



Report No.: GZCR210300000605

Page: 1 of 124

FCC ID: 2ACIX-PAN

TEST REPORT

Application No.: GZCR2103000006AT
Applicant: B & W Group Ltd
Address of Applicant: Dale Road, Worthing, West Sussex BN11 2BH, United Kingdom
Manufacturer: B & W Group Ltd
Address of Manufacturer: Dale Road, Worthing, West Sussex BN11 2BH, United Kingdom
Factory: Guoguang Electric Co., Ltd.
Address of Factory: No.8 Jinghu Road, Xinya Street, Huadu Reg, Guangzhou, China
Equipment Under Test (EUT):
EUT Name: Wireless Active Soundbar
Model No.: Panorama 3
Trade mark: Bowers & Wilkins
Standard(s) : 47 CFR Part 15, Subpart E 15.407
Date of Receipt: 2021-03-09
Date of Test: 2021-03-19 to 2021-03-28
Date of Issue: 2021-04-19

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

Kobe Jian
EMC Laboratory Manager



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Guangzhou Branch EMC Laboratory

No.198 Kezhu Road, Sciotech Park, Guangzhou Economic & Technology Development District, Guangzhou, China 510663 t (86-20) 82155555 f (86-20) 82075058 www.sgs.com.cn
中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

Revision Record				
Version	Chapter	Date	Modifier	Remark
01		2021-04-19		Original

Authorized for issue by			
Tested By			
		Curry Wu/Project Engineer	
Reviewed By			
		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	47 CFR Part 15, Subpart E 15.407	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 (8)	Pass
Duty Cycle	47 CFR Part 15, Subpart E 15.407	KDB 789033 II B 1	KDB 789033 D02 II B 1	Pass
99% Bandwidth	47 CFR Part 15, Subpart E 15.407	KDB 789033 II D	N/A	Pass
26dB Emission bandwidth	47 CFR Part 15, Subpart E 15.407	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)	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II C 2	47 CFR Part 15, Subpart C 15.407 (e)	Pass
Maximum Conducted output power	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II E	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Peak Power spectrum density	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II F	47 CFR Part 15, Subpart C 15.407 (a)	Pass
Radiated Emissions	47 CFR Part 15, Subpart E 15.407	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	47 CFR Part 15, Subpart E 15.407	KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & 15.407(b)	Pass
Frequency Stability	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart C 15.407 (g)	Pass
DFS: Non-occupancy period	47 CFR Part 15, Subpart E 15.407	KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
DFS: Channel Move Time	47 CFR Part 15, Subpart E 15.407	KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	Pass
DFS: Channel Closing Transmission Time	47 CFR Part 15, Subpart E 15.407	KDB 905462 D02 Section 7.8.3	KDB 905462 D02 Section 5.1	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. KDB detailed version KDB 789033 D02 General U-NII Test Procedures New Rules v02r01.

KDB 905462 D02 UNII DFS Compliance Procedures New Rules v02.



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3 Contents

	Page
1 Cover Page	1
2 Test Summary.....	3
3 Contents	4
4 General Information.....	6
4.1 Details of E.U.T.	6
4.2 Description of Support Units.....	8
4.3 Measurement Uncertainty	8
4.4 Test Location	9
4.5 Test Facility.....	10
4.6 Deviation from Standards.....	11
4.7 Abnormalities from Standard Conditions.....	11
5 Equipment List	12
6 Radio Spectrum Technical Requirement.....	14
6.1 Antenna Requirement	14
6.1.1 Test Requirement:	14
6.2 Transmission in the Absence of Data	15
6.2.1 Test Requirement:	15
7 Radio Spectrum Matter Test Results.....	16
7.1 Conducted Emissions at AC Power Line (150kHz-30MHz)	16
7.1.1 E.U.T. Operation	16
7.1.2 Test Mode Description	17
7.1.3 Test Setup Diagram	18
7.1.4 Measurement Procedure and Data.....	18
7.2 Duty Cycle	21
7.2.1 E.U.T. Operation	21
7.2.2 Test Mode Description	21
7.2.3 Test Setup Diagram	22
7.2.4 Measurement Procedure and Data.....	22
7.3 99% Bandwidth	23
7.3.1 E.U.T. Operation	23
7.3.2 Test Mode Description	23
7.3.3 Test Setup Diagram	24
7.3.4 Measurement Procedure and Data.....	24
7.4 26dB Emission bandwidth	25
7.4.1 E.U.T. Operation	25
7.4.2 Test Mode Description	25
7.4.3 Test Setup Diagram	26
7.4.4 Measurement Procedure and Data.....	26
7.5 Minimum 6 dB bandwidth (5.725-5.85 GHz band)	27
7.5.1 E.U.T. Operation	27
7.5.2 Test Mode Description	27



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7.5.3	Test Setup Diagram	27
7.5.4	Measurement Procedure and Data	27
7.6	Maximum Conducted output power	28
7.6.1	E.U.T. Operation	28
7.6.2	Test Mode Description	29
7.6.3	Test Setup Diagram	30
7.6.4	Measurement Procedure and Data	30
7.7	Peak Power spectrum density	31
7.7.1	E.U.T. Operation	31
7.7.2	Test Mode Description	32
7.7.3	Test Setup Diagram	33
7.7.4	Measurement Procedure and Data	33
7.8	Undesirable radiated Emissions	34
7.8.1	E.U.T. Operation	35
7.8.2	Test Mode Description	35
7.8.3	Test Setup Diagram	36
7.8.4	Measurement Procedure and Data	37
7.9	Restricted bands emissions and emission around fundamental frequency	80
7.9.1	E.U.T. Operation	81
7.9.2	Test Mode Description	81
7.9.3	Test Setup Diagram	82
7.9.4	Measurement Procedure and Data	82
7.10	Frequency Stability	118
7.10.1	E.U.T. Operation	118
7.10.2	Test Setup Diagram	118
7.10.3	Measurement Procedure and Data	118
7.11	Channel Move Time and Non-occupancy period	119
7.11.1	E.U.T. Operation	119
7.11.2	Test Setup Diagram	120
7.11.3	Measurement Procedure and Data	121
7.12	Channel Closing Transmission Time	122
7.12.1	E.U.T. Operation	122
7.12.2	Test Setup Diagram	123
7.12.3	Measurement Procedure and Data	124



4 General Information

4.1 Details of E.U.T.

Power supply: AC 100-240V 50/60Hz 100W
Cable(s): about 1.5m x 2 wires AC mains cable
about 1.2m HDMI cable

Operation Frequency:

Band	Mode	Frequency Range (MHz)	Number of channels
UNII Band I	IEEE 802.11a	5180-5240	4
	IEEE 802.11n/ac 20MHz	5180-5240	4
	IEEE 802.11n/ac 40MHz	5190-5230	2
	IEEE 802.11ac 80MHz	5210	1
UNII Band II-A	IEEE 802.11a	5260-5320	4
	IEEE 802.11n/ac 20MHz	5260-5320	4
	IEEE 802.11n/ac 40MHz	5270-5310	2
	IEEE 802.11ac 80MHz	5290	1
UNII Band II-C	IEEE 802.11a	5500-5700	11
	IEEE 802.11n/ac 20MHz	5500-5700	11
	IEEE 802.11n/ac 40MHz	5510-5670	5
	IEEE 802.11ac 80MHz	5530-5610	2
UNII Band III	IEEE 802.11a	5745-5825	5
	IEEE 802.11n/ac 20MHz	5745-5825	5
	IEEE 802.11n/ac 40MHz	5755-5795	2
	IEEE 802.11ac 80MHz	5775	1

Type of Modulation: IEEE 802.11a: OFDM(BPSK/QPSK/16QAM/64QAM)
IEEE 802.11n: OFDM(BPSK/QPSK/16QAM/64QAM)
IEEE 802.11ac: OFDM (BPSK/QPSK/16QAM/64QAM/256QAM)

Channels Step: Channels with 20/40/80MHz step

DFS Function: Slave without Radar detection

TPC Function: Without TPC function

Antenna Type: Integral Antenna

Antenna Gain: Antenna1: 6.9dBi for 5G band
Antenna2: 5.2dBi for 5G band,
Two antennas support MIMO synchronous transmission.

Power setting 802.11a:14
802.11n20/802.11n40/802.11ac20/802.11ac40/802.11 ac80:13

Software version SUE V0.19

Hardware version BW_ALBD_MAIN_PV

Sample NO. A3





Channel list for 802.11a/n(HT20)/ac(HT20)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
36	5180MHz	40	5200MHz	44	5220MHz	48	5240MHz
52	5260MHz	56	5280MHz	60	5330MHz	64	5320MHz
100	5500 MHz	104	5520 MHz	108	5540 MHz	112	5560 MHz
116	5580 MHz	120	5600 MHz	124	5620 MHz	128	5640 MHz
132	5660 MHz	136	5680MHz	140	5700 MHz	149	5745MHz
153	5765MHz	157	5785MHz	161	5805MHz	165	5825MHz

Channel list for 802.11n(HT40)/ac(HT40)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
38	5190MHz	46	5230MHz	54	5270MHz	62	5310MHz
102	5510 MHz	110	5550 MHz	118	5590 MHz	126	5630
134	5670 MHz	151	5755MHz	159	5795MHz		

Channel list for 802.11ac(HT80)							
Channel	Frequency	Channel	Frequency	Channel	Frequency	Channel	Frequency
42	5210MHz	58	5290MHz	106	5530 MHz	122	5610
155	5775 MHz						

Selected Test Channel for 802.11a/n(HT20)/ac(HT20)		
Band	Channel	Frequency
U-NII Band I	The lowest channel (CH36)	5180MHz
	The middle channel (CH44)	5220MHz
	The highest channel (CH48)	5240MHz
U-NII Band 2A	The lowest channel (CH52)	5260MHz
	The middle channel (CH60)	5300MHz
	The highest channel (CH64)	5320MHz
U-NII Band 2C	The lowest channel (CH100)	5500MHz
	The middle channel (CH116)	5580MHz
	The highest channel (CH140)	5700MHz
U-NII Band III	The lowest channel (CH149)	5745MHz
	The middle channel (CH157)	5785MHz
	The highest channel (CH165)	5825MHz





Selected Test Channel for 802.11n(HT40)/ac(HT40)		
Band	Channel	Frequency
U-NII Band I	The lowest channel (CH38)	5190MHz
	The highest channel (CH46)	5230MHz
U-NII Band 2A	The lowest channel (CH54)	5270MHz
	The highest channel (CH62)	5310MHz
U-NII Band 2C	The lowest channel (CH102)	5510MHz
	The middle channel (CH110)	5550MHz
	The highest channel (CH134)	5670MHz
U-NII Band III	The lowest channel (CH151)	5755MHz
	The highest channel (CH159)	5795MHz

Selected Test Channel for 802.11ac(HT80)		
Band	Channel	Frequency
U-NII Band I	One channel (CH42)	5210MHz
U-NII Band 2A	One channel(CH58)	5290MHz
U-NII Band 2C	The lowest channel (CH106)	5530MHz
	The highest channel (CH122)	5610MHz
U-NII Band III	One channel (CH155)	5775MHz

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Sony TV	Sony	KD-55X8500G	1447198
Blue-ray Player	Sony	BDP-S370	4015791

4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	3.12dB
Duty Cycle	± 0.37%
99% Bandwidth	± 3%
26dB Emission bandwidth	± 3%
Minimum 6 dB bandwidth (5.725-5.85 GHz band)	± 3%
Maximum Conducted output power	± 0.75dB
Peak Power spectrum density	± 2.84dB
Radiated Emissions	5.06dB (30MHz-1GHz ; 3m) 4.46dB (30MHz-1GHz ; 10m) 5.08dB (1GHz-6GHz) 5.14dB (6GHz-18GHz)



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Radiated Emissions which fall in the restricted bands	$\pm 4.5\text{dB}$ (below 1GHz); $\pm 4.8\text{dB}$ (above 1GHz);
Frequency Stability	$\pm 7.25 \times 10^{-8}$

4.4 Test Location

All tests were performed at:

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

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

No tests were sub-contracted.





4.5 Test Facility

The test facility is recognized, certified, or accredited by the following organizations:

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

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

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- **ACMA**

SGS-CSTC Standards Technical Services Co., Ltd., EMC Laboratory can also perform testing for the Australian/New Zealand Regulatory Compliance Mark (RCM)..

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

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

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

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

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

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

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

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

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

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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
EMI Test Receiver	Rohde & Schwarz	ESCS30	EMC0506	2020-11-13	2021-11-12
Shielding Room	ChangZhou ZhongYu	8m x 3m x 3.8m	EMC0306	N/A	N/A
Two-Line V-Network	Rohde & Schwarz	ENV216	EMC0118	2021-01-08	2022-01-06
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

Conducted test (Duty Cycle/ 99% Bandwidth/26dB Emission bandwidth/ Minimum 6 dB bandwidth (5.725-5.85 GHz band)/ Maximum Conducted output power/ Peak Power spectrum density/ DFS: Non-occupancy period/ DFS: Channel Move Time/ DFS: Channel Closing Transmission Time/ Frequency Stability)					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
MXA Signal Analyzer	Agilent Technologies	N9020A	SEM004-10	2021-03-02	2022-03-01
ESG Vector Signal Generator	Keysight	E4438C	SEM006-03	2021-03-12	2022-03-11
EXG Analog Signal Generator	Agilent Technologies	N5171B	SEM006-04	2020-07-15	2021-07-14
Power Meter	Agilent Technologies	U2021XA_Ch2	SEM009-02	2020-05-26	2021-05-25
Power Meter	Agilent Technologies	U2021XA_Ch3	SEM009-03	2020-05-26	2021-05-25
EXA Signal Analyzer	Agilent Technologies	N9010A	EMC2138	2020-09-17	2021-09-16
6dB Attenuator	HP	8491A	EMC2062	2020-04-15	2022-04-14
Test Software JS1120-3	HangTianXing	V2.6	GZE100-69	N/A	N/A
MI CABLE	SGS-EMC	0.8M	EMC2136	2019-11-02	2021-11-01
MI CABLE	SGS-EMC	0.8M	EMC2137	2019-11-02	2021-11-01

Radiated Emissions/ Radiated Emissions which fall in the restricted bands					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
Chamber cable	HangTianXing	N/A	EMC0542	2019-06-28	2021-06-27
Horn Antenna	SCHWARZBECK MESS-ELEKTRONIK	BBHA 9120D	EMC2016	2019-09-25	2022-09-24
1GHz-26.5 GHz Pre-Amplifier	Agilent	8449B	EMC0521	2021-01-08	2022-01-07
966 Anechoic Chamber	C.R.T	9m x 6m x 6m	EMC2142	2020-12-20	2023-12-19
MXE EMI Receiver	Keysight	N9038A	EMC2139	2020-11-13	2021-11-12
EXA Signal Analyzer	Keysight	N9010A	EMC2138	2020-09-17	2021-09-16
Test Software E3	Audix	Ver.6.120110a	GZE100-61	N/A	N/A

General used equipment					
Equipment	Manufacturer	Model No	Inventory No	Cal Date	Cal Due Date
DMM	Fluke	73	EMC0006	2020-07-09	2021-07-08
DMM	Fluke	73	EMC0007	2020-07-09	2021-07-08

6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

Standard Requirement:

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

EUT Antenna:

The antenna is integrated on the product internal housing and no consideration of replacement. The best-case gain of the Antenna 1: 6.9dBi;

Antenna 2: 5.2dBi;

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

$$\text{Directional gain} = 10 \log[(10^{G_1/20} + 10^{G_2/20} + \dots + 10^{G_N/20})^2 / N_{\text{ANT}}] \text{ dBi}$$

Directional gain= 9.1dBi



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

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

EUT Details:

WIFI chip (AP6359S) support automatically discontinue transmission in case of either absence of information to transmit or operational failure, if the chip detects absence of information to transmit or operational failure, it will be automatically shut off.



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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(8)

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

Limit:

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

*Decreases with the logarithm of the frequency.

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 25.5 °C

Humidity: 48.7 % RH

Atmospheric Pressure: 1010 mbar



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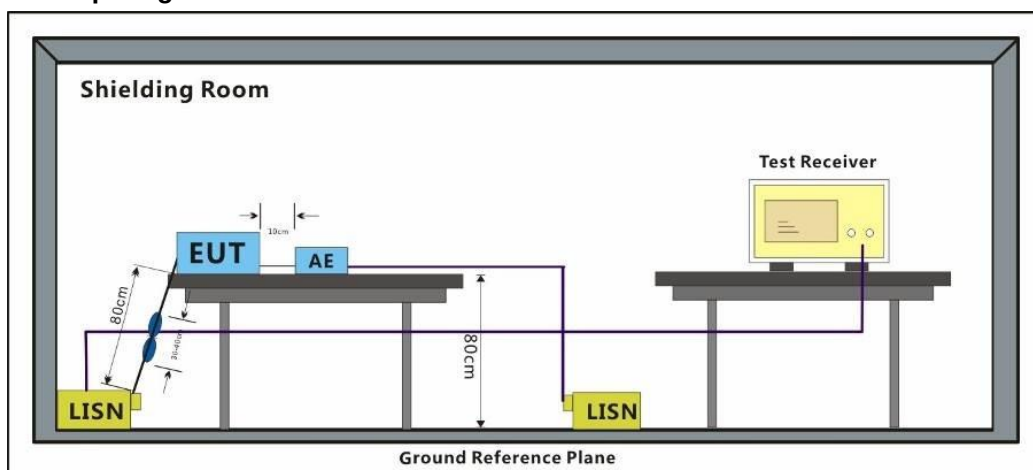


7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	05	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	06	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	07	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	08	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.
Worst case as Final test	05	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.



7.1.3 Test Setup Diagram

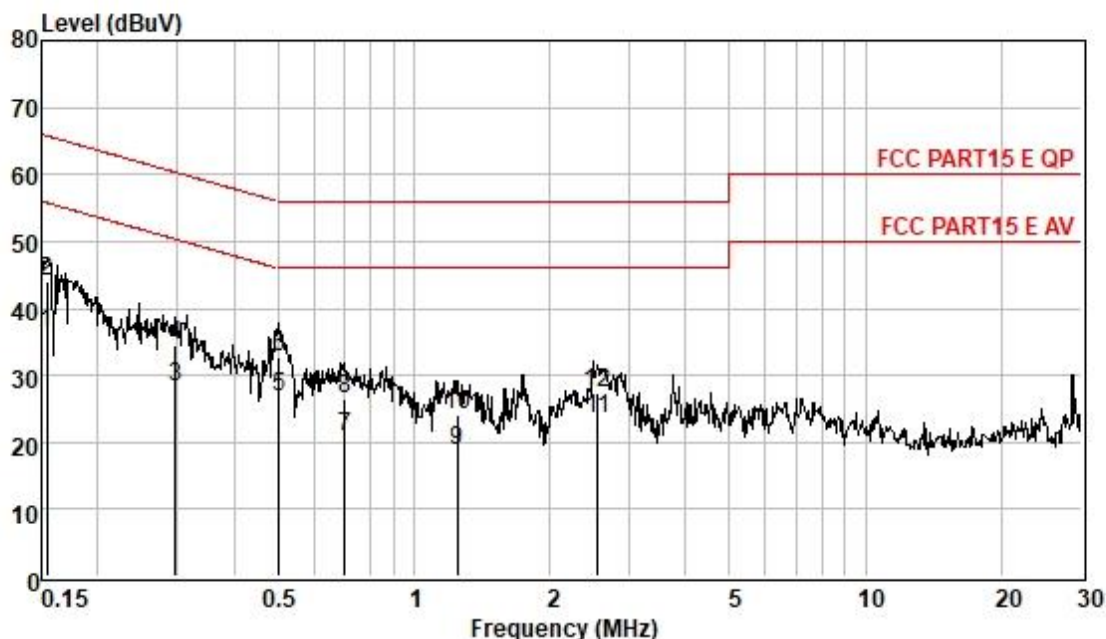


7.1.4 Measurement Procedure and Data

- 1) The mains terminal disturbance voltage test was conducted in a shielded room.
- 2) The EUT was connected to AC power source through a LISN 1 (Line Impedance Stabilization Network) which provides a 50ohm/50μH + 5ohm linear impedance. The power cables of all other units of the EUT were connected to a second LISN 2, which was bonded to the ground reference plane in the same way as the LISN 1 for the unit being measured. A multiple socket outlet strip was used to connect multiple power cables to a single LISN provided the rating of the LISN was not exceeded.
- 3) The tabletop EUT was placed upon a non-metallic table 0.8m above the ground reference plane. And for floor-standing arrangement, the EUT was placed on the horizontal ground reference plane,
- 4) The test was performed with a vertical ground reference plane. The rear of the EUT shall be 0.4 m from the vertical ground reference plane. The vertical ground reference plane was bonded to the horizontal ground reference plane. The LISN 1 was placed 0.8 m from the boundary of the unit under test and bonded to a ground reference plane for LISNs mounted on top of the ground reference plane. This distance was between the closest points of the LISN 1 and the EUT. All other units of the EUT and associated equipment was at least 0.8 m from the LISN 2.
- 5) In order to find the maximum emission, the relative positions of equipment and all of the interface cables must be changed according to ANSI C63.10 on conducted measurement.

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

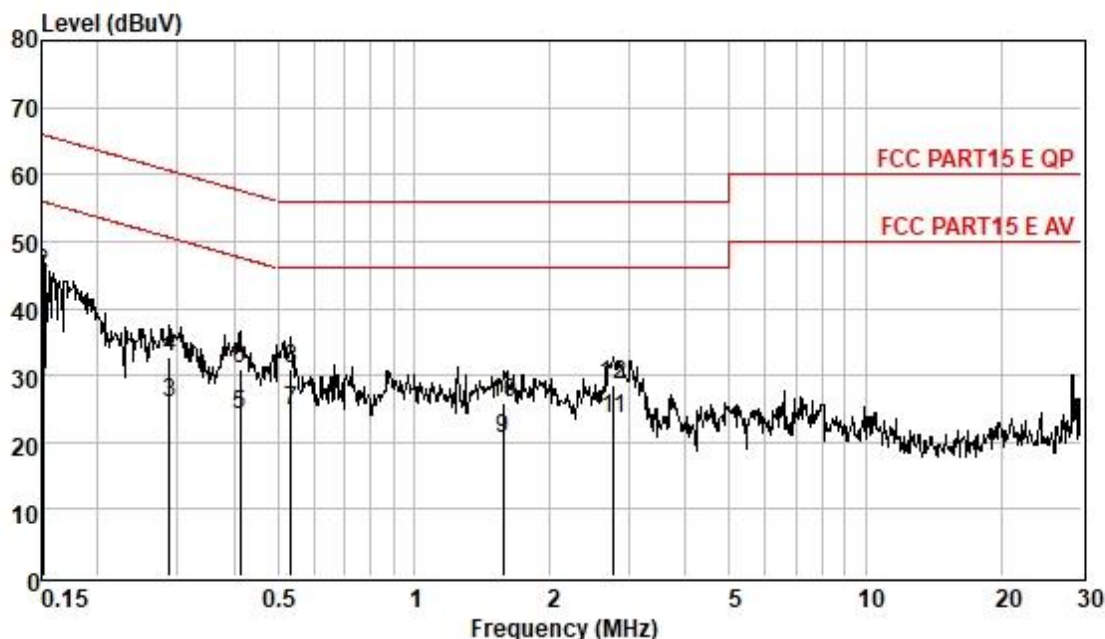
Test Mode: 05; Line: Live line



Pol : LINE
Mode :
Model :

Frequency MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.15	26.52	0.06	9.62	36.20	55.78	-19.58	Average
0.15	34.32	0.06	9.62	44.00	65.78	-21.78	QP
0.30	18.57	0.06	9.62	28.25	50.32	-22.07	Average
0.30	24.75	0.06	9.62	34.43	60.32	-25.89	QP
0.50	17.10	0.07	9.63	26.80	46.00	-19.20	Average
0.50	23.10	0.07	9.63	32.80	56.00	-23.20	QP
0.70	11.06	0.07	9.63	20.76	46.00	-25.24	Average
0.70	16.87	0.07	9.63	26.57	56.00	-29.43	QP
1.25	8.97	0.09	9.61	18.67	46.00	-27.33	Average
1.25	14.38	0.09	9.61	24.08	56.00	-31.92	QP
2.55	13.70	0.14	9.62	23.46	46.00	-22.54	Average
2.55	17.62	0.14	9.62	27.38	56.00	-28.62	QP

Test Mode: 05; Line: Neutral Line



Pol : NEUTRAL
Mode :
Model :

Frequency MHz	Read Level dBuV	Cable Loss dB	LISN Factor dB	Measured Level dBuV	Limit Line dBuV	Over Limit dB	Remark
0.15	19.24	0.06	9.55	28.85	55.96	-27.11	Average
0.15	35.55	0.06	9.55	45.16	65.96	-20.80	QP
0.29	16.29	0.06	9.54	25.89	50.59	-24.70	Average
0.29	23.17	0.06	9.54	32.77	60.59	-27.82	QP
0.41	14.48	0.06	9.56	24.10	47.59	-23.49	Average
0.41	21.29	0.06	9.56	30.91	57.59	-26.68	QP
0.53	15.09	0.07	9.55	24.71	46.00	-21.29	Average
0.53	21.30	0.07	9.55	30.92	56.00	-25.08	QP
1.58	11.01	0.10	9.55	20.66	46.00	-25.34	Average
1.58	16.08	0.10	9.55	25.73	56.00	-30.27	QP
2.76	13.80	0.14	9.55	23.49	46.00	-22.51	Average
2.76	18.95	0.14	9.55	28.64	56.00	-27.36	QP



7.2 Duty Cycle

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

7.2.1 E.U.T. Operation

Operating Environment:

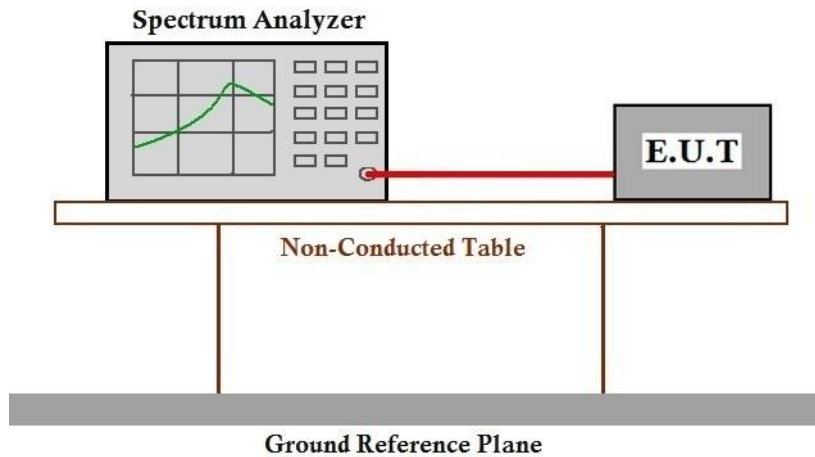
Temperature: 24.6 °C Humidity: 67.4 % RH Atmospheric Pressure: 1010 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	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	06	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	07	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	08	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.



7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details



7.3 99% Bandwidth

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

7.3.1 E.U.T. Operation

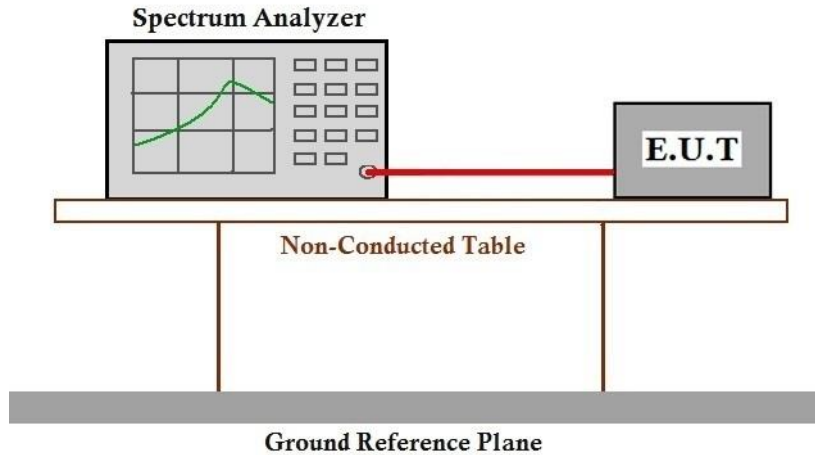
Operating Environment:
Temperature: 24.6 °C Humidity: 67.4 % RH Atmospheric Pressure: 1010 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	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	06	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	07	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	08	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.



7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details



7.4 26dB Emission bandwidth

Test Requirement 47 CFR Part 15, Subpart C 15.407 (a)
Test Method: KDB 789033 D02 II C 1

7.4.1 E.U.T. Operation

Operating Environment:

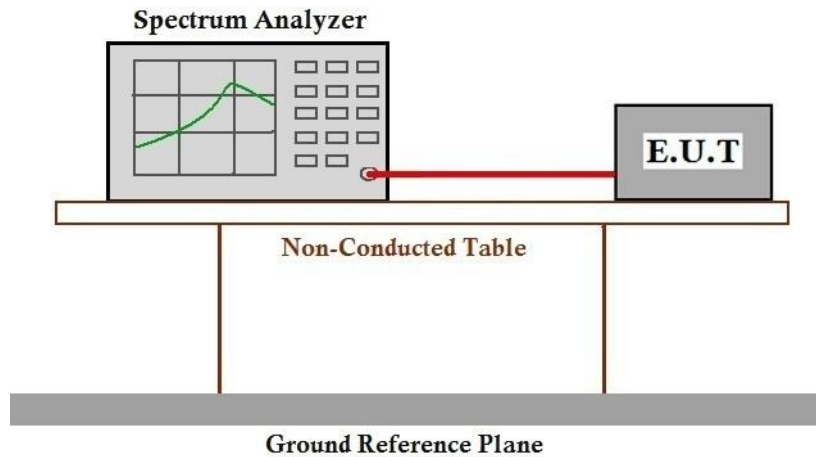
Temperature: 24.6 °C Humidity: 67.4 % RH Atmospheric Pressure: 1010 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	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	06	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	07	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	08	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.



7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details

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

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

Test Method: KDB 789033 D02 II C 2

Limit:

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

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C

Humidity: 67.4 % RH

Atmospheric Pressure: 1010 mbar

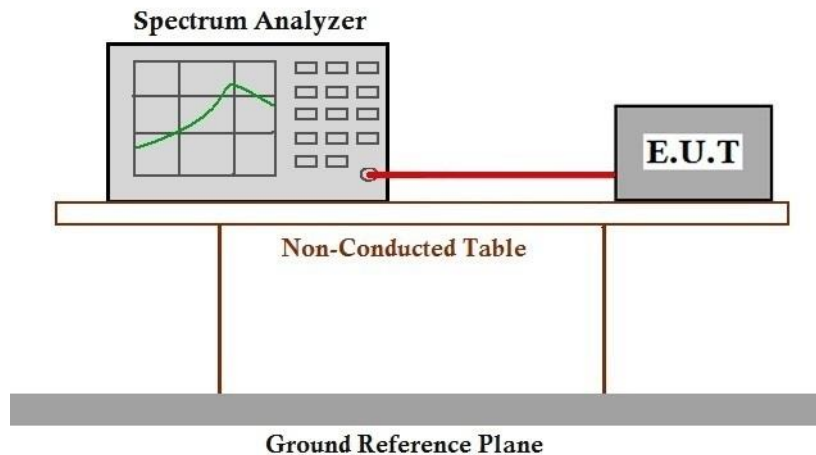
7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
--------------------------	--------------	-------------

Final test	08	
------------	----	--

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

7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details

7.6 Maximum Conducted output power

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

Test Method: KDB 789033 D02 II E

Limit:

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

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C

Humidity: 67.4 % RH

Atmospheric Pressure: 1010 mbar



7.6.2 Test Mode Description

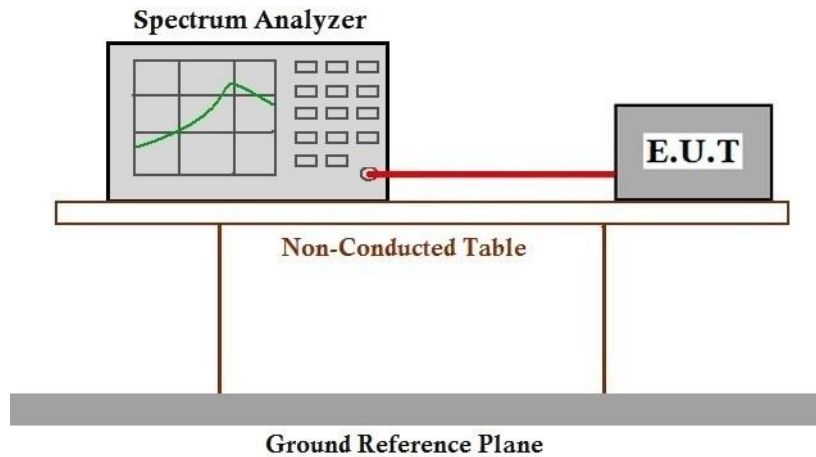
Pre-scan / Final test	Mode Code	Description
Final test	05	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst 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	06	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	07	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	08	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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7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details

7.7 Peak Power spectrum density

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

Test Method: KDB 789033 D02 II F

Limit:

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

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C

Humidity: 67.4 % RH

Atmospheric Pressure: 1010 mbar

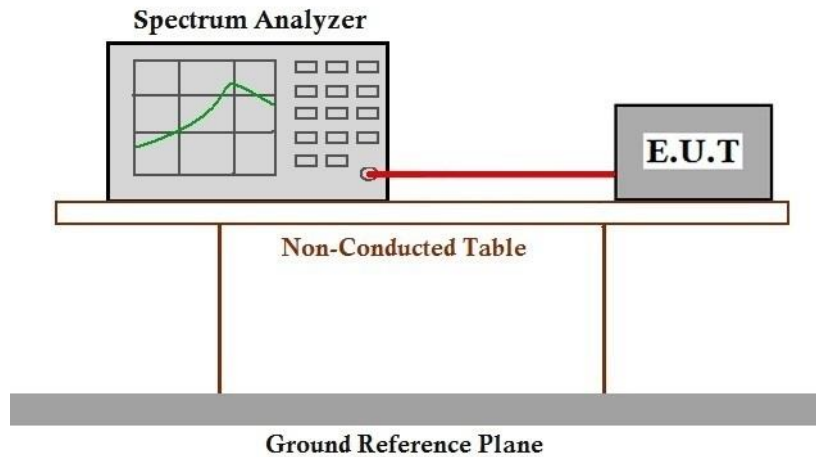


7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	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	06	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	07	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	08	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 FCC Test result for GZCR210300000605 For Details



7.8 Undesirable radiated Emissions

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:

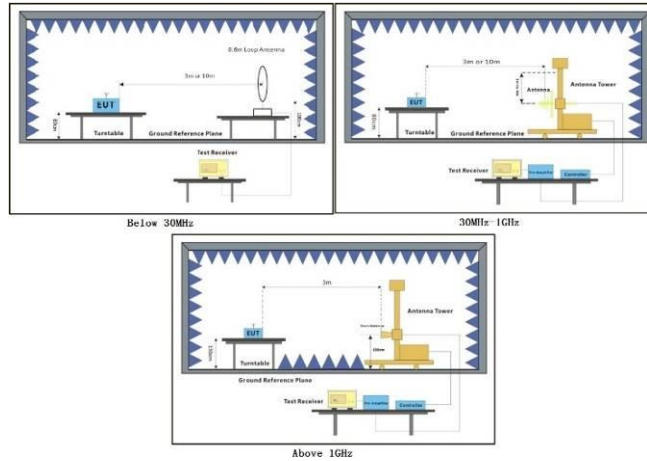
Temperature: 24.7 °C Humidity: 60.2 % RH Atmospheric Pressure: 1010 mbar

7.8.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	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. 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. 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. 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.
Final test	06	
Final test	07	
Final test	08	



7.8.3 Test Setup Diagram





7.8.4 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 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:

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 40GHz, the disturbance above 18GHz and 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.
4. As shown in this section, for frequencies above 1GHz, the field strength limits are based on average limits. However, the peak field strength of any emission shall not exceed the maximum permitted average limits specified above by more than 20 dB under any condition of modulation. For the emissions whose peak level is lower than the average limit, only the peak measurement is shown in the report.

Remark:

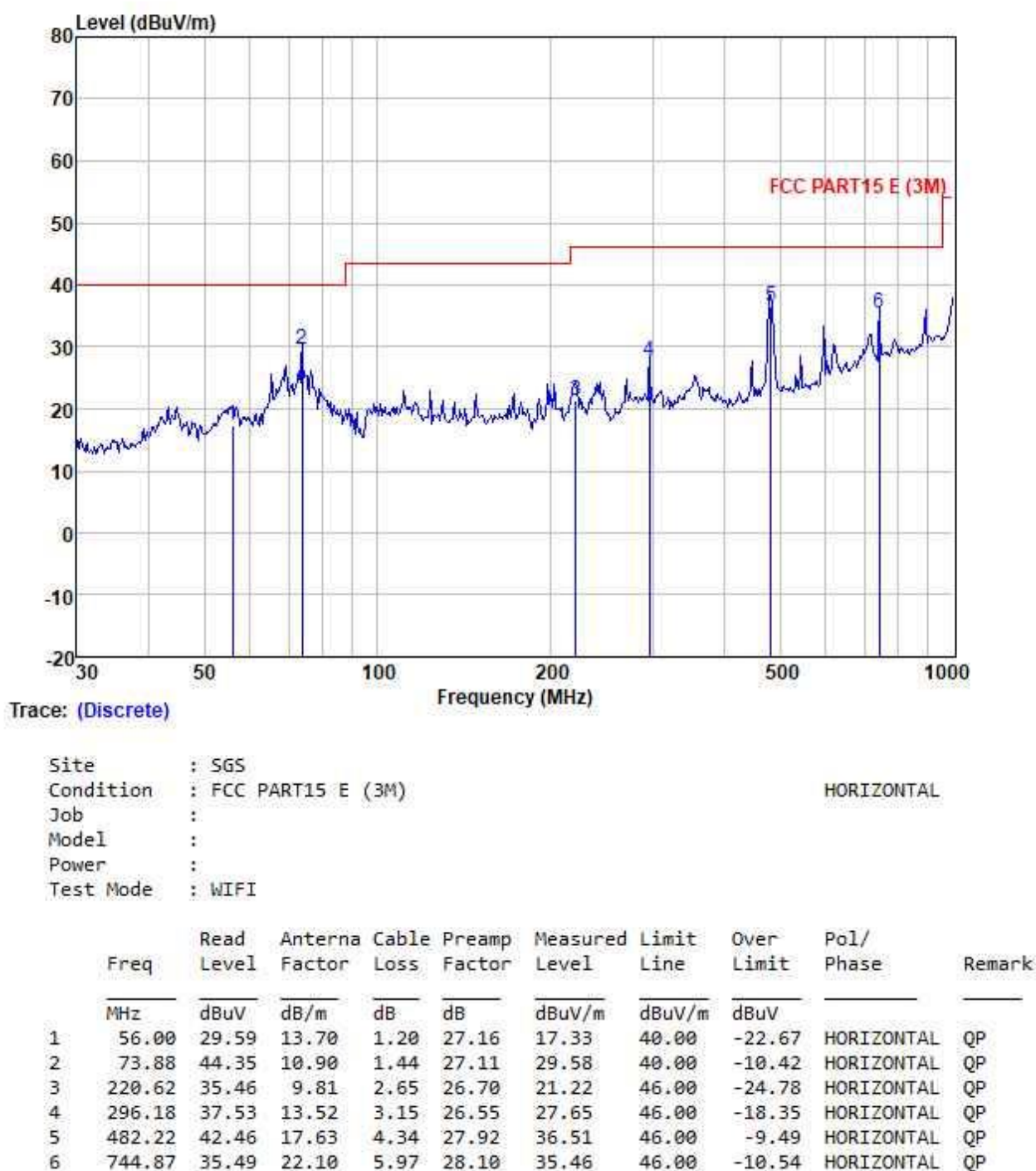
1. The disturbance below 30MHz and above 18GHz was very low, and the below harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.
2. Pretest the EUT at antenna 1 and antenna 2 and MIMO mode find the worst case is MIMO mode.
3. Pretest the EUT in 802.11a/ n(20)/ n(40)/ ac (20)/ ac (40)/ ac(80) find the worst case are 802.11a /n(40)/ ac(80), only record the worst case test data 802.11a /n(40)/ ac(80) in this report.
4. For the emission 30MHz to 1Ghz, lowest, middle, highest channel test performed at band U-NII-1, U-NII-2A, U-NII-2C, U-NII-3, find the worst case is band U-NII-1 802.11 a mode lowest channel, only record the worst case.



