

Calibration Procedure Documentation – Keysight Instruments

1. Purpose

This document provides a step-by-step outline of the calibration and verification procedures performed on the following Keysight laboratory instruments: - EDU34450A Digital Multimeter (5½ Digit) - DSOX1202G Oscilloscope (InfiniiVision 1200 X-Series) - EDU3212A / EDU33210 Series Function/Arbitrary Waveform Generator - EDU36311A Triple Output DC Power Supply The procedures ensure each instrument meets operational and accuracy specifications under controlled environmental conditions.

2. Environmental & Preparation Requirements

- Warm-Up Period: Minimum of 30 minutes prior to testing. - Connections: All test leads, probes, and cables were disconnected before testing. -Outputs: All outputs were set to OFF before initiating calibration or self-test procedures.

3. Calibration Methodology

3.1 EDU34450A Digital Multimeter

- The instrument was powered on and allowed to stabilize for 30 minutes. - All inputs were left open-circuited to ensure no external signals interfered. - Calibration was initiated via the front panel by selecting Utility → Instr. Setup → Self Test. - The self-test sequence verified internal reference voltages, measurement circuitry, and display functionality. - A PASS message confirmed compliance; any error codes were retrieved from the error log for analysis.

3.2 DSOX1202G Oscilloscope

- The oscilloscope was powered on and warmed for 30 minutes. - Hardware self-test was initiated via Utility → Service → Diagnostics → Hardware Self Test, verifying acquisition boards, trigger systems, and display operation. - A front panel diagnostic test was optionally run to confirm switch and rotary encoder operation. - For performance calibration, Utility → Service → Start User Cal was executed after all probes were disconnected. The oscilloscope adjusted its internal gain and offset references based on internal standards. - PASS results indicated all subsystems were within tolerance; failures required detailed error review.

3.3 EDU3212A / EDU33210 Series Function / AWG

- The function generator was powered on and allowed to reach thermal stability. - Self-test was performed via System → Instr. Setup → Self Test, verifying waveform generation channels, output amplifiers, and clock systems. - Any error codes were reviewed through Help → Error View. - If real-time clock errors (code 601) appeared, the CR2032 battery was replaced as part of preventative maintenance.

3.4 EDU36311A Triple Output DC Power Supply

- The unit was powered on with all outputs disabled. - Internal self-test was started using Utilities → Instr. Setup → Self Test, checking voltage regulation loops, current limiting circuits, and output channel isolation. - No error messages confirmed correct operation; failures were examined via the Help → Error log. - Optional calibration access was available via Instr. Setup → State Login, entering passcode EDU36311A. - After testing, date/time, beep tone, and display settings were verified and adjusted in User Settings.

4. Verification

PASS results on each instrument indicate that internal diagnostics confirmed operational performance within factory specifications. Failures, if present, were documented along with error codes and forwarded for service evaluation.

5. Maintenance Recommendations

- Replace CR2032 batteries on schedule or upon RTC error detection. - Keep outputs disabled during all calibration and self-test operations. - Contact Keysight technical support for any repeatable or unexplained failures.

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