TEST REPORT

Application No.:	GZCR2111021424AT
Applicant:	Outform Science & Technology (Shenzhen) Co., Ltd.
Address of Applicant:	Unit 3, 1st Floor, Huada Building, Gongye 3rd Road Yanshan Community, Zhaoshang Subdistrict Nanshan District, Shenzhen 518067 China
Manufacturer:	Outform Science & Technology (Shenzhen) Co., Ltd.
Address of Manufacturer:	Unit 3, 1st Floor, Huada Building, Gongye 3rd Road Yanshan Community, Zhaoshang Subdistrict Nanshan District, Shenzhen 518067 China
Factory:	Outform Science & Technology (Shenzhen) Co., Ltd.
Address of Factory:	Unit 3, 1st Floor, Huada Building, Gongye 3rd Road Yanshan Community, Zhaoshang Subdistrict Nanshan District, Shenzhen 518067 China
Equipment Under Test (EUT):	
EUT Name:	Micro Zappa Unit + Zappa Expansion Unit
Model No.:	UA200941-Z, UA220941-Z1, UA220941-Z2, UA220941-M1, UA200941-M2, UA220941-M3, UA220941-M4, UA220941-M8 ♣
♣	Please refer to section 2 of this report which indicates which model was actually tested and which were electrically identical.
Standard(s) :	47 CFR Part 15, Subpart E 15.407
Date of Receipt:	2021-09-26
Date of Test:	2021-10-22 to 2022-06-20
Date of Issue:	2022-06-22
Test Result:	**Pass***

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

Kobe Jian
EMC Laboratory Manager

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		*2022-06-22*		*Original*

Authorized for issue by				
		Curry Wu/Project Engineer		
		Ricky Liu/Reviewer		

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2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart C 15.203	Pass
Transmission in the Absence of Data		N/A	47 CFR Part 15, Subpart 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		ANSI C63.10 (2013) Section 12.2	KDB 789033 D02 v02r01 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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Declaration of EUT Family Grouping:

Model No.: UA200941-Z, UA220941-Z1, UA220941-Z2, UA220941-M1, UA200941-M2, UA220941-M3, UA220941-M4, UA220941-M8, UA200941-M5, UA220941-M6, UA220941-M7

Only the model UA200941-Z was tested, since according to the declaration from the applicant, the electrical circuit design, PCB layout, components used and internal wiring and functions were identical for the above models, with only difference as below:

Model	Product Description:	Micro Zappa Unit		Zappa Expansion Unit				400W PSU	US or ROW RELAY
		E4U4	OF2020Z	LC4	OF2020Z	H4P	Blank		
UA200941-Z	Retail Z-00 Full Zappa Hub Placement Demo	1	1	1	1	1	1	1	1
UA220941-Z1	Retail Z-01 Full Zappa Hub Placement (C3+Mod+All) Demo	1	1	1	1	1	1	1	1
UA220941-Z2	Retail Z-02 Full Zappa Hub Placement Demo, No Relay	1	1	1	1	1	1	1	NA
UA220941-M1	Retail M-01 Zappa Smart Home (MD+Plug and/or Bulb) Smaller Casing	Replaced by H4P	Replaced by Blank	NA	NA	NA	NA	1	1
UA200941-M2	Retail M-02 Zappa Energy, Smaller Casing	1	1	NA	NA	NA	NA	1	NA
UA220941-M3	Retail M-03 Zappa Security (C3+D2) Smaller Casing	1	Replaced by Blank	NA	NA	NA	NA	1	NA
UA220941-M4	Retail M-04 Zappa Smart Home (C3+Plug and/or Bulb) Smaller Casing	1	Replaced by Blank	NA	NA	NA	NA	1	1
UA220941-M8	Retail M-08 Zappa Relay Smart Home Smaller Casing	1	Replaced by H4P	NA	NA	NA	NA	1	1

Considering all above model with same RF module and hardware design, it should not be affecting the test result then only UA200941-Z was tested. There have 2 power supplies for the RF module in the report including ADP-36C2 and 400W PSU, both supplies have been tested and only the worst one data was recorded in the report, ADP-36C2 is the worst one if no other remark in the test item.

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4 General Information

4.1 Details of E.U.T.

Power supply:	DC 12V from AC/DC adapter which with 120Vac60Hz
Operation Frequency (20MHz):	U-NII-1: 5180-5240MHz; U-NII-2A: 5260-5320MHz; U-NII-2C: 5500-5700MHz; U-NII-3: 5745-5825MHz
Operation Frequency (40MHz):	U-NII-1: 5190-5230MHz (2 Channels); U-NII-2A: 5270-5310MHz (2 Channels); U-NII-2C: 5510-5670MHz (5 Channels); U-NII-3: 5755-5795MHz (2 Channels)
Operation Frequency (80MHz):	U-NII-1: 5210MHz (1 Channel); U-NII-2A: 5290MHz (1 Channel); U-NII-2C: 5530-5610MHz (2 Channels); U-NII-3: 5775MHz (1 Channel)
Modulation Type:	802.11a: OFDM (64QAM, 16QAM, QPSK, BPSK); 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM); 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Channel Spacing:	802.11a/n(HT20)/ac(HT20): 20MHz; 802.11n(HT40)/ac(HT40): 40MHz; 802.11ac(HT80): 80MHz
DFS Function:	Slave without Radar detection
TPC Function:	Without TPC function
Antenna Type:	Dipole Antenna
Antenna Gain:	2 dBi declared by applicant

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	DAJING	ADP-36C2	--

4.3 Measurement Uncertainty

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

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Remark:
The U_{lab} (lab Uncertainty) is less than U_{cispr} (CISPR Uncertainty), so the test results
– compliance is deemed to occur if no measured disturbance level exceeds the disturbance limit;
– non-compliance is deemed to occur if any measured disturbance level exceeds the disturbance limit.

4.4 Test Location

All tests were performed at:

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No tests were sub-contracted.

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- **ACMA**

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

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

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

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

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

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

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

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

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

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

- **CBTL (Lab Code: TL129)**

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

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Equipment List

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-Line V-Network	Rohde & Schwarz	ENV216	EMC0118	2020-12-23	2022-12-22
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	ESR3	EMC2221	2021-05-20	2023-05-19

Duty Cycle					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
MXA Signal Analyzer(10Hz-8.4GHz)	Agilent Technologies	N9020A	SEM004-10	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
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	2021-05-16	2023-05-15
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
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	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
EXG Analog Signal Generator(9kHz-3GHz)	Agilent Technologies	N5171B	SEM006-04	2021-07-12	2022-07-11

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Power Meter (U2021XA_Ch2)	Agilent Technologies	U2021XA_Ch2	SEM009-02	2021-05-16	2023-05-15
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
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	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
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	2021-05-16	2023-05-15
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
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	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
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	2021-05-16	2023-05-15

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Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
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	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
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	2021-05-16	2023-05-15
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
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	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
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	2021-05-16	2023-05-15
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15

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EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Radiated Spurious Emissions (Below 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EMI Test Receiver(10Hz-26.5GHz)	Rohde & Schwarz	ESIB26	EMC0522	2020-12-17	2022-12-16
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	2019-08-08	2022-08-07
Amplifier(9kHz-1.3GHz)	HP	8447F	EMC2065	2021-05-16	2023-05-15

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	2020-12-17	2022-12-16
Chamber cable(Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2020-09-09	2022-09-08
Horn Antenna(1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2019-09-25	2022-09-24
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2020-12-17	2022-12-16
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	2020-11-01	2022-10-31
EXA Signal Analyzer(10Hz-44GHz)	Keysight	N9010A	EMC2138	2021-09-16	2022-09-15
Test Software E3	Audix	Ver.6.120110a	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	2021-08-30	2022-08-29

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Frequency Stability					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2024-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2022-10-31
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	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
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	2021-05-16	2023-05-15
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15
EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A

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	2021-03-03	2023-03-02
ESG Vector Signal Generator(250kHz-6GHz)	Keysight	E4438C	SEM006-03	2021-03-03	2023-03-02
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	2021-05-16	2023-05-15
Power Meter (U2021XA_Ch3)	Agilent Technologies	U2021XA_Ch3	SEM009-03	2021-05-16	2023-05-15

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EXA Signal Analzer(10Hz-44GHz)	Agilent Technologies	N9010A	EMC2138	2021-09-16	2022-09-15
6dB Attenuator	HP	8491A	EMC2062	2021-03-29	2023-03-28
MI CABLE	SGS-EMC	0.8M	EMC2136	2020-11-01	2023-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2020-11-01	2023-11-01
Test Software	TST	V2.0	GZE100-78	N/A	N/A

Radiated Emissions (above 1GHz)					
Equipment	**Manufacturer**	**Model No**	**Inventory No**	**Cal Date**	**Cal Due Date**
Chamber cable(Above 1GHz)	Scoflex	KMKM-8.0m	EMC0545	2020-09-09	2022-09-08
Horn Antenna(1GHz-18GHz)	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2026	2019-09-25	2022-09-24
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2020-12-17	2022-12-16
2.4GHz Filter	Micro-Tronics	BRM 50702	EMC2069	2020-12-17	2022-12-16
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	EMC2138	2021-09-16	2022-09-15
Test Software E3	Audix	Ver.6.120110a	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	2021-08-30	2022-08-29

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

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

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 a diople antenna with unique coupling port on the enclosure and no consideration of replacement. The best case gain of the antenna is 2.0 dBi.

Antenna location: Refer to external photo.

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6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

47 CFR Part 15, Subpart C 15.407 (c)

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 μV)	
	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: 23.6 °C Humidity: 55.2 % RH Atmospheric Pressure: 1003 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Pre-scan	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Pre-scan	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

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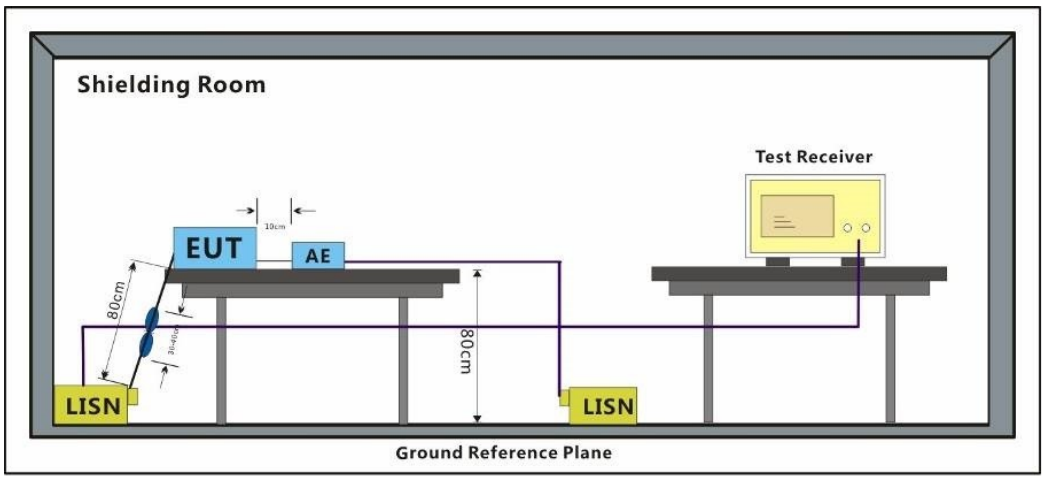
Pre-scan 04

TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

1) The mains terminal disturbance voltage test was conducted in a shielded room.

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

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

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

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

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

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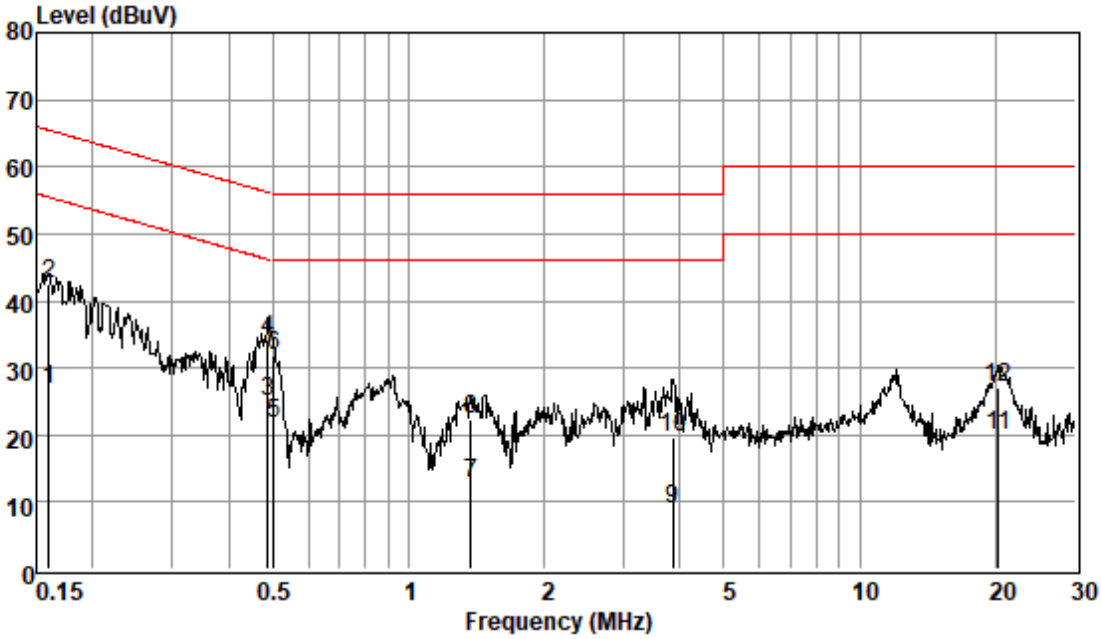
Test Mode: 01; Line: Live line; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Pol :LINE
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.16	17.15	0.06	9.62	26.83	55.47	-28.64	Average
0.16	32.72	0.06	9.62	42.40	65.47	-23.07	QP
0.49	15.19	0.07	9.63	24.89	46.19	-21.30	Average
0.49	24.41	0.07	9.63	34.11	56.19	-22.08	QP
0.50	11.98	0.07	9.63	21.68	46.00	-24.32	Average
0.50	21.99	0.07	9.63	31.69	56.00	-24.31	QP
1.37	3.00	0.09	9.61	12.70	46.00	-33.30	Average
1.37	12.65	0.09	9.61	22.35	56.00	-33.65	QP
3.86	-0.85	0.16	9.62	8.93	46.00	-37.07	Average
3.86	9.87	0.16	9.62	19.65	56.00	-36.35	QP
20.27	9.78	0.37	9.77	19.92	50.00	-30.08	Average
20.27	16.98	0.37	9.77	27.12	60.00	-32.88	QP

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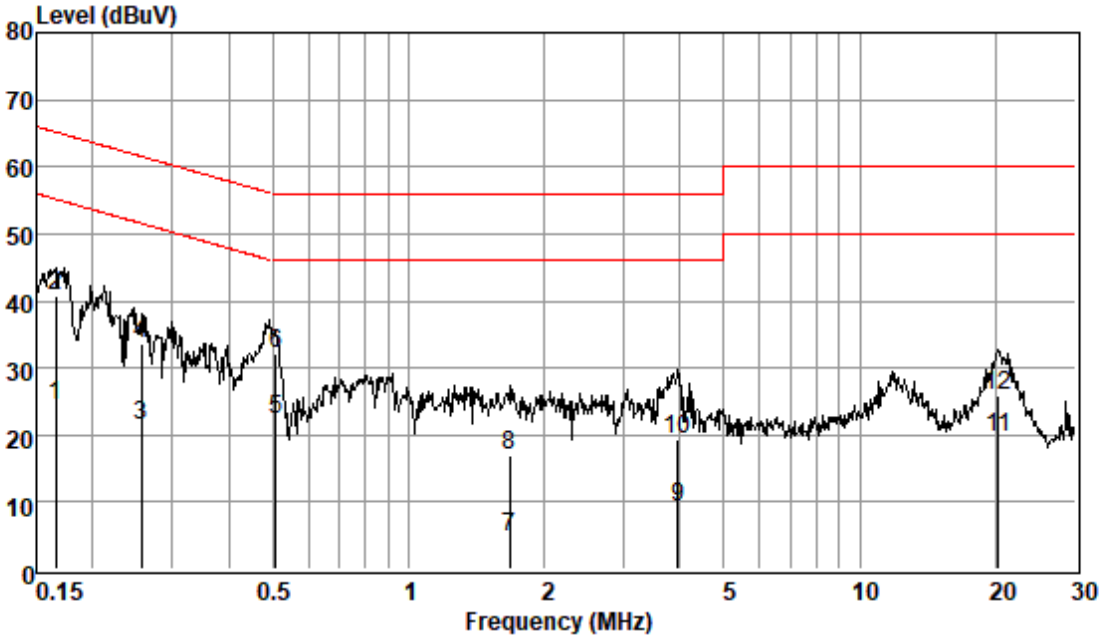
Test Mode: 01; Line: Neutral Line; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Pol :NEUTRAL
Mode :
Model :

Frequenc MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.17	14.73	0.06	9.55	24.34	55.16	-30.82	Average
0.17	30.99	0.06	9.55	40.60	65.16	-24.56	QP
0.26	11.89	0.06	9.55	21.50	51.56	-30.06	Average
0.26	23.99	0.06	9.55	33.60	61.56	-27.96	QP
0.51	12.56	0.07	9.55	22.18	46.00	-23.82	Average
0.51	22.43	0.07	9.55	32.05	56.00	-23.95	QP
1.67	-4.79	0.11	9.55	4.87	46.00	-41.13	Average
1.67	7.43	0.11	9.55	17.09	56.00	-38.91	QP
3.94	-0.42	0.17	9.56	9.31	46.00	-36.69	Average
3.94	9.47	0.17	9.56	19.20	56.00	-36.80	QP
20.27	9.62	0.37	9.68	19.67	50.00	-30.33	Average
20.27	15.72	0.37	9.68	25.77	60.00	-34.23	QP

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7.2 Duty Cycle

Test Requirement KDB 789033 D02 v02r01 II B 1
Test Method: ANSI C63.10 (2013) Section 12.2

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 24.7 °C Humidity: 55.6 % RH Atmospheric Pressure: 1003 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

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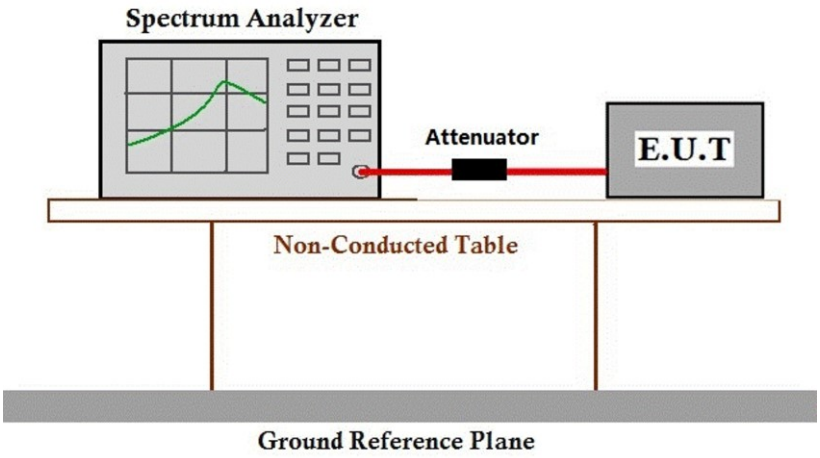
7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.3 99% Bandwidth

Test Requirement N/A

Test Method: KDB 789033 II D

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 24.7 °C Humidity: 55.6 % RH Atmospheric Pressure: 1003 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

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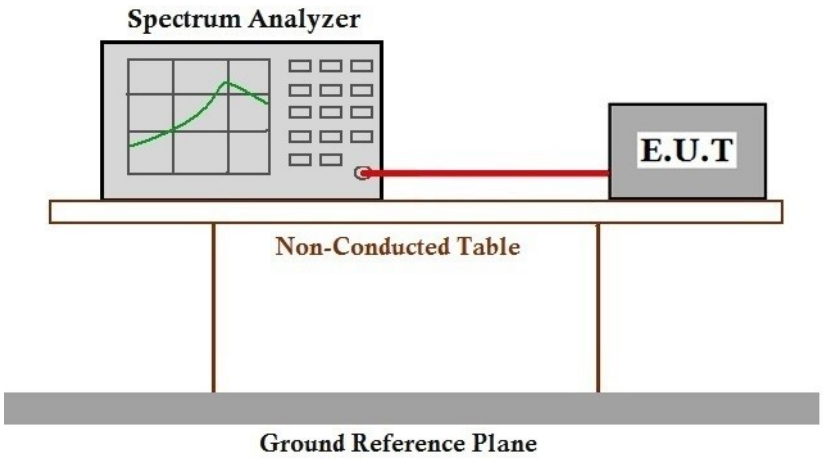
7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

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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: 24.7 °C Humidity: 55.6 % RH Atmospheric Pressure: 1003 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