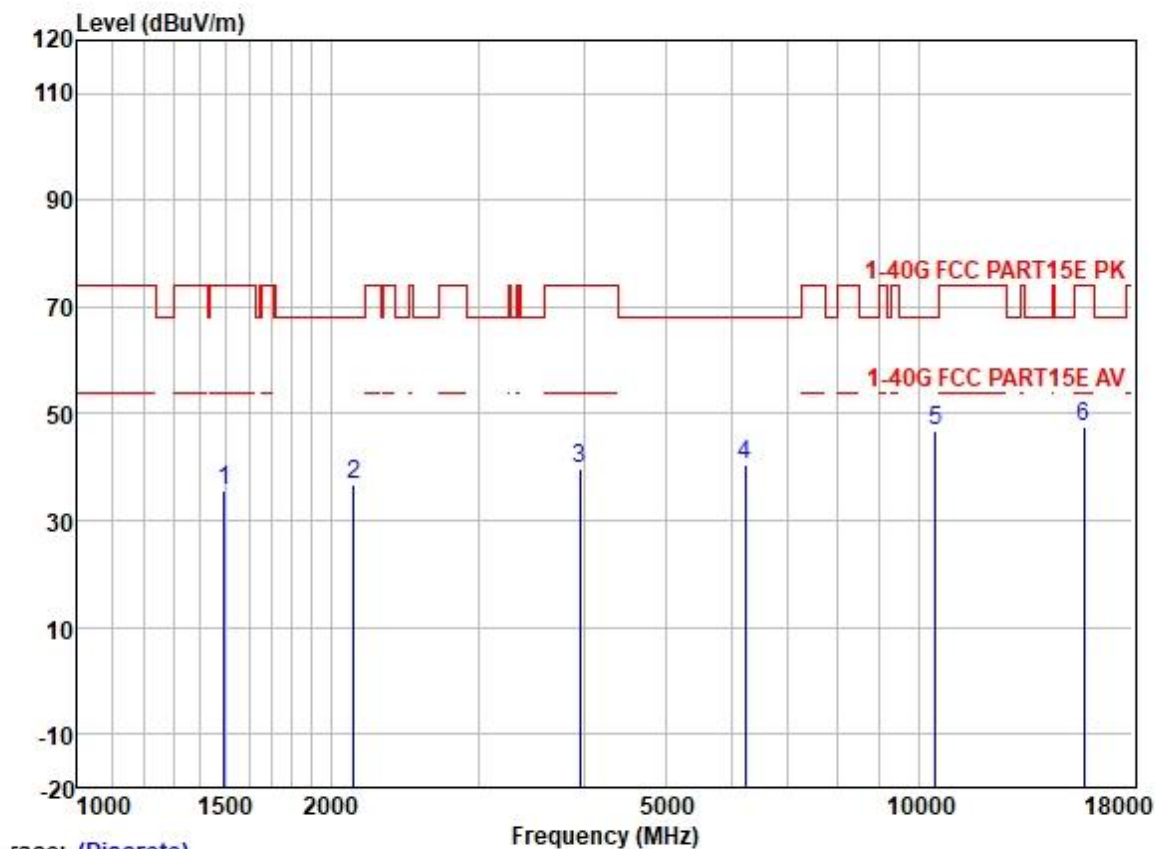
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Test Mode: 05; 802.11 a, lowest channel, Polarity: Horizontal, below 1GHz



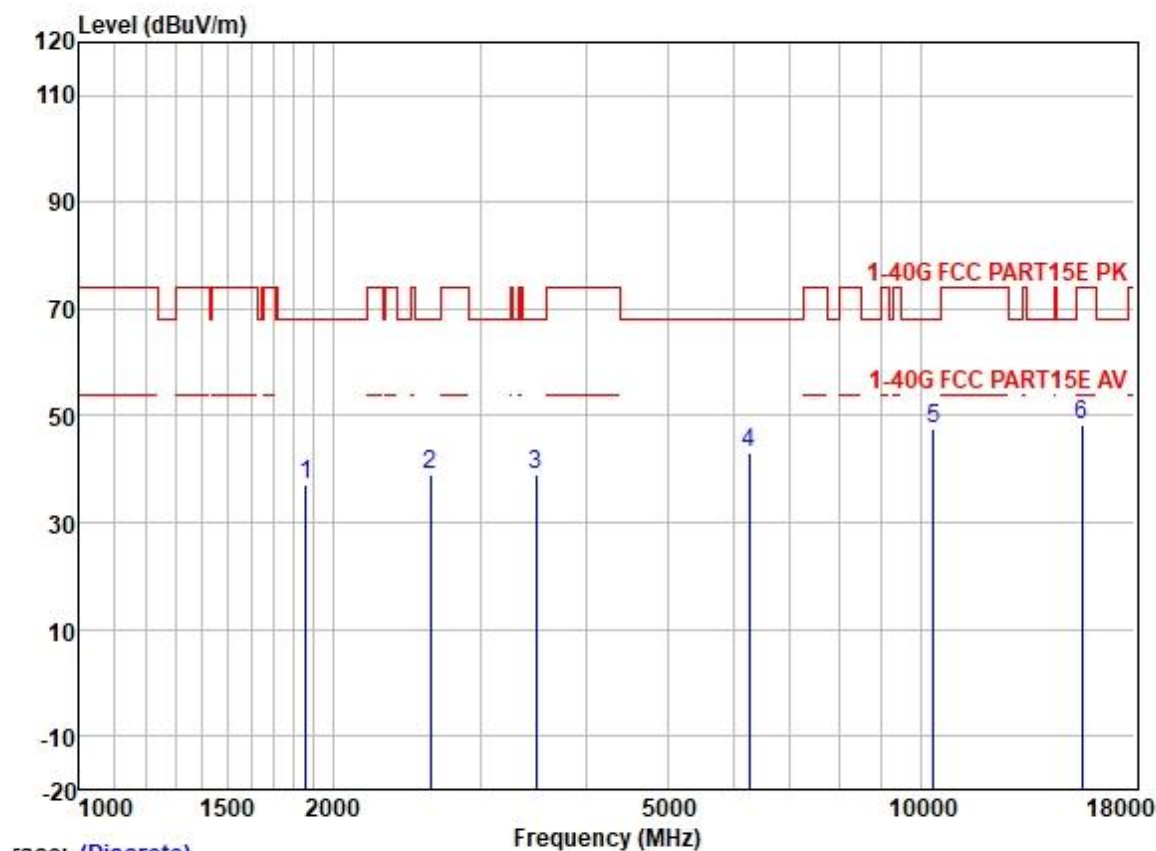
Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



race: (Discrete)

		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1494.455	45.46	25.50	2.79	38.10	35.65	74.00	-38.35	HORIZONTAL	Peak
2	2132.462	44.84	26.37	3.17	37.67	36.71	68.20	-31.49	HORIZONTAL	Peak
3	3958.309	42.09	29.75	4.60	36.81	39.63	74.00	-34.37	HORIZONTAL	Peak
4	6231.427	38.39	33.11	6.04	36.94	40.60	68.20	-27.60	HORIZONTAL	Peak
5	10480.720	37.51	39.46	7.40	37.36	47.01	68.20	-21.19	HORIZONTAL	Peak
6	15720.300	34.44	38.78	9.87	35.39	47.70	74.00	-26.30	HORIZONTAL	Peak

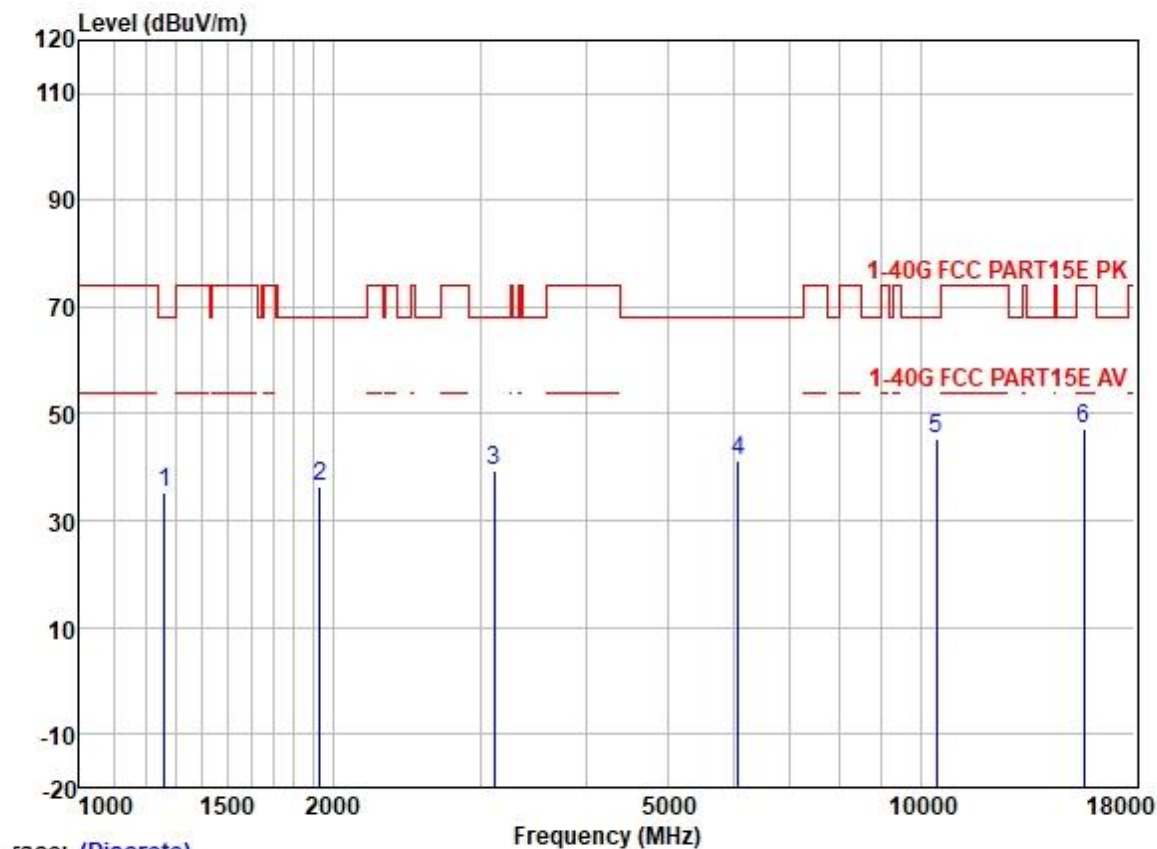
Test Mode: 05; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



race: (Discrete)

		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1861.588	45.83	26.01	2.93	37.78	36.99	68.20	-31.21	HORIZONTAL	Peak
2	2618.218	45.37	27.66	3.51	37.51	39.03	68.20	-29.17	HORIZONTAL	Peak
3	3495.691	42.80	28.90	4.30	36.94	39.06	68.20	-29.14	HORIZONTAL	Peak
4	6249.464	40.91	33.20	6.02	36.95	43.18	68.20	-25.02	HORIZONTAL	Peak
5	10360.580	38.21	39.28	7.29	37.37	47.41	68.20	-20.79	HORIZONTAL	Peak
6	15540.690	34.91	39.05	9.88	35.39	48.45	74.00	-25.55	HORIZONTAL	Peak

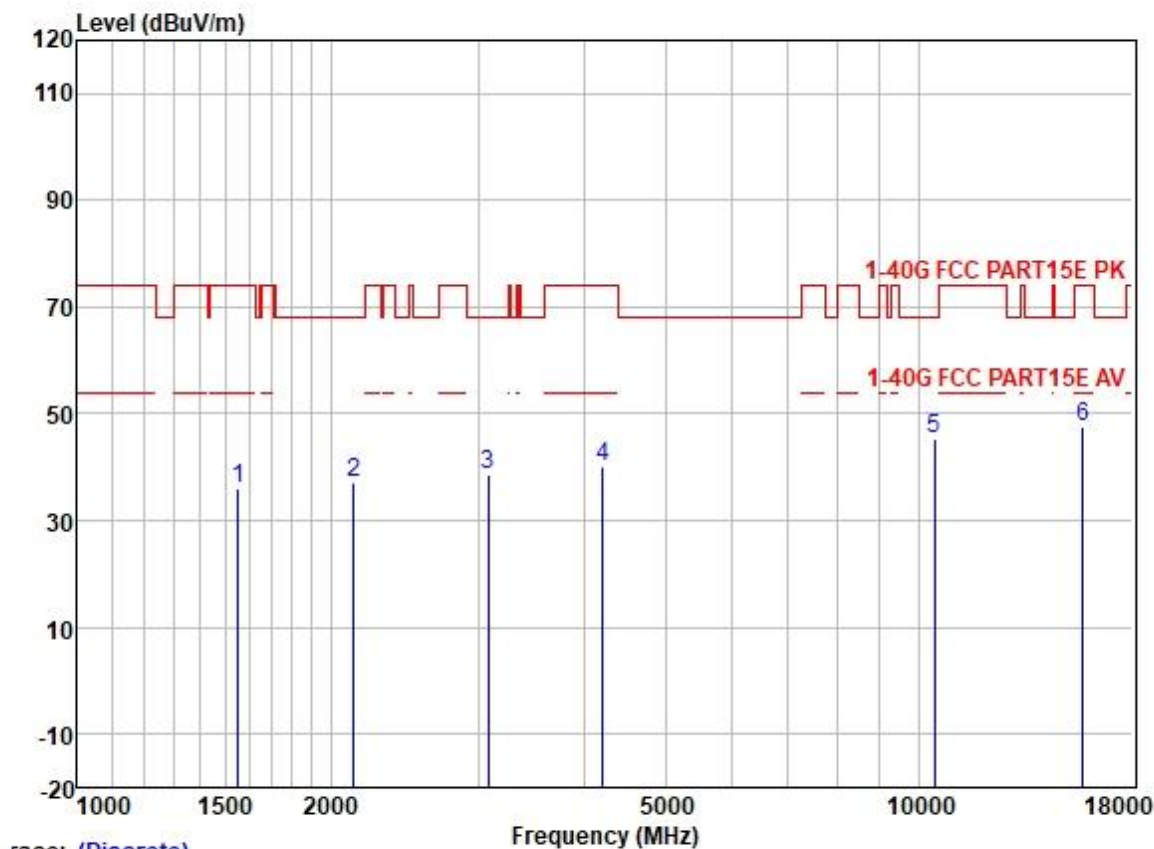
Test Mode: 05; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: middle



race: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
		Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1263.796	46.19	25.08	2.42	38.33	35.36	68.20	-32.84	HORIZONTAL	Peak
2	1932.868	44.92	26.06	2.96	37.74	36.20	68.20	-32.00	HORIZONTAL	Peak
3	3114.025	43.97	28.49	3.92	37.14	39.24	68.20	-28.96	HORIZONTAL	Peak
4	6071.417	39.59	32.57	6.16	36.91	41.41	68.20	-26.79	HORIZONTAL	Peak
5	10440.140	35.83	39.42	7.37	37.36	45.26	68.20	-22.94	HORIZONTAL	Peak
6	15660.210	34.00	38.86	9.87	35.39	47.34	74.00	-26.66	HORIZONTAL	Peak

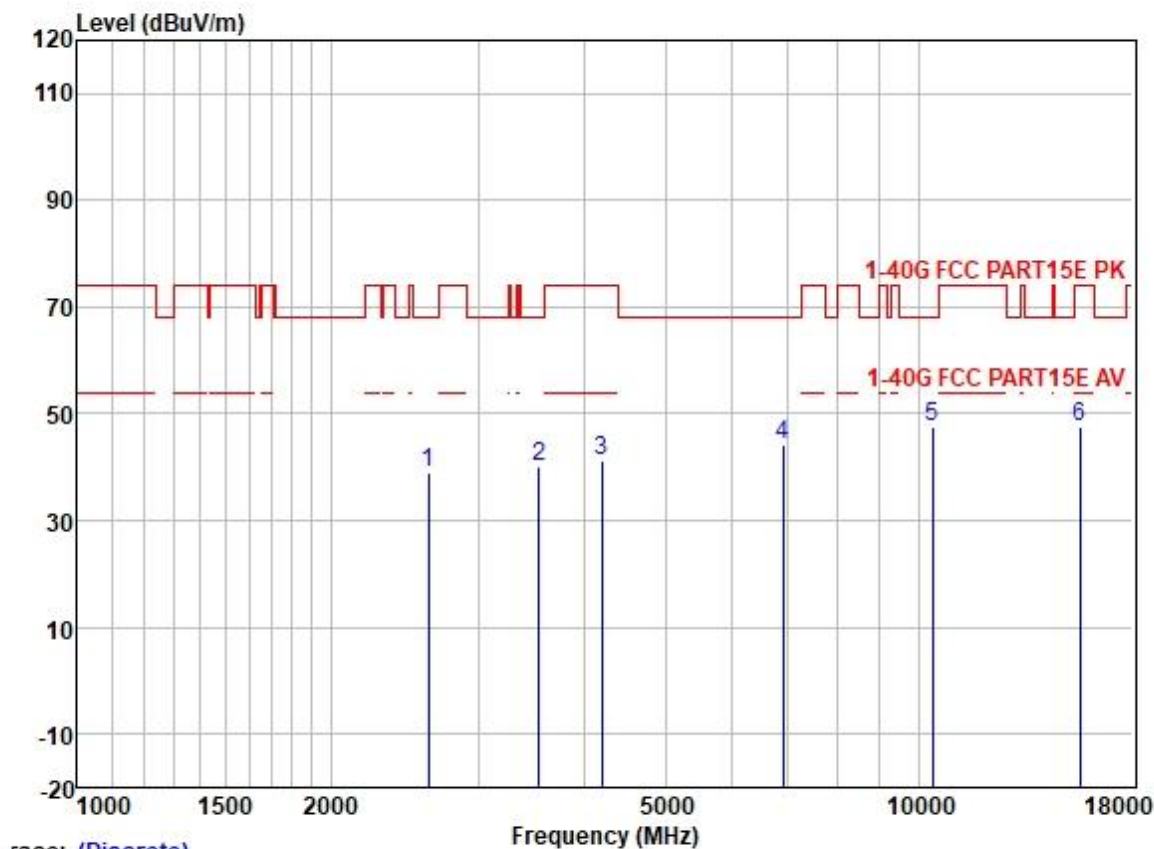
Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1551.677	45.69	25.54	2.80	38.03	36.00	74.00	-38.00	HORIZONTAL	Peak
2	2132.462	45.21	26.37	3.17	37.67	37.08	68.20	-31.12	HORIZONTAL	Peak
3	3078.229	43.36	28.46	3.88	37.18	38.52	68.20	-29.68	HORIZONTAL	Peak
4	4218.186	42.02	30.22	4.60	36.81	40.03	74.00	-33.97	HORIZONTAL	Peak
5	10460.020	36.02	39.42	7.37	37.36	45.45	68.20	-22.75	HORIZONTAL	Peak
6	15690.900	34.34	38.78	9.87	35.39	47.60	74.00	-26.40	HORIZONTAL	Peak

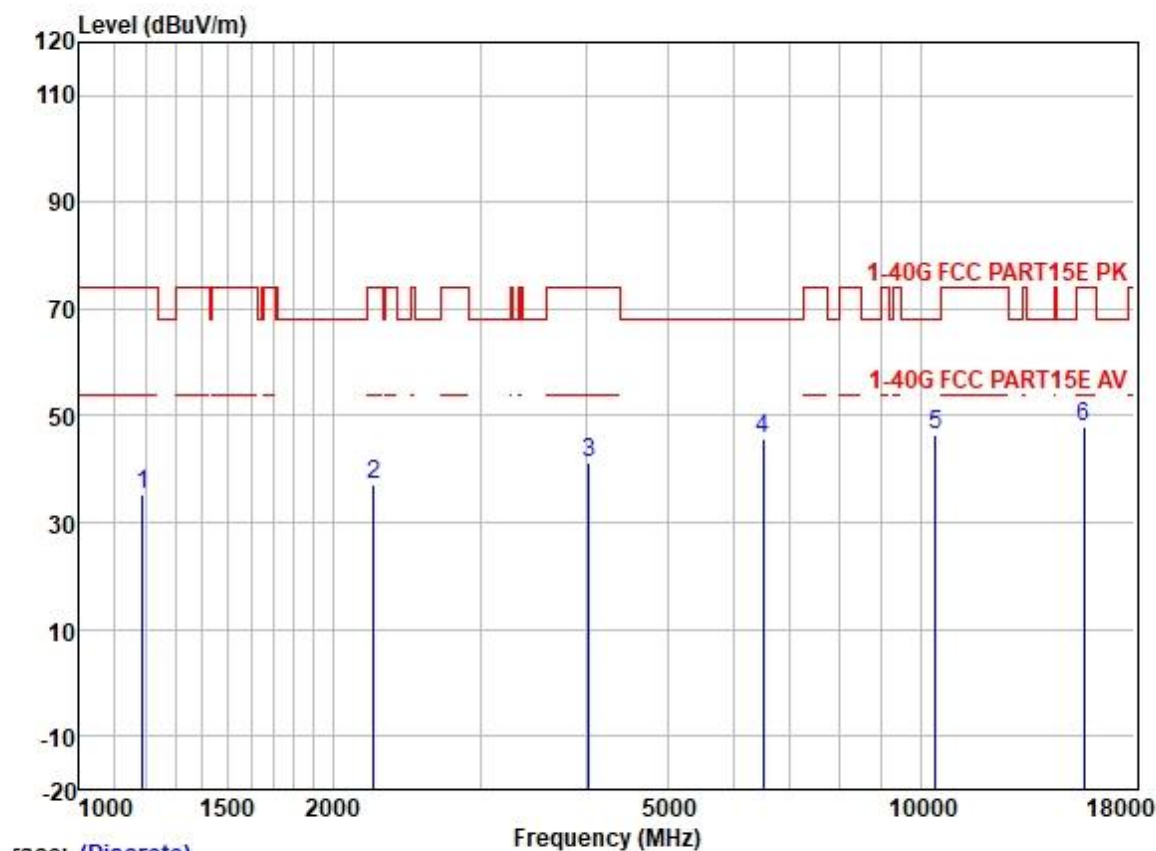
Test Mode: 05; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 40MHz; Channel: Low



Trace: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2618.218	45.37	27.66	3.51	37.51	39.03	68.20	-29.17	HORIZONTAL	Peak
2	3536.341	43.58	28.95	4.40	36.93	40.00	68.20	-28.20	HORIZONTAL	Peak
3	4206.011	43.08	30.18	4.60	36.81	41.05	74.00	-32.95	HORIZONTAL	Peak
4	6894.806	40.72	34.85	5.81	37.18	44.20	68.20	-24.00	HORIZONTAL	Peak
5	10380.580	38.46	39.33	7.32	37.37	47.74	68.20	-20.46	HORIZONTAL	Peak
6	15570.940	34.05	38.99	9.88	35.39	47.53	74.00	-26.47	HORIZONTAL	Peak

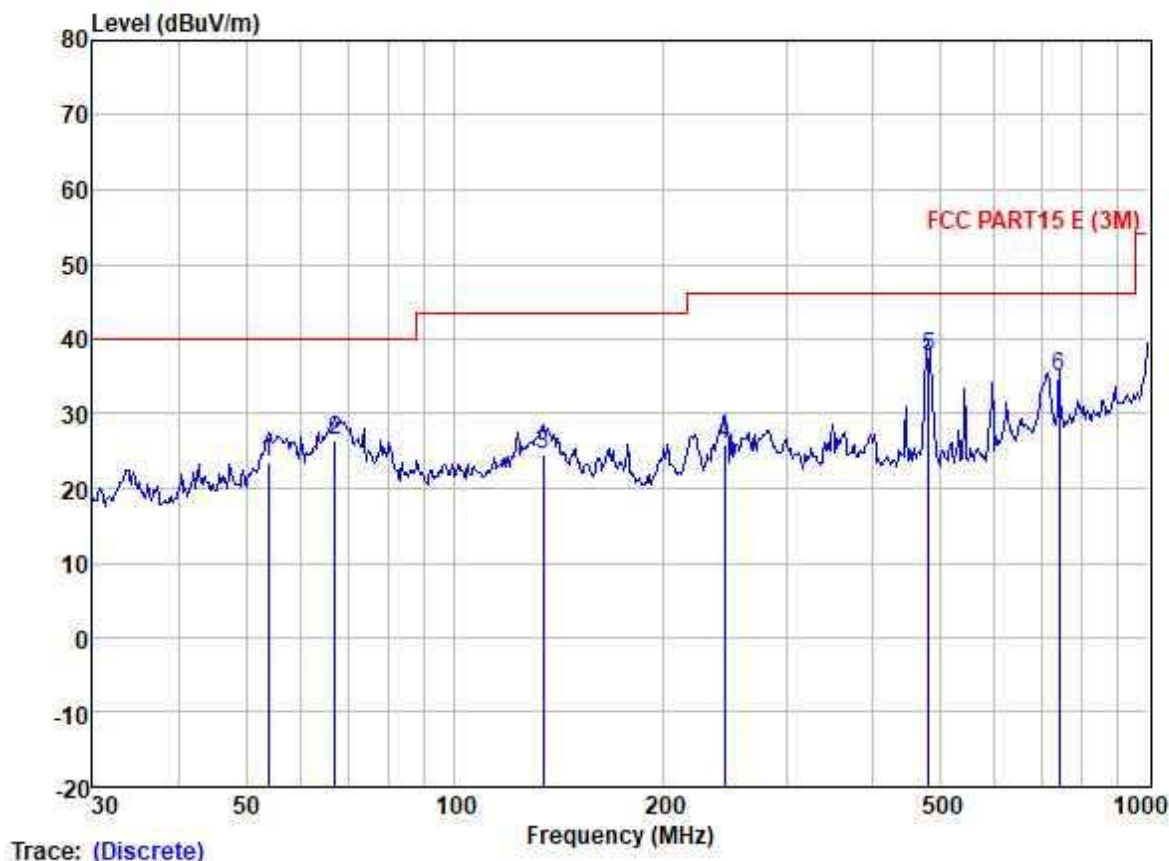
Test Mode: 05; Polarity: Horizontal; Modulation: 802.11ac; Bandwidth: 80MHz; Channel: Low



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1189.368	46.54	24.63	2.36	38.39	35.14	74.00	-38.86	HORIZONTAL	Peak
2	2239.861	44.83	26.84	3.24	37.64	37.27	74.00	-36.73	HORIZONTAL	Peak
3	4039.212	43.44	29.85	4.60	36.80	41.09	74.00	-32.91	HORIZONTAL	Peak
4	6507.536	42.82	34.00	5.84	37.01	45.65	68.20	-22.55	HORIZONTAL	Peak
5	10420.800	37.01	39.38	7.35	37.36	46.38	68.20	-21.82	HORIZONTAL	Peak
6	15630.450	34.55	38.92	9.87	35.39	47.95	74.00	-26.05	HORIZONTAL	Peak

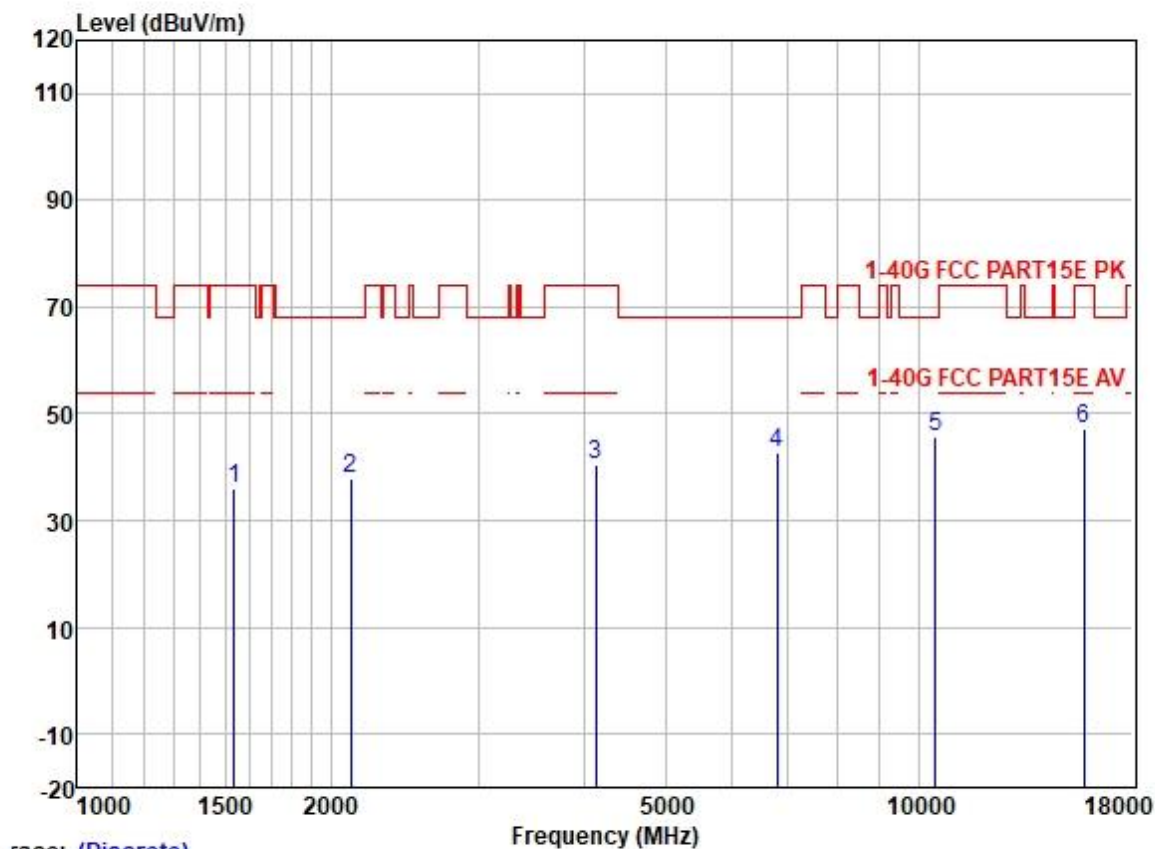
Test Mode: 05; 802.11 a, lowest channel, Polarity: Vertical, below 1Ghz



Site : SGS
Condition : FCC PART15 E (3M) VERTICAL
Job :
Model :
Power :
Test Mode : WIFI

	Freq	Read Level	Antenna 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	53.69	35.55	13.83	1.17	27.17	23.38	40.00	-16.62	VERTICAL	QP
2	67.20	39.86	12.34	1.38	27.14	26.44	40.00	-13.56	VERTICAL	QP
3	134.09	37.08	12.50	2.01	26.97	24.62	43.50	-18.88	VERTICAL	QP
4	245.09	37.59	12.00	2.87	26.64	25.82	46.00	-20.18	VERTICAL	QP
5	482.22	43.64	17.63	4.34	27.92	37.69	46.00	-8.31	VERTICAL	QP
6	744.87	35.07	22.10	5.97	28.10	35.04	46.00	-10.96	VERTICAL	QP

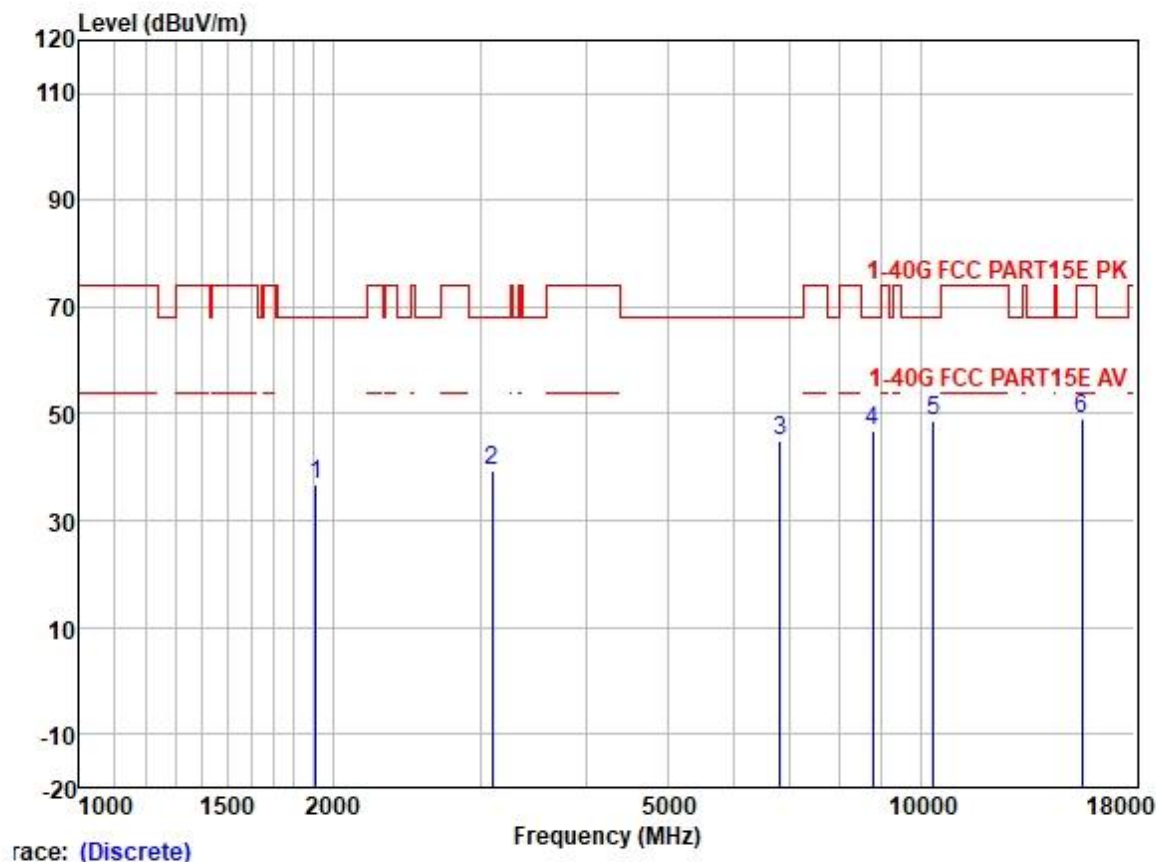
Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Trace: (Discrete)

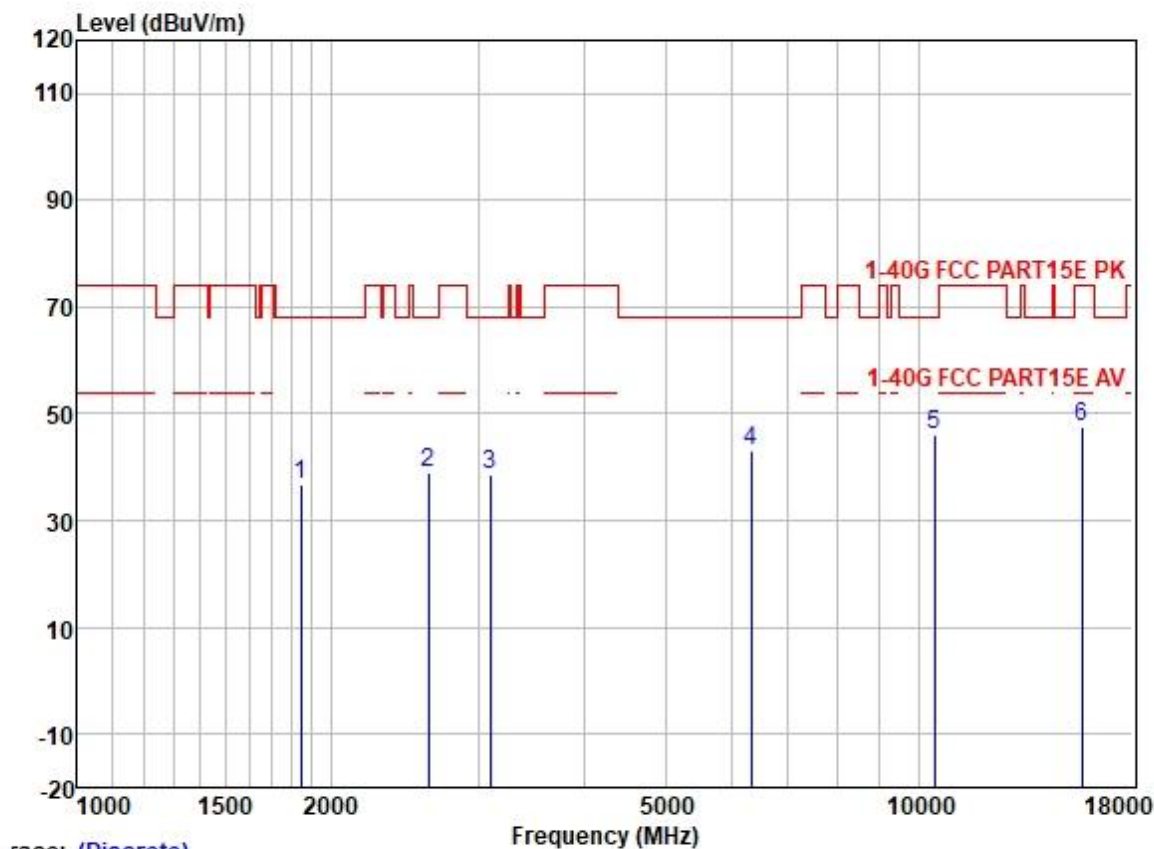
		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1538.281	45.87	25.53	2.80	38.03	36.17	74.00	-37.83	VERTICAL	Peak
2	2114.052	45.90	26.32	3.16	37.67	37.71	68.20	-30.49	VERTICAL	Peak
3	4133.699	42.82	30.01	4.60	36.80	40.63	74.00	-33.37	VERTICAL	Peak
4	6795.879	39.32	34.66	5.82	37.12	42.68	68.20	-25.52	VERTICAL	Peak
5	10480.980	36.24	39.46	7.40	37.36	45.74	68.20	-22.46	VERTICAL	Peak
6	15720.660	33.93	38.78	9.87	35.39	47.19	74.00	-26.81	VERTICAL	Peak

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



	ReadAntenna	Cable	Preamp		Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1910.650	45.38	26.05	2.92	37.75	36.60	68.20	-31.60	VERTICAL Peak
2	3096.075	44.27	28.47	3.90	37.16	39.48	68.20	-28.72	VERTICAL Peak
3	6815.551	41.72	34.70	5.82	37.13	45.11	68.20	-23.09	VERTICAL Peak
4	8764.146	39.88	37.32	7.19	37.54	46.85	68.20	-21.35	VERTICAL Peak
5	10360.080	39.36	39.28	7.29	37.37	48.56	68.20	-19.64	VERTICAL Peak
6	15540.300	35.51	39.05	9.88	35.39	49.05	74.00	-24.95	VERTICAL Peak

