TEST REPORT

Application No.:	GZCR2111021371HS
Applicant:	Echelon Fitness Multimedia, LLC
Address of Applicant:	605 Chestnut Street Suite 700 Chattanooga, TN 37450 USA
Manufacturer:	XIAMEN ZHOULONG SPORTING GOODS CO., LTD.
Address of Manufacturer:	32-36 Rongxi Road, Tong'an District, Xiamen, Fujian, China, 361100
Factory:	XIAMEN ZHOULONG SPORTING GOODS CO., LTD.
Address of Factory:	32-36 Rongxi Road, Tong'an District, Xiamen, Fujian, China, 361100
Equipment Under Test (EUT):	
EUT Name:	Echelon Connect EX-8s
Model No.:	ECHEX-8s-24c
Trade Mark:	Echelon
Standard(s) :	47 CFR Part 15, Subpart E 15.407
Date of Receipt:	2021-11-12
Date of Test:	2022-01-04 to 2022-01-05
Date of Issue:	2022-01-06
Test Result:	**Pass***

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

Kobe Jian
EMC Laboratory Manager

Revision Record			
Version	**Report No.**	**Date**	**Remark**
01	*GZCR211102137105*	*2022-01-06*	*Original*

Authorized for issue by				
		Jim Li **Jim Li/Project Engineer**		
		Ricky Liu **Ricky Liu/Reviewer**		

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 C 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 & 15.407 b(6)	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 C 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 C 15.407 (e)	Pass
Maximum Conducted output power		KDB 789033 D02 II E	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Peak Power spectrum density		KDB 789033 D02 II F	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Radiated Emissions (Above 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 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 & 15.407(b)	Pass
Frequency Stability		KDB 789033 II A 3	47 CFR Part 15, Subpart C 15.407 (g)	Pass
Radiated Emissions (Below 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass

Note:

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

N/A: Not applicable

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

KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

3 Contents

4 General Information

4.1 Details of E.U.T.

Power supply:	Switching Adapter
	Model: SOY-1200800-410-B
	Input: AC 100-240V, 50/60Hz, 1.8A Max.
	Output: DC 12.0V, 8.0A, 96.0W
Test voltage:	AC 120V, 60Hz
Cable(s):	Adapter AC input cable, 3 wires, 1.8m, unshielded.
	Adapter DC output cable, 2 wires, 1.2m, unshielded.
	DC IN port for power supply.
	Type-C port for upgrade firmware.
	Audio Jack port for audio output.
	HDMI port(reserve).
	USB 2.0 port x1 for data transmission.
	USB 3.0 port x1 for data transmission.
	SD CARD slot x1
	RJ45 Port x1 for network connection.
	3.5mm Audio Jack Port for audio output.
Operation Frequency (20MHz):	U-NII-1: 5180-5240MHz
	U-NII-2A: 5260-5320MHz
	U-NII-2C: 5500-5700MHz
	U-NII-3: 5745-5825MHz
Operation Frequency (40MHz):	U-NII-1: 5190-5230MHz
	U-NII-2A: 5270-5310MHz
	U-NII-2C: 5510-5670MHz
	U-NII-3: 5755-5795MHz
Operation Frequency (80MHz):	U-NII-1: 5210MHz
	U-NII-2A: 5290MHz
	U-NII-2C: 5530-5610MHz
	U-NII-3: 5775MHz
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK)
	802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
	802.11ac: 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:	Support TPC function
Antenna Type:	Integral Antenna
Antenna Gain:	Antenna 1: 2 dBi and Antenna 2: 2 dBi declared by applicant.
Remark:	Two antennas can simultaneous transmission

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Note Book Computer	LENOVO	Lenovo Xiaoxinchao 5000	PF0TLJX7
Wireless Router	Honor	HiRouter-CD30	AWTEQ20C04001295

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 3.12dB
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)	± 5.08 dB (1-6GHz); ± 5.14 (above 6 GHz)
Radiated Emissions which fall in the restricted bands	± 5.08 dB (1-6GHz); ± 5.14 (above 6 GHz)
Frequency Stability	± 7.25 x 10^{-8}
Radiated Emissions (Below 1GHz)	± 5.06dB （30MHz-1GHz; 3m） ± 4.46dB （30MHz-1GHz; 10m）

4.4 Test Location

All tests were performed at:

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

198 Kezhu Road, Scientech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663

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

No tests were sub-contracted.

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

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	2020-09-09	2022-09-08
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	2019-10-20	2022-10-19
Two-Line V-Network-GZ	Rohde & Schwarz	ENV216	EMC2135	2021-09-24	2022-09-23
EMI Test Receiver (9kHz-3.6GHz)	Rohde & Schwarz	ESR3	EMC2221	2021-06-01	2022-05-31
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	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2021-06-22	2022-06-21
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2021-08-30	2022-08-29
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	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2021-06-22	2022-06-21
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2021-08-30	2022-08-29
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	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2021-06-22	2022-06-21
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2021-08-30	2022-08-29
Test Software	TST	V2.0	GZE100-78	N/A	N/A

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	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2021-06-22	2022-06-21
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2021-08-30	2022-08-29
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	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2021-06-22	2022-06-21
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2021-08-30	2022-08-29
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	EMC2136	2021-11-02	2023-11-01
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2222	2021-06-22	2022-06-21
4X4 Power sensor Unit	TST	TSPS2023R	EMC2226	2021-08-30	2022-08-29
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	2020-09-09	2022-09-08
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2019-09-25	2022-09-24
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	2021-07-29	2022-07-28
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

Radiated Emissions which fall in the restricted bands					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	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	2020-09-09	2022-09-08
Horn Antenna (1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2019-09-25	2022-09-24
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

Radiated Emissions (Below 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
Chamber cable	HangTianXing	N/A	EMC0542	2020-09-09	2022-09-08
Amplifier (9kHz-1.3GHz)	HP	8447F	EMC2065	2021-05-19	2022-05-18
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2020-04-16	2022-04-15
EMI Test Receiver (1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2220	2021-05-26	2022-05-25
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A
Trilog Broadband Antenna (25MHz-1GHz)-Lab	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22

General used equipment					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
DMM	Fluke	73	EMC0006	2021-07-05	2022-07-05

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 a 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 1: 2 dBi; Antenna 2: 2 dBi; the directional gain is: 5.01 dBi.

EUT support 2x2 MIMO for 802.11a/n/ac, any transmit signals are correlated with each other, as unequal antenna gains for antenna 1 and antenna 2 but with equal transmit power, therefore,

$$\text{Directional gain} = G_{\text{ANT}} + 10 \log (N_{\text{ANT}}) \text{ dBi}$$

Directional gain= 2+10log (2) dBi=**5.01 dBi**

6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.407 (c)

6.2.2 Conclusion

Standard Requirement:

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 signaling 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:

Wi-Fi chip (AP6725S) support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detects absence of information to transmit or operational failure, it will be automatically shut off.

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 & 15.407 b(6)

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

Limit:

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

7.1.1 E.U.T. Operation

Operating Environment:

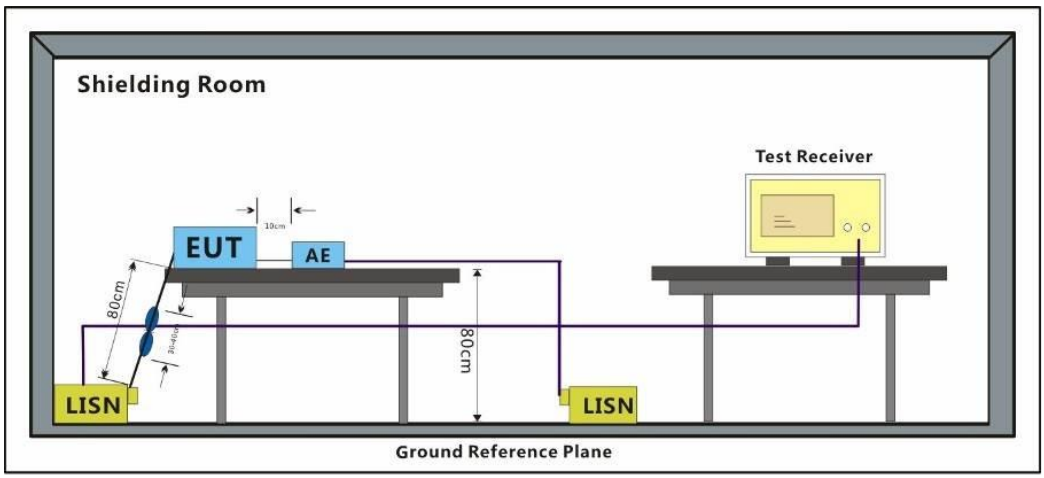
Temperature: 21.5 °C Humidity: 64.1 % RH Atmospheric Pressure: 1018 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	08	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). Only the data of worst case is recorded in the report.
Pre-scan	09	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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.

Pre-scan	11	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). Only the data of worst case is recorded in the report.

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/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.

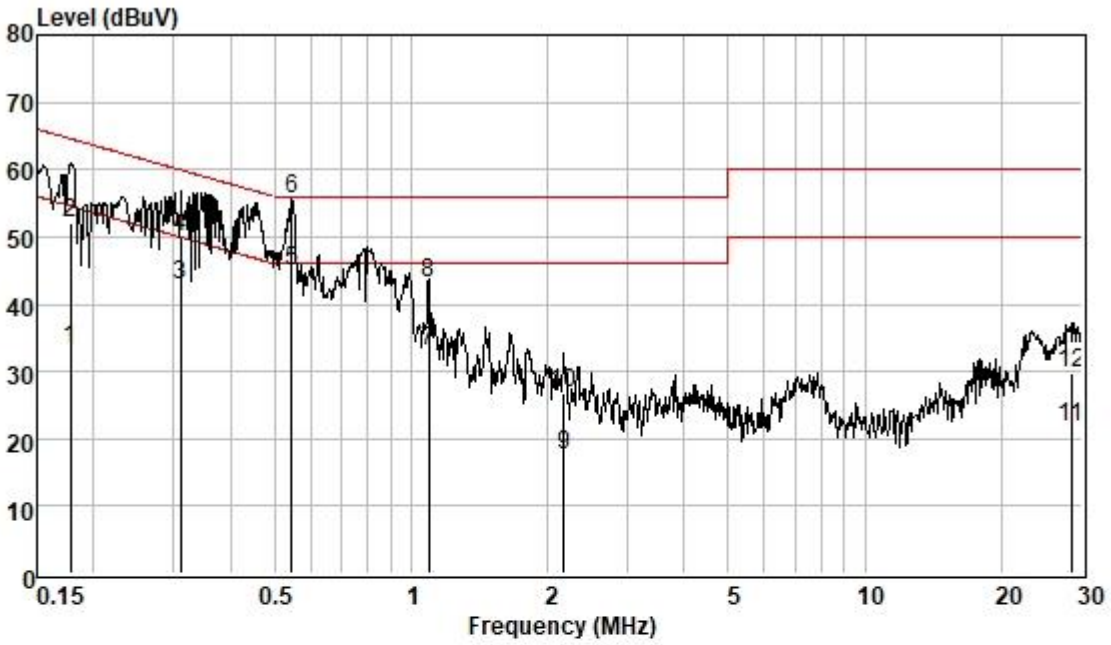
3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,

4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.

5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

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

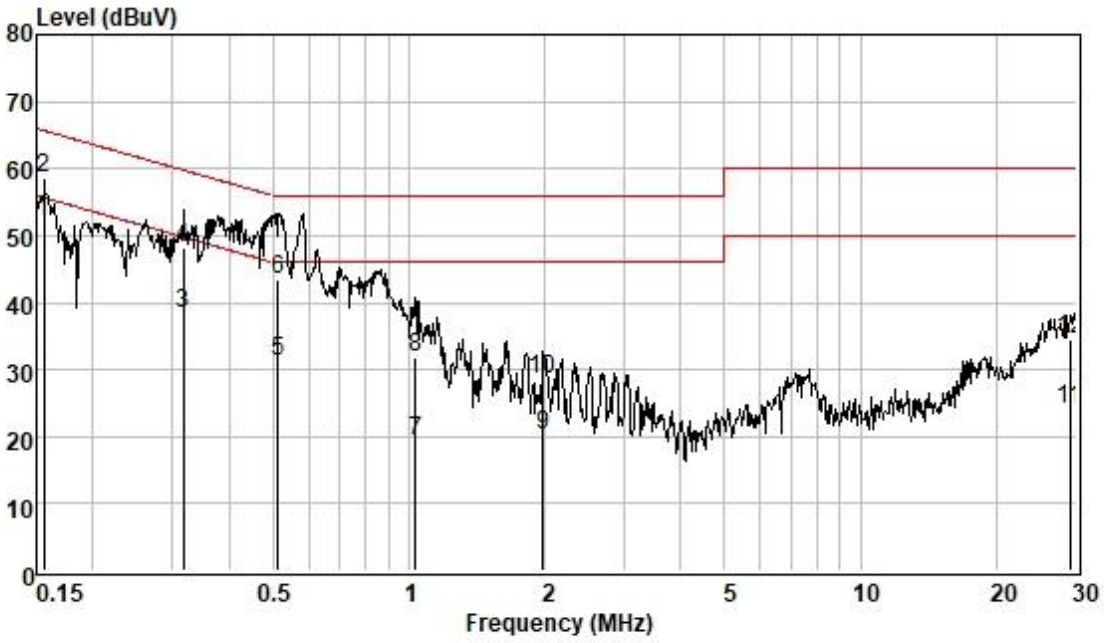
Test Mode: 10; Line: Live line



Pol :LINE
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.18	23.58	0.06	9.55	33.19	54.59	-21.40	Average
0.18	42.49	0.06	9.55	52.10	64.59	-12.49	QP
0.31	33.33	0.06	9.57	42.96	49.97	-7.01	Average
0.31	40.47	0.06	9.57	50.10	59.97	-9.87	QP
0.55	35.32	0.07	9.59	44.98	46.00	-1.02	Average
0.55	45.98	0.07	9.59	55.64	56.00	-0.36	QP
1.09	23.45	0.08	9.60	33.13	46.00	-12.87	Average
1.09	33.39	0.08	9.60	43.07	56.00	-12.93	QP
2.17	7.94	0.12	9.60	17.66	46.00	-28.34	Average
2.17	17.14	0.12	9.60	26.86	56.00	-29.14	QP
28.45	11.61	0.43	9.75	21.79	50.00	-28.21	Average
28.45	19.60	0.43	9.75	29.78	60.00	-30.22	QP

Test Mode: 10; Line: Neutral Line



Pol :NEUTRAL
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.16	42.58	0.06	9.53	52.17	55.69	-3.52	Average
0.16	49.05	0.06	9.53	58.64	65.69	-7.05	QP
0.32	28.60	0.06	9.57	38.23	49.80	-11.57	Average
0.32	38.63	0.06	9.57	48.26	59.80	-11.54	QP
0.51	21.52	0.07	9.58	31.17	46.00	-14.83	Average
0.51	33.88	0.07	9.58	43.53	56.00	-12.47	QP
1.03	9.57	0.07	9.59	19.23	46.00	-26.77	Average
1.03	22.29	0.07	9.59	31.95	56.00	-24.05	QP
1.98	10.52	0.12	9.59	20.23	46.00	-25.77	Average
1.98	18.98	0.12	9.59	28.69	56.00	-27.31	QP
29.06	13.83	0.44	9.91	24.18	50.00	-25.82	Average
29.06	24.03	0.44	9.91	34.38	60.00	-25.62	QP

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

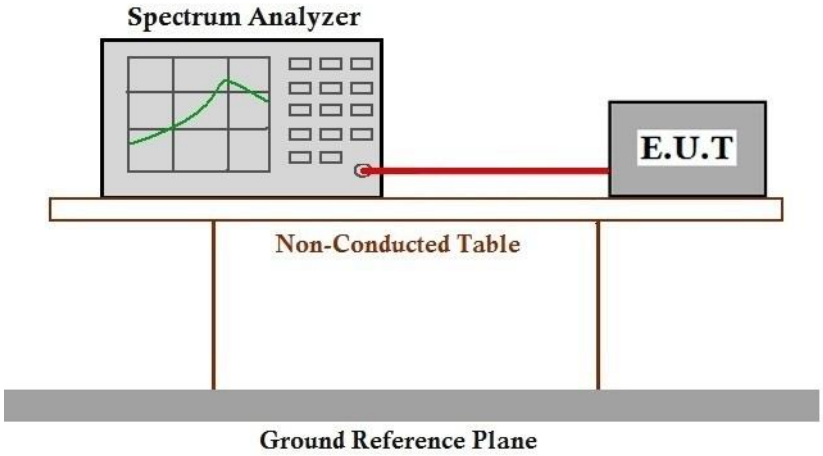
Operating Environment:

Temperature: 22.8 °C Humidity: 53.3 % RH Atmospheric Pressure: 1022 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	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). Only the data of worst case is recorded in the report.
Final test	09	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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.
Final test	11	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). Only the data of worst case is recorded in the report.

7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.3 99% Bandwidth

Test Requirement N/A

Test Method: KDB 789033 II D

7.3.1 E.U.T. Operation

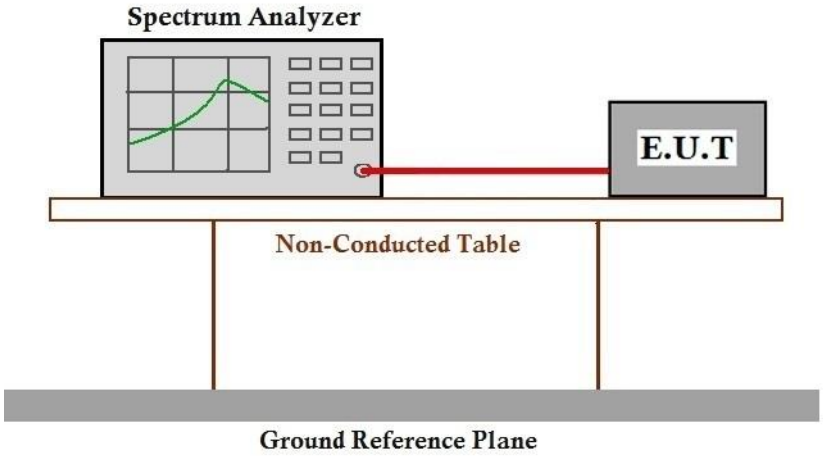
Operating Environment:

Temperature: 22.8 °C Humidity: 53.3 % RH Atmospheric Pressure: 1022 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	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). Only the data of worst case is recorded in the report.
Final test	09	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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.
Final test	11	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). Only the data of worst case is recorded in the report.

7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.4 26dB Emission bandwidth

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

Test Method: KDB 789033 D02 II C 1

7.4.1 E.U.T. Operation

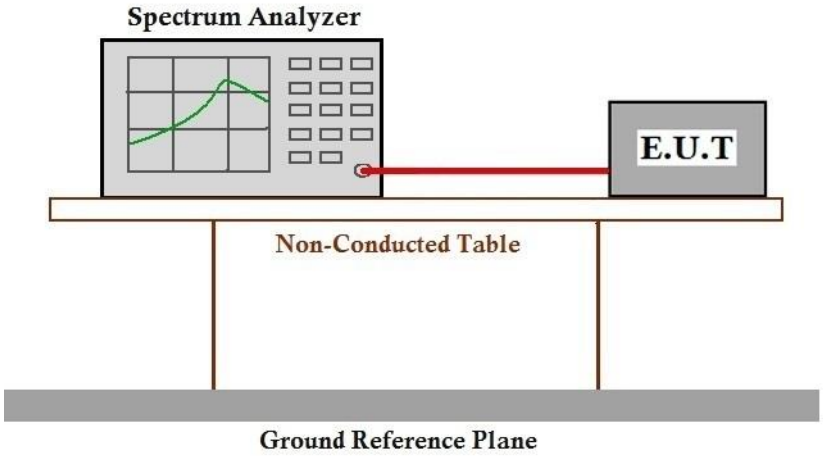
Operating Environment:

Temperature: 22.8 °C Humidity: 53.3 % RH Atmospheric Pressure: 1022 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	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). Only the data of worst case is recorded in the report.
Final test	09	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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.
Final test	11	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). Only the data of worst case is recorded in the report.

7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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

Test Requirement 47 CFR Part 15, Subpart C 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

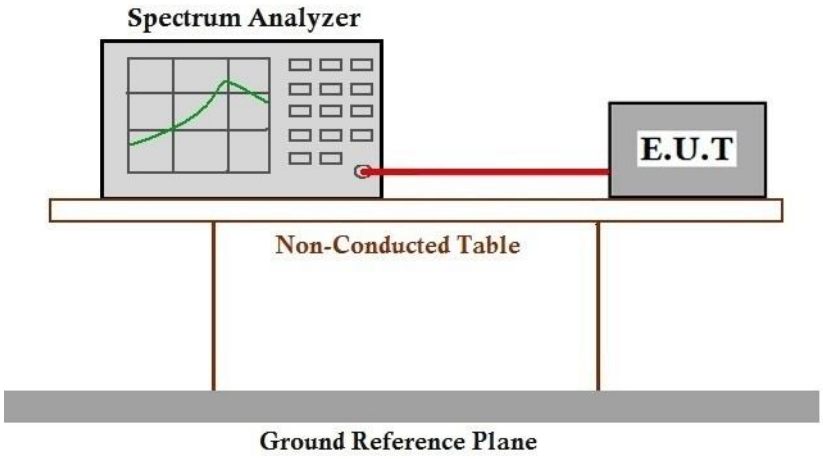
Operating Environment:

Temperature: 22.8 °C Humidity: 53.3 % RH Atmospheric Pressure: 1022 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	11	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). Only the data of worst case is recorded in the report.

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.6 Maximum Conducted output power

Test Requirement 47 CFR Part 15, Subpart C 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:

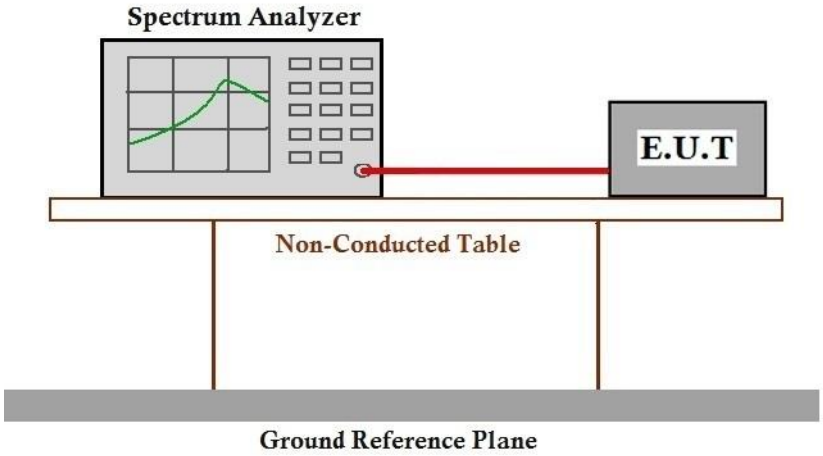
Temperature: 22.8 °C Humidity: 53.3 % RH Atmospheric Pressure: 1022 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	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). Only the data of worst case is recorded in the report.
Final test	09	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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.

Final test	11	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). Only the data of worst case is recorded in the report.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

7.7 Peak Power spectrum density

Test Requirement 47 CFR Part 15, Subpart C 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:

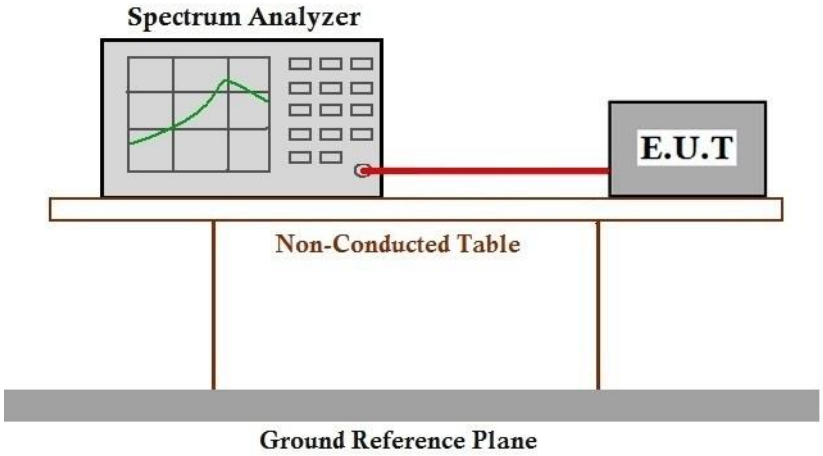
Temperature: 22.8 °C Humidity: 53.3 % RH Atmospheric Pressure: 1022 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	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). Only the data of worst case is recorded in the report.
Final test	09	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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.

Final test	11	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). 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

7.8 Radiated Emissions (Above 1GHz)

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

Test Method: KDB 789033 D02 II G

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
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.

7.8.1 E.U.T. Operation

Operating Environment:

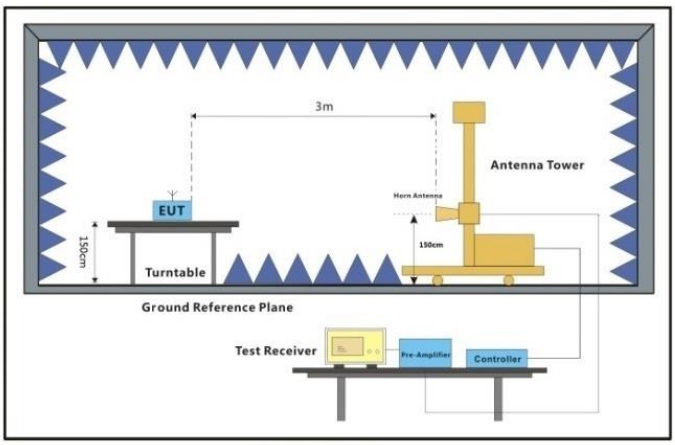
Temperature: 21.9 °C Humidity: 60.6 % RH Atmospheric Pressure: 1018 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	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). Only the data of worst case is recorded in the report.

Final test	09	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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.
Final test	11	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). Only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram



Above 1GHz

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:

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.

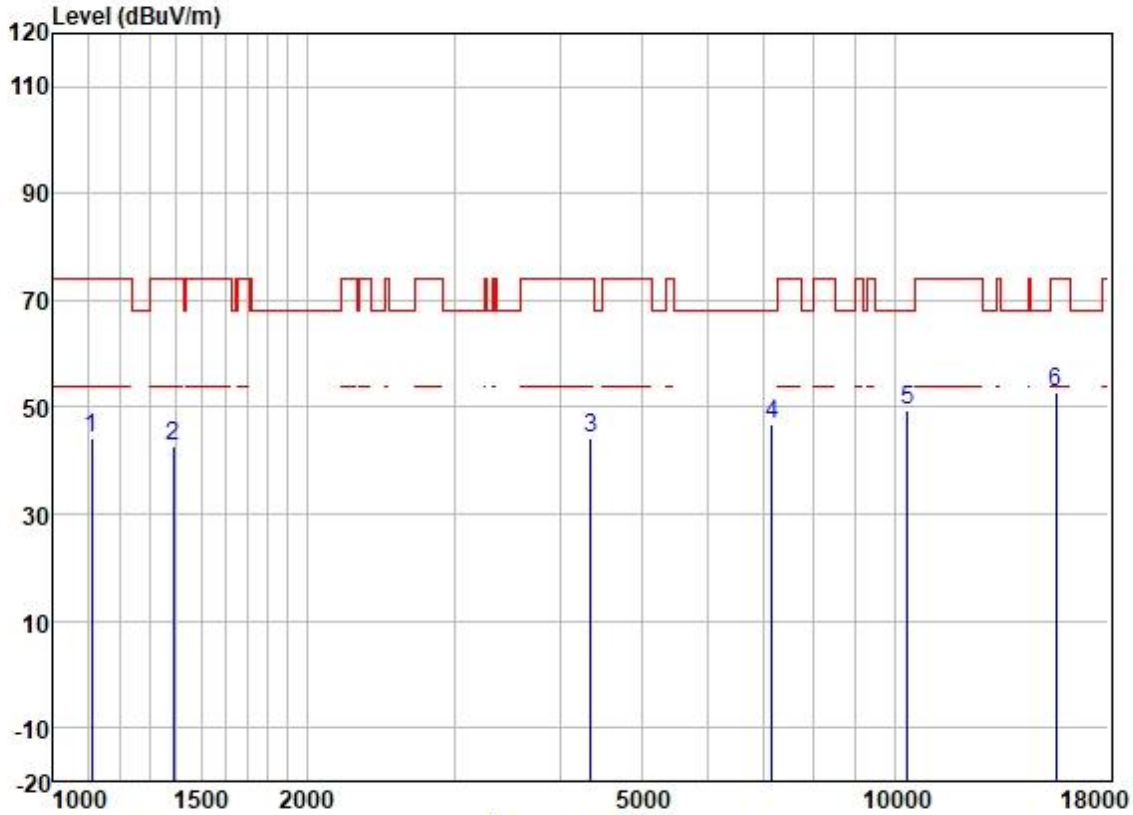
3. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions 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.

Remark 2:

1. Pretest the EUT at antenna 1 and antenna 2 and MIMO mode find the worst case is MIMO mode.
2. Pretest the EUT in 802.11a/ n(20)/ n(40)/ ac (20)/ ac (40)/ ac(80) find the worst case are 802.11a /n(40)/ ac(80), only record the worst case test data in this report.