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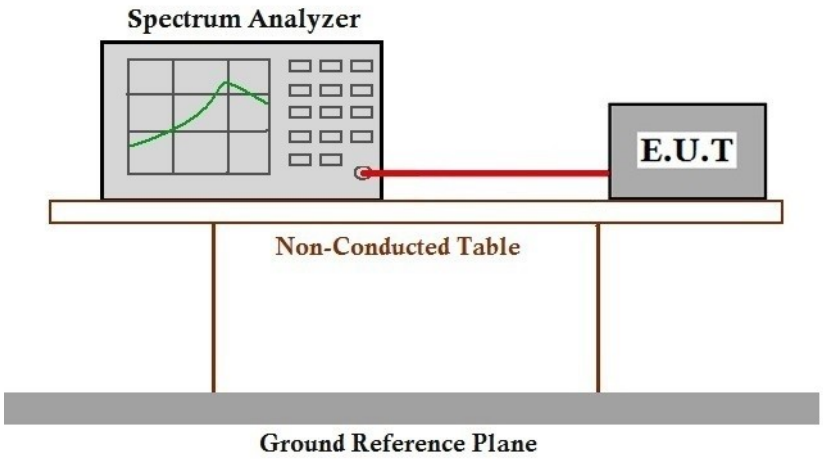
7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

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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

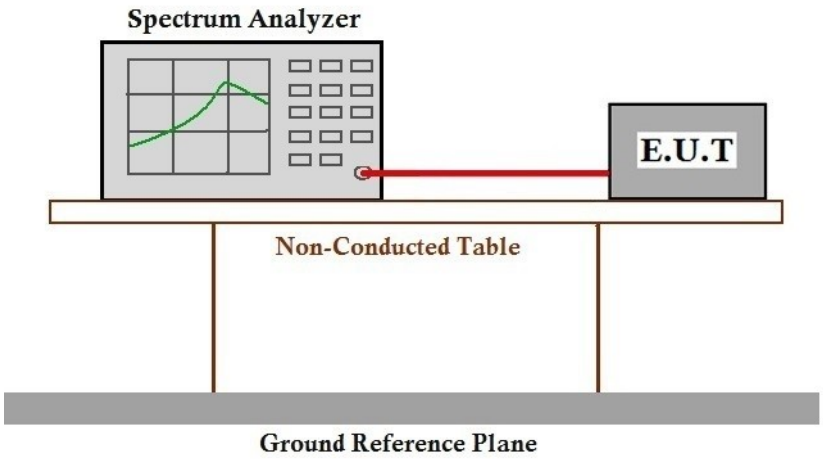
Operating Environment:

Temperature: 24.7 °C Humidity: 55.6 % RH Atmospheric Pressure: 1003 mbar

7.5.2 Test Mode Description

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

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

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7.6 Maximum Conducted output power

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

Test Method: KDB 789033 D02 II E

Limit:

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

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24.7 °C Humidity: 55.6 % RH Atmospheric Pressure: 1003 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the

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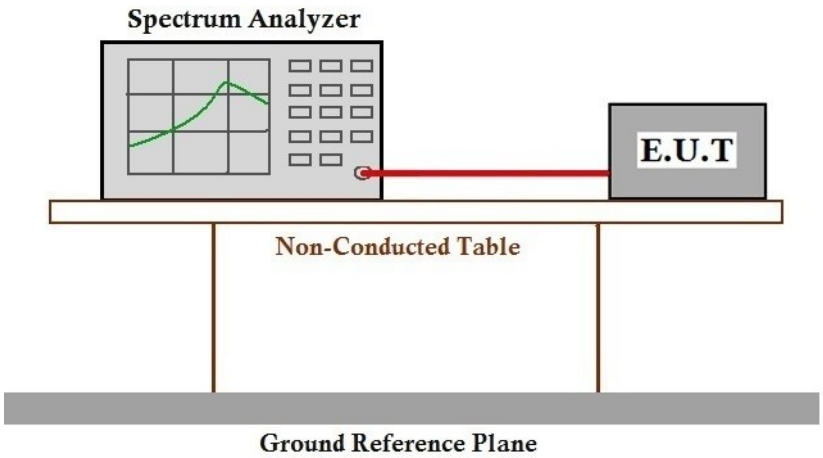
	worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test 04	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

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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: 24.7 °C Humidity: 55.6 % RH Atmospheric Pressure: 1003 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

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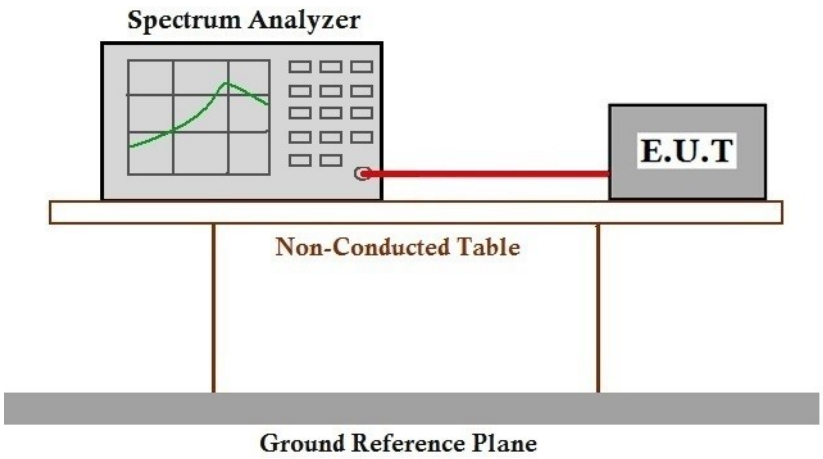
Final test 04	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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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

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.

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7.8.1 E.U.T. Operation

Operating Environment:

Temperature: 24.5 °C Humidity: 56.2 % RH Atmospheric Pressure: 1003 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Pre-scan	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Pre-scan	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Pre-scan	04	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

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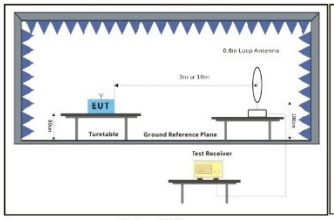
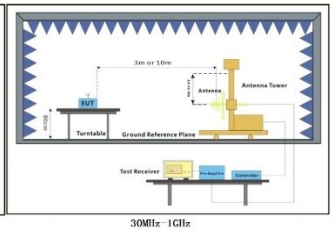
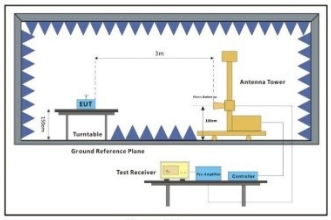
7.8.3 Test Setup Diagram



Below 30MHz



30MHz-1GHz



Above 1GHz

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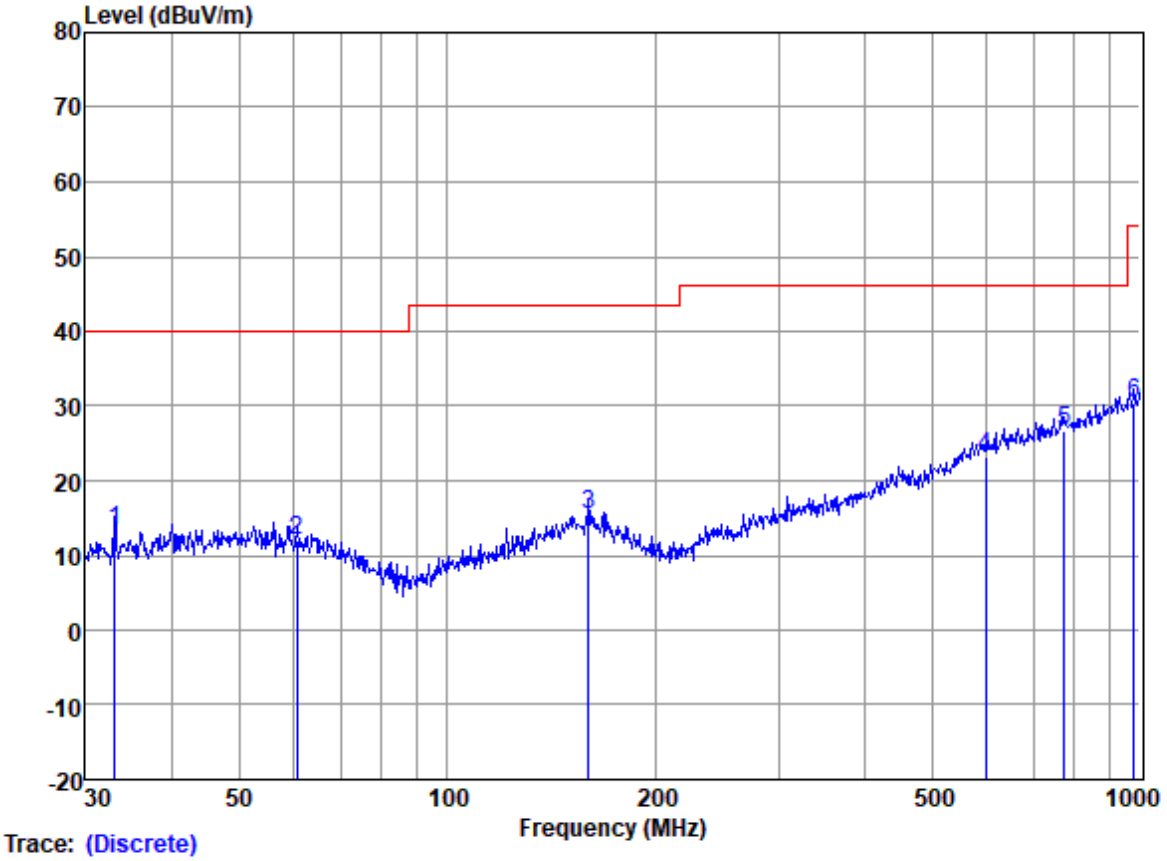
Test Mode: 01 ; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : SGS
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dBuV		
1	33.09	26.80	12.76	1.05	27.19	13.42	40.00	-26.58	HORIZONTAL	QP
2	60.49	24.67	13.33	1.27	27.16	12.11	40.00	-27.89	HORIZONTAL	QP
3	159.78	26.38	13.60	2.33	26.80	15.51	43.50	-27.99	HORIZONTAL	QP
4	597.22	26.59	19.80	5.14	28.21	23.32	46.00	-22.68	HORIZONTAL	QP
5	776.88	26.49	22.28	6.08	28.05	26.80	46.00	-19.20	HORIZONTAL	QP
6	979.18	26.74	24.10	7.31	27.69	30.46	54.00	-23.54	HORIZONTAL	QP

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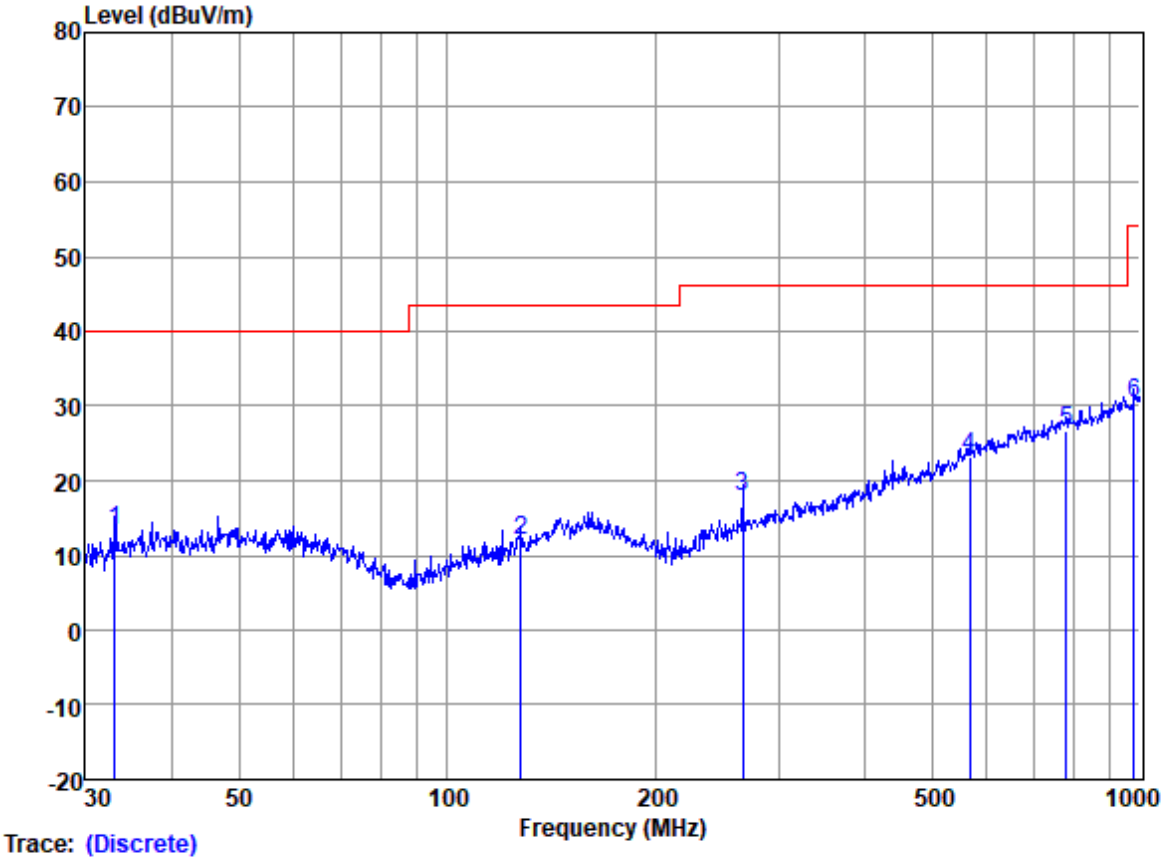
Test Mode: 01; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : SGS
Job :
Model :
Power :
Test Mode :

	Freq	Read Level	Anterna Factor	Cable Loss	Preamp Factor	Measured Level	Limit Line	Over Limit	Pol/ Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dBuV		
1	33.09	26.73	12.76	1.05	27.19	13.35	40.00	-26.65	VERTICAL	QP
2	127.66	25.40	11.75	1.94	27.00	12.09	43.50	-31.41	VERTICAL	QP
3	266.61	28.81	12.50	3.02	26.58	17.75	46.00	-28.25	VERTICAL	QP
4	566.62	27.54	18.85	4.93	28.16	23.16	46.00	-22.84	VERTICAL	QP
5	782.35	26.20	22.35	6.11	28.05	26.61	46.00	-19.39	VERTICAL	QP
6	979.18	26.70	24.10	7.31	27.69	30.42	54.00	-23.58	VERTICAL	QP

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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.

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7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 24.9 °C Humidity: 56.1 % RH Atmospheric Pressure: 1003 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	01	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	02	TX mode (U-NII-2A)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	03	TX mode (U-NII-2C)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.
Final test	04	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

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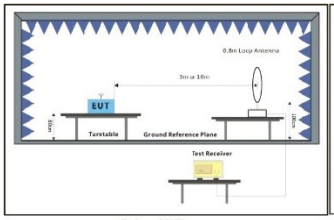
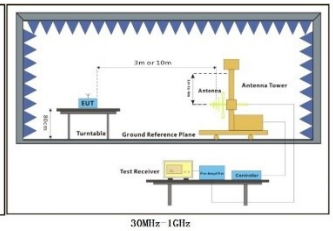
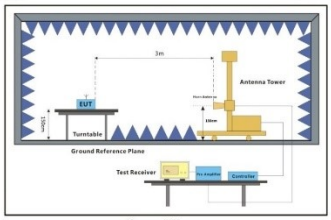
7.9.3 Test Setup Diagram



Below 30MHz



30MHz-1GHz



Above 1GHz

7.9.4 Measurement Procedure and Data

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

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

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

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

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

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

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

h. Test the EUT in the lowest channel, the 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

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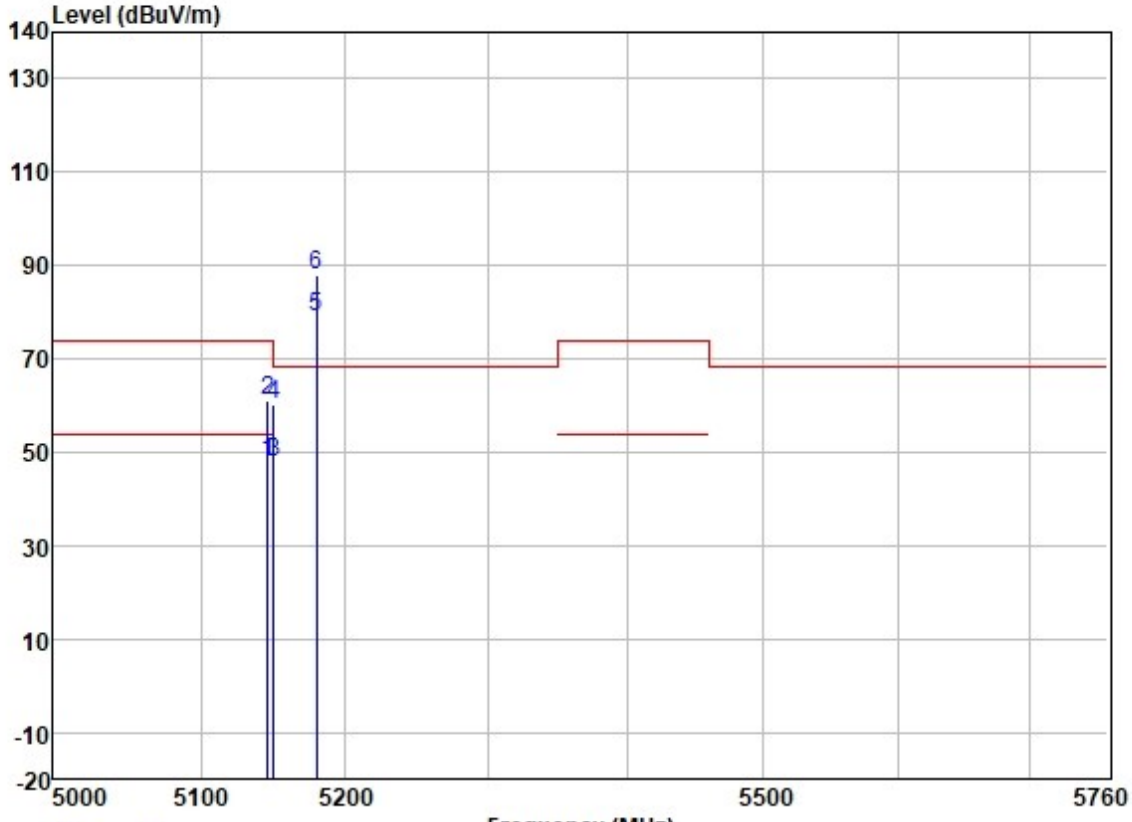
Test Mode: 01; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5145.659	47.49	31.72	5.62	36.86	47.97	54.00	-6.03	HORIZONTAL	Average
2	5145.659	60.46	31.72	5.62	36.86	60.94	74.00	-13.06	HORIZONTAL	Peak
3	5149.980	47.25	31.72	5.62	36.86	47.73	54.00	-6.27	HORIZONTAL	Average
4	5149.980	59.82	31.72	5.62	36.86	60.30	74.00	-13.70	HORIZONTAL	Peak
5	5180.000	78.67	31.73	5.61	36.87	79.14	------	------	HORIZONTAL	Average
6 *	5180.000	87.62	31.73	5.61	36.87	88.09	68.20	19.89	HORIZONTAL	Peak

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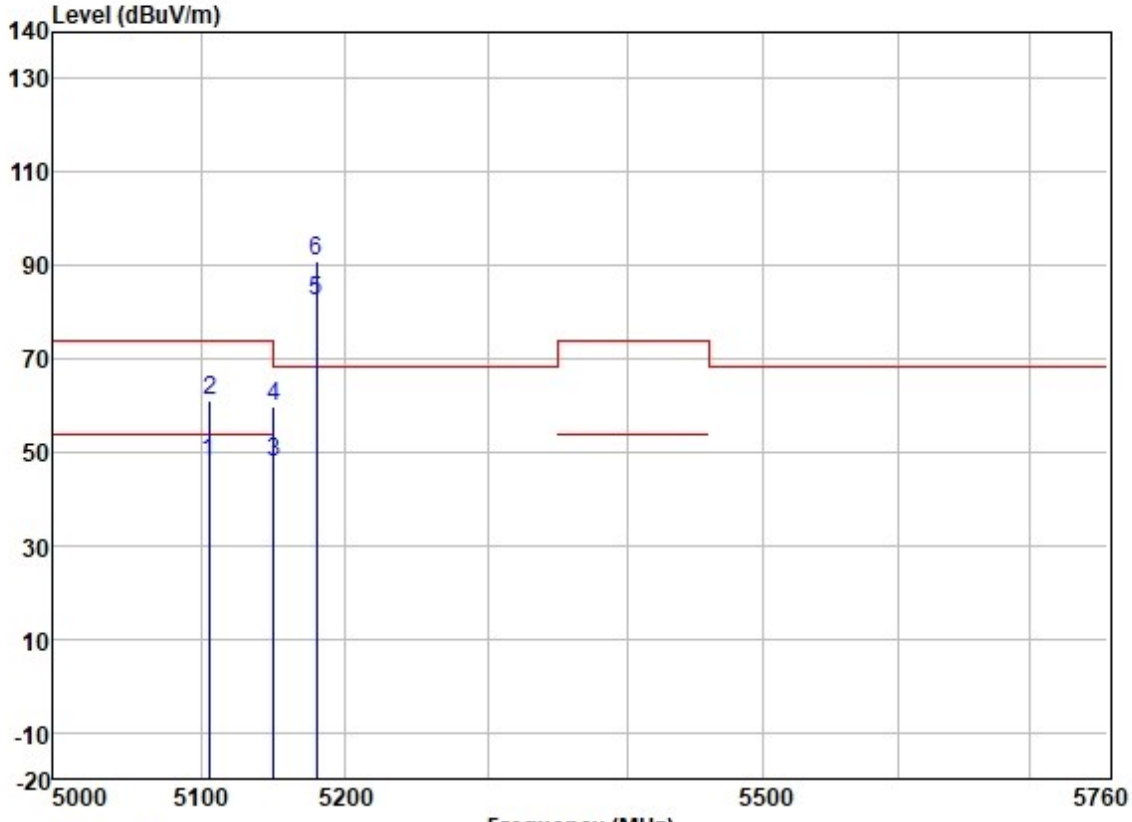
Test Mode: 01; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5105.251	47.18	31.72	5.65	36.86	47.69	54.00	-6.31	VERTICAL	Average
2	5105.945	60.71	31.72	5.65	36.86	61.22	74.00	-12.78	VERTICAL	Peak
3	5149.980	47.21	31.72	5.62	36.86	47.69	54.00	-6.31	VERTICAL	Average
4	5149.980	59.12	31.72	5.62	36.86	59.60	74.00	-14.40	VERTICAL	Peak
5	5180.000	81.82	31.73	5.61	36.87	82.29	------	------	VERTICAL	Average
6 *	5180.000	90.32	31.73	5.61	36.87	90.79	68.20	22.59	VERTICAL	Peak

