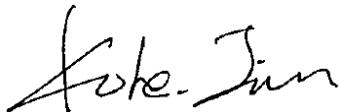


TEST REPORT

Application No.:	GZCR2210001283AT
Applicant:	NW BLUE LLC
Address of Applicant:	7805 SW 40th Ave #19282 Portland, OR 97219 USA
Manufacturer:	CUBEPILOT PTY. LTD.
Address of Manufacturer:	153 Mercer street, Geelong, VIC, Australia 3220
Factory:	NW BLUE LLC
Address of Factory:	1130 NW Noble Drive Estacada, Oregon 97023
Equipment Under Test (EUT):	
EUT Name:	HERELINK Blue Controller Unit
Model No.:	HLBC-1001
Trade Mark:	HERELINK
Standard(s) :	47 CFR Part 15, Subpart E 15.407
Date of Receipt:	2022-10-09
Date of Test:	2022-10-21 to 2022-11-07
Date of Issue:	2022-11-21

Test Result:	Pass*
---------------------	--------------

* In the configuration tested, the EUT complied with the standards specified above.



Kobe Jian
EMC Laboratory Manager



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SGS-CSTC Standards Technical Services Co., Ltd. Guangzhou Branch

EMC-TRF-01 Rev 1.1

Report No.: GZCR221000128303

Page: 2 of 314

Revision Record			
Version	Report No.	Date	Remark
01	GZCR221000128303	2022-11-21	Original

Authorized for issue by

Curry Wu/Project Engineer

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 E 15.407	N/A	47 CFR Part 15, Subpart C 15.203	Pass
Transmission in the Absence of Data		N/A	47 CFR Part 15, Subpart E 15.407 (c)	Pass

Radio Spectrum Matter Part				
Item	Standard	Method	Requirement	Result
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)	Pass
Duty Cycle		KDB 789033 II B 1	KDB 789033 D02 II B 1	Pass
99% Bandwidth		KDB 789033 II D	N/A	Pass
26dB Emission bandwidth		KDB 789033 D02 II C 1	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Minimum 6 dB bandwidth (5.725-5.85 GHz band)		KDB 789033 D02 II C 2	47 CFR Part 15, Subpart E 15.407 (e)	Pass
Maximum Conducted output power		KDB 789033 D02 II E	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Peak Power spectrum density		KDB 789033 D02 II F	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Radiated Emissions (Above 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Radiated Emissions which fall in the restricted bands		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Frequency Stability		ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart E 15.407 (g)	Pass
Radiated Emissions (Below 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	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:	DC 3.6V supply by rechargeable battery DC 5V charging by USB port
Test Voltage:	AC 120 V, 60 Hz powered by Adapter referred to section 4.2
Cable(s):	about 1.5m USB cable
Operation Frequency / Number of channels (20MHz):	U-NII-1: 5180-5240MHz (4 Channels); U-NII-2A: 5260-5320MHz (4 Channels); U-NII-2C: 5500-5700MHz (11 Channels); U-NII-3: 5745-5825MHz (5 Channels)
Operation Frequency / Number of channels (40MHz):	U-NII-1: 5190-5230MHz (2 Channels); U-NII-2A: 5270-5310MHz (2 Channels); U-NII-2C: 5510-5670MHz (5 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency / Number of channels (80MHz):	U-NII-1: 5210MHz (1 Channel); U-NII-2A: 5290MHz (1 Channel); U-NII-2C: 5530-5610MHz (2 Channels); U-NII-3: 5775MHz (1 Channels)
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing:	802.11a(n/HT20)/ac(HT20): 20MHz; 802.11n(HT40)/ac(HT40): 40MHz; 802.11ac(HT80): 80MHz
DFS Function:	Slave without Radar detection
TPC Function:	Without TPC function
Antenna Type:	Integral Antenna
Antenna Gain:	2dBi

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter 2(EMCA022)	Caixinge Shenzhen Electronic Co., Ltd	CX-4405	N/A

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4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 2.76dB
Duty Cycle	± 0.37%
99% Bandwidth	± 3%
26dB Emission bandwidth	± 3%
Minimum 6 dB bandwidth (5.725-5.85 GHz band)	± 3%
Maximum Conducted output power	± 0.75dB
Peak Power spectrum density	± 2.84dB
Radiated Emissions (Above 1GHz)	±5.12 dB (1GHz-6 GHz); ±5.38 dB (6GHz-18GHz); ±5.61(18GHz-40GHz)
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)
Frequency Stability	± 7.25 x 10 ⁻⁸
Radiated Emissions (Below 1GHz)	±5.00dB (3m); ±4.38dB (10m)

4.4 Test Location

All tests were performed at:

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou Branch EMC Laboratory,
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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:

- **NVLAP (Lab Code: 200611-0)**

SGS-CSTC Standards Technical Services Co., Ltd., Guangzhou EMC Laboratory is accredited by the National Voluntary Laboratory Accreditation Program (NVLAP/NIST). NVLAP Code: 200611-0.

The report must not be used by the client to claim product certification, approval, or endorsement by NVLAP, NIST, or any agency of the Federal Government.

- **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.

- **CNAS (Lab Code: L0167)**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory has been assessed and in compliance with CNAS-CL01:2018 accreditation criteria for testing laboratories (identical to ISO/IEC 17025:2017 General Requirements) for the Competence of Testing Laboratories.

- **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

Duty Cycle					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2021-11-02	2023-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2022-08-24	2023-08-23
Test Software	TST	V2.0	GZE100-78	N/A	N/A

99% Bandwidth					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2021-11-02	2023-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2022-08-24	2023-08-23
Test Software	TST	V2.0	GZE100-78	N/A	N/A

26dB Emission bandwidth					
Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2021-11-02	2023-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2022-08-24	2023-08-23
Test Software	TST	V2.0	GZE100-78	N/A	N/A



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Minimum 6 dB bandwidth (5.725-5.85 GHz band)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2021-11-02	2023-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2022-08-24	2023-08-23
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Maximum Conducted output power

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2021-11-02	2023-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2022-08-24	2023-08-23
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Peak Power spectrum density

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2021-11-02	2023-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2022-08-24	2023-08-23
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Radiated Emissions (Above 1GHz)

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-12-17	2022-12-16
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2021-12-17	2022-12-16
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	2022-09-21	2025-09-20
Horn Antenna (14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2020-06-28	2023-06-27
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19
Notch Filter (5150-5880)	Mico-Tronics	BRM50716	EMC2168	2022-07-29	2023-07-28
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

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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	2021-12-17	2022-12-16
EMI Test Receiver (10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2021-12-17	2022-12-16
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	2022-09-21	2025-09-20
Horn Antenna (14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2020-06-28	2023-06-27
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

Frequency Stability

Equipment	Manufacturer	Model No.	Inventory No.	Cal Date	Cal Due Date
MI CABLE	SGS-EMC	0.8M	EMC2137	2021-11-02	2023-11-01
EXA Signal Analyzer (10Hz-44GHz)	Keysight	N9010A	EMC2138	2022-09-08	2023-09-07
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2022-08-24	2023-08-23
Test Software	TST	V2.0	GZE100-78	N/A	N/A
Temperature Chamber	GZ GongWen Co.Ltd.	GDJW-100	EMC0039	2022-07-04	2023-07-03

Radiated 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

General used equipment

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

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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

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 an antenna that uses a unique coupling to the intentional radiator, the manufacturer may design the unit permanently attached antenna or of an so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the Antenna: 2dBi

Antenna location: Refer to internal photo.

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6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

47 CFR Part 15, Subpart E 15.407 (c)

6.2.2 Conclusion

The device shall automatically discontinue transmission in case of either absence of information to transmit or operational failure. These provisions are not intended to preclude the transmission of control or signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

Applicants shall include in their application for equipment authorization a description of how this requirement is met.

EUT Details:

WIFI chip support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detect absence of information to transmit or operational failure, it will be automatically shut off.



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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 & Subpart E 15.407 b(9)

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.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.8 °C Humidity: 50.3 % RH Atmospheric Pressure: 1015 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Pre-scan	03	TX mode (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Pre-scan	04	TX mode (U-NII-2C)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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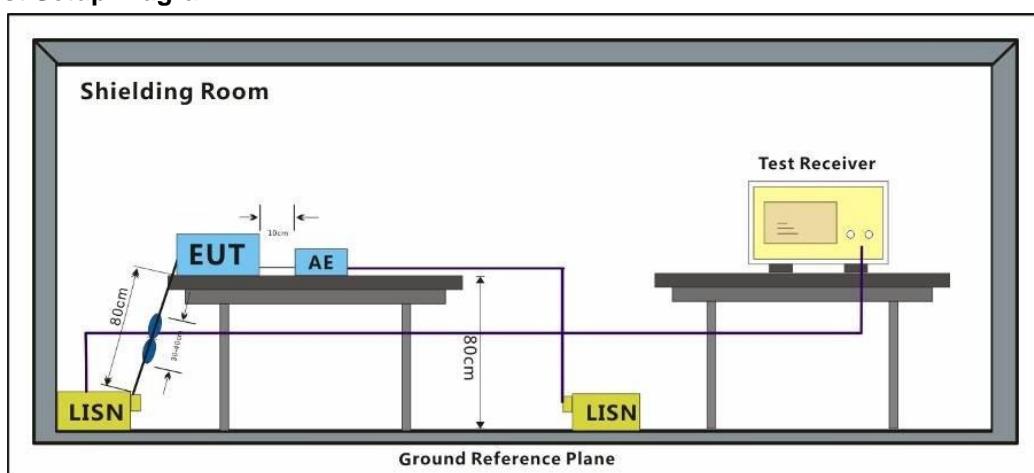
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802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

Pre-scan 05

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.

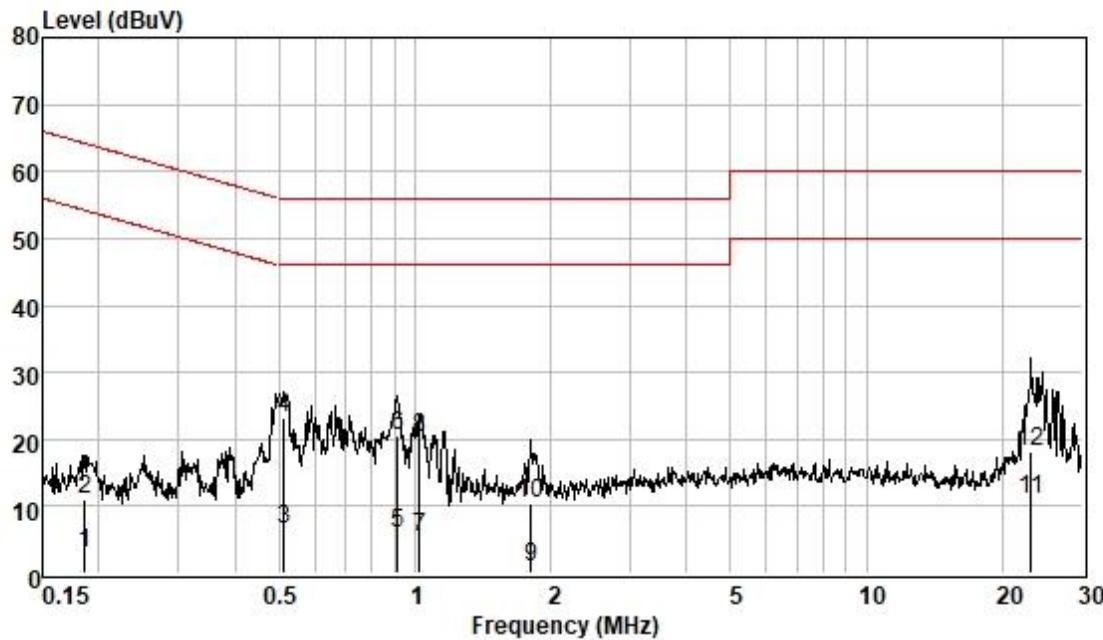
Remark: Level=Read Level+ Cable Loss+ LISN Factor

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Test Mode: 02; Line: Live line



Pol : LINE

Mode :

Model :

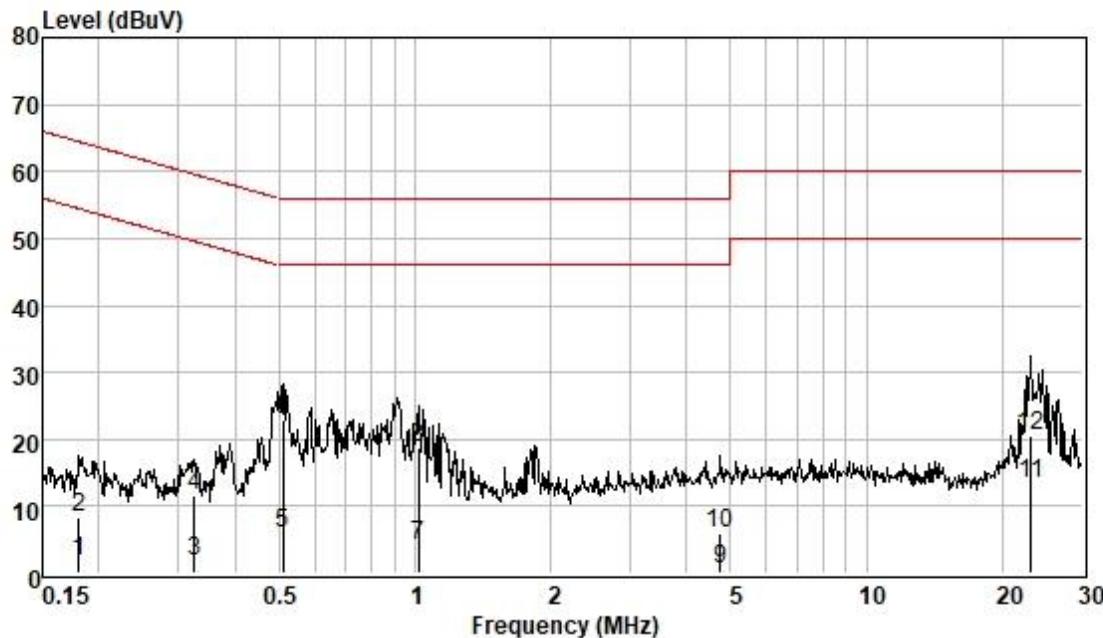
	Frequenc	Read Level	Cable Loss	LISN Factor	Measured Level	Limit Line	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dBuV	dB	
1	0.186	-6.74	0.06	9.61	2.93	54.20	-51.27	Average
2	0.186	1.24	0.06	9.61	10.91	64.20	-53.29	QP
3	0.513	-3.10	0.07	9.59	6.56	46.00	-39.44	Average
4	0.513	13.60	0.07	9.59	23.26	56.00	-32.74	QP
5	0.914	-3.87	0.07	9.60	5.80	46.00	-40.20	Average
6	0.914	10.98	0.07	9.60	20.65	56.00	-35.35	QP
7	1.027	-4.24	0.07	9.59	5.42	46.00	-40.58	Average
8	1.027	10.69	0.07	9.59	20.35	56.00	-35.65	QP
9	1.810	-8.84	0.11	9.62	0.89	46.00	-45.11	Average
10	1.810	0.69	0.11	9.62	10.42	56.00	-45.58	QP
11	23.140	0.97	0.38	9.66	11.01	50.00	-38.99	Average
12	23.140	8.21	0.38	9.66	18.25	60.00	-41.75	QP

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Test Mode: 02; Line: Neutral Line



Pol : NEUTRAL

Mode :

Model :

	Frequenc	Read	Cable	LISN	Measured	Limit	Over	Remark
	MHz	Level	Loss	Factor	Level	Line	Limit	dB
		dBuV	dB	dB	dBuV	dBuV		
1	0.181	-7.76	0.06	9.60	1.90	54.46	-52.56	Average
2	0.181	-1.36	0.06	9.60	8.30	64.46	-56.16	QP
3	0.325	-7.84	0.06	9.60	1.82	49.57	-47.75	Average
4	0.325	1.96	0.06	9.60	11.62	59.57	-47.95	QP
5	0.510	-3.84	0.07	9.60	5.83	46.00	-40.17	Average
6	0.510	13.19	0.07	9.60	22.86	56.00	-33.14	QP
7	1.021	-5.45	0.07	9.61	4.23	46.00	-41.77	Average
8	1.021	8.93	0.07	9.61	18.61	56.00	-37.39	QP
9	4.746	-9.32	0.17	9.65	0.50	46.00	-45.50	Average
10	4.746	-3.90	0.17	9.65	5.92	56.00	-50.08	QP
11	23.140	3.13	0.38	9.87	13.38	50.00	-36.62	Average
12	23.140	10.34	0.38	9.87	20.59	60.00	-39.41	QP

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7.2 Duty Cycle

Test Requirement KDB 789033 D02 II B 1

Test Method: KDB 789033 II B 1

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 65 % RH Atmospheric Pressure: 1014 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), 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 (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-2C)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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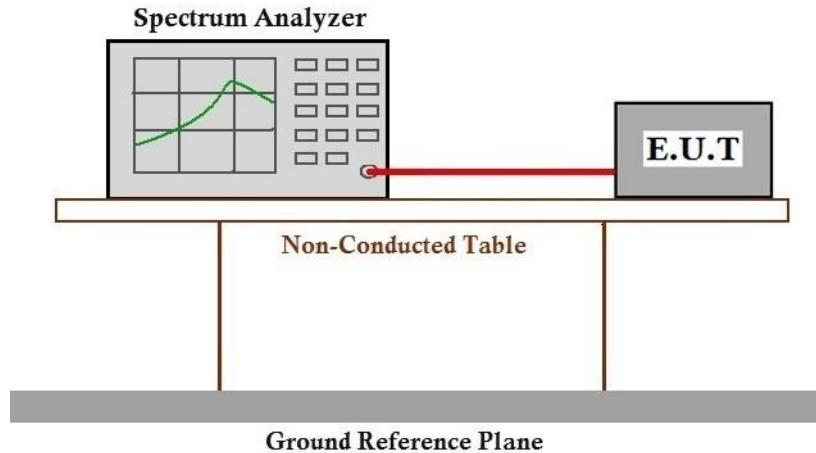
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7.2.3 Test Setup Diagram**7.2.4 Measurement Procedure and Data**

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7.3 99% Bandwidth

Test Requirement N/A
Test Method: KDB 789033 II D

7.3.1 E.U.T. Operation

Operating Environment:
Temperature: 24 °C Humidity: 65 % RH Atmospheric Pressure: 1014 mbar

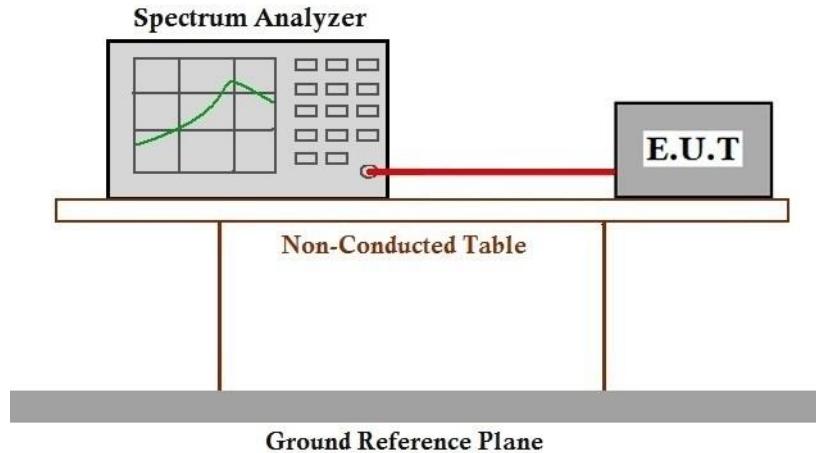
7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), 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 (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-2C)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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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 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 II C 1

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 65 % RH Atmospheric Pressure: 1014 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), 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 (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-2C)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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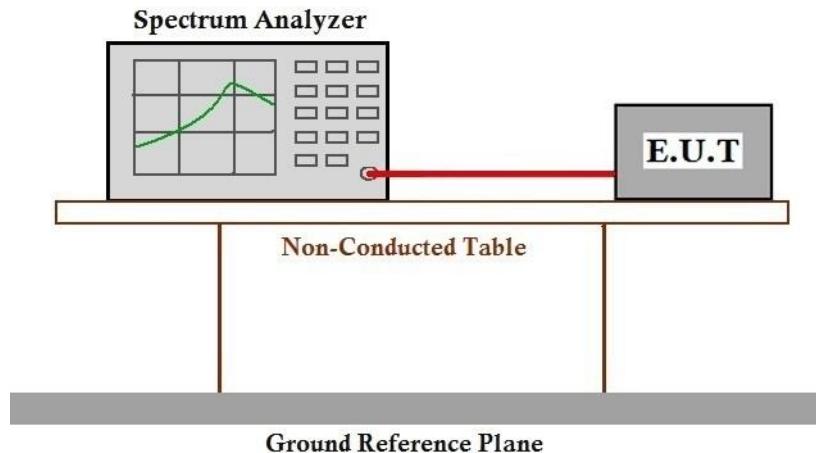
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7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.5 Minimum 6 dB bandwidth (5.725-5.85 GHz band)

Test Requirement 47 CFR Part 15, Subpart E 15.407 (e)

Test Method: KDB 789033 D02 II C 2

Limit:

Frequency band(MHz)	Limit
5725-5850	≥500 kHz

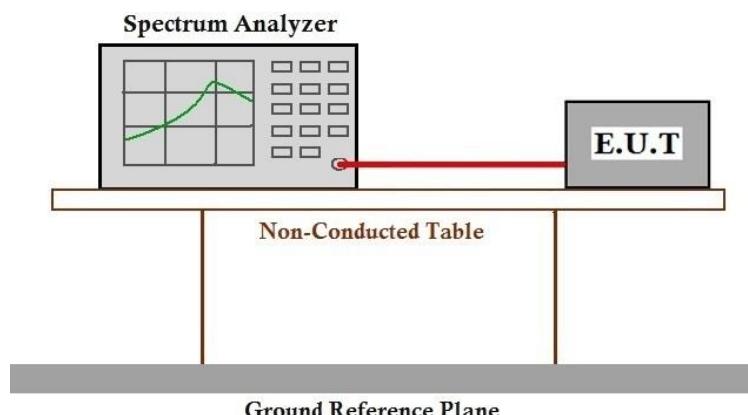
7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 65 % RH Atmospheric Pressure: 1014 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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

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7.6 Maximum Conducted output power

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 II E

Limit:

Frequency band(MHz)	Limit
5150-5250	≤1W(30dBm) for master device
	≤250mW(24dBm) for client device
5250-5350	≤250mW(24dBm) for client device or 11dBm+10logB*
5470-5725	≤250mW(24dBm) for client device or 11dBm+10logB*
5725-5850	≤1W(30dBm)
Remark:	* Where B is the 26dB emission bandwidth in MHz. The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 65 % RH Atmospheric Pressure: 1014 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), 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 (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-2C)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11n(HT80); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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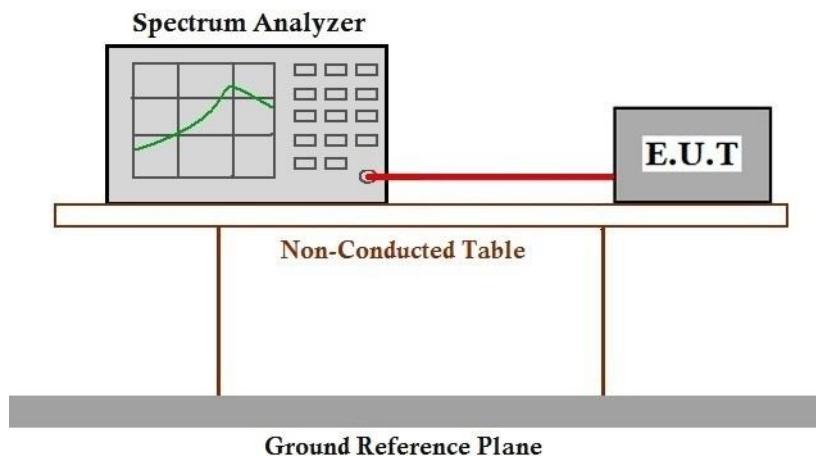
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worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

Final test 05

TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Note: Since the verify power the same operating range bandwidth and smaller power can be covered by the higher power.

Please Refer to Appendix for Details

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7.7 Peak Power spectrum density

Test Requirement 47 CFR Part 15, Subpart E 15.407 (a)

Test Method: KDB 789033 D02 II F

Limit:

Frequency band(MHz)	Limit
5150-5250	≤17dBm in 1MHz for master device
	≤11dBm in 1MHz for client device
5250-5350	≤11dBm in 1MHz for client device
5470-5725	≤11dBm in 1MHz for client device
5725-5850	≤30dBm in 500 kHz
Remark:	The maximum power spectral density is measured as a conducted emission by direct connection of a calibrated test instrument to the equipment under test.

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24 °C Humidity: 65 % RH Atmospheric Pressure: 1014 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), 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 (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-2C)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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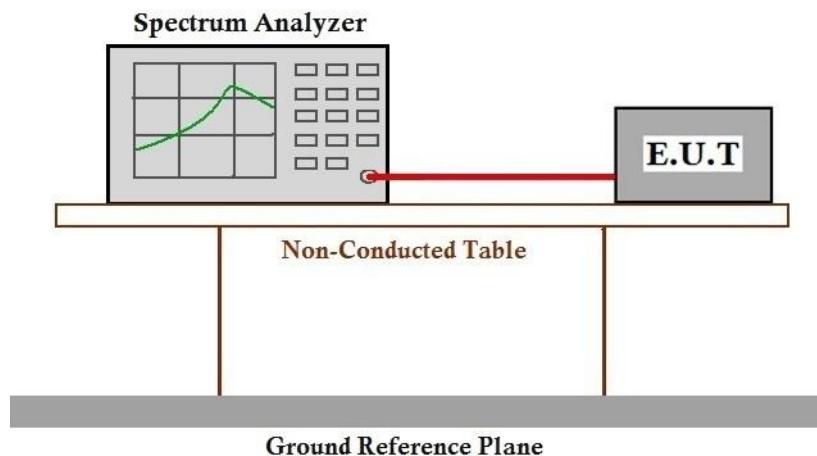


Final test 05

worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details



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7.8 Radiated Emissions (Above 1GHz)

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: KDB 789033 D02 II G

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
Above 1GHz	500	3

*(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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.

7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24.1 °C Humidity: 53.8 % RH Atmospheric Pressure: 1015 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), 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 (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a;

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data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

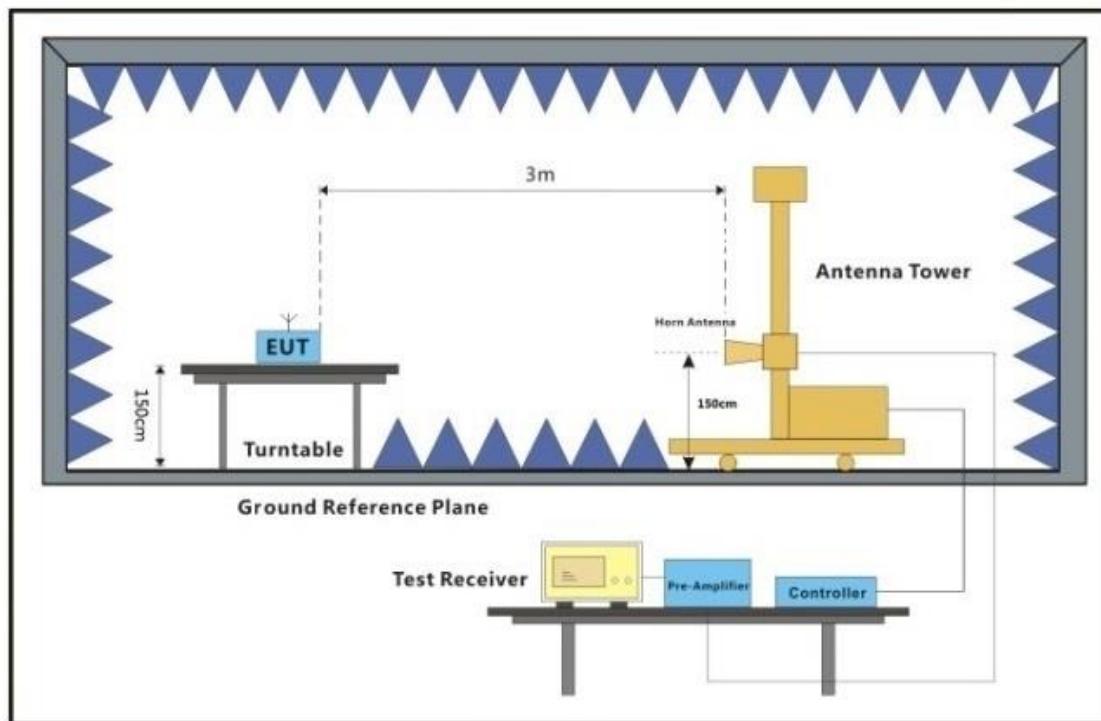
TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

Final test 04

Final test 05

7.8.3 Test Setup Diagram



Above 1GHz

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7.8.4 Measurement Procedure and Data

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

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 18GHz to 40GHz, 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.
4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
5. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.