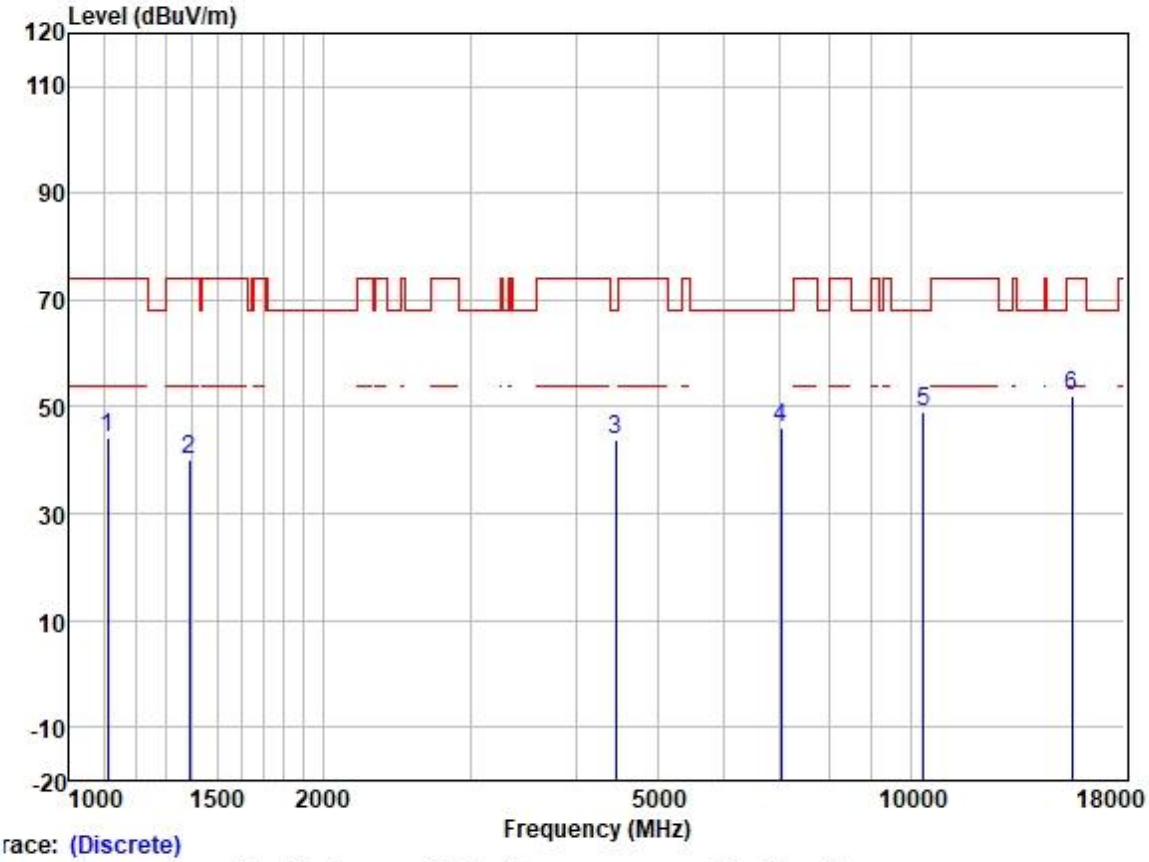
Test Mode: 08; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	50.90	24.39	7.51	38.45	44.35	74.00	-29.65	VERTICAL	peak
2	1390.276	52.10	25.38	3.36	38.22	42.62	74.00	-31.38	VERTICAL	peak
3	4354.454	45.47	30.59	4.88	36.81	44.13	74.00	-29.87	VERTICAL	peak
4	7158.806	42.04	35.40	6.70	37.35	46.79	68.20	-21.41	VERTICAL	peak
5	10360.000	39.65	39.28	7.90	37.37	49.46	68.20	-18.74	VERTICAL	peak
6	15540.000	39.26	39.05	10.03	35.39	52.95	74.00	-21.05	VERTICAL	peak

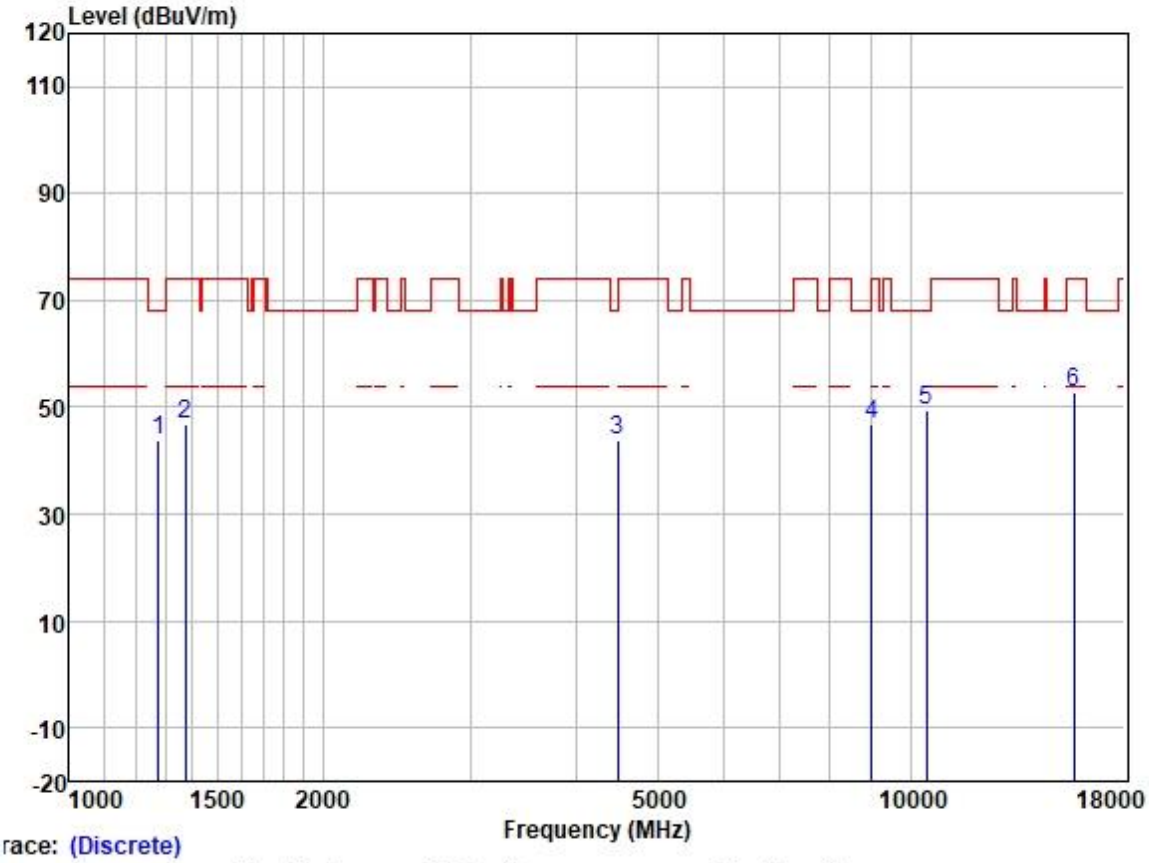
Test Mode: 08; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	50.90	24.39	7.51	38.45	44.35	74.00	-29.65	HORIZONTAL	peak
2	1390.276	49.76	25.38	3.36	38.22	40.28	74.00	-33.72	HORIZONTAL	peak
3	4456.315	45.21	30.75	4.86	36.81	44.01	68.20	-24.19	HORIZONTAL	peak
4	7015.420	41.67	35.04	6.74	37.27	46.18	68.20	-22.02	HORIZONTAL	peak
5	10360.000	39.25	39.28	7.90	37.37	49.06	68.20	-19.14	HORIZONTAL	peak
6	15540.000	38.49	39.05	10.03	35.39	52.18	74.00	-21.82	HORIZONTAL	peak

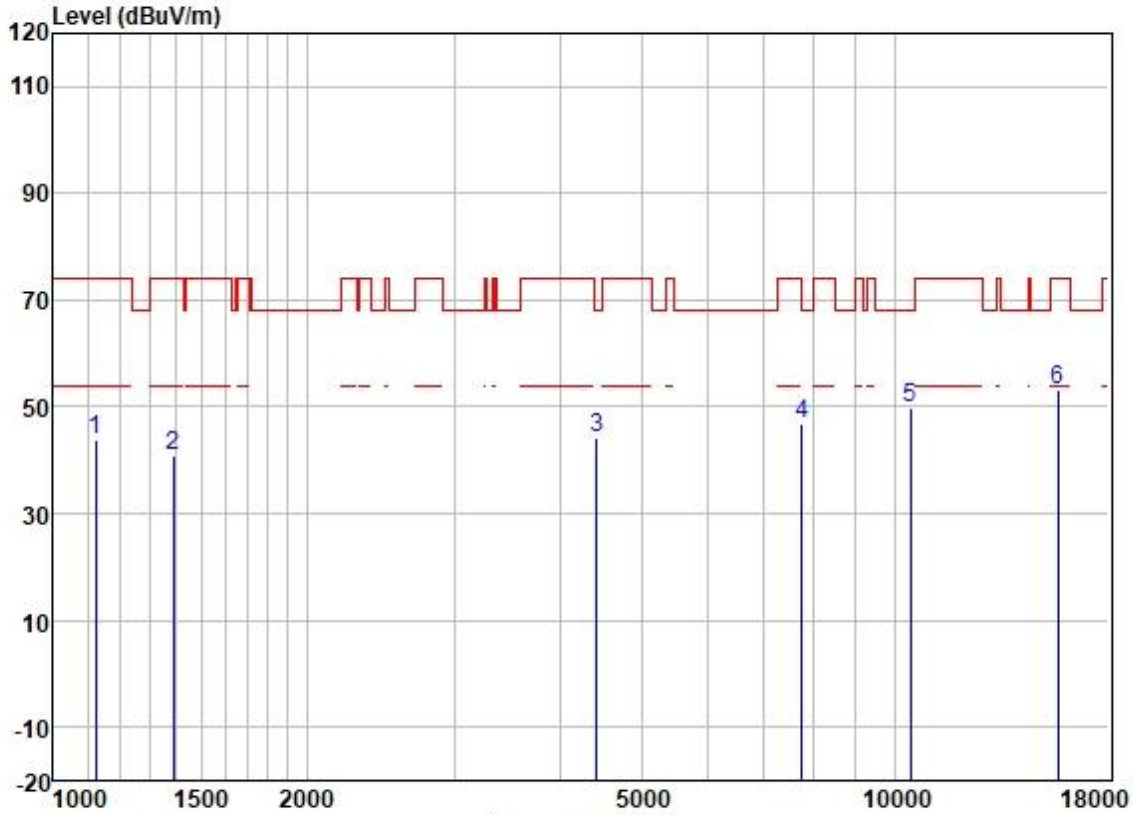
Test Mode: 08; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1274.802	52.48	25.12	4.74	38.33	44.01	68.20	-24.19	VERTICAL	peak
2	1374.295	56.20	25.35	3.48	38.25	46.78	74.00	-27.22	VERTICAL	peak
3	4482.150	45.14	30.78	4.85	36.81	43.96	68.20	-24.24	VERTICAL	peak
4	8995.123	39.43	37.40	7.39	37.50	46.72	68.20	-21.48	VERTICAL	peak
5	10440.000	39.45	39.42	7.91	37.36	49.42	68.20	-18.78	VERTICAL	peak
6	15660.000	39.21	38.86	10.09	35.39	52.77	74.00	-21.23	VERTICAL	peak

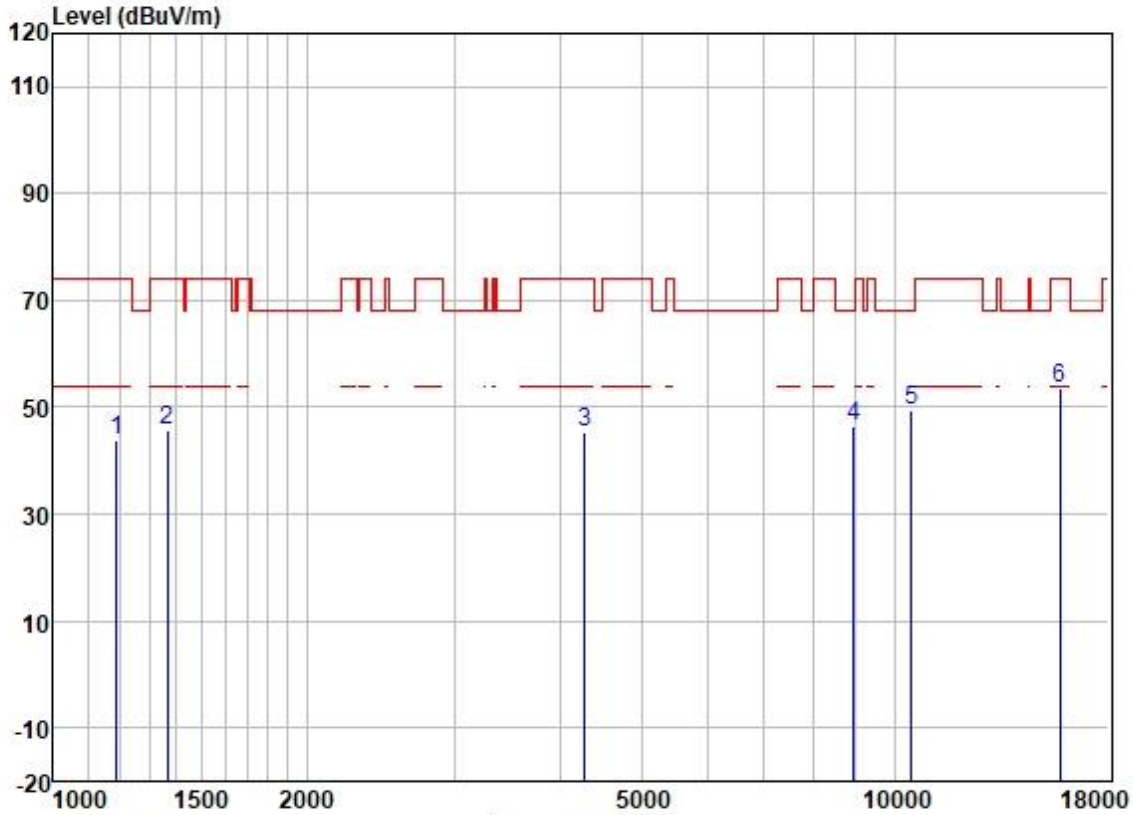
Test Mode: 08; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1122.563	50.58	24.42	7.41	38.43	43.98	74.00	-30.02	HORIZONTAL	peak
2	1390.276	50.24	25.38	3.36	38.22	40.76	74.00	-33.24	HORIZONTAL	peak
3	4430.628	45.28	30.72	4.86	36.81	44.05	68.20	-24.15	HORIZONTAL	peak
4	7762.260	41.01	36.68	6.83	37.55	46.97	68.20	-21.23	HORIZONTAL	peak
5	10440.000	39.84	39.42	7.91	37.36	49.81	68.20	-18.39	HORIZONTAL	peak
6	15660.000	39.49	38.86	10.09	35.39	53.05	74.00	-20.95	HORIZONTAL	peak

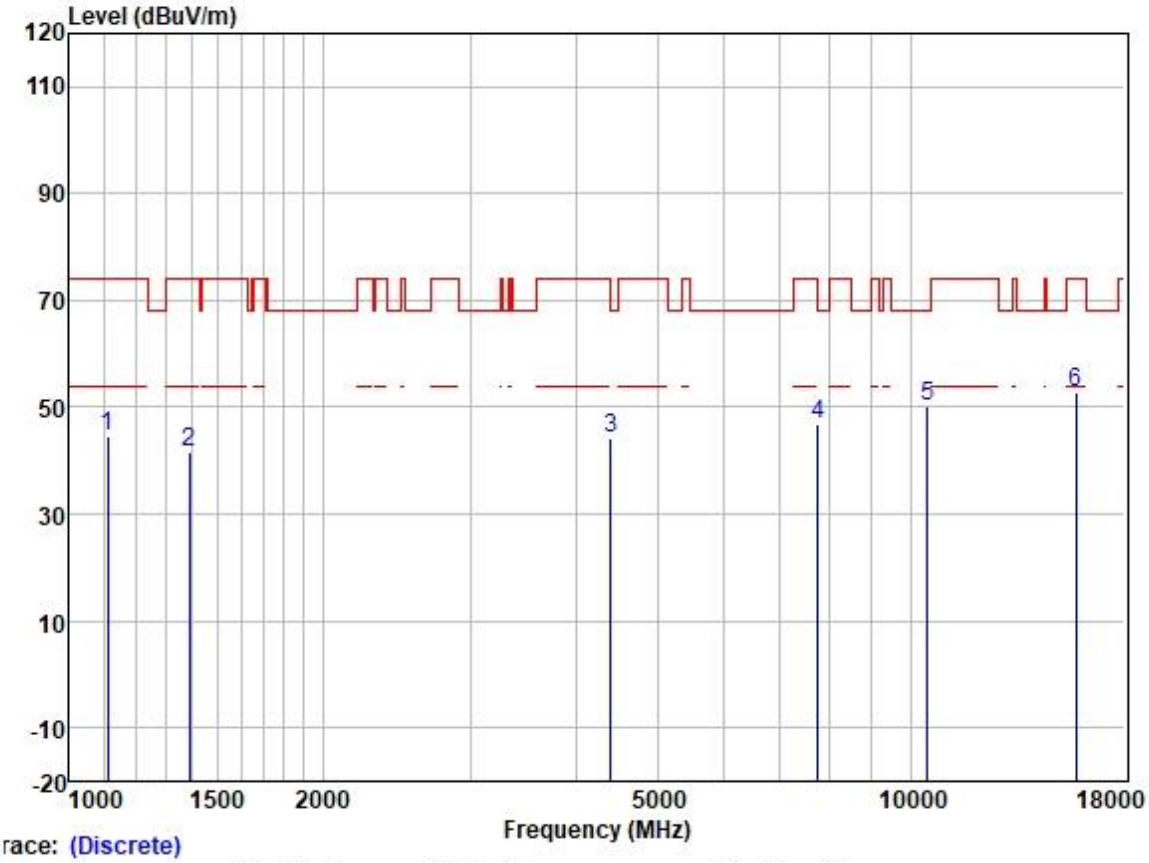
Test Mode: 08; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1189.368	51.02	24.63	6.70	38.39	43.96	74.00	-30.04	VERTICAL	peak
2	1366.374	55.25	25.34	3.55	38.25	45.89	74.00	-28.11	VERTICAL	peak
3	4279.589	46.76	30.42	4.91	36.81	45.28	74.00	-28.72	VERTICAL	peak
4	8943.274	39.05	37.38	7.38	37.51	46.30	68.20	-21.90	VERTICAL	peak
5	10480.000	39.42	39.46	7.92	37.36	49.44	68.20	-18.76	VERTICAL	peak
6	15720.000	40.06	38.78	10.12	35.39	53.57	74.00	-20.43	VERTICAL	peak

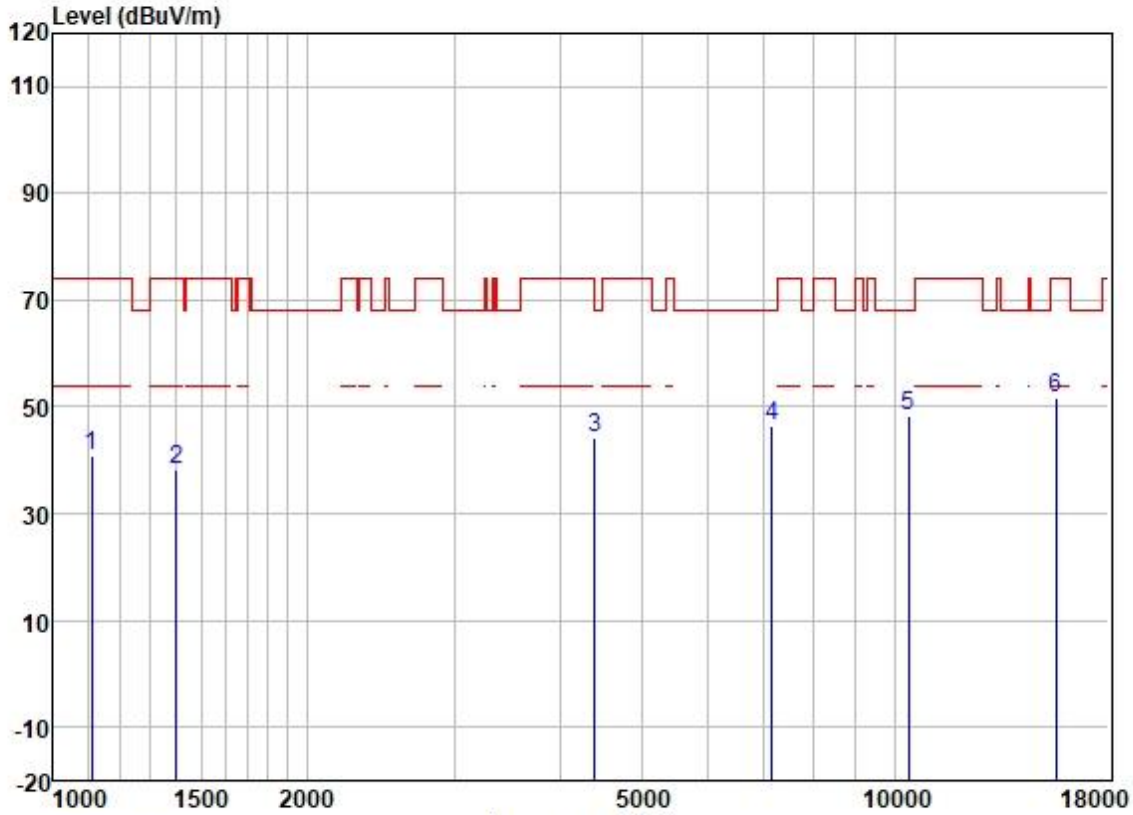
Test Mode: 08; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	51.11	24.39	7.51	38.45	44.56	74.00	-29.44	HORIZONTAL	peak
2	1390.276	51.14	25.38	3.36	38.22	41.66	74.00	-32.34	HORIZONTAL	peak
3	4405.090	45.48	30.68	4.87	36.81	44.22	68.20	-23.98	HORIZONTAL	peak
4	7762.260	40.92	36.68	6.83	37.55	46.88	68.20	-21.32	HORIZONTAL	peak
5	10480.000	40.14	39.46	7.92	37.36	50.16	68.20	-18.04	HORIZONTAL	peak
6	15720.000	39.33	38.78	10.12	35.39	52.84	74.00	-21.16	HORIZONTAL	peak

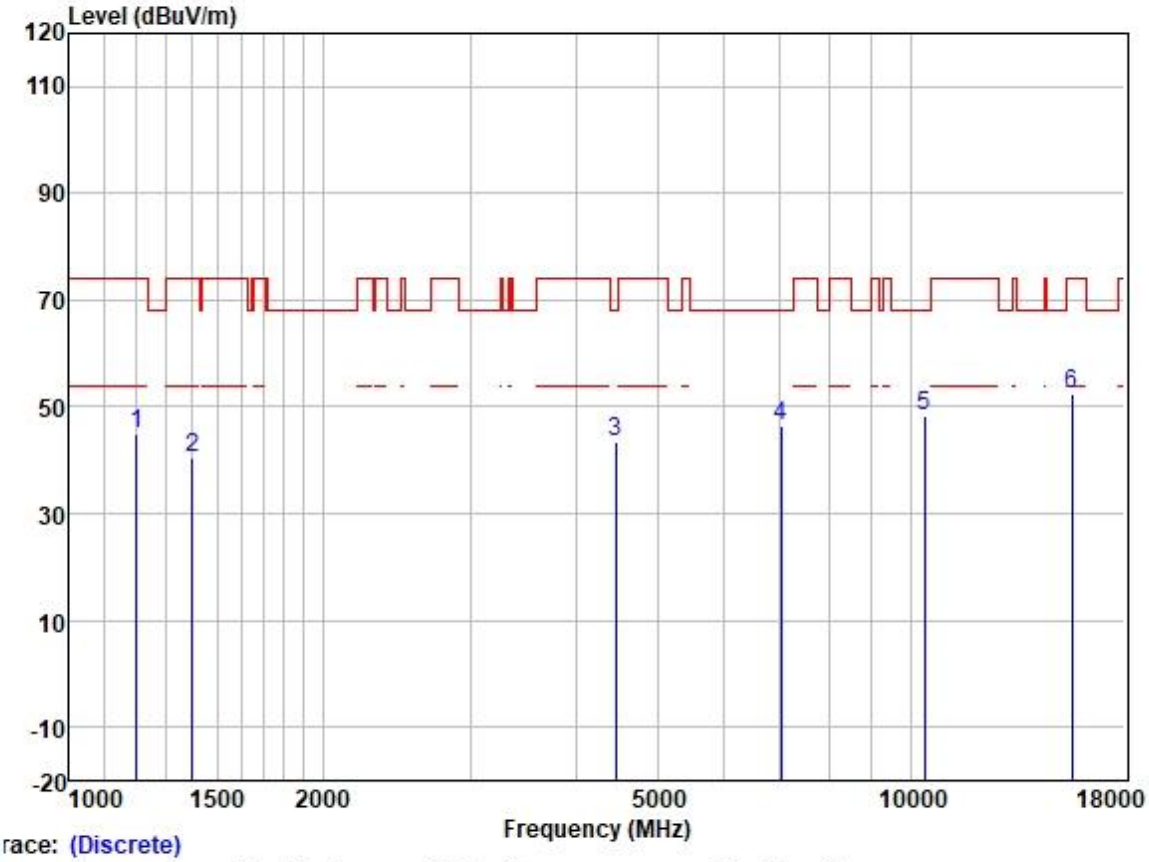
Test Mode: 08; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	47.26	24.39	7.51	38.45	40.71	74.00	-33.29	VERTICAL	peak
2	1398.336	47.61	25.39	3.31	38.22	38.09	74.00	-35.91	VERTICAL	peak
3	4405.090	45.32	30.68	4.87	36.81	44.06	68.20	-24.14	VERTICAL	peak
4	7158.806	41.54	35.40	6.70	37.35	46.29	68.20	-21.91	VERTICAL	peak
5	10380.000	38.54	39.33	7.90	37.37	48.40	68.20	-19.80	VERTICAL	peak
6	15570.000	38.08	38.99	10.05	35.39	51.73	74.00	-22.27	VERTICAL	peak

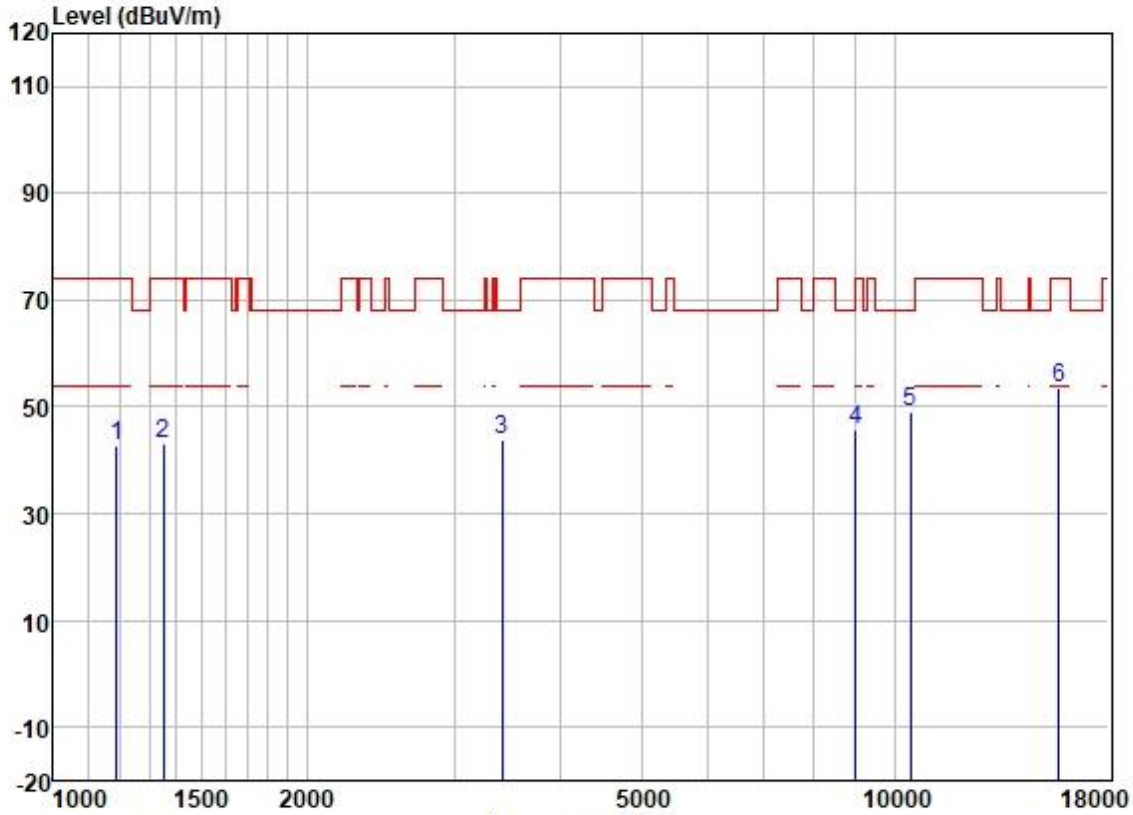
Test Mode: 08; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1203.199	52.11	24.70	6.50	38.39	44.92	74.00	-29.08	HORIZONTAL	peak
2	1398.336	50.03	25.39	3.31	38.22	40.51	74.00	-33.49	HORIZONTAL	peak
3	4456.315	44.64	30.75	4.86	36.81	43.44	68.20	-24.76	HORIZONTAL	peak
4	7015.420	41.80	35.04	6.74	37.27	46.31	68.20	-21.89	HORIZONTAL	peak
5	10380.000	38.64	39.33	7.90	37.37	48.50	68.20	-19.70	HORIZONTAL	peak
6	15570.000	38.91	38.99	10.05	35.39	52.56	74.00	-21.44	HORIZONTAL	peak

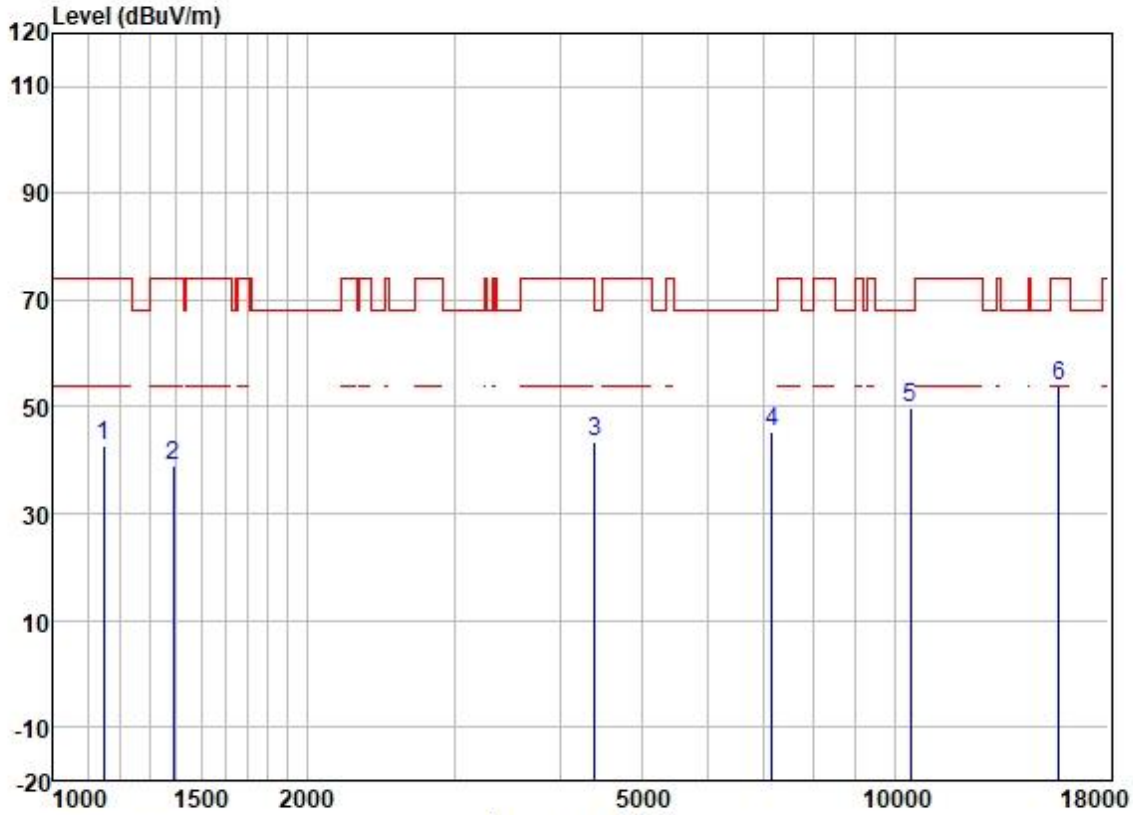
Test Mode: 08; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1189.368	49.90	24.63	6.70	38.39	42.84	74.00	-31.16	VERTICAL	peak
2	1350.667	52.46	25.31	3.68	38.27	43.18	74.00	-30.82	VERTICAL	peak
3	3415.787	47.67	28.85	4.28	36.97	43.83	68.20	-24.37	VERTICAL	peak
4	8995.123	38.32	37.40	7.39	37.50	45.61	68.20	-22.59	VERTICAL	peak
5	10460.000	39.24	39.42	7.91	37.36	49.21	68.20	-18.99	VERTICAL	peak
6	15690.000	39.93	38.86	10.09	35.39	53.49	74.00	-20.51	VERTICAL	peak

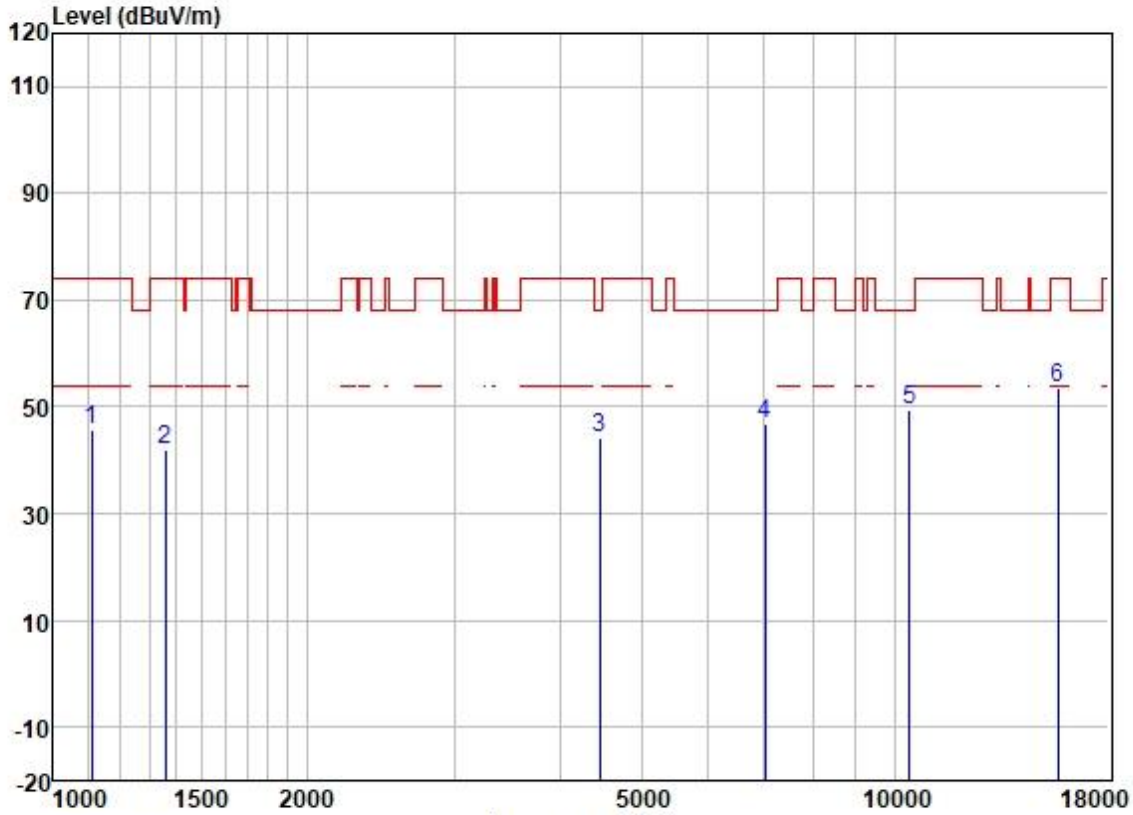
Test Mode: 08; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1148.823	49.60	24.49	7.17	38.42	42.84	74.00	-31.16	HORIZONTAL	peak
2	1390.276	48.63	25.38	3.36	38.22	39.15	74.00	-34.85	HORIZONTAL	peak
3	4405.090	44.64	30.68	4.87	36.81	43.38	68.20	-24.82	HORIZONTAL	peak
4	7158.806	40.69	35.40	6.70	37.35	45.44	68.20	-22.76	HORIZONTAL	peak
5	10460.000	39.93	39.42	7.91	37.36	49.90	68.20	-18.30	HORIZONTAL	peak
6	15690.000	40.36	38.86	10.09	35.39	53.92	74.00	-20.08	HORIZONTAL	peak