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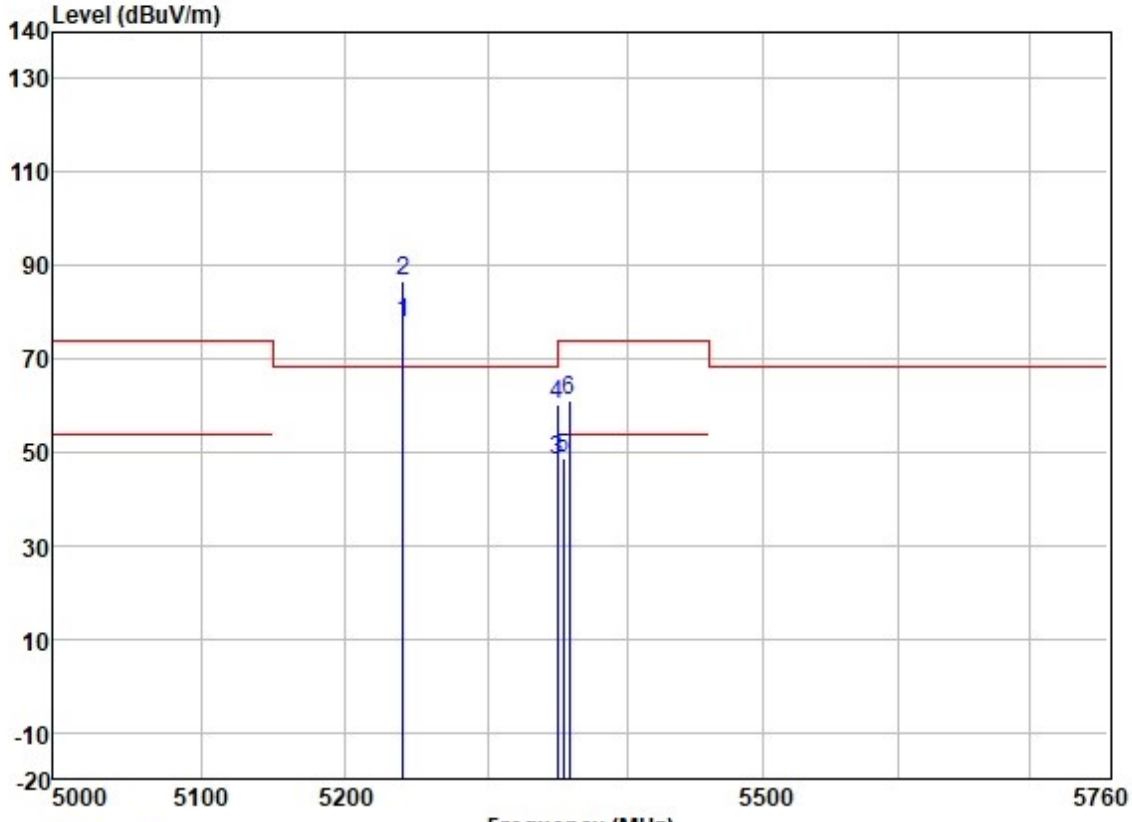
Test Mode: 01; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5240.000	77.28	31.75	5.74	36.87	77.90	------	------	HORIZONTAL	Average
2	*	5240.000	85.86	31.75	5.74	36.87	86.48	68.20	18.28	HORIZONTAL	Peak
3		5350.020	47.52	31.77	6.05	36.88	48.46	54.00	-5.54	HORIZONTAL	Average
4		5350.020	59.48	31.77	6.05	36.88	60.42	74.00	-13.58	HORIZONTAL	Peak
5		5353.903	47.88	31.77	6.05	36.88	48.82	54.00	-5.18	HORIZONTAL	Average
6		5358.014	60.25	31.78	6.03	36.88	61.18	74.00	-12.82	HORIZONTAL	Peak

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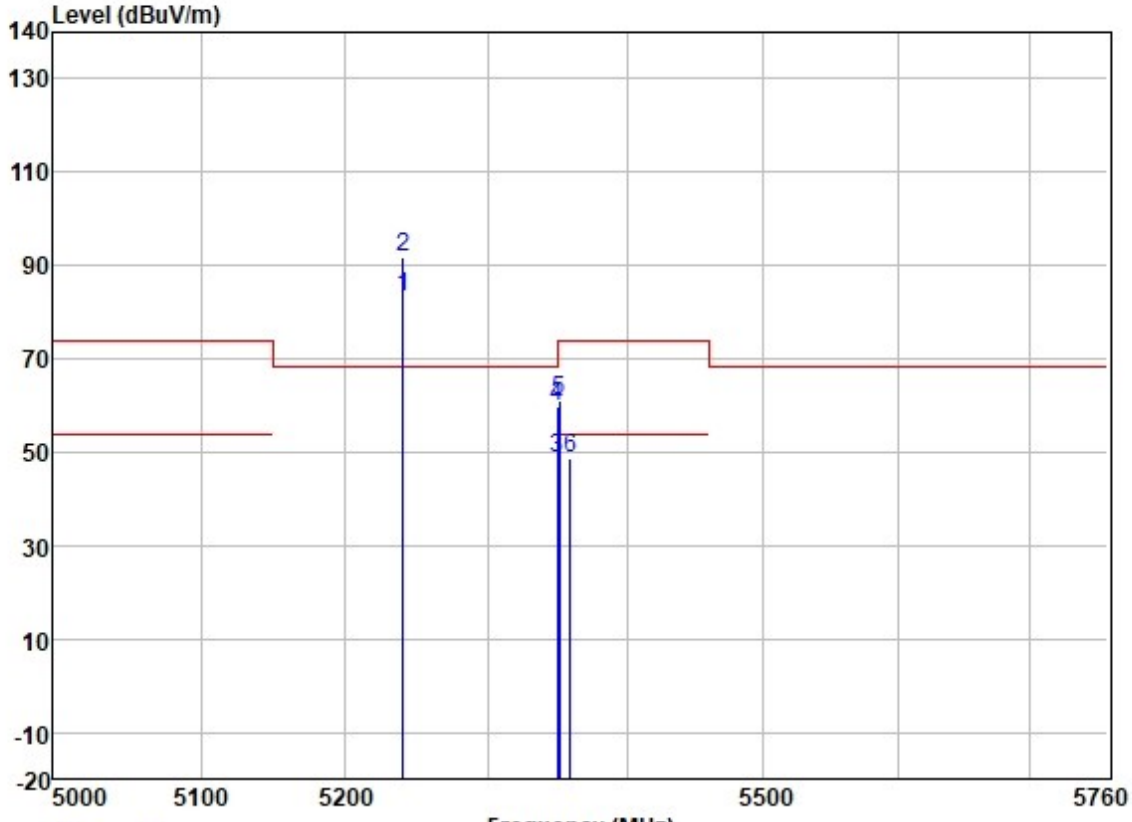
Test Mode: 01; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

		Freq	ReadLevel	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5240.000	82.76	31.75	5.74	36.87	83.38	------	------	VERTICAL	Average
2	*	5240.000	91.08	31.75	5.74	36.87	91.70	68.20	23.50	VERTICAL	Peak
3		5350.020	47.63	31.77	6.05	36.88	48.57	54.00	-5.43	VERTICAL	Average
4		5350.020	59.03	31.77	6.05	36.88	59.97	74.00	-14.03	VERTICAL	Peak
5		5351.354	60.23	31.77	6.05	36.88	61.17	74.00	-12.83	VERTICAL	Peak
6		5359.007	47.88	31.78	6.03	36.88	48.81	54.00	-5.19	VERTICAL	Average

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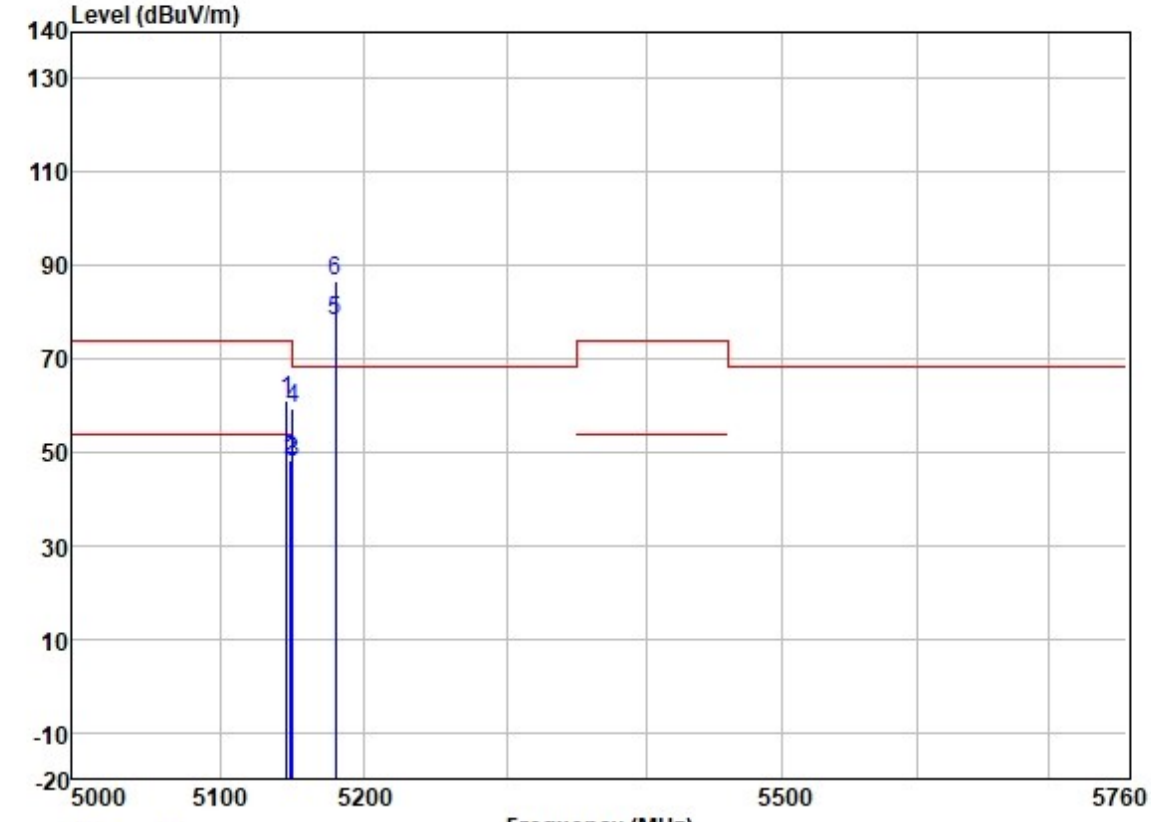
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5145.759	60.62	31.72	5.62	36.86	61.10	74.00	-12.90	HORIZONTAL	Peak
2	5148.757	47.64	31.72	5.62	36.86	48.12	54.00	-5.88	HORIZONTAL	Average
3	5149.980	47.50	31.72	5.62	36.86	47.98	54.00	-6.02	HORIZONTAL	Average
4	5149.980	58.95	31.72	5.62	36.86	59.43	74.00	-14.57	HORIZONTAL	Peak
5	5180.000	77.47	31.73	5.61	36.87	77.94	------	------	HORIZONTAL	Average
6 *	5180.000	86.28	31.73	5.61	36.87	86.75	68.20	18.55	HORIZONTAL	Peak

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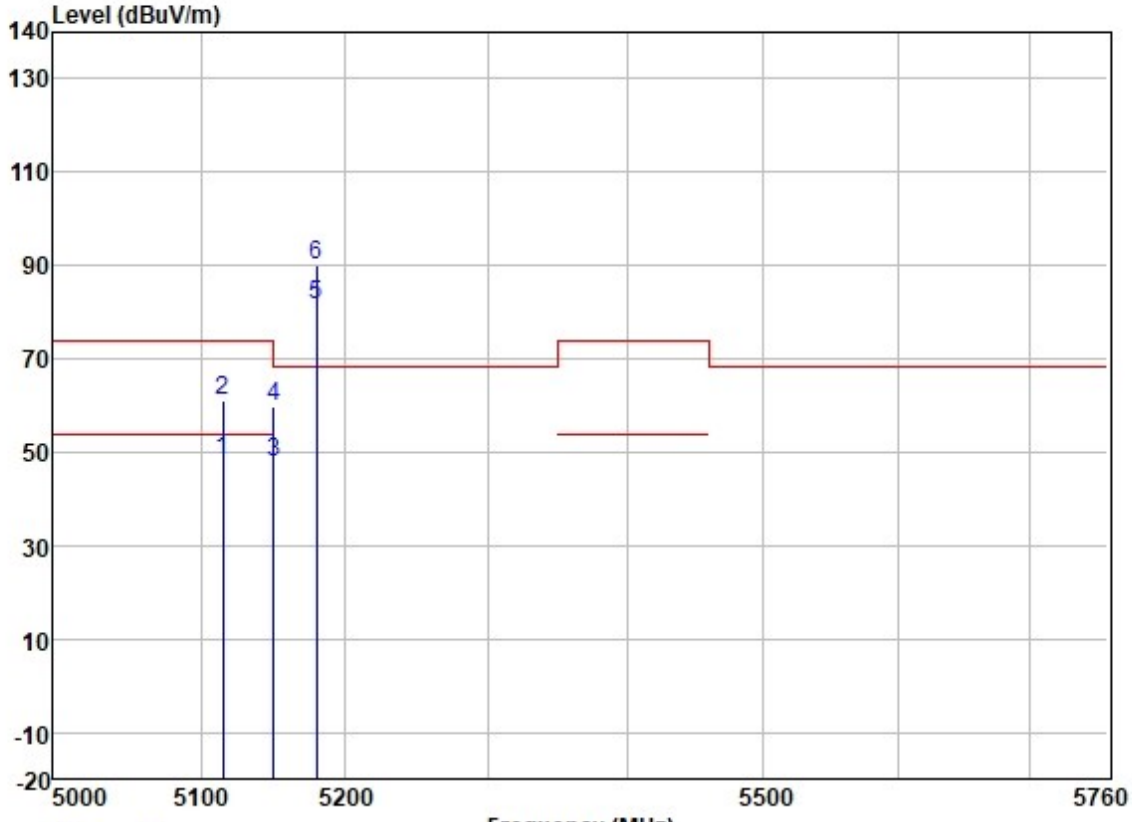
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5114.777	47.58	31.72	5.64	36.86	48.08	54.00	-5.92	VERTICAL	Average
2	5114.777	60.48	31.72	5.64	36.86	60.98	74.00	-13.02	VERTICAL	Peak
3	5149.980	47.55	31.72	5.62	36.86	48.03	54.00	-5.97	VERTICAL	Average
4	5149.980	59.22	31.72	5.62	36.86	59.70	74.00	-14.30	VERTICAL	Peak
5	5180.000	80.88	31.73	5.61	36.87	81.35	------	------	VERTICAL	Average
6 *	5180.000	89.57	31.73	5.61	36.87	90.04	68.20	21.84	VERTICAL	Peak

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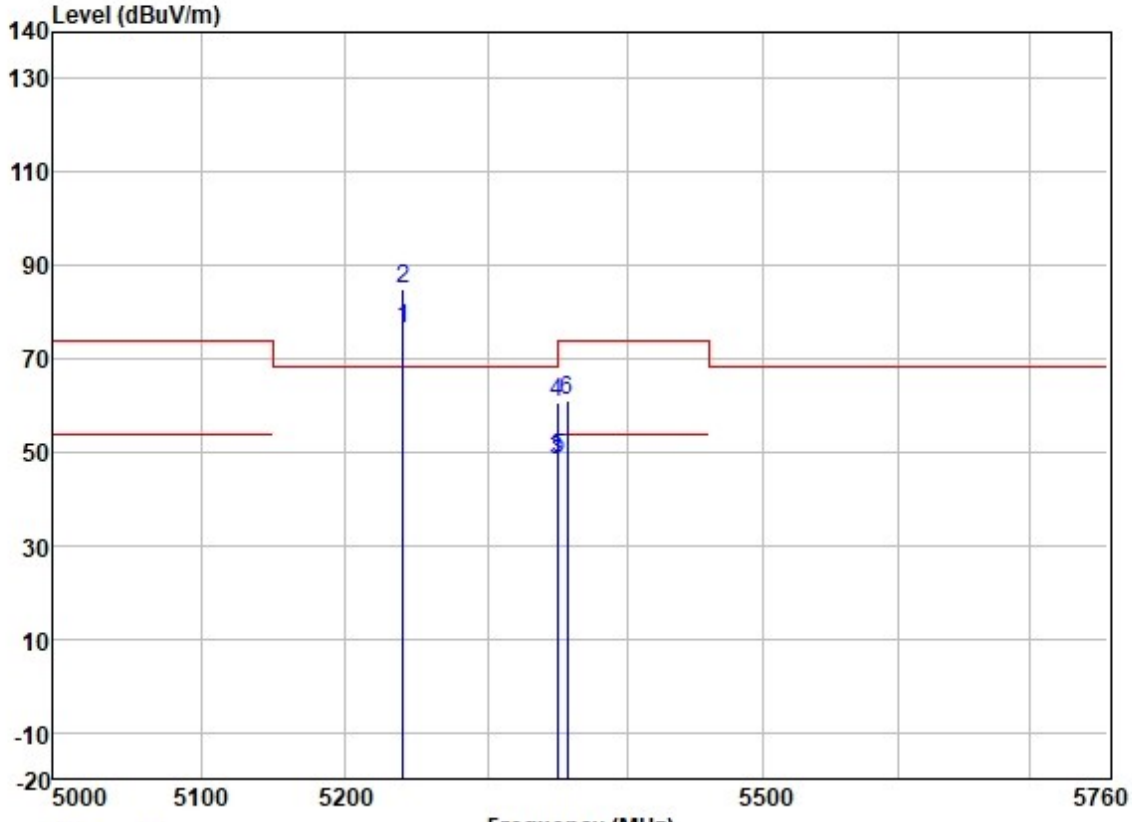
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5240.000	75.76	31.75	5.74	36.87	76.38	------	------	HORIZONTAL	Average
2	*	5240.000	84.31	31.75	5.74	36.87	84.93	68.20	16.73	HORIZONTAL	Peak
3		5350.020	47.46	31.77	6.05	36.88	48.40	54.00	-5.60	HORIZONTAL	Average
4		5350.020	59.59	31.77	6.05	36.88	60.53	74.00	-13.47	HORIZONTAL	Peak
5		5350.646	47.84	31.77	6.05	36.88	48.78	54.00	-5.22	HORIZONTAL	Average
6		5356.738	60.08	31.78	6.03	36.88	61.01	74.00	-12.99	HORIZONTAL	Peak

