

خلاصه گزارش آزمون دقت اندازه گیری جریان و ولتاژ

0109270/1

شماره پروژه :

صفحه نمایش و وب سرور در بار کامل و بدون بار و صحت

وجود ولتاژ در تمامی خروجی های واحد توزیع برق

نام فرآور	: واحد توزیع برق Power Distribution Unit (PDU)	درخواست کننده : شرکت هوشمند سازان مبتکر افق
علامت تجاری / سازنده فرآورده :	PMX	آدرس : تهران خیابان بریانک، بزرگراه نواب، پلاک ۴۴، ساختمان بینالود، مرکز خرید نواب، طبقه اول
مدل/کد مشخصه فرآورده	: PDUS122004	تاریخ صدور نتیجه : ۱۴۰۱/۱۰/۲۴
مشخصات اسمی	: 220-240 V AC, 50/60Hz, 32 A	

گزارش آزمون دقت اندازه گیری ولتاژ و جریان صفحه نمایش و وب سرور در بار کامل و بدون بار و صحت وجود ولتاژ در تمامی خروجی های واحد توزیع برق طبق روش آزمون الزام شده توسط مشتری به پیوست ۱ است.


ملاحظات :

روش آزمون مشتری (شرکت مهندسی مبتکر افق) به پیوست ۲ است.


تأییدکننده (مدیر فنی): آ. شجاعیان





TEST REPORT Accuracy of current and voltage for display and webserver of PDU in normal load and no-load conditions and accuracy of all out-put voltages	
Report Number. :	01109270
Date of issue :	Jan (01),17,2023
Total number of pages..... :	16
Name of Testing Laboratory preparing the Report :	Research Centre of Informatic Industries (RCII) 
Applicant's name..... :	Houshmand Sazan Mobtaker Ofog Engineering Co. (HSMO)
Address :	#25, First floor, Navab shop center, Binalood building, #44, Navab ave, Beryanak street, Tehran, Islamic Republic of Iran.
Test specification:	
Standard :	N/A
Test procedure..... :	Customer test procedure
Non-standard test method..... :	N/A
Test Report Form No. :	
Test Report Form(s) Originator.... :	Research Centre of Informatic Industries
Master TRF :	Dated 2023-01
General disclaimer: 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. The authenticity of this Test Report and its contents can be verified by contacting the Testing Laboratory, responsible for this Test Report.	



Test item description	Power Distribution Unit (PDU)	
Trade Mark.....		
Manufacturer	Houshmand Sazan Mobtaker Ofog Engineering Co. (HSMO)	
Model/Type reference.....	PDUS122004	
Ratings.....	220-240 V AC,50/60Hz, 32 A	
Serial No.....	-	
Responsible Testing Laboratory (as applicable), testing procedure and testing location(s):		
<input type="checkbox"/>	CB Testing Laboratory:	
Testing location/ address		
<input type="checkbox"/>	Associated CB Testing Laboratory:	Research Center of Informatic Industries (RCII)
Testing location/ address		# 7, Section D, Golgasht St., Golzar St, South Fanavari Blv., Parand Industrial Zone, Tehran, Iran.
Tested by (name, function, signature)		S04 
Approved by (name, function, signature) ..		A. Shojaian 
<input type="checkbox"/>	Testing procedure: CTF Stage 1:	
Testing location/ address		
Tested by (name, function, signature)		
Approved by (name, function, signature) ..		
<input type="checkbox"/>	Testing procedure: CTF Stage 2:	
Testing location/ address		
Tested by (name + signature).....		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
<input type="checkbox"/>	Testing procedure: CTF Stage 3:	
<input type="checkbox"/>	Testing procedure: CTF Stage 4:	
Testing location/ address		
Tested by (name, function, signature)		
Witnessed by (name, function, signature) . :		
Approved by (name, function, signature) .. :		
Supervised by (name, function, signature) :		



List of Attachments (including a total number of pages in each attachment):**Summary of testing:****Tests performed (name of test and test clause):**

All test results were found satisfactory in the following requirements in accordance with customer test procedure:

Accuracy of current and voltage for display and webserver of PDU in normal load and no-load conditions and accuracy of all out-put voltages

Testing location:

Research Center of Informatic Industries (RCII)
7, Section D, Golgasht St., Golzar St, South
Fanavari Blv., Parand Industrial Zone, Tehran, Iran.

