

FCC UNII RF TEST REPORT



Test Report Number.....	GBX-19011401-LC-RF-FCC-UNII Rev1.0
Applicant.....	MyGnar, Inc.
Applicant Address.....	2525 MAIN ST, SUITE 300, Santa Monica, CA 90405 US
Product Name.....	GNARBOX 2.0 SSD
Model Number.....	GBXV2
Family Product/Model.....	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2
Date of EUT received.....	01/21/2019
Date of Test.....	01/23/2019 – 02/12/2019
Report Issue Date.....	03/12/2019
Test Standards.....	47CFR Part 15.407: 2018
Test Result.....	Pass

Issued By:

Vista Laboratories

1261 Puerta Del Sol, San Clemente, CA 92673 USA

www.vista-compliance.com

Note that the results contained in this report relate only to the items tested and were obtained in the period between the date of initial receipt of samples and the date of issue of the report. This report is not to be reproduced by any means except in full and in any case not without the written approval of Vista Laboratories.

Tested by:

Sherwin Lee/Test Engineer

Approved By:

David Zhang/Technical Manager

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Laboratory Introduction

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As your partner, Vista investigates appropriate test standards, develops test plans, performs troubleshooting & failure analysis, reviews documentation, and provides test reports for a complete compliance testing and certification package.



17025 Product Testing Accreditation Certificate

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REVISION HISTORY

Revision	Issue Date	Description	Note
Original	02/13/2019	Original release	N/A
Rev1.0	03/12/2019	Update EUT model	N/A

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1 General Information

1.1 Applicant

Applicant:	MyGnar, Inc.
Applicant address:	2525 MAIN ST, SUITE 300, Santa Monica, CA 90405 US
Manufacturer:	MyGnar, Inc.
Manufacturer Address:	2525 MAIN ST, SUITE 300, Santa Monica, CA 90405 US

1.2 Product information

Product Name	GNARBOX 2.0 SSD
Model Number	GBXV2
Family Model Number	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2
Serial Number	N/A
Frequency Band	FCC: - 802.11b/g/n-20MHz: 2412-2462MHz - 802.11n-40MHz: 2422-2452MHz - 802.11a/n-20MHz: 5180-5320MHz, 5500-5720MHz, 5725-5825MHz - 802.11n-40MHz: 5190-5310MHz, 5510-5710MHz, 5755-5795MHz - 802.11ac: 5210-5290MHz, 5530-5690MHz, 5775MHz
Type of modulation	802.11b: DSSS (CCK, DQPSK, DBPSK) 802.11g: OFDM-CCK (BPSK, QPSK, 16QAM, 64QAM) 802.11a/n/ac: OFDM (BPSK, QPSK, 16QAM, 64QAM, 256QAM)
Equipment Class/ Category	DTS, UNII
Maximum output power	See test result
Antenna Information	PCB antenna (-10 dBi – 2.4GHz, -5 dBi – 5GHz)
Clock Frequencies	2.40GHZ (CPU)
Port/Connectors	2x USB-C, SD & Micro HDMI ports
Input Power	Battery powered: DC 7.8V, 2.5A
Power Adapter Manu/Model	KYTW40P01
Power Adapter SN	N/A
Hardware version	GBXV2, GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2
Software version	v2.0.0
Simultaneous Transmission	N/A
Additional Info	1. EUT is DFS client device without radar detection capability. 2. The family models include GBXV2, GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2. The only difference between these models are the capacity of the SSD which varies from 128GB to 2048GB while the electrical parameters of the SSD including read/write speed, etc, are identical in different models. Hence the difference on SSD capacity does not affect any product Radio or EMC performance. Only the worst case representative testing result on model GBXV2 is presented in current report.

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1.3 Test standard and method

Test standard	47CFR Part 15.407: 2018
Test method	ANSI C63.10: 2013 789033 D02 General UNII Test Procedures New Rules v02r01

1.4 Test Purpose and statement

The purpose of this test report is intended to demonstrate the compliance of product listed in section 1.2, received from company listed in section 1.1, to the requirements of standard and method listed in section 1.3. Based on our test results, we conclude that the product tested complies with the requirements of the standards indicated.

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2 Test site information

Lab performing tests	Vista Laboratories
Lab Address	1261 Puerta Del Sol, San Clemente, CA 92673 USA
Phone Number	+1 (949) 393-1123
Website	www. Vista-compliance.com

Test condition	Test Engineer	Test Environment	Test Date
RF conducted	Sherwin Lee	23.5°C / 58.2%/996 mbar	01/23/2019 – 02/12/2019
Radiated	Sherwin Lee	23.5°C / 58.2%/996 mbar	01/23/2019 – 02/12/2019

3 Modification of EUT

The EUT is an engineering test sample loaded with RF testing software specifically designed to support the RF TX/RX measurement in different aspects.

4 Test configuration and operation

4.1 EUT test configuration

EUT is powered by external DC power supply through standard banana plug cables with mini-grabbers. EUT's Rf antenna port is connected to spectrum analyzer or signal generator through IPEX MHF4 RF cable. The operation, control and display are done by the built-in buttons and OLED display.

4.2 EUT test channel

Radio	Channel	Radio	Channel
802.11-a	5180	802.11-a	5260
802.11-a	5200	802.11-a	5280
802.11-a	5240	802.11-a	5320
802.11-n-20	5180	802.11-n-20	5260
802.11-n-20	5200	802.11-n-20	5280
802.11-n-20	5240	802.11-n-20	5320
802.11-n-40	5190	802.11-n-40	5270
802.11-n-40	5230	802.11-n-40	5310
802.11-ac-80	5210	802.11-ac-80	5290

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Radio	Channel	Radio	Channel
802.11-a	5500	802.11-a	5745
802.11-a	5600	802.11-a	5785
802.11-a	5700	802.11-a	5825
802.11-n-20	5500	802.11-n-20	5745
802.11-n-20	5600	802.11-n-20	5785
802.11-n-20	5700	802.11-n-20	5825
802.11-n-40	5510	802.11-n-40	5755
802.11-n-40	5590	802.11-n-40	5795
802.11-n-40	5670	802.11-ac-80	5775
802.11-ac-80	5530		

Radio	Channel		
802.11-a	5720		
802.11-n-20	5720		
802.11-n-40	5710		
802.11-ac-80	5690		

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4.3 Supporting Equipment

Index	Description	Model	S/N	Brand	Remark
1	AC/DC adapter	KYTW40P01	N/A	Keyuantai	N/A

4.4 EUT setup diagram



4.5 EUT operation

The operation, control and display are done by the built-in buttons and OLED display.

4.6 Test software

Index	Description	Remark
1	Built-in RF test software	To set EUT into continuous TX and RX mode under different modulation, data rate and channel, etc.
2	EMISoft Vasona 6.0049	EMC/Spurious emission test software used during testing

5 EUT and test setup pictures

5.1 EUT pictures



EUT Top View



EUT Bottom View



EUT Front View



EUT Rear View



EUT Left View

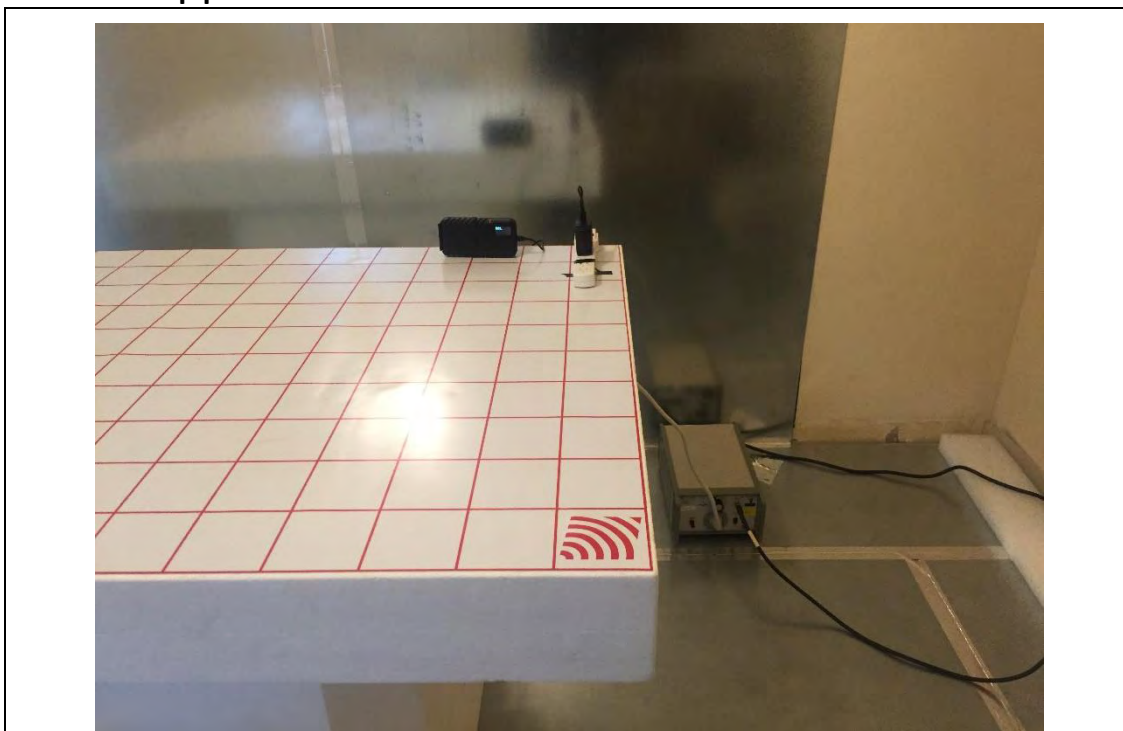


EUT Right View

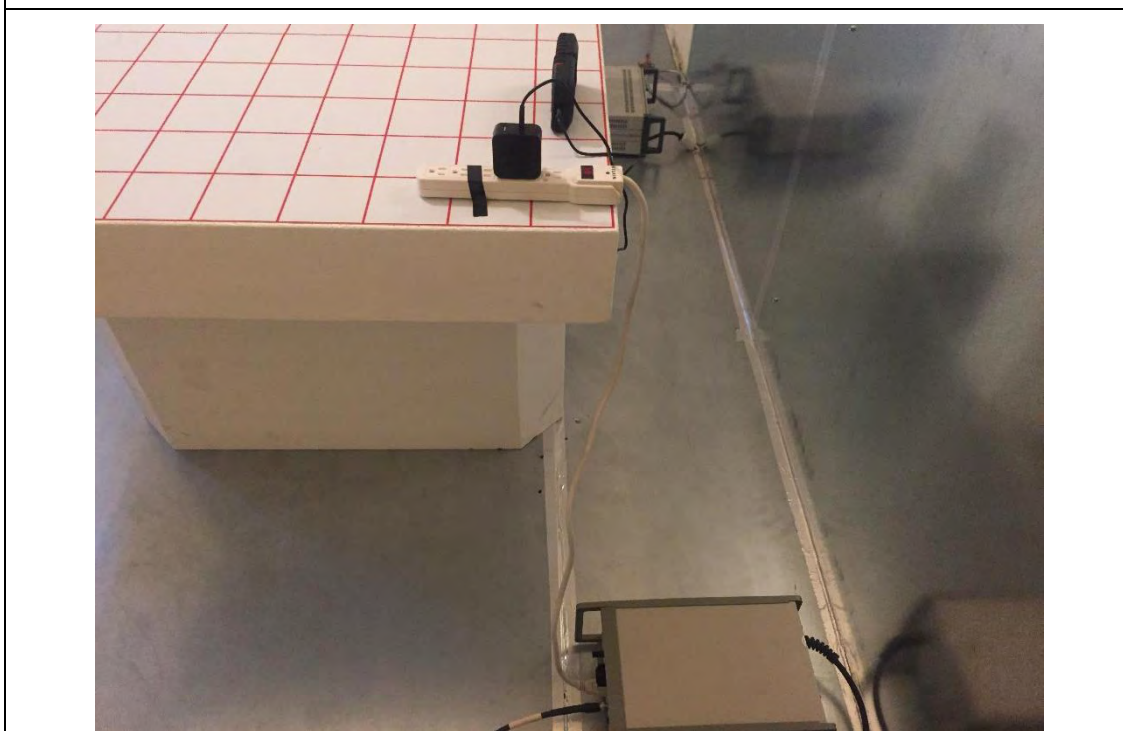
Report Number:	GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product:	GNARBOX 2.0 SSD
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5.2 EUT test setup pictures

