Thermaltake Toughpower TF3 1650W

Serial Number PSTPD1650FNFATE1BVCH00463

Lab ID TT16503181

Certification ID 263181

Test Result Report ID: 26PS3181A

Certificate Issue Date: Mar 2, 2026

Scheme: ETA-EMI PSU

115V: CYBENETICS TITANIUM

230V: CYBENETICS TITANIUM 230v

Scheme: LAMBDA PSU

115V: CYBENETICS STANDARD

230V: CYBENETICS STANDARD 230v

CYBENETICS ATX 3.1 PASS

Outside Validation Scope

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	Thermaltake
Model	Toughpower TF3 1650W
OEM/ODM	CE-Link
Serial Number	PSTPD1650FNFATE1BVCH00463
Product Specifications	
Manufacturer-Provided Information	
Rated Voltage (Vrms)	100-240
Rated Current (Arms)	10-20

Rated Frequency (Hz)	50-60
Rated Power (W)	1650
Operating Temperature (Continuous Full Load) (°C)	0 - 50
Type	ATX12V
Cable Design	Fully Modular
Warranty	10 years
Cybenetics Measurements	
Dimensions (W x H x D)	150 x 85 x 165mm
Weight	2.48 kg (5.47 lb)
Cooling	140mm Hydraulic Bearing Fan (TT-1425 A1425S12S-2)
Semi-Passive Operation	✓
Cybenetics Testing Information	
Lab ID	TT16503181
Date of receipt	Jan 23, 2026
Testing Date	Feb 27, 2026
Report Issued Date	Mar 2, 2026
Engineer Name	Ioannis Kalyviotis
Authorized By the Laboratory Technical Manager	Aristeidis Bitziopoulos
Signature	

Cables and Connectors(Non-accredited measurements)

Modular Cables				
Description	**Cable Count**	**Connector Count (Total)**	**Gauge**	**Cable Type**
ATX connector 24 pin (600mm)	1	1	16-22AWG	Tinned Copper
4+4 pin EPS12V (750mm)	1	1	16AWG	Tinned Copper
8 pin EPS12V (750mm)	1	1	16-AWG	Tinned Copper
6+2 pin PCIe (600mm+150mm)	3	6	16-18AWG	Tinned Copper
6+2 pin PCIe (600mm)	3	3	16AWG	Tinned Copper
12+4 pin PCIe (700mm) (600W)	1	1	16-28AWG	Tinned Copper
SATA (600mm+150mm+150mm+150mm)	4	16	18AWG	Tinned Copper

Modular Cables				
4-pin Molex (600mm+150mm+150mm+150mm)	2	8	18AWG	Tinned Copper
AC Power Cord (1360mm) - C19 coupler	1	1	16AWG	-

Protection Features(Manufacturer)

Over Power Protection	✓
Over Current (+12V) Protection	✓
Over Temperature Protection	✓
Short Circuit Protection	✓
Surge Protection	✓
Inrush Current Protection	✓
Fan Failure Protection	✗

Power Specifications

Rail		3.3V	5V	12V(1)	12V(2)	12V(3)	12V(4)	12V(5)	5VSB	-12V
Max. Power	Amps	20	20	50	50	50	50	50	3	0.3
	Watts	120		1650					15	3.6
Total Max. Power (W)		1650								

Parts Description

General Data	
Manufacturer (OEM)	CE-Link
PCB Type	Double-Sided
Primary Side	
Transient Filter	4x Y caps, 3x X caps, 2x CM chokes, 1x MOV
Inrush Protection	NTC Thermistor MF72-5D15 (5 Ohm @ 25°C) & Relay
Bridge Rectifier	6x Nexperia GS10M (1000V, 10A @ 122°C)
APFC MOSFETs	4x Lonten LSB65R070GF (650V, 30A @ 100°C, Rds(on): 0.07Ohm)
APFC Boost Diode	2x Global Power Technology G4S06515AT (650V, 15A @ 143°C)
Bulk Cap(s)	2x Nippon Chemi-Con (400V, 820uF, 2000h @ 105°C,KMW)
Main Switchers	4x Reactor Microelectronics RMC60R068FD (600V, 48A @ 25°C, Rds(on): 0.07Ohm)

APFC Controller	Champion CM6500UNX 1x Champion CM03AX (reduce the no-load consumption)
Resonant Controller	Champion CM6901T6X
IC Driver	Novosense NSI6602BD
Topology	Primary side: APFC, Full-Bridge & LLC Resonant Converter Secondary side: [12V] Synchronous Rectification & [Minor Rails] DC-DC converters
Secondary Side	
+12V MOSFETs	8x Infineon BSC014N04LS (40V, 124A @ 100°C, Rds(on): 1.4mOhm)
5V & 3.3V	DC-DC Converters: 6x Vergiga Semiconductor VS3610GPMT (60V, 49A @ 100°C, Rds(on): 2.5mOhm) PWM Controller(s): 1x Anpec APW7159C
Filtering Capacitors	Electrolytic: 1x Nippon Chemi-Con (2-5000h @ 105°C, KZE) 3x Rubycon (4-10,000 @ 105°C, YXJ) 2x Rubycon (6-10,000 @ 105°C, ZLH) Polymer: 70x TEAPO
Supervisor IC	Grenergy GR8329N
Fan Controller / Micro Controller	Nuvoton M252SD2AE
Fan Model	Thermaltake TT-1425 A1425S12S (140mm, 12V, 0.70A, Fluid Dynamic Bearing Fan)
5VSB Circuit	
Rectifier	Microdiode Semiconductor1SMA200A
Standby PWM Controller	Sanken Electric A6069H

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	✓
ALPM (Alternative Low Power Mode) compatible	✓
ATX v3.1 PSU Power Excursion	✓
Conducted Emissions EN 55032 & CISPR 32	Passed

Performance Summary

115V

Accredited	
Average Efficiency (>1450 load combinations)	91.838%
Average Noise Output (>1450 Load Combinations)	41.16dBA
Average PF (>1450 Load Combinations)	0.985
Efficiency With 10W (≤500W) or 2% (>500W) Load	71.816%
Standby Power Consumption	0.0517W
Non-Accredited	
12V Ripple (Full Load)	37.23mV
5V Ripple (Full Load)	23.15mV
3.3V Ripple (Full Load)	23.75mV
5VSB Ripple (Full Load)	20.42mV
12V Load Regulation	0.56%
5V Load Regulation	1.04%
3.3V Load Regulation	1.04%
5VSB Load Regulation	1.31%
Inrush Current	33.610A

