

Lab ID#: 179  
Receipt Date: Sep 12, 2018  
Test Date: Sep 17, 2018

Report:

Report Date: Sep 21, 2018

## DUT INFORMATION

|                    |                    |
|--------------------|--------------------|
| Brand              | SilverStone        |
| Manufacturer (OEM) | High Power         |
| Series             | SFX                |
| Model Number       | SX500-G            |
| Serial Number      | DE17280517SX500G00 |
| DUT Notes          |                    |

## DUT SPECIFICATIONS

|                        |                                             |
|------------------------|---------------------------------------------|
| Rated Voltage (Vrms)   | 100-240                                     |
| Rated Current (Arms)   | 10                                          |
| Rated Frequency (Hz)   | 50-60                                       |
| Rated Power (W)        | 500                                         |
| Type                   | SFX                                         |
| Cooling                | 92mm Fluid Dynamic Bearing Fan (S0921512MB) |
| Semi-Passive Operation | X                                           |
| Cable Design           | Fully Modular                               |

## POWER SPECIFICATIONS

| Rail                 |       | 3.3V | 5V | 12V  | 5VSB | -12V |
|----------------------|-------|------|----|------|------|------|
| Max. Power           | Amps  | 22   | 22 | 41.7 | 2.5  | 0.3  |
|                      | Watts | 110  |    | 500  | 12.5 | 3.6  |
| Total Max. Power (W) |       | 500  |    |      |      |      |

## CABLES AND CONNECTORS

### Modular Cables

| Description                     | Cable Count | Connector Count (Total) | Gauge    |
|---------------------------------|-------------|-------------------------|----------|
| ATX connector 20+4 pin (300mm)  | 1           | 1                       | 16-22AWG |
| 4+4 pin EPS12V (410mm)          | 1           | 1                       | 18AWG    |
| 6+2 pin PCIe (560mm)            | 1           | 1                       | 18AWG    |
| 6+2 pin PCIe (410mm)            | 1           | 1                       | 18AWG    |
| SATA (310mm+200mm+100mm)        | 2           | 6                       | 18AWG    |
| 4 pin Molex (300mm+200mm+200mm) | 1           | 3                       | 18AWG    |
| FDD Adapter (+105mm)            | 1           | 1                       | 22AWG    |

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| General Data            |                                                                                                                               |
|-------------------------|-------------------------------------------------------------------------------------------------------------------------------|
| Manufacturer (OEM)      | High Power                                                                                                                    |
| Platform Model          | -                                                                                                                             |
| Primary Side            |                                                                                                                               |
| Transient Filter        | 4x Y caps, 2x X caps, 3x CM chokes, 1x MOV                                                                                    |
| Inrush Protection       | NTC Thermistor & Relay                                                                                                        |
| Bridge Rectifier(s)     | 2x GBU1506 (600V, 15A @ 100°C)                                                                                                |
| APFC MOSFETS            | 2x Toshiba TK12A60W (600V, 11.5A @ 150°C, 0.30hm)                                                                             |
| APFC Boost Diode        | 1x Infineon IDH06G65C5 (650V, 6A @ 145°C)                                                                                     |
| Hold-up Cap(s)          | 1x Rubycon (420V, 470uF, 3000h @ 85 °C, USH)                                                                                  |
| Main Switchers          | 2x Toshiba TK12A60W (600V, 11.5A @ 150°C, 0.30hm)<br>Driver IC: Silicon Labs Si8233BD                                         |
| APFC Controller         | Infineon ICE3PCS01G                                                                                                           |
| LLC Resonant Controller | Champion CM6901                                                                                                               |
| Topology                | Primary side: Half-Bridge & LLC Resonant Controller<br>Secondary side: Synchronous Rectification & DC-DC converters           |
| Secondary Side          |                                                                                                                               |
| +12V MOSFETS            | 4x Infineon BSC027N04LSG (40V, 88A @ 100°C, 2.7 mOhm)                                                                         |
| 5V & 3.3V               | DC-DC Converters: 6x Infineon BSC0906NS (30V, 40A @ 100°C, 4.5mOhm)<br>PWM Controller: ANPEC APW7159C                         |
| Filtering Capacitors    | Electrolytics: Nippon Chemi-Con (1-5,000 @ 105°C, KZE), Nippon Chemi-Con (4-10,000 @ 105°C, KY)<br>Polymers: Nippon Chemi-Con |
| Supervisor IC           | SIT1 PS224 (OVP, UVP, OCP,SCP, PG)                                                                                            |
| Fan Controller          | STC 15W408AS                                                                                                                  |
| Fan Model               | Globe Fan S0921512MB (12V, 0.23A, Fluid Dynamic Bearing)                                                                      |
| 5VSB Circuit            |                                                                                                                               |
| Rectifier               | 1x P10V45SP SBR (45V, 10A)                                                                                                    |
| Standby PWM Controller  | Sanken STR-A6069H                                                                                                             |
| -12V Circuit            |                                                                                                                               |
| Rectifier               | KEC KIA7912PI (-12V, 1A)                                                                                                      |

