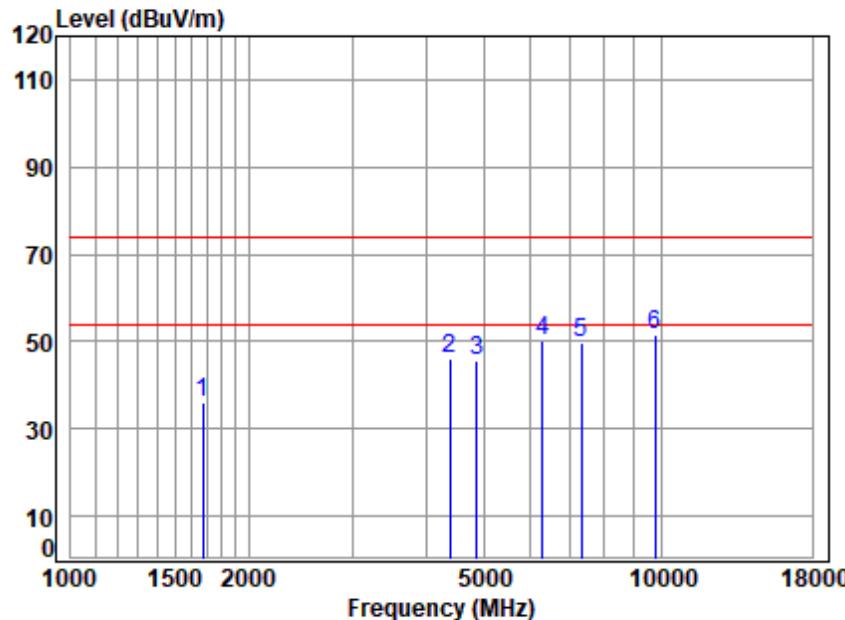
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1672.779	3.41	26.56	40.62	46.59	35.94	74.00 -38.06 peak
2	4392.376	6.66	33.42	42.47	48.57	46.18	74.00 -27.82 peak
3	4874.000	7.17	34.05	42.82	47.06	45.46	74.00 -28.54 peak
4	6303.890	8.27	35.41	42.06	48.68	50.30	74.00 -23.70 peak
5	7311.000	8.84	36.15	41.53	46.39	49.85	74.00 -24.15 peak
6	9748.000	10.76	37.75	38.37	41.49	51.63	74.00 -22.37 peak

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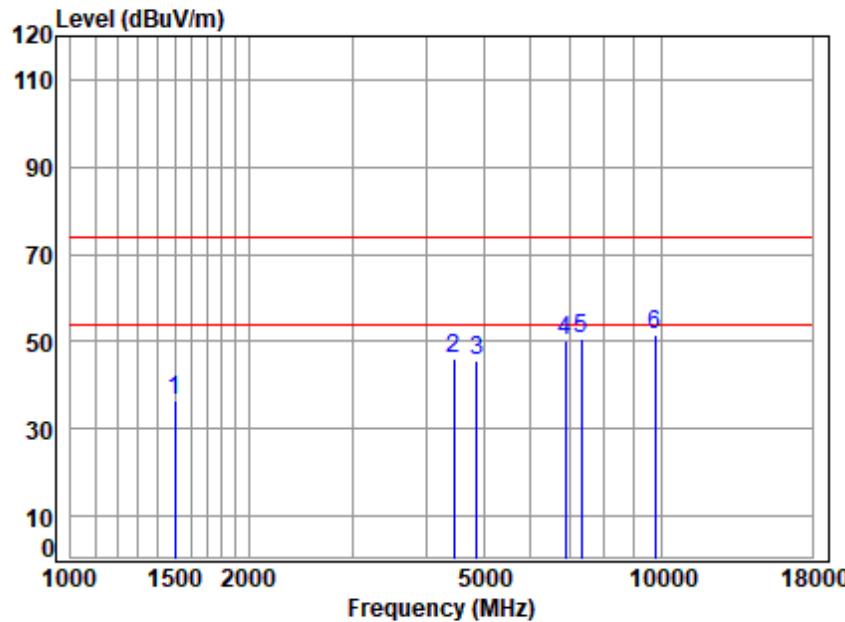
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2437 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1498.781	3.26	25.80	40.51	48.11	36.66	74.00 -37.34 peak
2	4456.315	6.72	33.53	42.52	48.49	46.22	74.00 -27.78 peak
3	4874.000	7.17	34.05	42.82	47.23	45.63	74.00 -28.37 peak
4	6874.906	8.48	35.83	41.75	47.79	50.35	74.00 -23.65 peak
5	7311.000	8.84	36.15	41.53	47.24	50.70	74.00 -23.30 peak
6	9748.000	10.76	37.75	38.37	41.63	51.77	74.00 -22.23 peak

