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

Corsair RM750x (Shift)

Lab ID#: CR75002024
Receipt Date: -
Test Date: May 30, 2022

Report: 22PS2024A
Report Date: May 31, 2022

DUT INFORMATION

Brand	Corsair
Manufacturer (OEM)	CWT
Series	Shift
Model Number	RPS0159
Serial Number	22177120000051900189
DUT Notes	CP-9020251

DUT SPECIFICATIONS

Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-5
Rated Frequency (Hz)	47-63
Rated Power (W)	750
Type	ATX12V
Cooling	140mm Fluid Dynamic Bearing Fan (NR140P)
Semi-Passive Operation	✓
Cable Design	Fully Modular

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

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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	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.0 PSU Power Excursion	✓

115V

Average Efficiency	88.397%
Efficiency With 10W (≤500W) or 2% (>500W)	76.857
Average Efficiency 5VSB	78.698%
Standby Power Consumption (W)	0.0171000
Average PF	0.989
Avg Noise Output	18.75 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A+

230V

Average Efficiency	90.485%
Average Efficiency 5VSB	78.092%
Standby Power Consumption (W)	0.0796000
Average PF	0.962
Avg Noise Output	18.62 dB(A)
Efficiency Rating (ETA)	GOLD
Noise Rating (LAMBDA)	A+

POWER SPECIFICATIONS

Rail		3.3V	5V	12V	5VSB	-12V
Max. Power	Amps	20	20	62.5	3	0
	Watts	150		750	15	0
Total Max. Power (W)		750				

CABLES AND CONNECTORS

Modular Cables

Description	Cable Count	Connector Count (Total)	Gauge	In Cable Capacitors
ATX connector 20+4 pin (610mm)	1	1	16-18AWG	No
4+4 pin EPS12V (660mm)	2	2	18AWG	No
12 pin PCIe (660mm)	1	1	16AWG	No
6+2 pin PCIe (660mm+100mm)	1	2	16-18AWG	No
6+2 pin PCIe (660mm)	1	1	16AWG	No
SATA (460mm+110mm+110mm+110mm)	3	12	18AWG	No
4 pin Molex (450mm+100mm+100mm+100mm)	1	4	18AWG	No
AC Power Cord (1370mm) - C13 coupler	1	1	18AWG	-

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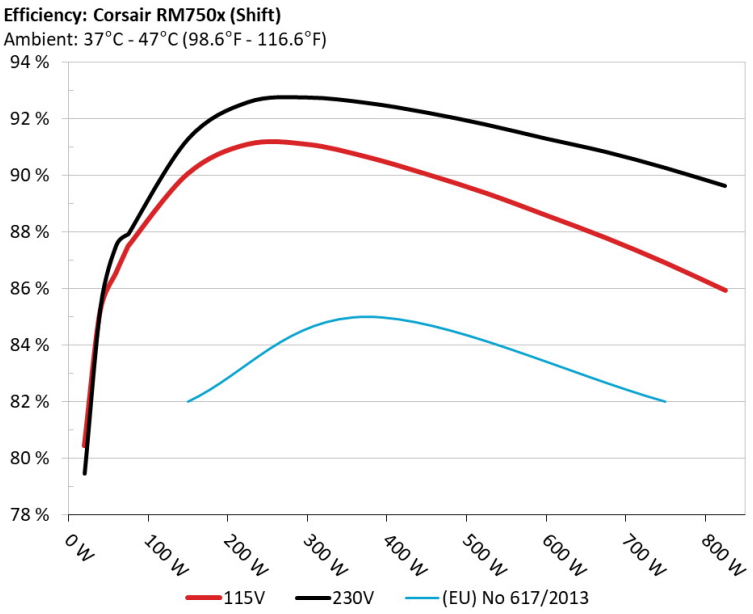
General Data	-
Manufacturer (OEM)	CWT
PCB Type	Double Sided
Primary Side	-
Transient Filter	6x Y caps, 2x X caps, 2x CM chokes, 1x MOV
Inrush Protection	1x NTC Thermistor SCK207R0 (7 Ohm) & Relay
Bridge Rectifier(s)	1x GBJ1506 (600V, 15A @ 100°C)
APFC MOSFETs	2x Vishay SiHF22N60E (600V, 13A @ 100°C, Rds(on): 0.18Ohm) & 1x Sync Power SPN5003 FET (for reduced no-load consumption)
APFC Boost Diode	1x On Semiconductor FFSP0865A (650V, 8A @ 155°C)
Bulk Cap(s)	2x Nippon Chemi-Con (400V, 470uF & 390uF each or 860uF combined, 2,000h @ 105°C, KMW)
Main Switchers	2x Infineon IPA60R190P6 (600V, 12.7A @ 100°C, Rds(on): 0.19Ohm)
Driver IC(s)	Champion CM6500UNX
Digital Controllers	Champion CU6901VAC
Topology	Primary side: APFC, Half-bridge & LLC converter Secondary side: Synchronous Rectification & DC-DC converters
Secondary Side	-
+12V MOSFETs	4x On Semiconductor NTMFS5C430N (40V, 131A @ 100°C, Rds(on): 1.7mOhm)
5V & 3.3V	DC-DC Converters: 4x UBIQ QN3107M6N (30V, 70A @ 100°C, Rds(on): 2.6mOhm) PWM Controllers: UPI-Semi uP3861P
Filtering Capacitors	Electrolytic: 4x Nichicon (2–5,000h @ 105°C, HD), 1x Nichicon (5-6,000h @ 105°C, HV), 1x Nippon Chemi-Con (1-5,000h @ 105°C, KZE), 1x Nippon Chemi-Con (4-10,000h @ 105°C, KYA), 3x Nichicon (4-10,000h @ 105°C, HE) Polymer: 20x FPCAP, 5x Nippon Chemi-Con
Supervisor IC	Weltrend WT7502R
Fan controller	Microchip PIC16F1503
Fan Model	Corsair NR140P (140mm, 12V, 0.22A, Fluid Dynamic Bearing Fan)
5VSB Circuit	-
Rectifier	1x PS1045L SBR (45V, 10A)
Standby PWM Controller	On-Bright OB2365T

