GlobTek, INC.

GlobTek®, Inc.

AC-DC External Power Supplies Test Report

Product Name: Power Supply

Manufacturer GlobTek, Inc.

Importer

Address: 186 Veterans Dr. Northvale, NJ 07647 USA

Model Number: GTM96600-4005-T3

Declare that the product conforms to the following specifications

This document hereby certifies the above listed products are in compliance with the "Greenhouse and Energy Minimum Standards (External Power Supplies) Determination 2014 " Level V and meet "AS/NZS 4665.2:2005/Amdt 1:2009"

The test method was according to AS/NZS 4665.1:2005+A1：2009.

Manufacturer/ Importer

Company Name GlobTek, Inc.

Position R&D Dept.

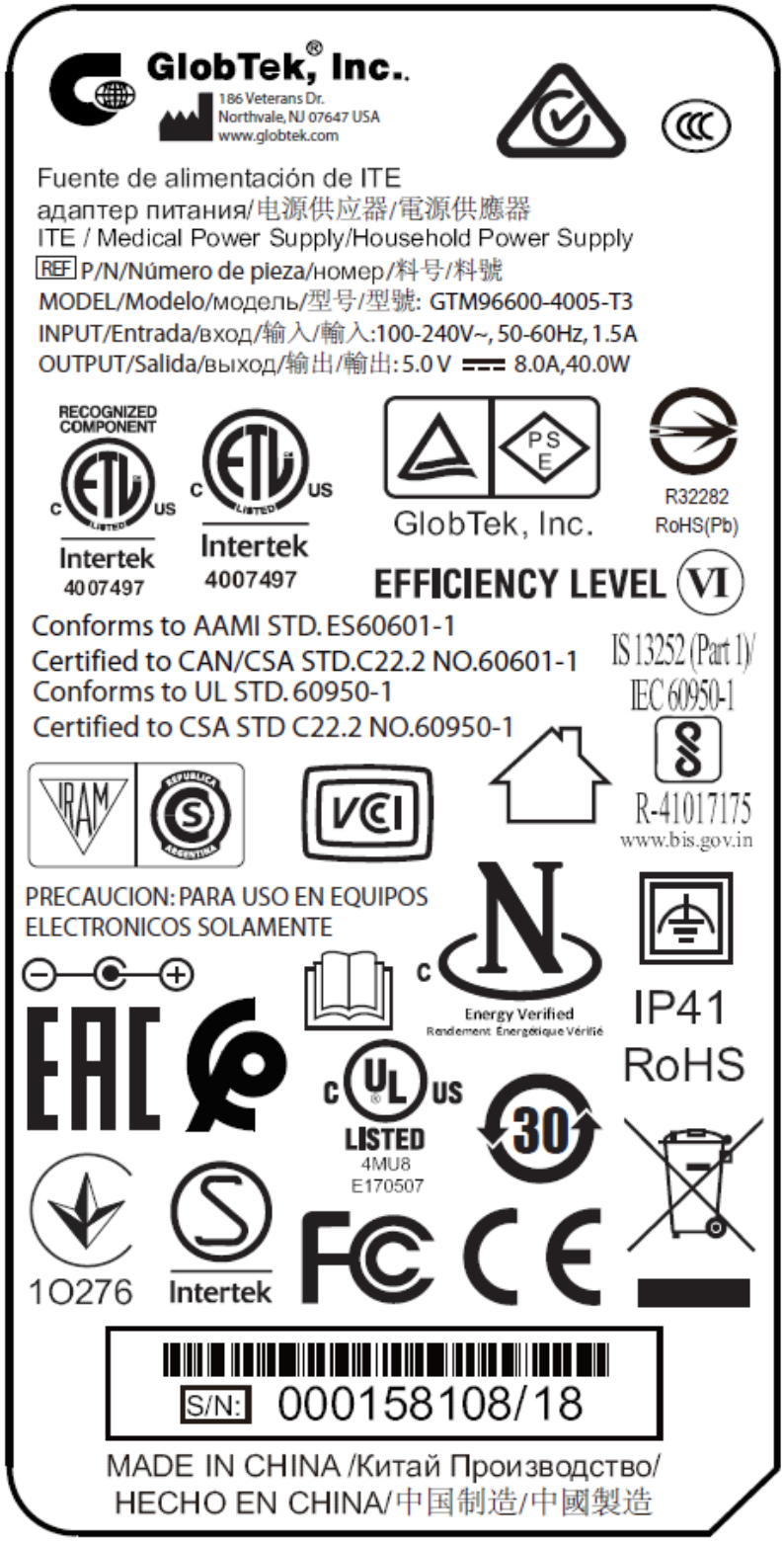
Name (Type name) _____ **Authorized Signature** Elias Abisaleh

