EFFICIENCY AND NOISE REPORT IN ACCORDANCE WITH
CYBENETICS ETA AND CYBENETICS LAMBDA PROCEDURE

SilverStone Strider Titanium 1100W

Lab ID#: SL11001660
Receipt Date: Mar 2, 2018
Test Date: May 28, 2020

Report: 20PS1660A
Report Date: Jun 19, 2020

DUT INFORMATION

Brand	SilverStone
Manufacturer (OEM)	Enhance Electronics
Series	Strider Titanium
Model Number	ST1100-TI
Serial Number	DB17250307STK10TI0
DUT Notes	

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	12-6
Rated Frequency (Hz)	50-60
Rated Power (W)	1100
Type	ATX12V
Cooling	140mm Double Ball-Bearing Fan (D14BH-12)
Semi-Passive Operation	✓
Cable Design	Fully Modular

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	25	22	92	3	0.3
	Watts	120		1100	15	3.6
Total Max. Power (W)		1100				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (550mm)	1	1	16-22AWG	No
4+4 pin EPS12V (750mm)	1	1	16AWG	No
4+4 pin EPS12V (550mm)	1	1	16AWG	No
6+2 pin PCIe (550mm)	8	8	16AWG	No
SATA (600mm+140mm+140mm140mm)	4	16	18AWG	No
4 pin Molex (600mm+150mm+150mm)	2	6	18AWG	No
FDD Adapter (+120mm)	1	1	22AWG	No
AC Power Cord (1380mm) - C19 coupler	1	1	16AWG	-

SilverStone Strider Titanium 1100W

General Data	
Manufacturer (OEM)	Enhance Electronics
Primary Side	
Transient Filter	6x Y caps, 4x X caps, 2x CM chokes, 1x MOV, 1x CM02X
Inrush Protection	NTC Thermistor & Relay
Bridge Rectifier(s)	2x
APFC MOSFETS	2x Infineon IPP60R190C6 (650V, 12.8A @ 100°C, 0.19Ohm)
APFC Boost Diode	2x CREE C3D08060A (600V, 8A @ 152°C)
Hold-up Cap(s)	2x Nippon Chemi-Con (420V, 470uF, 2000h @ 105°C, KMQ)
Main Switchers	4x Infineon IPP60R190C6 (650V, 12.8A @ 100°C, 0.19Ohm)
Driver ICs	2x Silicon Labs Si8230BD
APFC Controller	Champion CM6502S & CM03X Green PFC controller
LLC Resonant Controller	Champion CM6901T6X
Topology	Primary side: Full-Bridge & LLC Resonant Controller Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	
+12V MOSFETS	8x Infineon BSC014N04LS (40V, 100A @ 100°C, 1.4mOhm)
5V & 3.3V	2x DC-DC Converters
Filtering Capacitors	Electrolytics: 5x Rubycon (6-10,000h @ 105°C, ZLH), 8x Suncon (105°C), 1x Nippon Chemi-Con (4000-1000h @105°C, Polymers: Unicon (UPH, 2,000h @ 125°C)
Supervisor IC	SITI PS223 (OVP, UVP, OCP, SCP, OTP)
Fan Model	Yate Loon D14BH (140mm, 12V, 0.7A, 2800 RPM, 140 CFM, 48.5 dBA, Double Ball Bearing)
5VSB Circuit	
Rectifier	1x PFR10V45CT SBR (45V, 10A)
Standby PWM Controller	Sanken STR-A6062H

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RESULTS

Temperature Range (°C /°F)	30-32 / 86-89.6 (+-2°C / +- 3.6°F)
ErP Lot 3/6 Ready	ErP Lot 3/6 2010: ✓ ErP Lot 3/6 2013: ✓ ErP Lot 3/6 2014, CEC: Partially
(EU) No 617/2013 Compliance	✓