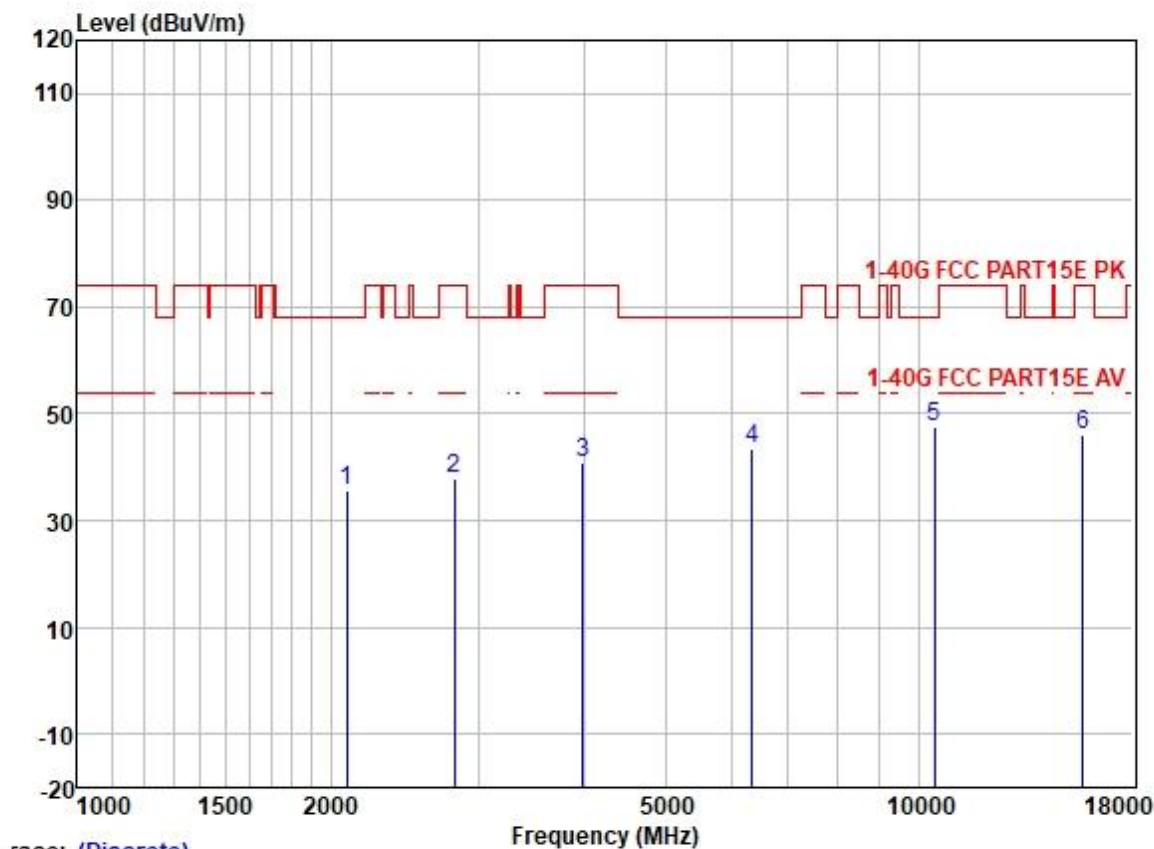
Test Mode: 05; Polarity: Vertical; Modulation: 802.11a; Bandwidth: 20MHz; Channel: middle



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1845.516	45.54	25.99	2.95	37.78	36.70	68.20	-31.50	VERTICAL Peak
2	2618.218	45.23	27.66	3.51	37.51	38.89	68.20	-29.31	VERTICAL Peak
3	3096.075	43.42	28.47	3.90	37.16	38.63	68.20	-29.57	VERTICAL Peak
4	6322.136	40.73	33.51	5.95	36.97	43.22	68.20	-24.98	VERTICAL Peak
5	10440.600	36.47	39.42	7.37	37.36	45.90	68.20	-22.30	VERTICAL Peak
6	15660.940	34.07	38.86	9.87	35.39	47.41	74.00	-26.59	VERTICAL Peak

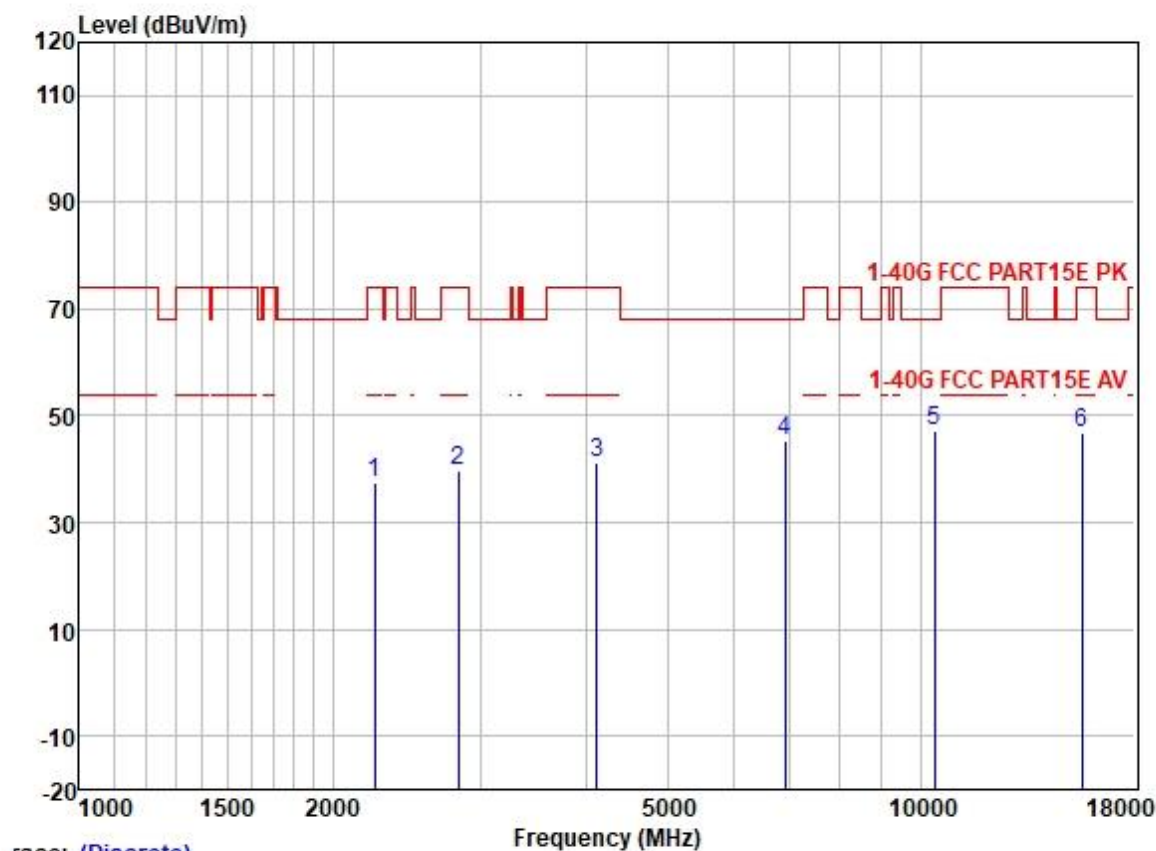
Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2089.751	44.03	26.27	3.15	37.68	35.77	68.20	-32.43	VERTICAL	Peak
2	2806.288	43.46	28.15	3.70	37.41	37.90	74.00	-36.10	VERTICAL	Peak
3	3992.781	43.39	29.79	4.60	36.80	40.98	74.00	-33.02	VERTICAL	Peak
4	6340.436	40.90	33.57	5.94	36.97	43.44	68.20	-24.76	VERTICAL	Peak
5	10460.970	38.19	39.42	7.37	37.36	47.62	68.20	-20.58	VERTICAL	Peak
6	15690.050	32.89	38.86	9.87	35.39	46.23	74.00	-27.77	VERTICAL	Peak

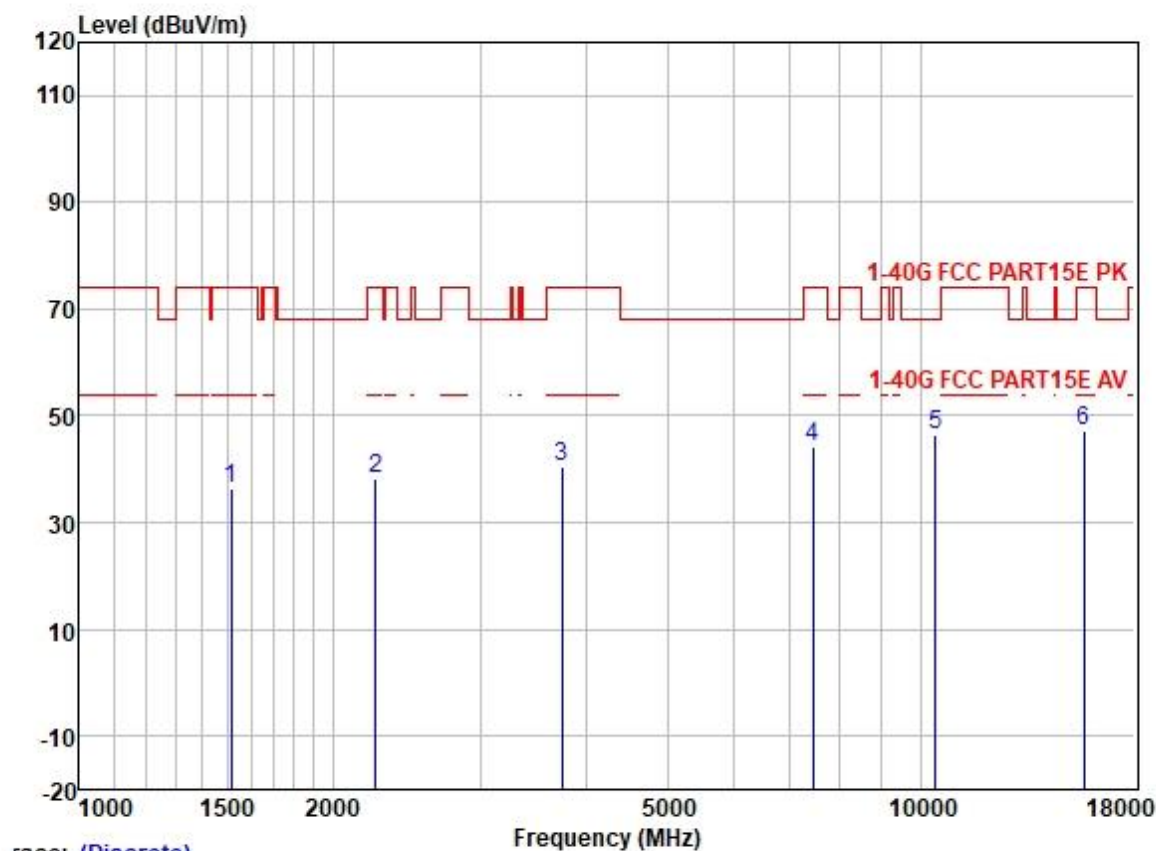
Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Trace: (Discrete)

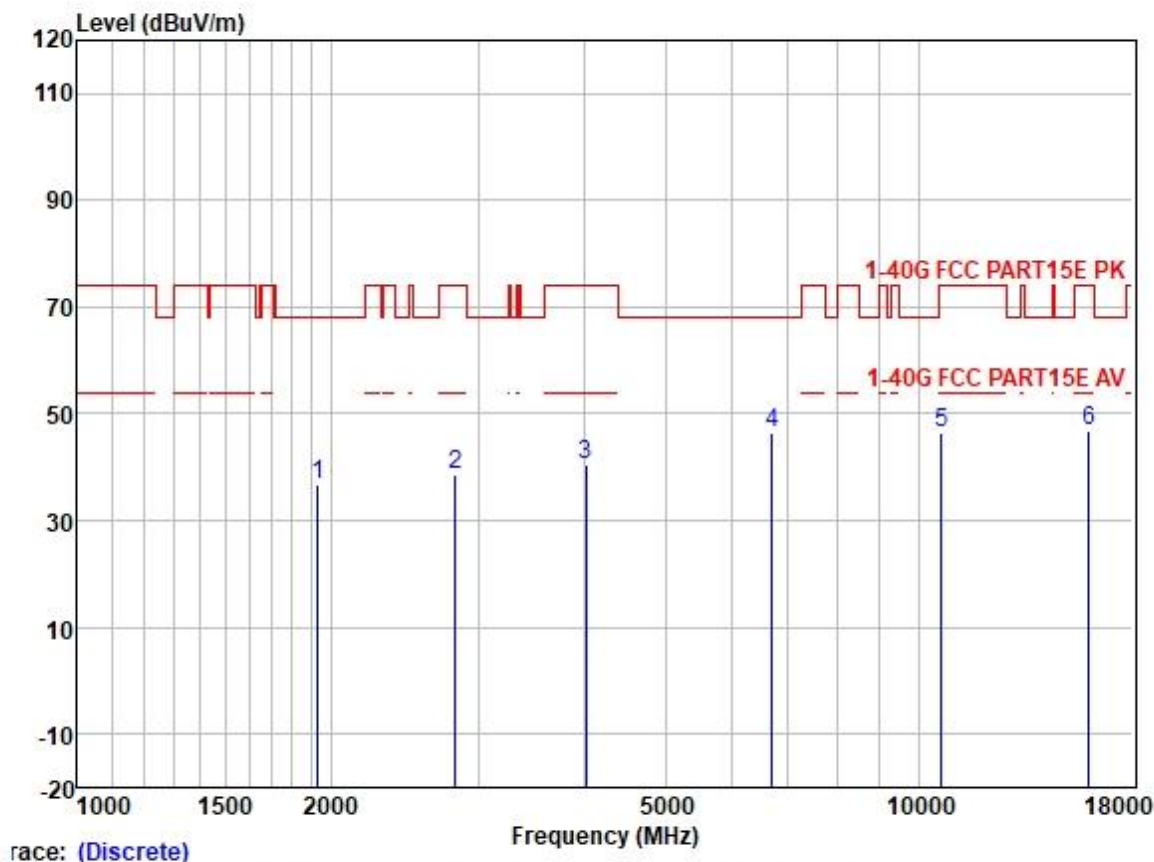
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	2246.344	44.98	26.88	3.25	37.64	37.47	74.00	-36.53	VERTICAL Peak
2	2822.558	45.16	28.18	3.70	37.40	39.64	74.00	-34.36	VERTICAL Peak
3	4121.768	43.34	29.98	4.60	36.80	41.12	74.00	-32.88	VERTICAL Peak
4	6894.806	41.94	34.85	5.81	37.18	45.42	68.20	-22.78	VERTICAL Peak
5	10380.710	37.92	39.33	7.32	37.37	47.20	68.20	-21.00	VERTICAL Peak
6	15570.050	33.52	38.99	9.88	35.39	47.00	74.00	-27.00	VERTICAL Peak

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



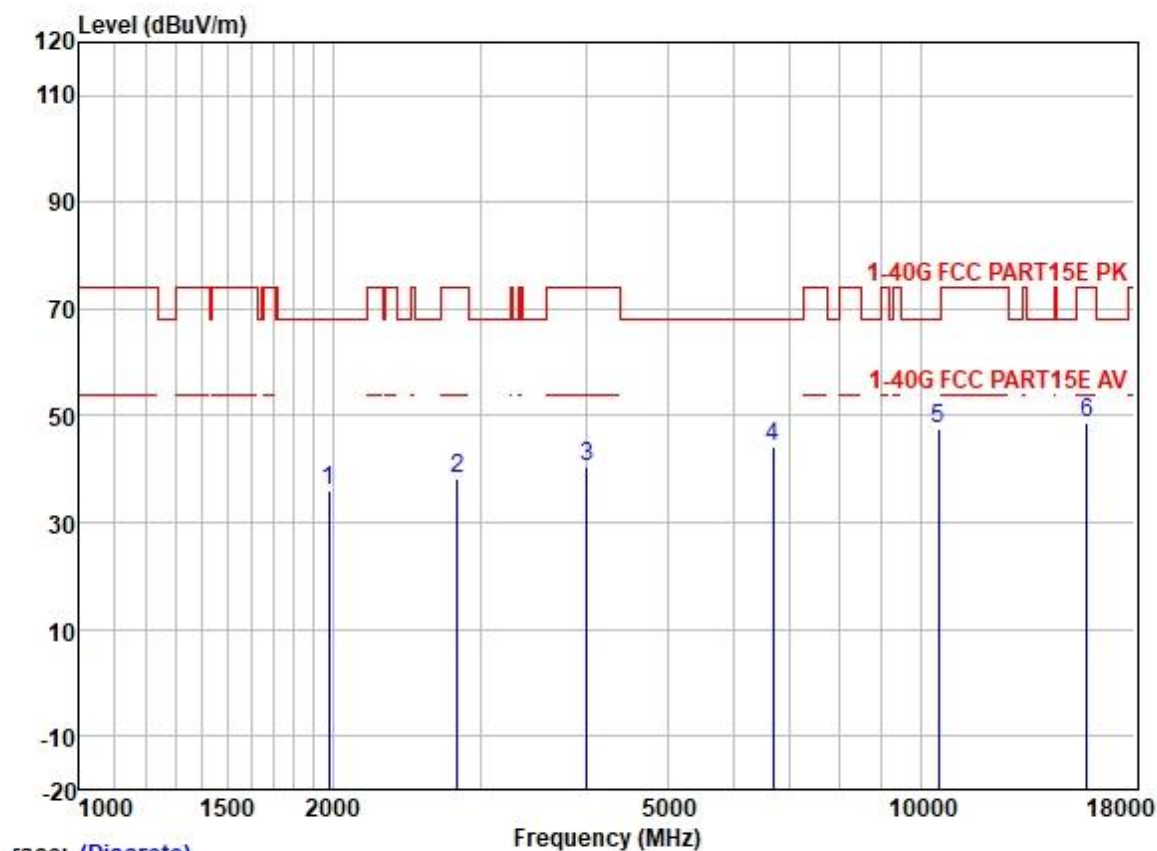
		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1516.210	46.25	25.51	2.80	38.07	36.49	74.00	-37.51	VERTICAL	Peak
2	2252.846	45.67	26.92	3.26	37.64	38.21	74.00	-35.79	VERTICAL	Peak
3	3746.792	43.39	29.39	4.58	36.86	40.50	74.00	-33.50	VERTICAL	Peak
4	7454.429	39.32	36.32	6.23	37.47	44.40	74.00	-29.60	VERTICAL	Peak
5	10420.240	37.07	39.38	7.35	37.36	46.44	68.20	-21.76	VERTICAL	Peak
6	15630.050	33.96	38.92	9.87	35.39	47.36	74.00	-26.64	VERTICAL	Peak

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



	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1932.868	45.32	26.06	2.96	37.74	36.60	68.20	-31.60	HORIZONTAL Peak
2	2814.411	44.23	28.17	3.70	37.40	38.70	74.00	-35.30	HORIZONTAL Peak
3	4027.554	42.87	29.83	4.60	36.80	40.50	74.00	-33.50	HORIZONTAL Peak
4	6698.373	43.25	34.38	5.83	37.08	46.38	68.20	-21.82	HORIZONTAL Peak
5	10640.970	36.52	39.63	7.48	37.33	46.30	74.00	-27.70	HORIZONTAL Peak
6	15960.300	34.16	38.37	9.85	35.40	46.98	74.00	-27.02	HORIZONTAL Peak

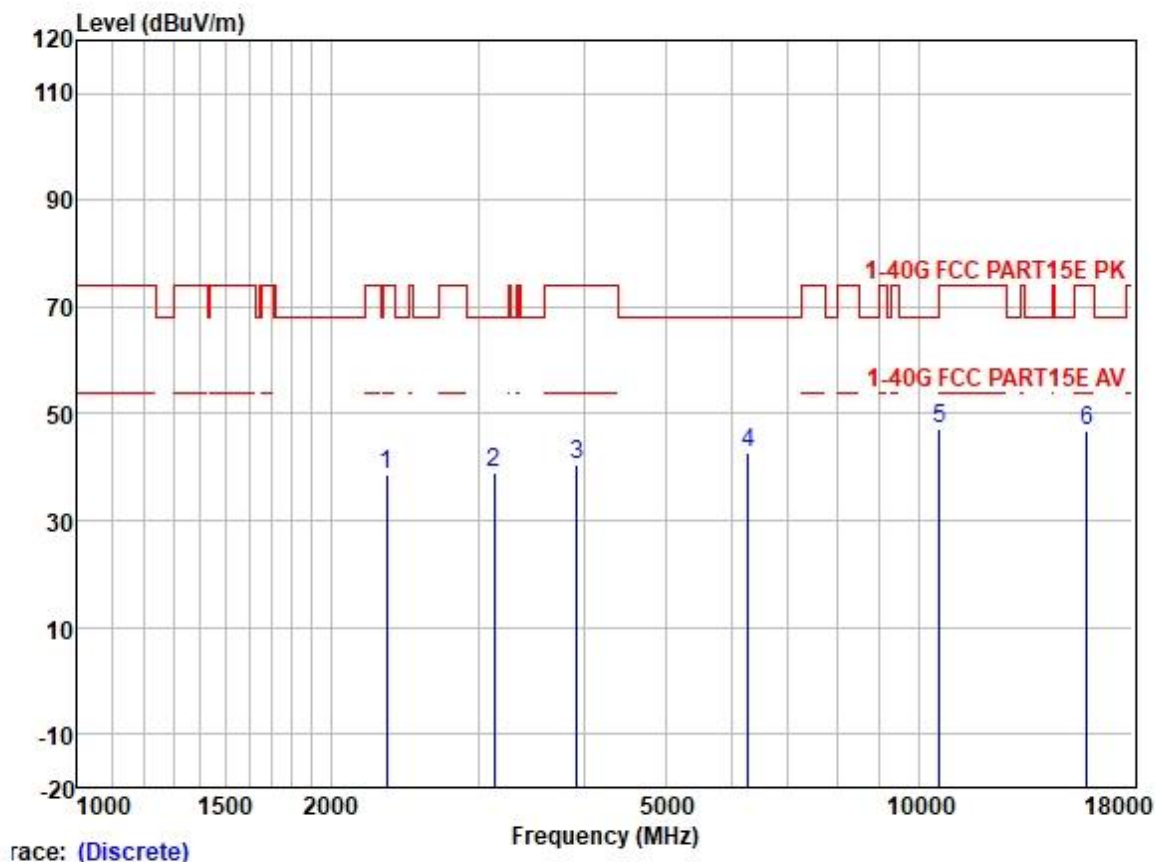
Test Mode: 06; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: Low



race: (Discrete)

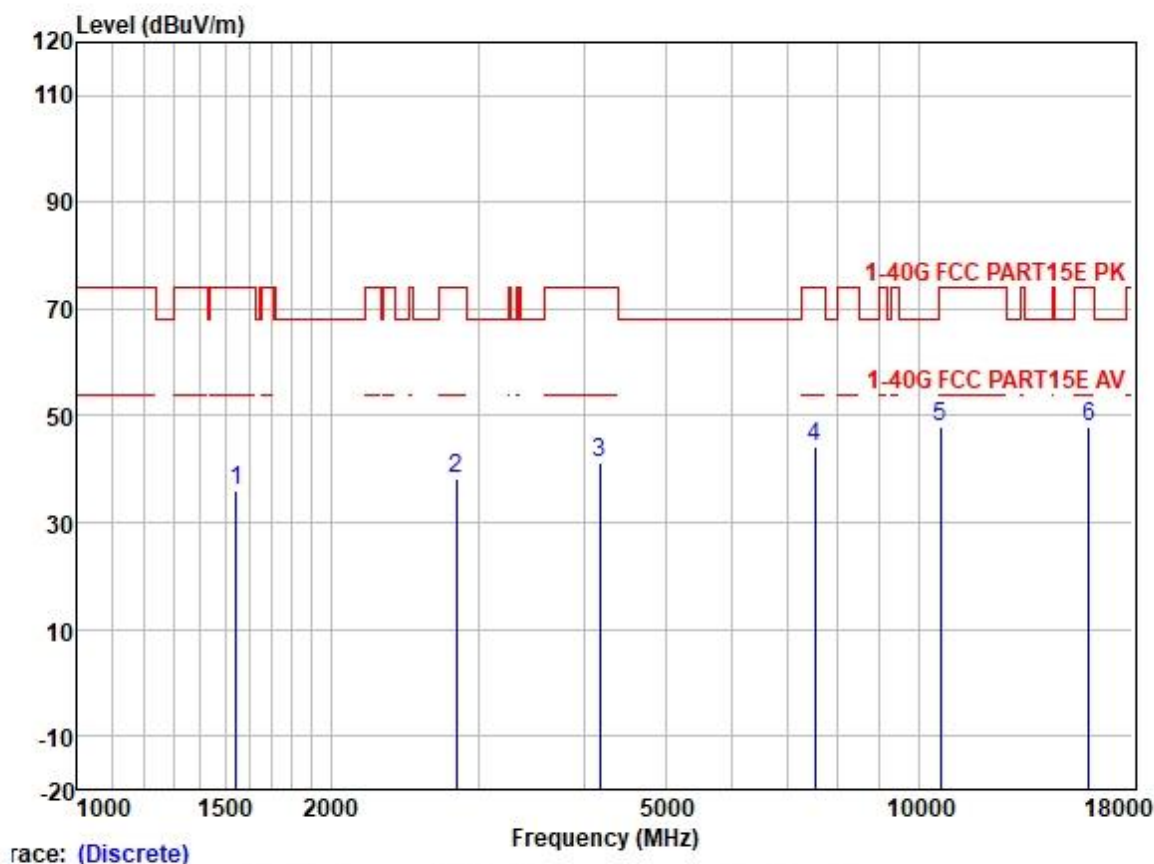
		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1978.082	44.49	26.09	3.06	37.71	35.93	68.20	-32.27	HORIZONTAL	Peak
2	2814.411	43.92	28.17	3.70	37.40	38.39	74.00	-35.61	HORIZONTAL	Peak
3	4015.929	42.83	29.82	4.60	36.80	40.45	74.00	-33.55	HORIZONTAL	Peak
4	6679.040	41.02	34.33	5.83	37.07	44.11	68.20	-24.09	HORIZONTAL	Peak
5	10520.140	38.02	39.50	7.42	37.35	47.59	68.20	-20.61	HORIZONTAL	Peak
6	15780.290	35.54	38.70	9.86	35.39	48.71	74.00	-25.29	HORIZONTAL	Peak

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



		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2332.356	45.56	27.20	3.36	37.62	38.50	74.00	-35.50	HORIZONTAL	Peak
2	3132.079	43.63	28.51	3.95	37.14	38.95	68.20	-29.25	HORIZONTAL	Peak
3	3924.135	43.06	29.72	4.60	36.82	40.56	74.00	-33.44	HORIZONTAL	Peak
4	6267.553	40.49	33.29	6.00	36.95	42.83	68.20	-25.37	HORIZONTAL	Peak
5	10600.980	37.51	39.59	7.46	37.34	47.22	74.00	-26.78	HORIZONTAL	Peak
6	15850.410	33.87	38.52	9.86	35.40	46.85	74.00	-27.15	HORIZONTAL	Peak

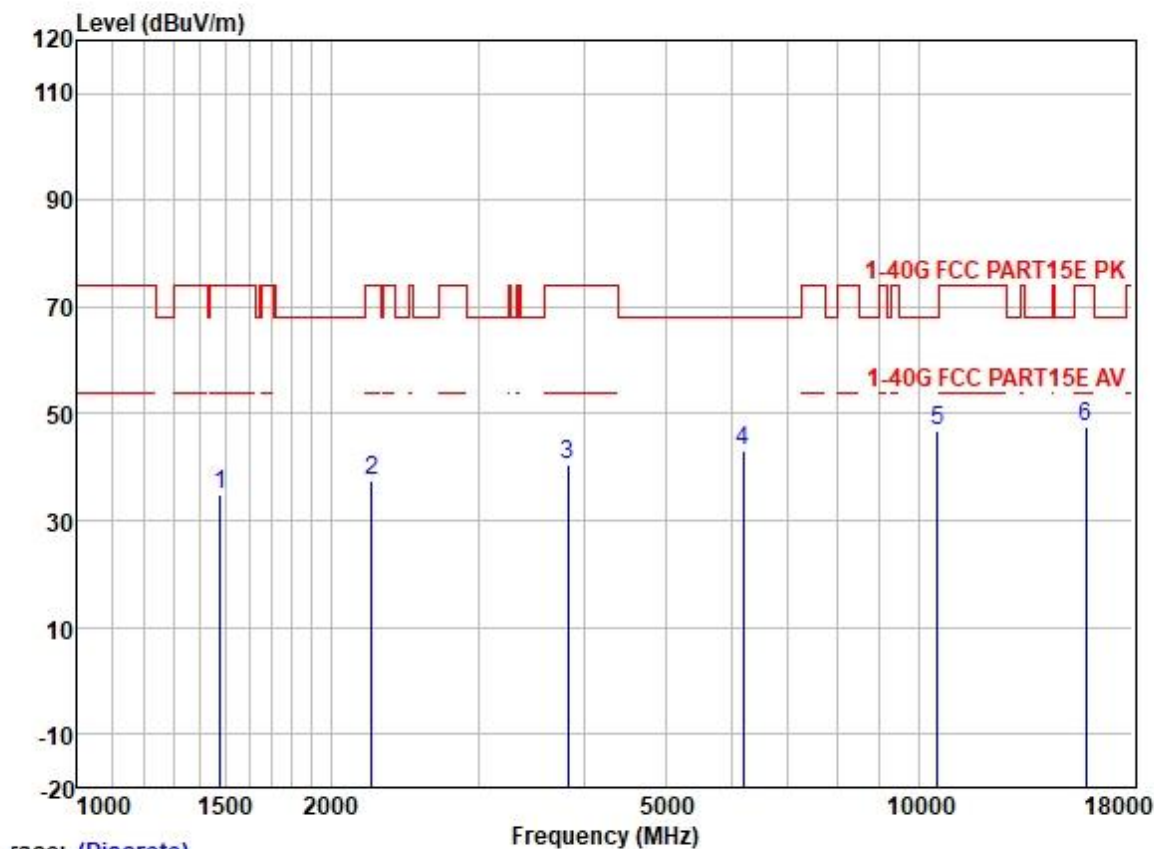
Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1542.733	45.62	25.53	2.80	38.03	35.92	74.00	-38.08	HORIZONTAL Peak
2	2822.558	43.86	28.18	3.70	37.40	38.34	74.00	-35.66	HORIZONTAL Peak
3	4181.768	43.19	30.12	4.60	36.80	41.11	74.00	-32.89	HORIZONTAL Peak
4	7541.114	39.17	36.43	6.25	37.50	44.35	74.00	-29.65	HORIZONTAL Peak
5	10620.010	38.08	39.59	7.46	37.34	47.79	74.00	-26.21	HORIZONTAL Peak
6	15930.140	34.96	38.37	9.85	35.40	47.78	74.00	-26.22	HORIZONTAL Peak

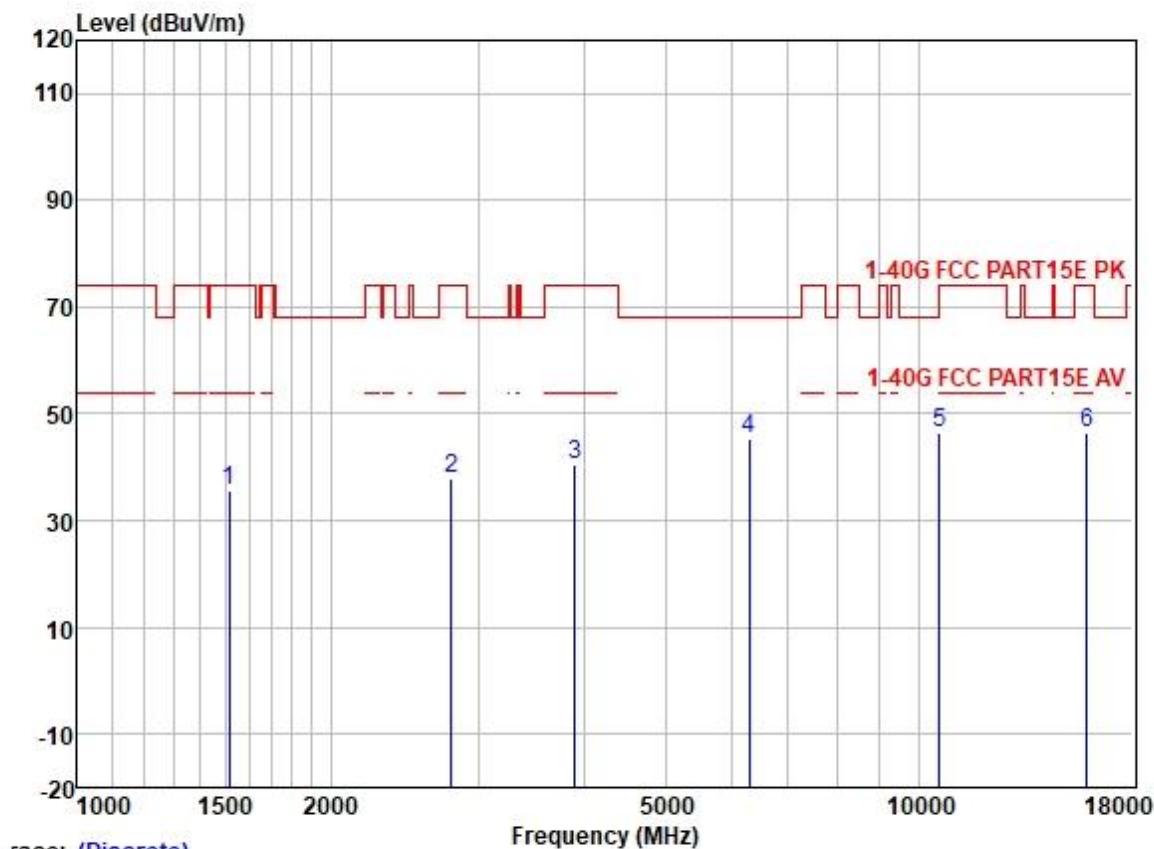
Test Mode: 06; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 40MHz; Channel: Low



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1477.276	44.88	25.48	2.77	38.13	35.00	74.00	-39.00	HORIZONTAL Peak
2	2239.861	44.90	26.84	3.24	37.64	37.34	74.00	-36.66	HORIZONTAL Peak
3	3834.438	43.15	29.59	4.60	36.84	40.50	74.00	-33.50	HORIZONTAL Peak
4	6195.508	41.02	32.96	6.07	36.94	43.11	68.20	-25.09	HORIZONTAL Peak
5	10540.240	37.09	39.53	7.43	37.35	46.70	68.20	-21.50	HORIZONTAL Peak
6	15810.660	34.47	38.61	9.86	35.39	47.55	74.00	-26.45	HORIZONTAL Peak

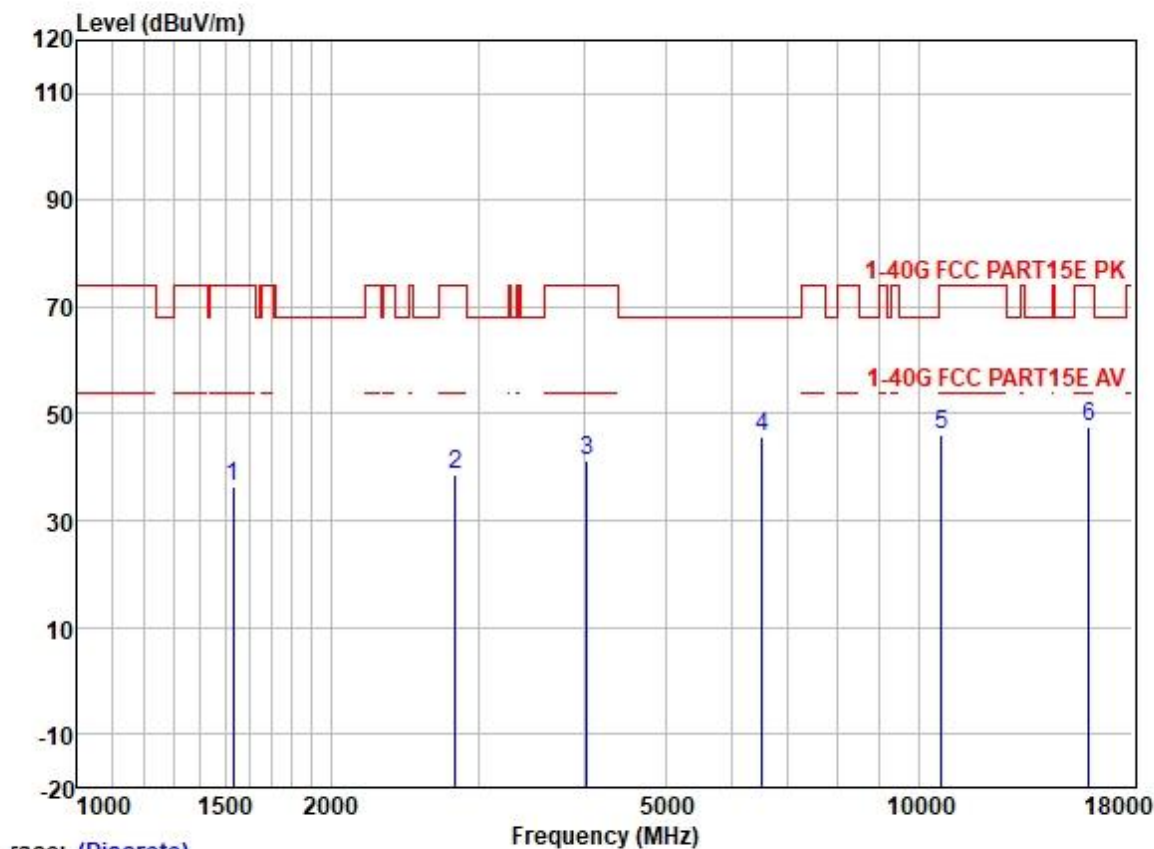
Test Mode: 06; Polarity: Horizontal; Modulation: 802.11ac; Bandwidth: 80MHz; Channel: Low



Trace: (Discrete)

		ReadAntenna		Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1516.210	45.50	25.51	2.80	38.07	35.74	74.00	-38.26	HORIZONTAL	Peak
2	2782.060	43.69	28.10	3.69	37.43	38.05	74.00	-35.95	HORIZONTAL	Peak
3	3901.516	43.10	29.69	4.60	36.82	40.57	74.00	-33.43	HORIZONTAL	Peak
4	6285.695	42.75	33.37	5.98	36.95	45.15	68.20	-23.05	HORIZONTAL	Peak
5	10580.710	36.72	39.56	7.45	37.34	46.39	68.20	-21.81	HORIZONTAL	Peak
6	15870.290	33.60	38.52	9.86	35.40	46.58	74.00	-27.42	HORIZONTAL	Peak

