

TEST REPORT

Application No.: GZCR2305000530HS
Applicant: Lucidtron Limited
Address of Applicant: Unit 17, 12/F., New Tech Plaza, 34 Tai Yau Street, San Po Kong, KL
Manufacturer: Nuve Controls LLC
Address of Manufacturer: 23221 Peralta Drive, Suite C, Laguna Hills, California 92653
Factory: Automated Technology (Phil.) Inc.
Address of Factory: Plant 2 - Lot 1 Blk. 3 Phase 5 Ampere St. LISP1 SEPZ, Cabuyao, Laguna, PH 4025

Equipment Under Test (EUT):

EUT Name: Nuve Smart Thermostat

Model No.: Samo

Trade Mark:



Standard(s) : 47 CFR Part 15, Subpart C 15.247

Date of Receipt: 2023-05-31

Date of Test: 2023-06-02 to 2023-07-24

Date of Issue: 2023-09-01

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

Ricky Liu
Manager

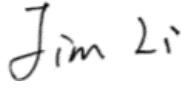
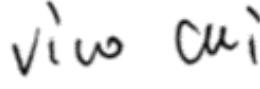


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Revision Record			
Version	Report No.	Date	Remark
01	GZCR230500053002	2023-09-01	Original

Authorized for issue by			
		 Jim Li	
		Jim Li/Project Engineer	
		 Vico Cui	
		Vico Cui/Reviewer	

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2 Test Summary

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

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted 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
Conducted Peak Output Power		ANSI C63.10 (2013) Section 11.9.2	47 CFR Part 15, Subpart C 15.247(b)(3)	Pass
Minimum 6dB Bandwidth		ANSI C63.10 (2013) Section 11.8.1	47 CFR Part 15, Subpart C 15.247a(2)	Pass
Power Spectrum Density		ANSI C63.10 (2013) Section 11.10.2	47 CFR Part 15, Subpart C 15.247(e)	Pass
Conducted Band Edges Measurement		ANSI C63.10 (2013) Section 11.13.3.2	47 CFR Part 15, Subpart C 15.247(d)	Pass
Conducted Spurious Emissions		ANSI C63.10 (2013) Section 11.11	47 CFR Part 15, Subpart C 15.247(d)	Pass
Radiated Emissions which fall in the restricted bands		ANSI C63.10 (2013) Section 11.12	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Below 1GHz		ANSI C63.10 (2013) Section 6.4,6.5	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass
Radiated Spurious Emissions Above 1GHz		ANSI C63.10 (2013) Section 6.6	47 CFR Part 15, Subpart C 15.205 & 15.209	Pass

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.

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4 General Information

4.1 Details of E.U.T.

Power supply:	AC 24V, 60 Hz
Test voltage:	AC 120 V, 60 Hz powered by AC/DC Adapter refer to section 4.2
Cable(s):	0.4m Cable, 2 wires, unshielded.
Antenna Number:	2 (1 for 2.4 GHz Wi-Fi and the other for 915-920 MHz)
For 2.4 GHz Wi-Fi	
Operation Frequency:	802.11b/g/n(HT20): 2412MHz to 2462MHz
Modulation Type:	802.11b: DSSS (CCK, DQPSK, DBPSK); 802.11g/n: OFDM (64QAM, 16QAM, QPSK, BPSK)
Number of Channels:	802.11b/g/n(HT20):11
Channel Spacing:	5MHz
Antenna Type:	PCB Antenna
Antenna Gain:	0.6 dBi
For 915-920 MHz	
Operation Frequency:	915 MHz, 917.5 MHz, 920MHz
Number of Channels:	3
Antenna Type:	PCB Antenna
Antenna Gain:	0.5 dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Note Book Computer	LENOVO	ThinkPad T490	PF1D1MVJ
AC/DC Adapter	MEAN WELL	YW-2440 (Input: AC 100-240V, 50/60Hz; Output: AC 24V, 4A)	/



4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	±2.76dB
Conducted Peak Output Power	± 0.75dB
Minimum 6dB Bandwidth	± 3%
Power Spectrum Density	± 2.84dB
Conducted Band Edges Measurement	± 0.75dB
Conducted Spurious Emissions	± 0.75dB
Radiated Emissions which fall in the restricted bands	±5.00dB (30MHz-1GHz; 3m); ±4.38dB (30MHz-1GHz; 10m); ± 5.12dB (1GHz-6GHz); ±5.38dB (6GHz-18GHz); ±5.61dB(18GHz-40GHz)
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, Scientech Park, Guangzhou Economic & Technology Development District,
Guangzhou, China 510663

Tel: +86 20 82155555 Fax: +86 20 82075059

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, IEC6001 and Rules of procedure IEC6002, and the relevant IEC600 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	2023-05-19	2024-05-18
Test Software E3r	Audix	Ver.6.11812	GZE100-77	N/A	N/A

Conducted Peak Output Power					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2023-06-14	2024-06-13
4X4 Power sensor Unit	TST	TSPS2023R	EMC2257	2022-09-08	2023-09-07
Test Software	TST	V2.0	GZE100-82	N/A	N/A

Minimum 6dB Bandwidth					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2023-06-14	2024-06-13
4X4 Power sensor Unit	TST	TSPS2023R	EMC2257	2022-09-08	2023-09-07
Test Software	TST	V2.0	GZE100-82	N/A	N/A

Power Spectrum Density					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2023-06-14	2024-06-13
4X4 Power sensor Unit	TST	TSPS2023R	EMC2257	2022-09-08	2023-09-07
Test Software	TST	V2.0	GZE100-82	N/A	N/A

Conducted Band Edges Measurement					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2023-06-14	2024-06-13
4X4 Power sensor Unit	TST	TSPS2023R	EMC2257	2022-09-08	2023-09-07
Test Software	TST	V2.0	GZE100-82	N/A	N/A

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Conducted Spurious Emissions

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2023-06-14	2024-06-13
4X4 Power sensor Unit	TST	TSPS2023R	EMC2257	2022-09-08	2023-09-07
Test Software	TST	V2.0	GZE100-82	N/A	N/A

Radiated Emissions which fall in the restricted bands

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	2023-06-18	2026-06-17
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

Radiated Spurious Emissions Below 1GHz

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
966 Anechoic Chamber	Shenzhen C.R.T	CRTSGSSAC966	EMC2230	2022-04-12	2025-04-11
EMI Test Receiver(1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2229	2023-02-20	2024-02-19
Amplifier(9k-1000MHz)	SONOMA	310	EMC2237	2023-04-13	2024-04-12
TRILOG Broadband Antenna (25M-2GHz)	SCHWRZBECK	VULB 9168	EMC2238	2022-04-20	2025-04-19
Coaxial Cable	Times Microwave	BL03-NMNM-6	EMC2239	2022-05-18	2024-05-17
Test Software E3	Audix	Ver.6.191211	GZE100-81	N/A	N/A
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2022-04-06	2024-04-05

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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	2023-06-18	2026-06-17
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	2023-06-11	2024-06-10

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

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

6.1.2 Conclusion

Standard Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

15.247(b) (4) requirement:

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

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the antenna1 is 0.6 dBi for Wi-Fi antenna and of the antenna2 is 0.5 dBi for 915 MHz to 920 MHz.

Antenna location: Refer to internal photo.



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7 Radio Spectrum Matter Test Results

7.1 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 (dB μ V)	
	Quasi-peak	Average
0.15-0.5	66 to 56*	56 to 46*
0.5-5	56	46
5-30	60	50

*Decreases with the logarithm of the frequency.

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

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 21.8 °C Humidity: 55.1 % RH Atmospheric Pressure: 1006 mbar

7.1.2 Test Mode Description

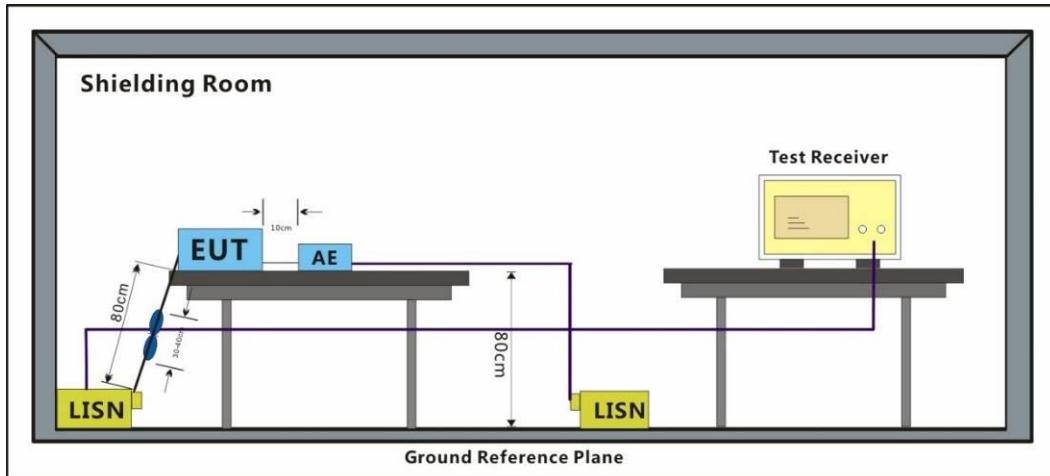
Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.



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7.1.3 Test Setup Diagram



7.1.4 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/50 μ H + 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.

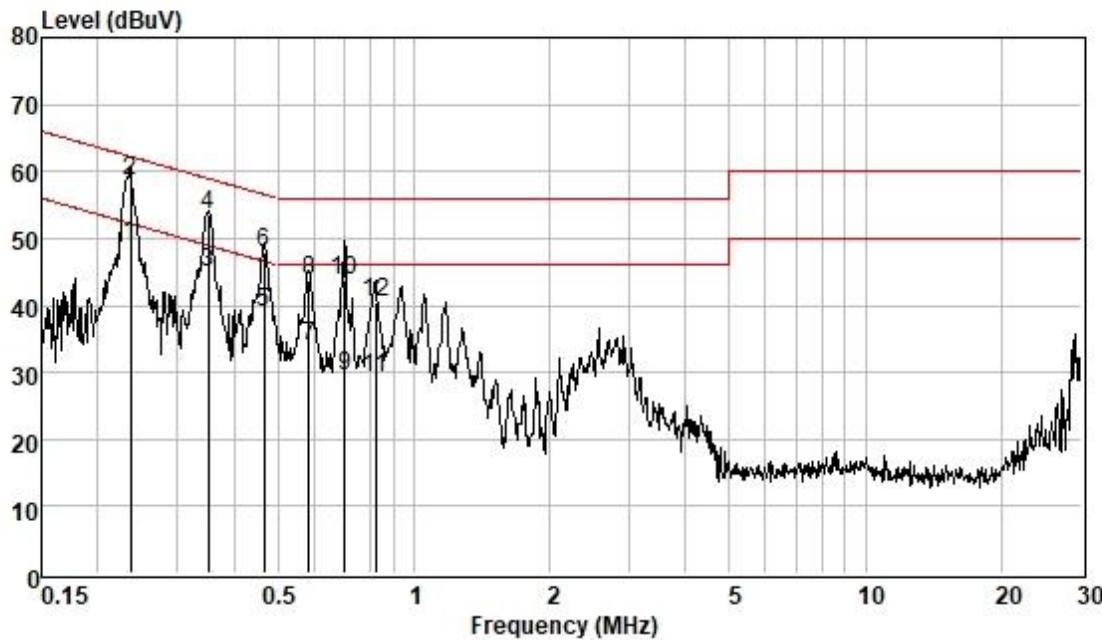
Remark: Level=Read Level+ Cable Loss+ LISN Factor

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Test Mode: 01; Line: Live line



Pol :LINE

Mode :

Model :

Power :

	Frequenc	Read Level	Cable Loss	LISN Factor	Measured Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.237	39.34	0.06	9.61	49.01	52.22	-3.21	Average
2	0.237	48.81	0.06	9.61	58.48	62.22	-3.74	QP
3	0.350	35.35	0.06	9.60	45.01	48.96	-3.95	Average
4	0.350	43.80	0.06	9.60	53.46	58.96	-5.50	QP
5	0.466	29.27	0.07	9.59	38.93	46.58	-7.65	Average
6	0.466	38.19	0.07	9.59	47.85	56.58	-8.73	QP
7	0.585	24.20	0.07	9.61	33.88	46.00	-12.12	Average
8	0.585	33.98	0.07	9.61	43.66	56.00	-12.34	QP
9	0.705	19.85	0.07	9.60	29.52	46.00	-16.48	Average
10	0.705	34.16	0.07	9.60	43.83	56.00	-12.17	QP
11	0.822	19.35	0.07	9.61	29.03	46.00	-16.97	Average
12	0.822	30.76	0.07	9.61	40.44	56.00	-15.56	QP

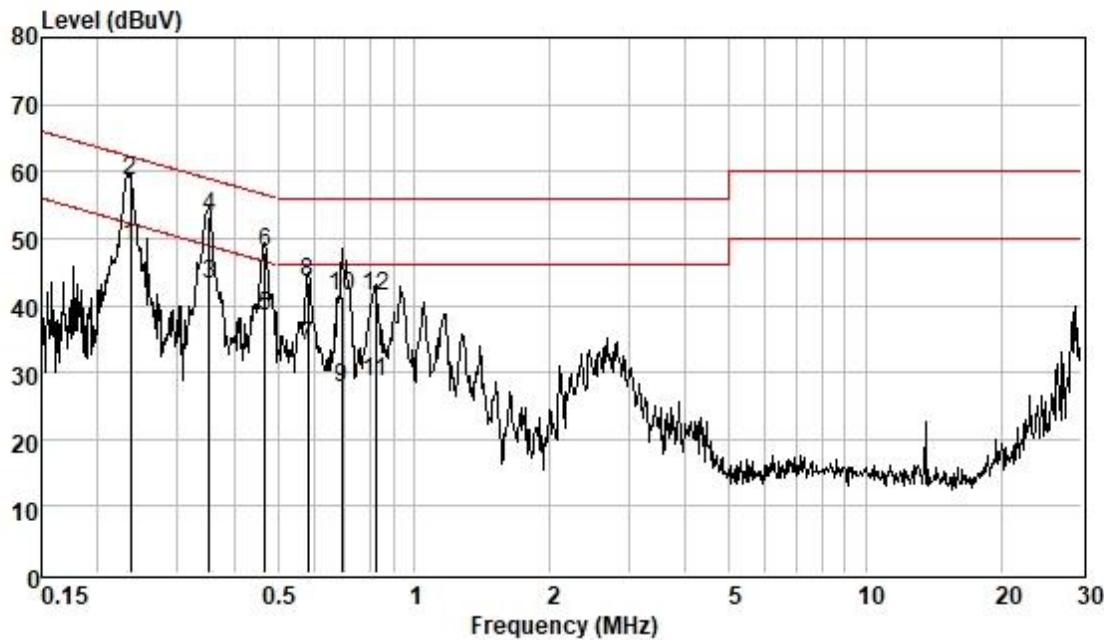
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中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

Test Mode: 01; Line: Neutral Line



Pol :NEUTRAL
Mode :
Model :
Power :

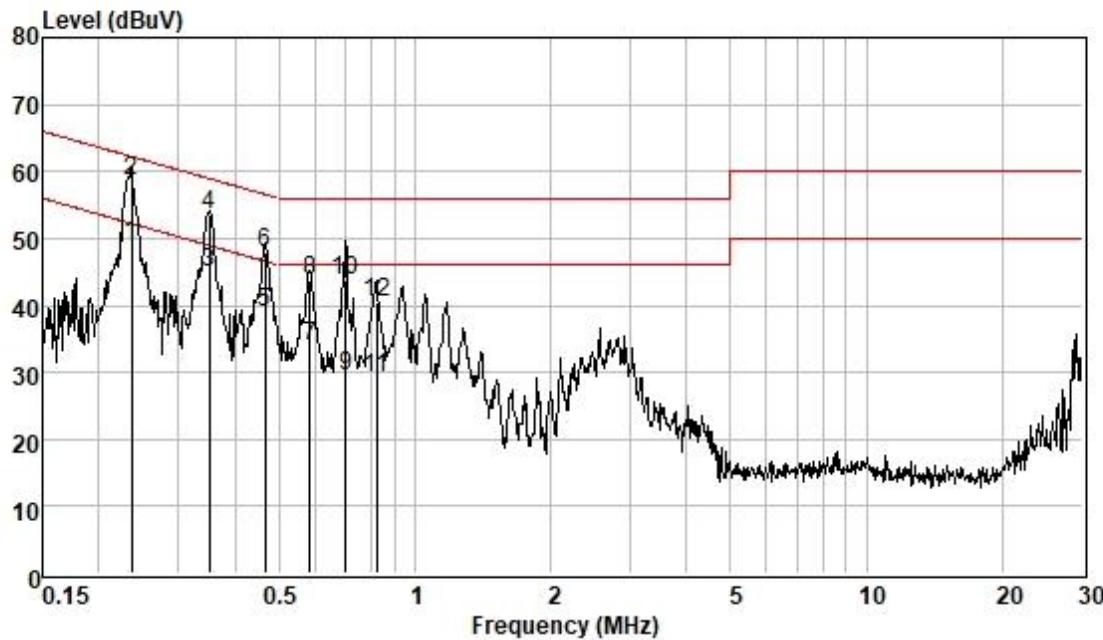
	Read	Cable	LISN	Measured	Limit	Over		
Frequenc	Level	Loss	Factor	Level	Line	Limit	Remark	
MHz	dBuV	dB	dB	dBuV	dBuV	dB		
1	0.237	39.06	0.06	9.61	48.73	52.22	-3.49	Average
2	0.237	49.06	0.06	9.61	58.73	62.22	-3.49	QP
3	0.352	33.49	0.06	9.62	43.17	48.91	-5.74	Average
4	0.352	43.64	0.06	9.62	53.32	58.91	-5.59	QP
5	0.469	28.77	0.07	9.60	38.44	46.54	-8.10	Average
6	0.469	38.17	0.07	9.60	47.84	56.54	-8.70	QP
7	0.582	24.34	0.07	9.62	34.03	46.00	-11.97	Average
8	0.582	33.62	0.07	9.62	43.31	56.00	-12.69	QP
9	0.694	18.08	0.07	9.61	27.76	46.00	-18.24	Average
10	0.694	31.55	0.07	9.61	41.23	56.00	-14.77	QP
11	0.822	18.85	0.07	9.62	28.54	46.00	-17.46	Average
12	0.822	31.53	0.07	9.62	41.22	56.00	-14.78	QP

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Guangzhou Branch Technical Center EFC Laboratory

Test Mode: 03; Line: Live line



Pol :LINE

Mode :

Model :

Power :

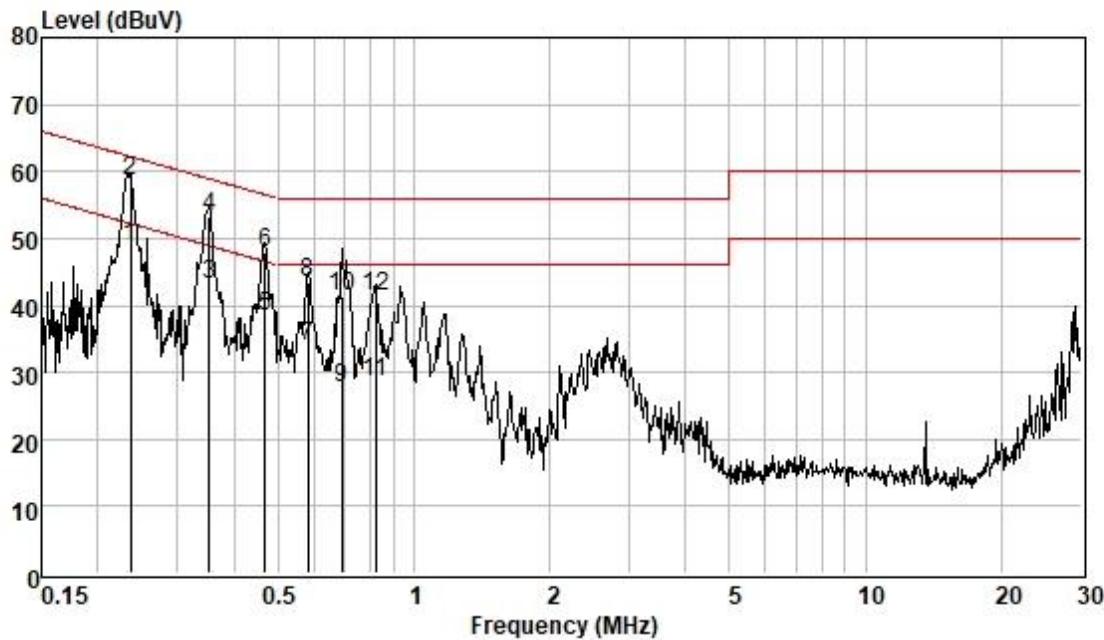
	Frequenc	Read	Cable	LISN	Measured	Limit	Over	Remark
	MHz	Level	Loss	Factor	Level	Line	Limit	dB
		dBuV	dB	dB	dBuV	dBuV		
1	0.237	39.34	0.06	9.61	49.01	52.22	-3.21	Average
2	0.237	48.81	0.06	9.61	58.48	62.22	-3.74	QP
3	0.350	35.35	0.06	9.60	45.01	48.96	-3.95	Average
4	0.350	43.80	0.06	9.60	53.46	58.96	-5.50	QP
5	0.466	29.27	0.07	9.59	38.93	46.58	-7.65	Average
6	0.466	38.19	0.07	9.59	47.85	56.58	-8.73	QP
7	0.585	24.20	0.07	9.61	33.88	46.00	-12.12	Average
8	0.585	33.98	0.07	9.61	43.66	56.00	-12.34	QP
9	0.705	19.85	0.07	9.60	29.52	46.00	-16.48	Average
10	0.705	34.16	0.07	9.60	43.83	56.00	-12.17	QP
11	0.822	19.35	0.07	9.61	29.03	46.00	-16.97	Average
12	0.822	30.76	0.07	9.61	40.44	56.00	-15.56	QP

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Test Mode: 03; Line: Neutral Line



Pol :NEUTRAL
Mode :
Model :
Power :

	Read	Cable	LISN	Measured	Limit	Over		
Frequenc	Level	Loss	Factor	Level	Line	Limit	Remark	
MHz	dBuV	dB	dB	dBuV	dBuV	dB		
1	0.237	39.06	0.06	9.61	48.73	52.22	-3.49	Average
2	0.237	49.06	0.06	9.61	58.73	62.22	-3.49	QP
3	0.352	33.49	0.06	9.62	43.17	48.91	-5.74	Average
4	0.352	43.64	0.06	9.62	53.32	58.91	-5.59	QP
5	0.469	28.77	0.07	9.60	38.44	46.54	-8.10	Average
6	0.469	38.17	0.07	9.60	47.84	56.54	-8.70	QP
7	0.582	24.34	0.07	9.62	34.03	46.00	-11.97	Average
8	0.582	33.62	0.07	9.62	43.31	56.00	-12.69	QP
9	0.694	18.08	0.07	9.61	27.76	46.00	-18.24	Average
10	0.694	31.55	0.07	9.61	41.23	56.00	-14.77	QP
11	0.822	18.85	0.07	9.62	28.54	46.00	-17.46	Average
12	0.822	31.53	0.07	9.62	41.22	56.00	-14.78	QP

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Guangzhou Branch Testing Center EEC Laboratory.

7.2 Conducted Peak Output Power

Test Requirement 47 CFR Part 15, Subpart C 15.247(b)(3)

Test Method: ANSI C63.10 (2013) Section 11.9.2

Limit:

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

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 58.5 % RH Atmospheric Pressure: 1006 mbar

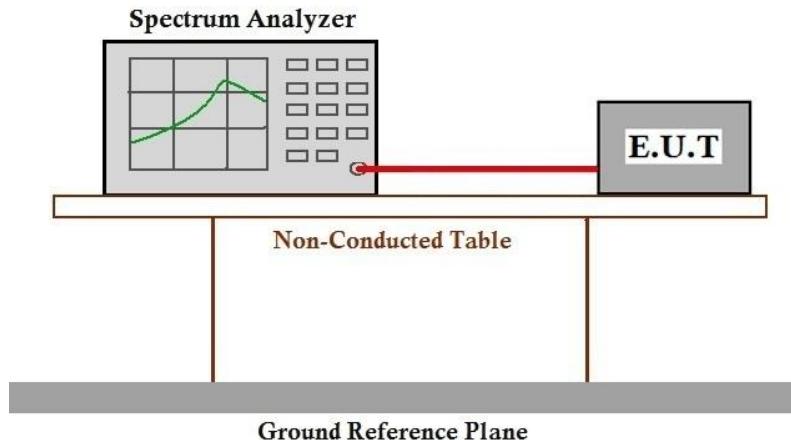
7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.