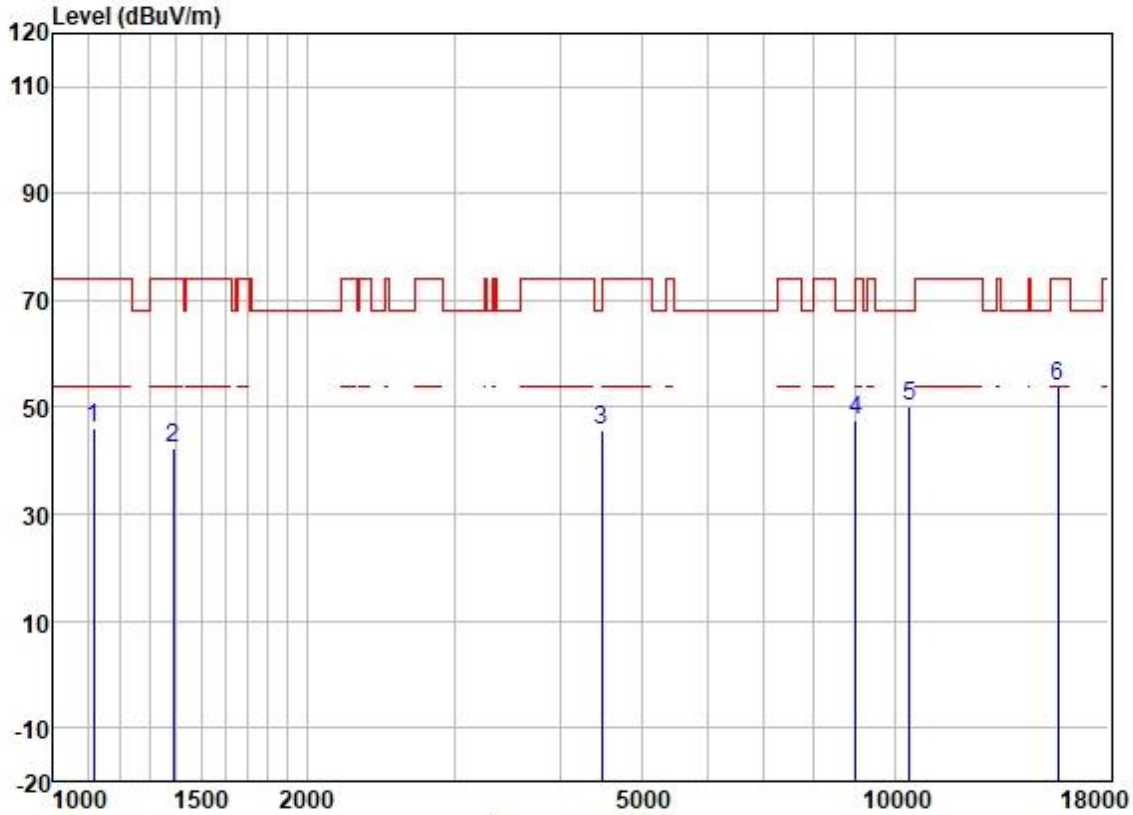
Test Mode: 08; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	52.40	24.39	7.51	38.45	45.85	74.00	-28.15	VERTICAL	peak
2	1358.498	51.39	25.33	3.61	38.27	42.06	74.00	-31.94	VERTICAL	peak
3	4456.315	45.57	30.75	4.86	36.81	44.37	68.20	-23.83	VERTICAL	peak
4	7015.420	42.47	35.04	6.74	37.27	46.98	68.20	-21.22	VERTICAL	peak
5	10420.000	39.69	39.38	7.91	37.36	49.62	68.20	-18.58	VERTICAL	peak
6	15630.000	40.09	38.92	10.07	35.39	53.69	74.00	-20.31	VERTICAL	peak

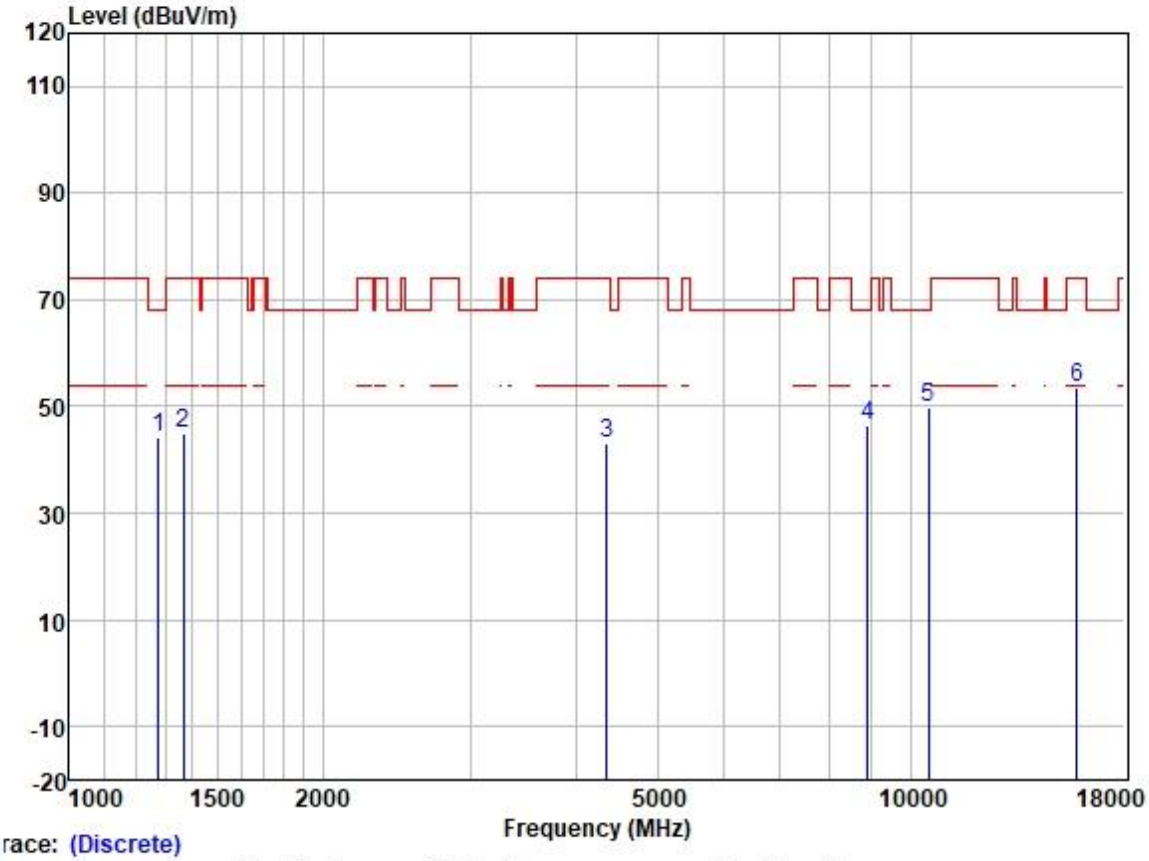
Test Mode: 08; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	52.76	24.40	7.46	38.43	46.19	74.00	-27.81	HORIZONTAL	peak
2	1390.276	51.94	25.38	3.36	38.22	42.46	74.00	-31.54	HORIZONTAL	peak
3	4482.150	46.79	30.78	4.85	36.81	45.61	68.20	-22.59	HORIZONTAL	peak
4	8995.123	40.46	37.40	7.39	37.50	47.75	68.20	-20.45	HORIZONTAL	peak
5	10420.000	40.29	39.38	7.91	37.36	50.22	68.20	-17.98	HORIZONTAL	peak
6	15630.000	40.34	38.92	10.07	35.39	53.94	74.00	-20.06	HORIZONTAL	peak

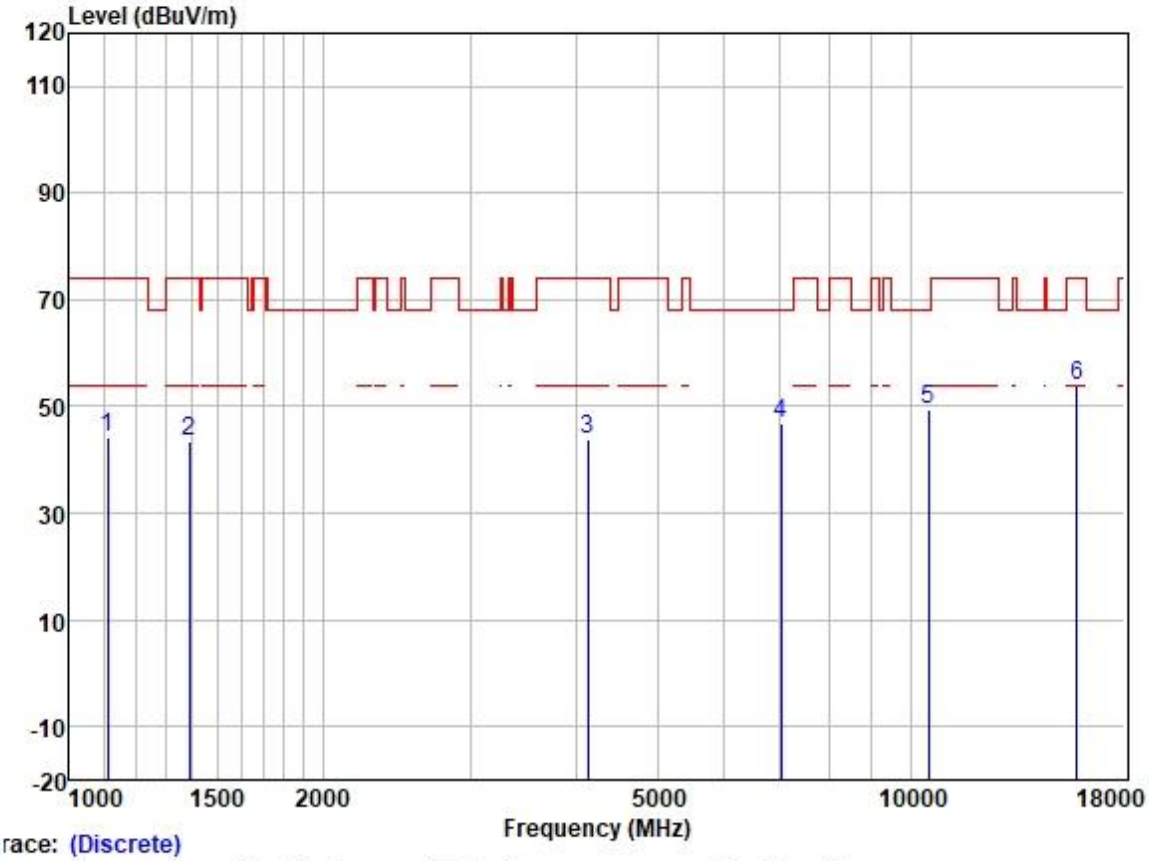
Test Mode: 09; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1274.802	52.60	25.12	4.74	38.33	44.13	68.20	-24.07	VERTICAL	peak
2	1366.374	54.32	25.34	3.55	38.25	44.96	74.00	-29.04	VERTICAL	peak
3	4354.454	44.59	30.59	4.88	36.81	43.25	74.00	-30.75	VERTICAL	peak
4	8891.725	39.17	37.37	7.38	37.52	46.40	68.20	-21.80	VERTICAL	peak
5	10520.000	39.73	39.50	7.92	37.35	49.80	68.20	-18.40	VERTICAL	peak
6	15780.000	39.97	38.70	10.15	35.39	53.43	74.00	-20.57	VERTICAL	peak

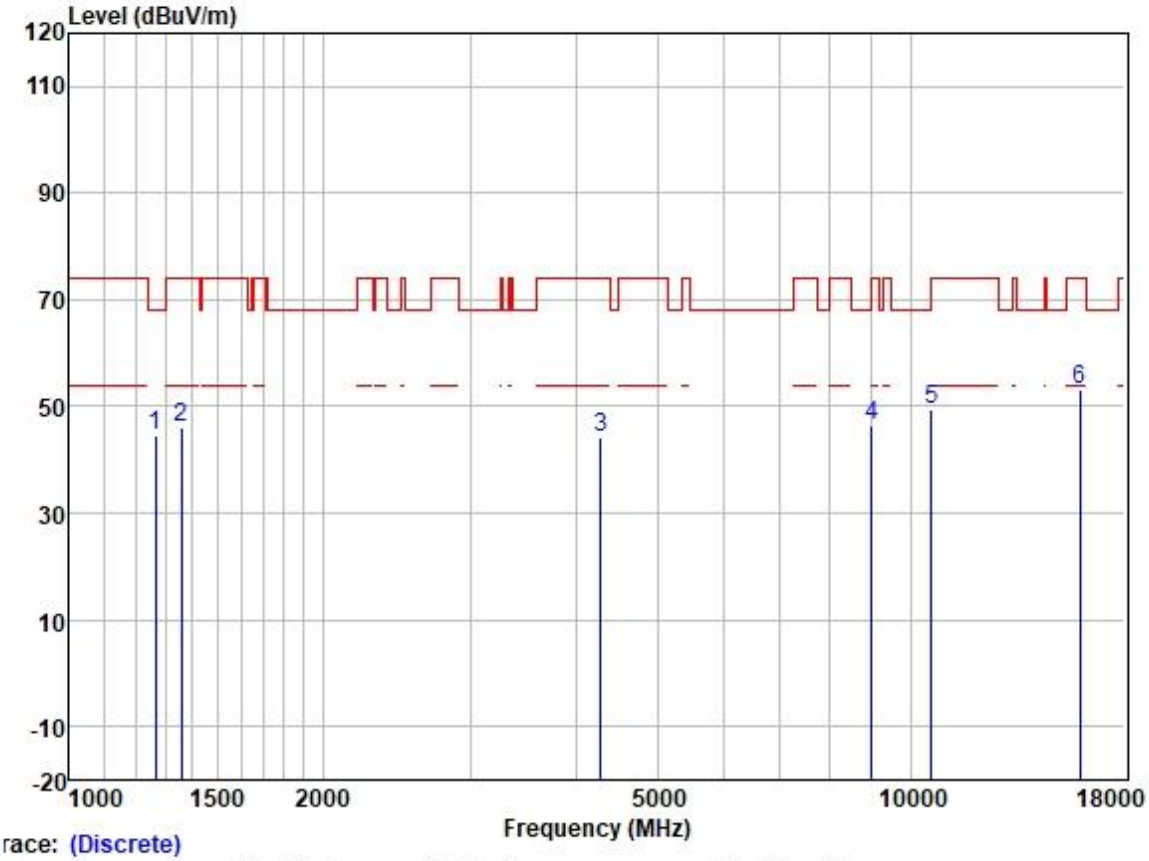
Test Mode: 09; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	50.62	24.39	7.51	38.45	44.07	74.00	-29.93	HORIZONTAL	peak
2	1390.276	52.84	25.38	3.36	38.22	43.36	74.00	-30.64	HORIZONTAL	peak
3	4133.699	45.78	30.01	4.98	36.80	43.97	74.00	-30.03	HORIZONTAL	peak
4	7015.420	42.27	35.04	6.74	37.27	46.78	68.20	-21.42	HORIZONTAL	peak
5	10520.000	39.36	39.50	7.92	37.35	49.43	68.20	-18.77	HORIZONTAL	peak
6	15780.000	40.36	38.70	10.15	35.39	53.82	74.00	-20.18	HORIZONTAL	peak

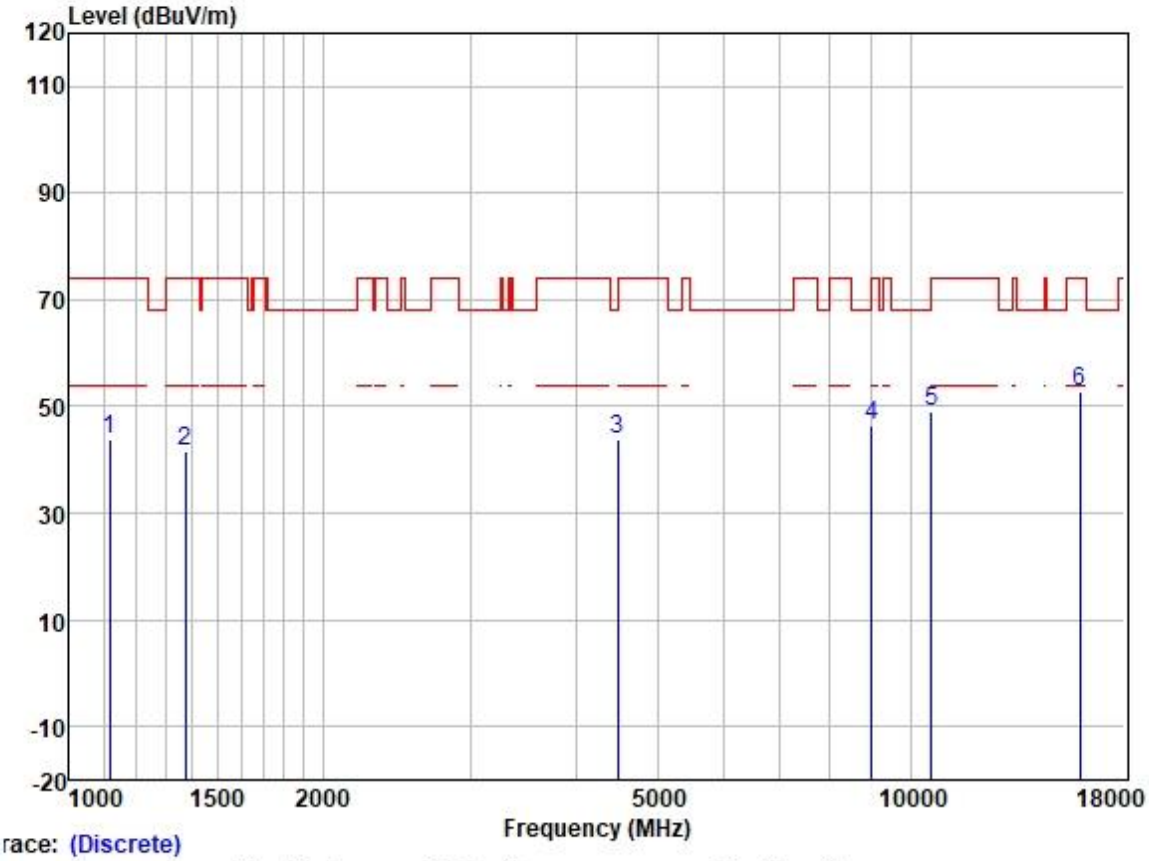
Test Mode: 09; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1267.454	52.79	25.10	4.91	38.33	44.47	68.20	-23.73	VERTICAL	peak
2	1358.498	55.47	25.33	3.61	38.27	46.14	74.00	-27.86	VERTICAL	peak
3	4279.589	45.68	30.42	4.91	36.81	44.20	74.00	-29.80	VERTICAL	peak
4	8995.123	39.07	37.40	7.39	37.50	46.36	68.20	-21.84	VERTICAL	peak
5	10600.000	39.31	39.59	8.00	37.34	49.56	68.20	-18.64	VERTICAL	peak
6	15900.000	39.72	38.44	10.23	35.40	52.99	74.00	-21.01	VERTICAL	peak

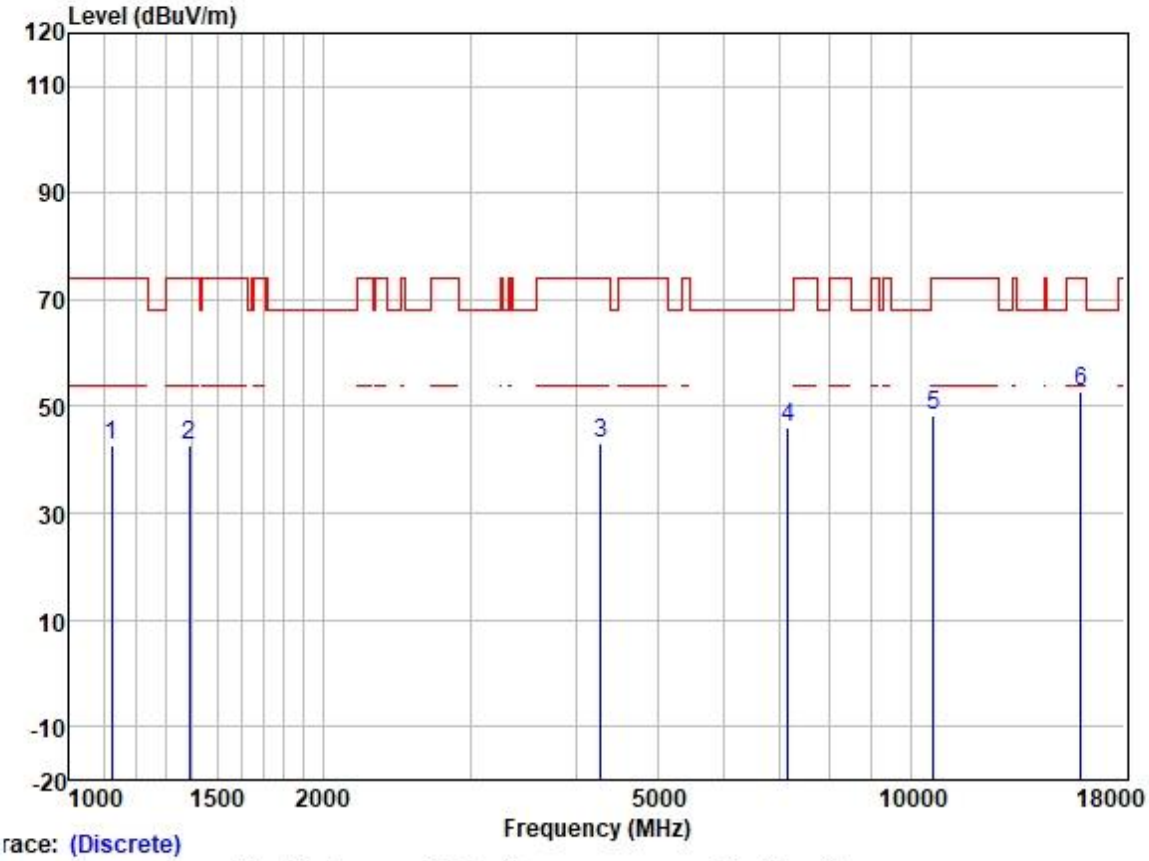
Test Mode: 09; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	50.44	24.40	7.46	38.43	43.87	74.00	-30.13	HORIZONTAL	peak
2	1374.295	51.16	25.35	3.48	38.25	41.74	74.00	-32.26	HORIZONTAL	peak
3	4482.150	45.10	30.78	4.85	36.81	43.92	68.20	-24.28	HORIZONTAL	peak
4	8995.123	39.06	37.40	7.39	37.50	46.35	68.20	-21.85	HORIZONTAL	peak
5	10600.000	38.95	39.59	8.00	37.34	49.20	68.20	-19.00	HORIZONTAL	peak
6	15900.000	39.40	38.44	10.23	35.40	52.67	74.00	-21.33	HORIZONTAL	peak

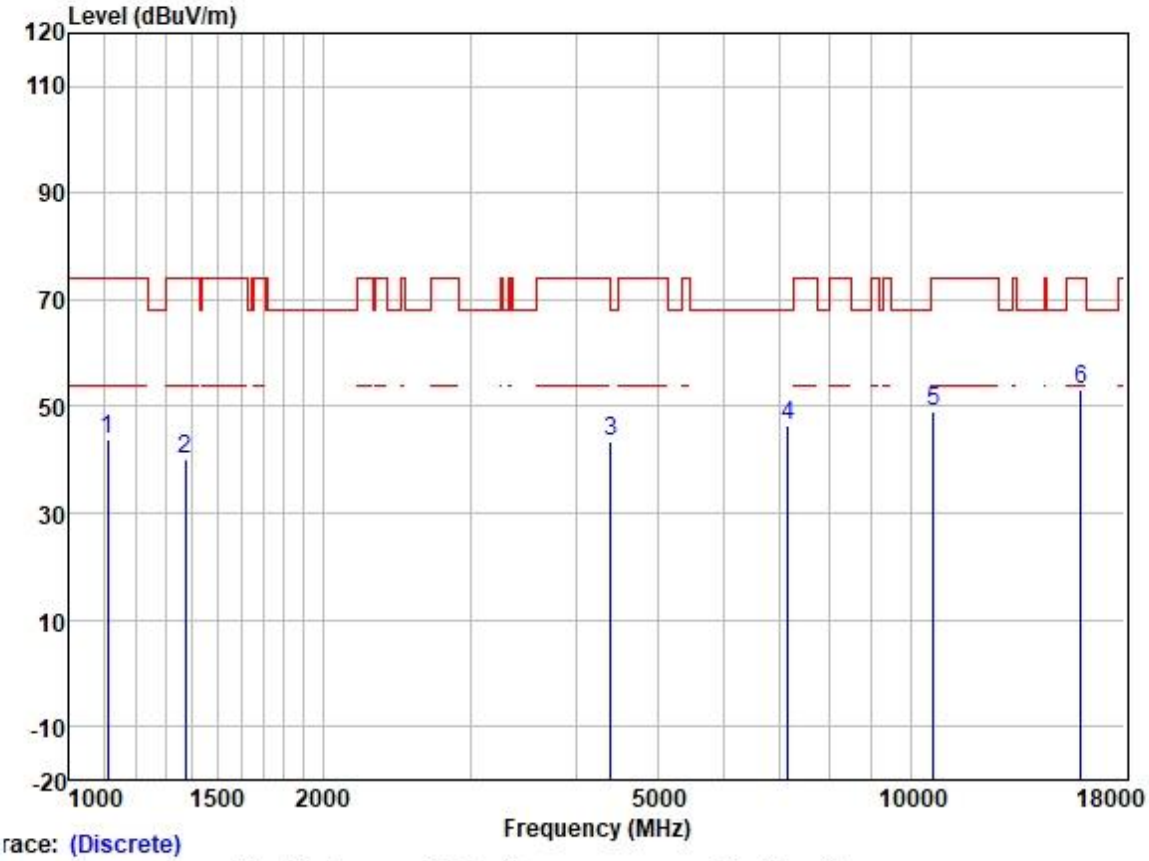
Test Mode: 09; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1122.563	49.37	24.42	7.41	38.43	42.77	74.00	-31.23	VERTICAL	peak
2	1390.276	52.21	25.38	3.36	38.22	42.73	74.00	-31.27	VERTICAL	peak
3	4279.589	44.64	30.42	4.91	36.81	43.16	74.00	-30.84	VERTICAL	peak
4	7158.806	41.47	35.40	6.70	37.35	46.22	68.20	-21.98	VERTICAL	peak
5	10640.000	38.14	39.63	8.03	37.33	48.47	74.00	-25.53	VERTICAL	peak
6	15960.000	39.68	38.37	10.26	35.40	52.91	74.00	-21.09	VERTICAL	peak

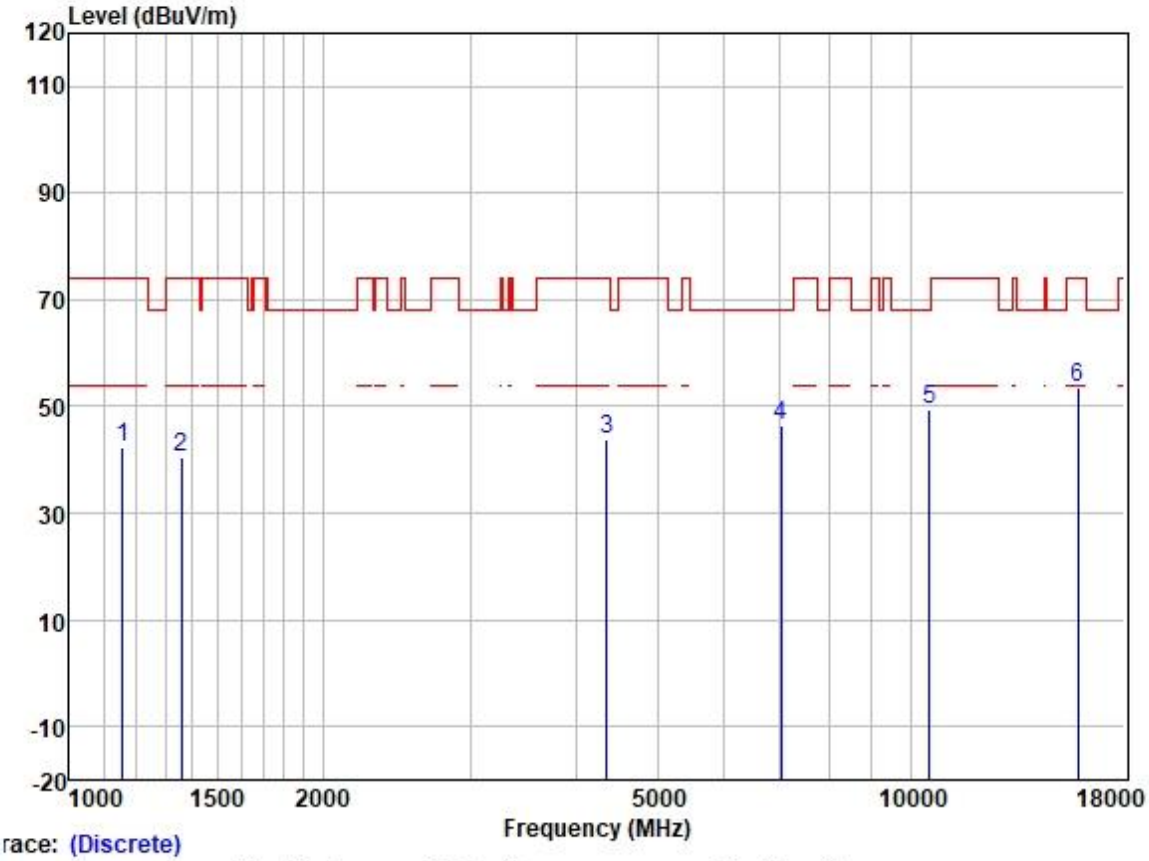
Test Mode: 09; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	50.55	24.39	7.51	38.45	44.00	74.00	-30.00	HORIZONTAL	peak
2	1374.295	49.43	25.35	3.48	38.25	40.01	74.00	-33.99	HORIZONTAL	peak
3	4405.090	44.80	30.68	4.87	36.81	43.54	68.20	-24.66	HORIZONTAL	peak
4	7158.806	41.57	35.40	6.70	37.35	46.32	68.20	-21.88	HORIZONTAL	peak
5	10640.000	38.80	39.63	8.03	37.33	49.13	74.00	-24.87	HORIZONTAL	peak
6	15960.000	39.90	38.37	10.26	35.40	53.13	74.00	-20.87	HORIZONTAL	peak