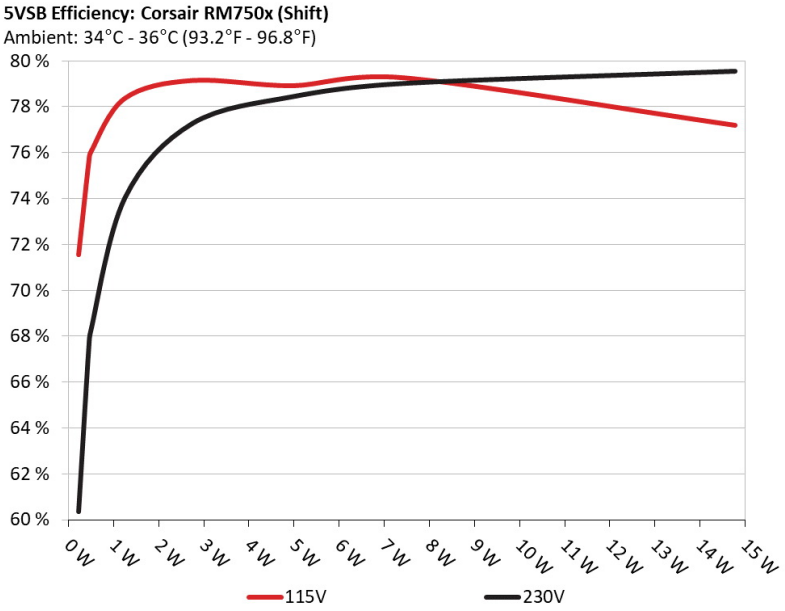
EFFICIENCY UNDER HIGH AMBIENT TEMPERATURE



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

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.226W	71.537%	0.031
	5.008V	0.316W		115.13V
2	0.09A	0.451W	75.612%	0.058
	5.007V	0.596W		115.13V
3	0.55A	2.748W	79.161%	0.266
	4.994V	3.471W		115.13V
4	1A	4.983W	78.931%	0.371
	4.982V	6.313W		115.13V
5	1.5A	7.453W	79.275%	0.427
	4.968V	9.402W		115.13V
6	3.001A	14.782W	77.199%	0.505
	4.926V	19.147W		115.13V

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

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	0.045A	0.226W	60.343%	0.011
	5.008V	0.374W		230.29V
2	0.09A	0.451W	67.511%	0.019
	5.007V	0.668W		230.29V
3	0.55A	2.748W	77.26%	0.098
	4.994V	3.557W		230.29V
4	1A	4.983W	78.435%	0.165
	4.982V	6.353W		230.29V
5	1.5A	7.453W	79.008%	0.224
	4.968V	9.434W		230.29V
6	3.001A	14.781W	79.538%	0.334
	4.926V	18.584W		230.29V