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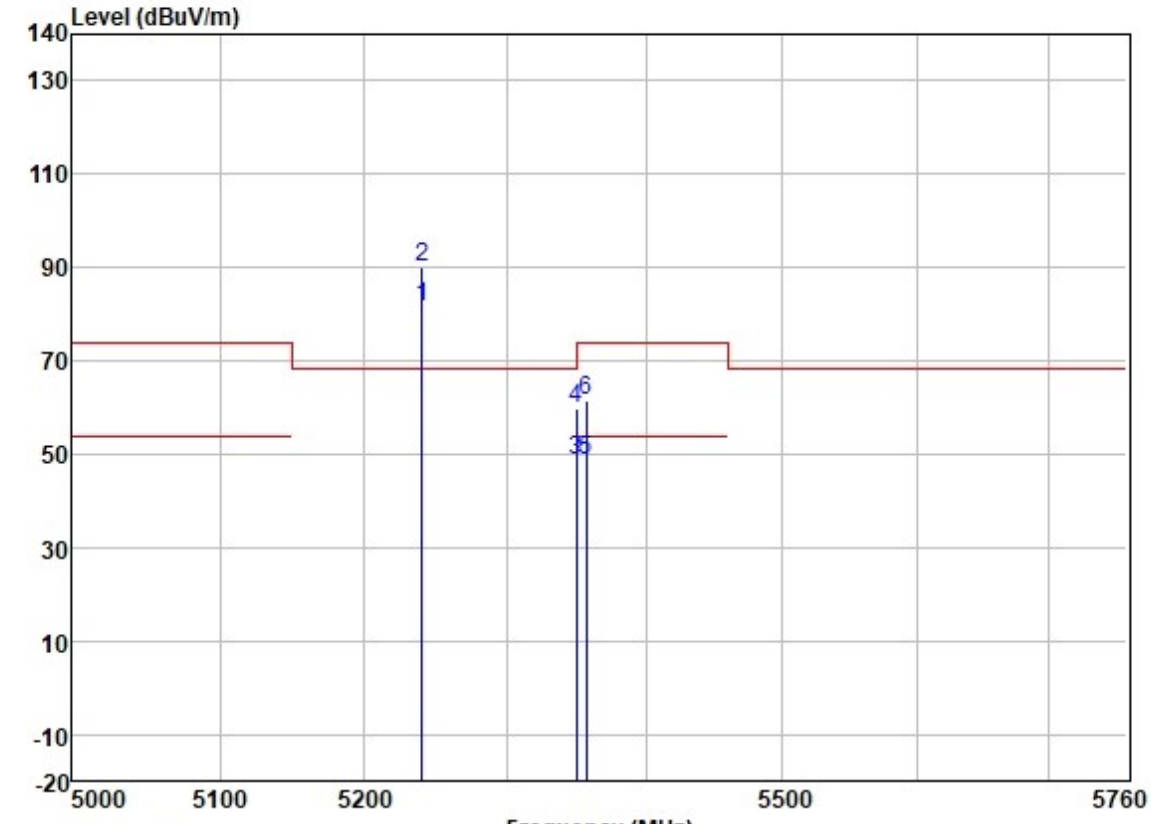
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5240.000	81.02	31.75	5.74	36.87	81.64	------	------	VERTICAL	Average
2 *	5240.000	89.48	31.75	5.74	36.87	90.10	68.20	21.90	VERTICAL	Peak
3	5350.020	47.54	31.77	6.05	36.88	48.48	54.00	-5.52	VERTICAL	Average
4	5350.020	58.75	31.77	6.05	36.88	59.69	74.00	-14.31	VERTICAL	Peak
5	5356.596	47.61	31.78	6.03	36.88	48.54	54.00	-5.46	VERTICAL	Average
6	5356.880	60.54	31.78	6.03	36.88	61.47	74.00	-12.53	VERTICAL	Peak

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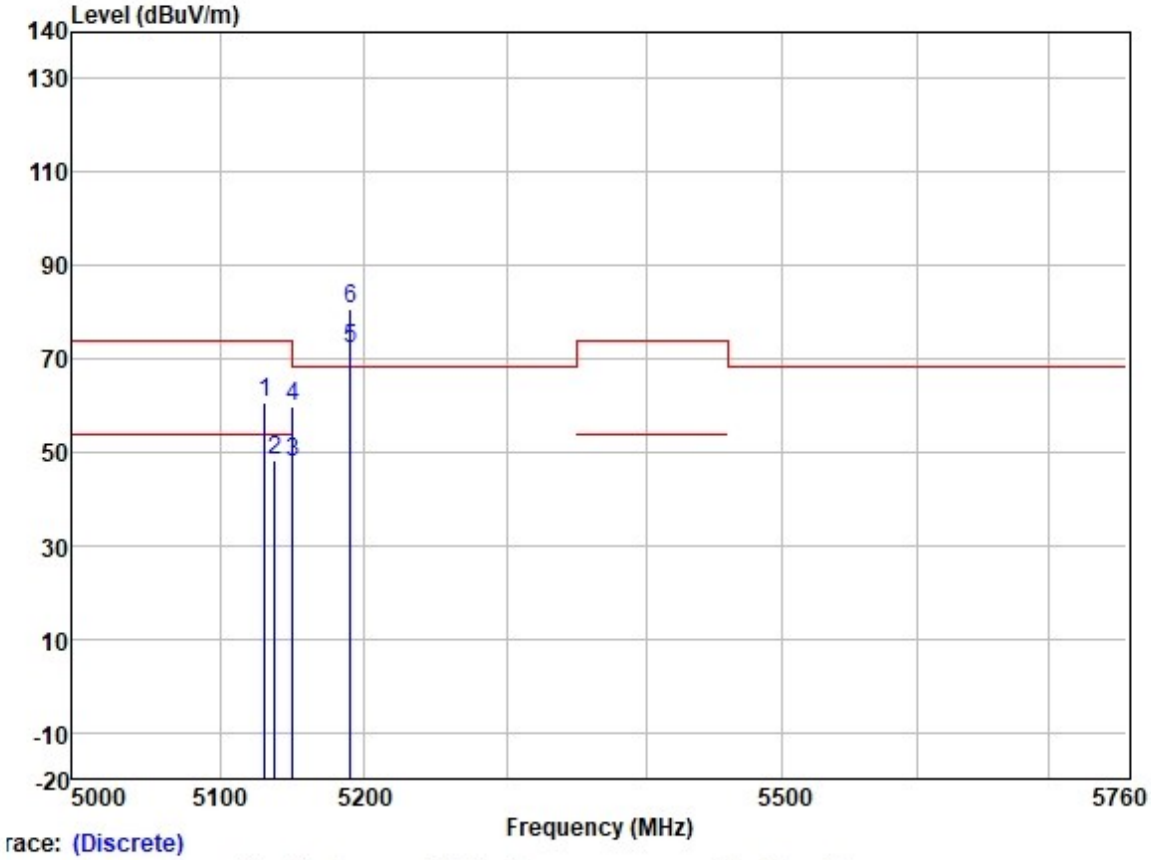
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5130.693	60.10	31.72	5.63	36.86	60.59	74.00	-13.41	HORIZONTAL	Peak
2	5137.500	47.57	31.72	5.63	36.86	48.06	54.00	-5.94	HORIZONTAL	Average
3	5149.980	47.39	31.72	5.62	36.86	47.87	54.00	-6.13	HORIZONTAL	Average
4	5149.980	59.18	31.72	5.62	36.86	59.66	74.00	-14.34	HORIZONTAL	Peak
5	5190.000	71.65	31.73	5.60	36.87	72.11	------	------	HORIZONTAL	Average
6 *	5190.000	80.28	31.73	5.60	36.87	80.74	68.20	12.54	HORIZONTAL	Peak

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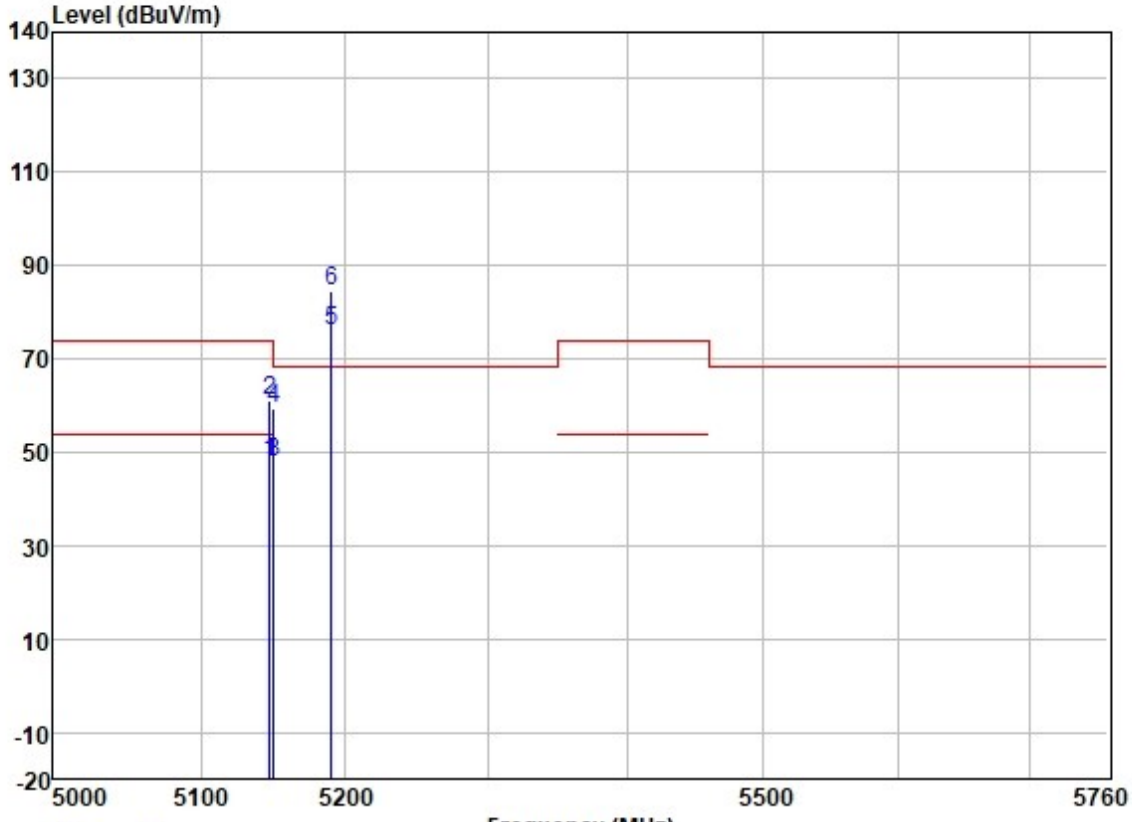
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5146.947	47.57	31.72	5.62	36.86	48.05	54.00	-5.95	VERTICAL	Average
2	5147.306	60.63	31.72	5.62	36.86	61.11	74.00	-12.89	VERTICAL	Peak
3	5149.980	47.39	31.72	5.62	36.86	47.87	54.00	-6.13	VERTICAL	Average
4	5149.980	58.96	31.72	5.62	36.86	59.44	74.00	-14.56	VERTICAL	Peak
5	5190.000	75.36	31.73	5.60	36.87	75.82	------	------	VERTICAL	Average
6 *	5190.000	84.06	31.73	5.60	36.87	84.52	68.20	16.32	VERTICAL	Peak

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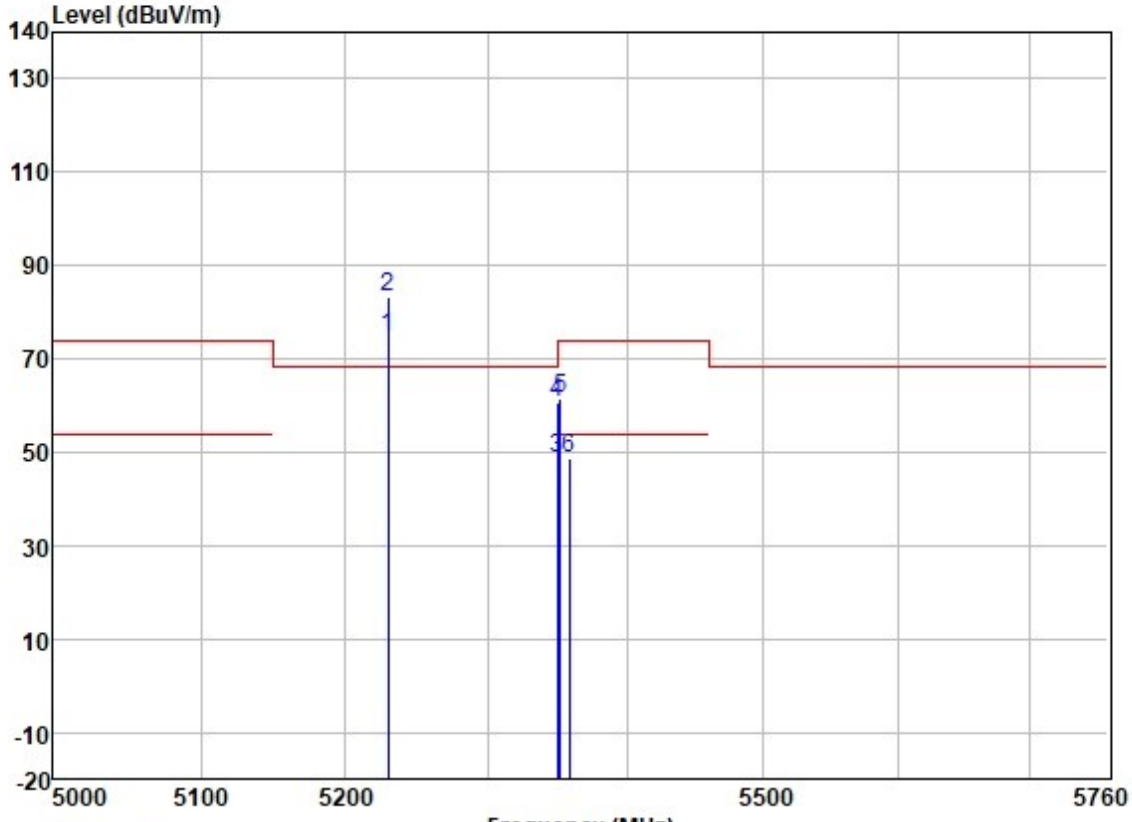
Test Mode: 01; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5230.000	74.01	31.74	5.70	36.87	74.58	------	------	HORIZONTAL	Average
2	*	5230.000	82.51	31.74	5.70	36.87	83.08	68.20	14.88	HORIZONTAL	Peak
3		5350.020	47.59	31.77	6.05	36.88	48.53	54.00	-5.47	HORIZONTAL	Average
4		5350.020	59.87	31.77	6.05	36.88	60.81	74.00	-13.19	HORIZONTAL	Peak
5		5351.560	60.37	31.77	6.05	36.88	61.31	74.00	-12.69	HORIZONTAL	Peak
6		5358.051	47.77	31.78	6.03	36.88	48.70	54.00	-5.30	HORIZONTAL	Average

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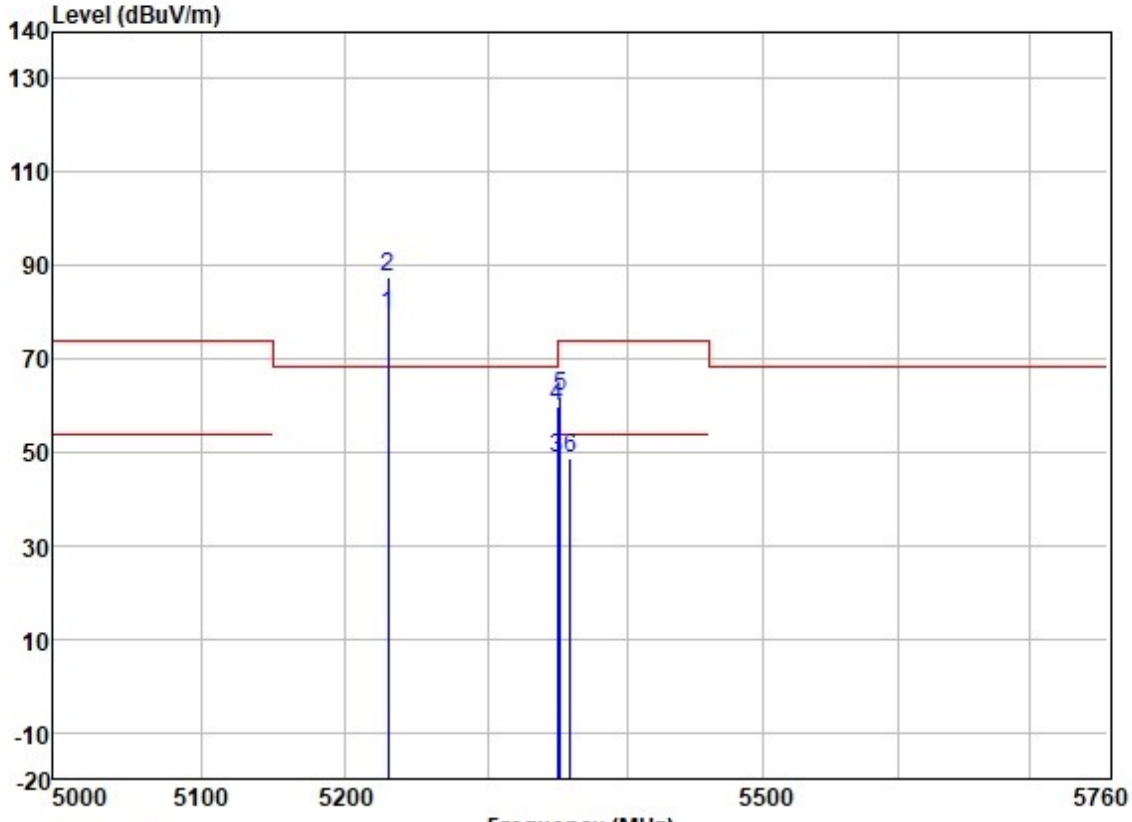
Test Mode: 01; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5230.000	78.64	31.74	5.70	36.87	79.21	------	------	VERTICAL	Average
2	*	5230.000	86.93	31.74	5.70	36.87	87.50	68.20	19.30	VERTICAL	Peak
3		5350.020	47.61	31.77	6.05	36.88	48.55	54.00	-5.45	VERTICAL	Average
4		5350.020	58.71	31.77	6.05	36.88	59.65	74.00	-14.35	VERTICAL	Peak
5		5351.560	60.77	31.77	6.05	36.88	61.71	74.00	-12.29	VERTICAL	Peak
6		5359.025	47.66	31.78	6.03	36.88	48.59	54.00	-5.41	VERTICAL	Average

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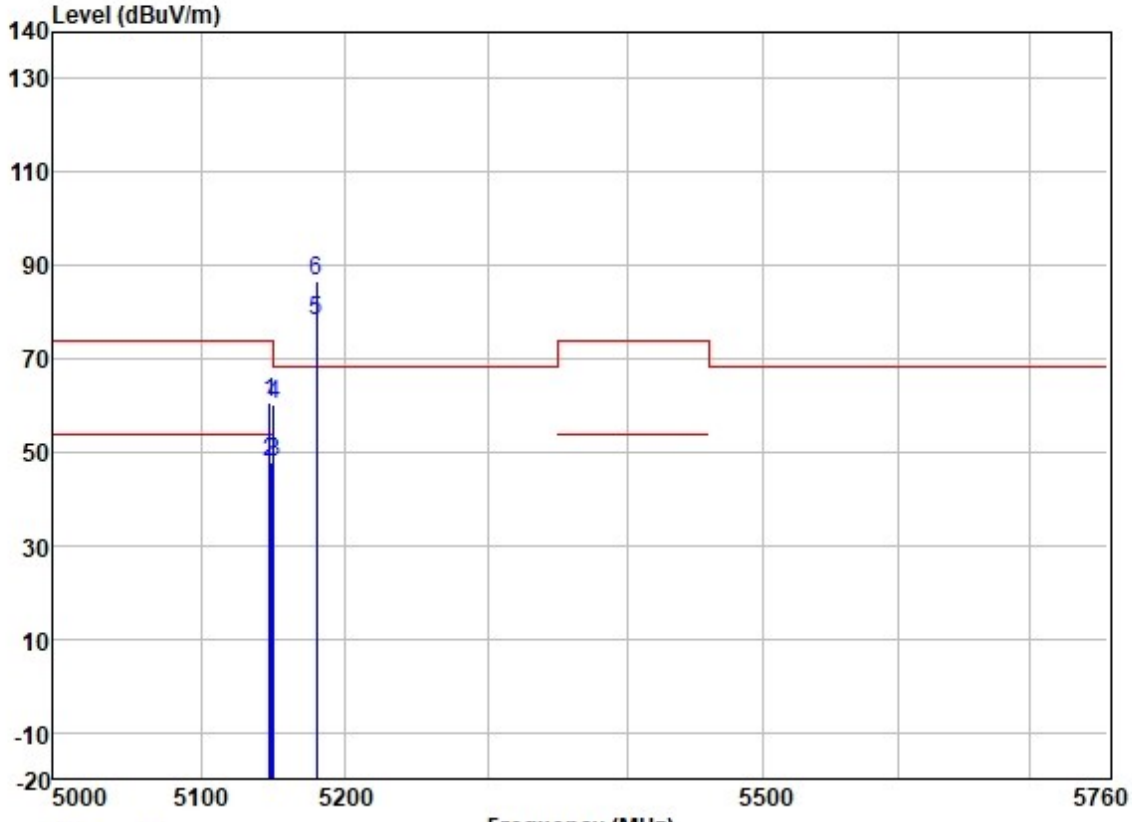
Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5147.258	60.16	31.72	5.62	36.86	60.64	74.00	-13.36	HORIZONTAL	Peak
2	5148.158	47.53	31.72	5.62	36.86	48.01	54.00	-5.99	HORIZONTAL	Average
3	5149.980	47.47	31.72	5.62	36.86	47.95	54.00	-6.05	HORIZONTAL	Average
4	5149.980	59.55	31.72	5.62	36.86	60.03	74.00	-13.97	HORIZONTAL	Peak
5	5180.000	77.53	31.73	5.61	36.87	78.00	------	------	HORIZONTAL	Average
6 *	5180.000	86.11	31.73	5.61	36.87	86.58	68.20	18.38	HORIZONTAL	Peak

