



TEST REPORT

Application No.: GZCR2110021258AT
Applicant: YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.
Address of Applicant: 309, 3rd Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, China
Manufacturer: YEALINK (XIAMEN) NETWORK TECHNOLOGY CO., LTD.
Address of Manufacturer: 309, 3rd Floor, No.16, Yun Ding North Road, Huli District, Xiamen City, Fujian, China
Factory: YEALINK(XIAMEN) NETWORK TECHNOLOGY CO., LTD.
Address of Factory: 5th -6th Floor, No.15 building, Golden Industrial Park, No.5 Hong Tang, Tong'an District, Xiamen City, Fujian, P.R. China
Equipment Under Test (EUT):
EUT Name: Module
Model No.: YL430132
Trade Mark: YEALINK
Standard(s) : 47 CFR Part 15, Subpart E 15.407
Date of Receipt: 2021-10-18
Date of Test: 2021-10-20 to 2021-11-01
Date of Issue: 2021-11-05

Test Result:

Pass*

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

Kobe Jian

Kobe Jian
EMC Laboratory Manager



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Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-11-05		Original

Authorized for issue by				
				
		Curry Wu/Project Engineer		
				
		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 D02 II B 2	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 (below 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		ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.407 (g)	Pass
Non-occupancy period		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
Channel Move Time		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
Channel Closing Transmission Time		KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
Radiated Emissions (above 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.

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



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10 Appendix.....138**4 General Information****4.1 Details of E.U.T.**

Power Supply: Powered by adapter DC 5V.
Operation Frequency (20MHz): U-NII-1: 5180-5240MHz; U-NII-2A: 5260-5320MHz; U-NII-2C: 5500-5700MHz; U-NII-3: 5745-5825MHz
Modulation Type: 802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM)
Channel Spacing: 802.11a/n(HT20): 20MHz
DFS Function: Slave without Radar detection
TPC Function: Without TPC function

Remark: The module itself does not have an antenna. During the test, the host provides a PCB antenna with a maximum gain of 3dBi.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Yealink	YLPS052000C1-EU	N/A
Prime Business Phone	Yealink	SIP-T54W	N/A



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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 (below 1GHz)	±5.06dB (30MHz-1GHz ; 3m) ±4.46dB (30MHz-1GHz ; 10m)
Radiated Emissions which fall in the restricted bands	± 4.5dB (below 1GHz); ± 4.8dB (above 1GHz);
Frequency Stability	± 7.25 x 10-8
Radiated Emissions (above 1GHz)	±5.08 dB (1-6GHz); ±5.14 (above 6 GHz)

4.4 Test Location

All tests were performed at:

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

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
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-Line V-Network	Rohde & Schwarz	ENV216	EMC0118	2021-01-08	2022-01-06
Two-Line V-Network-GZ	Rohde & Schwarz	ENV216	EMC2135	2021-09-24	2022-09-23
Coaxial Cable	HangTianXing	2m	EMC0107	2020-09-09	2022-09-08
Test Software E3c	Audix	Ver. 5.4.1221b	GZE100-62	N/A	N/A
EMI Test Receiver(9kHz-3.6GHz)	Rohde & Schwarz	ESR4	EMC2221	2021-06-01	2022-05-31

Duty Cycle					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A

99% Bandwidth					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11



Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
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
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz- 6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
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
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz- 6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18



Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
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
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz- 6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
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
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz- 6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18



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EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Radiated Emissions (below 1GHz)

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Chamber cable	HangTianXing	N/A	EMC0542	2020-09-09	2022-09-08
Trilog Broadband Antenna(25MHz-1GHz)-Lab	SCHWARZBECK MESS-ELEKTRONIK	VULB 9168	SEM003-18	2019-02-22	2022-02-22
Amplifier(9kHz-1.3GHz)	HP	8447F	EMC2065	2021-05-19	2022-05-18
Active Loop Antenna-RED	ETS-Lindgren	6502	EMC2190	2019-12-27	2021-12-26
10m Semi-Anechoic Chamber	ETS	N/A	EMC0530	2019-10-20	2022-10-19
Test Software E3	Audix	Ver.6.5110a	GZE100-61	N/A	N/A
EMI Test Receiver(1Hz-8GHz)	Rohde & Schwarz	ESW8	EMC2220	2021-05-26	2022-05-25

Radiated Emissions which fall in the restricted bands

Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
EMI Test Receiver(20Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2021-01-08	2022-01-07
Chamber cable(Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2020-09-09	2022-09-08
Horn Antenna(1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 95D	EMC2026	2019-09-25	2022-09-24
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19
MXE EMI Receiver(10Hz-8.4GHz)	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer(10Hz-44GHz)	Keysight	N9010A	EMC25.75	2021-09-16	2022-09-15
Test Software E3	Audix	Ver.6.5110a	GZE100-61	N/A	N/A
Notch Filter (5150-5880)	Mico-Tronics	BRM50716	EMC2168	2021-07-29	2022-07-28
Horn Antenna(14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2020-06-28	2023-06-27



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Microwave Broadband Preamplifier (18-40GHz)	SCHWARZBECK	BBV 9721	EMC2172	2021-09-08	2022-09-07
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Frequency Stability					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Non-occupancy period					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A



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Channel Move Time					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Channel Closing Transmission Time					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11
Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-19	2022-05-18
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-19	2022-05-18
EXA Signal Analyzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC25.75	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A



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Radiated Emissions (above 1GHz)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Chamber cable(Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2020-09-09	2022-09-08
Horn Antenna(1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 95D	EMC2026	2019-09-25	2022-09-24
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2021-01-08	2022-01-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19
EXA Signal Analyzer(10Hz-44GHz)	Keysight	N9010A	EMC25.75	2021-09-16	2022-09-15
Test Software E3	Audix	Ver.6.5110a	GZE100-61	N/A	N/A
Notch Filter (5150-5880)	Mico-Tronics	BRM50716	EMC2168	2021-07-29	2022-07-28
Horn Antenna(14-40GHz)	SCHWARZBECK	BBHA 9170	EMC2041	2020-06-28	2023-06-27
Microwave Broadband Preamplifier (18-40GHz)	SCHWARZBECK	BBV 9721	EMC2172	2021-09-08	2022-09-07

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2021-07-05	2022-07-05
DMM	Fluke	73	EMC0007	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

15.203 Requirement:

An intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited. This requirement does not apply to carrier current devices or to devices operated under the provisions of 15.211, 15.213, 15.217, 15.219, 15.221, or 15.236. Further, this requirement does not apply to intentional radiators that must be professionally installed, such as perimeter protection systems and some field disturbance sensors, or to other intentional radiators which, in accordance with 15.31(d), must be measured at the installation site. However, the installer shall be responsible for ensuring that the proper antenna is employed so that the limits in this part are not exceeded.

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the Antenna: 3dBi.

Antenna location: Refer to internal photos.



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

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 signalling information or the use of repetitive codes used by certain digital technologies to complete frame or burst intervals.

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

EUT Details:

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



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7 Radio Spectrum Matter Test Results

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

Test Requirement 47 CFR Part 15, Subpart C 15.207 & 15.407 b(6)

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

Limit:

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

*Decreases with the logarithm of the frequency.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C

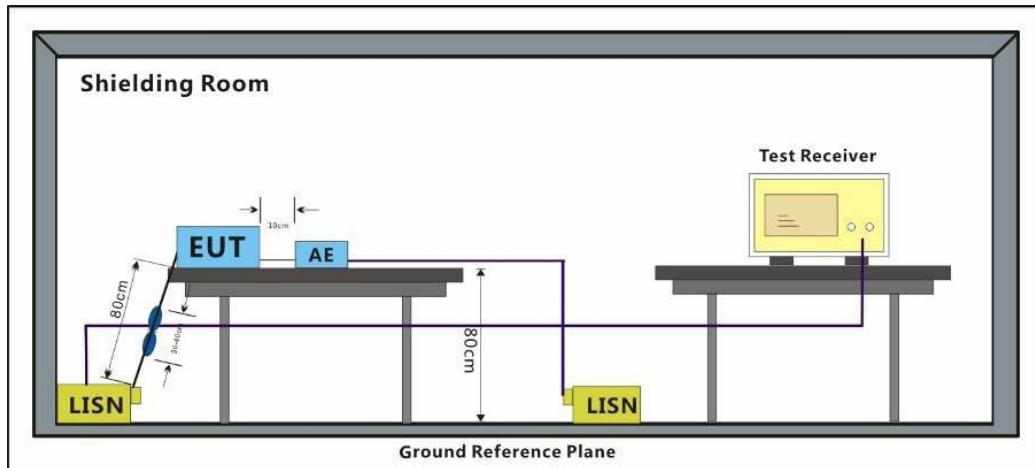
Humidity: 49.5 % RH

Atmospheric Pressure: 1003 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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). Only the data of worst case is recorded in the report.
Pre-scan	05	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). Only the data of worst case is recorded in the report.
Pre-scan	06	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). Only the data of worst case is recorded in the report.
Pre-scan	07	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). Only the data of worst case is recorded in the report.

7.1.3 Test Setup Diagram

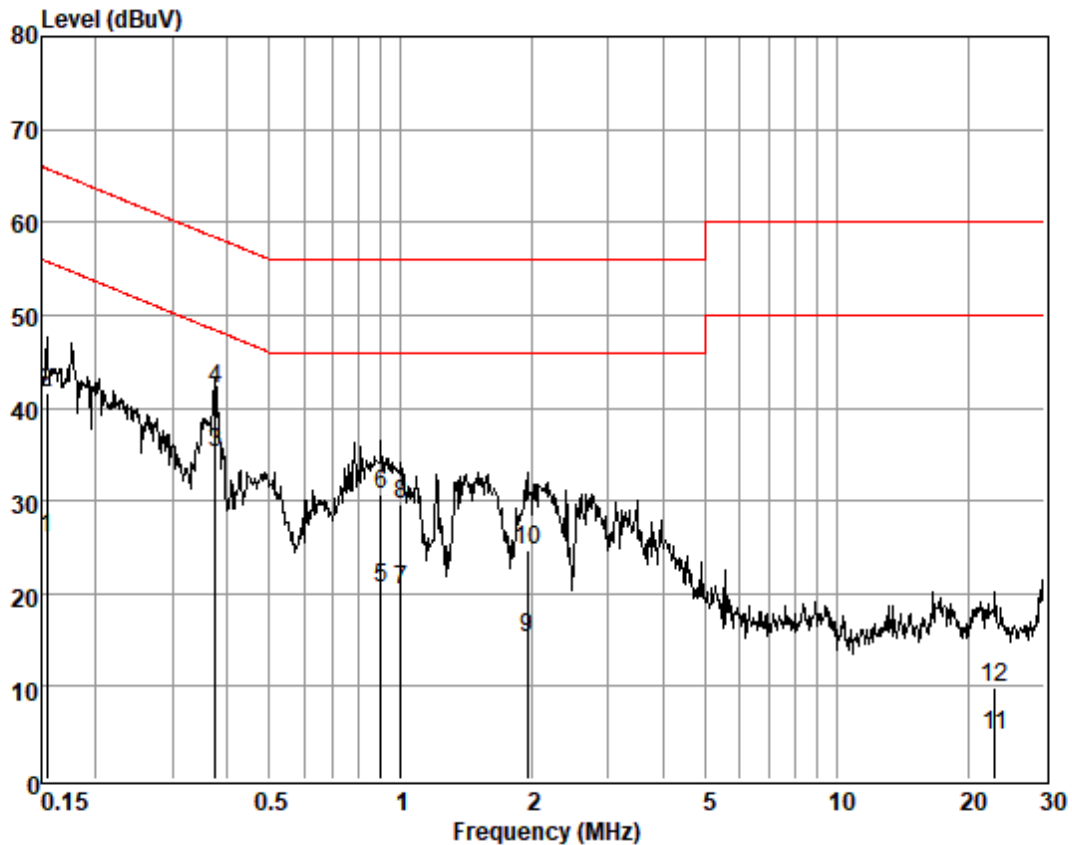


7.1.4 Measurement Procedure and Data

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

Test Mode: 04; Line: Live line



Condition: LINE

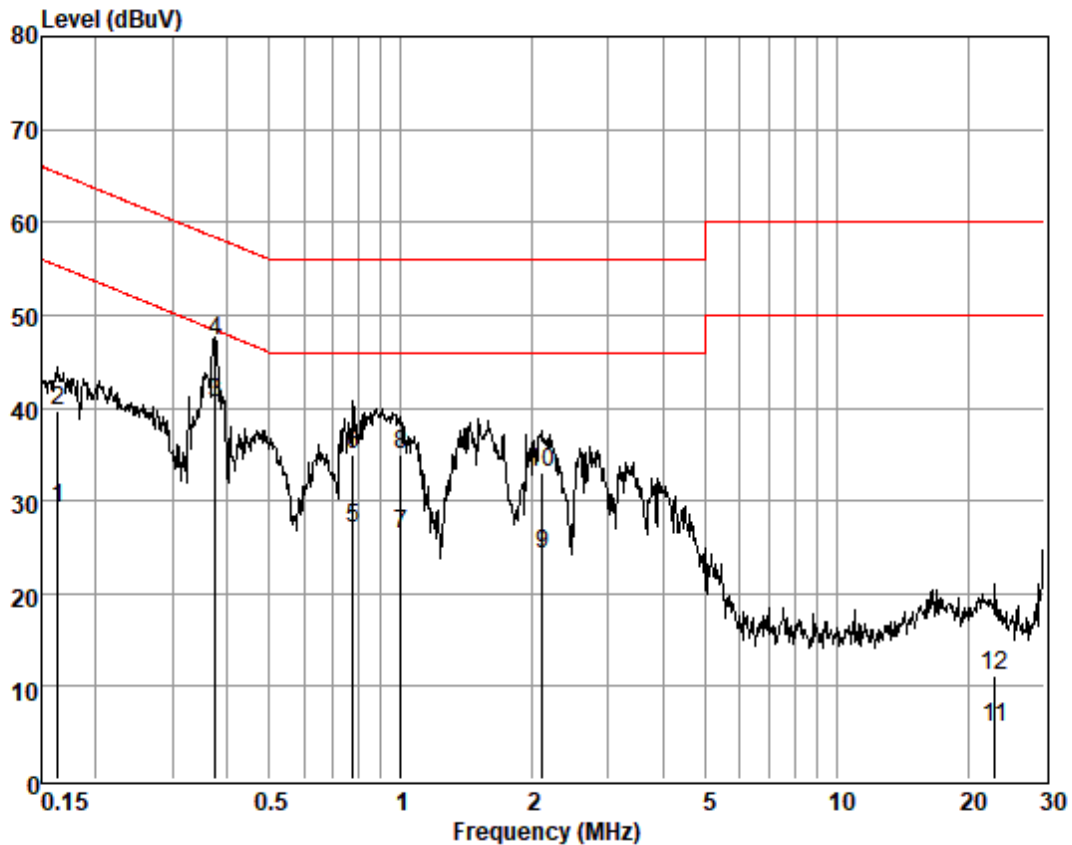
No :

Model :

	Freq	Read Level	Cable Loss	LISN Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dB	
1	0.15	16.20	0.06	9.62	25.88	55.78	Average
2	0.15	31.88	0.06	9.62	41.56	65.78	QP
3 !	0.38	25.55	0.06	9.63	35.24	48.39	Average
4	0.38	32.40	0.06	9.63	42.09	58.39	QP
5	0.90	10.94	0.07	9.62	20.63	46.00	Average
6	0.90	20.88	0.07	9.62	30.57	56.00	QP
7	1.00	10.59	0.07	9.62	20.28	46.00	Average
8	1.00	19.98	0.07	9.62	29.67	56.00	QP
9	1.96	5.50	0.12	9.62	15.24	46.00	Average
10	1.96	14.87	0.12	9.62	24.61	56.00	QP
11	23.14	-5.58	0.39	9.84	4.65	50.00	Average
12	23.14	-0.28	0.39	9.84	9.95	60.00	QP



Test Mode: 04; Line: Neutral Line



Condition: NEUTRAL

No :

Model :

	Freq	Read Level	Cable Loss	LISN Factor	Limit Level	Over Limit	Remark
	MHz	dBuV	dB	dB	dBuV	dB	
1	0.16	19.53	0.06	9.55	29.14	55.30	Average
2	0.16	30.01	0.06	9.55	39.62	65.30	QP
3 !	0.38	30.97	0.06	9.55	40.58	48.39	Average
4	0.38	37.53	0.06	9.55	47.14	58.39	QP
5	0.78	17.30	0.07	9.55	26.92	46.00	Average
6	0.78	25.32	0.07	9.55	34.94	56.00	QP
7	1.00	16.70	0.07	9.55	26.32	46.00	Average
8	1.00	25.35	0.07	9.55	34.97	56.00	QP
9	2.12	14.58	0.12	9.54	24.24	46.00	Average
10	2.12	23.44	0.12	9.54	33.10	56.00	QP
11	23.14	-4.59	0.39	9.76	5.56	50.00	Average
12	23.14	1.09	0.39	9.76	11.24	60.00	QP



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7.2 Duty Cycle

Test Requirement KDB 789033 D02 II B 1
Test Method: KDB 789033 D02 II B 2

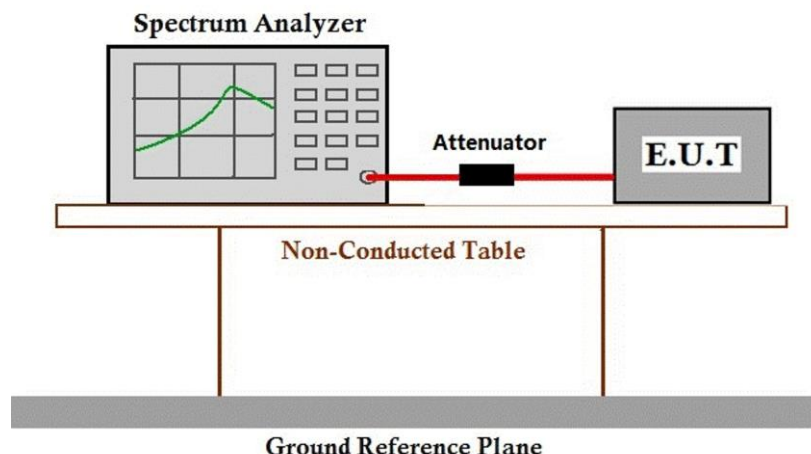
7.2.1 E.U.T. Operation

Operating Environment:
Temperature: 24.5 °C Humidity: 52.8 % RH Atmospheric Pressure: 1003 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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). Only the data of worst case is recorded in the report.
Final test	05	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). Only the data of worst case is recorded in the report.
Final test	06	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). Only the data of worst case is recorded in the report.
Final test	07	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). 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

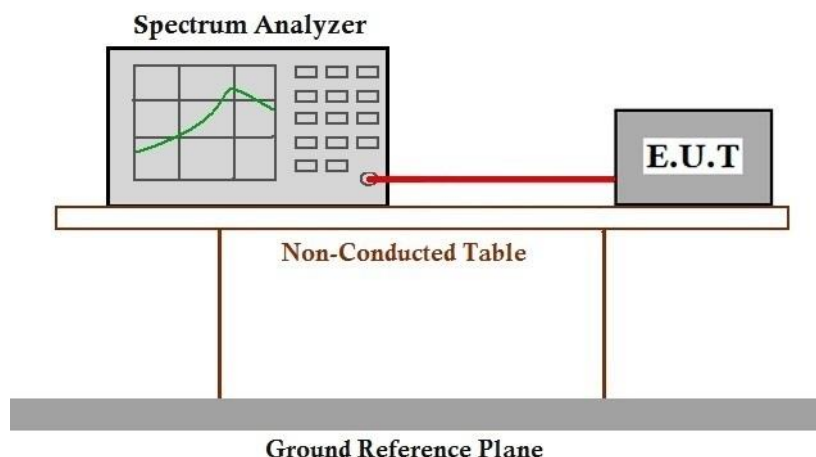
7.3.1 E.U.T. Operation

Operating Environment:
Temperature: 24.5 °C Humidity: 52.8 % RH Atmospheric Pressure: 1003 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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). Only the data of worst case is recorded in the report.
Final test	05	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). Only the data of worst case is recorded in the report.
Final test	06	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). Only the data of worst case is recorded in the report.
Final test	07	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). 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

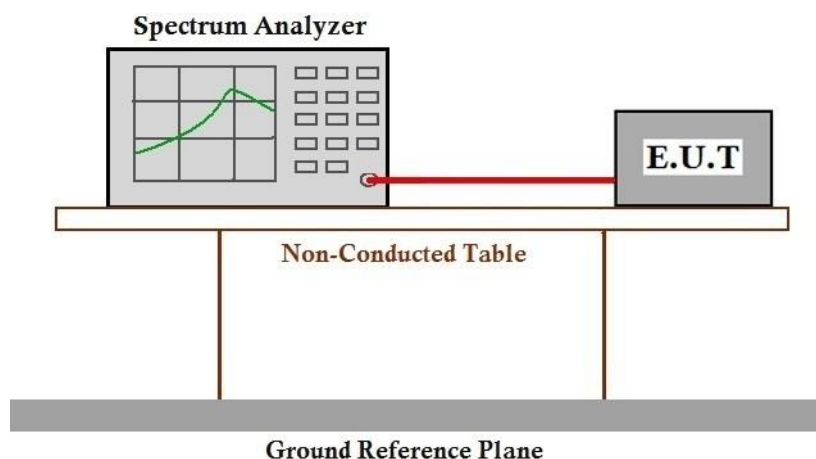
7.4.1 E.U.T. Operation

Operating Environment:
Temperature: 24.5 °C Humidity: 52.8 % RH Atmospheric Pressure: 1003 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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). Only the data of worst case is recorded in the report.
Final test	05	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). Only the data of worst case is recorded in the report.
Final test	06	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). 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



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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: 24.5 °C

Humidity: 52.8 % RH

Atmospheric Pressure: 1003 mbar

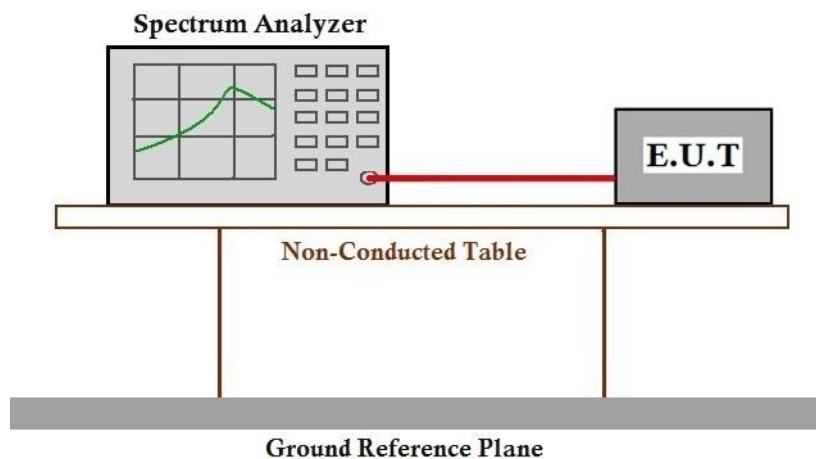
7.5.2 Test Mode Description

Pre-scan /	Mode	Description
Final test	Code	

Final test 07

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). 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:	<p>* Where B is the 26dB emission bandwidth in MHz.</p> <p>The maximum conducted output power must be measured over any interval of continuous transmission using instrumentation calibrated in terms of an rms-equivalent voltage.</p>

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C

Humidity: 52.8 % RH

Atmospheric Pressure: 1003 mbar

7.6.2 Test Mode Description

Pre-scan / Mode
Final test Code

Description

Final test 04 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). Only the data of worst case is recorded in the report.

Final test 05 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). Only the data of worst case is recorded in the report.

Final test 06 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). Only the data of worst case is recorded in the report.

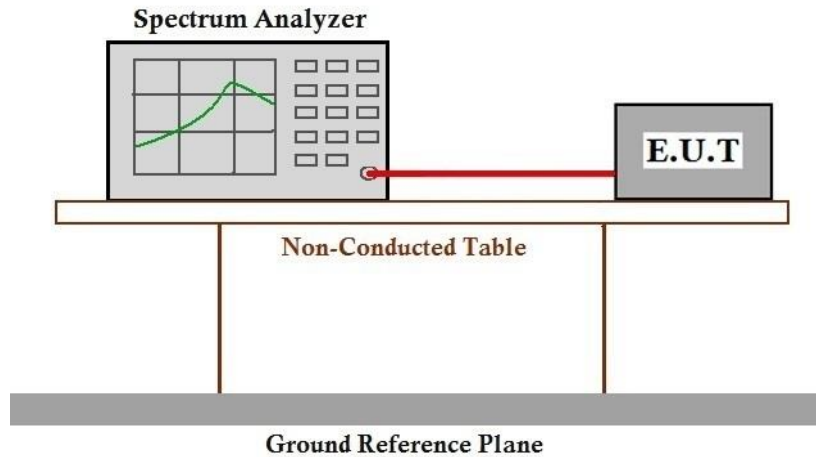
Final test 07 TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20). Only the data of worst case is recorded in the report.



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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: 24.5 °C

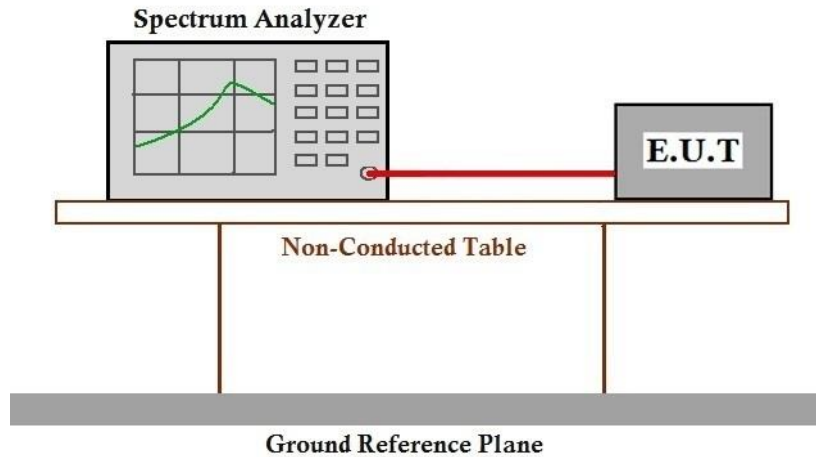
Humidity: 52.8 % RH

Atmospheric Pressure: 1003 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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). Only the data of worst case is recorded in the report.
Final test	05	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). Only the data of worst case is recorded in the report.
Final test	06	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). Only the data of worst case is recorded in the report.
Final test	07	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). 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 (below 1GHz)

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

Test Method: KDB 789033 D02 II G

Measurement Distance: 3m

Limit:

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

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

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

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

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

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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.8.1 E.U.T. Operation

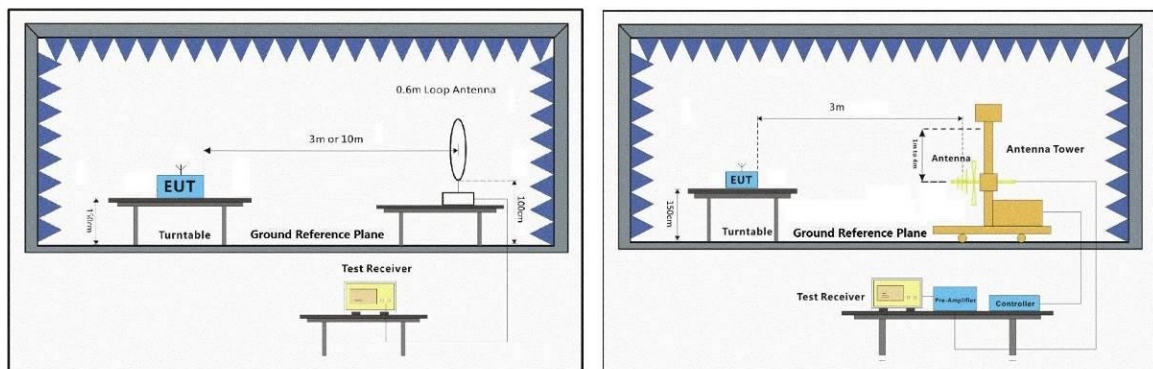
Operating Environment:

Temperature: 23.2 °C Humidity: 49.7 % RH Atmospheric Pressure: 1003 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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). Only the data of worst case is recorded in the report.
Pre-scan	05	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). Only the data of worst case is recorded in the report.
Pre-scan	06	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). Only the data of worst case is recorded in the report.
Pre-scan	07	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). Only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram



7.8.4 Measurement Procedure and Data

- a. The EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- b. 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.
- 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, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

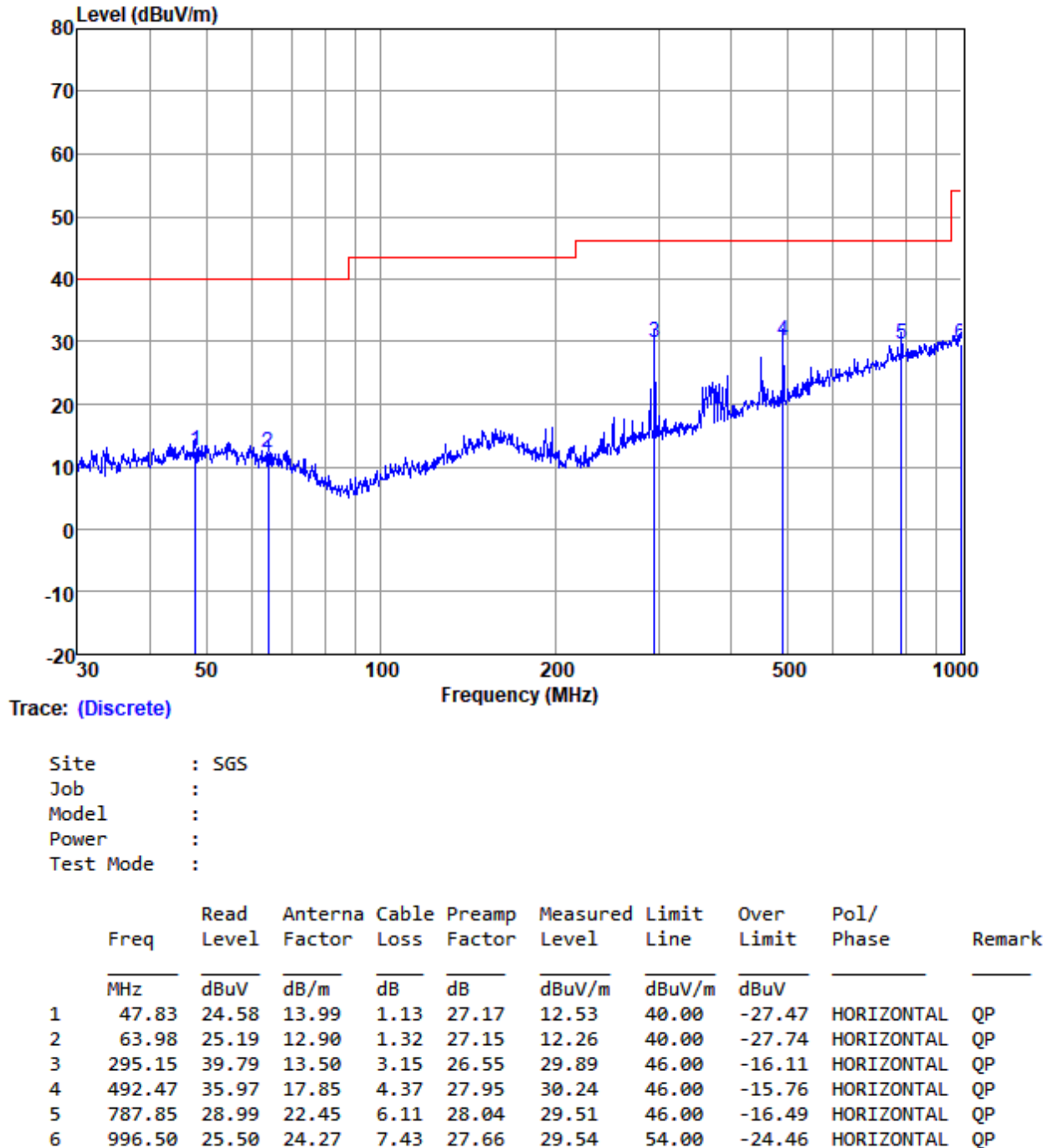
Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.
3. Scan from 9kHz to 1GHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