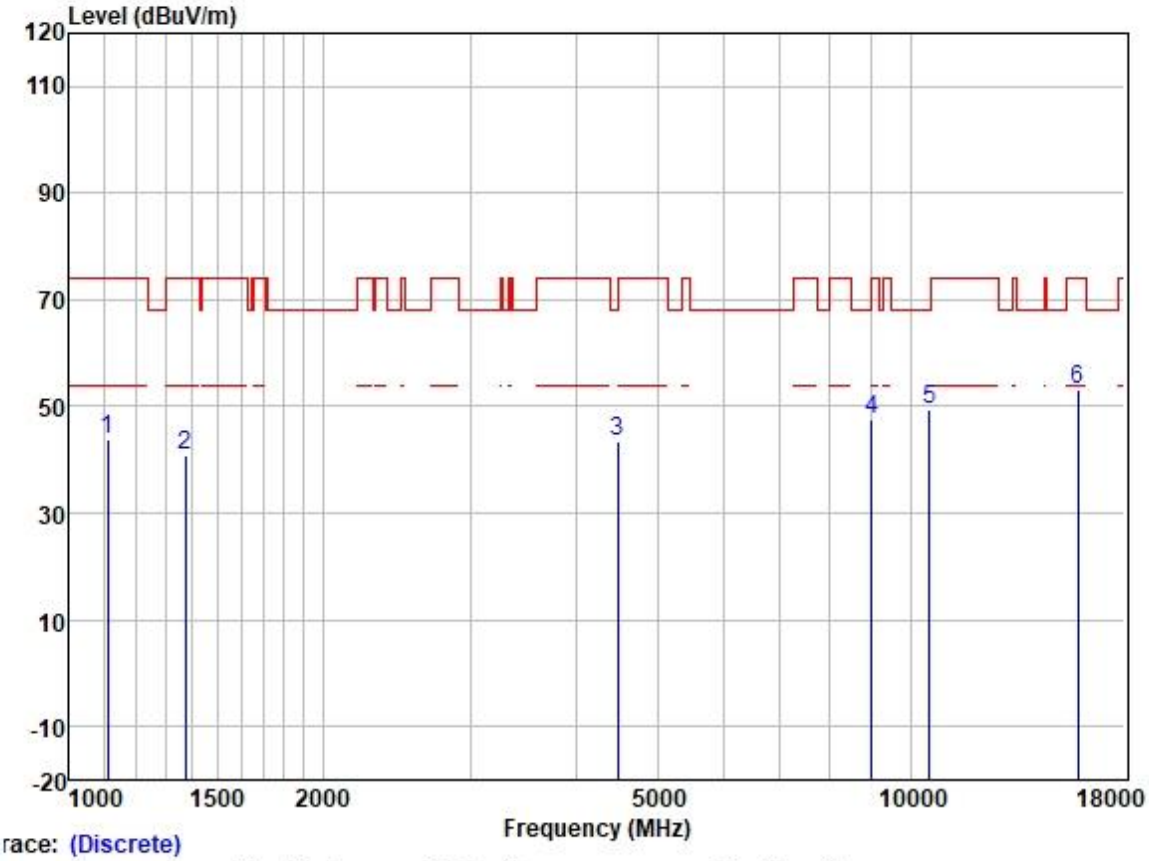
Test Mode: 09; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1155.483	48.97	24.51	7.10	38.42	42.16	74.00	-31.84	VERTICAL	peak
2	1358.498	49.80	25.33	3.61	38.27	40.47	74.00	-33.53	VERTICAL	peak
3	4354.454	45.13	30.59	4.88	36.81	43.79	74.00	-30.21	VERTICAL	peak
4	7015.420	41.81	35.04	6.74	37.27	46.32	68.20	-21.88	VERTICAL	peak
5	10540.000	39.38	39.53	7.94	37.35	49.50	68.20	-18.70	VERTICAL	peak
6	15810.000	40.31	38.61	10.18	35.39	53.71	74.00	-20.29	VERTICAL	peak

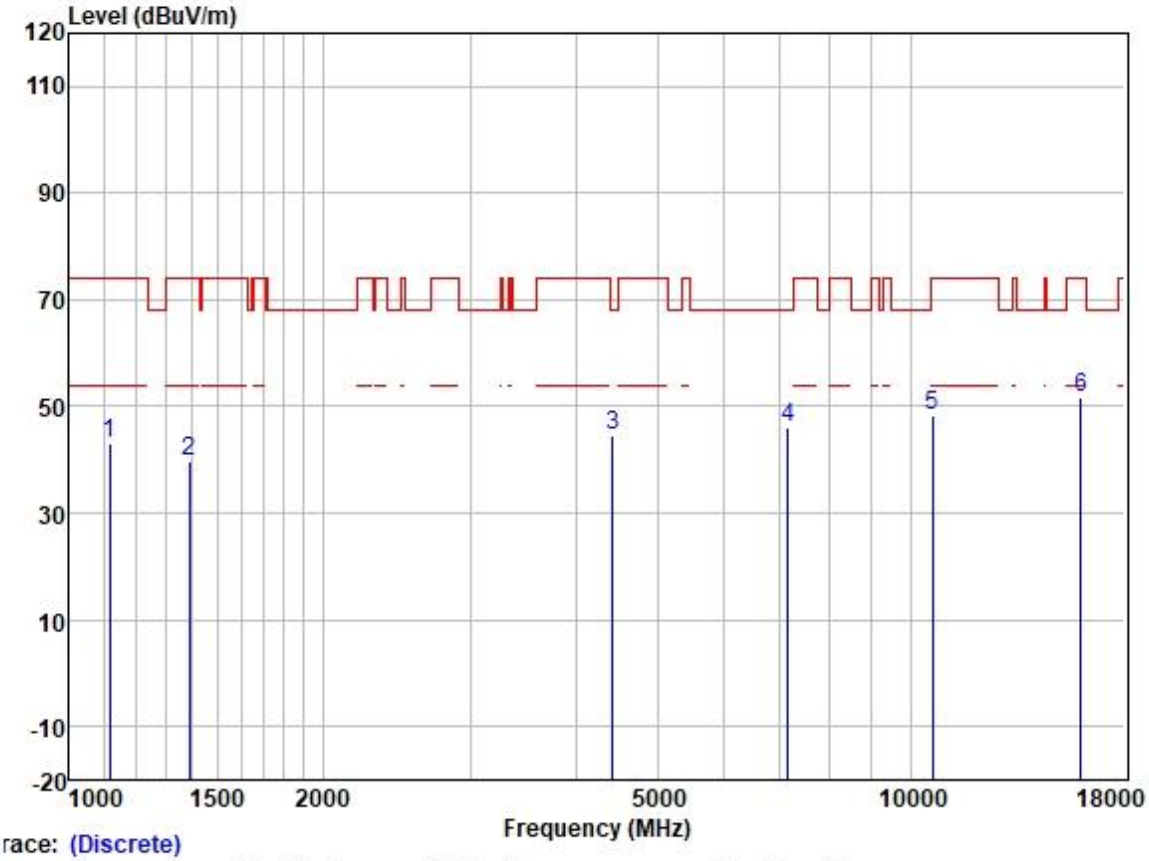
Test Mode: 09; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	50.54	24.39	7.51	38.45	43.99	74.00	-30.01	HORIZONTAL	peak
2	1374.295	50.14	25.35	3.48	38.25	40.72	74.00	-33.28	HORIZONTAL	peak
3	4482.150	44.53	30.78	4.85	36.81	43.35	68.20	-24.85	HORIZONTAL	peak
4	8995.123	40.32	37.40	7.39	37.50	47.61	68.20	-20.59	HORIZONTAL	peak
5	10540.000	39.29	39.53	7.94	37.35	49.41	68.20	-18.79	HORIZONTAL	peak
6	15810.000	39.70	38.61	10.18	35.39	53.10	74.00	-20.90	HORIZONTAL	peak

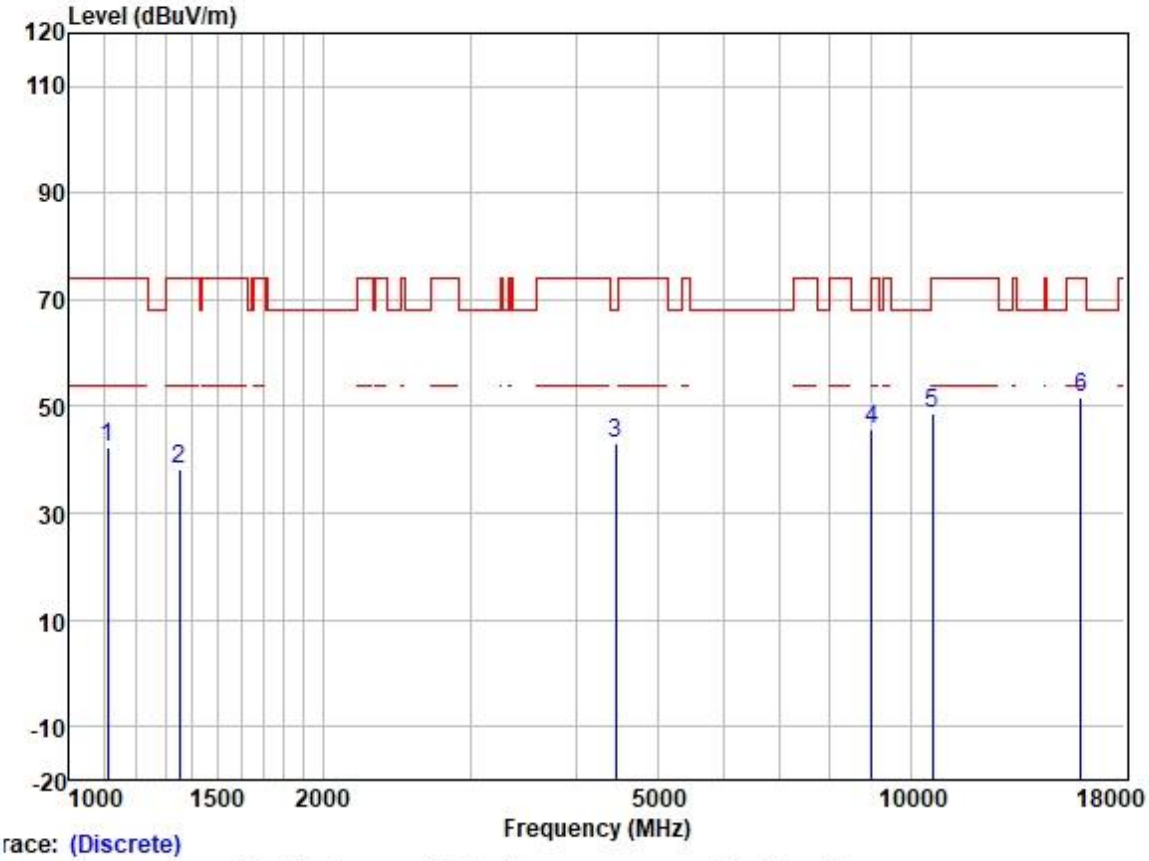
Test Mode: 09; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	49.54	24.40	7.46	38.43	42.97	74.00	-31.03	VERTICAL	peak
2	1390.276	49.09	25.38	3.36	38.22	39.61	74.00	-34.39	VERTICAL	peak
3	4430.628	45.89	30.72	4.86	36.81	44.66	68.20	-23.54	VERTICAL	peak
4	7158.806	41.27	35.40	6.70	37.35	46.02	68.20	-22.18	VERTICAL	peak
5	10620.000	38.05	39.59	8.00	37.34	48.30	74.00	-25.70	VERTICAL	peak
6	15930.000	38.46	38.37	10.26	35.40	51.69	74.00	-22.31	VERTICAL	peak

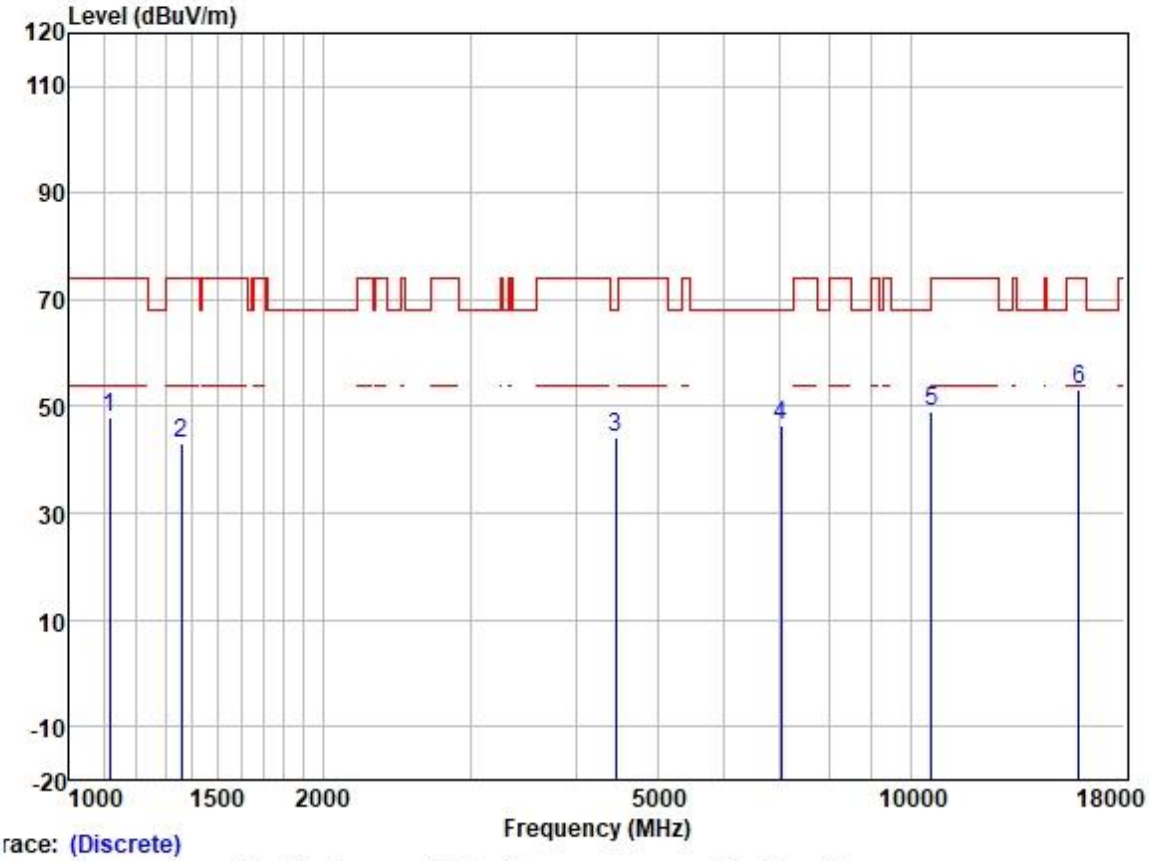
Test Mode: 09; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	49.03	24.39	7.51	38.45	42.48	74.00	-31.52	HORIZONTAL	peak
2	1350.667	47.40	25.31	3.68	38.27	38.12	74.00	-35.88	HORIZONTAL	peak
3	4456.315	44.21	30.75	4.86	36.81	43.01	68.20	-25.19	HORIZONTAL	peak
4	8995.123	38.59	37.40	7.39	37.50	45.88	68.20	-22.32	HORIZONTAL	peak
5	10620.000	38.45	39.59	8.00	37.34	48.70	74.00	-25.30	HORIZONTAL	peak
6	15930.000	38.42	38.37	10.26	35.40	51.65	74.00	-22.35	HORIZONTAL	peak

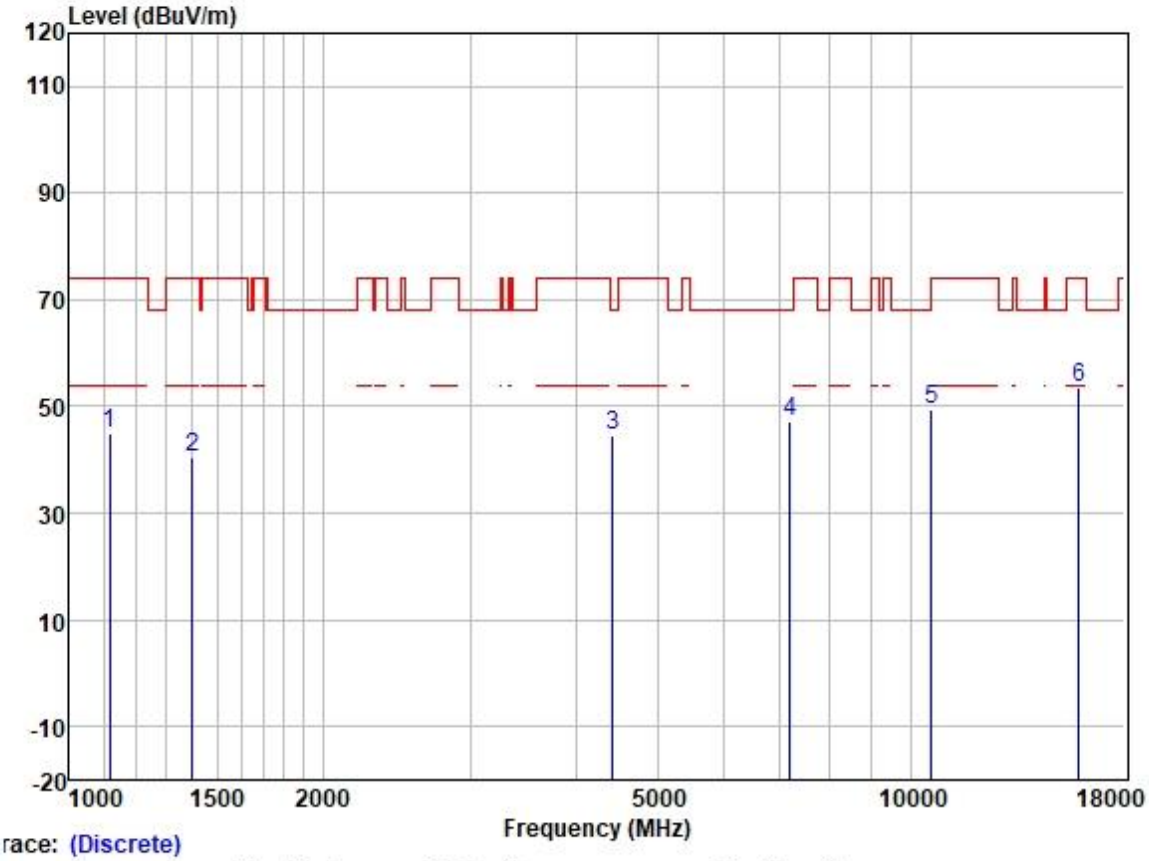
Test Mode: 09; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	54.38	24.40	7.46	38.43	47.81	74.00	-26.19	VERTICAL	peak
2	1358.498	52.32	25.33	3.61	38.27	42.99	74.00	-31.01	VERTICAL	peak
3	4456.315	45.43	30.75	4.86	36.81	44.23	68.20	-23.97	VERTICAL	peak
4	7015.420	42.13	35.04	6.74	37.27	46.64	68.20	-21.56	VERTICAL	peak
5	10580.000	39.03	39.56	7.97	37.34	49.22	68.20	-18.98	VERTICAL	peak
6	15870.000	40.01	38.52	10.21	35.40	53.34	74.00	-20.66	VERTICAL	peak

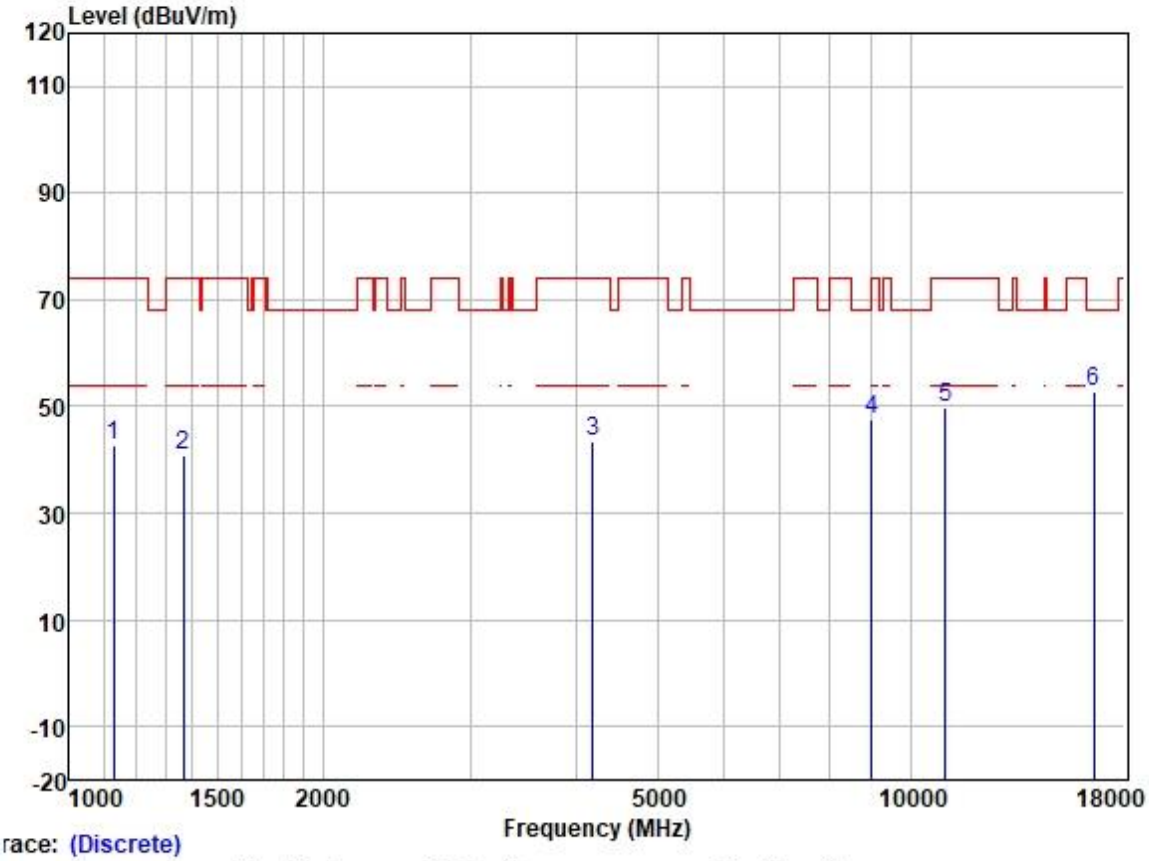
Test Mode: 09; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	51.41	24.40	7.46	38.43	44.84	74.00	-29.16	HORIZONTAL	peak
2	1398.336	50.03	25.39	3.31	38.22	40.51	74.00	-33.49	HORIZONTAL	peak
3	4430.628	45.77	30.72	4.86	36.81	44.54	68.20	-23.66	HORIZONTAL	peak
4	7200.309	42.51	35.54	6.68	37.38	47.35	68.20	-20.85	HORIZONTAL	peak
5	10580.000	39.15	39.56	7.97	37.34	49.34	68.20	-18.86	HORIZONTAL	peak
6	15870.000	40.30	38.52	10.21	35.40	53.63	74.00	-20.37	HORIZONTAL	peak

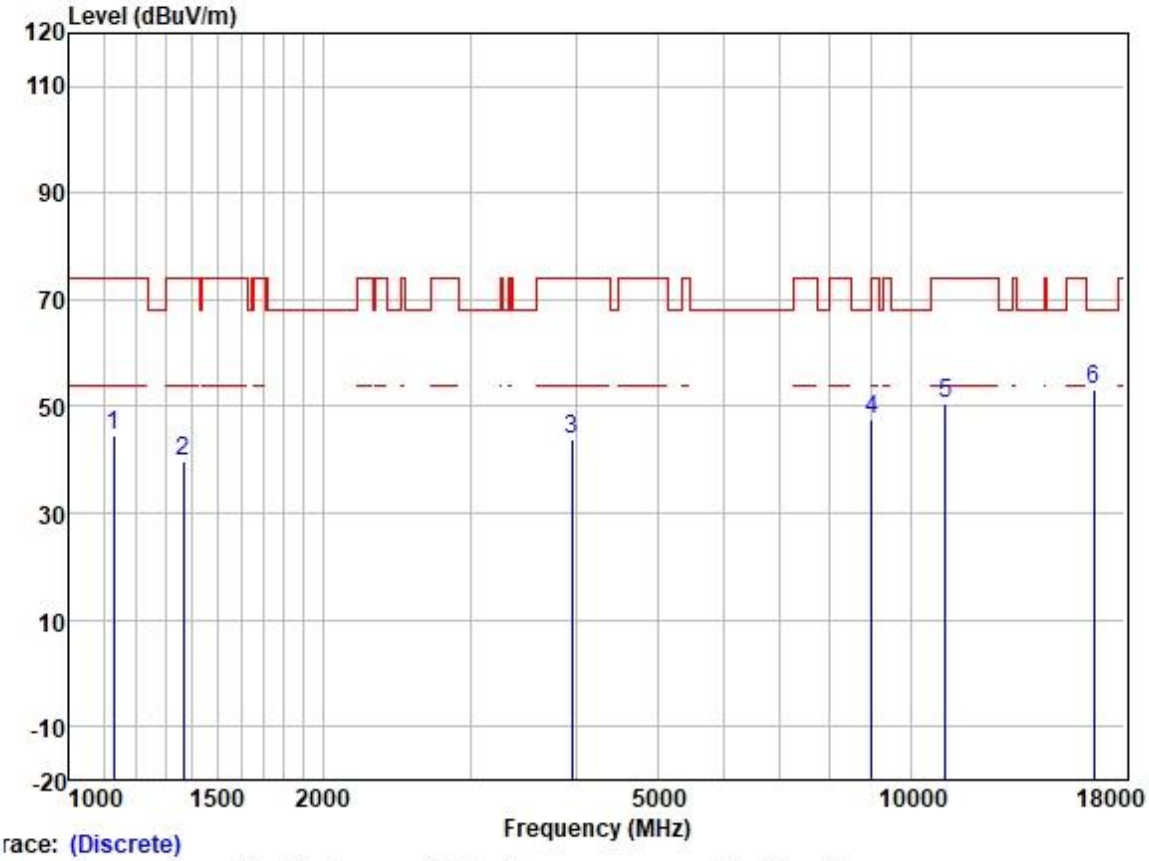
Test Mode: 10; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1129.072	49.29	24.43	7.35	38.43	42.64	74.00	-31.36	VERTICAL	peak
2	1366.374	50.05	25.34	3.55	38.25	40.69	74.00	-33.31	VERTICAL	peak
3	4193.872	45.31	30.15	4.95	36.81	43.60	74.00	-30.40	VERTICAL	peak
4	8995.123	40.20	37.40	7.39	37.50	47.49	68.20	-20.71	VERTICAL	peak
5	11000.000	38.53	40.10	8.43	37.25	49.81	74.00	-24.19	VERTICAL	peak
6	16500.000	37.73	39.60	10.70	35.38	52.65	68.20	-15.55	VERTICAL	peak

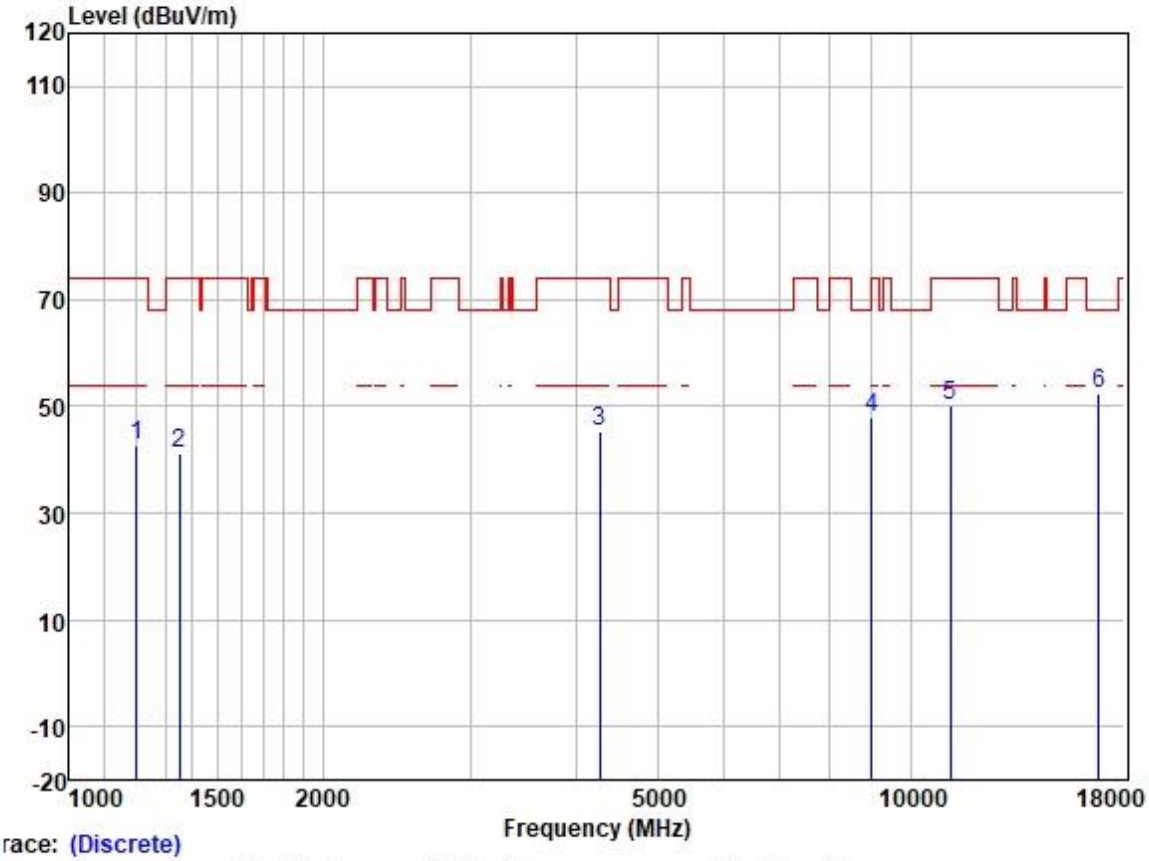
Test Mode: 10; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1129.072	51.25	24.43	7.35	38.43	44.60	74.00	-29.40	HORIZONTAL	peak
2	1366.374	48.94	25.34	3.55	38.25	39.58	74.00	-34.42	HORIZONTAL	peak
3	3958.309	46.01	29.75	4.97	36.81	43.92	74.00	-30.08	HORIZONTAL	peak
4	8995.123	40.29	37.40	7.39	37.50	47.58	68.20	-20.62	HORIZONTAL	peak
5	11000.000	39.11	40.10	8.43	37.25	50.39	74.00	-23.61	HORIZONTAL	peak
6	16500.000	38.19	39.60	10.70	35.38	53.11	68.20	-15.09	HORIZONTAL	peak

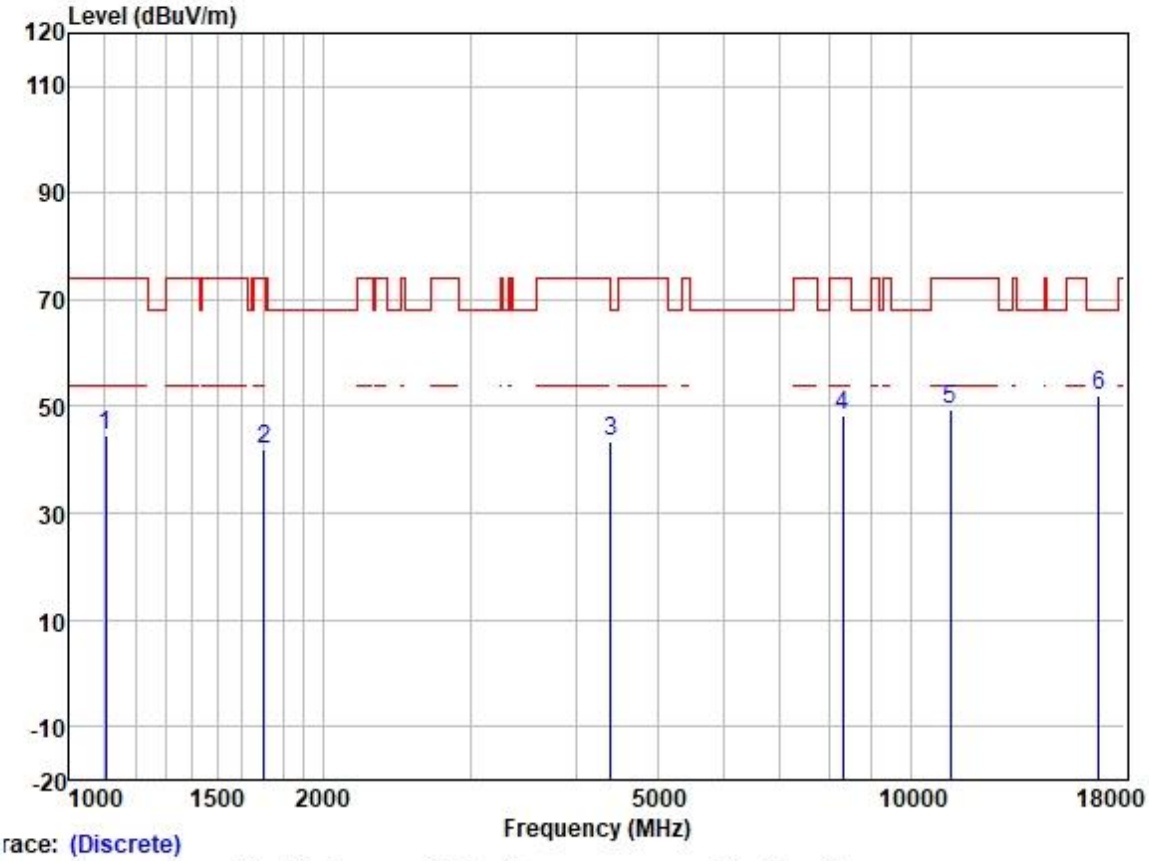
Test Mode: 10; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1203.199	49.80	24.70	6.50	38.39	42.61	74.00	-31.39	VERTICAL	peak
2	1350.667	50.38	25.31	3.68	38.27	41.10	74.00	-32.90	VERTICAL	peak
3	4267.237	46.85	30.38	4.92	36.81	45.34	74.00	-28.66	VERTICAL	peak
4	8995.123	40.49	37.40	7.39	37.50	47.78	68.20	-20.42	VERTICAL	peak
5	11160.000	38.88	40.04	8.54	37.21	50.25	74.00	-23.75	VERTICAL	peak
6	16740.000	34.94	40.49	12.23	35.37	52.29	68.20	-15.91	VERTICAL	peak