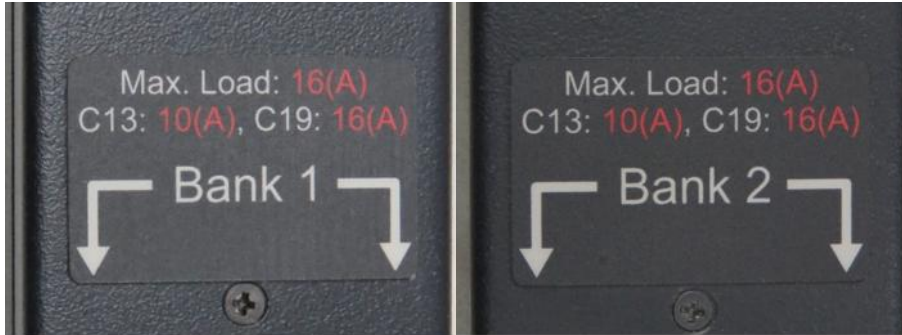
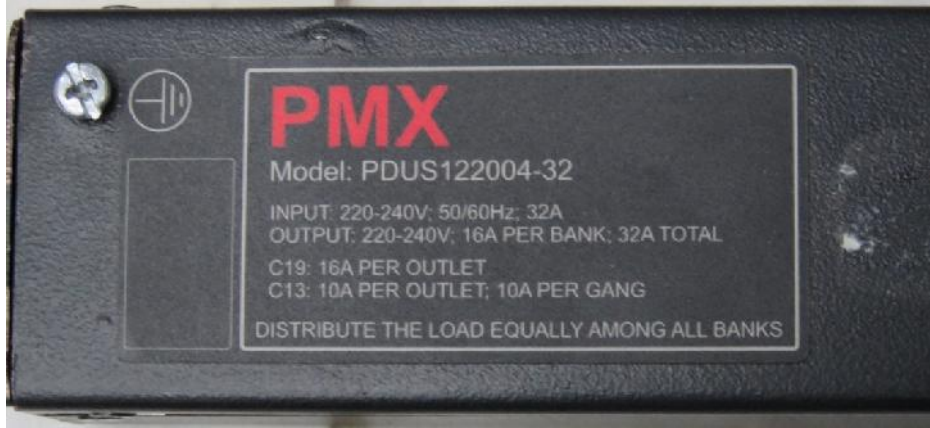
Summary of compliance with National Differences (List of countries addressed):

N/A

 The product fulfils the following requirements of Customer test procedure:

- 1- Accuracy of current in normal load and no-load conditions
- 2- Accuracy of voltage in normal load and no-load conditions
- 3- Accuracy of all out-put voltages

Copy of marking plate:



Test item particulars..... :	
Equipment mobility	<input type="checkbox"/> movable <input type="checkbox"/> hand-held <input type="checkbox"/> stationary <input checked="" type="checkbox"/> fixed <input type="checkbox"/> transportable <input type="checkbox"/> for building-in
Connection to the mains..... :	<input checked="" type="checkbox"/> pluggable equipment <input type="checkbox"/> direct plug-in <input type="checkbox"/> permanent connection <input type="checkbox"/> for building-in
Environmental category..... :	<input type="checkbox"/> outdoor <input checked="" type="checkbox"/> indoor <input type="checkbox"/> indoor <input type="checkbox"/> unconditional <input type="checkbox"/> conditional
Over voltage category Mains	<input type="checkbox"/> OVC I <input checked="" type="checkbox"/> OVC II <input type="checkbox"/> OVC III <input type="checkbox"/> OVC IV
Mains supply tolerance (%)..... :	-
Tested for power systems	-
Rated voltage (V)..... :	12 V DC
Class of equipment..... :	<input checked="" type="checkbox"/> Class I <input type="checkbox"/> Class II <input type="checkbox"/> Class III <input type="checkbox"/> Not classified
Mass of equipment (kg)	5.620 Kgr
IP protection class	N/A
..... :	
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 was not evaluated for the requirement: N/E	
- test object does not meet the requirement.....: F (Fail)	
Testing..... :	
Date of receipt of test item	Dec (12),21,2022
Date (s) of performance of tests	Jan (01),10,2023 to Jan (01),17,2023
General remarks:	
Tolerances are used for voltage and current is according to IEC CTL OD-5014. Throughout this report a <input type="checkbox"/> comma / <input checked="" type="checkbox"/> point is used as the decimal separator.	
Manufacturer's Declaration per sub-clause 4.2.5 of IEC 60335-1:	
The application for obtaining a CB Test Certificate includes more than one factory location and a declaration from the Manufacturer stating that the sample(s) submitted for evaluation is (are) representative of the products from each factory has been provided	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> Not applicable
When differences exist; they shall be identified in the General product information section.	