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7.2.3 Test Setup Diagram**7.2.4 Measurement Procedure and Data**

Please Refer to Appendix for Details



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7.3 Minimum 6dB Bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.247a(2)

Test Method: ANSI C63.10 (2013) Section 11.8.1

Limit: ≥ 500 kHz

7.3.1 E.U.T. Operation

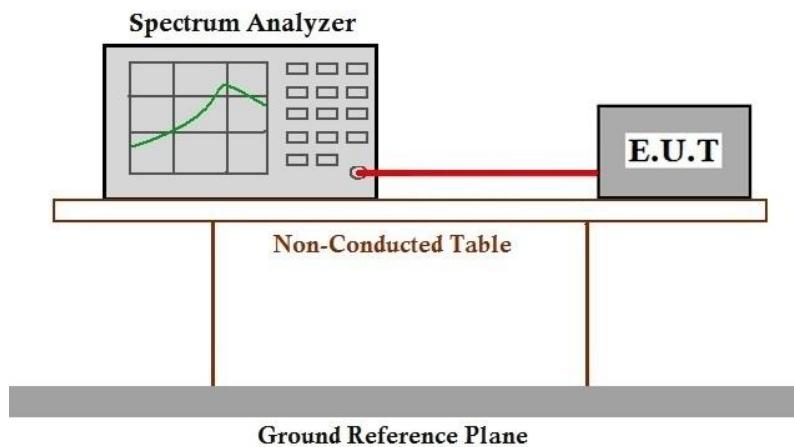
Operating Environment:

Temperature: 25.1 °C Humidity: 58.5 % RH Atmospheric Pressure: 1006 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.4 Power Spectrum Density

Test Requirement 47 CFR Part 15, Subpart C 15.247(e)
Test Method: ANSI C63.10 (2013) Section 11.10.2
Limit: ≤8dBm in any 3 kHz band during any time interval of continuous transmission

7.4.1 E.U.T. Operation

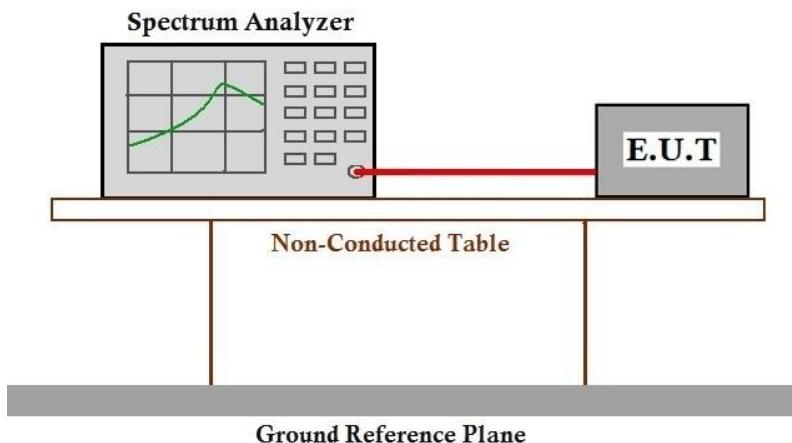
Operating Environment:

Temperature: 25.1 °C Humidity: 58.5 % RH Atmospheric Pressure: 1006 mbar

7.4.2 Test Mode Description

Pre-scan / Mode Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.5 Conducted Band Edges Measurement

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

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

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 58.5 % RH Atmospheric Pressure: 1006 mbar

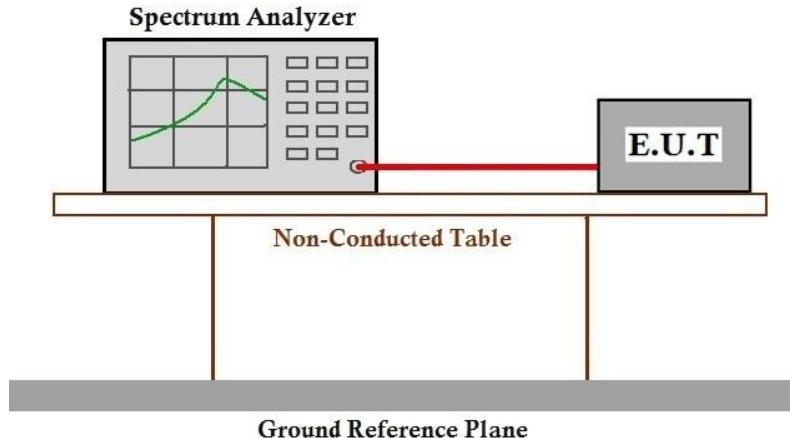
7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.



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7.5.3 Test Setup Diagram**7.5.4 Measurement Procedure and Data**

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7.6 Conducted Spurious Emissions

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

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

Limit:

In any 100 kHz bandwidth outside the frequency band in which the spread spectrum or digitally modulated intentional radiator is operating, the radio frequency power that is produced by the intentional radiator shall be at least 20 dB below that in the 100 kHz bandwidth within the band that contains the highest level of the desired power, based on either an RF conducted or a radiated measurement, provided the transmitter demonstrates compliance with the peak conducted power limits. If the transmitter complies with the conducted power limits based on the use of RMS averaging over a time interval, as permitted under paragraph (b)(3) of this section, the attenuation required under this paragraph shall be 30 dB instead of 20 dB. Attenuation below the general limits specified in §15.209(a) is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 25.1 °C Humidity: 58.5 % RH Atmospheric Pressure: 1006 mbar

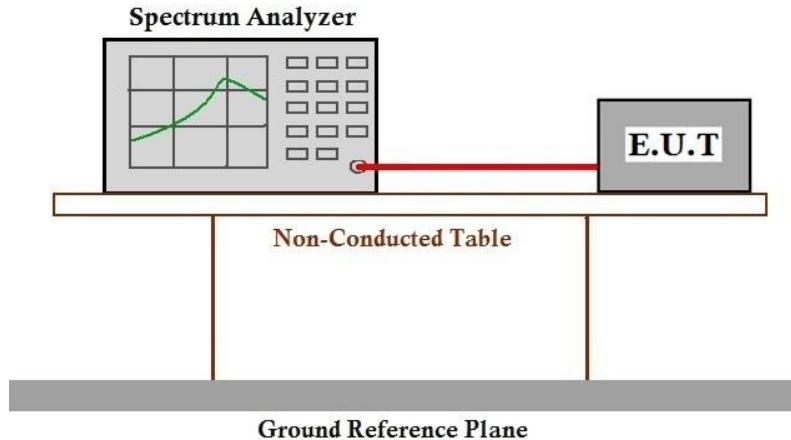
7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.



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7.6.3 Test Setup Diagram**7.6.4 Measurement Procedure and Data**

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7.7 Radiated Emissions which fall in the restricted bands

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

Test Method: ANSI C63.10 (2013) Section 11.12

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
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.

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 23.7 °C

Humidity: 54.3 % RH

Atmospheric Pressure: 1008 mbar

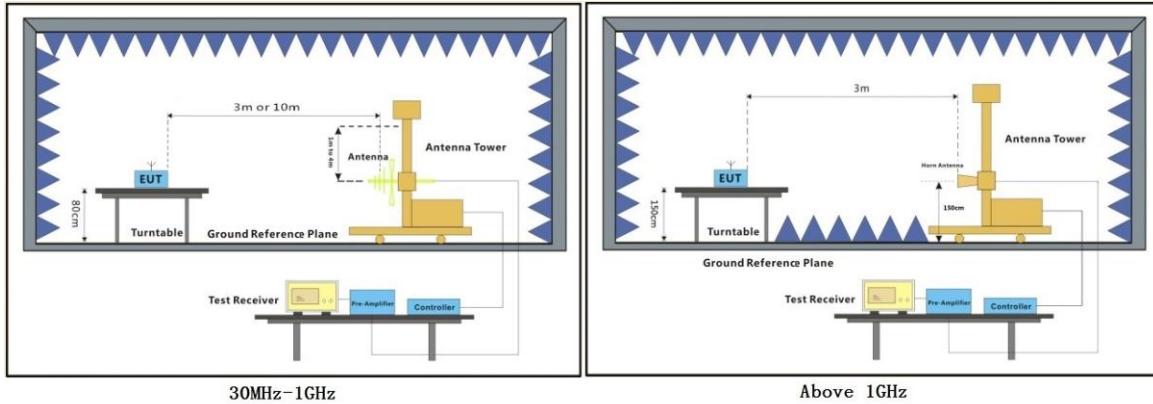
7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.



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7.7.3 Test Setup Diagram**7.7.4 Measurement Procedure and Data**

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

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

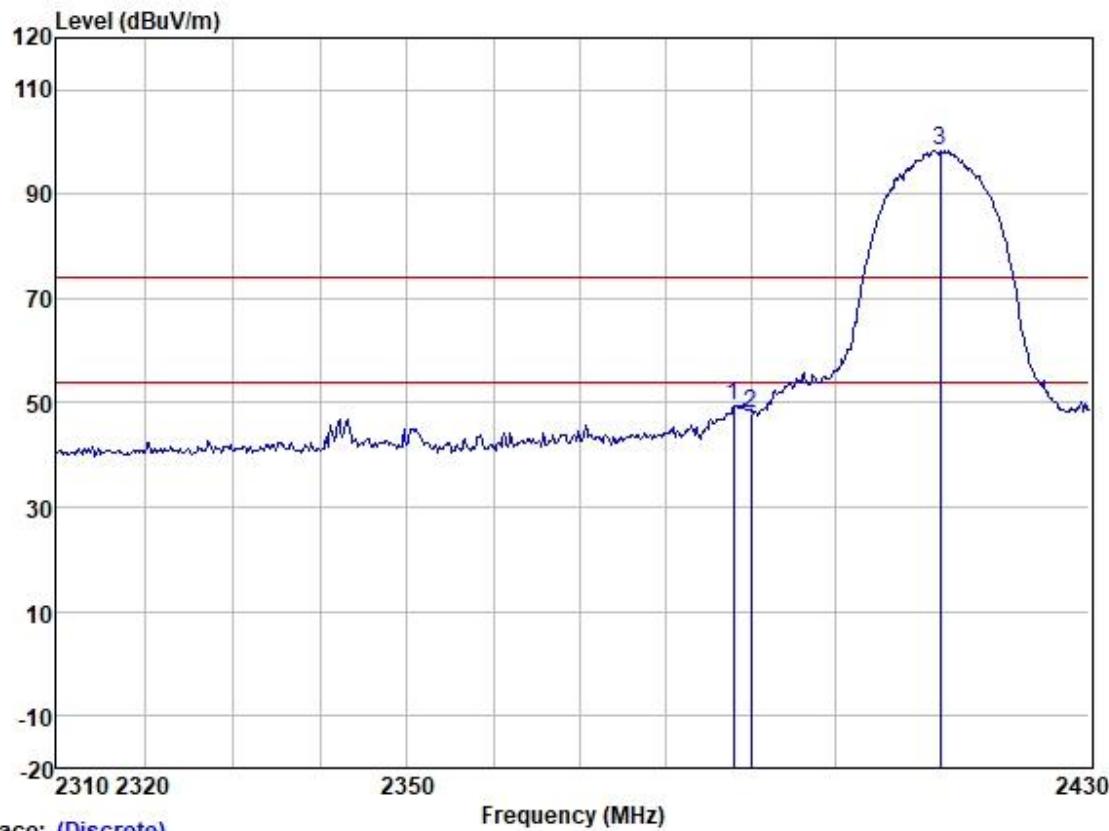
Remark 2: For frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level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

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



Race: (Discrete)

Freq	ReadAntenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2387.912	55.50	27.68	4.22	37.77	49.63	74.00	-24.37 VERTICAL Peak
2	2390.000	53.79	27.68	4.22	37.76	47.93	74.00	-26.07 VERTICAL Peak
3 *	2412.221	104.36	27.74	4.02	37.76	98.36	74.00	24.36 VERTICAL Peak

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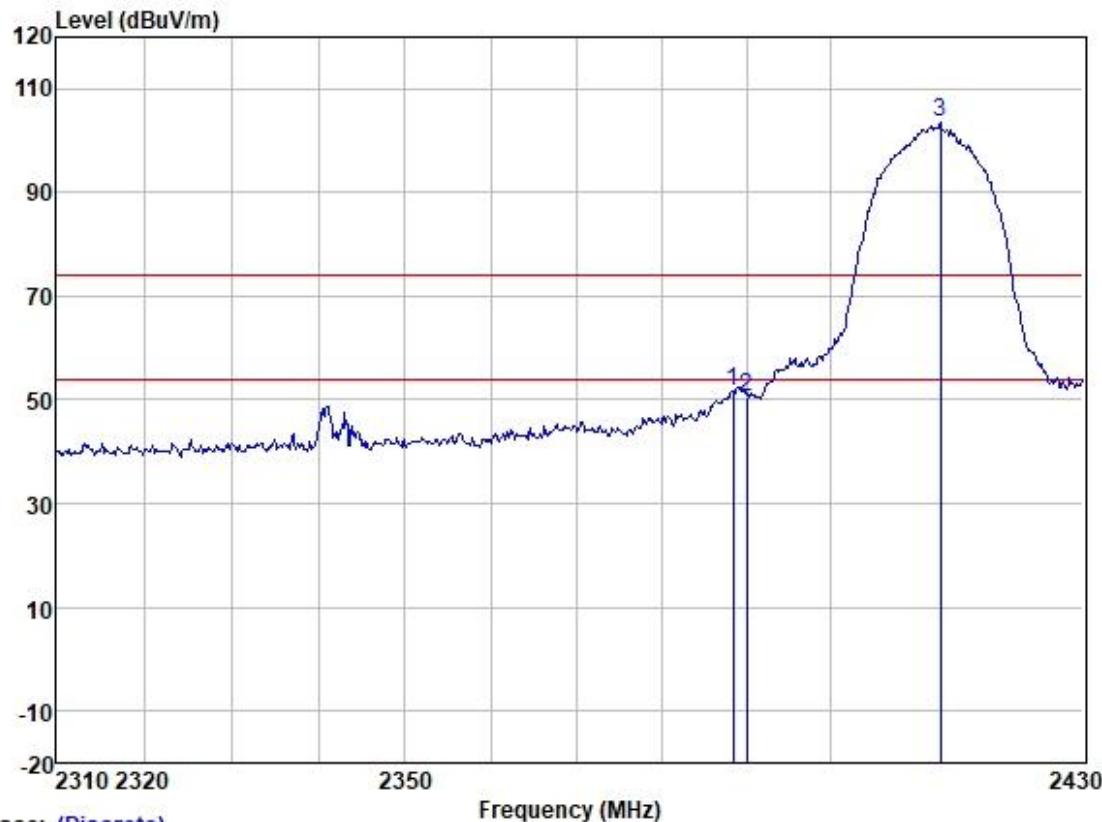
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



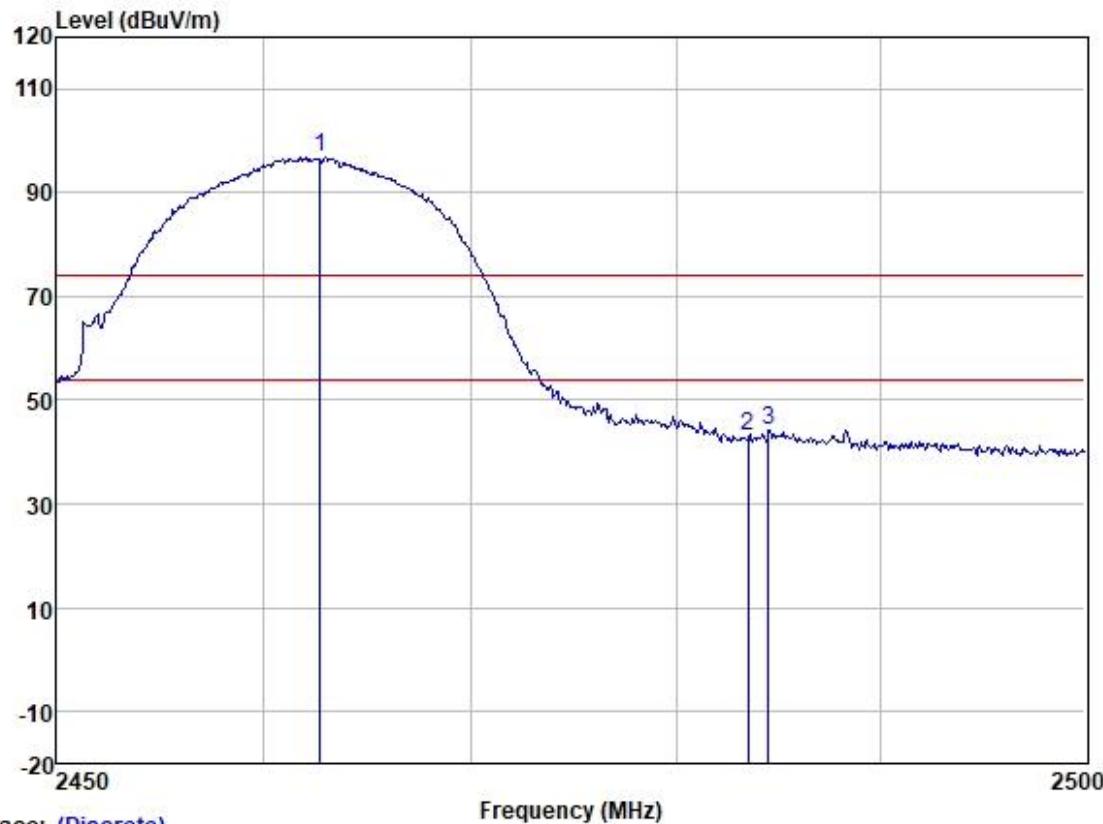
Freq	Read	Antenna	Cable	Preamp	Limit	Over	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor						
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB		
1	2388.395	57.72	27.68	4.22	37.77	51.85	74.00	-22.15	HORIZONTAL	Peak
2	2390.000	56.27	27.68	4.22	37.76	50.41	74.00	-23.59	HORIZONTAL	Peak
3 *	2412.954	109.54	27.74	4.02	37.76	103.54	74.00	29.54	HORIZONTAL	Peak



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



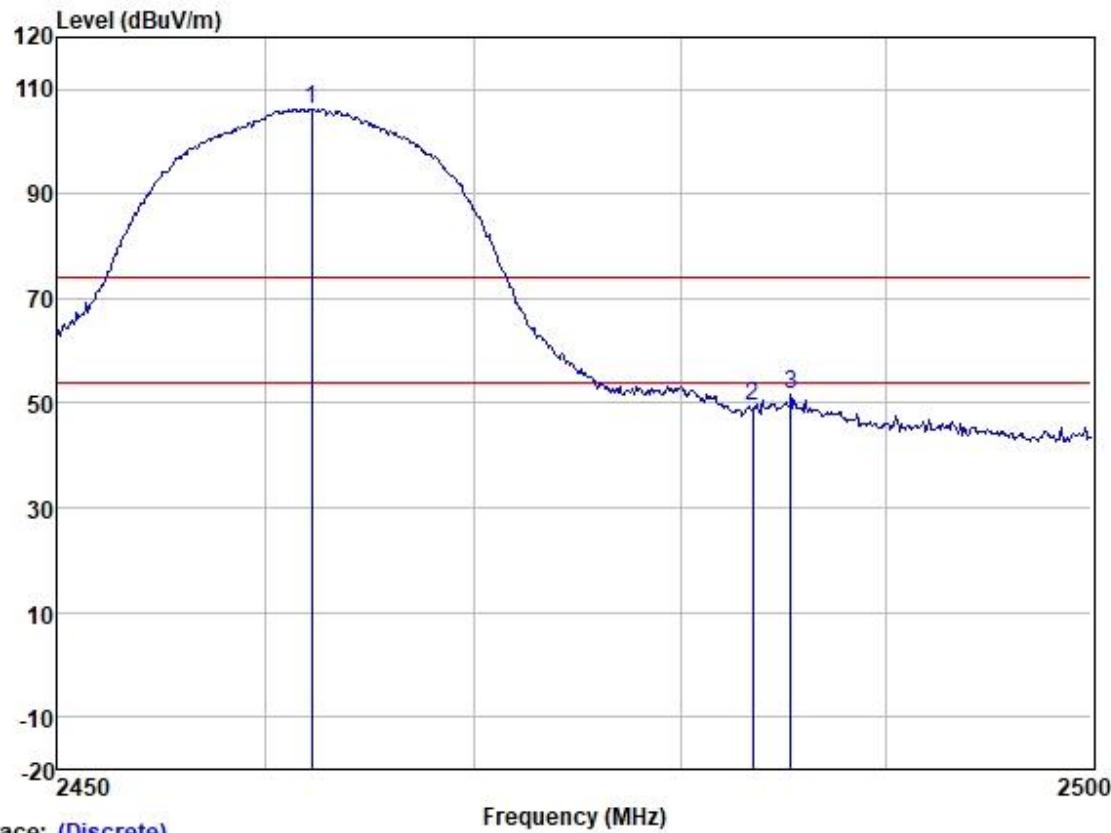
Race: (Discrete)	Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Remark
		Level	Factor	Loss	Factor				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2462.709	103.16	27.82	3.64	37.74	96.88	74.00	22.88	VERTICAL Peak
2	2483.500	49.64	27.85	3.42	37.73	43.18	74.00	-30.82	VERTICAL Peak
3	2484.492	50.79	27.85	3.42	37.73	44.33	74.00	-29.67	VERTICAL Peak

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



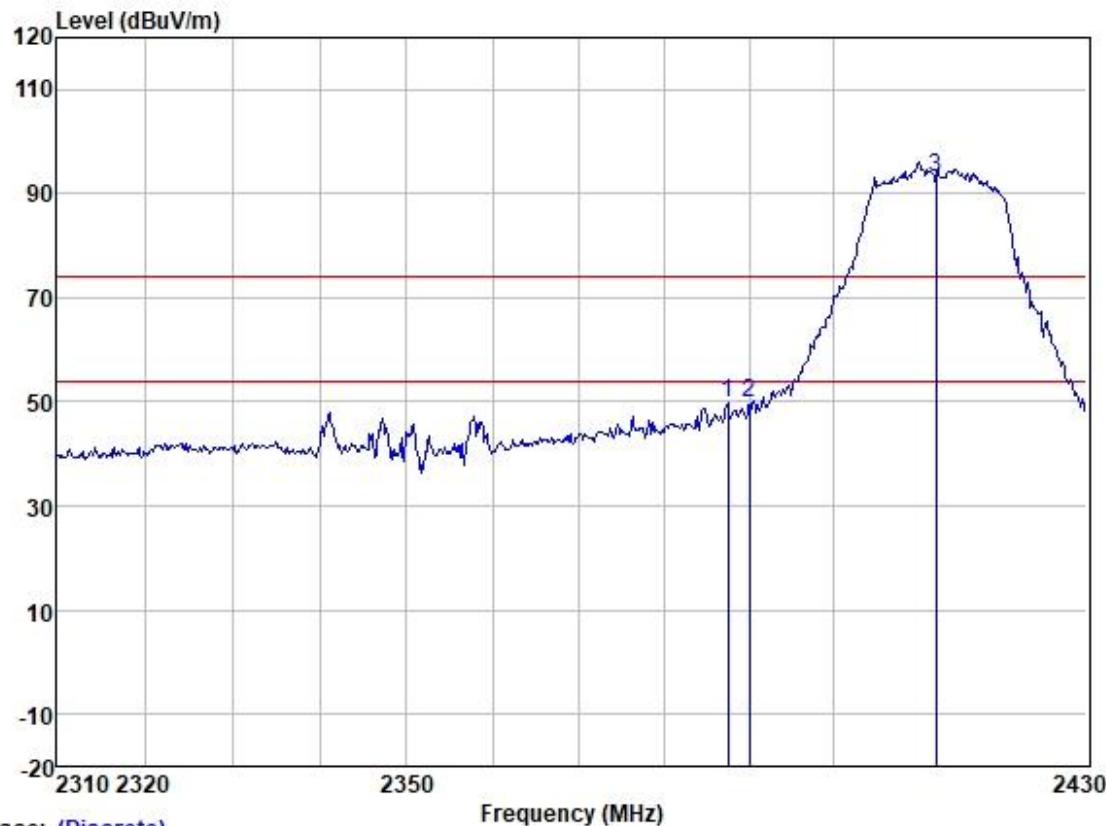
Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	dBuV/m					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	dB	dB	dB
1 * 2462.207	112.63	27.82	3.64	37.74	106.35	74.00	32.35	HORIZONTAL	Peak		
2 2483.500	56.01	27.85	3.42	37.73	49.55	74.00	-24.45	HORIZONTAL	Peak		
3 2485.346	58.24	27.85	3.42	37.73	51.78	74.00	-22.22	HORIZONTAL	Peak		



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



Race: (Discrete)

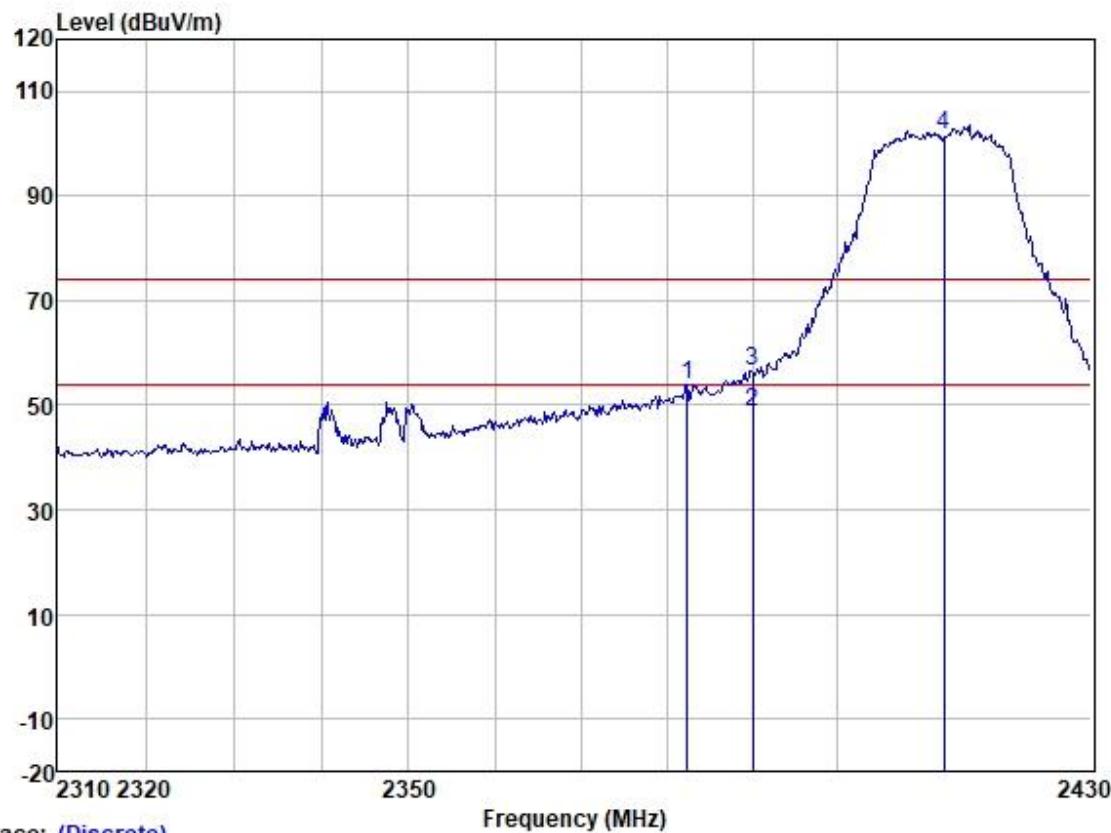
Race	Freq	ReadAntenna		Cable		Preamp		Limit Line	Over Limit	Over Line Pol/Phase	Remark
		Freq	Level	Antenna	Loss	Factor	Preamp				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	2387.428	55.60	27.68	4.22	37.77	49.73	74.00	-24.27	VERTICAL	Peak	
2	2390.000	55.59	27.68	4.22	37.76	49.73	74.00	-24.27	VERTICAL	Peak	
3 *	2412.023	99.25	27.74	4.02	37.76	93.25	74.00	19.25	VERTICAL	Peak	