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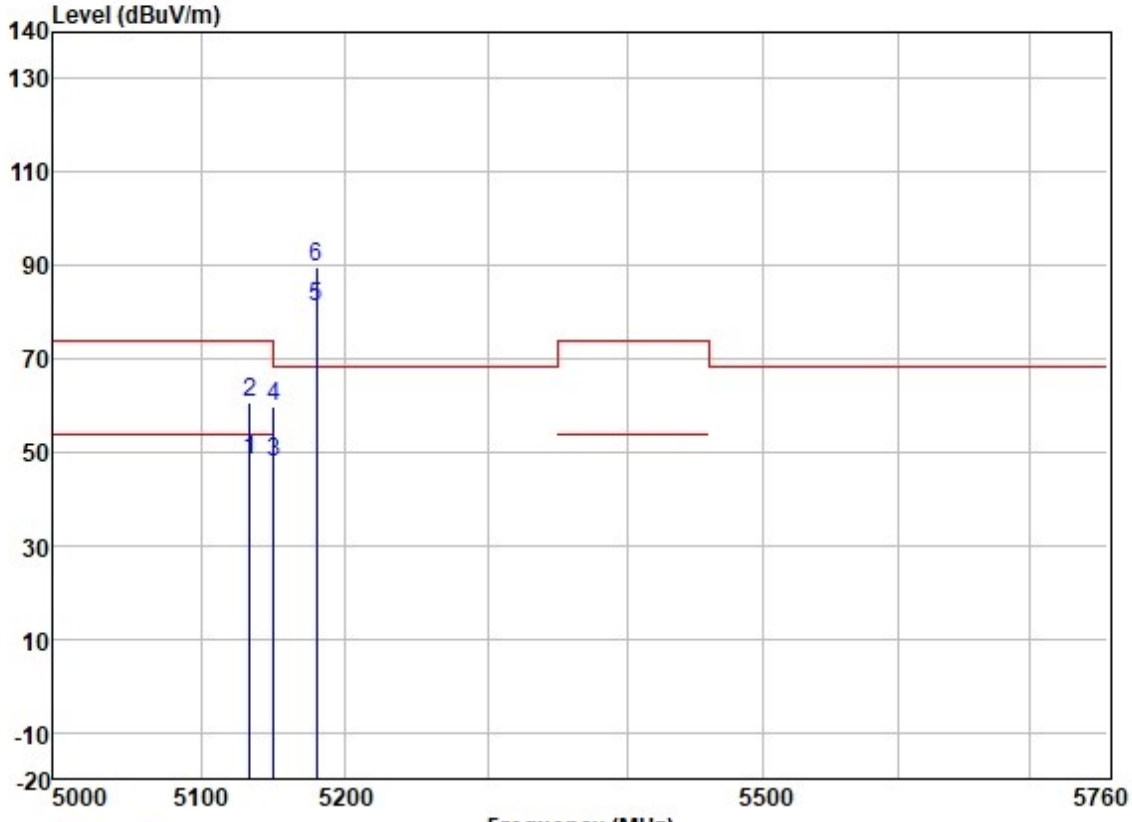
Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5133.683	47.74	31.72	5.63	36.86	48.23	54.00	-5.77	VERTICAL	Average
2	5133.683	60.30	31.72	5.63	36.86	60.79	74.00	-13.21	VERTICAL	Peak
3	5149.980	47.45	31.72	5.62	36.86	47.93	54.00	-6.07	VERTICAL	Average
4	5149.980	59.27	31.72	5.62	36.86	59.75	74.00	-14.25	VERTICAL	Peak
5	5180.000	80.68	31.73	5.61	36.87	81.15	------	------	VERTICAL	Average
6 *	5180.000	89.15	31.73	5.61	36.87	89.62	68.20	21.42	VERTICAL	Peak

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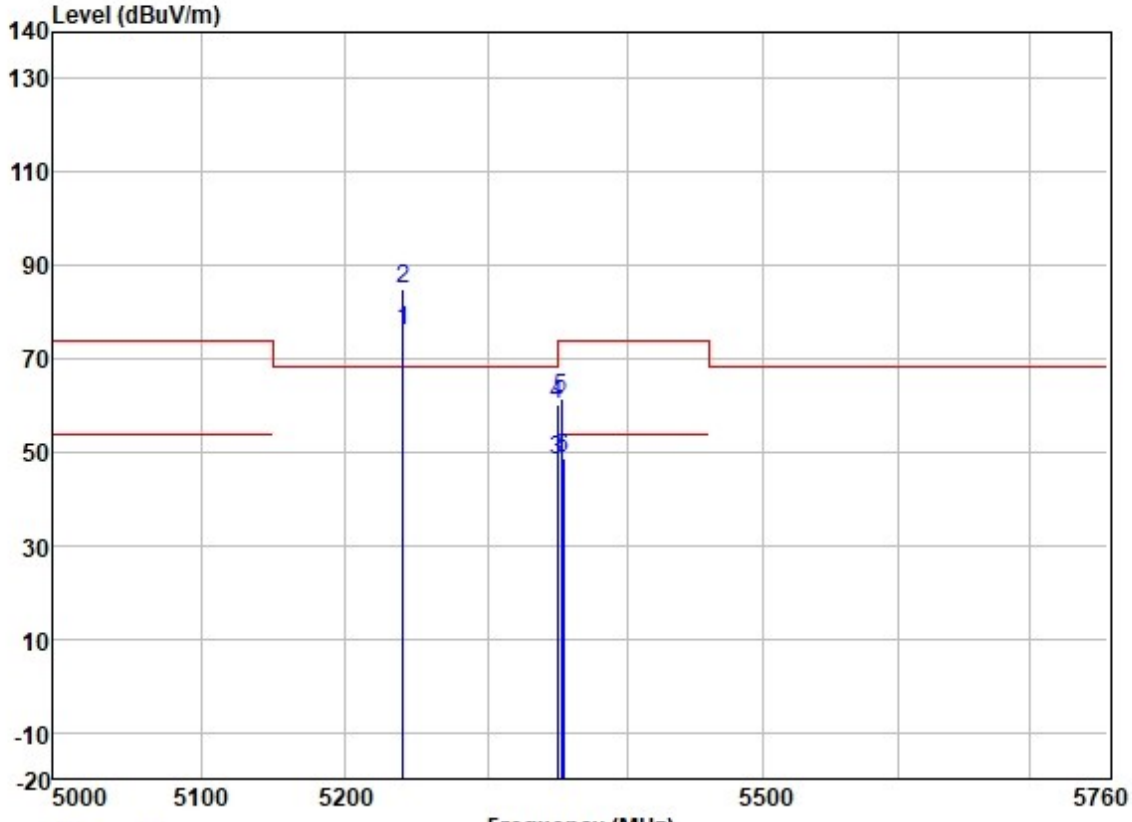
Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5240.000	75.49	31.75	5.74	36.87	76.11	------	------	HORIZONTAL	Average
2 *	5240.000	84.13	31.75	5.74	36.87	84.75	68.20	16.55	HORIZONTAL	Peak
3	5350.020	47.48	31.77	6.05	36.88	48.42	54.00	-5.58	HORIZONTAL	Average
4	5350.020	59.25	31.77	6.05	36.88	60.19	74.00	-13.81	HORIZONTAL	Peak
5	5352.912	60.51	31.77	6.05	36.88	61.45	74.00	-12.55	HORIZONTAL	Peak
6	5353.903	47.84	31.77	6.05	36.88	48.78	54.00	-5.22	HORIZONTAL	Average

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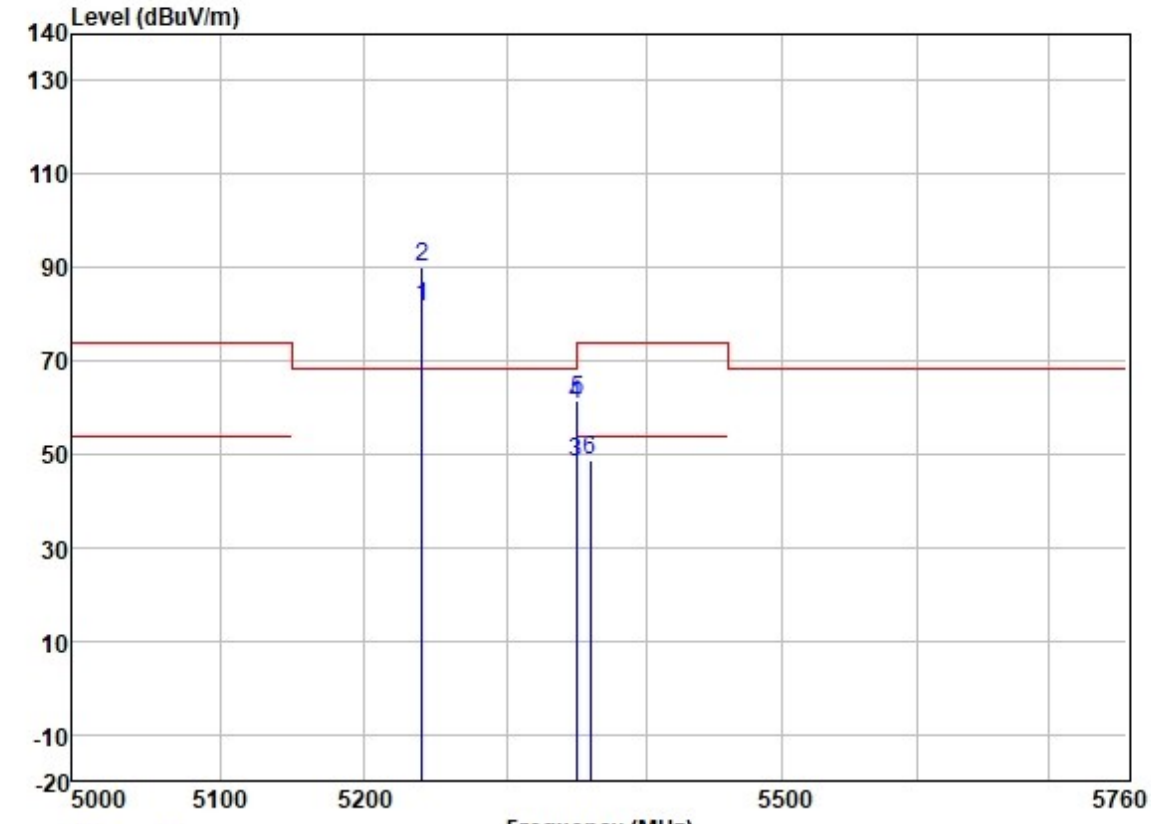
Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5240.000	80.89	31.75	5.74	36.87	81.51	------	------	VERTICAL	Average
2 *	5240.000	89.45	31.75	5.74	36.87	90.07	68.20	21.87	VERTICAL	Peak
3	5350.020	47.50	31.77	6.05	36.88	48.44	54.00	-5.56	VERTICAL	Average
4	5350.020	59.61	31.77	6.05	36.88	60.55	74.00	-13.45	VERTICAL	Peak
5	5350.504	60.57	31.77	6.05	36.88	61.51	74.00	-12.49	VERTICAL	Peak
6	5359.574	47.75	31.78	6.03	36.88	48.68	54.00	-5.32	VERTICAL	Average

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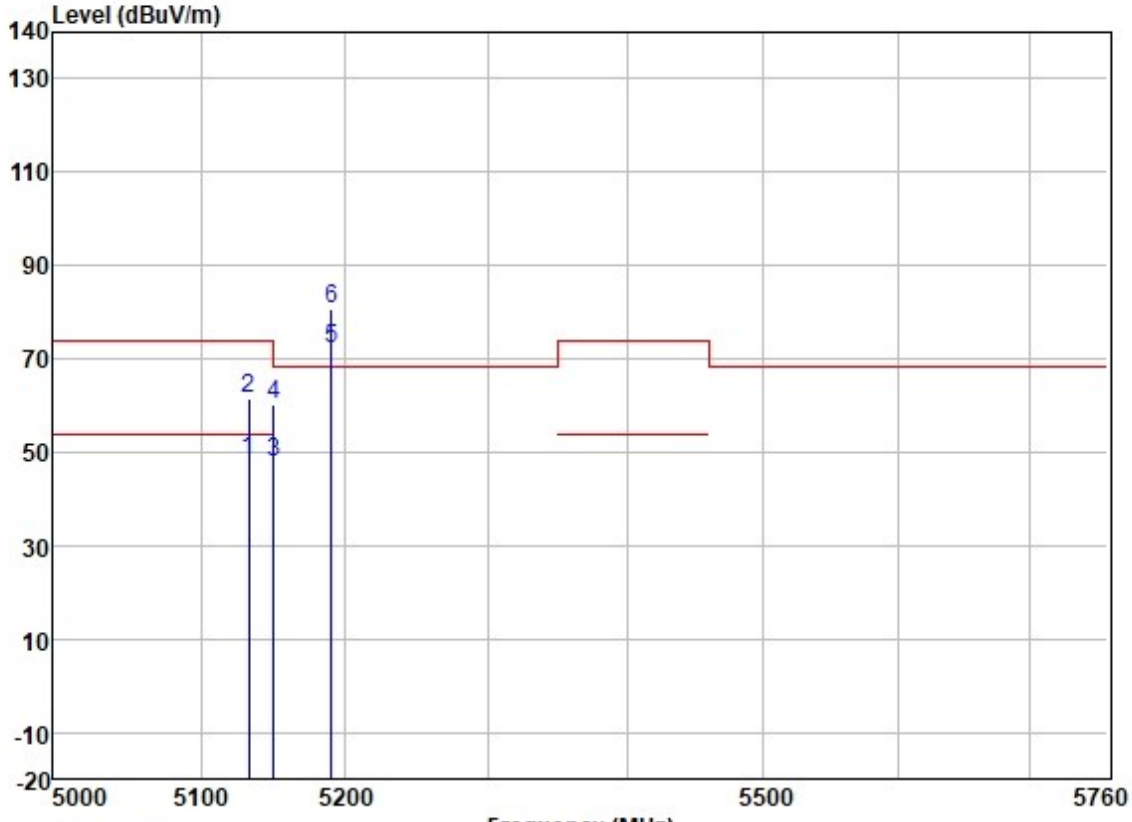
Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5132.842	47.61	31.72	5.63	36.86	48.10	54.00	-5.90	HORIZONTAL	Average
2		5132.842	60.93	31.72	5.63	36.86	61.42	74.00	-12.58	HORIZONTAL	Peak
3		5149.980	47.51	31.72	5.62	36.86	47.99	54.00	-6.01	HORIZONTAL	Average
4		5149.980	59.54	31.72	5.62	36.86	60.02	74.00	-13.98	HORIZONTAL	Peak
5		5190.000	71.74	31.73	5.60	36.87	72.20	------	------	HORIZONTAL	Average
6	*	5190.000	80.44	31.73	5.60	36.87	80.90	68.20	12.70	HORIZONTAL	Peak

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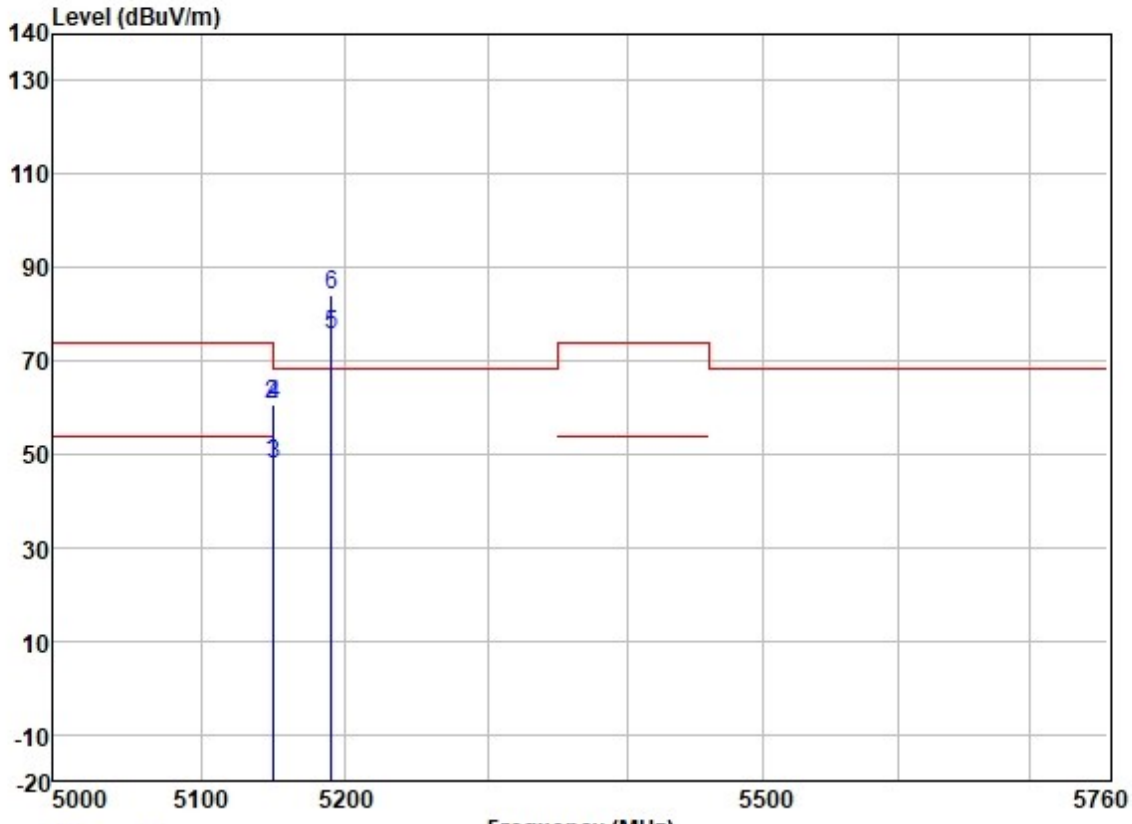
Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5149.461	47.60	31.72	5.62	36.86	48.08	54.00	-5.92	VERTICAL	Average
2	5149.461	60.02	31.72	5.62	36.86	60.50	74.00	-13.50	VERTICAL	Peak
3	5149.980	47.55	31.72	5.62	36.86	48.03	54.00	-5.97	VERTICAL	Average
4	5149.980	59.95	31.72	5.62	36.86	60.43	74.00	-13.57	VERTICAL	Peak
5	5190.000	75.23	31.73	5.60	36.87	75.69	------	------	VERTICAL	Average
6 *	5190.000	83.81	31.73	5.60	36.87	84.27	68.20	16.07	VERTICAL	Peak

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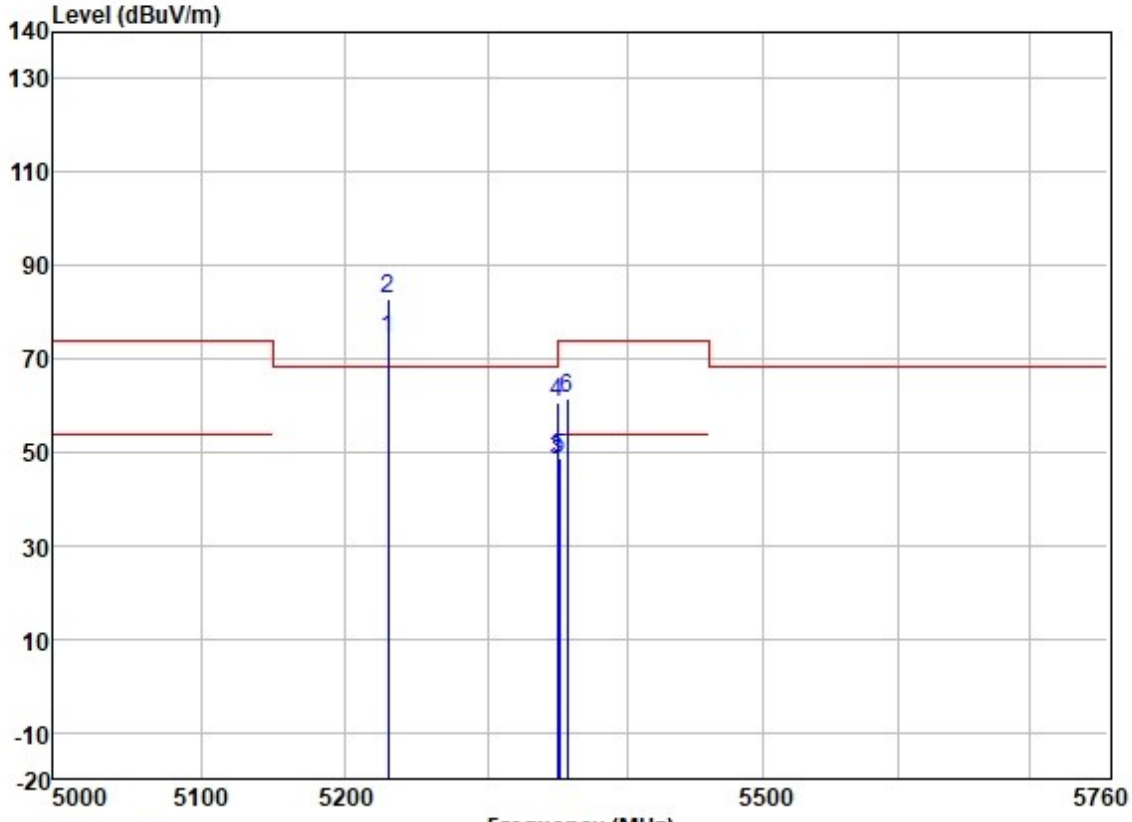
Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5230.000	73.55	31.74	5.70	36.87	74.12	------	------	HORIZONTAL	Average
2 *	5230.000	82.39	31.74	5.70	36.87	82.96	68.20	14.76	HORIZONTAL	Peak
3	5350.020	47.44	31.77	6.05	36.88	48.38	54.00	-5.62	HORIZONTAL	Average
4	5350.020	59.52	31.77	6.05	36.88	60.46	74.00	-13.54	HORIZONTAL	Peak
5	5351.073	47.60	31.77	6.05	36.88	48.54	54.00	-5.46	HORIZONTAL	Average
6	5357.077	60.46	31.78	6.03	36.88	61.39	74.00	-12.61	HORIZONTAL	Peak