GlobTek, INC.

TEST REPORT Greenhouse and Energy Minimum Standards (External Power Supplies) Determination 2014 AS/NZS 4665.2:2005/Amdt 1:2009
Report Reference No. …….. : GlobTek-RD-2020092301 Tested by (name +signature)……. : Lorenzo Madariaga Engineer by (name +signature)…. : Approved by (name +signature)… : Elias Abisaleh
Testing Laboratory …….. : **GlobTek, Inc.** Address ……...…….. : **186 Veterans Dr. Northvale, NJ 07647 USA**
Manufacturer's name …… : (1) GlobTek, Inc. (2) GlobTek (Suzhou) Co., Ltd Address ……...…….. : (1) 186 Veterans Dr. Northvale, NJ 07647 USA (2) Building 4, No. 76, Jin Ling East Rd., Suzhou Industrial Park, Suzhou,JiangSu 215021, China
Test specification : Standard …….. : AS/NZS 4665.2:2005/Amdt 1:2009 Test procedure …… : AS/NZS 4665.1:2005+A1：2009
Test item description ……..… : ■ **AC-DC power supply** □ **AC-AC power supply** Trade Mark ……. : **GlobTek** Model/Type reference …….. : **GTM96600-4005-T3** Ratings ……... : Input: 100-240Vac, 50-60 Hz, 1.5A Output: 5Vdc, 8A

GlobTek, INC.

Copy of marking plate/Label



Test item particulars : …….…... :

EUT output cord length …….… :1200 mm + / - 50 (14 AWG)

Possible test case verdicts:

-test case does not apply to the test object …… : N/A

-test object does meet the requirement …….. : P(Pass)

-test object does not meet the requirement …... : F(Fail)

Testing :

Date of receipt of test item ……... : 2020/09/23

Date (s) of performance of tests ……..….. : 2020/09/23

General remarks:

The test results presented in this report relate only to the object tested.
This report shall not be reproduced, except in full, without the written approval of the Issuing testing laboratory.

"(see Enclosure #)" refers to additional information appended to the report.
"(see appended table)" refers to a table appended to the report.

Throughout this report a comma (point) is used as the decimal separator.

The Report contains the following Enclosures:

Enclosure 1 : Photographs

Enclosure 2 : Test Equipment List

General product information:

- The EUT (Equipment under Test) is an Ac-Dc switching supply for Information Technology Equipment used.