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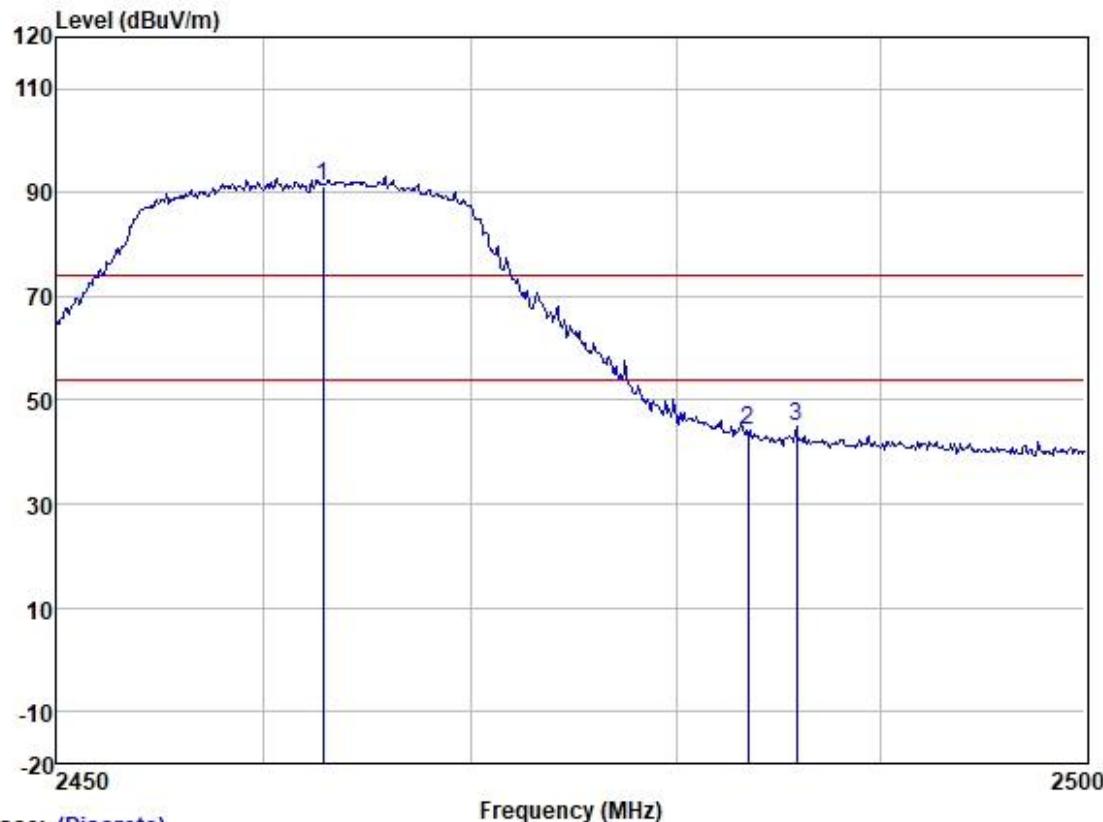
Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



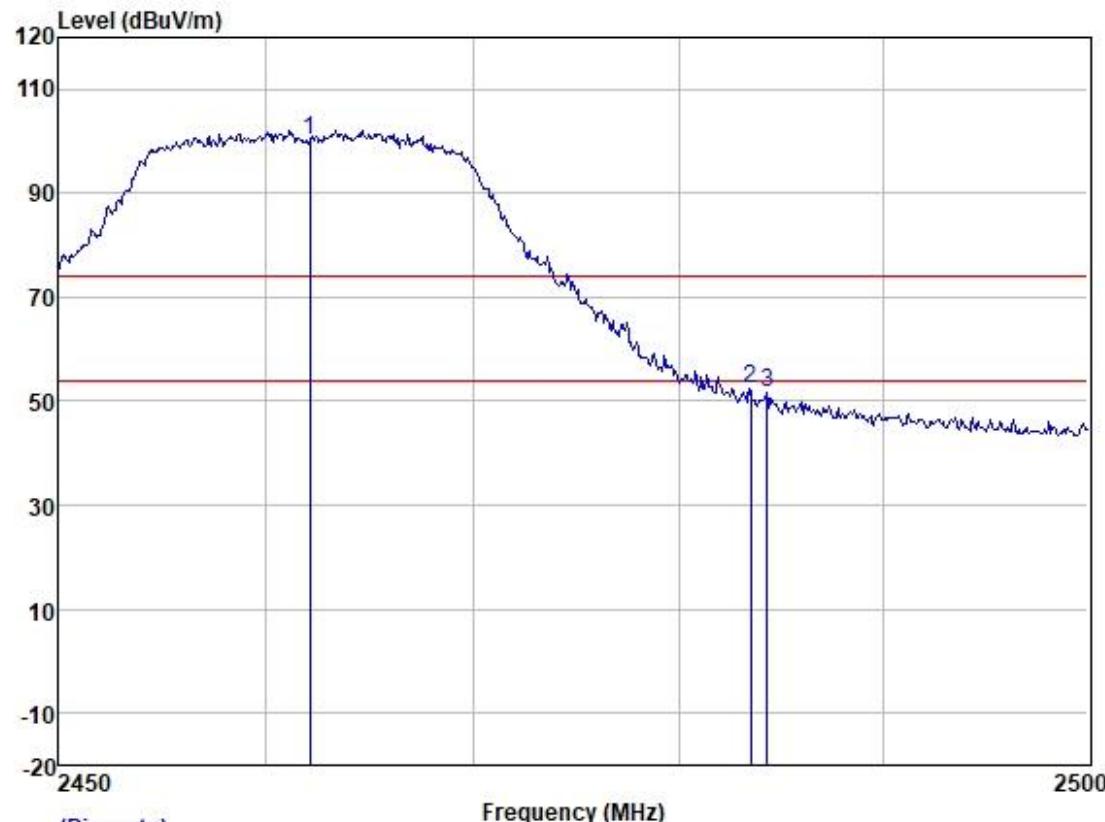
Freq	ReadAntenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2382.355	59.83	27.67	4.27	37.77	54.00	74.00	-20.00 HORIZONTAL Peak
2	2390.000	54.60	27.68	4.22	37.76	48.74	54.00	-5.26 HORIZONTAL Average
3	2390.000	62.49	27.68	4.22	37.76	56.63	74.00	-17.37 HORIZONTAL Peak
4 *	2412.522	107.53	27.74	4.02	37.76	101.53	74.00	27.53 HORIZONTAL Peak



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



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



Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Freq	Level	Level Factor	Loss	Factor	Level	Line	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dB	dBuV/m	dBuV/m	dB	dB	dB	dB
1 *	2462.112	106.46	27.82	3.64	37.74	100.18	74.00	26.18	HORIZONTAL	Peak	
2	2483.500	58.98	27.85	3.42	37.73	52.52	74.00	-21.48	HORIZONTAL	Peak	
3	2484.292	58.28	27.85	3.42	37.73	51.82	74.00	-22.18	HORIZONTAL	Peak	

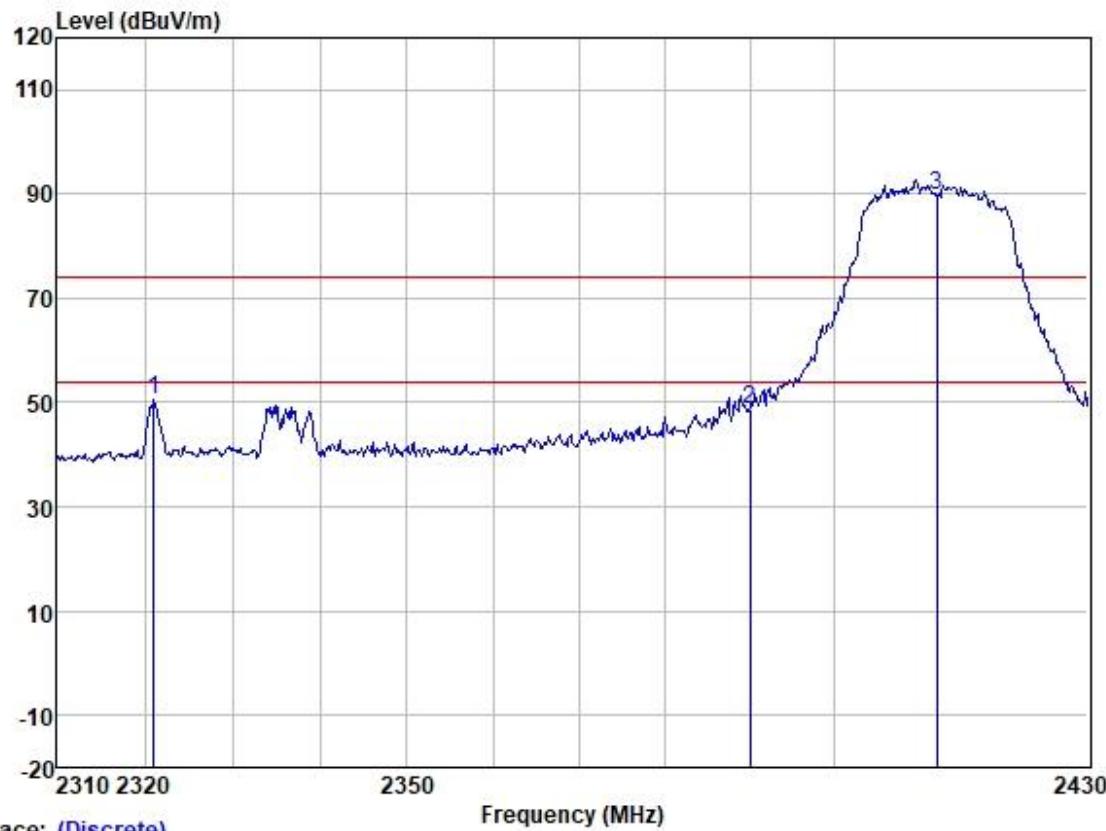
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low

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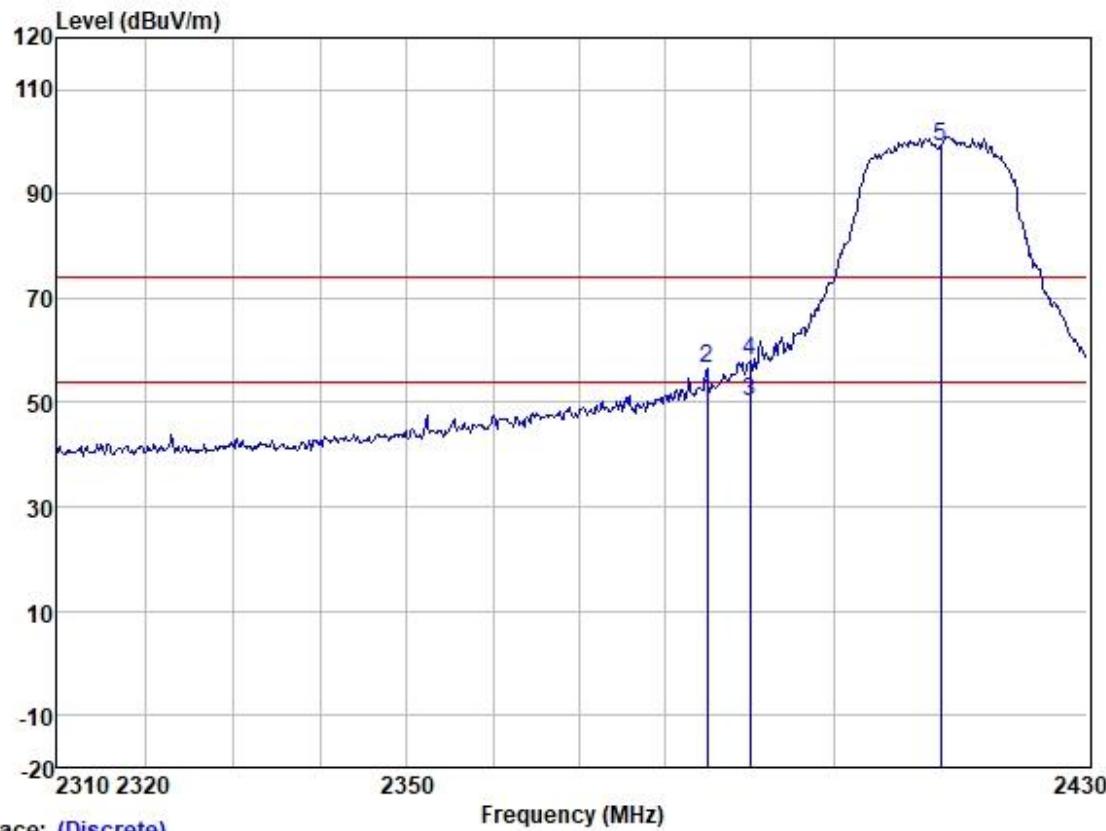
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Race: (Discrete)

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Limit	Pol/Phase	Remark
	Freq	Level	Factor	Loss					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2385.011	56.10	27.68	4.22	37.77	50.23	54.00	-3.77	HORIZONTAL Average
2	2385.011	62.59	27.68	4.22	37.77	56.72	74.00	-17.28	HORIZONTAL Peak
3	2390.000	55.94	27.68	4.22	37.76	50.08	54.00	-3.92	HORIZONTAL Average
4	2390.000	63.77	27.68	4.22	37.76	57.91	74.00	-16.09	HORIZONTAL Peak
5 *	2412.443	105.14	27.74	4.02	37.76	99.14	74.00	25.14	HORIZONTAL Peak

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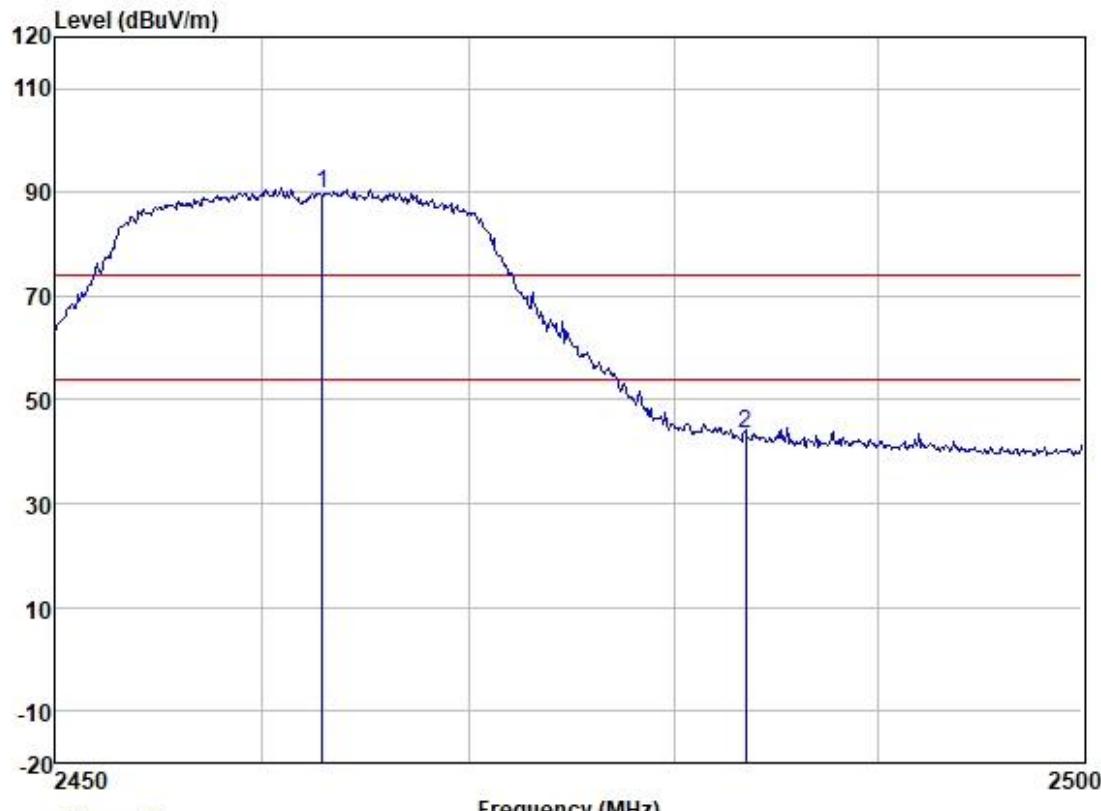
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Race: (Discrete)

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Limit	Over	Remark
	Level	Factor	Loss	Factor					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m			
1 * 2462.914	96.21	27.82	3.64	37.74	89.93	74.00	15.93	VERTICAL	Peak
2 2483.500	50.00	27.85	3.42	37.73	43.54	74.00	-30.46	VERTICAL	Peak

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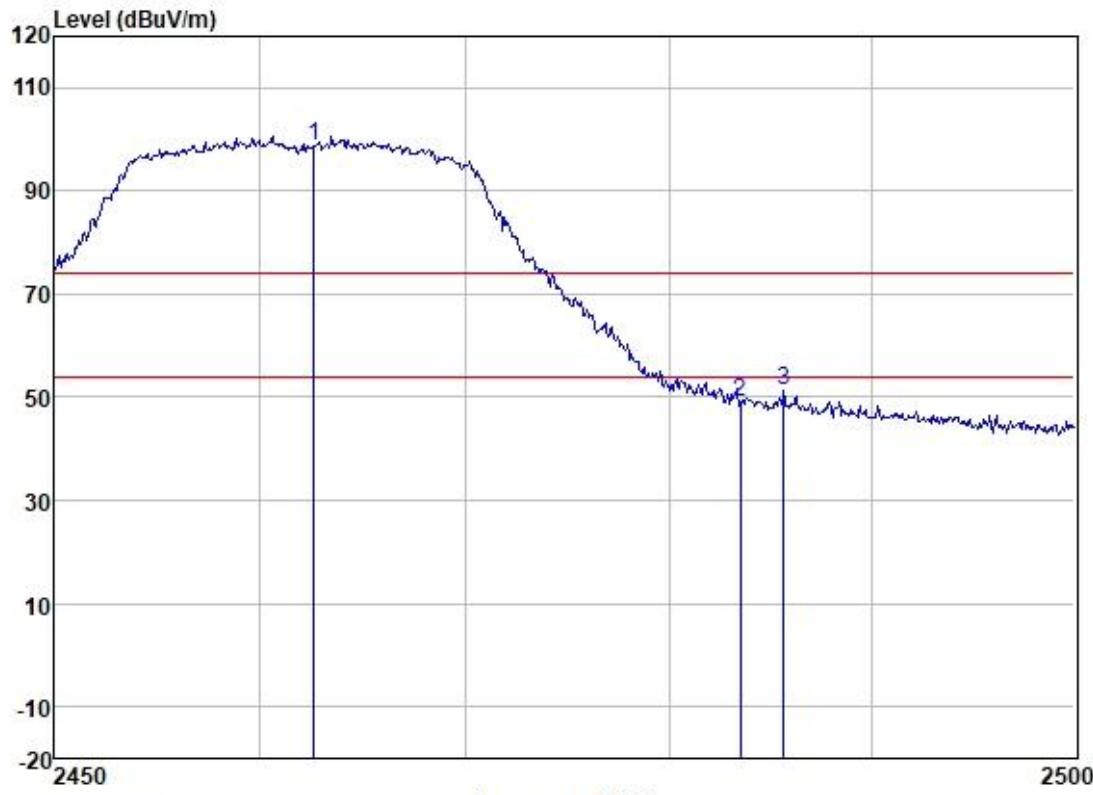
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Freq	ReadAntenna		Cable		Preamp		Limit Line	Over Limit	Over Limit Pol/Phase	Remark
	MHz	dBuV	Level Factor	dB	Loss Factor	dB	dBuV/m	dBuV/m	dB	
1 *	2462.615	104.91	27.82	3.64	37.74	98.63	74.00	24.63	HORIZONTAL	Peak
2	2483.500	55.40	27.85	3.42	37.73	48.94	74.00	-25.06	HORIZONTAL	Peak
3	2485.647	57.74	27.85	3.42	37.73	51.28	74.00	-22.72	HORIZONTAL	Peak

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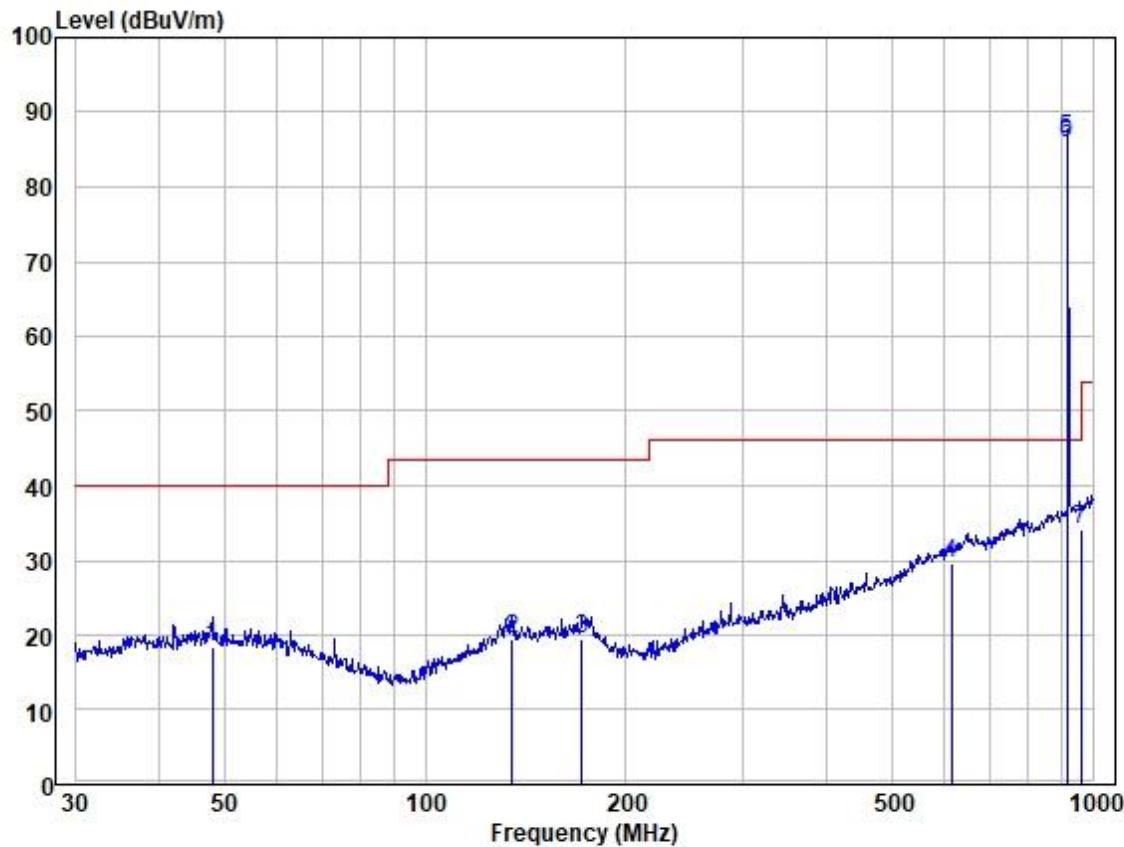
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Test Mode: 03; Polarity: Horizontal; Channel:Low



Site : 966 Chamber
Job :
Model : 915MHz
Power : AC 24V
Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 47.994	31.19	19.52	0.74	32.99	18.46	40.00	-21.54	HORIZONTAL	QP
2 135.032	32.88	18.41	1.30	33.00	19.59	43.52	-23.93	HORIZONTAL	QP
3 171.995	32.19	18.58	1.63	33.00	19.40	43.52	-24.12	HORIZONTAL	QP
4 614.000	33.77	25.92	3.25	33.39	29.55	46.02	-16.47	HORIZONTAL	QP
5 915.226	84.89	29.50	4.25	32.13	86.51	46.02	40.49	HORIZONTAL	Peak
6 915.226	84.29	29.50	4.25	32.13	85.91	46.02	39.89	HORIZONTAL	QP
7 960.000	32.06	29.74	4.10	31.64	34.26	46.02	-11.76	HORIZONTAL	QP

*Remark: Point 5 & 6 is the intentional fundamental emission frequency that shall be excluded.