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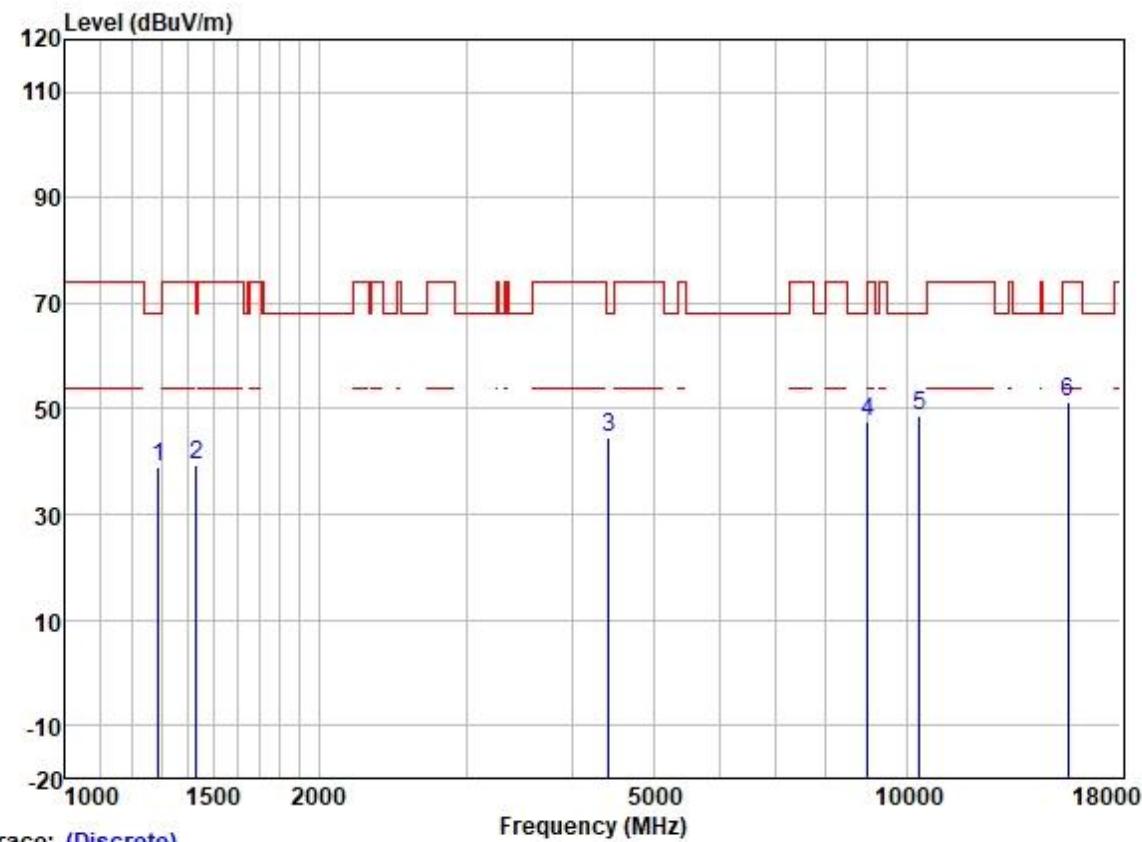
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Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Freq	ReadAntenna		Cable		Preamp	Limit	Over	Line	Limit	Pol/Phase	Remark
	MHz	Level	Factor	Loss							
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	dB	
1	1289.627	48.35	25.99	2.55	38.04	38.85	68.20	-29.35	VERTICAL	peak	
2	1431.047	48.80	25.69	2.66	37.88	39.27	68.20	-28.93	VERTICAL	peak	
3	4430.628	44.73	31.77	4.78	36.62	44.66	68.20	-23.54	VERTICAL	peak	
4	8995.123	38.94	38.03	7.56	37.05	47.48	68.20	-20.72	VERTICAL	peak	
5	10360.000	39.52	38.72	7.29	36.77	48.76	68.20	-19.44	VERTICAL	peak	
6	15540.000	38.64	38.91	9.88	36.15	51.28	74.00	-22.72	VERTICAL	peak	

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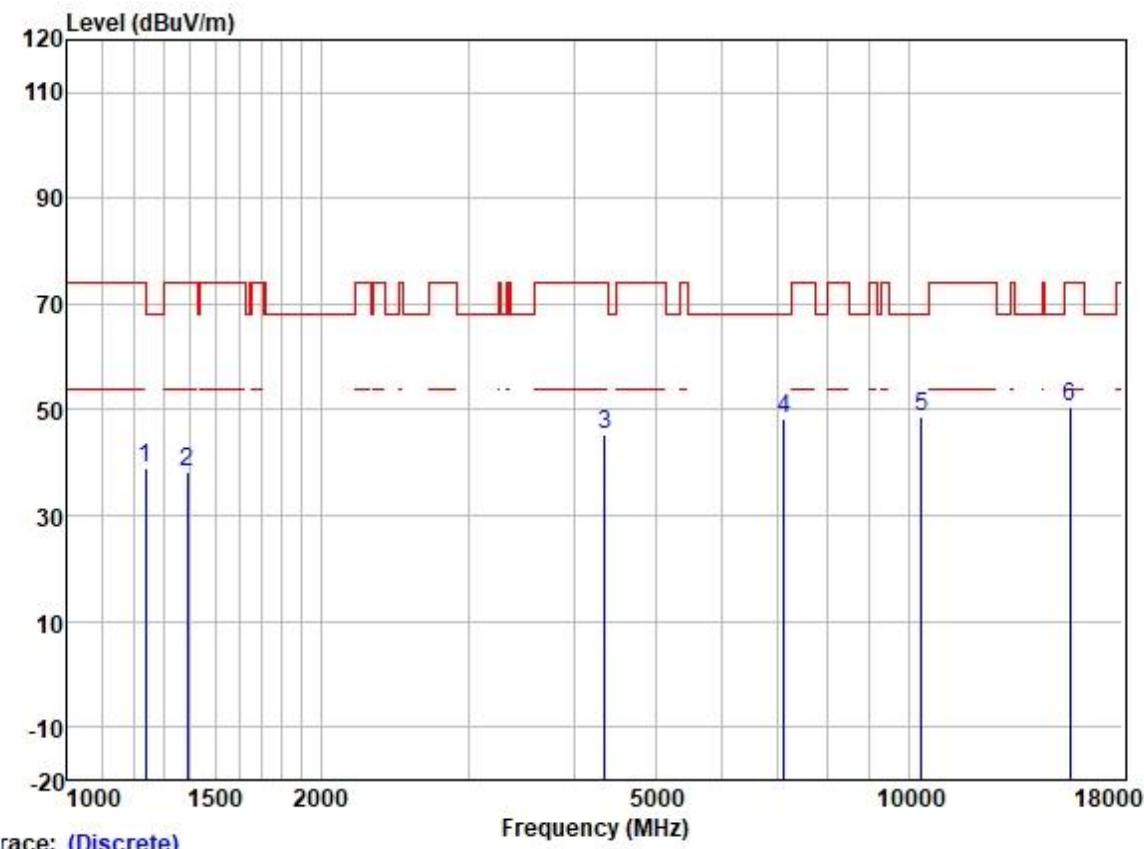
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Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Mode: (Discrete)

Freq	ReadAntenna		Cable		Preamp	Limit	Over	Line	Limit	Pol/Phase	Remark
	MHz	Level	Factor	Loss							
1	1238.483	48.79	25.94	2.30	38.10	38.93	74.00	-35.07	HORIZONTAL	peak	
2	1390.276	47.65	25.76	2.60	37.92	38.09	74.00	-35.91	HORIZONTAL	peak	
3	4354.454	45.46	31.69	4.68	36.64	45.19	74.00	-28.81	HORIZONTAL	peak	
4	7117.542	42.66	36.47	5.90	36.85	48.18	68.20	-20.02	HORIZONTAL	peak	
5	10360.000	39.55	38.72	7.29	36.77	48.79	68.20	-19.41	HORIZONTAL	peak	
6	15540.000	37.99	38.91	9.88	36.15	50.63	74.00	-23.37	HORIZONTAL	peak	

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Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle

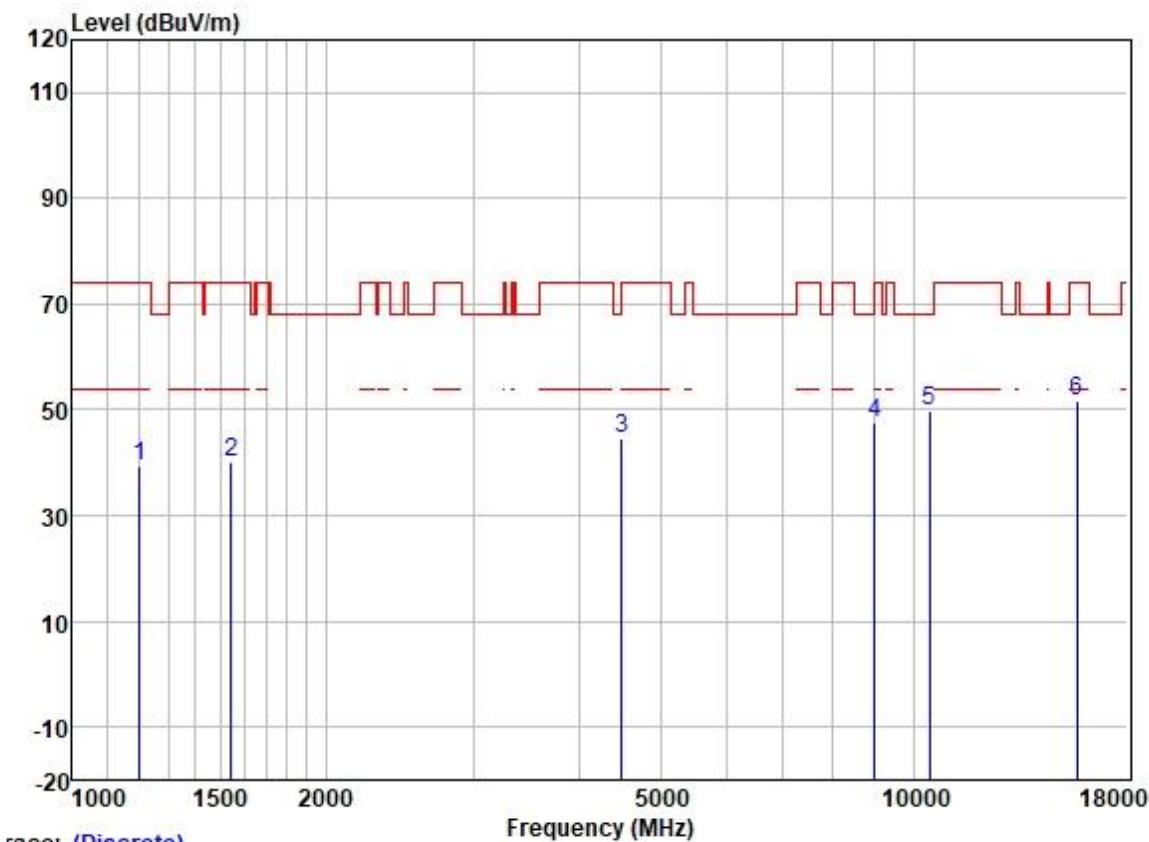


Table: (Discrete)

Freq	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1203.199	49.14	25.90	2.34	38.14	39.24	74.00	-34.76	VERTICAL	peak
2 1542.733	49.38	25.51	2.80	37.66	40.03	74.00	-33.97	VERTICAL	peak
3 4495.125	44.31	31.77	5.05	36.60	44.53	68.20	-23.67	VERTICAL	peak
4 8995.123	38.86	38.03	7.56	37.05	47.40	68.20	-20.80	VERTICAL	peak
5 10440.000	40.39	38.70	7.37	36.76	49.70	68.20	-18.50	VERTICAL	peak
6 15660.000	39.22	38.71	9.87	36.19	51.61	74.00	-22.39	VERTICAL	peak

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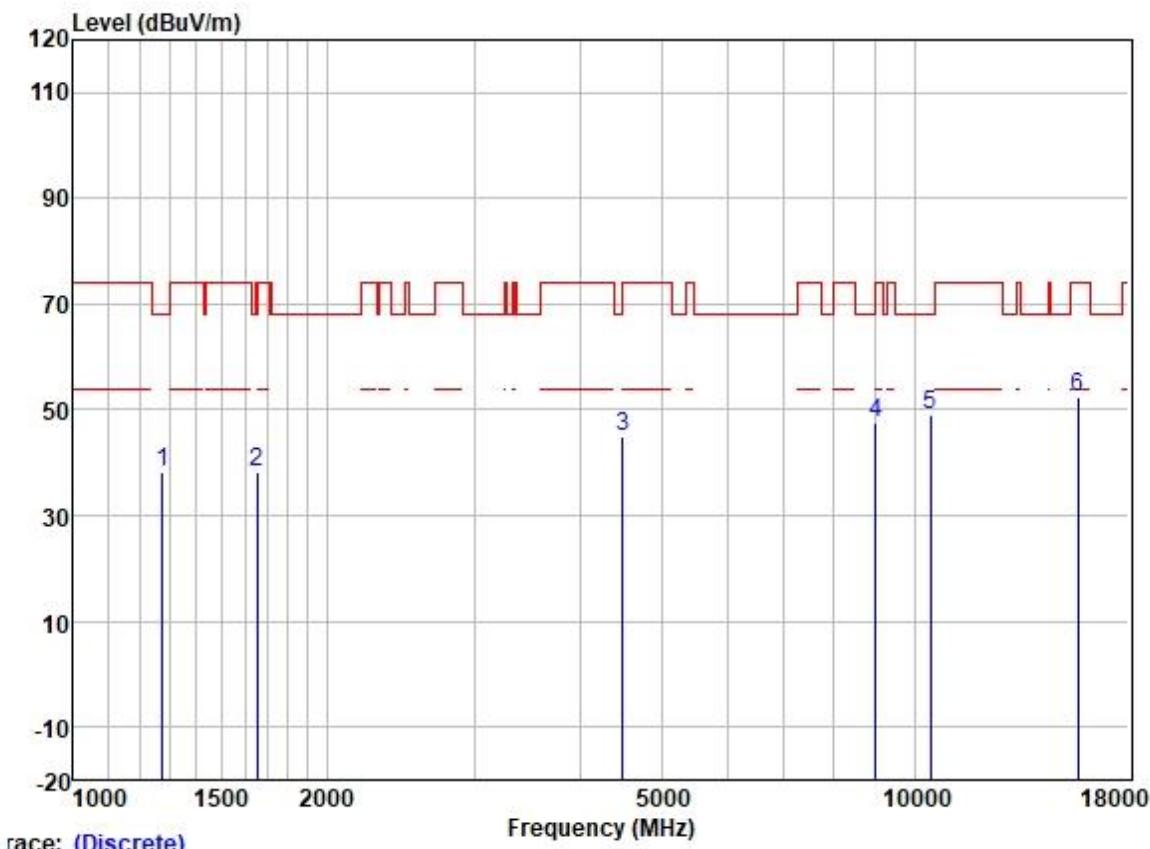
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Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



Mode: (Discrete)

Freq	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1274.802	47.78	25.98	2.48	38.07	38.17	68.20	-30.03	HORIZONTAL	peak
2 1653.550	47.48	25.35	2.80	37.51	38.12	68.20	-30.08	HORIZONTAL	peak
3 4495.125	44.71	31.77	5.05	36.60	44.93	68.20	-23.27	HORIZONTAL	peak
4 8995.123	39.03	38.03	7.56	37.05	47.57	68.20	-20.63	HORIZONTAL	peak
5 10440.000	39.86	38.70	7.37	36.76	49.17	68.20	-19.03	HORIZONTAL	peak
6 15660.000	40.11	38.71	9.87	36.19	52.50	74.00	-21.50	HORIZONTAL	peak

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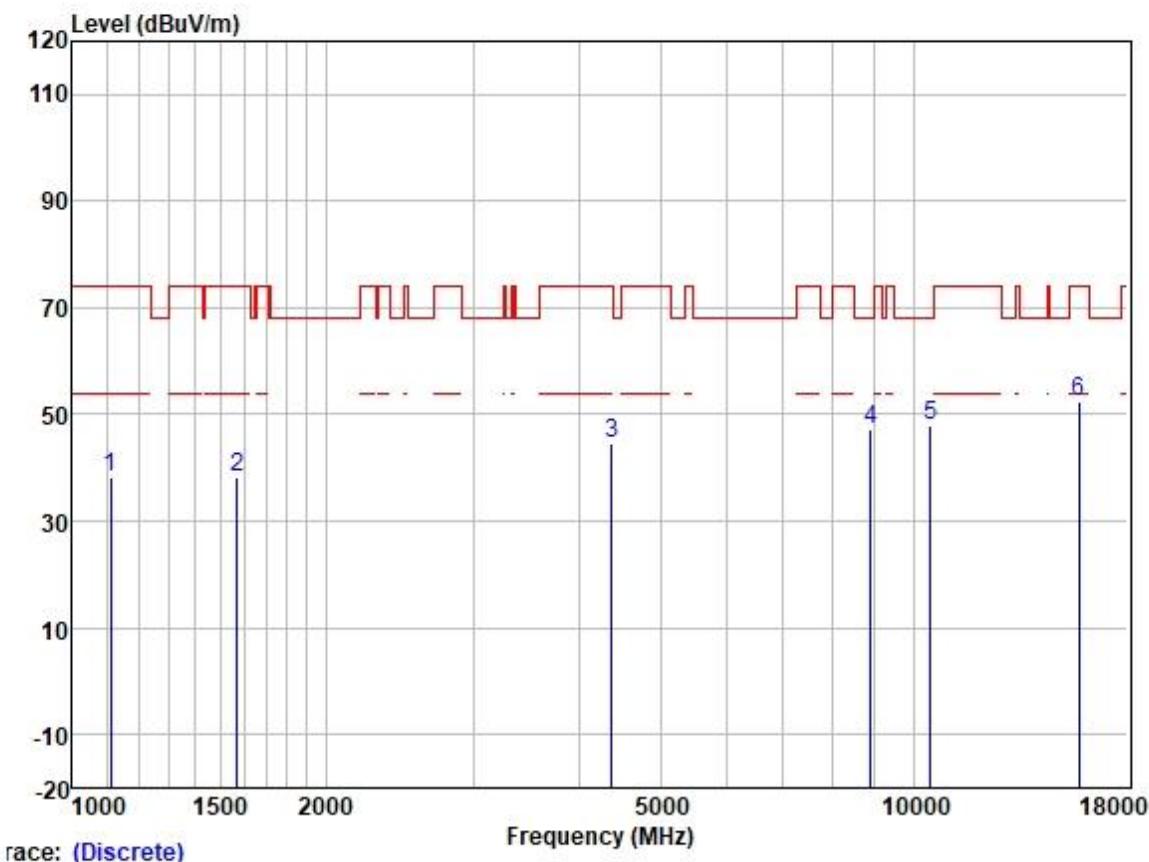
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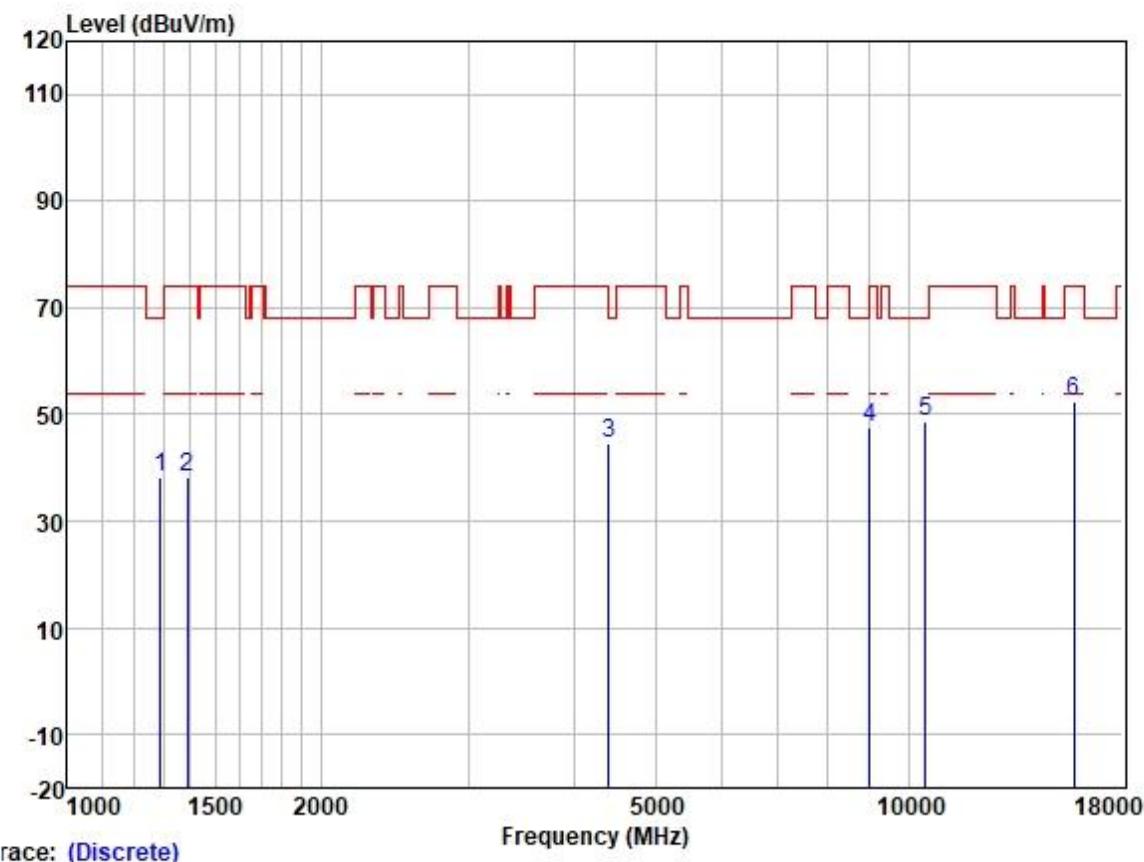
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Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Race: (Discrete)	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
		Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1289.627	47.83	25.99	2.55	38.04	38.33	68.20	-29.87	HORIZONTAL	peak
2	1390.276	47.93	25.76	2.60	37.92	38.37	74.00	-35.63	HORIZONTAL	peak
3	4405.090	44.89	31.77	4.70	36.63	44.73	68.20	-23.47	HORIZONTAL	peak
4	8995.123	39.05	38.03	7.56	37.05	47.59	68.20	-20.61	HORIZONTAL	peak
5	10480.000	39.33	38.71	7.40	36.76	48.68	68.20	-19.52	HORIZONTAL	peak
6	15720.000	40.18	38.67	9.87	36.22	52.50	74.00	-21.50	HORIZONTAL	peak

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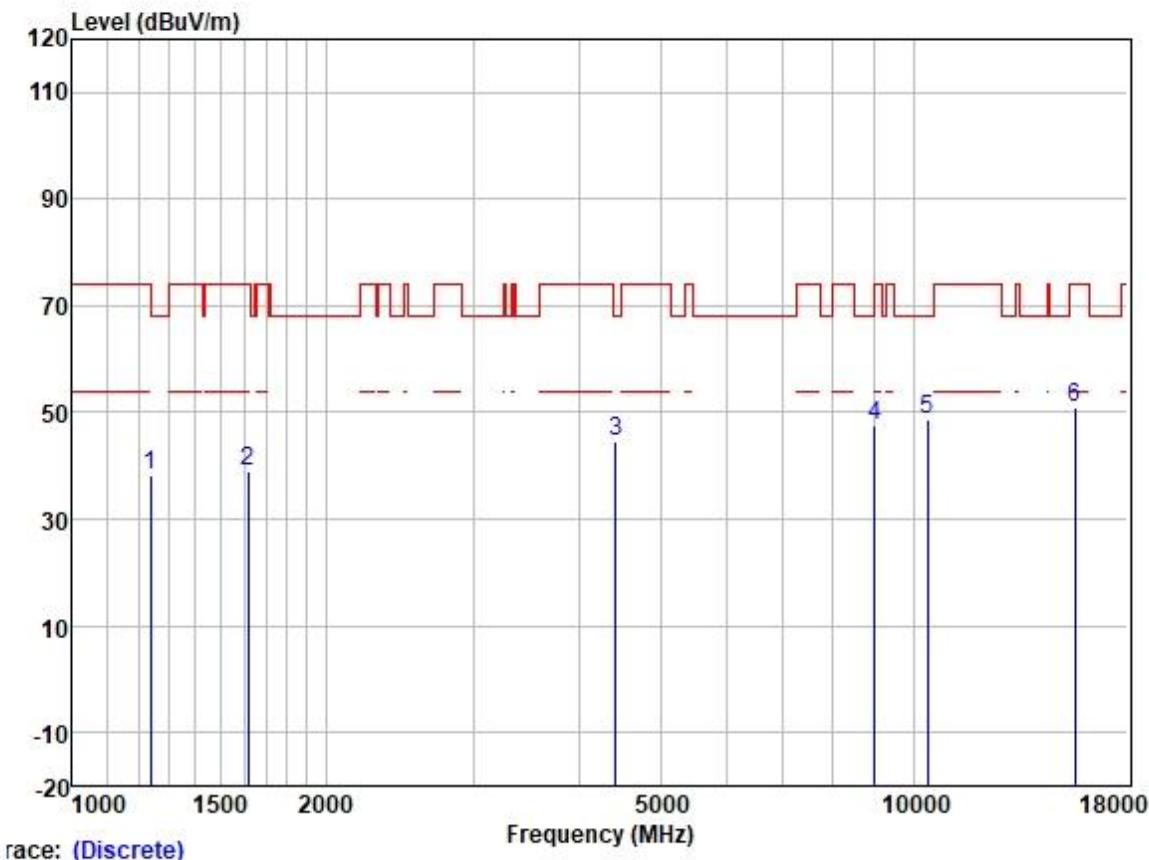
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Test Mode: 02; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



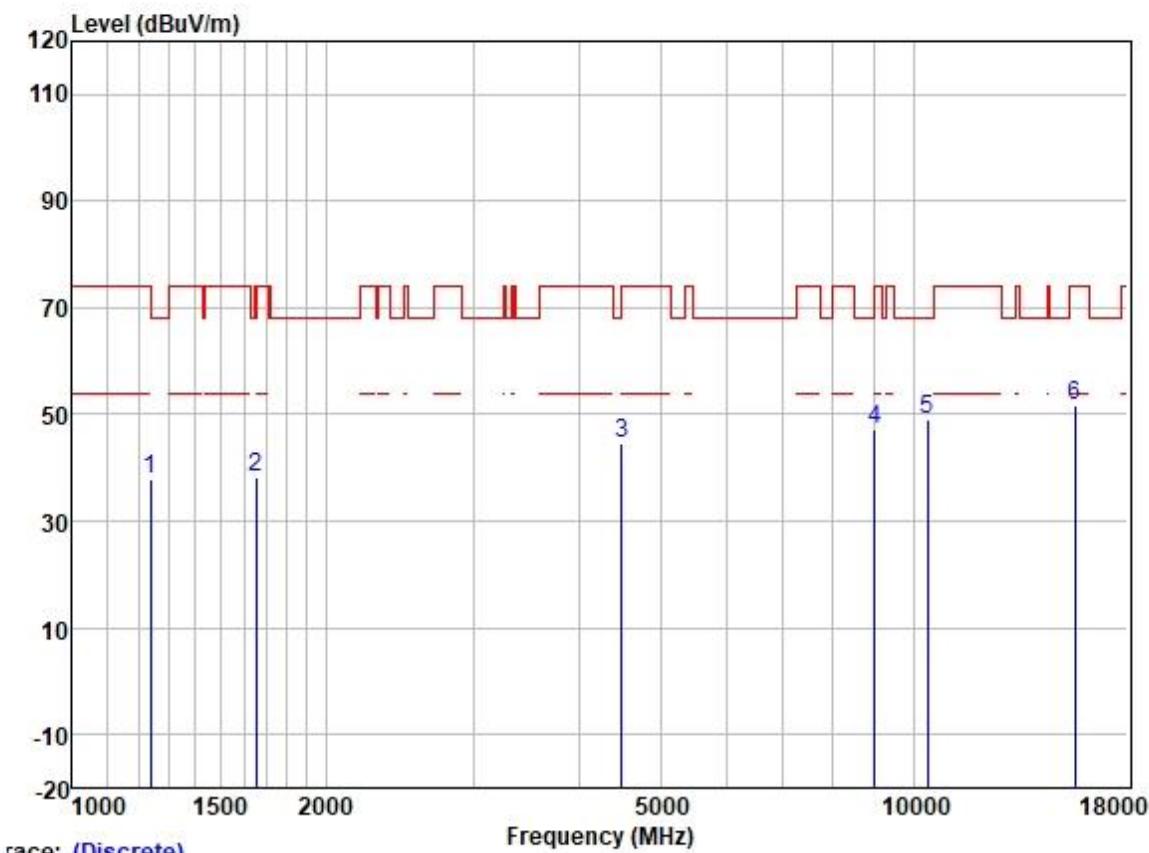
Freq	ReadAntenna Level	Cable Loss	Preamp Factor	Limit		Over Line Limit	Over Pol/Phase	Remark
				Level	Line			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 1238.483	48.21	25.94	2.30	38.10	38.35	74.00	-35.65	VERTICAL peak
2 1615.754	48.32	25.42	2.80	37.55	38.99	74.00	-35.01	VERTICAL peak
3 4430.628	44.63	31.77	4.78	36.62	44.56	68.20	-23.64	VERTICAL peak
4 8995.123	38.96	38.03	7.56	37.05	47.50	68.20	-20.70	VERTICAL peak
5 10380.000	39.31	38.68	7.32	36.77	48.54	68.20	-19.66	VERTICAL peak
6 15570.000	38.37	38.80	9.88	36.16	50.89	74.00	-23.11	VERTICAL peak

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Test Mode: 02; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Index	Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Remark
		Freq	Level	Factor	Loss	Factor	Level				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	1238.483	47.79	25.94	2.30	38.10	37.93	74.00	-36.07	HORIZONTAL	peak	
2	1653.550	47.48	25.35	2.80	37.51	38.12	68.20	-30.08	HORIZONTAL	peak	
3	4495.125	44.44	31.77	5.05	36.60	44.66	68.20	-23.54	HORIZONTAL	peak	
4	8995.123	38.81	38.03	7.56	37.05	47.35	68.20	-20.85	HORIZONTAL	peak	
5	10380.000	39.80	38.68	7.32	36.77	49.03	68.20	-19.17	HORIZONTAL	peak	
6	15570.000	39.03	38.80	9.88	36.16	51.55	74.00	-22.45	HORIZONTAL	peak	