115V

Average Efficiency	91.198%
Efficiency With 10W (≤500W) or 2% (>500W)	62.195
Average Efficiency 5VSB	78.648%
Standby Power Consumption (W)	0.1079900
Average PF	0.982
Avg Noise Output	44.31 dB(A)
Efficiency Rating (ETA)	TITANIUM
Noise Rating (LAMBDA)	S

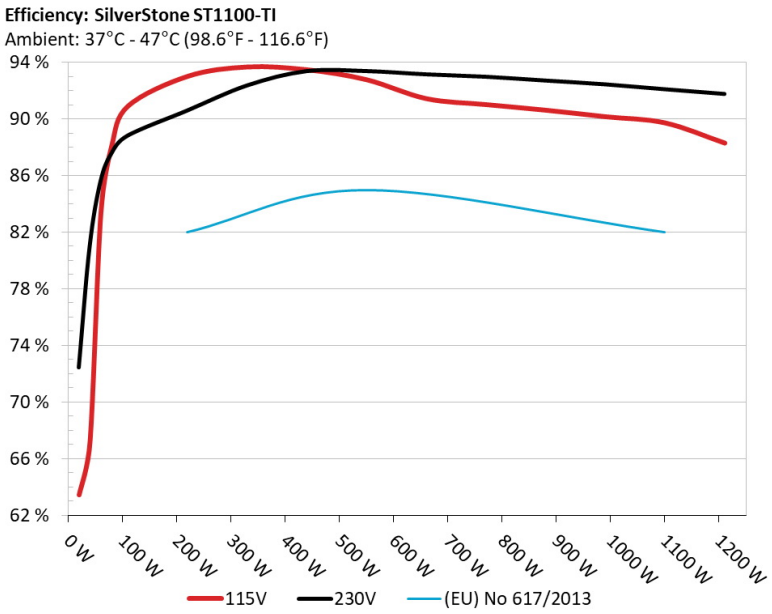
230V

Average Efficiency	91.866%
Average Efficiency 5VSB	77.024%
Standby Power Consumption (W)	0.1489250
Average PF	0.943
Avg Noise Output	43.46 dB(A)
Efficiency Rating (ETA)	PLATINUM
Noise Rating (LAMBDA)	S

TEST EQUIPMENT

Electronic Loads	Chroma 63601-5 x4 Chroma 63600-2 x2 63640-80-80 x20 63610-80-20 x2
AC Sources	Chroma 6530, Keysight AC6804B
Power Analyzers	N4L PPA1530 x2
Sound Analyzer	Bruel & Kjaer 2270 G4
Microphone	Bruel & Kjaer Type 4955-A
Data Loggers	Picoscope TC-08 x2, Labjack U3-HV x2
Tachometer	UNI-T UT372 x2
Digital Multimeter	Keysight U1273AX, Fluke 289, Keithley 2015 - THD
UPS	CyberPower OLS3000E 3kVA x2
Transformer	3kVA x2

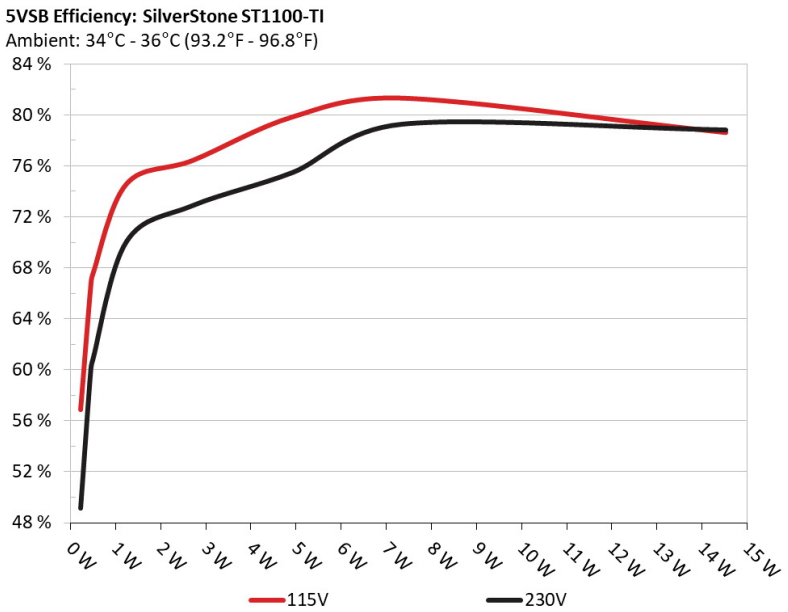
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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 -115V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.224	56.853%	0.019
	4.971V	0.394		115.13V
2	0.090A	0.447	66.518%	0.032
	4.969V	0.672		115.13V
3	0.550A	2.722	76.439%	0.161
	4.949V	3.561		115.12V
4	1.000A	4.930	79.851%	0.256
	4.929V	6.174		115.13V
5	1.500A	7.363	81.314%	0.335
	4.908V	9.055		115.13V
6	3.000A	14.519	78.609%	0.479
	4.839V	18.470		115.13V