## RESULTS

|                             |                                    |
|-----------------------------|------------------------------------|
| Temperature Range (°C /°F)  | 30-32 / 86-89.6 (+-2°C / +- 3.6°F) |
| ErP Lot 3/6 Ready           | ✓                                  |
| (EU) No 617/2013 Compliance | ✓                                  |

## 115V

|                                           |             |
|-------------------------------------------|-------------|
| Average Efficiency                        | 88.788%     |
| Efficiency With 10W (≤500W) or 2% (>500W) | 0.000       |
| Average Efficiency 5VSB                   | 78.675%     |
| Standby Power Consumption (W)             | 0.0827359   |
| Average PF                                | 0.987       |
| Avg Noise Output                          | 30.78 dB(A) |
| Efficiency Rating (ETA)                   | GOLD        |
| Noise Rating (LAMBDA)                     | S++         |

## TEST EQUIPMENT

|                  |                                                          |                                                                       |
|------------------|----------------------------------------------------------|-----------------------------------------------------------------------|
| Electronic Loads | Chroma 6314A x2<br>63123A x6<br>63102A<br>63101A         | Chroma 63601-5 x2<br>Chroma 63600-2<br>63640-80-80 x10<br>63610-80-20 |
| AC Sources       | Chroma 6530, Chroma 61604                                |                                                                       |
| Power Analyzers  | N4L PPA1530, N4L PPA5530                                 |                                                                       |
| Oscilloscopes    | Picoscope 4444 & 3424, Keysight DSOX3024A, Rigol DS2072A |                                                                       |
| Voltmeter        | Keithley 2015 THD 6.5 Digit                              |                                                                       |
| Sound Analyzer   | Bruel & Kjaer 2250-L G4                                  |                                                                       |
| Microphone       | Bruel & Kjaer Type 4955-A, Bruel & Kjaer Type 4189       |                                                                       |
| Data Loggers     | Picoscope TC-08 x2, Labjack U3-HV x2                     |                                                                       |

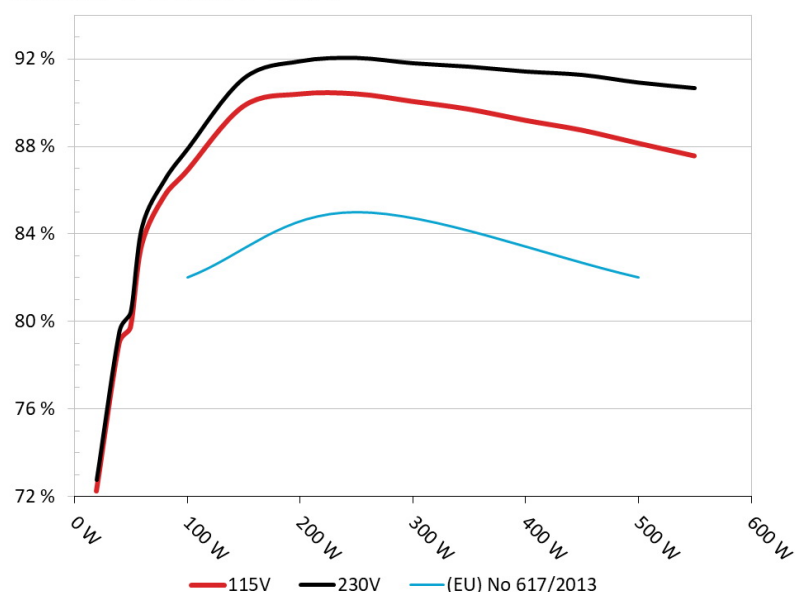
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## EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE