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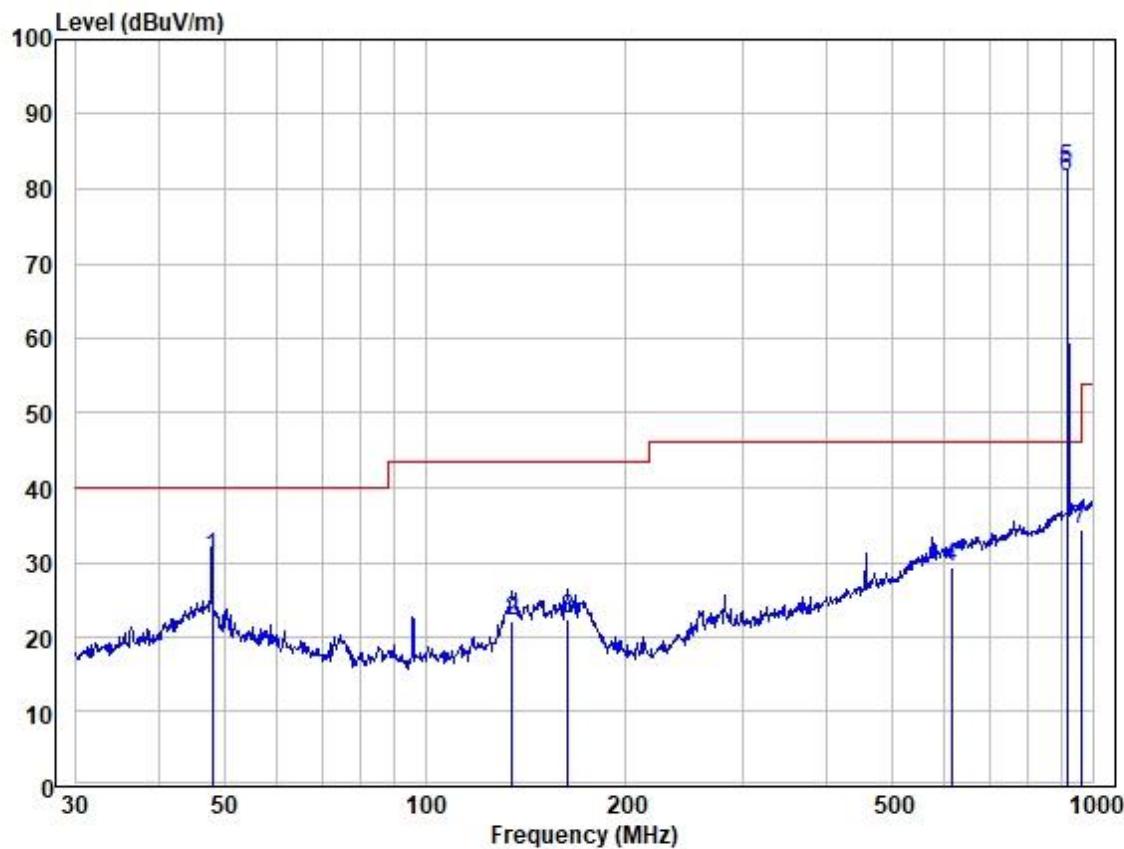
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Test Mode: 03; Polarity: Vertical; Channel:Low



Site : 966 Chamber
 Job :
 Model : 915MHz
 Power : AC 24V
 Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 47.994	43.44	19.52	0.74	32.99	30.71	40.00	-9.29	VERTICAL	QP
2 135.032	35.52	18.41	1.30	33.00	22.23	43.52	-21.29	VERTICAL	QP
3 163.755	34.67	19.08	1.54	33.00	22.29	43.52	-21.23	VERTICAL	QP
4 614.000	33.57	25.92	3.25	33.39	29.35	46.02	-16.67	VERTICAL	QP
5 915.245	80.99	29.50	4.25	32.13	82.61	46.02	36.59	VERTICAL	Peak
6 915.245	80.09	29.50	4.25	32.13	81.71	46.02	35.69	VERTICAL	QP
7 960.000	32.18	29.74	4.10	31.64	34.38	46.02	-11.64	VERTICAL	QP

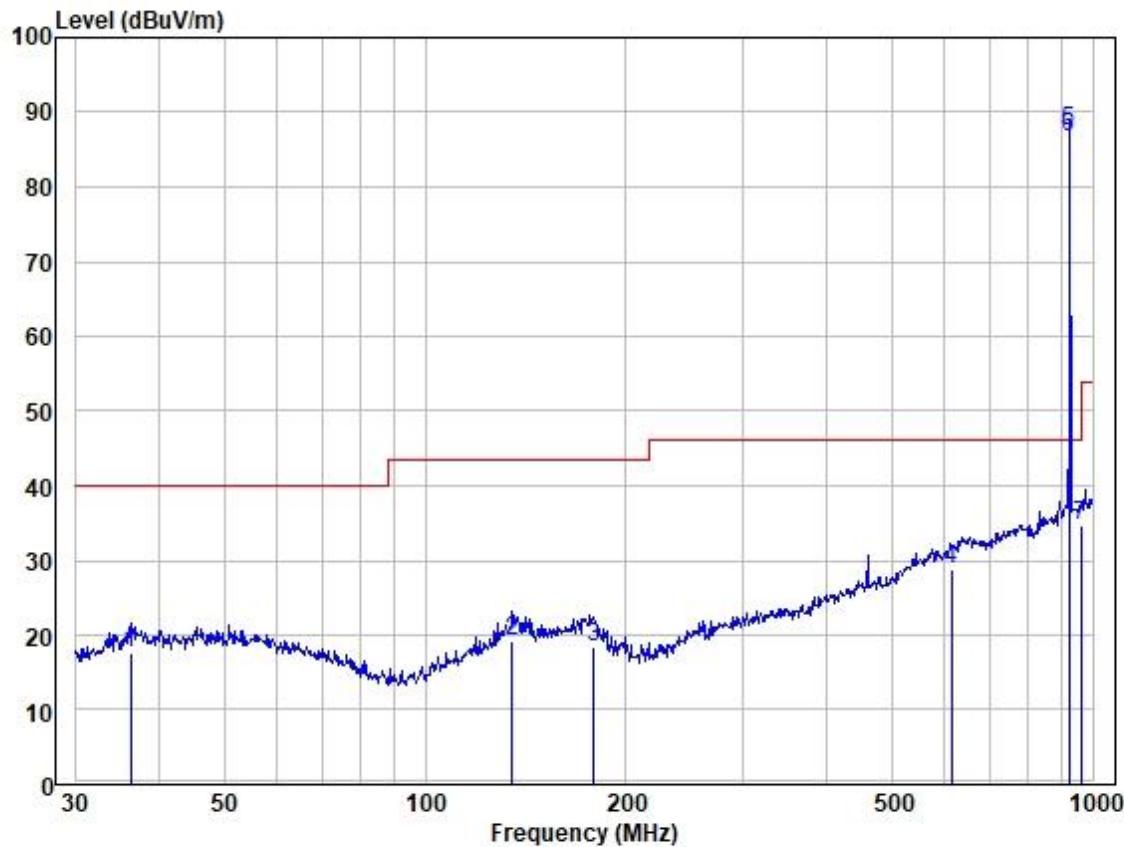
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Test Mode: 03; Polarity: Horizontal; Channel: High



Site : 966 Chamber
 Job :
 Model : 920MHz
 Power : AC 24V
 Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 36.254	31.53	18.39	0.70	32.95	17.67	40.00	-22.33	HORIZONTAL	QP
2 135.032	32.51	18.41	1.30	33.00	19.22	43.52	-24.30	HORIZONTAL	QP
3 178.758	31.97	17.86	1.69	33.00	18.52	43.52	-25.00	HORIZONTAL	QP
4 614.000	32.98	25.92	3.25	33.39	28.76	46.02	-17.26	HORIZONTAL	QP
5 919.715	85.90	29.48	4.27	32.08	87.57	46.02	41.55	HORIZONTAL	Peak
6 919.715	85.10	29.48	4.27	32.08	86.77	46.02	40.75	HORIZONTAL	QP
7 960.000	32.35	29.74	4.10	31.64	34.55	46.02	-11.47	HORIZONTAL	QP

*Remark: Point 5 & 6 is the intentional fundamental emission frequency that shall be excluded.

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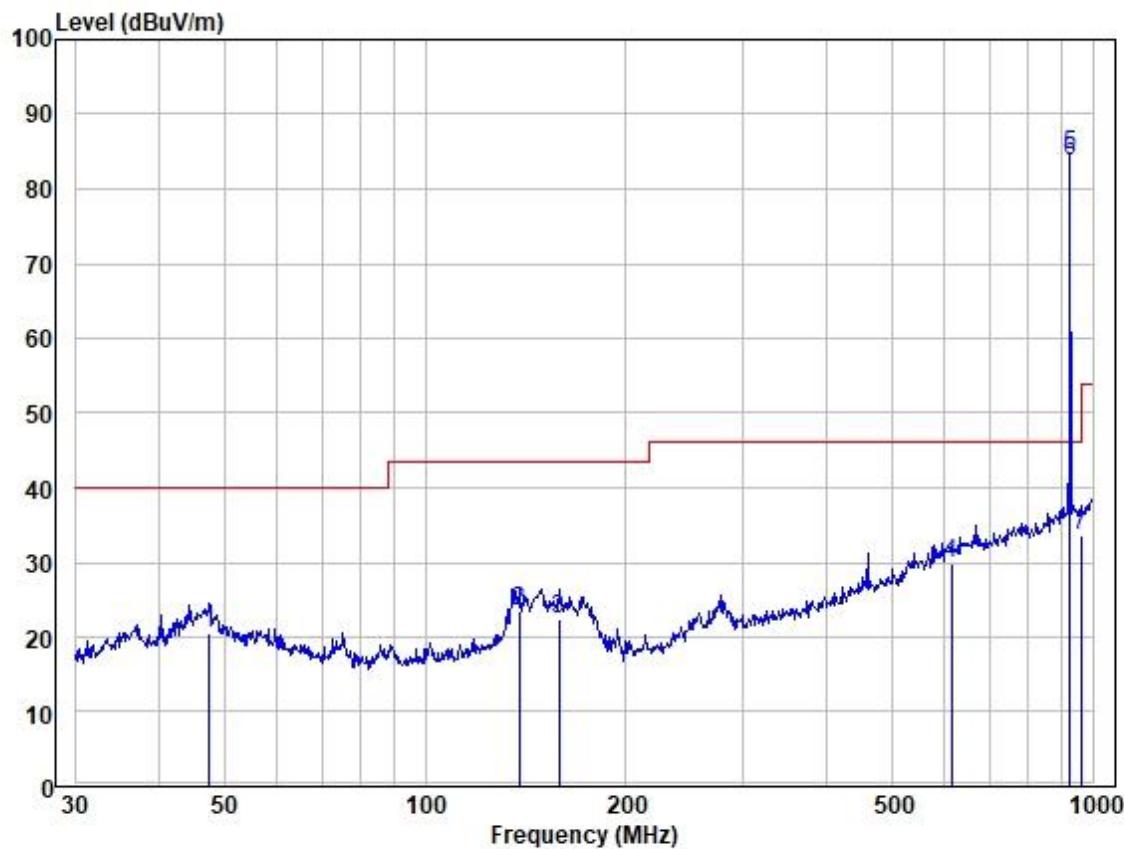
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No.198 Kezhi Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgsgroup.com.cn
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Test Mode: 03; Polarity: Vertical; Channel:High



Site : 966 Chamber
 Job :
 Model : 920MHz
 Power : AC 24V
 Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	47.492	33.26	19.50	0.76	32.99	20.53	40.00	-19.47	VERTICAL QP
2	138.387	36.61	18.59	1.32	33.00	23.52	43.52	-20.00	VERTICAL QP
3	158.668	34.81	19.20	1.49	33.00	22.50	43.52	-21.02	VERTICAL QP
4	614.000	34.06	25.92	3.25	33.39	29.84	46.02	-16.18	VERTICAL QP
5	922.516	82.89	29.54	4.28	32.05	84.66	46.02	38.64	VERTICAL Peak
6	922.516	82.10	29.54	4.28	32.05	83.87	46.02	37.85	VERTICAL QP
7	960.000	31.53	29.74	4.10	31.64	33.73	46.02	-12.29	VERTICAL QP

*Remark: Point 5 & 6 is the intentional fundamental emission frequency that shall be excluded.

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7.8 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

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24.7 °C Humidity: 55.6 % RH Atmospheric Pressure: 1000 mbar

7.8.2 Test Mode Description

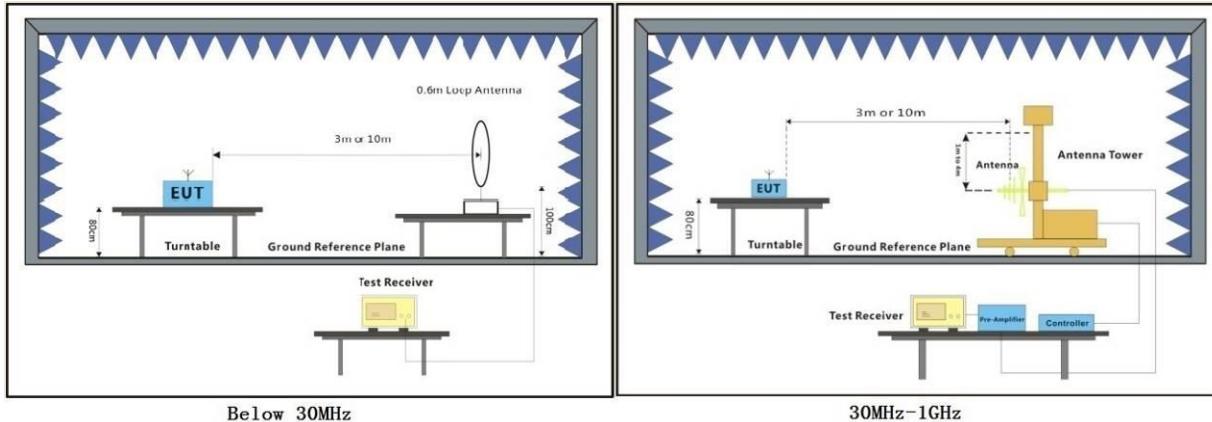
Pre-scan / Mode Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.



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7.8.3 Test Setup Diagram**7.8.4 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:

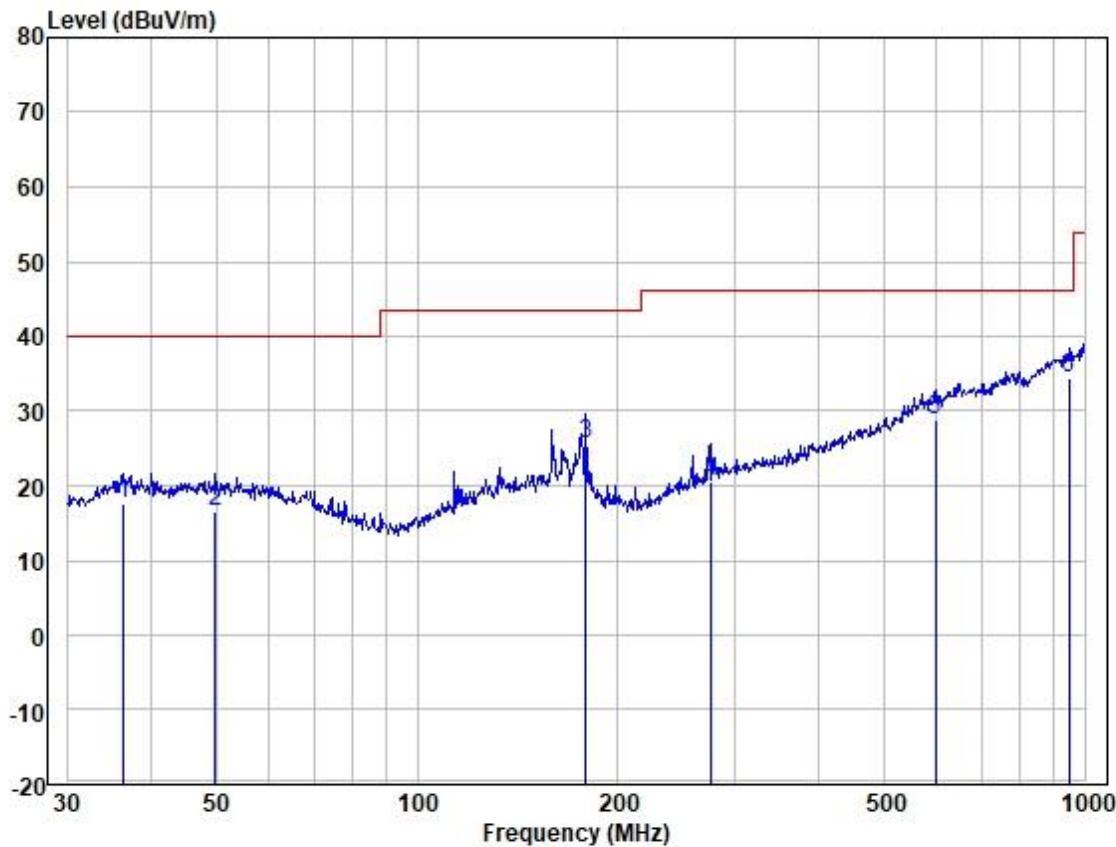
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from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



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Test Mode: 00; Polarity: Horizontal



Site : 966 Chamber
Job :
Model :
Power : AC 24V
Test Mode :

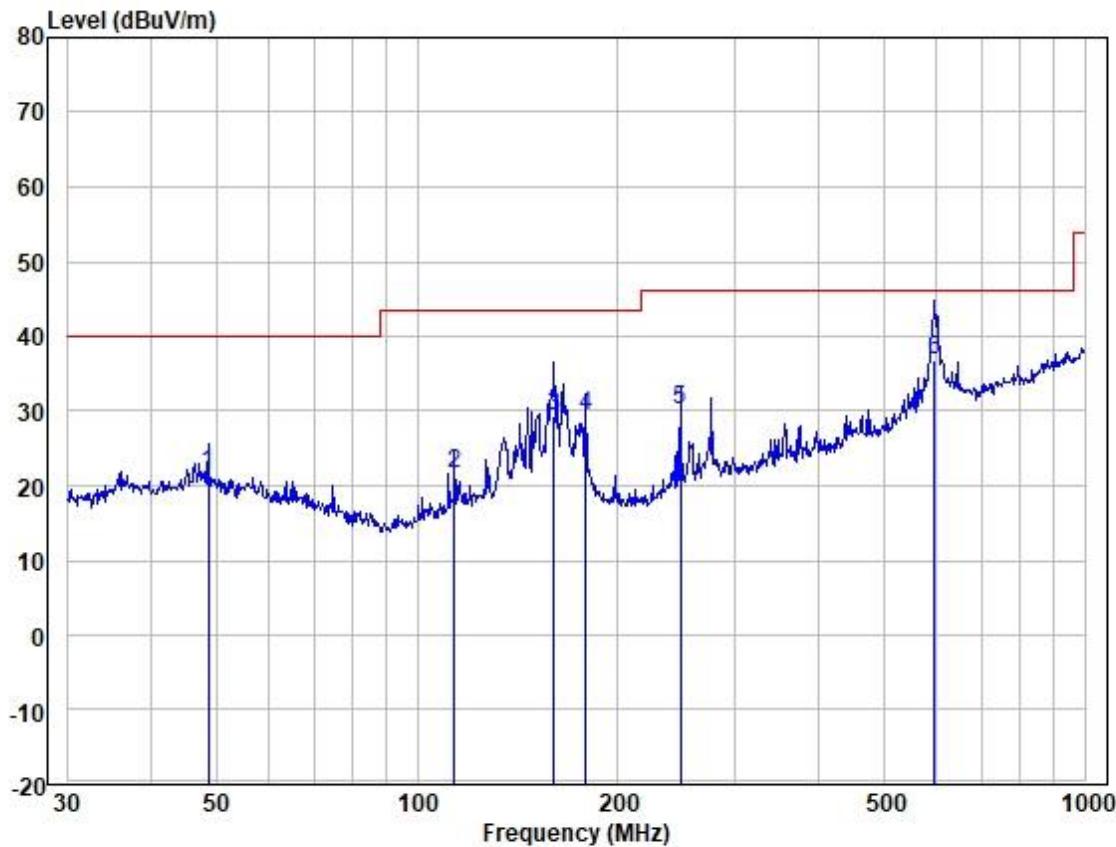
Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 36.381	31.18	18.59	0.70	32.95	17.52	40.00	-22.48	HORIZONTAL	QP
2 49.881	29.43	19.53	0.70	33.00	16.66	40.00	-23.34	HORIZONTAL	QP
3 178.758	39.17	17.86	1.69	33.00	25.72	43.52	-17.80	HORIZONTAL	QP
4 276.124	33.08	18.63	1.97	33.08	20.60	46.02	-25.42	HORIZONTAL	QP
5 597.223	33.35	25.45	3.29	33.40	28.69	46.02	-17.33	HORIZONTAL	QP
6 945.440	32.32	29.78	4.20	31.81	34.49	46.02	-11.53	HORIZONTAL	QP

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Test Mode: 00; Polarity: Vertical



Site : 966 Chamber
Job :
Model :
Power : AC 24V
Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 48.672	34.42	19.52	0.74	33.00	21.68	40.00	-18.32	VERTICAL	QP
2 113.714	36.97	16.50	1.17	33.00	21.64	43.52	-21.88	VERTICAL	QP
3 160.346	41.72	19.21	1.51	33.00	29.44	43.52	-14.08	VERTICAL	QP
4 178.758	42.83	17.86	1.69	33.00	29.38	43.52	-14.14	VERTICAL	QP
5 247.682	43.87	17.52	1.90	33.05	30.24	46.02	-15.78	VERTICAL	QP
6 595.133	41.41	25.42	3.28	33.40	36.71	46.02	-9.31	VERTICAL	QP

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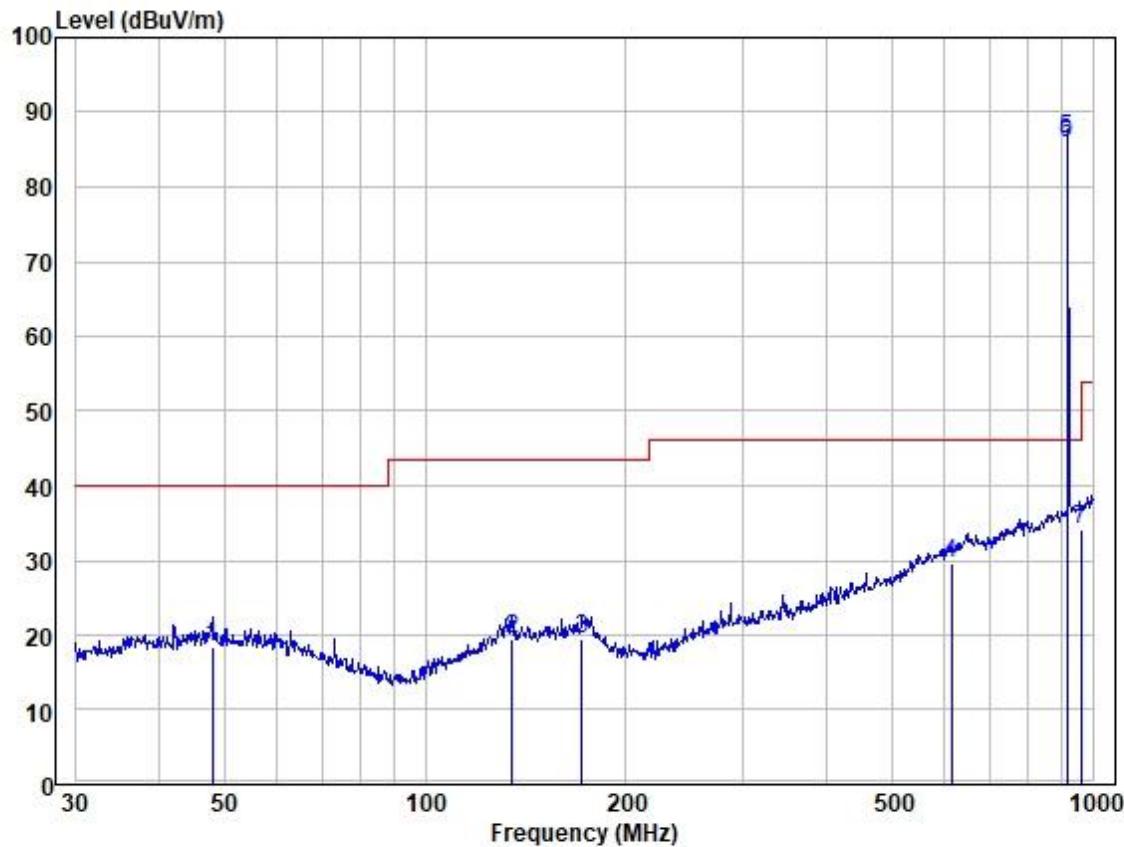
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Test Mode: 03; Polarity: Horizontal; Channel:Low



Site : 966 Chamber
Job :
Model : 915MHz
Power : AC 24V
Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 47.994	31.19	19.52	0.74	32.99	18.46	40.00	-21.54	HORIZONTAL	QP
2 135.032	32.88	18.41	1.30	33.00	19.59	43.52	-23.93	HORIZONTAL	QP
3 171.995	32.19	18.58	1.63	33.00	19.40	43.52	-24.12	HORIZONTAL	QP
4 614.000	33.77	25.92	3.25	33.39	29.55	46.02	-16.47	HORIZONTAL	QP
5 915.226	84.89	29.50	4.25	32.13	86.51	46.02	40.49	HORIZONTAL	Peak
6 915.226	84.29	29.50	4.25	32.13	85.91	46.02	39.89	HORIZONTAL	QP
7 960.000	32.06	29.74	4.10	31.64	34.26	46.02	-11.76	HORIZONTAL	QP

*Remark: Point 5 & 6 are the intentional fundamental emission frequency that shall be excluded.

