

# MEPS TEST REPORT

On Model Name: PropSava 23KVA MKIII, 230V  
Model Number: VR-204/203/202/201

Trademarks:

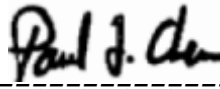


Prepared for Alpha Emptor (Hong Kong) Limited

## Purpose of Report

1. To report on the validity and accuracy of the listed specifications of the PropSava.
2. To conduct tests using standard electrical appliances to determine the value of any power savings.
3. To determine, if there is any loss of performance or function of the electrical appliances tested when run at the lower controlled voltage.

Test Report Released By:



Paul Chen

Sep. 07. 09

Date

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**Administrative Data**

<b>TEST REPORT</b> <b>According to client's requirement</b> <b>PropSava 23KVA, 230V, VR204</b>	
Report No .....	PSZ08050738TEST
Tested by (name and signature).....	Welison.zhang
Approved by (name and signature) ...:	Swall Zhang
Date of issue.....	7 <sup>th</sup> September 2009
Contents .....	20 pages total including the front pages.
<b>Testing Laboratory .....</b>	ECMG Worldwide Certification Solutions Inc.(China)
Address .....	Unit F, 9th floor, Daqing Building, Chegong Temple,Shennan Road Shenzhen city, Guangdong China.
Testing location/procedure .....	ECMG Worldwide Certification Solutions Inc.(China)
Address .....	Unit F, 9th floor, Daqing Building, Chegong Temple,Shennan Road Shenzhen city, Guangdong China.
Applicant's name .....	Alpha Emptor (Hong Kong) Limited
Address .....	803, Futura Plaza, 111 How Ming Street, Kwun Tong, Hong Kong.
<b>Test specification:</b>	
Standard(s) .....	N/A
Test procedure .....	Client's requirement
Non-standard test method .....	---
<b>Test item description .....</b>	
Manufacturer .....	Alpha Emptor (Hong Kong) Limited
Factory.....	Alpha Emptor (Hong Kong) Limited
Trademark .....	
Model/Type reference.....	230V, 23KVA VR-204/203/202/20 1
Rating(s).....	Input: 230V +/-15% 50Hz 90A Output normal mode - 220V +/-1% 215V +/-1% 50Hz, Capacity in VA (Watts): 23KVA, Max 50Hz Optimize mode.

**Test Items Particulars**

<b>Product Under Test:</b>	
PropSava (Single phase) Classification:	230V AC Voltage Regulator
PropSava (Single phase) type :	23KVA, Power Optimiser
<b>Test case verdicts:</b>	
Test case does not apply to the test object :	N(N/A)
Test item does meet the requirement:	P(Pass)
Test item does not meet the requirement :	F(Fail)
<b>Testing:</b>	
Date of receipt of test item:	2 <sup>nd</sup> September 2009
Date(s) of performance of test:	3 <sup>rd</sup> September – 4 <sup>th</sup> September 2009
<b>General Remarks:</b>	
This report shall not be reproduced except in full without the written approval of the testing Laboratory.	
The test results presented in this report relate only to the item(s) tested"(see Annex #)" refers to an annex appended to the report. Throughout this report a comma is used as the decimal separator.	

## **General Product Information:**

### **Manufacturers Claim and Description:**

The PropSava is an automatic single phase voltage regulator designed for use in the Home and Office. The operational purpose of the PropSava is to control and manage over and under incoming mains voltage variations and supply a constant output of 220V, +/- 1%. This controlled output of voltage to reduces power consumption in the home and/or office and therefore deliver cost savings to the consumer. The PropSava also provides the benefit in extending the life of appliances. The PropSava is available in 6 sizes of power output at 230V, 5KVA, 10KVA, 18KVA, 23KVA, 30KVA, 40KVA and 60KVA. There are also 120V versions at 2KVA, 5KVA, 9KVA and 12KVA.



**TABLE: 1 - TEST EQUIPMENT AND TEST LOAD LIST**

Item	Name	Type	Equipment No.	Calibration date		Comments
				Last <sup>1</sup>	Due	
1	Digital power meter	WT210	27E927264H	1 year	10-03-24	YOKOGAWA
2	Power meter	3302C	50102C008	1 year	10-03-27	PRODIGIT
3	Temperature humidity meter	HTC-1	UST021	1 year	10-05-18	HTC
4	Microwave oven	LOAD	---	---	---	---
5	Electric Kettle	LOAD	---	---	---	---
6	Washing Machine	LOAD	---	---	---	---
7	Hi-fi	LOAD	---	---	---	---
8	LCD TV	LOAD	---	---	---	---
9	Clothes Drier	LOAD	---	---	---	---
10	Vacuum Cleaner	LOAD	---	---	---	---
11	Electric Fan Heater	LOAD	---	---	---	---
12	Oil Filled Electric Radiator	LOAD	---	---	---	---
13	Dishwasher	LOAD	---	---	---	---
14	5 CFL Energy Saving Lamps	LOAD				