5VSB EFFICIENCY -230V (ERP LOT 3/6 & CEC)

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.224	49.123%	0.007
	4.971V	0.456		230.26V
2	0.090A	0.447	59.920%	0.011
	4.969V	0.746		230.26V
3	0.550A	2.722	72.917%	0.054
	4.949V	3.733		230.26V
4	1.000A	4.930	75.509%	0.092
	4.929V	6.529		230.26V
5	1.500A	7.362	79.298%	0.128
	4.907V	9.284		230.26V
6	3.001A	14.523	78.839%	0.232
	4.840V	18.421		230.26V

115V

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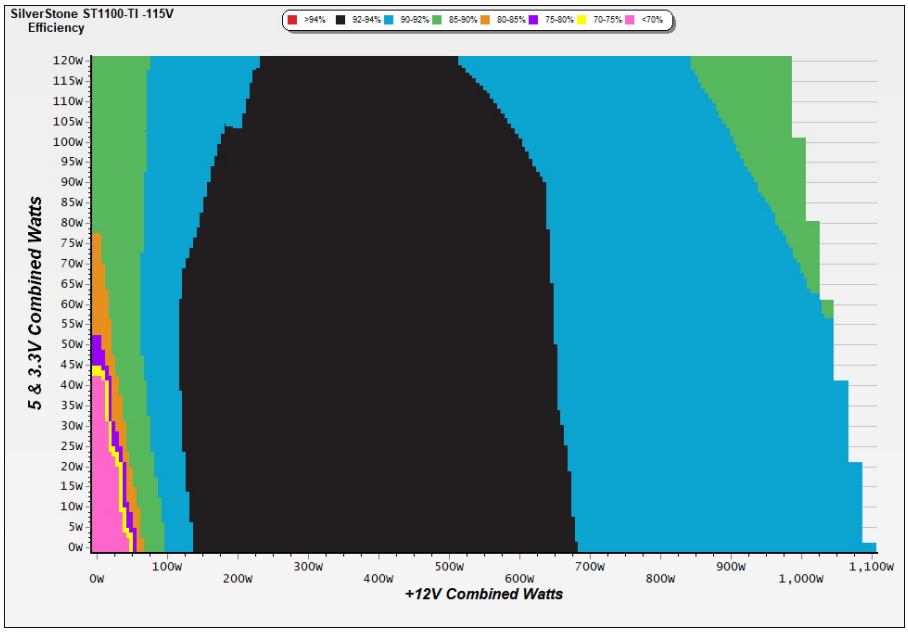
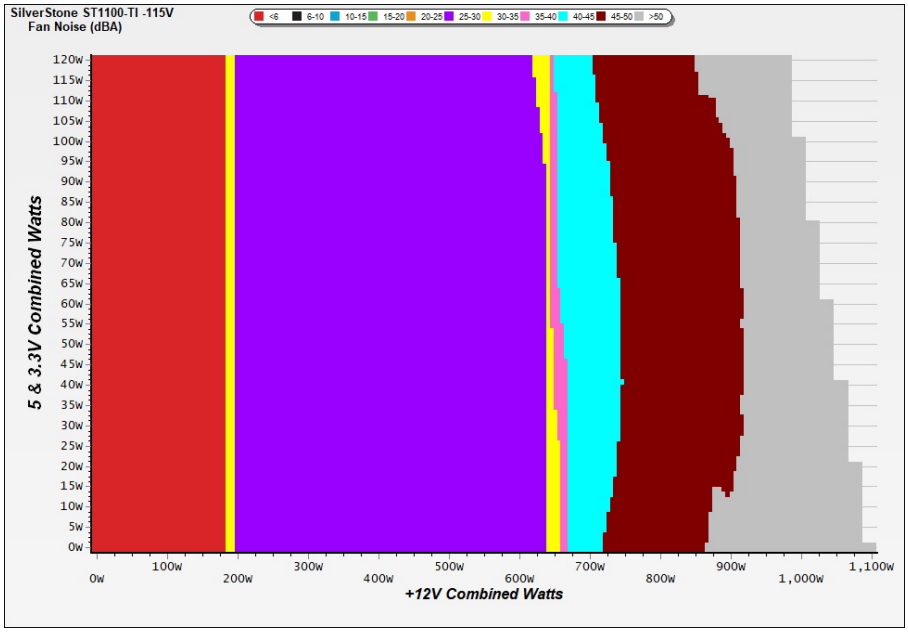
EFFICIENCY GRAPH 115V