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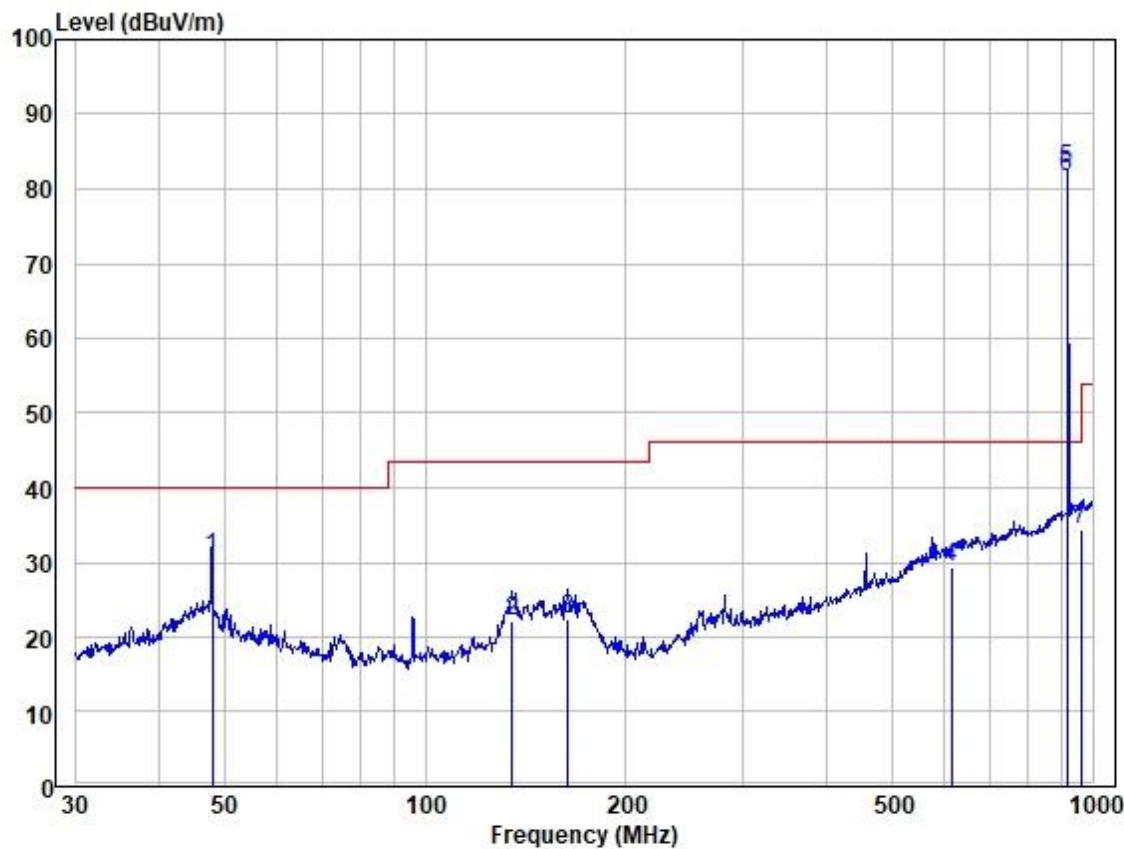
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Test Mode: 03; Polarity: Vertical; Channel:Low



Site : 966 Chamber
 Job :
 Model : 915MHz
 Power : AC 24V
 Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 47.994	43.44	19.52	0.74	32.99	30.71	40.00	-9.29	VERTICAL	QP
2 135.032	35.52	18.41	1.30	33.00	22.23	43.52	-21.29	VERTICAL	QP
3 163.755	34.67	19.08	1.54	33.00	22.29	43.52	-21.23	VERTICAL	QP
4 614.000	33.57	25.92	3.25	33.39	29.35	46.02	-16.67	VERTICAL	QP
5 915.245	80.99	29.50	4.25	32.13	82.61	46.02	36.59	VERTICAL	Peak
6 915.245	80.09	29.50	4.25	32.13	81.71	46.02	35.69	VERTICAL	QP
7 960.000	32.18	29.74	4.10	31.64	34.38	46.02	-11.64	VERTICAL	QP

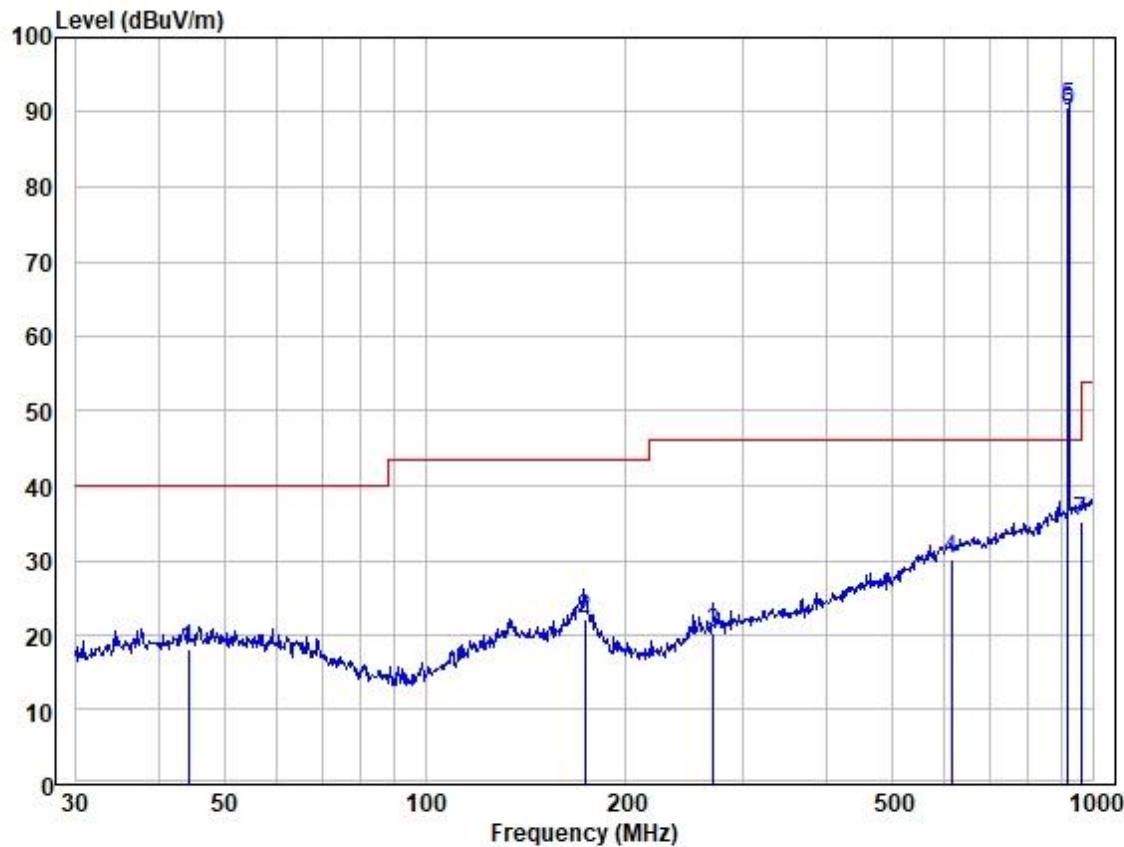
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Test Mode: 03; Polarity: Horizontal; Channel: Middle



Site : 966 Chamber
 Job :
 Model : 917.5MHz
 Power : AC 24V
 Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 44.275	31.00	19.45	0.77	32.98	18.24	40.00	-21.76	HORIZONTAL	QP
2 173.205	35.10	18.40	1.64	33.00	22.14	43.52	-21.38	HORIZONTAL	QP
3 270.375	33.04	18.30	1.91	33.07	20.18	46.02	-25.84	HORIZONTAL	QP
4 614.000	34.33	25.92	3.25	33.39	30.11	46.02	-15.91	HORIZONTAL	QP
5 917.762	89.10	29.49	4.26	32.10	90.75	46.02	44.73	HORIZONTAL	Peak
6 917.762	88.60	29.49	4.26	32.10	90.25	46.02	44.23	HORIZONTAL	QP
7 960.000	32.91	29.74	4.10	31.64	35.11	46.02	-10.91	HORIZONTAL	QP

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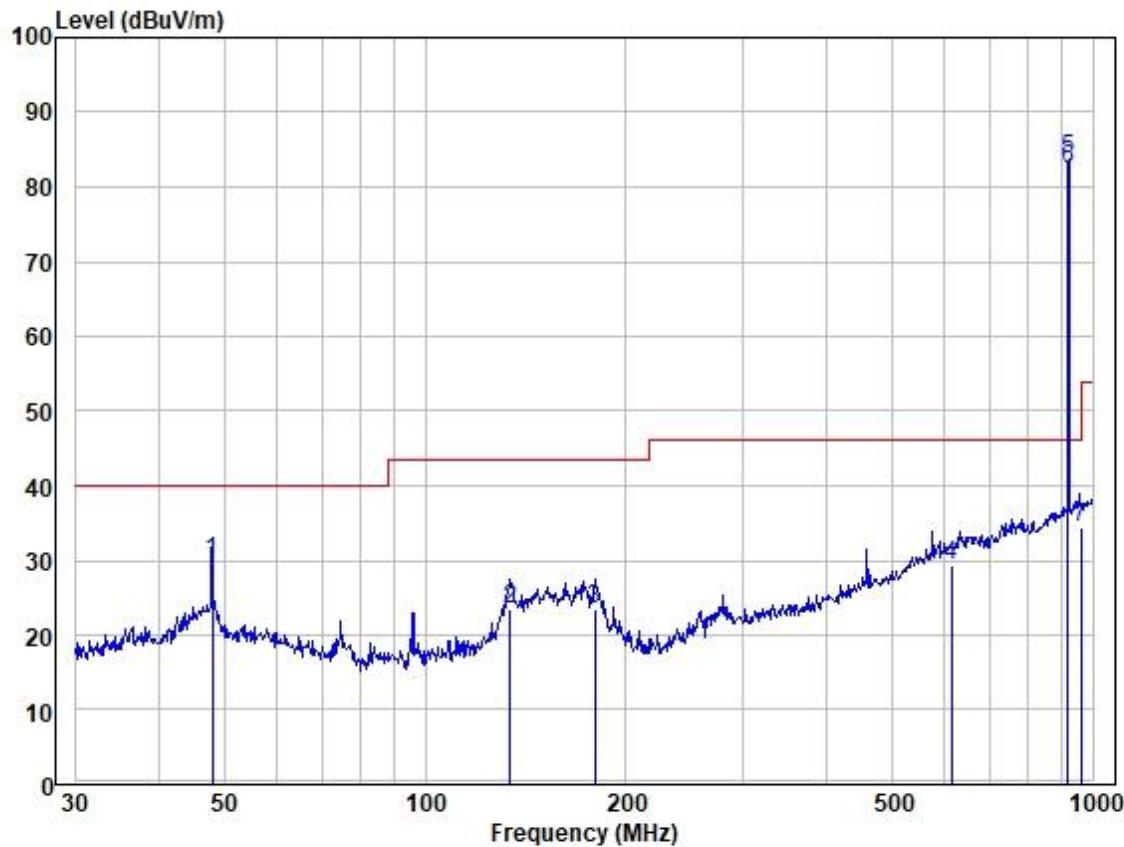
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Test Mode: 03; Polarity: Vertical; Channel:Middle



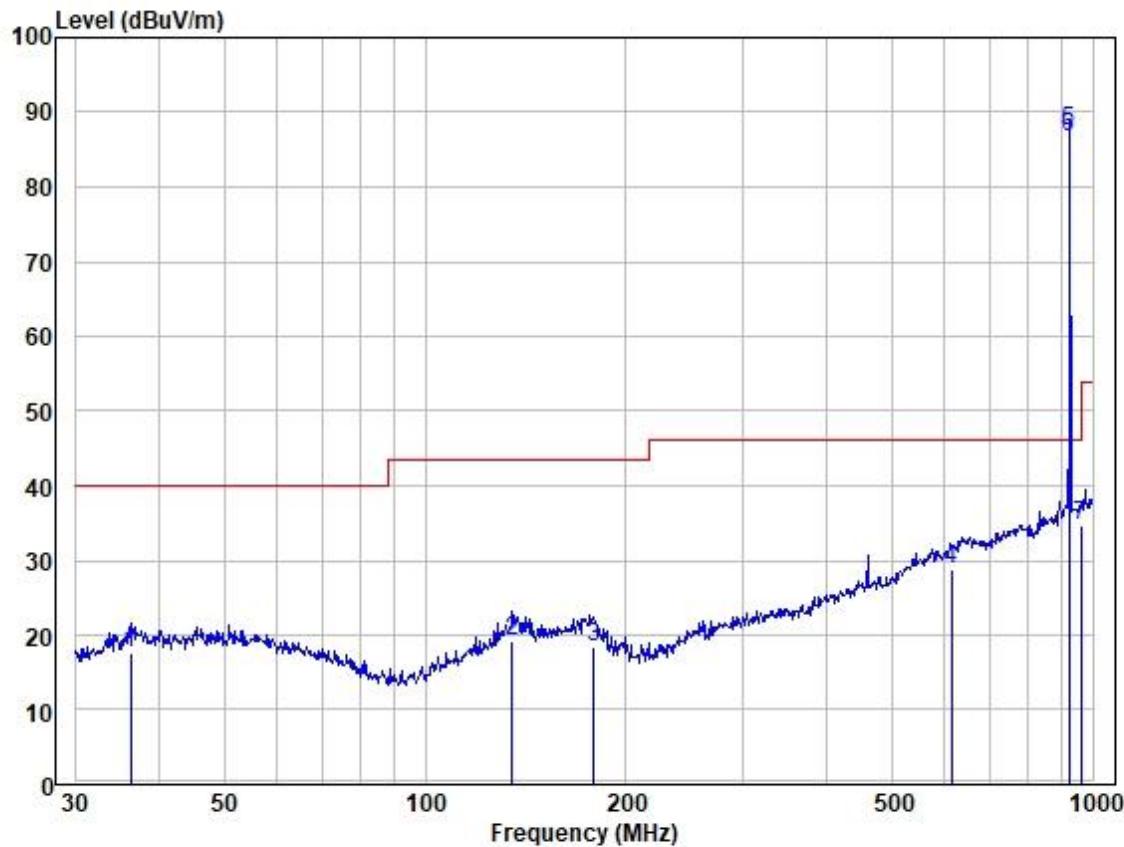
Site : 966 Chamber
 Job :
 Model : 917.5MHz
 Power : AC 24V
 Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 47.994	42.62	19.52	0.74	32.99	29.89	40.00	-10.11	VERTICAL	QP
2 134.088	36.80	18.34	1.30	33.00	23.44	43.52	-20.08	VERTICAL	QP
3 179.386	36.92	17.75	1.69	33.00	23.36	43.52	-20.16	VERTICAL	QP
4 614.000	33.61	25.92	3.25	33.39	29.39	46.02	-16.63	VERTICAL	QP
5 917.203	82.22	29.49	4.26	32.11	83.86	46.02	37.84	VERTICAL	Peak
6 917.203	80.70	29.49	4.26	32.11	82.34	46.02	36.32	VERTICAL	QP
7 960.000	32.10	29.74	4.10	31.64	34.30	46.02	-11.72	VERTICAL	QP

*Remark: Point 5 & 6 are the intentional fundamental emission frequency that shall be excluded.



Test Mode: 03; Polarity: Horizontal; Channel: High



Site : 966 Chamber
Job :
Model : 920MHz
Power : AC 24V
Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 36.254	31.53	18.39	0.70	32.95	17.67	40.00	-22.33	HORIZONTAL	QP
2 135.032	32.51	18.41	1.30	33.00	19.22	43.52	-24.30	HORIZONTAL	QP
3 178.758	31.97	17.86	1.69	33.00	18.52	43.52	-25.00	HORIZONTAL	QP
4 614.000	32.98	25.92	3.25	33.39	28.76	46.02	-17.26	HORIZONTAL	QP
5 919.715	85.90	29.48	4.27	32.08	87.57	46.02	41.55	HORIZONTAL	Peak
6 919.715	85.10	29.48	4.27	32.08	86.77	46.02	40.75	HORIZONTAL	QP
7 960.000	32.35	29.74	4.10	31.64	34.55	46.02	-11.47	HORIZONTAL	QP

*Remark: Point 5 & 6 are the intentional fundamental emission frequency that shall be excluded.

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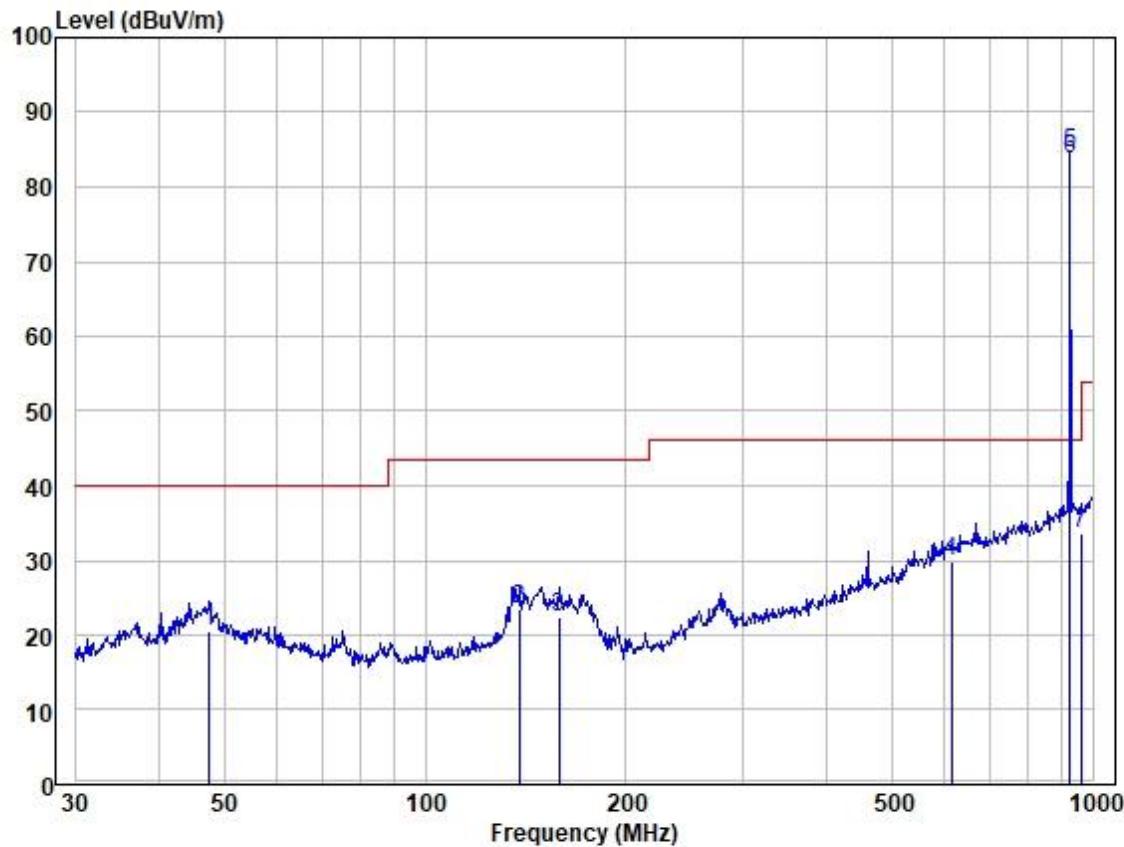
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Test Mode: 03; Polarity: Vertical; Channel:High



Site : 966 Chamber
 Job :
 Model : 920MHz
 Power : AC 24V
 Test Mode :

Freq	Read	Antena	Cable	Preamp	Measured	Limit	Over	Pol/	Remark
	Level	Factor	Loss	Factor	Level	Line	Limit	Phase	
1 47.492	33.26	19.50	0.76	32.99	20.53	40.00	-19.47	VERTICAL	QP
2 138.387	36.61	18.59	1.32	33.00	23.52	43.52	-20.00	VERTICAL	QP
3 158.668	34.81	19.20	1.49	33.00	22.50	43.52	-21.02	VERTICAL	QP
4 614.000	34.06	25.92	3.25	33.39	29.84	46.02	-16.18	VERTICAL	QP
5 922.516	82.89	29.54	4.28	32.05	84.66	46.02	38.64	VERTICAL	Peak
6 922.516	82.10	29.54	4.28	32.05	83.87	46.02	37.85	VERTICAL	QP
7 960.000	31.53	29.74	4.10	31.64	33.73	46.02	-12.29	VERTICAL	QP

*Remark: Point 5 & 6 are the intentional fundamental emission frequency that shall be excluded.

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7.9 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

7.9.1 E.U.T. Operation

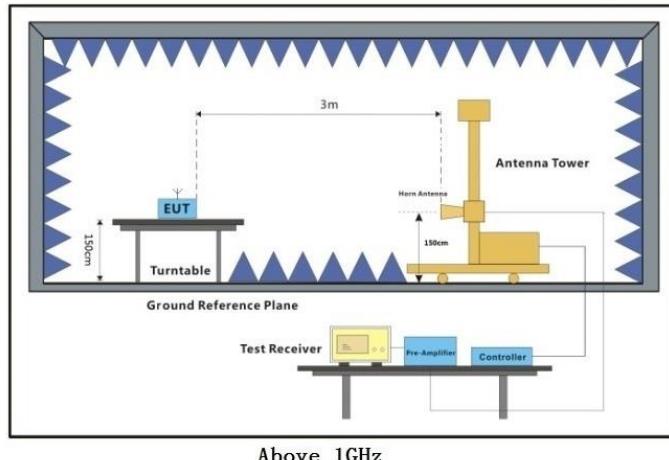
Operating Environment:

Temperature: 23.7 °C Humidity: 54.3 % RH Atmospheric Pressure: 1008 mbar

7.9.2 Test Mode Description

Pre-scan / Mode Final test	Mode Code	Description
Final test	00	TX mode_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 1Mbps is the worst case of IEEE 802.11b; data rate @ 6Mbps is the worst case of IEEE 802.11g; data rate @ 6.5Mbps is the worst case of IEEE 802.11n(HT20), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	03	TX mode_Keep the EUT in transmitting with modulation mode.

7.9.3 Test Setup Diagram



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7.9.4 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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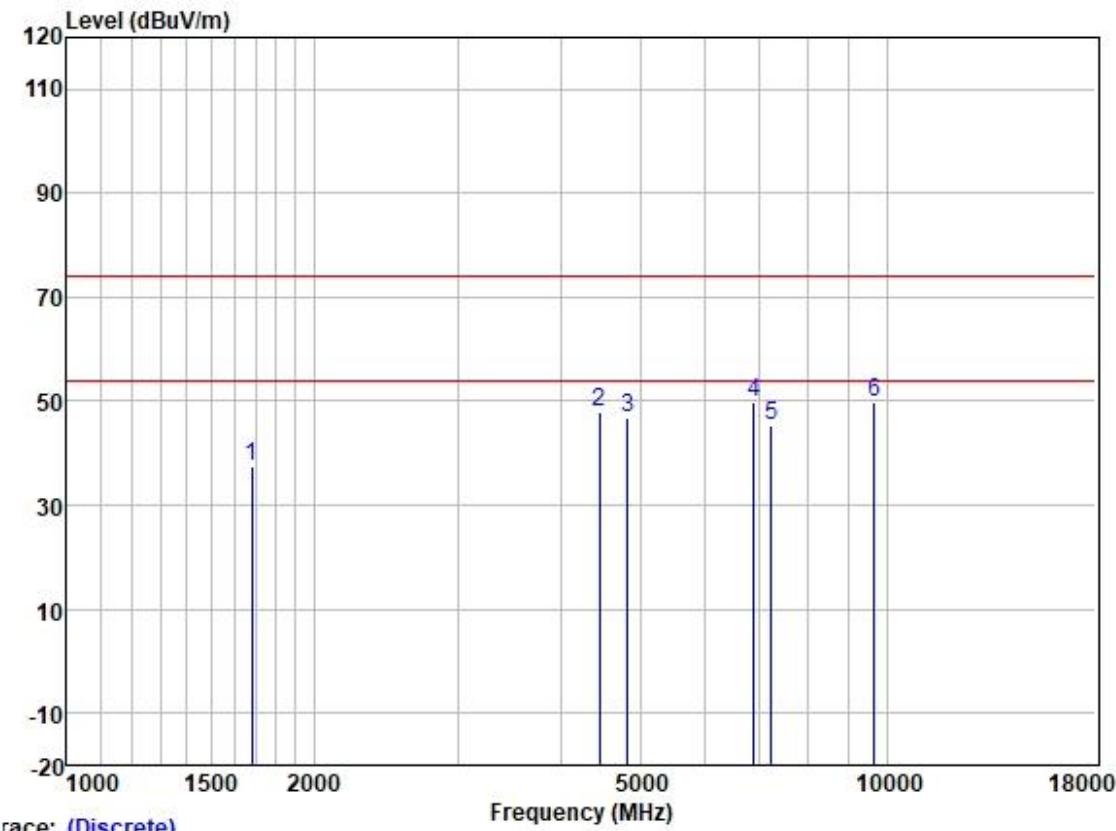
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Freq	ReadAntenna		Cable		Preamp		Limit Line	Over Line	Over Limit	Pol/Phase	Remark
	Freq	Level	Antenna Factor	Loss	Factor	Level					
MHz	dBuV	dB/m		dB		dBuV/m	dBuV/m	dB			
1 1682.477	46.96	25.03		3.25	37.93	37.31	74.00	-36.69	VERTICAL	peak	
2 4456.315	45.36	34.00		5.35	36.83	47.88	74.00	-26.12	VERTICAL	peak	
3 4824.000	44.20	34.16		5.46	36.87	46.95	74.00	-27.05	VERTICAL	peak	
4 6874.906	45.51	34.88		6.37	37.07	49.69	74.00	-24.31	VERTICAL	peak	
5 7236.000	40.42	35.78		6.35	37.14	45.41	74.00	-28.59	VERTICAL	peak	
6 9648.000	40.42	38.70		7.89	37.02	49.99	74.00	-24.01	VERTICAL	peak	

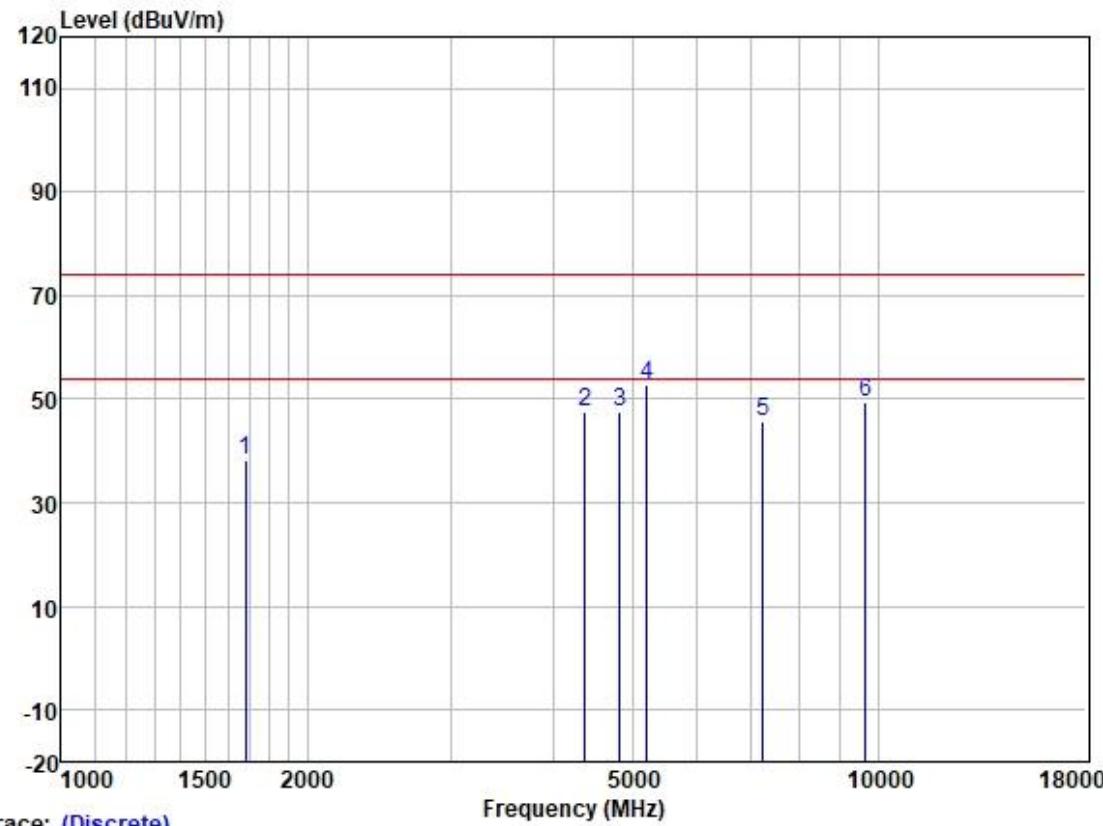
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:Low



Trace: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Freq	Level	Factor	Loss	Factor	Level	Line	Line	dB	dB	dB
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dBuV/m	dBuV/m	dB	dB	dB
1	1682.477	48.02	25.03	3.25	37.93	38.37	74.00	-35.63	HORIZONTAL	peak	
2	4379.699	45.56	33.59	5.35	36.82	47.68	74.00	-26.32	HORIZONTAL	peak	
3	4824.000	44.97	34.16	5.46	36.87	47.72	74.00	-26.28	HORIZONTAL	peak	
4	5209.075	50.69	33.58	5.33	36.94	52.66	74.00	-21.34	HORIZONTAL	peak	
5	7236.000	40.68	35.78	6.35	37.14	45.67	74.00	-28.33	HORIZONTAL	peak	
6	9648.000	40.00	38.70	7.89	37.02	49.57	74.00	-24.43	HORIZONTAL	peak	