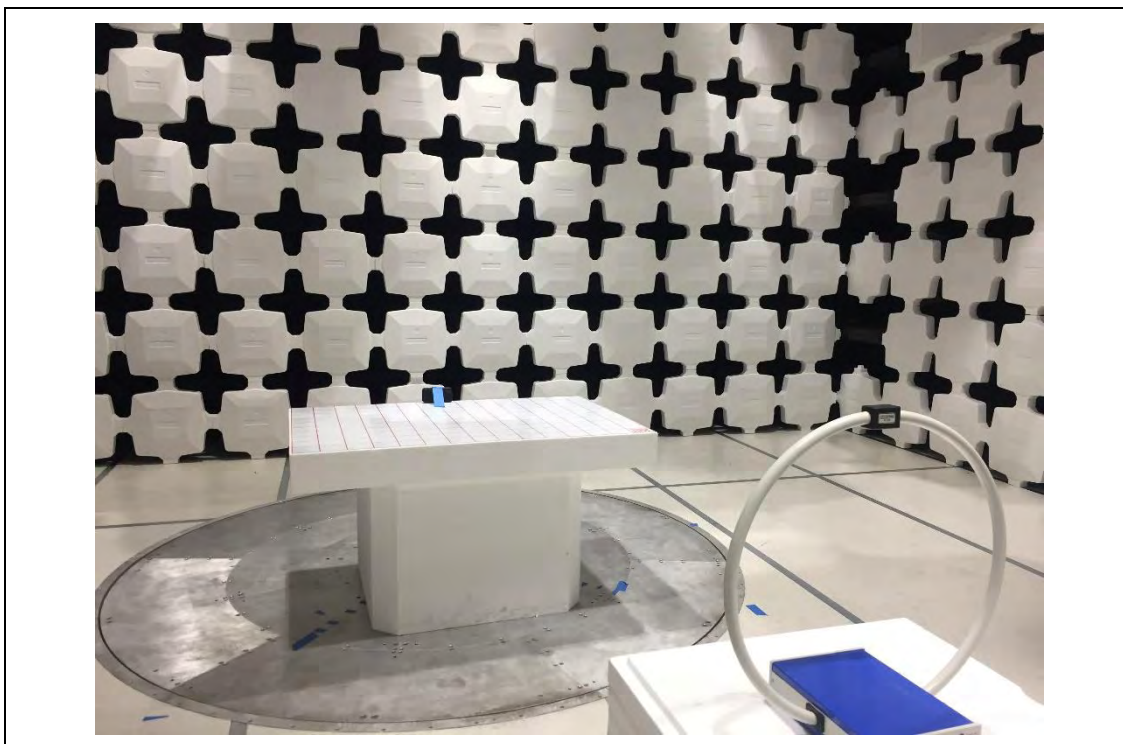


AC Line Conducted Emission setup – Front

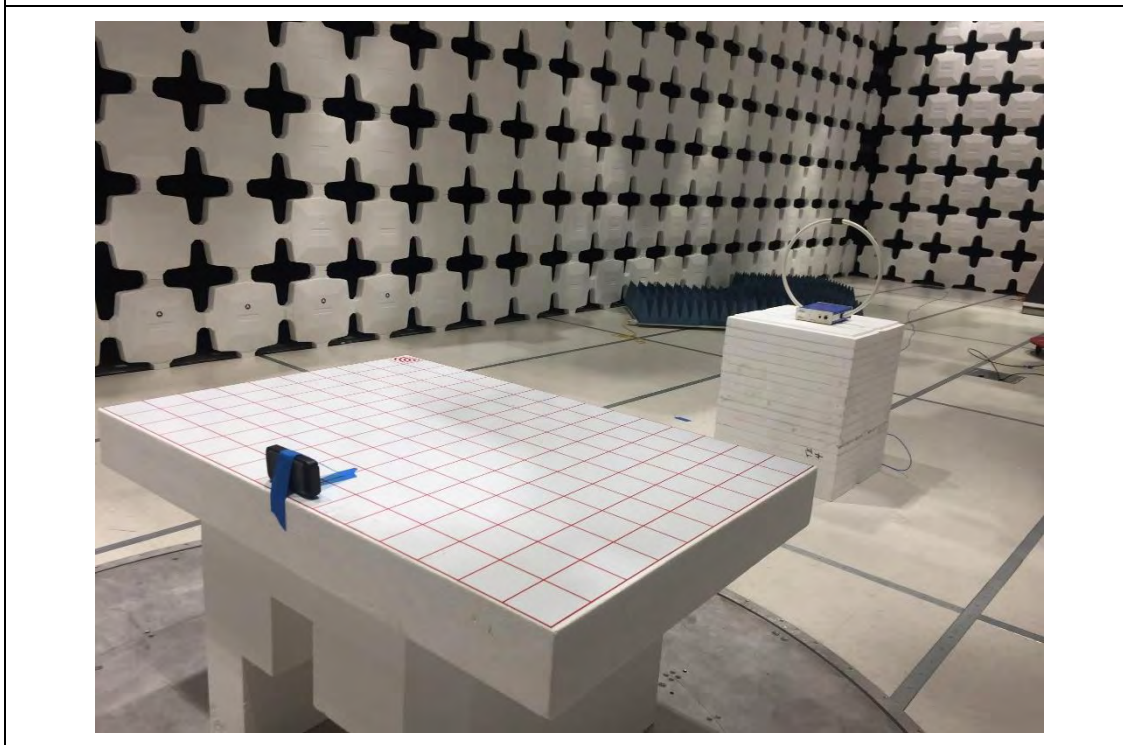


AC Line Conducted Emission setup – Rear

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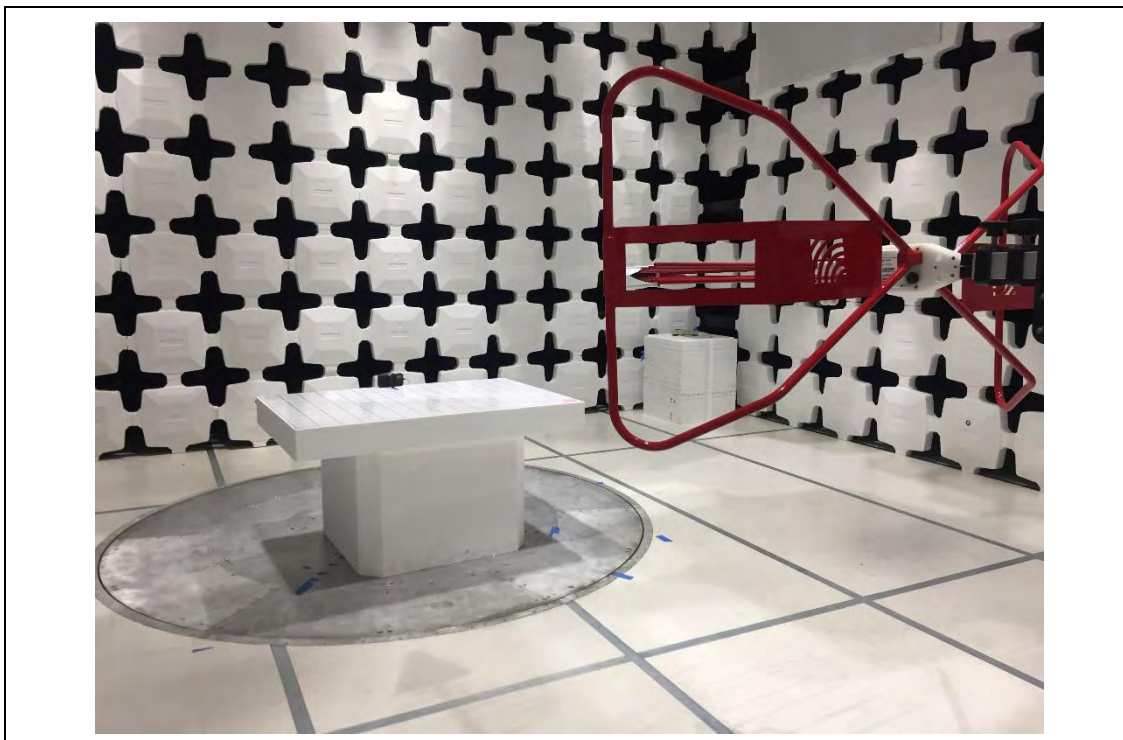


Radiated Emissions Below 30MHz setup – Front

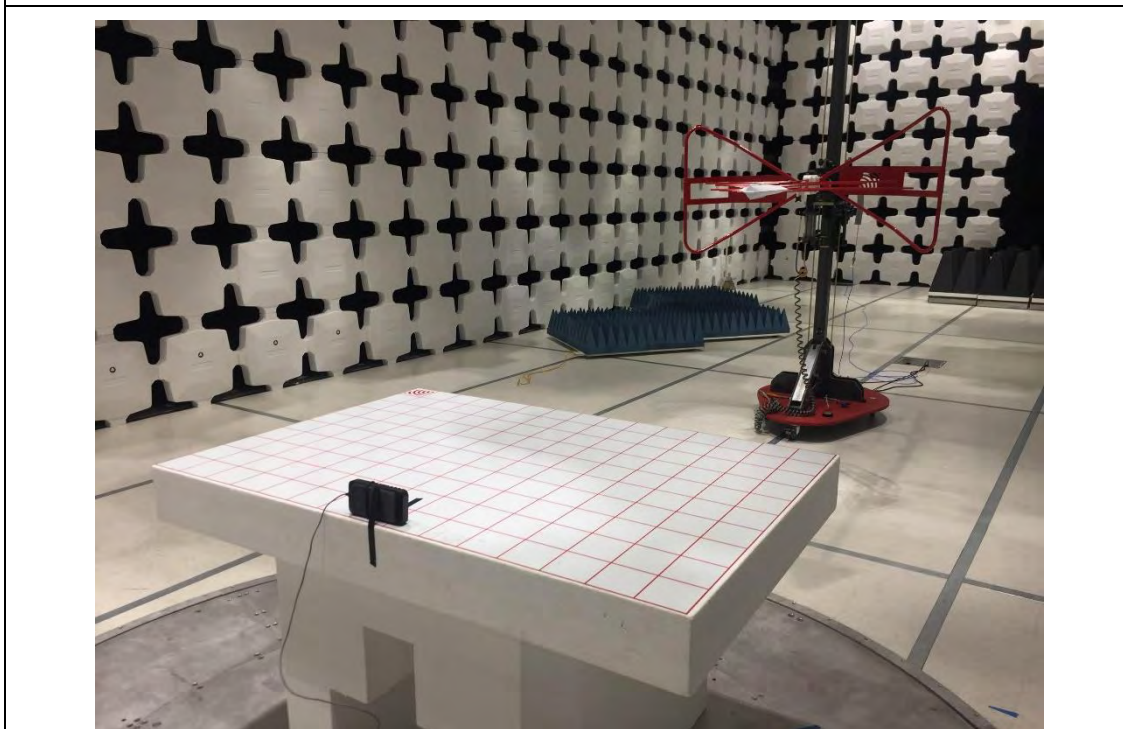


Radiated Emissions Below 30MHz setup – Rear

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Product:	GNARBOX 2.0 SSD
Model Number:	GBXV2
Family Model:	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2

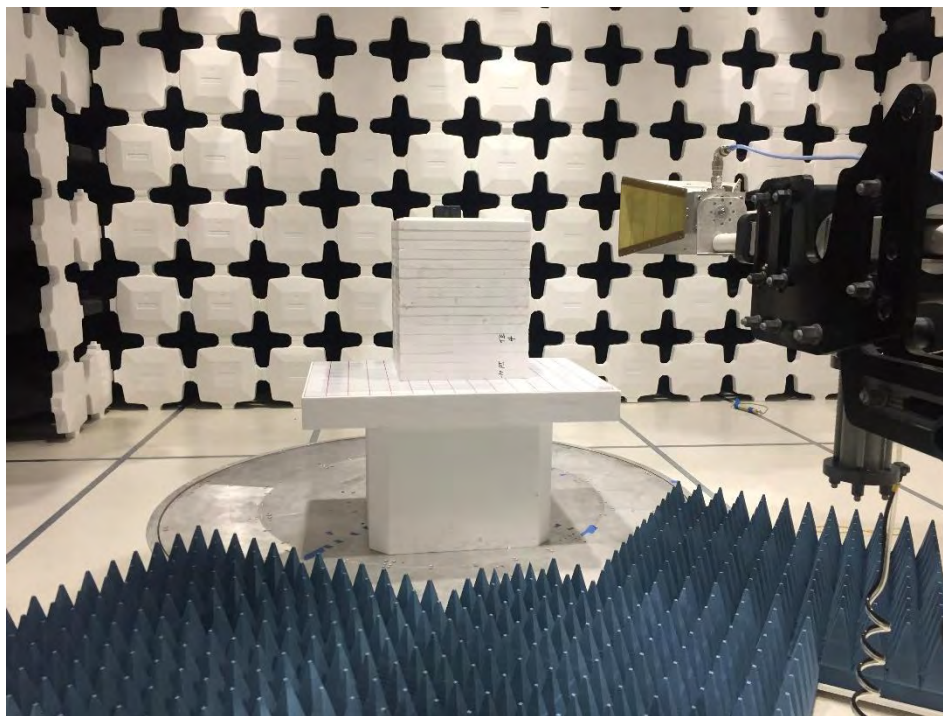


Radiated Emissions Below 1GHz setup – Front

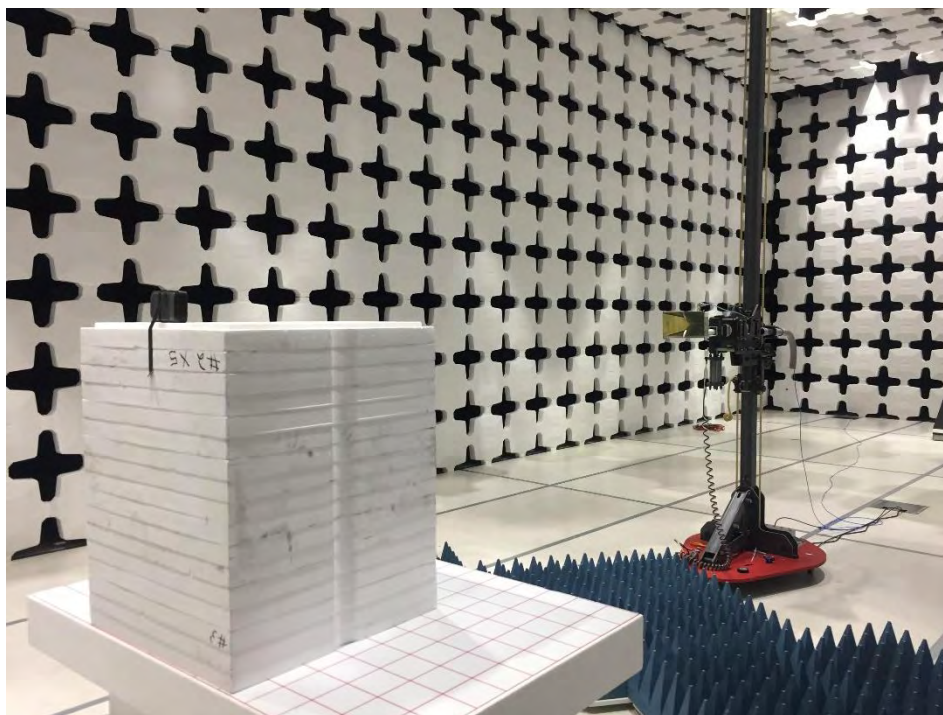


Radiated Emissions Below 1GHz setup – Rear

Report Number:	GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product:	GNARBOX 2.0 SSD
Model Number:	GBXV2
Family Model:	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



Radiated Emissions Above 1GHz setup – Front



Radiated Emissions Above 1GHz setup – Rear

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6 Test Summary

FCC Rules	Test Item	Section	Verdict
§15.203	Antenna Requirement	8.1	Pass
§15.407(e)	6 dB Bandwidth	8.2	Pass
§15.407(a)	26 dB Bandwidth	8.3	Pass
§15.407(a)	Conducted Maximum Output Power	8.5	Pass
§15.407(a)	Power Spectral Density	8.6	Pass
§15.407(c)	Automatically Discontinue Transmission	8.7	Pass
§15.205, §15.209, §15.407(b)	Radiated Emissions & Unwanted Emissions into Restricted Frequency Bands	8.8	Pass
§15.207 (a)	AC Power Line Conducted Emissions	8.9	Pass

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7 Uncertainty of Measurement

Test item	Measurement Uncertainty (dB)
RF Output Power (Conducted)	±1.2 dB
Power Spectral Density	±0.9 dB
Unwanted Emission (conducted)	±2.6 dB
Occupied Channel Bandwidth	±5 %
Radiated Emission (9KHz-30MHz)	±3.5 dB
Radiated Emission (30MHz-1GHz)	±4.6 dB
Radiated Emission (1-18GHz)	±4.9 dB
Radiated Emission (18-40GHz)	±3.5 dB

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8 Test summary and result

8.1 Antenna Requirement

8.1.1 Requirement

Per § 15.203, an intentional radiator shall be designed to ensure that no antenna other than that furnished by the responsible party shall be used with the device. The use of a permanently attached antenna or of an antenna that uses a unique coupling to the intentional radiator shall be considered sufficient to comply with the provisions of this section. The manufacturer may design the unit so that a broken antenna can be replaced by the user, but the use of a standard antenna jack or electrical connector is prohibited.