**2. Electrical Specification Test:** To report on the validity and accuracy of the listed specifications of the PropSava, 23 KVA, 230V, VR204

TABLE: electrical data (in normal conditions)			Test voltage: 230V/50Hz Test Date: 3 <sup>rd</sup> September 2009		
Test ambient: Ambient: 24.8 °C / RH 64 %			Model number: AE-VR204, 23KVA, 230V		
Check item	Rated	Measured	Actual dP( I ) %	Verdict (P/F)	Remarks
Capacity in AV - W	23KVA	23KVA	---	P	---
Phases	Single phases	Single		P	
Input voltage	230V±15%50Hz	192-265V	0.12	P	
Input Current	115AMax	115A	---	P	---
Circuit breaker rating	160A 230/400VAC	Not Tested	Not Tested	Not Tested	Unable to test on existing supply power
Normal mode (output)	220V±1%50Hz	220.0-231.1	<5%	P	
Optimize mode (output)	215V±1%50Hz	214.1-231.0	<5%	P	
Output current	105A Max.	105A	---	P	
Power efficiency	≥97%	98.8%	1.88	P	---
Response time	20ms	19.2	<5%	P	---
Over voltage	Yes	288.0	---	P	
Overload	Yes	Not Tested	Not Tested	Not Tested	Unable to test on existing supply power
By-pass	Automatic/ manual	Normal Operation	---	P	

**Test 3A: Identify all appliances load and power characteristics to be used in power saving tests.**

Test ambient: Ambient: 24.8 °C / RH 64 %

Test Date: 3<sup>rd</sup> September 2009

**1.0 Appliance: LCD Television**

Test voltage	Working state	Input data				Output data	
		Voltage (V)	Test current (A)	Power (W)	Power factor (PF)	Test current (A)	Power (W)
220v	Without PropSava	220.37	0.49	103.0	0.94	0.49	103.0

**2.0 Appliance: Washing Machine**

220v	Without PropSava	219.8	1.2	258	0.97	1.2	258
------	------------------	-------	-----	-----	------	-----	-----

**3.0 Appliance: : Electric Kettle**

220v	Without PropSava	220.0	3.38	745	1.00	3.38	745
------	------------------	-------	------	-----	------	------	-----

**4.0 Appliance: Microwave Oven**

220v	Without PropSava	220.1	3.95	580	0.67	3.95	580
------	------------------	-------	------	-----	------	------	-----

**5.0 Appliance: Hi-fi System**

220v	Without PropSava	220.0	0.043	8.7	0.88	0.043	8.7
------	------------------	-------	-------	-----	------	-------	-----

**6.0 Appliance: Clothes Dryer**

220v	Without PropSava	220.0	8.05	1769	0.84	8.05	1769
------	------------------	-------	------	------	------	------	------

<b>Test 3A: Continued: Identify all appliances load and power characteristics to be used in power saving tests.</b>							
Test voltage	Working state	Input data				Output data	
		Voltage (V)	Test current (A)	Power (W)	Power factor (PF)	Test current (A)	Power (W)
<b>7.0 Appliance: vacuum cleaner</b>							
220v	Without PropSava	220.0	5.5	1153	0.96	5.5	1152
<b>8.0 Appliance: Electric Fan Heater</b>							
220v	Without PropSava	220.02	0.163	26.6	0.74	0.12	26.6
<b>9.0 Appliance: Oil-Filled Electric Radiator</b>							
220v	Without PropSava	219.5	9.21	2001	1.0	9.21	2001
<b>10. Appliance: Dishwasher</b>							
220v	Without PropSava	219.4	6.69	1480	1.0	6.69	1480
<b>11. Appliance: 5 CFL Energy Saving Lamps</b>							
220v	Without PropSava	219.9	0.946	146	0.74	0.66	146