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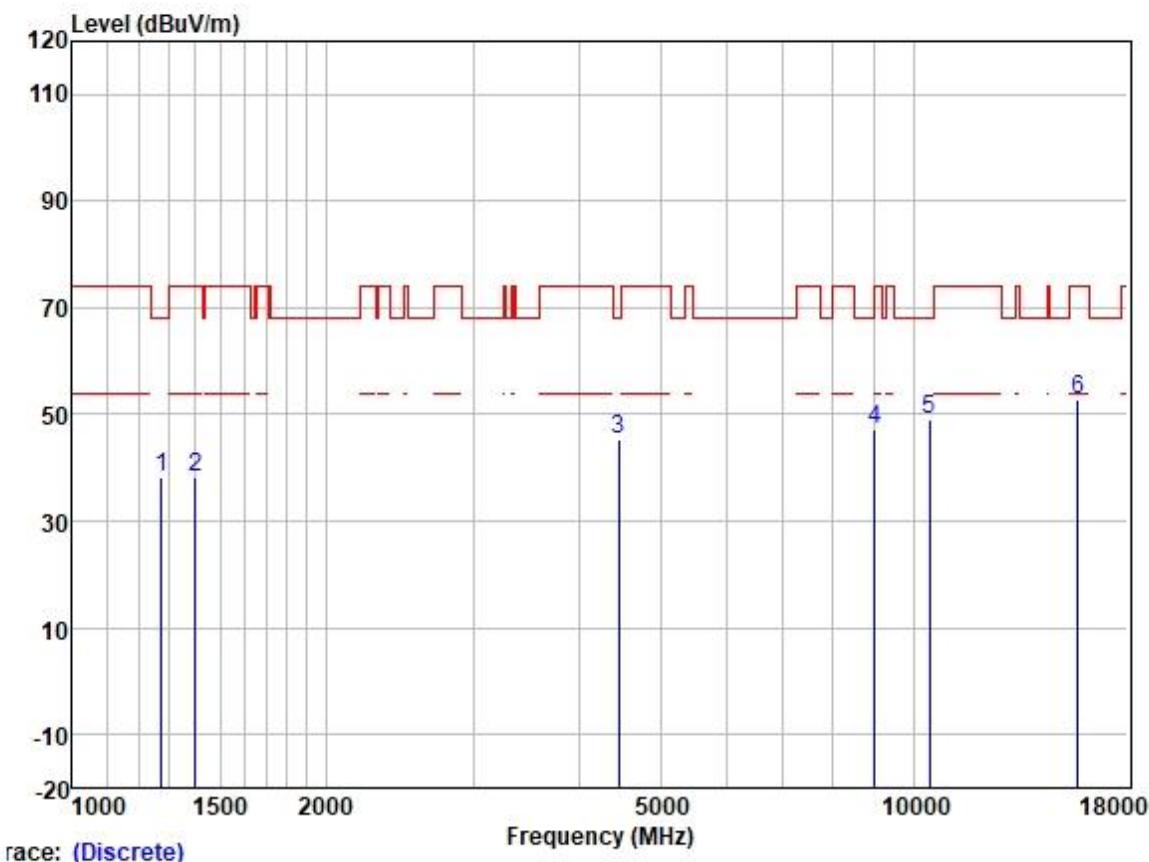
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Test Mode: 02; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



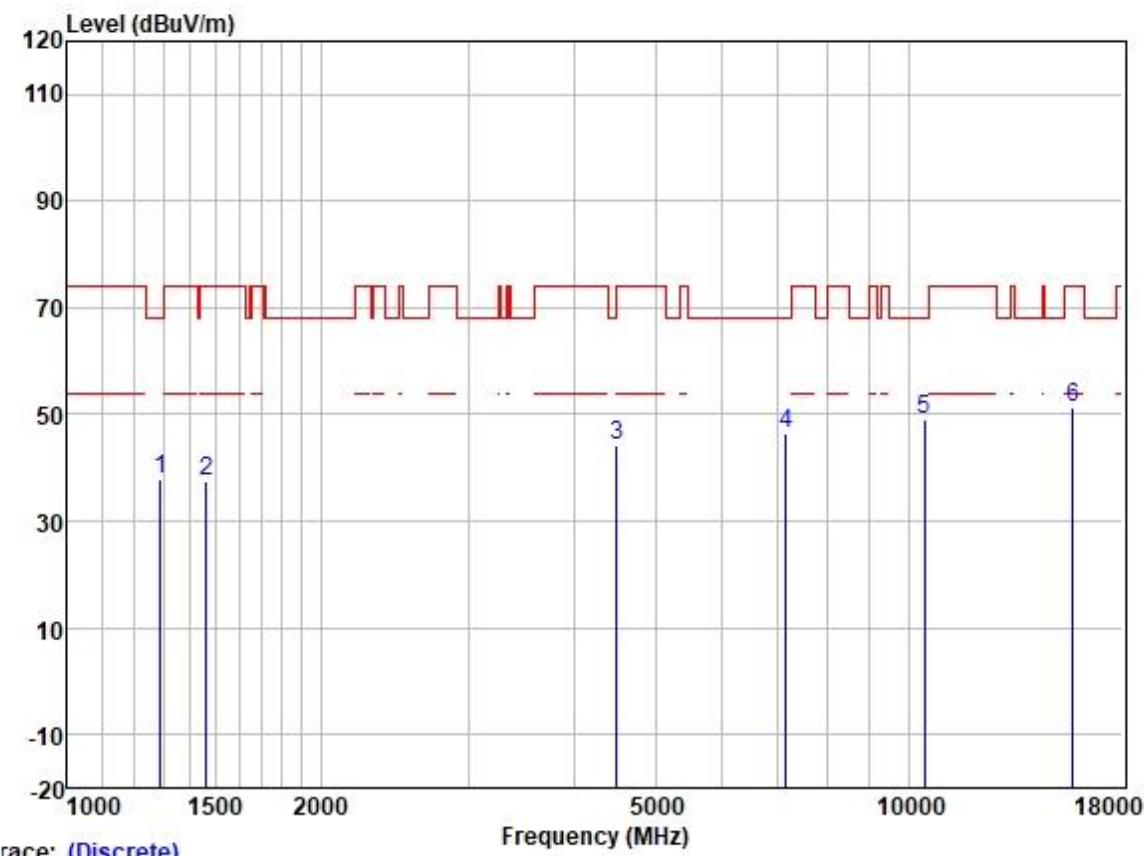
Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
	Freq	Level	Factor	Loss					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1274.802	47.71	25.98	2.48	38.07	38.10	68.20	-30.10	VERTICAL	peak
2 1398.336	47.80	25.74	2.60	37.92	38.22	74.00	-35.78	VERTICAL	peak
3 4456.315	45.23	31.77	4.88	36.62	45.26	68.20	-22.94	VERTICAL	peak
4 8995.123	38.66	38.03	7.56	37.05	47.20	68.20	-21.00	VERTICAL	peak
5 10460.000	39.84	38.70	7.37	36.76	49.15	68.20	-19.05	VERTICAL	peak
6 15690.000	40.62	38.71	9.87	36.21	52.99	74.00	-21.01	VERTICAL	peak

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Test Mode: 02; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Race: (Discrete)	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	1289.627	47.34	25.99	2.55	38.04	37.84	68.20	-30.36	HORIZONTAL	peak	
2	1464.522	46.79	25.61	2.74	37.80	37.34	74.00	-36.66	HORIZONTAL	peak	
3	4495.125	43.83	31.77	5.05	36.60	44.05	68.20	-24.15	HORIZONTAL	peak	
4	7158.806	40.92	36.61	5.94	36.88	46.59	68.20	-21.61	HORIZONTAL	peak	
5	10460.000	39.62	38.70	7.37	36.76	48.93	68.20	-19.27	HORIZONTAL	peak	
6	15690.000	39.07	38.71	9.87	36.21	51.44	74.00	-22.56	HORIZONTAL	peak	

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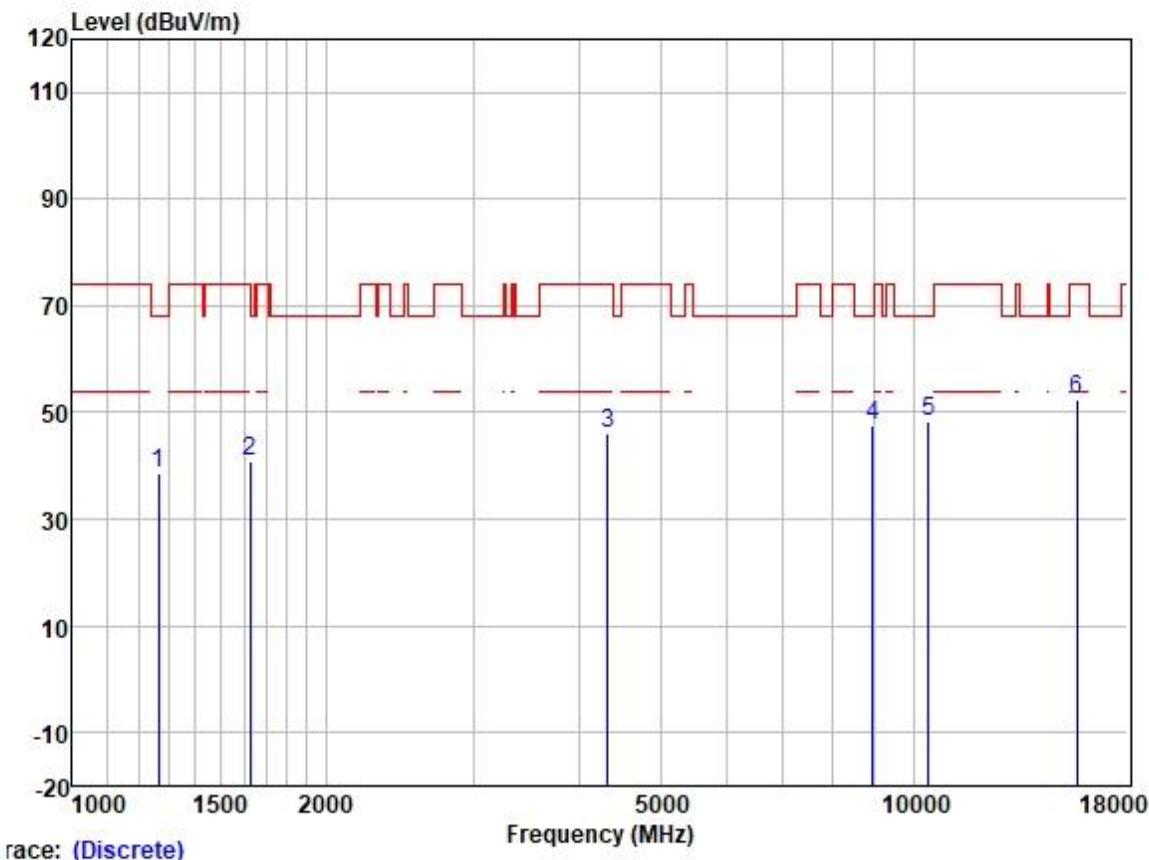
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Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



Race: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Remark
	MHz	Level	Factor	Loss	Factor	Level				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1267.454	48.24	25.97	2.44	38.07	38.58	68.20	-29.62	VERTICAL	peak
2	1625.121	50.24	25.41	2.80	37.55	40.90	74.00	-33.10	VERTICAL	peak
3	4329.354	46.40	31.64	4.67	36.64	46.07	74.00	-27.93	VERTICAL	peak
4	8943.274	39.10	38.01	7.49	37.08	47.52	68.20	-20.68	VERTICAL	peak
5	10420.000	39.17	38.69	7.35	36.76	48.45	68.20	-19.75	VERTICAL	peak
6	15630.000	39.88	38.76	9.87	36.18	52.33	74.00	-21.67	VERTICAL	peak

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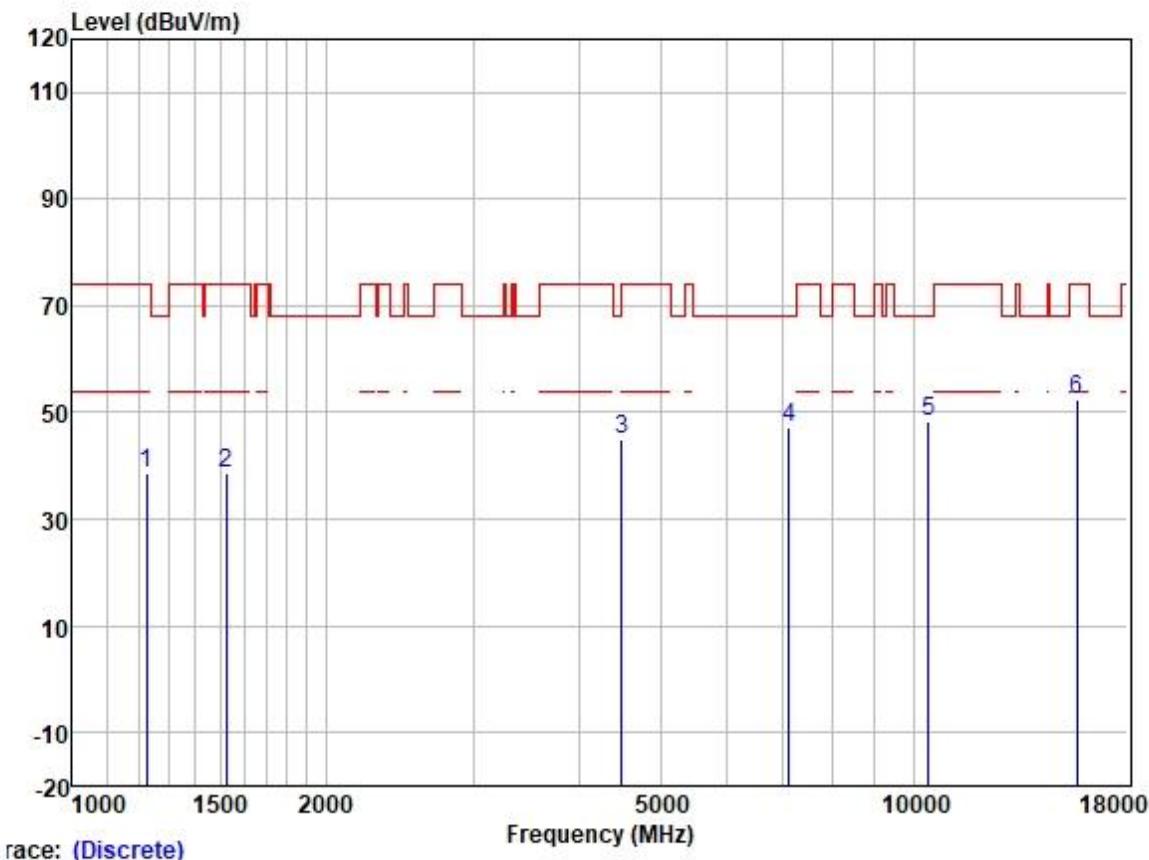
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Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



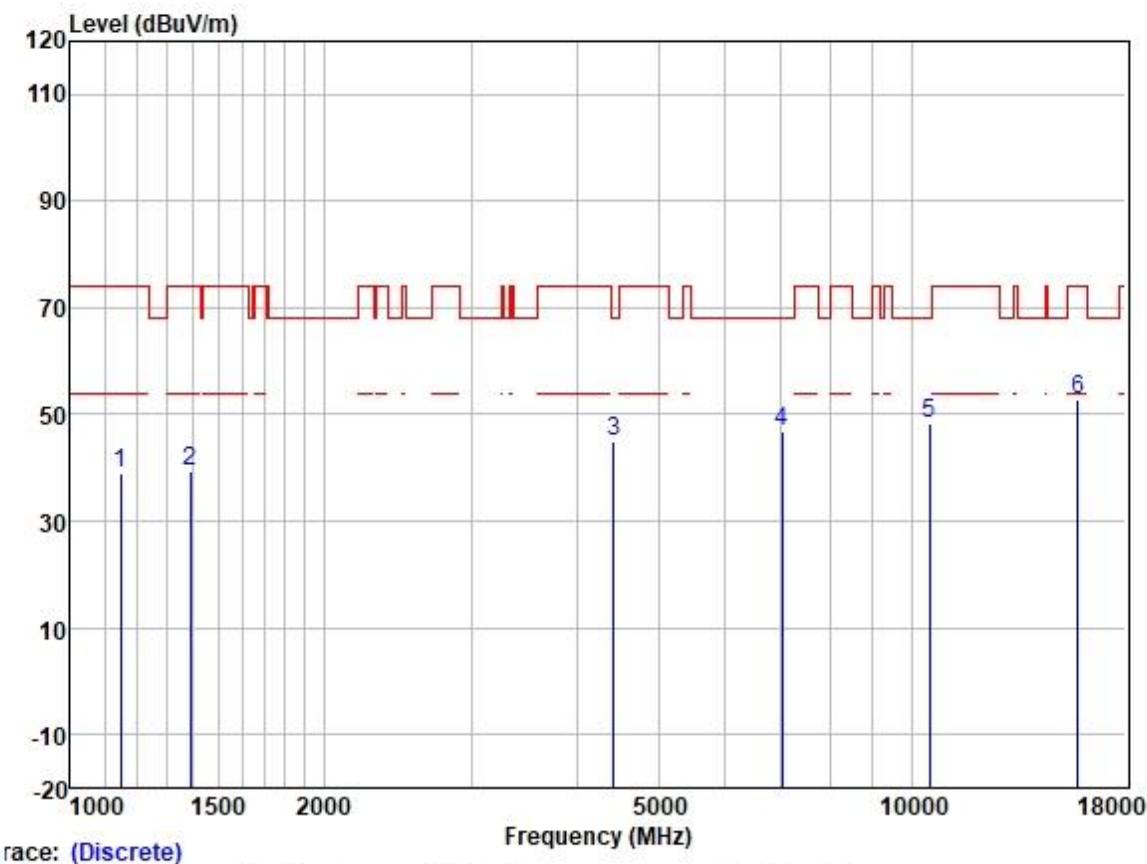
Freq	ReadAntenna Level	Antenna Factor	Cable Loss		Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
			dB	dBuV/m						
MHz	dBuV	dB/m								
1 1224.247	48.45	25.92	2.31	38.12	38.56	74.00	-35.44	HORIZONTAL	peak	
2 1525.000	48.08	25.54	2.80	37.70	38.72	74.00	-35.28	HORIZONTAL	peak	
3 4495.125	44.57	31.77	5.05	36.60	44.79	68.20	-23.41	HORIZONTAL	peak	
4 7117.542	41.83	36.47	5.90	36.85	47.35	68.20	-20.85	HORIZONTAL	peak	
5 10420.000	39.20	38.69	7.35	36.76	48.48	68.20	-19.72	HORIZONTAL	peak	
6 15630.000	39.90	38.76	9.87	36.18	52.35	74.00	-21.65	HORIZONTAL	peak	

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Test Mode: 03; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



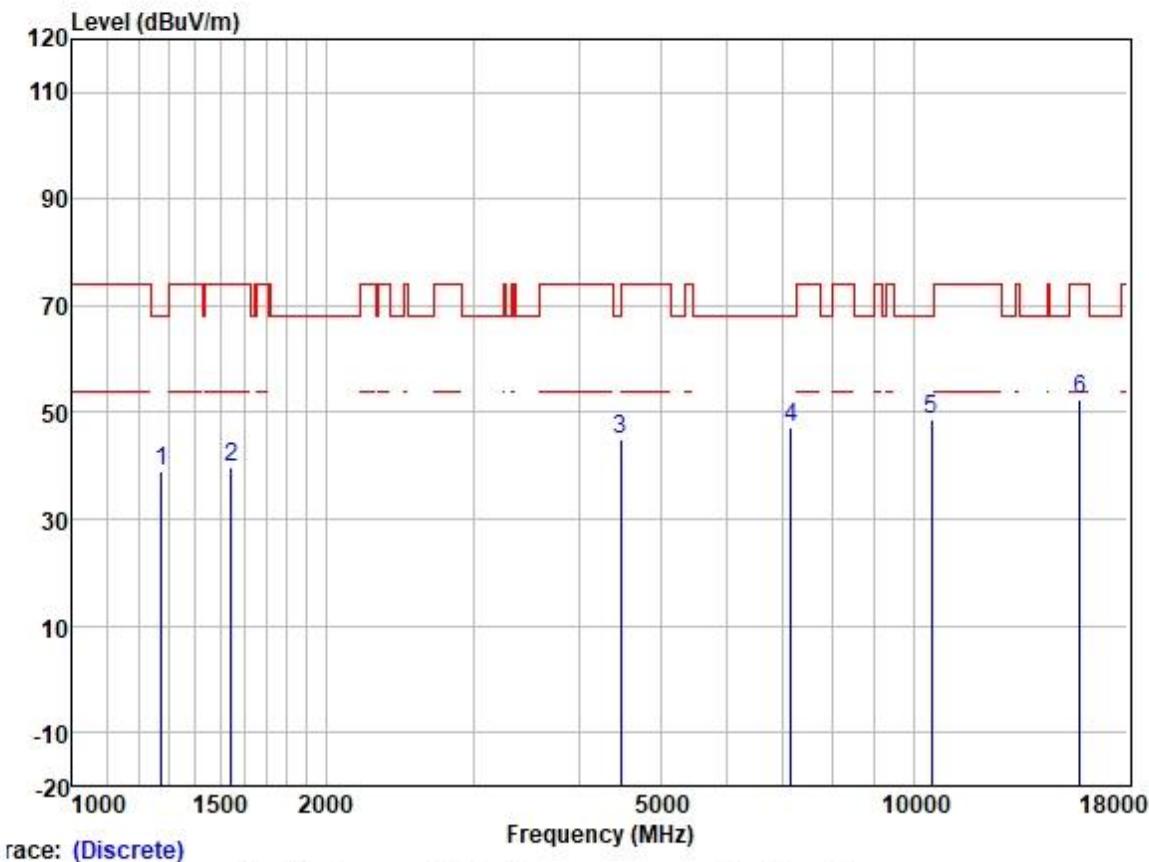
Race: (Discrete)	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	Freq	Level	Factor	Loss	Factor	Level					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	1148.823	48.95	25.70	2.34	38.19	38.80	74.00	-35.20	VERTICAL	peak	
2	1390.276	48.97	25.76	2.60	37.92	39.41	74.00	-34.59	VERTICAL	peak	
3	4430.628	45.15	31.77	4.78	36.62	45.08	68.20	-23.12	VERTICAL	peak	
4	7015.420	41.87	36.03	5.82	36.74	46.98	68.20	-21.22	VERTICAL	peak	
5	10520.000	39.02	38.72	7.42	36.75	48.41	68.20	-19.79	VERTICAL	peak	
6	15780.000	40.56	38.70	9.86	36.23	52.89	74.00	-21.11	VERTICAL	peak	

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Test Mode: 03; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Freq	ReadAntenna	Cable	Preamp	Limit		Over	Pol/Phase	Remark
				Level	Line			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 1274.802	48.64	25.98	2.48	38.07	39.03	68.20	-29.17	HORIZONTAL peak
2 1542.733	49.16	25.51	2.80	37.66	39.81	74.00	-34.19	HORIZONTAL peak
3 4482.150	44.70	31.77	4.99	36.61	44.85	68.20	-23.35	HORIZONTAL peak
4 7158.806	41.46	36.61	5.94	36.88	47.13	68.20	-21.07	HORIZONTAL peak
5 10520.000	39.48	38.72	7.42	36.75	48.87	68.20	-19.33	HORIZONTAL peak
6 15780.000	39.96	38.70	9.86	36.23	52.29	74.00	-21.71	HORIZONTAL peak

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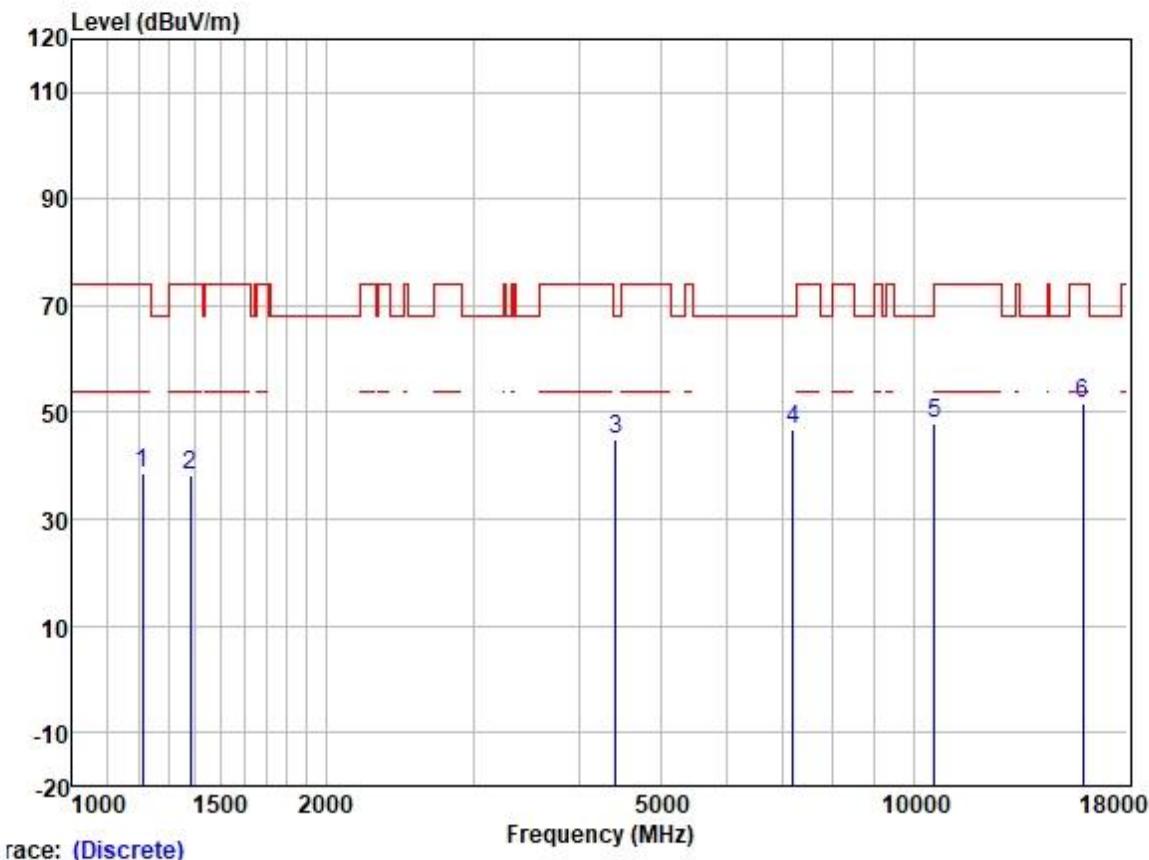
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Test Mode: 03; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



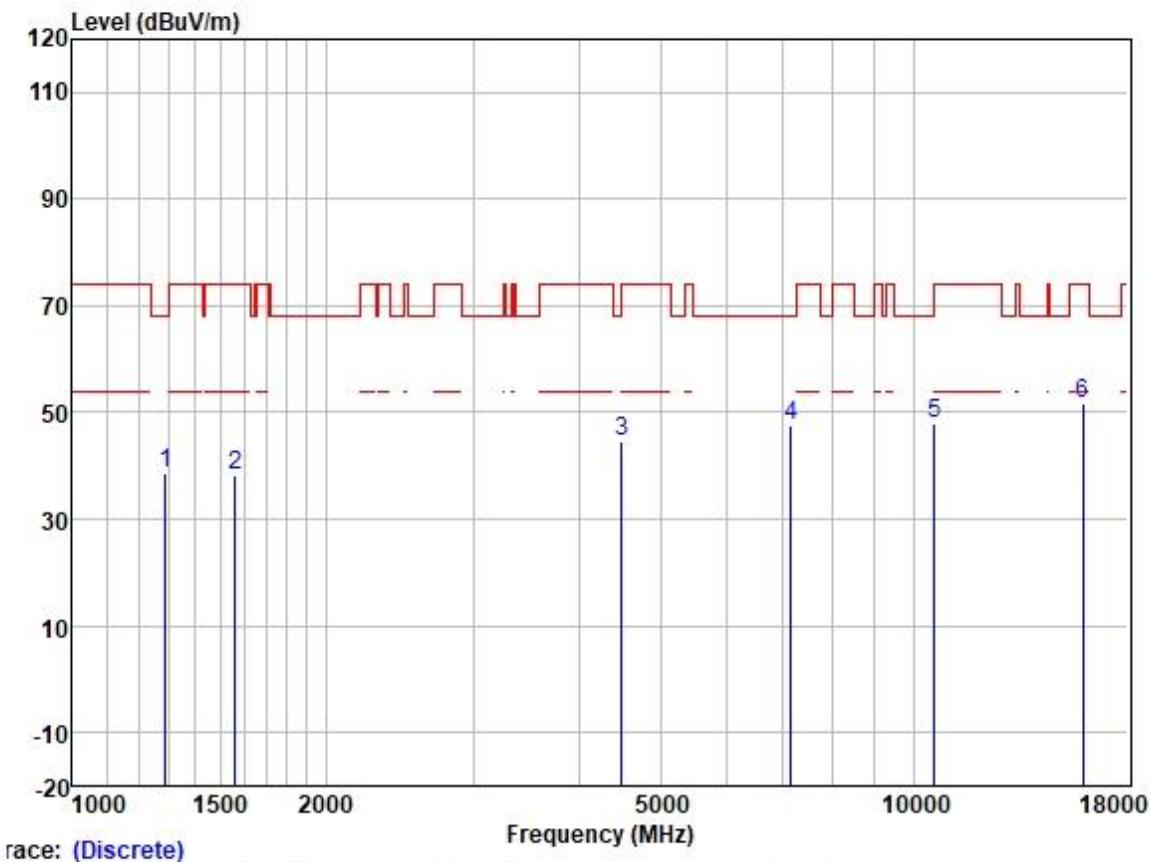
Race: (Discrete)	ReadAntenna		Cable		Preamp		Limit	Over	Over	Remark
	Freq	Level	Factor	Loss	Factor	Level				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1210.174	48.55	25.91	2.33	38.14	38.65	74.00	-35.35	VERTICAL	peak
2	1382.262	47.83	25.77	2.60	37.95	38.25	74.00	-35.75	VERTICAL	peak
3	4430.628	44.86	31.77	4.78	36.62	44.79	68.20	-23.41	VERTICAL	peak
4	7200.309	41.16	36.71	5.98	36.92	46.93	68.20	-21.27	VERTICAL	peak
5	10600.000	38.26	38.91	7.46	36.74	47.89	68.20	-20.31	VERTICAL	peak
6	15900.000	39.24	38.73	9.86	36.27	51.56	74.00	-22.44	VERTICAL	peak

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Test Mode: 03; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