8.1.2 Result

Analysis:

- EUT has two removable PCB trace antennas which connect to the main board through unique IPEX MHF4 RF connectors.
- Both main board and antenna are equipped with IPEX MHF4 connector. No standard RF connector is used.

Conclusion:

EUT complies with antenna requirement in § 15.203.

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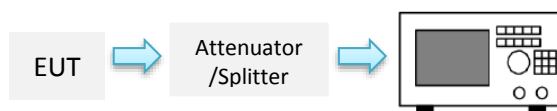
8.2 6 d Bandwidth

8.2.1 Requirement

§ 15.407 (e)

Within the 5.725-5.85 GHz band, the minimum 6 dB bandwidth of U-NII devices shall be at least 500 kHz.

8.2.2 Test setup



8.2.3 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01, Section C) Emission bandwidth.

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 6 dB, if the functionality described above (i.e., RBW = 100 kHz, VBW $\geq 3 \times$ RBW, peak detector with maximum hold) is implemented by the instrumentation function. When using this capability, care shall be taken so that the bandwidth measurement is not influenced by any intermediate power nulls in the fundamental emission that might be ≥ 6 dB.

1. Set RBW = 100 kHz.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Use automatic bandwidth measurement capability on instrument to obtain BW result.

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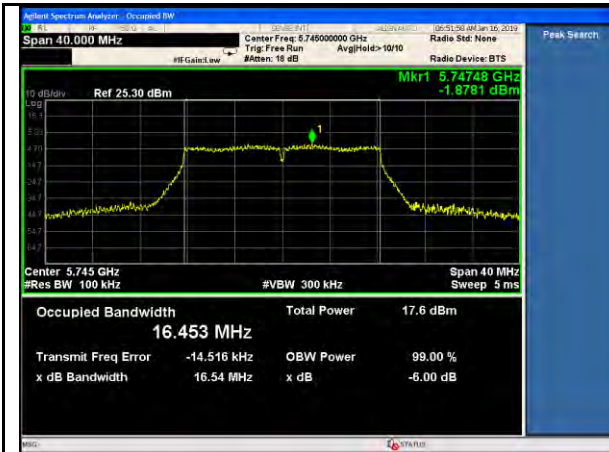


8.2.4 Test Result

For 5.7GHz band

Mode/ Bandwidth	Channel	Frequency (MHz)	Data rate	Measured Bandwidth (KHz)	Minimum Bandwidth (KHz)	Result
11a	149	5745	6Mbps	16540	500	Pass
11a	157	5785	6Mbps	16550	500	Pass
11a	165	5825	6Mbps	16540	500	Pass
11n-20M	149	5745	MCS1	17770	500	Pass
11n-20M	157	5785	MCS1	17760	500	Pass
11n-20M	165	5825	MCS1	17730	500	Pass
11n-40M	155	5755	MCS1	36420	500	Pass
11n-40M	159	5795	MCS1	36410	500	Pass
11ac-80M	155	5775	VHC-MCS1	76570	500	Pass

8.2.5 Test Plots



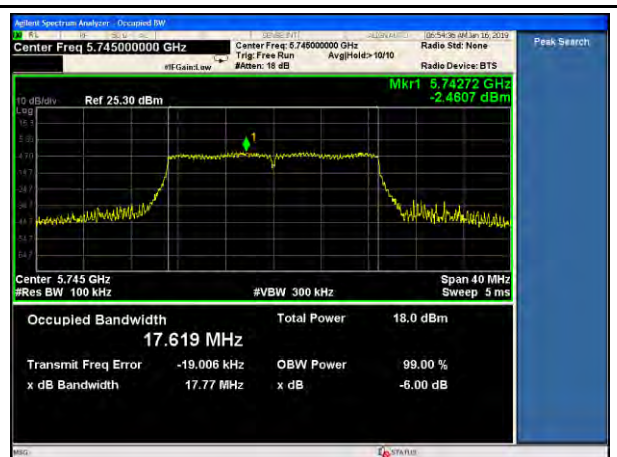
6dB BW 802.11a 5745MHz



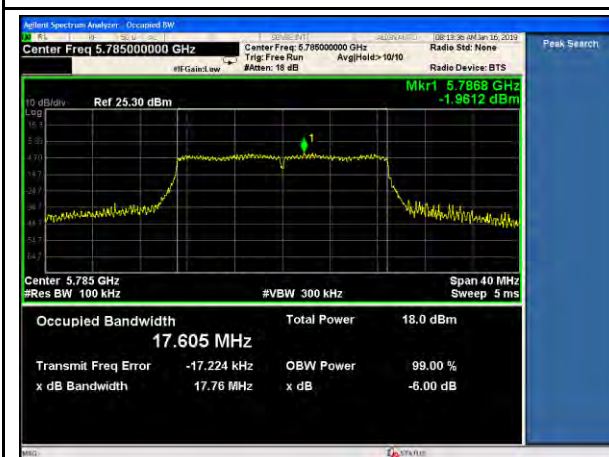
6dB BW 802.11a 5785MHz



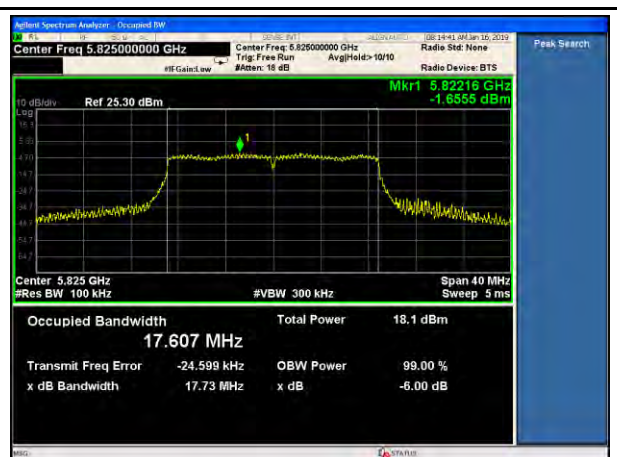
6dB BW 802.11a 5825MHz



6dB BW 802.11n-20M 5745MHz

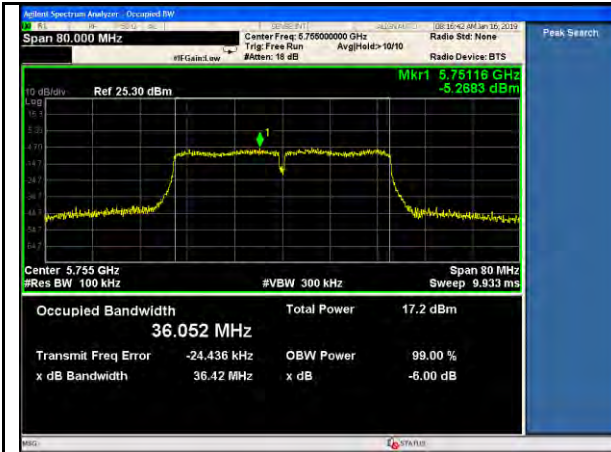


6dB BW 802.11n-20M 5785MHz

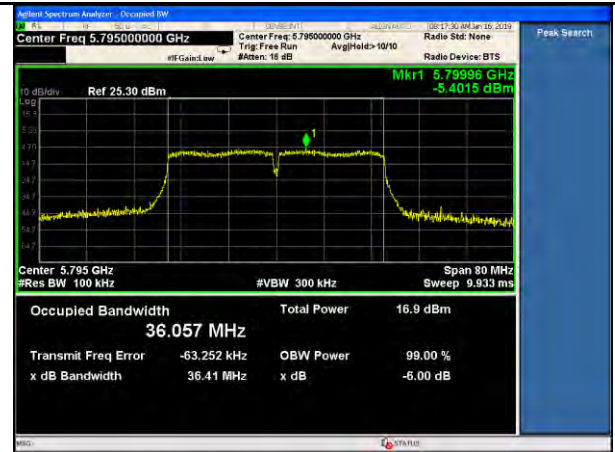


6dB BW 802.11n-20M 5825MHz

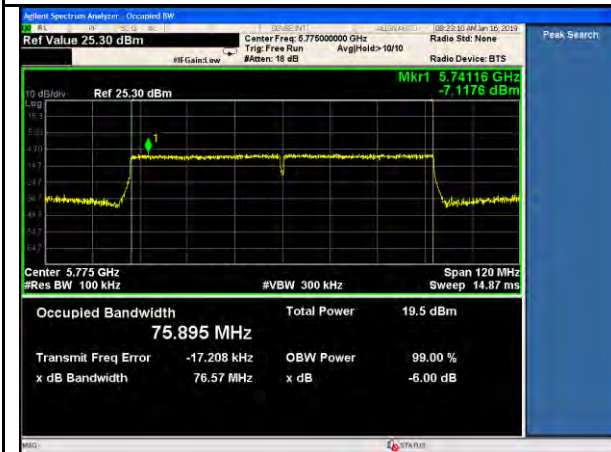
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6dB BW 802.11n-40M 5755MHz



6dB BW 802.11n-40M 5795MHz



6dB BW 802.11ac-80M 5775MHz

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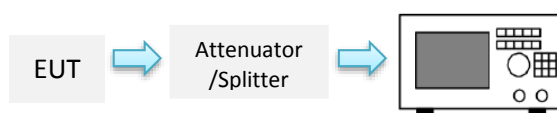
8.3 26 d Bandwidth

8.3.1 Requirement

§ 15.407 (a)

This section is for reporting purpose only. There are no restriction limits for bandwidth.

8.3.2 Test setup



8.3.3 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01, Section C) Emission bandwidth.

The automatic bandwidth measurement capability of an instrument may be employed using the X dB bandwidth mode with X set to 26 dB, if the functionality described above (i.e., RBW , VBW $\geq 3 \times$ RBW, peak detector with maximum hold) is implemented by the instrumentation function.

1. Set RBW = approximately 1% of the emission bandwidth.
2. Set the video bandwidth (VBW) $\geq 3 \times$ RBW.
3. Detector = Peak.
4. Trace mode = max hold.
5. Sweep = auto couple.
6. Allow the trace to stabilize.
7. Use automatic bandwidth measurement capability on instrument to obtain BW result.

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8.3.4 Test Result

For 5.2GHz band

Mode/ Bandwidth	Channel	Frequency (MHz)	Data rate	Measured 26 dB Bandwidth (KHz)	Minimum Bandwidth (KHz)	Result
11a	36	5180	6Mbps	19580	N/A	N/A
11a	44	5220	6Mbps	19480	N/A	N/A
11a	48	5240	6Mbps	19330	N/A	N/A
11n-20M	36	5180	MCS1	19860	N/A	N/A
11n-20M	44	5220	MCS1	19820	N/A	N/A
11n-20M	48	5240	MCS1	19850	N/A	N/A
11n-40M	38	5190	MCS1	39770	N/A	N/A
11n-40M	46	5230	MCS1	39700	N/A	N/A
11ac-80M	42	5210	VHC-MCS1	81350	N/A	N/A

For 5.3GHz band

Mode/ Bandwidth	Channel	Frequency (MHz)	Data rate	Measured 26 dB Bandwidth (KHz)	Minimum Bandwidth (KHz)	Result
11a	52	5260	6Mbps	19510	N/A	N/A
11a	60	5300	6Mbps	19390	N/A	N/A
11a	64	5320	6Mbps	19550	N/A	N/A
11n-20M	52	5260	MCS1	19880	N/A	N/A
11n-20M	60	5300	MCS1	19870	N/A	N/A
11n-20M	64	5320	MCS1	19880	N/A	N/A
11n-40M	54	5270	MCS1	40130	N/A	N/A
11n-40M	62	5310	MCS1	39800	N/A	N/A
11ac-80M	58	5290	VHC-MCS1	81340	N/A	N/A

For 5.5GHz band

Mode/ Bandwidth	Channel	Frequency (MHz)	Data rate	Measured 26 dB Bandwidth (KHz)	Minimum Bandwidth (KHz)	Result
11a	100	5500	6Mbps	19210	N/A	N/A
11a	120	5600	6Mbps	19560	N/A	N/A
11a	140	5700	6Mbps	19560	N/A	N/A
11n-20M	100	5500	MCS1	19880	N/A	N/A
11n-20M	120	5600	MCS1	19680	N/A	N/A
11n-20M	140	5700	MCS1	19710	N/A	N/A
11n-40M	102	5510	MCS1	39720	N/A	N/A
11n-40M	110	5590	MCS1	39560	N/A	N/A
11n-40M	134	5670	MCS1	39520	N/A	N/A
11ac-80M	106	5530	VHC-MCS1	81080	N/A	N/A
11ac-80M	136	5610	VHC-MCS1	81840	N/A	N/A

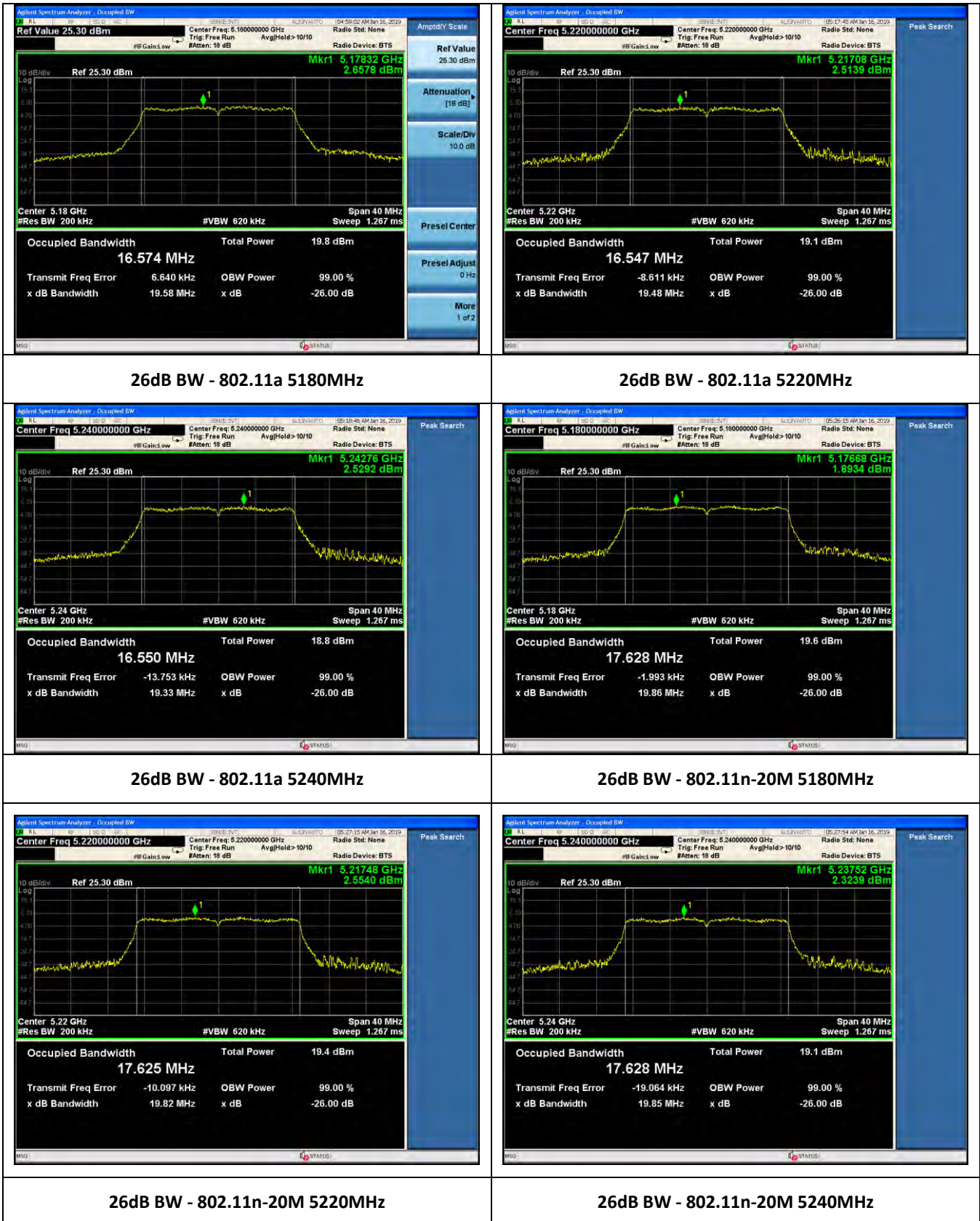
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Product:	GNARBOX 2.0 SSD
Model Number:	GBXV2
Family Model:	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