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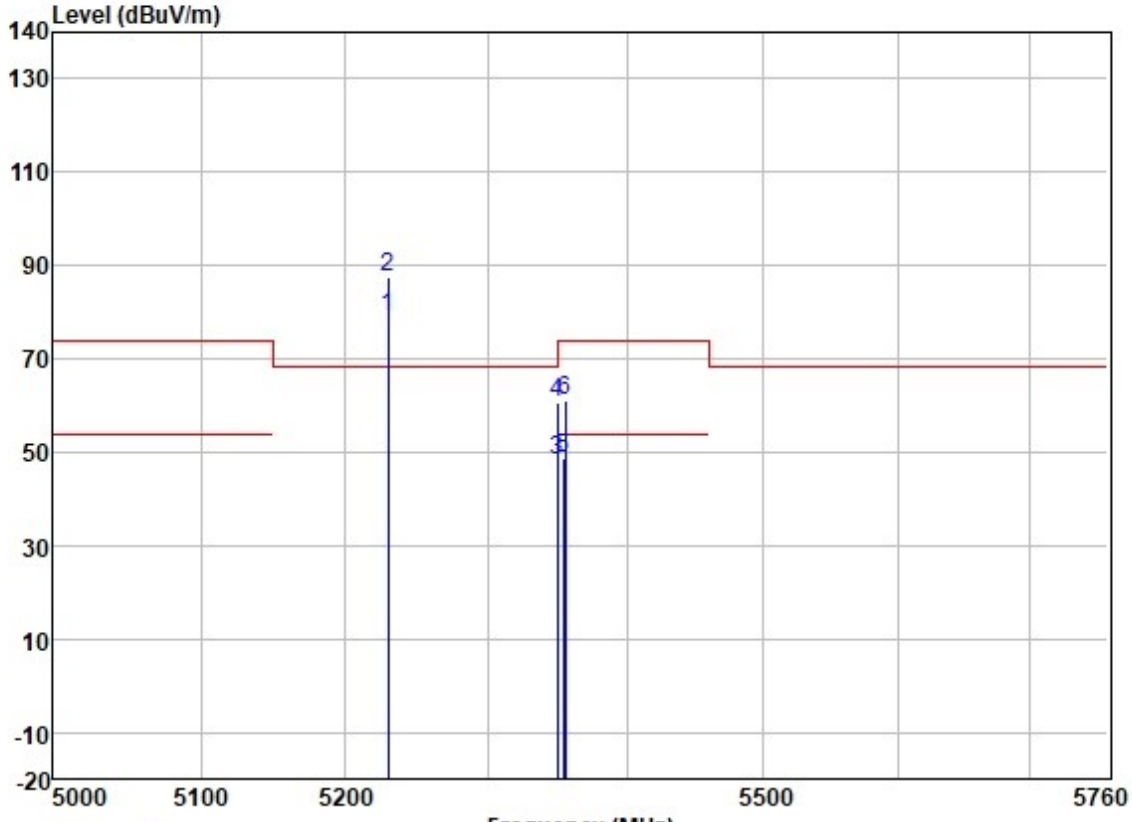
Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5230.000	78.44	31.74	5.70	36.87	79.01	------	------	VERTICAL	Average
2	*	5230.000	86.83	31.74	5.70	36.87	87.40	68.20	19.20	VERTICAL	Peak
3		5350.020	47.44	31.77	6.05	36.88	48.38	54.00	-5.62	VERTICAL	Average
4		5350.020	59.52	31.77	6.05	36.88	60.46	74.00	-13.54	VERTICAL	Peak
5		5354.318	47.61	31.78	6.03	36.88	48.54	54.00	-5.46	VERTICAL	Average
6		5355.616	60.27	31.78	6.03	36.88	61.20	74.00	-12.80	VERTICAL	Peak

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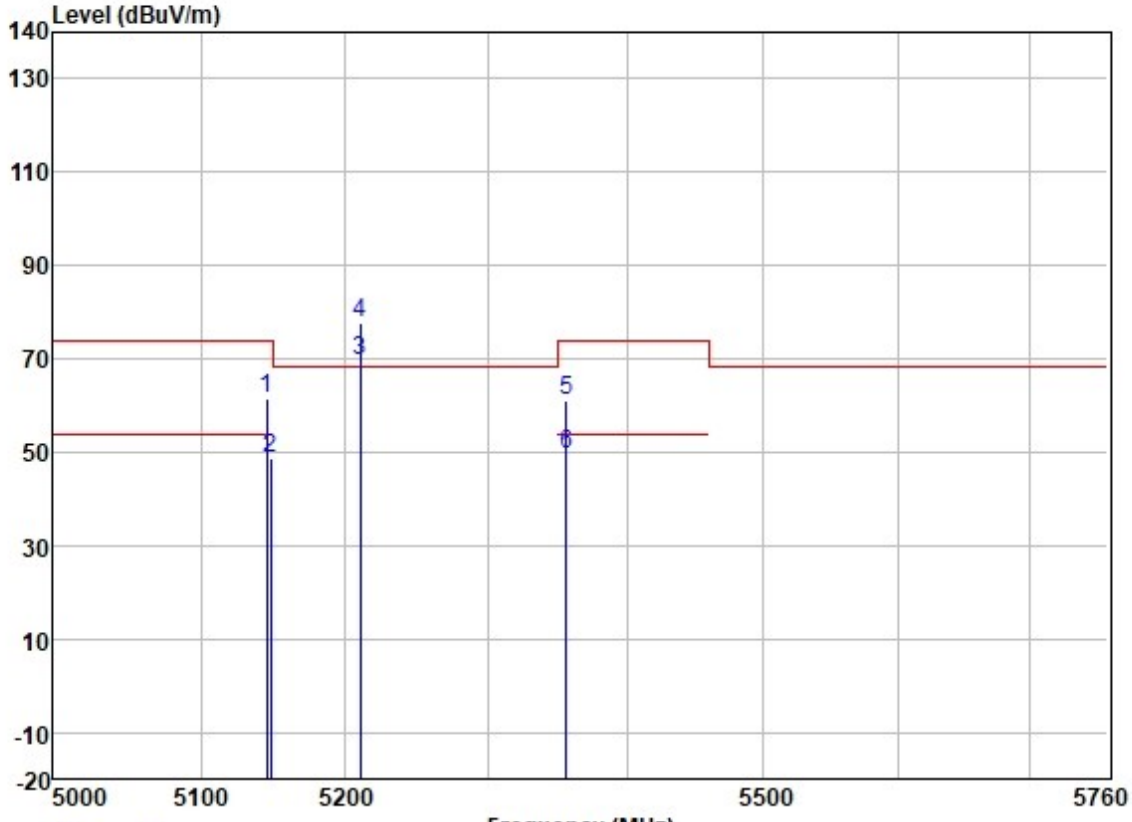
Test Mode: 01; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5145.083	61.08	31.72	5.62	36.86	61.56	74.00	-12.44	HORIZONTAL	Peak
2		5147.643	48.32	31.72	5.62	36.86	48.80	54.00	-5.20	HORIZONTAL	Average
3		5210.000	69.07	31.74	5.65	36.87	69.59	------	------	HORIZONTAL	Average
4	*	5210.000	77.17	31.74	5.65	36.87	77.69	68.20	9.49	HORIZONTAL	Peak
5		5356.004	60.13	31.78	6.03	36.88	61.06	74.00	-12.94	HORIZONTAL	Peak
6		5356.270	48.43	31.78	6.03	36.88	49.36	54.00	-4.64	HORIZONTAL	Average

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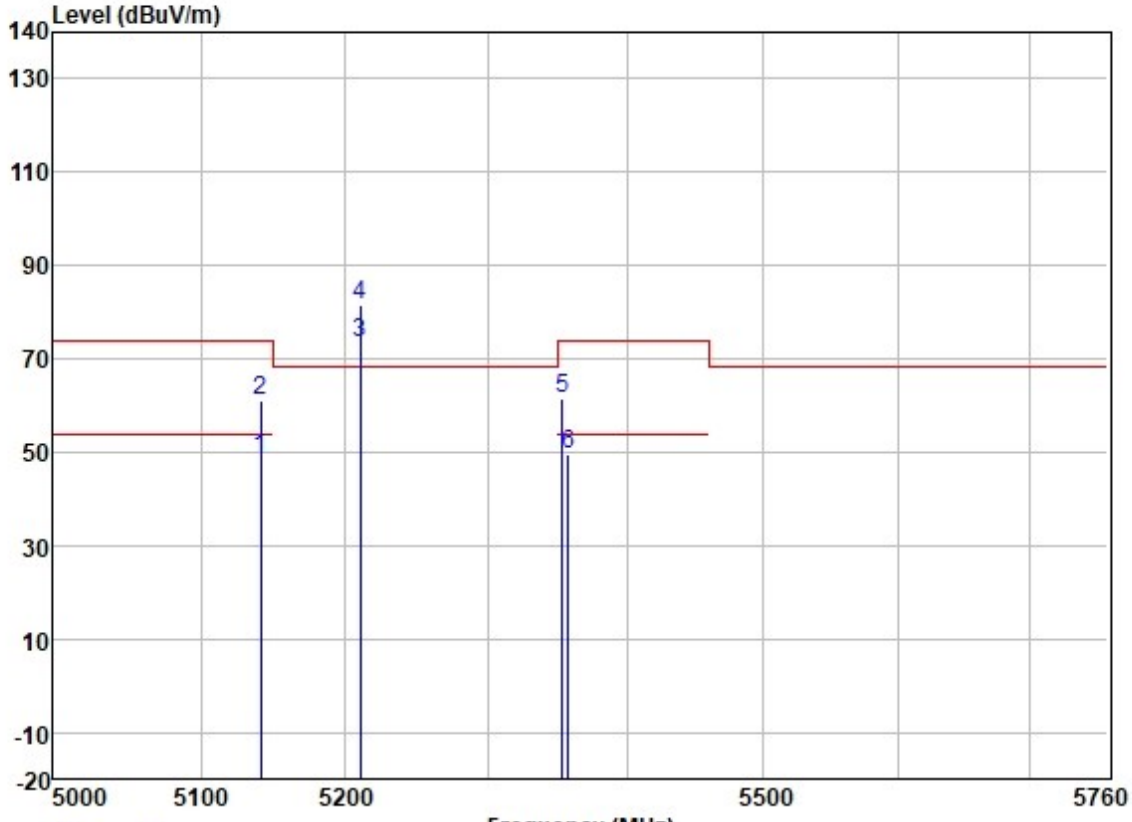
Test Mode: 01; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5141.248	48.22	31.72	5.63	36.86	48.71	54.00	-5.29	VERTICAL	Average
2	5141.248	60.63	31.72	5.63	36.86	61.12	74.00	-12.88	VERTICAL	Peak
3	5210.000	72.84	31.74	5.65	36.87	73.36	------	------	VERTICAL	Average
4 *	5210.000	81.11	31.74	5.65	36.87	81.63	68.20	13.43	VERTICAL	Peak
5	5353.341	60.43	31.77	6.05	36.88	61.37	74.00	-12.63	VERTICAL	Peak
6	5357.868	48.49	31.78	6.03	36.88	49.42	54.00	-4.58	VERTICAL	Average

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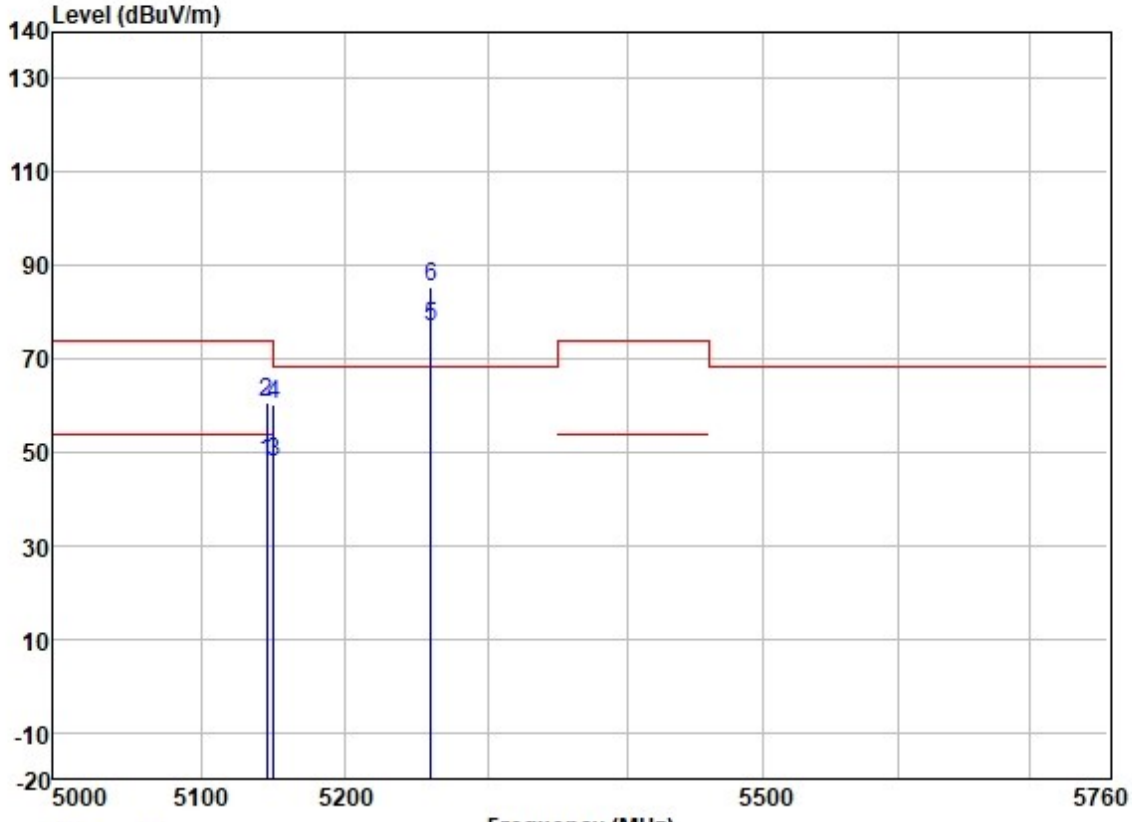
Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5145.309	47.54	31.72	5.62	36.86	48.02	54.00	-5.98	HORIZONTAL	Average
2		5145.309	59.97	31.72	5.62	36.86	60.45	74.00	-13.55	HORIZONTAL	Peak
3		5149.980	47.40	31.72	5.62	36.86	47.88	54.00	-6.12	HORIZONTAL	Average
4		5149.980	59.79	31.72	5.62	36.86	60.27	74.00	-13.73	HORIZONTAL	Peak
5		5260.000	76.37	31.75	5.77	36.87	77.02	------	------	HORIZONTAL	Average
6	*	5260.000	84.90	31.75	5.77	36.87	85.55	68.20	17.35	HORIZONTAL	Peak

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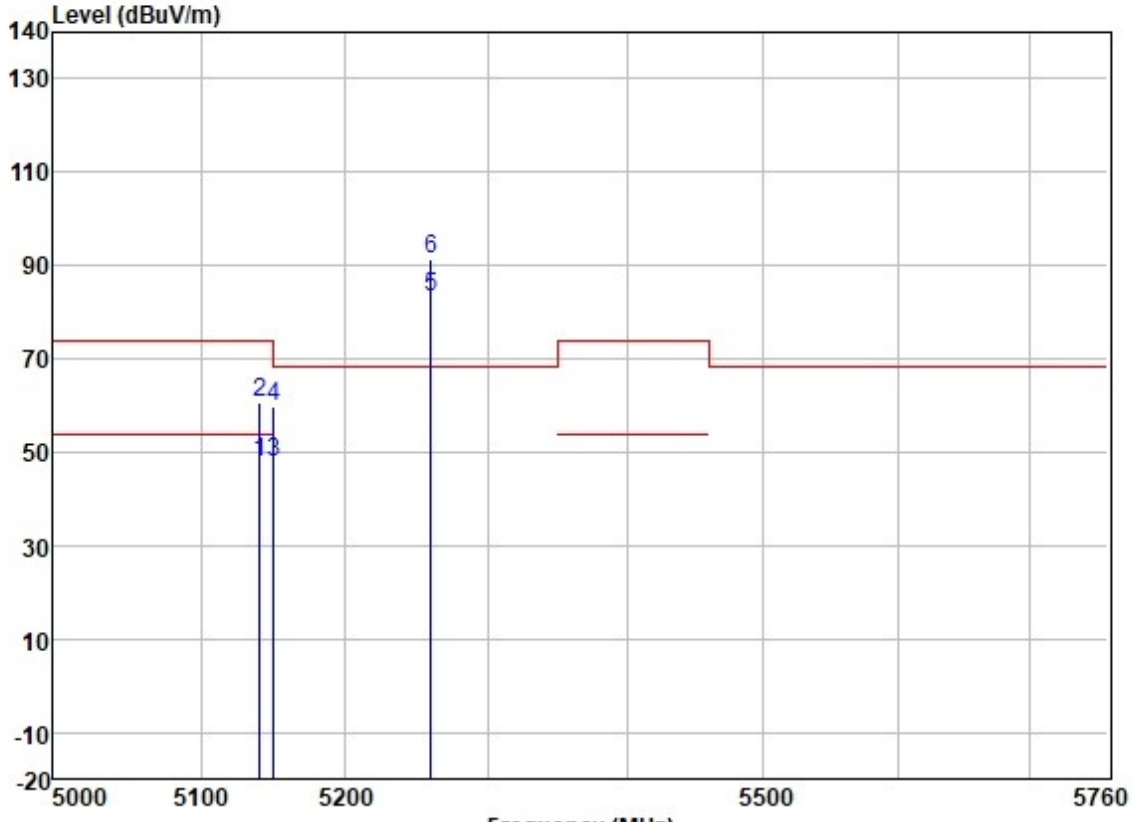
Member of the SGS Group (SGS SA)

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



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5140.670	47.54	31.72	5.63	36.86	48.03	54.00	-5.97	VERTICAL	Average
2	5140.670	60.36	31.72	5.63	36.86	60.85	74.00	-13.15	VERTICAL	Peak
3	5149.980	47.38	31.72	5.62	36.86	47.86	54.00	-6.14	VERTICAL	Average
4	5149.980	59.39	31.72	5.62	36.86	59.87	74.00	-14.13	VERTICAL	Peak
5	5260.000	82.60	31.75	5.77	36.87	83.25	------	------	VERTICAL	Average
6 *	5260.000	90.89	31.75	5.77	36.87	91.54	68.20	23.34	VERTICAL	Peak

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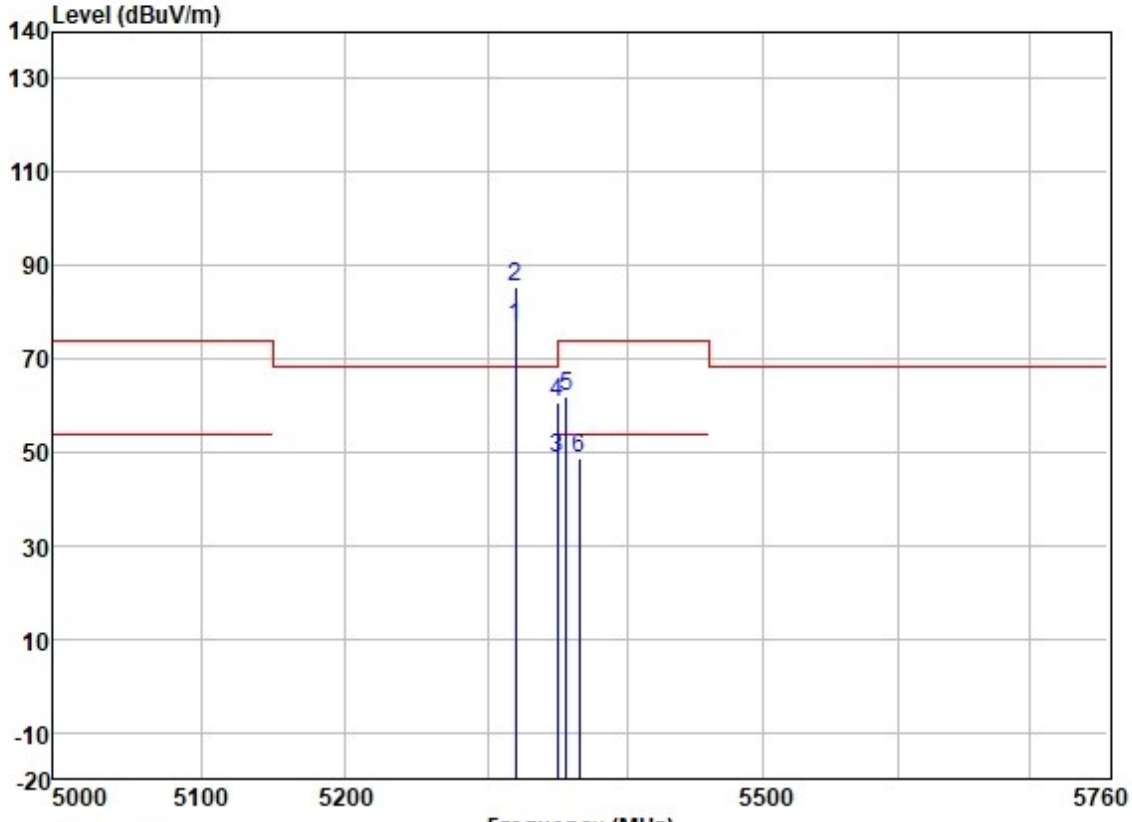
Test Mode: 02; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5320.000	75.67	31.77	6.08	36.88	76.64	------	------	HORIZONTAL	Average
2	*	5320.000	84.46	31.77	6.08	36.88	85.43	68.20	17.23	HORIZONTAL	Peak
3		5350.020	47.55	31.77	6.05	36.88	48.49	54.00	-5.51	HORIZONTAL	Average
4		5350.020	59.59	31.77	6.05	36.88	60.53	74.00	-13.47	HORIZONTAL	Peak
5		5356.170	61.06	31.78	6.03	36.88	61.99	74.00	-12.01	HORIZONTAL	Peak
6		5365.589	47.85	31.78	6.03	36.88	48.78	54.00	-5.22	HORIZONTAL	Average