Clause	Requirement + Test	Result – Remark	Verdict
4	**General Conditions for Measurement**		**P**
a.	Test Voltage		
	An ac reference source shall be used to Provide input voltage to the EUT.	See Enclosure 2	P
	Input to the EUT shall be the specified Voltage ± 1% and the specified frequency ± 1%	See appended table	P
	The EUT shall be tested at two voltage and Frequency combinations:	See below	P
	115V at 60Hz	See appended table	P
	230v at 50Hz	See appended table	P
b.	Load Condition		
	The EUT shall be tested at the following load Conditions:		
	Load condition 1 : 100% ± 2%	8000mA	P
	Load condition 2 : 75% ± 2%	6000mA	P
	Load condition 3 : 50% ± 2%	4000mA	P
	Load condition 4 : 25% ± 2%	2000mA	P
	Load condition 5 : 0%	0A	P
c.	Testing Sequence		
	The EUT shall be operated at 100% of nameplate current output for at least 30 minutes immediately prior to conducting efficiency measurements.	The EUT is operated at 100% of nameplate current output for 30 minutes	P
	After this warm-up period, the technician shall monitor ac input power for a period of 5 minutes to assess the stability of the EUT.		P
	If the power level does not drift by more than 5% from the maximum value observed, the EUT can be considered stable and the measurements can be recorded at the end of the 5 minute period.		P
	If ac input power is not stable over a 5 minute period, the technician shall follow the guidelines established by IEC 62301 for measuring average power or accumulated energy over time for both ac input and dc output		N
	Efficiency measurements shall be conducted In sequence from Load Condition 1 to Load Condition 5 as indicated in Table		P

Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) …… :	25 (℃) Sample 1	
	Test voltage (V) …….. :	115 (V)	
	Frequency (Hz) …….. :	60 (Hz)	

Test Item	Measure at load condition					
	1	2	3	4	5	
Rms Output Current (mA)	8000	6000	4000	2000	0	
Rms Output Voltage (V)	4.897	4.949	4.997	5.045	5.095	
Active Output Power (W)	39.105	29.653	19.969	10.118	0	
Rms input voltage (V)	115					
Rms input Power (W)	46.207	34.087	22.668	11.358	0.026	
True Power Factor	0.421	0.416	0.406	0.365	0.002	
Power Consumed by EUT(W)	7.102	4.434	2.699	1.240	Mea.	Req.
					0.026	**0.1**
Efficiency	84.63%	86.99%	88.09%	89.08%	N/A	
Average Efficiency	87.20% (Requirement: 86.065%)				P	

Supplementary information:

Australia - Greenhouse and Energy Minimum Standards (External Power Supplies) Determination 2014 and New Zealand - AS/NZS 4665.2:2005/Amdt 1:2009 states：

The requirements for marks III – V are set out in Appendix A of AS/NZS 4665.1:2005. The requirements for mark VI (for products on which the registrant wishes to display this mark) are set out in IEMP Version 3.0

In the interim, Regulators have approved the use of performance mark Vas an accepted performance mark.

External power supplies with nominal 230 Va.c. mains supply input and a single output at extra low voltage (ELV) either a.c. or d.c., and a maximum output of 250W or 250 VA, manufactured or imported for sale in Australia or New Zealand will be required to meet or exceed the requirements of performance mark III. I.e. meet or exceed the average energy efficiency level in Table 1 below (which reproduces the requirements from Appendix A of AS/NZS 4665.1:2005 and IEMP Version 3.0) when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz.

Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) …… :	25 (℃) Sample 1	
	Test voltage (V) …….. :	230 (V)	
	Frequency (Hz) …….. :	50 (Hz)	

Test Item	Measure at load condition				
	1	2	3	4	5
Rms Output Current (mA)	8000	6000	4000	2000	0
Rms Output Voltage (V)	4.908	4.957	5.003	5.048	5.095
Active Output Power (W)	39.199	29.700	19.988	10.125	0
Rms input voltage (V)	230				
Rms input Power (W)	45.421	34.008	22.716	11.408	0.037
True Power Factor	0.355	0.339	0.307	0.227	0.001
Power Consumed by EUT(W)	6.222	4.308	2.728	1.283	Mea. 0.037 / Req. **0.1**
Efficiency	86.30%	87.33%	87.99%	88.75%	N/A
Average Efficiency	87.59% (Requirement: 86.065%)				P

Supplementary information:

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In the interim, Regulators have approved the use of performance mark Vas an accepted performance mark.