For 5.5GHz band Cross-band channel

Mode/ Bandwidth	Channel	Frequency (MHz)	Data rate	Measured 26 dB Bandwidth (KHz)	Minimum Bandwidth (KHz)	Result
11a	144	5720	6Mbps	19600	N/A	N/A
11n	144	5720	MCS1	19730	N/A	N/A
11n-40M	144	5710	MCS1	39860	N/A	N/A
11ac-80M	136	5690	VHC-MCS1	81500	N/A	N/A

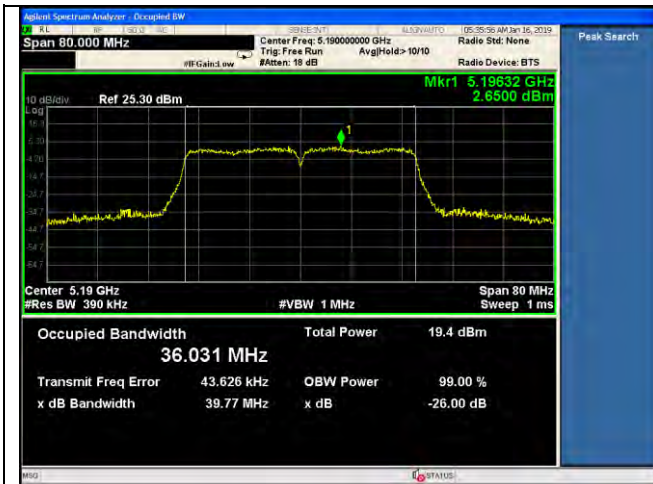
8.3.5 Test Plots



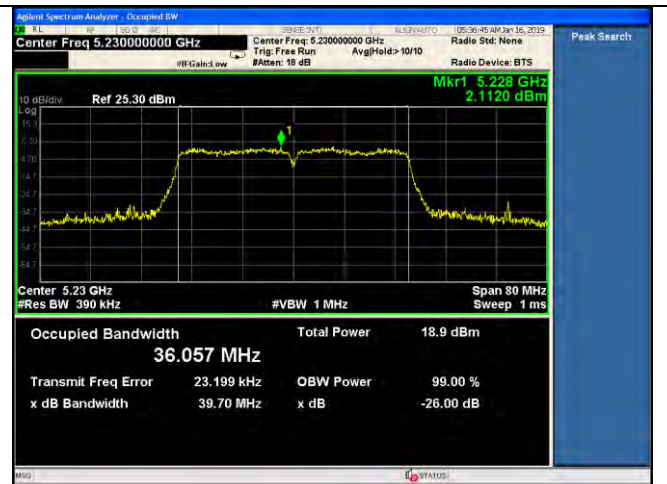
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Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



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26dB BW - 802.11n-40M 5190MHz



26dB BW - 802.11n-40M 5230MHz



26dB BW - 802.11ac-80M 5210MHz



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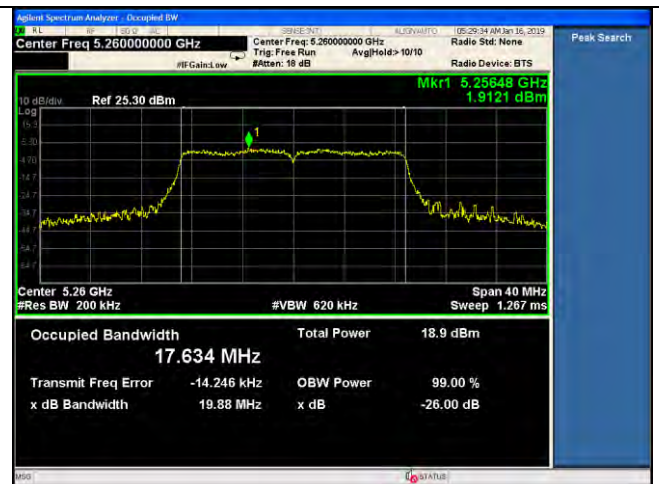
26dB BW -802.11a 5260MHz



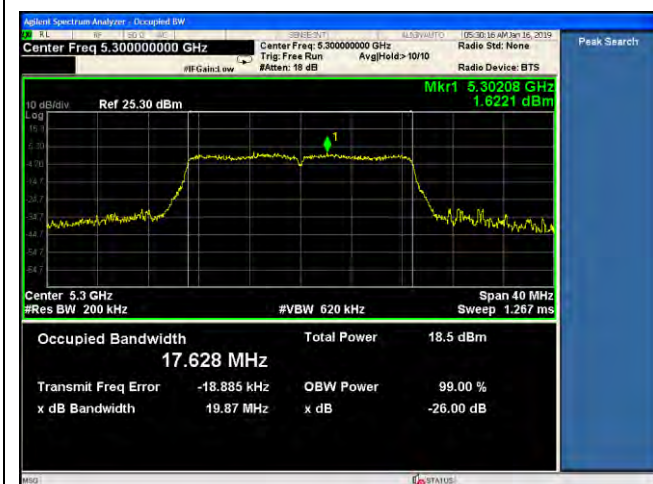
26dB BW -802.11a 5300MHz



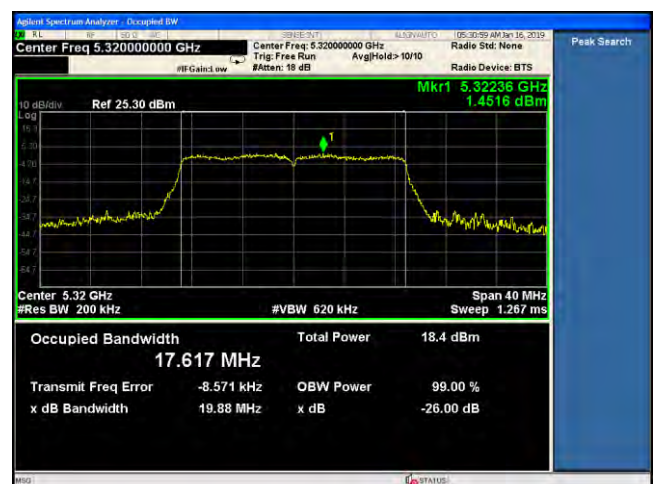
26dB BW -802.11a 5320MHz



26dB BW -802.11n-20M 5260MHz



26dB BW -802.11n-20M 5300MHz

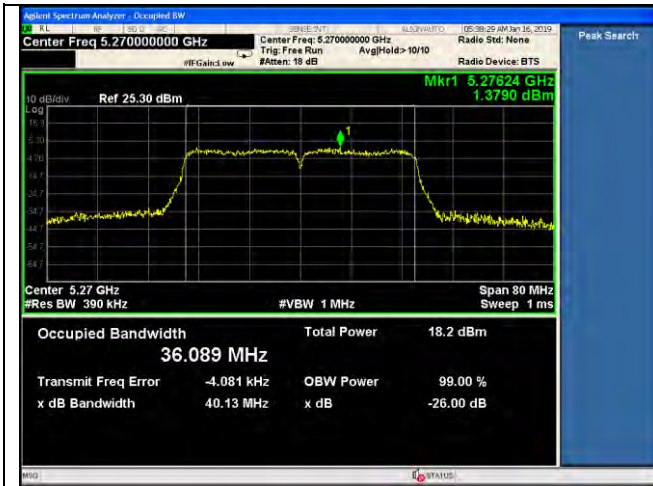


26dB BW -802.11n-20M 5320MHz

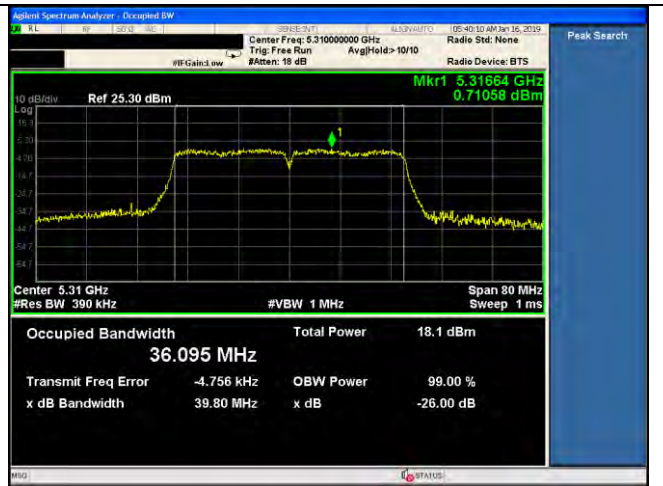
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Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



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26dB BW -802.11n-40M 5270MHz



26dB BW -802.11n-40M 5310MHz



26dB BW -802.11ac-80M 5290MHz



26dB BW -802.11a 5500MHz



26dB BW -802.11a 5600MHz



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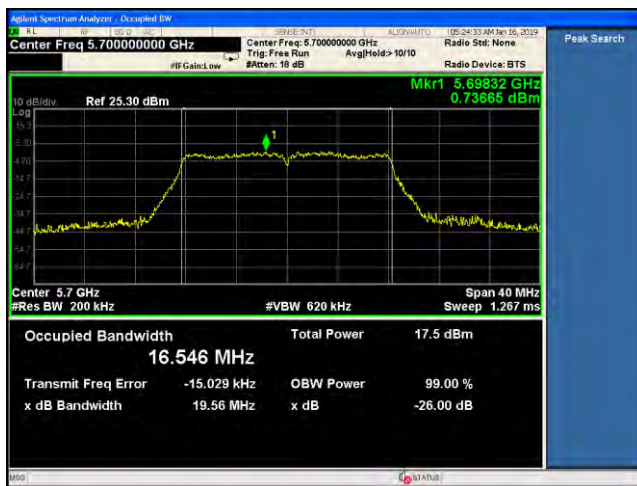
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Model Number: GBXV2

Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



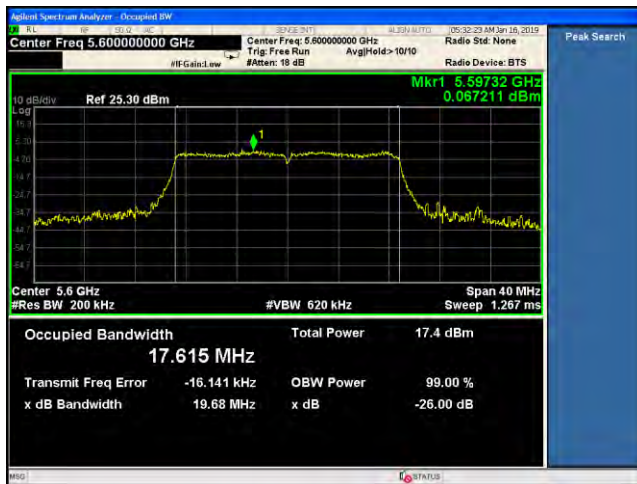
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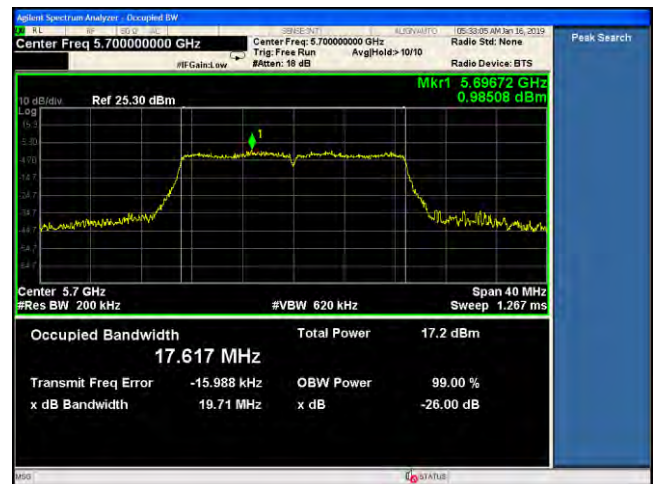
26dB BW -802.11a 5700MHz



26dB BW -802.11n-20M 5500MHz



26dB BW -802.11n-20M 5600MHz



26dB BW -802.11n-20M 5700MHz



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26dB BW -802.11n-40M 5510MHz



