TEST REPORT

Application No.:	SZCR2304000962AT
Applicant:	KanDao Technology Co., Ltd.
Address of Applicant:	503, Building 1, Dayun Soft Parts Town, 8288 Longgang Avenue, Yuanshan Street, Longgang District, Shenzhen, China
Manufacturer:	KanDao Technology Co., Ltd.
Address of Manufacturer:	503, Building 1, Dayun Soft Parts Town, 8288 Longgang Avenue, Yuanshan Street, Longgang District, Shenzhen, China
Factory:	SKY LIGHT ELECTRONIC (SHENZHEN) LIMITED
Address of Factory:	1F-2F OF NO.9, 1F-5F OF NO.8, ANTUOSHAN HIGH-TECH. INDUSTRIAL PARK, SHAER COMMUNITY, SHAJING STREET, BAO'AN DISTRICT, SHENZHEN CITY, GUANGDONG PROVINCE
Equipment Under Test (EUT):	
EUT Name:	QooCam 3
Model No.:	QCM0301
Trade Mark:	KanDao
FCC ID:	2ATPV-KDLN
Standard(s) :	47 CFR Part 15, Subpart E 15.407
Date of Receipt:	2023-04-06
Date of Test:	2023-04-12 to 2023-04-28
Date of Issue:	2023-05-04
Test Result:	**Pass***

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

Keny Xu
EMC Laboratory Manager

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Revision Record				
Version	**Chapter**	**Date**	**Modifier**	**Remark**
01		2023-05-04		Original

Authorized for issue by:				
		Edison Li Edison Li/Project Engineer		
		Eric Fu Eric Fu/Reviewer		

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2 Test Summary

Radio Spectrum Technical Requirement				
Item	**Standard**	**Method**	**Requirement**	**Result**
Antenna Requirement	47 CFR Part 15, Subpart E 15.407	N/A	47 CFR Part 15, Subpart C 15.203	Pass
Transmission in the Absence of Data		N/A	47 CFR Part 15, Subpart E 15.407 (c)	Pass

Radio Spectrum Matter Part				
Item	**Standard**	**Method**	**Requirement**	**Result**
Conducted Emissions at AC Power Line (150kHz-30MHz)	47 CFR Part 15, Subpart E 15.407	ANSI C63.10 (2013) Section 6.2	47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)	Pass
Duty Cycle		KDB 789033 II B 1	KDB 789033 D02 II B 1	Pass
99% Bandwidth		KDB 789033 II D	N/A	Pass
26dB Emission bandwidth		KDB 789033 D02 II C 1	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Maximum Conducted output power		KDB 789033 D02 II E	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Peak Power spectrum density		KDB 789033 D02 II F	47 CFR Part 15, Subpart E 15.407 (a)	Pass
Frequency Stability		ANSI C63.10 (2013) Section 6.8	47 CFR Part 15, Subpart E 15.407 (g)	Pass
Radiated Emissions which fall in the restricted bands		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Radiated Emissions (Below 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass
Radiated Emissions (Above 1GHz)		KDB 789033 D02 II G	47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)	Pass

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4 General Information

4.1 Details of E.U.T.

Power supply:	Rechargeable Li-ion Polymer Battery Model: QCMB5027 Nominal Voltage: 3.85V Rate Capacity: 1600mAh/6.16Wh Charging Voltage: 4.4V			
Operation Frequency:	Band	Mode	Frequency Range(MHz)	Number of channels
	UNII Band I	802.11a/n(HT20)/ac(HT20)	5180-5240	4
		802.11n(HT40)/ac(HT40)	5190-5230	2
		802.11ac(HT80)	5210	1
Modulation Type:	802.11a: OFDM(64QAM, 16QAM, QPSK, BPSK) 802.11n: OFDM (BPSK, QPSK, 16QAM, 64QAM) 802.11ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)			
Antenna Type:	FPC Antenna			
Antenna Gain:	2.9dBi			

Remark:The information in this section is provided by the applicant or manufacturer, SGS is not liable to the accuracy, suitability, reliability or/and integrity of the information.

4.2 Description of Support Units

Description	Manufacturer	Model No.	Serial No.
Adapter	Apple	A1357	REF. No.SEA05A01A

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4.3 Measurement Uncertainty

Test Item	Measurement Uncertainty
Conducted Emissions at AC Power Line (150kHz-30MHz)	± 3.0dB (150kHz to 30MHz)
Duty Cycle	± 0.37%
99% Bandwidth	± 3%
26dB Emission bandwidth	± 3%
Maximum Conducted output power	± 0.75dB
Peak Power spectrum density	± 2.84dB
Frequency Stability	± 7.25 x 10-8
Radiated Emissions which fall in the restricted bands	± 4.5dB (below 1GHz); ± 4.8dB (above 1GHz);
Radiated Emissions (Below 1GHz)	± 4.5dB
Radiated Emissions (Above 1GHz)	± 4.8dB

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

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4.4 Test Location

All tests were performed at:

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Tel: +86 755 2601 2053 Fax: +86 755 2671 0594

No tests were sub-contracted.

4.5 Test Facility

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

• A2LA (Certificate No. 3816.01)

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory is accredited by the American Association for Laboratory Accreditation(A2LA). Certificate No. 3816.01.

• VCCI (Member No. 1937)

The 3m Fully-anechoic chamber for above 1GHz, 10m Semi-anechoic chamber for below 1GHz, Shielded Room for Mains Port Conducted Interference Measurement and Telecommunication Port Conducted Interference Measurement of SGS-CSTC Standards Technical Services Co., Ltd. Shenzhen EMC laboratory have been registered in accordance with the Regulations for Voluntary Control Measures with Registration No.: G-20026, R-14188, C-12383 and T-11153 respectively.

• FCC –Designation Number: CN1336

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized as an accredited testing laboratory.

Designation Number: CN1336. Test Firm Registration Number: 787754.

• Innovation, Science and Economic Development Canada

SGS-CSTC Standards Technical Services Co., Ltd., Shenzhen EMC Laboratory has been recognized by ISED as an accredited testing laboratory.

CAB identifier: CN0006.

IC#: 4620C.

4.6 Deviation from Standards

None

4.7 Abnormalities from Standard Conditions

None

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5 Equipment List

Conducted Emissions at AC Power Line (150kHz-30MHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Shielding Room	ZhongYu Electron	GB-88	SEM001-06	2022-05-14	2025-05-13
EMI Test Receiver	Rohde&Schwarz	ESCI	SEM004-02	2023-03-20	2024-03-19
Matching Pad	N/A	N/A	SEM021-23	2023-03-22	2024-03-21
Matching Pad	N/A	N/A	SEM021-24	2023-03-22	2024-03-21
Measurement Software	AUDIX	e3 V8.2014-6-27a	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM024-01	2022-07-08	2023-07-07
LISN	Rohde&Schwarz	ENV216	SEM007-01	2022-09-20	2023-09-19
LISN	ETS-LINDGREN	3816/2	SEM007-02	2023-03-20	2024-03-19

Duty Cycle					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2022-10-20	2023-10-19
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2022-09-29	2023-09-28
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2022-07-08	2023-07-07
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-03-21	2024-03-20

99% Bandwidth					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2022-10-20	2023-10-19
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2022-09-29	2023-09-28
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2022-07-08	2023-07-07
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-03-21	2024-03-20

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26dB Emission bandwidth					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2022-10-20	2023-10-19
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2022-09-29	2023-09-28
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2022-07-08	2023-07-07
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-03-21	2024-03-20

Maximum Conducted output power					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Power Sensor	TST PASS	TSPS2023R	SEM009-26	2023-04-01	2024-03-31
Power Sensor	KEYSIGHT	U2021XA	SEM009-16	2023-03-21	2024-03-20
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2022-10-20	2023-10-19
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2022-09-29	2023-09-28
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2022-07-08	2023-07-07
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-03-21	2024-03-20

Peak Power spectrum density					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2022-10-20	2023-10-19
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2022-09-29	2023-09-28
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2022-07-08	2023-07-07
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-03-21	2024-03-20

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Frequency Stability					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
DC Power Supply	Chroma	62012P-80-60	SEM011-11	2022-10-20	2023-10-19
MXA Signal Analyzer	KEYSIGHT	N9020A	SEM004-19	2023-03-21	2024-03-20
Signal Generator	KEYSIGHT	N5173B	SEM006-05	2022-09-29	2023-09-28
Measurement Software	TST PASS	TST PASS V2.0	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM031-01	2022-07-08	2023-07-07
Attenuator	Huber+Suhner	6620_SMA-50-1	SEM021-09	2023-03-31	2024-03-30
Programmable Temperature & Humidity Chamber	Votsch Industrietechnik GmbH	VT 4002	SEM002-15	2023-03-21	2024-03-20

Radiated Emissions which fall in the restricted bands					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2022-04-02	2025-04-01
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2022-07-24	2024-07-23
Microwave system amplifier	Agilent	83017A	SEM005-25	2022-09-21	2023-09-20
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2022-07-08	2023-07-07

Radiated Emissions (Below 1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Loop Antenna	ETS-Lindgren	6502	SEM003-08	2021-11-30	2023-11-29
3m Semi-Anechoic Chamber	ETS-LINDGREN	N/A	SEM001-01	2020-07-19	2023-07-18
MXE EMI Receiver	Agilent Technologies	N9038A	SEM004-15	2022-10-20	2023-10-19
BiConiLog Antenna	ETS-LINDGREN	3142C	SEM003-01	2021-09-17	2023-09-16
Pre-Amplifier	Agilent Technologies	8447D	SEM005-01	2023-03-20	2024-03-19
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM025-01	2022-07-08	2023-07-07

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Radiated Emissions (Above 1GHz)					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
3m Semi-Anechoic Chamber	AUDIX	N/A	SEM001-02	2022-04-02	2025-04-01
Signal Analyzer	Rohde & Schwarz	FSV40	SEM008-04	2023-03-20	2024-03-19
Horn Antenna	Rohde&Schwarz	HF907	SEM003-07	2022-07-24	2024-07-23
Microwave system amplifier	Agilent	83017A	SEM005-25	2022-09-21	2023-09-20
Measurement Software	AUDIX	e3 V8.2014-6-27	N/A	N/A	N/A
Coaxial Cable	SGS	N/A	SEM026-01	2022-07-08	2023-07-07

General used equipment					
Equipment	**Manufacturer**	**Model No.**	**Inventory No.**	**Cal Date**	**Cal Due Date**
Humidity/ Temperature Indicator	Mingle	N/A	SEM002-08	2022-09-04	2023-09-03
Humidity/ Temperature Indicator	Anymetre	TH101B	SEM002-09	2022-09-04	2023-09-03
Barometer	Changchun Meteorological Industry Factory	DYM3	SEM002-01	2023-03-23	2024-03-22

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6 Radio Spectrum Technical Requirement

6.1 Antenna Requirement

6.1.1 Test Requirement:

47 CFR Part 15, Subpart C 15.203

6.1.2 Conclusion

Standard Requirement:

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

EUT Antenna:

The antenna is integrated on the main PCB and no consideration of replacement. The best case gain of the Antenna is 2.9dBi.

Antenna location: Refer to internal photo.

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6.2 Transmission in the Absence of Data

6.2.1 Test Requirement:

47 CFR Part 15, Subpart E 15.407 (c)

6.2.2 Conclusion

6.2.2 Conclusion

Standard Requirement:

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

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

EUT Details:

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

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7 Radio Spectrum Matter Test Results

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

Test Requirement 47 CFR Part 15, Subpart C 15.207 & Subpart E 15.407 b(9)

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

Limit:

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

7.1.1 E.U.T. Operation

Operating Environment:

Temperature: 22.1 °C Humidity: 50.3 % RH Atmospheric Pressure: 1015 mbar

7.1.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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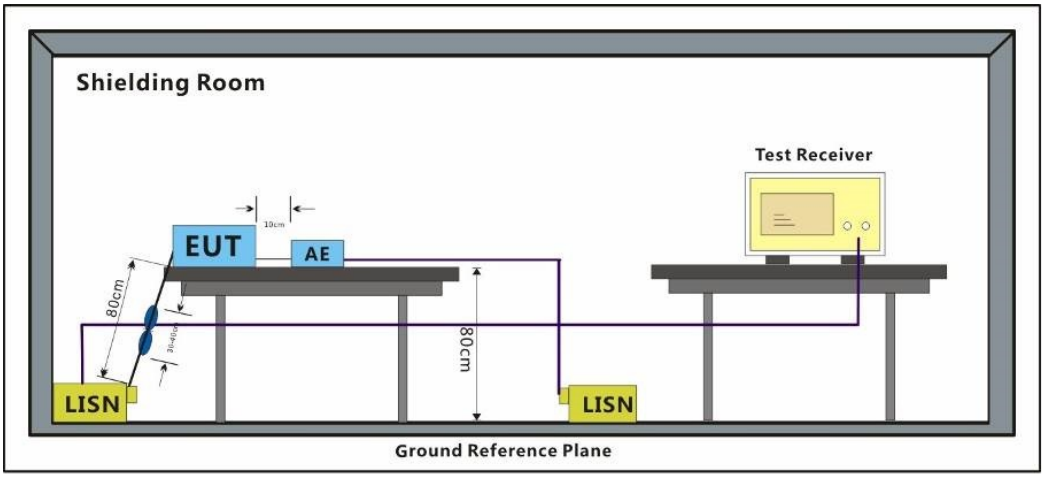
7.1.3 Test Setup Diagram



7.1.4 Measurement Procedure and Data

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

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

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

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

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

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

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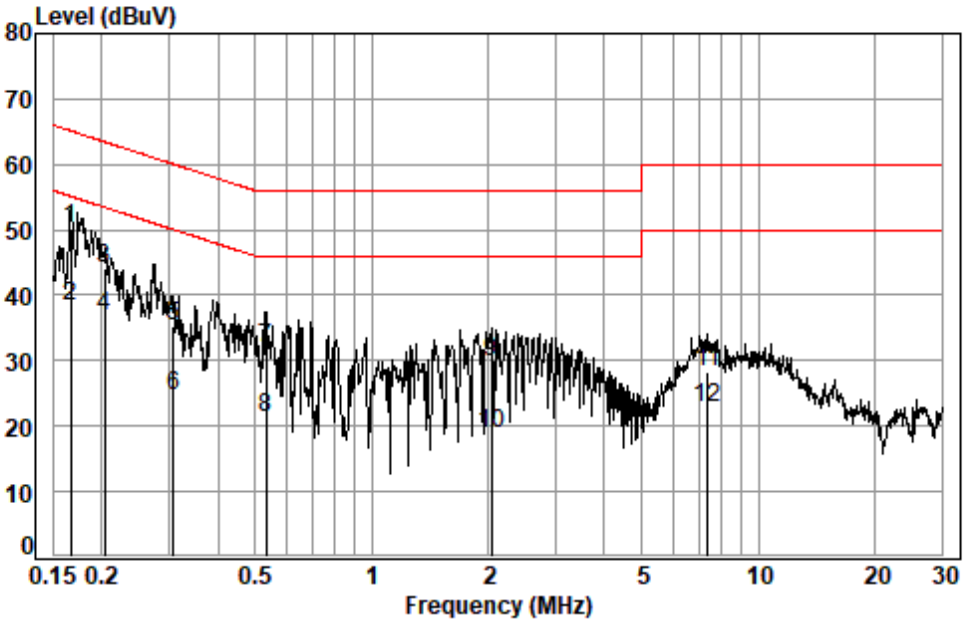
Test Mode: 12; Line: Live line



Site : Shielding Room
Condition: Line
Job No. : 00962AT
Test mode: 12

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 *	0.1668	0.03	9.76	40.47	50.26	65.12	-14.86	QP
2	0.1668	0.03	9.76	28.59	38.38	55.12	-16.74	Average
3	0.2040	0.04	9.76	34.33	44.13	63.45	-19.32	QP
4 *	0.2040	0.04	9.76	27.00	36.80	53.45	-16.65	Average
5	0.3067	0.04	9.76	25.45	35.25	60.06	-24.81	QP
6	0.3067	0.04	9.76	14.84	24.64	50.06	-25.42	Average
7	0.5350	0.06	9.76	21.98	31.80	56.00	-24.20	QP
8	0.5350	0.06	9.76	11.36	21.18	46.00	-24.82	Average
9	2.0441	0.11	9.82	19.78	29.71	56.00	-26.29	QP
10	2.0441	0.11	9.82	8.90	18.83	46.00	-27.17	Average
11	7.4071	0.18	10.05	18.06	28.29	60.00	-31.71	QP
12	7.4071	0.18	10.05	12.51	22.74	50.00	-27.26	Average

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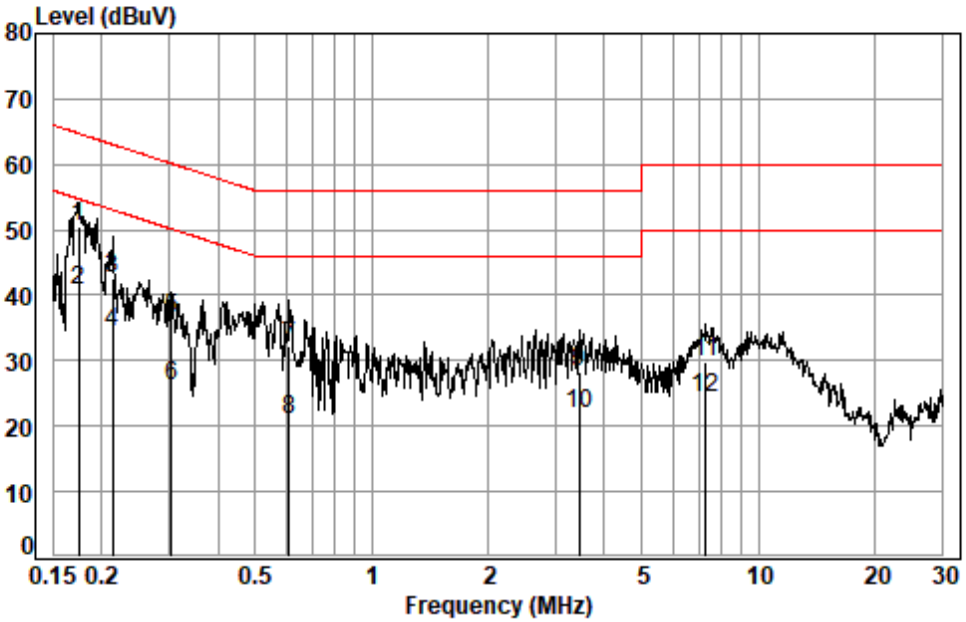
Test Mode: 12; Line: Neutral Line



Site : Shielding Room
Condition: Neutral
Job No. : 00962AT
Test mode: 12

	Freq	Cable Loss	LISN Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB	dBuV	dBuV	dBuV	dB	
1 *	0.1749	0.03	9.73	40.79	50.55	64.72	-14.17	QP
2 *	0.1749	0.03	9.73	30.96	40.72	54.72	-14.00	Average
3	0.2139	0.04	9.73	32.93	42.70	63.05	-20.35	QP
4	0.2139	0.04	9.73	24.53	34.30	53.05	-18.75	Average
5	0.3035	0.04	9.73	26.72	36.49	60.15	-23.66	QP
6	0.3035	0.04	9.73	16.33	26.10	50.15	-24.05	Average
7	0.6108	0.06	9.74	22.33	32.13	56.00	-23.87	QP
8	0.6108	0.06	9.74	11.23	21.03	46.00	-24.97	Average
9	3.4356	0.13	9.85	18.40	28.38	56.00	-27.62	QP
10	3.4356	0.13	9.85	11.86	21.84	46.00	-24.16	Average
11	7.3290	0.18	10.08	19.66	29.92	60.00	-30.08	QP
12	7.3290	0.18	10.08	14.20	24.46	50.00	-25.54	Average

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7.2 Duty Cycle

Test Requirement KDB 789033 D02 II B 1

Test Method: KDB 789033 II B 1

7.2.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 51.7 % RH Atmospheric Pressure: 1015 mbar

7.2.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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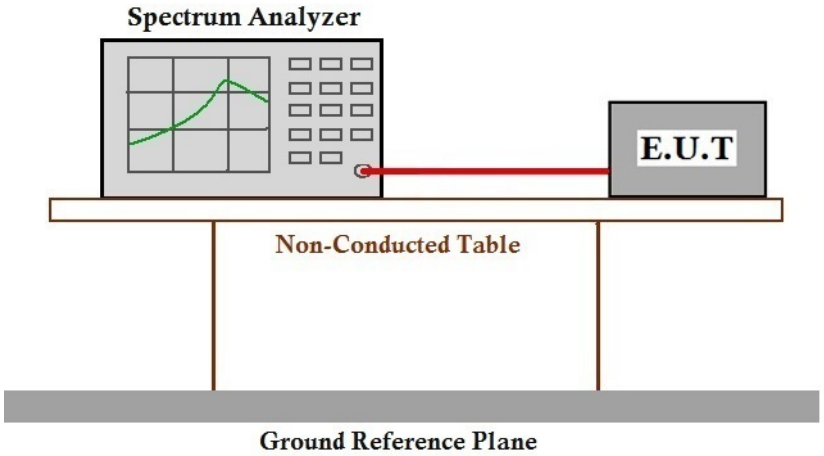
7.2.3 Test Setup Diagram



7.2.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.3 99% Bandwidth

Test Requirement N/A

Test Method: KDB 789033 II D

7.3.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 51.7 % RH Atmospheric Pressure: 1015 mbar

7.3.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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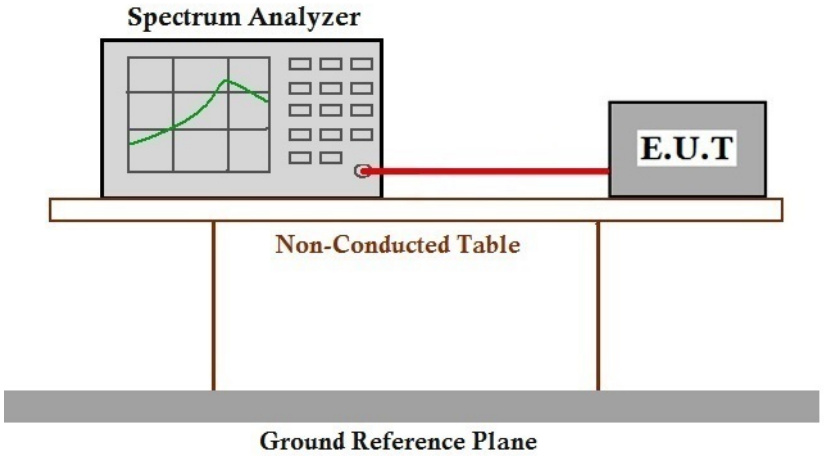
7.3.3 Test Setup Diagram



7.3.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.4 26dB Emission bandwidth

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

Test Method: KDB 789033 D02 II C 1

7.4.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 51.7 % RH Atmospheric Pressure: 1015 mbar

7.4.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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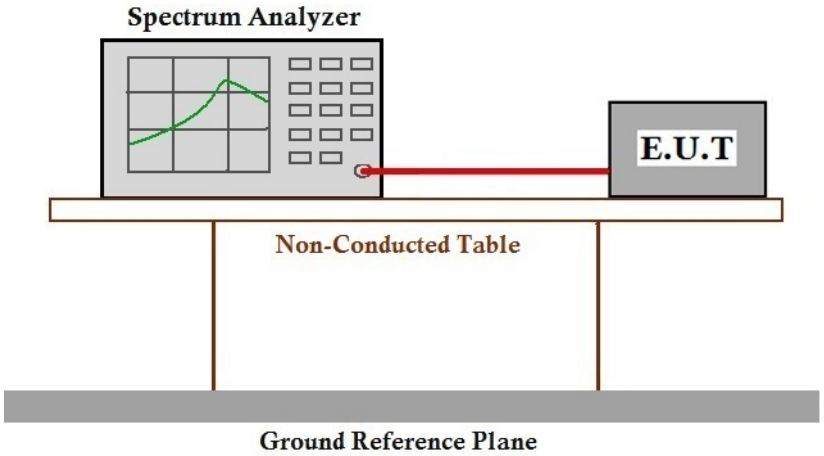
7.4.3 Test Setup Diagram



7.4.4 Measurement Procedure and Data

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7.5 Maximum Conducted output power

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

Test Method: KDB 789033 D02 II E

Limit:

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

7.5.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 51.7 % RH Atmospheric Pressure: 1015 mbar

7.5.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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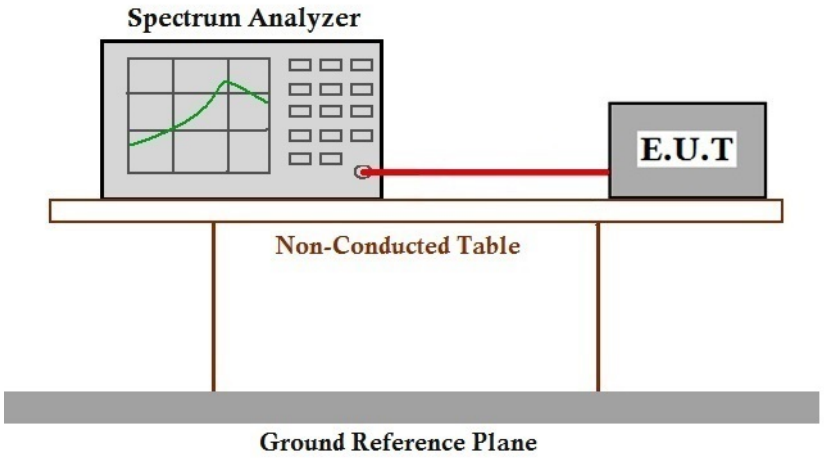
7.5.3 Test Setup Diagram



7.5.4 Measurement Procedure and Data

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7.6 Peak Power spectrum density

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

Test Method: KDB 789033 D02 II F

Limit:

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

7.6.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 51.7 % RH Atmospheric Pressure: 1015 mbar

7.6.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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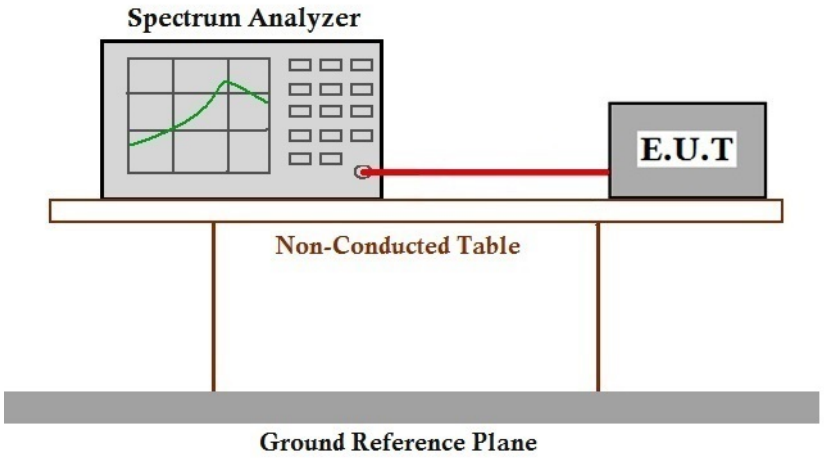
7.6.3 Test Setup Diagram



7.6.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.7 Frequency Stability

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

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

7.7.1 E.U.T. Operation

Operating Environment:

Temperature: 26.0 °C Humidity: 51.7 % RH Atmospheric Pressure: 1015 mbar

7.7.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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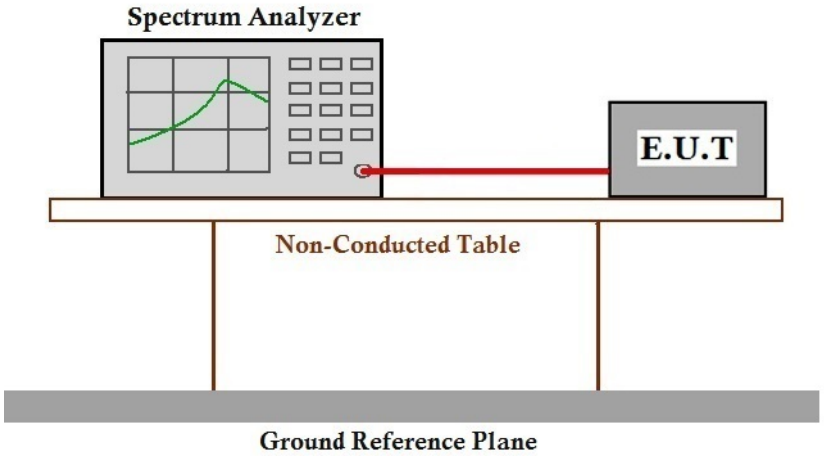
7.7.3 Test Setup Diagram



7.7.4 Measurement Procedure and Data

Please Refer to Appendix for Details

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7.8 Radiated Emissions which fall in the restricted bands

Test Requirement 47 CFR Part 15, Subpart C 15.209 & Subpart E 15.407(b)
Test Method: KDB 789033 D02 II G
Measurement Distance: 3m
Limit:

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

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

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

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

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

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

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

7.8.1 E.U.T. Operation

Operating Environment:
Temperature: 23.2 °C Humidity: 52.6 % RH Atmospheric Pressure: 1015 mbar

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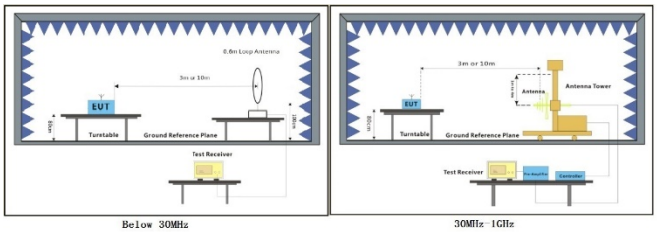
7.8.2 Test Mode Description

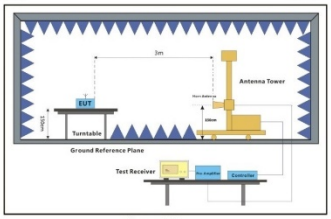
Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.8.3 Test Setup Diagram



Below 30MHz

30MHz~1GHz



Above 1GHz

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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 or 10 meter semi-anechoic chamber. The table was rotated 360 degrees to determine the position of the highest radiation.

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

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

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

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

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

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

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

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

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

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

Remark 2: For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst case mode with the widest bandwidth which can be covered the same channel (center frequency) on modes with narrower bandwidth that have the same or lower output power for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.

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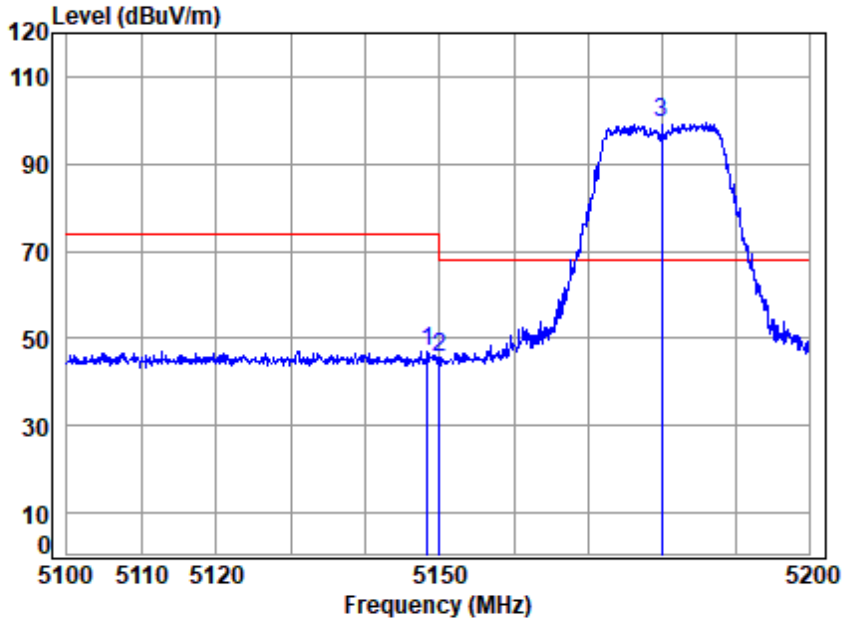
Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5148.357	7.36	34.00	41.06	46.74	47.04	74.00	-26.96	peak
2	5149.980	7.36	34.00	41.06	45.45	45.75	74.00	-28.25	peak
3	5180.000	7.39	34.00	41.08	99.07	99.38	68.20	31.18	peak

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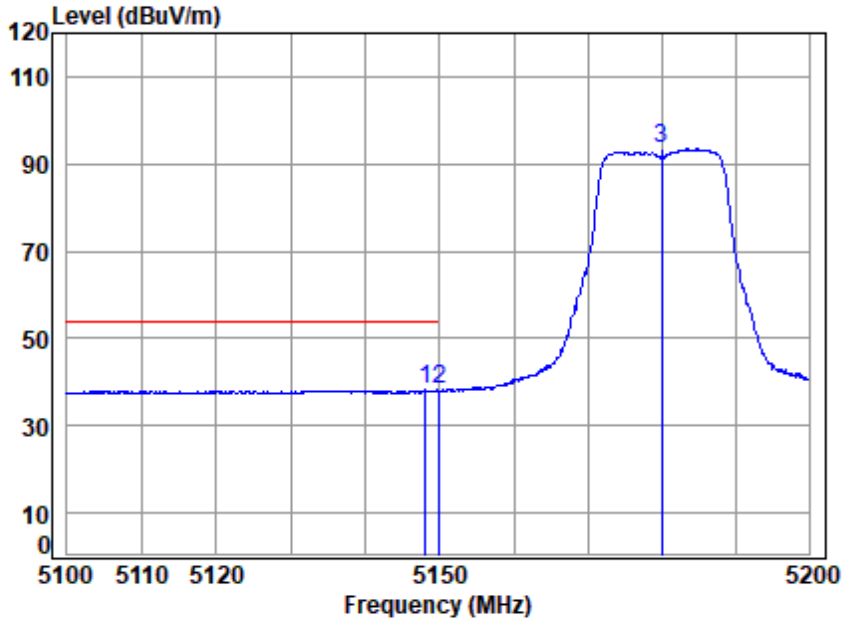
Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5148.058	7.36	34.00	41.06	37.95	38.25	54.00	-15.75	Average
2	5149.980	7.36	34.00	41.06	37.80	38.10	54.00	-15.90	Average
3	5180.000	7.39	34.00	41.08	93.06	93.37	------	------	Average

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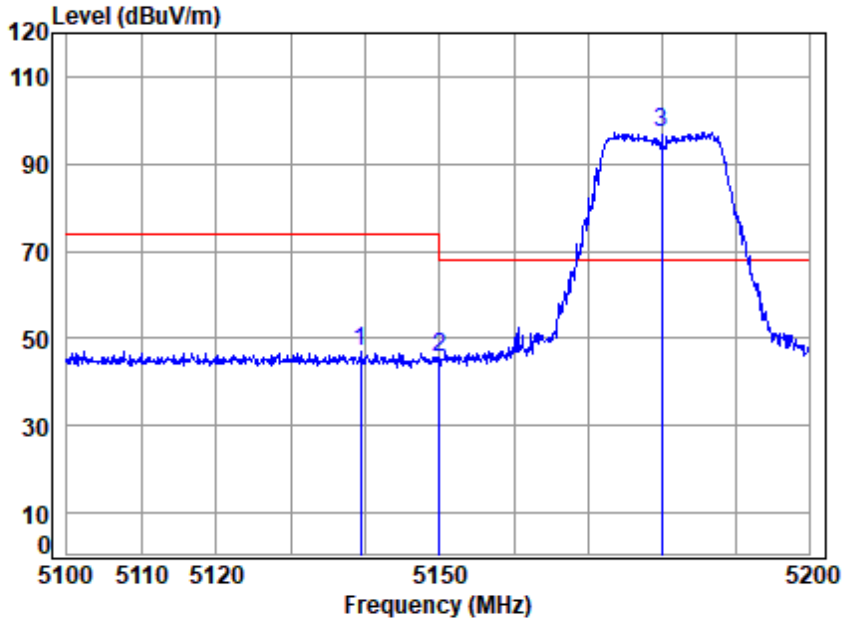
Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5139.368	7.35	34.02	41.06	46.56	46.87	74.00	-27.13	Peak
2	5149.980	7.36	34.00	41.06	45.31	45.61	74.00	-28.39	Peak
3	5180.000	7.39	34.00	41.08	97.01	97.32	68.20	29.12	Peak

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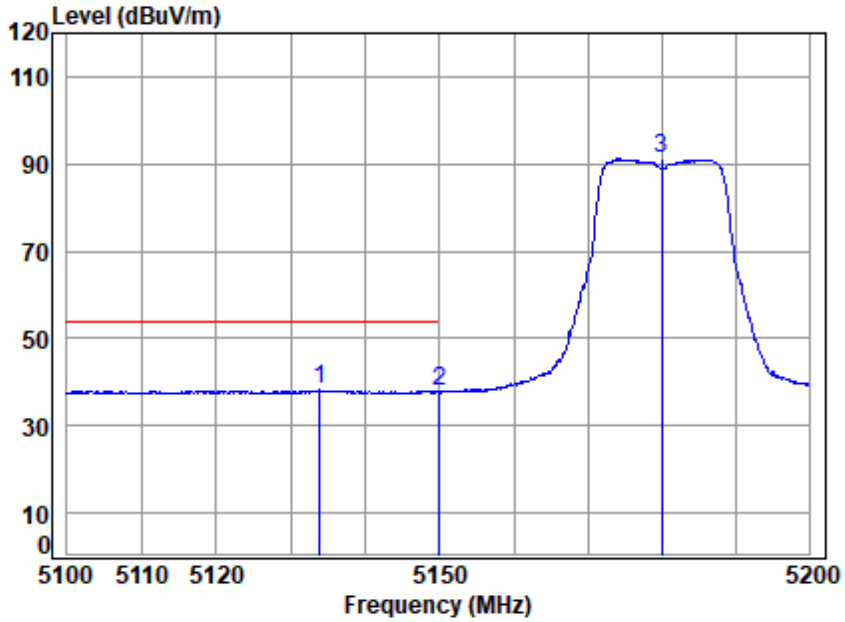
Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5133.882	7.35	34.03	41.06	37.98	38.30	54.00	-15.70	Average
2	5149.980	7.36	34.00	41.06	37.53	37.83	54.00	-16.17	Average
3	5180.000	7.39	34.00	41.08	90.86	91.17	------	------	Average

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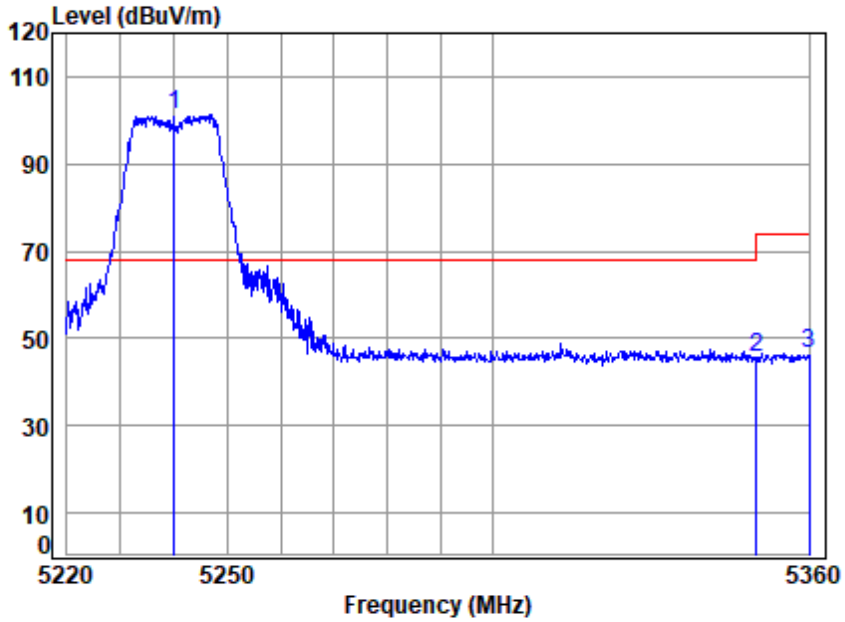
Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	101.06	101.41	68.20	33.21	peak
2	5350.020	7.56	34.30	41.15	45.11	45.82	74.00	-28.18	peak
3	5360.000	7.57	34.34	41.15	45.79	46.55	74.00	-27.45	peak