## Test 3B. Energy Saving Test - Per Appliance

Appliance to Test: All Appliances		Total Quantity: 11 Appliances							
Test: Ambient: 24.8 °C / RH 64 %		Test date: 4th September 2009							
Electrical Appliance	Description	Power consumption without PropSava				Power consumption WITH PropSava			
		220V	230V	240V	250V	220V	230V	240V	250V
TV	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	121.4	123.2	128.6	137.9
	Output voltage	220V	230V	240V	250V	218.9	220.3	219.4	218.5
	Output power - W	<b>96.6</b>	<b>97.1</b>	<b>97.3</b>	<b>98.5</b>	<b>96.1</b>	<b>96.2</b>	<b>96.3</b>	<b>96.4</b>
	Gain/(Loss)					<b>0.5</b>	<b>0.9</b>	<b>1.0</b>	<b>2.1</b>
Washing Machine	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	287.3	289.1	291.2	285.9
	Output voltage	220V	230V	240V	250V	218.4	220.1	218.8	218.6
	Output power - W	<b>258.4</b>	<b>258.9</b>	<b>259.3</b>	<b>260.2</b>	<b>256.4</b>	<b>255.9</b>	<b>256.6</b>	<b>257.9</b>
	Gain/(Loss)					<b>2.0</b>	<b>3.0</b>	<b>2.7</b>	<b>2.3</b>
Kettle	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	774.1	780.0	772.7	775.9
	Output voltage	220V	230V	240V	250V	218.0	219.5	218.2	218.4
	Output power - W	<b>745.3</b>	<b>746.0</b>	<b>745.8</b>	<b>746.7</b>	<b>743.3</b>	<b>744.0</b>	<b>743.8</b>	<b>743.7</b>
	Gain/(Loss)					<b>2.0</b>	<b>2.0</b>	<b>2.0</b>	<b>3.0</b>
Microwave Oven	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	581	591	590	621
	Output voltage	220V	230V	240V	250V	218.5	219.2	219.1	218.0
	Output power - W	<b>598.0</b>	<b>630.3</b>	<b>653.2</b>	<b>675.5</b>	<b>541.8</b>	<b>557.4</b>	<b>552.4</b>	<b>573.2</b>
	Gain/(Loss)					<b>56.2</b>	<b>72.9</b>	<b>100.8</b>	<b>102.3</b>
Hi-Fi	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	30.1	32.3	38.1	46.5
	Output voltage	220V	230V	240V	250V	219.3	219.0	218.3	219.4
	Output power - W	<b>5.6</b>	<b>5.8</b>	<b>5.4</b>	<b>5.9</b>	<b>5.4</b>	<b>5.4</b>	<b>5.3</b>	<b>5.5</b>
	Gain/(Loss)					<b>0.2</b>	<b>0.4</b>	<b>0.1</b>	<b>0.4</b>

### Test 3B. Energy Saving Test - Per Appliance – Continued...

Appliance to Test: All Appliances		Total Quantity: 11 Appliances							
Test: Ambient: 24.8 °C / RH 64 %		Test date: 4th September 2009							
Electrical Appliance	Description	Power consumption without PropSava				Power consumption WITH PropSava			
		220V	230V	240V	250V	220V	230V	240V	250V
Clothes Drier	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	1787.4	1793.6	1791.9	1798.1
	Output voltage	220V	230V	240V	250V	219.3	219.0	218.3	219.4
	Output power - W	<b>1,770.3</b>	<b>1,772.4</b>	<b>1,773.5</b>	<b>1,775.7</b>	<b>1,765.1</b>	<b>1,766.7</b>	<b>1,764.2</b>	<b>1,770.0</b>
	Gain/(Loss)					<b>5.2</b>	<b>5.7</b>	<b>9.3</b>	<b>5.7</b>
Vacuum Cleaner	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	1221	1203	1192	1208
	Output voltage	220V	230V	240V	250V	219.5	218.6	217.8	218.5
	Output power - W	<b>1,290.0</b>	<b>1,300.0</b>	<b>1,383.0</b>	<b>1,496.0</b>	<b>1,175.0</b>	<b>1,153.0</b>	<b>1,151.0</b>	<b>1,154.0</b>
	Gain/(Loss)					<b>115.0</b>	<b>147.0</b>	<b>232.0</b>	<b>342.0</b>
Fan Heater	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	50.9	53.0	58.8	67.2
	Output voltage	220V	230V	240V	250V	218.9	218.5	218.1	219.6
	Output power - W	<b>26.4</b>	<b>28.4</b>	<b>30.7</b>	<b>33.1</b>	<b>26.0</b>	<b>25.8</b>	<b>25.8</b>	<b>25.6</b>
	Gain/(Loss)					<b>0.4</b>	<b>2.6</b>	<b>4.9</b>	<b>7.5</b>
Oil Filled Radiator	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	2059	2066	2052	2048
	Output voltage	220V	230V	240V	250V	218.1	219.6	218.5	217.7
	Output power - W	<b>2,003.0</b>	<b>2,176.0</b>	<b>2,361.0</b>	<b>2,552.0</b>	<b>1,980.0</b>	<b>2,003.0</b>	<b>1,990.0</b>	<b>1,983.0</b>
	Gain/(Loss)					<b>23.0</b>	<b>173.0</b>	<b>371.0</b>	<b>569.0</b>
Dishwasher	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	1503	1513	1509	1511
	Output voltage	220V	230V	240V	250V	219.3	220.1	219.3	218.6
	Output power - W	<b>1,485.0</b>	<b>1,616.0</b>	<b>1,756.0</b>	<b>1,903.0</b>	<b>1,458.0</b>	<b>1,464.0</b>	<b>1,457.0</b>	<b>1,446.0</b>
	Gain/(Loss)					<b>27.0</b>	<b>152.0</b>	<b>299.0</b>	<b>457.0</b>
CFL Lamps	Input voltage	---	---	---	---	220V	230V	240V	250V
	Input power - W	---	---	---	---	206	209	212	221
	Output voltage	220V	230V	240V	250V	218.6	219.8	218.8	220.1
	Output power - W	<b>182.5</b>	<b>193.2</b>	<b>204.0</b>	<b>215.0</b>	<b>180.0</b>	<b>181.0</b>	<b>179.0</b>	<b>186.0</b>
	Gain/(Loss)					<b>2.5</b>	<b>12.2</b>	<b>25.0</b>	<b>29.0</b>

