Certificate of Calibration

CUSTOMER:	DJB LABCARE LTD	JOB No:	0541040
ORDER NO:	258108	CUST. REF:	513815-2
MAKE:	TTI	TYPE:	PFM1300
DESCRIPTION:	FREQUENCY METER	SERIAL No:	230096

AMBIENT TEMPERATURE*: 20 ± 3 °C HUMIDITY: 50 ± 25 %RH

This is to certify the above instrument has been calibrated in accordance with a relevant specification and at those points tested the result(s) were*:

Found to meet that specification on receipt	Found to meet that specification after adjustment/repair	Measurements recorded in absence of relevant specification	Found NOT to meet that specification – Calibration restrictions apply
[✓]	[ ]	[ ]	[ ]
Pre-Calibration repair performed	**Optimising adjustment performed**	**Calibration performed away from laboratory***	**Calibration performed by subcontractor***
[ ]	[ ]	[ ]	[ ]

Absolute Calibration Complies with BS EN ISO 17025 and BS EN ISO 9001

*For calibration performed away from our laboratory or by a subcontractor please see the attached certificate for environmental conditions and calibration/measurement details.

The above statement of conformity (e.g. Pass/Fail) to specification is made without taking measurement uncertainty into account unless stated otherwise in the report.

In order to comply with the above standards Absolute Calibration has to ensure that all measurements carried out in its laboratories are traceable to national standards.

Approved Signatory

DATE: 28 - 5 - 2024

Absolute Calibration Limited
14 Murrills Estate, Portchester, Hampshire, England, PO16 9RD
T: 023 9232 1712 | W: absolutecal.co.uk | E: calit@absolute-cal.co.uk

CERTIFICATE OF CALIBRATION

Issued By

ABSOLUTE CALIBRATION LIMITED

DATE OF ISSUE 29 May 2024 CERTIFICATE NO. 0541040

UKAS CALIBRATION 0078

Absolute Calibration Limited
14 Murrills Estate, Portchester
Hampshire, England PO16 9RD
Telephone: 023 9232 1712
www.absolutecal.co.uk

Approved Signatory

D Kingswell ☐
G Mills ☐
S Patabendi ☐
A Watson ☐

Manufacturer:	TTI
Type Number:	PFM1300
Description:	High Resolution Frequency Counter
Serial Number:	230096
Customer Reference:	513815-2
Customer Code:	PUL001
Customer:	Pullman Instruments (UK) Limited ESG House Chatsworth Road Harrogate North Yorkshire
On Behalf Of:	DJB Labcare Limited
Order Number:	258108
Instrument Receipt Date:	15 May 2024
Laboratory Temperature:	20.0 °C ± 3.0 °C
Laboratory Humidity:	50 %rh ± 25 %rh
Unit Stabilisation Time:	Twenty-Four Hours
Calibration Procedure:	CP2006
Calibration Engineer:	J. Perkis
Calibration Date:	28 May 2024
This report contains:	Recorded results with no adjustments ☑ Pre and post adjustment results ☐ Post repair results ☐ Results recorded at Customer site ☐

The following calibration results relate to the items defined above or uniquely identified in the following pages.

CERTIFICATE OF CALIBRATION

CERTIFICATE NUMBER

0541040

UKAS Accredited Calibration Laboratory No. 0078

PARAMETER TESTED

'X' Tal Accuracy

Applied Frequency	Uncertainty ± of Applied Value	Deviation from Applied Frequency
10.000 000 000 MHz	2 in 10^9	< 2 in 10^6

The internal 'X' Tal oscillator was checked by applying a standard 10 MHz signal to the input of the counter and evaluating the resultant reading.

Timebase Accuracy

Applied Input	Uncertainty ± of Applied Input	Gate Time	PFM3000 Display
10.000 00 MHz	2 in 10^9	0.3 S	10.0000 MHz
10.000 000		1	10.00001
10.000 000 0		10	10.000014

Frequency Response Channel A

PFM3000 Setting	Applied Input	Uncertainty ± of Applied Input	PFM3000 Display Display
1 s	10.000 000 Hz	2 in 10^9	10.00001 Hz
	50.000 000		50.00006
	100.000 000		100.0001
	300.000 000		300.0003
	500.000 000		500.0006
	700.000 000		700.0009
0.1 s	1.000 000 MHz	2 in 10^9	1.00000 MHz
	5.000 00		5.00000
	10.000 00		10.0000
	25.000 00		25.0002

Frequency Response Channel B

PFM3000 Setting	Applied Input	Uncertainty ± of Applied Input	PFM3000 Display Display
0.1 s 20 MHz	20.000 0 MHz	2 in 10^9	20.0000 MHz
0.1 s 100 MHz	100.000 0		100.000
0.1 s 1.3 GHz	1 300.000	2 in 10^9	1300.001 MHz

An additional uncertainty of 1 lsd for the resolution of the display should be calculated using summation in quadrature.

The uncertainties reported after measured values only, with no account being taken of the instrument's ability to maintain its calibration.

--- End ---

The reported expanded uncertainty is based on a standard uncertainty multiplied by a coverage factor k=2, providing a coverage probability of approximately 95%. The uncertainty evaluation has been carried out in accordance with UKAS requirements.