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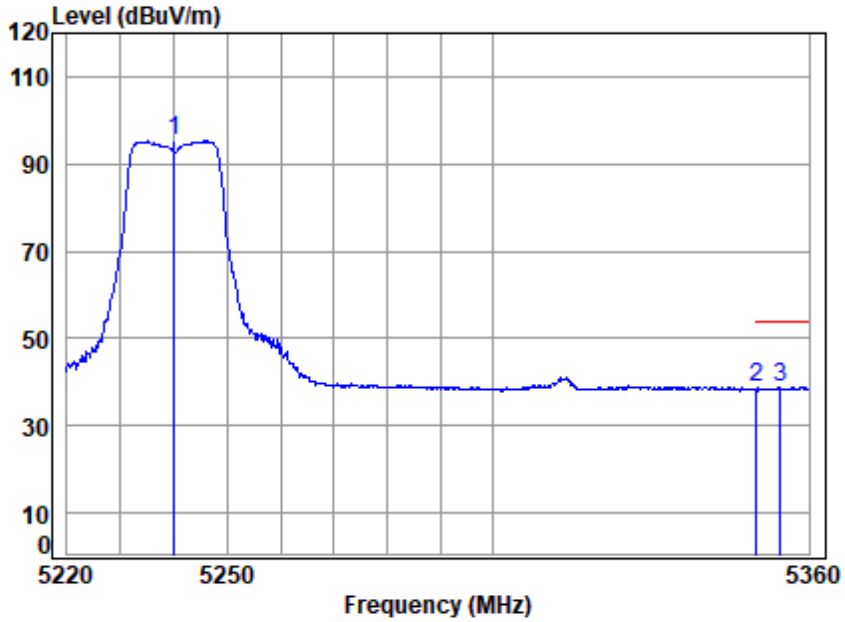
Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	94.83	95.18	------	------	Average
2	5350.020	7.56	34.30	41.15	38.01	38.72	54.00	-15.28	Average
3	5354.470	7.57	34.32	41.15	38.02	38.76	54.00	-15.24	Average

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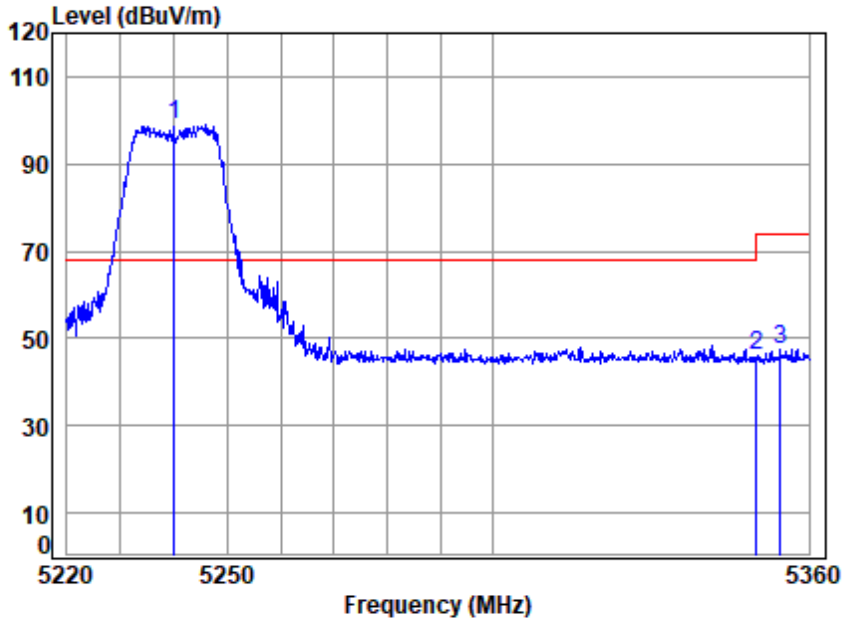
Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	98.81	99.16	68.20	30.96	Peak
2	5350.020	7.56	34.30	41.15	45.53	46.24	74.00	-27.76	Peak
3	5354.612	7.57	34.32	41.15	46.77	47.51	74.00	-26.49	Peak

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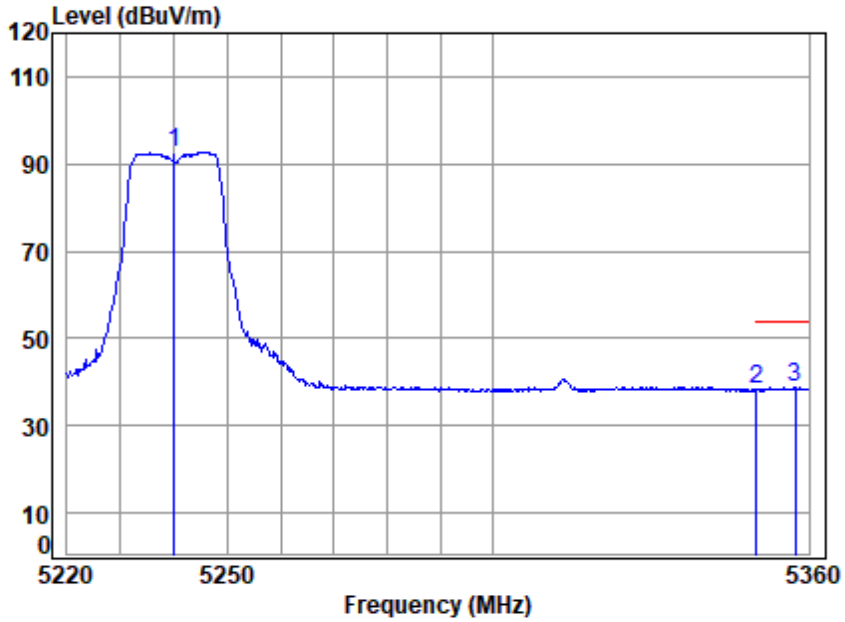
Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	92.47	92.82	------	------	Average
2	5350.020	7.56	34.30	41.15	37.63	38.34	54.00	-15.66	Average
3	5357.447	7.57	34.33	41.15	37.89	38.64	54.00	-15.36	Average

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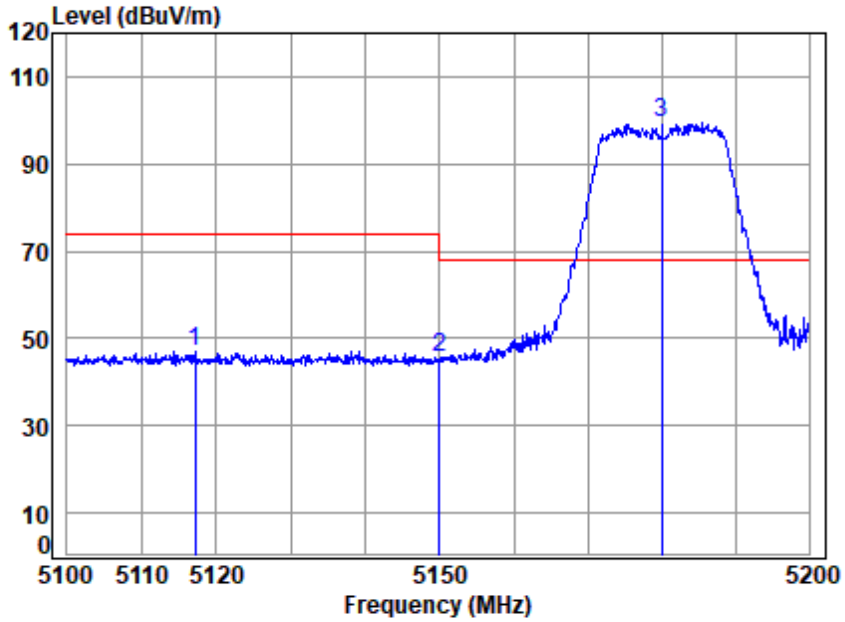
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5117.162	7.33	34.07	41.05	46.80	47.15	74.00	-26.85	peak
2	5149.980	7.36	34.00	41.06	45.18	45.48	74.00	-28.52	peak
3	5180.000	7.39	34.00	41.08	98.99	99.30	68.20	31.10	peak

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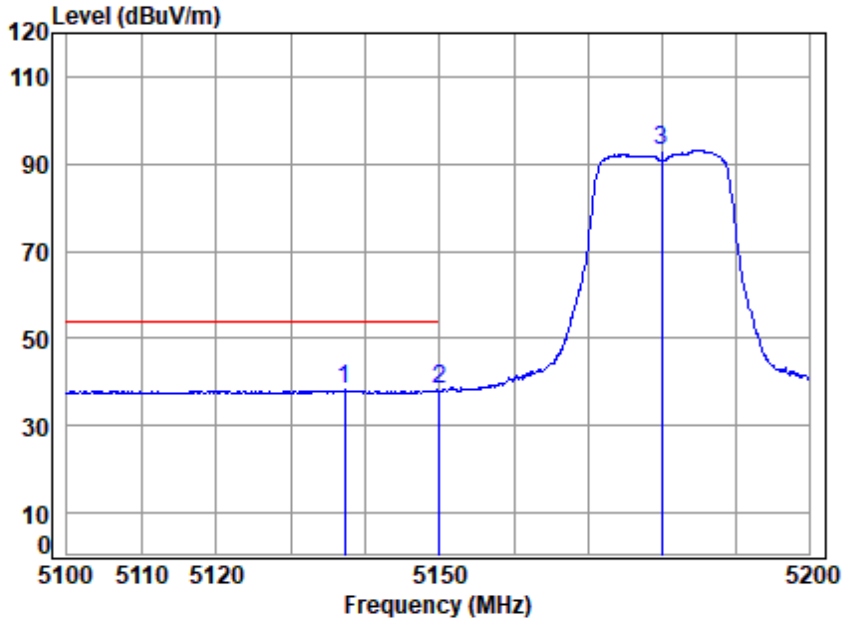
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5137.272	7.35	34.03	41.06	37.79	38.11	54.00	-15.89	Average
2	5149.980	7.36	34.00	41.06	37.80	38.10	54.00	-15.90	Average
3	5180.000	7.39	34.00	41.08	92.89	93.20	------	------	Average

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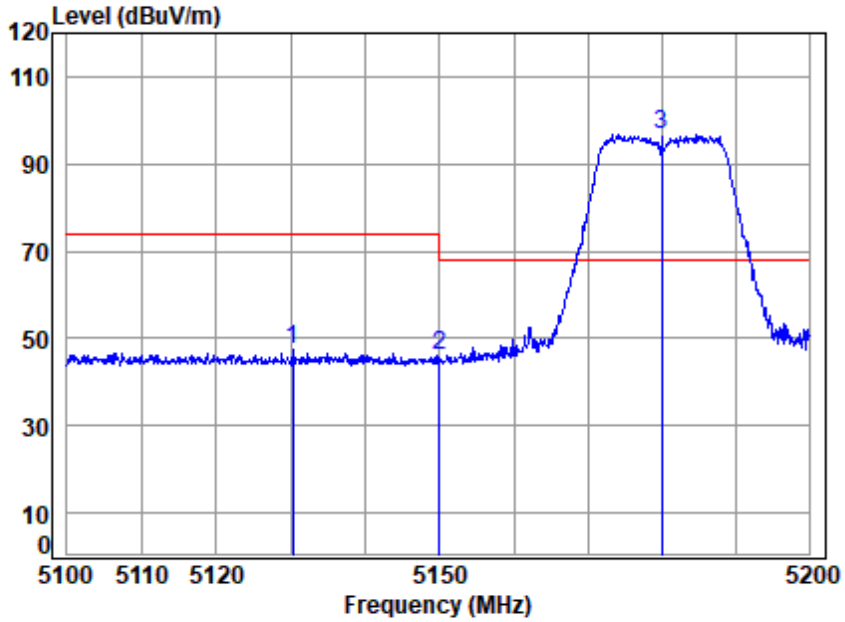
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5130.294	7.34	34.04	41.06	46.95	47.27	74.00	-26.73	Peak
2	5149.980	7.36	34.00	41.06	45.78	46.08	74.00	-27.92	Peak
3	5180.000	7.39	34.00	41.08	96.37	96.68	68.20	28.48	Peak

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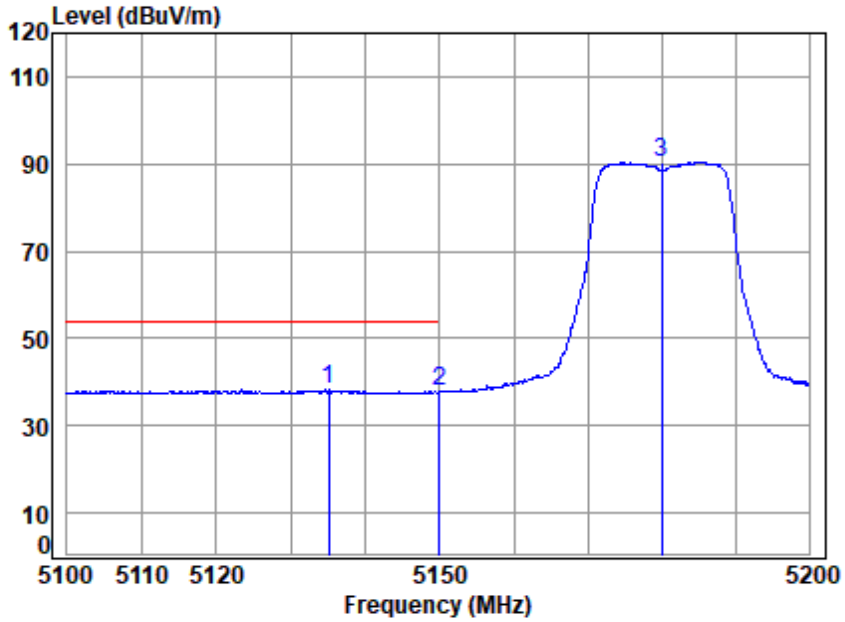
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5135.079	7.35	34.03	41.06	37.97	38.29	54.00	-15.71	Average
2	5149.980	7.36	34.00	41.06	37.42	37.72	54.00	-16.28	Average
3	5180.000	7.39	34.00	41.08	90.09	90.40	------	------	Average

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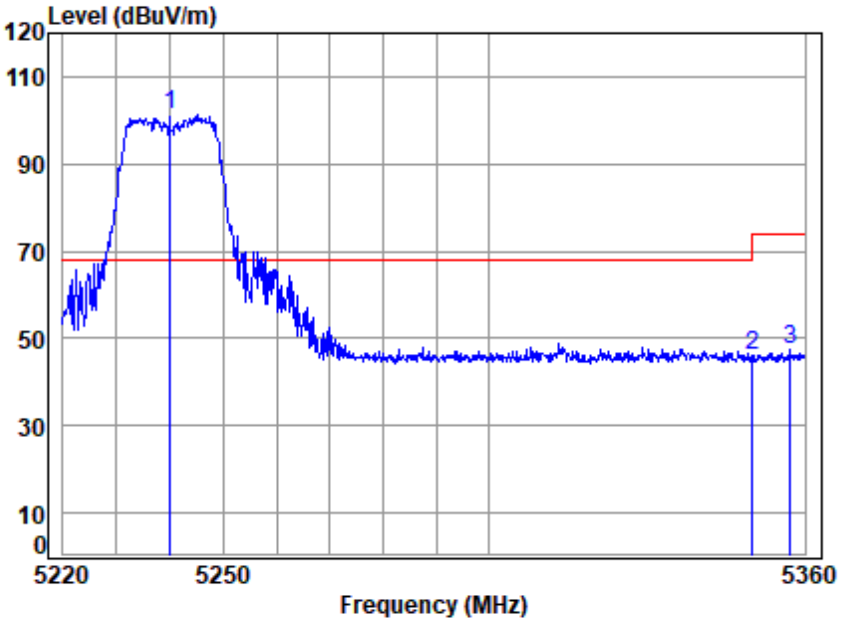
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	100.77	101.12	68.20	32.92	peak
2	5350.020	7.56	34.30	41.15	45.47	46.18	74.00	-27.82	peak
3	5357.164	7.57	34.33	41.15	46.53	47.28	74.00	-26.72	peak

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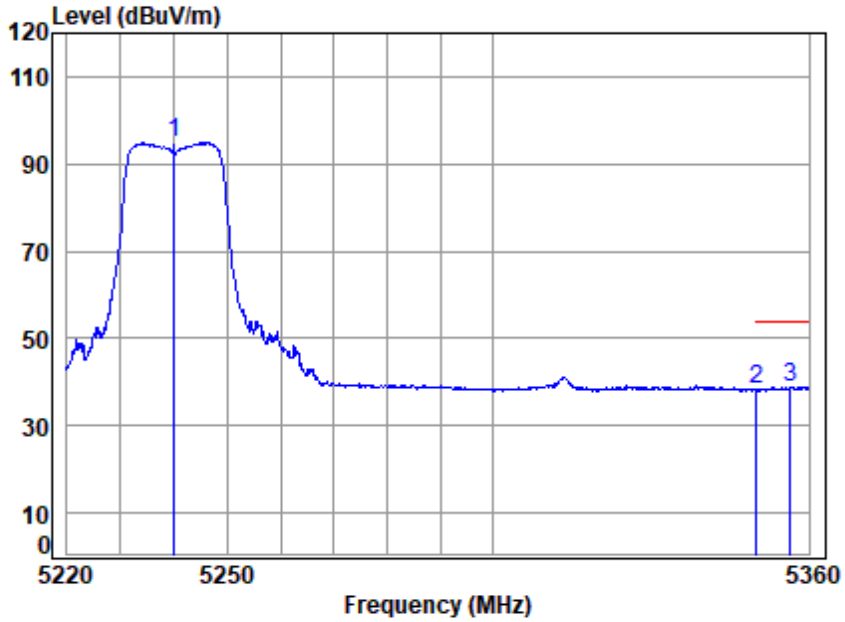
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	94.53	94.88	------	------	Average
2	5350.020	7.56	34.30	41.15	37.51	38.22	54.00	-15.78	Average
3	5356.455	7.57	34.33	41.15	38.18	38.93	54.00	-15.07	Average

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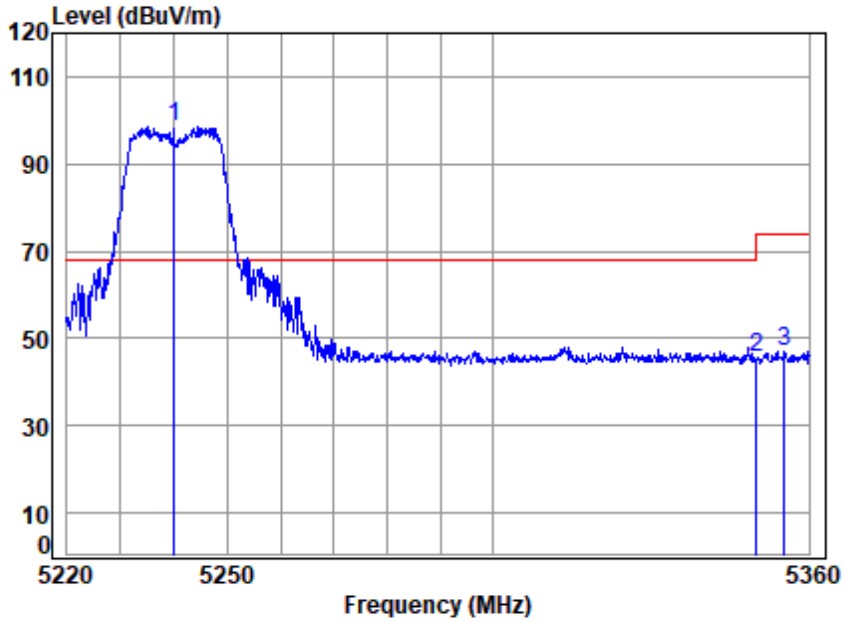
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	98.05	98.40	68.20	30.20	Peak
2	5350.020	7.56	34.30	41.15	45.04	45.75	74.00	-28.25	Peak
3	5355.321	7.57	34.32	41.15	46.30	47.04	74.00	-26.96	Peak

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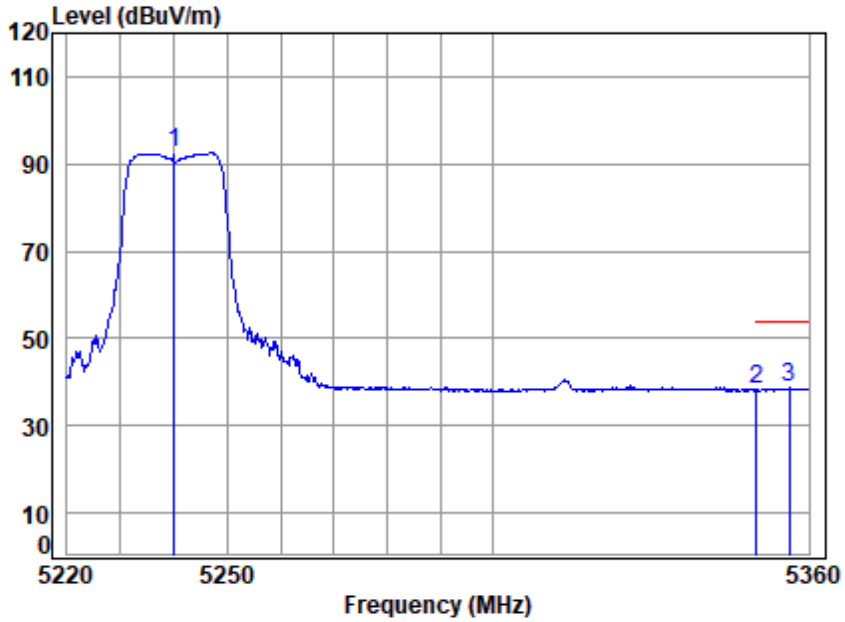
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	92.41	92.76	------	------	Average
2	5350.020	7.56	34.30	41.15	37.65	38.36	54.00	-15.64	Average
3	5356.313	7.57	34.33	41.15	37.85	38.60	54.00	-15.40	Average

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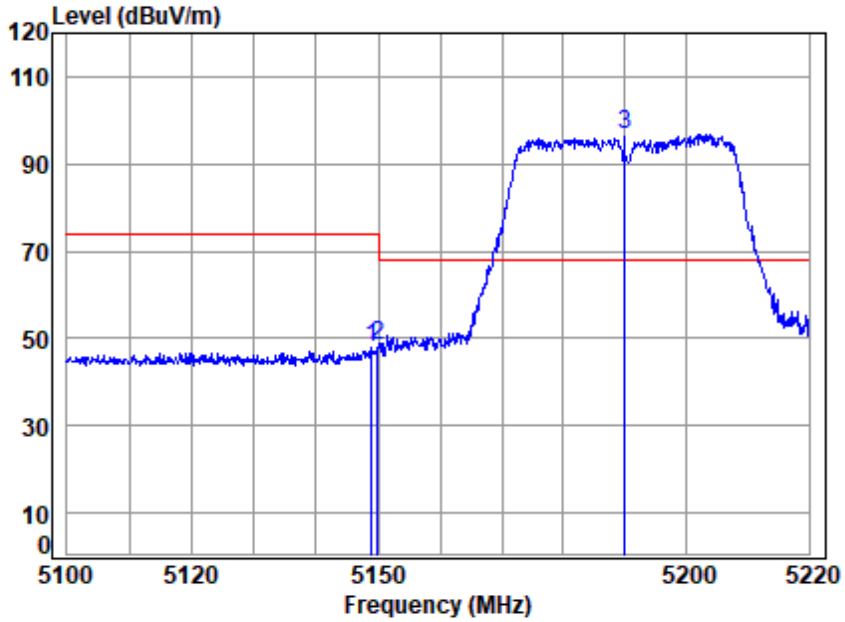
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5148.982	7.36	34.00	41.06	47.42	47.72	74.00	-26.28	peak
2	5149.980	7.36	34.00	41.06	47.84	48.14	74.00	-25.86	peak
3	5190.000	7.40	34.00	41.08	96.39	96.71	68.20	28.51	peak

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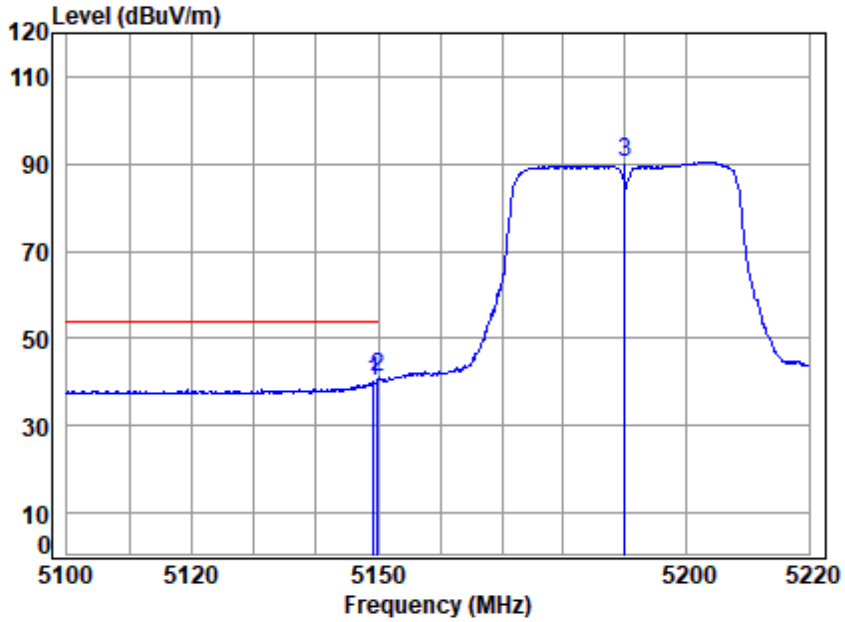
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.222	7.36	34.00	41.06	39.78	40.08	54.00	-13.92	Average
2	5149.980	7.36	34.00	41.06	40.80	41.10	54.00	-12.90	Average
3	5190.000	7.40	34.00	41.08	90.03	90.35	------	------	Average

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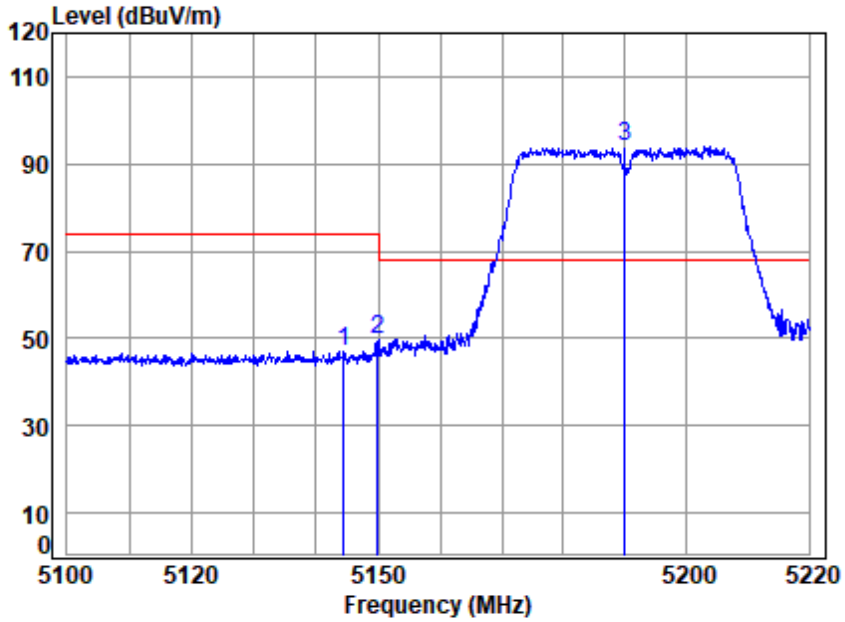
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5144.434	7.36	34.01	41.06	46.88	47.19	74.00	-26.81	Peak
2	5149.980	7.36	34.00	41.06	49.48	49.78	74.00	-24.22	Peak
3	5190.000	7.40	34.00	41.08	93.55	93.87	68.20	25.67	Peak

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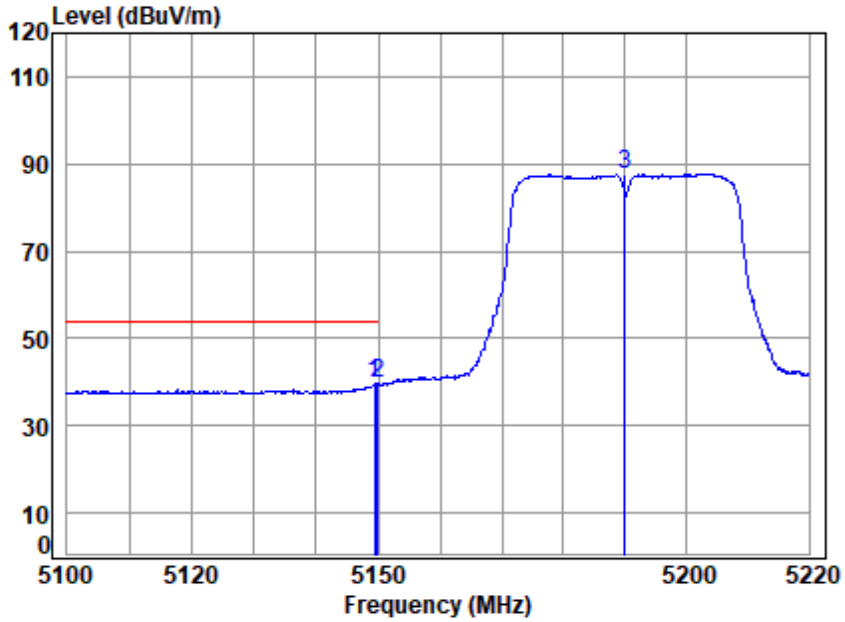
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.461	7.36	34.00	41.06	39.21	39.51	54.00	-14.49	Average
2	5149.980	7.36	34.00	41.06	39.35	39.65	54.00	-14.35	Average
3	5190.000	7.40	34.00	41.08	87.37	87.69	------	------	Average

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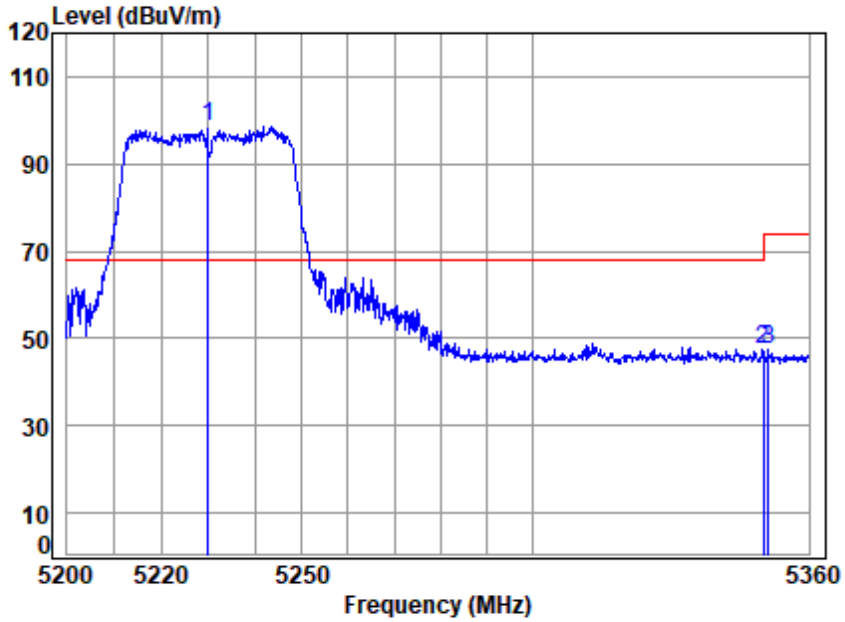

Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	98.22	98.56	68.20	30.36	peak
2	5350.020	7.56	34.30	41.15	46.62	47.33	74.00	-26.67	peak
3	5351.235	7.56	34.30	41.15	46.84	47.55	74.00	-26.45	peak

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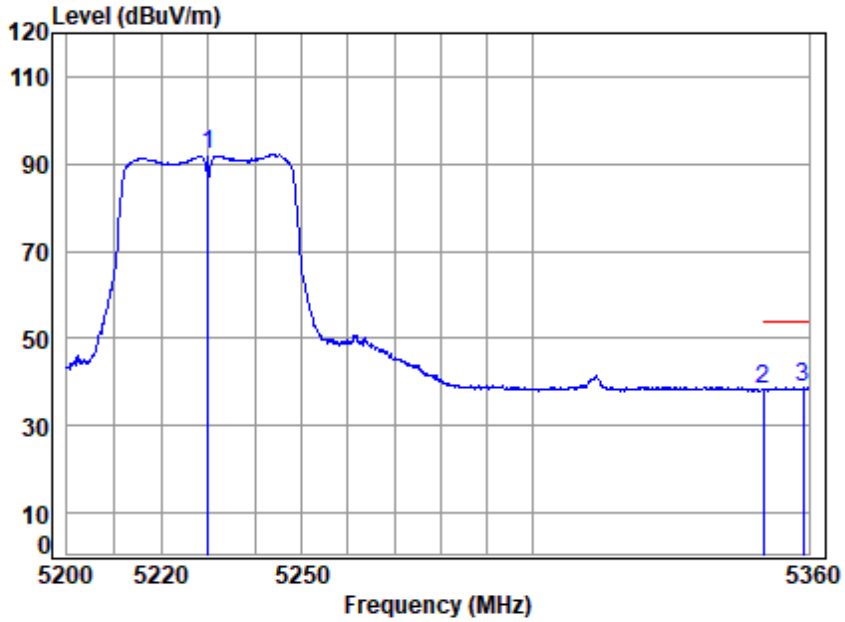
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	91.83	92.17	------	------	Average
2	5350.020	7.56	34.30	41.15	37.53	38.24	54.00	-15.76	Average
3	5358.701	7.57	34.33	41.15	37.91	38.66	54.00	-15.34	Average

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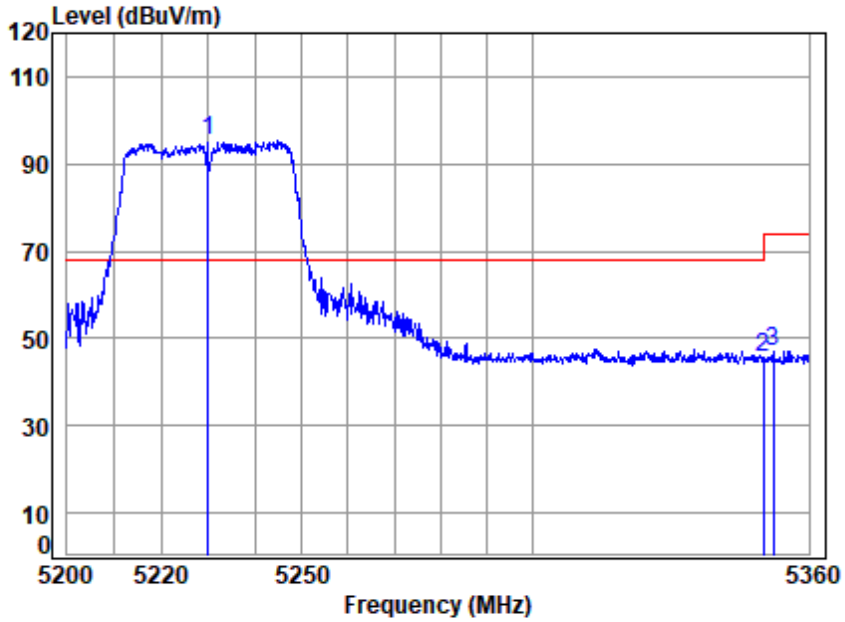
Member of the SGS Group (SGS SA)

Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	95.06	95.40	68.20	27.20	Peak
2	5350.020	7.56	34.30	41.15	44.98	45.69	74.00	-28.31	Peak
3	5352.208	7.56	34.31	41.15	46.42	47.14	74.00	-26.86	Peak

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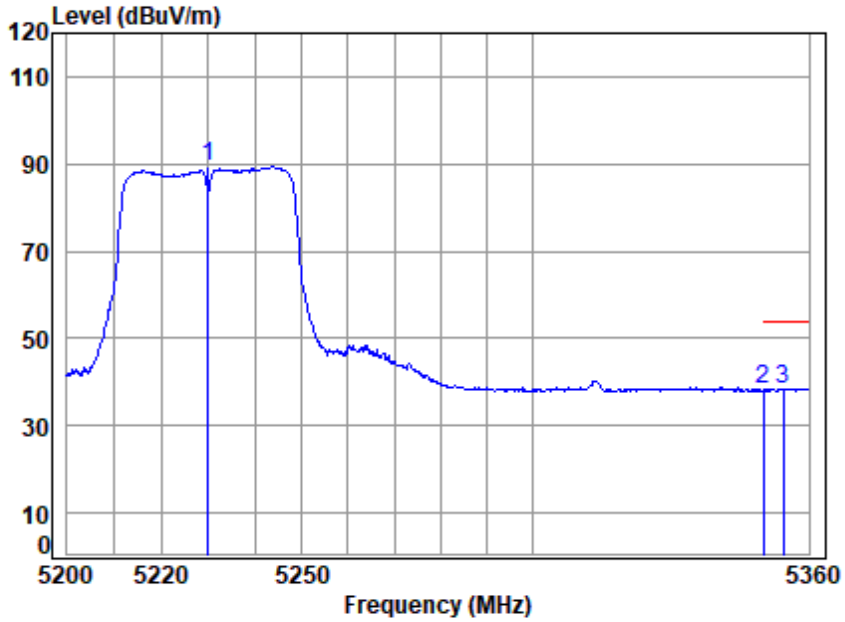

Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	89.05	89.39	------	------	Average
2	5350.020	7.56	34.30	41.15	37.48	38.19	54.00	-15.81	Average
3	5354.480	7.57	34.32	41.15	37.78	38.52	54.00	-15.48	Average

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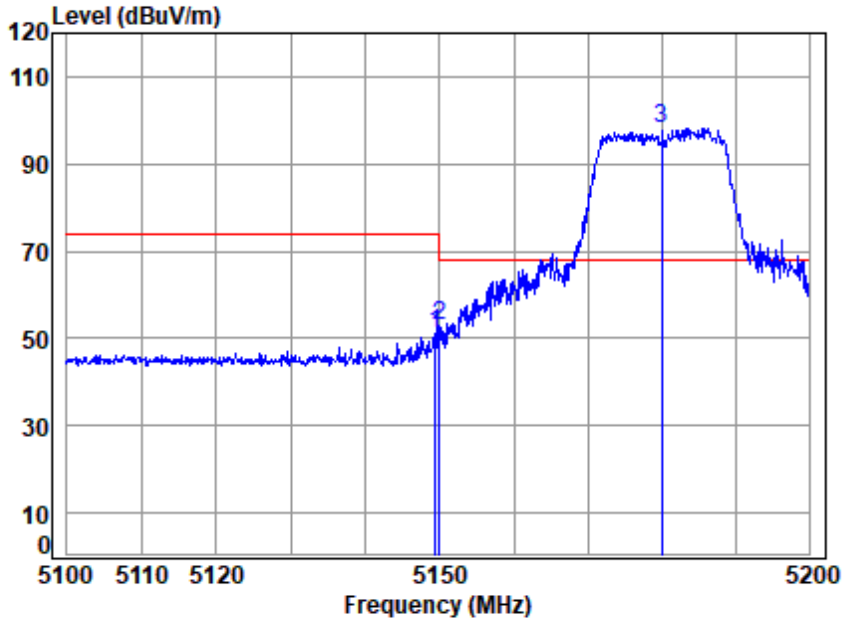
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.357	7.36	34.00	41.06	50.91	51.21	74.00	-22.79	peak
2	5149.980	7.36	34.00	41.06	52.74	53.04	74.00	-20.96	peak
3	5180.000	7.39	34.00	41.08	97.97	98.28	68.20	30.08	peak