115V

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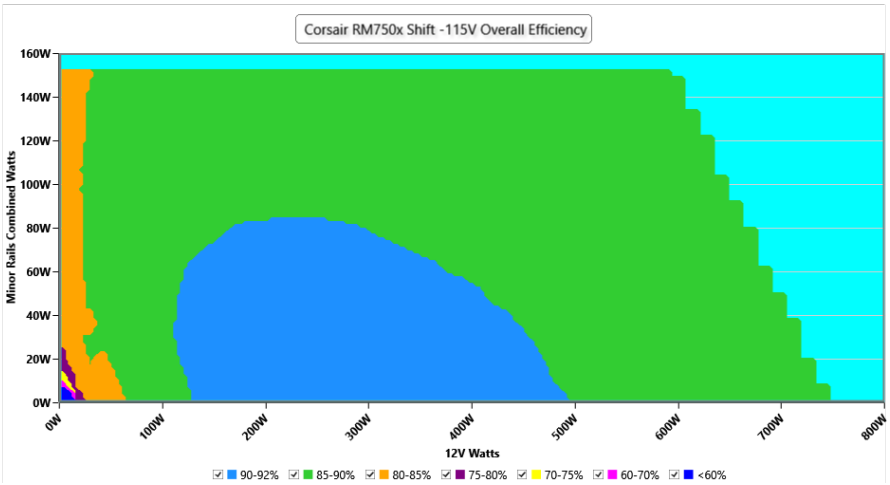
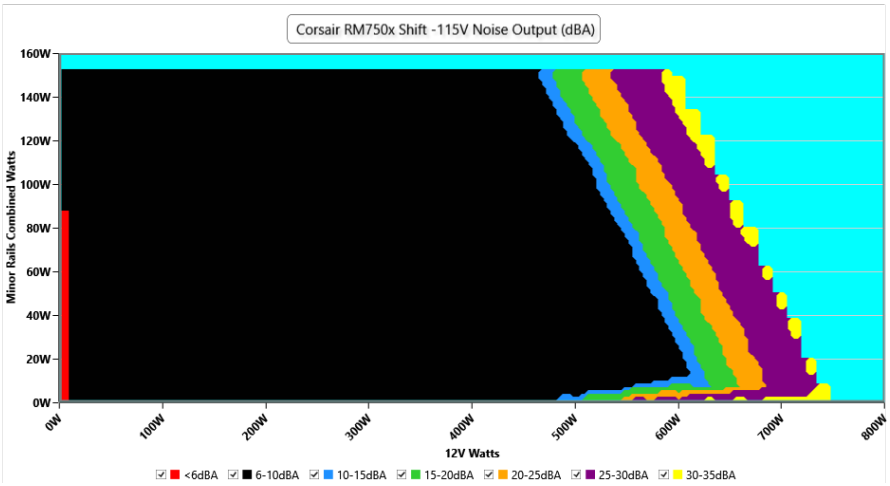
EFFICIENCY GRAPH 115V



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

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.13 V	115.10 V	113.85 V	115.17 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.418	1.490	PASS
Mains Voltage THD:	0.13 %	0.10 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.017 W	0.013 W	N/A	0.022 W	N/A	N/A
Apparent Power:	10.168 W	10.136 W	N/A	10.200 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

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
10%	4.408A	1.976A	2A	1.006A	75.019	86.24%	0	<6.0	44.19°C	0.972
	12.116V	5.063V	3.301V	4.971V	86.989				40.13°C	115.11V
20%	9.832A	2.964A	3.002A	1.211A	149.986	90.057%	0	<6.0	45.23°C	0.987
	12.111V	5.061V	3.298V	4.957V	166.546				40.87°C	115.1V
50%	26.853A	4.945A	5.016A	1.83A	374.763	90.65%	0	<6.0	47.56°C	0.99
	12.075V	5.057V	3.29V	4.919V	413.414				42.09°C	115.03V
100%	54.837A	8.922A	9.068A	3.04A	750.064	86.904%	1104	33.3	45.33°C	0.994
	12.042V	5.046V	3.275V	4.936V	863.094				55.46°C	114.91V

