

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



## 8.5 Power Spectral Density

### 8.5.1 Requirement

§ 15.407 (a)

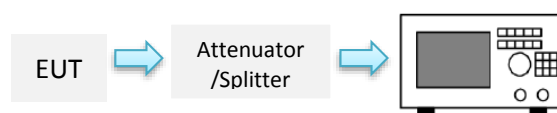
For mobile and portable client devices in the 5.15–5.25 GHz band, the maximum power spectral density shall not exceed 11dBm in any 1 megahertz band.

For the 5.25–5.725 GHz bands, the maximum power spectral density shall not exceed 11 dBm in any 1 megahertz band.

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.

### 8.5.2 Test setup



### 8.5.3 Test Procedure

According to KDB 789033 D02 General UNII Test Procedures New Rules v02r01, section F) Maximum power spectral density. 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. Use the peak marker function to determine the maximum amplitude level within the RBW.

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



#### 8.5.4 Test Result

For 5.2GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 PSD (dBm/MHz)	TX2 PSD (dBm/MHz)	Highest or Total PSD (dBm/MHz)	Max PSD (dBm/MHz)	Result
11a	5180	6Mbps	4.8240	4.5917	4.824	11	Pass
11a	5220	6Mbps	4.8594	4.2566	4.8594	11	Pass
11a	5240	6Mbps	4.8204	4.0701	4.8204	11	Pass
11n-20M	5180	MCS1	4.7540	4.3538	7.569	11	Pass
11n-20M	5220	MCS1	4.7981	4.3516	7.591	11	Pass
11n-20M	5240	MCS1	4.6798	3.9374	7.335	11	Pass
11n-40M	5190	MCS1	1.1750	0.8860	4.043	11	Pass
11n-40M	5230	MCS1	1.2542	0.6405	3.968	11	Pass
11ac-80M	5210	VHC-MCS1	-7.8706	-7.7596	-4.804	11	Pass

For 5.3GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 PSD (dBm/MHz)	TX2 PSD (dBm/MHz)	Highest or Total PSD (dBm/MHz)	Max PSD (dBm/MHz)	Result
11a	5260	6Mbps	4.4756	3.4612	4.4756	11	Pass
11a	5300	6Mbps	4.2377	3.5775	4.2377	11	Pass
11a	5320	6Mbps	4.0025	3.3931	4.0025	11	Pass
11n-20M	5260	MCS1	4.2676	3.6233	6.968	11	Pass
11n-20M	5300	MCS1	4.2394	3.4170	6.858	11	Pass
11n-20M	5320	MCS1	3.8343	3.2094	6.543	11	Pass
11n-40M	5270	MCS1	0.8001	0.0477	3.450	11	Pass
11n-40M	5310	MCS1	0.7810	-0.3375	3.268	11	Pass
11ac-80M	5290	VHC-MCS1	-7.9196	-7.7596	-4.829	11	Pass

For 5.5GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 PSD (dBm/MHz)	TX2 PSD (dBm/MHz)	Highest or Total PSD (dBm/MHz)	Max PSD (dBm/MHz)	Result
11a	5500	6Mbps	4.1107	2.8257	4.1107	11	Pass
11a	5600	6Mbps	3.3607	2.8257	3.3607	11	Pass
11a	5700	6Mbps	3.0557	3.2605	3.2605	11	Pass
11n-20M	5500	MCS1	4.0577	3.6264	6.858	11	Pass
11n-20M	5600	MCS1	3.0302	2.4778	5.773	11	Pass
11n-20M	5700	MCS1	3.0265	3.1209	6.084	11	Pass
11n-40M	5510	MCS1	0.5341	-0.1930	3.196	11	Pass
11n-40M	5590	MCS1	-0.3856	-1.0149	2.321	11	Pass
11n-40M	5670	MCS1	-0.3809	-0.3262	2.657	11	Pass
11ac-80M	5530	VHC-MCS1	-8.6070	-7.9159	-5.24	11	Pass

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



11ac-80M	5610	VHC-MCS1	-8.8368	-8.9523	-5.24	11	Pass
----------	------	----------	---------	---------	-------	----	------

For 5.7GHz band

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 PSD (dBm/MHz)	TX2 PSD (dBm/MHz)	Highest or Total PSD (dBm/MHz)	Corrected PSD (dBm/500KHz)	Max PSD (dBm/500KHz)	Result
11a	5745	6Mbps	4.3607	4.0441	4.3607	1.35	30	Pass
11a	5785	6Mbps	4.1165	3.4460	4.1165	1.11	30	Pass
11a	5825	6Mbps	4.0829	3.5331	4.0829	1.07	30	Pass
11n-20M	5745	MCS1	4.3568	4.3084	7.569	4.56	30	Pass
11n-20M	5785	MCS1	3.5195	3.5010	7.591	4.58	30	Pass
11n-20M	5825	MCS1	4.1502	3.3680	7.335	4.32	30	Pass
11n-40M	5755	MCS1	0.7121	0.5058	4.043	1.03	30	Pass
11n-40M	5795	MCS1	0.4326	-0.0269	3.968	0.96	30	Pass
11ac-80M	5775	VHC-MCS1	-8.0222	-7.7094	-4.804	-7.81	30	Pass

Note: If measurement bandwidth of Maximum PSD is specified in 1 MHz, add 10 log (1MHz/RBW) to the measured result, whereas RBW (< 1 MHz) is the reduced resolution bandwidth of spectrum analyzer set during measurement.

For 5.5GHz band Cross-band channel

Mode/ Bandwidth	Frequency (MHz)	Data rate	TX1 PSD (dBm/MHz)	TX2 PSD (dBm/MHz)	Highest or Total PSD (dBm/MHz)	Max PSD (dBm/MHz)	Result
11a	5720	6Mbps	-11.974	-12.023	-8.988	11	Pass
11n	5720	MCS1	-12.207	-12.253	-9.220	11	Pass
11n-40M	5710	MCS1	-17.159	-15.950	-13.502	11	Pass
11ac-80M	5690	VHC-MCS1	-9.6415	-8.7780	-6.18	11	Pass

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



### 8.5.5 Test Plots

Refer to test plots in conducted peak output power

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



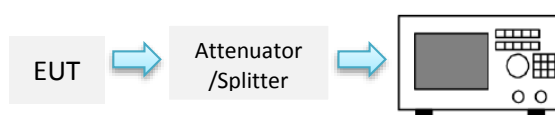
## 8.6 Automatically Discontinue Transmission

### 8.6.1 Requirement

§ 15.407 (c)

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 to describe how this requirement is met.

### 8.6.2 Test setup



### 8.6.3 Test Result

While the EUT is not transmitting any information, the EUT can automatically discontinue transmission and become standby mode for power saving. The EUT can detect the controlling signal of ACK message transmitting from remote device and verify whether it shall resend or discontinue transmission.

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



## 8.7 Radiated Spurious Emissions into Restricted Frequency Bands

### 8.7.1 Requirement

§ 15.205, 15.209, 15.407(b)

- (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 EIRP 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 EIRP of -27 dBm/MHz. Devices operating in the 5.25-5.35 GHz band that generate emissions in the 5.15-5.25 GHz band must meet all applicable technical requirements for operation in the 5.15-5.25 GHz band (including indoor use) or alternatively meet an out-of-band emission EIRP limit of -27 dBm/MHz in the 5.15-5.25 GHz band.
- (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 EIRP of -27 dBm/MHz.
- (4) For transmitters operating in the 5.725-5.825 GHz band: all emissions within the frequency range from the band edge to 10 MHz above or below the band edge shall not exceed an EIRP of -17 dBm/MHz; for frequencies 10 MHz or greater above or below the band edge, emissions shall not exceed an EIRP of -27 dBm/MHz.
- (5) Restricted band, emission must also comply with the radiated emission limits specified in 15.209

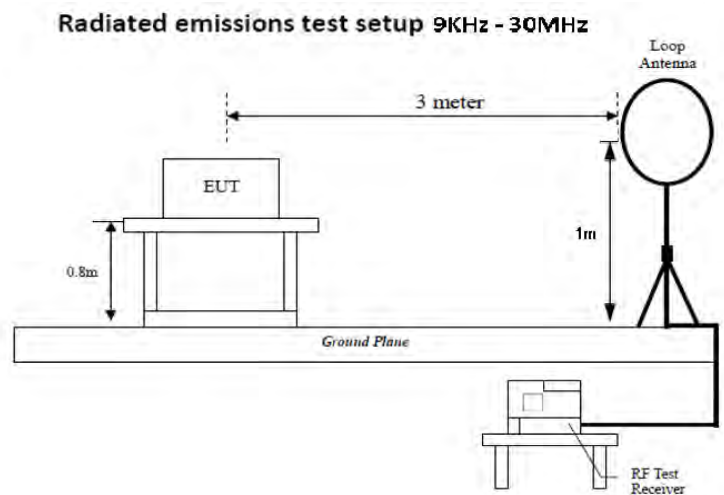
Attenuation below the general limits specified in §15.209(a) and RSS-Gen is not required. In addition, radiated emissions which fall in the restricted bands, as defined in §15.205(a), must also comply with the radiated emission limits specified in §15.209(a) (see §15.205(c)).

Frequency range (MHz)	Field Strength (μV/m)
0.009~0.490	2400/F(KHz)
0.490~1.705	24000/F(KHz)
1.705~30.0	30
30 – 88	100
88 – 216	150
216 960	200
Above 960	500

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



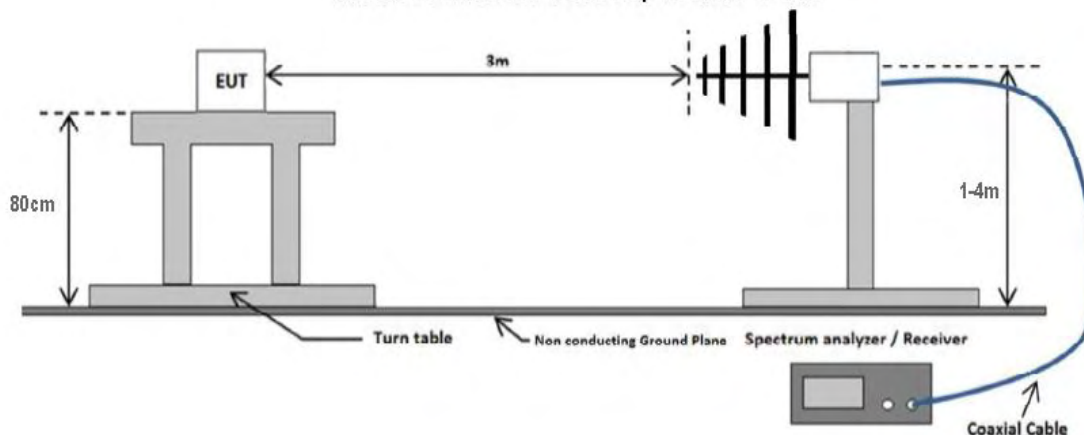
## 8.7.2 Test setup



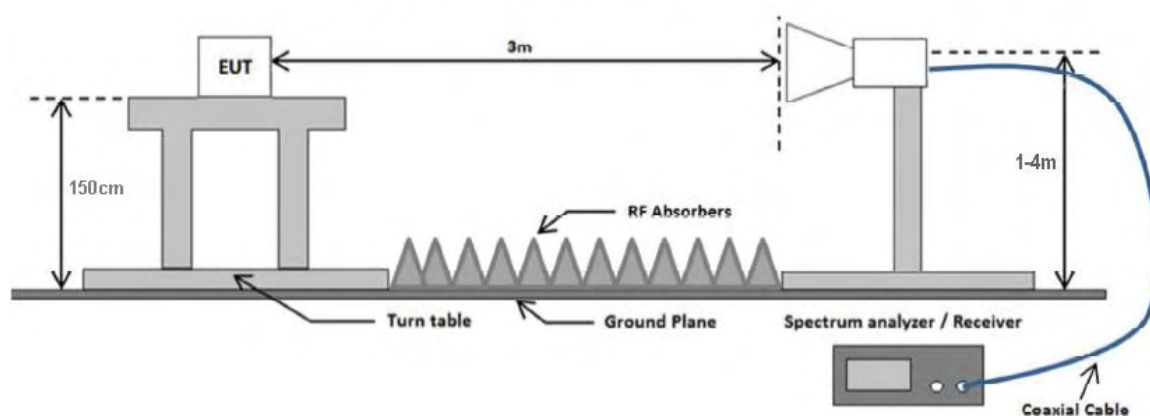
<b>Report Number:</b>	GBX-19011401-LC-RF-FCC-UNII Rev1.0
<b>Product:</b>	GNARBOX 2.0 SSD
<b>Model Number:</b>	GBXV2
<b>Family Model:</b>	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



**Radiated emissions test setup 30 MHz - 1 GHz**



**Radiated emissions test setup above 1 GHz**





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



### 8.7.3 Test Procedure

According to FCC KDB 789033 D02 General UNII Test Procedures New Rules v02r01. Section G) Unwanted emissions measurement. And subclause 12.7 Radiated spurious emission measurements in ANSI C62.10-2013 as well as the procedures for maximizing and measuring radiated emissions that are described in ANSI C63.10 was followed. Boresight antenna mast was used during the scanning to point to EUT to maximize the emission. The process will be repeated in 3 EUT orientations.

1. The EUT was switched on and allowed to warm up to its normal operating condition.
2. The test was carried out at the selected frequency points obtained from the EUT characterization. Maximization of the emissions, was carried out by rotating the EUT, changing the antenna polarization, and adjusting the antenna height in the following manner:
  - a. Vertical or horizontal polarization (whichever gave the higher emission level over a full rotation of the EUT) was chosen.
  - b. The EUT was then rotated to the direction that gave the maximum emission.
  - c. Finally, the antenna height was adjusted to the height that gave the maximum emission.
3. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 300 Hz for frequency below 150KHz.
4. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 10 kHz for frequency between 150KHz – 30MHz.
5. The resolution bandwidth and video bandwidth of test receiver/spectrum analyzer is 120 kHz for Quasi-Peak detection at frequency between 30MHz - 1GHz.
6. The resolution bandwidth of test receiver/spectrum analyzer is 1MHz and video bandwidth is 3MHz with Peak detection for Peak and average measurement at frequency above 1GHz.
7. Steps 2 and 3 were repeated for the next frequency point, until all selected frequency points were measured.

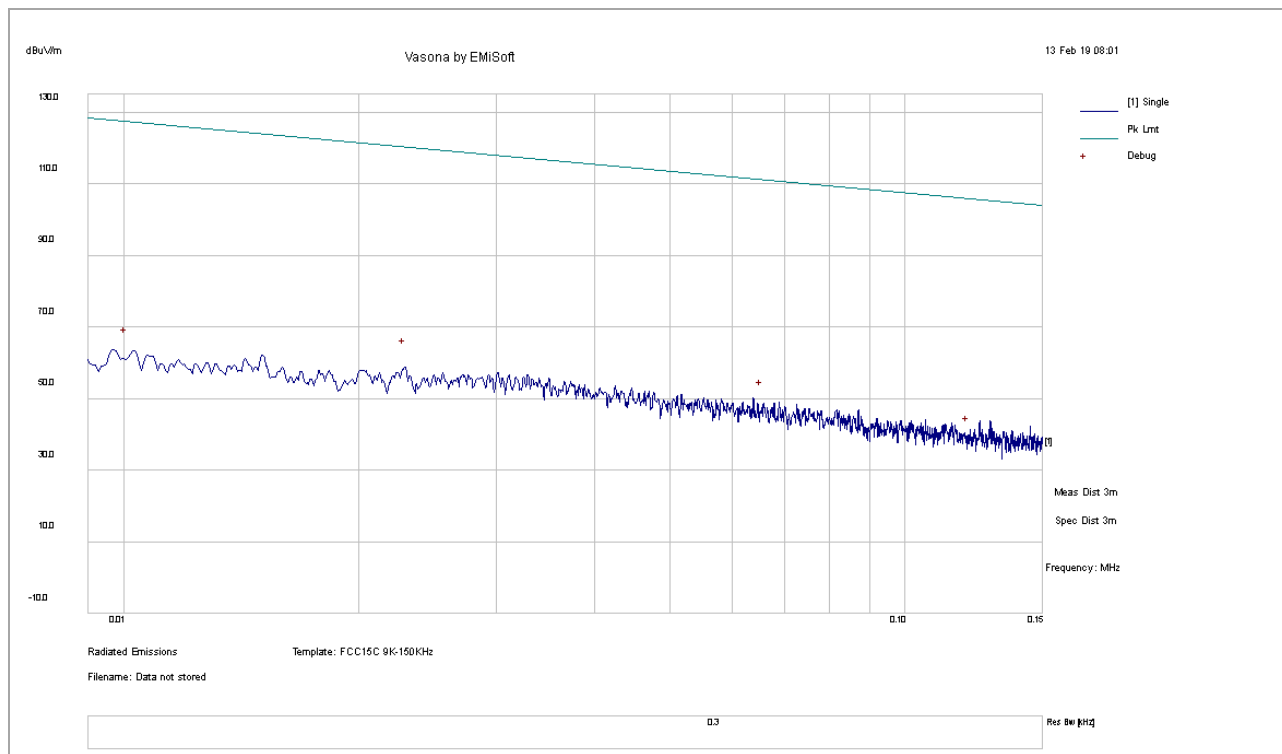
<b>Report Number:</b>	GBX-19011401-LC-RF-FCC-UNII Rev1.0
<b>Product:</b>	GNARBOX 2.0 SSD
<b>Model Number:</b>	GBXV2
<b>Family Model:</b>	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



## 8.7.4 Test Result

### 9KHz – 150KHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5500MHz
<b>Frequency Range:</b>	Below 150KHz	<b>Test Date:</b>	02/12/2019
<b>Antenna Type/Polarity:</b>	Loop / 0 deg & 90 deg	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	Internal antenna	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
0.010	50.56	0.31	10.18	61.05	PK	0	100	98	127.57	-66.52
0.023	45.49	0.39	12.17	58.06	PK	0	100	121	120.44	-62.38
0.065	33.28	0.50	12.63	46.41	PK	0	100	172	111.30	-64.89
0.120	24.84	0.56	11.00	36.40	PK	0	100	11	106.03	-69.63

Note: 1) Both 0 deg and 90 deg setup of the loop antenna have been verified and the worst case result is presented here.

2) EUT was tested in 3 orientations.



Electromagnetic Compatibility  
Radio Frequency  
Product Certification  
International Approval

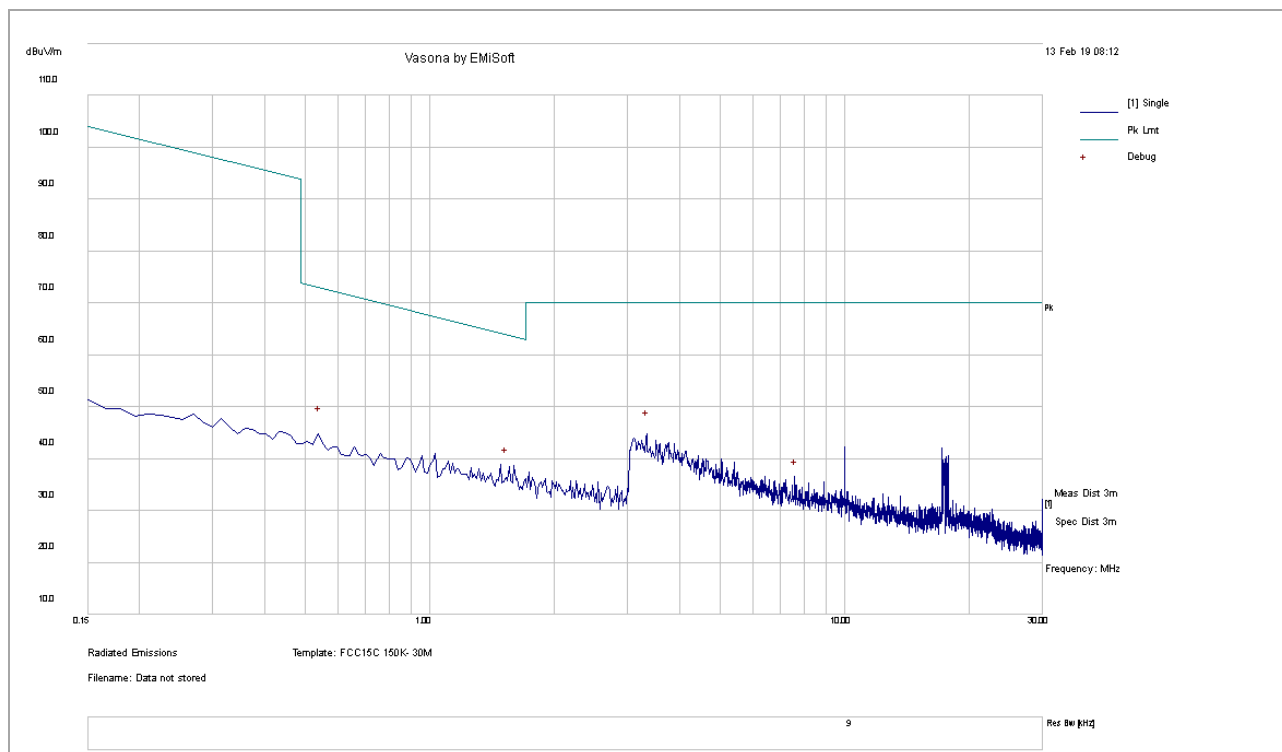
1261 Puerta Del Sol  
San Clemente, CA, 92673  
+1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



### 150KHz – 30MHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5500MHz
<b>Frequency Range:</b>	150KHz – 30MHz	<b>Test Date:</b>	02/12/2019
<b>Antenna Type/Polarity:</b>	Loop / 0 deg & 90 deg	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table deg	Limit dBuV/m	Margin dB
3.337	29.23	0.89	13.06	43.18	PK	0	100	192	70.00	-26.82
0.542	31.10	0.71	12.39	44.20	PK	0	100	19	72.92	-28.72
7.606	19.55	0.97	13.26	33.78	PK	0	100	128	70.00	-36.22
1.527	22.24	0.81	13.08	36.14	PK	0	100	142	63.92	-27.78

Note: 1) Both 0 deg and 90 deg setup of the loop antenna have been verified and the worst case result is presented here.

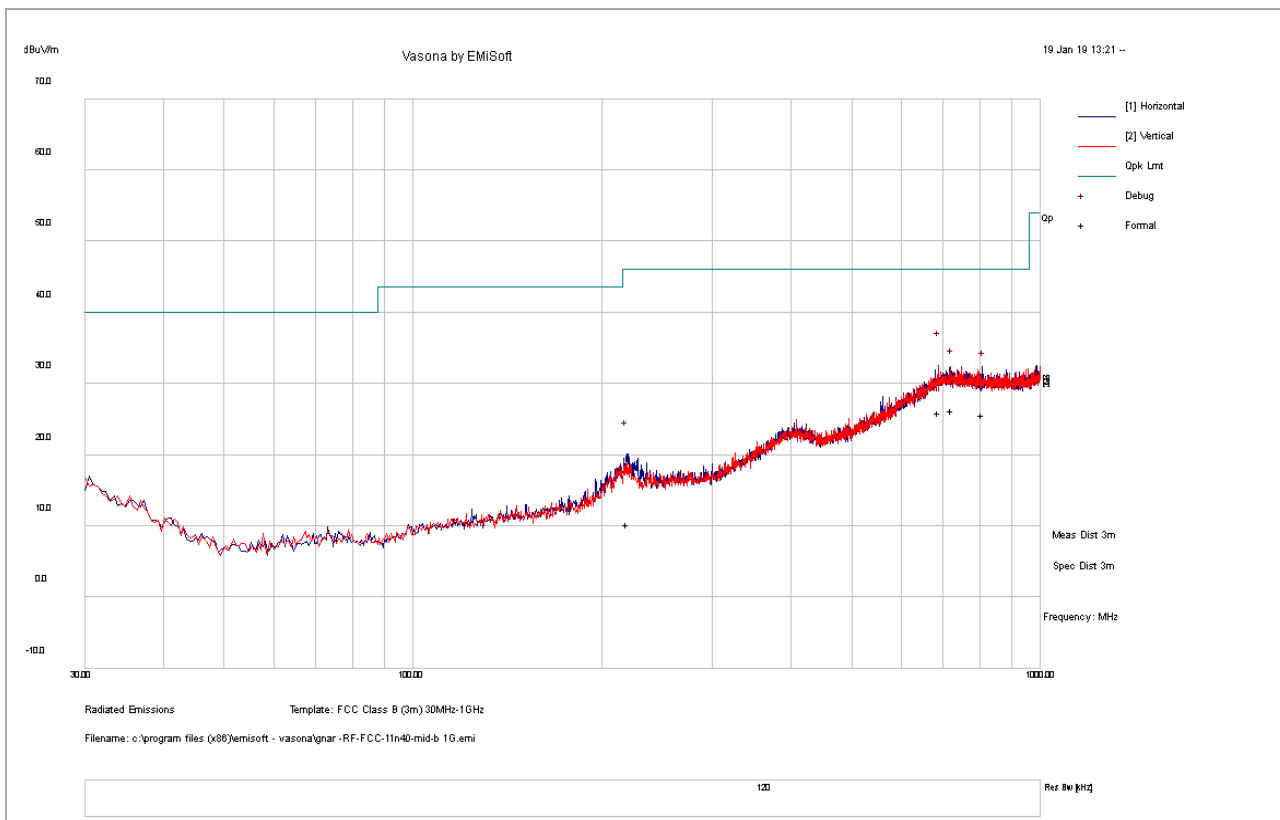
2) EUT was tested in 3 orientations.

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



### 30-1000MHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5180MHz
<b>Frequency Range:</b>	30-1000MHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Bi-Log/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
219.17	26.06	4.94	-20.76	10.24	QP	H	355	15	46.00	-35.76
687.48	25.57	7.30	-6.84	26.02	QP	V	253	165	46.00	-19.98
721.55	25.53	7.30	-6.51	26.32	QP	H	324	186	46.00	-19.68
810.04	25.24	7.28	-6.81	25.71	QP	H	253	67	46.00	-20.29

Note:

- 1) For below 1GHz, all different channel and modes were verified but only the worst case result is shown here.



