Seasonic Prime Titanium 750W

Serial Number R1606TA106430003

Lab ID 48

Certification ID 2548

Test Result Report ID:

Certificate Issue Date: Jan 22, 2018

Scheme: ETA-EMI PSU

115V



230V



Scheme: LAMBDA PSU

115V



230V





Aristeidis Bitziopoulos, Certification Body General Manager

General Information

Test Equipment

Electronic Loads	Chroma 63601-5 x2 Chroma 63600-2 Chroma 63640-80-80 x10 Chroma 63610-80-20
AC Sources	Chroma 6530, APM SP300VAC4000W-P, GW Instek ASR-3500
Power Analyzers	Rohde & Schwarz HMC8015 & NPA701
Oscilloscopes	Picoscope 4444, Siglent SDS2104X PLUS
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Temperature Logger	Picoscope TC-08
Tachometer	UNI-T UT372
Multimeters	Keysight 34465A
EMI Analyzer	TekBox TBMR-110M-EU
Isolation Transformer	4kVA
UPS	FSP Champ Tower 3kVA, CyberPower OLS3000E 3kVA
Testing Methodology	Cybenetics PSU Test Protocol

DUT Information(Non-accredited measurements)

Product Identification Details	
Brand	Seasonic
Model	Prime Titanium 750W
OEM/ODM	Seasonic
Serial Number	R1606TA106430003
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	9.5-4.5
Rated Frequency (Hz)	50-60

Rated Power (W)	750
Operating Temperature (Continuous Full Load) (°C)	
Type	ATX12V
Cable Design	Fully Modular
Warranty	-
Cybenetics Measurements	
Dimensions (W x H x D)	
Weight	
Cooling	135mm Fluid Dynamic Bearing Fan (HA13525M12F-Z)
Semi-Passive Operation	✓ (selectable)
Cybenetics Testing Information	
Lab ID	48
Date of receipt	Jan 5, 2018
Testing Date	Jan 18, 2018
Report Issued Date	Jan 22, 2018
DUT Notes	Retested on 4/7/17
Engineer Name	-
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables			
Description	Cable Count	Connector Count (Total)	Gauge
ATX connector 20+4 pin (620mm)	1	1	18-22AWG
4+4 pin EPS12V (650mm)	2	2	18AWG
6+2 pin PCIe (680mm+80mm)	4	4	18AWG
SATA (450mm+110mm+110mm+110mm)	2	8	18AWG
SATA (350mm+110mm)	1	2	18AWG
4 pin Molex (350mm+120mm)	1	2	18AWG
4 pin Molex (450mm+120mm+120mm)	1	3	18AWG

FDD Adapter (+110mm)	1	1	22AWG

Power Specifications

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62	3	0.3
	Watts	100		744	15	3.6
Total Max. Power (W)		750				

Test Results

Temperature & Compliance Info

Temperature Range (°C /°F)	28-32 / 82.4-89.6
ErP Lot 3/6 Ready	✓
(EU) No 617/2013 Compliance	✓

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	92.387%
Average Noise Output (>1450 Load Combinations)	16.89dBA
Average PF (>1450 Load Combinations)	0.989
Efficiency With 10W (≤500W) or 2% (>500W) Load	-
Standby Power Consumption	0.0576W
Non-Accredited	
12V Ripple (Full Load)	-
5V Ripple (Full Load)	-
3.3V Ripple (Full Load)	-
5VSB Ripple (Full Load)	-
12V Load Regulation	-

5V Load Regulation	-
3.3V Load Regulation	-
5VSB Load Regulation	-
Inrush Current	-

230V

Accredited		
Average Efficiency (>1450 load combinations)		94.199%
Average Noise Output (>1450 Load Combinations)		16.59dBA
Average PF (>1450 Load Combinations)		0.945
Efficiency With 10W (≤500W) or 2% (>500W) Load		-
Standby Power Consumption		0.0996W
Non-Accredited		
12V Ripple (Full Load)		-
5V Ripple (Full Load)		-
3.3V Ripple (Full Load)		-
5VSB Ripple (Full Load)		-
12V Load Regulation		-
5V Load Regulation		-
3.3V Load Regulation		-
5VSB Load Regulation		-
Inrush Current		-
Hold-Up Time & PWR_OK Signal		0.00ms
AC Loss to PWR_OK Hold Up Time		0.00ms
PWR_OK Inactive to DC Loss Delay		0.00ms
OPP (0.00°C / 0.00°C)	-	-