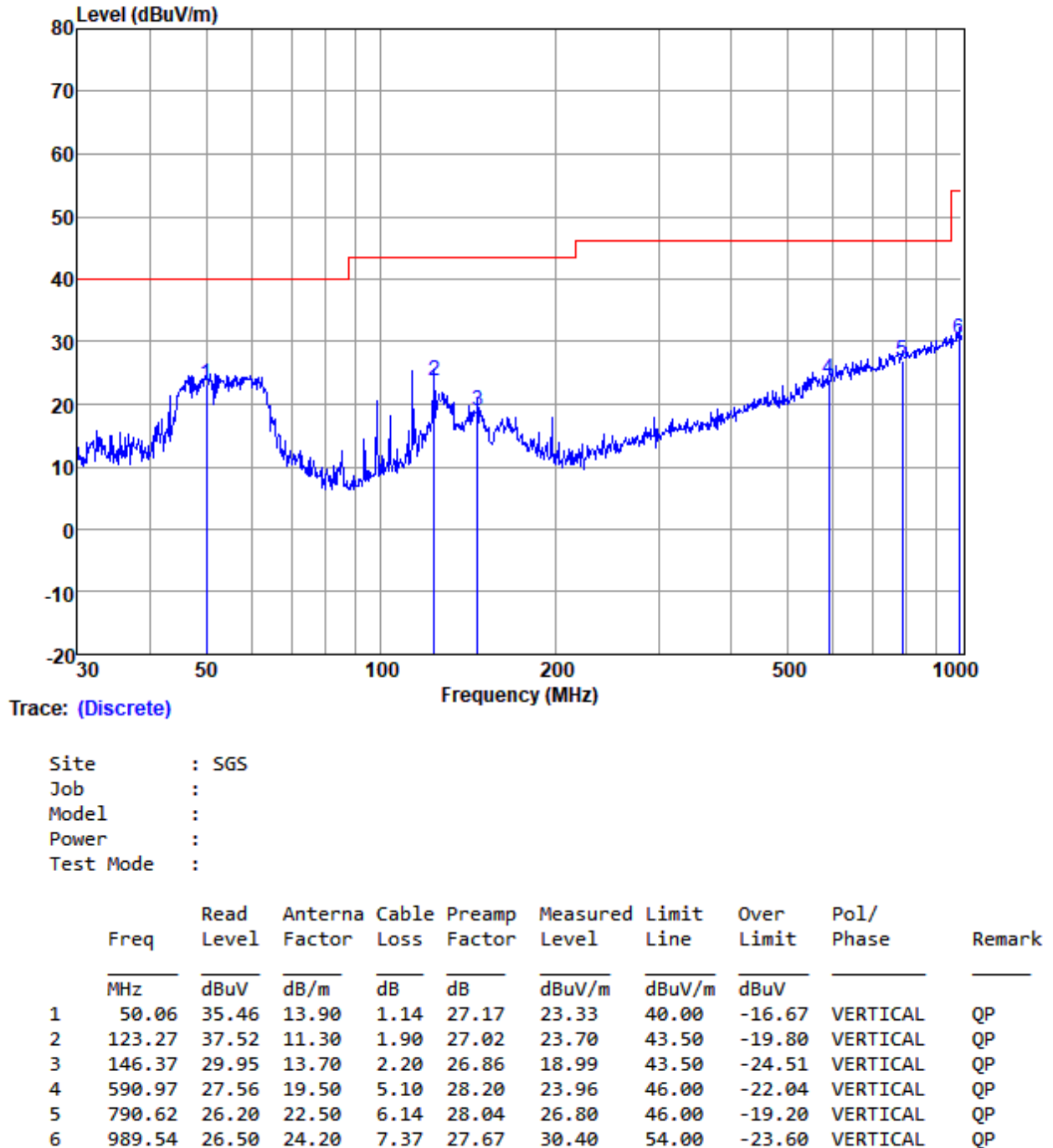


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Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel: Low



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



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

Measurement Distance: 3m

Limit:

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

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

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

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

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

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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C

Humidity: 50.4 % RH

Atmospheric Pressure: 1003 mbar

7.9.2 Test Mode Description

Pre-scan / Mode	Description
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Final test Code

Final test 04

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

Final test 05

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

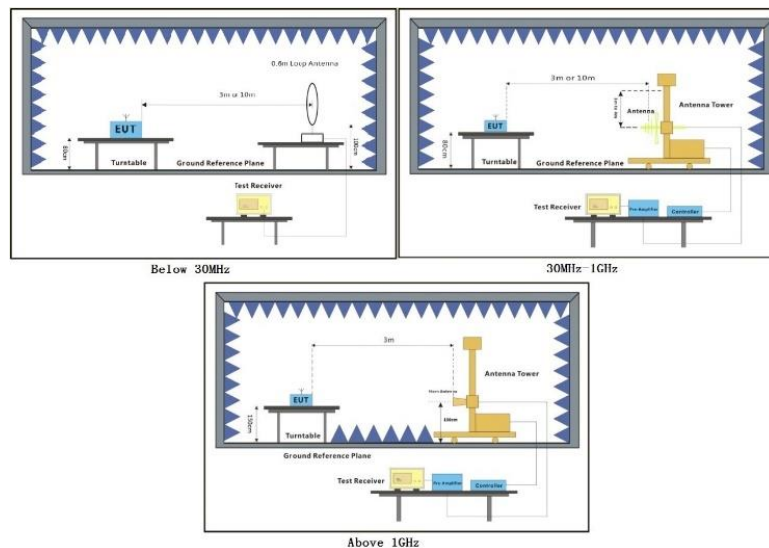
Final test 06

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

Final test 07

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

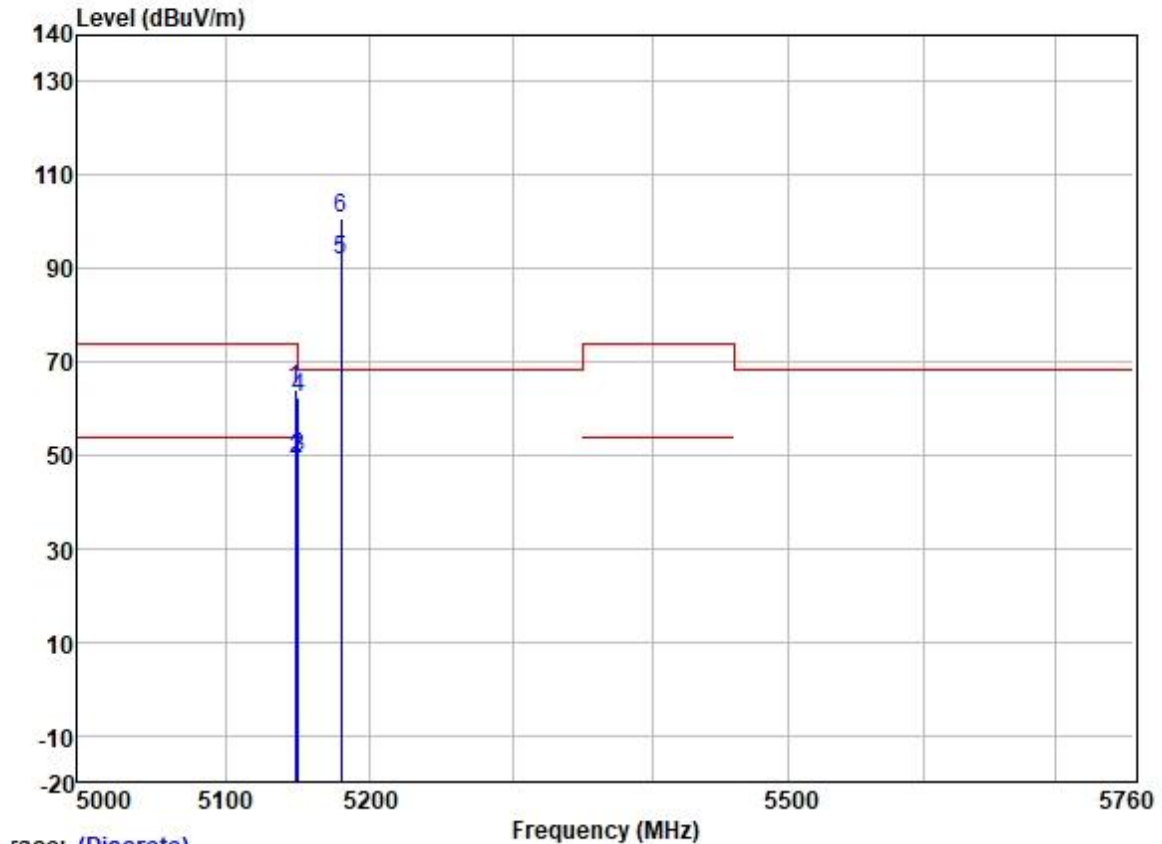
7.9.3 Test Setup Diagram



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 middle channel, the Highest channel.
 - i. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
 - j. Repeat above procedures until all frequencies measured was complete.
- Remark: Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

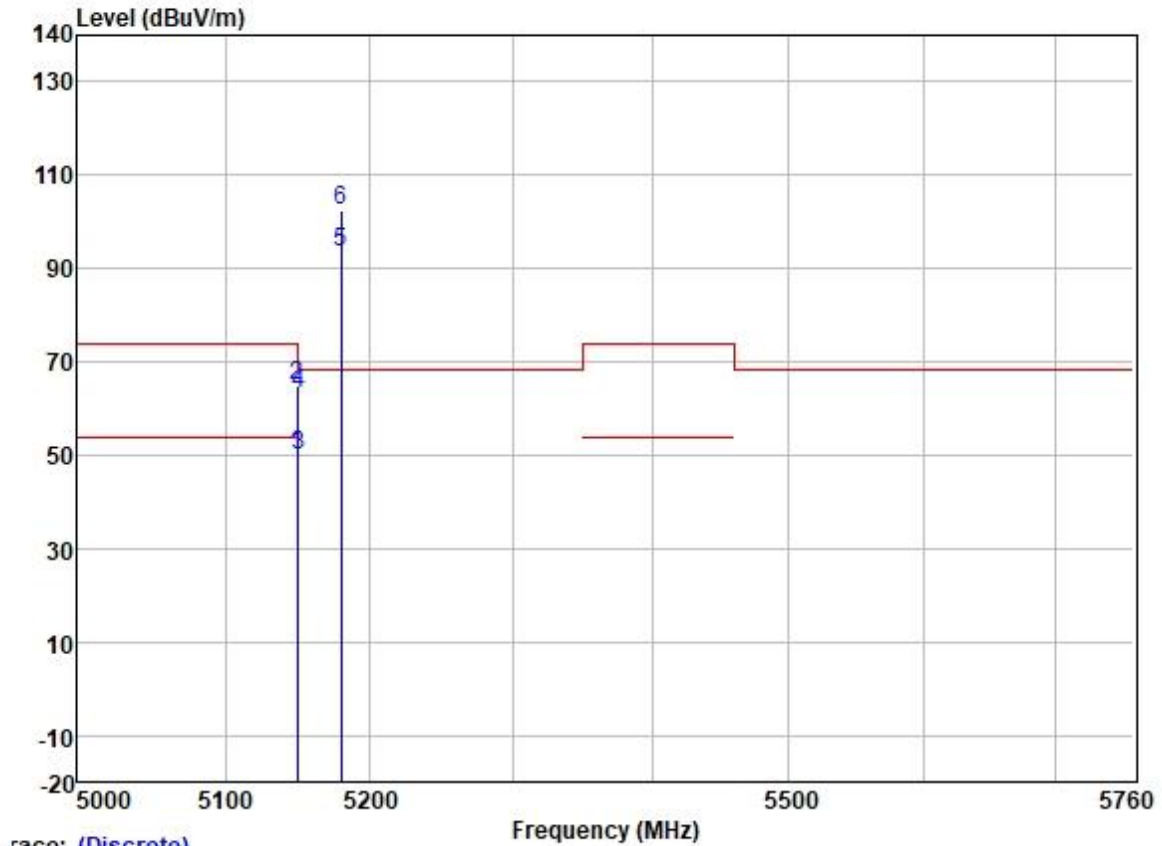
Test Mode: 04; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel: Low



race: (Discrete)

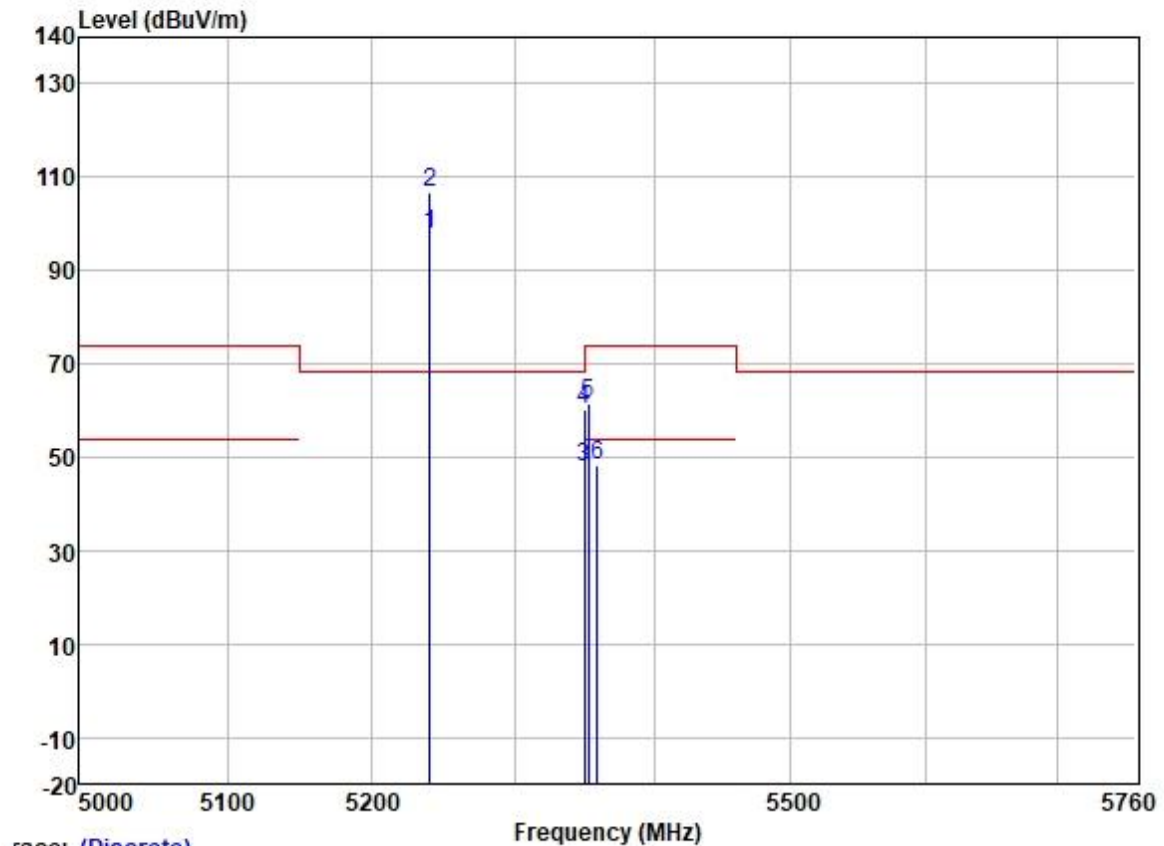
	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5148.058	63.76	31.72	5.62	36.86	64.24	74.00	-9.76	HORIZONTAL	Peak
2	5148.757	48.75	31.72	5.62	36.86	49.23	54.00	-4.77	HORIZONTAL	Average
3	5149.980	48.86	31.72	5.62	36.86	49.34	54.00	-4.66	HORIZONTAL	Average
4	5149.980	61.78	31.72	5.62	36.86	62.26	74.00	-11.74	HORIZONTAL	Peak
5	5180.000	91.38	31.73	5.61	36.87	91.85	-----	-----	HORIZONTAL	Average
6 *	5180.000	100.33	31.73	5.61	36.87	100.80	68.20	32.60	HORIZONTAL	Peak

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



	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5149.157	49.34	31.72	5.62	36.86	49.82	54.00	-4.18	VERTICAL
2	5149.157	64.50	31.72	5.62	36.86	64.98	74.00	-9.02	VERTICAL
3	5149.980	49.44	31.72	5.62	36.86	49.92	54.00	-4.08	VERTICAL
4	5149.980	62.59	31.72	5.62	36.86	63.07	74.00	-10.93	VERTICAL
5	5180.000	93.22	31.73	5.61	36.87	93.69	-----	-----	VERTICAL
6 *	5180.000	102.05	31.73	5.61	36.87	102.52	68.20	34.32	VERTICAL

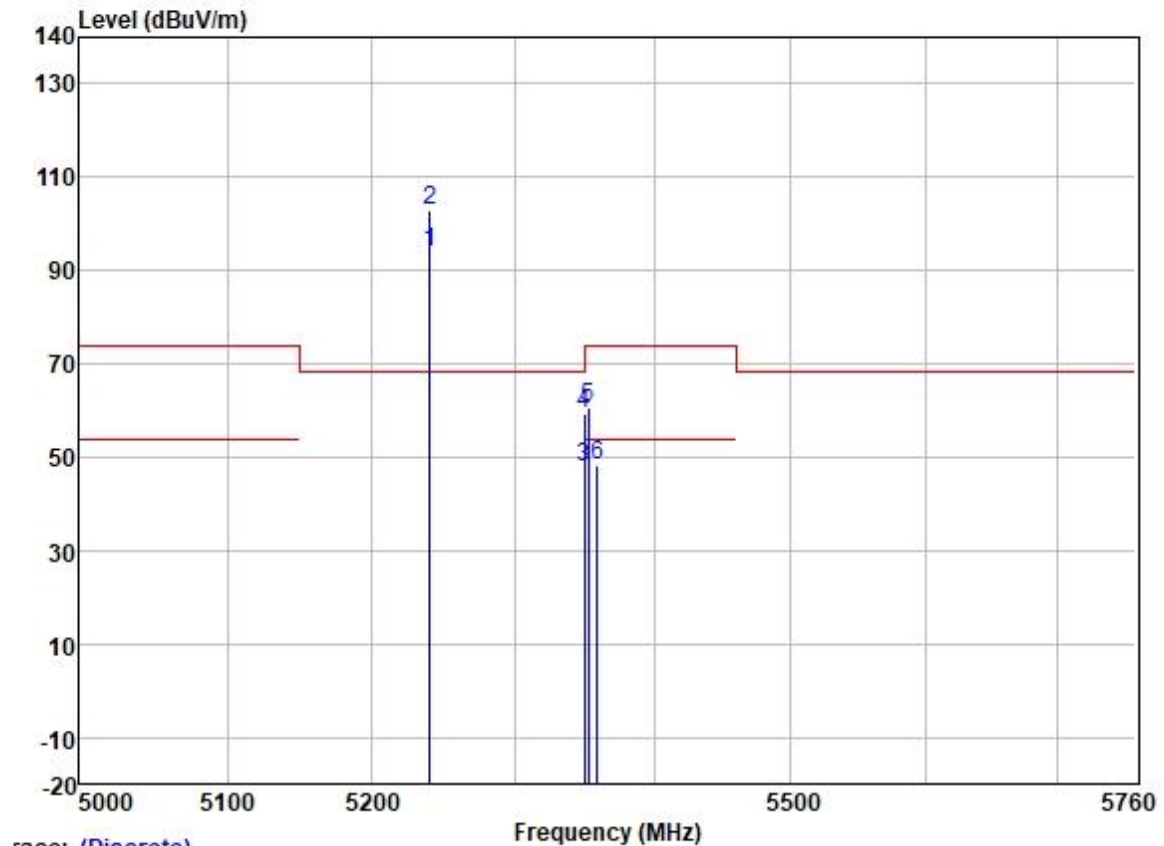
Test Mode: 04; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: High



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5240.000	97.22	31.75	5.74	36.87	97.84	-----	-----	HORIZONTAL Average
2 *	5240.000	106.03	31.75	5.74	36.87	106.65	68.20	38.45	HORIZONTAL Peak
3	5350.020	47.03	31.77	6.05	36.88	47.97	54.00	-6.03	HORIZONTAL Average
4	5350.020	59.08	31.77	6.05	36.88	60.02	74.00	-13.98	HORIZONTAL Peak
5	5352.628	60.37	31.77	6.05	36.88	61.31	74.00	-12.69	HORIZONTAL Peak
6	5358.865	47.36	31.78	6.03	36.88	48.29	54.00	-5.71	HORIZONTAL Average

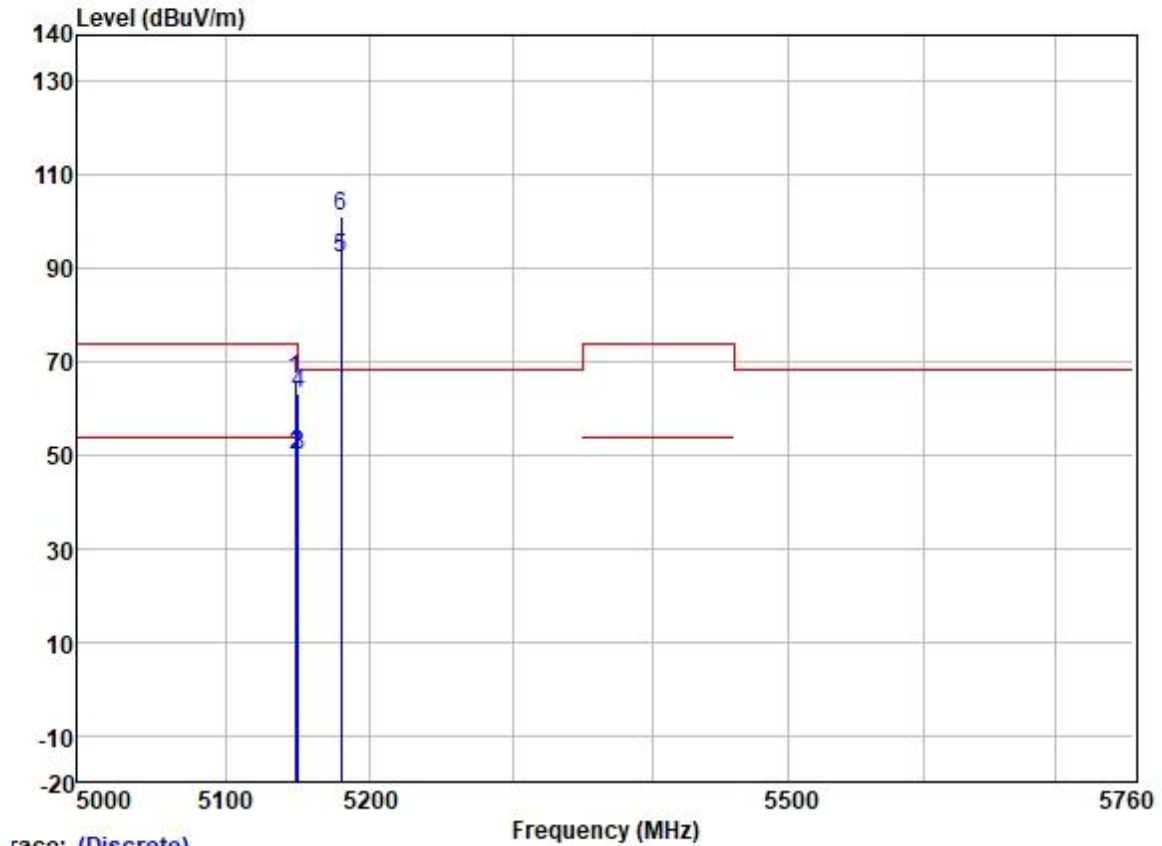
Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

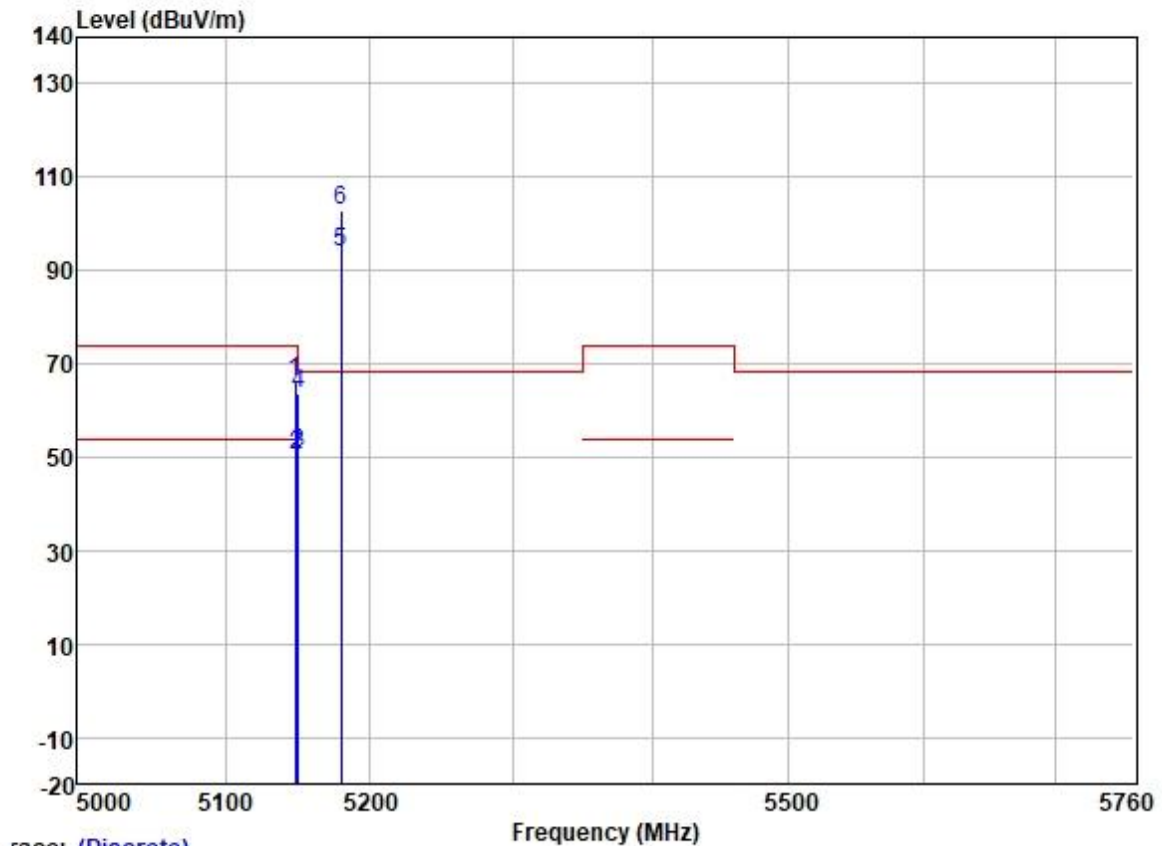
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5240.000	93.09	31.75	5.74	36.87	93.71	-----	-----	VERTICAL Average
2 *	5240.000	102.24	31.75	5.74	36.87	102.86	68.20	34.66	VERTICAL Peak
3	5350.020	47.01	31.77	6.05	36.88	47.95	54.00	-6.05	VERTICAL Average
4	5350.020	58.43	31.77	6.05	36.88	59.37	74.00	-14.63	VERTICAL Peak
5	5352.628	59.55	31.77	6.05	36.88	60.49	74.00	-13.51	VERTICAL Peak
6	5359.291	47.18	31.78	6.03	36.88	48.11	54.00	-5.89	VERTICAL Average

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



	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5147.857	65.90	31.72	5.62	36.86	66.38	74.00	-7.62	HORIZONTAL	Peak
2	5149.357	49.67	31.72	5.62	36.86	50.15	54.00	-3.85	HORIZONTAL	Average
3	5149.980	49.49	31.72	5.62	36.86	49.97	54.00	-4.03	HORIZONTAL	Average
4	5149.980	62.66	31.72	5.62	36.86	63.14	74.00	-10.86	HORIZONTAL	Peak
5	5180.000	91.63	31.73	5.61	36.87	92.10	-----	-----	HORIZONTAL	Average
6 *	5180.000	100.71	31.73	5.61	36.87	101.18	68.20	32.98	HORIZONTAL	Peak

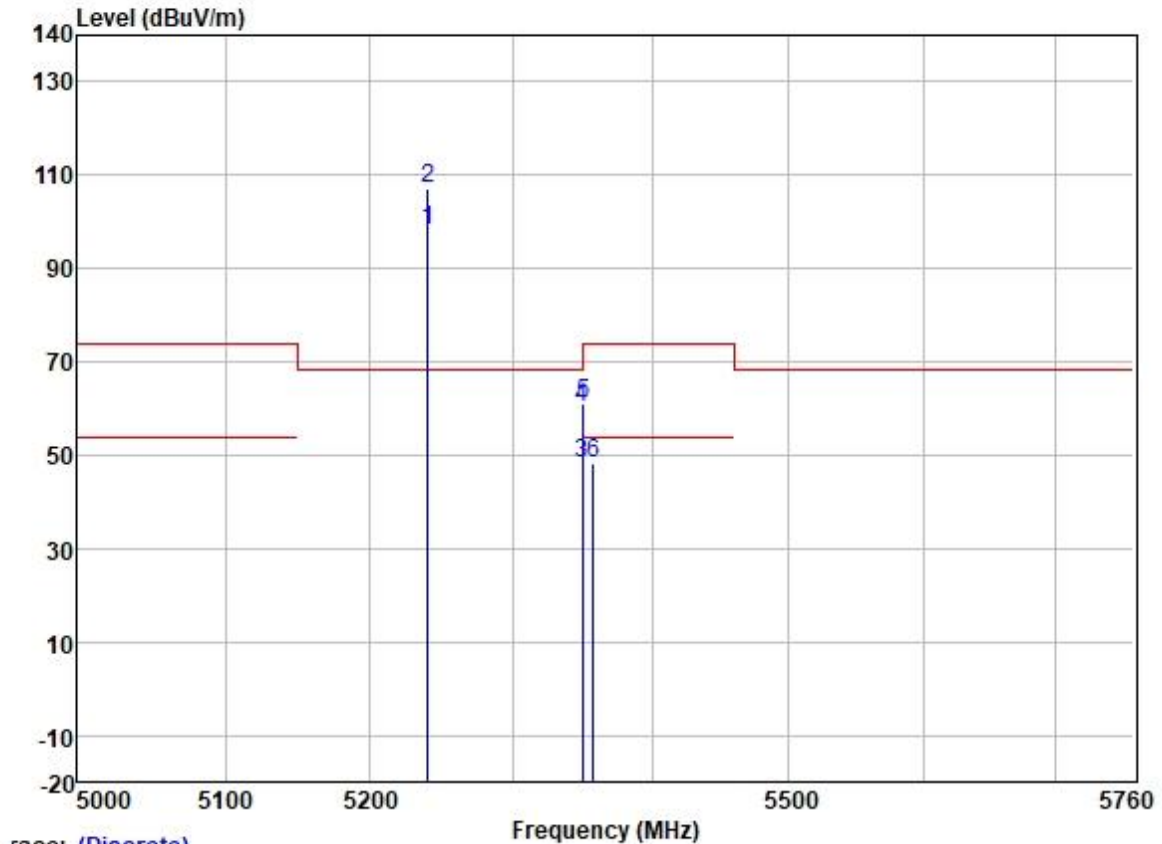
Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



race: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5147.857	65.71	31.72	5.62	36.86	66.19	74.00	-7.81	VERTICAL	Peak
2	5149.458	49.92	31.72	5.62	36.86	50.40	54.00	-3.60	VERTICAL	Average
3	5149.980	50.41	31.72	5.62	36.86	50.89	54.00	-3.11	VERTICAL	Average
4	5149.980	63.03	31.72	5.62	36.86	63.51	74.00	-10.49	VERTICAL	Peak
5	5180.000	93.32	31.73	5.61	36.87	93.79	-----	-----	VERTICAL	Average
6 *	5180.000	102.37	31.73	5.61	36.87	102.84	68.20	34.64	VERTICAL	Peak