230V

Accredited	
Average Efficiency (>1450 load combinations)	93.823%
Average Noise Output (>1450 Load Combinations)	40.87dBA
Average PF (>1450 Load Combinations)	0.964
Efficiency With 10W (≤500W) or 2% (>500W) Load	71.374%
Standby Power Consumption	0.0969W
Non-Accredited	
12V Ripple (Full Load)	44.24mV
5V Ripple (Full Load)	22.32mV
3.3V Ripple (Full Load)	26.47mV

5VSB Ripple (Full Load)	20.47mV	
12V Load Regulation	0.55%	
5V Load Regulation	1.04%	
3.3V Load Regulation	1.01%	
5VSB Load Regulation	1.33%	
Inrush Current	65.660A	
12V Transient Response (200%)	11.78V	
5V Transient Response (200%)	4.943V	
3.3V Transient Response (200%)	3.234V	
5VSB Transient Response (200%)	4.970V	
Hold-Up Time & PWR_OK Signal	23.50ms	
AC Loss to PWR_OK Hold Up Time	20.50ms	
PWR_OK Inactive to DC Loss Delay	3.00ms	
PSU Timings: T1 (20% / 100%)	101.0ms	103.0ms
PSU Timings: T3 (20% / 100%)	121.0ms	121.0ms
12V OCP (30.4°C / 45.1°C)	195.20A (141.96%), 12.078V	179.20A (130.33%), 12.080V
5V OCP (30.4°C / 45.1°C)	25.7A (128.50%), 4.967V	25.8A (129.00%), 4.967V
3.3V OCP (30.4°C / 45.1°C)	25.6A (128.00%), 3.288V	25.7A (128.50%), 3.288V
5VSB OCP (30.4°C / 45.1°C)	6.4A (213.33%), 4.781V	6.3A (210.00%), 4.771V
OPP (29.54°C / 44.31°C)	141.38%	128.71%

Hold-Up Time & PWR_OK Signal

Hold-Up Time (ms)	23.5
AC Loss to PWR_OK Hold Up Time (ms)	20.5
PWR_OK Inactive to DC Loss Delay (ms)	3

Tables

115V

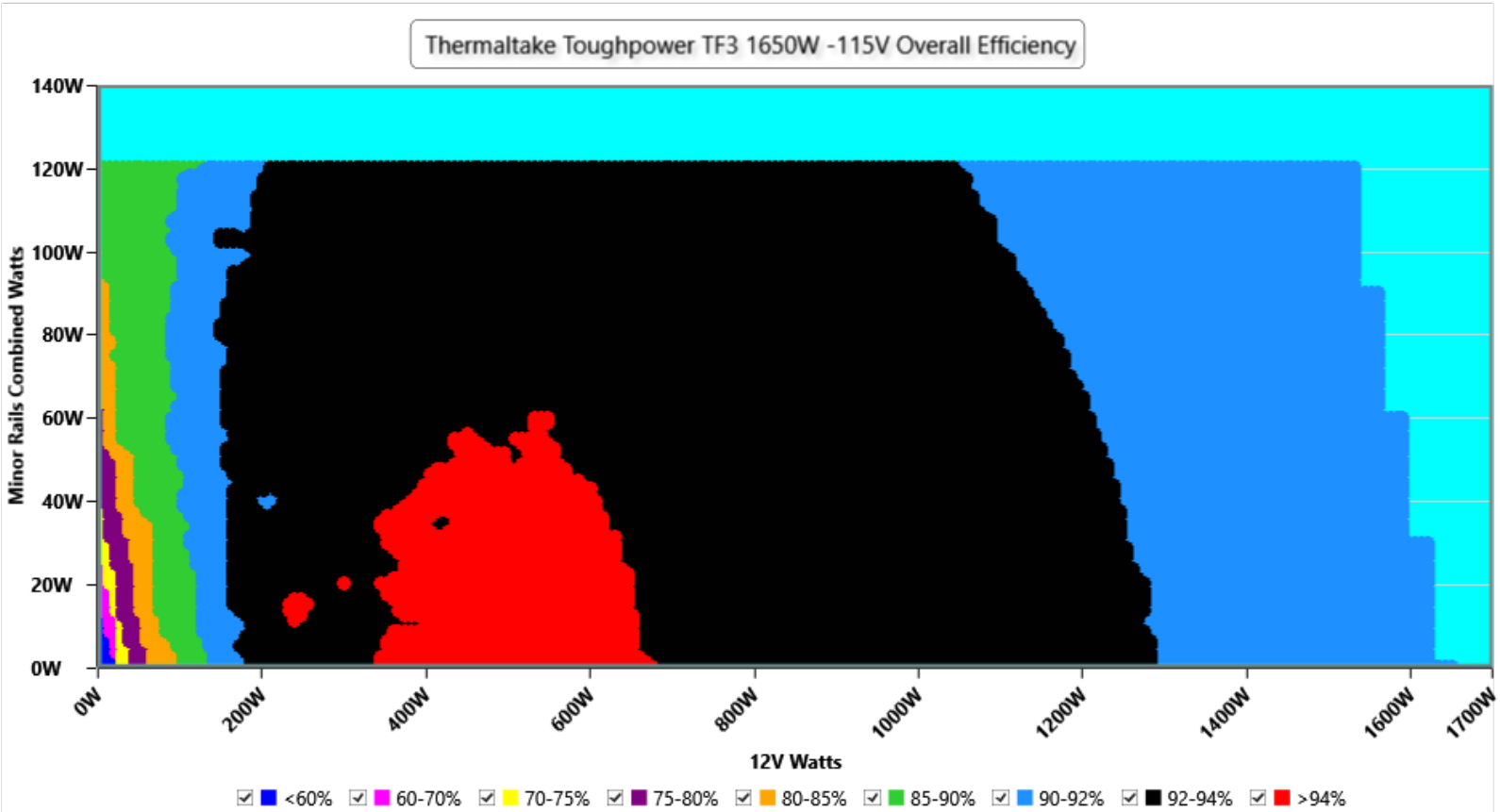
Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	115.05 V	115.02 V	113.85 V	115.06 V	116.15 V	PASS
Mains Frequency:	60.00 Hz	59.99 Hz	59.40 Hz	60.01 Hz	60.60 Hz	PASS
Mains Voltage CF:	1.416	1.415	1.340	1.417	1.490	PASS
Mains Voltage THD:	0.13 %	0.09 %	N/A	0.18 %	2.00 %	PASS
Real Power:	0.052 W	0.003 W	N/A	0.080 W	N/A	N/A
Apparent Power:	21.945 W	21.925 W	N/A	21.966 W	N/A	N/A
Power Factor:	0.002	N/A	N/A	N/A	N/A	N/A

