



CERTIFICATE OF ACCREDITATION

In terms of section 22(2) (b) of the Accreditation for Conformity Assessment, Calibration and Good Laboratory Practice Act, 2006 (Act 19 of 2006), read with sections 23(1), (2) and (3) of the said Act, I hereby certify that:-

CONCILIUM TECHNOLOGIES (PTY) LTD
Co. Reg. No.: 1999/013330/07
TIME AND FREQUENCY CALIBRATION LABORATORY

Accreditation Number: **CAL 108-05-00**

is a South African National Accreditation System accredited Calibration laboratory
provided that all SANAS conditions and requirements are complied with

This certificate is valid as per the scope as stated in the accompanying scope of accreditation
Annexure "A", bearing the above accreditation number for

TIME AND FREQUENCY METROLOGY

The facility is accredited in accordance with the recognised International Standard

ISO/IEC 17025:2017

The accreditation demonstrates technical competency for a defined scope and the operation of a
laboratory quality management system

While this certificate remains valid, the Accredited Facility named above is authorised to use the
relevant SANAS accreditation symbol to issue facility reports and/or certificates

Mr M Phaloane
Acting Chief Executive Officer

Effective Date: 27 February 2024
Certificate Expires: 30 January 2027



ANNEXURE A

SCOPE OF ACCREDITATION

TIME AND FREQUENCY METROLOGY

Accreditation Number: CAL 108-05-00

Permanent Address of Laboratory: Concilium Technologies (Pty) Ltd 10 Central Park 13 Esdoring Nook Centurion 0157 Postal Address: 10 Central Park 13 Esdoring Nook Highveld Technopark, Centurion 0157 Tel: (012) 678-9200 E-mail: Gavin.Schuster@concilium.co.za	Technical Signatory: Mr GD Schuster Nominated Representative: Mr GD Schuster Issue No.: 17 Date of Issue: 24 April 2024 Expiry Date: 30 January 2027
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ITEM	MEASURED QUANTITY OR TYPE OF GAUGE OR INSTRUMENT	RANGE OF MEASURED QUANTITY	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY ($\pm$)	METHOD / PROCEDURE
2	Frequency			
2.1	Standard Frequency Source			
2.1.1	Local	1 MHz; 5 MHz; 10 MHz 100 kHz	$1 \cdot 10^{-12} \cdot f$ $1 \cdot 10^{-10} \cdot f$	Calibration by phase difference measurement against reference standard or GPS
2.2	General Frequency Source			
2.2.1	General Frequency Source	2 mHz to 10 GHz 10 GHz to 40 GHz 40 GHz to 50 GHz	$1 \cdot 10^{-9} \cdot f + 100 \mu\text{Hz}$ $1 \cdot 10^{-10} \cdot f$ $1 \cdot 10^{-9} \cdot f$	Calibration by direct measurement against a reference standard or GPS disciplined oscillator
2.3	Frequency Meter			
2.3.1 2.3.2	Frequency Counter Frequency Meter	2 mHz to 10 GHz 10 GHz to 40 GHz 40 GHz to 50 GHz	$1 \cdot 10^{-9} \cdot f + 100 \mu\text{Hz}$ $1 \cdot 10^{-10} \cdot f$ $1 \cdot 10^{-9} \cdot f$	Calibration by direct measurement against a reference standard or GPS disciplined oscillator

Original Date of Accreditation: 1980

Page 1 of 2

The CMC, expressed as an expanded uncertainty of measurement, is stated as the standard uncertainty of measurement multiplied by a coverage factor $k = 2$, corresponding to a confidence level of approximately 95%

Accreditation Manager

ANNEXURE A

Accreditation No.: CAL 108-05-00

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3	Time Interval			
3.1	Period Source			
3.1.1	Period Source	10 ns to 1 s >1 s to 100 s	$3 \cdot 10^{-9} \cdot t$ $1 \cdot 10^{-6} \cdot t$	Calibration by direct measurement against a reference standard
3.2	Time Interval Source			
3.2.2	Pulse width source	0 s to 10 s	$1 \cdot 10^{-7} \cdot t + 2 \text{ ns}$	Direct measurement of the time interval using a reference standard.
3.2.3	Time difference source	0 to 10 s	$1 \cdot 10^{-7} \cdot t + 2 \text{ ns}$	Direct measurement of the time interval using a reference standard, or by comparison with a reference standard.
3.3	Period Meter			
3.3.1	Period Meter	10 ns to 1s >1s to 100 s	$3 \cdot 10^{-9} \cdot t$ $1 \cdot 10^{-6} \cdot t$	Direct generation of period using a reference standard.
3.4	Time Interval Meter			
3.4.1	Rise/Fall Time Meter	0 to 10 s	$1 \cdot 10^{-7} \cdot t + 2 \text{ ns}$	Direct measurement of the time interval using a reference standard.
3.4.2	Pulse Width Meter			
3.4.3	Time Difference Meter			
3.4.4	Delay Meter			

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Page 2 of 2

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ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

Accreditation Manager