

TEST REPORT

Application No.: GZCR2209001150AT
Applicant: BLUE FROG ROBOTICS
Address of Applicant: 10 rue Mercoeur, 75011 Paris, FRANCE
Manufacturer: OMWAVE
Address of Manufacturer: 5 rue Barbès, 92120 Montrouge, FRANCE
Factory: OMWAVE
Address of Factory: 36 Avenue Salvador Allende, Batiment D - Village Mykonos, 60000 Beauvais, FRANCE

Equipment Under Test (EUT):

EUT Name: Buddy the Robot
Model No.: B01-US
Trade Mark: BLUE FROG ROBOTICS
Standard(s) : 47 CFR Part 15, Subpart C 15.247
Date of Receipt: 2022-09-15
Date of Test: 2022-11-01 to 2022-12-25
Date of Issue: 2023-04-27

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



Ricky Liu
Manager

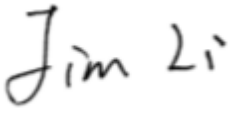



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 Guangzhou Branch Testing Center EEC Laboratory. 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

Revision Record			
Version	Report No.	Date	Remark
01	GZCR220900115004	2023-04-27	Original

Authorized for issue by:			
			
		<u>Jim Li/Project Engineer</u>	
			
		<u>Ricky Liu/Reviewer</u>	



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2 Test Summary

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart C 15.247	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207	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

Note:

E.U.T./EUT means Equipment Under Test.

Pass means the test result passed the test standard requirement, please find the detailed decision rule in the report relative section.

*Remark:

This report is based on original modular report RF190522W005-7 with FCC ID: XMR201908SC66A C2PC for add host: Buddy the Robot; Model number: B01-US to the modular and C2PC change the modular antenna.

The replaced new Ceramic antenna with less gain than the antenna previously authorized under the certification FCC ID: XMR201908SC66A.

For verify the new antenna have similar in-band and out-of-band characteristics, only the Conducted Emissions at AC Power Line (150kHz-30MHz), Radiated Spurious Emissions Below 1GHz & Radiated Spurious Emissions Above 1GHz were performed with new antenna.



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4 General Information

4.1 Details of E.U.T.

Power supply: AC/DC SWITCHING ADAPTER
MODEL NO.: GST90A19
INPUT:100-240VAC, 50/60Hz, 1.3A
OUTPUT:19V, 4.74A, 90W Max

Test voltage: AC 120V, 60Hz

Cable(s): AC input cable, 3 wires, 1.8m, unshielded.
DC output cable, 2 wires, 1.2m, with ferrite bead.
USB Port for debugging.
SIM Slot Port x 1.

RF Character(s): Refer to test report RF190522W005-7(Issue by BV 7Layers Communications Technology (Shenzhen) Co. Ltd) for 2.4G Wi-Fi details.

Antenna Type: Ceramic Antenna

Antenna Gain: 1.0 dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Note Book Computer	LENOVO	ThinkPad T490	PF1D1MVJ
Wireless Router	Honor	HiRouter-CD30	AWTEQ20C04001295

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	±2.76dB
Radiated Spurious Emissions Below 1GHz	±5.00dB (3m); ±4.38dB (10m)
Radiated Spurious Emissions Above 1GHz	±5.12dB (1GHz-6GHz); ±5.38dB (6GHz-18GHz); ±5.61dB(18GHz-40GHz)

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
198 Kezhu Road, Sciencetech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

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No tests were sub-contracted.



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4.5 Test Facility

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

● ACMA

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM).

● SGS UK(Certificate No.: 32), SGS-TUV SAARLAND and SGS-FIMKO

Have approved SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory as a supplier of EMC TESTING SERVICES and SAFETY TESTING SERVICES.

● FCC Recognized Accredited Test Firm(Registration No.: 486818)

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been accredited and fully described in a report filed with the (FCC) Federal Communications Commission. The acceptance letter from the FCC is maintained in our files. Designation Number: CN5016, Test Firm Registration Number: 486818.

● ISED (Registration No.: 4620B, CAB identifier: CN0052)

SGS-CSTC Standards Technical Services Co., Ltd., has been registered by Innovation Science and Economic Development Canada for Wireless Device Testing laboratories to test to Canadian radio equipment requirements. Registration No. 4620B, CAB identifier: CN0052.

● VCCI (Registration No.: R-12460, C-12584, G-20107 and T-11179)

The 10m Semi-anechoic chamber, 966 Anechoic Chamber and Shielded Room of SGS-CSTC Standards Technical Services Co., Ltd. have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: R-12460, C-12584, G-20107 and T-11179 respectively.

● CBTL (Lab Code: TL129)

SGS-CSTC Standards Technical Services Co., Ltd., E&E Laboratory has been assessed and fully comply with the requirements of ISO/IEC 17025:2017, the Basic Rules, IECEE 01 and Rules of procedure IECEE 02, and the relevant IECEE CB-Scheme Operational documents.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None



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5 Equipment List

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
Coaxial Cable	HangTianXing	2m	EMC0107	2022-08-24	2023-08-23
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	2022-10-16	2025-10-15
Two-Line V-Network-GZ	Rohde & Schwarz	ENV216	EMC2135	2022-09-09	2023-09-08
EMI Test Receiver (9kHz-3.6GHz)	Rohde & Schwarz	ESR3	EMC2221	2022-05-20	2023-05-19
Test Software E3r	Audix	Ver.6.11812	GZE100-77	N/A	N/A

Radiated Spurious Emissions Below 1GHz					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2022-10-16	2025-10-15
Chamber cable	HangTianXing	N/A	EMC0542	2022-08-24	2023-08-23
Amplifier (9kHz-1.3GHz)	HP	8447F	EMC2065	2022-06-21	2023-06-20
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2022-04-06	2024-04-05
EMI Test Receiver (1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2220	2022-05-20	2023-05-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
Trilog Broadband Antenna (25MHz-1GHz)	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	EMC2174	2022-06-19	2025-06-18

Radiated Spurious Emissions Above 1GHz					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2022-12-16	2023-12-15
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2022-12-16	2023-12-15
Chamber cable (Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2022-08-24	2024-08-23
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2022-09-23	2025-09-22
Horn Antenna (14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2020-06-28	2023-06-27
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2022-12-16	2023-12-15
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
MXE EMI Receiver (10Hz-8.4GHz)	Keysight	N9038A	EMC2139	2022-10-21	2023-10-20
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2022-06-24	2023-06-23



6 Radio Spectrum Matter Test Results

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

Test Requirement 47 CFR Part 15, Subpart C 15.207

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

Limit:

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

*Decreases with the logarithm of the frequency.

Detector: Peak for pre-scan (9kHz resolution bandwidth) 0.15M to 30MHz

6.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.1 °C

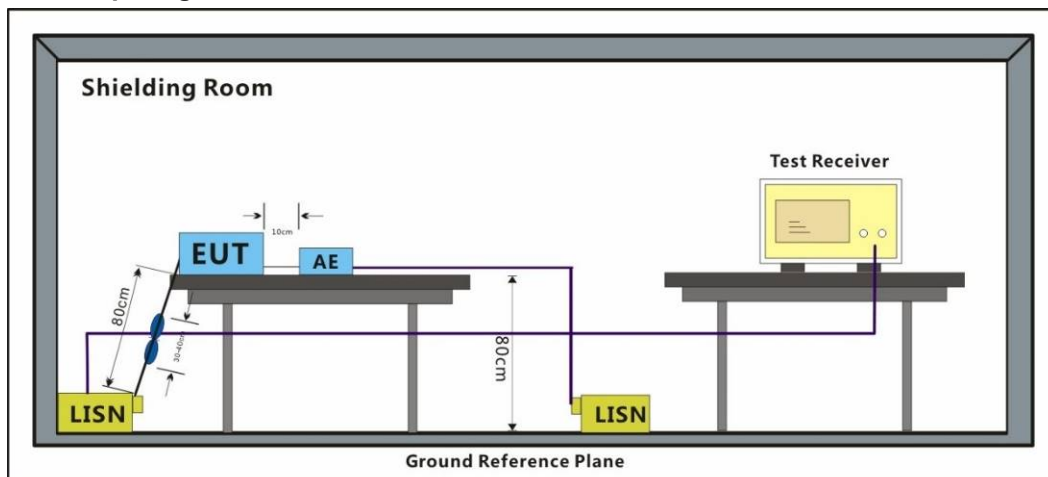
Humidity: 50.2 % RH

Atmospheric Pressure: 1008 mbar

6.1.2 Test Mode Description

Pre-scan / Mode	Description
Final test Code	
Final test 09	Normal working_keep the EUT in charging mode.

6.1.3 Test Setup Diagram

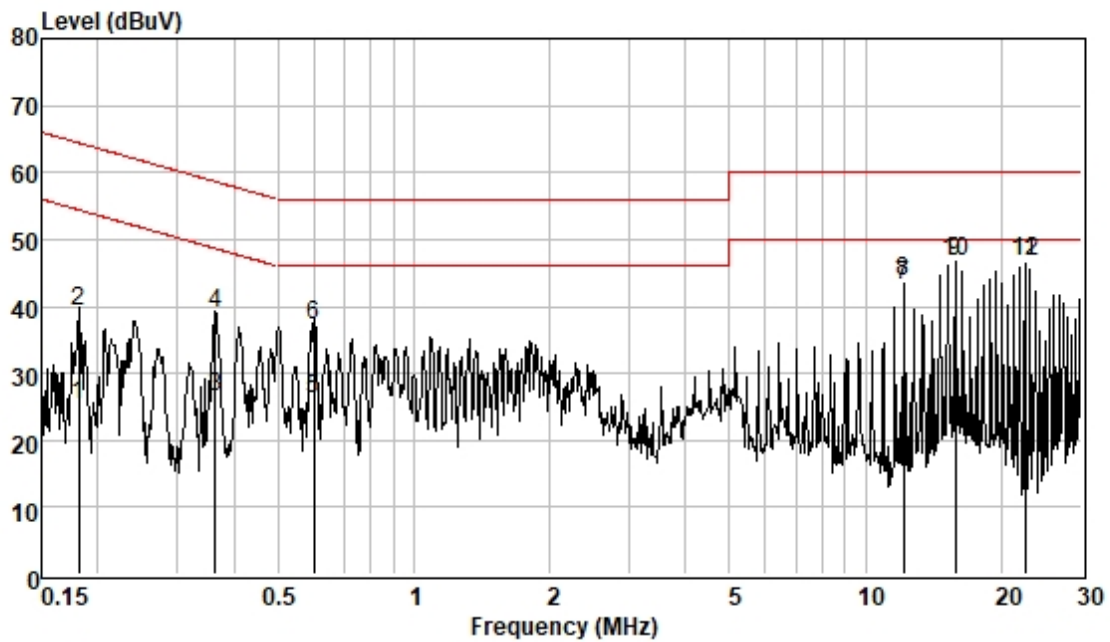


6.1.4 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane.
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

Remark: Level=Read Level+ Cable Loss+ LISN Factor

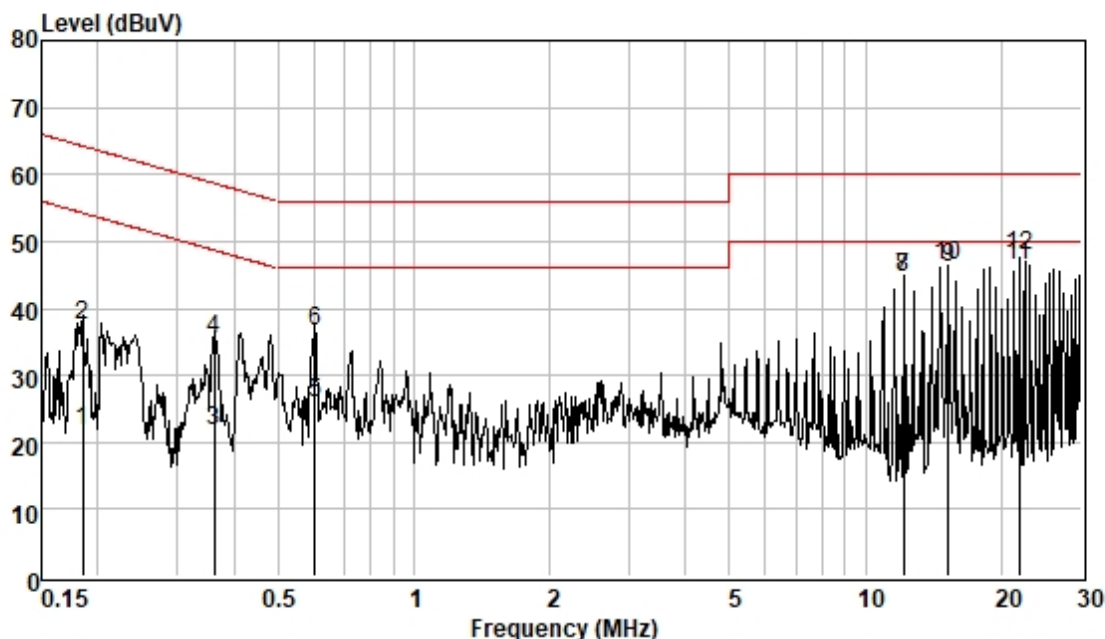
Test Mode: 09; Line: Live line



Pol : LINE
Mode :
Model :
Power :

	Frequency MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
1	0.182	15.65	0.06	9.61	25.32	54.42	-29.10	Average
2	0.182	29.63	0.06	9.61	39.30	64.42	-25.12	QP
3	0.363	16.70	0.06	9.60	26.36	48.65	-22.29	Average
4	0.363	29.25	0.06	9.60	38.91	58.65	-19.74	QP
5	0.601	16.48	0.07	9.61	26.16	46.00	-19.84	Average
6	0.601	27.51	0.07	9.61	37.19	56.00	-18.81	QP
7	12.124	33.11	0.25	9.68	43.04	50.00	-6.96	Average
8	12.124	33.92	0.25	9.68	43.85	60.00	-16.15	QP
9	15.801	36.62	0.30	9.70	46.62	50.00	-3.38	Average
10	15.801	36.76	0.30	9.70	46.76	60.00	-13.24	QP
11	22.535	36.62	0.37	9.66	46.65	50.00	-3.35	Average
12	22.535	36.71	0.37	9.66	46.74	60.00	-13.26	QP