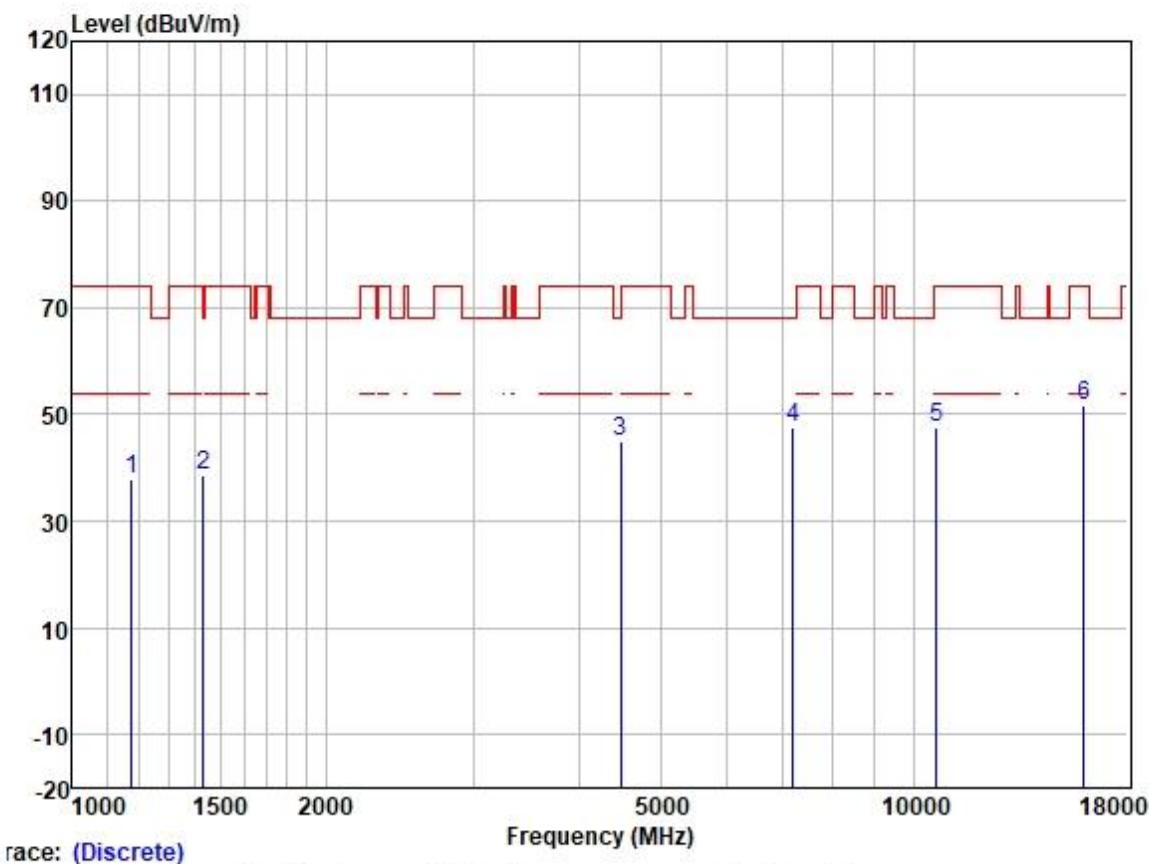
Freq	ReadAntenna Level	Antenna Factor	Cable Loss		Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
			dB	dB/m						
1 1289.627	48.24	25.99	2.55	38.04	38.74	68.20	-29.46	HORIZONTAL	peak	
2 1560.673	47.72	25.49	2.80	37.66	38.35	74.00	-35.65	HORIZONTAL	peak	
3 4495.125	44.47	31.77	5.05	36.60	44.69	68.20	-23.51	HORIZONTAL	peak	
4 7158.806	41.81	36.61	5.94	36.88	47.48	68.20	-20.72	HORIZONTAL	peak	
5 10600.000	38.45	38.91	7.46	36.74	48.08	68.20	-20.12	HORIZONTAL	peak	
6 15900.000	39.23	38.73	9.86	36.27	51.55	74.00	-22.45	HORIZONTAL	peak	

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Test Mode: 03; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Line	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
		Freq	Level	Factor	Loss					
	MHz	dBuV	dB/m		dB	dBuV/m	dBuV/m			
1	1175.697	48.00	25.83	2.38	38.17	38.04	74.00	-35.96	VERTICAL	peak
2	1431.047	48.07	25.69	2.66	37.88	38.54	68.20	-29.66	VERTICAL	peak
3	4482.150	44.94	31.77	4.99	36.61	45.09	68.20	-23.11	VERTICAL	peak
4	7200.309	41.93	36.71	5.98	36.92	47.70	68.20	-20.50	VERTICAL	peak
5	10640.000	37.98	38.99	7.48	36.73	47.72	74.00	-26.28	VERTICAL	peak
6	15960.000	39.38	38.69	9.85	36.29	51.63	74.00	-22.37	VERTICAL	peak

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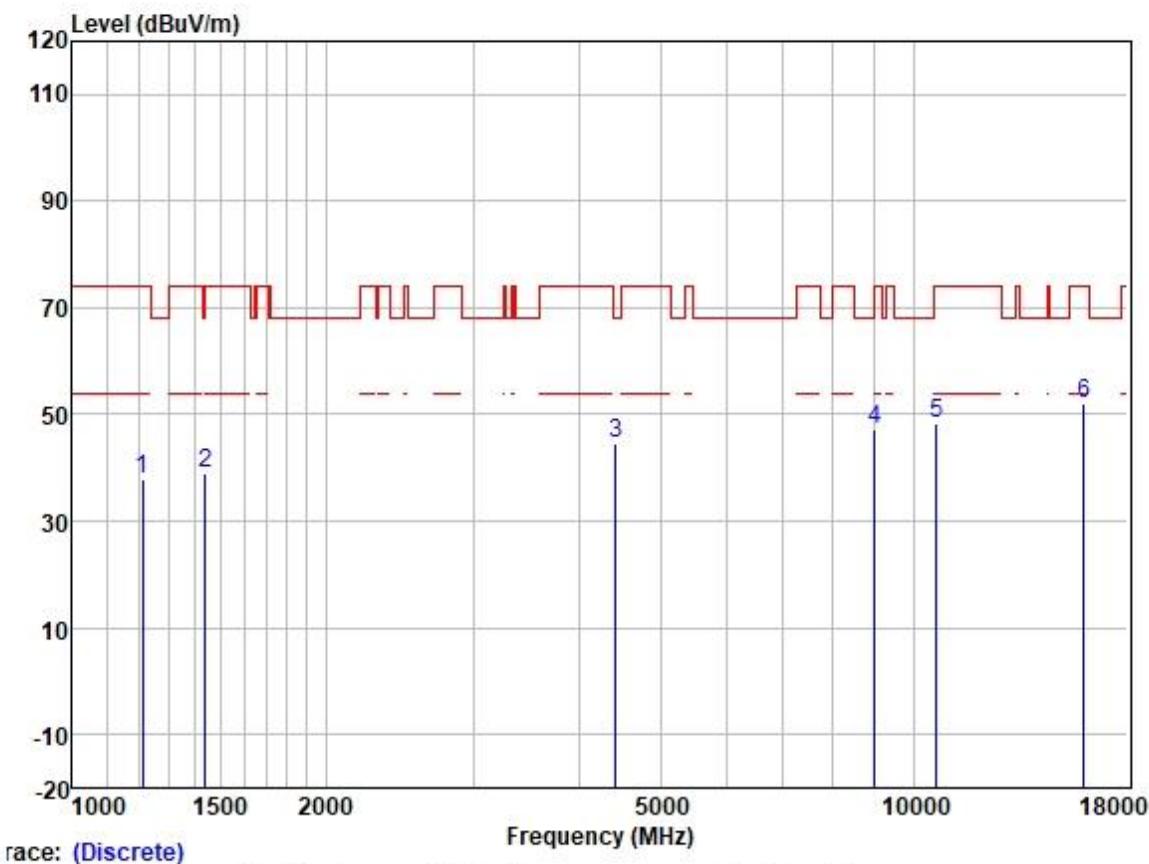
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Test Mode: 03; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Race: (Discrete)	Freq	ReadAntenna		Cable		Preamp		Limit Line	Over Limit	Over Limit Pol/Phase	Remark
		Level	Factor	Loss	Factor	Level	dBuV/m				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m				
1	1210.174	47.92	25.91	2.33	38.14	38.02	74.00	-35.98	HORIZONTAL	peak	
2	1439.343	48.43	25.67	2.68	37.84	38.94	74.00	-35.06	HORIZONTAL	peak	
3	4430.628	44.81	31.77	4.78	36.62	44.74	68.20	-23.46	HORIZONTAL	peak	
4	8995.123	38.51	38.03	7.56	37.05	47.05	68.20	-21.15	HORIZONTAL	peak	
5	10640.000	38.53	38.99	7.48	36.73	48.27	74.00	-25.73	HORIZONTAL	peak	
6	15960.000	39.75	38.69	9.85	36.29	52.00	74.00	-22.00	HORIZONTAL	peak	

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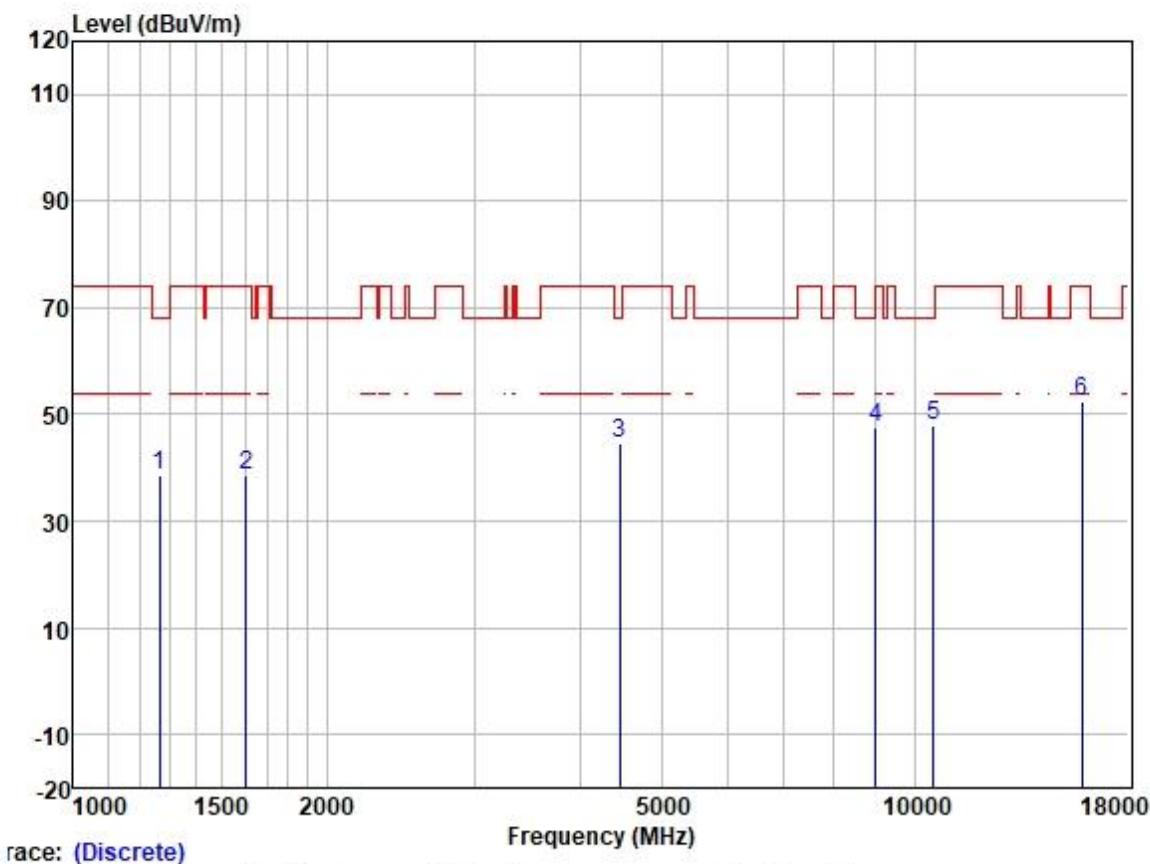
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Test Mode: 03; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Remark
	MHz	Level	Factor	Loss	Factor	Level				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1267.454	48.14	25.97	2.44	38.07	38.48	68.20	-29.72	VERTICAL	peak
2	1606.441	47.85	25.43	2.80	37.58	38.50	74.00	-35.50	VERTICAL	peak
3	4456.315	44.61	31.77	4.88	36.62	44.64	68.20	-23.56	VERTICAL	peak
4	8995.123	38.99	38.03	7.56	37.05	47.53	68.20	-20.67	VERTICAL	peak
5	10540.000	38.62	38.78	7.43	36.75	48.08	68.20	-20.12	VERTICAL	peak
6	15810.000	40.16	38.73	9.86	36.24	52.51	74.00	-21.49	VERTICAL	peak

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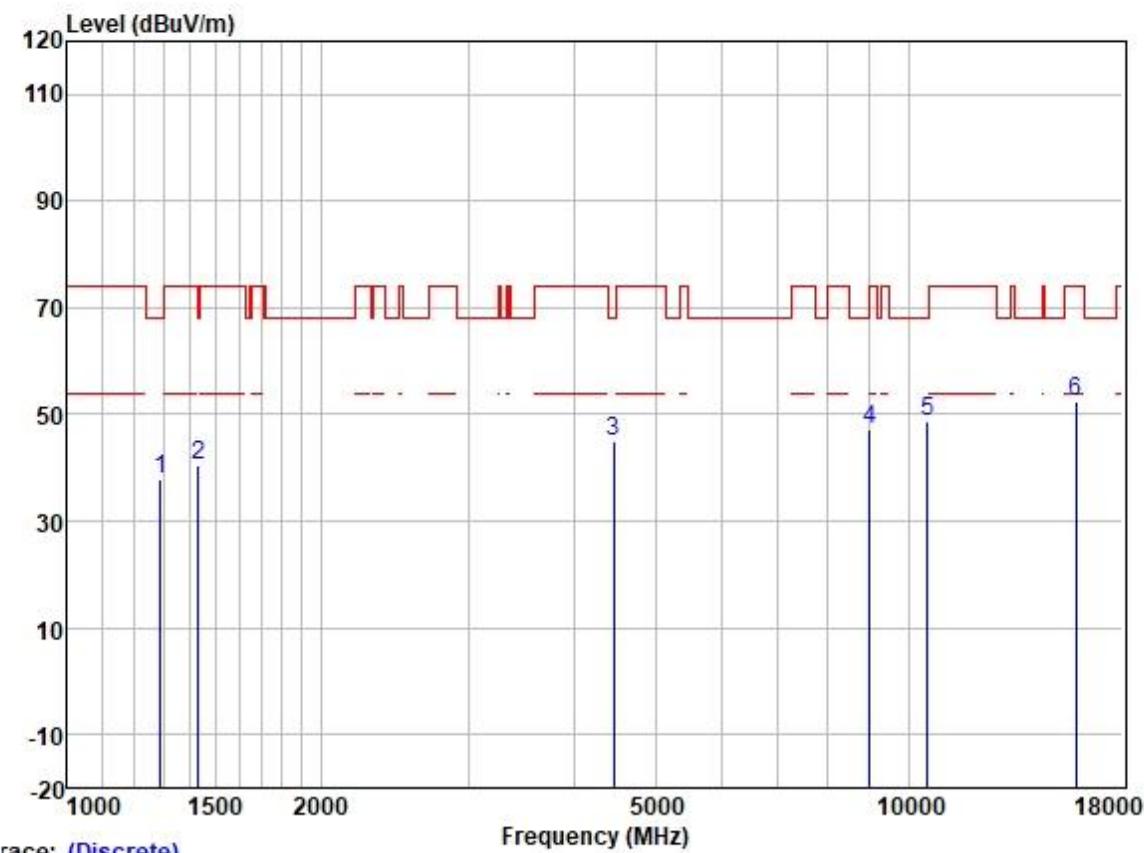
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Test Mode: 03; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Race: (Discrete)	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	1289.627	47.32	25.99	2.55	38.04	37.82	68.20	-30.38	HORIZONTAL	peak	
2	1431.047	49.96	25.69	2.66	37.88	40.43	68.20	-27.77	HORIZONTAL	peak	
3	4456.315	45.06	31.77	4.88	36.62	45.09	68.20	-23.11	HORIZONTAL	peak	
4	8995.123	38.73	38.03	7.56	37.05	47.27	68.20	-20.93	HORIZONTAL	peak	
5	10540.000	39.27	38.78	7.43	36.75	48.73	68.20	-19.47	HORIZONTAL	peak	
6	15810.000	40.26	38.73	9.86	36.24	52.61	74.00	-21.39	HORIZONTAL	peak	

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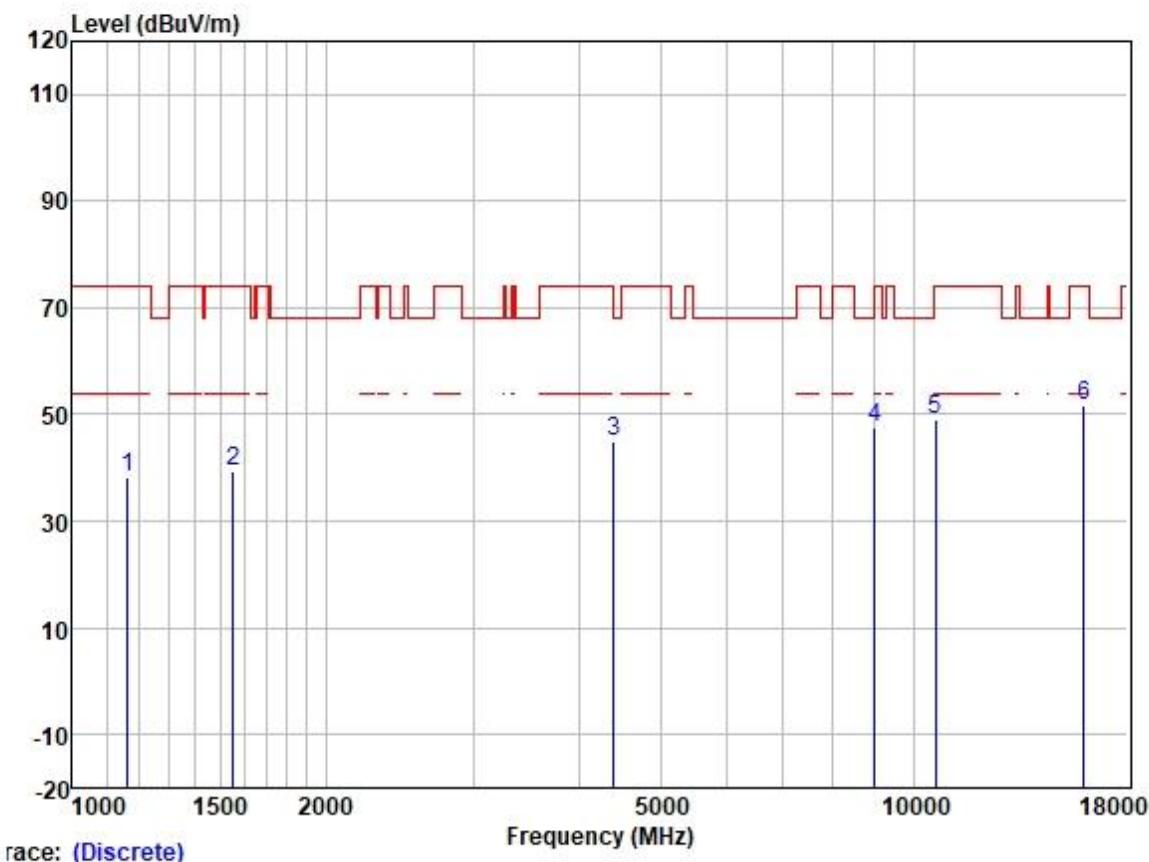
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Test Mode: 03; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



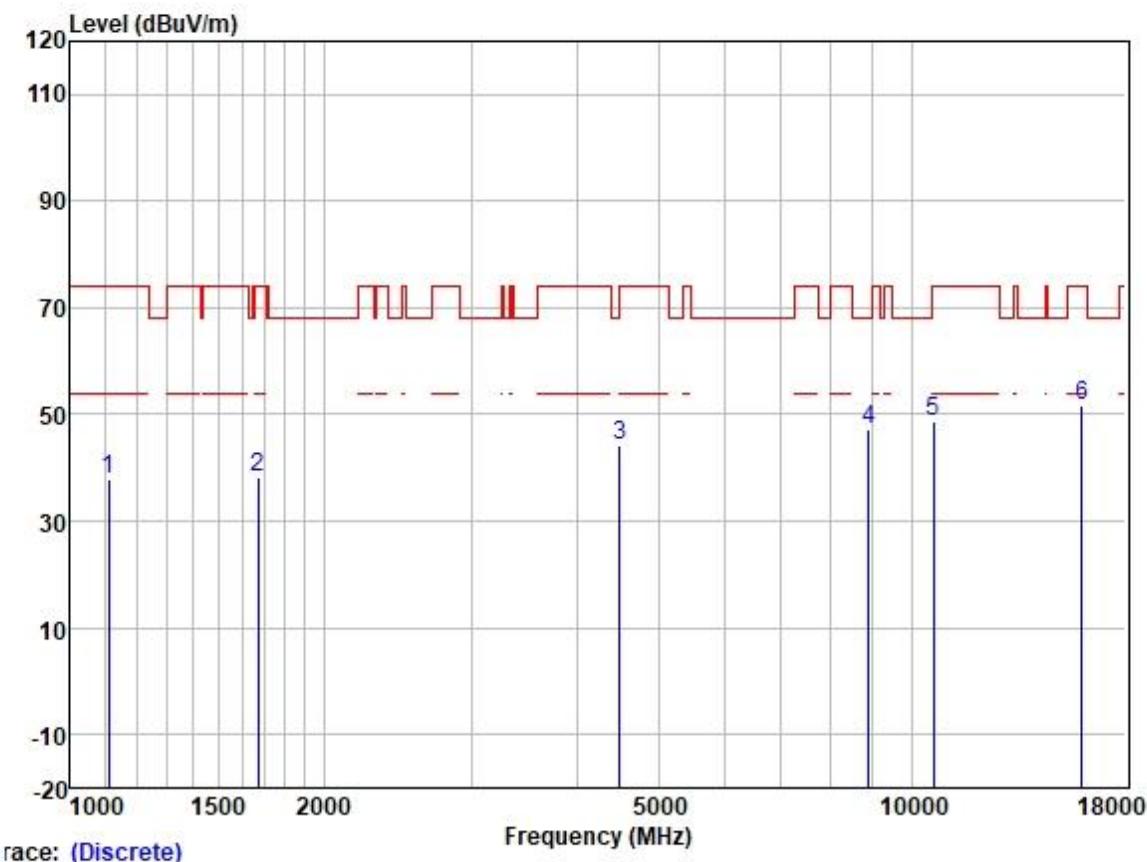
Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
		Freq	Level	Factor	Loss					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1162.182	48.33	25.78	2.40	38.19	38.32	74.00	-35.68	VERTICAL	peak
2	1551.677	48.61	25.50	2.80	37.66	39.25	74.00	-34.75	VERTICAL	peak
3	4405.090	44.98	31.77	4.70	36.63	44.82	68.20	-23.38	VERTICAL	peak
4	8995.123	39.00	38.03	7.56	37.05	47.54	68.20	-20.66	VERTICAL	peak
5	10620.000	39.42	38.91	7.46	36.74	49.05	74.00	-24.95	VERTICAL	peak
6	15930.000	39.53	38.69	9.85	36.28	51.79	74.00	-22.21	VERTICAL	peak

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Test Mode: 03; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



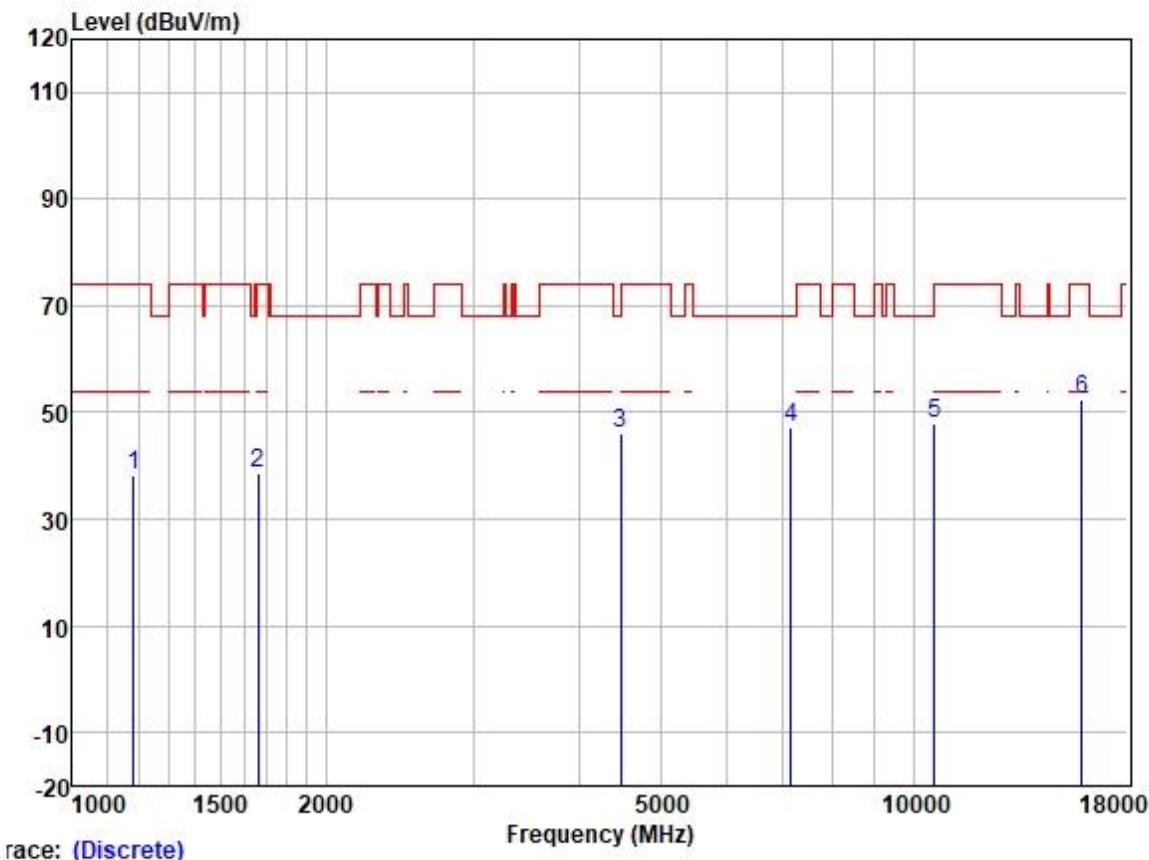
Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Over	Over	Over	Remark
	Level	Factor	Loss	Factor							
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	dB	dB	dB
1 1109.660	48.11	25.54	2.27	38.23	37.69	74.00	-36.31	HORIZONTAL	peak		
2 1672.779	47.48	25.30	2.80	37.48	38.10	74.00	-35.90	HORIZONTAL	peak		
3 4495.125	44.12	31.77	5.05	36.60	44.34	68.20	-23.86	HORIZONTAL	peak		
4 8891.725	38.75	37.99	7.42	37.10	47.06	68.20	-21.14	HORIZONTAL	peak		
5 10620.000	38.90	38.91	7.46	36.74	48.53	74.00	-25.47	HORIZONTAL	peak		
6 15930.000	39.26	38.69	9.85	36.28	51.52	74.00	-22.48	HORIZONTAL	peak		

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Test Mode: 03; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



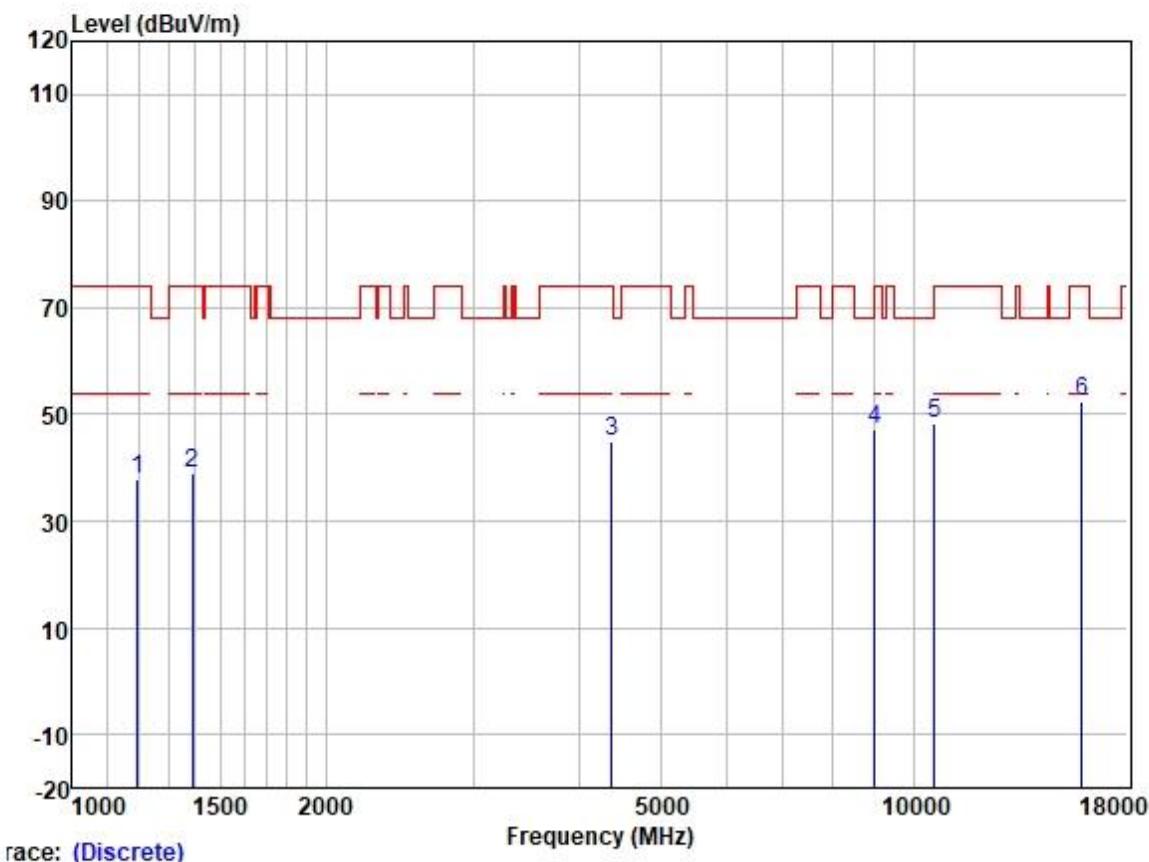
Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
		Freq	Level	Factor	Loss					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1182.513	48.06	25.85	2.37	38.17	38.11	74.00	-35.89	VERTICAL	peak
2	1663.137	48.09	25.32	2.80	37.48	38.73	74.00	-35.27	VERTICAL	peak
3	4482.150	45.82	31.77	4.99	36.61	45.97	68.20	-22.23	VERTICAL	peak
4	7158.806	41.53	36.61	5.94	36.88	47.20	68.20	-21.00	VERTICAL	peak
5	10580.000	38.42	38.85	7.45	36.74	47.98	68.20	-20.22	VERTICAL	peak
6	15870.000	39.94	38.73	9.86	36.26	52.27	74.00	-21.73	VERTICAL	peak

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Test Mode: 03; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