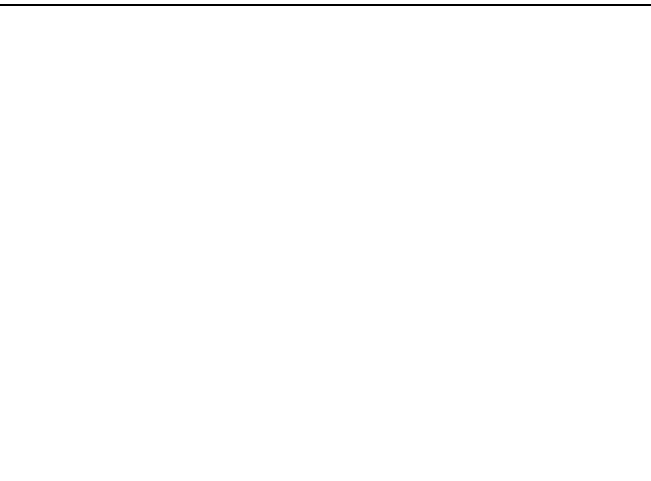
26dB BW -802.11n-40M 5590MHz



26dB BW -802.11n-40M 5670MHz



26dB BW -802.11ac-80M 5530MHz



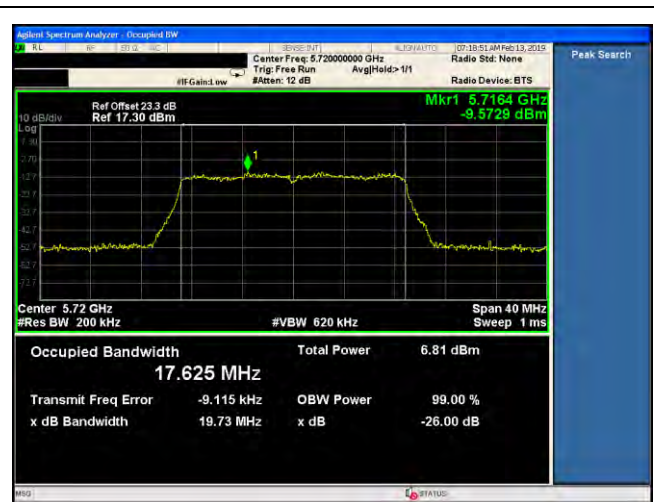
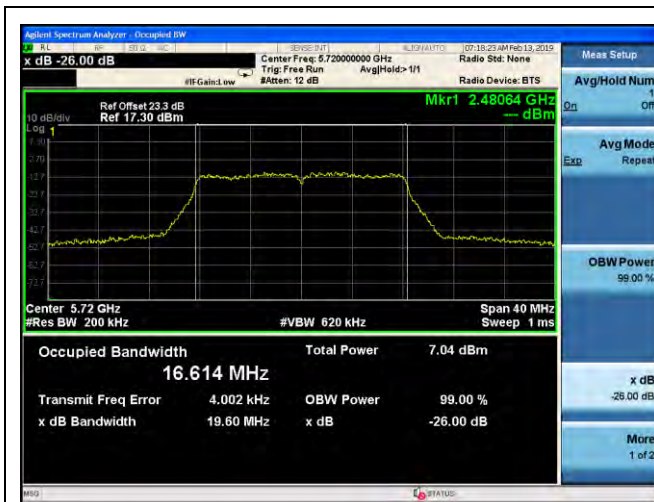
26dB BW -802.11ac-80M 5610MHz



Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



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26dB BW -802.11a-20M 5720MHz

26dB BW -802.11n-20M 5720MHz



26dB BW -802.11n-40M 5710MHz

26dB BW -802.11ac-80M 5690MHz



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Model Number:	GBXV2
Family Model:	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



8.4 Maximum Output Power

8.4.1 Requirement

§ 15.407 (a)

For the 5.15–5.25 GHz bands:

For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum conducted output power over the frequency band of operation shall not exceed 250 mW. For an indoor access point operating in the band 5.15-5.25 GHz, the maximum conducted output power over the frequency band of operation shall not exceed 1 W.

For the 5.25–5.725 GHz bands:

The maximum conducted output power over the frequency bands of operation shall not exceed the lesser of 250 mW or 11 dBm+10 log B, where B is the 26 dB emission bandwidth in megahertz.

For Straddle Channel, according to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, if the power and PSD of the devices are uniform and comply with the lower limits specified for the U-NII-2 bands, a single measurement over the entire emission bandwidth can be performed to show compliance.

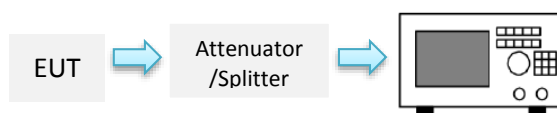
If transmitting antennas of directional gain greater than 6 dBi are used, the peak output power shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

Note that U-NII-2 band, devices with a maximum e.i.r.p. greater than 500 mW shall implement TPC in order to have the capability to operate at least 6 dB below the maximum permitted e.i.r.p. of 1 W.

For the band 5.725-5.85 GHz:

The maximum conducted output power over the frequency band of operation shall not exceed 1 W. In addition, the maximum power spectral density shall not exceed 30 dBm in any 500-kHz band. If transmitting antennas of directional gain greater than 6 dBi are used, both the maximum conducted output power and the maximum power spectral density shall be reduced by the amount in dB that the directional gain of the antenna exceeds 6 dBi.

8.4.2 Test setup



Report Number:	GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product:	GNARBOX 2.0 SSD
Model Number:	GBXV2
Family Model:	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



8.4.3 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v01, Section E) Maximum conducted output power, 2, b), method SA-1

1. Set span to encompass the entire emission bandwidth (EBW)(or, alternatively, the entire 99% occupied bandwidth) of the signal.
2. Set RBW=1MHz
3. Set VBW $\geq 3 \times$ RBW
4. Number of points in sweep $\geq 2 \times$ span/ RBW. (This ensures that bin-to-bin spacing is $\leq$ RBW/2, so that narrowband signals are not lost between frequency bins.)
5. Sweep time = auto couple.
6. Detector = Power averaging (RMS)
7. Trace average at least 100 traces in power averaging(rms)mode.
8. Compute power by integrating the spectrum across the EBW (or, alternatively, the entire 99% occupied bandwidth) of the signal using the instrument's band power measurement function with band limits set equal to the EBW (or occupied bandwidth) band edges.

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8.4.4 Test Result

For 5.2GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 power (dBm)	TX2 power (dBm)	Highest or Total power (dBm)	Max Output Power (dBm)	Result
11a	5180	6Mbps	15.44	15.36	15.44	24	Pass
11a	5220	6Mbps	15.49	15.07	15.49	24	Pass
11a	5240	6Mbps	15.40	14.74	15.40	24	Pass
11n-20M	5180	MCS1	15.72	15.38	18.56	24	Pass
11n-20M	5220	MCS1	15.68	15.21	18.46	24	Pass
11n-20M	5240	MCS1	15.63	14.88	18.28	24	Pass
11n-40M	5190	MCS1	15.14	14.76	17.96	24	Pass
11n-40M	5230	MCS1	15.14	14.51	17.85	24	Pass
11ac-80M	5210	VHC-MCS1	9.84	10.19	13.03	24	Pass

For 5.3GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 power (dBm)	TX2 power (dBm)	Highest or Total power (dBm)	Max Output Power (dBm)	Result
11a	5260	6Mbps	15.15	14.48	15.15	23.90	Pass
11a	5300	6Mbps	14.97	14.28	14.97	23.88	Pass
11a	5320	6Mbps	14.68	14.08	14.68	23.91	Pass
11n-20M	5260	MCS1	15.28	14.60	17.96	23.98	Pass
11n-20M	5300	MCS1	14.98	14.34	17.68	23.98	Pass
11n-20M	5320	MCS1	14.71	14.16	17.45	23.98	Pass
11n-40M	5270	MCS1	14.77	13.93	17.38	24	Pass
11n-40M	5310	MCS1	14.59	13.73	17.19	24	Pass
11ac-80M	5290	VHC-MCS1	9.75	10.19	12.99	24	Pass

For 5.5GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 power (dBm)	TX2 power (dBm)	Highest or Total power (dBm)	Max Output Power (dBm)	Result
11a	5500	6Mbps	14.71	13.33	14.71	23.84	Pass
11a	5600	6Mbps	13.95	13.33	13.95	23.96	Pass
11a	5700	6Mbps	13.83	14.00	14.00	23.91	Pass
11n-20M	5500	MCS1	14.83	14.42	17.64	23.98	Pass
11n-20M	5600	MCS1	14.03	13.45	16.76	24	Pass
11n-20M	5700	MCS1	13.98	13.96	16.98	23.95	Pass
11n-40M	5510	MCS1	14.43	13.67	17.08	24	Pass
11n-40M	5590	MCS1	13.54	13.04	16.31	24	Pass
11n-40M	5670	MCS1	13.54	13.58	16.57	24	Pass
11ac-80M	5530	VHC-MCS1	9.11	9.25	12.19	24	Pass

Report Number:	GBX-19011401-LC-RF-FCC-UNII Rev1.0
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11ac-80M	5610	VHC-MCS1	8.51	8.56	11.55	24	Pass
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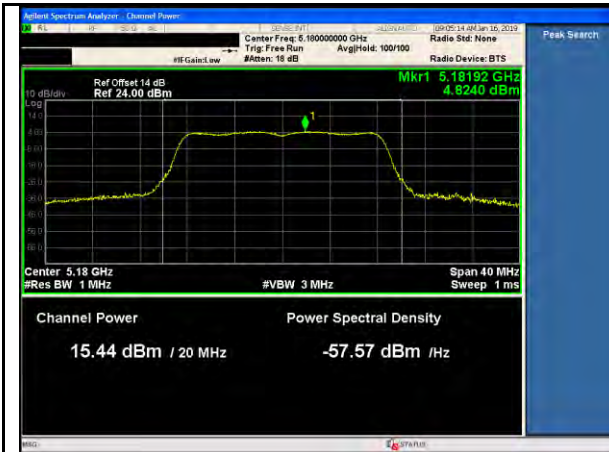
For 5.7GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 power (dBm)	TX2 power (dBm)	Highest or Total power (dBm)	Max Output Power (dBm)	Result
11a	5745	6Mbps	15.02	14.72	15.02	30	Pass
11a	5785	6Mbps	14.80	14.39	14.80	30	Pass
11a	5825	6Mbps	14.76	14.25	14.76	30	Pass
11n-20M	5745	MCS1	15.10	14.94	18.03	30	Pass
11n-20M	5785	MCS1	14.87	14.39	17.65	30	Pass
11n-20M	5825	MCS1	14.87	14.20	17.56	30	Pass
11n-40M	5755	MCS1	14.65	14.39	17.53	30	Pass
11n-40M	5795	MCS1	14.37	13.77	17.09	30	Pass
11ac-80M	5775	VHC-MCS1	9.61	9.99	12.81	30	Pass

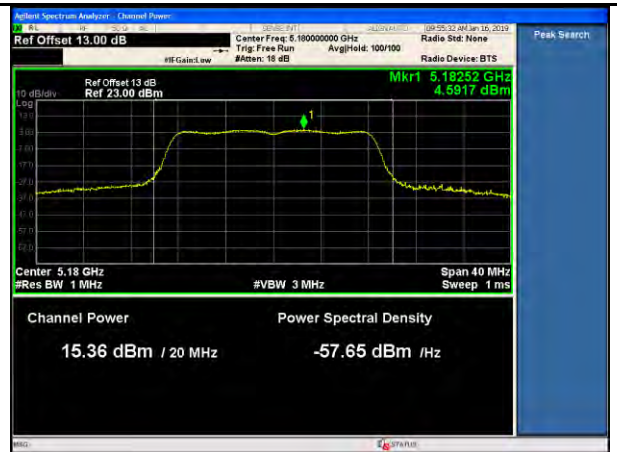
For 5.5GHz band Cross-band channel

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 power (dBm)	TX2 power (dBm)	Highest or Total power (dBm)	Max Output Power (dBm)	Result
11a	5720	6Mbps	-1.10	-1.11	-1.10	24	Pass
11n	5720	MCS1	-1.08	-1.06	1.940	24	Pass
11n-40M	5710	MCS1	-1.66	-1.68	1.340	24	Pass
11ac-80M	5690	VHC-MCS1	8.26	9.01	11.661	24	Pass

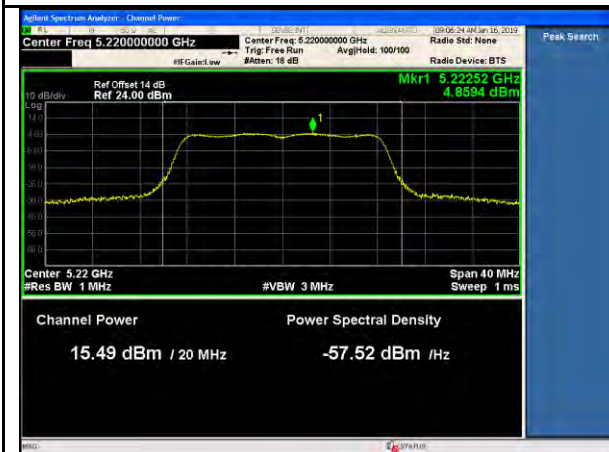
8.4.5 Test Plots



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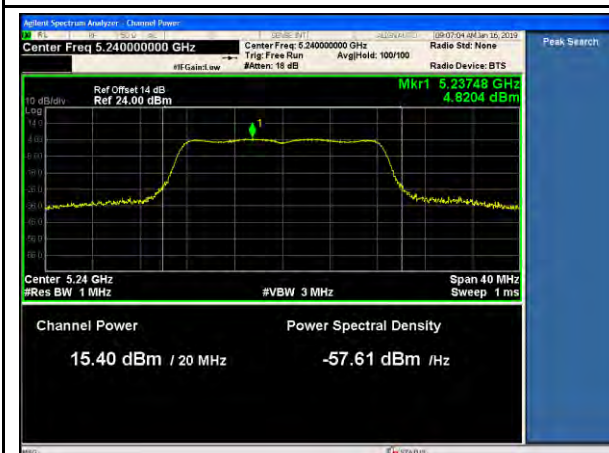
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802.11a 5220MHz-PWR-TX1



802.11a 5220MHz-PWR-TX2



802.11a 5240MHz-PWR-TX1

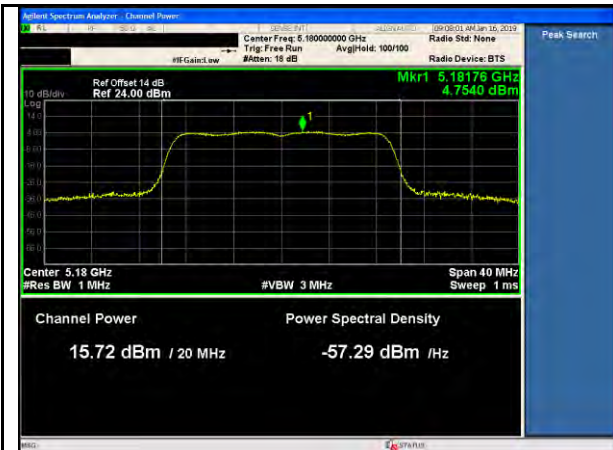


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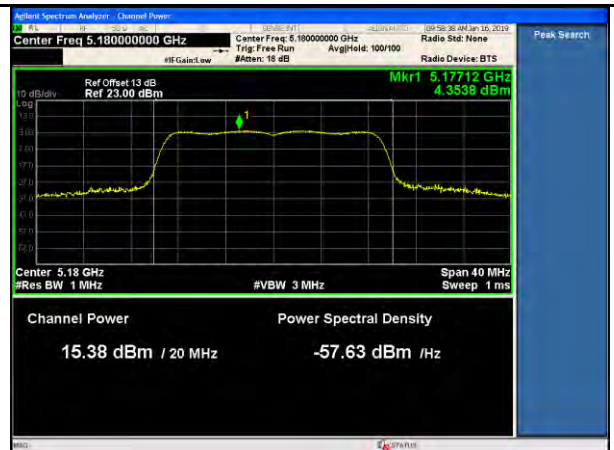
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Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