Hold-Up Time & PWR_OK Signal

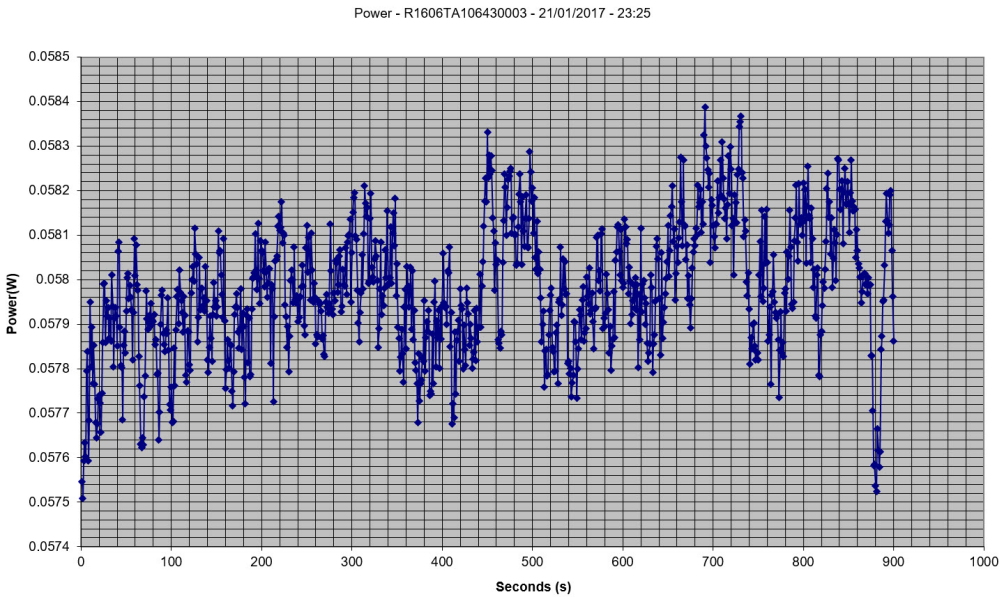
Hold-Up Time (ms)	33.4
AC Loss to PWR_OK Hold Up Time (ms)	32.2