230V

Detailed Results						
	Average	Min	Limit Min	Max	Limit Max	Result
Mains Voltage RMS:	230.06 V	230.07 V	227.70 V	230.11 V	232.30 V	PASS
Mains Frequency:	50.00 Hz	50.00 Hz	49.50 Hz	50.00 Hz	50.50 Hz	PASS
Mains Voltage CF:	1.415	1.415	1.340	1.416	1.490	PASS
Mains Voltage THD:	0.15 %	0.13 %	N/A	0.16 %	2.00 %	PASS
Real Power:	0.097 W	0.055 W	N/A	0.223 W	N/A	N/A
Apparent Power:	72.862 W	72.817 W	N/A	72.900 W	N/A	N/A
Power Factor:	0.001	N/A	N/A	N/A	N/A	N/A

Efficiency Graph

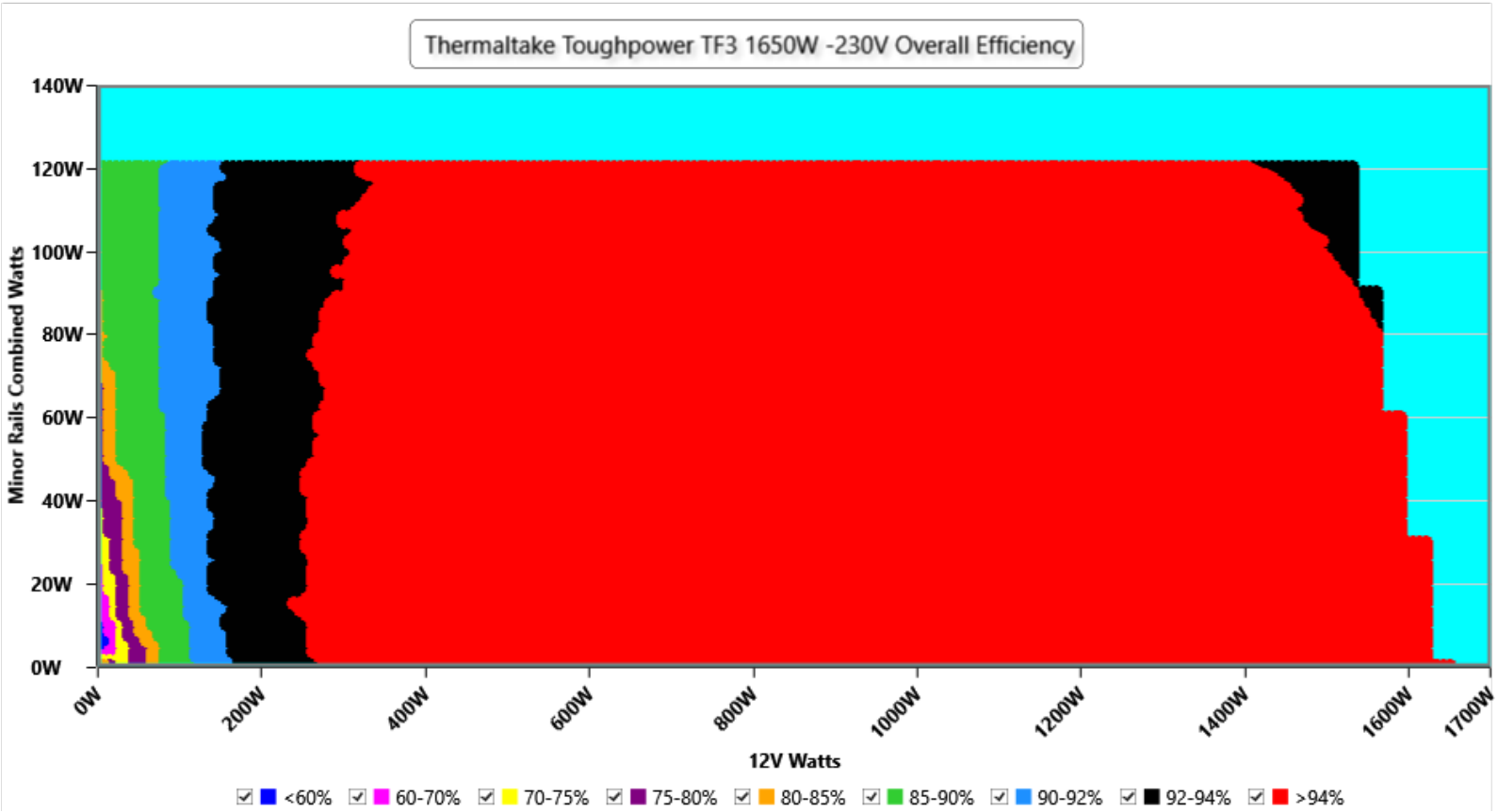
115V



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

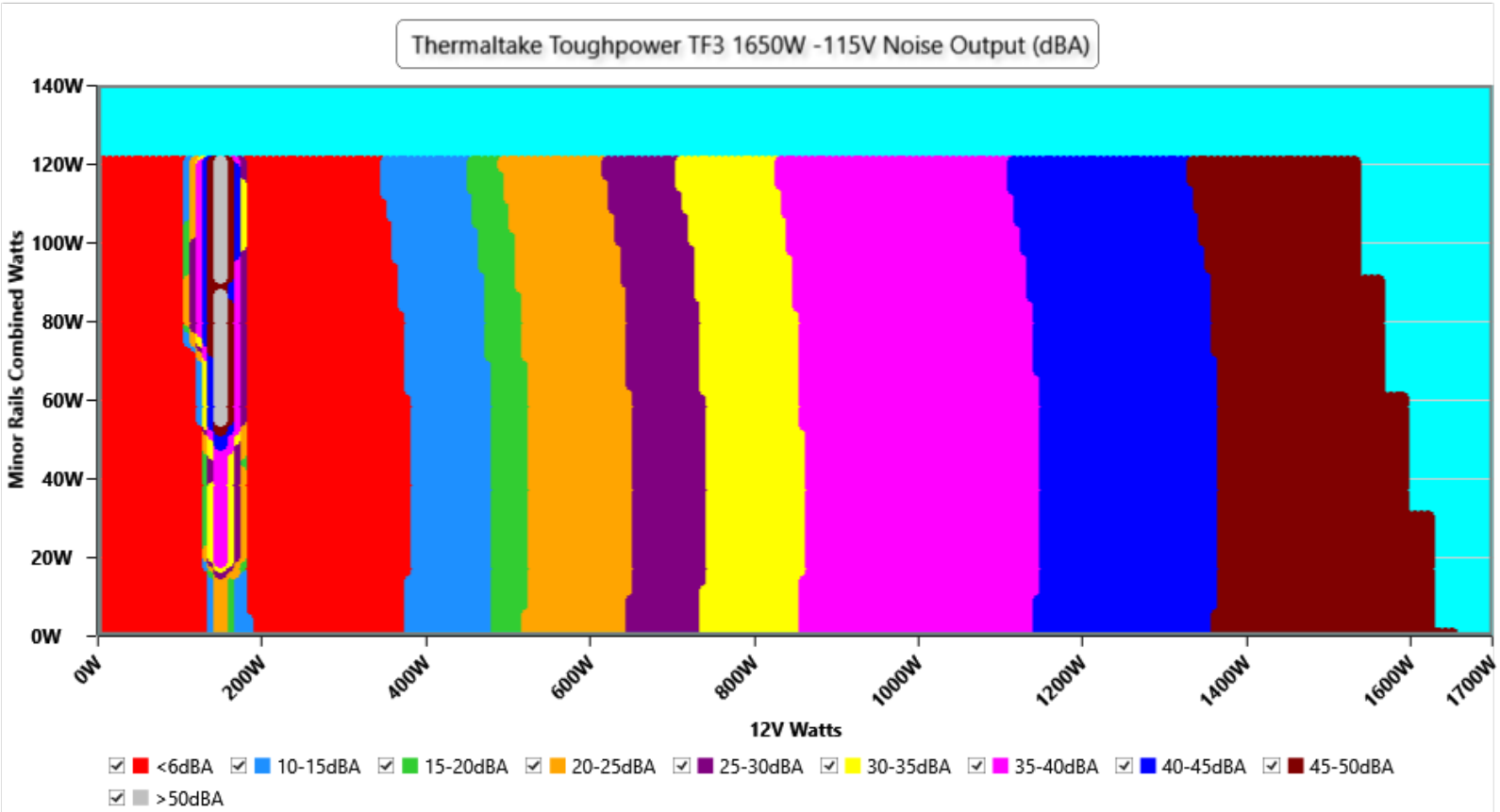


INFO

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

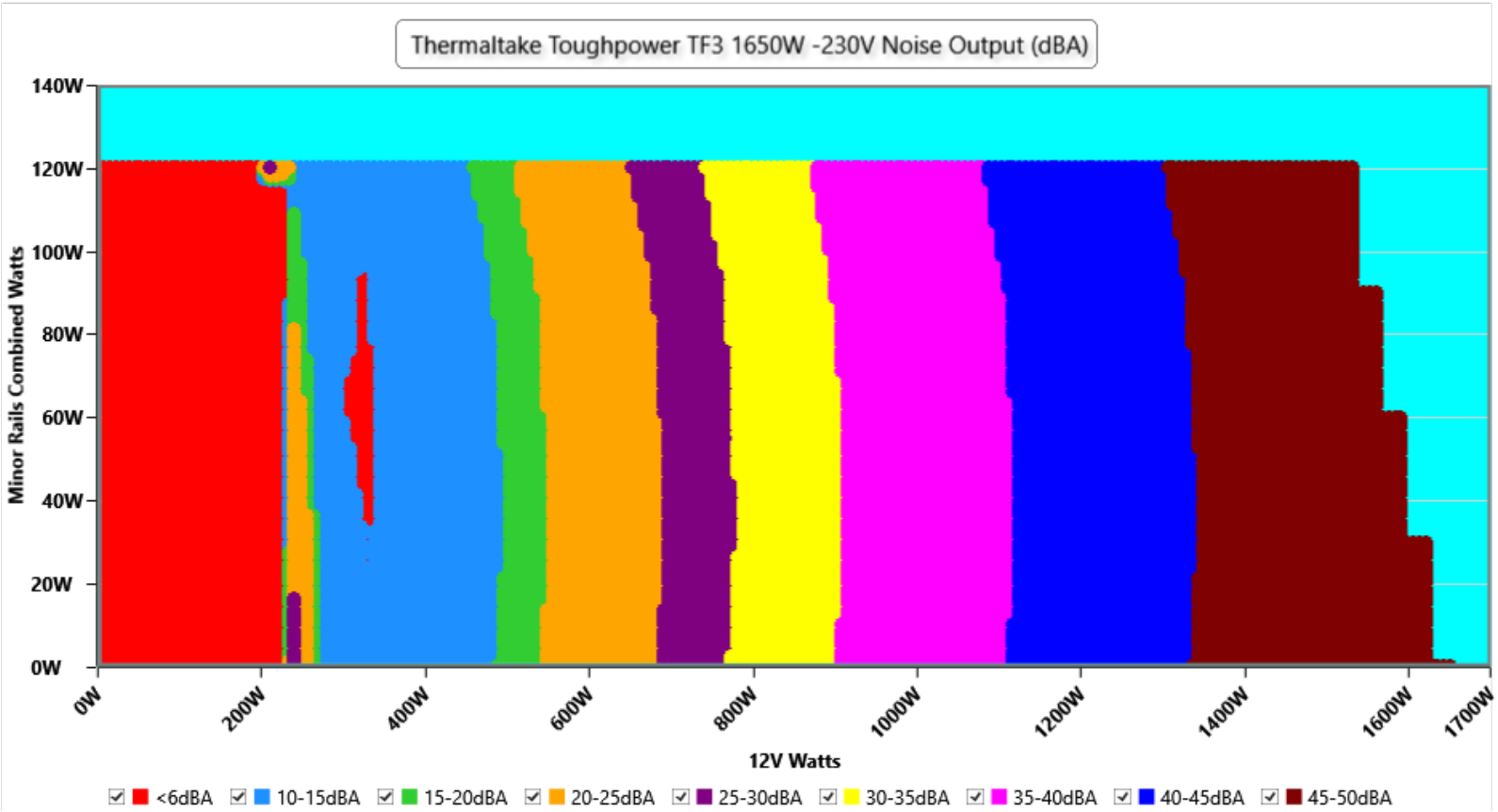
115V



INFO

The PSU`s noise in its entire operational range and under 30-32 °C 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