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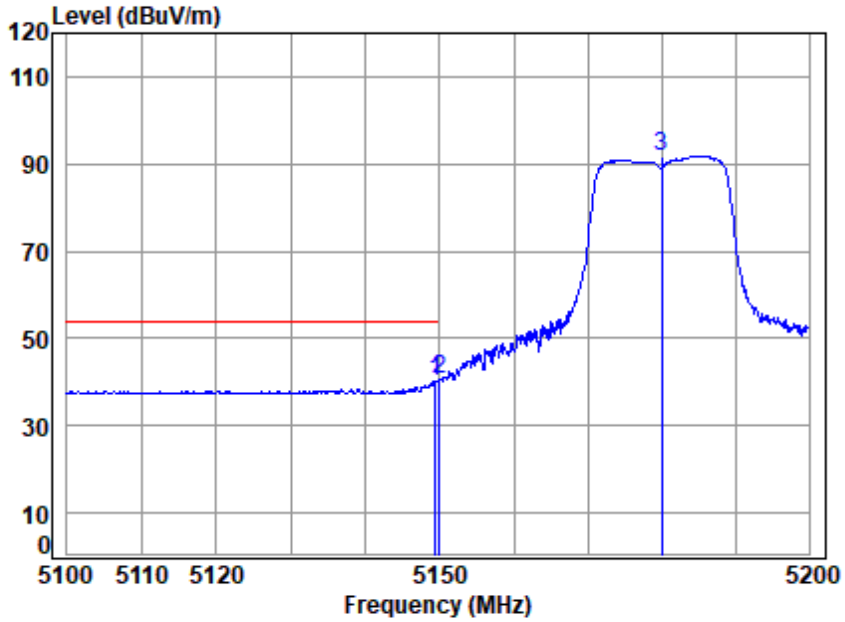
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.357	7.36	34.00	41.06	40.03	40.33	54.00	-13.67	Average
2	5149.980	7.36	34.00	41.06	40.45	40.75	54.00	-13.25	Average
3	5180.000	7.39	34.00	41.08	91.60	91.91	------	------	Average

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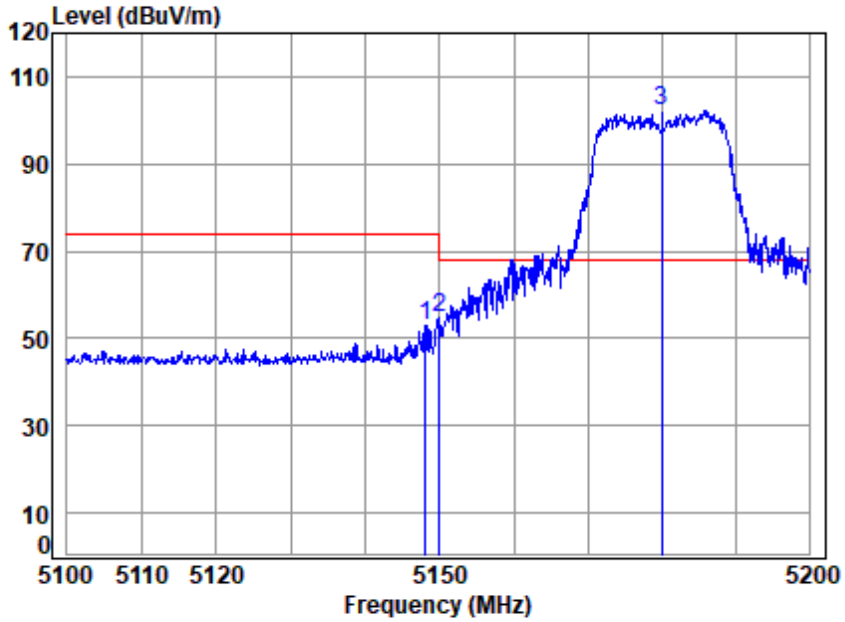
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5148.058	7.36	34.00	41.06	52.57	52.87	74.00	-21.13	Peak
2	5149.980	7.36	34.00	41.06	54.32	54.62	74.00	-19.38	Peak
3	5180.000	7.39	34.00	41.08	101.93	102.24	68.20	34.04	Peak

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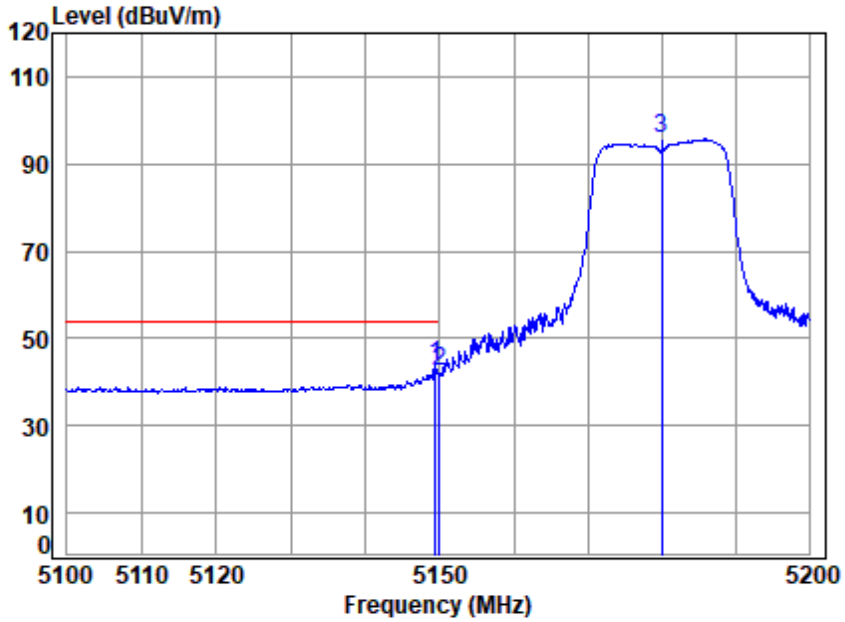

Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.357	7.36	34.00	41.06	43.66	43.96	54.00	-10.04	Average
2	5149.980	7.36	34.00	41.06	42.28	42.58	54.00	-11.42	Average
3	5180.000	7.39	34.00	41.08	95.34	95.65	------	------	Average

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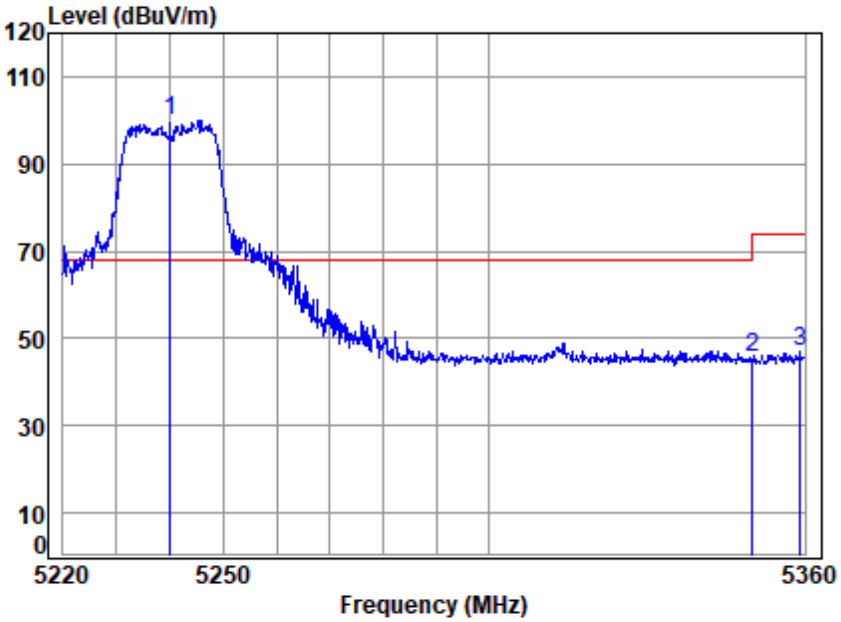
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	99.69	100.04	68.20	31.84	peak
2	5350.020	7.56	34.30	41.15	44.75	45.46	74.00	-28.54	peak
3	5359.149	7.57	34.34	41.15	46.01	46.77	74.00	-27.23	peak

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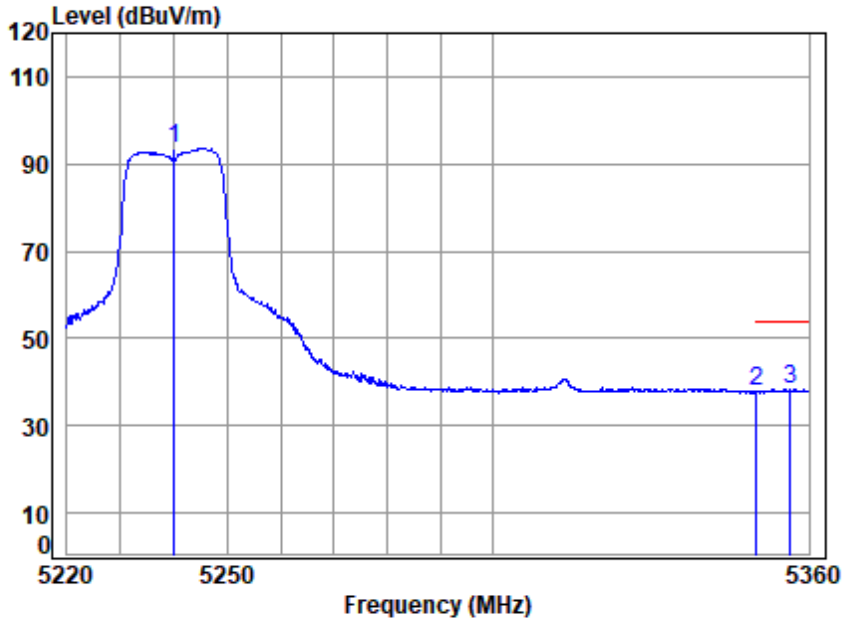
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	93.37	93.72	------	------	Average
2	5350.020	7.56	34.30	41.15	37.28	37.99	54.00	-16.01	Average
3	5356.455	7.57	34.33	41.15	37.58	38.33	54.00	-15.67	Average

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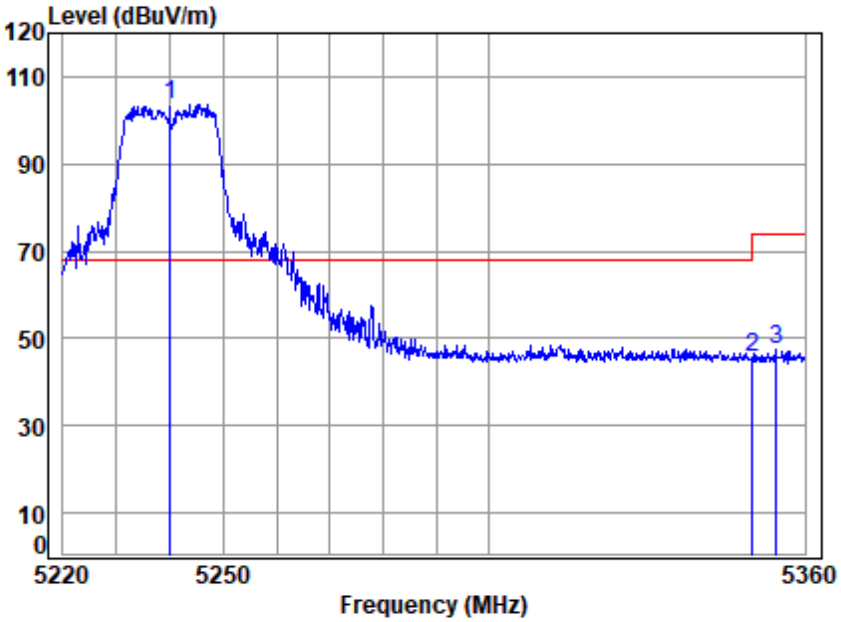

Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	103.42	103.77	68.20	35.57	Peak
2	5350.020	7.56	34.30	41.15	44.86	45.57	74.00	-28.43	Peak
3	5354.470	7.57	34.32	41.15	46.81	47.55	74.00	-26.45	Peak

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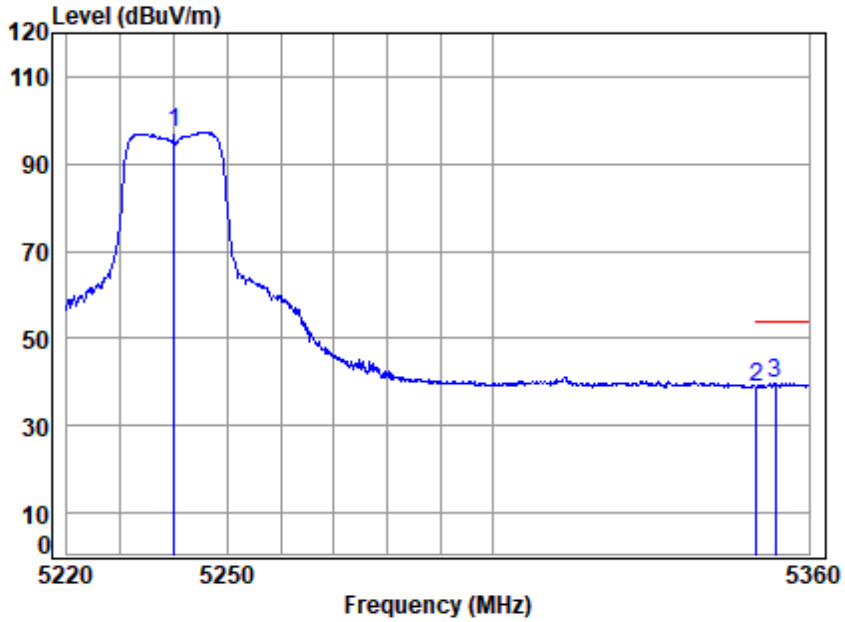
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 Band edge
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5240.000	7.45	34.00	41.10	96.98	97.33	------	------	Average
2	5350.020	7.56	34.30	41.15	37.98	38.69	54.00	-15.31	Average
3	5353.620	7.57	34.31	41.15	39.16	39.89	54.00	-14.11	Average

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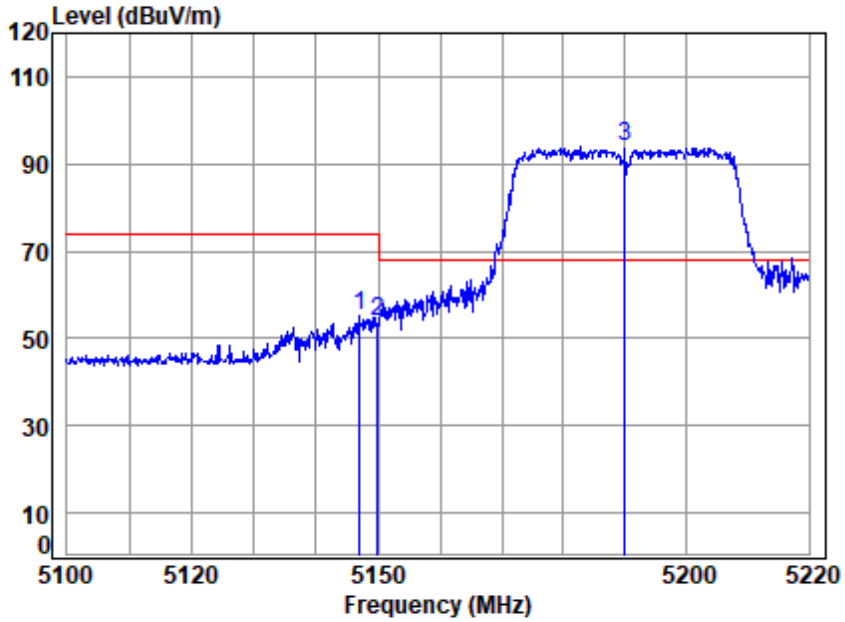
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5146.947	7.36	34.01	41.06	55.06	55.37	74.00	-18.63	peak
2	5149.980	7.36	34.00	41.06	53.35	53.65	74.00	-20.35	peak
3	5190.000	7.40	34.00	41.08	93.88	94.20	68.20	26.00	peak

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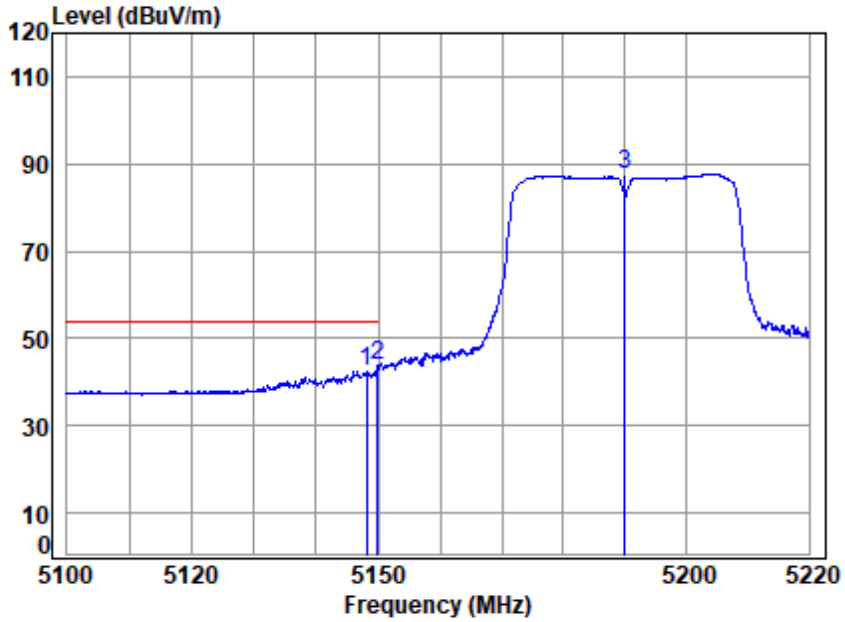
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5148.144	7.36	34.00	41.06	42.21	42.51	54.00	-11.49	Average
2	5149.980	7.36	34.00	41.06	43.36	43.66	54.00	-10.34	Average
3	5190.000	7.40	34.00	41.08	87.49	87.81	------	------	Average

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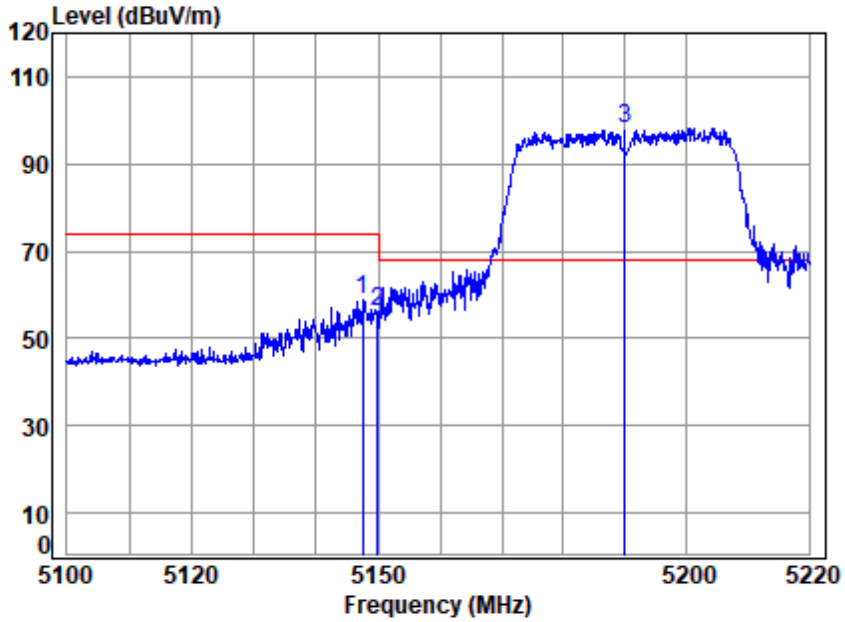
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5147.545	7.36	34.00	41.06	58.47	58.77	74.00	-15.23	Peak
2	5149.980	7.36	34.00	41.06	55.74	56.04	74.00	-17.96	Peak
3	5190.000	7.40	34.00	41.08	97.88	98.20	68.20	30.00	Peak

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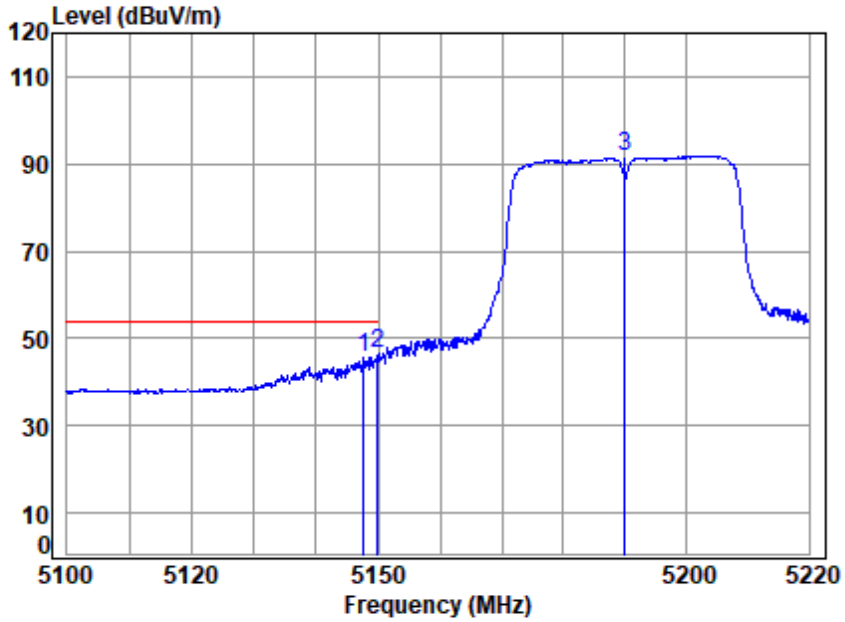
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5190 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5147.666	7.36	34.00	41.06	45.38	45.68	54.00	-8.32	Average
2	5149.980	7.36	34.00	41.06	46.36	46.66	54.00	-7.34	Average
3	5190.000	7.40	34.00	41.08	91.55	91.87	------	------	Average

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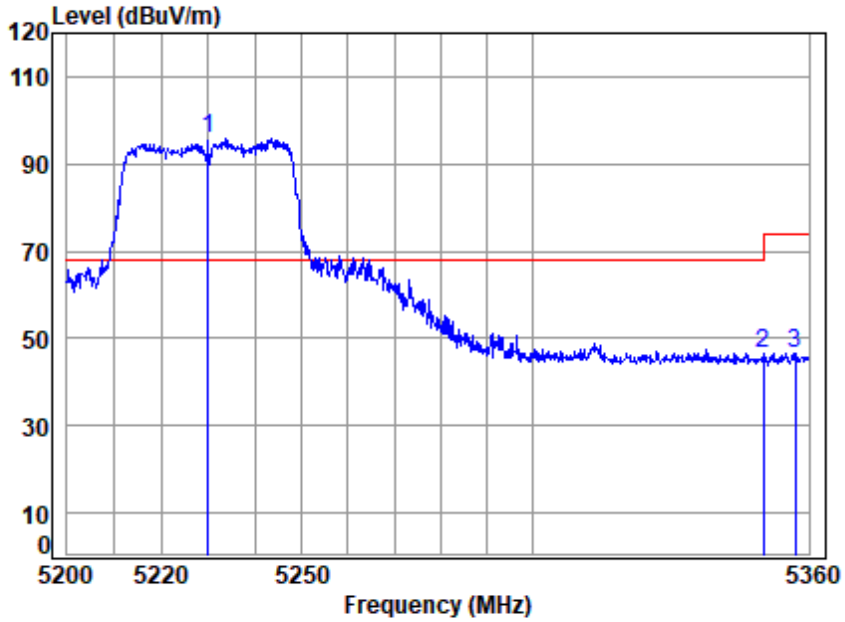
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	95.48	95.82	68.20	27.62	peak
2	5350.020	7.56	34.30	41.15	45.82	46.53	74.00	-27.47	peak
3	5357.077	7.57	34.33	41.15	45.98	46.73	74.00	-27.27	peak

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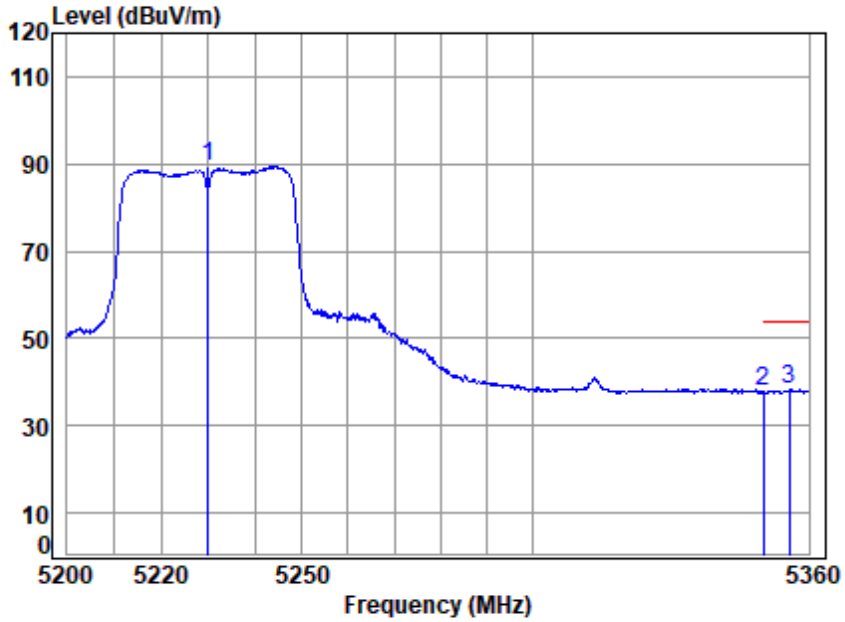
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	89.02	89.36	------	------	Average
2	5350.020	7.56	34.30	41.15	37.02	37.73	54.00	-16.27	Average
3	5355.778	7.57	34.32	41.15	37.39	38.13	54.00	-15.87	Average

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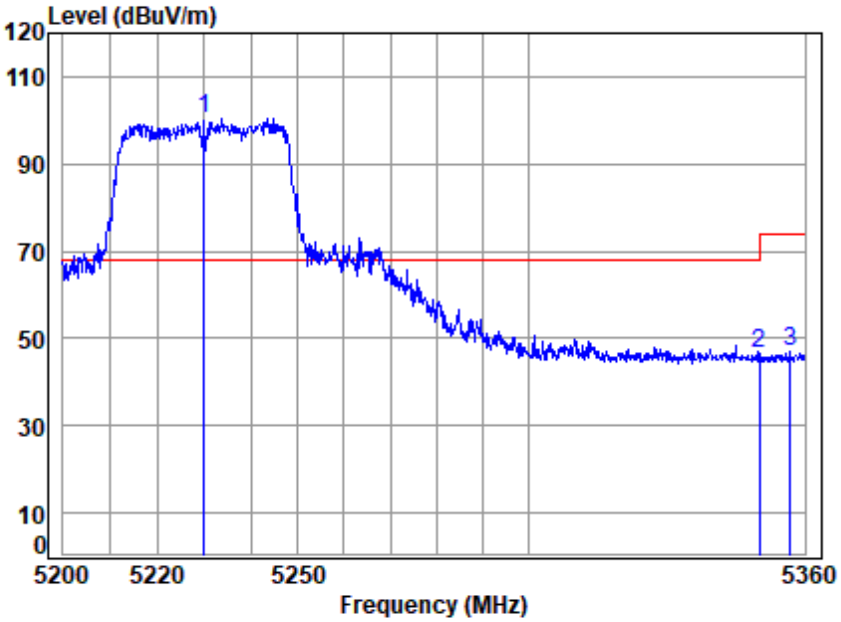

Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	100.26	100.60	68.20	32.40	Peak
2	5350.020	7.56	34.30	41.15	45.86	46.57	74.00	-27.43	Peak
3	5356.752	7.57	34.33	41.15	46.34	47.09	74.00	-26.91	Peak

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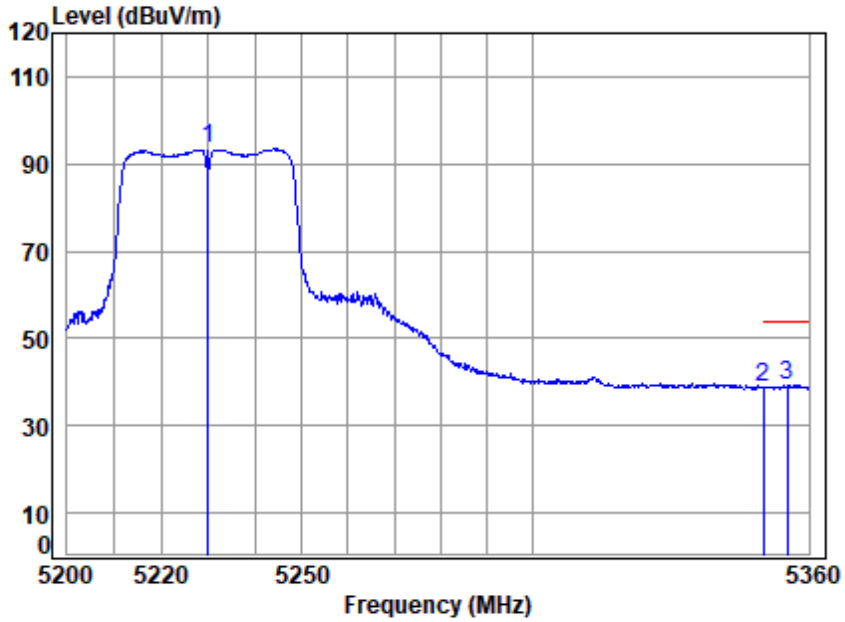
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5230 Band edge
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5230.000	7.44	34.00	41.10	93.24	93.58	------	------	Average
2	5350.020	7.56	34.30	41.15	37.95	38.66	54.00	-15.34	Average
3	5355.292	7.57	34.32	41.15	38.46	39.20	54.00	-14.80	Average

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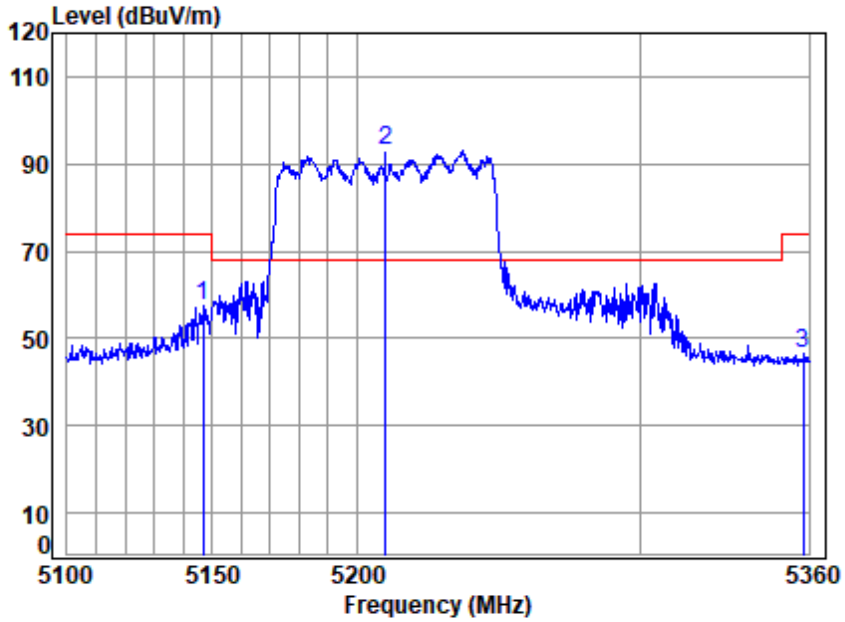
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5210 Band edge
Note : 5G WIFI 11AC80

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5146.619	7.36	34.01	41.06	57.38	57.69	74.00	-16.31	peak
2	5210.000	7.42	34.00	41.09	92.65	92.98	68.20	24.78	peak
3	5358.135	7.57	34.33	41.15	45.93	46.68	74.00	-27.32	peak

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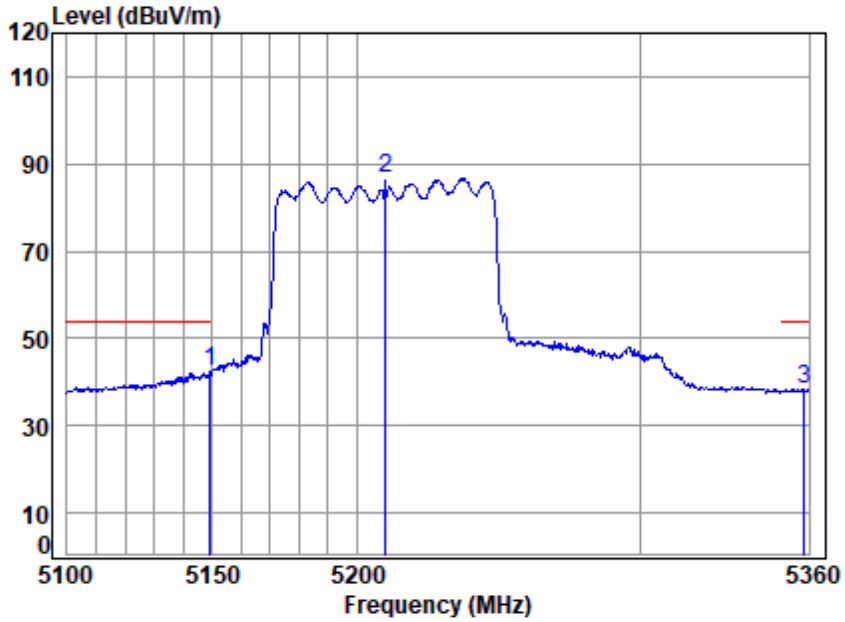
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5210 Band edge
Note : 5G WIFI 11AC80

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.178	7.36	34.00	41.06	41.92	42.22	54.00	-11.78	Average
2	5210.000	7.42	34.00	41.09	86.26	86.59	------	------	Average
3	5358.401	7.57	34.33	41.15	37.63	38.38	54.00	-15.62	Average

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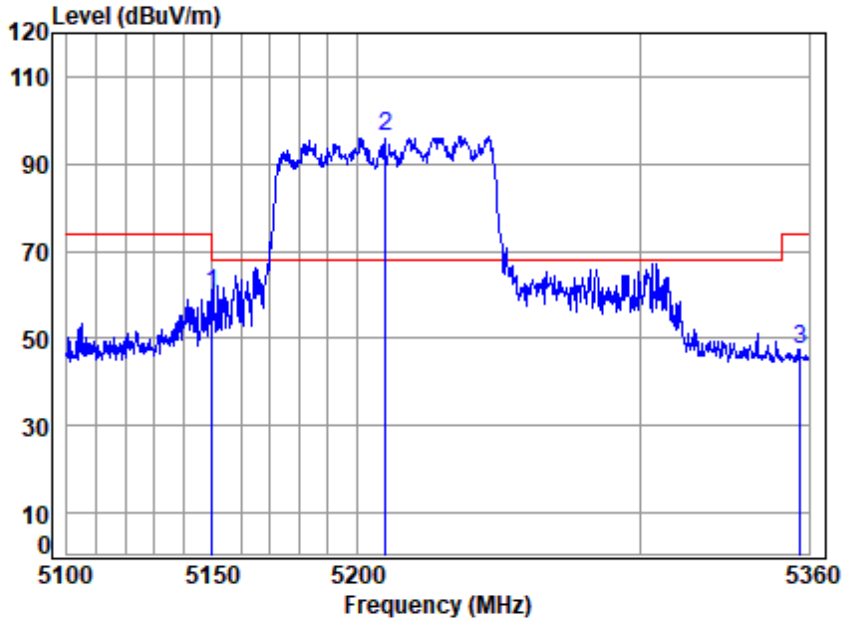
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5210 Band edge
Note : 5G WIFI 11AC80

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.947	7.36	34.00	41.06	60.12	60.42	74.00	-13.58	Peak
2	5210.000	7.42	34.00	41.09	96.09	96.42	68.20	28.22	Peak
3	5356.803	7.57	34.33	41.15	46.86	47.61	74.00	-26.39	Peak

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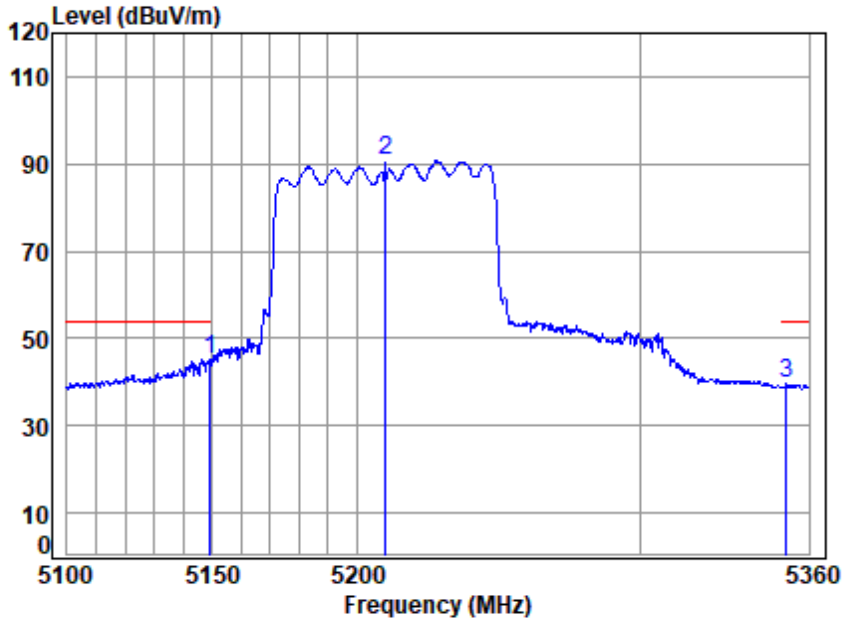
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5210 Band edge
Note : 5G WIFI 11AC80

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	5149.178	7.36	34.00	41.06	45.06	45.36	54.00	-8.64	Average
2	5210.000	7.42	34.00	41.09	90.30	90.63	------	------	Average
3	5352.010	7.56	34.31	41.15	38.76	39.48	54.00	-14.52	Average

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7.9 Radiated Emissions (Below 1GHz)

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

Test Method: KDB 789033 D02 II G

Measurement Distance: 3m

Limit:

Frequency(MHz)	Field strength(microvolts/meter)	Measurement distance(meters)
0.009-0.490	2400/F(kHz)	300
0.490-1.705	24000/F(kHz)	30
1.705-30.0	30	30
30-88	100	3
88-216	150	3
216-960	200	3
960-1000	500	3

7.9.1 E.U.T. Operation

Operating Environment:

Temperature: 23.6 °C Humidity: 52.5 % RH Atmospheric Pressure: 1015 mbar

7.9.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Final test	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Pre-scan	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

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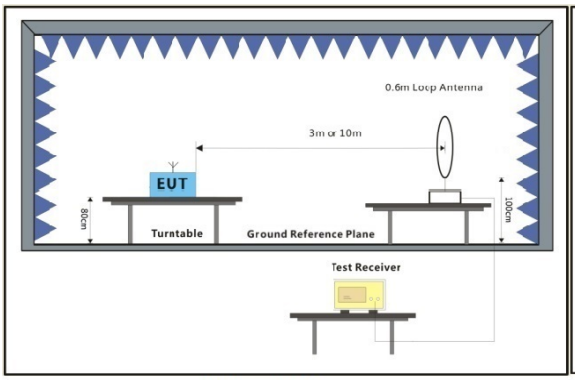
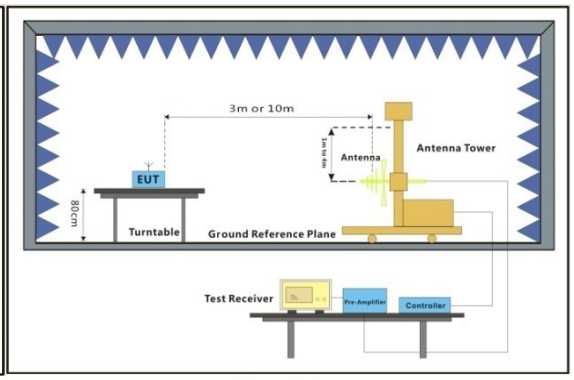
7.9.3 Test Setup Diagram



Below 30MHz



30MHz-1GHz

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7.9.4 Measurement Procedure and Data

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

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

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

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

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

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

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

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

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

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

2. For emission below 1GHz, through the pre-scan found the worst case is the lowest channel of 802.11a. Only the worst case is recorded in the report.

3. Scan from 9kHz to 30MHz, the disturbance below 30MHz was very low. The points marked on above plots are the highest emissions could be found when testing, so only above points had been displayed. The amplitude of spurious emissions from the radiator which are attenuated more than 20dB below the limit need not be reported.