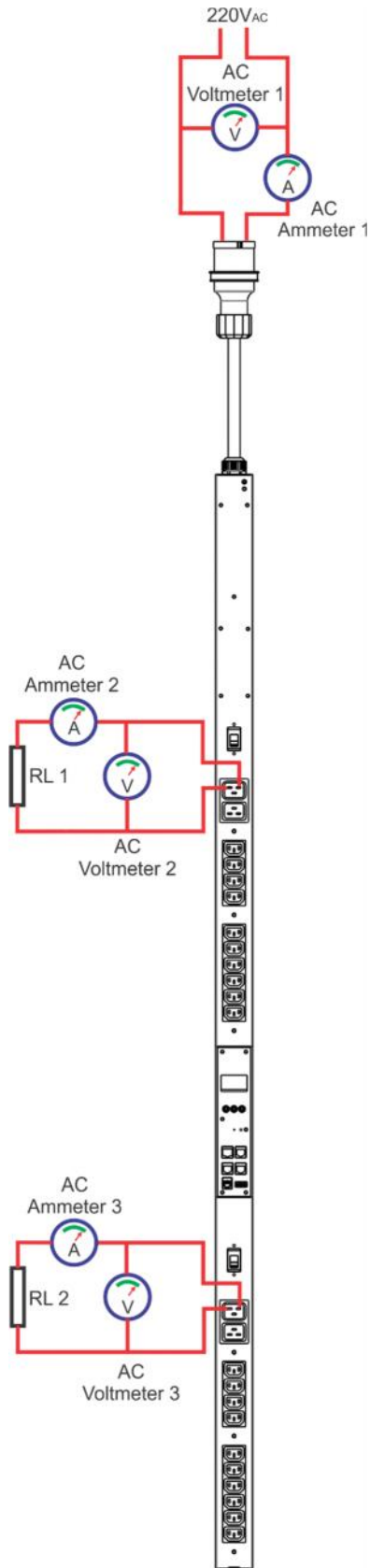
Name and address of factory (ies) : Houshmand Sazan Mobtaker Ofog Engineering Co. (HSMO)



#25, First floor, Navab shop center, Binalood building, #44, Navab ave, Beryanak street, Tehran, Islamic Republic of Iran.

General product information:

PDUS122004 is a device fitted with multiple outputs designed to distribute electric power, especially to racks of computers and networking equipment located within a data center.

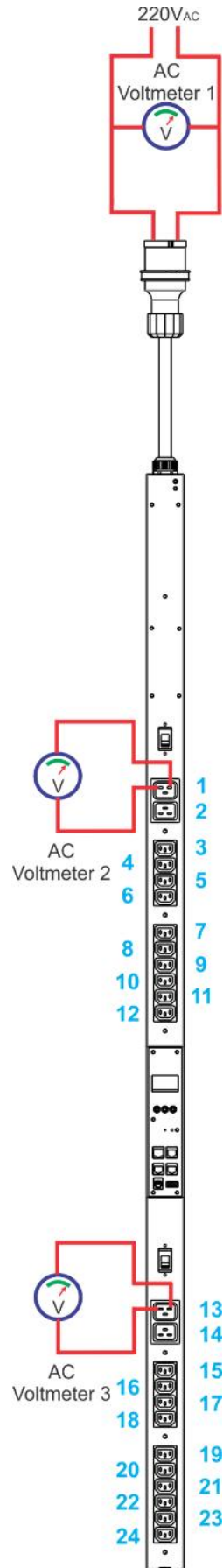


Test setup 1 : Measurement of current accuracy (Under low current, middle curren and high current condntions)

TRF No.