PWR_OK Inactive to DC Loss Delay (ms)	1.2

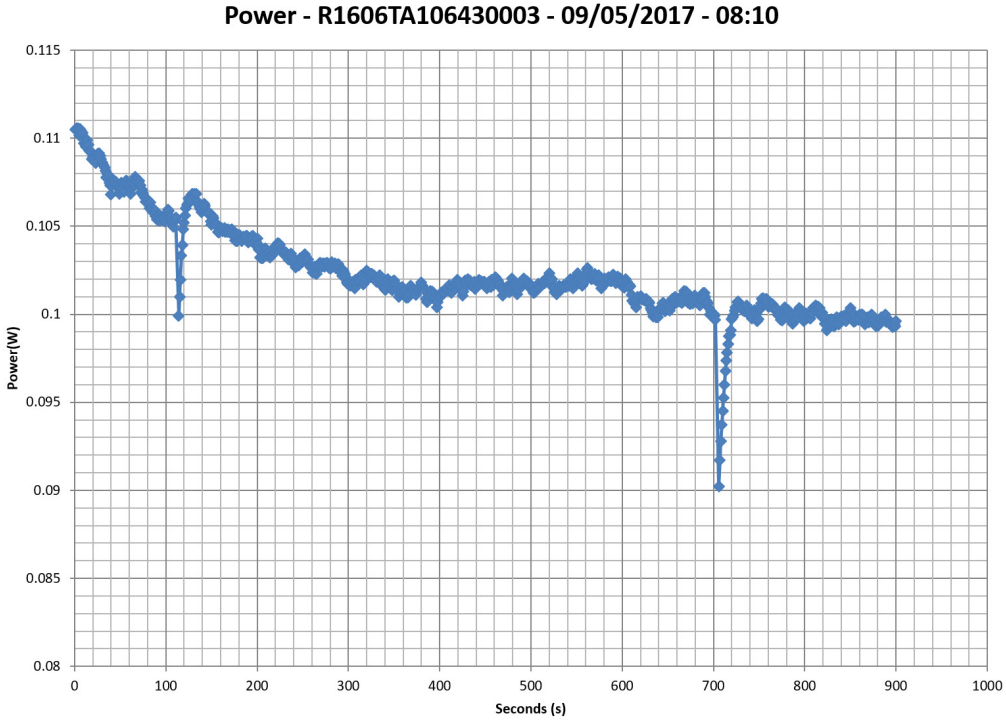
Stromverbrauch im Ruhezustand

Graphs

115V

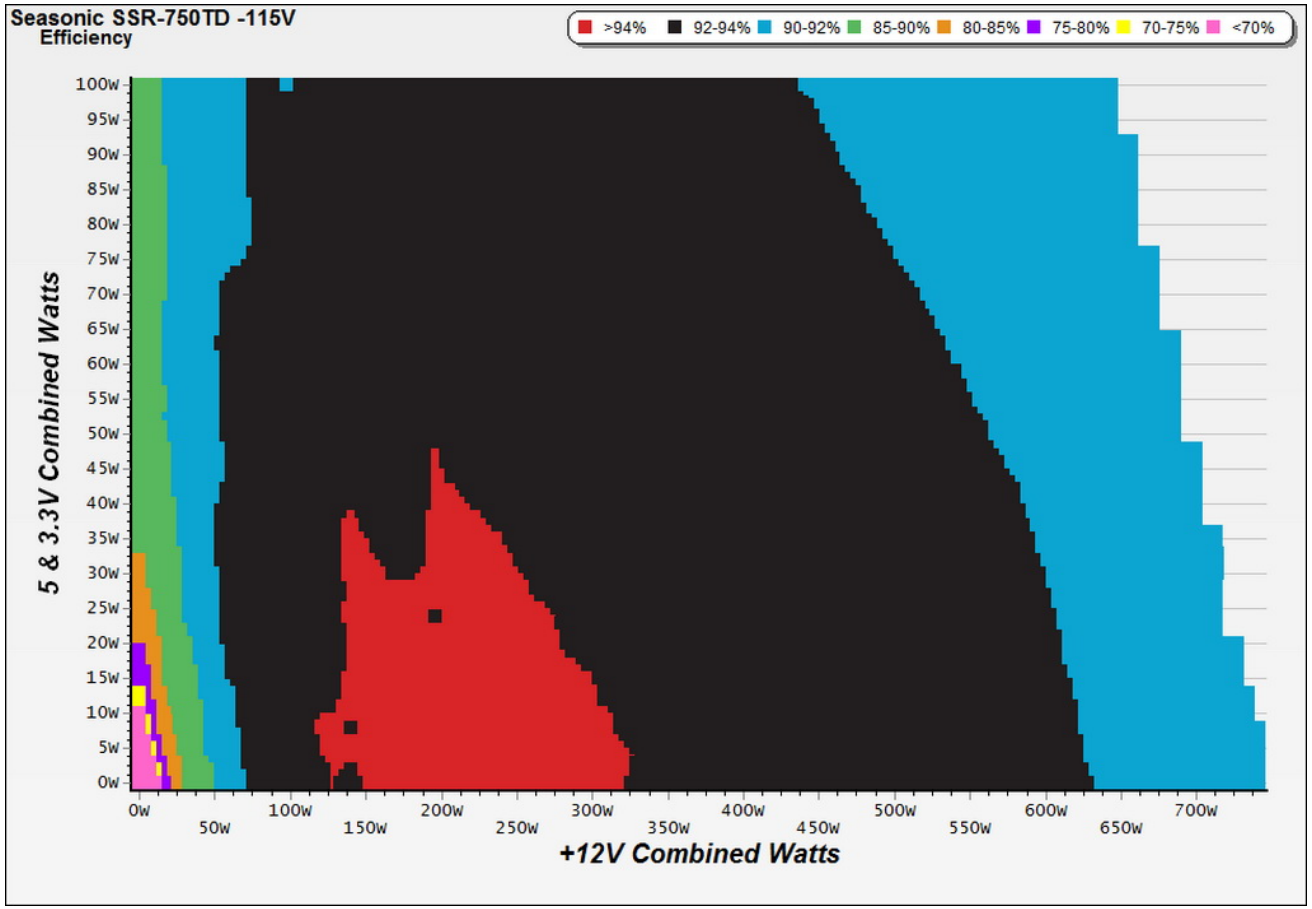


230V



Efficiency Graph

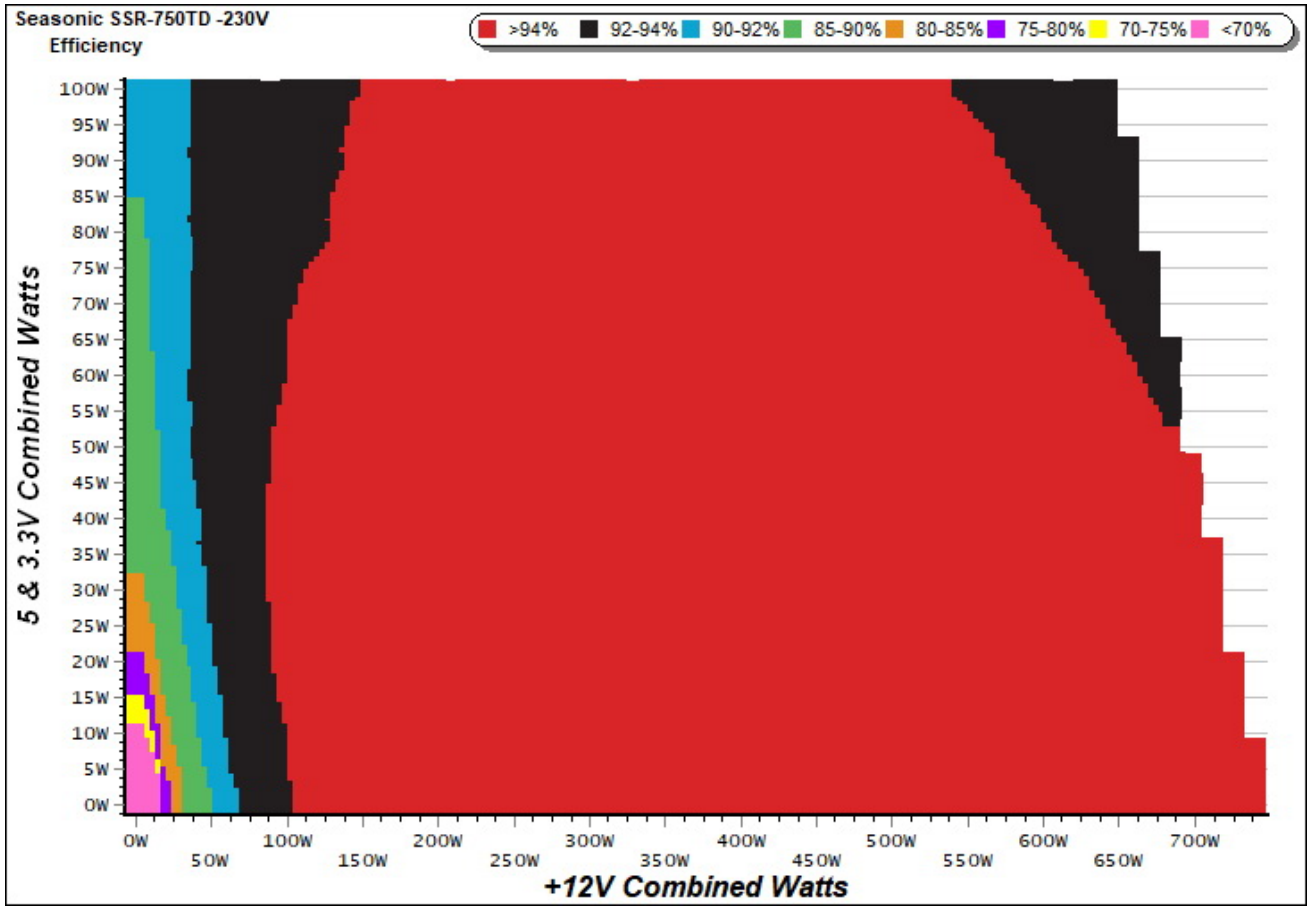
115V



INFO

This graph depicts the PSU`s efficiency throughout its entire operational range. For the generation of the efficiency and noise graphs we set our loaders to auto mode through our custom-made software before trying thousands of possible load combinations.