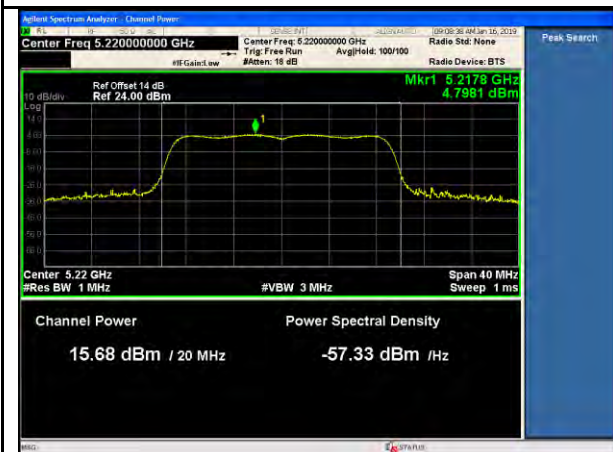
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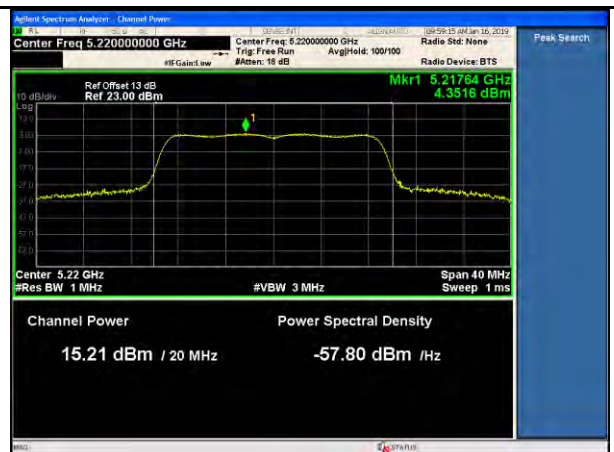
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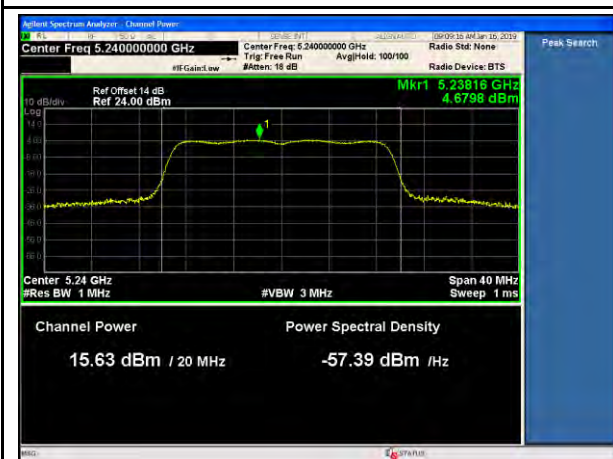
802.11n-20MHz- 5180MHz-PWR-TX2



802.11n-20MHz- 5220MHz-PWR-TX1



802.11n-20MHz- 5220MHz-PWR-TX2



802.11n-20MHz- 5240MHz-PWR-TX1



802.11n-20MHz- 5240MHz-PWR-TX2

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Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



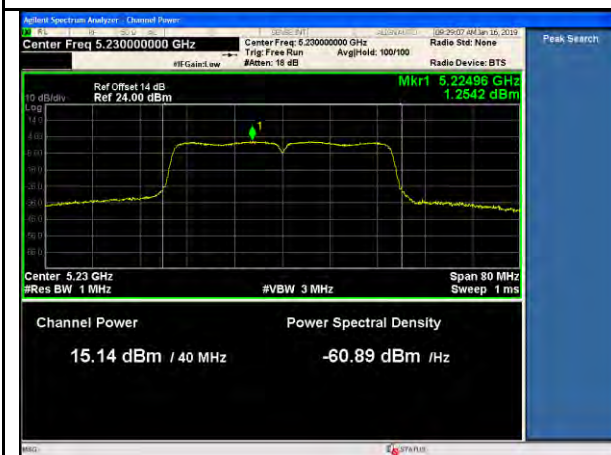
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802.11n-40MHz- 5190MHz-PWR-TX1



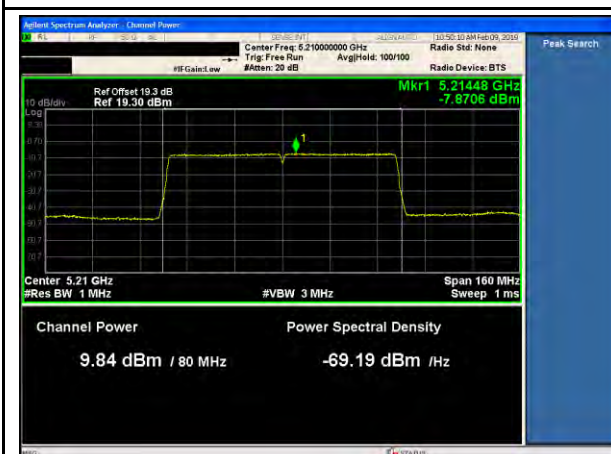
802.11n-40MHz- 5190MHz-PWR-TX2



802.11n-40MHz- 5230MHz-PWR-TX1



802.11n-40MHz- 5230MHz-PWR-TX2



802.11ac-80MHz- 5210MHz-PWR-TX1



802.11ac-80MHz- 5210MHz-PWR-TX2



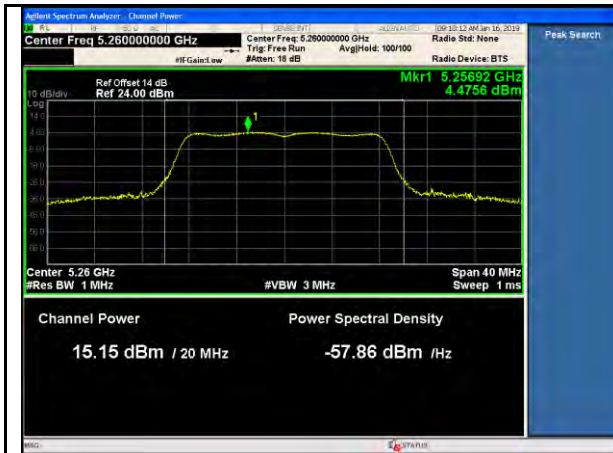
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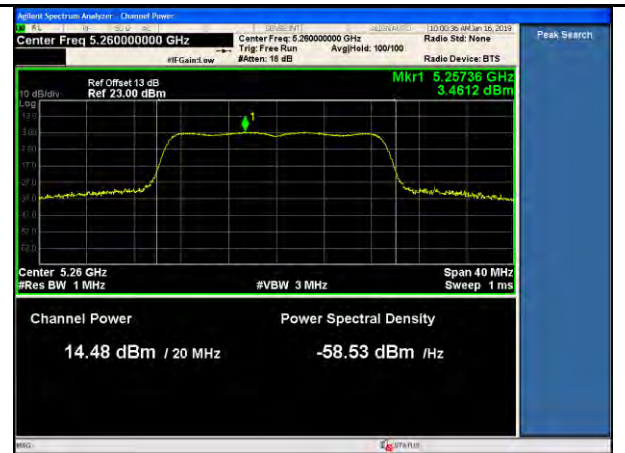
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Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



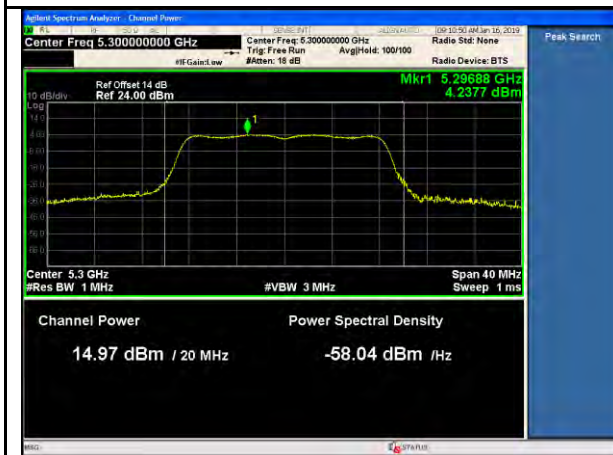
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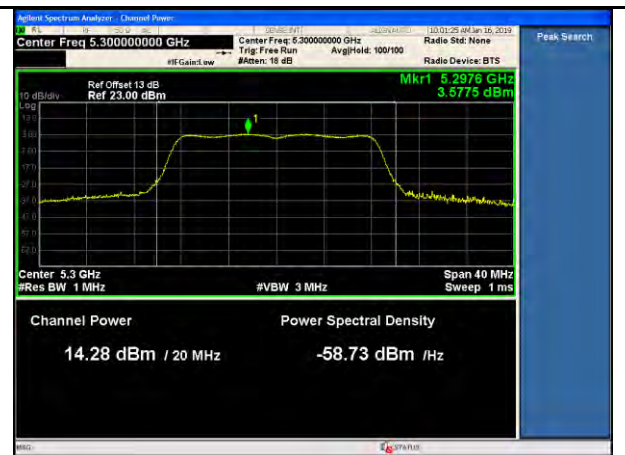
802.11a 5260MHz-PWR-TX1



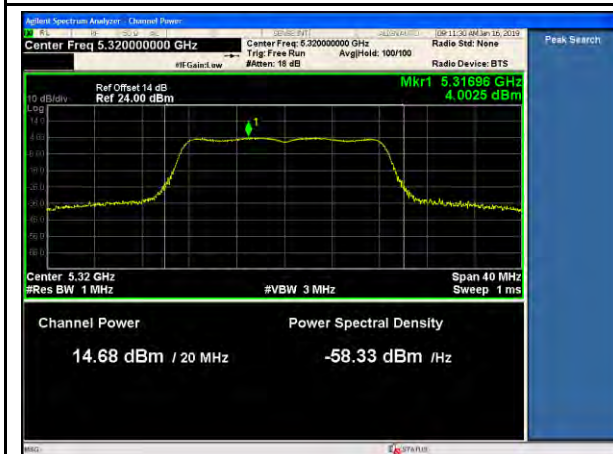
802.11a 5260MHz-PWR-TX2



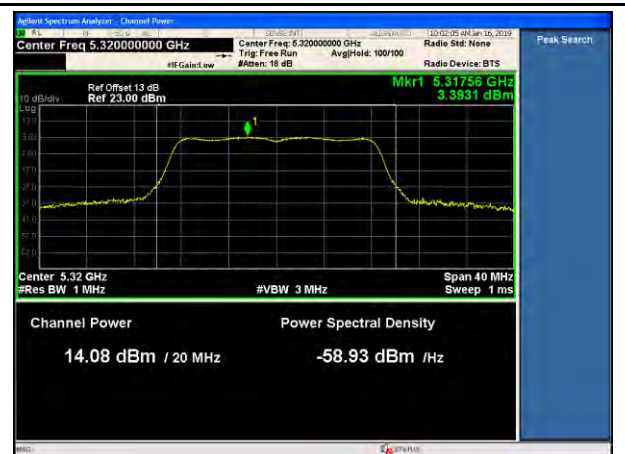
802.11a 5300MHz-PWR-TX1



802.11a 5300MHz-PWR-TX2



802.11a 5320MHz-PWR-TX1



802.11a 5320MHz-PWR-TX2



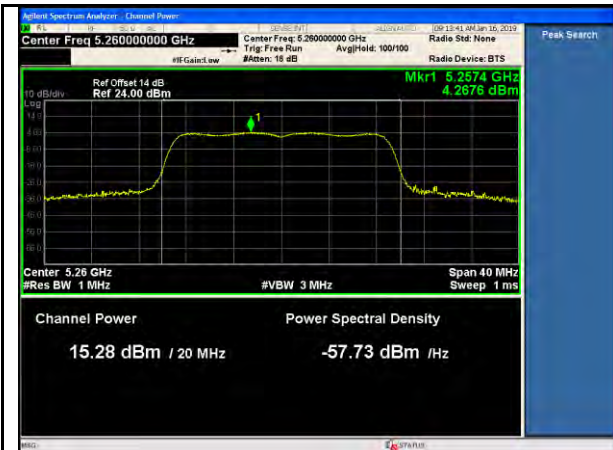
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Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
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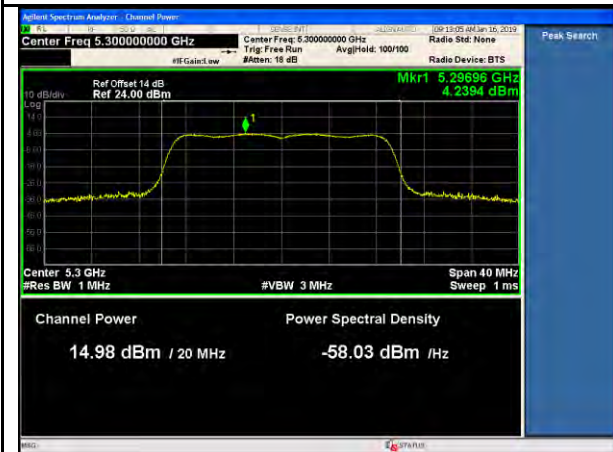
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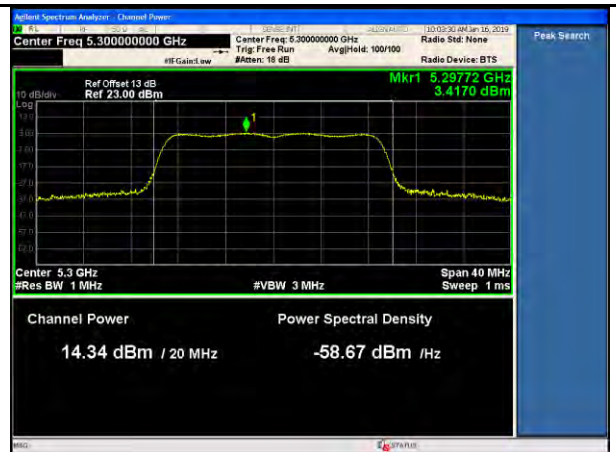
802.11n-20MHz- 5260MHz-PWR-TX1