4. The disturbance below 1GHz was very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

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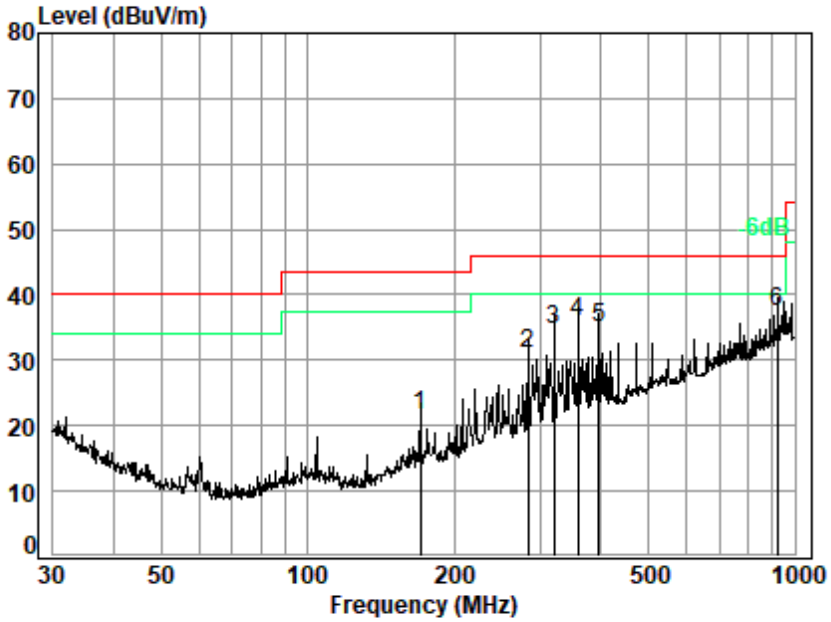
Test Mode: 11; Polarity: Horizontal



Site : chamber
Condition: 3m HORIZONTAL
Job No. : 00962AT
Test Mode: 11

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	170.19	14.14	1.53	26.72	32.61	21.56	43.50	-21.94	QP
2	282.99	17.88	2.05	26.27	37.48	31.14	46.00	-14.86	QP
3	321.06	18.89	2.20	26.26	39.96	34.79	46.00	-11.21	QP
4	359.19	20.71	2.33	26.38	39.31	35.97	46.00	-10.03	QP
5	396.24	21.65	2.47	26.49	37.37	35.00	46.00	-11.00	QP
6 q	922.52	28.42	4.08	25.81	30.85	37.54	46.00	-8.46	QP

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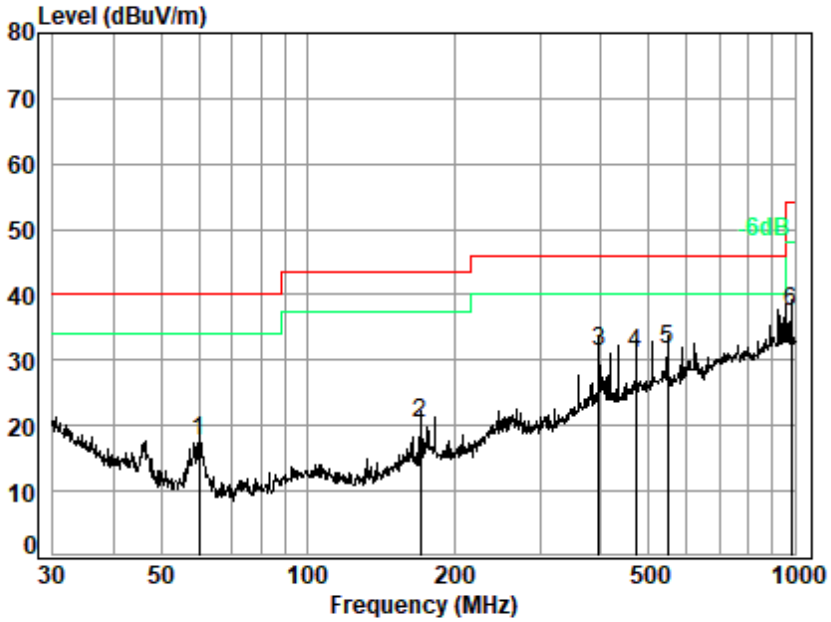
Test Mode: 11; Polarity: Vertical



Site : chamber
Condition: 3m VERTICAL
Job No. : 00962AT
Test Mode: 11

	Freq	Ant Factor	Cable Loss	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB/m	dB	dB	dBuV	dBuV/m	dBuV/m	dB	
1	59.86	11.25	0.85	27.13	32.52	17.49	40.00	-22.51	QP
2	170.19	14.14	1.53	26.72	31.35	20.30	43.50	-23.20	QP
3	396.24	21.65	2.47	26.49	33.82	31.45	46.00	-14.55	QP
4	472.18	22.93	2.72	26.72	32.21	31.14	46.00	-14.86	QP
5 q	547.10	24.12	2.96	26.94	31.50	31.64	46.00	-14.36	QP
6	982.62	28.40	4.22	25.57	30.28	37.33	54.00	-16.67	QP

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7.10 Radiated Emissions (Above 1GHz)

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

Test Method: KDB 789033 D02 II G

Measurement Distance: 3m

Limit:

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

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

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

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

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

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

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

7.10.1 E.U.T. Operation

Operating Environment:

Temperature: 23.2 °C Humidity: 52.9 % RH Atmospheric Pressure: 1015 mbar

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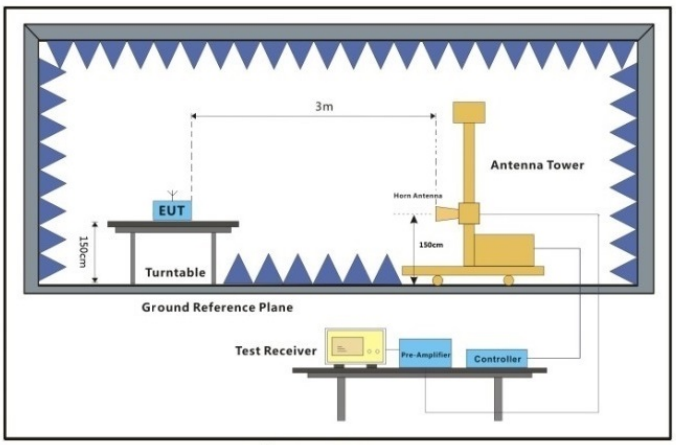
7.10.2 Test Mode Description

Pre-scan / Final test	Mode Code	Description
Pre-scan	11	TX mode (U-NII-1)_Keep the EUT in continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.
Final test	12	Charge + TX mode (U-NII-1)_Keep the EUT in charging and continuously transmitting mode with all modulation types. All data rates for each modulation type have been tested and found the data rate @ 6Mbps is the worst case of IEEE 802.11a; data rate @ MCS0 is the worst case of IEEE 802.11n(HT20); data rate @ MCS0 is the worst case of IEEE 802.11n(HT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT20); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT40); data rate @ MCS0 is the worst case of IEEE 802.11ac(VHT80); final test modes are considering the modulation and worse data rates. Only the data of worst case is recorded in the report.

7.10.3 Test Setup Diagram



Above 1GHz

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7.10.4 Measurement Procedure and Data

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

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

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

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

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

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

g. Test the EUT in the lowest channel, the middle channel, the Highest channel.

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

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

Remark:

1. Level= Read Level+ Cable Loss+ Antenna Factor- Preamp Factor

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

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

4. The disturbance above 18GHz were very low and the harmonics were the highest point could be found when testing, so only the above harmonics had been displayed.

5. For devices with multiple operating modes, measurements on the middle channel is used to determine the worst-case mode(s). Only the worst case mode with the highest output power and the mode with the highest output power spectral density for each modulation family (e.g., OFDM and direct sequence spread spectrum) is recorded in the test report.

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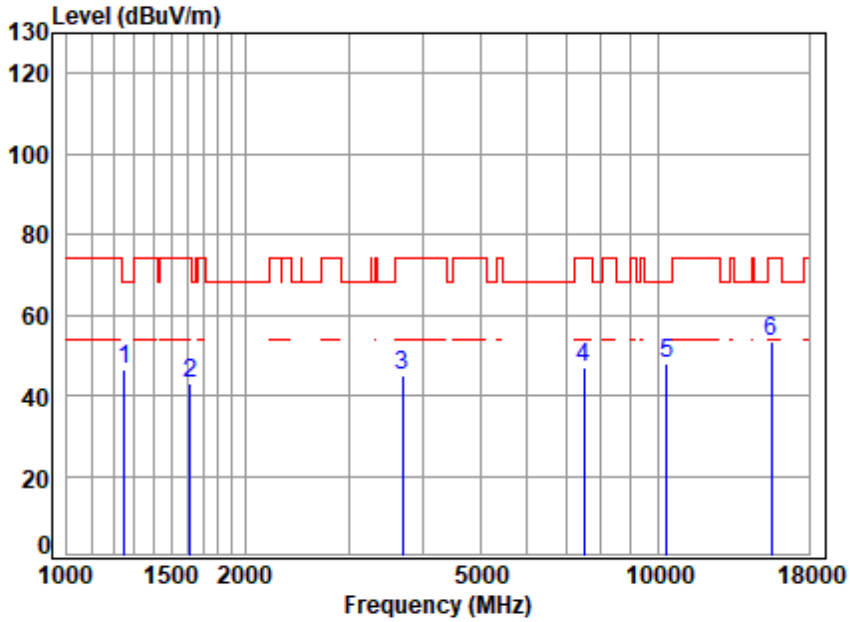
Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 TX RSE
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1249.269	2.88	24.50	38.59	57.85	46.64	68.20	-21.56	peak
2	1615.754	3.39	26.56	38.82	51.67	42.80	74.00	-31.20	peak
3	3693.033	5.87	32.27	40.08	47.11	45.17	74.00	-28.83	peak
4	7497.646	8.78	36.00	40.29	42.53	47.02	74.00	-26.98	peak
5	10360.000	10.81	37.46	36.59	36.23	47.91	68.20	-20.29	peak
6	15540.000	13.61	40.94	39.48	38.44	53.51	74.00	-20.49	peak

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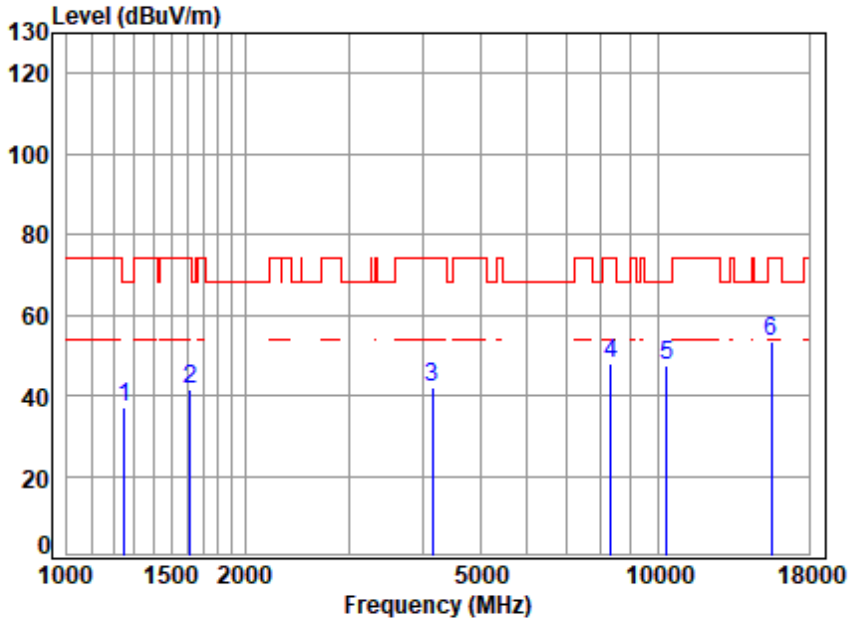
Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 TX RSE
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1249.269	2.88	24.50	38.59	48.09	36.88	68.20	-31.32	peak
2	1615.754	3.39	26.56	38.82	50.23	41.36	74.00	-32.64	peak
3	4157.664	6.44	33.15	40.42	42.83	42.00	74.00	-32.00	peak
4	8319.836	9.52	36.40	39.37	41.32	47.87	74.00	-26.13	peak
5	10360.000	10.81	37.46	36.59	35.64	47.32	68.20	-20.88	peak
6	15540.000	13.61	40.94	39.48	38.52	53.59	74.00	-20.41	peak

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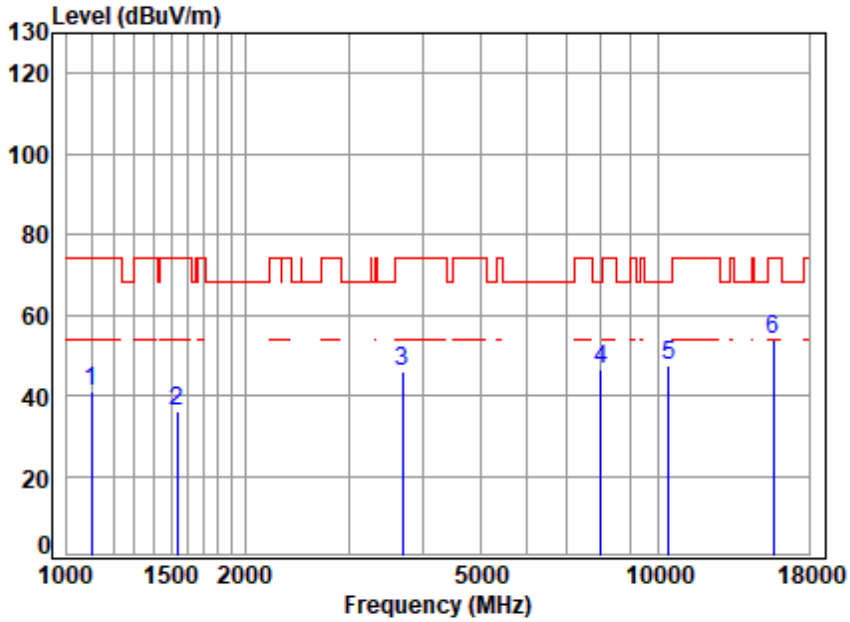
Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5220 TX RSE
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1100.079	2.63	24.00	38.48	52.70	40.85	74.00	-33.15	peak
2	1538.281	3.29	25.78	38.77	45.73	36.03	74.00	-37.97	peak
3	3693.033	5.87	32.27	40.08	47.96	46.02	74.00	-27.98	peak
4	8013.020	9.23	36.20	39.97	40.84	46.30	68.20	-21.90	peak
5	10440.000	10.87	37.50	36.64	35.92	47.65	68.20	-20.55	peak
6	15660.000	13.75	41.06	39.54	38.49	53.76	74.00	-20.24	peak

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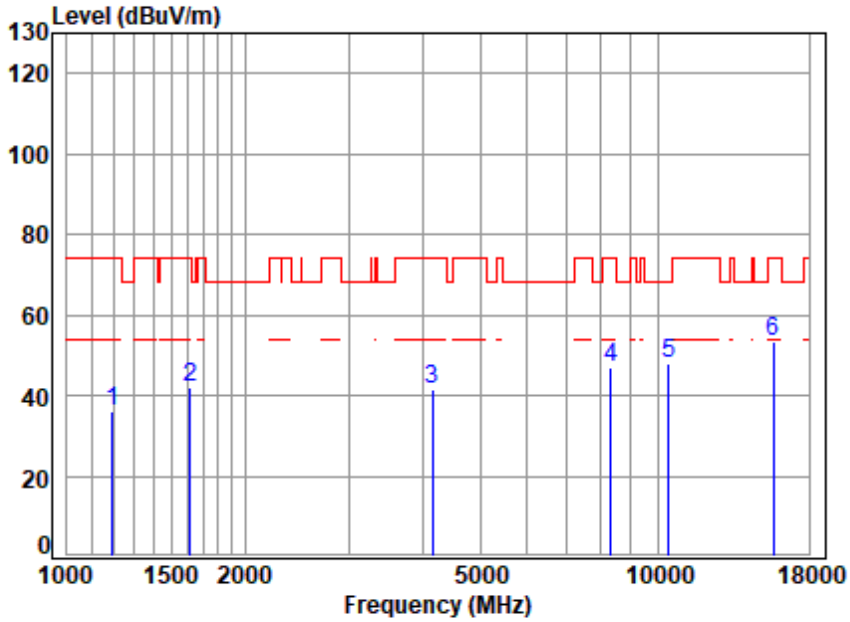

Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5220 TX RSE
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1192.811	2.79	24.37	38.55	47.64	36.25	74.00	-37.75	peak
2	1615.754	3.39	26.56	38.82	50.93	42.06	74.00	-31.94	peak
3	4157.664	6.44	33.15	40.42	42.49	41.66	74.00	-32.34	peak
4	8319.836	9.52	36.40	39.37	40.49	47.04	74.00	-26.96	peak
5	10440.000	10.87	37.50	36.64	36.34	48.07	68.20	-20.13	peak
6	15660.000	13.75	41.06	39.54	38.20	53.47	74.00	-20.53	peak

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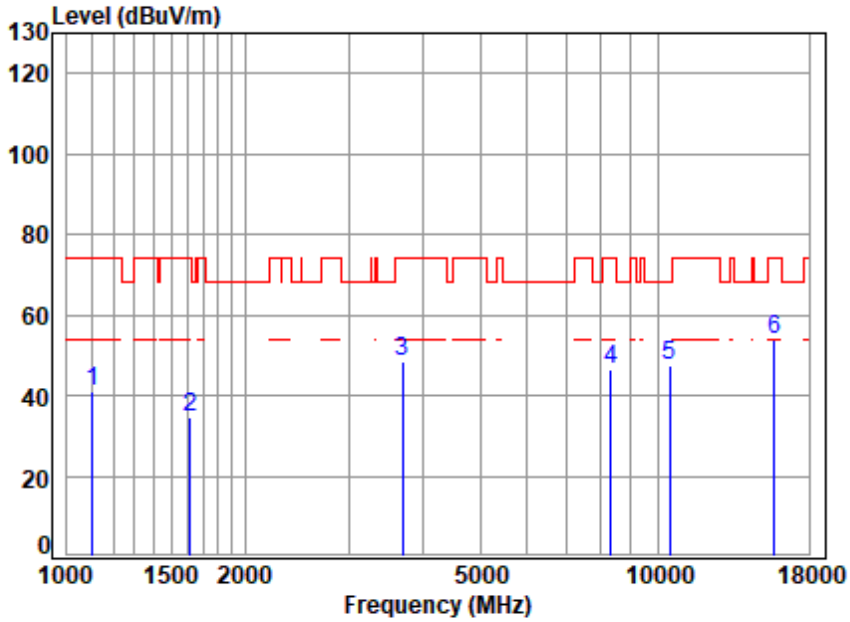
Test Mode: 12; Polarity: Horizontal; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 TX RSE
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1106.457	2.64	24.03	38.49	52.79	40.97	74.00	-33.03	peak
2	1615.754	3.39	26.56	38.82	43.64	34.77	74.00	-39.23	peak
3	3693.033	5.87	32.27	40.08	50.26	48.32	74.00	-25.68	peak
4	8319.836	9.52	36.40	39.37	40.02	46.57	74.00	-27.43	peak
5	10480.000	10.90	37.50	36.66	35.77	47.51	68.20	-20.69	peak
6	15720.000	13.83	41.14	39.57	38.31	53.71	74.00	-20.29	peak

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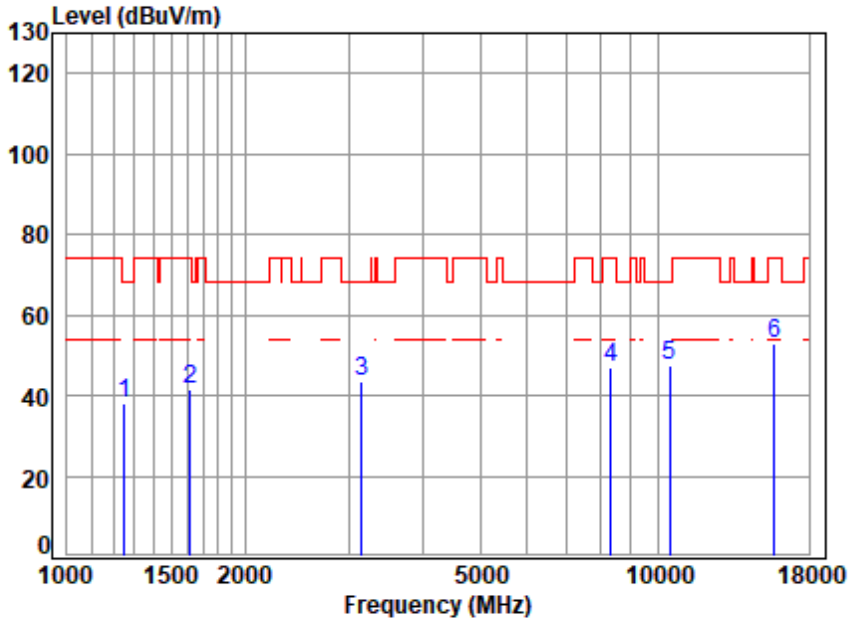
Test Mode: 12; Polarity: Vertical; Modulation:802.11a; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 TX RSE
Note : 5G WIFI 11A

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1249.269	2.88	24.50	38.59	49.11	37.90	68.20	-30.30	peak
2	1615.754	3.39	26.56	38.82	50.35	41.48	74.00	-32.52	peak
3	3150.237	5.06	31.40	39.64	46.85	43.67	68.20	-24.53	peak
4	8319.836	9.52	36.40	39.37	40.45	47.00	74.00	-27.00	peak
5	10480.000	10.90	37.50	36.66	35.79	47.53	68.20	-20.67	peak
6	15720.000	13.83	41.14	39.57	37.65	53.05	74.00	-20.95	peak

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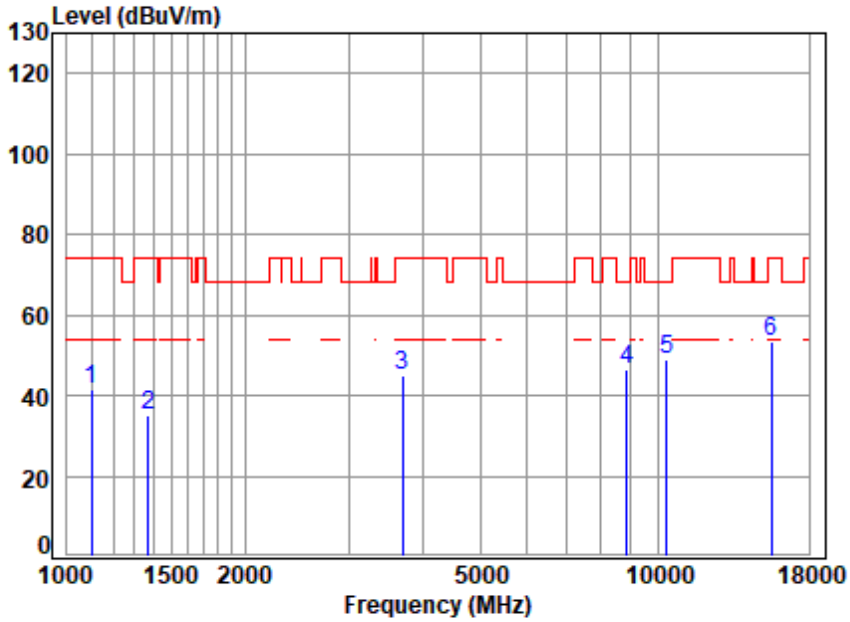
Member of the SGS Group (SGS SA)

Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 TX RSE
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1100.079	2.63	24.00	38.48	53.35	41.50	74.00	-32.50	peak
2	1370.328	3.06	24.94	38.67	45.85	35.18	74.00	-38.82	peak
3	3693.033	5.87	32.27	40.08	47.16	45.22	74.00	-28.78	peak
4	8866.062	10.01	36.70	38.34	38.11	46.48	68.20	-21.72	peak
5	10360.000	10.81	37.46	36.59	37.40	49.08	68.20	-19.12	peak
6	15540.000	13.61	40.94	39.48	38.10	53.17	74.00	-20.83	peak

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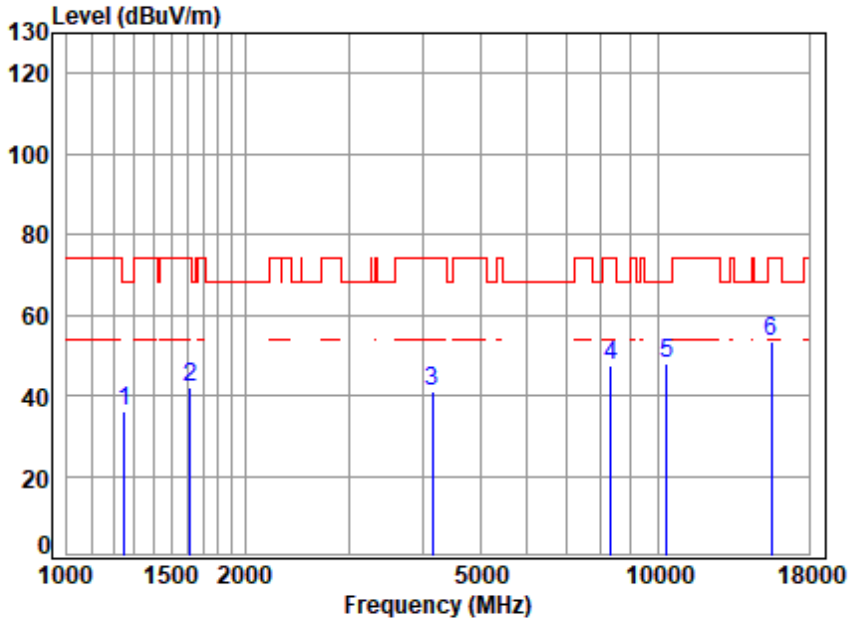
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 TX RSE
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1249.269	2.88	24.50	38.59	47.49	36.28	68.20	-31.92	peak
2	1615.754	3.39	26.56	38.82	50.71	41.84	74.00	-32.16	peak
3	4157.664	6.44	33.15	40.42	41.91	41.08	74.00	-32.92	peak
4	8319.836	9.52	36.40	39.37	40.84	47.39	74.00	-26.61	peak
5	10360.000	10.81	37.46	36.59	36.44	48.12	68.20	-20.08	peak
6	15540.000	13.61	40.94	39.48	38.12	53.19	74.00	-20.81	peak

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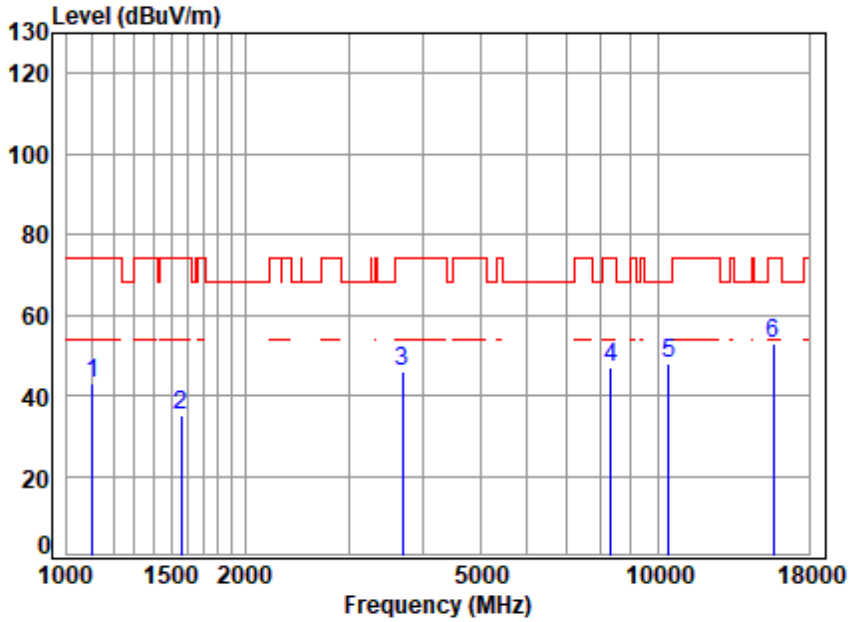
Member of the SGS Group (SGS SA)

Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5220 TX RSE
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1103.264	2.63	24.01	38.49	54.81	42.96	74.00	-31.04	peak
2	1560.673	3.32	26.03	38.79	44.54	35.10	74.00	-38.90	peak
3	3693.033	5.87	32.27	40.08	47.69	45.75	74.00	-28.25	peak
4	8319.836	9.52	36.40	39.37	40.20	46.75	74.00	-27.25	peak
5	10440.000	10.87	37.50	36.64	35.98	47.71	68.20	-20.49	peak
6	15660.000	13.75	41.06	39.54	37.74	53.01	74.00	-20.99	peak

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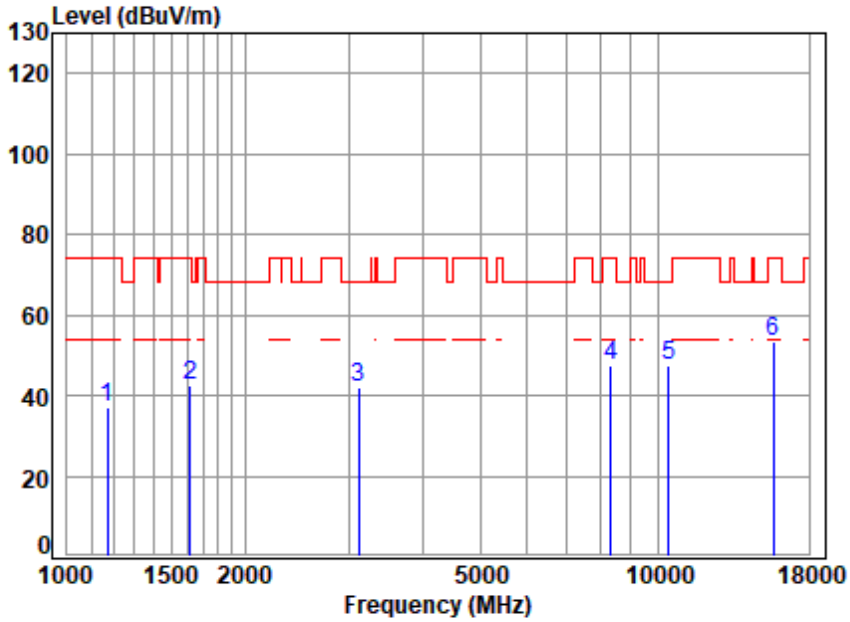
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5220 TX RSE
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1168.920	2.75	24.28	38.54	48.39	36.88	74.00	-37.12	peak
2	1615.754	3.39	26.56	38.82	51.17	42.30	74.00	-31.70	peak
3	3114.025	5.00	31.40	39.60	45.07	41.87	68.20	-26.33	peak
4	8319.836	9.52	36.40	39.37	40.92	47.47	74.00	-26.53	peak
5	10440.000	10.87	37.50	36.64	35.65	47.38	68.20	-20.82	peak
6	15660.000	13.75	41.06	39.54	37.89	53.16	74.00	-20.84	peak

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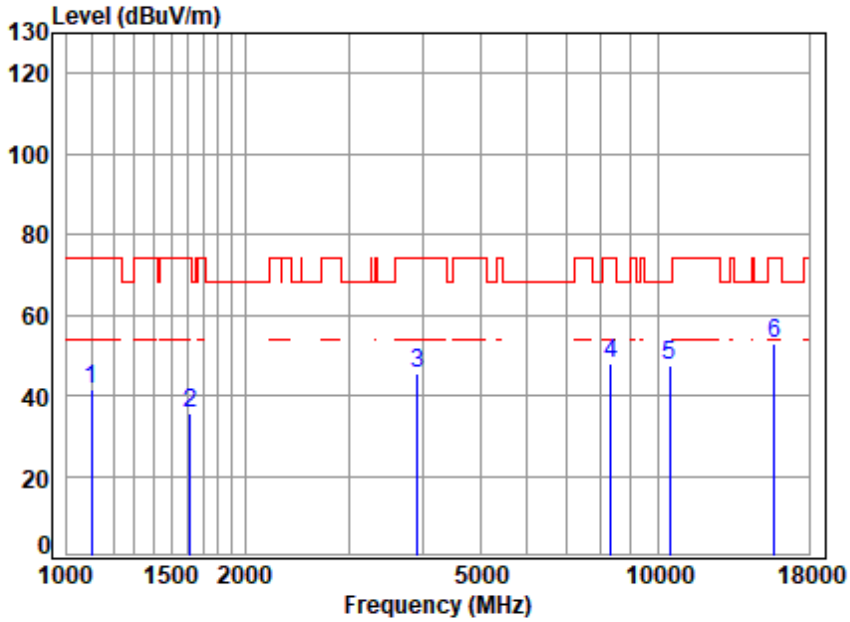
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 TX RSE
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1100.079	2.63	24.00	38.48	53.20	41.35	74.00	-32.65	peak
2	1615.754	3.39	26.56	38.82	44.37	35.50	74.00	-38.50	peak
3	3924.135	6.18	32.60	40.25	47.14	45.67	74.00	-28.33	peak
4	8319.836	9.52	36.40	39.37	41.22	47.77	74.00	-26.23	peak
5	10480.000	10.90	37.50	36.66	35.65	47.39	68.20	-20.81	peak
6	15720.000	13.83	41.14	39.57	37.63	53.03	74.00	-20.97	peak

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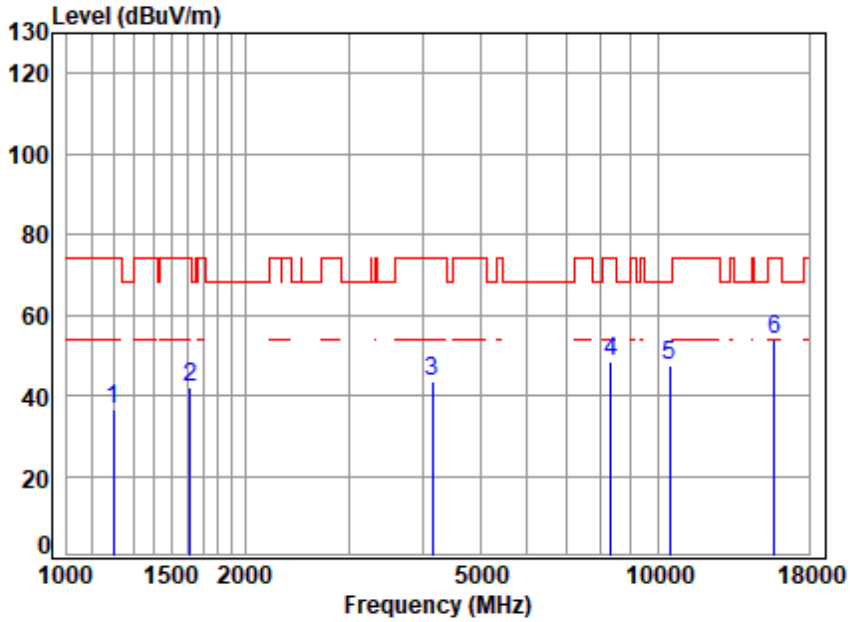
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 TX RSE
Note : 5G WIFI 11N20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1199.726	2.80	24.40	38.56	47.80	36.44	74.00	-37.56	peak
2	1615.754	3.39	26.56	38.82	50.83	41.96	74.00	-32.04	peak
3	4157.664	6.44	33.15	40.42	44.51	43.68	74.00	-30.32	peak
4	8319.836	9.52	36.40	39.37	42.06	48.61	74.00	-25.39	peak
5	10480.000	10.90	37.50	36.66	35.54	47.28	68.20	-20.92	peak
6	15720.000	13.83	41.14	39.57	38.54	53.94	74.00	-20.06	peak

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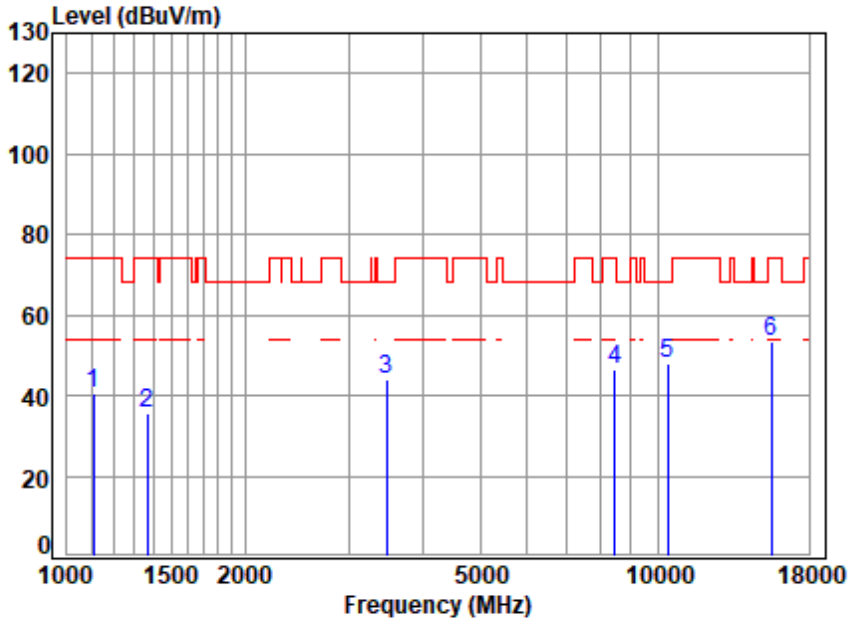
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5190 TX RSE
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1109.660	2.65	24.04	38.49	52.16	40.36	74.00	-33.64	peak
2	1366.374	3.06	24.93	38.67	46.38	35.70	74.00	-38.30	peak
3	3475.541	5.56	31.75	39.91	46.70	44.10	68.20	-24.10	peak
4	8440.945	9.63	36.40	39.13	39.60	46.50	74.00	-27.50	peak
5	10380.000	10.83	37.48	36.60	36.10	47.81	68.20	-20.39	peak
6	15570.000	13.65	40.97	39.50	38.13	53.25	74.00	-20.75	peak

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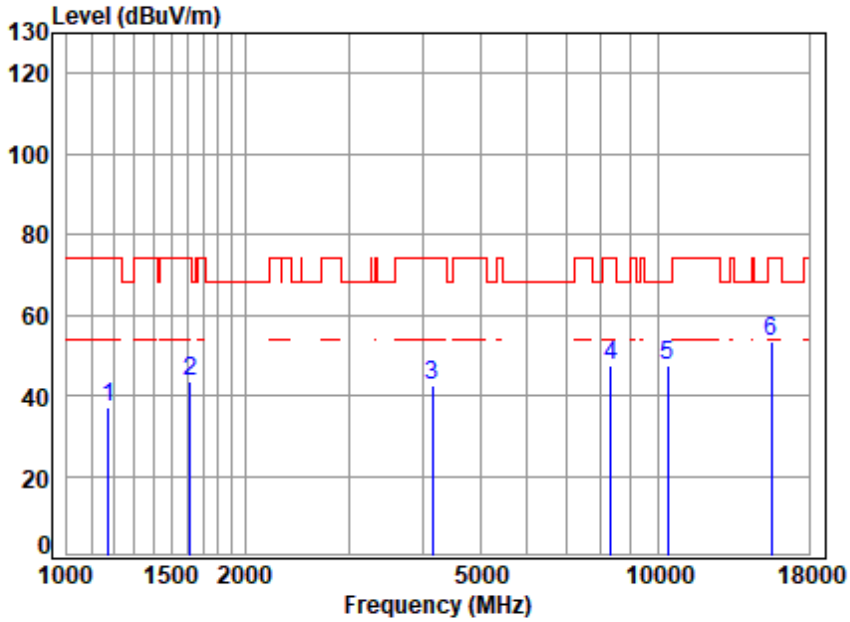
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5190 TX RSE
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1175.697	2.76	24.30	38.54	48.44	36.96	74.00	-37.04	peak
2	1615.754	3.39	26.56	38.82	52.61	43.74	74.00	-30.26	peak
3	4157.664	6.44	33.15	40.42	43.55	42.72	74.00	-31.28	peak
4	8319.836	9.52	36.40	39.37	40.91	47.46	74.00	-26.54	peak
5	10380.000	10.83	37.48	36.60	35.67	47.38	68.20	-20.82	peak
6	15570.000	13.65	40.97	39.50	38.47	53.59	74.00	-20.41	peak