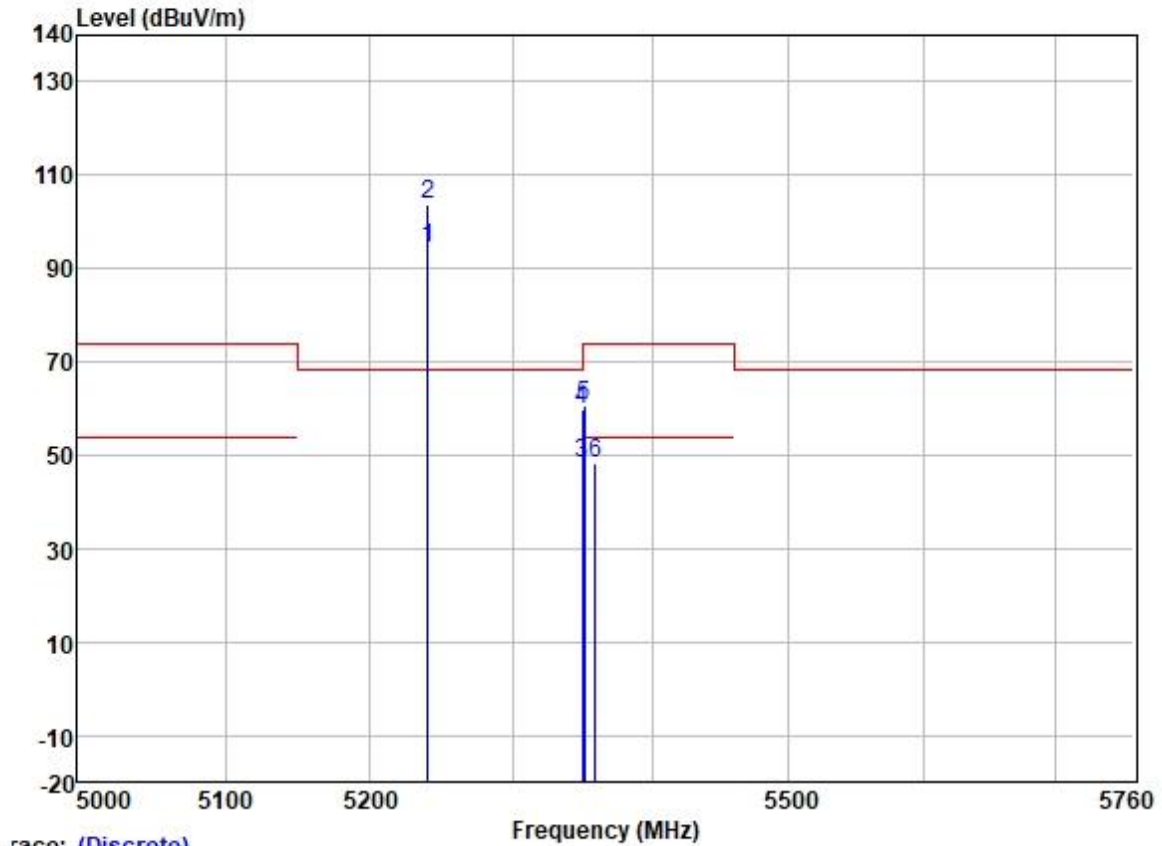
Test Mode: 04; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5240.000	97.69	31.75	5.74	36.87	98.31	-----	-----	HORIZONTAL	Average
2 *	5240.000	106.60	31.75	5.74	36.87	107.22	68.20	39.02	HORIZONTAL	Peak
3	5350.020	47.20	31.77	6.05	36.88	48.14	54.00	-5.86	HORIZONTAL	Average
4	5350.020	59.16	31.77	6.05	36.88	60.10	74.00	-13.90	HORIZONTAL	Peak
5	5350.362	60.04	31.77	6.05	36.88	60.98	74.00	-13.02	HORIZONTAL	Peak
6	5357.873	47.43	31.78	6.03	36.88	48.36	54.00	-5.64	HORIZONTAL	Average

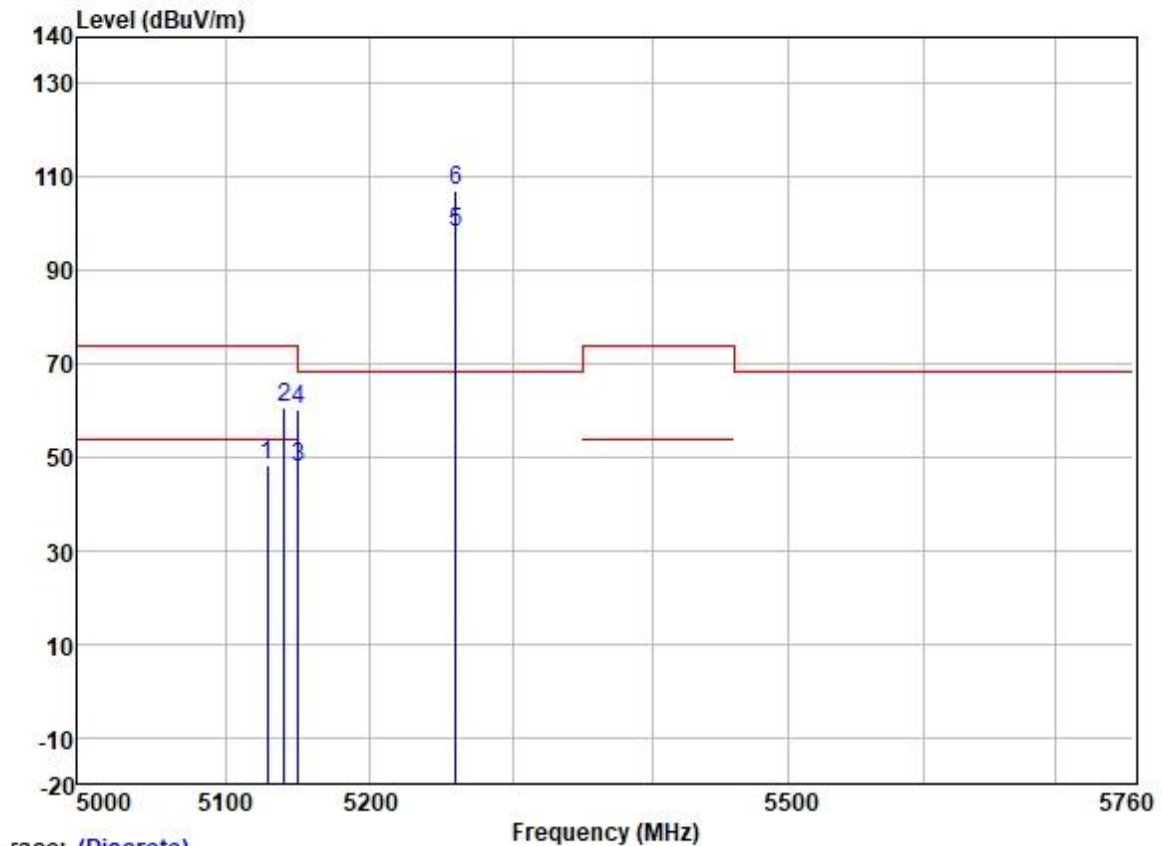
Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5240.000	93.82	31.75	5.74	36.87	94.44	-----	-----	VERTICAL Average
2 *	5240.000	102.98	31.75	5.74	36.87	103.60	68.20	35.40	VERTICAL Peak
3	5350.020	47.17	31.77	6.05	36.88	48.11	54.00	-5.89	VERTICAL Average
4	5350.020	58.74	31.77	6.05	36.88	59.68	74.00	-14.32	VERTICAL Peak
5	5351.212	59.89	31.77	6.05	36.88	60.83	74.00	-13.17	VERTICAL Peak
6	5359.291	47.41	31.78	6.03	36.88	48.34	54.00	-5.66	VERTICAL Average

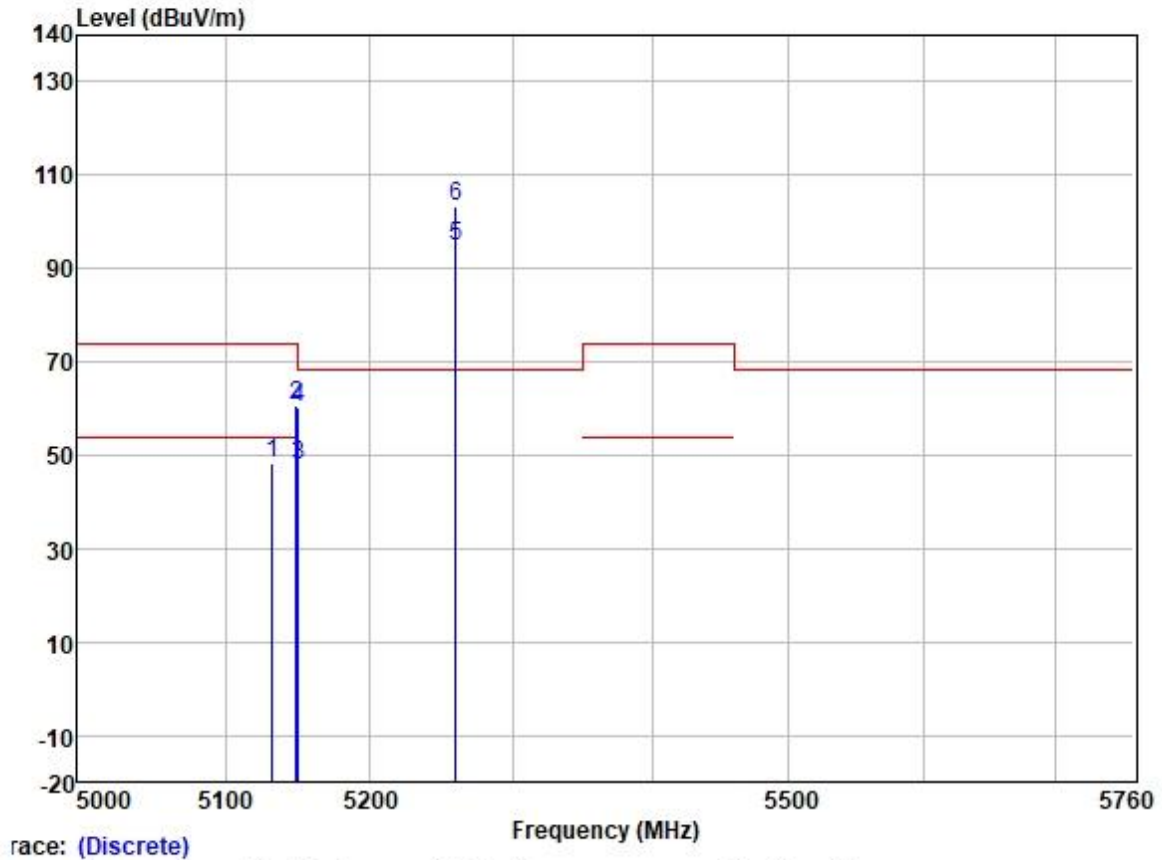
Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

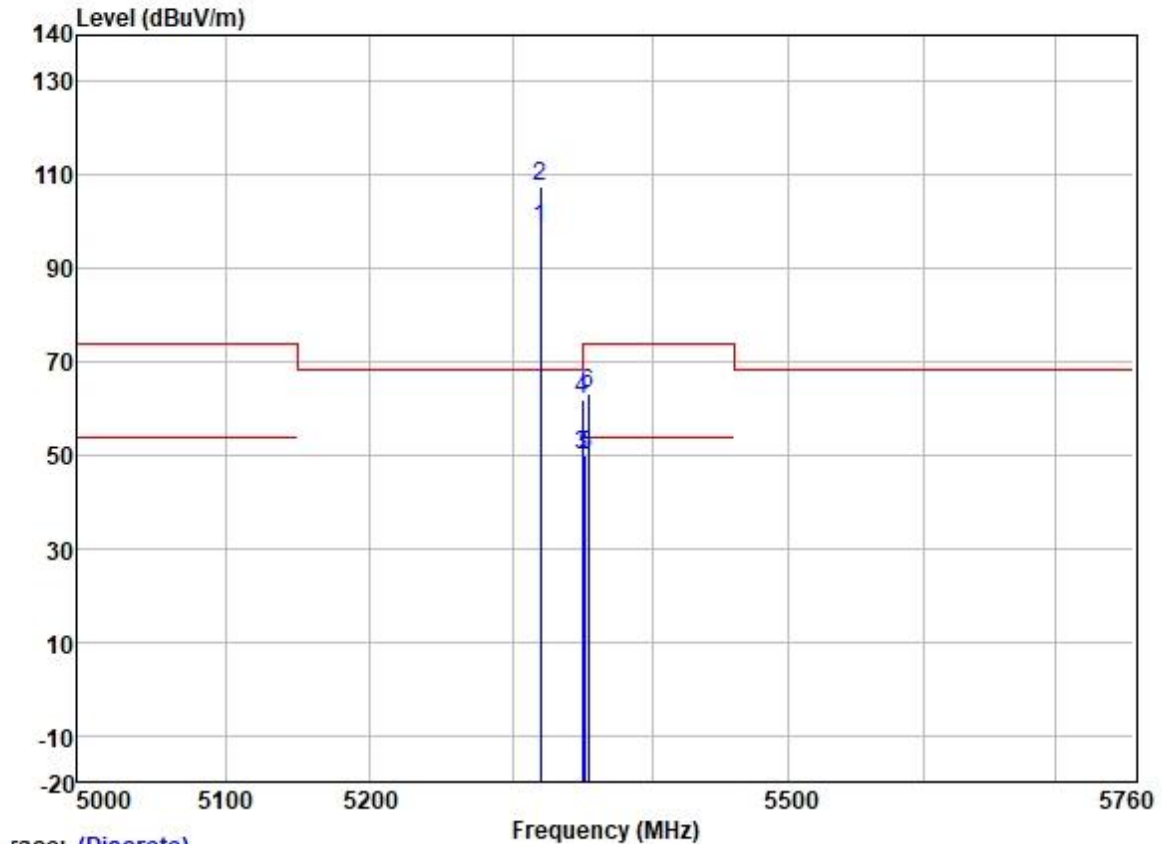
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5128.916	47.66	31.72	5.63	36.86	48.15	54.00	-5.85	HORIZONTAL Average
2	5140.670	60.25	31.72	5.63	36.86	60.74	74.00	-13.26	HORIZONTAL Peak
3	5149.980	47.44	31.72	5.62	36.86	47.92	54.00	-6.08	HORIZONTAL Average
4	5149.980	59.76	31.72	5.62	36.86	60.24	74.00	-13.76	HORIZONTAL Peak
5	5260.000	97.47	31.75	5.77	36.87	98.12	-----	-----	HORIZONTAL Average
6 *	5260.000	106.65	31.75	5.77	36.87	107.30	68.20	39.10	HORIZONTAL Peak

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



	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5132.297	47.85	31.72	5.63	36.86	48.34	54.00	-5.66	VERTICAL	Average
2	5148.522	60.30	31.72	5.62	36.86	60.78	74.00	-13.22	VERTICAL	Peak
3	5149.980	47.37	31.72	5.62	36.86	47.85	54.00	-6.15	VERTICAL	Average
4	5149.980	59.73	31.72	5.62	36.86	60.21	74.00	-13.79	VERTICAL	Peak
5	5260.000	93.96	31.75	5.77	36.87	94.61	-----	-----	VERTICAL	Average
6 *	5260.000	102.84	31.75	5.77	36.87	103.49	68.20	35.29	VERTICAL	Peak

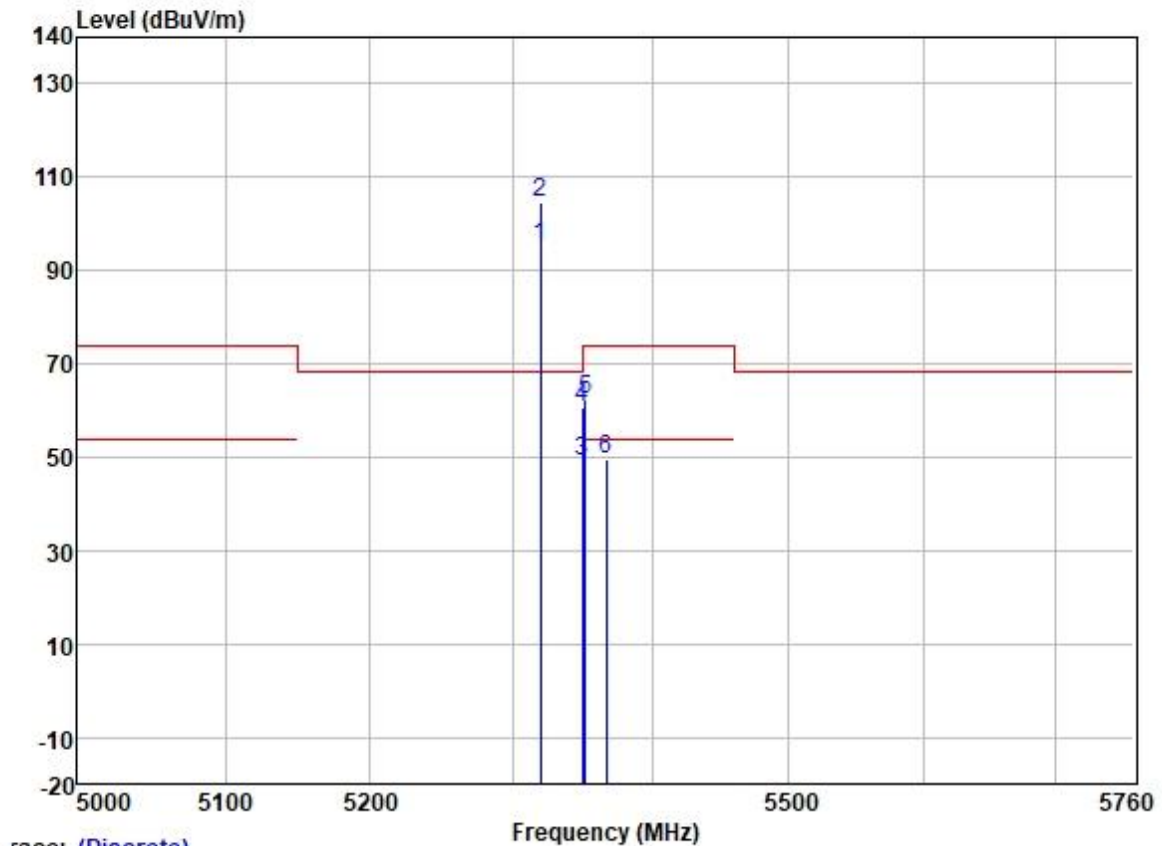
Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel: High



race: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5320.000	97.62	31.77	6.08	36.88	98.59	-----	-----	HORIZONTAL	Average
2 *	5320.000	106.45	31.77	6.08	36.88	107.42	68.20	39.22	HORIZONTAL	Peak
3	5350.020	48.95	31.77	6.05	36.88	49.89	54.00	-4.11	HORIZONTAL	Average
4	5350.020	60.94	31.77	6.05	36.88	61.88	74.00	-12.12	HORIZONTAL	Peak
5	5351.566	48.99	31.77	6.05	36.88	49.93	54.00	-4.07	HORIZONTAL	Average
6	5354.068	62.14	31.77	6.05	36.88	63.08	74.00	-10.92	HORIZONTAL	Peak

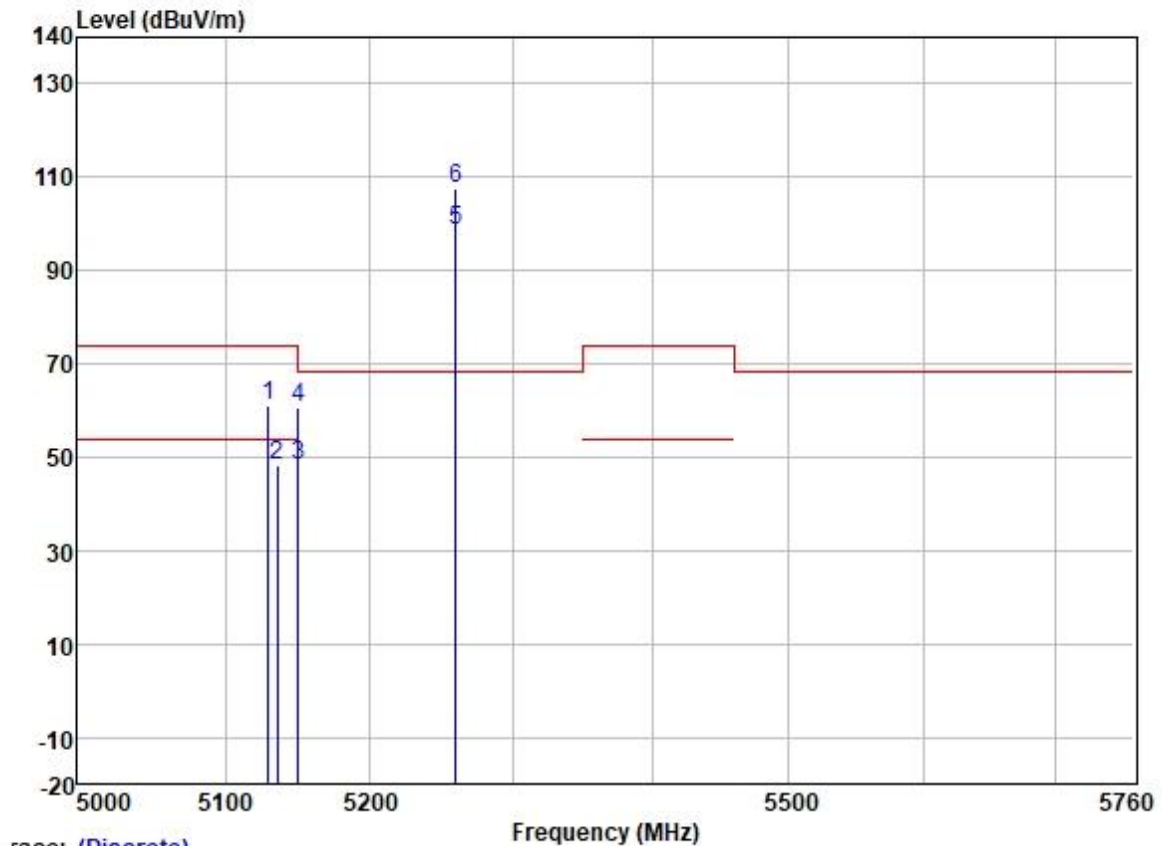
Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5320.000	94.32	31.77	6.08	36.88	95.29	-----	-----	VERTICAL Average
2 *	5320.000	103.68	31.77	6.08	36.88	104.65	68.20	36.45	VERTICAL Peak
3	5350.020	48.28	31.77	6.05	36.88	49.22	54.00	-4.78	VERTICAL Average
4	5350.020	59.82	31.77	6.05	36.88	60.76	74.00	-13.24	VERTICAL Peak
5	5351.767	61.43	31.77	6.05	36.88	62.37	74.00	-11.63	VERTICAL Peak
6	5366.693	48.44	31.78	6.03	36.88	49.37	54.00	-4.63	VERTICAL Average

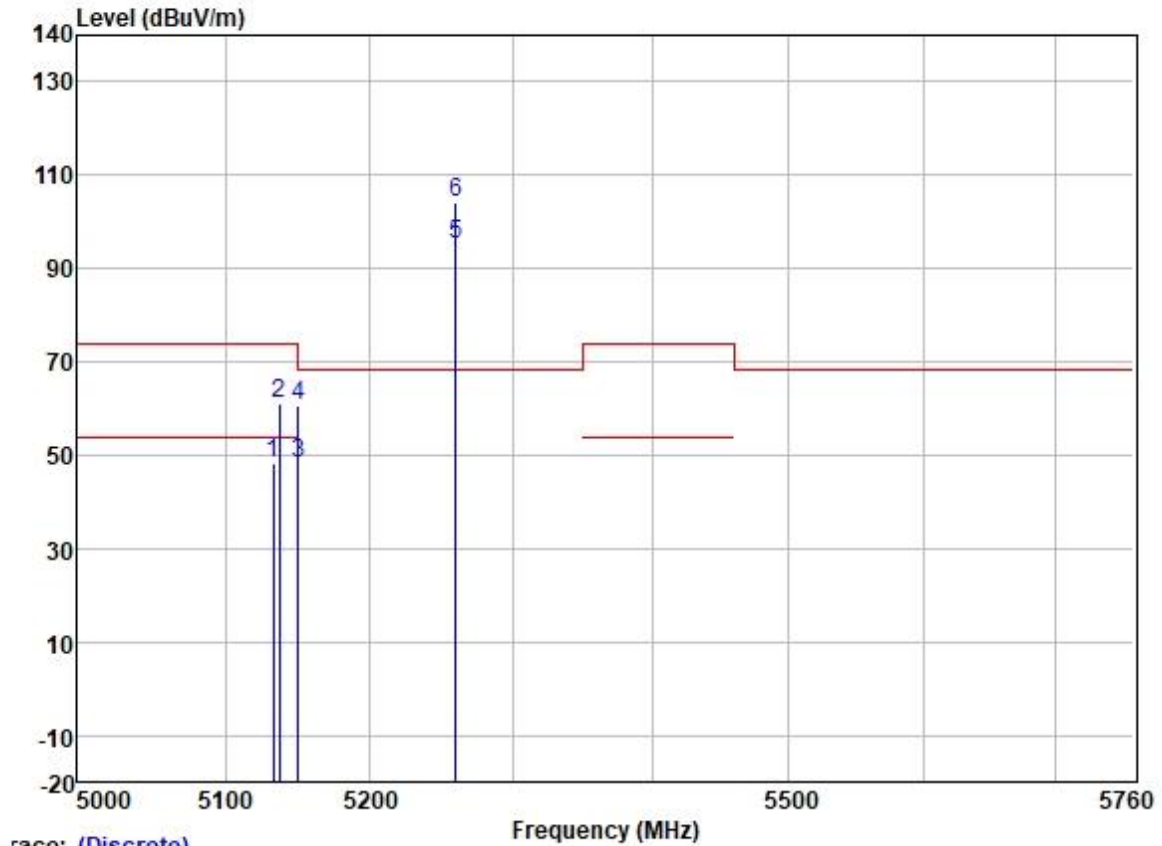
Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

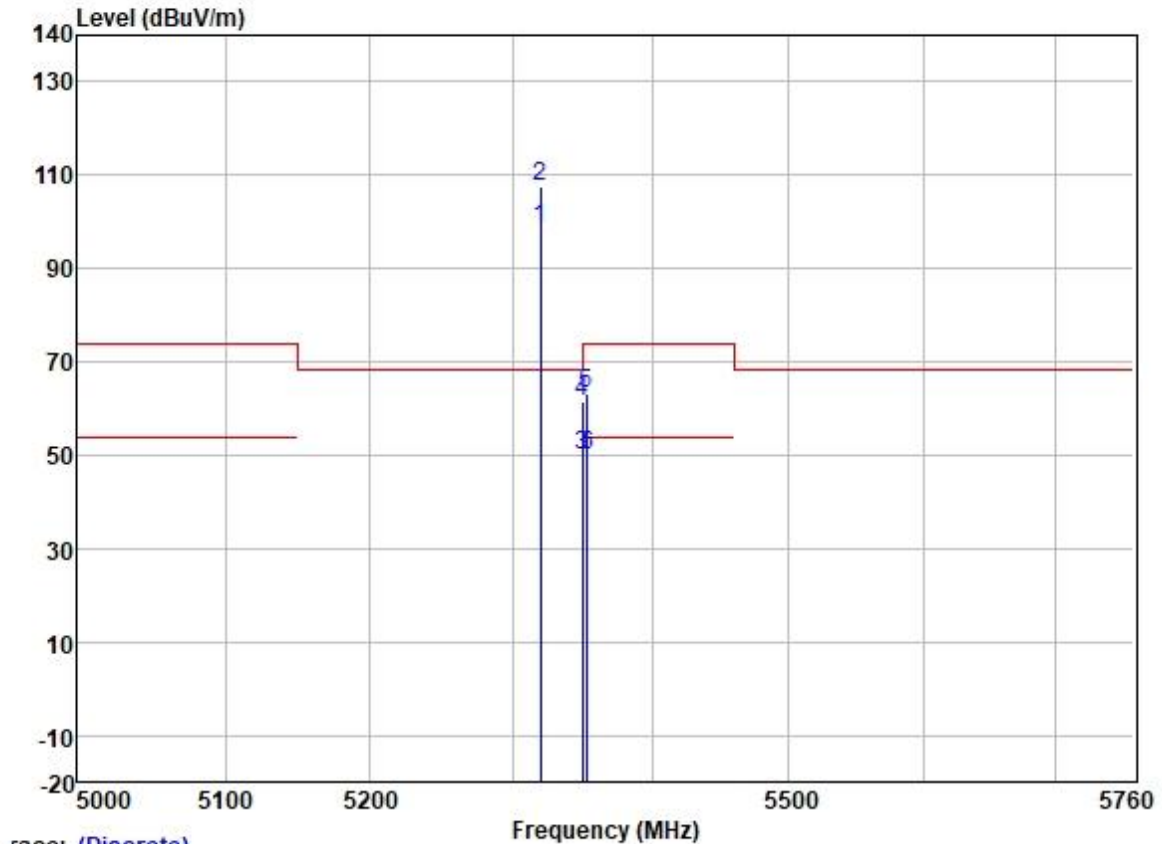
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5129.450	60.66	31.72	5.63	36.86	61.15	74.00	-12.85	HORIZONTAL	Peak
2	5135.324	47.84	31.72	5.63	36.86	48.33	54.00	-5.67	HORIZONTAL	Average
3	5149.980	47.63	31.72	5.62	36.86	48.11	54.00	-5.89	HORIZONTAL	Average
4	5149.980	60.10	31.72	5.62	36.86	60.58	74.00	-13.42	HORIZONTAL	Peak
5	5260.000	97.92	31.75	5.77	36.87	98.57	-----	-----	HORIZONTAL	Average
6 *	5260.000	106.92	31.75	5.77	36.87	107.57	68.20	39.37	HORIZONTAL	Peak

