SCOPE OF ACCREDITATION TO ISO/IEC 17025:2017
& ANSI/NCSL Z540-1-1994

AUDIO PRECISION CALIBRATION SERVICES
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CALIBRATION

Valid To: January 31, 2027 Certificate Number: 2527.01

In recognition of the successful completion of the A2LA evaluation process (including an assessment of the organization's compliance with R205 – A2LA's Calibration Program Requirements), accreditation is granted to this laboratory to perform the following calibrations[1, 4]:

I. Electrical – DC/Low Frequency

Parameter/Equipment	Range	CMC[2, 3, 6] (±)	Comments
DC Voltage – Measure			Agilent 3458A
	(0 to 32.999) mV	2.6 µV	100 mV range
	(33.000 to 77.999) mV	78 µV/V	
	(78.000 to 119.999) mV	38 µV/V	
	(120.00 to 329.99) mV	24 µV/V	1 V range
	(0.330 00 to 1.199 99) V	14 µV/V	
	(1.2000 to 11.9999) V	12 µV/V	10 V range
	(12.000 to 119.999) V	17 µV/V	100 V range
	(120.00 to 329.99) V	18 µV/V	1000 V range

Parameter/Equipment	Range	CMC[2, 3, 6] (±)	Comments
DC Voltage – Generate			Fluke 5520A/5522A
	(0 to 32.9999) mV	2.8 µV	Rsource ≈ 50 Ω
	(33.000 to 77.999) mV	84 µV/V	Rsource ≈ 50 Ω
	(78.000 to 119.999) mV	40 µV/V	Rsource ≈ 50 Ω
	(120.000 to 329.999) mV	30 µV/V	Rsource ≈ 50 Ω
	(330.00 to 779.99) mV	15 µV/V	
	(0.780 00 to 3.299 99) V	11 µV/V	
	(3.3000 to 7.7999) V	14 µV/V	
	(7.8000 to 32.9999) V	11 µV/V	
	(33.000 to 77.999) V	18 µV/V	
	(78.000 to 329.999) V	16 µV/V	
Resistance – Measure			Agilent 3458A
	(0 to 11.9999) Ω	0.30 mΩ	10 Ω range
	(12.000 to 32.9999) Ω	88 µΩ/Ω	100 Ω range
	(33.000 to 119.999) Ω	40 µΩ/Ω	
	(120.00 to 1199.99) Ω	21 µΩ/Ω	1 kΩ range
	(1.2000 to 11.9999) kΩ	21 µΩ/Ω	10 kΩ range
	(12.000 to 119.999) kΩ	21 µΩ/Ω	100 kΩ range
	(120.00 to 1100.00) kΩ	43 µΩ/Ω	1 MΩ range

Parameter/Range	Frequency	CMC[2, 3, 6] (±)	Comments
AC Voltage – Measure			Agilent 3458A
(12.000 to 32.999) mV	1 kHz	0.032 %	100 mV range, SSM mode
(33.000 to 119.999) mV	1 kHz	0.023 %	
(120.00 to 329.99) mV	1 kHz	0.030 %	1 V range, SSM mode
(0.330 00 to 1.199 99) V	1 kHz	0.019 %	
(1.2000 to 3.2999) V	1 kHz	0.030 %	10 V range, SSM mode
(3.3000 to 11.9999) V	1 kHz	0.019 %	
(12.000 to 32.999) V	1 kHz	0.045 %	100 V range, SSM mode
(33.000 to 119.999) V	1 kHz	0.035 %	
(120.00 to 329.99) V	1 kHz	0.059 %	1000 V range, SSM mode
(0.600 00 to 1.199 99) V	100 Hz to 20 kHz	0.053 %	1 V range, ANA mode
(1.2000 to 3.2000) V	100 Hz to 20 kHz	0.13 %	10 V range, ANA mode
AC Voltage – Generate			Fluke 5520A/5522A
(1.650 to 47.999) mV	1 kHz	0.035 %	Test sources <48 mV are obtained using a 200:1 custom attenuator driven by Fluke 5520A/5522A set for 200x the desired voltage, Rsource ≈ 50 Ω
(48.000 to 77.999) mV	1 kHz	0.028 %	Rsource ≈ 50 Ω
(78.000 to 329.999) mV	1 kHz	0.020 %	Rsource ≈ 50 Ω
(330.00 to 779.99) mV	1 kHz	0.027 %	
(0.780 00 to 3.2999) V	1 kHz	0.019 %	
(3.3000 to 7.7999) V	1 kHz	0.027 %	
(7.8000 to 32.9999) V	1 kHz	0.019 %	
(33.000 to 329.999) V	1 kHz	0.021 %	