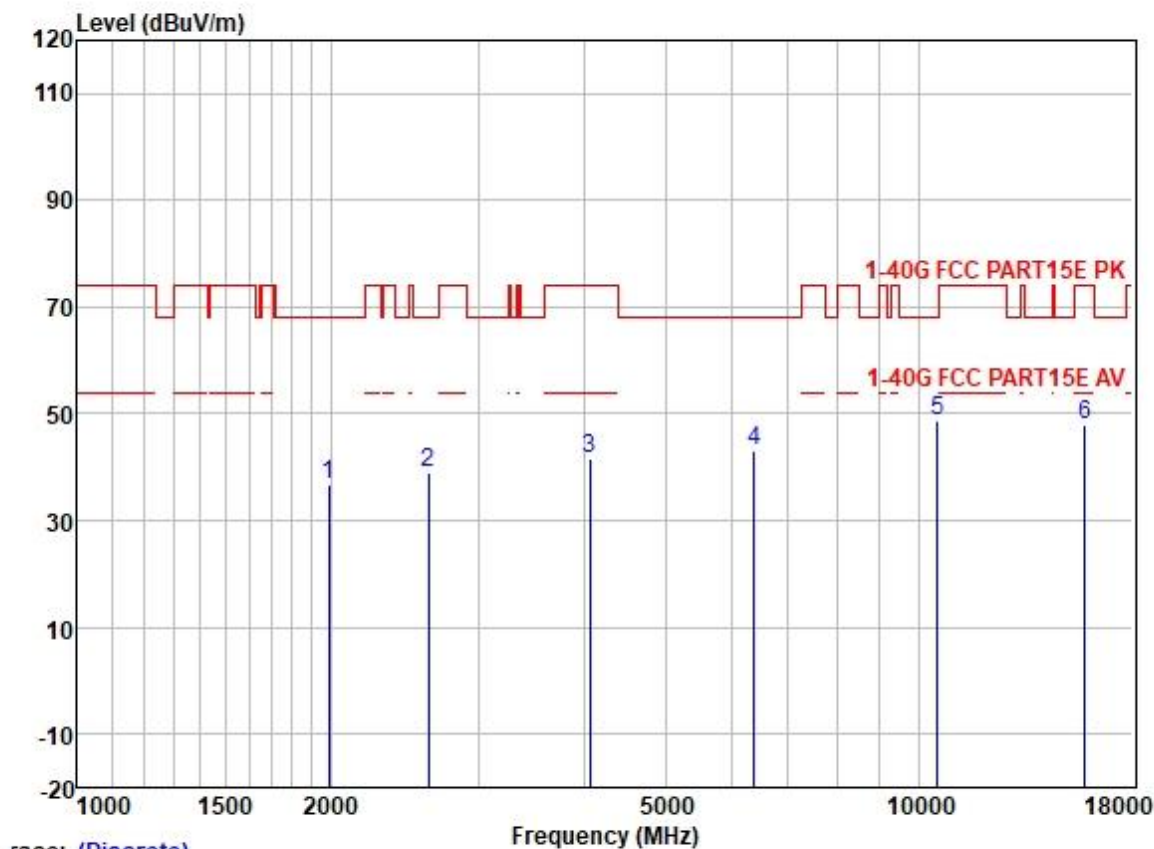
Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Trace: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1533.841	46.31	25.52	2.80	38.07	36.56	74.00	-37.44	VERTICAL	Peak
2	2814.411	44.32	28.17	3.70	37.40	38.79	74.00	-35.21	VERTICAL	Peak
3	4039.212	43.46	29.85	4.60	36.80	41.11	74.00	-32.89	VERTICAL	Peak
4	6526.373	42.90	34.03	5.84	37.02	45.75	68.20	-22.45	VERTICAL	Peak
5	10639.710	36.31	39.63	7.48	37.33	46.09	74.00	-27.91	VERTICAL	Peak
6	15960.660	34.77	38.37	9.85	35.40	47.59	74.00	-26.41	VERTICAL	Peak

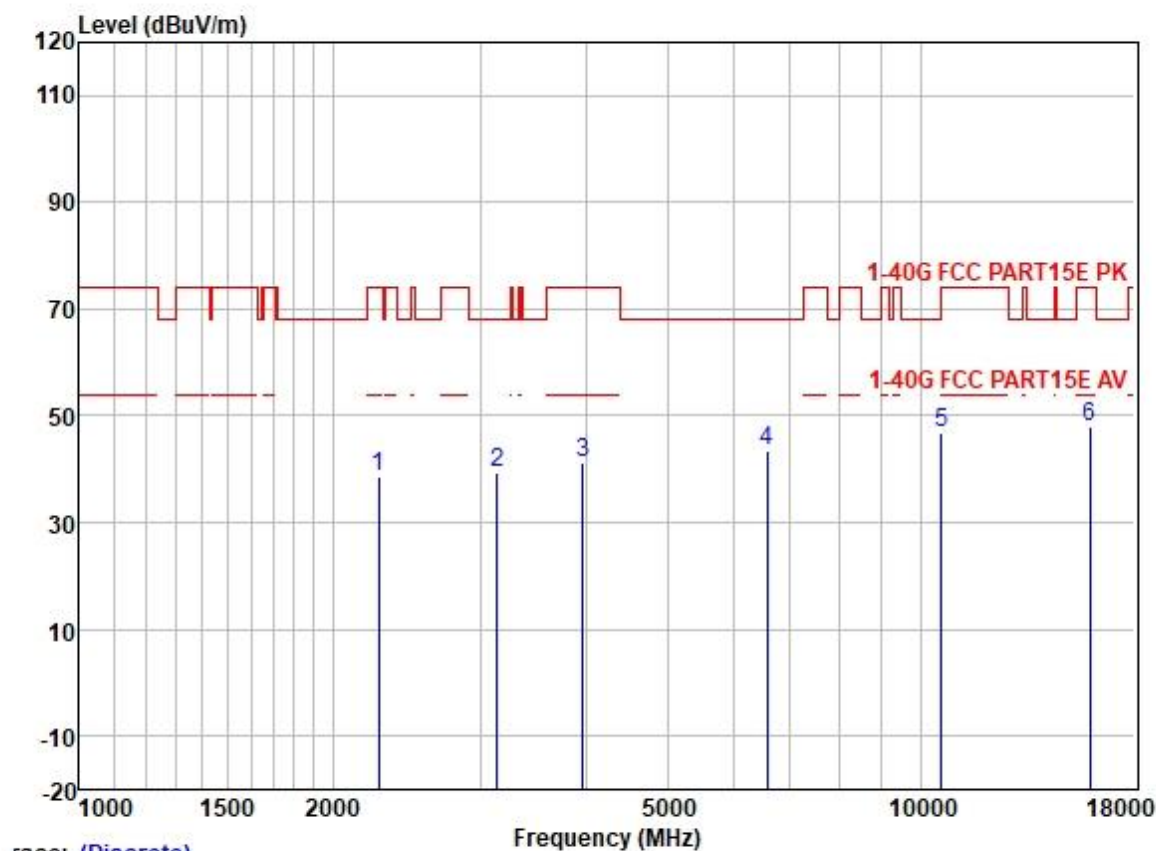
Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1989.550	45.13	26.09	3.08	37.70	36.60	68.20	-31.60	VERTICAL Peak
2	2618.218	45.27	27.66	3.51	37.51	38.93	68.20	-29.27	VERTICAL Peak
3	4062.629	44.08	29.88	4.60	36.80	41.76	74.00	-32.24	VERTICAL Peak
4	6377.195	40.65	33.68	5.91	36.98	43.26	68.20	-24.94	VERTICAL Peak
5	10520.420	39.25	39.50	7.42	37.35	48.82	68.20	-19.38	VERTICAL Peak
6	15780.210	34.84	38.70	9.86	35.39	48.01	74.00	-25.99	VERTICAL Peak

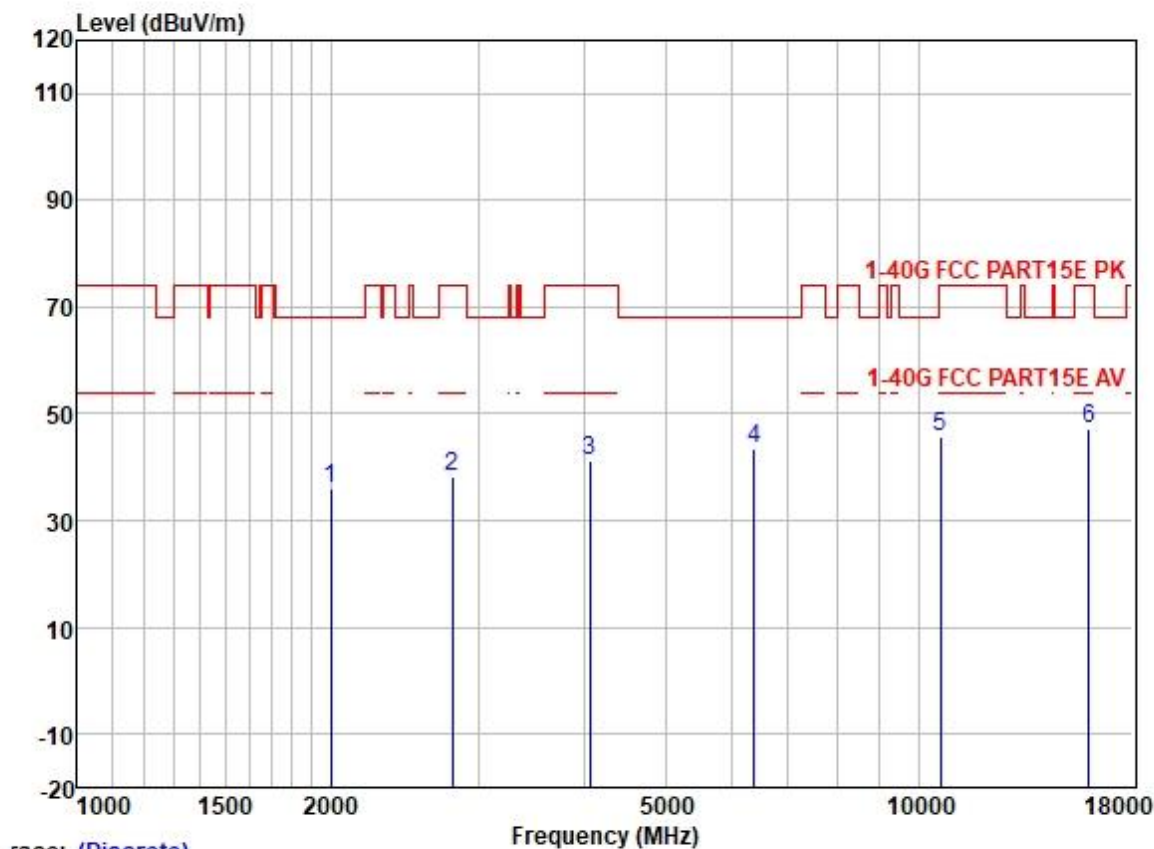
Test Mode: 06; Polarity: Vertical; Modulation: 802.11a; Bandwidth: 20MHz; Channel: middle



race: (Discrete)

		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2265.907	45.97	26.98	3.27	37.63	38.59	74.00	-35.41	VERTICAL	Peak
2	3141.145	43.90	28.51	3.95	37.12	39.24	68.20	-28.96	VERTICAL	Peak
3	3969.767	43.80	29.77	4.60	36.81	41.36	74.00	-32.64	VERTICAL	Peak
4	6564.209	40.68	34.09	5.84	37.03	43.58	68.20	-24.62	VERTICAL	Peak
5	10600.580	37.15	39.59	7.46	37.34	46.86	74.00	-27.14	VERTICAL	Peak
6	15900.660	34.87	38.44	9.86	35.40	47.77	74.00	-26.23	VERTICAL	Peak

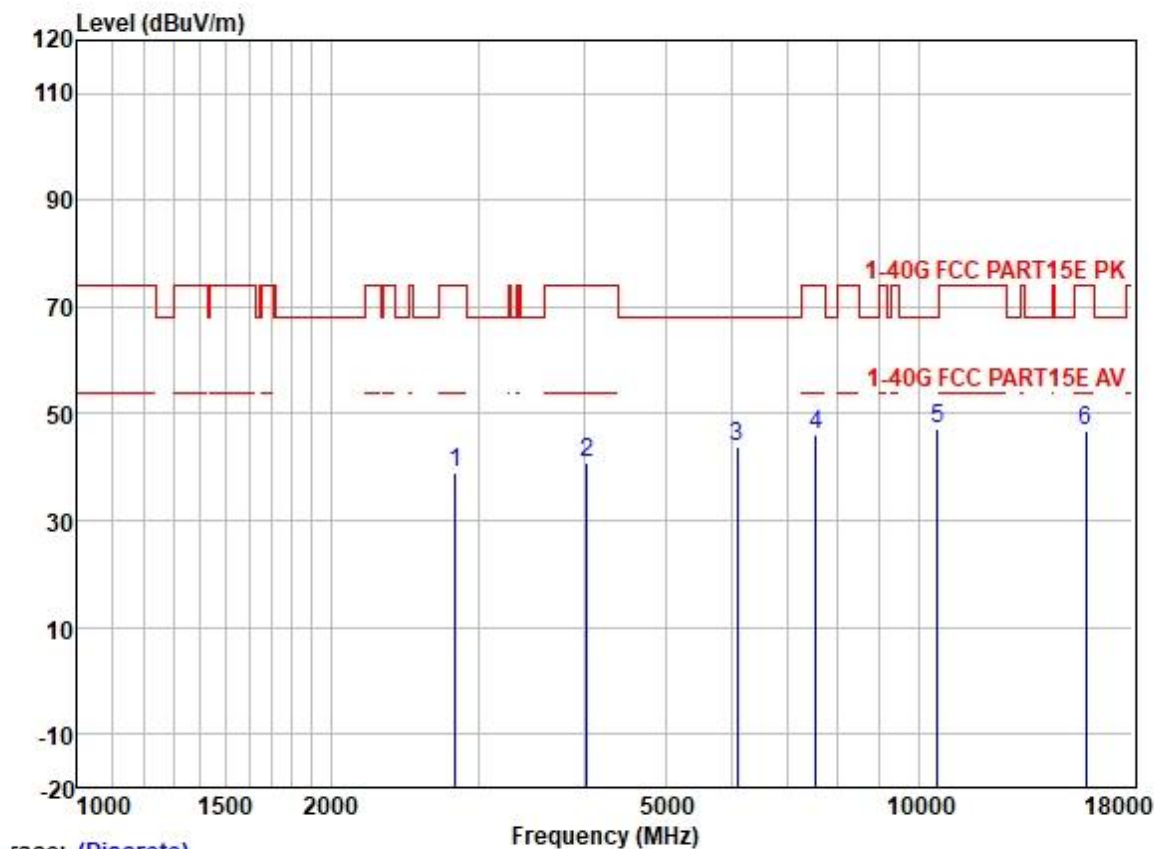
Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



race: (Discrete)

		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2001.084	44.36	26.10	3.10	37.70	35.86	68.20	-32.34	VERTICAL	Peak
2	2790.113	43.90	28.12	3.69	37.41	38.30	74.00	-35.70	VERTICAL	Peak
3	4062.629	43.39	29.88	4.60	36.80	41.07	74.00	-32.93	VERTICAL	Peak
4	6377.195	41.02	33.68	5.91	36.98	43.63	68.20	-24.57	VERTICAL	Peak
5	10620.530	36.10	39.59	7.46	37.34	45.81	74.00	-28.19	VERTICAL	Peak
6	15930.900	34.53	38.37	9.85	35.40	47.35	74.00	-26.65	VERTICAL	Peak

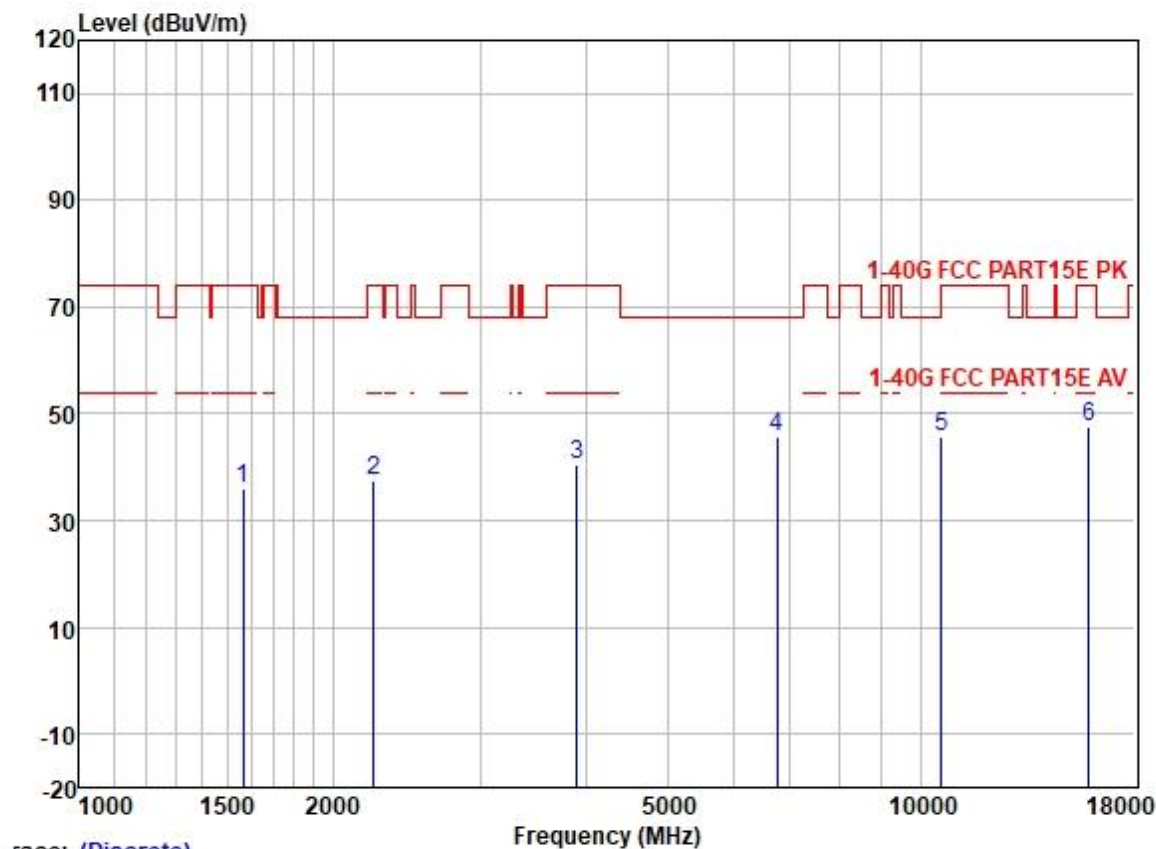
Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	2814.411	44.42	28.17	3.70	37.40	38.89	74.00	-35.11	VERTICAL Peak
2	4039.212	43.17	29.85	4.60	36.80	40.82	74.00	-33.18	VERTICAL Peak
3	6088.991	41.94	32.61	6.15	36.92	43.78	68.20	-24.42	VERTICAL Peak
4	7562.942	40.71	36.45	6.25	37.51	45.90	74.00	-28.10	VERTICAL Peak
5	10540.800	37.51	39.53	7.43	37.35	47.12	68.20	-21.08	VERTICAL Peak
6	15810.560	33.86	38.61	9.86	35.39	46.94	74.00	-27.06	VERTICAL Peak

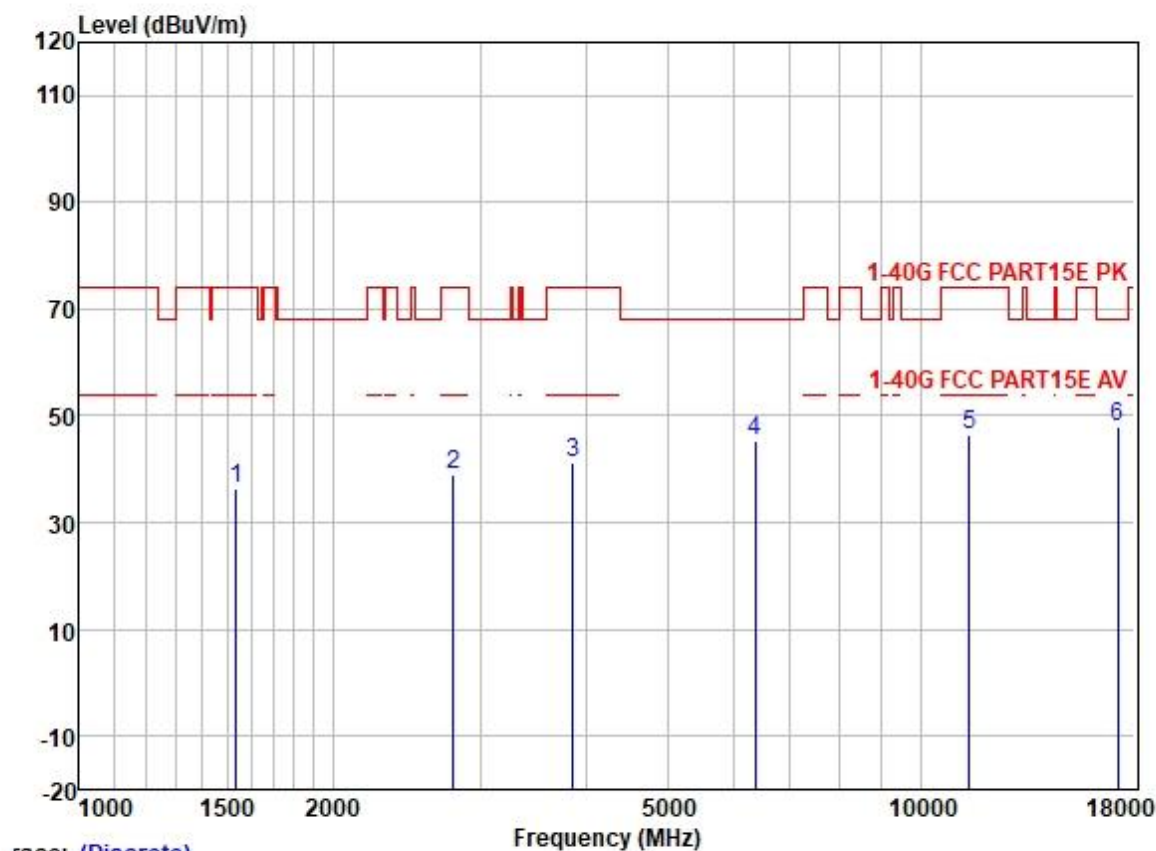
Test Mode: 06; Polarity: Vertical; Modulation: 802.11ac; Bandwidth: 80MHz; Channel: Low



Trace: (Discrete)

	Read Freq	Antenna Level	Cable Factor	Preamplifier Loss	Preamp Factor	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1565.191	45.62	25.55	2.80	38.00	35.97	74.00	-38.03	VERTICAL Peak
2	2239.861	44.89	26.84	3.24	37.64	37.33	74.00	-36.67	VERTICAL Peak
3	3901.516	43.01	29.69	4.60	36.82	40.48	74.00	-33.52	VERTICAL Peak
4	6756.708	42.54	34.56	5.82	37.10	45.82	68.20	-22.38	VERTICAL Peak
5	10580.800	36.18	39.56	7.45	37.34	45.85	68.20	-22.35	VERTICAL Peak
6	15870.560	34.58	38.52	9.86	35.40	47.56	74.00	-26.44	VERTICAL Peak

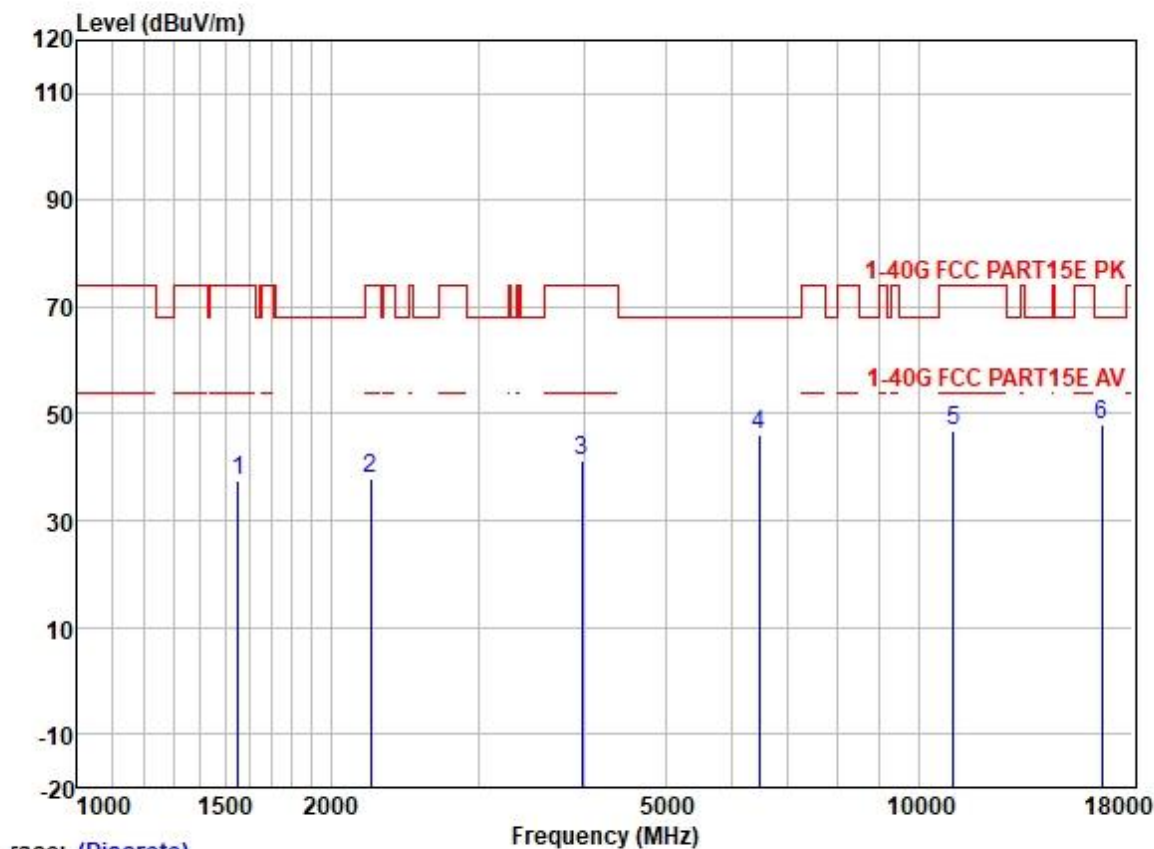
Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	1538.281	45.93	25.53	2.80	38.03	36.23	74.00	-37.77	HORIZONTAL Peak
2	2782.060	44.53	28.10	3.69	37.43	38.89	74.00	-35.11	HORIZONTAL Peak
3	3856.668	43.68	29.62	4.60	36.84	41.06	74.00	-32.94	HORIZONTAL Peak
4	6358.789	42.90	33.63	5.92	36.97	45.48	68.20	-22.72	HORIZONTAL Peak
5	11440.260	35.52	39.92	8.33	37.15	46.62	74.00	-27.38	HORIZONTAL Peak
6	17160.690	30.85	42.56	9.77	35.34	47.84	68.20	-20.36	HORIZONTAL Peak

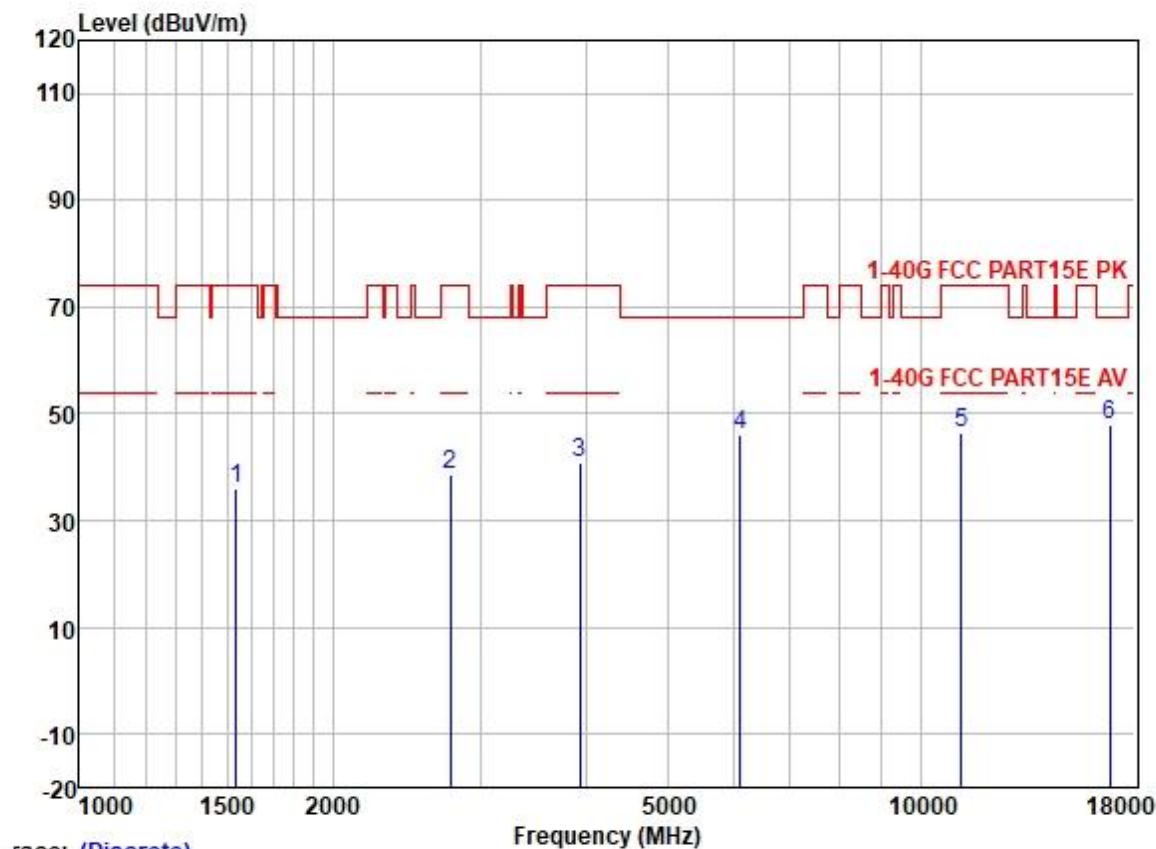
Test Mode: 07; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: Low



Trace: (Discrete)

	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1551.677	47.09	25.54	2.80	38.03	37.40	74.00	-36.60	HORIZONTAL Peak
2	2233.396	45.61	26.80	3.23	37.64	38.00	74.00	-36.00	HORIZONTAL Peak
3	3981.257	43.83	29.78	4.60	36.81	41.40	74.00	-32.60	HORIZONTAL Peak
4	6470.026	43.31	33.92	5.86	37.00	46.09	68.20	-22.11	HORIZONTAL Peak
5	11000.020	36.15	40.10	7.71	37.25	46.71	74.00	-27.29	HORIZONTAL Peak
6	16500.210	34.16	39.60	9.44	35.38	47.82	68.20	-20.38	HORIZONTAL Peak

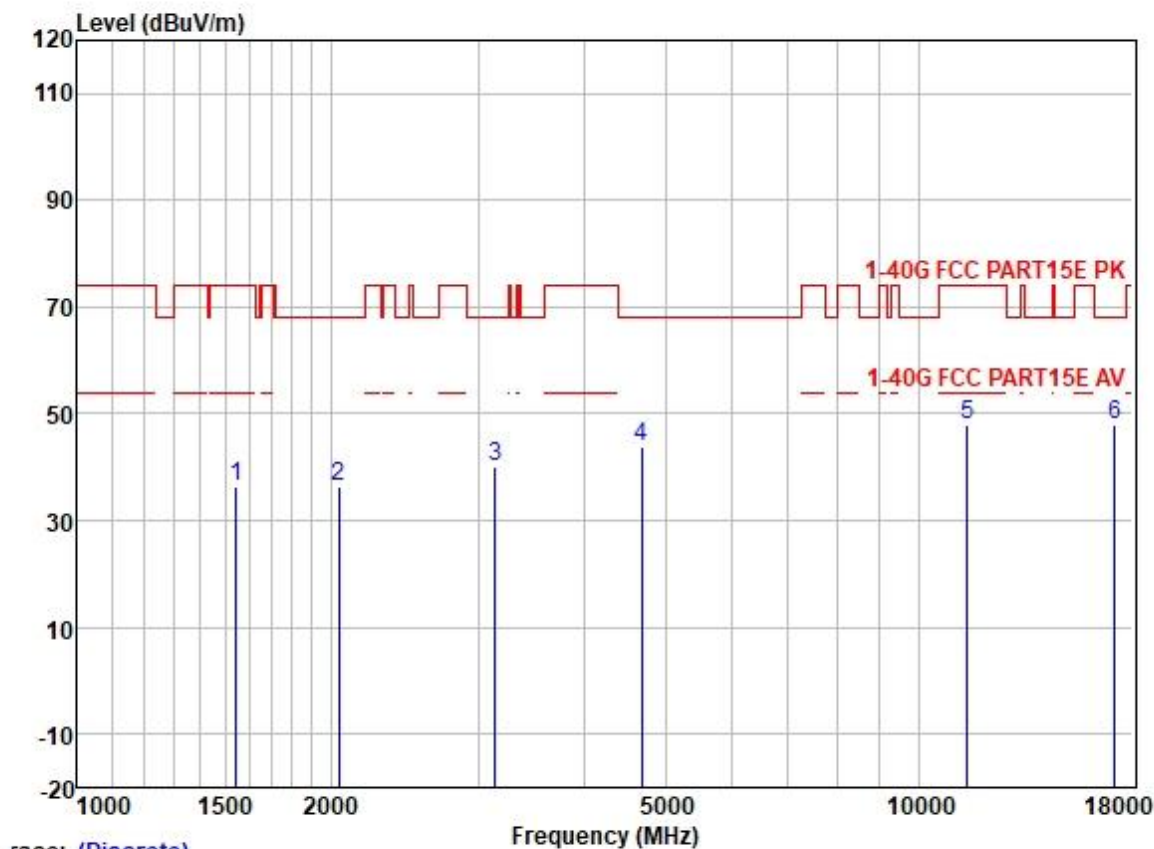
Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



race: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark	
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1538.281	45.66	25.53	2.80	38.03	35.96	74.00	-38.04	HORIZONTAL Peak
2	2758.041	44.55	28.03	3.66	37.44	38.80	74.00	-35.20	HORIZONTAL Peak
3	3935.493	43.23	29.73	4.60	36.82	40.74	74.00	-33.26	HORIZONTAL Peak
4	6106.616	44.11	32.66	6.14	36.92	45.99	68.20	-22.21	HORIZONTAL Peak
5	11200.160	35.49	40.03	7.95	37.20	46.27	74.00	-27.73	HORIZONTAL Peak
6	16800.850	33.22	40.71	9.41	35.37	47.97	68.20	-20.23	HORIZONTAL Peak

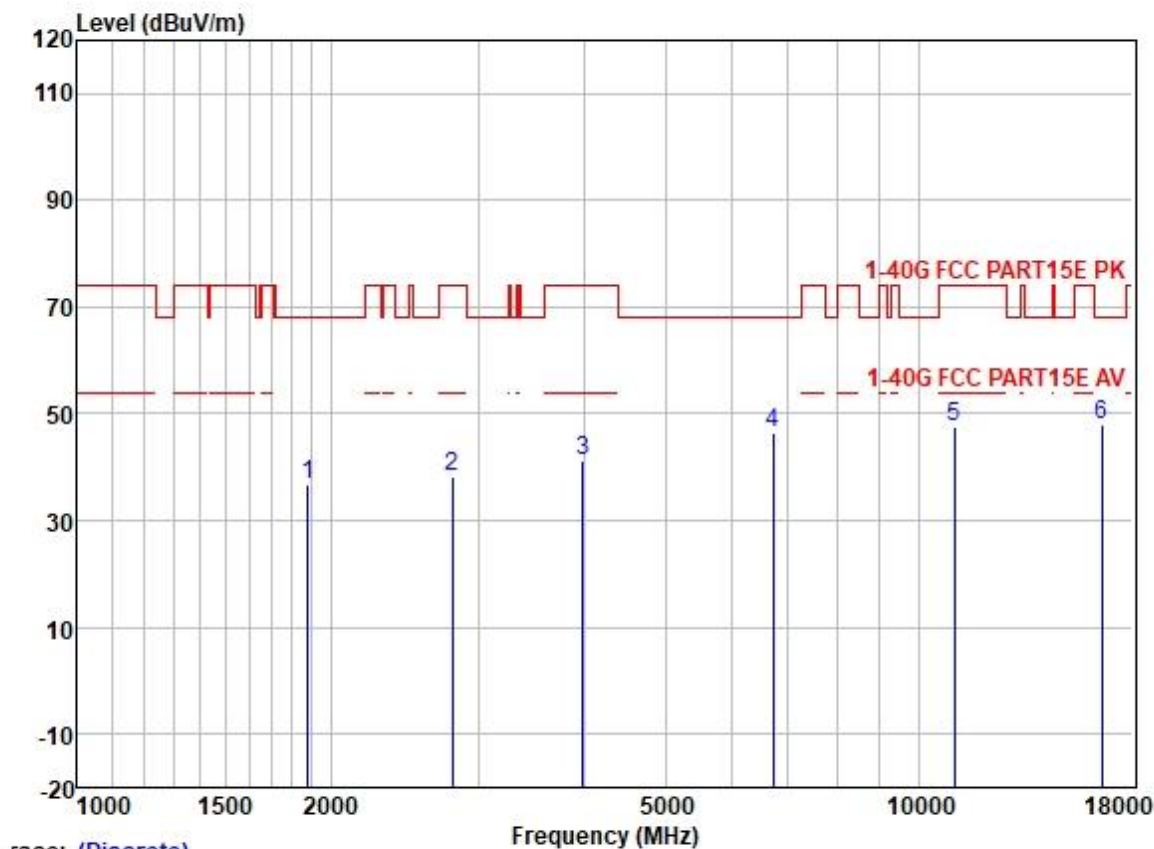
Test Mode: 07; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 40MHz; Channel: High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1542.733	46.15	25.53	2.80	38.03	36.45	74.00	-37.55	HORIZONTAL	Peak
2	2047.895	44.93	26.18	3.12	37.69	36.54	68.20	-31.66	HORIZONTAL	Peak
3	3141.145	44.91	28.51	3.95	37.12	40.25	68.20	-27.95	HORIZONTAL	Peak
4	4680.751	43.99	31.10	5.40	36.82	43.67	68.20	-24.53	HORIZONTAL	Peak
5	11420.780	36.88	39.92	8.33	37.16	47.97	74.00	-26.03	HORIZONTAL	Peak
6	17130.990	30.84	42.56	9.77	35.34	47.83	68.20	-20.37	HORIZONTAL	Peak