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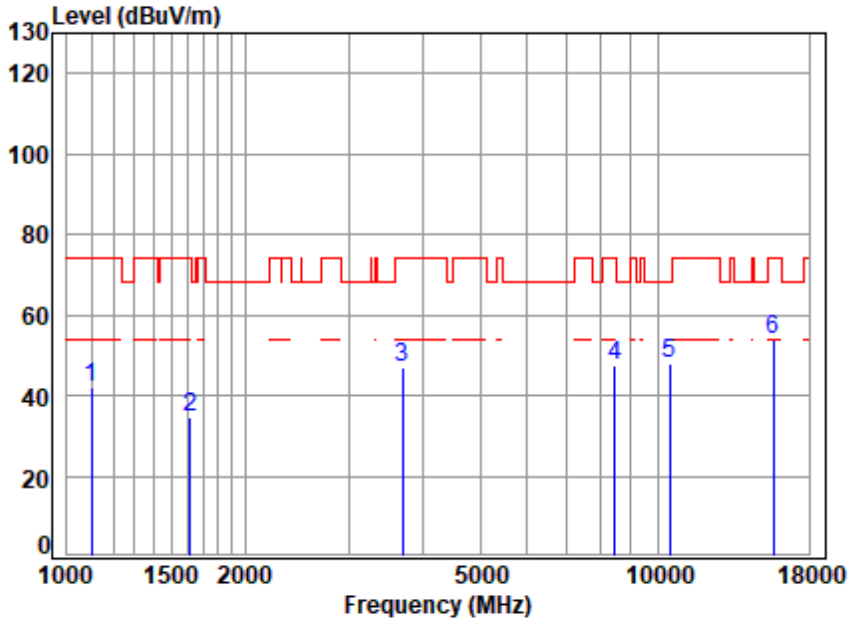
Test Mode: 12; Polarity: Horizontal; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5230 TX RSE
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1100.079	2.63	24.00	38.48	53.97	42.12	74.00	-31.88	peak
2	1615.754	3.39	26.56	38.82	43.71	34.84	74.00	-39.16	peak
3	3693.033	5.87	32.27	40.08	48.87	46.93	74.00	-27.07	peak
4	8440.945	9.63	36.40	39.13	40.41	47.31	74.00	-26.69	peak
5	10460.000	10.89	37.50	36.65	36.13	47.87	68.20	-20.33	peak
6	15690.000	13.79	41.09	39.55	38.37	53.70	74.00	-20.30	peak

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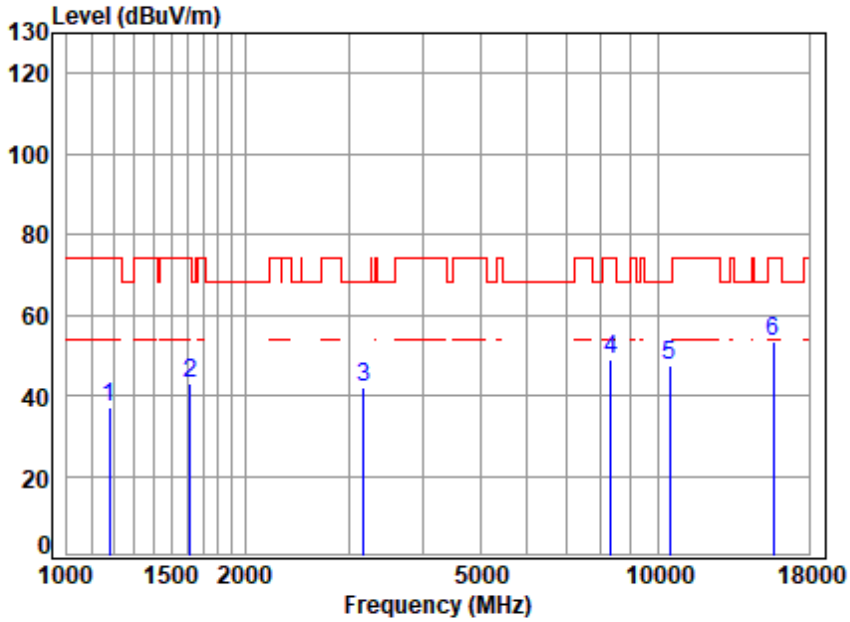
Test Mode: 12; Polarity: Vertical; Modulation:802.11n; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5230 TX RSE
Note : 5G WIFI 11N40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1179.100	2.77	24.32	38.54	48.37	36.92	74.00	-37.08	peak
2	1615.754	3.39	26.56	38.82	51.89	43.02	74.00	-30.98	peak
3	3177.672	5.10	31.46	39.66	45.29	42.19	68.20	-26.01	peak
4	8319.836	9.52	36.40	39.37	42.31	48.86	74.00	-25.14	peak
5	10460.000	10.89	37.50	36.65	35.77	47.51	68.20	-20.69	peak
6	15690.000	13.79	41.09	39.55	37.88	53.21	74.00	-20.79	peak

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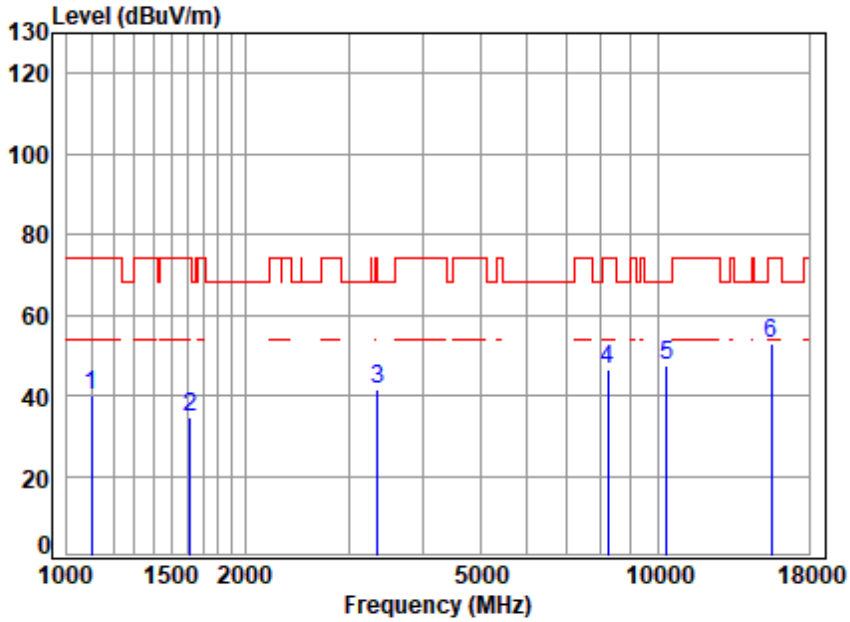
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5180 TX RSE
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1100.079	2.63	24.00	38.48	51.97	40.12	74.00	-33.88	peak
2	1615.754	3.39	26.56	38.82	43.57	34.70	74.00	-39.30	peak
3	3357.061	5.38	31.61	39.81	44.45	41.63	74.00	-32.37	peak
4	8224.200	9.43	36.40	39.55	40.23	46.51	74.00	-27.49	peak
5	10360.000	10.81	37.46	36.59	35.54	47.22	68.20	-20.98	peak
6	15540.000	13.61	40.94	39.48	38.06	53.13	74.00	-20.87	peak

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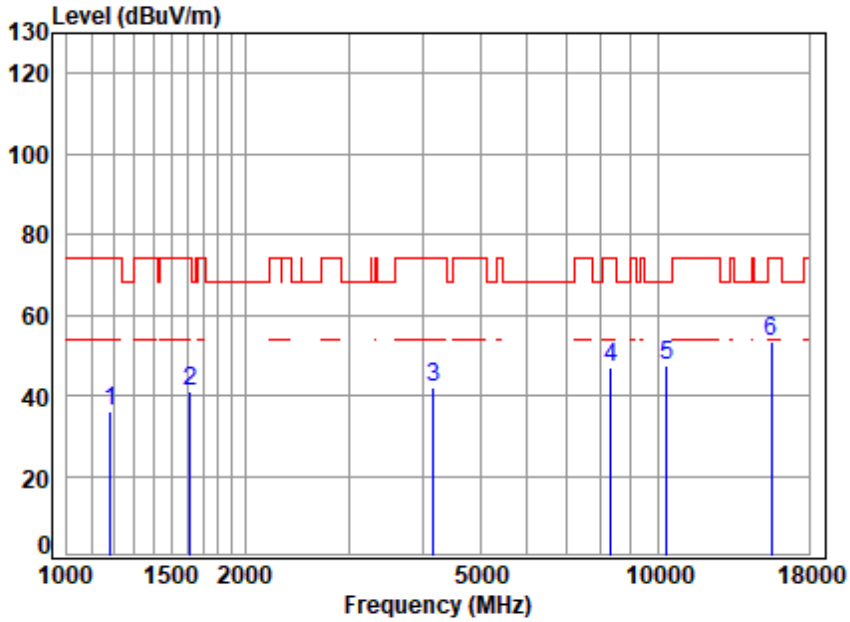
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5180 TX RSE
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1185.936	2.78	24.34	38.55	47.32	35.89	74.00	-38.11	peak
2	1615.754	3.39	26.56	38.82	50.11	41.24	74.00	-32.76	peak
3	4169.698	6.45	33.22	40.43	42.55	41.79	74.00	-32.21	peak
4	8319.836	9.52	36.40	39.37	40.54	47.09	74.00	-26.91	peak
5	10360.000	10.81	37.46	36.59	35.94	47.62	68.20	-20.58	peak
6	15540.000	13.61	40.94	39.48	38.28	53.35	74.00	-20.65	peak

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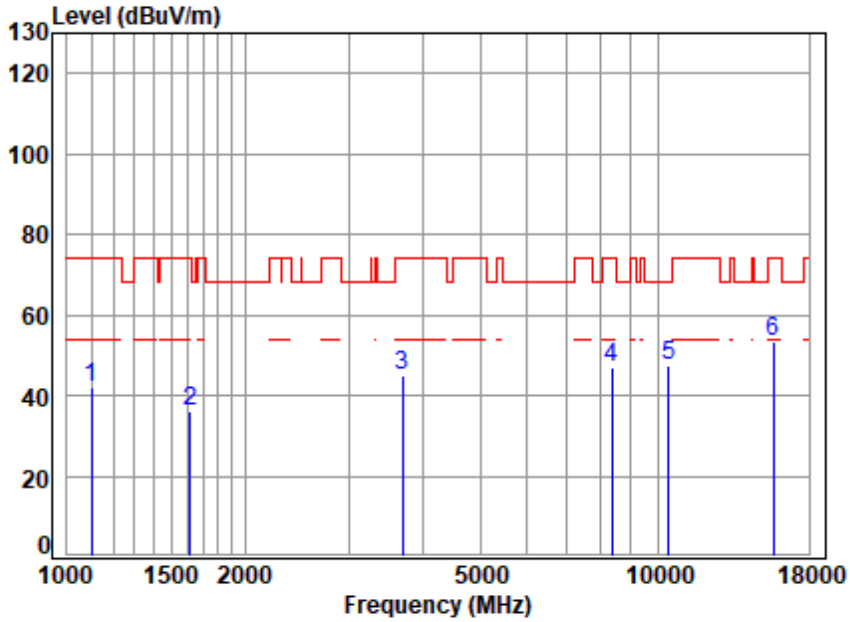
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5220 TX RSE
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1100.079	2.63	24.00	38.48	54.09	42.24	74.00	-31.76	peak
2	1615.754	3.39	26.56	38.82	44.76	35.89	74.00	-38.11	peak
3	3693.033	5.87	32.27	40.08	47.03	45.09	74.00	-28.91	peak
4	8368.069	9.57	36.40	39.27	40.30	47.00	74.00	-27.00	peak
5	10440.000	10.87	37.50	36.64	35.93	47.66	68.20	-20.54	peak
6	15660.000	13.75	41.06	39.54	38.12	53.39	74.00	-20.61	peak

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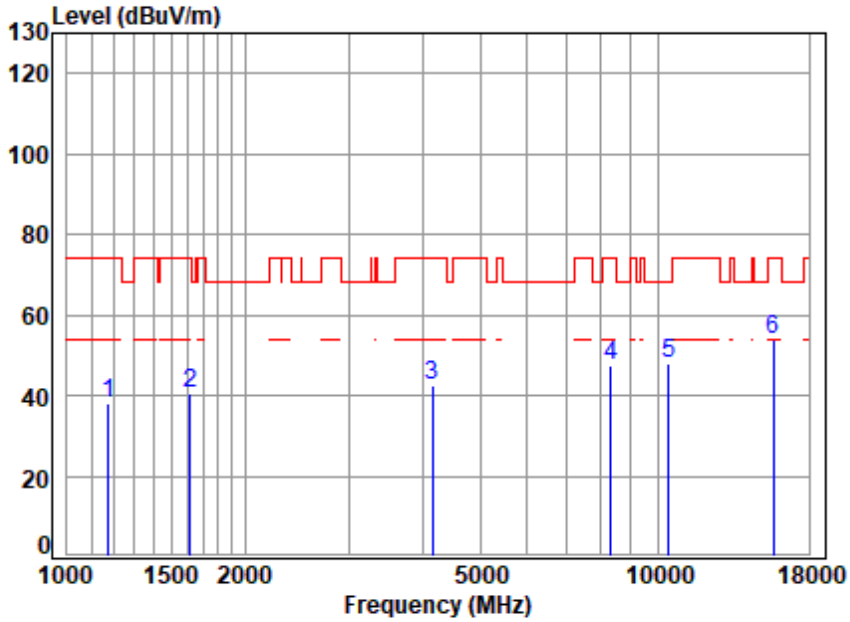
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5220 TX RSE
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1175.697	2.76	24.30	38.54	49.43	37.95	74.00	-36.05	peak
2	1615.754	3.39	26.56	38.82	49.52	40.65	74.00	-33.35	peak
3	4157.664	6.44	33.15	40.42	43.12	42.29	74.00	-31.71	peak
4	8319.836	9.52	36.40	39.37	41.09	47.64	74.00	-26.36	peak
5	10440.000	10.87	37.50	36.64	36.08	47.81	68.20	-20.39	peak
6	15660.000	13.75	41.06	39.54	38.55	53.82	74.00	-20.18	peak

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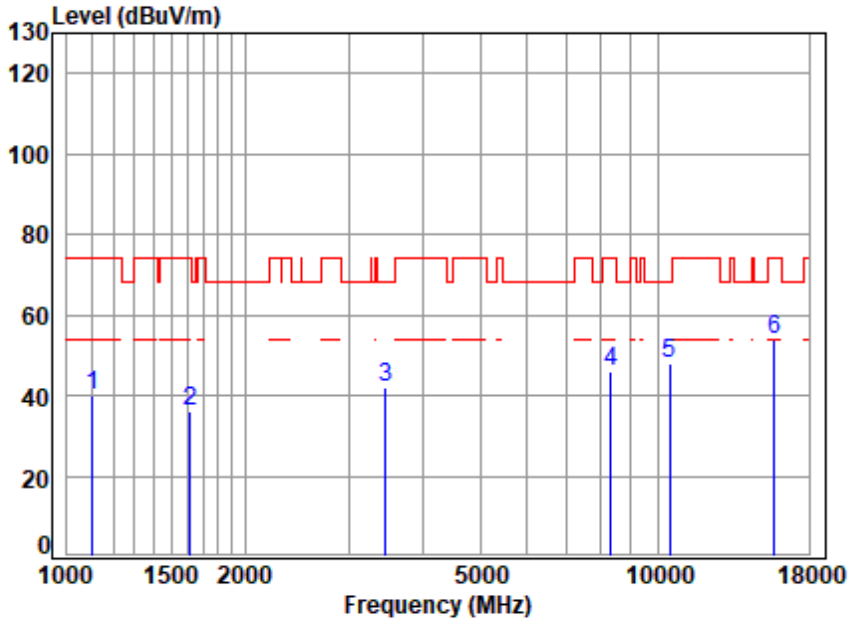
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5240 TX RSE
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1103.264	2.63	24.01	38.49	52.08	40.23	74.00	-33.77	peak
2	1615.754	3.39	26.56	38.82	44.87	36.00	74.00	-38.00	peak
3	3465.510	5.55	31.73	39.90	44.82	42.20	68.20	-26.00	peak
4	8319.836	9.52	36.40	39.37	39.58	46.13	74.00	-27.87	peak
5	10480.000	10.90	37.50	36.66	35.99	47.73	68.20	-20.47	peak
6	15720.000	13.83	41.14	39.57	38.26	53.66	74.00	-20.34	peak

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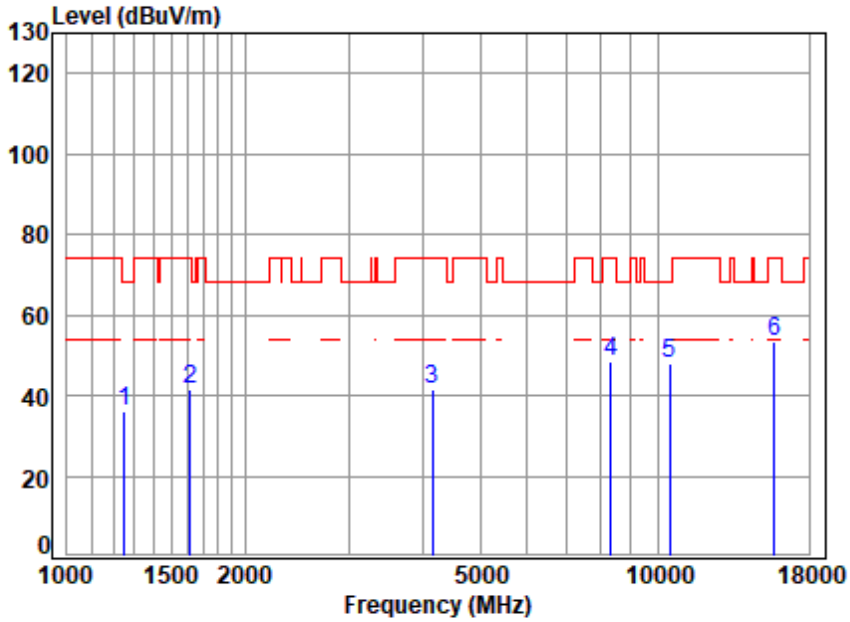
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:20MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5240 TX RSE
Note : 5G WIFI 11AC20

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1249.269	2.88	24.50	38.59	47.12	35.91	68.20	-32.29	peak
2	1615.754	3.39	26.56	38.82	50.61	41.74	74.00	-32.26	peak
3	4157.664	6.44	33.15	40.42	42.19	41.36	74.00	-32.64	peak
4	8319.836	9.52	36.40	39.37	41.85	48.40	74.00	-25.60	peak
5	10480.000	10.90	37.50	36.66	36.45	48.19	68.20	-20.01	peak
6	15720.000	13.83	41.14	39.57	37.99	53.39	74.00	-20.61	peak

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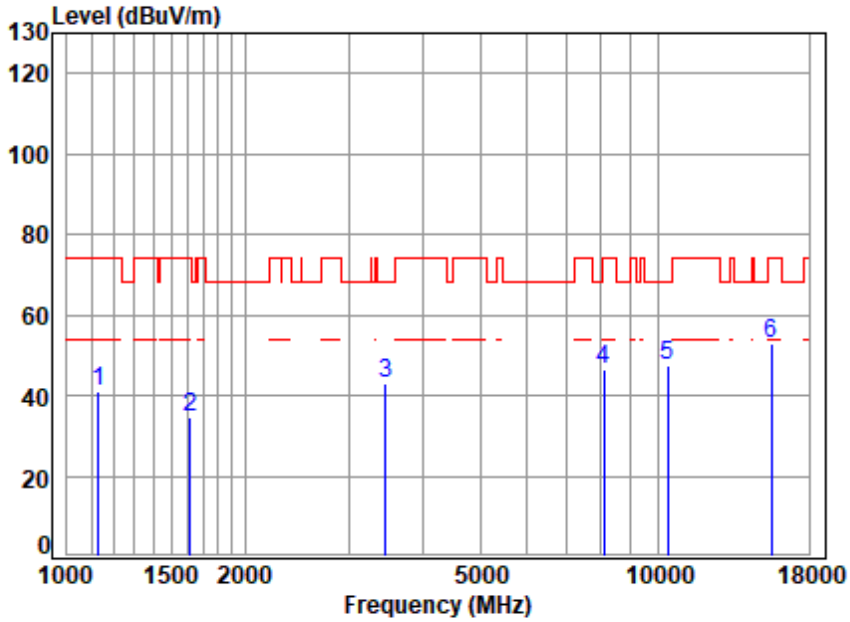
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5190 TX RSE
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1129.072	2.68	24.12	38.51	52.80	41.09	74.00	-32.91	peak
2	1615.754	3.39	26.56	38.82	43.34	34.47	74.00	-39.53	peak
3	3465.510	5.55	31.73	39.90	45.42	42.80	68.20	-25.40	peak
4	8106.200	9.32	36.31	39.79	40.86	46.70	74.00	-27.30	peak
5	10380.000	10.83	37.48	36.60	35.88	47.59	68.20	-20.61	peak
6	15570.000	13.65	40.97	39.50	37.92	53.04	74.00	-20.96	peak

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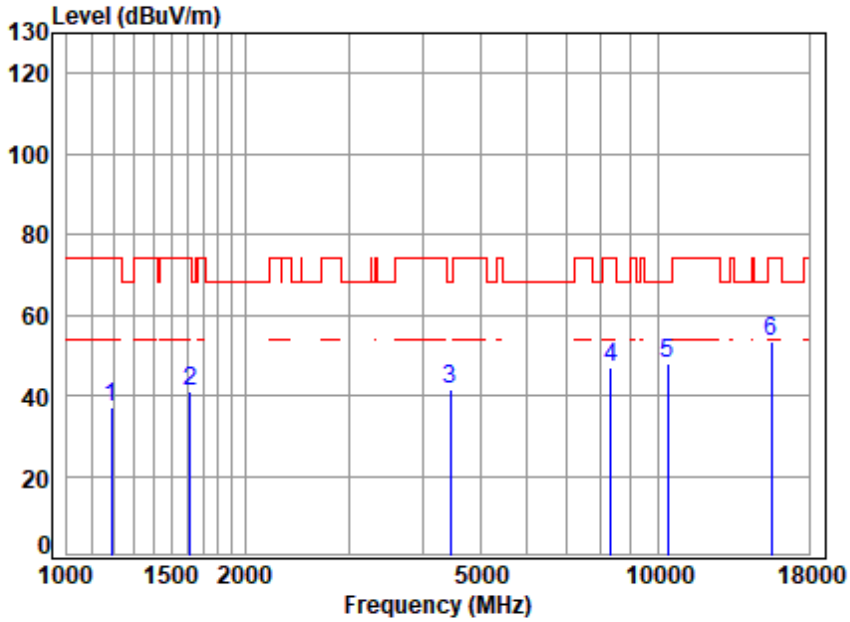
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:Low



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5190 TX RSE
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1189.368	2.78	24.36	38.55	48.59	37.18	74.00	-36.82	peak
2	1615.754	3.39	26.56	38.82	49.93	41.06	74.00	-32.94	peak
3	4456.315	6.73	33.50	40.64	42.00	41.59	68.20	-26.61	peak
4	8319.836	9.52	36.40	39.37	40.39	46.94	74.00	-27.06	peak
5	10380.000	10.83	37.48	36.60	36.02	47.73	68.20	-20.47	peak
6	15570.000	13.65	40.97	39.50	38.14	53.26	74.00	-20.74	peak

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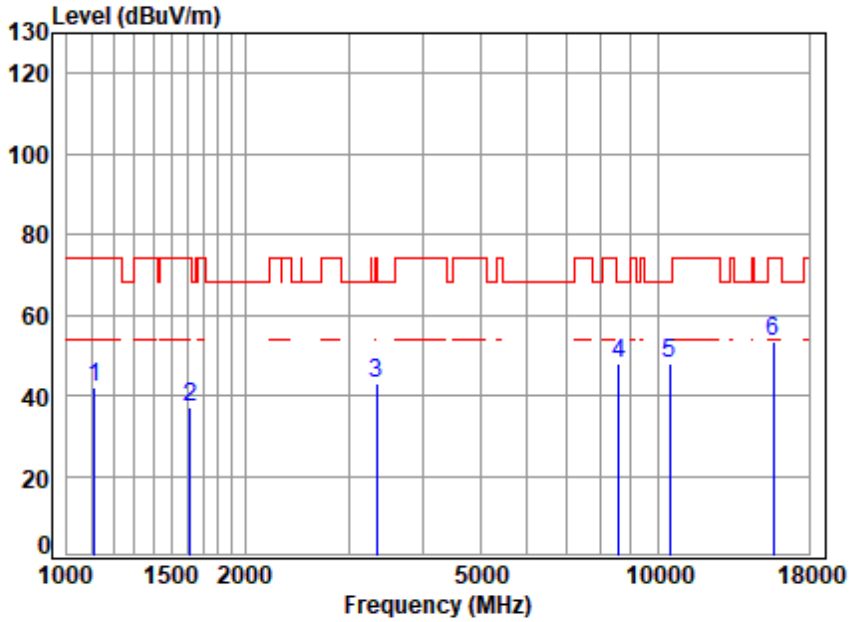
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5230 TX RSE
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1112.872	2.65	24.05	38.49	53.82	42.03	74.00	-31.97	peak
2	1615.754	3.39	26.56	38.82	45.71	36.84	74.00	-37.16	peak
3	3337.710	5.36	31.60	39.80	45.78	42.94	74.00	-31.06	peak
4	8588.607	9.77	36.58	38.85	40.35	47.85	68.20	-20.35	peak
5	10460.000	10.89	37.50	36.65	36.17	47.91	68.20	-20.29	peak
6	15690.000	13.79	41.09	39.55	38.26	53.59	74.00	-20.41	peak

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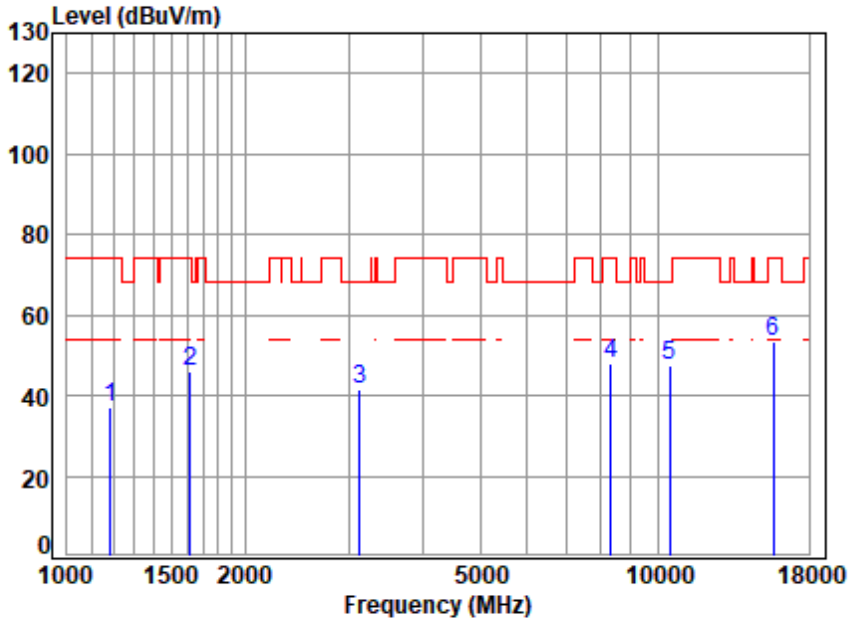
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:40MHz; Channel:High



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5230 TX RSE
Note : 5G WIFI 11AC40

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1182.513	2.77	24.33	38.55	48.74	37.29	74.00	-36.71	peak
2	1615.754	3.39	26.56	38.82	54.92	46.05	74.00	-27.95	peak
3	3132.079	5.03	31.40	39.62	44.83	41.64	68.20	-26.56	peak
4	8319.836	9.52	36.40	39.37	41.54	48.09	74.00	-25.91	peak
5	10460.000	10.89	37.50	36.65	35.57	47.31	68.20	-20.89	peak
6	15690.000	13.79	41.09	39.55	37.91	53.24	74.00	-20.76	peak

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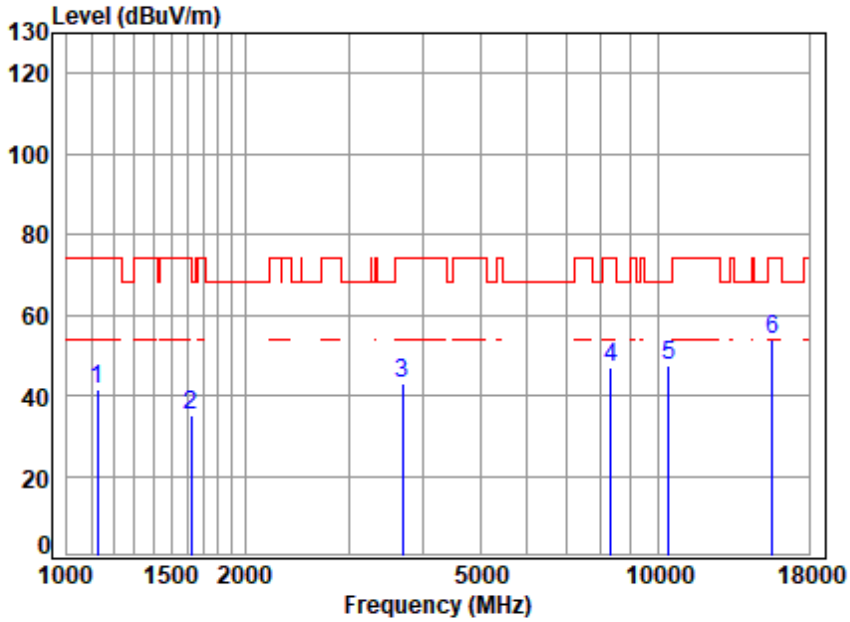
Test Mode: 12; Polarity: Horizontal; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



Site : chamber
Condition: 3m HORIZONTAL
Job No : 00962AT
Mode : 5210 TX RSE
Note : 5G WIFI 11AC80

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1125.813	2.67	24.10	38.50	53.47	41.74	74.00	-32.26	peak
2	1620.431	3.39	26.58	38.82	44.19	35.34	74.00	-38.66	peak
3	3693.033	5.87	32.27	40.08	45.09	43.15	74.00	-30.85	peak
4	8319.836	9.52	36.40	39.37	40.62	47.17	74.00	-26.83	peak
5	10420.000	10.86	37.50	36.63	35.49	47.22	68.20	-20.98	peak
6	15630.000	13.72	41.03	39.52	38.72	53.95	74.00	-20.05	peak

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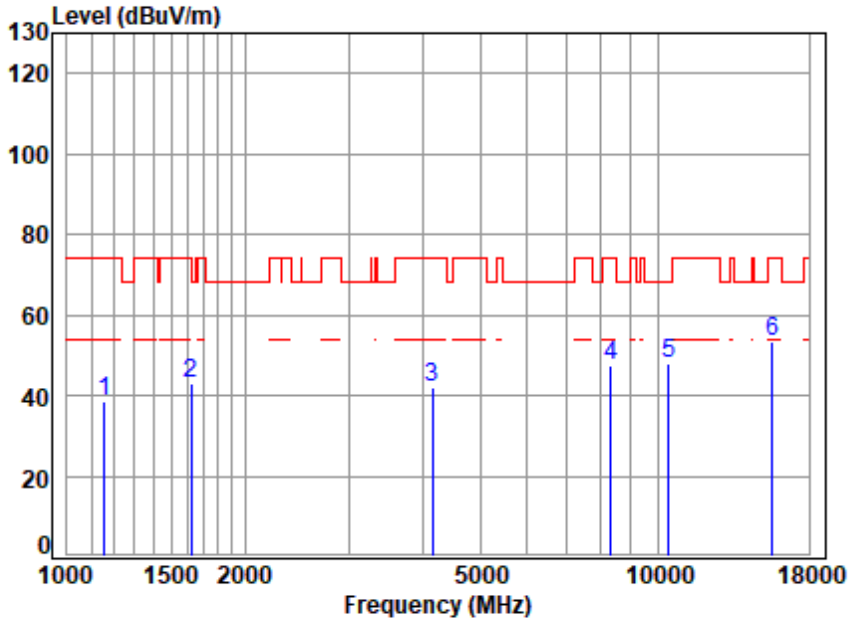
Test Mode: 12; Polarity: Vertical; Modulation:802.11ac; Bandwidth:80MHz; Channel:middle



Site : chamber
Condition: 3m VERTICAL
Job No : 00962AT
Mode : 5210 TX RSE
Note : 5G WIFI 11AC80

	Freq	Cable Loss	Ant Factor	Preamp Factor	Read Level	Level	Limit Line	Over Limit	Remark
	MHz	dB	dB/m	dB	dBuV	dBuV/m	dBuV/m	dB	
1	1155.483	2.73	24.22	38.53	50.33	38.75	74.00	-35.25	peak
2	1620.431	3.39	26.58	38.82	51.72	42.87	74.00	-31.13	peak
3	4157.664	6.44	33.15	40.42	42.83	42.00	74.00	-32.00	peak
4	8319.836	9.52	36.40	39.37	40.90	47.45	74.00	-26.55	peak
5	10420.000	10.86	37.50	36.63	35.99	47.72	68.20	-20.48	peak
6	15630.000	13.72	41.03	39.52	38.08	53.31	74.00	-20.69	peak

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8 Test Setup Photo

Refer to Setup Photos for SZCR2304000962AT

9 EUT Constructional Details (EUT Photos)

Refer to External and Internal Photos for SZCR2304000962AT

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10 Appendix

1. Duty Cycle

1.1 Ant1

1.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	T_on (ms)	Period (ms)	Duty Cycle (%)	Duty Cycle Correction Factor (dB)	Max. DC Variation (%)
802.11a	SISO	5180	2.065	2.177	94.86	0.23	3.41
		5200	2.066	2.176	94.94	0.23	3.34
		5240	2.065	2.177	94.86	0.23	3.17
802.11n (HT20)	SISO	5180	1.922	2.024	94.96	0.22	3.14
		5200	1.922	2.028	94.77	0.23	3.12
		5240	1.921	2.028	94.72	0.24	2.17
802.11n (HT40)	SISO	5190	0.946	1.052	89.92	0.46	5.92
		5230	0.945	1.042	90.69	0.42	4.61
802.11ac (VHT20)	SISO	5180	1.934	2.044	94.62	0.24	2.57
		5200	1.934	2.025	95.51	0.20	2.41
		5240	1.934	2.045	94.57	0.24	3.37
802.11ac (VHT40)	SISO	5190	0.954	1.055	90.43	0.44	5.94
		5230	0.954	1.060	90.00	0.46	6.36
802.11ac (VHT80)	SISO	5210	0.461	0.704	65.48	1.84	26.25

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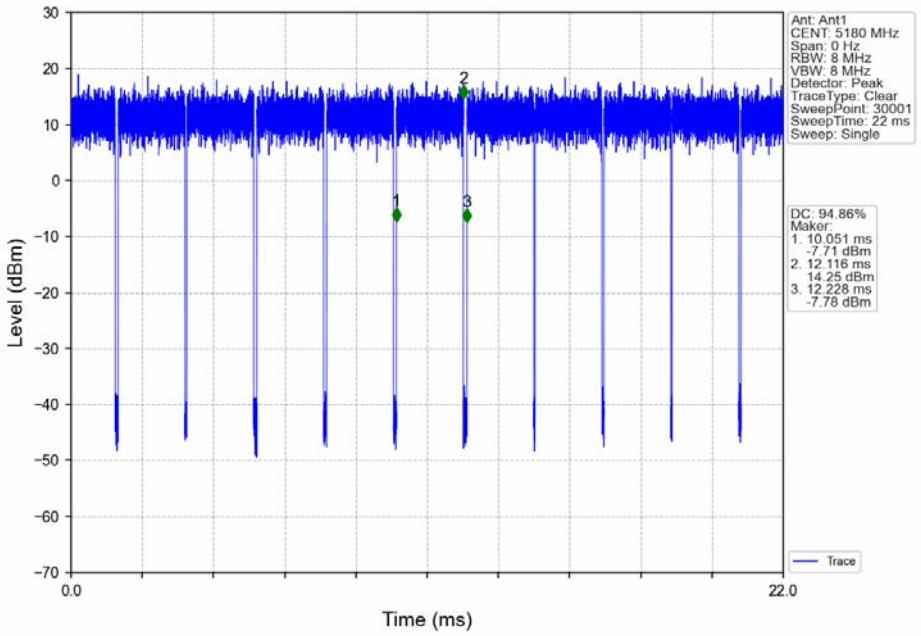
1.1.2 Test Graph

802.11a_LCH_5180MHz_Ant1_NTNV



802.11a_MCH_5200MHz_Ant1_NTNV

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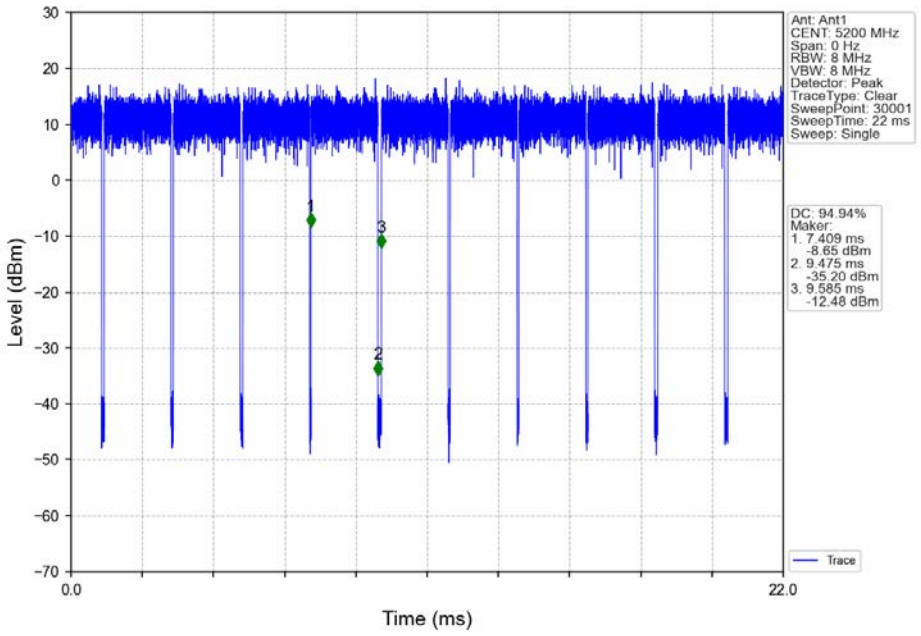