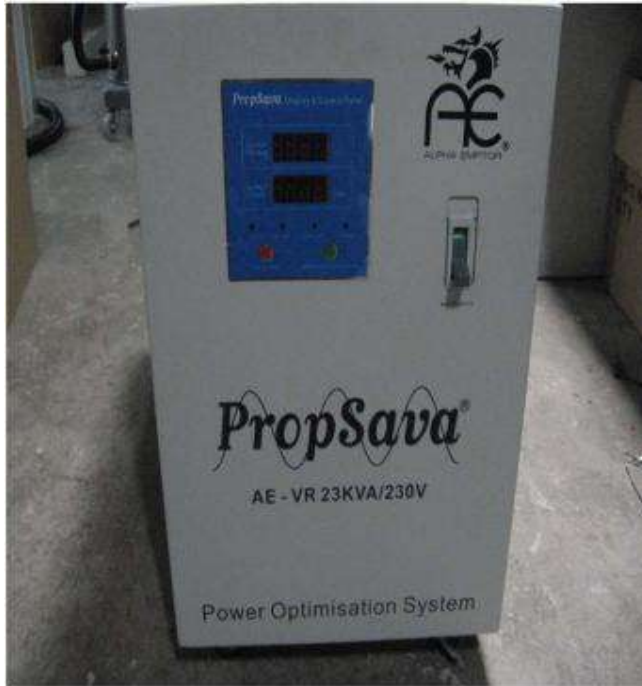
**4. Energy Saving Test - To conduct tests using standard electrical appliances to determine the value of any power savings**

**All appliances connected via a fused ring main for 1 hour at voltage stated.**

Test ambient: 24.8 °C / RH 64 %      Test date: 4<sup>th</sup> September 2009

Test voltage	Working state	Voltage (V)	Test Current (A)	Frequency (Hz)	Power (KW)	Power consumption (KWH)
220v	Without PropSava	221.5	36.4	50	8.12	7.56
	With PropSava	220.0	37.02	50	8.2	6.59
<b>Energy Saved: 12.83%</b>						
230V	Without PropSava	230.1	36.62	50	8.34	7.62
	With PropSava	230.8	33.10	50	8.10	6.52
<b>Energy Saved: 14.4%</b>						
240V	Without PropSava	240.55	32.70	50	7.67	7.33
	With PropSava	240.50	31.8	50	7.5	6.36
<b>Energy Saved: 13.2%</b>						
250V	Without PropSava	250.1	34.1	50	9.29	7.08
	With PropSava	250.2	34.6	50	9.3	5.84
<b>Energy Saved: 17.5%</b>						