Test Mode: 09; Line: Neutral Line



Pol : NEUTRAL
Mode :
Model :
Power :

	Frequency MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
1	0.185	12.07	0.06	9.60	21.73	54.24	-32.51	Average
2	0.185	27.90	0.06	9.60	37.56	64.24	-26.68	QP
3	0.361	12.04	0.06	9.62	21.72	48.69	-26.97	Average
4	0.361	25.68	0.06	9.62	35.36	58.69	-23.33	QP
5	0.604	16.23	0.07	9.62	25.92	46.00	-20.08	Average
6	0.604	26.98	0.07	9.62	36.67	56.00	-19.33	QP
7	12.124	34.51	0.25	9.75	44.51	50.00	-5.49	Average
8	12.124	34.70	0.25	9.75	44.70	60.00	-15.30	QP
9	15.226	35.97	0.30	9.80	46.07	50.00	-3.93	Average
10	15.226	36.33	0.30	9.80	46.43	60.00	-13.57	QP
11	21.830	36.29	0.37	9.86	46.52	50.00	-3.48	Average
12	21.830	37.52	0.37	9.86	47.75	60.00	-12.25	QP



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6.2 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

Limit:

Test Distance: 3 m

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

6.2.1 E.U.T. Operation

Operating Environment:

Temperature: 23.1 °C

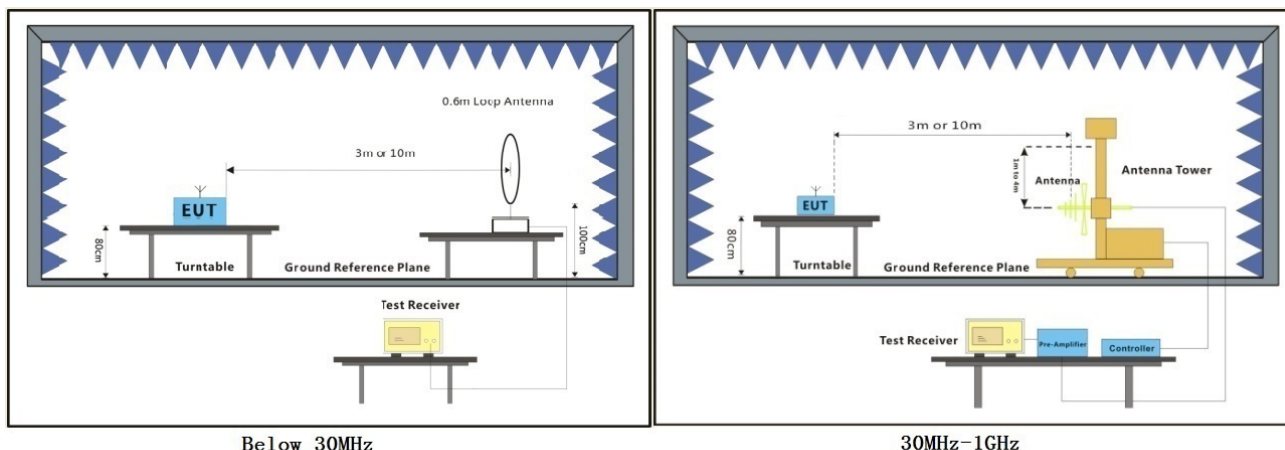
Humidity: 57.0 % RH

Atmospheric Pressure: 1008 mbar

6.2.2 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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

6.2.3 Test Setup Diagram



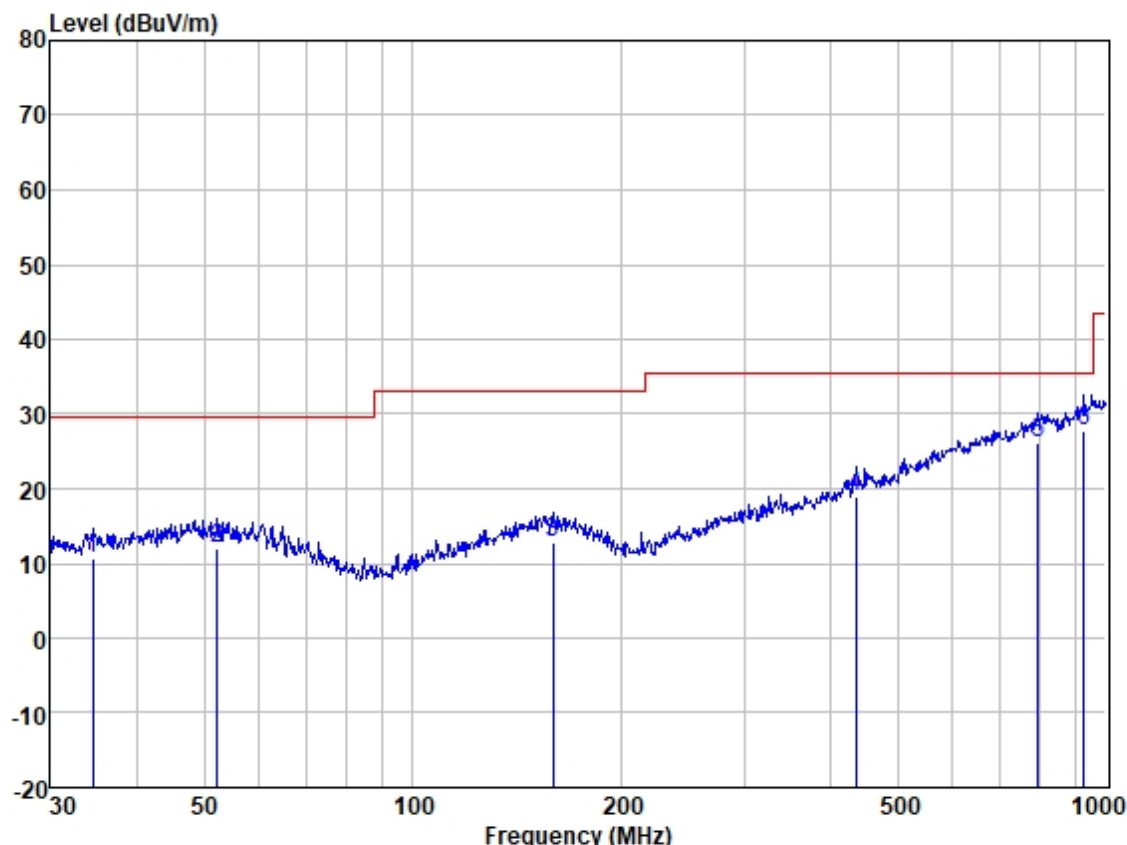
6.2.4 Measurement Procedure and Data

- 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.
- 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 quasi-peak 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:

- Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
- 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.
- 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.

Test Mode: 01; Polarity: Horizontal



Site : SGS
Job :
Model :
Power :
Test Mode : 2.4G Wi-Fi

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Measured Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	34.517	24.25	12.97	1.05	27.63	10.64	29.54	-18.90	HORIZONTAL	QP
2	52.208	24.40	13.93	1.15	27.60	11.88	29.54	-17.66	HORIZONTAL	QP
3	159.225	24.07	13.67	2.32	27.36	12.70	33.06	-20.36	HORIZONTAL	QP
4	435.590	26.40	16.63	4.07	28.19	18.91	35.56	-16.65	HORIZONTAL	QP
5	796.183	25.92	22.74	6.00	28.60	26.06	35.56	-9.50	HORIZONTAL	QP
6	929.008	25.58	23.61	6.62	28.15	27.66	35.56	-7.90	HORIZONTAL	QP



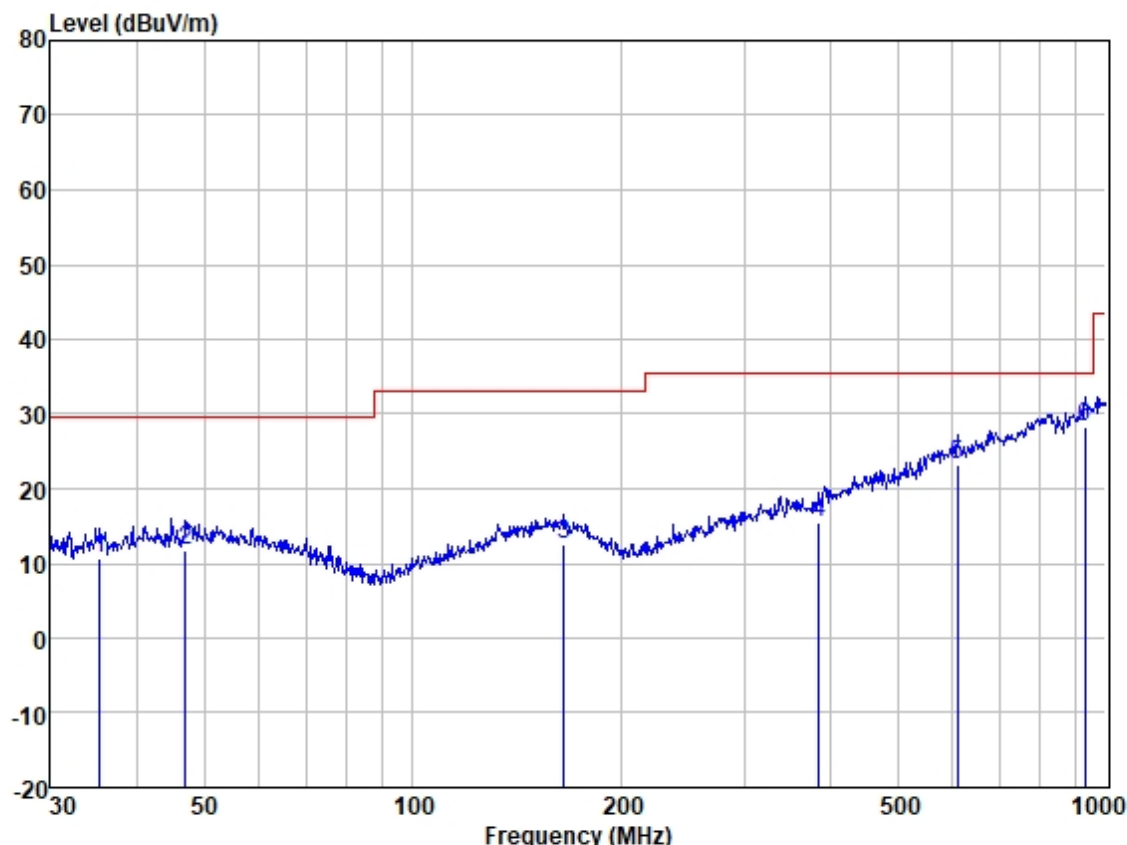
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Test Mode: 01; Polarity: Vertical



Site : SGS
Job :
Model :
Power :
Test Mode : 2.4G Wi-Fi

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Measured Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	35.375	24.26	13.08	1.06	27.62	10.78	29.54	-18.76	VERTICAL	QP
2	46.995	24.40	13.94	1.12	27.60	11.86	29.54	-17.68	VERTICAL	QP
3	164.908	24.07	13.44	2.36	27.35	12.52	33.06	-20.54	VERTICAL	QP
4	385.281	24.21	15.25	3.82	27.94	15.34	35.56	-20.22	VERTICAL	QP
5	609.922	26.76	20.14	5.02	28.79	23.13	35.56	-12.43	VERTICAL	QP
6	932.272	26.05	23.67	6.62	28.14	28.20	35.56	-7.36	VERTICAL	QP

6.3 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

Limit:

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

6.3.1 E.U.T. Operation

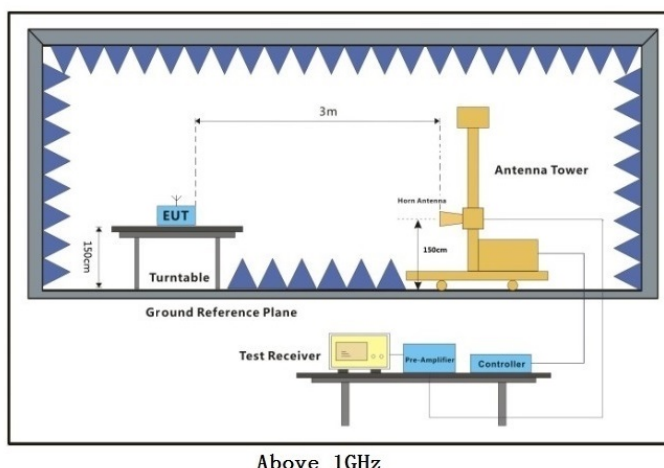
Operating Environment:

Temperature: 23.9 °C Humidity: 51.9 % RH Atmospheric Pressure: 1015 mbar

6.3.2 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), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

6.3.3 Test Setup Diagram



6.3.4 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.