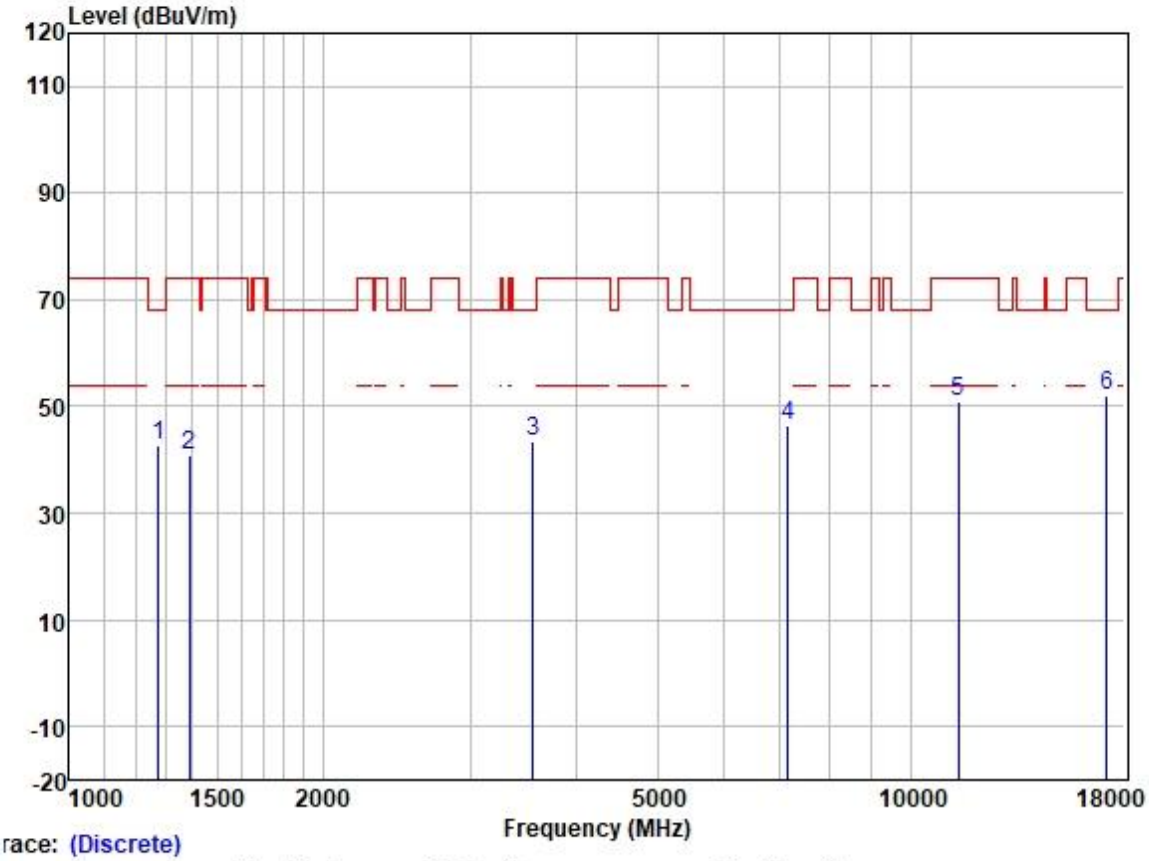
Test Mode: 10; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1103.264	51.11	24.37	7.56	38.45	44.59	74.00	-29.41	HORIZONTAL	peak
2	1702.042	51.03	25.72	2.94	37.89	41.80	74.00	-32.20	HORIZONTAL	peak
3	4405.090	44.77	30.68	4.87	36.81	43.51	68.20	-24.69	HORIZONTAL	peak
4	8319.836	41.52	37.03	7.23	37.58	48.20	74.00	-25.80	HORIZONTAL	peak
5	11160.000	37.96	40.04	8.54	37.21	49.33	74.00	-24.67	HORIZONTAL	peak
6	16740.000	34.72	40.49	12.23	35.37	52.07	68.20	-16.13	HORIZONTAL	peak

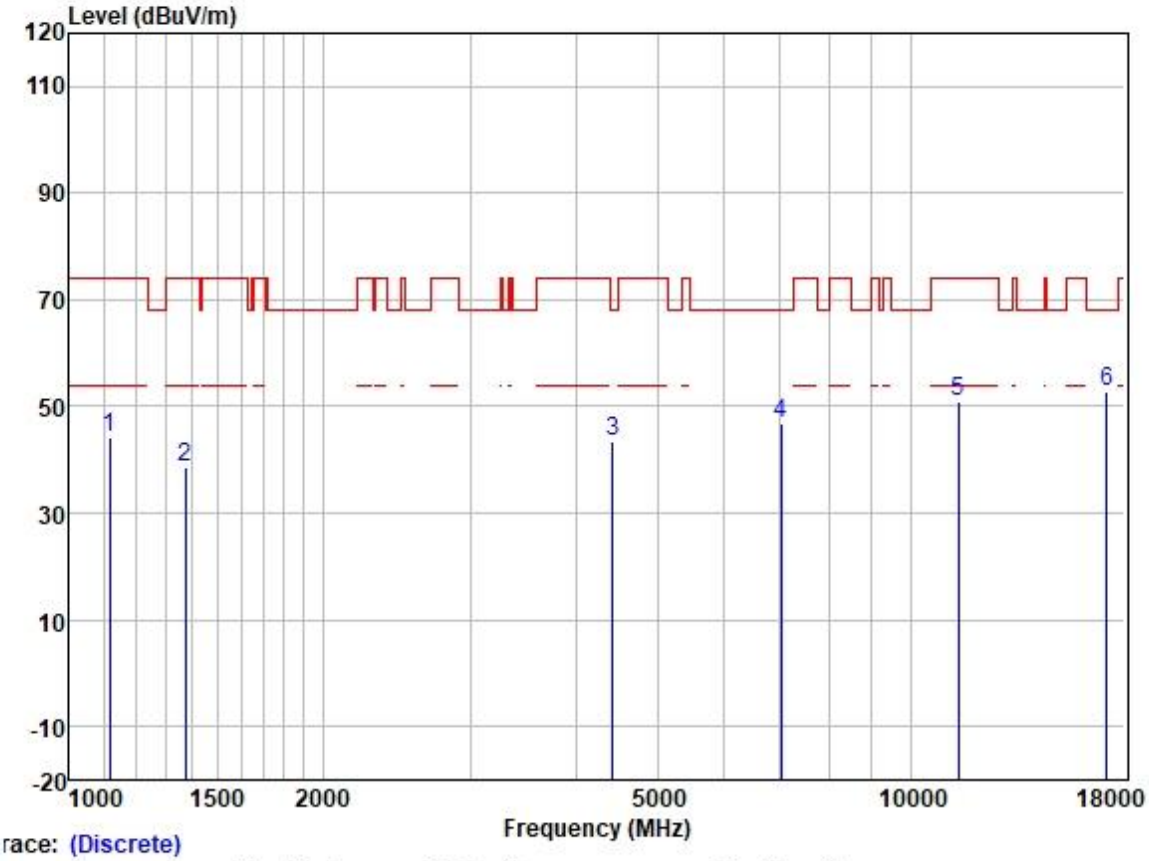
Test Mode: 10; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1274.802	51.32	25.12	4.74	38.33	42.85	68.20	-25.35	VERTICAL	peak
2	1390.276	50.34	25.38	3.36	38.22	40.86	74.00	-33.14	VERTICAL	peak
3	3556.843	47.04	28.98	4.37	36.92	43.47	68.20	-24.73	VERTICAL	peak
4	7158.806	41.79	35.40	6.70	37.35	46.54	68.20	-21.66	VERTICAL	peak
5	11400.000	39.48	39.94	8.75	37.16	51.01	74.00	-22.99	VERTICAL	peak
6	17100.000	30.36	42.32	14.73	35.34	52.07	68.20	-16.13	VERTICAL	peak

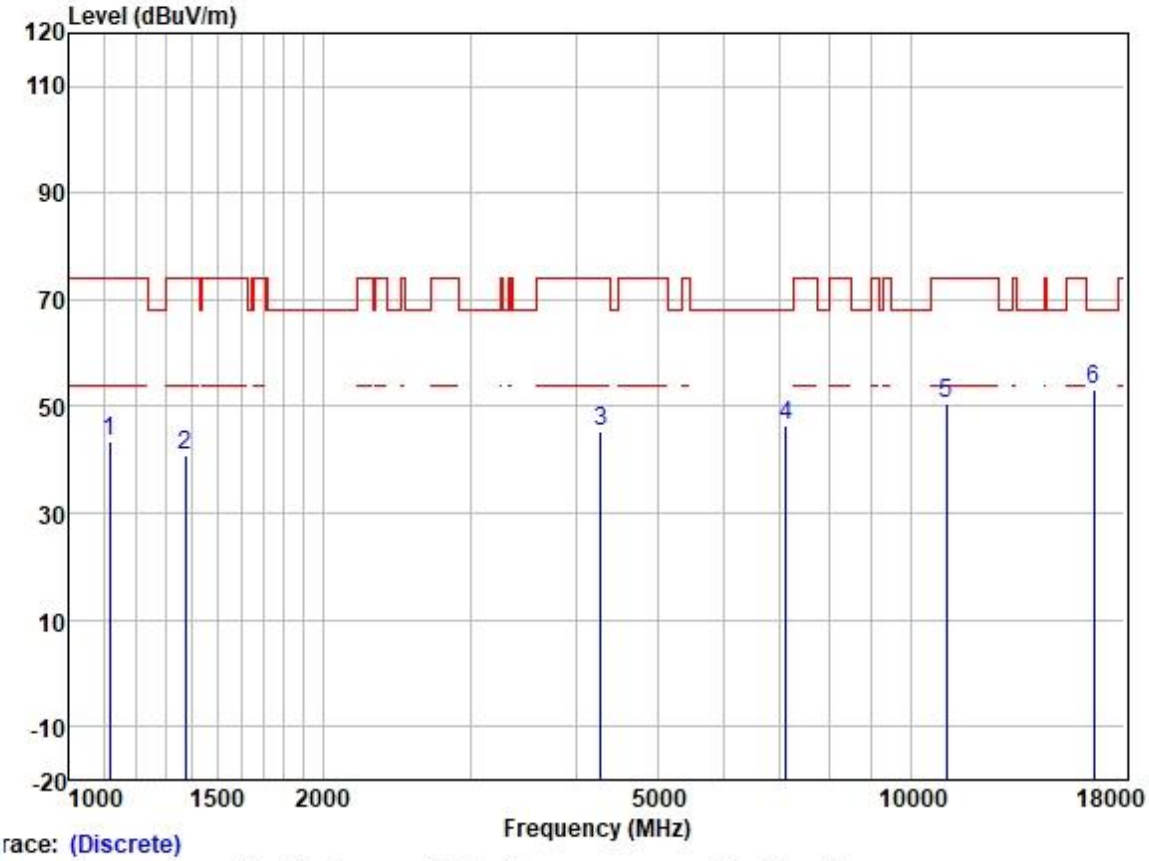
Test Mode: 10; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	50.63	24.40	7.46	38.43	44.06	74.00	-29.94	HORIZONTAL	peak
2	1374.295	48.10	25.35	3.48	38.25	38.68	74.00	-35.32	HORIZONTAL	peak
3	4430.628	44.53	30.72	4.86	36.81	43.30	68.20	-24.90	HORIZONTAL	peak
4	7015.420	42.29	35.04	6.74	37.27	46.80	68.20	-21.40	HORIZONTAL	peak
5	11400.000	39.53	39.94	8.75	37.16	51.06	74.00	-22.94	HORIZONTAL	peak
6	17100.000	30.97	42.32	14.73	35.34	52.68	68.20	-15.52	HORIZONTAL	peak

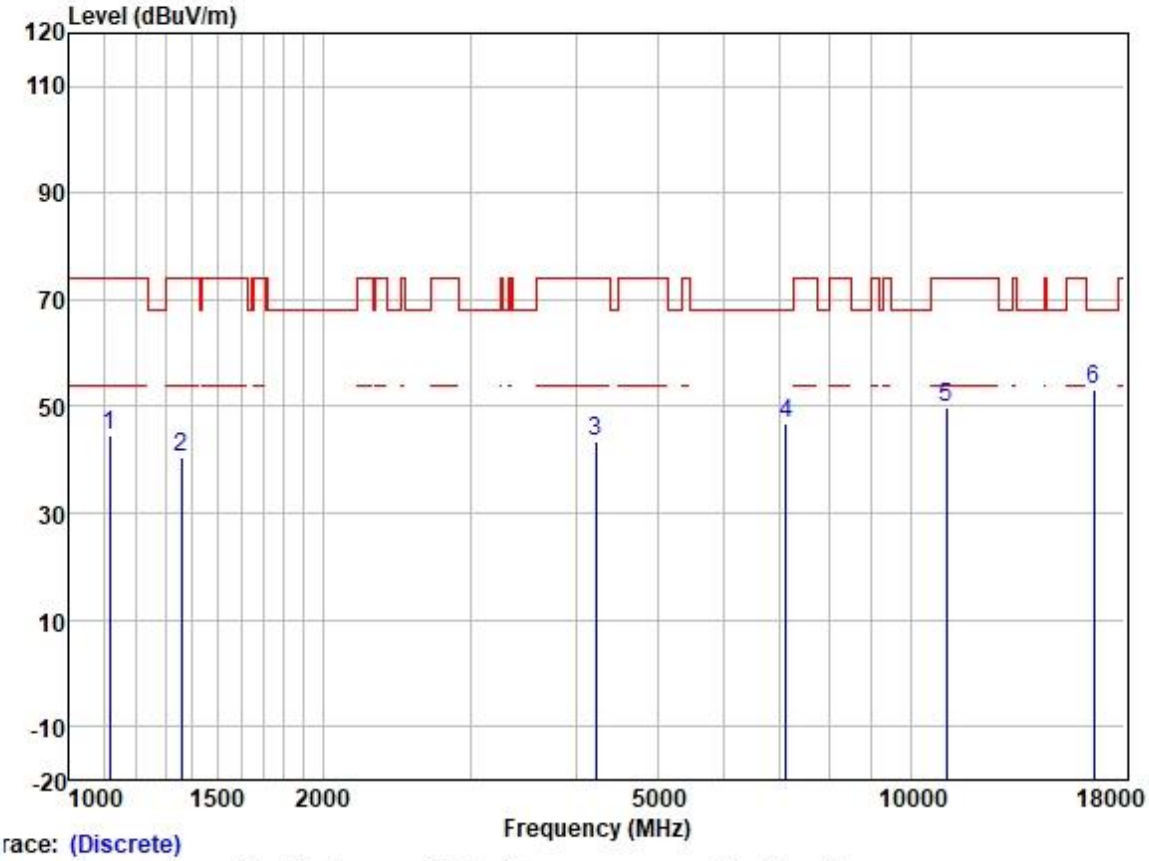
Test Mode: 10; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	50.18	24.40	7.46	38.43	43.61	74.00	-30.39	VERTICAL	peak
2	1374.295	50.26	25.35	3.48	38.25	40.84	74.00	-33.16	VERTICAL	peak
3	4279.589	46.67	30.42	4.91	36.81	45.19	74.00	-28.81	VERTICAL	peak
4	7117.542	41.67	35.28	6.71	37.34	46.32	68.20	-21.88	VERTICAL	peak
5	11020.000	39.14	40.10	8.43	37.24	50.43	74.00	-23.57	VERTICAL	peak
6	16530.000	37.84	39.76	10.96	35.38	53.18	68.20	-15.02	VERTICAL	peak

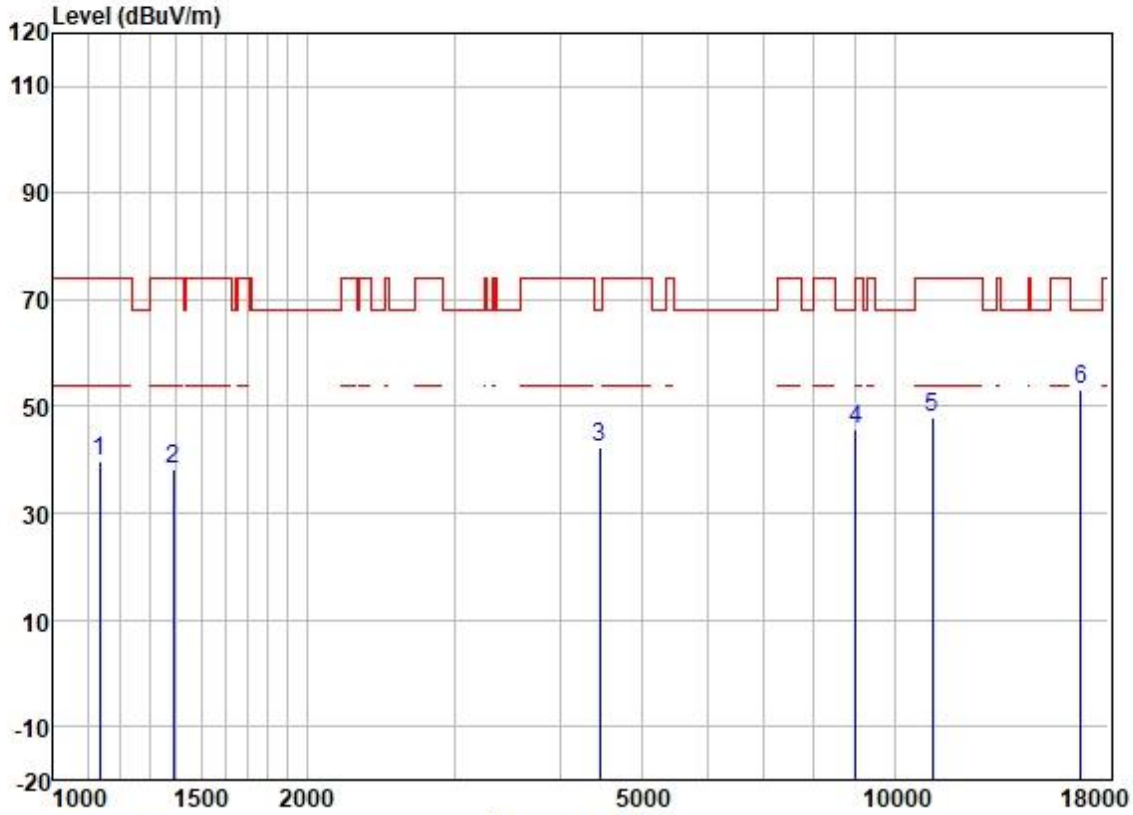
Test Mode: 10; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	51.01	24.40	7.46	38.43	44.44	74.00	-29.56	HORIZONTAL	peak
2	1358.498	49.83	25.33	3.61	38.27	40.50	74.00	-33.50	HORIZONTAL	peak
3	4230.396	44.98	30.26	4.94	36.81	43.37	74.00	-30.63	HORIZONTAL	peak
4	7117.542	42.17	35.28	6.71	37.34	46.82	68.20	-21.38	HORIZONTAL	peak
5	11020.000	38.51	40.10	8.43	37.24	49.80	74.00	-24.20	HORIZONTAL	peak
6	16530.000	37.90	39.76	10.96	35.38	53.24	68.20	-14.96	HORIZONTAL	peak

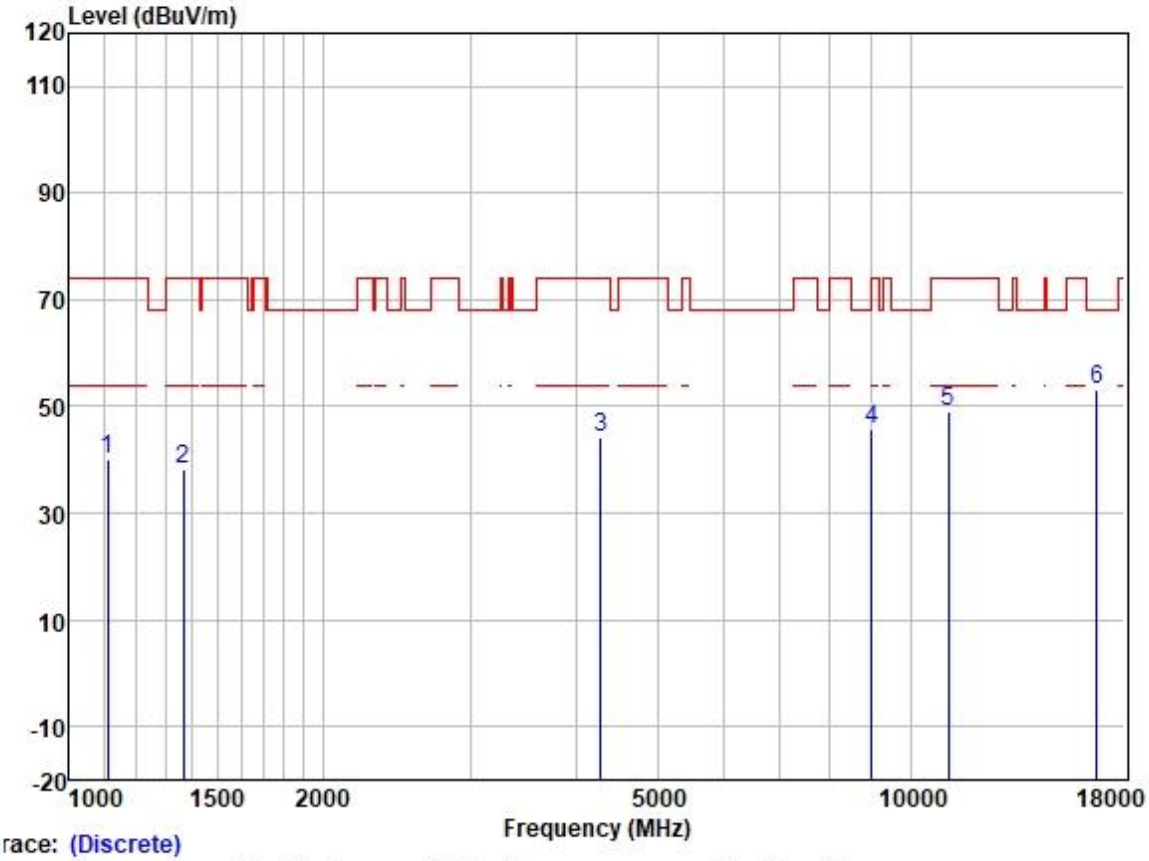
Test Mode: 10; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1135.617	46.60	24.45	7.29	38.43	39.91	74.00	-34.09	VERTICAL	peak
2	1390.276	47.54	25.38	3.36	38.22	38.06	74.00	-35.94	VERTICAL	peak
3	4456.315	43.54	30.75	4.86	36.81	42.34	68.20	-25.86	VERTICAL	peak
4	8995.123	38.56	37.40	7.39	37.50	45.85	68.20	-22.35	VERTICAL	peak
5	11100.000	36.64	40.07	8.49	37.22	47.98	74.00	-26.02	VERTICAL	peak
6	16650.000	36.79	40.10	11.54	35.38	53.05	68.20	-15.15	VERTICAL	peak

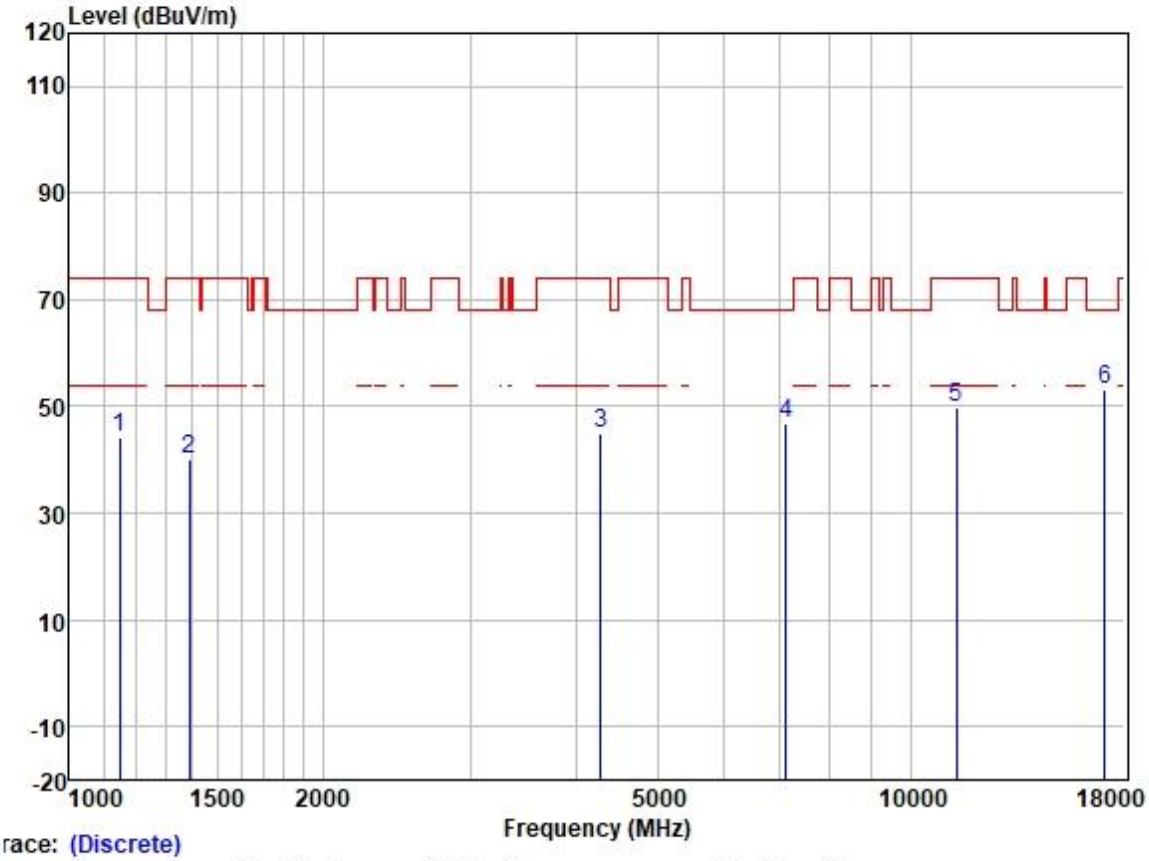
Test Mode: 10; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	46.79	24.39	7.51	38.45	40.24	74.00	-33.76	HORIZONTAL	peak
2	1366.374	47.74	25.34	3.55	38.25	38.38	74.00	-35.62	HORIZONTAL	peak
3	4279.589	45.64	30.42	4.91	36.81	44.16	74.00	-29.84	HORIZONTAL	peak
4	8995.123	38.40	37.40	7.39	37.50	45.69	68.20	-22.51	HORIZONTAL	peak
5	11100.000	37.59	40.07	8.49	37.22	48.93	74.00	-25.07	HORIZONTAL	peak
6	16650.000	36.95	40.10	11.54	35.38	53.21	68.20	-14.99	HORIZONTAL	peak

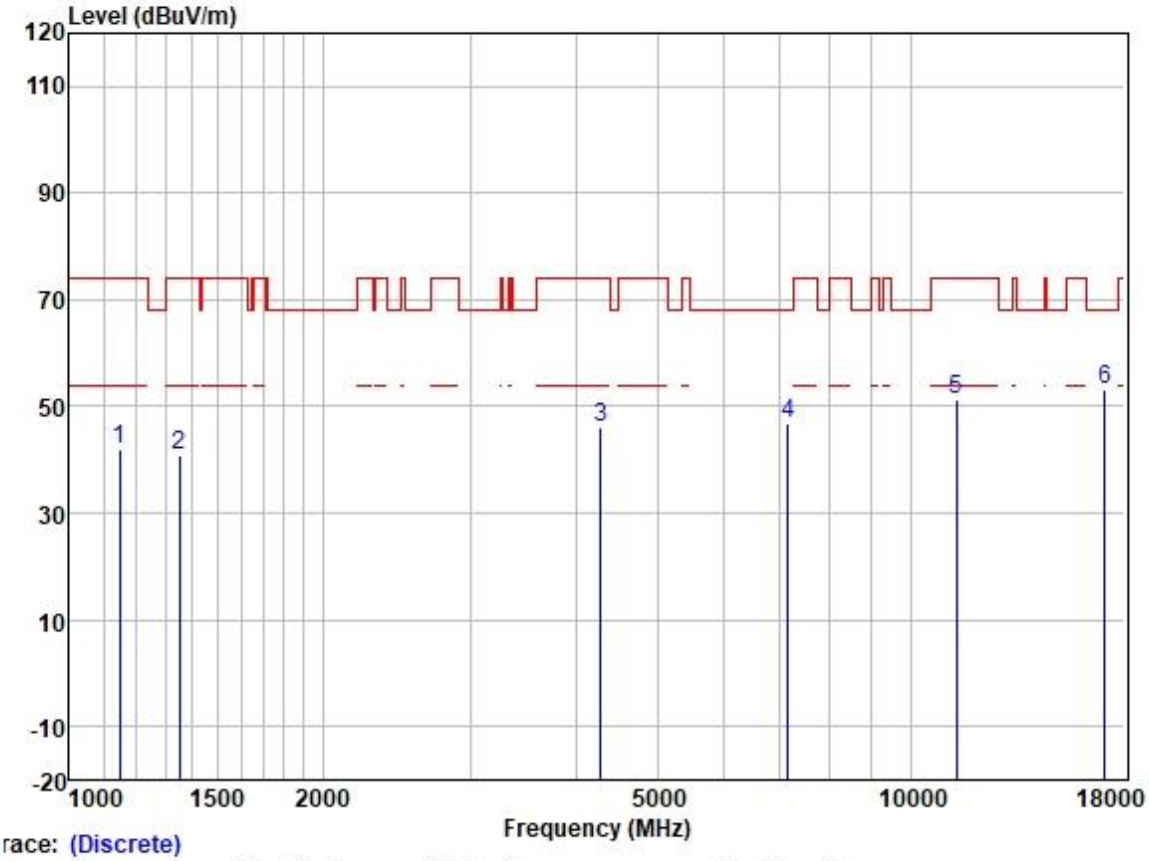
Test Mode: 10; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1148.823	50.95	24.49	7.17	38.42	44.19	74.00	-29.81	VERTICAL	peak
2	1390.276	49.71	25.38	3.36	38.22	40.23	74.00	-33.77	VERTICAL	peak
3	4279.589	46.34	30.42	4.91	36.81	44.86	74.00	-29.14	VERTICAL	peak
4	7117.542	42.05	35.28	6.71	37.34	46.70	68.20	-21.50	VERTICAL	peak
5	11340.000	38.31	39.97	8.69	37.17	49.80	74.00	-24.20	VERTICAL	peak
6	17010.000	33.00	41.75	13.76	35.35	53.16	68.20	-15.04	VERTICAL	peak

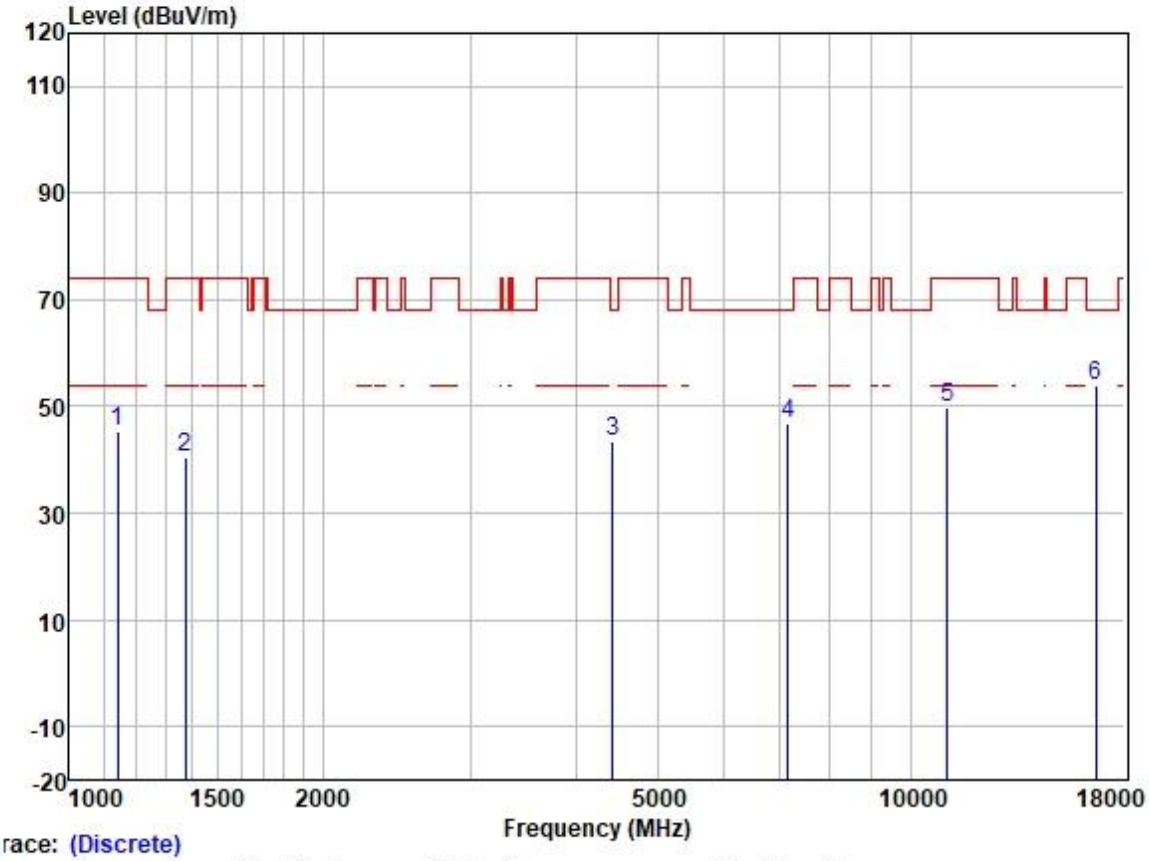
Test Mode: 10; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1148.823	48.88	24.49	7.17	38.42	42.12	74.00	-31.88	HORIZONTAL	peak
2	1350.667	50.13	25.31	3.68	38.27	40.85	74.00	-33.15	HORIZONTAL	peak
3	4279.589	47.72	30.42	4.91	36.81	46.24	74.00	-27.76	HORIZONTAL	peak
4	7158.806	42.13	35.40	6.70	37.35	46.88	68.20	-21.32	HORIZONTAL	peak
5	11340.000	39.81	39.97	8.69	37.17	51.30	74.00	-22.70	HORIZONTAL	peak
6	17010.000	32.85	41.75	13.76	35.35	53.01	68.20	-15.19	HORIZONTAL	peak