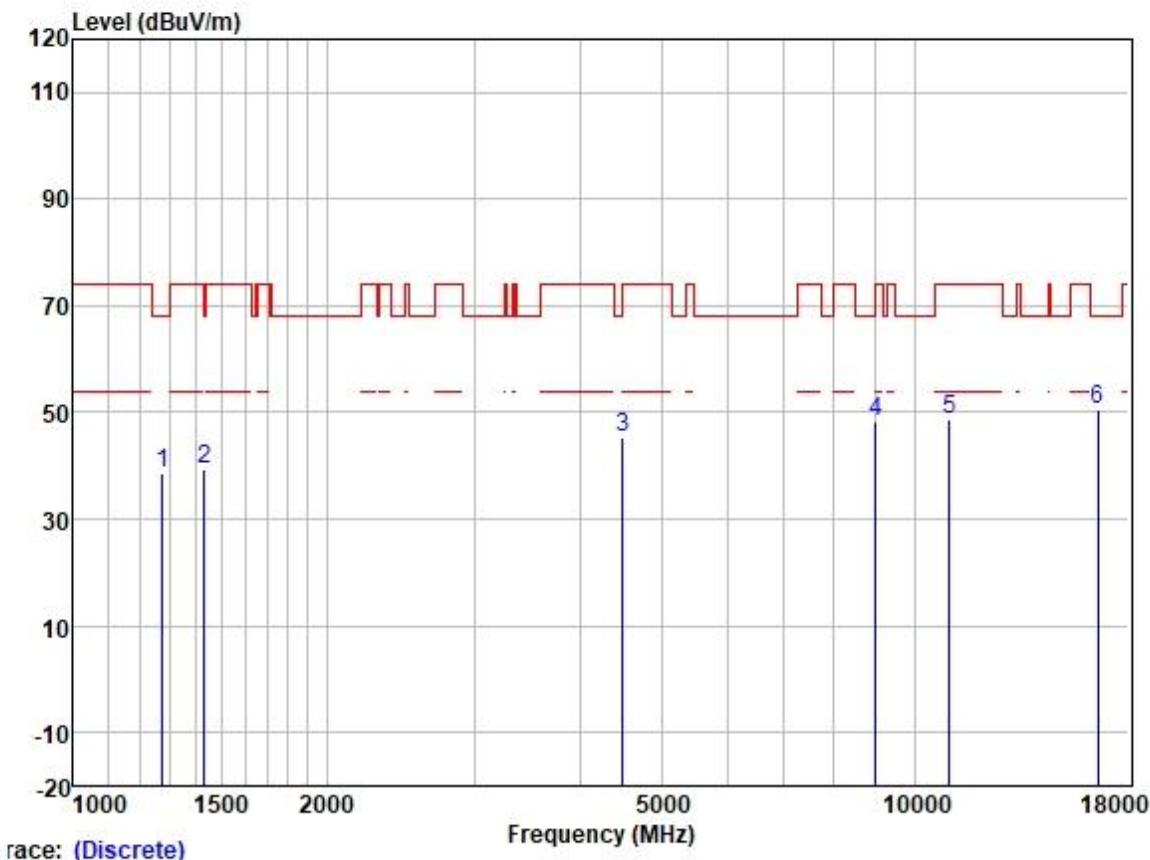
Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	MHz	Level	Factor	Loss	Factor	Level	Line	Line	dB		
1	1196.264	47.95	25.89	2.35	38.14	38.05	74.00	-35.95	HORIZONTAL	peak	
2	1390.276	48.44	25.76	2.60	37.92	38.88	74.00	-35.12	HORIZONTAL	peak	
3	4379.699	45.20	31.73	4.69	36.63	44.99	74.00	-29.01	HORIZONTAL	peak	
4	8995.123	38.75	38.03	7.56	37.05	47.29	68.20	-20.91	HORIZONTAL	peak	
5	10580.000	38.64	38.85	7.45	36.74	48.20	68.20	-20.00	HORIZONTAL	peak	
6	15870.000	40.02	38.73	9.86	36.26	52.35	74.00	-21.65	HORIZONTAL	peak	

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Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Pol/Phase	Remark
		Freq	Level	Antenna	Loss						
	MHz	dBuV	dB/m		dB	dBuV/m	dBuV/m				
1	1274.802	48.06	25.98	2.48	38.07	38.45	68.20	-29.75	VERTICAL	peak	
2	1431.047	48.77	25.69	2.66	37.88	39.24	68.20	-28.96	VERTICAL	peak	
3	4495.125	45.07	31.77	5.05	36.60	45.29	68.20	-22.91	VERTICAL	peak	
4	8995.123	39.79	38.03	7.56	37.05	48.33	68.20	-19.87	VERTICAL	peak	
5	11000.000	38.63	38.97	7.71	36.65	48.66	74.00	-25.34	VERTICAL	peak	
6	16500.000	38.30	39.13	9.44	36.24	50.63	68.20	-17.57	VERTICAL	peak	

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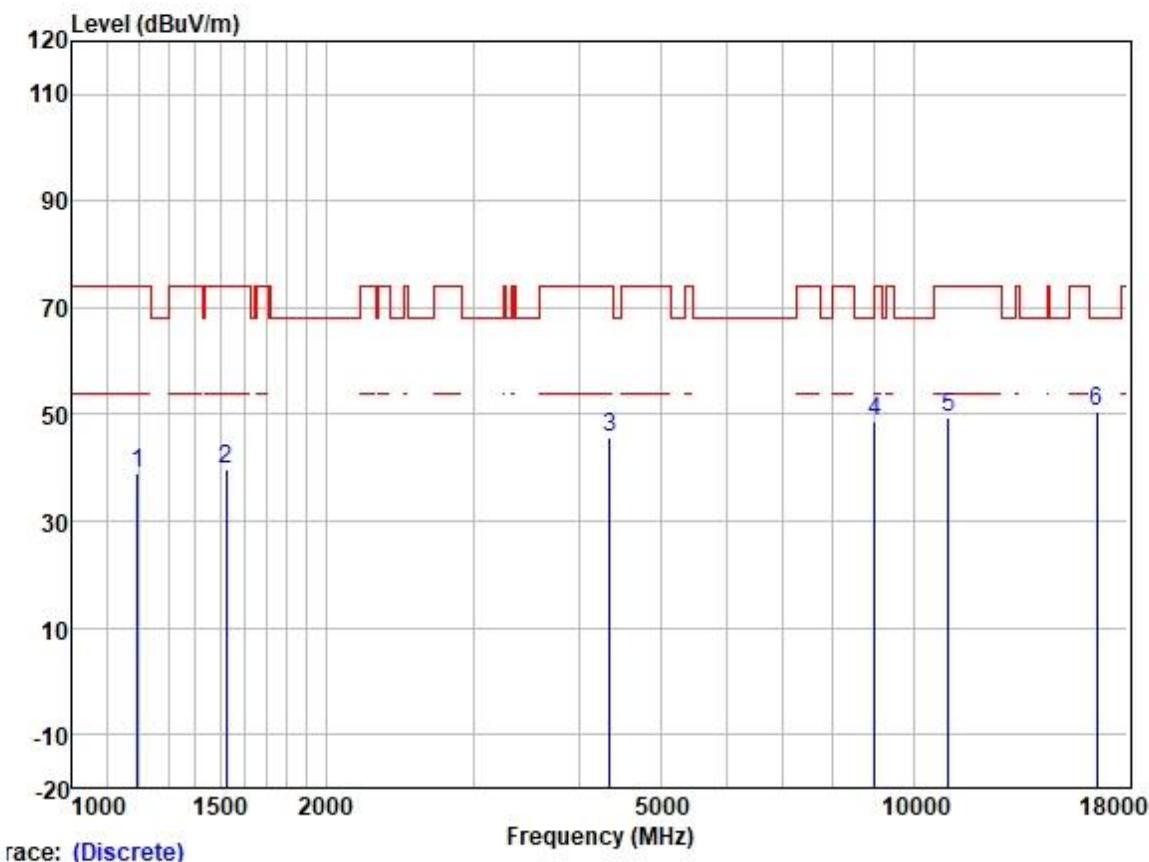
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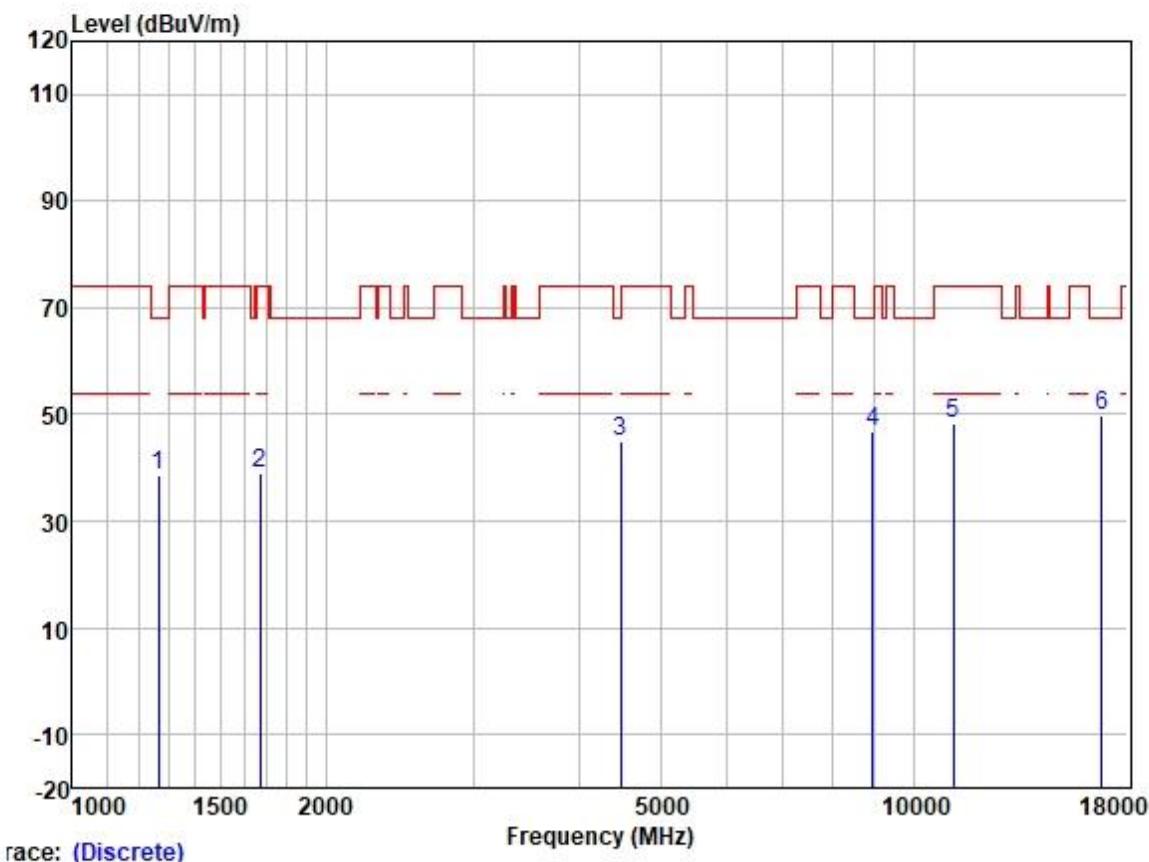
Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



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Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



Race: (Discrete)	ReadAntenna		Cable		Preamp		Limit	Over	Over	Remark
	Freq	Level	Factor	Loss	Factor	Level				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1267.454	48.11	25.97	2.44	38.07	38.45	68.20	-29.75	VERTICAL	peak
2	1672.779	48.22	25.30	2.80	37.48	38.84	74.00	-35.16	VERTICAL	peak
3	4482.150	44.63	31.77	4.99	36.61	44.78	68.20	-23.42	VERTICAL	peak
4	8943.274	38.49	38.01	7.49	37.08	46.91	68.20	-21.29	VERTICAL	peak
5	11160.000	38.05	38.99	7.90	36.61	48.33	74.00	-25.67	VERTICAL	peak
6	16740.000	37.35	39.35	9.41	36.19	49.92	68.20	-18.28	VERTICAL	peak

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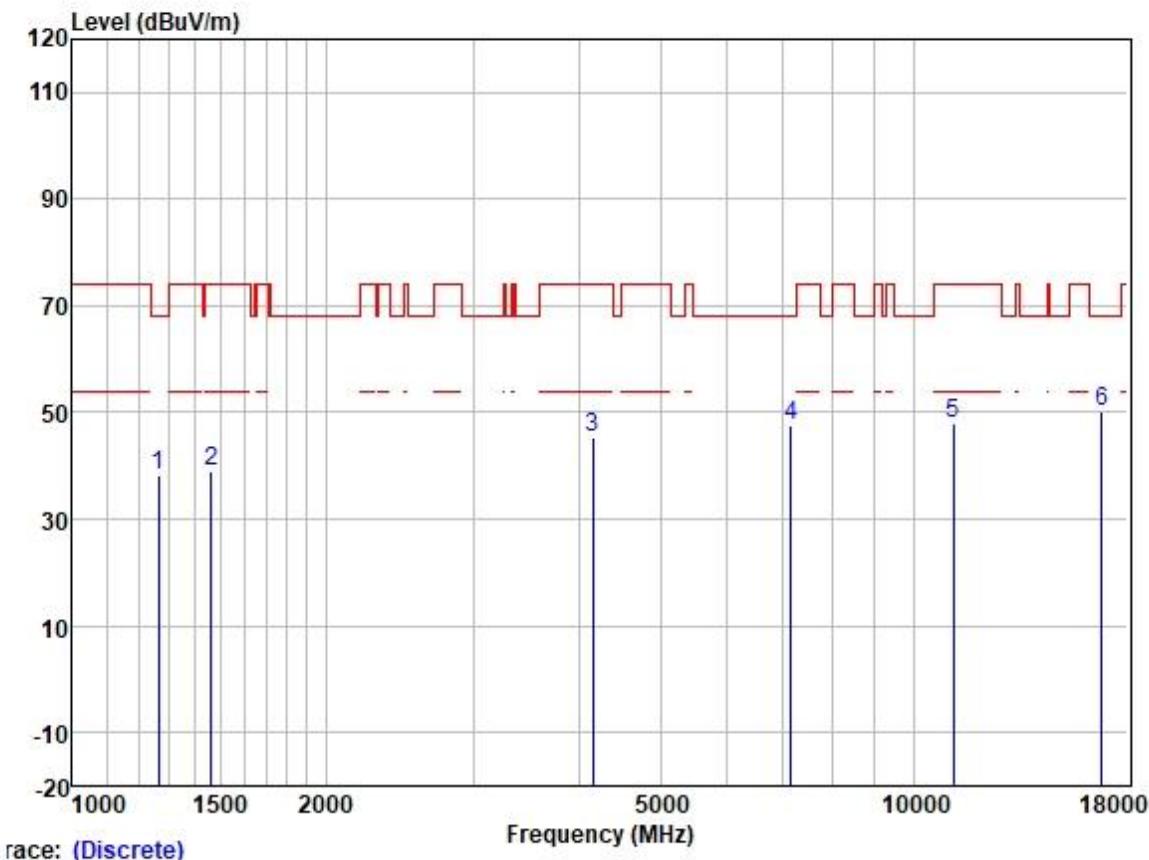
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Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



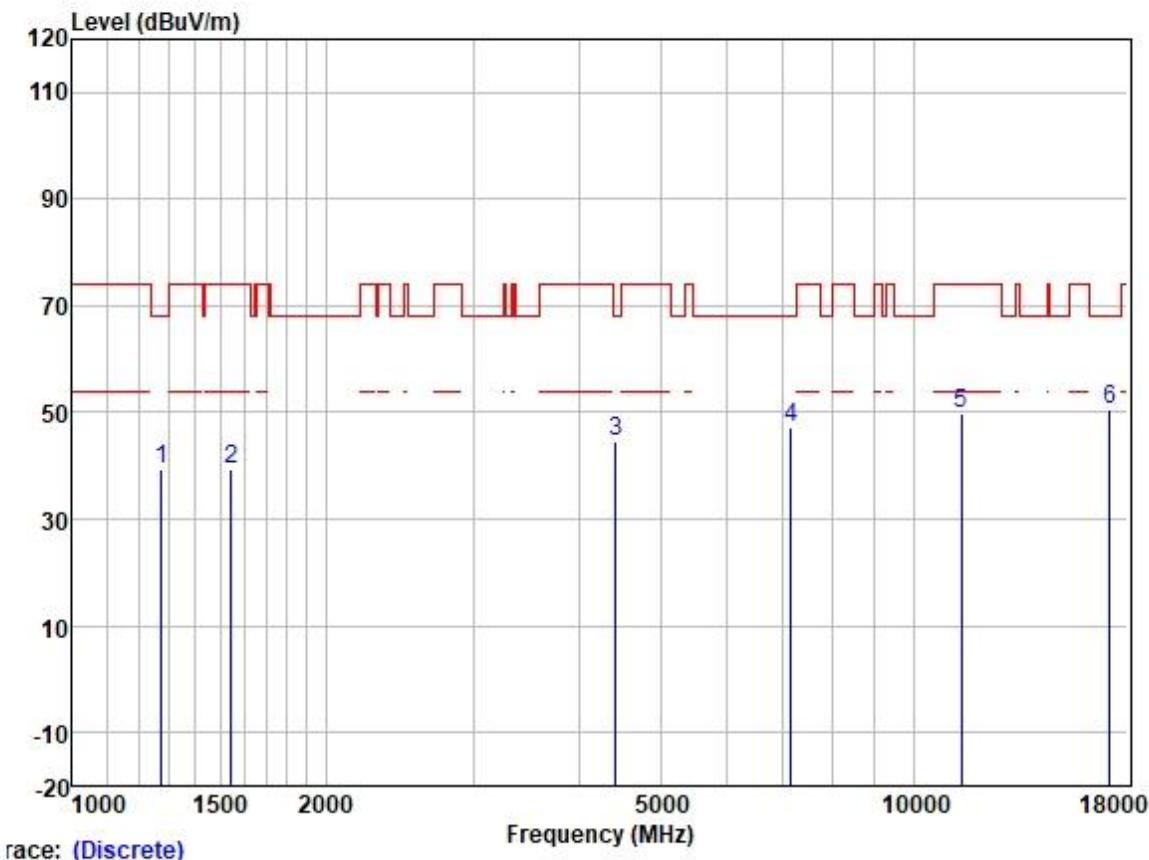
Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
	MHz	Level	Factor	Loss					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1267.454	47.86	25.97	2.44	38.07	38.20	68.20	-30.00	HORIZONTAL peak
2	1464.522	48.42	25.61	2.74	37.80	38.97	74.00	-35.03	HORIZONTAL peak
3	4157.664	46.26	31.23	4.60	36.68	45.41	74.00	-28.59	HORIZONTAL peak
4	7158.806	42.06	36.61	5.94	36.88	47.73	68.20	-20.47	HORIZONTAL peak
5	11160.000	37.48	38.99	7.90	36.61	47.76	74.00	-26.24	HORIZONTAL peak
6	16740.000	37.74	39.35	9.41	36.19	50.31	68.20	-17.89	HORIZONTAL peak

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Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



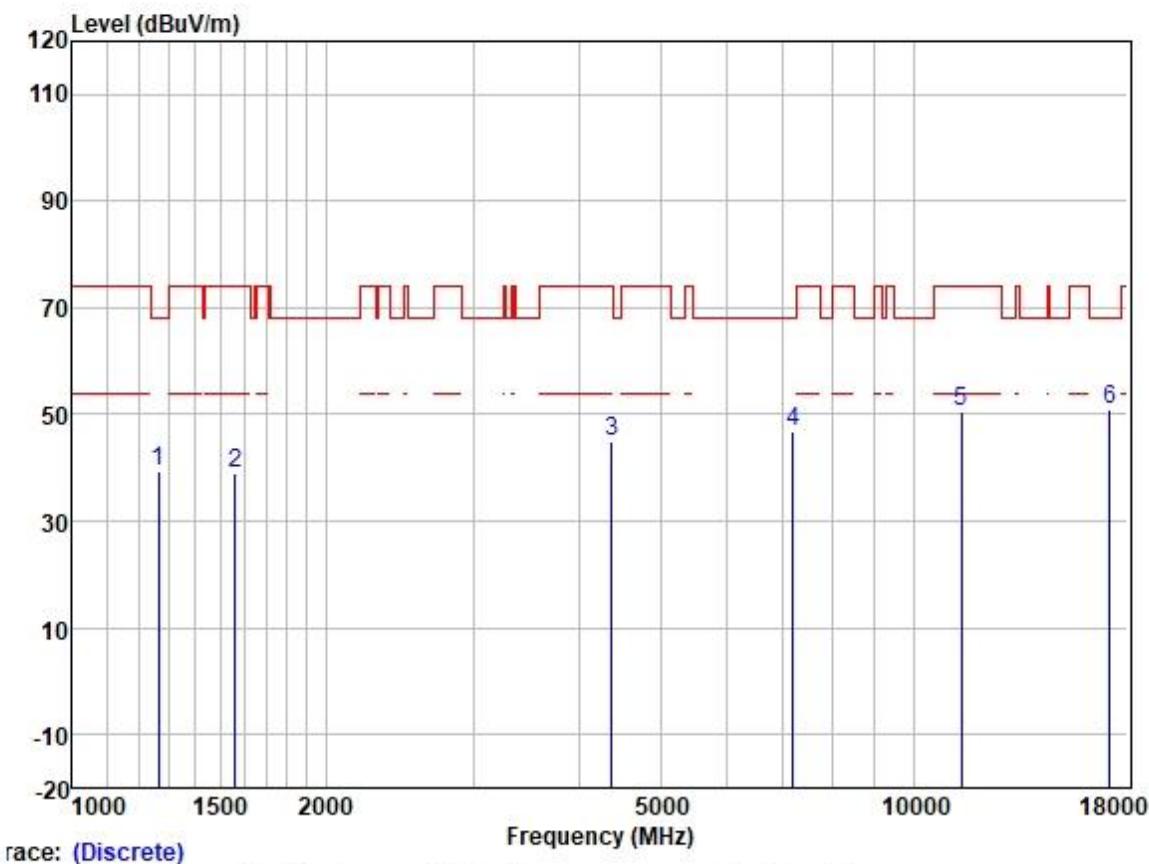
Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
		Freq	Level	Factor	Loss					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1274.802	48.81	25.98	2.48	38.07	39.20	68.20	-29.00	VERTICAL	peak
2	1542.733	48.58	25.51	2.80	37.66	39.23	74.00	-34.77	VERTICAL	peak
3	4430.628	44.64	31.77	4.78	36.62	44.57	68.20	-23.63	VERTICAL	peak
4	7158.806	41.44	36.61	5.94	36.88	47.11	68.20	-21.09	VERTICAL	peak
5	11400.000	39.19	39.02	8.28	36.56	49.93	74.00	-24.07	VERTICAL	peak
6	17100.000	37.67	39.44	9.63	36.06	50.68	68.20	-17.52	VERTICAL	peak

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Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Mode: (Discrete)

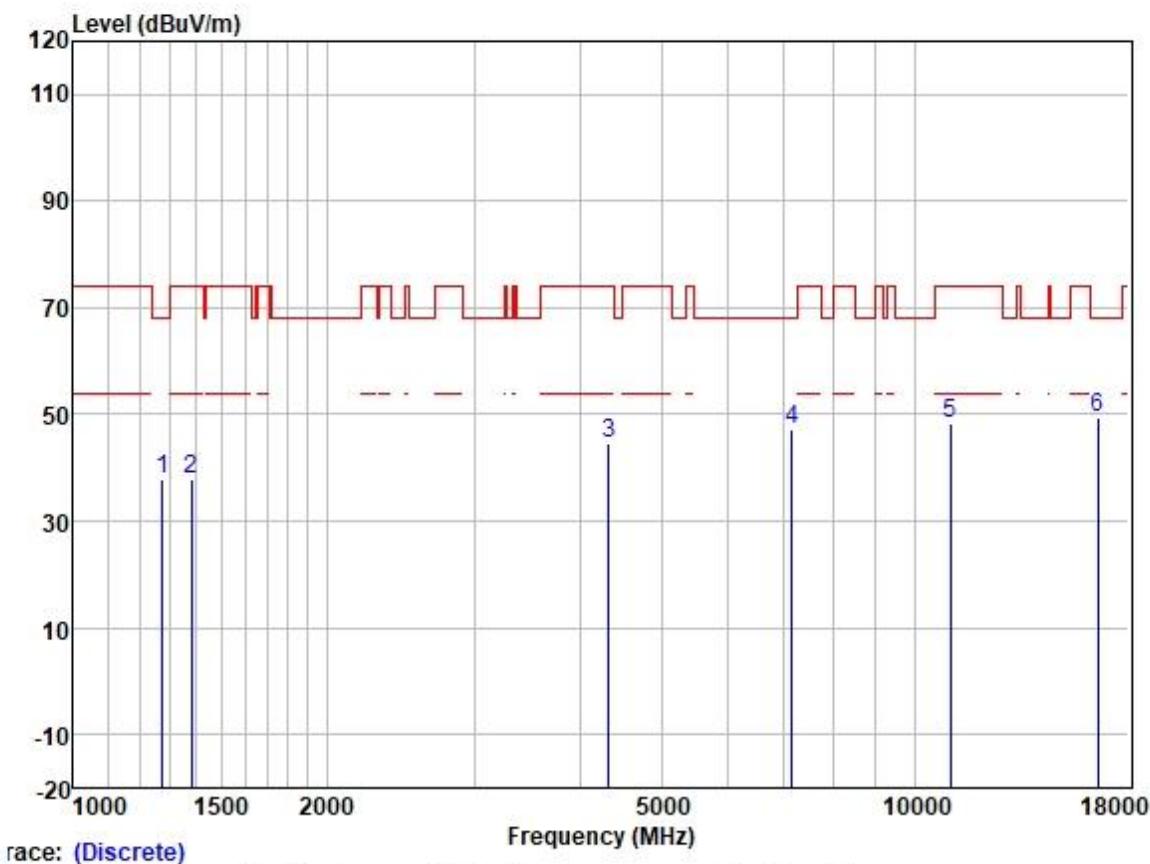
Freq	Read	Antenna	Cable	Preamp	Limit	Over	Pol/Phase	Remark
	Freq	Level	Factor	Loss	Factor	Line		
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	1267.454	48.87	25.97	2.44	38.07	39.21	68.20	-28.99 HORIZONTAL peak
2	1560.673	48.50	25.49	2.80	37.66	39.13	74.00	-34.87 HORIZONTAL peak
3	4379.699	45.08	31.73	4.69	36.63	44.87	74.00	-29.13 HORIZONTAL peak
4	7200.309	41.19	36.71	5.98	36.92	46.96	68.20	-21.24 HORIZONTAL peak
5	11400.000	39.84	39.02	8.28	36.56	50.58	74.00	-23.42 HORIZONTAL peak
6	17100.000	37.88	39.44	9.63	36.06	50.89	68.20	-17.31 HORIZONTAL peak

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Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
		Freq	Level	Antenna	Loss					
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m	dB	
1	1274.802	47.35	25.98	2.48	38.07	37.74	68.20	-30.46	VERTICAL	peak
2	1382.262	47.58	25.77	2.60	37.95	38.00	74.00	-36.00	VERTICAL	peak
3	4329.354	45.02	31.64	4.67	36.64	44.69	74.00	-29.31	VERTICAL	peak
4	7158.806	41.42	36.61	5.94	36.88	47.09	68.20	-21.11	VERTICAL	peak
5	11020.000	38.34	38.97	7.71	36.64	48.38	74.00	-25.62	VERTICAL	peak
6	16530.000	37.16	39.15	9.44	36.23	49.52	68.20	-18.68	VERTICAL	peak

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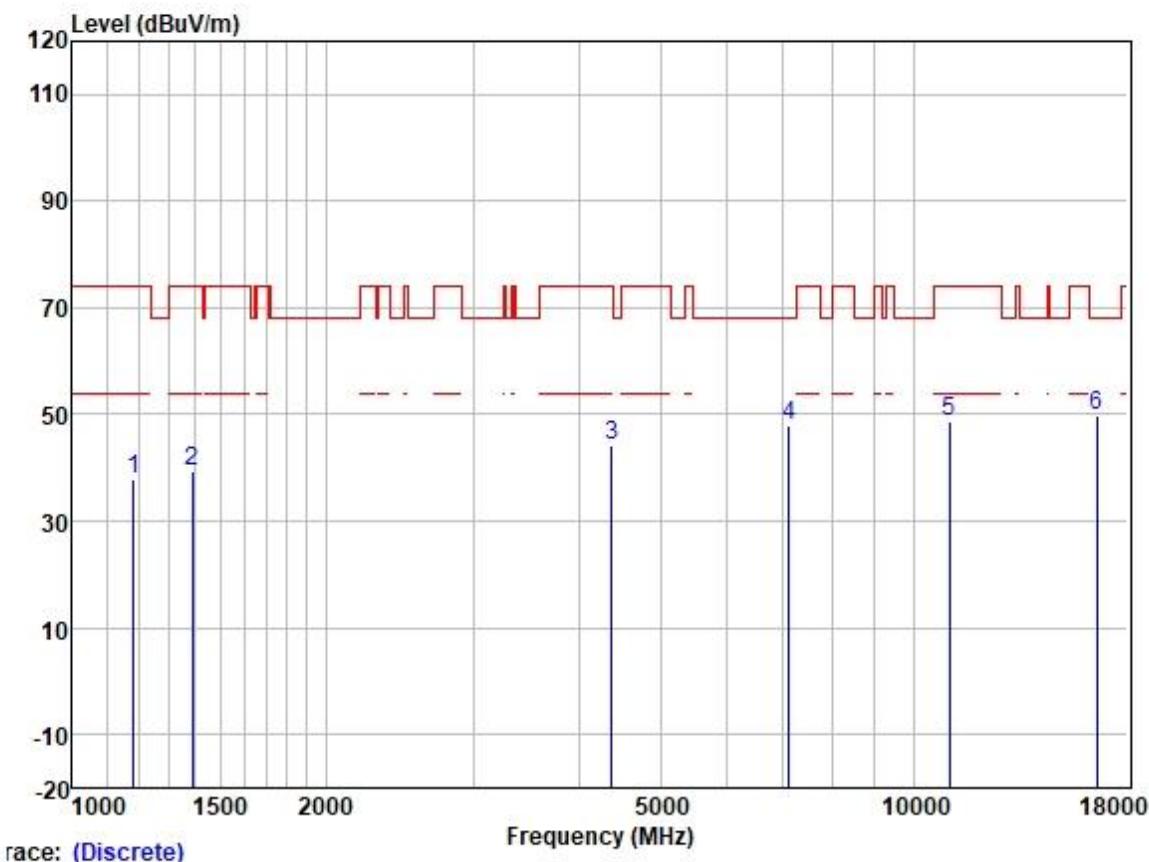
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Test Mode: 04; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
		Freq	Level	Antenna	Loss					
	MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m	dB	
1	1182.513	47.77	25.85		2.37	38.17	37.82	74.00	-36.18	HORIZONTAL peak
2	1390.276	48.88	25.76		2.60	37.92	39.32	74.00	-34.68	HORIZONTAL peak
3	4379.699	44.51	31.73		4.69	36.63	44.30	74.00	-29.70	HORIZONTAL peak
4	7117.542	42.45	36.47		5.90	36.85	47.97	68.20	-20.23	HORIZONTAL peak
5	11020.000	38.50	38.97		7.71	36.64	48.54	74.00	-25.46	HORIZONTAL peak
6	16530.000	37.32	39.15		9.44	36.23	49.68	68.20	-18.52	HORIZONTAL peak