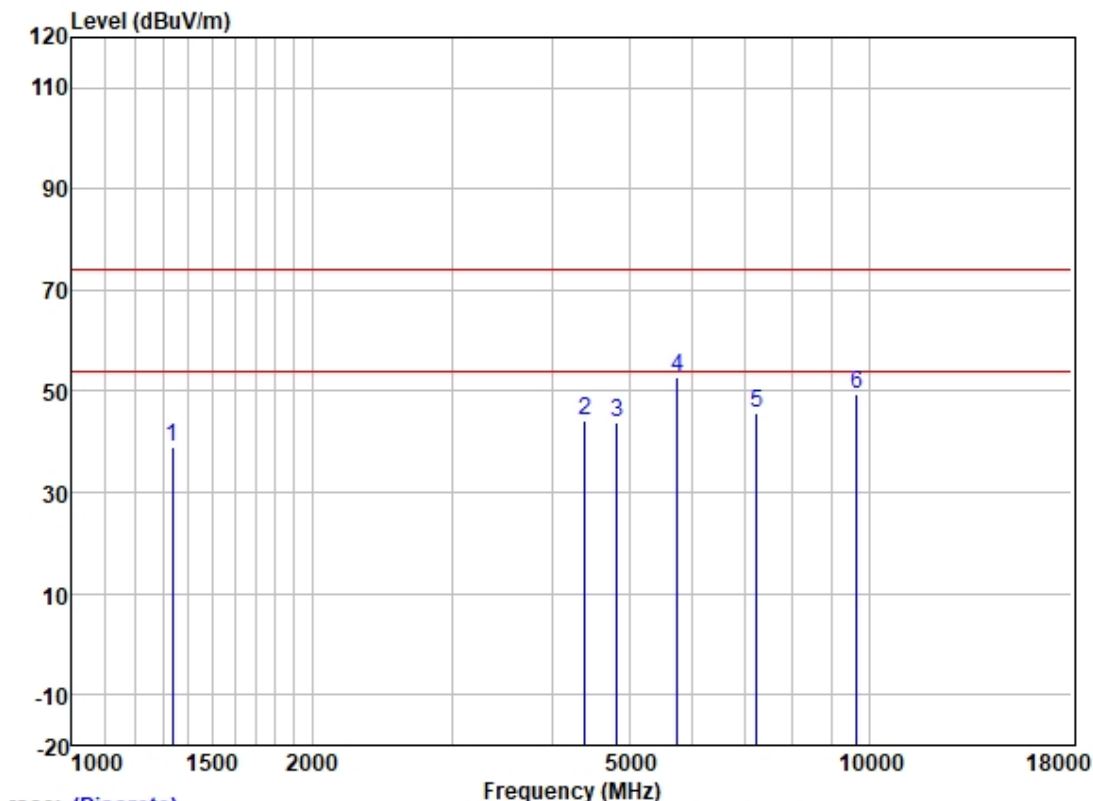
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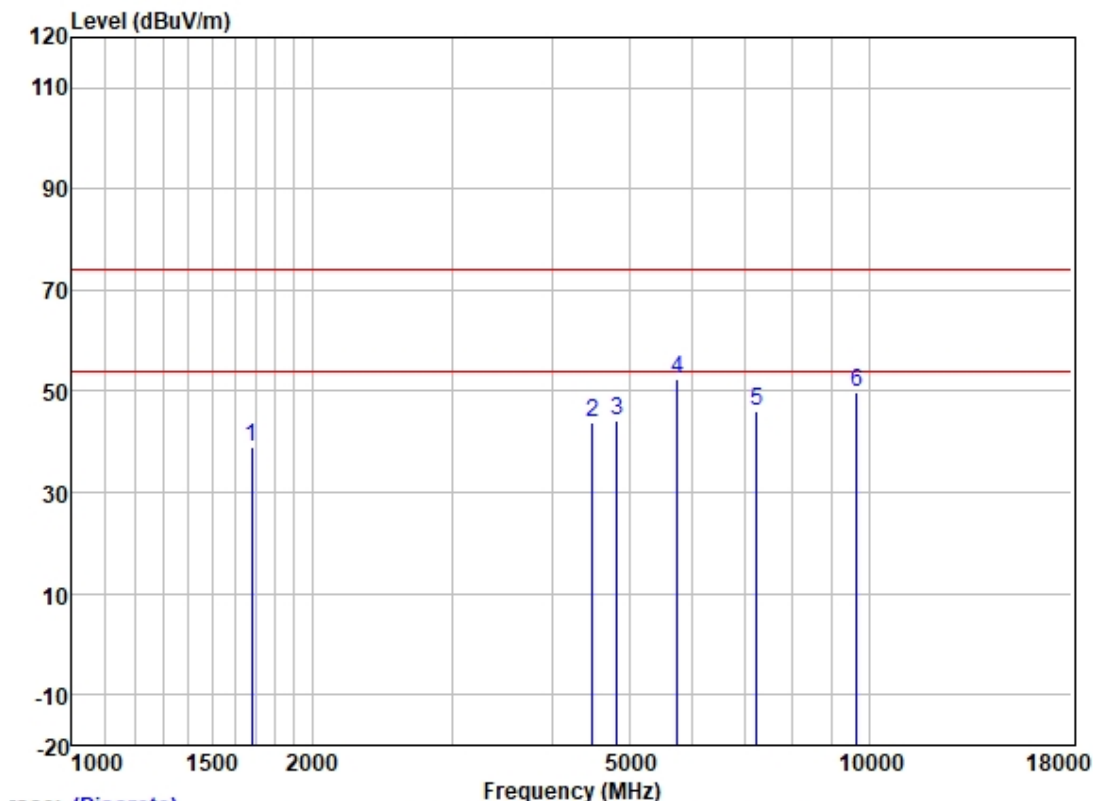
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Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1335.141	48.92	25.28	2.73	38.02	38.91	74.00	-35.09	VERTICAL	peak
2	4405.090	44.66	30.68	5.37	36.63	44.08	74.00	-29.92	VERTICAL	peak
3	4824.000	43.28	31.45	5.46	36.50	43.69	74.00	-30.31	VERTICAL	peak
4	5746.982	51.24	32.10	5.70	36.14	52.90	74.00	-21.10	VERTICAL	peak
5	7236.000	40.48	35.70	6.35	36.94	45.59	74.00	-28.41	VERTICAL	peak
6	9648.000	39.87	38.40	7.89	36.85	49.31	74.00	-24.69	VERTICAL	peak

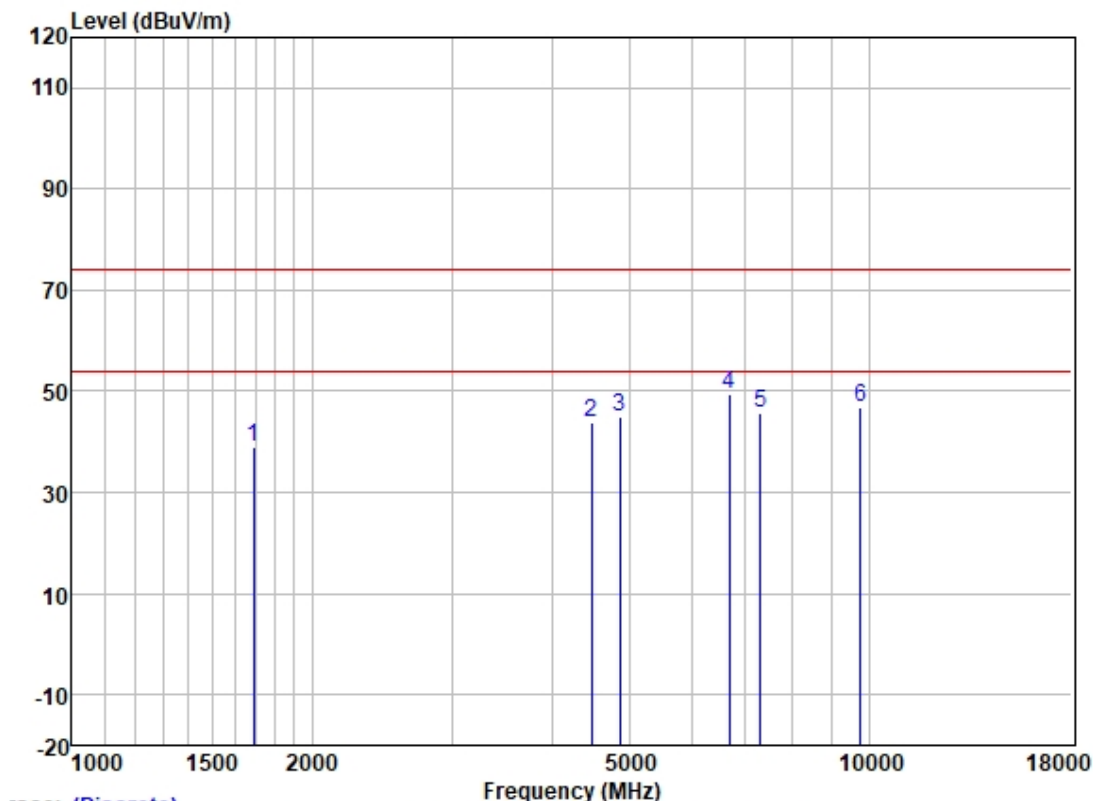
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Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1682.477	47.42	25.68	3.25	37.48	38.87	74.00	-35.13	HORIZONTAL peak
2	4495.125	44.39	30.80	5.33	36.60	43.92	74.00	-30.08	HORIZONTAL peak
3	4824.000	43.72	31.45	5.46	36.50	44.13	74.00	-29.87	HORIZONTAL peak
4	5746.982	50.62	32.10	5.70	36.14	52.28	74.00	-21.72	HORIZONTAL peak
5	7236.000	40.99	35.70	6.35	36.94	46.10	74.00	-27.90	HORIZONTAL peak
6	9648.000	40.49	38.40	7.89	36.85	49.93	74.00	-24.07	HORIZONTAL peak

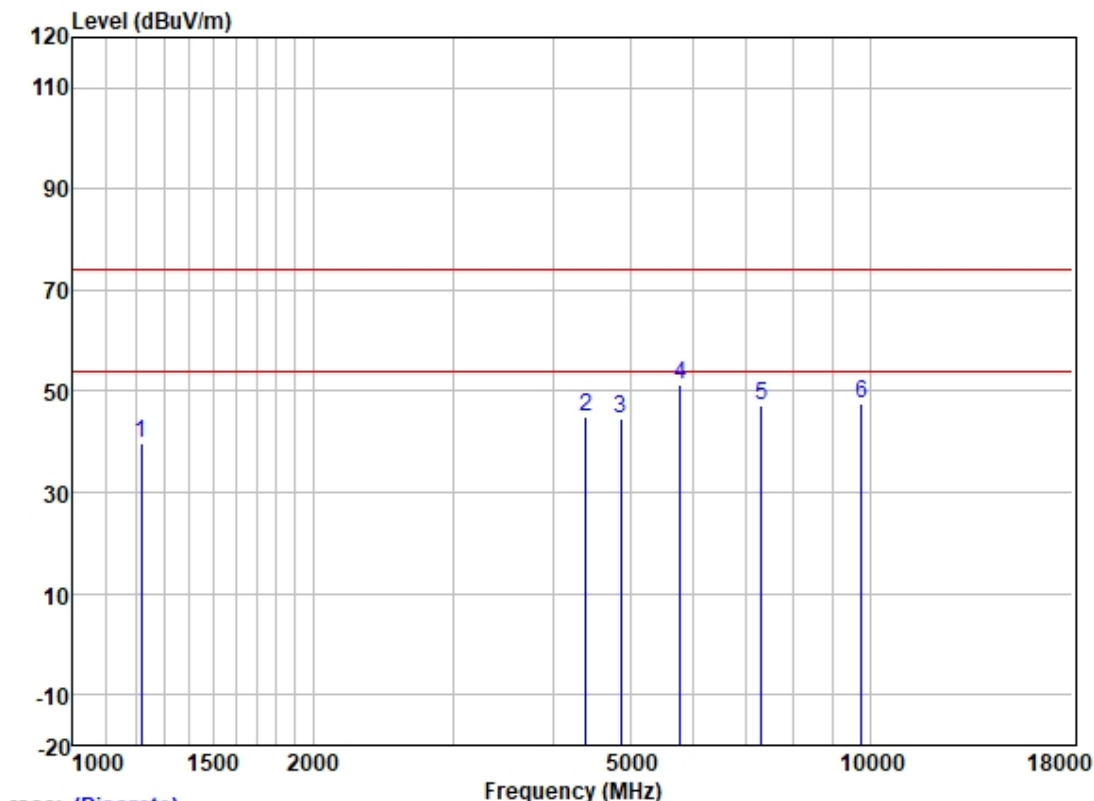
Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel: middle



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
		Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1692.231	47.43	25.70	3.30	37.46	38.97	74.00	-35.03	VERTICAL	peak
2	4482.150	44.39	30.78	5.34	36.61	43.90	74.00	-30.10	VERTICAL	peak
3	4874.000	44.25	31.54	5.49	36.48	44.80	74.00	-29.20	VERTICAL	peak
4	6679.040	45.26	34.33	6.27	36.39	49.47	74.00	-24.53	VERTICAL	peak
5	7311.000	40.48	35.93	6.32	36.99	45.74	74.00	-28.26	VERTICAL	peak
6	9748.000	37.72	38.50	7.43	36.83	46.82	74.00	-27.18	VERTICAL	peak