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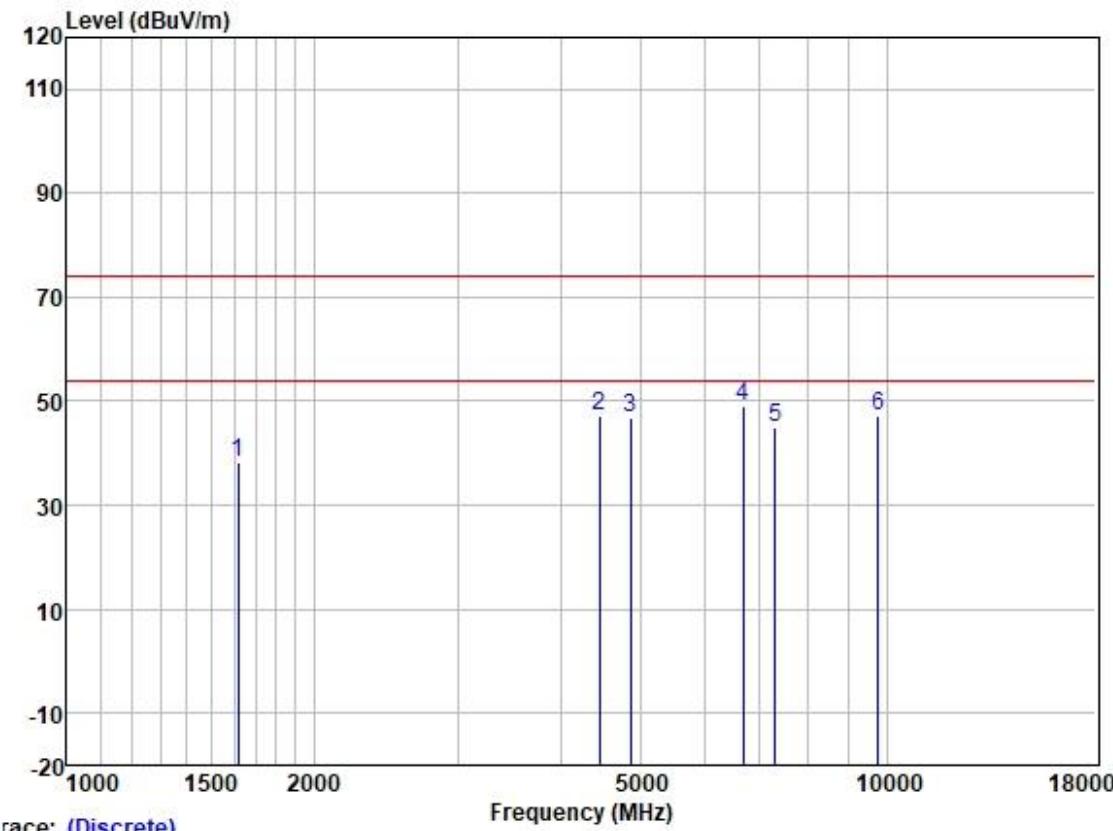
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:middle

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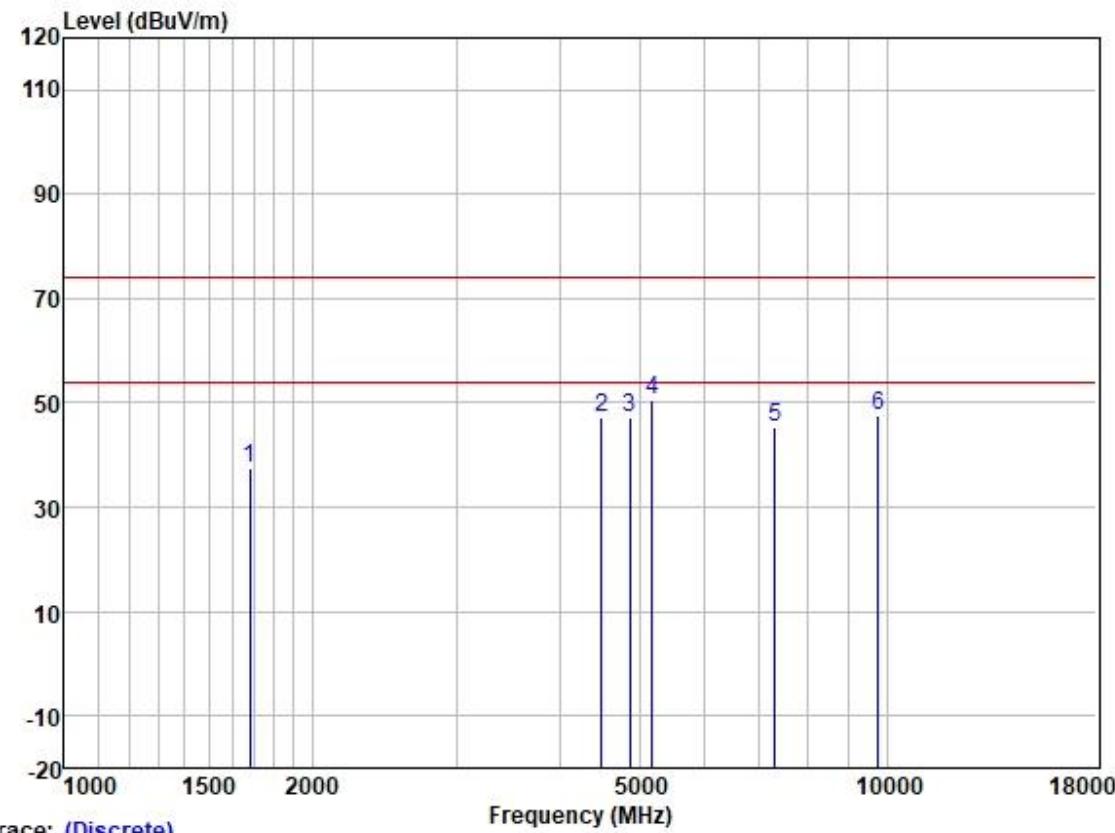
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:middle



Race: (Discrete)

Freq	ReadAntenna	Cable	Preamp	Limit	Over	Line	Limit	Pol/Phase	Remark
	Level	Factor	Loss						
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1682.477	46.99	25.03	3.25	37.93	37.34	74.00	-36.66	HORIZONTAL	peak
2 4495.125	44.71	34.17	5.33	36.83	47.38	74.00	-26.62	HORIZONTAL	peak
3 4874.000	44.47	34.15	5.49	36.87	47.24	74.00	-26.76	HORIZONTAL	peak
4 5179.049	48.63	33.69	5.33	36.93	50.72	74.00	-23.28	HORIZONTAL	peak
5 7311.000	40.28	36.00	6.32	37.15	45.45	74.00	-28.55	HORIZONTAL	peak
6 9748.000	38.50	38.81	7.43	37.01	47.73	74.00	-26.27	HORIZONTAL	peak

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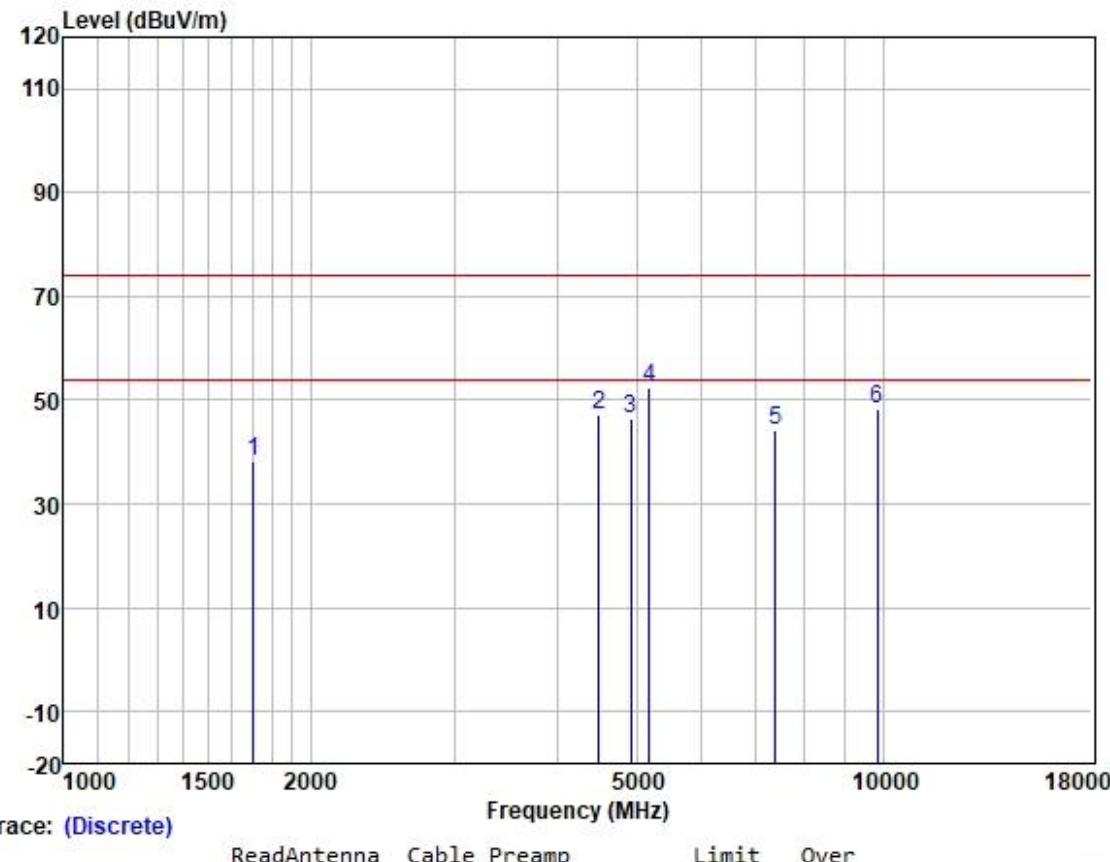
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Test Mode: 00; Polarity: Vertical; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Mode: (Discrete)

Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1702.042	47.69	25.15	3.36	37.92	38.28	74.00	-35.72	VERTICAL	peak
2 4495.125	44.68	34.17	5.33	36.83	47.35	74.00	-26.65	VERTICAL	peak
3 4924.000	43.57	34.15	5.51	36.88	46.35	74.00	-27.65	VERTICAL	peak
4 5179.049	50.35	33.69	5.33	36.93	52.44	74.00	-21.56	VERTICAL	peak
5 7386.000	38.74	36.23	6.30	37.16	44.11	74.00	-29.89	VERTICAL	peak
6 9848.000	39.49	38.88	7.06	37.01	48.42	74.00	-25.58	VERTICAL	peak

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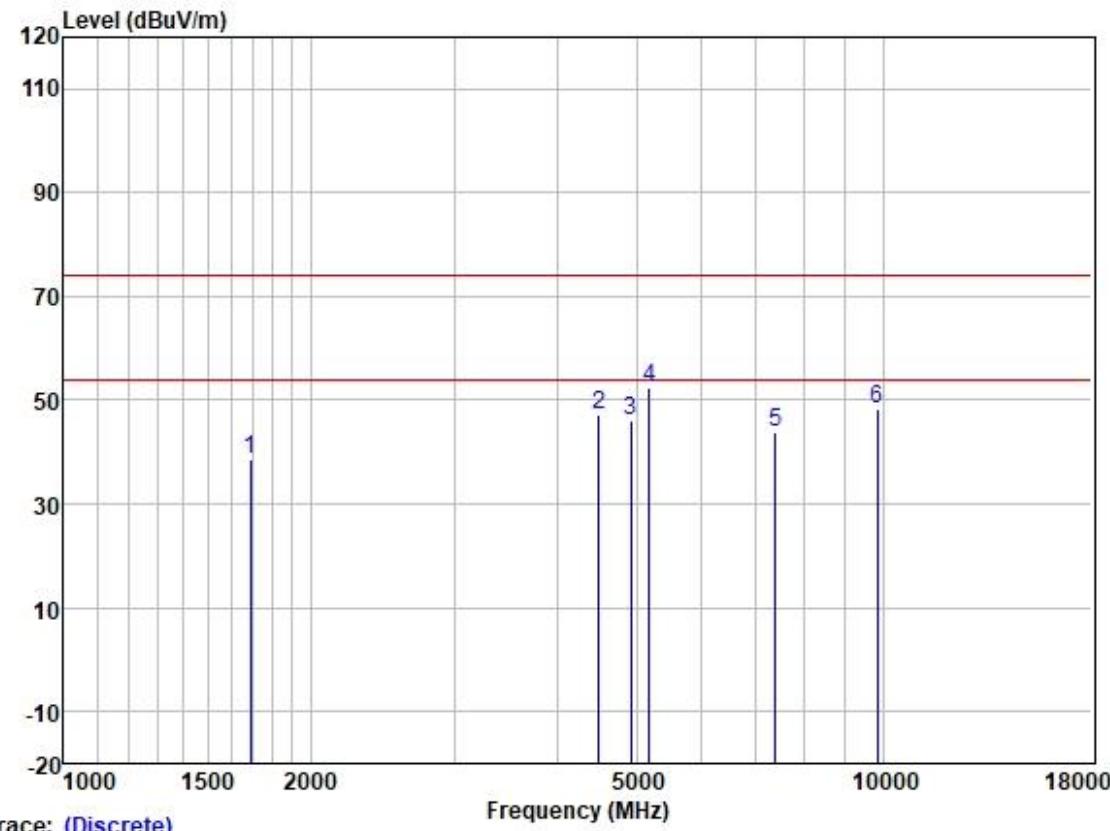
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11b; Bandwidth:20MHz; Channel:High



Race: (Discrete)	ReadAntenna Cable Preamp								Limit Line	Over Limit	Pol/Phase	Remark
	Freq	Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	dB				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB					
1	1692.231	48.04	25.09	3.30	37.93	38.50	74.00	-35.50	HORIZONTAL	peak		
2	4495.125	44.60	34.17	5.33	36.83	47.27	74.00	-26.73	HORIZONTAL	peak		
3	4924.000	43.16	34.15	5.51	36.88	45.94	74.00	-28.06	HORIZONTAL	peak		
4	5179.049	50.29	33.69	5.33	36.93	52.38	74.00	-21.62	HORIZONTAL	peak		
5	7386.000	38.56	36.23	6.30	37.16	43.93	74.00	-30.07	HORIZONTAL	peak		
6	9848.000	39.46	38.88	7.06	37.01	48.39	74.00	-25.61	HORIZONTAL	peak		

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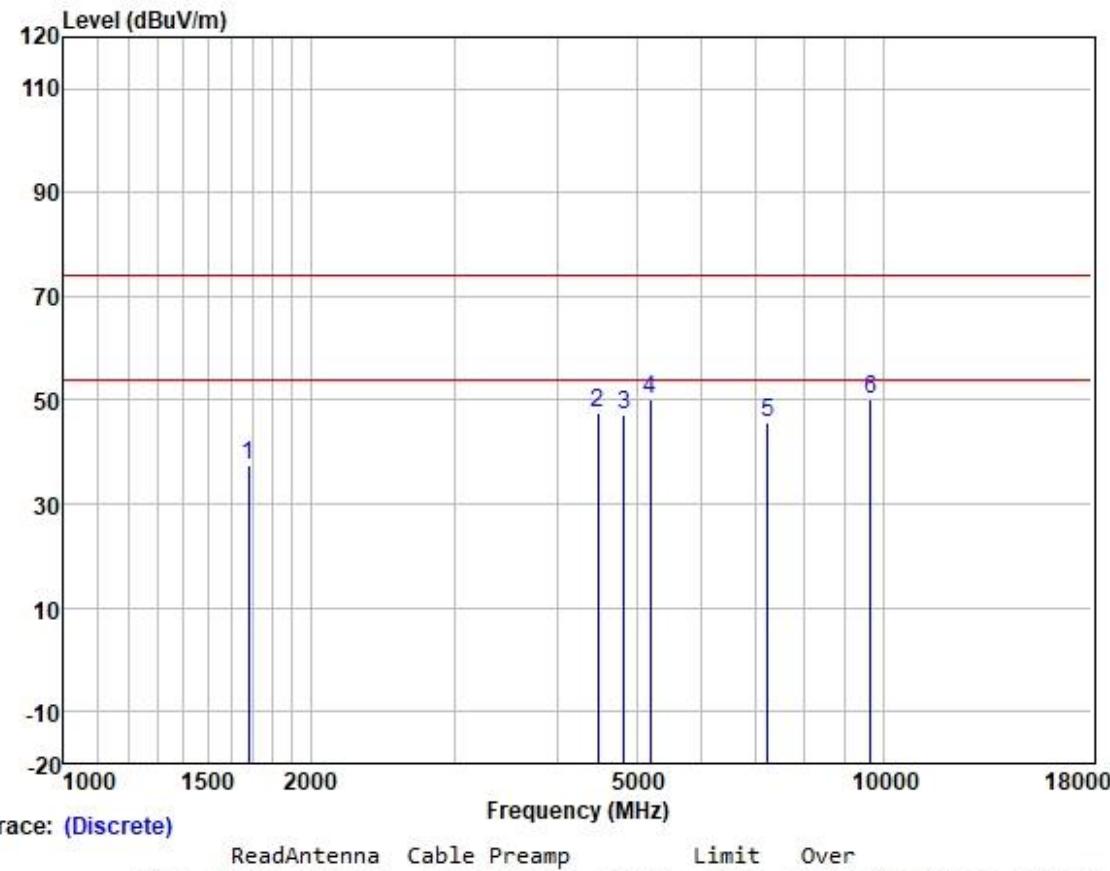
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Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Trace: (Discrete)

Trace	Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
		Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1682.477	47.22	25.03	3.25	37.93	37.57	74.00	-36.43	VERTICAL	peak
2	4482.150	44.88	34.12	5.34	36.83	47.51	74.00	-26.49	VERTICAL	peak
3	4824.000	44.40	34.16	5.46	36.87	47.15	74.00	-26.85	VERTICAL	peak
4	5194.041	48.16	33.64	5.31	36.93	50.18	74.00	-23.82	VERTICAL	peak
5	7236.000	40.70	35.78	6.35	37.14	45.69	74.00	-28.31	VERTICAL	peak
6	9648.000	40.46	38.70	7.89	37.02	50.03	74.00	-23.97	VERTICAL	peak

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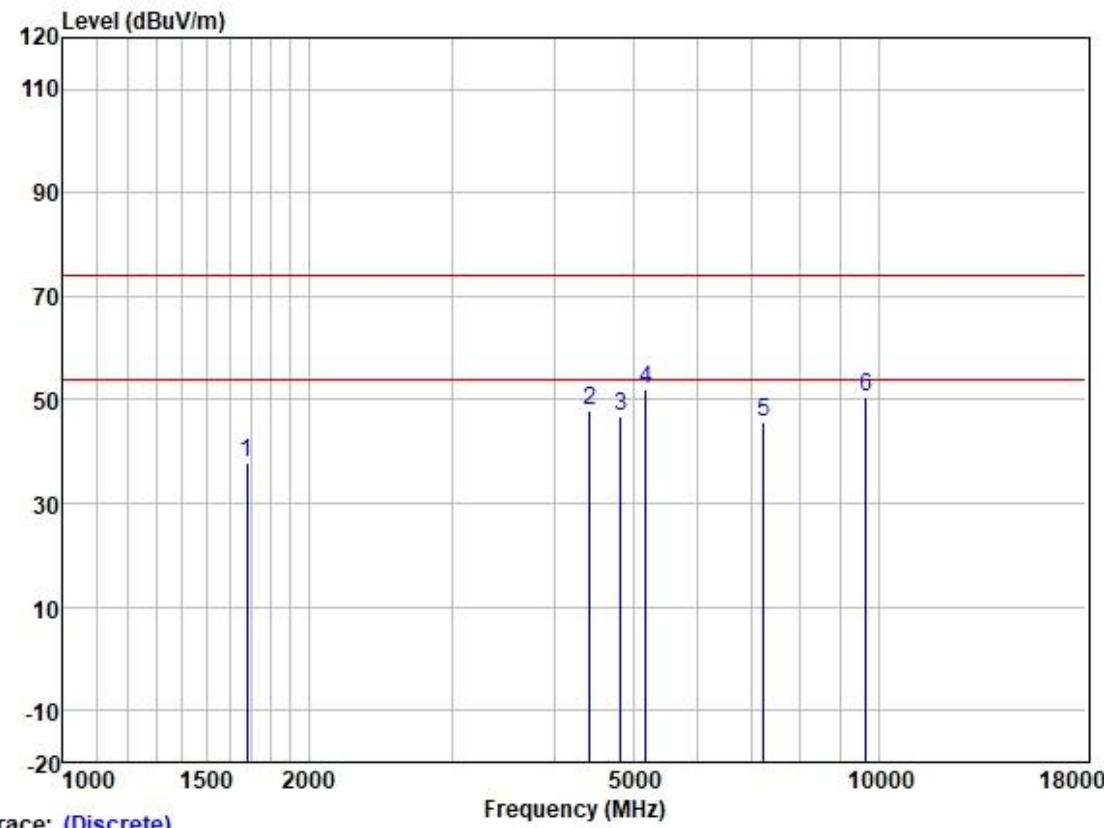
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:Low



Trace: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	dBuV/m	dBuV/m	dB		
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	1682.477	47.65	25.03	3.25	37.93	38.00	74.00	-36.00	HORIZONTAL	peak
2	4430.628	45.45	33.87	5.36	36.83	47.85	74.00	-26.15	HORIZONTAL	peak
3	4824.000	44.00	34.16	5.46	36.87	46.75	74.00	-27.25	HORIZONTAL	peak
4	5179.049	50.02	33.69	5.33	36.93	52.11	74.00	-21.89	HORIZONTAL	peak
5	7236.000	40.53	35.78	6.35	37.14	45.52	74.00	-28.48	HORIZONTAL	peak
6	9648.000	40.89	38.70	7.89	37.02	50.46	74.00	-23.54	HORIZONTAL	peak

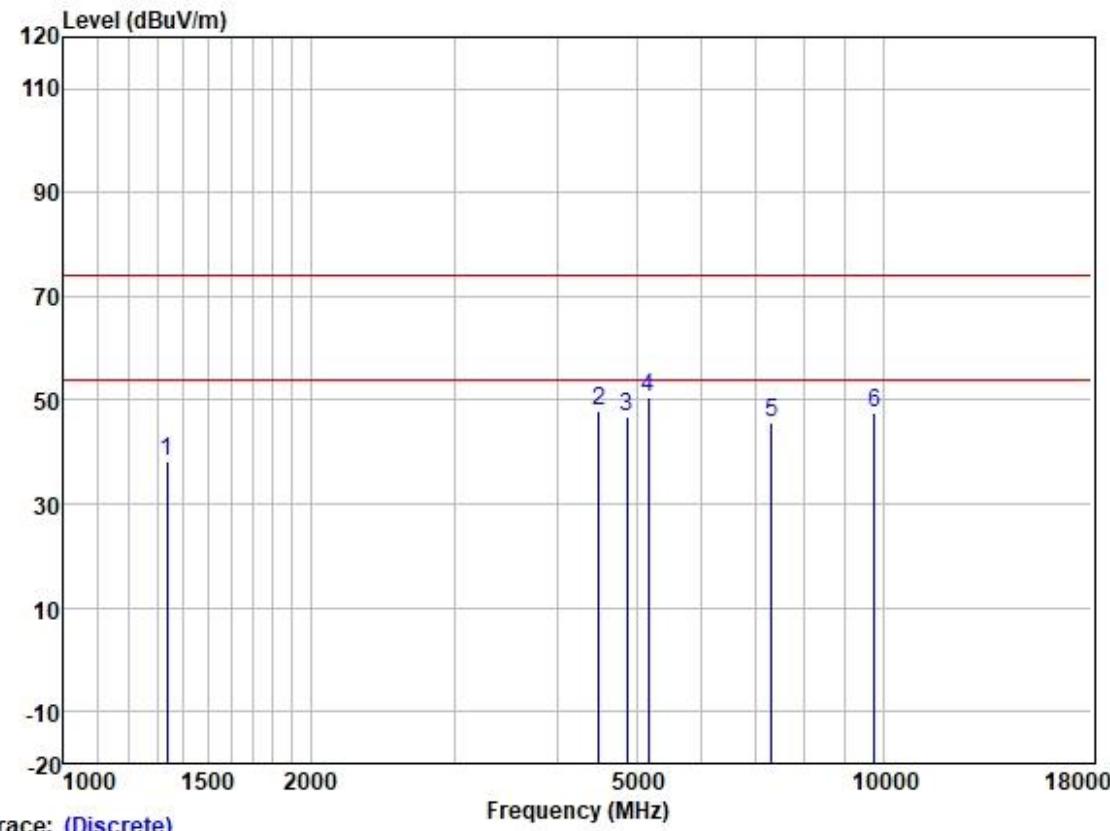
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Test Mode: 00; Polarity: Vertical; Modulation:802.11g; Bandwidth:20MHz; Channel:middle



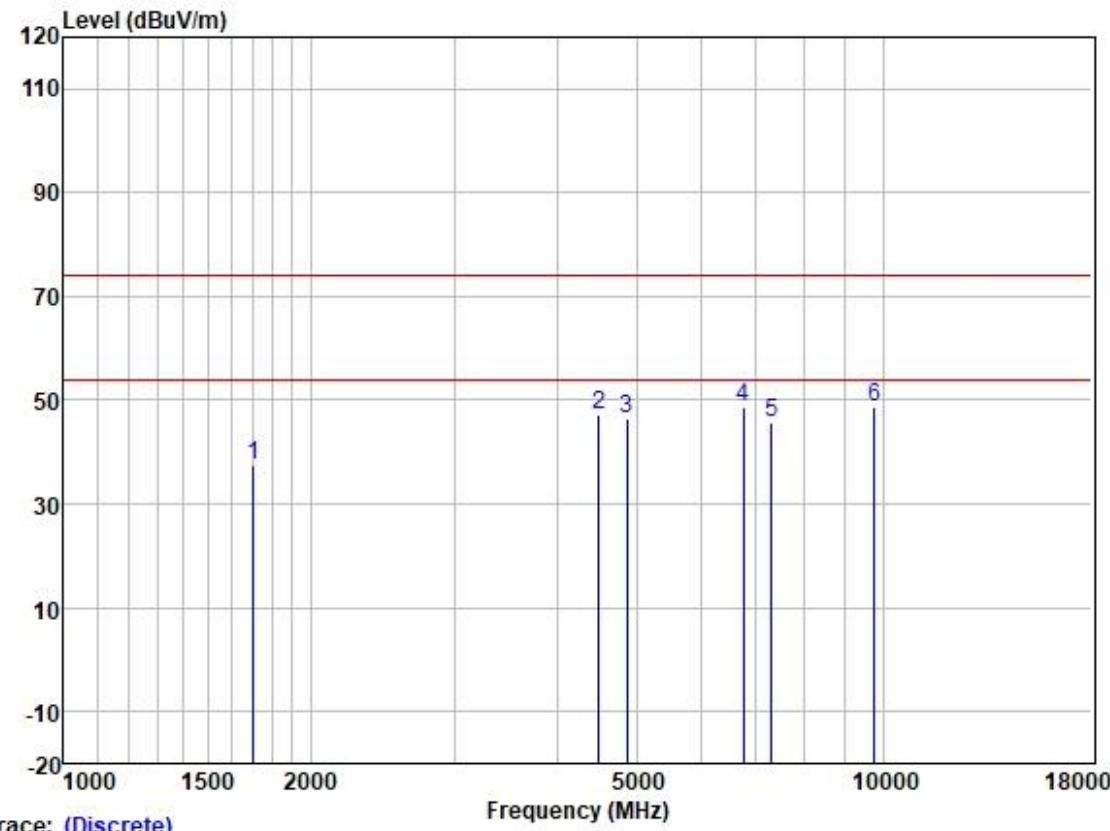
Freq	ReadAntenna		Cable		Preamp		Limit Line	Over Limit	Pol/Phase	Remark
	Freq	Level	Antenna Factor	Loss	Factor	Level	dBuV/m	dBuV/m	dB	
1	1335.141	49.24	24.09	2.73	37.97	38.09	74.00	-35.91	VERTICAL	peak
2	4495.125	45.17	34.17	5.33	36.83	47.84	74.00	-26.16	VERTICAL	peak
3	4874.000	43.98	34.15	5.49	36.87	46.75	74.00	-27.25	VERTICAL	peak
4	5164.102	48.53	33.74	5.34	36.93	50.68	74.00	-23.32	VERTICAL	peak
5	7311.000	40.40	36.00	6.32	37.15	45.57	74.00	-28.43	VERTICAL	peak
6	9748.000	38.53	38.81	7.43	37.01	47.76	74.00	-26.24	VERTICAL	peak