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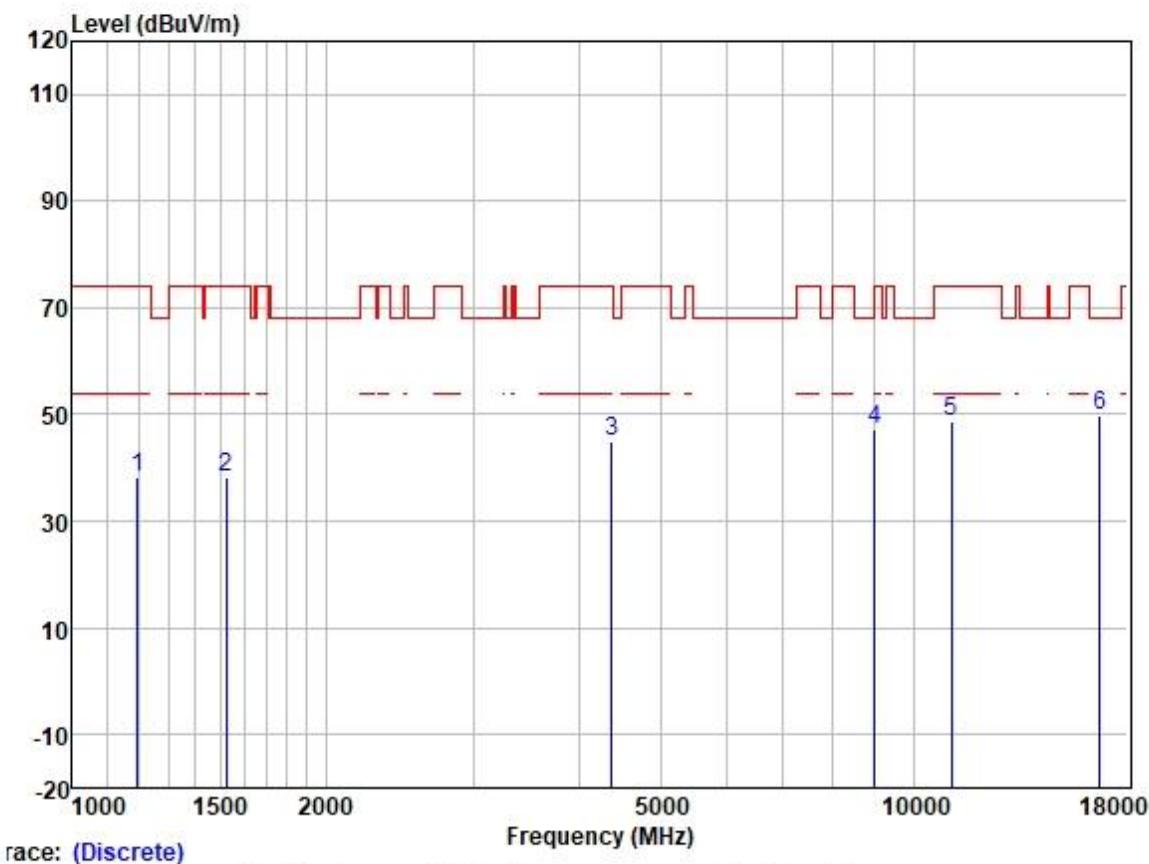
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Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



Race: (Discrete)

Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Pol/Phase	Remark
	MHz	Level	Factor	Loss	Factor	Level	Line	Line	dB		
1	1196.264	48.26	25.89	2.35	38.14	38.36	74.00	-35.64	VERTICAL	peak	
2	1525.000	47.50	25.54	2.80	37.70	38.14	74.00	-35.86	VERTICAL	peak	
3	4379.699	45.34	31.73	4.69	36.63	45.13	74.00	-28.87	VERTICAL	peak	
4	8995.123	38.51	38.03	7.56	37.05	47.05	68.20	-21.15	VERTICAL	peak	
5	11100.000	38.45	38.96	7.82	36.62	48.61	74.00	-25.39	VERTICAL	peak	
6	16650.000	37.44	39.26	9.43	36.21	49.92	68.20	-18.28	VERTICAL	peak	

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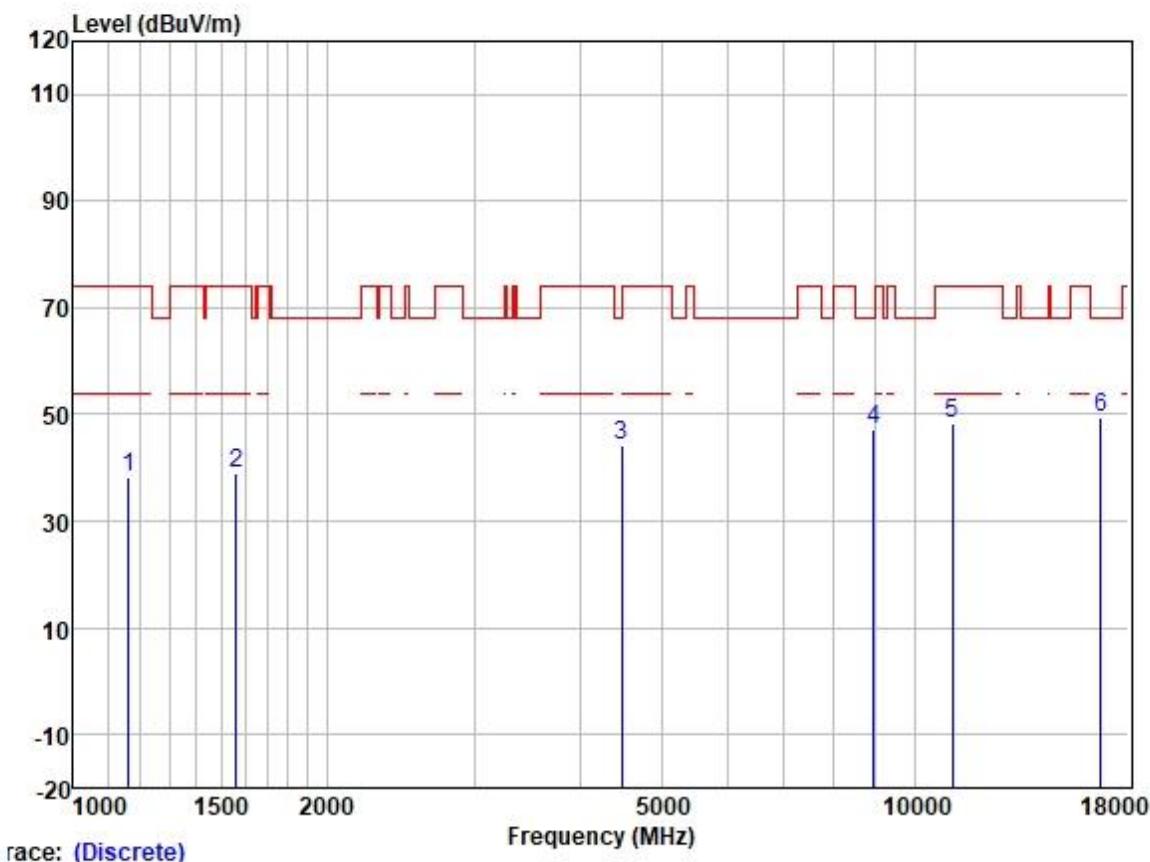
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Test Mode: 04; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



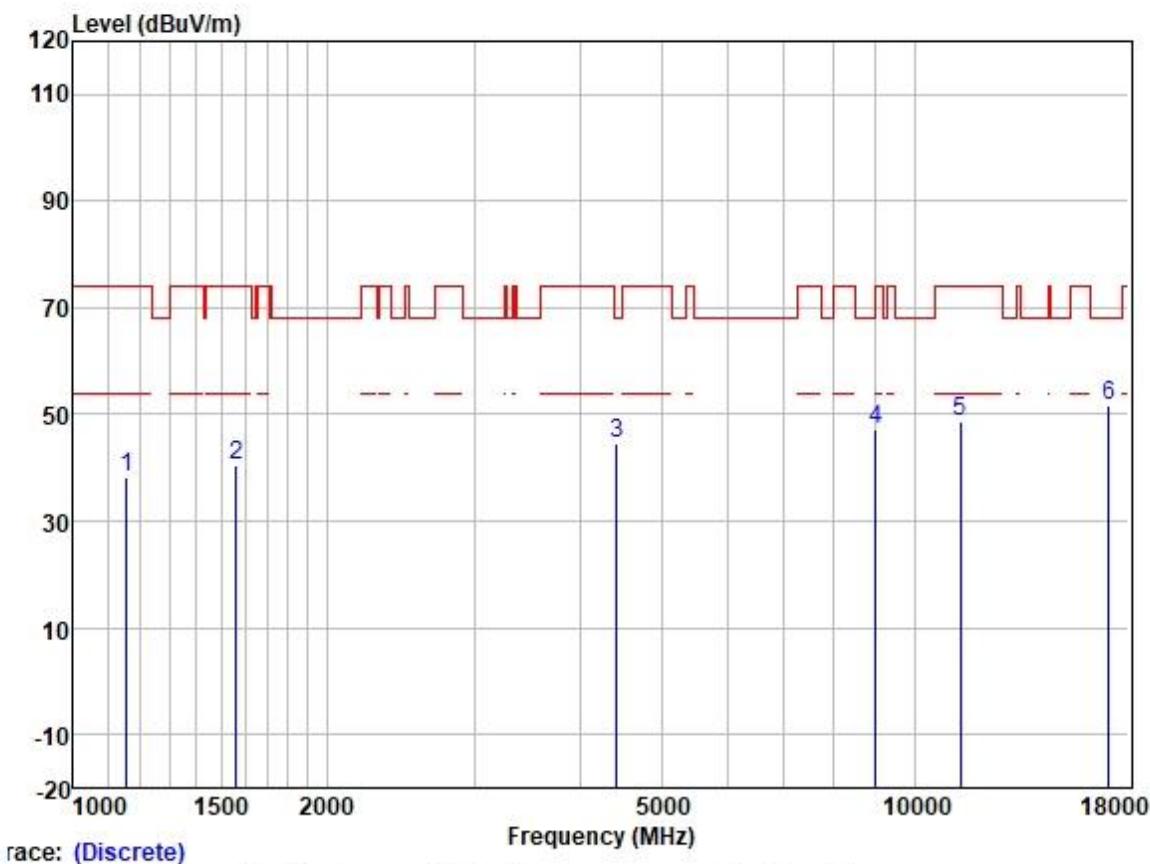
Race: (Discrete)	Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Remark
		Level	Factor	Loss	Factor	Level	Line				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	1162.182	48.22	25.78	2.40	38.19	38.21	74.00	-35.79	HORIZONTAL	peak	
2	1560.673	48.22	25.49	2.80	37.66	38.85	74.00	-35.15	HORIZONTAL	peak	
3	4482.150	44.24	31.77	4.99	36.61	44.39	68.20	-23.81	HORIZONTAL	peak	
4	8943.274	38.91	38.01	7.49	37.08	47.33	68.20	-20.87	HORIZONTAL	peak	
5	11100.000	38.33	38.96	7.82	36.62	48.49	74.00	-25.51	HORIZONTAL	peak	
6	16650.000	37.09	39.26	9.43	36.21	49.57	68.20	-18.63	HORIZONTAL	peak	

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Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
	Freq	Level	Factor	Loss					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1155.483	48.18	25.74	2.38	38.19	38.11	74.00	-35.89	VERTICAL	peak
2 1560.673	49.74	25.49	2.80	37.66	40.37	74.00	-33.63	VERTICAL	peak
3 4430.628	44.48	31.77	4.78	36.62	44.41	68.20	-23.79	VERTICAL	peak
4 8995.123	38.57	38.03	7.56	37.05	47.11	68.20	-21.09	VERTICAL	peak
5 11340.000	38.06	39.02	8.18	36.57	48.69	74.00	-25.31	VERTICAL	peak
6 17010.000	39.05	39.28	9.39	36.10	51.62	68.20	-16.58	VERTICAL	peak

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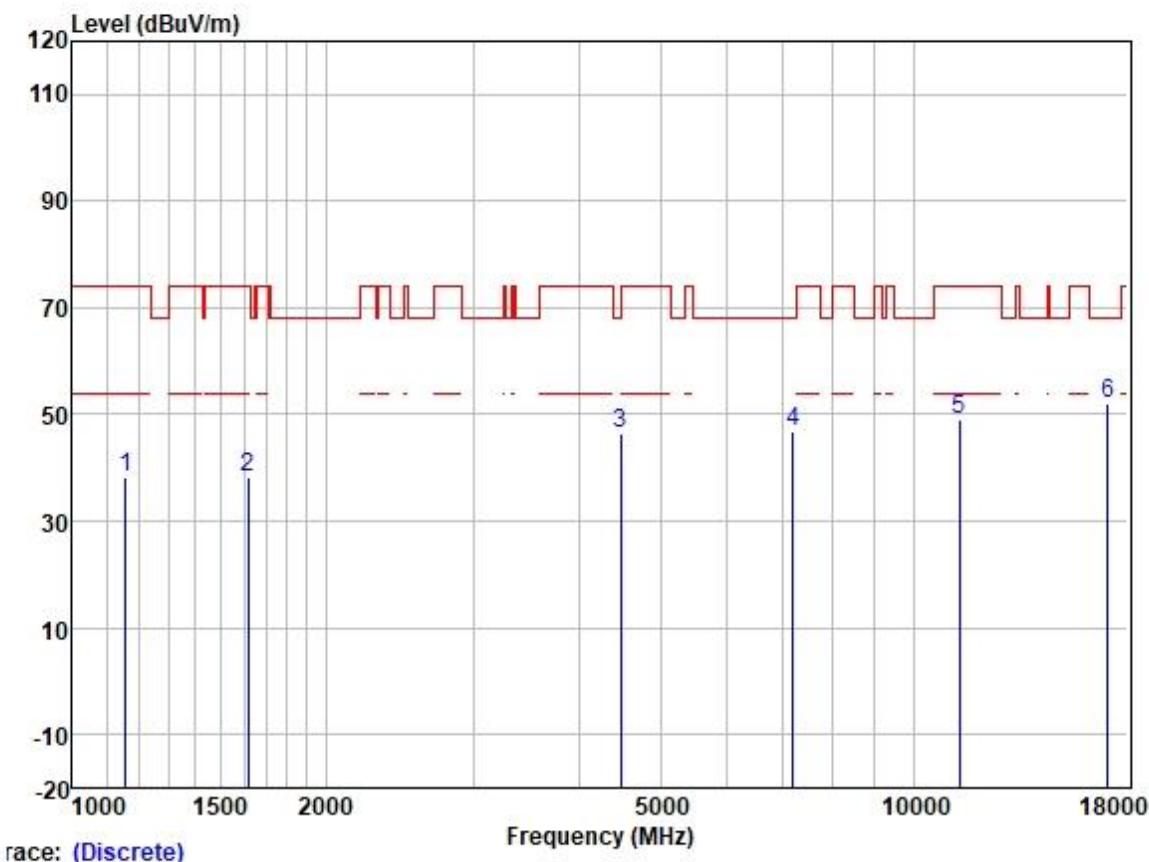
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Test Mode: 04; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



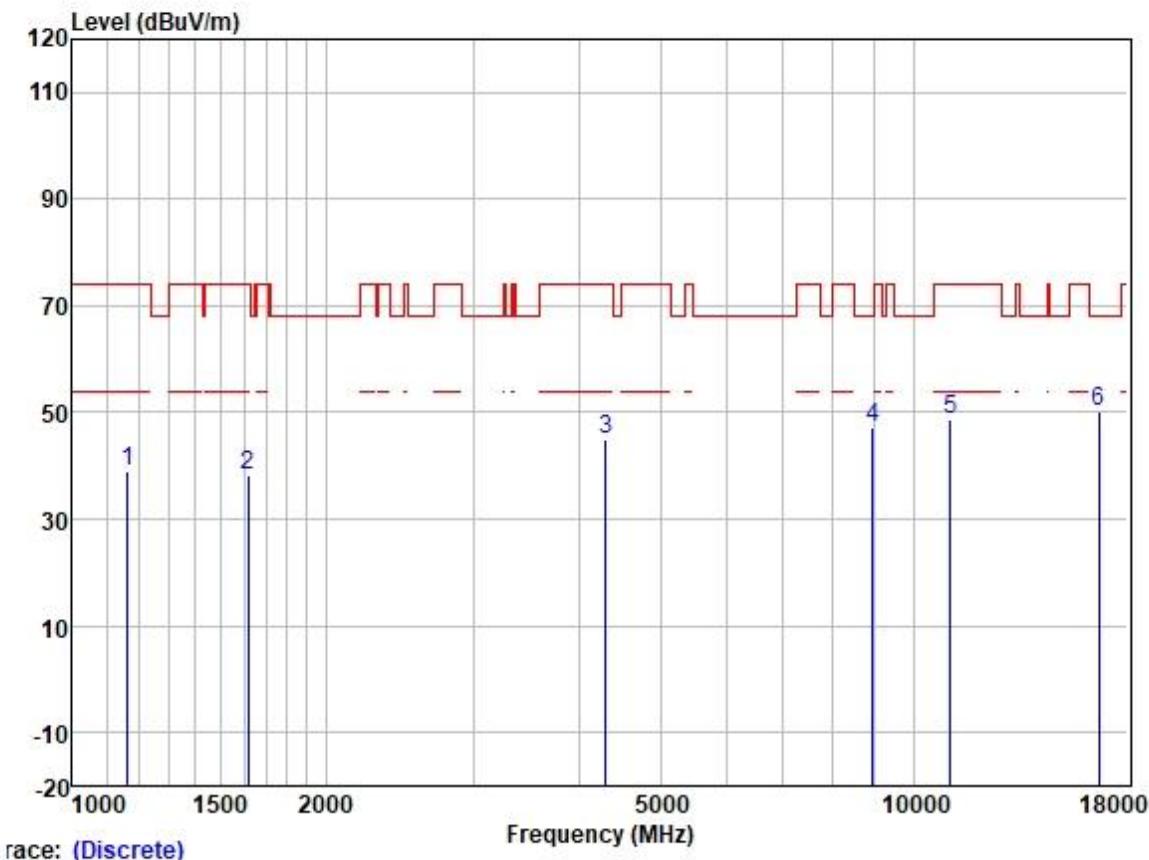
Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
		Freq	Level	Antenna	Loss					
	MHz	dBuV	dB/m		dB	dBuV/m	dBuV/m			
1	1155.483	48.45	25.74		2.38	38.19	38.38	74.00	-35.62	HORIZONTAL peak
2	1615.754	47.45	25.42		2.80	37.55	38.12	74.00	-35.88	HORIZONTAL peak
3	4482.150	46.14	31.77		4.99	36.61	46.29	68.20	-21.91	HORIZONTAL peak
4	7200.309	40.91	36.71		5.98	36.92	46.68	68.20	-21.52	HORIZONTAL peak
5	11340.000	38.61	39.02		8.18	36.57	49.24	74.00	-24.76	HORIZONTAL peak
6	17010.000	39.64	39.28		9.39	36.10	52.21	68.20	-15.99	HORIZONTAL peak

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Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



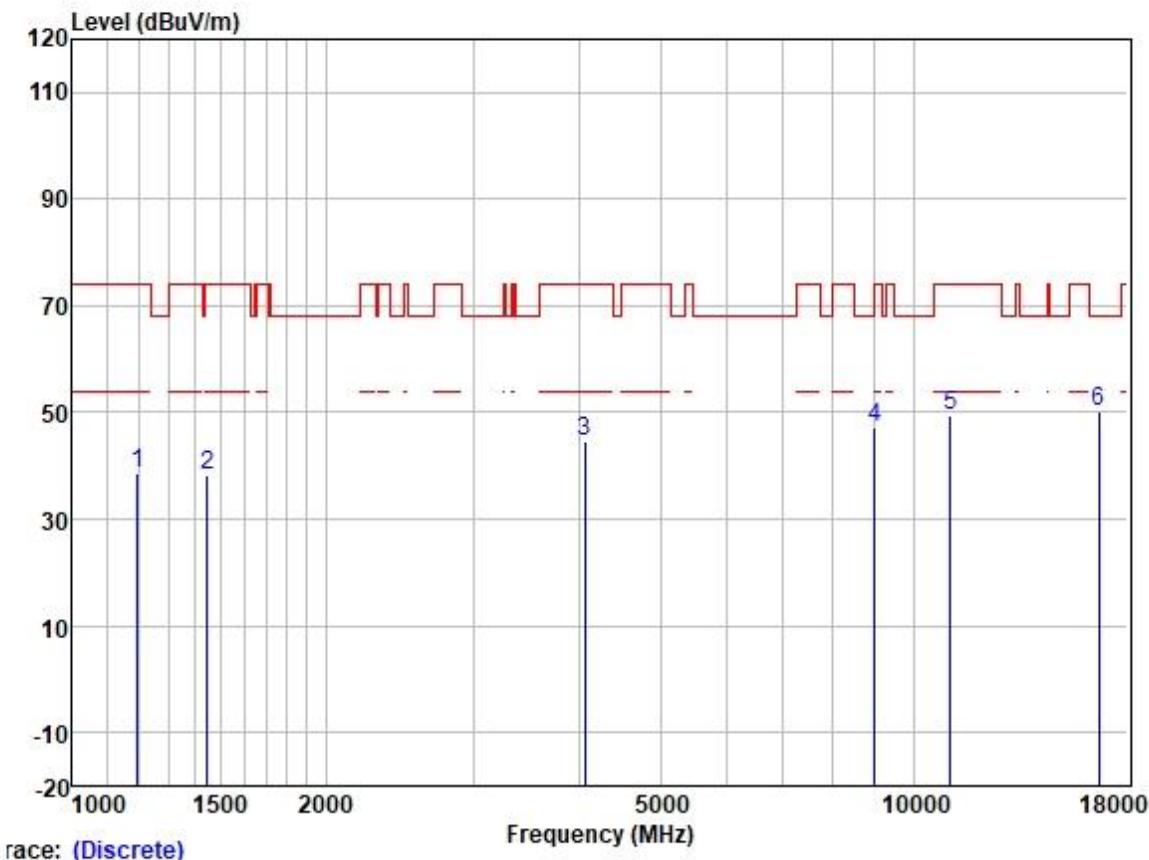
Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
	Freq	Level	Factor	Loss					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1162.182	48.81	25.78	2.40	38.19	38.80	74.00	-35.20	VERTICAL	peak
2 1615.754	47.57	25.42	2.80	37.55	38.24	74.00	-35.76	VERTICAL	peak
3 4304.400	45.30	31.60	4.65	36.65	44.90	74.00	-29.10	VERTICAL	peak
4 8943.274	38.80	38.01	7.49	37.08	47.22	68.20	-20.98	VERTICAL	peak
5 11060.000	38.49	38.97	7.74	36.63	48.57	74.00	-25.43	VERTICAL	peak
6 16590.000	37.77	39.17	9.43	36.22	50.15	68.20	-18.05	VERTICAL	peak

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Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



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 1196.264	48.49	25.89	2.35	38.14	38.59	74.00	-35.41	74.00	-35.41	HORIZONTAL	peak
2 1447.688	47.87	25.65	2.70	37.84	38.38	74.00	-35.62	74.00	-35.62	HORIZONTAL	peak
3 4062.629	45.58	31.11	4.60	36.69	44.60	74.00	-29.40	74.00	-29.40	HORIZONTAL	peak
4 8995.123	38.74	38.03	7.56	37.05	47.28	68.20	-20.92	68.20	-20.92	HORIZONTAL	peak
5 11060.000	39.53	38.97	7.74	36.63	49.61	74.00	-24.39	74.00	-24.39	HORIZONTAL	peak
6 16590.000	37.80	39.17	9.43	36.22	50.18	68.20	-18.02	68.20	-18.02	HORIZONTAL	peak

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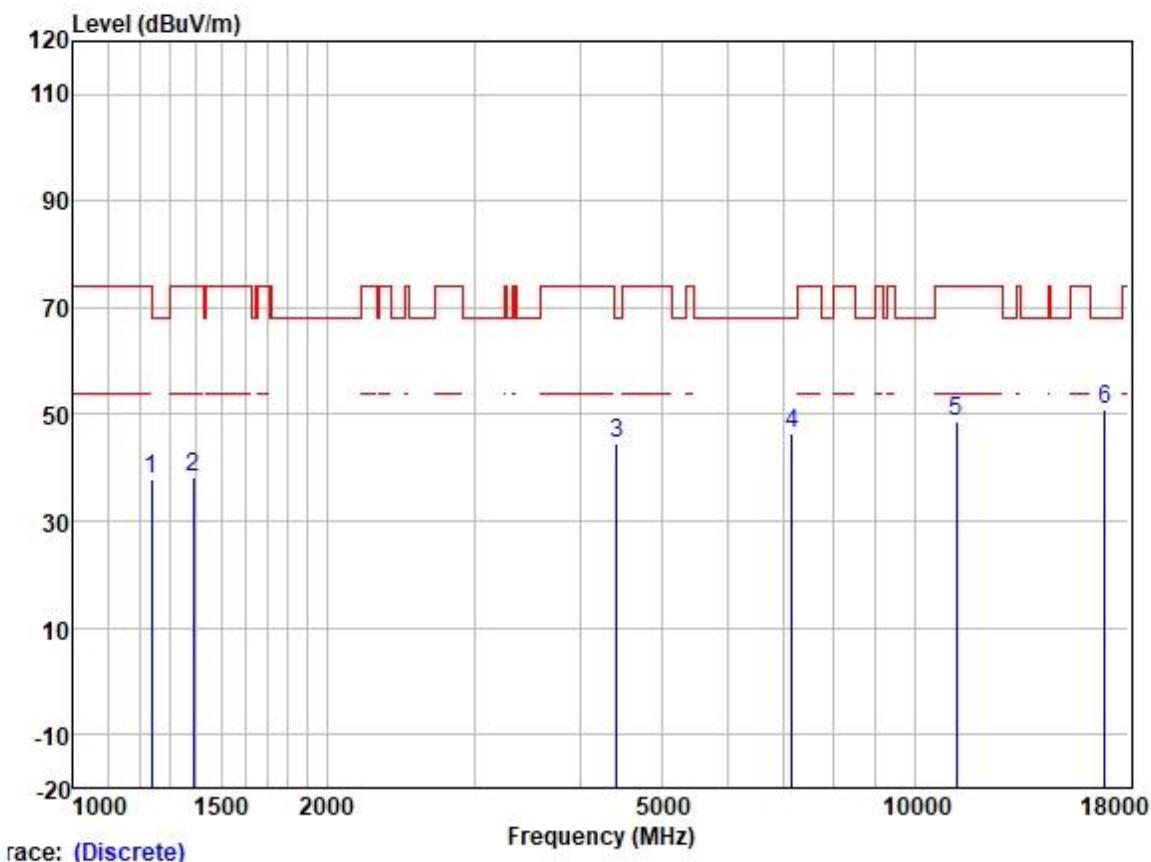
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Test Mode: 04; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:High



Freq	ReadAntenna		Cable		Preamp		Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	Line					
MHz	dBuV	dB/m		dB	dB	dBuV/m	dBuV/m		dB		
1 1238.483	47.90	25.94	2.30	38.10	38.04	74.00	-35.96	VERTICAL	peak		
2 1390.276	47.82	25.76	2.60	37.92	38.26	74.00	-35.74	VERTICAL	peak		
3 4430.628	44.75	31.77	4.78	36.62	44.68	68.20	-23.52	VERTICAL	peak		
4 7158.806	40.81	36.61	5.94	36.88	46.48	68.20	-21.72	VERTICAL	peak		
5 11220.000	38.25	39.00	7.95	36.59	48.61	74.00	-25.39	VERTICAL	peak		
6 16830.000	38.44	39.26	9.40	36.17	50.93	68.20	-17.27	VERTICAL	peak		

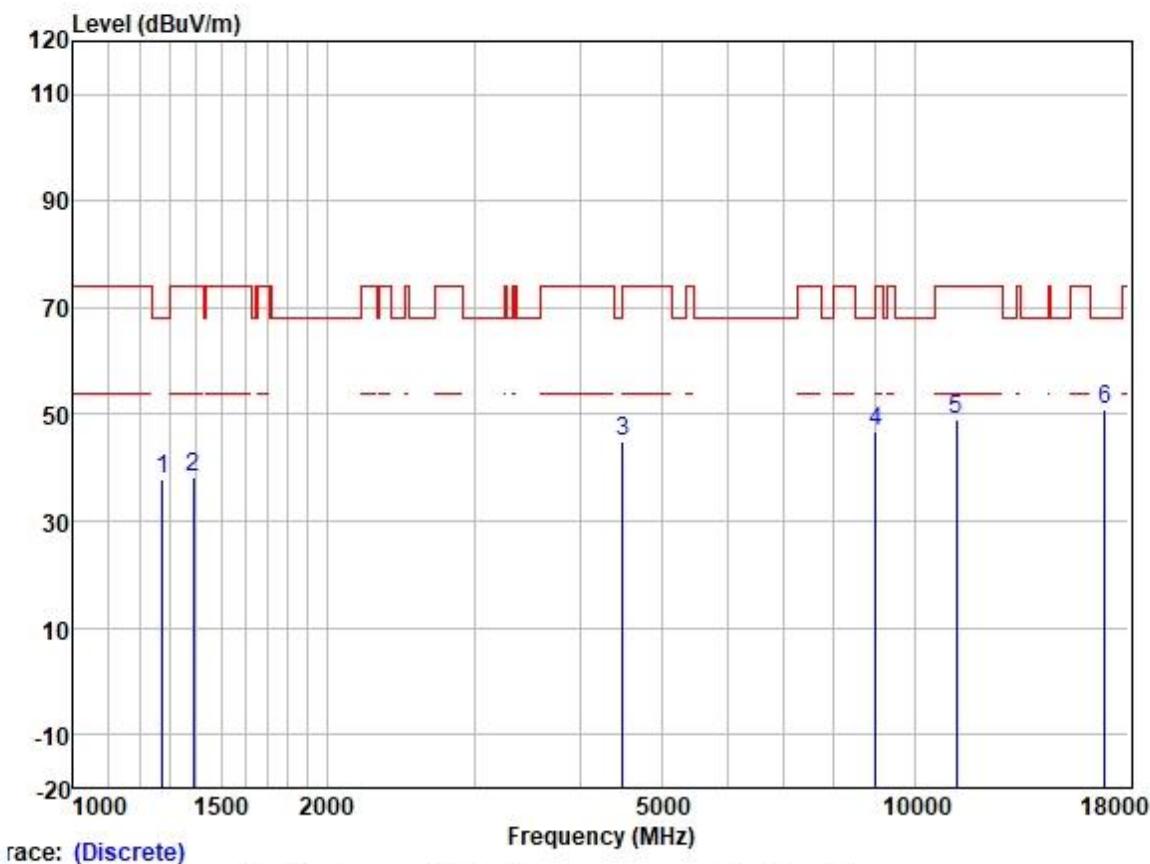
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Test Mode: 04; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:High