230V

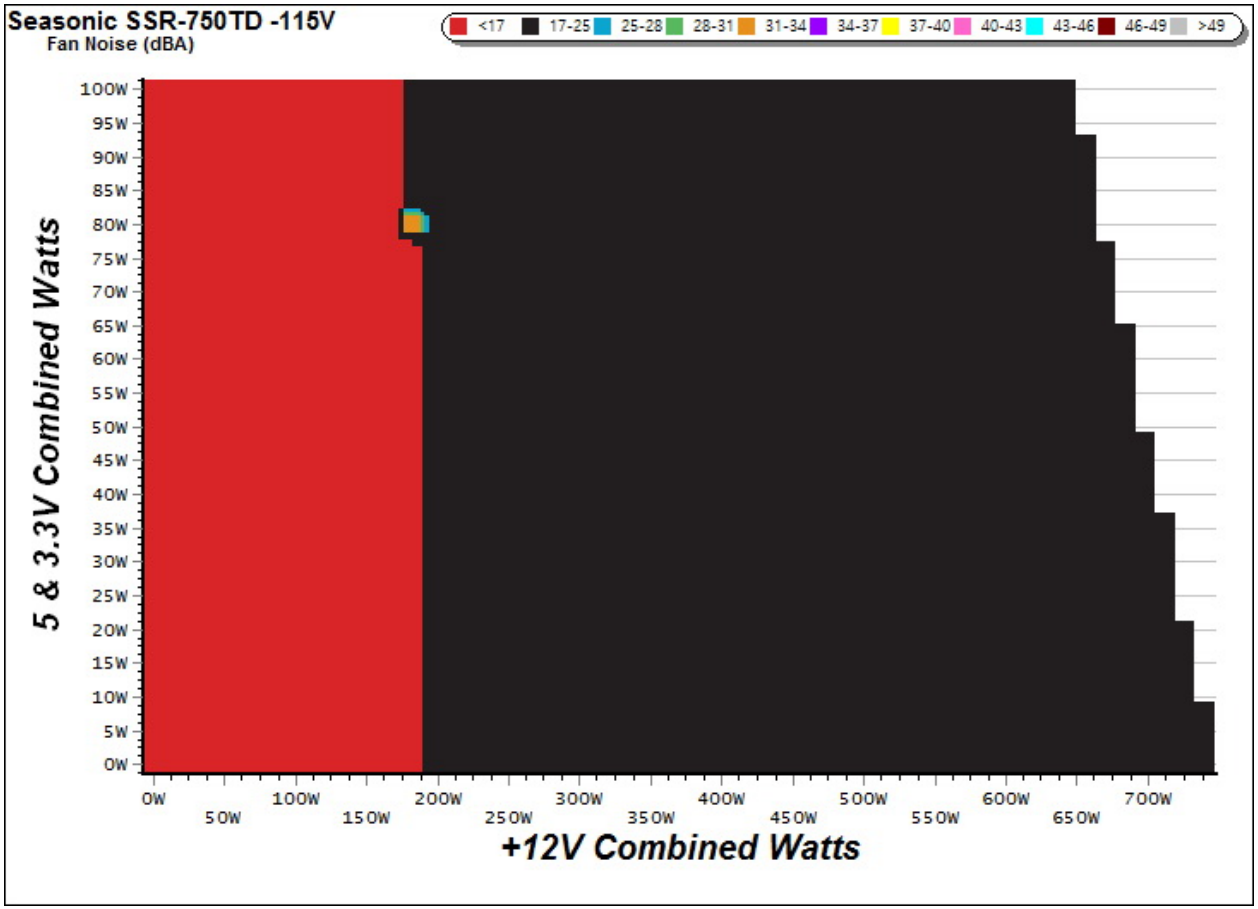


INFO

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Noise Graph

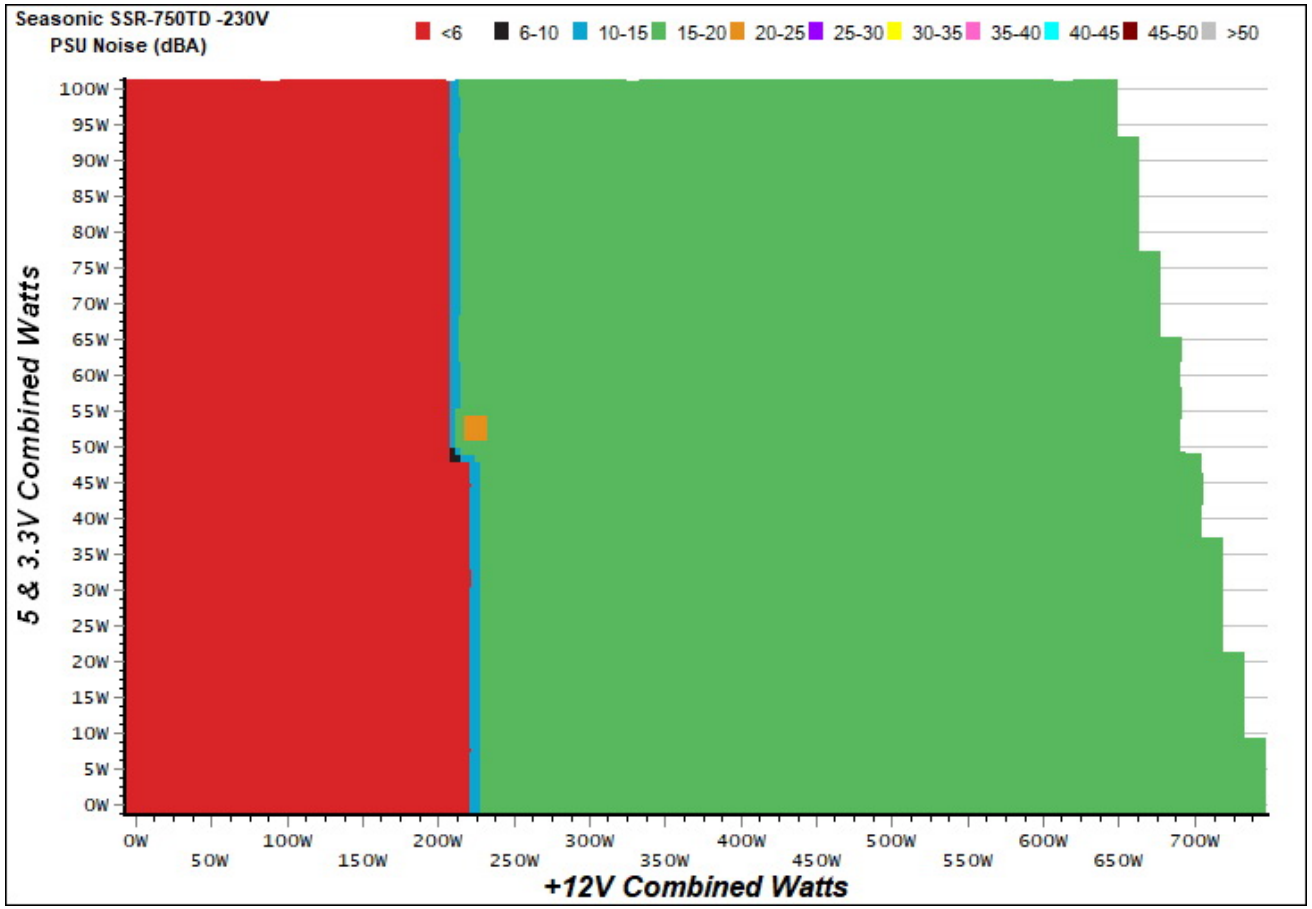
115V



INFO

The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

230V

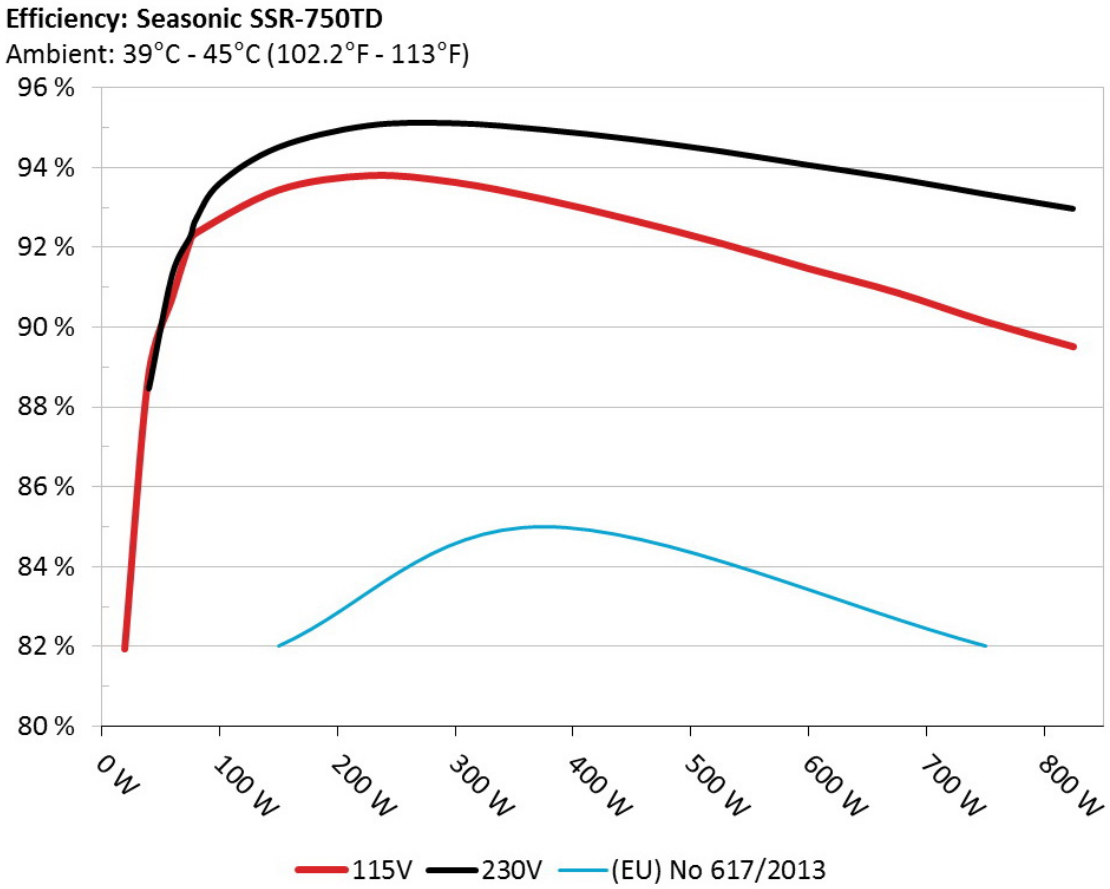


INFO

The PSU`s noise in its entire operational range and under 30-32 °C ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails.

Indicative Performance

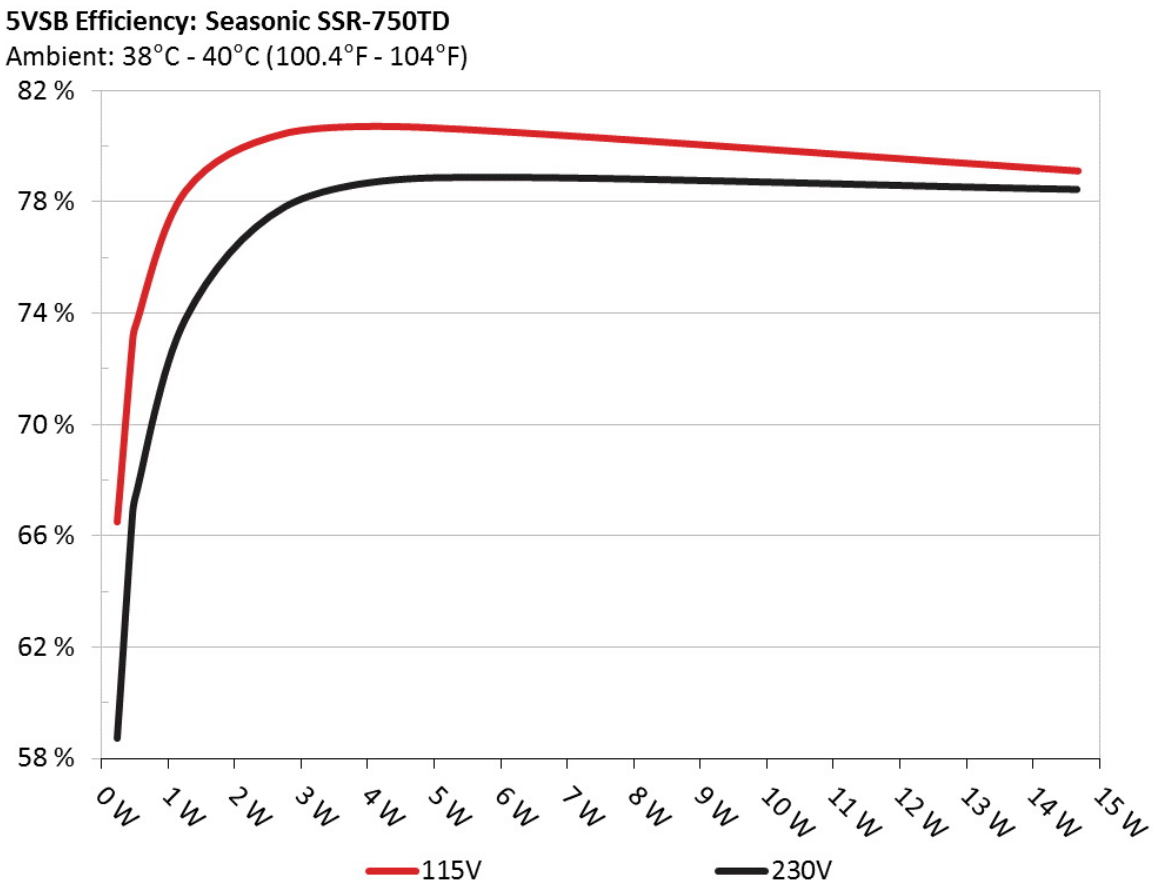
Efficiency under high ambient temperature



INFO

The PSU`s efficiency under high ambient temperatures with 115V and 230V input. For this graph the results of the 10-110% load regulation table are used.

5VSB Efficiency



INFO

This graph depicts the efficiency levels of the 5VSB rail with 115V and 230V input.

5VSB Efficiency (ERP LOT 3/6 & CEC)

115V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.047A	0.236	66.479%	0.040
	5.013V	0.355		115.10V
2	0.092A	0.461	72.828%	0.070
	5.011V	0.633		115.10V
3	0.552A	2.756	80.444%	0.273
	4.992V	3.426		115.09V
4	3.002A	14.680	79.039%	0.476
	4.890V	18.573		115.08V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.047A	0.236	58.706%	0.014
	5.013V	0.402		230.24V
2	0.092A	0.461	66.618%	0.024
	5.011V	0.692		230.23V
3	0.552A	2.754	77.819%	0.112
	4.990V	3.539		230.24V
4	3.002A	14.659	78.445%	0.335
	4.883V	18.687		230.24V

Supplementary Tests (For Reference)