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



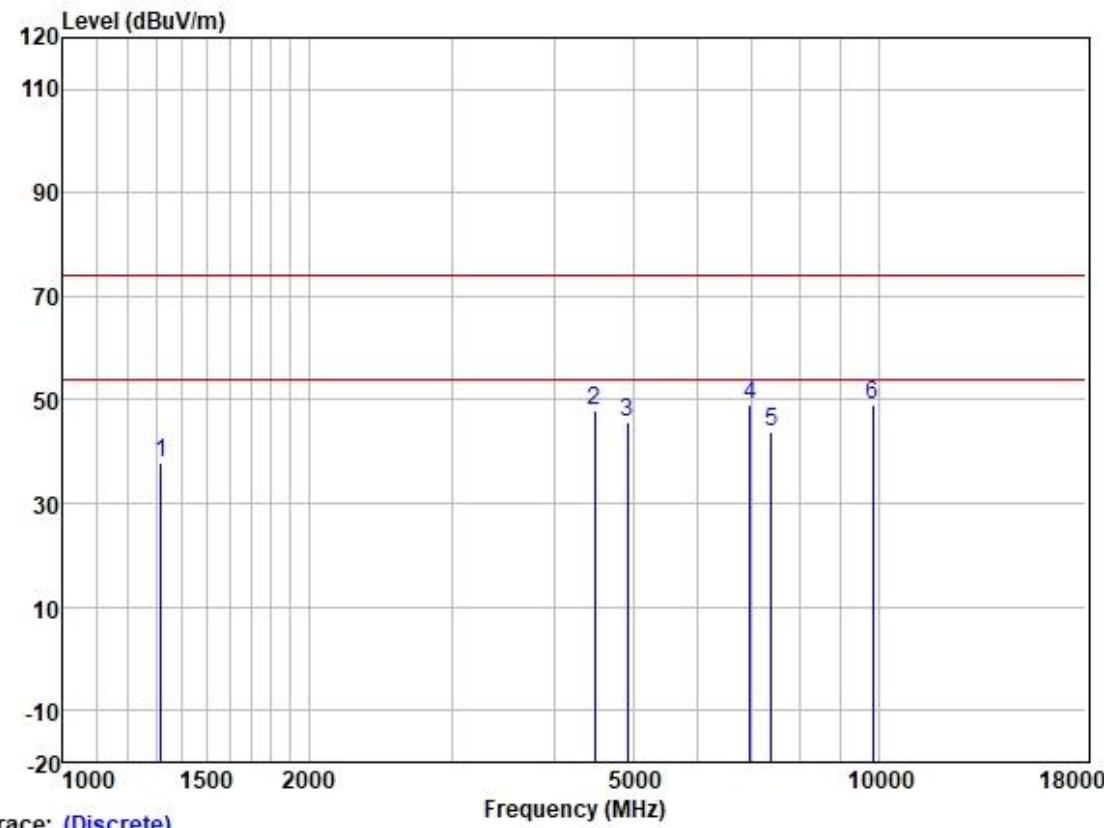
Lane: (Discrete)	ReadAntenna	Cable		Preamp	Limit	Over	Pol/Phase	Remark	
		Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1702.042	46.97	25.15	3.36	37.92	37.56	74.00	-36.44	HORIZONTAL peak
2	4495.125	44.60	34.17	5.33	36.83	47.27	74.00	-26.73	HORIZONTAL peak
3	4874.000	43.76	34.15	5.49	36.87	46.53	74.00	-27.47	HORIZONTAL peak
4	6756.708	44.84	34.56	6.32	37.06	48.66	74.00	-25.34	HORIZONTAL peak
5	7311.000	40.63	36.00	6.32	37.15	45.80	74.00	-28.20	HORIZONTAL peak
6	9748.000	39.38	38.81	7.43	37.01	48.61	74.00	-25.39	HORIZONTAL peak

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



ReadAntenna	Cable	Preamp	Limit		Over	Line	Limit	Pol/Phase	Remark
			Freq	Level	Factor	Loss	Factor		
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1319.794	49.27	24.04	2.71	37.97	38.05	74.00	-35.95	VERTICAL peak
2	4482.150	45.21	34.12	5.34	36.83	47.84	74.00	-26.16	VERTICAL peak
3	4924.000	42.92	34.15	5.51	36.88	45.70	74.00	-28.30	VERTICAL peak
4	6954.852	44.66	35.04	6.40	37.09	49.01	74.00	-24.99	VERTICAL peak
5	7386.000	38.60	36.23	6.30	37.16	43.97	74.00	-30.03	VERTICAL peak
6	9848.000	40.26	38.88	7.06	37.01	49.19	74.00	-24.81	VERTICAL peak

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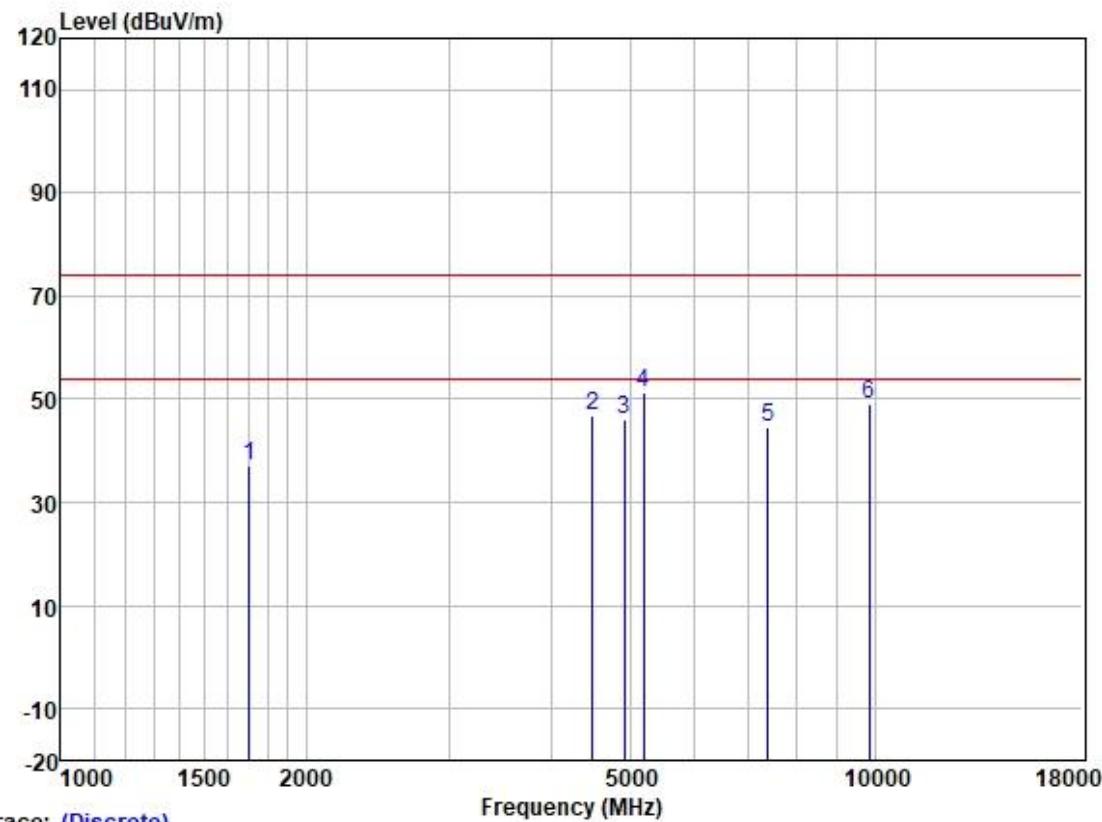
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11g; Bandwidth:20MHz; Channel:High



Trace: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	dBuV/m	dBuV/m	dB	dB	dB	dB
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dBuV/m	dB	dB	dB	dB
1 1702.042	46.71	25.15	3.36	37.92	37.30	74.00	-36.70	HORIZONTAL	peak		
2 4495.125	44.15	34.17	5.33	36.83	46.82	74.00	-27.18	HORIZONTAL	peak		
3 4924.000	43.36	34.15	5.51	36.88	46.14	74.00	-27.86	HORIZONTAL	peak		
4 5194.041	49.43	33.64	5.31	36.93	51.45	74.00	-22.55	HORIZONTAL	peak		
5 7386.000	39.16	36.23	6.30	37.16	44.53	74.00	-29.47	HORIZONTAL	peak		
6 9848.000	39.98	38.88	7.06	37.01	48.91	74.00	-25.09	HORIZONTAL	peak		

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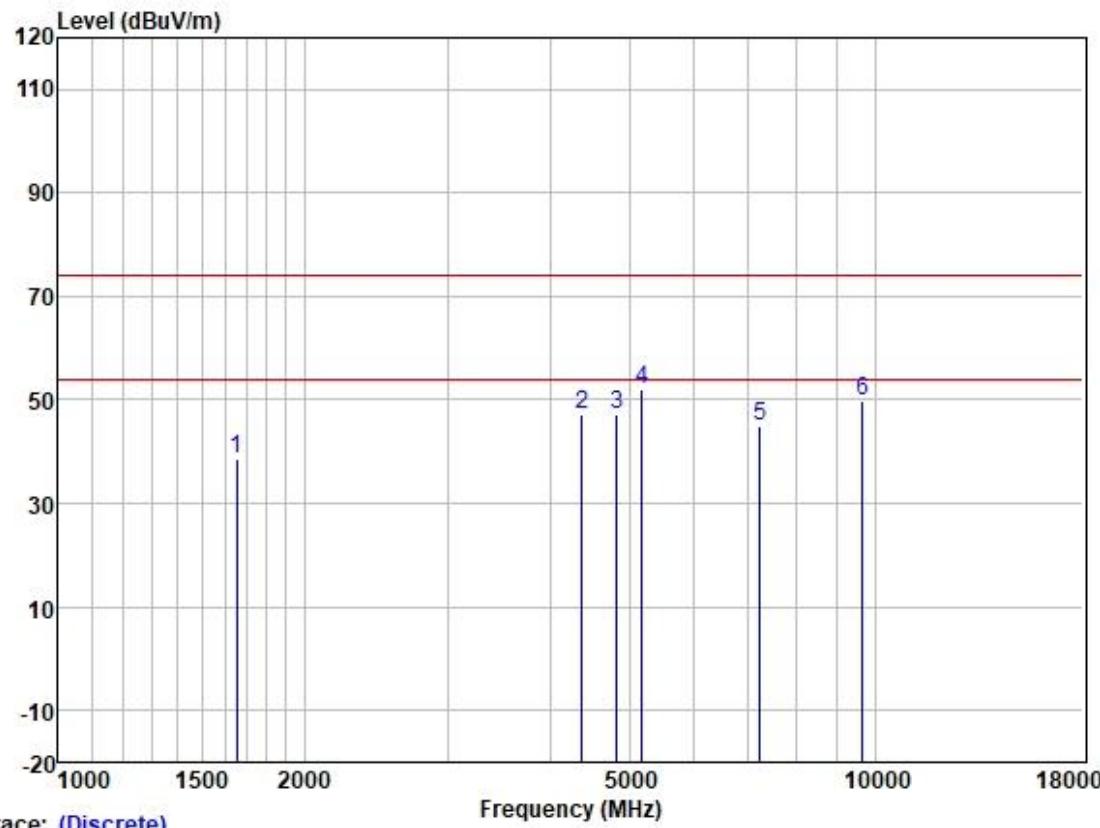
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Type: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	dBuV/m	dBuV/m	dB	dB	dB	dB
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	dB	dB	dB
1 1653.550	48.38	24.89	3.14	37.93	38.48	74.00	-35.52	VERTICAL	peak		
2 4379.699	45.11	33.59	5.35	36.82	47.23	74.00	-26.77	VERTICAL	peak		
3 4824.000	44.53	34.16	5.46	36.87	47.28	74.00	-26.72	VERTICAL	peak		
4 5179.049	49.81	33.69	5.33	36.93	51.90	74.00	-22.10	VERTICAL	peak		
5 7236.000	40.12	35.78	6.35	37.14	45.11	74.00	-28.89	VERTICAL	peak		
6 9648.000	40.15	38.70	7.89	37.02	49.72	74.00	-24.28	VERTICAL	peak		

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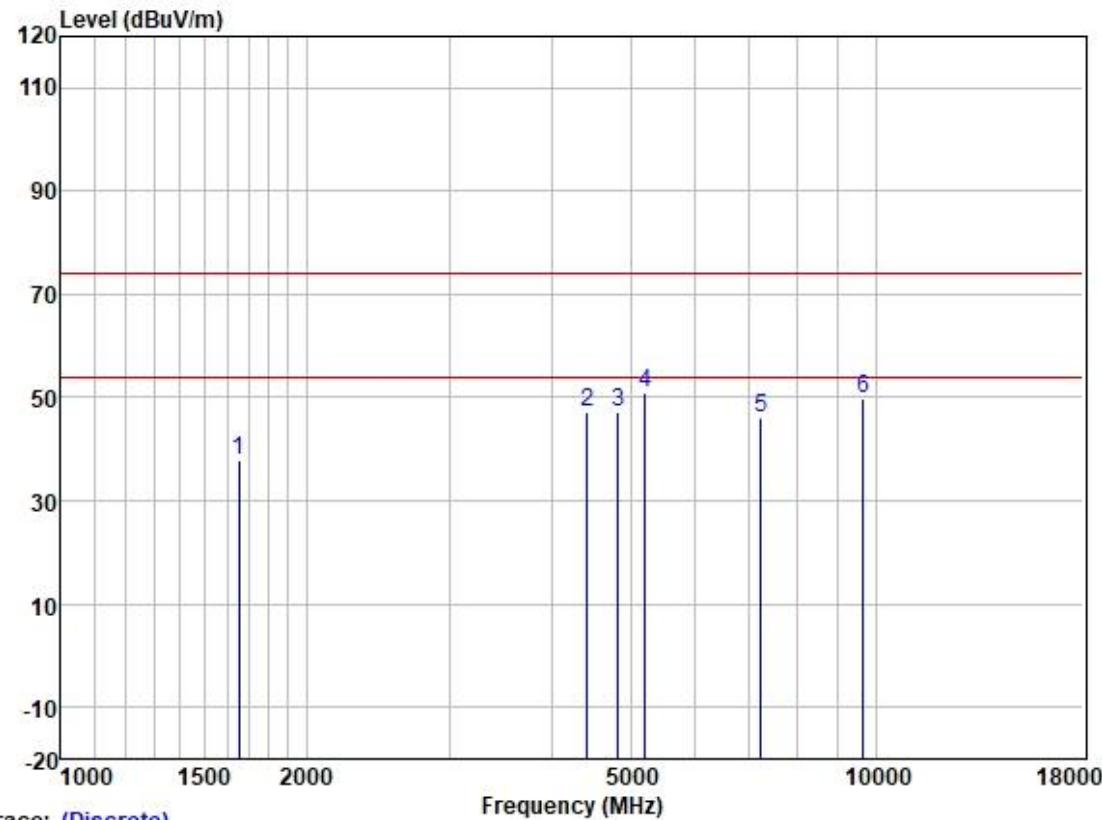
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Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Type: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	dBuV/m					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	dB	dB	dB
1 1653.550	47.65	24.89	3.14	37.93	37.75	74.00	-36.25	HORIZONTAL	peak		
2 4430.628	44.87	33.87	5.36	36.83	47.27	74.00	-26.73	HORIZONTAL	peak		
3 4824.000	44.54	34.16	5.46	36.87	47.29	74.00	-26.71	HORIZONTAL	peak		
4 5209.075	49.00	33.58	5.33	36.94	50.97	74.00	-23.03	HORIZONTAL	peak		
5 7236.000	40.99	35.78	6.35	37.14	45.98	74.00	-28.02	HORIZONTAL	peak		
6 9648.000	40.07	38.70	7.89	37.02	49.64	74.00	-24.36	HORIZONTAL	peak		

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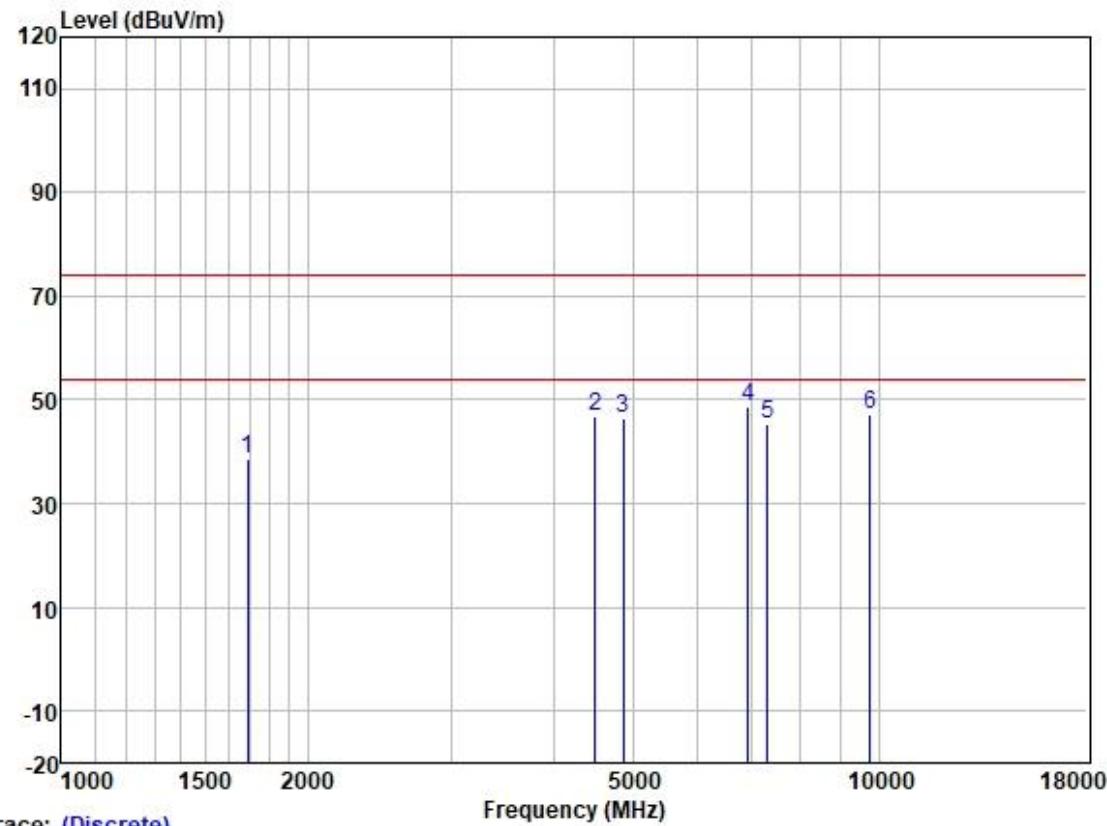
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle

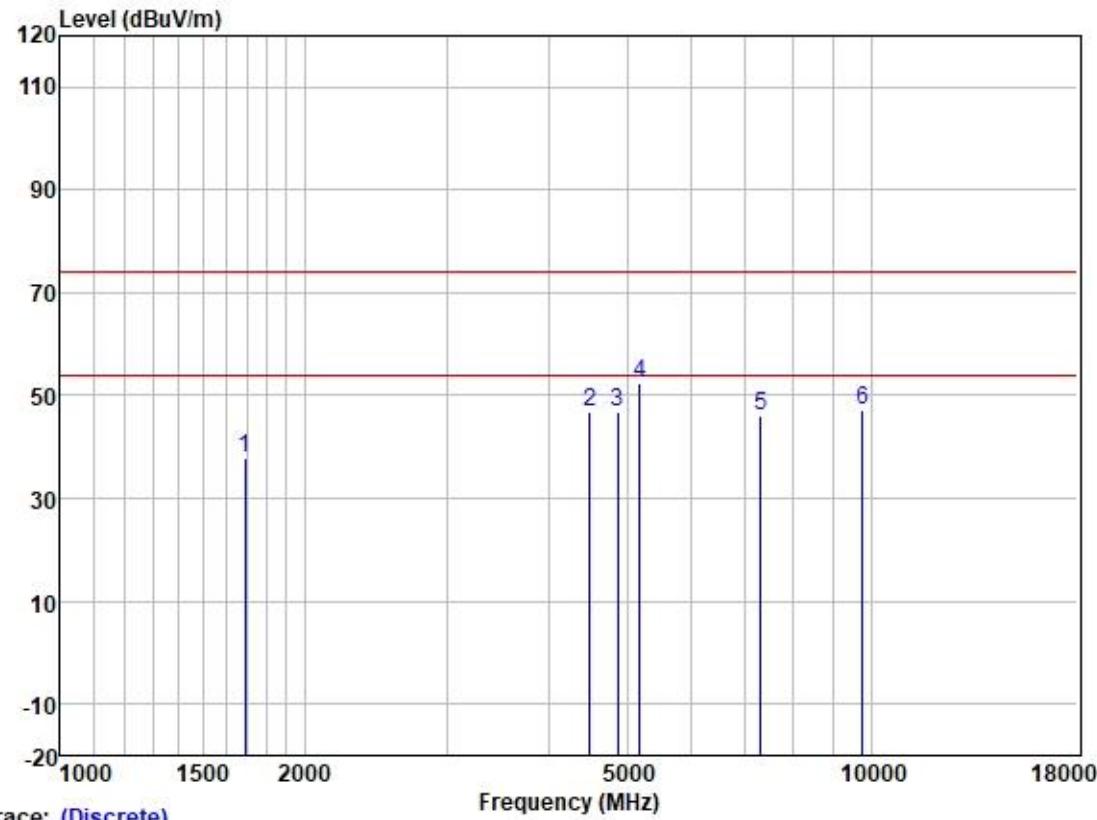


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中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

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



Race:	Freq	ReadAntenna		Cable		Preamp		Limit	Over	Limit	Over	Pol/Phase	Remark
		Level	Factor	Loss	Factor	Level	dBuV/m						
	MHz	dBuV	dB/m		dB								
1	1692.231	47.57	25.09	3.30	37.93	38.03	74.00	-35.97	HORIZONTAL	peak			
2	4495.125	44.08	34.17	5.33	36.83	46.75	74.00	-27.25	HORIZONTAL	peak			
3	4874.000	44.04	34.15	5.49	36.87	46.81	74.00	-27.19	HORIZONTAL	peak			
4	5179.049	50.31	33.69	5.33	36.93	52.40	74.00	-21.60	HORIZONTAL	peak			
5	7311.000	41.07	36.00	6.32	37.15	46.24	74.00	-27.76	HORIZONTAL	peak			
6	9748.000	37.92	38.81	7.43	37.01	47.15	74.00	-26.85	HORIZONTAL	peak			

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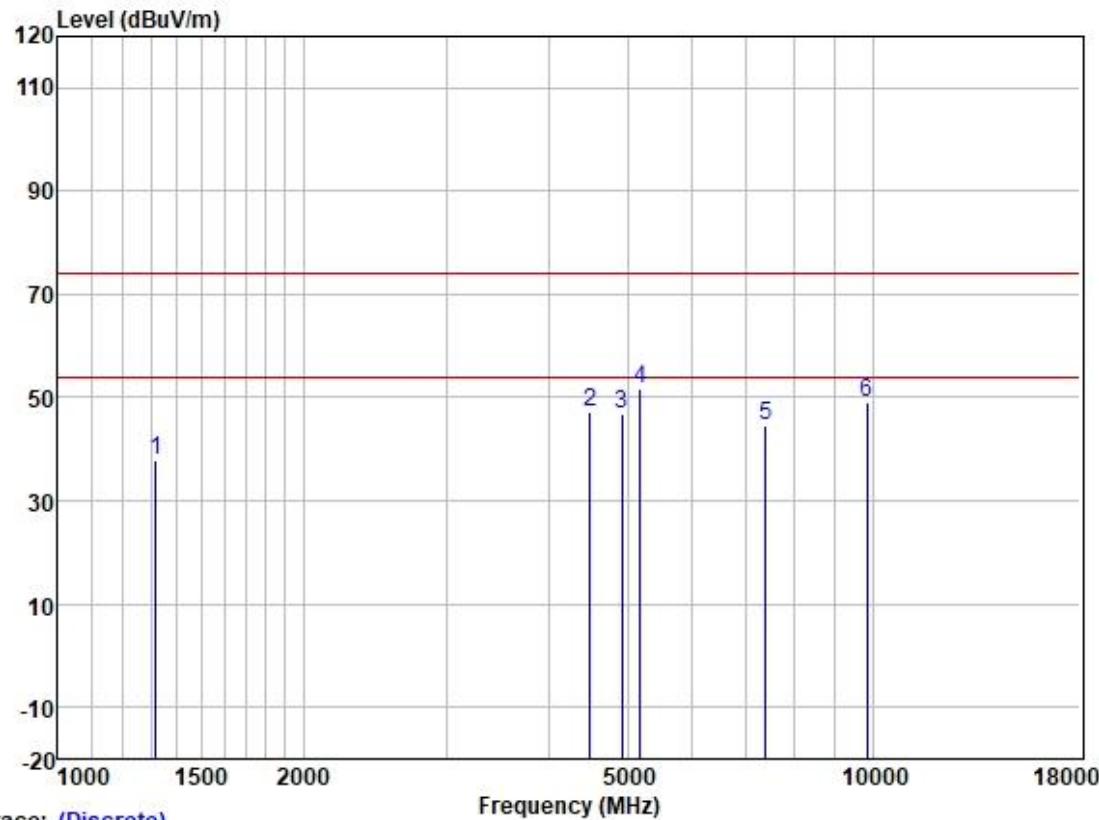
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Test Mode: 00; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Trace: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	dBuV/m					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Line	Line	Peak	Peak
1	1319.794	49.17	24.04	2.71	37.97	37.95	74.00	-36.05	VERTICAL	peak	peak
2	4495.125	44.70	34.17	5.33	36.83	47.37	74.00	-26.63	VERTICAL	peak	peak
3	4924.000	44.05	34.15	5.51	36.88	46.83	74.00	-27.17	VERTICAL	peak	peak
4	5179.049	49.66	33.69	5.33	36.93	51.75	74.00	-22.25	VERTICAL	peak	peak
5	7386.000	39.17	36.23	6.30	37.16	44.54	74.00	-29.46	VERTICAL	peak	peak
6	9848.000	40.02	38.88	7.06	37.01	48.95	74.00	-25.05	VERTICAL	peak	peak