Table 1: Current measurement results of test setup 1							
Parameter	Conditions	Low current		Middle current		High current	
		Bank 1	Bank 2	Bank 1	Bank 2	Bank 1	Bank 2
		IL1=5A	IL2=5A	IL1=10A	IL2=10A	IL1=16A	IL2=16A
Impedance RL 1 ()		44		22		13.75	
Impedance RL 2 ()		44		22		13.75	
AC Ammeter1 (A)		8.708		17.488		28.818	
AC Ammeter2 (A)		4.723		9.390		15.481	
AC Ammeter3 (A)		4.741		9.441		15.392	
AC Voltmeter1 (A)		219.465		220.098		218.700	
AC Voltmeter2 (V)		219.040		219.230		217.197	
AC Voltmeter3 (V)		219.162		219.405		217.448	
Ammeter Panel Bank1 (A)		4.7		9.4		15.5	
Ammeter Panel Bank2 (A)		4.7		9.4		15.4	
Ammeter Web Server Bank1 (A)		4.73		9.30		15.56	
Ammeter Web Server Bank2 (A)		4.72		9.27		15.40	
Voltmeter Web Server Bank1 (V)		221.8		220.1		222.5	
Voltmeter Web Server Bank2 (V)		221.8		220.1		222.5	

Table 2: Current accuracy of test setup 1 measurement results				
Parameter	Range	Accuracy	Tolerance	Result
Current measurement accuracy Bank1	IL<5A	0.487%	±1.5%	P
Current measurement accuracy Bank1	5A< IL<10A	-0.106%	±2.5%	P
Current measurement accuracy Bank1	10A< IL<16A	-0.123%	±2.5%	P
Current measurement accuracy Bank2	IL<5A	0.865%	±2.5%	P
Current measurement accuracy Bank2	5A< IL<10A	0.434%	±2.5%	P
Current measurement accuracy Bank2	10A< IL<16A	-0.052%	±2.5%	P



Test setup 2: Measurement of voltage accuracy (Under no-load condition)

Table 3: Voltage measurement results of test setup 2	
Parameters	Conditions No Load
AC Voltmeter1 (V)	220.13
AC Voltmeter2 (V)	220.10
AC Voltmeter3 (V)	220.12
Voltmeter Panel Bank1 (V)	221.2
Voltmeter Panel Bank2 (V)	221.2
Voltmeter Web Server Bank1 (V)	221.2
Voltmeter Web Server Bank2 (V)	221.2

Table 4: Voltage accuracy of test setup 2 measurement results			
Parameter	Accuracy	Tolerance	Result
Voltage measurement accuracy Bank1	-0.49%	±1.5%	P
Voltage measurement accuracy Bank2	-0.49%	±1.5%	P

Table 5: Voltage accuracy of calculated from test setup 2 measurement results				
Bank	Parameter	AC Voltmeter 1 (V)	Voltmeter Panel (V)	Voltmeter Web Server (V)
Bank 1		220.13	221.2	221.2
Bank2		220.13	221.2	221.2

Table 6: Current accuracy of bank 1 calculated from test setup 1 measurement result				
Bank	Parameter	AC Ammeter 1 (A)	Ammeter Panel (A)	Ammeter Web Server (A)
Bank 1	5 A	4.723	4.7	4.73
	10 A	9.390	9.4	9.30
	16 A	15.481	15.5	15.56

Table 7: Current accuracy of bank 2 calculated from test setup 1 measurement result

Bank		Parameter	AC Ammeter 2 (A)	Ammeter Panel (A)	Ammeter Web Server (A)
Bank 2	5 A		4.741	4.7	4.72
	10 A		9.441	9.4	9.27
	16 A		15.392	15.4	15.40

Table 8: Accuracy of all out-put voltages

Outlet	Parameter	Check Voltage in Outlet (V)	Result
Outlet 1		219.92	P
Outlet 2		219.93	P
Outlet 3		219.91	P
Outlet 4		219.94	P
Outlet 5		219.94	P
Outlet 6		219.93	P
Outlet 7		219.92	P
Outlet 8		219.93	P
Outlet 9		219.93	P
Outlet 10		219.92	P
Outlet 11		219.93	P
Outlet 12		219.95	P
Outlet 13		219.93	P
Outlet 14		219.92	P
Outlet 15		219.92	P
Outlet 16		219.92	P
Outlet 17		219.93	P
Outlet 18		219.91	P
Outlet 19		219.93	P
Outlet 20		219.93	P
Outlet 21		219.94	P
Outlet 22		219.92	P
Outlet 23		219.93	P
Outlet 24		219.93	P

Attachment – A

EUT Photos

Photo #1



Photo #2



Photo #3



Photo #4



Photo #5



Photo #6



TRF No.