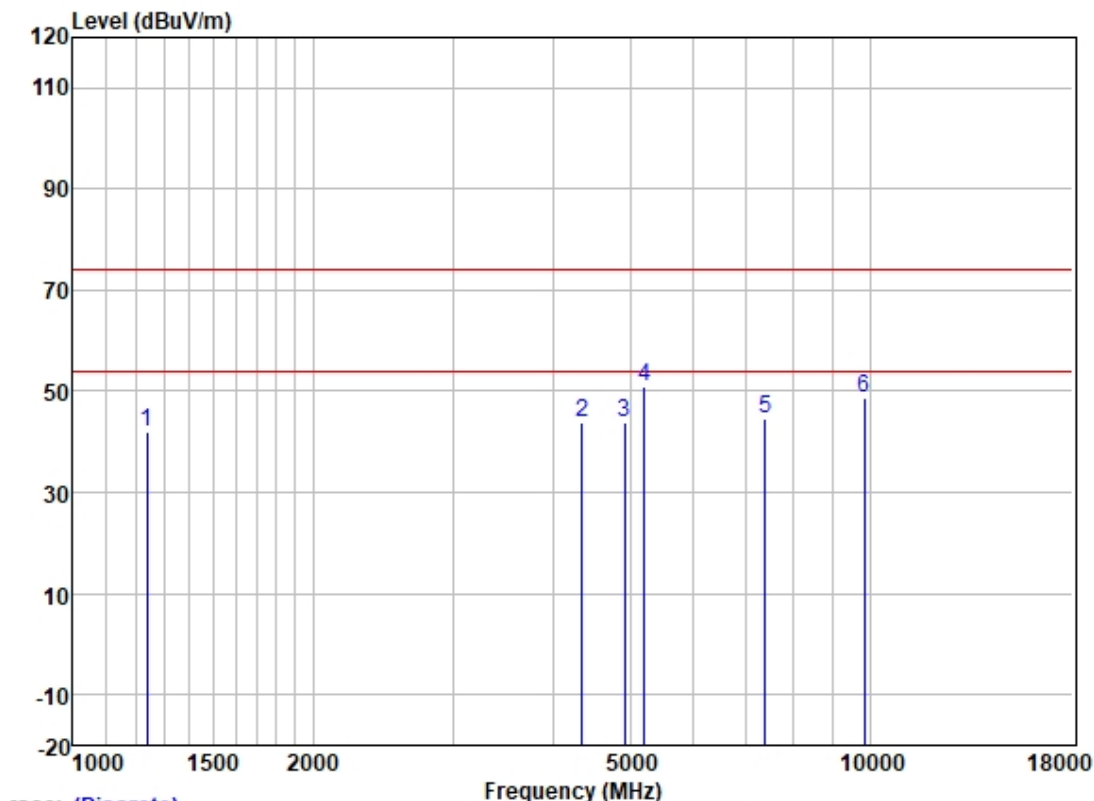
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Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1217.190	50.49	24.79	2.59	38.12	39.75	74.00	-34.25	HORIZONTAL peak
2	4405.090	45.40	30.68	5.37	36.63	44.82	74.00	-29.18	HORIZONTAL peak
3	4874.000	44.03	31.54	5.49	36.48	44.58	74.00	-29.42	HORIZONTAL peak
4	5780.300	49.67	32.16	5.68	36.14	51.37	74.00	-22.63	HORIZONTAL peak
5	7311.000	41.85	35.93	6.32	36.99	47.11	74.00	-26.89	HORIZONTAL peak
6	9748.000	38.36	38.50	7.43	36.83	47.46	74.00	-26.54	HORIZONTAL peak

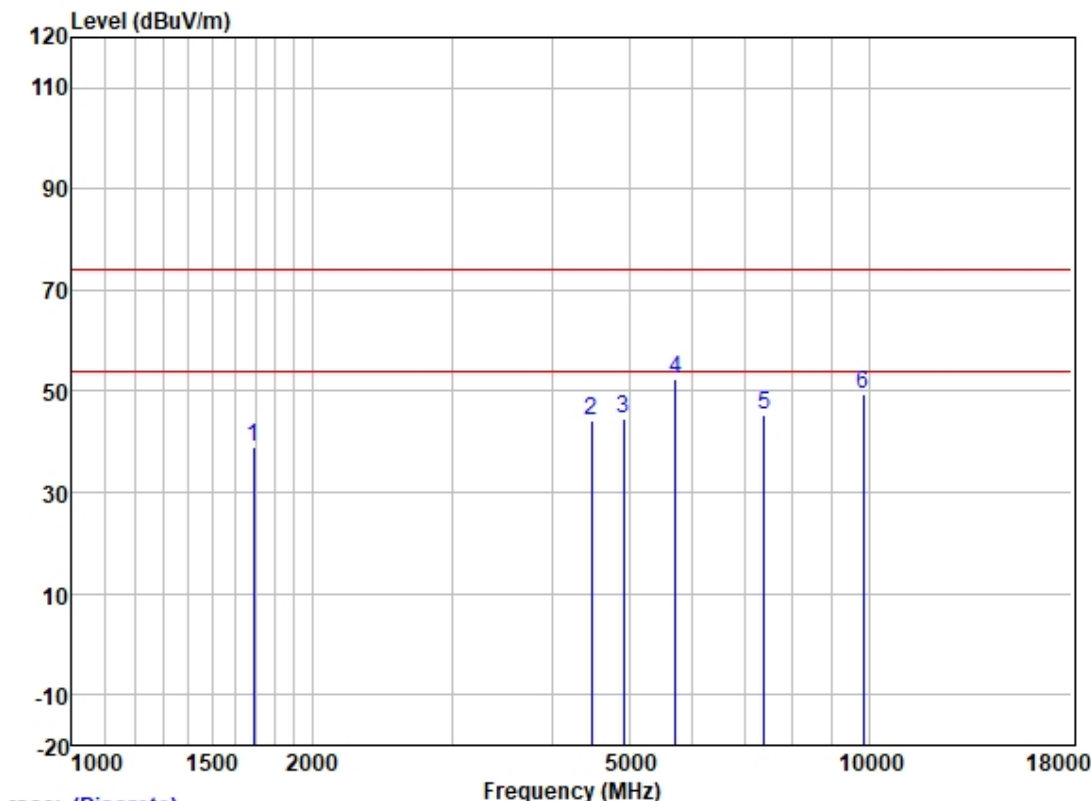
Test Mode: 01; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1238.483	52.36	24.96	2.61	38.10	41.83	74.00	-32.17	VERTICAL	peak
2	4354.454	44.43	30.59	5.34	36.64	43.72	74.00	-30.28	VERTICAL	peak
3	4924.000	43.30	31.62	5.51	36.45	43.98	74.00	-30.02	VERTICAL	peak
4	5209.075	50.32	31.74	5.33	36.29	51.10	74.00	-22.90	VERTICAL	peak
5	7386.000	39.13	36.17	6.30	37.04	44.56	74.00	-29.44	VERTICAL	peak
6	9848.000	39.70	38.58	7.06	36.82	48.52	74.00	-25.48	VERTICAL	peak

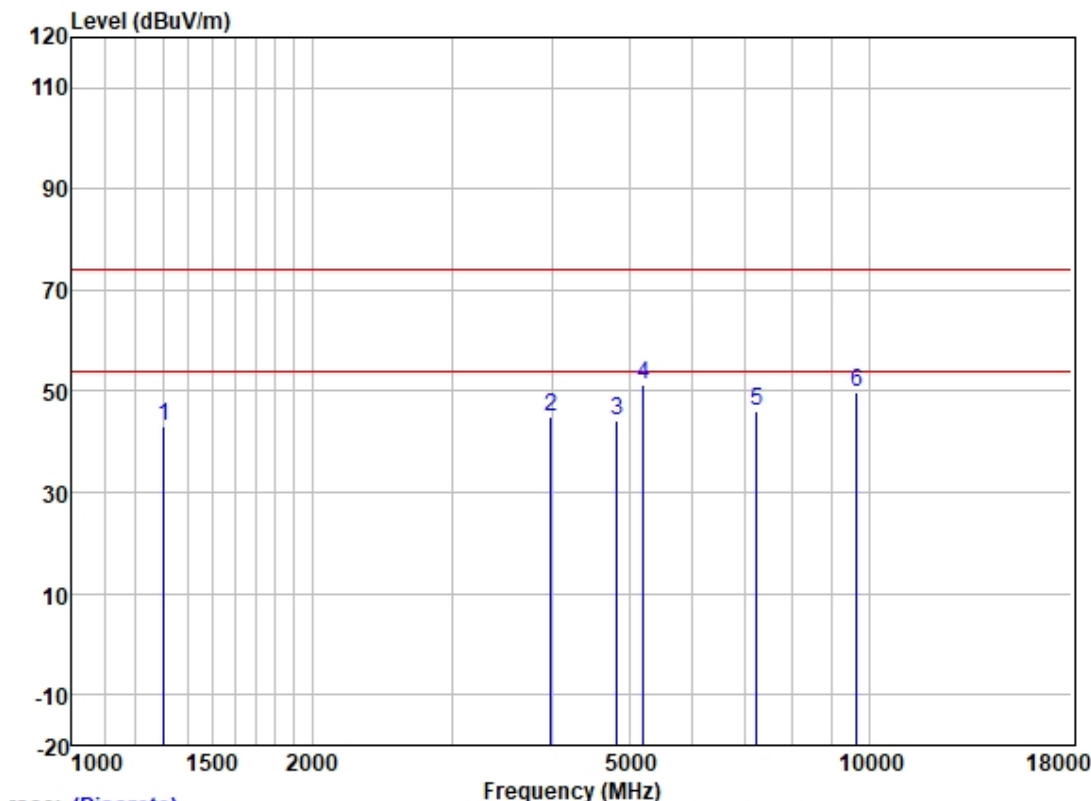
Test Mode: 01; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1692.231	47.45	25.70	3.30	37.46	38.99	74.00	-35.01	HORIZONTAL peak
2	4482.150	44.82	30.78	5.34	36.61	44.33	74.00	-29.67	HORIZONTAL peak
3	4924.000	43.95	31.62	5.51	36.45	44.63	74.00	-29.37	HORIZONTAL peak
4	5713.856	50.69	32.04	5.72	36.15	52.30	74.00	-21.70	HORIZONTAL peak
5	7386.000	39.78	36.17	6.30	37.04	45.21	74.00	-28.79	HORIZONTAL peak
6	9848.000	40.54	38.58	7.06	36.82	49.36	74.00	-24.64	HORIZONTAL peak

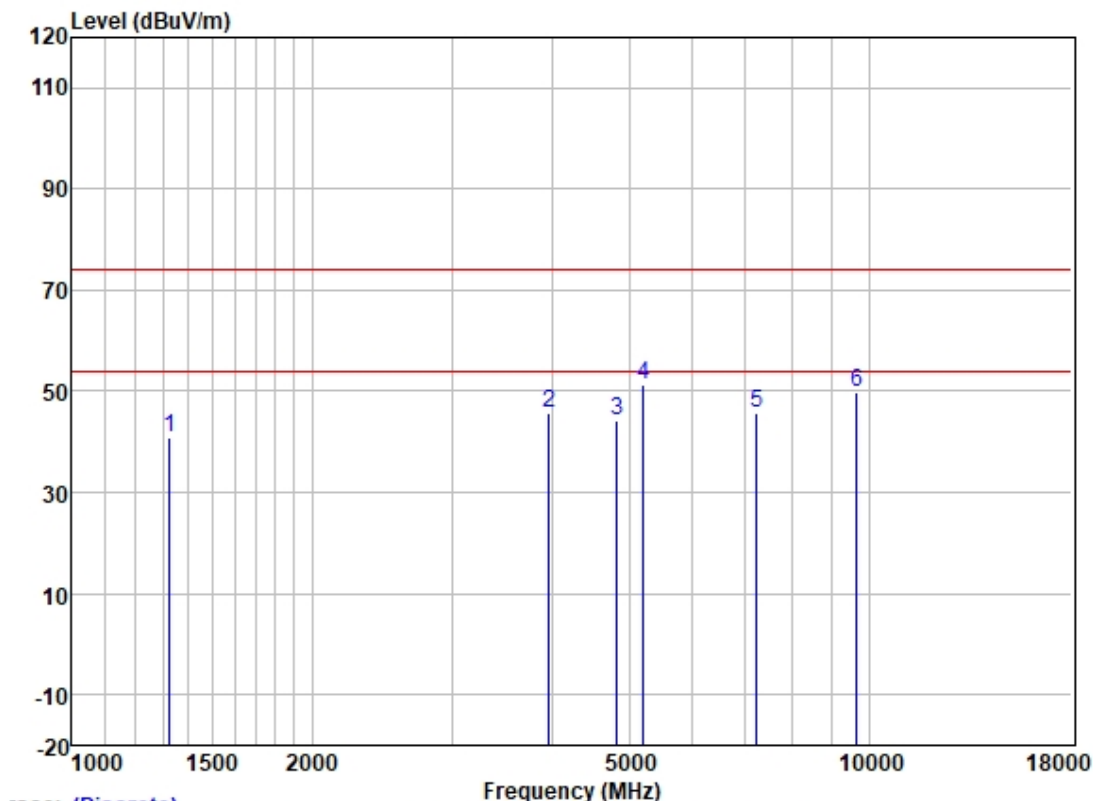
Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1304.623	53.39	25.21	2.69	38.04	43.25	74.00	-30.75	VERTICAL peak
2	3992.781	46.73	29.79	5.25	36.70	45.07	74.00	-28.93	VERTICAL peak
3	4824.000	43.88	31.45	5.46	36.50	44.29	74.00	-29.71	VERTICAL peak
4	5209.075	50.53	31.74	5.33	36.29	51.31	74.00	-22.69	VERTICAL peak
5	7236.000	41.07	35.70	6.35	36.94	46.18	74.00	-27.82	VERTICAL peak
6	9648.000	40.37	38.40	7.89	36.85	49.81	74.00	-24.19	VERTICAL peak