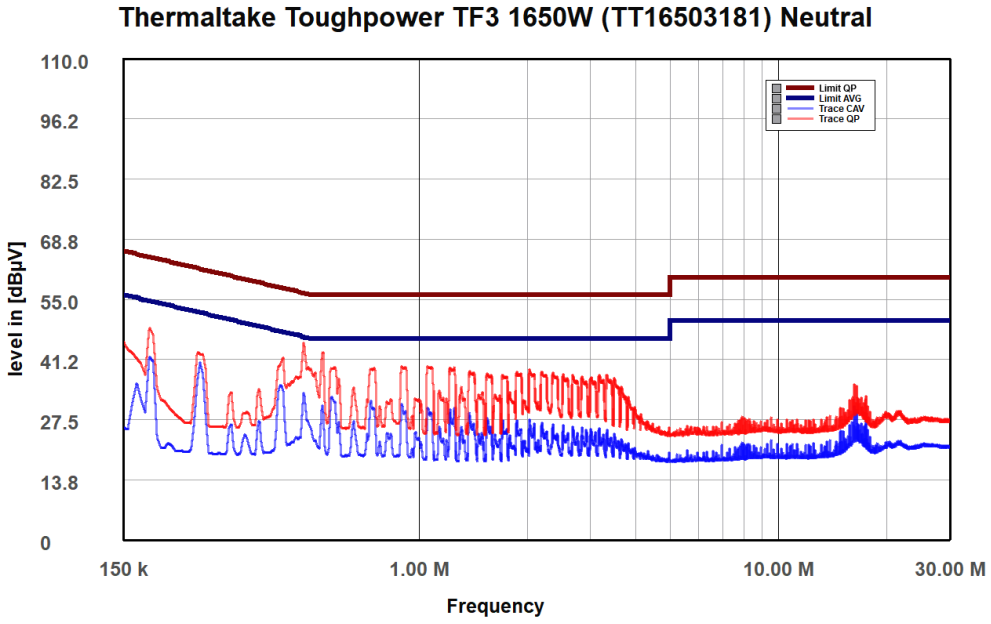
230V



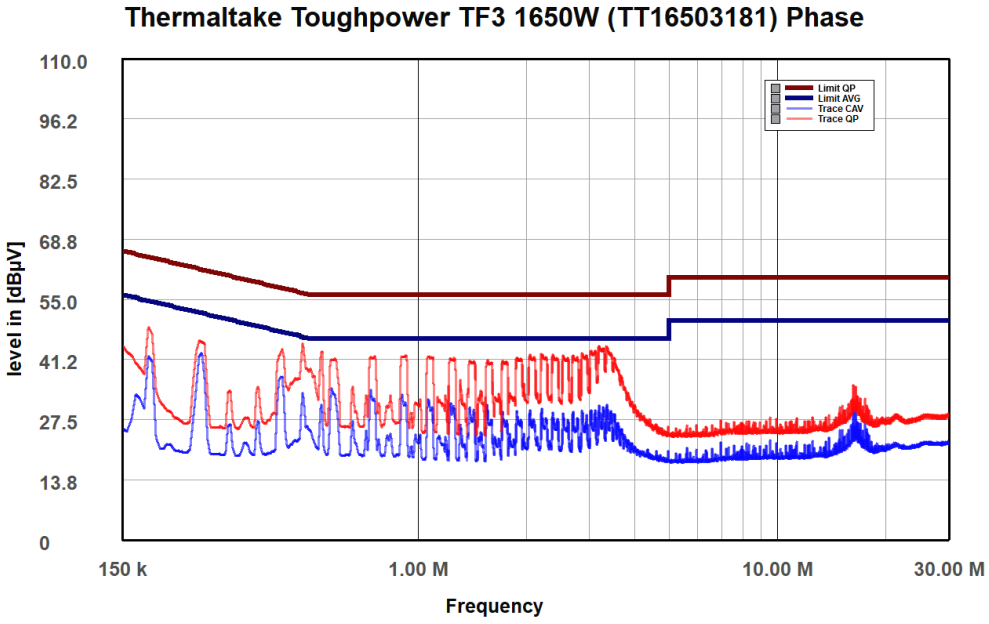
INFO

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

Conducted Emissions EN 55032 & CISPR 32



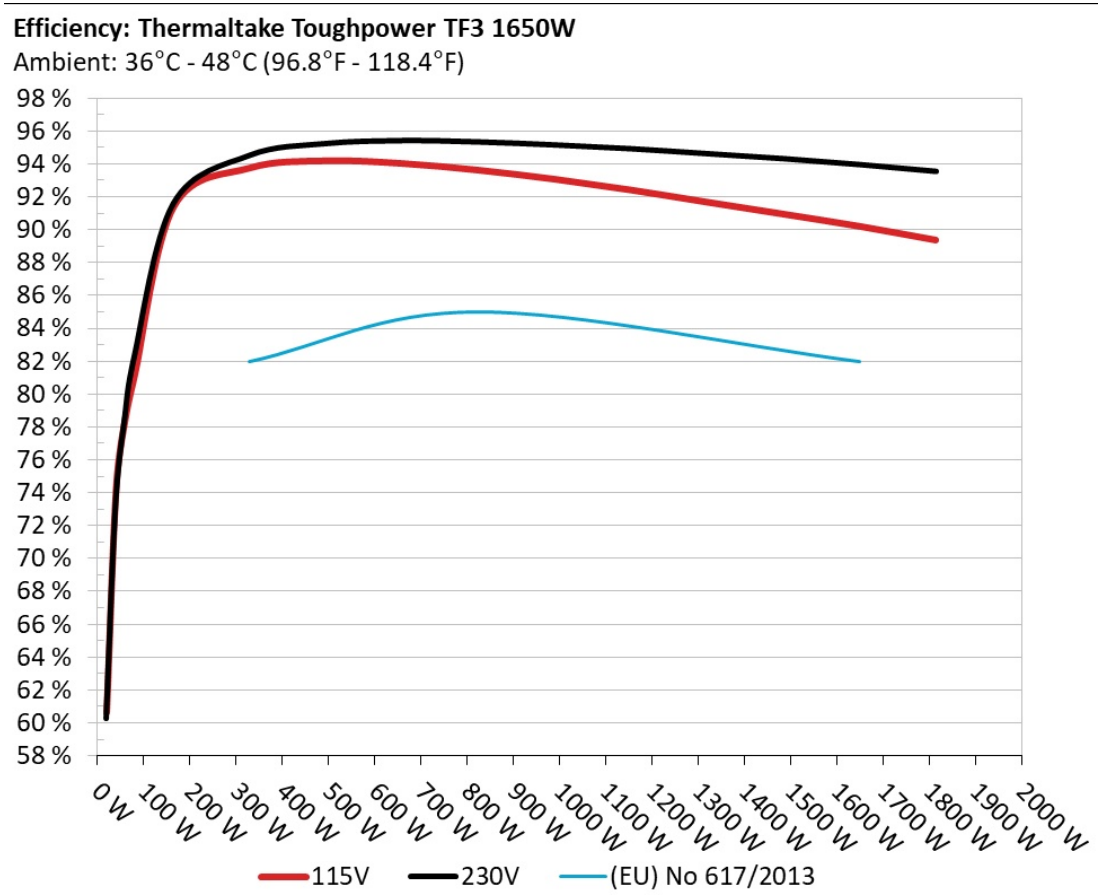
NEUTRAL



PHASE

Indicative Performance

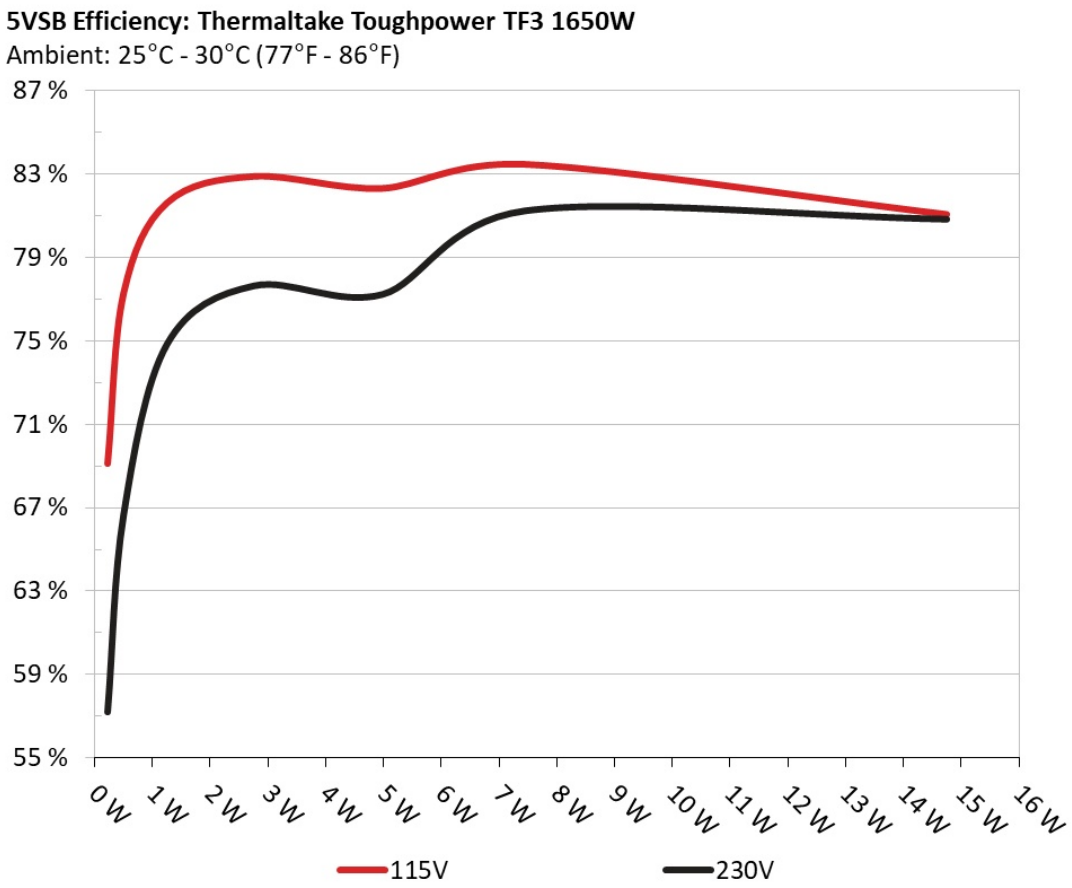
Efficiency under high ambient temperature



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	**0.045A**	0.226W	69.133%	0.015
	5.019V	0.327W		114.9V
2	**0.09A**	0.452W	76.561%	0.027
	5.018V	0.59W		114.9V
3	**0.55A**	2.751W	82.865%	0.143
	5.001V	3.32W		114.89V
4	**1A**	4.986W	82.293%	0.237
	4.985V	6.059W		114.89V
5	**1.5A**	7.452W	83.442%	0.31
	4.967V	8.93W		114.88V
6	**3A**	14.741W	81.048%	0.433
	4.913V	18.196W		114.88V

230V

Test #	5VSB	DC/AC (Watts)	Efficiency	PF/AC Volts
1	**0.045A**	0.226W	57.206%	0.006
	5.019V	0.397W		229.9V
2	**0.09A**	0.452W	67.078%	0.009
	5.018V	0.674W		229.89V