Electromagnetic Compatibility  
Radio Frequency  
Product Certification  
International Approval

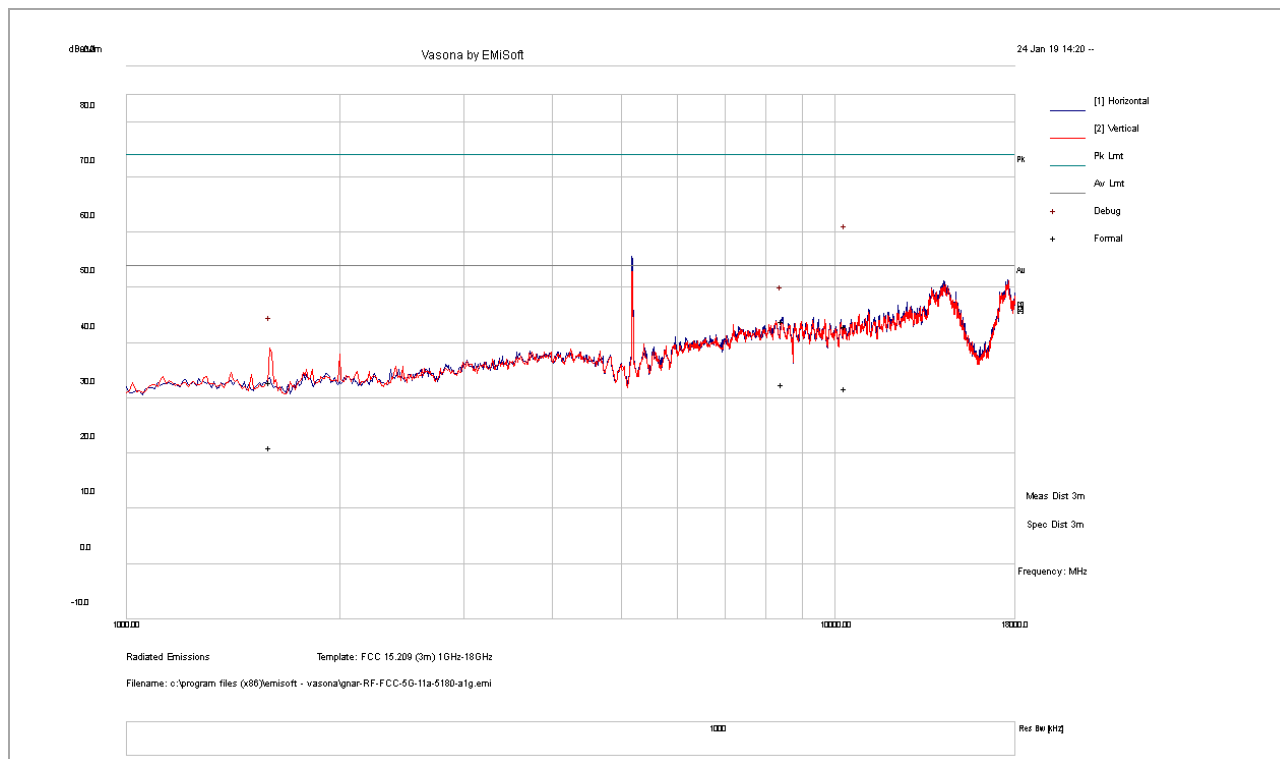
1261 Puerta Del Sol  
San Clemente, CA, 92673  
+1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5180MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
1593.24	34.32	10.45	-11.80	32.97	PK	V	194	51	74.00	-41.03
8428.77	28.10	15.85	-0.06	43.90	PK	H	390	36	74.00	-30.10
10360.99	23.83	17.74	1.42	42.99	PK	H	400	203	74.00	-31.01
1593.24	22.45	10.45	-11.80	21.10	AV	V	194	51	54.00	-32.90
8428.77	16.63	15.85	-0.06	32.43	AV	H	390	36	54.00	-21.57
10360.99	12.68	17.74	1.42	31.84	AV	H	400	203	54.00	-22.16

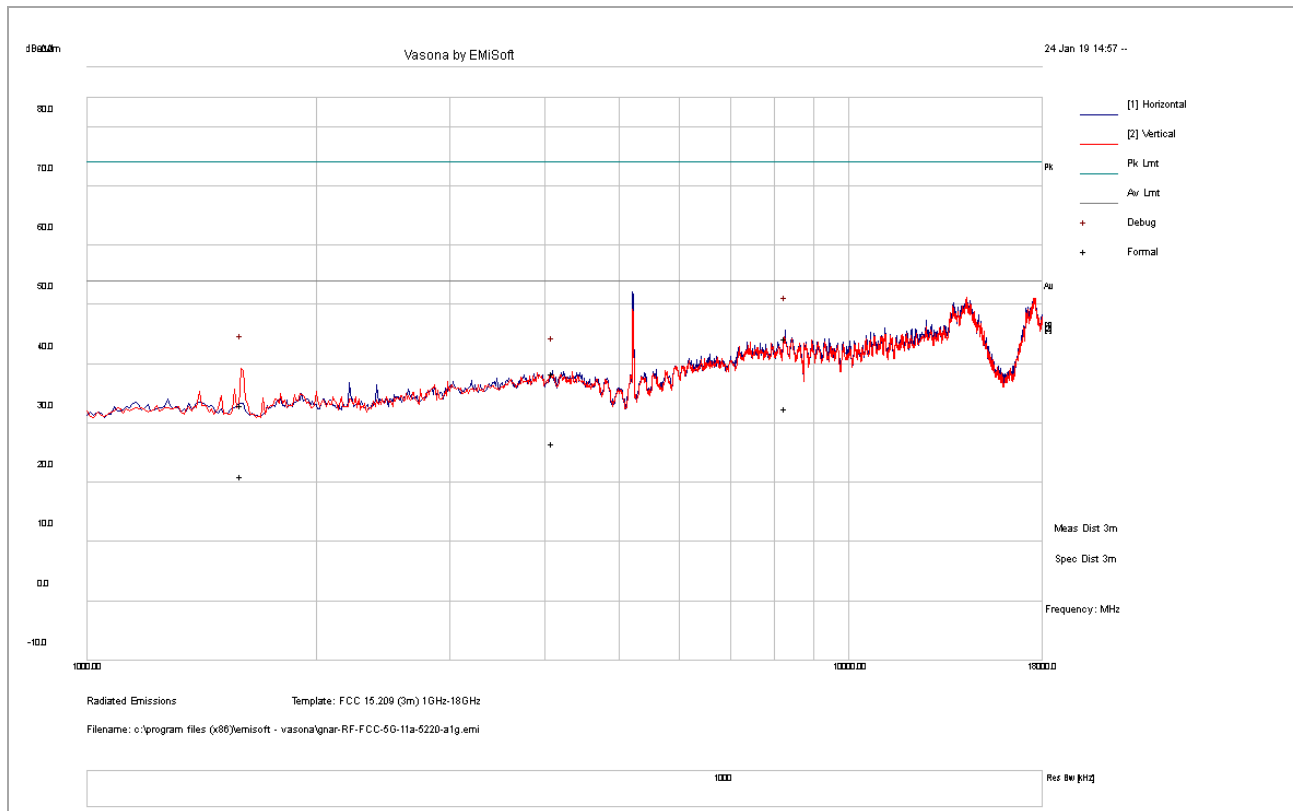
**Report Number:** GBX-19011401-LC-RF-FCC-UNII Rev1.0  
**Product:** GNARBOX 2.0 SSD  
**Model Number:** GBXV2  
**Family Model:** GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



Page 64 of 112

## 1GHz – 18GHz test result

<b>Test Standard:</b>	<b>15.209</b>	<b>Mode:</b>	<b>11a-5220MHz</b>
<b>Frequency Range:</b>	<b>1GHz-18GHz</b>	<b>Test Date:</b>	<b>01/24/2019</b>
<b>Antenna Type/Polarity:</b>	<b>Horn/Hor &amp; Ver</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>N/A</b>	<b>Test Result:</b>	<b>Pass</b>



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8265.77	28.74	15.83	-0.24	44.33	PK	H	364	310	74.00	-29.67
1595.92	34.42	10.45	-11.80	33.07	PK	V	173	238	74.00	-40.93
4090.25	32.49	12.49	-6.56	38.42	PK	H	381	171	74.00	-35.58
8265.77	16.97	15.83	-0.24	32.56	AV	H	364	310	54.00	-21.44
1595.92	22.49	10.45	-11.80	21.15	AV	V	173	238	54.00	-32.86
4090.25	20.75	12.49	-6.56	26.67	AV	H	381	171	54.00	-27.33



Electromagnetic Compatibility  
 Radio Frequency  
 Product Certification  
 International Approval

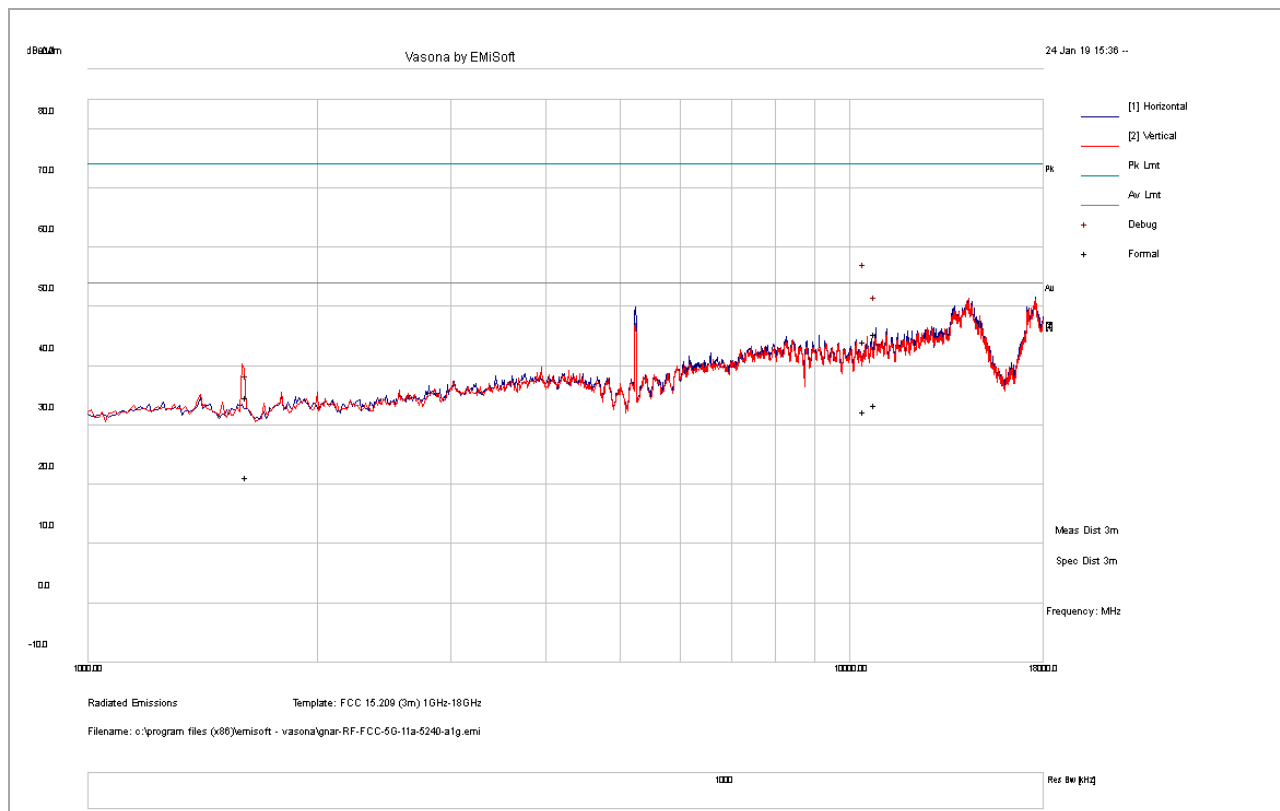
1261 Puerta Del Sol  
 San Clemente, CA, 92673  
 +1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5240MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



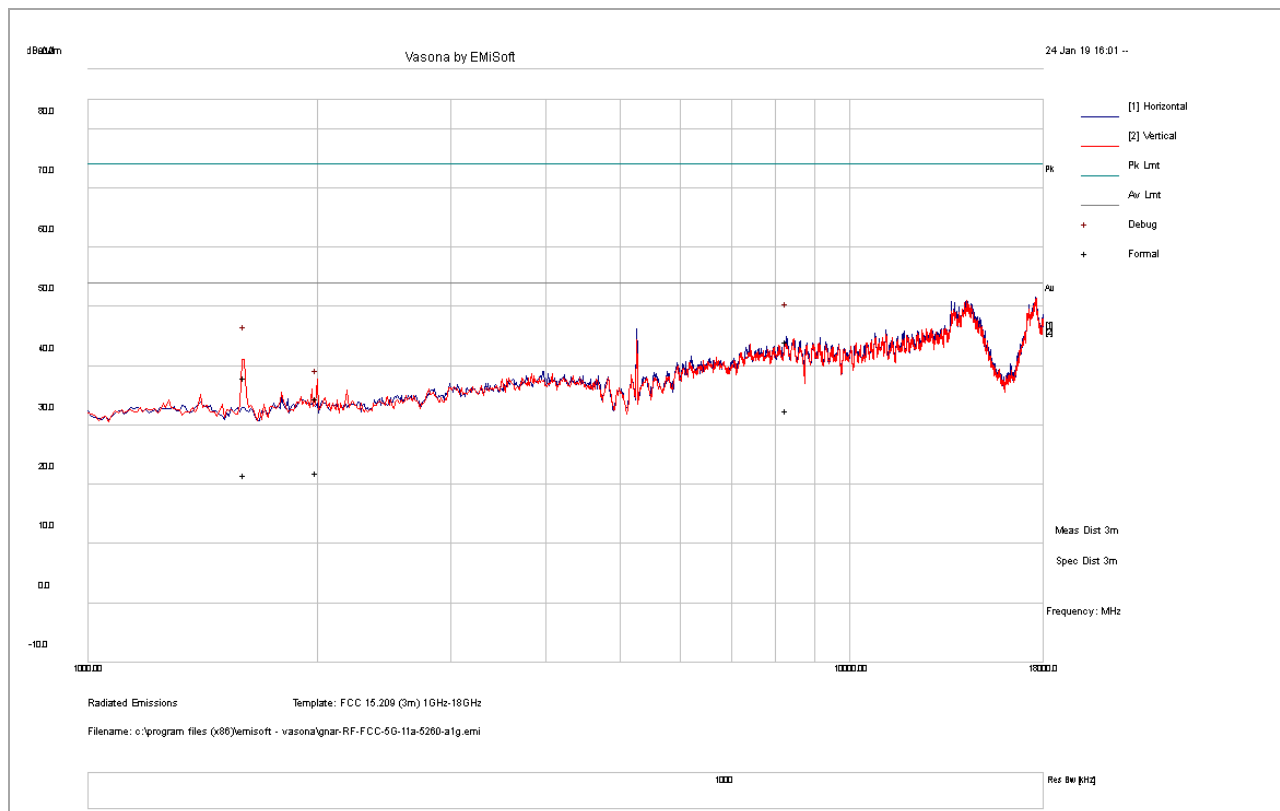
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
10481.15	24.50	17.89	1.66	44.05	PK	H	100	131	74.00	-29.95
10830.39	25.04	18.32	1.98	45.34	PK	V	202	30	74.00	-28.66
1616.24	36.14	10.45	-11.85	34.74	PK	V	247	168	74.00	-39.26
10481.15	12.78	17.89	1.66	32.33	AV	H	100	131	54.00	-21.67
10830.39	13.13	18.32	1.98	33.44	AV	V	202	30	54.00	-20.57
1616.24	22.68	10.45	-11.85	21.28	AV	V	247	168	54.00	-32.72

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5260MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8278.52	28.57	15.83	-0.21	44.19	PK	H	285	94	74.00	-29.81
1604.16	39.38	10.45	-11.81	38.03	PK	V	276	180	74.00	-35.97
1998.14	34.76	10.44	-10.60	34.60	PK	V	262	138	74.00	-39.40
8278.52	16.84	15.83	-0.21	32.46	AV	H	285	94	54.00	-21.54
1604.16	22.94	10.45	-11.81	21.59	AV	V	276	180	54.00	-32.42
1998.14	22.19	10.44	-10.60	22.04	AV	V	262	138	54.00	-31.96

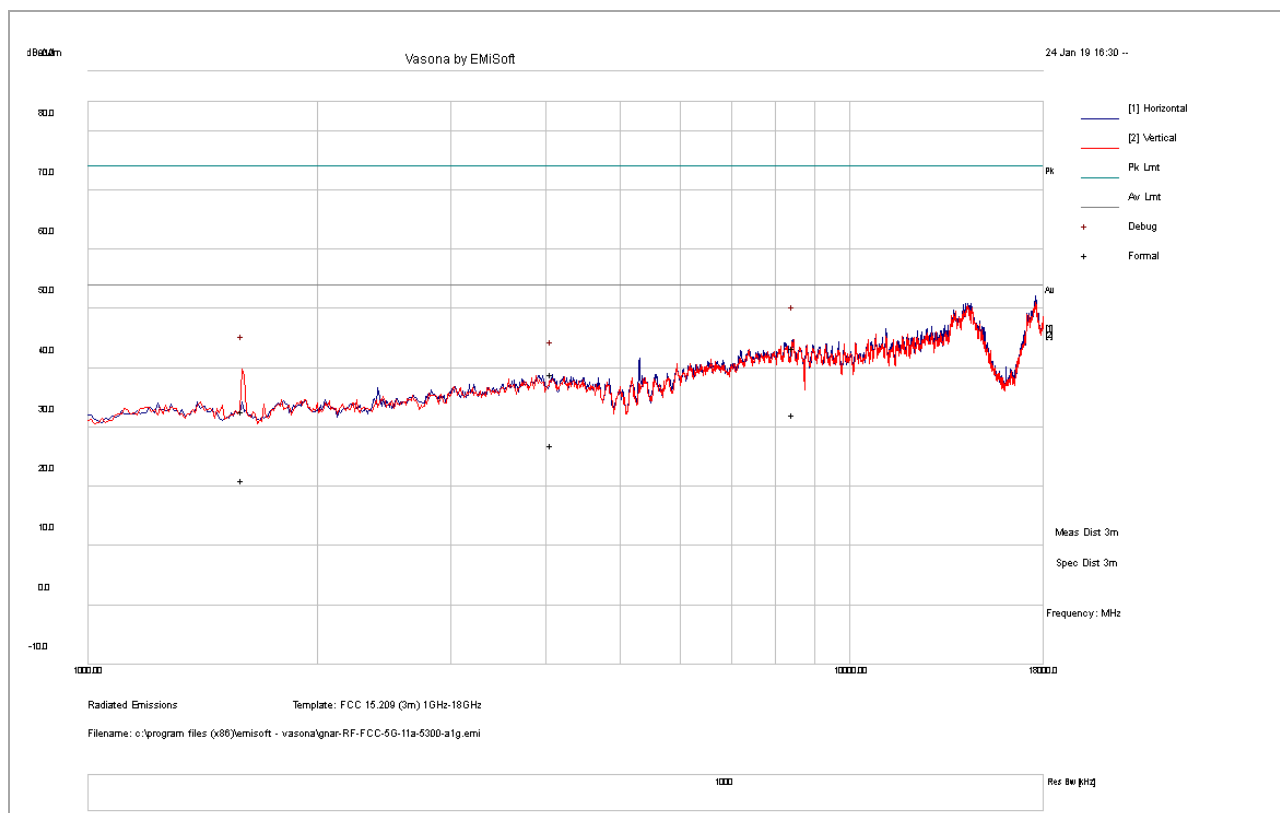


<b>Report Number:</b>	GBX-19011401-LC-RF-FCC-UNII Rev1.0
<b>Product:</b>	GNARBOX 2.0 SSD
<b>Model Number:</b>	GBXV2
<b>Family Model:</b>	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5300MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8449.19	27.66	15.86	-0.04	43.48	PK	V	271	151	74.00	-30.52
1595.08	34.01	10.45	-11.80	32.67	PK	V	264	74	74.00	-41.33
4069.10	32.99	12.47	-6.54	38.92	PK	H	140	46	74.00	-35.08
8449.19	16.26	15.86	-0.04	32.07	AV	V	271	151	54.00	-21.93
1595.08	22.36	10.45	-11.80	21.01	AV	V	264	74	54.00	-32.99
4069.10	20.98	12.47	-6.54	26.91	AV	H	140	46	54.00	-27.09



Electromagnetic Compatibility  
Radio Frequency  
Product Certification  
International Approval

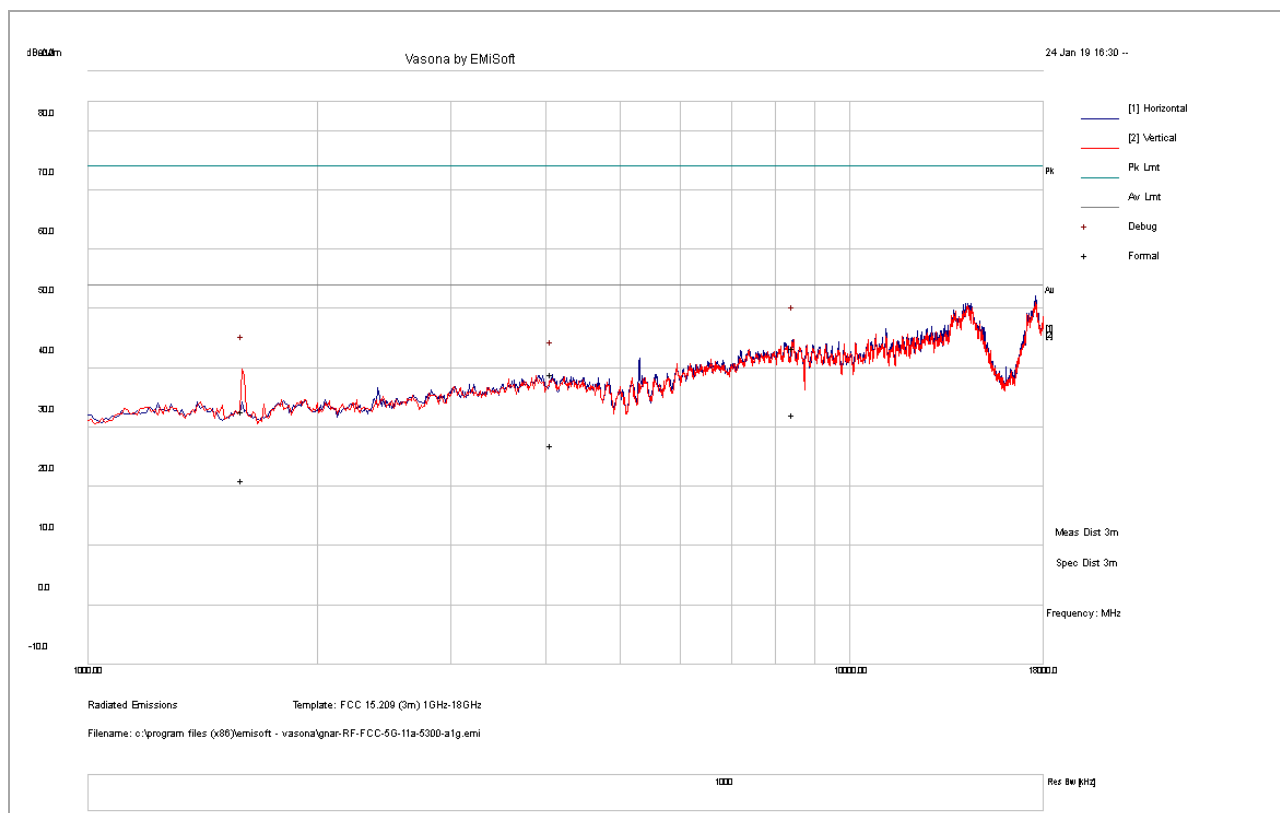
1261 Puerta Del Sol  
San Clemente, CA, 92673  
+1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5300MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



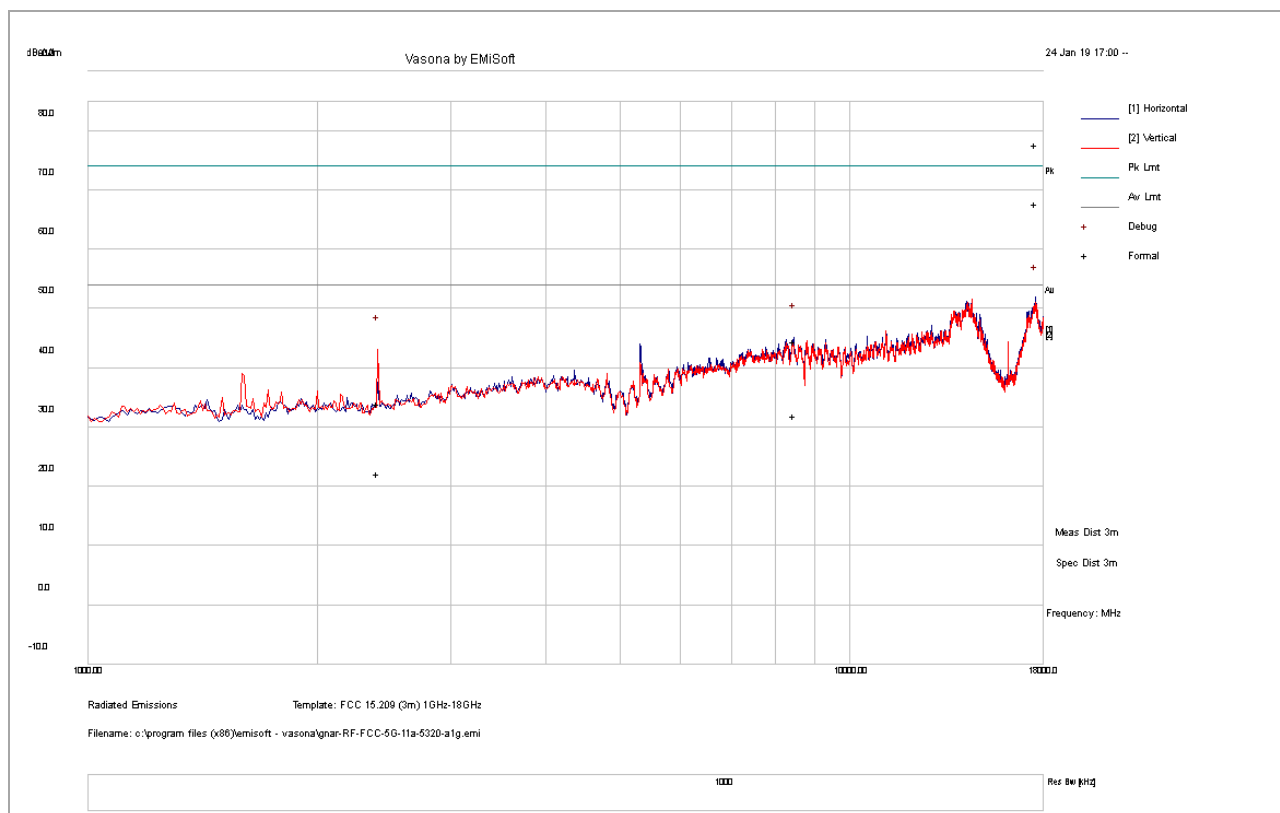
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8449.19	27.66	15.86	-0.04	43.48	PK	V	271	151	74.00	-30.52
1595.08	34.01	10.45	-11.80	32.67	PK	V	264	74	74.00	-41.33
4069.10	32.99	12.47	-6.54	38.92	PK	H	140	46	74.00	-35.08
8449.19	16.26	15.86	-0.04	32.07	AV	V	271	151	54.00	-21.93
1595.08	22.36	10.45	-11.80	21.01	AV	V	264	74	54.00	-32.99
4069.10	20.98	12.47	-6.54	26.91	AV	H	140	46	54.00	-27.09

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5320MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



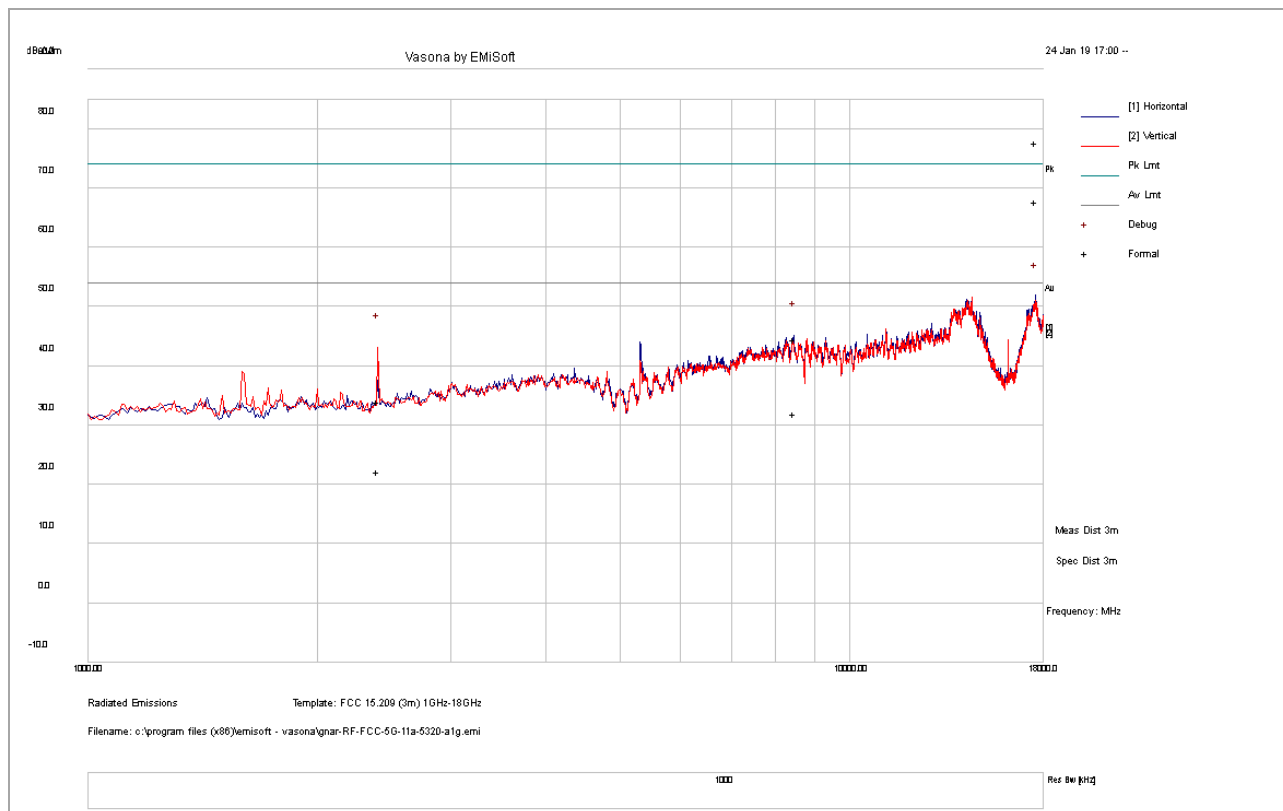
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
17571.68	22.85	23.26	11.62	57.73	PK	V	144	270	74.00	-16.27
8456.85	28.64	15.86	-0.04	44.47	PK	H	181	178	74.00	-29.53
2403.38	33.03	10.83	-9.85	34.01	PK	V	128	7	74.00	-39.99
17571.68	12.81	23.26	11.62	47.69	AV	V	144	270	54.00	-6.31
8456.85	16.22	15.86	-0.04	32.05	AV	H	181	178	54.00	-21.96
2403.38	21.22	10.83	-9.85	22.19	AV	V	128	7	54.00	-31.81