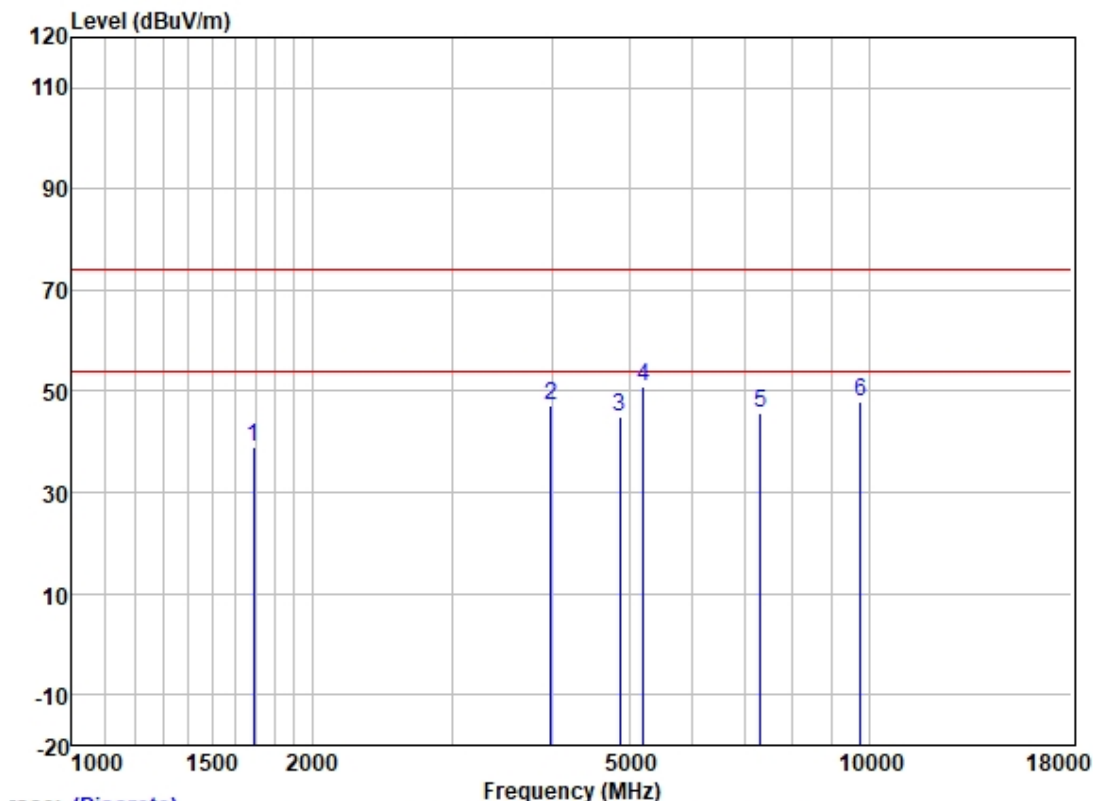
Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1327.446	50.92	25.27	2.72	38.02	40.89	74.00	-33.11	HORIZONTAL peak
2	3969.767	47.30	29.77	5.18	36.70	45.55	74.00	-28.45	HORIZONTAL peak
3	4824.000	43.94	31.45	5.46	36.50	44.35	74.00	-29.65	HORIZONTAL peak
4	5209.075	50.47	31.74	5.33	36.29	51.25	74.00	-22.75	HORIZONTAL peak
5	7236.000	40.47	35.70	6.35	36.94	45.58	74.00	-28.42	HORIZONTAL peak
6	9648.000	40.34	38.40	7.89	36.85	49.78	74.00	-24.22	HORIZONTAL peak

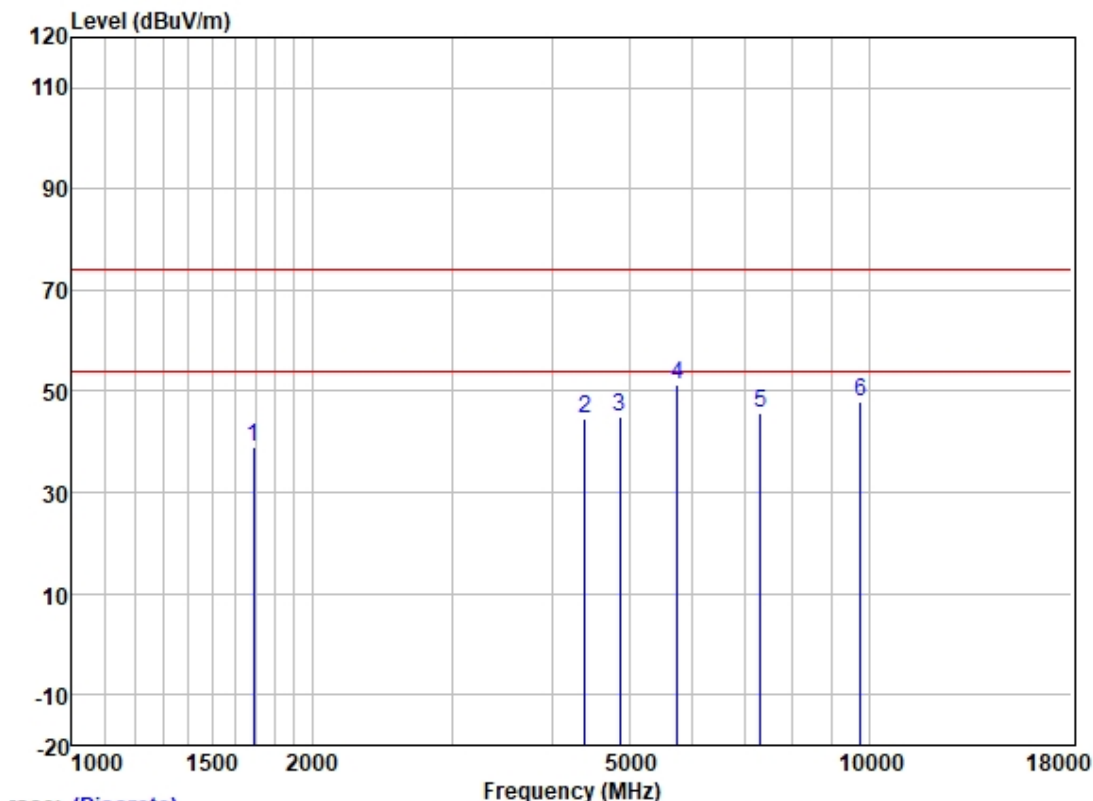
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Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1692.231	47.31	25.70	3.30	37.46	38.85	74.00	-35.15	VERTICAL peak
2	3992.781	49.01	29.79	5.25	36.70	47.35	74.00	-26.65	VERTICAL peak
3	4874.000	44.34	31.54	5.49	36.48	44.89	74.00	-29.11	VERTICAL peak
4	5209.075	50.31	31.74	5.33	36.29	51.09	74.00	-22.91	VERTICAL peak
5	7311.000	40.38	35.93	6.32	36.99	45.64	74.00	-28.36	VERTICAL peak
6	9748.000	38.70	38.50	7.43	36.83	47.80	74.00	-26.20	VERTICAL peak

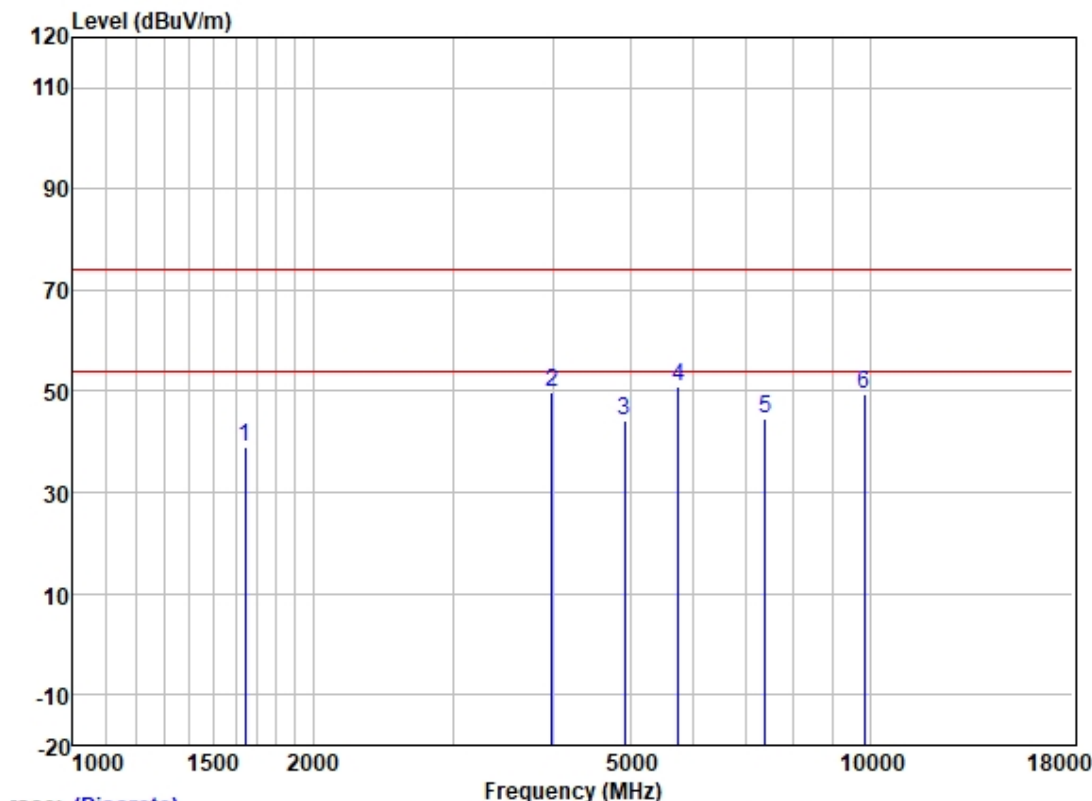
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Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1692.231	47.60	25.70	3.30	37.46	39.14	74.00	-34.86	HORIZONTAL peak
2	4405.090	45.29	30.68	5.37	36.63	44.71	74.00	-29.29	HORIZONTAL peak
3	4874.000	44.57	31.54	5.49	36.48	45.12	74.00	-28.88	HORIZONTAL peak
4	5746.982	49.57	32.10	5.70	36.14	51.23	74.00	-22.77	HORIZONTAL peak
5	7311.000	40.33	35.93	6.32	36.99	45.59	74.00	-28.41	HORIZONTAL peak
6	9748.000	39.02	38.50	7.43	36.83	48.12	74.00	-25.88	HORIZONTAL peak

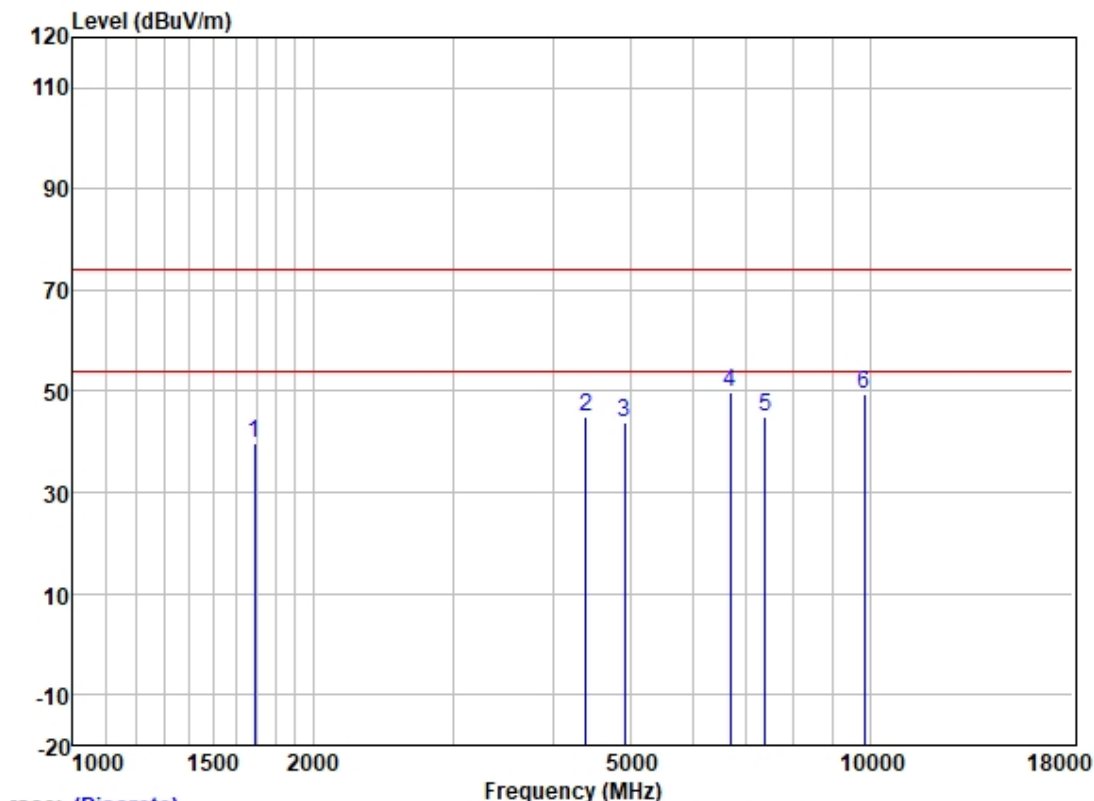
Test Mode: 01; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1644.019	47.76	25.63	3.11	37.51	38.99	74.00	-35.01	VERTICAL peak
2	3992.781	51.62	29.79	5.25	36.70	49.96	74.00	-24.04	VERTICAL peak
3	4924.000	43.53	31.62	5.51	36.45	44.21	74.00	-29.79	VERTICAL peak
4	5746.982	49.46	32.10	5.70	36.14	51.12	74.00	-22.88	VERTICAL peak
5	7386.000	39.08	36.17	6.30	37.04	44.51	74.00	-29.49	VERTICAL peak
6	9848.000	40.61	38.58	7.06	36.82	49.43	74.00	-24.57	VERTICAL peak