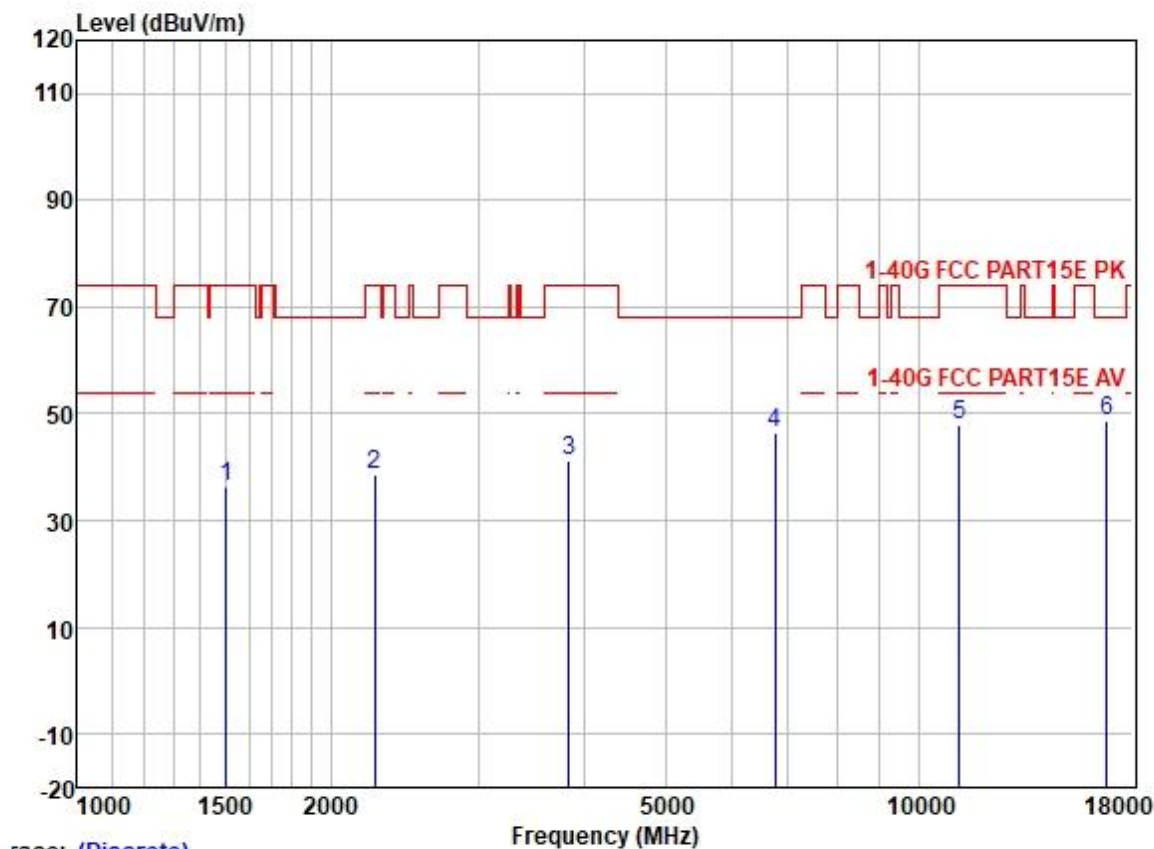
Test Mode: 07; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 40MHz; Channel: Low



Trace: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1877.800	45.65	26.02	2.92	37.77	36.82	68.20	-31.38	HORIZONTAL	Peak
2	2790.113	43.94	28.12	3.69	37.41	38.34	74.00	-35.66	HORIZONTAL	Peak
3	3992.781	43.64	29.79	4.60	36.80	41.23	74.00	-32.77	HORIZONTAL	Peak
4	6717.762	43.12	34.44	5.83	37.09	46.30	68.20	-21.90	HORIZONTAL	Peak
5	11020.230	37.14	40.10	7.71	37.24	47.71	74.00	-26.29	HORIZONTAL	Peak
6	16530.320	33.95	39.76	9.44	35.38	47.77	68.20	-20.43	HORIZONTAL	Peak

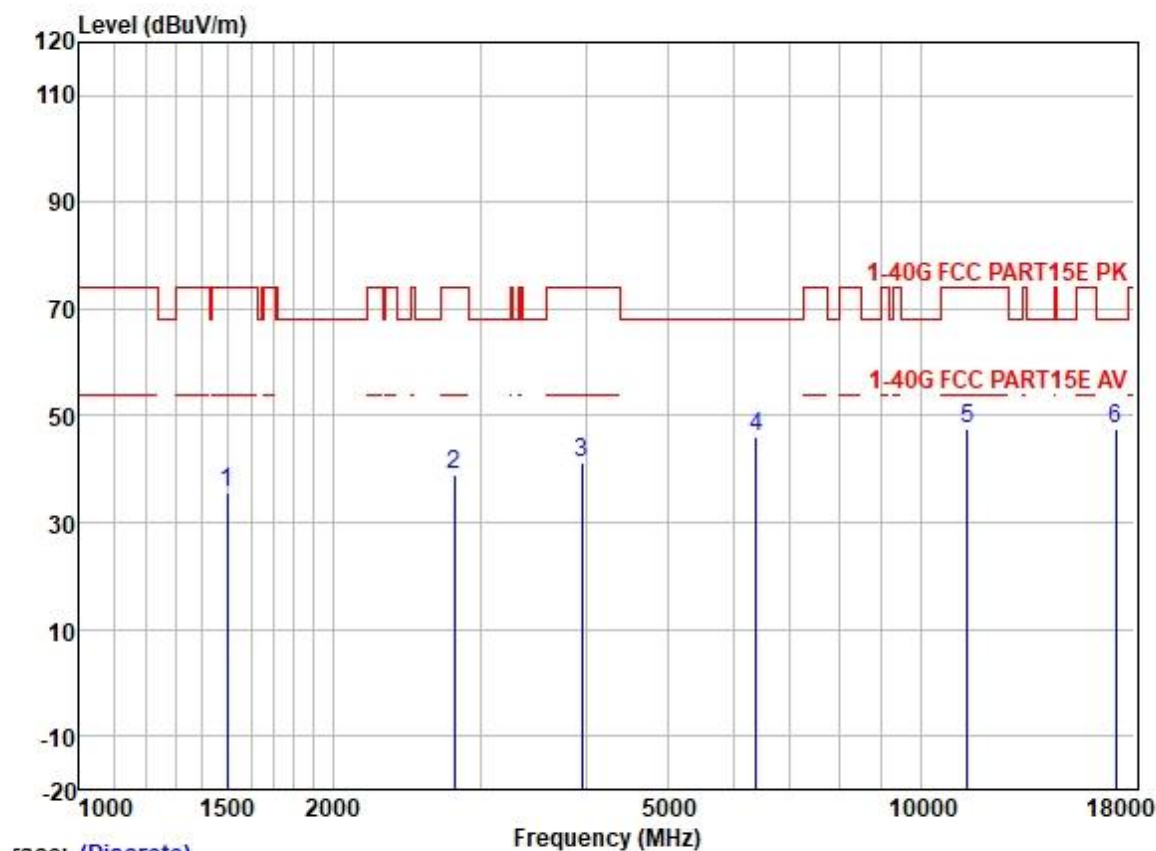
Test Mode: 07; Polarity: Horizontal; Modulation: 802.11n; Bandwidth: 40MHz; Channel: middle



Trace: (Discrete)

	Read	Antenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1503.119	46.00	25.50	2.80	38.10	36.20	74.00	-37.80	HORIZONTAL Peak
2	2259.367	46.18	26.95	3.27	37.64	38.76	74.00	-35.24	HORIZONTAL Peak
3	3845.537	43.86	29.60	4.60	36.84	41.22	74.00	-32.78	HORIZONTAL Peak
4	6756.708	43.09	34.56	5.82	37.10	46.37	68.20	-21.83	HORIZONTAL Peak
5	11180.700	37.08	40.04	7.90	37.20	47.82	74.00	-26.18	HORIZONTAL Peak
6	16770.140	33.91	40.71	9.41	35.37	48.66	68.20	-19.54	HORIZONTAL Peak

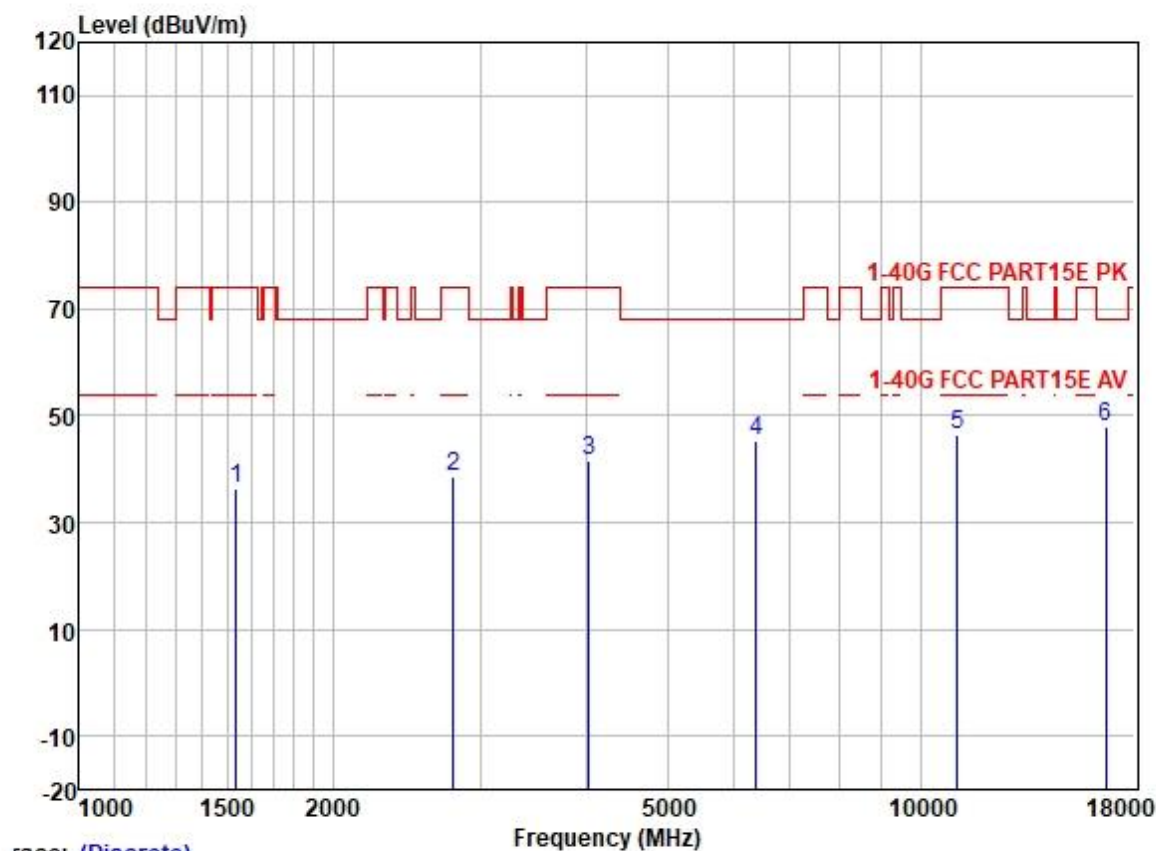
Test Mode: 07; Polarity: Horizontal; Modulation: 802.11ac; Bandwidth: 80MHz; Channel: High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
		Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1498.781	45.55	25.50	2.80	38.10	35.75	74.00	-38.25	HORIZONTAL	Peak
2	2790.113	44.77	28.12	3.69	37.41	39.17	74.00	-34.83	HORIZONTAL	Peak
3	3958.309	43.55	29.75	4.60	36.81	41.09	74.00	-32.91	HORIZONTAL	Peak
4	6377.195	43.42	33.68	5.91	36.98	46.03	68.20	-22.17	HORIZONTAL	Peak
5	11380.540	36.73	39.95	8.23	37.16	47.75	74.00	-26.25	HORIZONTAL	Peak
6	17070.710	30.84	42.32	9.63	35.34	47.45	68.20	-20.75	HORIZONTAL	Peak

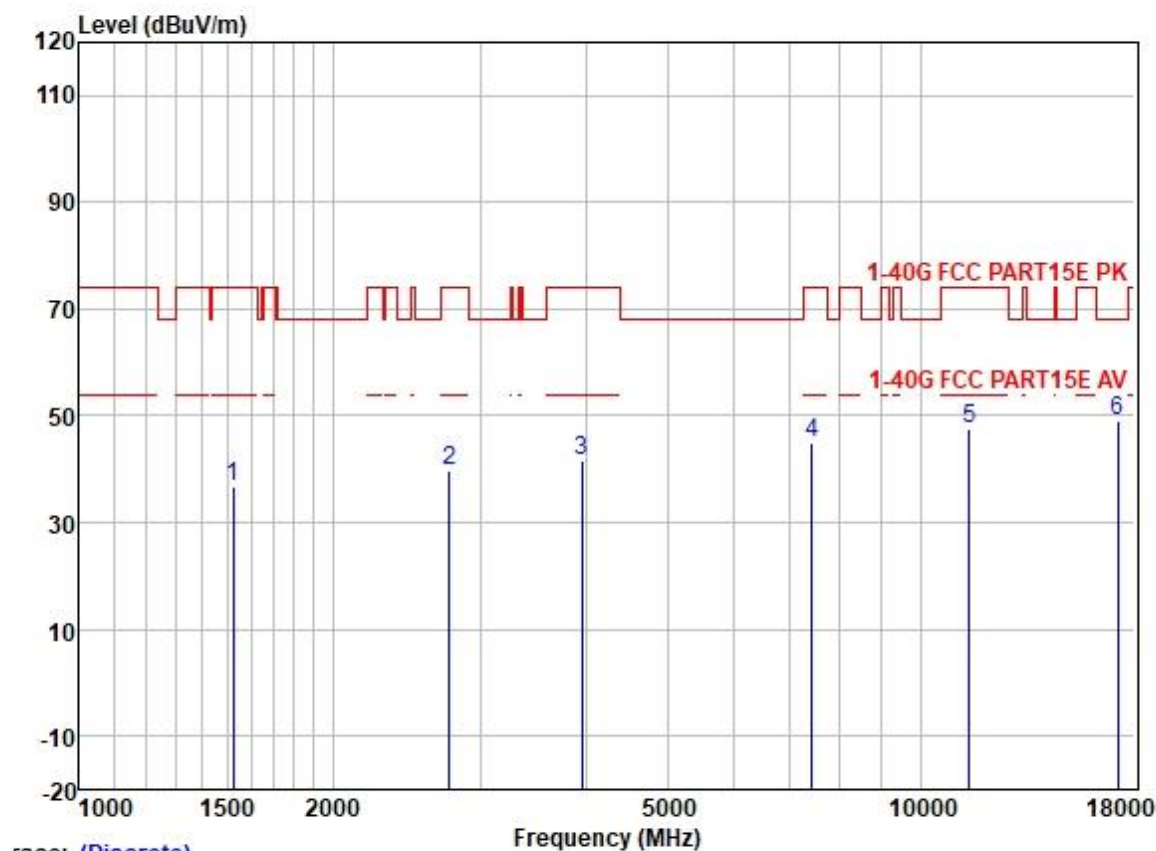
Test Mode: 07; Polarity: Horizontal; Modulation: 802.11ac; Bandwidth: 80MHz; Channel: Low



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
		Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1538.281	45.95	25.53	2.80	38.03	36.25	74.00	-37.75	HORIZONTAL	Peak
2	2782.060	44.24	28.10	3.69	37.43	38.60	74.00	-35.40	HORIZONTAL	Peak
3	4039.212	43.83	29.85	4.60	36.80	41.48	74.00	-32.52	HORIZONTAL	Peak
4	6377.195	42.84	33.68	5.91	36.98	45.45	68.20	-22.75	HORIZONTAL	Peak
5	11060.530	35.97	40.08	7.78	37.23	46.60	74.00	-27.40	HORIZONTAL	Peak
6	16590.820	33.95	39.93	9.43	35.38	47.93	68.20	-20.27	HORIZONTAL	Peak

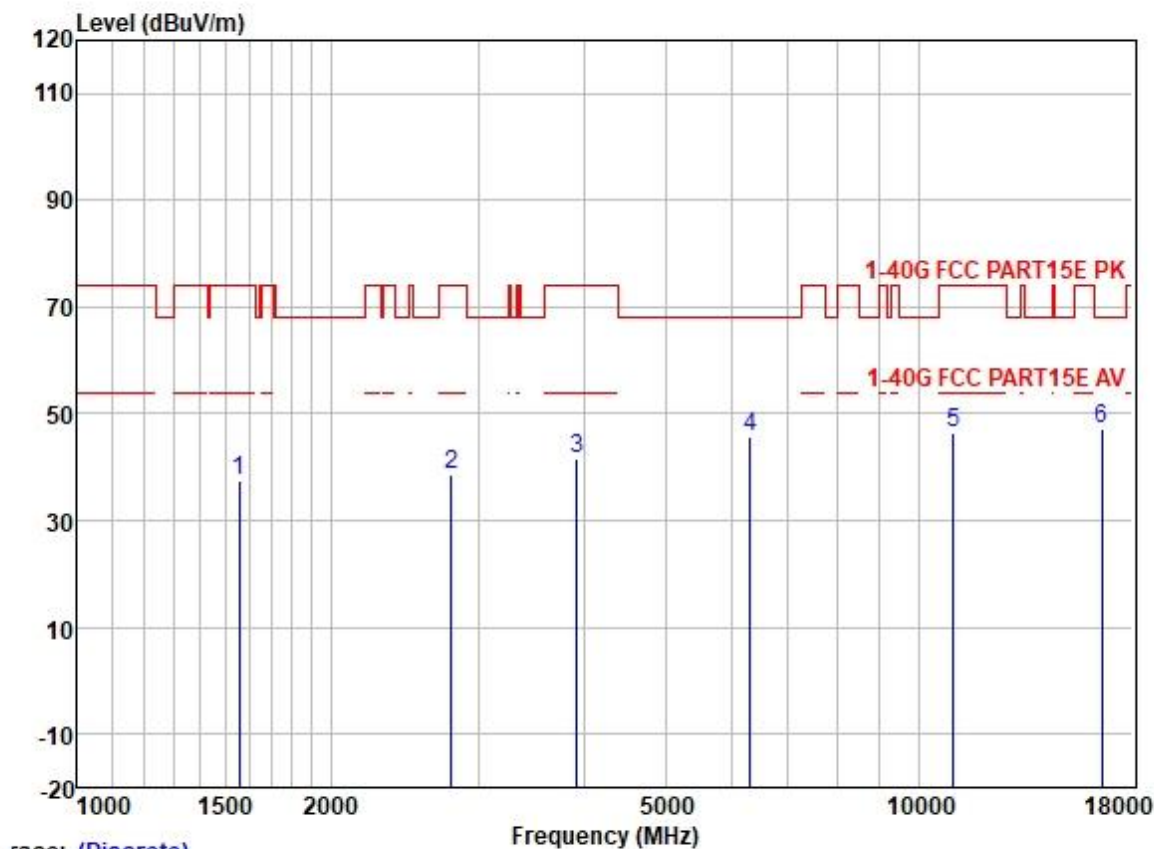
Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel: high



race: (Discrete)

		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1525.000	46.37	25.52	2.80	38.07	36.62	74.00	-37.38	VERTICAL	Peak
2	2750.080	45.53	28.01	3.65	37.44	39.75	74.00	-34.25	VERTICAL	Peak
3	3958.309	43.89	29.75	4.60	36.81	41.43	74.00	-32.57	VERTICAL	Peak
4	7432.914	39.90	36.27	6.22	37.47	44.92	74.00	-29.08	VERTICAL	Peak
5	11440.870	36.39	39.92	8.33	37.15	47.49	74.00	-26.51	VERTICAL	Peak
6	17160.910	31.95	42.56	9.77	35.34	48.94	68.20	-19.26	VERTICAL	Peak

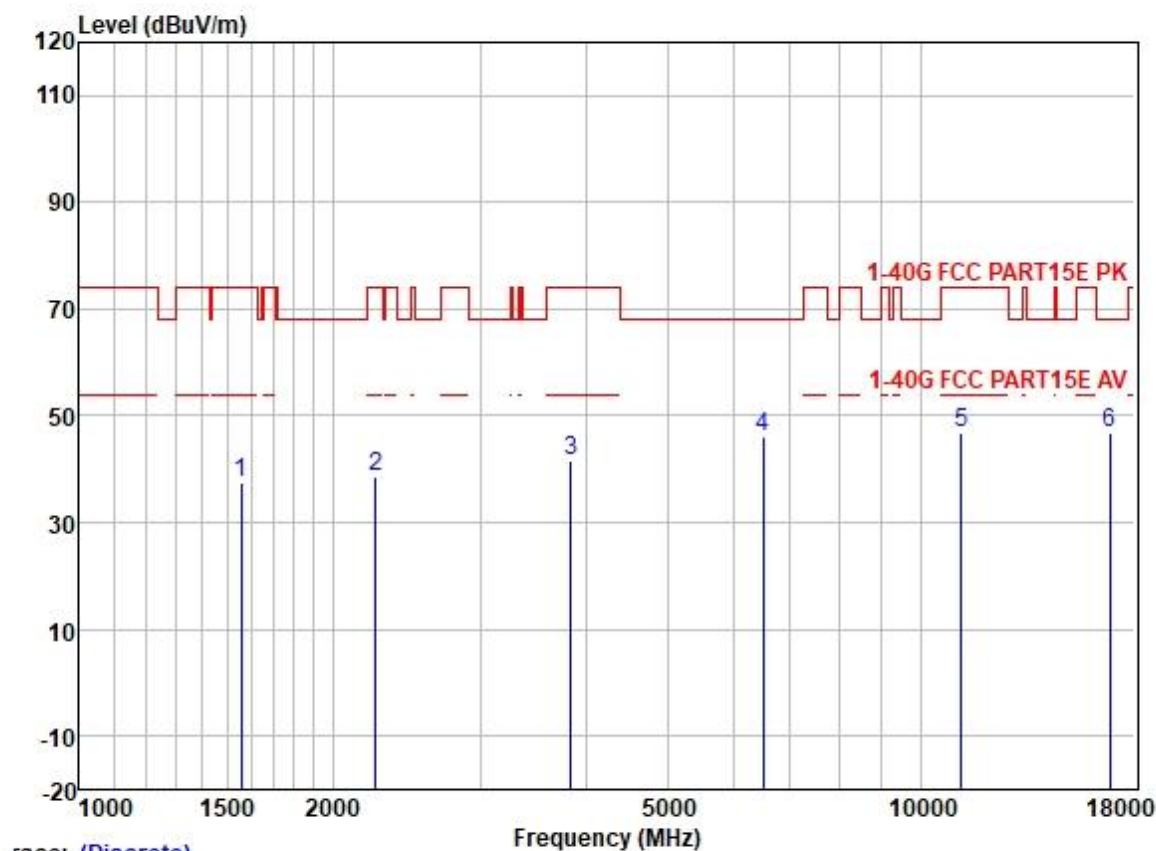
Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Trace: (Discrete)

		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1556.169	47.22	25.54	2.80	38.03	37.53	74.00	-36.47	VERTICAL	Peak
2	2782.060	44.28	28.10	3.69	37.43	38.64	74.00	-35.36	VERTICAL	Peak
3	3924.135	43.94	29.72	4.60	36.82	41.44	74.00	-32.56	VERTICAL	Peak
4	6303.890	43.32	33.44	5.97	36.96	45.77	68.20	-22.43	VERTICAL	Peak
5	11000.800	35.98	40.10	7.71	37.25	46.54	74.00	-27.46	VERTICAL	Peak
6	16500.890	33.67	39.60	9.44	35.38	47.33	68.20	-20.87	VERTICAL	Peak

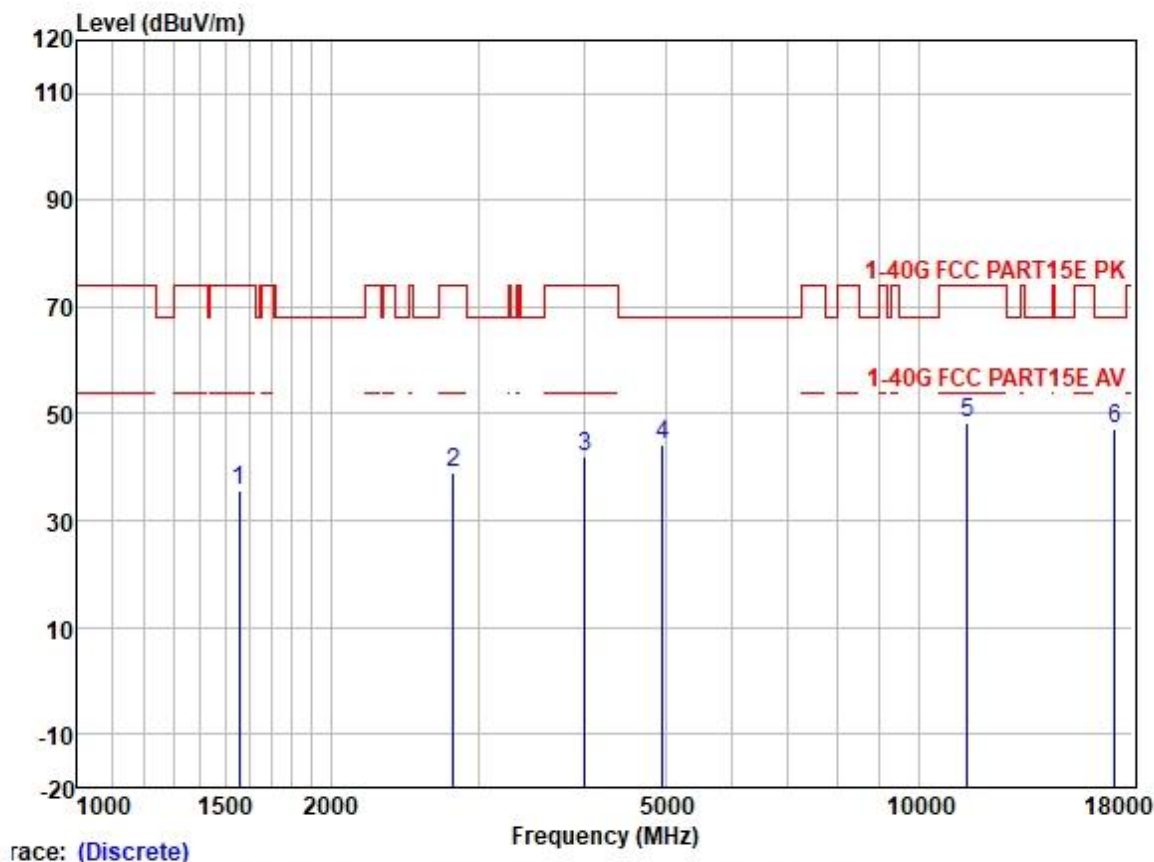
Test Mode: 07; Polarity: Vertical; Modulation: 802.11a; Bandwidth: 20MHz; Channel: middle



race: (Discrete)

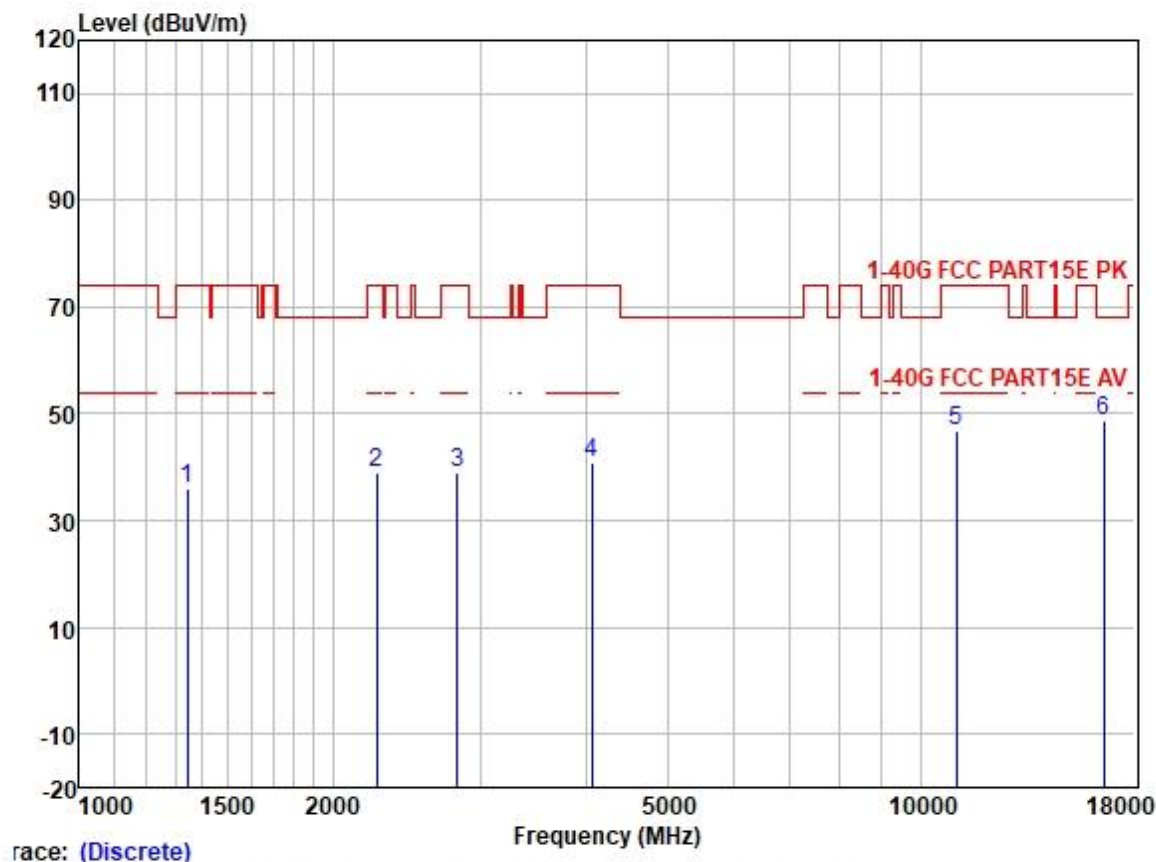
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1556.169	47.20	25.54	2.80	38.03	37.51	74.00	-36.49	VERTICAL Peak
2	2252.846	46.22	26.92	3.26	37.64	38.76	74.00	-35.24	VERTICAL Peak
3	3845.537	44.33	29.60	4.60	36.84	41.69	74.00	-32.31	VERTICAL Peak
4	6507.536	43.07	34.00	5.84	37.01	45.90	68.20	-22.30	VERTICAL Peak
5	11200.710	35.89	40.03	7.95	37.20	46.67	74.00	-27.33	VERTICAL Peak
6	16800.070	32.22	40.71	9.41	35.37	46.97	68.20	-21.23	VERTICAL Peak

Test Mode: 07; Polarity: Vertical; Modulation: 802.11n; Bandwidth: 40MHz; Channel: High



	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1556.169	45.32	25.54	2.80	38.03	35.63	74.00	-38.37	VERTICAL Peak
2	2798.189	44.55	28.13	3.70	37.41	38.97	74.00	-35.03	VERTICAL Peak
3	4015.929	44.48	29.82	4.60	36.80	42.10	74.00	-31.90	VERTICAL Peak
4	4959.307	43.75	31.65	5.65	36.84	44.21	68.20	-23.99	VERTICAL Peak
5	11420.450	37.08	39.92	8.33	37.16	48.17	74.00	-25.83	VERTICAL Peak
6	17130.560	30.38	42.56	9.77	35.34	47.37	68.20	-20.83	VERTICAL Peak

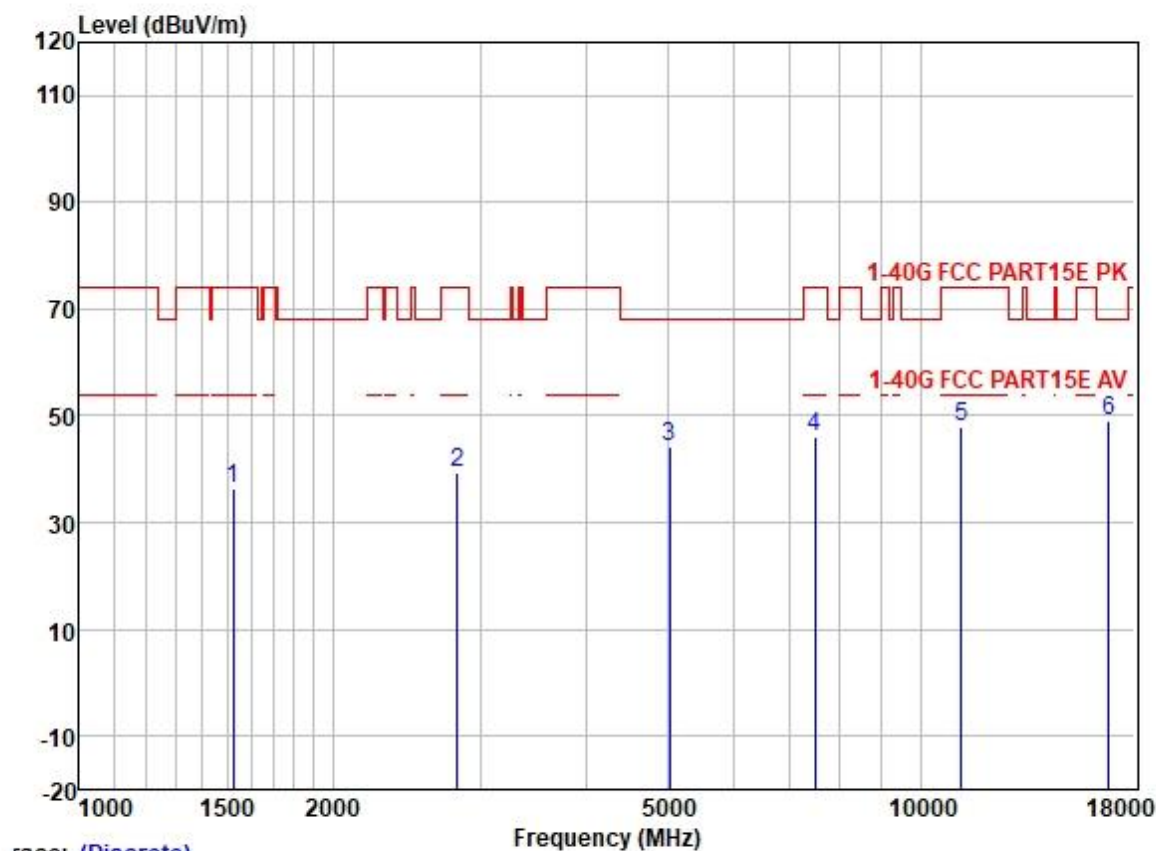
Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Trace: (Discrete)

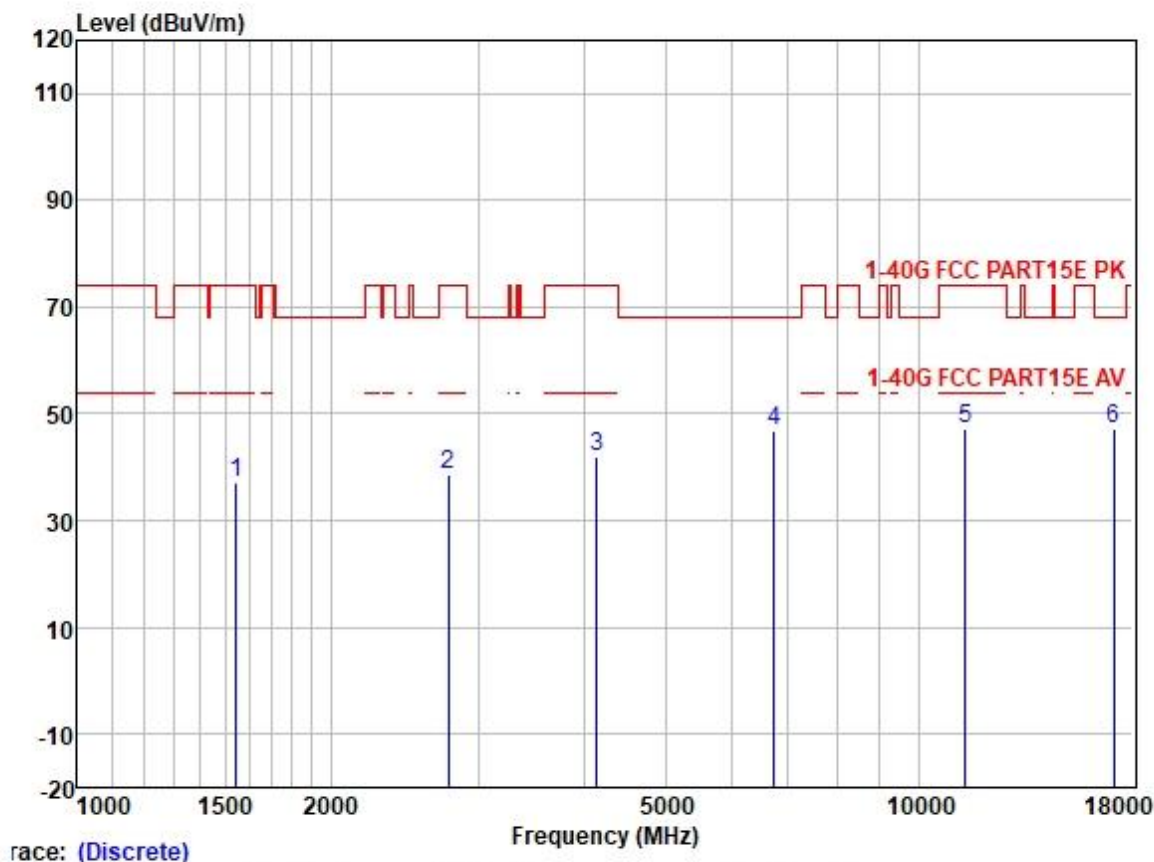
	Freq	Read	Antenna	Cable	Preamp	Limit	Over		
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	1342.882	46.54	25.30	2.60	38.27	36.17	74.00	-37.83	VERTICAL Peak
2	2259.367	46.45	26.95	3.27	37.64	39.03	74.00	-34.97	VERTICAL Peak
3	2814.411	44.40	28.17	3.70	37.40	38.87	74.00	-35.13	VERTICAL Peak
4	4062.629	43.11	29.88	4.60	36.80	40.79	74.00	-33.21	VERTICAL Peak
5	11020.530	36.15	40.10	7.71	37.24	46.72	74.00	-27.28	VERTICAL Peak
6	16530.270	34.74	39.76	9.44	35.38	48.56	68.20	-19.64	VERTICAL Peak

Test Mode: 07; Polarity: Vertical; Modulation: 802.11n; Bandwidth: 40MHz; Channel: middle



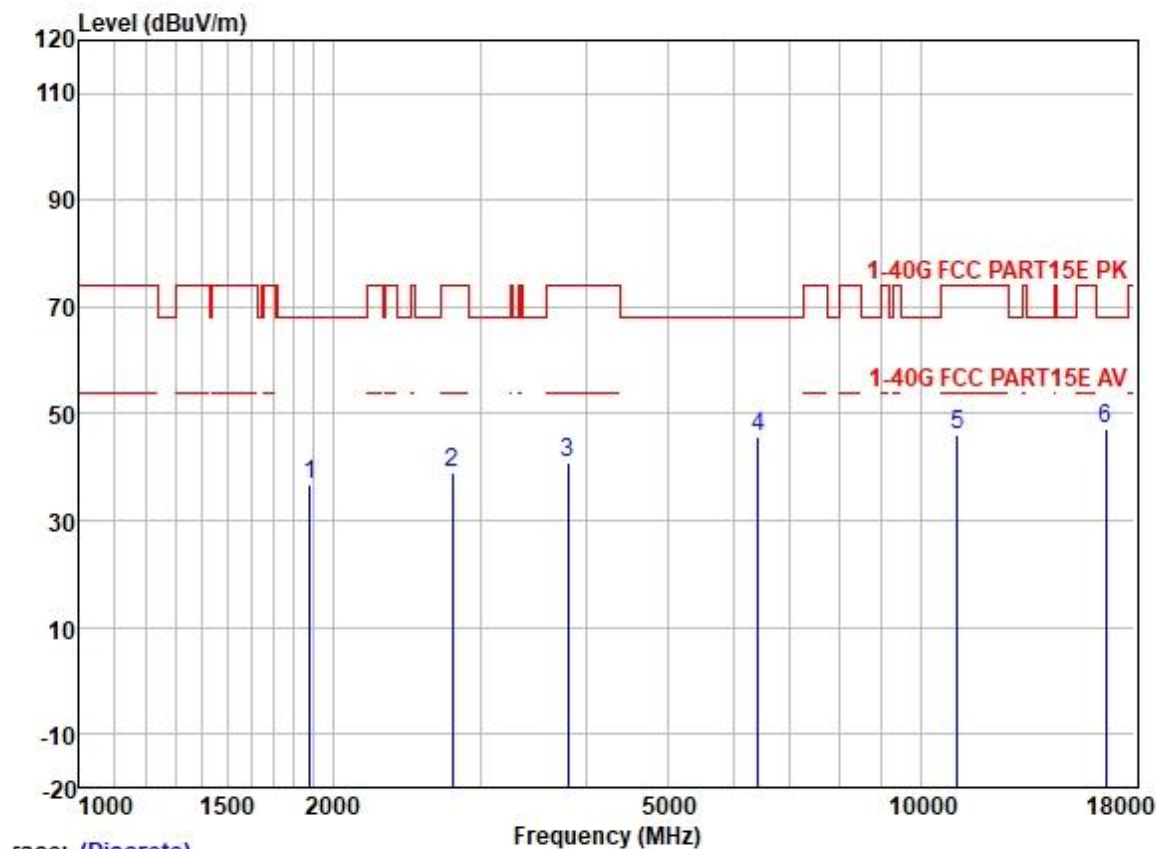
		Read	Antenna	Cable	Preamp		Limit	Over		
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1525.000	46.04	25.52	2.80	38.07	36.29	74.00	-37.71	VERTICAL	Peak
2	2814.411	44.86	28.17	3.70	37.40	39.33	74.00	-34.67	VERTICAL	Peak
3	5031.499	43.82	31.70	5.69	36.85	44.36	68.20	-23.84	VERTICAL	Peak
4	7497.646	40.93	36.40	6.26	37.49	46.10	74.00	-27.90	VERTICAL	Peak
5	11180.280	37.12	40.04	7.90	37.20	47.86	74.00	-26.14	VERTICAL	Peak
6	16770.110	34.29	40.71	9.41	35.37	49.04	68.20	-19.16	VERTICAL	Peak

Test Mode: 07; Polarity: Vertical; Modulation: 802.11ac; Bandwidth: 80MHz; Channel: High



	Read	Antenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1542.733	46.70	25.53	2.80	38.03	37.00	74.00	-37.00	VERTICAL Peak
2	2758.041	44.55	28.03	3.66	37.44	38.80	74.00	-35.20	VERTICAL Peak
3	4145.664	43.96	30.03	4.60	36.80	41.79	74.00	-32.21	VERTICAL Peak
4	6737.207	43.45	34.50	5.82	37.09	46.68	68.20	-21.52	VERTICAL Peak
5	11380.530	36.09	39.95	8.23	37.16	47.11	74.00	-26.89	VERTICAL Peak
6	17070.370	30.77	42.32	9.63	35.34	47.38	68.20	-20.82	VERTICAL Peak

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



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	1877.800	45.50	26.02	2.92	37.77	36.67	68.20	-31.53	VERTICAL Peak
2	2774.030	44.78	28.08	3.68	37.43	39.11	74.00	-34.89	VERTICAL Peak
3	3812.336	43.46	29.55	4.60	36.85	40.76	74.00	-33.24	VERTICAL Peak
4	6414.167	43.13	33.79	5.89	36.99	45.82	68.20	-22.38	VERTICAL Peak
5	11060.020	35.49	40.09	7.74	37.23	46.09	74.00	-27.91	VERTICAL Peak
6	16590.690	33.10	39.93	9.43	35.38	47.08	68.20	-21.12	VERTICAL Peak



7.9 Restricted bands emissions and emission around fundamental frequency

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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7.9.1 E.U.T. Operation

Operating Environment:

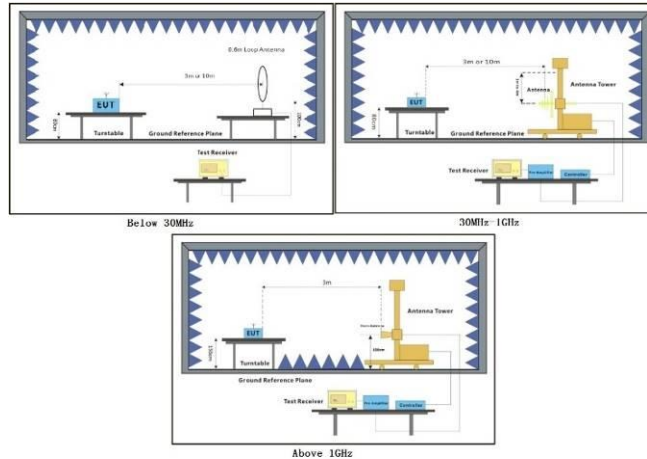
Temperature: 24.4 °C Humidity: 59.9 % RH Atmospheric Pressure: 1010 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	05	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	06	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	07	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	08	TX mode (U-NII-3)_Keep the EUT in continuously transmitting mode with all modulation types.All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.