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



	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	5133.009	47.80	31.72	5.63	36.86	48.29	54.00	-5.71	VERTICAL	Average
2	5136.750	60.59	31.72	5.63	36.86	61.08	74.00	-12.92	VERTICAL	Peak
3	5149.980	47.68	31.72	5.62	36.86	48.16	54.00	-5.84	VERTICAL	Average
4	5149.980	60.00	31.72	5.62	36.86	60.48	74.00	-13.52	VERTICAL	Peak
5	5260.000	94.36	31.75	5.77	36.87	95.01	-----	-----	VERTICAL	Average
6 *	5260.000	103.46	31.75	5.77	36.87	104.11	68.20	35.91	VERTICAL	Peak

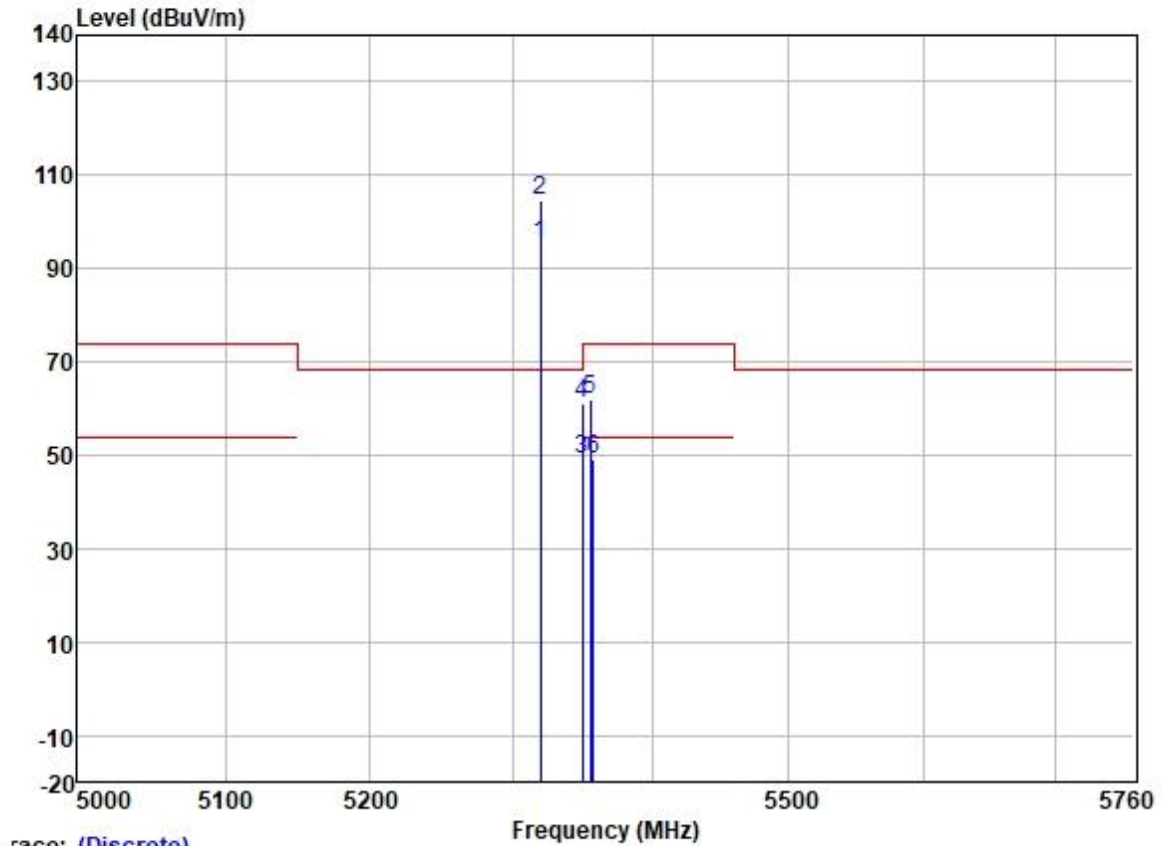
Test Mode: 05; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 20MHz; Channel: High



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5320.000	97.61	31.77	6.08	36.88	98.58	-----	-----	HORIZONTAL	Average
2 *	5320.000	106.75	31.77	6.08	36.88	107.72	68.20	39.52	HORIZONTAL	Peak
3	5350.020	49.13	31.77	6.05	36.88	50.07	54.00	-3.93	HORIZONTAL	Average
4	5350.020	60.39	31.77	6.05	36.88	61.33	74.00	-12.67	HORIZONTAL	Peak
5	5352.767	62.44	31.77	6.05	36.88	63.38	74.00	-10.62	HORIZONTAL	Peak
6	5353.667	49.10	31.77	6.05	36.88	50.04	54.00	-3.96	HORIZONTAL	Average

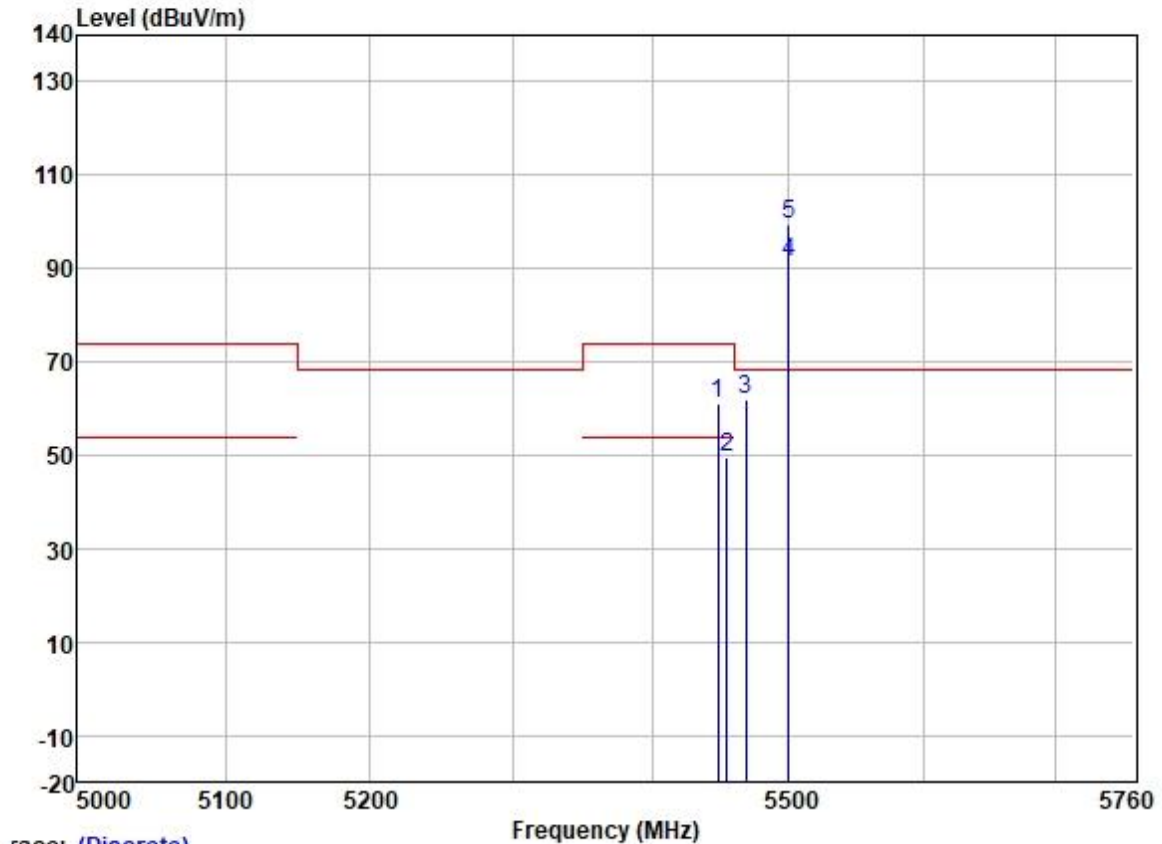
Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: High



Trace: (Discrete)

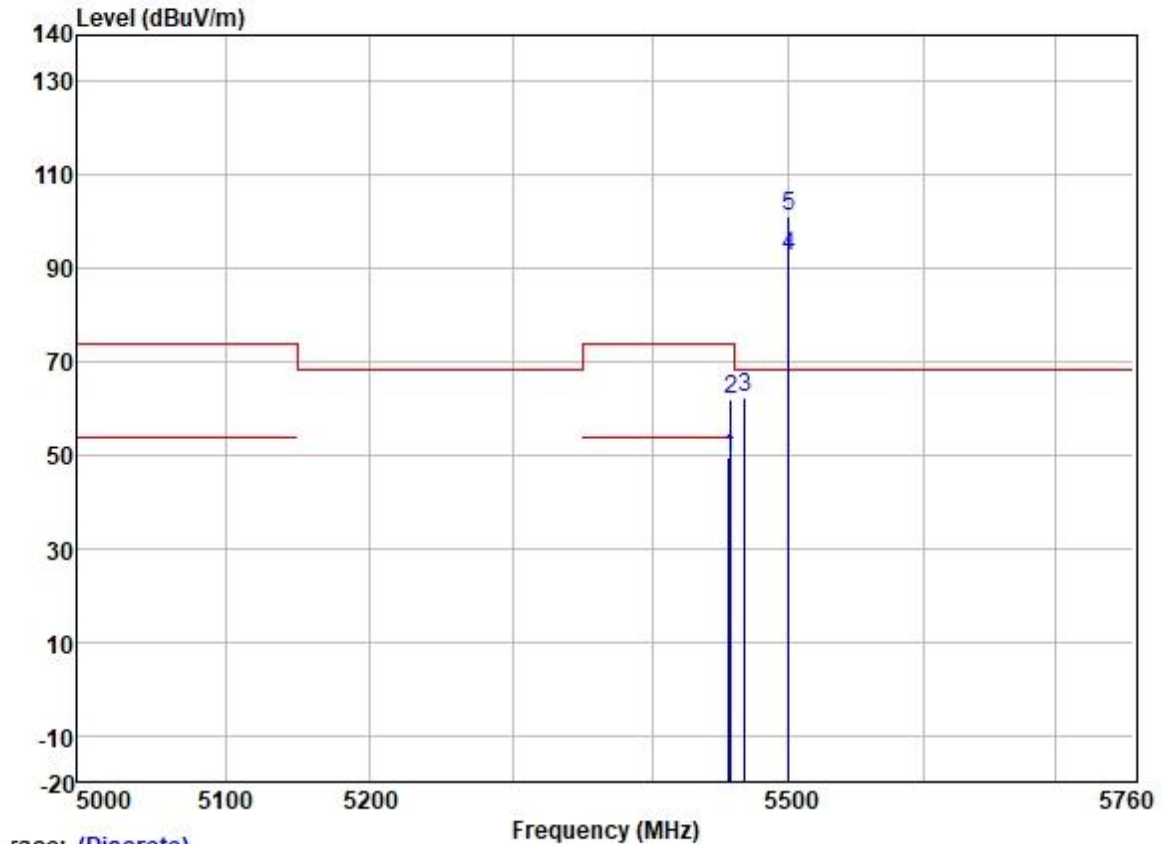
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5320.000	94.33	31.77	6.08	36.88	95.30	-----	-----	VERTICAL Average
2 *	5320.000	103.41	31.77	6.08	36.88	104.38	68.20	36.18	VERTICAL Peak
3	5350.020	48.31	31.77	6.05	36.88	49.25	54.00	-4.75	VERTICAL Average
4	5350.020	59.96	31.77	6.05	36.88	60.90	74.00	-13.10	VERTICAL Peak
5	5355.469	61.07	31.78	6.03	36.88	62.00	74.00	-12.00	VERTICAL Peak
6	5357.772	48.31	31.78	6.03	36.88	49.24	54.00	-4.76	VERTICAL Average

Test Mode: 06; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: Low



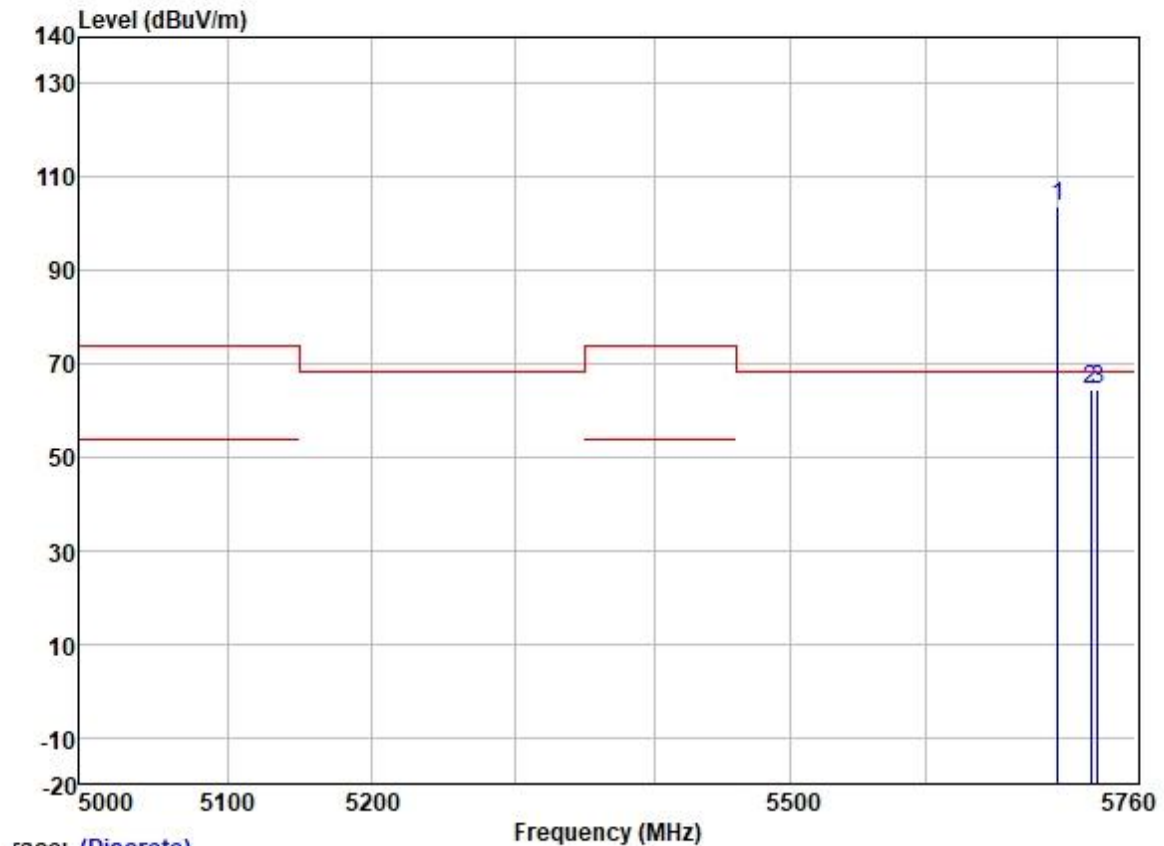
	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
		Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5448.043	59.93	31.79	6.26	36.88	61.10	74.00	-12.90	HORIZONTAL	Peak
2	5454.513	48.30	31.79	6.26	36.88	49.47	54.00	-4.53	HORIZONTAL	Average
3	5467.957	60.53	31.80	6.31	36.88	61.76	68.20	-6.44	HORIZONTAL	Peak
4	5500.000	89.96	31.80	6.40	36.88	91.28	-----	-----	HORIZONTAL	Average
5 *	5500.000	98.24	31.80	6.40	36.88	99.56	68.20	31.36	HORIZONTAL	Peak

Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel: Low



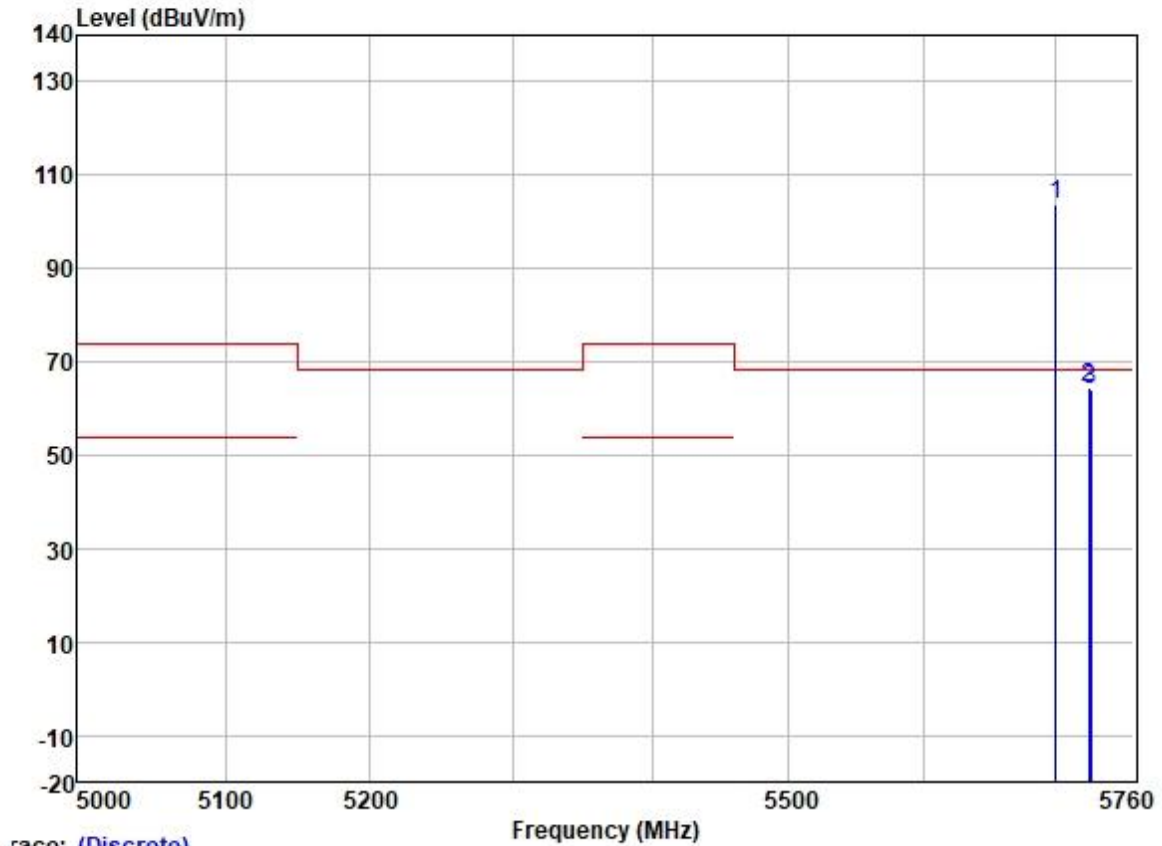
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5455.592	48.51	31.79	6.26	36.88	49.68	54.00	-4.32	VERTICAL Average
2	5457.511	60.73	31.79	6.26	36.88	61.90	74.00	-12.10	VERTICAL Peak
3	5467.476	60.94	31.80	6.31	36.88	62.17	68.20	-6.03	VERTICAL Peak
4	5500.000	91.15	31.80	6.40	36.88	92.47	-----	-----	VERTICAL Average
5 *	5500.000	99.95	31.80	6.40	36.88	101.27	68.20	33.07	VERTICAL Peak

Test Mode: 06; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: High



	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 *	5700.000	102.40	32.01	6.40	36.89	103.92	68.20	35.72	HORIZONTAL	Peak
2	5725.000	63.02	32.07	6.25	36.89	64.45	68.20	-3.75	HORIZONTAL	Peak
3	5730.682	63.18	32.07	6.25	36.89	64.61	68.20	-3.59	HORIZONTAL	Peak

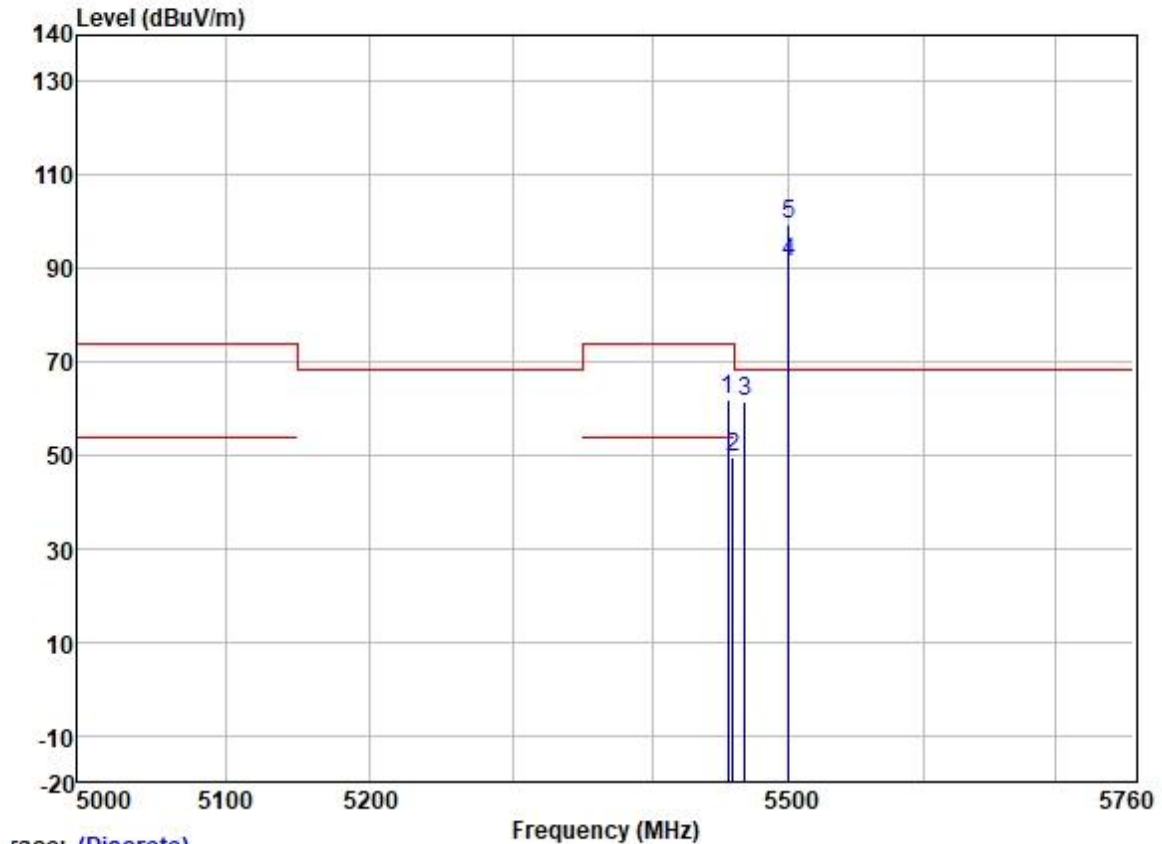
Test Mode: 06; Polarity: Vertical; Modulation: 802.11a; Bandwidth: 20MHz; Channel: High



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 *	5700.000	102.06	32.01	6.40	36.89	103.58	68.20	35.38	VERTICAL	Peak
2	5725.000	63.19	32.07	6.25	36.89	64.62	68.20	-3.58	VERTICAL	Peak
3	5726.982	62.68	32.07	6.25	36.89	64.11	68.20	-4.09	VERTICAL	Peak

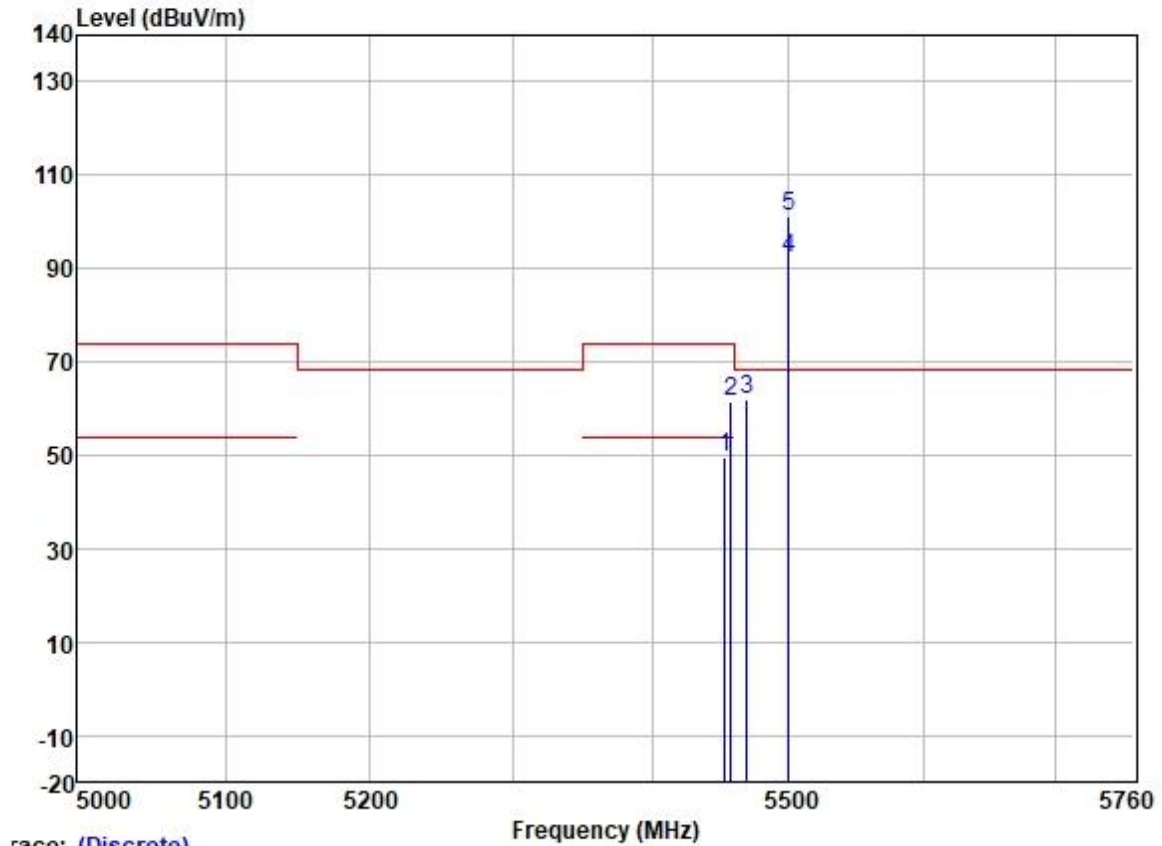
Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5455.352	60.84	31.79	6.26	36.88	62.01	74.00	-11.99	HORIZONTAL Peak
2	5458.950	48.51	31.79	6.26	36.88	49.68	54.00	-4.32	HORIZONTAL Average
3	5467.596	60.32	31.80	6.31	36.88	61.55	68.20	-6.65	HORIZONTAL Peak
4	5500.000	89.86	31.80	6.40	36.88	91.18	-----	-----	HORIZONTAL Average
5 *	5500.000	98.29	31.80	6.40	36.88	99.61	68.20	31.41	HORIZONTAL Peak

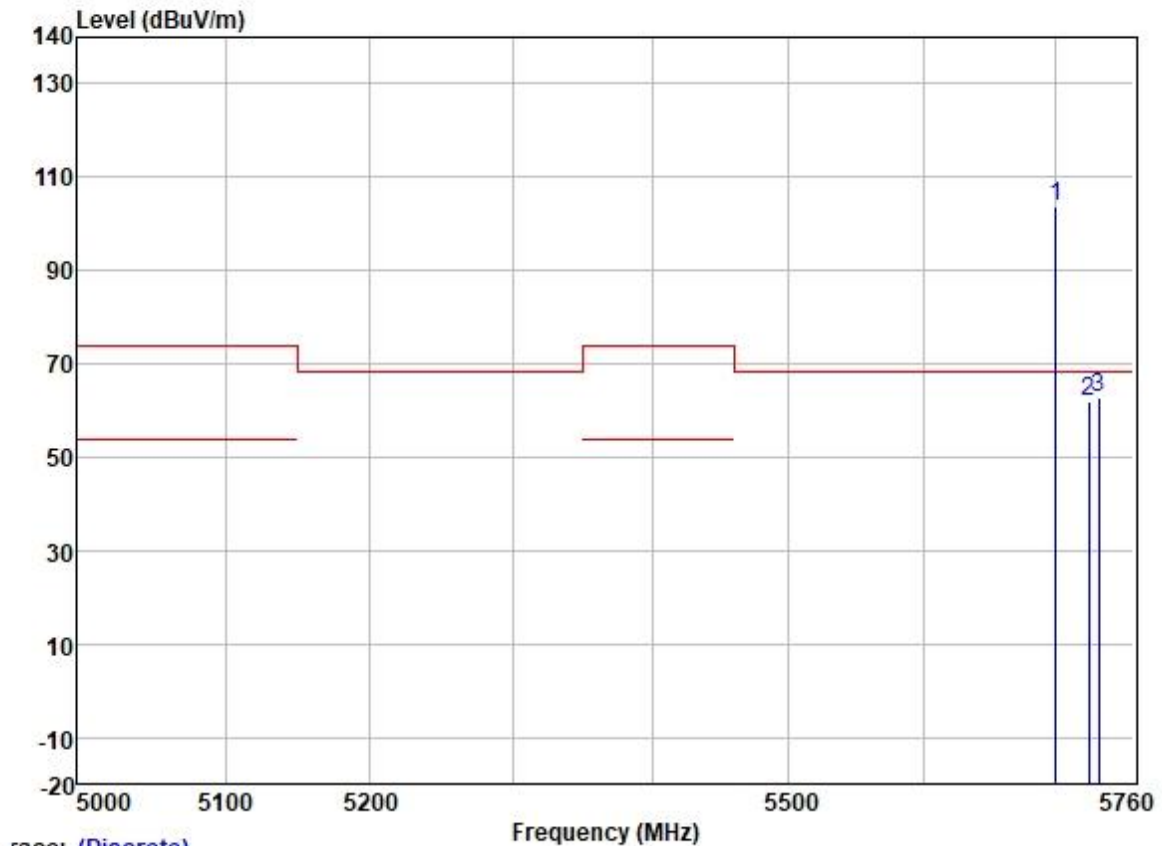
Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5453.194	48.52	31.79	6.26	36.88	49.69	54.00	-4.31	VERTICAL Average
2	5457.391	60.52	31.79	6.26	36.88	61.69	74.00	-12.31	VERTICAL Peak
3	5468.557	60.83	31.80	6.31	36.88	62.06	68.20	-6.14	VERTICAL Peak
4	5500.000	91.07	31.80	6.40	36.88	92.39	-----	-----	VERTICAL Average
5 *	5500.000	99.95	31.80	6.40	36.88	101.27	68.20	33.07	VERTICAL Peak