Typical Load Tests

115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	Fan Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	4.367A	1.973A	1.973A	0.991A	74.748	92.137%	0	0	43.08°C	0.966
	12.178V	5.057V	3.344V	5.036V	81.127				38.25°C	115.05V
2	9.771A	2.958A	2.963A	1.191A	149.760	93.441%	0	0	43.56°C	0.986
	12.171V	5.053V	3.340V	5.032V	160.272				38.57°C	115.05V
3	15.522A	3.466A	3.474A	1.390A	224.873	92.807%	490	17.8	37.91°C	0.992
	12.163V	5.050V	3.336V	5.026V	242.302				39.74°C	115.05V
4	21.271A	3.963A	3.957A	1.593A	299.735	93.636%	490	17.8	38.26°C	0.994
	12.155V	5.047V	3.333V	5.019V	320.107				40.43°C	115.04V
5	26.696A	4.959A	4.954A	1.794A	374.770	93.213%	490	17.8	39.65°C	0.992
	12.147V	5.043V	3.329V	5.013V	402.058				42.27°C	115.02V
6	32.116A	5.952A	5.953A	1.995A	449.660	92.690%	510	18.2	40.32°C	0.992
	12.140V	5.039V	3.324V	5.008V	485.122				43.22°C	115.03V
7	37.545A	6.953A	6.954A	2.197A	524.597	92.114%	400	16.6	41.34°C	0.993
	12.132V	5.036V	3.321V	5.003V	569.508				44.53°C	115.02V
8	42.986A	7.947A	7.958A	2.402A	599.604	91.475%	510	18.2	42.53°C	0.994
	12.125V	5.033V	3.317V	4.998V	655.484				46.21°C	115.04V
9	48.867A	8.456A	8.475A	2.401A	674.680	90.869%	570	20.6	44.21°C	0.995
	12.116V	5.029V	3.314V	4.996V	742.477				48.45°C	115.07V
10	54.494A	8.959A	8.968A	3.012A	749.538	90.146%	670	21.6	44.60°C	0.996
	12.108V	5.025V	3.312V	4.981V	831.469				49.15°C	115.08V
11	60.719A	8.965A	8.978A	3.011A	824.347	89.514%	780	24.8	44.85°C	0.996
	12.099V	5.021V	3.309V	4.977V	920.915				49.85°C	115.09V
CL1	0.099A	12.012A	12.006A	0.004A	101.893	88.630%	510	18.2	43.93°C	0.979
	12.190V	5.049V	3.333V	5.092V	114.964				47.87°C	115.10V

CL2	62.453A	1.003A	1.002A	1.002A	768.774	90.408%	700	22.7	44.76°C	0.996
	12.095V	5.034V	3.324V	5.015V	850.336				49.37°C	115.07V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	4.369A	1.974A	1.970A	0.991A	74.792	92.352%	400	16.6	40.14°C	0.781
	12.181V	5.059V	3.347V	5.038V	80.986				43.81°C	230.25V
2	9.764A	2.959A	2.954A	1.191A	149.770	94.641%	400	16.6	40.61°C	0.896
	12.180V	5.058V	3.345V	5.035V	158.250				44.59°C	230.26V
3	15.504A	3.465A	3.470A	1.391A	224.937	95.224%	430	17.3	41.11°C	0.940
	12.179V	5.056V	3.343V	5.029V	236.218				45.79°C	230.26V
4	21.236A	3.953A	3.945A	1.591A	299.769	95.345%	430	17.3	41.78°C	0.959
	12.178V	5.055V	3.341V	5.025V	314.403				46.78°C	230.26V
5	26.630A	4.949A	4.938A	1.791A	374.772	95.212%	490	18.0	42.26°C	0.971
	12.177V	5.054V	3.340V	5.021V	393.617				47.76°C	230.26V
6	32.022A	5.935A	5.929A	1.991A	449.677	95.003%	520	18.5	42.89°C	0.977
	12.176V	5.053V	3.339V	5.018V	473.331				48.80°C	230.26V
7	37.416A	6.930A	6.917A	2.192A	524.672	94.712%	422	17.5	43.07°C	0.982
	12.176V	5.053V	3.338V	5.013V	553.968				49.29°C	230.27V
8	42.812A	7.918A	7.910A	2.395A	599.621	94.380%	505	18.1	43.67°C	0.984
	12.175V	5.052V	3.336V	5.009V	635.326				50.50°C	230.27V
9	48.641A	8.422A	8.425A	2.395A	674.730	94.052%	555	19.5	44.09°C	0.987
	12.173V	5.050V	3.335V	5.008V	717.402				51.27°C	230.27V
10	54.209A	8.919A	8.908A	3.000A	749.543	93.664%	700	22.7	45.05°C	0.989
	12.172V	5.049V	3.334V	4.993V	800.246				52.69°C	230.27V
11	60.362A	8.920A	8.912A	3.003A	824.329	93.275%	850	27.7	46.92°C	0.989
	12.170V	5.048V	3.333V	4.992V	883.763				54.86°C	230.28V
CL1	0.101A	12.013A	12.004A	0.005A	102.194	90.234%	440	17.3	42.53°C	0.841
	12.186V	5.059V	3.346V	5.089V	113.254				48.60°C	230.26V

CL2	61.948A	1.002A	1.002A	1.002A	767.411	93.970%	670	21.6	45.16°C	0.989
	12.171V	5.050V	3.337V	5.028V	816.659				52.18°C	230.28V