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5500MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14407.81	28.91	20.66	8.18	57.75	PK	V	137	264	74.00	-16.25
3805.66	32.17	12.22	-6.29	38.10	PK	H	120	350	74.00	-35.90
1595.60	34.28	10.45	-11.80	32.94	PK	V	266	288	74.00	-41.07
14407.81	12.89	20.66	8.18	41.73	AV	V	137	264	54.00	-12.27
3805.66	20.08	12.22	-6.29	26.01	AV	H	120	350	54.00	-27.99
1595.60	22.28	10.45	-11.80	20.93	AV	V	266	288	54.00	-33.07



Electromagnetic Compatibility  
Radio Frequency  
Product Certification  
International Approval

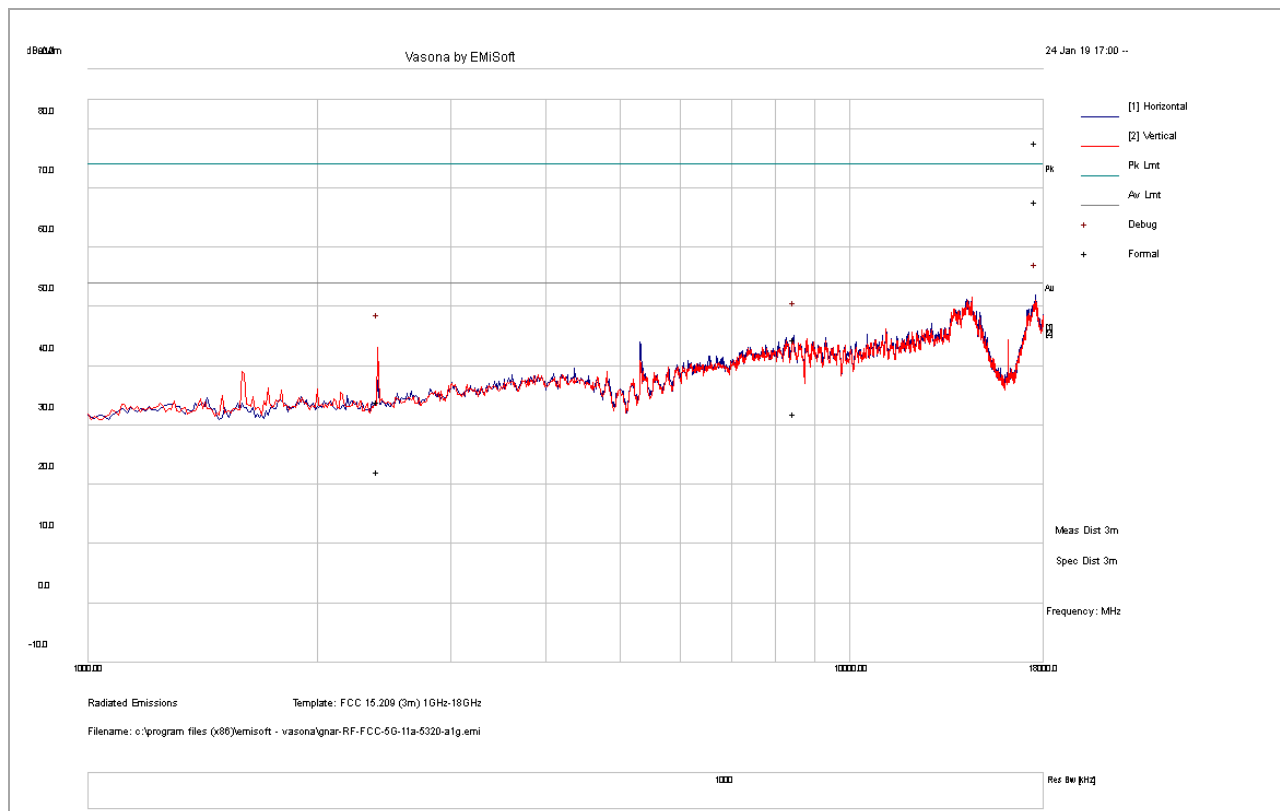
1261 Puerta Del Sol  
San Clemente, CA, 92673  
+1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5600MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



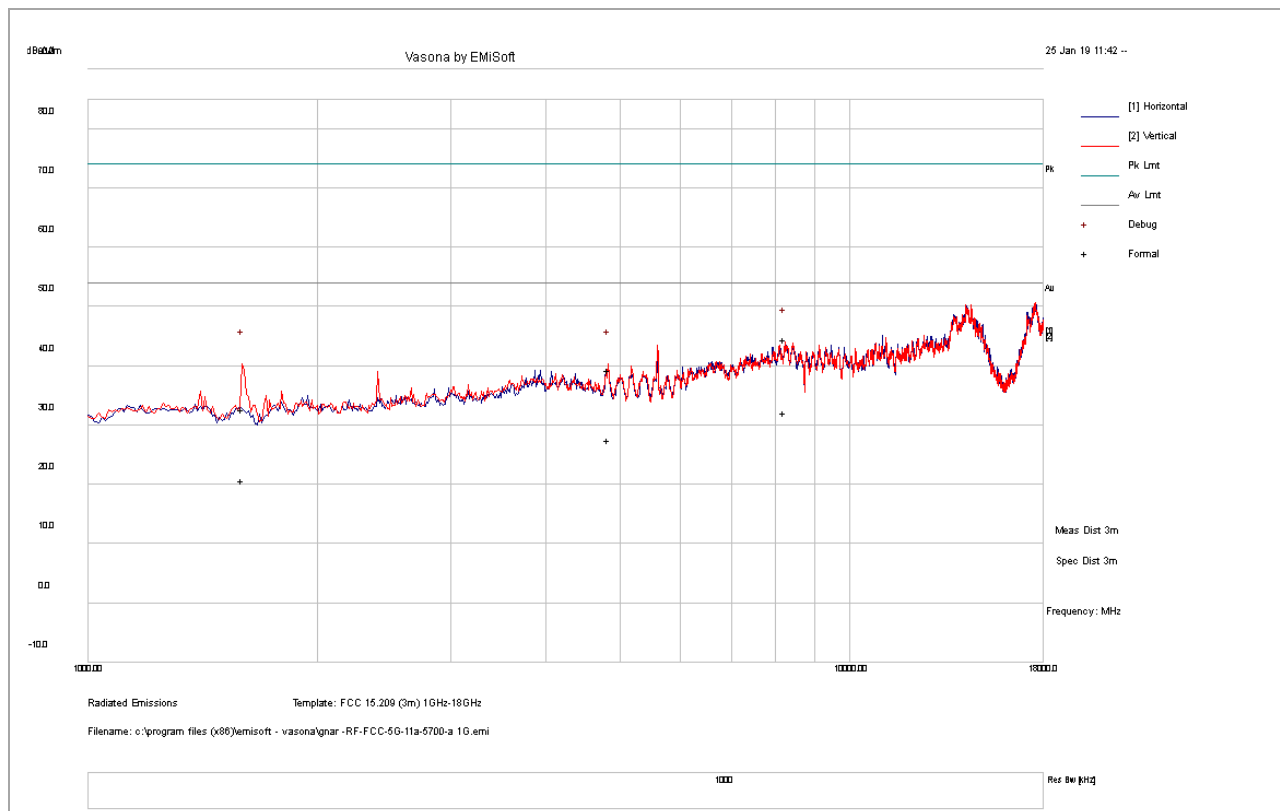
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
9329.36	26.41	16.40	0.12	42.94	PK	H	201	17	74.00	-31.06
5602.13	37.29	13.08	-5.91	44.46	PK	H	154	280	74.00	-29.55
1594.48	34.45	10.45	-11.80	33.10	PK	V	285	155	74.00	-40.90
9329.36	14.92	16.40	0.12	31.44	AV	H	201	17	54.00	-22.56
5602.13	27.68	13.08	-5.91	34.85	AV	H	154	280	54.00	-19.15
1594.48	22.82	10.45	-11.80	21.47	AV	V	285	155	54.00	-32.53

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5700MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



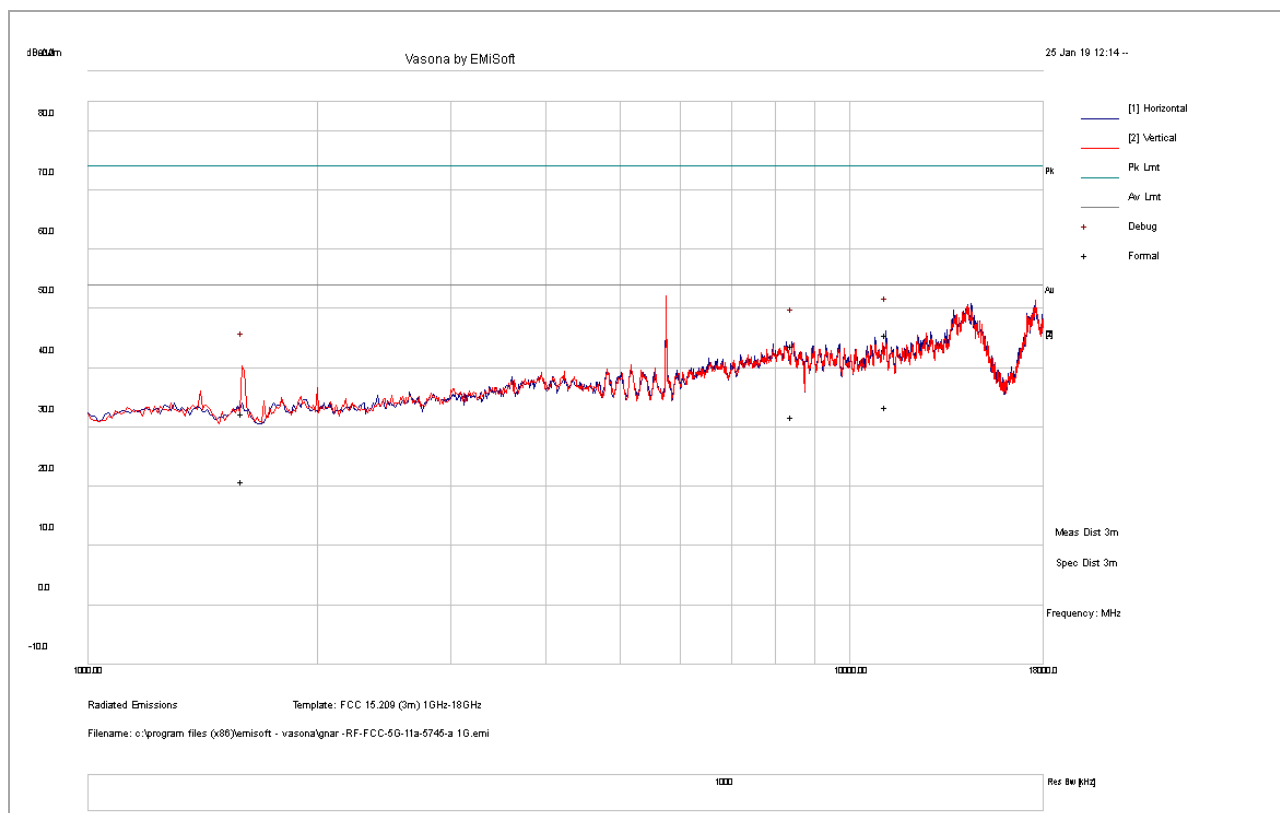
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8233.66	29.00	15.82	-0.33	44.49	PK	V	247	245	74.00	-29.51
4826.68	32.05	12.88	-5.52	39.41	PK	V	308	293	74.00	-34.59
1594.81	34.00	10.45	-11.80	32.65	PK	V	332	74	74.00	-41.35
8233.66	16.69	15.82	-0.33	32.18	AV	V	247	245	54.00	-21.82
4826.68	20.18	12.88	-5.52	27.54	AV	V	308	293	54.00	-26.46
1594.81	22.13	10.45	-11.80	20.78	AV	V	332	74	54.00	-33.22

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5745MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
11179.25	24.48	18.69	2.53	45.70	PK	H	103	0	74.00	-28.30
8404.69	28.05	15.85	-0.07	43.83	PK	H	312	136	74.00	-30.17
1596.71	33.75	10.45	-11.80	32.40	PK	V	299	100	74.00	-41.60
11179.25	12.26	18.69	2.53	33.48	AV	H	103	0	54.00	-20.52
8404.69	15.92	15.85	-0.07	31.70	AV	H	312	136	54.00	-22.30
1596.71	22.24	10.45	-11.80	20.90	AV	V	299	100	54.00	-33.10



Electromagnetic Compatibility  
Radio Frequency  
Product Certification  
International Approval

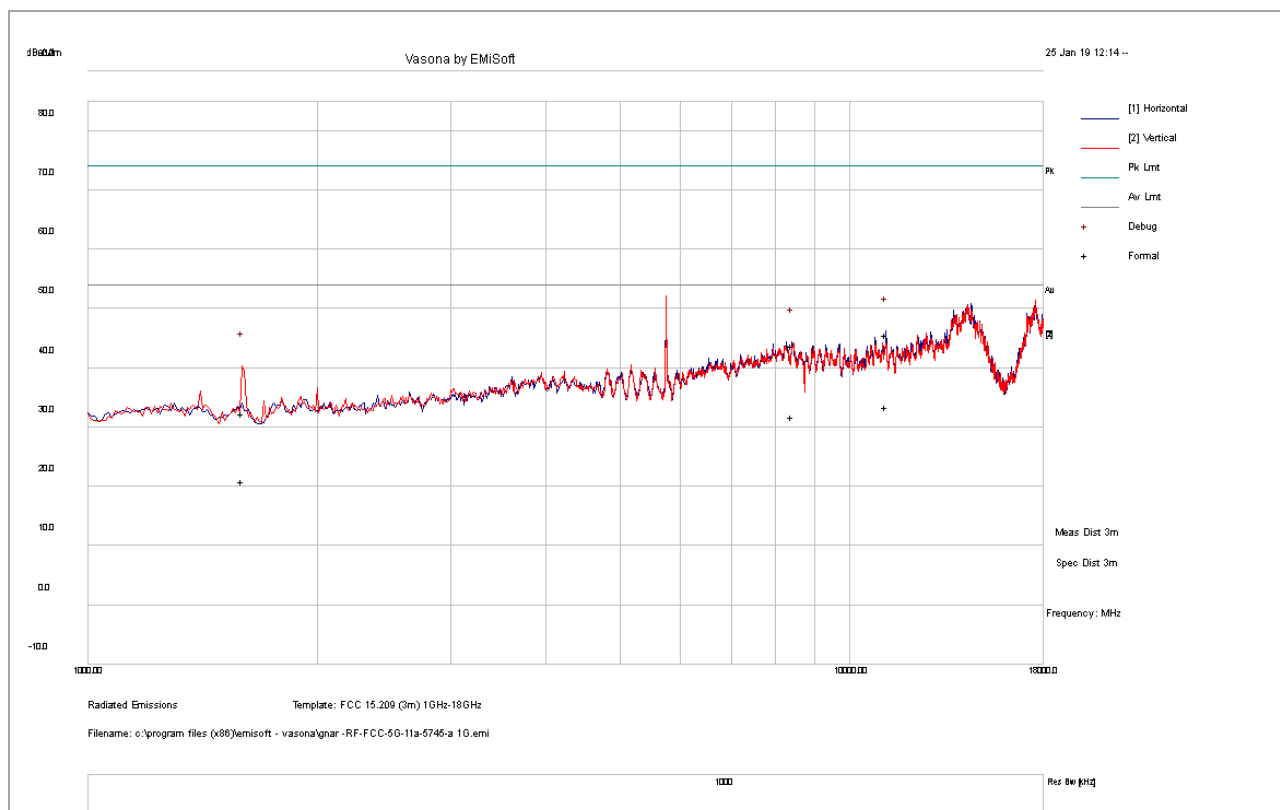
1261 Puerta Del Sol  
San Clemente, CA, 92673  
+1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5745MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14280.67	27.11	20.35	8.18	55.64	PK	H	157	149	74.00	-18.36
2404.15	33.44	10.83	-9.85	34.42	PK	H	387	93	74.00	-39.58
1593.54	36.63	10.45	-11.80	35.28	PK	V	134	147	74.00	-38.72
14280.67	16.73	20.35	8.18	45.26	AV	H	157	149	54.00	-8.74
2404.15	21.38	10.83	-9.85	22.36	AV	H	387	93	54.00	-31.64
1593.54	22.92	10.45	-11.80	21.57	AV	V	134	147	54.00	-32.43

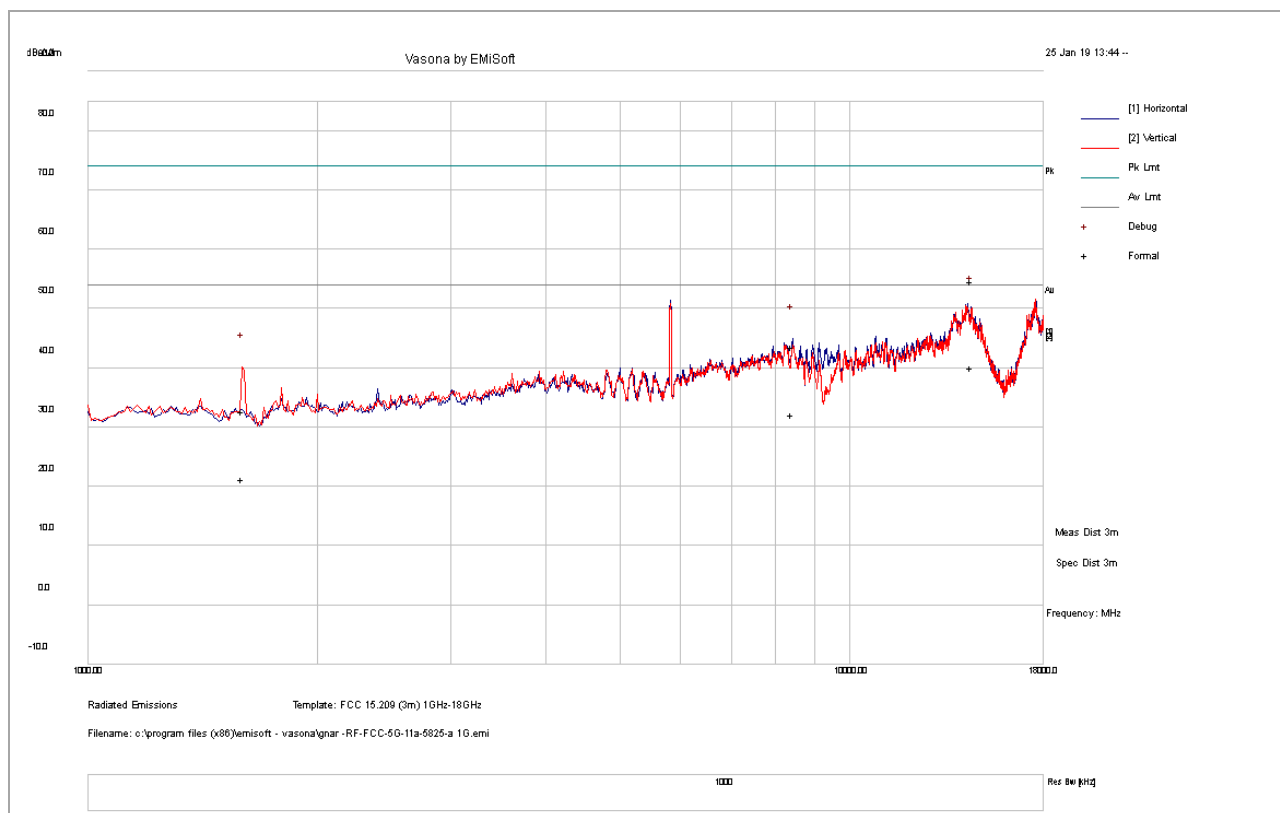


<b>Report Number:</b>	GBX-19011401-LC-RF-FCC-UNII Rev1.0
<b>Product:</b>	GNARBOX 2.0 SSD
<b>Model Number:</b>	GBXV2
<b>Family Model:</b>	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5825MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



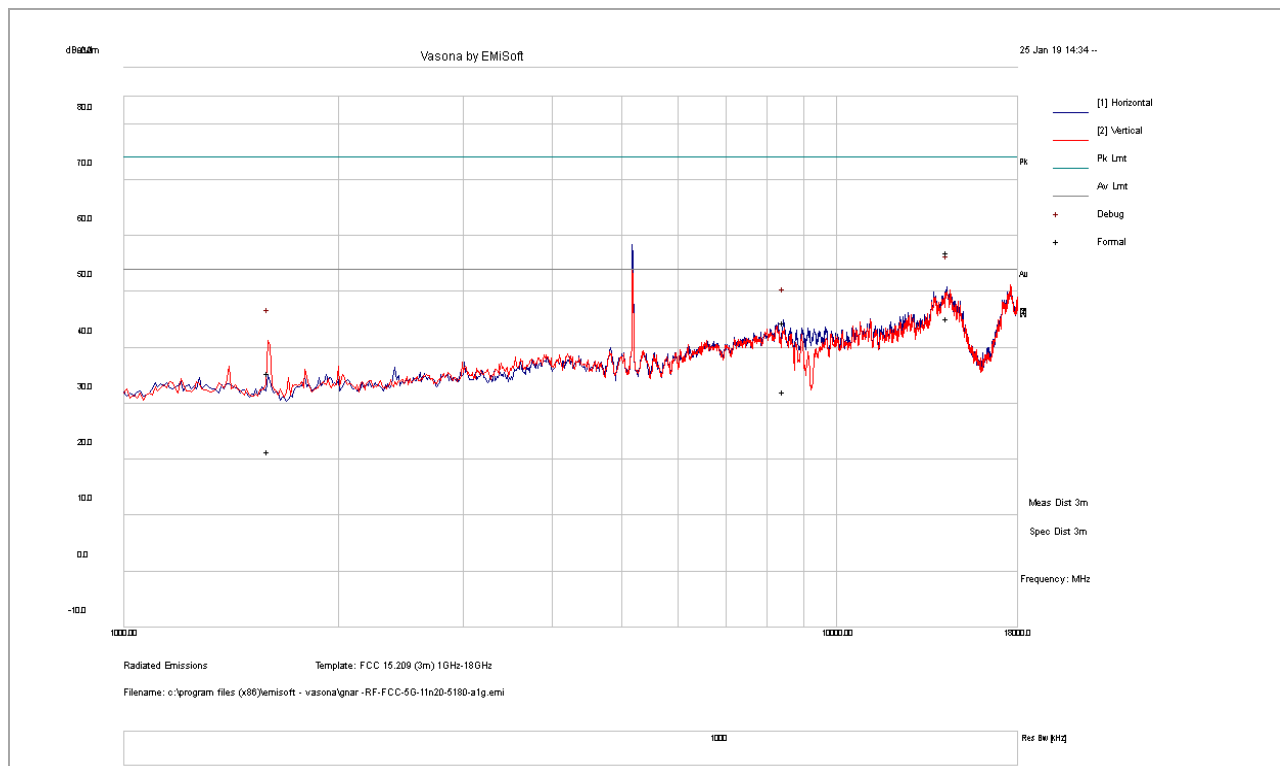
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14490.61	26.20	20.86	7.64	54.70	PK	V	339	89	74.00	-19.30
8425.56	27.76	15.85	-0.06	43.56	PK	H	346	78	74.00	-30.44
1594.50	34.13	10.45	-11.80	32.78	PK	V	280	213	74.00	-41.22
14490.61	11.58	20.86	7.64	40.08	AV	V	339	89	54.00	-13.92
8425.56	16.37	15.85	-0.06	32.16	AV	H	346	78	54.00	-21.84
1594.50	22.55	10.45	-11.80	21.20	AV	V	280	213	54.00	-32.80

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5180MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14312.26	28.36	20.43	8.28	57.07	PK	H	271	199	74.00	-16.93
8437.25	28.63	15.85	-0.05	44.44	PK	H	185	229	74.00	-29.56
1596.20	36.77	10.45	-11.80	35.42	PK	V	177	211	74.00	-38.58
14312.26	16.61	20.43	8.28	45.32	AV	H	271	199	54.00	-8.68
8437.25	16.33	15.85	-0.05	32.14	AV	H	185	229	54.00	-21.86
1596.20	22.79	10.45	-11.80	21.44	AV	V	177	211	54.00	-32.56

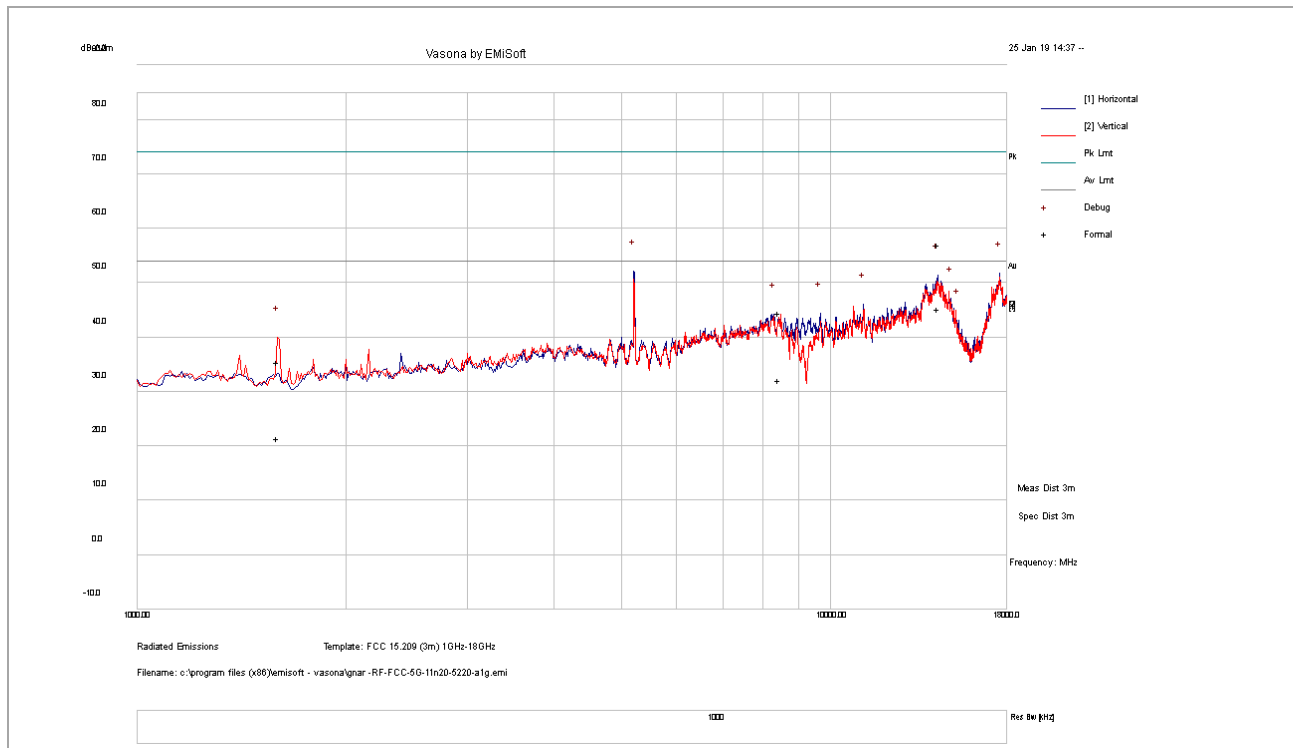
**Report Number:** GBX-19011401-LC-RF-FCC-UNII Rev1.0  
**Product:** GNARBOX 2.0 SSD  
**Model Number:** GBXV2  
**Family Model:** GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



Page 77 of 112

## 1GHz – 18GHz test result

<b>Test Standard:</b>	<b>15.209</b>	<b>Mode:</b>	<b>11n-5220MHz</b>
<b>Frequency Range:</b>	<b>1GHz-18GHz</b>	<b>Test Date:</b>	<b>01/24/2019</b>
<b>Antenna Type/Polarity:</b>	<b>Horn/Hor &amp; Ver</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>N/A</b>	<b>Test Result:</b>	<b>Pass</b>



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14281.97	28.71	20.35	8.19	57.25	PK	H	179	219	74.00	-16.75
2402.37	33.70	10.83	-9.86	34.68	PK	H	286	54	74.00	-39.32
1592.76	34.44	10.45	-11.80	33.09	PK	V	208	256	74.00	-40.91
1593.63	35.62	10.45	-11.80	34.27	PK	V	285	160	74.00	-39.73
2405.63	34.01	10.83	-9.85	34.99	PK	H	109	154	74.00	-39.01
14281.97	15.27	20.35	8.19	43.81	AV	H	179	219	54.00	-10.19
2402.37	21.59	10.83	-9.86	22.57	AV	H	286	54	54.00	-31.44
1592.76	22.40	10.45	-11.80	21.05	AV	V	208	256	54.00	-32.95
1593.63	22.96	10.45	-11.80	21.61	AV	V	285	160	54.00	-32.39
2405.63	21.53	10.83	-9.85	22.52	AV	H	109	154	54.00	-31.48



Electromagnetic Compatibility  
 Radio Frequency  
 Product Certification  
 International Approval