7.9.3 Test Setup Diagram



7.9.4 Measurement Procedure and Data

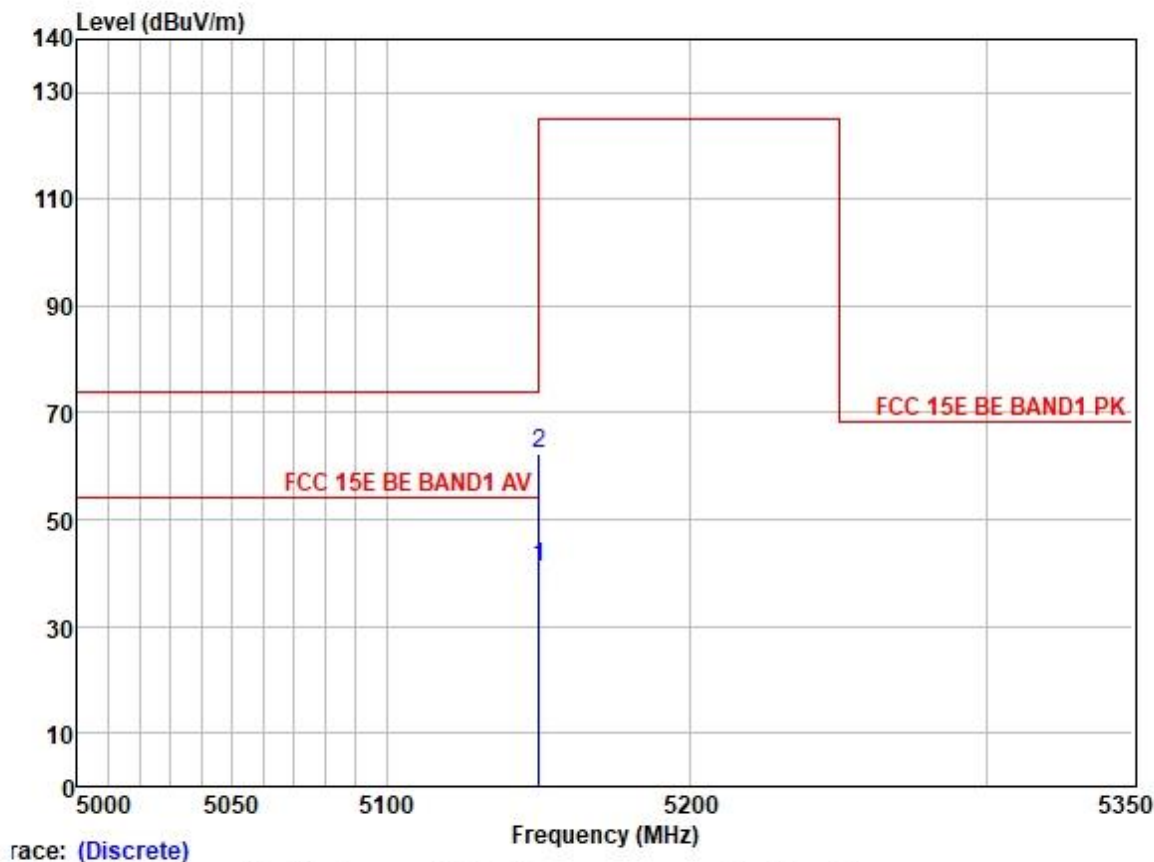
- For below 1GHz, the EUT was placed on the top of a rotating table 0.8 meters above the ground at a 3 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.
- For above 1GHz, the EUT was placed on the top of a rotating table 1.5 meters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

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

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

For band U-NII-1 Band:

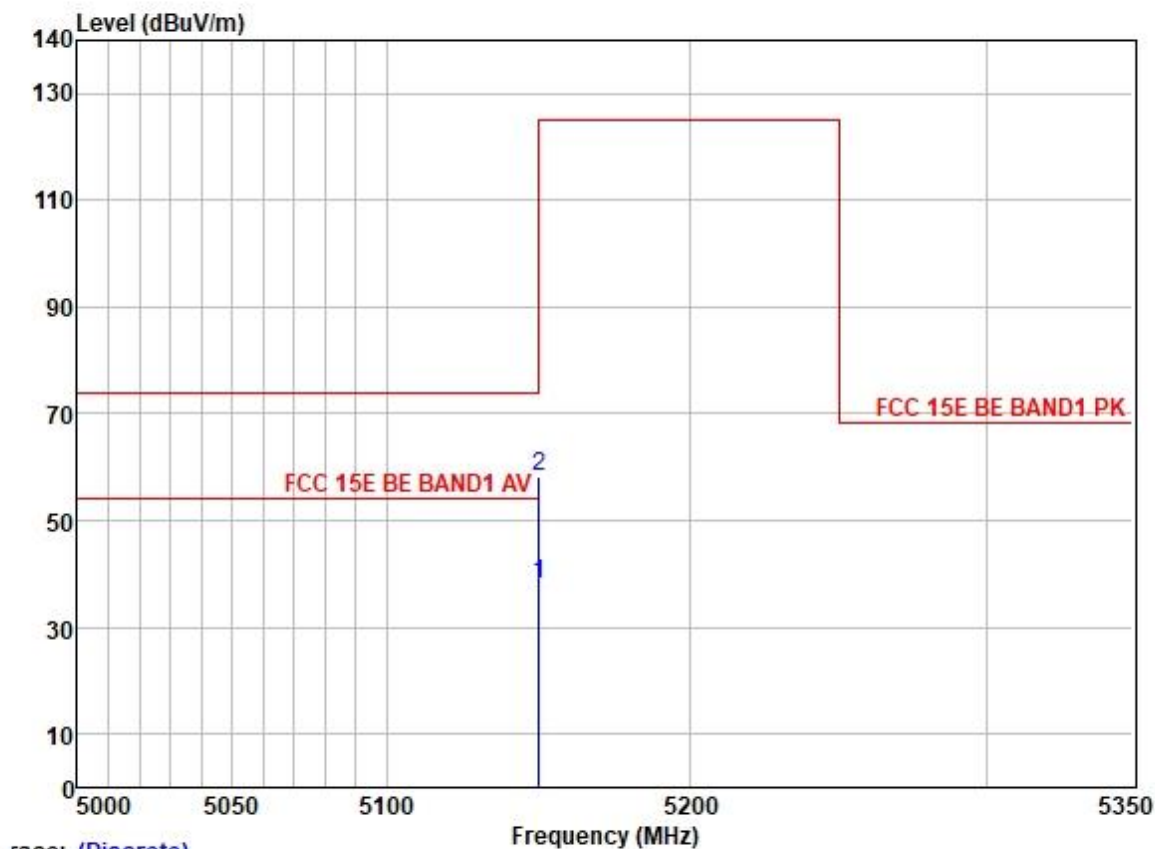
Test Mode: 05; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: Low, restrict band



race: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5150.000	40.68	31.72	5.62	36.86	41.16	54.00	-12.84	HORIZONTAL	Average
2	5150.000	61.82	31.72	5.62	36.86	62.30	74.00	-11.70	HORIZONTAL	Peak

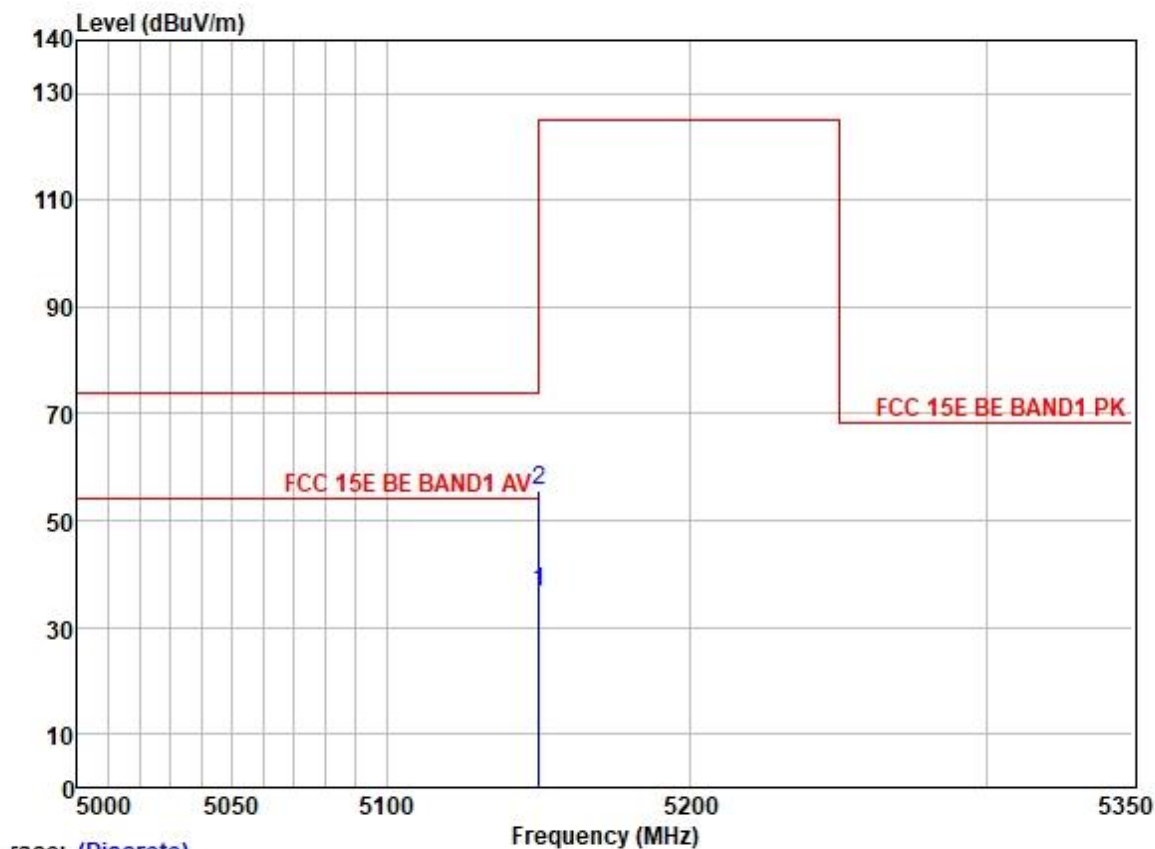
Test Mode: 05; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	5150.000	37.73	31.72	5.62	36.86	38.21	54.00	-15.79	HORIZONTAL Average
2	5150.000	57.87	31.72	5.62	36.86	58.35	74.00	-15.65	HORIZONTAL Peak

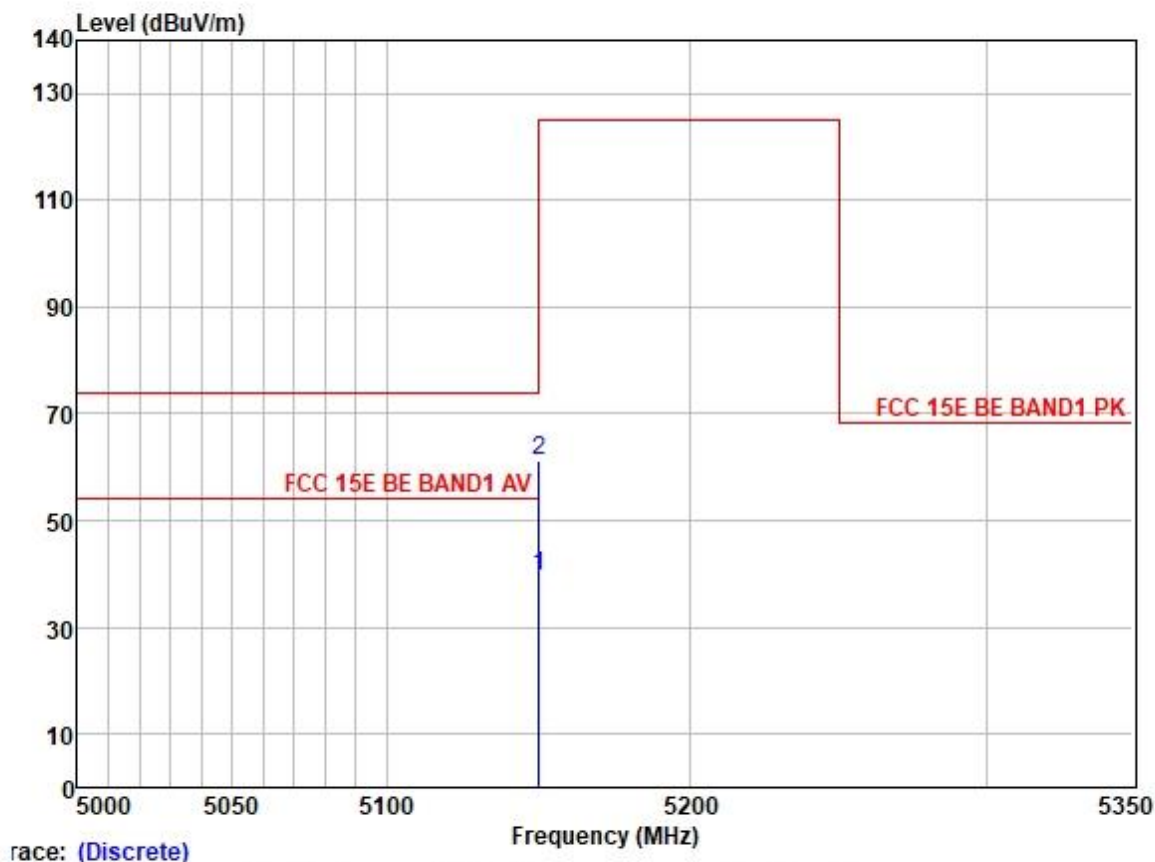
Test Mode: 05; Polarity: Horizontal; Modulation: 802.11ac; Bandwidth: 80MHz; Channel: Low



Trace: (Discrete)

	Read	Antenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5150.000	36.11	31.72	5.62	36.86	36.59	54.00	-17.41	HORIZONTAL Average
2	5150.000	55.14	31.72	5.62	36.86	55.62	74.00	-18.38	HORIZONTAL Peak

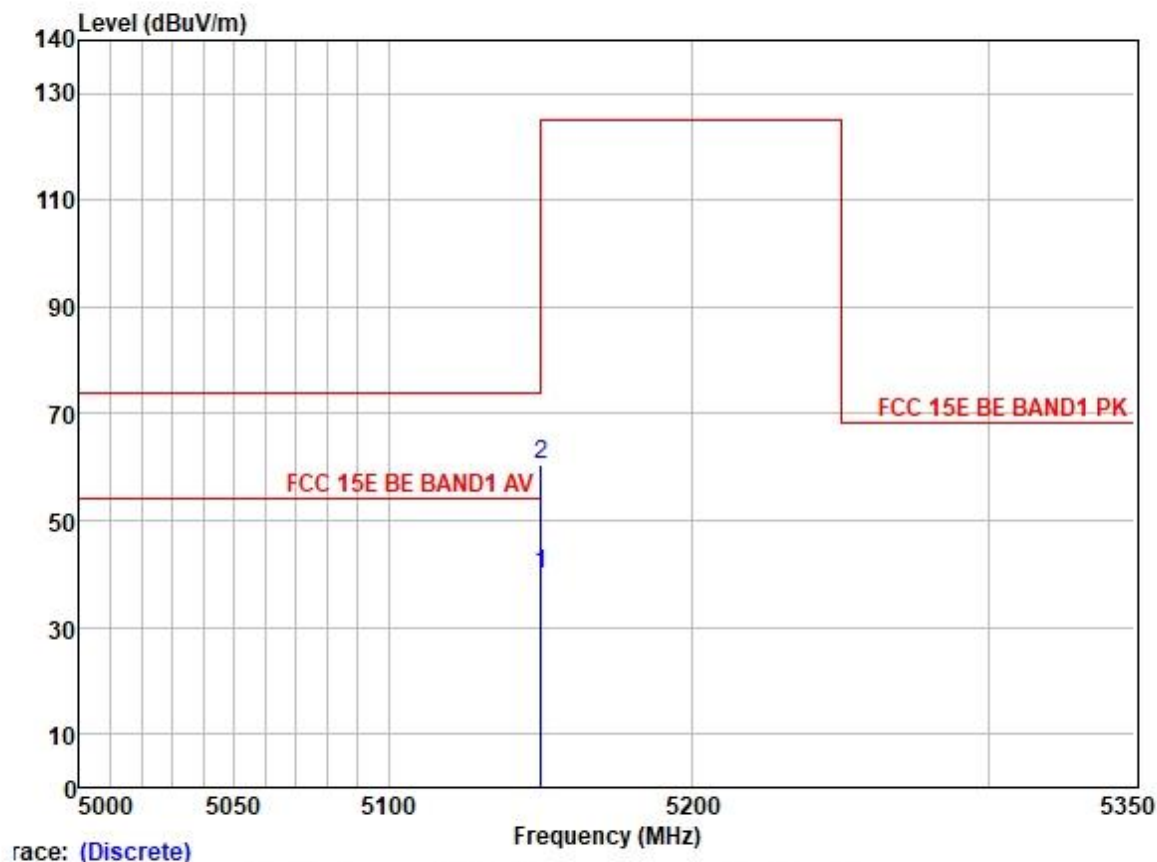
Test Mode: 05; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5150.000	39.14	31.72	5.62	36.86	39.62	54.00	-14.38	VERTICAL	Average
2	5150.000	60.76	31.72	5.62	36.86	61.24	74.00	-12.76	VERTICAL	Peak

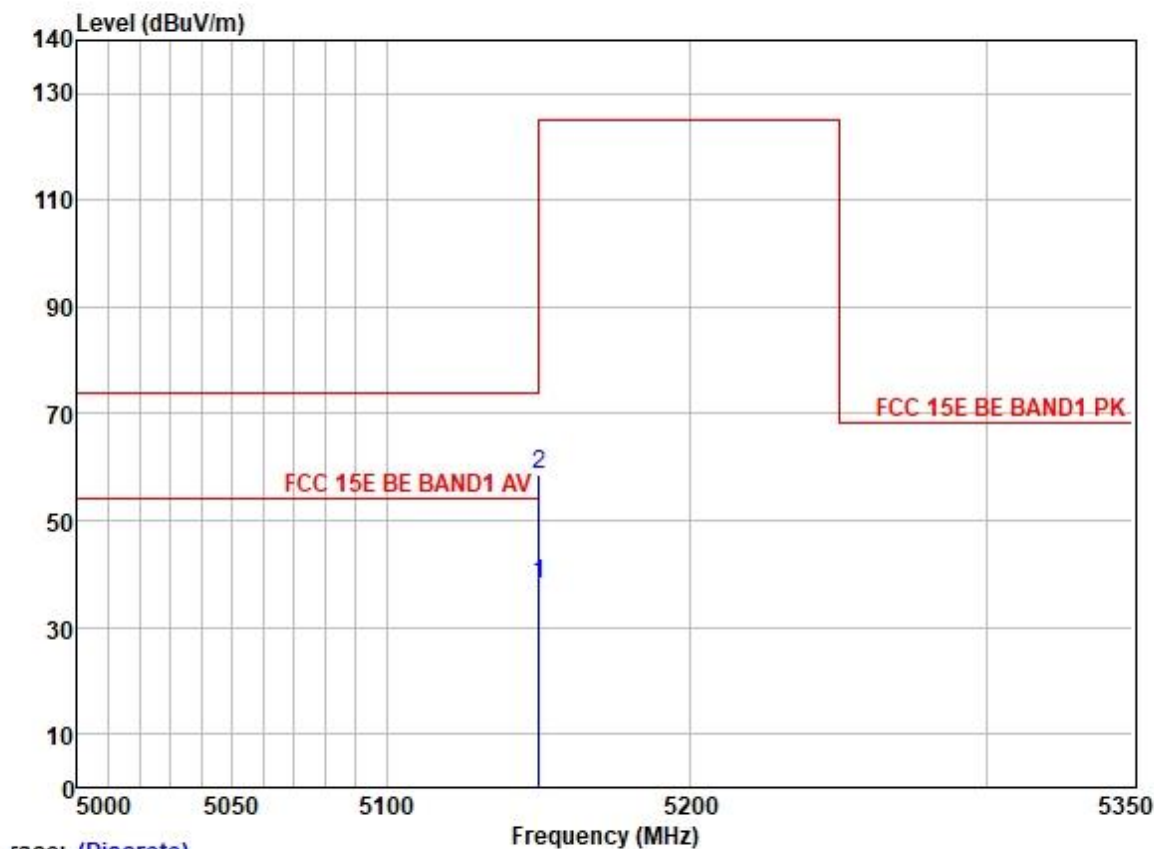
Test Mode: 05; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5150.000	39.40	31.72	5.62	36.86	39.88	54.00	-14.12	VERTICAL	Average
2	5150.000	60.02	31.72	5.62	36.86	60.50	74.00	-13.50	VERTICAL	Peak

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

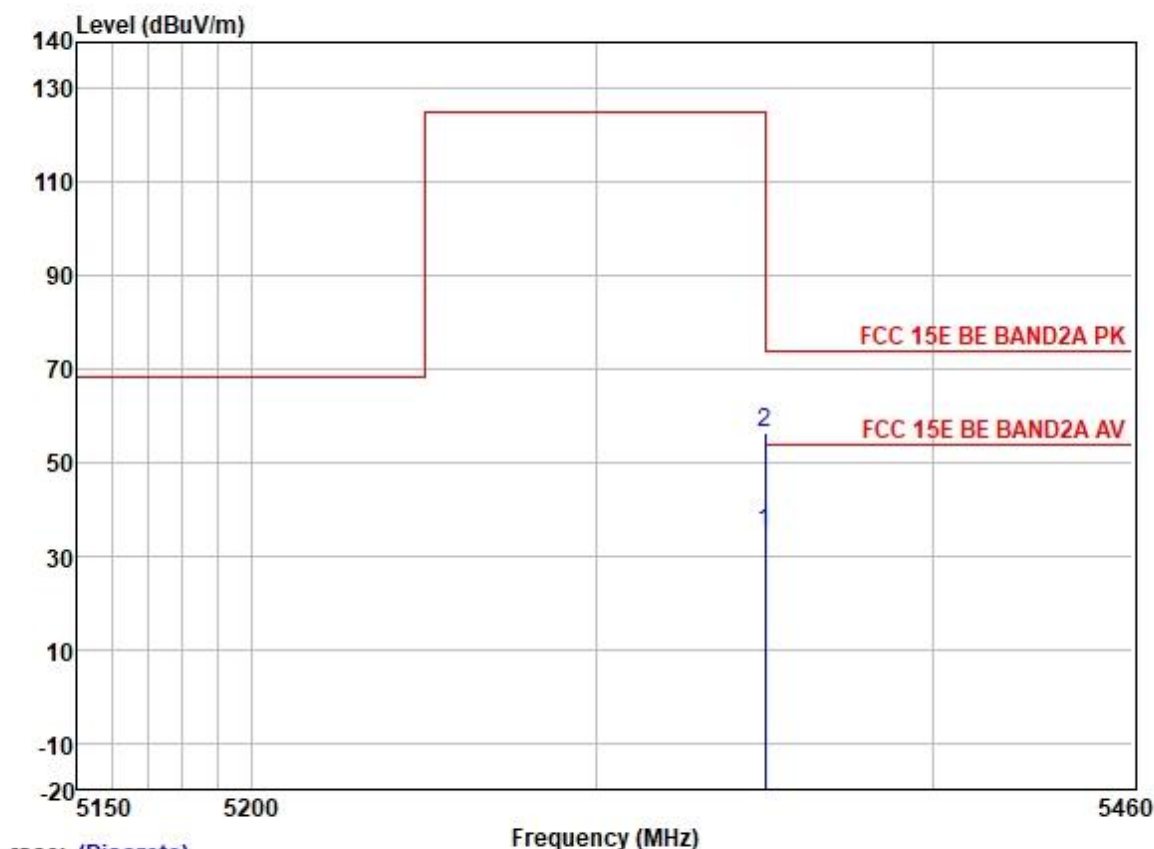


Trace: (Discrete)

	Read Freq	Antenna Level	Cable Factor	Preamp Loss	Preamp Factor	Limit Level	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	5150.000	37.54	31.72	5.62	36.86	38.02	54.00	-15.98	VERTICAL Average
2	5150.000	58.04	31.72	5.62	36.86	58.52	74.00	-15.48	VERTICAL Peak

For band U-NII-2A Band:

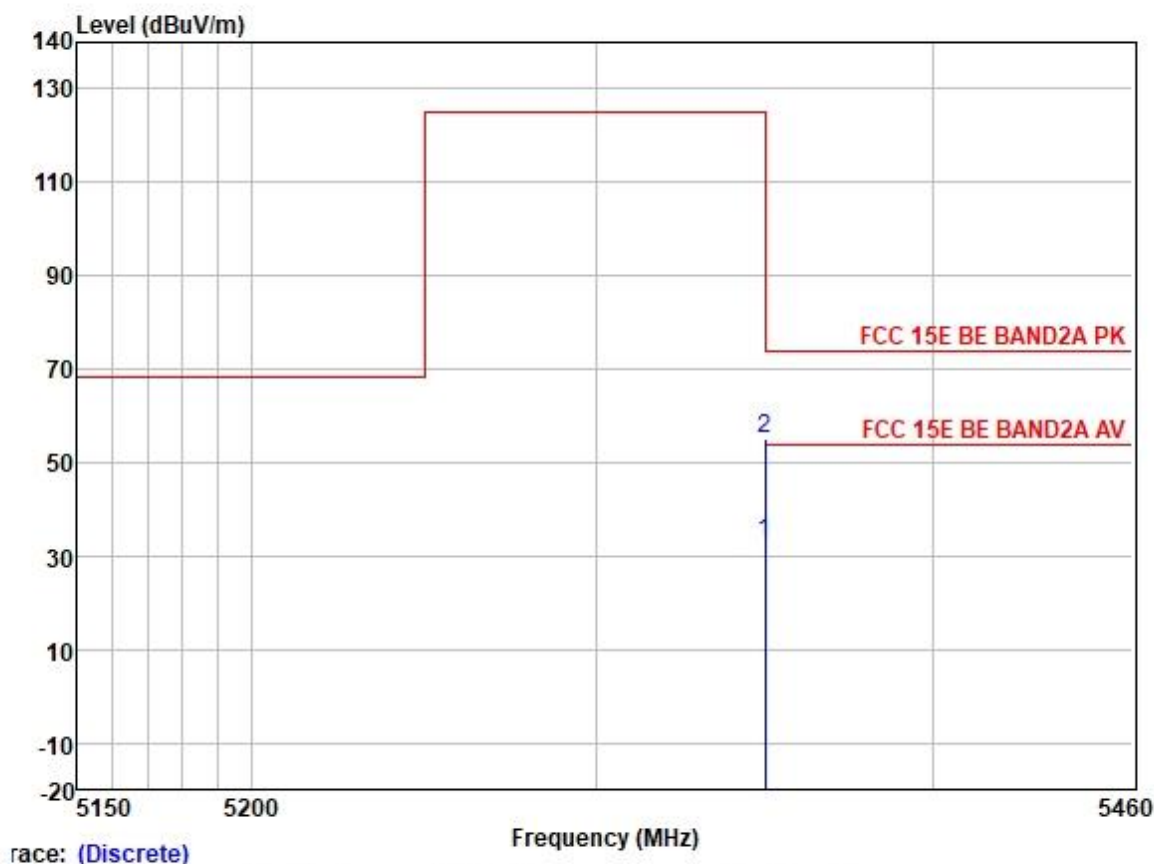
Test Mode: 06; Polarity: Horizontal; Modulation: 802.11a; Bandwidth: 20MHz; Channel: High, restrict band



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
		Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	34.14	31.77	6.05	36.88	35.08	54.00	-18.92	HORIZONTAL	Average
2	5350.000	55.57	31.77	6.05	36.88	56.51	74.00	-17.49	HORIZONTAL	Peak

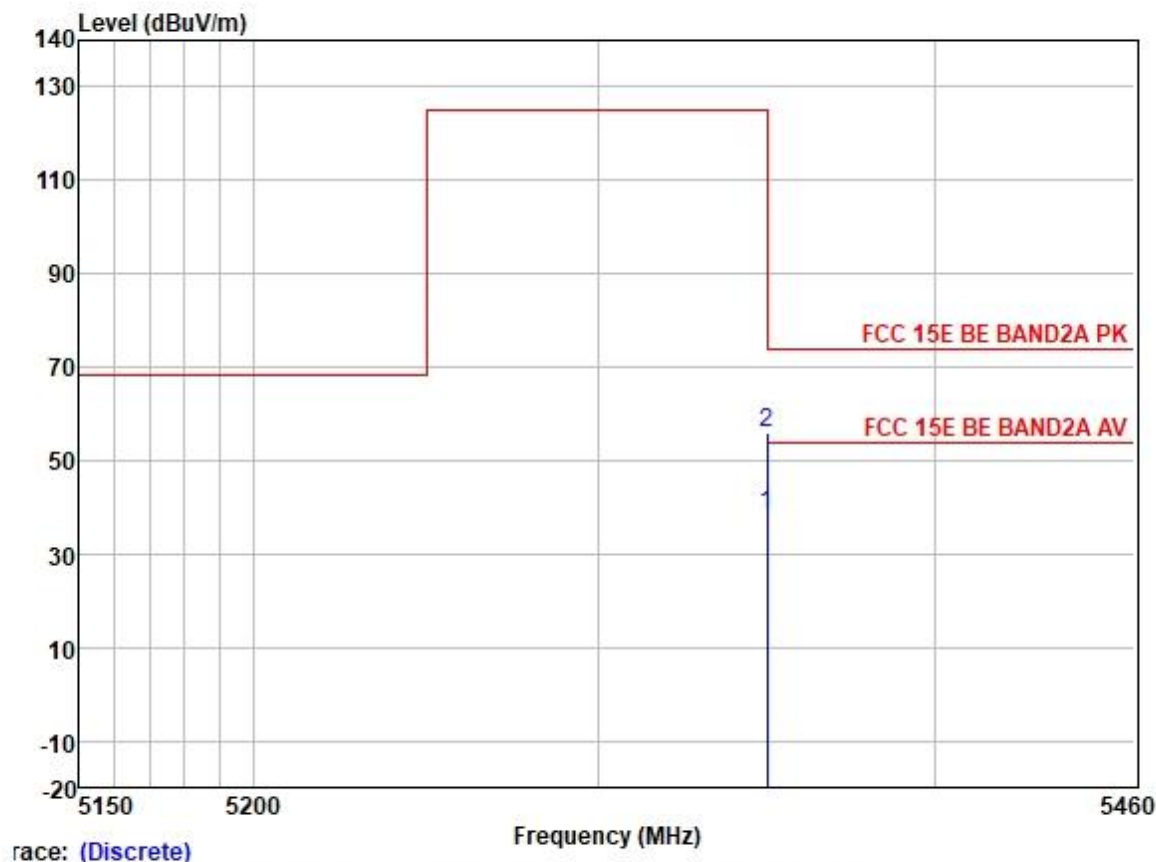
Test Mode: 06; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Trace: (Discrete)

	Read	Antenna	Cable	Preamp	Limit	Over			
Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark	
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	32.12	31.77	6.05	36.88	33.06	54.00	-20.94	HORIZONTAL Average
2	5350.000	54.17	31.77	6.05	36.88	55.11	74.00	-18.89	HORIZONTAL Peak

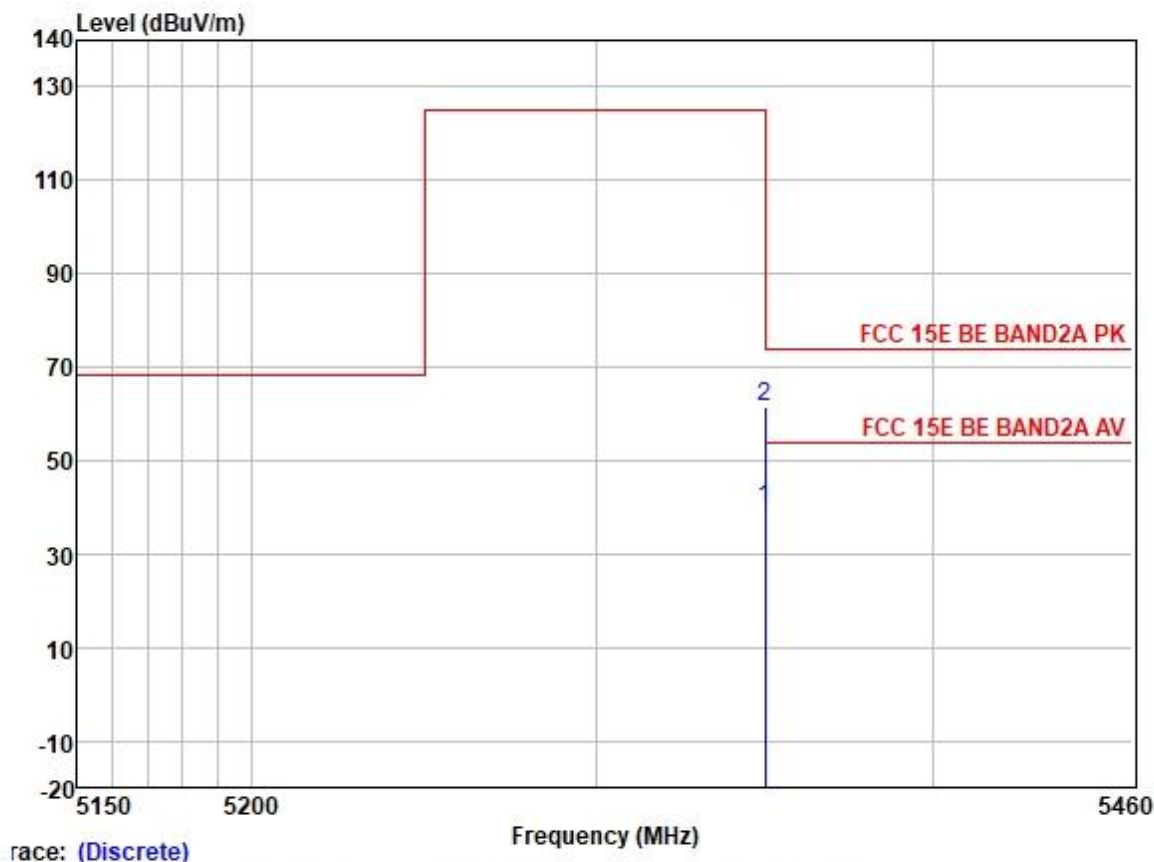
Test Mode: 06; Polarity: Horizontal; Modulation: 802.11ac; Bandwidth: 80MHz; only 1 Channel