3	**0.55A**	2.751W	77.649%	0.048
	5.001V	3.542W		229.89V
4	**1A**	4.986W	77.244%	0.086
	4.985V	6.454W		229.89V
5	**1.5A**	7.452W	81.254%	0.12
	4.967V	9.172W		229.88V
6	**3A**	14.741W	80.846%	0.216
	4.913V	18.234W		229.89V

Protection Features

OCP (Normal @ 30.4°C)	12V: 195.20A (141.96%), 12.078V 5V: 25.7A (128.50%), 4.967V 3.3V: 25.6A (128.00%), 3.288V 5VSB: 6.4A (213.33%), 4.781V
OCP (Hot @ 45.1°C)	12V: 179.20A (130.33%), 12.080V 5V: 25.8A (129.00%), 4.967V 3.3V: 25.7A (128.50%), 3.288V 5VSB: 6.3A (210.00%), 4.771V
OPP (Normal @ 29.5°C)	2332.69W (141.38%)
OPP (Hot @ 44.3°C)	2123.70W (128.71%)
OTP	✓ (156°C @ 12V Heatsink)
SCP	12V to Earth: ✓ 5V to Earth: ✓ 3.3V to Earth: ✓ 5VSB to Earth: ✓ -12V to Earth: ✓
PWR_OK	Proper Operation
UVP (Full Load @ 90V)	✓
UVP (No Damage @ 80V)	✓
Conducted Emissions EN55032 & CISPR 32	✓
NLO	✓
Fan Failure Protection	✗
SIP	Surge: MOV Inrush: NTC & Bypass Relay

Supplementary Tests (For Reference)