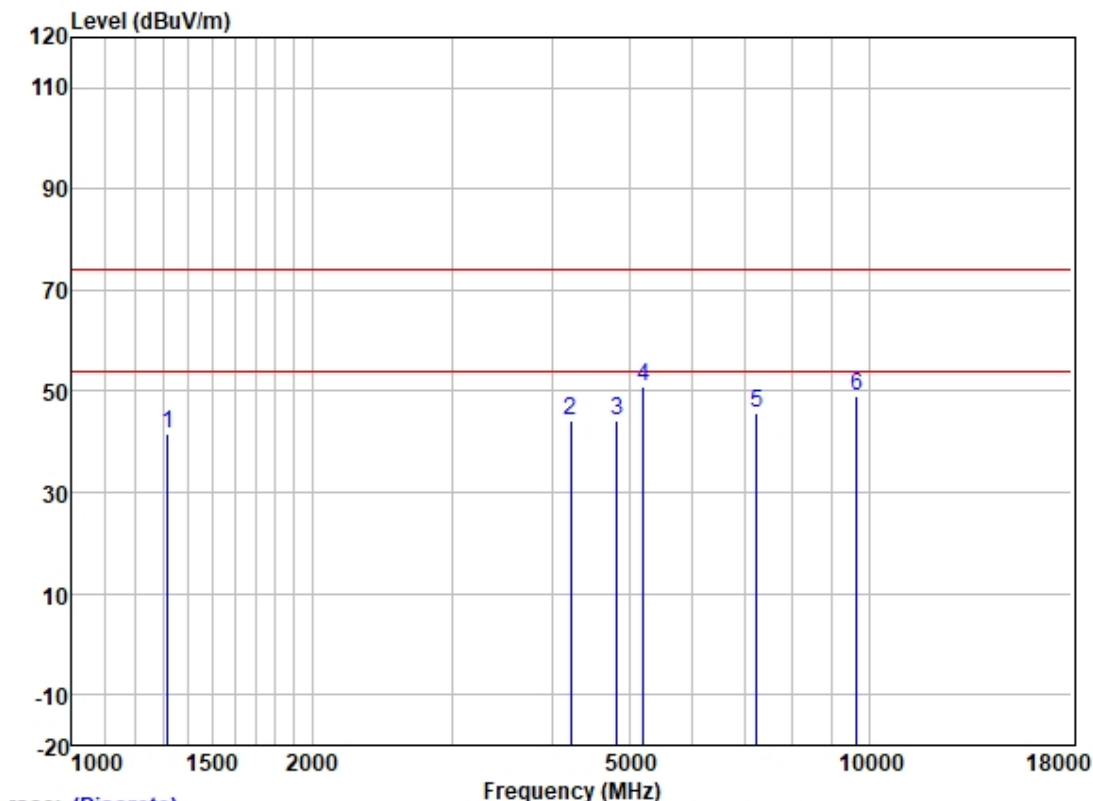
Test Mode: 01; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1692.231	48.02	25.70	3.30	37.46	39.56	74.00	-34.44	HORIZONTAL	peak
2	4405.090	45.47	30.68	5.37	36.63	44.89	74.00	-29.11	HORIZONTAL	peak
3	4924.000	43.27	31.62	5.51	36.45	43.95	74.00	-30.05	HORIZONTAL	peak
4	6679.040	45.45	34.33	6.27	36.39	49.66	74.00	-24.34	HORIZONTAL	peak
5	7386.000	39.40	36.17	6.30	37.04	44.83	74.00	-29.17	HORIZONTAL	peak
6	9848.000	40.80	38.58	7.06	36.82	49.62	74.00	-24.38	HORIZONTAL	peak

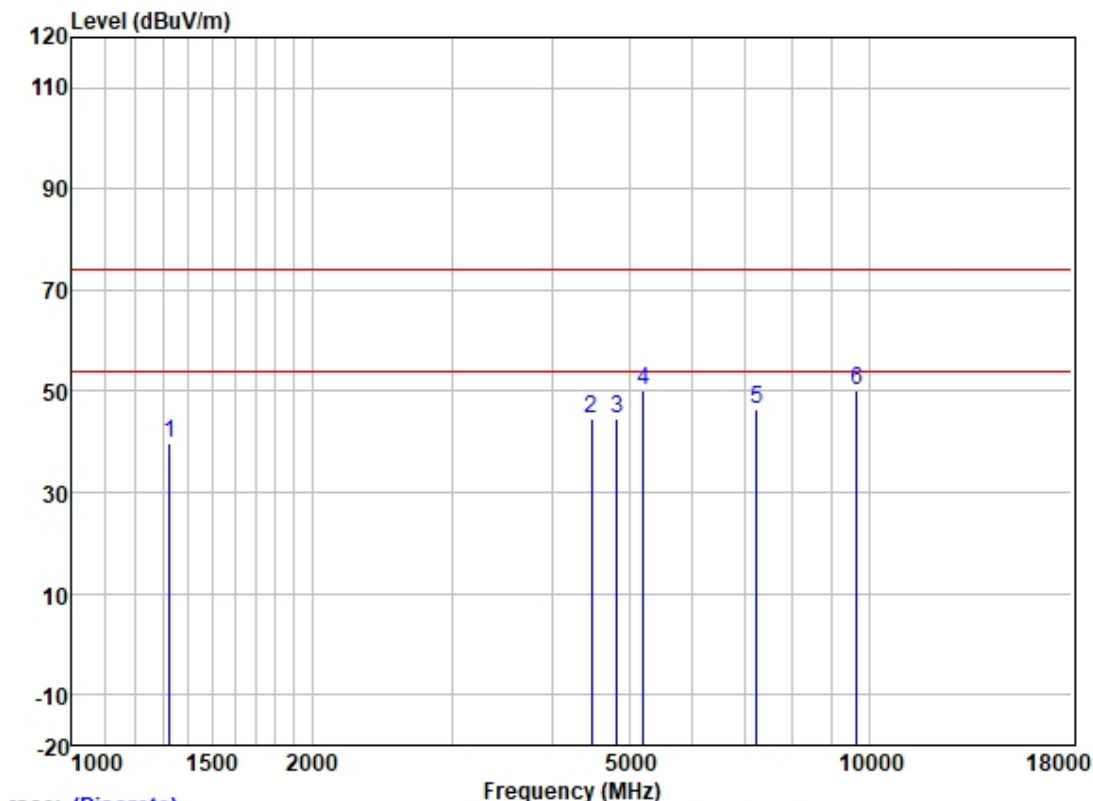
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1319.794	51.62	25.25	2.71	38.02	41.56	74.00	-32.44	VERTICAL	peak
2	4230.396	45.52	30.26	5.23	36.66	44.35	74.00	-29.65	VERTICAL	peak
3	4824.000	43.65	31.45	5.46	36.50	44.06	74.00	-29.94	VERTICAL	peak
4	5209.075	49.97	31.74	5.33	36.29	50.75	74.00	-23.25	VERTICAL	peak
5	7236.000	40.70	35.70	6.35	36.94	45.81	74.00	-28.19	VERTICAL	peak
6	9648.000	39.79	38.40	7.89	36.85	49.23	74.00	-24.77	VERTICAL	peak

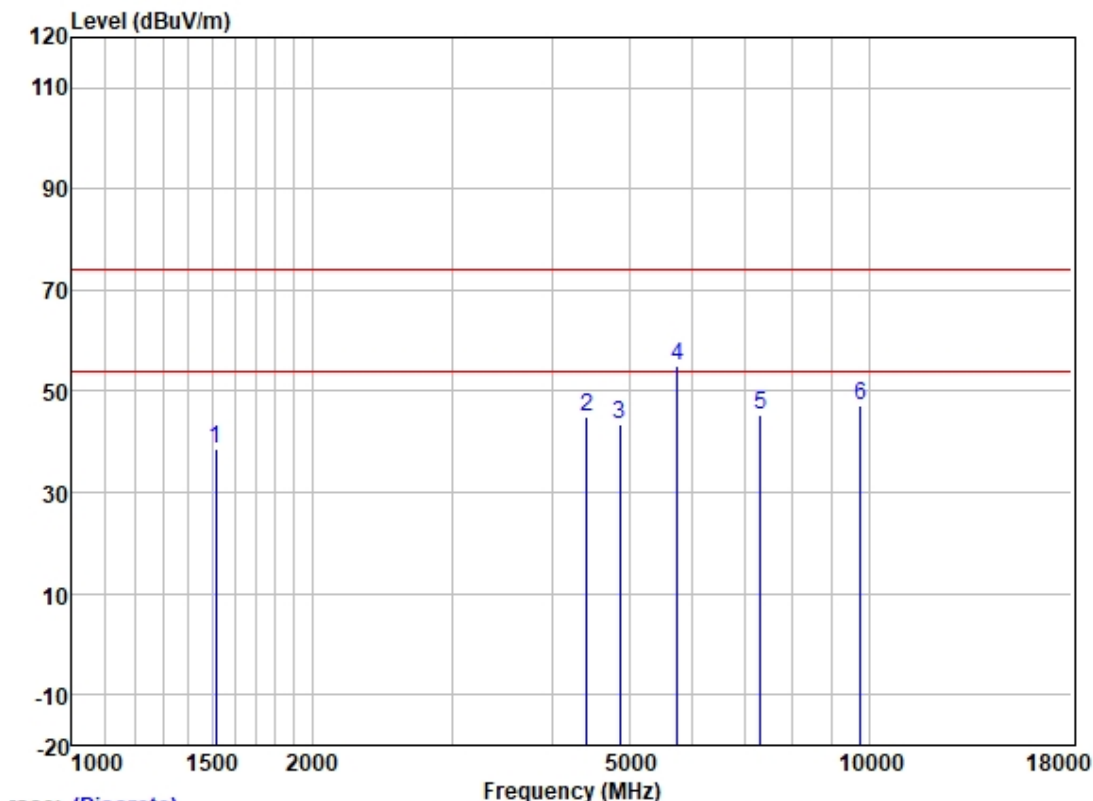
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1327.446	49.84	25.27	2.72	38.02	39.81	74.00	-34.19	HORIZONTAL peak
2	4482.150	45.25	30.78	5.34	36.61	44.76	74.00	-29.24	HORIZONTAL peak
3	4824.000	44.12	31.45	5.46	36.50	44.53	74.00	-29.47	HORIZONTAL peak
4	5209.075	49.58	31.74	5.33	36.29	50.36	74.00	-23.64	HORIZONTAL peak
5	7236.000	41.23	35.70	6.35	36.94	46.34	74.00	-27.66	HORIZONTAL peak
6	9648.000	40.75	38.40	7.89	36.85	50.19	74.00	-23.81	HORIZONTAL peak

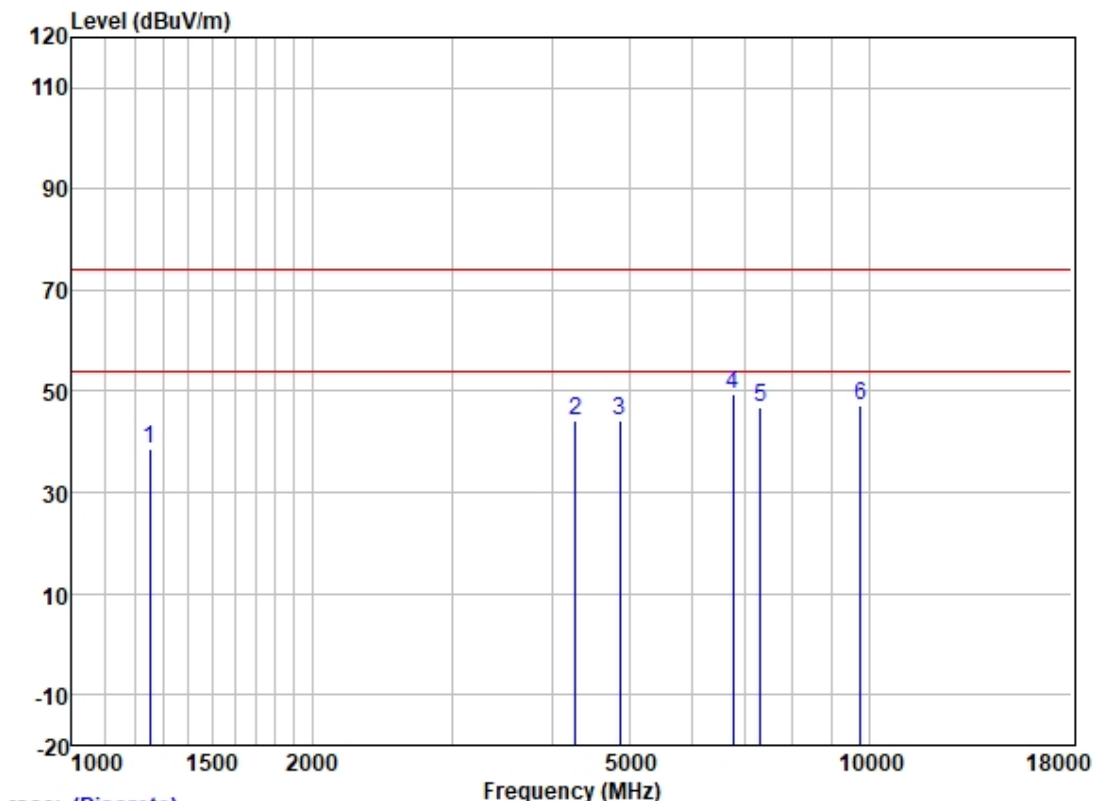
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: middle



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1516.210	47.92	25.51	2.92	37.70	38.65	74.00	-35.35	VERTICAL	peak
2	4430.628	45.37	30.72	5.36	36.62	44.83	74.00	-29.17	VERTICAL	peak
3	4874.000	43.01	31.54	5.49	36.48	43.56	74.00	-30.44	VERTICAL	peak
4	5746.982	53.20	32.10	5.70	36.14	54.86	74.00	-19.14	VERTICAL	peak
5	7311.000	40.21	35.93	6.32	36.99	45.47	74.00	-28.53	VERTICAL	peak
6	9748.000	38.08	38.50	7.43	36.83	47.18	74.00	-26.82	VERTICAL	peak

