Measurement Standards Laboratory of New Zealand

(A fictitious) report on the calibration of an type-N male open, serial number: 54673

Report No. Electrical/2018/Sxxx, 19 February 2018

ISSUED BY:

Measurement Standards Laboratory of New Zealand.

Established under the Measurement Standards Act 1992 and the Measurement Standards Regulations 2019 to provide uniform measurement of physical quantities throughout New Zealand.

All results quoted in this report are directly traceable to the national measurement standards held by the Measurement Standards Laboratory of New Zealand (MSL). MSL is New Zealand's national metrology institute and operates within Callaghan Innovation.

ACCREDITED IANZ CALIBRATION LABORATORY

Accreditation Number 1

All measurements reported herein, unless otherwise noted, have been performed in accordance with the laboratory's scope of accreditation. *For details see www.ianz.govt.nz*

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A business of Callaghan Innovation

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Description

The component is from a Keysight vector network analyser calibration kit model 85032F.

Identification

The component serial number is 54673.

Client

Airways Corporation of New Zealand Ltd, 50 Tacy St, 6022 Kilbirnie, Wellington.

Date of Calibration

The measurements were performed on the 7^{th} of February 2018.

Conditions

Ambient temperature was maintained within $\pm 1\,^{\circ}\mathrm{C}$ of $23\,^{\circ}\mathrm{C}$.

Method

Measurements of the voltage reflection coefficient were made according to procedure MSLT.E.063.002.

Results

Results are reported in polar coordinates (magnitude, ρ, and phase, ϕ), using a linear scale for magnitude and units of degrees for phase.

Open (male), SN 54673

frequency (MHz)	magnitude (linear)		phase (/degree)	
	ρ	$U(\rho)$	ϕ	$U(\phi)$
45	0.9998	0.0023†	−1.46	0.13
50	0.9998	0.0023†	−1.62	0.13
100	0.9999	0.0023†	−3.27	0.13
300	0.9998	0.0025	−9.80	0.14
500	0.9997	0.0026	−16.34	0.15
1000	1.0000	0.0032	−32.72	0.18
2000	0.9994	0.0054	−65.67	0.31
3000	1.000	0.011	−98.66	0.62
4000	0.999	0.013	−131.74	0.78
5000	0.999	0.016	−164.77	0.90
6000	0.998	0.017	162.15	0.99
7000	0.997	0.018	129.0	1.1
8000	0.997	0.018	95.9	1.1
9000	0.996	0.018	62.7	1.1

Uncertainty

A coverage factor $k = 1.96$ was used to calculate the expanded uncertainties $U(\cdot)$ at a level of confidence of approximately 95%. The number of degrees of freedom associated with each measurement result was large enough to justify this coverage factor.

Some of the expanded uncertainty values reported fall outside MSL's current IANZ scope of accreditation. These values are indicated by a †. The least expanded uncertainty for a magnitude measurement close to unity in the MSL scope is currently 0.0024.

Note: For information about uncertainty terminology, see: BIPM, IEC, IFCC, ISO, IUPAC, IUPAP and OIML, *"Evaluation of measurement data—Guide to the expression of uncertainty*

in measurement", BIPM Joint Committee for Guides in Metrology, Paris, Sèvres, edition 1, JCGM 100:2008, 2008. A PDF version is available on-line:

http://www.bipm.org/utils/common/documents/jcgm/JCGM_100_2008_E.pdf

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