Maury Calibration Services

DATA SHEET / 2Z-070

Maury Microwave

// JANUARY 2023

Maury Calibration Services

What is Calibration?

Calibration is the process in which a set of operations establish the relationship between values indicated by a measuring system and the known values of the corresponding standard. Since measurement accuracy and traceability depends on this relationship, any measuring equipment or measurement standards used in conjunction with measuring equipment needs to be calibrated to validate the known performance of the standards over time.

How Frequently Should I Calibrate?

Mechanical VNA calibration standards are handled one-by-one in a repetitive manner over days, weeks and months. This results in a lot of wear and tear on precision calibration standards. Any improper use of the standards also result in degradation of performance and hence deviation from the known specifications. It is critical for the standards to be within its known performance specifications to guarantee accurate VNA calibrations. A calibration cycle of 12 months is recommended.

Standard Calibration

Maury Microwave verifies that all standards meet critical visual, mechanical and/or electrical specifications, as listed in this document. A Certificate of Conformance that guarantees the standards have been validated per internal processes, which comply with ANSI Z540-1, is provided.

ISO/IEC 17025 Calibration

Per the International Organization for Standardization (ISO), ISO/IEC 17025 enables laboratories to demonstrate that they operate competently and generate valid results, thereby promoting confidence in their work both nationally and around the world. ISO/IEC 17025 covers staff qualifications and skills, availability and use of equipment, calibration certificate content, measurement traceability, and uncertainty analysis. Reporting on measurement uncertainty is an integral part of ISO/IEC 17025 and instills confidence in your measurements. More information on ISO/IEC 17025 can be found at www.iso.org

ANSI Calibration

Maury Microwave verifies that all standards meet critical visual, mechanical and/or electrical specifications, as listed in this document. A complete set of records that describe the mechanical and/or electrical performance of the standards along with a Calibration Certificate is provided. The Calibration Certificate indicates that standards have been calibrated to our published specifications with NIST traceability and ANSI Z540-1 compliance.

Coaxial Metrology Interface Calibration

Cal Kits Available

1.85mm*, 2.4mm, 2.92mm, 3.5mm, 7mm, Type N

** ISO/IEC 17025 calibration not available for 1.85mm standards*

Calibration Type	Visual Inspection	Mechanical Performance Evaluation	Electrical Performance Evaluation	Document
Standard Calibration (-CC)	Mating surfaces inspected; standard/ tool inspected for visible damage	Validate mechanical specifications; provide out-of-tolerance notifcation	Validate electrical specifications; provide out-of-tolerance notifcation	Certifcate of conformance *download sample*
ANSI Z540 Calibration (-AC)		Validate mechanical specifications; provide out-of-tolerance notifcation; provide recorded mechanical performance (as received, as shipped)	Validate electrical specifications; provide out-of-tolerance notifcation; provide recorded electrical performance (as received, as shipped)	Certifcate of conformance *download sample*
ISO/IEC 17025 Calibration (-UC)*			Validate electrical specifications; provide out-of-tolerance notifcation; provide recorded electrical performance (as received, as shipped) with measurement uncertainty	Calibration certifcate with report (including electrical performance uncertainties) *download sample*

** ISO/IEC 17025 calibration is not available for sliding loads and airlines*

Calibration Standard Tool	Visual Inspection	Mechanical Evaluation	Electrical Evaluation
Short	Mating surfaces inspected for high spots, plating wear and damage; concentricity inspected	Pin depth	S11 phase vs frequency
Open			
Fixed Load			VSWR vs frequency
Sliding Load	Mating surfaces inspected for high spots, plating wear and damage		Effective return loss vs frequency
Adapter	Mating surfaces inspected for high spots, plating wear and damage; concentricity inspected		VSWR vs frequency
Airline	Mating surfaces inspected for high spots, plating wear and damage	Pin depth; center and out conductor diameters	N/A
Gage	Damage on mating surfaces and dial indicator	Flatness and depth of master; gage accuracy and repeatability	
Torque Wrench	Damage on wrench opening	Torque value	

Coaxial Dielectric Interface Calibration

Cal Kits Available

BNC, TNC.

Calibration Type	Visual Inspection	Mechanical Performance Evaluation	Electrical Performance Evaluation	Document
Standard Calibration (-CC)	Mating surfaces inspected; standard/tool inspected for visible damage	Validate mechanical specifications; provide out-of-tolerance notifcation	Validate electrical specifications; provide out-of-tolerance notifcation	Certifcate of conformance *download sample*
ANSI Z540 Calibration (-AC)		Validate mechanical specifications; provide out-of-tolerance notifcation; provide recorded mechanical performance (as received, as shipped)	Validate electrical specifications; provide out-of-tolerance notifcation; provide recorded electrical performance (as received, as shipped)	Certifcate of conformance *download sample*

Calibration Standard Tool	Visual Inspection	Mechanical Evaluation	Electrical Evaluation
Short	Mating surfaces inspected for high spots, plating wear and damage; concentricity inspected	Pin depth	S11 phase vs frequency
Open			
Fixed Load			VSWR vs frequency
Sliding Load	Mating surfaces inspected for high spots, plating wear and damage		Effective return loss vs frequency
Adapter	Mating surfaces inspected for high spots, plating wear and damage; concentricity inspected		VSWR vs frequency
Gage	Damage on mating surfaces and dial indicator	Flatness and depth of master; gage accuracy and repeatability	N/A
Torque Wrench	Damage on wrench opening	Torque value	

Waveguide Interface Calibration

Cal Kits Available

WR284, WR229, WR187, WR159, WR137, WR112, WR90.
WR75, WR62, WR51, WR42, WR34, WR28, WR22.