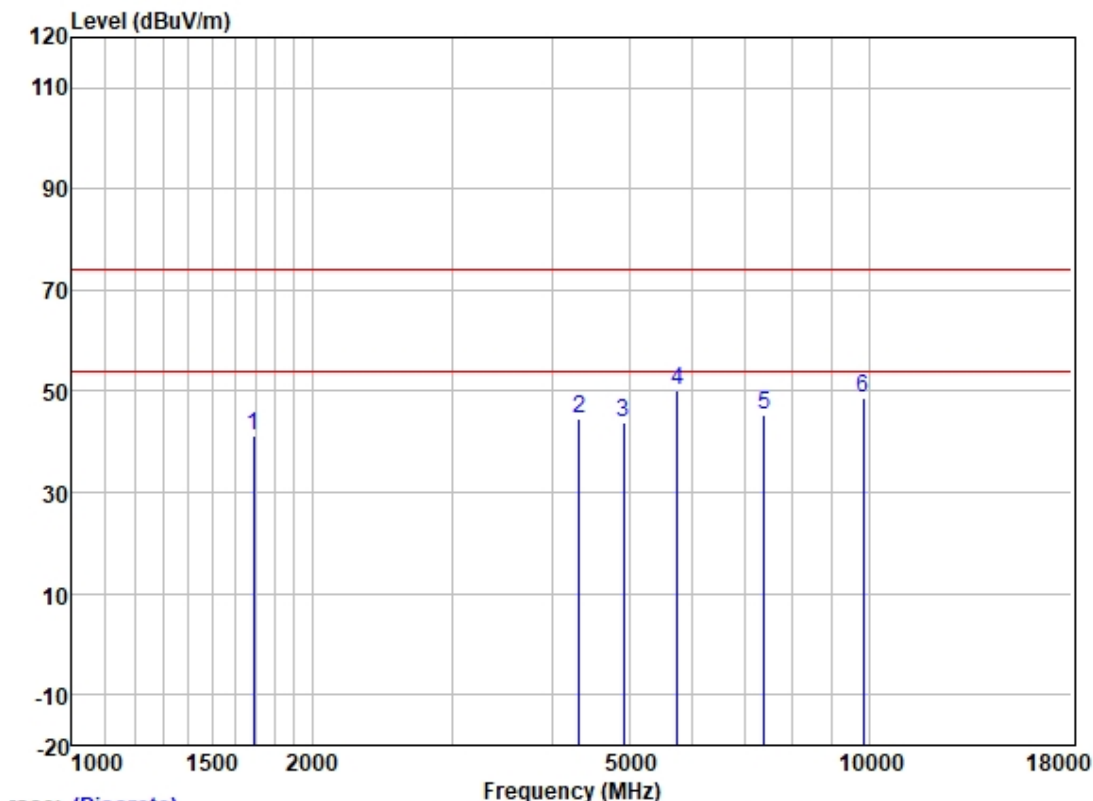
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel: middle



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1252.885	49.24	25.03	2.62	38.10	38.79	74.00	-35.21	HORIZONTAL peak
2	4279.589	45.11	30.42	5.27	36.65	44.15	74.00	-29.85	HORIZONTAL peak
3	4874.000	43.59	31.54	5.49	36.48	44.14	74.00	-29.86	HORIZONTAL peak
4	6756.708	44.86	34.56	6.32	36.44	49.30	74.00	-24.70	HORIZONTAL peak
5	7311.000	41.56	35.93	6.32	36.99	46.82	74.00	-27.18	HORIZONTAL peak
6	9748.000	37.91	38.50	7.43	36.83	47.01	74.00	-26.99	HORIZONTAL peak

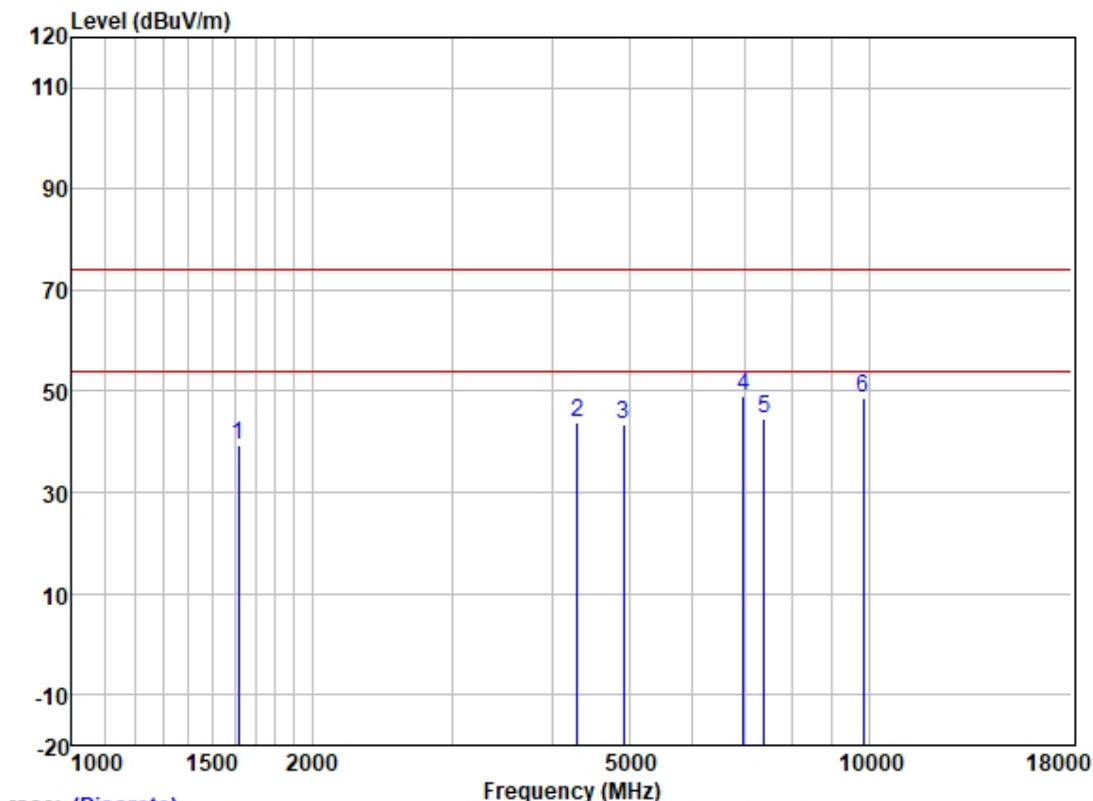
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1692.231	49.77	25.70	3.30	37.46	41.31	74.00	-32.69	VERTICAL	peak
2	4329.354	45.54	30.54	5.31	36.64	44.75	74.00	-29.25	VERTICAL	peak
3	4924.000	43.13	31.62	5.51	36.45	43.81	74.00	-30.19	VERTICAL	peak
4	5746.982	48.42	32.10	5.70	36.14	50.08	74.00	-23.92	VERTICAL	peak
5	7386.000	39.80	36.17	6.30	37.04	45.23	74.00	-28.77	VERTICAL	peak
6	9848.000	39.77	38.58	7.06	36.82	48.59	74.00	-25.41	VERTICAL	peak

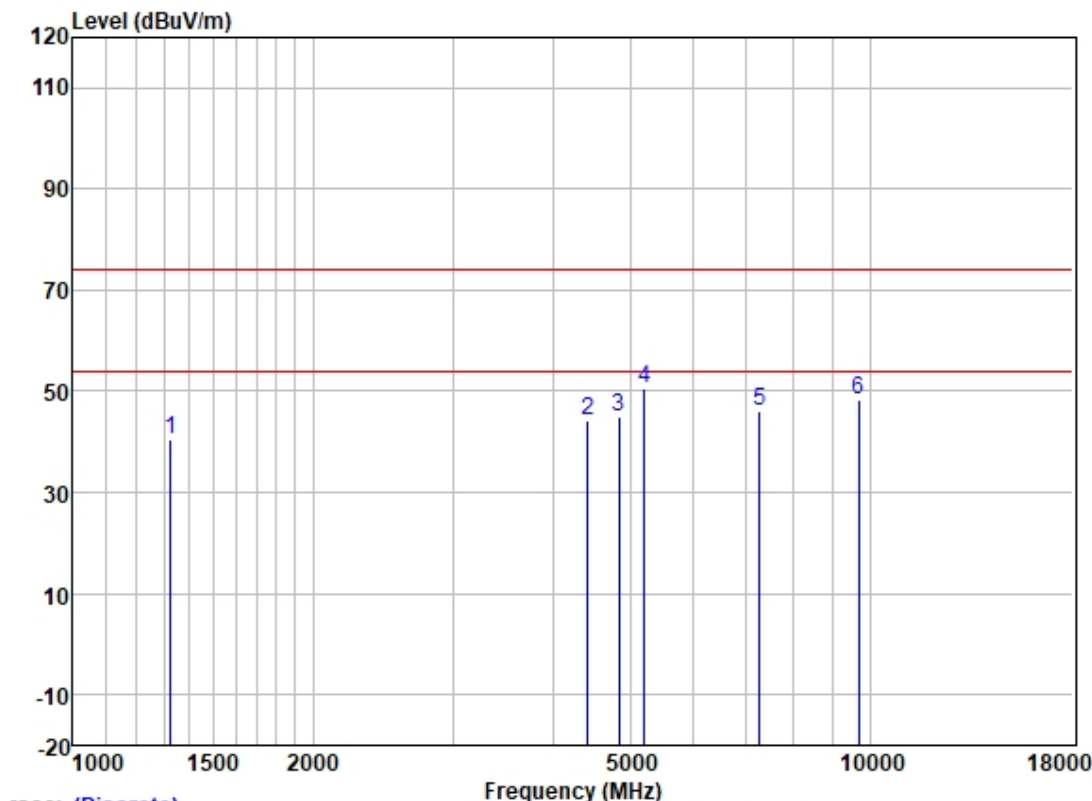
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1615.754	48.10	25.60	3.04	37.55	39.19	74.00	-34.81	HORIZONTAL peak
2	4304.400	44.66	30.48	5.29	36.65	43.78	74.00	-30.22	HORIZONTAL peak
3	4924.000	42.94	31.62	5.51	36.45	43.62	74.00	-30.38	HORIZONTAL peak
4	6954.852	44.33	34.95	6.40	36.63	49.05	74.00	-24.95	HORIZONTAL peak
5	7386.000	39.18	36.17	6.30	37.04	44.61	74.00	-29.39	HORIZONTAL peak
6	9848.000	39.93	38.58	7.06	36.82	48.75	74.00	-25.25	HORIZONTAL peak

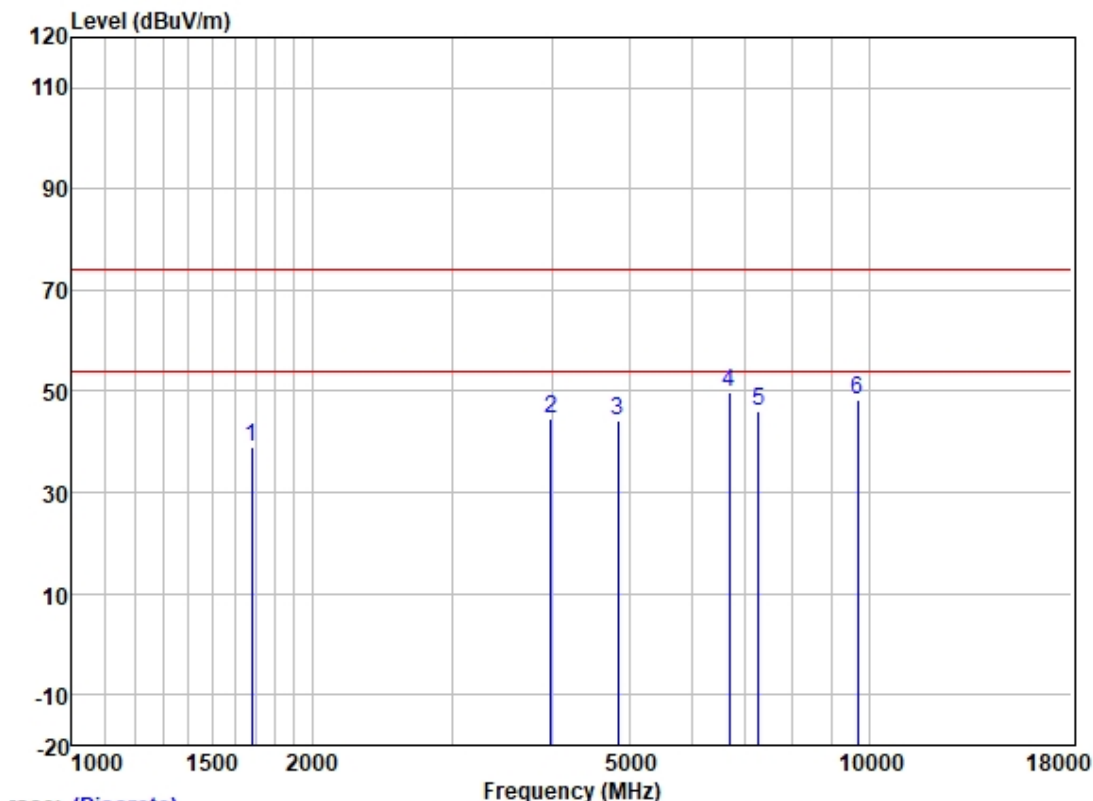
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel: Low



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1327.446	50.45	25.27	2.72	38.02	40.42	74.00	-33.58	VERTICAL peak
2	4430.628	44.86	30.72	5.36	36.62	44.32	74.00	-29.68	VERTICAL peak
3	4844.000	44.41	31.50	5.47	36.49	44.89	74.00	-29.11	VERTICAL peak
4	5209.075	49.72	31.74	5.33	36.29	50.50	74.00	-23.50	VERTICAL peak
5	7266.000	40.95	35.78	6.34	36.98	46.09	74.00	-27.91	VERTICAL peak
6	9688.000	38.90	38.44	7.68	36.84	48.18	74.00	-25.82	VERTICAL peak

