



MICRO PRECISION CALIBRATION PTE LTD
BLOCK 5008 ANG MO KIO AVENUE 5 #07-02/03
TECHPLACE II SINGAPORE 569874
65 67484384

Service Report

Work Order No. SG-11014938

Date: Sep 30, 2020

Service By: QUEK HOCKGUAN

Customer Description

End User's name :
Coordinator's name :
Department :
Company Name : WATERS PACIFIC PTE LTD
Address : 1 SCIENCE PARK ROAD, #02-08 THE CAPRICORN SINGAPORE SCIENCE PARK II
Tel : 6593 7043
Fax : 6873 0820
Email :

Equipment Description

Product Description : POWER SUPPLY
Product Model : GENH60-12.5-LAN-U
Serial No. : 09M1037A
Asset ID : 95141
Cal. Control No. : 09M1037A
Manufacturer : TDK-LAMBDA
Status : REPAIRED
PO No. : 2020-101
RMA No : 4
Type of Repair : NON-WARRANTY
Warranty :

Service Performed

Check - up :	Yes	☒	No	☐
Repaired or Part Change :	Yes	☒	No	☐
Calibration :	Yes	☐	No	☒
Modification :	Yes	☐	No	☒
Upgrade :	Yes	☐	No	☒

List of delivered accessories of this equipment or system which need to services

Models / Part No	Description	Qty.	Notes

Symptom(s)

Voltage and current output failed.

Recommended

Repair MB Assembly.



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Solution

Repair MB Assembly.

Note:

- Warranty 3 months for same failure symptom.



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Certificate of Calibration

Date: Sep 30, 2020

Cert No. 551220083849341

Customer:

WATERS PACIFIC PTE LTD
1 SCIENCE PARK ROAD, #02-08 THE CAPRICORN
SINGAPORE SCIENCE PARK II
SINGAPORE 117528

Work Order #: SG-11014938

MPC Control #: 09M1037A
Asset ID: 95141
Gage Type: POWER SUPPLY
Manufacturer: TDK-LAMBDA
Model Number: GENH60-12.5-LAN-U
Size: N/A
Temp/RH: 22.0°C / 52.0%
Location: Calibration performed at MPC facility

Serial Number: 09M1037A
Department: N/A
Performed By: JIAN LIANG SIM
Received Condition: IN TOLERANCE
Returned Condition: IN TOLERANCE
Cal. Date: September 30, 2020
Cal. Interval: 12 MONTHS
Cal. Due Date: September 30, 2021

Calibration Notes:

Performance test passed. See attached data (1 Page).

Standards Used to Calibrate Equipment

I.D.	Description.	Model	Serial	Manufacturer	Cal. Due Date	Traceability #
CH2324	CURRENT SHUNT	34330A	0804	AGILENT	Sep 7, 2021	551220083811070
CA8285	MULTIMETER	3458A	2823A13788	HEWLETT PACKARD	Sep 15, 2021	551220083820793

Procedures Used in this Event

Procedure Name	Description
MPC-00060 Rev. 02	Power Supply, General, rev02, Mar-04-2016

Calibrating Technician:

JIAN LIANG SIM

QC Approval:

JUN CALIMAG

STATEMENTS OF PASS OR FAIL CONFORMANCE: The uncertainty of measurement has been taken into account when determining compliance with specification. All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCCL Z540.3-2006 and in case without guard banded the probability of false-accept depending on test uncertainty ratio.

THE CALIBRATION REPORT STATUS:

PASS- Term used when compliance statement is given, and the measurement result is PASS.

PASS² - Term used when compliance statement is given, and the measurement result is conditional passed or PASS².

FAIL- Term used when compliance statement is given, and the measurement result is FAIL.

FAIL² - Term used when compliance statement is given, and the measurement result is conditional failed or FAIL².

REPORT OF VALUE - Term used when reported measurement is not requiring compliance statement in report.

ADJUSTED - When adjustments are made to an instrument which changes the value of measurement from what was measured as found to new value as left.

LIMITED - When an instrument fails calibration but is still functional in a limited manner.

The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor k=2, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated. This calibration report complies with ISO/IEC 17025:2017 and ANSI/NCCL Z540.3. Calibration cycles and resulting due dates were submitted/approved by the customer. Any number of factors may cause an instrument to drift out of tolerance before the next scheduled calibration. Recalibration cycles should be based on frequency of use, environmental conditions and customer's established systematic accuracy. All standards are traceable to SI through the National Institute of Standards and Technology (NIST) and/or recognized national or international standards laboratories. Services rendered include proper manufacturer's service instruction and are warranted for no less than thirty (30) days. The information on this report pertains only to the instrument identified, this may not be reproduced in part or in a whole without the prior written approval of the issuing MP Calibration Laboratory.