Trace: (Discrete)

	Read Freq	Antenna Level	Cable Factor	Preamp Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	37.66	31.77	6.05	36.88	38.60	54.00	-15.40	HORIZONTAL	Average
2	5350.000	55.09	31.77	6.05	36.88	56.03	74.00	-17.97	HORIZONTAL	Peak

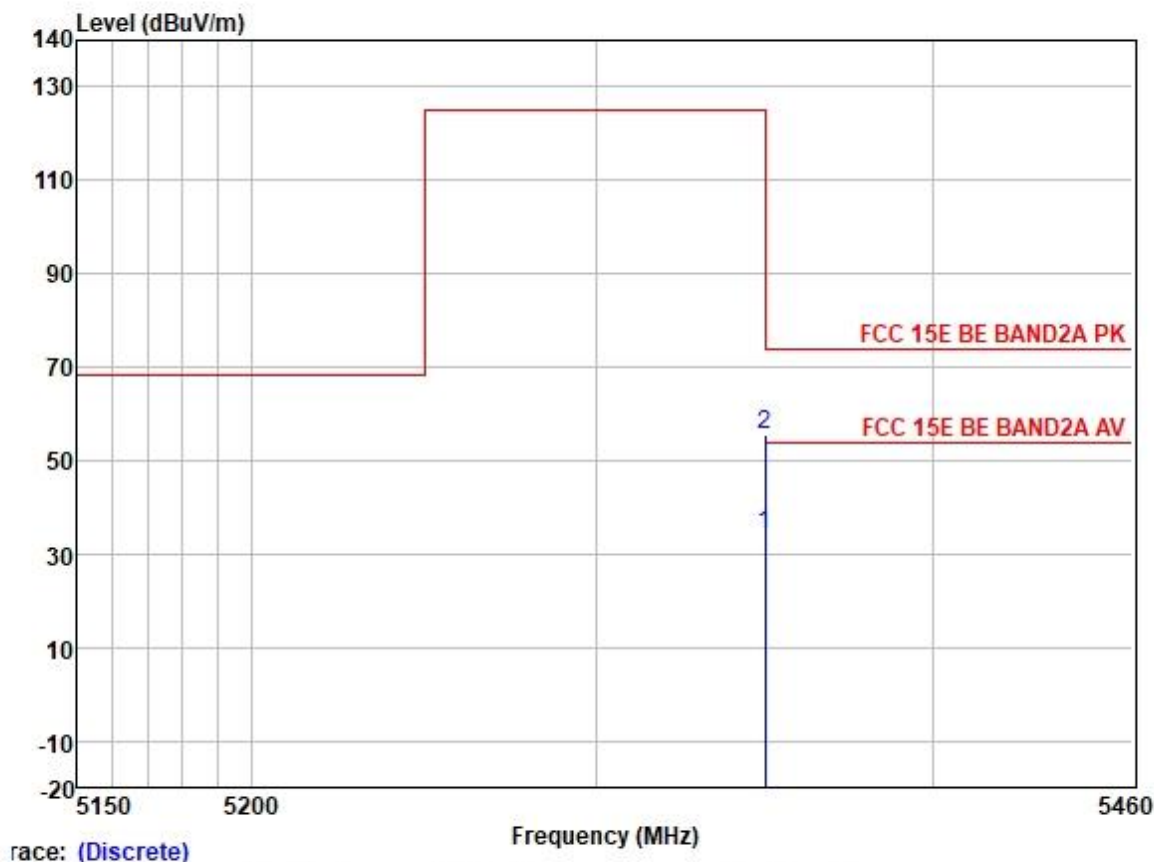
Test Mode: 06; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Trace: (Discrete)

	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5350.000	38.92	31.77	6.05	36.88	39.86	54.00	-14.14	VERTICAL	Average
2	5350.000	60.63	31.77	6.05	36.88	61.57	74.00	-12.43	VERTICAL	Peak

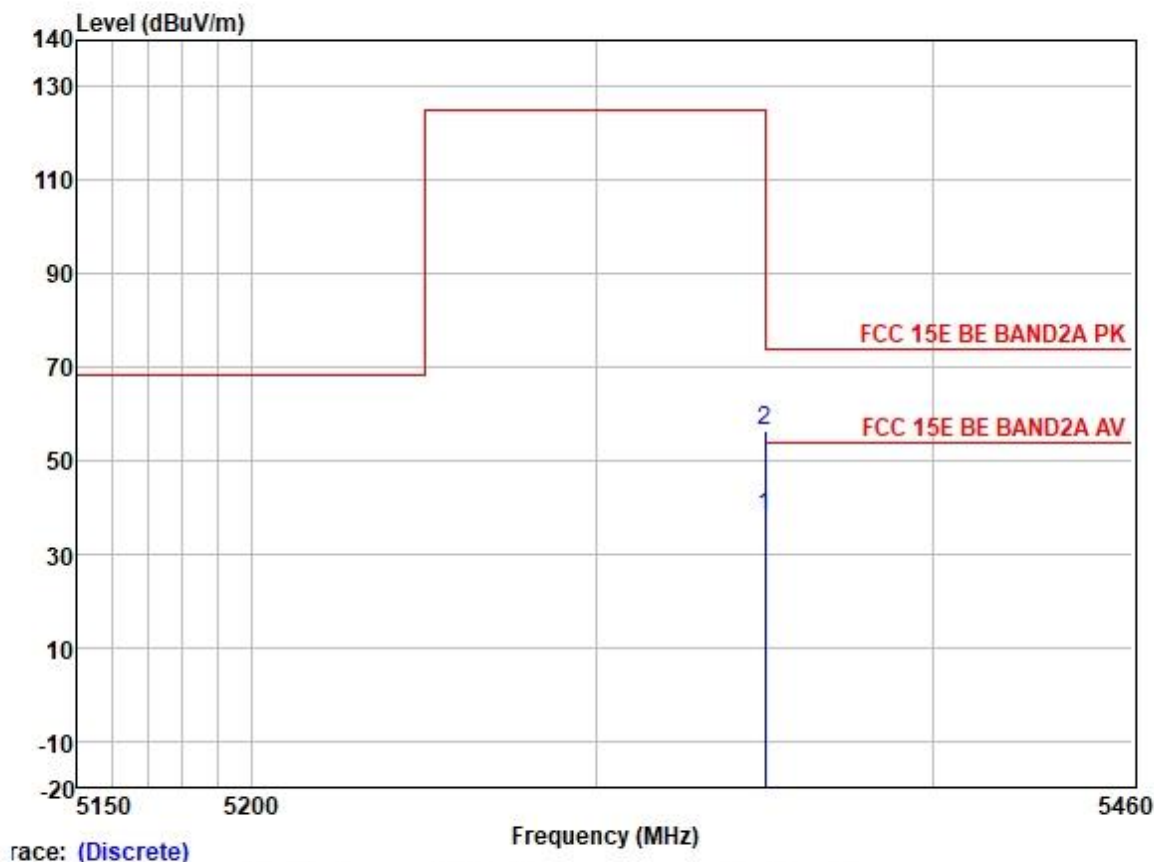
Test Mode: 06; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5350.000	33.41	31.77	6.05	36.88	34.35	54.00	-19.65	VERTICAL Average
2	5350.000	54.46	31.77	6.05	36.88	55.40	74.00	-18.60	VERTICAL Peak

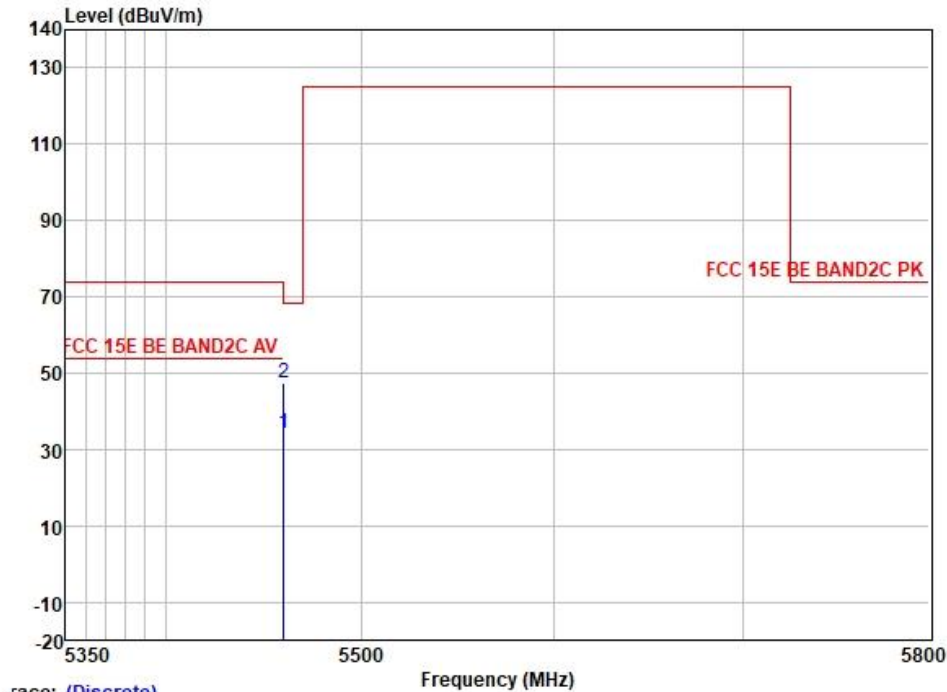
Test Mode: 06; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; only 1 Channel



	Read	Antenna	Cable	Preamp	Limit	Over			
	Freq	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5350.000	37.02	31.77	6.05	36.88	37.96	54.00	-16.04	VERTICAL
2	5350.000	55.25	31.77	6.05	36.88	56.19	74.00	-17.81	VERTICAL

For band U-NII-2C Band:

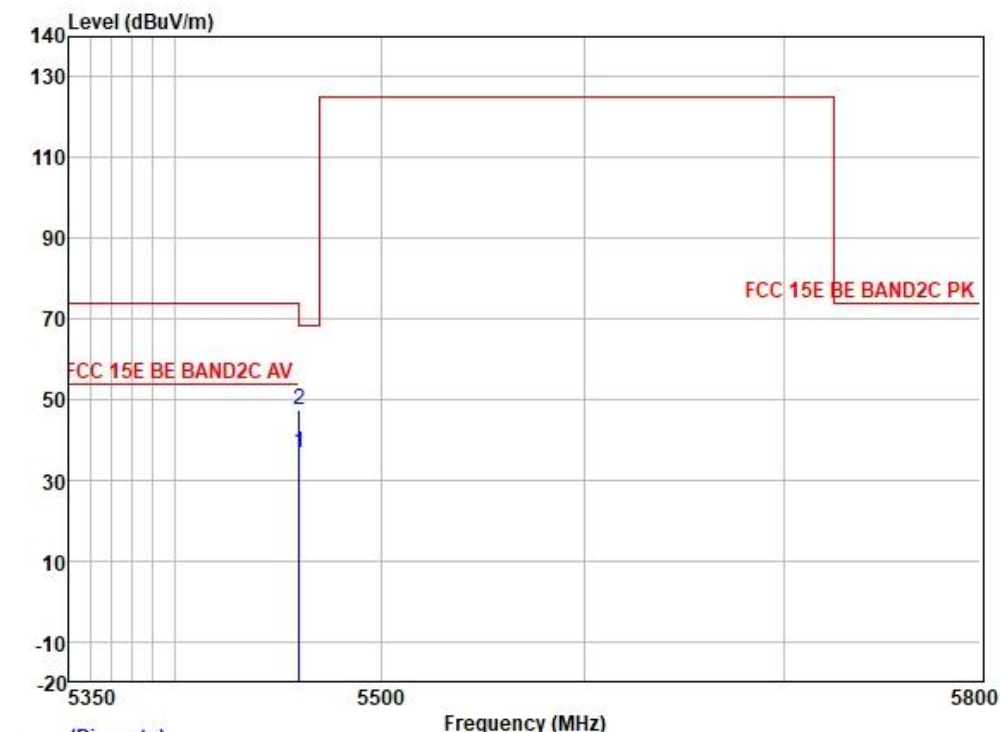
Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel: low,



Trace: (Discrete)

	Freq	ReadAntenna Level	Cable Factor	Preamplifier Loss	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dB		
1	5460.000	33.08	31.79	6.26	36.88	34.25	54.00	-19.75	HORIZONTAL Average
2	5460.000	46.26	31.79	6.26	36.88	47.43	68.20	-20.77	HORIZONTAL Peak

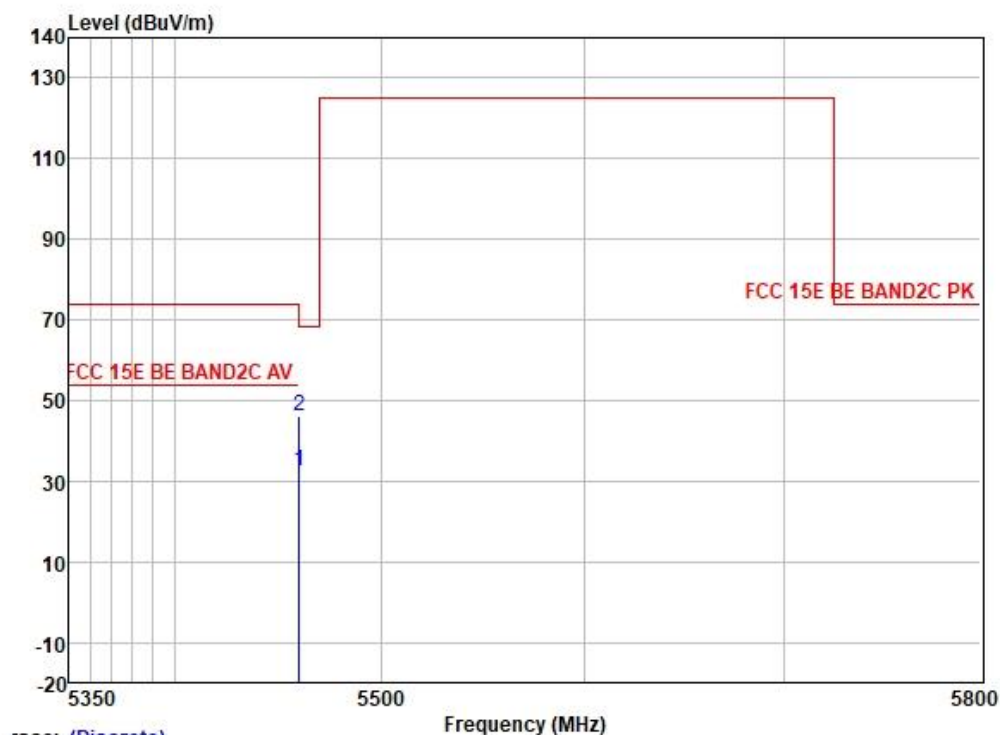
Test Mode: 07; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel: high,



Trace: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	35.52	31.79	6.26	36.88	36.69	54.00	-17.31	HORIZONTAL Average
2	5460.000	46.13	31.79	6.26	36.88	47.30	68.20	-20.90	HORIZONTAL Peak

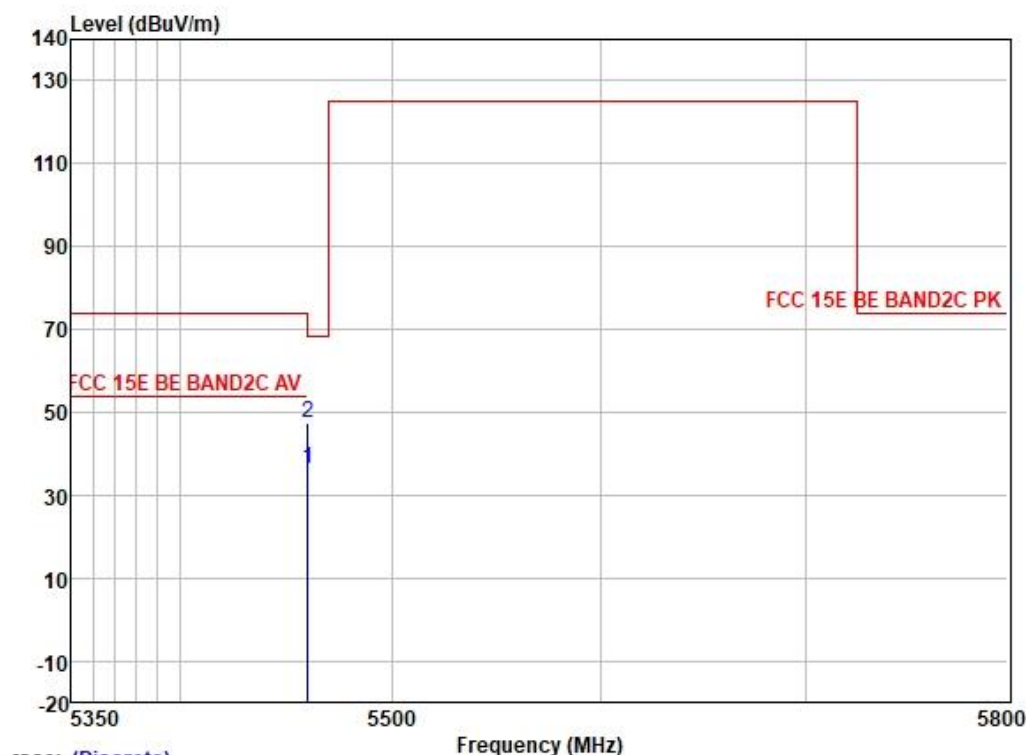
Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel: low



Trace: (Discrete)

	Freq	ReadAntenna Level	Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	31.52	31.79	6.26	36.88	32.69	54.00	-21.31	HORIZONTAL	Average
2	5460.000	44.95	31.79	6.26	36.88	46.12	68.20	-22.08	HORIZONTAL	Peak

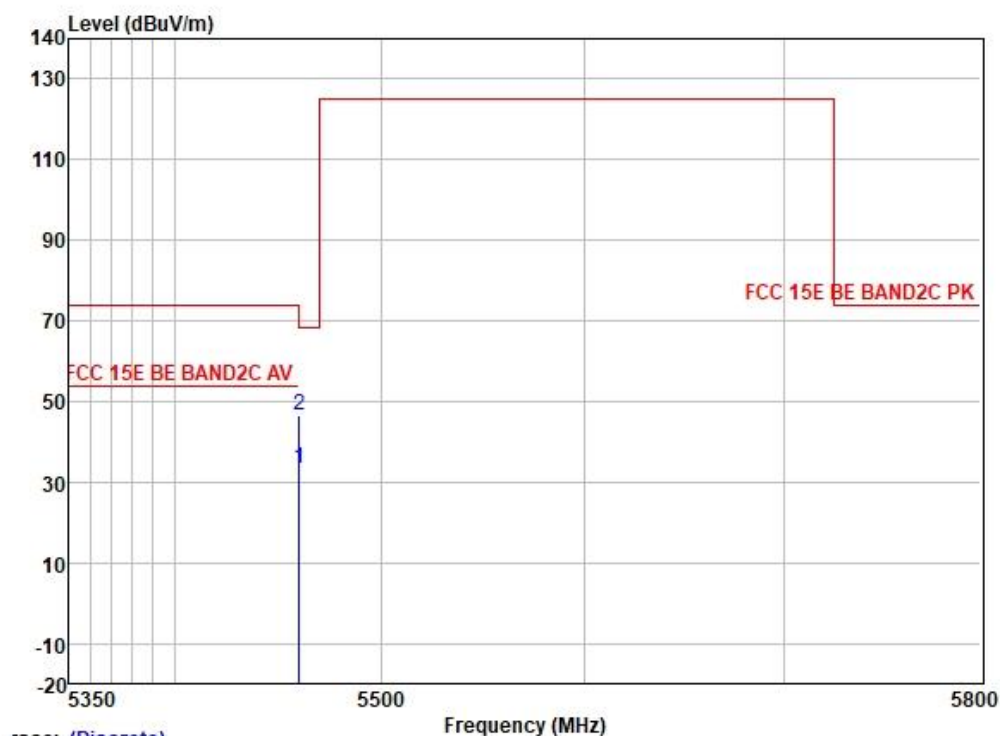
Test Mode: 07; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel: High



Trace: (Discrete)

	ReadAntenna	Cable	Preamp	Limit	Over				
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1 5460.000	35.36	31.79	6.26	36.88	36.53	54.00	-17.47	HORIZONTAL	Average
2 5460.000	46.20	31.79	6.26	36.88	47.37	68.20	-20.83	HORIZONTAL	Peak

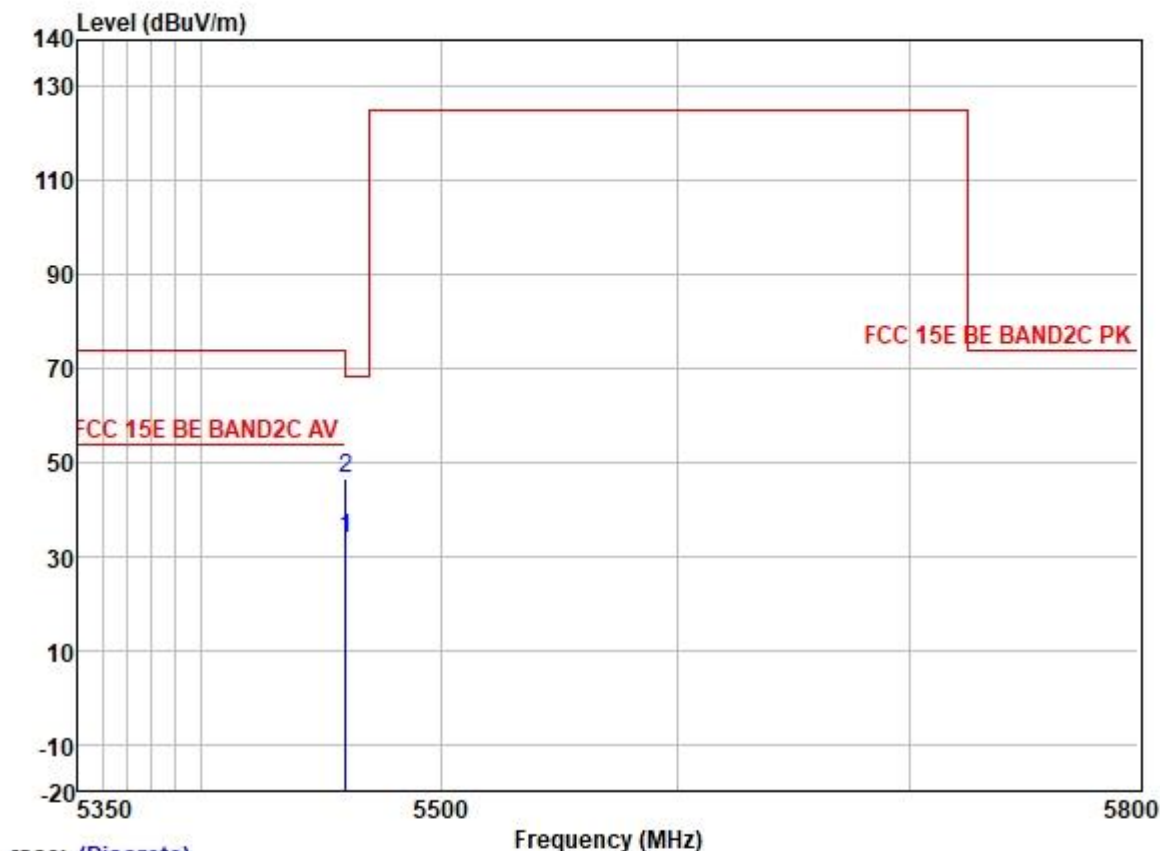
Test Mode: 07; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel low



Trace: (Discrete)

	ReadAntenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	Remark
1	5460.000	32.31	31.79	6.26	36.88	33.48	54.00	-20.52 HORIZONTAL Average
2	5460.000	45.21	31.79	6.26	36.88	46.38	68.20	-21.82 HORIZONTAL Peak

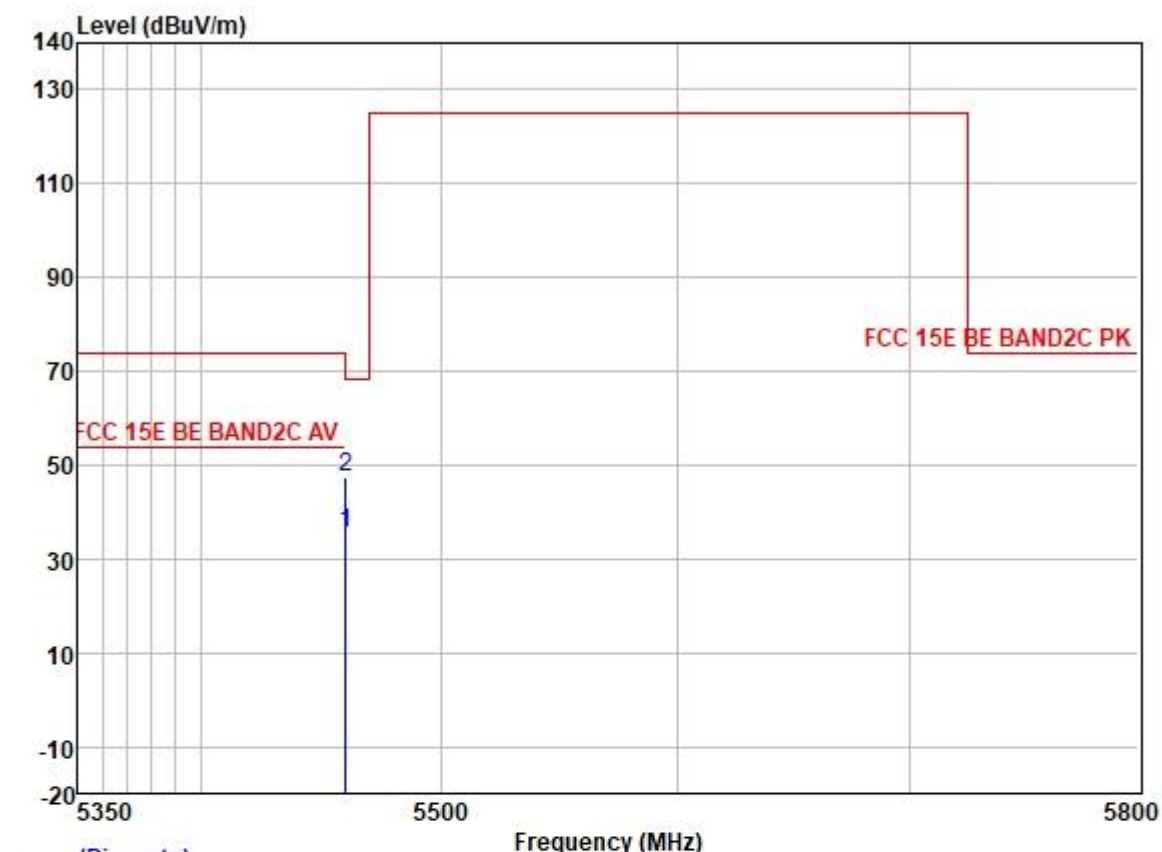
Test Mode: 07; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel high



Trace: (Discrete)

		ReadAntenna	Cable	Preamp		Limit	Over			
	Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	32.62	31.79	6.26	36.88	33.79	54.00	-20.21	HORIZONTAL	Average
2	5460.000	45.21	31.79	6.26	36.88	46.38	68.20	-21.82	HORIZONTAL	Peak

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



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	34.36	31.79	6.26	36.88	35.53	54.00	-18.47	VERTICAL	Average
2	5460.000	46.15	31.79	6.26	36.88	47.32	68.20	-20.88	VERTICAL	Peak

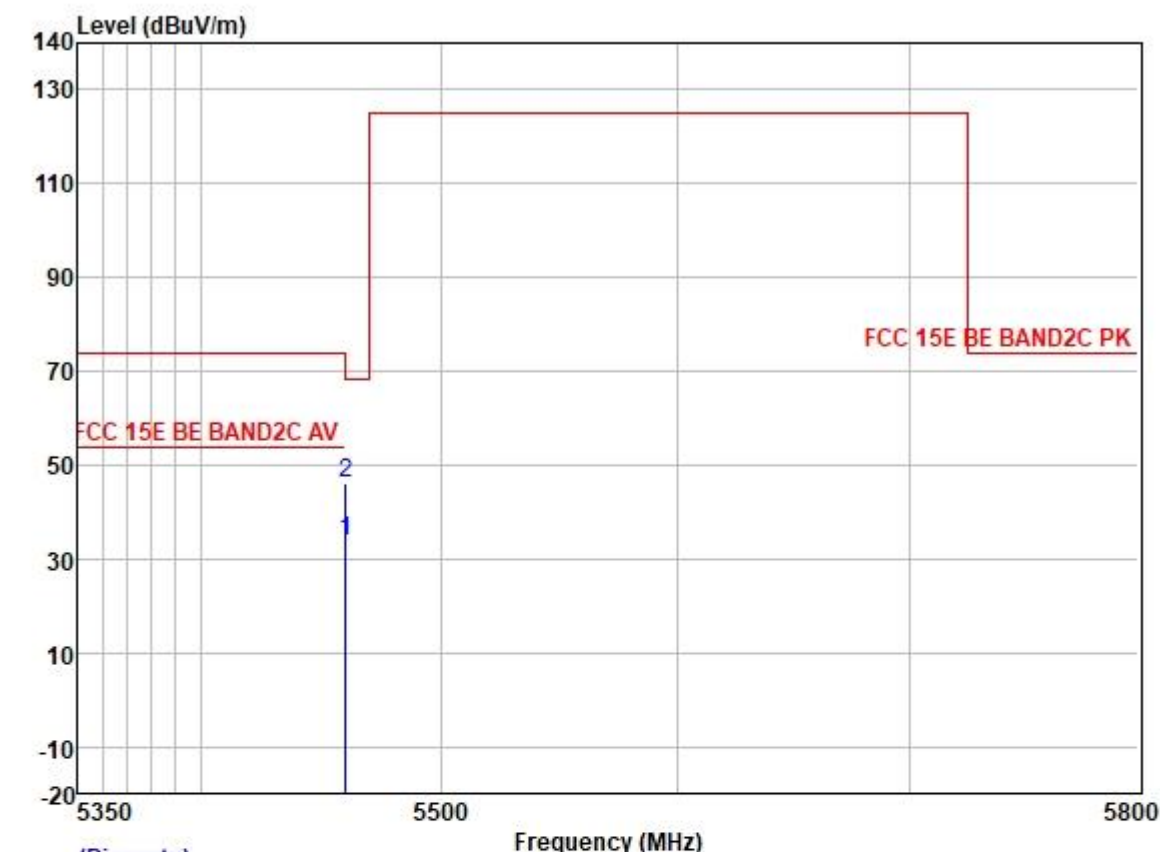
Test Mode: 07; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel: high,



race: (Discrete)

	Read	Antenna	Cable	Preamp		Limit	Over		
Freq	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	34.41	31.79	6.26	36.88	35.58	54.00	-18.42	VERTICAL
2	5460.000	44.75	31.79	6.26	36.88	45.92	68.20	-22.28	VERTICAL

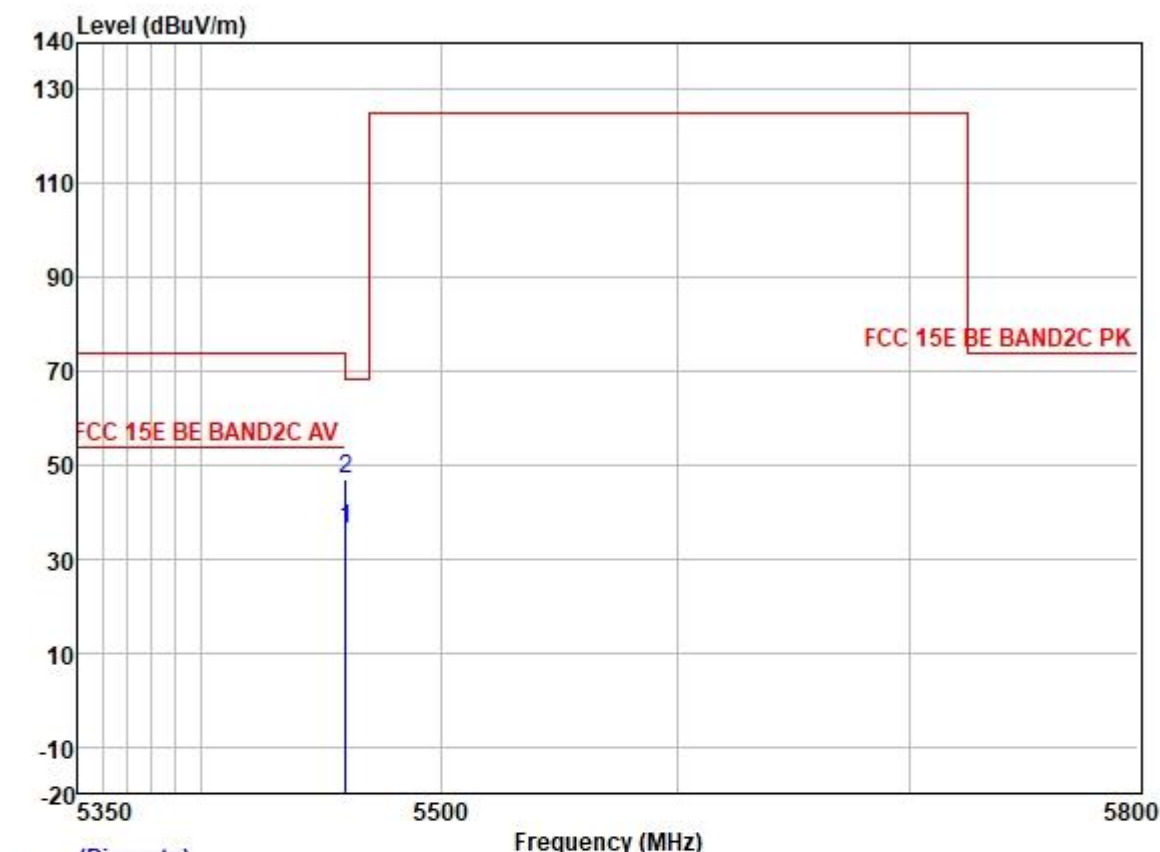
Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel: low



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	32.48	31.79	6.26	36.88	33.65	54.00	-20.35	VERTICAL	Average
2	5460.000	45.02	31.79	6.26	36.88	46.19	68.20	-22.01	VERTICAL	Peak

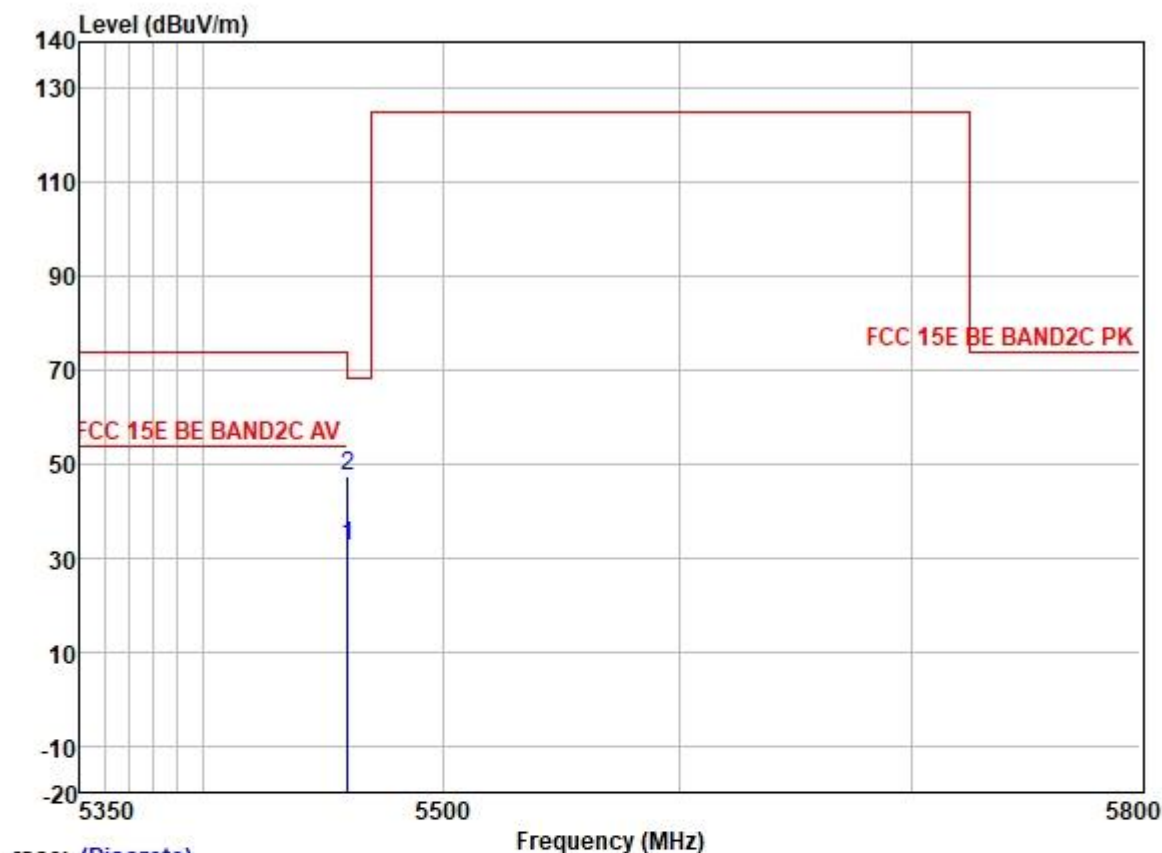
Test Mode: 07; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel: High



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	35.13	31.79	6.26	36.88	36.30	54.00	-17.70	VERTICAL	Average
2	5460.000	45.83	31.79	6.26	36.88	47.00	68.20	-21.20	VERTICAL	Peak

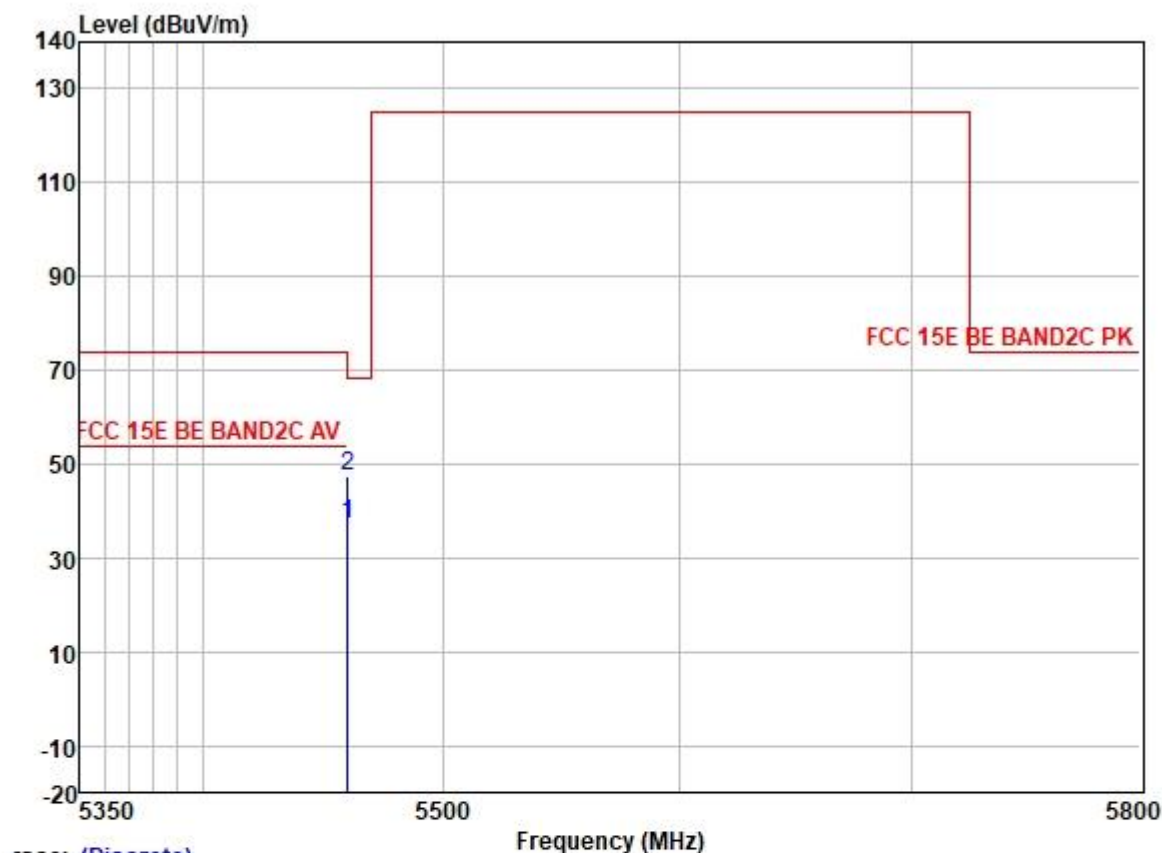
Test Mode: 07; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel low



Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp	Limit	Over			
	MHz	Level	Factor	Loss	Factor	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB	
1	5460.000	31.24	31.79	6.26	36.88	32.41	54.00	-21.59	VERTICAL Average
2	5460.000	46.07	31.79	6.26	36.88	47.24	68.20	-20.96	VERTICAL Peak

Test Mode: 07; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel high

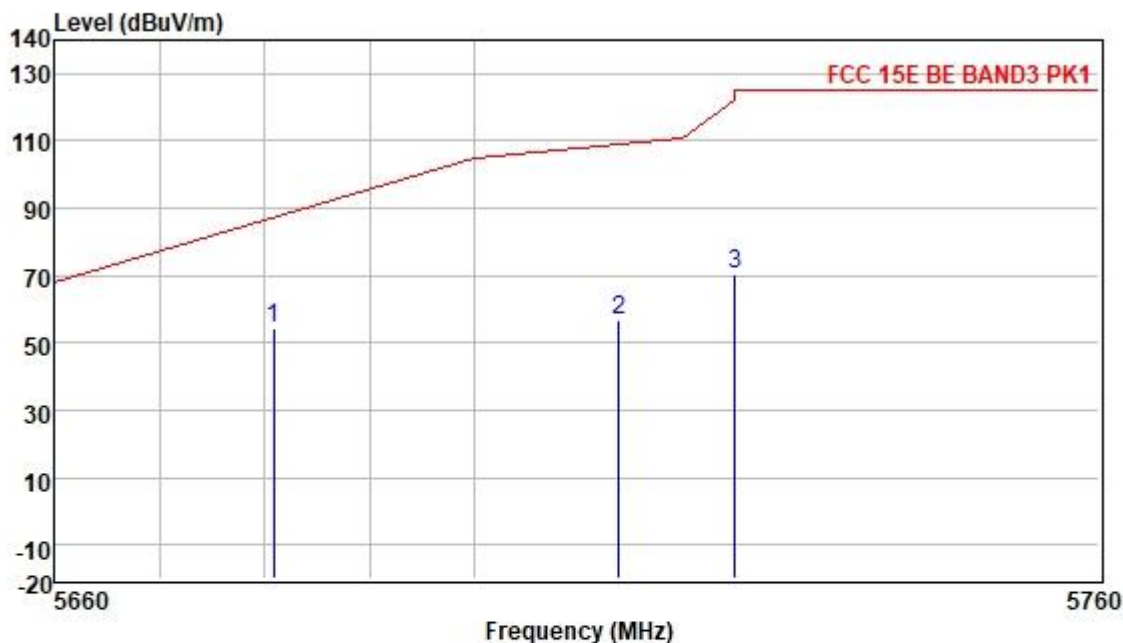


Trace: (Discrete)

	Freq	ReadAntenna	Cable	Preamp		Limit	Over			
	MHz	Level	Factor	Loss	Factor	Level	Line	Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5460.000	36.07	31.79	6.26	36.88	37.24	54.00	-16.76	VERTICAL	Average
2	5460.000	46.15	31.79	6.26	36.88	47.32	68.20	-20.88	VERTICAL	Peak

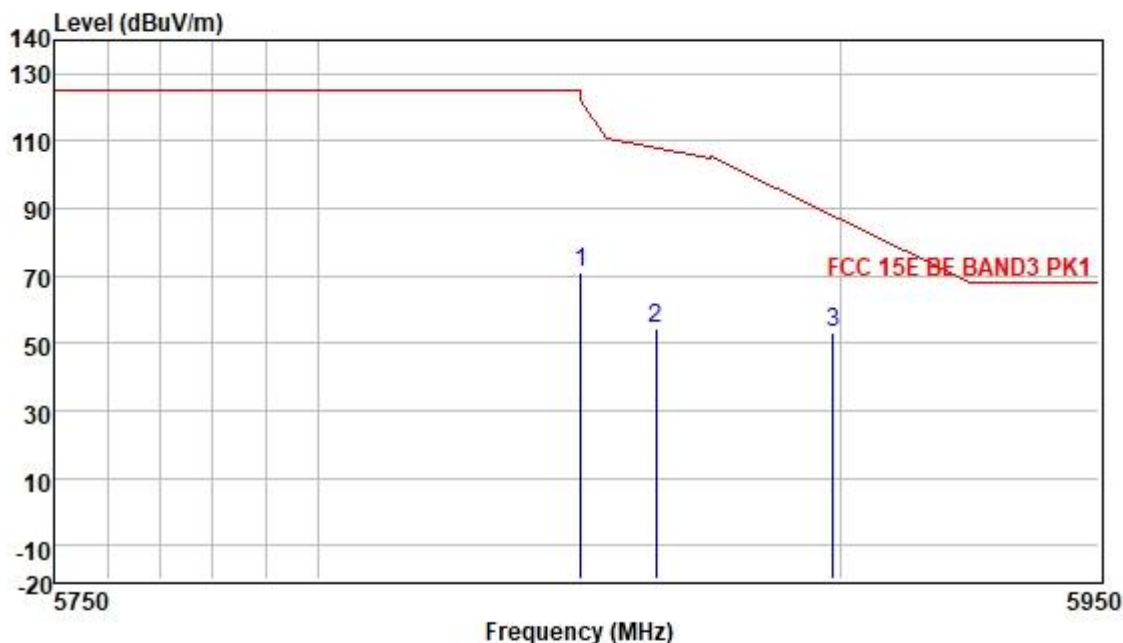
For Band U-NII-3 :

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



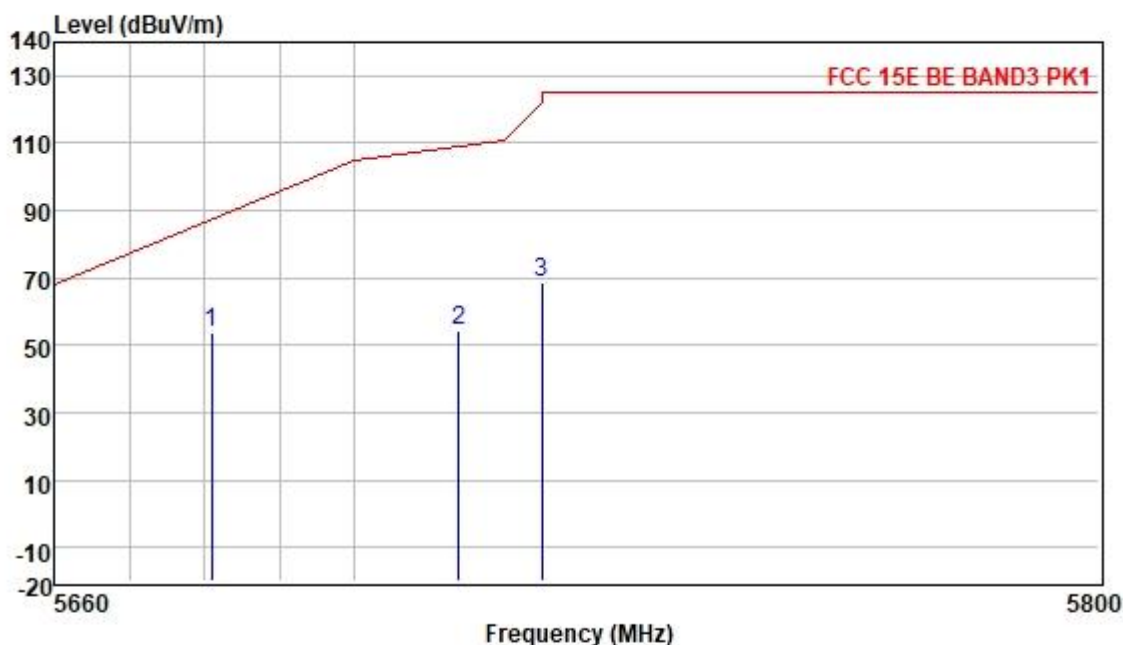
	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5680.92	53.00	31.99	6.38	36.89	54.48	91.12	-36.64	HORIZONTAL	Peak
2	5713.86	55.00	32.04	6.33	36.89	56.48	109.08	-52.60	HORIZONTAL	Peak
3	5725.00	68.85	32.07	6.25	36.89	70.28	122.20	-51.92	HORIZONTAL	Peak

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



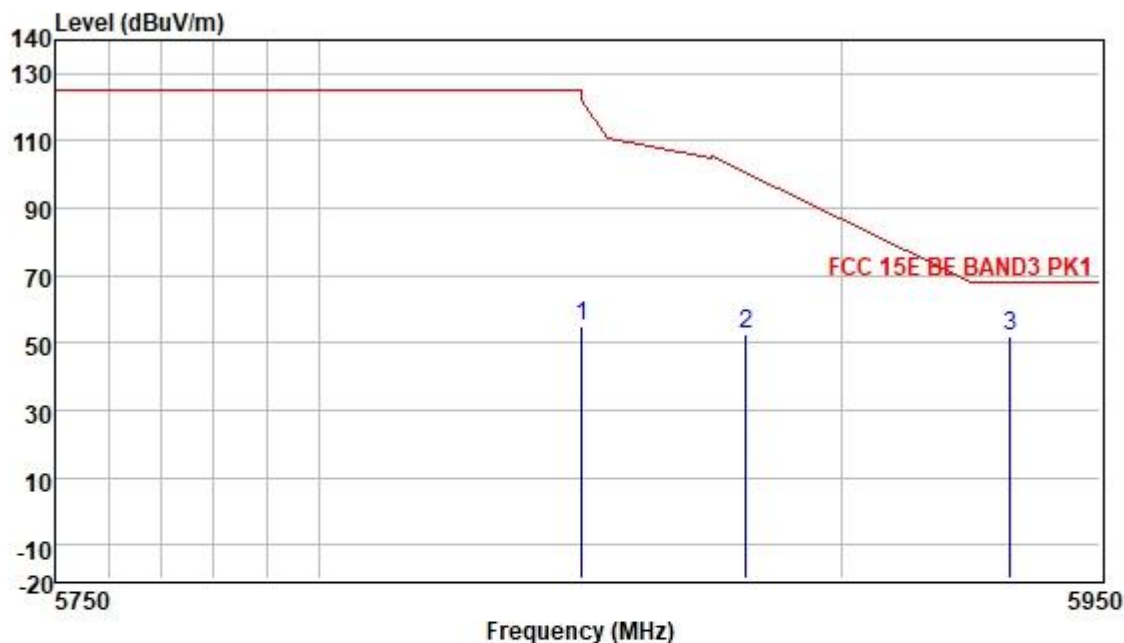
	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5850.00	69.86	32.25	6.00	36.90	71.21	122.20	-50.99	HORIZONTAL	Peak
2	5864.44	53.01	32.27	5.96	36.90	54.34	108.15	-53.81	HORIZONTAL	Peak
3	5898.44	52.00	32.31	5.90	36.90	53.31	87.85	-34.54	HORIZONTAL	Peak

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



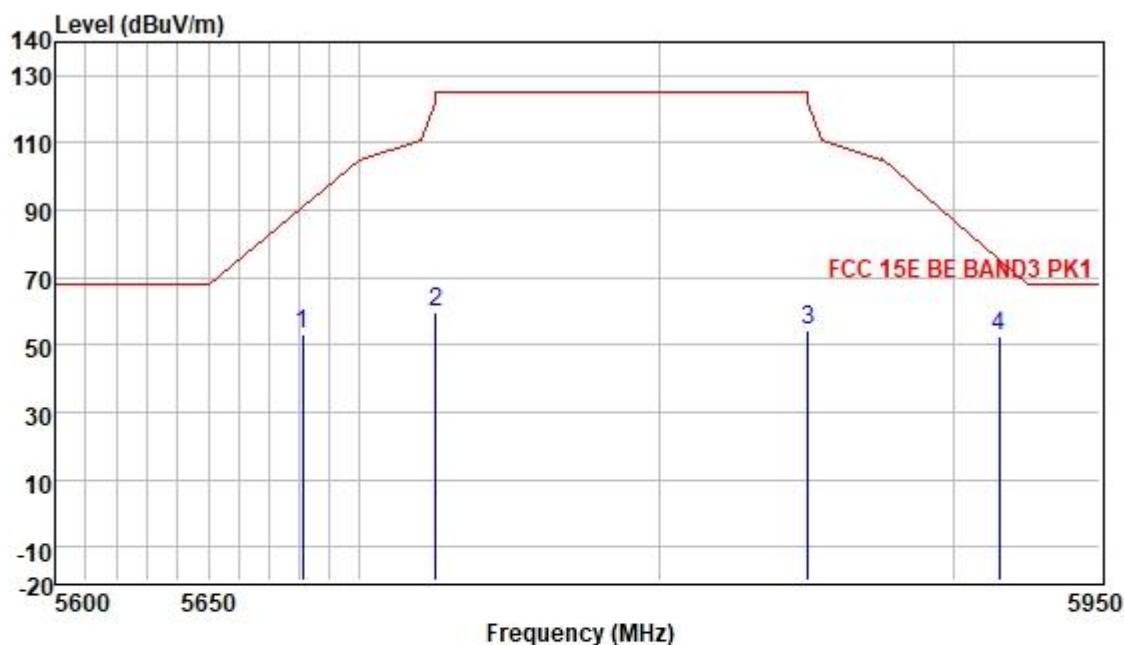
	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5680.92	52.06	31.99	6.38	36.89	53.54	91.12	-37.58	HORIZONTAL	Peak
2	5713.86	52.85	32.04	6.33	36.89	54.33	109.08	-54.75	HORIZONTAL	Peak
3	5725.00	66.98	32.07	6.25	36.89	68.41	122.20	-53.79	HORIZONTAL	Peak

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



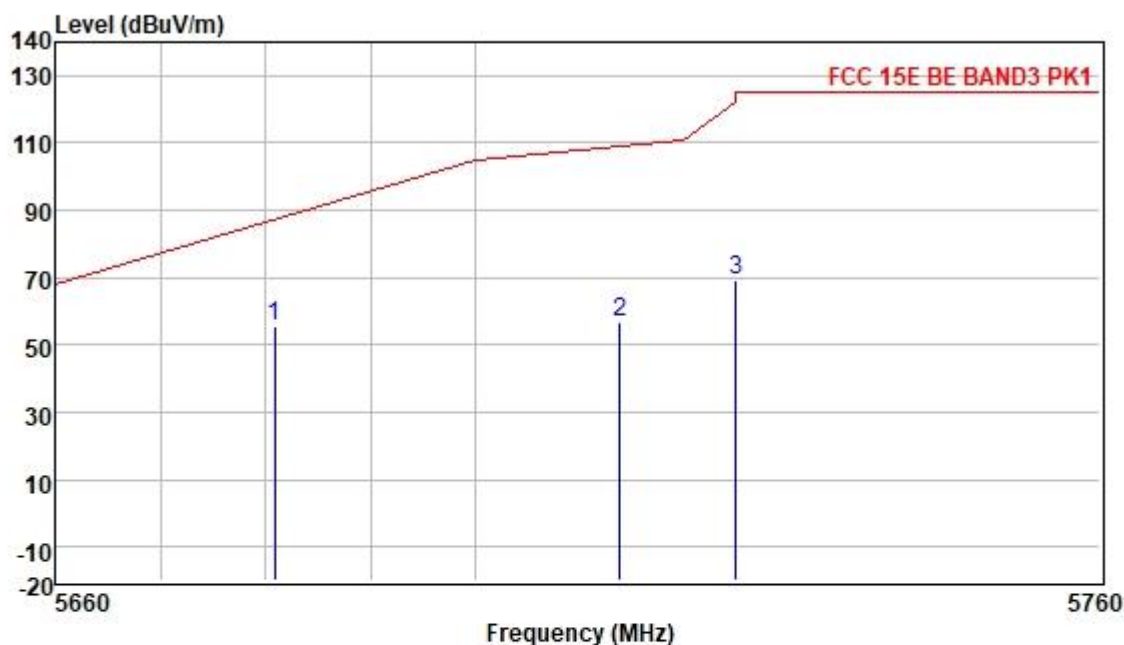
	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5850.00	53.38	32.25	6.00	36.90	54.73	122.20	-67.47	HORIZONTAL	Peak
2	5881.42	51.43	32.29	5.93	36.90	52.75	100.49	-47.74	HORIZONTAL	Peak
3	5932.64	50.44	32.34	6.00	36.90	51.88	68.20	-16.32	HORIZONTAL	Peak

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



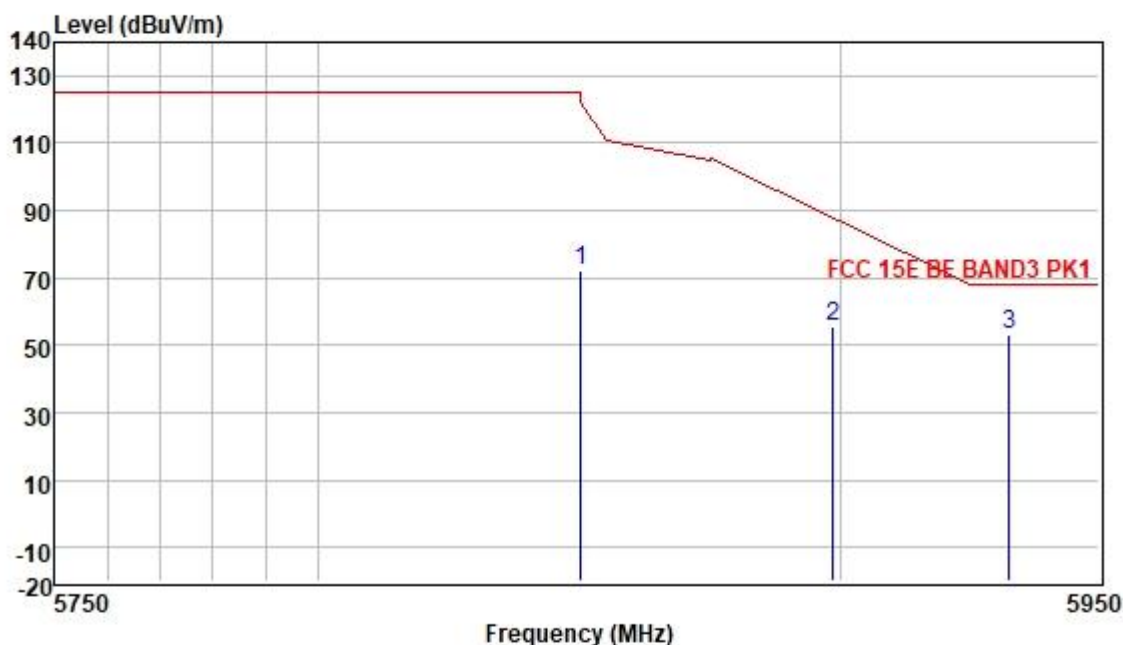
	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5680.92	51.79	31.99	6.38	36.89	53.27	91.12	-37.85	HORIZONTAL	Peak
2	5725.00	58.08	32.07	6.25	36.89	59.51	122.20	-62.69	HORIZONTAL	Peak
3	5850.00	53.13	32.25	6.00	36.90	54.48	122.20	-67.72	HORIZONTAL	Peak
4	5915.52	51.47	32.33	5.95	36.90	52.85	75.21	-22.36	HORIZONTAL	Peak

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



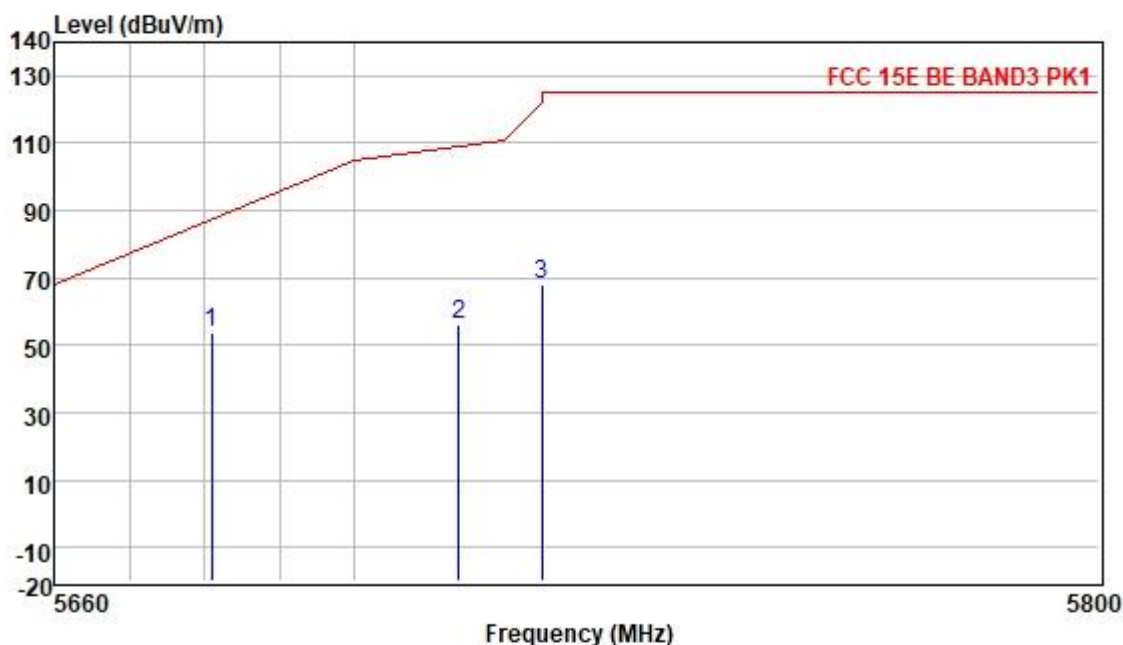
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5680.92	54.00	31.99	6.38	36.89	55.48	91.12	-35.64	VERTICAL	Peak
2	5713.86	55.00	32.04	6.33	36.89	56.48	109.08	-52.60	VERTICAL	Peak
3	5725.00	67.67	32.07	6.25	36.89	69.10	122.20	-53.10	VERTICAL	Peak

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



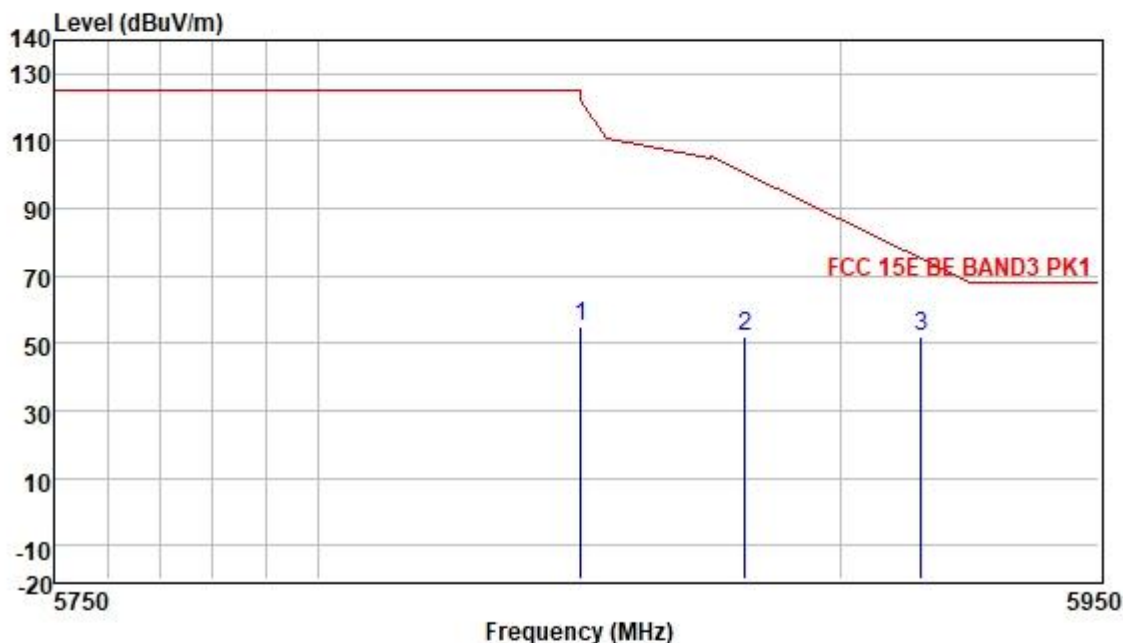
	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5850.00	70.64	32.25	6.00	36.90	71.99	122.20	-50.21	VERTICAL	Peak
2	5898.44	54.00	32.31	5.90	36.90	55.31	87.85	-32.54	VERTICAL	Peak
3	5932.64	52.00	32.34	6.00	36.90	53.44	68.20	-14.76	VERTICAL	Peak

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



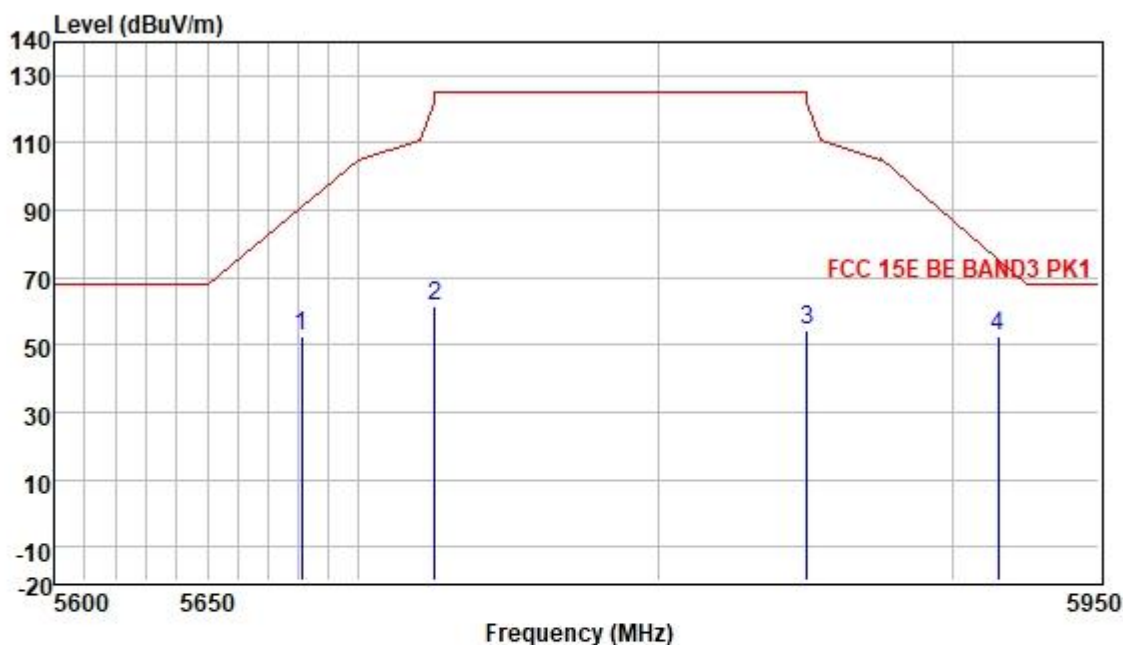
	Freq	Read Level	Antenna Factor	Cable Loss	Preamp Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5680.92	52.04	31.99	6.38	36.89	53.52	91.12	-37.60	VERTICAL	Peak
2	5713.86	54.56	32.04	6.33	36.89	56.04	109.08	-53.04	VERTICAL	Peak
3	5725.00	66.65	32.07	6.25	36.89	68.08	122.20	-54.12	VERTICAL	Peak

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



	Freq	Read Level	Antenna Factor	Cable Loss	Preamplifier Factor	Level	Limit Line	Over Limit	Pol/Phase	Remark
	MHz	dBuV	dB/m	dB	dB	dBuV/m	dBuV/m	dB		
1	5850.00	53.47	32.25	6.00	36.90	54.82	122.20	-67.38	VERTICAL	Peak
2	5881.42	50.55	32.29	5.93	36.90	51.87	100.49	-48.62	VERTICAL	Peak
3	5915.52	50.88	32.33	5.95	36.90	52.26	75.21	-22.95	VERTICAL	Peak

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



	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	5680.92	51.01	31.99	6.38	36.89	52.49	91.12	-38.63	VERTICAL	Peak
2	5725.00	59.91	32.07	6.25	36.89	61.34	122.20	-60.86	VERTICAL	Peak
3	5850.00	52.87	32.25	6.00	36.90	54.22	122.20	-67.98	VERTICAL	Peak
4	5915.52	50.89	32.33	5.95	36.90	52.27	75.21	-22.94	VERTICAL	Peak

7.10 Frequency Stability

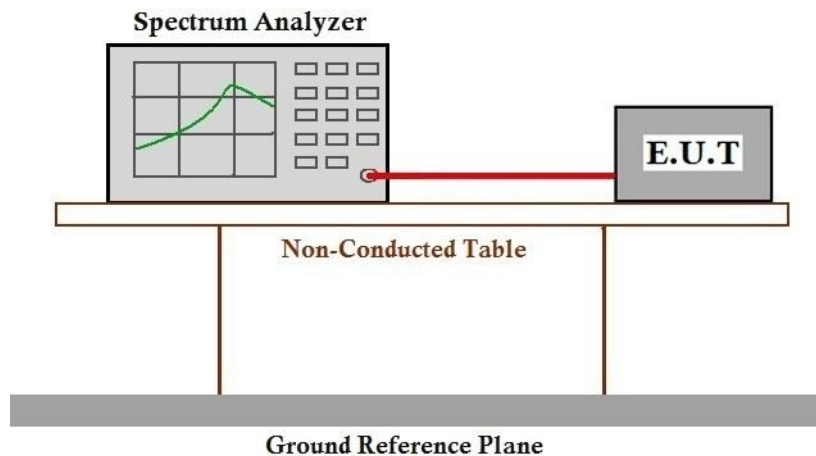
Test Requirement 47 CFR Part 15, Subpart C 15.407 (g)
 An emission is maintained within the band of operation under all conditions of normal operation as specified in the user manual.

Test Method: ANSI C63.10 (2013) Section 6.8

7.10.1 E.U.T. Operation

Operating Environment:
 Temperature: 24.6 °C Humidity: 67.4 % RH Atmospheric Pressure: 1010 mbar

7.10.2 Test Setup Diagram



7.10.3 Measurement Procedure and Data

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details



7.11 Channel Move Time and Non-occupancy period

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

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

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

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

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

7.11.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 67.4 % RH Atmospheric Pressure: 1010 mbar



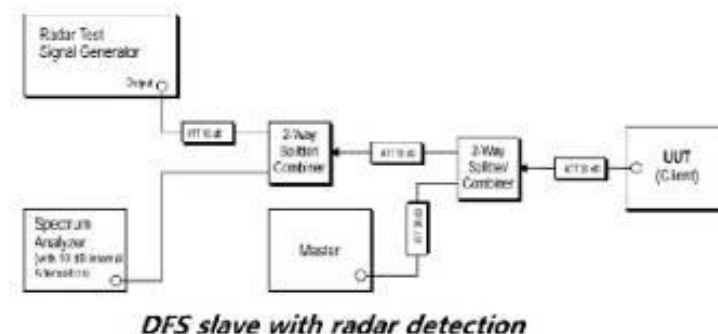
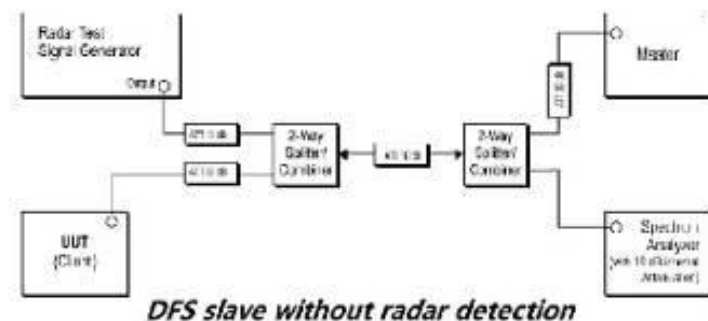
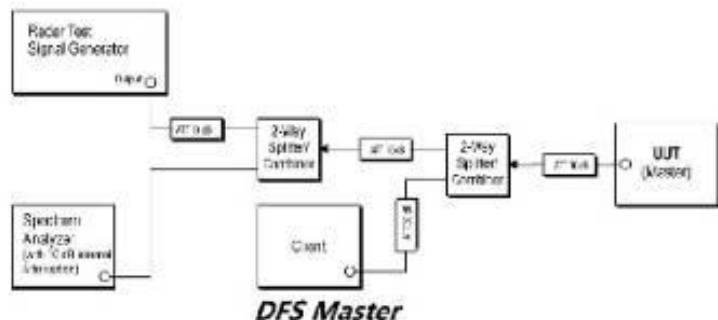
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Guangzhou branch Testing & Calibration EEC Laboratory 中国·广州·经济技术开发区科学城科珠路198号 邮编: 510663 t (86-20) 82155555 f (86-20) 82075058 sgs.china@sgs.com

Test mode : TX mode (Band 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 @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

TX mode (Band 2C)_Keep the EUT in continuously transmitting mode with all modulation types.
All data rates for each modulation type have been tested and found data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

7.11.2 Test Setup Diagram



7.11.3 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details



7.12 Channel Closing Transmission Time

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

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

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

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

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

7.12.1 E.U.T. Operation

Operating Environment:

Temperature: 24.6 °C Humidity: 67.4 % RH Atmospheric Pressure: 1010 mbar



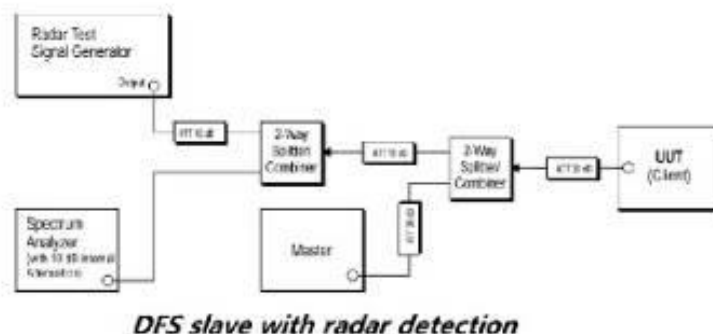
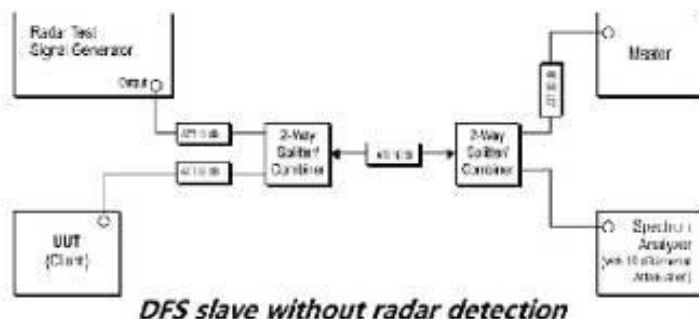
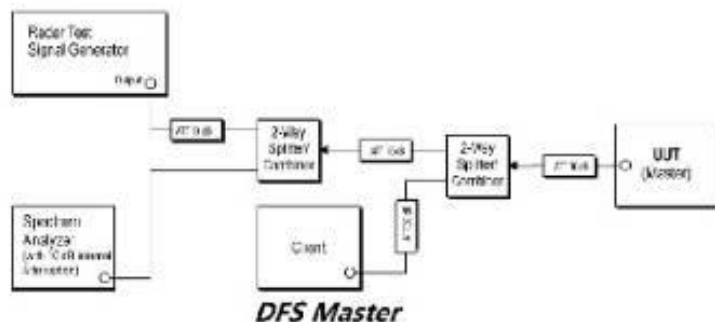
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Test mode : TX mode (Band 2A)_Keep the EUT in continuously transmitting mode with all modulation types.
All data rates for each modulation type have been tested and found the data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

TX mode (Band 2C)_Keep the EUT in continuously transmitting mode with all modulation types.
All data rates for each modulation type have been tested and found data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80). Only the data of worst case is recorded in the report.

7.12.2 Test Setup Diagram





7.12.3 Measurement Procedure and Data

- 1) The radar pulse generator is setup to provide a pulse at frequency that the master and client are operating. A type 0 radar pulse with a 1us pulse width and a 1428us PRI is used for the testing.
- 2) The vector signal generator is adjusted to provide the radar burst (18 pulses) at the level of approximately -61dBm at the antenna port of the master device.
- 3) A trigger is provided from the pulse generator to the DFS monitoring system in order to capture the traffic and the occurrence of the radar pulse.
- 4) EUT will associate with the master at channel. The file "iperf.exe" specified by the FCC is streamed from the PC 2 through the master and the client device to the PC 1 and played in full motion video using Media Player Classic Ver. 6.4.8.6 in order to properly load the network for the entire period of the test.
- 5) When radar burst with a level equal to the DFS Detection Threshold +1dB is generated on the operating channel of the U-NII device. At time T0 the radar waveform generator sends a burst of pulse of the radar waveform at Detection Threshold +1dB.
- 6) Observe the transmissions of the EUT at the end of the radar Burst on the Operating Channel. Measure and record the transmissions from the UUT during the observation time (Channel Move Time). One 15 seconds plot is reported for the Short Pulse Radar Type 0. The plot for the Short Pulse Radar Types start at the end of the radar burst. The Channel Move Time will be calculated based on the zoom in 600ms plot of the Short Pulse Radar Type.
- 7) Measurement of the aggregate duration of the Channel Closed Transmission Time method. With the spectrum analyzer set to zero span tuned to the center frequency of the EUT operating channel at the radar simulated frequency, peak detection, and max hold, the dwell time per bin is given by: $Dwell (0.3ms) = S (12000ms) / B (4000)$; where Dwell is the dwell time per spectrum analyzer sampling bin, S is sweep time and B is the number of spectrum analyzer sampling bins. An upper bound of the aggregate duration of the intermittent control signals of Channel Closing Transmission Time is calculated by: $C (ms) = N \times Dwell (0.3ms)$; where C is the Closing Time, N is the number of spectrum analyzer sampling bins (intermittent control signals) showing a U-NII transmission and Dwell is the dwell time per bin.
- 8) Measurement the EUT for more than 30 minutes following the channel move time to verify that no transmission or beacons occur on this channel.

Please Refer To Appendix FCC Test result for GZCR210300000605 For Details

- End of the Report -