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

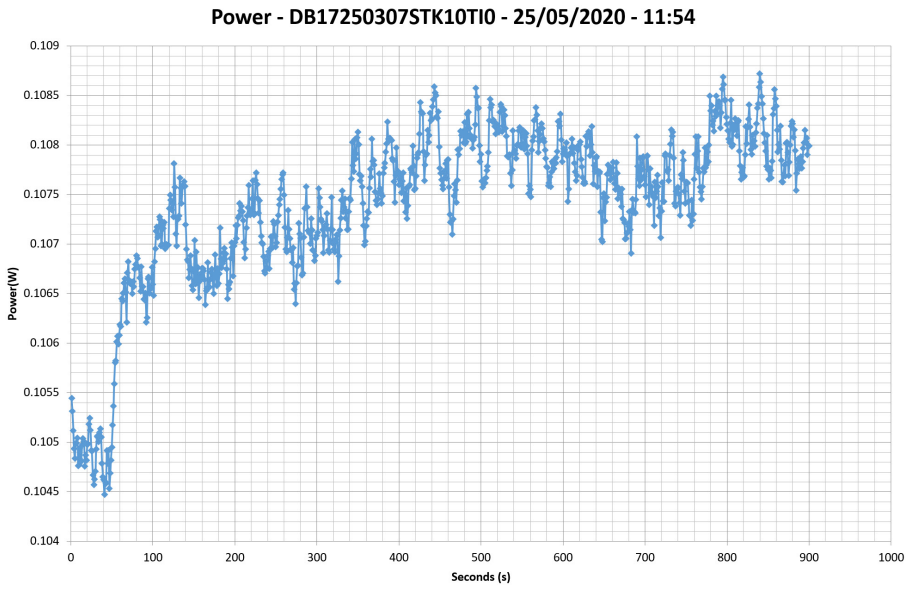
NOISE GRAPH 115V



INFO

The PSU's noise in its entire operational range and under 30-32 °C (+-2 °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

VAMPIRE POWER -115V



INFO

This graph is generated by the PPA Standby Power Analysis software which takes full control of the power analyzer during the whole procedure. This application features all of the EN50564 & IEC62301 test limits for standby power software testing

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COMMISSION REGULATION (EU) NO 617/2013 TESTING 115V