**Efficiency: SilverStone SST-SX500-G**  
Ambient: 37°C - 47°C (98.6°F - 116.6°F)

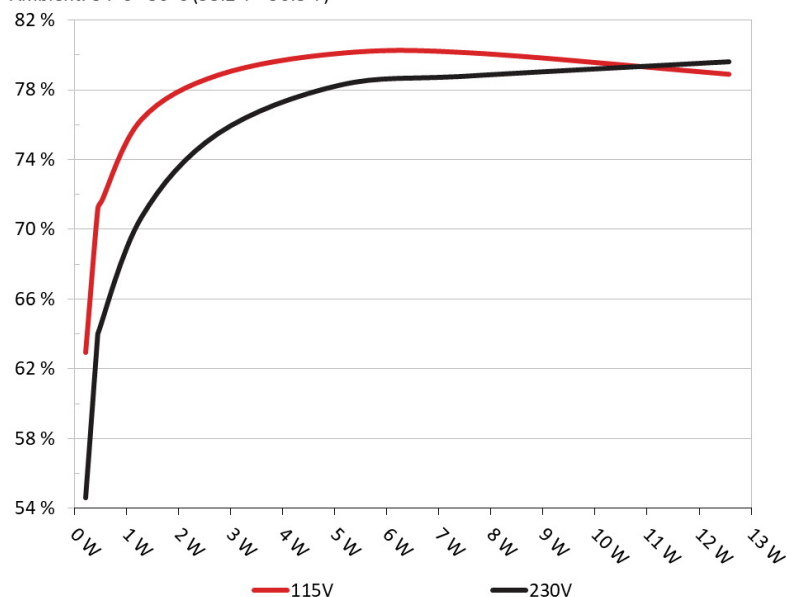


### INFO

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

**5VSB Efficiency: SilverStone SST-SX500-G**  
Ambient: 34°C - 36°C (93.2°F - 96.8°F)



### INFO

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

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### 5VSB EFFICIENCY -115V (ERP LOT 3/6 & CEC)

| Test # | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1      | 0.042A | 0.214         | 62.941%    | 0.056       |
|        | 5.112V | 0.340         |            | 115.13V     |
| 2      | 0.087A | 0.447         | 71.178%    | 0.099       |
|        | 5.110V | 0.628         |            | 115.15V     |
| 3      | 0.542A | 2.762         | 78.869%    | 0.316       |
|        | 5.094V | 3.502         |            | 115.13V     |
| 4      | 1.002A | 5.093         | 80.116%    | 0.379       |
|        | 5.081V | 6.357         |            | 115.14V     |
| 5      | 1.502A | 7.607         | 80.141%    | 0.412       |
|        | 5.065V | 9.492         |            | 115.14V     |
| 6      | 2.501A | 12.571        | 78.914%    | 0.446       |
|        | 5.026V | 15.930        |            | 115.14V     |

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

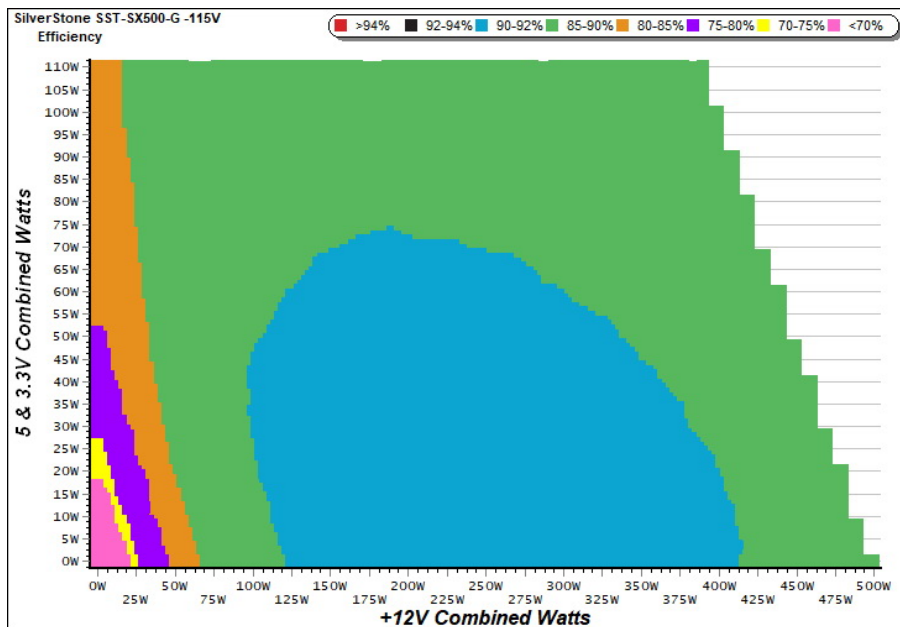
| Test # | 5VSB   | DC/AC (Watts) | Efficiency | PF/AC Volts |
|--------|--------|---------------|------------|-------------|
| 1      | 0.042A | 0.214         | 54.592%    | 0.020       |
|        | 5.111V | 0.392         |            | 230.37V     |
| 2      | 0.088A | 0.447         | 63.675%    | 0.035       |
|        | 5.108V | 0.702         |            | 230.37V     |
| 3      | 0.542A | 2.760         | 75.492%    | 0.157       |
|        | 5.088V | 3.656         |            | 230.36V     |
| 4      | 1.002A | 5.087         | 78.262%    | 0.232       |
|        | 5.075V | 6.500         |            | 230.36V     |
| 5      | 1.502A | 7.596         | 78.797%    | 0.283       |
|        | 5.058V | 9.640         |            | 230.37V     |
| 6      | 2.501A | 12.576        | 79.610%    | 0.337       |
|        | 5.028V | 15.797        |            | 230.37V     |