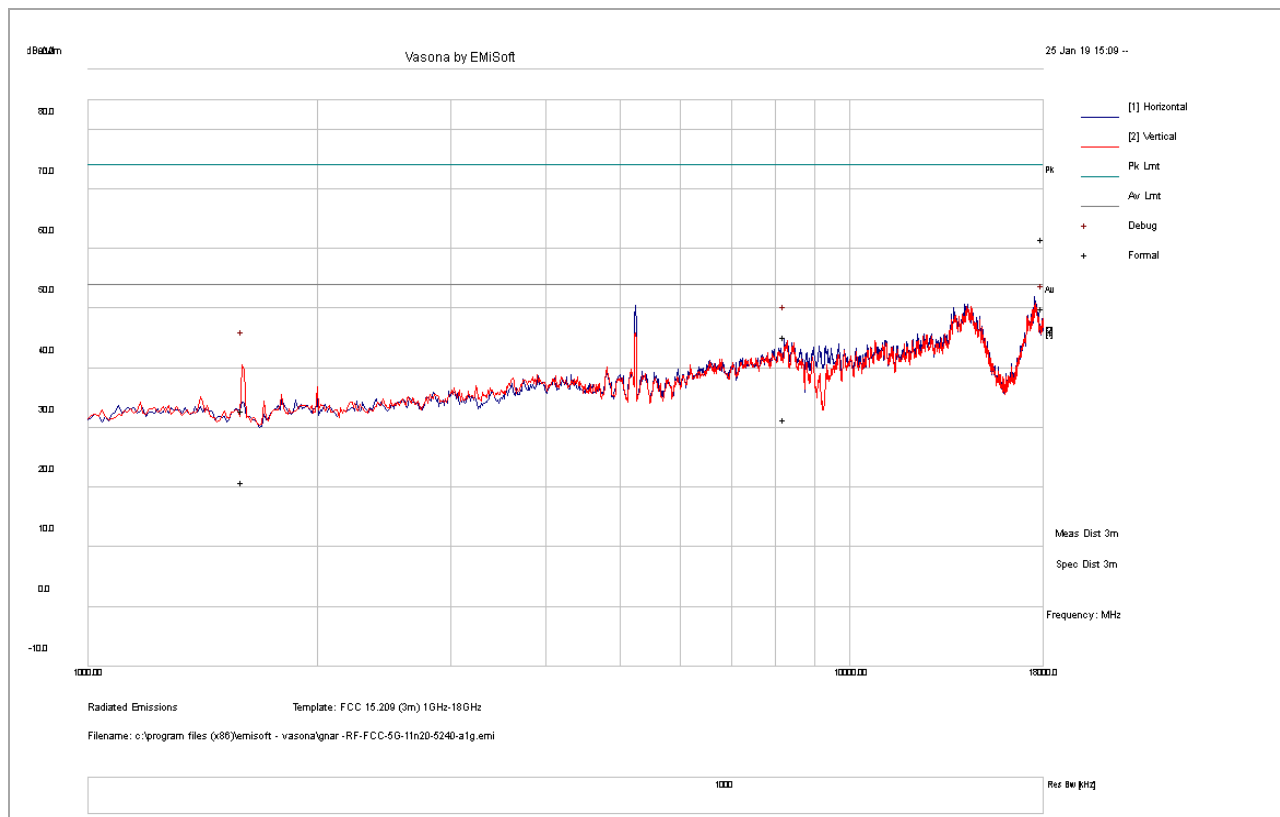
1261 Puerta Del Sol  
 San Clemente, CA, 92673  
 +1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	<b>15.209</b>	<b>Mode:</b>	<b>11n-5240MHz</b>
<b>Frequency Range:</b>	<b>1GHz-18GHz</b>	<b>Test Date:</b>	<b>01/24/2019</b>
<b>Antenna Type/Polarity:</b>	<b>Horn/Hor &amp; Ver</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>N/A</b>	<b>Test Result:</b>	<b>Pass</b>



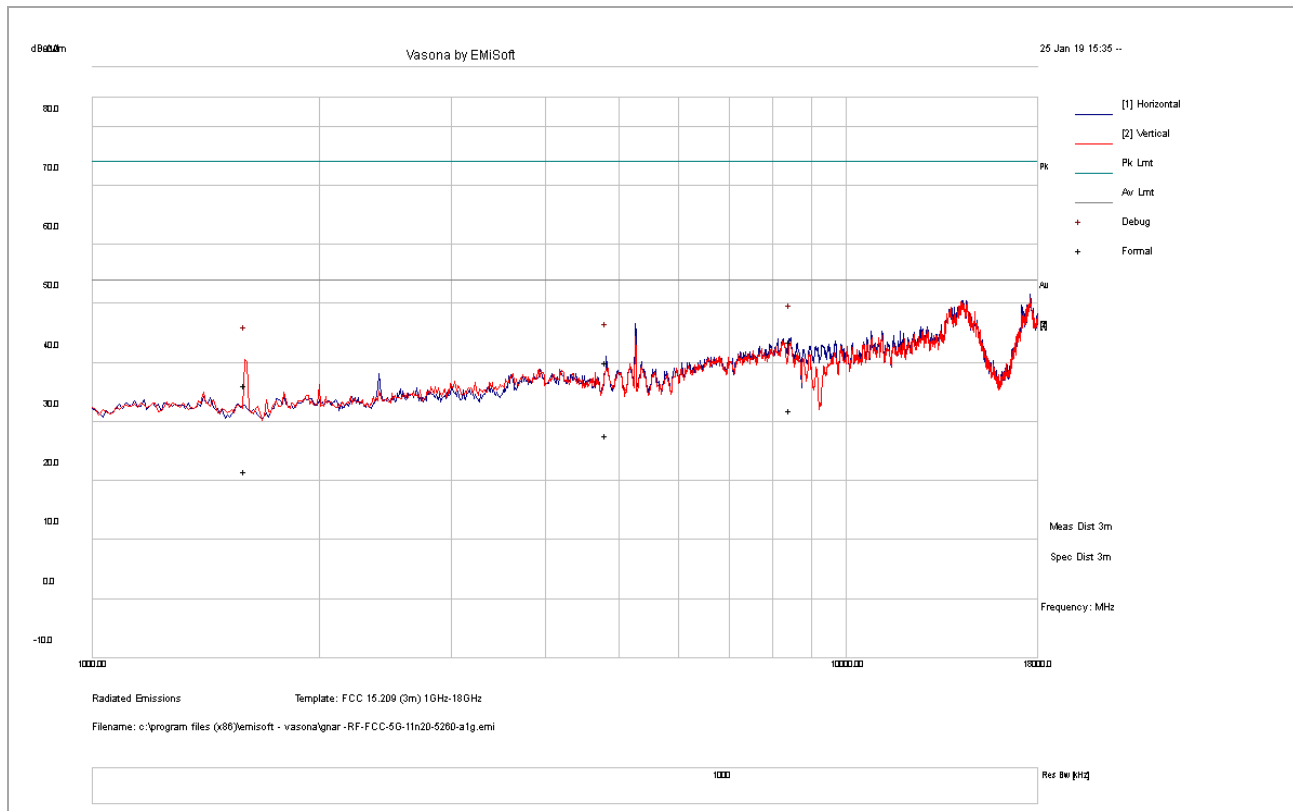
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
17935.05	28.38	23.69	9.61	61.69	PK	H	213	0	74.00	-12.32
8212.59	29.82	15.82	-0.41	45.23	PK	H	307	306	74.00	-28.77
1596.06	34.32	10.45	-11.80	32.98	PK	V	400	121	74.00	-41.03
17935.05	16.76	23.69	9.61	50.06	AV	H	213	0	54.00	-3.94
8212.59	16.07	15.82	-0.41	31.48	AV	H	307	306	54.00	-22.52
1596.06	22.20	10.45	-11.80	20.85	AV	V	400	121	54.00	-33.15

**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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	<b>15.209</b>	<b>Mode:</b>	<b>11n-5260MHz</b>
<b>Frequency Range:</b>	<b>1GHz-18GHz</b>	<b>Test Date:</b>	<b>01/24/2019</b>
<b>Antenna Type/Polarity:</b>	<b>Horn/Hor &amp; Ver</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>N/A</b>	<b>Test Result:</b>	<b>Pass</b>



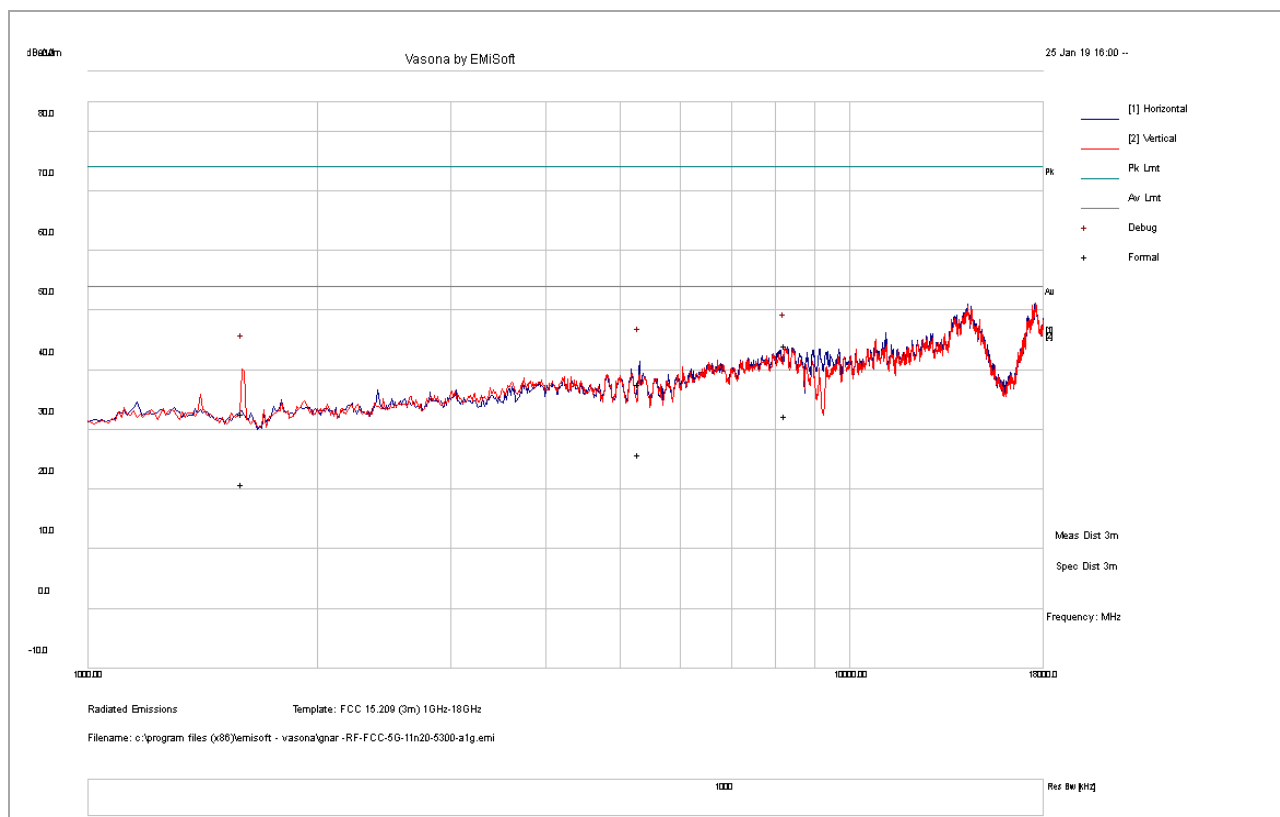
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8446.66	27.75	15.86	-0.04	43.57	PK	H	145	16	74.00	-30.43
4814.40	32.77	12.87	-5.53	40.12	PK	H	196	8	74.00	-33.88
1596.53	37.52	10.45	-11.80	36.17	PK	V	100	181	74.00	-37.83
8446.66	16.20	15.86	-0.04	32.02	AV	H	145	16	54.00	-21.98
4814.40	20.47	12.87	-5.53	27.81	AV	H	196	8	54.00	-26.19
1596.53	22.91	10.45	-11.80	21.57	AV	V	100	181	54.00	-32.44

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5300MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



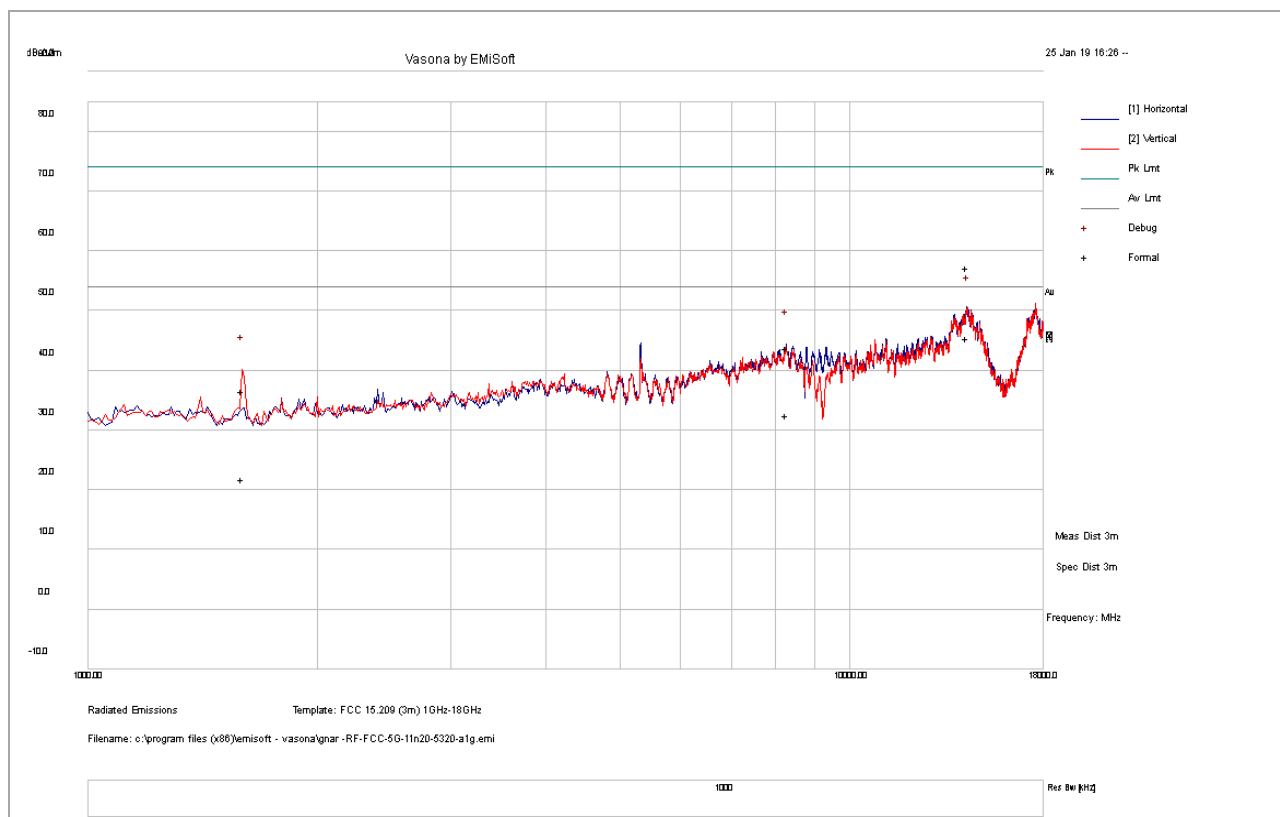
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8237.46	28.70	15.82	-0.32	44.20	PK	V	345	112	74.00	-29.80
5302.11	30.55	12.88	-5.80	37.64	PK	H	340	321	74.00	-36.36
1593.80	34.04	10.45	-11.80	32.70	PK	V	200	130	74.00	-41.31
8237.46	16.78	15.82	-0.32	32.29	AV	V	345	112	54.00	-21.71
5302.11	18.81	12.88	-5.80	25.90	AV	H	340	321	54.00	-28.10
1593.80	22.32	10.45	-11.80	20.98	AV	V	200	130	54.00	-33.03

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5320MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



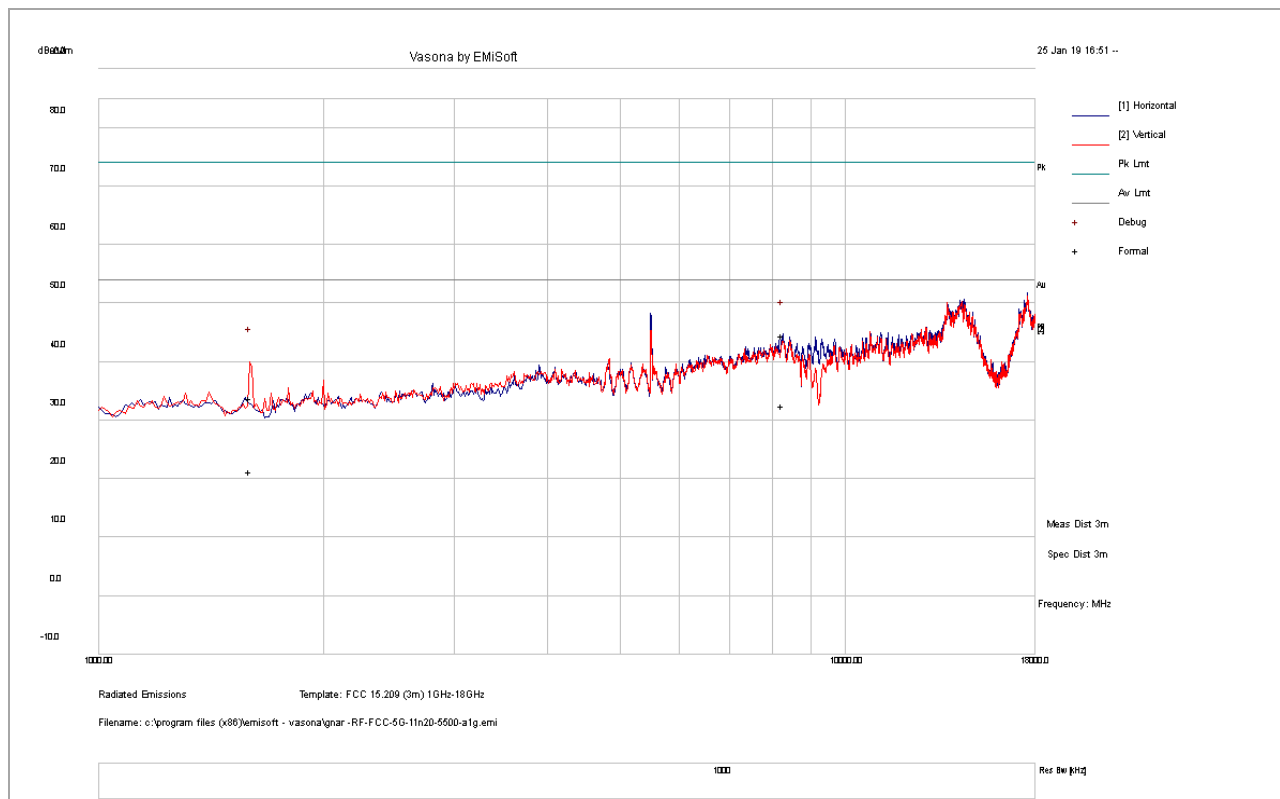
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14303.11	28.65	20.41	8.26	57.31	PK	V	139	174	74.00	-16.69
8267.75	28.25	15.83	-0.23	43.84	PK	H	178	236	74.00	-30.16
1596.81	37.99	10.45	-11.80	36.65	PK	V	241	183	74.00	-37.35
14303.11	16.69	20.41	8.26	45.35	AV	V	139	174	54.00	-8.65
8267.75	16.87	15.83	-0.23	32.47	AV	H	178	236	54.00	-21.53
1596.81	23.15	10.45	-11.80	21.81	AV	V	241	183	54.00	-32.19

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5500MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8255.97	28.87	15.82	-0.26	44.44	PK	H	304	260	74.00	-29.56
1595.63	35.14	10.45	-11.80	33.79	PK	V	160	226	74.00	-40.21
8255.97	16.94	15.82	-0.26	32.51	AV	H	304	260	54.00	-21.49
1595.63	22.55	10.45	-11.80	21.20	AV	V	160	226	54.00	-32.80

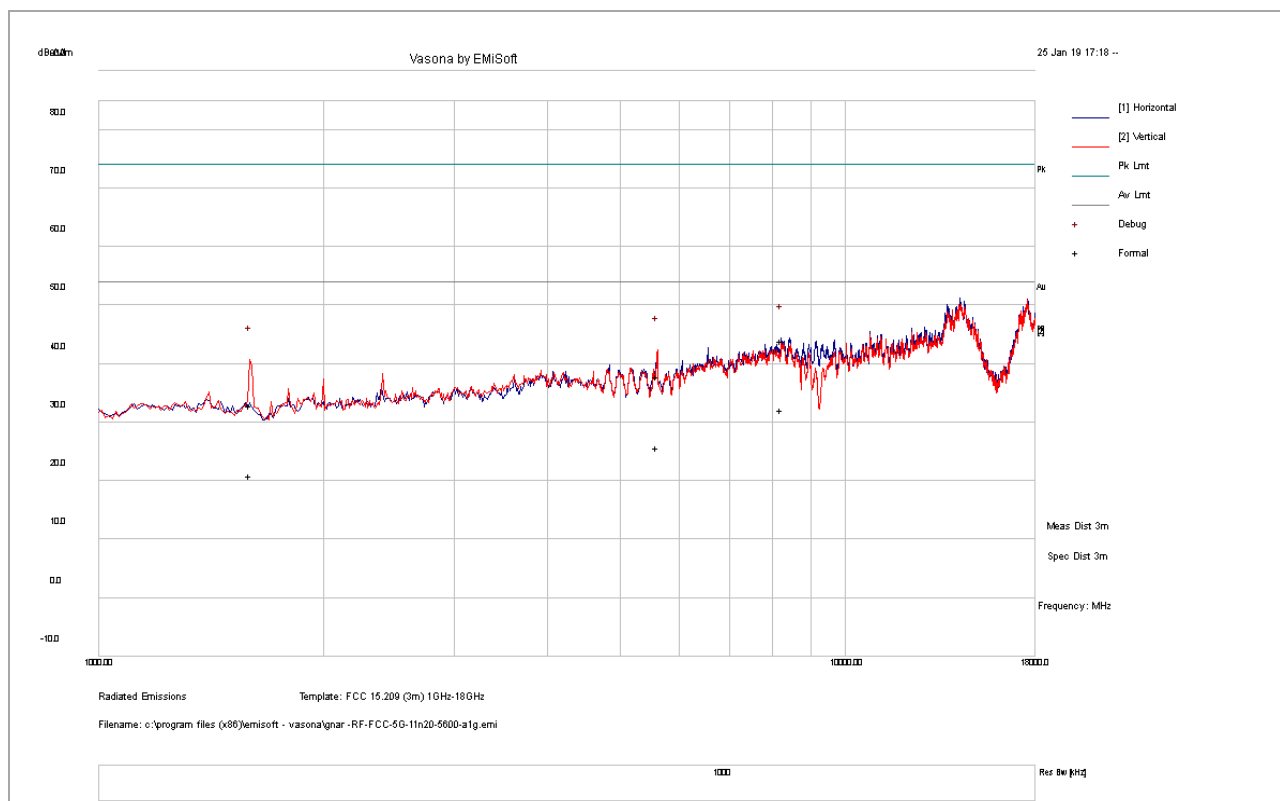


<b>Report Number:</b>	GBX-19011401-LC-RF-FCC-UNII Rev1.0
<b>Product:</b>	GNARBOX 2.0 SSD
<b>Model Number:</b>	GBXV2
<b>Family Model:</b>	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5600MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



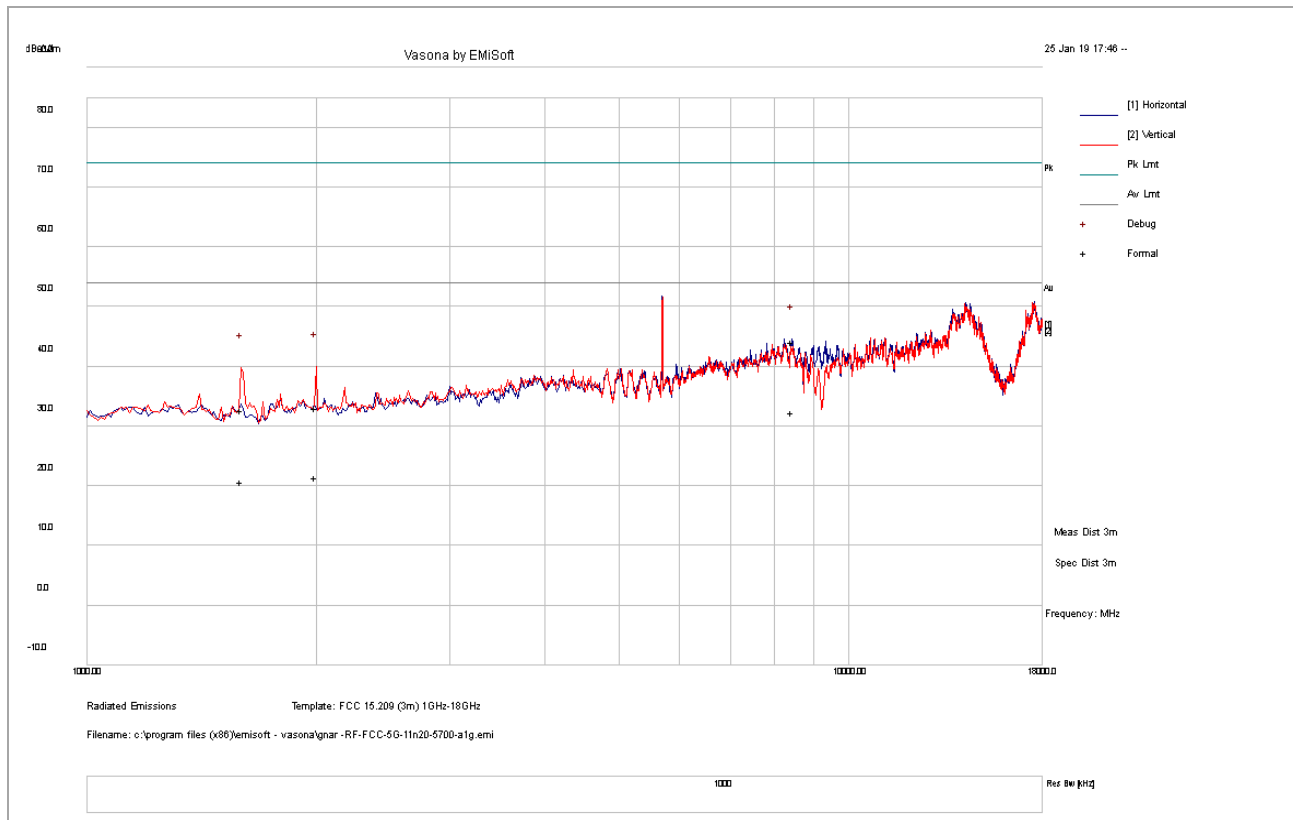
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8226.33	28.47	15.82	-0.36	43.94	PK	H	294	71	74.00	-30.06
5612.66	30.65	13.10	-5.85	37.89	PK	V	314	87	74.00	-36.11
1593.77	34.32	10.45	-11.80	32.97	PK	V	104	128	74.00	-41.03
8226.33	16.65	15.82	-0.36	32.12	AV	H	294	71	54.00	-21.89
5612.66	18.45	13.10	-5.85	25.69	AV	V	314	87	54.00	-28.31
1593.77	22.27	10.45	-11.80	20.92	AV	V	104	128	54.00	-33.08

**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



### 1GHz – 18GHz test result

<b>Test Standard:</b>	<b>15.209</b>	<b>Mode:</b>	<b>11n-5700MHz</b>
<b>Frequency Range:</b>	<b>1GHz-18GHz</b>	<b>Test Date:</b>	<b>01/24/2019</b>
<b>Antenna Type/Polarity:</b>	<b>Horn/Hor &amp; Ver</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>N/A</b>	<b>Test Result:</b>	<b>Pass</b>