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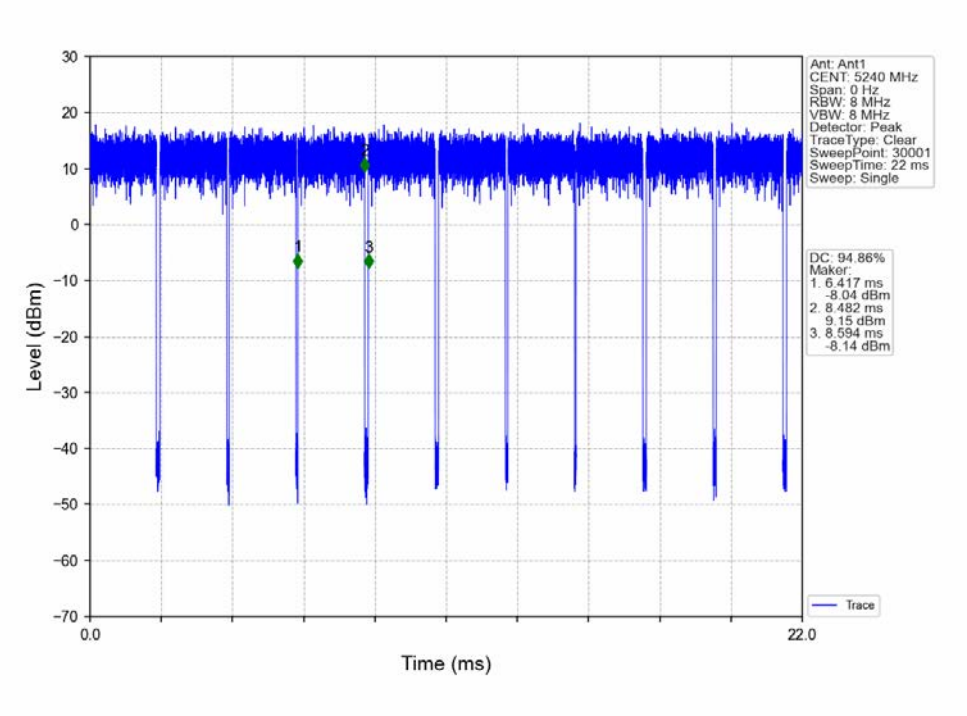
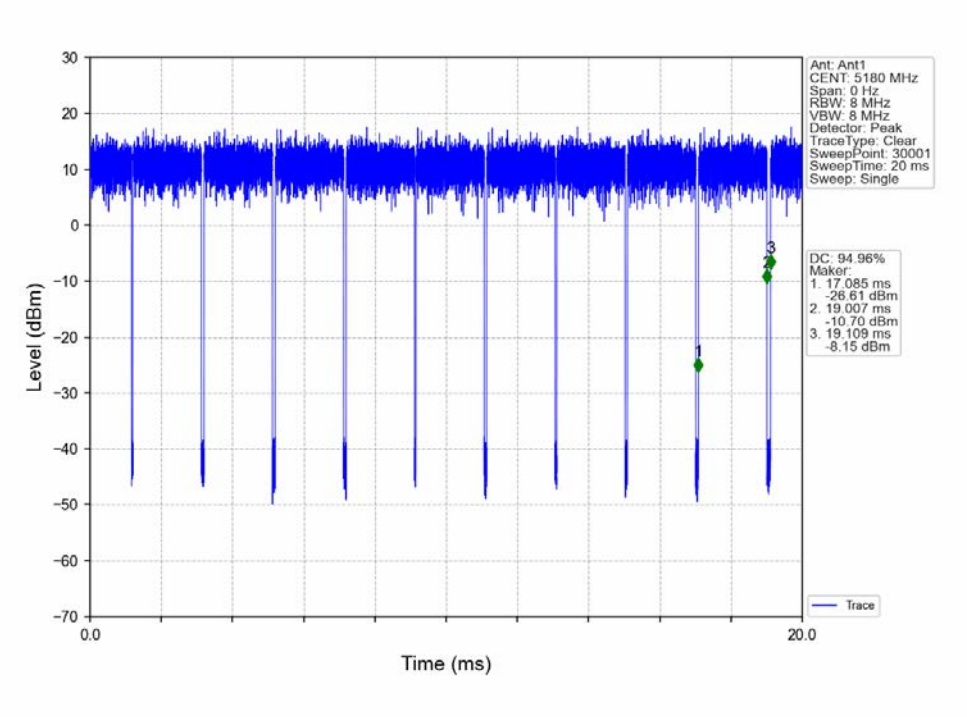
802.11a_HCH_5240MHz_Ant1_NTNV



802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



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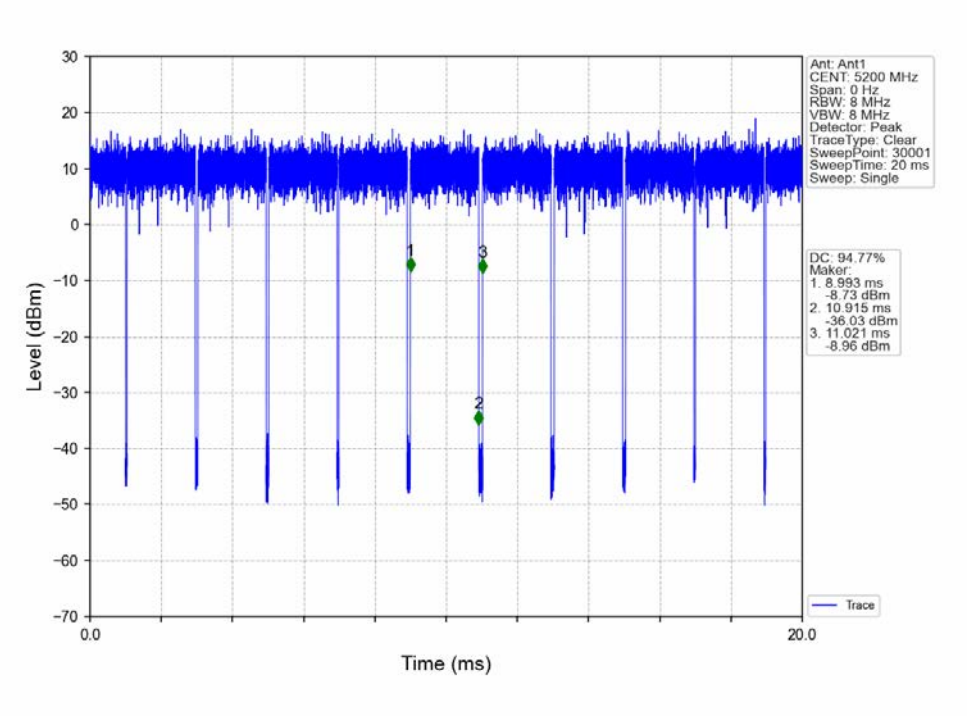
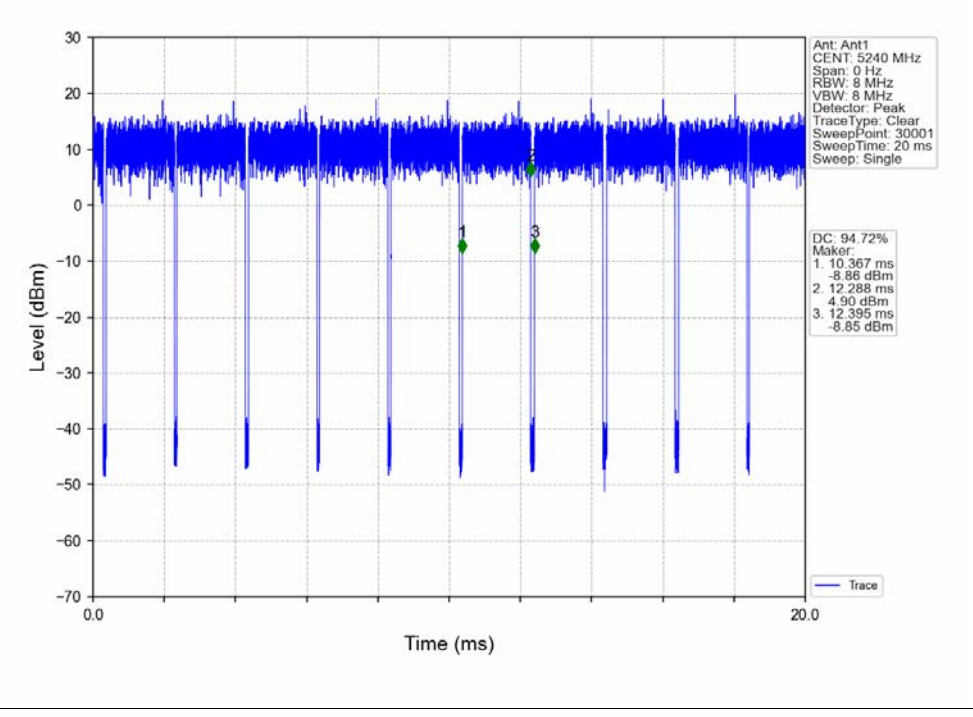
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



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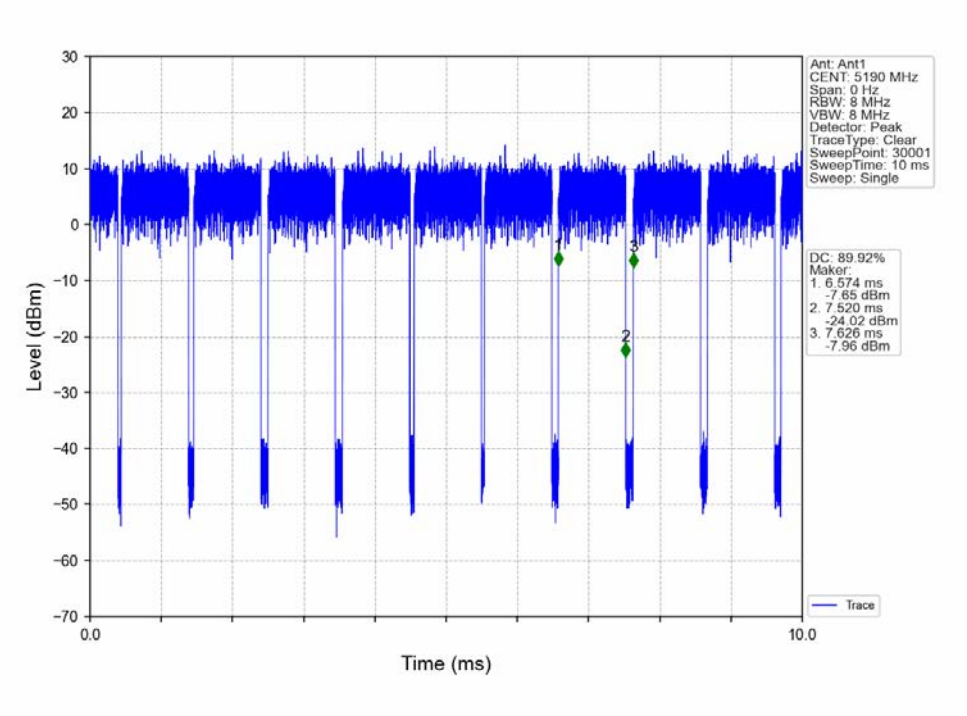
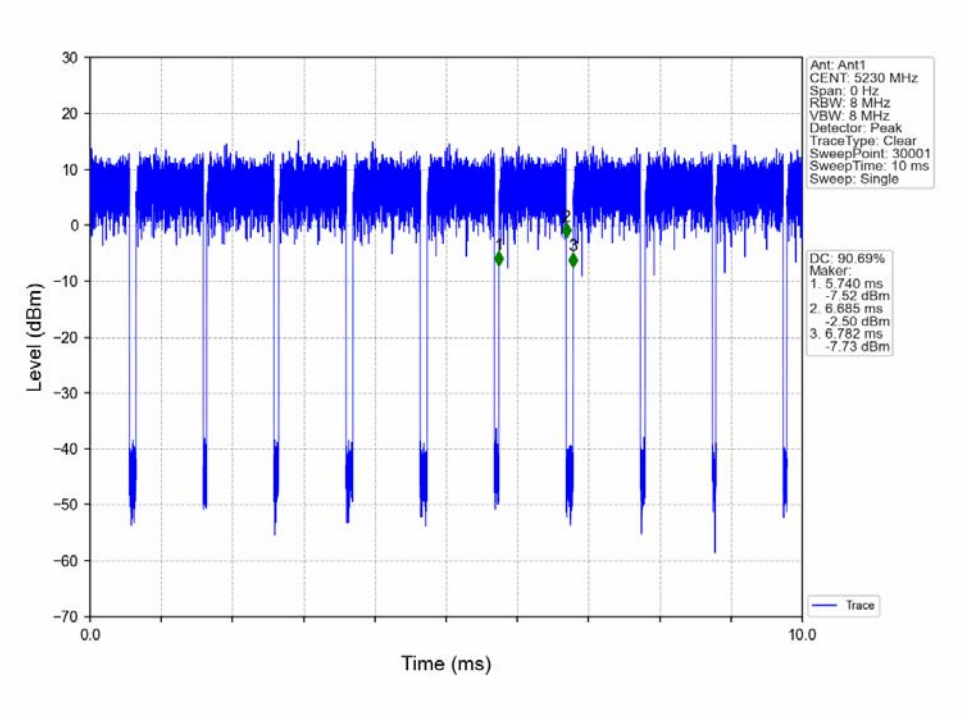
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



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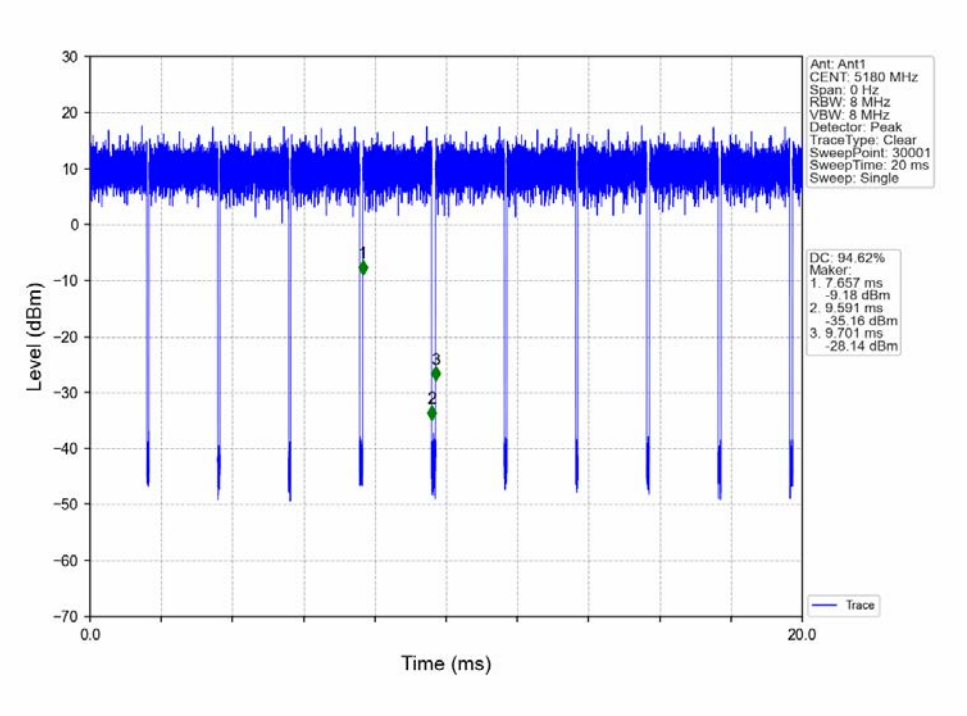
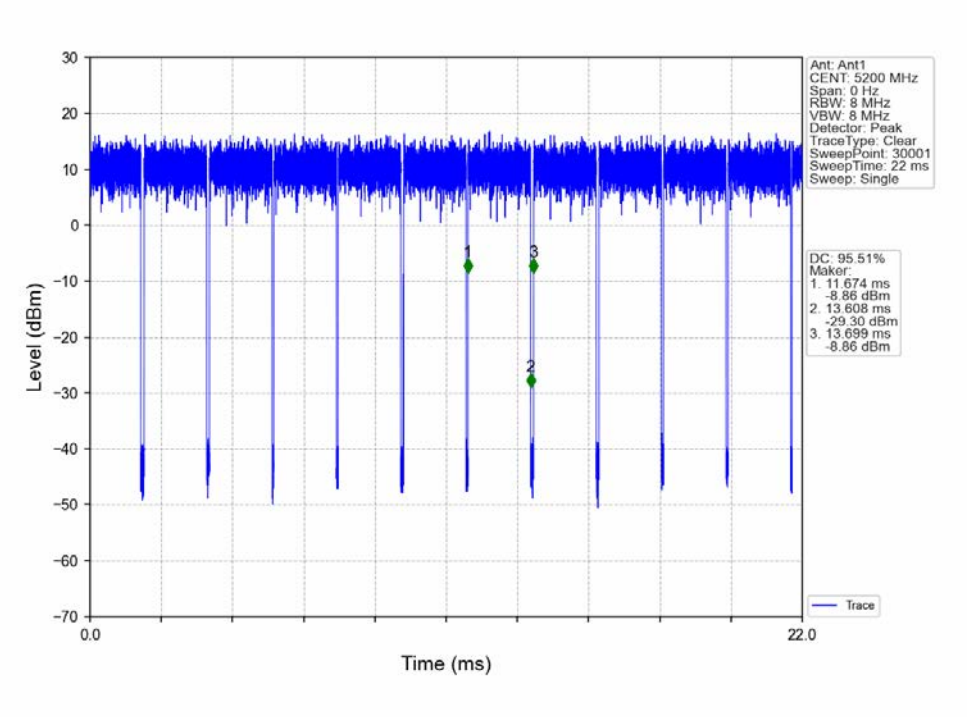
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



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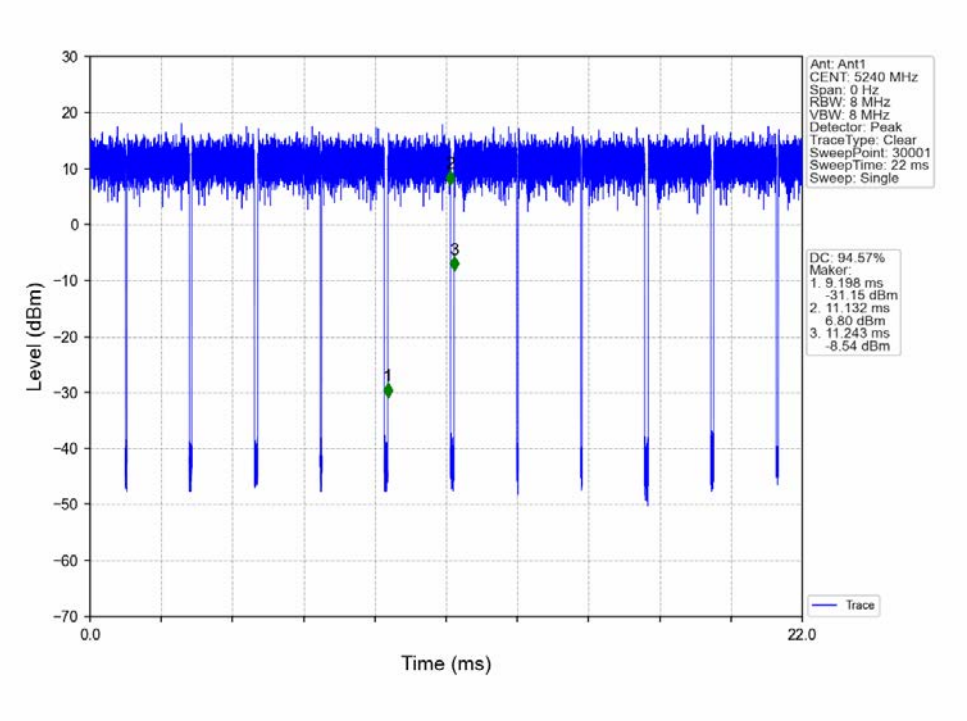
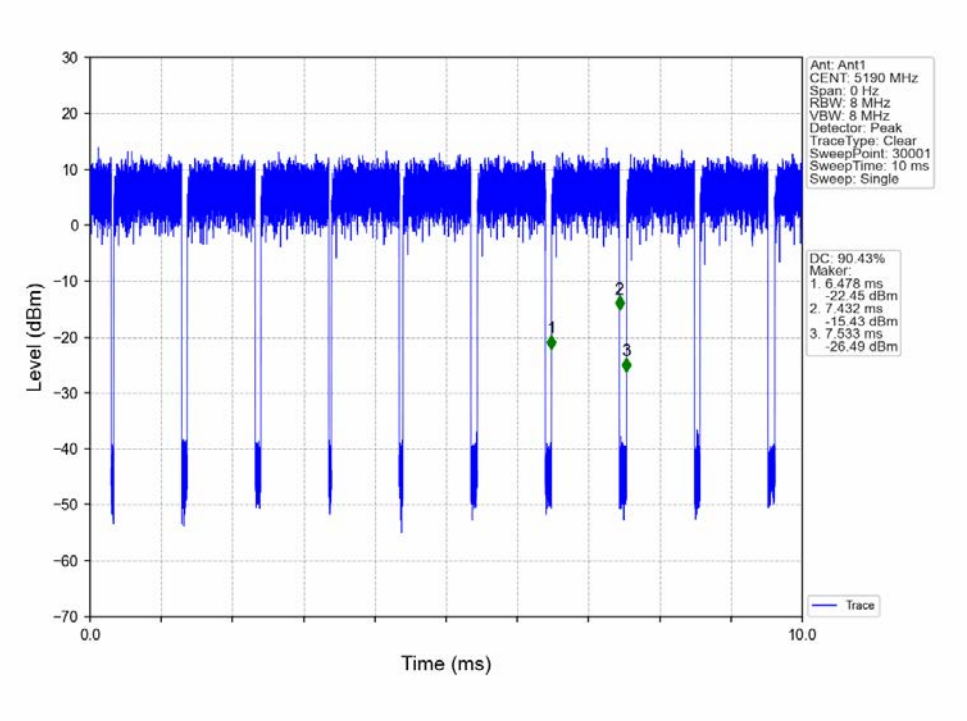
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



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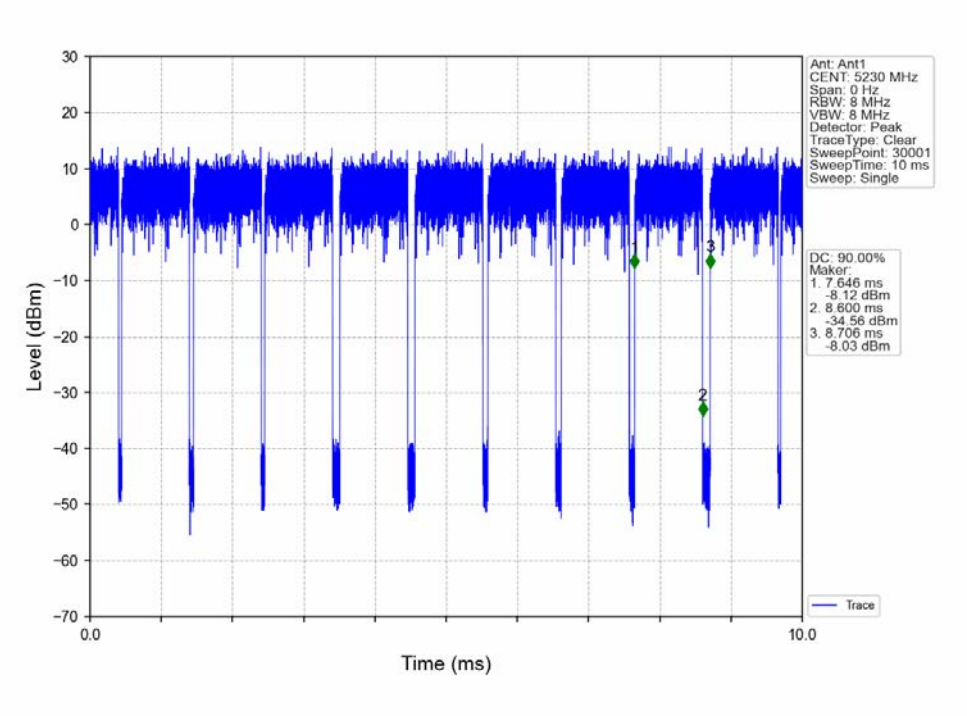
802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



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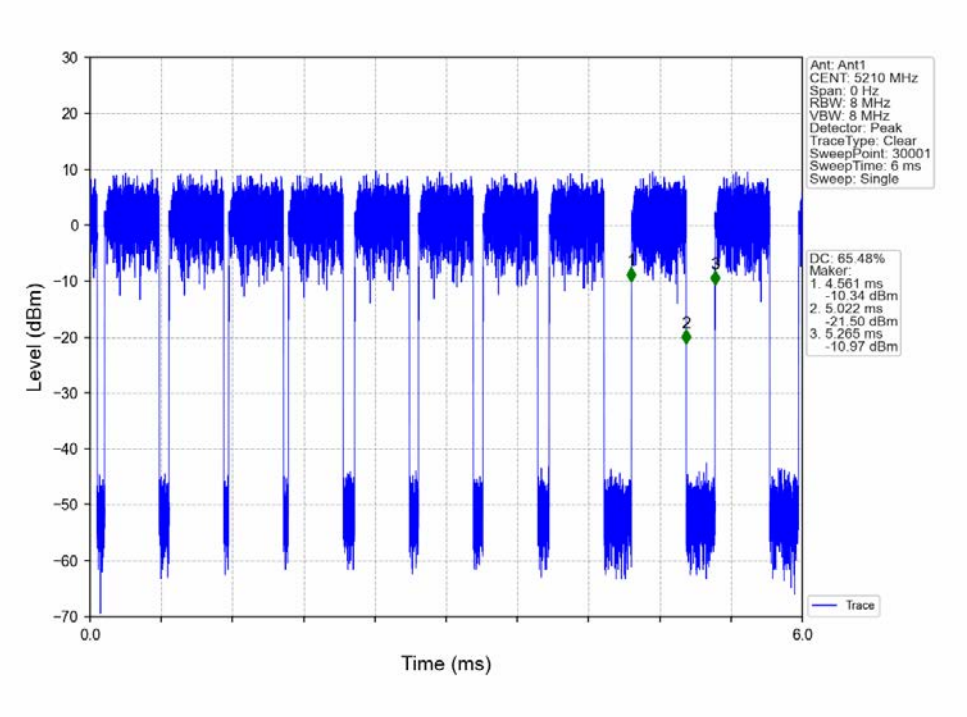

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2. Bandwidth

2.1 OBW

2.1.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	99% Occupied Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	17.507	Pass
		5200	1	17.386	Pass
		5240	1	17.545	Pass
802.11n (HT20)	SISO	5180	1	18.493	Pass
		5200	1	18.418	Pass
		5240	1	18.474	Pass
802.11n (HT40)	SISO	5190	1	37.150	Pass
		5230	1	36.789	Pass
802.11ac (VHT20)	SISO	5180	1	18.400	Pass
		5200	1	18.501	Pass
		5240	1	18.511	Pass
802.11ac (VHT40)	SISO	5190	1	36.938	Pass
		5230	1	36.675	Pass
802.11ac (VHT80)	SISO	5210	1	76.292	Pass

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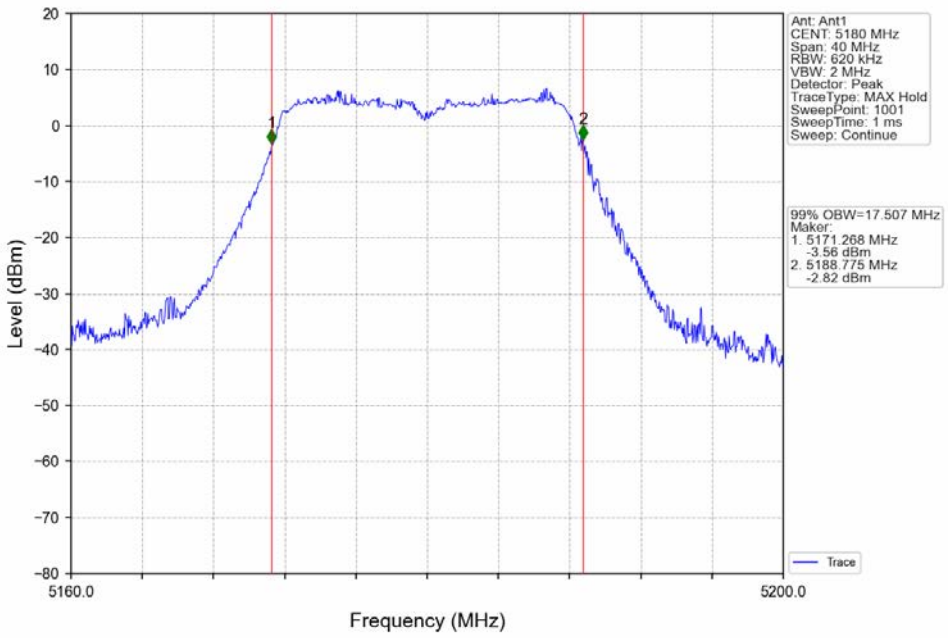
2.1.2 Test Graph

802.11a_LCH_5180MHz_Ant1_NTNV



802.11a_MCH_5200MHz_Ant1_NTNV

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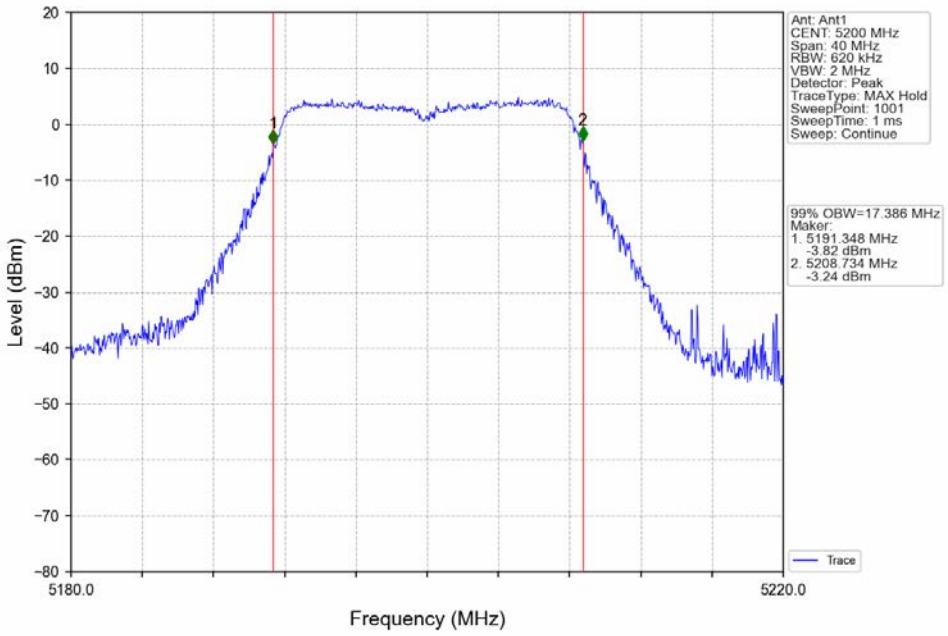

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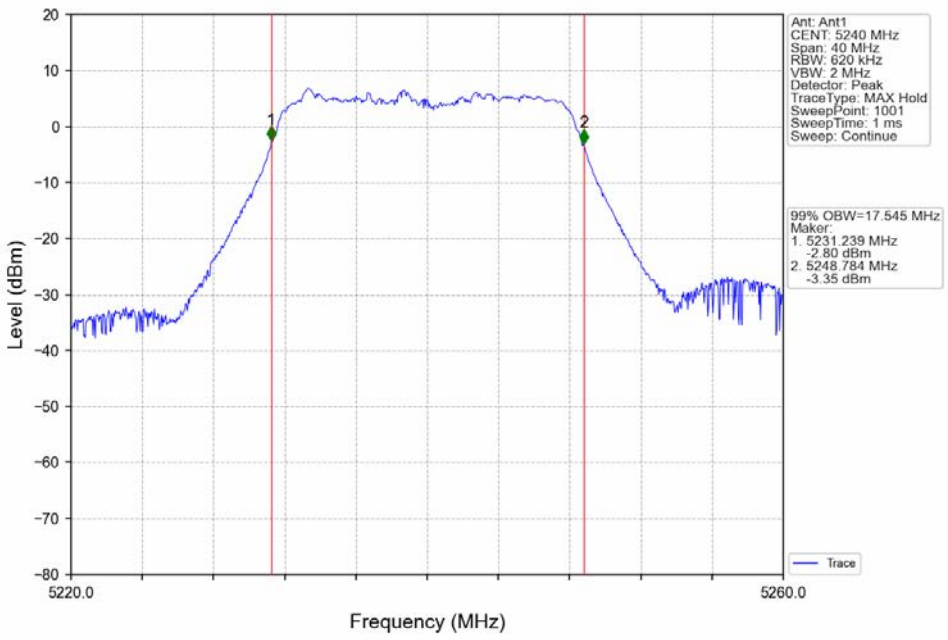
802.11a_HCH_5240MHz_Ant1_NTNV



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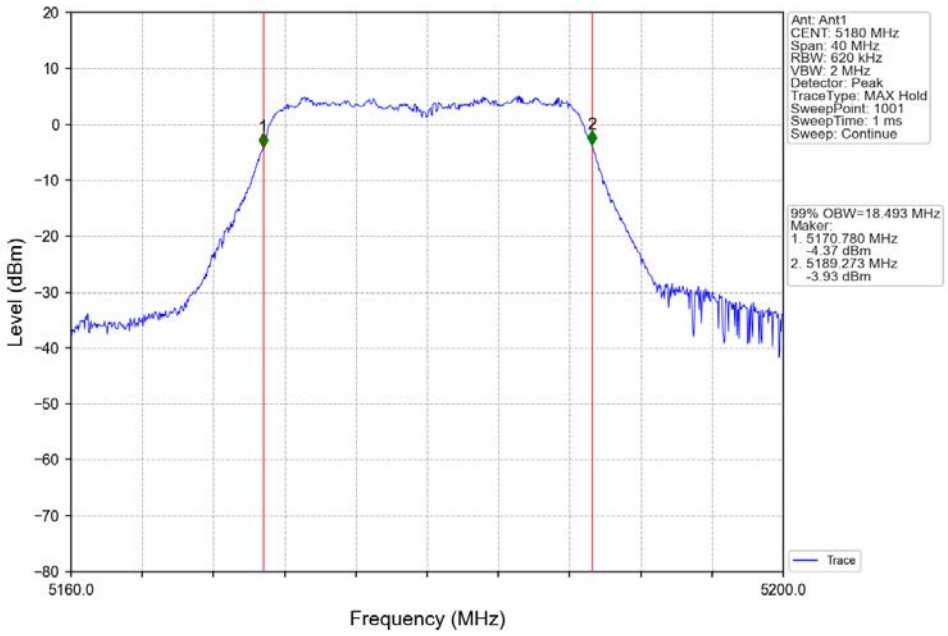

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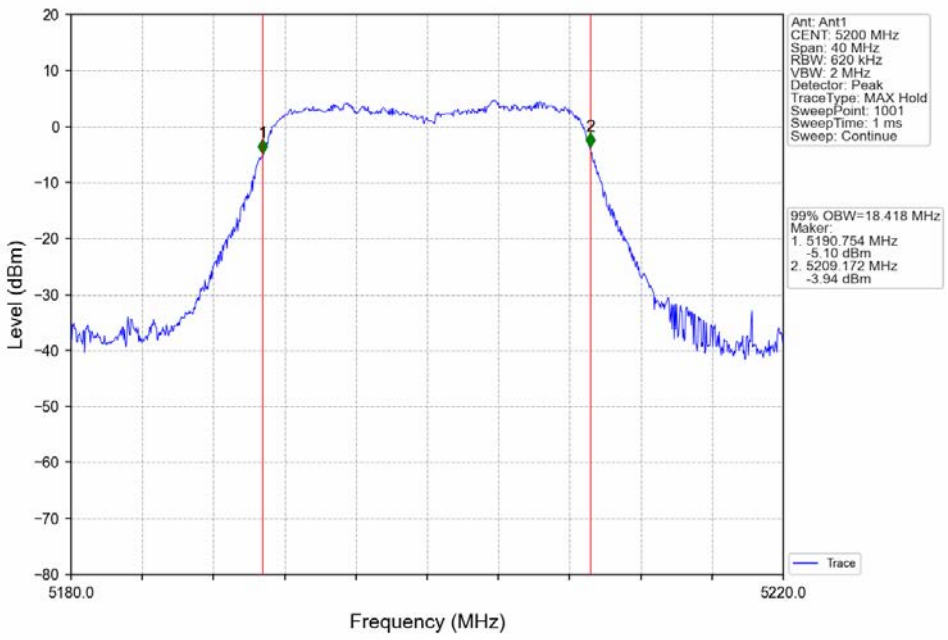
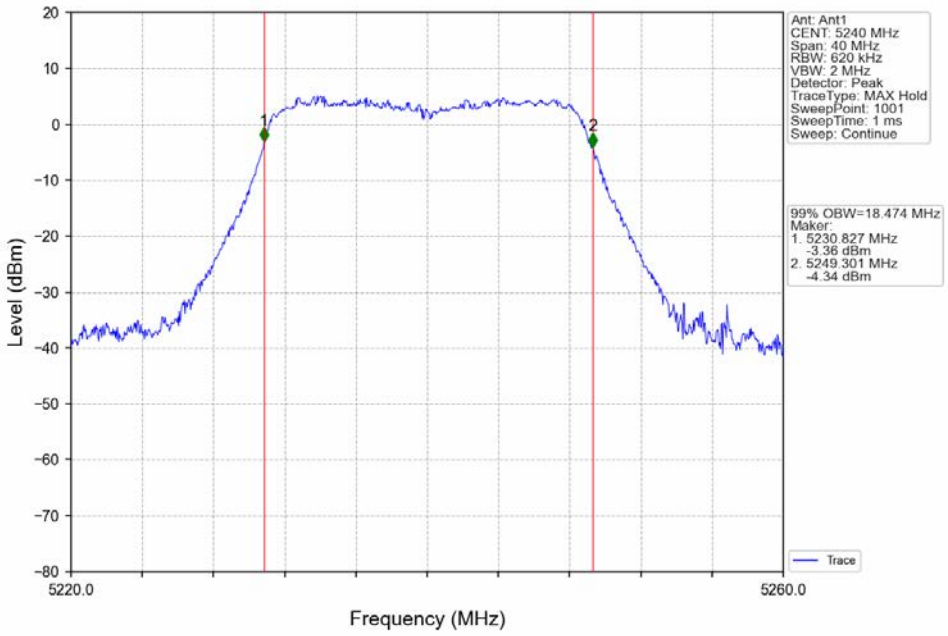


802.11n(HT20)_HCH_5240MHz_Ant1_NTNV



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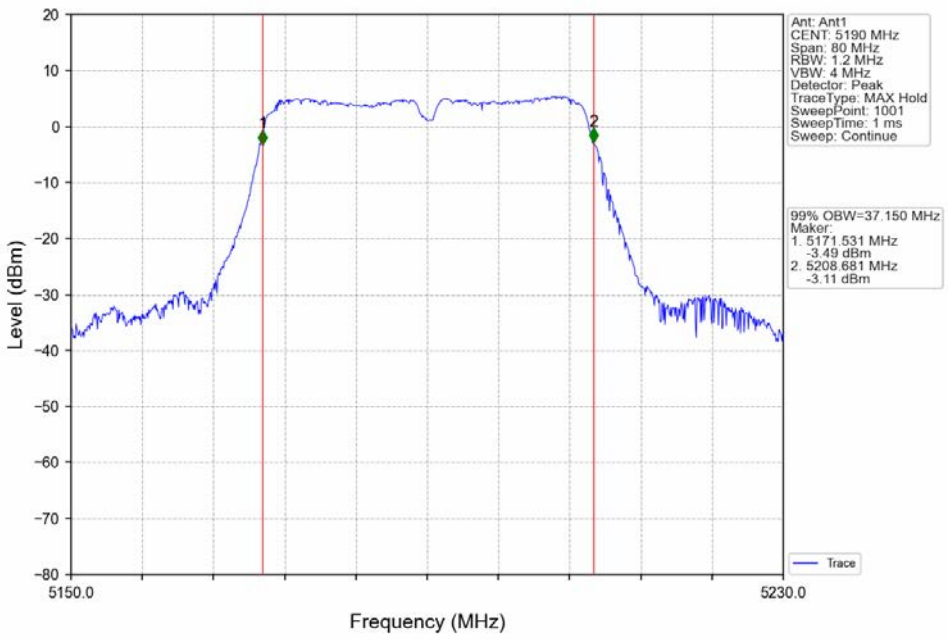
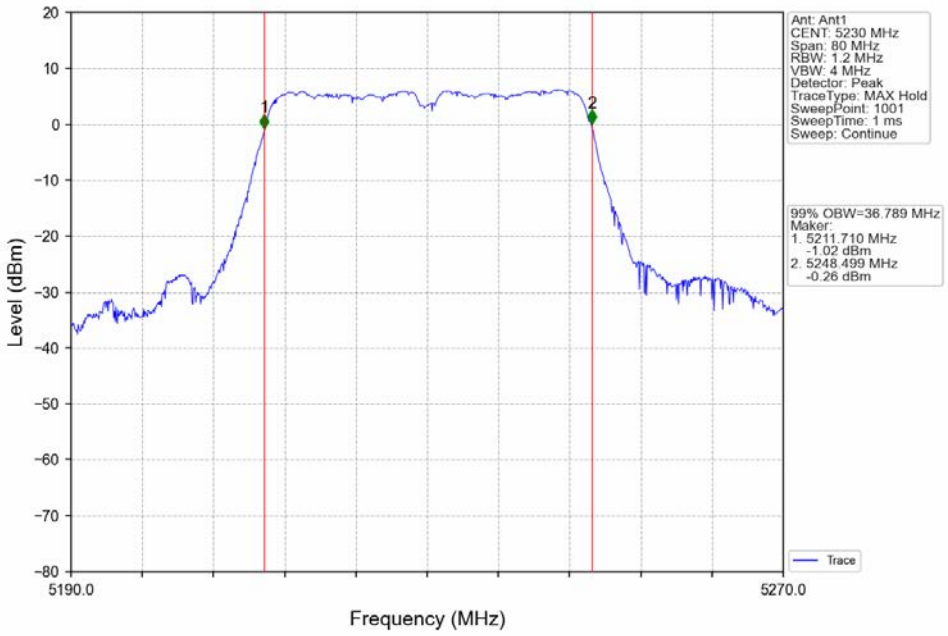
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