Typical Load Tests

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%	**11.798A**	**1.989A**	**2.002A**	**0.996A**	164.949	91.395%	502	14.5	40.4°C	0.98
	12.150V	5.027V	3.296V	5.022V	180.475				43.4°C	114.98V
20%	**24.624A**	**2.987A**	**3.007A**	**1.196A**	329.951	93.752%	621	21.4	40.79°C	0.978
	12.144V	5.021V	3.292V	5.017V	351.945				44.53°C	114.94V
30%	**37.757A**	**3.488A**	**3.511A**	**1.397A**	494.329	94.183%	802	29.3	41.34°C	0.985
	12.138V	5.017V	3.289V	5.011V	524.862				46.05°C	114.9V
40%	**50.974A**	**3.989A**	**4.016A**	**1.599A**	659.557	94.024%	1006	35.3	41.64°C	0.986
	12.131V	5.013V	3.286V	5.005V	701.471				47.85°C	114.85V
50%	**63.871A**	**4.993A**	**5.026A**	**1.8A**	824.879	93.615%	1211	40.2	42.4°C	0.987
	12.124V	5.007V	3.283V	5V	881.138				49.69°C	114.79V
60%	**76.722A**	**5.998A**	**6.038A**	**2A**	989.392	93.068%	1399	43.6	42.95°C	0.988
	12.117V	5.002V	3.279V	4.995V	1063.081				52.45°C	114.74V
70%	**89.654A**	**7.006A**	**7.052A**	**2.205A**	1154.759	92.414%	1571	46.6	43.1°C	0.99
	12.109V	4.996V	3.276V	4.99V	1249.55				55.5°C	114.69V
80%	**102.603A**	**8.015A**	**8.067A**	**2.307A**	1319.557	91.675%	1703	48.2	43.97°C	0.992
	12.101V	4.99V	3.272V	4.986V	1439.389				58.77°C	114.63V
90%	**115.969A**	**8.523A**	**8.563A**	**2.409A**	1484.987	90.945%	1803	49.9	44.48°C	0.993
	12.093V	4.986V	3.269V	4.981V	1632.834				62.4°C	114.57V
100%	**129.086A**	**9.032A**	**9.092A**	**3.019A**	1649.784	90.203%	1883	50.7	45.86°C	0.995
	12.085V	4.982V	3.266V	4.97V	1828.98				66.89°C	114.49V
110%	**142.100A**	**10.046A**	**10.205A**	**3.02A**	1814.406	89.371%	1894	50.7	47.28°C	0.996
	12.077V	4.976V	3.263V	4.967V	2030.198				72.63°C	114.42V
CL1	**0.116A**	**14.484A**	**14.538A**	**0A**	121.311	81.86%	1398	43.6	40.92°C	0.969
	12.148V	4.985V	3.281V	5.062V	148.261				59.7°C	114.99V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
CL2	**0.115A**	**20.064A**	**0A**	**0.001A**	101.352	78.556%	1141	36.2	40.46°C	0.97
	12.149V	4.981V	3.282V	5.074V	129.018				53.54°C	114.99V
CL3	**0.114A**	**0A**	**20.051A**	**0A**	67.386	74.208%	925	33	40.48°C	0.965
	12.145V	5.021V	3.291V	5.035V	90.791				50.86°C	115V
CL4	**136.466A**	**0A**	**0A**	**0A**	1649.522	90.649%	1814	50.3	45.67°C	0.993
	12.087V	5.014V	3.279V	4.996V	1819.688				60.39°C	114.49V

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
10%	**11.800A**	**1.99A**	**2.003A**	**0.996A**	164.973	91.581%	515	15.6	40.23°C	0.861
	12.150V	5.026V	3.295V	5.022V	180.137				42.7°C	229.87V
20%	**24.629A**	**2.988A**	**3.007A**	**1.196A**	329.988	94.517%	643	22.8	40.54°C	0.945
	12.144V	5.021V	3.292V	5.017V	349.136				43.4°C	229.84V
30%	**37.766A**	**3.488A**	**3.512A**	**1.397A**	494.42	95.233%	822	30	41.35°C	0.973
	12.137V	5.017V	3.289V	5.011V	519.178				44.27°C	229.81V
40%	**50.981A**	**3.99A**	**4.017A**	**1.599A**	659.638	95.411%	1018	35.8	41.6°C	0.986
	12.131V	5.013V	3.286V	5.005V	691.361				44.53°C	229.79V
50%	**63.876A**	**4.993A**	**5.027A**	**1.8A**	824.948	95.33%	1219	40.3	42.13°C	0.993
	12.124V	5.007V	3.283V	5V	865.366				45.29°C	229.76V
60%	**76.725A**	**5.999A**	**6.039A**	**2A**	989.46	95.152%	1404	43.6	42.91°C	0.994
	12.117V	5.002V	3.279V	4.995V	1039.767				46.44°C	229.73V
70%	**89.646A**	**7.007A**	**7.053A**	**2.205A**	1154.807	94.921%	1563	46.4	43.16°C	0.996
	12.111V	4.996V	3.276V	4.99V	1216.594				47.26°C	229.7V
80%	**102.591A**	**8.015A**	**8.068A**	**2.307A**	1319.604	94.62%	1698	48.2	43.58°C	0.996
	12.103V	4.99V	3.272V	4.986V	1394.628				48.44°C	229.68V
90%	**115.949A**	**8.523A**	**8.565A**	**2.41A**	1485.021	94.316%	1799	49.9	44.83°C	0.996
	12.096V	4.986V	3.269V	4.981V	1574.521				49.87°C	229.65V

Test	12V	5V	3.3V	5VSB	DC/AC (Watts)	Efficiency	Fan Speed (RPM)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
100%	**129.069A**	**9.031A**	**9.093A**	**3.019A**	1649.813	93.953%	1876	50.7	45.5°C	0.996
	12.087V	4.982V	3.266V	4.969V	1756.001				51.33°C	229.62V
110%	**142.073A**	**10.045A**	**10.206A**	**3.02A**	1814.413	93.542%	1893	50.7	47.58°C	0.996
	12.079V	4.977V	3.262V	4.967V	1939.679				53.58°C	229.59V
CL1	**0.116A**	**14.481A**	**14.539A**	**0A**	121.318	82.839%	1354	42.6	40.98°C	0.825
	12.148V	4.986V	3.28V	5.062V	146.471				46.4°C	229.87V
CL2	**0.116A**	**20.06A**	**0A**	**0.001A**	101.362	81.545%	1029	36.2	40.43°C	0.793
	12.151V	4.983V	3.281V	5.075V	124.304				44.6°C	229.88V
CL3	**0.115A**	**0A**	**20.053A**	**0A**	67.391	74.447%	900	32.1	41.68°C	0.71
	12.145V	5.02V	3.291V	5.035V	90.527				44.55°C	229.88V
CL4	**136.439A**	**0A**	**0A**	**0A**	1649.543	94.243%	1804	49.9	45.54°C	0.996
	12.090V	5.014V	3.278V	4.995V	1750.294				49.5°C	229.62V