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230V

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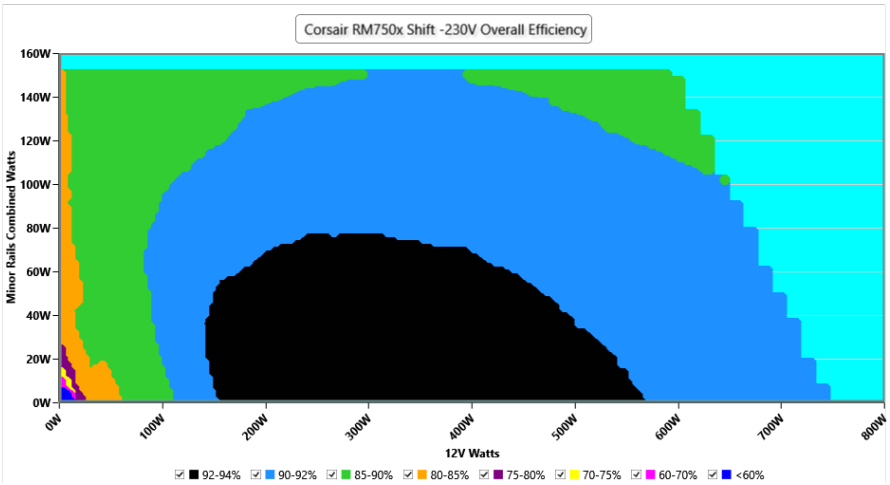
EFFICIENCY GRAPH 230V



INFO

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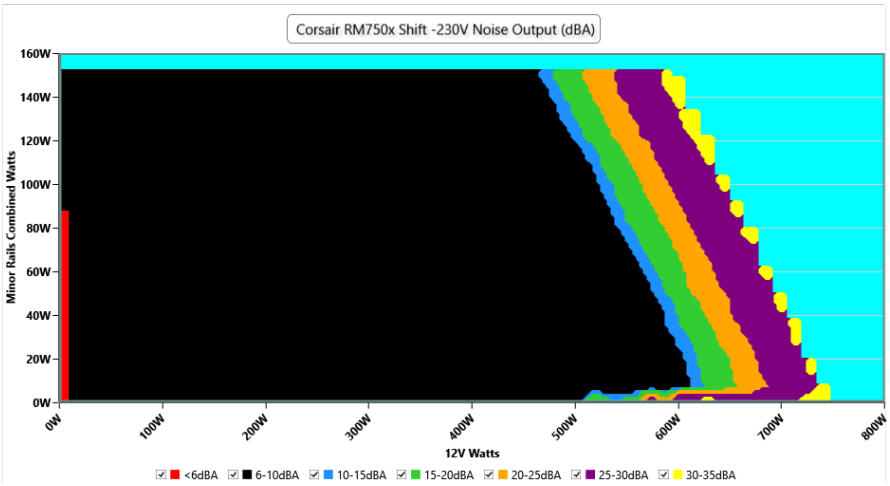
NOISE GRAPH 230V



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 -230V

Detailed Results

	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.28 V	230.18 V	227.70 V	230.34 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	49.99 Hz	49.50 Hz	50.01 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.12 %	0.10 %	N/A	0.22 %	2.00 %	PASS
Real Power:	0.080 W	0.072 W	N/A	0.095 W	N/A	N/A
Apparent Power:	34.709 W	34.485 W	N/A	34.942 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

INFO

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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
10%	4.408A	1.976A	1.998A	1.006A	75.017	86.735%	0	<6.0	45.4°C	0.832
	12.118V	5.06V	3.303V	4.97V	86.493				40.15°C	230.29V
20%	9.830A	2.965A	3A	1.211A	149.985	91.281%	0	<6.0	46.53°C	0.929
	12.114V	5.059V	3.3V	4.956V	164.31				40.85°C	230.28V
50%	26.845A	4.947A	5.013A	1.83A	374.755	92.559%	0	<6.0	49.04°C	0.976
	12.078V	5.055V	3.292V	4.918V	404.88				42.02°C	230.25V
100%	54.849A	8.928A	9.065A	3.04A	750.063	90.26%	1127	34.0	45.35°C	0.986
	12.039V	5.043V	3.277V	4.936V	831.01				55.43°C	230.2V

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Corsair RM750x (Shift)

Top side

Power specifications label

CERTIFICATIONS 115V

CYBENETICS GOLD

CYBENETICS A+

CERTIFICATIONS 230V

CYBENETICS GOLD 230v

CYBENETICS A+ 230v

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