External power supplies with nominal 230 Va.c. mains supply input and a single output at extra low voltage (ELV) either a.c. or d.c., and a maximum output of 250W or 250 VA, manufactured or imported for sale in Australia or New Zealand will be required to meet or exceed the requirements of performance mark III. I.e. meet or exceed the average energy efficiency level in Table 1 below (which reproduces the requirements from Appendix A of AS/NZS 4665.1:2005 and IEMP Version 3.0) when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz.

Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) …… :	25 (℃) Sample 2	
	Test voltage (V) …….. :	115 (V)	
	Frequency (Hz) …….. :	60 (Hz)	

Test Item	Measure at load condition					
	1	2	3	4	5	
Rms Output Current (mA)	8000	6000	4000	2000	0	
Rms Output Voltage (V)	4.781	4.858	4.936	5.014	5.23	
Active Output Power (W)	38.248	29.148	19.744	10.028	0	
Rms input voltage (V)	115					
Rms input Power (W)	45.82	33.93	22.69	11.26	0.037	
True Power Factor	0.544	0.525	0.501	0.457	0.019	
Power Consumed by EUT(W)	7.572	4.782	2.946	1.232	Mea.	Req.
					0.037	0.1
Efficiency	83.474%	85.906%	87.016%	88.987%	N/A	
Average Efficiency	86.346% (Requirement: 86.065%)					

Supplementary information:

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In the interim, Regulators have approved the use of performance mark Vas an accepted performance mark.

External power supplies with nominal 230 Va.c. mains supply input and a single output at extra low voltage (ELV) either a.c. or d.c., and a maximum output of 250W or 250 VA, manufactured or imported for sale in Australia or New Zealand will be required to meet or exceed the requirements of performance mark III. I.e. meet or exceed the average energy efficiency level in Table 1 below (which reproduces the requirements from Appendix A of AS/NZS 4665.1:2005 and IEMP Version 3.0) when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz.

Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) …… :	25 (℃) Sample 2	
	Test voltage (V) …….. :	230 (V)	
	Frequency (Hz) …….. :	50 (Hz)	

Test Item	Measure at load condition					
	1	2	3	4	5	
Rms Output Current (mA)	8000	6000	4000	2000	0	
Rms Output Voltage (V)	4.784	4.861	4.938	5.015	5.21	
Active Output Power (W)	38.272	29.166	19.752	10.03	0	
Rms input voltage (V)	230					
Rms input Power (W)	45.159	33.900	22.639	11.36	0.048	
True Power Factor	0.446	0.427	0.399	0.337	0.048	
Power Consumed by EUT(W)	6.887	4.734	2.887	1.33	Mea.	Req.
					0.048	**0.1**
Efficiency	84.748%	86.035%	87.244%	88.292%	N/A	
Average Efficiency	86.580% (Requirement: 86.065%)					

Supplementary information:

Australia - Greenhouse and Energy Minimum Standards (External Power Supplies) Determination 2014 and New Zealand - AS/NZS 4665.2:2005/Amdt 1:2009 states：

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In the interim, Regulators have approved the use of performance mark Vas an accepted performance mark.

External power supplies with nominal 230 Va.c. mains supply input and a single output at extra low voltage (ELV) either a.c. or d.c., and a maximum output of 250W or 250 VA, manufactured or imported for sale in Australia or New Zealand will be required to meet or exceed the requirements of performance mark III. I.e. meet or exceed the average energy efficiency level in Table 1 below (which reproduces the requirements from Appendix A of AS/NZS 4665.1:2005 and IEMP Version 3.0) when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz.

Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) …… :	25 (℃) Sample 3	
	Test voltage (V) …….. :	115 (V)	
	Frequency (Hz) …….. :	60 (Hz)	

Test Item	Measure at load condition					
	1	2	3	4	5	
Rms Output Current (mA)	8000	6000	4000	2000	0	
Rms Output Voltage (V)	4.877	4.931	4.983	5.033	5.085	
Active Output Power (W)	38.959	29.551	19.914	10.094	0	
Rms input voltage (V)	115					
Rms input Power (W)	45.689	33.807	22.509	11.299	0.024	
True Power Factor	0.4166	0.4138	0.4056	0.3674	0.002	
Power Consumed by EUT(W)	6.73	4.256	2.595	1.205	Mea.	Req.
					0.024	**0.1**
Efficiency	85.27%	87.41%	88.47%	89.33%	N/A	
Average Efficiency	87.52% (Requirement: 86.065%)					

Supplementary information:

Australia - Greenhouse and Energy Minimum Standards (External Power Supplies) Determination 2014 and New Zealand - AS/NZS 4665.2:2005/Amdt 1:2009 states：

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In the interim, Regulators have approved the use of performance mark Vas an accepted performance mark.

External power supplies with nominal 230 Va.c. mains supply input and a single output at extra low voltage (ELV) either a.c. or d.c., and a maximum output of 250W or 250 VA, manufactured or imported for sale in Australia or New Zealand will be required to meet or exceed the requirements of performance mark III. I.e. meet or exceed the average energy efficiency level in Table 1 below (which reproduces the requirements from Appendix A of AS/NZS 4665.1:2005 and IEMP Version 3.0) when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz.

Clause	Requirement + Test	Result – Remark	Verdict

	Test results		
	Temperature immediately surrounding the EUT(℃) …… :	25 (℃) Sample 3	
	Test voltage (V) …….. :	230 (V)	
	Frequency (Hz) …….. :	50 (Hz)	

Test Item	Measure at load condition					
	1	2	3	4	5	
Rms Output Current (mA)	8000	6000	4000	2000	0	
Rms Output Voltage (V)	4.882	4.933	4.984	5.034	5.086	
Active Output Power (W)	38.991	29.557	19.918	10.096	0	
Rms input voltage (V)	230					
Rms input Power (W)	44.956	33.744	22.58	11.374	0.035	
True Power Factor	0.356	0.341	0.312	0.236	0.001	
Power Consumed by EUT(W)	5.965	4.187	2.662	1.278	Mea.	Req.
					0.035	**0.1**
Efficiency	86.73%	87.59%	88.21%	88.76%	N/A	
Average Efficiency	87.82% (Requirement: 86.605%)					

Supplementary information:

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In the interim, Regulators have approved the use of performance mark Vas an accepted performance mark.

External power supplies with nominal 230 Va.c. mains supply input and a single output at extra low voltage (ELV) either a.c. or d.c., and a maximum output of 250W or 250 VA, manufactured or imported for sale in Australia or New Zealand will be required to meet or exceed the requirements of performance mark III. I.e. meet or exceed the average energy efficiency level in Table 1 below (which reproduces the requirements from Appendix A of AS/NZS 4665.1:2005 and IEMP Version 3.0) when tested at 230 Va.c. (or 240 Va.c. if applicable) and 50 Hz.

GlobTek, INC.