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# 115V

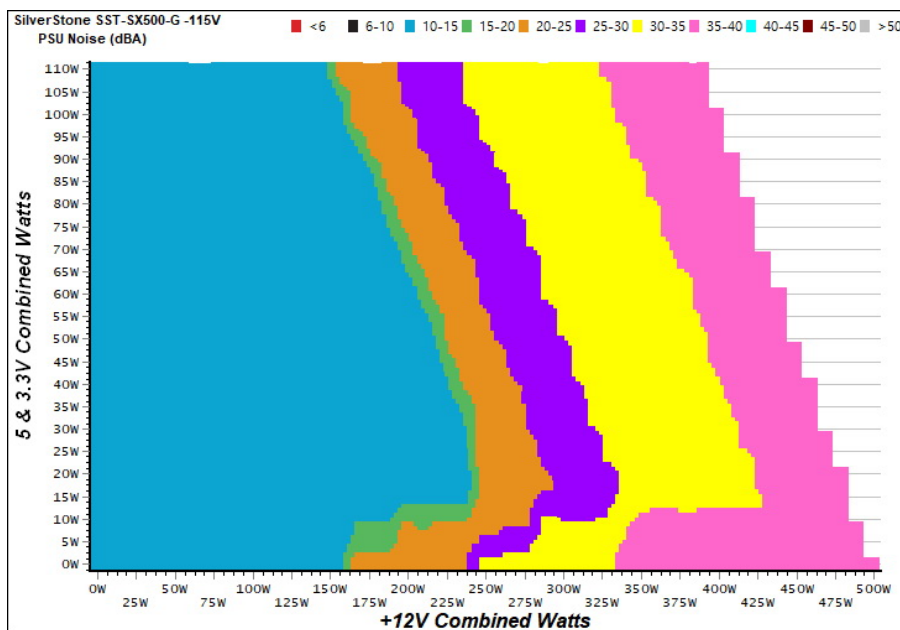
## EFFICIENCY GRAPH 115V



### 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

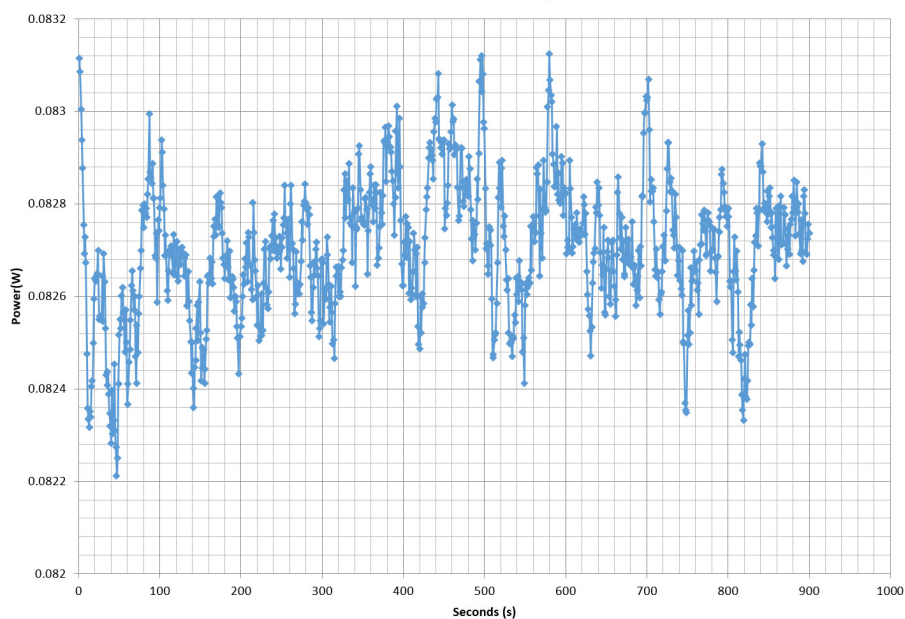
The PSU's noise in its entire operational range and under 30-32 °C (+2 °C) ambient is depicted in this graph. The X axis represents the load on the +12V rail(s) while the Y axis is the load on the minor rails

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## VAMPIRE POWER -115V

Power - DE17280517SX500G00 - 21/09/2017 - 10:23



### 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**

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Power specifications label

## CERTIFICATIONS 115V




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