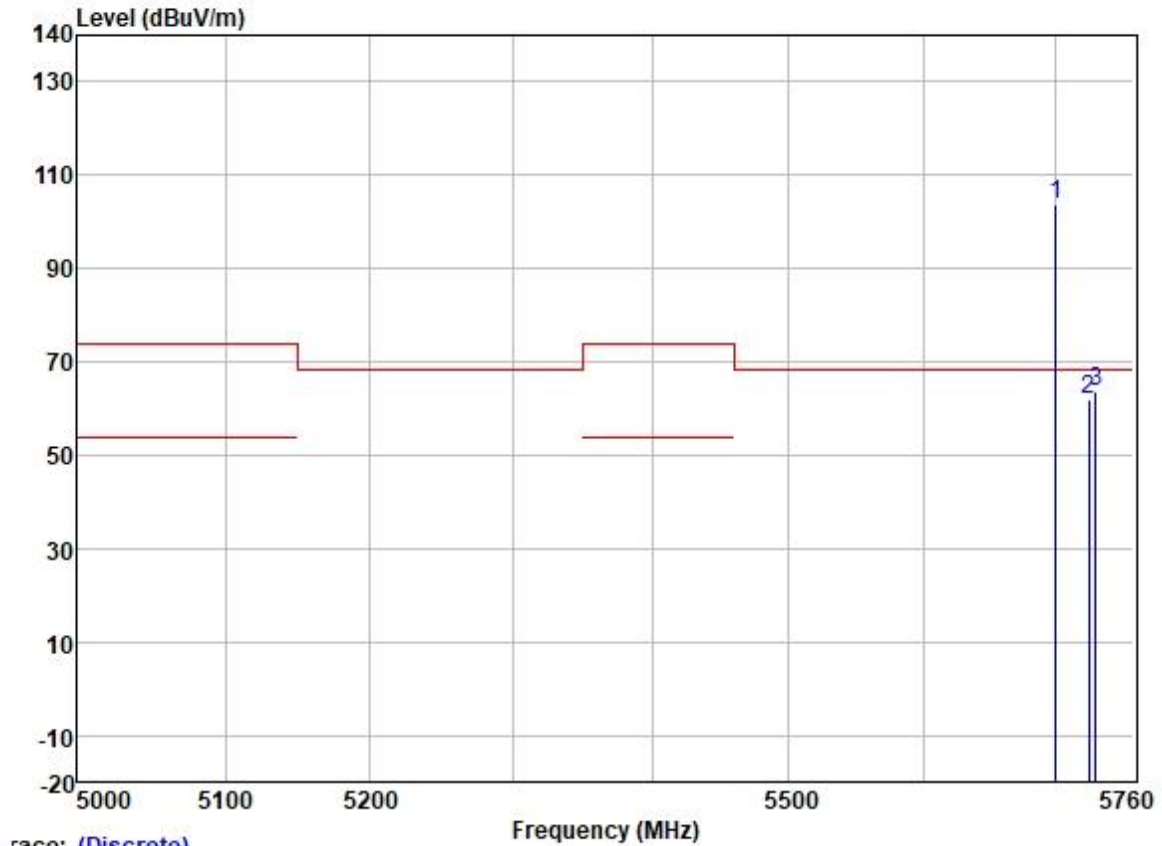
Test Mode: 06; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 20MHz; Channel: High



Trace: (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 *	5700.000	102.32	32.01	6.40	36.89	103.84	68.20	35.64	HORIZONTAL	Peak
2	5725.000	60.34	32.07	6.25	36.89	61.77	68.20	-6.43	HORIZONTAL	Peak
3	5732.583	61.14	32.07	6.25	36.89	62.57	68.20	-5.63	HORIZONTAL	Peak

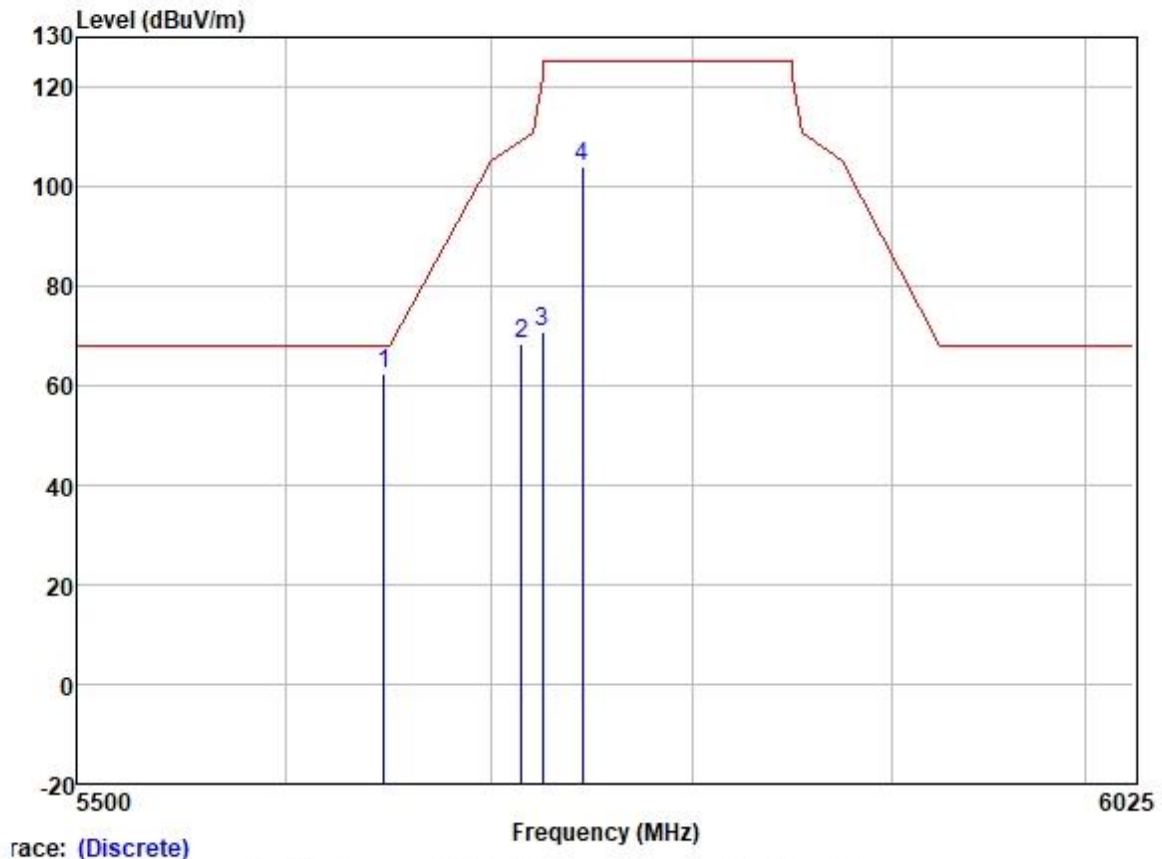
Test Mode: 06; Polarity: Vertical; Modulation: 802.11n; Bandwidth: 20MHz; Channel: High



Trace: (Discrete)

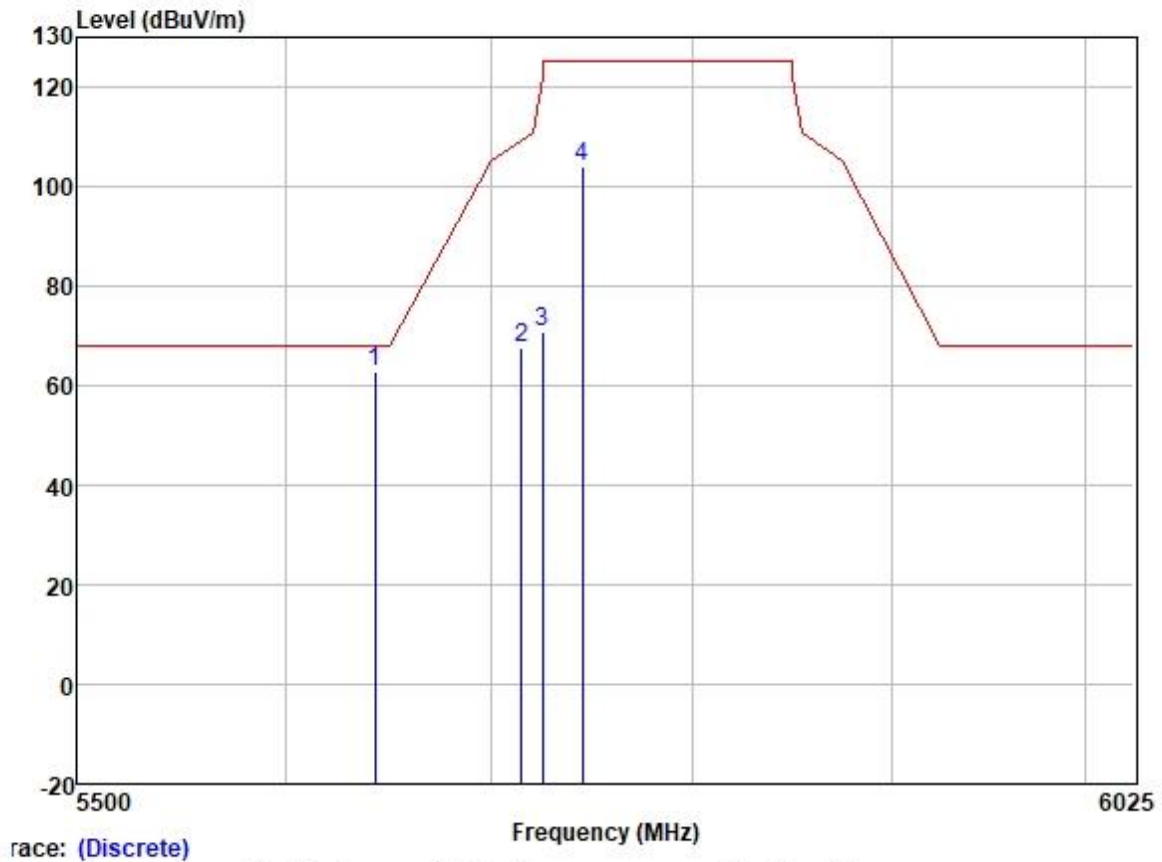
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	* 5700.000	102.25	32.01	6.40	36.89	103.77	68.20	35.57	VERTICAL	Peak
2	5725.000	60.57	32.07	6.25	36.89	62.00	68.20	-6.20	VERTICAL	Peak
3	5730.582	62.17	32.07	6.25	36.89	63.60	68.20	-4.60	VERTICAL	Peak

Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel: Low



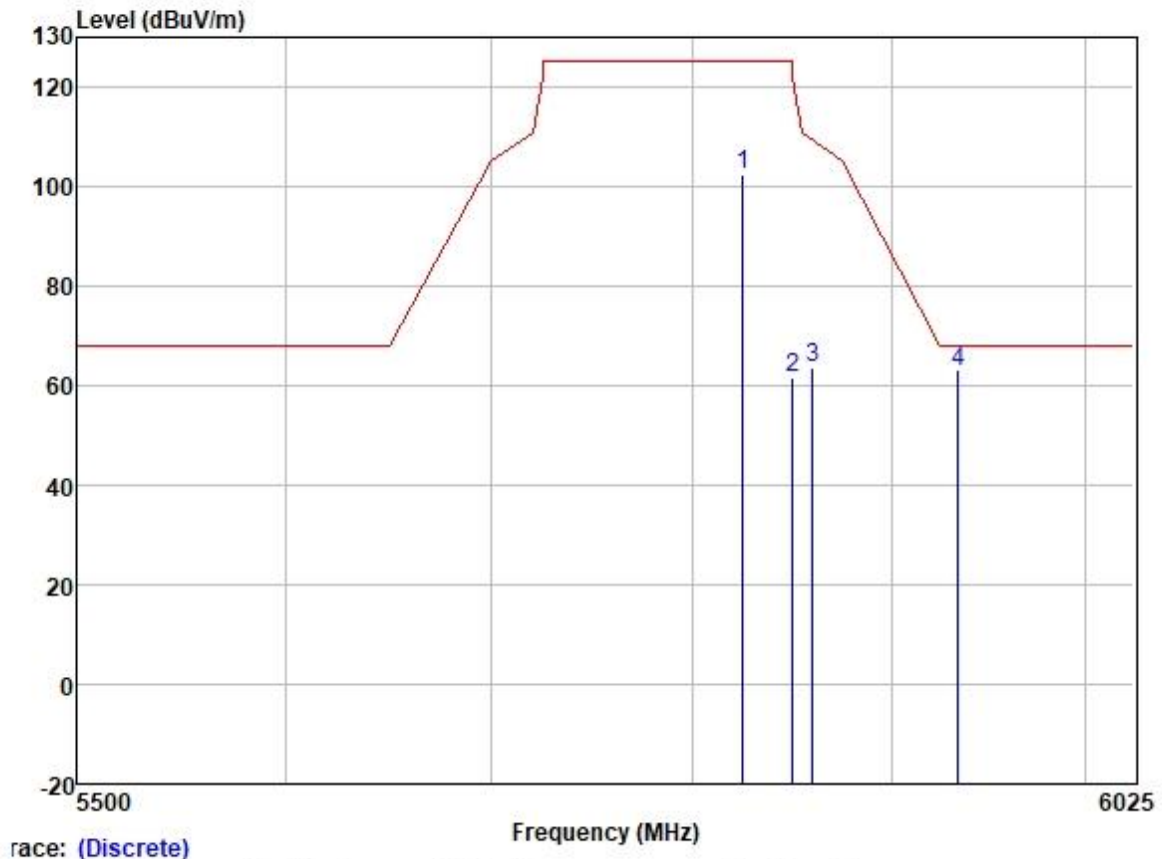
		ReadAntenna	Cable	Preamp		Limit	Over			
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5647.196	60.87	31.95	6.35	36.89	62.28	68.20	-5.92	HORIZONTAL	Peak
2	5715.000	66.98	32.04	6.33	36.89	68.46	109.40	-40.94	HORIZONTAL	Peak
3	5725.000	69.51	32.07	6.25	36.89	70.94	122.20	-51.26	HORIZONTAL	Peak
4	5745.000	102.48	32.10	6.20	36.89	103.89	125.20	-21.31	HORIZONTAL	Peak

Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel: Low



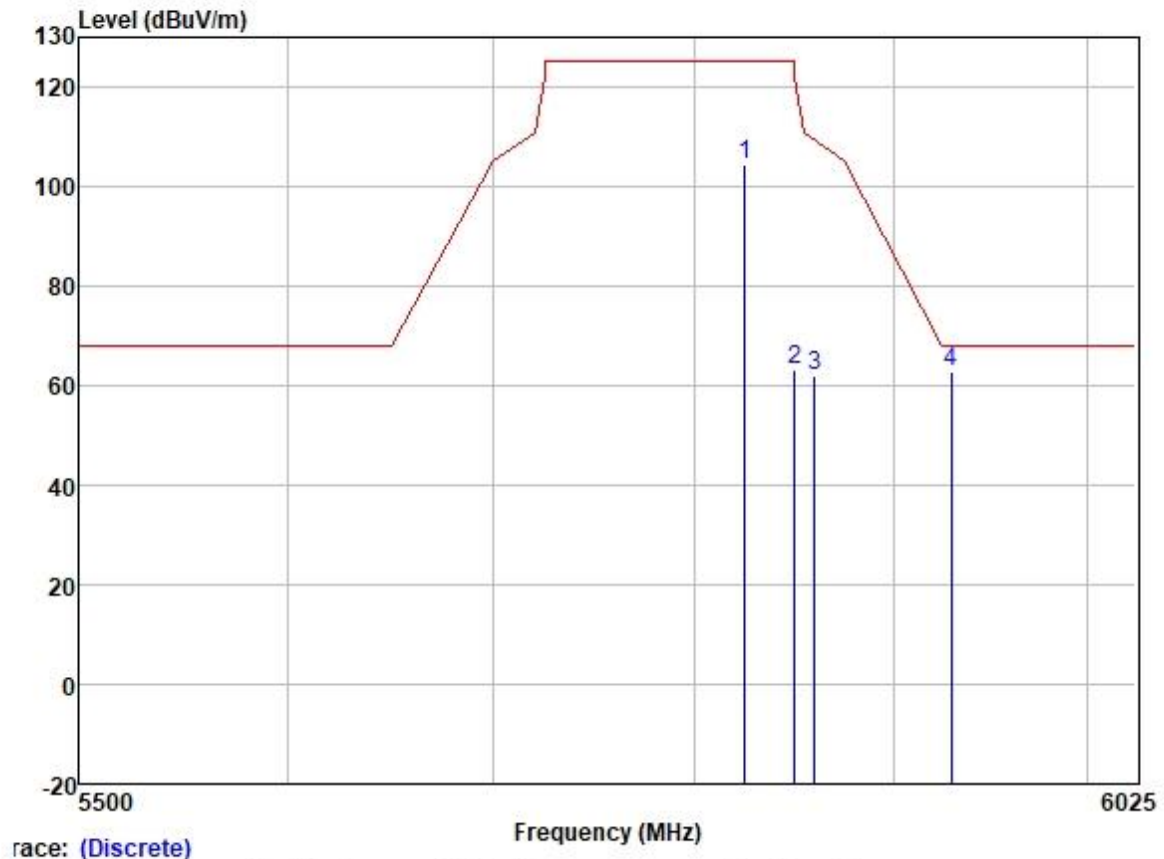
	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5642.905	61.41	31.95	6.35	36.89	62.82	68.20	-5.38	VERTICAL	Peak
2	5715.000	66.11	32.04	6.33	36.89	67.59	109.40	-41.81	VERTICAL	Peak
3	5725.000	69.56	32.07	6.25	36.89	70.99	122.20	-51.21	VERTICAL	Peak
4	5745.000	102.51	32.10	6.20	36.89	103.92	125.20	-21.28	VERTICAL	Peak

Test Mode: 07; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: High



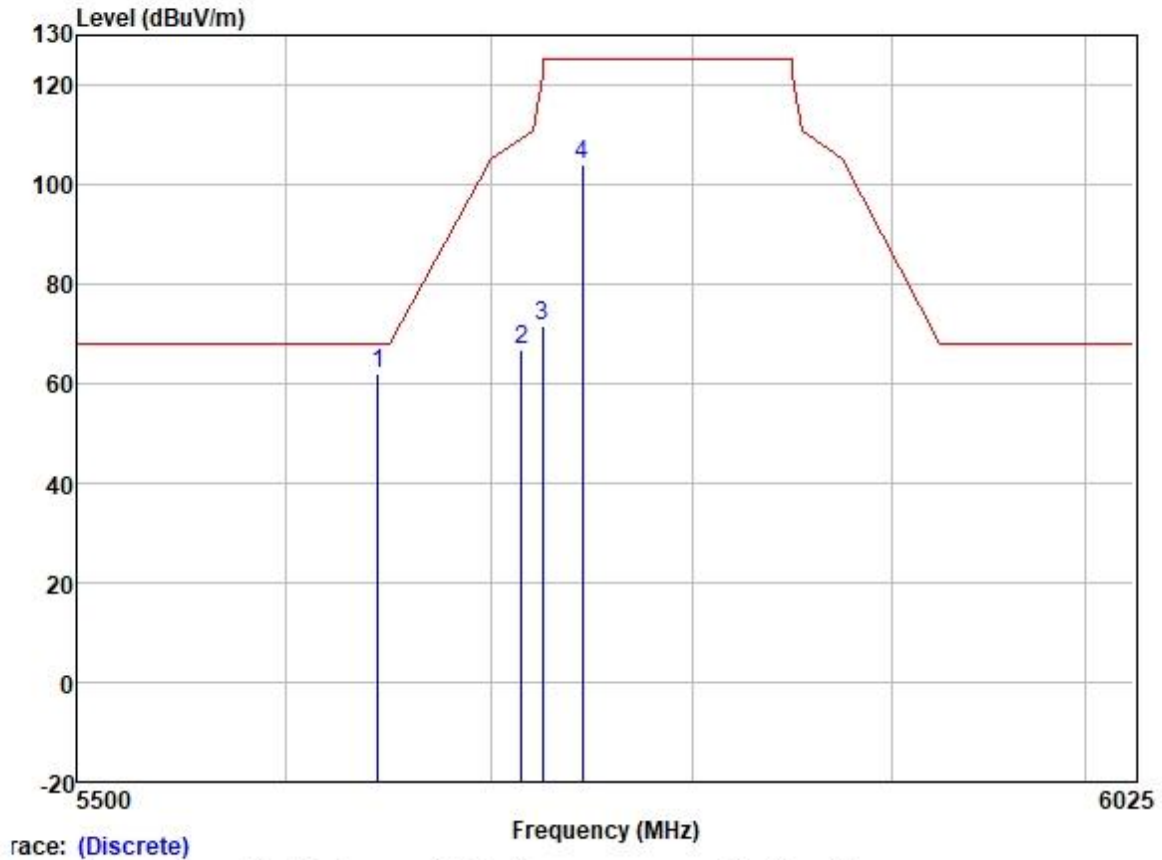
	Read	Antenna	Cable	Preamp	Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB
1	5825.000	100.90	32.23	6.04	36.90	102.27	125.20	-22.93
2	5850.000	60.23	32.25	6.00	36.90	61.58	122.20	-60.62
3	5860.000	62.27	32.27	5.96	36.90	63.60	109.40	-45.80
4	5934.486	61.56	32.34	6.00	36.90	63.00	68.20	-5.20

Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel: High



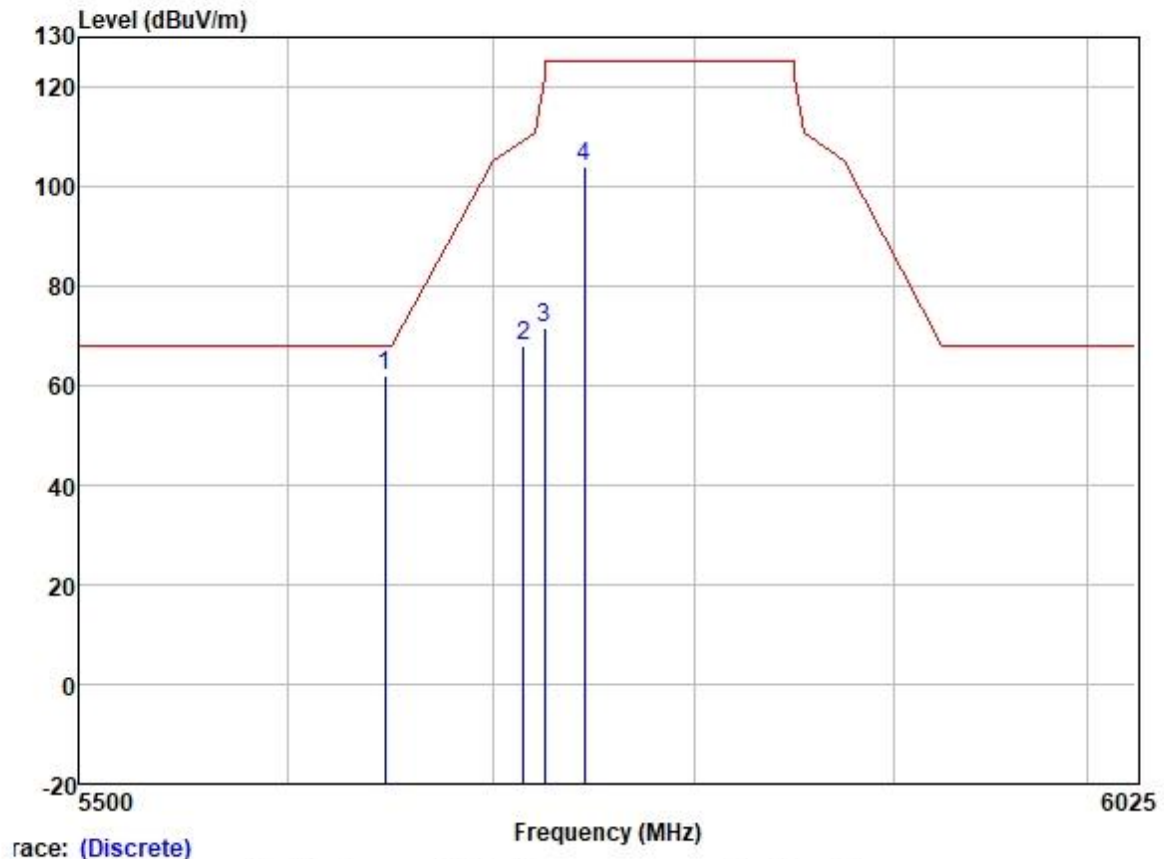
		ReadAntenna	Cable	Preamp		Limit	Over			
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5825.000	102.88	32.23	6.04	36.90	104.25	125.20	-20.95	VERTICAL	Peak
2	5850.000	61.95	32.25	6.00	36.90	63.30	122.20	-58.90	VERTICAL	Peak
3	5860.000	60.81	32.27	5.96	36.90	62.14	109.40	-47.26	VERTICAL	Peak
4	5929.785	61.49	32.34	6.00	36.90	62.93	68.20	-5.27	VERTICAL	Peak

Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



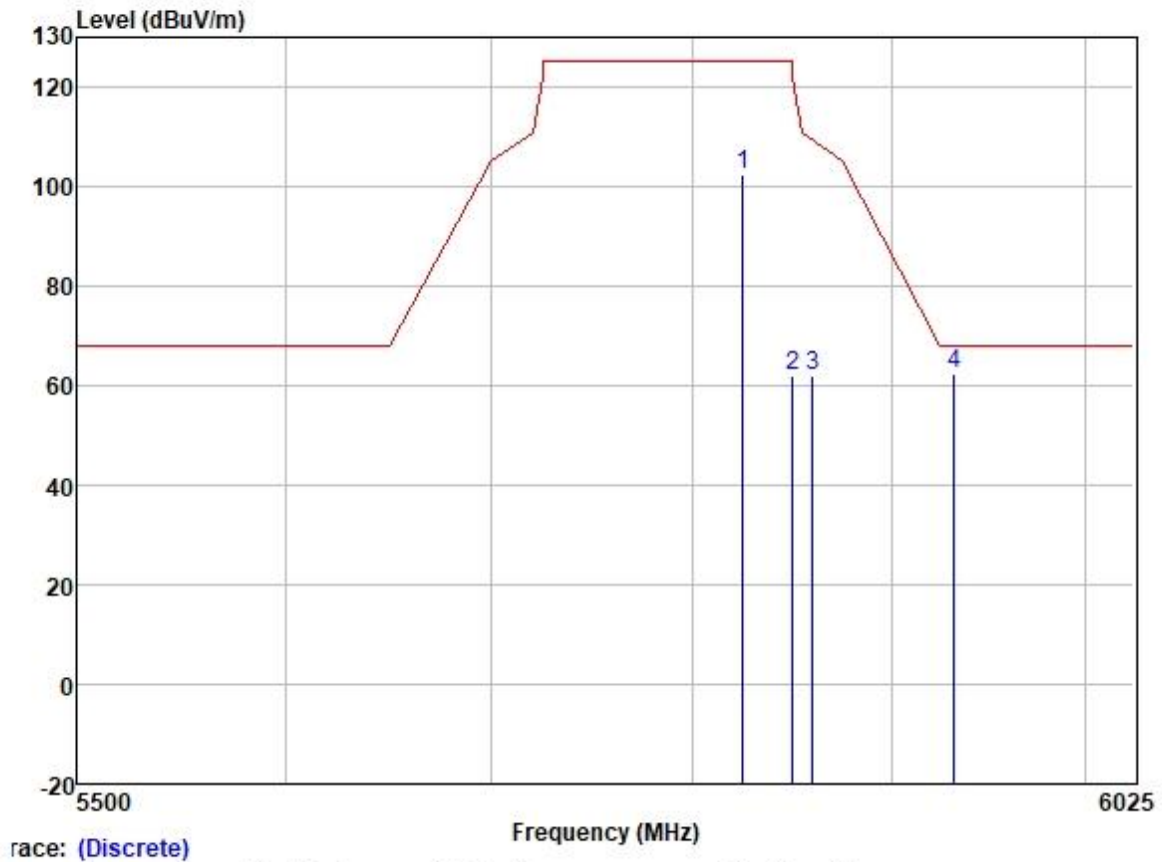
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5644.427	60.48	31.95	6.35	36.89	61.89	68.20	-6.31	HORIZONTAL	Peak
2	5715.000	65.48	32.04	6.33	36.89	66.96	109.40	-42.44	HORIZONTAL	Peak
3	5725.000	70.22	32.07	6.25	36.89	71.65	122.20	-50.55	HORIZONTAL	Peak
4	5745.000	102.64	32.10	6.20	36.89	104.05	125.20	-21.15	HORIZONTAL	Peak

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: Low



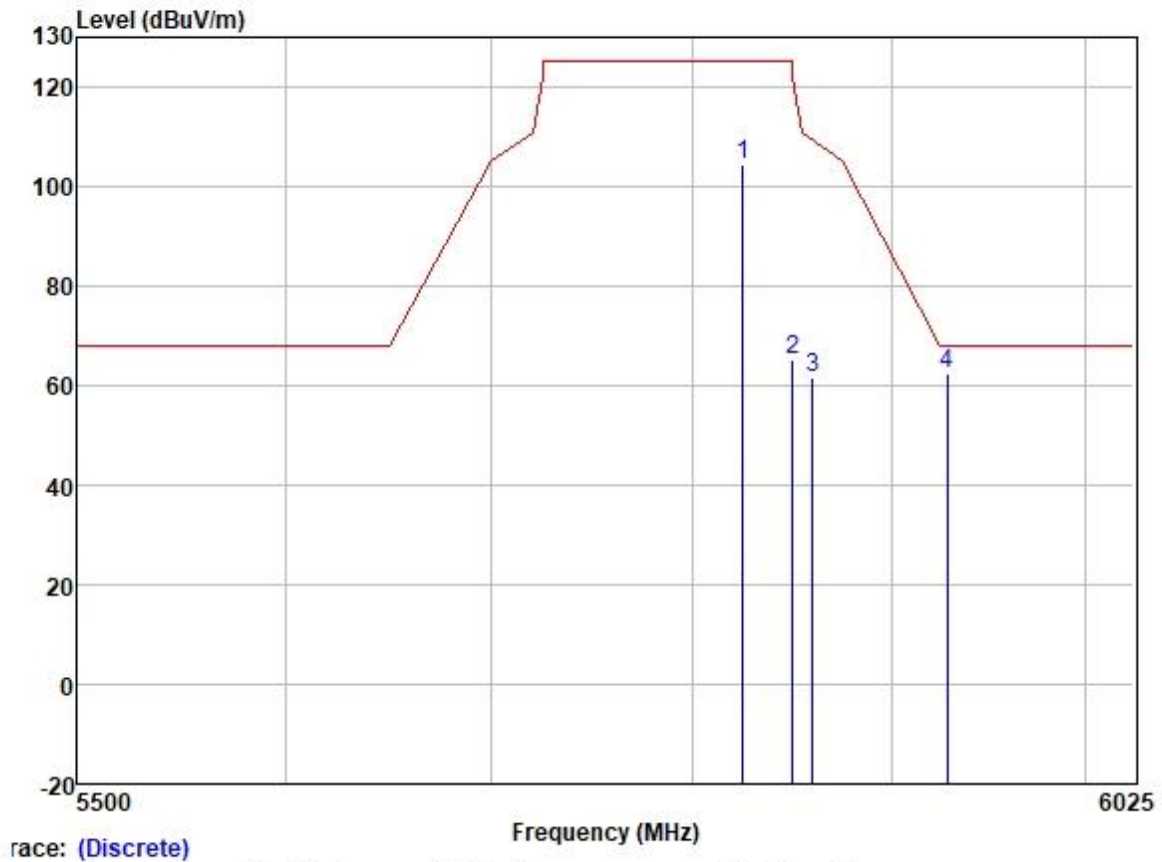
		ReadAntenna	Cable	Preamp		Limit	Over			
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5647.057	60.71	31.95	6.35	36.89	62.12	68.20	-6.08	VERTICAL	Peak
2	5715.000	66.69	32.04	6.33	36.89	68.17	109.40	-41.23	VERTICAL	Peak
3	5725.000	70.35	32.07	6.25	36.89	71.78	122.20	-50.42	VERTICAL	Peak
4	5745.000	102.58	32.10	6.20	36.89	103.99	125.20	-21.21	VERTICAL	Peak

Test Mode: 07; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 20MHz; Channel: High



		ReadAntenna	Cable	Preamp		Limit	Over			
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5825.000	100.84	32.23	6.04	36.90	102.21	125.20	-22.99	HORIZONTAL	Peak
2	5850.000	60.75	32.25	6.00	36.90	62.10	122.20	-60.10	HORIZONTAL	Peak
3	5860.000	60.71	32.27	5.96	36.90	62.04	109.40	-47.36	HORIZONTAL	Peak
4	5932.135	60.89	32.34	6.00	36.90	62.33	68.20	-5.87	HORIZONTAL	Peak

Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel: High



	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	5825.000	103.10	32.23	6.04	36.90	104.47	125.20	-20.73	VERTICAL	Peak
2	5850.000	63.70	32.25	6.00	36.90	65.05	122.20	-57.15	VERTICAL	Peak
3	5860.000	60.22	32.27	5.96	36.90	61.55	109.40	-47.85	VERTICAL	Peak
4	5928.845	61.15	32.34	6.00	36.90	62.59	68.20	-5.61	VERTICAL	Peak

7.10 Frequency Stability

Test Requirement 47 CFR Part 15, Subpart C 15.407 (g)
Test Method: ANSI C63.10 (2013) Section 6.8

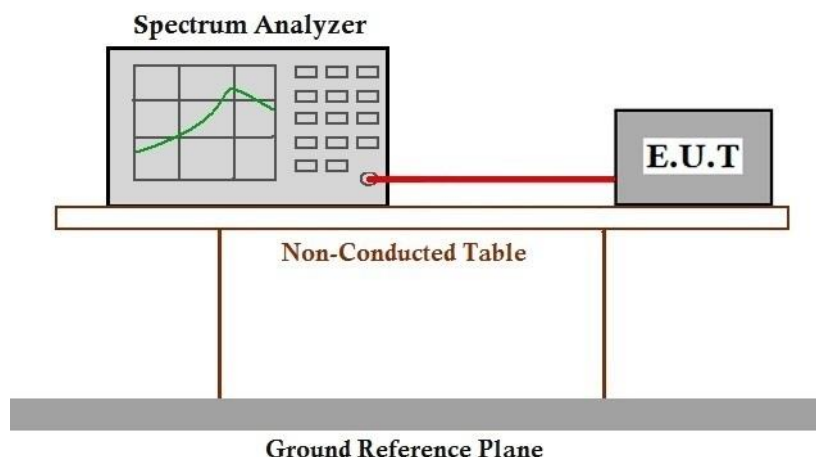
7.10.1 E.U.T. Operation

Operating Environment:
Temperature: 24.5 °C Humidity: 52.8 % RH Atmospheric Pressure: 1003 mbar

7.10.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	04	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). Only the data of worst case is recorded in the report.
Final test	05	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). Only the data of worst case is recorded in the report.
Final test	06	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). Only the data of worst case is recorded in the report.
Final test	07	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). Only the data of worst case is recorded in the report.