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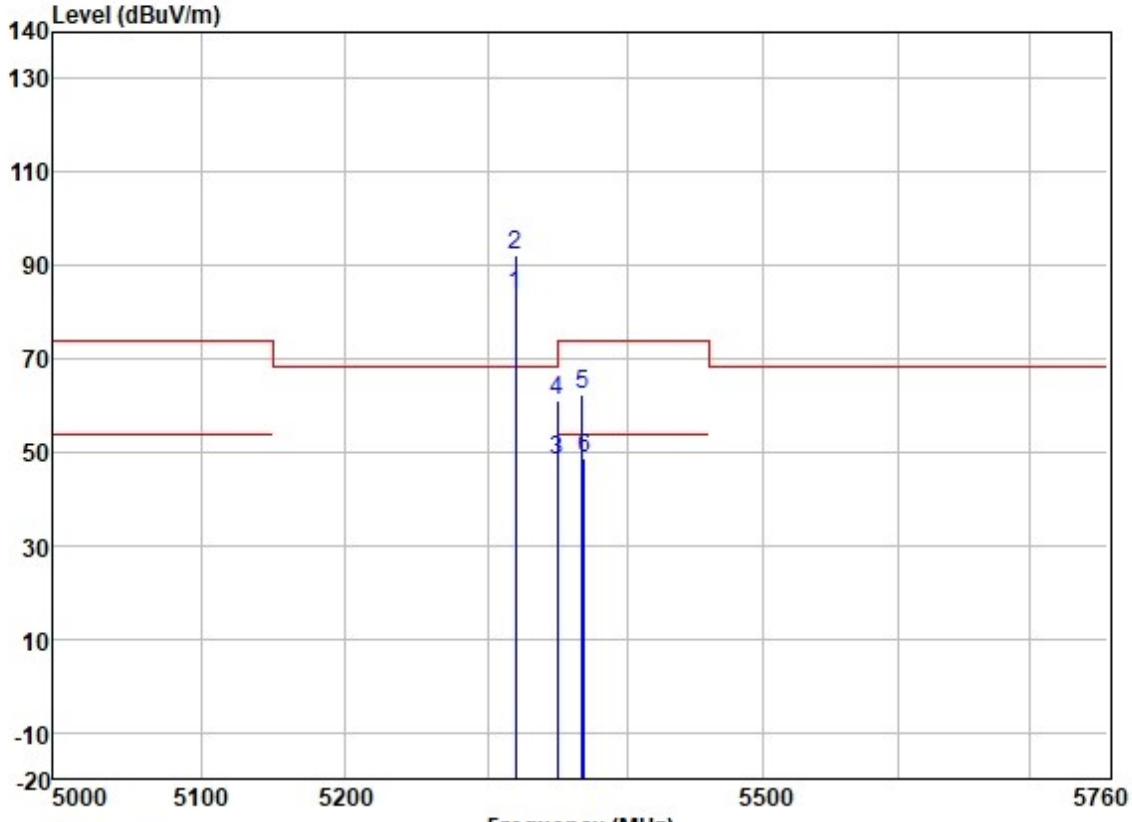
Test Mode: 02; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5320.000	82.65	31.77	6.08	36.88	83.62	------	------	VERTICAL	Average
2 *	5320.000	91.22	31.77	6.08	36.88	92.19	68.20	23.99	VERTICAL	Peak
3	5350.020	47.47	31.77	6.05	36.88	48.41	54.00	-5.59	VERTICAL	Average
4	5350.020	60.30	31.77	6.05	36.88	61.24	74.00	-12.76	VERTICAL	Peak
5	5367.295	61.41	31.78	6.03	36.88	62.34	74.00	-11.66	VERTICAL	Peak
6	5369.000	47.80	31.78	6.03	36.88	48.73	54.00	-5.27	VERTICAL	Average

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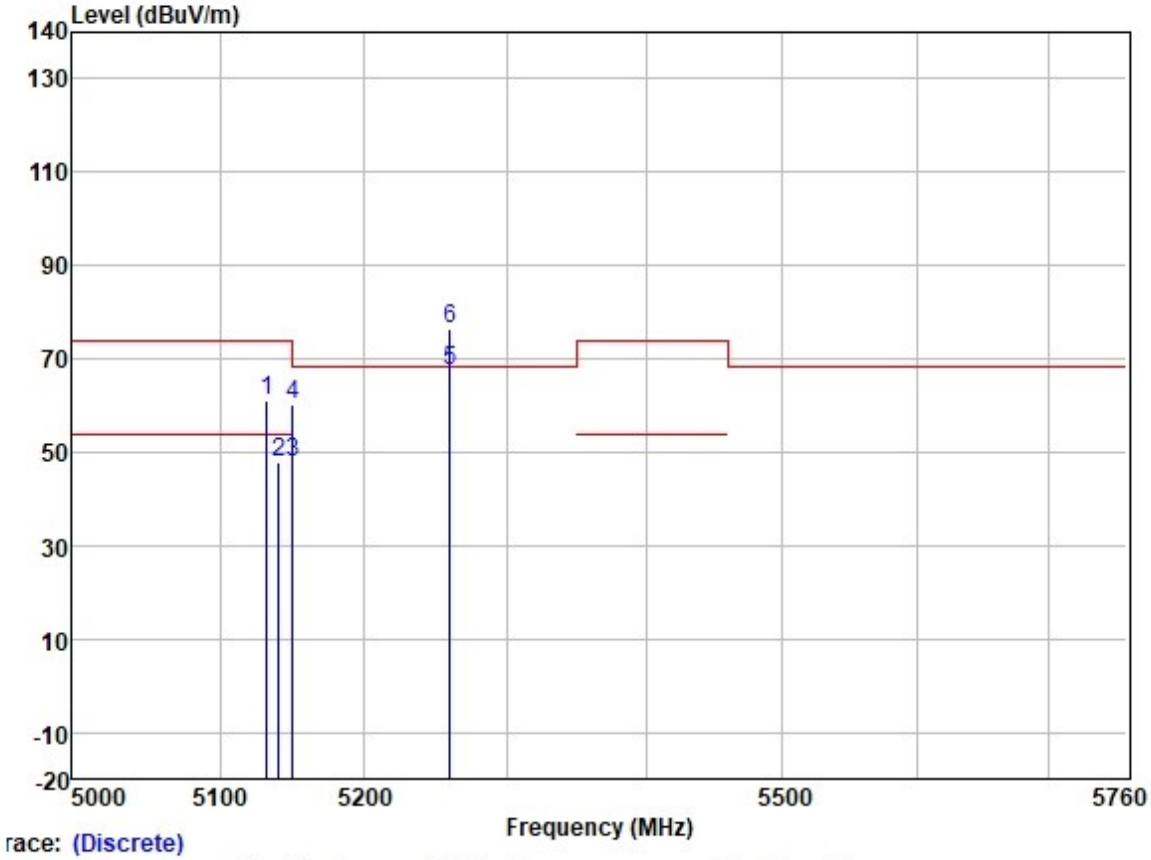
Test Mode: 02; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5132.475	60.57	31.72	5.63	36.86	61.06	74.00	-12.94	HORIZONTAL	Peak
2		5140.492	47.54	31.72	5.63	36.86	48.03	54.00	-5.97	HORIZONTAL	Average
3		5149.980	47.48	31.72	5.62	36.86	47.96	54.00	-6.04	HORIZONTAL	Average
4		5149.980	59.62	31.72	5.62	36.86	60.10	74.00	-13.90	HORIZONTAL	Peak
5		5260.000	66.89	31.75	5.77	36.87	67.54	------	------	HORIZONTAL	Average
6	*	5260.000	75.87	31.75	5.77	36.87	76.52	68.20	8.32	HORIZONTAL	Peak

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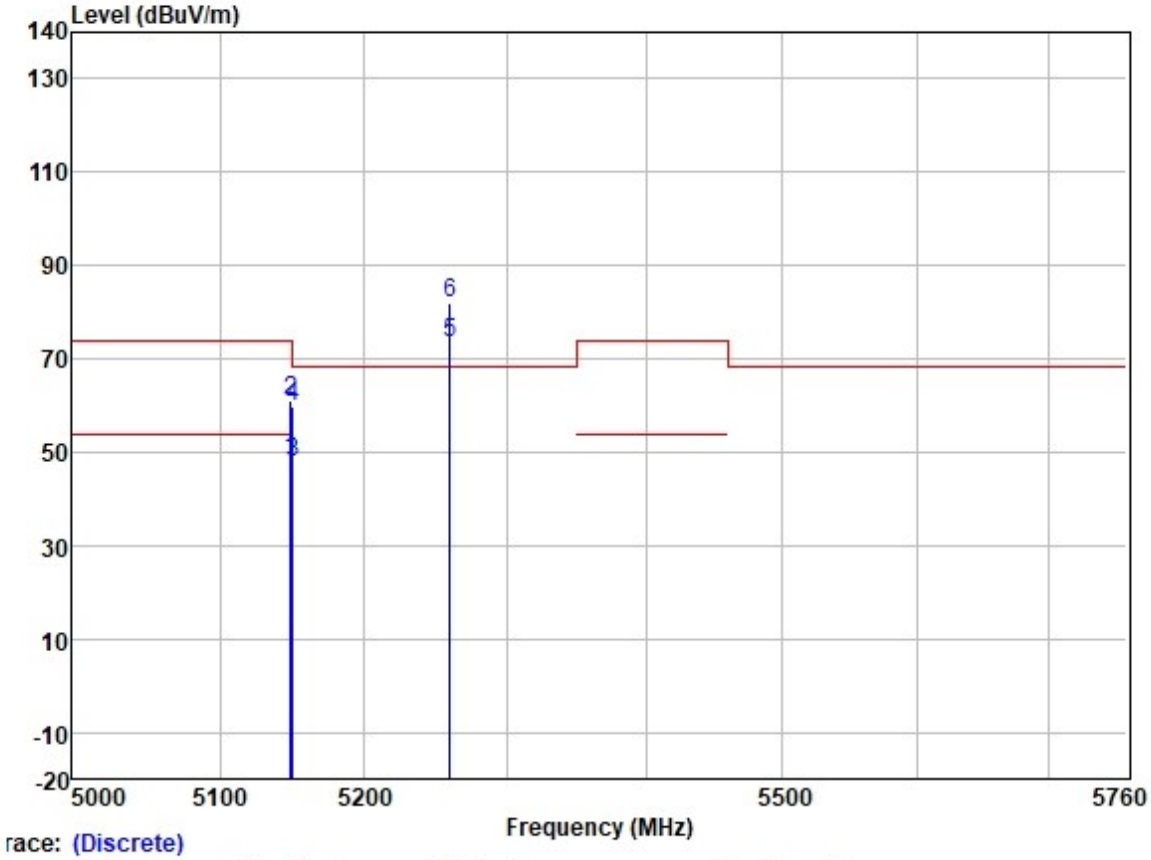
Test Mode: 02; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5148.522	47.63	31.72	5.62	36.86	48.11	54.00	-5.89	VERTICAL	Average
2	5148.522	60.41	31.72	5.62	36.86	60.89	74.00	-13.11	VERTICAL	Peak
3	5149.980	47.34	31.72	5.62	36.86	47.82	54.00	-6.18	VERTICAL	Average
4	5149.980	59.20	31.72	5.62	36.86	59.68	74.00	-14.32	VERTICAL	Peak
5	5260.000	72.95	31.75	5.77	36.87	73.60	------	------	VERTICAL	Average
6 *	5260.000	81.48	31.75	5.77	36.87	82.13	68.20	13.93	VERTICAL	Peak

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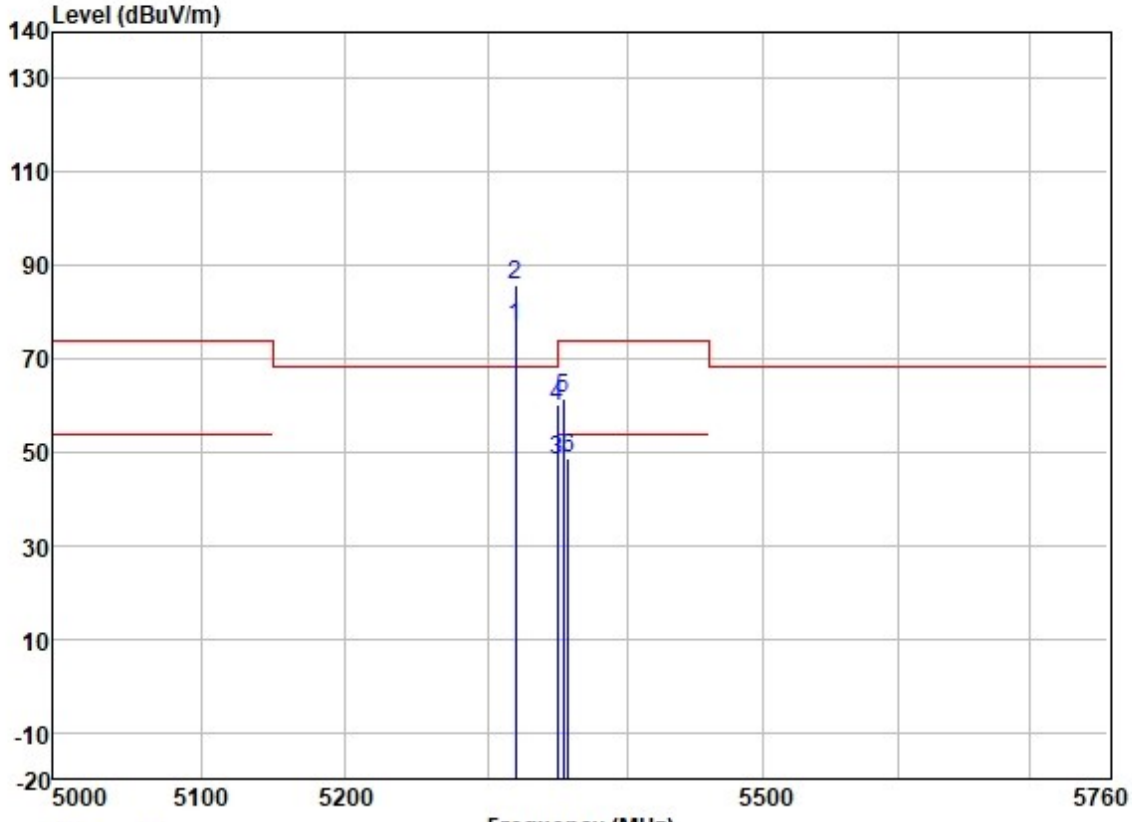
Test Mode: 02; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5320.000	76.08	31.77	6.08	36.88	77.05	------	------	HORIZONTAL	Average
2 *	5320.000	84.96	31.77	6.08	36.88	85.93	68.20	17.73	HORIZONTAL	Peak
3	5350.020	47.43	31.77	6.05	36.88	48.37	54.00	-5.63	HORIZONTAL	Average
4	5350.020	59.06	31.77	6.05	36.88	60.00	74.00	-14.00	HORIZONTAL	Peak
5	5354.168	60.54	31.78	6.03	36.88	61.47	74.00	-12.53	HORIZONTAL	Peak
6	5357.372	47.73	31.78	6.03	36.88	48.66	54.00	-5.34	HORIZONTAL	Average

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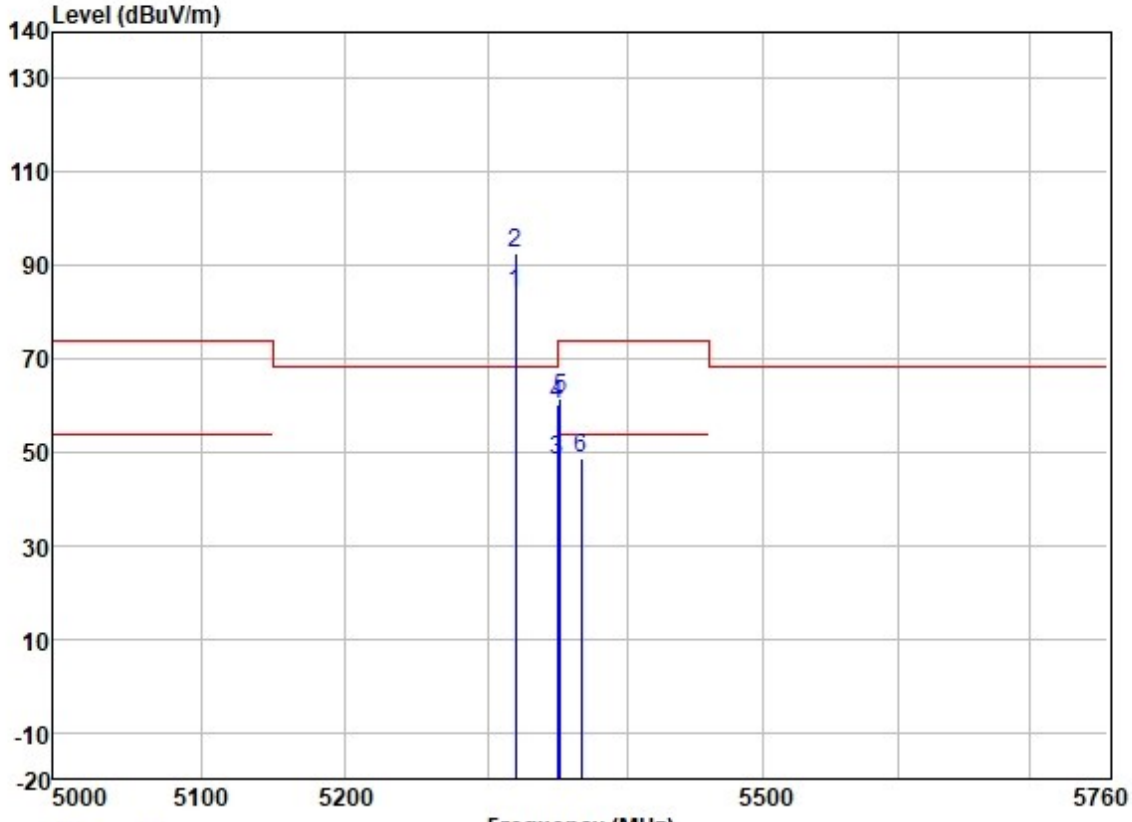
Test Mode: 02; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5320.000	83.08	31.77	6.08	36.88	84.05	------	------	VERTICAL	Average
2 *	5320.000	91.80	31.77	6.08	36.88	92.77	68.20	24.57	VERTICAL	Peak
3	5350.020	47.47	31.77	6.05	36.88	48.41	54.00	-5.59	VERTICAL	Average
4	5350.020	59.25	31.77	6.05	36.88	60.19	74.00	-13.81	VERTICAL	Peak
5	5351.867	60.62	31.77	6.05	36.88	61.56	74.00	-12.44	VERTICAL	Peak
6	5367.094	47.76	31.78	6.03	36.88	48.69	54.00	-5.31	VERTICAL	Average