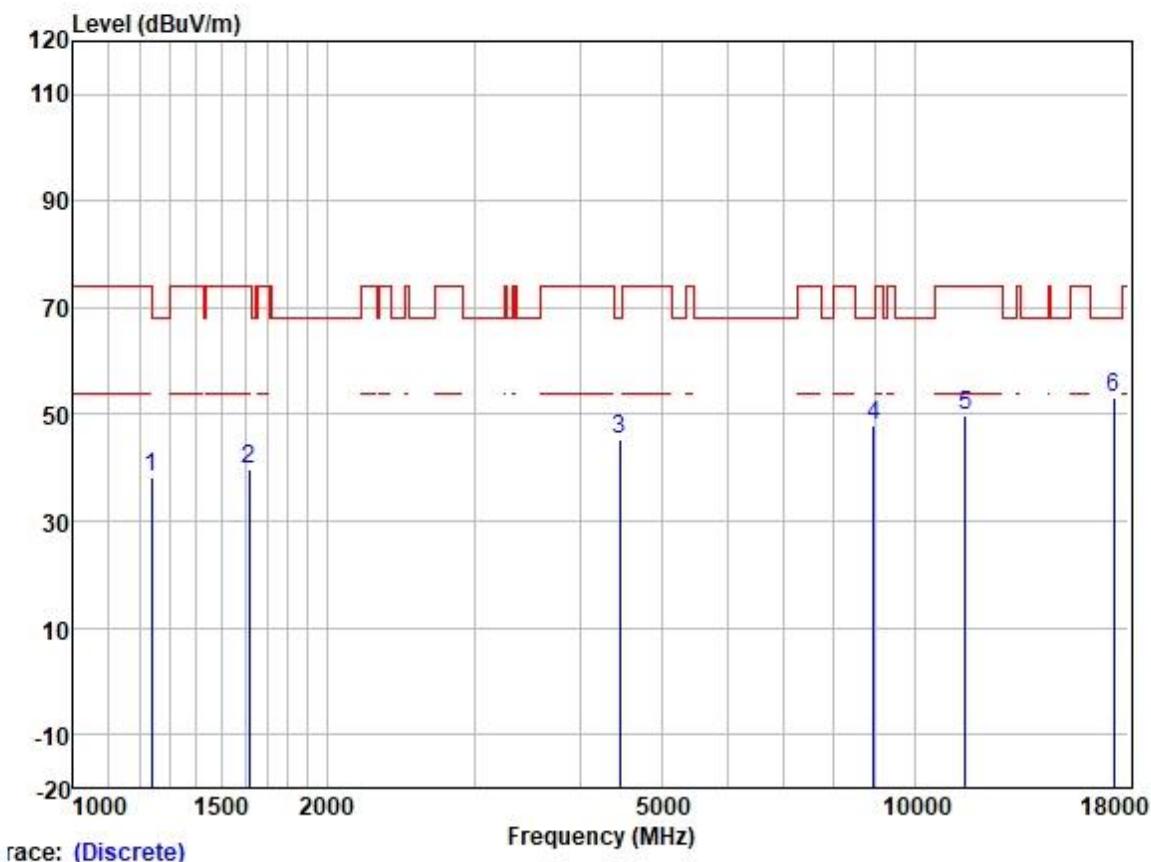
Race: (Discrete)	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
		Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1274.802	47.65	25.98	2.48	38.07	38.04	68.20	-30.16	HORIZONTAL	peak
2	1390.276	47.70	25.76	2.60	37.92	38.14	74.00	-35.86	HORIZONTAL	peak
3	4495.125	44.68	31.77	5.05	36.60	44.90	68.20	-23.30	HORIZONTAL	peak
4	8995.123	38.43	38.03	7.56	37.05	46.97	68.20	-21.23	HORIZONTAL	peak
5	11220.000	38.61	39.00	7.95	36.59	48.97	74.00	-25.03	HORIZONTAL	peak
6	16830.000	38.38	39.26	9.40	36.17	50.87	68.20	-17.33	HORIZONTAL	peak

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Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Race: (Discrete)

Freq	ReadAntenna Level	Antenna Factor	Cable Loss		Preamp Factor	Level	Limit Line	Over Limit	Over Pol/Phase	Remark
			MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m	dB	
1	1238.483	48.14	25.94	2.30	38.10	38.28	74.00	-35.72	VERTICAL	peak
2	1615.754	49.05	25.42	2.80	37.55	39.72	74.00	-34.28	VERTICAL	peak
3	4456.315	45.13	31.77	4.88	36.62	45.16	68.20	-23.04	VERTICAL	peak
4	8943.274	39.57	38.01	7.49	37.08	47.99	68.20	-20.21	VERTICAL	peak
5	11490.000	38.97	38.86	8.41	36.55	49.69	74.00	-24.31	VERTICAL	peak
6	17235.000	39.27	39.72	10.08	36.02	53.05	68.20	-15.15	VERTICAL	peak

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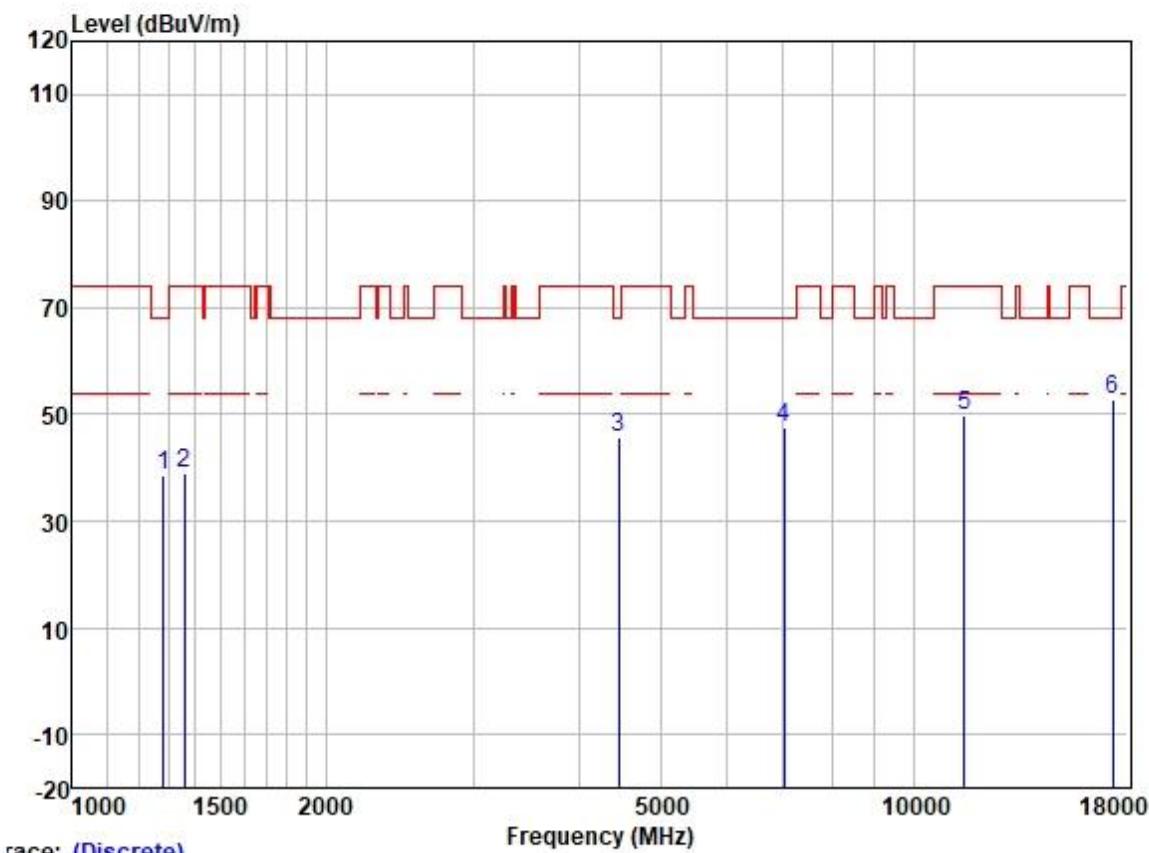
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Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



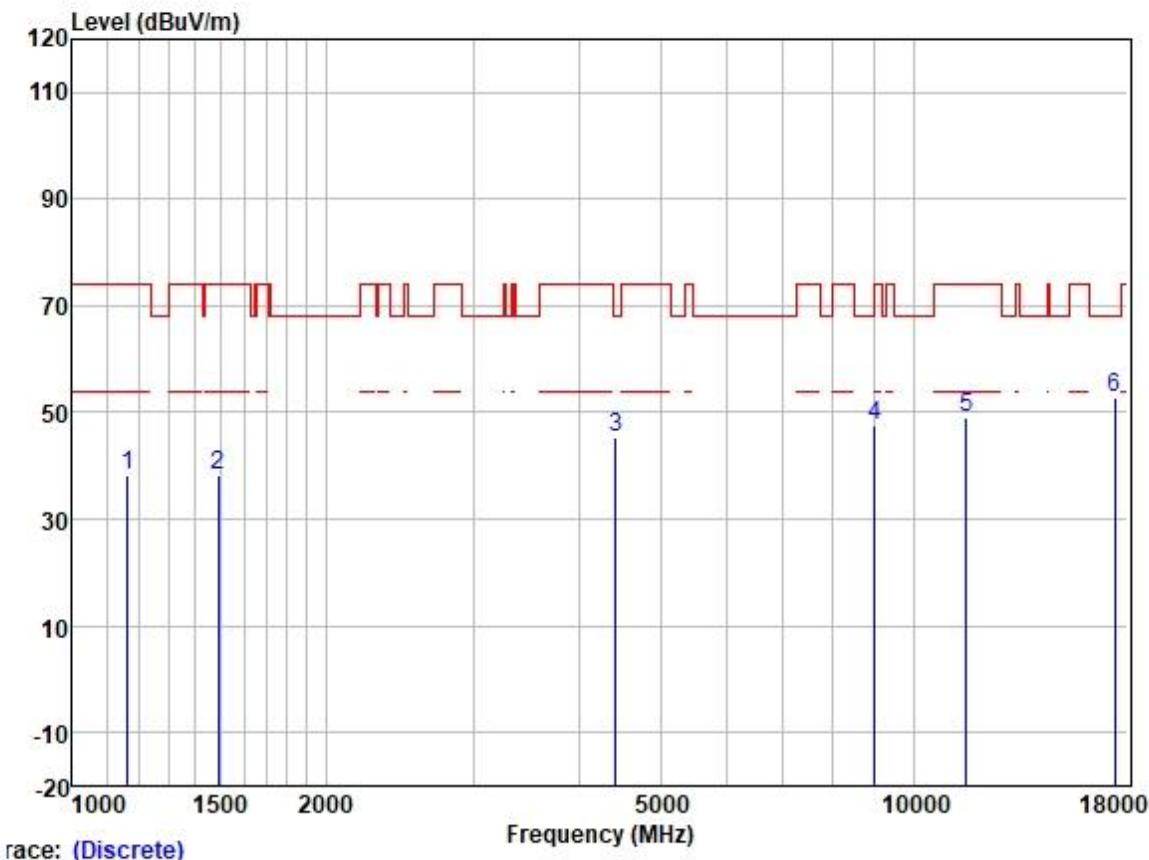
Freq	ReadAntenna Level	Antenna Factor	Cable Loss		Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
			dBuV	dB/m						
1 1282.193	48.00	25.99	2.52	38.07	38.44	68.20	-29.76	HORIZONTAL	peak	
2 1358.498	48.58	25.84	2.60	37.99	39.03	74.00	-34.97	HORIZONTAL	peak	
3 4456.315	45.60	31.77	4.88	36.62	45.63	68.20	-22.57	HORIZONTAL	peak	
4 7015.420	42.57	36.03	5.82	36.74	47.68	68.20	-20.52	HORIZONTAL	peak	
5 11490.000	39.08	38.86	8.41	36.55	49.80	74.00	-24.20	HORIZONTAL	peak	
6 17235.000	39.10	39.72	10.08	36.02	52.88	68.20	-15.32	HORIZONTAL	peak	

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Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



Race: (Discrete)	Freq	ReadAntenna		Cable		Preamp		Limit	Over	Over	Remark
		Level	Factor	Loss	Factor	Level	Line				
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB			
1	1162.182	48.31	25.78	2.40	38.19	38.30	74.00	-35.70	VERTICAL	peak	
2	1490.142	47.74	25.57	2.79	37.75	38.35	74.00	-35.65	VERTICAL	peak	
3	4430.628	45.22	31.77	4.78	36.62	45.15	68.20	-23.05	VERTICAL	peak	
4	8995.123	38.90	38.03	7.56	37.05	47.44	68.20	-20.76	VERTICAL	peak	
5	11570.000	38.49	38.73	8.38	36.54	49.06	74.00	-24.94	VERTICAL	peak	
6	17355.000	38.47	39.99	10.39	35.99	52.86	68.20	-15.34	VERTICAL	peak	

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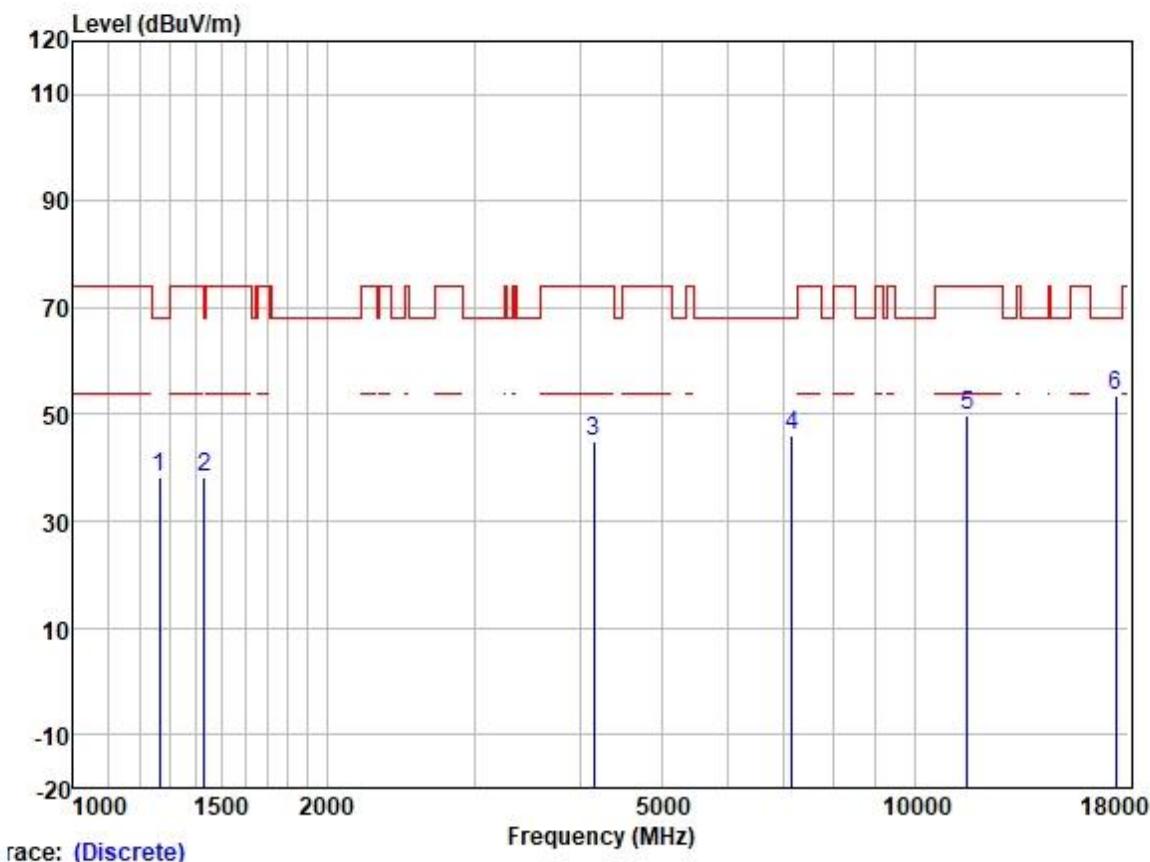
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Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



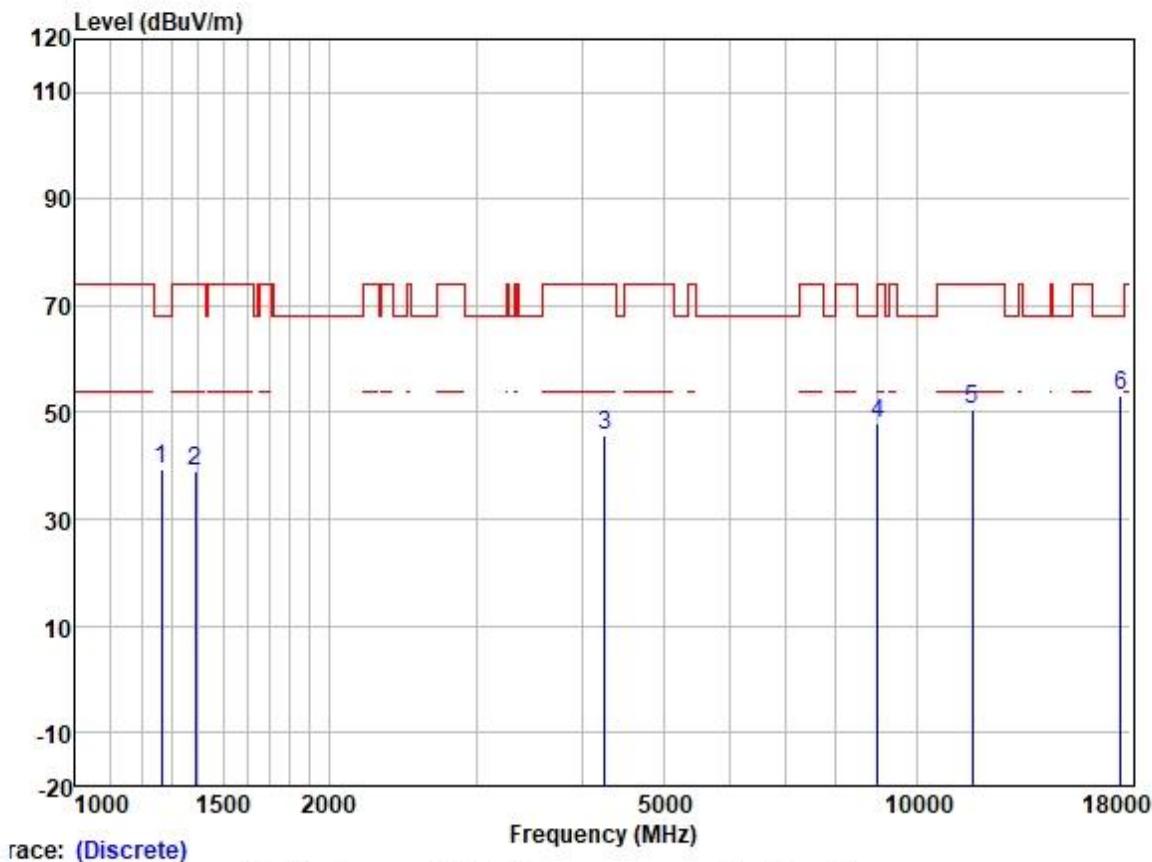
Freq	ReadAntenna		Cable		Preamp	Limit	Over	Over	Remark
	Freq	Level	Antenna	Loss		Line	Line	Pol/Phase	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	
1 1267.454	47.75	25.97	2.44	38.07	38.09	68.20	-30.11	HORIZONTAL	peak
2 1431.047	47.70	25.69	2.66	37.88	38.17	68.20	-30.03	HORIZONTAL	peak
3 4157.664	45.83	31.23	4.60	36.68	44.98	74.00	-29.02	HORIZONTAL	peak
4 7158.806	40.58	36.61	5.94	36.88	46.25	68.20	-21.95	HORIZONTAL	peak
5 11570.000	39.09	38.73	8.38	36.54	49.66	74.00	-24.34	HORIZONTAL	peak
6 17355.000	39.10	39.99	10.39	35.99	53.49	68.20	-14.71	HORIZONTAL	peak

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Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Freq	ReadAntenna Level	Cable Loss	Preamp Factor	Limit		Over Line Limit	Over Pol/Phase	Remark	
				MHz	dBuV	dB/m	dB	dBuV/m	dBuV/m
1 1267.454	48.94	25.97	2.44	38.07	39.28	68.20	-28.92	VERTICAL	peak
2 1390.276	48.72	25.76	2.60	37.92	39.16	74.00	-34.84	VERTICAL	peak
3 4254.921	46.20	31.45	4.62	36.66	45.61	74.00	-28.39	VERTICAL	peak
4 8995.123	39.26	38.03	7.56	37.05	47.80	68.20	-20.40	VERTICAL	peak
5 11650.000	39.95	38.64	8.35	36.53	50.41	74.00	-23.59	VERTICAL	peak
6 17475.000	37.98	40.38	10.77	35.97	53.16	68.20	-15.04	VERTICAL	peak

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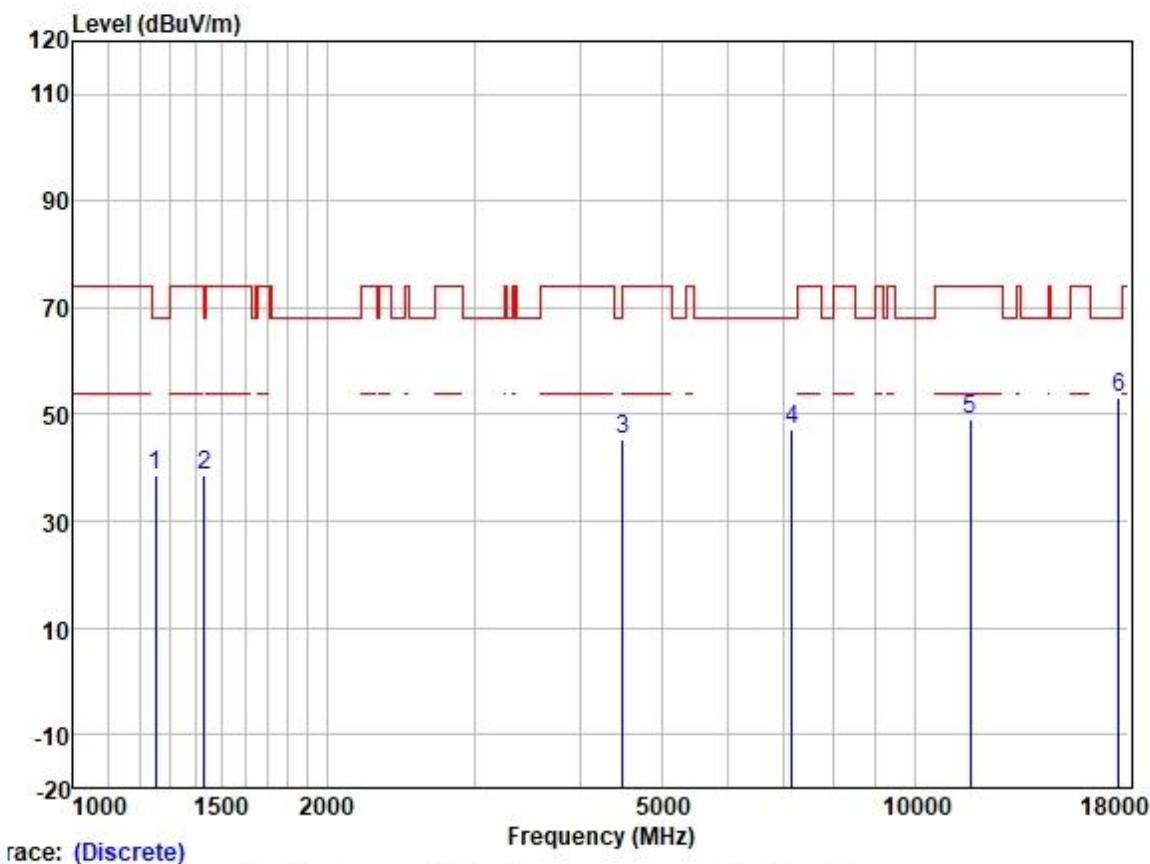
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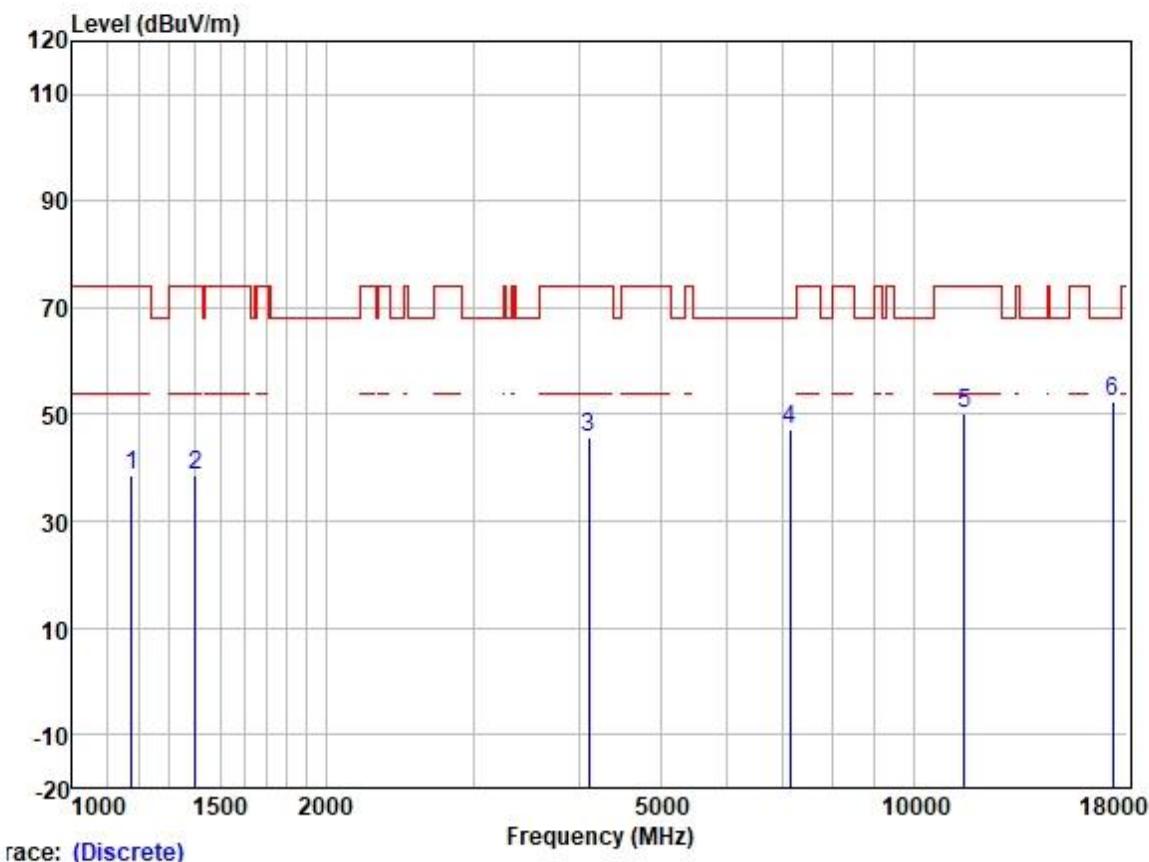
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Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Race: (Discrete)	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
		Level	Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1175.697	48.44	25.83	2.38	38.17	38.48	74.00	-35.52	VERTICAL	peak
2	1398.336	48.15	25.74	2.60	37.92	38.57	74.00	-35.43	VERTICAL	peak
3	4109.872	46.57	31.14	4.60	36.68	45.63	74.00	-28.37	VERTICAL	peak
4	7138.144	41.64	36.55	5.92	36.88	47.23	68.20	-20.97	VERTICAL	peak
5	11510.000	39.40	38.86	8.41	36.55	50.12	74.00	-23.88	VERTICAL	peak
6	17265.000	38.41	39.89	10.24	36.01	52.53	68.20	-15.67	VERTICAL	peak

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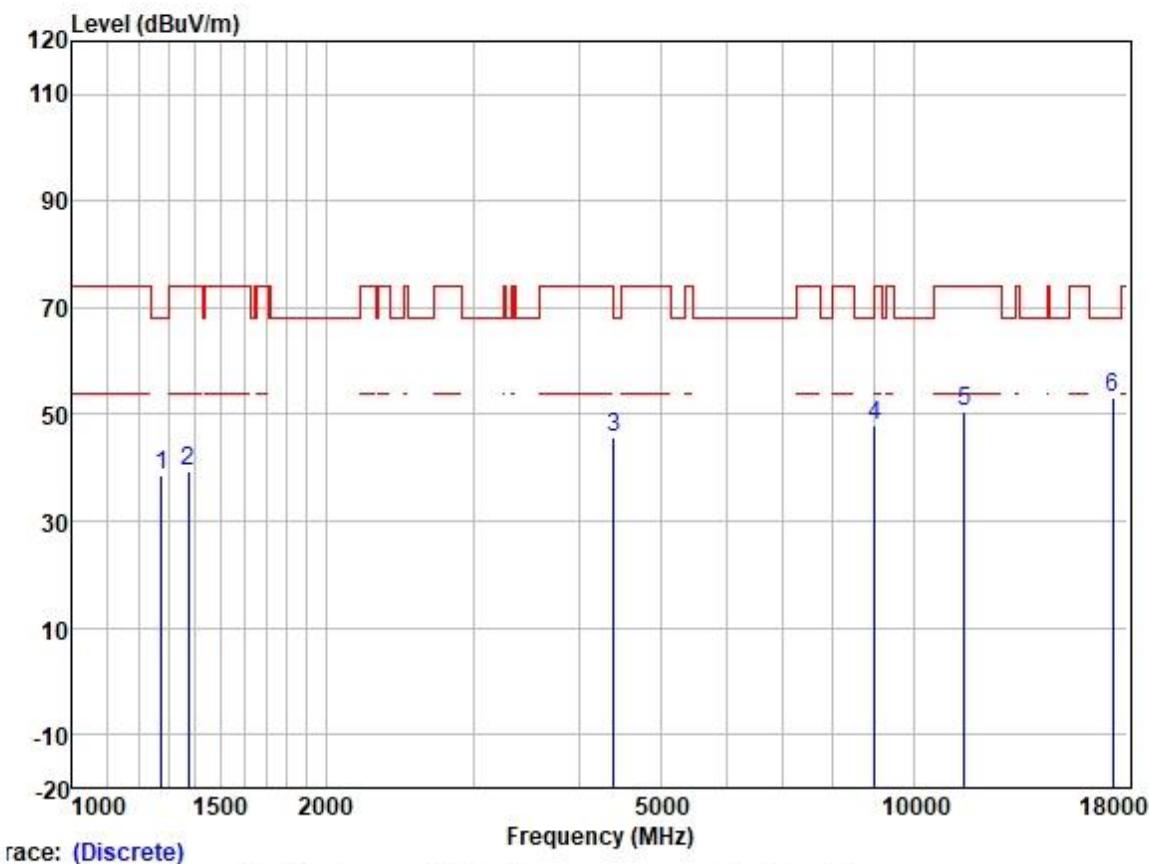
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Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