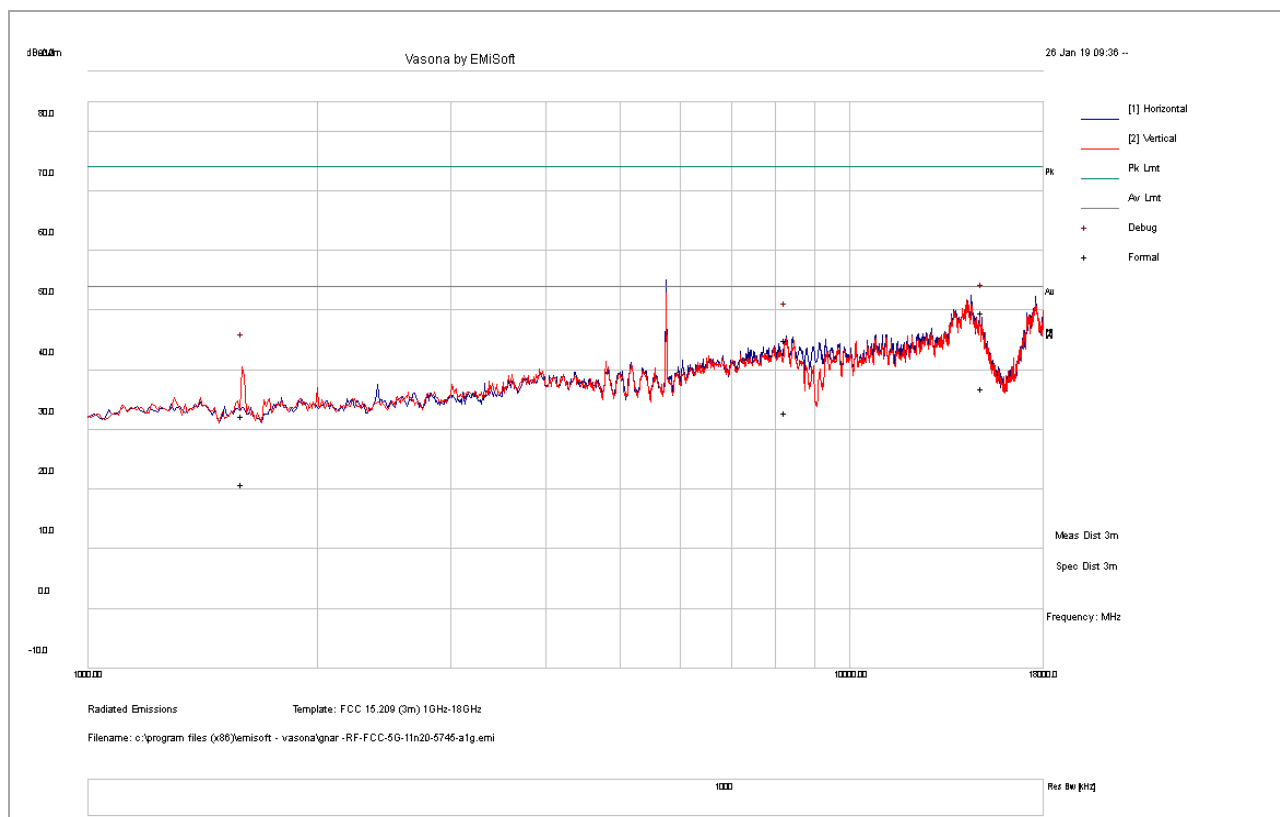
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
2000.71	33.25	10.44	-10.60	33.09	PK	V	234	89	74.00	-40.91
8436.42	28.29	15.85	-0.05	44.09	PK	H	269	222	74.00	-29.91
1593.66	33.99	10.45	-11.80	32.64	PK	V	266	108	74.00	-41.36
1593.66	22.10	10.45	-11.80	20.75	AV	V	266	108	54.00	-33.25
8436.42	16.45	15.85	-0.05	32.25	AV	H	269	222	54.00	-21.75
2000.71	21.62	10.44	-10.60	21.46	AV	V	234	89	54.00	-32.54

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5745MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



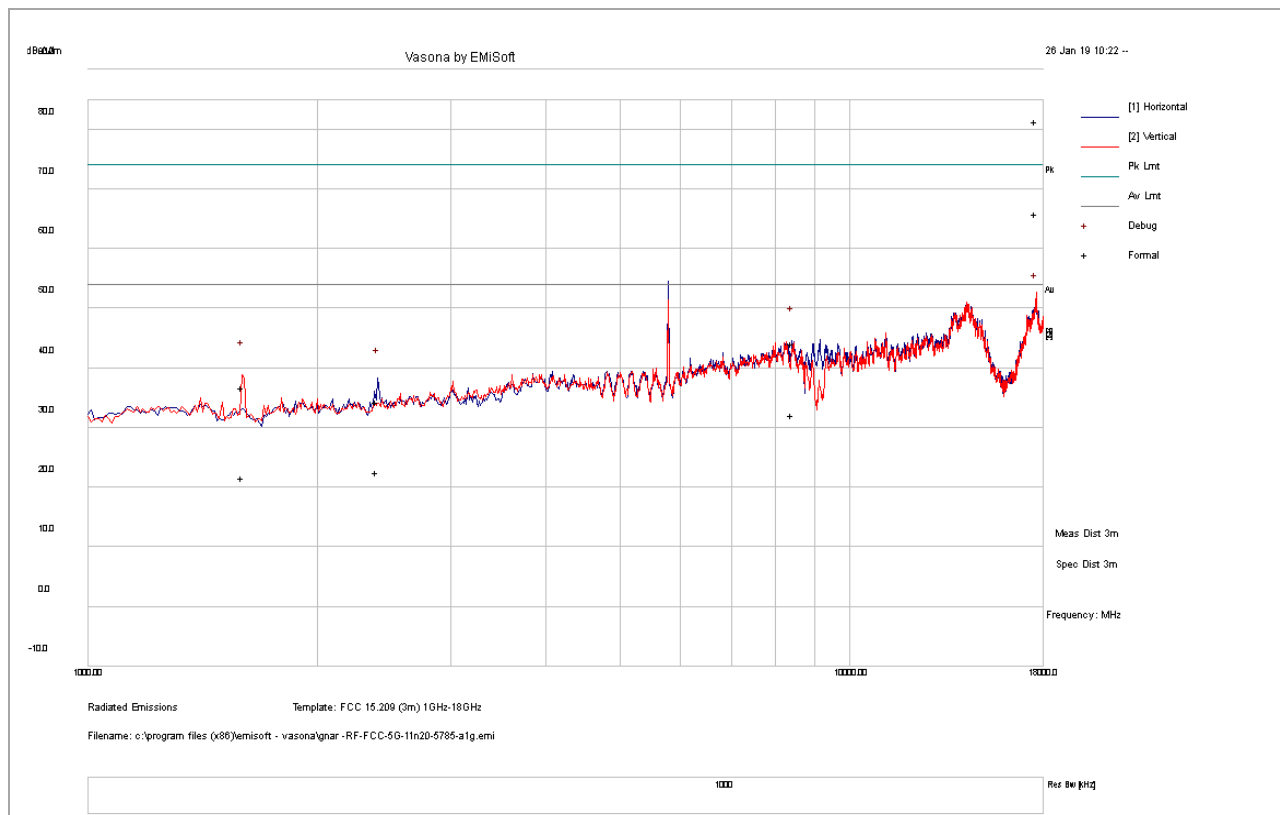
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14940.70	22.28	21.93	5.51	49.72	PK	H	308	48	74.00	-24.28
8257.22	29.45	15.82	-0.26	45.02	PK	H	180	296	74.00	-28.98
1593.94	33.76	10.45	-11.80	32.41	PK	V	281	318	74.00	-41.59
14940.70	9.46	21.93	5.51	36.91	AV	H	308	48	54.00	-17.09
8257.22	17.34	15.82	-0.26	32.91	AV	H	180	296	54.00	-21.09
1593.94	22.31	10.45	-11.80	20.96	AV	V	281	318	54.00	-33.04

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5785MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



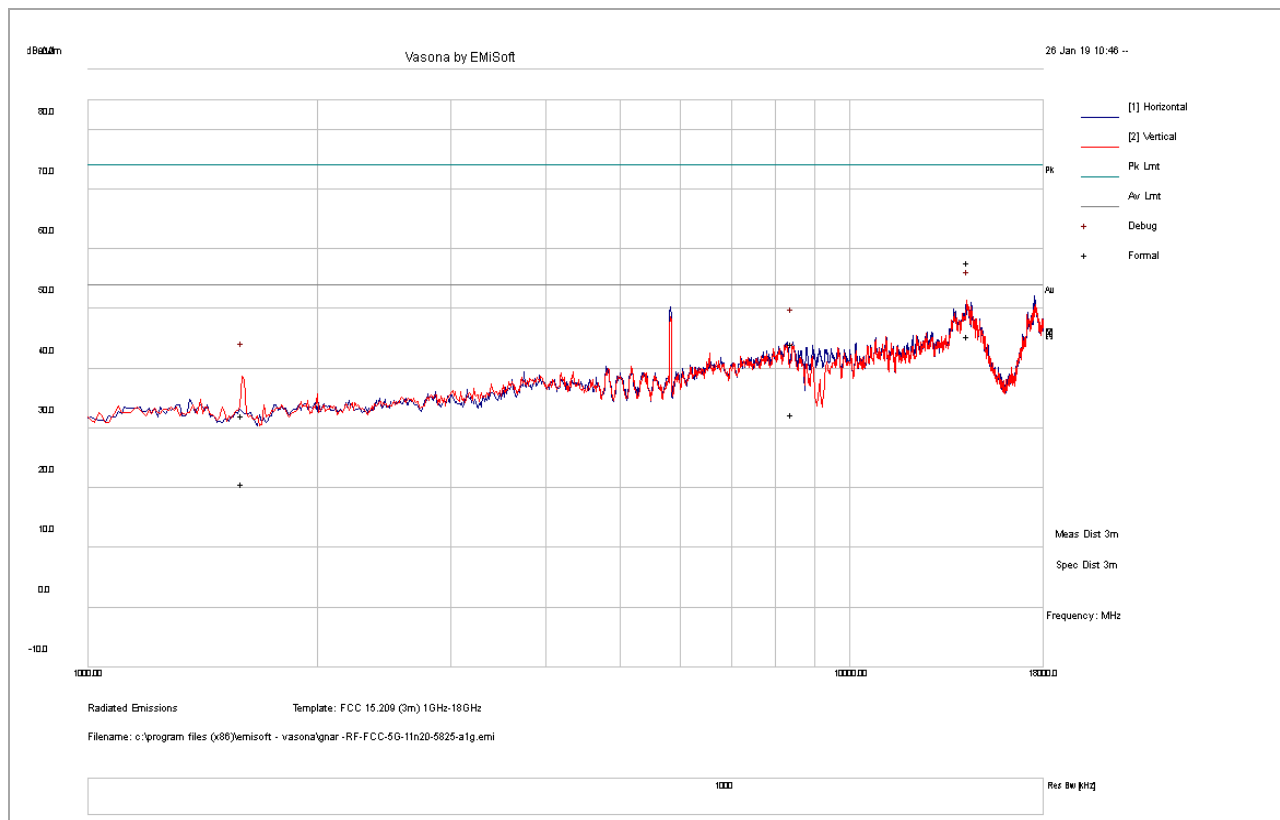
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8415.70	28.33	15.85	-0.06	44.12	PK	H	329	13	74.00	-29.88
1596.40	38.18	10.45	-11.80	36.84	PK	V	205	149	74.00	-37.16
2399.97	33.34	10.83	-9.86	34.30	PK	V	248	110	74.00	-39.70
8415.70	16.41	15.85	-0.06	32.20	AV	H	329	13	54.00	-21.80
1596.40	22.96	10.45	-11.80	21.61	AV	V	205	149	54.00	-32.39
2399.97	21.61	10.83	-9.86	22.57	AV	V	248	110	54.00	-31.43

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n-5825MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



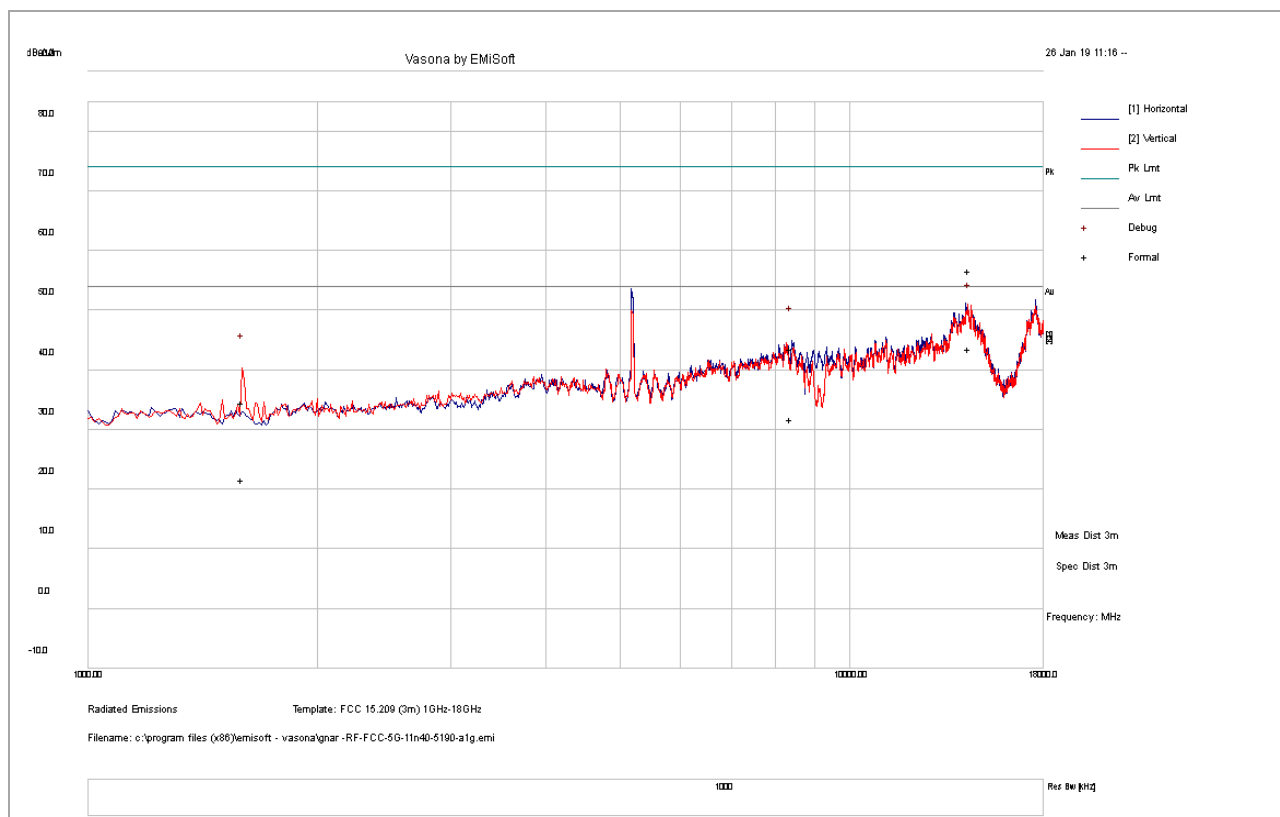
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14304.66	29.18	20.41	8.26	57.85	PK	V	217	2	74.00	-16.15
8425.18	28.42	15.85	-0.06	44.22	PK	H	383	40	74.00	-29.78
1594.64	33.52	10.45	-11.80	32.17	PK	V	383	118	74.00	-41.83
14304.66	16.76	20.41	8.26	45.43	AV	V	217	2	54.00	-8.57
8425.18	16.53	15.85	-0.06	32.33	AV	H	383	40	54.00	-21.68
1594.64	22.15	10.45	-11.80	20.80	AV	V	383	118	54.00	-33.20

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5190MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



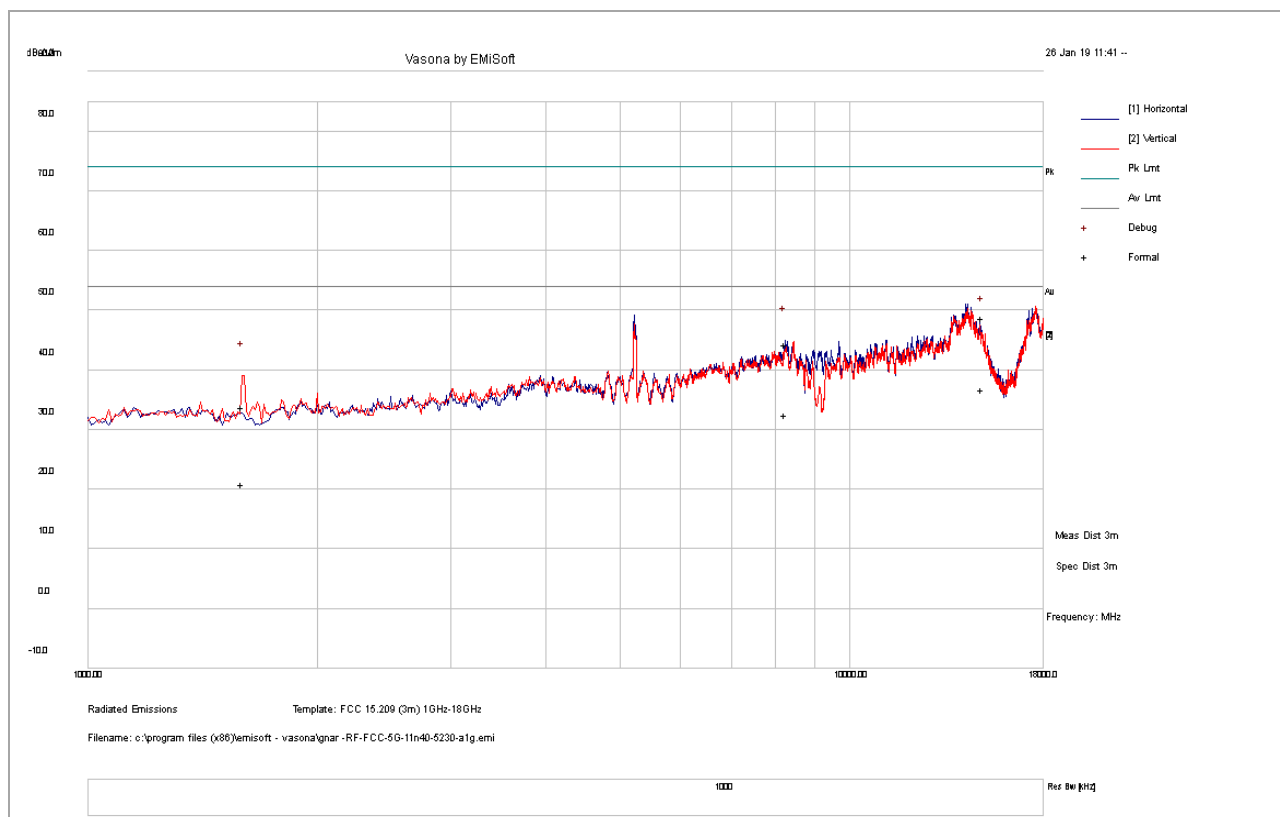
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14365.50	27.84	20.56	8.34	56.74	PK	V	274	273	74.00	-17.26
8394.38	27.84	15.85	-0.08	43.61	PK	H	359	54	74.00	-30.39
1595.83	35.97	10.45	-11.80	34.63	PK	V	240	188	74.00	-39.37
14365.50	14.60	20.56	8.34	43.50	AV	V	274	273	54.00	-10.50
8394.38	15.94	15.85	-0.08	31.70	AV	H	359	54	54.00	-22.30
1595.83	22.97	10.45	-11.80	21.62	AV	V	240	188	54.00	-32.38

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5230MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



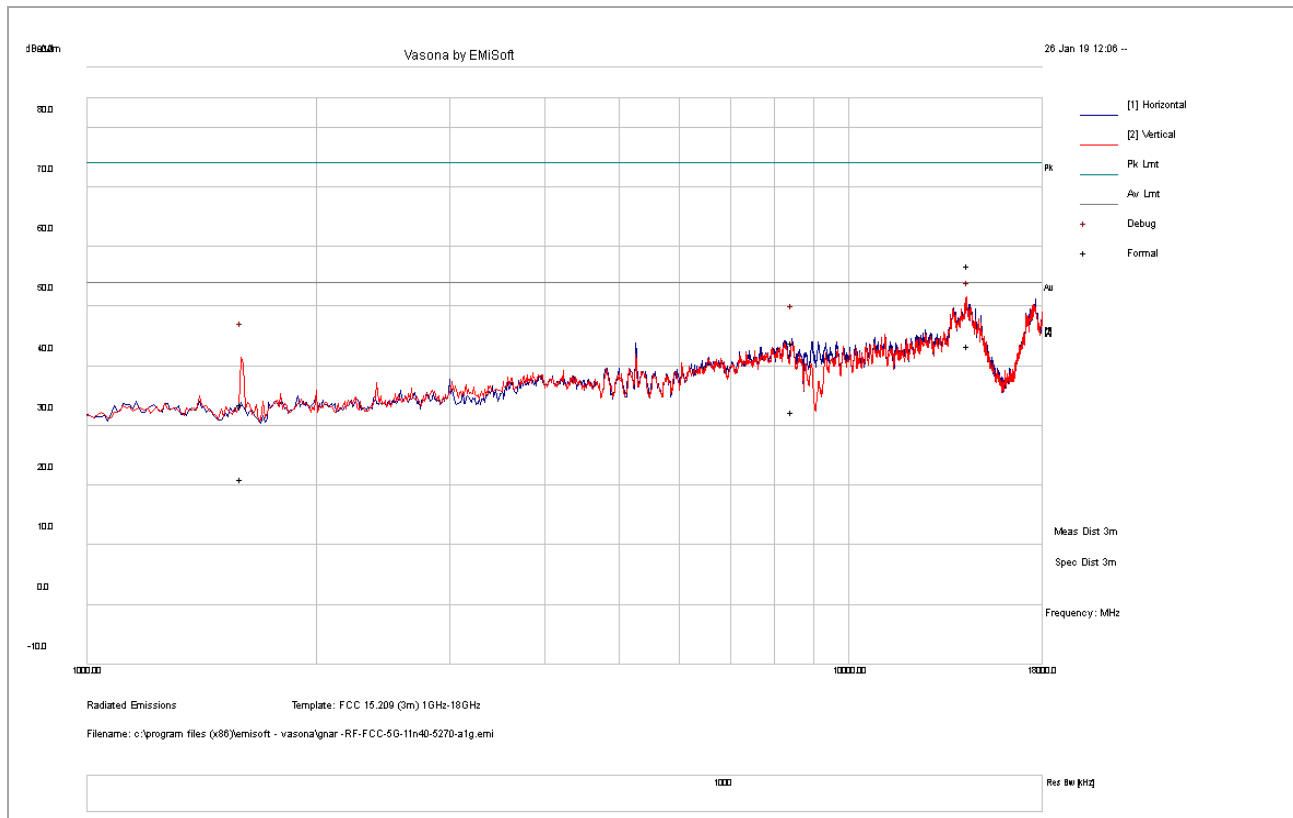
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14941.84	21.34	21.93	5.51	48.79	PK	H	400	172	74.00	-25.21
8237.56	28.86	15.82	-0.32	44.37	PK	H	254	12	74.00	-29.64
1595.11	35.21	10.45	-11.80	33.86	PK	V	215	292	74.00	-40.14
14941.84	9.31	21.93	5.51	36.75	AV	H	400	172	54.00	-17.25
8237.56	17.06	15.82	-0.32	32.56	AV	H	254	12	54.00	-21.44
1595.11	22.31	10.45	-11.80	20.96	AV	V	215	292	54.00	-33.04

**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



### 1GHz – 18GHz test result

<b>Test Standard:</b>	<b>15.209</b>	<b>Mode:</b>	<b>11n40-5270MHz</b>
<b>Frequency Range:</b>	<b>1GHz-18GHz</b>	<b>Test Date:</b>	<b>01/24/2019</b>
<b>Antenna Type/Polarity:</b>	<b>Horn/Hor &amp; Ver</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>N/A</b>	<b>Test Result:</b>	<b>Pass</b>



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14365.05	27.99	20.56	8.34	56.88	PK	V	275	24	74.00	-17.12
8438.40	28.13	15.86	-0.05	43.94	PK	H	400	272	74.00	-30.06
1596.20	34.91	10.45	-11.80	33.57	PK	V	129	238	74.00	-40.44
14365.05	14.55	20.56	8.34	43.45	AV	V	275	24	54.00	-10.55
8438.40	16.52	15.86	-0.05	32.33	AV	H	400	272	54.00	-21.67
1596.20	22.43	10.45	-11.80	21.09	AV	V	129	238	54.00	-32.92

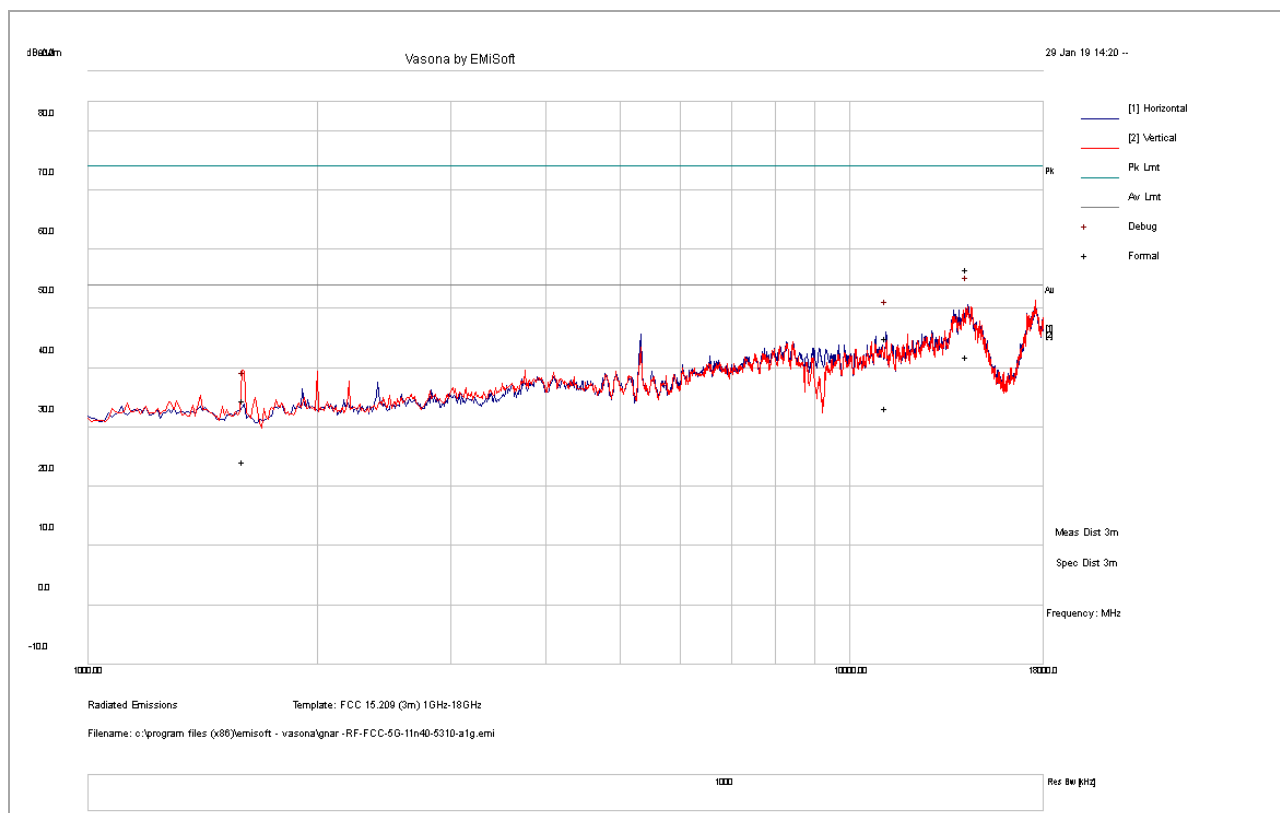


<b>Report Number:</b>	GBX-19011401-LC-RF-FCC-UNII Rev1.0
<b>Product:</b>	GNARBOX 2.0 SSD
<b>Model Number:</b>	GBXV2
<b>Family Model:</b>	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5310MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