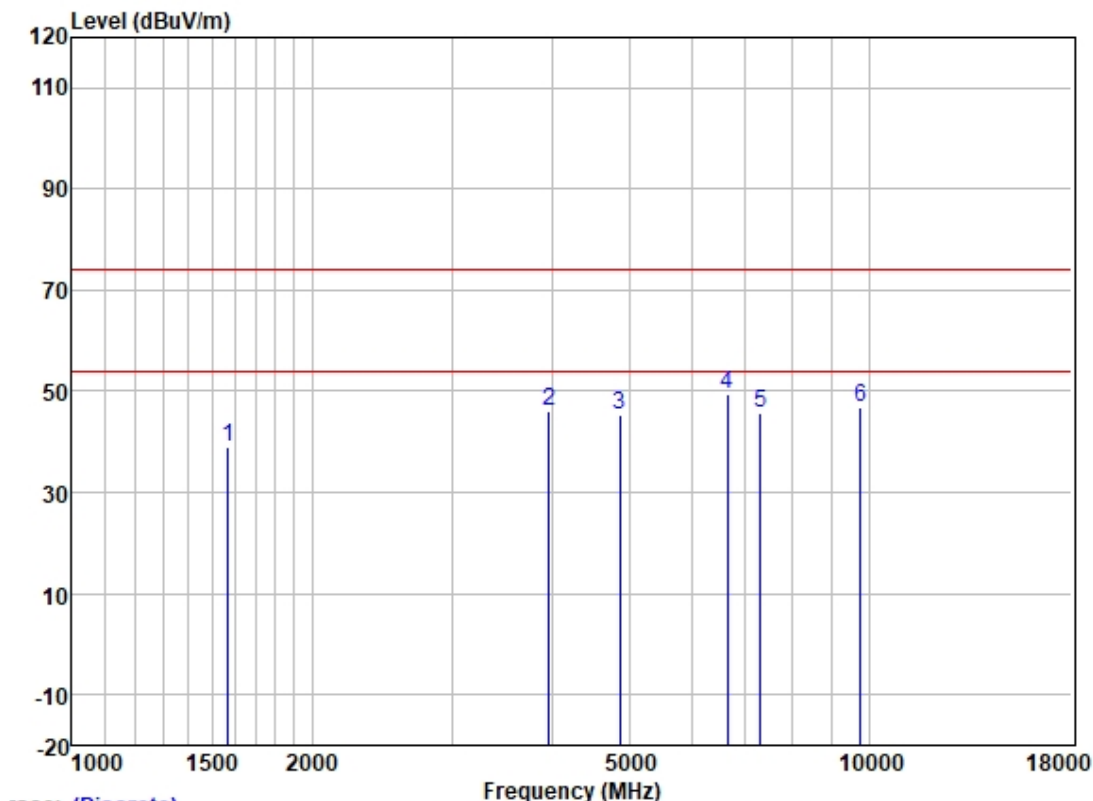
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel: Low



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1682.477	47.68	25.68	3.25	37.48	39.13	74.00	-34.87	HORIZONTAL peak
2	3992.781	46.11	29.79	5.25	36.70	44.45	74.00	-29.55	HORIZONTAL peak
3	4844.000	43.70	31.50	5.47	36.49	44.18	74.00	-29.82	HORIZONTAL peak
4	6679.040	45.75	34.33	6.27	36.39	49.96	74.00	-24.04	HORIZONTAL peak
5	7266.000	40.79	35.78	6.34	36.98	45.93	74.00	-28.07	HORIZONTAL peak
6	9688.000	39.07	38.44	7.68	36.84	48.35	74.00	-25.65	HORIZONTAL peak

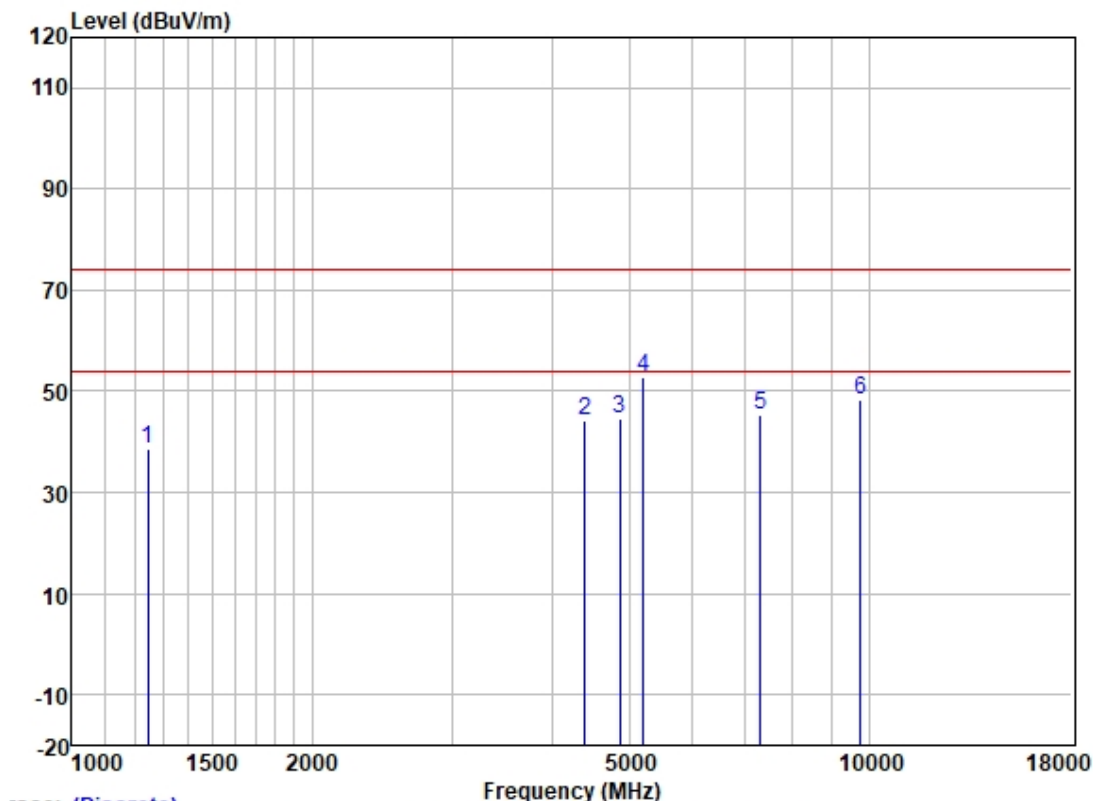
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel: middle



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1569.721	48.16	25.55	2.99	37.62	39.08	74.00	-34.92	VERTICAL peak
2	3969.767	47.94	29.77	5.18	36.70	46.19	74.00	-27.81	VERTICAL peak
3	4874.000	44.94	31.54	5.49	36.48	45.49	74.00	-28.51	VERTICAL peak
4	6640.542	45.34	34.24	6.25	36.37	49.46	74.00	-24.54	VERTICAL peak
5	7311.000	40.36	35.93	6.32	36.99	45.62	74.00	-28.38	VERTICAL peak
6	9748.000	37.74	38.50	7.43	36.83	46.84	74.00	-27.16	VERTICAL peak

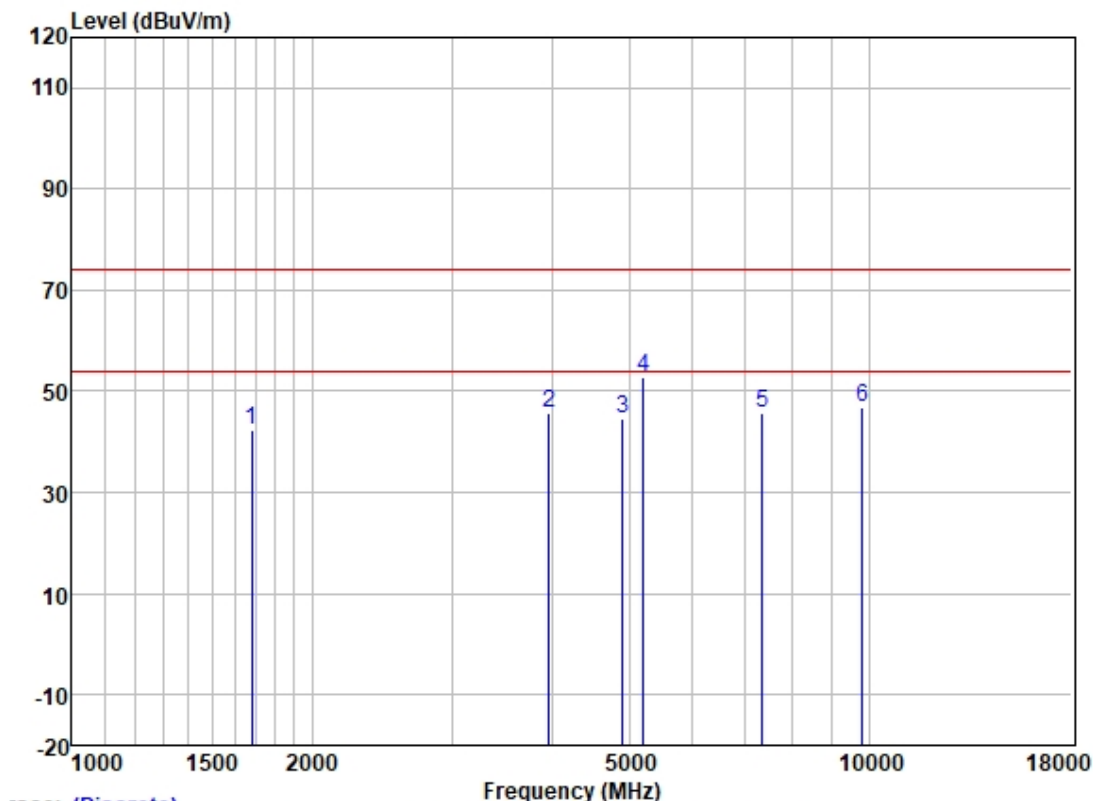
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel: middle



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1245.663	48.97	25.00	2.61	38.10	38.48	74.00	-35.52	HORIZONTAL peak
2	4405.090	44.76	30.68	5.37	36.63	44.18	74.00	-29.82	HORIZONTAL peak
3	4874.000	43.88	31.54	5.49	36.48	44.43	74.00	-29.57	HORIZONTAL peak
4	5209.075	52.12	31.74	5.33	36.29	52.90	74.00	-21.10	HORIZONTAL peak
5	7311.000	40.25	35.93	6.32	36.99	45.51	74.00	-28.49	HORIZONTAL peak
6	9748.000	39.20	38.50	7.43	36.83	48.30	74.00	-25.70	HORIZONTAL peak

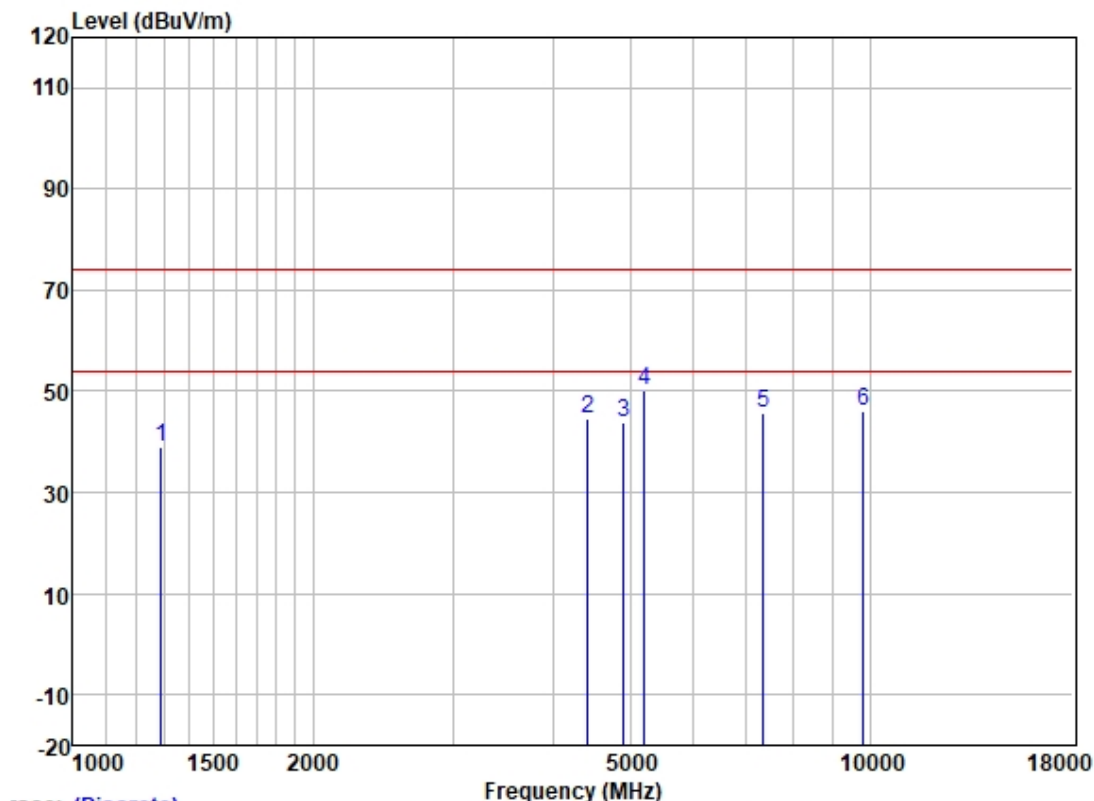
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel: High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Level	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1682.477	50.82	25.68	3.25	37.48	42.27	74.00	-31.73	VERTICAL peak
2	3969.767	47.50	29.77	5.18	36.70	45.75	74.00	-28.25	VERTICAL peak
3	4904.000	43.92	31.58	5.50	36.46	44.54	74.00	-29.46	VERTICAL peak
4	5209.075	52.16	31.74	5.33	36.29	52.94	74.00	-21.06	VERTICAL peak
5	7356.000	40.37	36.06	6.31	37.03	45.71	74.00	-28.29	VERTICAL peak
6	9808.000	38.02	38.56	7.17	36.83	46.92	74.00	-27.08	VERTICAL peak

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



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over		
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1289.627	49.29	25.17	2.66	38.04	39.08	74.00	-34.92	HORIZONTAL peak
2	4430.628	45.20	30.72	5.36	36.62	44.66	74.00	-29.34	HORIZONTAL peak
3	4904.000	43.28	31.58	5.50	36.46	43.90	74.00	-30.10	HORIZONTAL peak
4	5209.075	49.42	31.74	5.33	36.29	50.20	74.00	-23.80	HORIZONTAL peak
5	7356.000	40.38	36.06	6.31	37.03	45.72	74.00	-28.28	HORIZONTAL peak
6	9808.000	37.22	38.56	7.17	36.83	46.12	74.00	-27.88	HORIZONTAL peak

7 Test Setup Photo

Refer to Appendix - Test Setup Photo for GZCR2209001150AT

8 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for GZCR2209001150AT

- End of the Report -