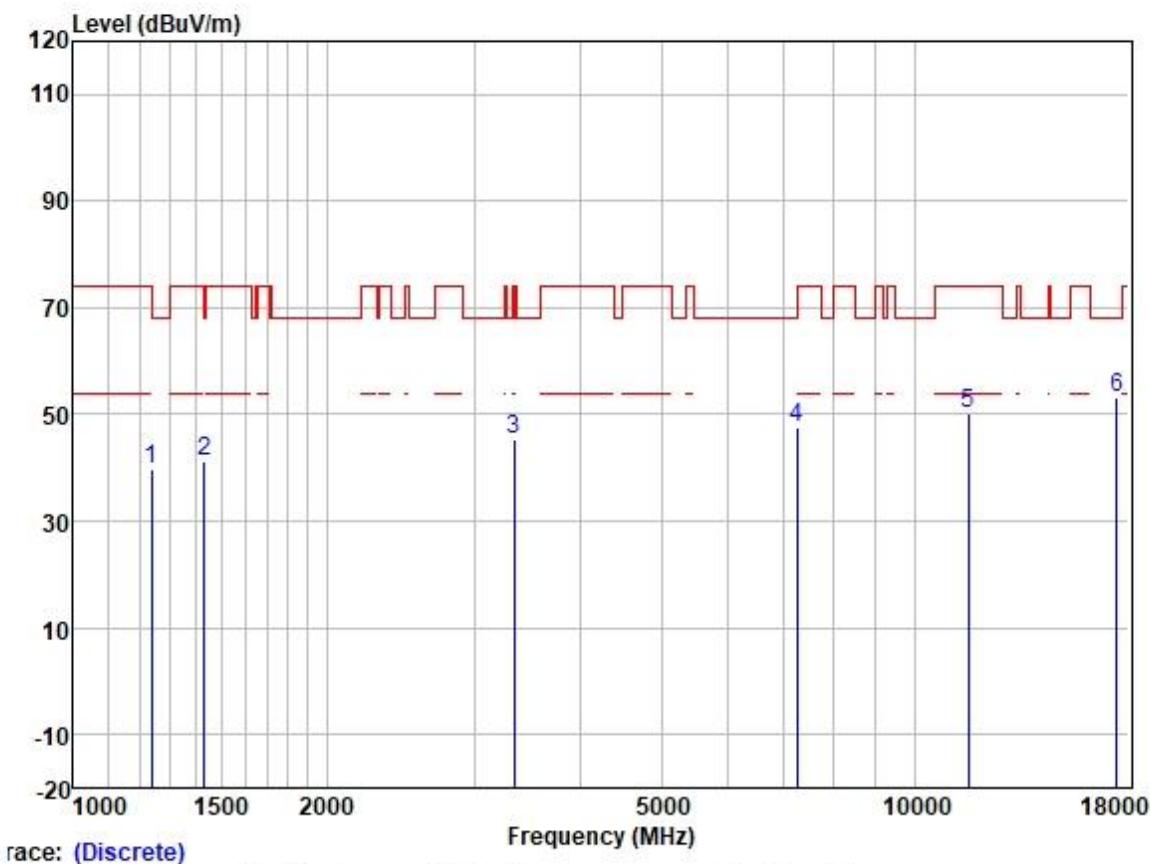
Freq	ReadAntenna Level	Cable Loss	Preamp Factor	Limit		Over Line Limit	Over Pol/Phase	Remark
				dB	dBuV/m			
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1 1274.802	48.31	25.98	2.48	38.07	38.70	68.20	-29.50	HORIZONTAL peak
2 1374.295	48.98	25.79	2.60	37.95	39.42	74.00	-34.58	HORIZONTAL peak
3 4405.090	45.83	31.77	4.70	36.63	45.67	68.20	-22.53	HORIZONTAL peak
4 8995.123	39.48	38.03	7.56	37.05	48.02	68.20	-20.18	HORIZONTAL peak
5 11510.000	39.74	38.86	8.41	36.55	50.46	74.00	-23.54	HORIZONTAL peak
6 17265.000	39.14	39.89	10.24	36.01	53.26	68.20	-14.94	HORIZONTAL peak

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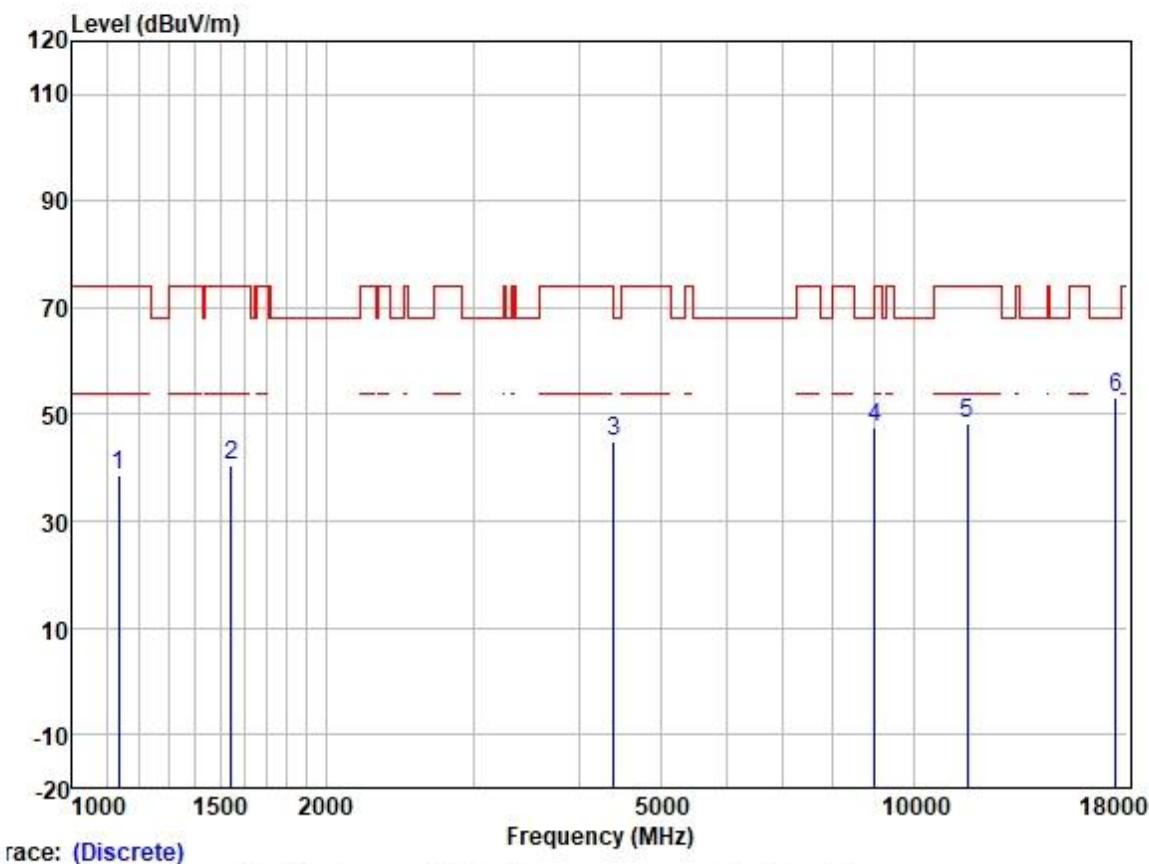
Freq	ReadAntenna		Cable		Preamp		Level	Limit	Over	Pol/Phase	Remark
	Level	Factor	Loss	Factor	Level	Line					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB				
1 1238.483	49.42	25.94	2.30	38.10	39.56	74.00	-34.44	VERTICAL	peak		
2 1431.047	50.59	25.69	2.66	37.88	41.06	68.20	-27.14	VERTICAL	peak		
3 3337.710	48.49	29.76	4.08	36.81	45.52	74.00	-28.48	VERTICAL	peak		
4 7242.052	41.62	36.70	6.03	36.96	47.39	68.20	-20.81	VERTICAL	peak		
5 11590.000	39.84	38.66	8.37	36.54	50.33	74.00	-23.67	VERTICAL	peak		
6 17385.000	38.51	40.10	10.53	35.99	53.15	68.20	-15.05	VERTICAL	peak		

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Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



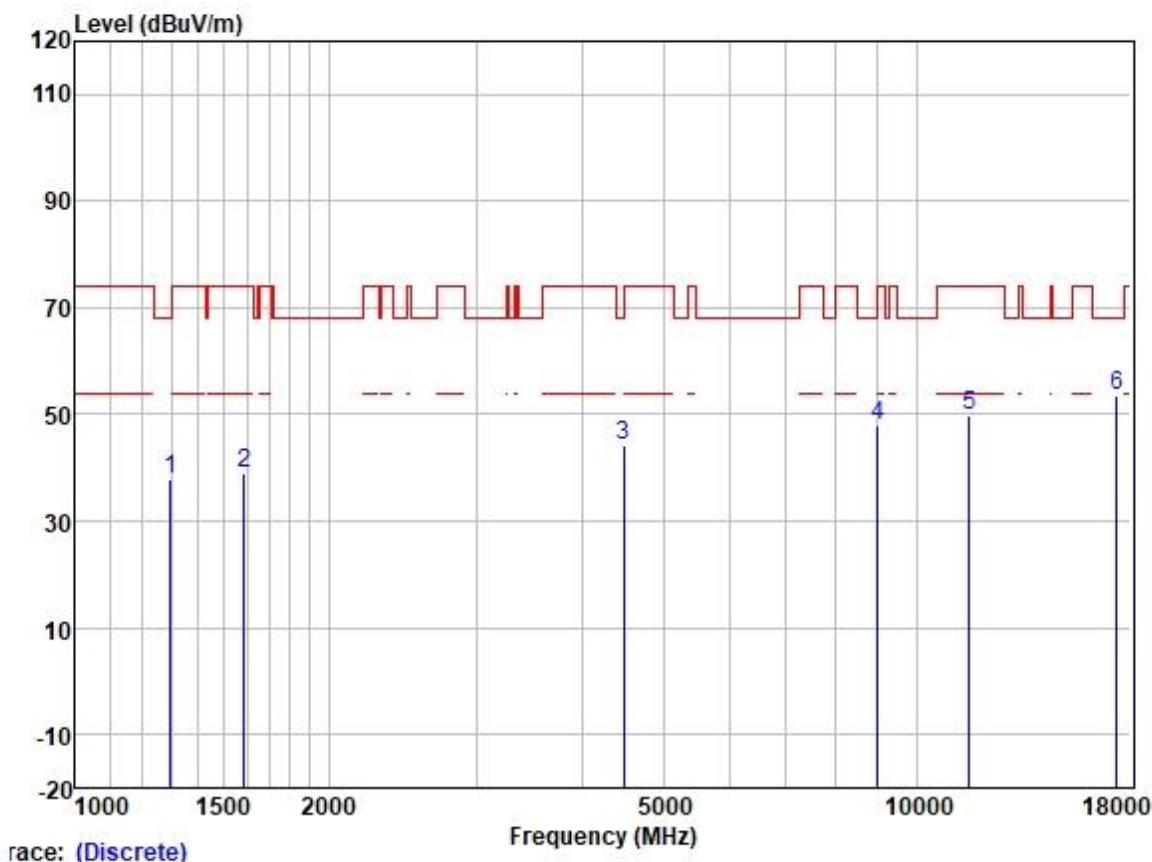
Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Pol/Phase	Remark
	Line	Factor	Loss	Factor					
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 1135.617	49.11	25.63	2.25	38.21	38.78	74.00	-35.22	HORIZONTAL	peak
2 1542.733	50.01	25.51	2.80	37.66	40.66	74.00	-33.34	HORIZONTAL	peak
3 4405.090	45.19	31.77	4.70	36.63	45.03	68.20	-23.17	HORIZONTAL	peak
4 8995.123	38.95	38.03	7.56	37.05	47.49	68.20	-20.71	HORIZONTAL	peak
5 11590.000	37.79	38.66	8.37	36.54	48.28	74.00	-25.72	HORIZONTAL	peak
6 17385.000	38.44	40.10	10.53	35.99	53.08	68.20	-15.12	HORIZONTAL	peak

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Test Mode: 05; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



Freq	Read	Antenna	Cable	Preamp	Limit	Over	Over	Over	Over	Over	Remark
	Freq	Level	Factor	Loss							
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB	dB	dB	dB
1 1297.103	47.49	26.00	2.58	38.04	38.03	68.20	-30.17	VERTICAL	peak	peak	peak
2 1587.975	48.19	25.45	2.80	37.58	38.86	74.00	-35.14	VERTICAL	peak	peak	peak
3 4482.150	44.22	31.77	4.99	36.61	44.37	68.20	-23.83	VERTICAL	peak	peak	peak
4 8995.123	39.33	38.03	7.56	37.05	47.87	68.20	-20.33	VERTICAL	peak	peak	peak
5 11550.000	39.17	38.79	8.40	36.54	49.82	74.00	-24.18	VERTICAL	peak	peak	peak
6 17325.000	39.23	39.99	10.39	36.00	53.61	68.20	-14.59	VERTICAL	peak	peak	peak

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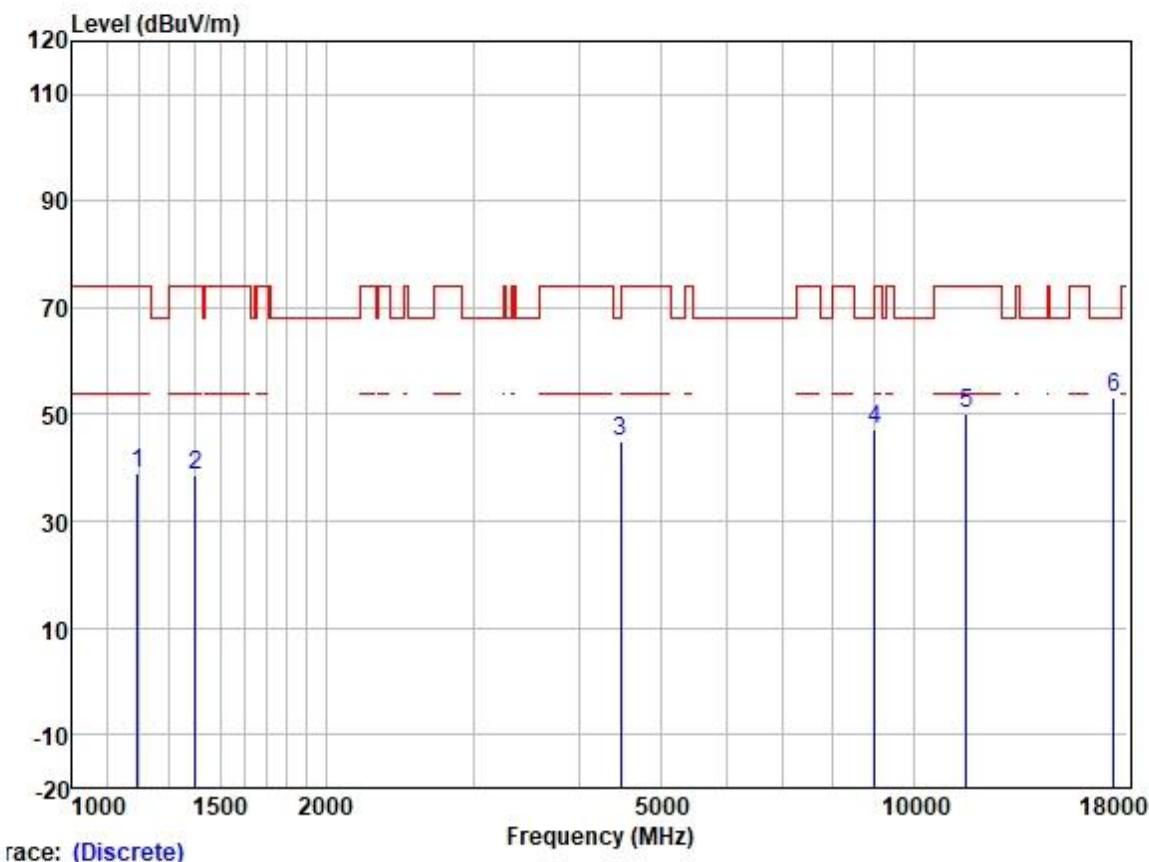
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Test Mode: 05; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



Freq	Read	Antenna	Cable	Preamp	Limit	Over	Limit	Over	Pol/Phase	Remark
	Freq	Level	Factor	Loss						
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	dB		
1 1196.264	48.85	25.89	2.35	38.14	38.95	74.00	-35.05	HORIZONTAL	peak	
2 1398.336	48.11	25.74	2.60	37.92	38.53	74.00	-35.47	HORIZONTAL	peak	
3 4482.150	44.88	31.77	4.99	36.61	45.03	68.20	-23.17	HORIZONTAL	peak	
4 8995.123	38.77	38.03	7.56	37.05	47.31	68.20	-20.89	HORIZONTAL	peak	
5 11550.000	39.37	38.79	8.40	36.54	50.02	74.00	-23.98	HORIZONTAL	peak	
6 17325.000	38.81	39.99	10.39	36.00	53.19	68.20	-15.01	HORIZONTAL	peak	

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7.9 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)

Test Method: KDB 789033 D02 II G

Test Distance: 3m

Limit:

Frequency (MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
Above 960	500	3

*(1) For transmitters operating in the 5.15-5.25 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(2) For transmitters operating in the 5.25-5.35 GHz band: All emissions outside of the 5.15-5.35 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(3) For transmitters operating in the 5.47-5.725 GHz band: All emissions outside of the 5.47-5.725 GHz band shall not exceed an e.i.r.p. of -27 dBm/MHz.

(4) For transmitters operating in the 5.725-5.85 GHz band:

(i) All emissions shall be limited to a level of -27 dBm/MHz at 75 MHz or more above or below the band edge increasing linearly to 10 dBm/MHz at 25 MHz above or below the band edge, and from 25 MHz above or below the band edge increasing linearly to a level of 15.6 dBm/MHz at 5 MHz above or below the band edge, and from 5 MHz above or below the band edge increasing linearly to a level of 27 dBm/MHz at the band edge.

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.

7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 24.1 °C

Humidity: 53.8 % RH

Atmospheric Pressure: 1015 mbar



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7.9.2 Test Mode Description

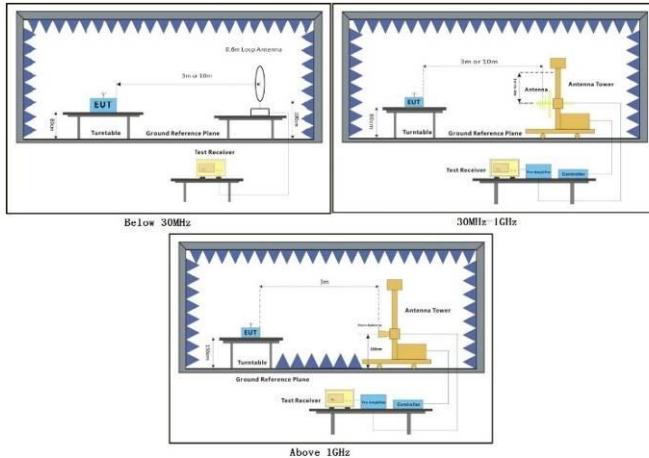
Pre-scan / Final test	Mode Code	Description
Final test	02	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), 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 (U-NII-2A)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-2C)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80), final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	05	TX mode (U-NII-3)_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 @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80);, final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

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

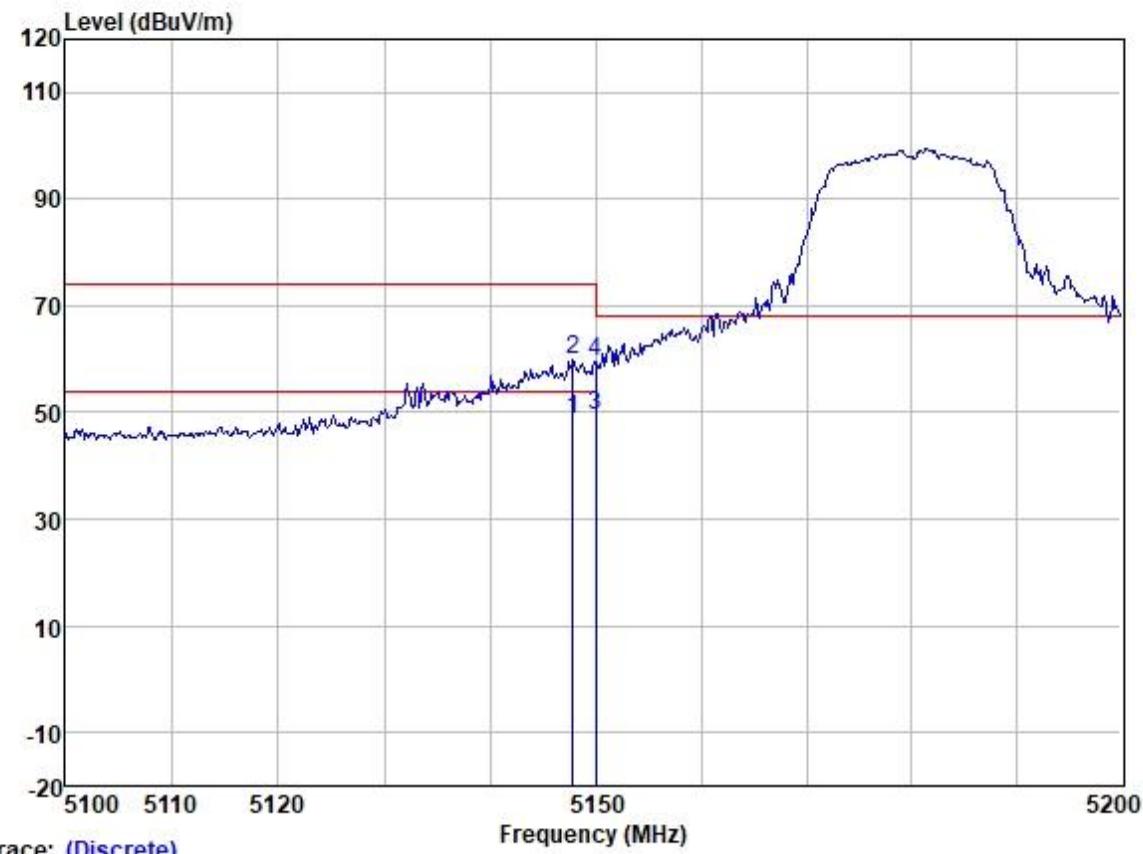
Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor



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Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Race:	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
		Freq	Level Factor	Loss	Factor					
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5147.857	46.22	33.18	5.62	36.31	48.71	54.00	-5.29	VERTICAL	Average
2	5147.857	57.43	33.18	5.62	36.31	59.92	74.00	-14.08	VERTICAL	Peak
3	5150.000	47.09	33.18	5.62	36.31	49.58	54.00	-4.42	VERTICAL	Average
4	5150.000	56.89	33.18	5.62	36.31	59.38	68.20	-8.82	VERTICAL	Peak

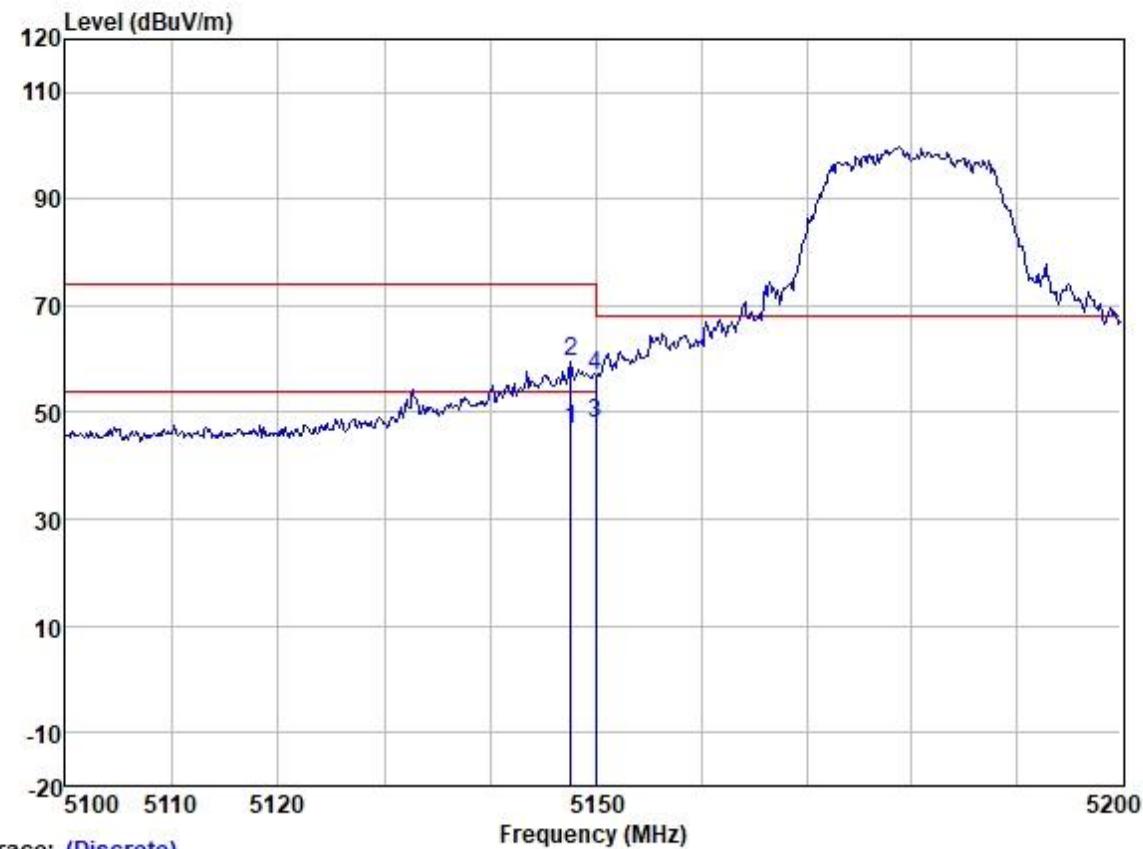
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Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Race: (Discrete)

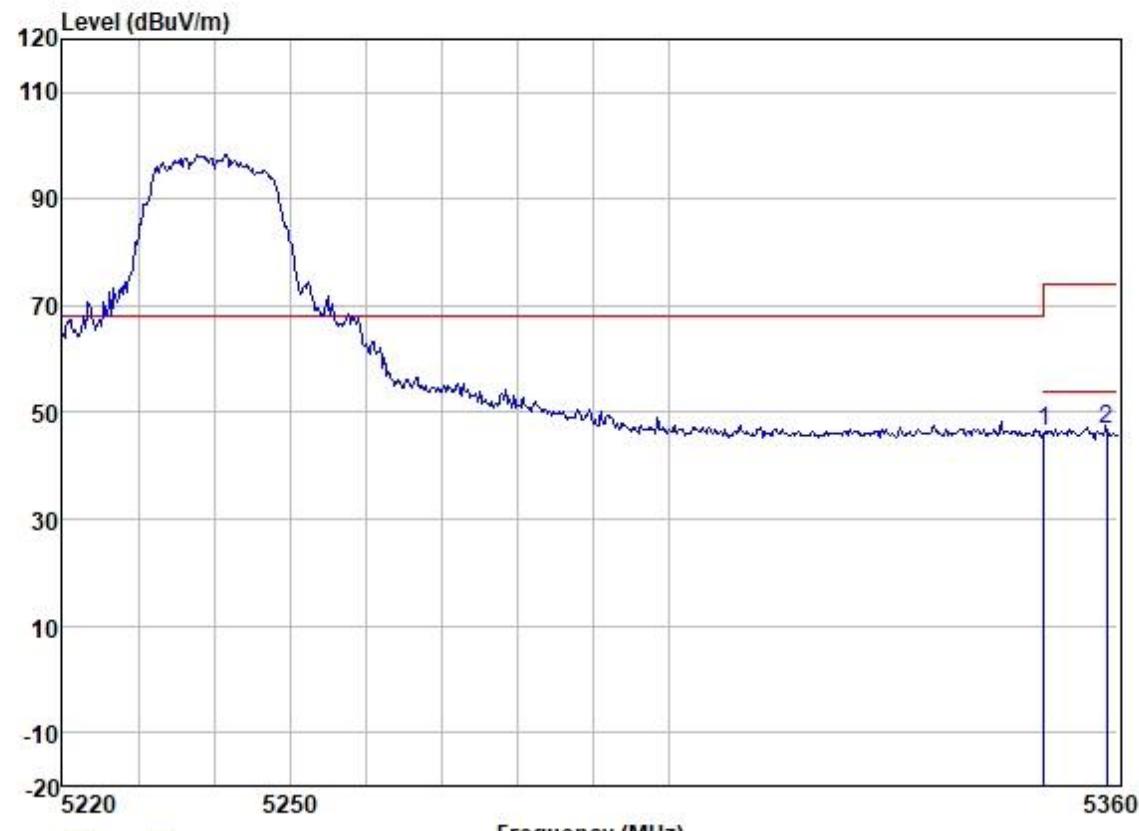
Race	Freq	ReadAntenna		Cable		Preamp	Limit	Over	Pol/Phase	Remark
		MHz	Level	Factor	Loss					
		dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5147.658	44.37	33.18	5.62	36.31	46.86	54.00	-7.14	HORIZONTAL	Average
2	5147.658	56.90	33.18	5.62	36.31	59.39	74.00	-14.61	HORIZONTAL	Peak
3	5150.000	45.61	33.18	5.62	36.31	48.10	54.00	-5.90	HORIZONTAL	Average
4	5150.000	54.43	33.18	5.62	36.31	56.92	68.20	-11.28	HORIZONTAL	Peak

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Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



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