Calibration Report of TDK-Lambda GENH60-12.5-LAN-U Power Supply

MPC Control #:	09M1037A	Serial Number:	09M1037A
Asset ID:	95141	Calibration Date:	September 30, 2020

DC Voltage Accuracy

Range	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty ($\pm$)
0 to 60 V	1.000000 V	0.995000 V	1.004485 V	1.004485 V	1.005000 V	PASS	0.000053 V
0 to 60 V	5.000000 V	4.975000 V	5.000515 V	5.000515 V	5.025000 V	PASS	0.000026 V
0 to 60 V	10.00000 V	9.95000 V	9.99353 V	9.99353 V	10.05000 V	PASS	0.000051 V
0 to 60 V	15.00000 V	14.92500 V	14.99202 V	14.99202 V	15.07500 V	PASS	0.00014 V
0 to 60 V	20.00000 V	19.90000 V	19.99026 V	19.99026 V	20.10000 V	PASS	0.00018 V
0 to 60 V	25.00000 V	24.87500 V	24.98829 V	24.98829 V	25.12500 V	PASS	0.00022 V
0 to 60 V	30.00000 V	29.85000 V	29.98676 V	29.98676 V	30.15000 V	PASS	0.00025 V
0 to 60 V	60.00000 V	59.70000 V	59.99454 V	59.99454 V	60.30000 V	PASS	0.00047 V

DC Current Accuracy

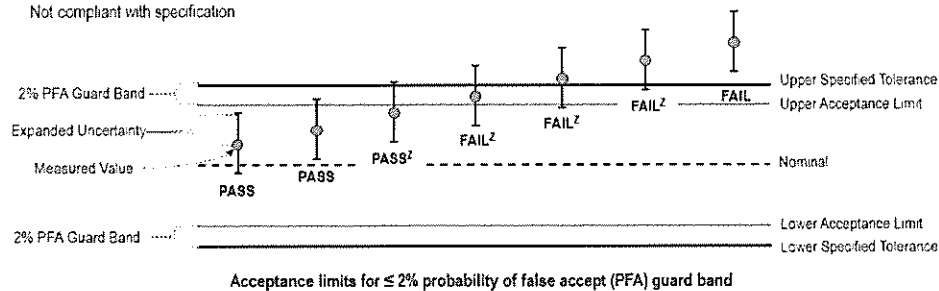
Range	Nominal	Lower Limit	As Found	As Left	Upper Limit	Result	Uncertainty ($\pm$)
0 to 12.5 A	1.000000 A	0.990000 A	0.995050 A	0.995050 A	1.010000 A	PASS	0.00014 A
0 to 12.5 A	5.000000 A	4.950000 A	4.997410 A	4.997410 A	5.050000 A	PASS	0.00070 A
0 to 12.5 A	10.00000 A	9.90000 A	9.99331 A	9.99331 A	10.10000 A	PASS	0.0014 A
0 to 12.5 A	12.50000 A	12.37500 A	12.50083 A	12.50083 A	12.62500 A	PASS	0.0018 A

Statements of Pass or Fail Conformance

The uncertainty of measurement has been taken into account when determining compliance with specification
All measurements and test results guard banded to ensure the probability of false-accept does not exceed 2% in compliance with ANSI/NCCL Z540 3-2006

The status of compliance with the acceptance criteria is reported as:

PASS	—	Compliant with specification
PASS ²	—	The measured value is within acceptance limits However, a portion of the expanded uncertainty of measurement at 95% exceeds the specified tolerance.
FAIL ²	—	The measured value is not within the acceptance limits However, a portion of the expanded uncertainty of measurement at 95% is within the specified tolerance
FAIL	—	Not compliant with specification



The expanded uncertainty of measurement is stated as the standard uncertainty of measurement multiplied by the coverage factor $k = 2$, which for a normal distribution corresponds to a coverage probability of approximately 95%, unless otherwise stated

This calibration report complies with ISO/IEC 17025 2017 and ANSI/NCCL Z540 3-2006, Method 6 — Guard Bands Based on Test Uncertainty Ratio

- End of Calibration Report -