7.10.3 Test Setup Diagram



7.10.4 Measurement Procedure and Data

The applicant declares that the emissions are maintained within the band of operation under all conditions of normal operation as specified in the user's manual and meets Section 15.407(g) requirements.

7.11 Non-occupancy period

Test Requirement KDB 905462 D02 Section 5.1
 Test Method: KDB 905462 D02 Section 7.8.3
 Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

7.11.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C Humidity: 52.8 % RH Atmospheric Pressure: 1003 mbar

7.11.2 Test Mode Description

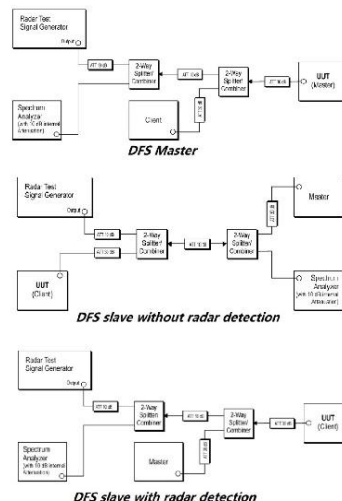
Pre-scan /	Mode	Description
Final test	Code	
Final test	08	Normal operating_Keep the EUT communication with the companion device.



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7.11.3 Test Setup Diagram



7.11.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (500ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details



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7.12 Channel Move Time

Test Requirement KDB 905462 D02 Section 5.1
 Test Method: KDB 905462 D02 Section 7.8.3
 Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

7.12.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C Humidity: 52.8 % RH Atmospheric Pressure: 1003 mbar



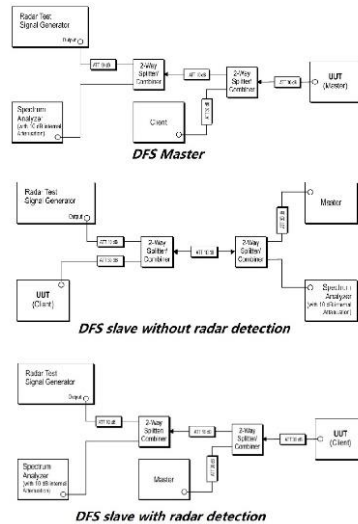
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7.12.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	Normal operating_Keep the EUT communication with the companion device.

7.12.3 Test Setup Diagram



7.12.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (500ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details



7.13 Channel Closing Transmission Time

Test Requirement KDB 905462 D02 Section 5.1

Test Method: KDB 905462 D02 Section 7.8.3

Limit:

Test item	Limit	Applicability	
		Master Device or client with Radar Detection	Client without Radar Detection
Non-occupancy period	Minimum 30 minutes	Yes	Not required
Channel Availability Check Time	60 seconds	Yes	Not required
Channel Move Time	10 seconds See Note 1.	Yes	Yes
Channel Closing Transmission Time	200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. See Notes 1 and 2.	Yes	Yes
U-NII Detection Bandwidth	Minimum 100% of the U-NII 99% transmission power bandwidth. See Note 3.	Yes	Not required

Note 1: Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.

Note 2: The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.

Note 3: During the U-NII Detection Bandwidth detection test, radar type 0 should be used. For each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic.

7.13.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C Humidity: 52.8 % RH Atmospheric Pressure: 1003 mbar



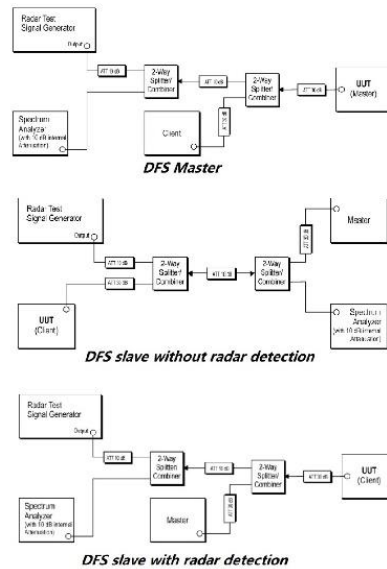
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7.13.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	08	Normal operating_Keep the EUT communication with the companion device.

7.13.3 Test Setup Diagram



7.13.4 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (500ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer to Appendix for Details



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7.14 Radiated Emissions (above 1GHz)

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

Test Method: KDB 789033 D02 II G

Measurement Distance: 3m

Limit:

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

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

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

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

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

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

Remark: The emission limits shown in the above table are based on measurements employing a CISPR quasi-peak detector except for the frequency bands 9-90kHz, 110-490kHz and above 1000 MHz. Radiated emission limits in these three bands are based on measurements employing an average detector, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation.

7.14.1 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C

Humidity: 50.4 % RH

Atmospheric Pressure: 1003 mbar

7.14.2 Test Mode Description

Pre-scan / Mode Description



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Final test Code

Final test 04

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

Final test 05

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

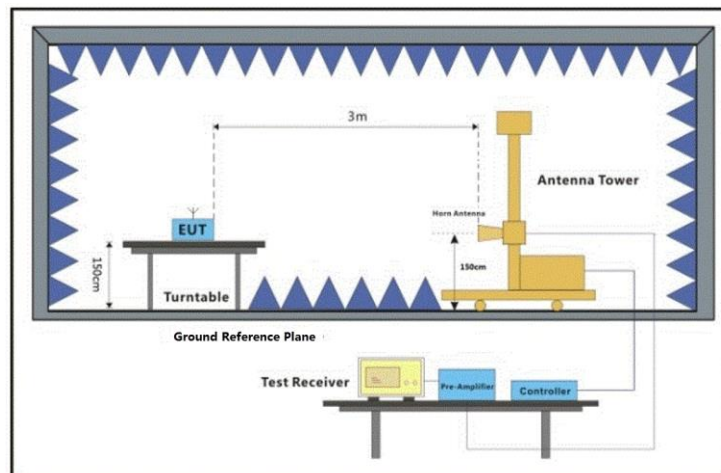
Final test 06

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

Final test 07

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

7.14.3 Test Setup Diagram



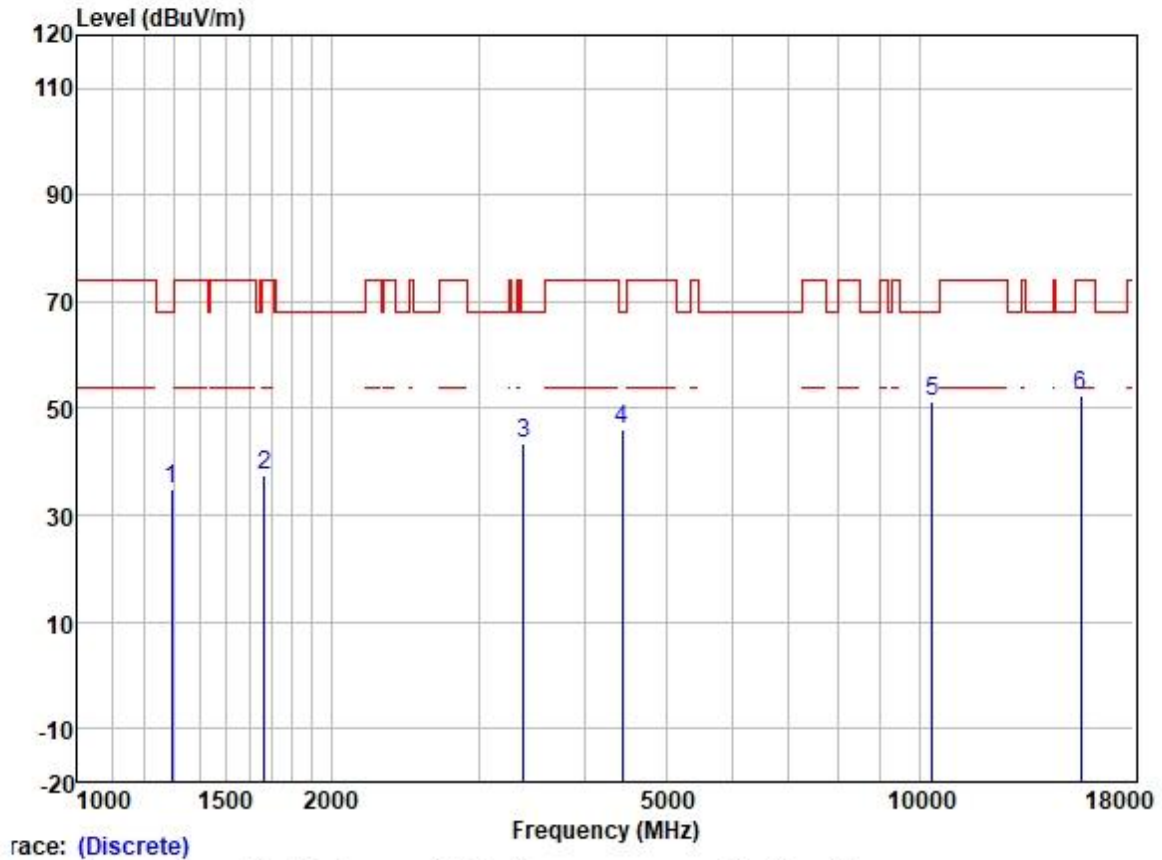
7.14.4 Measurement Procedure and Data

- a. 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 or 10 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 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, quasi-peak or average method as specified and then reported in a data sheet.
- g. Test the EUT in the lowest channel, the middle channel, the Highest channel.
- h. The radiation measurements are performed in X, Y, Z axis positioning for Transmitting mode, and found the X axis positioning which it is the worst case.
- i. Repeat above procedures until all frequencies measured was complete.

Remark:

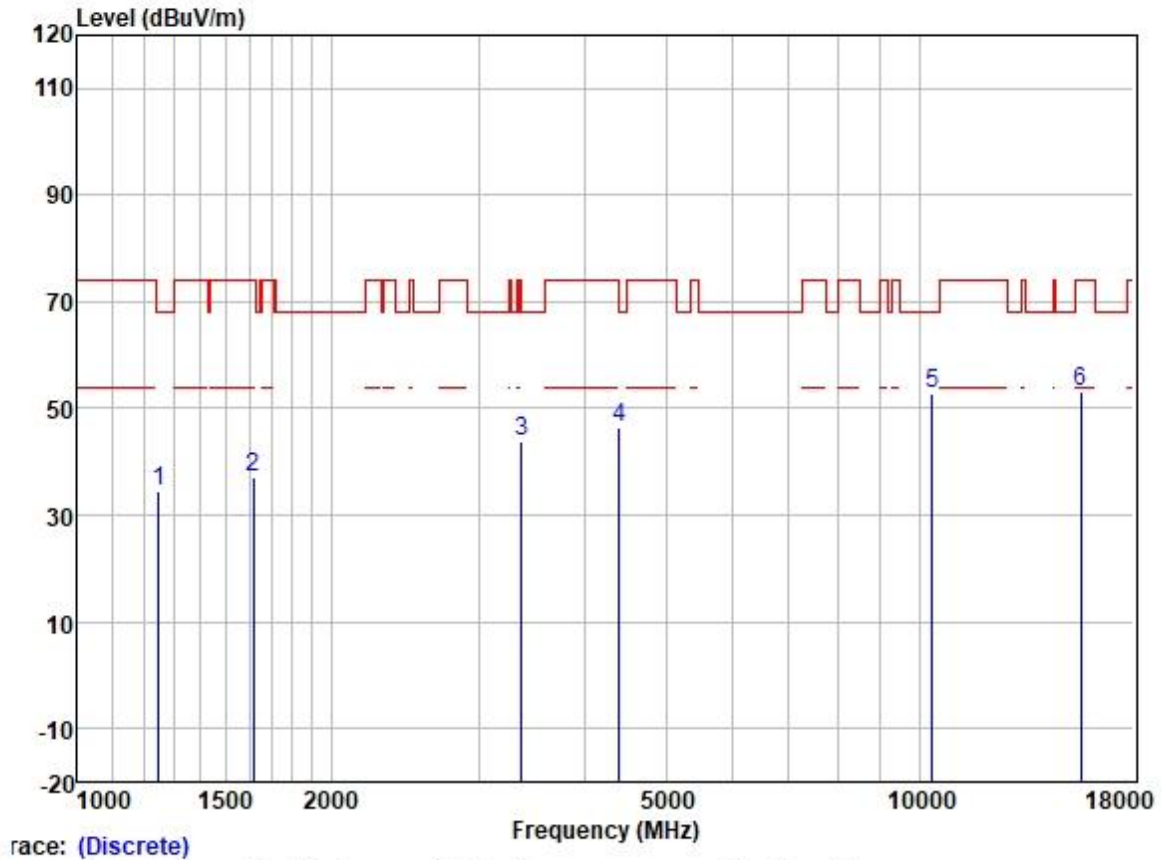
1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor
2. Scan from 1GHz to 40GHz, the disturbance above 18GHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.
4. 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.

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



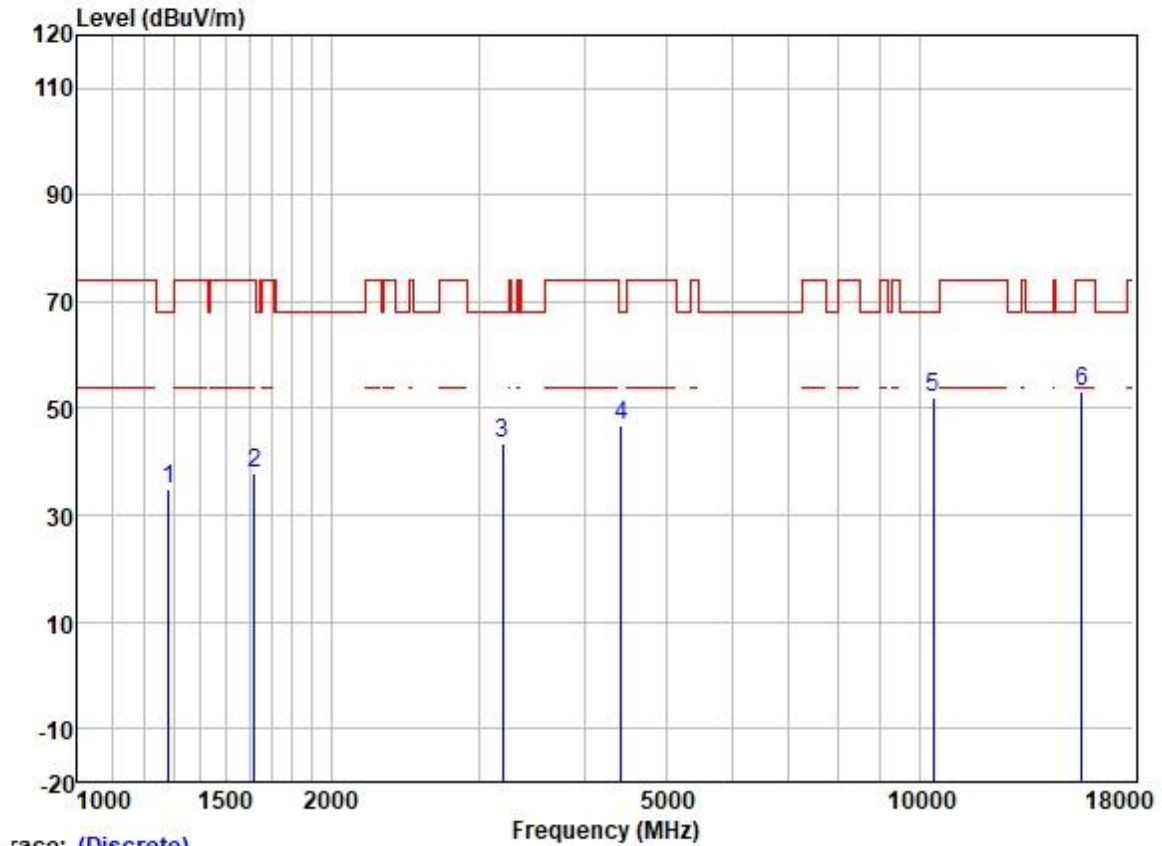
	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1293.359	45.44	25.18	2.57	38.31	34.88	68.20	-33.32	HORIZONTAL	Peak
2	1667.951	47.02	25.66	2.80	37.91	37.57	74.00	-36.43	HORIZONTAL	Peak
3	3386.297	47.48	28.83	4.10	36.99	43.42	68.20	-24.78	HORIZONTAL	Peak
4	4443.453	47.31	30.73	4.83	36.81	46.06	68.20	-22.14	HORIZONTAL	Peak
5	10360.000	42.11	39.28	7.29	37.37	51.31	68.20	-16.89	HORIZONTAL	Peak
6	15540.000	38.71	39.05	9.88	35.39	52.25	74.00	-21.75	HORIZONTAL	Peak

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



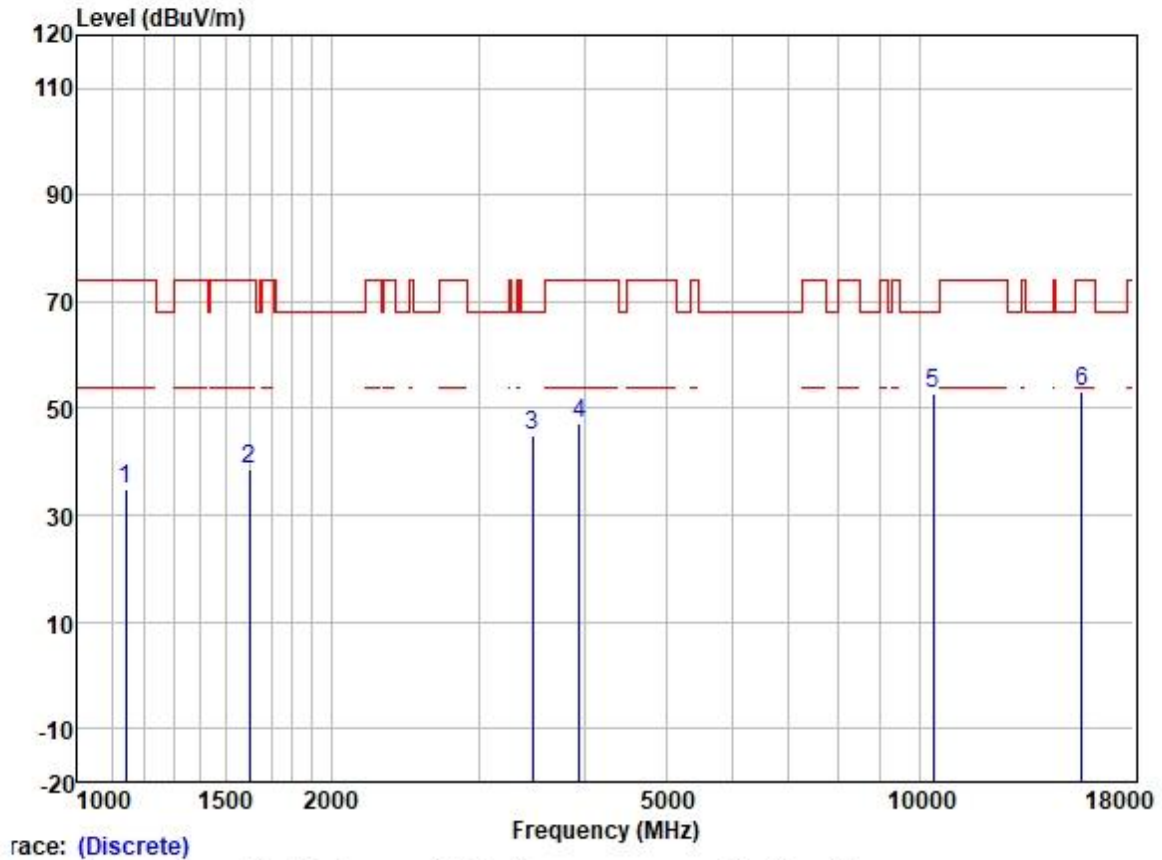
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1249.269	45.51	25.02	2.34	38.35	34.52	68.20	-33.68	VERTICAL Peak
2	1615.754	46.73	25.60	2.80	37.95	37.18	74.00	-36.82	VERTICAL Peak
3	3366.778	47.93	28.82	4.09	36.99	43.85	68.20	-24.35	VERTICAL Peak
4	4405.090	47.77	30.68	4.70	36.81	46.34	68.20	-21.86	VERTICAL Peak
5	10360.000	43.49	39.28	7.29	37.37	52.69	68.20	-15.51	VERTICAL Peak
6	15540.000	39.69	39.05	9.88	35.39	53.23	74.00	-20.77	VERTICAL Peak

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



		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1282.193	45.56	25.15	2.52	38.33	34.90	68.20	-33.30	HORIZONTAL	Peak
2	1620.431	47.29	25.60	2.80	37.95	37.74	74.00	-36.26	HORIZONTAL	Peak
3	3196.094	48.08	28.58	4.00	37.09	43.57	68.20	-24.63	HORIZONTAL	Peak
4	4430.628	48.07	30.72	4.78	36.81	46.76	68.20	-21.44	HORIZONTAL	Peak
5	10400.000	42.79	39.33	7.32	37.36	52.08	68.20	-16.12	HORIZONTAL	Peak
6	15600.000	39.80	38.99	9.88	35.39	53.28	74.00	-20.72	HORIZONTAL	Peak

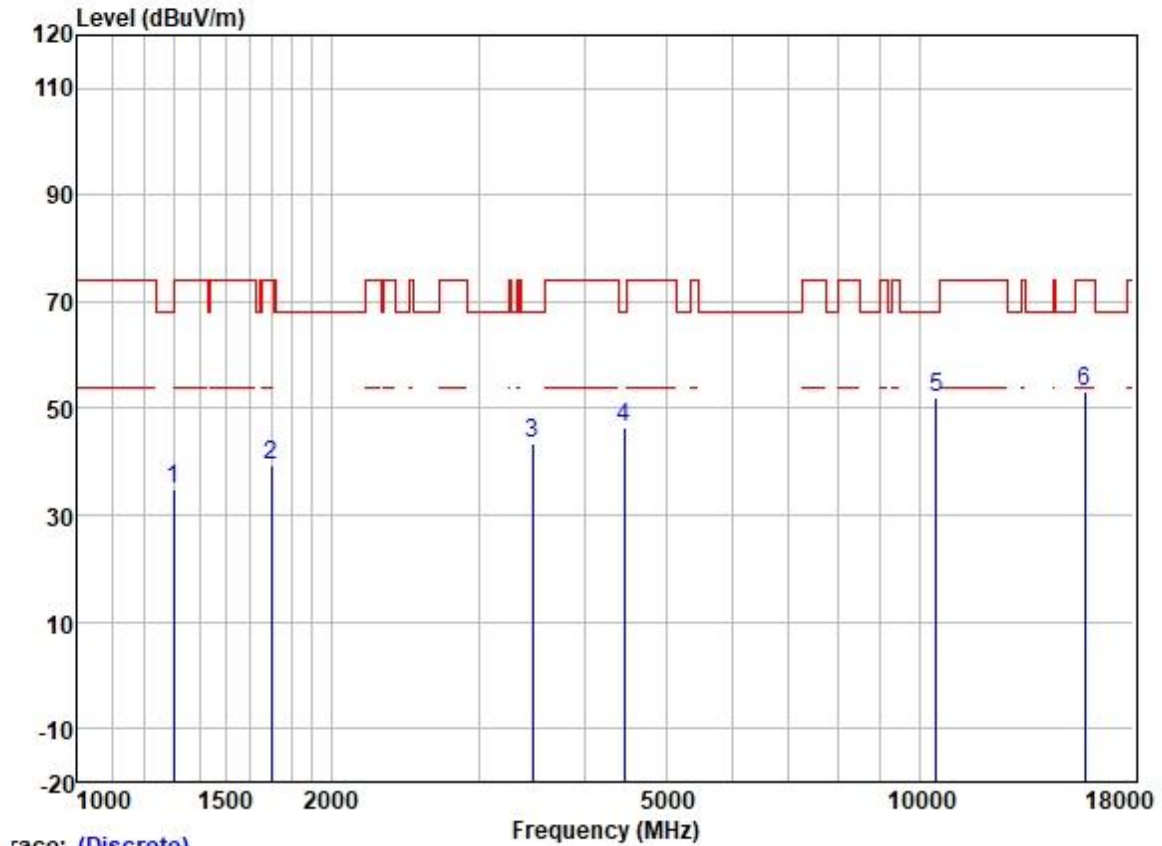
Test Mode: 04; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

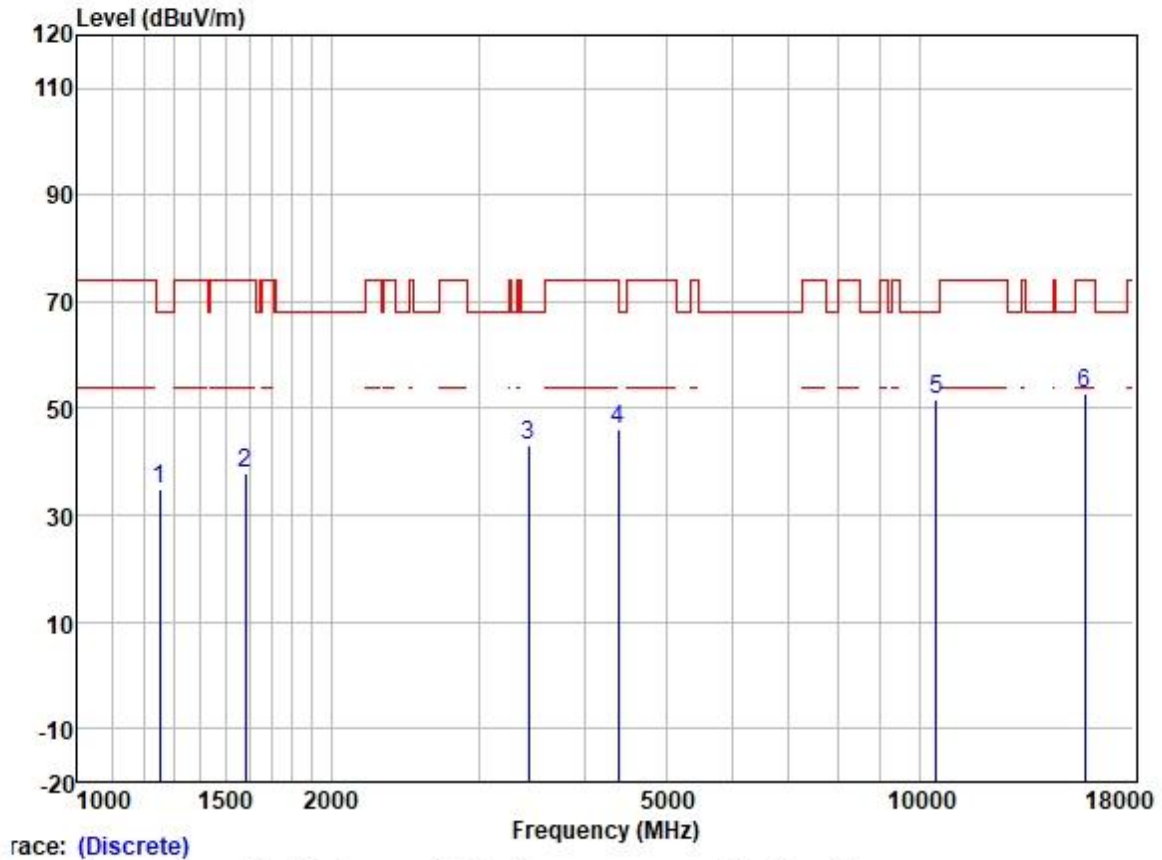
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1142.201	46.50	24.47	2.30	38.42	34.85	74.00	-39.15	VERTICAL Peak
2	1601.804	48.20	25.58	2.80	37.98	38.60	74.00	-35.40	VERTICAL Peak
3	3475.541	48.66	28.89	4.25	36.95	44.85	68.20	-23.35	VERTICAL Peak
4	3946.885	49.49	29.74	4.60	36.81	47.02	74.00	-26.98	VERTICAL Peak
5	10400.000	43.49	29.33	7.32	37.36	52.78	68.20	-15.42	VERTICAL Peak
6	15600.000	39.86	38.99	9.88	35.39	53.34	74.00	-20.66	VERTICAL Peak