802.11n(HT40)_HCH_5230MHz_Ant1_NTNV



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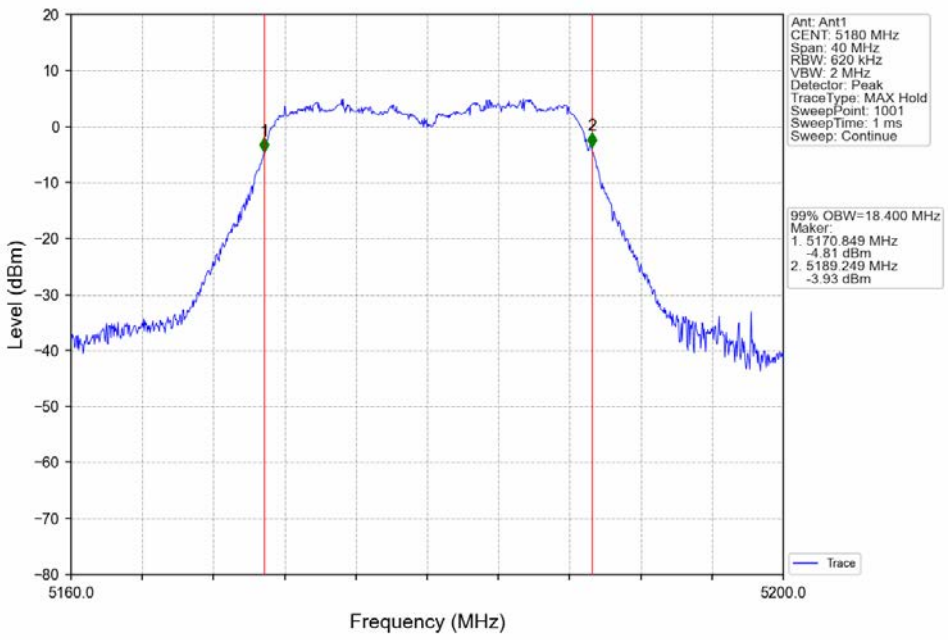
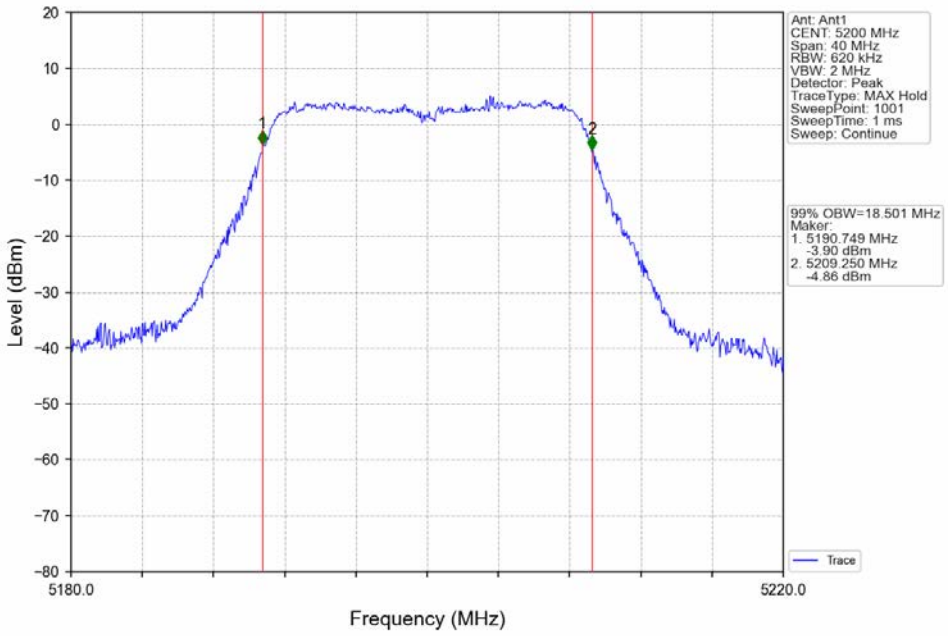
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



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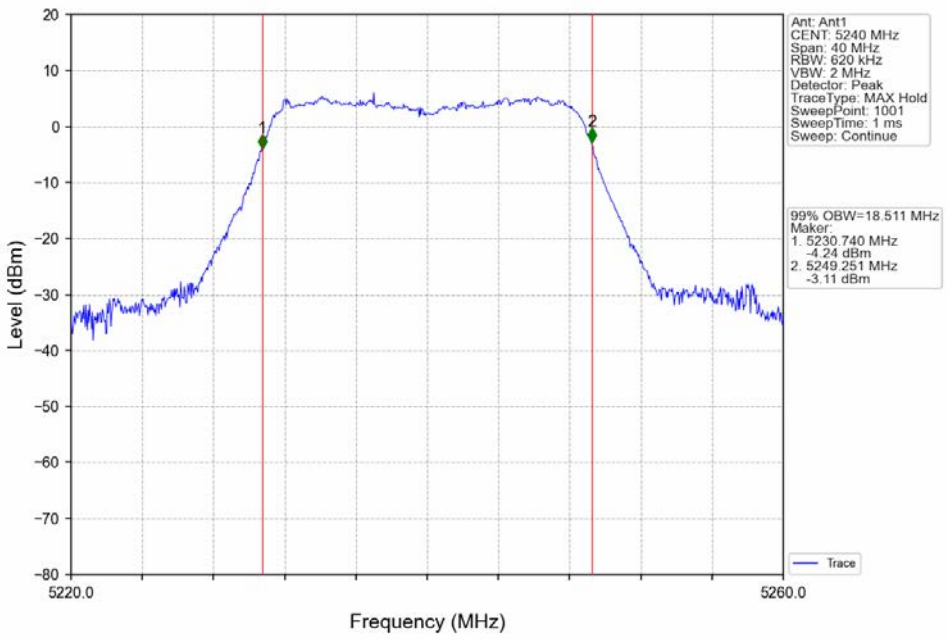
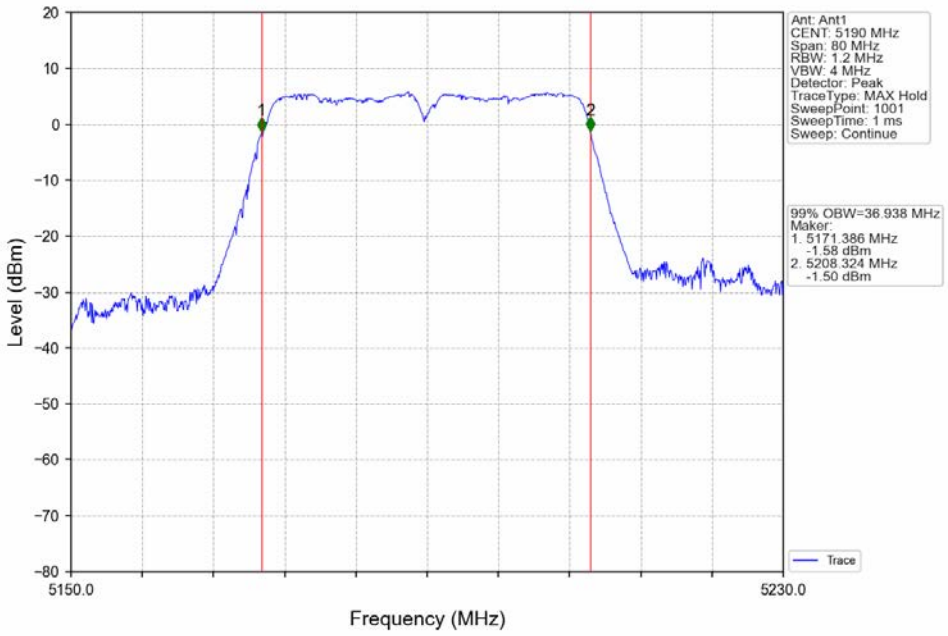
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



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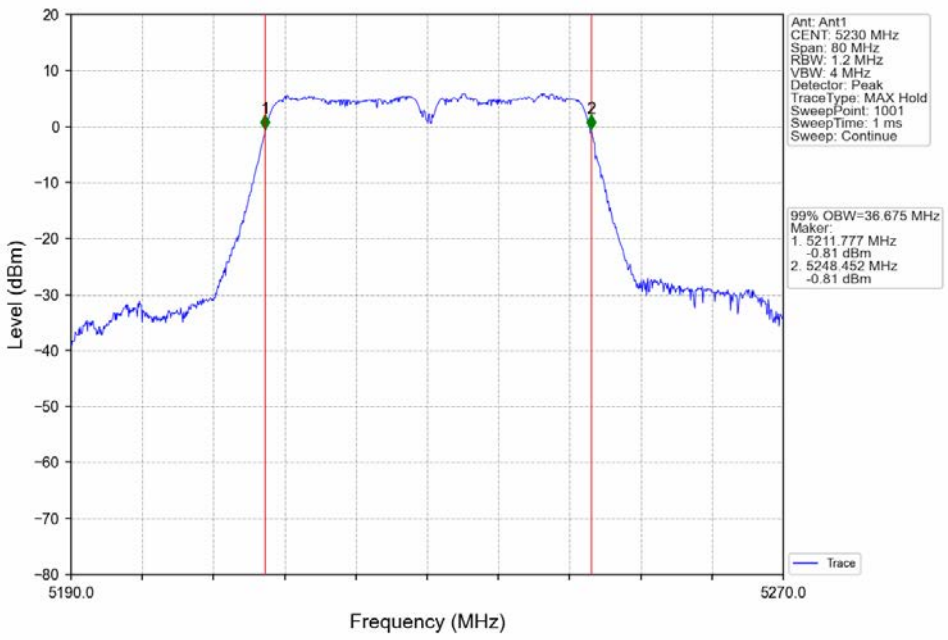
802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



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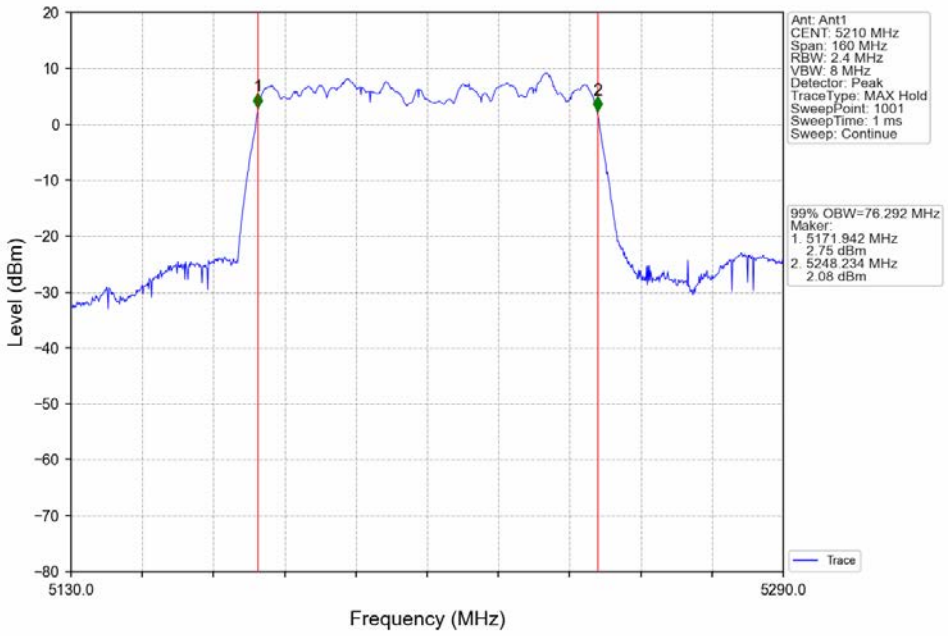

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2.2 26dB BW

2.2.1 Test Result

Mode	TX Type	Frequency (MHz)	ANT	26dB Bandwidth (MHz)	Verdict
				Result	
802.11a	SISO	5180	1	20.740	Pass
		5200	1	20.500	Pass
		5240	1	20.756	Pass
802.11n (HT20)	SISO	5180	1	21.470	Pass
		5200	1	21.195	Pass
		5240	1	21.195	Pass
802.11n (HT40)	SISO	5190	1	41.999	Pass
		5230	1	42.143	Pass
802.11ac (VHT20)	SISO	5180	1	20.962	Pass
		5200	1	21.401	Pass
		5240	1	21.400	Pass
802.11ac (VHT40)	SISO	5190	1	41.661	Pass
		5230	1	41.002	Pass
802.11ac (VHT80)	SISO	5210	1	81.598	Pass

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Inspection & Testing Services
SGS-CSTC Standards Technical Services Co.,Ltd.
Shenzhen Branch Testing Center LEC Laboratory.

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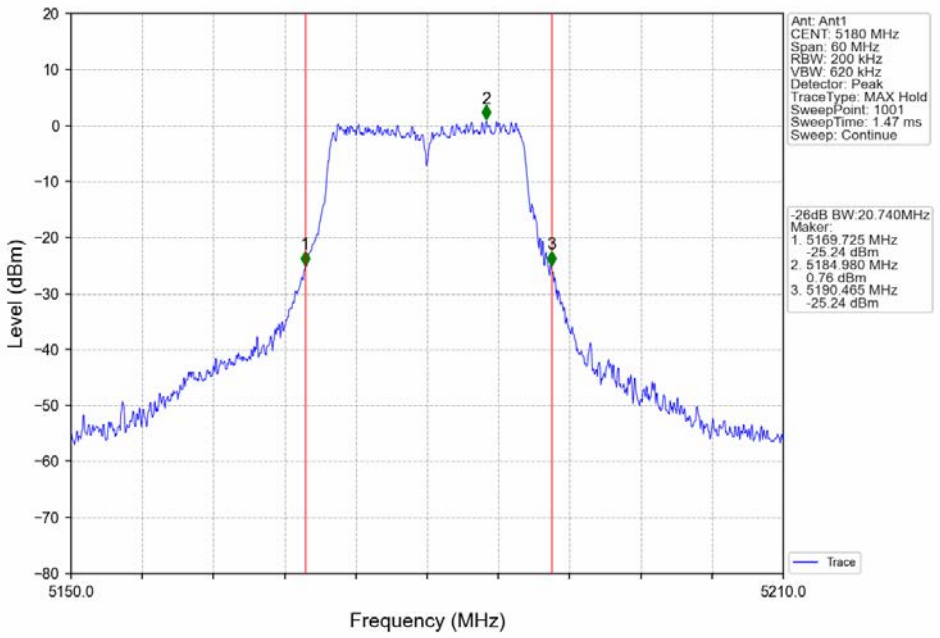
2.2.2 Test Graph

802.11a_LCH_5180MHz_Ant1_NTNV



802.11a_MCH_5200MHz_Ant1_NTNV

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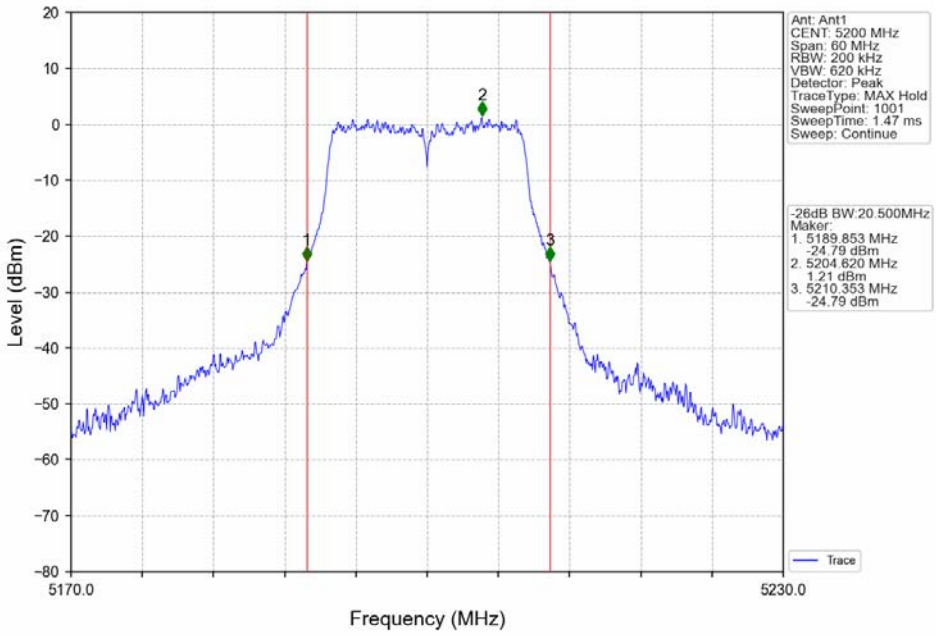

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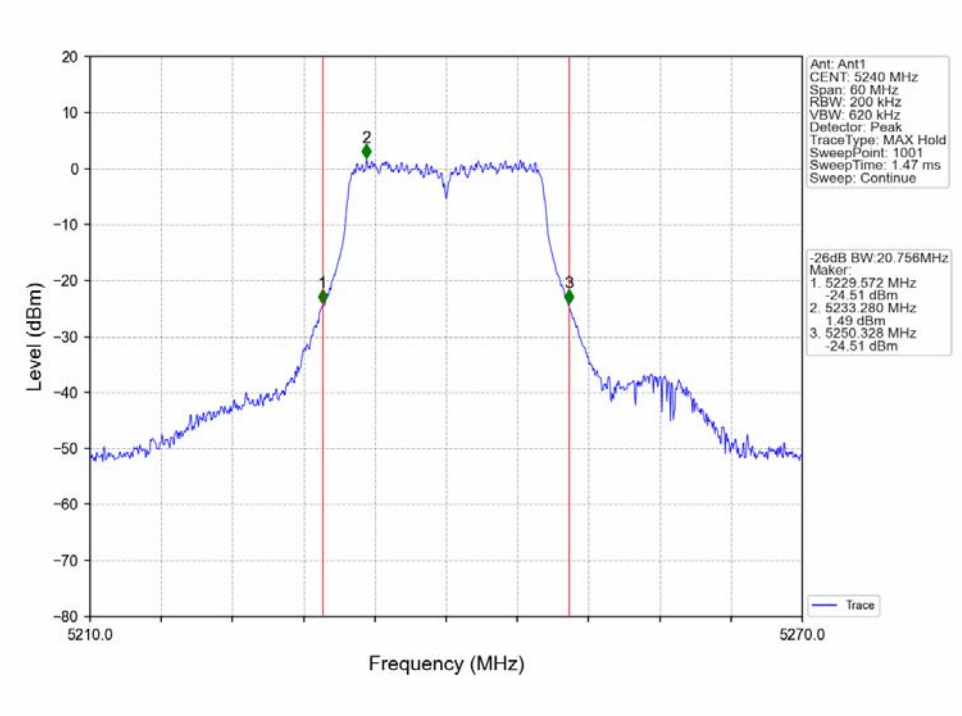
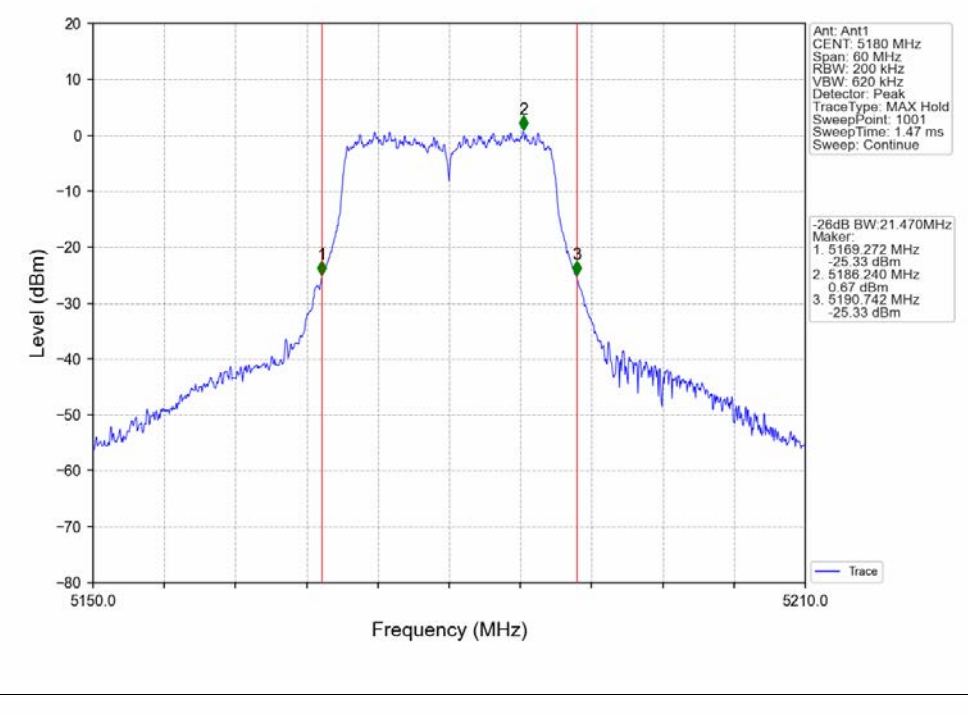
802.11a_HCH_5240MHz_Ant1_NTNV



802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



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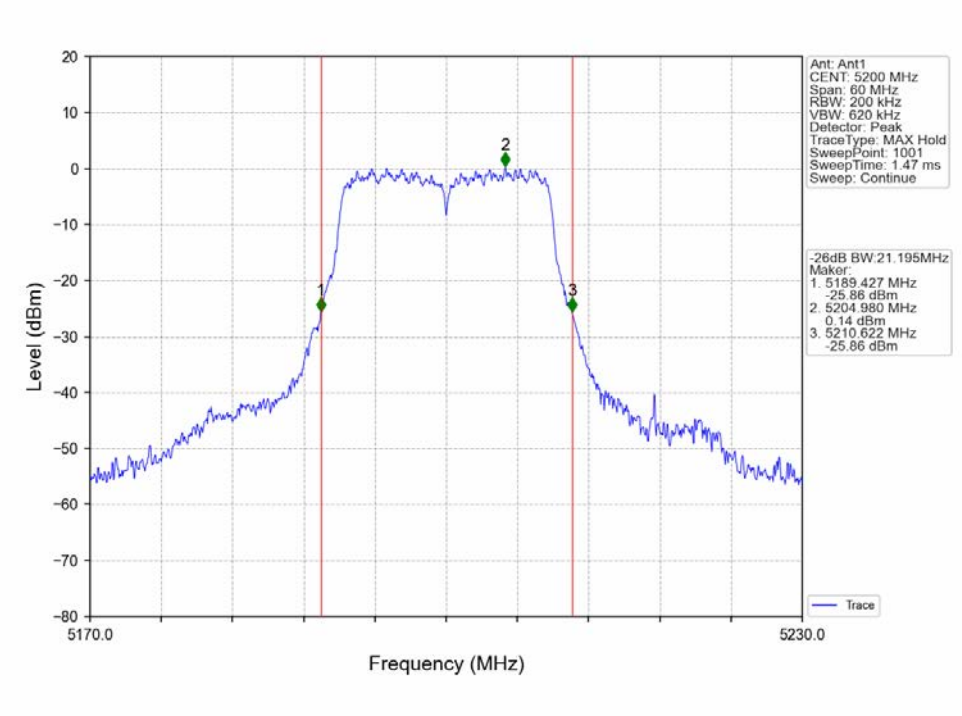
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



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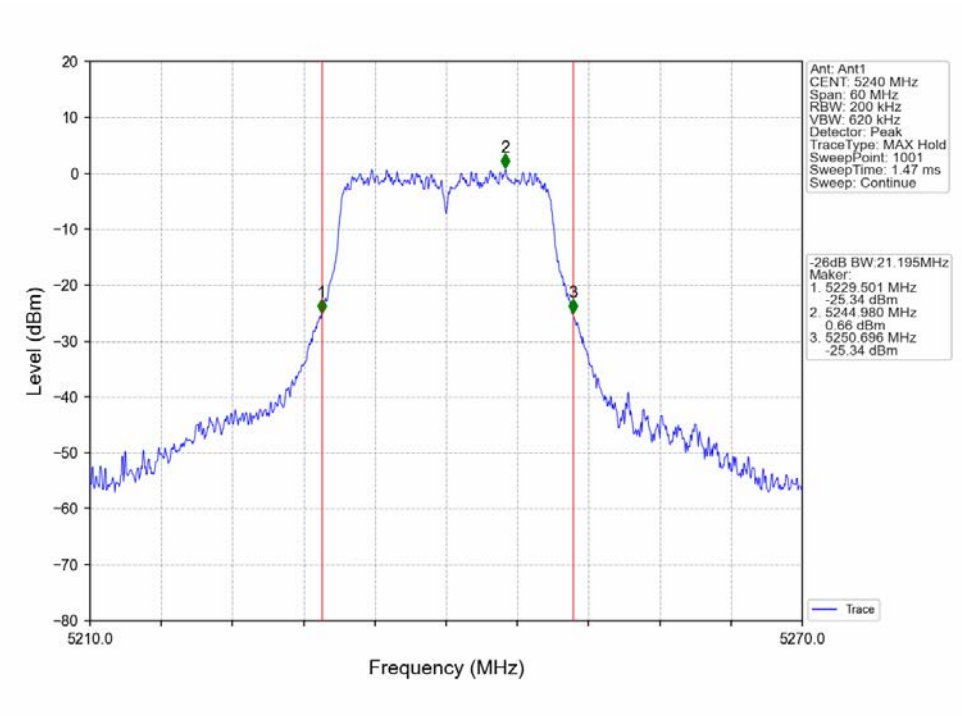

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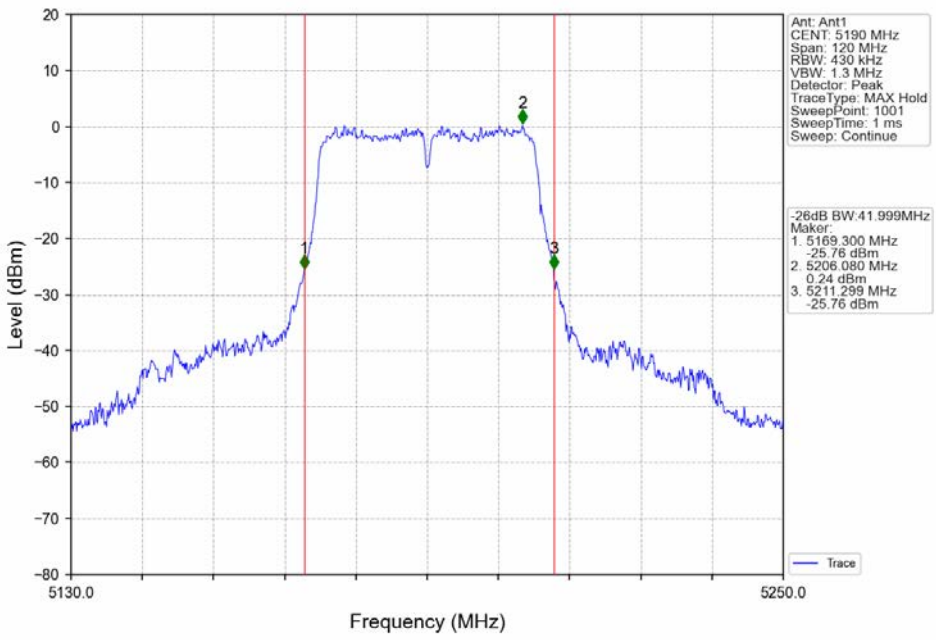
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



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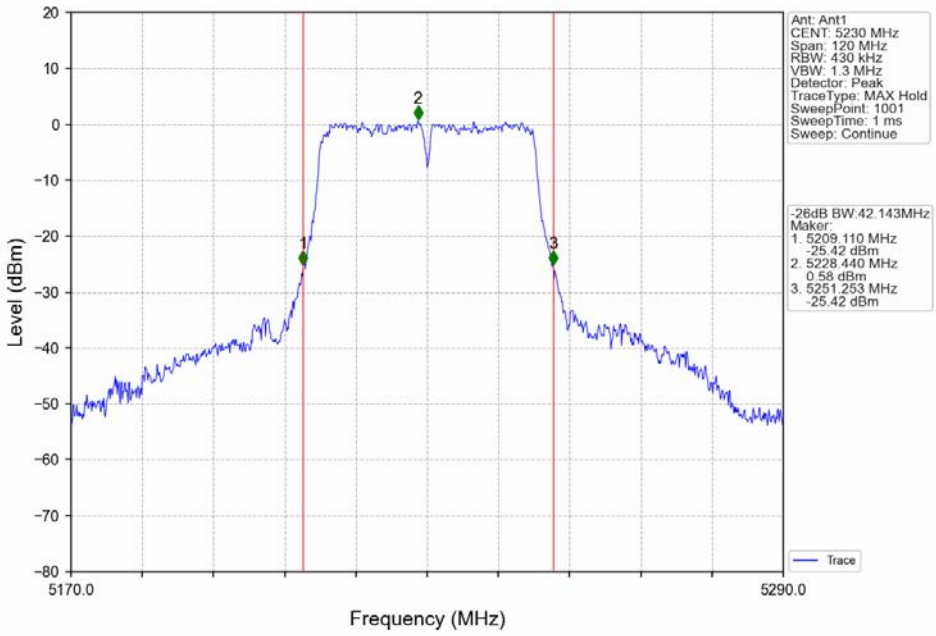

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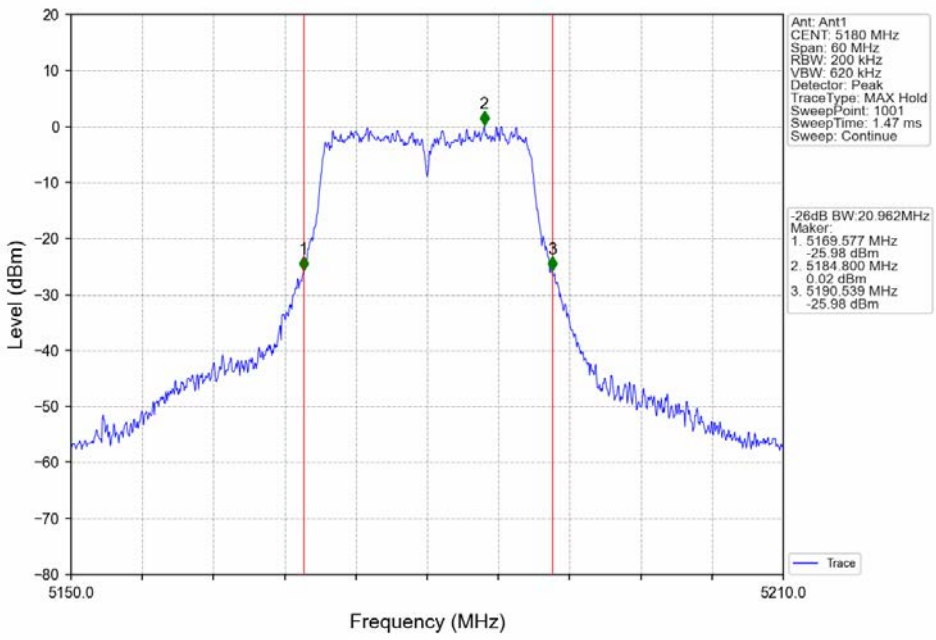
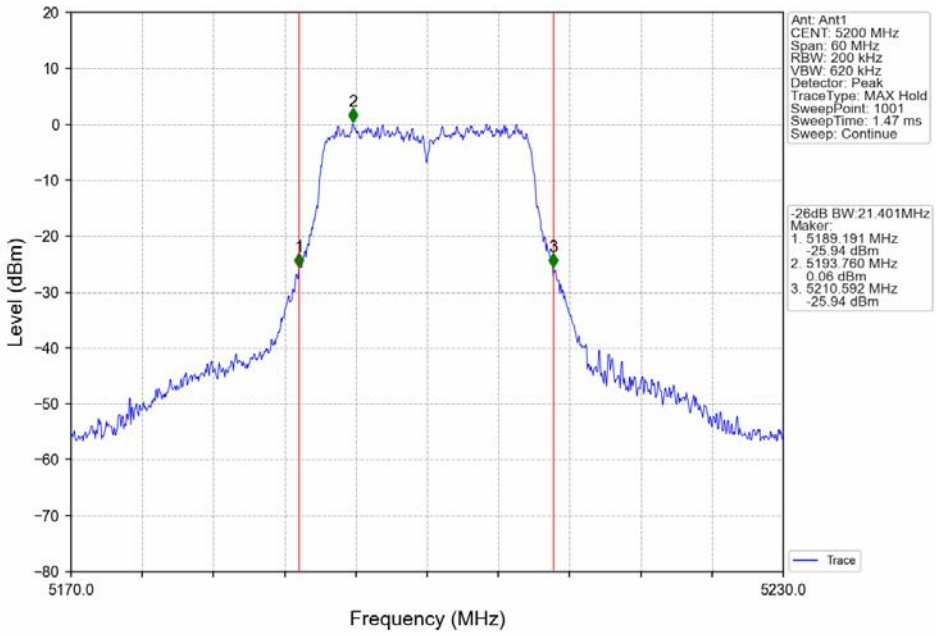
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



802.11ac(VHT20)_MCH_5200MHz_Ant1_NTNV



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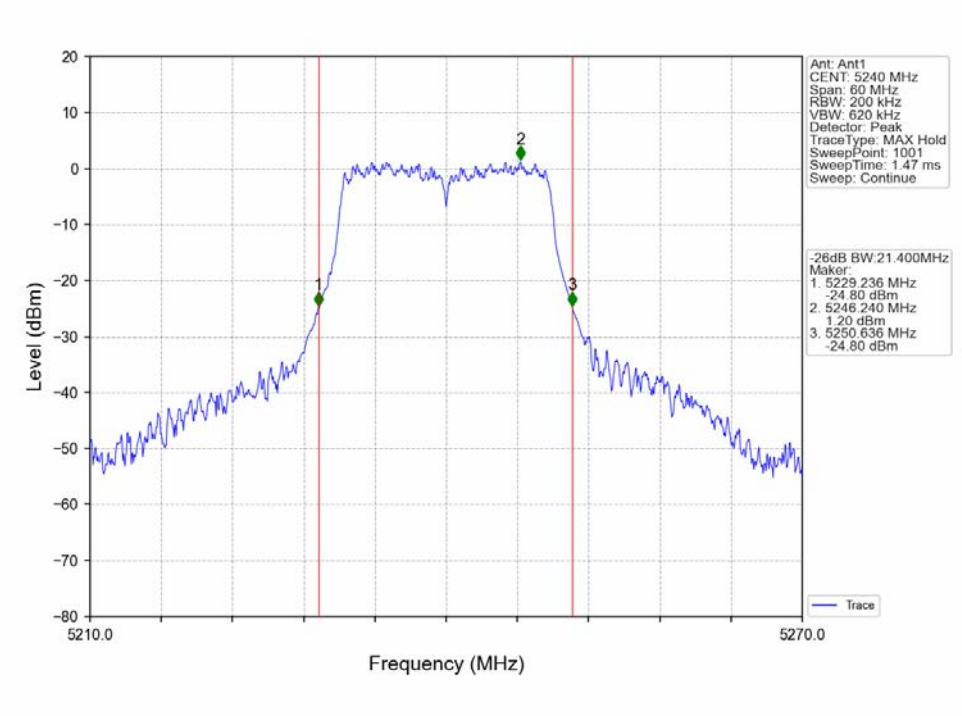
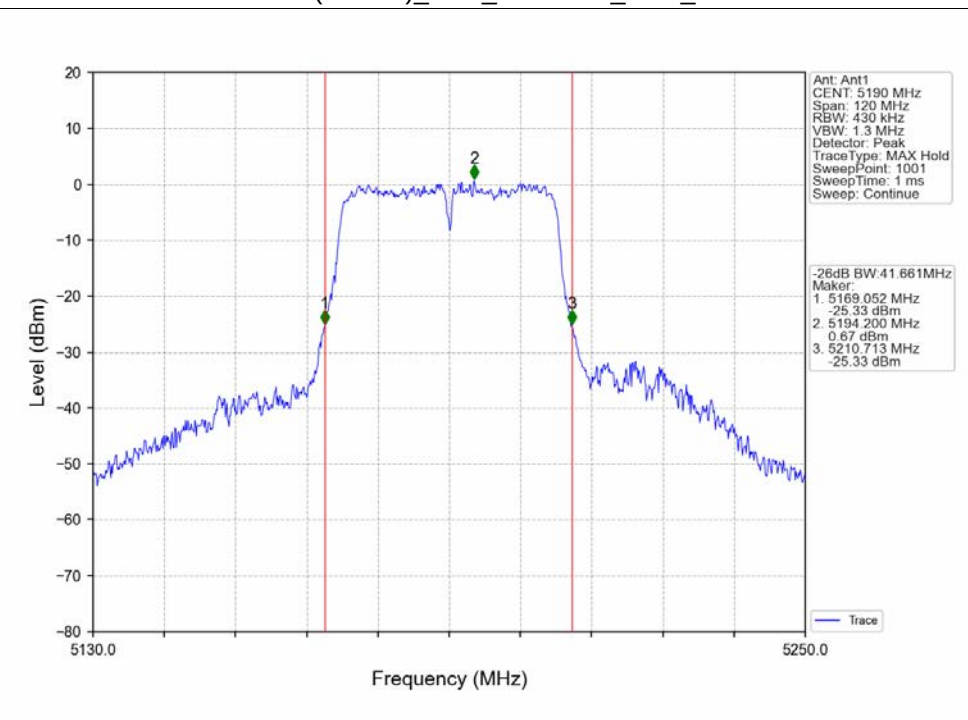
802.11ac(VHT20)_HCH_5240MHz_Ant1_NTNV



802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



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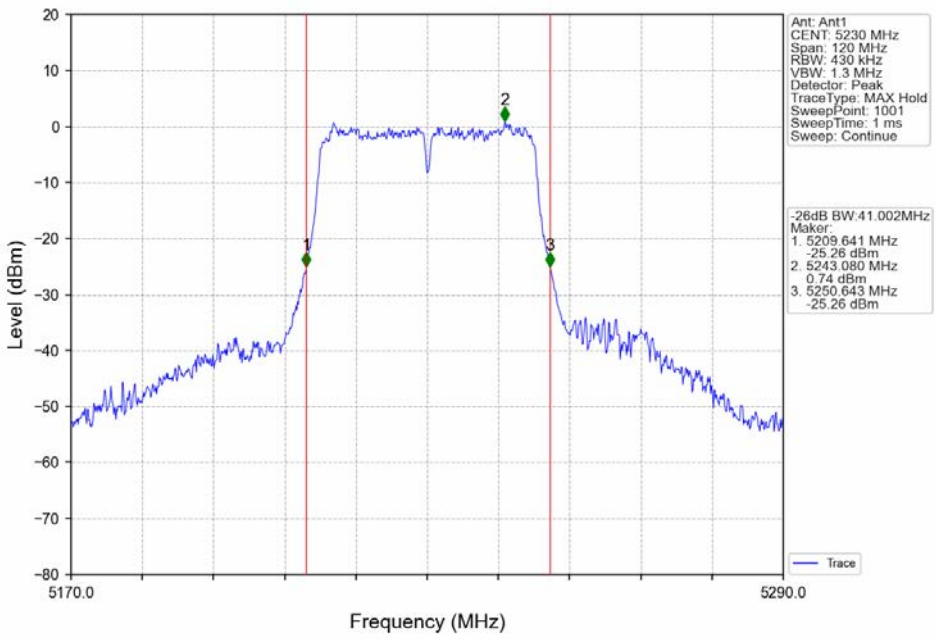
802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