802.11n-20MHz- 5260MHz-PWR-TX2



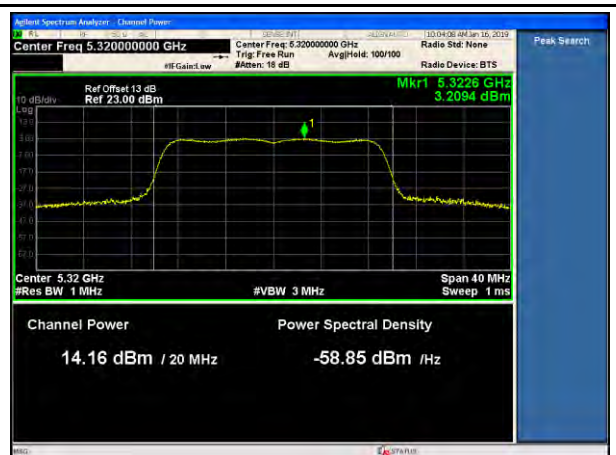
802.11n-20MHz- 5300MHz-PWR-TX1



802.11n-20MHz- 5300MHz-PWR-TX2



802.11n-20MHz- 5320MHz-PWR-TX1

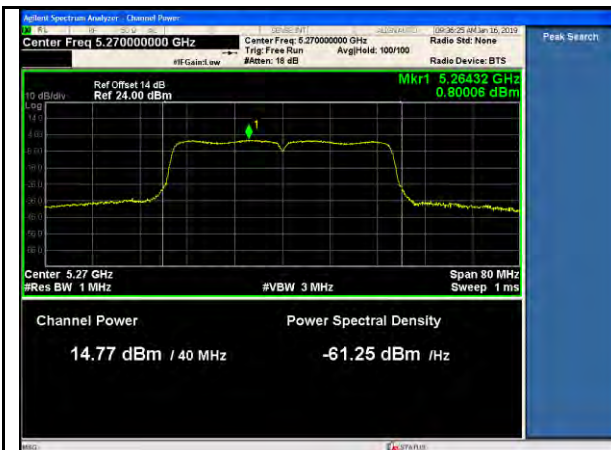


802.11n-20MHz- 5320MHz-PWR-TX2

Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



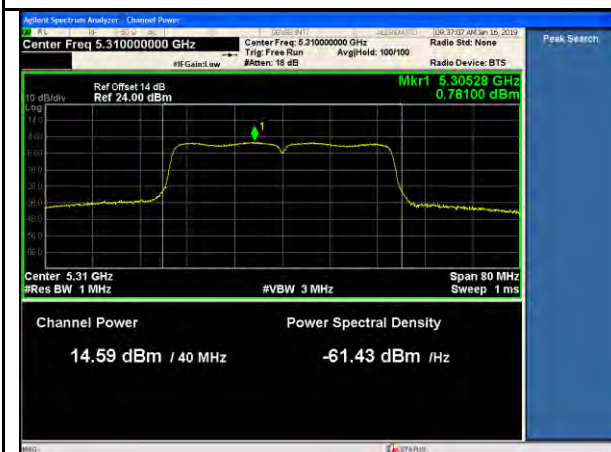
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802.11n-40MHz- 5270MHz-PWR-TX1



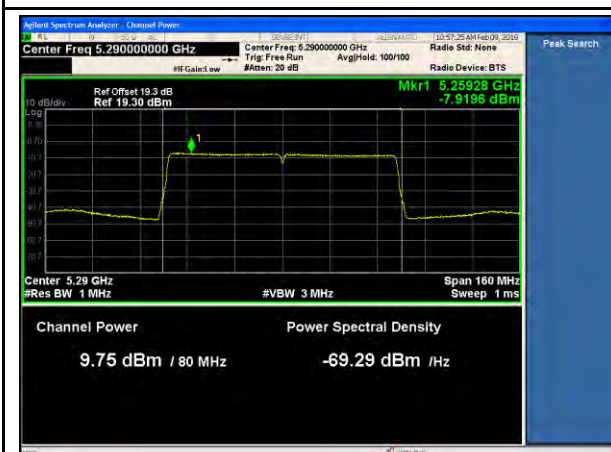
802.11n-40MHz- 5270MHz-PWR-TX2



802.11n-40MHz- 5310MHz-PWR-TX1



802.11n-40MHz- 5310MHz-PWR-TX2



802.11ac-80MHz- 5290MHz-PWR-TX1



802.11ac-80MHz- 5290MHz-PWR-TX2



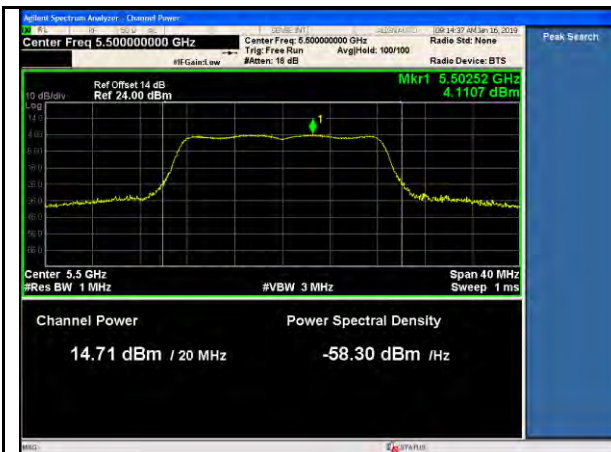
Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

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San Clemente, CA, 92673
+1 (949) 393-1123
www.vista-compliance.com

Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



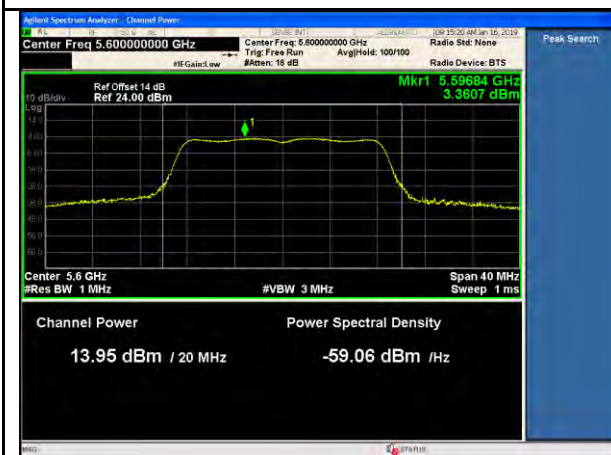
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802.11a 5500MHz-PWR-TX1



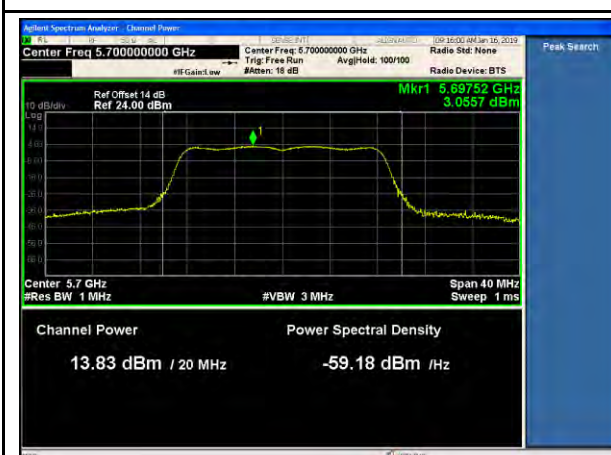
802.11a 5500MHz-PWR-TX2



802.11a 5600MHz-PWR-TX1



802.11a 5600MHz-PWR-TX2



802.11a 5700MHz-PWR-TX1



802.11a 5700MHz-PWR-TX2



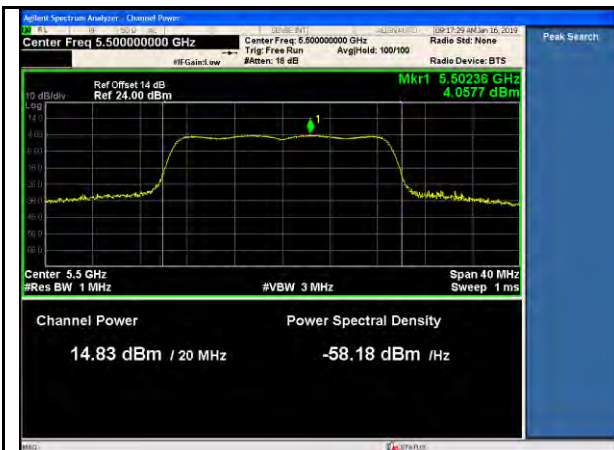
Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

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Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
 Product: GNARBOX 2.0 SSD
 Model Number: GBXV2
 Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



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802.11n-20MHz- 5500MHz-PWR-TX1



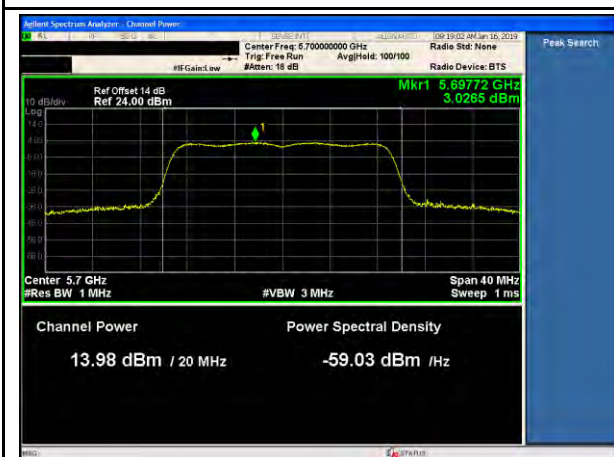
802.11n-20MHz- 5500MHz-PWR-TX2



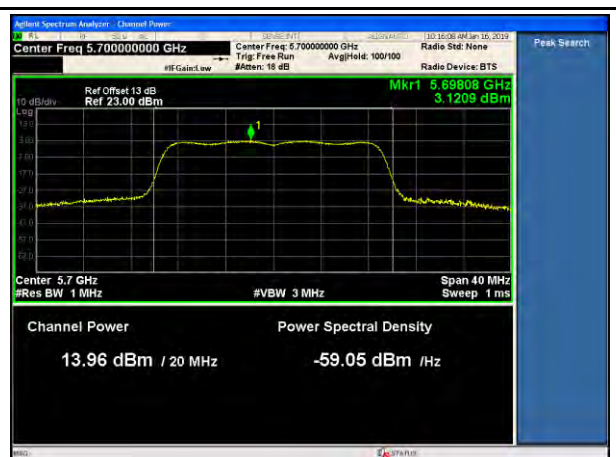
802.11n-20MHz- 5600MHz-PWR-TX1



802.11n-20MHz- 5600MHz-PWR-TX2



802.11n-20MHz- 5700MHz-PWR-TX1



802.11n-20MHz- 5700MHz-PWR-TX2



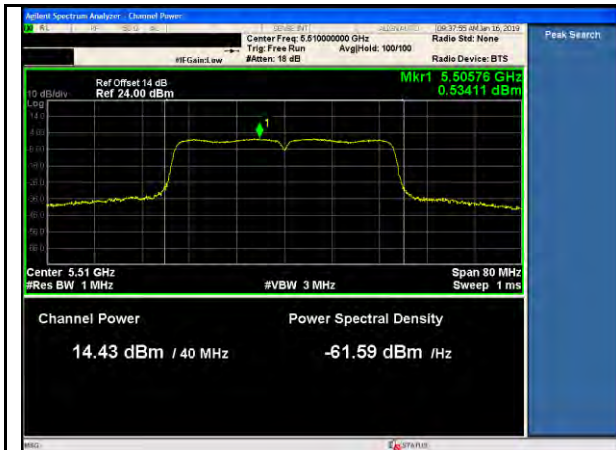
Electromagnetic Compatibility
 Radio Frequency
 Product Certification
 International Approval

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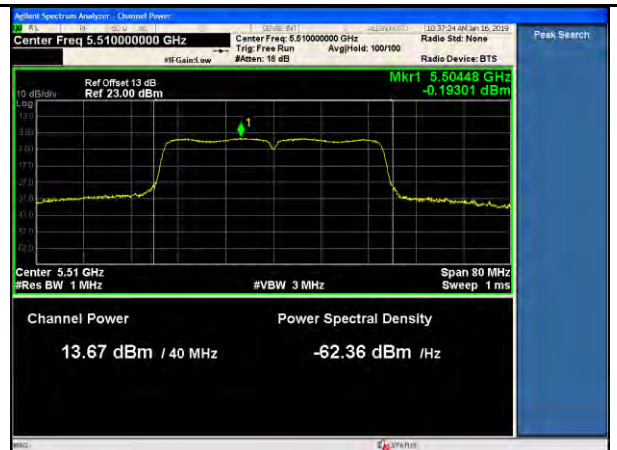
Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



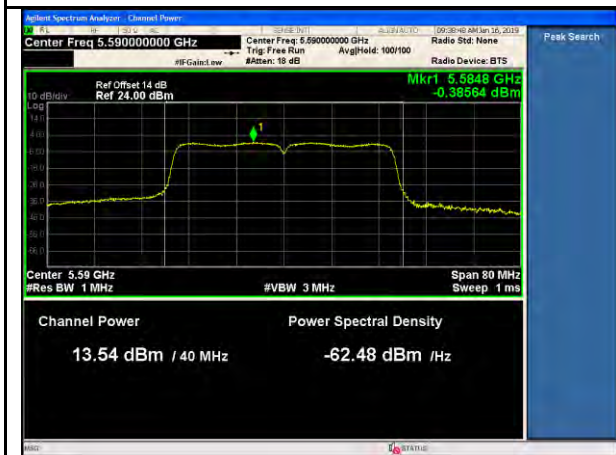
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802.11n-40MHz- 5510MHz-PWR-TX1



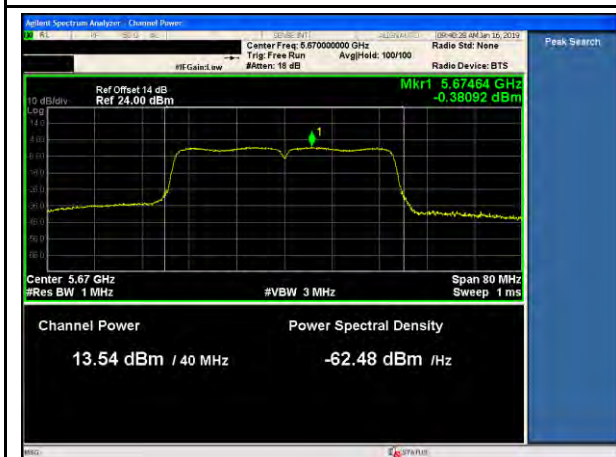
802.11n-40MHz- 5510MHz-PWR-TX2



802.11n-40MHz- 5590MHz-PWR-TX1



802.11n-40MHz- 5590MHz-PWR-TX2



802.11n-40MHz- 5670MHz-PWR-TX1



802.11n-40MHz- 5670MHz-PWR-TX2



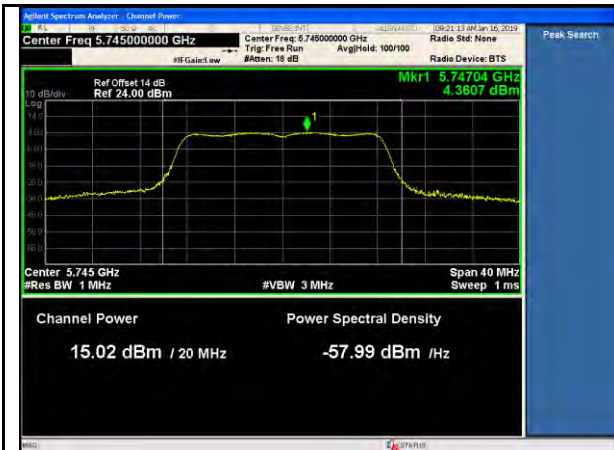
Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