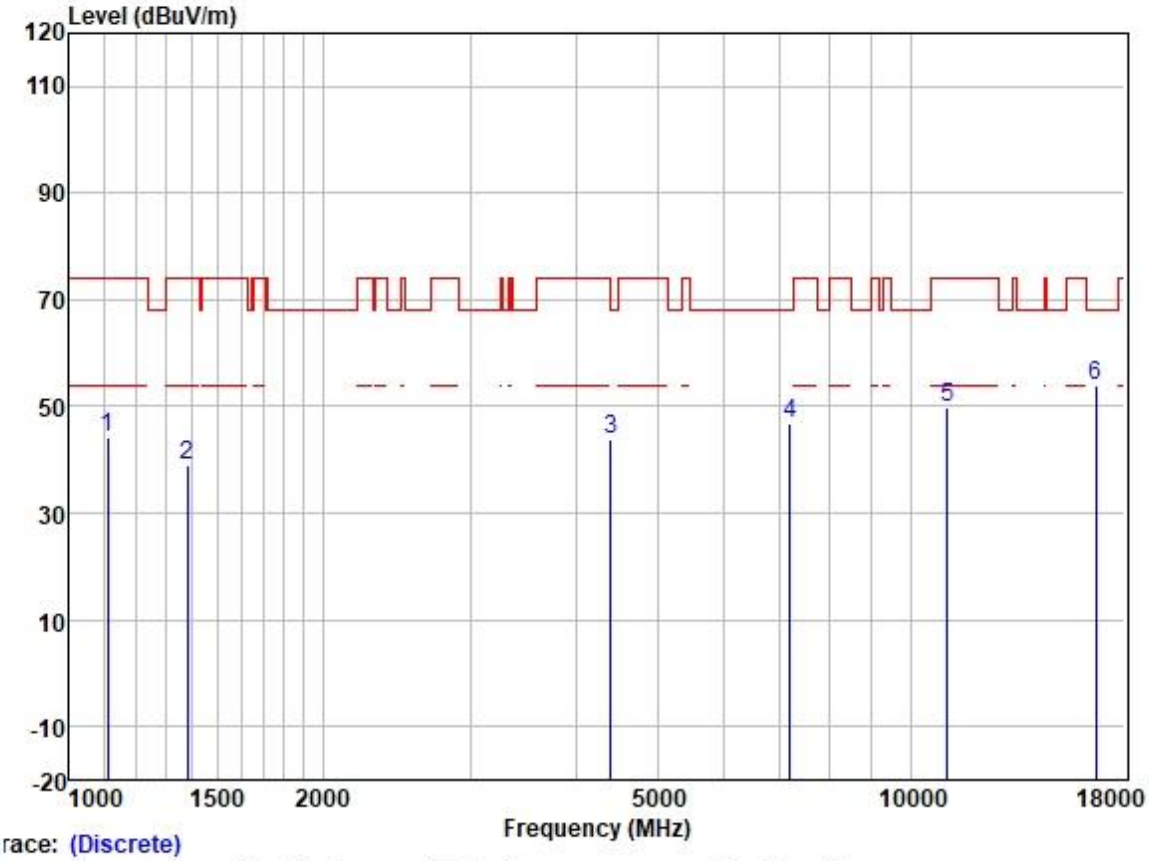
Test Mode: 10; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1142.201	51.88	24.47	7.23	38.42	45.16	74.00	-28.84	VERTICAL	peak
2	1374.295	50.06	25.35	3.48	38.25	40.64	74.00	-33.36	VERTICAL	peak
3	4430.628	44.79	30.72	4.86	36.81	43.56	68.20	-24.64	VERTICAL	peak
4	7158.806	42.08	35.40	6.70	37.35	46.83	68.20	-21.37	VERTICAL	peak
5	11060.000	38.64	40.09	8.45	37.23	49.95	74.00	-24.05	VERTICAL	peak
6	16590.000	38.05	39.93	11.24	35.38	53.84	68.20	-14.36	VERTICAL	peak

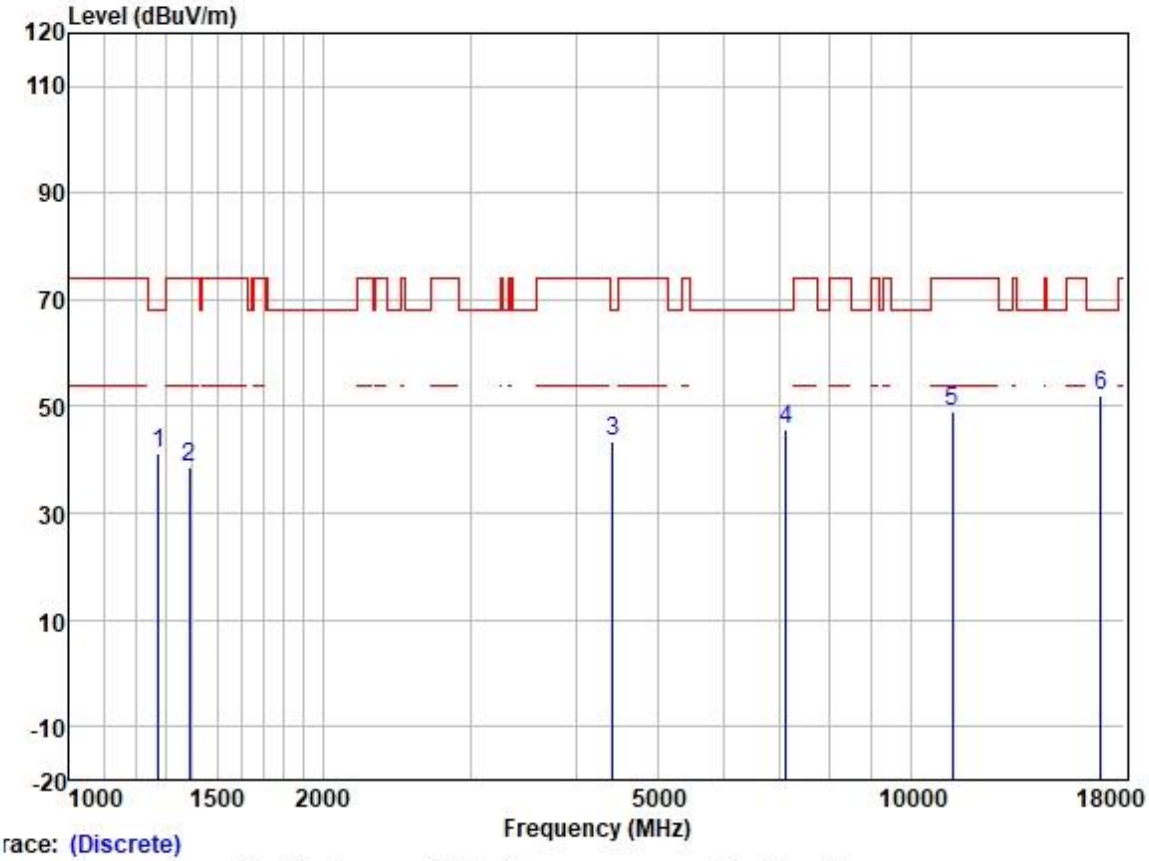
Test Mode: 10; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	50.68	24.39	7.51	38.45	44.13	74.00	-29.87	HORIZONTAL	peak
2	1382.262	48.52	25.37	3.42	38.25	39.06	74.00	-34.94	HORIZONTAL	peak
3	4405.090	44.92	30.68	4.87	36.81	43.66	68.20	-24.54	HORIZONTAL	peak
4	7200.309	41.88	35.54	6.68	37.38	46.72	68.20	-21.48	HORIZONTAL	peak
5	11060.000	38.68	40.09	8.45	37.23	49.99	74.00	-24.01	HORIZONTAL	peak
6	16590.000	38.08	39.93	11.24	35.38	53.87	68.20	-14.33	HORIZONTAL	peak

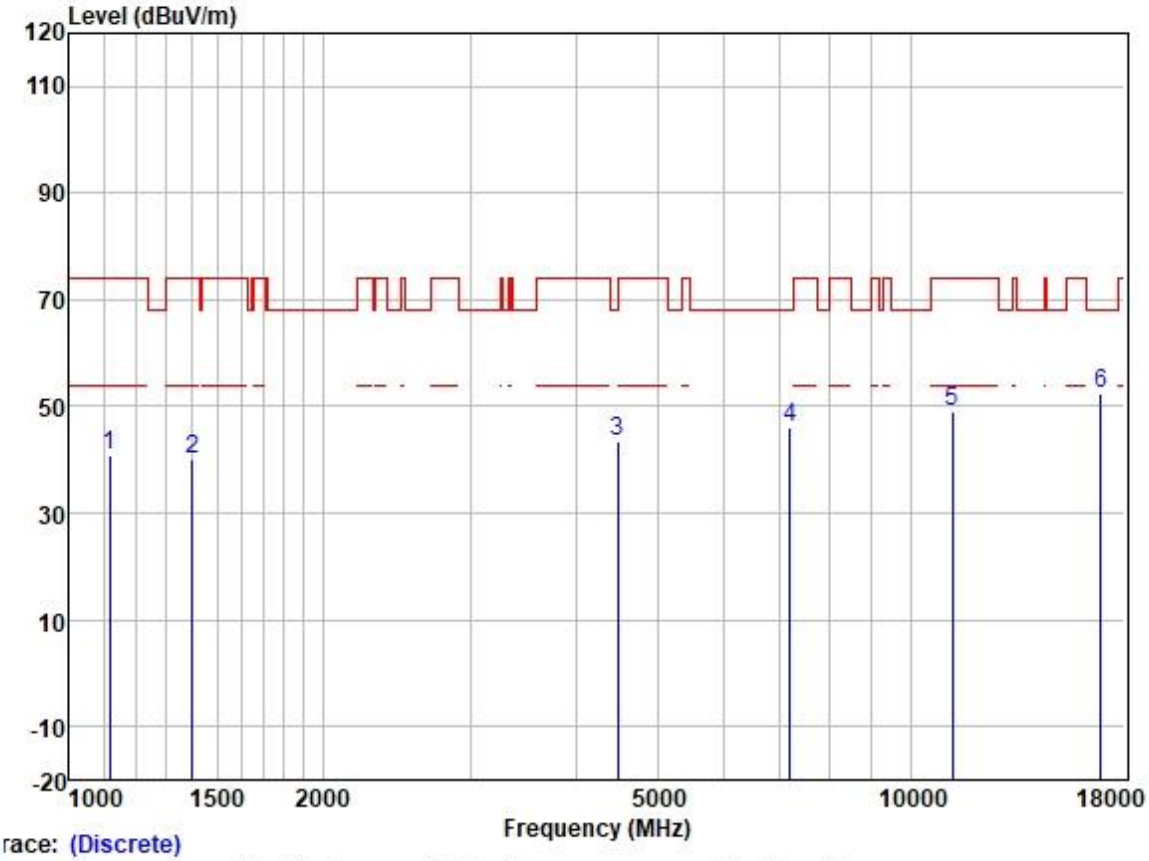
Test Mode: 10; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1274.802	49.55	25.12	4.74	38.33	41.08	68.20	-27.12	VERTICAL	peak
2	1390.276	48.03	25.38	3.36	38.22	38.55	74.00	-35.45	VERTICAL	peak
3	4430.628	44.60	30.72	4.86	36.81	43.37	68.20	-24.83	VERTICAL	peak
4	7117.542	40.90	35.28	6.71	37.34	45.55	68.20	-22.65	VERTICAL	peak
5	11220.000	37.68	40.03	8.56	37.19	49.08	74.00	-24.92	VERTICAL	peak
6	16830.000	33.68	40.94	12.92	35.37	52.17	68.20	-16.03	VERTICAL	peak

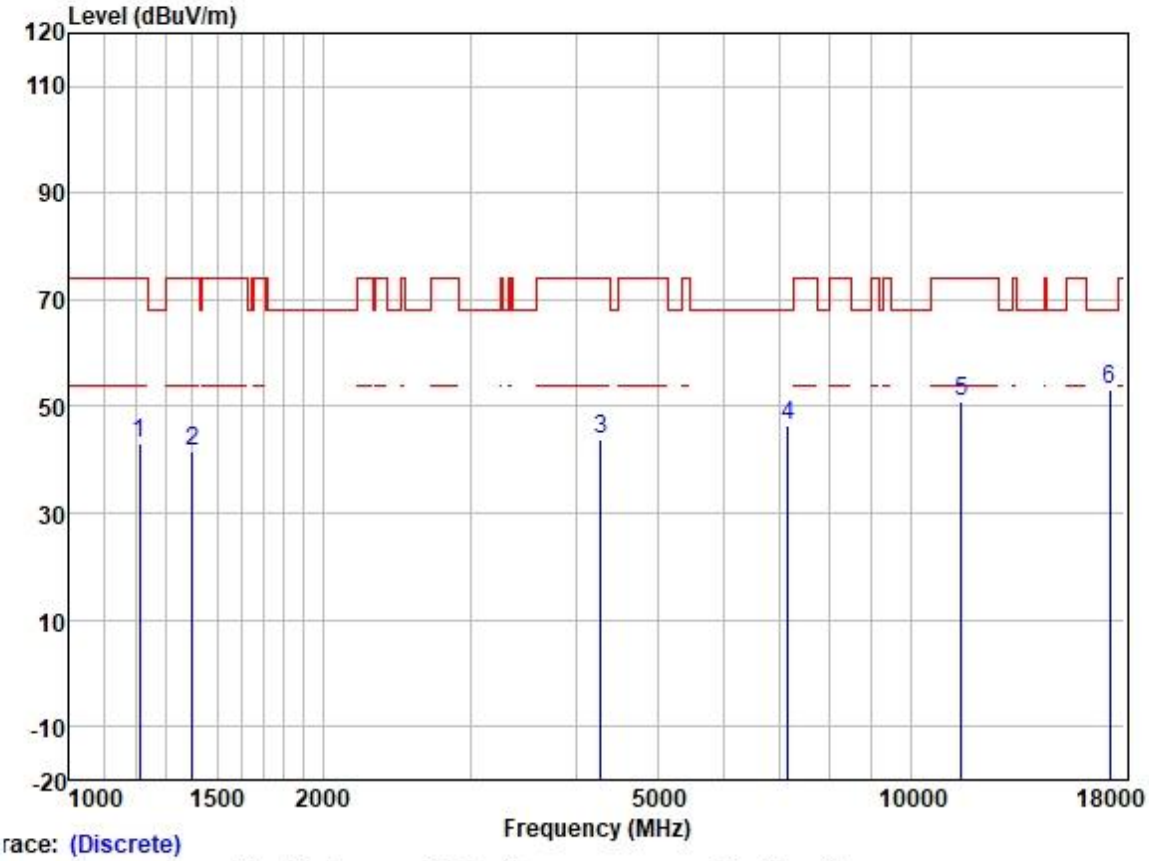
Test Mode: 10; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	47.30	24.40	7.46	38.43	40.73	74.00	-33.27	HORIZONTAL	peak
2	1398.336	49.73	25.39	3.31	38.22	40.21	74.00	-33.79	HORIZONTAL	peak
3	4482.150	44.81	30.78	4.85	36.81	43.63	68.20	-24.57	HORIZONTAL	peak
4	7200.309	41.11	35.54	6.68	37.38	45.95	68.20	-22.25	HORIZONTAL	peak
5	11220.000	37.50	40.03	8.56	37.19	48.90	74.00	-25.10	HORIZONTAL	peak
6	16830.000	33.90	40.94	12.92	35.37	52.39	68.20	-15.81	HORIZONTAL	peak

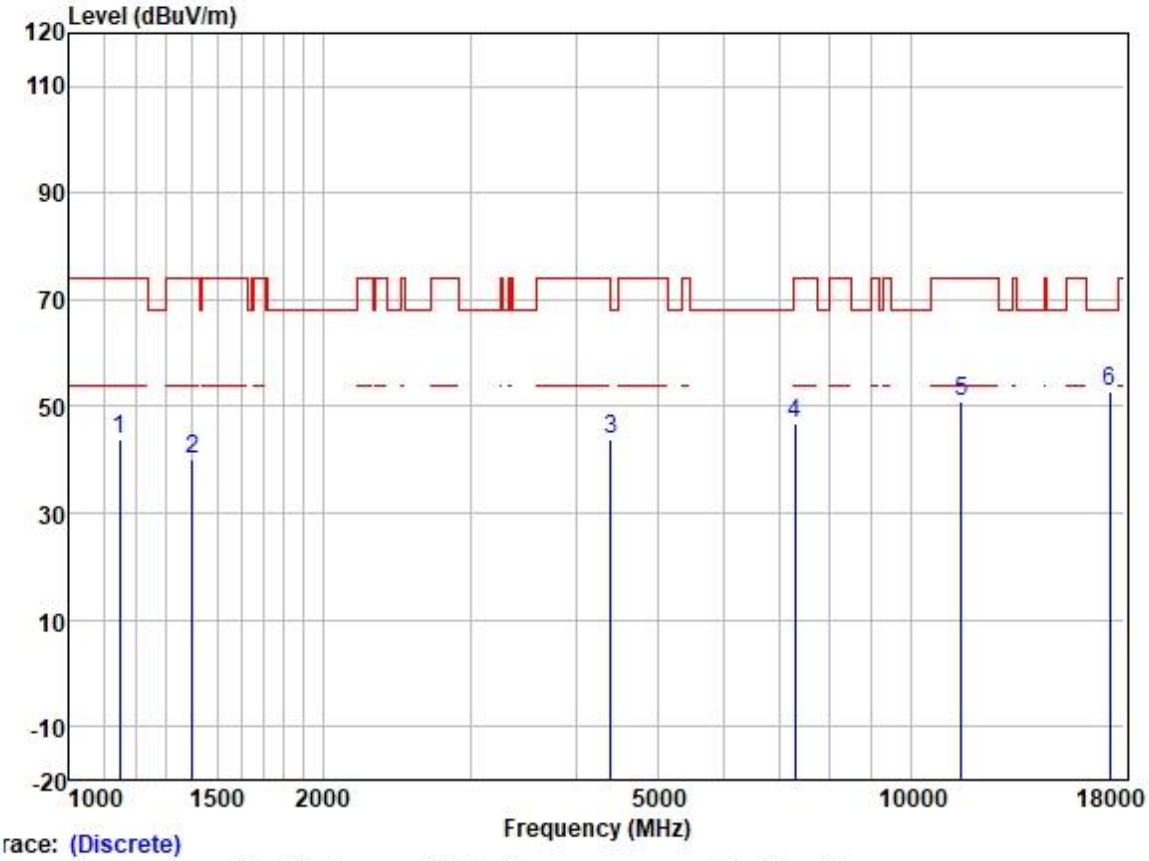
Test Mode: 11; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1210.174	50.32	24.74	6.38	38.39	43.05	74.00	-30.95	VERTICAL	peak
2	1398.336	51.15	25.39	3.31	38.22	41.63	74.00	-32.37	VERTICAL	peak
3	4279.589	45.36	30.42	4.91	36.81	43.88	74.00	-30.12	VERTICAL	peak
4	7158.806	41.70	35.40	6.70	37.35	46.45	68.20	-21.75	VERTICAL	peak
5	11490.000	39.18	39.90	8.82	37.15	50.75	74.00	-23.25	VERTICAL	peak
6	17235.000	28.98	43.01	16.51	35.33	53.17	68.20	-15.03	VERTICAL	peak

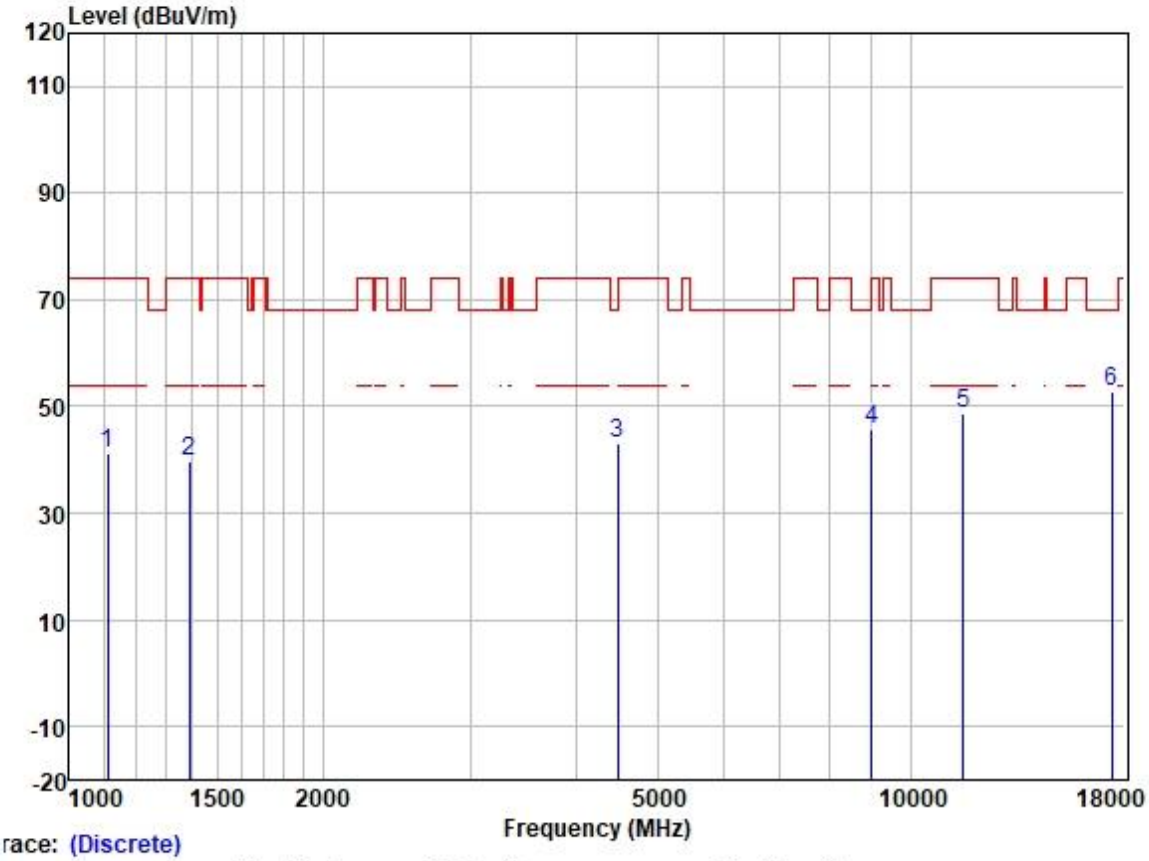
Test Mode: 11; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1148.823	50.64	24.49	7.17	38.42	43.88	74.00	-30.12	HORIZONTAL	peak
2	1398.336	49.51	25.39	3.31	38.22	39.99	74.00	-34.01	HORIZONTAL	peak
3	4405.090	45.26	30.68	4.87	36.81	44.00	68.20	-24.20	HORIZONTAL	peak
4	7284.038	41.84	35.86	6.63	37.41	46.92	74.00	-27.08	HORIZONTAL	peak
5	11490.000	39.21	39.90	8.82	37.15	50.78	74.00	-23.22	HORIZONTAL	peak
6	17235.000	28.56	43.01	16.51	35.33	52.75	68.20	-15.45	HORIZONTAL	peak

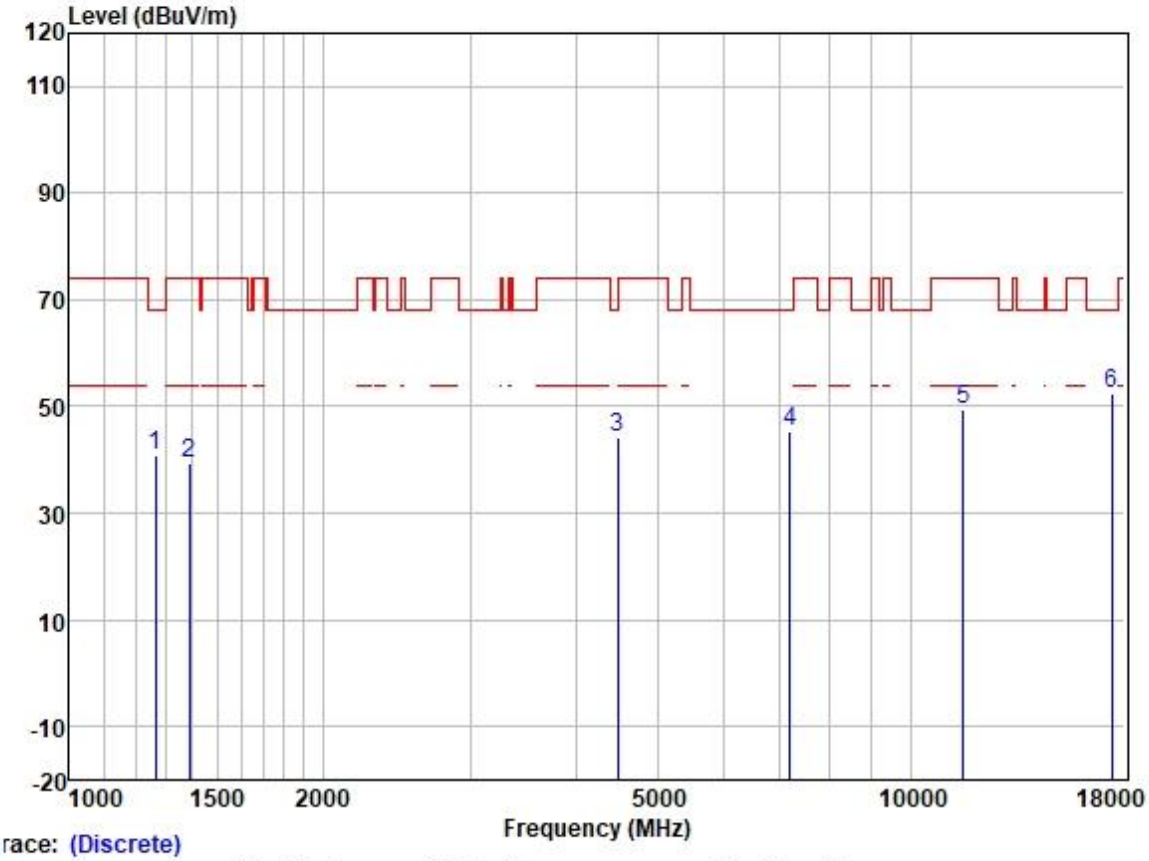
Test Mode: 11; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	47.90	24.39	7.51	38.45	41.35	74.00	-32.65	VERTICAL	peak
2	1390.276	49.35	25.38	3.36	38.22	39.87	74.00	-34.13	VERTICAL	peak
3	4482.150	44.45	30.78	4.85	36.81	43.27	68.20	-24.93	VERTICAL	peak
4	8995.123	38.38	37.40	7.39	37.50	45.67	68.20	-22.53	VERTICAL	peak
5	11570.000	37.27	39.78	8.82	37.14	48.73	74.00	-25.27	VERTICAL	peak
6	17355.000	26.85	43.40	17.75	35.32	52.68	68.20	-15.52	VERTICAL	peak

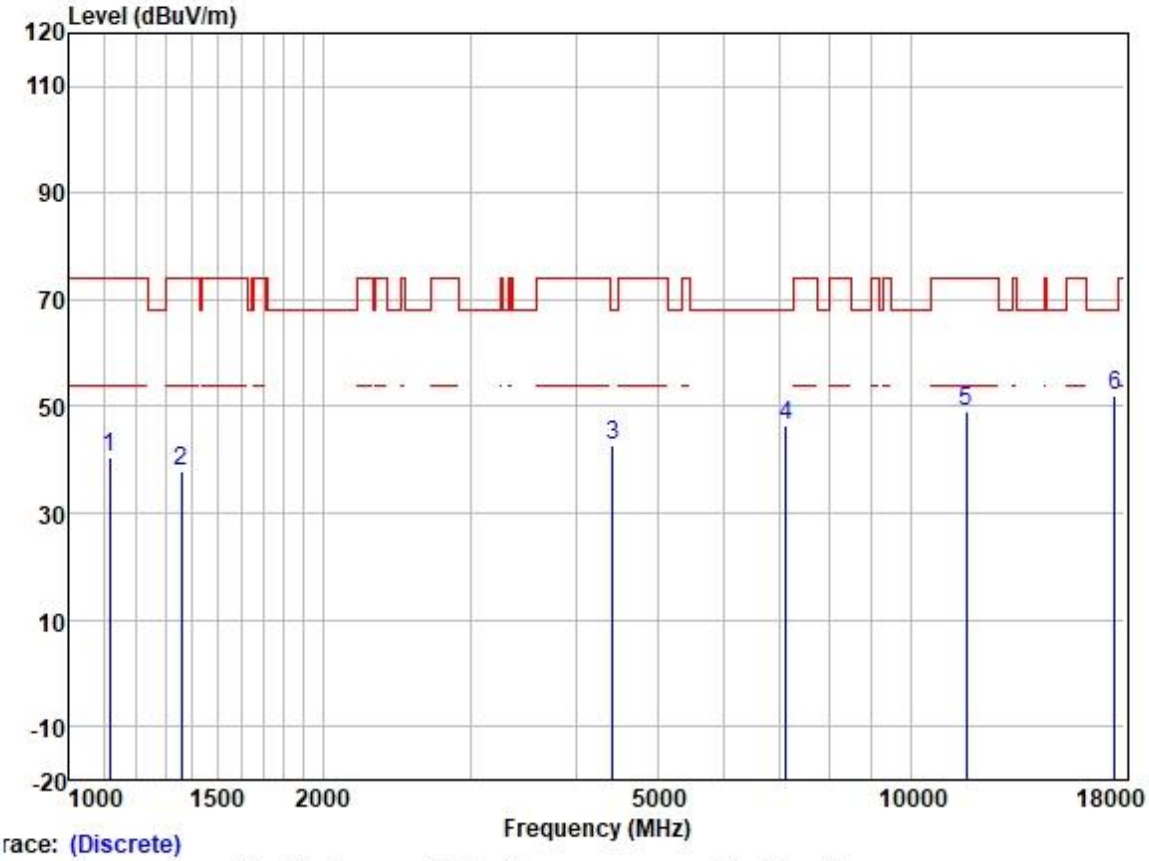
Test Mode: 11; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1267.454	49.02	25.10	4.91	38.33	40.70	68.20	-27.50	HORIZONTAL	peak
2	1390.276	48.84	25.38	3.36	38.22	39.36	74.00	-34.64	HORIZONTAL	peak
3	4482.150	45.24	30.78	4.85	36.81	44.06	68.20	-24.14	HORIZONTAL	peak
4	7200.309	40.63	35.54	6.68	37.38	45.47	68.20	-22.73	HORIZONTAL	peak
5	11570.000	38.10	39.78	8.82	37.14	49.56	74.00	-24.44	HORIZONTAL	peak
6	17355.000	26.70	43.40	17.75	35.32	52.53	68.20	-15.67	HORIZONTAL	peak