Parameter/Range	Frequency	CMC[2, 3, 6] (±)	Comments
AC Flatness – Measure (1 kHz Reference)			Agilent 3458A
(100 to 115) mV	(5 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.0017 dB 0.0014 dB 0.0019 dB 0.0035 dB 0.0070 dB 0.026 dB	100 mV range, SSM mode
(1.00 to 1.15) V	(5 to 40) Hz 40 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.0015 dB 0.0013 dB 0.0019 dB 0.0035 dB 0.0070 dB 0.026 dB	1 V range, SSM mode
AC Flatness – Generate (1 kHz Reference)			Fluke 5520A/5522A
(100 to 320) mV	(10 to 45) Hz 45 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.0043 dB 0.0022 dB 0.0023 dB 0.0034 dB 0.0078 dB 0.020 dB	Rsource ≈ 50 Ω Rsource ≈ 50 Ω Rsource ≈ 50 Ω Rsource ≈ 50 Ω Rsource ≈ 50 Ω Rsource ≈ 50 Ω
(1.00 to 3.20) V	(10 to 45) Hz 45 Hz to 1 kHz (1 to 20) kHz (20 to 50) kHz (50 to 100) kHz (100 to 300) kHz	0.0028 dB 0.0020 dB 0.0022 dB 0.0029 dB 0.0058 dB 0.020 dB	

II. Time & Frequency

Parameter/Equipment	Range	CMC[2, 5, 6] (±)	Comments
Frequency – Measure	1 Hz to 10 MHz	0.18 µHz/Hz	Agilent 53131 w/ opt 010 timebase

[1] This laboratory offers commercial calibration service for selected Audio Precision products only.

[2] Calibration and Measurement Capability Uncertainty (CMC) is the smallest uncertainty of measurement that a laboratory can achieve within its scope of accreditation when performing more or less routine calibrations of nearly ideal measurement standards or nearly ideal measuring equipment. CMCs represent expanded uncertainties expressed at approximately the 95 % level of confidence, usually using a coverage factor of $k = 2$. The Statistical analysis is in accordance with the Guide to the Expression of Uncertainty in Measurement (GUM). The actual measurement uncertainty of a specific calibration performed by the laboratory may be greater than the CMC due to the behavior of the customer's device and to influences from the circumstances of the specific calibration.

[3] The stated measured values are determined using the indicated instrument (see Comments). This capability is suitable for the calibration of the devices intended to measure or generate the measured value in the ranges indicated. CMCs are expressed as either a specific value that covers the full range or as a percent or fraction of the reading plus a fixed floor specification.

[4] This scope meets A2LA's *P112 Flexible Scope Policy.*

[5] The type of instrument or material being calibrated is defined by the parameter. This indicates the laboratory is capable of calibrating instruments that measure or generate the values in the ranges indicated for the listed measurement parameter.

[6] CMC components that can be reasonably attributed to the unit under test have not been utilized in the calculation of the CMC value for this measurement parameter.

Accredited Laboratory

A2LA has accredited

AUDIO PRECISION CALIBRATION SERVICES

Beaverton, OR

for technical competence in the field of

Calibration

This laboratory is accredited in accordance with the recognized International Standard ISO/IEC 17025:2017 *General requirements for the competence of testing and calibration laboratories*. This laboratory also meets the requirements of ANSI/NCSL Z540-1-1994 and R205 – Specific Requirements: Calibration Laboratory Accreditation Program. This accreditation demonstrates technical competence for a defined scope and the operation of a laboratory quality management system (*refer to joint ISO-ILAC-IAF Communiqué dated April 2017*).

Presented this 26th day of December 2024.

Mr. Trace McInturff, Vice President, Accreditation Services
For the Accreditation Council
Certificate Number 2527.01
Valid to January 31, 2027

For the calibrations to which this accreditation applies, please refer to the laboratory's Calibration Scope of Accreditation.