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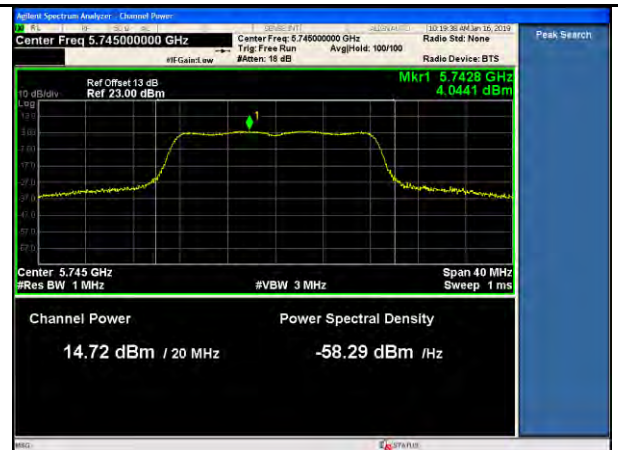
Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



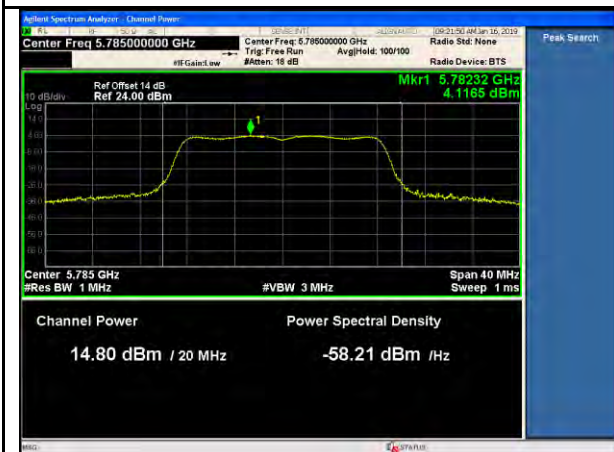
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802.11a 5745MHz-PWR-TX1



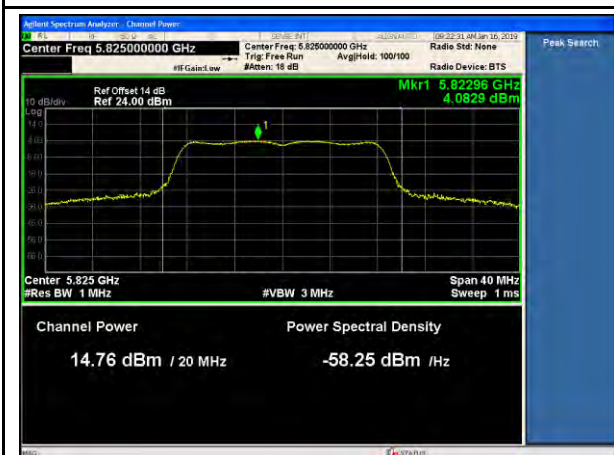
802.11a 5745MHz-PWR-TX2



802.11a 5785MHz-PWR-TX1



802.11a 5785MHz-PWR-TX2



802.11a 5825MHz-PWR-TX1



802.11a 5825MHz-PWR-TX2



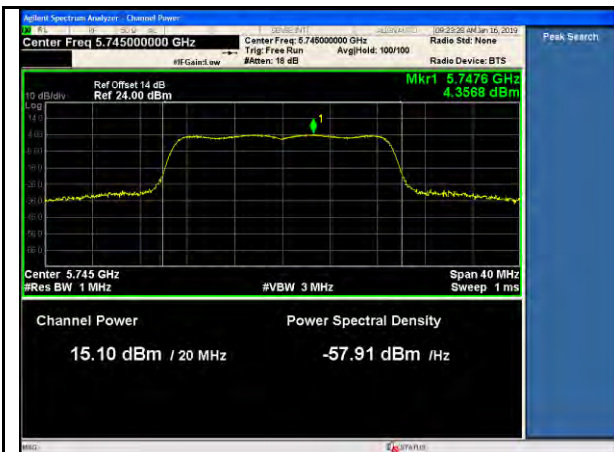
Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

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Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



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802.11n-20MHz- 5745MHz-PWR-TX1



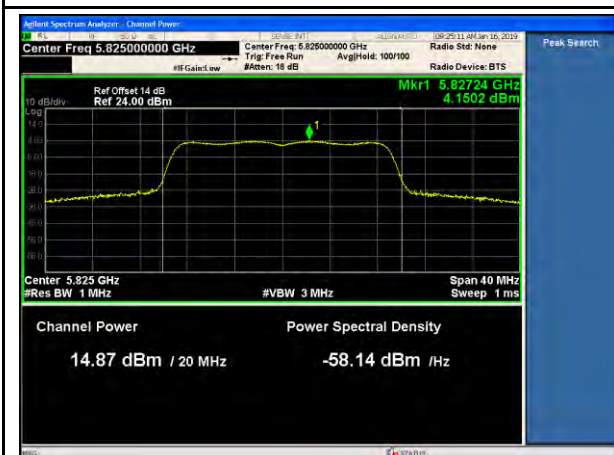
802.11n-20MHz- 5745MHz-PWR-TX2



802.11n-20MHz- 5785MHz-PWR-TX1



802.11n-20MHz- 5785MHz-PWR-TX2



802.11n-20MHz- 5825MHz-PWR-TX1



802.11n-20MHz- 5825MHz-PWR-TX2



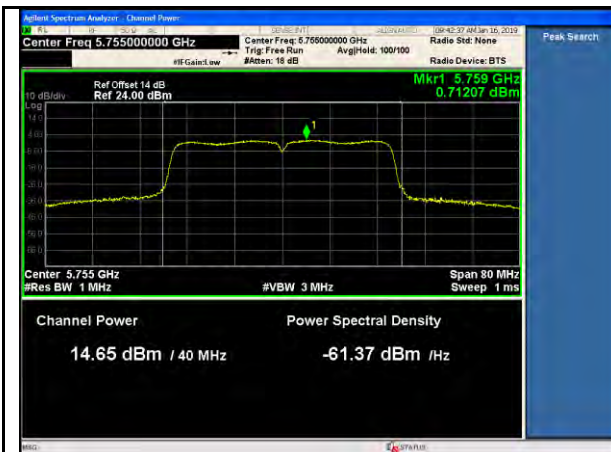
Electromagnetic Compatibility
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Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



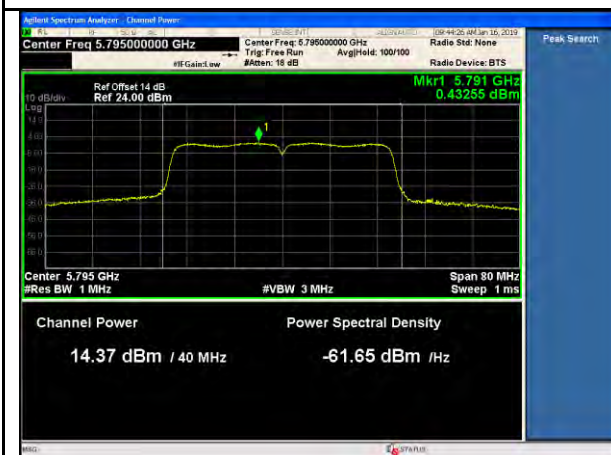
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802.11n-40MHz- 5755MHz-PWR-TX1



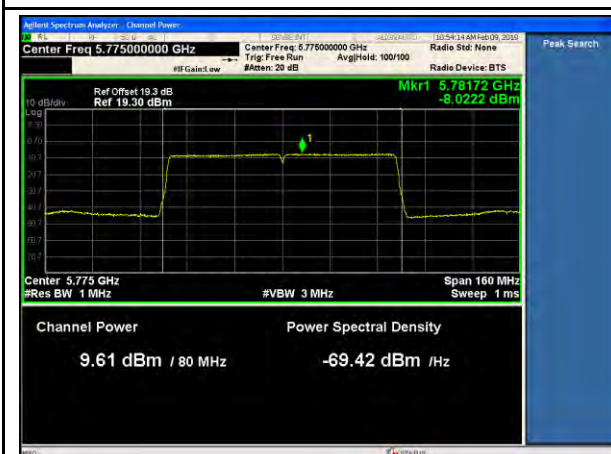
802.11n-40MHz- 5755MHz-PWR-TX2



802.11n-40MHz- 5795MHz-PWR-TX1



802.11n-40MHz- 5795MHz-PWR-TX2



802.11ac-80MHz- 5775MHz-PWR-TX1



802.11ac-80MHz- 5775MHz-PWR-TX2



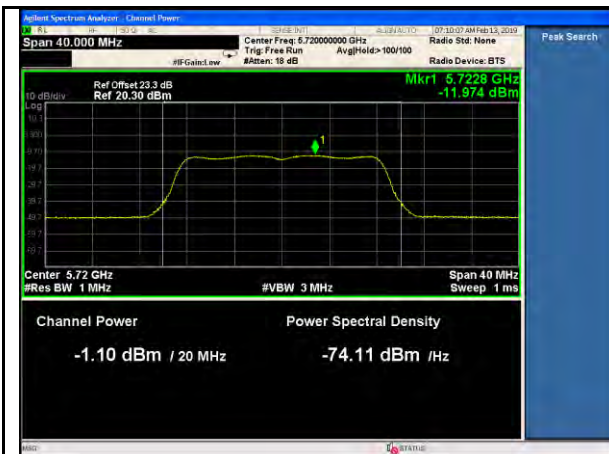
Electromagnetic Compatibility
Radio Frequency
Product Certification
International Approval

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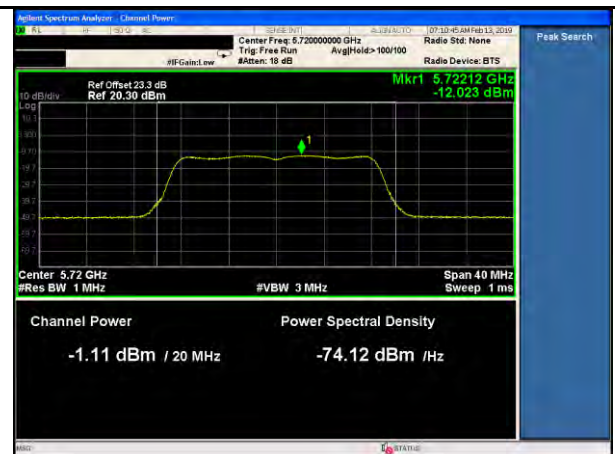
Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



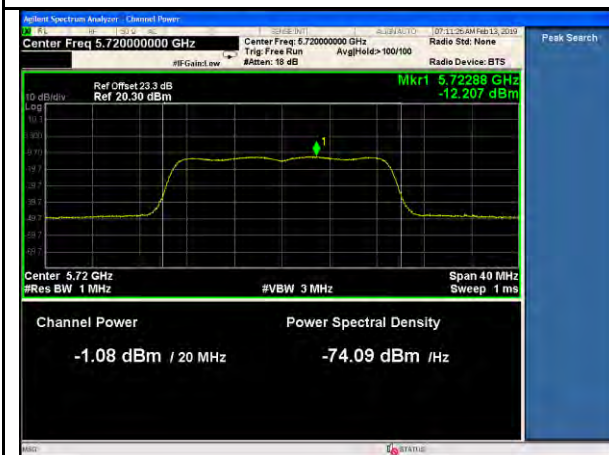
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802.11a-20MHz- 5720MHz-PWR-TX1



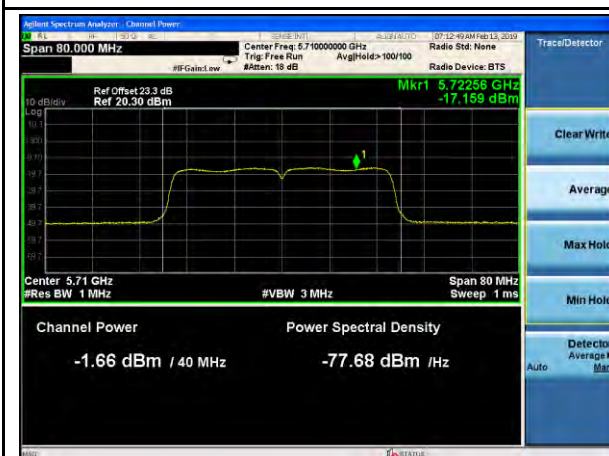
802.11a-20MHz- 5720MHz-PWR-TX2



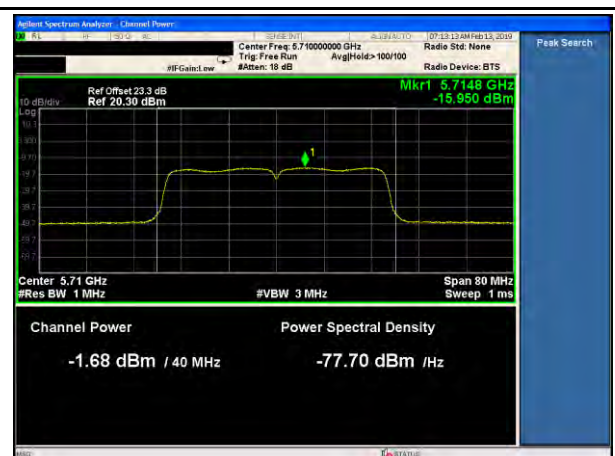
802.11n-20MHz- 5720MHz-PWR-TX1



802.11n-20MHz- 5720MHz-PWR-TX2



802.11n-40MHz- 5710MHz-PWR-TX1



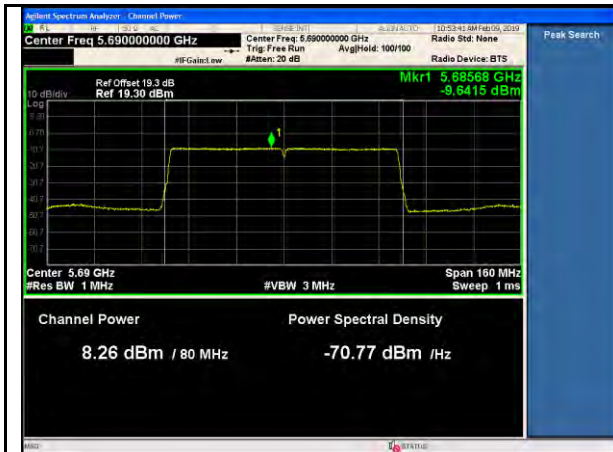
802.11n-40MHz- 5710MHz-PWR-TX2



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Radio Frequency
Product Certification
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Report Number: GBX-19011401-LC-RF-FCC-UNII Rev1.0
Product: GNARBOX 2.0 SSD
Model Number: GBXV2
Family Model: GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



802.11ac-80MHz- 5690MHz-PWR-TX1



802.11ac-80MHz- 5690MHz-PWR-TX2