The results above are not used in the certification process

Light Load Tests

115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	Fan Noise (dB[A])	PF/AC Volts
1	1.200A	0.491A	0.477A	0.195A	19.683	81.934%	0	0	0.796
	12.179V	5.060V	3.348V	5.055V	24.023				115.03V
2	2.421A	0.978A	0.985A	0.396A	39.723	88.768%	0	0	0.910
	12.178V	5.058V	3.345V	5.049V	44.749				115.03V
3	3.647A	1.477A	1.494A	0.591A	59.861	90.734%	0	0	0.950
	12.178V	5.057V	3.345V	5.045V	65.974				115.04V
4	4.861A	1.974A	1.971A	0.791A	79.747	92.360%	0	0	0.966
	12.177V	5.055V	3.343V	5.041V	86.344				115.04V

The results above are not used in the certification process

230V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	PF/AC Volts
1	1.200A	0.491A	0.476A	0.196A	19.686	80.240%	400	16.6	0.484
	12.179V	5.062V	3.350V	5.057V	24.534				230.25V
2	2.424A	0.978A	0.986A	0.396A	39.769	88.344%	400	16.6	0.651
	12.179V	5.059V	3.347V	5.049V	45.016				230.25V
3	3.650A	1.476A	1.490A	0.591A	59.893	91.370%	400	16.6	0.737
	12.180V	5.059V	3.347V	5.047V	65.550				230.24V
4	4.860A	1.976A	1.970A	0.791A	79.771	92.718%	400	16.6	0.794
	12.180V	5.058V	3.347V	5.042V	86.036				230.25V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	7.5 mV	3.7 mV	3.8 mV	3.5 mV	Pass
20% Load	9.5 mV	3.9 mV	4.1 mV	3.5 mV	Pass
30% Load	10.8 mV	4.4 mV	4.5 mV	3.8 mV	Pass
40% Load	11.2 mV	4.4 mV	5.1 mV	4.2 mV	Pass
50% Load	8.3 mV	4.9 mV	5.5 mV	4.6 mV	Pass
60% Load	7.9 mV	5.4 mV	6.2 mV	4.9 mV	Pass
70% Load	8.4 mV	5.3 mV	6.6 mV	5.5 mV	Pass
80% Load	9.1 mV	5.6 mV	6.0 mV	6.9 mV	Pass
90% Load	10.2 mV	5.7 mV	6.2 mV	7.4 mV	Pass
100% Load	11.0 mV	5.7 mV	6.6 mV	7.3 mV	Pass
113% Load	12.0 mV	6.1 mV	7.7 mV	8.0 mV	Pass
Crossload 1	8.2 mV	5.2 mV	5.4 mV	4.0 mV	Pass
Crossload 2	11.3 mV	4.3 mV	5.9 mV	6.5 mV	Pass

The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	9.0 mV	5.2 mV	11.1 mV	5.6 mV	Pass
20% Load	10.8 mV	5.0 mV	10.9 mV	5.6 mV	Pass
30% Load	12.5 mV	5.2 mV	11.5 mV	6.1 mV	Pass
40% Load	12.1 mV	5.1 mV	11.9 mV	6.5 mV	Pass
50% Load	9.6 mV	4.7 mV	9.9 mV	6.9 mV	Pass
60% Load	9.4 mV	5.7 mV	11.7 mV	7.4 mV	Pass
70% Load	9.5 mV	5.4 mV	12.8 mV	8.4 mV	Pass
80% Load	10.7 mV	6.6 mV	12.1 mV	9.3 mV	Pass

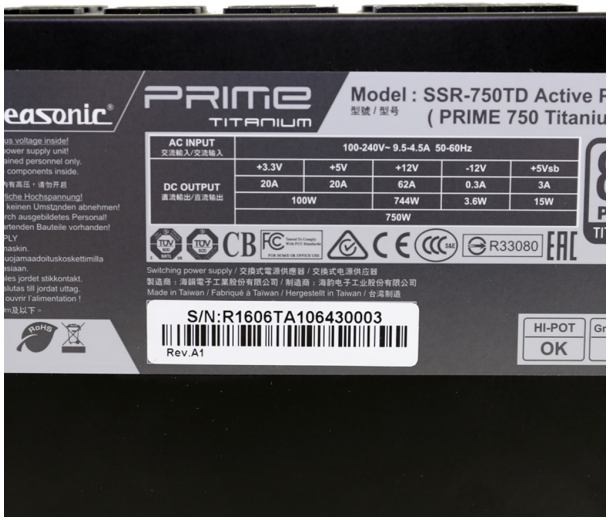
Test	12V	5V	3.3V	5VSB	Pass/Fail
90% Load	11.3 mV	6.5 mV	13.7 mV	10.0 mV	Pass
100% Load	12.8 mV	6.1 mV	13.7 mV	11.4 mV	Pass
110% Load	14.3 mV	6.3 mV	14.2 mV	12.0 mV	Pass
Crossload 1	10.4 mV	6.1 mV	12.4 mV	6.8 mV	Pass
Crossload 2	12.1 mV	5.1 mV	12.9 mV	10.6 mV	Pass

The results above are not used in the certification process

Seasonic Prime Titanium 750W



Top side



Power specifications label

Cybenetics bietet freiwillige Zertifizierungsprogramme für Netzteile – ETA für Effizienz, LAMBDA für Lautstärke und SAFE für Sicherheit und korrekten Betrieb – sowie für Kühlprodukte mit DELTA für die Schalldämmung von Gehäusen und PHI für Luftstrom und statischen Druck von Lüftern

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