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)	PSU Noise (dB[A])	Temps (In/Out)	PF/AC Volts
20W	**1.222A**	**0.497A**	**0.5A**	**0.199A**	19.997	60.674%	0	<6.0	41.05°C	0.822
	12.150V	5.034V	3.3V	5.035V	32.956				36.17°C	115.02V
40W	**2.690A**	**0.695A**	**0.7A**	**0.298A**	39.997	74.1%	0	<6.0	41.3°C	0.922
	12.149V	5.034V	3.299V	5.033V	53.978				37.27°C	115.01V
60W	**4.160A**	**0.894A**	**0.9A**	**0.397A**	59.997	78.488%	0	<6.0	43.14°C	0.943
	12.148V	5.033V	3.299V	5.033V	76.445				38.31°C	115.01V
80W	**5.622A**	**1.093A**	**1.1A**	**0.497A**	79.934	81.086%	636	22.6	39.35°C	0.963
	12.151V	5.032V	3.298V	5.031V	98.584				42.65°C	115V

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
20W	**1.223A**	**0.497A**	**0.5A**	**0.199A**	20.005	60.305%	0	<6.0	42.7°C	0.389
	12.146V	5.034V	3.299V	5.035V	33.18				36.5°C	229.88V
40W	**2.692A**	**0.695A**	**0.7A**	**0.298A**	40.005	73.256%	574	19.1	37.32°C	0.553
	12.145V	5.034V	3.299V	5.034V	54.619				41.87°C	229.89V
60W	**4.160A**	**0.894A**	**0.9A**	**0.398A**	60.005	78.574%	472	12.6	38.77°C	0.664
	12.146V	5.032V	3.298V	5.031V	76.378				41.99°C	229.89V
80W	**5.624A**	**1.093A**	**1.101A**	**0.497A**	79.951	82.191%	521	15.9	39.27°C	0.728
	12.149V	5.031V	3.298V	5.03V	97.271				42.3°C	229.88V

The results above are not used in the certification process

Ripple Measurements

115V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	28.69mV	20.99mV	21.60mV	16.78mV	Pass
20% Load	31.91mV	20.79mV	21.29mV	17.19mV	Pass
30% Load	37.90mV	25.56mV	23.70mV	17.34mV	Pass
40% Load	32.27mV	21.40mV	22.93mV	17.55mV	Pass
50% Load	34.63mV	21.50mV	23.40mV	16.93mV	Pass
60% Load	70.89mV	23.51mV	24.11mV	18.57mV	Pass
70% Load	34.22mV	22.33mV	24.52mV	18.37mV	Pass
80% Load	34.12mV	22.68mV	24.47mV	18.58mV	Pass
90% Load	38.77mV	22.73mV	25.91mV	20.63mV	Pass
100% Load	37.23mV	23.15mV	23.75mV	20.42mV	Pass
110% Load	40.35mV	25.40mV	25.75mV	20.73mV	Pass
Crossload1	42.50mV	21.66mV	24.32mV	17.80mV	Pass
Crossload2	26.29mV	24.94mV	23.14mV	19.55mV	Pass

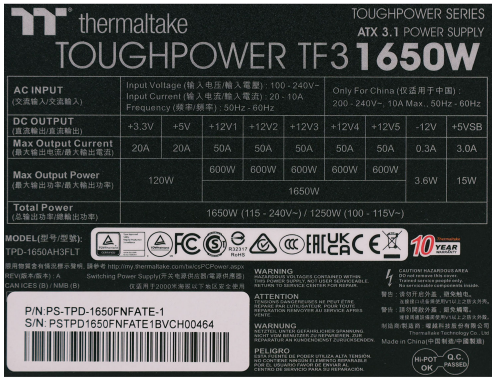
Test	12V	5V	3.3V	5VSB	Pass/Fail
Crossload3	28.85mV	21.45mV	25.45mV	16.21mV	Pass
Crossload4	37.08mV	21.61mV	22.68mV	18.27mV	Pass

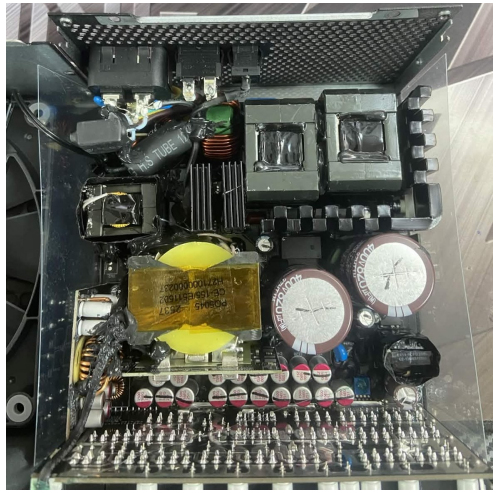
The results above are not used in the certification process

230V

Test	12V	5V	3.3V	5VSB	Pass/Fail
10% Load	32.07mV	21.04mV	21.55mV	16.93mV	Pass
20% Load	70.32mV	23.97mV	25.50mV	15.85mV	Pass
30% Load	56.16mV	20.99mV	24.27mV	17.14mV	Pass
40% Load	33.45mV	20.22mV	21.75mV	16.88mV	Pass
50% Load	33.04mV	19.76mV	24.57mV	16.68mV	Pass
60% Load	32.38mV	18.73mV	23.50mV	16.73mV	Pass
70% Load	33.35mV	20.89mV	24.73mV	19.03mV	Pass
80% Load	39.23mV	26.12mV	25.34mV	18.88mV	Pass
90% Load	50.28mV	23.15mV	24.78mV	20.83mV	Pass
100% Load	44.24mV	22.32mV	26.47mV	20.47mV	Pass
110% Load	39.02mV	22.22mV	23.91mV	19.29mV	Pass
Crossload1	62.55mV	23.56mV	25.86mV	17.55mV	Pass
Crossload2	50.48mV	23.66mV	23.55mV	18.42mV	Pass
Crossload3	23.27mV	19.55mV	23.40mV	16.27mV	Pass
Crossload4	37.39mV	20.53mV	22.16mV	17.19mV	Pass

The results above are not used in the certification process





Thermaltake Toughpower TF3 1650W

Top side

Power specifications label

Fan

PSU Internals

Cybenetics 提供自願性認證方案: 電源供應器方面有 ETA (效率)、 LAMBDA (噪音) 與 SAFE (安全與正確運作)；散熱產品方面有 DELTA (機殼隔音) 與 PHI (風扇風量與靜壓)

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