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



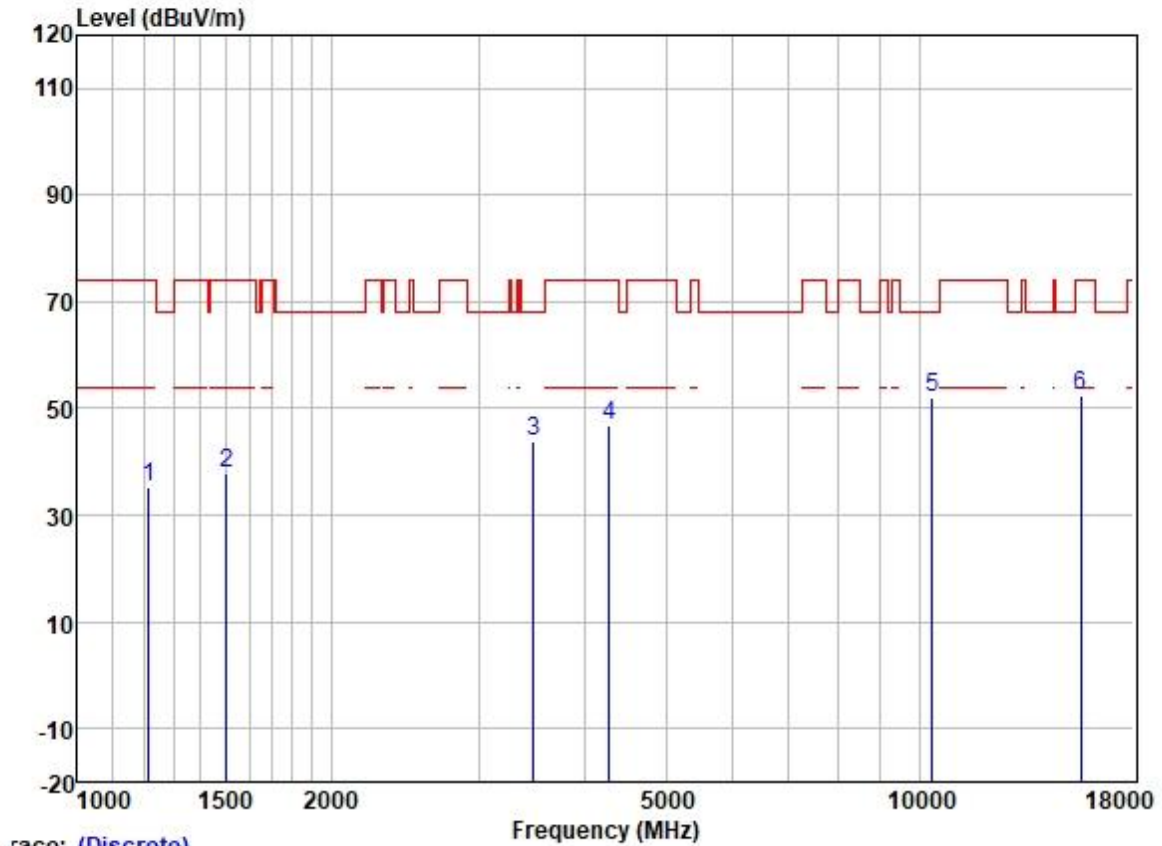
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1300.858	45.26	25.20	2.60	38.31	34.75	74.00	-39.25	HORIZONTAL Peak
2	1697.129	48.80	25.71	2.80	37.89	39.42	74.00	-34.58	HORIZONTAL Peak
3	3475.541	47.41	28.89	4.25	36.95	43.60	68.20	-24.60	HORIZONTAL Peak
4	4456.315	47.76	30.75	4.88	36.81	46.58	68.20	-21.62	HORIZONTAL Peak
5	10480.000	42.59	39.46	7.40	37.36	52.09	68.20	-16.11	HORIZONTAL Peak
6	15720.000	40.06	38.78	9.87	35.39	53.32	74.00	-20.68	HORIZONTAL Peak

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



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1252.885	45.99	25.03	2.36	38.35	35.03	68.20	-33.17	VERTICAL	Peak
2	1583.392	47.54	25.56	2.80	38.00	37.90	74.00	-36.10	VERTICAL	Peak
3	3435.590	46.86	28.87	4.16	36.97	42.92	68.20	-25.28	VERTICAL	Peak
4	4392.376	47.45	30.66	4.70	36.81	46.00	74.00	-28.00	VERTICAL	Peak
5	10480.000	42.28	39.46	7.40	37.36	51.78	68.20	-16.42	VERTICAL	Peak
6	15720.000	39.71	38.78	9.87	35.39	52.97	74.00	-21.03	VERTICAL	Peak

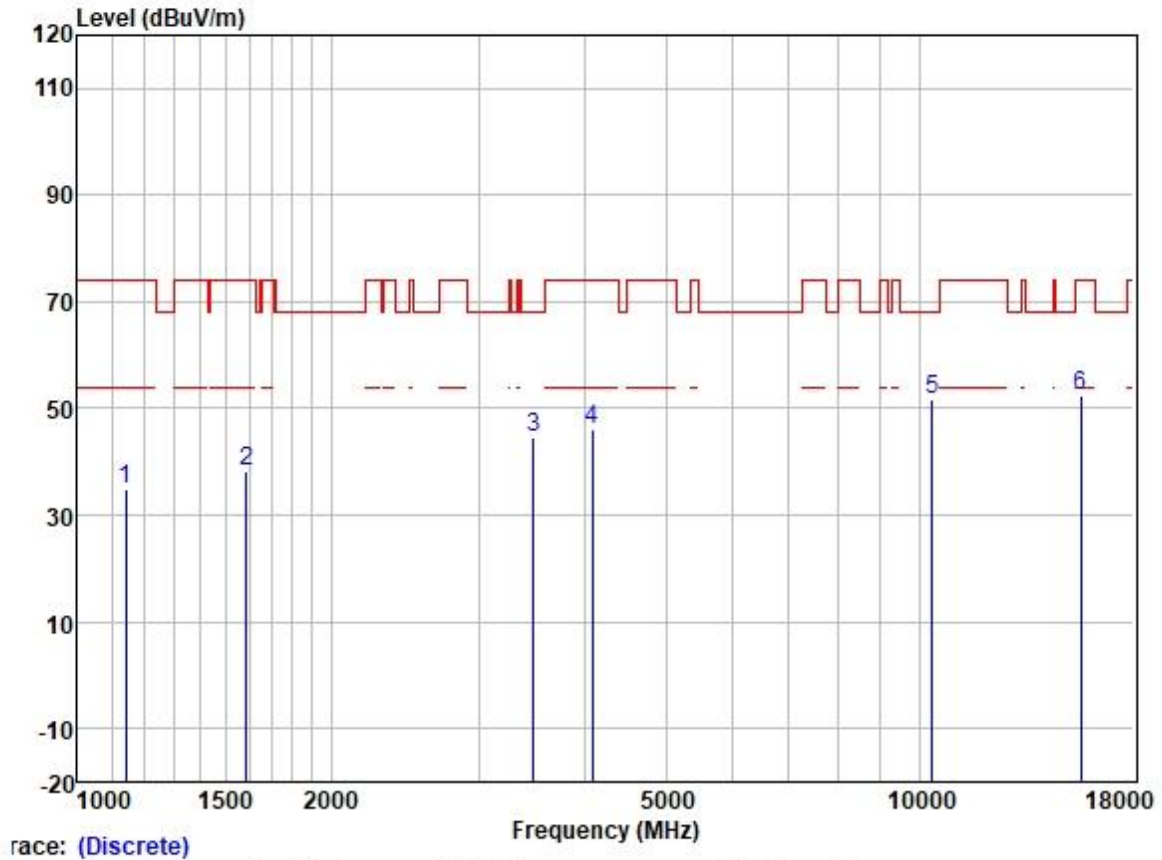
Test Mode: 04; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



race: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1213.677	46.60	24.77	2.32	38.37	35.32	74.00	-38.68	HORIZONTAL	Peak
2	1503.119	47.65	25.50	2.80	38.10	37.85	74.00	-36.15	HORIZONTAL	Peak
3	3485.601	47.47	28.89	4.27	36.95	43.68	68.20	-24.52	HORIZONTAL	Peak
4	4279.589	48.49	30.42	4.63	36.81	46.73	74.00	-27.27	HORIZONTAL	Peak
5	10360.000	42.68	39.28	7.29	37.37	51.88	68.20	-16.32	HORIZONTAL	Peak
6	15540.000	39.07	39.05	9.88	35.39	52.61	74.00	-21.39	HORIZONTAL	Peak

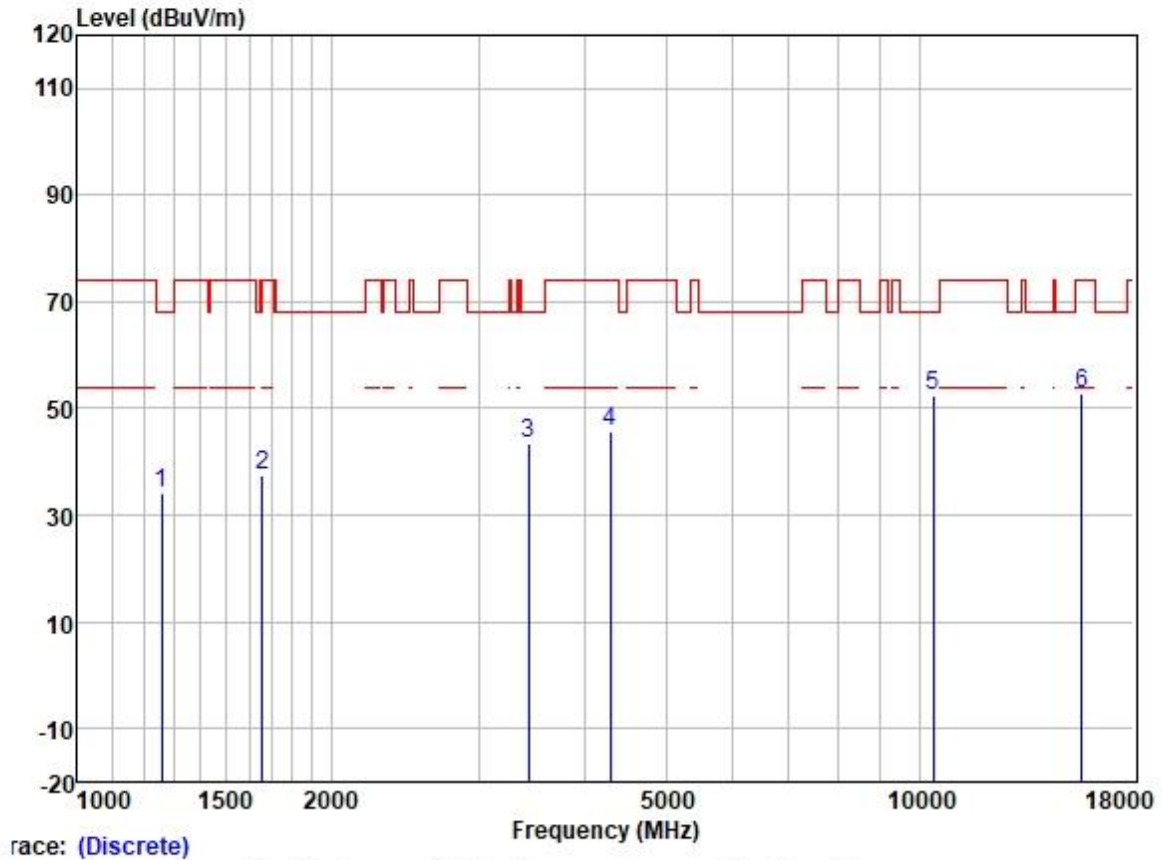
Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1142.201	46.51	24.47	2.30	38.42	34.86	74.00	-39.14	VERTICAL	Peak
2	1587.975	47.73	25.57	2.80	37.98	38.12	74.00	-35.88	VERTICAL	Peak
3	3485.601	48.55	28.89	4.27	36.95	44.76	68.20	-23.44	VERTICAL	Peak
4	4086.182	48.29	29.92	4.60	36.80	46.01	74.00	-27.99	VERTICAL	Peak
5	10360.000	42.43	39.28	7.29	37.37	51.63	68.20	-16.57	VERTICAL	Peak
6	15540.000	38.96	39.05	9.88	35.39	52.50	74.00	-21.50	VERTICAL	Peak

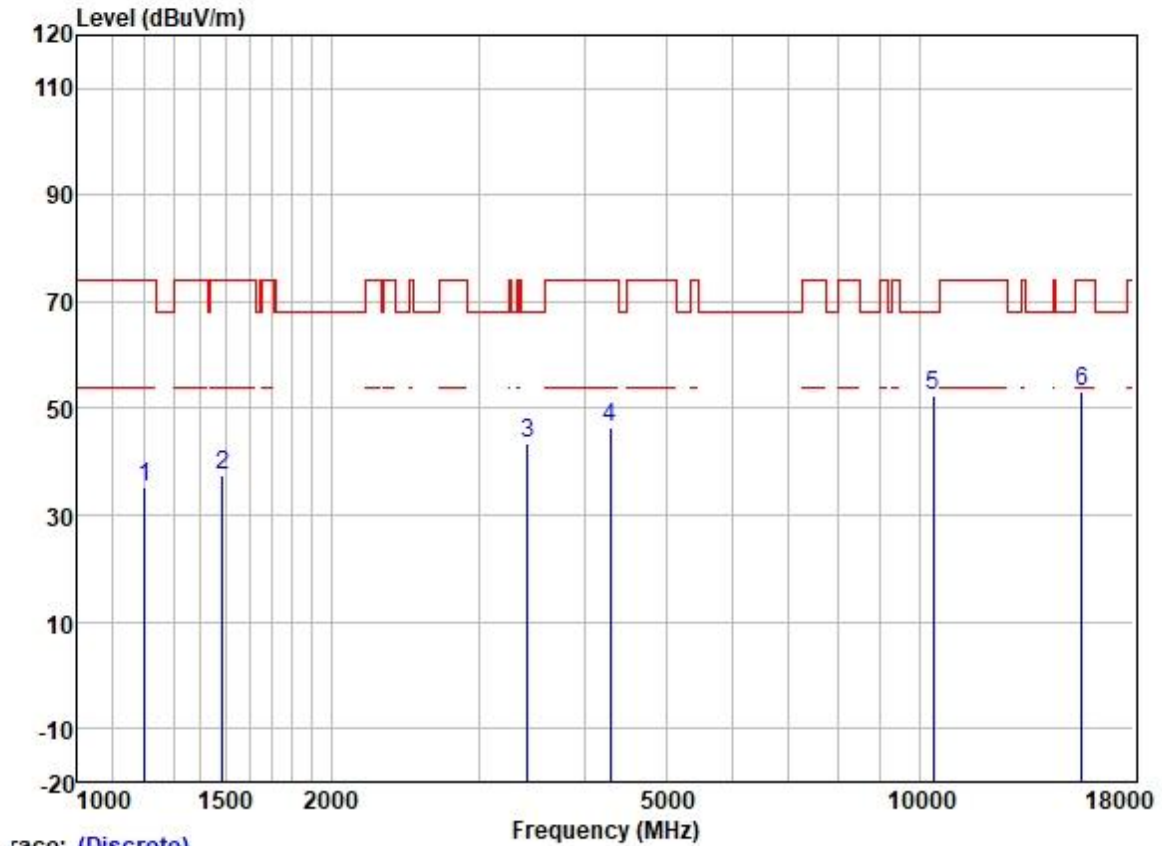
Test Mode: 04; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



race: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1260.149	45.05	25.07	2.40	38.35	34.17	68.20	-34.03	HORIZONTAL	Peak
2	1658.337	46.85	25.65	2.80	37.93	37.37	68.20	-30.83	HORIZONTAL	Peak
3	3435.590	47.45	28.87	4.16	36.97	43.51	68.20	-24.69	HORIZONTAL	Peak
4	4291.977	47.57	30.45	4.64	36.81	45.85	74.00	-28.15	HORIZONTAL	Peak
5	10400.000	43.18	39.33	7.32	37.36	52.47	68.20	-15.73	HORIZONTAL	Peak
6	15600.000	39.32	38.99	9.88	35.39	52.80	74.00	-21.20	HORIZONTAL	Peak

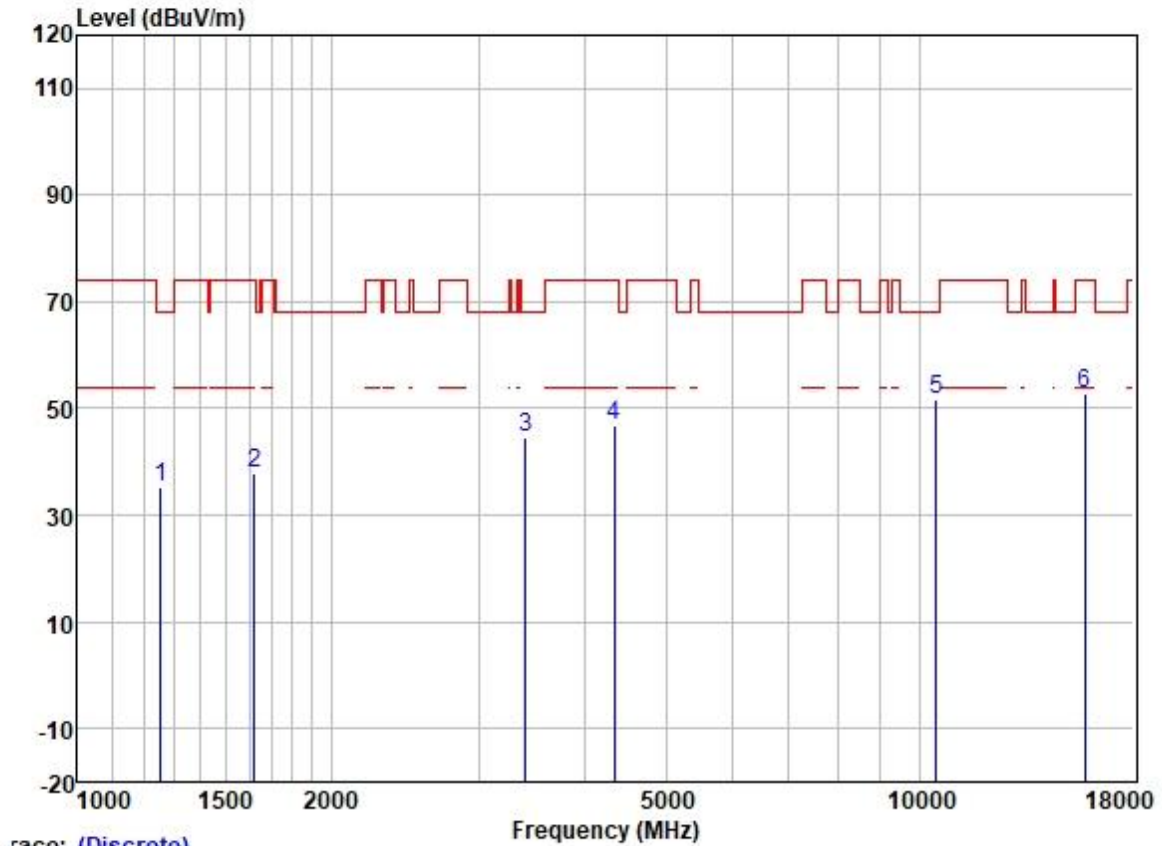
Test Mode: 04; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



race: (Discrete)

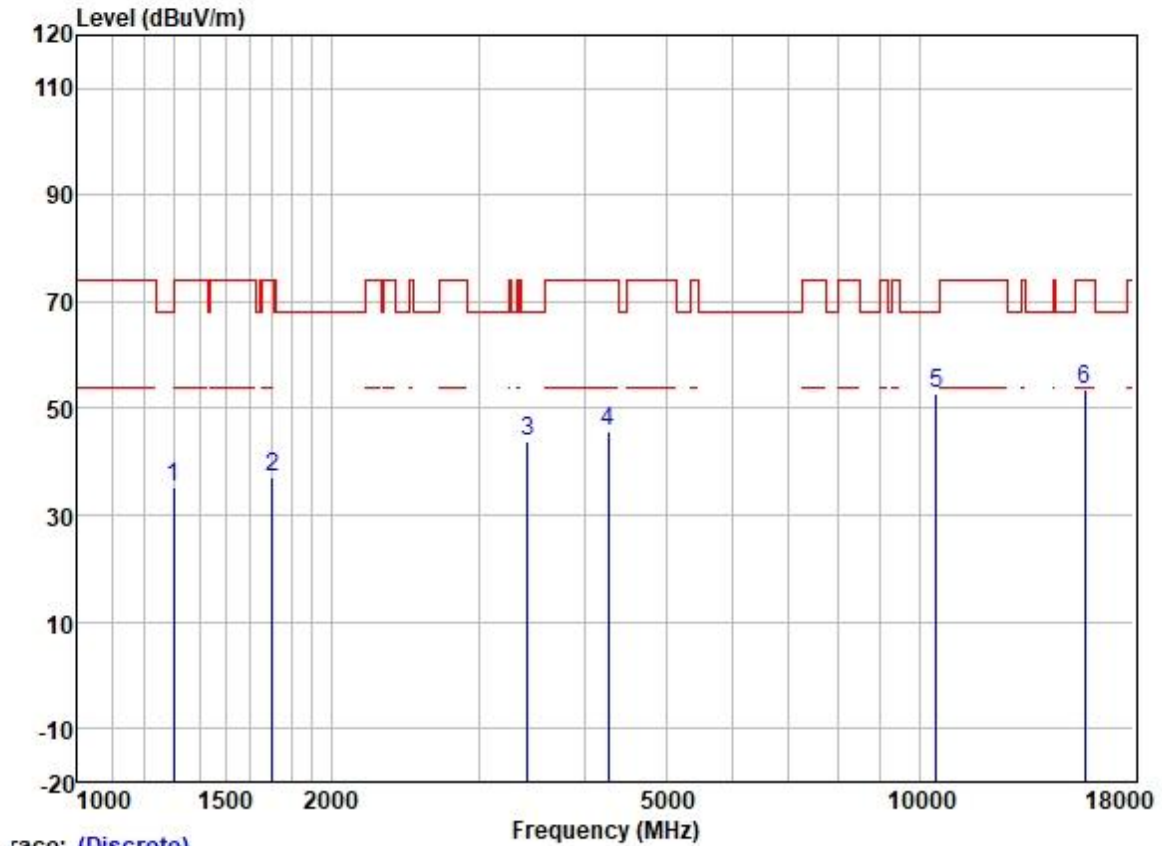
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1203.199	46.52	24.70	2.34	38.39	35.17	74.00	-38.83	VERTICAL Peak
2	1485.841	47.52	25.49	2.78	38.13	37.66	74.00	-36.34	VERTICAL Peak
3	3425.675	47.32	28.86	4.15	36.97	43.36	68.20	-24.84	VERTICAL Peak
4	4291.977	48.22	30.45	4.64	36.81	46.50	74.00	-27.50	VERTICAL Peak
5	10400.000	43.25	39.33	7.32	37.36	52.54	68.20	-15.66	VERTICAL Peak
6	15600.000	39.80	38.99	9.88	35.39	53.28	74.00	-20.72	VERTICAL Peak

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



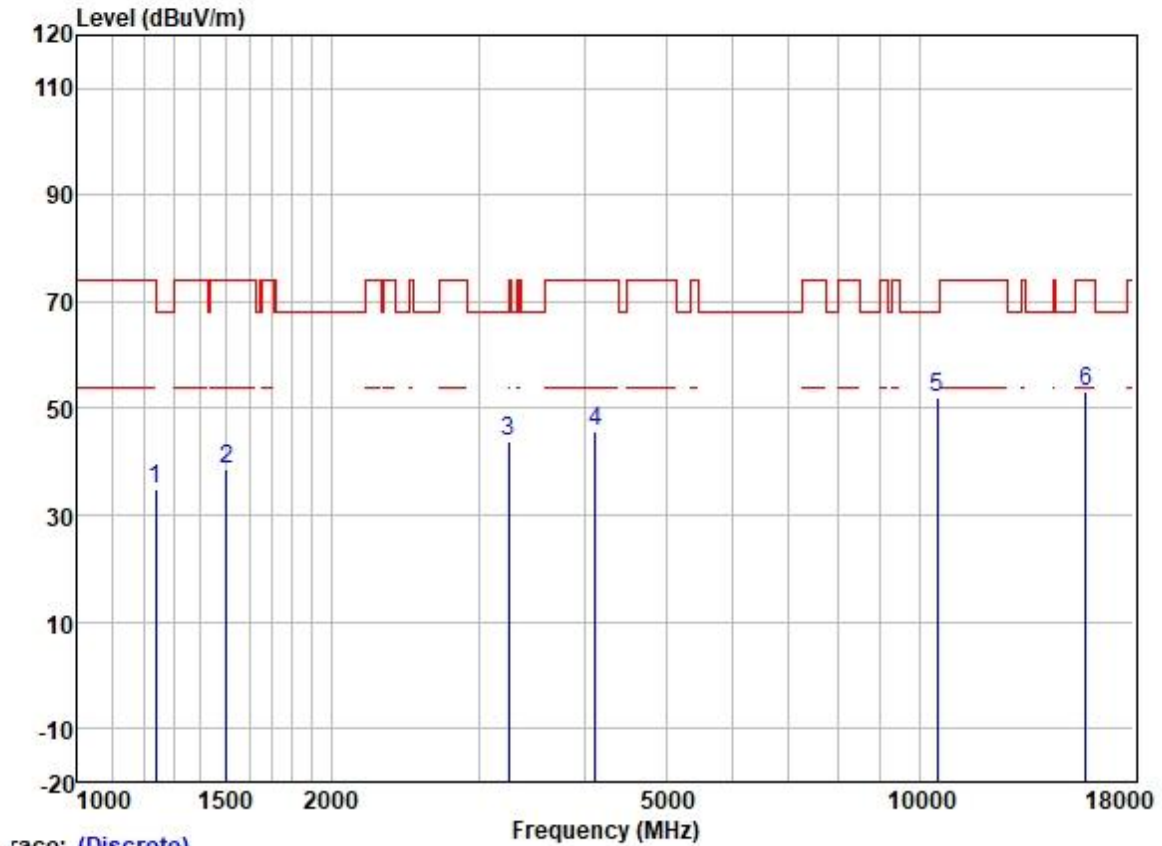
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1256.512	46.04	25.05	2.38	38.35	35.12	68.20	-33.08	HORIZONTAL	Peak
2	1620.431	47.39	25.60	2.80	37.95	37.84	74.00	-36.16	HORIZONTAL	Peak
3	3405.929	48.58	28.85	4.11	36.98	44.56	68.20	-23.64	HORIZONTAL	Peak
4	4341.886	48.34	30.57	4.67	36.81	46.77	74.00	-27.23	HORIZONTAL	Peak
5	10480.000	42.16	39.46	7.40	37.36	51.66	68.20	-16.54	HORIZONTAL	Peak
6	15720.000	39.65	38.78	9.87	35.39	52.91	74.00	-21.09	HORIZONTAL	Peak

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



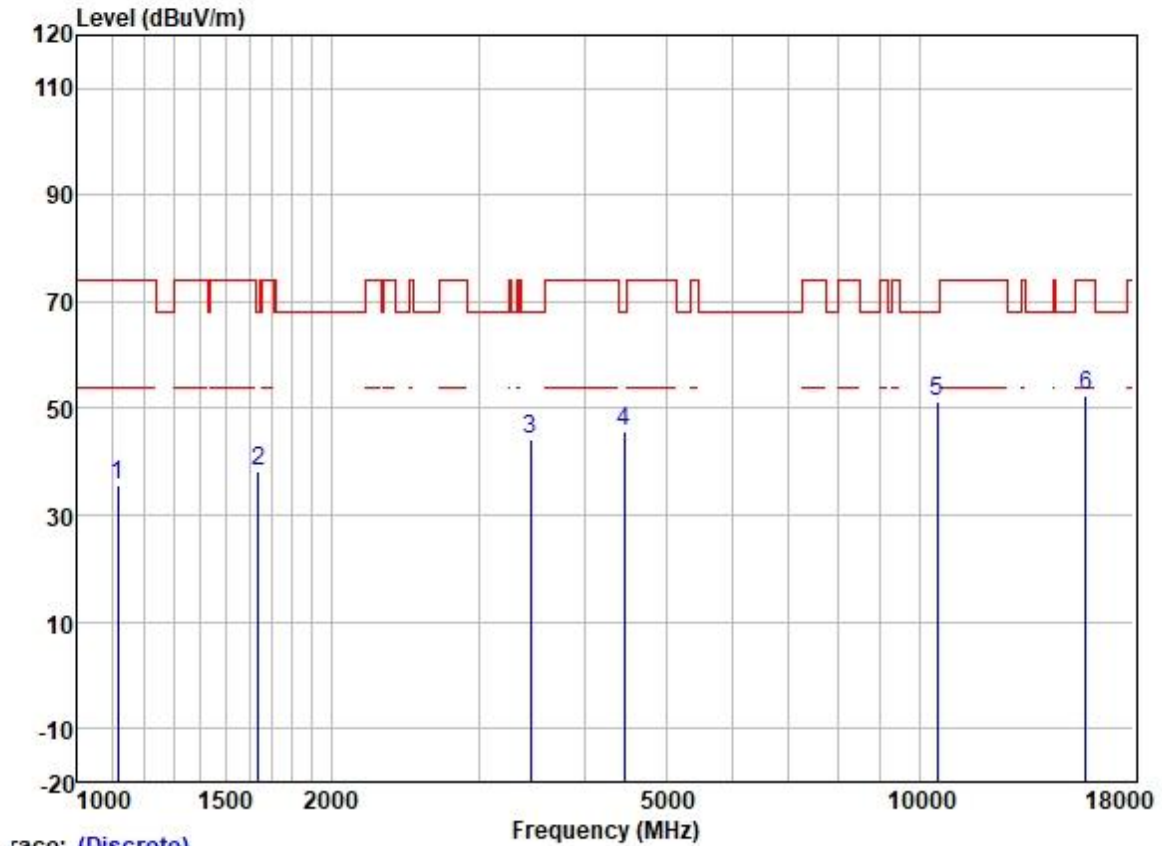
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1300.858	45.88	25.20	2.60	38.31	35.37	74.00	-38.63	VERTICAL	Peak
2	1702.042	46.59	25.72	2.80	37.89	37.22	74.00	-36.78	VERTICAL	Peak
3	3425.675	47.66	28.86	4.15	36.97	43.70	68.20	-24.50	VERTICAL	Peak
4	4267.237	47.49	30.38	4.63	36.81	45.69	74.00	-28.31	VERTICAL	Peak
5	10480.000	43.43	39.46	7.40	37.36	52.93	68.20	-15.27	VERTICAL	Peak
6	15720.000	40.12	38.78	9.87	35.39	53.38	74.00	-20.62	VERTICAL	Peak

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



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1238.483	45.88	24.96	2.30	38.35	34.79	74.00	-39.21	HORIZONTAL	Peak
2	1503.119	48.49	25.50	2.80	38.10	38.69	74.00	-35.31	HORIZONTAL	Peak
3	3252.005	48.25	28.68	4.03	37.06	43.90	68.20	-24.30	HORIZONTAL	Peak
4	4121.768	48.11	29.98	4.60	36.80	45.89	74.00	-28.11	HORIZONTAL	Peak
5	10520.000	42.36	39.50	7.42	37.35	51.93	68.20	-16.27	HORIZONTAL	Peak
6	15780.000	40.18	38.70	9.86	35.39	53.35	74.00	-20.65	HORIZONTAL	Peak