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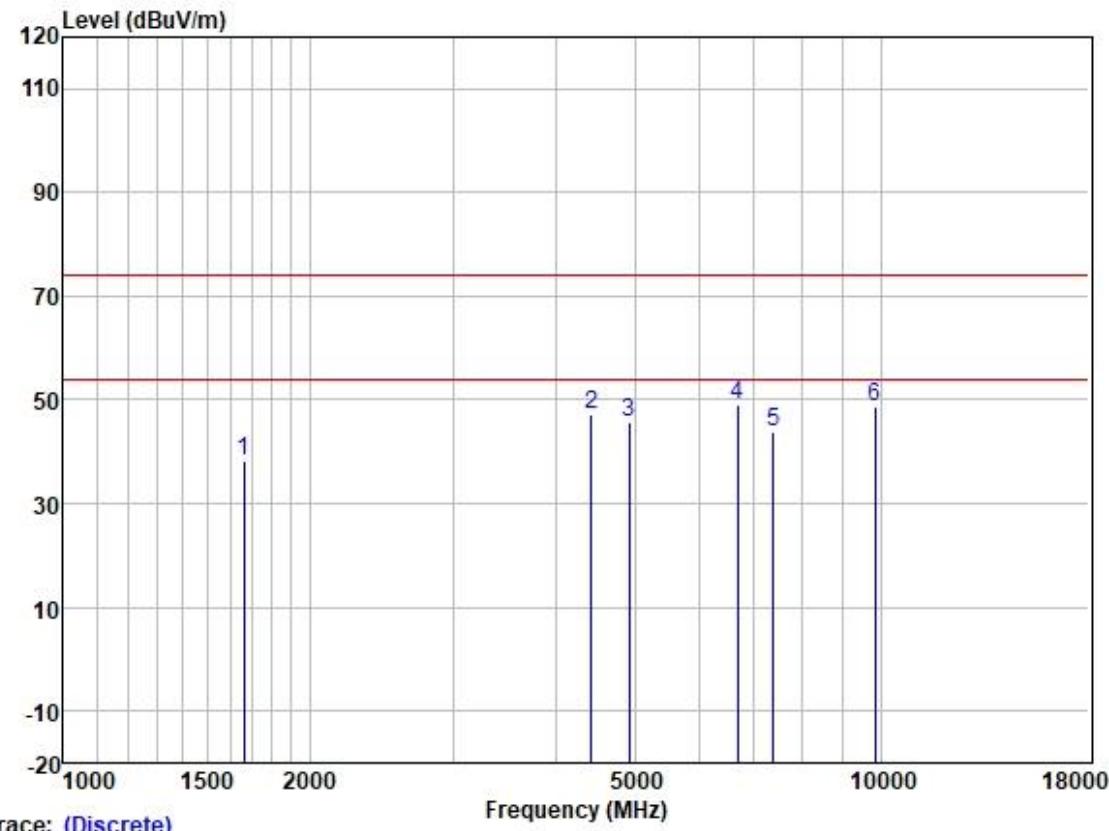
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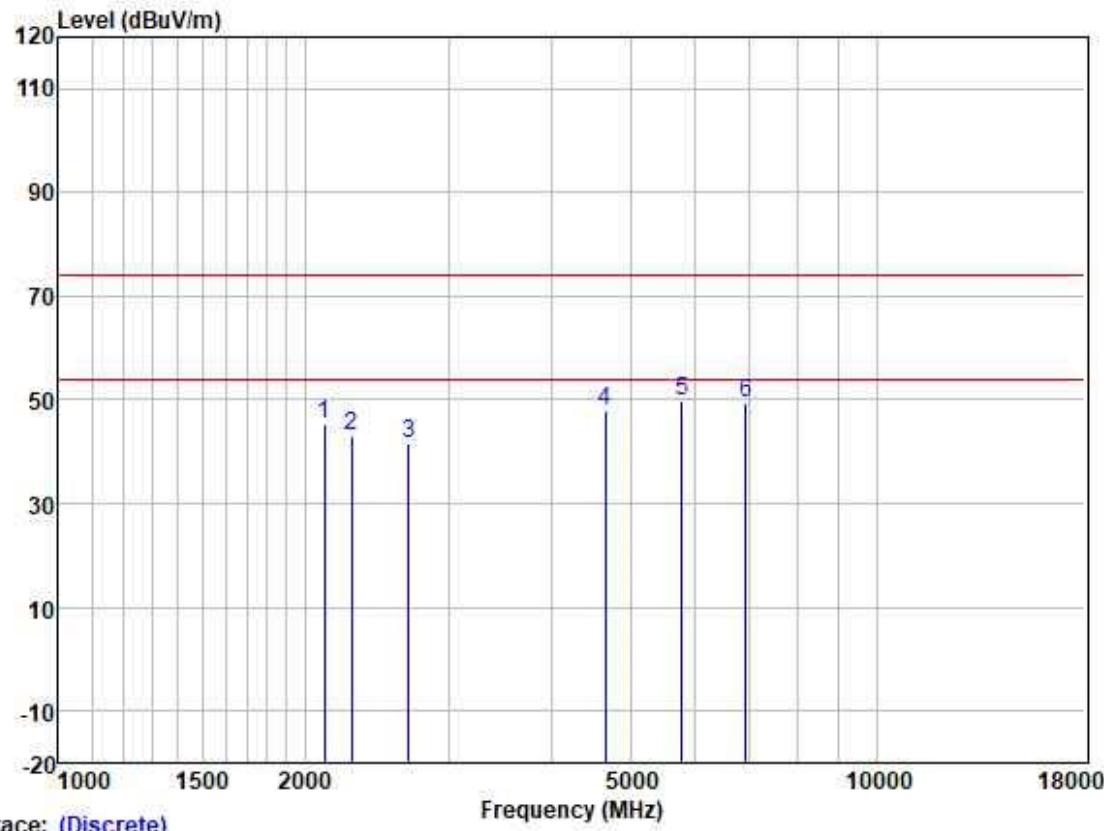
Test Mode: 00; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



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Test Mode: 03; Polarity: Vertical; Channel:Low



Emission No.	Frequency (MHz)	Read Antenna		Cable		Preamplifier	Limit	Over Limit	Polarization	Phase	Remark
		Freq	Level	Antenna Factor	Cable Loss						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	2114.052	50.43	26.62	6.14	37.86	45.33	74.00	-28.67	VERTICAL	Peak	
2	2279.044	48.07	27.37	5.61	37.81	43.24	74.00	-30.76	VERTICAL	Peak	
3	2679.464	48.58	28.12	2.57	37.62	41.65	74.00	-32.35	VERTICAL	Peak	
4	4667.241	45.13	34.16	5.34	36.85	47.78	74.00	-26.22	VERTICAL	Peak	
5	5780.300	48.43	32.66	5.68	36.99	49.78	74.00	-24.22	VERTICAL	Peak	
6	6914.763	45.11	34.97	6.39	37.08	49.39	74.00	-24.61	VERTICAL	Peak	

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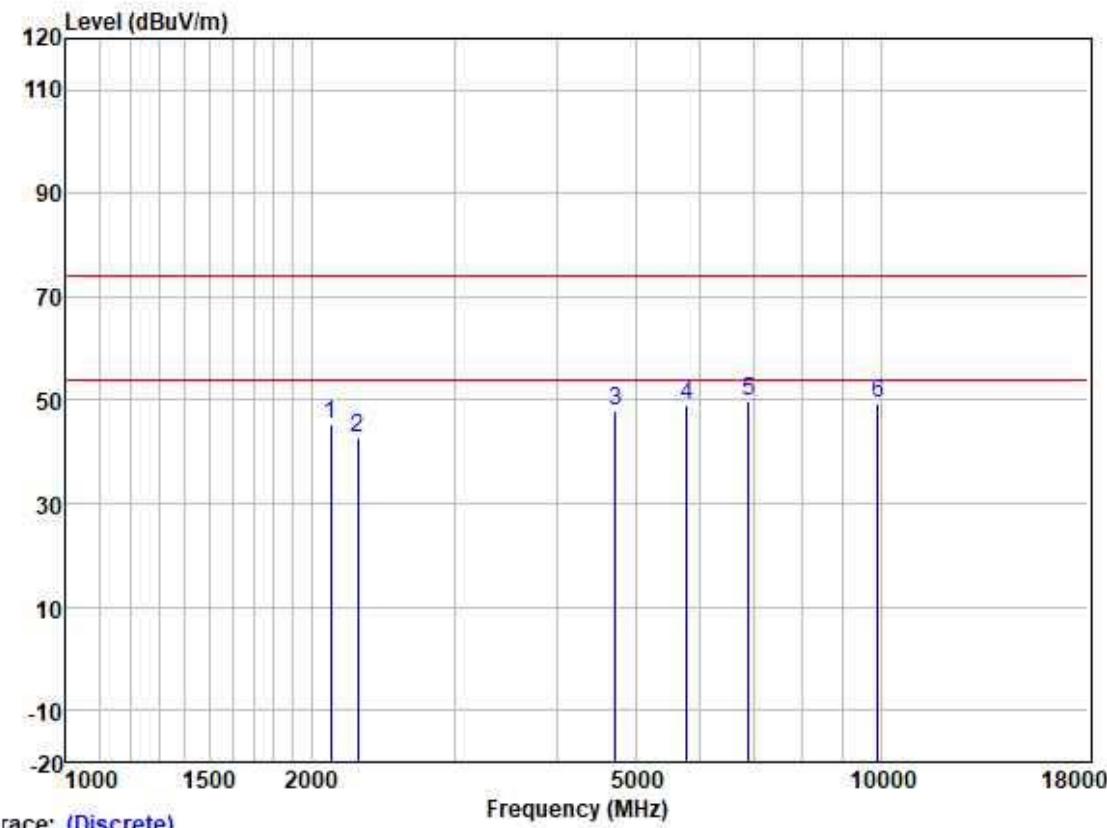
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Test Mode: 03; Polarity: Horizontal; Channel:Low



Mode: (Discrete)

Seq	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Pol/Phase	Remark
		Level	Factor	Loss	Factor						
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	2114.052	50.41	26.62	6.14	37.86	45.31	74.00	-28.69	HORIZONTAL	Peak	
2	2279.044	47.62	27.37	5.61	37.81	42.79	74.00	-31.21	HORIZONTAL	Peak	
3	4721.515	45.26	34.16	5.39	36.85	47.96	74.00	-26.04	HORIZONTAL	Peak	
4	5780.300	47.71	32.66	5.68	36.99	49.06	74.00	-24.94	HORIZONTAL	Peak	
5	6874.906	45.64	34.88	6.37	37.07	49.82	74.00	-24.18	HORIZONTAL	Peak	
6	9923.991	40.64	38.95	6.77	37.00	49.36	74.00	-24.64	HORIZONTAL	Peak	

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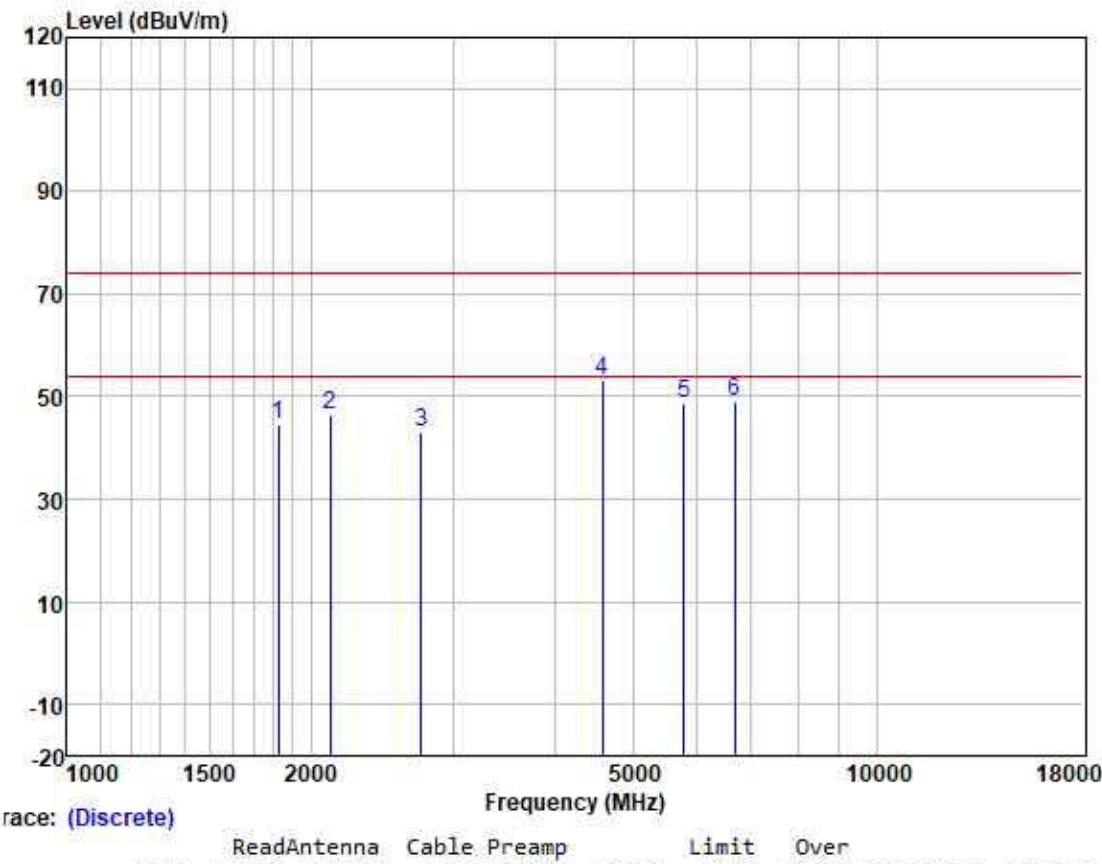
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Test Mode: 03; Polarity: Vertical; Channel:middle



Mode: (Discrete)

Freq	ReadAntenna		Cable		Preamp	Level	Limit	Over	Limit	Pol/Phase	Remark
	MHz	dBuV	Level Factor	dB							
1	1824.302	52.81	25.97	3.83	37.91	44.70	74.00	-29.30	VERTICAL	Peak	
2	2114.052	51.46	26.62	6.14	37.86	46.36	74.00	-27.64	VERTICAL	Peak	
3	2742.143	49.74	28.30	2.81	37.59	43.26	74.00	-30.74	VERTICAL	Peak	
4	4586.999	50.39	34.17	5.29	36.84	53.01	74.00	-20.99	VERTICAL	Peak	
5	5780.300	47.47	32.66	5.68	36.99	48.82	74.00	-25.18	VERTICAL	Peak	
6	6679.040	45.57	34.28	6.27	37.05	49.07	74.00	-24.93	VERTICAL	Peak	

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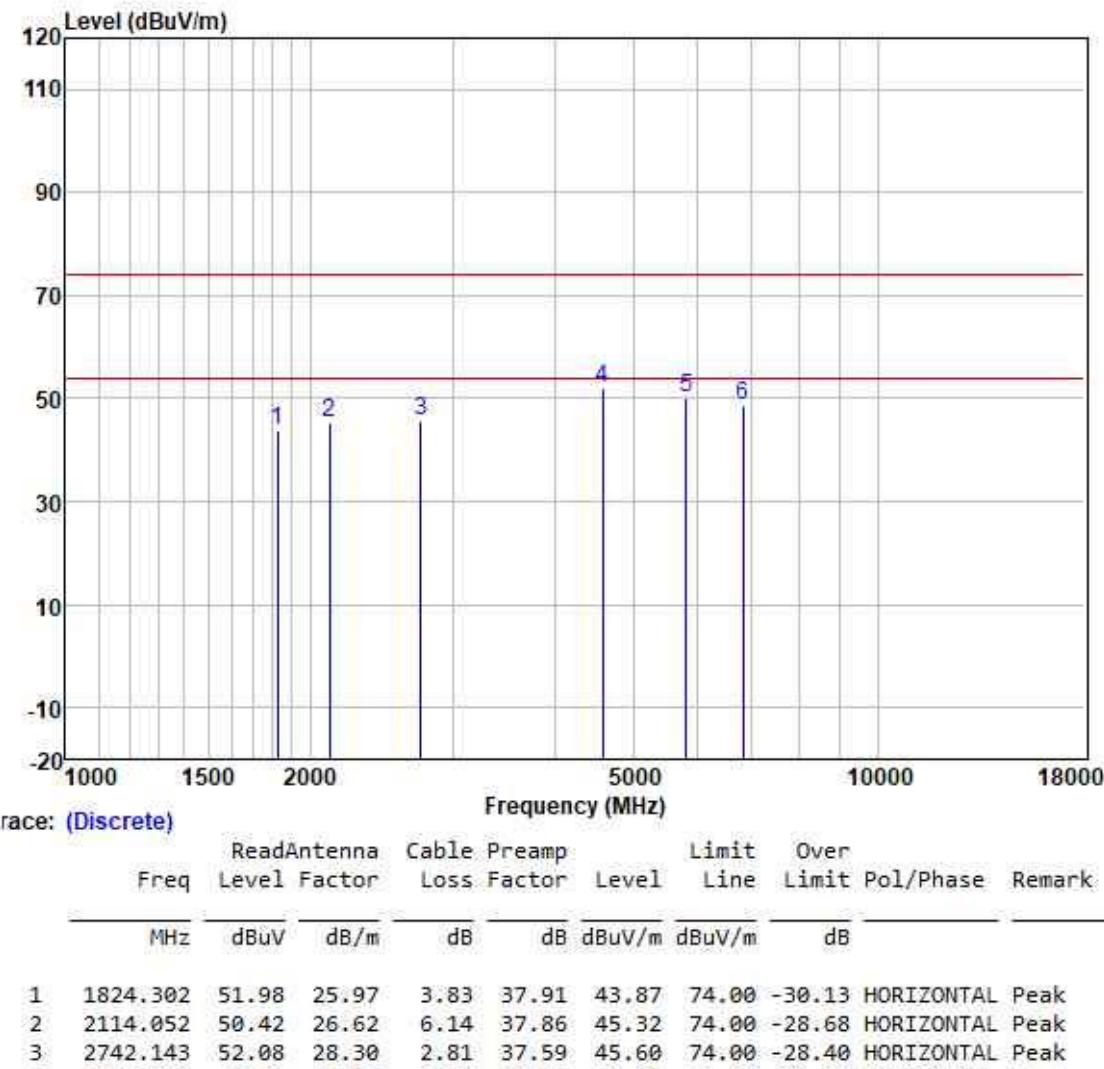
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Test Mode: 03; Polarity: Horizontal; Channel:middle

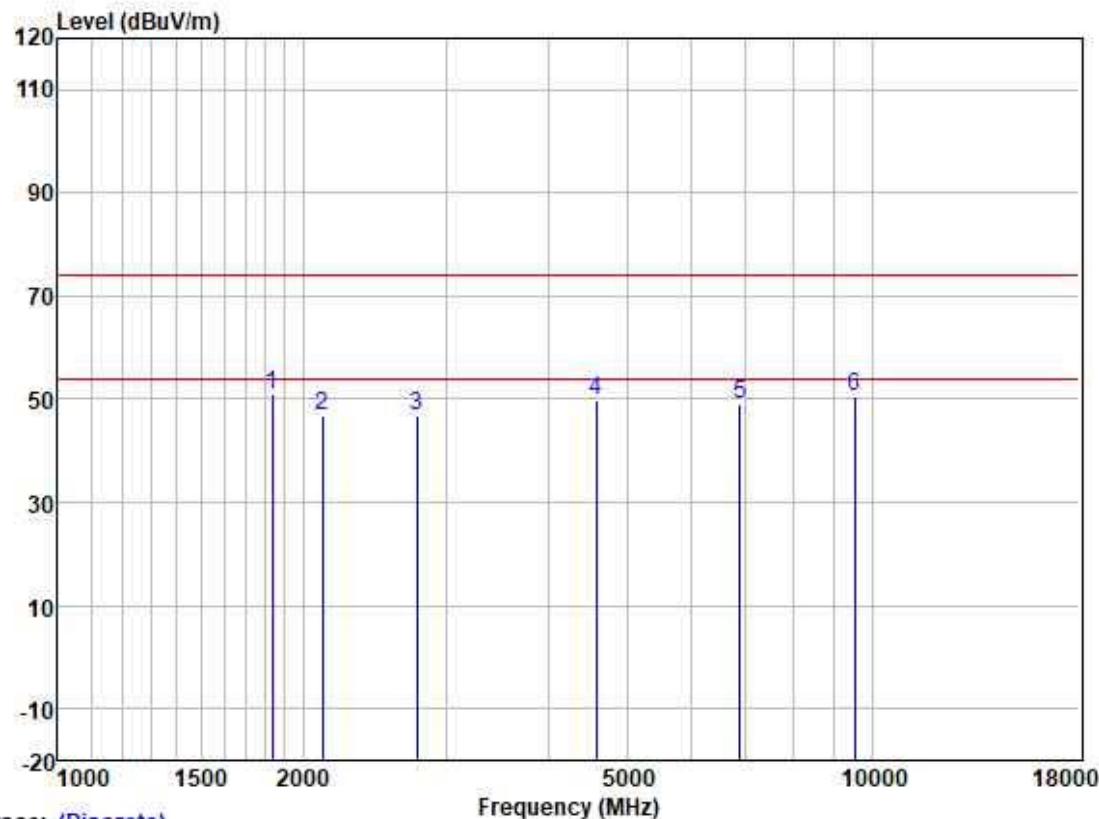


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Test Mode: 03; Polarity: Vertical; Channel:High



Race: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	dBuV/m	dBuV/m	dB		
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	1834.878	58.79	26.00	3.91	37.91	50.79	74.00	-23.21	VERTICAL	Peak
2	2114.052	51.89	26.62	6.14	37.86	46.79	74.00	-27.21	VERTICAL	Peak
3	2758.041	53.16	28.35	2.89	37.57	46.83	74.00	-27.17	VERTICAL	Peak
4	4586.999	47.36	34.17	5.29	36.84	49.98	74.00	-24.02	VERTICAL	Peak
5	6874.906	44.94	34.88	6.37	37.07	49.12	74.00	-24.88	VERTICAL	Peak
6	9530.432	40.78	38.63	8.24	37.03	50.62	74.00	-23.38	VERTICAL	Peak

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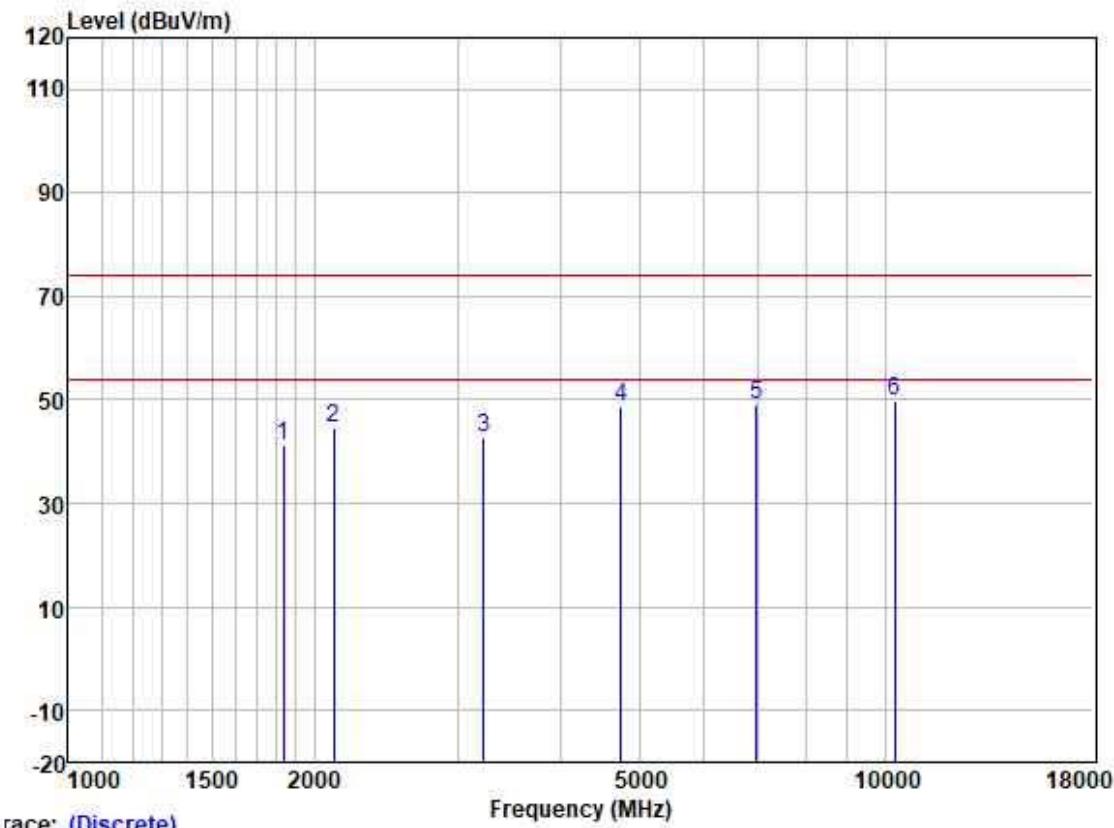
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Test Mode: 03; Polarity: Horizontal; Channel: High



Mode: (Discrete)

Freq	ReadAntenna		Cable Preamp		Limit Line	Over Limit	Pol/Phase	Remark
	Level	Factor	Loss	Factor				
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 1834.878	49.38	26.00	3.91	37.91	41.38	74.00	-32.62	HORIZONTAL Peak
2 2114.052	49.84	26.62	6.14	37.86	44.74	74.00	-29.26	HORIZONTAL Peak
3 3223.928	46.78	28.84	4.33	37.13	42.82	74.00	-31.18	HORIZONTAL Peak
4 4748.888	45.83	34.16	5.42	36.86	48.55	74.00	-25.45	HORIZONTAL Peak
5 6954.852	44.82	35.04	6.40	37.09	49.17	74.00	-24.83	HORIZONTAL Peak
6 10274.240	40.81	39.44	6.41	36.98	49.68	74.00	-24.32	HORIZONTAL Peak

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