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:-

TECHNOLOGY RESEARCH AND CALIBRATION LABORATORIES CC

Co. Reg. No.: 2001/068368/23

TRADING AS

TRAC LABORATORIES

Accreditation Number: **501**

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

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Mr T Baleni
Acting Chief Executive Officer

Effective Date: 26 July 2021
Certificate Expires: 30 May 2026

ANNEXURE A

SCOPE OF ACCREDITATION

TIME AND FREQUENCY METROLOGY

Accreditation Number: 501

Permanent Address of Laboratory:
TRAC Laboratories cc
65 2nd Avenue
Alberton
1453

Postal Address:
P O Box 145940
Bracken Gardens
1452

Tel: (011) 869-4831
Fax: (011) 869-4828
Mobile: 082 400 9659
E-mail: aubrey@traclabs.co.za

Technical Signatory: Mr AE Loxton

Nominated Representative: Mr AE Loxton

Issue No.: 11
Date of Issue: 26 July 2021
Expiry Date: 30 May 2026

ITEM	MEASURED QUANTITY OR TYPE OF GAUGE OR INSTRUMENT	RANGE OF MEASURED QUANTITY	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	METHOD / PROCEDURE
2	**Frequency**			
2.1	**Standard frequency source**			
2.1.1	Local	Specific values: 1,5 MHz and 10 MHz 100 kHz	$1 \cdot 10^{-9} \cdot f$ $1 \cdot 10^{-9} \cdot f$	Calibration by phase difference measurement against a reference standard or GPS (For a continuous observation time of 10^{-5} seconds)
2.2	**General frequency source**			
2.2.1	General frequency source	Other values: 10 Hz to 1,0 GHz	$5 \cdot 10^{-9} \cdot f$ + 50 µHz	Calibration by direct measurement against a reference standard or GPS disciplined oscillator.
3	**Time Interval**			
3.2	**Time Interval Source**			
3.2.3	Time difference source	100 ns to 100 s	$1 \cdot 10^{-8} \cdot t$ + 2 ns	Direct measurement of the time interval using a reference standard or by comparison with a reference standard.

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

Accreditation No.: 501
Date of Issue: 26 July 2021
Expiry Date: 30 May 2026

ITEM	MEASURED QUANTITY OR TYPE OF GAUGE OR INSTRUMENT	RANGE OF MEASURED QUANTITY	CALIBRATION AND MEASUREMENT CAPABILITY EXPRESSED AS AN UNCERTAINTY (±)	METHOD / PROCEDURE
4	**Oscilloscopes**			
4.1	Vertical deflection Timebase accuracy Bandwidth Rise time	(<250 MHz) (>1.4 ns)	1 % 1 % 3 % 4 %	Calibration as per EURAMET cg -7 calibration of oscilloscopes

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%

ISSUED BY THE SOUTH AFRICAN NATIONAL ACCREDITATION SYSTEM

Accreditation Manager