**EQUIPMENT UNDER TEST PHOTO 1 – PropSava, 23KVA, 230V, Model: VR-204**



**Fig 01 Front View**

**EQUIPMENT UNDER TEST PHOTO 2 – PropSava, 23KVA, 230V, Model: VR-204**



**Fig 02 Bottom View**

**EQUIPMENT UNDER TEST PHOTO 2 – PropSava, 23KVA, 230V, Model: VR-204**



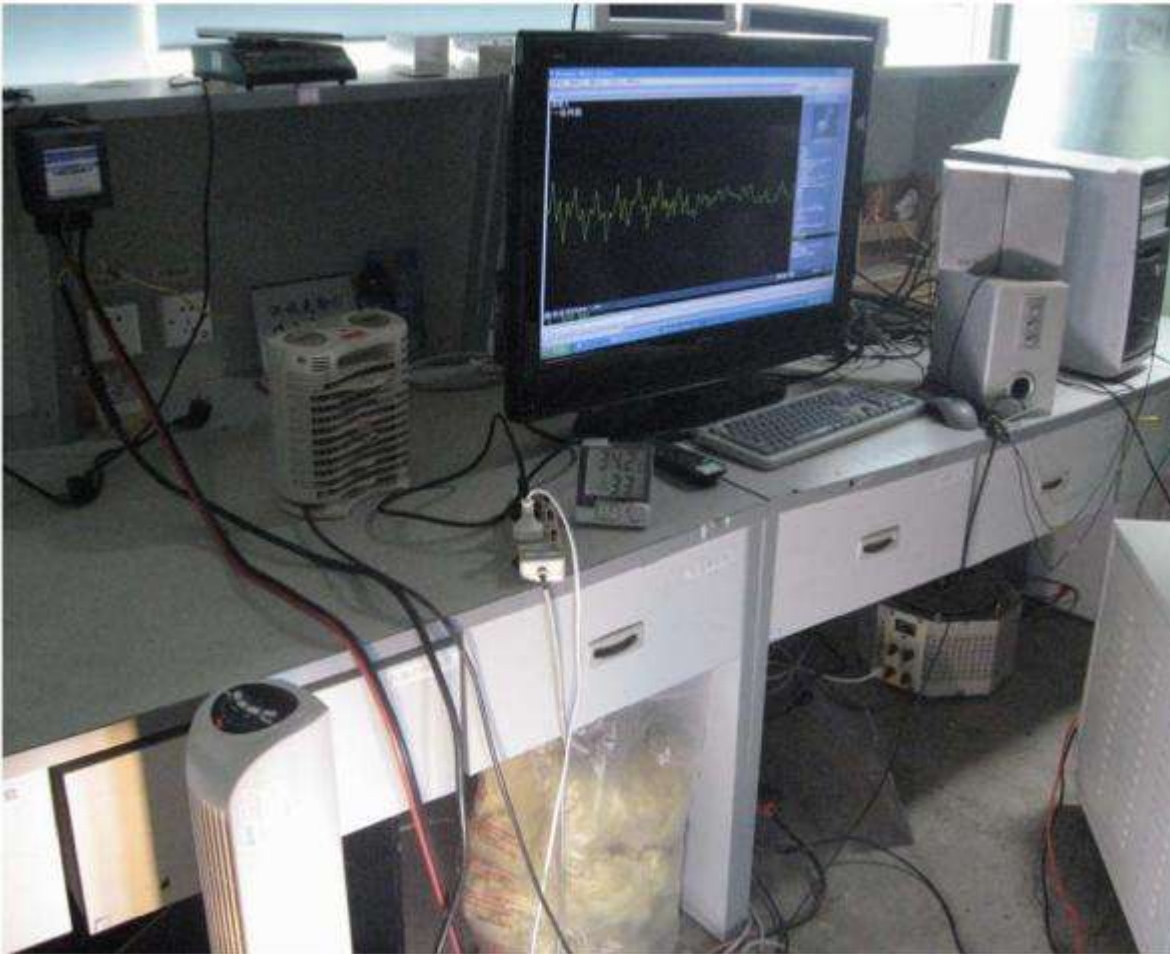
***Fig 03 side View***

**EUT TESTING PHOTO 1**



**Fig 04 Test photo 1**

**EUT TESTING PHOTO 2**



**Fig 05 Test photo 2**

**EUT TESTING PHOTO 3**



**Fig 06 Test photo 3**

**EUT TESTING PHOTO 4**



**Fig 07 Test photo 4**

## **Summary:**

### **Purpose of Report**

*1. To report on the validity and accuracy of the listed specifications of the PropSava.*

It is confirmed that the PropSava 23KVA, 230V, VR204 meets and/or exceeds the stated specifications.

*2. To conduct tests using standard electrical appliances to determine the value of any power savings.*

It is confirmed that the PropSava, acting as an under and over voltage control system, reduces power used by the tested appliances and can therefore save electrical costs depended on the incoming voltage.

*3. To determine, if there is any loss of performance or function of the electrical appliances tested when run at the lower controlled voltage.*

There was no appreciable loss of performance witnessed from the appliances tested.

**END OF REPORT**