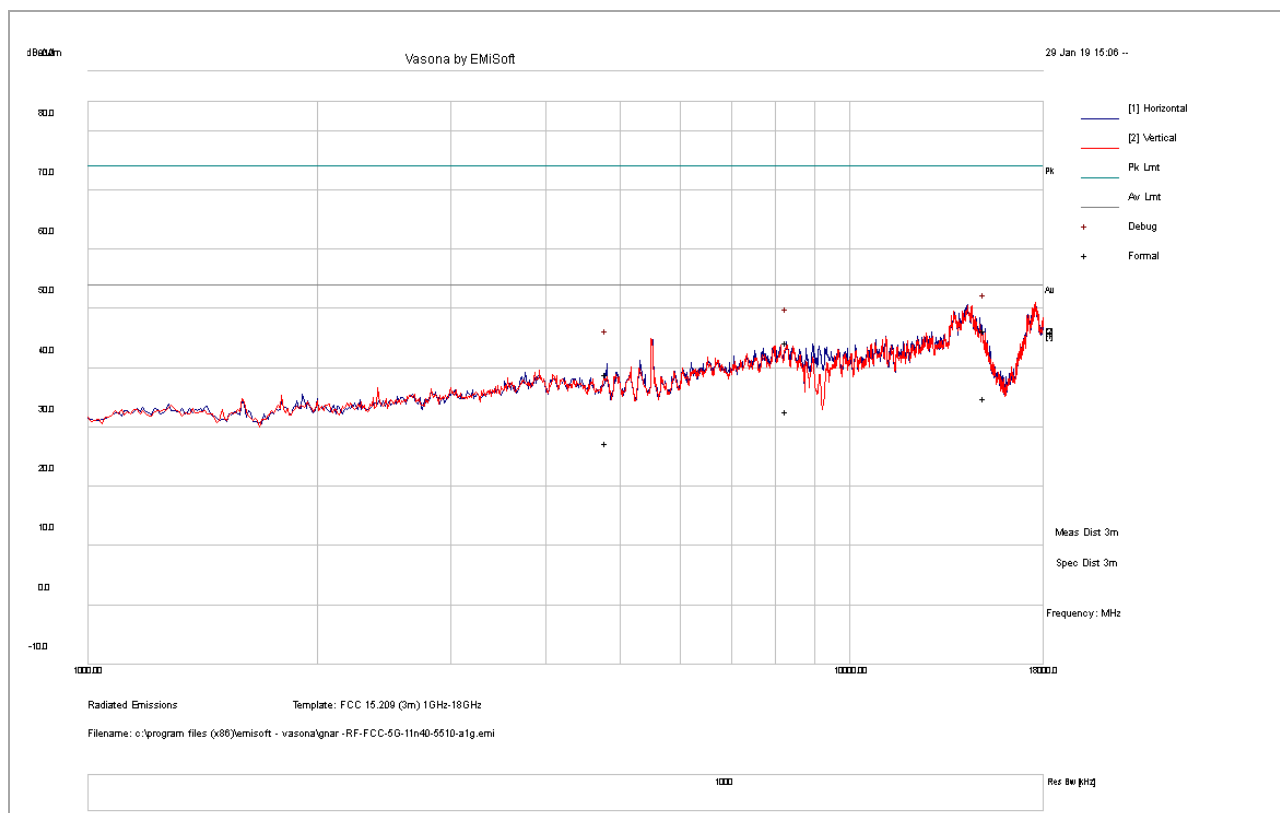
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14262.85	28.24	20.31	8.12	56.67	PK	V	392	126	74.00	-17.33
11171.61	23.89	18.68	2.54	45.11	PK	V	289	29	74.00	-28.89
1599.94	35.91	10.45	-11.79	34.57	PK	H	310	292	74.00	-39.43
14262.85	13.48	20.31	8.12	41.91	AV	V	392	126	54.00	-12.09
11171.61	12.02	18.68	2.54	33.24	AV	V	289	29	54.00	-20.76
1599.94	25.52	10.45	-11.79	24.18	AV	H	310	292	54.00	-29.82

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5510MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



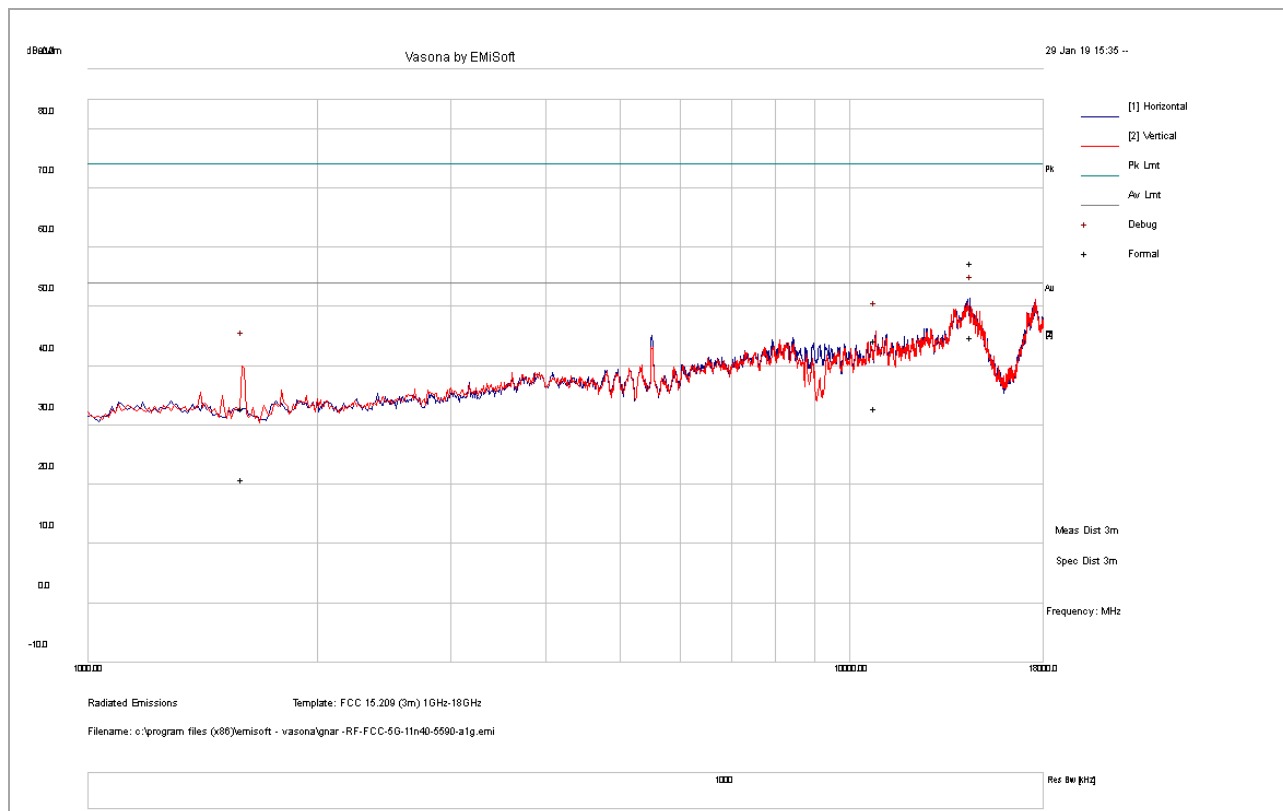
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
15078.30	19.42	22.07	4.84	46.33	PK	H	284	179	74.00	-27.68
8276.53	28.75	15.83	-0.21	44.37	PK	H	269	36	74.00	-29.63
4804.15	31.71	12.87	-5.54	39.05	PK	V	211	178	74.00	-34.95
15078.30	8.06	22.07	4.84	34.96	AV	H	284	179	54.00	-19.04
8276.53	17.04	15.83	-0.21	32.65	AV	H	269	36	54.00	-21.35
4804.15	20.10	12.87	-5.54	27.44	AV	V	211	178	54.00	-26.57

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5590MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



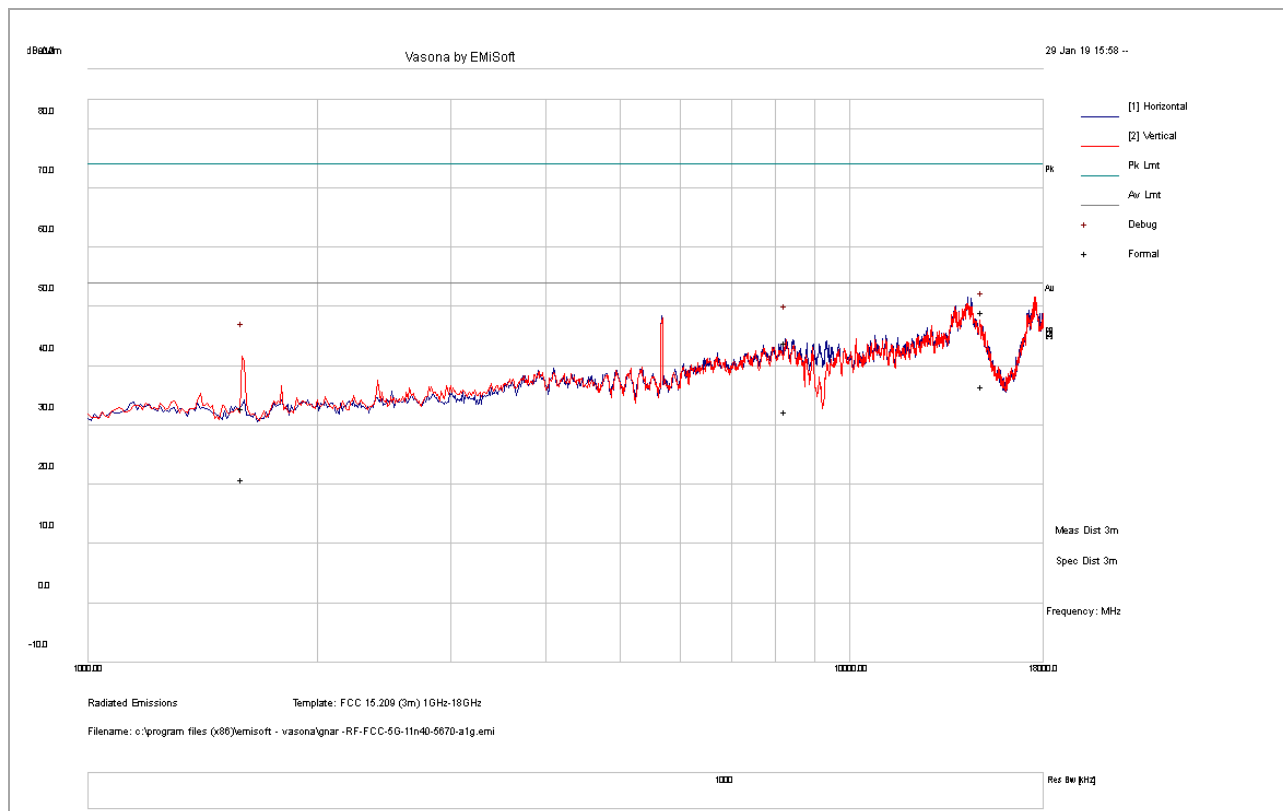
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14449.95	28.78	20.76	7.92	57.46	PK	V	165	197	74.00	-16.55
10817.67	24.08	18.30	1.95	44.34	PK	V	218	134	74.00	-29.66
1596.97	34.24	10.45	-11.80	32.90	PK	V	160	27	74.00	-41.10
14449.95	16.24	20.76	7.92	44.92	AV	V	165	197	54.00	-9.08
10817.67	12.68	18.30	1.95	32.94	AV	V	218	134	54.00	-21.06
1596.97	22.28	10.45	-11.80	20.94	AV	V	160	27	54.00	-33.06

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5670MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



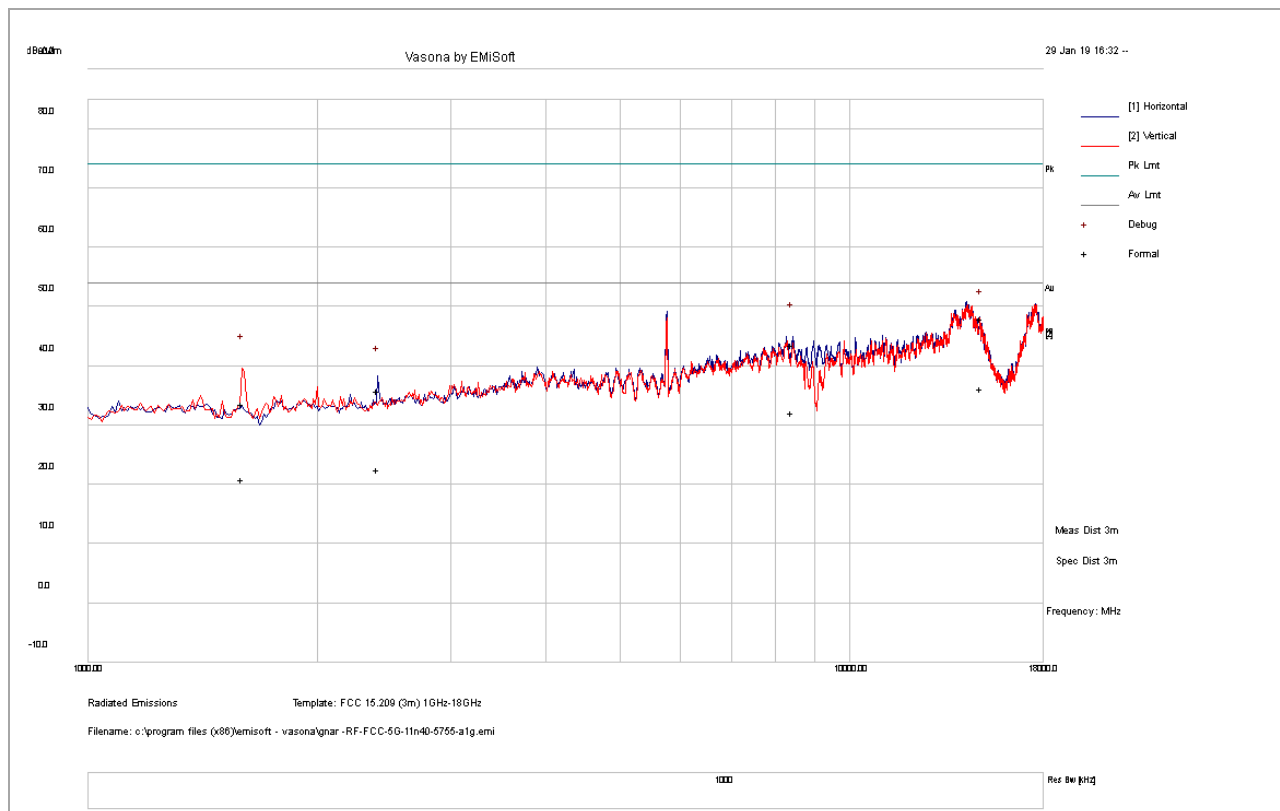
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14941.34	21.70	21.93	5.51	49.14	PK	H	342	229	74.00	-24.86
8245.01	28.41	15.82	-0.29	43.94	PK	H	248	106	74.00	-30.06
1593.96	34.29	10.45	-11.80	32.94	PK	V	342	129	74.00	-41.06
14941.34	9.08	21.93	5.51	36.52	AV	H	342	229	54.00	-17.48
8245.01	16.76	15.82	-0.29	32.30	AV	H	248	106	54.00	-21.71
1593.96	22.21	10.45	-11.80	20.86	AV	V	342	129	54.00	-33.14

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5755MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



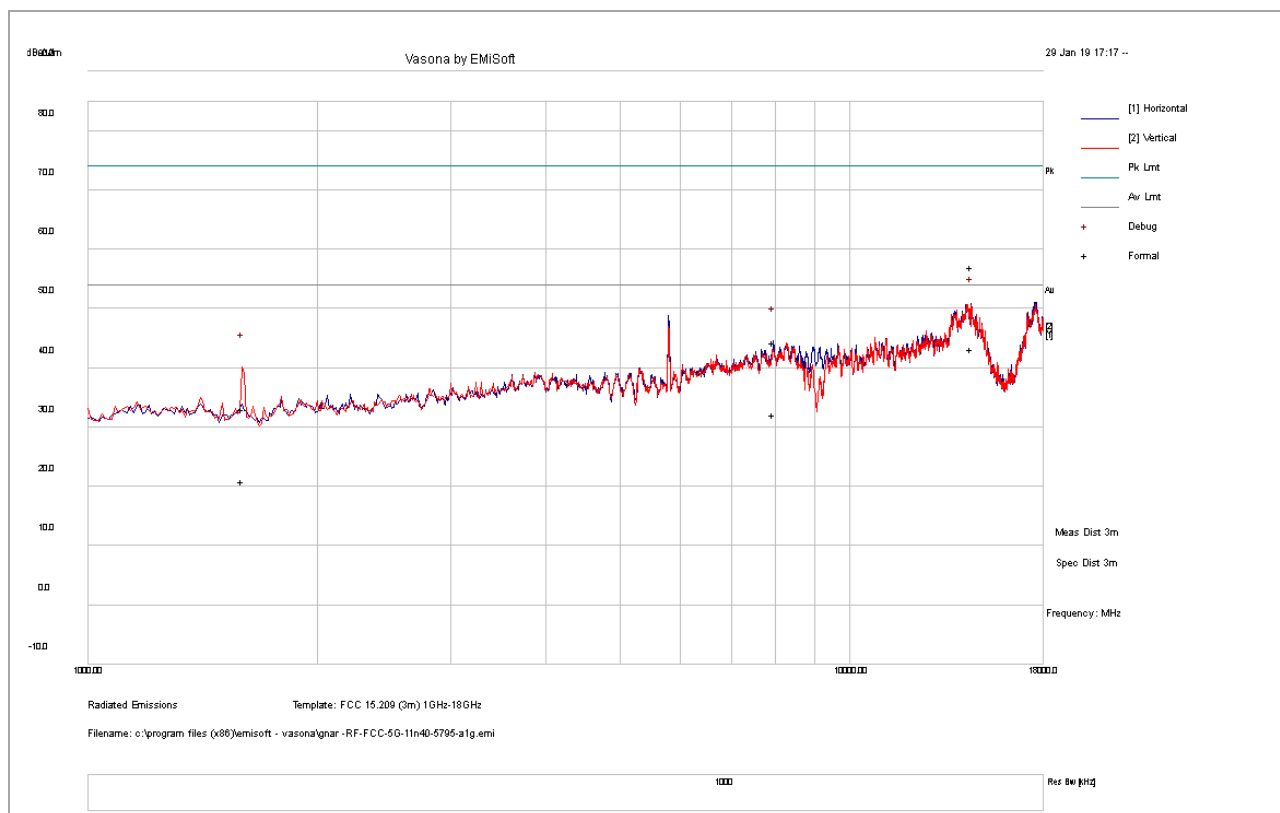
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14929.76	20.52	21.90	5.53	47.96	PK	H	224	270	74.00	-26.05
8427.20	27.87	15.85	-0.06	43.66	PK	H	100	348	74.00	-30.34
1596.61	34.96	10.45	-11.80	33.61	PK	V	103	85	74.00	-40.39
2401.62	34.88	10.83	-9.86	35.85	PK	V	210	118	74.00	-38.15
14929.76	8.82	21.90	5.53	36.26	AV	H	224	270	54.00	-17.74
8427.20	16.38	15.85	-0.06	32.18	AV	H	100	348	54.00	-21.82
1596.61	22.23	10.45	-11.80	20.89	AV	V	103	85	54.00	-33.11
2401.62	21.61	10.83	-9.86	22.58	AV	V	210	118	54.00	-31.42

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11n40-5795MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



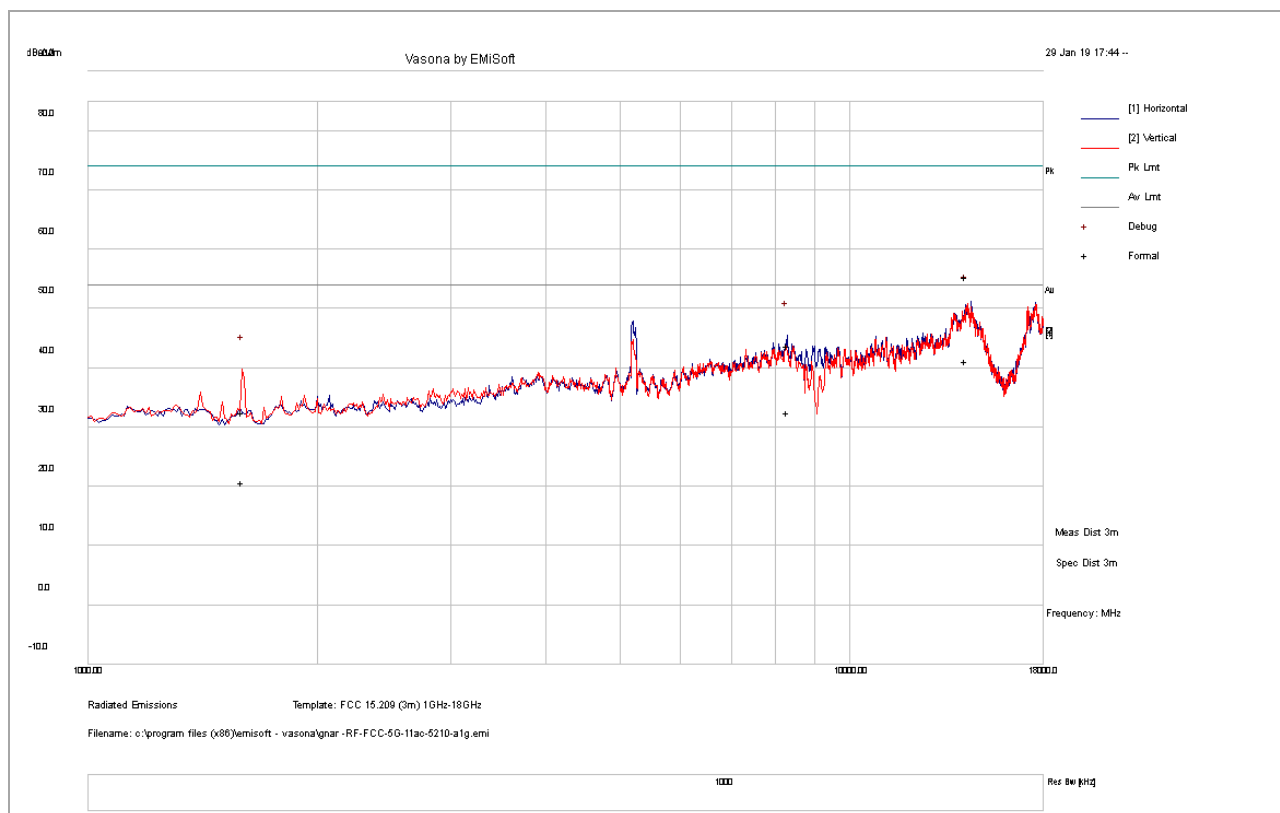
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14449.59	28.43	20.76	7.92	57.11	PK	V	182	122	74.00	-16.89
7950.30	29.48	15.78	-0.90	44.36	PK	H	225	152	74.00	-29.64
1596.41	34.45	10.45	-11.80	33.10	PK	V	159	114	74.00	-40.90
14449.59	14.57	20.76	7.92	43.25	AV	V	182	122	54.00	-10.75
7950.30	17.35	15.78	-0.90	32.23	AV	H	225	152	54.00	-21.77
1596.41	22.28	10.45	-11.80	20.94	AV	V	159	114	54.00	-33.06

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



# 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11ac80-5210MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



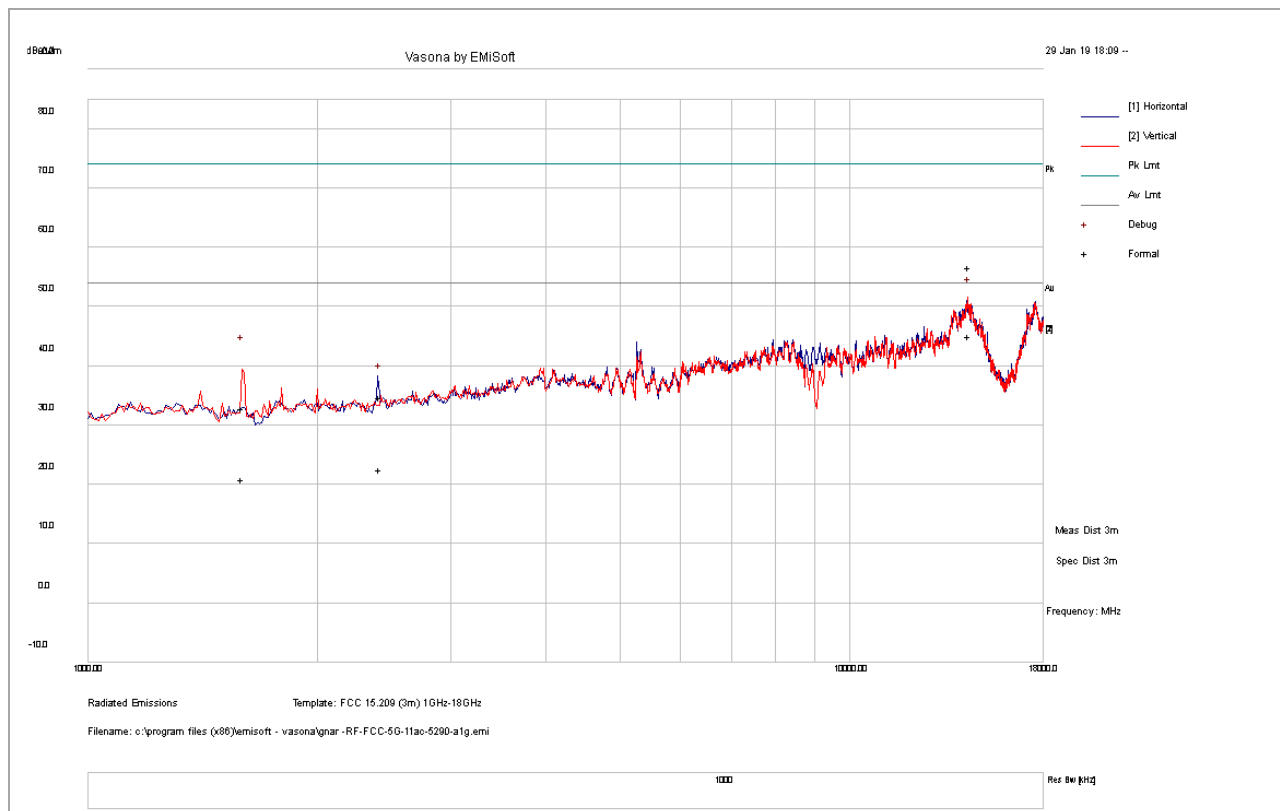
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14220.32	27.18	20.20	7.94	55.33	PK	V	385	8	74.00	-18.67
8290.51	28.10	15.83	-0.19	43.75	PK	H	306	339	74.00	-30.25
1595.75	33.84	10.45	-11.80	32.49	PK	V	299	105	74.00	-41.51
14220.32	13.09	20.20	7.94	41.24	AV	V	385	8	54.00	-12.76
8290.51	16.79	15.83	-0.19	32.44	AV	H	306	339	54.00	-21.56
1595.75	22.12	10.45	-11.80	20.77	AV	V	299	105	54.00	-33.23

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



## 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11ac80-5290MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14366.87	27.85	20.56	8.33	56.74	PK	V	344	308	74.00	-17.26
1596.71	34.24	10.45	-11.80	32.90	PK	V	233	56	74.00	-41.10
2418.89	33.70	10.85	-9.81	34.73	PK	V	400	262	74.00	-39.27
14366.87	16.19	20.56	8.33	45.09	AV	V	344	308	54.00	-8.91
1596.71	22.18	10.45	-11.80	20.84	AV	V	233	56	54.00	-33.16
2418.89	21.53	10.85	-9.81	22.56	AV	V	400	262	54.00	-31.44

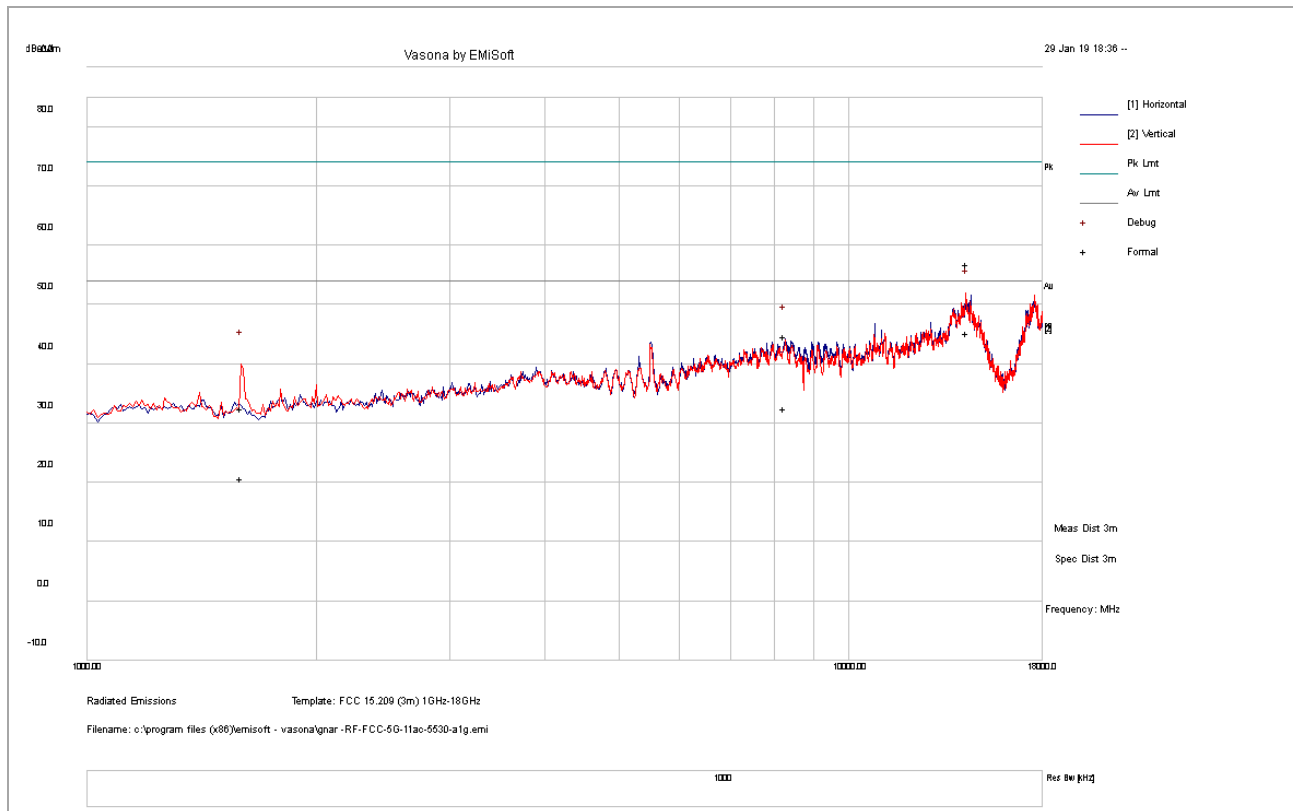


**Report Number:** GBX-19011401-LC-RF-FCC-UNII Rev1.0  
**Product:** GNARBOX 2.0 SSD  
**Model Number:** GBXV2  
**Family Model:** GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