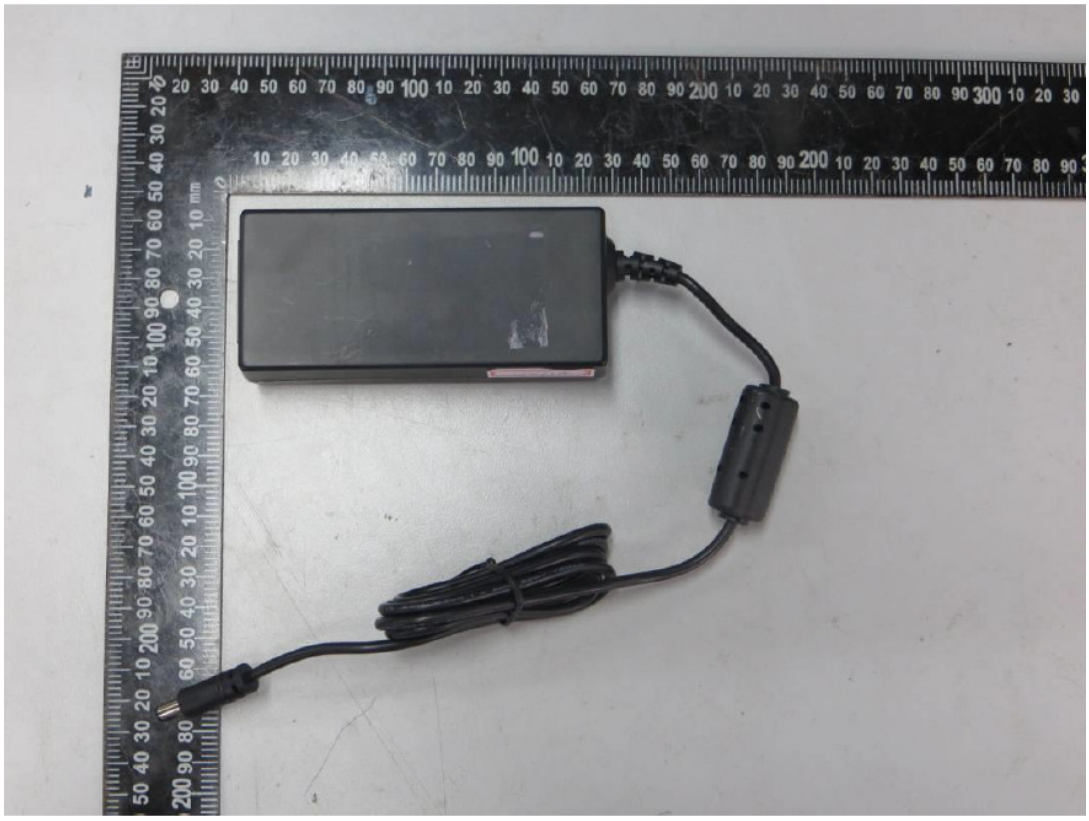
Table 1:

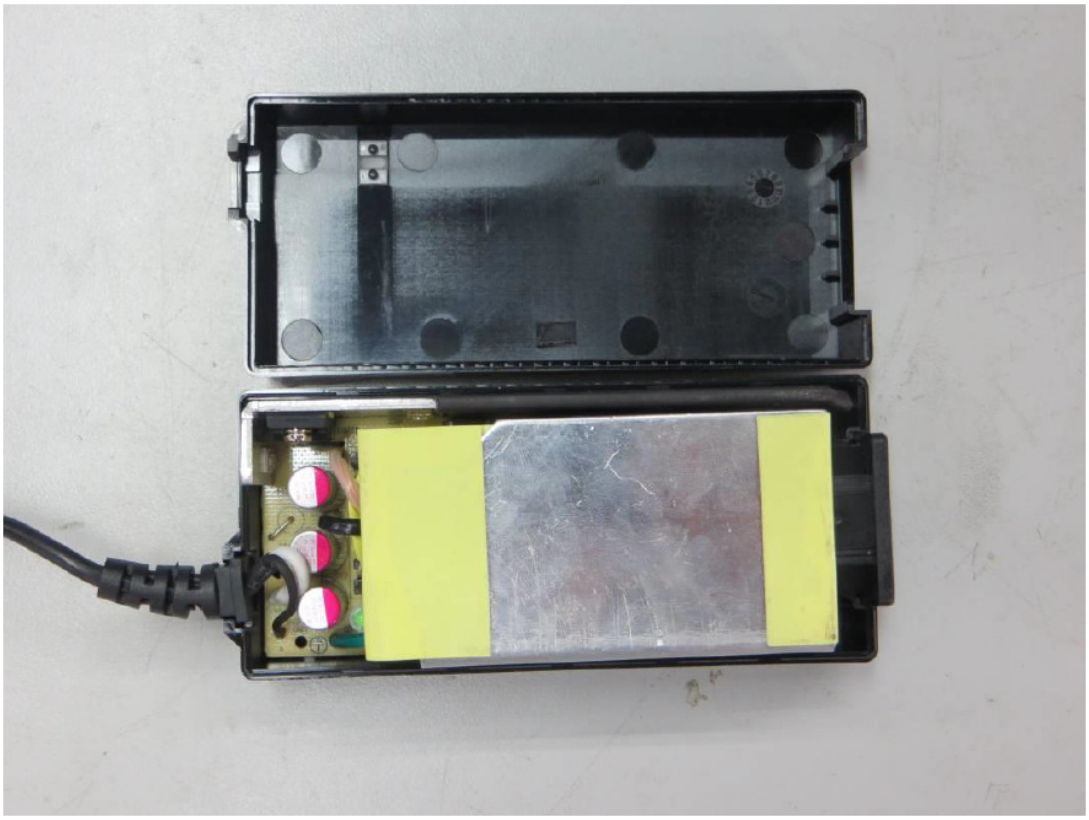
AS/NZS 4665.1:2005 and IEMP Performance Requirements				
MARK	**Nameplate Output Power (P_{no})**	**No-Load Mode Power**	**Nameplate Output Power (P_{no})**	**Average Efficiency in Active Mode**
III	0 to < 10 W	≤ 0.5	0 to 1 W	≥ 0.49 x P_{no}
	10 to 250 W	≤ 0.75	> 1 to 49 W	≥ 0.09 x ln(P_{no}) + 0.49
			> 49 to 250 W	≥ 0.84
IV	0 to 250 W	≤ 0.5	0 to < 1 W	≥ 0.5 x Pno
			1 to 51 W	≥ 0.09 x ln(P_{no}) + 0.5
			> 51 to 250 W	≥ 0.85
V	0 to < 50 W	AC-DC: ≤ 0.3 AC-AC: ≤ 0.5	0 to ≤ 1 W	Basic Voltage: ≥ 0.480 x P_{no} + 0.140 Low Voltage[5]: ≥ 0.497 x P_{no} + 0.067
			> 1 to ≤ 49 W	Basic Voltage: ≥ 0.0626 x ln(P_{no}) + 0.622 Low Voltage: ≥ 0.0750 x ln(P_{no}) + 0.561
	≥ 50 to ≤ 250 W	≤ 0.5	> 49 to 250 W	Basic Voltage: ≥ 0.870 Low Voltage: ≥ 0.860
VI	0 to ≤ 49 W	AC-DC: ≤ 0.100 AC-AC: ≤ 0.210	0 to ≤ 1 W	Basic Voltage: ≥ 0.5 x P_{no} + 0.16 Low Voltage: ≥ 0.517 x P_{no} + 0.087
			> 1 to ≤ 49 W	Basic Voltage: ≥ 0.071 x ln(P_{no}) − 0.0014 x P_{no} + 0.67 Low Voltage: ≥ 0.0834 x ln(P_{no}) − 0.0014 x P_{no} + 0.609
	> 49 to ≤ 250 W	≤ 0.210	> 49 to ≤ 250 W	Basic Voltage: ≥ 0.880 Low Voltage: ≥ 0.870
	> 250 W	≤ 0.500	> 250 W	≥ 0.875
VII	Reserved for future use.			

GlobTek, INC.

Enclosure 1

Photos of EUT





GlobTek, INC.

Test Equipment List

Name of Equipment	Manufacturer	Model	Serial Number	Calibration Due
AC Power Source	Chroma	61503	ABL000000073	2021-03-05
Power Analyzer	Yokogawa	WT3000	91R225637	2020-10-30
Electronic Load DC Load	Array	37-11A	A06BF01064	2021-03-05

Test Equipment Set-up