Calibration Type	Visual Inspection	Mechanical Performance Evaluation	Electrical Performance Evaluation	Document
Standard Calibration (-CC)	Mating surfaces inspected; standard/ tool inspected for visible damage	Validate mechanical specifications; provide out-of-tolerance notifcation	Validate electrical specifications; provide out-of-tolerance notifcation	Certifcate of conformance *download sample*
ANSI Z540 Calibration (-AC)		Validate mechanical specifications; provide out-of-tolerance notifcation; provide recorded mechanical performance (as received, as shipped)	Validate electrical specifications; provide out-of-tolerance notifcation; provide recorded electrical performance (as received, as shipped)	Certifcate of conformance *download sample*

Calibration Standard Tool	Visual Inspection	Mechanical Evaluation	Electrical Evaluation
Fixed Flush Short	Mating surfaces inspected for high spots, plating wear and damage	Flatness	N/A
Fixed Offset Short		Depth	
Fixed Load		N/A	VSWR vs frequency
Sliding Load		Waveguide opening dimensions; indexing pin positions and diameters	Element VSWR vs frequency
Shim		Waveguide opening dimensions; indexing pin positions and diameters; thickness	N/A
Straight Section		N/A	VSWR vs frequency
Adapter (coaxial-to-waveguide)	Mating surfaces inspected for high spots, plating wear and damage; concentricity inspected (coaxial section)	Pin depth (coaxial section)	

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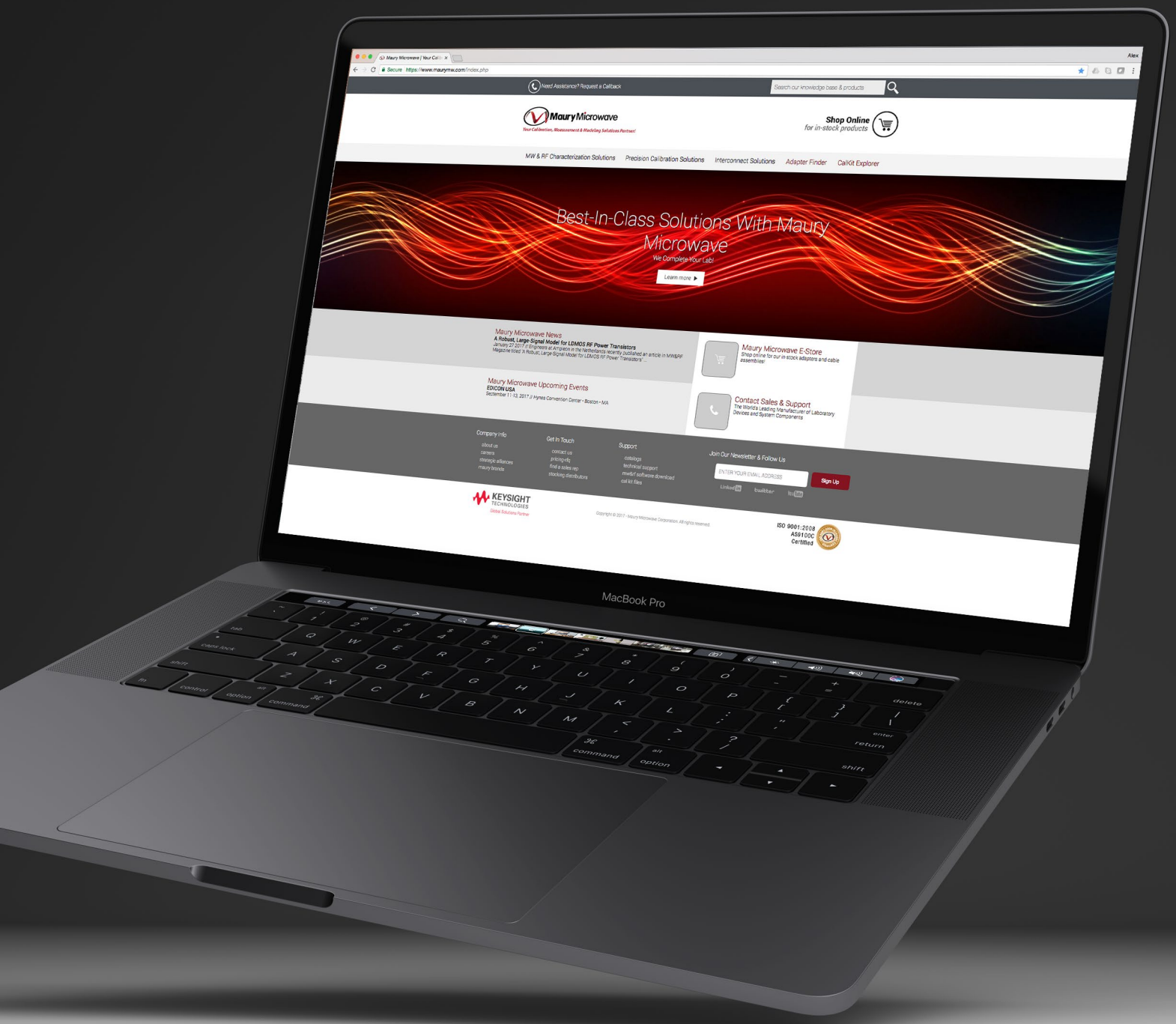

www.maurymw.com

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