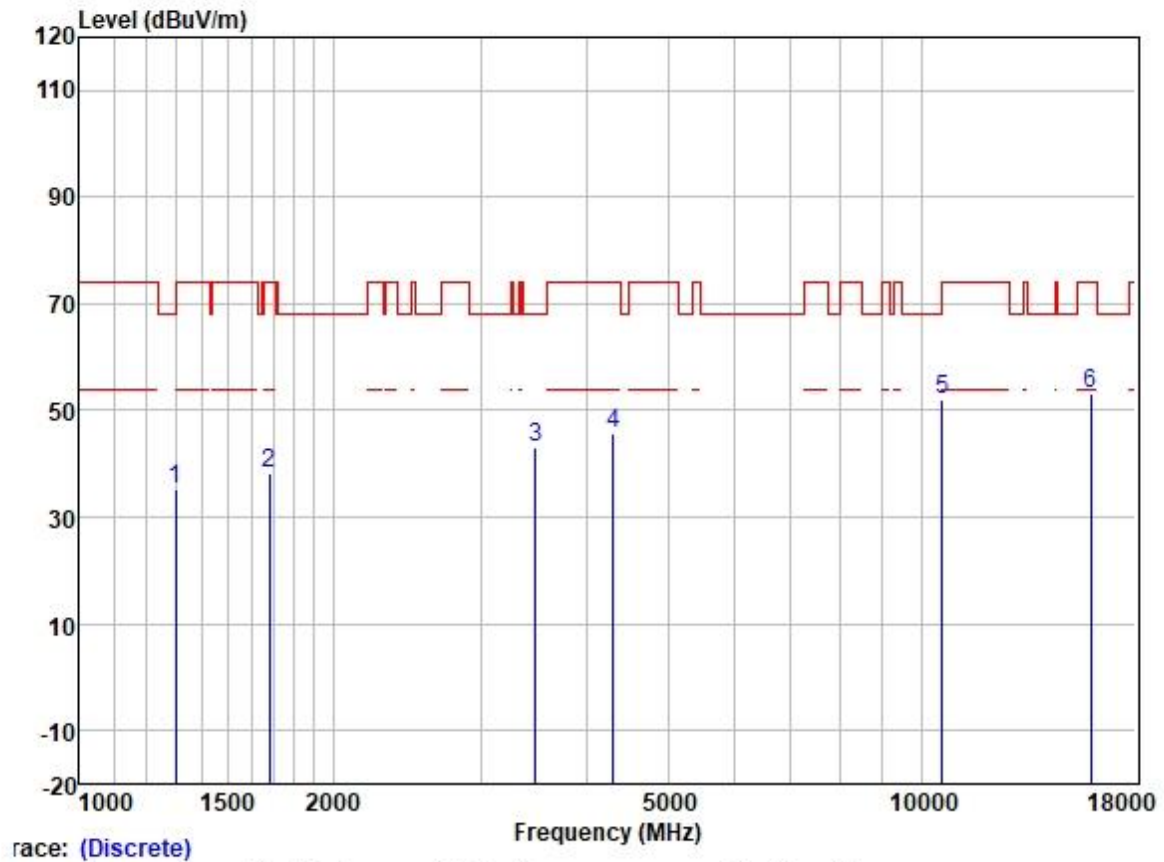
Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

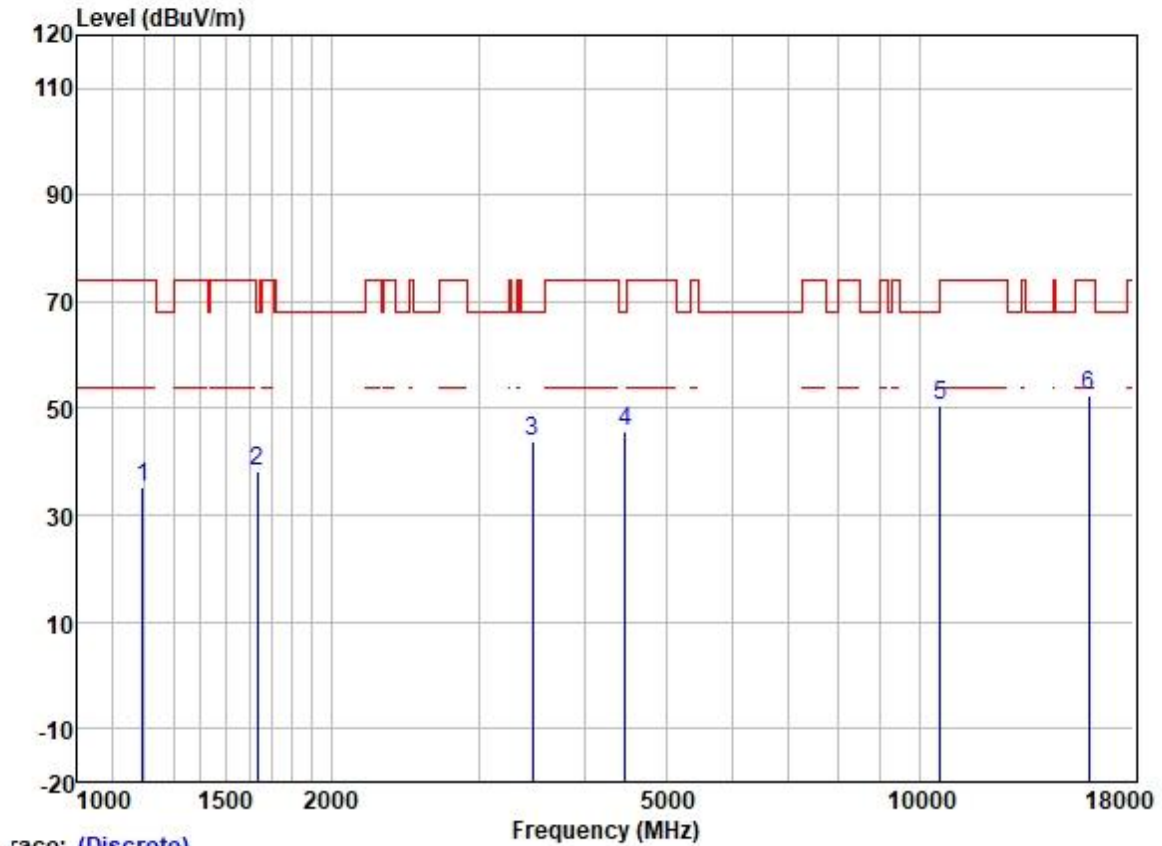
		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1116.093	47.23	24.40	2.25	38.43	35.45	74.00	-38.55	VERTICAL	Peak
2	1639.274	47.90	25.62	2.80	37.93	38.39	68.20	-29.81	VERTICAL	Peak
3	3455.508	48.13	28.88	4.20	36.96	44.25	68.20	-23.95	VERTICAL	Peak
4	4456.315	46.72	30.75	4.88	36.81	45.54	68.20	-22.66	VERTICAL	Peak
5	10520.000	41.85	39.50	7.42	37.35	51.42	68.20	-16.78	VERTICAL	Peak
6	15780.000	39.43	38.70	9.86	35.39	52.60	74.00	-21.40	VERTICAL	Peak

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



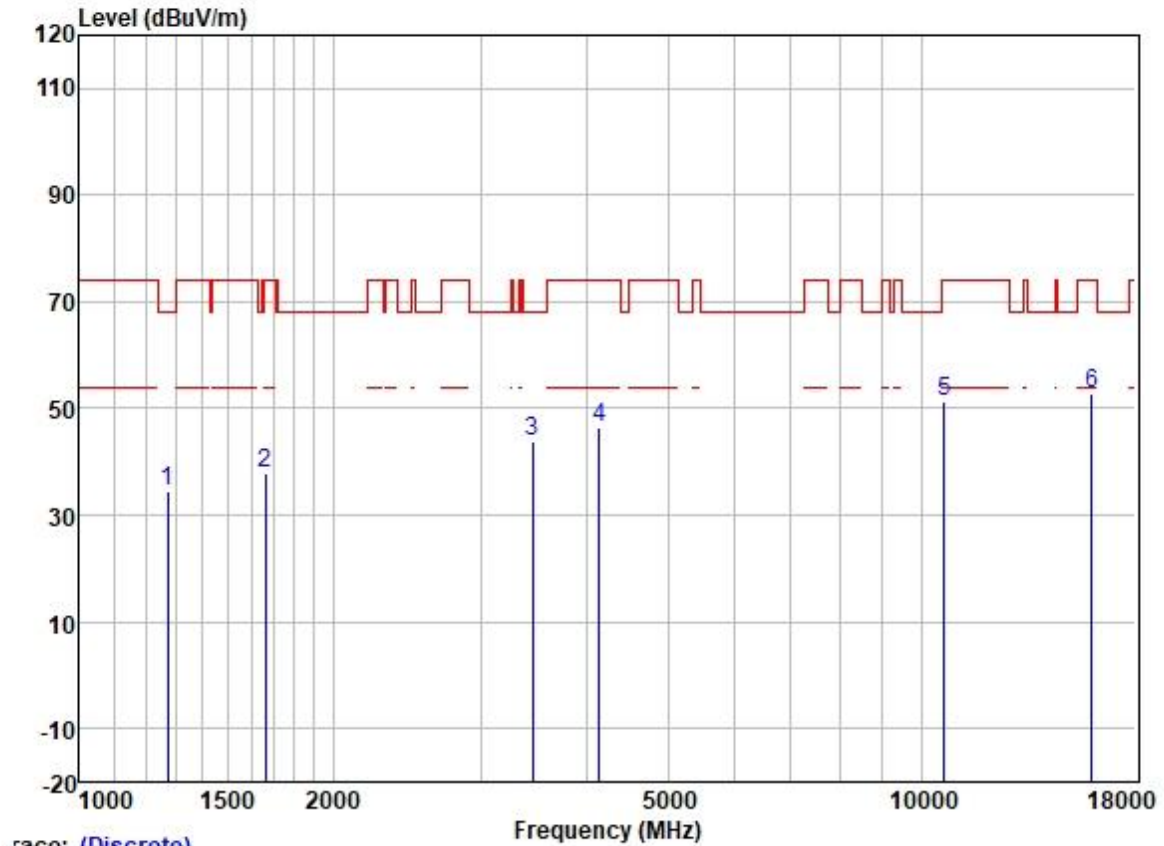
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1300.858	45.72	25.20	2.60	38.31	35.21	74.00	-38.79	HORIZONTAL	Peak
2	1682.477	47.65	25.68	2.80	37.91	38.22	74.00	-35.78	HORIZONTAL	Peak
3	3485.601	46.83	28.89	4.27	36.95	43.04	68.20	-25.16	HORIZONTAL	Peak
4	4304.400	47.45	30.48	4.65	36.81	45.77	74.00	-28.23	HORIZONTAL	Peak
5	10600.000	42.43	39.59	7.46	37.34	52.14	68.20	-16.06	HORIZONTAL	Peak
6	15900.000	40.25	38.44	9.86	35.40	53.15	74.00	-20.85	HORIZONTAL	Peak

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



	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1196.264	46.48	24.67	2.35	38.39	35.11	74.00	-38.89	VERTICAL Peak
2	1634.543	47.75	25.62	2.80	37.95	38.22	68.20	-29.98	VERTICAL Peak
3	3475.541	47.82	28.89	4.25	36.95	44.01	68.20	-24.19	VERTICAL Peak
4	4469.214	47.00	30.77	4.93	36.81	45.89	68.20	-22.31	VERTICAL Peak
5	10600.000	41.00	39.59	7.46	37.34	50.71	68.20	-17.49	VERTICAL Peak
6	15900.000	39.49	38.44	9.86	35.40	52.39	74.00	-21.61	VERTICAL Peak

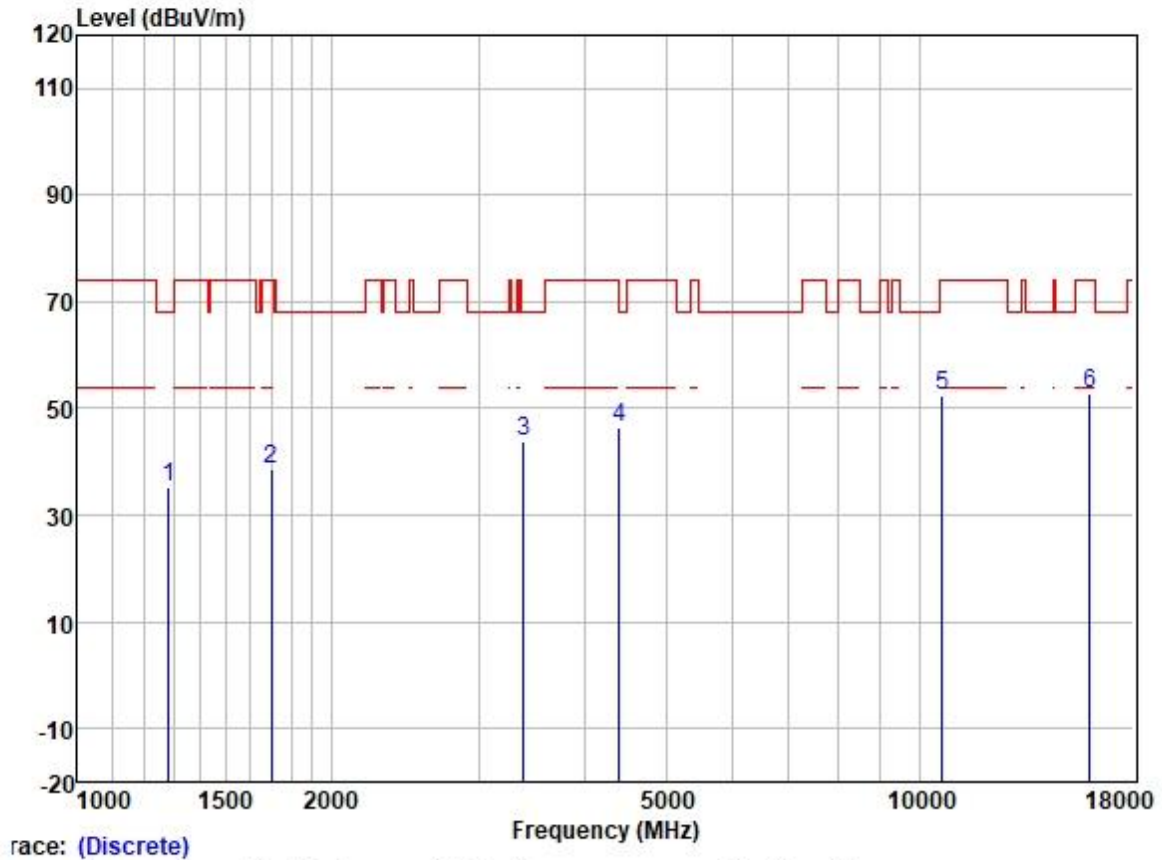
Test Mode: 05; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: High



Trace: (Discrete)

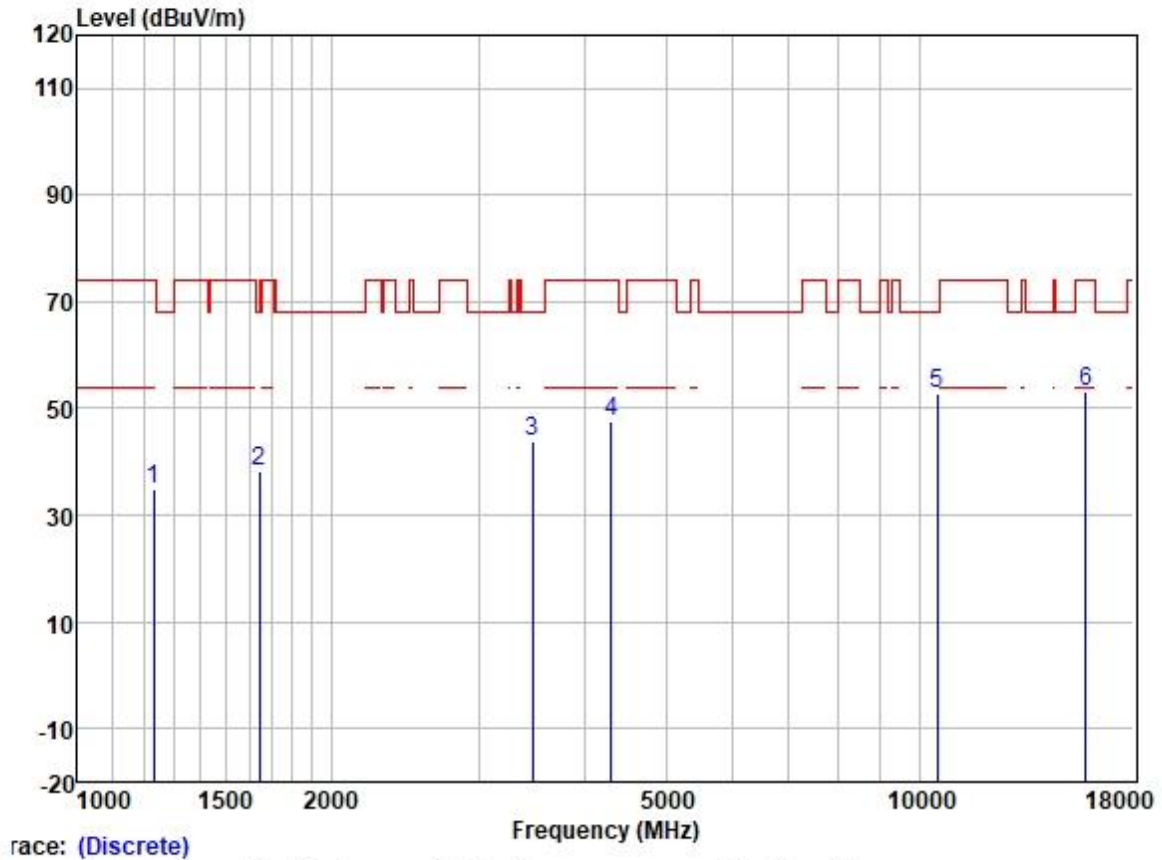
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1271.123	45.31	25.11	2.46	38.33	34.55	68.20	-33.65	HORIZONTAL Peak
2	1663.137	47.27	25.65	2.80	37.91	37.81	74.00	-36.19	HORIZONTAL Peak
3	3455.508	47.61	28.88	4.20	36.96	43.73	68.20	-24.47	HORIZONTAL Peak
4	4145.664	48.52	30.03	4.60	36.80	46.35	74.00	-27.65	HORIZONTAL Peak
5	10640.000	41.55	39.63	7.48	37.33	51.33	74.00	-22.67	HORIZONTAL Peak
6	15960.000	40.15	38.37	9.85	35.40	52.97	74.00	-21.03	HORIZONTAL Peak

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



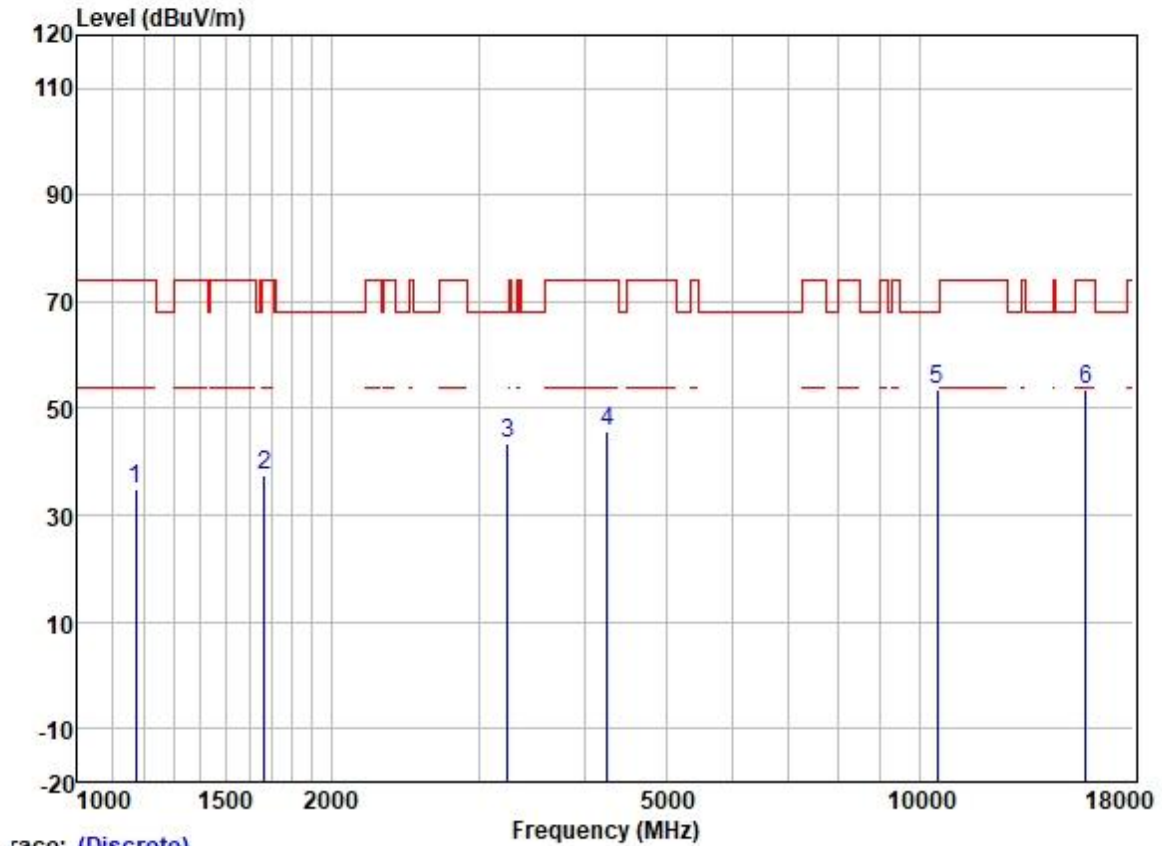
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1282.193	45.78	25.15	2.52	38.33	35.12	68.20	-33.08	VERTICAL	Peak
2	1697.129	48.05	25.71	2.80	37.89	38.67	74.00	-35.33	VERTICAL	Peak
3	3386.297	47.76	28.83	4.10	36.99	43.70	68.20	-24.50	VERTICAL	Peak
4	4405.090	48.03	30.68	4.70	36.81	46.60	68.20	-21.60	VERTICAL	Peak
5	10640.000	42.57	39.63	7.48	37.33	52.35	74.00	-21.65	VERTICAL	Peak
6	15960.000	39.98	38.37	9.85	35.40	52.80	74.00	-21.20	VERTICAL	Peak

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



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1231.345	45.96	24.91	2.31	38.37	34.81	74.00	-39.19	HORIZONTAL	Peak
2	1644.019	47.72	25.63	2.80	37.93	38.22	68.20	-29.98	HORIZONTAL	Peak
3	3475.541	47.58	28.89	4.25	36.95	43.77	68.20	-24.43	HORIZONTAL	Peak
4	4304.400	49.23	30.48	4.65	36.81	47.55	74.00	-26.45	HORIZONTAL	Peak
5	10520.000	43.10	39.50	7.42	37.35	52.67	68.20	-15.53	HORIZONTAL	Peak
6	15780.000	39.87	38.70	9.86	35.39	53.04	74.00	-20.96	HORIZONTAL	Peak

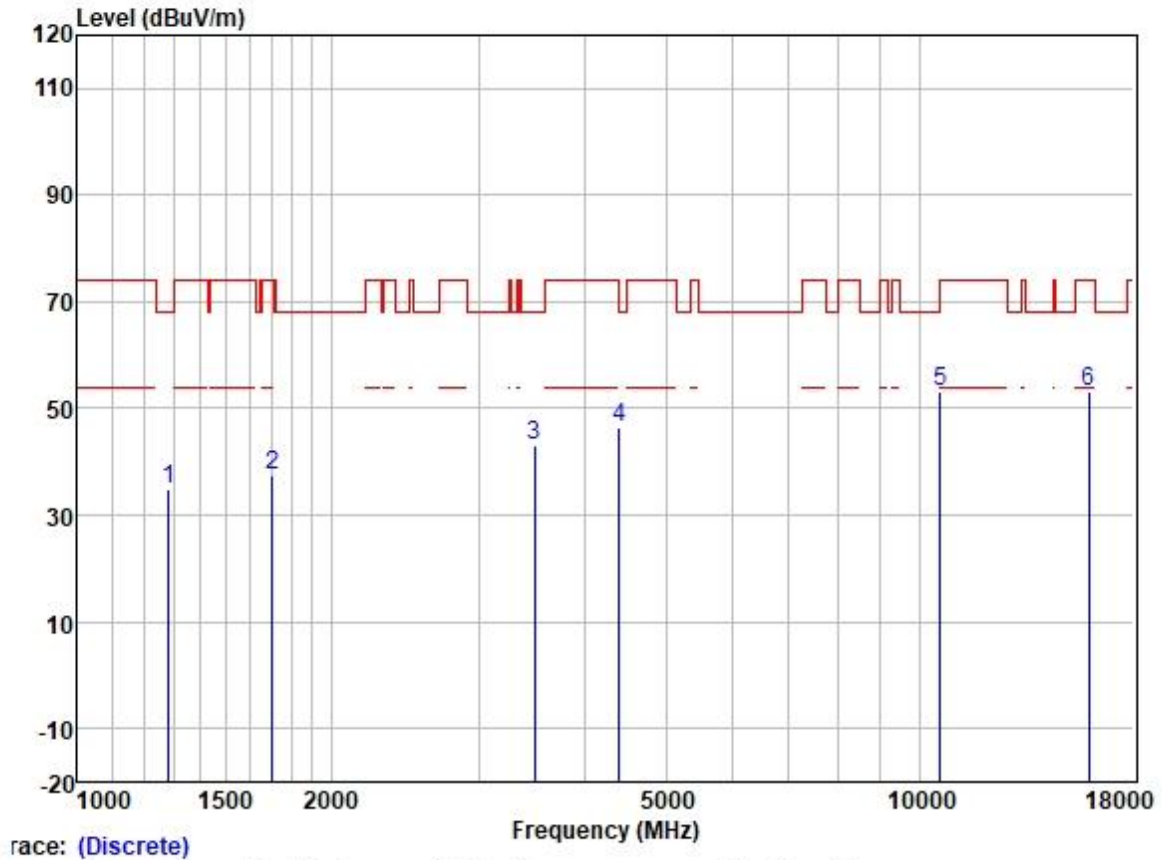
Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



race: (Discrete)

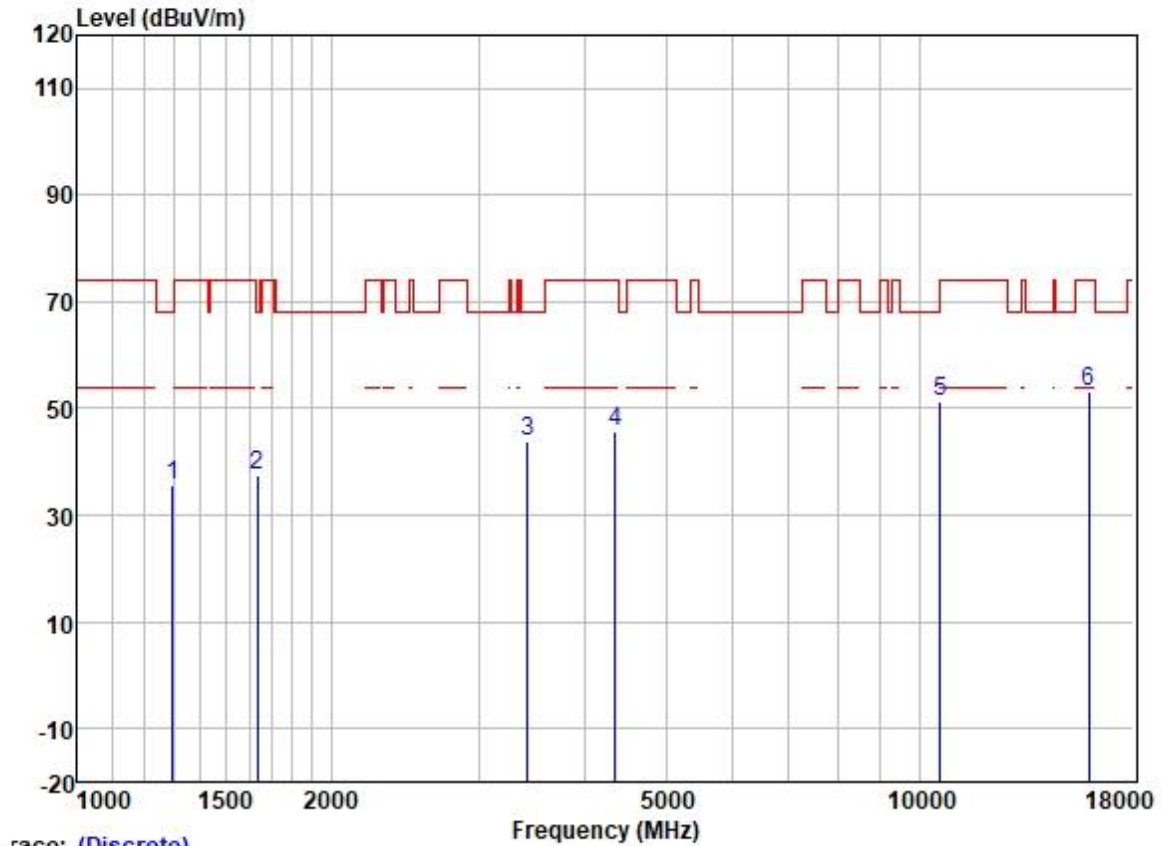
		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1172.303	46.22	24.56	2.39	38.40	34.77	74.00	-39.23	VERTICAL	Peak
2	1667.951	46.76	25.66	2.80	37.91	37.31	74.00	-36.69	VERTICAL	Peak
3	3242.619	47.75	28.67	4.02	37.06	43.38	68.20	-24.82	VERTICAL	Peak
4	4254.921	47.71	30.34	4.62	36.81	45.86	74.00	-28.14	VERTICAL	Peak
5	10520.000	44.12	39.50	7.42	37.35	53.69	68.20	-14.51	VERTICAL	Peak
6	15780.000	40.21	38.70	9.86	35.39	53.38	74.00	-20.62	VERTICAL	Peak

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



		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1282.193	45.70	25.15	2.52	38.33	35.04	68.20	-33.16	HORIZONTAL	Peak
2	1702.042	46.77	25.72	2.80	37.89	37.40	74.00	-36.60	HORIZONTAL	Peak
3	3495.691	46.82	28.90	4.30	36.94	43.08	68.20	-25.12	HORIZONTAL	Peak
4	4405.090	48.02	30.68	4.70	36.81	46.59	68.20	-21.61	HORIZONTAL	Peak
5	10600.000	43.55	39.59	7.46	37.34	53.26	68.20	-14.94	HORIZONTAL	Peak
6	15900.000	40.45	38.44	9.86	35.40	53.35	74.00	-20.65	HORIZONTAL	Peak

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



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1297.103	46.03	25.19	2.58	38.31	35.49	68.20	-32.71	VERTICAL	Peak
2	1634.543	46.88	25.62	2.80	37.95	37.35	68.20	-30.85	VERTICAL	Peak
3	3425.675	47.85	28.86	4.15	36.97	43.89	68.20	-24.31	VERTICAL	Peak
4	4354.454	47.32	30.59	4.68	36.81	45.78	74.00	-28.22	VERTICAL	Peak
5	10600.000	41.72	39.59	7.46	37.34	51.43	68.20	-16.77	VERTICAL	Peak
6	15900.000	40.21	38.44	9.86	35.40	53.11	74.00	-20.89	VERTICAL	Peak