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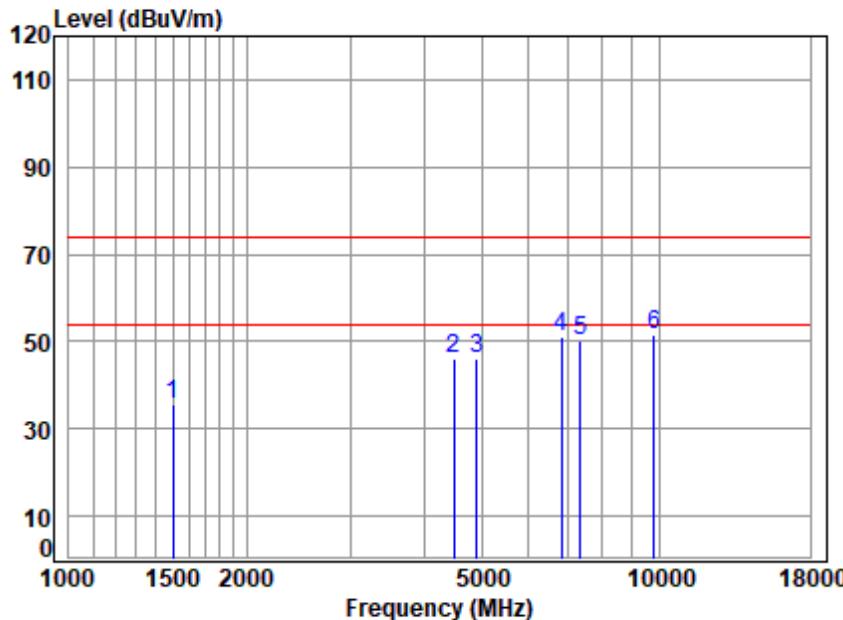
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Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 08852CR&08853CR
Mode : 2452 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1503.119	3.26	25.81	40.51	47.14	35.70	74.00 -38.30 peak
2	4495.125	6.76	33.59	42.55	48.06	45.86	74.00 -28.14 peak
3	4904.000	7.20	34.09	42.84	47.75	46.20	74.00 -27.80 peak
4	6815.551	8.45	35.79	41.78	48.45	50.91	74.00 -23.09 peak
5	7356.000	8.88	36.19	41.50	46.56	50.13	74.00 -23.87 peak
6	9808.000	10.75	37.79	38.28	41.24	51.50	74.00 -22.50 peak

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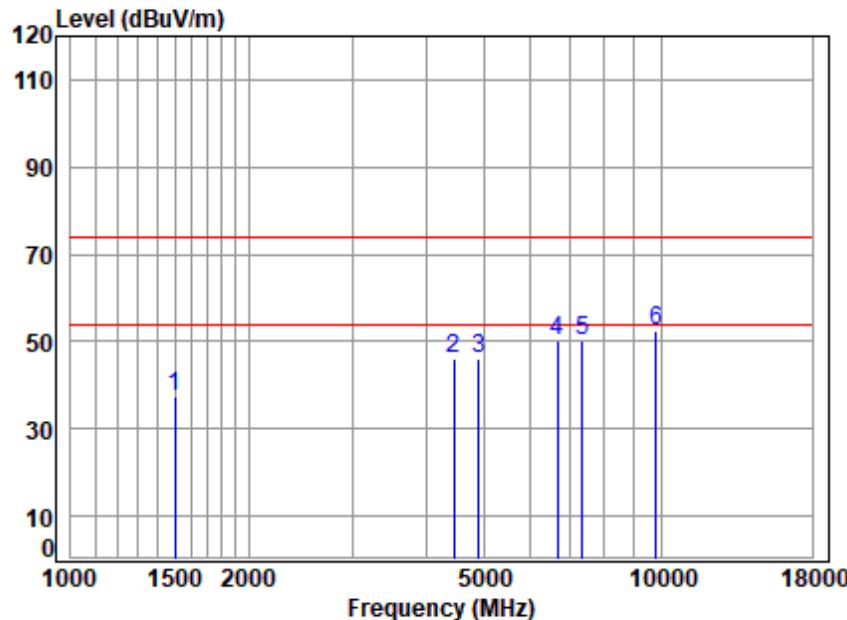
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Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 08852CR&08853CR
Mode : 2452 TX SE
Note : 2.4G WIFI 11N40

Freq	Cable	Ant	Preamp	Read	Limit	Over	Remark
	MHz	Loss	Factor	Level	Level	Line	
1	1498.781	3.26	25.80	40.51	48.97	37.52	74.00 -36.48 peak
2	4456.315	6.72	33.53	42.52	48.15	45.88	74.00 -28.12 peak
3	4904.000	7.20	34.09	42.84	47.81	46.26	74.00 -27.74 peak
4	6679.040	8.38	35.71	41.85	47.84	50.08	74.00 -23.92 peak
5	7356.000	8.88	36.19	41.50	46.71	50.28	74.00 -23.72 peak
6	9808.000	10.75	37.79	38.28	42.12	52.38	74.00 -21.62 peak

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8 Photographs

8.1 Test Setup

Please refer to setup photos.

8.2 EUT Constructional Details (EUT Photos)

Please Refer to external and internal photos for details.

- End of the Report -

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