Test #	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
1	7.278A	1.981A	1.987A	0.998A	110.016	90.912%	0	<6.0	43.29°C	0.946
	12.149V	5.046V	3.320V	5.012V	121.014				39.82°C	115.13V
2	15.596A	2.981A	2.997A	1.202A	220.061	93.019%	941	28.1	40.97°C	0.975
	12.129V	5.030V	3.304V	4.992V	236.577				44.83°C	115.12V
5	41.367A	5.012A	5.058A	1.824A	549.898	92.778%	1541	42.1	42.45°C	0.990
	12.072V	4.990V	3.263V	4.935V	592.700				48.20°C	115.11V
10	84.281A	9.163A	9.337A	3.113A	1100.002	89.732%	2080	50.2	45.45°C	0.993
	11.987V	4.913V	3.181V	4.821V	1225.869				55.10°C	115.10V

230V

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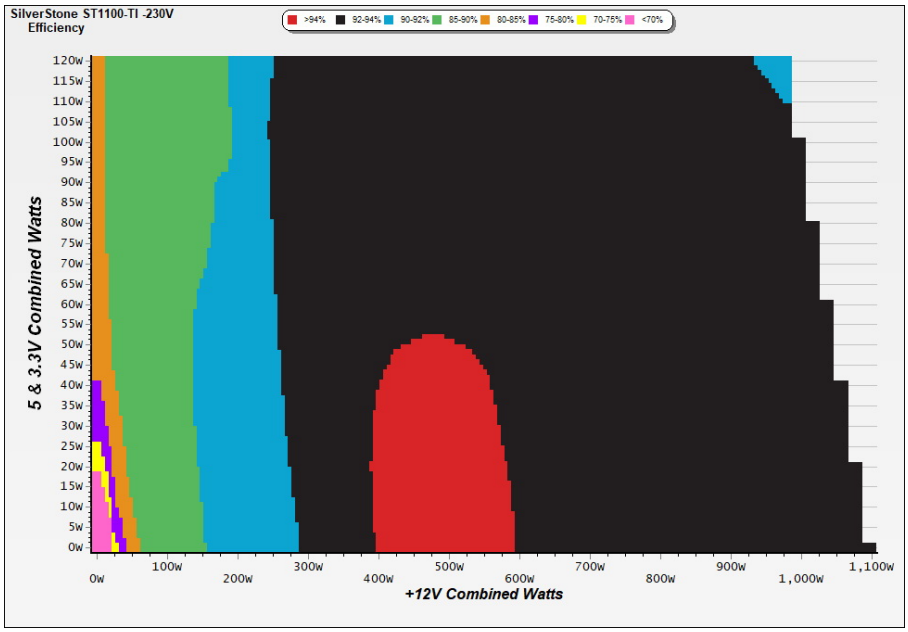
EFFICIENCY GRAPH 230V



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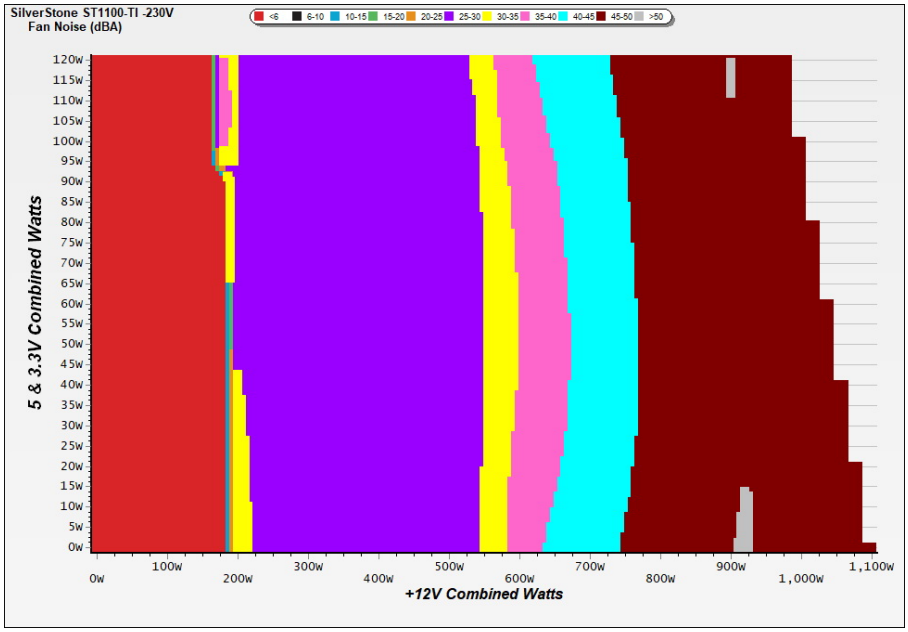
NOISE GRAPH 230V