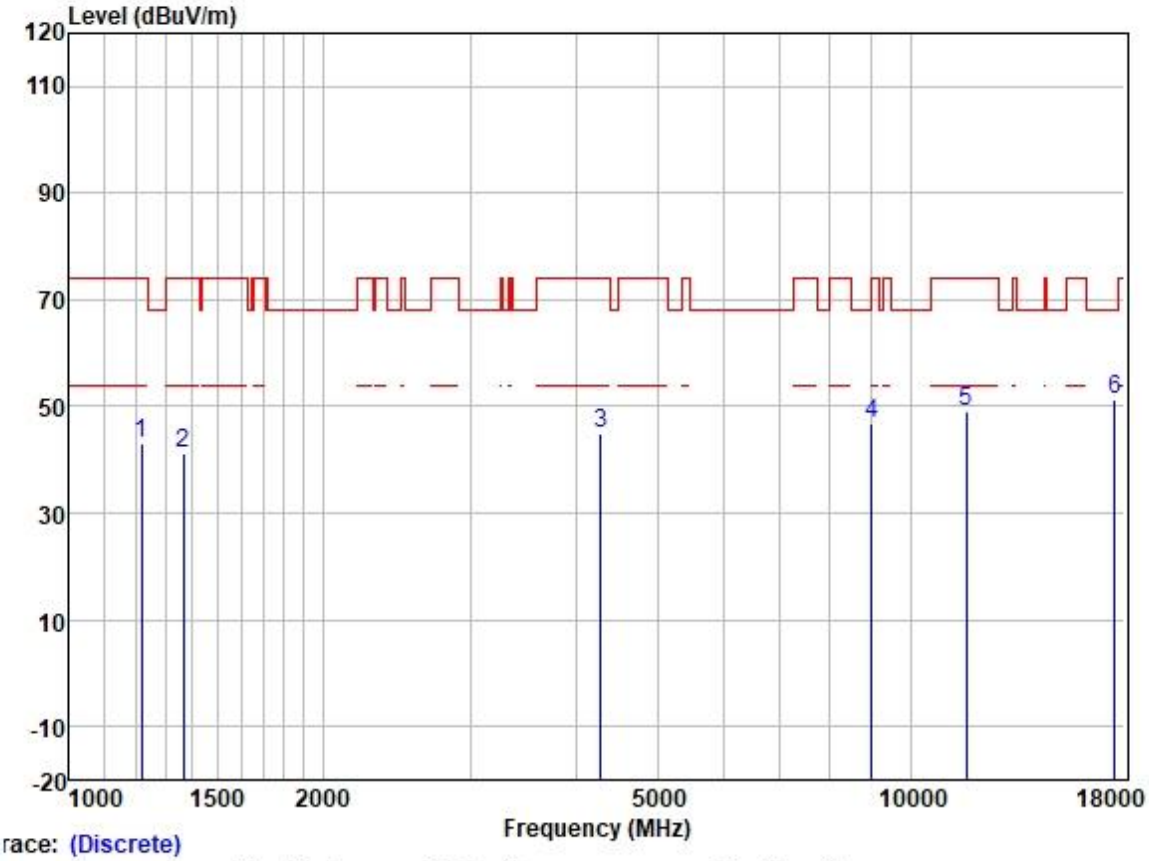
Test Mode: 11; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	46.92	24.40	7.46	38.43	40.35	74.00	-33.65	VERTICAL	peak
2	1358.498	47.29	25.33	3.61	38.27	37.96	74.00	-36.04	VERTICAL	peak
3	4430.628	43.94	30.72	4.86	36.81	42.71	68.20	-25.49	VERTICAL	peak
4	7117.542	41.63	35.28	6.71	37.34	46.28	68.20	-21.92	VERTICAL	peak
5	11650.000	37.61	39.65	8.81	37.13	48.94	74.00	-25.06	VERTICAL	peak
6	17475.000	24.09	43.90	19.26	35.32	51.93	68.20	-16.27	VERTICAL	peak

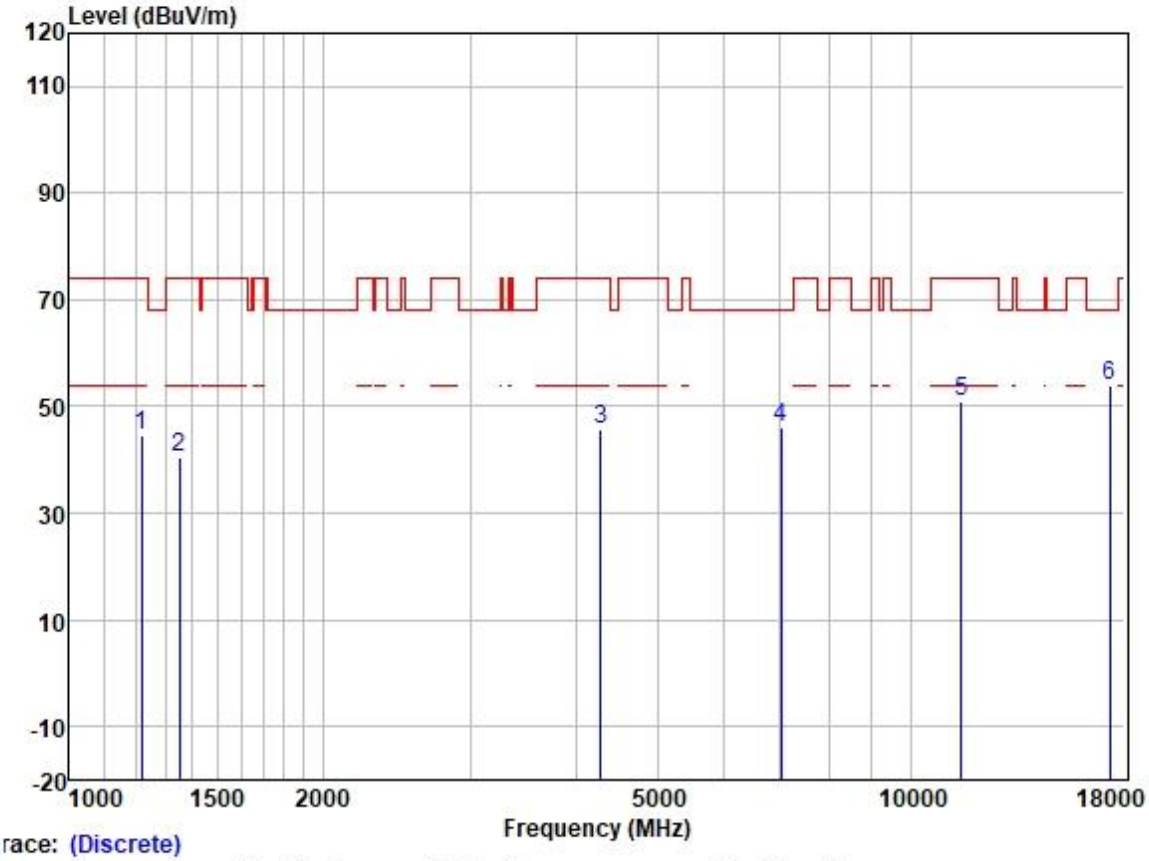
Test Mode: 11; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1217.190	50.54	24.79	6.26	38.37	43.22	74.00	-30.78	HORIZONTAL	peak
2	1366.374	50.44	25.34	3.55	38.25	41.08	74.00	-32.92	HORIZONTAL	peak
3	4279.589	46.55	30.42	4.91	36.81	45.07	74.00	-28.93	HORIZONTAL	peak
4	8995.123	39.41	37.40	7.39	37.50	46.70	68.20	-21.50	HORIZONTAL	peak
5	11650.000	37.81	39.65	8.81	37.13	49.14	74.00	-24.86	HORIZONTAL	peak
6	17475.000	23.56	43.90	19.26	35.32	51.40	68.20	-16.80	HORIZONTAL	peak

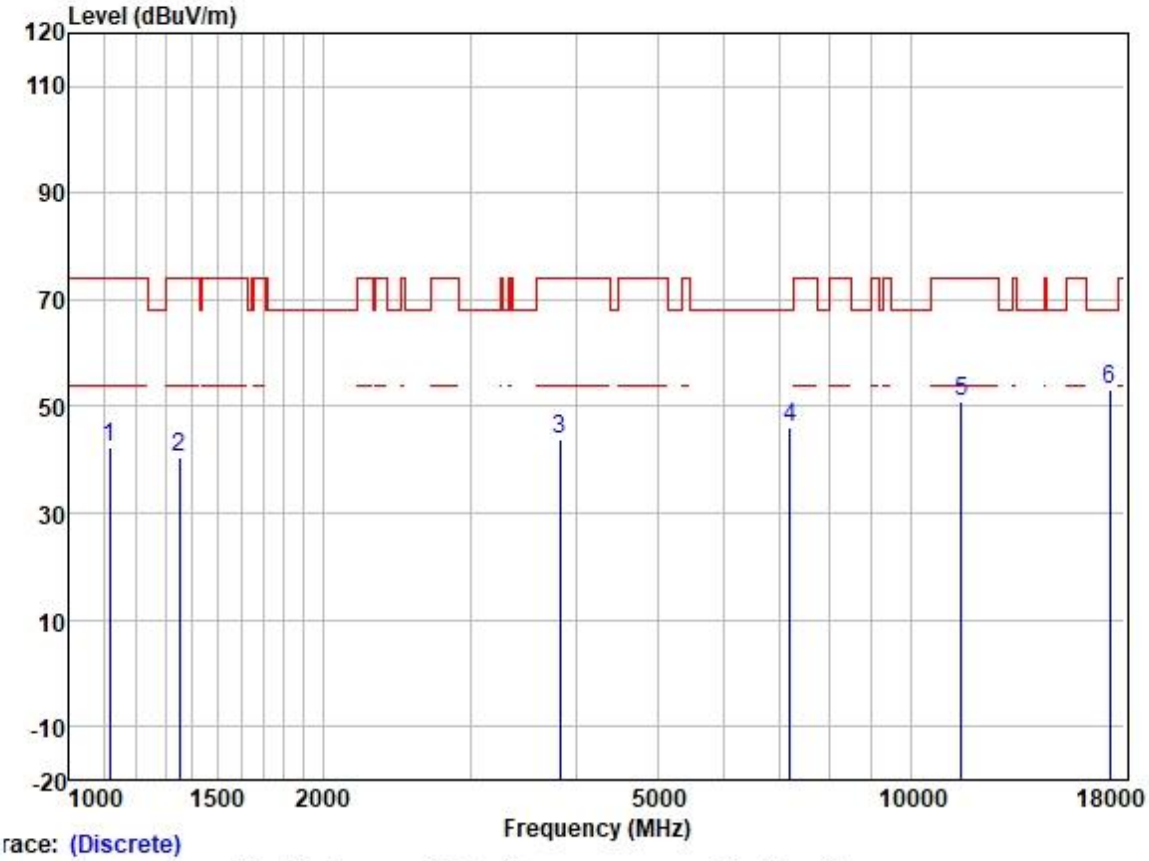
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1217.190	51.76	24.79	6.26	38.37	44.44	74.00	-29.56	VERTICAL	peak
2	1350.667	49.78	25.31	3.68	38.27	40.50	74.00	-33.50	VERTICAL	peak
3	4279.589	47.26	30.42	4.91	36.81	45.78	74.00	-28.22	VERTICAL	peak
4	7015.420	41.65	35.04	6.74	37.27	46.16	68.20	-22.04	VERTICAL	peak
5	11510.000	39.22	39.90	8.82	37.15	50.79	74.00	-23.21	VERTICAL	peak
6	17265.000	28.81	43.21	17.16	35.33	53.85	68.20	-14.35	VERTICAL	peak

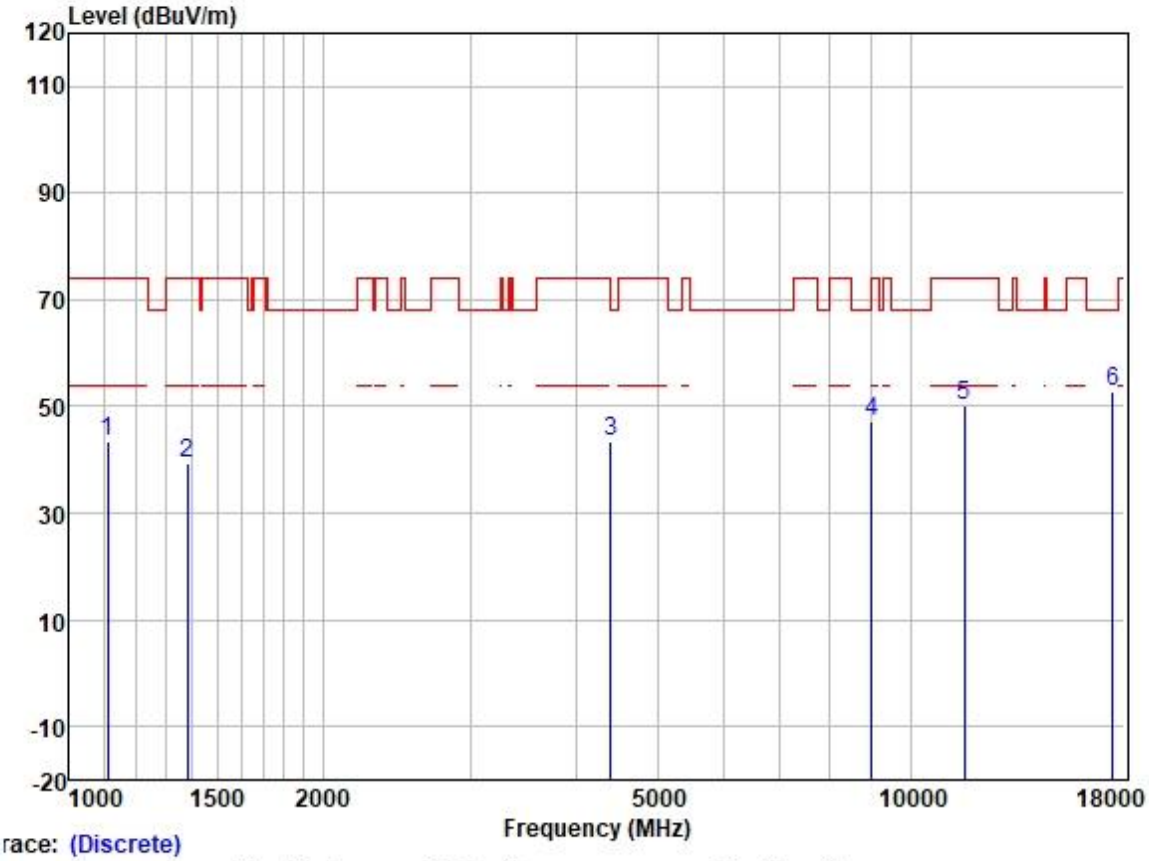
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	49.02	24.40	7.46	38.43	42.45	74.00	-31.55	HORIZONTAL	peak
2	1350.667	49.91	25.31	3.68	38.27	40.63	74.00	-33.37	HORIZONTAL	peak
3	3834.438	46.25	29.59	4.84	36.84	43.84	74.00	-30.16	HORIZONTAL	peak
4	7200.309	41.40	35.54	6.68	37.38	46.24	68.20	-21.96	HORIZONTAL	peak
5	11510.000	39.27	39.90	8.82	37.15	50.84	74.00	-23.16	HORIZONTAL	peak
6	17265.000	28.07	43.21	17.16	35.33	53.11	68.20	-15.09	HORIZONTAL	peak

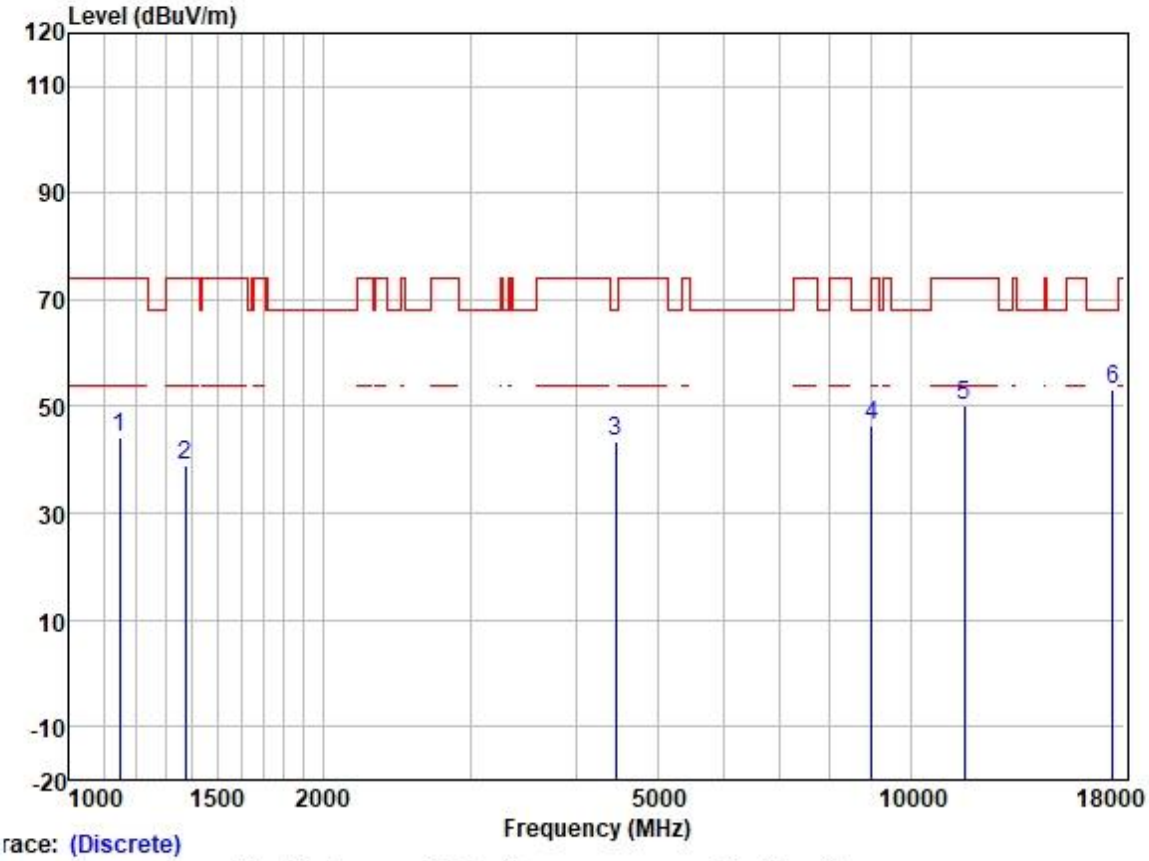
Test Mode: 11; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1109.660	50.16	24.39	7.51	38.45	43.61	74.00	-30.39	VERTICAL	peak
2	1382.262	48.97	25.37	3.42	38.25	39.51	74.00	-34.49	VERTICAL	peak
3	4405.090	44.65	30.68	4.87	36.81	43.39	68.20	-24.81	VERTICAL	peak
4	8995.123	39.80	37.40	7.39	37.50	47.09	68.20	-21.11	VERTICAL	peak
5	11590.000	38.78	39.72	8.82	37.14	50.18	74.00	-23.82	VERTICAL	peak
6	17385.000	26.31	43.57	18.29	35.32	52.85	68.20	-15.35	VERTICAL	peak

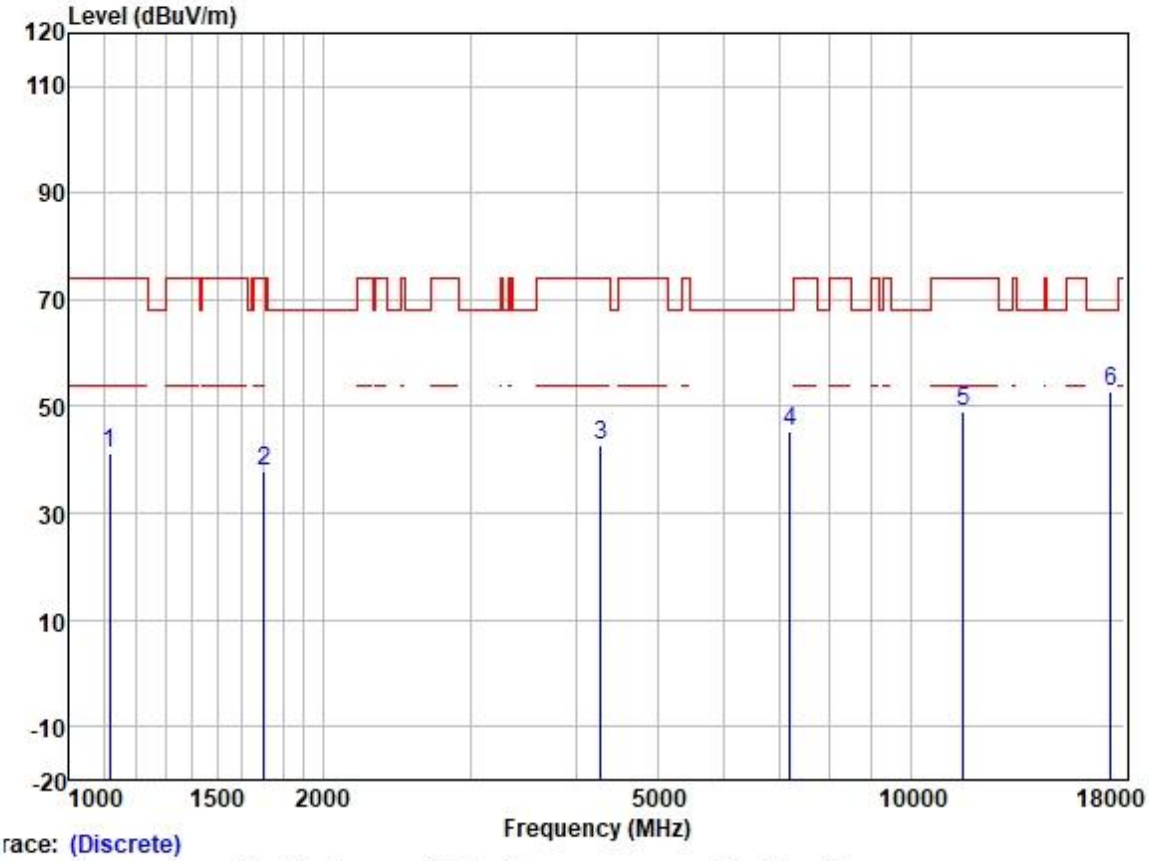
Test Mode: 11; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1148.823	50.85	24.49	7.17	38.42	44.09	74.00	-29.91	HORIZONTAL	peak
2	1374.295	48.30	25.35	3.48	38.25	38.88	74.00	-35.12	HORIZONTAL	peak
3	4456.315	44.85	30.75	4.86	36.81	43.65	68.20	-24.55	HORIZONTAL	peak
4	8995.123	39.28	37.40	7.39	37.50	46.57	68.20	-21.63	HORIZONTAL	peak
5	11590.000	38.90	39.72	8.82	37.14	50.30	74.00	-23.70	HORIZONTAL	peak
6	17385.000	26.53	43.57	18.29	35.32	53.07	68.20	-15.13	HORIZONTAL	peak

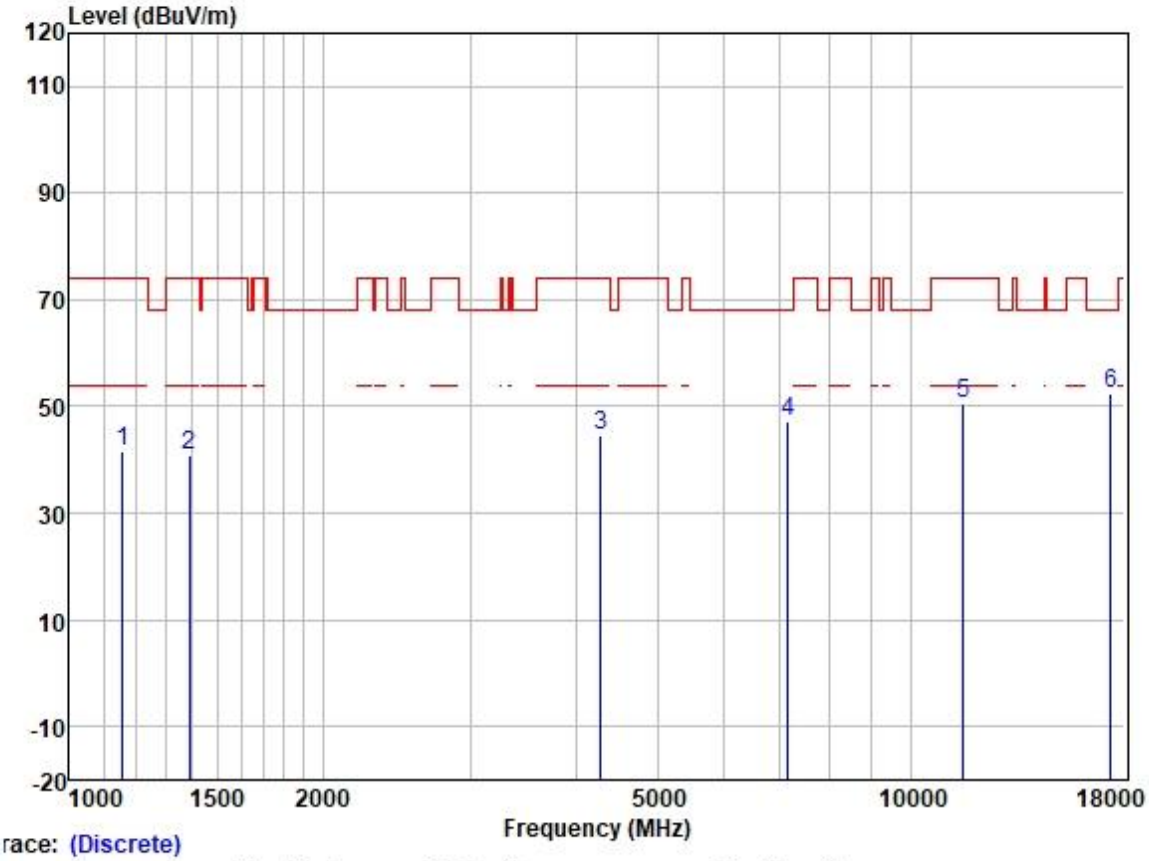
Test Mode: 11; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	47.68	24.40	7.46	38.43	41.11	74.00	-32.89	VERTICAL	peak
2	1702.042	47.01	25.72	2.94	37.89	37.78	74.00	-36.22	VERTICAL	peak
3	4279.589	44.24	30.42	4.91	36.81	42.76	74.00	-31.24	VERTICAL	peak
4	7200.309	40.68	35.54	6.68	37.38	45.52	68.20	-22.68	VERTICAL	peak
5	11550.000	37.68	39.84	8.82	37.14	49.20	74.00	-24.80	VERTICAL	peak
6	17325.000	26.86	43.40	17.75	35.32	52.69	68.20	-15.51	VERTICAL	peak

Test Mode: 07; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1155.483	48.27	24.51	7.10	38.42	41.46	74.00	-32.54	HORIZONTAL	peak
2	1390.276	50.23	25.38	3.36	38.22	40.75	74.00	-33.25	HORIZONTAL	peak
3	4279.589	46.13	30.42	4.91	36.81	44.65	74.00	-29.35	HORIZONTAL	peak
4	7158.806	42.43	35.40	6.70	37.35	47.18	68.20	-21.02	HORIZONTAL	peak
5	11550.000	39.11	39.84	8.82	37.14	50.63	74.00	-23.37	HORIZONTAL	peak
6	17325.000	26.48	43.40	17.75	35.32	52.31	68.20	-15.89	HORIZONTAL	peak

7.9 Radiated Emissions which fall in the restricted bands

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

Test Method: KDB 789033 D02 II G

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:

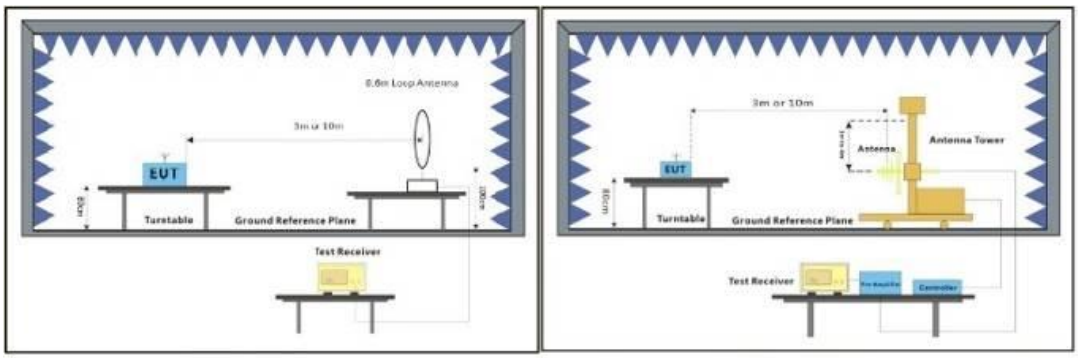
Temperature: 21.9 °C Humidity: 60.6 % RH Atmospheric Pressure: 1018 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	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). Only the data of worst case is recorded in the report.

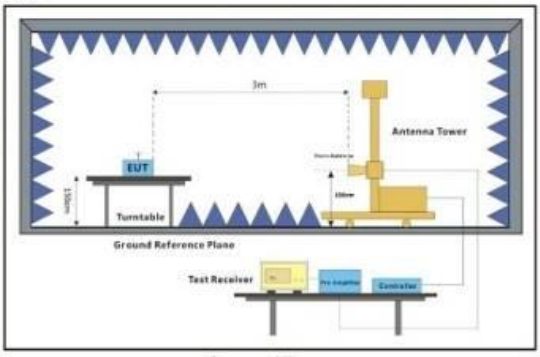
Final test	09	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ 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). Only the data of worst case is recorded in the report.
Final test	10	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). Only the data of worst case is recorded in the report.
Final test	11	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). Only the data of worst case is recorded in the report.

7.9.3 Test Setup Diagram



Below 30MHz

30MHz-1GHz



Above 1GHz

7.9.4 Measurement Procedure and Data

a. For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

b. For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters above the ground at a 3 meter fully-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

c. The EUT was set 3 or 10 meters away from the interference-receiving antenna, which was mounted on the top of a variable-height antenna tower.

d. The antenna height is varied from one meter to four meters above the ground to determine the maximum value of the field strength. Both horizontal and vertical polarizations of the antenna are set to make the measurement.

e. For each suspected emission, the EUT was arranged to its worst case and then the antenna was tuned to heights from 1 meter to 4 meters (for the test frequency of below 30MHz, the antenna was tuned to heights 1 meter) and the rotatable table was turned from 0 degrees to 360 degrees to find the maximum reading.

f. The test-receiver system was set to Peak Detect Function and Specified Bandwidth with Maximum Hold Mode.

g. If the emission level of the EUT in peak mode was 10dB lower than the limit specified, then testing could be stopped and the peak values of the EUT would be reported. Otherwise the emissions that did not have 10dB margin would be re-tested one by one using peak, quasi-peak or average method as specified and then reported in a data sheet.

h. Test the EUT in the lowest channel, the Highest channel.

i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.

j. Repeat above procedures until all frequencies measured was complete.

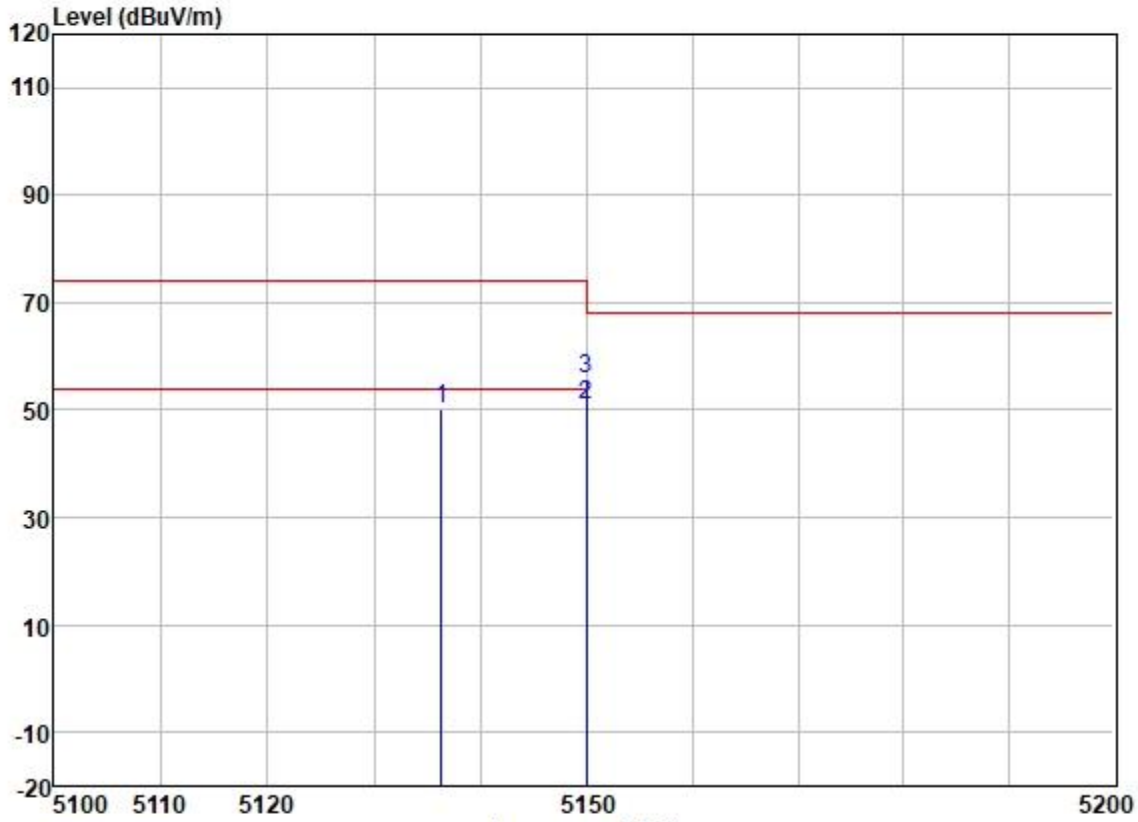
Remark 1: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

Remark 2:

1. Pretest the EUT at antenna 1 and antenna 2 and MIMO mode find the worst case is MIMO mode.

2. Pretest the EUT in 802.11a/ n(20)/ n(40)/ac (20)/ ac (40)/ ac(80) find the worst case are 802.11a /n(40)/ ac(80), only record the worst case test data 802.11a /n(40)/ ac(80) in this report.