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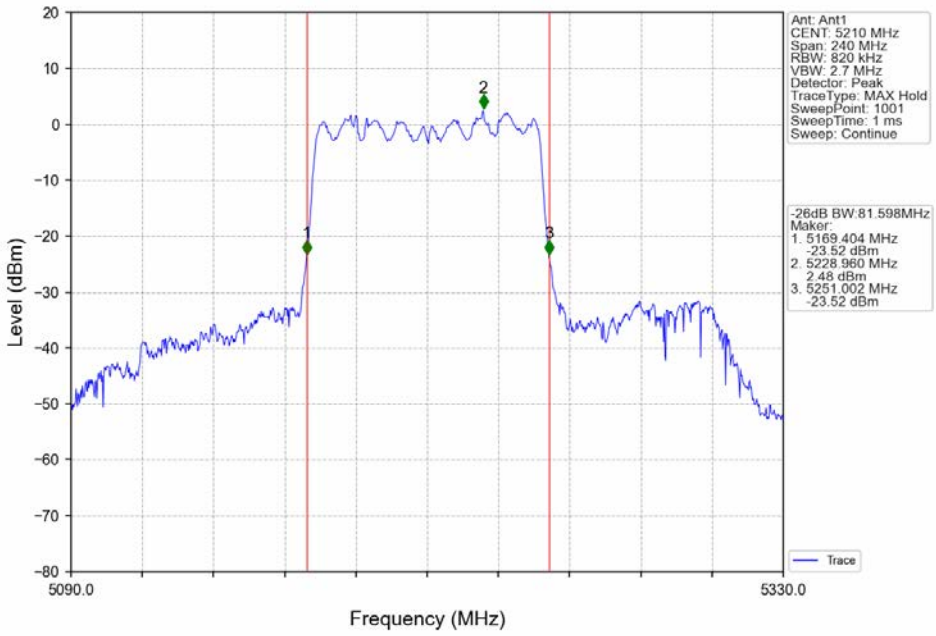

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3. Maximum Conducted Output Power

3.1 Power

3.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum Average Conducted Output Power (dBm)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	10.79	<=23.98	Pass
		5200	10.75	<=23.98	Pass
		5240	11.33	<=23.98	Pass
802.11n (HT20)	SISO	5180	10.45	<=23.98	Pass
		5200	10.02	<=23.98	Pass
		5240	10.58	<=23.98	Pass
802.11n (HT40)	SISO	5190	10.30	<=23.98	Pass
		5230	11.13	<=23.98	Pass
802.11ac (VHT20)	SISO	5180	9.97	<=23.98	Pass
		5200	10.24	<=23.98	Pass
		5240	11.07	<=23.98	Pass
802.11ac (VHT40)	SISO	5190	10.70	<=23.98	Pass
		5230	10.54	<=23.98	Pass
802.11ac (VHT80)	SISO	5210	11.38	<=23.98	Pass

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4. Maximum Power Spectral Density

4.1 PSD

4.1.1 Test Result

Mode	TX Type	Frequency (MHz)	Maximum PSD (dBm/MHz)		Verdict
			ANT1	Limit	
802.11a	SISO	5180	-0.61	<=11	Pass
		5200	-0.50	<=11	Pass
		5240	0.30	<=11	Pass
802.11n (HT20)	SISO	5180	-0.85	<=11	Pass
		5200	-1.53	<=11	Pass
		5240	-0.03	<=11	Pass
802.11n (HT40)	SISO	5190	-4.02	<=11	Pass
		5230	-3.25	<=11	Pass
802.11ac (VHT20)	SISO	5180	-1.60	<=11	Pass
		5200	-0.72	<=11	Pass
		5240	0.40	<=11	Pass
802.11ac (VHT40)	SISO	5190	-3.81	<=11	Pass
		5230	-3.72	<=11	Pass
802.11ac (VHT80)	SISO	5210	-4.67	<=11	Pass

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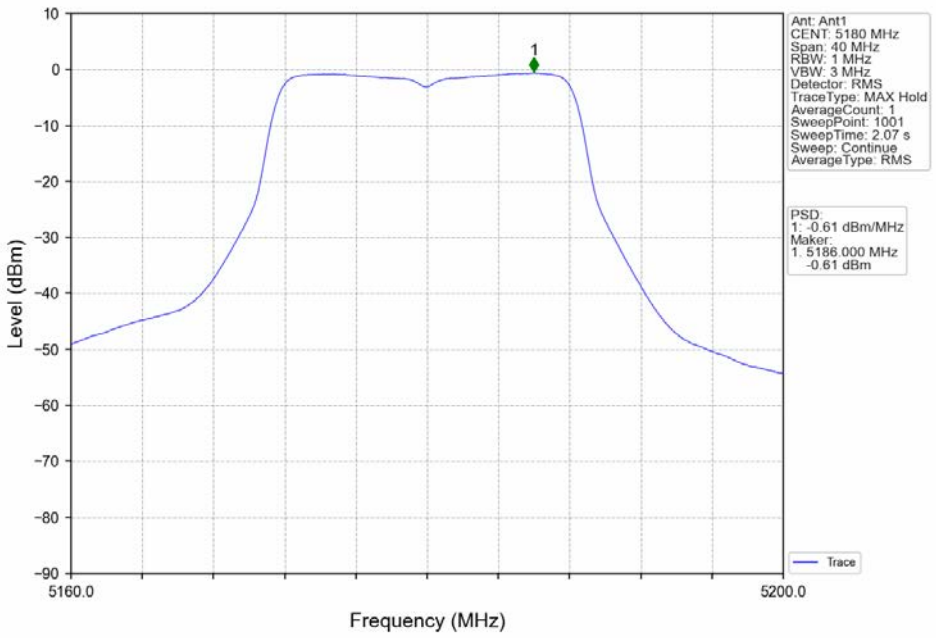
4.1.2 Test Graph

802.11a_LCH_5180MHz_Ant1_NTNV



802.11a_MCH_5200MHz_Ant1_NTNV

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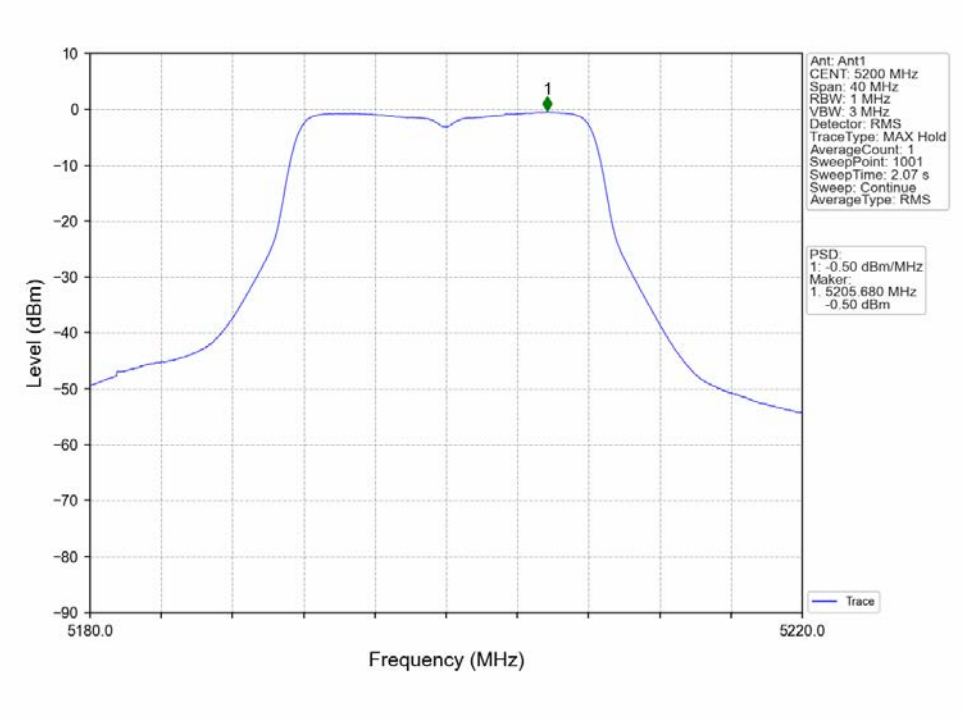

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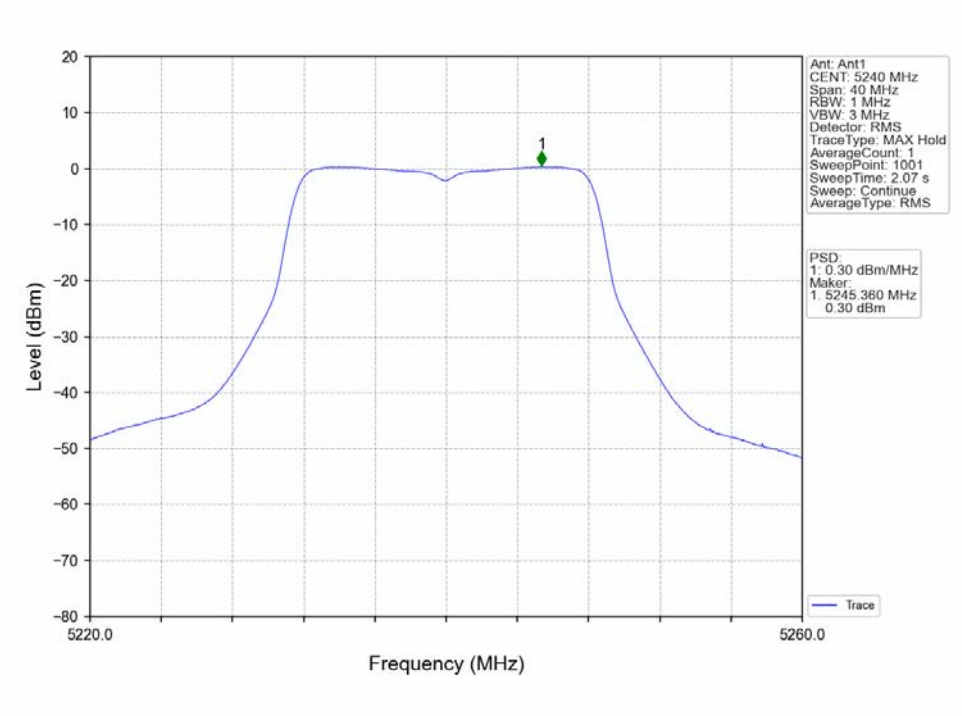
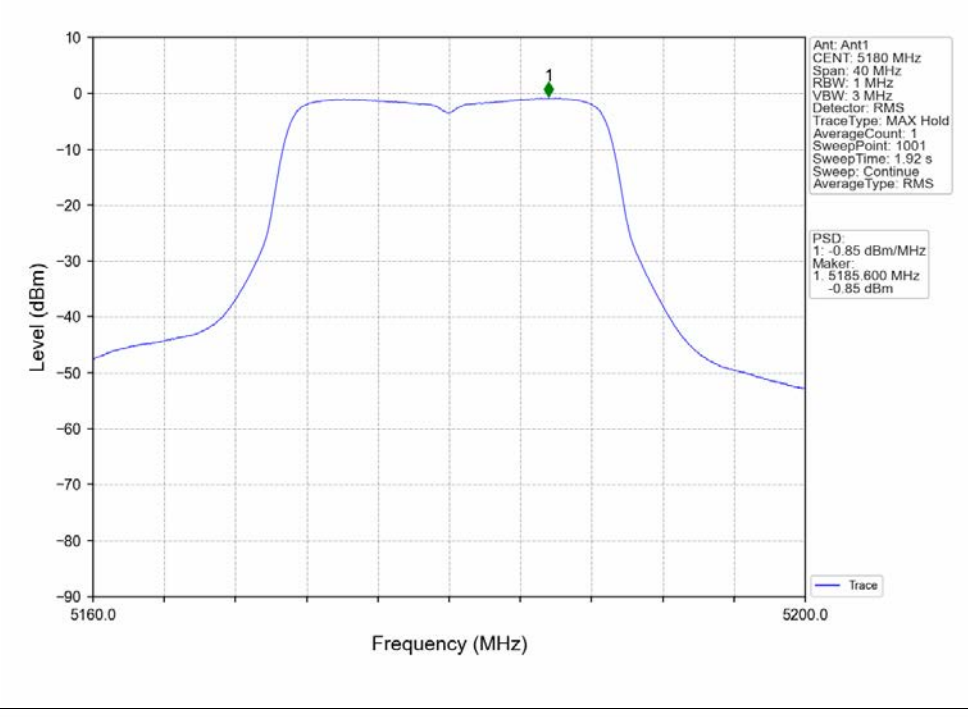
802.11a_HCH_5240MHz_Ant1_NTNV



802.11n(HT20)_LCH_5180MHz_Ant1_NTNV



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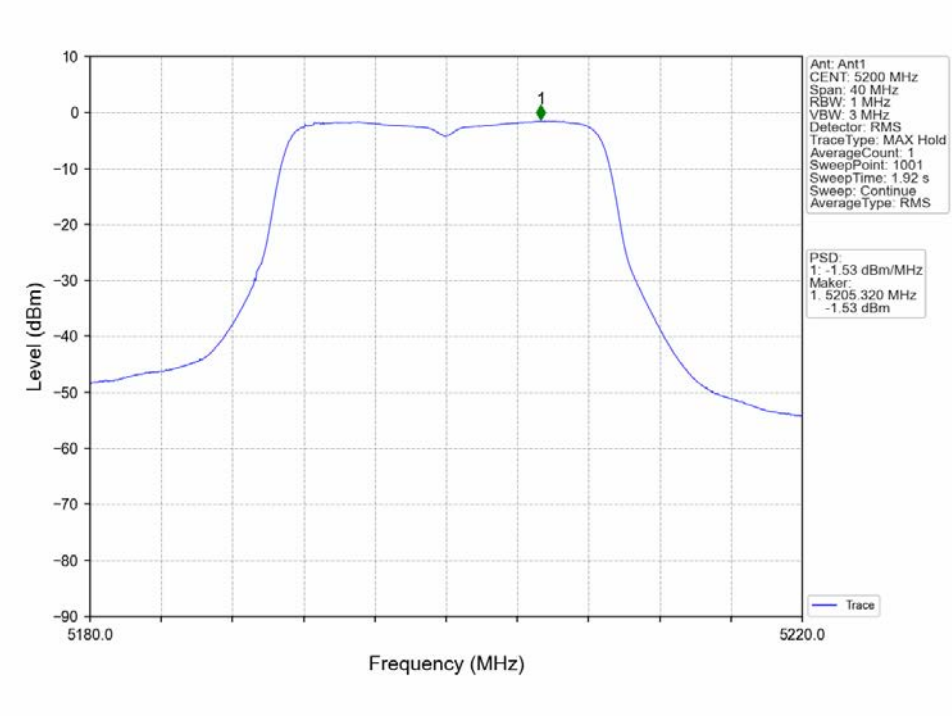
802.11n(HT20)_MCH_5200MHz_Ant1_NTNV



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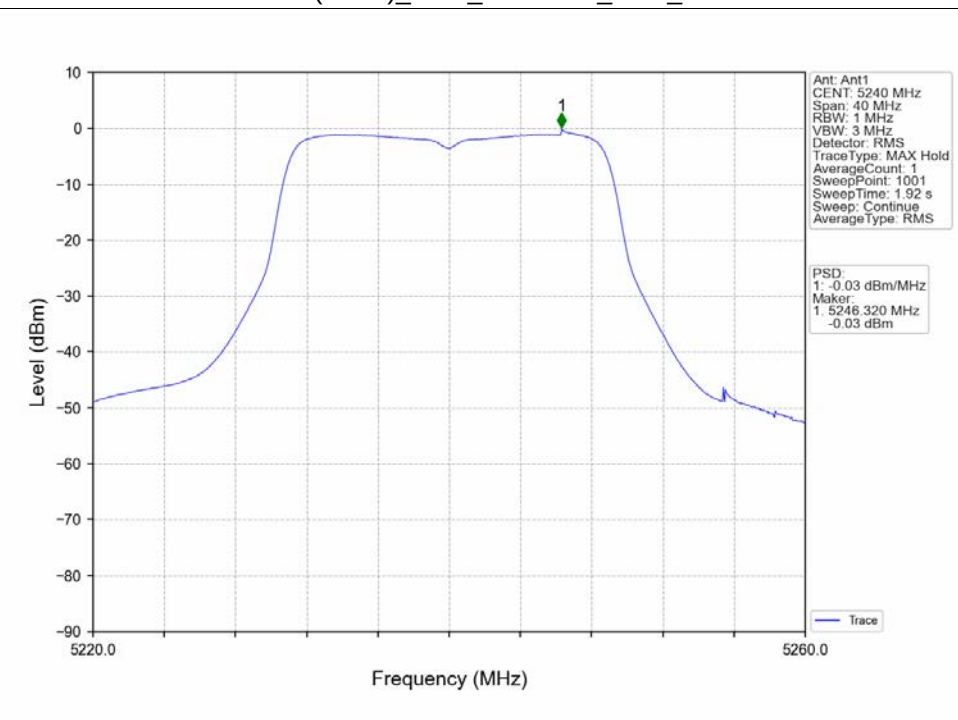

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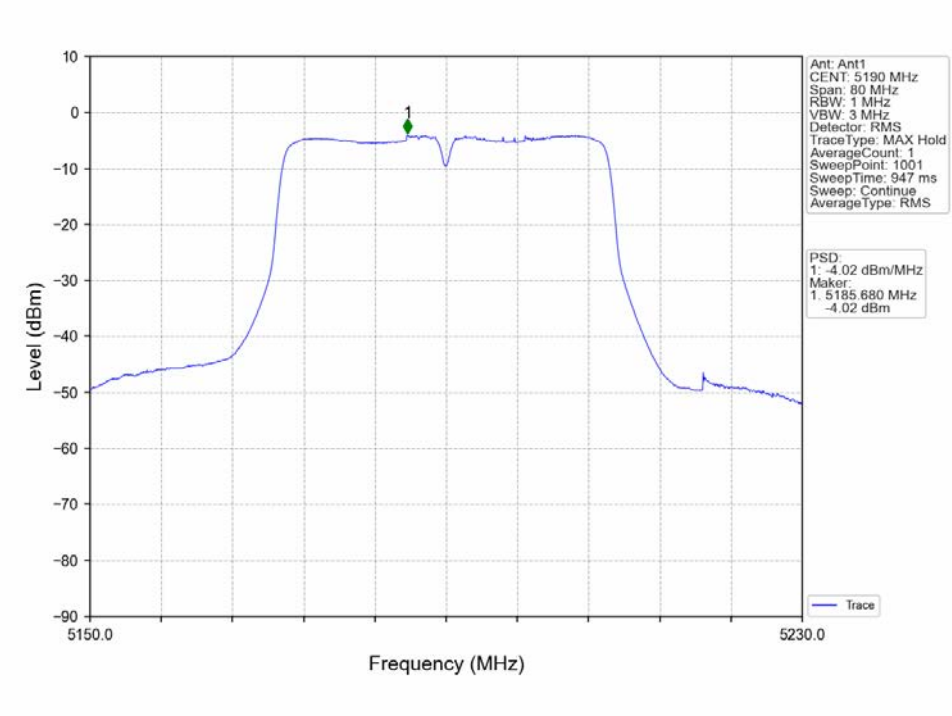
802.11n(HT40)_LCH_5190MHz_Ant1_NTNV



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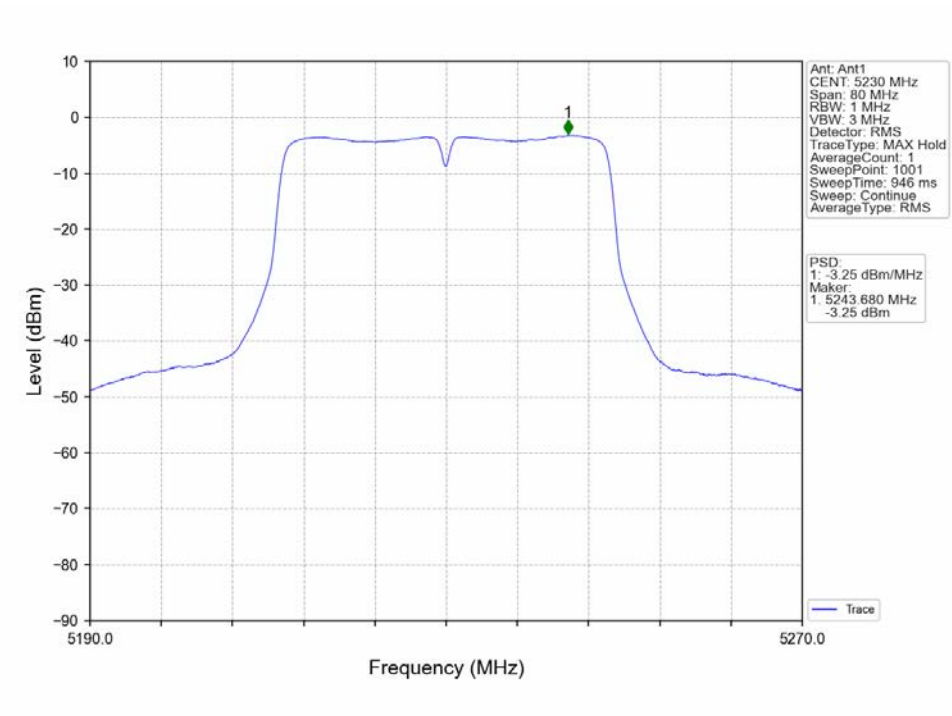

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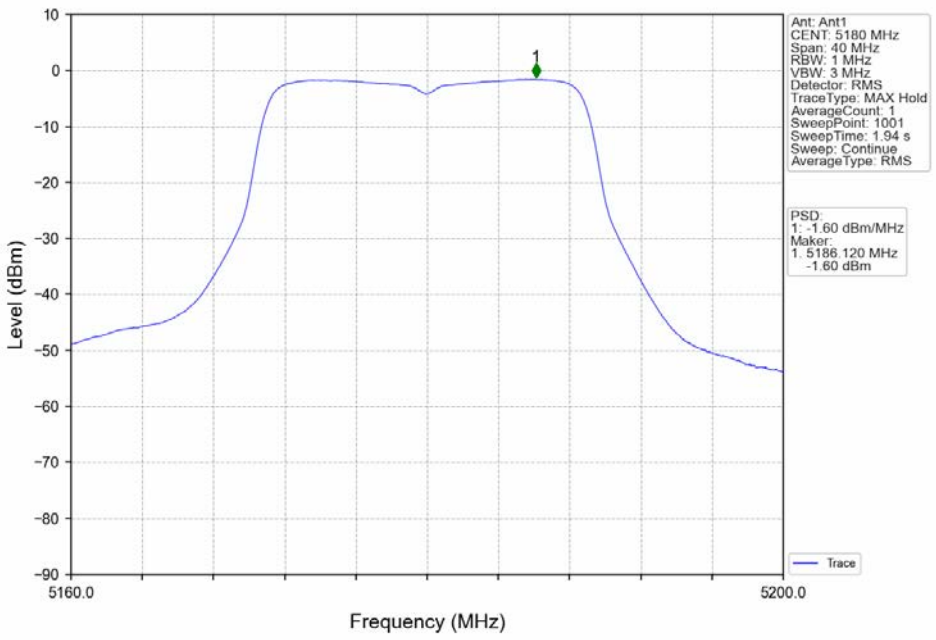
802.11ac(VHT20)_LCH_5180MHz_Ant1_NTNV



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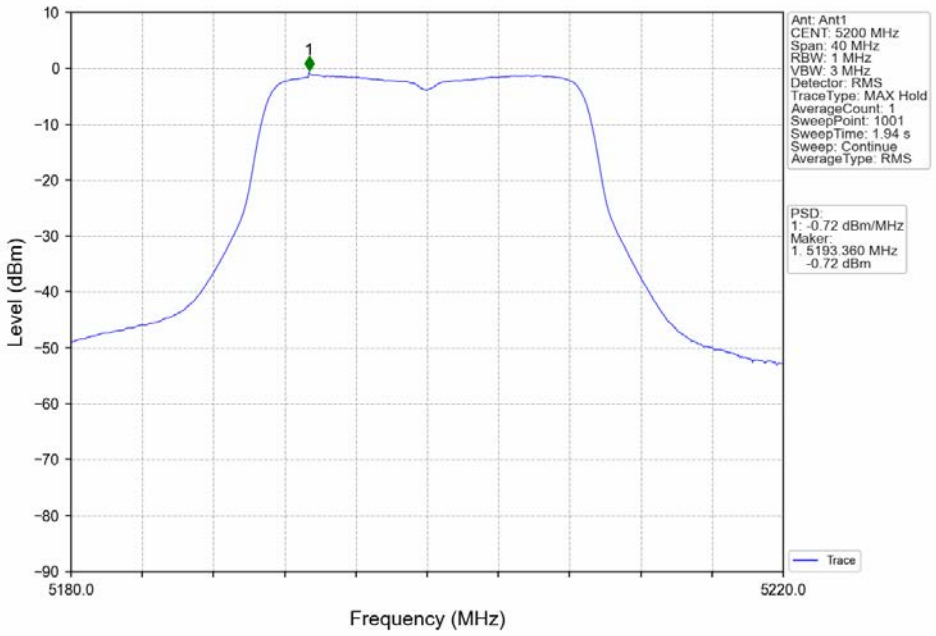

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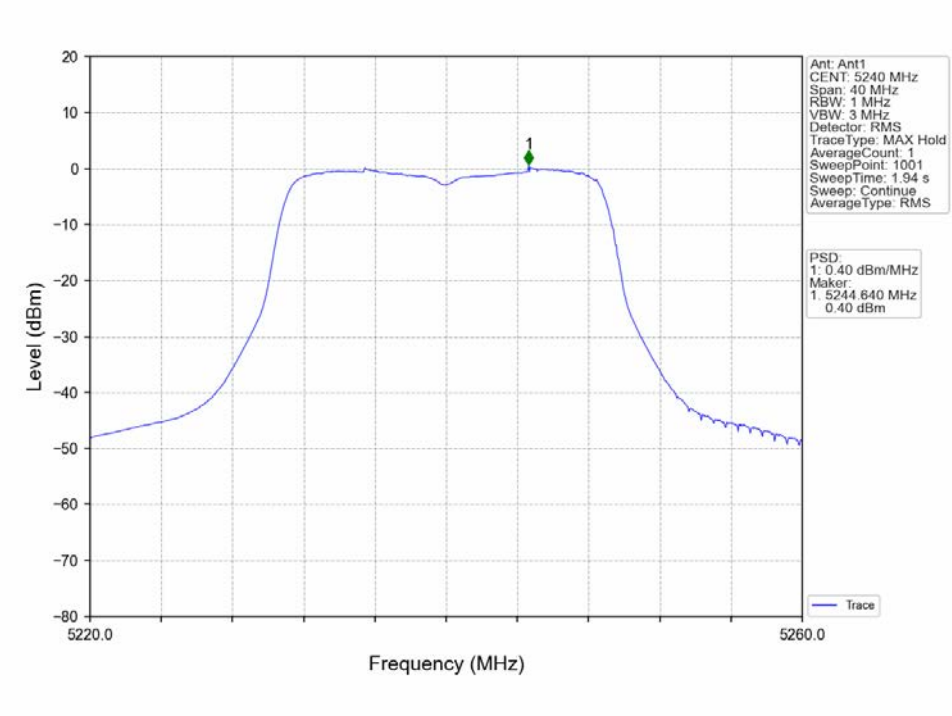
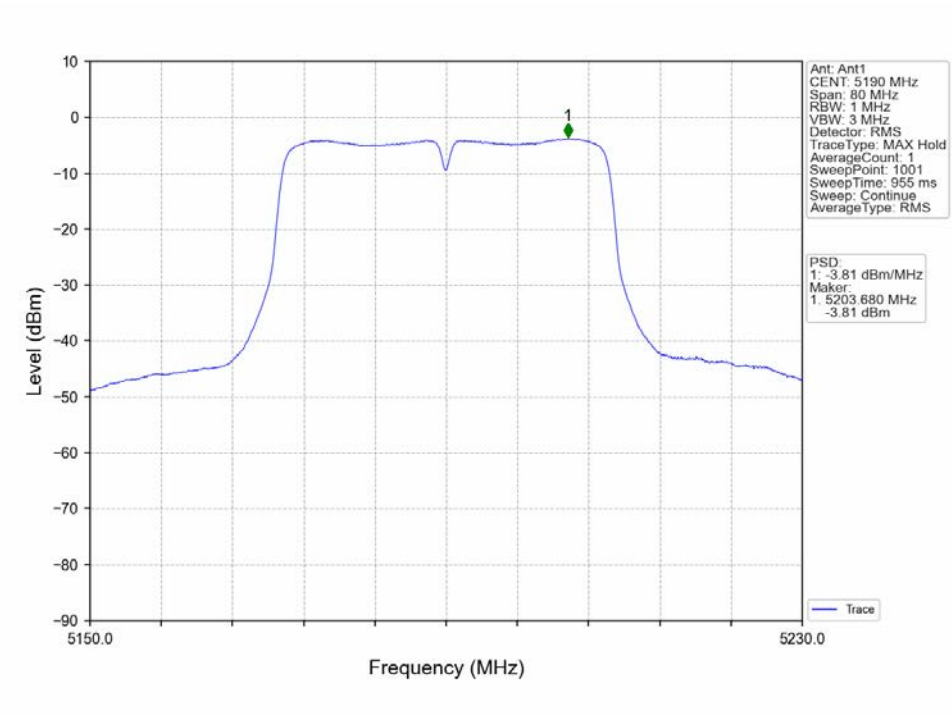


802.11ac(VHT40)_LCH_5190MHz_Ant1_NTNV



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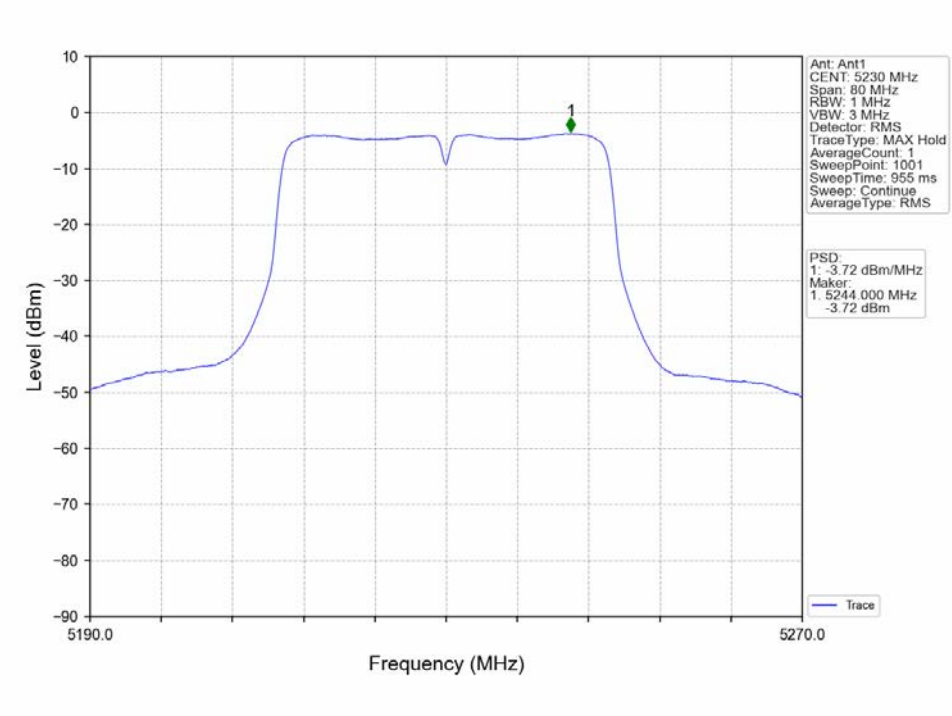
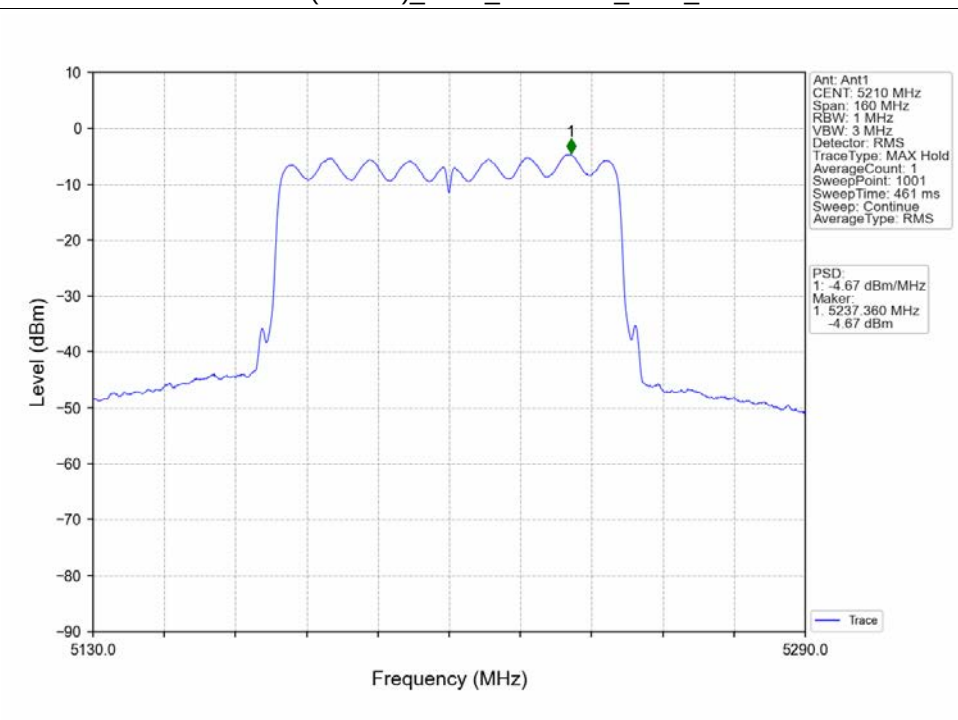
802.11ac(VHT40)_HCH_5230MHz_Ant1_NTNV



802.11ac(VHT80)_MCH_5210MHz_Ant1_NTNV



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5. Frequency Stability

5.1 Ant1

5.1.1 Test Result

Ant1							
Mode	TX Type	Frequency (MHz)	Temperature (°C)	Voltage (VAC)	Measured Frequency (MHz)	Limit (MHz)	Verdict
802.11a	SISO	5180	20	3.27	5179.960	5150 to 5250	Pass
				3.85	5179.960	5150 to 5250	Pass
				4.42	5179.980	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5180.000	5150 to 5250	Pass
			10	3.85	5179.960	5150 to 5250	Pass
			30	3.85	5180.000	5150 to 5250	Pass
			40	3.85	5180.000	5150 to 5250	Pass
			50	/	/	/	/
		5200	20	3.27	5200.080	5150 to 5250	Pass
				3.85	5200.060	5150 to 5250	Pass
				4.42	5200.020	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5200.040	5150 to 5250	Pass
			10	3.85	5200.020	5150 to 5250	Pass
			30	3.85	5200.040	5150 to 5250	Pass
			40	3.85	5200.040	5150 to 5250	Pass
			50	/	/	/	/
		5240	20	3.27	5240.040	5150 to 5250	Pass
				3.85	5239.980	5150 to 5250	Pass
				4.42	5239.980	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/

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			0	/	/	/	/
			5	3.85	5240.000	5150 to 5250	Pass
			10	3.85	5239.960	5150 to 5250	Pass
			30	3.85	5240.000	5150 to 5250	Pass
			40	3.85	5240.020	5150 to 5250	Pass
			50	/	/	/	/
802.11n (HT20)	SISO	5180	20	3.27	5180.000	5150 to 5250	Pass
				3.85	5180.000	5150 to 5250	Pass
				4.42	5180.040	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5180.040	5150 to 5250	Pass
			10	3.85	5180.000	5150 to 5250	Pass
			30	3.85	5180.000	5150 to 5250	Pass
			40	3.85	5180.020	5150 to 5250	Pass
			50	/	/	/	/
		5200	20	3.27	5200.040	5150 to 5250	Pass
				3.85	5200.040	5150 to 5250	Pass
				4.42	5200.040	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5200.000	5150 to 5250	Pass
			10	3.85	5199.980	5150 to 5250	Pass
			30	3.85	5200.020	5150 to 5250	Pass
			40	3.85	5200.040	5150 to 5250	Pass
			50	/	/	/	/
		5240	20	3.27	5240.000	5150 to 5250	Pass
				3.85	5240.040	5150 to 5250	Pass
				4.42	5239.980	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5240.000	5150 to 5250	Pass
			10	3.85	5240.000	5150 to 5250	Pass

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			30	3.85	5240.020	5150 to 5250	Pass
			40	3.85	5240.020	5150 to 5250	Pass
			50	/	/	/	/
802.11n (HT40)	SISO	5190	20	3.27	5190.080	5150 to 5250	Pass
				3.85	5190.080	5150 to 5250	Pass
				4.42	5190.120	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5190.080	5150 to 5250	Pass
			10	3.85	5190.080	5150 to 5250	Pass
			30	3.85	5190.000	5150 to 5250	Pass
			40	3.85	5190.000	5150 to 5250	Pass
			50	/	/	/	/
		5230	20	3.27	5230.040	5150 to 5250	Pass
				3.85	5230.040	5150 to 5250	Pass
				4.42	5230.040	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5230.080	5150 to 5250	Pass
			10	3.85	5230.040	5150 to 5250	Pass
			30	3.85	5230.080	5150 to 5250	Pass
			40	3.85	5230.040	5150 to 5250	Pass
			50	/	/	/	/
802.11ac (VHT20)	SISO	5180	20	3.27	5180.020	5150 to 5250	Pass
				3.85	5180.040	5150 to 5250	Pass
				4.42	5180.020	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5180.060	5150 to 5250	Pass
			10	3.85	5180.020	5150 to 5250	Pass
			30	3.85	5179.980	5150 to 5250	Pass
			40	3.85	5180.060	5150 to 5250	Pass
			50	/	/	/	/

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		5200	20	3.27	5199.980	5150 to 5250	Pass
				3.85	5200.040	5150 to 5250	Pass
				4.42	5200.020	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5200.040	5150 to 5250	Pass
			10	3.85	5200.020	5150 to 5250	Pass
			30	3.85	5200.000	5150 to 5250	Pass
			40	3.85	5200.000	5150 to 5250	Pass
			50	/	/	/	/
		5240	20	3.27	5240.000	5150 to 5250	Pass
				3.85	5240.000	5150 to 5250	Pass
				4.42	5240.000	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5240.040	5150 to 5250	Pass
			10	3.85	5240.020	5150 to 5250	Pass
			30	3.85	5240.020	5150 to 5250	Pass
			40	3.85	5240.020	5150 to 5250	Pass
			50	/	/	/	/
802.11ac (VHT40)	SISO	5190	20	3.27	5190.000	5150 to 5250	Pass
				3.85	5190.040	5150 to 5250	Pass
				4.42	5190.040	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5190.080	5150 to 5250	Pass
			10	3.85	5190.080	5150 to 5250	Pass
			30	3.85	5190.080	5150 to 5250	Pass
			40	3.85	5190.080	5150 to 5250	Pass
			50	/	/	/	/
		5230	20	3.27	5230.000	5150 to 5250	Pass
				3.85	5230.040	5150 to 5250	Pass
				4.42	5230.000	5150 to 5250	Pass

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			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5230.120	5150 to 5250	Pass
			10	3.85	5230.080	5150 to 5250	Pass
			30	3.85	5230.080	5150 to 5250	Pass
			40	3.85	5230.120	5150 to 5250	Pass
			50	/	/	/	/
802.11ac (VHT80)	SISO	5210	20	3.27	5210.075	5150 to 5250	Pass
				3.85	5210.075	5150 to 5250	Pass
				4.42	5210.150	5150 to 5250	Pass
			-30	/	/	/	/
			-20	/	/	/	/
			-10	/	/	/	/
			0	/	/	/	/
			5	3.85	5210.000	5150 to 5250	Pass
			10	3.85	5210.150	5150 to 5250	Pass
			30	3.85	5210.075	5150 to 5250	Pass
			40	3.85	5210.000	5150 to 5250	Pass
			50	/	/	/	/

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