## 1GHz – 18GHz test result

<b>Test Standard:</b>	<b>15.209</b>	<b>Mode:</b>	<b>11ac80-5530MHz</b>
<b>Frequency Range:</b>	<b>1GHz-18GHz</b>	<b>Test Date:</b>	<b>01/24/2019</b>
<b>Antenna Type/Polarity:</b>	<b>Horn/Hor &amp; Ver</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>N/A</b>	<b>Test Result:</b>	<b>Pass</b>



Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
14306.10	28.16	20.41	8.26	56.84	PK	V	134	318	74.00	-17.16
8258.67	29.08	15.82	-0.25	44.65	PK	H	164	218	74.00	-29.35
1593.18	33.89	10.45	-11.80	32.54	PK	V	133	312	74.00	-41.47
14306.10	16.66	20.41	8.26	45.33	AV	V	134	318	54.00	-8.67
8258.67	16.89	15.82	-0.25	32.46	AV	H	164	218	54.00	-21.54
1593.18	22.16	10.45	-11.80	20.81	AV	V	133	312	54.00	-33.19



Electromagnetic Compatibility  
 Radio Frequency  
 Product Certification  
 International Approval

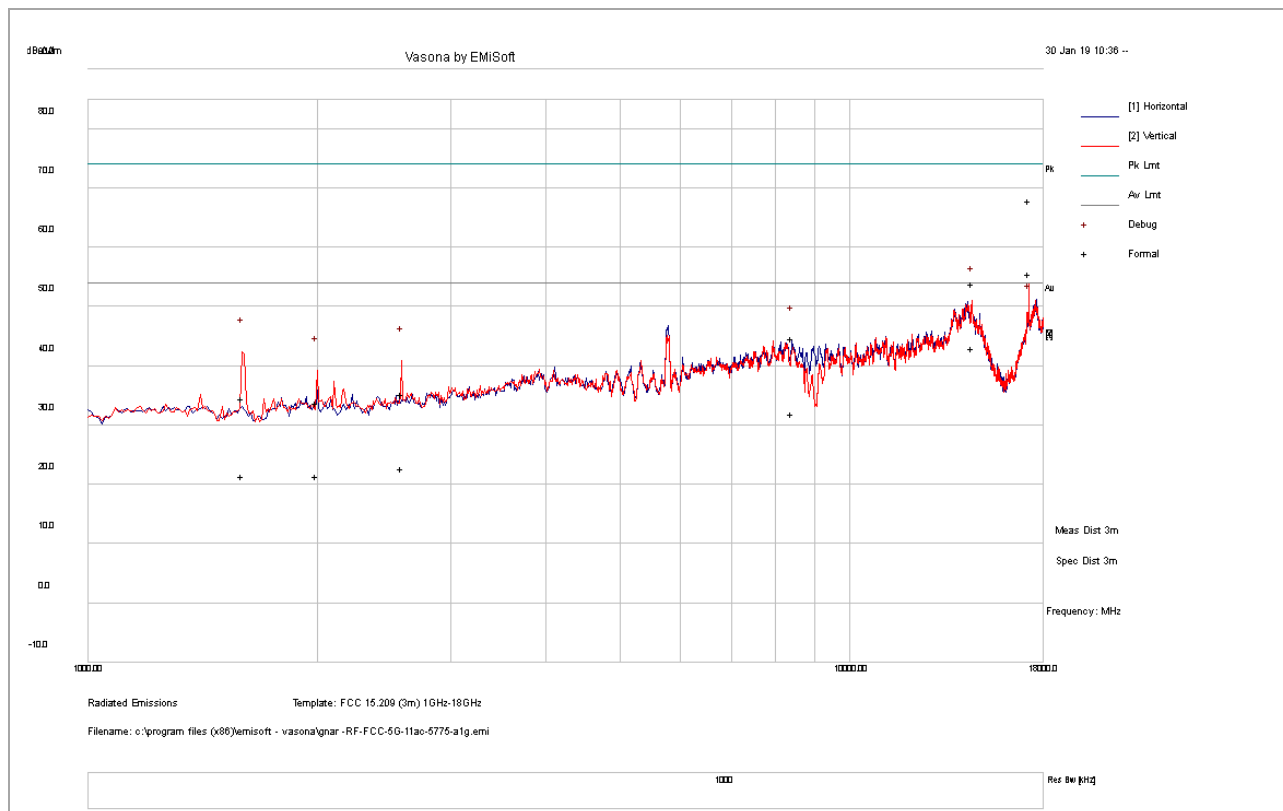
1261 Puerta Del Sol  
 San Clemente, CA, 92673  
 +1 (949) 393-1123  
[www.vista-compliance.com](http://www.vista-compliance.com)

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



### 1GHz – 18GHz test result

<b>Test Standard:</b>	15.209	<b>Mode:</b>	11ac80-5775MHz
<b>Frequency Range:</b>	1GHz-18GHz	<b>Test Date:</b>	01/24/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



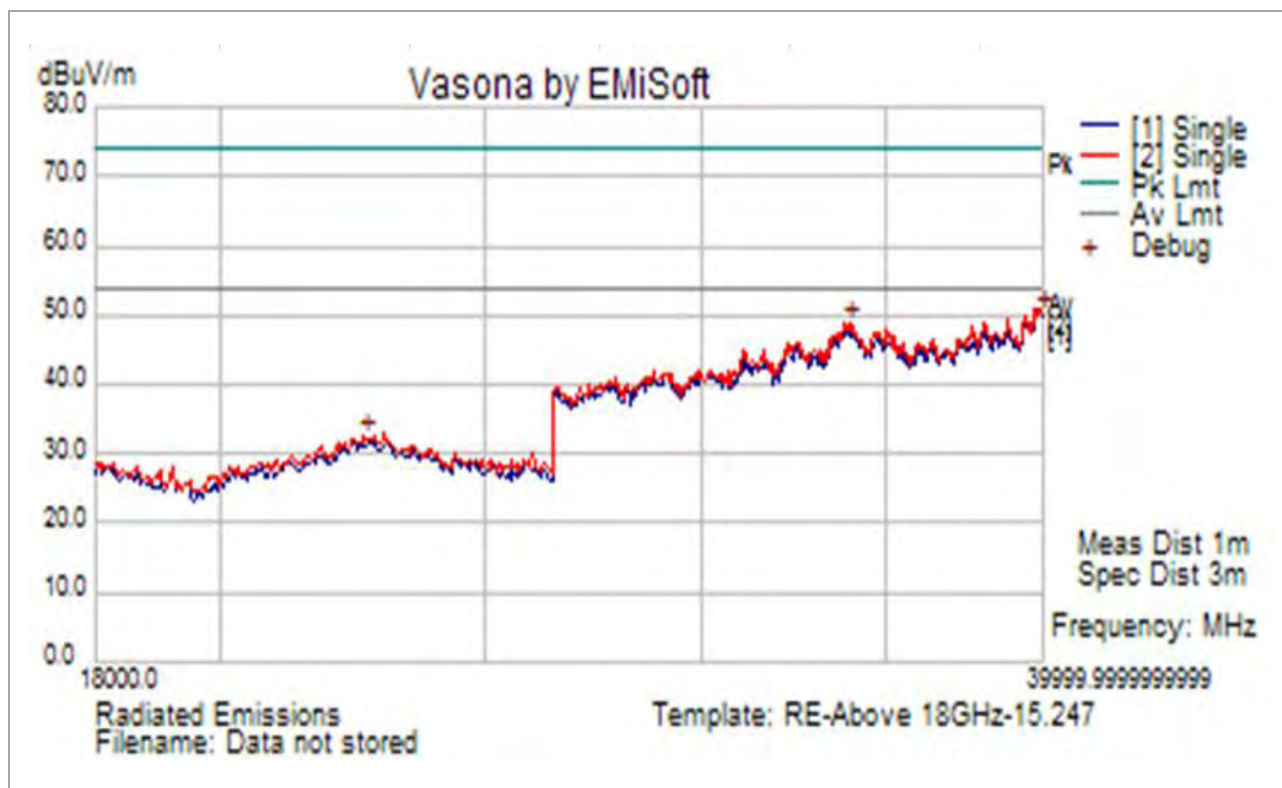
Frequency MHz	Raw dB	Cable dB	AF dB	Level dBuV/m	Det	Pol deg	Height cm	Table cm	Limit dBuV/m	Margin dB
8414.43	28.94	15.85	-0.07	44.73	PK	H	114	236	74.00	-29.27
1596.04	35.87	10.45	-11.80	34.52	PK	V	143	146	74.00	-39.48
2584.24	33.21	11.00	-9.00	35.21	PK	V	344	169	74.00	-38.79
2000.57	33.98	10.44	-10.60	33.82	PK	V	292	40	74.00	-40.18
8414.43	16.10	15.85	-0.07	31.89	AV	H	114	236	54.00	-22.12
1596.04	22.80	10.45	-11.80	21.46	AV	V	143	146	54.00	-32.54
2584.24	20.82	11.00	-9.00	22.81	AV	V	344	169	54.00	-31.19
2000.57	21.63	10.44	-10.60	21.47	AV	V	292	40	54.00	-32.53

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



### 18GHz – 40GHz test result

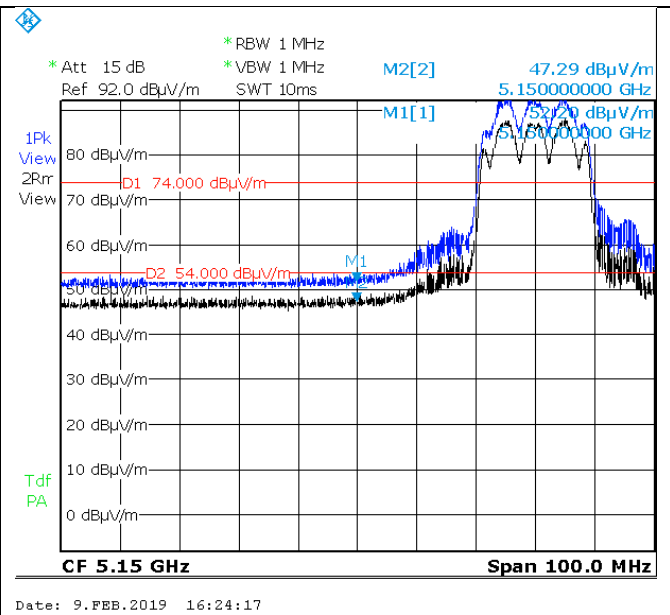
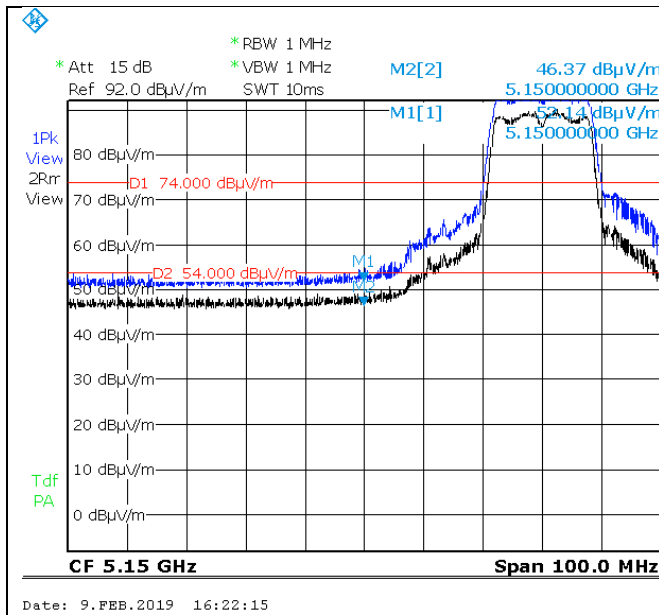
<b>Test Standard:</b>	15.209	<b>Mode:</b>	11a-5500MHz
<b>Frequency Range:</b>	18GHz-40GHz	<b>Test Date:</b>	01/23/2019
<b>Antenna Type/Polarity:</b>	Horn/Hor & Ver	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	N/A	<b>Test Result:</b>	Pass



Note: no substantial emission is found other than the noise floor.

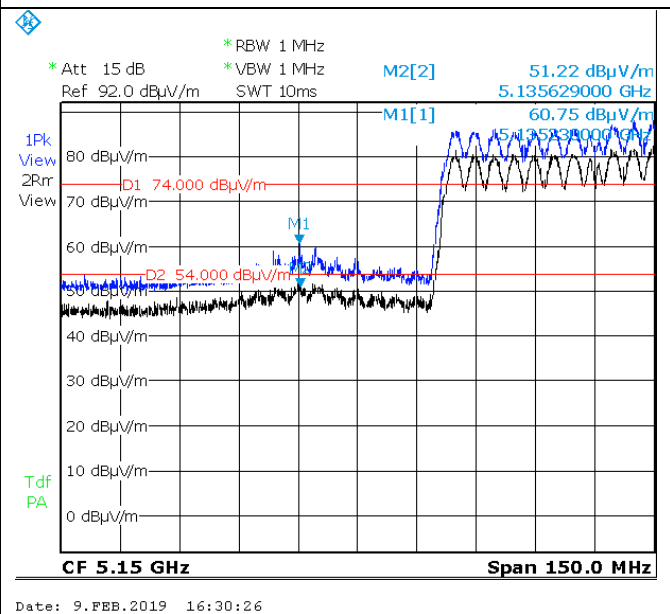
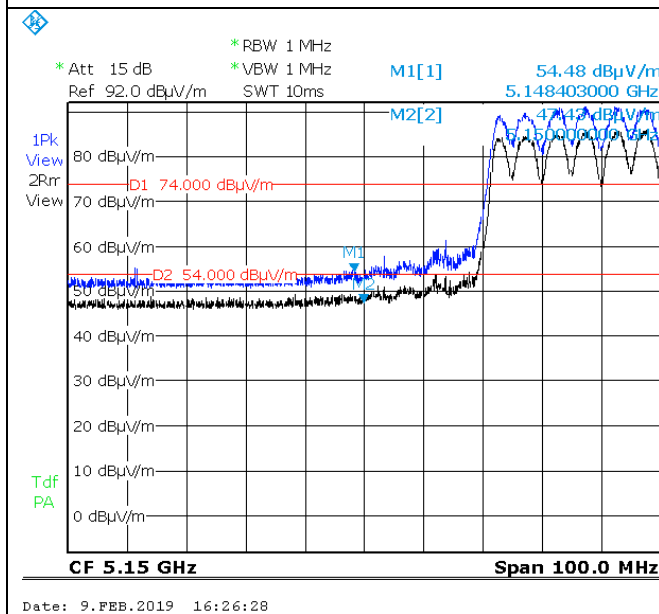
S

## Radiated Band Edge measurement result



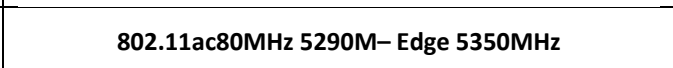
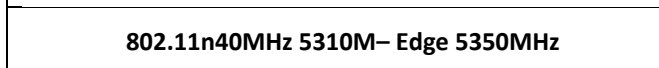
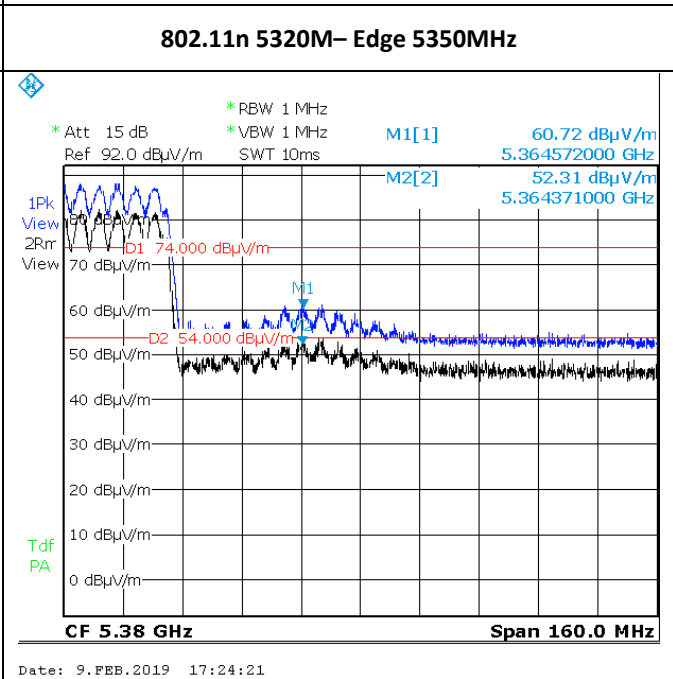
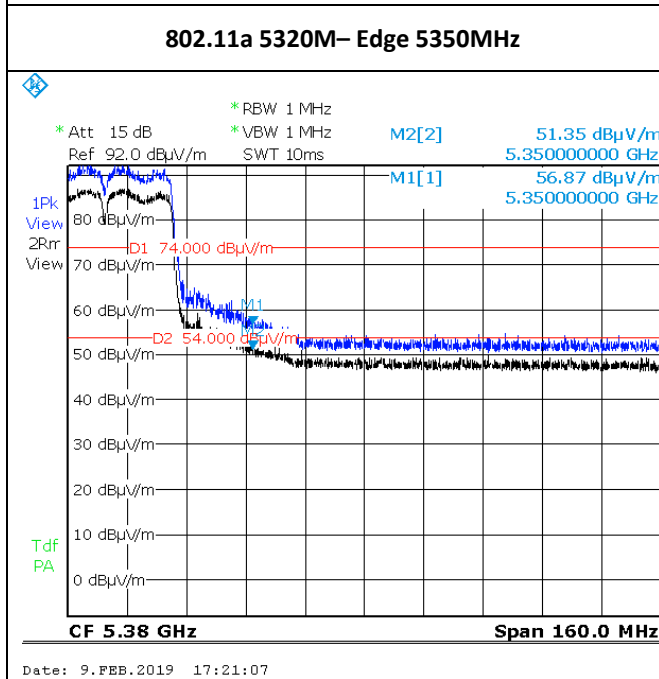
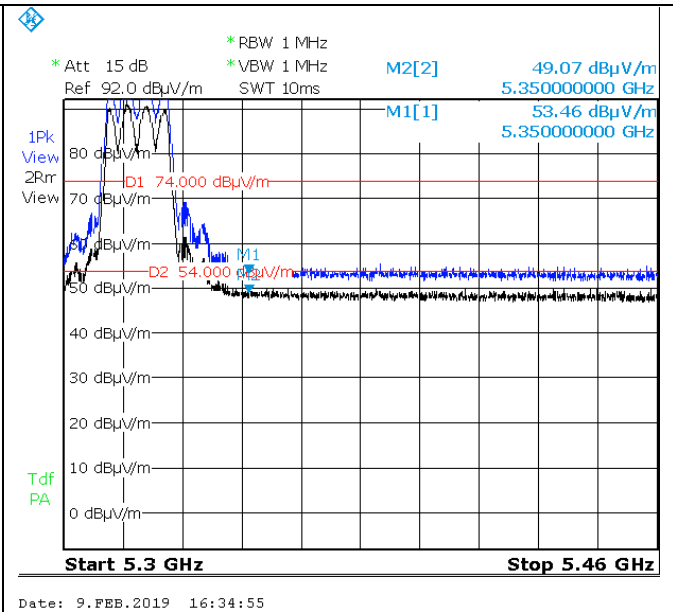
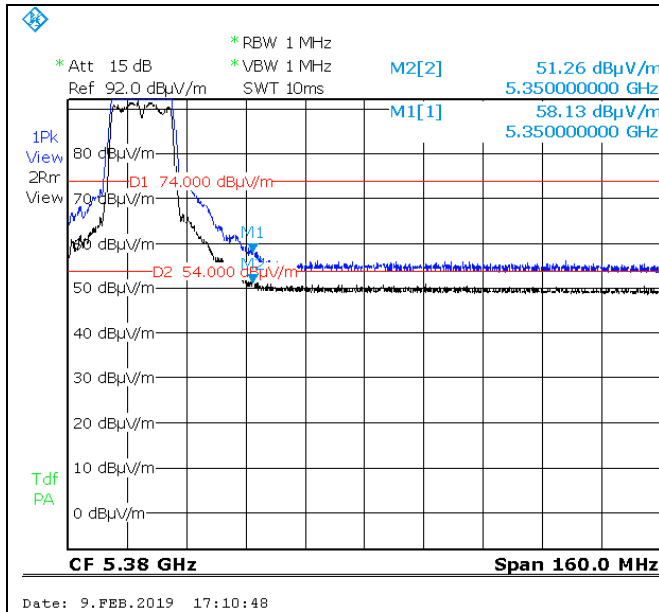
### 802.11a 5180M- Edge 5150MHz

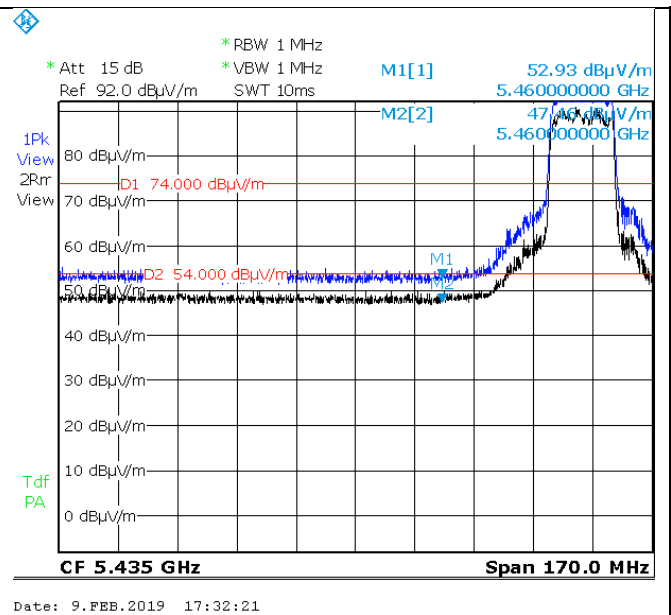
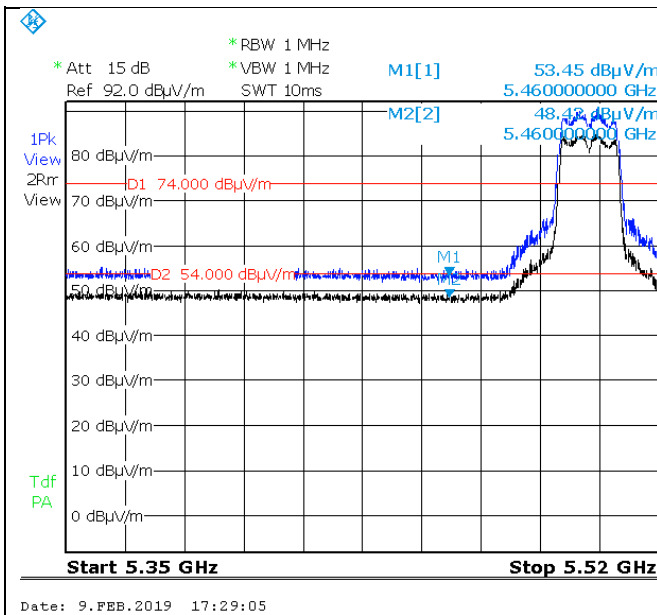
### 802.11n-20M 5180M- Edge 5150MHz



### 802.11n-40M 5190M- Edge 5150MHz

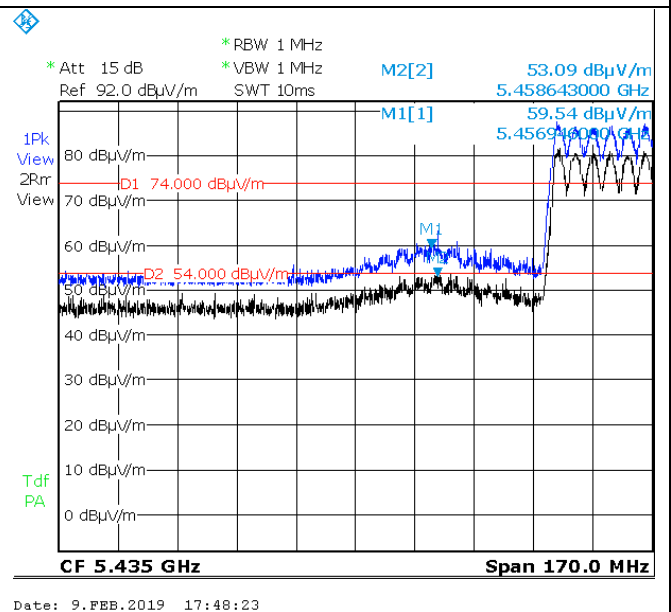
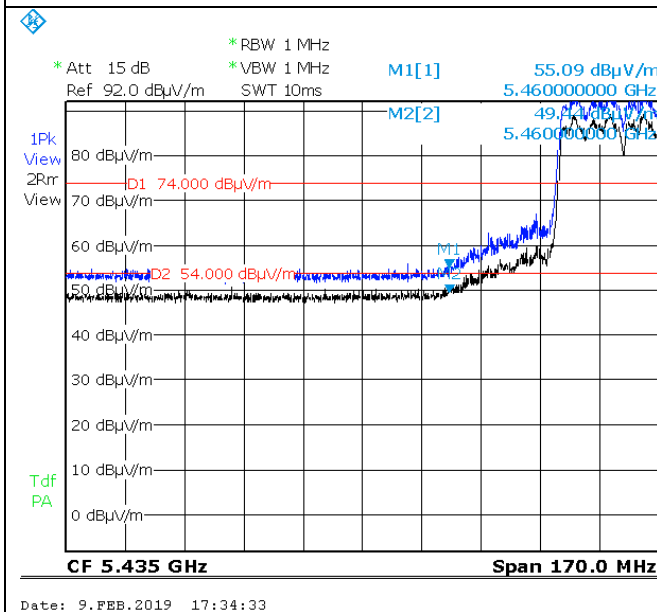
### 802.11ac-80M 5210M- Edge 5150MHz





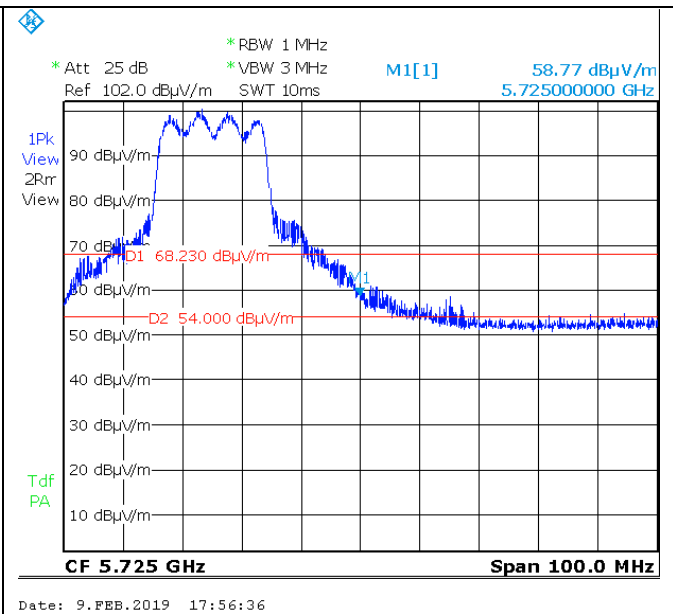
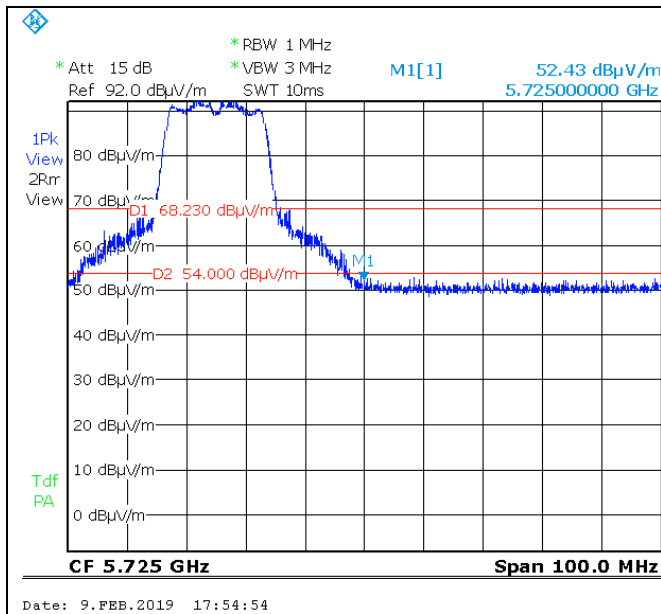
**802.11a 5500M- Edge 5470MHz**