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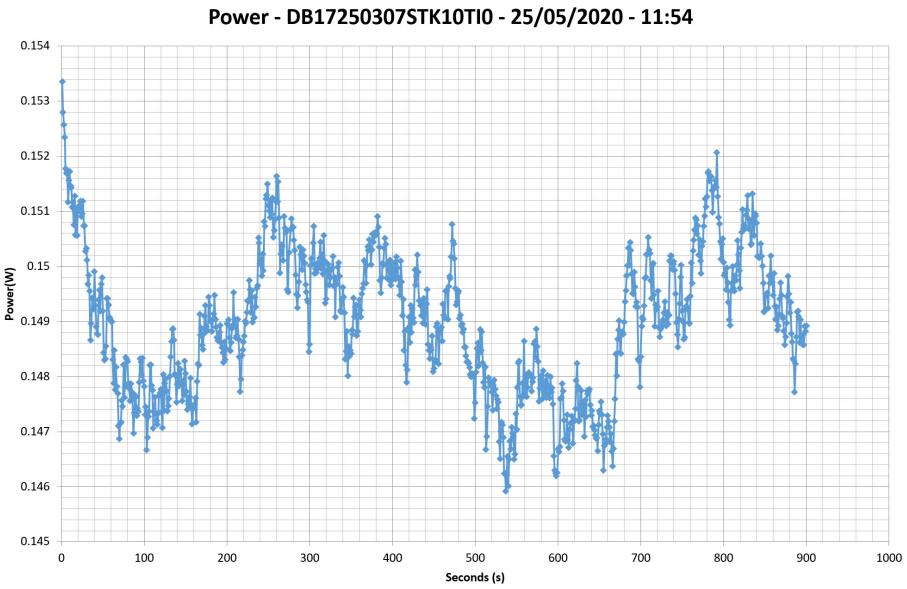
VAMPIRE POWER -230V



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COMMISSION REGULATION (EU) NO 617/2013 TESTING 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	7.286A	1.981A	1.988A	0.998A	110.029	88.848%	0	<6.0	44.03°C	0.812
	12.137V	5.047V	3.319V	5.012V	123.839				40.55°C	230.29V
2	15.608A	2.983A	3.000A	1.202A	220.085	90.626%	956	28.2	40.97°C	0.914
	12.120V	5.030V	3.303V	4.993V	242.851				45.16°C	230.29V
5	41.378A	5.014A	5.062A	1.825A	549.996	93.413%	1856	46.8	42.00°C	0.968
	12.071V	4.989V	3.260V	4.934V	588.782				48.29°C	230.28V
10	84.256A	9.167A	9.338A	3.114A	1100.057	92.126%	2065	49.9	45.30°C	0.986
	11.991V	4.912V	3.181V	4.820V	1194.084				54.83°C	230.28V

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SilverStone Strider Titanium 1100W

Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS TITANIUM

CYBENETICS STANDARD

Aris Mpitsiopoulos
Lab Director

CERTIFICATIONS 230V

CYBENETICS PLATINUM 230v

CYBENETICS STANDARD 230v