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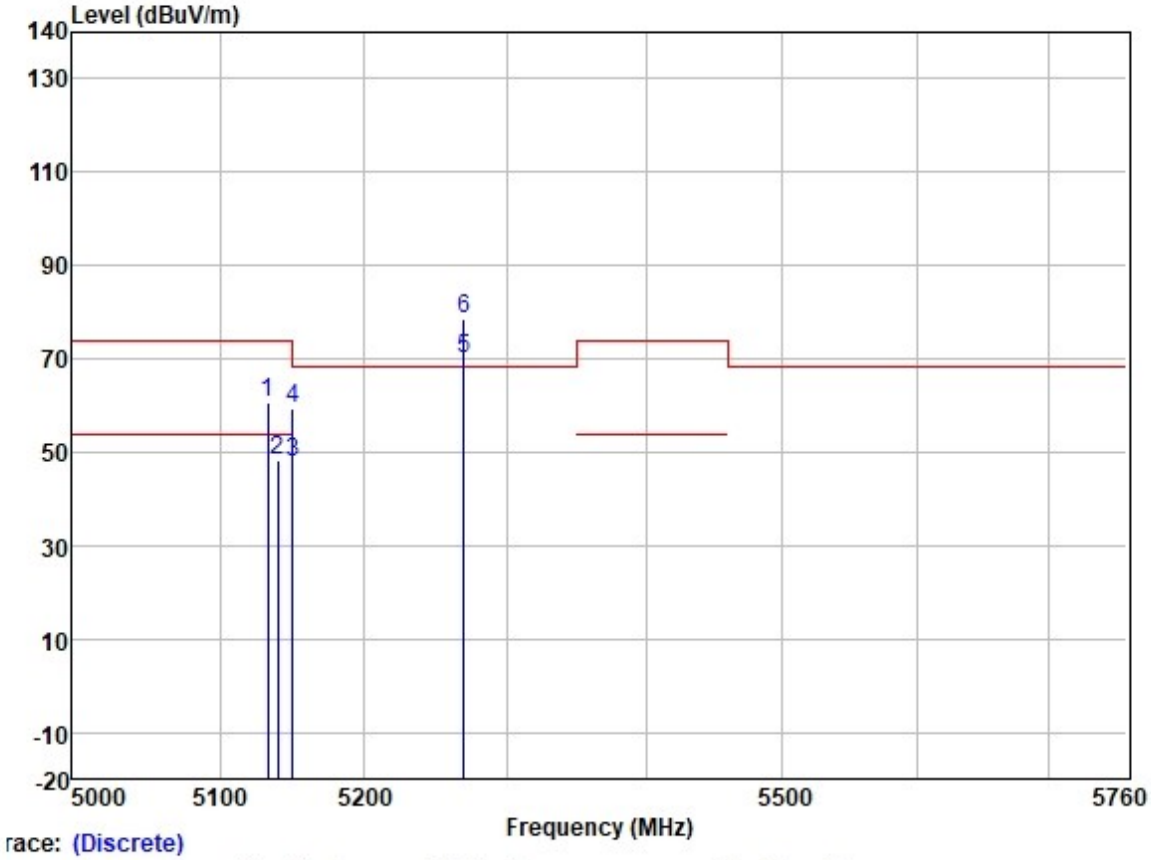
Test Mode: 02; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5132.867	60.06	31.72	5.63	36.86	60.55	74.00	-13.45	HORIZONTAL	Peak
2		5139.980	47.62	31.72	5.63	36.86	48.11	54.00	-5.89	HORIZONTAL	Average
3		5149.980	47.26	31.72	5.62	36.86	47.74	54.00	-6.26	HORIZONTAL	Average
4		5149.980	58.82	31.72	5.62	36.86	59.30	74.00	-14.70	HORIZONTAL	Peak
5		5270.000	69.55	31.75	5.80	36.87	70.23	------	------	HORIZONTAL	Average
6	*	5270.000	77.96	31.75	5.80	36.87	78.64	68.20	10.44	HORIZONTAL	Peak

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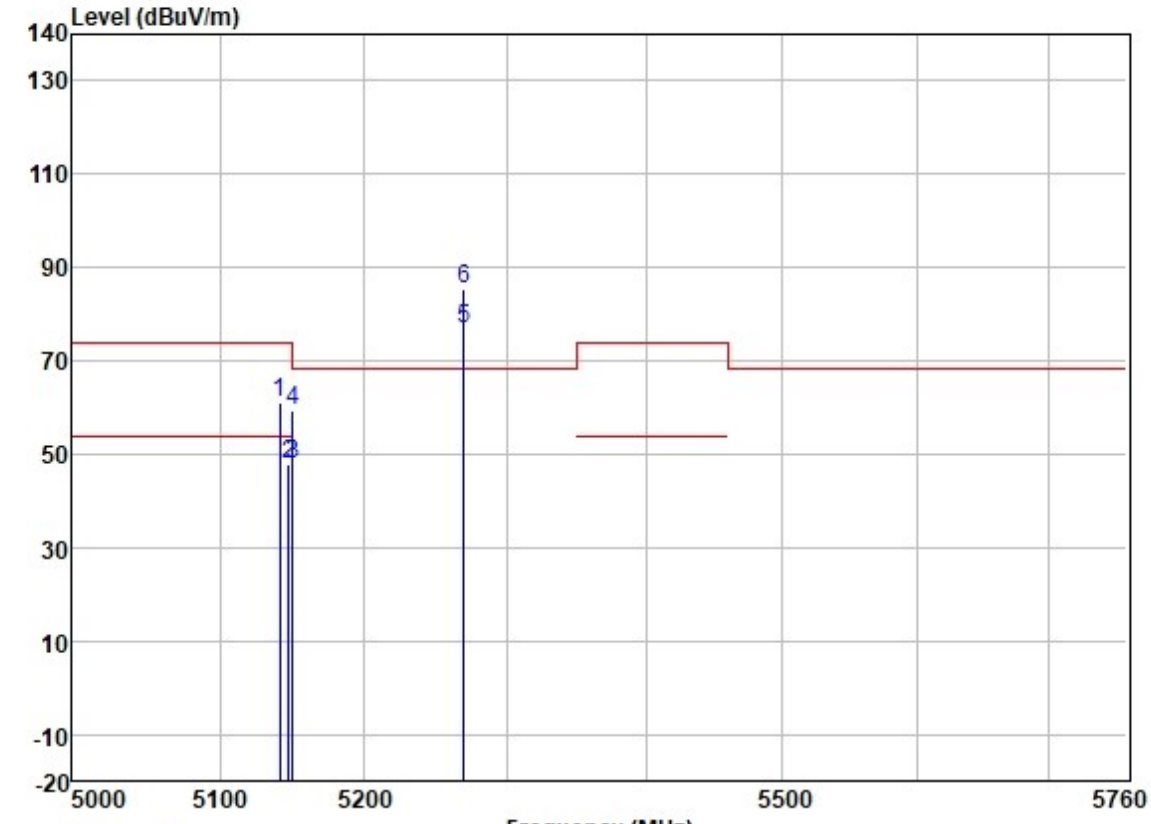
Test Mode: 02; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5141.167	60.37	31.72	5.63	36.86	60.86	74.00	-13.14	VERTICAL	Peak
2		5147.499	47.54	31.72	5.62	36.86	48.02	54.00	-5.98	VERTICAL	Average
3		5149.980	47.43	31.72	5.62	36.86	47.91	54.00	-6.09	VERTICAL	Average
4		5149.980	58.75	31.72	5.62	36.86	59.23	74.00	-14.77	VERTICAL	Peak
5		5270.000	76.27	31.75	5.80	36.87	76.95	------	------	VERTICAL	Average
6	*	5270.000	84.76	31.75	5.80	36.87	85.44	68.20	17.24	VERTICAL	Peak

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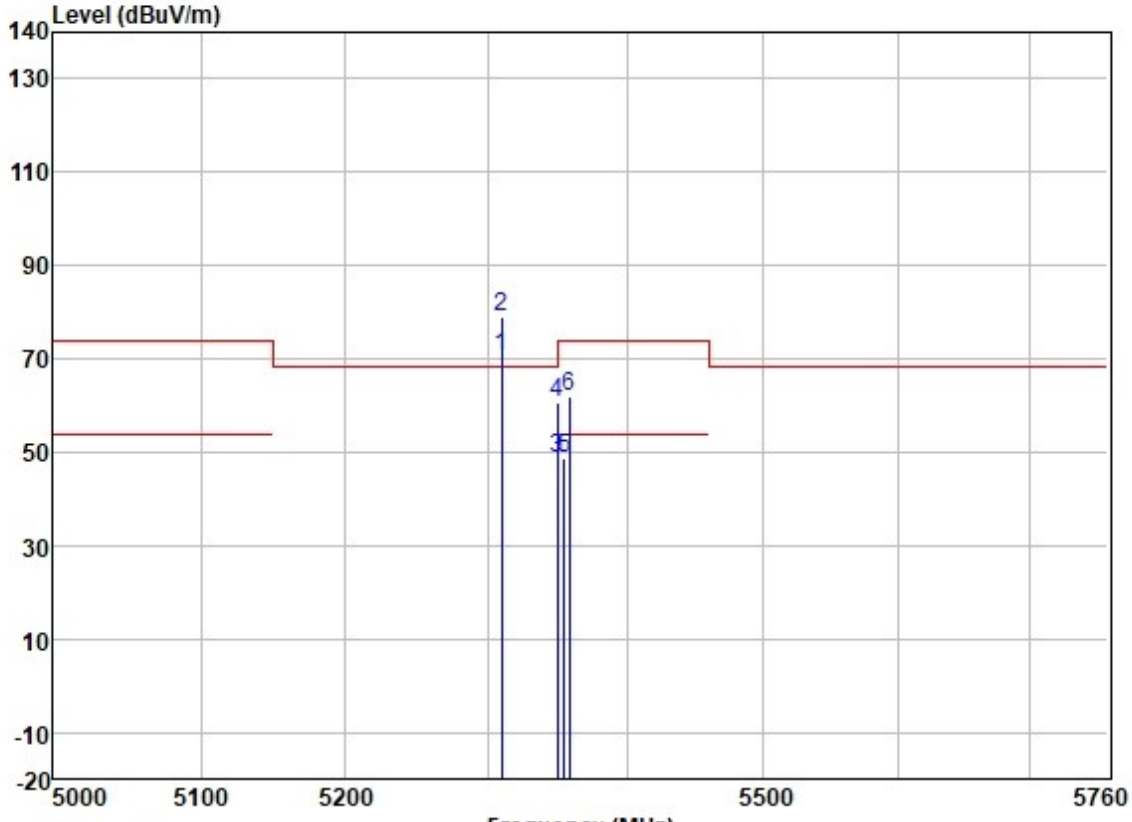
Test Mode: 02; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

		Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
		MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1		5310.000	69.35	31.77	6.08	36.87	70.33	------	------	HORIZONTAL	Average
2	*	5310.000	77.90	31.77	6.08	36.87	78.88	68.20	10.68	HORIZONTAL	Peak
3		5350.020	47.56	31.77	6.05	36.88	48.50	54.00	-5.50	HORIZONTAL	Average
4		5350.020	59.79	31.77	6.05	36.88	60.73	74.00	-13.27	HORIZONTAL	Peak
5		5355.045	47.76	31.78	6.03	36.88	48.69	54.00	-5.31	HORIZONTAL	Average
6		5358.416	60.86	31.78	6.03	36.88	61.79	74.00	-12.21	HORIZONTAL	Peak

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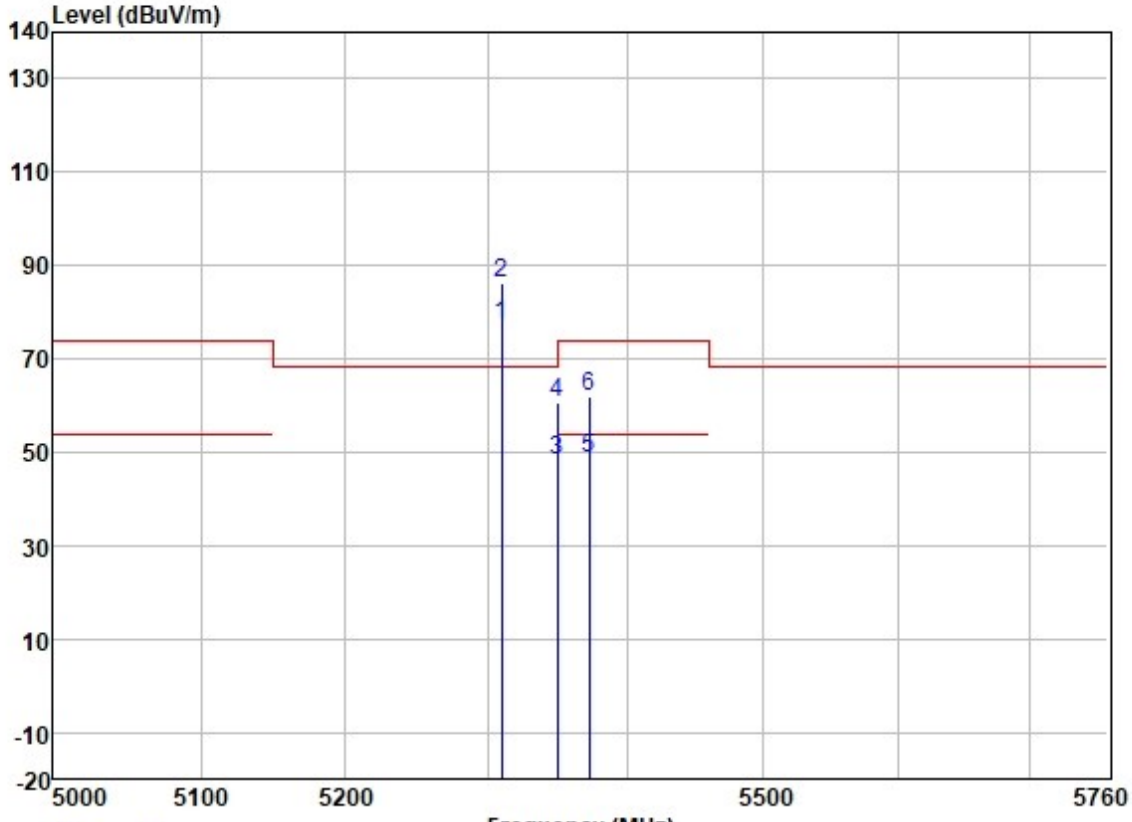
Test Mode: 02; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5310.000	76.21	31.77	6.08	36.87	77.19	------	------	VERTICAL	Average
2 *	5310.000	85.15	31.77	6.08	36.87	86.13	68.20	17.93	VERTICAL	Peak
3	5350.020	47.53	31.77	6.05	36.88	48.47	54.00	-5.53	VERTICAL	Average
4	5350.020	59.54	31.77	6.05	36.88	60.48	74.00	-13.52	VERTICAL	Peak
5	5373.006	47.77	31.78	6.02	36.88	48.69	54.00	-5.31	VERTICAL	Average
6	5373.006	61.12	31.78	6.02	36.88	62.04	74.00	-11.96	VERTICAL	Peak

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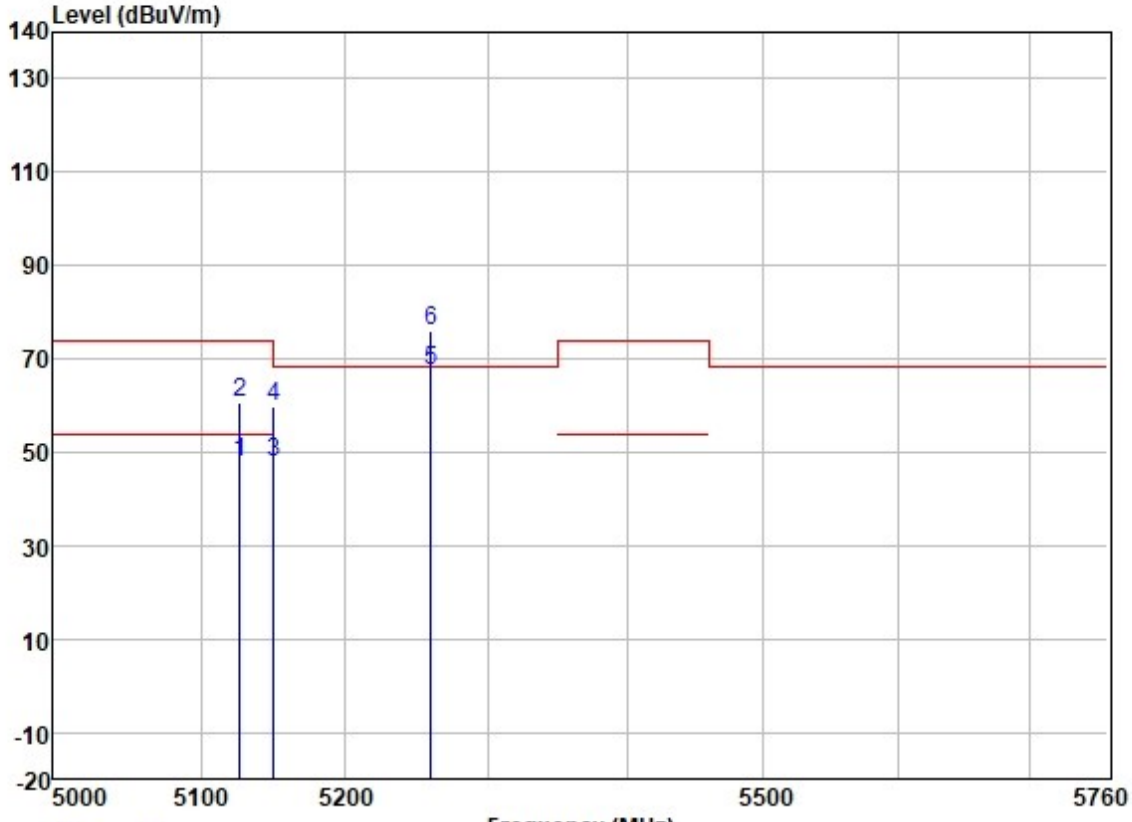
Test Mode: 02; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5126.426	47.54	31.72	5.64	36.86	48.04	54.00	-5.96	HORIZONTAL	Average
2	5126.426	60.34	31.72	5.64	36.86	60.84	74.00	-13.16	HORIZONTAL	Peak
3	5149.980	47.39	31.72	5.62	36.86	47.87	54.00	-6.13	HORIZONTAL	Average
4	5149.980	59.45	31.72	5.62	36.86	59.93	74.00	-14.07	HORIZONTAL	Peak
5	5260.000	66.86	31.75	5.77	36.87	67.51	------	------	HORIZONTAL	Average
6 *	5260.000	75.38	31.75	5.77	36.87	76.03	68.20	7.83	HORIZONTAL	Peak

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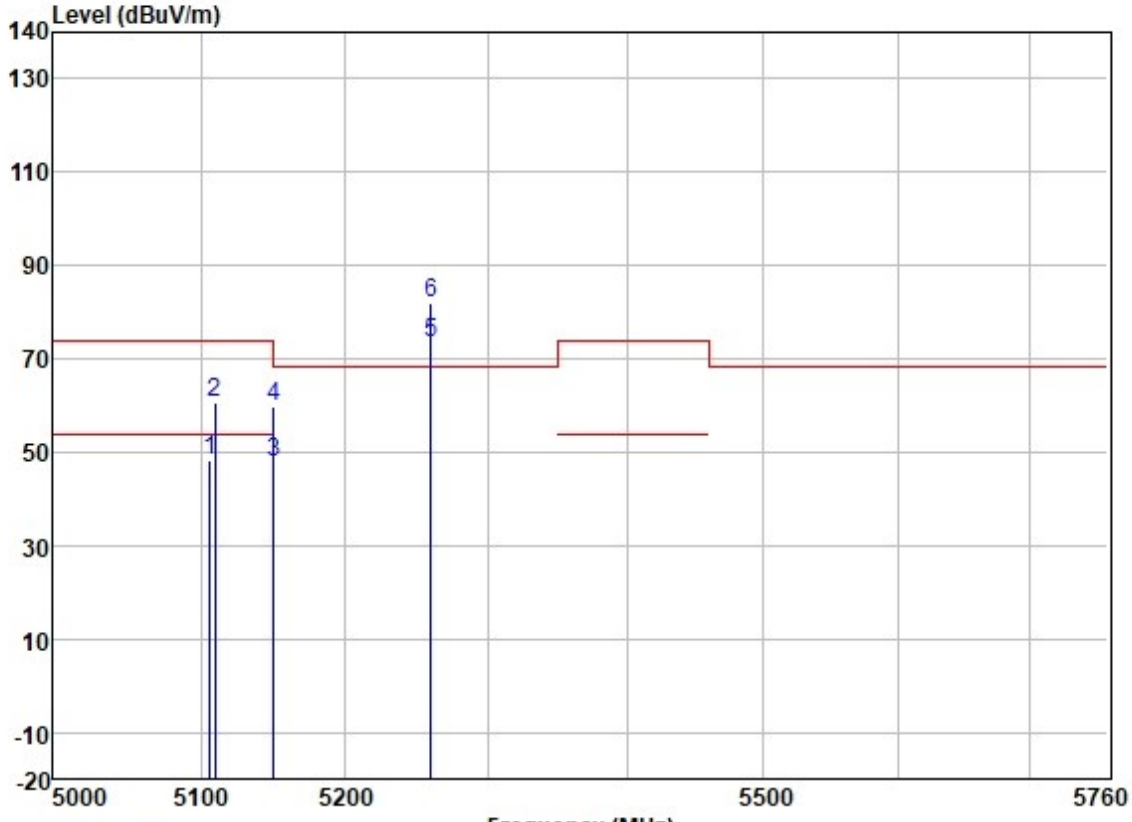
Test Mode: 02; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



race: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5106.018	47.57	31.72	5.65	36.86	48.08	54.00	-5.92	VERTICAL	Average
2	5109.739	60.11	31.72	5.65	36.86	60.62	74.00	-13.38	VERTICAL	Peak
3	5149.980	47.39	31.72	5.62	36.86	47.87	54.00	-6.13	VERTICAL	Average
4	5149.980	59.16	31.72	5.62	36.86	59.64	74.00	-14.36	VERTICAL	Peak
5	5260.000	72.89	31.75	5.77	36.87	73.54	------	------	VERTICAL	Average
6 *	5260.000	81.49	31.75	5.77	36.87	82.14	68.20	13.94	VERTICAL	Peak

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