**802.11n 5500M- Edge 5470MHz**



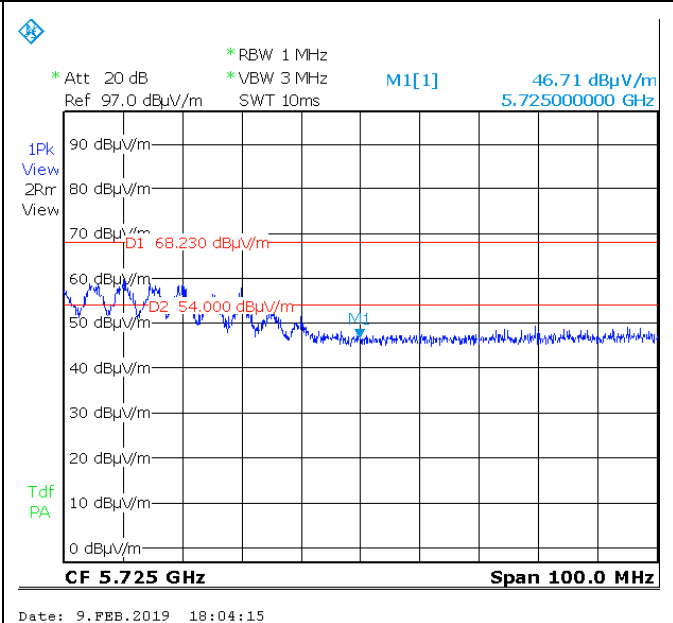
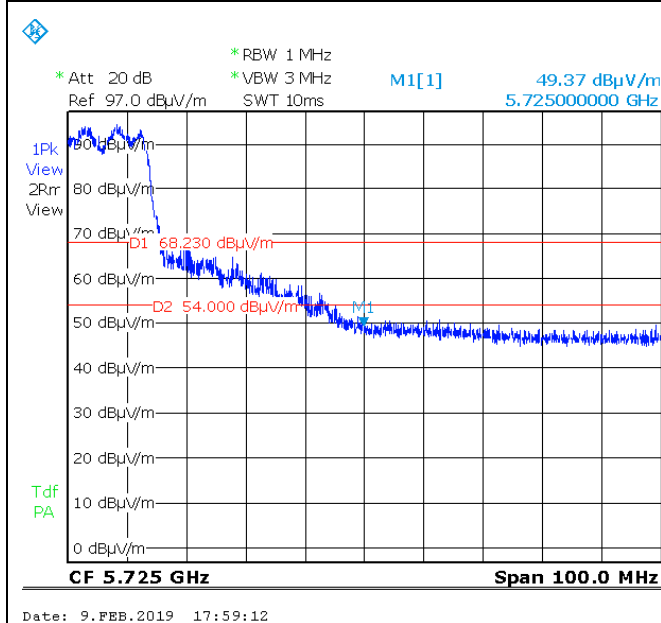
**802.11n40MHz 5510M- Edge 5470MHz**

**802.11ac40MHz 5530M- Edge 5470MHz**



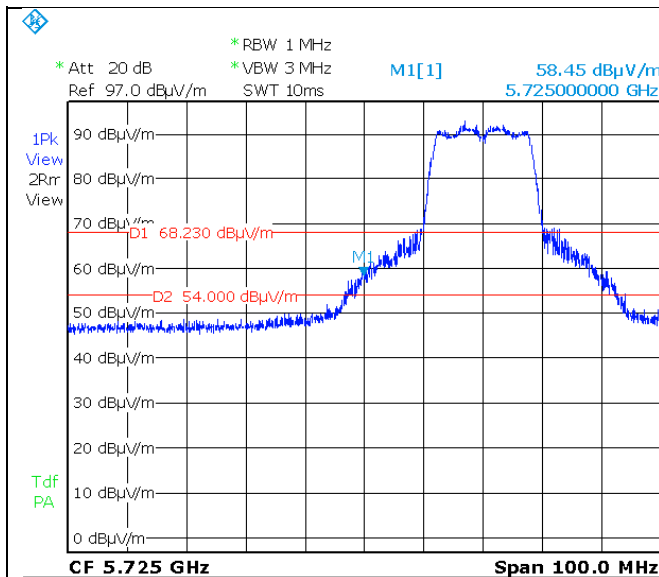
802.11a 5700M- Edge 5725MHz

802.11n 5700M- Edge 5725MHz

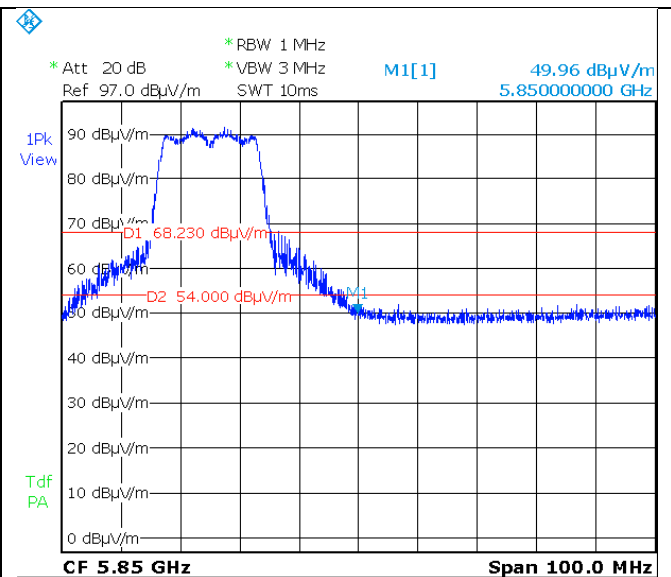


802.11n40MHz 5670M- Edge 5725MHz

802.11ac80MHz 5530M- Edge 5725MHz



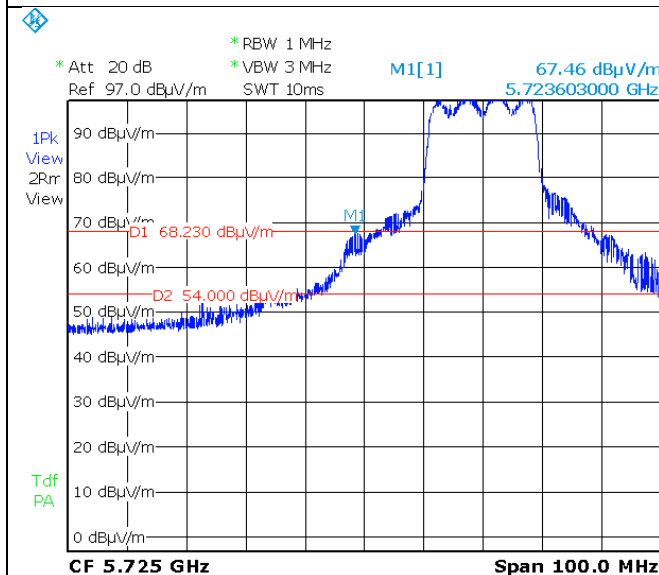
Date: 9.FEB.2019 18:07:13



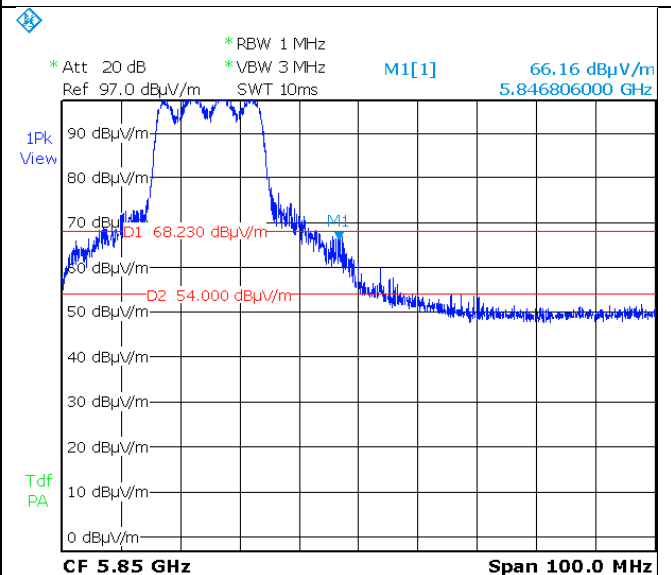
Date: 9.FEB.2019 18:45:34

#### Radiated Band Edge-802.11a 5745M- Edge 5725MHz

#### Radiated Band Edge-802.11a 5825M- Edge 5850MHz



Date: 9.FEB.2019 18:09:03

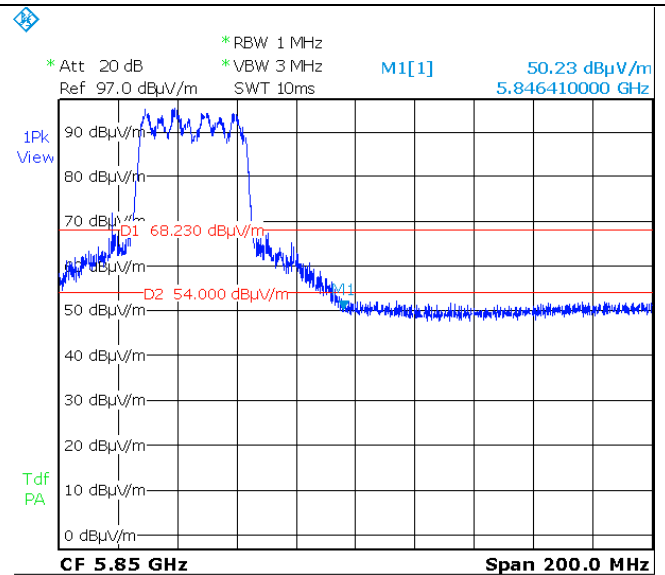
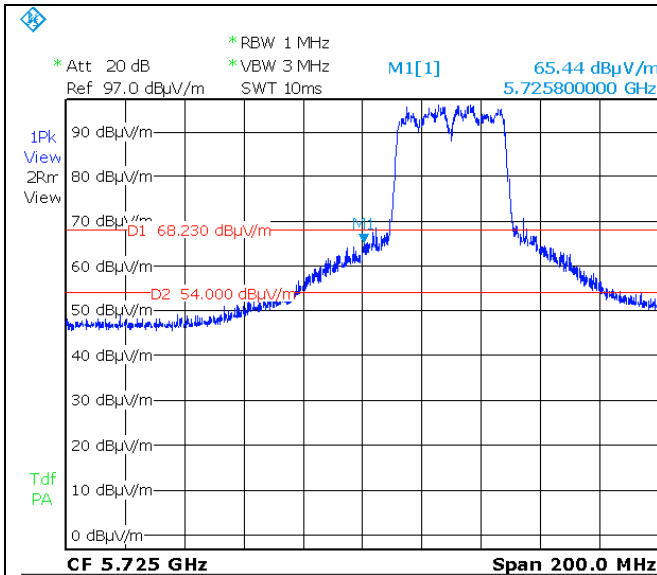


Date: 9.FEB.2019 18:43:56

#### Radiated Band Edge-802.11n 5745M- Edge 5725MHz

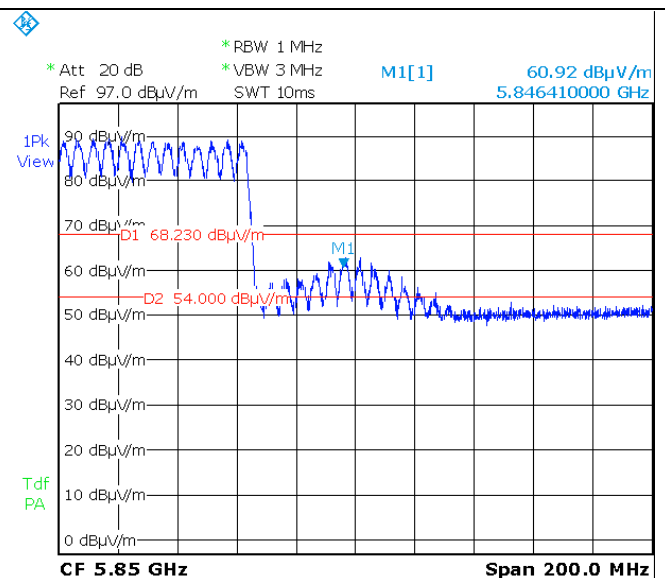
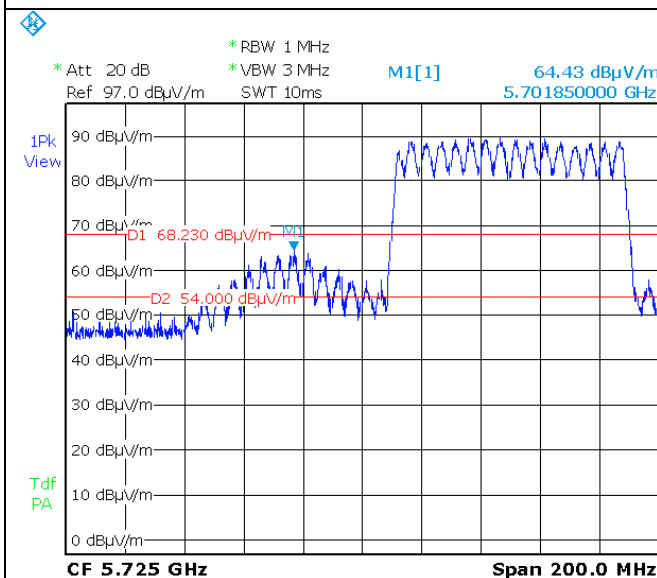
#### Radiated Band Edge-802.11n 5825M- Edge 5850MHz





#### Radiated Band Edge-802.11n 5755M- Edge 5725MHz

#### Radiated Band Edge-802.11n 5795M- Edge 5850MHz



#### Restrictd Band-802.11ac 5775M- Edge 5725MHz

#### Radiated Band Edge-802.11ac 5775M- Edge 5850MHz

## 8.8 Conducted Emissions

### 8.8.1 Requirement

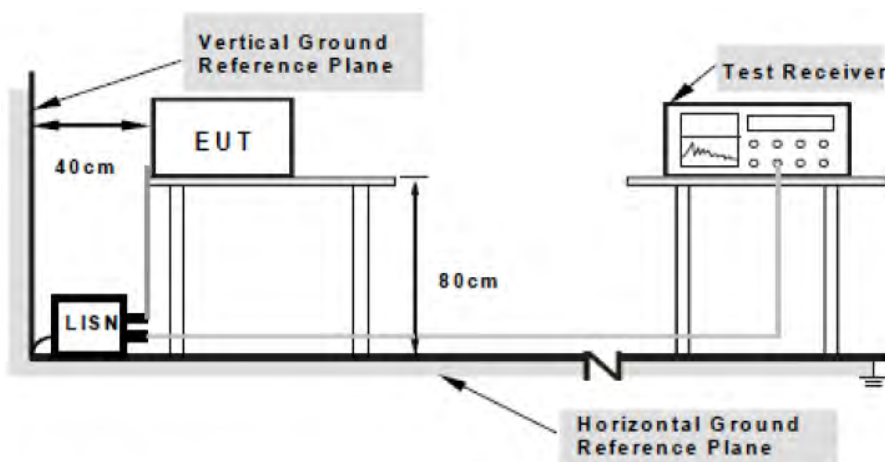
Per § 15.207 (a), an intentional radiator that is designed to be connected to the public utility (AC) power line, the radio frequency voltage that is conducted back onto the AC power line on any frequency or frequencies, within the band 150 kHz to 30 MHz, shall not exceed the limits in the following table, as measured using a 50  $\mu$ H/50 ohms line impedance stabilization network (LISN). Compliance with the provisions of this paragraph shall be based on the measurement of the radio frequency voltage between each power line and ground at the power terminal. The lower limit applies at the boundary between the frequency ranges.

**Limits for Conducted Emissions at the Mains Ports**

Section	Frequency ranges (MHz)	Limit (dBuV)	
		QP	Average
Class B devices	0.15 – 0.5	66 – 56	56 – 46
	0.5 – 5	56	46
	5 - 30	60	50

NOTE 1 The lower limit shall apply at the transition frequencies.

### 8.8.2 Test setup



Note: 1.Support units were connected to second LISN.  
2.Both of LISNs (AMN) are 80cm from EUT and at least 80cm from other units and other metal planes support units.

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



### 8.8.3 Test Procedure

1. The EUT and supporting equipment were set up in accordance with the requirements of the standard on top of a 1.5m x 1m x 0.8m high, non-metallic table.
2. The power supply for the EUT was fed through a 50Ω/50μH EUT LISN, connected to filtered mains.
3. The RF OUT of the EUT LISN was connected to the EMI test receiver via a low-loss coaxial cable.
4. All other supporting equipment was powered separately from another main supply.
5. The EUT was switched on and allowed to warm up to its normal operating condition.
6. A scan was made on the NEUTRAL line (for AC mains) or Earth line (for DC power) over the required frequency range using an EMI test receiver.
7. High peaks, relative to the limit line, were then selected.
8. The EMI test receiver was then tuned to the selected frequencies and the necessary measurements made with a receiver bandwidth setting of 10 kHz. For FCC tests, only Quasi-peak measurements were made; while for CISPR/EN tests, both Quasi-peak and Average measurements were made
9. All possible modes of operation were investigated. Only the worst case emissions were measured and reported. All other emissions were relatively insignificant.

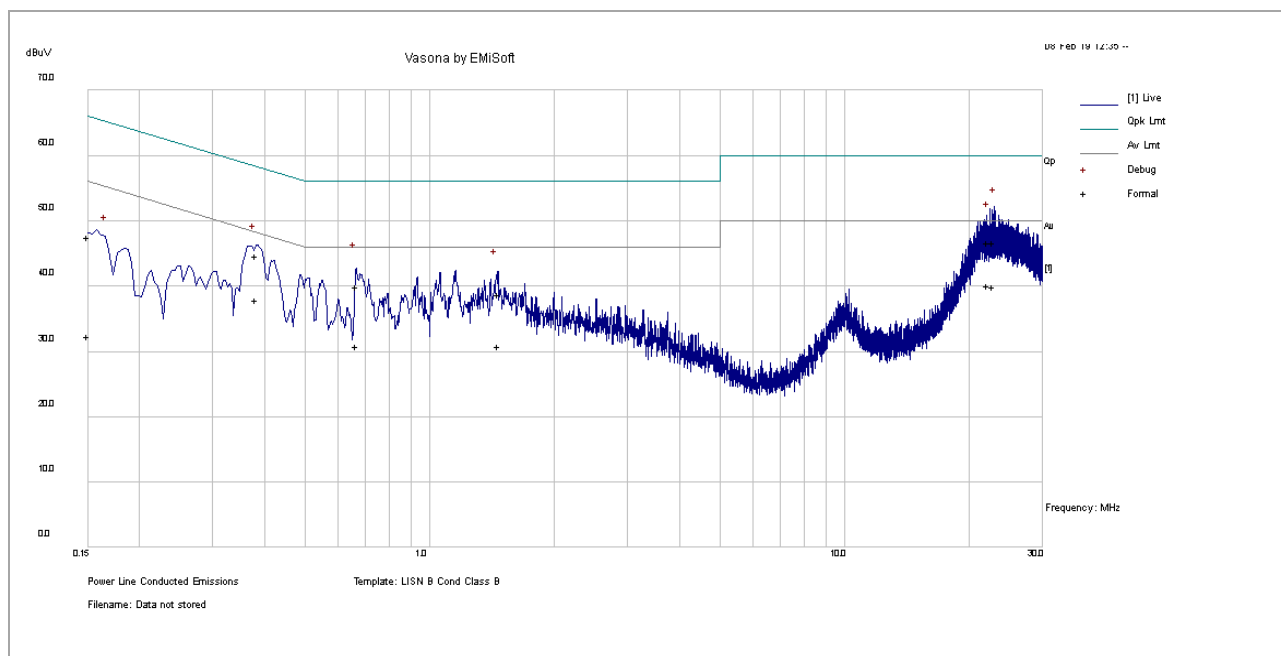
<b>Report Number:</b>	GBX-19011401-LC-RF-FCC-UNII Rev1.0
<b>Product:</b>	GNARBOX 2.0 SSD
<b>Model Number:</b>	GBXV2
<b>Family Model:</b>	GNAR128V2, GNAR256V2, GNAR512V2, GNAR1024V2, GNAR2048V2



#### 8.8.4 Test Result

##### Live Line

<b>Test Standard:</b>	<b>47CFR 15.207</b>	<b>Mode:</b>	<b>Line</b>
<b>Frequency Range:</b>	<b>0.15-30MHz</b>	<b>Test Date:</b>	<b>02/08/2019</b>
<b>Antenna Type/Polarity:</b>	<b>N/A</b>	<b>Test Personnel:</b>	<b>Sherwin Lee</b>
<b>Remark:</b>	<b>120VAC, 60Hz</b>	<b>Test Result:</b>	<b>Pass</b>



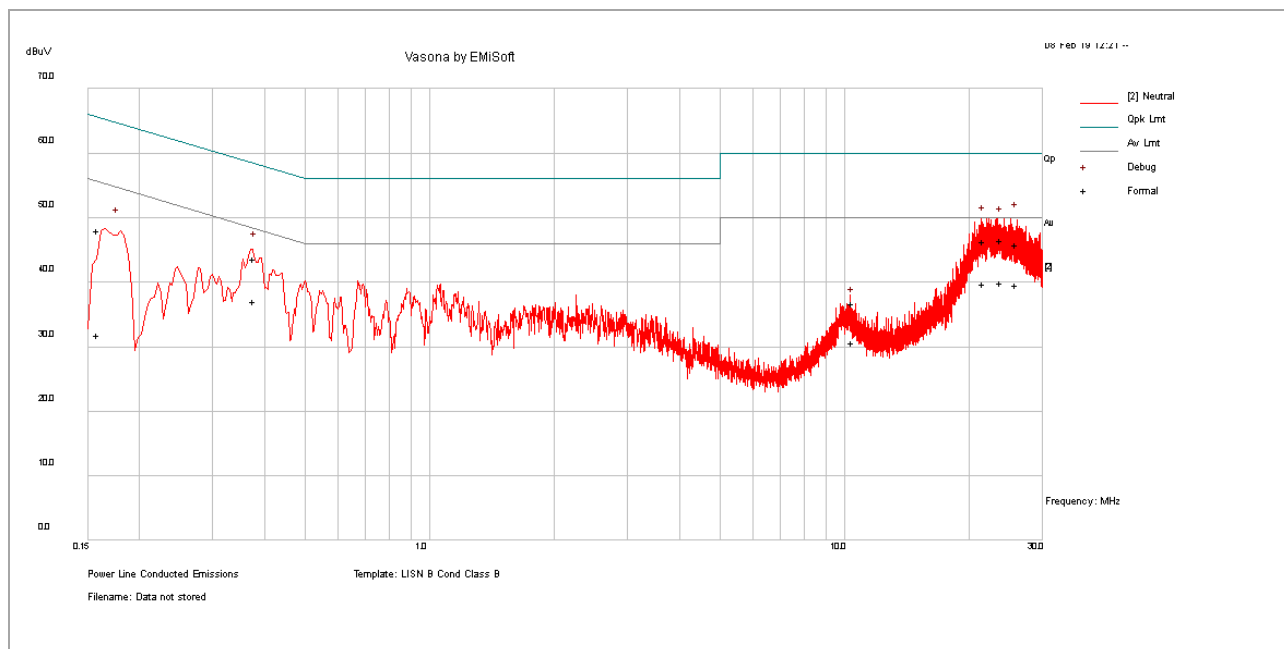
Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV/m)	Meas. Type	Line	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.15	36.89	10.32	0.24	47.45	QP	Live	66.00	-18.55	Pass
0.38	33.98	10.37	0.25	44.59	QP	Live	58.24	-13.64	Pass
0.67	29.21	10.45	0.30	39.96	QP	Live	56.00	-16.04	Pass
1.46	27.75	10.57	0.49	38.81	QP	Live	56.00	-17.19	Pass
22.12	16.10	11.17	19.34	46.60	QP	Live	60.00	-13.40	Pass
22.90	16.37	11.20	19.15	46.72	QP	Live	60.00	-13.28	Pass
0.15	21.71	10.32	0.24	32.26	AV	Live	56	-23.74	Pass
0.38	27.35	10.37	0.25	37.97	AV	Live	48.24	-10.27	Pass
0.67	20.09	10.45	0.30	30.84	AV	Live	46.00	-15.16	Pass
1.46	19.79	10.57	0.49	30.85	AV	Live	46.00	-15.15	Pass
22.12	9.57	11.17	19.34	40.08	AV	Live	50.00	-9.92	Pass
22.90	9.62	11.20	19.15	39.97	AV	Live	50.00	-10.03	Pass

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



## Neutral Line

<b>Test Standard:</b>	47CFR 15.207	<b>Mode:</b>	Neutral
<b>Frequency Range:</b>	0.15-30MHz	<b>Test Date:</b>	02/08/2019
<b>Antenna Type/Polarity:</b>	N/A	<b>Test Personnel:</b>	Sherwin Lee
<b>Remark:</b>	120VAC, 60Hz	<b>Test Result:</b>	Pass



Frequency (MHz)	Raw (dBuV)	Cable Loss (dB)	Factors (dB)	Level (dBuV/m)	Meas. Type	Line	Limit (dBuV/m)	Margin (dB)	Pass /Fail
0.16	37.46	10.32	0.24	48.02	QP	Neutral	65.51	-17.49	Pass
0.38	33.07	10.37	0.25	43.69	QP	Neutral	58.32	-14.63	Pass
10.47	17.62	10.78	8.40	36.80	QP	Neutral	60.00	-23.20	Pass
21.59	16.20	11.14	19.03	46.38	QP	Neutral	60.00	-13.62	Pass
23.77	16.20	11.23	19.05	46.48	QP	Neutral	60.00	-13.52	Pass
25.87	15.80	11.30	18.76	45.87	QP	Neutral	60.00	-14.13	Pass
0.16	21.22	10.32	0.24	31.78	AV	Neutral	55.51	-23.73	Pass
0.38	26.41	10.37	0.25	37.02	AV	Neutral	48.32	-11.30	Pass
10.47	11.54	10.78	8.40	30.71	AV	Neutral	50.00	-19.29	Pass
21.59	9.54	11.14	19.03	39.72	AV	Neutral	50.00	-10.28	Pass
23.77	9.66	11.23	19.05	39.95	AV	Neutral	50.00	-10.05	Pass
25.87	9.48	11.30	18.76	39.55	AV	Neutral	50.00	-10.45	Pass

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



## 9 Test instrument list

Equipment	Manufacturer	Model	Serial Number	Cal. Date	Cal. Due
Semi-Anechoic Chamber	ETS-Lindgren	10M	VL001	5/11/2018	5/11/2019
Shielding Control Room	ETS-Lindgren	Series 81	VL006	N/A	N/A
Spectrum Analyzer	Keysight	N9020A	MY50110074	5/4/2018	5/4/2019
EMC Test Receiver	R&S	ESL6	100230	5/7/2018	5/7/2019
LISN (9KHz – 30MHz)	EMCO	3816/2	9705-1066	5/4/2018	5/4/2019
Bi-Log Antenna	ETS-Lindgren	3142E	217921	11/15/2018	11/15/2019
Horn Antenna (1-18GHz)	Electro-Metrics	EM-6961	6292	5/2/2018	5/2/2019
Horn Antenna (18-40GHz)	Com-Power	AH-840	101109	5/2/2018	5/2/2019
Preamplifier	RF Bay, Inc.	LPA-10-20	11180621	5/10/2018	5/10/2019
True RMS Multi-meter	UNI-T	UT181A	C173014829	5/10/2018	5/10/2019
Temp / Humidity / Pressure Meter	PCE Instruments	PCE-THB 40	R062028	5/9/2018	5/9/2019
RF Attenuator	Pasternack	PE7005-3	VL061	5/10/2018	5/10/2019
Preamplifier 100KHz - 40GHz	Aeroflex	33711-392- 77150-11	064	5/10/2018	5/10/2019
EM Center Control	ETS-Lindgren	7006-001	160136	N/A	N/A
Turn Table	ETS-Lindgren	2181-3.03	VL002	N/A	N/A
Boresight Antenna Tower	ETS-Lindgren	2171B	VL003	N/A	N/A
Loop Antenna (9k-30MHz)	Com-Power	AL-130	121012	5/9/2018	5/9/2019
RE test cable(below 6GHz)	Vista	RE-6GHz-01	RE-6GHz-01	5/10/2018	5/10/2019
RE test cable (1-18GHz)	PhaseTrack	II-240	RE-18GHz-01	5/10/2018	5/10/2019
RE test cable (>18GHz)	Sucoflex	104	344903/4	5/10/2018	5/10/2019
Pulse limiter	Com-Power	LIT-930A	531727	5/15/2018	5/15/2019
CE test cable #1	FIRST RF	FRF-C-1002-001	CE-6GHz-01	5/10/2018	5/10/2019
CE test cable#2	FIRST RF	FRF-C-1002-001	CE-6GHz-02	5/9/2018	5/9/2019