Test Mode: 08; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low

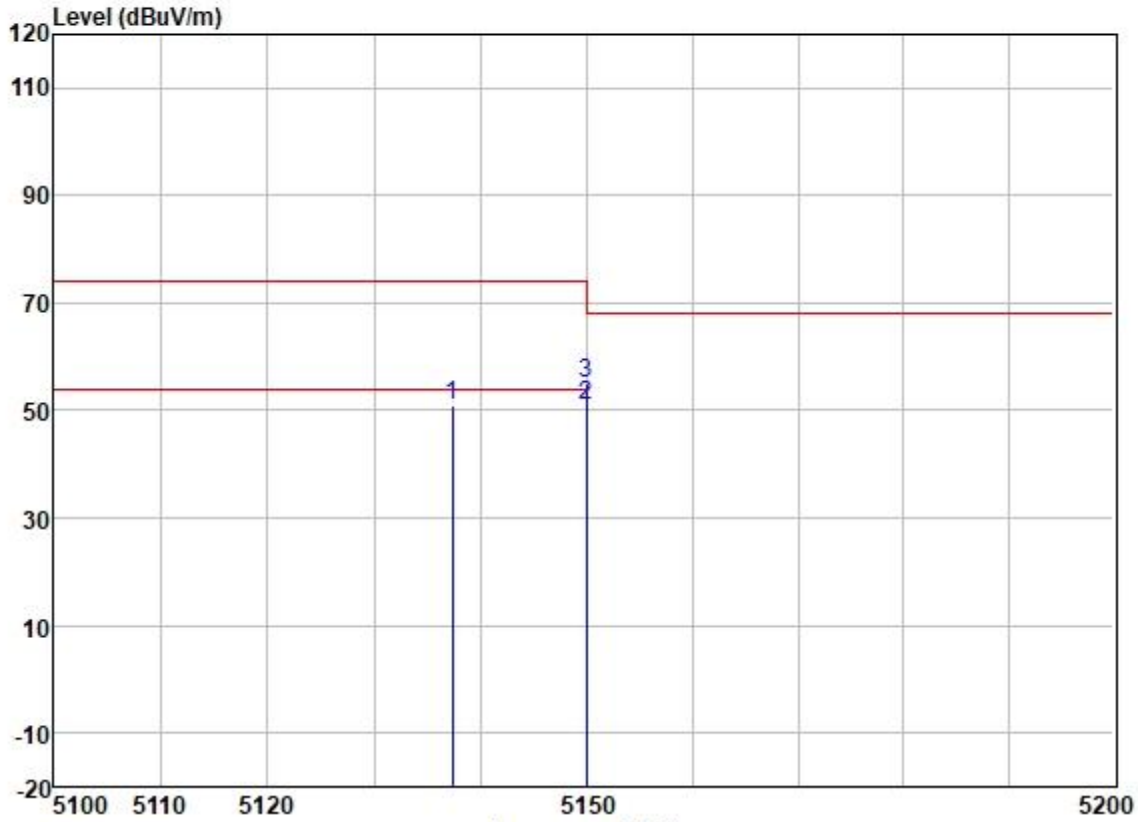


race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5136.375	49.97	31.72	5.41	36.86	50.24	74.00	-23.76	VERTICAL	Peak
2	5150.000	49.99	31.72	5.62	36.31	51.02	54.00	-2.98	VERTICAL	Average
3	5150.000	54.80	31.72	5.62	36.31	55.83	68.20	-12.37	VERTICAL	Peak

According to KDB 789033 D02 II G.						
Frequency (MHz)	Duty cycle	Factor(dB)*	AV Measured Level (dBuV/m)	AV Amendment Level** (dBuV/m)	Limit (dBuV/m)	Over limit (dB)
5150	62.55%	2.04	51.02	53.06	54	-0.94
*Remark: Factor(dB)=10log (1/Duty cycle) = 10*log (1/0.6255) = 2.04 dB **Remark: AV Amendment Level (dBuV/m) = AV Measured Level (dBuV/m) + Factor(dB)						

Test Mode: 08; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



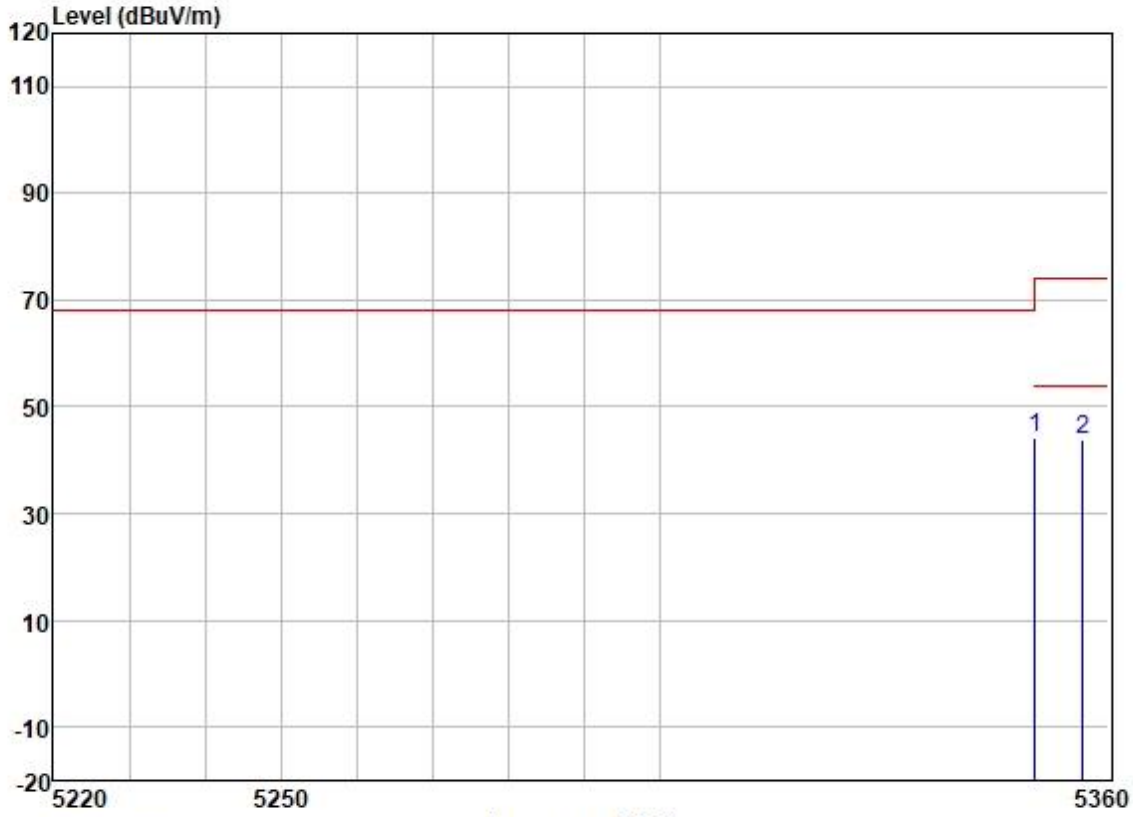
race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5137.373	50.70	31.72	5.41	36.86	50.97	74.00	-23.03	HORIZONTAL	Peak
2	5150.000	49.96	31.72	5.62	36.31	50.99	54.00	-3.01	HORIZONTAL	Average
3	5150.000	54.17	31.72	5.62	36.31	55.20	68.20	-13.00	HORIZONTAL	Peak

According to KDB 789033 D02 II G.

Frequency (MHz)	Duty cycle	Factor(dB)*	AV Measured Level (dBuV/m)	AV Amendment Level** (dBuV/m)	Limit (dBuV/m)	Over limit (dB)
5150	62.55%	2.04	50.99	53.03	54	-0.97
*Remark: Factor(dB)=10log (1/Duty cycle) = 10*log (1/0.6255) = 2.04 dB **Remark: AV Amendment Level (dBuV/m) = AV Measured Level (dBuV/m) + Factor(dB)						

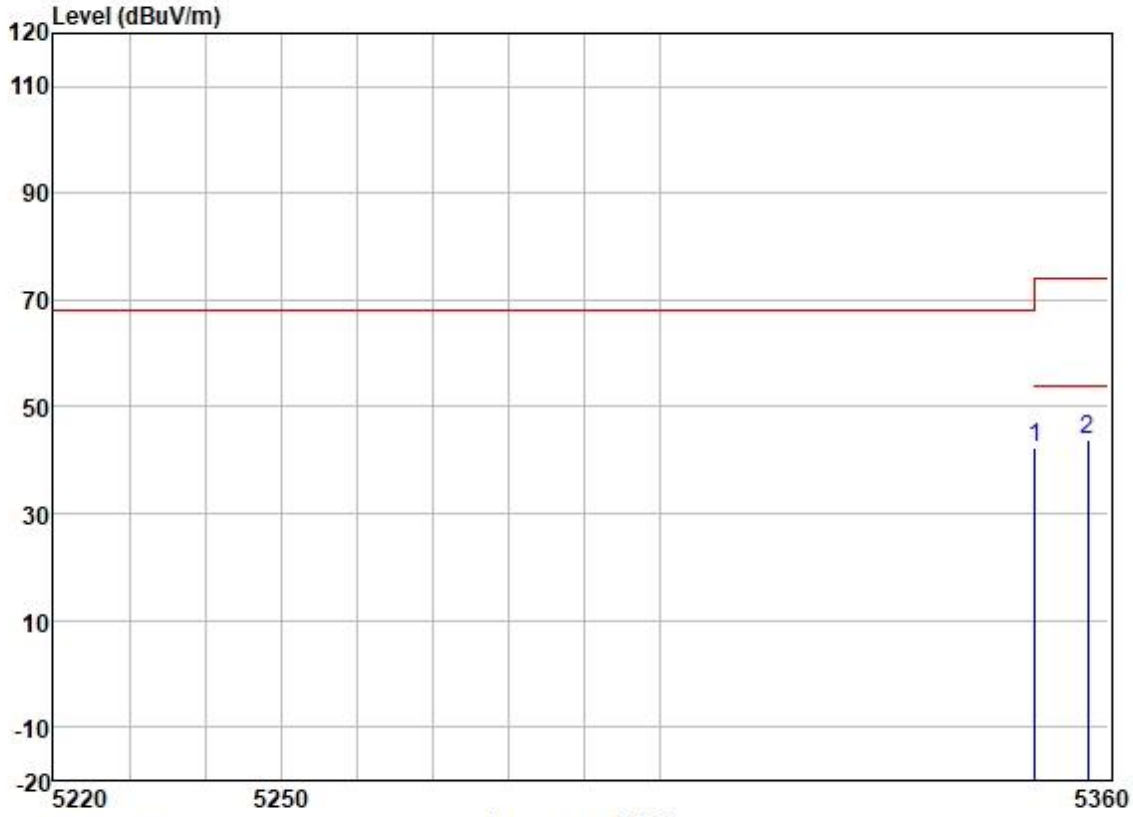
Test Mode: 08; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	43.95	31.77	5.55	36.88	44.39	68.20	-23.81	VERTICAL	Peak
2	5356.455	43.32	31.78	5.55	36.88	43.77	74.00	-30.23	VERTICAL	Peak

Test Mode: 08; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	42.06	31.77	5.55	36.88	42.50	68.20	-25.70	HORIZONTAL	Peak
2	5357.164	43.46	31.78	5.55	36.88	43.91	74.00	-30.09	HORIZONTAL	Peak

Test Mode: 08; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

race: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5137.021	50.21	31.72	5.41	36.86	50.48	74.00	-23.52	VERTICAL	Peak
2	5150.000	49.49	31.72	5.62	36.31	50.52	54.00	-3.48	VERTICAL	Average
3	5150.000	53.63	31.72	5.62	36.31	54.66	68.20	-13.54	VERTICAL	Peak

According to KDB 789033 D02 II G.						
Frequency (MHz)	Duty cycle	Factor(dB)*	AV Measured Level (dBuV/m)	AV Amendment Level** (dBuV/m)	Limit (dBuV/m)	Over limit (dB)
5150	50.00%	3.01	50.52	53.53	54	-0.47
*Remark: Factor(dB)=10log (1/Duty cycle) = 10*log (1/0.5) = 3.01 dB **Remark: AV Amendment Level (dBuV/m) = AV Measured Level (dBuV/m) + Factor(dB)						

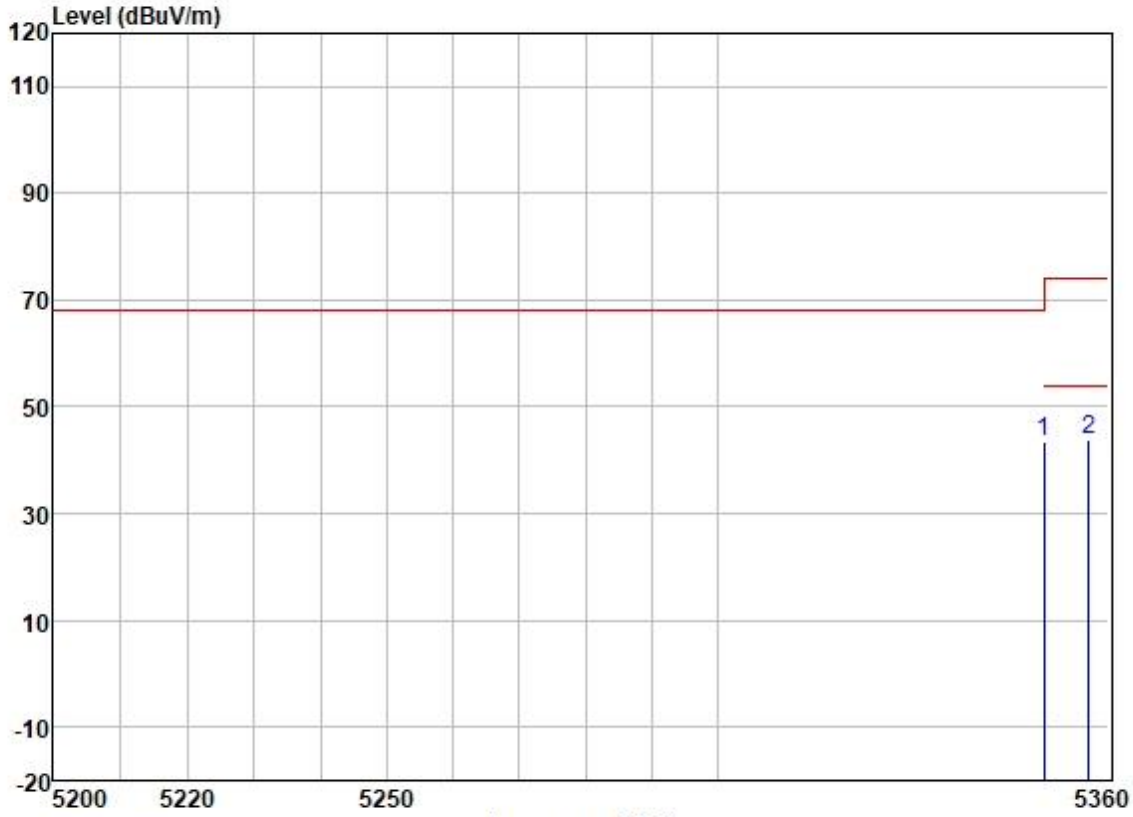
Test Mode: 08; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low

race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5137.021	50.67	31.72	5.41	36.86	50.94	74.00	-23.06	HORIZONTAL	Peak
2	5150.000	49.50	31.72	5.62	36.31	50.53	54.00	-3.47	HORIZONTAL	Average
3	5150.000	53.40	31.72	5.42	36.86	53.68	68.20	-14.52	HORIZONTAL	Peak

According to KDB 789033 D02 II G.						
Frequency (MHz)	Duty cycle	Factor(dB)*	AV Measured Level (dBuV/m)	AV Amendment Level** (dBuV/m)	Limit (dBuV/m)	Over limit (dB)
5150	50.00%	3.01	50.53	53.54	54	-0.46
*Remark: Factor(dB)=10log (1/Duty cycle) = 10*log (1/0.6255) = 3.01 dB						
**Remark: AV Amendment Level (dBuV/m) = AV Measured Level (dBuV/m) + Factor(dB)						

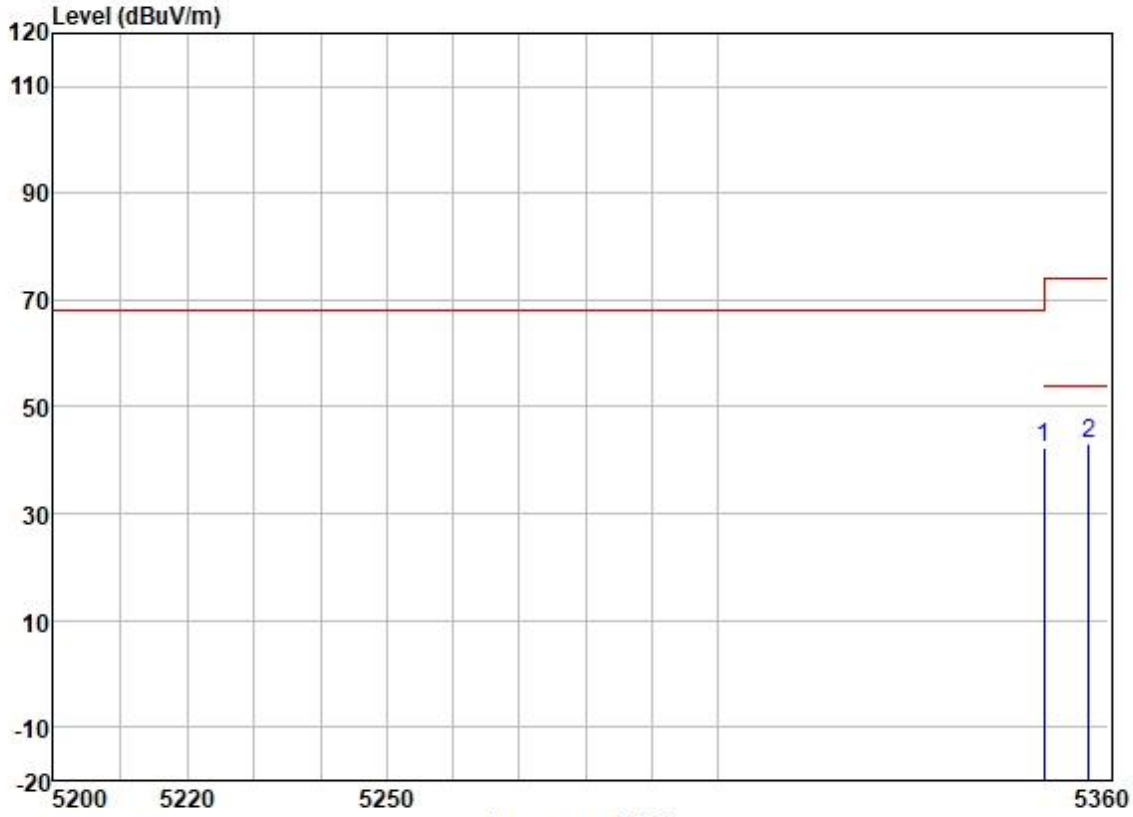
Test Mode: 08; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	42.94	31.77	5.55	36.88	43.38	68.20	-24.82	VERTICAL	Peak
2	5356.915	43.44	31.78	5.55	36.88	43.89	74.00	-30.11	VERTICAL	Peak

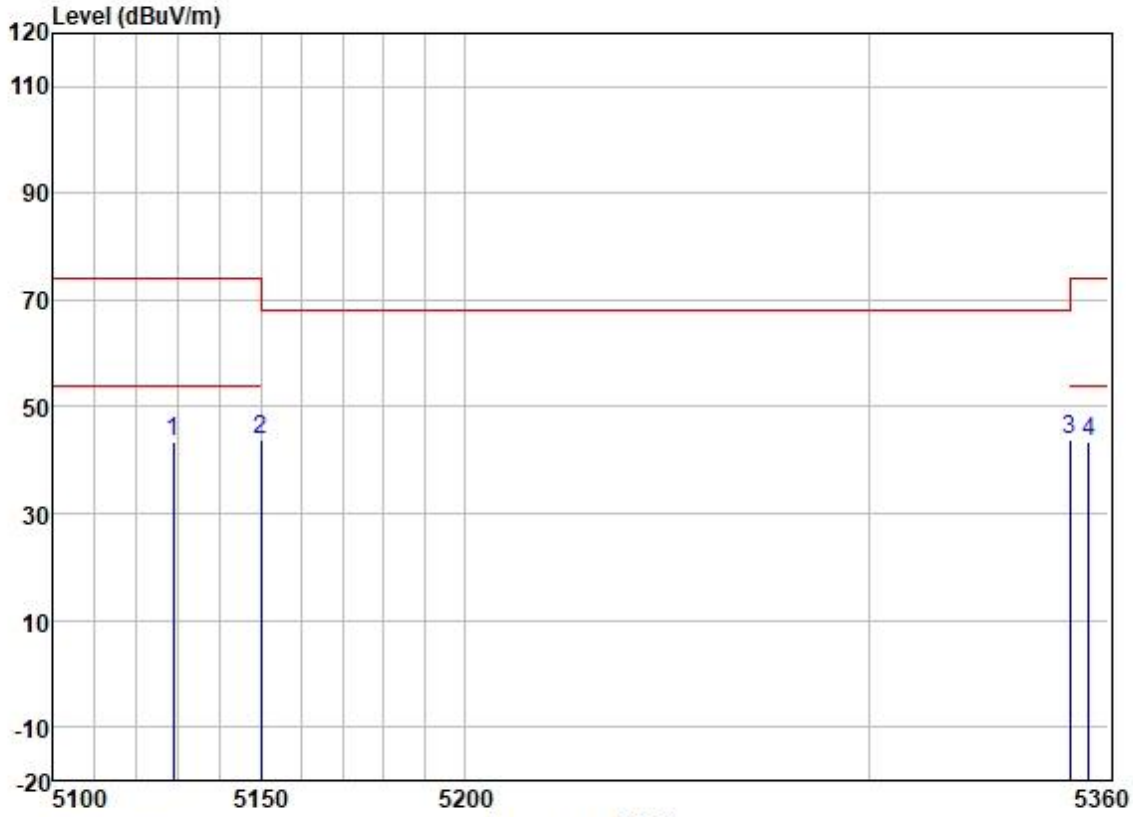
Test Mode: 08; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	42.02	31.77	5.55	36.88	42.46	68.20	-25.74	HORIZONTAL	Peak
2	5356.915	42.77	31.78	5.55	36.88	43.22	74.00	-30.78	HORIZONTAL	Peak

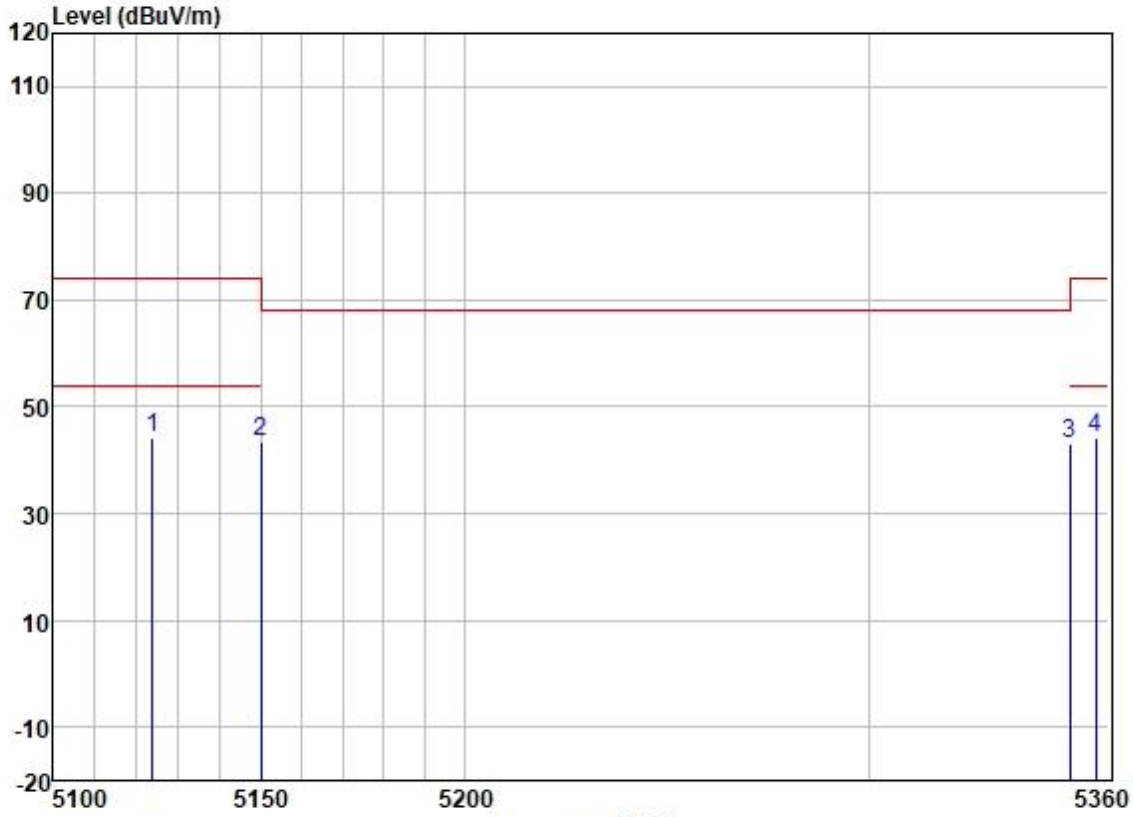
Test Mode: 08; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5128.991	43.26	31.72	5.41	36.86	43.53	74.00	-30.47	VERTICAL	Peak
2	5150.000	43.39	31.72	5.42	36.86	43.67	68.20	-24.53	VERTICAL	Peak
3	5350.000	43.52	31.77	5.55	36.88	43.96	68.20	-24.24	VERTICAL	Peak
4	5354.938	43.17	31.78	5.55	36.88	43.62	74.00	-30.38	VERTICAL	Peak

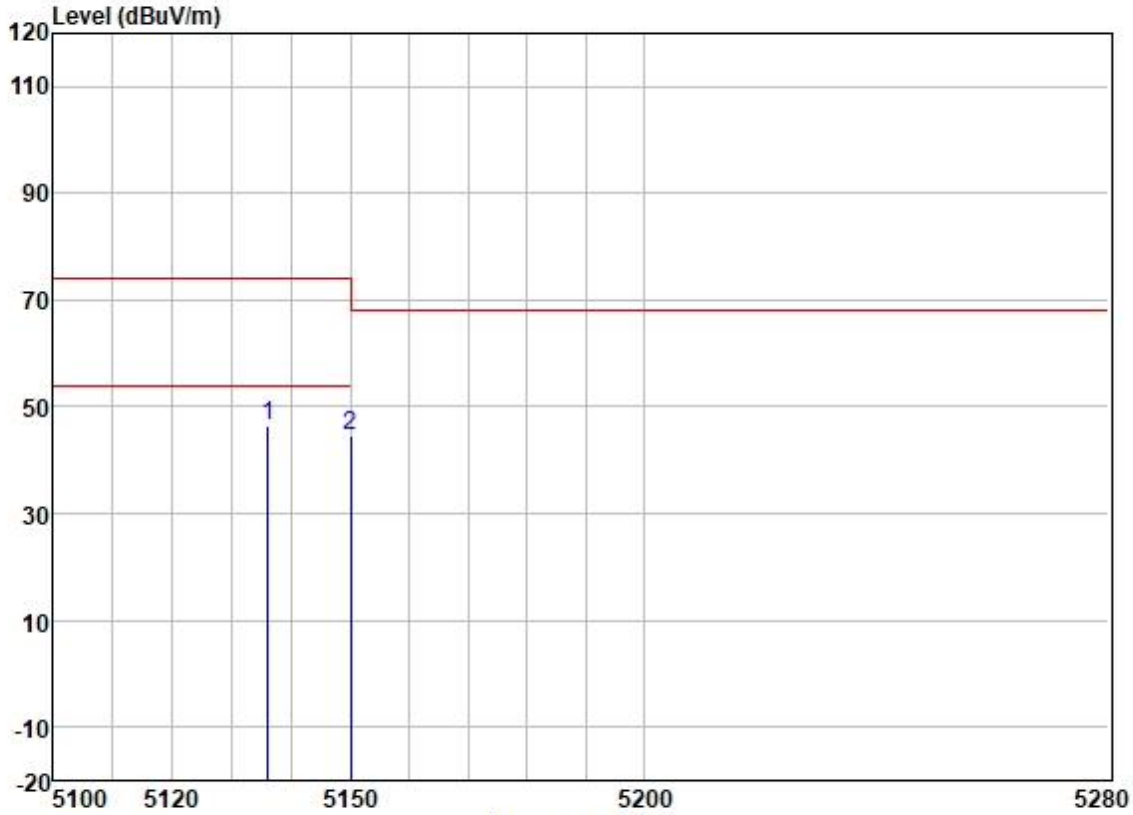
Test Mode: 08; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5123.893	44.04	31.72	5.40	36.86	44.30	74.00	-29.70	HORIZONTAL	Peak
2	5150.000	43.14	31.72	5.42	36.86	43.42	68.20	-24.78	HORIZONTAL	Peak
3	5350.000	42.47	31.77	5.55	36.88	42.91	68.20	-25.29	HORIZONTAL	Peak
4	5356.537	43.64	31.78	5.55	36.88	44.09	74.00	-29.91	HORIZONTAL	Peak

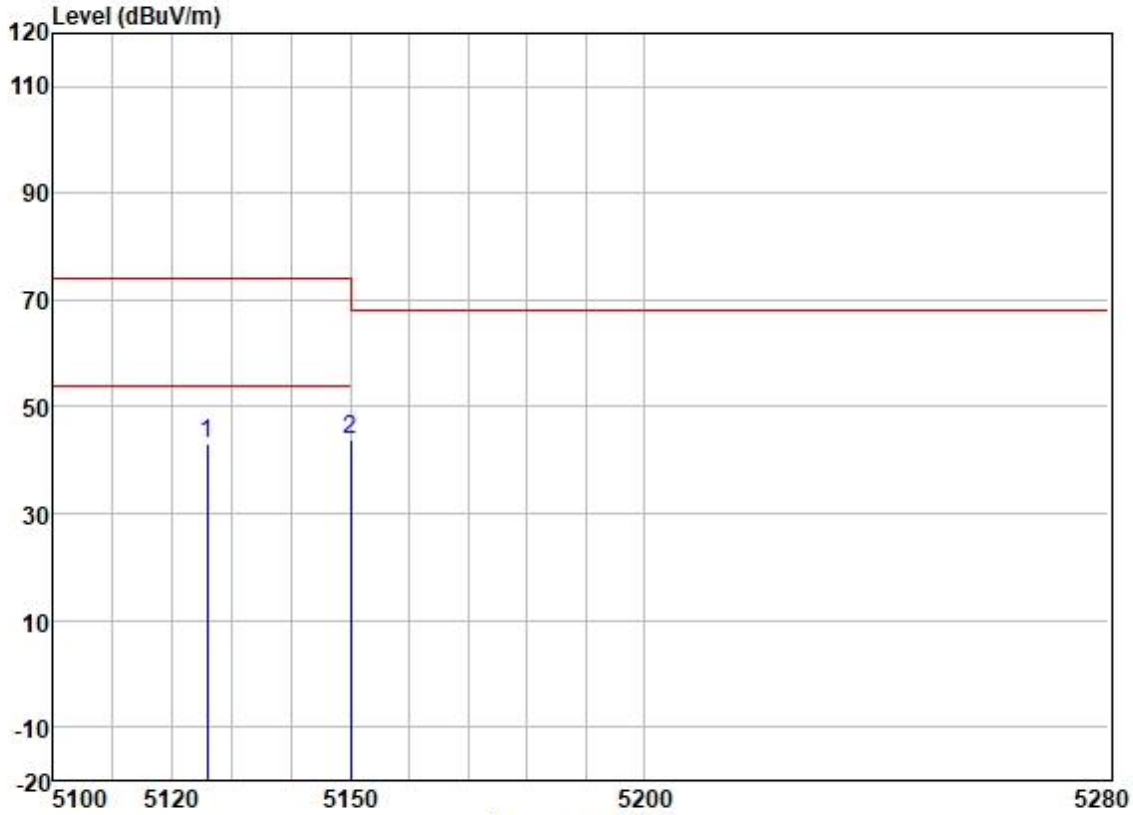
Test Mode: 09; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5136.037	46.21	31.72	5.41	36.86	46.48	74.00	-27.52	VERTICAL	Peak
2	5150.000	44.17	31.72	5.42	36.86	44.45	68.20	-23.75	VERTICAL	Peak

Test Mode: 09; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5125.893	42.72	31.72	5.40	36.86	42.98	74.00	-31.02	HORIZONTAL	Peak
2	5150.000	43.48	31.72	5.42	36.86	43.76	68.20	-24.44	HORIZONTAL	Peak